ADDENDUM #3

Rye City School District

Osborn Elementary School

10 Osborn Road
Rye, NY 10580
SED Number: #66-18-00-01-0-001-022 & #66-18-00-01-0-001-024

Midland Elementary School

312 Midland Avenue
Rye, NY 10580
SED Number: #66-18-00-01-0-003-024 & #66-18-00-01-0-003-026

Issued: 2021-08-23

PROJECT TEAM

Architects
Geddis Architects
71 Old Post Road, Suite 101
P.O. Box 1020
Southport, CT 06890
Phone: (203) 256-8700

Fielding International
259 Water Street, Suite 1L
Warren, RI 02885
Phone: (401) 289-2789

Construction Manager
Savin Engineers, PC
3 Campus Drive
Pleasantville, NY 10570
Phone: (914) 769-3200

Structural Engineer
Odeh Engineers
1223 Mineral Spring Ave
North Providence, RI 02904
Phone: (401) 724-1771

Civil Engineer
Weston & Sampson, PE, LS, LA, PC
1 Winners Circle, Suite 130
Albany, NY 12205
Phone: (516) 463-4400

MEP Engineer
Barile Gallagher & Associates Consulting Engineers
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
Phone: (914) 328-6060

Acoustic Consultant
DP Design
12 Cold Spring Street
Providence, RI
401-861-3218

AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776
978-443-7871

Environmental
Quest Environmental Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
845-298-6031

The work shall be carried out in accordance with the following supplemental instructions and in accordance with the Contract Documents.

DRAWINGS:

OSBORN:

(no updates included in this addendum)

MIDLAND:

1. C3-103 – UTILITY PLAN
    a. Enlarge and shift the Underground Stormwater Management Gallery (SW-1) as shown on plan.
    b. Adjust location of Diversion Manhole (DM-1) as shown on plan.
    c. Shorten, increase slope on storm pipe between DM-1 and CBX-1 as shown on plan.

2. C3-502 – CONSTRUCTION DETAILS – DETAIL 6: DIVERSION MANHOLE
    a. Weir elevation changed to 18.5’
    b. Plan view adjustments, showing modified weir and pipe locations, to match the revised Utility Plan – C3-103.

SPECIFICATIONS:

VOLUME 1:

Specification Section 02 21 13 Instructions to Bidders paragraph 7. Bid Security **change the bid bond percentage from 5% to 10%.**

VOLUME 2:

Specification Section 09 72 13 Vinyl Wallcovering: **not used**

VOLUME 3:

Specification Section 09 72 13 Vinyl Wallcovering: **not used**

CLARIFICATIONS:

1. **Asbestos Reports:** Summary letter of asbestos testing and results report included in this addendum for bidders reference.

2. **Storm Water Protection Plan:** In accordance with the New York State SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-20-001, this project required that a **Stormwater Pollution Prevention Plan** (**SWPPP**) be prepared. Attached, is a copy of the **SWPPP** prepared for each school. All contractors and sub-contractors involved with earth-disturbing activities should read through the document to understand its content, including the stormwater management monitoring and reporting that is required.

RFIs:

1. **Question:** Can you please clarify what trade/contract is responsible for installing the hearing loop.
   Answer: The hearing loop wiring is to be furnished and installed by the Electrical Contract including the cutting of the slab to place the wires in the slab and patching the slab.

2. **Question:** Addendum 1 states that the magnetic wall covering is by owner and vinyl wall covering is by GC however we do not see any vinyl wall covering called out on finish plan, schedules. Please advise where this product is being used if any.
   Answer: Correct, there is no vinyl wall covering in these projects.

3. **Question:** Plans show two different AVB types at these details, are both required? If both are required at what point on wall should AVB material change? Please provide a detail showing this. Thank you.
   - SELF ADHERED AVB w/ SURFACE LAYER OF METALLIC ALUMINUM FILM EQUAL TO HENRY BLUESKIN METAL CLAD ON 5/8" EXTERIOR GRADE GYMSUM SHEATHING
   - SELF ADHERED AVB EQUAL TO HENRY BLUESKIN ON 5/8" EXTERIOR GRADE GYPSUM SHEATHING

   Answer: Specified type is Self-Adhered AVB equal to Henry Blueskin. Details will be updated in the next addendum to reflect this.

QuES&T

Quality Environmental Solutions & Technologies, Inc.

August 23, 2021

University of the State of New York
The State Education Department
Bureau of Facilities Planning
Room 1060
Education Building Annex
Albany, New York 12234

Attn: Sigrid Coons
Project Manager

Re: Rye City School District

Osborn Elementary School
SED# 66-18-00-01-0-001-024
Midland Elementary School
SED# 66-14-00-01-0-003-026

Dear Ms. Coons,

We have been retained by Rye City School District to serve as the Asbestos Consultant for the above referenced project. We are working on this project in conjunction with the Engineer of Record, Savin Engineers, P.C.

In accordance with the requirements set forth for the *Application for Building Permit and Examination and Approval of Final Plans and Specifications*, this letter is to inform you that the proposed work involved at ***Osborn Elementary School (SED# 66-18-00-01-0-001-024) & Midland Elementary School (SED# 66-14-00-01-0-003-026)*** will not involve known asbestos containing building materials (ACBM), as evidenced by bulk or destruct testing.

Thank you for your attention to this matter.

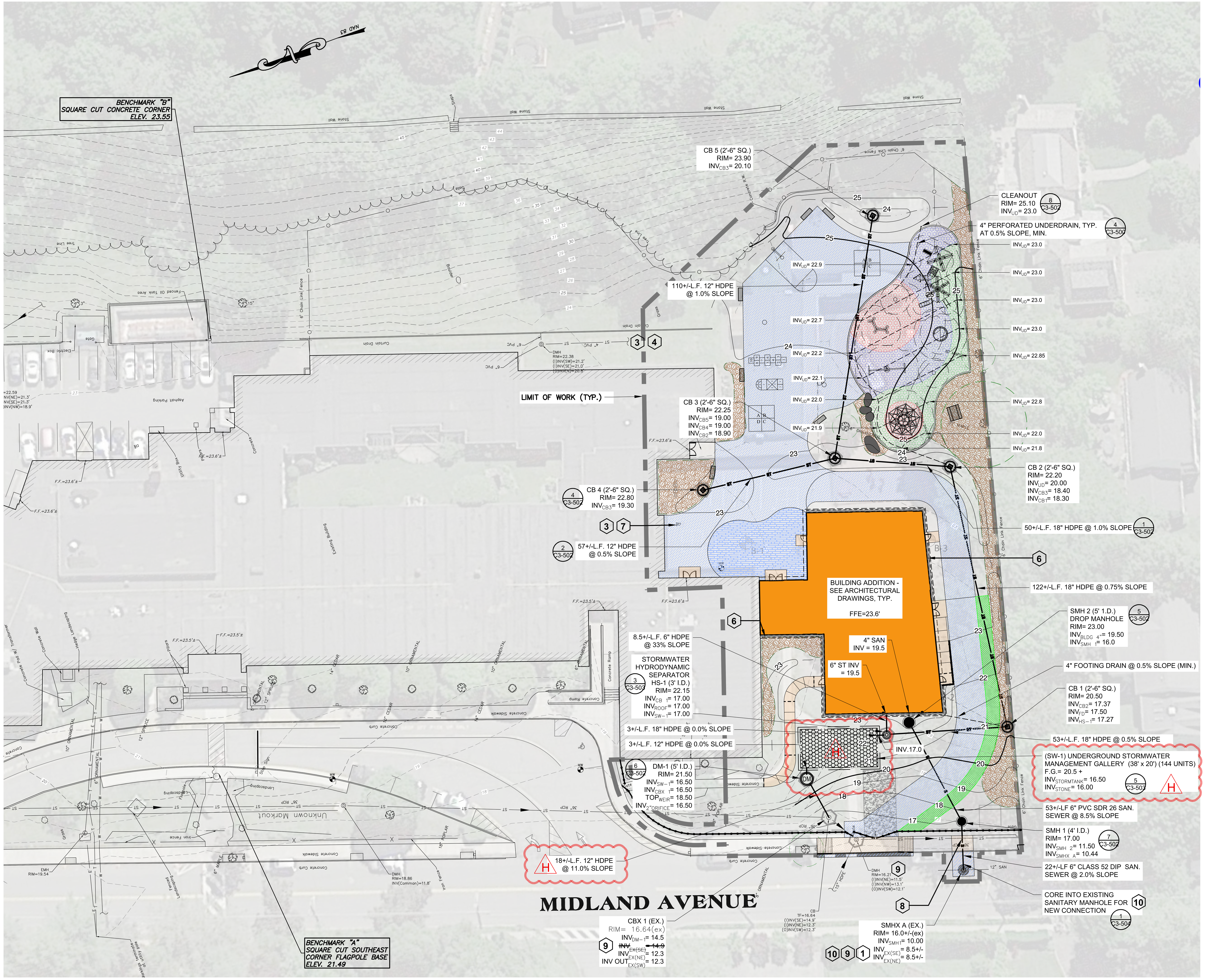
Sincerely,

Greg Dean
Manager of Field Services
NYS/AHERA Inspector/Project Designer
Cert. #AH 10-10947
NYS Mold Assessor
Cert# MA01521
Niton-Certified XRF Technician
Certified Aerial Lift, Counterbalanced Forklift
& Rough Terrain Telehandler Trainer

1376 Route 9, Wappingers Falls, NY 12590 Phone (845) 298-6031 Fax (845) 298-6251
NYS MWBD WBE Cert # 49952 NYSUCP DBE Certified NJUCP DBE Certified www.Qualityenv.com

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL SURVEY EXISTING SANITARY SEWER PIPE SIZE, INVERT, AND MATERIAL AND SHARE WITH OWNER'S REPRESENTATIVE & ENGINEER – FOR VERIFICATION BEFORE CONNECTION.
2. ANY REFERENCE TO THE CONTRACTOR ON THE CIVIL DRAWINGS REFERS TO THE GENERAL CONTRACTOR. THIS IS TYPICAL FOR ALL CIVIL DRAWINGS.
3. PRIOR TO COMMENCING ANY EXCAVATION WORK, THE CONTRACTOR SHALL CONTACT DIG SAFE (1–800–962–7962) TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES AND SHALL NOTIFY APPROPRIATE GOVERNING BODIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL HIRE A PRIVATE UTILITY SURVEY COMPANY TO MARK–OUT ALL SUBSURFACE UTILITIES. NO COMPENSATION FOR UTILITY REPAIRS DUE TO CONTRACTORS FAILURE TO PROPERLY LOCATE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE LOCATION AND INVERT INFORMATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM PLANS SO NECESSARY ADJUSTMENTS CAN BE MADE. FAILURE TO VERIFY THE EXISTING UTILITIES SHALL BE AT THE CONTRACTORS RISK AND COST.
5. INFORMATION AND SHOP DRAWINGS FOR MATERIALS THE CONTRACTOR INTENDS TO UTILIZE IN THE CONSTRUCTION OF ALL UTILITY SYSTEMS, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE PLACEMENT OF ANY MATERIAL ORDERS. FAILURE TO DO SO SHALL BE AT THE CONTRACTORS RISK.
6. PROVIDE FINISHED GRADE STABILIZATION/ARMOR BELOW ROOF SCUPPER LOCATIONS.
7. PROTECT EXISTING HANDHOLD STRUCTURE AND UNDERGROUND UTILITY.
8. INSTALL PROPOSED SANITARY SEWER BELOW EXISTING 36" STORM SEWER. (EXISTING 36" STORM INVERT = 12.1+/–). PROPOSED SANITARY SEWER INVERT AT STORM CROSSING = 10.3+/–.
9. ADJUST STRUCTURE FRAMES/GRATES/COVERS AS NEEDED TO BE FLUSH WITH FINISHED PROPOSED GRADES.
10. CORE INTO EXISTING SANITARY MANHOLE ON MIDLAND AVENUE FOR CONNECTION OF NEW DIP SANITARY SEWER FROM BUILDING ADDITION. MAKE AN APPROVED, WATERTIGHT CONNECTION, COMPLYING WITH ALL CITY AND COUNTY REQUIREMENTS (COUNTY RIGHT–OF–WAY).



1 **UTILITY PLAN**
SCALE: BAR SCALE

0' 5' 10' 20' 40'
SCALE: 1" = 20'-0"

Revision Schedule

No.	Description	Date
H	ADDENDUM #3	8/23/21

Geddis Architects
Architecture. Planning. Interiors
71 Old Post Road
P.O. Box 1020
Southport, CT 06890
(203) 256-8700

Fielding International
Transforming Education by Design
259 Water Street Suite 1L
Warren , RI 02885 USA
+1 401-289-2789

Construction Manager
SAVIN ENGINEERS, P.C.
3 Campus Drive
Pleasantville, NY 10570
914-769-3200

Structural Engineer
ODEH ENGINEERS
1223 Mineral Spring Ave
North Providence, RI 02904
401-724-1771

Civil Engineer
WESTON & SAMPSON
1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

MEP Engineer
BARILE GALLAGHER & ASSOCIATES CONSULTING ENGINEERS
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776-3027
978-443-7871

SED #: 6618-0001-0003-026

PROJECT
Rye City School District
555 Theodore Fremd Ave, Rye, NY 10580

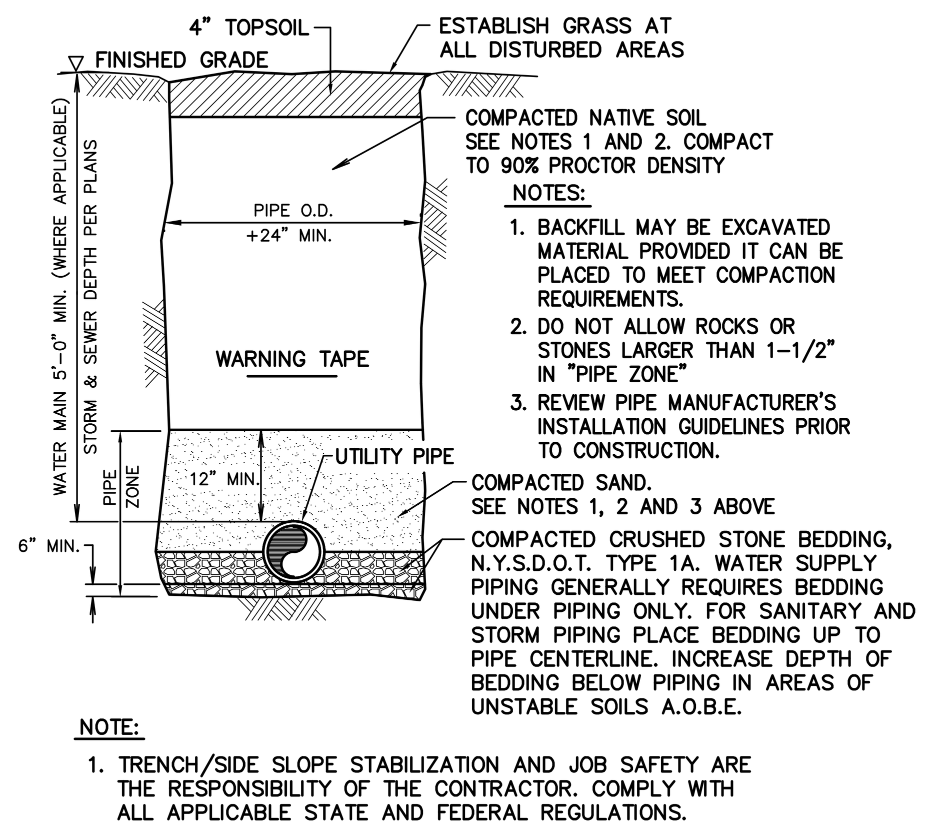
Midland Elementary School

312 Midland Avenue, Rye, New York 10580

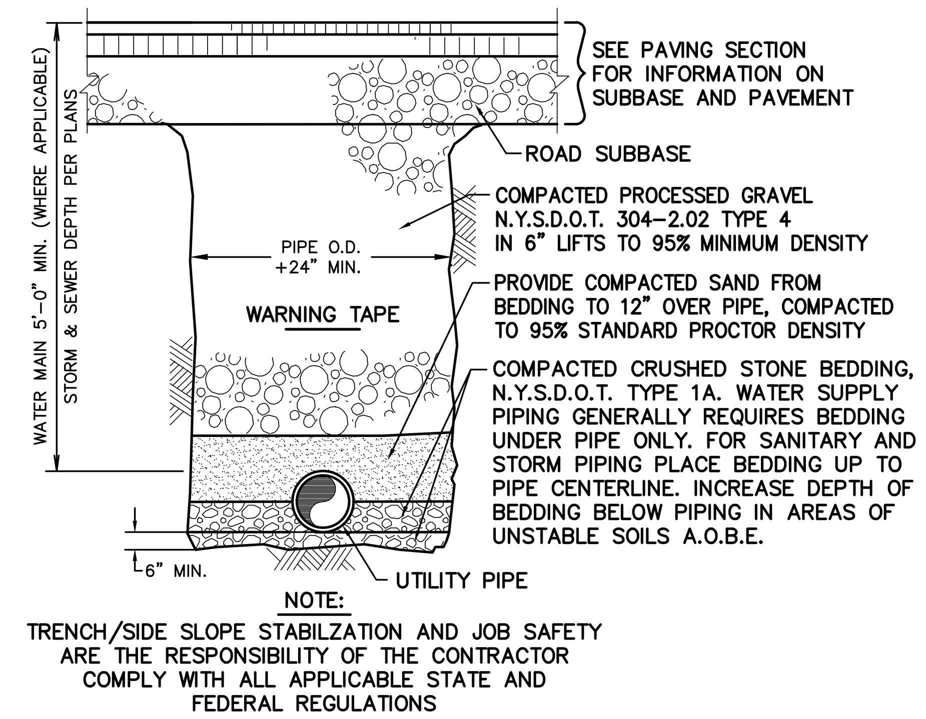
UTILITY PLAN

ISSUED FOR BID

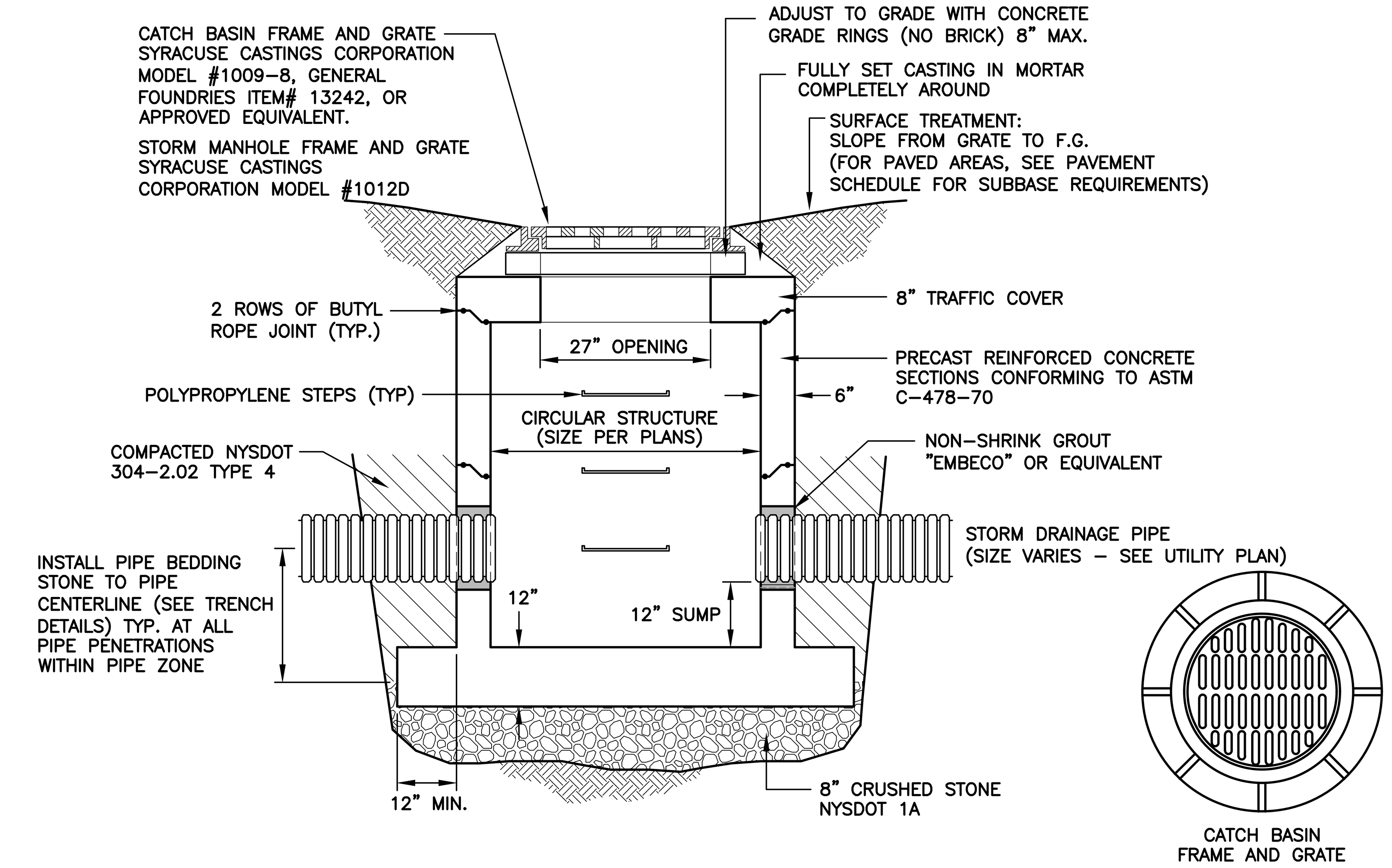
SEAL & SIGNATURE	DATE: 08/09/20
	PROJECT No:
	DRAWING BY: KSK
	CHK BY: JFB
	DWG No: C3-103



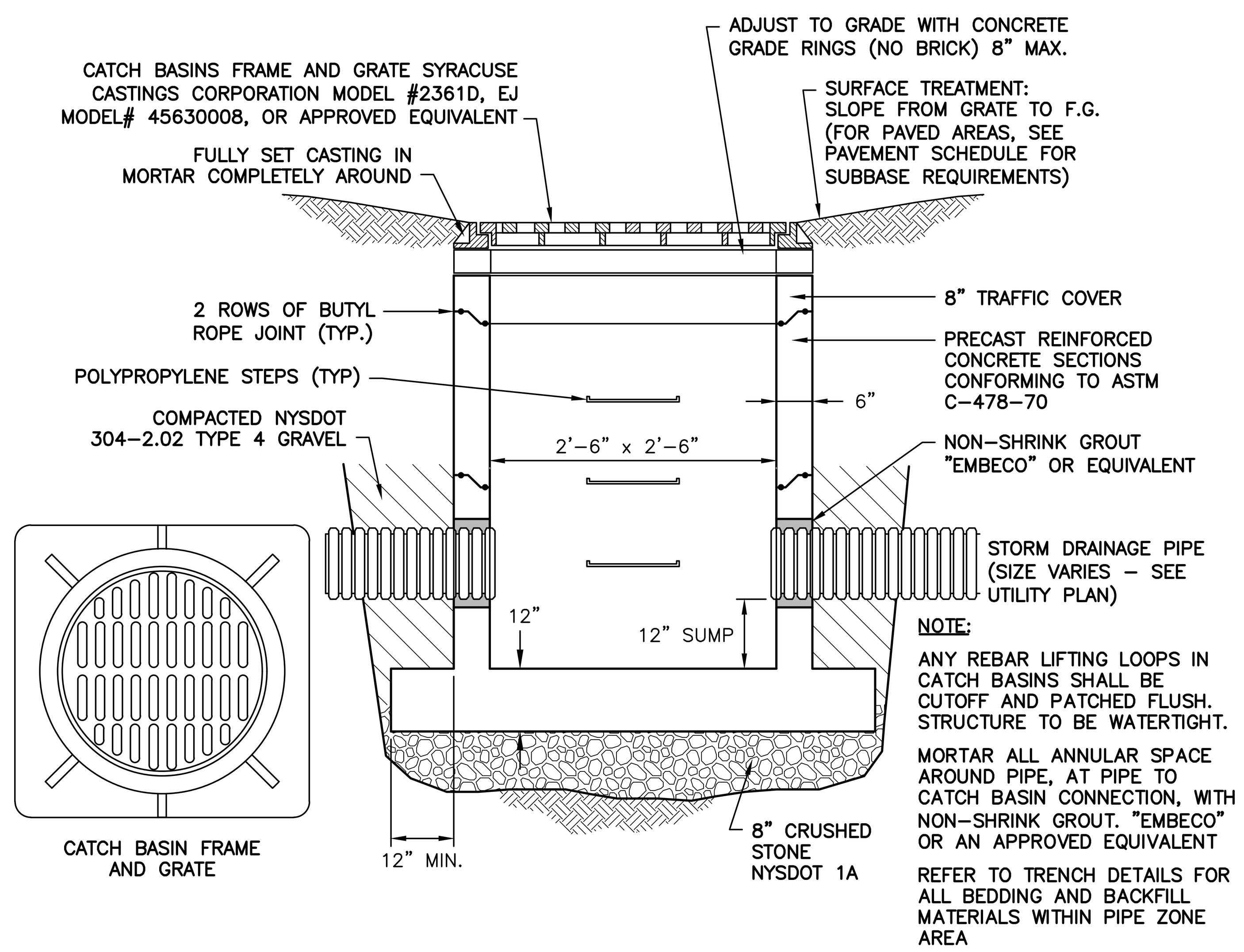
1 TRENCH - UNPAVED AREAS
SCALE: N.T.S.



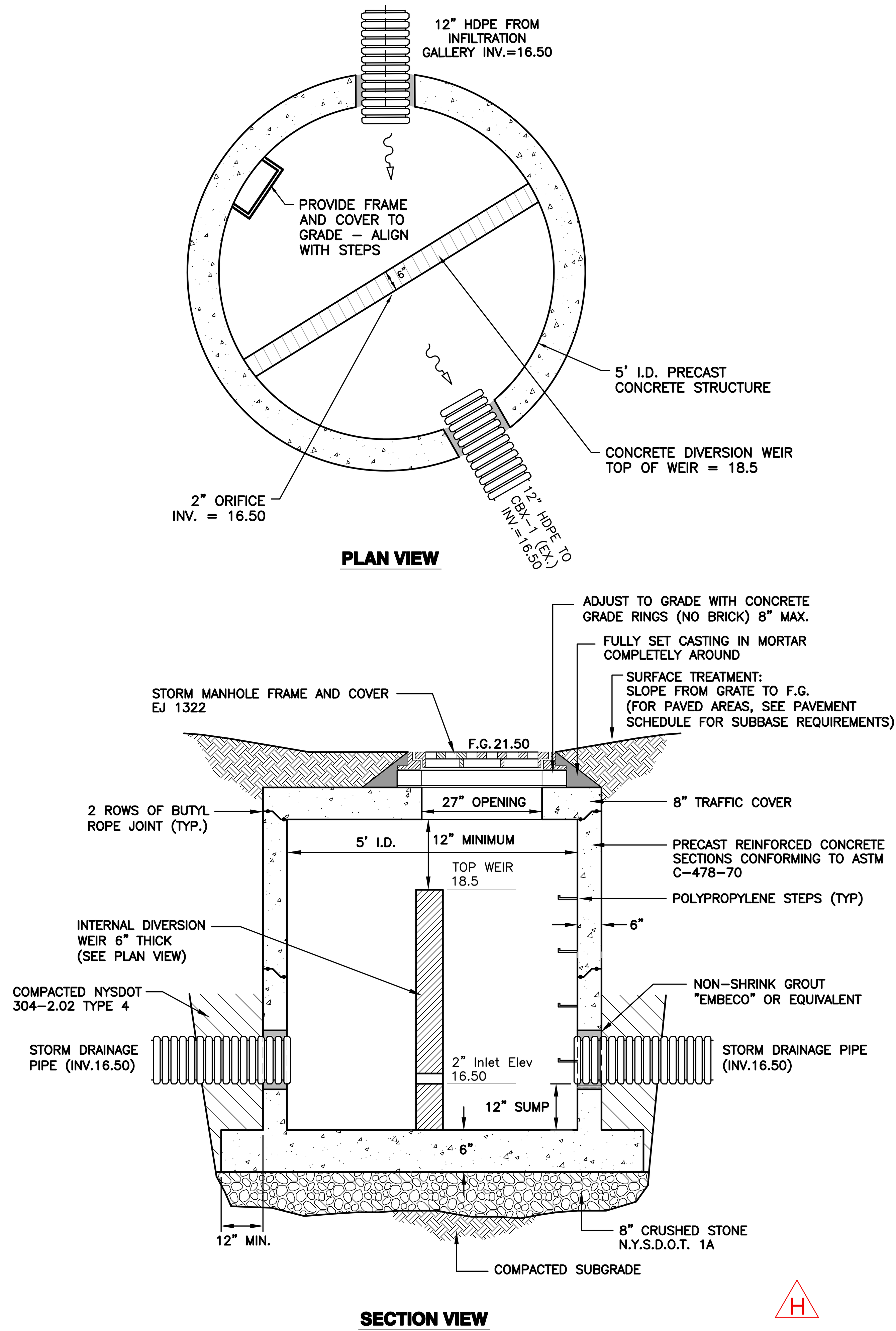
2 TRENCH - PAVED AREAS
SCALE: N.T.S.



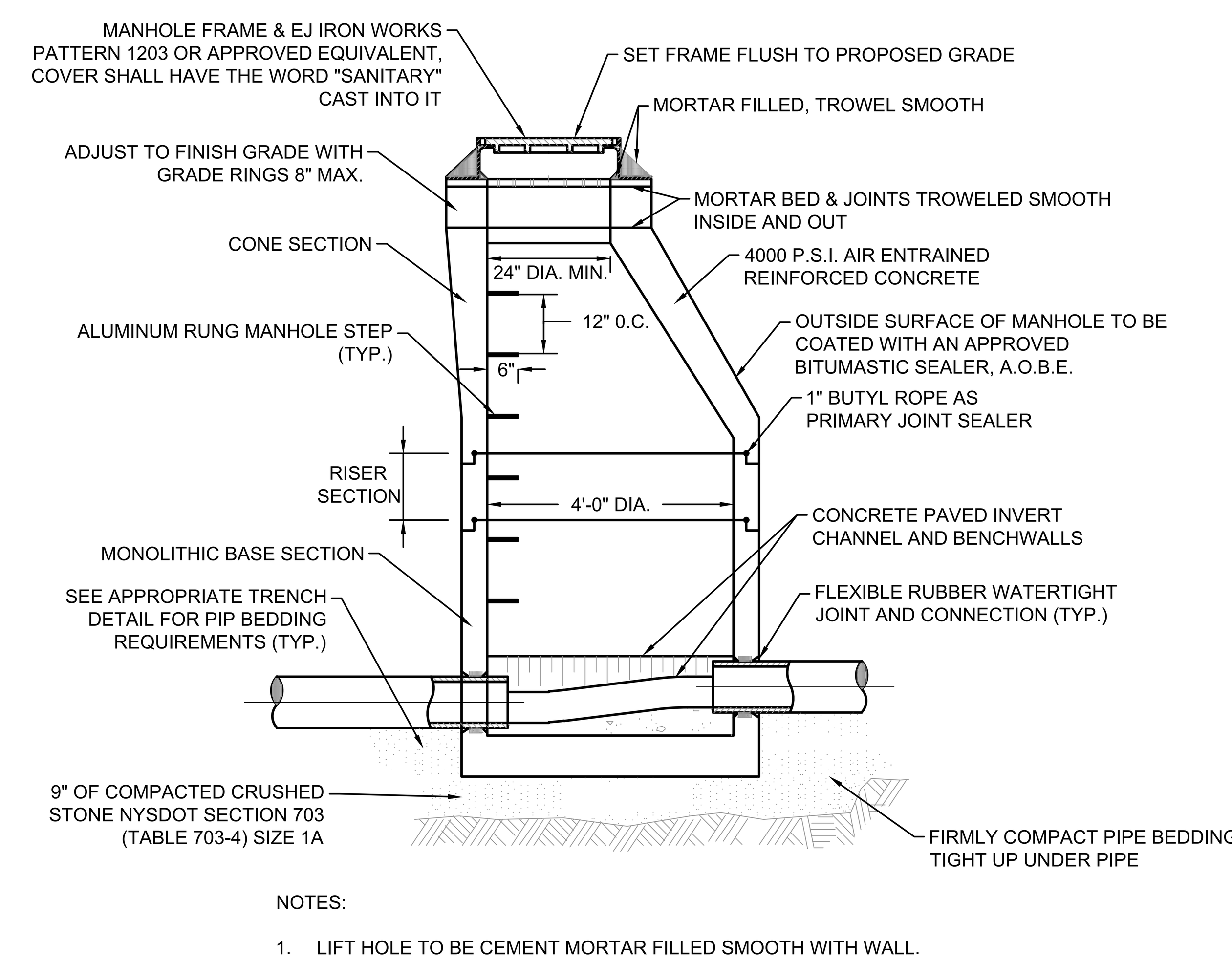
3 CATCH BASIN DETAIL (CIRCULAR)
SCALE: N.T.S.



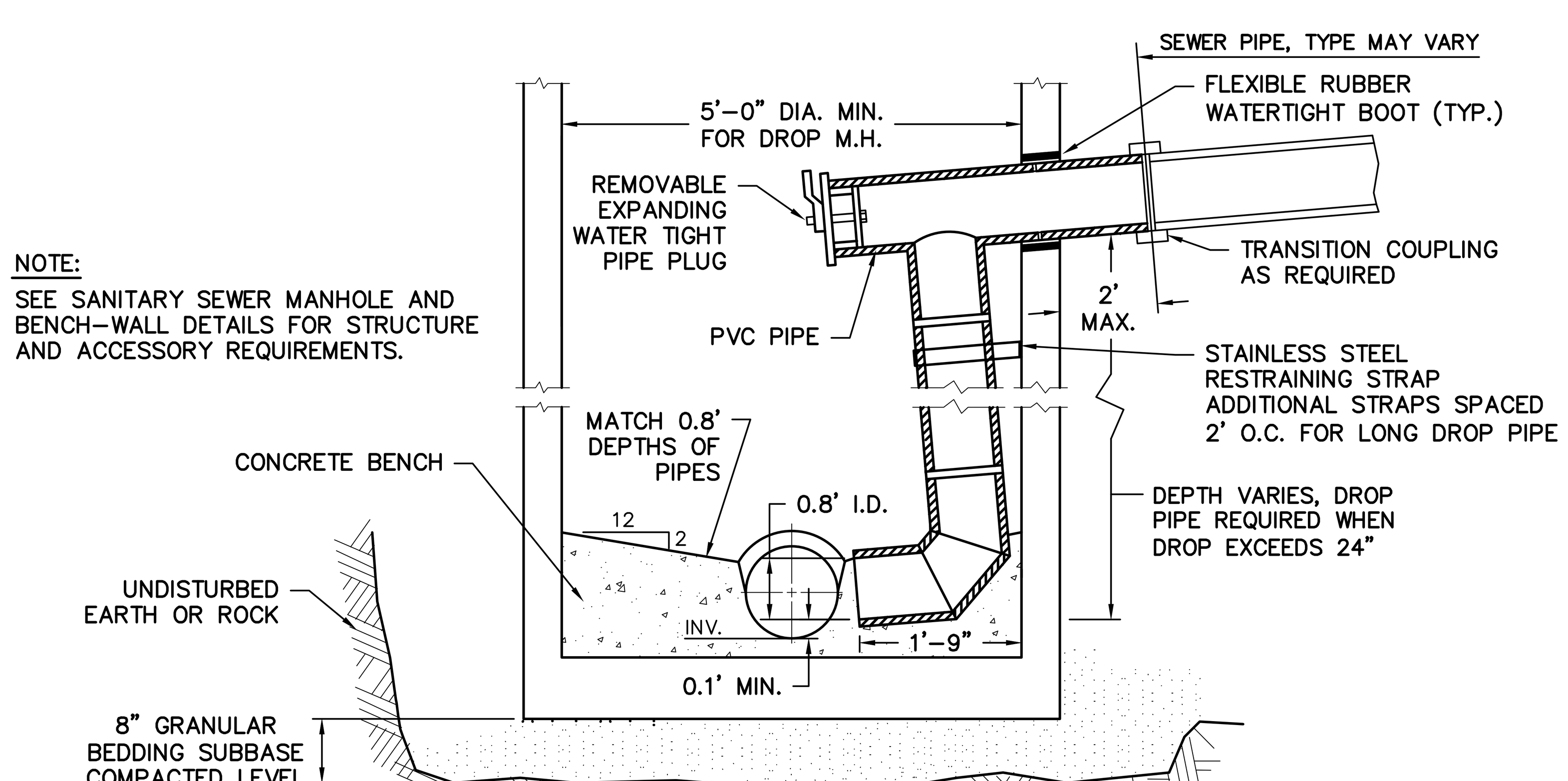
4 CATCH BASIN DETAIL (SQUARE)
SCALE: N.T.S.



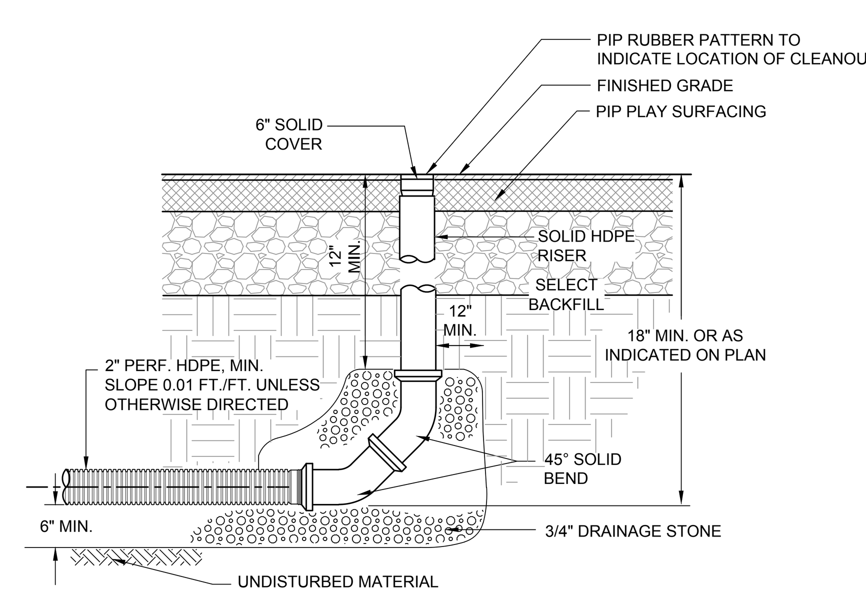
6 DIVERSION MANHOLE
SCALE: N.T.S.



7 SEWER MANHOLE
SCALE: N.T.S.



5 DROP MANHOLE
SCALE: N.T.S.



8 LATERAL DRAIN - CLEANOUT
SCALE: N.T.S.

Revision Schedule

No.	Description	Date
H	ADDENDUM #3	8/23/21

Geddis Architects
Architecture. Planning. Interiors
71 Old Post Road
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AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776-3027
978-443-7871

SED #: 6618-0001-0003-026

PROJECT
Rye City School District
555 Theodore Fremd Ave, Rye, NY 10580

Midland Elementary School
312 Midland Avenue, Rye, New York 10580

CONSTRUCTION DETAILS

ISSUED FOR BID

SEAL & SIGNATURE
DATE: 08/09/20
PROJECT No:
DRAWING BY: KSK
CHK BY: JFB
DWG No:
C3-502

Stormwater Pollution & Prevention Plan

for the

Rye City School District

Rye CSD Capital Improvements – Midland Elementary School

312 Midland Avenue
Rye, New York 10580

August 2021

Contract No: ENG20-0439

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGE
FROM CONSTRUCTION ACTIVITY

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 PROJECT INFORMATION

1.1 Project Name and Location

Midland Elementary School Additions

312 Midland Avenue
Rye, New York 10580

1.2 Owner/ Operator's Contact Information

Rye City School District

555 Theodore Fremd Avenue, Suite B-101
Rye, New York 10580
914-967-6100

Contact:
Robert Gimigliano – Director of Facilities
gimigliano.robert@ryeschools.org

1.3 Owner's Consultant Contact Information

Weston & Sampson, PE, LS, LA, PC

1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

Contact:
Jeffery F. Budrow, PE
budrowj@wseinc.com

1.4 Project Description

The Rye City School District proposes a capital project at its Midland Elementary School consisting of a building addition of approximately 5,700 S.F., alterations and improvements to the building envelope, replacement of existing pavement and sidewalks and addition of a new rubberized playground surface. This includes minor site improvements to support building construction.

1.5 Receiving Waters

The existing stormwater runoff from the site drains into a series of catch basins located on the school site which connects into the City of Rye's stormwater system. The City's system eventually drains into the Long Island Sound.

1.6 Soils Information

Based upon the Soil Survey for Albany County that was prepared by the U.S. Department of Agriculture Soil Conservation Service, the soils at the subject site are classified as the following:

- Ug – Udorthents, smoothed
- Ut – Urban land-Charlton-Chatfield complex, rolling, very rocky

See Appendix B of this report for a copy of the complete site soil survey information, and Appendix Q for a copy of the geotechnical investigation report with additional infiltration tests/ borings.

1.7 State or Federal Historic Places

According to the on-line GIS map located on the New York State Office of Parks, Recreation & Historic Preservation (NYS OPRHP) web-page, the site is not identified on the State or National Register of Historic Places. A letter provided by the NYS OPRHP State Historic Preservation Office (SHPO) indicates that the project will have no impact on archaeological and/or historic resources listed in or eligible for the New York State and National Registers of Historic Places. A screen shot of the GIS map is included in Appendix C of this document.

1.8 New York State SPDES General Permit Information

In accordance with Appendix B of the New York State SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-20-001, this project requires that a Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) be prepared and submitted to the New York State Department of Environmental Conservation (NYSDEC) for review and approval since the project will disturb more than 1 acre of land, and fits within the list of land uses. See Appendix G of this report for a copy of the NYSDEC's General Permit, GP-0-20-001.

1.8.1 Notice of Intent (NOI)

Any project requesting coverage under the NYS SPDES General Permit, GP-0-20-001, requires a Notice of Intent (NOI) to be completed and submitted to the NYS DEC for acceptance. Submitting a NOI to the NYS DEC is an affirmation to the NYS DEC that a SWPPP has been prepared and will be implemented. As a result, the applicant, through their consultant, is certifying that the SWPPP has been developed in conformance with the Department's technical standards. If the SWPPP utilizes practices provided within the NYS Stormwater Management Design Manual (SMDM) and these practices meet all of the requirements established in those standards, the proposed activity will be eligible to obtain coverage under this general permit in five (5) business days after the Department's receipt of the NOI. If the SWPPP deviates from the Department's technical standards, then the permit will not become effective for sixty (60) days from the receipt of the NOI.

As a result, it is anticipated that this project will obtain coverage in five (5) business days, because it has been prepared in conformance with the NYS DEC's technical standards. A copy of the completed NOI is located in Appendix D of this report.

1.8.2 Signatures, Certifications, and Review

Robert Gimigliano, on behalf of the Rye City School District, is the owner/ operator of the project site, and is the legal entity that controls the site/ facility's operation. Consequently, this document and the NOI must be approved and signed. This project does not require an MS4 approval as it is being reviewed by the State Education Department.

All contractors and sub-contractors involved with earth-disturbing activities as a result of this project must sign a contractor's certification form before undertaking such activities at the site. These forms need to contain the specific elements that each contractor is responsible for and include the name and title of the contractor's trained individual(s) responsible for the implementation of the SWPPP. Copies of the contractor certification pages are located in Appendix D of this report. Completed copies of such forms shall be inserted within this document as well.

1.8.3 Field Documentation

The Owner/ Operator shall maintain a copy of the General Permit (GP-0-20-001), SWPPP, Notice of Intent (NOI), NOI Acknowledgement Letter from NYS DEC, Contractor Certifications, and Inspection Reports on-site until all of the disturbed areas have achieved final stabilization and the Notice of Termination (NOT) has been submitted to the NYS DEC. These documents shall be located on the project site in a readily accessible location, such as within a job-site trailer, site lockbox, on-site construction office, or a mailbox with a lock. These documents need to be accessible during normal business hours. The Owner/Operator shall retain copies of these documents for a period of five (5) years from the date that the site achieves final stabilization.

1.8.4 Notice of Termination (NOT)

Upon completion of the construction activities contained within this SWPPP, all disturbed areas have achieved final stabilization, all temporary structural erosion and sediment control measures have been removed, and all post-construction stormwater management practices have been constructed in conformance with the SWPPP, the Owner must sign and submit a Notice of Termination (NOT) form to the NYS DEC indicating that coverage under the general permit is no longer required and the permit coverage may be terminated for the project.

Prior to completing and submitting the NOT, the following items must also be completed:

A. Policies and procedures are in place to ensure the proper operation & maintenance of the practices in accordance with the practices' operations and maintenance plan for public/private institutions.

A Notice of Termination form may be located in Appendix M of this report.

2.0 EXISTING CONDITIONS

2.1 Existing Conditions

The site currently consists of the Midland Elementary School located at 312 Midland Avenue, Rye Ny 10580. The project site is adjacent to Midland Avenue, located across the street from the Rye Recreational Park. The site currently has an on-site stormwater system which connects into the City of Rye's separate stormwater system to the northwest towards Midland Avenue. The City's stormwater system consists of a 36" diameter RCP which runs along the front of the school and follows Midland Avenue. A majority of site has been developed with a series of buildings, parking lots and sidewalks. Drainage from the site is generally collected by a series of catch basins which connect into the City's stormwater system.

2.2 Existing Hydrologic and Hydraulic Conditions

A hydraulic and hydrologic analysis and model of the existing stormwater collection and conveyance system was created in HydroCAD. HydroCAD is a stormwater modeling system that was created by HydroCAD Software Solutions LLC. This program can utilize the hydrology techniques developed by the Soil Conservation Service (SCS) and other methods such as the Rational Method. The model created for this project utilizes the SCS TR-20 runoff method. This computerized model was used to establish the current runoff rates from the existing conditions of the project site. The model and this report focus in on the 1-, 10-, 25-, and 100-year storm events.

Our stormwater analysis has identified two points in which runoff discharges from the project site, and into the City storm system. The two points of discharge (POD) are identified as follows:

A. POD 1: Flows leave the site through a catch basin located on the northwest of the existing site. This catch basin is tributary to runoff from the existing parking lot located south of the school, the two trailer mounted classrooms located southeast of the school, the mulch playground and a series sidewalks located around the school. This catch basin discharges into the City's separate stormwater system located along Midland Avenue, which eventually discharges into the Long Island Sound.

B. POD 2: Flows leave the site via overland flow from the lawn area located to the southwest of the existing school. Flows eventually leave the site towards Midland Avenue where it is eventually picked up from a series of catch basins connecting to the City's system.

A summary of the runoff rates that have been calculated for the existing conditions are included in Table 3.1 of this report.

Maps illustrating drainage areas and points of discharge, and existing conditions HydroCAD models may be found in Appendix F.

3.0 PROPOSED CONDITIONS

3.1 Proposed Conditions

The proposed conditions of the site include a building addition of approximately 5,700 S.F., alterations and improvements to the building envelope, replacement of existing pavement and sidewalks and addition of a new rubberized playground surface at the Midland Elementary School. One subsurface infiltration system located southwest of the building addition and associated hydrodynamic separator will be installed for stormwater management and water quality treatment for the proposed site improvements. New stormwater infrastructure will be installed along the southern side of the new building addition to convey water to the proposed subsurface infiltration system.

3.1.1 Stormwater Treatment Measures

In accordance with the general permit, and the requirements for runoff reduction techniques, this project proposes to use a series of subsurface infiltration chambers and hydrodynamic separators to provide the necessary water quality and quantity treatment.

3.1.2 Water Quality Calculations

The impacted drainage area for the project is 1.1 acres (46,900 sf) with a total proposed increase in impervious area of 0.13 acres (5,622 sf).

The calculated water quality volume (WQv) for the project site is 0.015 ac-ft. The proposed treatment for site runoff includes the installation of one subsurface infiltration system with pretreatment device that will provide a total water quality volume of 0.031 ac-ft. In order to accommodate calculated minimum Runoff Reduction Volume (RRv) of 0.006 ac-ft, the proposed subsurface infiltration system will provide 0.028 ac-ft of RRv. Proposed conditions calculations are included Appendix F.

3.1.3 Water Quantity Measures

The design of the stormwater treatment system for this site includes two subsurface infiltration systems each connected to a hydrodynamic separator for pretreatment.

As illustrated in Table 3.1, there is a net decrease in the total site runoff flow rates from the site for the 1-, 10-, 25-, and 100- year storm events. All storm events and analysis points show a decrease in runoff rates. The decrease in runoff rates can be attributed to the increased stormwater storage within the subsurface infiltration systems.

3.2 Proposed Hydrologic and Hydraulic Conditions

A hydraulic and hydrologic analysis model of the proposed stormwater collection and conveyance system was created in HydroCAD. This computerized model was used to establish the runoff flow rates by the proposed conditions of the site as well as to demonstrate conformance with various requirements. These calculations may be found in Appendix F of this report.

3.2.1 Pre- vs. Post- Comparison

The following table summarizes the runoff rates generated for the existing and proposed conditions of the site based on the calculations contained in Appendix F of this report.

Table 3.1: Existing and Proposed Hydrologic Conditions

Summary of Flow Rates												
Analysis ID	1-year (cfs)			10-year (cfs)			25-year (cfs)			100-year (cfs)		
	Pre-	Post-	Change	Pre-	Post-	Change	Pre-	Post-	Change	Pre-	Post-	Change
POD 1	0.89	0.90	0.01	1.93	1.97	0.04	2.55	2.64	0.09	3.84	4.02	0.14
POD 2	0.17	0.13	-0.04	0.64	0.38	-0.26	0.95	0.54	-0.41	1.62	0.88	-0.74
TOTAL	1.16	1.13	-0.03	2.57	2.35	-0.22	3.50	3.18	-0.32	5.46	4.86	-0.60

3.2.2 Proposed Drainage Areas

The flow patterns for the proposed drainage areas remain unchanged from the pre-developed conditions. The only difference in the proposed drainage areas are the land cover types due to the building additions and various site improvements.

4.0 SOIL EROSION AND SEDIMENT CONTROLS

4.1 Erosion and Sediment Control Practices

Erosion and sediment control provisions should be included for all construction activities where excavation, stripping, filling, grading, and/ or earth movement is designated on the plans to take place. These provisions shall be designed in conformance with the most current version of the technical standard, *New York Standards and Specifications for Erosion and Sediment Control*. For convenience, this report contains reduced-scale versions of the soil erosion and sediment control plans and details for this project in Appendix N.

4.2 Construction Sequence Schedule

The contractor is advised that a final construction sequence schedule is to be provided to the construction manager after contractor selection and become a component of not only the contract documents, but this SWPPP. Accordingly, from the start of construction forward, it shall be the responsibility of the contractor to implement and adhere to the construction sequence schedule in order to maximize the effectiveness of this stormwater pollution prevention plan. However, the following basic schedule shall guide the development of the final construction sequence schedule between the contractor and the construction manager:

Construction Schedule

A. Obtain plan approval and other applicable permits.

B. Flag the work limits and mark and protect any vegetation that will be remaining.

C. Hold a pre-construction conference at least one week prior to the start of construction.

D. Install temporary sediment controls as the first construction activity.

E. Install site improvements.

F. All erosion and sediment control practices will be inspected weekly and, additionally, the contractor shall perform an inspection after all rainfall events. Needed repairs will be made immediately.

G. After the site is permanently stabilized, remove all temporary erosion and sediment control measures.

4.3 Pre-Construction Activities

A. Protect existing vegetated areas suitable for filter strips, especially in perimeter areas.

B. Establish a temporary construction entrance to capture mud and debris from construction vehicles before they enter the public rights-of-way.

C. Stabilize bare areas (entrances, construction routes, equipment parking areas, etc.) immediately as work takes place. Top these areas with gravel or maintain a vegetated cover.

D. Sediment tracked onto public streets should be removed or cleaned daily.

E. Identify the drainage areas in the plan. Plan for the appropriate practices to protect existing surface waters.

F. Ensure that silt fence material and installation comply with the standard drawings and specifications.

G. Install silt fences based on appropriate spacing intervals. Decrease the interval as the slope increases. Silt fence should be placed on or parallel to contours where there is no concentration of water flowing to the silt fence and where erosion occurs in the form of sheet erosion. The area below the silt fence should be undisturbed ground.

H. Have a Qualified Inspector perform an initial site inspection to confirm that all of the perimeter erosion and sediment controls have been installed properly and to photograph the site to establish a baseline for the site conditions prior to construction.

I. Install additional erosion and sediment control devices as shown on the plans and/or needed in the field.

4.4 Runoff and Drainage Controls

A. Install practices after sediment traps are installed and before land grading starts.

B. Control the runoff in each small drainage area before flow reaches the runoff from the entire site.

C. Divert off-site or clean runoff around disturbed areas.

D. Convey surface flows from highly erodible soil and steep slopes to more suitable stable areas.

E. Runoff from existing or proposed cut and fill slopes should be redirected to lower the water’s velocity without causing erosion.

F. Final site drainage should be constructed to prevent erosion, concentrated flows to adjacent properties, uncontrolled overflow, and ponding.

G. Protect existing natural drainage systems and streams by maintaining vegetative buffers and by implementing other appropriate practices.

H. Install practices to prevent erosion at discharge points.

4.5 Grading

A. Limit the initial clearing and earth disturbance to that necessary to install sediment control measures. Excavation for site improvements may only take place after the sediment and erosion controls are installed. Stockpile excavated topsoil from the site. The topsoil should be protected with silt fence, stabilized, and located away from the storm drains and water bodies.

B. Changes in grade or removal of vegetation should not disturb established buffers and should not be allowed within any regulated distance from wetlands or other such protected zones.

C. Avoid disturbance of steep slopes.

D. An undisturbed buffer should be maintained to control runoff from steep slopes within sensitive areas.

E. Proposed grading should not impair existing surface drainage resulting in a potential erosion hazard impacting adjacent land or water bodies.

4.6 Erosion Control and Soil Stabilization

A. Implement erosion control practices to keep soil in-place.

B. Stabilization should be completed immediately for the surface of all perimeter controls and slopes. When activities temporarily cease during construction, soil stockpiles and exposed soils should be stabilized by seed, mulch, or other appropriate measures as soon as possible, but in no case more than 14 days after the construction activity has ceased. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization should be completed within 14 days or as soon as possible.

C. Apply temporary or permanent stabilization measures immediately on all disturbed areas where work is delayed or completed.

D. Refer to project plans and specification documents for proper timing and application of seed, sod, fertilizer, and mulch.

E. Downspout or sump pump discharges must have acceptable outfalls that are protected by splash blocks, sod, or piping as required by site conditions (i.e. no concentrated flow directed over fill slopes).

4.7 Sediment Controls

A. Provide sediment controls measures at any location where surface runoff from disturbed or graded areas may flow off the construction area. Control measures must be installed to prevent sediment from being transported off-site. No grading, filling, or other disturbance is allowed within existing drainage swales.

B. Swales or other areas that transport concentrated flows should be appropriately stabilized.

4.8 Maintenance and Inspections

A. Initial site inspection after the perimeter controls are installed and prior to commencement of any earth work.

B. Identify the type, number, and frequency of maintenance actions required for stormwater management and erosion control during construction and for permanent practices that remain on the site once construction is finalized.

C. Inspections must be indicated on the Construction Sequence Schedule.

D. Inspections must be performed once every 7 calendar days, unless site disturbance is greater than five (5) acres, and at which time at least two (2) site inspections shall be completed 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. See part IV.C of the permit document.

E. Inspections must verify that all practices are operating properly, maintained properly, and that sediment is removed from all control structures.

F. Inspections must look for evidence of the erosion of soils on-site, potential of pollutants entering drainage systems, problems at discharge points (such as turbidity in the receiving waters), and signs of soil and mud transport from the site to the public road(s).

G. Routine maintenance must be identified on the schedule and performed on a regular basis and as soon as a problem is identified.

H. Identify the person or entities responsible for conducting the maintenance actions during construction and post-construction.

I. Retain a copy of the inspection reports on-site with the SWPPP.

J. Inspections may be reduced to once every 30-days if the site has entered into a temporary shutdown (e.g. winter shutdown) as long as all construction activities have been halted and all of the disturbed areas have been temporarily stabilized (see Part IV.C.2.c of the general permit for more information).

K. For construction sites where soil disturbing activities have been shut down with partial project completion, the qualified inspector may stop conducting inspections if all of the disturbed areas have achieved final stabilization and all of the post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational (see Part IV.C.2.d. of the general permit for more information).

L. Inspections shall be completed until permanent stabilization has been achieved.

M. The Qualified Inspector shall notify the NYS DEC, Owner, Construction Manager, and Owner's Representative with a letter indicating the period of temporary shutdown, the dates of anticipated inspection during the shutdown, and the date of anticipated restart.

4.9 Final Grading and Landscaping

A. Implement the final grading and stabilization plan once the construction is completed.

B. Stabilize all open areas, including borrow and spoil areas.

C. Implement the specified permanent top soil, seed, sod, mulch, riprap, or other stabilization practices in the remaining disturbed areas as appropriate.

D. Stabilization must be undertaken no later than 14 days after construction activities have ceased, except as noted in the general permit, GP-0-20-001.

E. Remove the temporary control measures once the site has reached final stabilization. Final stabilization is defined as "…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" in Appendix A of the General Permit, GP-0-20-001.

4.10 Construction Sequence Schedule

The Contractor is advised that a final construction sequence schedule is to be provided to the Construction Manager and Owner's Representative after contractor selection, and shall become a component of the contract documents, and this SWPPP. Accordingly, from the start of construction forward, it shall be the responsibility of the Contractor to implement and adhere to the construction sequence schedule in order to maximize the effectiveness of this stormwater pollution prevention plan.

The following basic implementation process shall guide the development of the final construction sequence schedule to be provided by the Contractor and accepted by the Owner, Construction Manager, and Owner's Representative. This basic process shall be followed for each phase of construction, period, or discrete area of construction.

H. Obtain plan approval and other applicable permits.

I. Flag the work limits and mark and protect any vegetation that will be remaining.

J. Hold a pre-construction conference at least one week prior to the start of construction.

K. Install temporary sediment controls prior to any disturbance.

L. Install site improvements.

M. Inspect all erosion and sediment control measures at least weekly (or more often per requirements of permit) and, additionally, the Contractor shall perform an inspection after all rainfall events greater than 0.5 inches in a 24-hour period. Needed repairs shall be made immediately.

N. Permanently stabilize the site.

O. After the site is permanently stabilized, remove all temporary erosion and sediment control measures.

4.11 SWPPP Inspection Reports

Contractor shall provide copies of all inspection reports within five (5) business days of completion to Owner, Construction Manager and Owner's Representative. Copies of inspection reports shall be maintained on site and made available to the permitting authorities upon request. Copies of monthly summary reports shall be posted on-site in a publicly accessible location. Copies of SWPPP inspection reports are included in Appendix N: Construction Inspection Forms/ Checklists.

4.12 SWPPP Report Modifications

The inspection reports should identify any soil erosion and sediment control measures (as well as the stormwater collection, conveyance, and treatment system components) that need to be revised, added, or removed as a result of the field inspection. This SWPPP is meant to be a dynamic working guide that is to be kept current and amended whenever the design, construction, operation, or maintenance of the site changes in a way which significantly affects the potential for the discharge of pollutants or when the plan proves to be ineffective in eliminating or significantly minimizing pollutant discharges.

Any such changes to the SWPPP must be made in writing on the SWPPP Modification Report located in Appendix J of this report within 7 days of the date such a modification or amendment is made. Modifications to permanent stormwater facilities are not allowed during construction without all necessary approvals and project amendments by the Owner, MS4 Coordinator, Construction Manager, and Owner's Representative.

Construction phase stormwater erosion and sediment controls are subject to modification if required by the responsible qualified professional. The Contractor's failure to monitor or report deficiencies to the operator will result in the Contractor being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

5.0 OTHER CONTROLS

5.1 Waste Disposal

All waste materials will be collected and stored in a metal dumpster. The dumpster shall comply with all local and state solid waste management regulations. All trash and construction debris from the site shall be deposited in a dumpster and emptied at least once per week or more often if necessary. Trash shall be hauled to a landfill. No construction waste materials may be buried on-site.

5.2 Sanitary Waste

All sanitary waste shall be collected from portable units and cleaned at a minimum of twice per week by a licensed portable facility provider in complete compliance with local and state regulations.

5.3 Off-Site Vehicle Tracking

A stabilized construction entrance/ exit shall be provided to reduce/ eliminate vehicle tracking of sediment off-site. The paved streets adjacent to the site entrance shall be inspected daily and swept as needed to remove any excess mud, dirt, or rocks tracked from the site. Dump trucks hauling material from the construction site shall be covered with a tarpaulin per local and state regulations.

5.4 Concrete Waste from Concrete Trucks

A. Emptying of excess concrete and/ or washout from concrete delivery trucks may be allowed on the job site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

B. The hardened residue from the concrete washout diked areas shall be disposed of in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan located in Section 5.7 of this report and in accordance with applicable state and federal regulations.

C. Contractor shall coordinate with construction manager all areas acceptable for concrete washout and the necessary procedures to maintain/ reuse such washout areas.

5.5 Hazardous Substances and Hazardous Wastes

A. All hazardous waste materials shall be disposed of by the Contractor in the manner specified by local, state, and/ or federal regulations and by the manufacturer of such products. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site shall be obtained and used for the proper management of potential wastes that may result from these products. A MSDS shall be posted in the immediate area where such a product is stored and/ or used and another copy of each MSDS shall be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties shall be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

B. The Contractor shall implement the Spill Prevention Control and Countermeasures (SPCC) Plan found in section 5.7 of this report and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous waste materials or hazardous wastes will be allowed to come in contact with stormwater discharges. If such contact does occur, the stormwater discharge shall be contained on-site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated stormwater.

C. Any spills of hazardous materials, which are in quantities in excess of Reportable Quantities as defined by the EPA regulations, shall be immediately reported to the EPA National Response Center 1-800-424-8802.

D. In order to minimize the potential for a spill of hazardous materials to come into contact with stormwater, the following steps shall be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, etc.) shall be stored in a secure location, under cover, when not in use.

2. The minimum practical quantity of all such materials shall be kept on the job site.

3. A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, etc.) shall be provided at the storage site.

4. All of the product in a container shall be used before the container is disposed of. All such containers shall be triple-rinsed with water prior to disposal. The rinse water used in these containers shall be disposed of in a manner in compliance with state and federal regulations and not be allowed to mix with stormwater discharges.

5. All products shall be stored in and used from the original container with the original product label.

6. All products shall be used in strict compliance with instructions on the product label.

7. The disposal of excess or used products shall be in strict compliance with instructions on the product label.

5.6 Contaminated Soils

Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities shall be contained and cleaned up immediately in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations.

5.7 Spill Prevention Control and Countermeasures (SPCC) Plan

5.7.1 Materials Covered

The following materials or substances with known hazardous properties are expected to be present on-site during construction:

- Concrete
- Detergents
- Paints
- Paint Solvents
- Fertilizers
- Soil Stabilization Additives
- Cleaning Solvents
- Petroleum Based Products
- Pesticides
- Acids
- Concrete Additives

5.7.2 Material Management Practices

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

A. Good Housekeeping: The following good housekeeping practices shall be followed on-site during the construction project:

1. An effort shall be made to store only enough products required to do the job.
2. All materials stored on-site shall be stored in a neat, orderly manner and, if possible, under a roof or other enclosure.
3. Products shall be kept in their original containers with the original manufacturer's label in legible condition.
4. Substances shall not be mixed with one another unless recommended by the manufacturer.
5. Whenever possible, all a product shall be used up before disposing of the container.
6. Manufacturer's recommendations for proper use and disposal shall be followed.

7. The job site superintendent shall be responsible for daily inspections to ensure proper use and disposal of materials.

B. Hazardous Products: The following practices shall be used to reduce the risks associated with hazardous materials:

1. Products shall be kept in original containers with the original labels in legible condition.

2. Original labels and material safety data sheets (MSDS's) shall be procured and used for each material.

3. If surplus product must be disposed of, manufacturer's or local/ state/ federal recommended methods for proper disposal shall be followed.

4. A spill control containment kit (containing items such as absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, etc.) shall be provided at the storage site.

5. All the product in a container shall be used before the container is disposed of.

6. All such containers shall be triple-rinsed with water prior to disposal. The rinse water used in these containers shall be disposed of in a manner in compliance with state and federal regulations and shall not be allowed to mix with stormwater discharges.

C. Product Specific Practices: The following product specific practices shall be followed on the job site:

1. Petroleum Products: All on-site vehicles shall be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers, which are clearly labeled. Any petroleum storage tanks used on-site shall have a dike or berm containment structure constructed around it to contain any spills that may occur. Any asphalt substances used on-site shall be applied according to the manufacturer's recommendations.

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

3. Paints, Paint Solvents, and Cleaning Solvents: All containers shall be tightly sealed and stored when not in use. Excess paint and solvents shall not be discharged to the storm sewer system, but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

4. Concrete Trucks: Refer to Section 5.4: Concrete Waste from Concrete Trucks

5.7.3 Spill Prevention Practices

The following practices shall be followed for spill prevention and cleanup:

A. Manufacturer's recommended methods for spill cleanup shall be clearly posted and site personnel will be trained regarding these procedures, the location of the information, and cleanup supplies.

B. Materials and equipment necessary for spill cleanup shall be kept in the material storage area on-site in the spill control and containment kit.

C. All spills shall be cleaned up immediately after discovery.

D. The spill area shall be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substances.

E. Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill.

   To Report a Petroleum or Chemical Spill, call the following:

   1. NYS DEC 24 Hour Spill Hotline: 1-800-457-7362

   2. EPA National Response Center: 1-800-424-8802

F. Spills of amounts that exceed reportable quantities of certain substances specifically mentioned in federal regulations (40 CFR 302 list and oil) will be immediately reported to the EPA National Response Center. Reportable quantities of some substances that may be used at the job site are as follows:

   1. Oil: appearance of a film or sheen on water

   2. Pesticides: usually 1 lb.

   3. Acids: 5,000 lbs.

   4. Solvents, flammable: 100 lbs.

G. The SPCC plan shall 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 as part of Hazardous Materials Spill Log located in Appendix K of this report.

APPENDIX A

SITE LOCATION MAP & AERIAL PHOTOGRAPH

Midland School
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APPENDIX B

SOIL SURVEY

United States Department of Agriculture

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

Westchester County, New York

April 21, 2020

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:638 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 5, 10, 20, 30

Feet: 0, 30, 60, 120, 180

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 1:12,000.

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

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

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

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
Ub	Udorthents, smoothed	0.7	86.8%
UlC	Urban land-Charlton-Chatfield complex, rolling, very rocky	0.1	13.2%
Totals for Area of Interest		**0.8**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Westchester County, New York

Ub—Udorthents, smoothed

Map Unit Setting

National map unit symbol: bd7f
Elevation: 50 to 2,400 feet
Mean annual precipitation: 46 to 50 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 115 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Udorthents, Smoothed

Typical profile

H1 - 0 to 4 inches: gravelly loam
H2 - 4 to 70 inches: very gravelly loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 18 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Low (about 4.6 inches)

Minor Components

Urban land

Percent of map unit: 5 percent
Hydric soil rating: Unranked

Udorthents, wet substratum

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

Leicester

Percent of map unit: 2 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 2 percent
Hydric soil rating: No

Hollis

Percent of map unit: 2 percent
Hydric soil rating: No

Charlton

Percent of map unit: 2 percent
Hydric soil rating: No

Sun

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

UIC—Urban land-Charlton-Chatfield complex, rolling, very rocky

Map Unit Setting

National map unit symbol: bd7n
Elevation: 100 to 1,000 feet
Mean annual precipitation: 46 to 50 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 115 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 40 percent
Charlton and similar soils: 20 percent
Chatfield and similar soils: 15 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Ridges, till plains, hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Acid loamy till derived mainly from schist, gneiss, or granite

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 24 inches: sandy loam
H3 - 24 to 60 inches: sandy loam

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water storage in profile: Moderate (about 7.5 inches)

Description of Chatfield

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from granite, gneiss, or schist

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 24 inches: flaggy silt loam
H3 - 24 to 28 inches: unweathered bedrock

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Low (about 3.2 inches)

Minor Components

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: Unranked

Sutton

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

Leicester

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

Udorthents

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

Hollis

Percent of map unit: 2 percent
Hydric soil rating: No

Sun

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Palms

Percent of map unit: 1 percent

Landform: Swamps, marshes
Hydric soil rating: Yes

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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

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

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

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

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

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

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

Custom Soil Resource Report
Map—Hydrologic Soil Group

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ub	Udorthents, smoothed	B	0.7	86.8%
UlC	Urban land-Charlton-Chatfield complex, rolling, very rocky		0.1	13.2%
Totals for Area of Interest			**0.8**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

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

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

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

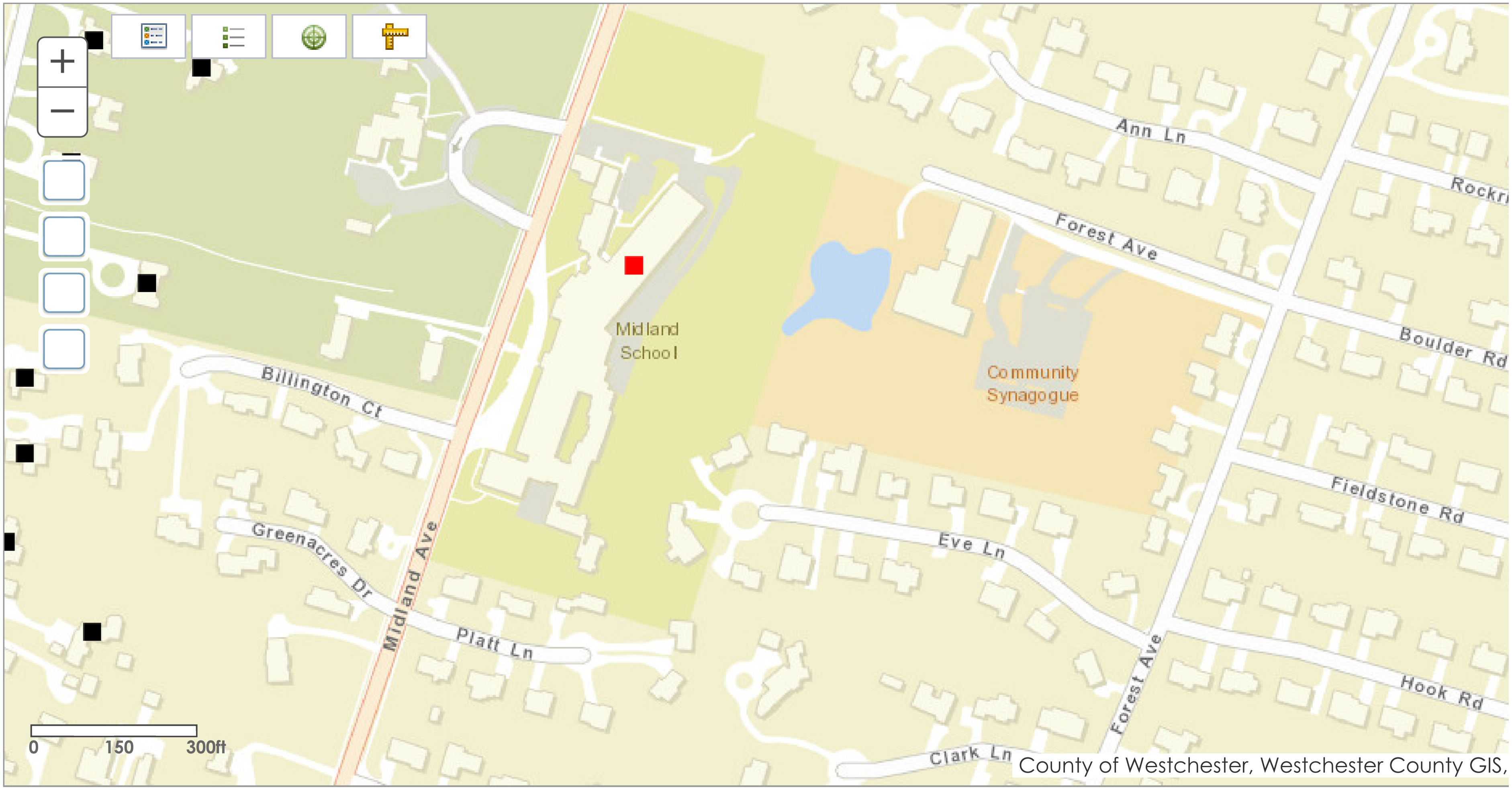
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX C

HISTORIC PRESERVATION AND CULTURAL RESOURCE DATA

NYS CRIS
Cultural Resource Information System

HOME SUBMIT **SEARCH** COMMUNICATE



APPENDIX D

NOTICE OF INTENT (NOI) AND CONTRACTORS' CERTIFICATION FORMS

NOTICE OF INTENT

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

NYR ______ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Rye City School District

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

Owner/Operator Contact Person First Name
Robert

Owner/Operator Mailing Address
555 Theodore Frmed Avenue, Suite B-101

City
Rye

State
NY

Zip
10580 -

Phone (Owner/Operator)
- -

Fax (Owner/Operator)
- -

Email (Owner/Operator)
gimigliano.robert@ryeschools.org

FED TAX ID
- (not required for individuals)

6401089828

Project Site Information

Project/Site Name

Midland Elementary School Improvements

Street Address (NOT P.O. BOX)

312 Midland Avenue

Side of Street

○ **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

City of Rye

State: NY

Zip: 10580 -

County: Westchester

DEC Region: 3

Name of Nearest Cross Street

Billington Center

Distance to Nearest Cross Street (Feet)

10

Project In Relation to Cross Street

○ **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

146-11-3-41

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

-7 3 6 8 1 0 0

Ex. -73.749

Y Coordinates (Northing)

4 0 9 7 5 0 0

Ex. 42.652

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

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

Pre-Development Existing Land Use

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

Post-Development Future Land Use

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

Number of Lots

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

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

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
7.0	1.1	0.3	0.5

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

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

A	B	C	D
98 %	2 %	%	%

7. Is this a phased project? ○ **Yes** ○ **No**

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

Start Date 01/01/2021 - **End Date** 12/31/2021

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

Name

Long Island Sound

9a. Type of waterbody identified in Question 9?

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

Ocean

9b. How was the wetland identified?

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

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

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

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

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

____ . _

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

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ Yes ○ No ○ Unknown

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

City of Rye

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

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

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

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

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 ○ No

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 ○ No
If No, skip questions 23 and 27-39.

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 ○ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Weston & Sampson

Contact Name (Last, Space, First)
Budrow, ,Jeffery

Mailing Address
1 Winners Circle, Suite 130

City
Albany

State: NY
Zip: 12205-

Phone: 518-463-4400
Fax: - -

Email
budrowj@wseinc.com

SWPPP Preparer Certification

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: Jeffery
MI: F

Last Name: Budrow

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

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

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

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

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

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

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

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

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

Total WQv Required

0.015 **acre-feet**

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

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

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

7738089822

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

RR Techniques (Area Reduction)	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
○ Conservation of Natural Areas (RR-1)	.	and/or	.
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	.	and/or	.
○ Tree Planting/Tree Pit (RR-3)	.	and/or	.
○ Disconnection of Rooftop Runoff (RR-4)	.	and/or	.
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			.
○ Rain Garden (RR-6)			.
○ Stormwater Planter (RR-7)			.
○ Rain Barrel/Cistern (RR-8)			.
○ Porous Pavement (RR-9)			.
○ Green Roof (RR-10)			.
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			.
○ Infiltration Basin (I-2)			.
○ Dry Well (I-3)			.
○ Underground Infiltration System (I-4)			0.37
○ Bioretention (F-5)			.
○ Dry Swale (O-1)			.
Standard SMPs			
○ Micropool Extended Detention (P-1)			.
○ Wet Pond (P-2)			.
○ Wet Extended Detention (P-3)			.
○ Multiple Pond System (P-4)			.
○ Pocket Pond (P-5)			.
○ Surface Sand Filter (F-1)			.
○ Underground Sand Filter (F-2)			.
○ Perimeter Sand Filter (F-3)			.
○ Organic Filter (F-4)			.
○ Shallow Wetland (W-1)			.
○ Extended Detention Wetland (W-2)			.
○ Pond/Wetland System (W-3)			.
○ Pocket Wetland (W-4)			.
○ Wet Swale (O-2)			.

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ Hydrodynamic	.
○ Wet Vault	.
○ Media Filter	.
○ Other	.

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

Name

Manufacturer

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.

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

Total RRv provided

0.028 **acre-feet**

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

○ **Yes** ○ **No**

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)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

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, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

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

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

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

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

WQv Provided

___ . ___ **acre-feet**

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

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

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

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

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

CPv Required	**CPv Provided**
___ . ___ **acre-feet**	___ . ___ **acre-feet**

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

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

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

Total Overbank Flood Control Criteria (Qp)

Pre-Development	**Post-development**
2.57 **CFS**	2.35 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development	**Post-development**
5.46 **CFS**	4.86 **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ Yes ○ No

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

Rye City School District

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.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP N Y R
- ○ Other
- ● None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ Yes ○ No
If Yes, Indicate Size of Impact. .

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ Yes ○ No
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ Yes ○ No

44. 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. N Y R

Owner/Operator Certification

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.

Print First Name
Robert

MI

Print Last Name
Gimigliano

Owner/Operator Signature

Date
__ __ / __ __ / __ __ __ __

CONTRACTOR CERTIFICATION STATEMENT

Project Name: Midland School Improvements
Project Location: 312 Midland Avenue Rye, NY 10580

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollution Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Name and Title

Company Name

Company Address and Phone Number

Signature Date

Responsible for:

Trained Individual Responsible for SWPPP Implementation

Name Title

APPENDIX E

PROJECT SCHEDULE

Proposed Schedule

It is anticipated that the construction for this project will begin October 2021 and be completed by Fall 2023. The Contractor will submit a schedule for approval which will be included in this document once finalized.

APPENDIX F

STORMWATER CALCULATIONS AND HYDROCAD MODELS

SCALE: BAR SCALE

SURVEY NOTES:

1. UNDERGROUND UTILITY LOCATIONS SHOWN HEREON ARE BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND RECORD DRAWINGS AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES.
2. SURVEY PERFORMED BY WESTON & SAMPSON PE, LS, LA, PC. IN AUGUST 2019. UTILITY MARKINGS DONE BY NEW YORK LEAK DETECTION, INC. ON 10/01/19. LOCATIONS SURVEYED BY WESTON & SAMPSON ON 10/14/19
3. CONTOURS AND ELEVATIONS SHOWN ON NAVD88 VERTICAL DATUM BASED ON GPS OBSERVATIONS.
4. NORTH ORIENTATION IS BASED ON GPS OBSERVATIONS TAKEN AT THE TIME OF THE FIELD SURVEY. MAPPING PREPARED ON NAD83 STATE PLANE COORDINATE SYSTEM (NEW YORK EAST ZONE).

EXISTING CONDITIONS LEGEND

- TREE LINE
- DECIDUOUS TREE
- CONIFEROUS TREE
- SHRUB/BUSH
- UTILITY POLE
- LIGHT POLE
- HYDRANT
- WATER SHUTOFF
- GAS VALVE
- WATER VALVE
- MONUMENT
- IRON PIN / IRON ROD
- HANDICAP SPACE
- HAND HOLE
- ELEC. METER
- GAS METER
- PROPERTY LINE
- EASEMENT
- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- CLEANOUT
- Mon.Well — MONITORING WELL
- STORM SEWER LINE
- SANITARY SEWER LINE
- WATER LINE
- GAS LINE
- SIGNAL WIRE LINE
- CABLE LINE
- FIBER OPTIC LINE
- LOW PRESSURE SEWER LINE
- ELECTRIC LINE
- OVERHEAD UTILITIES
- TELEPHONE LINE
- SANITARY MANHOLE (SMH)
- DRAINAGE MANHOLE (DMH)
- CATCHBASIN (CB)
- ELECTRIC MANHOLE (MHE)
- UNKNOWN MANHOLE
- TELEPHONE MANHOLE (MHT)
- VENT PIPE
- COULD NOT OPEN
- FLOW DIRECTION
- MAGNETIC CONCRETE NAIL
- ELECTRIC PEDESTAL
- BOLLARD
- GUY WIRE
- F.F.=317.7'± × FINISHED FLOOR ELEVATION
- × GFF=317.8± GARAGE FINISHED FLOOR ELEVATION

#########
SCALE: BAR SCALE

0' 10' 30' 60'
SCALE: 1" = 30'-0"

Revision Schedule

No.	Description	Date
	SD Issued for Pricing	02/24/20

Geddis Architects
Architecture. Planning. Interiors
71 Old Post Road
P.O. Box 1020
Southport, CT 06890
(203) 256-8700

fni Fielding Nair International
Transforming Education by Design
259 Water Street Suite 1L
Warren , RI 02885 USA
+1 401-289-2789

Construction Manager
SAVIN ENGINEERS, P.C.
3 Campus Drive
Pleasantville, NY 10570
914-769-3200

Structural Engineer
ODEH ENGINEERS
1223 Mineral Spring Ave
North Providence, RI 02904
401-724-1771

Civil Engineer
WESTON & SAMPSON
1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

MEP Engineer
BARILE GALLAGHER & ASSOCIATES
CONSULTING ENGINEERS
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

SED #: 66180001-0005-030

PROJECT
Rye City School District
555 Theodore Fremd Ave, Rye, NY 10580

Midland Elementary School

312 Midland Avenue, Rye, New York 10580

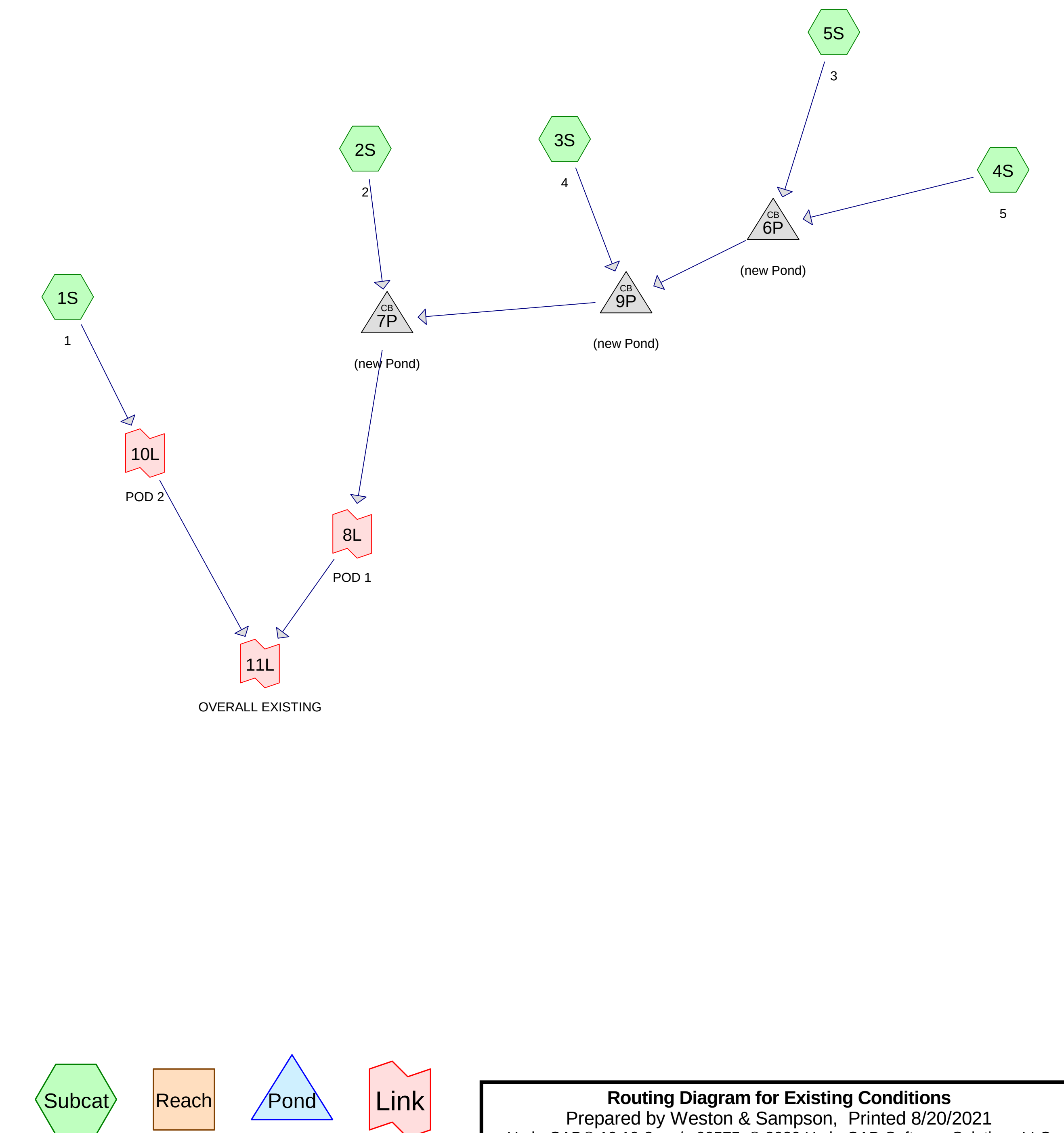
EXISTING CONDITIONS

DESIGN DEVELOPMENT

SEAL & SIGNATURE

PROGRESS

DATE:	05/29/20
PROJECT No:	XXXX
DRAWING BY:	KSK
CHK BY:	JFB
DWG No:	SK-1



Routing Diagram for Existing Conditions
Prepared by Weston & Sampson, Printed 8/20/2021
HydroCAD® 10.10-3a s/n 00575 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	NRCC 24-hr	D	Default	24.00	1	2.78	2
2	2-Year	NRCC 24-hr	D	Default	24.00	1	3.41	2
3	5-Year	NRCC 24-hr	D	Default	24.00	1	4.30	2
4	10-Year	NRCC 24-hr	D	Default	24.00	1	5.13	2
5	25-Year	NRCC 24-hr	D	Default	24.00	1	6.49	2
6	50-Year	NRCC 24-hr	D	Default	24.00	1	7.76	2
7	100-Year	NRCC 24-hr	D	Default	24.00	1	9.28	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.310	69	50-75% Grass cover, Fair, HSG B (1S, 2S, 3S, 5S)
0.003	98	Concrete Sidewalk (2S)
0.148	79	Mulch Playground (4S)
0.099	98	Paved parking, HSG B (5S)
0.101	98	Roofs, HSG B (5S)
0.124	98	Sidewalk (1S, 5S)
0.033	60	Woods, Fair, HSG B (1S)
0.820	**82**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.543	HSG B	1S, 2S, 3S, 5S
0.000	HSG C	
0.000	HSG D	
0.276	Other	1S, 2S, 4S, 5S
0.820		**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	0.310	0.000	0.000	0.000	0.310	50-75% Grass cover, Fair	1S, 2S, 3S, 5S
0.000	0.000	0.000	0.000	0.003	0.003	Concrete Sidewalk	2S
0.000	0.000	0.000	0.000	0.148	0.148	Mulch Playground	4S
0.000	0.099	0.000	0.000	0.000	0.099	Paved parking	5S
0.000	0.101	0.000	0.000	0.000	0.101	Roofs	5S
0.000	0.000	0.000	0.000	0.124	0.124	Sidewalk	1S, 5S
0.000	0.033	0.000	0.000	0.000	0.033	Woods, Fair	1S
0.000	**0.543**	**0.000**	**0.000**	**0.276**	**0.820**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	6P	21.10	19.80	43.0	0.0302	0.010	6.0	0.0	0.0
2	7P	12.30	11.50	12.0	0.0667	0.012	36.0	0.0	0.0
3	9P	19.10	14.90	86.0	0.0488	0.013	8.0	0.0	0.0

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

Subcatchment 1S: 1 Runoff Area=13,358 sf 13.11% Impervious Runoff Depth=0.68"
Flow Length=130' Tc=10.7 min CN=72 Runoff=0.17 cfs 0.017 af

Subcatchment 2S: 2 Runoff Area=1,378 sf 10.96% Impervious Runoff Depth=0.68"
Flow Length=63' Slope=0.0800 '/' Tc=6.0 min CN=72 Runoff=0.02 cfs 0.002 af

Subcatchment 3S: 4 Runoff Area=1,900 sf 0.00% Impervious Runoff Depth=0.56"
Flow Length=40' Slope=0.0375 '/' Tc=6.0 min CN=69 Runoff=0.02 cfs 0.002 af

Subcatchment 4S: 5 Runoff Area=6,466 sf 0.00% Impervious Runoff Depth=1.03"
Flow Length=117' Slope=0.0200 '/' Tc=6.0 min CN=79 Runoff=0.16 cfs 0.013 af

Subcatchment 5S: 3 Runoff Area=12,605 sf 98.19% Impervious Runoff Depth=2.44"
Flow Length=87' Slope=0.0200 '/' Tc=6.0 min CN=97 Runoff=0.68 cfs 0.059 af

Pond 6P: (new Pond) Peak Elev=22.62' Inflow=0.85 cfs 0.072 af
6.0" Round Culvert n=0.010 L=43.0' S=0.0302 '/' Outflow=0.85 cfs 0.072 af

Pond 7P: (new Pond) Peak Elev=12.61' Inflow=0.89 cfs 0.075 af
36.0" Round Culvert n=0.012 L=12.0' S=0.0667 '/' Outflow=0.89 cfs 0.075 af

Pond 9P: (new Pond) Peak Elev=19.86' Inflow=0.87 cfs 0.074 af
8.0" Round Culvert n=0.013 L=86.0' S=0.0488 '/' Outflow=0.87 cfs 0.074 af

Link 8L: POD 1 Inflow=0.89 cfs 0.075 af
Primary=0.89 cfs 0.075 af

Link 10L: POD 2 Inflow=0.17 cfs 0.017 af
Primary=0.17 cfs 0.017 af

Link 11L: OVERALL EXISTING Inflow=1.03 cfs 0.093 af
Primary=1.03 cfs 0.093 af

Total Runoff Area = 0.820 ac Runoff Volume = 0.093 af Average Runoff Depth = 1.36"
60.01% Pervious = 0.492 ac 39.99% Impervious = 0.328 ac

Summary for Subcatchment 1S: 1

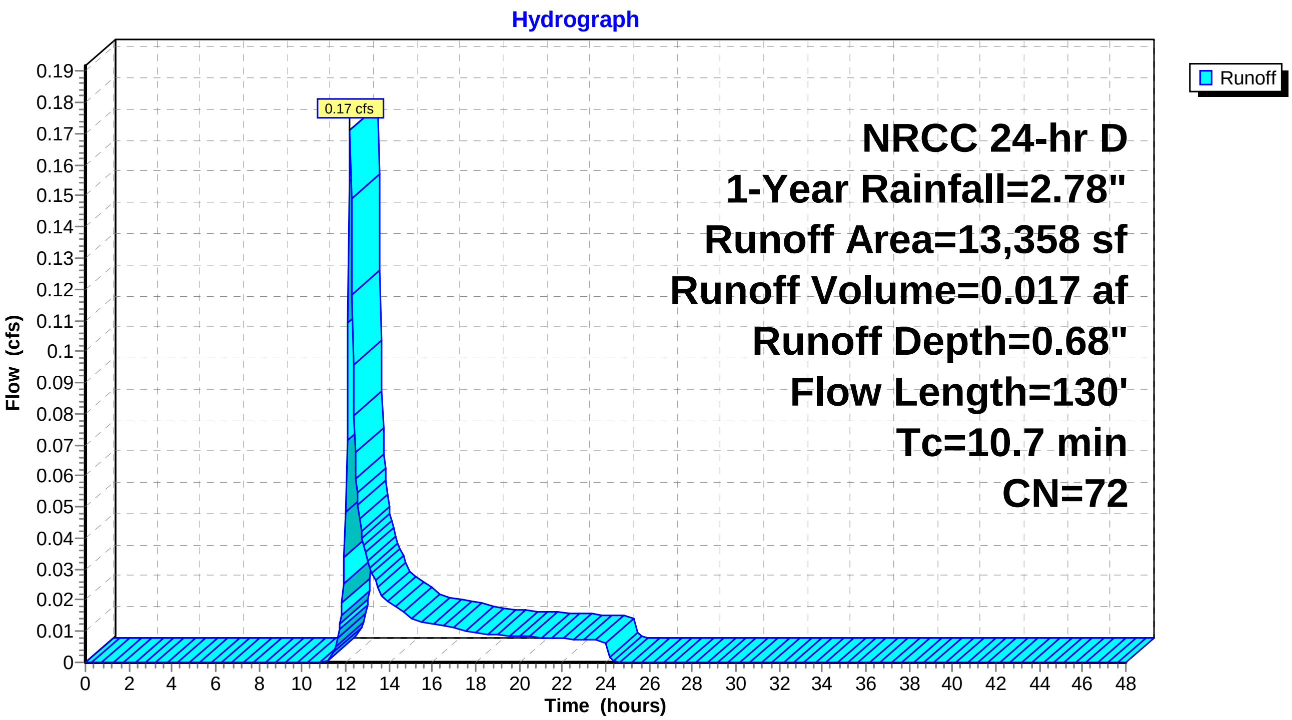
Runoff = 0.17 cfs @ 12.20 hrs, Volume= 0.017 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
	10,151	69	50-75% Grass cover, Fair, HSG B
*	1,751	98	Sidewalk
	1,456	60	Woods, Fair, HSG B
	13,358	72	Weighted Average
	11,607		86.89% Pervious Area
	1,751		13.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0450	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.4	30	0.0067	1.23		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.7	130	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

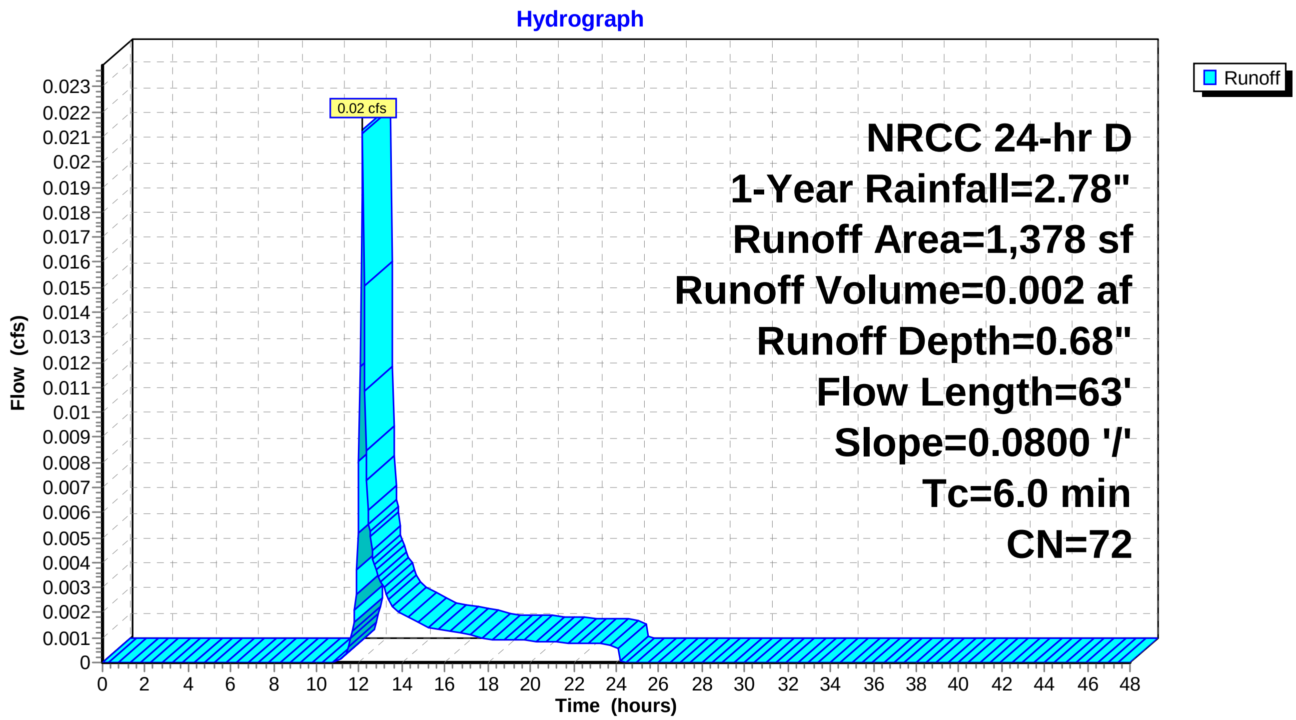
Runoff = 0.02 cfs @ 12.14 hrs, Volume= 0.002 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	151	98	Concrete Sidewalk
	1,227	69	50-75% Grass cover, Fair, HSG B
	1,378	72	Weighted Average
	1,227		89.04% Pervious Area
	151		10.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	63	0.0800	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.7	63	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 4

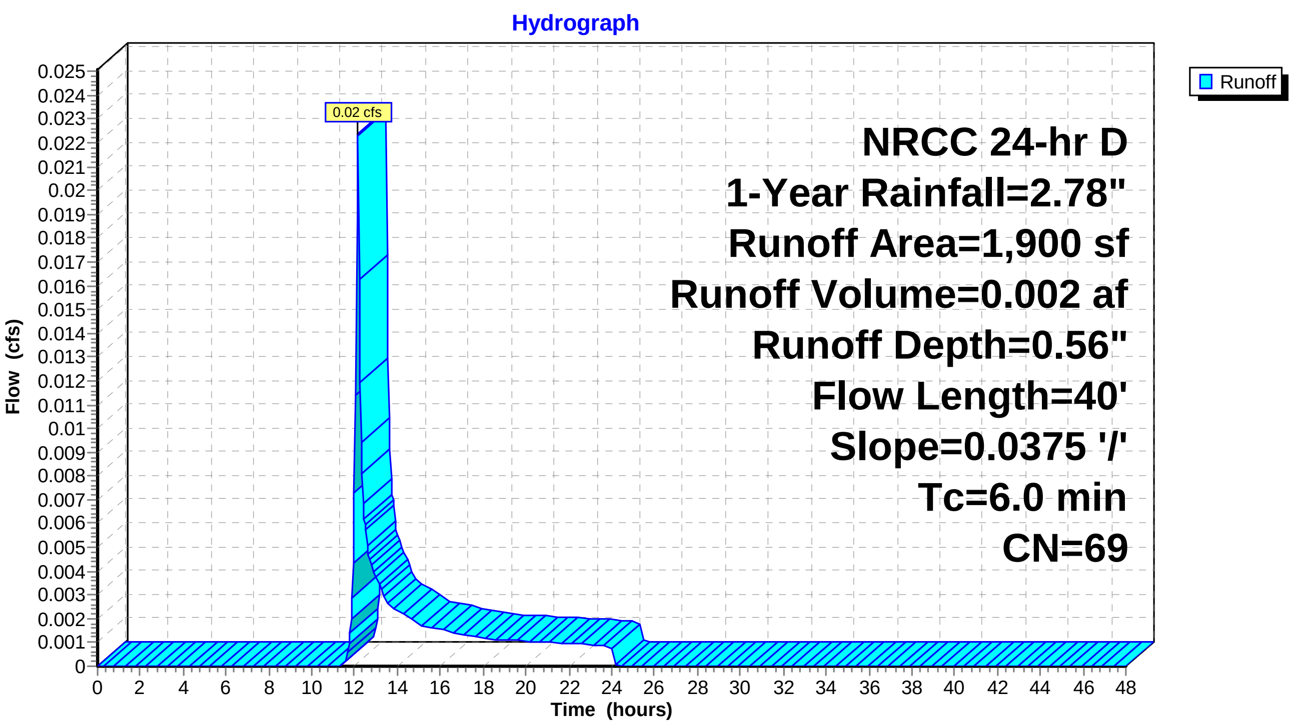
Runoff = 0.02 cfs @ 12.14 hrs, Volume= 0.002 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

Area (sf)	CN	Description
1,900	69	50-75% Grass cover, Fair, HSG B
1,900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	40	0.0375	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.3	40	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: 4



Summary for Subcatchment 4S: 5

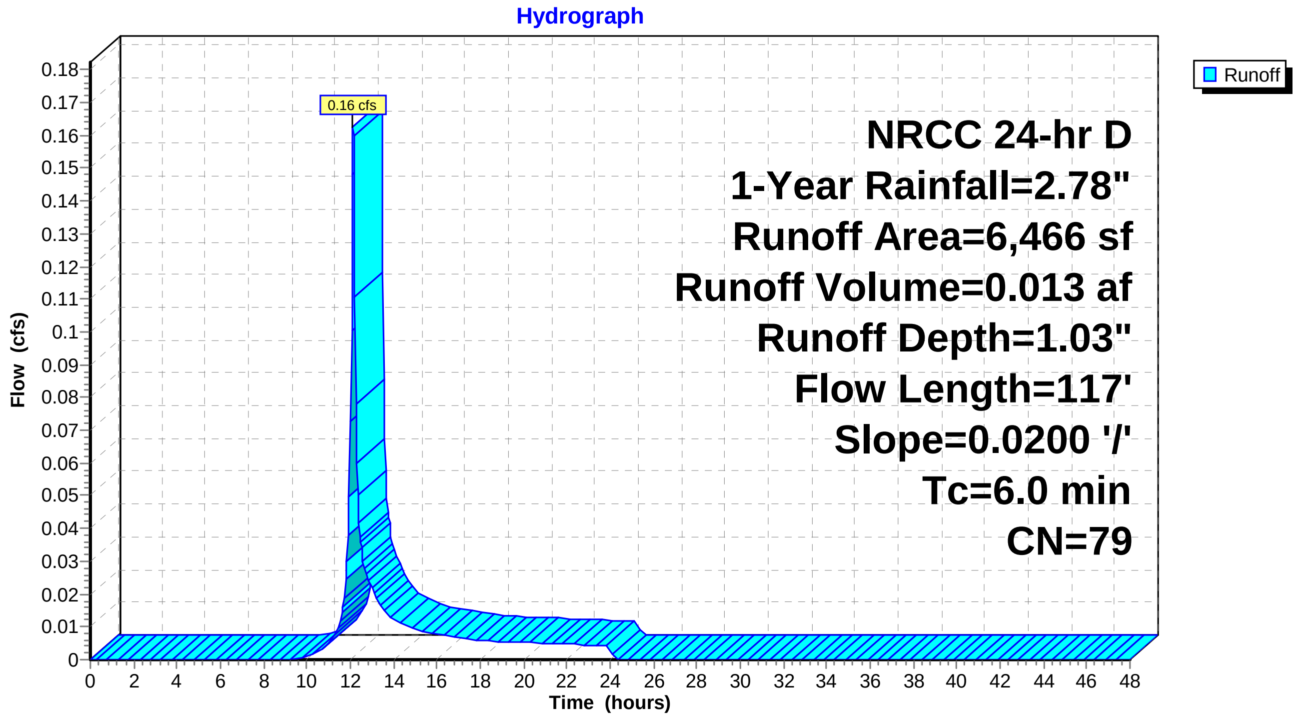
Runoff = 0.16 cfs @ 12.13 hrs, Volume= 0.013 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	6,466	79	Mulch Playground
	6,466		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0200	0.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
0.1	17	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	117	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: 5



Summary for Subcatchment 5S: 3

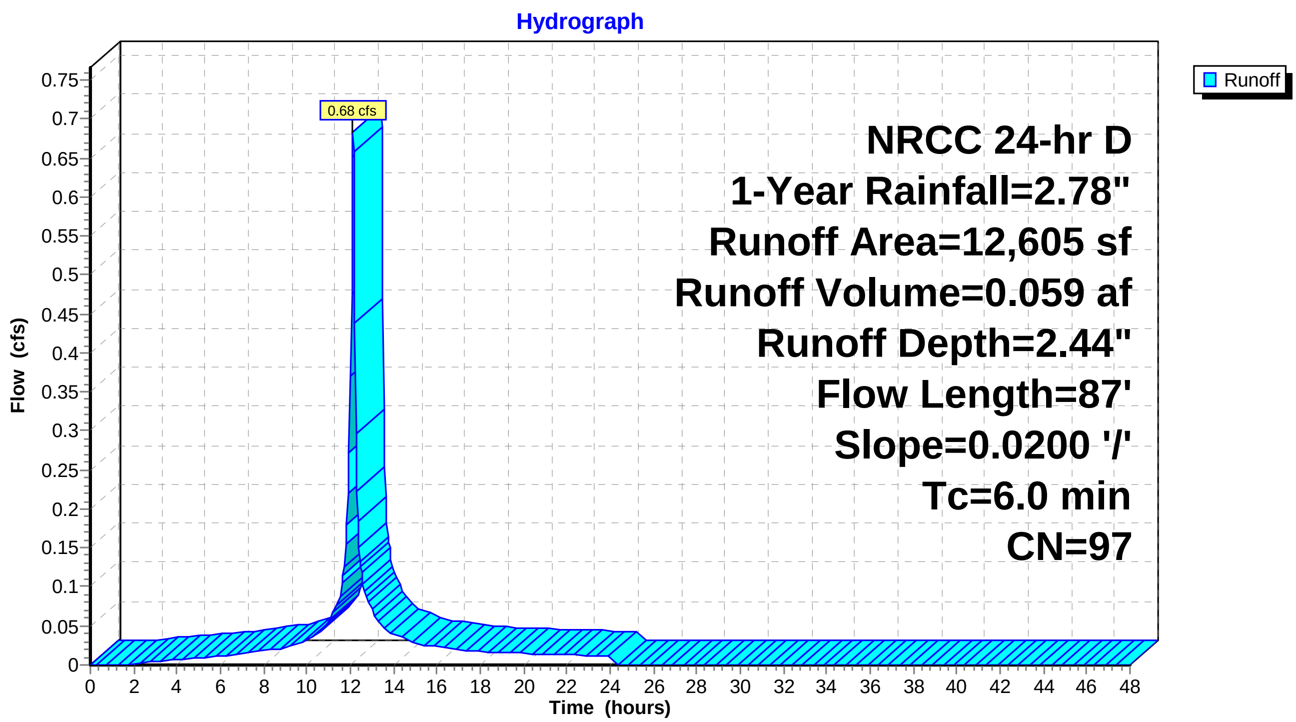
Runoff = 0.68 cfs @ 12.13 hrs, Volume= 0.059 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	3,668	98	Sidewalk
	4,409	98	Roofs, HSG B
	4,300	98	Paved parking, HSG B
	228	69	50-75% Grass cover, Fair, HSG B
	12,605	97	Weighted Average
	228		1.81% Pervious Area
	12,377		98.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	87	0.0200	0.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
1.6	87	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 5S: 3



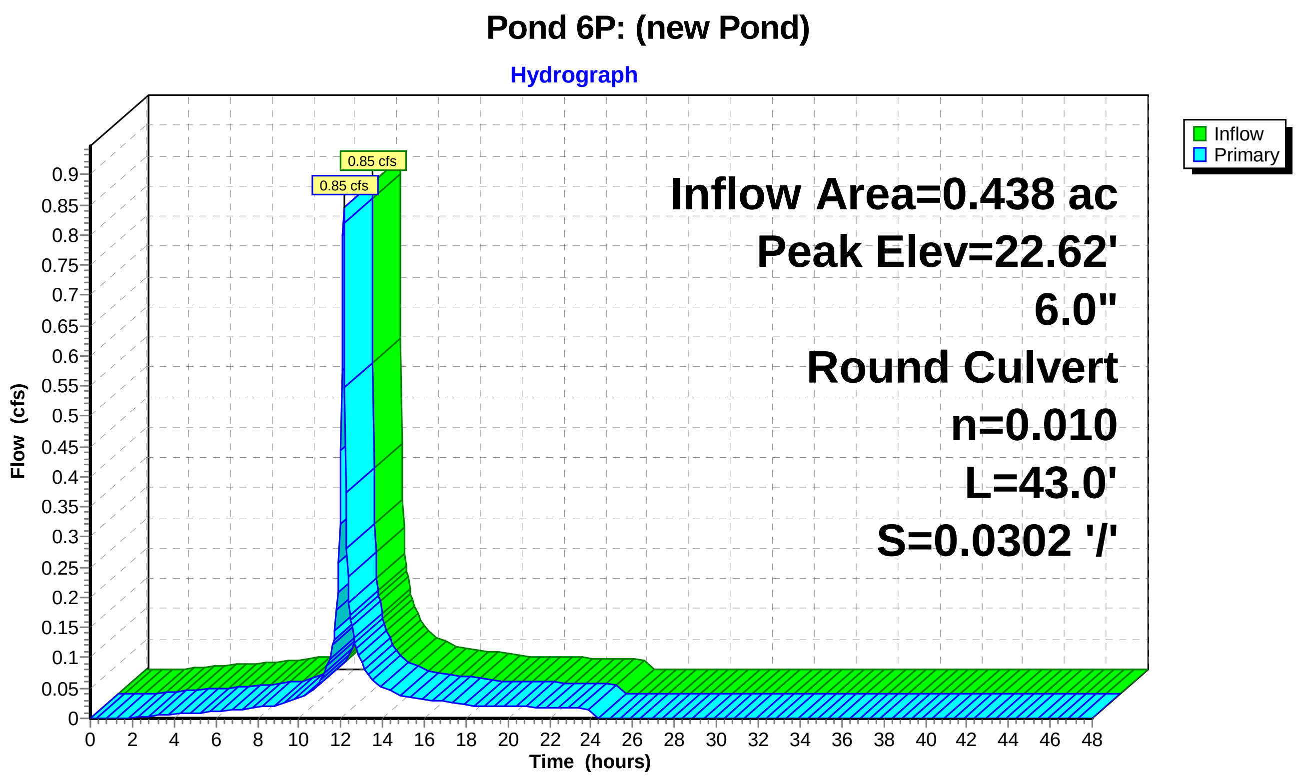
Summary for Pond 6P: (new Pond)

Inflow Area =	0.438 ac, 64.90% Impervious, Inflow Depth = 1.96" for 1-Year event			
Inflow =	0.85 cfs @	12.13 hrs, Volume=	0.072 af	
Outflow =	0.85 cfs @	12.13 hrs, Volume=	0.072 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.85 cfs @	12.13 hrs, Volume=	0.072 af	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 22.62' @ 12.13 hrs
Flood Elev= 22.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.10'	**6.0" Round Culvert** L= 43.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 21.10' / 19.80' S= 0.0302 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.81 cfs @ 12.13 hrs HW=22.53' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.81 cfs @ 4.13 fps)



Summary for Pond 7P: (new Pond)

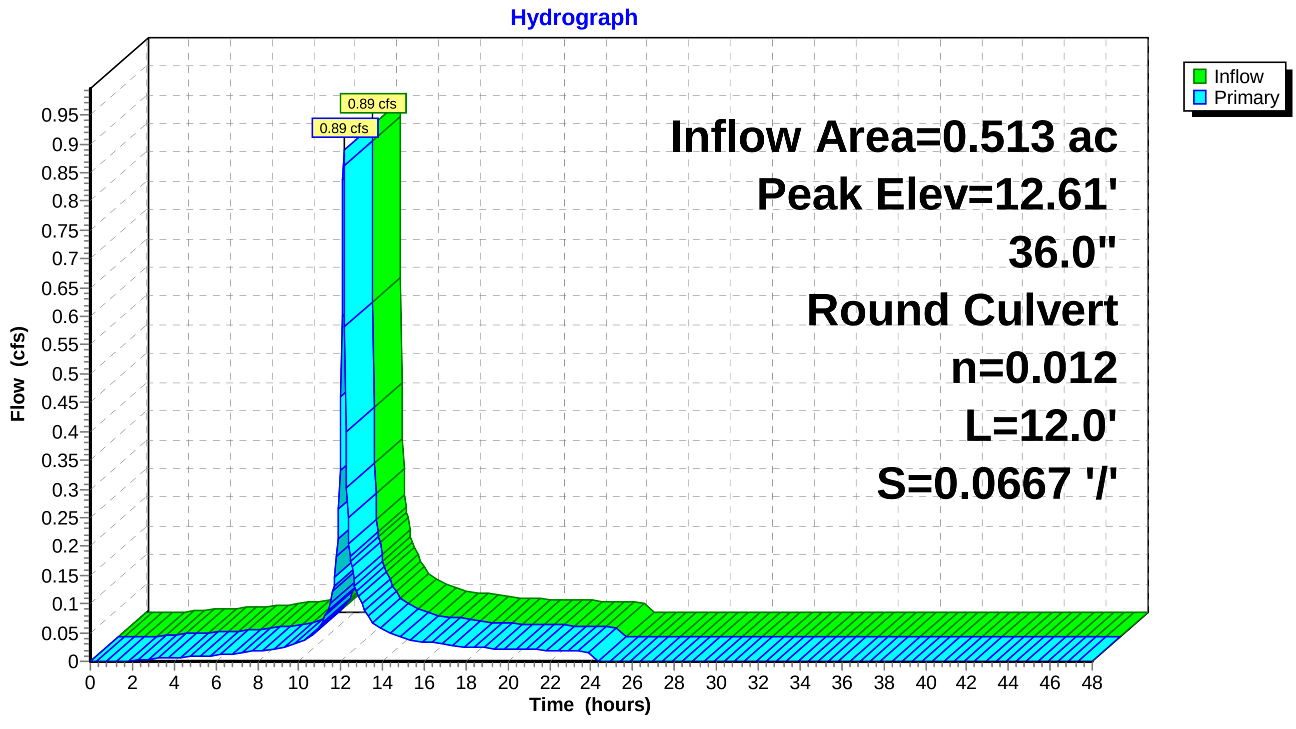
Inflow Area = 0.513 ac, 56.06% Impervious, Inflow Depth = 1.76" for 1-Year event
Inflow = 0.89 cfs @ 12.13 hrs, Volume= 0.075 af
Outflow = 0.89 cfs @ 12.13 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min
Primary = 0.89 cfs @ 12.13 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 12.61' @ 12.13 hrs
Flood Elev= 16.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.30'	**36.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.30' / 11.50' S= 0.0667 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf

Primary OutFlow Max=0.85 cfs @ 12.13 hrs HW=12.60' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.85 cfs @ 2.33 fps)

Pond 7P: (new Pond)



Summary for Pond 9P: (new Pond)

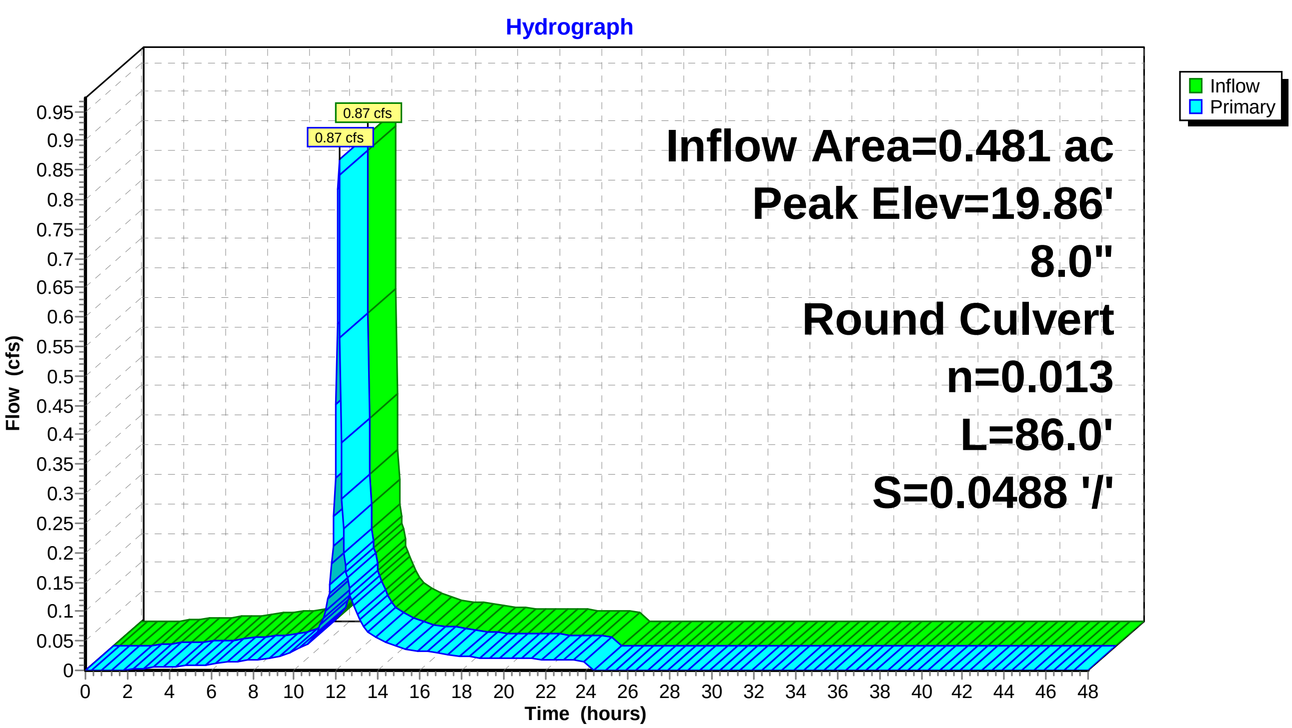
Inflow Area =	0.481 ac,	59.02% Impervious,	Inflow Depth = 1.83"	for 1-Year event	
Inflow =	0.87 cfs @	12.13 hrs,	Volume=	0.074 af	
Outflow =	0.87 cfs @	12.13 hrs,	Volume=	0.074 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.87 cfs @	12.13 hrs,	Volume=	0.074 af	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 19.86' @ 12.13 hrs
Flood Elev= 21.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.10'	**8.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 19.10' / 14.90' S= 0.0488 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.83 cfs @ 12.13 hrs HW=19.83' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.83 cfs @ 2.38 fps)

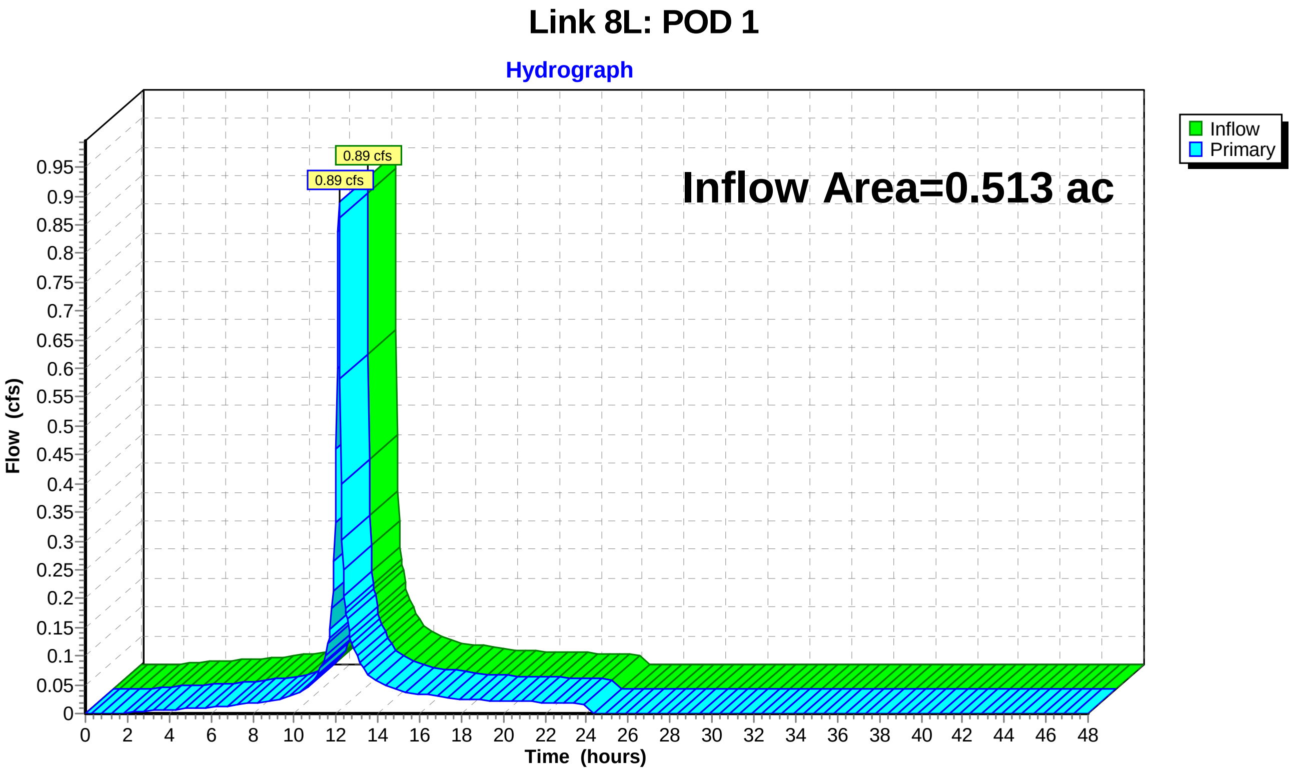
Pond 9P: (new Pond)



Summary for Link 8L: POD 1

Inflow Area = 0.513 ac, 56.06% Impervious, Inflow Depth = 1.76" for 1-Year event
Inflow = 0.89 cfs @ 12.13 hrs, Volume= 0.075 af
Primary = 0.89 cfs @ 12.13 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min

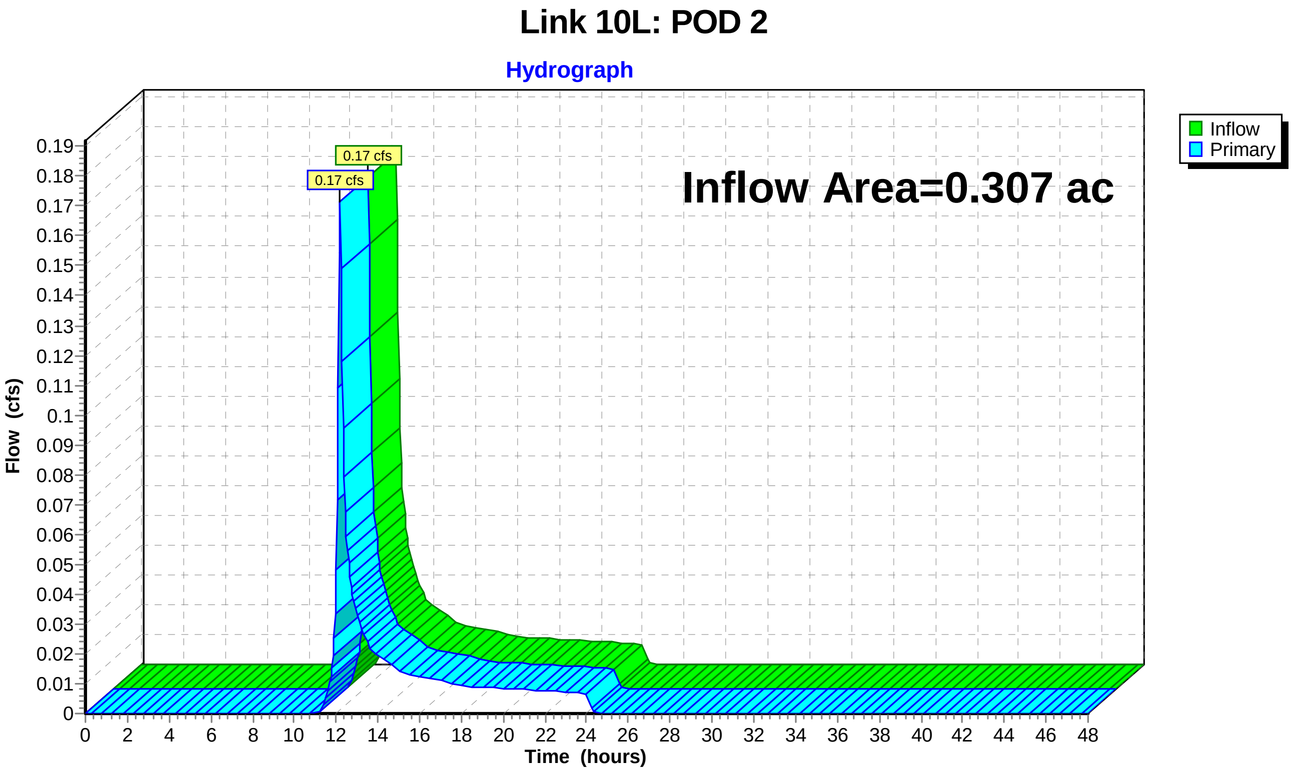
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs



Summary for Link 10L: POD 2

Inflow Area = 0.307 ac, 13.11% Impervious, Inflow Depth = 0.68" for 1-Year event
Inflow = 0.17 cfs @ 12.20 hrs, Volume= 0.017 af
Primary = 0.17 cfs @ 12.20 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

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

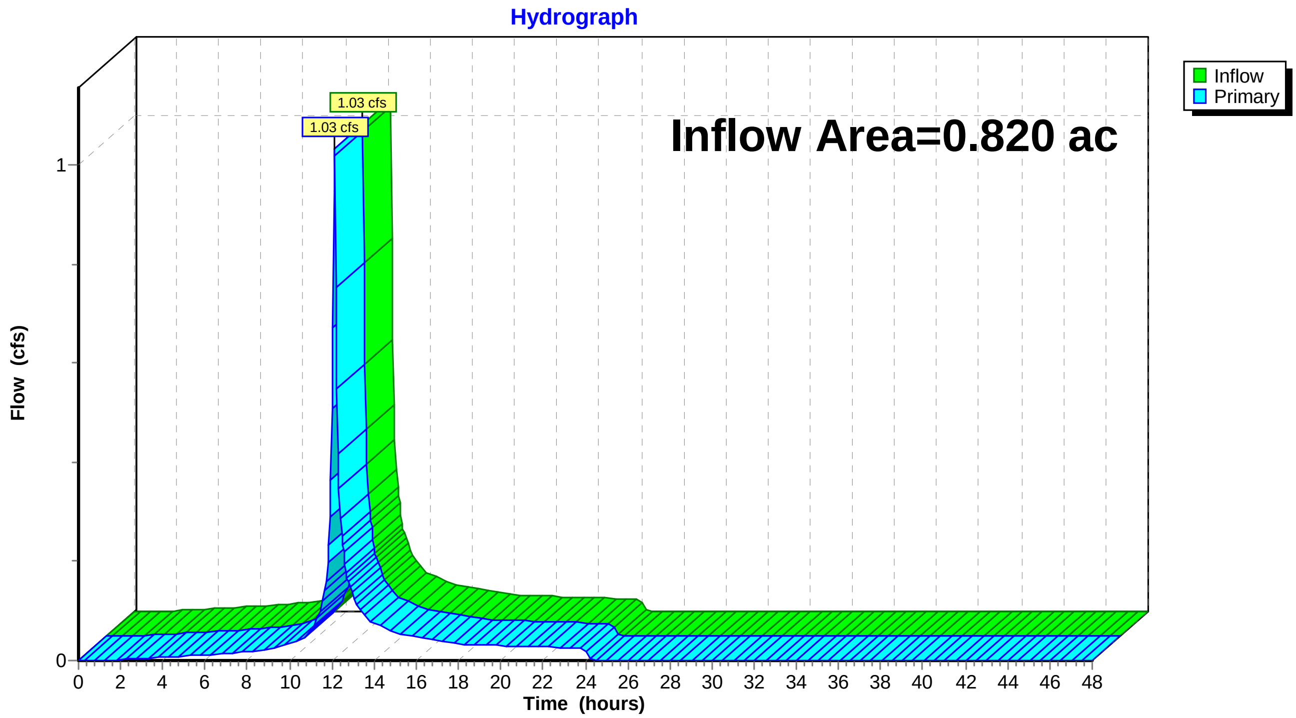


Summary for Link 11L: OVERALL EXISTING

Inflow Area = 0.820 ac, 39.99% Impervious, Inflow Depth = 1.36" for 1-Year event
Inflow = 1.03 cfs @ 12.14 hrs, Volume= 0.093 af
Primary = 1.03 cfs @ 12.14 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min

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

Link 11L: OVERALL EXISTING



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

Subcatchment 1S: 1 Runoff Area=13,358 sf 13.11% Impervious Runoff Depth=1.67"
Flow Length=130' Tc=10.7 min CN=72 Runoff=0.46 cfs 0.043 af

Subcatchment 2S: 2 Runoff Area=1,378 sf 10.96% Impervious Runoff Depth=1.67"
Flow Length=63' Slope=0.0800 '/' Tc=6.0 min CN=72 Runoff=0.06 cfs 0.004 af

Subcatchment 3S: 4 Runoff Area=1,900 sf 0.00% Impervious Runoff Depth=1.47"
Flow Length=40' Slope=0.0375 '/' Tc=6.0 min CN=69 Runoff=0.07 cfs 0.005 af

Subcatchment 4S: 5 Runoff Area=6,466 sf 0.00% Impervious Runoff Depth=2.21"
Flow Length=117' Slope=0.0200 '/' Tc=6.0 min CN=79 Runoff=0.35 cfs 0.027 af

Subcatchment 5S: 3 Runoff Area=12,605 sf 98.19% Impervious Runoff Depth=3.95"
Flow Length=87' Slope=0.0200 '/' Tc=6.0 min CN=97 Runoff=1.08 cfs 0.095 af

Pond 6P: (new Pond) Peak Elev=24.97' Inflow=1.43 cfs 0.123 af
6.0" Round Culvert n=0.010 L=43.0' S=0.0302 '/' Outflow=1.43 cfs 0.123 af

Pond 7P: (new Pond) Peak Elev=12.71' Inflow=1.55 cfs 0.132 af
36.0" Round Culvert n=0.012 L=12.0' S=0.0667 '/' Outflow=1.55 cfs 0.132 af

Pond 9P: (new Pond) Peak Elev=20.69' Inflow=1.50 cfs 0.128 af
8.0" Round Culvert n=0.013 L=86.0' S=0.0488 '/' Outflow=1.50 cfs 0.128 af

Link 8L: POD 1 Inflow=1.55 cfs 0.132 af
Primary=1.55 cfs 0.132 af

Link 10L: POD 2 Inflow=0.46 cfs 0.043 af
Primary=0.46 cfs 0.043 af

Link 11L: OVERALL EXISTING Inflow=1.96 cfs 0.175 af
Primary=1.96 cfs 0.175 af

Total Runoff Area = 0.820 ac Runoff Volume = 0.175 af Average Runoff Depth = 2.56"
60.01% Pervious = 0.492 ac 39.99% Impervious = 0.328 ac

Summary for Subcatchment 1S: 1

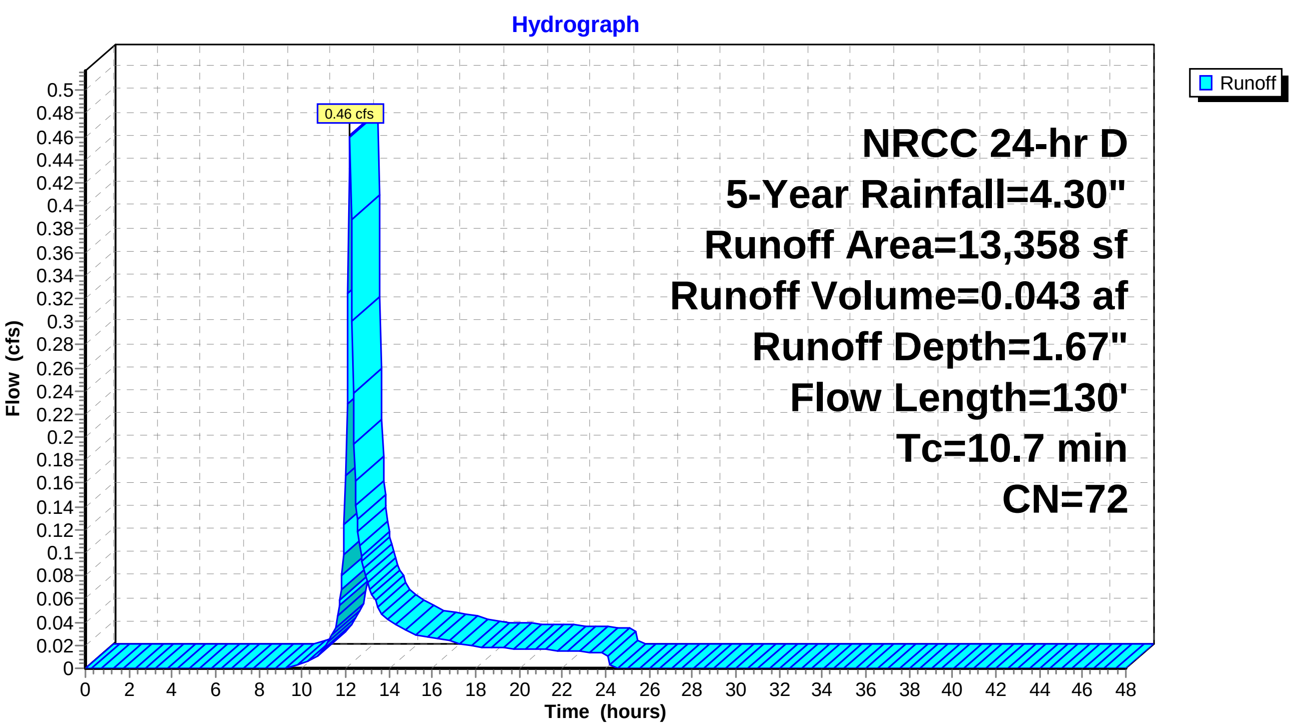
Runoff = 0.46 cfs @ 12.19 hrs, Volume= 0.043 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
	10,151	69	50-75% Grass cover, Fair, HSG B
*	1,751	98	Sidewalk
	1,456	60	Woods, Fair, HSG B
	13,358	72	Weighted Average
	11,607		86.89% Pervious Area
	1,751		13.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0450	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.4	30	0.0067	1.23		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.7	130	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

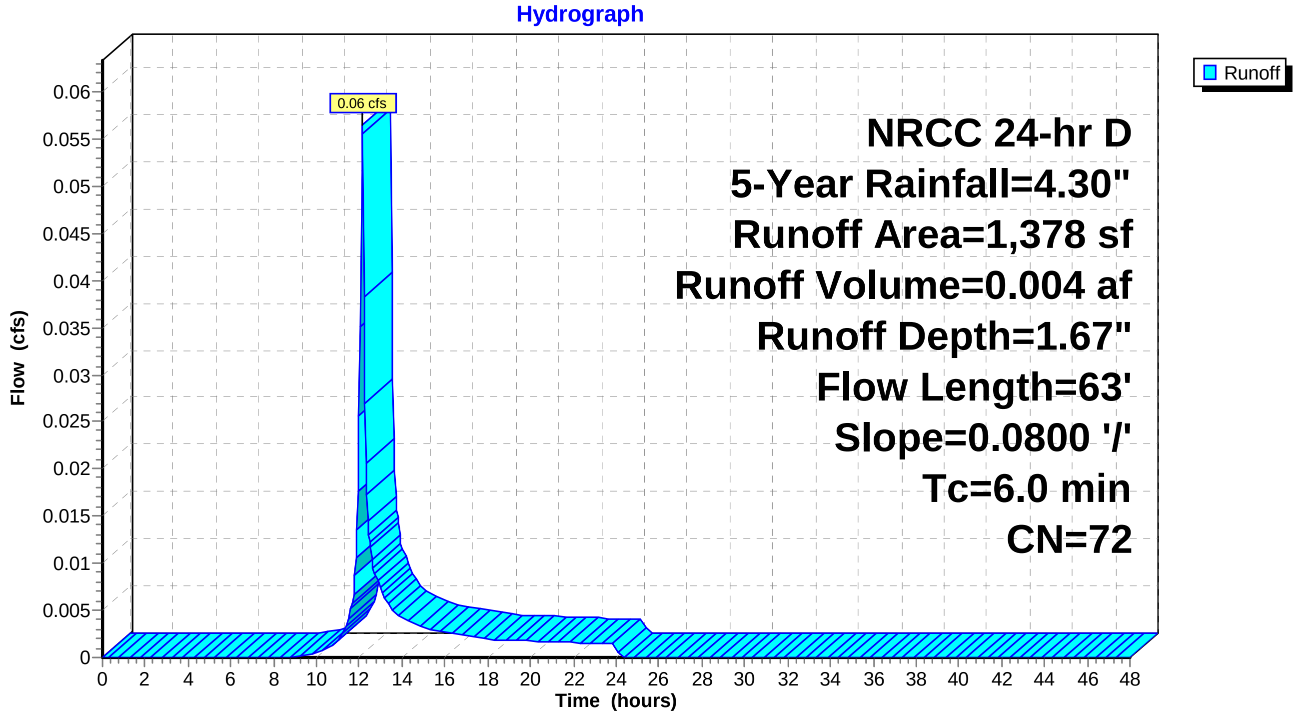
Runoff = 0.06 cfs @ 12.13 hrs, Volume= 0.004 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
*	151	98	Concrete Sidewalk
	1,227	69	50-75% Grass cover, Fair, HSG B
	1,378	72	Weighted Average
	1,227		89.04% Pervious Area
	151		10.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	63	0.0800	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.7	63	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 4

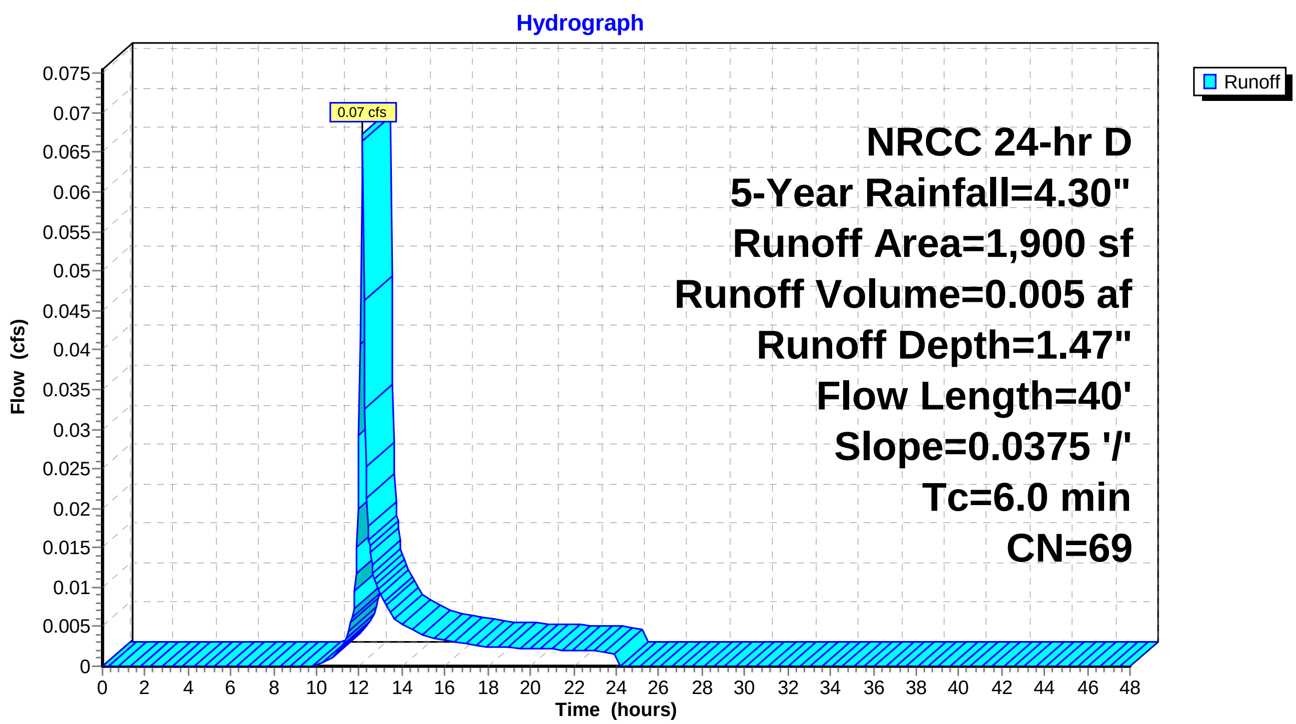
Runoff = 0.07 cfs @ 12.14 hrs, Volume= 0.005 af, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 5-Year Rainfall=4.30"

Area (sf)	CN	Description
1,900	69	50-75% Grass cover, Fair, HSG B
1,900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	40	0.0375	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.3	40	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: 4



Summary for Subcatchment 4S: 5

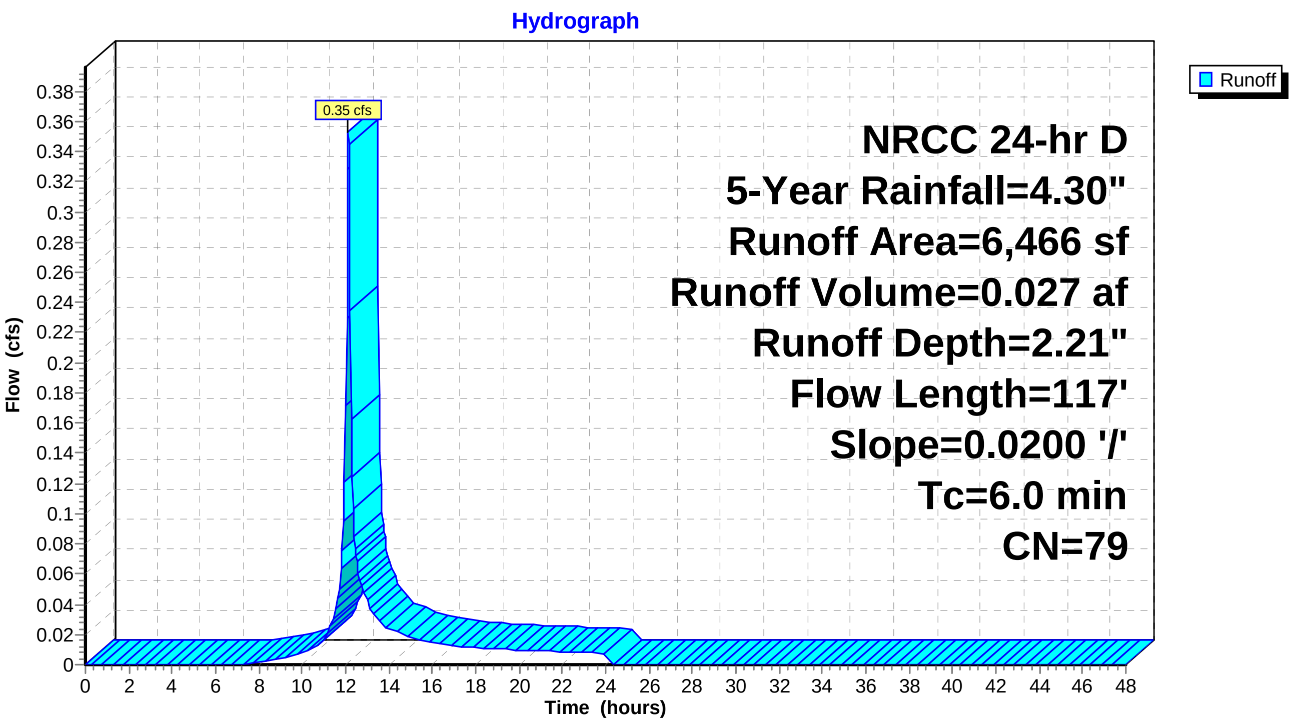
Runoff = 0.35 cfs @ 12.13 hrs, Volume= 0.027 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
*	6,466	79	Mulch Playground
	6,466		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0200	0.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
0.1	17	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	117	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: 5



Summary for Subcatchment 5S: 3

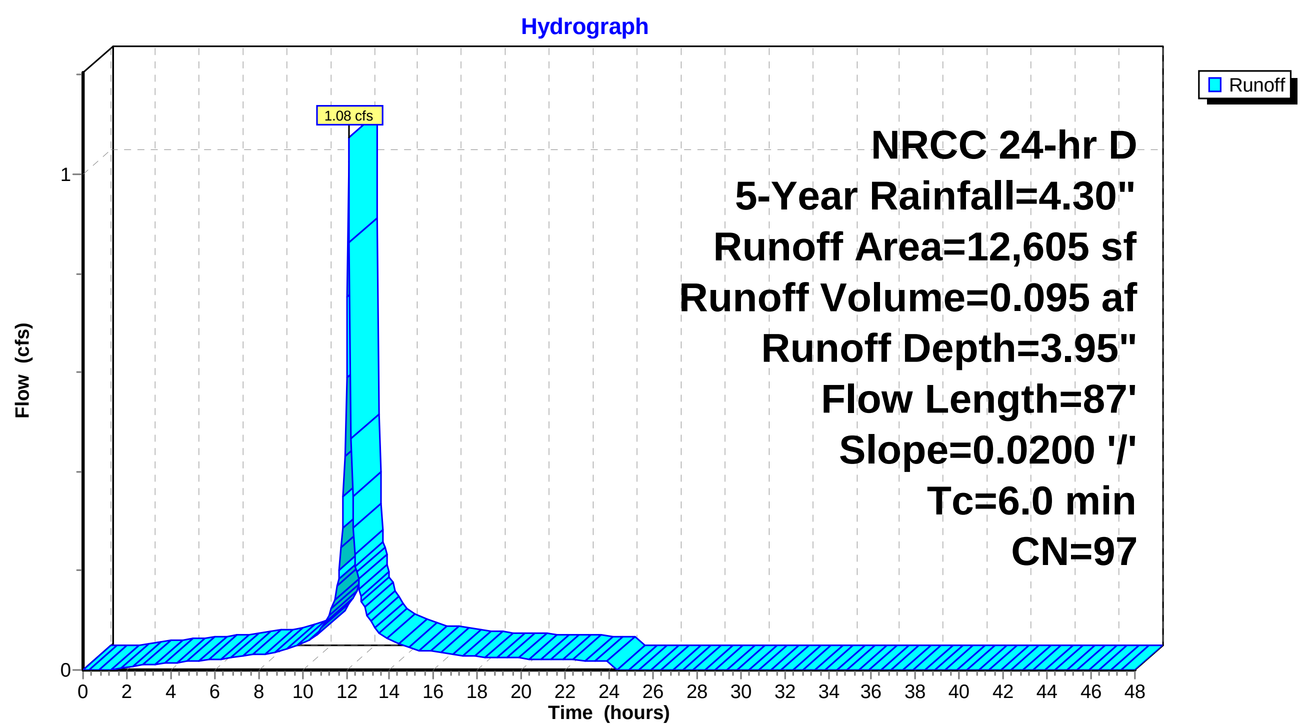
Runoff = 1.08 cfs @ 12.13 hrs, Volume= 0.095 af, Depth= 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 5-Year Rainfall=4.30"

	Area (sf)	CN	Description
*	3,668	98	Sidewalk
	4,409	98	Roofs, HSG B
	4,300	98	Paved parking, HSG B
	228	69	50-75% Grass cover, Fair, HSG B
	12,605	97	Weighted Average
	228		1.81% Pervious Area
	12,377		98.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	87	0.0200	0.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
1.6	87	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 5S: 3



Summary for Pond 6P: (new Pond)

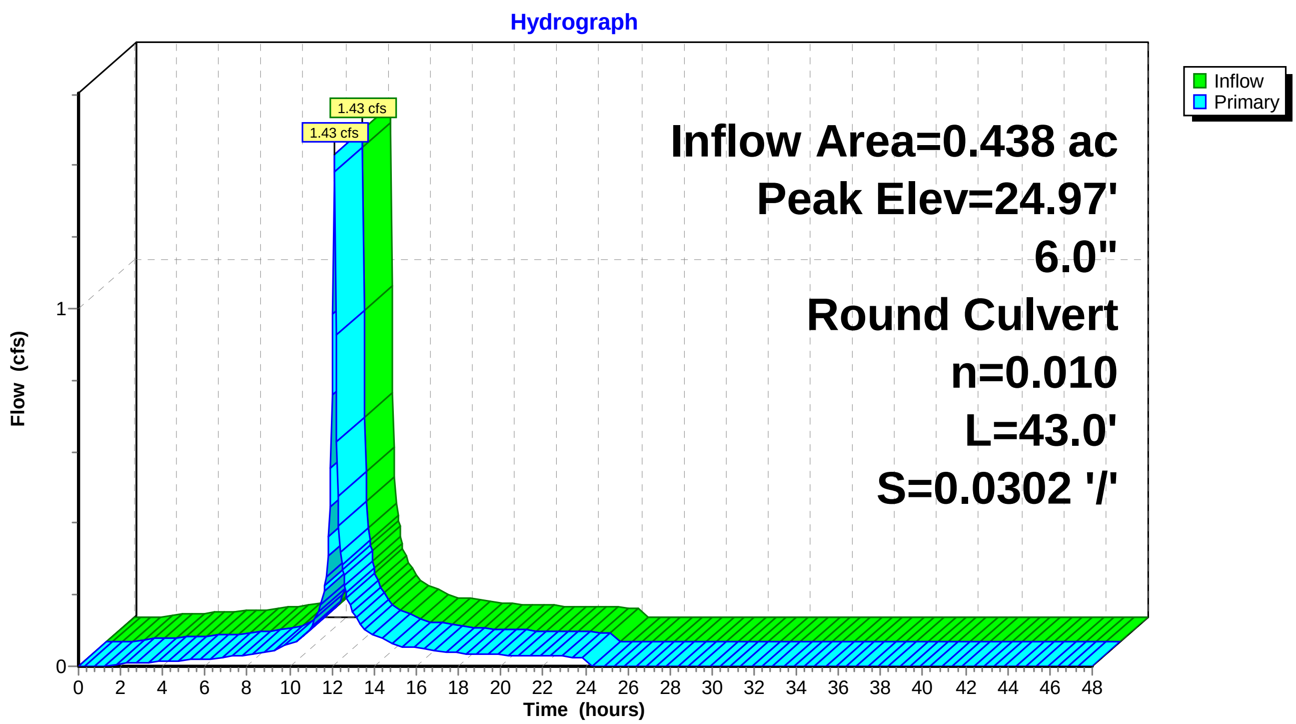
Inflow Area = 0.438 ac, 64.90% Impervious, Inflow Depth = 3.36" for 5-Year event
Inflow = 1.43 cfs @ 12.13 hrs, Volume= 0.123 af
Outflow = 1.43 cfs @ 12.13 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 12.13 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 24.97' @ 12.13 hrs
Flood Elev= 22.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.10'	**6.0" Round Culvert** L= 43.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 21.10' / 19.80' S= 0.0302 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.37 cfs @ 12.13 hrs HW=24.72' (Free Discharge)
1=Culvert (Inlet Controls 1.37 cfs @ 6.98 fps)

Pond 6P: (new Pond)



Summary for Pond 7P: (new Pond)

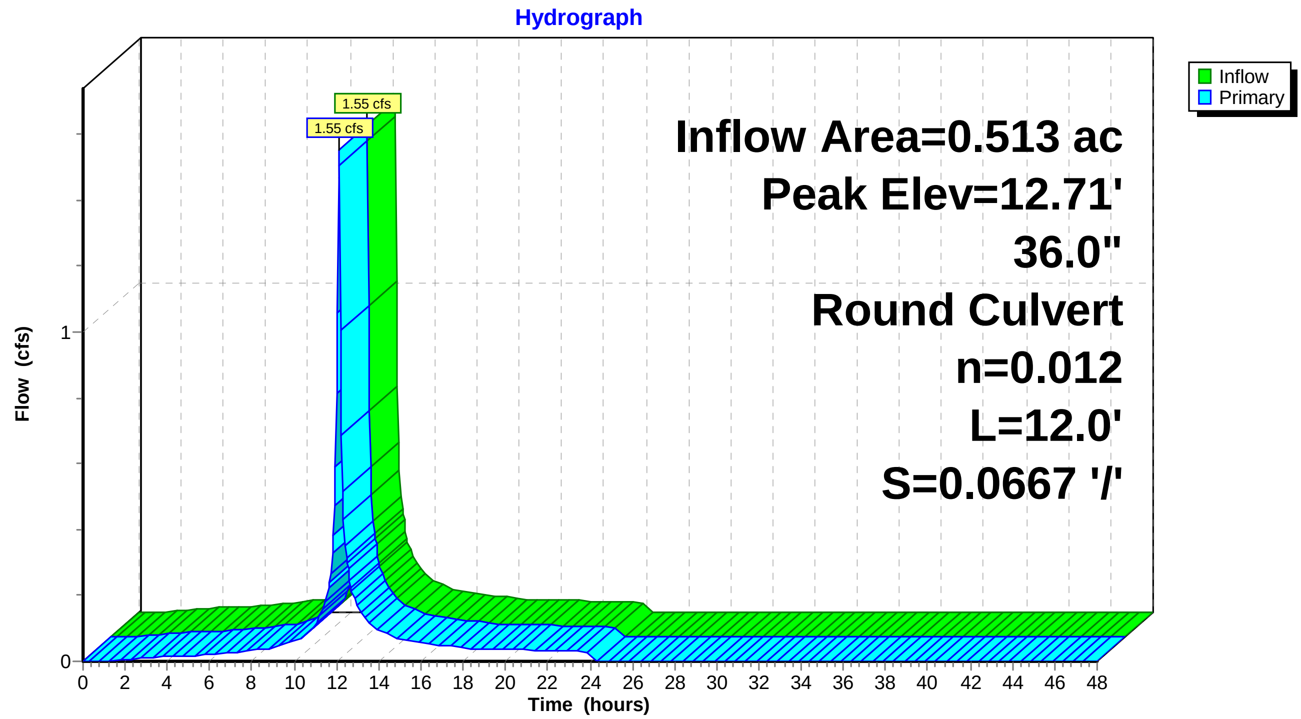
Inflow Area = 0.513 ac, 56.06% Impervious, Inflow Depth = 3.09" for 5-Year event
Inflow = 1.55 cfs @ 12.13 hrs, Volume= 0.132 af
Outflow = 1.55 cfs @ 12.13 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
Primary = 1.55 cfs @ 12.13 hrs, Volume= 0.132 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 12.71' @ 12.13 hrs
Flood Elev= 16.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.30'	**36.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.30' / 11.50' S= 0.0667 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf

Primary OutFlow Max=1.49 cfs @ 12.13 hrs HW=12.70' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.49 cfs @ 2.68 fps)

Pond 7P: (new Pond)



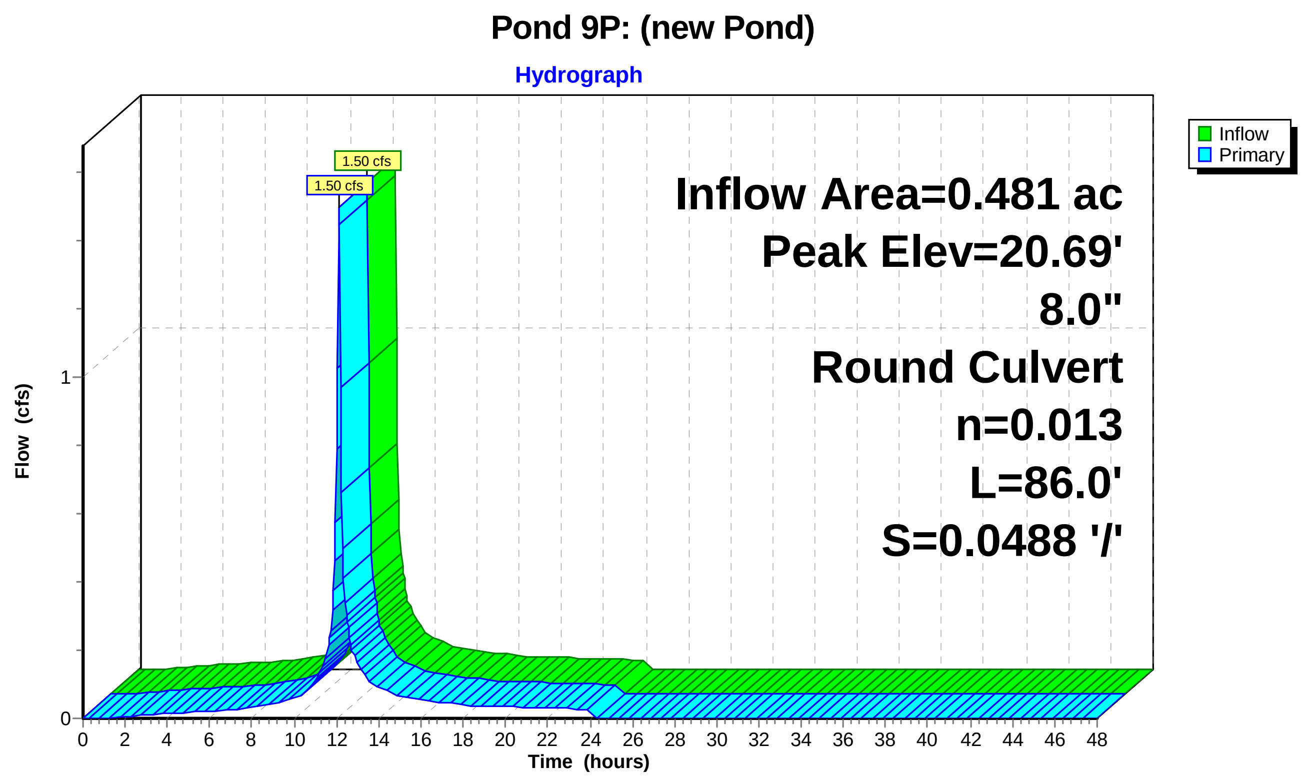
Summary for Pond 9P: (new Pond)

Inflow Area = 0.481 ac, 59.02% Impervious, Inflow Depth = 3.19" for 5-Year event
Inflow = 1.50 cfs @ 12.13 hrs, Volume= 0.128 af
Outflow = 1.50 cfs @ 12.13 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min
Primary = 1.50 cfs @ 12.13 hrs, Volume= 0.128 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 20.69' @ 12.13 hrs
Flood Elev= 21.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.10'	**8.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 19.10' / 14.90' S= 0.0488 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

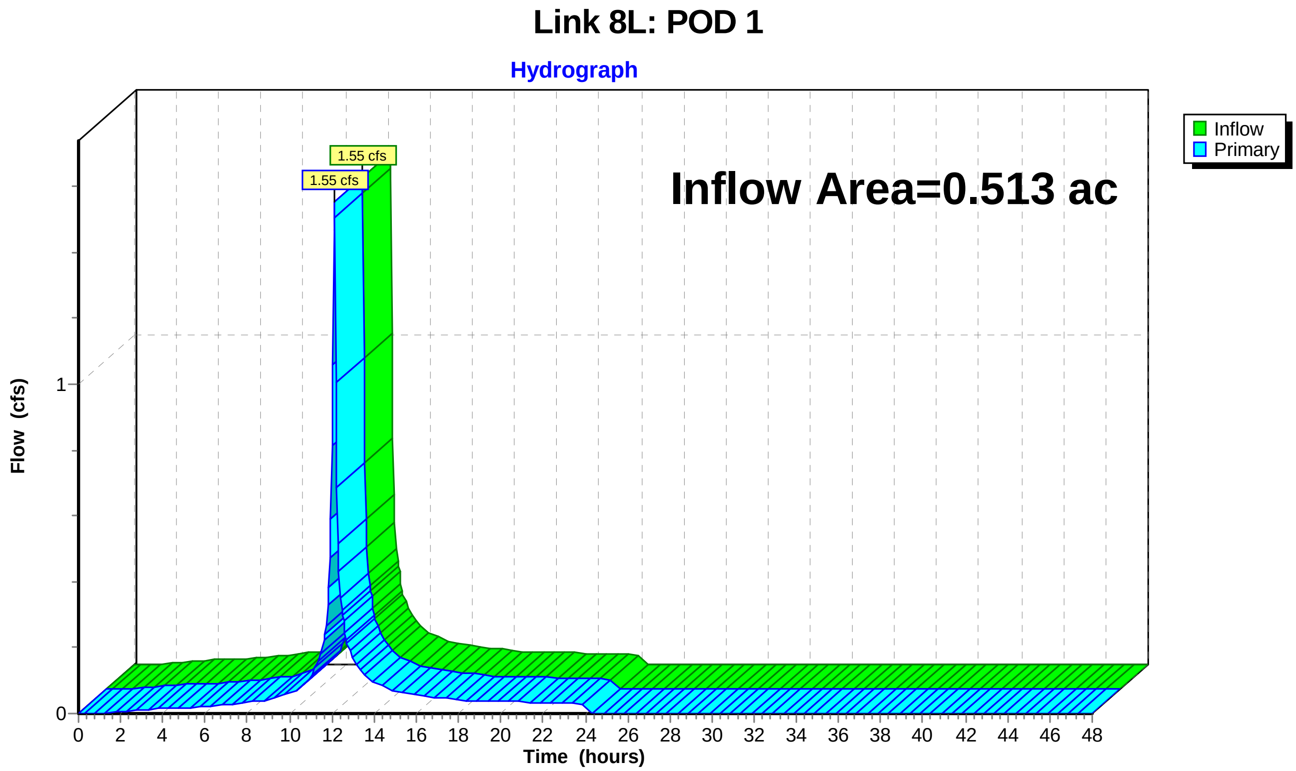
Primary OutFlow Max=1.43 cfs @ 12.13 hrs HW=20.60' (Free Discharge)
└—**1=Culvert** (Inlet Controls 1.43 cfs @ 4.11 fps)



Summary for Link 8L: POD 1

Inflow Area = 0.513 ac, 56.06% Impervious, Inflow Depth = 3.09" for 5-Year event
Inflow = 1.55 cfs @ 12.13 hrs, Volume= 0.132 af
Primary = 1.55 cfs @ 12.13 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min

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

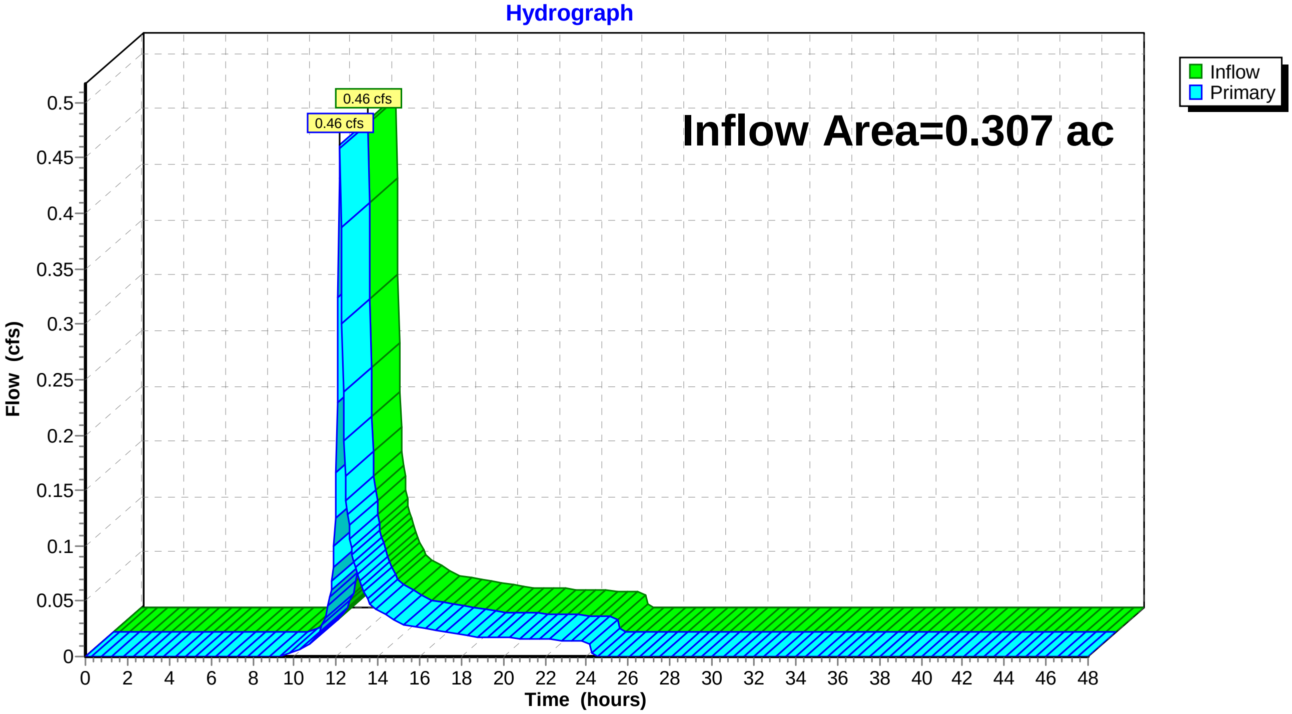


Summary for Link 10L: POD 2

Inflow Area = 0.307 ac, 13.11% Impervious, Inflow Depth = 1.67" for 5-Year event
Inflow = 0.46 cfs @ 12.19 hrs, Volume= 0.043 af
Primary = 0.46 cfs @ 12.19 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

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

Link 10L: POD 2

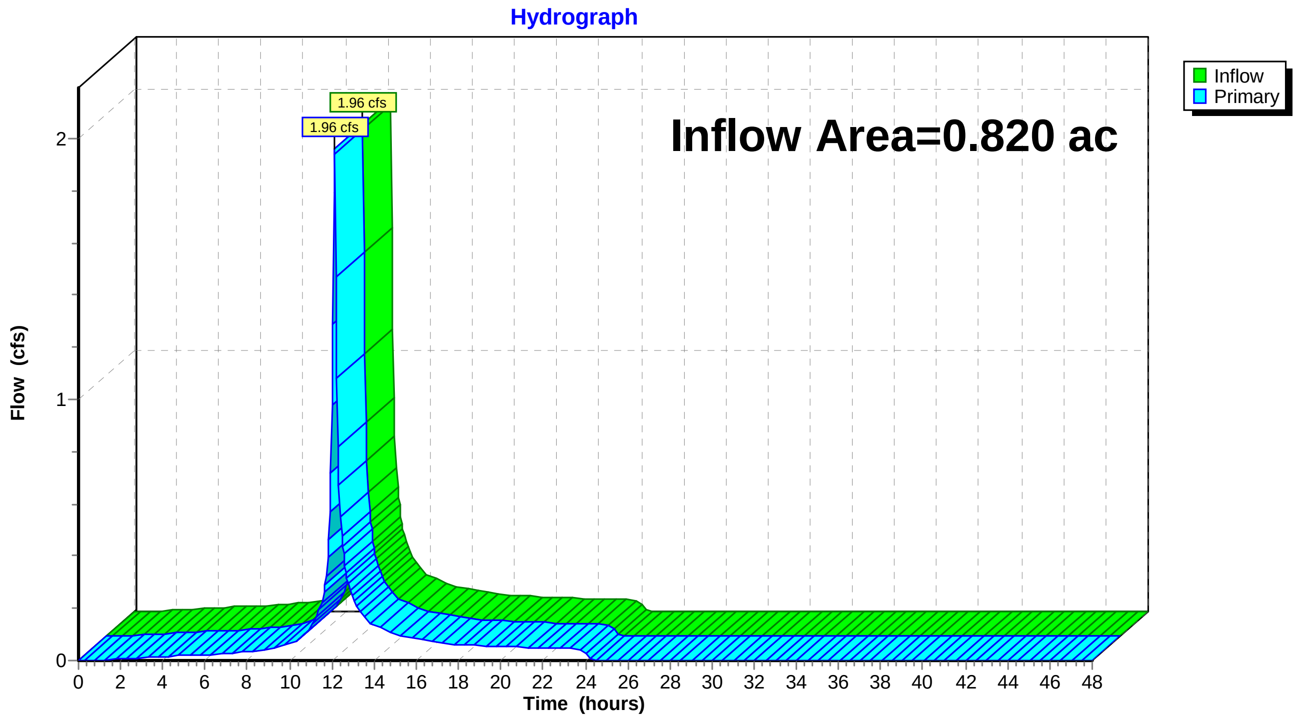


Summary for Link 11L: OVERALL EXISTING

Inflow Area =	0.820 ac, 39.99% Impervious, Inflow Depth = 2.56" for 5-Year event		
Inflow =	1.96 cfs @ 12.14 hrs, Volume=	0.175 af	
Primary =	1.96 cfs @ 12.14 hrs, Volume=	0.175 af,	Atten= 0%, Lag= 0.0 min

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

Link 11L: OVERALL EXISTING



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

Subcatchment 1S: 1 Runoff Area=13,358 sf 13.11% Impervious Runoff Depth=3.40"
Flow Length=130' Tc=10.7 min CN=72 Runoff=0.95 cfs 0.087 af

Subcatchment 2S: 2 Runoff Area=1,378 sf 10.96% Impervious Runoff Depth=3.40"
Flow Length=63' Slope=0.0800 '/' Tc=6.0 min CN=72 Runoff=0.12 cfs 0.009 af

Subcatchment 3S: 4 Runoff Area=1,900 sf 0.00% Impervious Runoff Depth=3.10"
Flow Length=40' Slope=0.0375 '/' Tc=6.0 min CN=69 Runoff=0.15 cfs 0.011 af

Subcatchment 4S: 5 Runoff Area=6,466 sf 0.00% Impervious Runoff Depth=4.12"
Flow Length=117' Slope=0.0200 '/' Tc=6.0 min CN=79 Runoff=0.65 cfs 0.051 af

Subcatchment 5S: 3 Runoff Area=12,605 sf 98.19% Impervious Runoff Depth=6.13"
Flow Length=87' Slope=0.0200 '/' Tc=6.0 min CN=97 Runoff=1.64 cfs 0.148 af

Pond 6P: (new Pond) Peak Elev=30.63' Inflow=2.29 cfs 0.199 af
6.0" Round Culvert n=0.010 L=43.0' S=0.0302 '/' Outflow=2.29 cfs 0.199 af

Pond 7P: (new Pond) Peak Elev=12.82' Inflow=2.55 cfs 0.219 af
36.0" Round Culvert n=0.012 L=12.0' S=0.0667 '/' Outflow=2.55 cfs 0.219 af

Pond 9P: (new Pond) Peak Elev=22.75' Inflow=2.44 cfs 0.210 af
8.0" Round Culvert n=0.013 L=86.0' S=0.0488 '/' Outflow=2.44 cfs 0.210 af

Link 8L: POD 1 Inflow=2.55 cfs 0.219 af
Primary=2.55 cfs 0.219 af

Link 10L: POD 2 Inflow=0.95 cfs 0.087 af
Primary=0.95 cfs 0.087 af

Link 11L: OVERALL EXISTING Inflow=3.40 cfs 0.306 af
Primary=3.40 cfs 0.306 af

Total Runoff Area = 0.820 ac Runoff Volume = 0.306 af Average Runoff Depth = 4.48"
60.01% Pervious = 0.492 ac 39.99% Impervious = 0.328 ac

Summary for Subcatchment 1S: 1

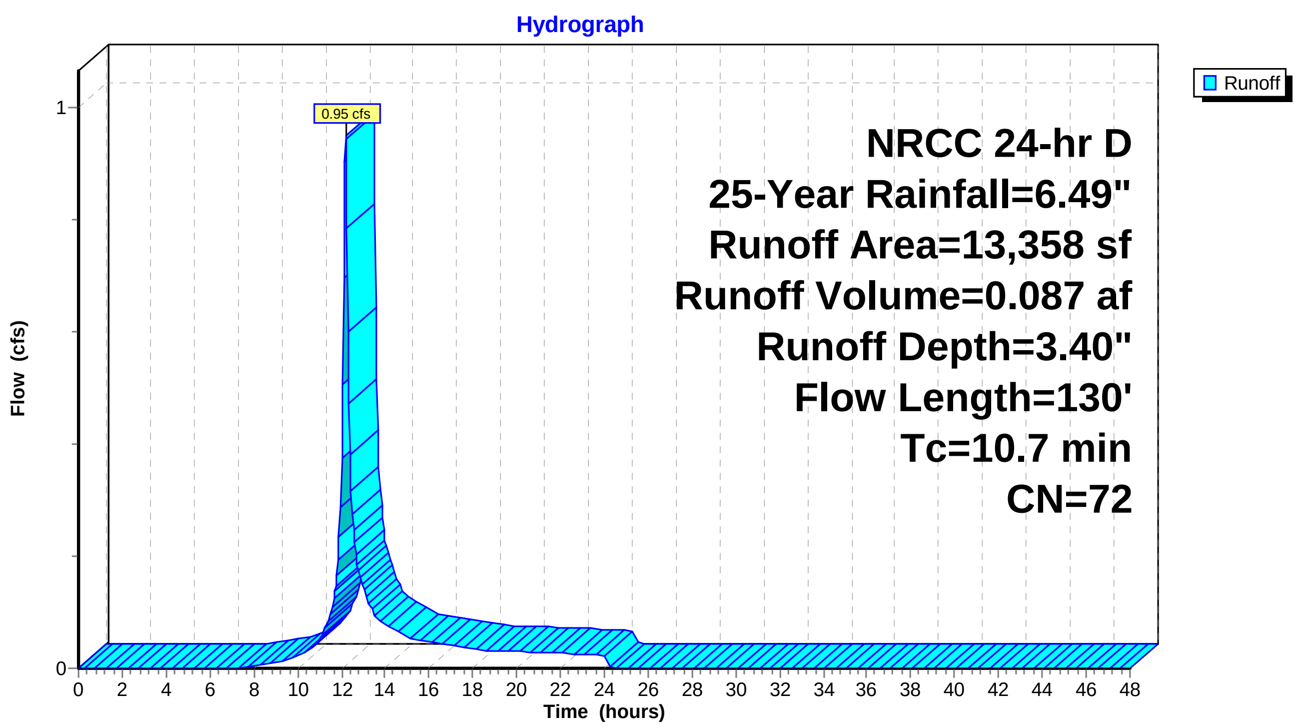
Runoff = 0.95 cfs @ 12.18 hrs, Volume= 0.087 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
	10,151	69	50-75% Grass cover, Fair, HSG B
*	1,751	98	Sidewalk
	1,456	60	Woods, Fair, HSG B
	13,358	72	Weighted Average
	11,607		86.89% Pervious Area
	1,751		13.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0450	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.4	30	0.0067	1.23		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.7	130	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

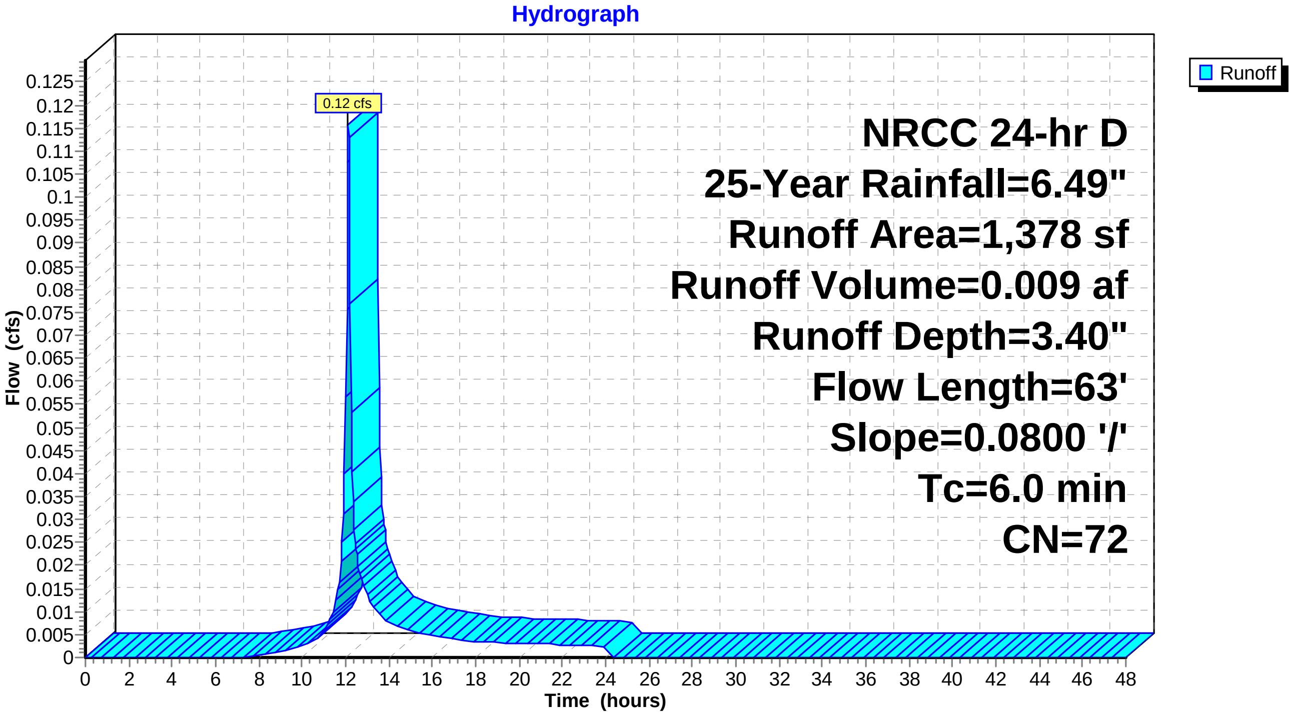
Runoff = 0.12 cfs @ 12.13 hrs, Volume= 0.009 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	151	98	Concrete Sidewalk
	1,227	69	50-75% Grass cover, Fair, HSG B
	1,378	72	Weighted Average
	1,227		89.04% Pervious Area
	151		10.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	63	0.0800	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.7	63	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 4

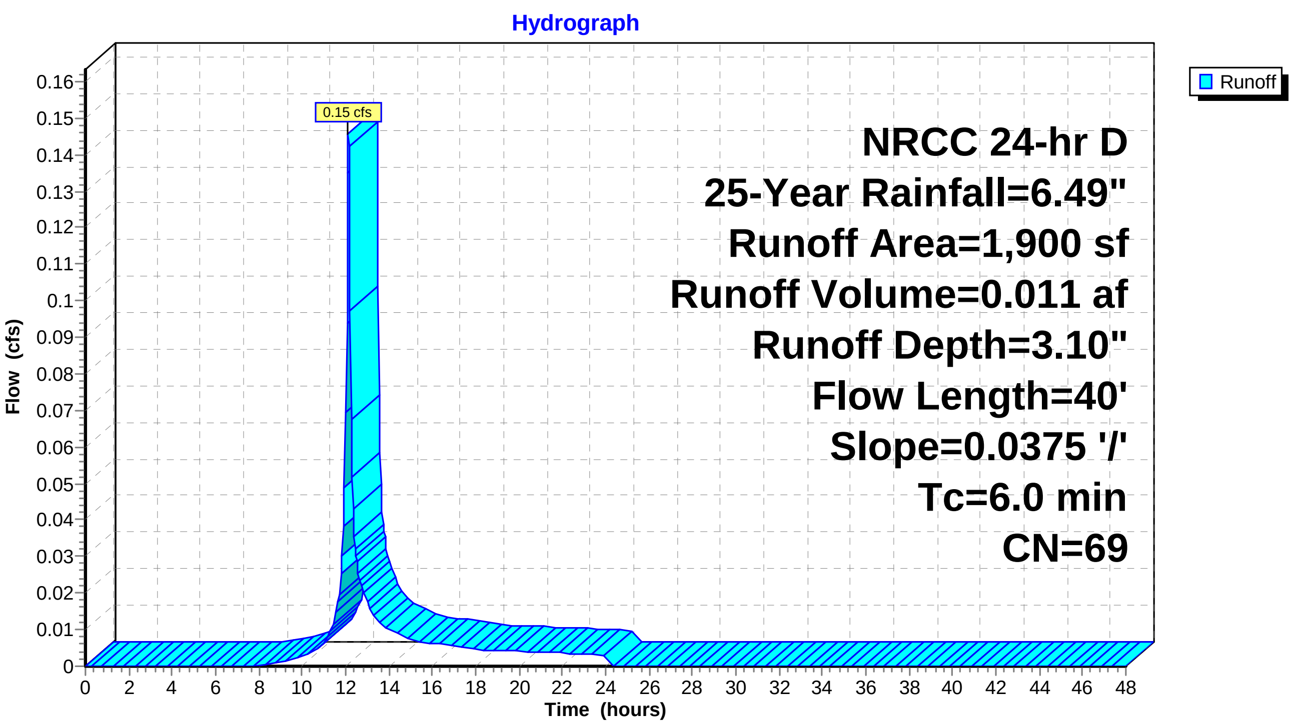
Runoff = 0.15 cfs @ 12.13 hrs, Volume= 0.011 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

Area (sf)	CN	Description
1,900	69	50-75% Grass cover, Fair, HSG B
1,900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	40	0.0375	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.3	40	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: 4



Summary for Subcatchment 4S: 5

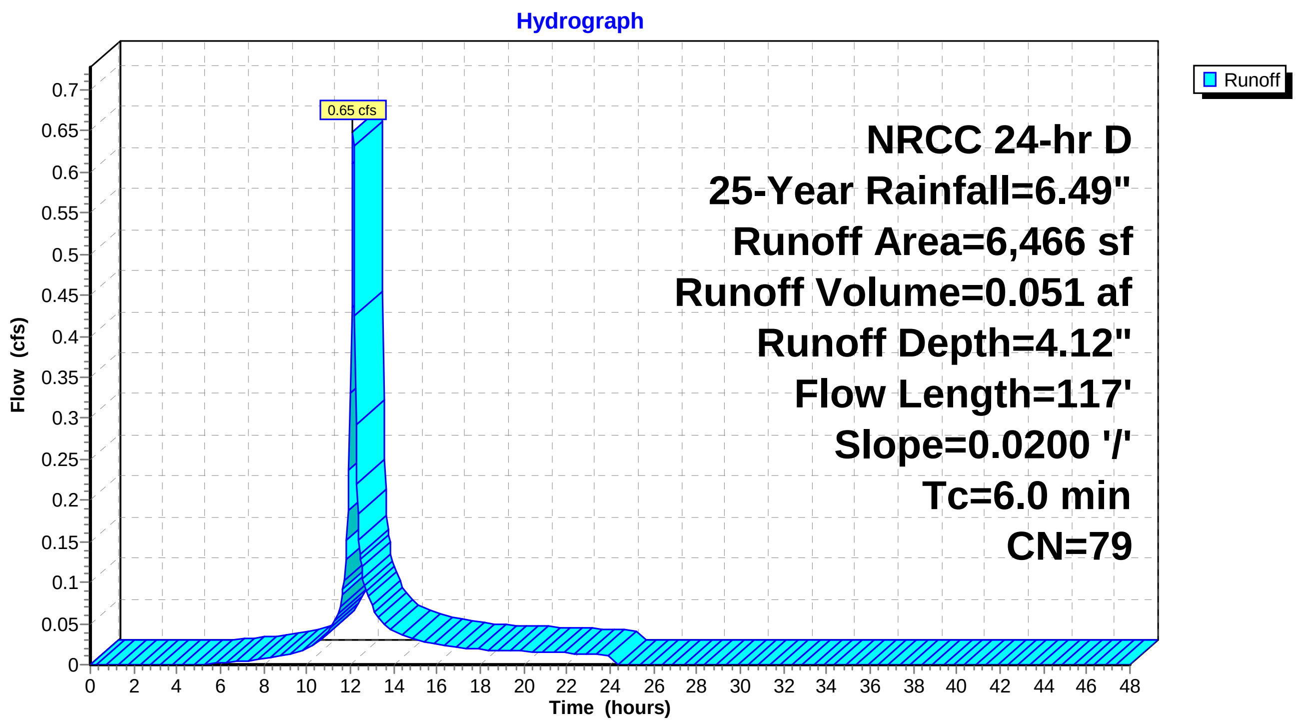
Runoff = 0.65 cfs @ 12.13 hrs, Volume= 0.051 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	6,466	79	Mulch Playground
	6,466		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0200	0.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
0.1	17	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	117	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: 5



Summary for Subcatchment 5S: 3

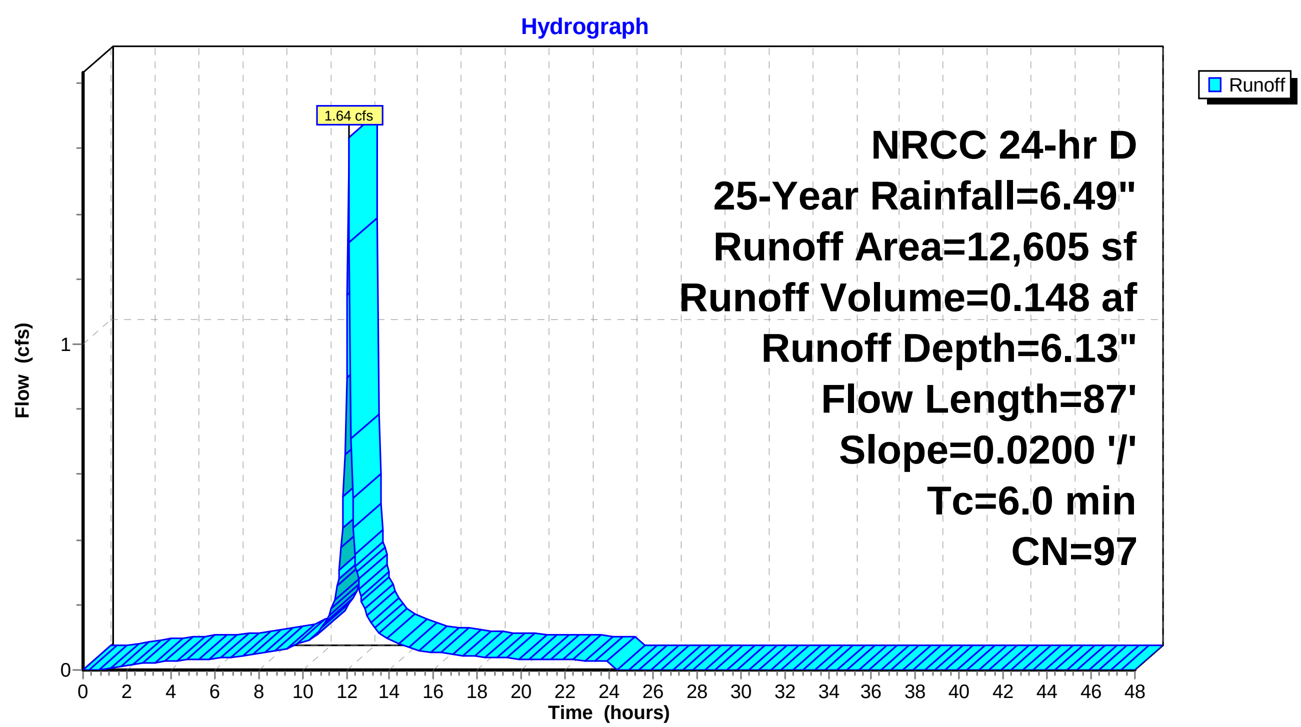
Runoff = 1.64 cfs @ 12.13 hrs, Volume= 0.148 af, Depth= 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	3,668	98	Sidewalk
	4,409	98	Roofs, HSG B
	4,300	98	Paved parking, HSG B
	228	69	50-75% Grass cover, Fair, HSG B
	12,605	97	Weighted Average
	228		1.81% Pervious Area
	12,377		98.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	87	0.0200	0.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
1.6	87	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 5S: 3



Summary for Pond 6P: (new Pond)

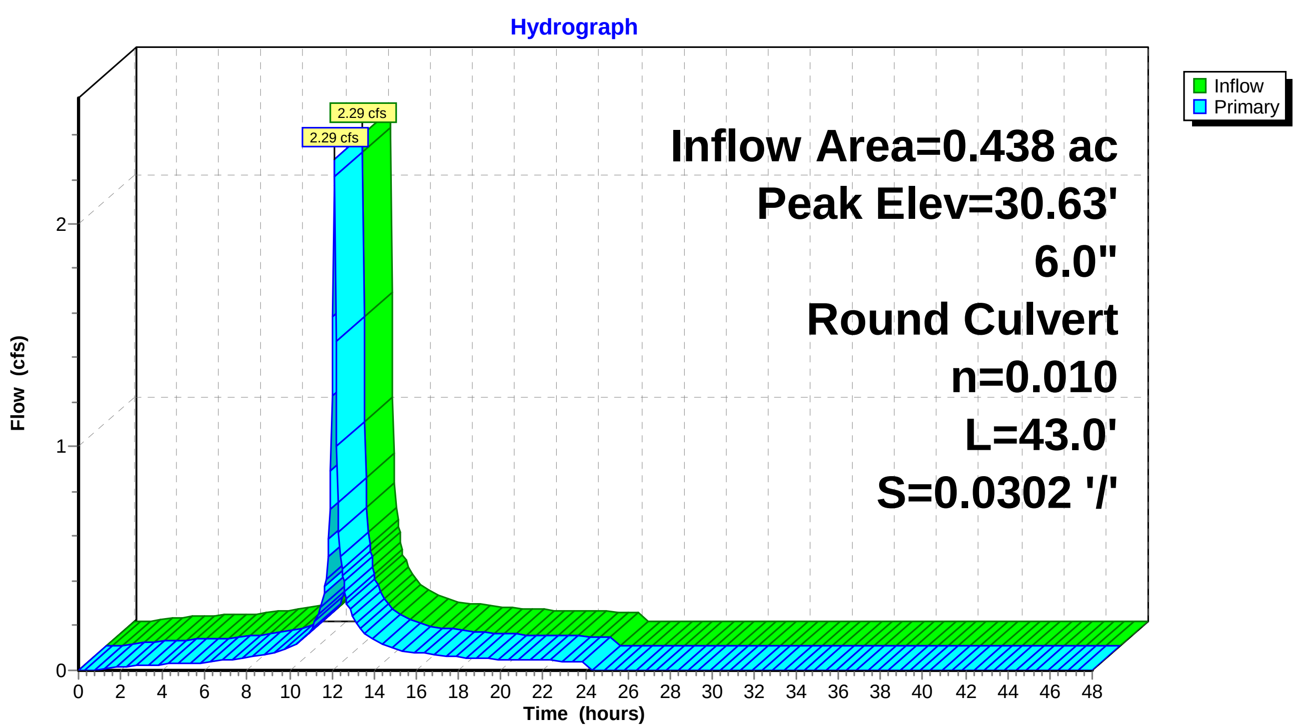
Inflow Area =	0.438 ac,	64.90% Impervious,	Inflow Depth = 5.45"	for 25-Year event	
Inflow =	2.29 cfs @	12.13 hrs,	Volume=	0.199 af	
Outflow =	2.29 cfs @	12.13 hrs,	Volume=	0.199 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.29 cfs @	12.13 hrs,	Volume=	0.199 af	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 30.63' @ 12.13 hrs
Flood Elev= 22.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.10'	**6.0" Round Culvert** L= 43.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 21.10' / 19.80' S= 0.0302 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=2.19 cfs @ 12.13 hrs HW=29.99' (Free Discharge)
↑**1=Culvert** (Inlet Controls 2.19 cfs @ 11.17 fps)

Pond 6P: (new Pond)



Summary for Pond 7P: (new Pond)

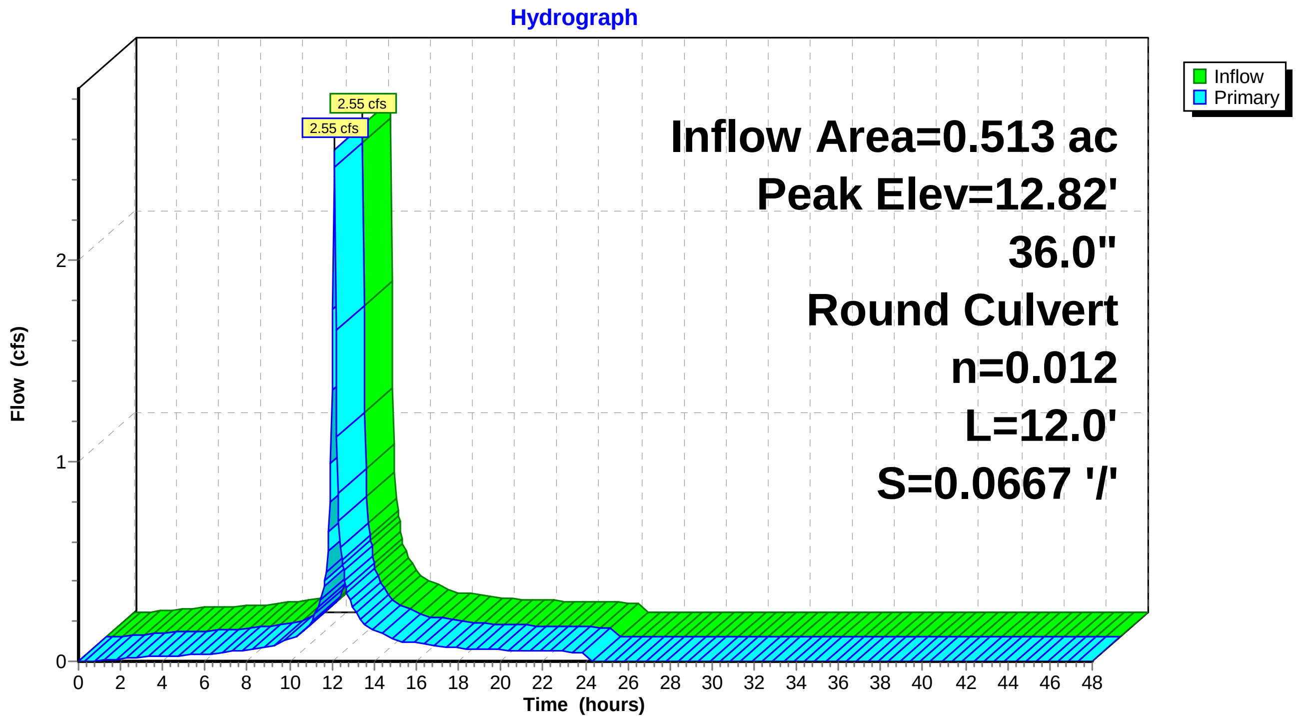
Inflow Area = 0.513 ac, 56.06% Impervious, Inflow Depth = 5.12" for 25-Year event
Inflow = 2.55 cfs @ 12.13 hrs, Volume= 0.219 af
Outflow = 2.55 cfs @ 12.13 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min
Primary = 2.55 cfs @ 12.13 hrs, Volume= 0.219 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 12.82' @ 12.13 hrs
Flood Elev= 16.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.30'	**36.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.30' / 11.50' S= 0.0667 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf

Primary OutFlow Max=2.44 cfs @ 12.13 hrs HW=12.81' (Free Discharge)
└─**1=Culvert** (Inlet Controls 2.44 cfs @ 3.05 fps)

Pond 7P: (new Pond)



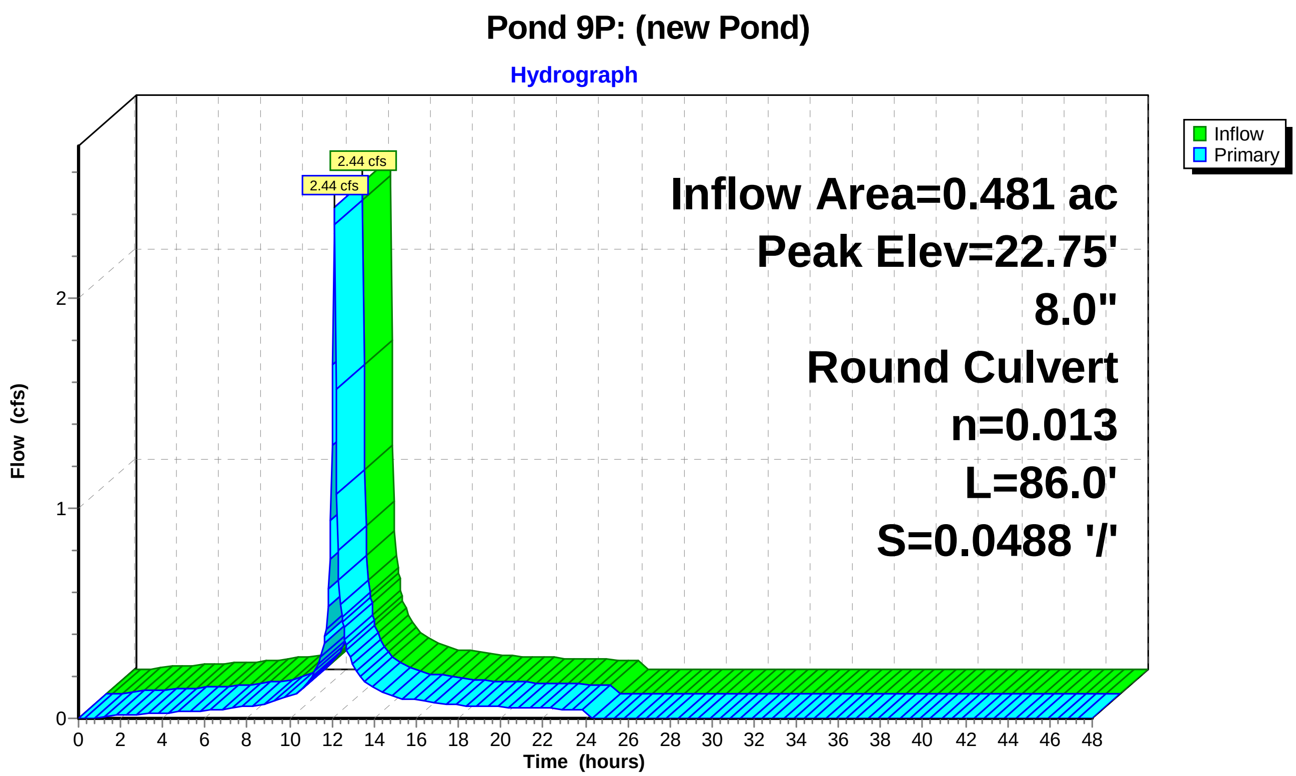
Summary for Pond 9P: (new Pond)

Inflow Area =	0.481 ac,	59.02% Impervious,	Inflow Depth =	5.24"	for 25-Year event
Inflow =	2.44 cfs @	12.13 hrs,	Volume=	0.210 af	
Outflow =	2.44 cfs @	12.13 hrs,	Volume=	0.210 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.44 cfs @	12.13 hrs,	Volume=	0.210 af	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 22.75' @ 12.13 hrs
Flood Elev= 21.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.10'	**8.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 19.10' / 14.90' S= 0.0488 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=2.33 cfs @ 12.13 hrs HW=22.53' (Free Discharge)
└─**1=Culvert** (Inlet Controls 2.33 cfs @ 6.68 fps)

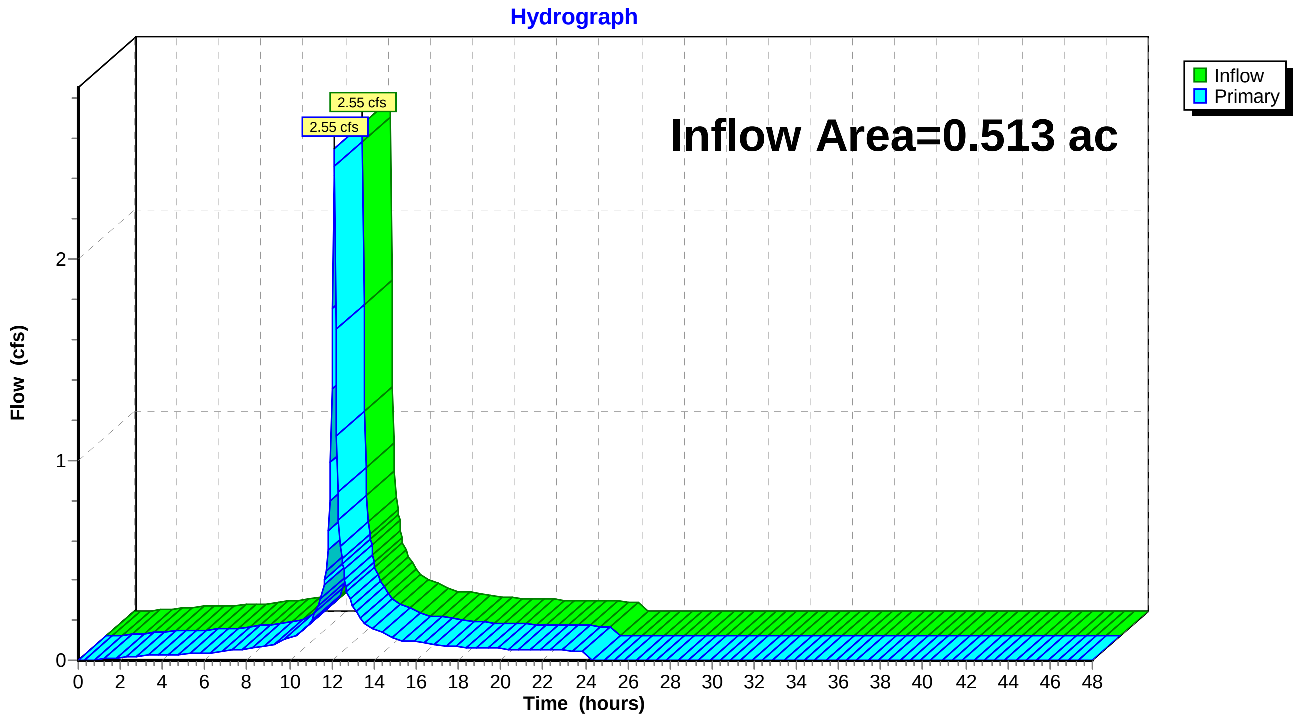


Summary for Link 8L: POD 1

Inflow Area =	0.513 ac, 56.06% Impervious, Inflow Depth = 5.12"	for 25-Year event	
Inflow =	2.55 cfs @ 12.13 hrs, Volume=	0.219 af	
Primary =	2.55 cfs @ 12.13 hrs, Volume=	0.219 af, Atten= 0%, Lag= 0.0 min	

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

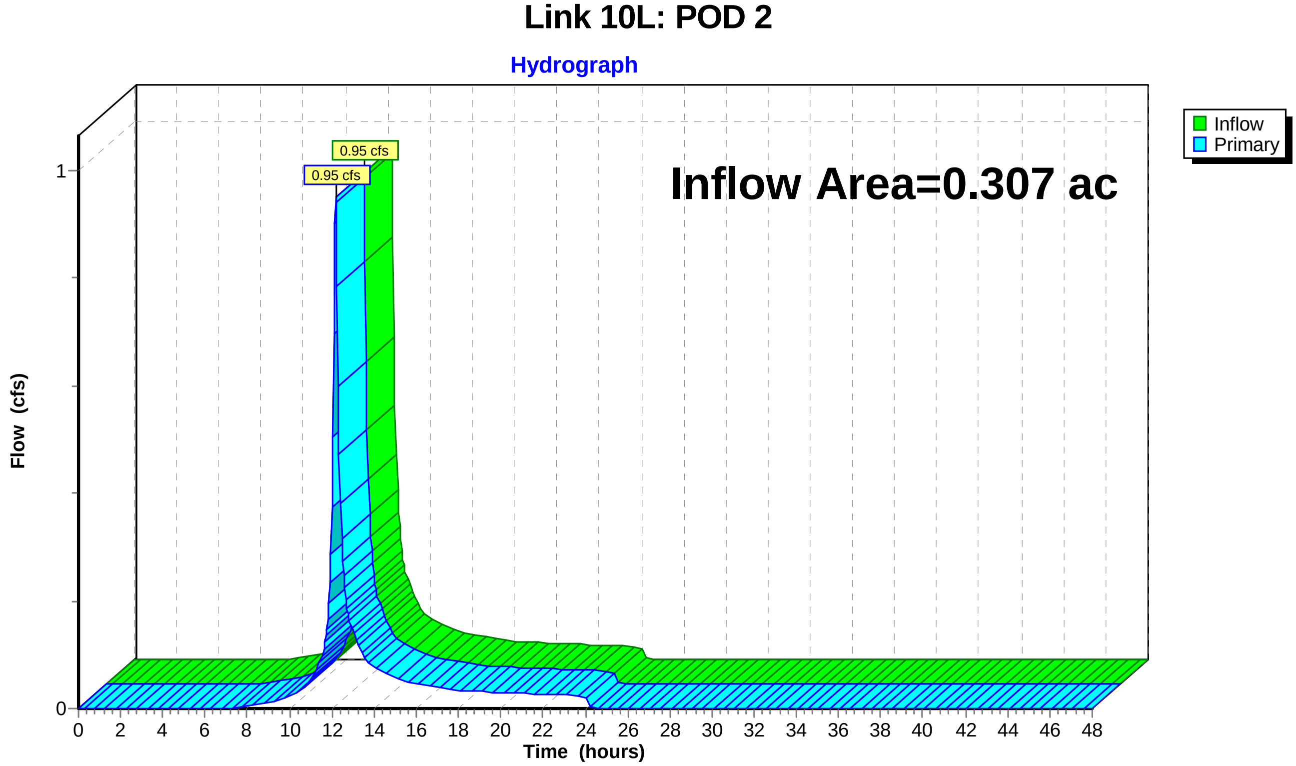
Link 8L: POD 1



Summary for Link 10L: POD 2

Inflow Area = 0.307 ac, 13.11% Impervious, Inflow Depth = 3.40" for 25-Year event
Inflow = 0.95 cfs @ 12.18 hrs, Volume= 0.087 af
Primary = 0.95 cfs @ 12.18 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min

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

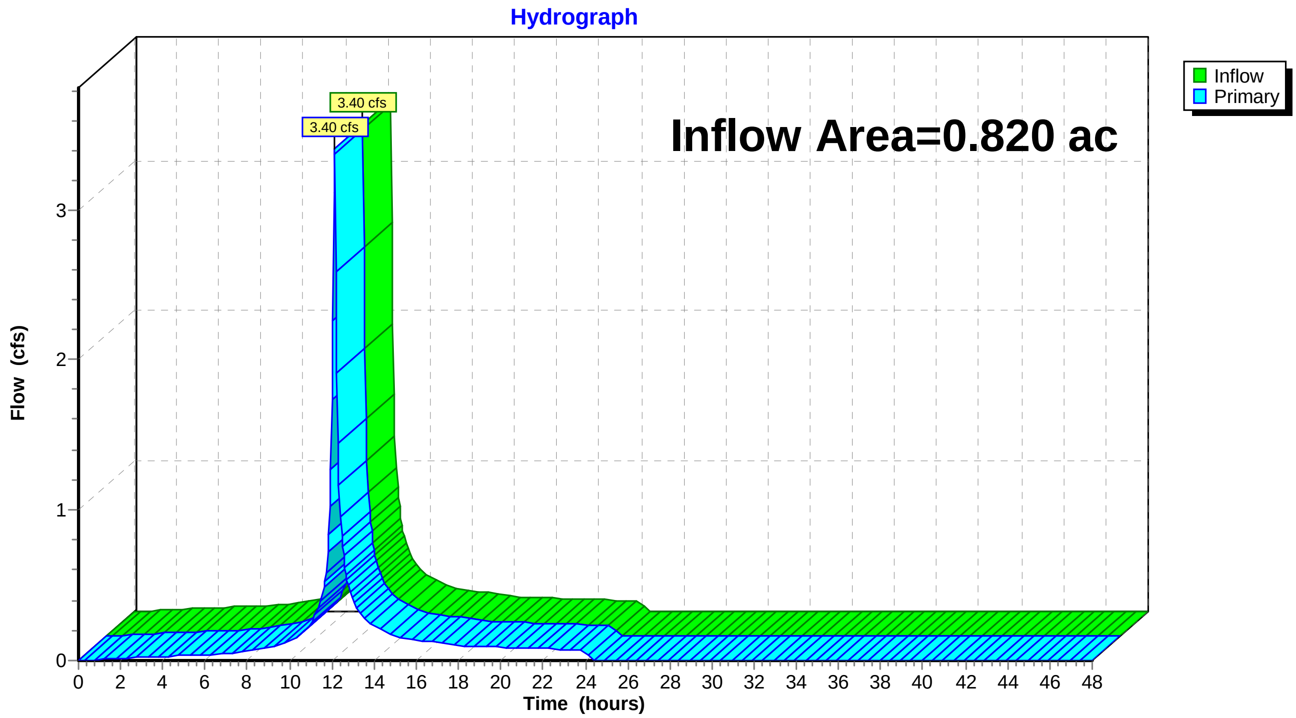


Summary for Link 11L: OVERALL EXISTING

Inflow Area =	0.820 ac, 39.99% Impervious, Inflow Depth = 4.48"	for 25-Year event	
Inflow =	3.40 cfs @ 12.14 hrs, Volume=	0.306 af	
Primary =	3.40 cfs @ 12.14 hrs, Volume=	0.306 af, Atten= 0%, Lag= 0.0 min	

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

Link 11L: OVERALL EXISTING



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

Subcatchment 1S: 1 Runoff Area=13,358 sf 13.11% Impervious Runoff Depth=5.83"
Flow Length=130' Tc=10.7 min CN=72 Runoff=1.62 cfs 0.149 af

Subcatchment 2S: 2 Runoff Area=1,378 sf 10.96% Impervious Runoff Depth=5.83"
Flow Length=63' Slope=0.0800 '/' Tc=6.0 min CN=72 Runoff=0.20 cfs 0.015 af

Subcatchment 3S: 4 Runoff Area=1,900 sf 0.00% Impervious Runoff Depth=5.46"
Flow Length=40' Slope=0.0375 '/' Tc=6.0 min CN=69 Runoff=0.25 cfs 0.020 af

Subcatchment 4S: 5 Runoff Area=6,466 sf 0.00% Impervious Runoff Depth=6.71"
Flow Length=117' Slope=0.0200 '/' Tc=6.0 min CN=79 Runoff=1.03 cfs 0.083 af

Subcatchment 5S: 3 Runoff Area=12,605 sf 98.19% Impervious Runoff Depth=8.92"
Flow Length=87' Slope=0.0200 '/' Tc=6.0 min CN=97 Runoff=2.35 cfs 0.215 af

Pond 6P: (new Pond) Peak Elev=41.66' Inflow=3.39 cfs 0.298 af
6.0" Round Culvert n=0.010 L=43.0' S=0.0302 '/' Outflow=3.39 cfs 0.298 af

Pond 7P: (new Pond) Peak Elev=12.95' Inflow=3.84 cfs 0.333 af
36.0" Round Culvert n=0.012 L=12.0' S=0.0667 '/' Outflow=3.84 cfs 0.333 af

Pond 9P: (new Pond) Peak Elev=26.86' Inflow=3.64 cfs 0.318 af
8.0" Round Culvert n=0.013 L=86.0' S=0.0488 '/' Outflow=3.64 cfs 0.318 af

Link 8L: POD 1 Inflow=3.84 cfs 0.333 af
Primary=3.84 cfs 0.333 af

Link 10L: POD 2 Inflow=1.62 cfs 0.149 af
Primary=1.62 cfs 0.149 af

Link 11L: OVERALL EXISTING Inflow=5.30 cfs 0.482 af
Primary=5.30 cfs 0.482 af

Total Runoff Area = 0.820 ac Runoff Volume = 0.482 af Average Runoff Depth = 7.06"
60.01% Pervious = 0.492 ac 39.99% Impervious = 0.328 ac

Summary for Subcatchment 1S: 1

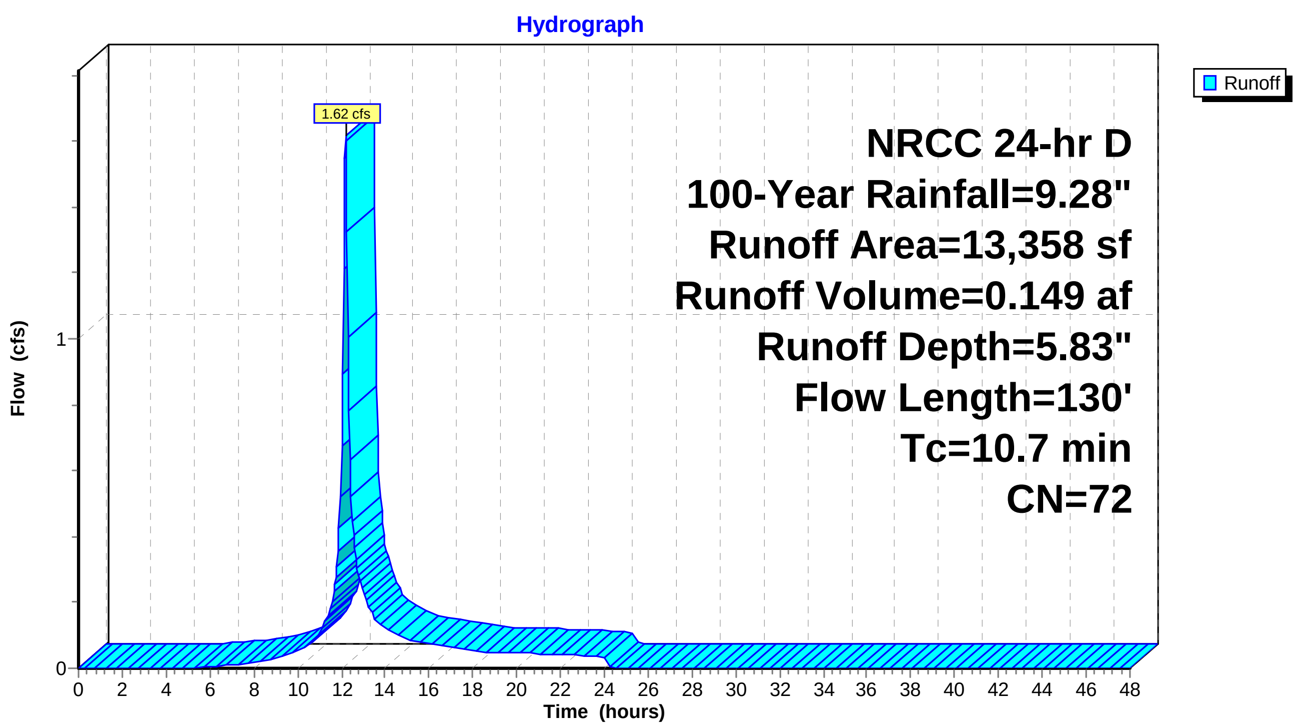
Runoff = 1.62 cfs @ 12.18 hrs, Volume= 0.149 af, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
	10,151	69	50-75% Grass cover, Fair, HSG B
*	1,751	98	Sidewalk
	1,456	60	Woods, Fair, HSG B
	13,358	72	Weighted Average
	11,607		86.89% Pervious Area
	1,751		13.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0450	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.4	30	0.0067	1.23		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
10.7	130	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

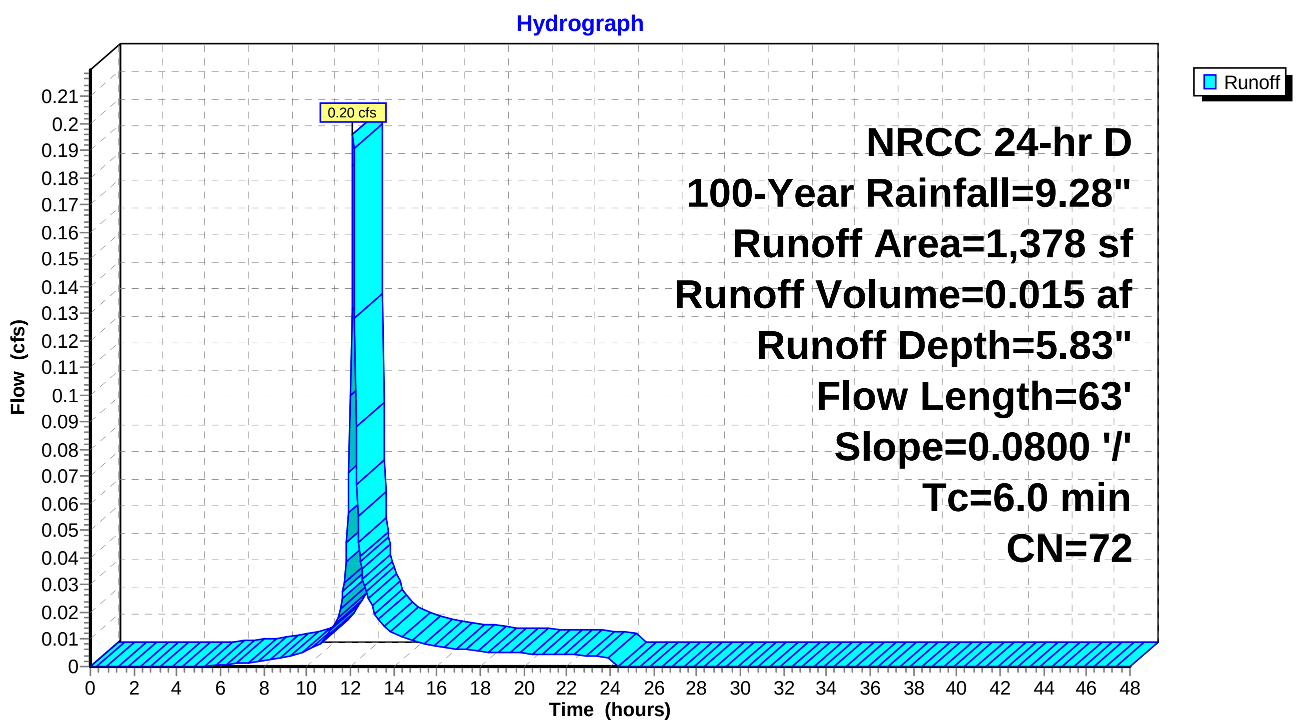
Runoff = 0.20 cfs @ 12.13 hrs, Volume= 0.015 af, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	151	98	Concrete Sidewalk
	1,227	69	50-75% Grass cover, Fair, HSG B
	1,378	72	Weighted Average
	1,227		89.04% Pervious Area
	151		10.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	63	0.0800	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.7	63	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 4

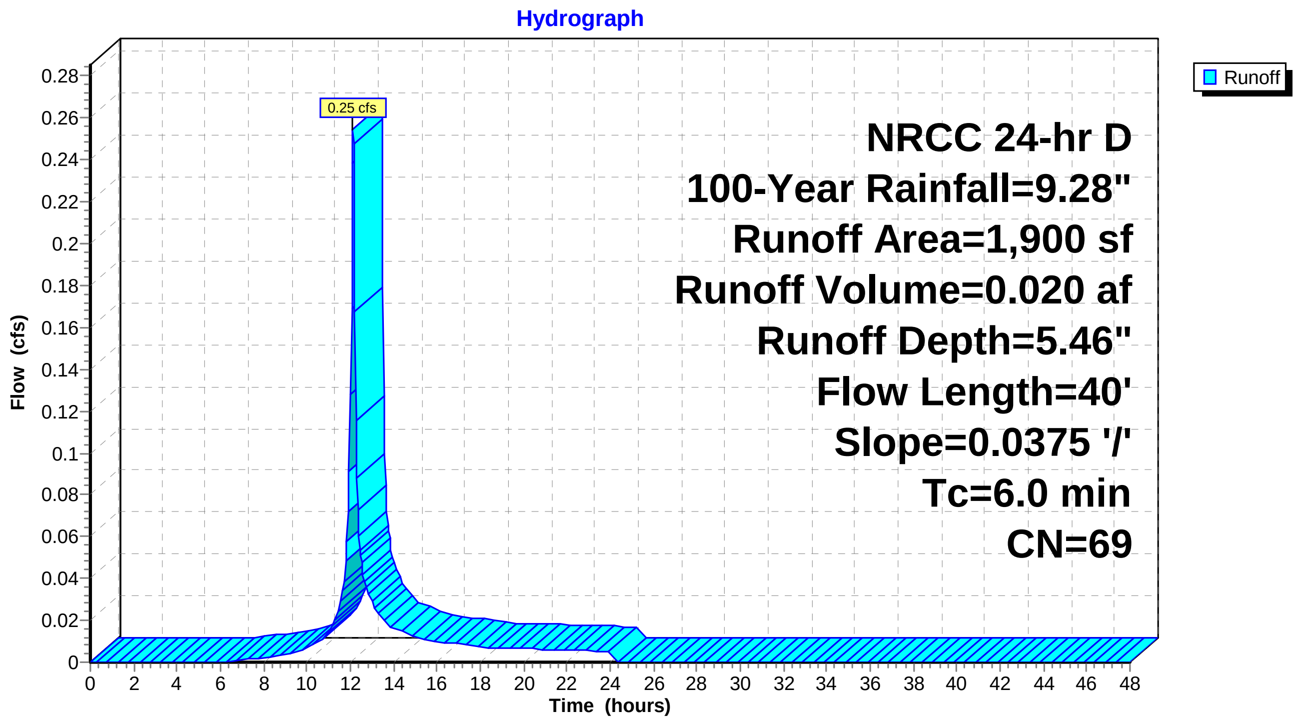
Runoff = 0.25 cfs @ 12.13 hrs, Volume= 0.020 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

Area (sf)	CN	Description
1,900	69	50-75% Grass cover, Fair, HSG B
1,900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	40	0.0375	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.3	40	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: 4



Summary for Subcatchment 4S: 5

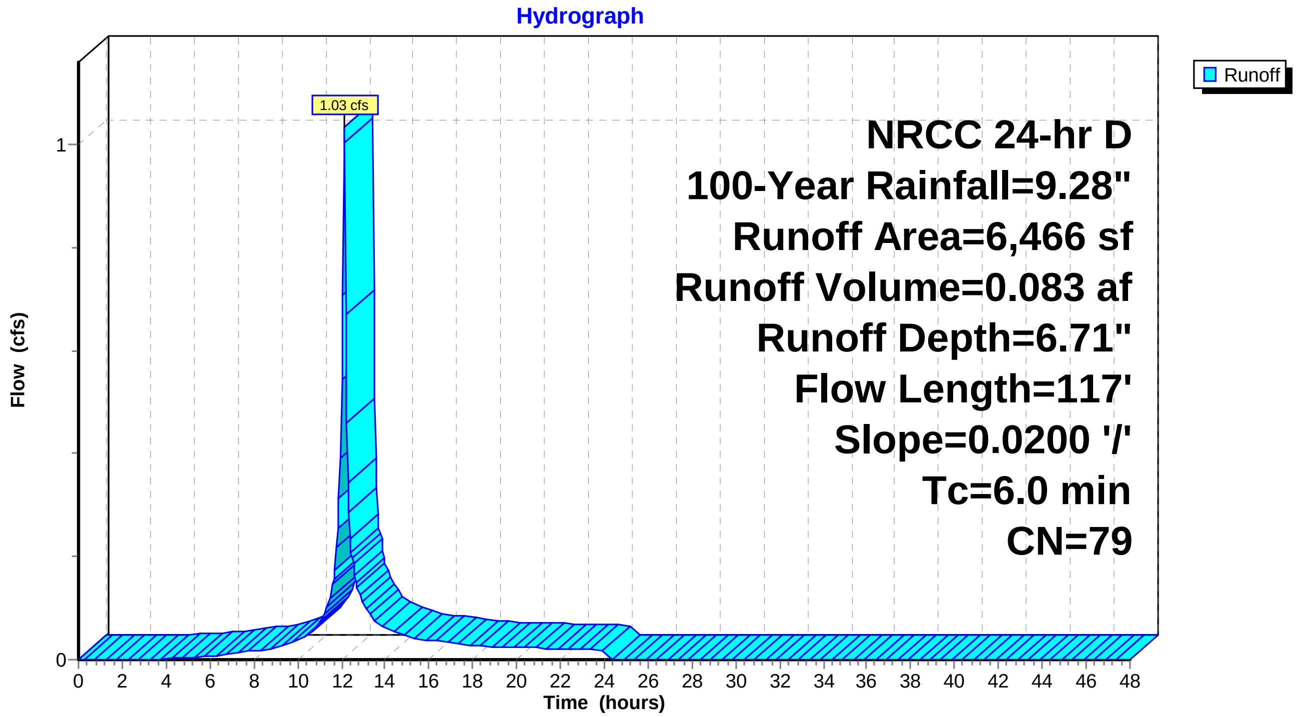
Runoff = 1.03 cfs @ 12.13 hrs, Volume= 0.083 af, Depth= 6.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	6,466	79	Mulch Playground
	6,466		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0200	0.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
0.1	17	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.9	117	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: 5



Summary for Subcatchment 5S: 3

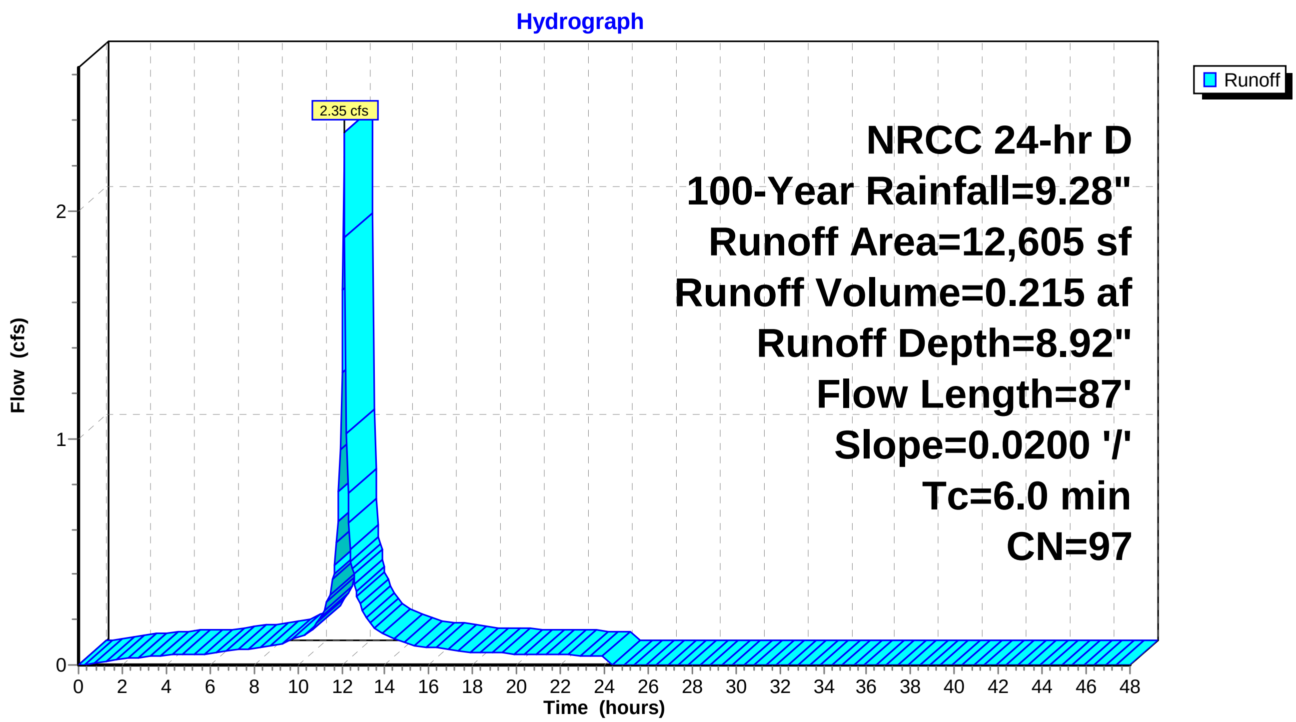
Runoff = 2.35 cfs @ 12.13 hrs, Volume= 0.215 af, Depth= 8.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	3,668	98	Sidewalk
	4,409	98	Roofs, HSG B
	4,300	98	Paved parking, HSG B
	228	69	50-75% Grass cover, Fair, HSG B
	12,605	97	Weighted Average
	228		1.81% Pervious Area
	12,377		98.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	87	0.0200	0.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
1.6	87	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 5S: 3



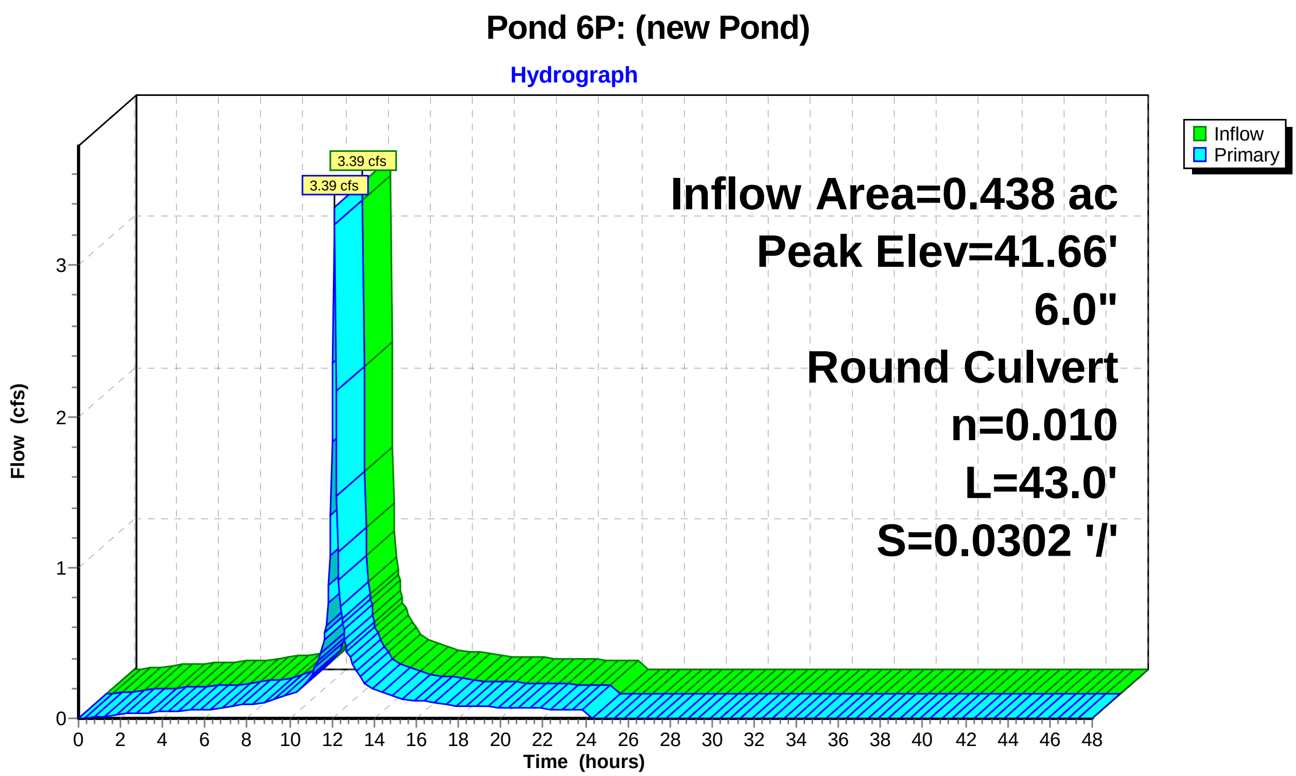
Summary for Pond 6P: (new Pond)

Inflow Area =	0.438 ac,	64.90% Impervious,	Inflow Depth = 8.17"	for 100-Year event
Inflow =	3.39 cfs @	12.13 hrs, Volume=	0.298 af	
Outflow =	3.39 cfs @	12.13 hrs, Volume=	0.298 af, Atten= 0%, Lag= 0.0 min	
Primary =	3.39 cfs @	12.13 hrs, Volume=	0.298 af	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 41.66' @ 12.13 hrs
Flood Elev= 22.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.10'	**6.0" Round Culvert** L= 43.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 21.10' / 19.80' S= 0.0302 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=3.25 cfs @ 12.13 hrs HW=40.27' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.25 cfs @ 16.54 fps)



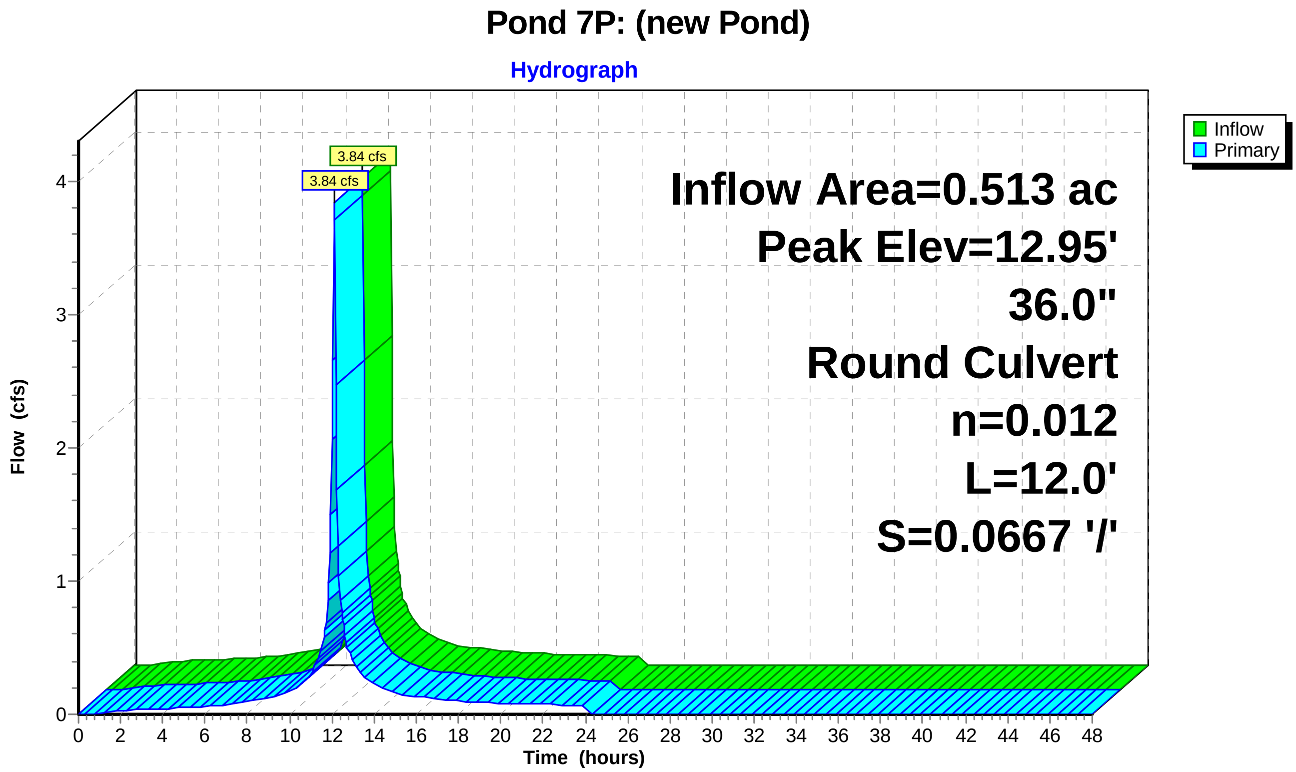
Summary for Pond 7P: (new Pond)

Inflow Area =	0.513 ac,	56.06% Impervious,	Inflow Depth =	7.80"	for 100-Year event
Inflow =	3.84 cfs @	12.13 hrs,	Volume=	0.333 af	
Outflow =	3.84 cfs @	12.13 hrs,	Volume=	0.333 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.84 cfs @	12.13 hrs,	Volume=	0.333 af	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 12.95' @ 12.13 hrs
Flood Elev= 16.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.30'	**36.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.30' / 11.50' S= 0.0667 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf

Primary OutFlow Max=3.67 cfs @ 12.13 hrs HW=12.93' (Free Discharge)
1=Culvert (Inlet Controls 3.67 cfs @ 3.39 fps)



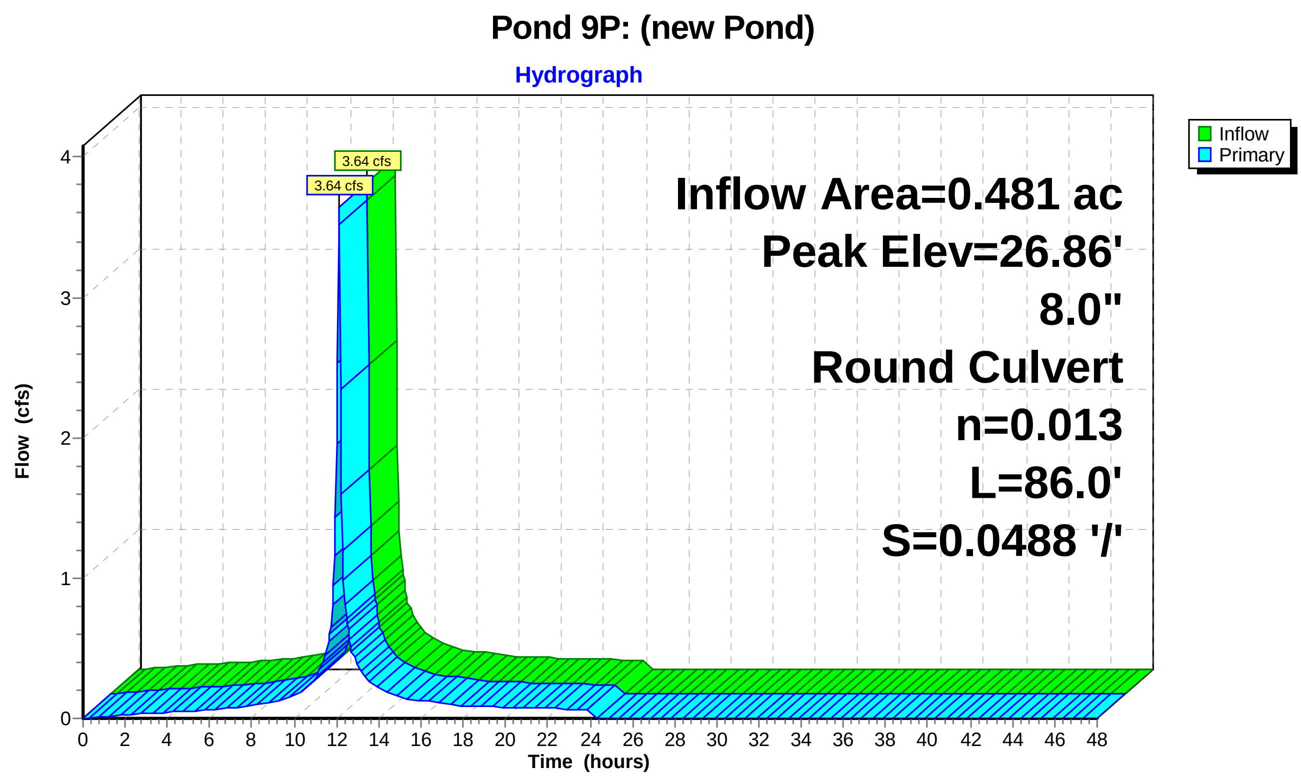
Summary for Pond 9P: (new Pond)

Inflow Area = 0.481 ac, 59.02% Impervious, Inflow Depth = 7.92" for 100-Year event
Inflow = 3.64 cfs @ 12.13 hrs, Volume= 0.318 af
Outflow = 3.64 cfs @ 12.13 hrs, Volume= 0.318 af, Atten= 0%, Lag= 0.0 min
Primary = 3.64 cfs @ 12.13 hrs, Volume= 0.318 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 26.86' @ 12.13 hrs
Flood Elev= 21.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.10'	**8.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 19.10' / 14.90' S= 0.0488 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=3.49 cfs @ 12.13 hrs HW=26.35' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.49 cfs @ 10.00 fps)

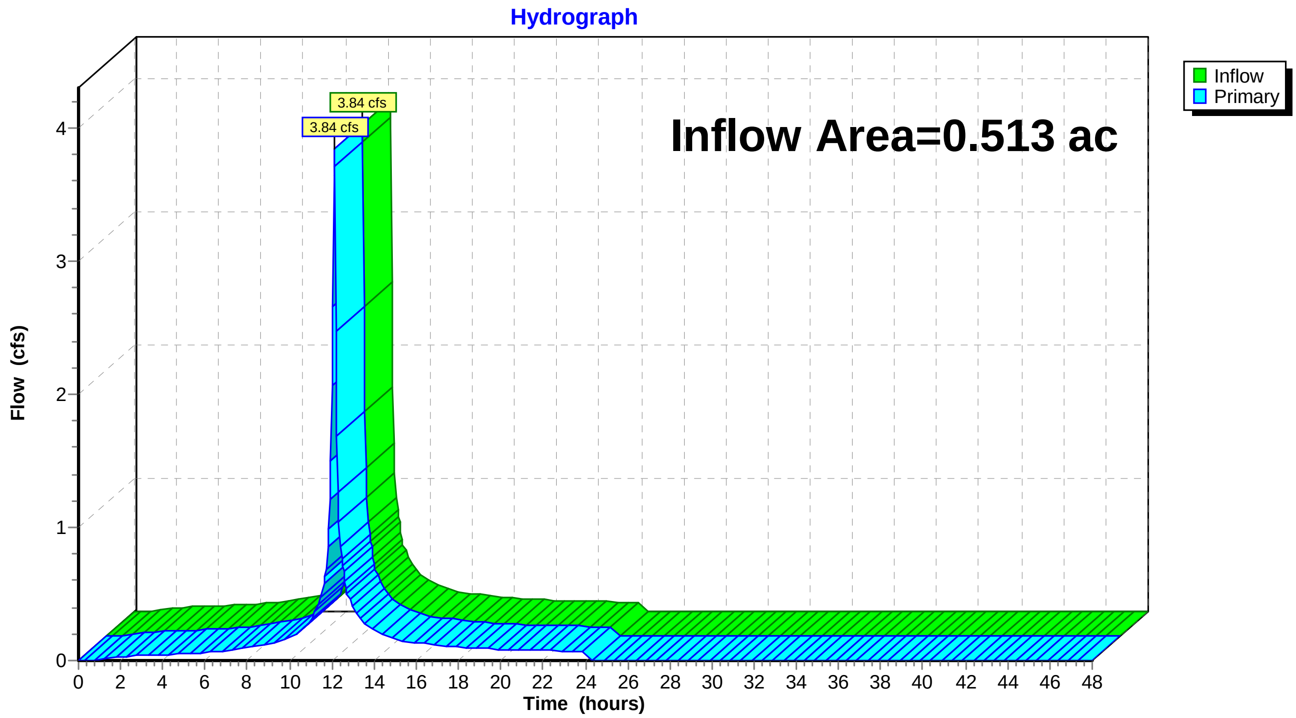


Summary for Link 8L: POD 1

Inflow Area =	0.513 ac,	56.06% Impervious,	Inflow Depth = 7.80"	for 100-Year event
Inflow =	3.84 cfs @	12.13 hrs, Volume=	0.333 af	
Primary =	3.84 cfs @	12.13 hrs, Volume=	0.333 af,	Atten= 0%, Lag= 0.0 min

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

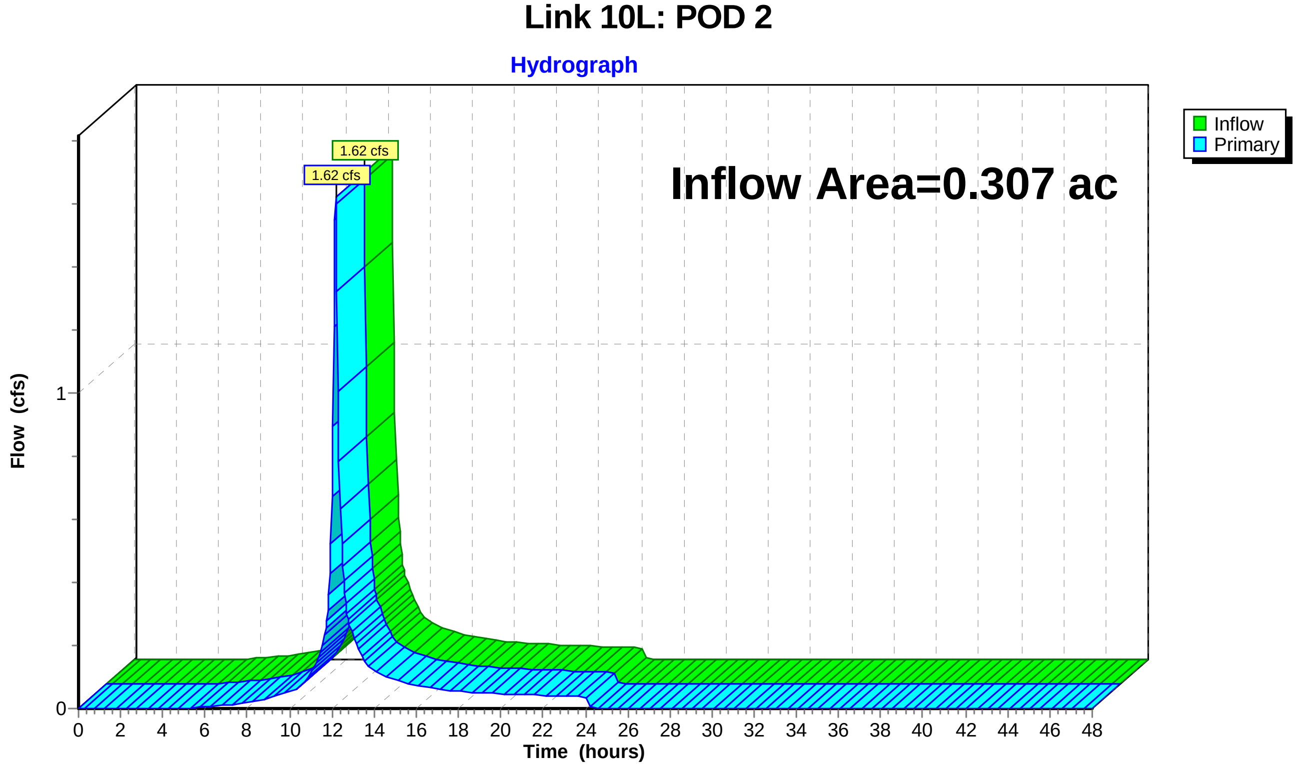
Link 8L: POD 1



Summary for Link 10L: POD 2

Inflow Area =	0.307 ac,	13.11% Impervious,	Inflow Depth = 5.83"	for 100-Year event
Inflow =	1.62 cfs @	12.18 hrs, Volume=	0.149 af	
Primary =	1.62 cfs @	12.18 hrs, Volume=	0.149 af, Atten= 0%, Lag= 0.0 min	

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

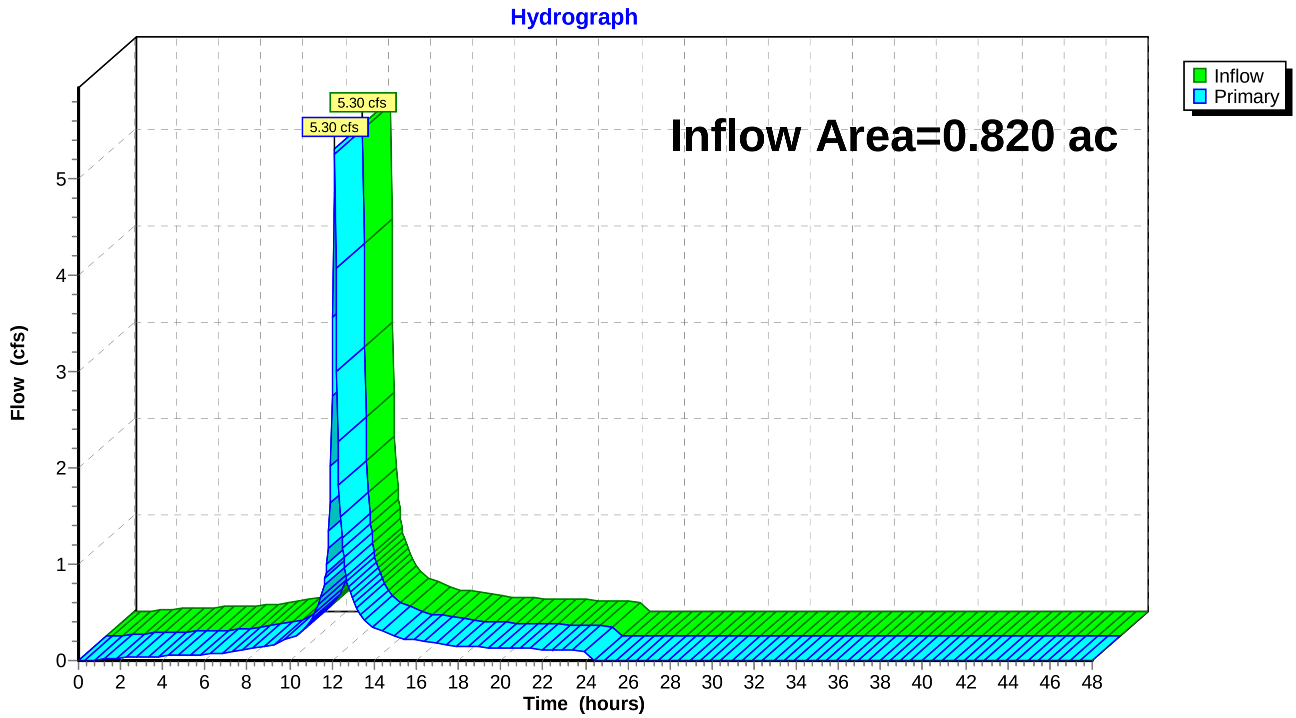


Summary for Link 11L: OVERALL EXISTING

Inflow Area =	0.820 ac, 39.99% Impervious, Inflow Depth = 7.06" for 100-Year event			
Inflow =	5.30 cfs @	12.14 hrs, Volume=	0.482 af	
Primary =	5.30 cfs @	12.14 hrs, Volume=	0.482 af,	Atten= 0%, Lag= 0.0 min

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

Link 11L: OVERALL EXISTING



#########################
SCALE: BAR SCALE

##########
SCALE: BAR SCALE

0' 10' 30' 60'
SCALE: 1" = 30'-0"

Revision Schedule

No.	Description	Date
1	ADDENDUM #3	8/27/21

Geddis Architects

Architecture. Planning. Interiors

71 Old Post Road
P.O. Box 1020
Southport, CT 06890
(203) 256-8700

Fielding International

Transforming Education by Design

259 Water Street Suite 1L
Warren , RI 02885 USA
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Construction Manager
SAVIN ENGINEERS, P.C.
3 Campus Drive
Pleasantville, NY 10570
914-769-3200

Structural Engineer
ODEH ENGINEERS
1223 Mineral Spring Ave
North Providence, RI 02904
401-724-1771

Civil Engineer
WESTON & SAMPSON
1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

MEP Engineer
BARILE GALLAGHER & ASSOCIATES
CONSULTING ENGINEERS
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776-3027
978-443-7871

SED #: 6618-0001-0003-026

PROJECT

Rye City School District

555 Theodore Fremd Ave, Rye, NY 10580

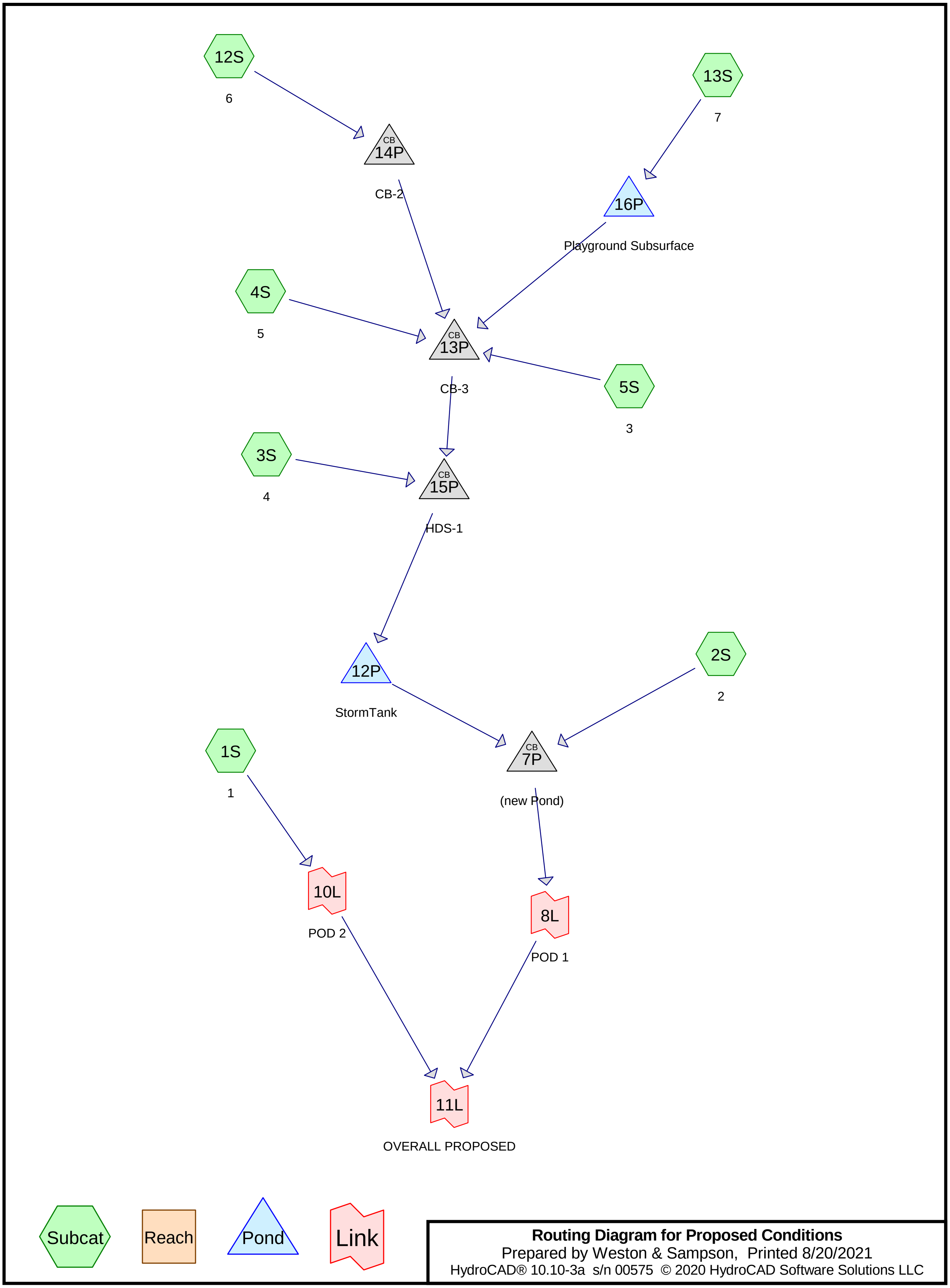
Midland Elementary School

312 Midland Avenue, Rye, New York 10580

PROPOSED CONDITIONS

ISSUED FOR BID

SEAL & SIGNATURE	DATE: August 2021
	PROJECT No:
	DRAWING BY: KSK
	CHK BY: JFB
	DWG No: SK-2



Routing Diagram for Proposed Conditions
Prepared by Weston & Sampson, Printed 8/20/2021
HydroCAD® 10.10-3a s/n 00575 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	NRCC 24-hr	D	Default	24.00	1	2.78	2
2	2-Year	NRCC 24-hr	D	Default	24.00	1	3.41	2
3	5-Year	NRCC 24-hr	D	Default	24.00	1	4.30	2
4	10-Year	NRCC 24-hr	D	Default	24.00	1	5.13	2
5	25-Year	NRCC 24-hr	D	Default	24.00	1	6.49	2
6	50-Year	NRCC 24-hr	D	Default	24.00	1	7.76	2
7	100-Year	NRCC 24-hr	D	Default	24.00	1	9.28	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.274	69	50-75% Grass cover, Fair, HSG B (1S, 2S, 3S, 4S, 12S, 13S)
0.210	98	Pavement (12S)
0.091	98	Porous Playground (13S)
0.131	98	Roofs, HSG B (5S)
0.114	98	Sidewalk (1S, 2S, 3S, 4S)
0.820	**88**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.405	HSG B	1S, 2S, 3S, 4S, 5S, 12S, 13S
0.000	HSG C	
0.000	HSG D	
0.415	Other	1S, 2S, 3S, 4S, 12S, 13S
0.820		**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	0.274	0.000	0.000	0.000	0.274	50-75% Grass cover, Fair	1S, 2S, 3S, 4S, 12S, 13S
0.000	0.000	0.000	0.000	0.210	0.210	Pavement	12S
0.000	0.000	0.000	0.000	0.091	0.091	Porous Playground	13S
0.000	0.131	0.000	0.000	0.000	0.131	Roofs	5S
0.000	0.000	0.000	0.000	0.114	0.114	Sidewalk	1S, 2S, 3S, 4S
0.000	**0.405**	**0.000**	**0.000**	**0.415**	**0.820**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	13S	0.00	0.00	85.0	0.0200	0.020	4.0	0.0	0.0
2	13S	0.00	0.00	40.0	0.0200	0.020	8.0	0.0	0.0
3	7P	12.30	11.50	12.0	0.0667	0.012	36.0	0.0	0.0
4	12P	16.00	16.00	1.0	0.0000	0.011	2.0	0.0	0.0
5	12P	15.00	15.00	1.0	0.0000	0.011	2.0	0.0	0.0
6	12P	15.00	13.00	48.0	0.0417	0.020	18.0	0.0	0.0
7	13P	18.50	17.50	126.0	0.0079	0.020	18.0	0.0	0.0
8	14P	21.25	20.00	58.0	0.0216	0.020	12.0	0.0	0.0
9	15P	16.00	15.00	48.0	0.0208	0.020	18.0	0.0	0.0
10	16P	19.00	19.00	40.0	0.0000	0.010	6.0	0.0	0.0

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1S: 1 Runoff Area=5,851 sf 25.94% Impervious Runoff Depth=0.92"
Flow Length=70' Tc=7.2 min CN=77 Runoff=0.13 cfs 0.010 af

Subcatchment 2S: 2 Runoff Area=1,377 sf 25.56% Impervious Runoff Depth=0.87"
Flow Length=64' Slope=0.0850 '/' Tc=6.0 min CN=76 Runoff=0.03 cfs 0.002 af

Subcatchment 3S: 4 Runoff Area=4,226 sf 52.08% Impervious Runoff Depth=1.34"
Tc=6.0 min CN=84 Runoff=0.14 cfs 0.011 af

Subcatchment 4S: 5 Runoff Area=1,434 sf 62.90% Impervious Runoff Depth=1.55"
Flow Length=56' Slope=0.0100 '/' Tc=10.5 min CN=87 Runoff=0.05 cfs 0.004 af

Subcatchment 5S: 3 Runoff Area=5,728 sf 100.00% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.028 af

Subcatchment 12S: 6 Runoff Area=10,187 sf 89.66% Impervious Runoff Depth=2.23"
Flow Length=88' Slope=0.0060 '/' Tc=6.0 min CN=95 Runoff=0.53 cfs 0.044 af

Subcatchment 13S: 7 Runoff Area=6,917 sf 57.26% Impervious Runoff Depth=1.48"
Flow Length=125' Slope=0.0200 '/' Tc=6.9 min CN=86 Runoff=0.25 cfs 0.020 af

Pond 7P: (new Pond) Peak Elev=12.61' Inflow=0.90 cfs 0.074 af
36.0" Round Culvert n=0.012 L=12.0' S=0.0667 '/' Outflow=0.90 cfs 0.074 af

Pond 12P: StormTank Peak Elev=15.45' Storage=0.007 af Inflow=1.03 cfs 0.087 af
Discarded=0.01 cfs 0.015 af Primary=0.87 cfs 0.072 af Outflow=0.88 cfs 0.087 af

Pond 13P: CB-3 Peak Elev=19.02' Inflow=0.89 cfs 0.076 af
18.0" Round Culvert n=0.020 L=126.0' S=0.0079 '/' Outflow=0.89 cfs 0.076 af

Pond 14P: CB-2 Peak Elev=21.66' Inflow=0.53 cfs 0.044 af
12.0" Round Culvert n=0.020 L=58.0' S=0.0216 '/' Outflow=0.53 cfs 0.044 af

Pond 15P: HDS-1 Peak Elev=16.51' Inflow=1.03 cfs 0.087 af
18.0" Round Culvert n=0.020 L=48.0' S=0.0208 '/' Outflow=1.03 cfs 0.087 af

Pond 16P: Playground Subsurface Peak Elev=19.10' Storage=0.004 af Inflow=0.25 cfs 0.020 af
Discarded=0.05 cfs 0.019 af Primary=0.01 cfs 0.001 af Outflow=0.06 cfs 0.020 af

Link 8L: POD 1 Inflow=0.90 cfs 0.074 af
Primary=0.90 cfs 0.074 af

Link 10L: POD 2 Inflow=0.13 cfs 0.010 af
Primary=0.13 cfs 0.010 af

Link 11L: OVERALL PROPOSED Inflow=1.02 cfs 0.085 af
Primary=1.02 cfs 0.085 af

Total Runoff Area = 0.820 ac Runoff Volume = 0.119 af Average Runoff Depth = 1.74"
33.38% Pervious = 0.274 ac 66.62% Impervious = 0.546 ac

Summary for Subcatchment 1S: 1

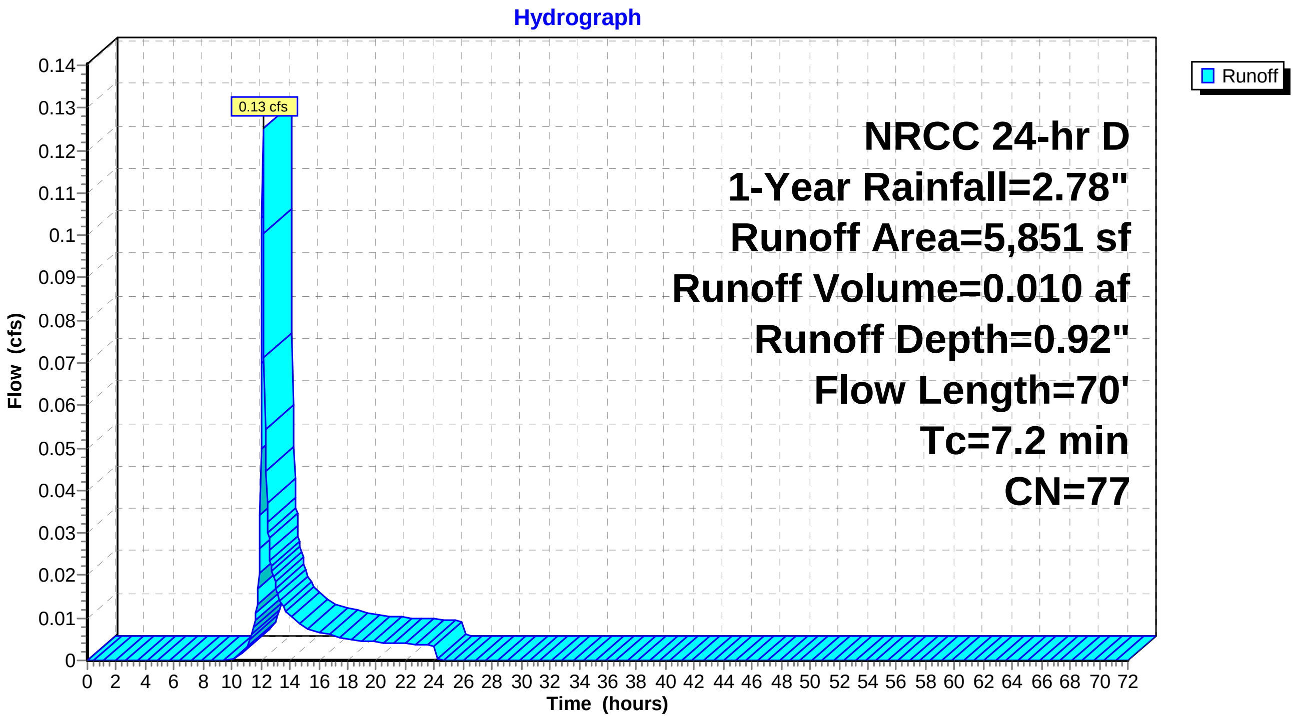
Runoff = 0.13 cfs @ 12.15 hrs, Volume= 0.010 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
	4,333	69	50-75% Grass cover, Fair, HSG B
*	676	98	Sidewalk
*	159	98	Sidewalk
*	70	98	Sidewalk
*	613	98	Sidewalk
	5,851	77	Weighted Average
	4,333		74.06% Pervious Area
	1,518		25.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	18	0.1100	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	7	0.0350	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
3.0	17	0.0290	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	7	0.0350	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
2.0	21	0.1200	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
7.2	70	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

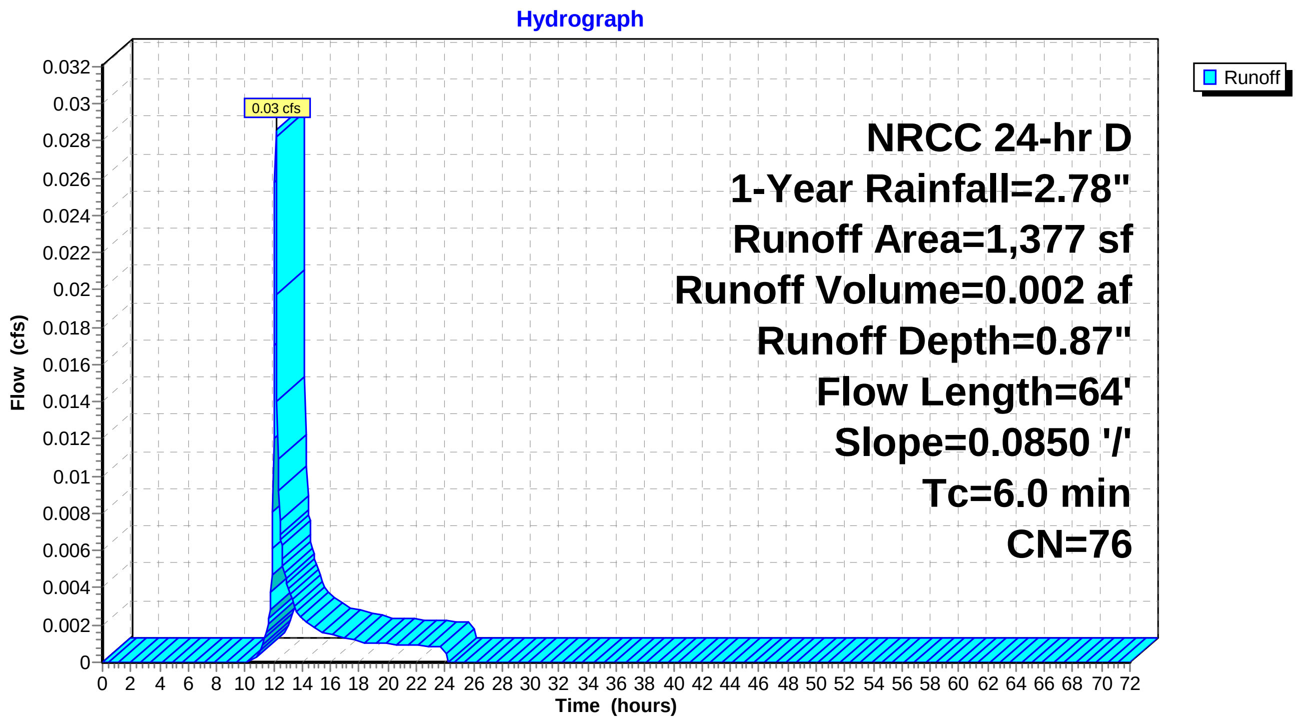
Runoff = 0.03 cfs @ 12.14 hrs, Volume= 0.002 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	248	98	Sidewalk
	1,025	69	50-75% Grass cover, Fair, HSG B
*	104	98	Sidewalk
	1,377	76	Weighted Average
	1,025		74.44% Pervious Area
	352		25.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	64	0.0850	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.6	64	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 4

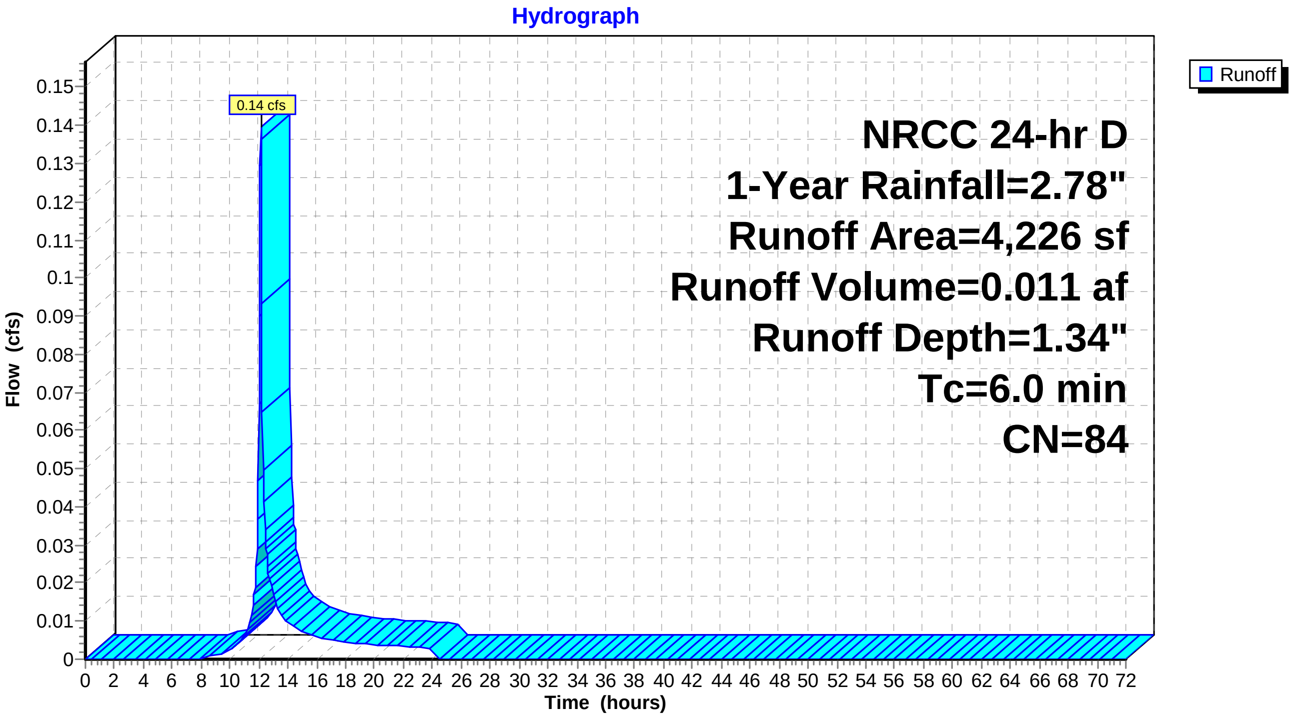
Runoff = 0.14 cfs @ 12.13 hrs, Volume= 0.011 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	976	98	Sidewalk
	2,025	69	50-75% Grass cover, Fair, HSG B
*	1,225	98	Sidewalk
	4,226	84	Weighted Average
	2,025		47.92% Pervious Area
	2,201		52.08% Impervious Area

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

Subcatchment 3S: 4



Summary for Subcatchment 4S: 5

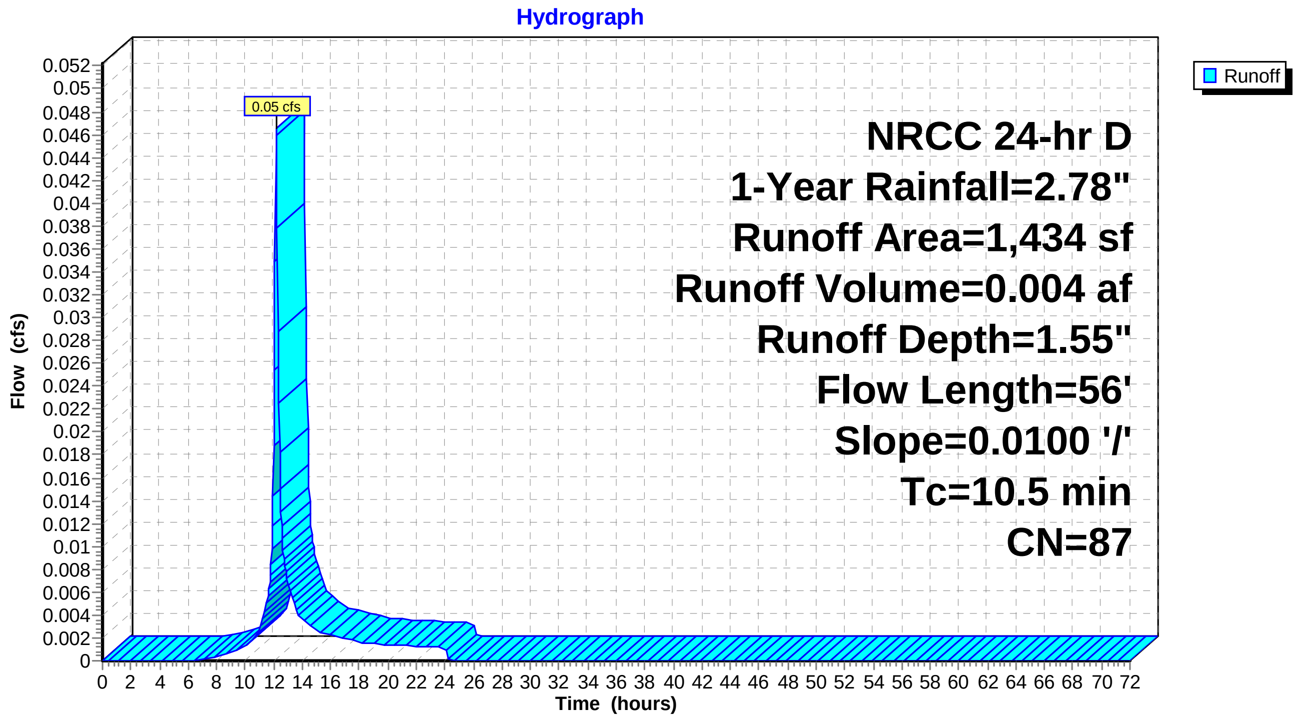
Runoff = 0.05 cfs @ 12.18 hrs, Volume= 0.004 af, Depth= 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	289	98	Sidewalk
	532	69	50-75% Grass cover, Fair, HSG B
*	613	98	Sidewalk
	1,434	87	Weighted Average
	532		37.10% Pervious Area
	902		62.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	15	0.0100	0.06		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	18	0.0100	0.51		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
5.8	23	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
10.5	56	Total			

Subcatchment 4S: 5



Summary for Subcatchment 5S: 3

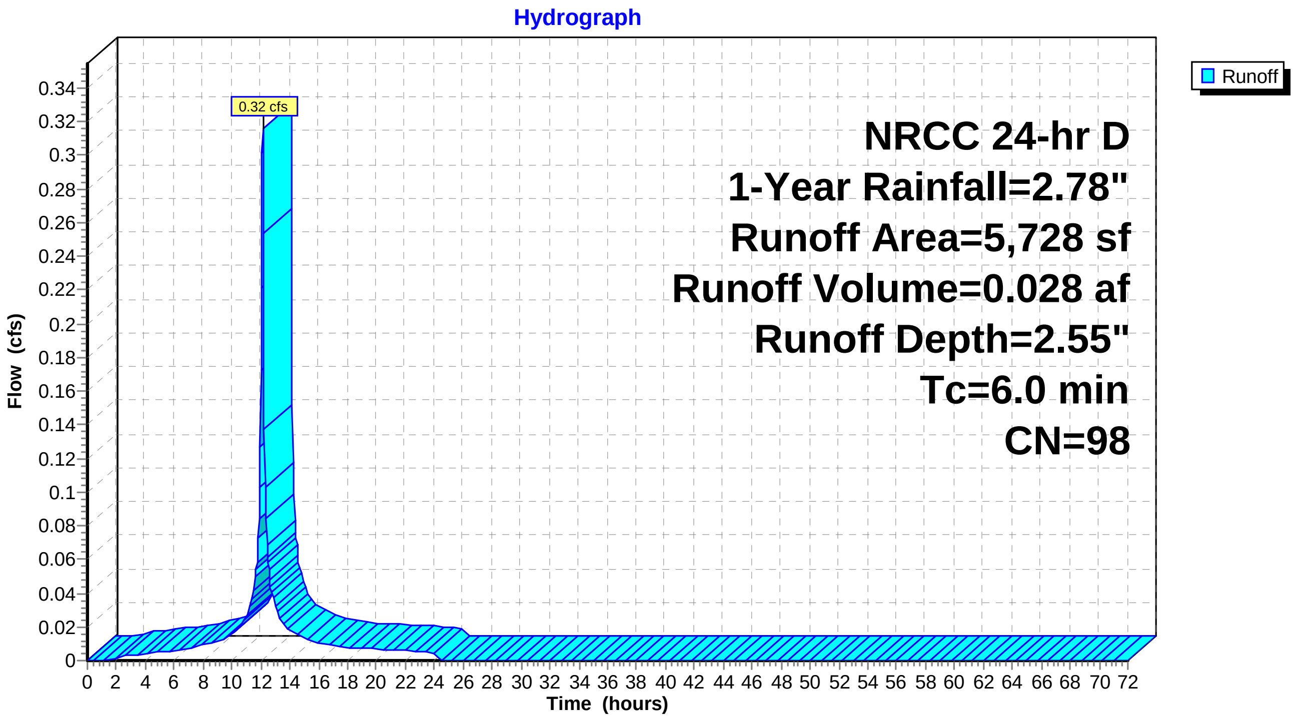
Runoff = 0.32 cfs @ 12.13 hrs, Volume= 0.028 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

Area (sf)	CN	Description
5,728	98	Roofs, HSG B
5,728		100.00% Impervious Area

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

Subcatchment 5S: 3



Summary for Subcatchment 12S: 6

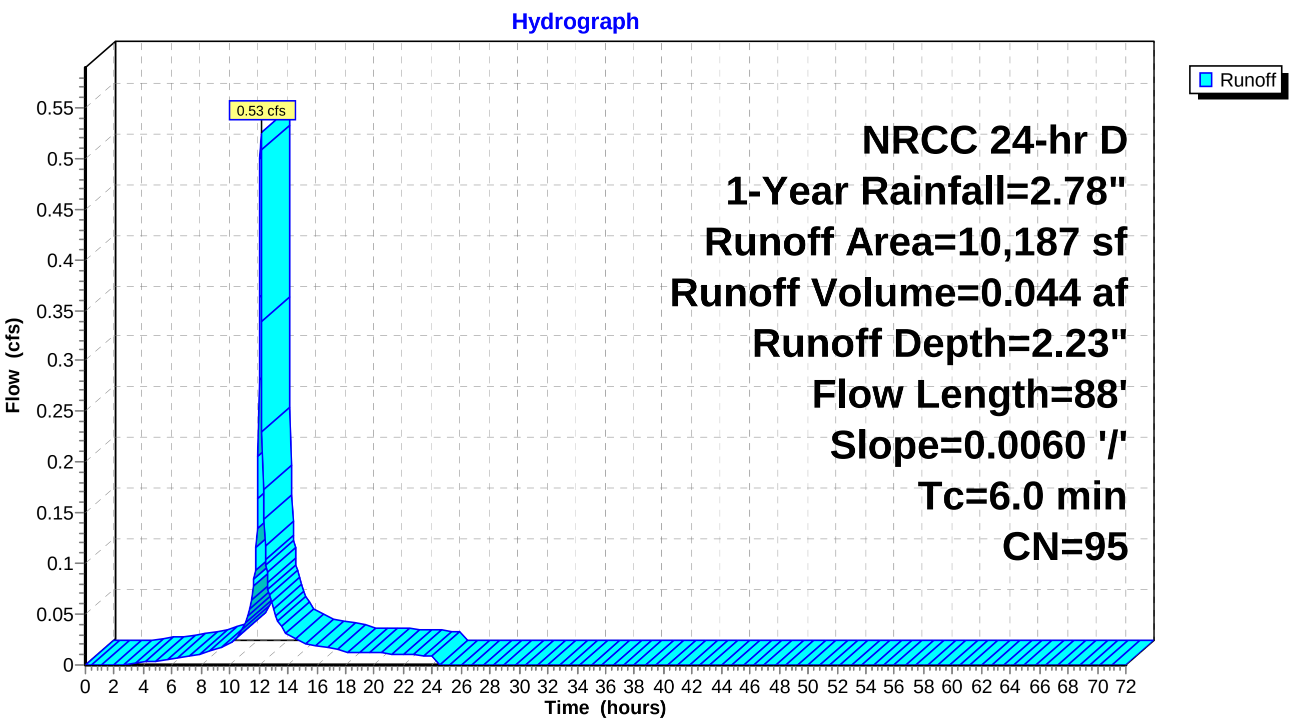
Runoff = 0.53 cfs @ 12.13 hrs, Volume= 0.044 af, Depth= 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	9,134	98	Pavement
	599	69	50-75% Grass cover, Fair, HSG B
	204	69	50-75% Grass cover, Fair, HSG B
	250	69	50-75% Grass cover, Fair, HSG B
	10,187	95	Weighted Average
	1,053		10.34% Pervious Area
	9,134		89.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	88	0.0060	0.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
2.6	88	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12S: 6



Summary for Subcatchment 13S: 7

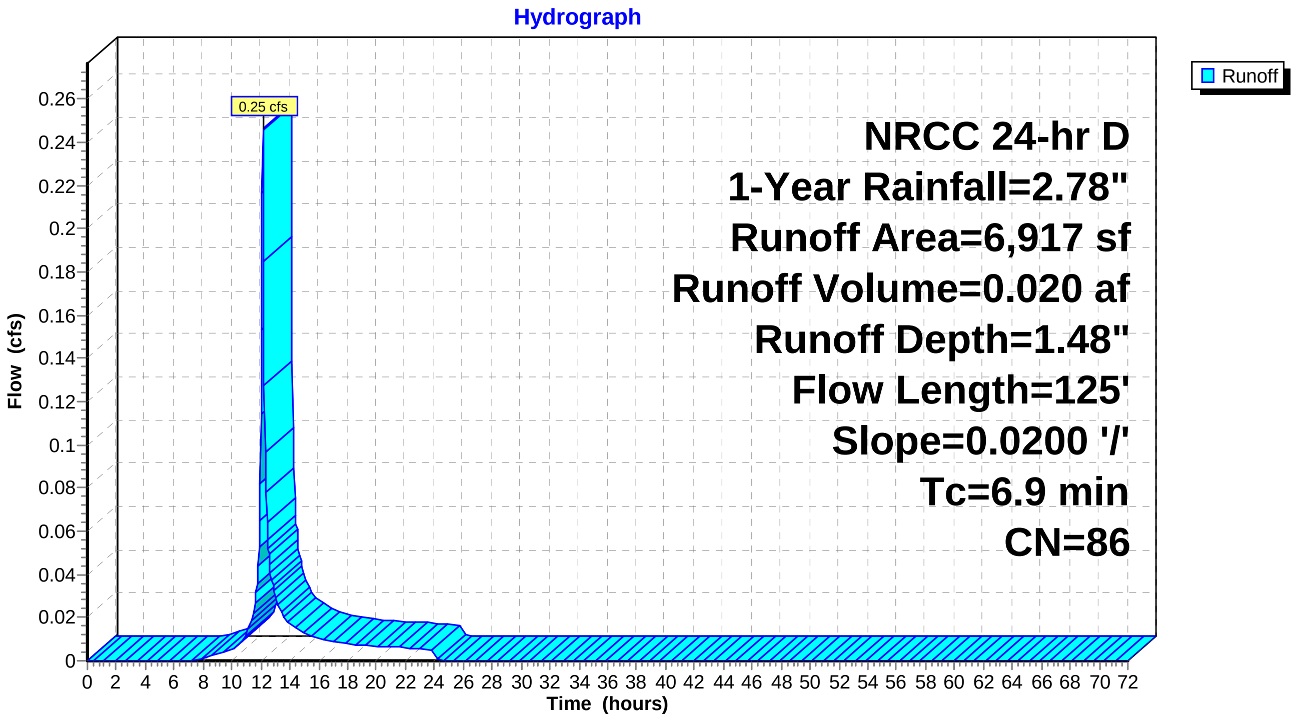
Runoff = 0.25 cfs @ 12.14 hrs, Volume= 0.020 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
	2,956	69	50-75% Grass cover, Fair, HSG B
*	3,961	98	Porous Playground
	6,917	86	Weighted Average
	2,956		42.74% Pervious Area
	3,961		57.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.7	85	0.0200	2.00	0.17	**Pipe Channel,** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.020 Corrugated PE, corrugated interior
0.2	40	0.0200	3.18	1.11	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.020 Corrugated PE, corrugated interior
6.9	125	Total			

Subcatchment 13S: 7



Summary for Pond 7P: (new Pond)

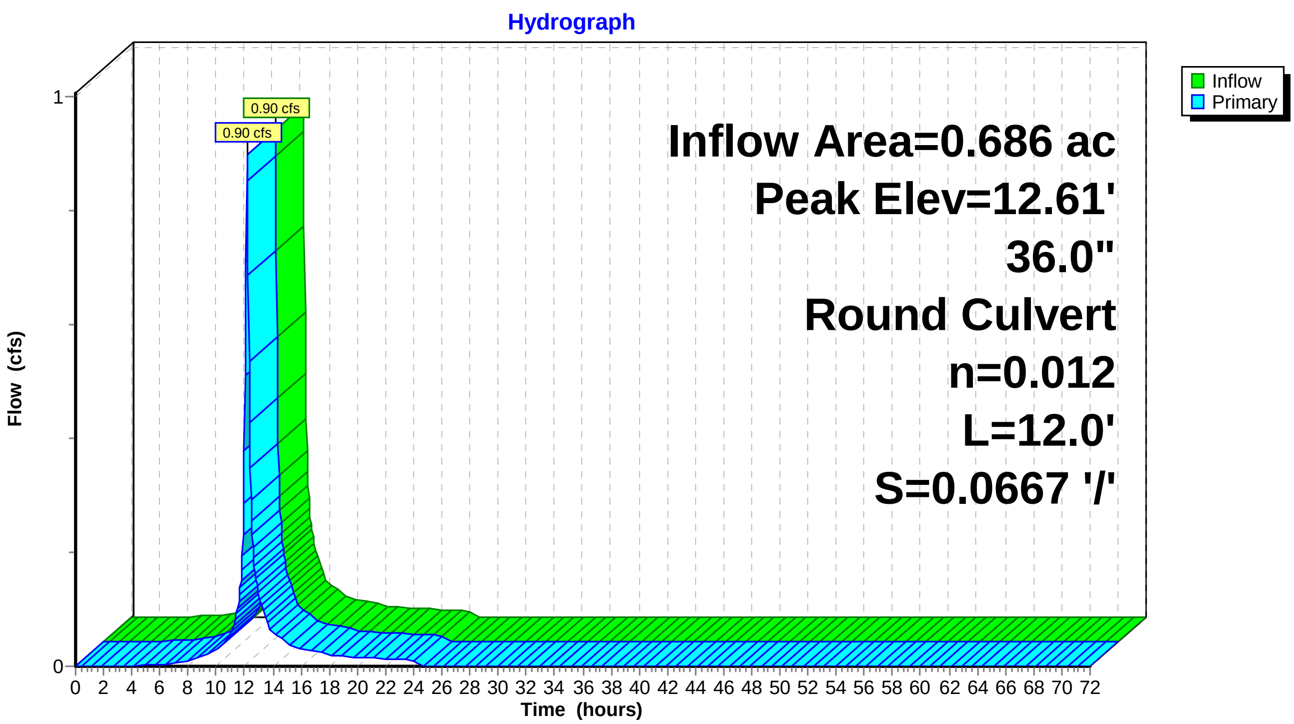
Inflow Area = 0.686 ac, 74.59% Impervious, Inflow Depth = 1.30" for 1-Year event
Inflow = 0.90 cfs @ 12.17 hrs, Volume= 0.074 af
Outflow = 0.90 cfs @ 12.17 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min
Primary = 0.90 cfs @ 12.17 hrs, Volume= 0.074 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 12.61' @ 12.17 hrs
Flood Elev= 16.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.30'	**36.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.30' / 11.50' S= 0.0667 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf

Primary OutFlow Max=0.87 cfs @ 12.17 hrs HW=12.60' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.87 cfs @ 2.34 fps)

Pond 7P: (new Pond)



Summary for Pond 12P: StormTank

Inflow Area =	0.654 ac, 76.95% Impervious, Inflow Depth = 1.60" for 1-Year event			
Inflow =	1.03 cfs @	12.13 hrs, Volume=	0.087 af	
Outflow =	0.88 cfs @	12.17 hrs, Volume=	0.087 af,	Atten= 14%, Lag= 2.3 min
Discarded =	0.01 cfs @	12.17 hrs, Volume=	0.015 af	
Primary =	0.87 cfs @	12.17 hrs, Volume=	0.072 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 15.45' @ 12.17 hrs Surf.Area= 0.017 ac Storage= 0.007 af

Plug-Flow detention time= 11.0 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 11.0 min (807.7 - 796.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.002 af	**20.00'W x 38.00'L x 2.04'H Field A** 0.036 af Overall - 0.030 af Embedded = 0.006 af x 40.0% Voids
#2A	15.04'	0.029 af	**StormTank 25 Series 24"** x 144 Inside #1 Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf 144 Chambers in 12 Rows
		0.031 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 16.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf
#2	Discarded	15.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -6.20'
#3	Primary	15.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 15.00' / 15.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf
#4	Primary	16.50'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#5	Primary	15.00'	**18.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.00' / 13.00' S= 0.0417 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Discarded OutFlow Max=0.01 cfs @ 12.17 hrs HW=15.44' (Free Discharge)
└─**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.85 cfs @ 12.17 hrs HW=15.44' (Free Discharge)
├─**1=Culvert** (Controls 0.00 cfs)
├─**3=Culvert** (Barrel Controls 0.08 cfs @ 3.49 fps)
├─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**5=Culvert** (Inlet Controls 0.77 cfs @ 1.78 fps)

Pond 12P: StormTank - Chamber Wizard Field A

Chamber Model = StormTank 25 Series 24" (StormTank Module 25 Series)
Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf
Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf

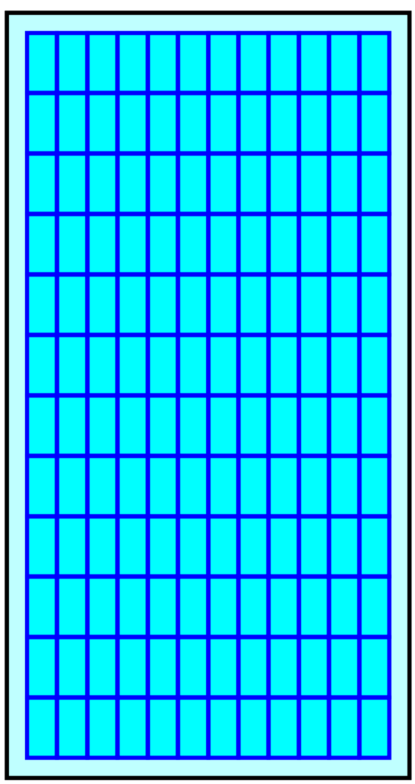
12 Chambers/Row x 3.00' Long = 36.00' Row Length +12.0" End Stone x 2 = 38.00' Base Length
12 Rows x 18.0" Wide + 12.0" Side Stone x 2 = 20.00' Base Width
0.5" Stone Base + 24.0" Chamber Height = 2.04' Field Height

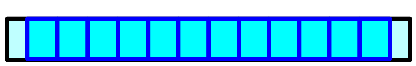
144 Chambers x 8.7 cf = 1,246.5 cf Chamber Storage
144 Chambers x 9.0 cf = 1,296.0 cf Displacement

1,551.7 cf Field - 1,296.0 cf Chambers = 255.7 cf Stone x 40.0% Voids = 102.3 cf Stone Storage

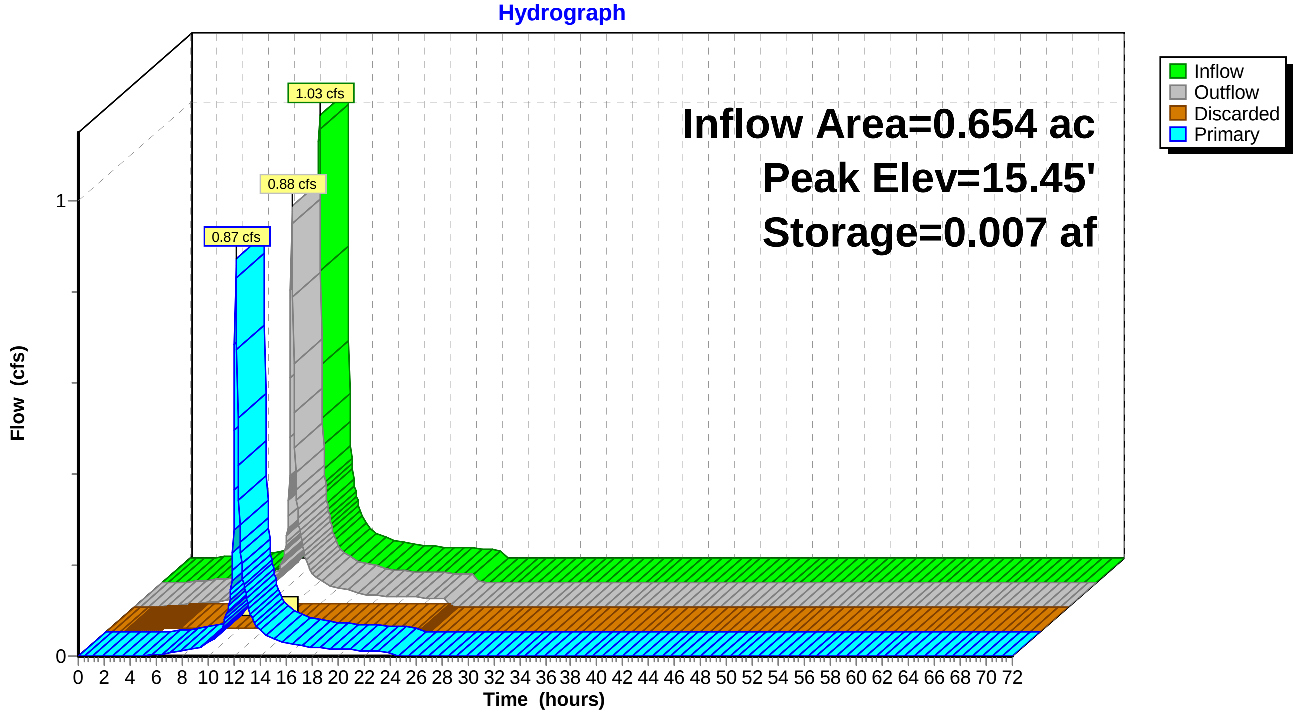
Chamber Storage + Stone Storage = 1,348.8 cf = 0.031 af
Overall Storage Efficiency = 86.9%
Overall System Size = 38.00' x 20.00' x 2.04'

144 Chambers
57.5 cy Field
9.5 cy Stone





Pond 12P: StormTank



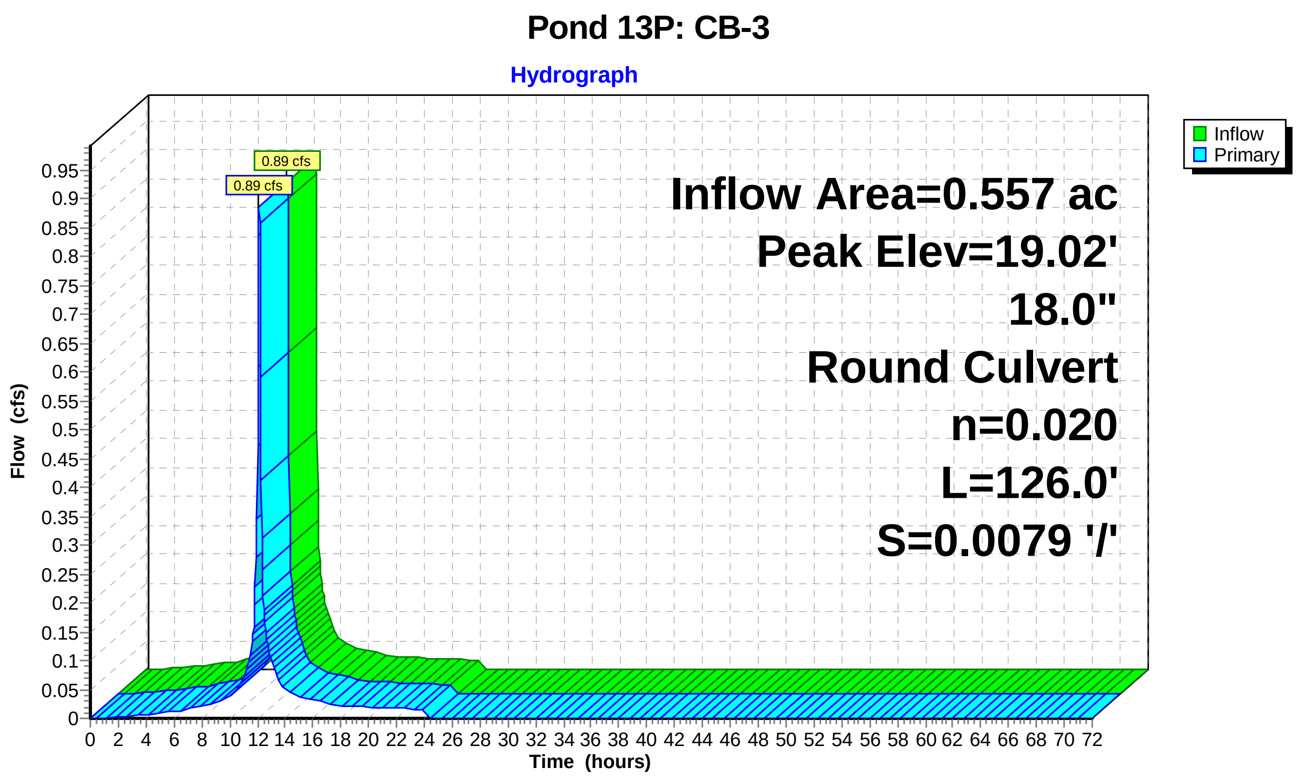
Summary for Pond 13P: CB-3

Inflow Area =	0.557 ac, 81.29% Impervious, Inflow Depth = 1.65" for 1-Year event				
Inflow =	0.89 cfs @	12.13 hrs,	Volume=	0.076 af	
Outflow =	0.89 cfs @	12.13 hrs,	Volume=	0.076 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.89 cfs @	12.13 hrs,	Volume=	0.076 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.02' @ 12.13 hrs
Flood Elev= 23.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**18.0" Round Culvert** L= 126.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.50' / 17.50' S= 0.0079 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.85 cfs @ 12.13 hrs HW=19.01' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.85 cfs @ 2.39 fps)



Summary for Pond 14P: CB-2

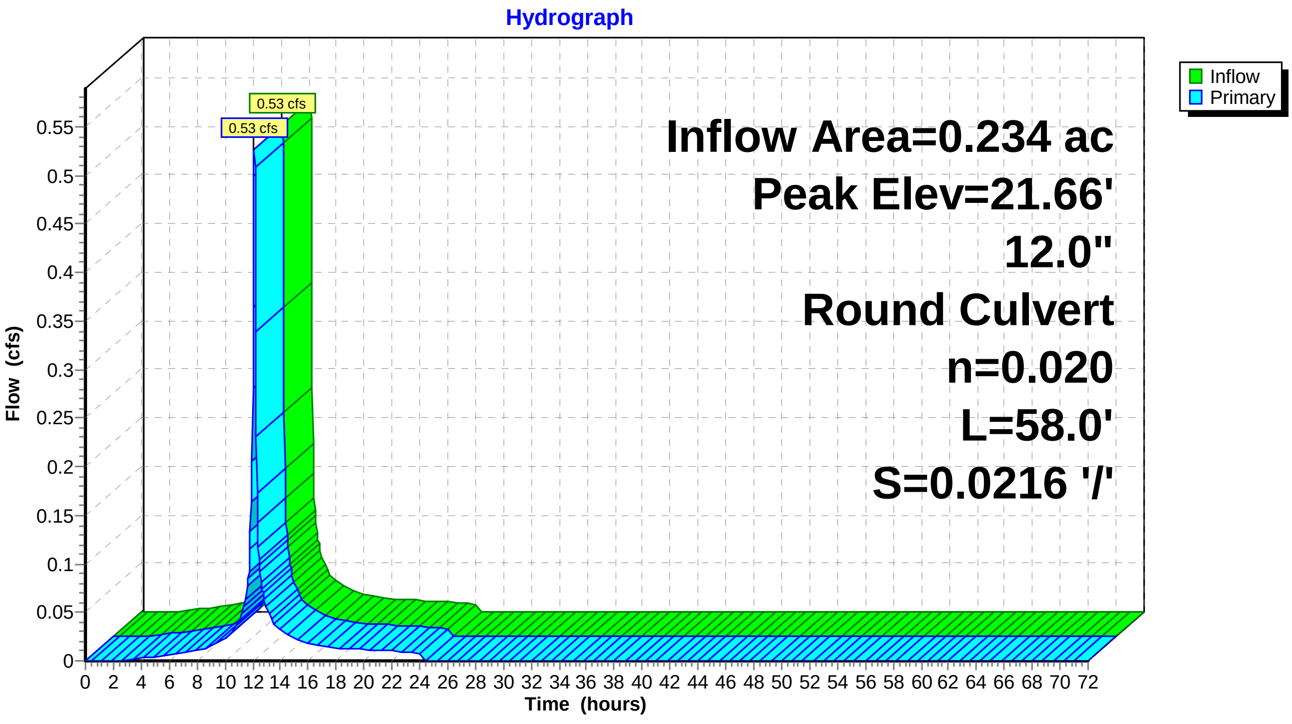
Inflow Area = 0.234 ac, 89.66% Impervious, Inflow Depth = 2.23" for 1-Year event
Inflow = 0.53 cfs @ 12.13 hrs, Volume= 0.044 af
Outflow = 0.53 cfs @ 12.13 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.13 hrs, Volume= 0.044 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.66' @ 12.13 hrs
Flood Elev= 22.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.25'	**12.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 21.25' / 20.00' S= 0.0216 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.13 hrs HW=21.65' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.50 cfs @ 1.71 fps)

Pond 14P: CB-2



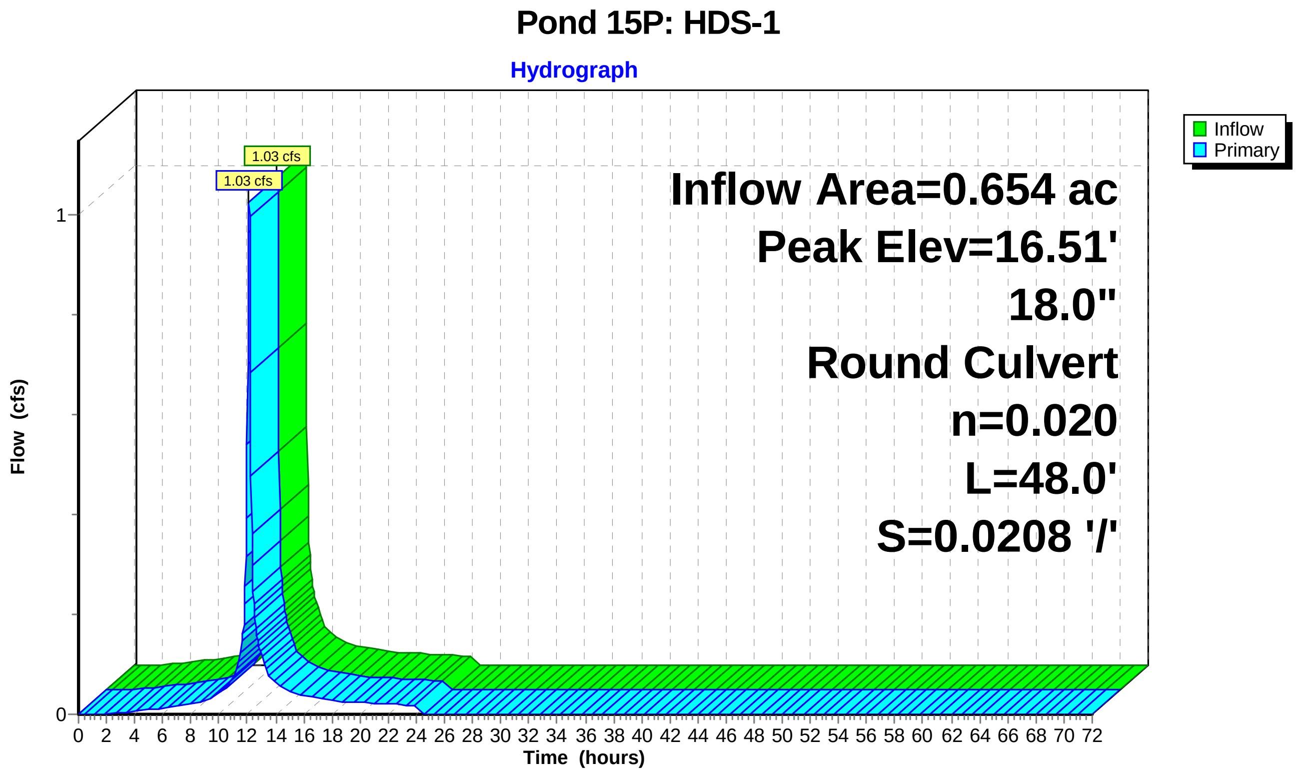
Summary for Pond 15P: HDS-1

Inflow Area =	0.654 ac,	76.95% Impervious,	Inflow Depth = 1.60"	for 1-Year event
Inflow =	1.03 cfs @	12.13 hrs, Volume=	0.087 af	
Outflow =	1.03 cfs @	12.13 hrs, Volume=	0.087 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.03 cfs @	12.13 hrs, Volume=	0.087 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.51' @ 12.13 hrs
Flood Elev= 20.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**18.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 16.00' / 15.00' S= 0.0208 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.98 cfs @ 12.13 hrs HW=16.50' (Free Discharge)
1=Culvert (Inlet Controls 0.98 cfs @ 1.90 fps)



Summary for Pond 16P: Playground Subsurface

Inflow Area = 0.159 ac, 57.26% Impervious, Inflow Depth = 1.48" for 1-Year event
Inflow = 0.25 cfs @ 12.14 hrs, Volume= 0.020 af
Outflow = 0.06 cfs @ 12.46 hrs, Volume= 0.020 af, Atten= 77%, Lag= 19.3 min
Discarded = 0.05 cfs @ 12.46 hrs, Volume= 0.019 af
Primary = 0.01 cfs @ 12.46 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.10' @ 12.46 hrs Surf.Area= 0.093 ac Storage= 0.004 af

Plug-Flow detention time= 18.9 min calculated for 0.020 af (100% of inflow)
Center-of-Mass det. time= 18.9 min (872.4 - 853.5)

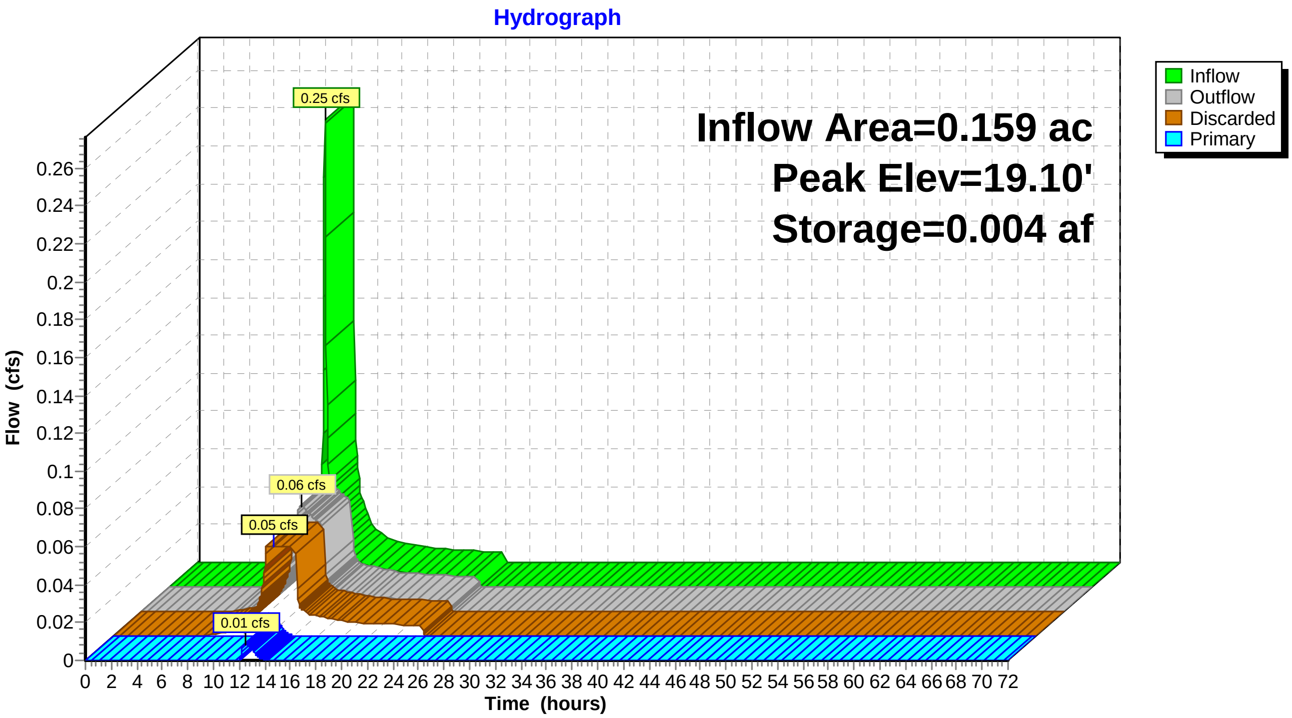
Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	0.025 af	**40.00'W x 101.00'L x 0.67'H Prismatoid** 0.062 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	**6.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 19.00' / 19.00' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	19.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -6.20'

Discarded OutFlow Max=0.05 cfs @ 12.46 hrs HW=19.10' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.01 cfs @ 12.46 hrs HW=19.10' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.01 cfs @ 0.44 fps)

Pond 16P: Playground Subsurface

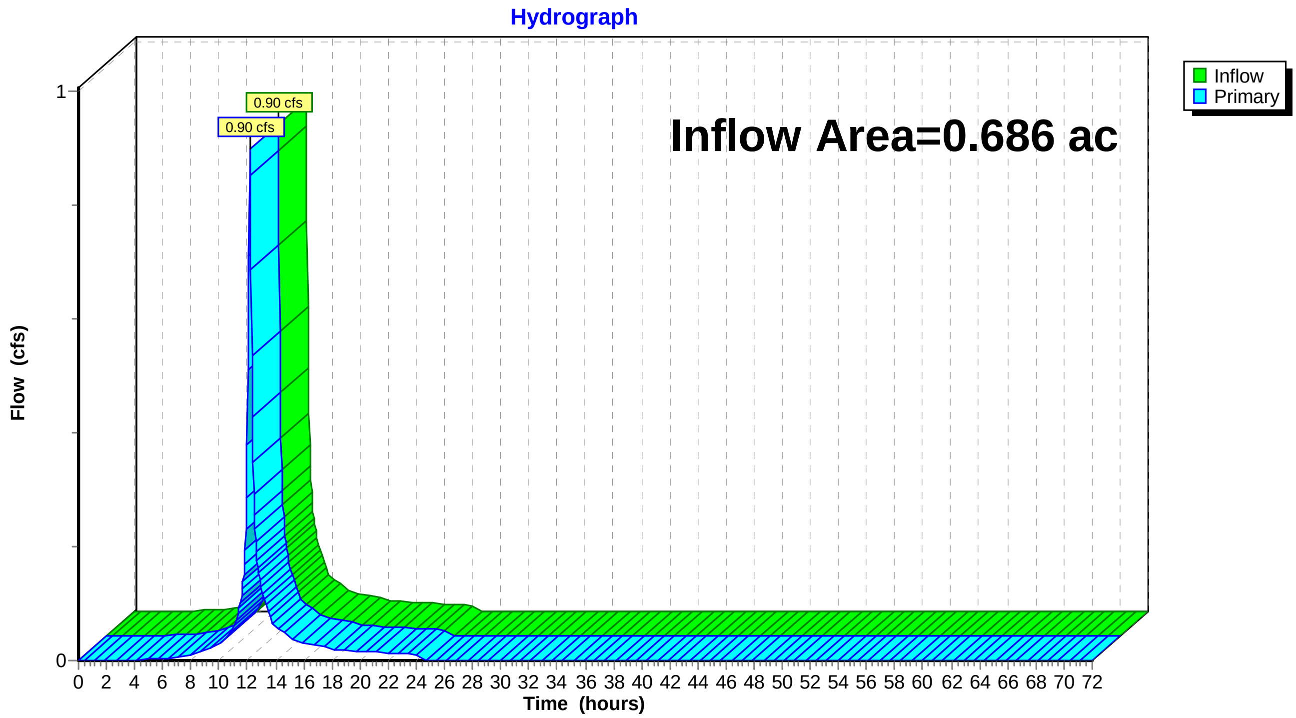


Summary for Link 8L: POD 1

Inflow Area =	0.686 ac, 74.59% Impervious, Inflow Depth = 1.30"	for 1-Year event	
Inflow =	0.90 cfs @ 12.17 hrs, Volume=	0.074 af	
Primary =	0.90 cfs @ 12.17 hrs, Volume=	0.074 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 8L: POD 1

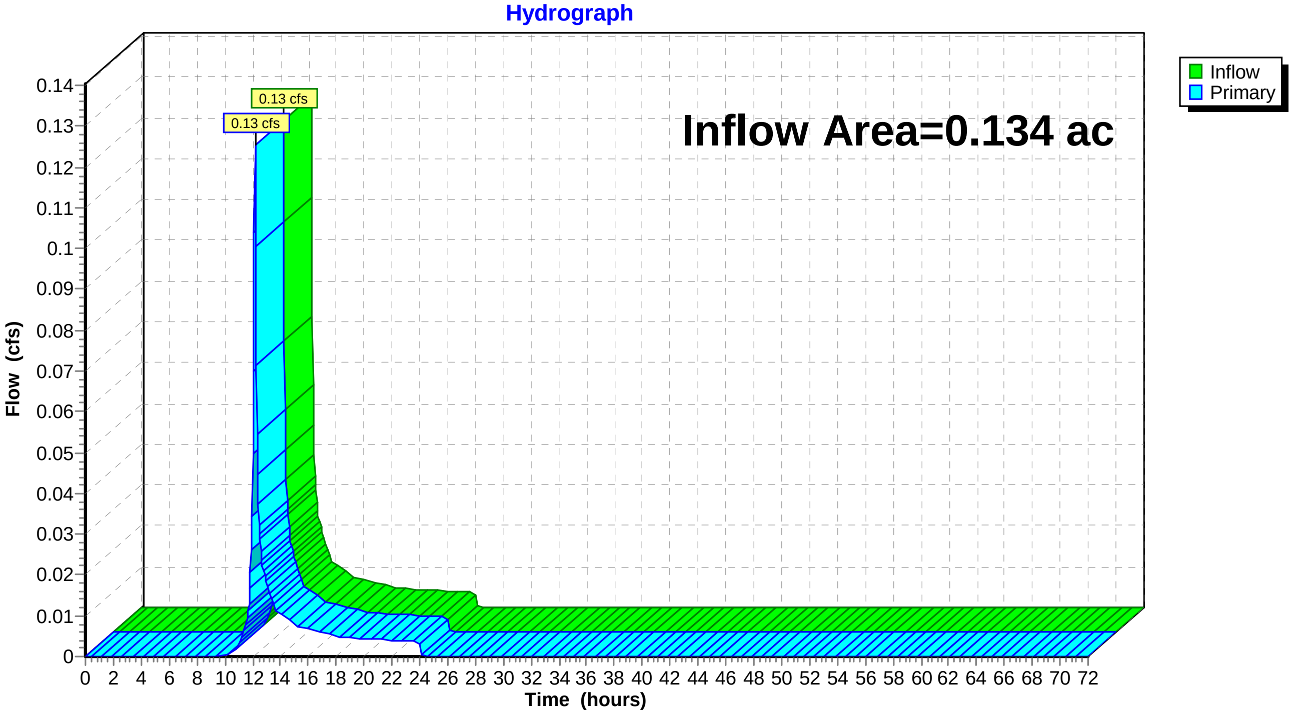


Summary for Link 10L: POD 2

Inflow Area = 0.134 ac, 25.94% Impervious, Inflow Depth = 0.92" for 1-Year event
Inflow = 0.13 cfs @ 12.15 hrs, Volume= 0.010 af
Primary = 0.13 cfs @ 12.15 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: POD 2

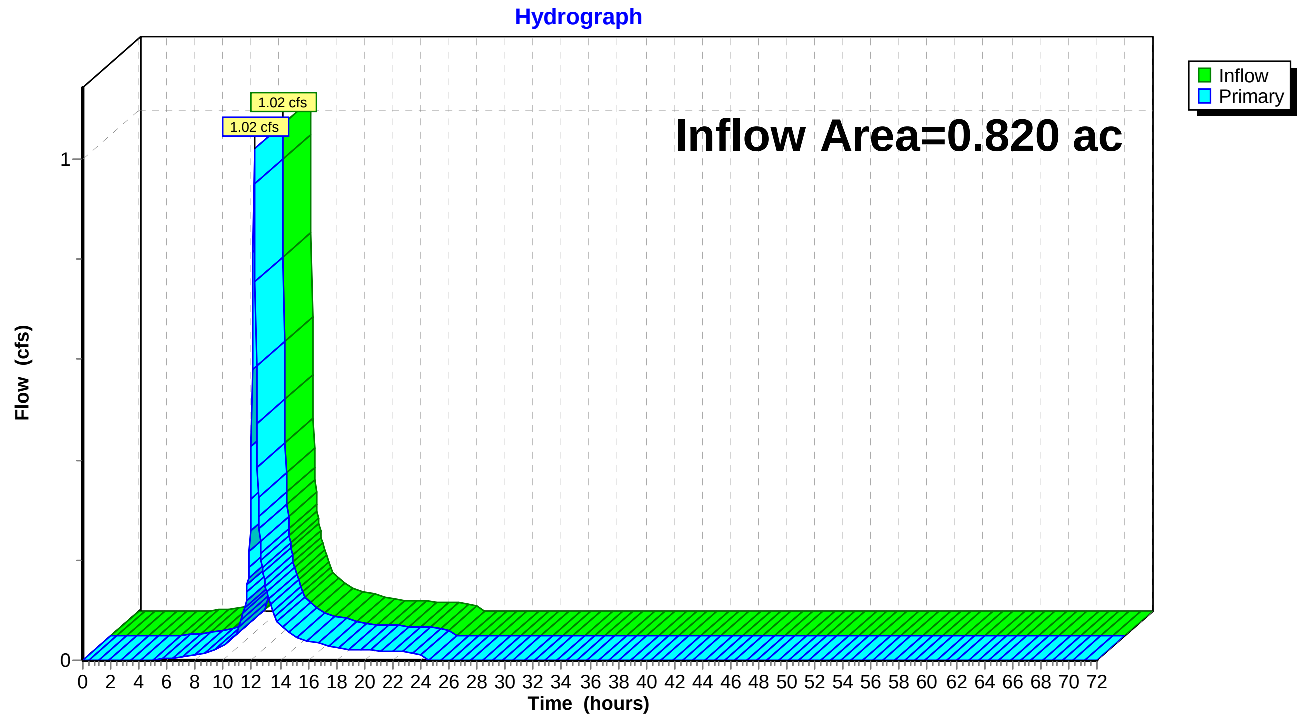


Summary for Link 11L: OVERALL PROPOSED

Inflow Area = 0.820 ac, 66.62% Impervious, Inflow Depth = 1.24" for 1-Year event
Inflow = 1.02 cfs @ 12.16 hrs, Volume= 0.085 af
Primary = 1.02 cfs @ 12.16 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: OVERALL PROPOSED



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1S: 1 Runoff Area=5,851 sf 25.94% Impervious Runoff Depth=2.73"
Flow Length=70' Tc=7.2 min CN=77 Runoff=0.38 cfs 0.031 af

Subcatchment 2S: 2 Runoff Area=1,377 sf 25.56% Impervious Runoff Depth=2.64"
Flow Length=64' Slope=0.0850 '/' Tc=6.0 min CN=76 Runoff=0.09 cfs 0.007 af

Subcatchment 3S: 4 Runoff Area=4,226 sf 52.08% Impervious Runoff Depth=3.39"
Tc=6.0 min CN=84 Runoff=0.35 cfs 0.027 af

Subcatchment 4S: 5 Runoff Area=1,434 sf 62.90% Impervious Runoff Depth=3.69"
Flow Length=56' Slope=0.0100 '/' Tc=10.5 min CN=87 Runoff=0.11 cfs 0.010 af

Subcatchment 5S: 3 Runoff Area=5,728 sf 100.00% Impervious Runoff Depth=4.89"
Tc=6.0 min CN=98 Runoff=0.59 cfs 0.054 af

Subcatchment 12S: 6 Runoff Area=10,187 sf 89.66% Impervious Runoff Depth=4.55"
Flow Length=88' Slope=0.0060 '/' Tc=6.0 min CN=95 Runoff=1.02 cfs 0.089 af

Subcatchment 13S: 7 Runoff Area=6,917 sf 57.26% Impervious Runoff Depth=3.59"
Flow Length=125' Slope=0.0200 '/' Tc=6.9 min CN=86 Runoff=0.58 cfs 0.047 af

Pond 7P: (new Pond) Peak Elev=12.76' Inflow=1.97 cfs 0.181 af
36.0" Round Culvert n=0.012 L=12.0' S=0.0667 '/' Outflow=1.97 cfs 0.181 af

Pond 12P: StormTank Peak Elev=15.69' Storage=0.010 af Inflow=2.10 cfs 0.191 af
Discarded=0.01 cfs 0.017 af Primary=1.89 cfs 0.174 af Outflow=1.90 cfs 0.191 af

Pond 13P: CB-3 Peak Elev=19.25' Inflow=1.75 cfs 0.164 af
18.0" Round Culvert n=0.020 L=126.0' S=0.0079 '/' Outflow=1.75 cfs 0.164 af

Pond 14P: CB-2 Peak Elev=21.85' Inflow=1.02 cfs 0.089 af
12.0" Round Culvert n=0.020 L=58.0' S=0.0216 '/' Outflow=1.02 cfs 0.089 af

Pond 15P: HDS-1 Peak Elev=16.76' Inflow=2.10 cfs 0.191 af
18.0" Round Culvert n=0.020 L=48.0' S=0.0208 '/' Outflow=2.10 cfs 0.191 af

Pond 16P: Playground Subsurface Peak Elev=19.31' Storage=0.012 af Inflow=0.58 cfs 0.047 af
Discarded=0.05 cfs 0.036 af Primary=0.10 cfs 0.011 af Outflow=0.15 cfs 0.047 af

Link 8L: POD 1 Inflow=1.97 cfs 0.181 af
Primary=1.97 cfs 0.181 af

Link 10L: POD 2 Inflow=0.38 cfs 0.031 af
Primary=0.38 cfs 0.031 af

Link 11L: OVERALL PROPOSED Inflow=2.35 cfs 0.212 af
Primary=2.35 cfs 0.212 af

Total Runoff Area = 0.820 ac Runoff Volume = 0.265 af Average Runoff Depth = 3.88"
33.38% Pervious = 0.274 ac 66.62% Impervious = 0.546 ac

Summary for Subcatchment 1S: 1

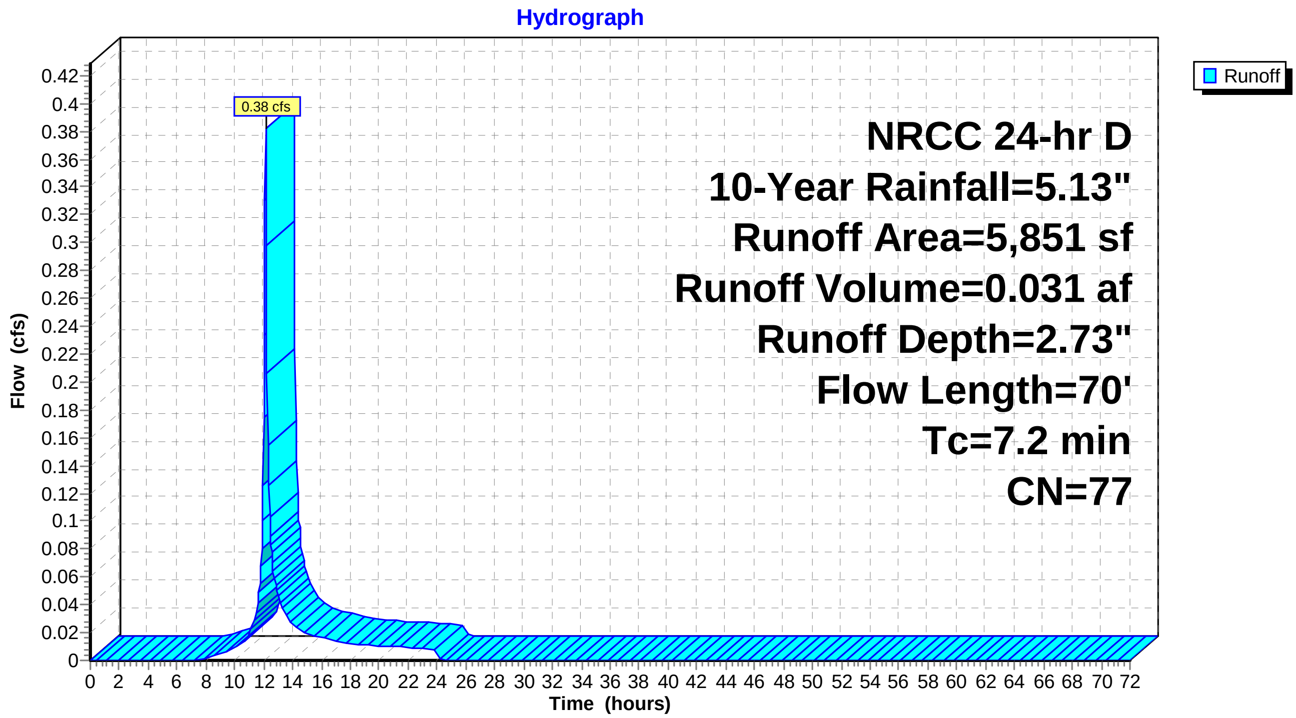
Runoff = 0.38 cfs @ 12.14 hrs, Volume= 0.031 af, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
	4,333	69	50-75% Grass cover, Fair, HSG B
*	676	98	Sidewalk
*	159	98	Sidewalk
*	70	98	Sidewalk
*	613	98	Sidewalk
	5,851	77	Weighted Average
	4,333		74.06% Pervious Area
	1,518		25.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	18	0.1100	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	7	0.0350	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
3.0	17	0.0290	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	7	0.0350	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
2.0	21	0.1200	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
7.2	70	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

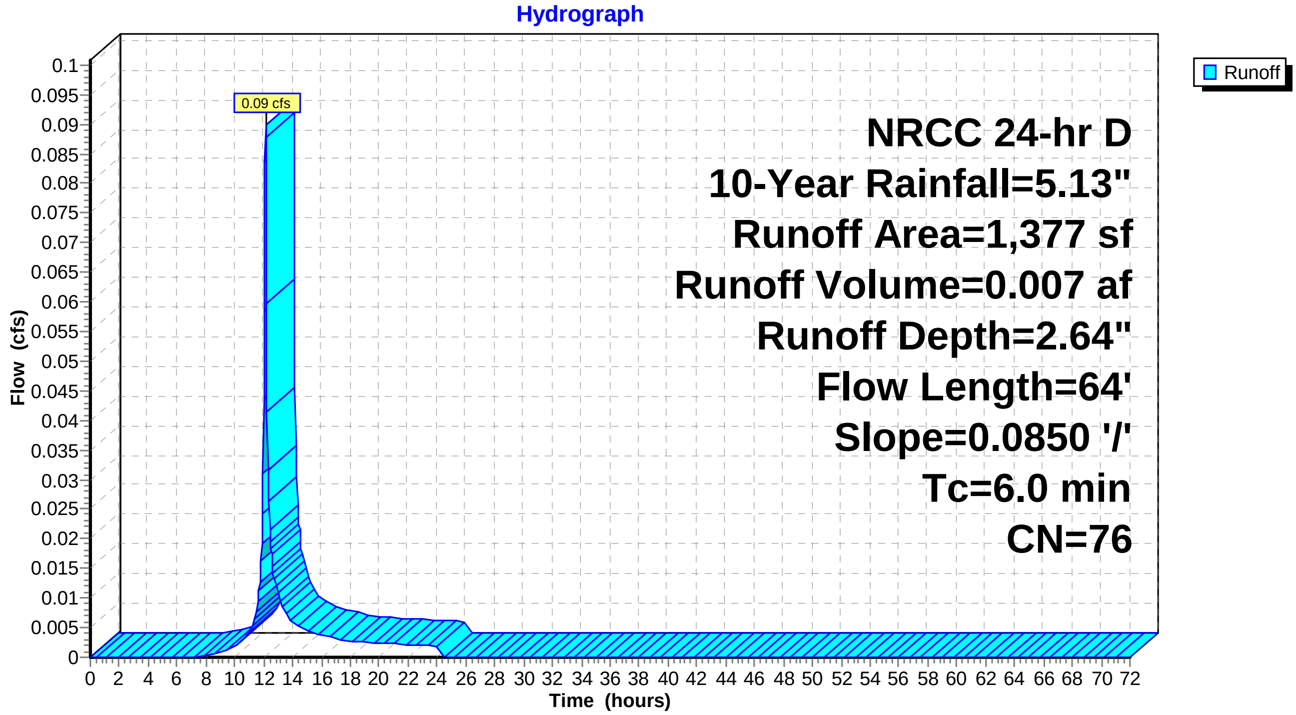
Runoff = 0.09 cfs @ 12.13 hrs, Volume= 0.007 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	248	98	Sidewalk
	1,025	69	50-75% Grass cover, Fair, HSG B
*	104	98	Sidewalk
	1,377	76	Weighted Average
	1,025		74.44% Pervious Area
	352		25.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	64	0.0850	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.6	64	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 4

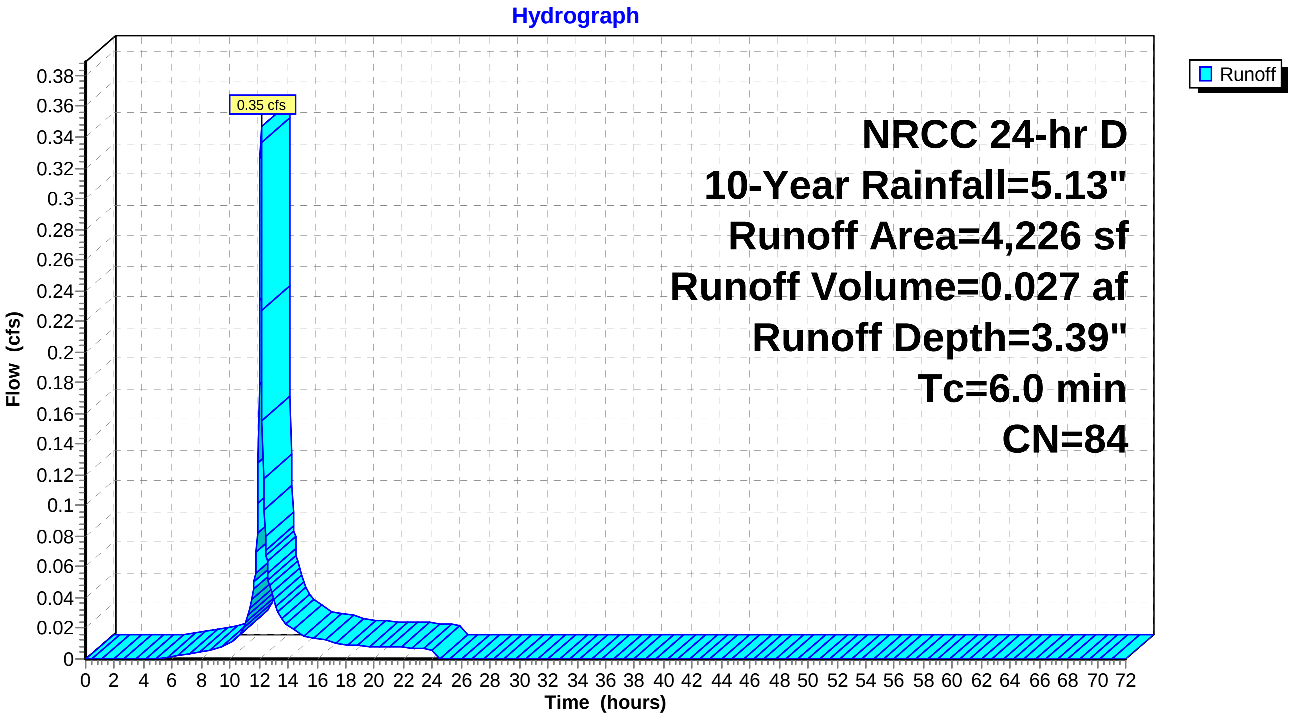
Runoff = 0.35 cfs @ 12.13 hrs, Volume= 0.027 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	976	98	Sidewalk
	2,025	69	50-75% Grass cover, Fair, HSG B
*	1,225	98	Sidewalk
	4,226	84	Weighted Average
	2,025		47.92% Pervious Area
	2,201		52.08% Impervious Area

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

Subcatchment 3S: 4



Summary for Subcatchment 4S: 5

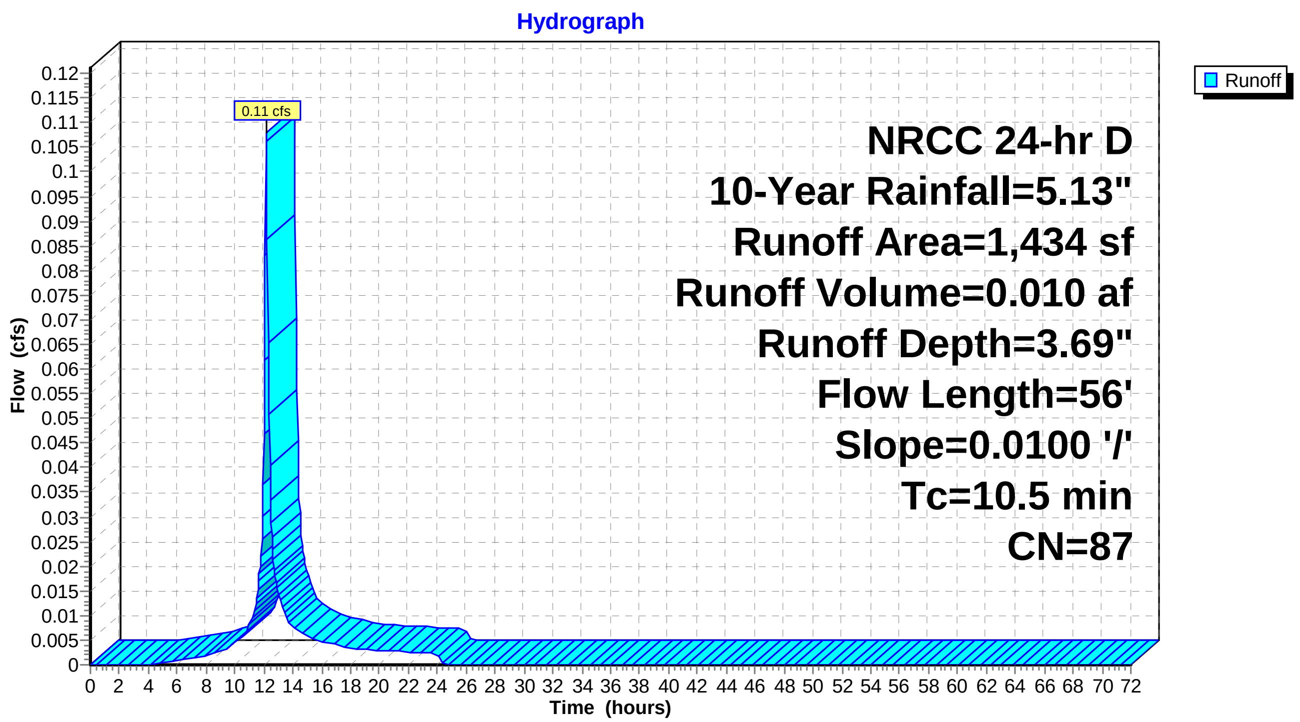
Runoff = 0.11 cfs @ 12.18 hrs, Volume= 0.010 af, Depth= 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	289	98	Sidewalk
	532	69	50-75% Grass cover, Fair, HSG B
*	613	98	Sidewalk
	1,434	87	Weighted Average
	532		37.10% Pervious Area
	902		62.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	15	0.0100	0.06		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	18	0.0100	0.51		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
5.8	23	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
10.5	56	Total			

Subcatchment 4S: 5



Summary for Subcatchment 5S: 3

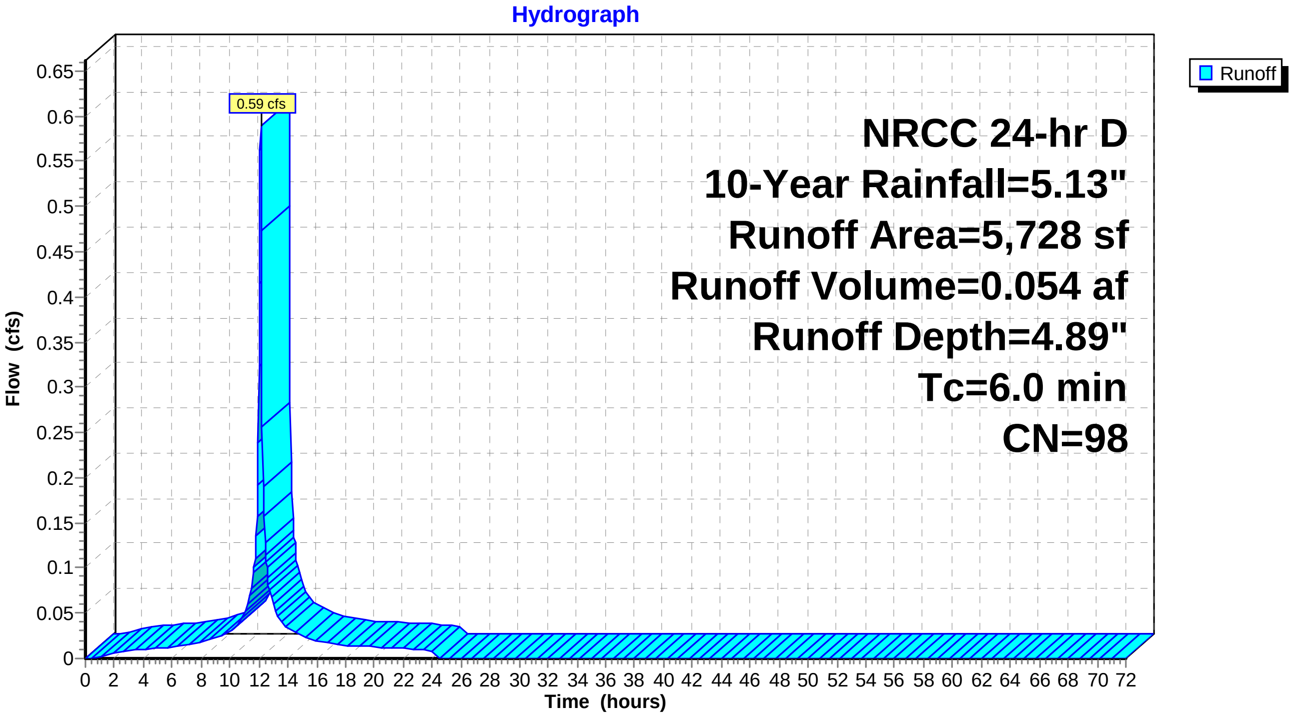
Runoff = 0.59 cfs @ 12.13 hrs, Volume= 0.054 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

Area (sf)	CN	Description
5,728	98	Roofs, HSG B
5,728		100.00% Impervious Area

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

Subcatchment 5S: 3



Summary for Subcatchment 12S: 6

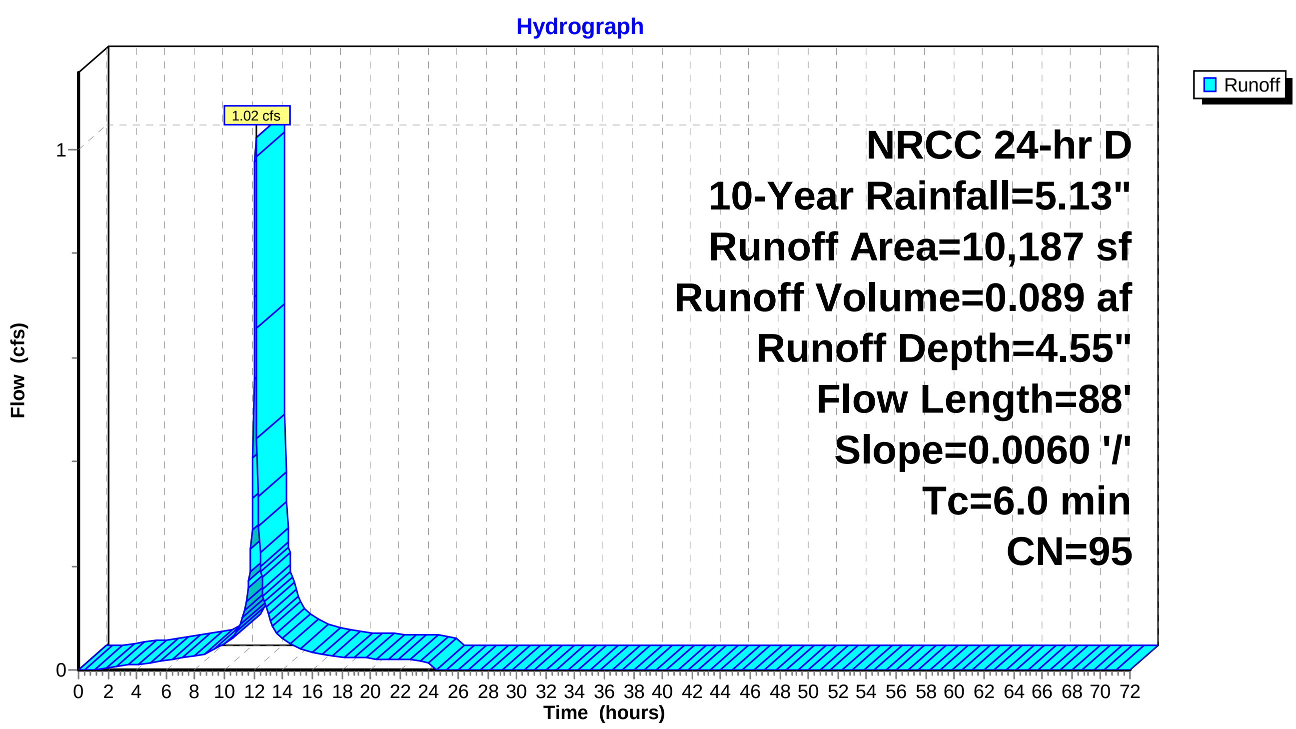
Runoff = 1.02 cfs @ 12.13 hrs, Volume= 0.089 af, Depth= 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	9,134	98	Pavement
	599	69	50-75% Grass cover, Fair, HSG B
	204	69	50-75% Grass cover, Fair, HSG B
	250	69	50-75% Grass cover, Fair, HSG B
	10,187	95	Weighted Average
	1,053		10.34% Pervious Area
	9,134		89.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	88	0.0060	0.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
2.6	88	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12S: 6



Summary for Subcatchment 13S: 7

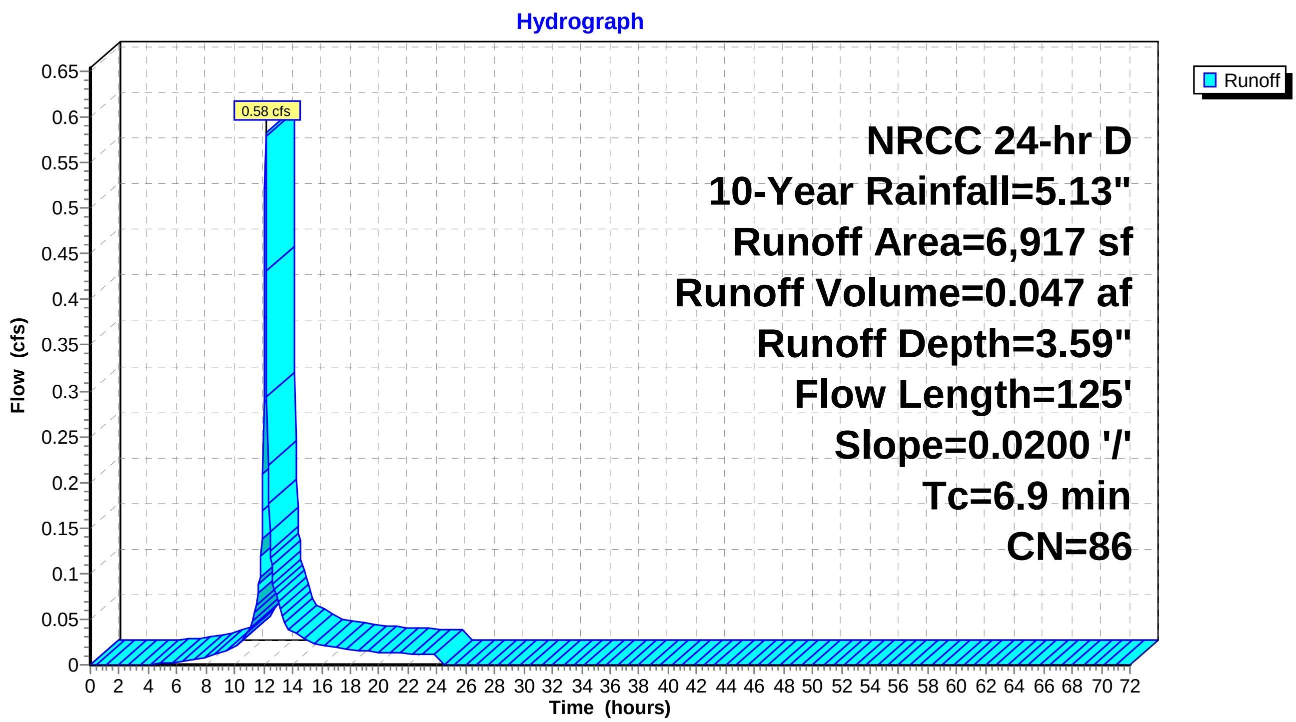
Runoff = 0.58 cfs @ 12.14 hrs, Volume= 0.047 af, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
	2,956	69	50-75% Grass cover, Fair, HSG B
*	3,961	98	Porous Playground
	6,917	86	Weighted Average
	2,956		42.74% Pervious Area
	3,961		57.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.7	85	0.0200	2.00	0.17	**Pipe Channel,** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.020 Corrugated PE, corrugated interior
0.2	40	0.0200	3.18	1.11	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.020 Corrugated PE, corrugated interior
6.9	125	Total			

Subcatchment 13S: 7



Summary for Pond 7P: (new Pond)

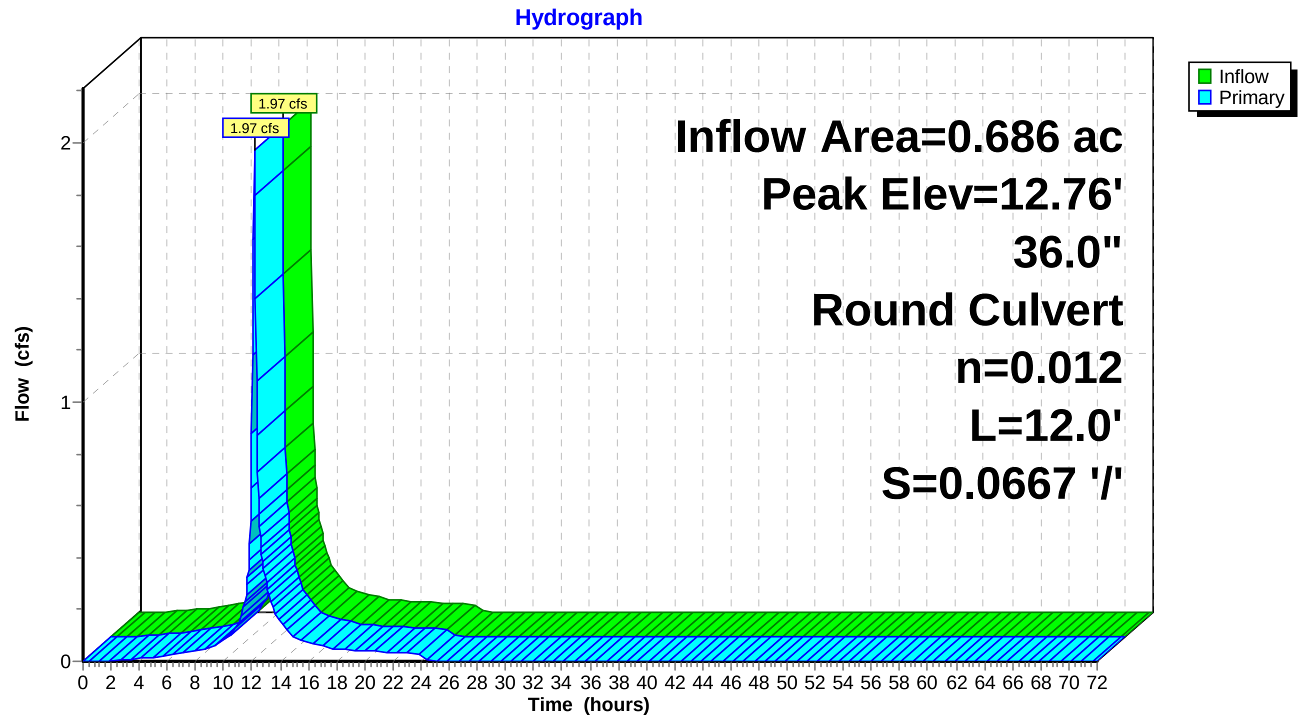
Inflow Area = 0.686 ac, 74.59% Impervious, Inflow Depth = 3.18" for 10-Year event
Inflow = 1.97 cfs @ 12.16 hrs, Volume= 0.181 af
Outflow = 1.97 cfs @ 12.16 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min
Primary = 1.97 cfs @ 12.16 hrs, Volume= 0.181 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 12.76' @ 12.16 hrs
Flood Elev= 16.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.30'	**36.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.30' / 11.50' S= 0.0667 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf

Primary OutFlow Max=1.93 cfs @ 12.16 hrs HW=12.75' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.93 cfs @ 2.87 fps)

Pond 7P: (new Pond)



Summary for Pond 12P: StormTank

Inflow Area = 0.654 ac, 76.95% Impervious, Inflow Depth = 3.51" for 10-Year event
Inflow = 2.10 cfs @ 12.13 hrs, Volume= 0.191 af
Outflow = 1.90 cfs @ 12.16 hrs, Volume= 0.191 af, Atten= 10%, Lag= 1.8 min
Discarded = 0.01 cfs @ 12.16 hrs, Volume= 0.017 af
Primary = 1.89 cfs @ 12.16 hrs, Volume= 0.174 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 15.69' @ 12.16 hrs Surf.Area= 0.017 ac Storage= 0.010 af

Plug-Flow detention time= 9.7 min calculated for 0.191 af (100% of inflow)
Center-of-Mass det. time= 9.6 min (787.6 - 778.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.002 af	**20.00'W x 38.00'L x 2.04'H Field A** 0.036 af Overall - 0.030 af Embedded = 0.006 af x 40.0% Voids
#2A	15.04'	0.029 af	**StormTank 25 Series 24"** x 144 Inside #1 Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf 144 Chambers in 12 Rows
		0.031 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 16.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf
#2	Discarded	15.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -6.20'
#3	Primary	15.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 15.00' / 15.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf
#4	Primary	16.50'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#5	Primary	15.00'	**18.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.00' / 13.00' S= 0.0417 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Discarded OutFlow Max=0.01 cfs @ 12.16 hrs HW=15.68' (Free Discharge)
└─**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.85 cfs @ 12.16 hrs HW=15.68' (Free Discharge)
├─**1=Culvert** (Controls 0.00 cfs)
├─**3=Culvert** (Inlet Controls 0.10 cfs @ 4.67 fps)
├─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**5=Culvert** (Inlet Controls 1.75 cfs @ 2.22 fps)

Pond 12P: StormTank - Chamber Wizard Field A

Chamber Model = StormTank 25 Series 24" (StormTank Module 25 Series)
Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf
Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf

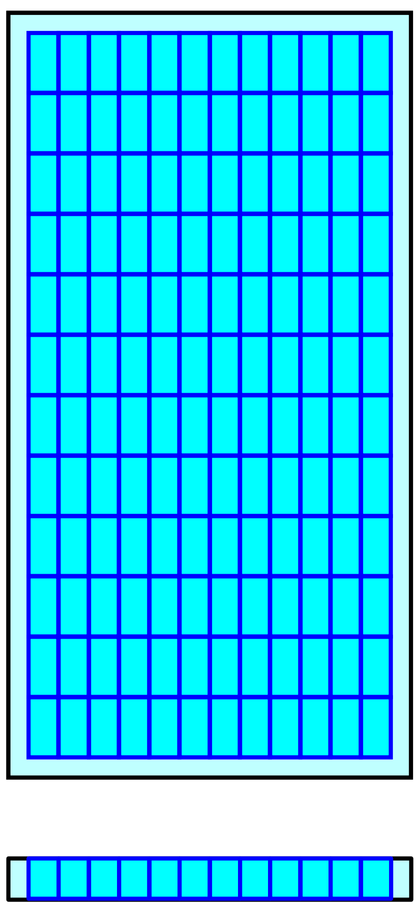
12 Chambers/Row x 3.00' Long = 36.00' Row Length +12.0" End Stone x 2 = 38.00' Base Length
12 Rows x 18.0" Wide + 12.0" Side Stone x 2 = 20.00' Base Width
0.5" Stone Base + 24.0" Chamber Height = 2.04' Field Height

144 Chambers x 8.7 cf = 1,246.5 cf Chamber Storage
144 Chambers x 9.0 cf = 1,296.0 cf Displacement

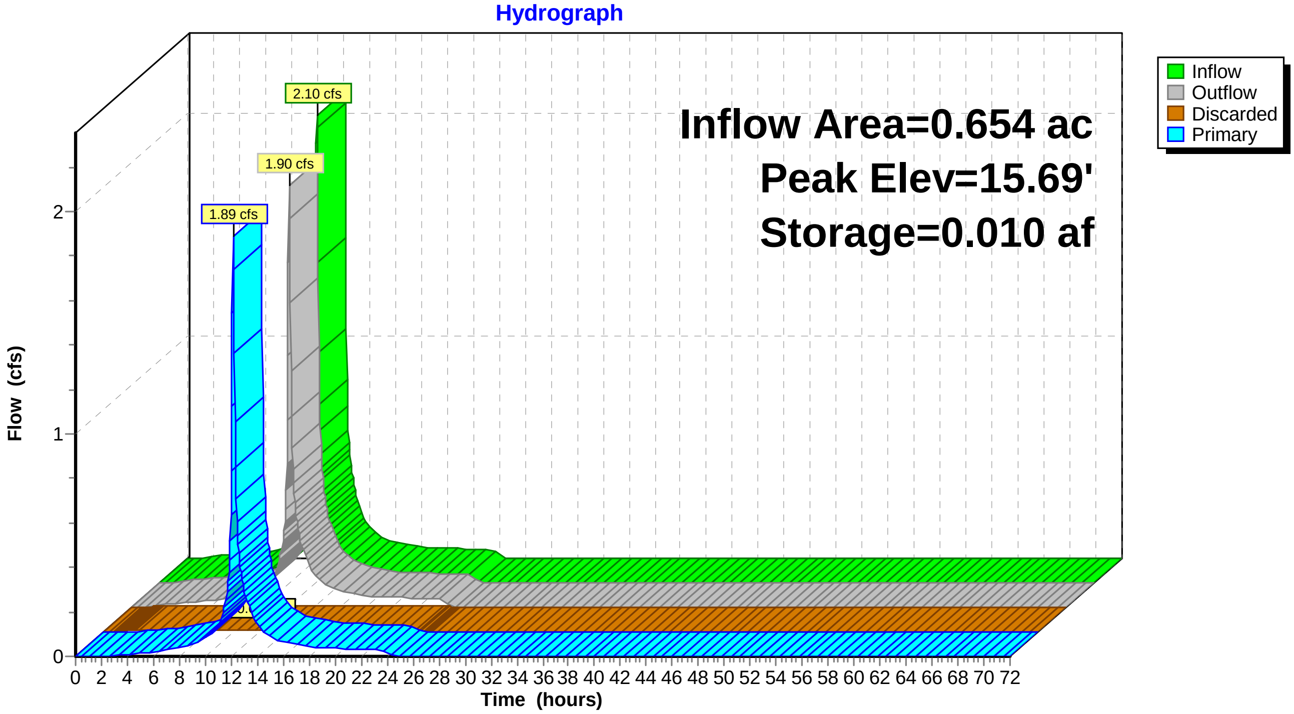
1,551.7 cf Field - 1,296.0 cf Chambers = 255.7 cf Stone x 40.0% Voids = 102.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,348.8 cf = 0.031 af
Overall Storage Efficiency = 86.9%
Overall System Size = 38.00' x 20.00' x 2.04'

144 Chambers
57.5 cy Field
9.5 cy Stone



Pond 12P: StormTank



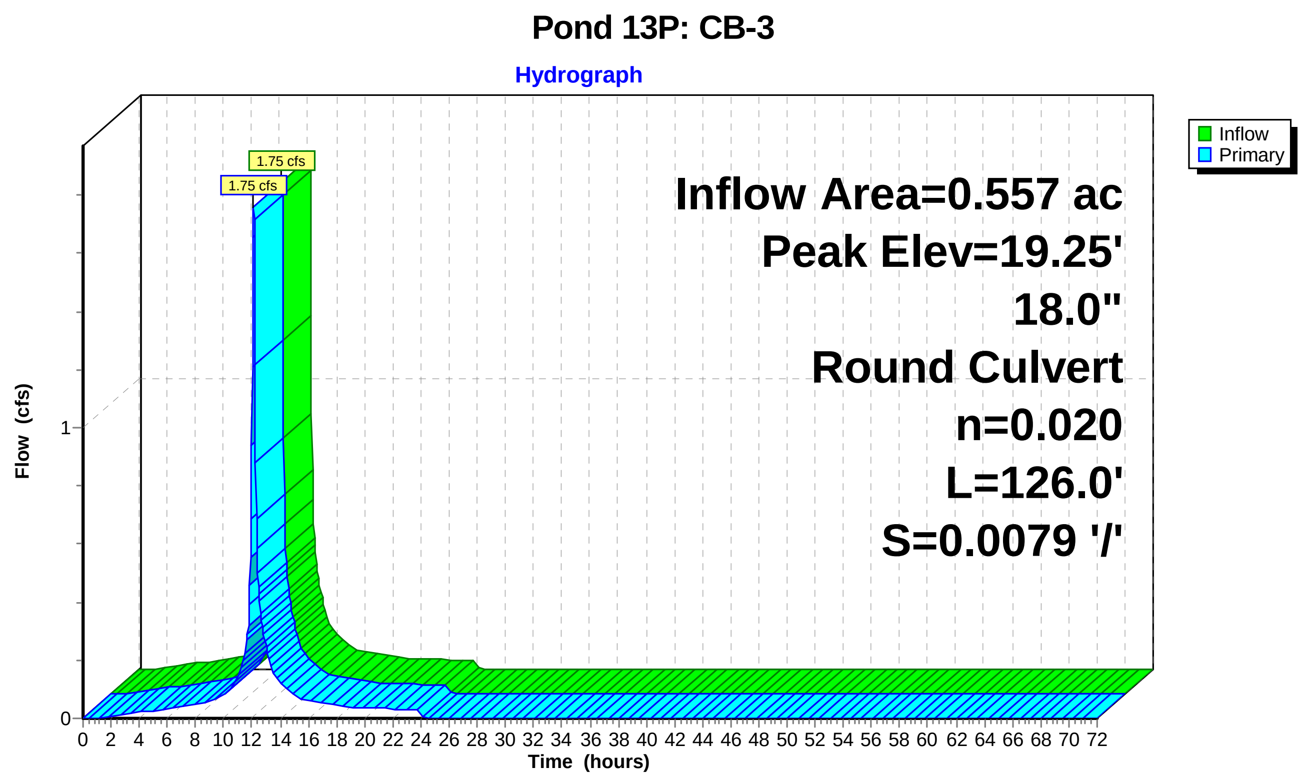
Summary for Pond 13P: CB-3

Inflow Area =	0.557 ac, 81.29% Impervious, Inflow Depth = 3.53" for 10-Year event		
Inflow =	1.75 cfs @ 12.13 hrs, Volume=	0.164 af	
Outflow =	1.75 cfs @ 12.13 hrs, Volume=	0.164 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.75 cfs @ 12.13 hrs, Volume=	0.164 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.25' @ 12.13 hrs
Flood Elev= 23.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**18.0" Round Culvert** L= 126.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.50' / 17.50' S= 0.0079 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.69 cfs @ 12.13 hrs HW=19.23' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.69 cfs @ 2.87 fps)



Summary for Pond 14P: CB-2

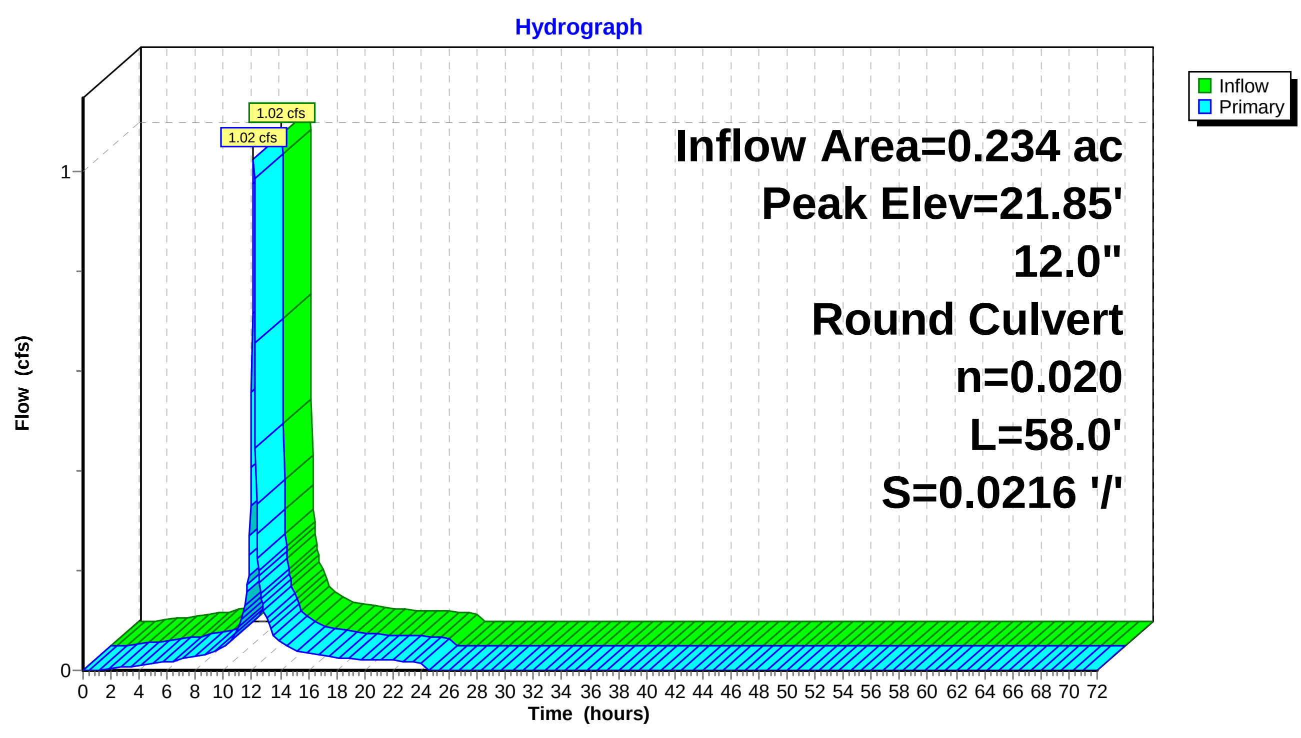
Inflow Area =	0.234 ac,	89.66% Impervious,	Inflow Depth = 4.55"	for 10-Year event	
Inflow =	1.02 cfs @	12.13 hrs,	Volume=	0.089 af	
Outflow =	1.02 cfs @	12.13 hrs,	Volume=	0.089 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.02 cfs @	12.13 hrs,	Volume=	0.089 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.85' @ 12.13 hrs
Flood Elev= 22.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.25'	**12.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 21.25' / 20.00' S= 0.0216 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 12.13 hrs HW=21.84' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.98 cfs @ 2.06 fps)

Pond 14P: CB-2



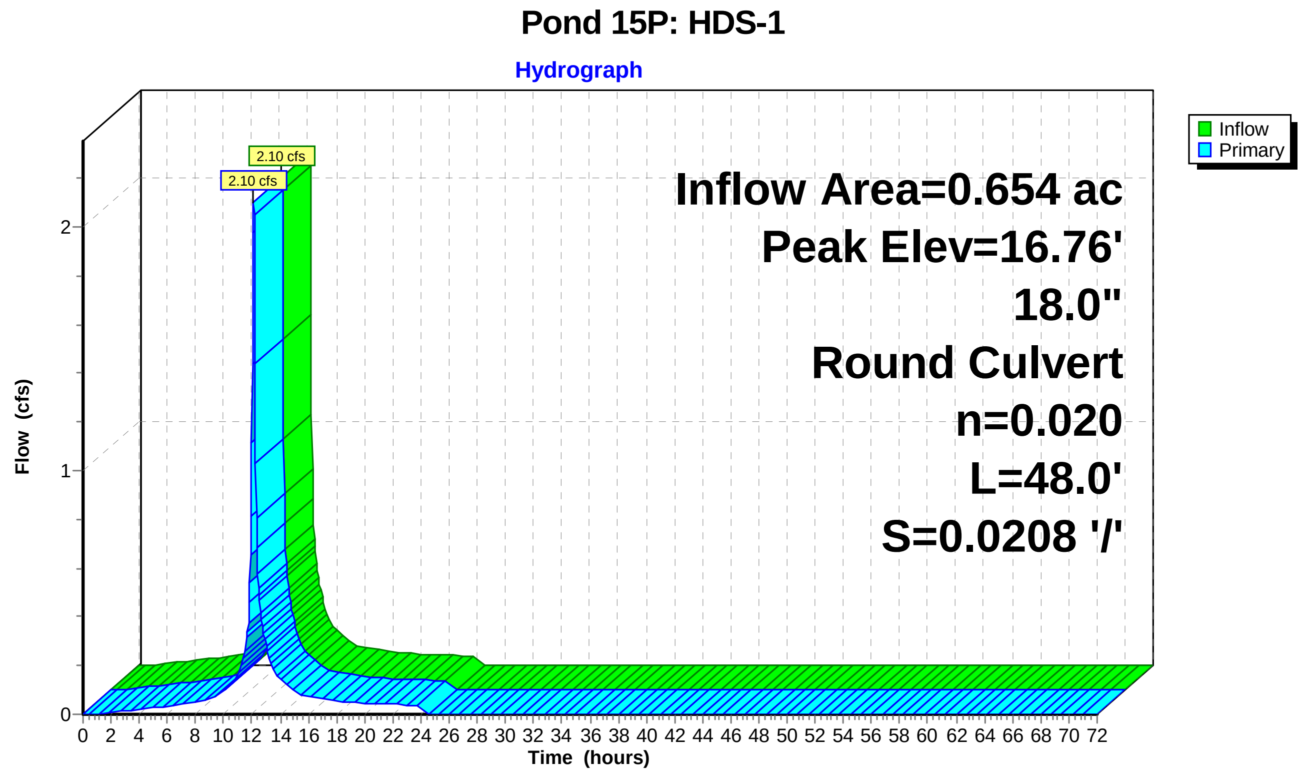
Summary for Pond 15P: HDS-1

Inflow Area =	0.654 ac,	76.95% Impervious,	Inflow Depth = 3.51"	for 10-Year event	
Inflow =	2.10 cfs @	12.13 hrs,	Volume=	0.191 af	
Outflow =	2.10 cfs @	12.13 hrs,	Volume=	0.191 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.10 cfs @	12.13 hrs,	Volume=	0.191 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.76' @ 12.13 hrs
Flood Elev= 20.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**18.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 16.00' / 15.00' S= 0.0208 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.02 cfs @ 12.13 hrs HW=16.74' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.02 cfs @ 2.32 fps)



Summary for Pond 16P: Playground Subsurface

Inflow Area =	0.159 ac,	57.26% Impervious,	Inflow Depth = 3.59"	for 10-Year event
Inflow =	0.58 cfs @	12.14 hrs, Volume=	0.047 af	
Outflow =	0.15 cfs @	12.40 hrs, Volume=	0.047 af,	Atten= 74%, Lag= 15.5 min
Discarded =	0.05 cfs @	12.40 hrs, Volume=	0.036 af	
Primary =	0.10 cfs @	12.40 hrs, Volume=	0.011 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.31' @ 12.40 hrs Surf.Area= 0.093 ac Storage= 0.012 af

Plug-Flow detention time= 33.9 min calculated for 0.047 af (100% of inflow)
Center-of-Mass det. time= 33.9 min (854.5 - 820.6)

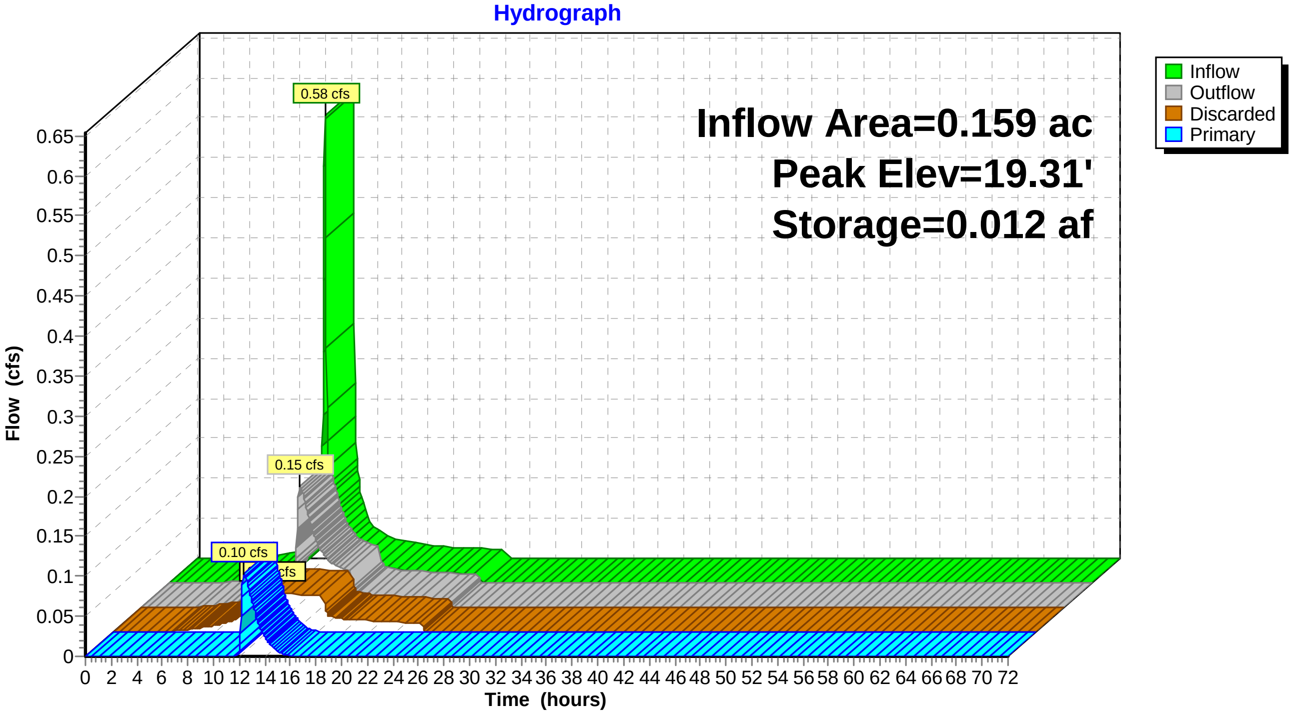
Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	0.025 af	**40.00'W x 101.00'L x 0.67'H Prismatoid** 0.062 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	**6.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 19.00' / 19.00' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	19.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -6.20'

Discarded OutFlow Max=0.05 cfs @ 12.40 hrs HW=19.31' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.10 cfs @ 12.40 hrs HW=19.31' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.10 cfs @ 1.14 fps)

Pond 16P: Playground Subsurface

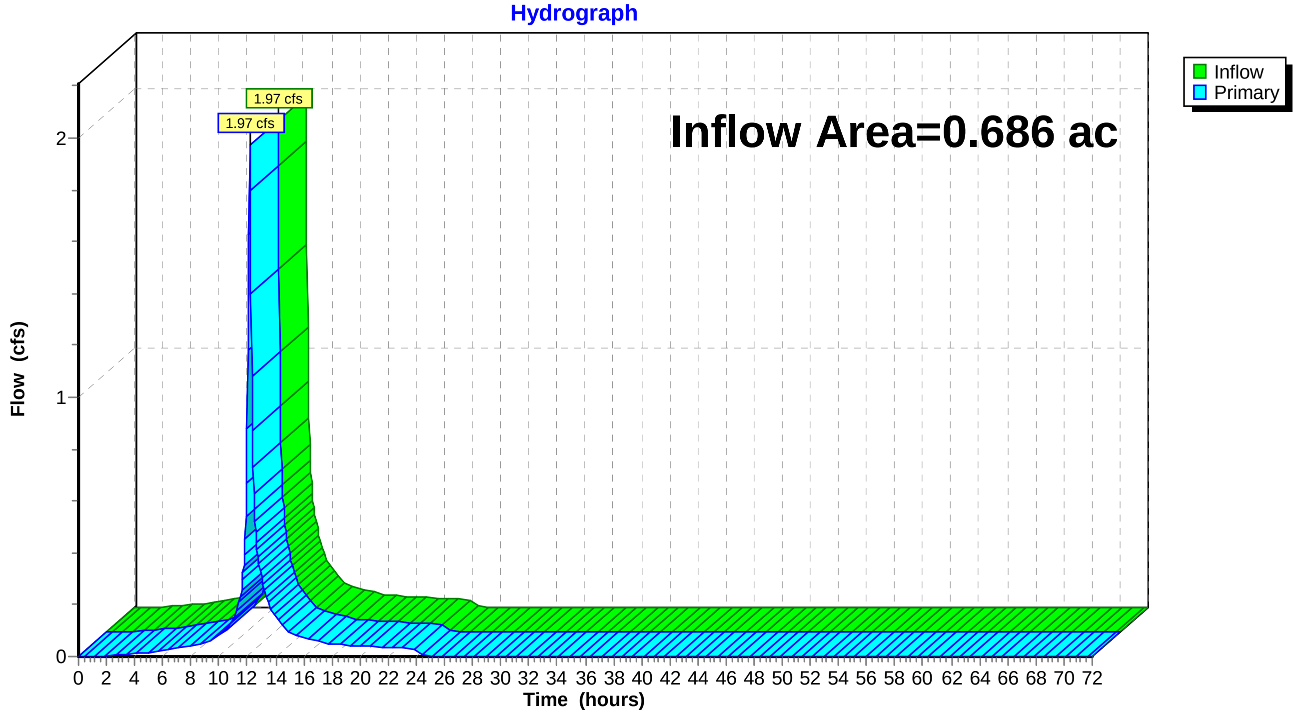


Summary for Link 8L: POD 1

Inflow Area =	0.686 ac, 74.59% Impervious,	Inflow Depth = 3.18"	for 10-Year event	
Inflow =	1.97 cfs @ 12.16 hrs,	Volume=	0.181 af	
Primary =	1.97 cfs @ 12.16 hrs,	Volume=	0.181 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 8L: POD 1

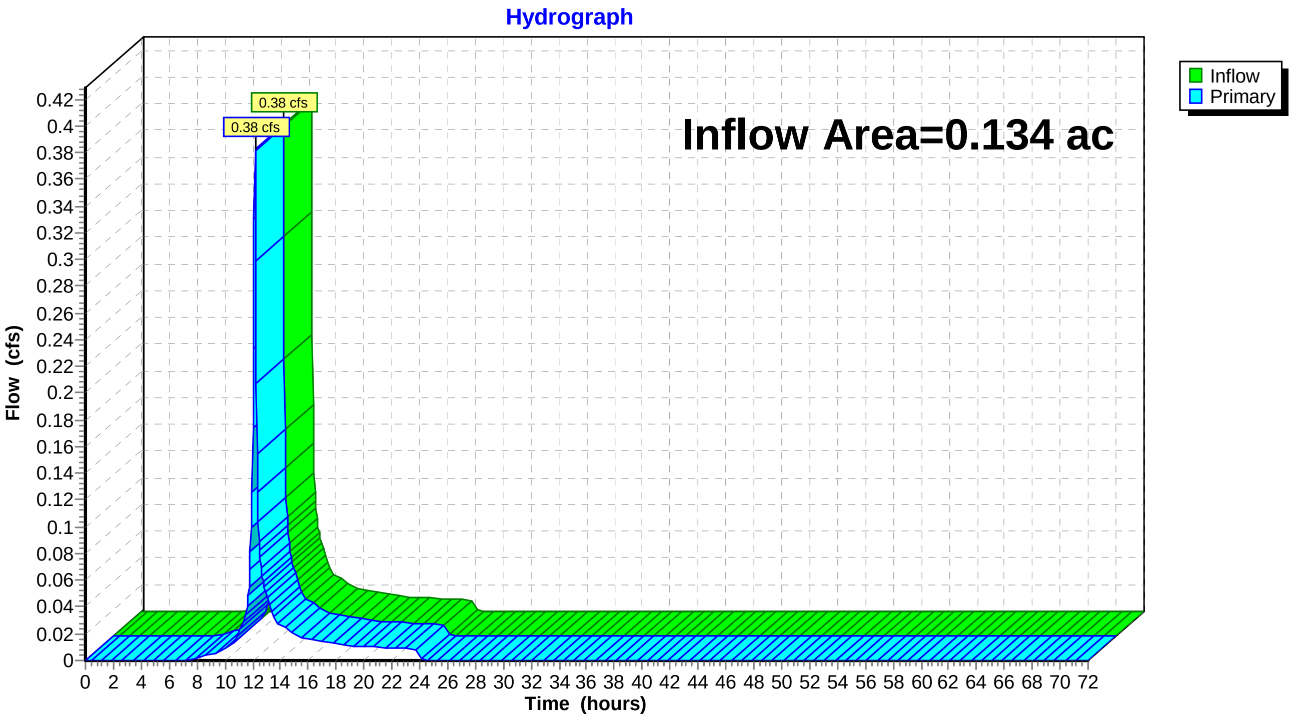


Summary for Link 10L: POD 2

Inflow Area =	0.134 ac,	25.94% Impervious,	Inflow Depth = 2.73"	for 10-Year event
Inflow =	0.38 cfs @	12.14 hrs, Volume=	0.031 af	
Primary =	0.38 cfs @	12.14 hrs, Volume=	0.031 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: POD 2

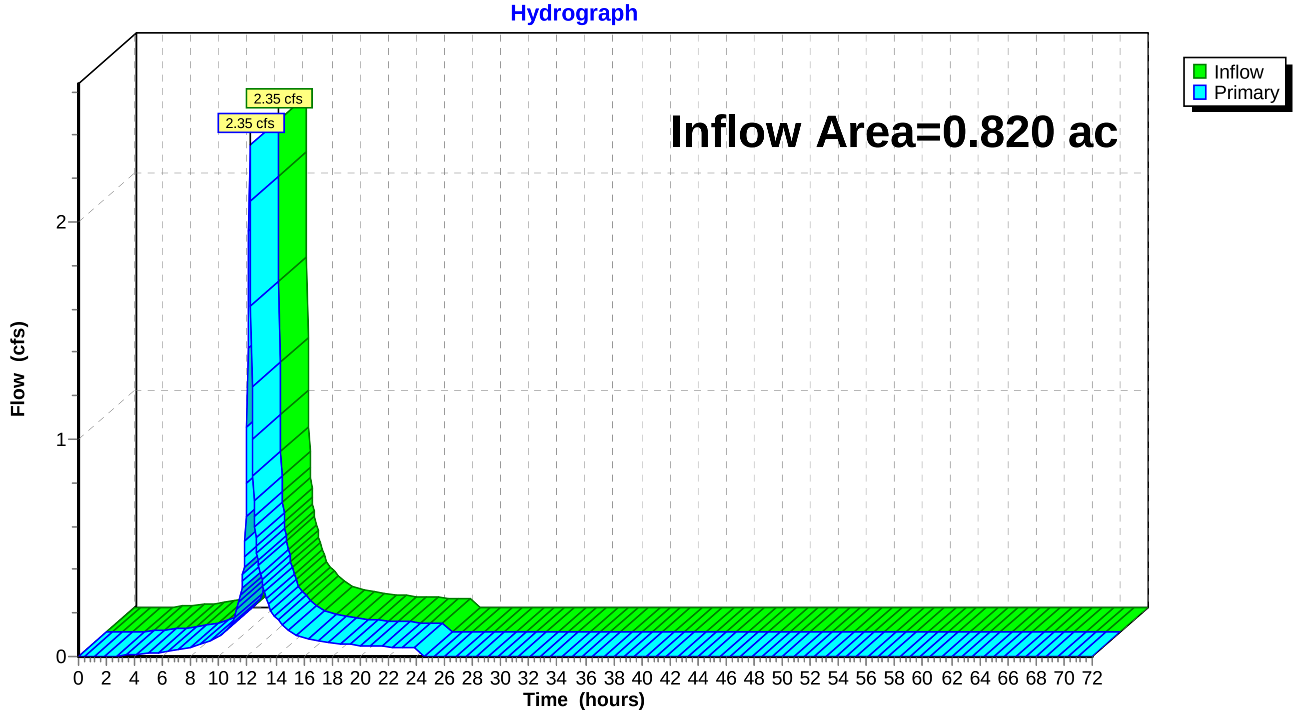


Summary for Link 11L: OVERALL PROPOSED

Inflow Area =	0.820 ac,	66.62% Impervious,	Inflow Depth = 3.10"	for 10-Year event
Inflow =	2.35 cfs @	12.16 hrs, Volume=	0.212 af	
Primary =	2.35 cfs @	12.16 hrs, Volume=	0.212 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: OVERALL PROPOSED



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1S: 1 Runoff Area=5,851 sf 25.94% Impervious Runoff Depth=3.91"
Flow Length=70' Tc=7.2 min CN=77 Runoff=0.54 cfs 0.044 af

Subcatchment 2S: 2 Runoff Area=1,377 sf 25.56% Impervious Runoff Depth=3.81"
Flow Length=64' Slope=0.0850 '/' Tc=6.0 min CN=76 Runoff=0.13 cfs 0.010 af

Subcatchment 3S: 4 Runoff Area=4,226 sf 52.08% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=84 Runoff=0.47 cfs 0.038 af

Subcatchment 4S: 5 Runoff Area=1,434 sf 62.90% Impervious Runoff Depth=4.99"
Flow Length=56' Slope=0.0100 '/' Tc=10.5 min CN=87 Runoff=0.14 cfs 0.014 af

Subcatchment 5S: 3 Runoff Area=5,728 sf 100.00% Impervious Runoff Depth=6.25"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.069 af

Subcatchment 12S: 6 Runoff Area=10,187 sf 89.66% Impervious Runoff Depth=5.90"
Flow Length=88' Slope=0.0060 '/' Tc=6.0 min CN=95 Runoff=1.31 cfs 0.115 af

Subcatchment 13S: 7 Runoff Area=6,917 sf 57.26% Impervious Runoff Depth=4.88"
Flow Length=125' Slope=0.0200 '/' Tc=6.9 min CN=86 Runoff=0.78 cfs 0.065 af

Pond 7P: (new Pond) Peak Elev=12.83' Inflow=2.64 cfs 0.249 af
36.0" Round Culvert n=0.012 L=12.0' S=0.0667 '/' Outflow=2.64 cfs 0.249 af

Pond 12P: StormTank Peak Elev=15.82' Storage=0.012 af Inflow=2.76 cfs 0.256 af
Discarded=0.01 cfs 0.017 af Primary=2.51 cfs 0.239 af Outflow=2.52 cfs 0.256 af

Pond 13P: CB-3 Peak Elev=19.37' Inflow=2.29 cfs 0.218 af
18.0" Round Culvert n=0.020 L=126.0' S=0.0079 '/' Outflow=2.29 cfs 0.218 af

Pond 14P: CB-2 Peak Elev=21.95' Inflow=1.31 cfs 0.115 af
12.0" Round Culvert n=0.020 L=58.0' S=0.0216 '/' Outflow=1.31 cfs 0.115 af

Pond 15P: HDS-1 Peak Elev=16.89' Inflow=2.76 cfs 0.256 af
18.0" Round Culvert n=0.020 L=48.0' S=0.0208 '/' Outflow=2.76 cfs 0.256 af

Pond 16P: Playground Subsurface Peak Elev=19.43' Storage=0.016 af Inflow=0.78 cfs 0.065 af
Discarded=0.05 cfs 0.044 af Primary=0.19 cfs 0.021 af Outflow=0.24 cfs 0.065 af

Link 8L: POD 1 Inflow=2.64 cfs 0.249 af
Primary=2.64 cfs 0.249 af

Link 10L: POD 2 Inflow=0.54 cfs 0.044 af
Primary=0.54 cfs 0.044 af

Link 11L: OVERALL PROPOSED Inflow=3.17 cfs 0.292 af
Primary=3.17 cfs 0.292 af

Total Runoff Area = 0.820 ac Runoff Volume = 0.353 af Average Runoff Depth = 5.17"
33.38% Pervious = 0.274 ac 66.62% Impervious = 0.546 ac

Summary for Subcatchment 1S: 1

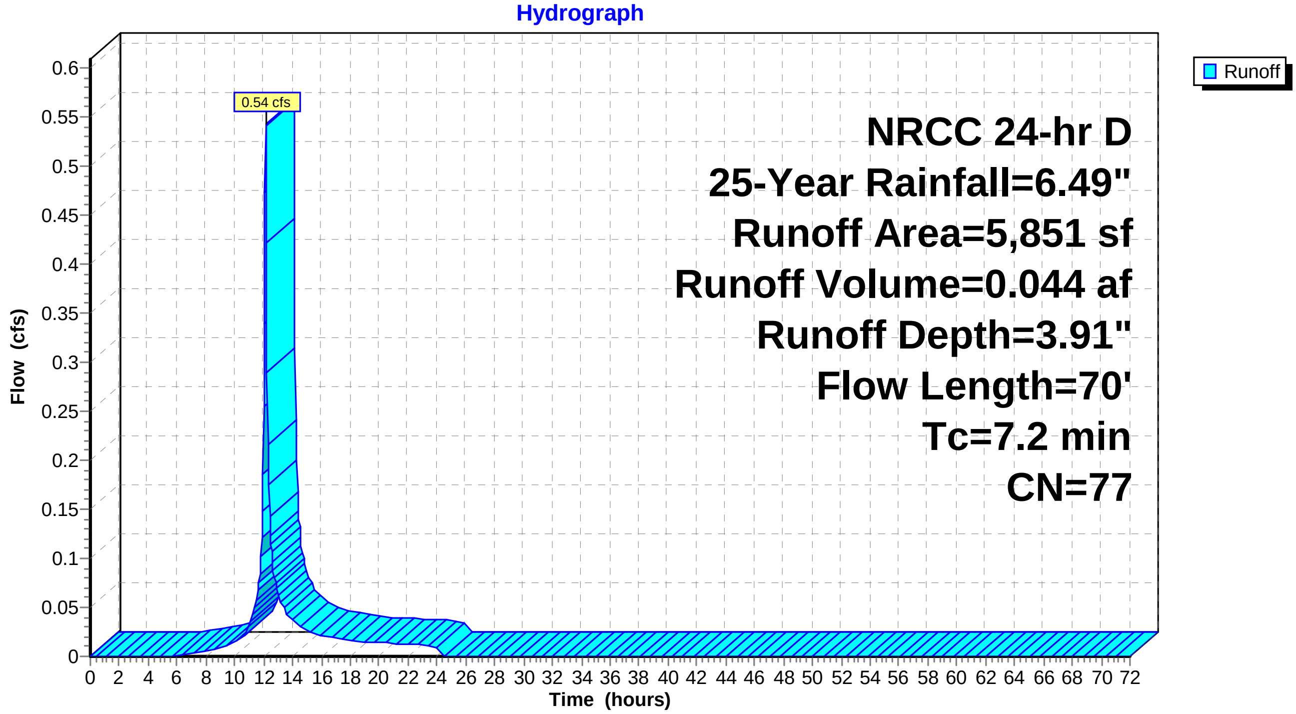
Runoff = 0.54 cfs @ 12.14 hrs, Volume= 0.044 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
	4,333	69	50-75% Grass cover, Fair, HSG B
*	676	98	Sidewalk
*	159	98	Sidewalk
*	70	98	Sidewalk
*	613	98	Sidewalk
	5,851	77	Weighted Average
	4,333		74.06% Pervious Area
	1,518		25.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	18	0.1100	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	7	0.0350	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
3.0	17	0.0290	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	7	0.0350	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
2.0	21	0.1200	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
7.2	70	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

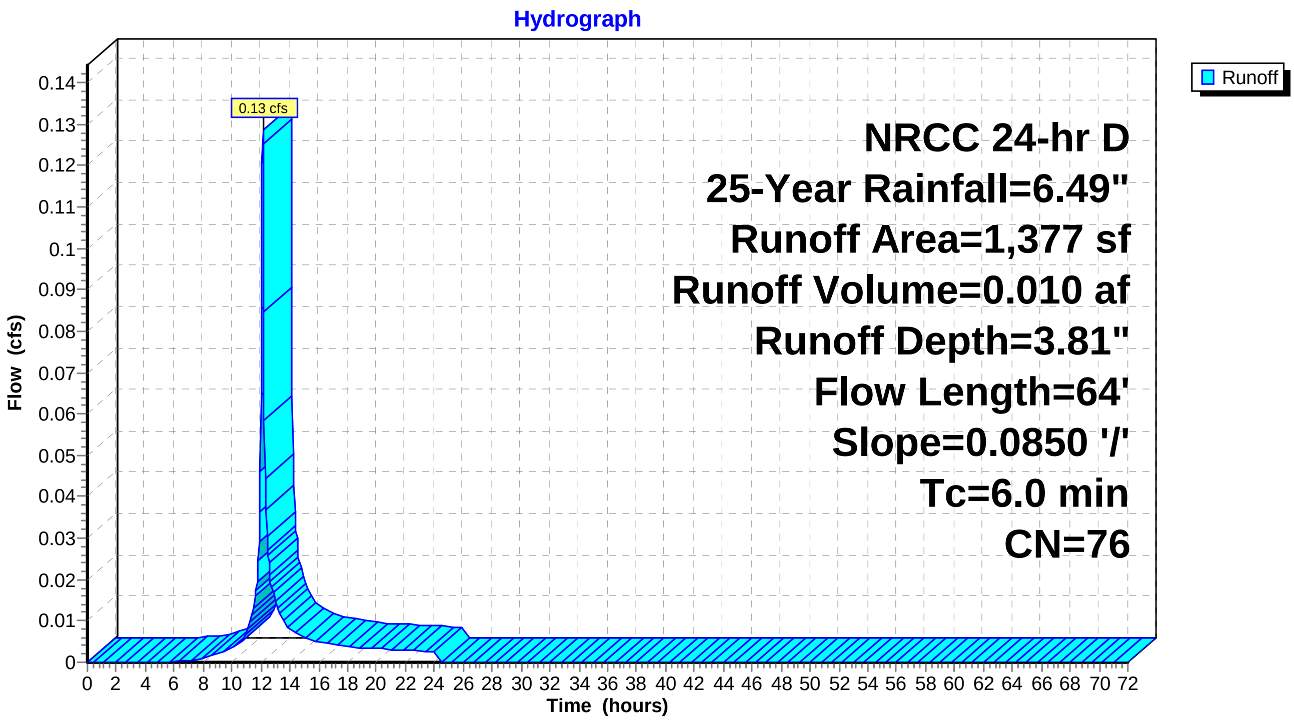
Runoff = 0.13 cfs @ 12.13 hrs, Volume= 0.010 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	248	98	Sidewalk
	1,025	69	50-75% Grass cover, Fair, HSG B
*	104	98	Sidewalk
	1,377	76	Weighted Average
	1,025		74.44% Pervious Area
	352		25.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	64	0.0850	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.6	64	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 4

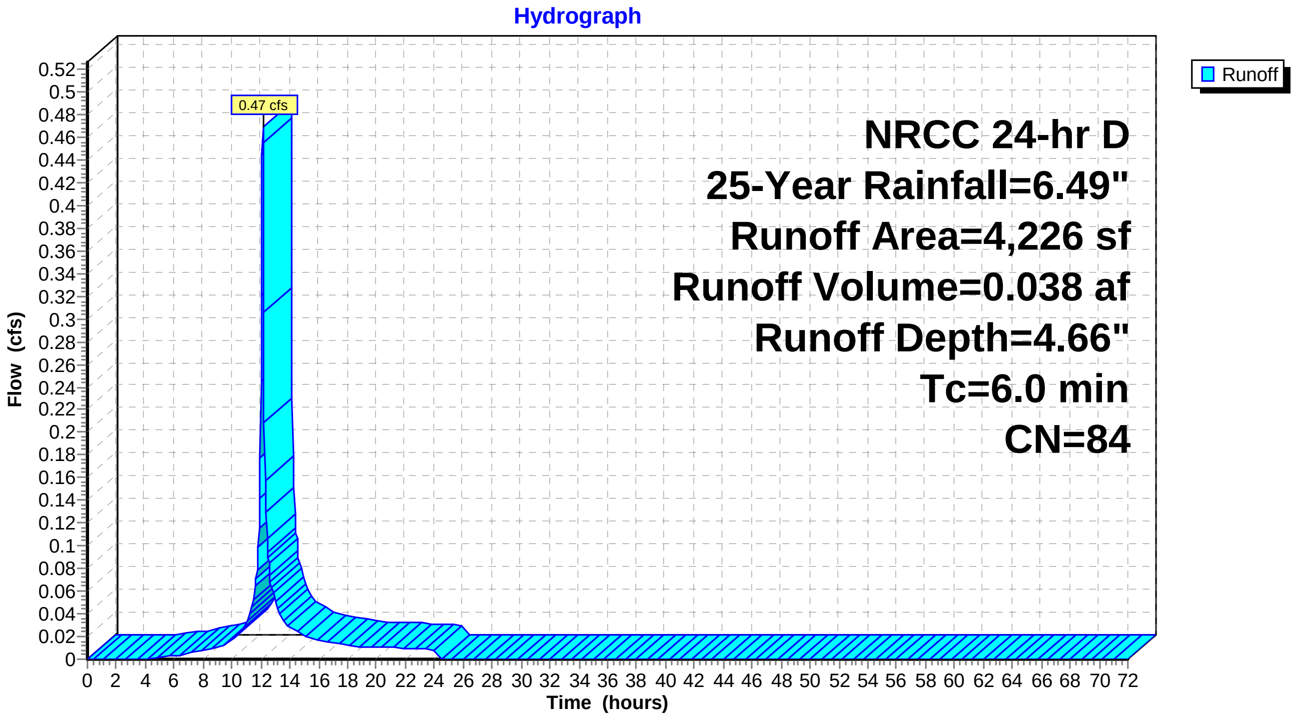
Runoff = 0.47 cfs @ 12.13 hrs, Volume= 0.038 af, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	976	98	Sidewalk
	2,025	69	50-75% Grass cover, Fair, HSG B
*	1,225	98	Sidewalk
	4,226	84	Weighted Average
	2,025		47.92% Pervious Area
	2,201		52.08% Impervious Area

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

Subcatchment 3S: 4



Summary for Subcatchment 4S: 5

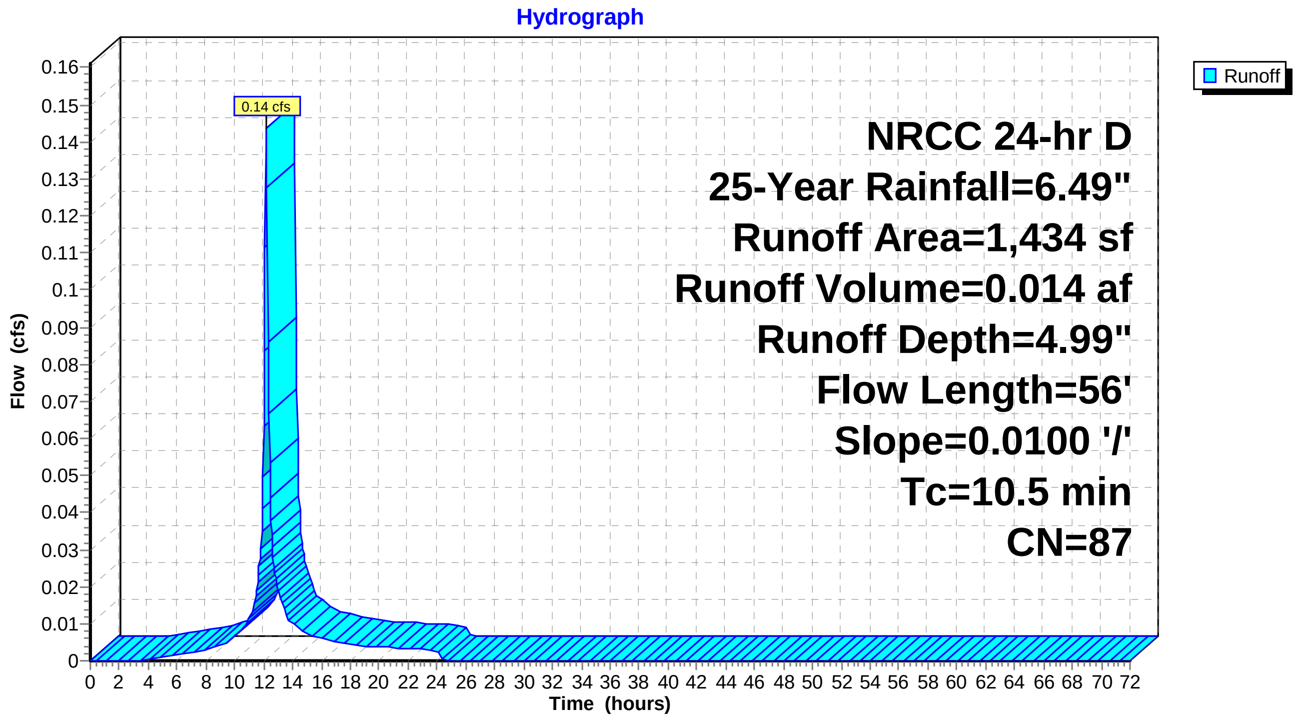
Runoff = 0.14 cfs @ 12.18 hrs, Volume= 0.014 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	289	98	Sidewalk
	532	69	50-75% Grass cover, Fair, HSG B
*	613	98	Sidewalk
	1,434	87	Weighted Average
	532		37.10% Pervious Area
	902		62.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	15	0.0100	0.06		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	18	0.0100	0.51		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
5.8	23	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
10.5	56	Total			

Subcatchment 4S: 5



Summary for Subcatchment 5S: 3

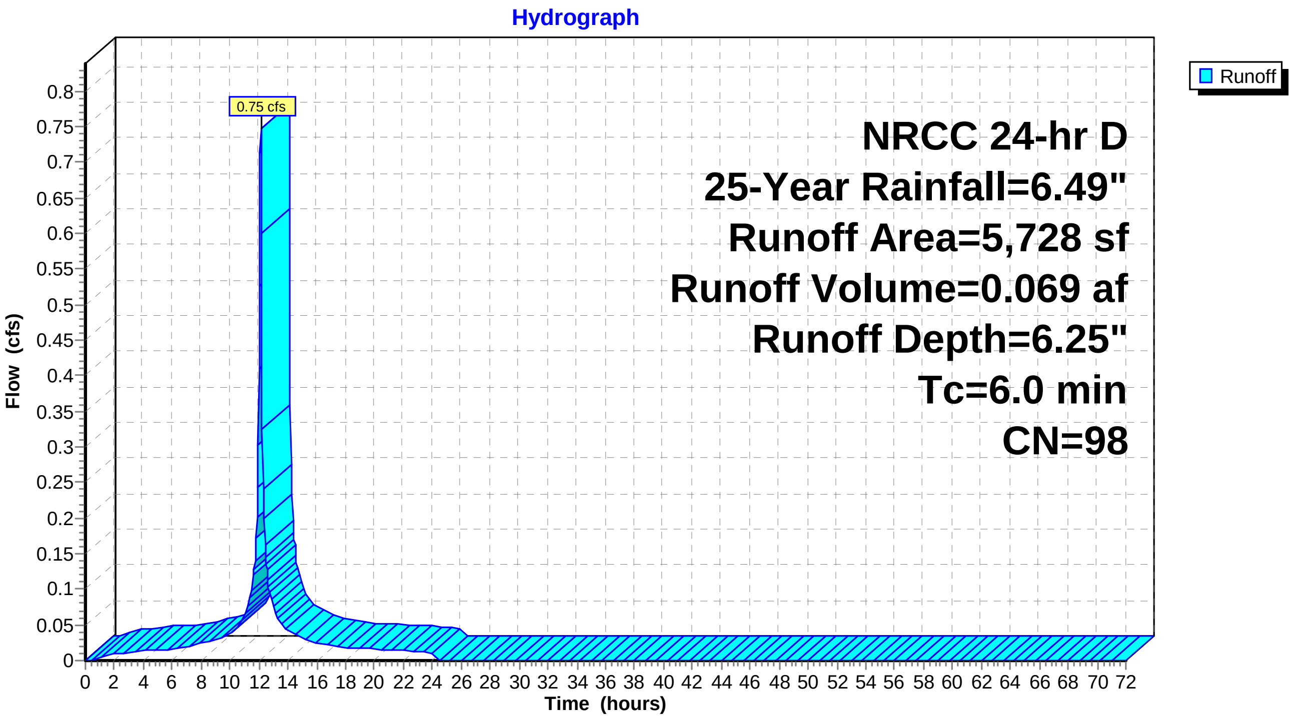
Runoff = 0.75 cfs @ 12.13 hrs, Volume= 0.069 af, Depth= 6.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

Area (sf)	CN	Description
5,728	98	Roofs, HSG B
5,728		100.00% Impervious Area

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

Subcatchment 5S: 3



Summary for Subcatchment 12S: 6

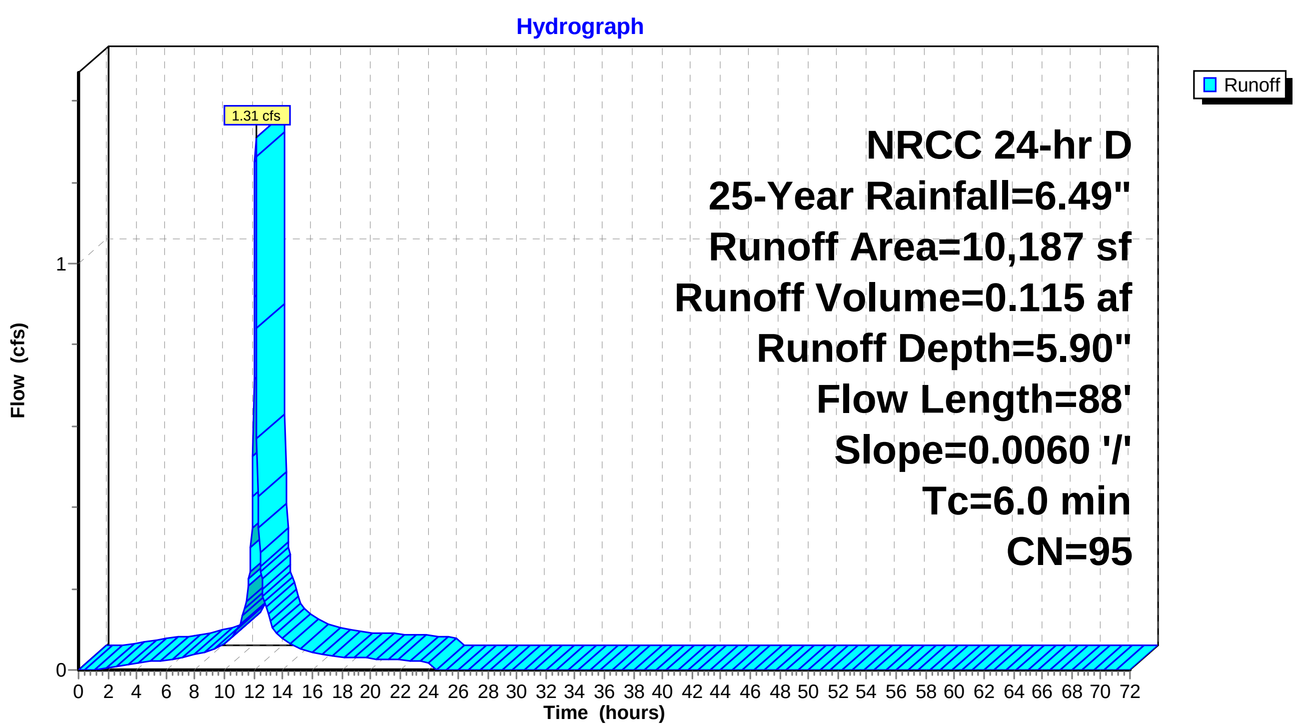
Runoff = 1.31 cfs @ 12.13 hrs, Volume= 0.115 af, Depth= 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	9,134	98	Pavement
	599	69	50-75% Grass cover, Fair, HSG B
	204	69	50-75% Grass cover, Fair, HSG B
	250	69	50-75% Grass cover, Fair, HSG B
	10,187	95	Weighted Average
	1,053		10.34% Pervious Area
	9,134		89.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	88	0.0060	0.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
2.6	88	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12S: 6



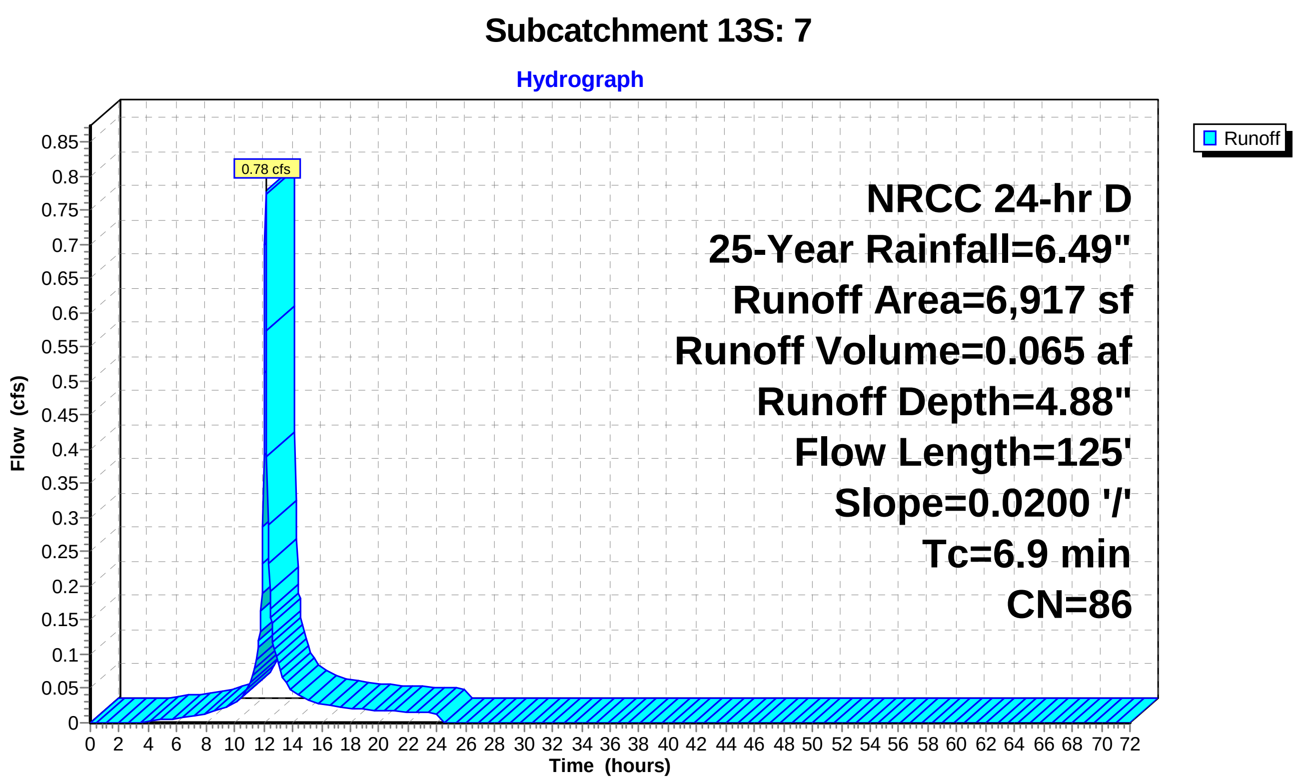
Summary for Subcatchment 13S: 7

Runoff = 0.78 cfs @ 12.14 hrs, Volume= 0.065 af, Depth= 4.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
	2,956	69	50-75% Grass cover, Fair, HSG B
*	3,961	98	Porous Playground
	6,917	86	Weighted Average
	2,956		42.74% Pervious Area
	3,961		57.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.7	85	0.0200	2.00	0.17	**Pipe Channel,** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.020 Corrugated PE, corrugated interior
0.2	40	0.0200	3.18	1.11	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.020 Corrugated PE, corrugated interior
6.9	125	Total			



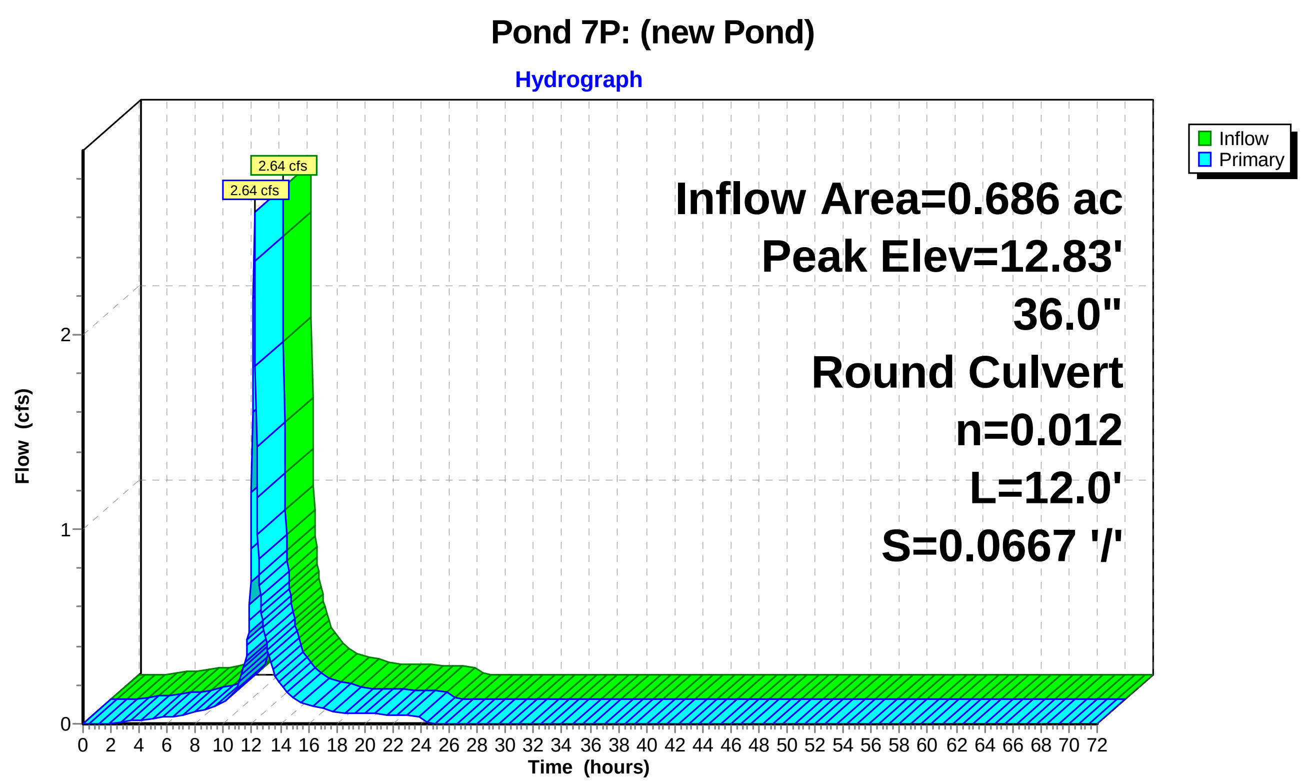
Summary for Pond 7P: (new Pond)

Inflow Area = 0.686 ac, 74.59% Impervious, Inflow Depth = 4.35" for 25-Year event
Inflow = 2.64 cfs @ 12.16 hrs, Volume= 0.249 af
Outflow = 2.64 cfs @ 12.16 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min
Primary = 2.64 cfs @ 12.16 hrs, Volume= 0.249 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 12.83' @ 12.16 hrs
Flood Elev= 16.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.30'	**36.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.30' / 11.50' S= 0.0667 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf

Primary OutFlow Max=2.59 cfs @ 12.16 hrs HW=12.83' (Free Discharge)
1=Culvert (Inlet Controls 2.59 cfs @ 3.09 fps)



Summary for Pond 12P: StormTank

Inflow Area =	0.654 ac, 76.95% Impervious, Inflow Depth = 4.69" for 25-Year event			
Inflow =	2.76 cfs @	12.13 hrs, Volume=	0.256 af	
Outflow =	2.52 cfs @	12.16 hrs, Volume=	0.256 af,	Atten= 8%, Lag= 1.7 min
Discarded =	0.01 cfs @	12.16 hrs, Volume=	0.017 af	
Primary =	2.51 cfs @	12.16 hrs, Volume=	0.239 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 15.82' @ 12.16 hrs Surf.Area= 0.017 ac Storage= 0.012 af

Plug-Flow detention time= 8.9 min calculated for 0.255 af (100% of inflow)
Center-of-Mass det. time= 8.9 min (781.1 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.002 af	**20.00'W x 38.00'L x 2.04'H Field A** 0.036 af Overall - 0.030 af Embedded = 0.006 af x 40.0% Voids
#2A	15.04'	0.029 af	**StormTank 25 Series 24"** x 144 Inside #1 Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf 144 Chambers in 12 Rows
		0.031 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 16.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf
#2	Discarded	15.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -6.20'
#3	Primary	15.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 15.00' / 15.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf
#4	Primary	16.50'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#5	Primary	15.00'	**18.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.00' / 13.00' S= 0.0417 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Discarded OutFlow Max=0.01 cfs @ 12.16 hrs HW=15.81' (Free Discharge)
└─**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=2.47 cfs @ 12.16 hrs HW=15.81' (Free Discharge)
├─**1=Culvert** (Controls 0.00 cfs)
├─**3=Culvert** (Inlet Controls 0.11 cfs @ 5.13 fps)
├─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**5=Culvert** (Inlet Controls 2.36 cfs @ 2.42 fps)

Pond 12P: StormTank - Chamber Wizard Field A

Chamber Model = StormTank 25 Series 24" (StormTank Module 25 Series)
Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf
Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf

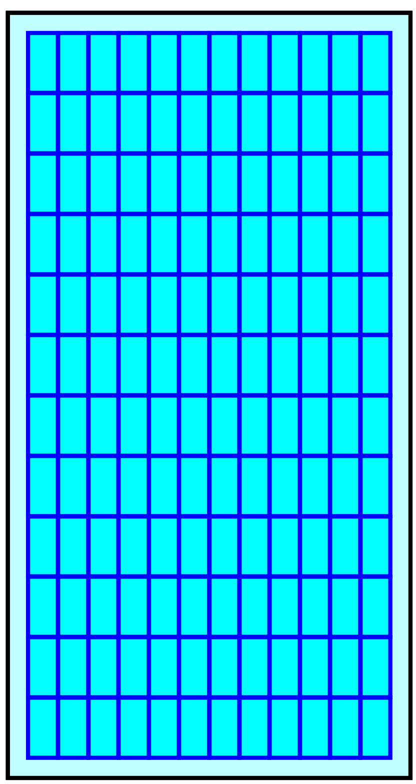
12 Chambers/Row x 3.00' Long = 36.00' Row Length +12.0" End Stone x 2 = 38.00' Base Length
12 Rows x 18.0" Wide + 12.0" Side Stone x 2 = 20.00' Base Width
0.5" Stone Base + 24.0" Chamber Height = 2.04' Field Height

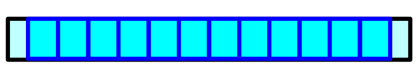
144 Chambers x 8.7 cf = 1,246.5 cf Chamber Storage
144 Chambers x 9.0 cf = 1,296.0 cf Displacement

1,551.7 cf Field - 1,296.0 cf Chambers = 255.7 cf Stone x 40.0% Voids = 102.3 cf Stone Storage

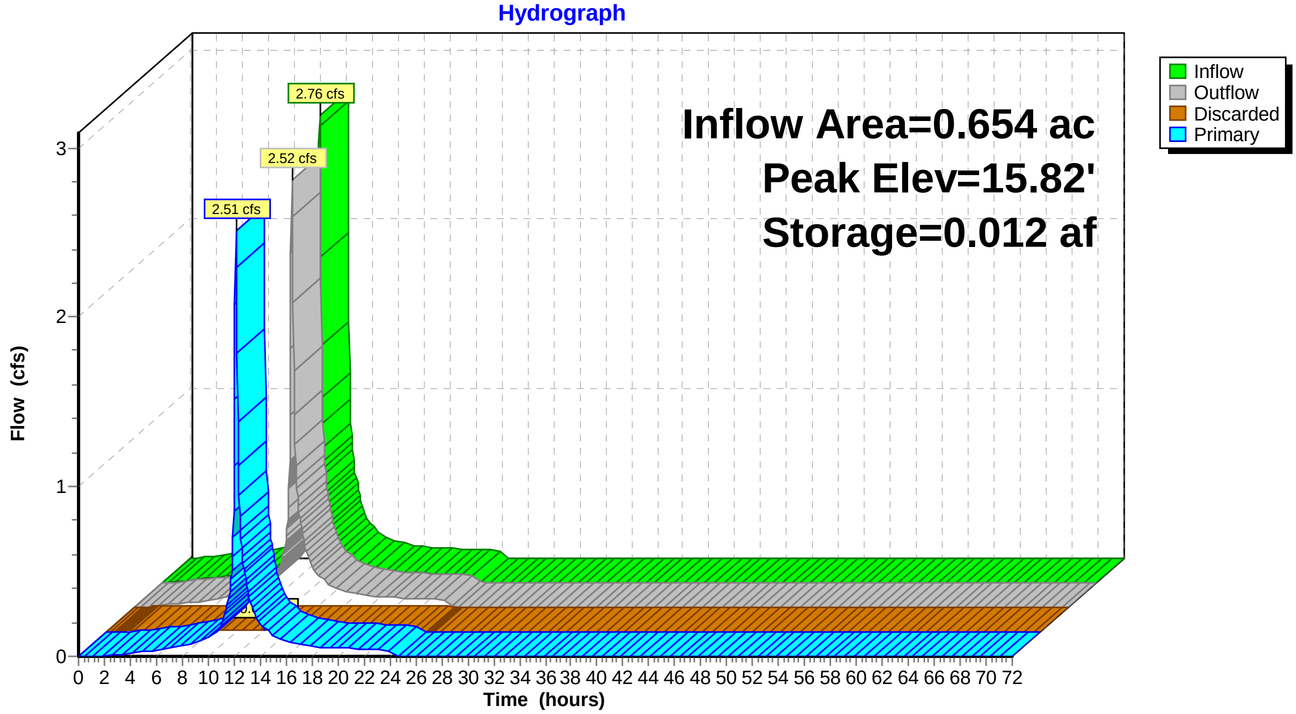
Chamber Storage + Stone Storage = 1,348.8 cf = 0.031 af
Overall Storage Efficiency = 86.9%
Overall System Size = 38.00' x 20.00' x 2.04'

144 Chambers
57.5 cy Field
9.5 cy Stone





Pond 12P: StormTank



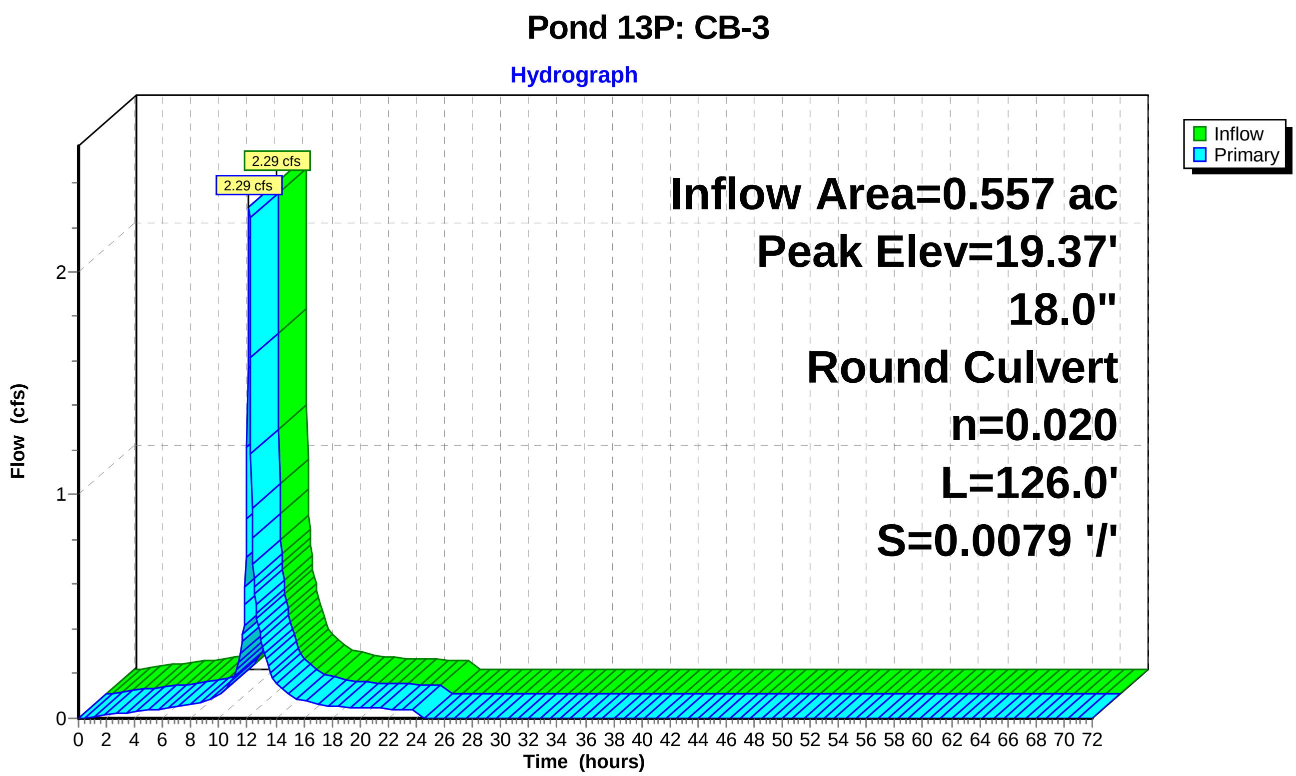
Summary for Pond 13P: CB-3

Inflow Area =	0.557 ac, 81.29% Impervious, Inflow Depth = 4.70" for 25-Year event			
Inflow =	2.29 cfs @	12.13 hrs, Volume=	0.218 af	
Outflow =	2.29 cfs @	12.13 hrs, Volume=	0.218 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.29 cfs @	12.13 hrs, Volume=	0.218 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.37' @ 12.13 hrs
Flood Elev= 23.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**18.0" Round Culvert** L= 126.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.50' / 17.50' S= 0.0079 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.20 cfs @ 12.13 hrs HW=19.35' (Free Discharge)
1=Culvert (Barrel Controls 2.20 cfs @ 3.08 fps)



Summary for Pond 14P: CB-2

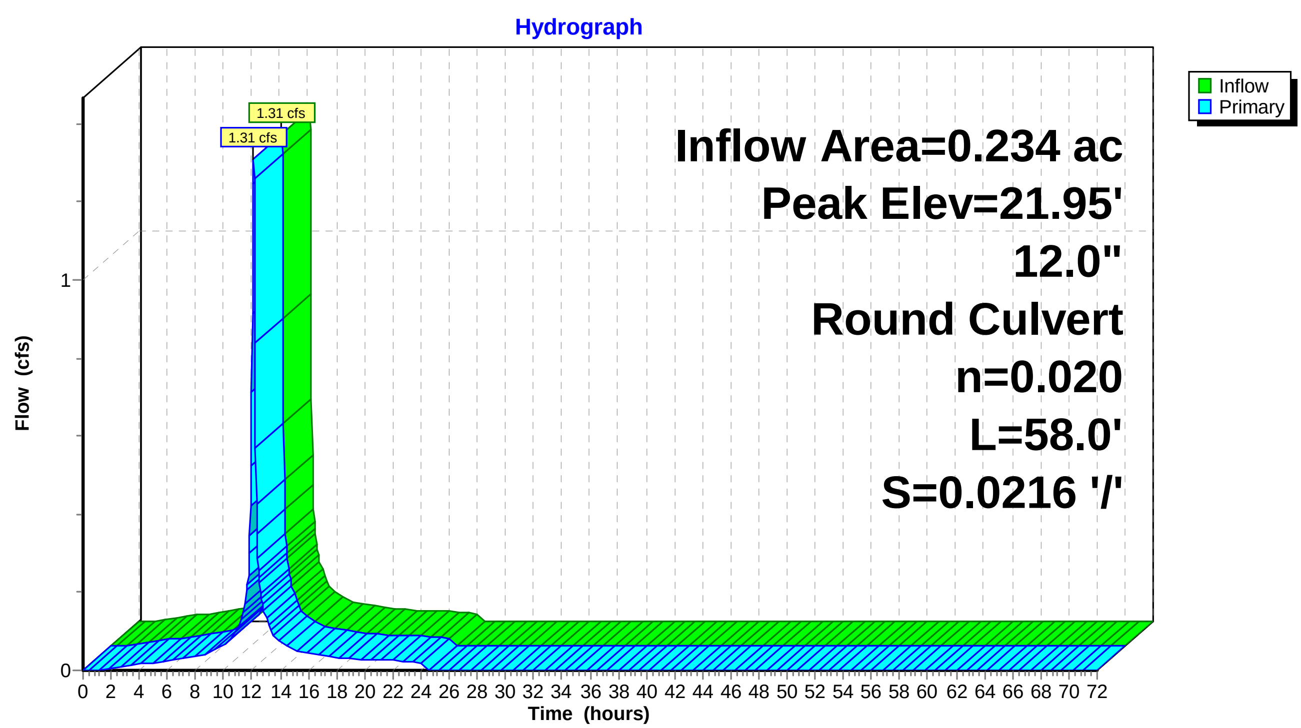
Inflow Area =	0.234 ac,	89.66% Impervious,	Inflow Depth = 5.90"	for 25-Year event	
Inflow =	1.31 cfs @	12.13 hrs,	Volume=	0.115 af	
Outflow =	1.31 cfs @	12.13 hrs,	Volume=	0.115 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.31 cfs @	12.13 hrs,	Volume=	0.115 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.95' @ 12.13 hrs
Flood Elev= 22.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.25'	**12.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 21.25' / 20.00' S= 0.0216 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.26 cfs @ 12.13 hrs HW=21.93' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.26 cfs @ 2.21 fps)

Pond 14P: CB-2



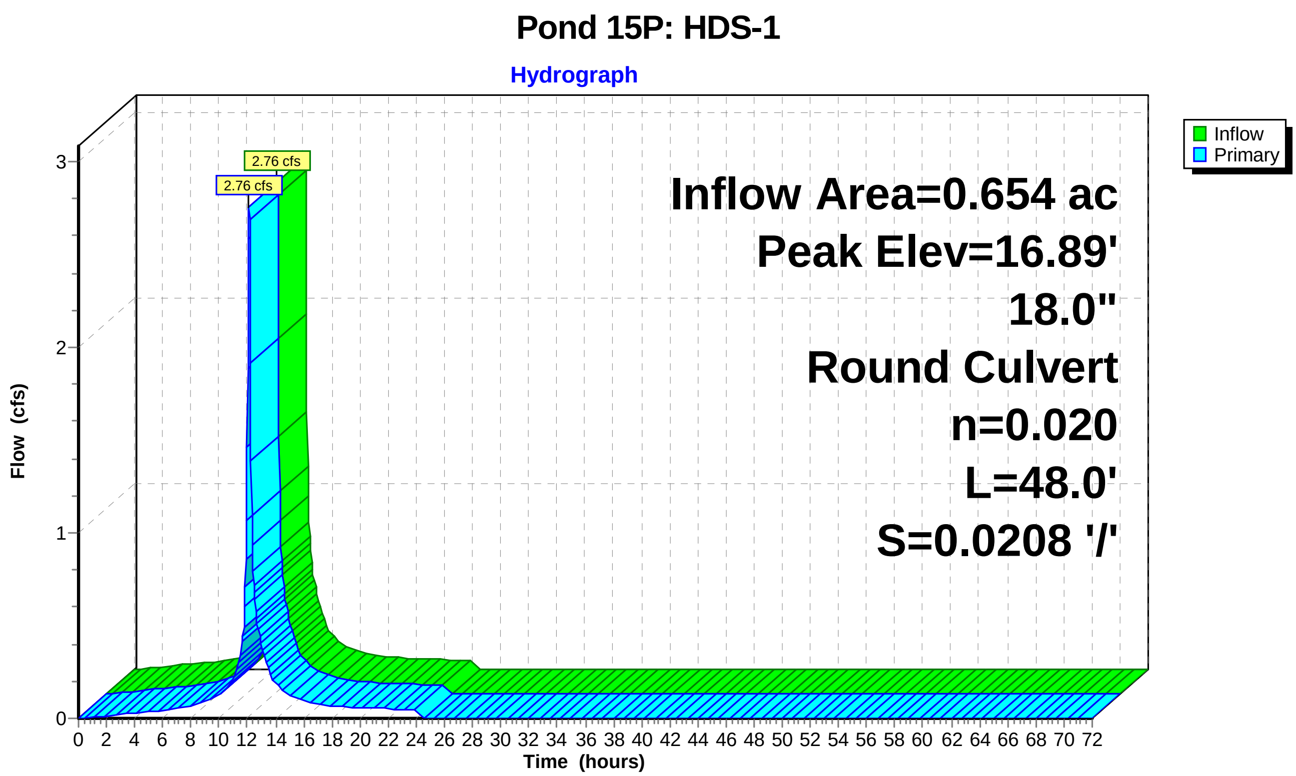
Summary for Pond 15P: HDS-1

Inflow Area =	0.654 ac,	76.95% Impervious,	Inflow Depth = 4.69"	for 25-Year event	
Inflow =	2.76 cfs @	12.13 hrs,	Volume=	0.256 af	
Outflow =	2.76 cfs @	12.13 hrs,	Volume=	0.256 af,	Atten= 0%, Lag= 0.0 min
Primary =	2.76 cfs @	12.13 hrs,	Volume=	0.256 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 16.89' @ 12.13 hrs
Flood Elev= 20.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**18.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 16.00' / 15.00' S= 0.0208 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.65 cfs @ 12.13 hrs HW=16.87' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.65 cfs @ 2.50 fps)



Summary for Pond 16P: Playground Subsurface

Inflow Area =	0.159 ac, 57.26% Impervious,	Inflow Depth = 4.88"	for 25-Year event
Inflow =	0.78 cfs @ 12.14 hrs,	Volume=	0.065 af
Outflow =	0.24 cfs @ 12.35 hrs,	Volume=	0.065 af, Atten= 70%, Lag= 12.7 min
Discarded =	0.05 cfs @ 12.35 hrs,	Volume=	0.044 af
Primary =	0.19 cfs @ 12.35 hrs,	Volume=	0.021 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.43' @ 12.35 hrs Surf.Area= 0.093 ac Storage= 0.016 af

Plug-Flow detention time= 35.6 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 35.6 min (845.1 - 809.5)

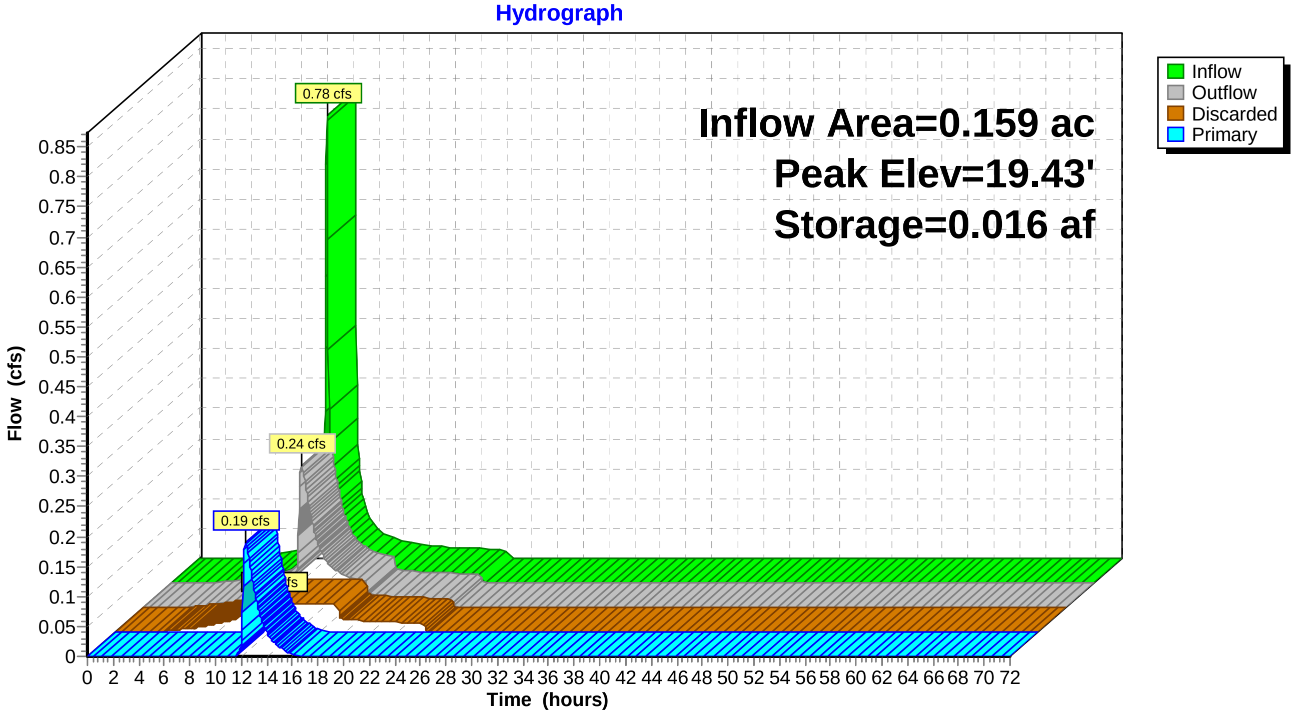
Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	0.025 af	**40.00'W x 101.00'L x 0.67'H Prismatoid** 0.062 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	**6.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 19.00' / 19.00' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	19.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -6.20'

Discarded OutFlow Max=0.05 cfs @ 12.35 hrs HW=19.43' (Free Discharge)
└─**2=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.19 cfs @ 12.35 hrs HW=19.43' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.19 cfs @ 1.42 fps)

Pond 16P: Playground Subsurface

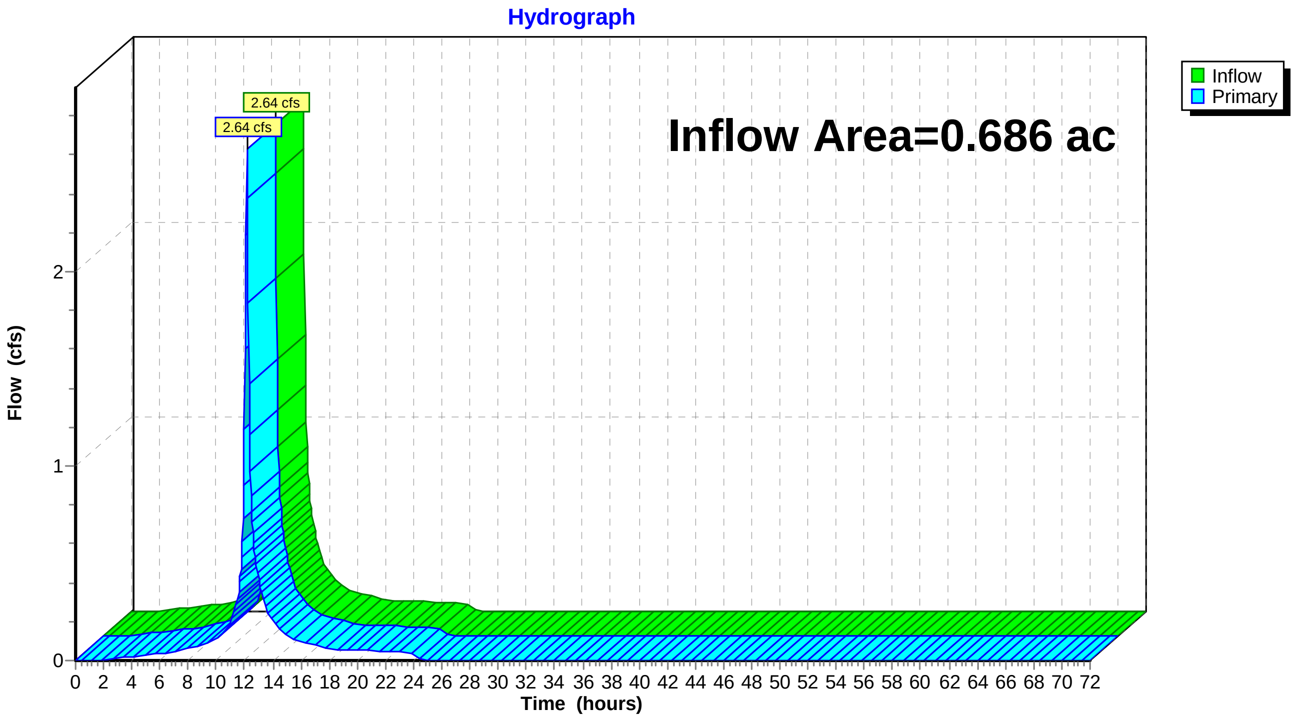


Summary for Link 8L: POD 1

Inflow Area = 0.686 ac, 74.59% Impervious, Inflow Depth = 4.35" for 25-Year event
Inflow = 2.64 cfs @ 12.16 hrs, Volume= 0.249 af
Primary = 2.64 cfs @ 12.16 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

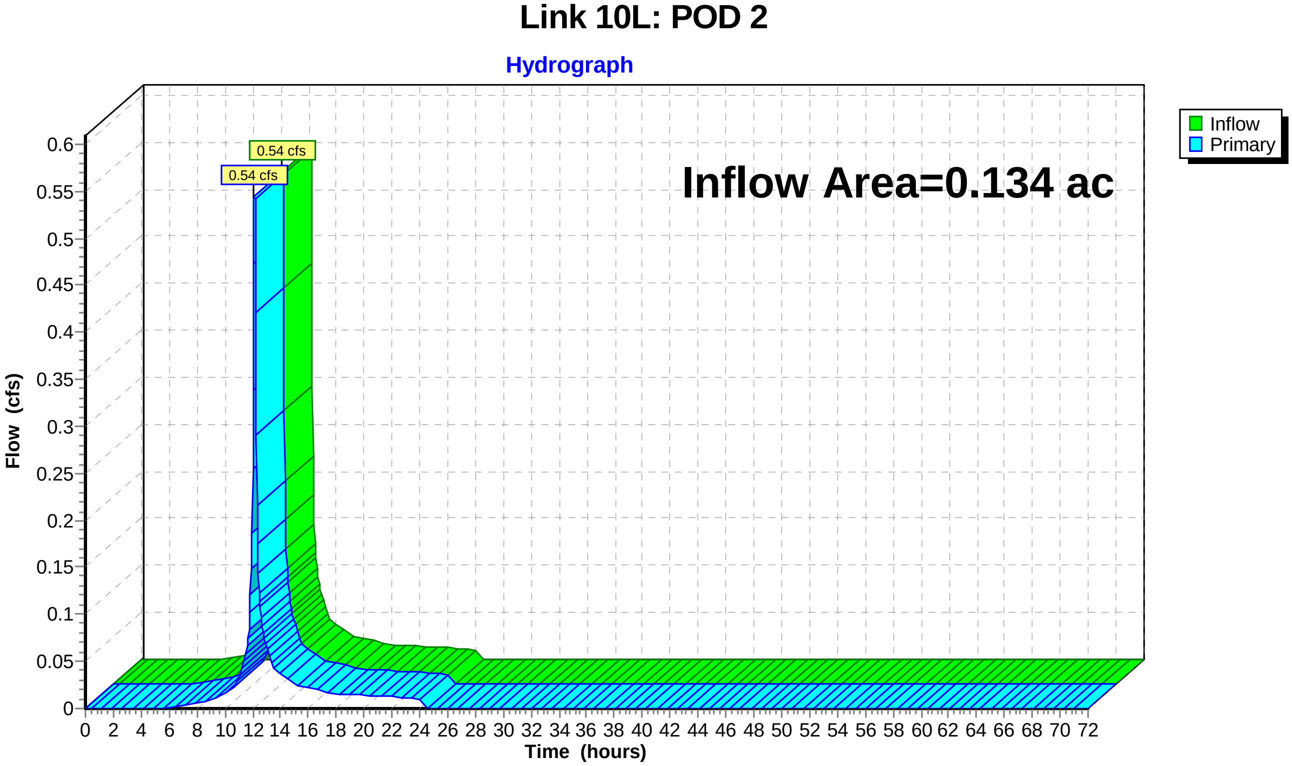
Link 8L: POD 1



Summary for Link 10L: POD 2

Inflow Area = 0.134 ac, 25.94% Impervious, Inflow Depth = 3.91" for 25-Year event
Inflow = 0.54 cfs @ 12.14 hrs, Volume= 0.044 af
Primary = 0.54 cfs @ 12.14 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

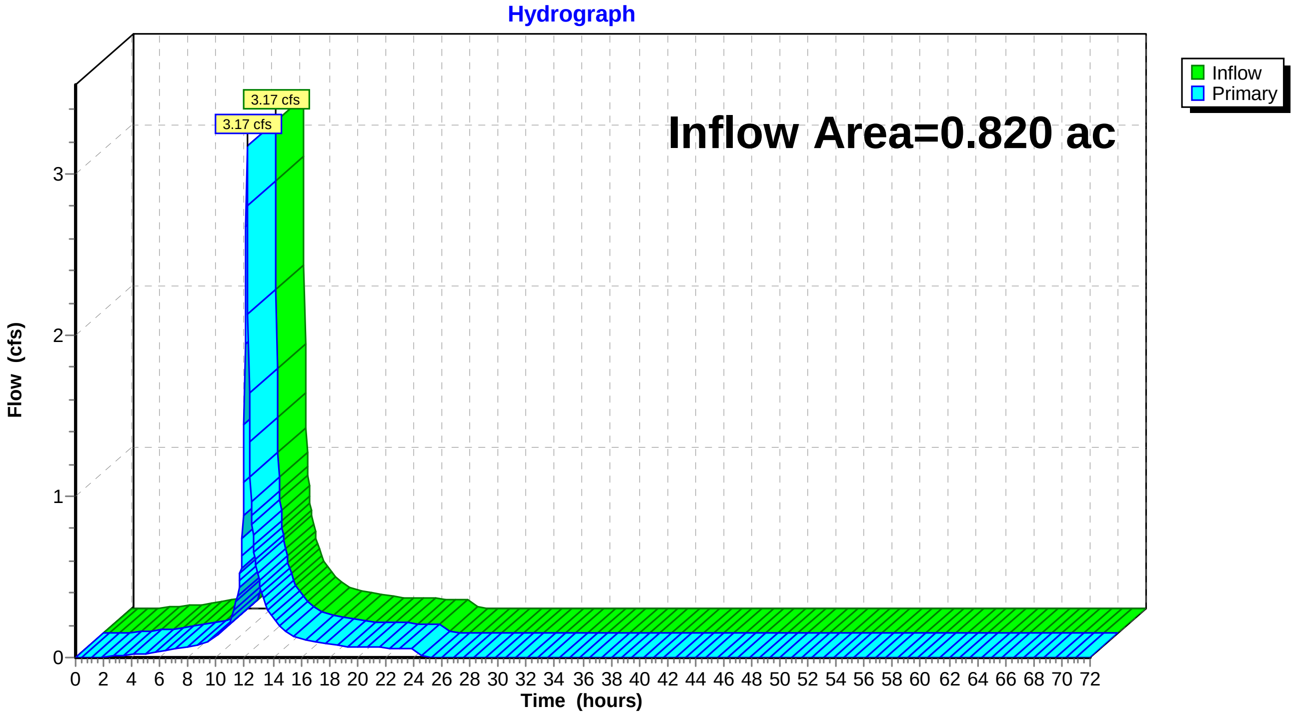


Summary for Link 11L: OVERALL PROPOSED

Inflow Area =	0.820 ac,	66.62% Impervious,	Inflow Depth = 4.28"	for 25-Year event
Inflow =	3.17 cfs @	12.15 hrs, Volume=	0.292 af	
Primary =	3.17 cfs @	12.15 hrs, Volume=	0.292 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: OVERALL PROPOSED



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1S: 1 Runoff Area=5,851 sf 25.94% Impervious Runoff Depth=6.46"
Flow Length=70' Tc=7.2 min CN=77 Runoff=0.88 cfs 0.072 af

Subcatchment 2S: 2 Runoff Area=1,377 sf 25.56% Impervious Runoff Depth=6.34"
Flow Length=64' Slope=0.0850 '/' Tc=6.0 min CN=76 Runoff=0.21 cfs 0.017 af

Subcatchment 3S: 4 Runoff Area=4,226 sf 52.08% Impervious Runoff Depth=7.33"
Tc=6.0 min CN=84 Runoff=0.72 cfs 0.059 af

Subcatchment 4S: 5 Runoff Area=1,434 sf 62.90% Impervious Runoff Depth=7.70"
Flow Length=56' Slope=0.0100 '/' Tc=10.5 min CN=87 Runoff=0.22 cfs 0.021 af

Subcatchment 5S: 3 Runoff Area=5,728 sf 100.00% Impervious Runoff Depth=9.04"
Tc=6.0 min CN=98 Runoff=1.07 cfs 0.099 af

Subcatchment 12S: 6 Runoff Area=10,187 sf 89.66% Impervious Runoff Depth=8.68"
Flow Length=88' Slope=0.0060 '/' Tc=6.0 min CN=95 Runoff=1.89 cfs 0.169 af

Subcatchment 13S: 7 Runoff Area=6,917 sf 57.26% Impervious Runoff Depth=7.58"
Flow Length=125' Slope=0.0200 '/' Tc=6.9 min CN=86 Runoff=1.18 cfs 0.100 af

Pond 7P: (new Pond) Peak Elev=12.96' Inflow=4.02 cfs 0.391 af
36.0" Round Culvert n=0.012 L=12.0' S=0.0667 '/' Outflow=4.02 cfs 0.391 af

Pond 12P: StormTank Peak Elev=16.06' Storage=0.016 af Inflow=4.13 cfs 0.392 af
Discarded=0.01 cfs 0.017 af Primary=3.82 cfs 0.374 af Outflow=3.83 cfs 0.392 af

Pond 13P: CB-3 Peak Elev=19.60' Inflow=3.41 cfs 0.333 af
18.0" Round Culvert n=0.020 L=126.0' S=0.0079 '/' Outflow=3.41 cfs 0.333 af

Pond 14P: CB-2 Peak Elev=22.14' Inflow=1.89 cfs 0.169 af
12.0" Round Culvert n=0.020 L=58.0' S=0.0216 '/' Outflow=1.89 cfs 0.169 af

Pond 15P: HDS-1 Peak Elev=17.14' Inflow=4.13 cfs 0.392 af
18.0" Round Culvert n=0.020 L=48.0' S=0.0208 '/' Outflow=4.13 cfs 0.392 af

Pond 16P: Playground Subsurface Peak Elev=19.77' Storage=0.025 af Inflow=1.18 cfs 0.100 af
Discarded=0.05 cfs 0.057 af Primary=0.42 cfs 0.043 af Outflow=0.47 cfs 0.100 af

Link 8L: POD 1 Inflow=4.02 cfs 0.391 af
Primary=4.02 cfs 0.391 af

Link 10L: POD 2 Inflow=0.88 cfs 0.072 af
Primary=0.88 cfs 0.072 af

Link 11L: OVERALL PROPOSED Inflow=4.90 cfs 0.463 af
Primary=4.90 cfs 0.463 af

Total Runoff Area = 0.820 ac Runoff Volume = 0.538 af Average Runoff Depth = 7.87"
33.38% Pervious = 0.274 ac 66.62% Impervious = 0.546 ac

Summary for Subcatchment 1S: 1

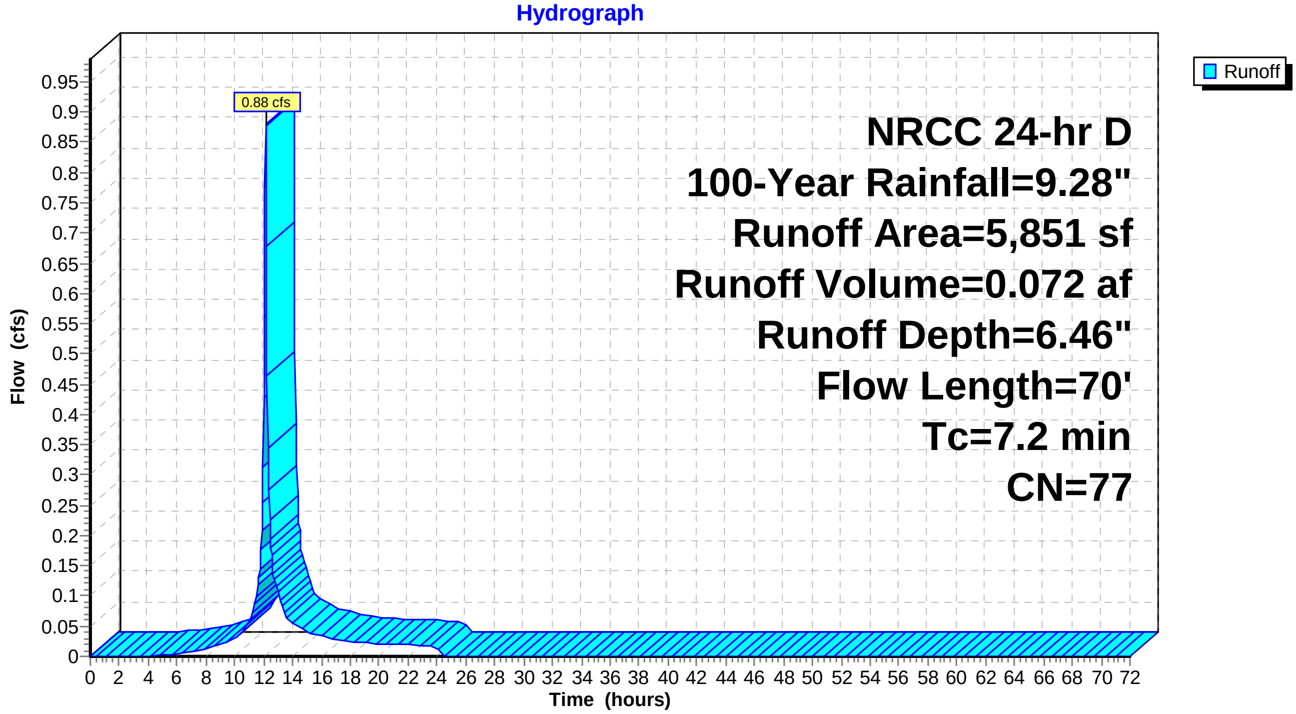
Runoff = 0.88 cfs @ 12.14 hrs, Volume= 0.072 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
	4,333	69	50-75% Grass cover, Fair, HSG B
*	676	98	Sidewalk
*	159	98	Sidewalk
*	70	98	Sidewalk
*	613	98	Sidewalk
	5,851	77	Weighted Average
	4,333		74.06% Pervious Area
	1,518		25.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	18	0.1100	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	7	0.0350	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
3.0	17	0.0290	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	7	0.0350	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
2.0	21	0.1200	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
7.2	70	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

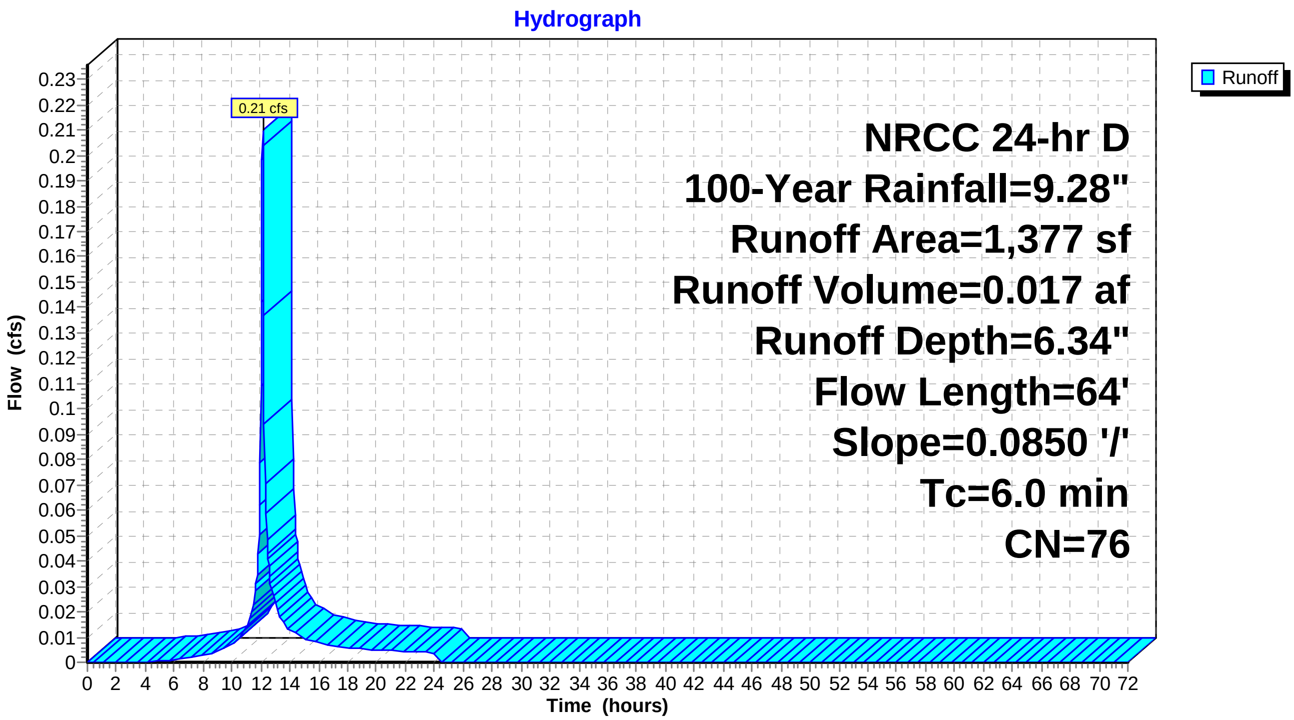
Runoff = 0.21 cfs @ 12.13 hrs, Volume= 0.017 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	248	98	Sidewalk
	1,025	69	50-75% Grass cover, Fair, HSG B
*	104	98	Sidewalk
	1,377	76	Weighted Average
	1,025		74.44% Pervious Area
	352		25.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	64	0.0850	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
5.6	64	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 4

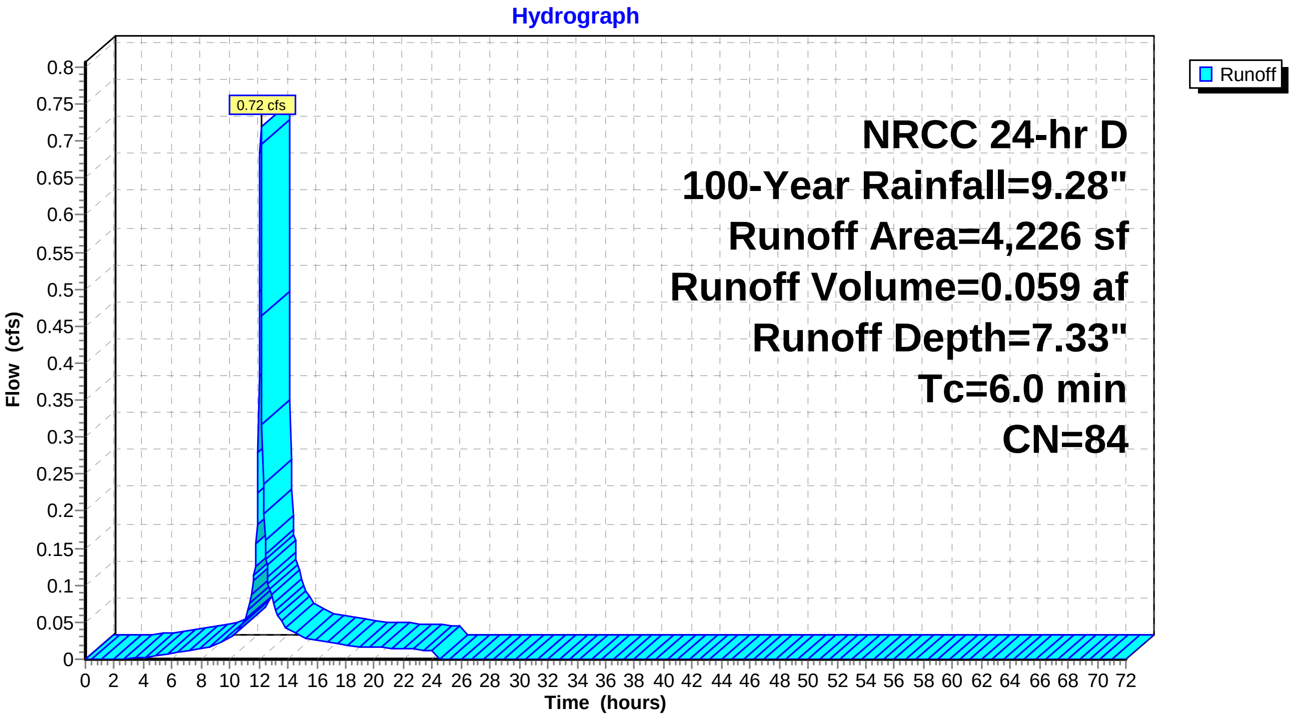
Runoff = 0.72 cfs @ 12.13 hrs, Volume= 0.059 af, Depth= 7.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	976	98	Sidewalk
	2,025	69	50-75% Grass cover, Fair, HSG B
*	1,225	98	Sidewalk
	4,226	84	Weighted Average
	2,025		47.92% Pervious Area
	2,201		52.08% Impervious Area

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

Subcatchment 3S: 4



Summary for Subcatchment 4S: 5

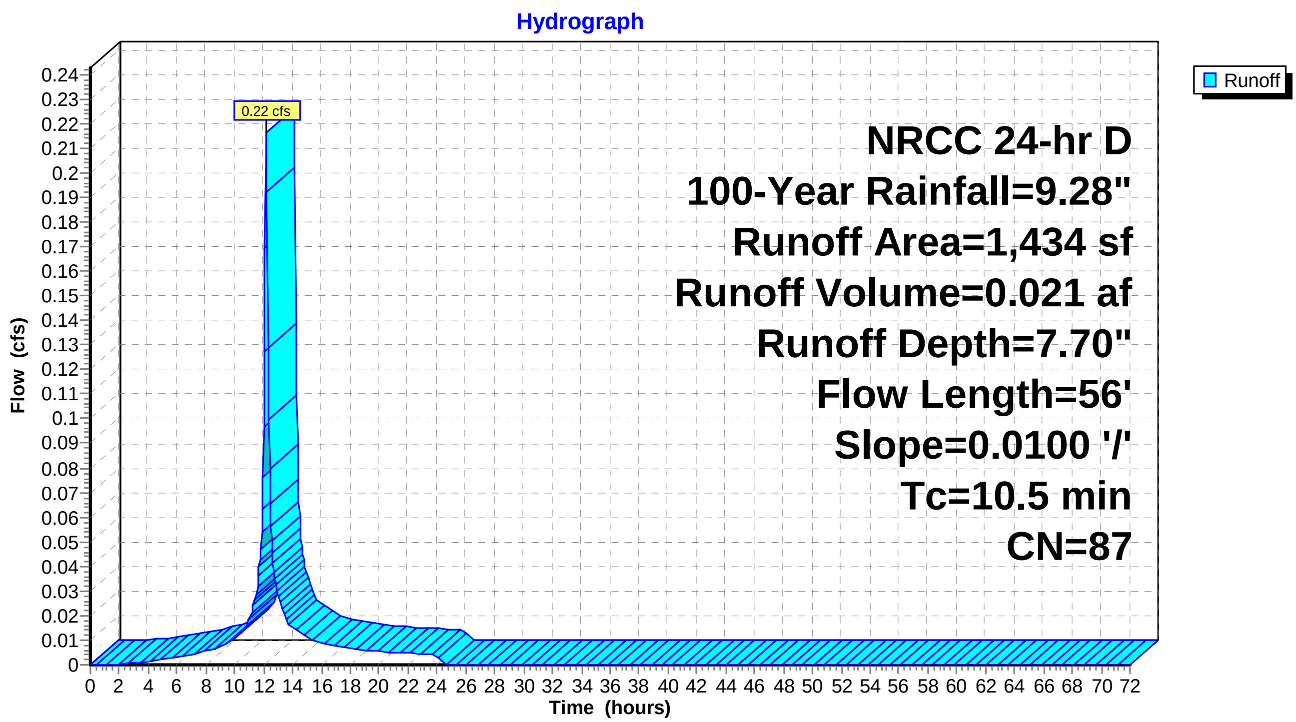
Runoff = 0.22 cfs @ 12.18 hrs, Volume= 0.021 af, Depth= 7.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	289	98	Sidewalk
	532	69	50-75% Grass cover, Fair, HSG B
*	613	98	Sidewalk
	1,434	87	Weighted Average
	532		37.10% Pervious Area
	902		62.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	15	0.0100	0.06		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	18	0.0100	0.51		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
5.8	23	0.0100	0.07		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
10.5	56	Total			

Subcatchment 4S: 5



Summary for Subcatchment 5S: 3

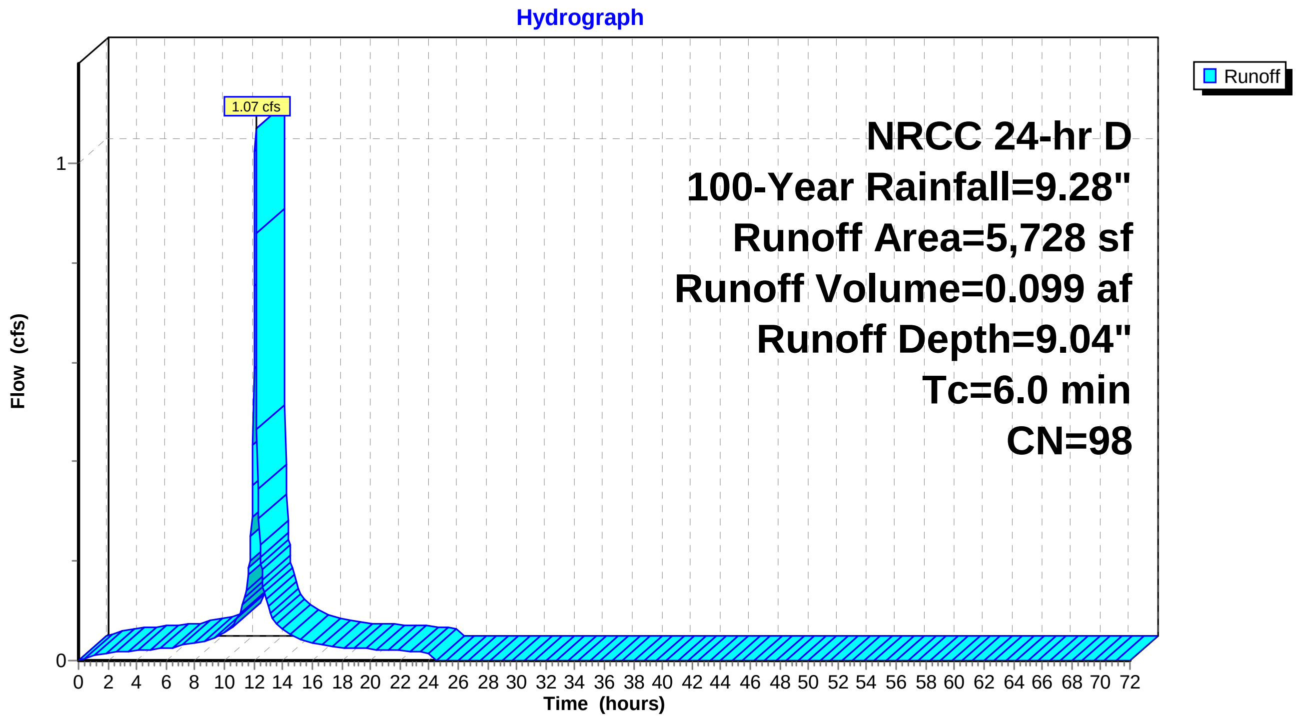
Runoff = 1.07 cfs @ 12.13 hrs, Volume= 0.099 af, Depth= 9.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

Area (sf)	CN	Description
5,728	98	Roofs, HSG B
5,728		100.00% Impervious Area

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

Subcatchment 5S: 3



Summary for Subcatchment 12S: 6

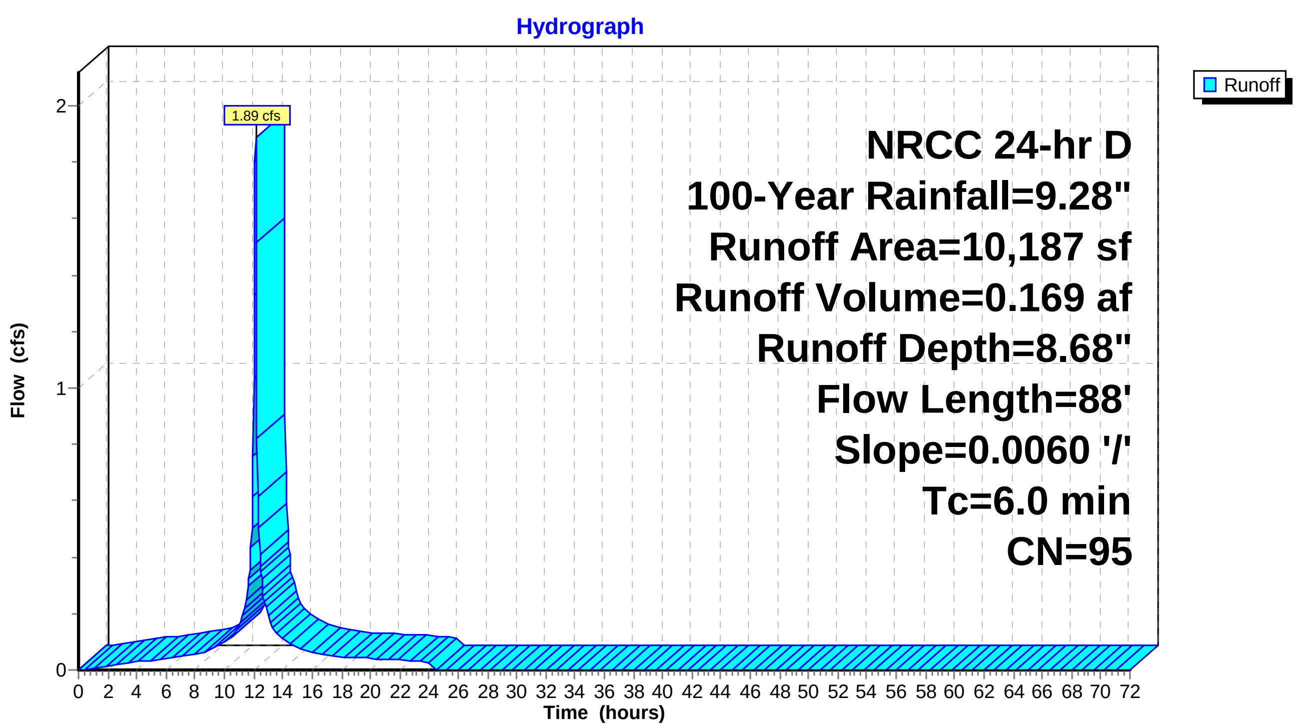
Runoff = 1.89 cfs @ 12.13 hrs, Volume= 0.169 af, Depth= 8.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	9,134	98	Pavement
	599	69	50-75% Grass cover, Fair, HSG B
	204	69	50-75% Grass cover, Fair, HSG B
	250	69	50-75% Grass cover, Fair, HSG B
	10,187	95	Weighted Average
	1,053		10.34% Pervious Area
	9,134		89.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	88	0.0060	0.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 1.50"
2.6	88	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12S: 6



Summary for Subcatchment 13S: 7

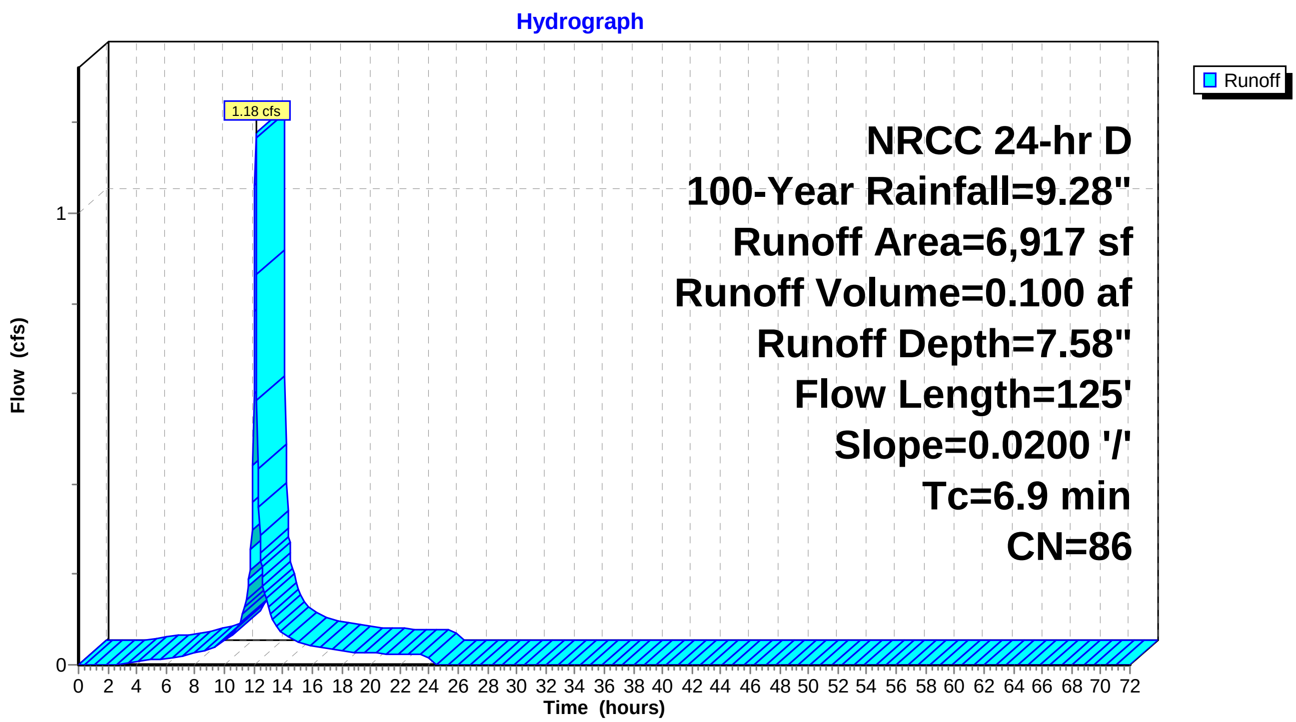
Runoff = 1.18 cfs @ 12.14 hrs, Volume= 0.100 af, Depth= 7.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
	2,956	69	50-75% Grass cover, Fair, HSG B
*	3,961	98	Porous Playground
	6,917	86	Weighted Average
	2,956		42.74% Pervious Area
	3,961		57.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.7	85	0.0200	2.00	0.17	**Pipe Channel,** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.020 Corrugated PE, corrugated interior
0.2	40	0.0200	3.18	1.11	**Pipe Channel,** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.020 Corrugated PE, corrugated interior
6.9	125	Total			

Subcatchment 13S: 7



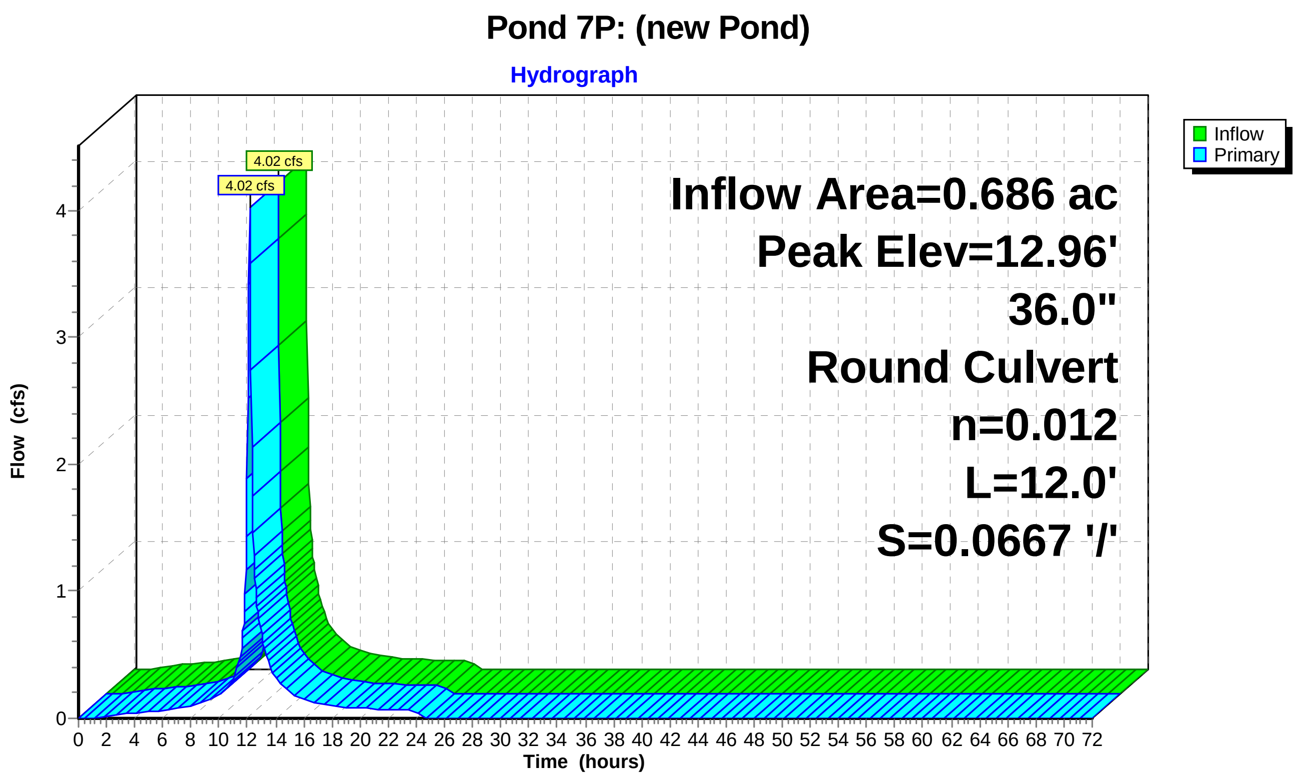
Summary for Pond 7P: (new Pond)

Inflow Area =	0.686 ac,	74.59% Impervious,	Inflow Depth = 6.84"	for 100-Year event
Inflow =	4.02 cfs @	12.15 hrs, Volume=	0.391 af	
Outflow =	4.02 cfs @	12.15 hrs, Volume=	0.391 af, Atten= 0%, Lag= 0.0 min	
Primary =	4.02 cfs @	12.15 hrs, Volume=	0.391 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 12.96' @ 12.15 hrs
Flood Elev= 16.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.30'	**36.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.30' / 11.50' S= 0.0667 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 7.07 sf

Primary OutFlow Max=3.98 cfs @ 12.15 hrs HW=12.96' (Free Discharge)
1=Culvert (Inlet Controls 3.98 cfs @ 3.46 fps)



Summary for Pond 12P: StormTank

Inflow Area = 0.654 ac, 76.95% Impervious, Inflow Depth = 7.19" for 100-Year event
Inflow = 4.13 cfs @ 12.13 hrs, Volume= 0.392 af
Outflow = 3.83 cfs @ 12.16 hrs, Volume= 0.392 af, Atten= 7%, Lag= 1.5 min
Discarded = 0.01 cfs @ 12.16 hrs, Volume= 0.017 af
Primary = 3.82 cfs @ 12.16 hrs, Volume= 0.374 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 16.06' @ 12.16 hrs Surf.Area= 0.017 ac Storage= 0.016 af

Plug-Flow detention time= 7.8 min calculated for 0.392 af (100% of inflow)
Center-of-Mass det. time= 7.8 min (772.8 - 764.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.002 af	**20.00'W x 38.00'L x 2.04'H Field A** 0.036 af Overall - 0.030 af Embedded = 0.006 af x 40.0% Voids
#2A	15.04'	0.029 af	**StormTank 25 Series 24"** x 144 Inside #1 Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf 144 Chambers in 12 Rows
		0.031 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 16.00' / 16.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf
#2	Discarded	15.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -6.20'
#3	Primary	15.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 15.00' / 15.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf
#4	Primary	16.50'	**4.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#5	Primary	15.00'	**18.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 15.00' / 13.00' S= 0.0417 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Discarded OutFlow Max=0.01 cfs @ 12.16 hrs HW=16.05' (Free Discharge)
└─**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=3.77 cfs @ 12.16 hrs HW=16.05' (Free Discharge)
├─**1=Culvert** (Barrel Controls 0.00 cfs @ 0.68 fps)
├─**3=Culvert** (Inlet Controls 0.13 cfs @ 5.92 fps)
├─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**5=Culvert** (Inlet Controls 3.64 cfs @ 2.75 fps)

Pond 12P: StormTank - Chamber Wizard Field A

Chamber Model = StormTank 25 Series 24" (StormTank Module 25 Series)
Inside= 18.0"W x 24.0"H => 2.89 sf x 3.00'L = 8.7 cf
Outside= 18.0"W x 24.0"H => 3.00 sf x 3.00'L = 9.0 cf

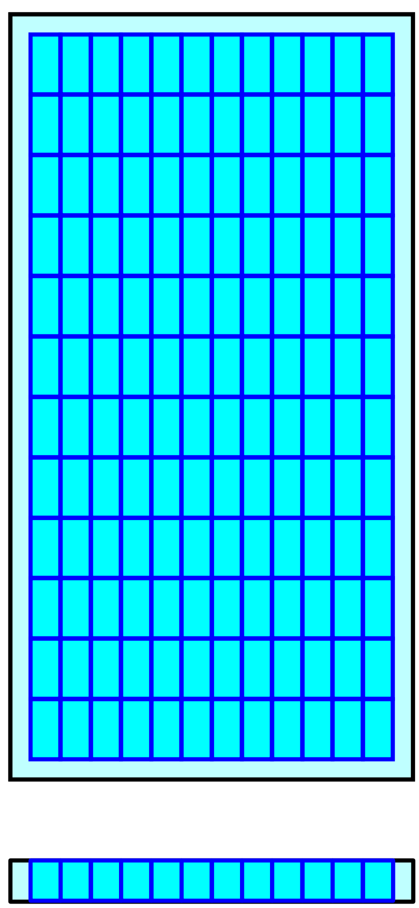
12 Chambers/Row x 3.00' Long = 36.00' Row Length +12.0" End Stone x 2 = 38.00' Base Length
12 Rows x 18.0" Wide + 12.0" Side Stone x 2 = 20.00' Base Width
0.5" Stone Base + 24.0" Chamber Height = 2.04' Field Height

144 Chambers x 8.7 cf = 1,246.5 cf Chamber Storage
144 Chambers x 9.0 cf = 1,296.0 cf Displacement

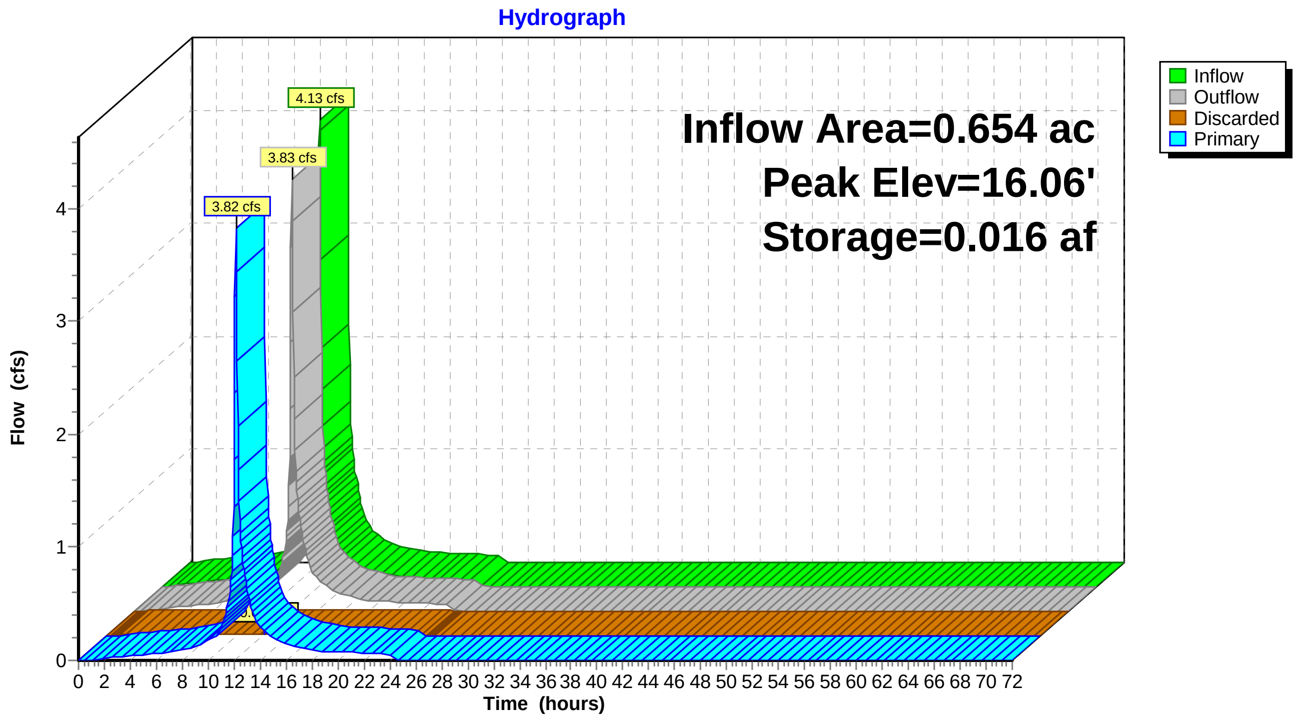
1,551.7 cf Field - 1,296.0 cf Chambers = 255.7 cf Stone x 40.0% Voids = 102.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,348.8 cf = 0.031 af
Overall Storage Efficiency = 86.9%
Overall System Size = 38.00' x 20.00' x 2.04'

144 Chambers
57.5 cy Field
9.5 cy Stone



Pond 12P: StormTank



Summary for Pond 13P: CB-3

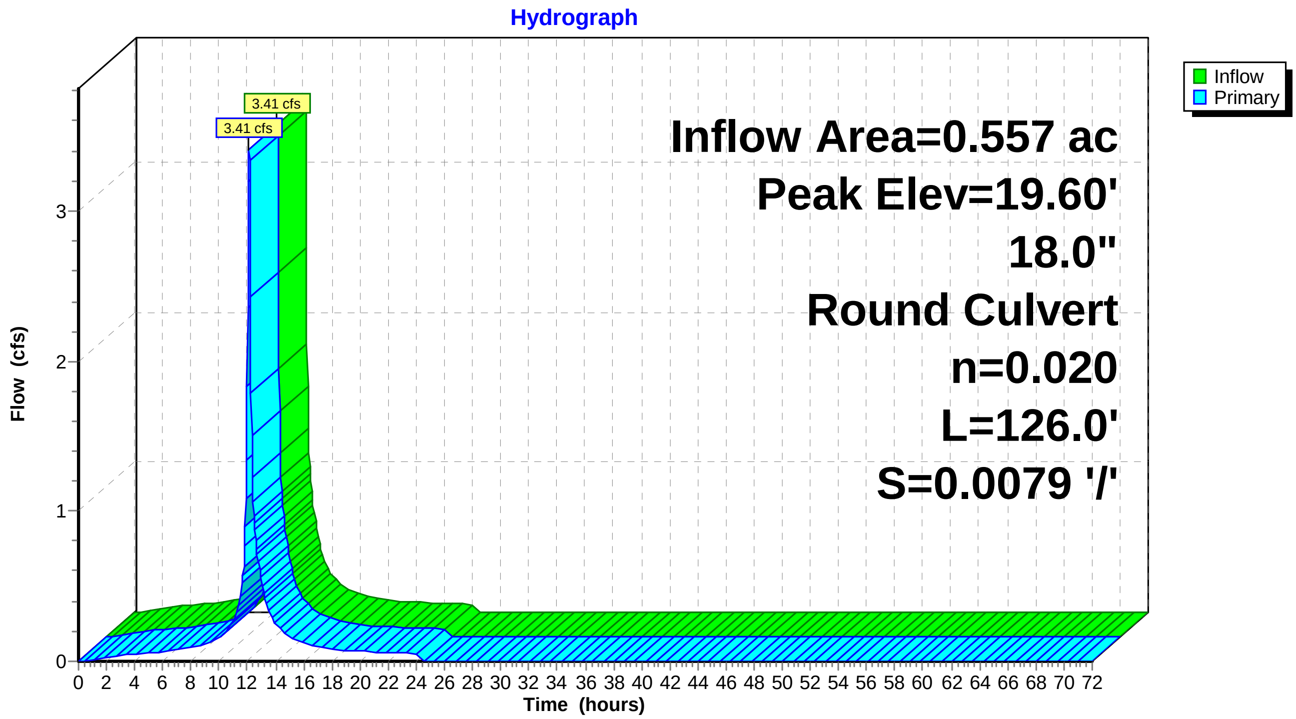
Inflow Area =	0.557 ac, 81.29% Impervious, Inflow Depth = 7.17" for 100-Year event			
Inflow =	3.41 cfs @	12.13 hrs, Volume=	0.333 af	
Outflow =	3.41 cfs @	12.13 hrs, Volume=	0.333 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.41 cfs @	12.13 hrs, Volume=	0.333 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.60' @ 12.13 hrs
Flood Elev= 23.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	**18.0" Round Culvert** L= 126.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.50' / 17.50' S= 0.0079 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.29 cfs @ 12.13 hrs HW=19.57' (Free Discharge)
1=Culvert (Barrel Controls 3.29 cfs @ 3.41 fps)

Pond 13P: CB-3



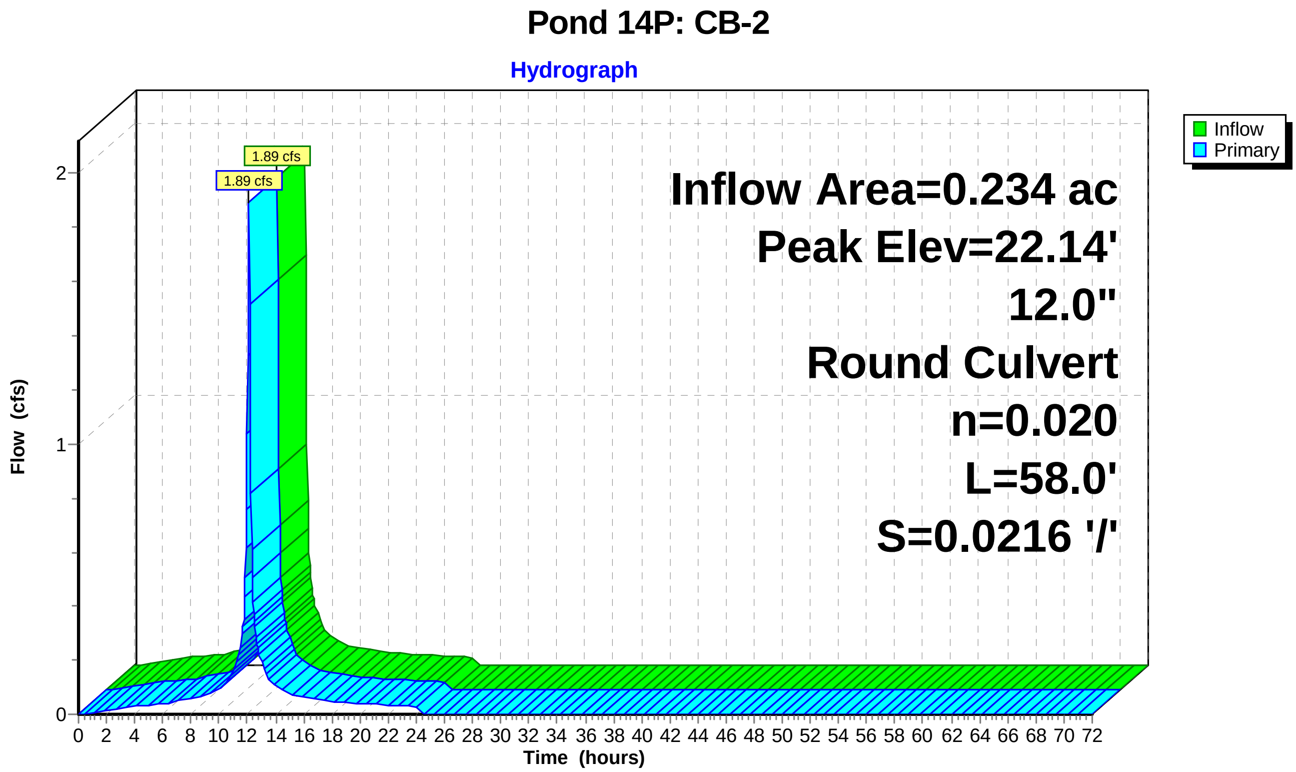
Summary for Pond 14P: CB-2

Inflow Area =	0.234 ac,	89.66% Impervious,	Inflow Depth = 8.68"	for 100-Year event
Inflow =	1.89 cfs @	12.13 hrs, Volume=	0.169 af	
Outflow =	1.89 cfs @	12.13 hrs, Volume=	0.169 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.89 cfs @	12.13 hrs, Volume=	0.169 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 22.14' @ 12.13 hrs
Flood Elev= 22.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.25'	**12.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 21.25' / 20.00' S= 0.0216 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.81 cfs @ 12.13 hrs HW=22.12' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.81 cfs @ 2.50 fps)



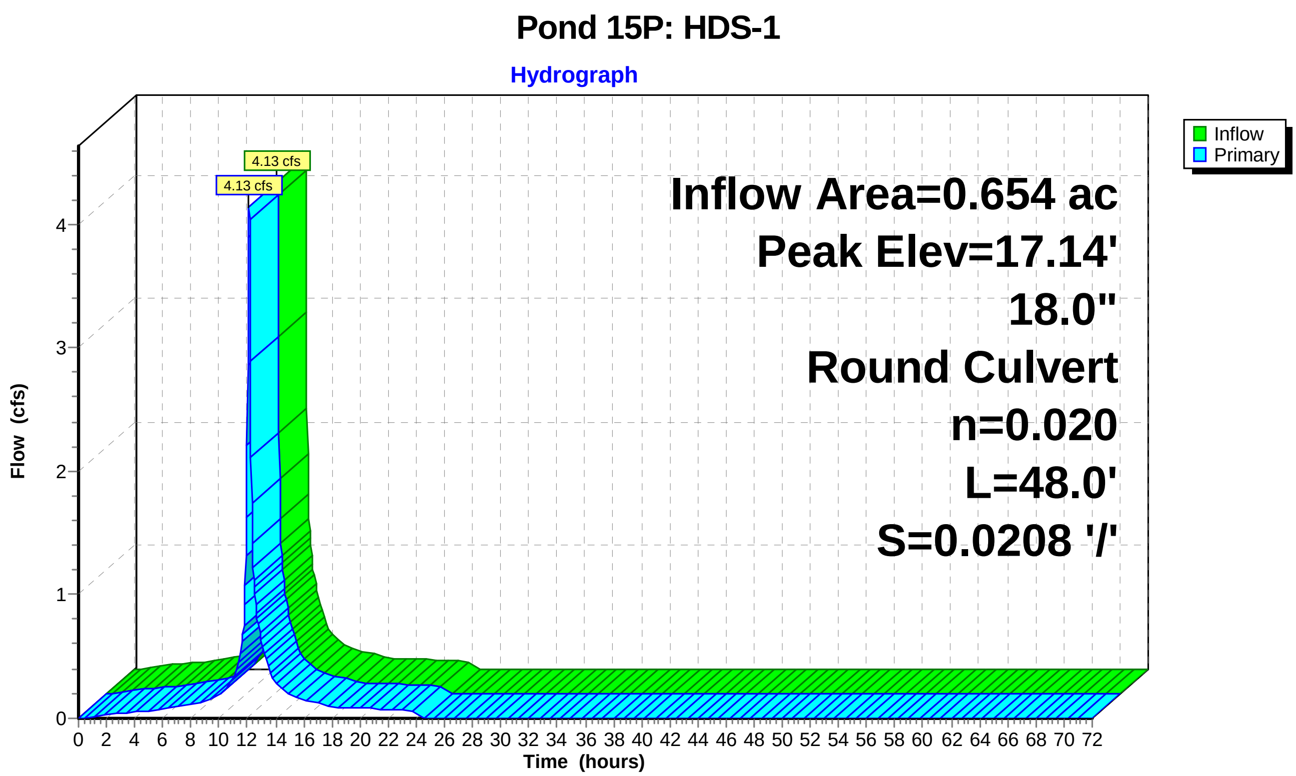
Summary for Pond 15P: HDS-1

Inflow Area =	0.654 ac,	76.95% Impervious,	Inflow Depth = 7.19"	for 100-Year event
Inflow =	4.13 cfs @	12.13 hrs, Volume=	0.392 af	
Outflow =	4.13 cfs @	12.13 hrs, Volume=	0.392 af, Atten= 0%, Lag= 0.0 min	
Primary =	4.13 cfs @	12.13 hrs, Volume=	0.392 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.14' @ 12.13 hrs
Flood Elev= 20.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.00'	**18.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 16.00' / 15.00' S= 0.0208 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.98 cfs @ 12.13 hrs HW=17.11' (Free Discharge)
1=Culvert (Inlet Controls 3.98 cfs @ 2.83 fps)



Summary for Pond 16P: Playground Subsurface

Inflow Area = 0.159 ac, 57.26% Impervious, Inflow Depth = 7.58" for 100-Year event
Inflow = 1.18 cfs @ 12.14 hrs, Volume= 0.100 af
Outflow = 0.47 cfs @ 12.30 hrs, Volume= 0.100 af, Atten= 60%, Lag= 9.7 min
Discarded = 0.05 cfs @ 12.30 hrs, Volume= 0.057 af
Primary = 0.42 cfs @ 12.30 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.77' @ 12.30 hrs Surf.Area= 0.093 ac Storage= 0.025 af

Plug-Flow detention time= 37.8 min calculated for 0.100 af (100% of inflow)
Center-of-Mass det. time= 37.7 min (832.0 - 794.2)

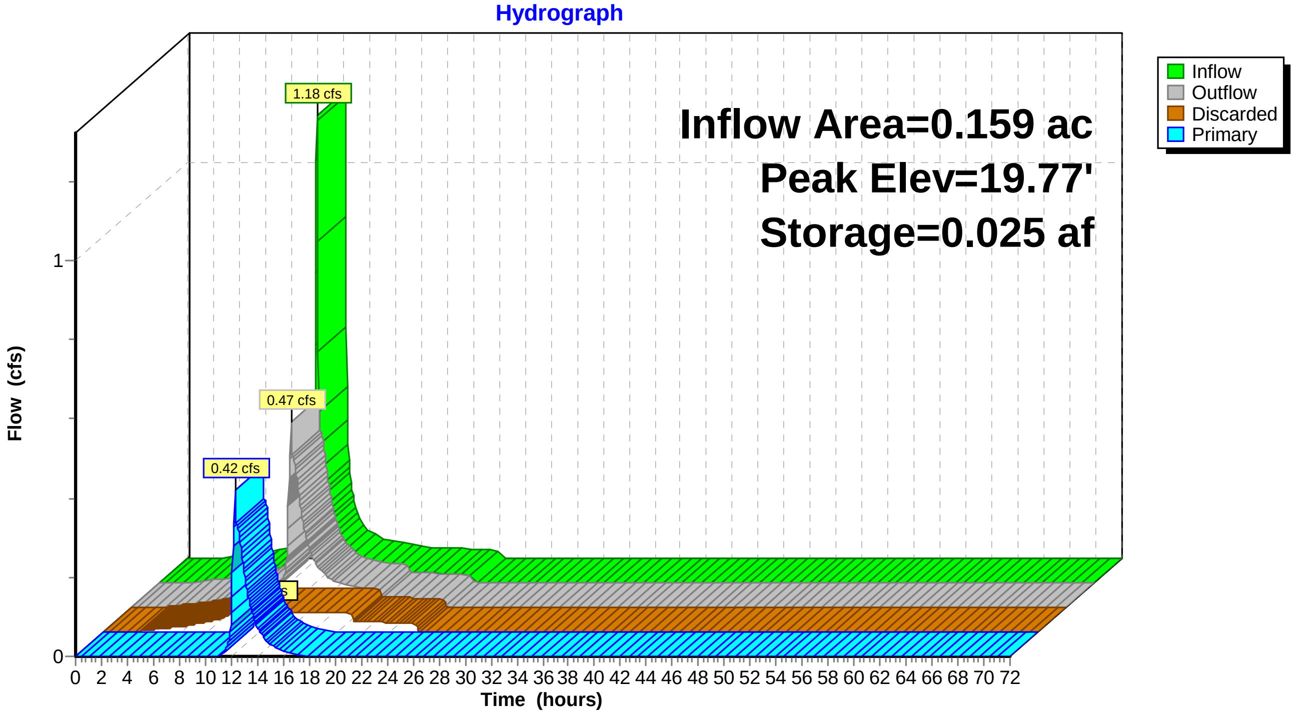
Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	0.025 af	**40.00'W x 101.00'L x 0.67'H Prismatoid** 0.062 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	**6.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 19.00' / 19.00' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	19.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -6.20'

Discarded OutFlow Max=0.05 cfs @ 12.30 hrs HW=19.77' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.42 cfs @ 12.30 hrs HW=19.77' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.42 cfs @ 2.13 fps)

Pond 16P: Playground Subsurface

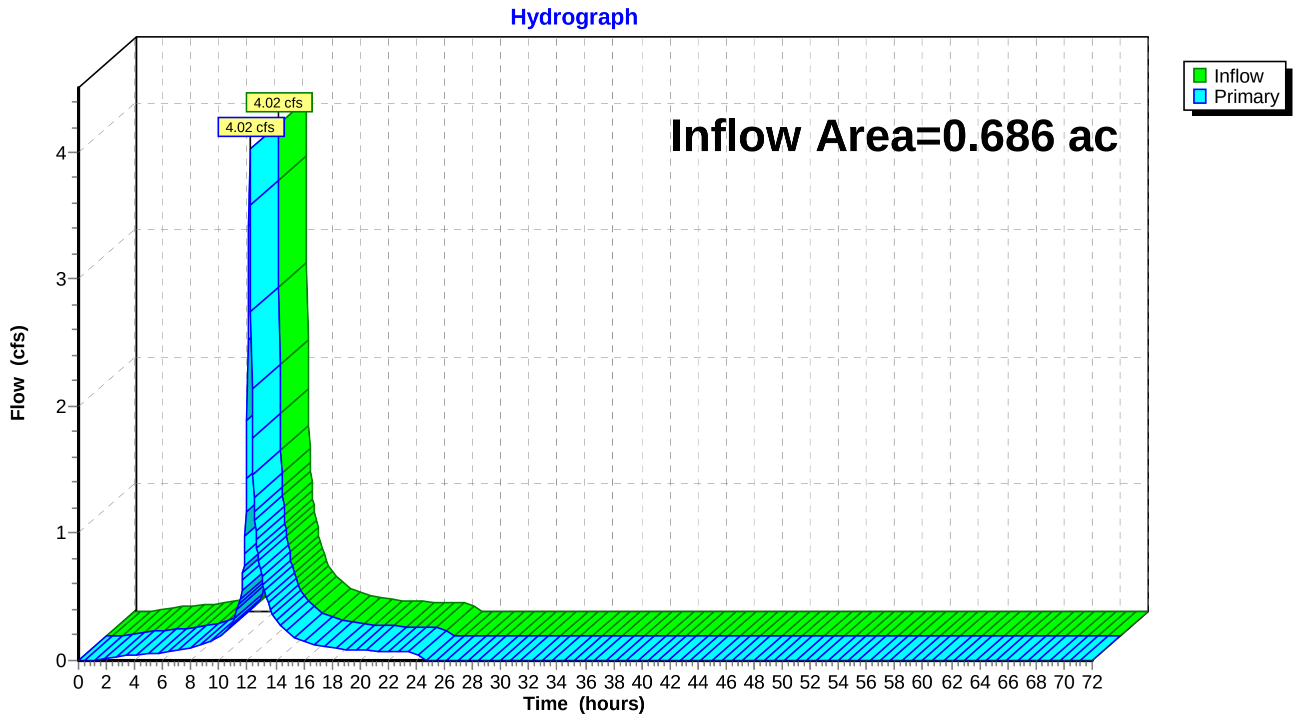


Summary for Link 8L: POD 1

Inflow Area = 0.686 ac, 74.59% Impervious, Inflow Depth = 6.84" for 100-Year event
Inflow = 4.02 cfs @ 12.15 hrs, Volume= 0.391 af
Primary = 4.02 cfs @ 12.15 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

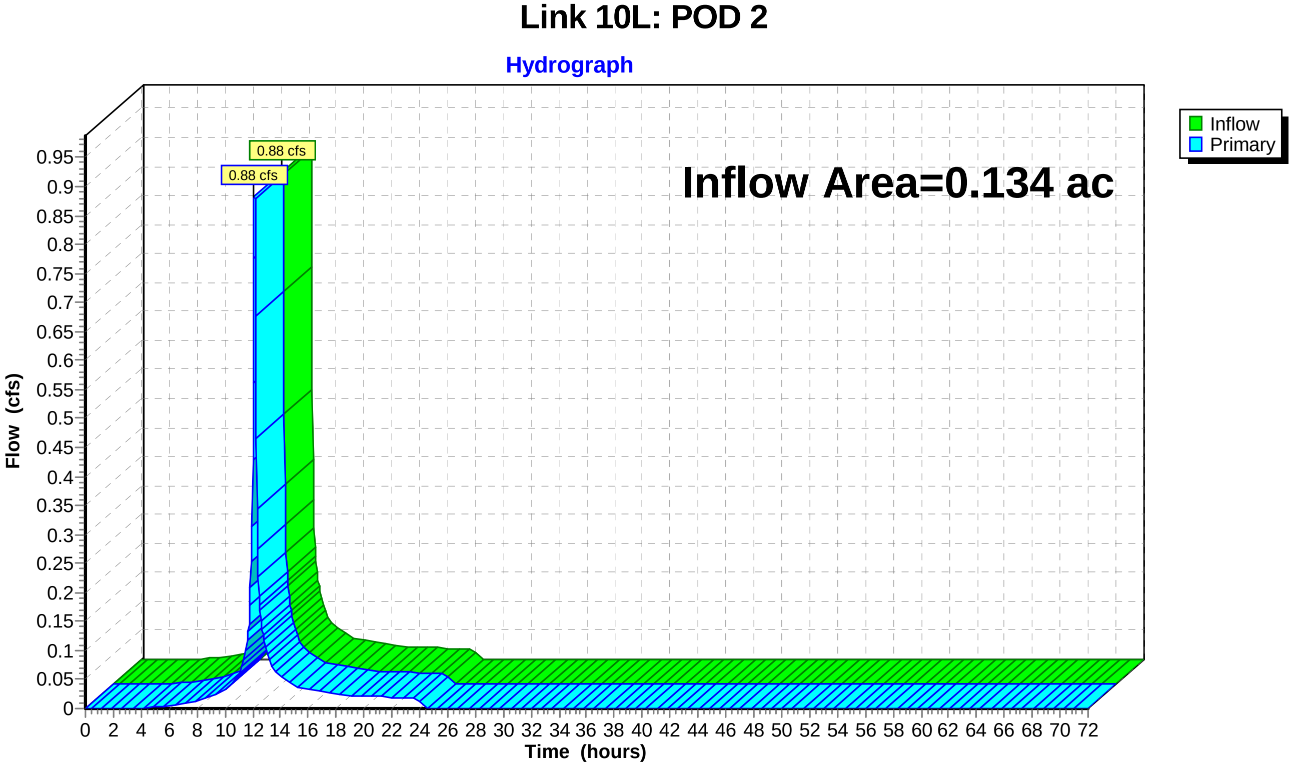
Link 8L: POD 1



Summary for Link 10L: POD 2

Inflow Area = 0.134 ac, 25.94% Impervious, Inflow Depth = 6.46" for 100-Year event
Inflow = 0.88 cfs @ 12.14 hrs, Volume= 0.072 af
Primary = 0.88 cfs @ 12.14 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

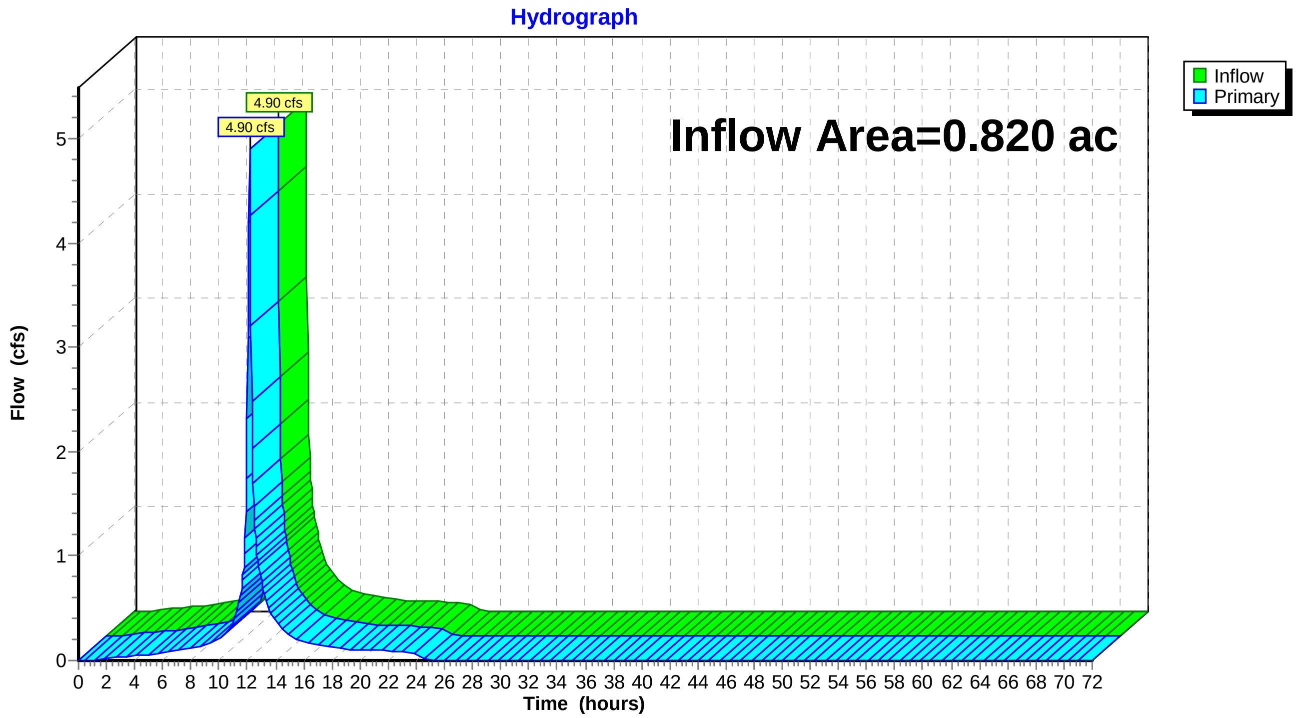


Summary for Link 11L: OVERALL PROPOSED

Inflow Area =	0.820 ac,	66.62% Impervious,	Inflow Depth = 6.78"	for 100-Year event
Inflow =	4.90 cfs @	12.15 hrs, Volume=	0.463 af	
Primary =	4.90 cfs @	12.15 hrs, Volume=	0.463 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: OVERALL PROPOSED



STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Midland Elementary School DATE: 10/8/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 0.82 acres HSG(s): B

PLANNING

1 Plan to Perserve, Avoid, and Minimize:

Technique	Utilized (Y/N)
A. Preserve undisturbed, natural buffer, and critical envirnmental areas	Y
B. Employ open space, conservation, and clustering site design techniques	N
C. Avoid developing in environmentally sensitive areas: floodplains, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, and unstable soils	Y
D. Minimize impervious surfaces: building footprints, parking lots, roads, sidewalks, and driveways	Y
E. Minimize clearing and grading	Y

BASE WATER QUALITY VOLUME

2a. Calculate the base water quality volume (WQv):
WQv = [(P) * (A) * (Rv)] / 12
Rv = 0.05 + [(0.009)*(i)]

Contributing Area (DA) =		acres
Impervious Area (AI) =		acres
i =		%
Rv =		
Redevelopment Reduction =	25.00	%
WQv =	*0.000*	*ac ft*
	0.00	*c.f.*

2b. Calculate the additional impervious water quality volume (WQv):

Contributing Area (DA) =	0.13	acres
Impervious Area (AI) =	0.13	acres
i =	100.00	%
Rv =	0.95	
WQv =	*0.015*	*ac ft*
	672.46	*c.f.*

STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Midland Elementary School DATE: 10/8/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 0.82 acres HSG(s): B

2c. Total WQv *WQv =* *0.015* *ac ft*
672.46 *c.f.*

MINIMUM RUNOFF REDUCTION REQUIREMENTS

3 Calculate the minimum required runoff reduction volume (RRv) for use when 100% of the RRv can not be obtained:

RRv = [(P) * (.95) * (S) * (AI)] / 12

S =	0.55 (A soils)	0.3 (C soils)	
	0.4 (B soils)	0.2 (D soils)	

or weighted using the average HSG for the DA

RRv = *0.006* *ac ft*

AREA REDUCTION PRACTICES

4 Incorporate area reduction practices for all applicable practices (area includes practice and contributing area):

A. Conservation of Natural Areas:	Contributing Area =	0.000	acres
	Contributing AI =	0.000	acres
B. Riparian buffers/filter Strips:	Contributing Area =	0.000	acres
	Contributing AI =	0.000	acres
C. Tree Planting/Preservation:	Contributing Area =	0.000	acres
	Contributing AI =	0.000	acres
D. Disconnection of Rooftop Runoff:	Contributing AI =	0.000	acres
E. Stream Daylighting:	Contributing AI =	0.000	acres

Total Area Reduction (DA_r)= 0.00 acres
Total Impervious Area Within Area Reduction (AI_r)= 0.00 acres

5 Subtract Total Area Reduction from original DA:

Remaining Drainage Area (#2 DA - #4 DA_r) = 0.13 acres
Remaining Impervious Area (#2 AI - #4 AI_r) = 0.13 acres

6 Recalculate WQv for site area remaining after area reductions:

Impervious Area of Remaining Areas = 100.00 %
Rv = 0.95
Reduced WQv = 0.015 ac ft

STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Midland Elementary School DATE: 10/8/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 0.82 acres HSG(s): B

7 Calculate Runoff Reduction Volume (RRv) provided:
RRv provided = (#2 WQv - #6 Reduced WQv)
RRv prov'd = 0.000 ac ft

ROOFTOP DISCONNECTION

8 Incorporate rooftop area disconnection:
Total Disconnected Rooftop Area (AI_d) = 0.000 acres

9 Recalculate WQv resulting from Rooftop Area Disconnection:

DA =	0.13 acres	Modified AI =	0.13 acres
Modified Rv =	0.95	**Rv Reduced WQv =**	**0.000 ac ft**

10 Runoff Reduction Volume Provided:
RRv prov'd = (#6 Reduced WQv) - (#9 Reduced WQv)
RRv prov'd = 0.000 ac ft

SOURCE CONTROL RRv TRERATMENT PRACTICES

These values were taken from the Source Control WQv Treatment Practices Worksheet

11 a	Subtotal DA tributary to Source Control RRv treatment practices =	0.65	acres
11 b	Subtotal AI tributary to Source Control RRv treatment practices =	0.52	acres
11 c	Subtotal Runoff Reduction Volume (RRv) provided =	0.028	ac ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

12 a	Total drainage area treated with area reduction and source control RRv practices (DA_t) =	0.65	acres
12 b	Total impervious area treated with area reduction and source control RRv practices (AI_t) =	0.52	acres
13	Total RRv provided (RRv_t) =	0.028	ac ft
14	Is provided RRv > original WQv ?	Yes	**
	** If Yes, skip to #19.		
15	Is Provided RRv > minimum RRv (#3) ?		***

STANDARD WQv TREATMENT

16 Provide additional treatment for any remaining untreated watershed DA with standard WQv

STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Midland Elementary School DATE: 10/8/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 0.82 acres HSG(s): B

treatment practices:

Remaining untreated DA (Da_u) = #2 DA - RRv DA (#12a)

DA_u = -0.52 acres

Remaining untreated AI (AI_u) = #2 AI - RRv AI (#12b)

AI_u = 0.00 acres

<u>These values were taken from the Source Control WQv Treatment Practices Worksheet</u>

Ponds	Trib. DA =		acres	Treated AI =		acres
			WQv provided =		ac ft	
Wetlands	Trib. DA =		acres	Treated AI =		acres
			WQv provided =		ac ft	
Infiltration	Trib. DA =		acres	Treated AI =		acres
			WQv provided =		ac ft	
Filters	Trib. DA =		acres	Treated AI =		acres
			WQv provided =		ac ft	
Open Channels	Trib. DA =		acres	Treated AI =		acres
			WQv provided =		ac ft	
Total	**Trib. DA =**	**0**	**acres**	**Treated AI =**	**0**	**acres**
			WQv provided =	**0**	**ac ft**	

TOTAL WQv TREATMENT

Total Required WQv = **0.015** **ac-ft**

Total WQv provided through RRv and Standard Practices = **0.028** **ac-ft**

The provided WQv exceeds the required WQv, Design is good.

DRAINAGE AREA TREATED

17 A	Total DA treated with RRv practices (#12A) =	0.65	acres
17 B	Total DA treated with standard WQv practices (#16) =	0.00	acres
17 C	**Total DA treated =**	**0.65**	**acres**

18 Is all of the required watershed DA treated by either RRv practices or standard WQv treatment practices?**** Yes

**** If **No**, provide additional treatment and recalculate or provide justification

PEAK FLOW ATTENUATION

19 Calculate peak runoff rate for pre-development site conditions:

STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Midland Elementary School DATE: 10/8/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 0.82 acres HSG(s): B

Q_1 =		cfs	Q_{25} =		cfs
	0.00	ac-ft/day		0.00	ac-ft/day
Q_{10} =		cfs	Q_{100} =		cfs
	0.00	ac-ft/day		0.00	ac-ft/day

20 Calculate peak runoff rate for post-development site conditions:

Q_1 =		cfs	Q_{25} =		cfs
	0.00	ac-ft/day		0.00	ac-ft/day
Q_{10} =		cfs	Q_{100} =		cfs
	0.00	ac-ft/day		0.00	ac-ft/day

STORMWATER MANAGEMENT PLAN
SOURCE CONTROL WQv TREATMENT PRACTICES WORKSHEET

PROJECT:	Midland Elementary School	DATE:	10/8/2020
LOCATION:	0	PERFORMED BY:	ZAL

90% RAIN (P): 1.50 inches DA: 0.82 acres HSG(s): B

STANDARD PRACTICES USED AS SOURCE CONTROL

A. Infiltration (for soils with k>0.5"/hr only):

DA tributary to Practice(s) =	0.654	acres	Area of footprint of system (sf)=	760.00
AI tributary to Practice(s) =	0.520	acres	Ht. of storage w/in system (ft) =	2.00
Rv =	0.77		Storage stone void space (%) =	40.00
WQvRequired =	*0.015*	*ac-ft*	Storage volume w/in system =	**1,349.0**
Allowable Runoff Reduction Volume, RRv =	**0.028**	**ac-ft**	**WQv Provided (ac-ft) =**	**0.031**

B. Bioretention (BR):

DA tributary to Practice(s) =		acres	Area of BR device (sf) =	
AI tributary to Practice(s) =		acres	Ht of water above bed (ft) =	
Rv =			Filter bed depth (ft) =	
WQv Required =		*ac-ft*	Filter bed drain time (days) =	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**	**WQv provided (ac-ft) =**	**0.000**

C. Dry Swale:

DA tributary to Practice(s) =		acres	Cross-sectional area of swale (sf)* =	
AI tributary to Practice(s) =		acres	Length of swale (ft) =	
Rv =			**WQv provided in swale (ac-ft) =**	**0.000**
WQv Required =		*ac-ft*	* Longitudinal slope of swale ≤ 4%	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**		

GREEN INFRASTRUCTURE PRACTICES

A. Vegetated Swale:

DA tributary to Practice(s) =		acres	Cross-sectional area of swale (sf)* =	
AI tributary to Practice(s) =		acres	Length of swale (ft) =	
Rv =			**WQv provided in swale (ac-ft) =**	**0.000**
WQv Required =		*ac-ft*	* Longitudinal slope of swale ≤ 4%	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**		

B. Green Roof:

Area of Green Roof =		sf	Depth of Drainage Layer (ft) =	
Depth of soil media =		ft	Porosity of drainage layer =	
Porosity of soil media =			Depth of Ponding above surface (ft) =	
Rv =			**WQv provided in green roof (cf) =**	**0.000**
Area feeding into practice =		sf	**(ac-ft) =**	**0.000**
WQv Required =		*cf*	**Allow. Runoff Red. Vol., RRv (ac-ft) =**	**0.000**
=		*ac-ft*		

STORMWATER MANAGEMENT PLAN
SOURCE CONTROL WQv TREATMENT PRACTICES WORKSHEET

PROJECT: Midland Elementary School DATE: 10/8/2020
LOCATION: 0 PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 0.82 acres HSG(s): B

C. Rain Garden:

DA tributary to Practice(s) =		sf	Rain Garden Surface Area (sf) =	
AI tributary to Practice(s) =		sf	Depth of Soil Media (ft) =	
Rv =			Depth of Drainage Layer (ft) =	
WQv Required =		*cf*	Porosity of Soil media =	
WQv Provided =	**0**	**cf**	Porosity of drainage layer =	
=	**0.000**	**ac-ft**	Ponding Depth (ft) =	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**	Underdrains (Y/N)?	

D. Stormwater Planters:

DA tributary to Practice(s) =		acres	Area of stormwater planter (sf) =	
AI tributary to Practice(s) =		acres	Depth of soil media (ft) =	
Rv =			Hydraulic conductivity (ft/day) =	
WQv Required =		*ac-ft*	Avg. Ht above planter bed (ft) =	
			Filter time (days) =	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**	**WQv provided (cf) =**	**0.00**

E. Cisterns / Rain Barrels:

DA tributary to Practice(s) =		sf	Storage volume of C/RB (gal.) =	
AI tributary to Practice(s) =		sf	Storage volume of C/RB (cf) =	
Rv =				
WQv Required =		*cf*	**WQv Provided (cf) =**	**0.00**
			(ac-ft) =	**0.000**
			Allowable Runoff Reduction Volume (ac-ft) =	**0.000**

F. Porous Pavement:

DA tributary to Practice(s) =		acres	Depth of Gravel Bed/Reservoir (ft) =	
AI tributary to Practice(s) =		acres	Porosity of gravel bed/Reservoir =	
Rv =			Area of Practice (sf) =	
Area feeding into practice =	0.00	sf	**WQv provided (cf) =**	**0.00**
WQv Required =		*cf*	**(ac-ft) =**	**0.000**
=		*ac-ft*	**Allow. Runoff Red. Vol., RRv (ac-ft) =**	**0.000**

Total Tributary Drainage Area (DA) to Source Control Practices =	0.65	acres
Total Impervious Area (AI) treated by Source Control Practices =	0.52	acres
Total Allowable Runoff Reduction Volume from Source Control Practices, RRv =	**0.028**	ac-ft

APPENDIX G

NYS DEC SPDES GENERAL PERMIT, GP-0-20-001

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

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

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

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

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

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

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

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

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

B. Effluent Limitations Applicable to Discharges from Construction Activities

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

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

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

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

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

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

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

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

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

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

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

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

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

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

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

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

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

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

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

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

(i) Wastewater from washout of concrete;

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

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

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

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

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

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

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

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

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

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

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be calculated in accordance with the criteria in Section 10.3 of the Design Manual.

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

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

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

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

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

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

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

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

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

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

D. Maintaining Water Quality

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

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

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

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

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

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

E. Eligibility Under This General Permit

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

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

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

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

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

All of the following are **<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; <u>and</u> all areas disturbed as of the project shutdown date 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 required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

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

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

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

   a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the “Required Elements” sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

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

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

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

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

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

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

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

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

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

Table 1 (Continued) Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

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

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

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

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

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

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River **-** Figure 1
- Onondaga Lake Watershed **-** Figure 2
- Greenwood Lake Watershed **-**Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

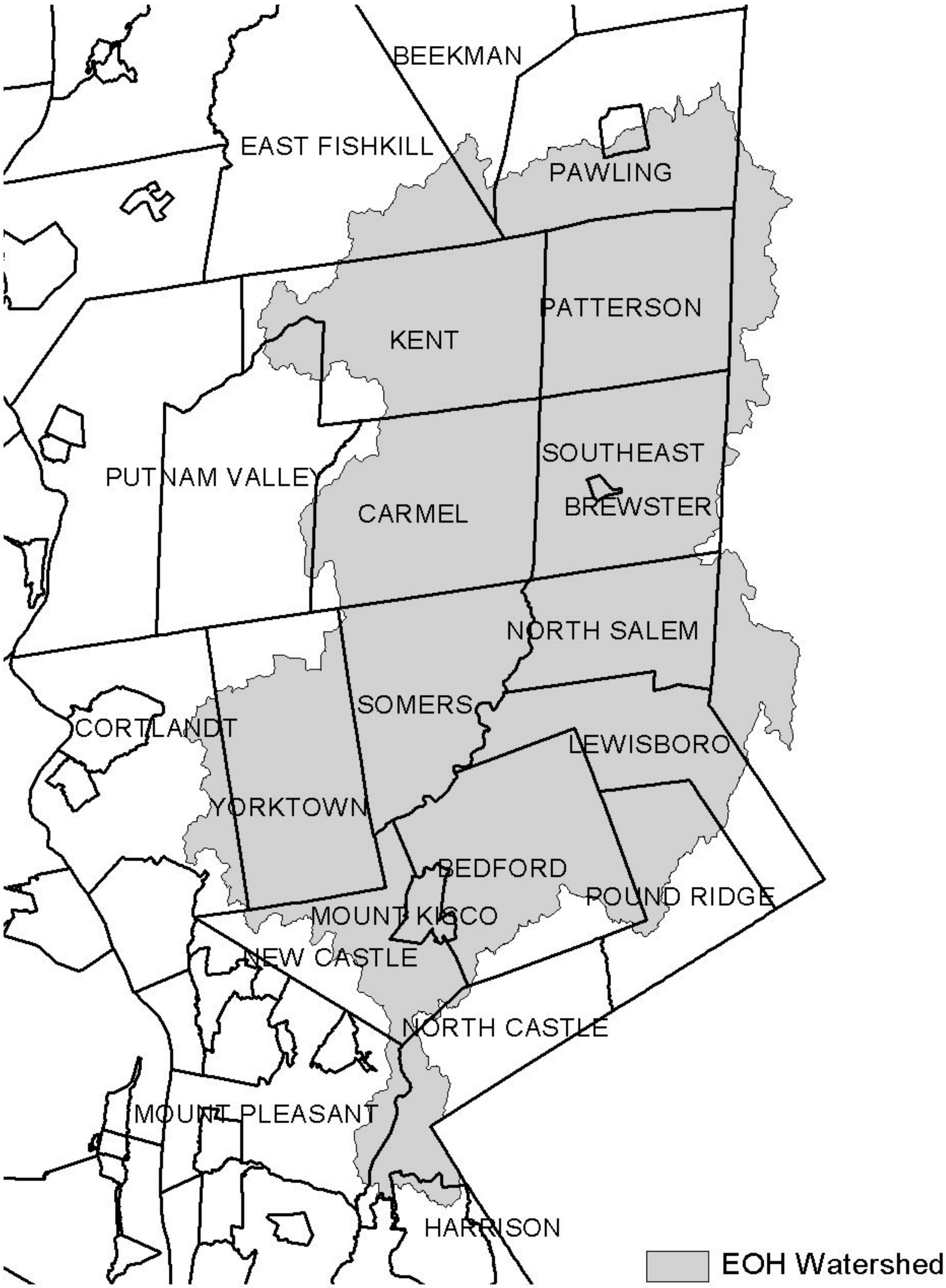


Figure 2 - Onondaga Lake Watershed

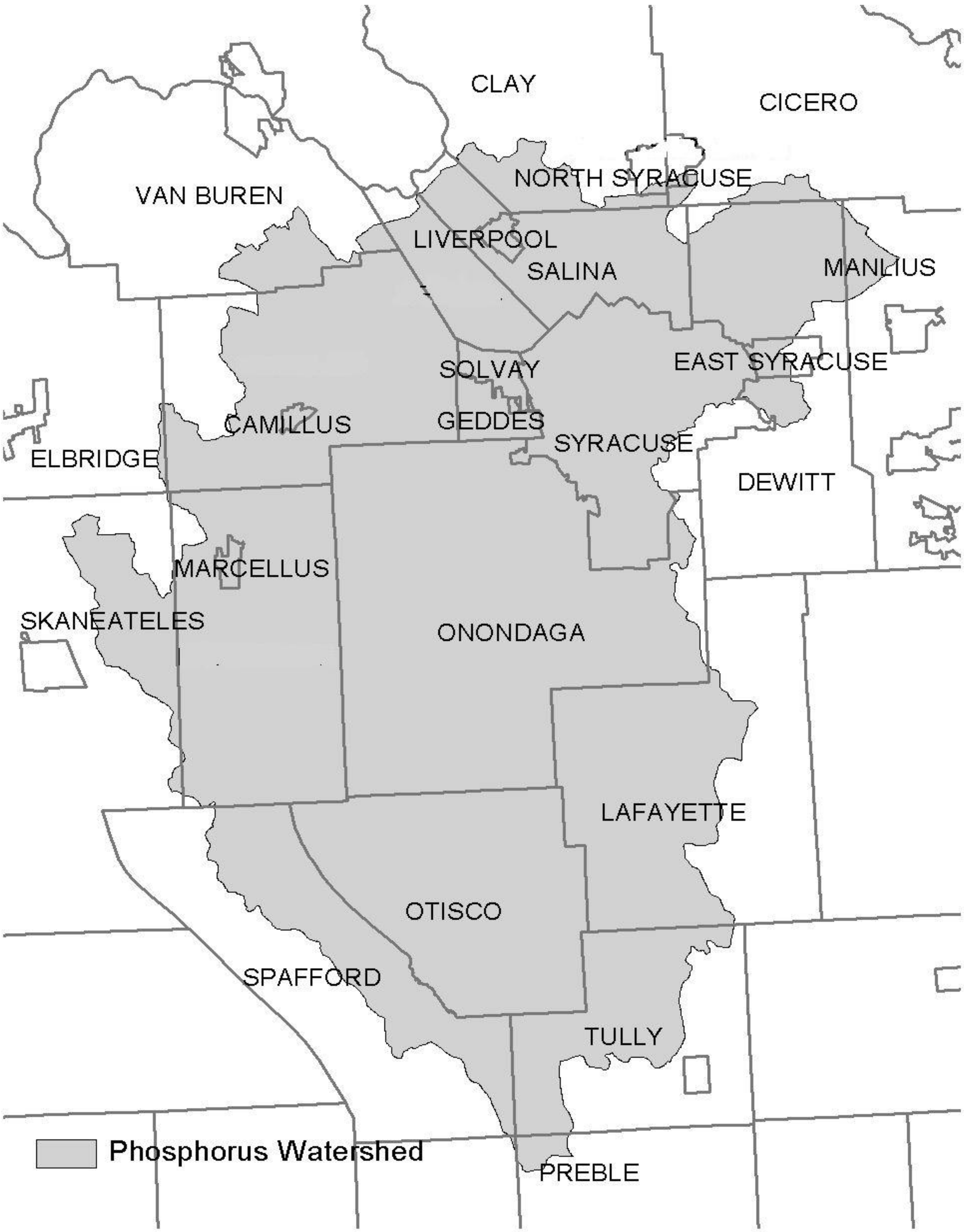


Figure 3 - Greenwood Lake Watershed

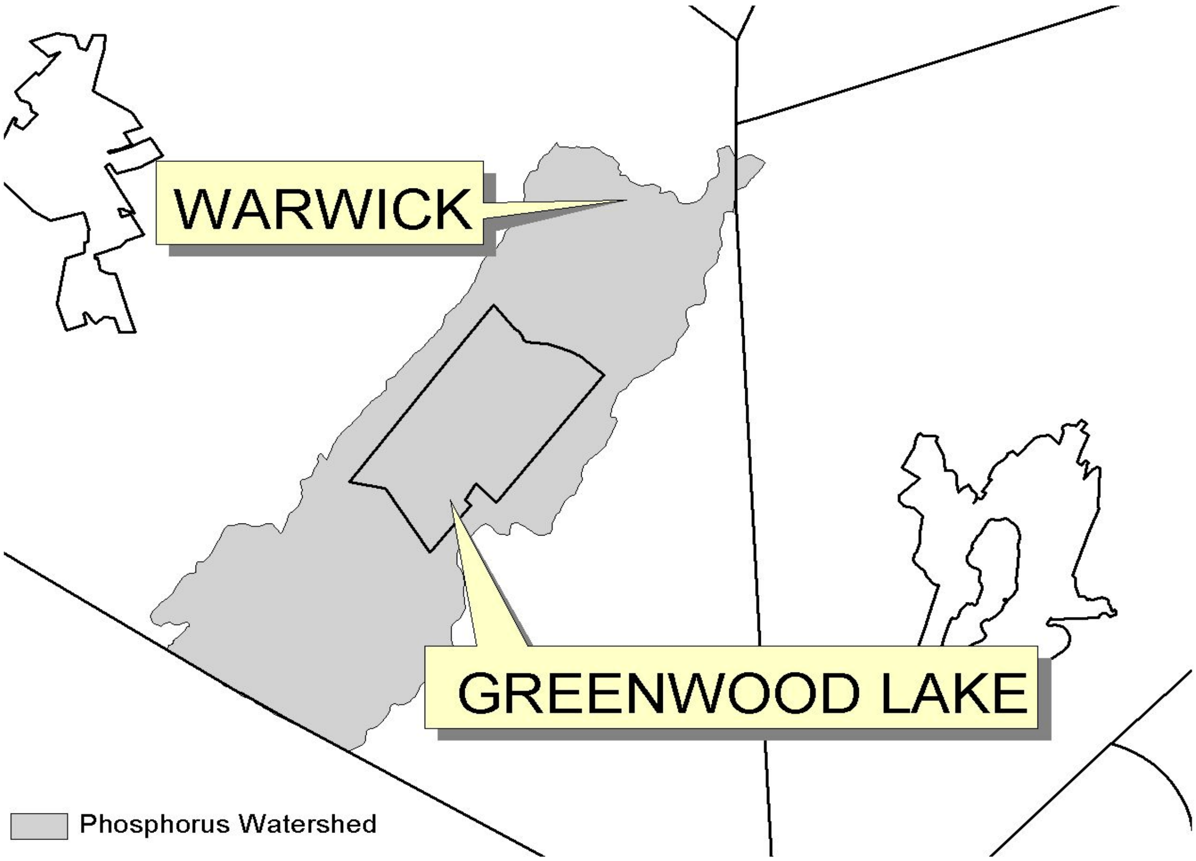


Figure 4 - Oscawana Lake Watershed

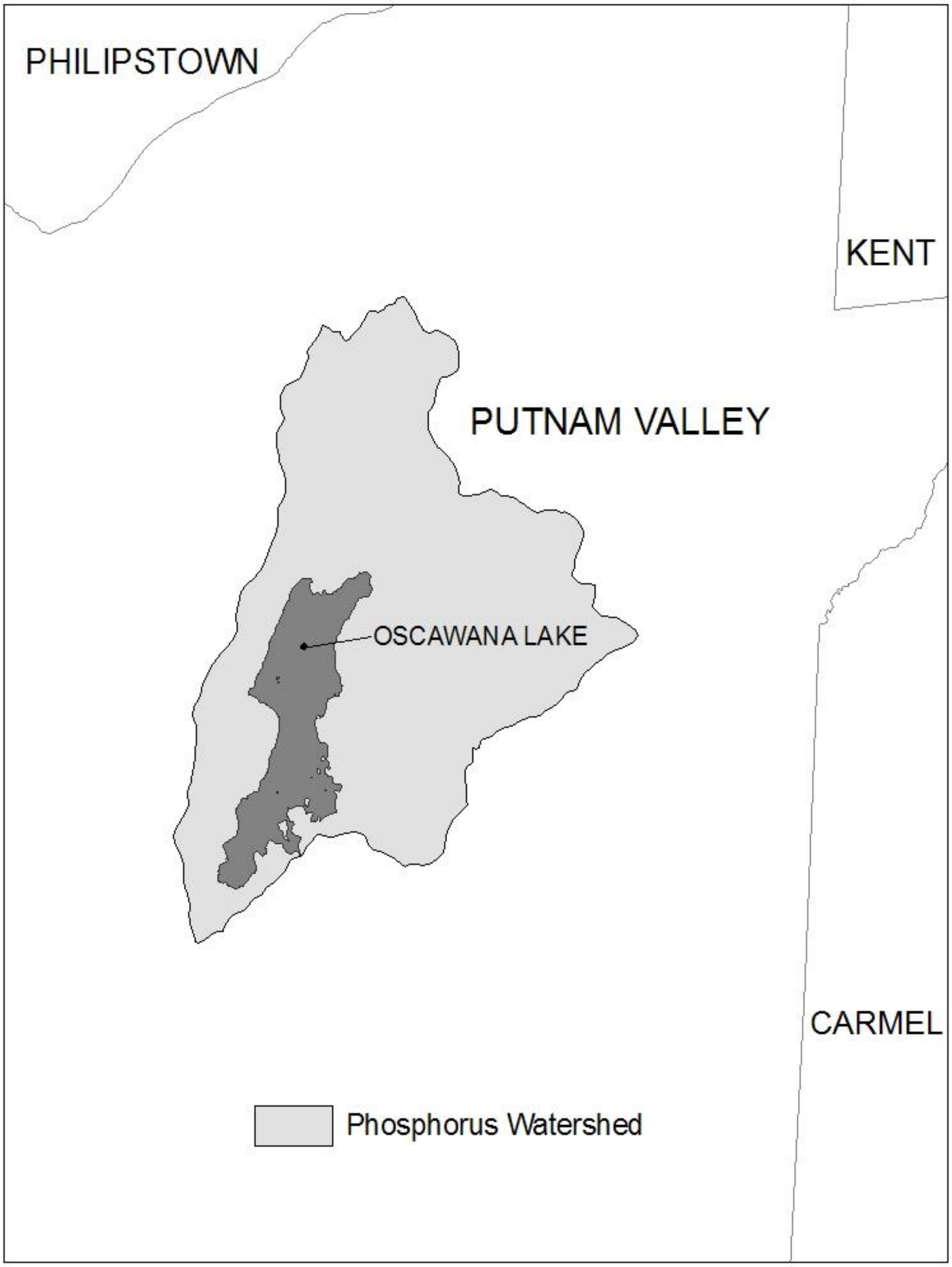
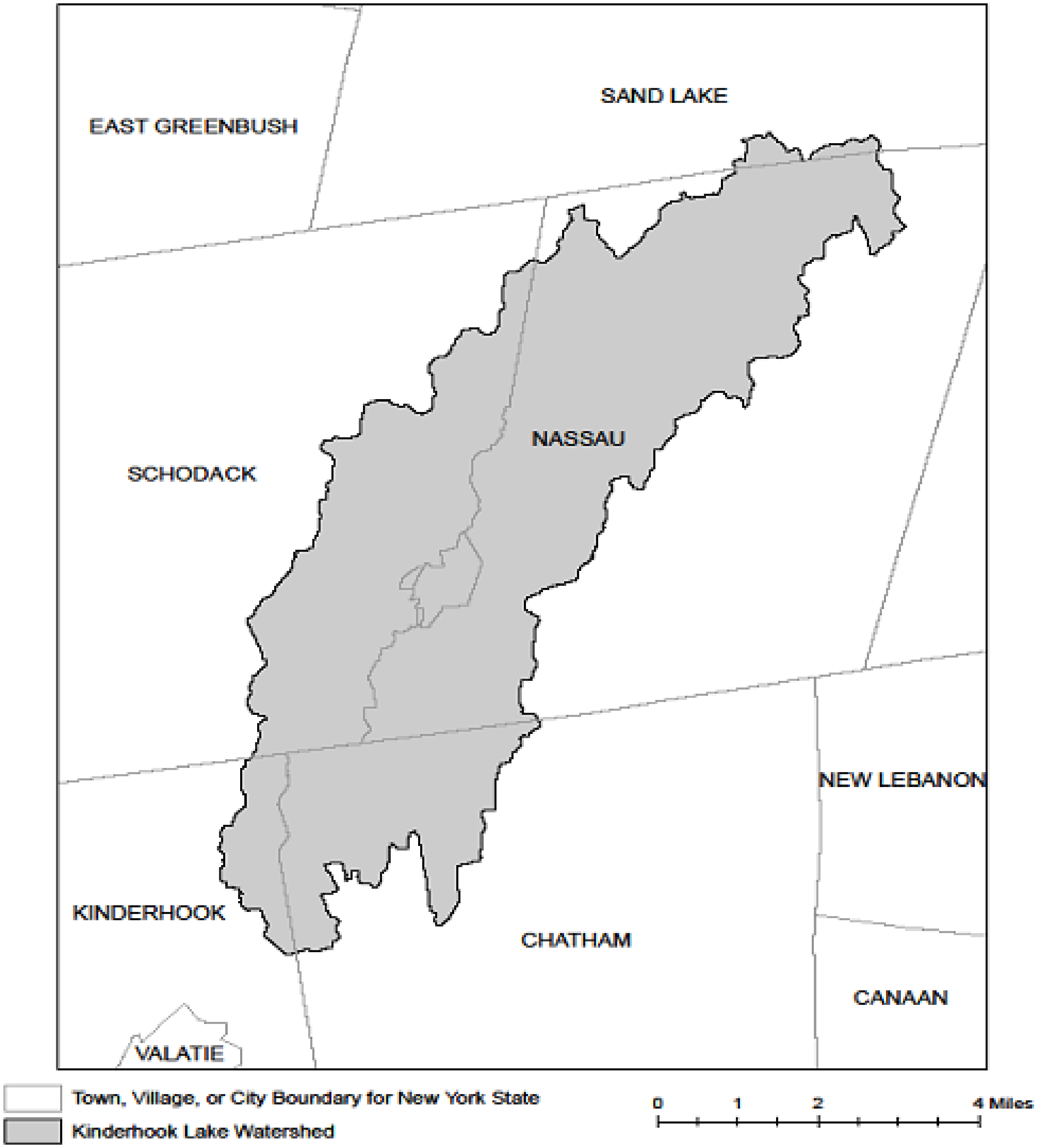


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

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

APPENDIX H

SWPPP/ CONSTRUCTION INSPECTION FORMS

SWPPP INSPECTION FORM

PROJECT: Rye City School Capital Plan - Midland Elementary School Improvements DATE:________________

LOCATION: 312 Midland Avenue New York, 10580 TIME:________________

OWNER/OPERATOR: Rye City School District TEMP.:________________

OWNER/OPERATOR ADDRESS: 555Theodore Frmed Ave, Rye, New York 10580 WEATHER:____________

SOIL CONDITIONS:________________ PROJECT PHASE:_________________ PERMIT NO.:__________

GENERAL OBSERVATIONS

SITE SKETCH/LAYOUT

TOTAL SITE AREA:________________ DISTURBANCE AREA:______________

EROSION & SEDIMENT CONTROL PRACTICES					
	Installed Correctly		Operating Correctly		
E&S Measure	Yes	No	Yes	No	Comments

PERMANENT STORMWATER MANAGEMENT PRACTICES					
	Installed Correctly		Operating Correctly		
Stormwater Practice	Yes	No	Yes	No	Comments

ADDITIONAL NOTES & COMMENTS

FOLLOW-UP ITEMS

Qualified Inspector:

Name:____________________ Company:____________________

Signature:____________________ Date:____________________

Address:____________________ Phone:____________________

Qualified Professional:

Name:____________________ Company:____________________

Signature:____________________ Date:____________________

Address:____________________ Phone:____________________

Owner’s Representative:

Name:____________________ Company:____________________

Signature:____________________ Date:____________________

Address:____________________ Phone:____________________

APPENDIX I

SWPPP MONTHLY INSPECTION FORMS

MONTHLY SWPPP INSPECTION SUMMARY

PROJECT: Rye City School Capital Plan - Midland Elementary School Improvements

LOCATION: 312 Midland Ave Rye, NY 10580

PROJECT PHASE:______________________ TOTAL PHASES:______________________

PERIOD:____________ to ____________ WEEKLY REPORTS COVERED:______________

WEATHER CONDITIONS:______________________________ DATE:______________

INSPECTOR COMPANY:____

GENERAL OBSERVATIONS			
Items	Yes	No	Comments
Are the SWPPP, NOI, NOI LOA, MS4 Acceptance Form, General Permit, and Contractor's Certifications Located on site?			
At the time of Inspection, are there any site discharges?			
Is there a significant difference in turbidity in the receiving waters?			
Are there any signs of sediment leaving the site?			
Are there any disturbed or stabilized areas/ items in need of repair?			
Are the public roadways clean at the site's entrance?			
Estimated Disturbed Area:		Total Site Acreage:	

EROSION AND SEDIMENT CONTROL PRACTICES					
	Installed Correctly		Operating Correctly		
Stormwater Practice	Yes	No	Yes	No	Comments

PERMANENT STORMWATER MANAGEMENT PRACTICES					
	Installed Correctly		Operating Correctly		
Stormwater Practice	Yes	No	Yes	No	Comments

ADDITIONAL NOTES & COMMENTS

Inspector:

Name:______________________________ Company:_______________

Signature:____________________________ Date:_______________

Address:____________________________ Phone:_______________

APPENDIX J

SWPPP MODIFICATION FORMS

SWPPP MODIFICATION REPORT

PROJECT: Rye City School Capital Plan - Midland Elementary School Improvements

LOCATION: 312 Midland Avenue Rye, NY 10580

OWNER/OPERATOR: Rye City School District – Robert Gimigliano

OWNER/OPERATOR ADDRESS: 555 Theodore Frmed Avenue Rye, NY 10580

SWPPP MOD. NO.:__________ DATE:__________

Modification Submitted To:__________ Company:__________

Address:__________ Telephone:__________

Inspector:__________ Signature:__________

Inspector Qualifications:__________

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

REASONS FOR CHANGES

To Be Performed By:______________________________ Performed On or Before:______________________________

Contractor:______________________________ Signature:______________________________

Date:______________________________

Site Supervisor:______________________________ Signature:______________________________

Date:______________________________

Owner/Operator:______________________________ Signature:______________________________

Date:______________________________

APPENDIX K

HAZARDOUS MATERIAL SPILL LOGS

HAZARDOUS MATERIALS SPILL LOG

PROJECT: Rye City School Capital Plan - Midland Elementary School Improvements

LOCATION: 312 Midland Avenue Rye, NY 10580

OWNER/OPERATOR: Rye City School District – Robert Gimigliano

OWNER/OPERATOR ADDRESS: 555 Theodore Frmed Avenue Rye, NY 10580

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:____________________ Company:____________________

Signature:____________________ Date:____________________

Address:____________________ Phone:____________________

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:____________________ Company:____________________

Signature:____________________ Date:____________________

Address:____________________ Phone:____________________

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:______________________________ Company:____________________

Signature:______________________________ Date:____________________

Address:______________________________ Phone:____________________

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:______________________________ Company:____________________

Signature:______________________________ Date:____________________

Address:______________________________ Phone:____________________

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:______________________________ Company:____________________

Signature:______________________________ Date:____________________

Address:______________________________ Phone:____________________

APPENDIX L

FINAL SWPPP INSPECTION FORM

FINAL SWPPP INSPECTION FORM

PROJECT: Rye City School Capital Plan - Midland Elementary School Improvements DATE:________________

LOCATION: 312 Midland Avenue Rye, NY 10580 TIME:________________

OWNER/OPERATOR: Rye City School District – Robert Gimigliano TEMP.:________________

OWNER/OPERATOR ADDRESS: 555 Theodore Frmed Avenue Rye, NY 10580 WEATHER:____________

SOIL CONDITIONS:________________ PROJECT PHASE:_________________ PERMIT NO.:__________

Prior to the Owner/Operator submitting a Notice of Termination to the NYSDEC to terminate the permit coverage, a qualified inspector must perform a final site inspection to certify the completion of the following items:		
Item	Yes	No
Have all of the disturbed areas achieves final stabilization?		
Have all of the temporary erosion and sediment control measures been removed?		
Have all of the permanent stormwater management practices been installed?		
Have all of the practices been installed in accordance with the SWPPP?		
Have photographs been taken of the completed site?		

Qualified Inspector:

Name:________________________________ Title:________________________________

Signature:________________________________ Company:________________________________

Address:________________________________ Phone:________________________________

Prior to issuing the Notice of Termination, the Owner/Operator must ensure one of the following permit requirements be met:		
Item	Yes	No
Projects in which Stormwater Management Practices will be owned & operated by the Municipality:		
Post construction Operations & Maintenance Plan established?		
Stormwater management parcels deeded to the Municipality?		
Are the R.O.W. and easements needed for access to the practices recorded?		
Projects in which Stormwater Management Practices will be maintained by the Municipality & owned by an HOA:		
Has a maintenance agreement been executed with the Municipality that will maintain the practices?		
If privately owned & maintained, has a deed restriction been established that requires operation & maintenance in accordance with the Operations & Maintenance Plan?		
If owned by a public/private institution or government agency, are there policies and procedures to ensure operation and maintenance in accordance with the Operations & Maintenance Plan?		

Owner/Operator/Authorized Representative:

Name:________________________________ Title:________________________________

Signature:________________________________ Company:________________________________

Address:________________________________ Phone:________________________________

APPENDIX M

NOTICE OF TERMINATION (NOT)

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

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

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

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

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

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

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

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

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

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

____

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

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

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

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

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

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

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

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

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

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

V. Additional Information/Explanation:

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

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

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

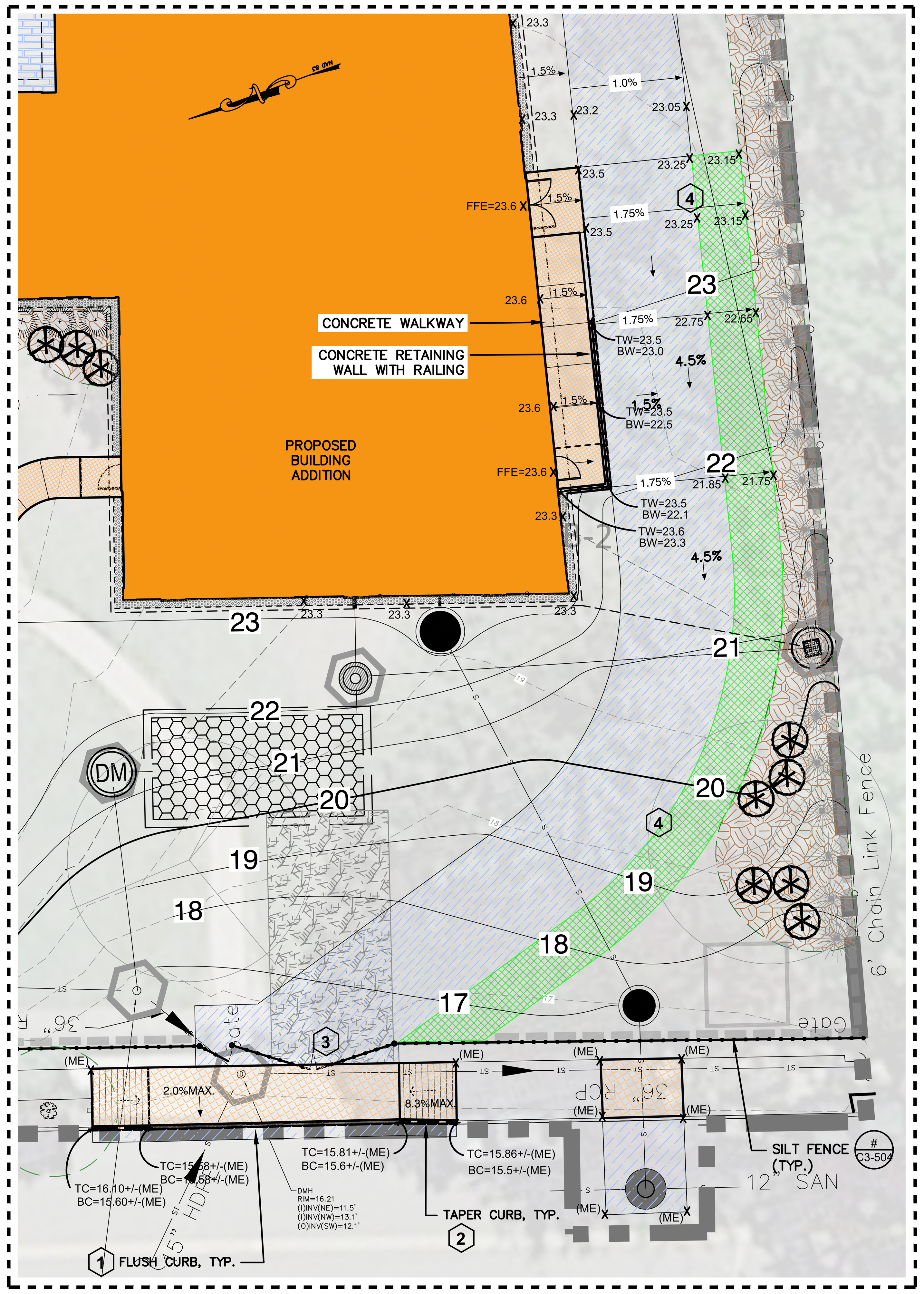
Printed Name:	
Title/Position:	
Signature:	Date:

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

VII. Qualified Inspector Certification - Final Stabilization:	
I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:

APPENDIX N

SOIL EROSION & SEDIMENT CONTROL PLANS



2 GRADING ENLARGEMENT

SCALE: BAR SCALE

SCALE: 1" = 10'-0"

1. PROVIDE FLUSH CURB FOR HANDICAPP ACCESSIBITY & MAINTENANCE VEHICLES.
2. PROVIDE CONCRETE TAPER CURB TO TRANSITION FROM FLUSH CURB TO STANDARD CURB (MATCH EXISTING).
3. PROVIDE SMOOTH TRANSITION IN LINE AND GRADE FROM CONCRETE SIDEWALK TO ASPHALT DRIVE.
4. ENSURE FLUSH (SMOOTH) TRANSITION FROM ASPHALT DRIVE TO GRASSPAVER ALONG ENTIRE LENGTH, TYP.
5. PROTECT EXISTING TREES TO REMAIN (AND THEIR CRITICAL ROOT ZONE) BY NOT DISTURBING GRADES, OPERATING EQUIPMENT, OR STORING MATERIALS WITHIN LIMITS.
6. PROVIDE ALL REQUIRED EROSION CONTROL MEASURES / PROTECT ALL STORM INLETS FROM SEDIMENT DEPOSITION DURING CONSTRUCTION, AS SHOWN ON GRADING & EROSION & SEDIMENT CONTROL PLAN.
7. ALL DISTURBED AREAS, NOT OTHERWISE TREATED, SHALL BE TOPSOILED, FINE GRADED AND SEEDED WITH AN ACCEPTABLE PERENNIAL GRASS MIXTURE.

1 GRADING AND EROSION SEDIMENT CONTROL PLAN

SCALE: BAR SCALE

SCALE: 1" = 20'-0"

GENERAL NOTES:

1. ANY REFERENCE MADE TO THE CONTRACTOR ON THE CIVIL DRAWINGS IS REFERRING TO THE SITE CONTRACTOR, UNLESS OTHERWISE NOTED. THIS IS TYPICAL FOR ALL CIVIL DRAWINGS.
2. PRIOR TO COMMENCING ANY EXCAVATION WORK, THE CONTRACTOR SHALL CONTACT DIG SAFE (1–800–962–7962) TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES AND SHALL NOTIFY APPROPRIATE GOVERNING BODIES PRIOR TO EXCAVATION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE INSIDE AND OUTSIDE THE LIMIT OF WORK DUE TO HIS/HER CONTRACT OPERATIONS.
4. ALL REFUSE, DEBRIS AND MISC.. ITEMS TO BE REMOVED SHALL BE LEGALLY DISPOSED OF OFF–SITE BY THE CONTRACTOR.
5. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING CONSTRUCTION.
6. ALL ITEMS REQUIRING REMOVAL SHALL BE REMOVED TO FULL DEPTH, INCLUDING BASE MATERIAL AND FOOTINGS OR FOUNDATIONS AS APPLICABLE. REMOVE TREE ROOTS TO A MINIMUM 24" DEPTH BELOW FINISHED GRADE, AND LEGALLY DISPOSE OF OFF–SITE.
7. ALL EXISTING TREES AND SHRUBS TO REMAIN SHALL BE PROTECTED THROUGHOUT THE TIME OF CONSTRUCTION, AS SPECIFIED AND/OR DIRECTED BY THE ARCHITECT/ENGINEER.
8. EXTEND THE DESIGNATED LIMIT OF WORK AS NECESSARY (AND ACCEPTABLE TO THE OWNER/ENGINEER) TO ACCOMPLISH ROUGH GRADING, TREE PROTECTION, AND SITE UTILITY WORK AS REQUIRED BY THE CONTRACT DRAWINGS AND SPECIFICATIONS.
9. ALL EXISTING GRADES BELOW FINISHED ELEVATIONS SHALL BE STRIPPED OF ALL ORGANIC TOPSOIL, CLEARED AND GRUBBED.
10. ALL UNSUITABLE MATERIAL, AS SPECIFIED, SHALL BE REMOVED FROM THE ENTIRE SITE.
11. THE CONTRACTOR SHALL NOT DISRUPT EXISTING UTILITIES WITHOUT WRITTEN AUTHORIZATION FROM THE OWNER. THE CONTRACTOR SHALL PROVIDE TEMPORARY MEANS OF CONVEYANCE FOR ALL DISRUPTED UTILITIES, ACCEPTABLE AND APPROVED BY THE ENGINEER, UNTIL SUCH A TIME THAT THE NEW SYSTEMS ARE IN SERVICE AND OPERATIONAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN LOCAL AUTHORITIES, AS REQUIRED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND INVERT INFORMATION OF ALL EXISTING UTILITIES WITHIN THE WORK AREA AND IMMEDIATE ADJACENT AREAS UP TO THE NEXT SIGNIFICANT STRUCTURE OR OBJECT PRIOR TO CONSTRUCTION, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DEVIATIONS OR ADDITIONAL INFORMATION FROM THE SURVEY SO ADJUSTMENTS CAN BE MADE AS REQUIRED. FAILURE TO DO SO SHALL BE AT THE CONTRACTORS RISK AND COST.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EXISTING GRADES IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK. FIELD VERIFICATIONS SHALL BE PERFORMED THROUGHOUT ALL AREAS OF NEW CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, PAVEMENT, WALKS, CURBS, LAWNS, BUILDING FINISHED FLOORS, ETC... THIS FIELD VERIFICATION IS IMPERATIVE TO ENSURE THAT THERE ARE NO DISCREPANCIES BETWEEN THE SITE SURVEY AND WHAT HAS BEEN VERIFIED. IF DISCREPANCIES DO EXIST, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER IMMEDIATELY, PRIOR TO ANY CONSTRUCTION, SO NECESSARY ADJUSTMENTS AND/OR MODIFICATIONS CAN BE MADE TO ACCOMMODATE THESE DISCREPANCIES. FAILURE TO VERIFY THE GRADES PRIOR TO CONSTRUCTION, THAT MAY LEAD TO PROBLEMS LATER, SHALL BE AT THE RISK AND COST OF THE CONTRACTOR.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL AREAS DISTURBED AND/OR DAMAGED FROM CONSTRUCTION ACTIVITIES INCLUDING BUT NOT LIMITED TO, LAWNS, WALKS, PAVEMENTS, ETC.... IT IS RECOMMENDED THAT THE CONTRACTOR TAKE PHOTO LOGS OF ALL EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION FOR HIS/HER RECORDS.

Revision Schedule

No.	Description	Date

Geddis Architects

Architecture. Planning. Interiors

71 Old Post Road
P.O. Box 1020
Southport, CT 06890
(203) 256-8700

Fielding International

Transforming Education by Design

259 Water Street Suite 1L
Warren , RI 02885 USA
+1 401-289-2789

Construction Manager
SAVIN ENGINEERS, P.C.
3 Campus Drive
Pleasantville, NY 10570
914-769-3200

Structural Engineer
ODEH ENGINEERS
1223 Mineral Spring Ave
North Providence, RI 02904
401-724-1771

Civil Engineer
WESTON & SAMPSON
1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

MEP Engineer
BARILE GALLAGHER & ASSOCIATES
CONSULTING ENGINEERS
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776-3027
978-443-7871

SED #: 6618-0001-0003-026

PROJECT

Rye City School District

555 Theodore Fremd Ave, Rye, NY 10580

Midland Elementary School

312 Midland Avenue, Rye, New York 10580

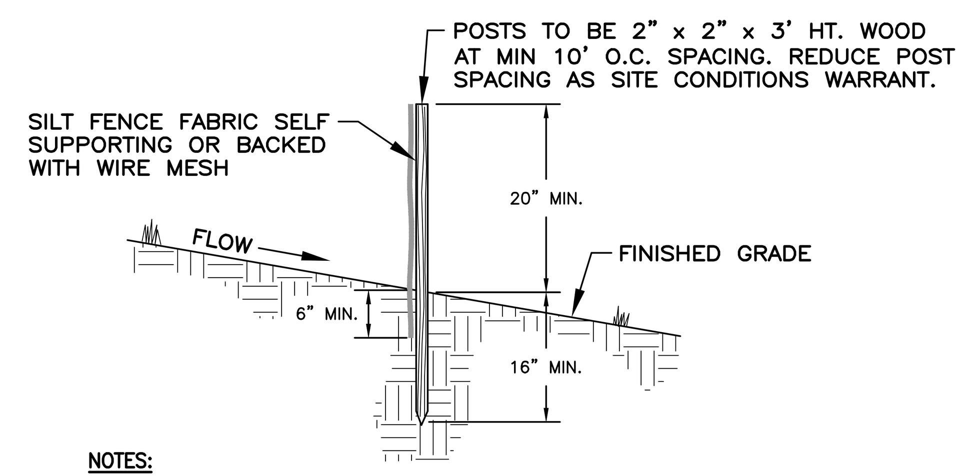
GRADING AND EROSION AND SEDIMENT CONTROL PLAN

ISSUED FOR BID

SEAL & SIGNATURE

STATE OF NEW YORK · JEFFERY FRASER BUDROW · LICENSED PROFESSIONAL ENGINEER · 063680 · EXCELSIOR

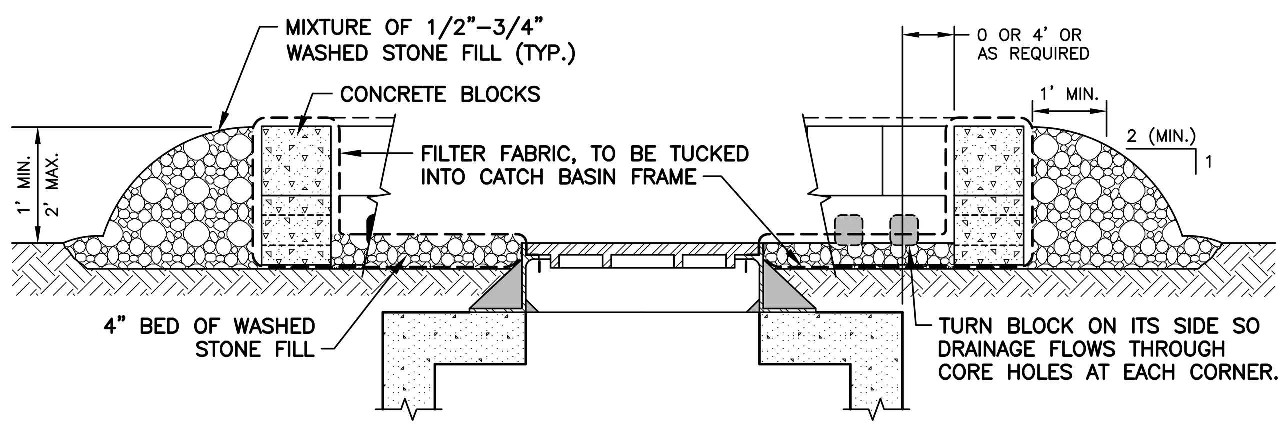
DATE:	08/09/20
PROJECT No:	
DRAWING BY:	KSK
CHK BY:	JFB
DWG No:	C3-102



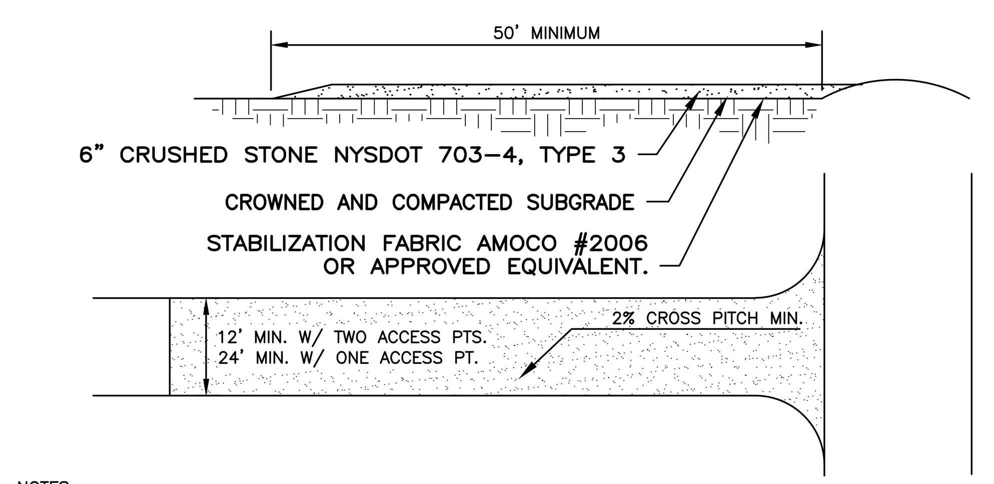
NOTES:

1. SILT FENCE FABRIC SHALL BE FIRMLY ATTACHED TO POSTS USING WIRE TIES OR STAPLES.
2. EMBED FILTER CLOTH A MINIMUM OF 6" BELOW FINISHED GRADE.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED A MINIMUM OF SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED WHEN BULGES OF MATERIAL DEVELOP IN FENCES.

1 **SILT FENCE DETAIL**
SCALE: N.T.S.



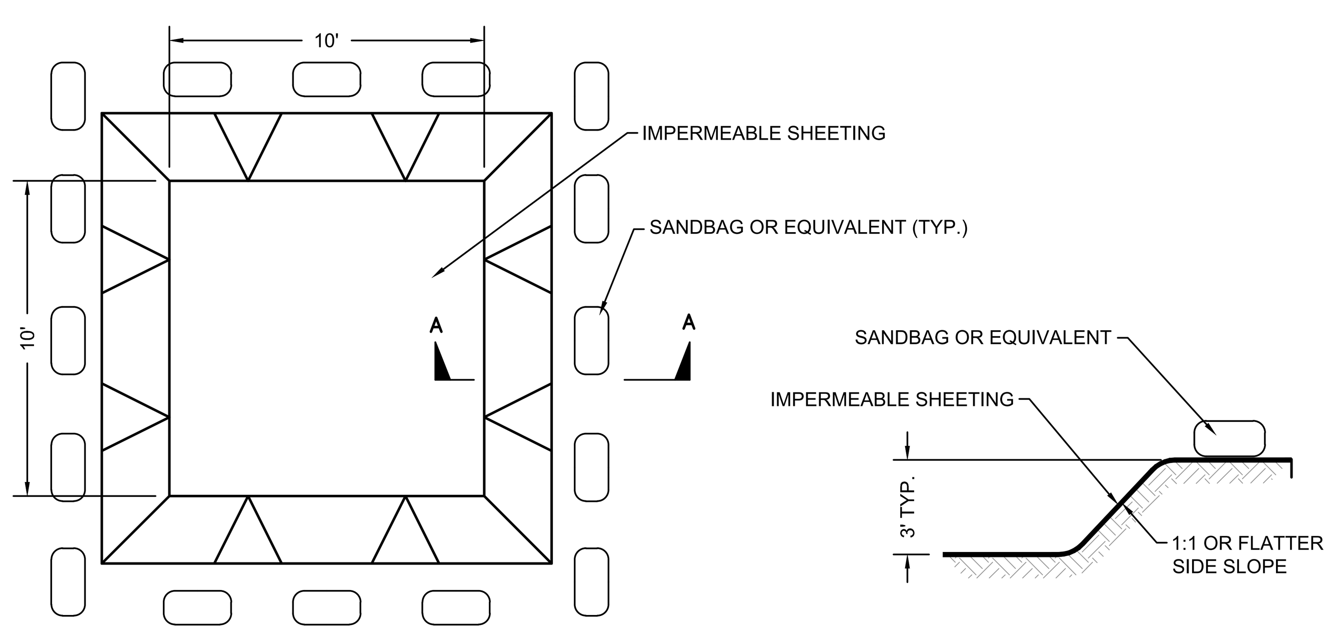
2 **STONE AND BLOCK DROP INLET PROTECTION AT CATCH BASIN**
SCALE: N.T.S.



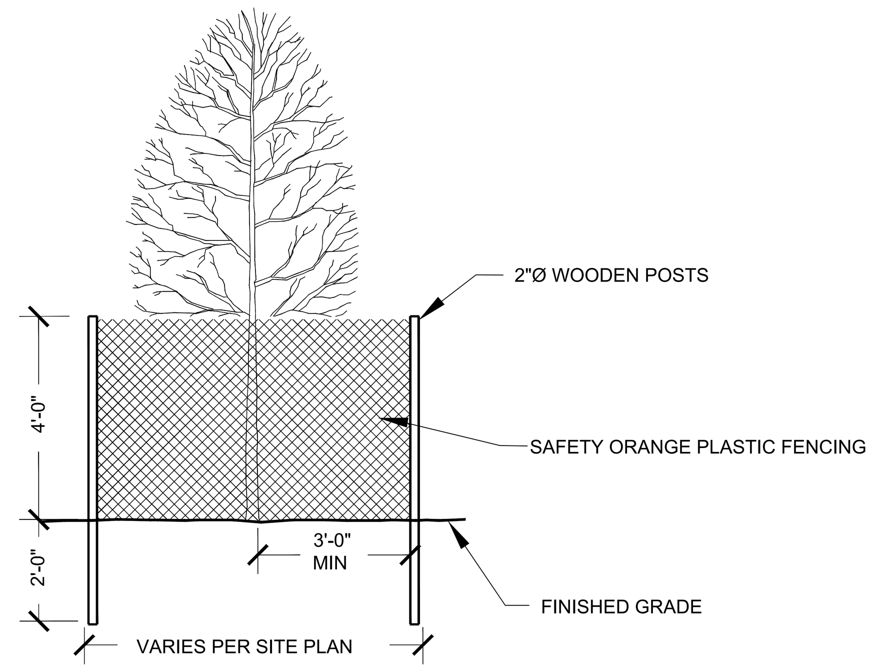
NOTES:

1. STABILIZATION FABRIC SHALL BE PLACED OVER THE ENTIRE ENTRANCE AREA PRIOR TO PLACING OF STONE. OVERLAP FABRIC PER MANUFACTURER'S SPECIFICATIONS.
2. ALL SURFACE WATER FLOWING OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE ROAD.
3. WHEN EQUIPMENT WASHING IS REQUIRED IT SHALL BE DONE ON A SEPARATE AREA ADJACENT TO THE ENTRANCE ROAD AND STABILIZED WITH STONE. EQUIPMENT WASHING WILL BE REQUIRED IF ROAD RECEIVES SIGNIFICANT SOILS OR DEBRIS ACCORDING TO JUDGMENT BY OWNER OR OWNER'S REPRESENTATIVE.
4. KEEP ROADS CLEAR OF STONES, MUD, AND OTHER CONSTRUCTION DEBRIS. CLEAN PAVEMENT AS ACCUMULATIONS WARRANT AND AS ORDERED BY ENGINEER.
5. REMOVE SILT ACCUMULATIONS ROUTINELY AND DISPOSE OF PROPERLY SUCH THAT WATER QUALITY IS NOT IMPAIRED. DO NOT INTRODUCE SILT INTO DRAINAGE SYSTEM OR TOPSOIL/RESTORATION AREAS.

3 **CONSTRUCTION ENTRANCE**
SCALE: N.T.S.



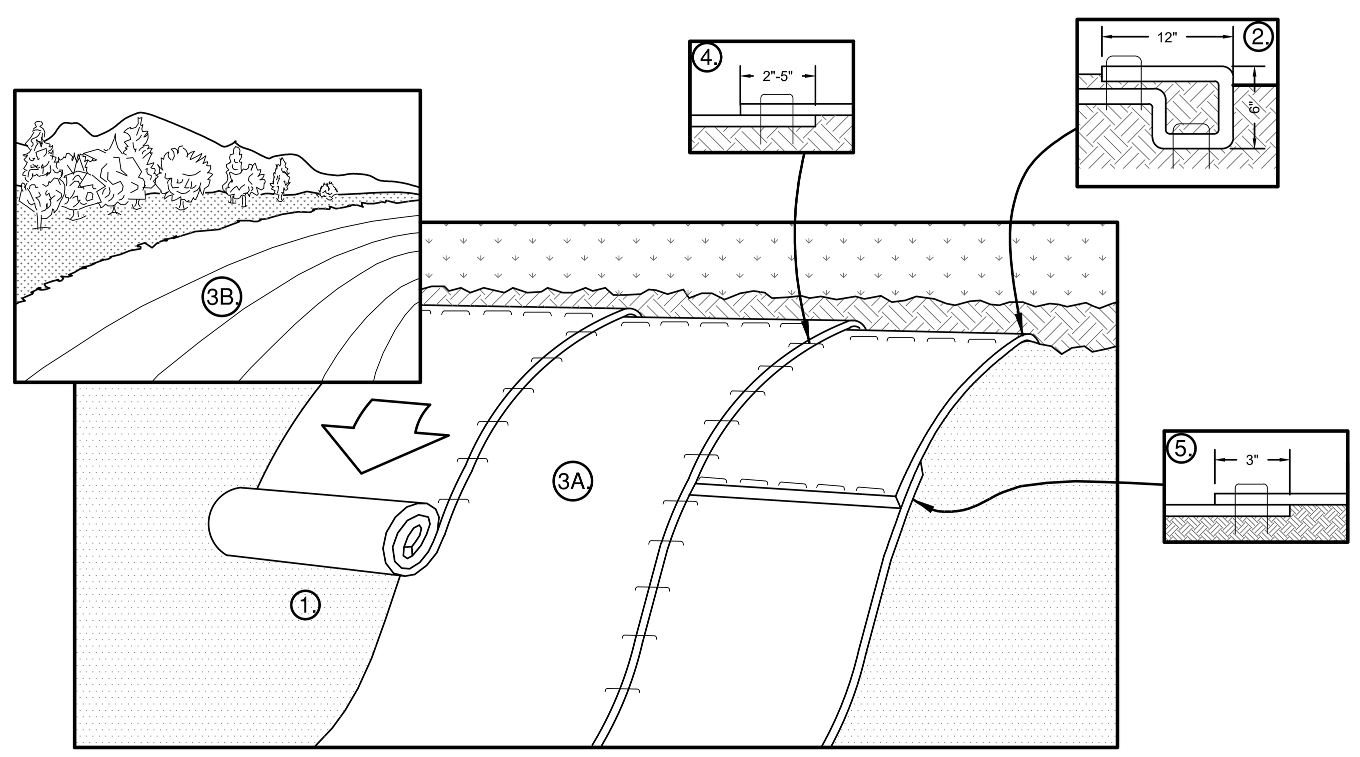
4 **CONCRETE WASHOUT AREA**
SCALE: N.T.S.



NOTES:

1. OUTSIDE EDGE OF GUARD SHOULD BE PLACED AT DRIPLINE. GUARDS MAY BE PLACED AROUND SINGLE TREES OR GROUPS OF TREES.

5 **TREE PROTECTION FENCING**
SCALE: N.T.S.



NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED. WHEN USING CELL-O-SEED, DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP'S.
3. ROLL THE RECP'S DOWN (A) OR HORIZONTALLY (B) ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECP'S SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS THE ENTIRE RECP'S TYPE. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE STAKES LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

6 **SLOPE STABILIZATION MATTING**
SCALE: N.T.S.

GENERAL MAINTENANCE PLAN:

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF PRODUCING RAINFALL, BUT IN NO CASE LESS THAN ONCE EVERY WEEK, IN ACCORDANCE WITH THE SWPPP AND NYSDEC SPDES GENERAL PERMIT No. GP-0-15-002. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT WILL BE REMOVED FROM BEHIND STRAW BALE DIKES AND BEHIND SILT FENCES WHEN IT BECOMES 6" DEEP AT THE DIKE/FENCE OR WHEN ACCUMULATIONS HAVE ADVERSELY AFFECTED IT'S FUNCTION. STRAW BALE DIKES AND SILT FENCES WILL BE REPAIRED BY REMOVING SILT AND SEDIMENTS AND THEN TAMPING LOOSE SOIL ALONG BASE, REPLACING DAMAGED OR WEAKENED POSTS AND STAKES, OR AS NECESSARY TO MAINTAIN A BARRIER.
3. SEDIMENT WILL BE REMOVED AND FILTER DEVICES CLEANED OR REPLACED AT CATCH BASINS WHEN THE SEDIMENT POOL NO LONGER DRAINS FREELY. SEDIMENT ACCUMULATIONS WITHIN DRAINAGE STRUCTURES AND PIPING SHALL BE CLEANED OUT AT THE PROJECT COMPLETION AND AS ORDERED BY ENGINEER WHEN DETERMINED THAT PRE-COMPLETION INSTALLATIONS NO LONGER FUNCTION PROPERLY DUE TO SEDIMENT OR DEBRIS. EVENTUAL SYSTEM CLEANING IS NOT AN EXCUSE TO NOT IMPLEMENT APPROPRIATE CONTROLS UPSTREAM. THE ENGINEER SHALL BE THE FINAL JUDGE REGARDING WHETHER THE PIPING SYSTEM REQUIRES CLEANING. THE CONTRACTOR CAN MINIMIZE THE NECESSITY OF EXTENSIVE SILT AND SEDIMENT ACCUMULATION REMOVALS BY EFFECTIVE IMPLEMENTATION OF THE SWPPP.
4. ALL DISTURBED AREAS WILL BE FERTILIZED, SEEDED AND MULCHED ACCORDING TO LANDSCAPE RESTORATION SPECIFICATIONS TO MAINTAIN VIGOROUS, DENSE VEGETATION. REPAIR ANY ERODED SLOPES, REAPPLY TOPSOIL, RESEED AND STABILIZE REPAIR AREA AS REQUIRED FOR PERMANENT OR TEMPORARY MEANS. REPAIR SOIL AREAS DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT.
5. IMMEDIATELY REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION EQUIPMENT, MAINTENANCE OR OTHER ACTIVITY TO ANY EROSION CONTROL MEASURE, OR BEST MANAGEMENT PRACTICE OR DEVICE.
6. THE PRIME CONTRACTOR(S) ARE RESPONSIBLE FOR THE PERFORMANCE AND COMPLIANCE OF THEIR SUB-CONTRACTOR'S ACTIVITIES RELATING TO THE SWPPP. THEY SHALL MAKE FREQUENT INSPECTIONS OF THEIR WORK AND COORDINATE APPROPRIATE INSTALLATION AND MAINTENANCE OF EROSION CONTROL AND WATER QUALITY DEVICES.
7. EMPLOY POLLUTION PREVENTION MEASURES TO CONTROL LITTER, CONSTRUCTION CHEMICALS, SEDIMENT AND CONSTRUCTION DEBRIS INCLUDING, BUT NOT LIMITED, TO THE FOLLOWING: SALVAGE AND REUSE OF MATERIALS, MINIMIZING PACKAGING WASTE, RECYCLING, PROPER DISPOSAL AT FREQUENT INTERVALS IN ACCORDANCE WITH PREVAILING LAWS, ONSITE INSTRUCTION REGARDING APPROPRIATE SEPARATION/HANDLING/RECYCLING, PERIODIC DEBRIS REMOVAL AT DRAINAGE STRUCTURES (GRATES AND SUMPS)/SEDIMENT TRAPS/ FOREBAY AND OTHER BMP'S, PROPER MAINTENANCE OF SEDIMENT/ EROSION CONTROL SYSTEMS, ROUTINE AND EVENT RELATED INSPECTIONS OF DRAINAGE AND BMP SYSTEMS PER PERMIT REQUIREMENTS, PROVIDE APPROPRIATE SANITARY FACILITIES FOR ONSITE PERSONNEL, PICK UP TRASH AND DEBRIS FREQUENTLY AND USE WATER MIST, CALCIUM CHLORIDE OR OTHER LEGAL MEANS TO LIMIT THE SPREAD OF DUST AND SOIL PARTICLES.

SWPPP
(STORMWATER POLLUTION PREVENTION PLAN)

- [x] HAS BEEN DETERMINED TO BE REQUIRED BASED ON SCOPE OF PROJECT. SWPPP REQUIRES DOCUMENTS FROM CONSTRUCTION TEAM.
- [ ] HAS BEEN DETERMINED NOT TO BE REQUIRED BASED ON SCOPE OF PROJECT.
- REFER TO REQUIREMENTS LISTED ON THIS SHEET AND SPECIFICATION SECTION 01560 ENCLOSED IN THE SWPPP. IF SCOPE OF PROJECT CHANGES, THE REQUIREMENT FOR A SWPPP AND NYSDEC PERMITTING MAY REQUIRE RE-EVALUATION.

THE SWPPP HAS BEEN COMPLETED AND THE CONTRACTOR CAN OBTAIN AN ELECTRONIC COPY OF THE OWNERS SWPPP PLAN UPON REQUEST.

SUGGESTED EROSION CONTROL CONSTRUCTION SCHEDULE:

1. FLAG THE GRADING LIMITS AND MARK A 10' BUFFER AREA BEYOND THE GRADING LIMITS FOR PROTECTION.
2. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AT APPROXIMATE LOCATION OF DRIVEWAY IF DRIVEWAY STONE HAS NOT YET BEEN PLACED.
3. INSTALL PROTECTIVE MEASURES AROUND TREES TO BE RETAINED WITHIN GRADING LIMITS.
4. INSTALL BRIGHTLY COLORED CONSTRUCTION FENCE ALONG ROAD TO LIMIT VEHICULAR ACCESS TO STONE DRIVEWAY OR CONSTRUCTION ACCESS DRIVE.
5. INSTALL INLET PROTECTION DEVICES AT CATCH BASINS DOWN SLOPE FROM THE SITE THAT ARE VULNERABLE TO SEDIMENT ACCUMULATIONS.
6. COMPLETE SITE CLEARING, STOCKPILE SAVED MATERIALS IN DESIGNATED AREAS.
7. INSTALL SILT FENCES IN LOCATIONS AROUND THE PERIMETER OF SITE WORK, STOCKPILE AREA AND ALONG THE CONTOUR OF ALL DISTURBED SLOPES AT A MINIMUM OF EVERY 50' OF HORIZONTAL DISTANCE OR AS SPECIFIED, MEASURED PERPENDICULAR TO THE SLOPE.
8. ROUGH GRADE SWALES AROUND PROPOSED EARTHWORK AND STRUCTURES TO EXTENT POSSIBLE WITHIN GRADING LIMITS, INSTALL SILT FENCES, STRAW BALE DIKES, DIVERSION SWALES AND OTHER EROSION CONTROL MEASURES AS SHOWN ON PLANS, AND AS NECESSARY TO COMPLY WITH THE SWPPP AND ENSURE WATER QUALITY OF RUNOFF.
9. CONTRACTOR MUST ROUTINELY INSPECT AND MAINTAIN EROSION CONTROL DEVICES AND BEST MANAGEMENT PRACTICES (BMP'S). DOCUMENT WEEKLY INSPECTIONS IN SEPARATE CONTRACTOR'S LOG.
10. ROUTE ALL DEWATERING AND SUMP PUMP OUTFALLS, OF TURBID QUALITY, DIRECTLY TO SEDIMENT BASINS OR OTHER APPROPRIATE BMP.
11. 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 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 OF THE GENERAL PERMIT, 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.
12. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION IS ATTAINED. REMOVAL OF ANY EROSION CONTROL MEASURES MUST FIRST BE APPROVED BY THE ENGINEER AND/OR THE JURISDICTION HAVING AUTHORITY.
13. WHEN WEATHER CONDITIONS PROHIBIT SEED GERMINATION, DISTURBED GROUND SHOULD BE MULCHED WITH STRAW OR FIBER MULCH AND RECEIVE A BINDER/TACK APPLICATION OR EQUIVALENT.
14. THE SCHEDULE DESCRIPTIONS ABOVE ARE SUGGESTIONS PROVIDED TO ASSIST THE CONTRACTOR(S) IN DEVELOPING THEIR STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SCHEDULE SPECIFIC TO THIS PROJECT. THE OWNER SHALL PROVIDE A CERTIFIED SWPPP INSPECTOR DURING ALL PHASES OF CONSTRUCTION. THE EROSION AND SEDIMENT CONTROL PLAN AND DEVICES SHOWN ARE CONSIDERED TO COMPRISE THE MAJORITY OF EFFORTS NEEDED, BUT NOT NECESSARILY ALL THAT WILL BE REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE TO IMPLEMENT ALL MEASURES AND EFFORTS NEEDED. WEATHER, SITE AND UNFORESEEN CONDITIONS CAN DICTATE THAT GREATER EFFORTS WILL BE NECESSARY BY THE CONTRACTOR. IN THE CASE OF PROJECTS THAT DISTURB MORE THAN 1 ACRE OF LAND, THE OWNER, OR OWNER'S REPRESENTATIVE, WILL DEVELOP THE SWPPP WITH SUBMITTED CONTRIBUTIONS FROM THE ASSIGNED CONTRACTORS PERFORMING PROJECT SITE WORK. THESE CONTRIBUTIONS WILL CONSIST OF AN EROSION AND CONTROL SCHEDULE (AS SPECIFIED IN THE PROJECT MANUAL), SHORT NARRATIVE OF ANTICIPATED EROSION CONTROL ACTIVITIES, INSPECTION REPORTS AND LOGS AND SIGNED CERTIFICATION STATEMENTS AND PRE-CONSTRUCTION PHOTOGRAPHS AS SPECIFIED. THIS COMPETENT PERSON SHALL BE EITHER A LICENSED ENGINEER, LANDSCAPE ARCHITECT OR CERTIFIED EROSION CONTROL SPECIALIST.

PROTECTION OF TREES:

PROTECT EXISTING TREES WHICH ARE TO REMAIN AND WHICH MAY BE INJURED, BRUISED, DEFACED, OR OTHERWISE DAMAGED BY CONSTRUCTION OPERATIONS, UTILIZING STANDARD TREE PROTECTION CRITERIA INCLUDING:

1. INSTALLATION OF SAFETY ORANGE PLASTIC FENCING (MINIMUM 4' IN HEIGHT) AROUND INDIVIDUAL TREES DESIGNATED FOR PROTECTION. FENCING SHALL BE INSTALLED AT THE OUTWARD LIMIT OF THE TREE'S DRIPLINE OR EXTENT OF CANOPY COVER.
2. INSTALLATION OF SAFETY ORANGE PLASTIC FENCING (MINIMUM 4' IN HEIGHT) AROUND GROUPS OF TREES DESIGNATED FOR PROTECTION.
3. TREE AND/OR SHRUB BRANCHES IN THE WAY OF EQUIPMENT SHALL BE TRIMMED ACCORDING TO PROFESSIONAL HORTICULTURAL STANDARDS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR AND SUB-CONTRACTORS USE EQUIPMENT TO DEMOLISH BRANCHES AS WORK PROCEEDS.

REQUIRED FENCING SHALL BE INSTALLED PRIOR TO THE INITIATION OF LAND DISTURBING ACTIVITIES AND SHALL BE REMOVED AT THE CONCLUSION OF CONSTRUCTION. REMOVE DISPLACED ROCKS FROM UNCLEARED AREAS. BY APPROVED EXCAVATION, REMOVE TREES WITH 30 PERCENT OR MORE OF THEIR ROOT SYSTEMS DESTROYED. REMOVAL OF TREES AND THE PROCEDURE FOR REMOVAL REQUIRES APPROVAL OF THE OWNER OR LANDSCAPE ARCHITECT. TREES DESIGNATED FOR REMOVAL SHALL BE REMOVED IN A MANNER THAT WILL NOT IMPACT ADJACENT TREES.

LANDSCAPE REPLACEMENT:

REMOVE TREES AND OTHER LANDSCAPE FEATURES SCARRED OR DAMAGED BY EQUIPMENT OPERATIONS, AND REPLACE WITH EQUIVALENT, UNDAMAGED TREES AND LANDSCAPE FEATURES. OBTAIN OWNER'S OR LANDSCAPE ARCHITECT'S APPROVAL BEFORE REPLACEMENT. REPLACEMENT OF TREES SHALL OCCUR ON A ONE-TO-ONE BASIS, UNLESS OTHERWISE NOTED.

Revision Schedule

No.	Description	Date
A	BID SUBMISSION	8/9/21

Geddis Architects
Architecture. Planning. Interiors
71 Old Post Road
P.O. Box 1020
Southport, CT 06890
(203) 256-8700

Fielding International
Transforming Education by Design
259 Water Street Suite 1L
Warren , RI 02885 USA
+1 401-289-2789

Construction Manager
SAVIN ENGINEERS, P.C.
3 Campus Drive
Pleasantville, NY 10570
914-769-3200

Structural Engineer
ODEH ENGINEERS
1223 Mineral Spring Ave
North Providence, RI 02904
401-724-1771

Civil Engineer
WESTON & SAMPSON
1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

MEP Engineer
BARILE GALLAGHER & ASSOCIATES
CONSULTING ENGINEERS
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776-3027
978-443-7871

SED #: 6618-0001-0003-026

PROJECT
Rye City School District
555 Theodore Fremd Ave, Rye, NY 10580

Midland Elementary School

312 Midland Avenue, Rye, New York 10580

CONSTRUCTION DETAILS

BID SUBMISSION

SEAL & SIGNATURE	DATE: 05/29/20
	PROJECT No: XXXX
	DRAWING BY: KSK
	CHK BY: JFB
	DWG No: C3-505

APPENDIX O

OPERATION & MAINTENACE FORMS AND INFORMATION

Stormwater System Inspection Checklist

Site: ______________________________

Inspector: ______________________________

Company: ______________________________

Component	Condition	Comments	Action	Date
Catch Basins				
CB-1				
CB-2				
CB-3				
CB-4				
CB-5				
Stormwater Hydrodynamic Separator				
HS-1				
Underground Stormwater Management Gallery				
SW-1				
Diversion Manhole / Outlet Control				
DM-1				
Connection to existing storm sewer system				
CBX 1				

APPENDIX P

OPERATION & MAINTENACE MANUAL

Weston & Sampson

westonandsampson.com

1 Winners Circle, Suite 130
Albany, NY 12205
tel: 518.463.4400

REPORT

August 2021

Rye City School District

Midland Elementary School Improvements

SWPPP Operation & Maintenance Manual

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1.0 INTRODUCTION

This long-term Stormwater Management System Operations and Maintenance (O&M) Plan, shall be implemented at the Midland Elementary School at 312 Midland Ave Rye, NY 10580 to ensure that the stormwater management systems function as designed. The Owner possesses the primary responsibility for overseeing and implementing the O&M Plan and assigning the appropriate staff who will be responsible for the proper operation and maintenance of the stormwater structures. This manual identifies the key components of the stormwater system and a log for tracking inspections and maintenance. The stormwater management system protects and enhances the stormwater runoff water quality through the removal of sediment and pollutants. Preventive maintenance of the system will include a comprehensive source reduction program of regular vacuuming and litter removal.

2.0 RESPONSIBILITY

The purpose of the O&M Plan is to ensure inspection of the system, removal of accumulated sediments and debris, and implementation of corrective action and record keeping activities. The ongoing responsibility is of the Owner, its successors and assignees. Adequate maintenance is defined in this document as good working condition. Contact information is provided below:

Contact Information:

Robert Gimigliano
555 Theodore Frmed Avenue
Rye, NY 10580

3.0 DOCUMENTATION

An Inspection and Maintenance Record Log shall be retained by the Owner summarizing inspections, maintenance, repairs and any corrective actions taken. The log shall include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Inspection & Maintenance Logs shall be kept on file at the Rye City School District Facilities Office.

4.0 OPERATION AND MAINTENANCE PLAN

The O&M Plan presents the operation and maintenance required for the installed stormwater system and provides guidelines for when the stormwater system should be cleaned and associated recordkeeping. Please note, this system is a passive system. Manual operation of the system is not required for any of its components during normal use. The site includes the following components:

- Storm Drain Piping
- Catch Basins
- Subsurface Stormwater Infiltration System
- Hydrodynamic Separators

Additional information is also provided in the attached appendices including as-built information for this project.

The maintenance staff of Rye City School District will be responsible for the operation and maintenance of the above stormwater structures. Checklists shall be utilized during the inspection and cleaning process and kept on file in the corporation’s office.

4.1 Storm Drain Piping

Storm drain pipe are typically underground structures that connect drainage structures such as catch basins and storm manholes. The pipes range from 4-inches to 5-feet in diameter and are typically made of HDPE, PVC, reinforced concrete, ductile iron, corrugated metal, or cast iron.

Maintenance Requirements

- Storm drainage piping should be inspected quarterly and cleaned as necessary.
- Remove any sediment or debris buildup in the collection pipe by hand or hydraulic jet. Pipes can be accessed from the downstream catch basin for hydraulic jetting.
- Sediment and hydrocarbons should be properly handled and disposed of off-site, in accordance with local, state, federal guidelines, and regulations.
- Pipe outlets should be cleaned away from the stormwater basins to prevent discharge of sediment into the basin.

4.2 Catch Basins

Catch Basins are point source stormwater collection structures that allow the stormwater to enter the subsurface collection system. The catch basins are typically made of precast concrete with exposed removable cast iron grates. The catch basins have one-foot sumps for grit and sediment collection that must be cleaned periodically. To access the catch basin sump, the cast iron grate may be removed with a manhole cover puller, pick or magnetic manhole removal device.

Maintenance Requirements

- Sediment removal is required when sediment depths within the sump of the catch basin exceed 75% (9-inches) of capacity.
- Removal of sediment and debris can be achieved by shoveling by hand or use of a vacuum truck.

4.3 Subsurface Stormwater Infiltration System

Subsurface Stormwater Infiltration Systems collect, retain, and infiltrate stormwater in subsurface, gravel encapsulated, structural PVC modules. The modules are connected with a PVC pipe header system.

Maintenance Requirements (Routine): This maintenance is to be completed monthly in the first year and annually every spring and fall thereafter.

- Sediment buildup should inspected routinely, if possible, through an inspection port, access manhole, or upstream catch basin.
- The owner shall keep a maintenance log which documents any events which may affect the system's operational capacity.
- If possible, inlets and outlets should be checked for clogging and any debris found shall be removed properly disposed in accordance with applicable laws and regulations.

Maintenance Requirements (Major): Every five years, inspect the infiltration chambers shall be inspected using Closed Circuit Television (CCTV) or comparable technique to document that the feeder connections and management chambers are functioning properly. The frequency of the inspections may be adjusted based on prior inspection experience after commissioning.

- After 45 to 50 years after commissioning, determine the remaining life expectancy and replace or restore the stormwater management chambers as required.

4.4 Hydrodynamic Separators

A hydrodynamic separator is a pretreatment structure that separates sediment, floatables, and oils (typically present from normal automotive use on paved surfaces) from the collected stormwater to prevent accumulation in the subsurface stormwater infiltrator chambers. As sediment, floatables, and oils collect in the hydrodynamic separator over time, the system should be cleaned out every six months. The hydrodynamic separator consists of a precast concrete manhole with an internal HDPE conical vortex tray and sediment holding tank. To access the hydrodynamic separator sediment trap, remove the center cast iron cover with a manhole pick or magnetic manhole removal device. To remove the oils and floatables, remove the outer cast iron cover with a manhole pick or magnetic manhole removal device.

Maintenance Requirements

- Inspect hydrodynamic separator every six months and cleanout as necessary.

APPENDIX Q

GEOTECHNICAL REPORT

FINAL REPORT

GEOTECHNICAL INVESTIGATION AND FOUNDATION RECOMMENDATIONS

MIDLAND ELEMENTARY SCHOOL
312 MIDLAND AVENUE,
RYE, NY

Prepared for:

Ms. Gabrielle O'Connor
Asst. Superintendent for Business
Rye City School District
555 Theodore Fremd Ave, Suite B 101
Rye, NY 10580

May 7, 2020

Prepared By:

Geotechnical Engineering Services, P.C.
6 Bayberry Road
Elmsford, New York 10523

STATE OF NEW YORK
ZIAD H. MAAD
080833
LICENSED PROFESSIONAL ENGINEER

MAY 08.2020

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1.1 GENERAL

As described by our geotechnical proposal, dated March 17, 2020, this report presents the results of a subsurface investigation and geotechnical recommendations for the proposed construction at Midland Elementary School, in Rye, New York. The objectives for this investigation were to determine the in-situ subsurface conditions at the site, as well as provide foundation design and construction-related recommendations for the proposed one-to-two-story addition.

1.2 PROJECT LOCATION, DESCRIPTION, GEOLOGY AND SITE HISTORY

The proposed one-to-two story addition is located at the southern end of the existing one-story Midland Elementary School at 312 Midland Avenue (County Route 72) in Rye, New York. The proposed footprint of the addition is currently occupied by an asphalt play area at the north end and lawn for the remainder of the proposed footprint. The proposed addition is bordered by lawn and Midland Avenue further to the west, the existing Midland Elementary School to the north, a children's playground and modular classrooms to the east, a two-story single-family residence and rear yards at 1 Platt Lane to the south. According to the proposed boring location plan provided to us, it appears that the proposed square footage of the new addition is about 7,072-square-feet in footprint area. No new cellar levels are planned at this time. No New York City Transit Authority (TA) rail lines are within 200 feet of the proposed addition.

Geotechnical Engineering Services, P.C. (GES) did not perform any surveying and solely relied on information as measured in the field, as well as a December 18, 2019 First Floor Plan Phase 2, by Geddis Architects, provided by Mr. Robert J. Firneis of Savin Engineers, P.C. This plan did not include a Property Line Survey, nor were we provided with one. Therefore, no elevations have been provided in this report, and all depths referenced in this report are measured from surrounding grade, unless otherwise noted. The existing grade within the proposed new addition footprint generally slopes downward to the south and west, starting from the first-floor slab level of the existing one-story school building.

The exact bottom of excavation is unknown to us at this time. We understand that the final foundation design has not been completed yet. We request that should the proposed construction be modified in such a way that deviates from our recommendations noted herein, that we be given an opportunity to revise our geotechnical recommendations.

Site History and Geology

Based on a review of historic maps, aerial photographs, and geologic maps for this area, it appears that the school was constructed prior to our earliest aerial photograph, dated 1954, with the original footprint located further to the north. The adjacent portion of the school building to the north was constructed between 2004 and 2006, with no layout changes since 2006. Prior to construction, the site of the school was occupied by an empty grass field. No previous structures appear to have occupied the site of the planned extension.

According to Isachsen and Fisher's "Geologic Map of New York" (1970), the bedrock at the site maps as Harrison Gneiss, which is characterized by biotite-horneblende-quartz-plagioclase gneiss, with accessory garnet and sphene. This area is located well north of the terminal moraine, of the last advance of glacial ice in this region.

1.3 OBJECTIVES AND SCOPE OF SERVICES

The objectives of this investigation were to evaluate the subsurface conditions beneath the footprint of the proposed addition, and to provide geotechnical and construction-related recommendations. The following scope of services was performed:

1. Performed three (3) geotechnical borings approximately where shown on the proposed boring and test pit location plan, provided to us, and shown on the attached Boring and Test Pit Location Plan on Drawing No. B-100.00 in Figure 1.
2. Performed one (1) exploratory test pit at the site, as shown in the sketch in Appendix B.
3. Provided full-time controlled inspection of the drilling and test pit excavation operations.
4. Prepared this report that includes the following:
   a) Description of the methodology of drilling and sampling, and test pit excavation, with respect to the proposed construction;
   b) A Boring and Test Pit Location Plan showing the as-drilled/excavated locations of the borings and test pit, respectively;
   c) Results of engineering evaluations and recommendations regarding the foundation design including:
      - Foundation type and estimated allowable bearing pressure;
      - Geotechnical earthquake engineering considerations including site classification and liquefaction evaluation;
      - Permanent and temporary groundwater control measures;
      - Support of excavation, underpinning, and lateral earth pressure considerations;
      - First floor slab-on-grade and new footing subgrade preparation;
      - Compaction control, excavation, and backfilling;
      - Construction monitoring considerations including optical and vibration monitoring, including protection of the existing school building, nearby utilities, and surrounding lawns.
   d) List of Figures, which includes the Boring and Test Pit Location Plan and a plot of ambient groundwater levels at the site, and falling head testing, performed within the monitoring well.
   e) Appendices A through D, which include geotechnical boring logs, a hand-drawn sketch of the test pit, a test pit photographic log, and laboratory test data.

2.1 GENERAL

Our subsurface investigation consisted of field locating and drilling three (3) geotechnical borings and excavating one (1) exploratory test pit, as shown on our attached Boring and Test Pit Location Plan. Typed boring logs are attached to this report as Appendix A. The hand-drawn test pit sketch and a test pit photographic log of Test Pit TP-1, are also available in Appendices B and C, respectively. Laboratory test data for select samples from the borings are available in Appendix D. The details of the subsurface investigation program and the generalized subsurface conditions, and information regarding the existing building foundation are described below.

2.2 GEOTECHNICAL BORINGS

Three (3) geotechnical borings, denoted as B-1, B-2, and B-3 were performed by Municipal Testing Laboratory, Inc. (MTL) of Hauppauge, New York, using a small Fordia Track-Mounted Drill Rig, from April 2 to 6, 2020, as shown on the Boring and Test Pit Location Plan on Figure 1. The borings were continuously inspected by Messrs. Aflaaz Saleem, Ahmed Obidat, and Michael Torino, P.E. of GES. In accordance with the RFP, Borings B-1 and B-3 were grouted upon completion.

The borings were drilled utilizing the mud-rotary drilling technique with a 3-7/8-inch diameter tri-cone roller bit and 4-inch diameter steel casing to stabilize the boring. Soil samples were obtained using techniques and equipment in general accordance with the American Society for Testing and Materials (ASTM) Standard Specification D1586-Standard Penetration Test (SPT). The SPT consists of driving a 2-inch O.D. split-spoon sampler typically to 24 inches of penetration, using repeated blows of a 140-lb hammer, free-falling a height of 30-inches. The standard penetration value, or N-value, is determined as the number of blows required to advance the sampler the sum of the second and third 6-inch intervals of a typical 24-inch penetration.

The hammer used was an automatic trip hammer. This hammer operates with an efficiency of about 90% whereas the manual (cathead and rope) hammer operates at an efficiency of about 60%. This means that the blow counts that are reported on the boring logs, where the automatic hammer was used, are about 2/3 of the values that would be reported if a conventional donut-type hammer had been used. A correction factor of 1.3 is generally used to convert the N-values from the automatic hammer to the normalized N-value (N_{60}).

Where the split-spoon sampler could not be advanced through rock or an obstruction, the sampler was driven for 50 blows, and distance of actual penetration less than 6 inches was recorded. Soil samples were placed in jars following completion of sampler advance and brought to Terrasense in Totowa, NJ for testing and confirmation of sample classifications. Boring logs showing N-Values and stratigraphy are attached as Appendix A. The recovered split-spoon soil samples were labeled with the project name, boring number, sample number, depth of sample, SPT blow counts and length of recovery.

All borings were drilled within or within 25 feet of the footprint of the proposed addition. MTL pre-cleared all boring locations for utilities, using a post-hole digger in the uppermost four (4) feet. Once cleared for utilities, SPT split-spoon soil sampling was generally performed continuously to 12 or 20 feet, then on five-foot centers to the completion depth of the borings, or top of rock, whichever is shallower.

- Boring B-1 was drilled at the northeastern corner of the proposed new addition to a depth of 22 feet. No bedrock was encountered in Boring B-1.
- Boring B-2 was drilled at the southwestern corner of the proposed new addition to a depth of about 20 feet. No bedrock was encountered in Boring B-2. A PVC groundwater monitoring well was installed, with 10 feet each of PVC slotted screen and riser, to ground surface.
- Boring B-3 was drilled at the southeastern corner of the proposed new addition to a depth of about 26 feet, encountering decomposed rock at a depth of about 17.5 feet. No rock coring was performed in Boring B-3.

2.3 LABORATORY TESTING

Upon completion of the geotechnical investigation, laboratory testing was assigned and performed, which includes determination of water content, Atterberg Limits, Sieve Analysis, as well as re-classification and verification of sample descriptions. Laboratory testing was performed at TerraSense Laboratory in Totowa, New Jersey. All laboratory test results are presented in Appendix D.

- ***Water Content (ASTM D2216):*** Natural water contents were obtained for select samples, and are reported on the boring logs, as well as attached to this report. The water content assists in sample classification and in establishing useful relationships with other soil parameters.

- ***Atterberg Limits (ASTM D4318):*** The Atterberg Limits are index tests that aid in soil classification and in establishing relationships with other soil parameters. Atterberg Limits were determined for select cohesive samples.

- ***Sieve Analysis (ASTM D422):*** A Sieve Analysis is a quantitative determination of the distribution of particle sizes within soils. Granular portions of the soil are retained on sieves after mechanical shaking, while the fines content is determined by the amount remaining on the #200 Sieve.

2.4 TEST PIT AND DESCRIPTION

One (1) exploratory test pit, denoted as TP-1, was performed where shown on the Boring and Test Pit Location Plan in Figure 1. The location of Test Pit TP-1 was selected by others. TP-1 was excavated, backfilled, and compacted by MTL, using hand-tools, on April 2, 2020, under continuous inspection by Mr. Haykel Melaouhia, Ph. D. of GES. Upon encountering the bottom of foundation, GES photographed, logged, and measured the test pit. The test pit was excavated and backfilled with the excavated soil in lifts, and compacted using a hand tamper. In accordance with the RFP, MTL removed all excavated material from the site, and replaced the grass using seeds at grade. No groundwater or bedrock were encountered.

Detailed descriptions of the test pit excavation are presented below. All depths are relative to top of surrounding grade. The test pit sketch is attached as Appendix B, and a photographic log is attached as Appendix C:

- **Test Pit TP-1** *(3-feet-wide x 3-feet-long x 5.9-feet deep)* was excavated three (3) feet west of the southeast corner of the adjacent school building's existing addition. Subsurface conditions consist of about 1.3 feet of uncontrolled fill, consisting of brown silty coarse to fine sand, with some brick fragments, gravel, and cobbles. Underlying the fill and the foundation at this location, GES encountered natural tan and brown silty coarse to fine sand, with some gravel and cobbles.

  The test pit revealed that the existing addition at the north side of the test pit is composed of a brick wall above ground, extending down by about 0.6 feet, above a concrete strip footing for a concrete foundation wall. The strip footing, juts to the south by about 0.8 feet and is 1.3 feet thick. A portion of the wall also juts out to the south by about 0.5 feet, and is 0.4 feet thick, at about 0.6 feet below grade. The bottom of the existing footing was found at about 5.7 feet below grade. GES attempted to probe laterally under the footing, but was unable to find the width of the footing due to the depth, cobbles under the footing, and possible perched water, which was encountered at a depth of about 5 feet below grade.

2.5 GENERALIZED SUBSURFACE CONDITIONS

The following general descriptions of the subsurface strata are based on our interpretations of the results of the field investigation. All depths are relative to surrounding grade, which was grass at grade. Blow counts have not been corrected for the use of the automatic hammer. As noted above, a hand-auger was used in the uppermost four (4) feet to pre-clear each hole for utilities:

Stratum 1: Fill – The Fill generally consists of brown, dark brown, and black medium to fine sand, with varying amounts of gravel, silt, and asphalt fragments. The fill layer was found in all borings, extending from 1.5 to 5.5 feet below grade, shallower at Borings B-2 and B-3, further away from the existing school building. One SPT split-spoon was taken within the fill, which had an N-Value of 17 blows per foot (bpf). Additional N-Values are unavailable due to the use of the hand-auger.

Stratum 2: Loose Sand – Encountered below Stratum 1 in Borings B-2 and B-3 only, and the test pit, this stratum consists of loose brown coarse to fine sand with varying amounts of gravel, silt, and clay. Stratum 2 was likely replaced by Fill during construction of the school building at Boring B-1. Stratum 2 was measured to range in thickness from 4 to 5 feet, and extend to depths ranging from 6 to 6.5 feet. SPT N-Values for Stratum 2 ranged from 7 to 10 bpf with an average of 8 bpf, indicative of loose sand, though only three (3) SPT split-spoons were taken within Stratum 2.

Stratum 3: Sand with Clay – Encountered below Stratum 2 in Borings B-2 and B-3, and below the Fill in Boring B-1, Stratum 3 generally consists of loose to medium dense gray and brown coarse to fine sand and silt with some clay and varying amounts of gravel. Stratum 3 was measured to be between about 3 and 4.5 feet thick, and extend as deep as 9 to 10 feet below surrounding grade. SPT N-Values for this stratum ranged from 4 to 27 bpf, with an average of 17 bpf.

Stratum 4: Loose to Medium Dense Sand – Encountered below Stratum 3 in all borings to the completion depth of Borings B-1 and B-2, this stratum generally consists of loose to dense red brown and brown coarse to fine sand, with varying amounts of gravel and silt. Stratum 4 was found to range in thickness from 8.5 feet in Boring B-3 to at least 12 feet in Boring B-1. Stratum 4 extends to a depth from about 17.5 feet to at least 22 feet in Borings B-3 and B-1, respectively. SPT N-Values for this stratum ranged from 6 to 55 bpf, with an average of 24 bpf.

Stratum 5: Decomposed Rock – Stratum 5 was found in Boring B-3 only, where the samples show Stratum 5 contains very dense gray decomposed rock fragments. Boring B-3 was terminated in Stratum 5 after extending from 17.5 to 26 feet depth (8.5 feet thick). Three-quarters of all SPT N-Values within Stratum 5 encountered refusal, with one (1) SPT N-Value of 54 bpf, where refusal was not encountered.

2.6 GROUNDWATER CONDITIONS

Following completion of Boring B-2, MTL installed a 20-foot-deep groundwater observation well on April 7, 2020 in the completed borehole, consisting of ten (10) feet of PVC slotted screen and ten (10) feet of riser surrounded by filter sand. Groundwater readings were taken manually on April 6, 16, and 23, 2020, using an electronic water level indicator. An electronic piezometer was also installed to take hourly readings of the water levels from April 6 to 23, 2020.

As shown in the attached plot of Groundwater levels in Figure 2, and based on the manual and electronic readings, the groundwater level was fairly consistent and ranged from about 5.5 to 6.5 feet depth at Boring B-2. Percolation testing was also performed, as discussed below.

With consideration of the data collected, and our analysis of the results, we therefore recommend a design groundwater level of 3.5 ft below grade at Boring B-1. We would also recommend that a property line survey be performed, so that a design groundwater elevation can be provided, to ensure accuracy of the recommendation.

Please note that changes in groundwater levels may occur due to variations in seasonal influences, precipitation amounts, local pumping, utility leakage, and other factors different from those existing at the time the observations were made.

2.7 PERCOLATION TESTING

Our methodology was to perform two (2) falling head tests within the monitoring well, in order to show the infiltration rate of groundwater from the monitoring well, into the surrounding soil. All percolation testing discussed below is in terms of depth below surrounding grade, and is at the location of Boring B-2, at the southwest corner of the proposed new addition. The plots of the falling head tests performed can be found in Figure 3, and is discussed herein.

Methodology

After installation of the groundwater monitoring well in Boring B-2 ("the well") on April 3, 2020, the well was flushed to disperse any drill fluid from the perimeter of the drill hole. Mr. Michael Torino, P.E. of GES returned to the site on April 16, 2020, and took an initial water level reading of 6.2 feet depth below grade. GES then filled the well to surrounding ground level with water, to pre-soak the soil surrounding the piezometer, prior to percolation testing. GES then timed the drop of head of water within the well, at incremental readings from 10 seconds to 5 minutes until the head of water in the well reached the initial water level, i.e. for about 19 to 25 minutes. This falling head test was repeated once more following the initial test, for redundancy in results. Please see Figure 3 for a plot of our testing.

Results and Analysis

Based on the proposed scope of a one-to-two-story addition, no proposed cellar levels, the subsurface soils encountered, and the depth at which groundwater was encountered, it appears unlikely that groundwater would be encountered during construction, if foundations are kept above the level at which groundwater was observed.

If the project also entails the placement of planters, trees, or shrubs which may depend on freely draining soil and deeper groundwater, it may be beneficial to have this data. Dry-wells, also if required for this project, will also heavily rely upon the ability for the soil to disperse stormwater. We have not been asked to provide a design for a dry-well, but can submit a separate proposal to provide special inspection of a dry-well, if required for this project, upon the client's request. The soil appears to be fairly permeable and permit free draining or recharge of surface or groundwater.

Please see our recommendations in Section 3.5 and 4.2 concerning permanent and temporary control of stormwater and protection from water infiltration into the concrete.

3.1 GENERAL

This section of the report presents seismic considerations, our recommendations for feasible foundation and floor slab systems, lateral earth pressures, and permanent control of groundwater. Our evaluation and recommendations are based on the subsurface conditions encountered at the boring locations, our understanding of the site geology, foundation loading information, and construction considerations.

3.2 SEISMIC CONSIDERATIONS

The subsurface soils at the site below the water table, within 26 feet of ground surface generally consist of loose sand, overlying sand with clay, over loose to medium dense sand, over decomposed rock. Based on the results of our geotechnical investigation, we recommend a Site Class of "D" for this site. With consideration of the medium dense nature of much of the soil encountered, any areas that have the slight potential to liquefy are expected to be localized in nature, and therefore liquefaction is not a concern at this site.

3.3 FOUNDATION RECOMMENDATIONS

As noted above, we understand that you plan to construct an about 7,072-square-foot, one-to-two-story addition, onto the south side of the existing Midland Elementary School. We understand the proposed addition will not have any cellar levels. Our test pit (TP-1) revealed the bottom of the south side of the existing school building is founded at about 5.7 feet below grade. We therefore recommend that the proposed addition can be founded on shallow foundations, matching or stepping away from the adjacent foundation (which should be on a 1.5H:1V, as to not impose any loads on the existing foundation). Placement of the new footings at this level should prevent the need or any underpinning of the existing foundation. Any new footings also should bear below the minimum required depth to be below the frost line in this area. Based on the soil encountered, groundwater level, and expected loading of the addition, we recommend that the footings can be designed to bear on Stratum 1 or 2, with a maximum allowable bearing pressure of 1 ton per square foot (tsf), provided the subgrade for any new footings is proof-rolled with a minimum of six (6) overlapping passes of a vibratory roller, or as otherwise approved by the Engineer.

We also recommend that the new footings consider the effects of uplift pressure imposed by groundwater at the design groundwater level of 3.5 feet below existing grade, at the location of Boring B-2.

The fill used as bearing material must be free of voids, and extensive inclusions of mud and organic materials, such as paper, wood, garbage, cans, or metallic objects and debris. It is anticipated that settlement under the building loads is expected to be on the order of ½ inch, though most of the settlement is expected to occur during construction. A minimum of 6 inches of ¾-inch crushed stone should be placed under the footings and slab-on-grade and compacted. The recommended bearing pressure is also dependent on GES being retained to provide controlled inspection of the subgrade.

Prior to construction of the footings, the subgrade of the spread footings shall be inspected by a NYS-licensed geotechnical engineer, familiar with the soil conditions. Should the soil at the design subgrade elevation be found to be unsuitable for further construction, softer and wetter areas may need to be removed and replaced by ¾-inch clean crushed stone and compacted in maximum 12-inch-thick lifts.

3.4 LATERAL EARTH PRESSURES

The design lateral pressures for permanent below grade foundation elements consist of static pressures that are influenced by the thickness and type of overburden material. For design purposes, we recommend that the below grade foundation elements above the design groundwater level be designed for a static lateral soil pressure of 45 pcf, and that the walls/footings below the design groundwater level be designed for a static lateral soil pressure of 85 pcf.

The New York State Building Code also requires that the below grade foundation elements be designed to resist seismic loads. We recommend using a seismic lateral soil force of $6H^2$ (lb/ft of foundation element), where H is the total vertical height in feet. This force is in addition to the static force, applied at a distance of H/3 from the top of the foundation element (pressure is an inverted triangle).

The recommended lateral pressure does not include any surcharge loads adjacent to the walls or at the ground surface. We recommend adding a uniform (i.e., rectangular) lateral pressure distribution of 0.40 times the surcharge to the lateral soil pressure distribution. The structural engineer should determine the magnitude of the surcharge loads (i.e., live loads), based on the final design of the surrounding area.

3.5 PERMANENT GROUNDWATER CONTROL

Our groundwater monitoring well in Boring B-1 showed that groundwater was encountered between 5.5 and 6.5 feet below grade. No cellar levels are planned for the proposed new addition. Therefore, it is unlikely that groundwater would be encountered while constructing the proposed addition. However, we recommend that a vapor barrier be placed below any subsurface foundation element to prevent intrusion of moisture into the concrete. The material used for the vapor barrier should be submitted to the geotechnical engineer for review and approval. We recommend that the vapor barrier be inspected by a controlled inspector, or installed by a certified installer.

We also recommend that the permanent groundwater control measures be revisited after final foundation design, to confirm no waterproofing is required.

4.1 GENERAL

The following sections provide recommendations regarding temporary surface water control during foundation construction, temporary support of excavation and underpinning, preparation of the subgrade for shallow foundations / slab-on-grade, excavation considerations, backfill and compaction control, pre- and post-construction surveys of the existing building or utilities, construction monitoring, and geotechnical engineer inspection requirements.

4.2 TEMPORARY GROUNDWATER CONTROL

Groundwater was encountered within 5.5 to 6.5 feet of the existing ground level at the location of Boring B-2. Since the bottom of the new footings will likely be constructed between about four (4) feet and the bottom of the existing foundation for the adjacent existing addition, i.e., 5.7 feet below existing grade, a temporary groundwater control system will not likely be required. We recommend that any surface water from rain events, or other reasons be disposed of by the use of sump pumps. All foundation subgrades, which include slabs-on-grade and new footing subgrades should be protected from rain events before the placement of concrete. All concrete placement should be performed in the dry and maintain dry working conditions during foundation construction.

4.3 TEMPORARY SUPPORT OF EXCAVATION AND UNDERPINNING

It is our understanding that the proposed new building will not have a basement level, and the new building's foundations will not likely extend any deeper than about four (4) feet, to ensure the foundation for the new one-story building will bear below the frost line, or possibly slightly deeper to match the bottom of foundation level for the existing school building at 5.7 feet depth. We recommended above in Section 3.3, that the new footings should be constructed at the same depth as the existing footings, or stepping away to prevent imposing lateral loads on the existing foundation and the need for underpinning, on a 1.5H:1V slope or flatter.

We recommend that the excavation for any new footings/grade beams or trenches for utilities can be supported by using timber sheeted pits, with wood lagging and bracing. Deeper utilities could require the design and installation of a support of excavation system, which can be addressed once the final design requirements for utilities have been determined. The design of any temporary excavation support system should be the responsibility of a highly experienced, licensed New York State Professional Engineer. All excavations of temporary support systems should conform to pertinent OSHA and local safety regulations. The soil parameters used in the design of the temporary support system should be reviewed by the geotechnical engineer prior to construction of the support structures. Excavations and bracing are subject to controlled inspection.

An alternative to sheeted pits is the use of sloping or benching excavations to the design subgrade level. We recommend that any slopes be carefully graded using a flat-plated excavator bucket to a slope no steeper than 1.5H to 1V. Benching of excavations should also be performed using a flat-plated bucket, with a maximum step height of two feet, and minimum bench width of three feet.

4.4 SUBGRADE PREPARATION

In order to limit differential settlement of the first-floor slab-on-grade and footings, we recommend that the soil subgrade be proof-rolled with a minimum of six (6) passes of a vibratory plate tamper, or other approved equipment. Any unstable areas encountered which cannot be stabilized by additional compaction should be excavated to competent material and the area backfilled with compacted select or structural backfill. The proof-rolling should not be performed when the subgrade is wet, muddy, or frozen. If the footings/slab-on-grade are constructed in the winter, the subgrade should be protected from frost action to limit possible subgrade deterioration resulting from freezing and thawing cycles. Subgrade preparation and inspection are subject to controlled inspection.

4.5 EXCAVATION CONSIDERATIONS

As stated above, the proposed new building will not have any cellar levels. We recommend that excavation for the new building footings be performed using a flat-plated excavator bucket. This would also include sloping of any excavations, which must not be steeper than a 1.5H to 1V envelope as noted above. Final cut for the subgrade for new footings or slabs must either be performed by hand, i.e. shovels, or using the flat-plated bucket attached to an excavator. Any over-excavated areas for footing subgrade disturbed by construction or excavation activities must be completely removed and replaced with select backfill or crushed stone and compacted. Excavation shall not penetrate a 1.5H:1V envelope below the bottom of any nearby foundation element/utility, so as to not undermine the bearing material. We recommend that excavation and grading be performed under the continuous inspection of a geotechnical engineer.

Temporary support of excavation systems must follow recommendations as outlined in Section 4.3 above. The design of such system is the responsibility of the contractor and must adhere to all relevant codes and acceptable industry standards and practices.

4.6 BACKFILL AND COMPACTION REQUIREMENTS

Where needed, select backfill or structural backfill should be granular material only, free of cinder, brick, asphalt, ash, silt/clay, and other unsuitable materials. We recommend that structural backfill or select backfill beneath slabs-on-grade be compacted to a minimum of 95% of the maximum dry density, as determined by ASTM D1557, Method C. All backfill should be placed in lifts not exceeding 8 inches in loose thickness. All crushed stone should be placed in lifts not exceeding 12 inches in loose thickness. The subgrade underneath the backfill should be satisfactorily proof-rolled prior to placement of backfill and should also meet the same density requirements as the backfill to be placed above the subgrade. All fill placement shall be subject to special inspection.

4.7 PRE-CONSTRUCTION SURVEY AND MONITORING

A pre-construction survey should be performed for any structure/utility within 25 feet of the construction site. We recommend a monitoring plan be assembled by an experienced Professional Engineer. At a minimum, the plan should include the existing school building and the surveyed locations and elevations of any nearby utilities within 25 feet of the site, to ensure they are protected and supported throughout construction. We recommend these utilities be monitored on a routine basis, as determined by the geotechnical engineer assembling the plan, to ensure no settlement/movement occurs.

At this time, we recommend that the maximum peak particle velocity (PPV) readings be kept below 1 in/sec for the school building or any nearby utility, as measured by seismographs. Additionally, we recommend that the maximum permissible vertical and horizontal movement of the school building be limited to ½ inch, as measured by optical prism points on the existing school building. These levels may be further lowered depending on the condition of this building, and based on the pre-construction survey. We also recommend that all portions of the building within 25 feet of the site be monitored for cracks or damage on a routine basis, to ensure no damage occurs to the existing school building.

4.8 CONSTRUCTION INSPECTION

Our recommendations are contingent upon the proper review and observation during excavation and foundation construction operations by a geotechnical engineer familiar with the subsurface conditions and foundation design criteria. The geotechnical engineer's role should include the following:

- Review and approval of contractor submittals related to foundation construction;
- Observation and documentation of all phases of excavation and foundation construction;
- Controlled inspection of subgrade preparation;
- Monitoring of subgrade preparation and structural fill placement and compaction.

Our conclusions and summary of recommendations are as follows:

1. Based on the results of our geotechnical investigation, we recommend a Site Class of "D" for this site. With consideration of the medium dense nature of much of the sand encountered at the site, any areas that have the slight potential to liquefy are expected to be localized in nature, and therefore liquefaction is not a concern at this site.
2. We recommend that the proposed new building can be supported by shallow footings bearing on Stratum 1 or 2, with a maximum allowable bearing pressure not exceeding 1 tsf. The fill used as bearing material must be free of voids, and extensive inclusions of mud and organic materials, such as paper, wood, garbage, cans, or metallic objects and debris, provided the subgrade for any new footings is proof-rolled with a minimum of six (6) overlapping passes of a vibratory roller, or as otherwise approved by the geotechnical engineer. Prior to construction of the footings, the subgrade of the spread footings shall be inspected by a NYS-licensed geotechnical engineer, familiar with the soil conditions.
3. Groundwater was measured to be between about 5.5 to 6.5 feet at the location of Boring B-2. A design groundwater level of 3.5 feet below grade was recommended for foundation design. Permanent groundwater control measures will likely not be required. We recommend that a vapor barrier be placed below any subsurface foundation element to prevent intrusion of moisture into the concrete, with recommendations to be revisited after final foundation design.
4. We recommend the contractor be prepared to control any runoff water by the use of sump pumps or other suitable means. The subgrade for any new footing or slab must also be protected from rainwater or runoff, to prevent undermining the approved subgrade.
5. We recommend that the excavation for any new footings or trenches for utilities be supported by using timber sheeted pits, with wood lagging and bracing. The design of any temporary excavation support system should be the responsibility of a highly experienced and licensed New York State Professional Engineer. Another alternative to sheeted pits is the use of sloping or benching excavations to the design subgrade level at a no steeper than 1.5H to 1V. We recommend that sloping/benching be performed using a flat-plated excavator bucket.
6. Where needed, select backfill or structural backfill should be granular material only, free of cinder, brick, asphalt, ash, silt/clay, and other unsuitable materials, compacted to minimum 95% of maximum dry density, and not exceeding 8 inches in loose thickness. All crushed stone should be placed in lifts not exceeding 12 inches in loose thickness. All fill placement shall be subject to special inspection by a special inspector.
7. Final cut for the subgrade for new foundation elements must either be performed by hand, i.e. shovels, or using the flat-plated bucket attached to an excavator. Any over-excavated areas or footing subgrade disturbed by construction or excavation activities must be completely removed and replaced with select backfill or crushed stone and compacted.
8. A pre-construction survey should be performed for any structure or utility within 25 feet of the construction site. A monitoring plan be assembled by an experienced Professional Engineer. We recommend that vibrations be monitored within the existing school building and not exceed 1 ips, and movement of the building be limited to a maximum of ½", as monitored by optical prism points. Limits subject to modification by the Engineer assembling the monitoring plan.
9. Our recommendations are contingent upon GES being retained for controlled inspections as stated above.

Professional judgments were necessary in relation to determining stratigraphy and soil properties from the subsurface investigations. Such judgments were based partly on the evaluation of the technical information gathered, and partly on our experience with similar projects. If further investigation reveals differences in the subsurface conditions and/or groundwater level, or if the proposed building design is different from indicated herein, or is changed, it is recommended that we be given the opportunity to review the new information and modify our recommendations, if deemed appropriate.

The results presented in this report are applicable only to the present study, and should not be used for any other purpose without our review and consent. This study has been conducted in accordance with the standard of care commonly used as state-of-the-practice in the profession. No other warranties are either expressed or implied.

FIGURES

No.	DESCRIPTION	DATE	BY

GES
GEOTECHNICAL ENGINEERING SERVICES, P.C.

6 BAYBERRY ROAD
ELMSFORD, NEW YORK 10523
PHONE:914-592-4616 FAX:914-592-0416

RYE CITY SCHOOLS
MIDLAND ELEMENTARY SCHOOL
312 MIDLAND AVENUE, RYE, NY

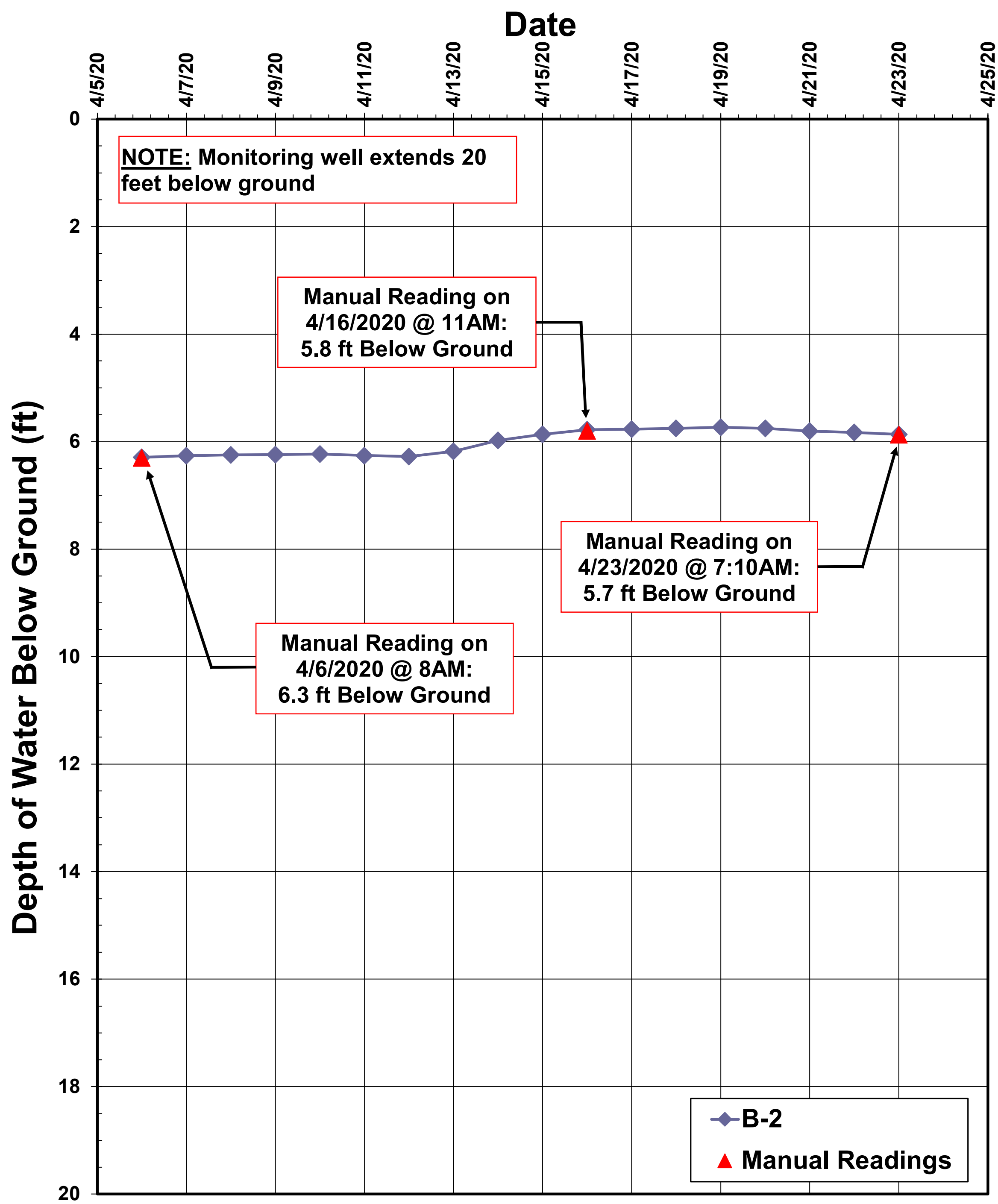
BLOCK: LOT: ZONE: MAP:

BORING AND TEST PIT
LOCATION PLAN

PROFESSIONAL ENGINEER

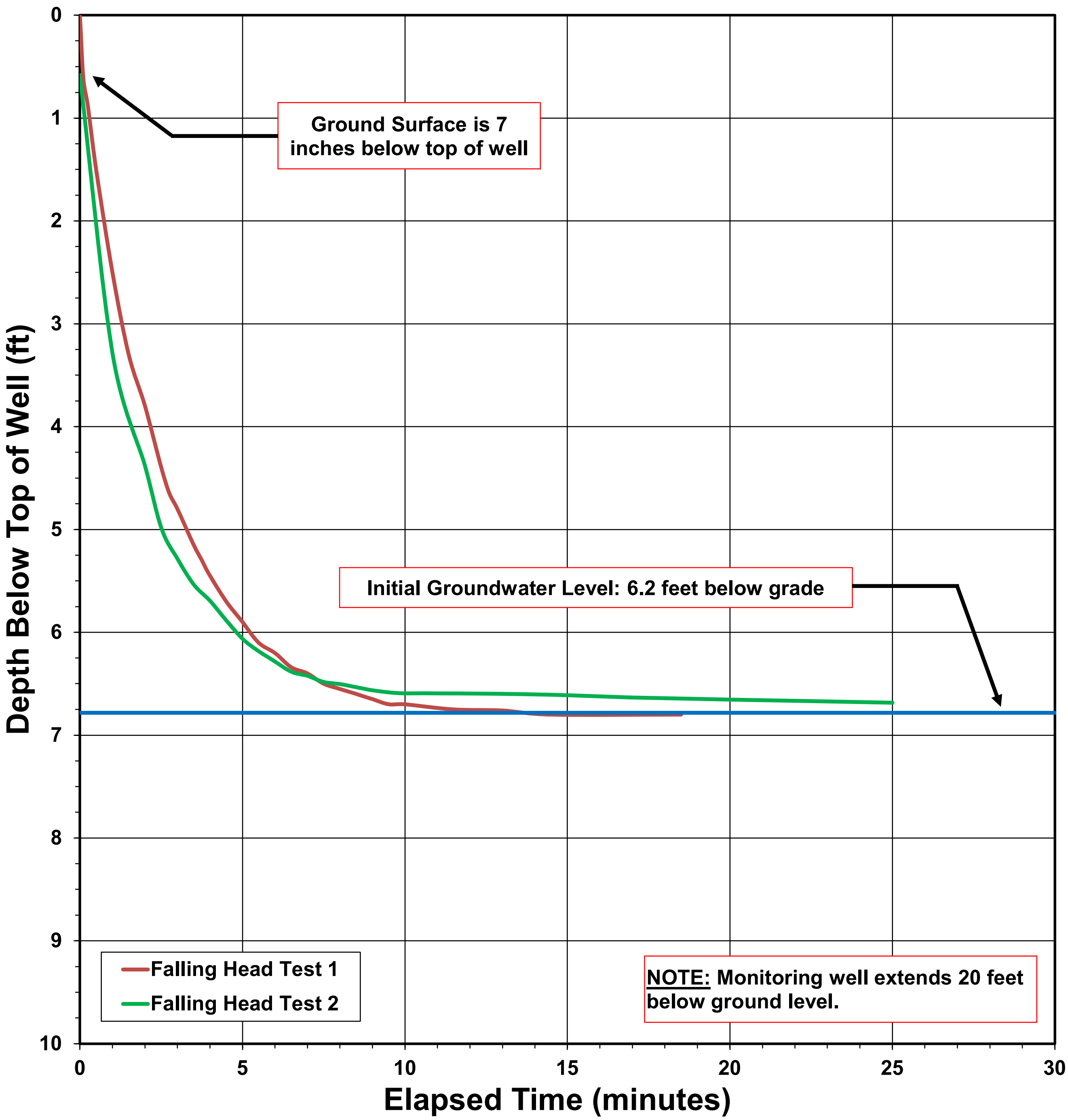
PROJECT #:	2020024
SCALE:	NTS
DATE:	04/21/2020
DRAWING NO:	B-100.00
SHEET NO:	1 OF 1

Midland Elementary School
Groundwater Levels



Water Level Readings Boring B-2 Midland Elementary School Rye, NY 10580					
GES, P.C. Elmsford, New York					
DRAWN BY:	MT	SCALE:	AS SHOWN	PROJ NO:	2020024
CHECKED BY:	ZHM	DATE:	4/23/2020	FIGURE NO:	2

Midland Elementary School
Falling Head Infiltration Plots



Falling Head Infiltration Plots Boring B-3 Midland Elementary School Rye, NY 10580		
GES, P.C. Elmsford, New York		
DRAWN BY: MT	SCALE: AS SHOWN	PROJ NO: 2020024
CHECKED BY: ZHM	DATE: 4/10/2020	FIGURE NO: 3

APPENDIX A

Log of Boring B-1

Project: Midland Elementary School	**Project Number: 2020024**
Location: 312 Midland Avenue, Rye, NY	

Date(s) Drilled	**4/6/20 - 4/6/20**	Inspector	**Aflaaz Saleem**	Coordinates	**North:** **East:**
Drilling Agency	**MTL**	Foreman	**Dave Johnson**	Approximate Surface Elevation (feet)	**NA**
Drilling Equipment	**Fordia EMCI 300**	Drilling Method	**Mud Rotary**	Completion Depth (feet) **22.0**	Rock Depth (feet) **NA**
Casing Size/Type	**4" Steel**	Size/Type of Bit	**3-7/8" Roller Bit**	Sampler Type(s)	**2" Split Spoon**
Groundwater Level and Date Measured	**NA** **NA**	Hammer Wt/Drop **140/30" (Auto)**	Casing Hammer Wt/Drop **140/30" (Auto)**	Size/Type of Core Barrel	**NA**
Boring Location	**See Boring Location Plan (Figure 1)**			No. of Samples	**Dist.: 6** **Undist.: 0** **Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0								3" Asphalt Slab.					Hand auger to 4 ft.
	HA-1							FILL: Brown Silty medium to fine Sand, some Gravel, Asphalt fragments.					Sample HA-1: Moist
5	S-1A	1.5	7 6 11					Brown and black medium to fine Sand, some Silt, some Gravel.					Cased to 5 ft. Sample S-1: Dry
	S-1B	0.3	12					NATURAL: Gray Silty medium to fine Sand, some Clay. (SM-SC)					
	S-2A	0.5	9 8					Gray Clayey fine to coarse Sand, some Silt. (SC-SM)					
	S-2B	0.5	19 25					Gray Silty medium to fine Sand. (SM)					Sample S-2: Dry
	S-3	0.0	6 8 8 8					No Recovery Presumed Same As Above. (SM)					
10	S-4	0.9	7 9 18 18					Brown and gray coarse to fine Sand, some Gravel, trace Silt. (SP)					Sample S-4: Wet
15	S-5	0.7	6 3 4 9					Brown medium to fine Sand, some Gravel, trace Silt. (SP)					Sample S-5: Wet
20													

Template: GENERAL GES LOGO Proj ID: RYE MIDLAND SCHOOL.GPJ

Log of Boring B-1

Project: Midland Elementary School | **Project Number: 2020024**

Location: 312 Midland Avenue, Rye, NY

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
20	S-6	1.0	11 12 12 16					Red brown coarse to fine Sand, some coarse Gravel, trace Silt (SP)					Sample S-6: Wet
								Boring completed at 22 ft. Backfilled with soil cuttings mixed with grout upon completion.					
25													
30													
35													
40													

Template: GENERAL GES LOGO Proj ID: RYE MIDLAND SCHOOL.GPJ

GES P.C.

Log of Boring B-2

Project: Midland Elementary School				**Project Number: 2020024**	
Location: 312 Midland Avenue, Rye, NY					
Date(s) Drilled	**4/2/20 - 4/3/20**	Inspector	**Ahmed Obidat**	Coordinates	**North:** **East:**
Drilling Agency	**MTL**	Foreman	**Dave Johnson**	Approximate Surface Elevation (feet)	**NA**
Drilling Equipment	**Fordia EMCI 300**	Drilling Method	**Mud Rotary**	Completion Depth (feet) **20.0**	Rock Depth (feet) **NA**
Casing Size/Type	**4" Steel**	Size/Type of Bit	**3-7/8" Roller Bit**	Sampler Type(s)	**2" Split Spoon**
Groundwater Level and Date Measured	**NA** **NA**	Hammer Wt/Drop **140/30" (Auto)**	Casing Hammer Wt/Drop **140/30" (Auto)**	Size/Type of Core Barrel	**NA**
Boring Location	**See Boring Location Plan (Figure 1)**			No. of Samples	**Dist.: 10 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0	HA-1							FILL: Dark brown medium to fine Sand, trace Silt, Roots.					Hand auger to 4 ft. Sample HA-1: Moist
	HA-2							NATURAL: Brown coarse to fine Sand, some coarse to fine Gravel, trace Silt. (SP)					Sample HA-2: Moist
5	S-1	1.7	5 4 3 4					Brown coarse to fine Sand, some coarse to fine Gravel, trace Silt, Clay. (SP)					Sample S-1: Moist
	S-2	2.0	3 4 5 7					Brown Sandy Silt (ML)	29	24	39	63	Rig chatter at 6 ft. Sample S-2: Wet Cased to 5 ft.
	S-3A	0.5	2 1					Same as above. (ML)					
	S-3B	0.8	3 4					Red brown coarse to fine Sand, trace coarse to fine Gravel, Silt. (SP)					Sample S-3: Wet
10	S-4	0.9	3 4 3 6					Red brown coarse to fine Sand, some coarse to fine Gravel, trace Silt. (SP)					Sample S-4: Wet Rig chatter at 11 ft.
	S-5A	0.8	2 2					Brown medium to fine Sand, some Clay, trace Silt. (SC)					Sample S-5: Wet
	S-5B	1.0	5 7					Red brown coarse to fine Sand, some coarse to fine Gravel, trace Silt (SP)					
15	S-6	0.8	5 5 6 9					Red brown coarse to fine Sand, some medium to fine Gravel, trace Silt. (SP)					Sample S-6: Wet
	S-7	0.9	9 8 6 11					Red brown coarse to fine Sand, some coarse to fine Gravel, trace Silt (SP)					Sample S-7: Wet Rig chatter at 17 ft.
	S-8	1.1	4 7 8 13					Same as above. (SP)					Sample S-8: Wet
20													

Template: GENERAL GES LOGO Proj ID: RYE MIDLAND SCHOOL.GPJ

Log of Boring B-2

Project: Midland Elementary School | **Project Number: 2020024**

Location: 312 Midland Avenue, Rye, NY

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
20								Boring completed at 20 ft. 20 ft. PVC Well Installed. 10 ft. Screen. 10 ft. Riser. Electronic Piezometer Installed on 04/08/20					
25													
30													
35													
40													

Template: GENERAL GES LOGO Proj ID: RYE MIDLAND SCHOOL.GPJ

Log of Boring B-3

Project: Midland Elementary School			**Project Number: 2020024**
Location: 312 Midland Avenue, Rye, NY			
Date(s) Drilled: **4/3/20 - 4/6/20**	Inspector: **Ahmed Obidat/Mike Torino, P.E.**		Coordinates: **North:** **East:**
Drilling Agency: **MTL**	Foreman: **Dave Johnson**		Approximate Surface Elevation (feet): **NA**
Drilling Equipment: **Fordia EMCI 300**	Drilling Method: **Mud Rotary**		Completion Depth (feet): **26.0**; Rock Depth (feet): **NA**
Casing Size/Type: **4" Steel**	Size/Type of Bit: **3-7/8" Roller Bit**		Sampler Type(s): **2" Split Spoon**
Groundwater Level and Date Measured: **NA** **NA**	Hammer Wt/Drop: **140/30" (Auto)**	Casing Hammer Wt/Drop: **140/30" (Auto)**	Size/Type of Core Barrel: **NA**
Boring Location: **See Boring Location Plan (Figure 1)**			No. of Samples: **Dist.: 12 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0	HA-1							FILL: Dark brown medium to fine Sand, trace Silt and roots.					Hand auger to 4 ft. Sample HA-1: Moist
	HA-2							NATURAL: Tan coarse to fine Sand, trace fine Gravel, Silt, Clay. (SM-SC)					Sample HA-2: Moist. Cased to 4 ft.
5	S-1	1.5	5, 5, 5, 6					Brown coarse to fine Sand, trace medium to fine Gravel. (SP)					Sample S-1: Moist
	S-2A	0.3	4					Same as above. (SP)					Possible contamination.
	S-2B	0.4	6					Brown and gray medium to fine Sand, some Clay. (SC)					
	S-2C	1.0	12, 15					Brown coarse to fine Sand, some coarse to fine Gravel, trace Silt. (SP)					Sample S-2: Moist
	S-3A	0.5	4, 7					Brown Sandy Silt, trace root fragments (ML)					Cased to 8 ft. Sample S-3A: Moist, Organic odor
	S-3B	0.6	11, 9					Dark brown coarse to fine Sand, some coarse to fine Gravel, trace Silt. (SP)					Sample S-3B: Wet
10	S-4	1.2	12, 20, 35, 29					Brown coarse to fine Sand, some coarse to fine Gravel. (SP)					Sample S-4: Wet. Rig chatter from 11 to 12 ft.
	S-5	1.3	23, 20, 23, 13					Brown Well-graded Gravel, some coarse to fine Sand, Silt (GW-GM)			11	6	Sample S-5: Wet
15	S-6	0.9	5, 11, 9, 8					Brown Well-graded Gravel, some coarse to fine Sand, Silt, trace Clay (GW-GM)					Rig chatter from 13 to 14 ft.
	S-7A	0.8	21, 25, 42					Same as above. (GW-GM)					Sample S-6: Wet
	S-7B	0.2	27					Gray decomposed Rock fragments, some coarse to fine Sand. (SP)					
	S-8	1.0	21, 82, 50/2"					Gray decomposed rock fragments, some coarse to fine Sand, some coarse to fine Gravel. (SP)					Rig chatter at 18 ft. Spoon refusal at 19.2 ft.
20													

Template: GENERAL GES LOGO Proj ID: RYE MIDLAND SCHOOL.GPJ

Log of Boring B-3

Project: Midland Elementary School	**Project Number: 2020024**
Location: 312 Midland Avenue, Rye, NY	

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
20													
	S-9	0.8	47 86 40/2"					Same as above. (SP)					Sample S-9: Wet Rig chatter from 21 to 26 ft. Spoon refusal at 22.2 ft.
25													Sample S-10: Spoon attempted at 26 ft. no penetration, bouncing.
								Boring completed at 26 ft. Backfilled with soil cuttings mixed with grout upon completion.					
30													
35													
40													

Template: GENERAL GES LOGO Proj ID: RYE MIDLAND SCHOOL.GPJ

GES P.C.

APPENDIX B

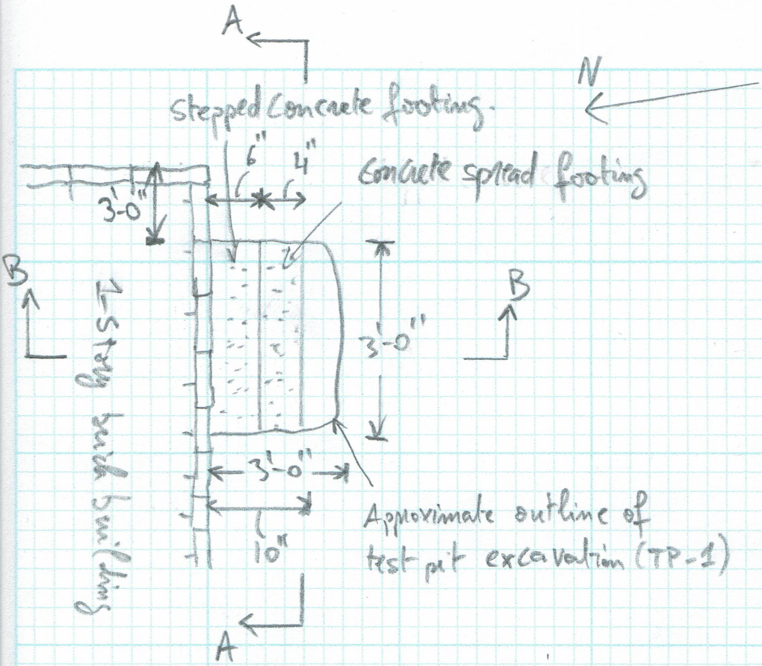
GES

Project Name / Project #: Midland Elementary School.

Description: TP - 1

Date: 4/2/20 Page: 1 of 1

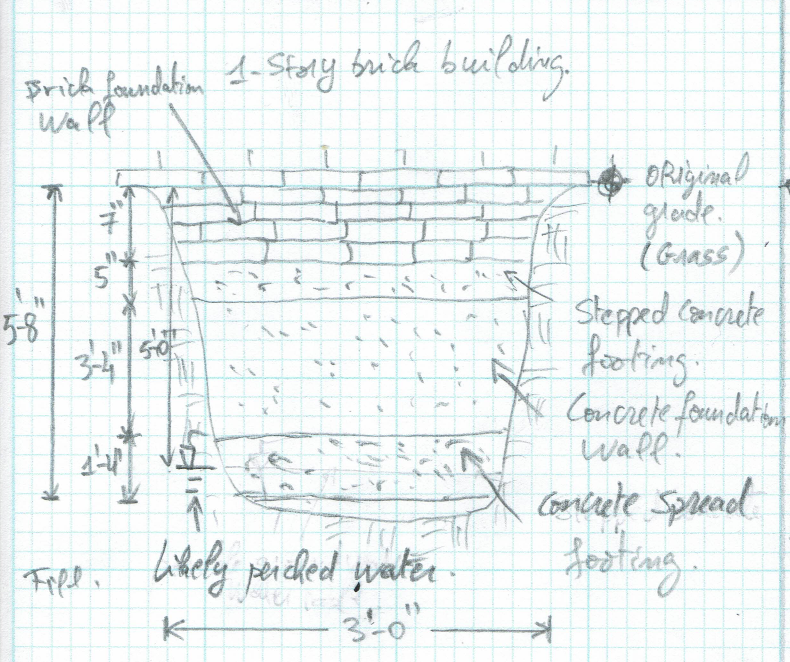
Engineer: HM Checked By: DJG



PLAN VIEW
SCALE: NTS

Notes:

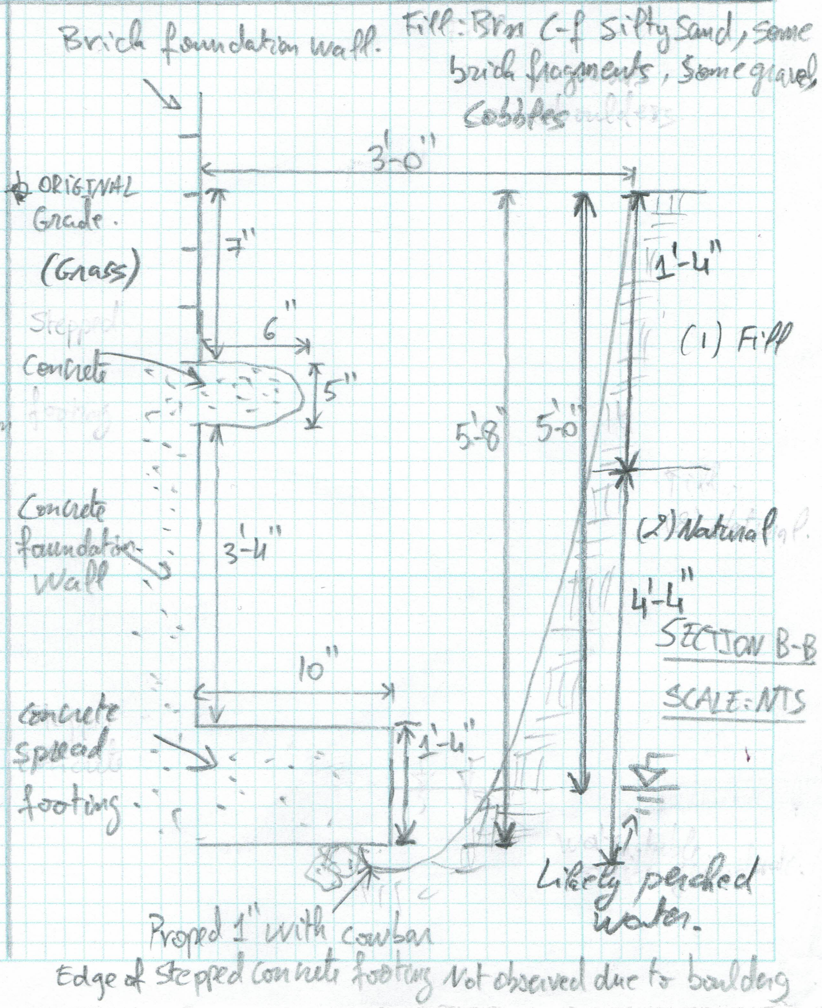
1. GES on site to witness test pit excavation on 4/2/20
2. Test pit excavated and backfilled by hand tools by Municipal Testing Laboratory (MTL) from Hauppauge, NY.
3. Test pit location not selected by GES.
4. Test pit performed from existing grade
5. No bedrock encountered during excavation
6. Likely perched water encountered at 5 feet depth below existing grade.
7. GES on site for backfilling and compaction in one foot maximum in lifts with hand tools on 4/3/20
8. Grass replaced back at the top of the test pit hole with grass seeds.
9. All excavated material removed from site.



(1) Fill: Brown C-f Silty Sand, some Brick fragments, some gravel, cobbles.

(2) Natural: Tan and brown C-f Silty Sand, Some gravel, cobbles.

SECTION A-A
SCALE: NTS



SECTION B-B
SCALE: NTS

APPENDIX C

Geotechnical Engineering Services, P.C.

TEST PIT PHOTO LOG

Client Name:	**Site Location:**	**Project No.**
Ms. Gabrielle O'Connor, Asst. Superintendent for Business Rye City School District 555 Theodore Fremd Ave, Suite B 101 Rye, NY 10580	Midland Elementary School 312 Midland Avenue Rye, New York	2020024

Photo No. 1 **Date:** 04-02-20

Direction:

Plan View
Facing East

Description:

TP-1

Top of Concrete Footings

Photo No. 2 **Date:** 04-02-20

Direction:

Plan View
Facing North

Description:

TP-1

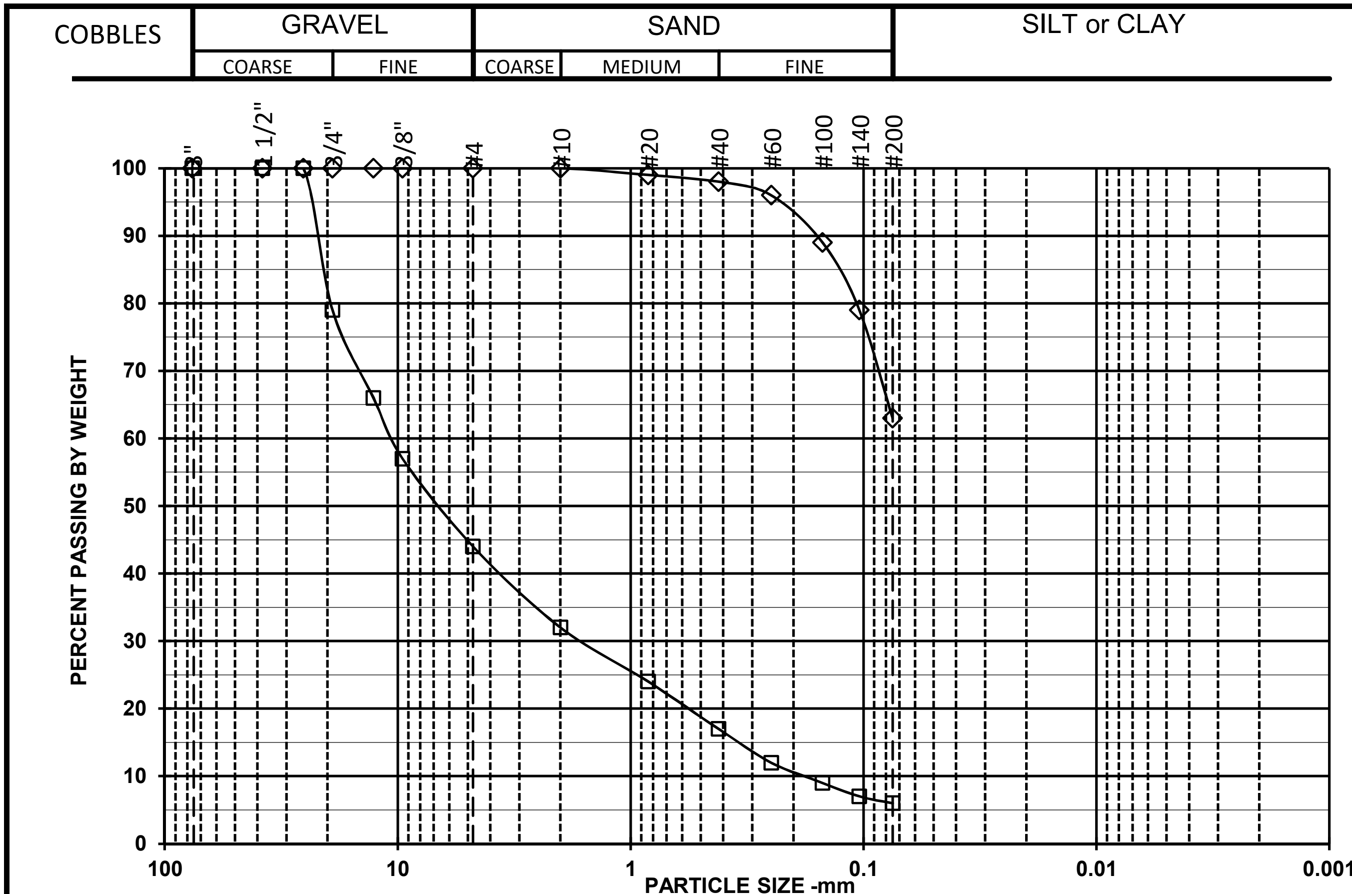
Possible groundwater encountered at 5.0 feet below grade

APPENDIX D

GES, P.C.
Midland School - Rye, NY
LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS						REMARKS
			WATER CONTENT (%)	LIQUID LIMIT (-)	PLASTIC LIMIT (-)	PLAS. INDEX (-)	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	
B-2	S-7	12-14	11.1				GW-GM	6	
B-3	S-4	6-8	39.0	29	24	5	ML	63	

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.



Open Symbols: Sieve analysis by ASTM D6913
Filled symbols: Hydrometer analysis by ASTM D7928 corrected for complete sample

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	11.1				GW-GM		Brown, Well-graded gravel with silt and sand	04/10/20
◇	39.0	29	24	5	ML		Brown, Sandy silt	04/10/20
○								

GES, P.C.

TerraSense, LLC #7919-20003

Midland School
Rye, NY

Symbol	□	◇	○
Boring	B-2	B-3	
Sample	S-7	S-4	
Depth	12-14	6-8	
% +3"	0	0	
% Gravel	56	0	
% SAND	38	37	
%C SAND	12	0	
%M SAND	15	2	
%F SAND	11	35	
% FINES	6	63	
D_{100} (mm)	25.4	4.75	
D_{60} (mm)	10.5		
D_{30} (mm)	1.6		
D_{10} (mm)	0.18		
Cc	1.4		
Cu	58.3		

Sieve Size/ID #	Percent Finer Data		
6"	100	100	
4"	100	100	
3"	100	100	
1 1/2"	100	100	
1"	100	100	
3/4"	79	100	
1/2"	66	100	
3/8"	57	100	
#4	44	100	
#10	32	100	
#20	24	99	
#40	17	98	
#60	12	96	
#100	9	89	
#140	7	79	
#200	6	63	
5µ m			
2µ m			
1µ m			

PARTICLE SIZE DISTRIBUTION
ASTM D6913 & ASTM D7928

Stormwater Pollution & Prevention Plan

for the

Rye City School District

Rye CSD Capital Improvements – Osborn School

10 Osborn Road
Rye, New York 12204

August 2021

Contract No: ENG20-0439

Weston & Sampson

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGE
FROM CONSTRUCTION ACTIVITY**

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 PROJECT INFORMATION

1.1 Project Name and Location

Osborn School Additions

10 Osborn Road
Rye, New York 10580

1.2 Owner/ Operator's Contact Information

Rye City School District

555 Theodore Fremd Avenue, Suite B-101
Rye, New York 10580
914-967-6100

Contact:
Robert Gimigliano – Director of Facilities
gimigliano.robert@ryeschools.org

1.3 Owner's Consultant Contact Information

Weston & Sampson, PE, LS, LA, PC

1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

Contact:
Jeffery F. Budrow, PE
budrowj@wseinc.com

1.4 Project Description

The Rye City School District proposes a capital project at its Osborn School consisting of a building addition of approximately 5,800 S.F., alterations and improvements to the building envelope, replacement of existing pavement and sidewalks and addition of a new rubberized playground surface. This includes minor site improvements to support building construction.

1.5 Receiving Waters

The existing stormwater runoff from the site drains into a series of catch basins located on the school site which connects into the City of Rye's stormwater system. The City's system eventually drains into the Long Island Sound.

1.6 Soils Information

Based upon the Soil Survey for Westchester County that was prepared by the U.S. Department of Agriculture Soil Conservation Service, the soils at the subject site are classified as the following:

- CrC – Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky
- PnB– Paxton fine sandy loam, 3 to 8 percent slopes

See Appendix B of this report for a copy of the complete site soil survey information, and Appendix Q for a copy of the geotechnical investigation report with additional infiltration tests/ borings.

1.7 State or Federal Historic Places

According to the on-line GIS map located on the New York State Office of Parks, Recreation & Historic Preservation (NYS OPRHP) web-page, the site is not identified on the State or National Register of Historic Places. A letter provided by the NYS OPRHP State Historic Preservation Office (SHPO) indicates that the project will have no impact on archaeological and/or historic resources listed in or eligible for the New York State and National Registers of Historic Places. A screen shot of the GIS map is included in Appendix C of this document.

1.8 New York State SPDES General Permit Information

In accordance with Appendix B of the New York State SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-20-001, this project requires that a Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) be prepared and submitted to the New York State Department of Environmental Conservation (NYSDEC) for review and approval since the project will disturb more than 1 acre of land, and fits within the list of land uses. See Appendix G of this report for a copy of the NYSDEC's General Permit, GP-0-20-001.

1.8.1 Notice of Intent (NOI)

Any project requesting coverage under the NYS SPDES General Permit, GP-0-20-001, requires a Notice of Intent (NOI) to be completed and submitted to the NYS DEC for acceptance. Submitting a NOI to the NYS DEC is an affirmation to the NYS DEC that a SWPPP has been prepared and will be implemented. As a result, the applicant, through their consultant, is certifying that the SWPPP has been developed in conformance with the Department's technical standards. If the SWPPP utilizes practices provided within the NYS Stormwater Management Design Manual (SMDM) and these practices meet all of the requirements established in those standards, the proposed activity will be eligible to obtain coverage under this general permit in five (5) business days after the Department's receipt of the NOI. If the SWPPP deviates from the Department's technical standards, then the permit will not become effective for sixty (60) days from the receipt of the NOI.

As a result, it is anticipated that this project will obtain coverage in five (5) business days, because it has been prepared in conformance with the NYS DEC's technical standards. A copy of the completed NOI is located in Appendix D of this report.

1.8.2 Signatures, Certifications, and Review

Robert Gimigliano, on behalf of the Rye City School District, is the owner/ operator of the project site, and is the legal entity that controls the site/ facility's operation. Consequently, this document and the NOI must be approved and signed. This project does not require an MS4 approval as it is being reviewed by the State Education Department.

All contractors and sub-contractors involved with earth-disturbing activities as a result of this project must sign a contractor's certification form before undertaking such activities at the site. These forms need to contain the specific elements that each contractor is responsible for and include the name and title of the contractor's trained individual(s) responsible for the implementation of the SWPPP. Copies of the contractor certification pages are located in Appendix D of this report. Completed copies of such forms shall be inserted within this document as well.

1.8.3 Field Documentation

The Owner/ Operator shall maintain a copy of the General Permit (GP-0-20-001), SWPPP, Notice of Intent (NOI), NOI Acknowledgement Letter from NYS DEC, Contractor Certifications, and Inspection Reports on-site until all of the disturbed areas have achieved final stabilization and the Notice of Termination (NOT) has been submitted to the NYS DEC. These documents shall be located on the project site in a readily accessible location, such as within a job-site trailer, site lockbox, on-site construction office, or a mailbox with a lock. These documents need to be accessible during normal business hours. The Owner/Operator shall retain copies of these documents for a period of five (5) years from the date that the site achieves final stabilization.

1.8.4 Notice of Termination (NOT)

Upon completion of the construction activities contained within this SWPPP, all disturbed areas have achieved final stabilization, all temporary structural erosion and sediment control measures have been removed, and all post-construction stormwater management practices have been constructed in conformance with the SWPPP, the Owner must sign and submit a Notice of Termination (NOT) form to the NYS DEC indicating that coverage under the general permit is no longer required and the permit coverage may be terminated for the project.

Prior to completing and submitting the NOT, the following items must also be completed:

A. Policies and procedures are in place to ensure the proper operation & maintenance of the practices in accordance with the practices' operations and maintenance plan for public/private institutions.

A Notice of Termination form may be located in Appendix M of this report.

2.0 EXISTING CONDITIONS

2.1 Existing Conditions

The site currently consists of the Osborn School located at 10 Osborn Road, Rye Ny 10580. The project site is adjacent to Osborn Road. The site currently has an on-site stormwater system which connects into the City of Rye's separate stormwater system to the southwest towards Osborn Road. The City's stormwater system consists of a 12" diameter PVC pipe which runs along the front of the school and follows Osborn Road. A majority of site has been developed with a series of buildings, parking lots and sidewalks. Drainage from the site is generally collected by a series of catch basins which connect into the City's stormwater system through a catch basin.

2.2 Existing Hydrologic and Hydraulic Conditions

A hydraulic and hydrologic analysis and model of the existing stormwater collection and conveyance system was created in HydroCAD. HydroCAD is a stormwater modeling system that was created by HydroCAD Software Solutions LLC. This program can utilize the hydrology techniques developed by the Soil Conservation Service (SCS) and other methods such as the Rational Method. The model created for this project utilizes the SCS TR-20 runoff method. This computerized model was used to establish the current runoff rates from the existing conditions of the project site. The model and this report focus in on the 1-, 10-, 25-, and 100-year storm events.

Our stormwater analysis has identified two points in which runoff discharges from the project site, and into the City storm system. The two points of discharge (POD) are identified as follows:

A. POD 1: Flows leave the site through a catch basin located on the southwest of the existing site. This catch basin is tributary to runoff from the existing paved area lot located west of the school, the two trailer mounted classrooms located southwest of the school, the mulch playground and a series sidewalks located around the school. This catch basin discharges into the City's separate stormwater system located along Osborn Road, which eventually discharges into the Long Island Sound.

A summary of the runoff rates that have been calculated for the existing conditions are included in Table 3.1 of this report.

Maps illustrating drainage areas and points of discharge, and existing conditions HydroCAD models may be found in Appendix F.

3.0 PROPOSED CONDITIONS

3.1 Proposed Conditions

The proposed conditions of the site include a building addition of approximately 5,800 S.F., alterations and improvements to the building envelope, replacement of existing pavement and sidewalks and addition of a new rubberized playground surface at the Osborn School. One subsurface infiltration system located south of the building addition and associated hydrodynamic separator will be installed for stormwater management and water quality treatment for the proposed site improvements. New stormwater infrastructure will be installed along the north and west side of the new building addition to convey water to the proposed subsurface infiltration system and connect to the existing City storm system.

3.1.1 Stormwater Treatment Measures

In accordance with the general permit, and the requirements for runoff reduction techniques, this project proposes to use a series of subsurface infiltration chambers and hydrodynamic separators to provide the necessary water quality and quantity treatment.

3.1.2 Water Quality Calculations

The impacted drainage area for the project is 2.1 acres (93,000 sf) with a total proposed increase in impervious area of 0.08 acres (3,105 sf).

The calculated water quality volume (WQv) for the project site is 0.015 ac-ft. The proposed treatment for site runoff includes the installation of one subsurface infiltration system with pretreatment device that will provide a total water quality volume of 0.053 ac-ft. In order to accommodate calculated minimum Runoff Reduction Volume (RRv) of 0.006 ac-ft, the proposed subsurface infiltration system will provide 0.048 ac-ft of RRv. Proposed conditions calculations are included Appendix F.

3.1.3 Water Quantity Measures

The design of the stormwater treatment system for this site includes two subsurface infiltration systems each connected to a hydrodynamic separator for pretreatment.

As illustrated in Table 3.1, there is a net decrease in the total site runoff flow rates from the site for the 1-, 10-, 25-, and 100- year storm events. All storm events and analysis points show a decrease in runoff rates. The decrease in runoff rates can be attributed to the increased stormwater storage within the subsurface infiltration systems.

3.2 Proposed Hydrologic and Hydraulic Conditions

A hydraulic and hydrologic analysis model of the proposed stormwater collection and conveyance system was created in HydroCAD. This computerized model was used to establish the runoff flow rates by the proposed conditions of the site as well as to demonstrate conformance with various requirements. These calculations may be found in Appendix F of this report.

3.2.1 Pre- vs. Post- Comparison

The following table summarizes the runoff rates generated for the existing and proposed conditions of the site based on the calculations contained in Appendix F of this report.

Table 3.1: Existing and Proposed Hydrologic Conditions

Summary of Flow Rates												
Analysis ID	1-year (cfs)			10-year (cfs)			25-year (cfs)			100-year (cfs)		
	Pre-	Post-	Change	Pre-	Post-	Change	Pre-	Post-	Change	Pre-	Post-	Change
POD 1	1.06	1.06	0.00	3.54	3.46	-0.08	5.15	5.00	-0.15	8.56	8.25	-0.31

3.2.2 Proposed Drainage Areas

The flow patterns for the proposed drainage areas remain unchanged from the pre-developed conditions. The only difference in the proposed drainage areas are the land cover types due to the building additions and various site improvements.

4.0 SOIL EROSION AND SEDIMENT CONTROLS

4.1 Erosion and Sediment Control Practices

Erosion and sediment control provisions should be included for all construction activities where excavation, stripping, filling, grading, and/ or earth movement is designated on the plans to take place. These provisions shall be designed in conformance with the most current version of the technical standard, *New York Standards and Specifications for Erosion and Sediment Control*. For convenience, this report contains reduced-scale versions of the soil erosion and sediment control plans and details for this project in Appendix N.

4.2 Construction Sequence Schedule

The contractor is advised that a final construction sequence schedule is to be provided to the construction manager after contractor selection and become a component of not only the contract documents, but this SWPPP. Accordingly, from the start of construction forward, it shall be the responsibility of the contractor to implement and adhere to the construction sequence schedule in order to maximize the effectiveness of this stormwater pollution prevention plan. However, the following basic schedule shall guide the development of the final construction sequence schedule between the contractor and the construction manager:

Construction Schedule

A. Obtain plan approval and other applicable permits.

B. Flag the work limits and mark and protect any vegetation that will be remaining.

C. Hold a pre-construction conference at least one week prior to the start of construction.

D. Install temporary sediment controls as the first construction activity.

E. Install site improvements.

F. All erosion and sediment control practices will be inspected weekly and, additionally, the contractor shall perform an inspection after all rainfall events. Needed repairs will be made immediately.

G. After the site is permanently stabilized, remove all temporary erosion and sediment control measures.

4.3 Pre-Construction Activities

A. Protect existing vegetated areas suitable for filter strips, especially in perimeter areas.

B. Establish a temporary construction entrance to capture mud and debris from construction vehicles before they enter the public rights-of-way.

C. Stabilize bare areas (entrances, construction routes, equipment parking areas, etc.) immediately as work takes place. Top these areas with gravel or maintain a vegetated cover.

D. Sediment tracked onto public streets should be removed or cleaned daily.

E. Identify the drainage areas in the plan. Plan for the appropriate practices to protect existing surface waters.

F. Ensure that silt fence material and installation comply with the standard drawings and specifications.

G. Install silt fences based on appropriate spacing intervals. Decrease the interval as the slope increases. Silt fence should be placed on or parallel to contours where there is no concentration of water flowing to the silt fence and where erosion occurs in the form of sheet erosion. The area below the silt fence should be undisturbed ground.

H. Have a Qualified Inspector perform an initial site inspection to confirm that all of the perimeter erosion and sediment controls have been installed properly and to photograph the site to establish a baseline for the site conditions prior to construction.

I. Install additional erosion and sediment control devices as shown on the plans and/or needed in the field.

4.4 Runoff and Drainage Controls

A. Install practices after sediment traps are installed and before land grading starts.

B. Control the runoff in each small drainage area before flow reaches the runoff from the entire site.

C. Divert off-site or clean runoff around disturbed areas.

D. Convey surface flows from highly erodible soil and steep slopes to more suitable stable areas.

E. Runoff from existing or proposed cut and fill slopes should be redirected to lower the water’s velocity without causing erosion.

F. Final site drainage should be constructed to prevent erosion, concentrated flows to adjacent properties, uncontrolled overflow, and ponding.

G. Protect existing natural drainage systems and streams by maintaining vegetative buffers and by implementing other appropriate practices.

H. Install practices to prevent erosion at discharge points.

4.5 Grading

A. Limit the initial clearing and earth disturbance to that necessary to install sediment control measures. Excavation for site improvements may only take place after the sediment and erosion controls are installed. Stockpile excavated topsoil from the site. The topsoil should be protected with silt fence, stabilized, and located away from the storm drains and water bodies.

B. Changes in grade or removal of vegetation should not disturb established buffers and should not be allowed within any regulated distance from wetlands or other such protected zones.

C. Avoid disturbance of steep slopes.

D. An undisturbed buffer should be maintained to control runoff from steep slopes within sensitive areas.

E. Proposed grading should not impair existing surface drainage resulting in a potential erosion hazard impacting adjacent land or water bodies.

4.6 Erosion Control and Soil Stabilization

A. Implement erosion control practices to keep soil in-place.

B. Stabilization should be completed immediately for the surface of all perimeter controls and slopes. When activities temporarily cease during construction, soil stockpiles and exposed soils should be stabilized by seed, mulch, or other appropriate measures as soon as possible, but in no case more than 14 days after the construction activity has ceased. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization should be completed within 14 days or as soon as possible.

C. Apply temporary or permanent stabilization measures immediately on all disturbed areas where work is delayed or completed.

D. Refer to project plans and specification documents for proper timing and application of seed, sod, fertilizer, and mulch.

E. Downspout or sump pump discharges must have acceptable outfalls that are protected by splash blocks, sod, or piping as required by site conditions (i.e. no concentrated flow directed over fill slopes).

4.7 Sediment Controls

A. Provide sediment controls measures at any location where surface runoff from disturbed or graded areas may flow off the construction area. Control measures must be installed to prevent sediment from being transported off-site. No grading, filling, or other disturbance is allowed within existing drainage swales.

B. Swales or other areas that transport concentrated flows should be appropriately stabilized.

4.8 Maintenance and Inspections

A. Initial site inspection after the perimeter controls are installed and prior to commencement of any earth work.

B. Identify the type, number, and frequency of maintenance actions required for stormwater management and erosion control during construction and for permanent practices that remain on the site once construction is finalized.

C. Inspections must be indicated on the Construction Sequence Schedule.

D. Inspections must be performed once every 7 calendar days, unless site disturbance is greater than five (5) acres, and at which time at least two (2) site inspections shall be completed 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. See part IV.C of the permit document.

E. Inspections must verify that all practices are operating properly, maintained properly, and that sediment is removed from all control structures.

F. Inspections must look for evidence of the erosion of soils on-site, potential of pollutants entering drainage systems, problems at discharge points (such as turbidity in the receiving waters), and signs of soil and mud transport from the site to the public road(s).

G. Routine maintenance must be identified on the schedule and performed on a regular basis and as soon as a problem is identified.

H. Identify the person or entities responsible for conducting the maintenance actions during construction and post-construction.

I. Retain a copy of the inspection reports on-site with the SWPPP.

J. Inspections may be reduced to once every 30-days if the site has entered into a temporary shutdown (e.g. winter shutdown) as long as all construction activities have been halted and all of the disturbed areas have been temporarily stabilized (see Part IV.C.2.c of the general permit for more information).

K. For construction sites where soil disturbing activities have been shut down with partial project completion, the qualified inspector may stop conducting inspections if all of the disturbed areas have achieved final stabilization and all of the post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational (see Part IV.C.2.d. of the general permit for more information).

L. Inspections shall be completed until permanent stabilization has been achieved.

M. The Qualified Inspector shall notify the NYS DEC, Owner, Construction Manager, and Owner's Representative with a letter indicating the period of temporary shutdown, the dates of anticipated inspection during the shutdown, and the date of anticipated restart.

4.9 Final Grading and Landscaping

A. Implement the final grading and stabilization plan once the construction is completed.

B. Stabilize all open areas, including borrow and spoil areas.

C. Implement the specified permanent top soil, seed, sod, mulch, riprap, or other stabilization practices in the remaining disturbed areas as appropriate.

D. Stabilization must be undertaken no later than 14 days after construction activities have ceased, except as noted in the general permit, GP-0-20-001.

E. Remove the temporary control measures once the site has reached final stabilization. Final stabilization is defined as "…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" in Appendix A of the General Permit, GP-0-20-001.

4.10 Construction Sequence Schedule

The Contractor is advised that a final construction sequence schedule is to be provided to the Construction Manager and Owner's Representative after contractor selection, and shall become a component of the contract documents, and this SWPPP. Accordingly, from the start of construction forward, it shall be the responsibility of the Contractor to implement and adhere to the construction sequence schedule in order to maximize the effectiveness of this stormwater pollution prevention plan.

The following basic implementation process shall guide the development of the final construction sequence schedule to be provided by the Contractor and accepted by the Owner, Construction Manager, and Owner's Representative. This basic process shall be followed for each phase of construction, period, or discrete area of construction.

H. Obtain plan approval and other applicable permits.

I. Flag the work limits and mark and protect any vegetation that will be remaining.

J. Hold a pre-construction conference at least one week prior to the start of construction.

K. Install temporary sediment controls prior to any disturbance.

L. Install site improvements.

M. Inspect all erosion and sediment control measures at least weekly (or more often per requirements of permit) and, additionally, the Contractor shall perform an inspection after all rainfall events greater than 0.5 inches in a 24-hour period. Needed repairs shall be made immediately.

N. Permanently stabilize the site.

O. After the site is permanently stabilized, remove all temporary erosion and sediment control measures.

4.11 SWPPP Inspection Reports

Contractor shall provide copies of all inspection reports within five (5) business days of completion to Owner, Construction Manager and Owner's Representative. Copies of inspection reports shall be maintained on site and made available to the permitting authorities upon request. Copies of monthly summary reports shall be posted on-site in a publicly accessible location. Copies of SWPPP inspection reports are included in Appendix N: Construction Inspection Forms/ Checklists.

4.12 SWPPP Report Modifications

The inspection reports should identify any soil erosion and sediment control measures (as well as the stormwater collection, conveyance, and treatment system components) that need to be revised, added, or removed as a result of the field inspection. This SWPPP is meant to be a dynamic working guide that is to be kept current and amended whenever the design, construction, operation, or maintenance of the site changes in a way which significantly affects the potential for the discharge of pollutants or when the plan proves to be ineffective in eliminating or significantly minimizing pollutant discharges.

Any such changes to the SWPPP must be made in writing on the SWPPP Modification Report located in Appendix J of this report within 7 days of the date such a modification or amendment is made. Modifications to permanent stormwater facilities are not allowed during construction without all necessary approvals and project amendments by the Owner, MS4 Coordinator, Construction Manager, and Owner's Representative.

Construction phase stormwater erosion and sediment controls are subject to modification if required by the responsible qualified professional. The Contractor's failure to monitor or report deficiencies to the operator will result in the Contractor being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

5.0 OTHER CONTROLS

5.1 Waste Disposal

All waste materials will be collected and stored in a metal dumpster. The dumpster shall comply with all local and state solid waste management regulations. All trash and construction debris from the site shall be deposited in a dumpster and emptied at least once per week or more often if necessary. Trash shall be hauled to a landfill. No construction waste materials may be buried on-site.

5.2 Sanitary Waste

All sanitary waste shall be collected from portable units and cleaned at a minimum of twice per week by a licensed portable facility provider in complete compliance with local and state regulations.

5.3 Off-Site Vehicle Tracking

A stabilized construction entrance/ exit shall be provided to reduce/ eliminate vehicle tracking of sediment off-site. The paved streets adjacent to the site entrance shall be inspected daily and swept as needed to remove any excess mud, dirt, or rocks tracked from the site. Dump trucks hauling material from the construction site shall be covered with a tarpaulin per local and state regulations.

5.4 Concrete Waste from Concrete Trucks

A. Emptying of excess concrete and/ or washout from concrete delivery trucks may be allowed on the job site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

B. The hardened residue from the concrete washout diked areas shall be disposed of in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan located in Section 5.7 of this report and in accordance with applicable state and federal regulations.

C. Contractor shall coordinate with construction manager all areas acceptable for concrete washout and the necessary procedures to maintain/ reuse such washout areas.

5.5 Hazardous Substances and Hazardous Wastes

A. All hazardous waste materials shall be disposed of by the Contractor in the manner specified by local, state, and/ or federal regulations and by the manufacturer of such products. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site shall be obtained and used for the proper management of potential wastes that may result from these products. A MSDS shall be posted in the immediate area where such a product is stored and/ or used and another copy of each MSDS shall be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties shall be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

B. The Contractor shall implement the Spill Prevention Control and Countermeasures (SPCC) Plan found in section 5.7 of this report and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous waste materials or hazardous wastes will be allowed to come in contact with stormwater discharges. If such contact does occur, the stormwater discharge shall be contained on-site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated stormwater.

C. Any spills of hazardous materials, which are in quantities in excess of Reportable Quantities as defined by the EPA regulations, shall be immediately reported to the EPA National Response Center 1-800-424-8802.

D. In order to minimize the potential for a spill of hazardous materials to come into contact with stormwater, the following steps shall be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, etc.) shall be stored in a secure location, under cover, when not in use.

2. The minimum practical quantity of all such materials shall be kept on the job site.

3. A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, etc.) shall be provided at the storage site.

4. All of the product in a container shall be used before the container is disposed of. All such containers shall be triple-rinsed with water prior to disposal. The rinse water used in these containers shall be disposed of in a manner in compliance with state and federal regulations and not be allowed to mix with stormwater discharges.

5. All products shall be stored in and used from the original container with the original product label.

6. All products shall be used in strict compliance with instructions on the product label.

7. The disposal of excess or used products shall be in strict compliance with instructions on the product label.

5.6 Contaminated Soils

Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities shall be contained and cleaned up immediately in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations.

5.7 Spill Prevention Control and Countermeasures (SPCC) Plan

5.7.1 Materials Covered

The following materials or substances with known hazardous properties are expected to be present on-site during construction:

- Concrete
- Detergents
- Paints
- Paint Solvents
- Fertilizers
- Soil Stabilization Additives
- Cleaning Solvents
- Petroleum Based Products
- Pesticides
- Acids
- Concrete Additives

5.7.2 Material Management Practices

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

A. Good Housekeeping: The following good housekeeping practices shall be followed on-site during the construction project:

1. An effort shall be made to store only enough products required to do the job.

2. All materials stored on-site shall be stored in a neat, orderly manner and, if possible, under a roof or other enclosure.

3. Products shall be kept in their original containers with the original manufacturer's label in legible condition.

4. Substances shall not be mixed with one another unless recommended by the manufacturer.

5. Whenever possible, all a product shall be used up before disposing of the container.

6. Manufacturer's recommendations for proper use and disposal shall be followed.

7. The job site superintendent shall be responsible for daily inspections to ensure proper use and disposal of materials.

B. Hazardous Products: The following practices shall be used to reduce the risks associated with hazardous materials:

1. Products shall be kept in original containers with the original labels in legible condition.

2. Original labels and material safety data sheets (MSDS's) shall be procured and used for each material.

3. If surplus product must be disposed of, manufacturer's or local/ state/ federal recommended methods for proper disposal shall be followed.

4. A spill control containment kit (containing items such as absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, etc.) shall be provided at the storage site.

5. All the product in a container shall be used before the container is disposed of.

6. All such containers shall be triple-rinsed with water prior to disposal. The rinse water used in these containers shall be disposed of in a manner in compliance with state and federal regulations and shall not be allowed to mix with stormwater discharges.

C. Product Specific Practices: The following product specific practices shall be followed on the job site:

1. Petroleum Products: All on-site vehicles shall be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers, which are clearly labeled. Any petroleum storage tanks used on-site shall have a dike or berm containment structure constructed around it to contain any spills that may occur. Any asphalt substances used on-site shall be applied according to the manufacturer's recommendations.

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

3. Paints, Paint Solvents, and Cleaning Solvents: All containers shall be tightly sealed and stored when not in use. Excess paint and solvents shall not be discharged to the storm sewer system, but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

4. Concrete Trucks: Refer to Section 5.4: Concrete Waste from Concrete Trucks

5.7.3 Spill Prevention Practices

The following practices shall be followed for spill prevention and cleanup:

A. Manufacturer's recommended methods for spill cleanup shall be clearly posted and site personnel will be trained regarding these procedures, the location of the information, and cleanup supplies.

B. Materials and equipment necessary for spill cleanup shall be kept in the material storage area on-site in the spill control and containment kit.

C. All spills shall be cleaned up immediately after discovery.

D. The spill area shall be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substances.

E. Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill.

   To Report a Petroleum or Chemical Spill, call the following:

   1. NYS DEC 24 Hour Spill Hotline: 1-800-457-7362
   2. EPA National Response Center: 1-800-424-8802

F. Spills of amounts that exceed reportable quantities of certain substances specifically mentioned in federal regulations (40 CFR 302 list and oil) will be immediately reported to the EPA National Response Center. Reportable quantities of some substances that may be used at the job site are as follows:

   1. Oil: appearance of a film or sheen on water
   2. Pesticides: usually 1 lb.
   3. Acids: 5,000 lbs.
   4. Solvents, flammable: 100 lbs.

G. The SPCC plan shall 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 as part of Hazardous Materials Spill Log located in Appendix K of this report.

APPENDIX A

SITE LOCATION MAP & AERIAL PHOTOGRAPH


Osborn School
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APPENDIX B

SOIL SURVEY

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

Westchester County, New York

April 28, 2020

Preface

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

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

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

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

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

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

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Contents

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.

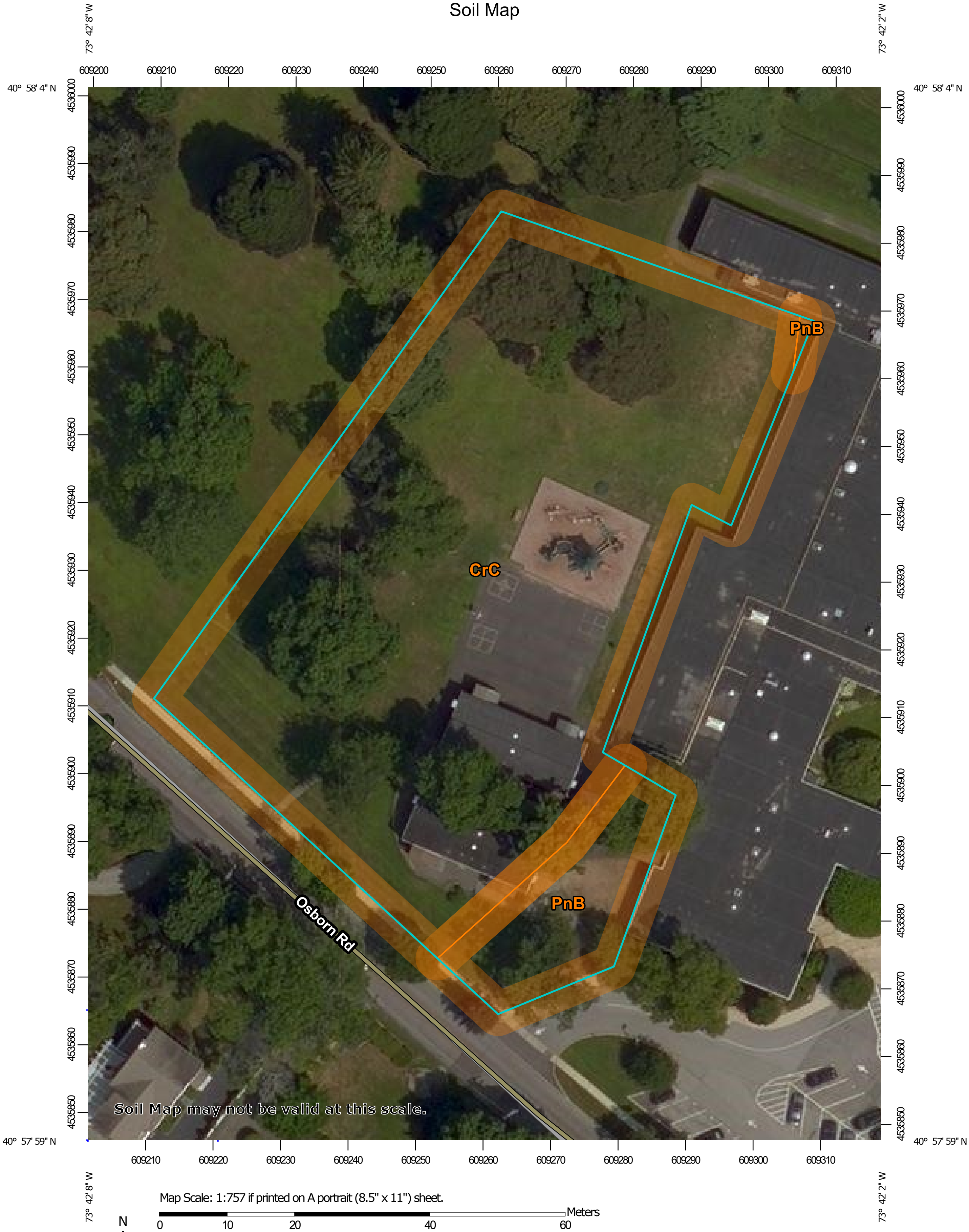
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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: 1:757 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 10, 20, 40, 60

Feet: 0, 35, 70, 140, 210

N

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 1:12,000.

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

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

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

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
CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	1.4	90.4%
PnB	Paxton fine sandy loam, 3 to 8 percent slopes	0.1	9.6%
Totals for Area of Interest		**1.5**	**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.

Westchester County, New York

CrC—Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 2w698
Elevation: 0 to 1,550 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton, very stony, and similar soils: 50 percent
Chatfield, very stony, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton, Very Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Chatfield, Very Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Hollis, very stony

Percent of map unit: 5 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton, very stony

Percent of map unit: 5 percent

Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

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

PnB—Paxton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2t2qp
Elevation: 0 to 1,570 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

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

Description of Paxton

Setting
Landform: Drumlins, ground moraines, hills
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile
Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 39 inches to densic material
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Woodbridge

Percent of map unit: 9 percent
Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ridgebury

Percent of map unit: 6 percent
Landform: Depressions, drainageways, hills, ground moraines
Landform position (two-dimensional): Toeslope, backslope, footslope
Landform position (three-dimensional): Base slope, head slope, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Charlton

Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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

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

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

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

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

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

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

Map—Hydrologic Soil Group

Map Scale: 1:757 if printed on A portrait (8.5" x 11") sheet.

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 Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	1.4	90.4%
PnB	Paxton fine sandy loam, 3 to 8 percent slopes	C	0.1	9.6%
Totals for Area of Interest			**1.5**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

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

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

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

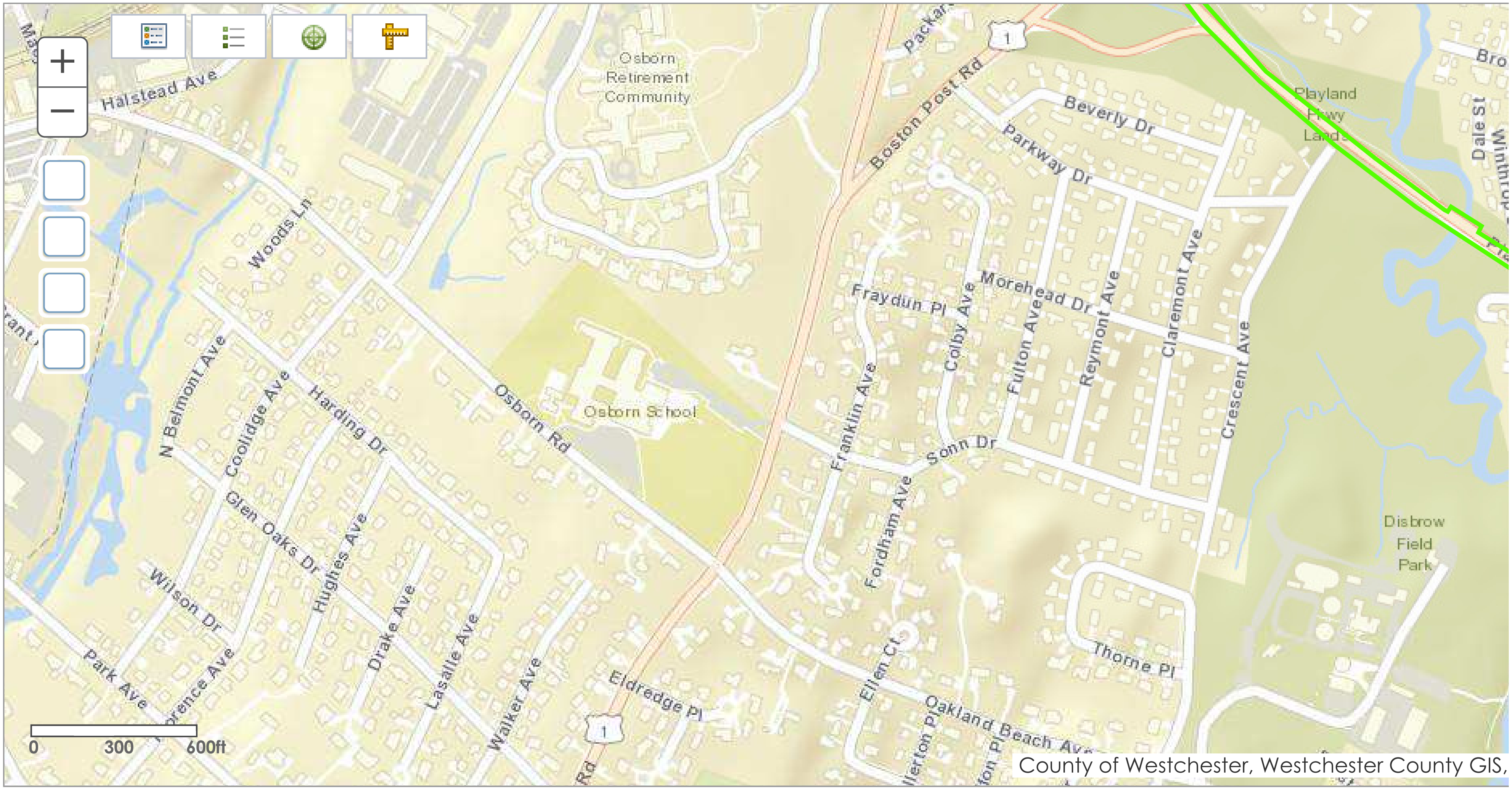
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX C

HISTORIC PRESERVATION AND CULTURAL RESOURCE DATA

NYS CRIS
Cultural Resource Information System

HOME SUBMIT SEARCH COMMUNICATE



APPENDIX D

NOTICE OF INTENT (NOI) AND CONTRACTORS' CERTIFICATION FORMS

0644089821

NOTICE OF INTENT

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

NYR ______ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

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

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Rye City School District

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

Owner/Operator Contact Person First Name
Robert

Owner/Operator Mailing Address
555 Theodore Frmed Avenue, Suite B-101

City
Rye

State
NY

Zip
10580 -

Phone (Owner/Operator)
\- -

Fax (Owner/Operator)
\- -

Email (Owner/Operator)
gimigliano.robert@ryeschools.org

FED TAX ID
\- (not required for individuals)

6401089828

Project Site Information

Project/Site Name
Midland Elementary School Improvements

Street Address (NOT P.O. BOX)
312 Midland Avenue

Side of Street
○ **North** ○ **South** ○ **East** ○ **West**

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

State	Zip	County	DEC Region
NY	10580 -	Westchester	3

Name of Nearest Cross Street
Billington Center

Distance to Nearest Cross Street (Feet)
10

Project In Relation to Cross Street
○ **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel
146-11-3-41

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)	**Y Coordinates (Northing)**
-7 3 6 8 1 0 0	4 0 9 7 5 0 0 0 0
Ex. -73.749	**Ex. 42.652**

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

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

Pre-Development Existing Land Use

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

Post-Development Future Land Use

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

Number of Lots

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

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

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
7.07.0	1.11.1	0.30.3	0.50.5

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

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

A	B	C	D
98 %	2 %	%	%

7. Is this a phased project? ○ **Yes** ● **No**

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

Start Date 01/01/2021 - **End Date** 12/31/2021

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

Name

Long Island Sound

9a. Type of waterbody identified in Question 9?

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

Ocean

9b. How was the wetland identified?

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

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

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

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

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

____._

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

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ Yes ○ No ○ Unknown

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

City of Rye

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

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

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

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

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 ○ No

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 ○ No
If No, skip questions 23 and 27-39.

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 ○ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
Weston & Sampson

Contact Name (Last, Space, First)
Budrow, ,Jeffery

Mailing Address
1 Winners Circle, Suite 130

City
Albany

State NY Zip 12205-

Phone 518-463-4400 Fax - -

Email
budrowj@wseinc.com

SWPPP Preparer Certification

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 Jeffery **MI** F

Last Name Budrow

Signature

Date / /

0005089822

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

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

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

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

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

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

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

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

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

Total WQv Required

0.00615 **acre-feet**

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

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

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

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

RR Techniques (Area Reduction)	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
○ Conservation of Natural Areas (RR-1) ...	.	and/or	.
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	.	and/or	.
○ Tree Planting/Tree Pit (RR-3)	.	and/or	.
○ Disconnection of Rooftop Runoff (RR-4)..	.	and/or	.

RR Techniques (Volume Reduction)	Total Contributing Impervious Area (acres)
○ Vegetated Swale (RR-5)	.
○ Rain Garden (RR-6)	.
○ Stormwater Planter (RR-7)	.
○ Rain Barrel/Cistern (RR-8)	.
○ Porous Pavement (RR-9)	.
○ Green Roof (RR-10)	.

Standard SMPs with RRv Capacity	Total Contributing Impervious Area (acres)
○ Infiltration Trench (I-1)	.
○ Infiltration Basin (I-2)	.
○ Dry Well (I-3)	.
○ Underground Infiltration System (I-4)	0.30737
○ Bioretention (F-5)	.
○ Dry Swale (O-1)	.

Standard SMPs	Total Contributing Impervious Area (acres)
○ Micropool Extended Detention (P-1)	.
○ Wet Pond (P-2)	.
○ Wet Extended Detention (P-3)	.
○ Multiple Pond System (P-4)	.
○ Pocket Pond (P-5)	.
○ Surface Sand Filter (F-1)	.
○ Underground Sand Filter (F-2)	.
○ Perimeter Sand Filter (F-3)	.
○ Organic Filter (F-4)	.
○ Shallow Wetland (W-1)	.
○ Extended Detention Wetland (W-2)	.
○ Pond/Wetland System (W-3)	.
○ Pocket Wetland (W-4)	.
○ Wet Swale (O-2)	.

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Table 2 - Alternative SMPs
(DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ **Hydrodynamic**	.
○ **Wet Vault**	.
○ **Media Filter**	.
○ **Other**	.

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

Name

Manufacturer

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.

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

Total RRv provided

0.0028 **acre-feet**

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

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

○ **Yes** ○ **No**

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

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, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

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

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

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

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

WQv Provided

___ . ___ **acre-feet**

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

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

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

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

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

CPv Required ___ . ___ **acre-feet**

CPv Provided ___ . ___ **acre-feet**

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

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

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

Total Overbank Flood Control Criteria (Qp)

Pre-Development 2.57 **CFS**

Post-development 2.35 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development 5.46 **CFS**

Post-development 4.86 **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Downstream analysis reveals that the Qp and Qf controls are not required

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

● Yes ○ No

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

Rye City School District

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.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP NYR
- ○ Other
- ● None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ Yes ● No
If Yes, Indicate Size of Impact. .

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ Yes ● No
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ Yes ○ No

44. 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. NYR

Owner/Operator Certification

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.

Print First Name: Robert

MI:

Print Last Name: Gimigliano

Owner/Operator Signature:

Date: / /

CONTRACTOR CERTIFICATION STATEMENT

Project Name: Rye CSD Capital Plan - Osborn Elementary School Improvements
Project Location: 10 Osborn Road Rye, NY 10580

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollution Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Name and Title

Company Name

Company Address and Phone Number

Signature Date

Responsible for:

Trained Individual Responsible for SWPPP Implementation

Name Title

APPENDIX E

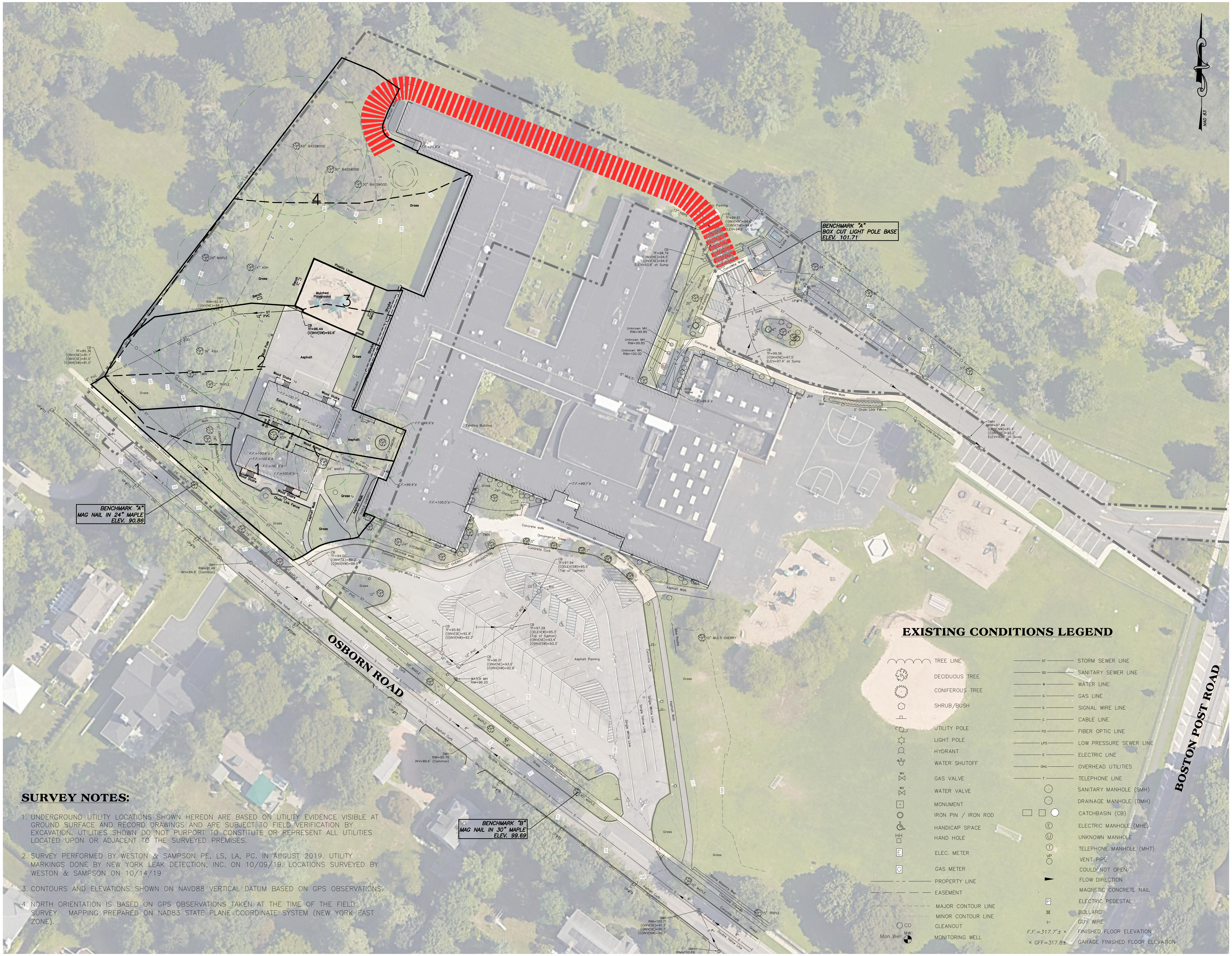
PROJECT SCHEDULE

Proposed Schedule

It is anticipated that the construction for this project will begin October 2021 and be completed by Fall 2023. The Contractor will submit a schedule for approval which will be included in this document once finalized.

APPENDIX F

STORMWATER CALCULATIONS AND HYDROCAD MODELS



SURVEY NOTES:

1. UNDERGROUND UTILITY LOCATIONS SHOWN HEREON ARE BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND RECORD DRAWINGS AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES.
2. SURVEY PERFORMED BY WESTON & SAMPSON PE, LS, LA, PC. IN AUGUST 2019. UTILITY MARKINGS DONE BY NEW YORK LEAK DETECTION, INC. ON 10/09/19. LOCATIONS SURVEYED BY WESTON & SAMPSON ON 10/14/19
3. CONTOURS AND ELEVATIONS SHOWN ON NAVD88 VERTICAL DATUM BASED ON GPS OBSERVATIONS.
4. NORTH ORIENTATION IS BASED ON GPS OBSERVATIONS TAKEN AT THE TIME OF THE FIELD SURVEY. MAPPING PREPARED ON NAD83 STATE PLANE COORDINATE SYSTEM (NEW YORK EAST ZONE).

EXISTING CONDITIONS LEGEND

TREE LINE
DECIDUOUS TREE
CONIFEROUS TREE
SHRUB/BUSH
UTILITY POLE
LIGHT POLE
HYDRANT
WATER SHUTOFF
GAS VALVE
WATER VALVE
MONUMENT
IRON PIN / IRON ROD
HANDICAP SPACE
HAND HOLE
ELEC. METER
GAS METER
PROPERTY LINE
EASEMENT
MAJOR CONTOUR LINE
MINOR CONTOUR LINE
CO CLEANOUT
Mon. Well MW MONITORING WELL

ST STORM SEWER LINE
SS SANITARY SEWER LINE
W WATER LINE
G GAS LINE
S SIGNAL WIRE LINE
C CABLE LINE
FO FIBER OPTIC LINE
LPS LOW PRESSURE SEWER LINE
E ELECTRIC LINE
OHU OVERHEAD UTILITIES
T TELEPHONE LINE
SANITARY MANHOLE (SMH)
DRAINAGE MANHOLE (DMH)
CATCHBASIN (CB)
ELECTRIC MANHOLE (MHE)
UNKNOWN MANHOLE
TELEPHONE MANHOLE (MHT)
VP VENT PIPE
COULD NOT OPEN
FLOW DIRECTION
MAGNETIC CONCRETE NAIL
ELECTRIC PEDESTAL
BOLLARD
GUY WIRE
F.F.=317.7'± × FINISHED FLOOR ELEVATION
× GFF=317.8± GARAGE FINISHED FLOOR ELEVATION

1 SITE PLAN
SCALE: BAR SCALE

0' 10' 30' 60'
SCALE: 1" = 30'-0"

Revision Schedule

No.	Description	Date
	SD Issued for Pricing	02/24/20

Geddis Architects
Architecture. Planning. Interiors
71 Old Post Road
P.O. Box 1020
Southport, CT 06890
(203) 256-8700

fni Fielding Nair International
Transforming Education by Design
259 Water Street Suite 1L
Warren , RI 02885 USA
+1 401-289-2789

Construction Manager
SAVIN ENGINEERS, P.C.
3 Campus Drive
Pleasantville, NY 10570
914-769-3200

Structural Engineer
ODEH ENGINEERS
1223 Mineral Spring Ave
North Providence, RI 02904
401-724-1771

Civil Engineer
WESTON & SAMPSON
1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

MEP Engineer
BARILE GALLAGHER & ASSOCIATES
CONSULTING ENGINEERS
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

SED #: 66180001-0005-030

PROJECT
Rye City School District
555 Theodore Fremd Ave, Rye, NY 10580

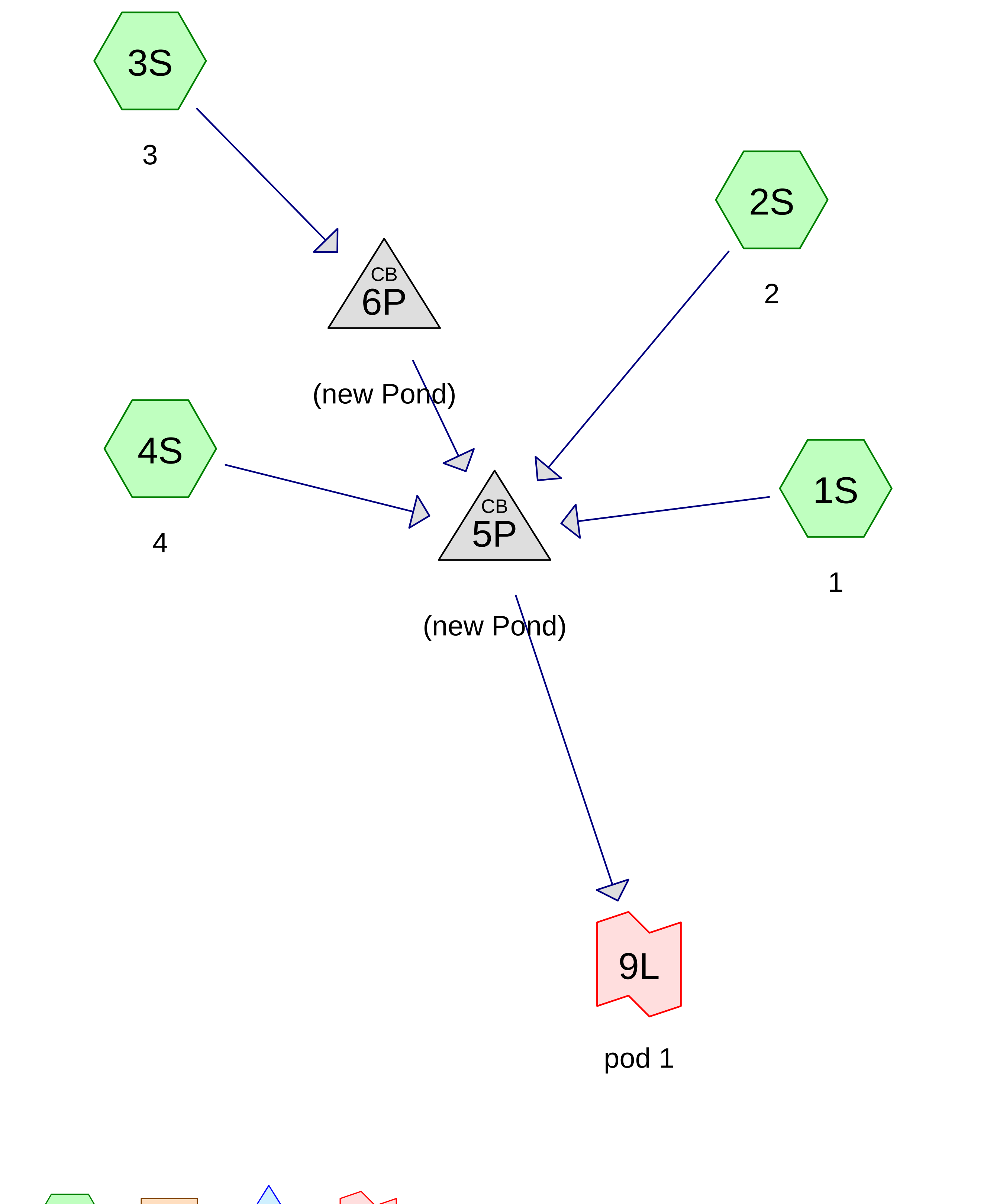
Osborn Elementary School
10 Osborn Road, Rye, New York 10580

EXISTING CONDITIONS

DESIGN DEVELOPMENT

SEAL & SIGNATURE
PROGRESS

DATE:	06/05/20
PROJECT No:	XXXX
DRAWING BY:	KSK
CHK BY:	JFB
DWG No:	SK-1



Routing Diagram for Existing Conditions
Prepared by Weston & Sampson, Printed 10/15/2020

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7139 NY Westchester
Rainfall events imported from "NRCS-Rain.txt" for 7139 NY Westchester

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	NRCC 24-hr	D	Default	24.00	1	2.78	2
2	2-Year	NRCC 24-hr	D	Default	24.00	1	3.41	2
3	5-Year	NRCC 24-hr	D	Default	24.00	1	4.30	2
4	10-Year	NRCC 24-hr	D	Default	24.00	1	5.13	2
5	25-Year	NRCC 24-hr	D	Default	24.00	1	6.49	2
6	50-Year	NRCC 24-hr	D	Default	24.00	1	7.76	2
7	100-Year	NRCC 24-hr	D	Default	24.00	1	9.28	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.283	69	50-75% Grass cover, Fair, HSG B (1S, 2S, 3S, 4S)
0.073	98	Asphalt (2S)
0.062	79	Mulch Playground (3S)
0.084	98	Roofs, HSG B (1S, 2S)
0.076	98	Sidewalk/Pavement (1S)
0.007	98	Wood Deck/Steps (2S)
0.026	98	Wood Stairs/Deck (1S)
1.611	**74**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.367	HSG B	1S, 2S, 3S, 4S
0.000	HSG C	
0.000	HSG D	
0.244	Other	1S, 2S, 3S
1.611		**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	1.283	0.000	0.000	0.000	1.283	50-75% Grass cover, Fair	1S, 2S, 3S, 4S
0.000	0.000	0.000	0.000	0.073	0.073	Asphalt	2S
0.000	0.000	0.000	0.000	0.062	0.062	Mulch Playground	3S
0.000	0.084	0.000	0.000	0.000	0.084	Roofs	1S, 2S
0.000	0.000	0.000	0.000	0.076	0.076	Sidewalk/Pavement	1S
0.000	0.000	0.000	0.000	0.007	0.007	Wood Deck/Steps	2S
0.000	0.000	0.000	0.000	0.026	0.026	Wood Stairs/Deck	1S
0.000	**1.367**	**0.000**	**0.000**	**0.244**	**1.611**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	5P	88.30	81.10	155.0	0.0465	0.010	12.0	0.0	0.0
2	6P	92.60	88.30	56.0	0.0768	0.010	12.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 1S: 1 Runoff Area=15,481 sf 40.71% Impervious Runoff Depth>1.01"
Flow Length=137' Tc=7.9 min CN=81 Runoff=0.41 cfs 0.030 af

Subcatchment 2S: 2 Runoff Area=20,611 sf 25.79% Impervious Runoff Depth>0.75"
Flow Length=132' Tc=8.1 min CN=76 Runoff=0.40 cfs 0.030 af

Subcatchment 3S: 3 Runoff Area=3,767 sf 0.00% Impervious Runoff Depth>0.75"
Flow Length=80' Slope=0.0200 '/' Tc=24.3 min CN=76 Runoff=0.05 cfs 0.005 af

Subcatchment 4S: 4 Runoff Area=30,334 sf 0.00% Impervious Runoff Depth>0.46"
Flow Length=399' Tc=12.6 min CN=69 Runoff=0.27 cfs 0.027 af

Pond 5P: (new Pond) Peak Elev=88.91' Inflow=1.06 cfs 0.092 af
12.0" Round Culvert n=0.010 L=155.0' S=0.0465 '/' Outflow=1.06 cfs 0.092 af

Pond 6P: (new Pond) Peak Elev=92.71' Inflow=0.05 cfs 0.005 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0768 '/' Outflow=0.05 cfs 0.005 af

Link 9L: pod 1 Inflow=1.06 cfs 0.092 af
Primary=1.06 cfs 0.092 af

Total Runoff Area = 1.611 ac Runoff Volume = 0.092 af Average Runoff Depth = 0.68"
83.45% Pervious = 1.345 ac 16.55% Impervious = 0.267 ac

Summary for Subcatchment 1S: 1

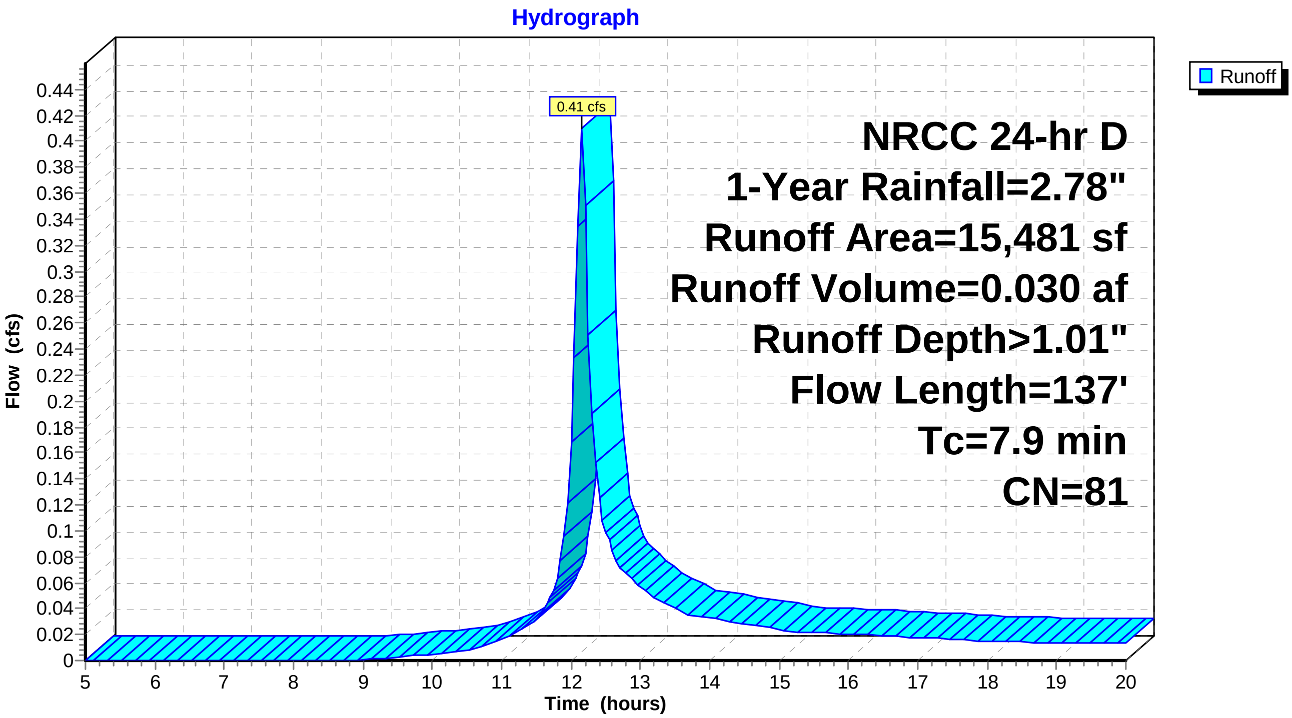
Runoff = 0.41 cfs @ 12.15 hrs, Volume= 0.030 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	1,139	98	Wood Stairs/Deck
*	3,327	98	Sidewalk/Pavement
	1,837	98	Roofs, HSG B
	9,178	69	50-75% Grass cover, Fair, HSG B
	15,481	81	Weighted Average
	9,178		59.29% Pervious Area
	6,303		40.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0950	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	37	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	137	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

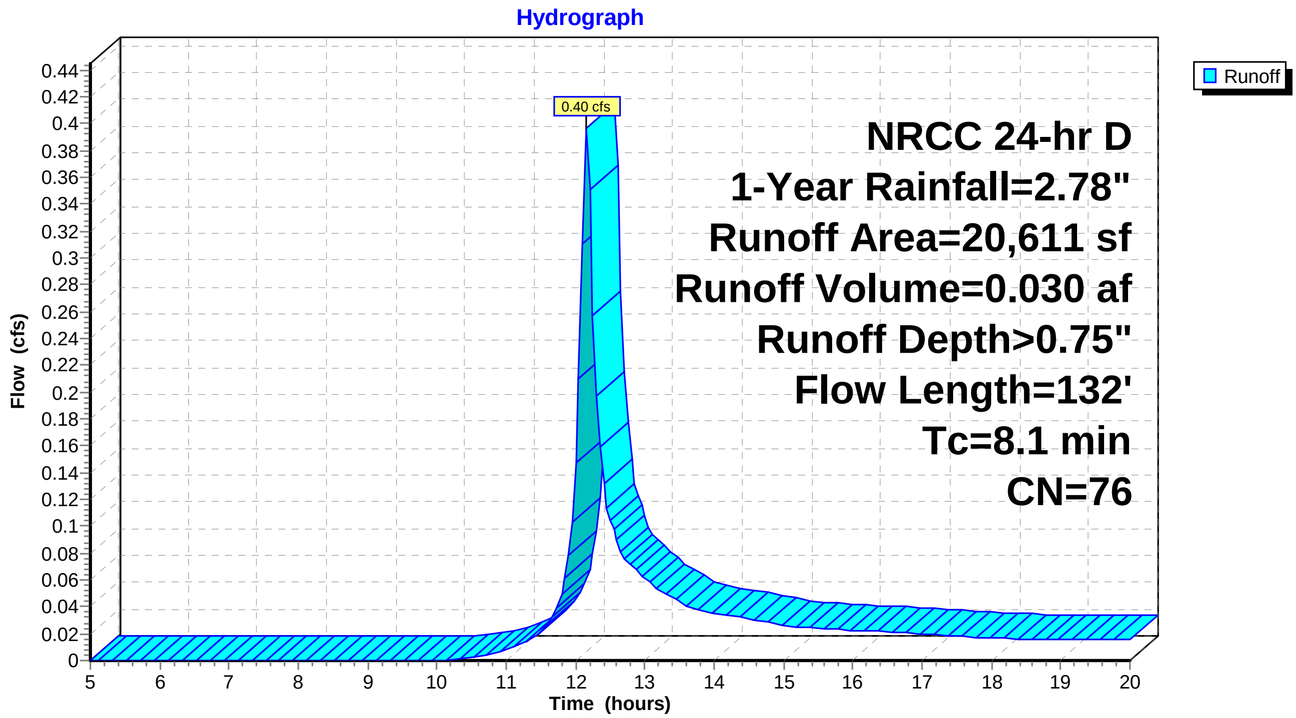
Runoff = 0.40 cfs @ 12.16 hrs, Volume= 0.030 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	286	98	Wood Deck/Steps
	1,830	98	Roofs, HSG B
*	3,199	98	Asphalt
	15,296	69	50-75% Grass cover, Fair, HSG B
	20,611	76	Weighted Average
	15,296		74.21% Pervious Area
	5,315		25.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0850	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.1	32	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	132	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

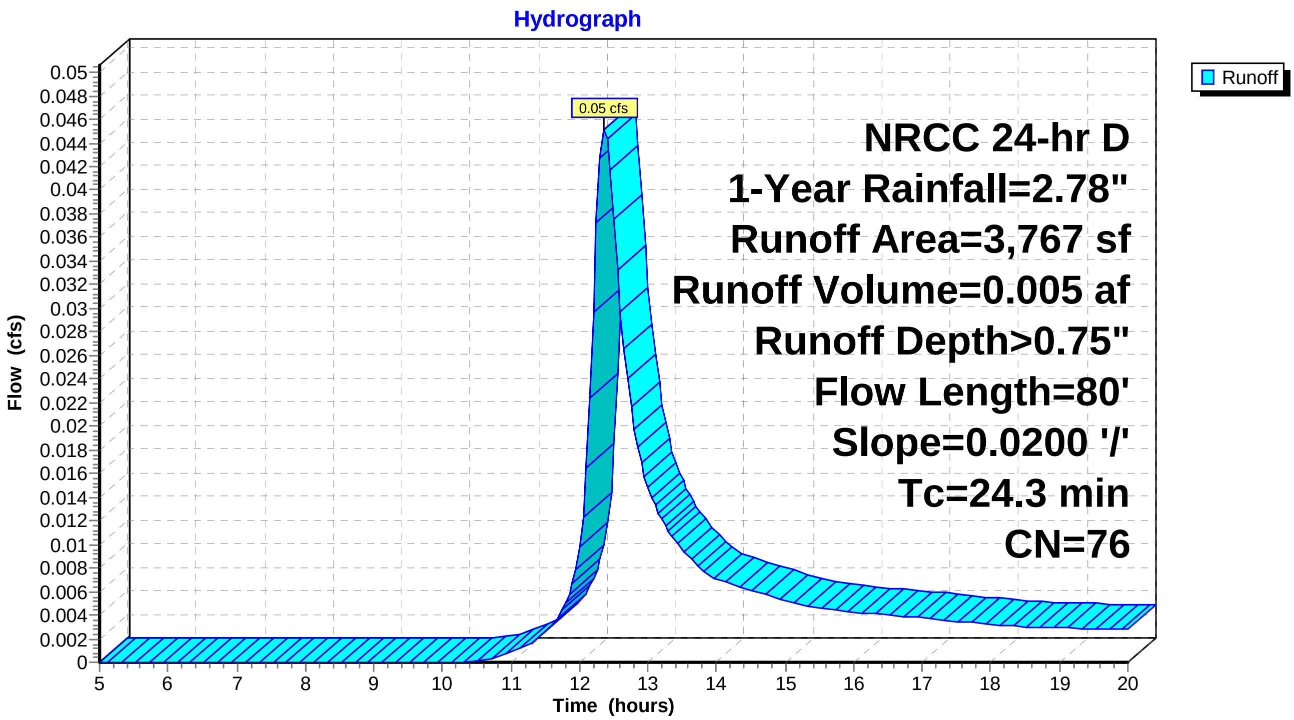
Runoff = 0.05 cfs @ 12.36 hrs, Volume= 0.005 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	2,685	79	Mulch Playground
	1,082	69	50-75% Grass cover, Fair, HSG B
	3,767	76	Weighted Average
	3,767		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	24	0.0200	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
19.7	56	0.0200	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 1.50"
24.3	80	Total			

Subcatchment 3S: 3



Summary for Subcatchment 4S: 4

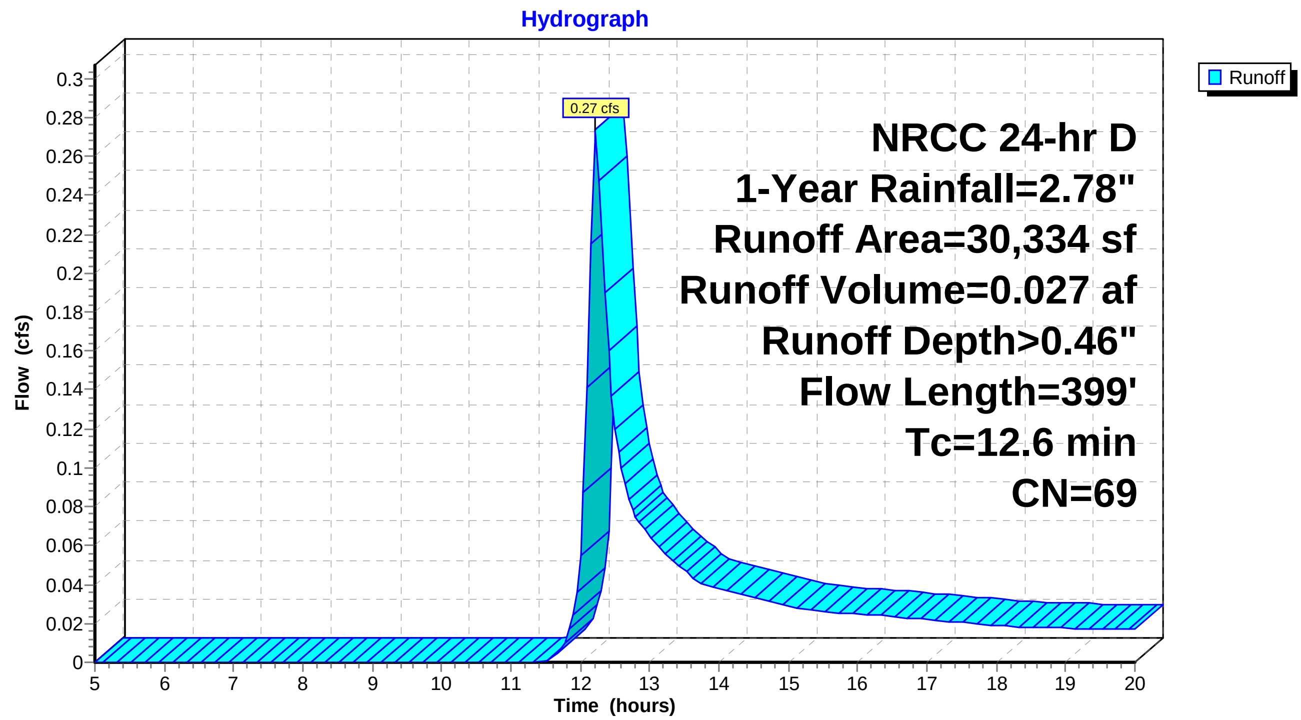
Runoff = 0.27 cfs @ 12.22 hrs, Volume= 0.027 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

Area (sf)	CN	Description
30,334	69	50-75% Grass cover, Fair, HSG B
30,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	110	0.0450	3.18		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.2	189	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.6	399	Total			

Subcatchment 4S: 4



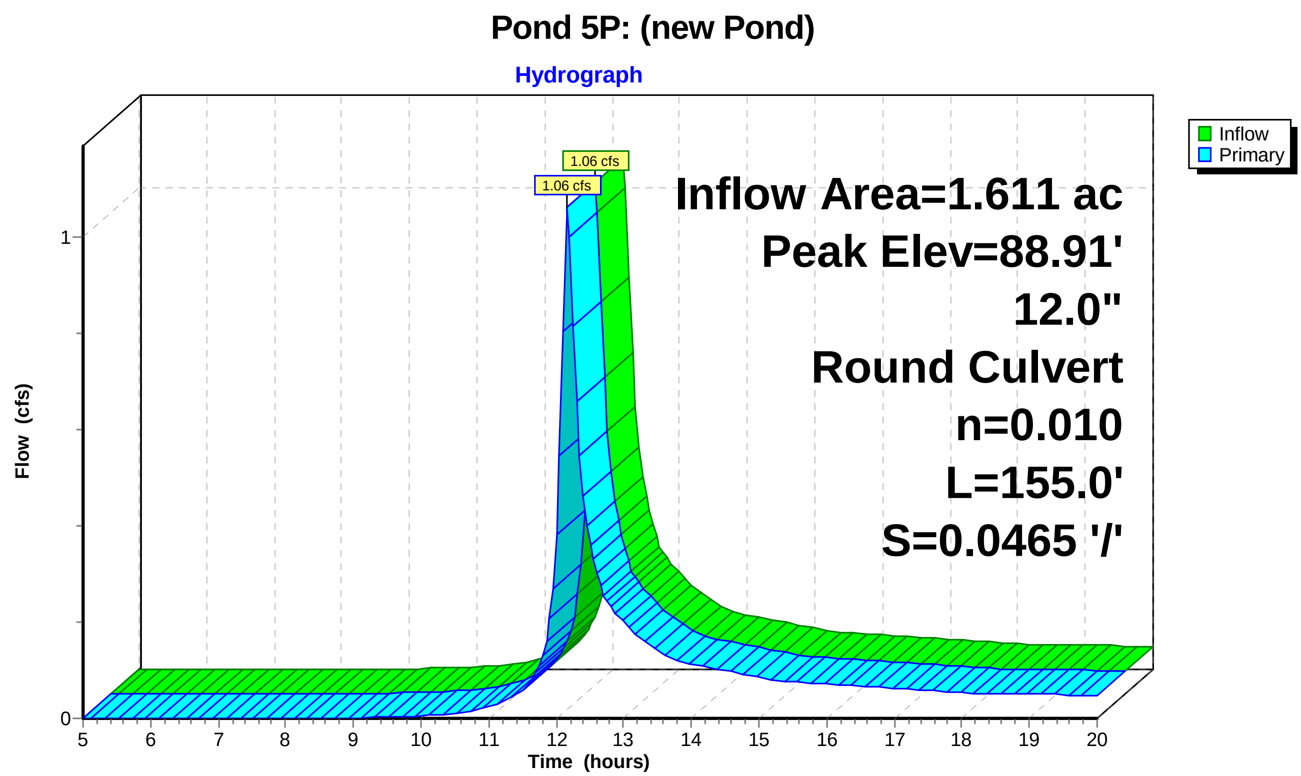
Summary for Pond 5P: (new Pond)

Inflow Area = 1.611 ac, 16.55% Impervious, Inflow Depth > 0.68" for 1-Year event
Inflow = 1.06 cfs @ 12.17 hrs, Volume= 0.092 af
Outflow = 1.06 cfs @ 12.17 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 12.17 hrs, Volume= 0.092 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 88.91' @ 12.17 hrs
Flood Elev= 92.97'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.30'	**12.0" Round Culvert** L= 155.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.30' / 81.10' S= 0.0465 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.03 cfs @ 12.17 hrs HW=88.90' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.03 cfs @ 2.08 fps)



Summary for Pond 6P: (new Pond)

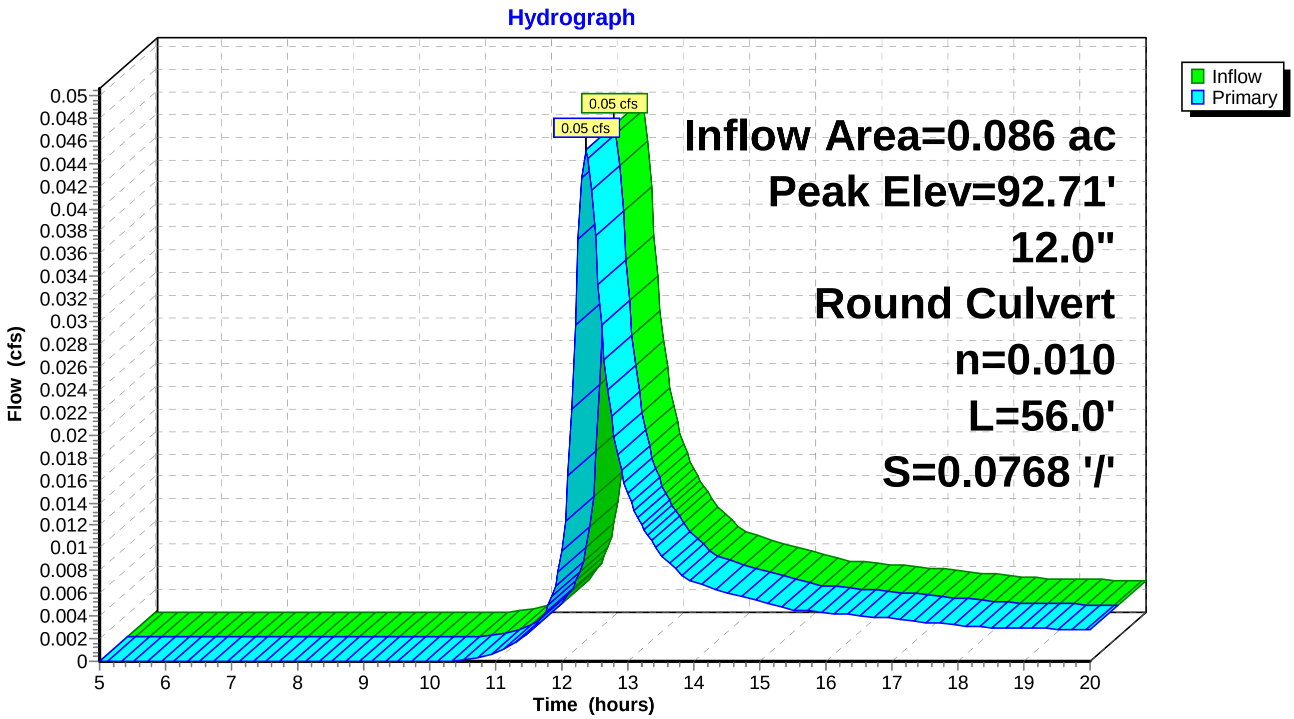
Inflow Area =	0.086 ac,	0.00% Impervious, Inflow Depth > 0.75"	for 1-Year event	
Inflow =	0.05 cfs @	12.36 hrs, Volume=	0.005 af	
Outflow =	0.05 cfs @	12.36 hrs, Volume=	0.005 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.05 cfs @	12.36 hrs, Volume=	0.005 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 92.71' @ 12.36 hrs
Flood Elev= 96.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.60'	**12.0" Round Culvert** L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 92.60' / 88.30' S= 0.0768 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.36 hrs HW=92.71' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.04 cfs @ 0.91 fps)

Pond 6P: (new Pond)

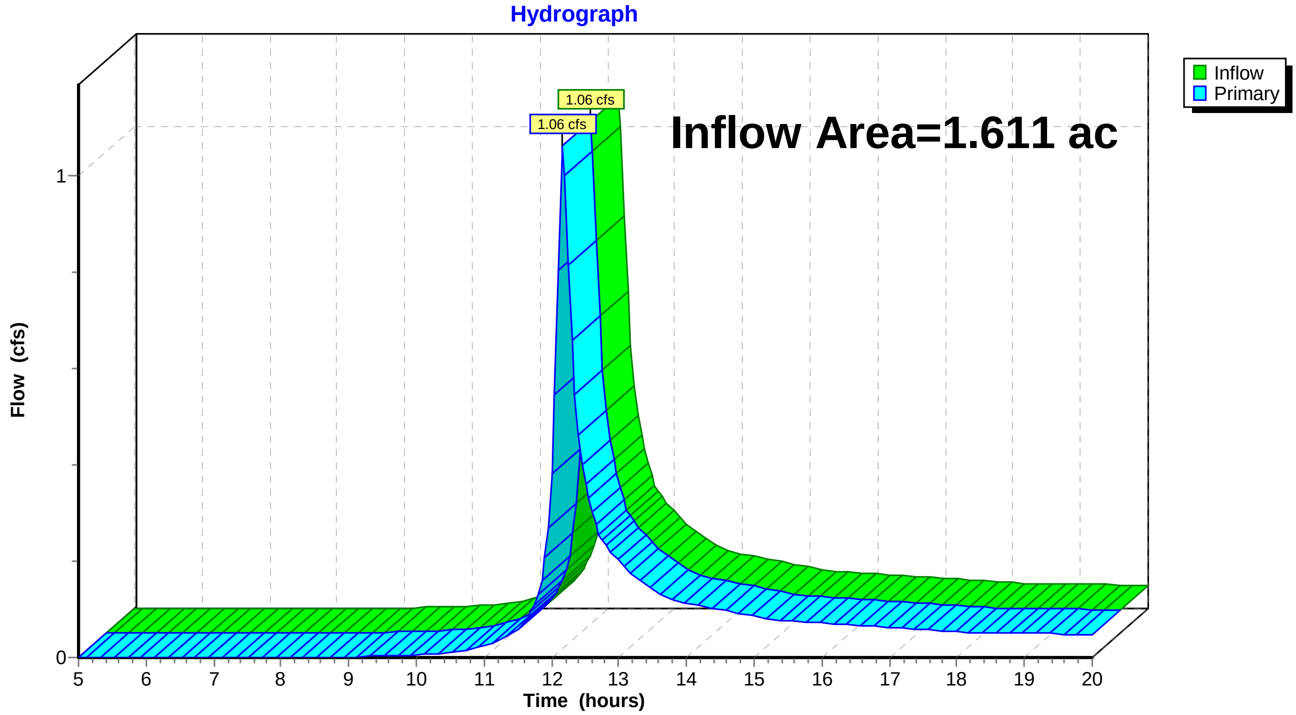


Summary for Link 9L: pod 1

Inflow Area =	1.611 ac,	16.55% Impervious,	Inflow Depth > 0.68"	for 1-Year event
Inflow =	1.06 cfs @	12.17 hrs, Volume=	0.092 af	
Primary =	1.06 cfs @	12.17 hrs, Volume=	0.092 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 9L: pod 1



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 1S: 1
Runoff Area=15,481 sf 40.71% Impervious Runoff Depth>2.80"
Flow Length=137' Tc=7.9 min CN=81 Runoff=1.11 cfs 0.083 af

Subcatchment 2S: 2
Runoff Area=20,611 sf 25.79% Impervious Runoff Depth>2.36"
Flow Length=132' Tc=8.1 min CN=76 Runoff=1.26 cfs 0.093 af

Subcatchment 3S: 3
Runoff Area=3,767 sf 0.00% Impervious Runoff Depth>2.34"
Flow Length=80' Slope=0.0200 '/' Tc=24.3 min CN=76 Runoff=0.15 cfs 0.017 af

Subcatchment 4S: 4
Runoff Area=30,334 sf 0.00% Impervious Runoff Depth>1.80"
Flow Length=399' Tc=12.6 min CN=69 Runoff=1.21 cfs 0.105 af

Pond 5P: (new Pond)
Peak Elev=90.20' Inflow=3.54 cfs 0.298 af
12.0" Round Culvert n=0.010 L=155.0' S=0.0465 '/' Outflow=3.54 cfs 0.298 af

Pond 6P: (new Pond)
Peak Elev=92.81' Inflow=0.15 cfs 0.017 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0768 '/' Outflow=0.15 cfs 0.017 af

Link 9L: pod 1
Inflow=3.54 cfs 0.298 af
Primary=3.54 cfs 0.298 af

Total Runoff Area = 1.611 ac Runoff Volume = 0.298 af Average Runoff Depth = 2.22"
83.45% Pervious = 1.345 ac 16.55% Impervious = 0.267 ac

Summary for Subcatchment 1S: 1

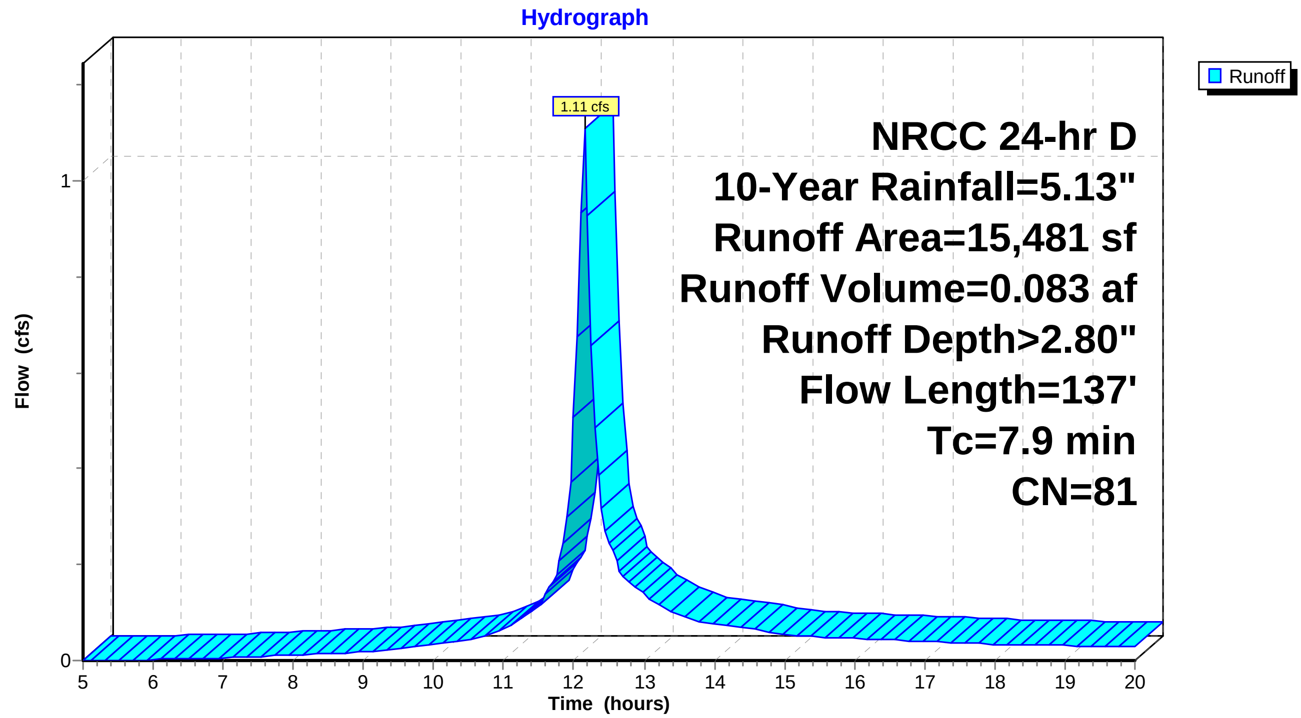
Runoff = 1.11 cfs @ 12.15 hrs, Volume= 0.083 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	1,139	98	Wood Stairs/Deck
*	3,327	98	Sidewalk/Pavement
	1,837	98	Roofs, HSG B
	9,178	69	50-75% Grass cover, Fair, HSG B
	15,481	81	Weighted Average
	9,178		59.29% Pervious Area
	6,303		40.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0950	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	37	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	137	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

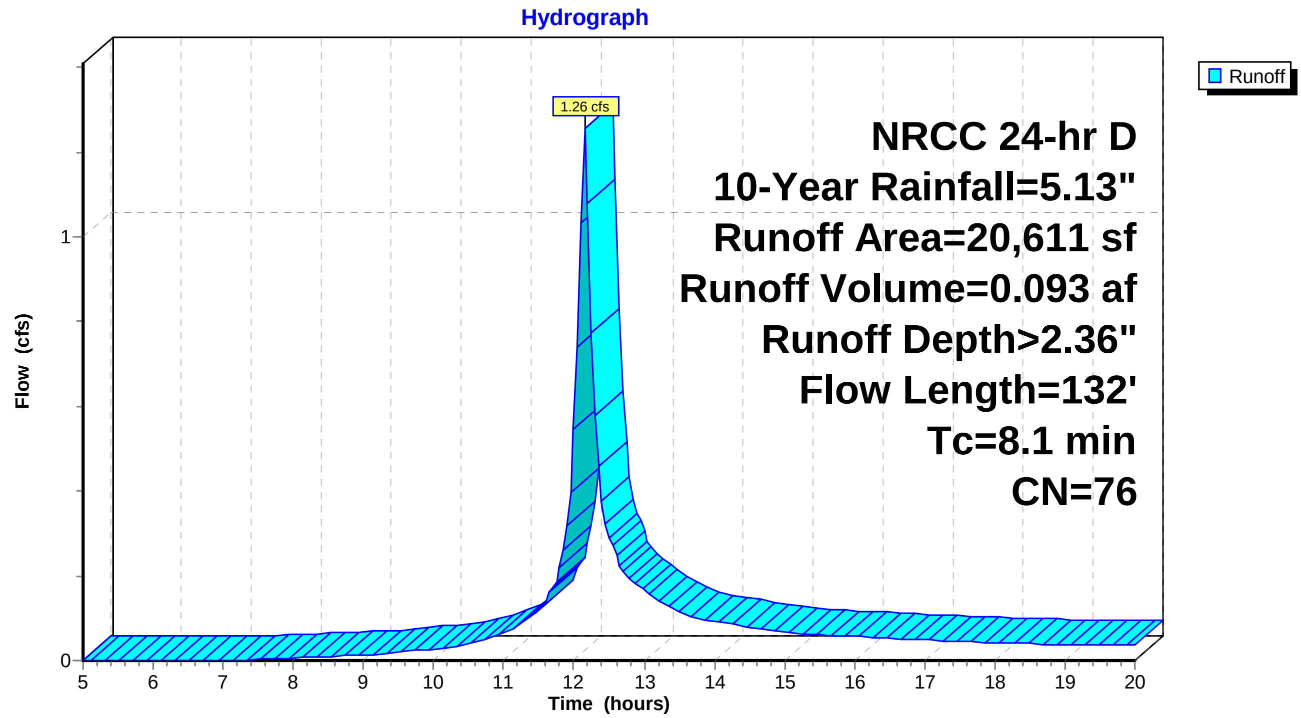
Runoff = 1.26 cfs @ 12.15 hrs, Volume= 0.093 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	286	98	Wood Deck/Steps
	1,830	98	Roofs, HSG B
*	3,199	98	Asphalt
	15,296	69	50-75% Grass cover, Fair, HSG B
	20,611	76	Weighted Average
	15,296		74.21% Pervious Area
	5,315		25.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0850	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.1	32	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	132	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

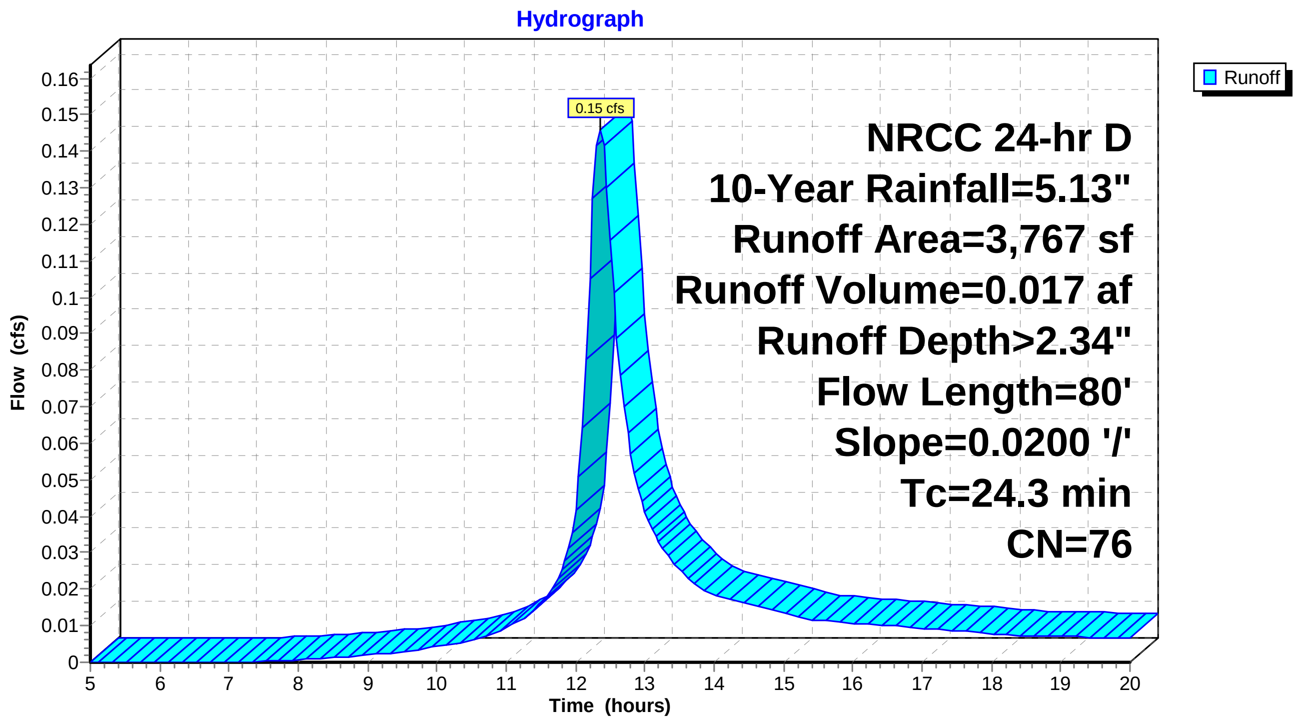
Runoff = 0.15 cfs @ 12.35 hrs, Volume= 0.017 af, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	2,685	79	Mulch Playground
	1,082	69	50-75% Grass cover, Fair, HSG B
	3,767	76	Weighted Average
	3,767		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	24	0.0200	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
19.7	56	0.0200	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 1.50"
24.3	80	Total			

Subcatchment 3S: 3



Summary for Subcatchment 4S: 4

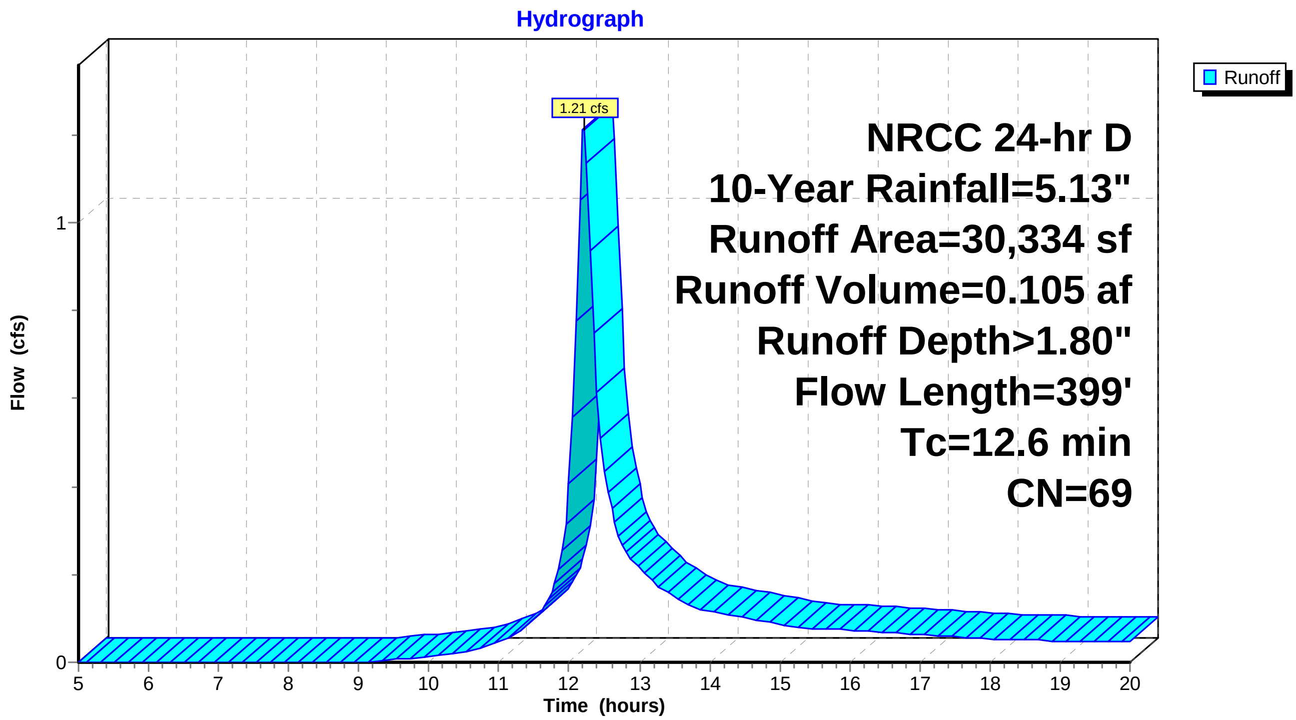
Runoff = 1.21 cfs @ 12.21 hrs, Volume= 0.105 af, Depth> 1.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

Area (sf)	CN	Description
30,334	69	50-75% Grass cover, Fair, HSG B
30,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	110	0.0450	3.18		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.2	189	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.6	399	Total			

Subcatchment 4S: 4



Summary for Pond 5P: (new Pond)

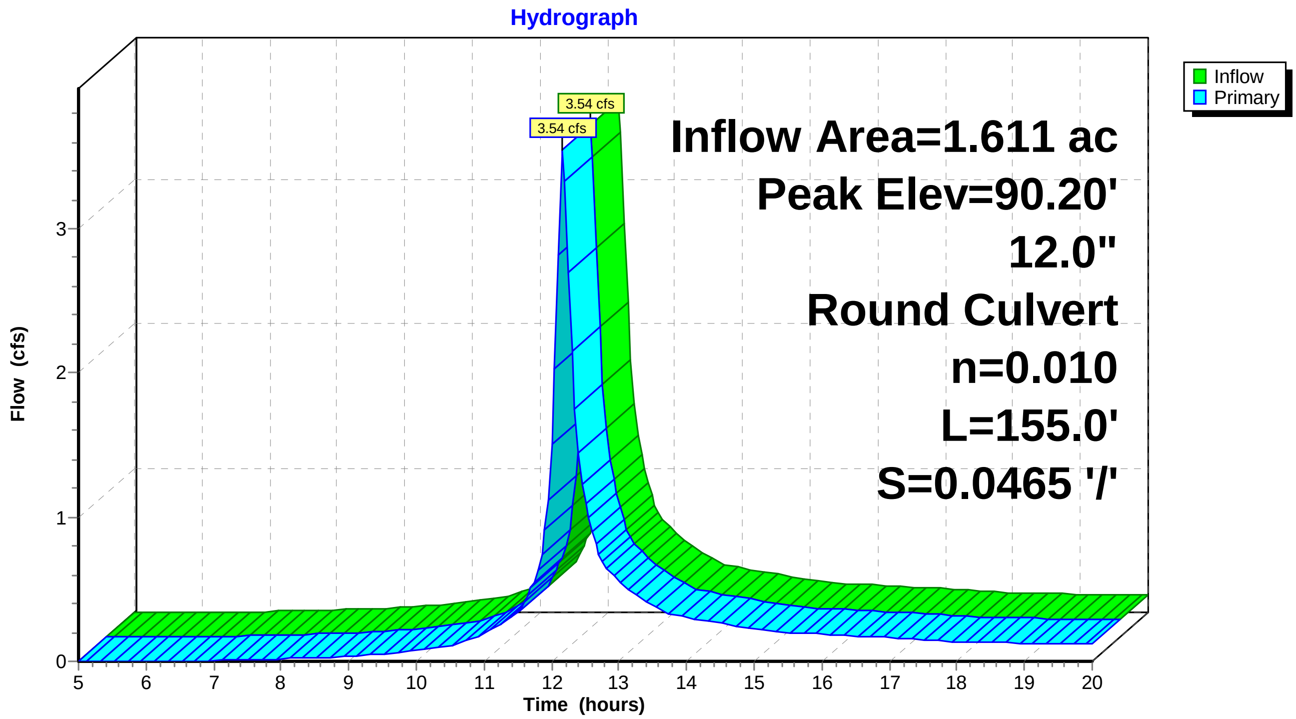
Inflow Area = 1.611 ac, 16.55% Impervious, Inflow Depth > 2.22" for 10-Year event
Inflow = 3.54 cfs @ 12.16 hrs, Volume= 0.298 af
Outflow = 3.54 cfs @ 12.16 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.0 min
Primary = 3.54 cfs @ 12.16 hrs, Volume= 0.298 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 90.20' @ 12.16 hrs
Flood Elev= 92.97'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.30'	**12.0" Round Culvert** L= 155.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.30' / 81.10' S= 0.0465 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.45 cfs @ 12.16 hrs HW=90.14' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.45 cfs @ 4.40 fps)

Pond 5P: (new Pond)



Summary for Pond 6P: (new Pond)

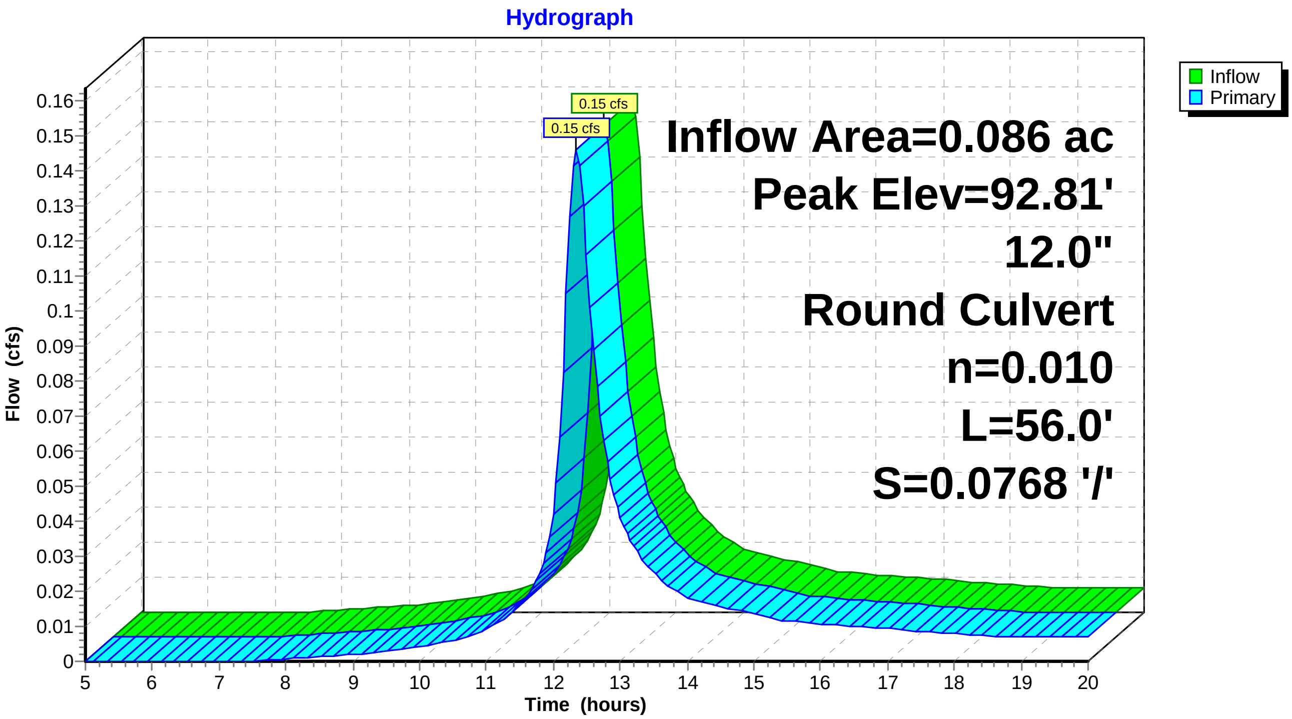
Inflow Area = 0.086 ac, 0.00% Impervious, Inflow Depth > 2.34" for 10-Year event
Inflow = 0.15 cfs @ 12.35 hrs, Volume= 0.017 af
Outflow = 0.15 cfs @ 12.35 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.35 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 92.81' @ 12.35 hrs
Flood Elev= 96.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.60'	**12.0" Round Culvert** L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 92.60' / 88.30' S= 0.0768 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.35 hrs HW=92.81' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.15 cfs @ 1.23 fps)

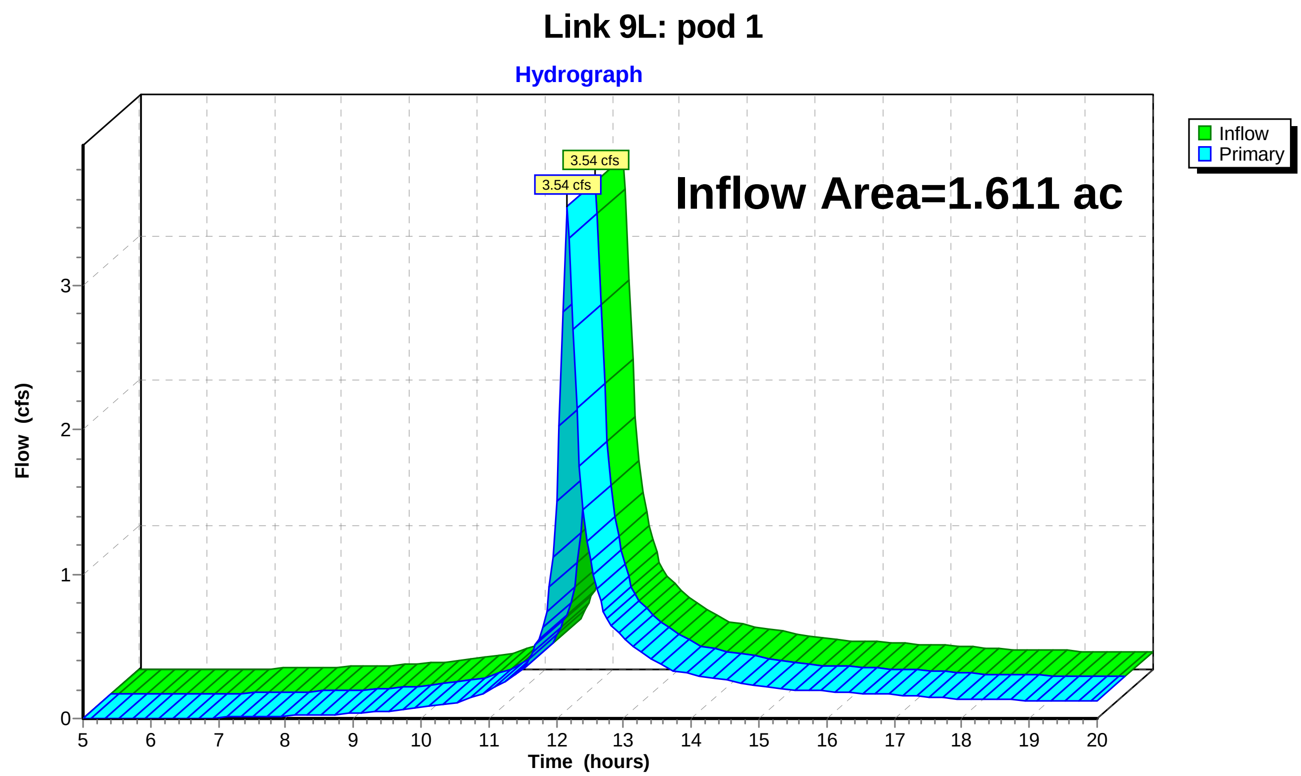
Pond 6P: (new Pond)



Summary for Link 9L: pod 1

Inflow Area = 1.611 ac, 16.55% Impervious, Inflow Depth > 2.22" for 10-Year event
Inflow = 3.54 cfs @ 12.16 hrs, Volume= 0.298 af
Primary = 3.54 cfs @ 12.16 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 1S: 1 Runoff Area=15,481 sf 40.71% Impervious Runoff Depth>3.94"
Flow Length=137' Tc=7.9 min CN=81 Runoff=1.54 cfs 0.117 af

Subcatchment 2S: 2 Runoff Area=20,611 sf 25.79% Impervious Runoff Depth>3.43"
Flow Length=132' Tc=8.1 min CN=76 Runoff=1.81 cfs 0.135 af

Subcatchment 3S: 3 Runoff Area=3,767 sf 0.00% Impervious Runoff Depth>3.41"
Flow Length=80' Slope=0.0200 '/' Tc=24.3 min CN=76 Runoff=0.21 cfs 0.025 af

Subcatchment 4S: 4 Runoff Area=30,334 sf 0.00% Impervious Runoff Depth>2.75"
Flow Length=399' Tc=12.6 min CN=69 Runoff=1.86 cfs 0.160 af

Pond 5P: (new Pond) Peak Elev=91.76' Inflow=5.15 cfs 0.436 af
12.0" Round Culvert n=0.010 L=155.0' S=0.0465 '/' Outflow=5.15 cfs 0.436 af

Pond 6P: (new Pond) Peak Elev=92.85' Inflow=0.21 cfs 0.025 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0768 '/' Outflow=0.21 cfs 0.025 af

Link 9L: pod 1 Inflow=5.15 cfs 0.436 af
Primary=5.15 cfs 0.436 af

Total Runoff Area = 1.611 ac Runoff Volume = 0.436 af Average Runoff Depth = 3.25"
83.45% Pervious = 1.345 ac 16.55% Impervious = 0.267 ac

Summary for Subcatchment 1S: 1

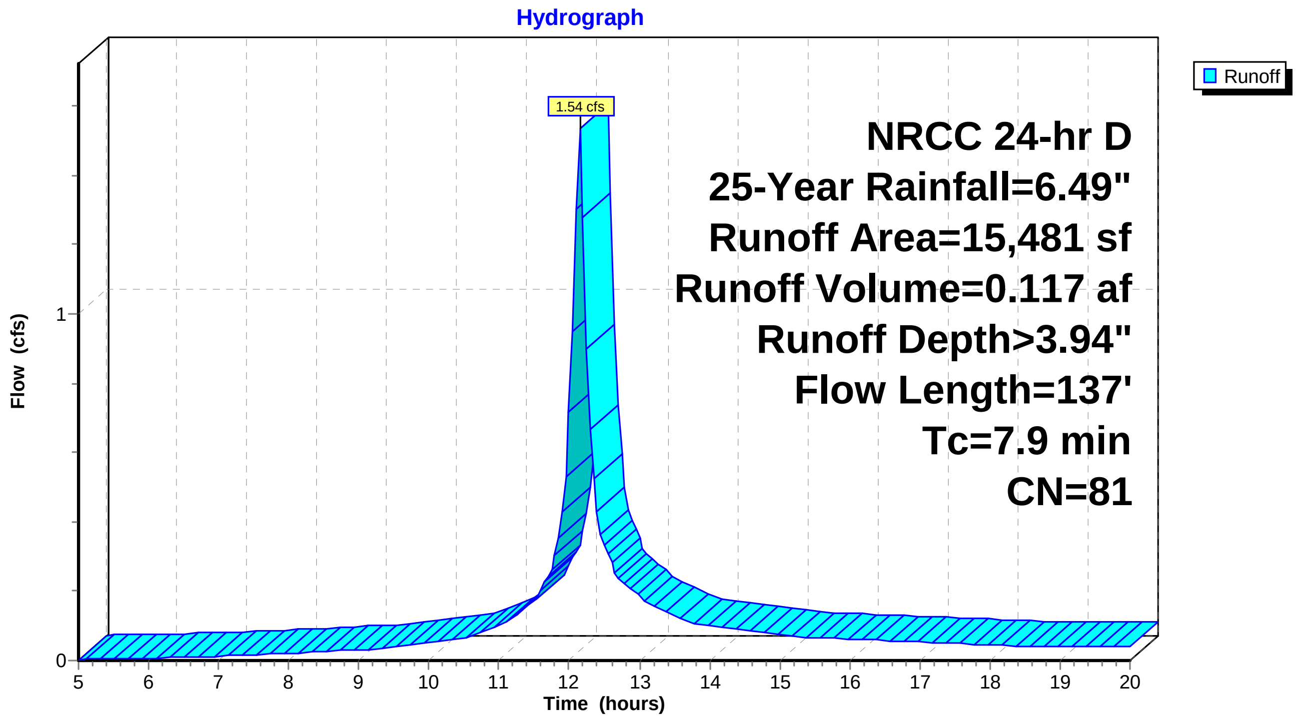
Runoff = 1.54 cfs @ 12.15 hrs, Volume= 0.117 af, Depth> 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	1,139	98	Wood Stairs/Deck
*	3,327	98	Sidewalk/Pavement
	1,837	98	Roofs, HSG B
	9,178	69	50-75% Grass cover, Fair, HSG B
	15,481	81	Weighted Average
	9,178		59.29% Pervious Area
	6,303		40.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0950	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	37	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	137	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

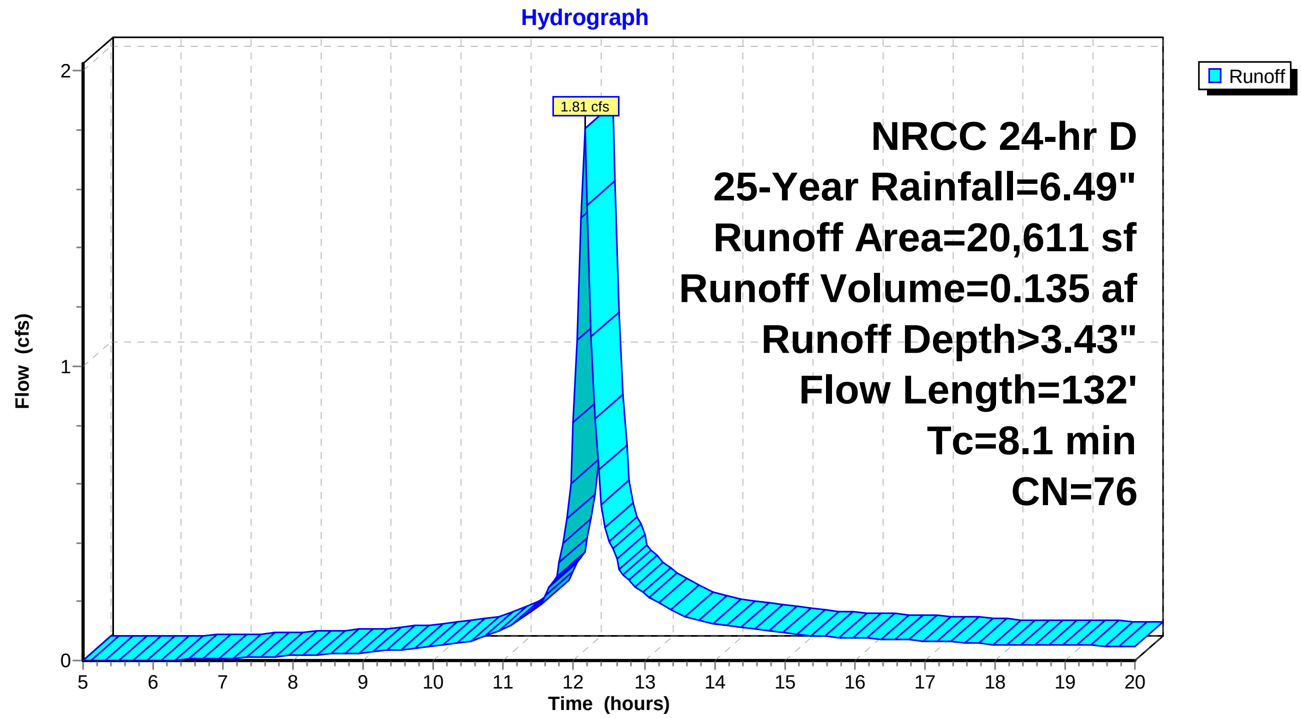
Runoff = 1.81 cfs @ 12.15 hrs, Volume= 0.135 af, Depth> 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	286	98	Wood Deck/Steps
	1,830	98	Roofs, HSG B
*	3,199	98	Asphalt
	15,296	69	50-75% Grass cover, Fair, HSG B
	20,611	76	Weighted Average
	15,296		74.21% Pervious Area
	5,315		25.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0850	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.1	32	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	132	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

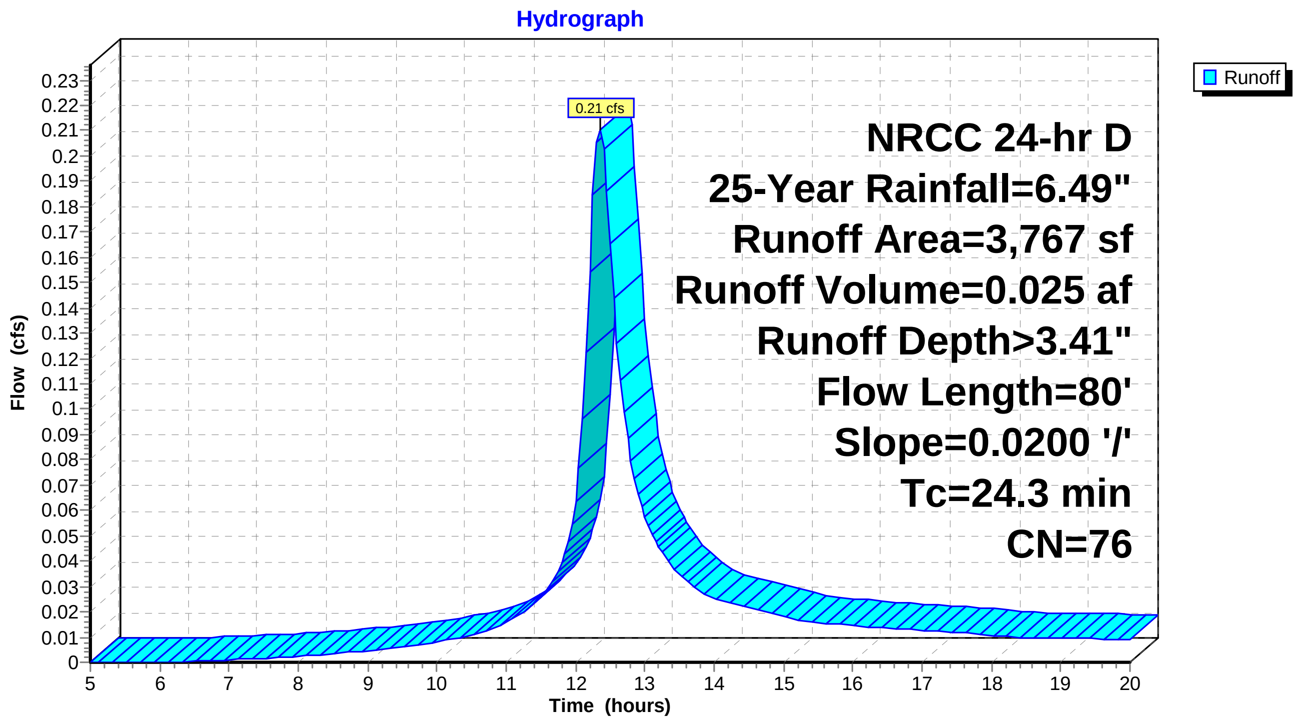
Runoff = 0.21 cfs @ 12.35 hrs, Volume= 0.025 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	2,685	79	Mulch Playground
	1,082	69	50-75% Grass cover, Fair, HSG B
	3,767	76	Weighted Average
	3,767		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	24	0.0200	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
19.7	56	0.0200	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 1.50"
24.3	80	Total			

Subcatchment 3S: 3



Summary for Subcatchment 4S: 4

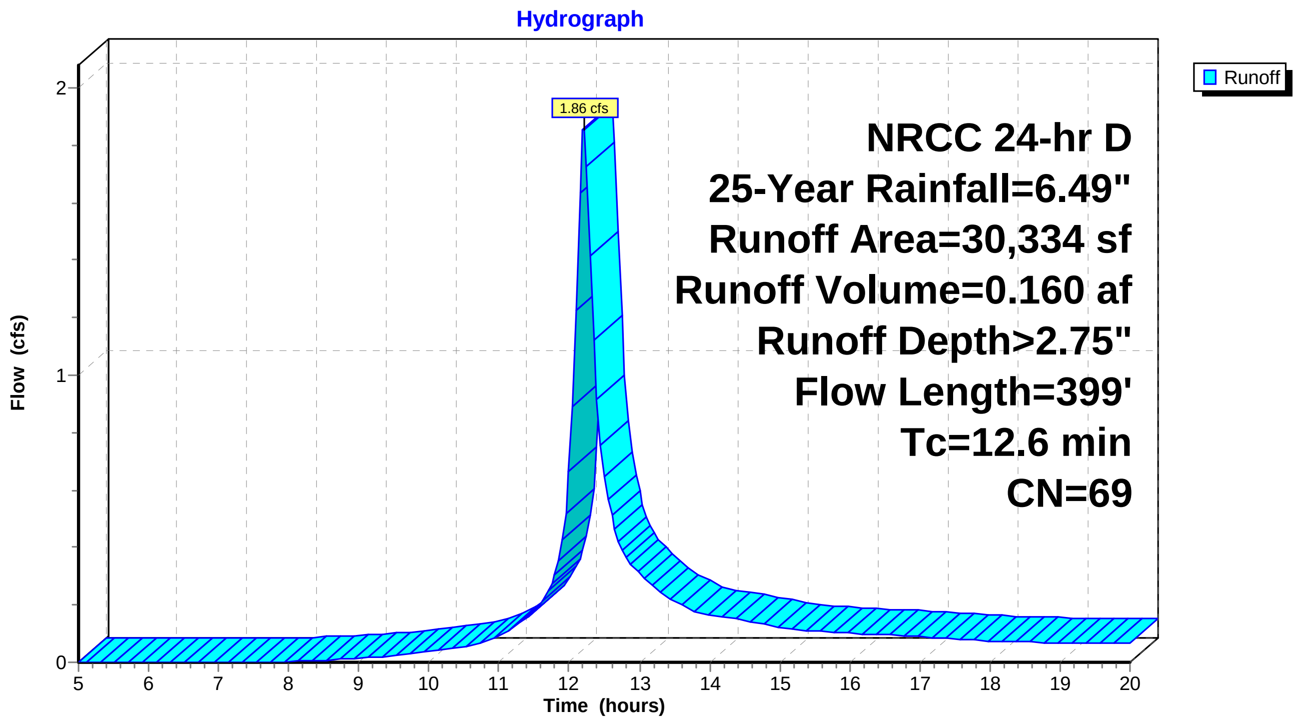
Runoff = 1.86 cfs @ 12.21 hrs, Volume= 0.160 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

Area (sf)	CN	Description
30,334	69	50-75% Grass cover, Fair, HSG B
30,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	110	0.0450	3.18		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.2	189	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.6	399	Total			

Subcatchment 4S: 4



Summary for Pond 5P: (new Pond)

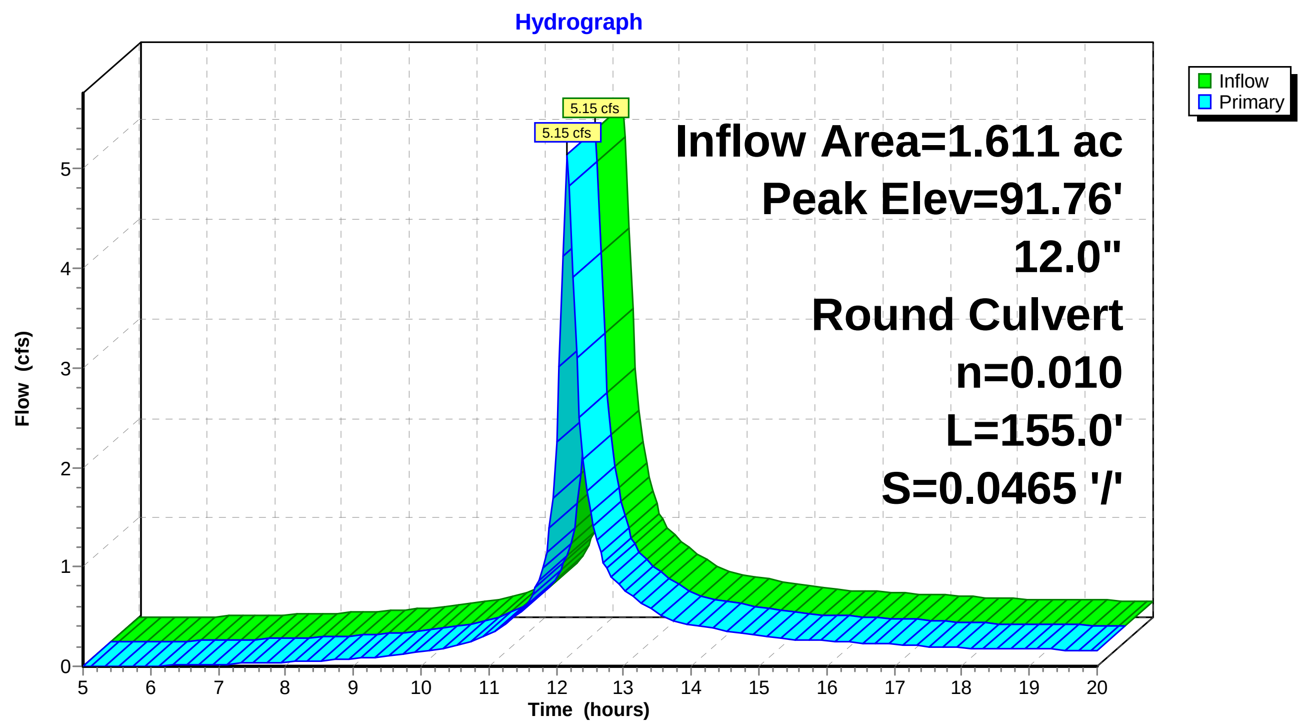
Inflow Area =	1.611 ac, 16.55% Impervious, Inflow Depth > 3.25"	for 25-Year event	
Inflow =	5.15 cfs @ 12.16 hrs, Volume=	0.436 af	
Outflow =	5.15 cfs @ 12.16 hrs, Volume=	0.436 af,	Atten= 0%, Lag= 0.0 min
Primary =	5.15 cfs @ 12.16 hrs, Volume=	0.436 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 91.76' @ 12.16 hrs
Flood Elev= 92.97'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.30'	**12.0" Round Culvert** L= 155.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.30' / 81.10' S= 0.0465 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.02 cfs @ 12.16 hrs HW=91.63' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.02 cfs @ 6.40 fps)

Pond 5P: (new Pond)



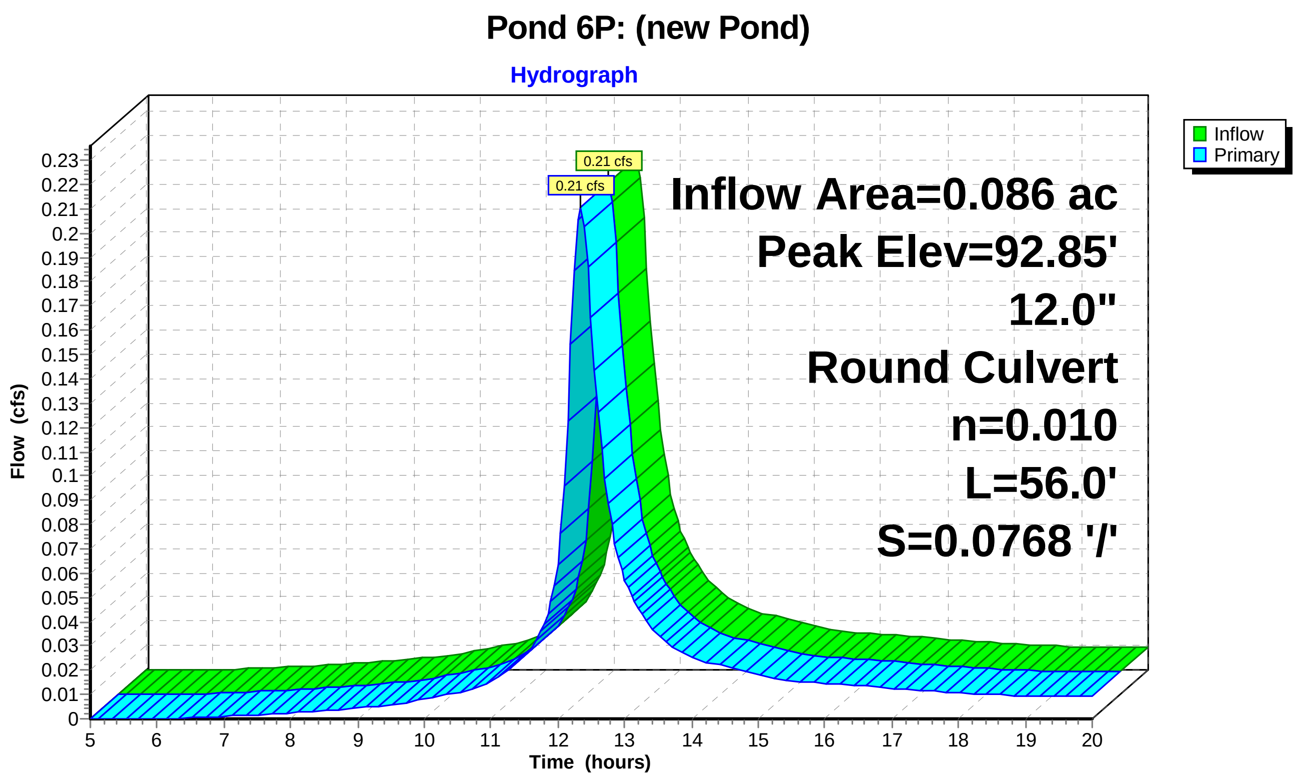
Summary for Pond 6P: (new Pond)

Inflow Area =	0.086 ac,	0.00% Impervious,	Inflow Depth > 3.41"	for 25-Year event	
Inflow =	0.21 cfs @	12.35 hrs,	Volume=	0.025 af	
Outflow =	0.21 cfs @	12.35 hrs,	Volume=	0.025 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.21 cfs @	12.35 hrs,	Volume=	0.025 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 92.85' @ 12.35 hrs
Flood Elev= 96.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.60'	**12.0" Round Culvert** L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 92.60' / 88.30' S= 0.0768 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.35 hrs HW=92.85' (Free Discharge)
1=Culvert (Inlet Controls 0.21 cfs @ 1.35 fps)

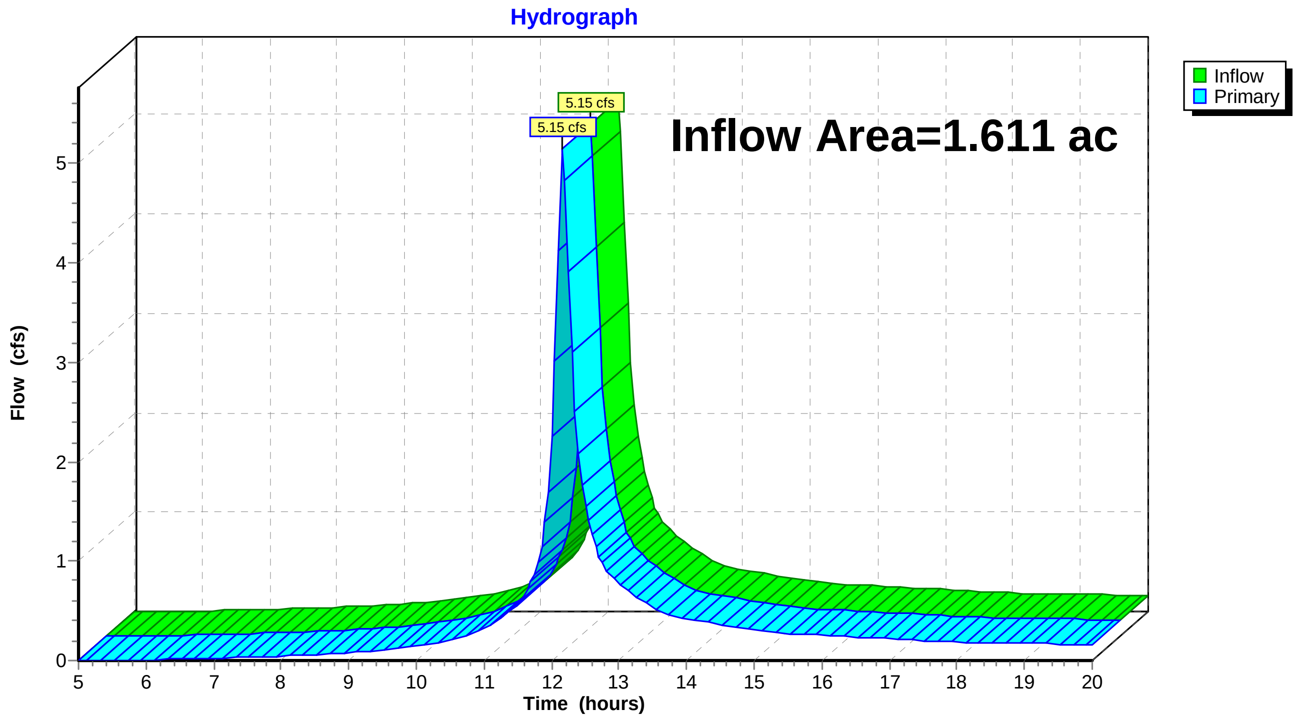


Summary for Link 9L: pod 1

Inflow Area =	1.611 ac, 16.55% Impervious, Inflow Depth > 3.25" for 25-Year event			
Inflow =	5.15 cfs @	12.16 hrs, Volume=	0.436 af	
Primary =	5.15 cfs @	12.16 hrs, Volume=	0.436 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 9L: pod 1



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 1S: 1 Runoff Area=15,481 sf 40.71% Impervious Runoff Depth>6.34"
Flow Length=137' Tc=7.9 min CN=81 Runoff=2.41 cfs 0.188 af

Subcatchment 2S: 2 Runoff Area=20,611 sf 25.79% Impervious Runoff Depth>5.76"
Flow Length=132' Tc=8.1 min CN=76 Runoff=2.96 cfs 0.227 af

Subcatchment 3S: 3 Runoff Area=3,767 sf 0.00% Impervious Runoff Depth>5.73"
Flow Length=80' Slope=0.0200 '/' Tc=24.3 min CN=76 Runoff=0.35 cfs 0.041 af

Subcatchment 4S: 4 Runoff Area=30,334 sf 0.00% Impervious Runoff Depth>4.91"
Flow Length=399' Tc=12.6 min CN=69 Runoff=3.27 cfs 0.285 af

Pond 5P: (new Pond) Peak Elev=97.00' Inflow=8.56 cfs 0.741 af
12.0" Round Culvert n=0.010 L=155.0' S=0.0465 '/' Outflow=8.56 cfs 0.741 af

Pond 6P: (new Pond) Peak Elev=92.93' Inflow=0.35 cfs 0.041 af
12.0" Round Culvert n=0.010 L=56.0' S=0.0768 '/' Outflow=0.35 cfs 0.041 af

Link 9L: pod 1 Inflow=8.56 cfs 0.741 af
Primary=8.56 cfs 0.741 af

Total Runoff Area = 1.611 ac Runoff Volume = 0.741 af Average Runoff Depth = 5.52"
83.45% Pervious = 1.345 ac 16.55% Impervious = 0.267 ac

Summary for Subcatchment 1S: 1

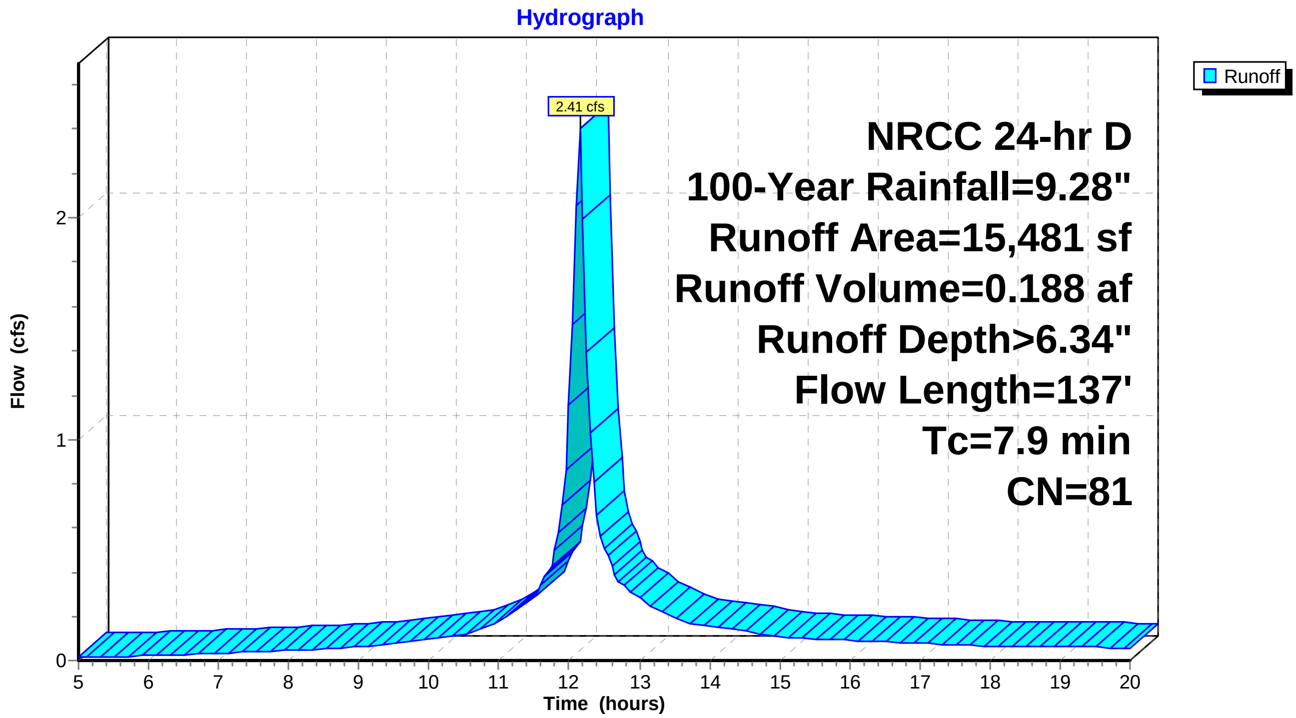
Runoff = 2.41 cfs @ 12.15 hrs, Volume= 0.188 af, Depth> 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	1,139	98	Wood Stairs/Deck
*	3,327	98	Sidewalk/Pavement
	1,837	98	Roofs, HSG B
	9,178	69	50-75% Grass cover, Fair, HSG B
	15,481	81	Weighted Average
	9,178		59.29% Pervious Area
	6,303		40.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0950	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	37	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	137	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

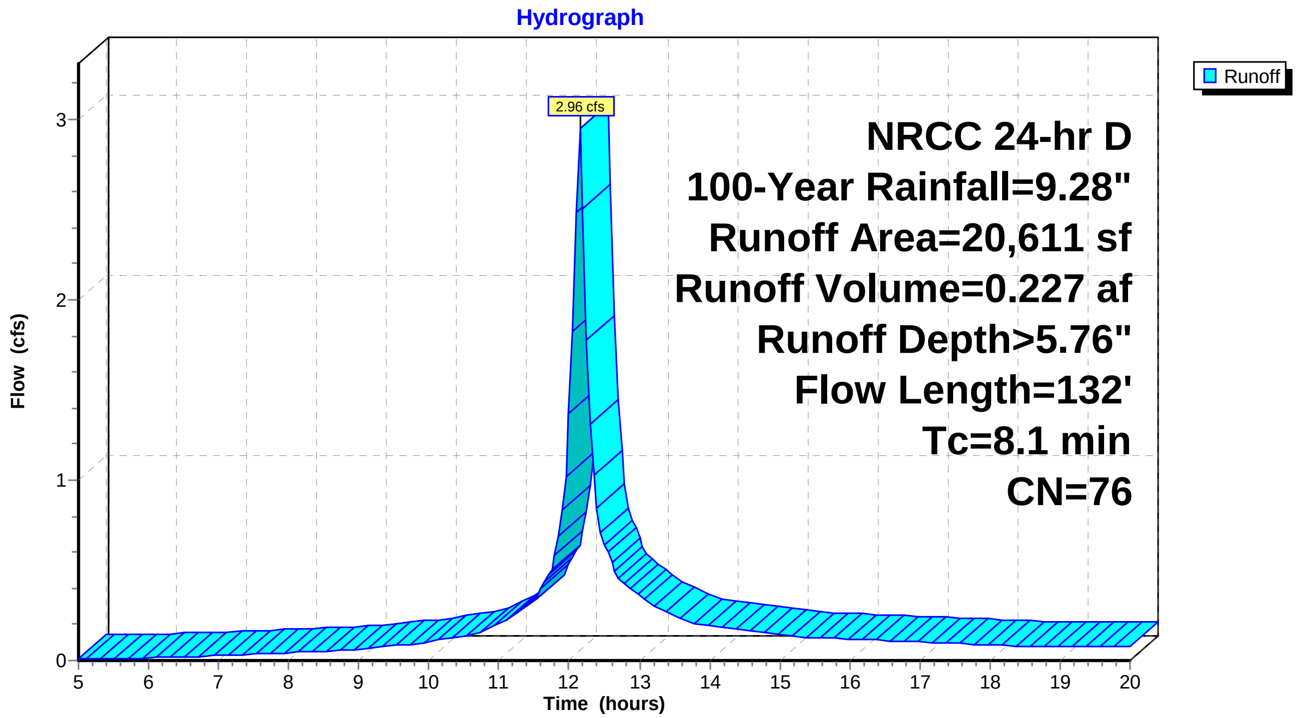
Runoff = 2.96 cfs @ 12.15 hrs, Volume= 0.227 af, Depth> 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	286	98	Wood Deck/Steps
	1,830	98	Roofs, HSG B
*	3,199	98	Asphalt
	15,296	69	50-75% Grass cover, Fair, HSG B
	20,611	76	Weighted Average
	15,296		74.21% Pervious Area
	5,315		25.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0850	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.1	32	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	132	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

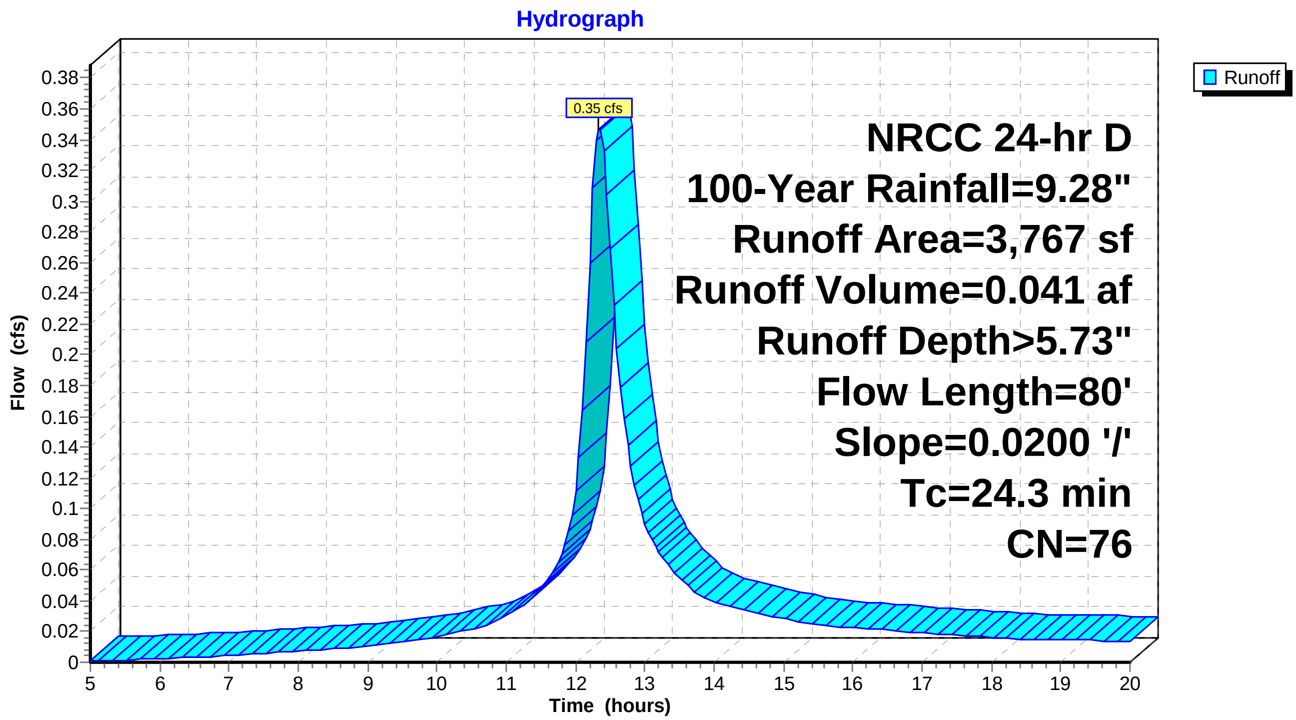
Runoff = 0.35 cfs @ 12.34 hrs, Volume= 0.041 af, Depth> 5.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	2,685	79	Mulch Playground
	1,082	69	50-75% Grass cover, Fair, HSG B
	3,767	76	Weighted Average
	3,767		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	24	0.0200	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
19.7	56	0.0200	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 1.50"
24.3	80	Total			

Subcatchment 3S: 3



Summary for Subcatchment 4S: 4

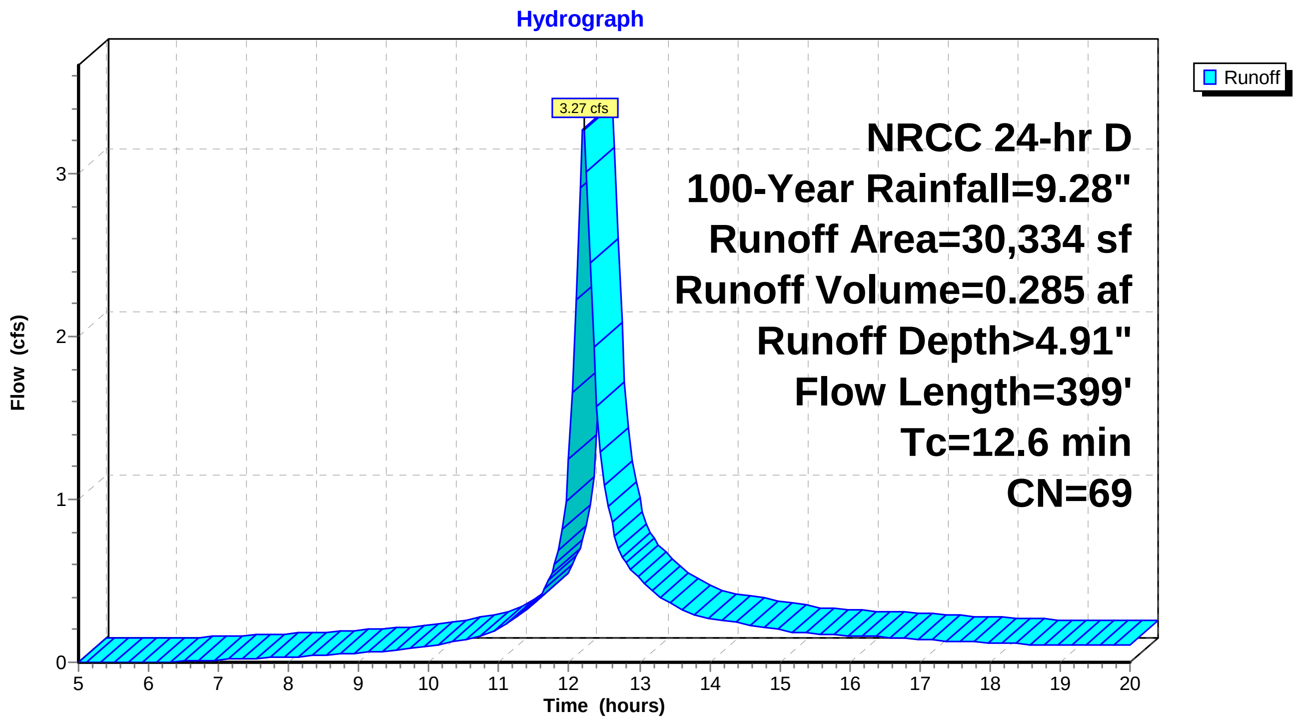
Runoff = 3.27 cfs @ 12.20 hrs, Volume= 0.285 af, Depth> 4.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

Area (sf)	CN	Description
30,334	69	50-75% Grass cover, Fair, HSG B
30,334		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	110	0.0450	3.18		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.2	189	0.0320	2.68		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.6	399	Total			

Subcatchment 4S: 4



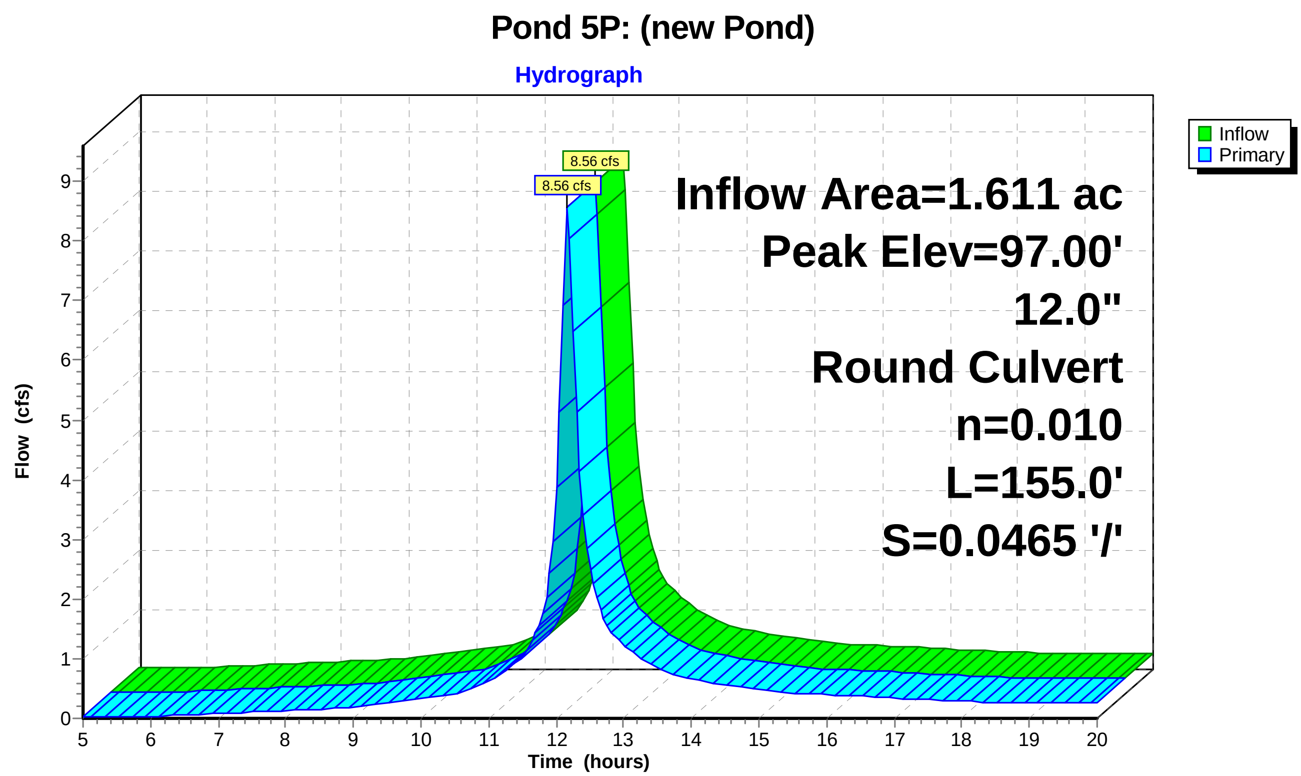
Summary for Pond 5P: (new Pond)

Inflow Area =	1.611 ac,	16.55% Impervious,	Inflow Depth > 5.52"	for 100-Year event
Inflow =	8.56 cfs @	12.16 hrs, Volume=	0.741 af	
Outflow =	8.56 cfs @	12.16 hrs, Volume=	0.741 af,	Atten= 0%, Lag= 0.0 min
Primary =	8.56 cfs @	12.16 hrs, Volume=	0.741 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 97.00' @ 12.16 hrs
Flood Elev= 92.97'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.30'	**12.0" Round Culvert** L= 155.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.30' / 81.10' S= 0.0465 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=8.37 cfs @ 12.16 hrs HW=96.65' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 8.37 cfs @ 10.65 fps)



Summary for Pond 6P: (new Pond)

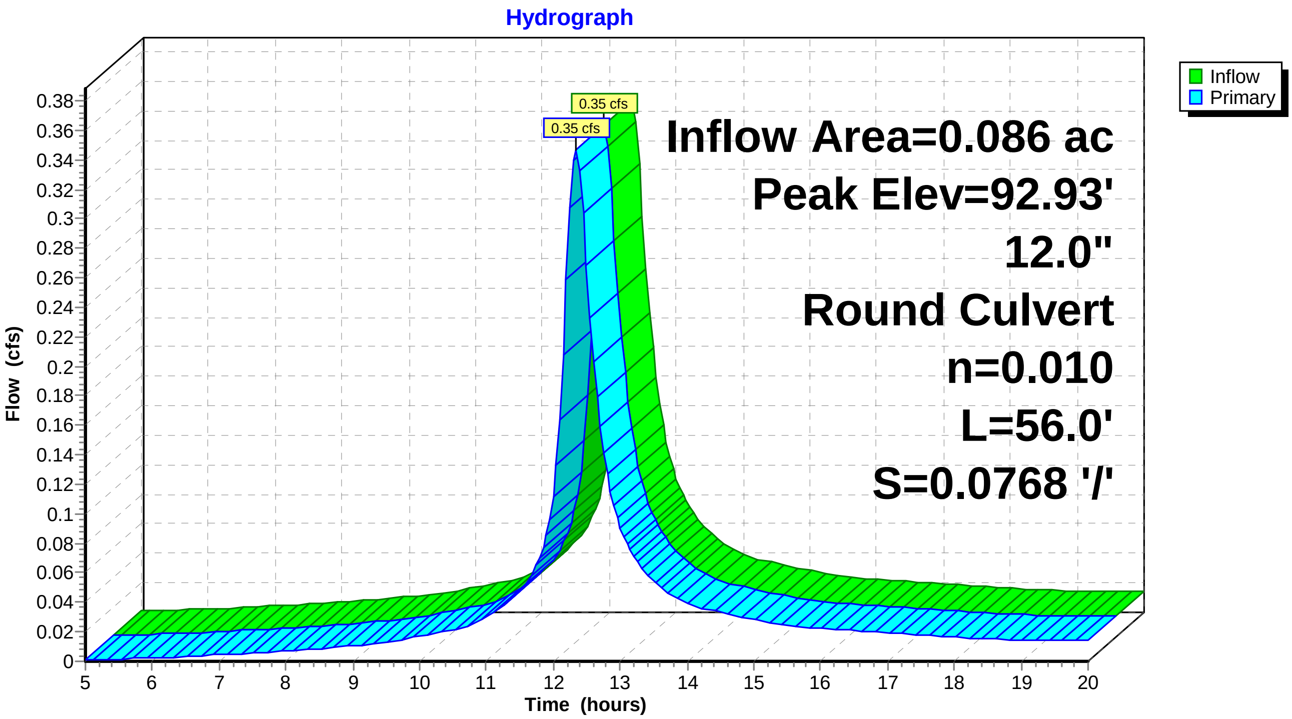
Inflow Area = 0.086 ac, 0.00% Impervious, Inflow Depth > 5.73" for 100-Year event
Inflow = 0.35 cfs @ 12.34 hrs, Volume= 0.041 af
Outflow = 0.35 cfs @ 12.34 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.34 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 92.93' @ 12.34 hrs
Flood Elev= 96.44'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.60'	**12.0" Round Culvert** L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 92.60' / 88.30' S= 0.0768 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.34 hrs HW=92.93' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.34 cfs @ 1.54 fps)

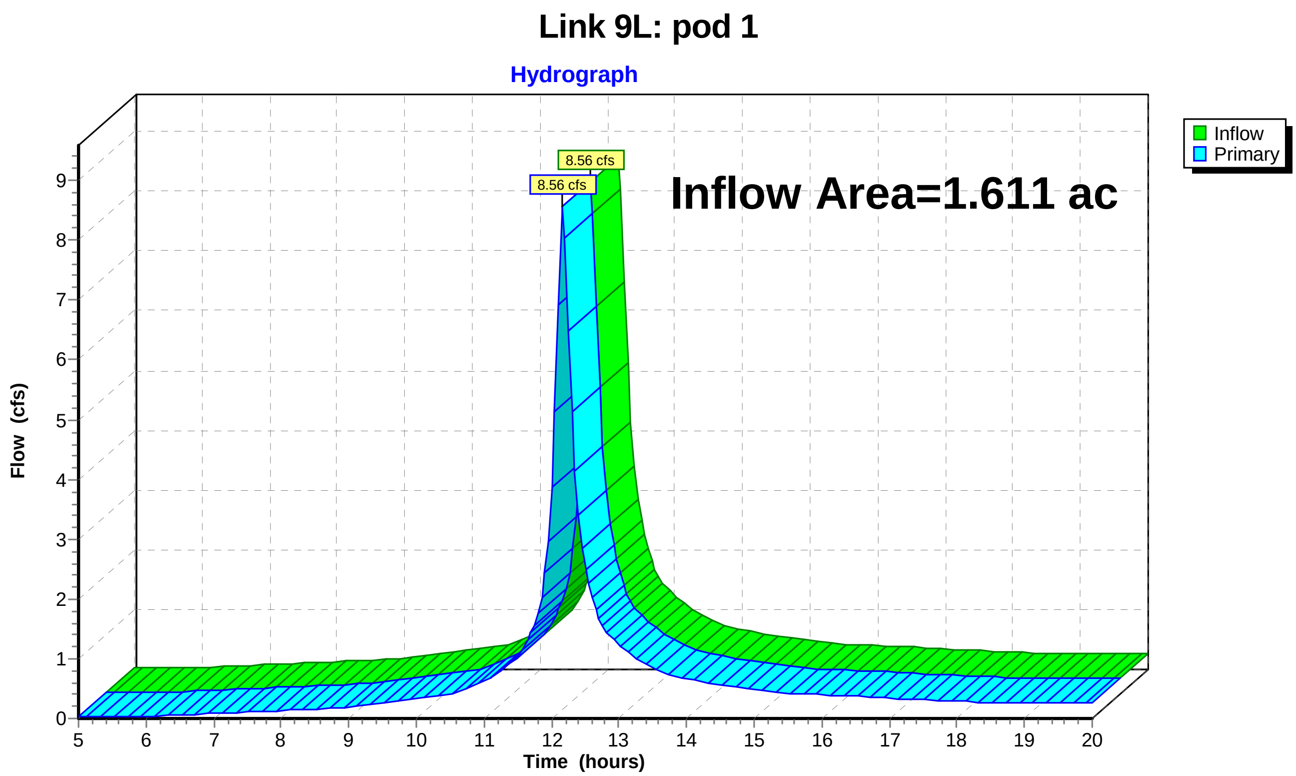
Pond 6P: (new Pond)



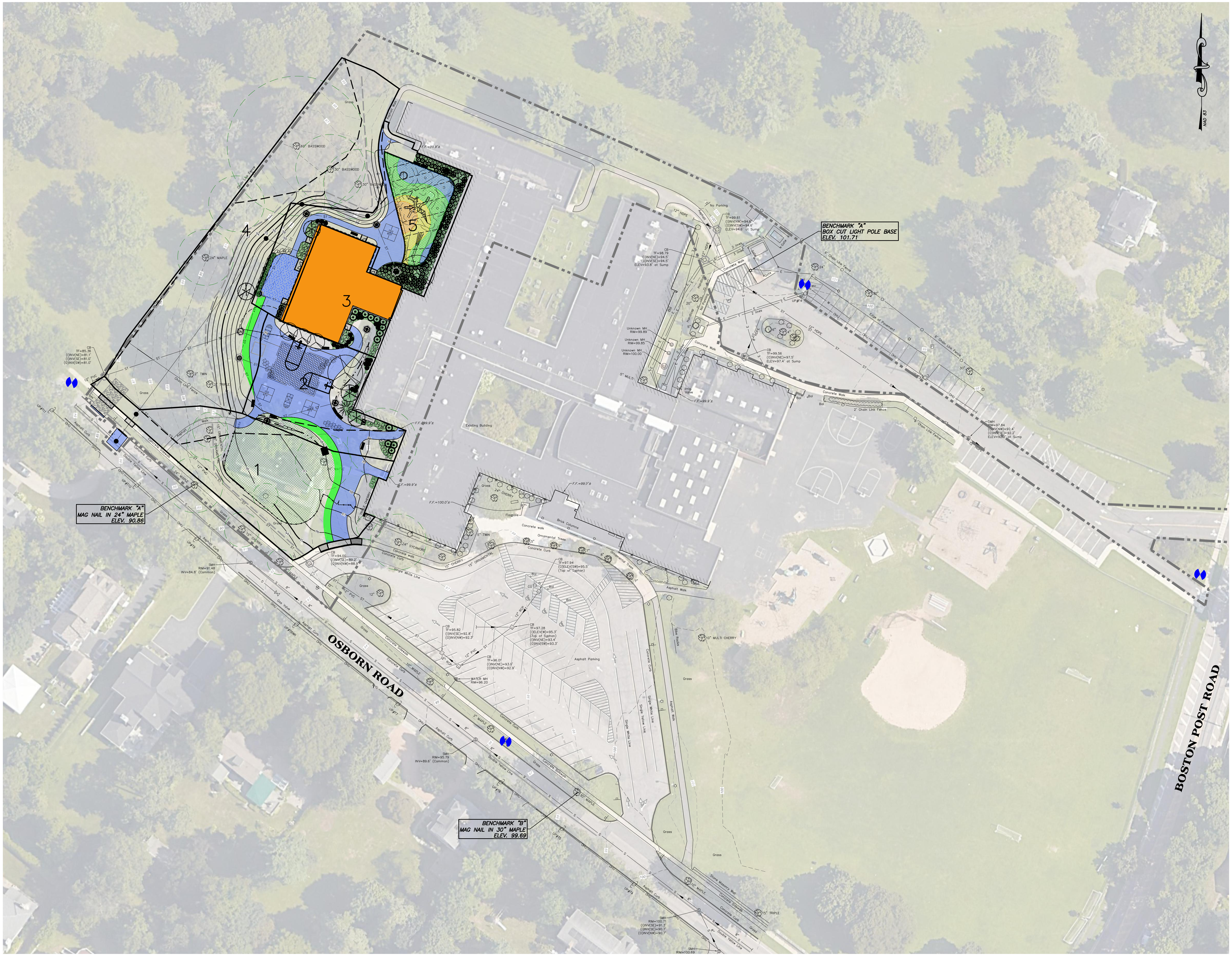
Summary for Link 9L: pod 1

Inflow Area = 1.611 ac, 16.55% Impervious, Inflow Depth > 5.52" for 100-Year event
Inflow = 8.56 cfs @ 12.16 hrs, Volume= 0.741 af
Primary = 8.56 cfs @ 12.16 hrs, Volume= 0.741 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Revision Schedule		
No.	Description	Date



1 SITE PLAN
SCALE: BAR SCALE

0' 10' 30' 60'
SCALE: 1" = 30'-0"

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(203) 256-8700

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MEP Engineer
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CONSULTING ENGINEERS
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Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776-3027
978-443-7871

SED #: 6618-0001-0001-024

PROJECT
Rye City School District
555 Theodore Fremd Ave, Rye, NY 10580

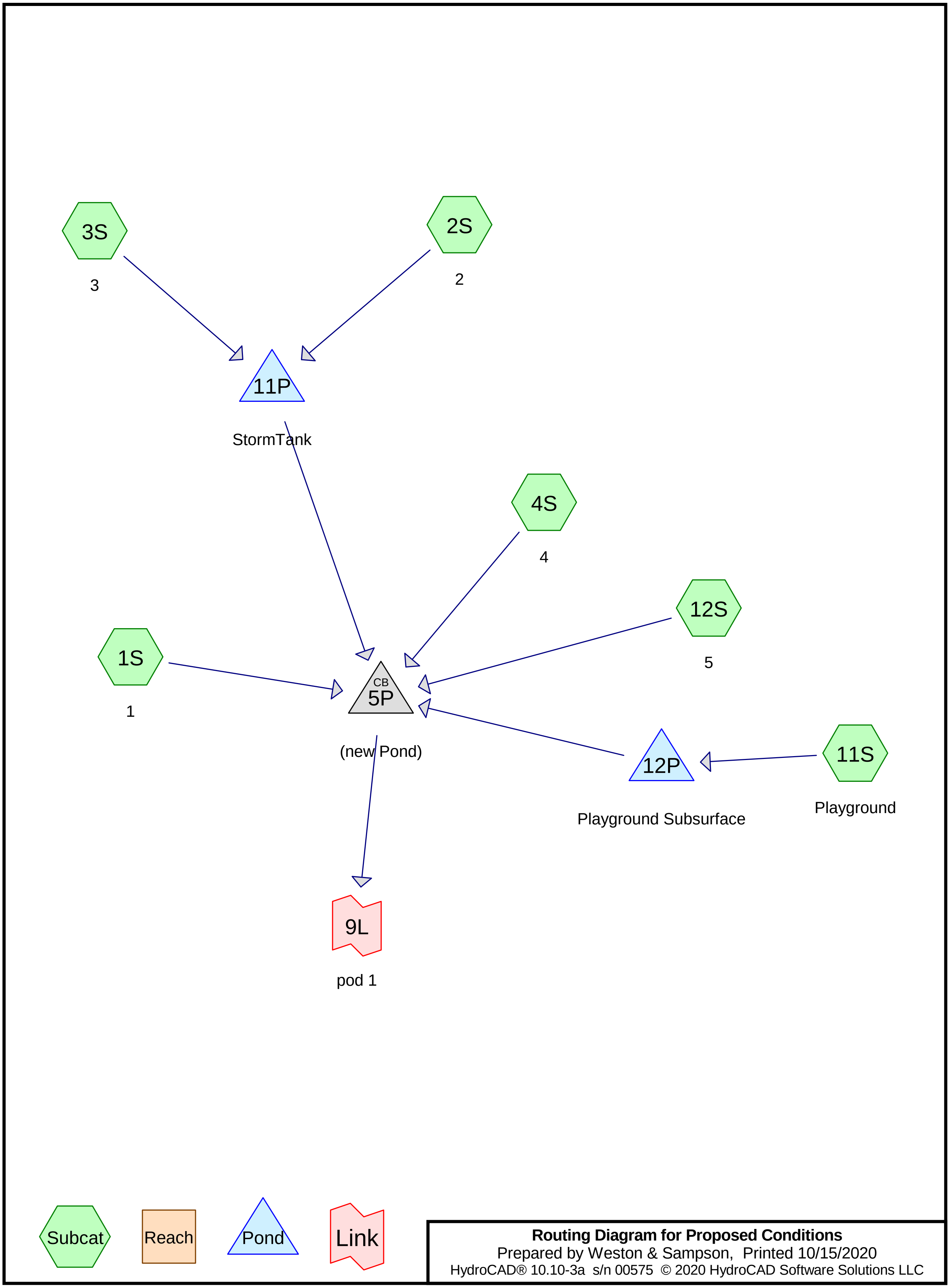
Osborn Elementary School

10 Osborn Road, Rye, New York 10580

PROPOSED CONDITIONS

ISSUED FOR BID

SEAL & SIGNATURE	DATE: August 2021
	PROJECT No:
	DRAWING BY: KSK
	CHK BY: JFB
	DWG No: SK-2



Routing Diagram for Proposed Conditions
Prepared by Weston & Sampson, Printed 10/15/2020
HydroCAD® 10.10-3a s/n 00575 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	NRCC 24-hr	D	Default	24.00	1	2.78	2
2	2-Year	NRCC 24-hr	D	Default	24.00	1	3.41	2
3	5-Year	NRCC 24-hr	D	Default	24.00	1	4.30	2
4	10-Year	NRCC 24-hr	D	Default	24.00	1	5.13	2
5	25-Year	NRCC 24-hr	D	Default	24.00	1	6.49	2
6	50-Year	NRCC 24-hr	D	Default	24.00	1	7.76	2
7	100-Year	NRCC 24-hr	D	Default	24.00	1	9.28	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.145	69	50-75% Grass cover, Fair, HSG B (1S, 2S, 4S, 12S)
0.146	98	Pavement (2S)
0.075	98	Playground (11S)
0.158	98	Roofs, HSG A (3S)
0.025	98	Sidewalk (1S)
0.065	98	Sidewalks (12S)
1.613	**77**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.158	HSG A	3S
1.145	HSG B	1S, 2S, 4S, 12S
0.000	HSG C	
0.000	HSG D	
0.310	Other	1S, 2S, 11S, 12S
1.613		**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	1.145	0.000	0.000	0.000	1.145	50-75% Grass cover, Fair	1S, 2S, 4S, 12S
0.000	0.000	0.000	0.000	0.146	0.146	Pavement	2S
0.000	0.000	0.000	0.000	0.075	0.075	Playground	11S
0.158	0.000	0.000	0.000	0.000	0.158	Roofs	3S
0.000	0.000	0.000	0.000	0.025	0.025	Sidewalk	1S
0.000	0.000	0.000	0.000	0.065	0.065	Sidewalks	12S
0.158	**1.145**	**0.000**	**0.000**	**0.310**	**1.613**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	5P	88.30	81.10	155.0	0.0465	0.010	12.0	0.0	0.0
2	11P	94.00	90.00	40.0	0.1000	0.020	12.0	0.0	0.0
3	11P	94.00	94.00	1.0	0.0000	0.011	2.0	0.0	0.0
4	12P	98.00	97.00	22.0	0.0455	0.010	6.0	0.0	0.0

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1S: 1 Runoff Area=15,481 sf 7.00% Impervious Runoff Depth=0.64"
Flow Length=137' Tc=7.9 min CN=71 Runoff=0.20 cfs 0.019 af

Subcatchment 2S: 2 Runoff Area=9,657 sf 65.76% Impervious Runoff Depth=1.62"
Flow Length=132' Tc=8.1 min CN=88 Runoff=0.36 cfs 0.030 af

Subcatchment 3S: 3 Runoff Area=6,881 sf 100.00% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.034 af

Subcatchment 4S: 4 Runoff Area=26,642 sf 0.00% Impervious Runoff Depth=0.56"
Flow Length=210' Tc=11.4 min CN=69 Runoff=0.25 cfs 0.028 af

Subcatchment 11S: Playground Runoff Area=3,267 sf 100.00% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.016 af

Subcatchment 12S: 5 Runoff Area=8,352 sf 33.81% Impervious Runoff Depth=1.03"
Tc=6.0 min CN=79 Runoff=0.21 cfs 0.016 af

Pond 5P: (new Pond) Peak Elev=88.91' Inflow=1.06 cfs 0.105 af
12.0" Round Culvert n=0.010 L=155.0' S=0.0465 '/' Outflow=1.06 cfs 0.105 af

Pond 11P: StormTank Peak Elev=94.36' Storage=0.010 af Inflow=0.73 cfs 0.064 af
Discarded=0.02 cfs 0.023 af Primary=0.48 cfs 0.041 af Outflow=0.49 cfs 0.064 af

Pond 12P: Playground Subsurface Peak Elev=98.04' Storage=0.003 af Inflow=0.18 cfs 0.016 af
Discarded=0.04 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.016 af

Link 9L: pod 1 Inflow=1.06 cfs 0.105 af
Primary=1.06 cfs 0.105 af

Total Runoff Area = 1.613 ac Runoff Volume = 0.143 af Average Runoff Depth = 1.06"
70.97% Pervious = 1.145 ac 29.03% Impervious = 0.468 ac

Summary for Subcatchment 1S: 1

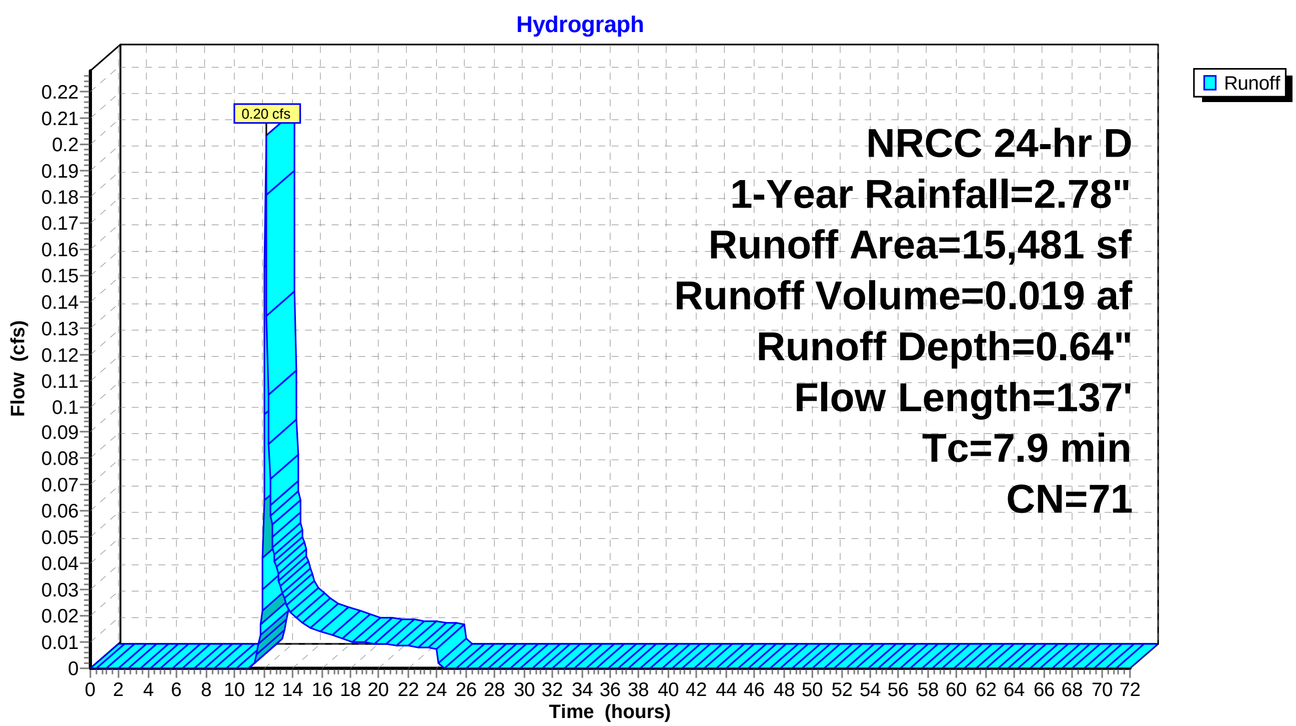
Runoff = 0.20 cfs @ 12.16 hrs, Volume= 0.019 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
	11,422	69	50-75% Grass cover, Fair, HSG B
	2,976	69	50-75% Grass cover, Fair, HSG B
*	1,083	98	Sidewalk
	15,481	71	Weighted Average
	14,398		93.00% Pervious Area
	1,083		7.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0950	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	37	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	137	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

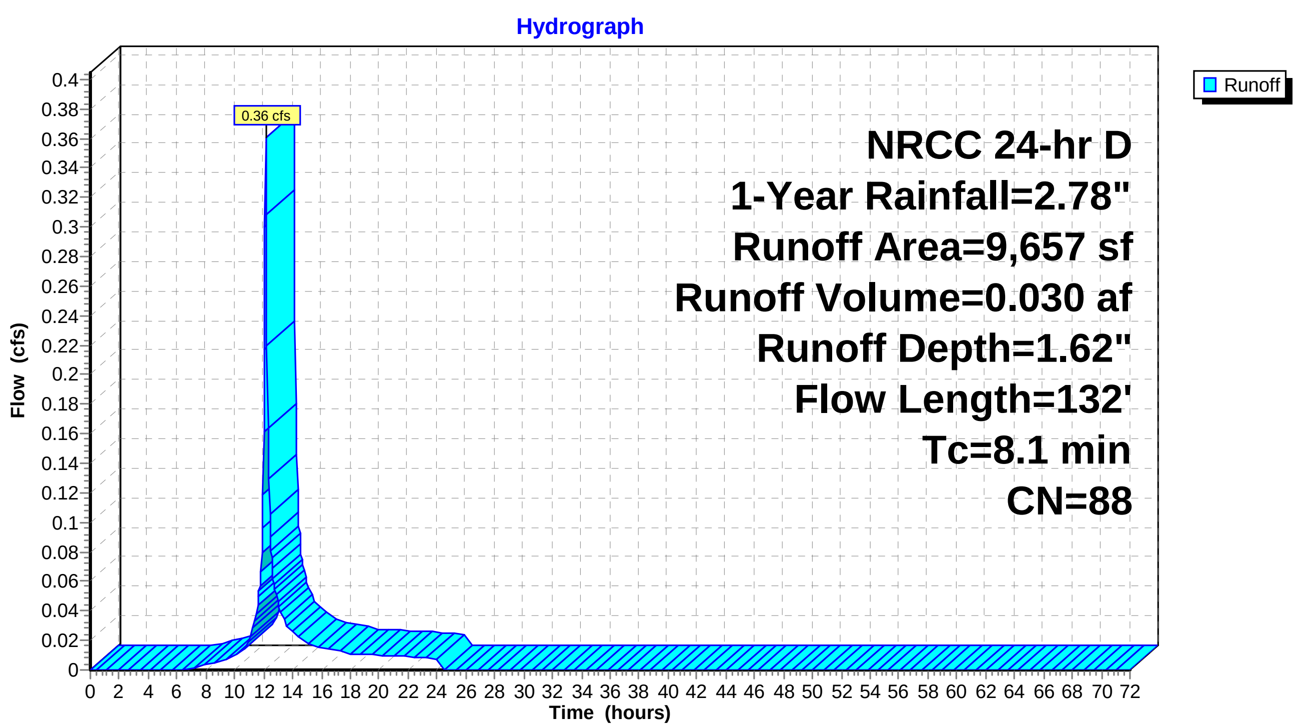
Runoff = 0.36 cfs @ 12.15 hrs, Volume= 0.030 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	6,350	98	Pavement
	3,307	69	50-75% Grass cover, Fair, HSG B
	9,657	88	Weighted Average
	3,307		34.24% Pervious Area
	6,350		65.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0850	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.1	32	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	132	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

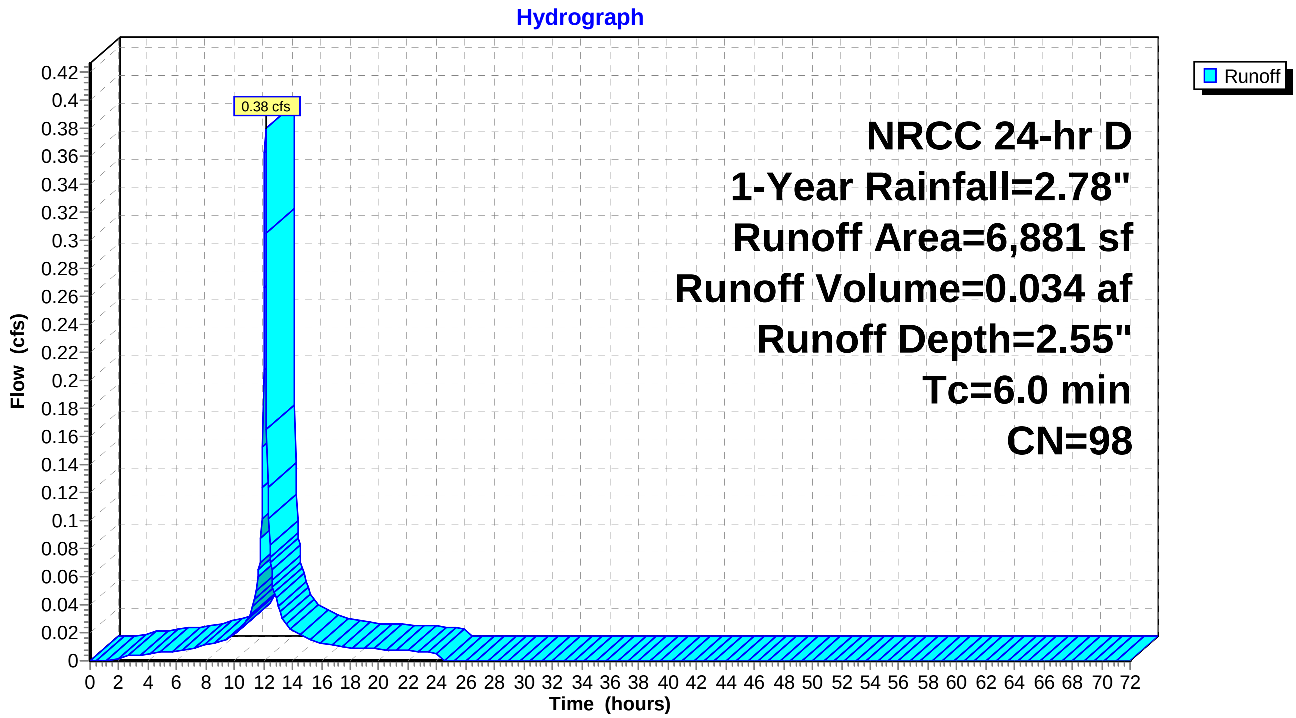
Runoff = 0.38 cfs @ 12.13 hrs, Volume= 0.034 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

Area (sf)	CN	Description
6,881	98	Roofs, HSG A
6,881		100.00% Impervious Area

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

Subcatchment 3S: 3



Summary for Subcatchment 4S: 4

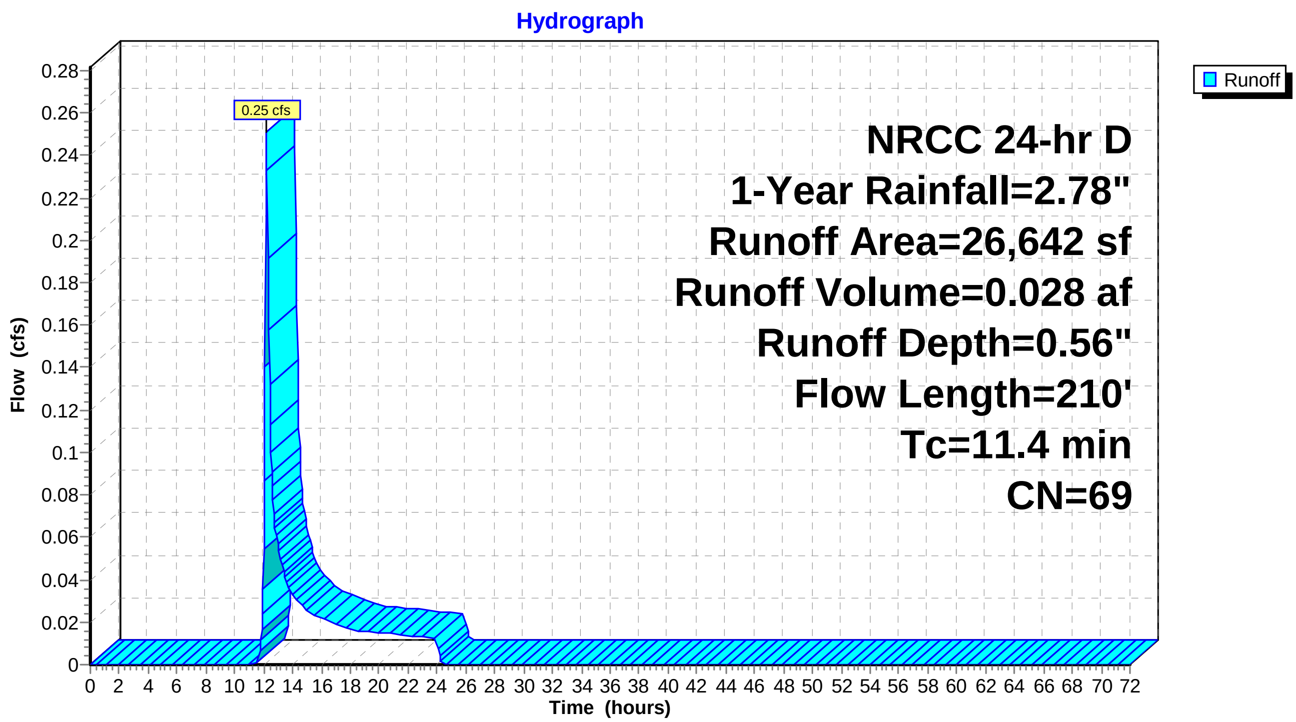
Runoff = 0.25 cfs @ 12.21 hrs, Volume= 0.028 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

Area (sf)	CN	Description
26,642	69	50-75% Grass cover, Fair, HSG B
26,642		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	110	0.0450	3.18		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.4	210	Total			

Subcatchment 4S: 4



Summary for Subcatchment 11S: Playground

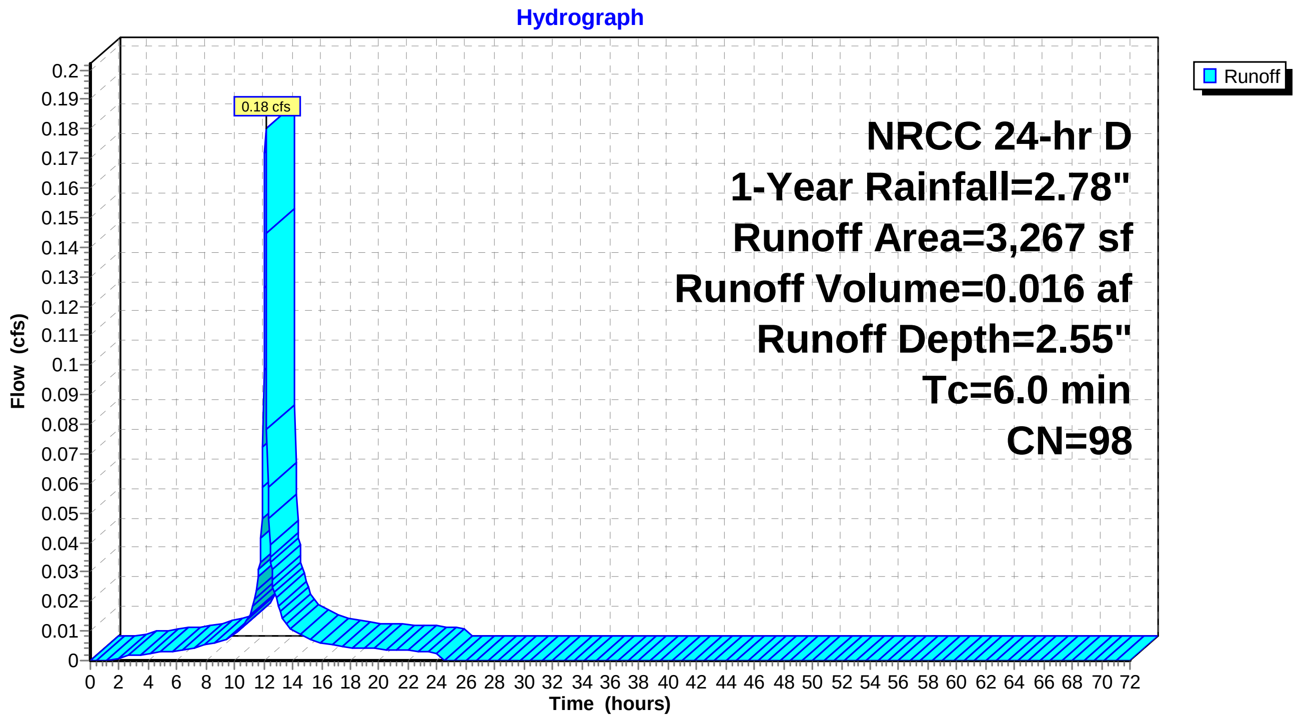
Runoff = 0.18 cfs @ 12.13 hrs, Volume= 0.016 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	3,267	98	Playground
	3,267		100.00% Impervious Area

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

Subcatchment 11S: Playground



Summary for Subcatchment 12S: 5

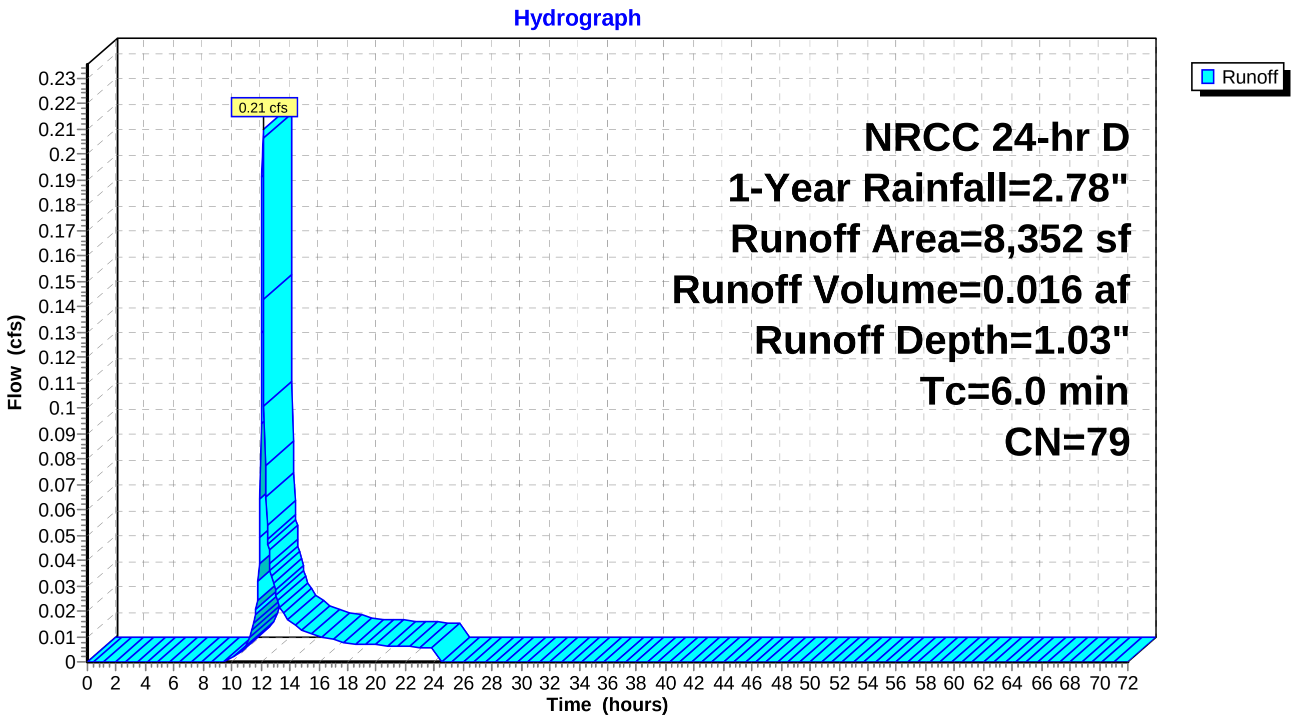
Runoff = 0.21 cfs @ 12.13 hrs, Volume= 0.016 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
	1,373	69	50-75% Grass cover, Fair, HSG B
*	2,824	98	Sidewalks
	569	69	50-75% Grass cover, Fair, HSG B
	3,586	69	50-75% Grass cover, Fair, HSG B
	8,352	79	Weighted Average
	5,528		66.19% Pervious Area
	2,824		33.81% Impervious Area

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

Subcatchment 12S: 5



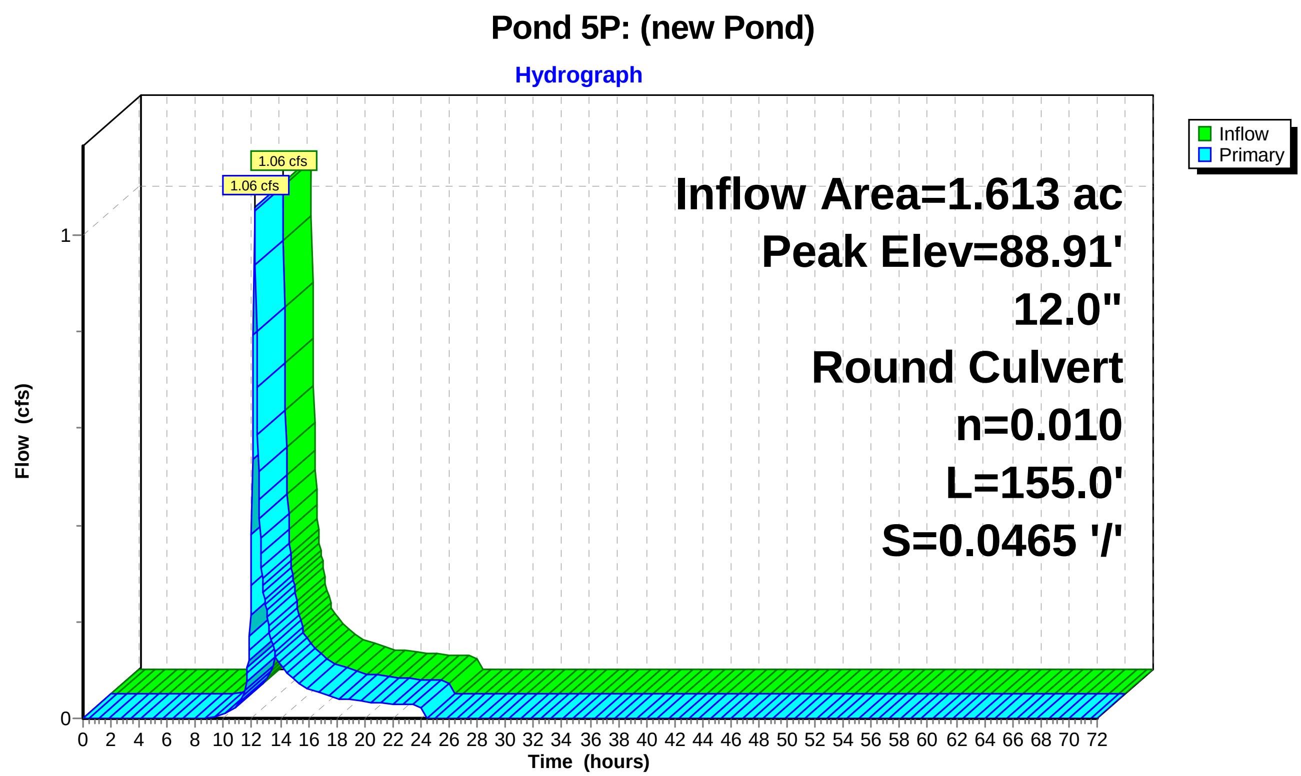
Summary for Pond 5P: (new Pond)

Inflow Area =	1.613 ac,	29.03% Impervious,	Inflow Depth = 0.78"	for 1-Year event
Inflow =	1.06 cfs @	12.18 hrs, Volume=	0.105 af	
Outflow =	1.06 cfs @	12.18 hrs, Volume=	0.105 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.06 cfs @	12.18 hrs, Volume=	0.105 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 88.91' @ 12.18 hrs
Flood Elev= 92.97'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.30'	**12.0" Round Culvert** L= 155.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.30' / 81.10' S= 0.0465 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.04 cfs @ 12.18 hrs HW=88.91' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.04 cfs @ 2.09 fps)



Summary for Pond 11P: StormTank

Inflow Area = 0.380 ac, 80.00% Impervious, Inflow Depth = 2.01" for 1-Year event
Inflow = 0.73 cfs @ 12.14 hrs, Volume= 0.064 af
Outflow = 0.49 cfs @ 12.22 hrs, Volume= 0.064 af, Atten= 33%, Lag= 4.9 min
Discarded = 0.02 cfs @ 12.22 hrs, Volume= 0.023 af
Primary = 0.48 cfs @ 12.22 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 94.36' @ 12.22 hrs Surf.Area= 0.030 ac Storage= 0.010 af

Plug-Flow detention time= 25.9 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 25.9 min (827.9 - 802.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	94.00'	0.003 af	**31.93'W x 40.61'L x 2.00'H Field A** 0.060 af Overall - 0.053 af Embedded = 0.006 af x 40.0% Voids
#2A	94.00'	0.051 af	**StormTank 20 Series 24"** x 187 Inside #1 Inside= 21.1"W x 24.0"H => 3.36 sf x 3.51'L = 11.8 cf Outside= 21.1"W x 24.0"H => 3.52 sf x 3.51'L = 12.4 cf 187 Chambers in 17 Rows
		0.053 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	94.00'	**12.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 94.00' / 90.00' S= 0.1000 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf
#2	Discarded	94.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -11.70'
#3	Primary	95.00'	**4.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Primary	94.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 94.00' / 94.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf

Discarded OutFlow Max=0.02 cfs @ 12.22 hrs HW=94.36' (Free Discharge)
└—**2=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.47 cfs @ 12.22 hrs HW=94.36' (Free Discharge)
├—**1=Culvert** (Inlet Controls 0.41 cfs @ 1.61 fps)
├—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**4=Culvert** (Barrel Controls 0.06 cfs @ 2.92 fps)

Pond 11P: StormTank - Chamber Wizard Field A

Chamber Model = StormTank 20 Series 24" (StormTank Module 20 Series)
Inside= 21.1"W x 24.0"H => 3.36 sf x 3.51'L = 11.8 cf
Outside= 21.1"W x 24.0"H => 3.52 sf x 3.51'L = 12.4 cf

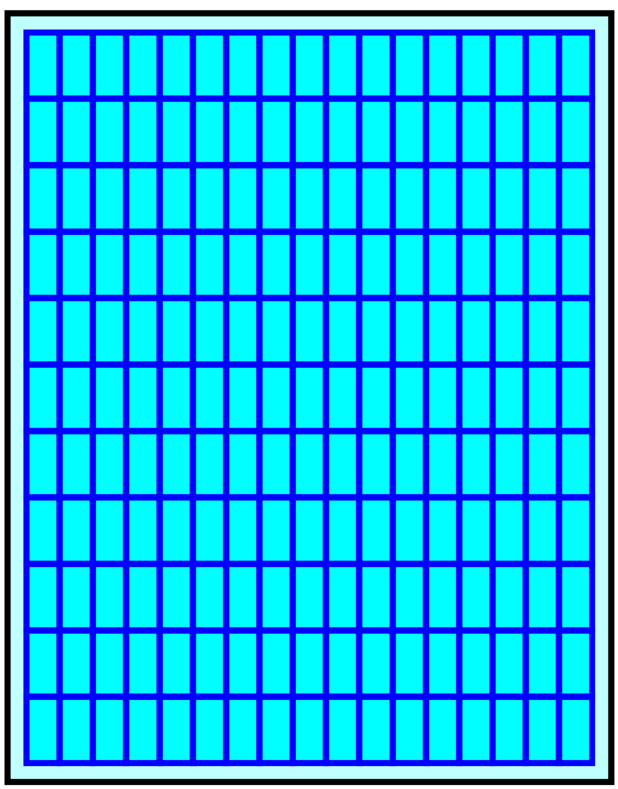
11 Chambers/Row x 3.51' Long = 38.61' Row Length +12.0" End Stone x 2 = 40.61' Base Length
17 Rows x 21.1" Wide + 12.0" Side Stone x 2 = 31.93' Base Width
24.0" Chamber Height = 2.00' Field Height

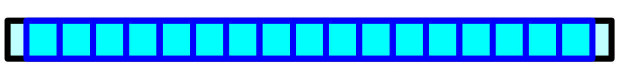
187 Chambers x 11.8 cf = 2,204.5 cf Chamber Storage
187 Chambers x 12.4 cf = 2,311.2 cf Displacement

2,593.4 cf Field - 2,311.2 cf Chambers = 282.2 cf Stone x 40.0% Voids = 112.9 cf Stone Storage

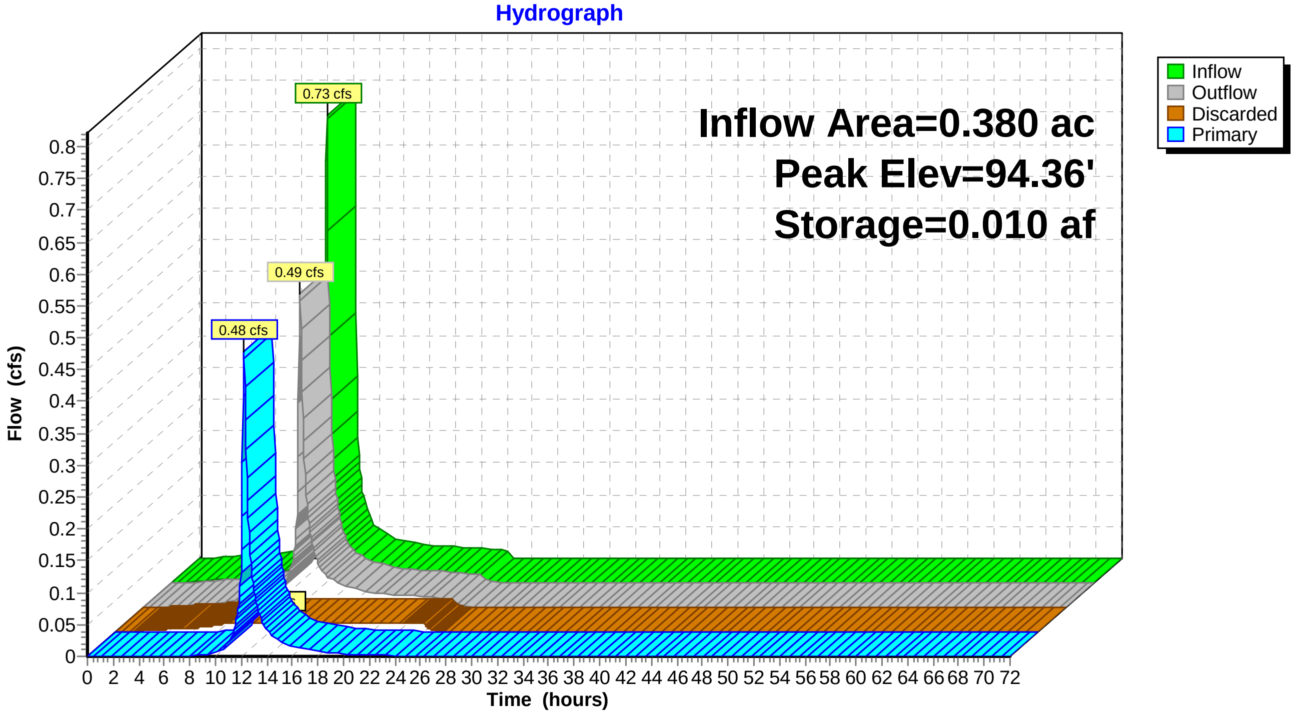
Chamber Storage + Stone Storage = 2,317.3 cf = 0.053 af
Overall Storage Efficiency = 89.4%
Overall System Size = 40.61' x 31.93' x 2.00'

187 Chambers
96.1 cy Field
10.5 cy Stone





Pond 11P: StormTank



Summary for Pond 12P: Playground Subsurface

Inflow Area = 0.075 ac,100.00% Impervious, Inflow Depth = 2.55" for 1-Year event
Inflow = 0.18 cfs @ 12.13 hrs, Volume= 0.016 af
Outflow = 0.04 cfs @ 12.39 hrs, Volume= 0.016 af, Atten= 77%, Lag= 16.1 min
Discarded = 0.04 cfs @ 12.39 hrs, Volume= 0.016 af
Primary = 0.00 cfs @ 12.39 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 98.04' @ 12.39 hrs Surf.Area= 0.073 ac Storage= 0.003 af

Plug-Flow detention time= 20.3 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 20.3 min (784.4 - 764.1)

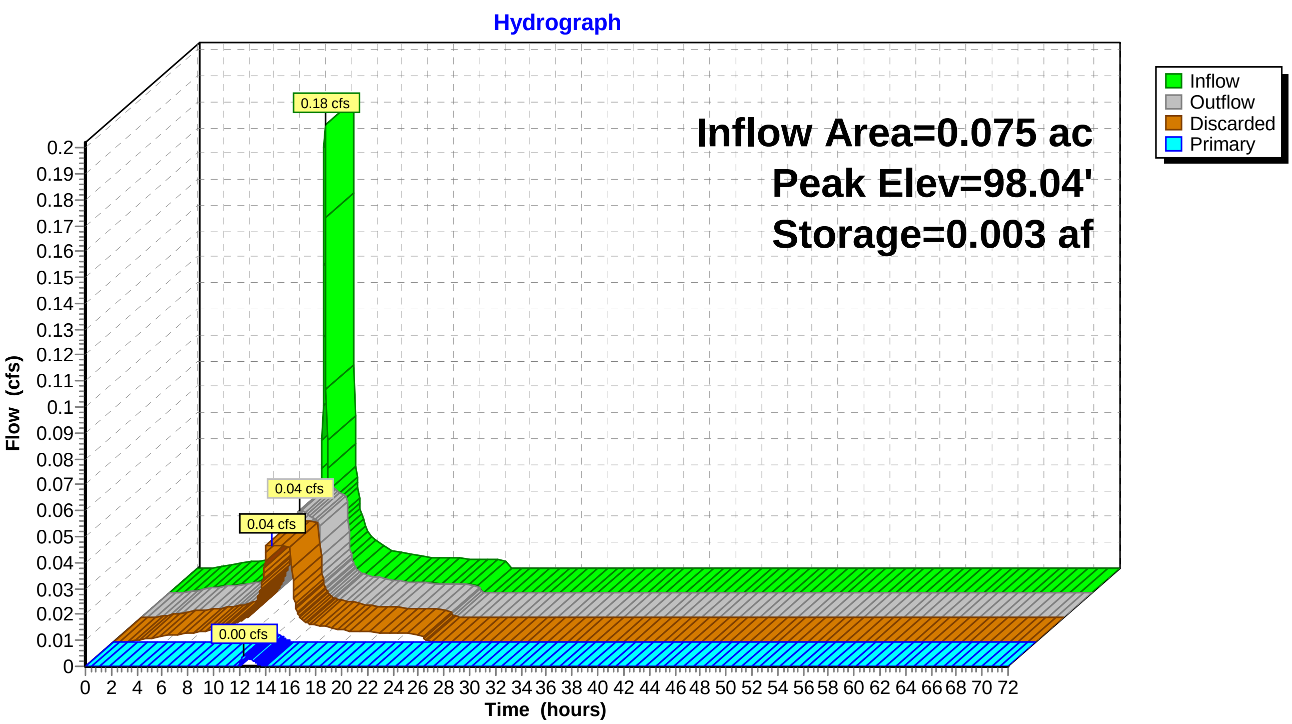
Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.049 af	**100.00'W x 32.00'L x 0.67'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**6.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 97.00' S= 0.0455 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	98.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -11.70'

Discarded OutFlow Max=0.04 cfs @ 12.39 hrs HW=98.04' (Free Discharge)
└—**2=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 12.39 hrs HW=98.04' (Free Discharge)
└—**1=Culvert** (Inlet Controls 0.00 cfs @ 0.54 fps)

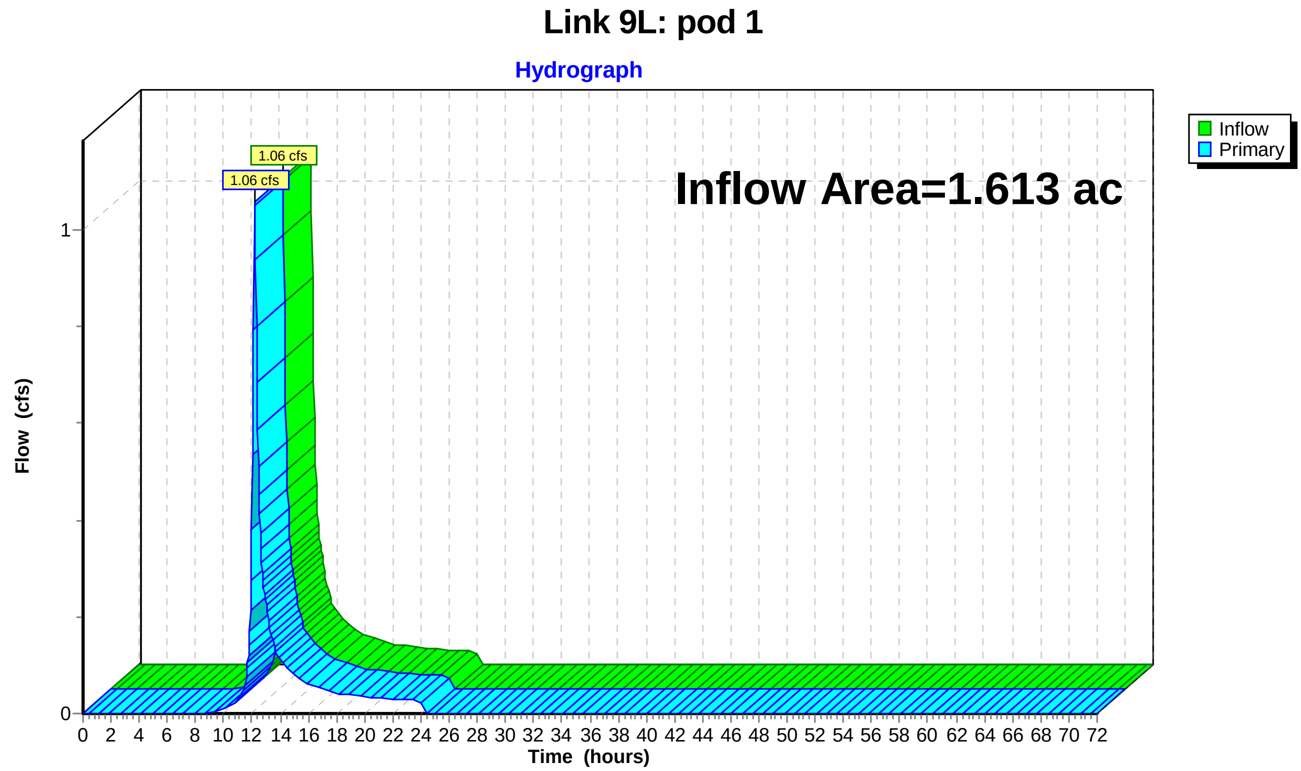
Pond 12P: Playground Subsurface



Summary for Link 9L: pod 1

Inflow Area =	1.613 ac,	29.03% Impervious,	Inflow Depth = 0.78"	for 1-Year event
Inflow =	1.06 cfs @	12.18 hrs, Volume=	0.105 af	
Primary =	1.06 cfs @	12.18 hrs, Volume=	0.105 af,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1S: 1 Runoff Area=15,481 sf 7.00% Impervious Runoff Depth=2.22"
Flow Length=137' Tc=7.9 min CN=71 Runoff=0.80 cfs 0.066 af

Subcatchment 2S: 2 Runoff Area=9,657 sf 65.76% Impervious Runoff Depth=3.79"
Flow Length=132' Tc=8.1 min CN=88 Runoff=0.82 cfs 0.070 af

Subcatchment 3S: 3 Runoff Area=6,881 sf 100.00% Impervious Runoff Depth=4.89"
Tc=6.0 min CN=98 Runoff=0.71 cfs 0.064 af

Subcatchment 4S: 4 Runoff Area=26,642 sf 0.00% Impervious Runoff Depth=2.05"
Flow Length=210' Tc=11.4 min CN=69 Runoff=1.11 cfs 0.105 af

Subcatchment 11S: Playground Runoff Area=3,267 sf 100.00% Impervious Runoff Depth=4.89"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.031 af

Subcatchment 12S: 5 Runoff Area=8,352 sf 33.81% Impervious Runoff Depth=2.91"
Tc=6.0 min CN=79 Runoff=0.60 cfs 0.047 af

Pond 5P: (new Pond) Peak Elev=90.13' Inflow=3.46 cfs 0.327 af
12.0" Round Culvert n=0.010 L=155.0' S=0.0465 '/' Outflow=3.46 cfs 0.327 af

Pond 11P: StormTank Peak Elev=94.60' Storage=0.016 af Inflow=1.51 cfs 0.134 af
Discarded=0.02 cfs 0.027 af Primary=1.12 cfs 0.107 af Outflow=1.13 cfs 0.134 af

Pond 12P: Playground Subsurface Peak Elev=98.10' Storage=0.007 af Inflow=0.34 cfs 0.031 af
Discarded=0.04 cfs 0.027 af Primary=0.02 cfs 0.003 af Outflow=0.06 cfs 0.031 af

Link 9L: pod 1 Inflow=3.46 cfs 0.327 af
Primary=3.46 cfs 0.327 af

Total Runoff Area = 1.613 ac Runoff Volume = 0.382 af Average Runoff Depth = 2.84"
70.97% Pervious = 1.145 ac 29.03% Impervious = 0.468 ac

Summary for Subcatchment 1S: 1

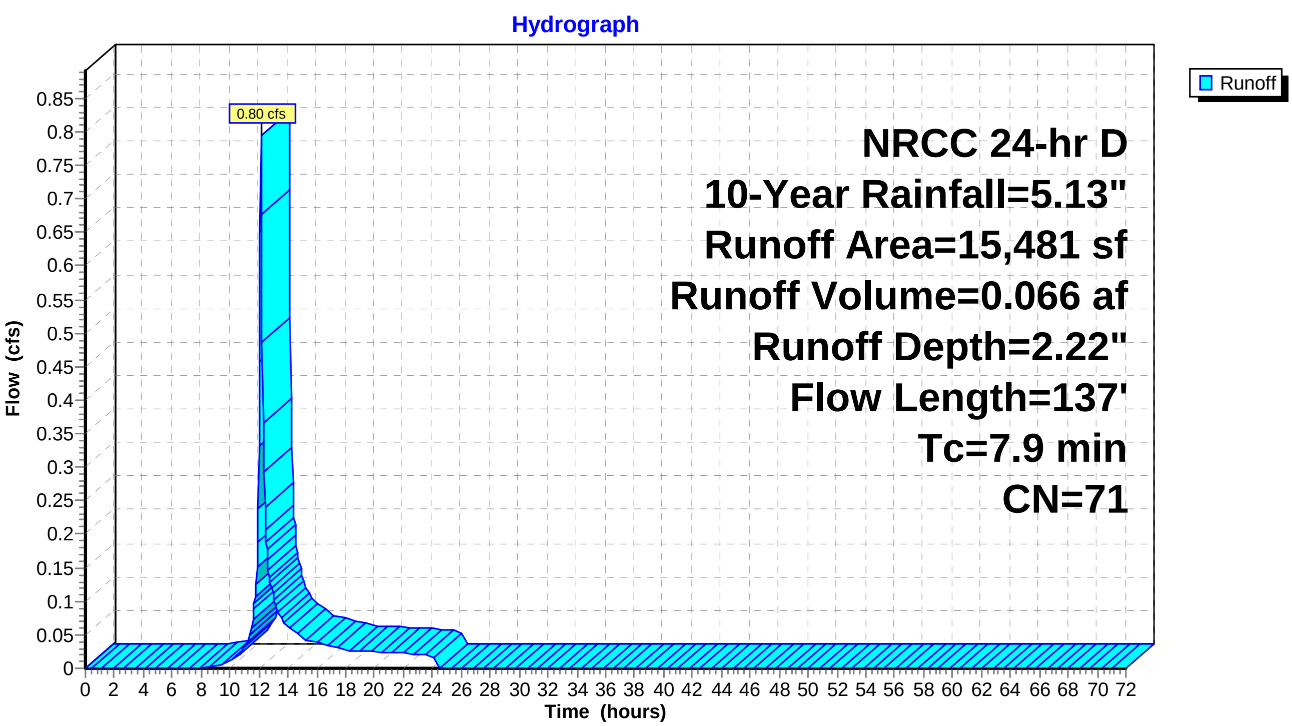
Runoff = 0.80 cfs @ 12.15 hrs, Volume= 0.066 af, Depth= 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
	11,422	69	50-75% Grass cover, Fair, HSG B
	2,976	69	50-75% Grass cover, Fair, HSG B
*	1,083	98	Sidewalk
	15,481	71	Weighted Average
	14,398		93.00% Pervious Area
	1,083		7.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0950	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	37	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	137	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

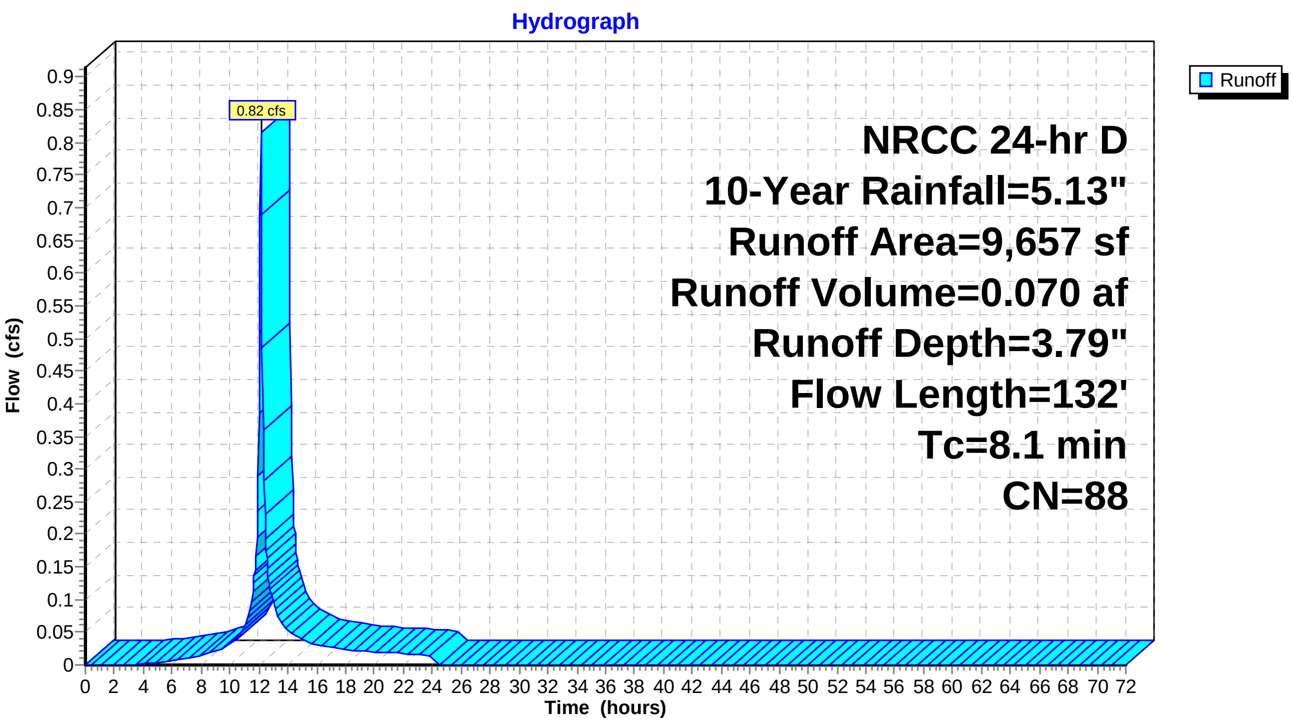
Runoff = 0.82 cfs @ 12.15 hrs, Volume= 0.070 af, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	6,350	98	Pavement
	3,307	69	50-75% Grass cover, Fair, HSG B
	9,657	88	Weighted Average
	3,307		34.24% Pervious Area
	6,350		65.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0850	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.1	32	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	132	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

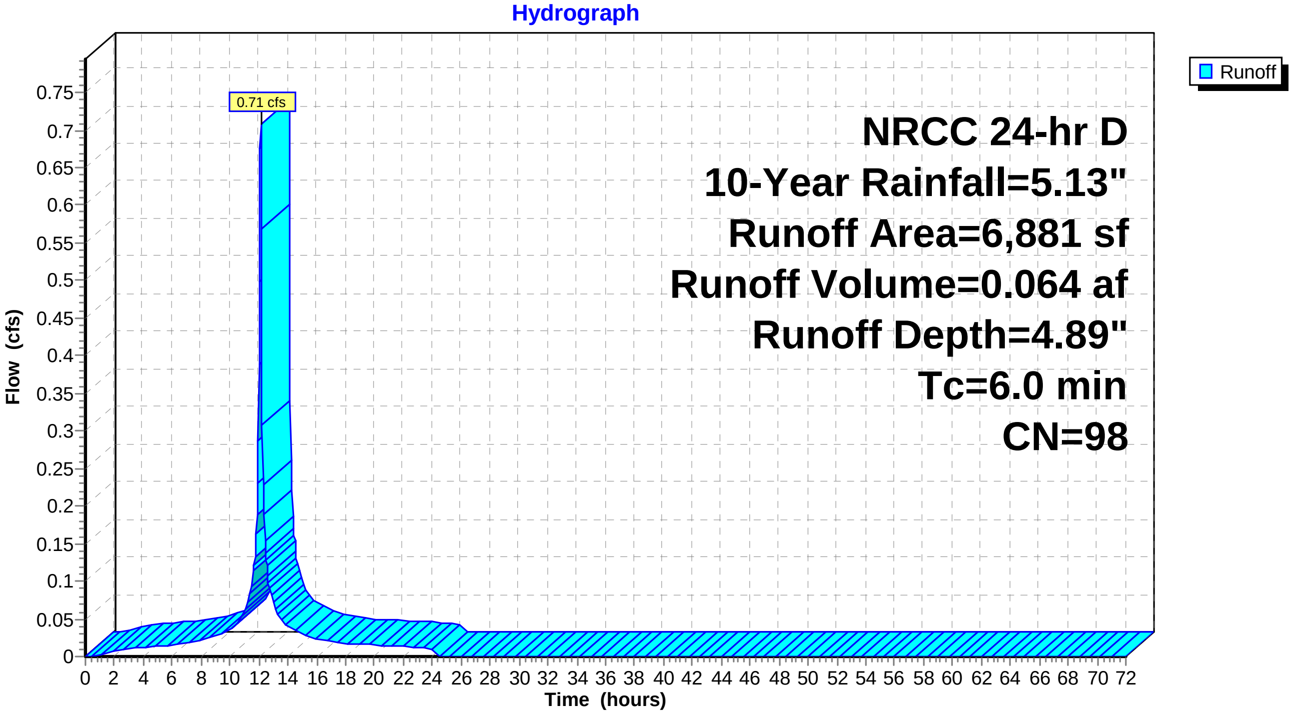
Runoff = 0.71 cfs @ 12.13 hrs, Volume= 0.064 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

Area (sf)	CN	Description
6,881	98	Roofs, HSG A
6,881		100.00% Impervious Area

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

Subcatchment 3S: 3



Summary for Subcatchment 4S: 4

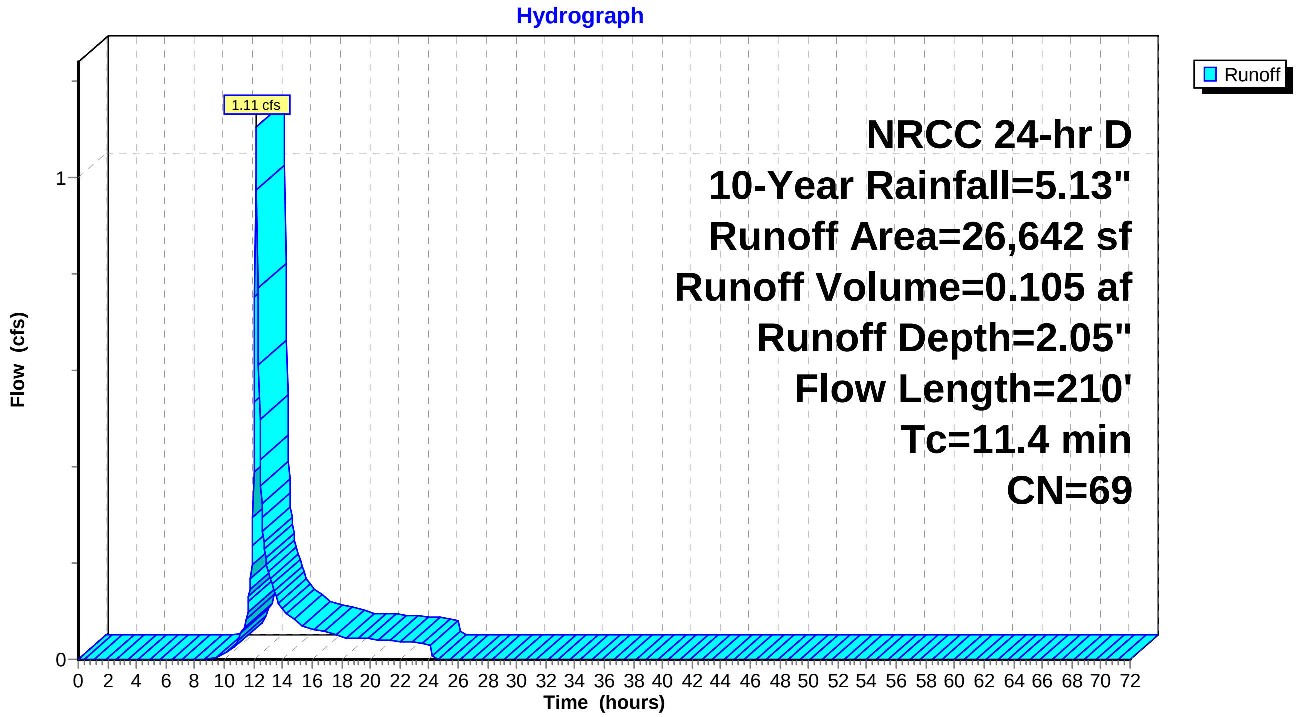
Runoff = 1.11 cfs @ 12.20 hrs, Volume= 0.105 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

Area (sf)	CN	Description
26,642	69	50-75% Grass cover, Fair, HSG B
26,642		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	110	0.0450	3.18		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.4	210	Total			

Subcatchment 4S: 4



Summary for Subcatchment 11S: Playground

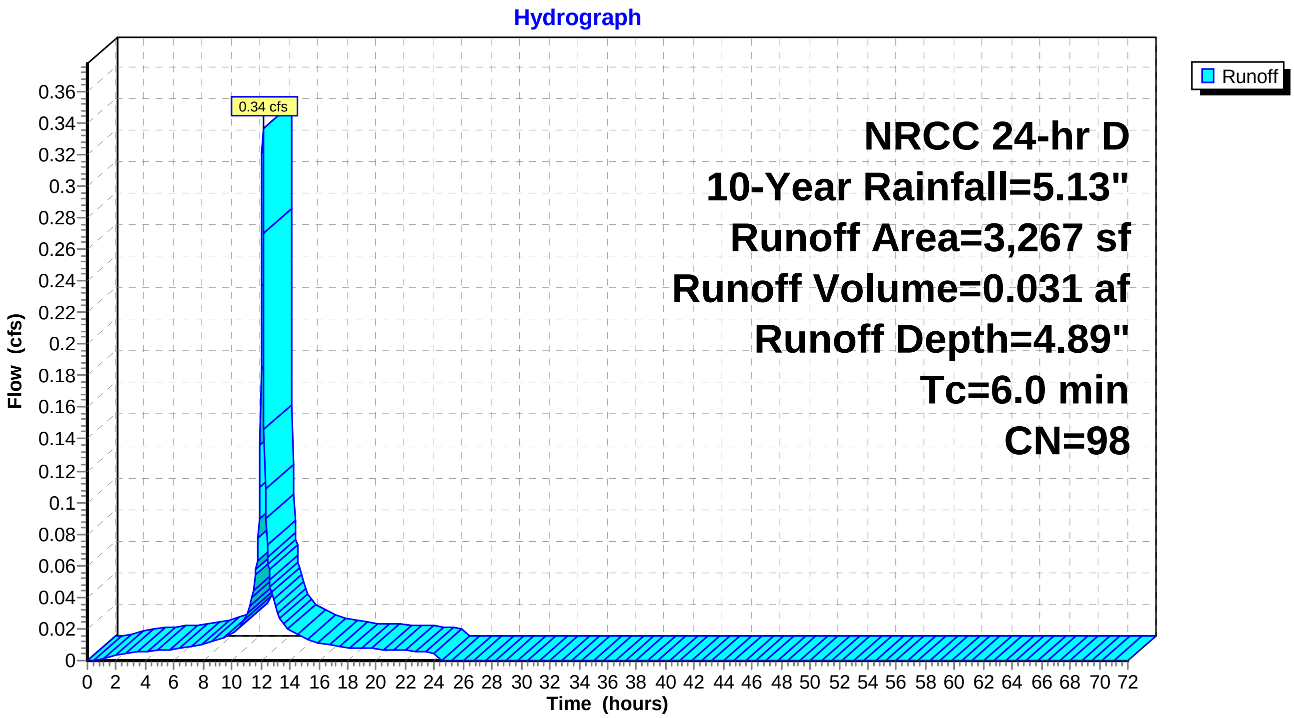
Runoff = 0.34 cfs @ 12.13 hrs, Volume= 0.031 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
*	3,267	98	Playground
	3,267		100.00% Impervious Area

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

Subcatchment 11S: Playground



Summary for Subcatchment 12S: 5

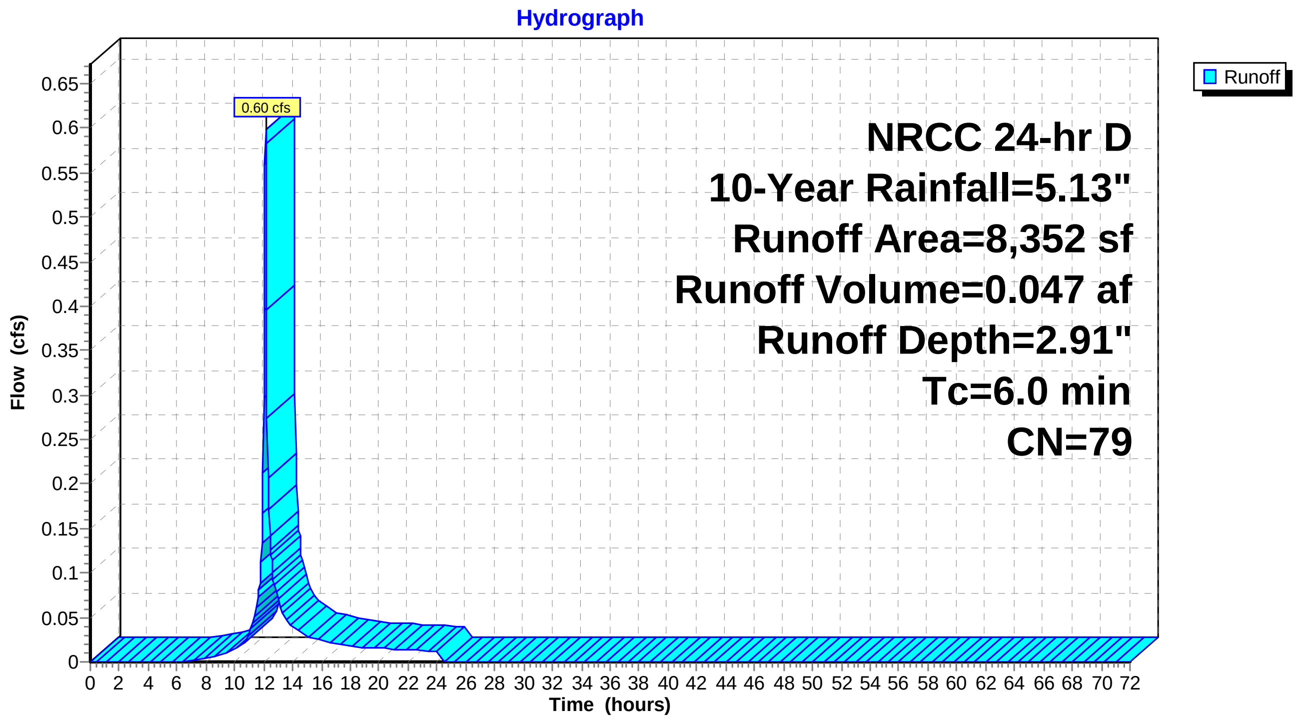
Runoff = 0.60 cfs @ 12.13 hrs, Volume= 0.047 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=5.13"

	Area (sf)	CN	Description
	1,373	69	50-75% Grass cover, Fair, HSG B
*	2,824	98	Sidewalks
	569	69	50-75% Grass cover, Fair, HSG B
	3,586	69	50-75% Grass cover, Fair, HSG B
	8,352	79	Weighted Average
	5,528		66.19% Pervious Area
	2,824		33.81% Impervious Area

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

Subcatchment 12S: 5



Summary for Pond 5P: (new Pond)

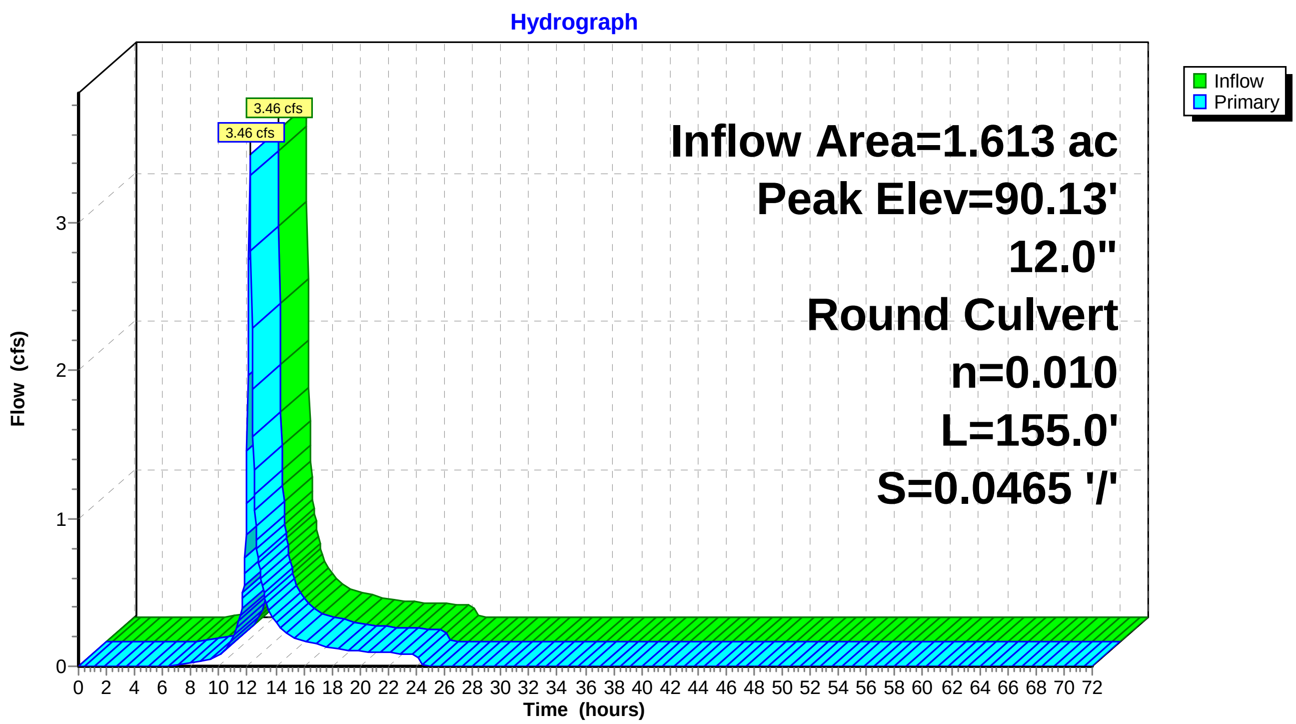
Inflow Area = 1.613 ac, 29.03% Impervious, Inflow Depth = 2.43" for 10-Year event
Inflow = 3.46 cfs @ 12.17 hrs, Volume= 0.327 af
Outflow = 3.46 cfs @ 12.17 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.0 min
Primary = 3.46 cfs @ 12.17 hrs, Volume= 0.327 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 90.13' @ 12.17 hrs
Flood Elev= 92.97'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.30'	**12.0" Round Culvert** L= 155.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.30' / 81.10' S= 0.0465 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.37 cfs @ 12.17 hrs HW=90.07' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.37 cfs @ 4.29 fps)

Pond 5P: (new Pond)



Summary for Pond 11P: StormTank

Inflow Area =	0.380 ac,	80.00% Impervious,	Inflow Depth = 4.25"	for 10-Year event
Inflow =	1.51 cfs @	12.14 hrs, Volume=	0.134 af	
Outflow =	1.13 cfs @	12.21 hrs, Volume=	0.134 af,	Atten= 25%, Lag= 4.1 min
Discarded =	0.02 cfs @	12.21 hrs, Volume=	0.027 af	
Primary =	1.12 cfs @	12.21 hrs, Volume=	0.107 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 94.60' @ 12.21 hrs Surf.Area= 0.030 ac Storage= 0.016 af

Plug-Flow detention time= 23.7 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 23.7 min (806.7 - 783.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	94.00'	0.003 af	**31.93'W x 40.61'L x 2.00'H Field A** 0.060 af Overall - 0.053 af Embedded = 0.006 af x 40.0% Voids
#2A	94.00'	0.051 af	**StormTank 20 Series 24"** x 187 Inside #1 Inside= 21.1"W x 24.0"H => 3.36 sf x 3.51'L = 11.8 cf Outside= 21.1"W x 24.0"H => 3.52 sf x 3.51'L = 12.4 cf 187 Chambers in 17 Rows
		0.053 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	94.00'	**12.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 94.00' / 90.00' S= 0.1000 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf
#2	Discarded	94.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -11.70'
#3	Primary	95.00'	**4.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Primary	94.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 94.00' / 94.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf

Discarded OutFlow Max=0.02 cfs @ 12.21 hrs HW=94.60' (Free Discharge)
└─**2=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=1.11 cfs @ 12.21 hrs HW=94.60' (Free Discharge)
├─**1=Culvert** (Inlet Controls 1.01 cfs @ 2.08 fps)
├─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**4=Culvert** (Inlet Controls 0.09 cfs @ 4.31 fps)

Pond 11P: StormTank - Chamber Wizard Field A

Chamber Model = StormTank 20 Series 24" (StormTank Module 20 Series)
Inside= 21.1"W x 24.0"H => 3.36 sf x 3.51'L = 11.8 cf
Outside= 21.1"W x 24.0"H => 3.52 sf x 3.51'L = 12.4 cf

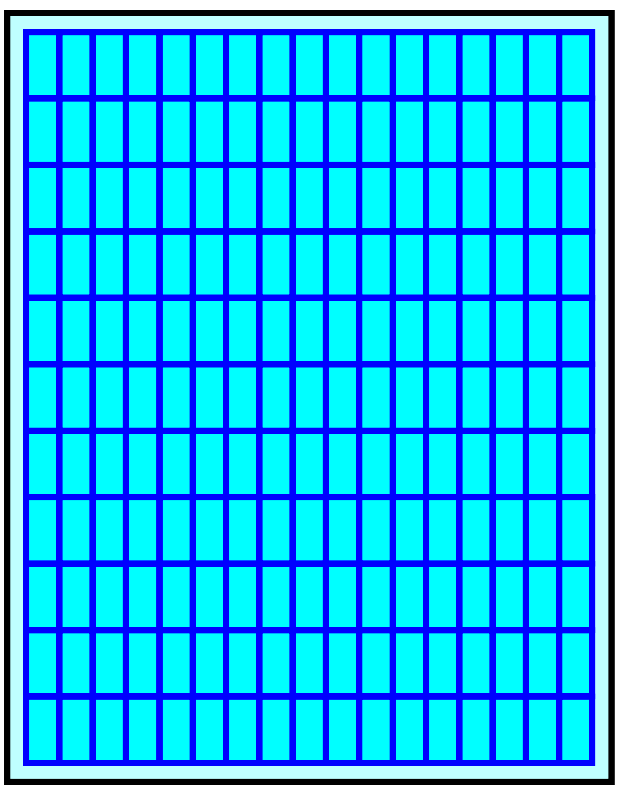
11 Chambers/Row x 3.51' Long = 38.61' Row Length +12.0" End Stone x 2 = 40.61' Base Length
17 Rows x 21.1" Wide + 12.0" Side Stone x 2 = 31.93' Base Width
24.0" Chamber Height = 2.00' Field Height

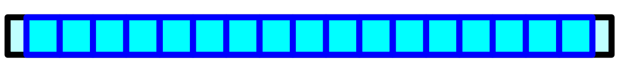
187 Chambers x 11.8 cf = 2,204.5 cf Chamber Storage
187 Chambers x 12.4 cf = 2,311.2 cf Displacement

2,593.4 cf Field - 2,311.2 cf Chambers = 282.2 cf Stone x 40.0% Voids = 112.9 cf Stone Storage

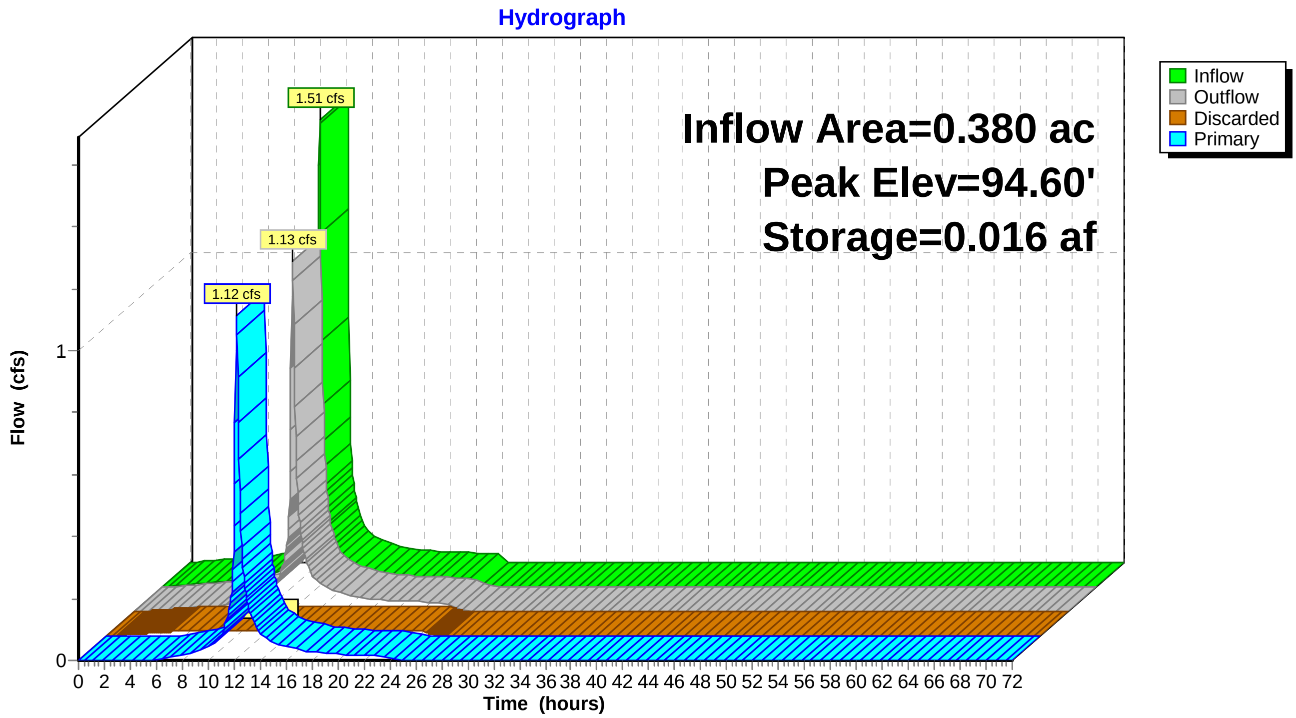
Chamber Storage + Stone Storage = 2,317.3 cf = 0.053 af
Overall Storage Efficiency = 89.4%
Overall System Size = 40.61' x 31.93' x 2.00'

187 Chambers
96.1 cy Field
10.5 cy Stone





Pond 11P: StormTank



Summary for Pond 12P: Playground Subsurface

Inflow Area =	0.075 ac,100.00% Impervious,	Inflow Depth = 4.89"	for 10-Year event	
Inflow =	0.34 cfs @	12.13 hrs, Volume=	0.031 af	
Outflow =	0.06 cfs @	12.52 hrs, Volume=	0.031 af,	Atten= 82%, Lag= 23.7 min
Discarded =	0.04 cfs @	12.52 hrs, Volume=	0.027 af	
Primary =	0.02 cfs @	12.52 hrs, Volume=	0.003 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 98.10' @ 12.52 hrs Surf.Area= 0.073 ac Storage= 0.007 af

Plug-Flow detention time= 37.6 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 37.5 min (787.6 - 750.0)

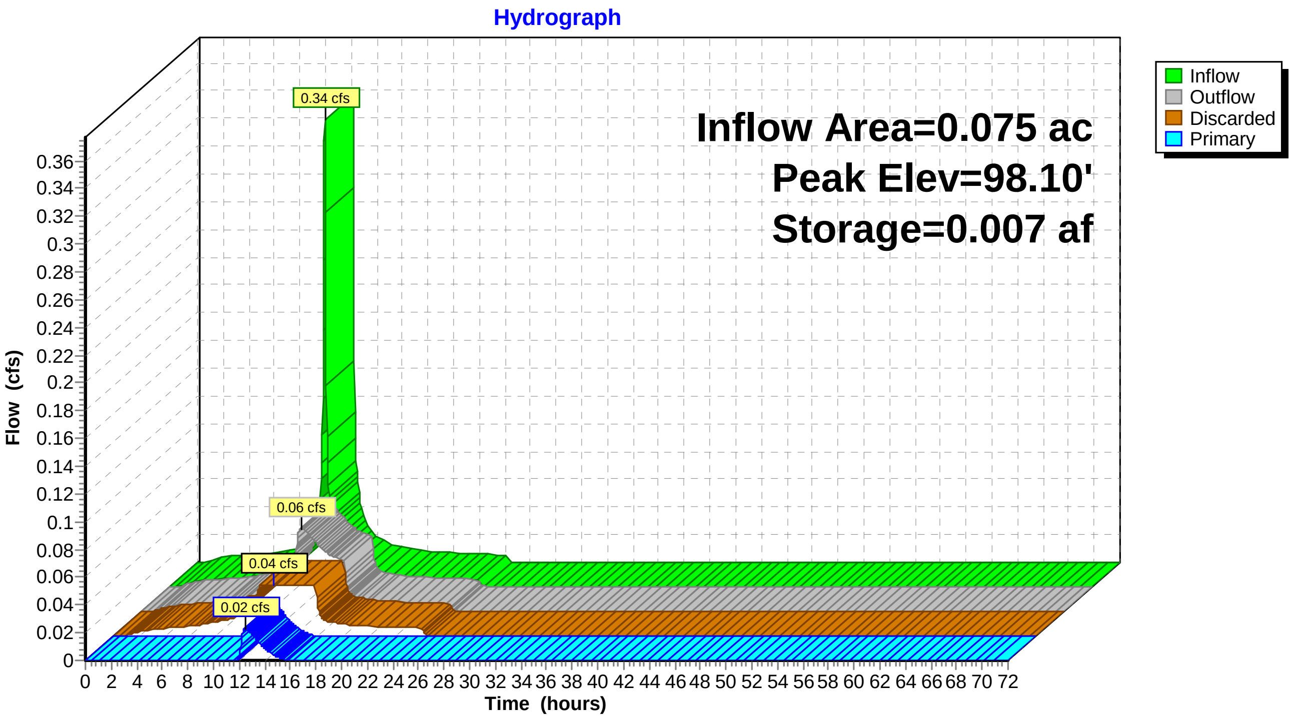
Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.049 af	**100.00'W x 32.00'L x 0.67'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**6.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 97.00' S= 0.0455 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	98.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -11.70'

Discarded OutFlow Max=0.04 cfs @ 12.52 hrs HW=98.10' (Free Discharge)
└─**2=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.02 cfs @ 12.52 hrs HW=98.10' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.02 cfs @ 0.84 fps)

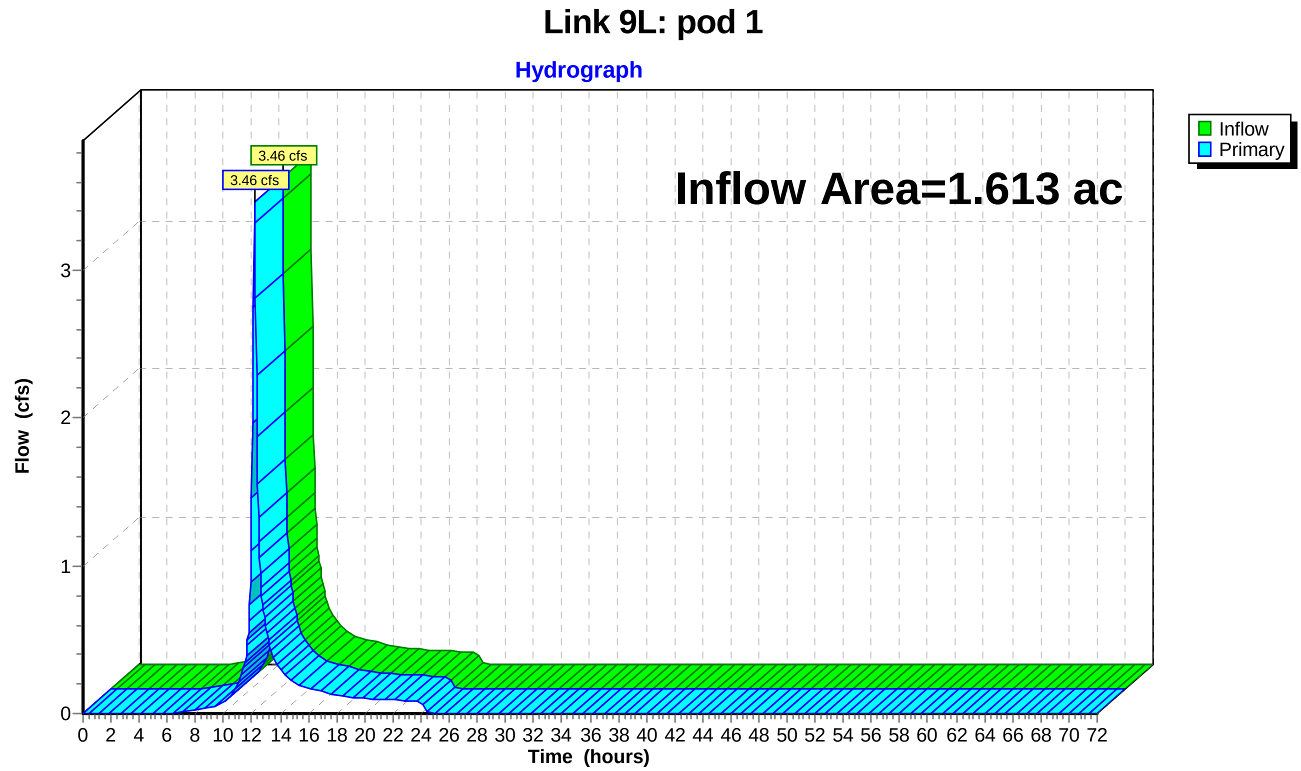
Pond 12P: Playground Subsurface



Summary for Link 9L: pod 1

Inflow Area =	1.613 ac,	29.03% Impervious,	Inflow Depth = 2.43"	for 10-Year event
Inflow =	3.46 cfs @	12.17 hrs, Volume=	0.327 af	
Primary =	3.46 cfs @	12.17 hrs, Volume=	0.327 af, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1S: 1 Runoff Area=15,481 sf 7.00% Impervious Runoff Depth=3.30"
Flow Length=137' Tc=7.9 min CN=71 Runoff=1.19 cfs 0.098 af

Subcatchment 2S: 2 Runoff Area=9,657 sf 65.76% Impervious Runoff Depth=5.10"
Flow Length=132' Tc=8.1 min CN=88 Runoff=1.08 cfs 0.094 af

Subcatchment 3S: 3 Runoff Area=6,881 sf 100.00% Impervious Runoff Depth=6.25"
Tc=6.0 min CN=98 Runoff=0.90 cfs 0.082 af

Subcatchment 4S: 4 Runoff Area=26,642 sf 0.00% Impervious Runoff Depth=3.10"
Flow Length=210' Tc=11.4 min CN=69 Runoff=1.69 cfs 0.158 af

Subcatchment 11S: Playground Runoff Area=3,267 sf 100.00% Impervious Runoff Depth=6.25"
Tc=6.0 min CN=98 Runoff=0.43 cfs 0.039 af

Subcatchment 12S: 5 Runoff Area=8,352 sf 33.81% Impervious Runoff Depth=4.12"
Tc=6.0 min CN=79 Runoff=0.84 cfs 0.066 af

Pond 5P: (new Pond) Peak Elev=91.59' Inflow=5.00 cfs 0.476 af
12.0" Round Culvert n=0.010 L=155.0' S=0.0465 '/' Outflow=5.00 cfs 0.476 af

Pond 11P: StormTank Peak Elev=94.72' Storage=0.019 af Inflow=1.96 cfs 0.176 af
Discarded=0.02 cfs 0.029 af Primary=1.49 cfs 0.148 af Outflow=1.50 cfs 0.176 af

Pond 12P: Playground Subsurface Peak Elev=98.13' Storage=0.010 af Inflow=0.43 cfs 0.039 af
Discarded=0.04 cfs 0.033 af Primary=0.04 cfs 0.006 af Outflow=0.08 cfs 0.039 af

Link 9L: pod 1 Inflow=5.00 cfs 0.476 af
Primary=5.00 cfs 0.476 af

Total Runoff Area = 1.613 ac Runoff Volume = 0.537 af Average Runoff Depth = 3.99"
70.97% Pervious = 1.145 ac 29.03% Impervious = 0.468 ac

Summary for Subcatchment 1S: 1

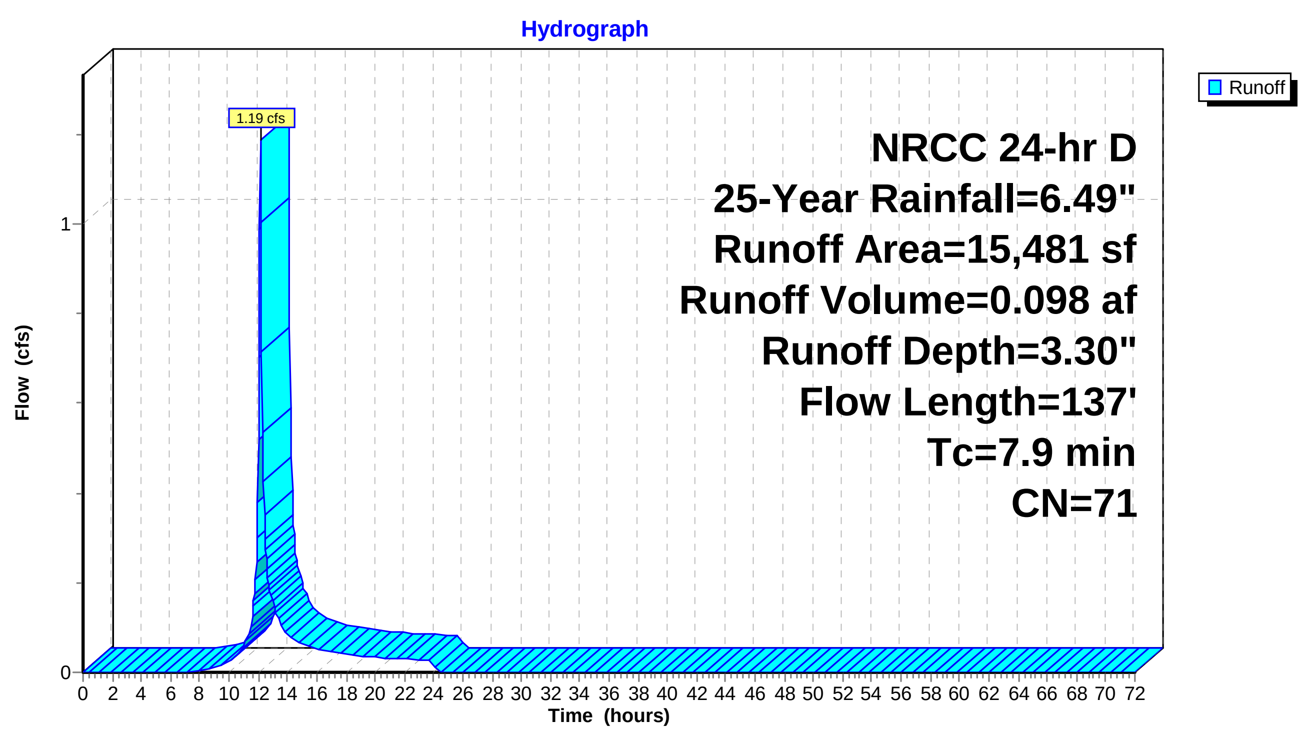
Runoff = 1.19 cfs @ 12.15 hrs, Volume= 0.098 af, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
	11,422	69	50-75% Grass cover, Fair, HSG B
	2,976	69	50-75% Grass cover, Fair, HSG B
*	1,083	98	Sidewalk
	15,481	71	Weighted Average
	14,398		93.00% Pervious Area
	1,083		7.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0950	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	37	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	137	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

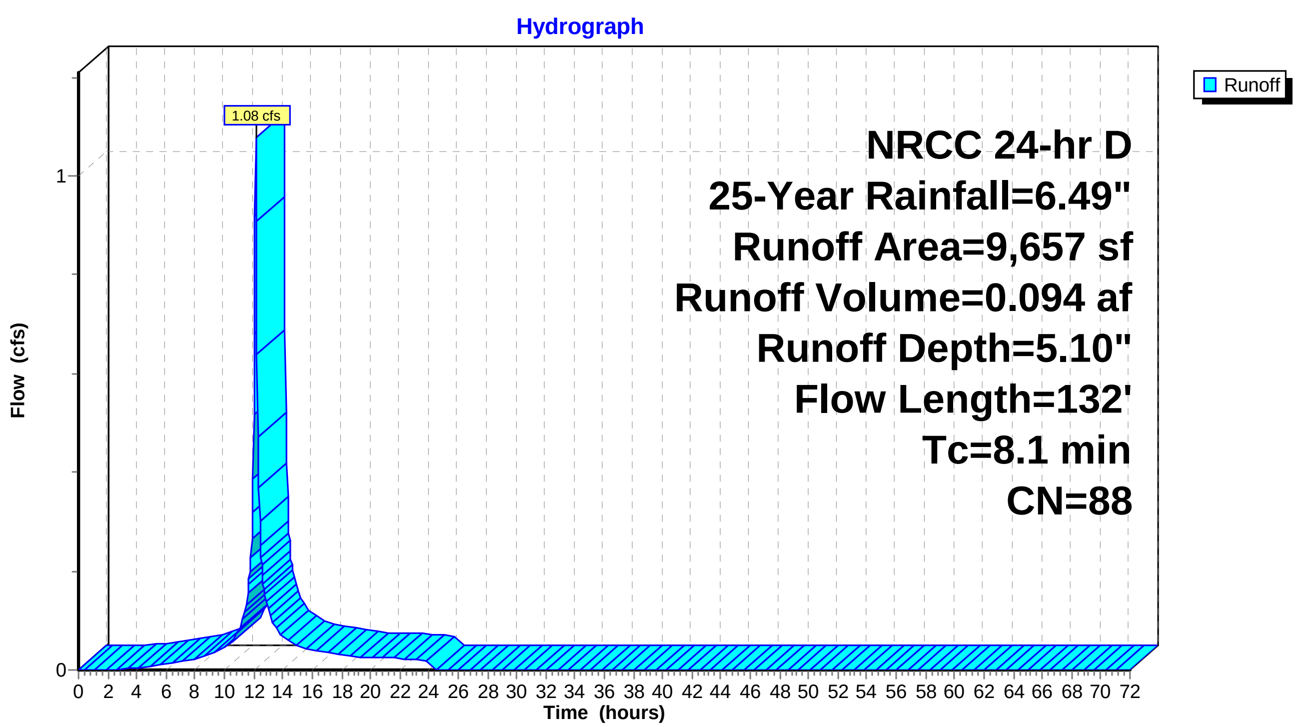
Runoff = 1.08 cfs @ 12.15 hrs, Volume= 0.094 af, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	6,350	98	Pavement
	3,307	69	50-75% Grass cover, Fair, HSG B
	9,657	88	Weighted Average
	3,307		34.24% Pervious Area
	6,350		65.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0850	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.1	32	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	132	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

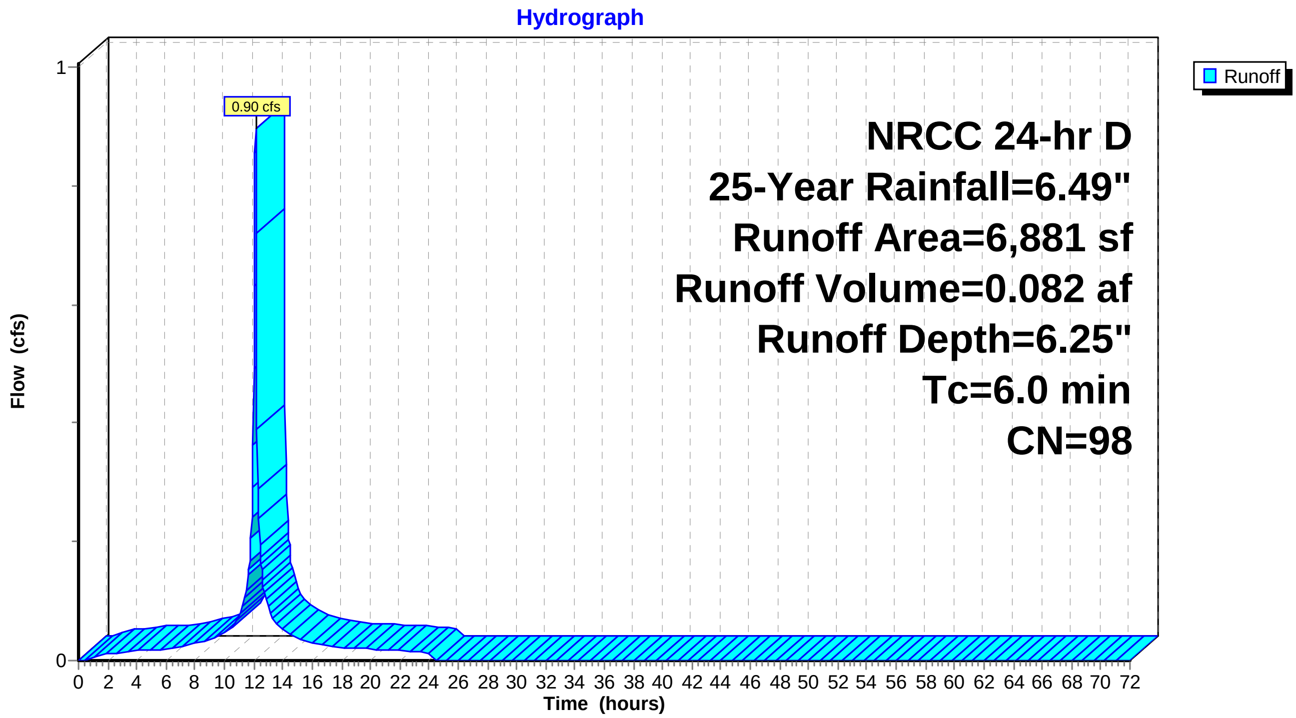
Runoff = 0.90 cfs @ 12.13 hrs, Volume= 0.082 af, Depth= 6.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

Area (sf)	CN	Description
6,881	98	Roofs, HSG A
6,881		100.00% Impervious Area

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

Subcatchment 3S: 3



Summary for Subcatchment 4S: 4

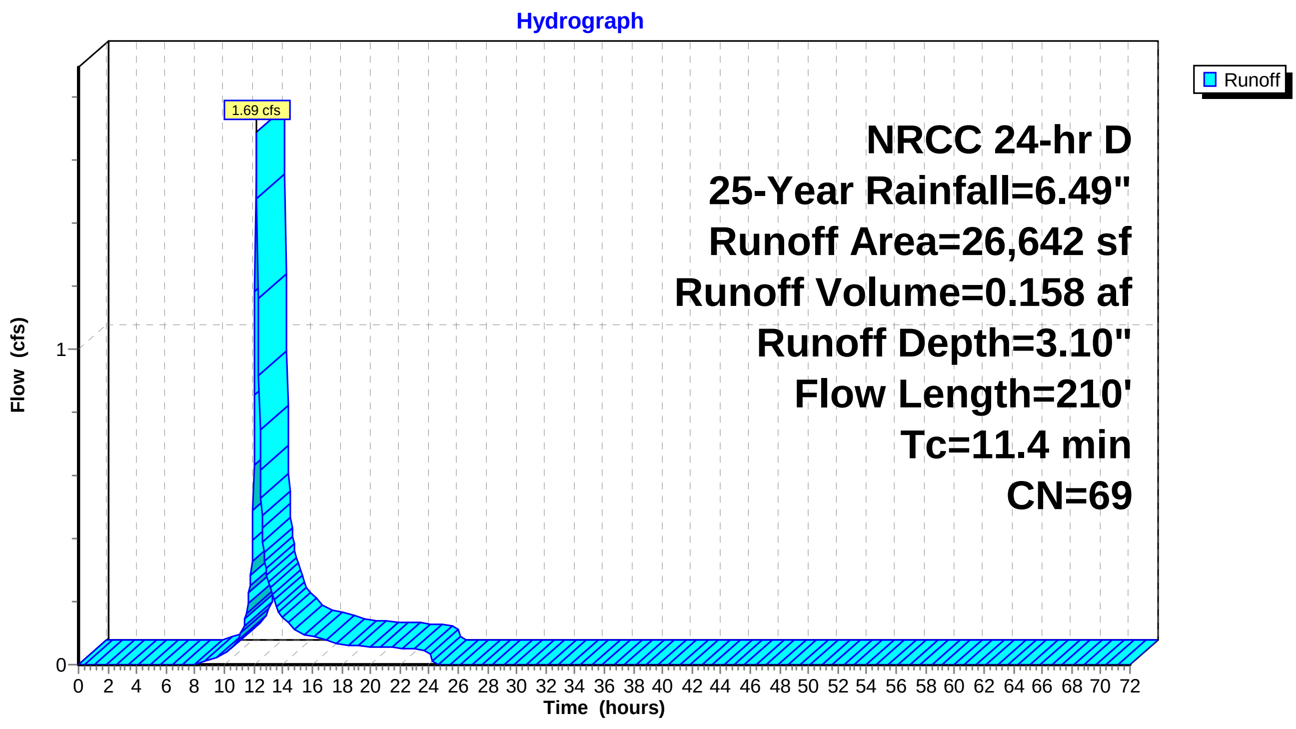
Runoff = 1.69 cfs @ 12.19 hrs, Volume= 0.158 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

Area (sf)	CN	Description
26,642	69	50-75% Grass cover, Fair, HSG B
26,642		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	110	0.0450	3.18		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.4	210	Total			

Subcatchment 4S: 4



Summary for Subcatchment 11S: Playground

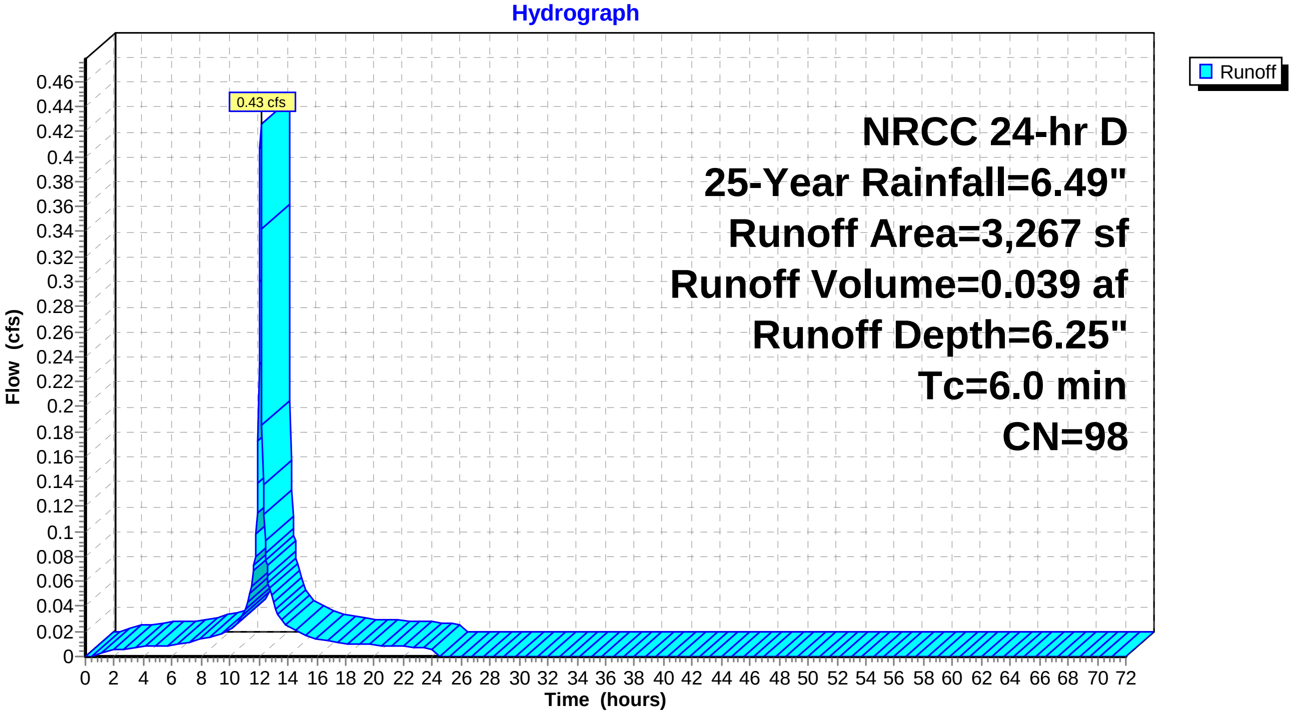
Runoff = 0.43 cfs @ 12.13 hrs, Volume= 0.039 af, Depth= 6.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
*	3,267	98	Playground
	3,267		100.00% Impervious Area

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

Subcatchment 11S: Playground



Summary for Subcatchment 12S: 5

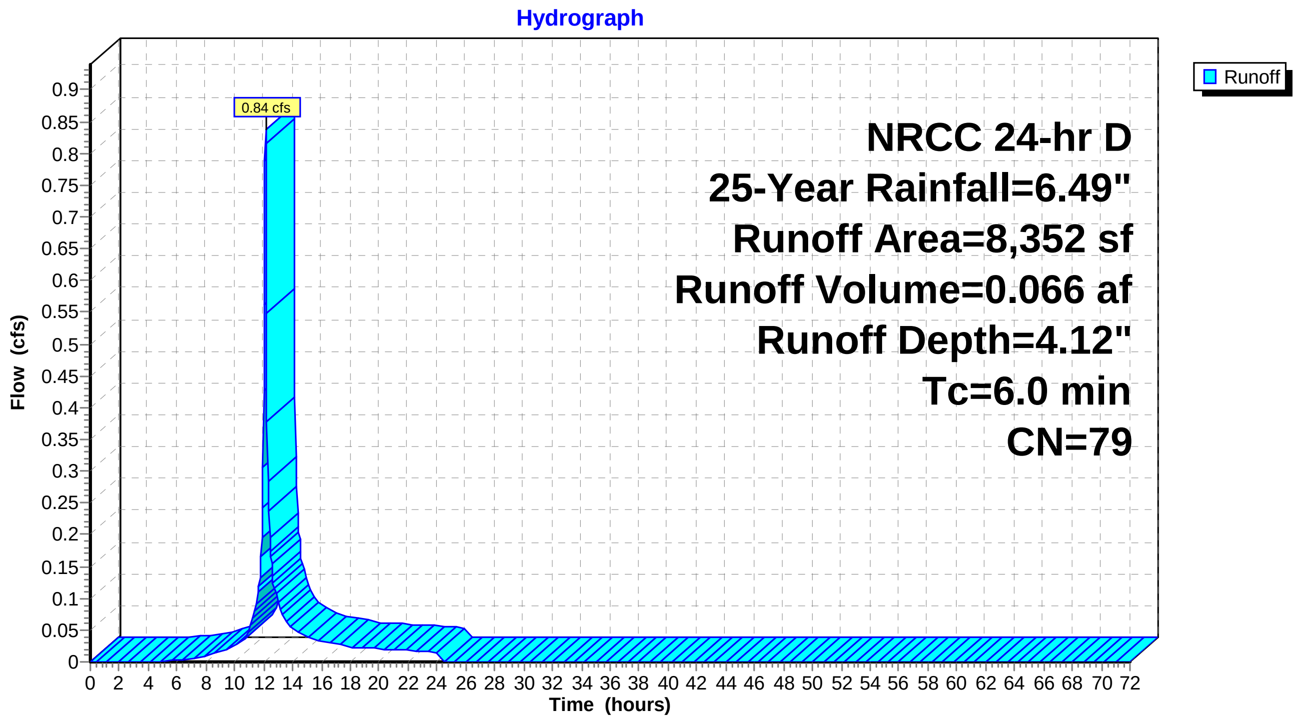
Runoff = 0.84 cfs @ 12.13 hrs, Volume= 0.066 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.49"

	Area (sf)	CN	Description
	1,373	69	50-75% Grass cover, Fair, HSG B
*	2,824	98	Sidewalks
	569	69	50-75% Grass cover, Fair, HSG B
	3,586	69	50-75% Grass cover, Fair, HSG B
	8,352	79	Weighted Average
	5,528		66.19% Pervious Area
	2,824		33.81% Impervious Area

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

Subcatchment 12S: 5



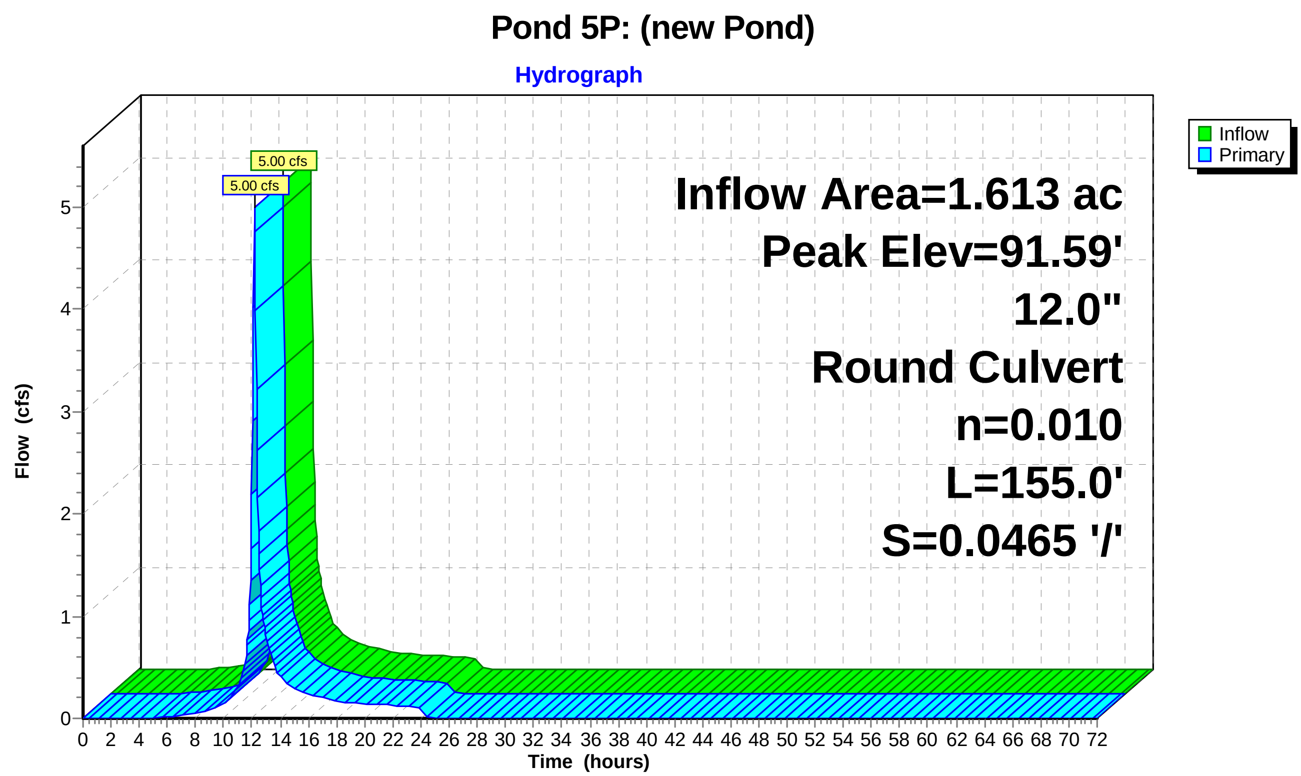
Summary for Pond 5P: (new Pond)

Inflow Area = 1.613 ac, 29.03% Impervious, Inflow Depth = 3.54" for 25-Year event
Inflow = 5.00 cfs @ 12.17 hrs, Volume= 0.476 af
Outflow = 5.00 cfs @ 12.17 hrs, Volume= 0.476 af, Atten= 0%, Lag= 0.0 min
Primary = 5.00 cfs @ 12.17 hrs, Volume= 0.476 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 91.59' @ 12.17 hrs
Flood Elev= 92.97'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.30'	**12.0" Round Culvert** L= 155.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.30' / 81.10' S= 0.0465 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.88 cfs @ 12.17 hrs HW=91.47' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.88 cfs @ 6.21 fps)



Summary for Pond 11P: StormTank

Inflow Area =	0.380 ac,	80.00% Impervious,	Inflow Depth = 5.58"	for 25-Year event	
Inflow =	1.96 cfs @	12.14 hrs,	Volume=	0.176 af	
Outflow =	1.50 cfs @	12.20 hrs,	Volume=	0.176 af,	Atten= 23%, Lag= 3.9 min
Discarded =	0.02 cfs @	12.20 hrs,	Volume=	0.029 af	
Primary =	1.49 cfs @	12.20 hrs,	Volume=	0.148 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 94.72' @ 12.20 hrs Surf.Area= 0.030 ac Storage= 0.019 af

Plug-Flow detention time= 22.2 min calculated for 0.176 af (100% of inflow)
Center-of-Mass det. time= 22.3 min (798.5 - 776.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	94.00'	0.003 af	**31.93'W x 40.61'L x 2.00'H Field A** 0.060 af Overall - 0.053 af Embedded = 0.006 af x 40.0% Voids
#2A	94.00'	0.051 af	**StormTank 20 Series 24"** x 187 Inside #1 Inside= 21.1"W x 24.0"H => 3.36 sf x 3.51'L = 11.8 cf Outside= 21.1"W x 24.0"H => 3.52 sf x 3.51'L = 12.4 cf 187 Chambers in 17 Rows
		0.053 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	94.00'	**12.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 94.00' / 90.00' S= 0.1000 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf
#2	Discarded	94.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -11.70'
#3	Primary	95.00'	**4.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Primary	94.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 94.00' / 94.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf

Discarded OutFlow Max=0.02 cfs @ 12.20 hrs HW=94.72' (Free Discharge)
└**2=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=1.48 cfs @ 12.20 hrs HW=94.72' (Free Discharge)
├**1=Culvert** (Inlet Controls 1.38 cfs @ 2.28 fps)
├**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**4=Culvert** (Inlet Controls 0.10 cfs @ 4.80 fps)

Pond 11P: StormTank - Chamber Wizard Field A

Chamber Model = StormTank 20 Series 24" (StormTank Module 20 Series)
Inside= 21.1"W x 24.0"H => 3.36 sf x 3.51'L = 11.8 cf
Outside= 21.1"W x 24.0"H => 3.52 sf x 3.51'L = 12.4 cf

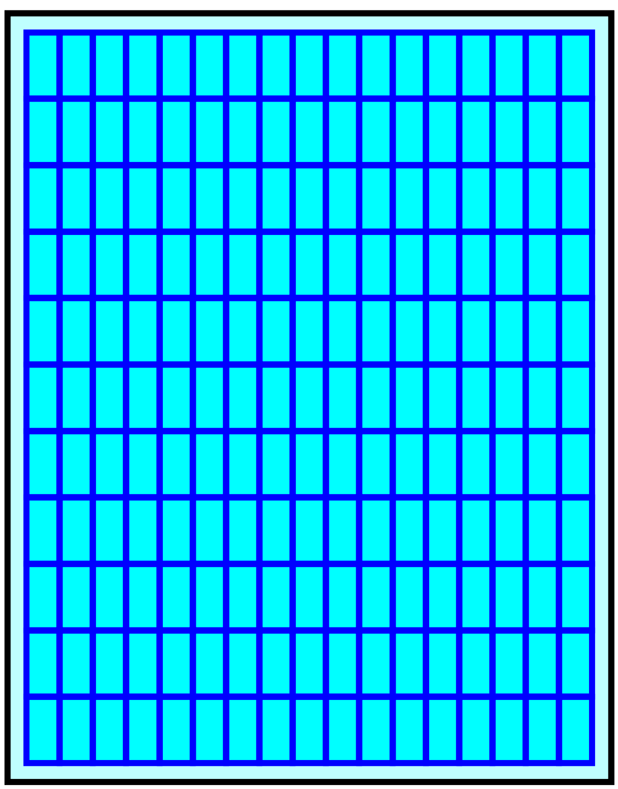
11 Chambers/Row x 3.51' Long = 38.61' Row Length +12.0" End Stone x 2 = 40.61' Base Length
17 Rows x 21.1" Wide + 12.0" Side Stone x 2 = 31.93' Base Width
24.0" Chamber Height = 2.00' Field Height

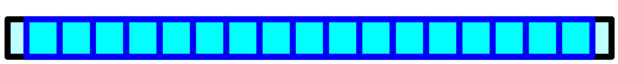
187 Chambers x 11.8 cf = 2,204.5 cf Chamber Storage
187 Chambers x 12.4 cf = 2,311.2 cf Displacement

2,593.4 cf Field - 2,311.2 cf Chambers = 282.2 cf Stone x 40.0% Voids = 112.9 cf Stone Storage

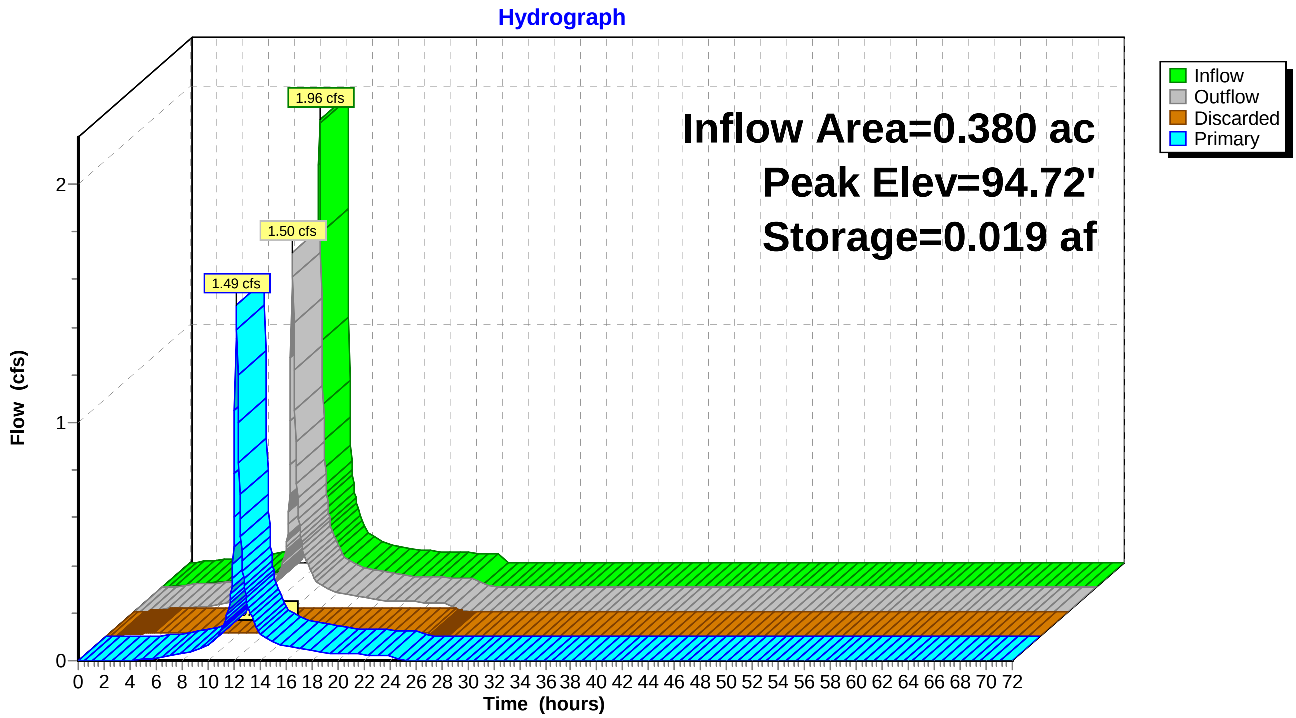
Chamber Storage + Stone Storage = 2,317.3 cf = 0.053 af
Overall Storage Efficiency = 89.4%
Overall System Size = 40.61' x 31.93' x 2.00'

187 Chambers
96.1 cy Field
10.5 cy Stone





Pond 11P: StormTank



Summary for Pond 12P: Playground Subsurface

Inflow Area =	0.075 ac,100.00% Impervious, Inflow Depth = 6.25" for 25-Year event		
Inflow =	0.43 cfs @ 12.13 hrs, Volume=	0.039 af	
Outflow =	0.08 cfs @ 12.50 hrs, Volume=	0.039 af,	Atten= 82%, Lag= 22.6 min
Discarded =	0.04 cfs @ 12.50 hrs, Volume=	0.033 af	
Primary =	0.04 cfs @ 12.50 hrs, Volume=	0.006 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 98.13' @ 12.50 hrs Surf.Area= 0.073 ac Storage= 0.010 af

Plug-Flow detention time= 43.9 min calculated for 0.039 af (100% of inflow)
Center-of-Mass det. time= 43.9 min (789.8 - 745.9)

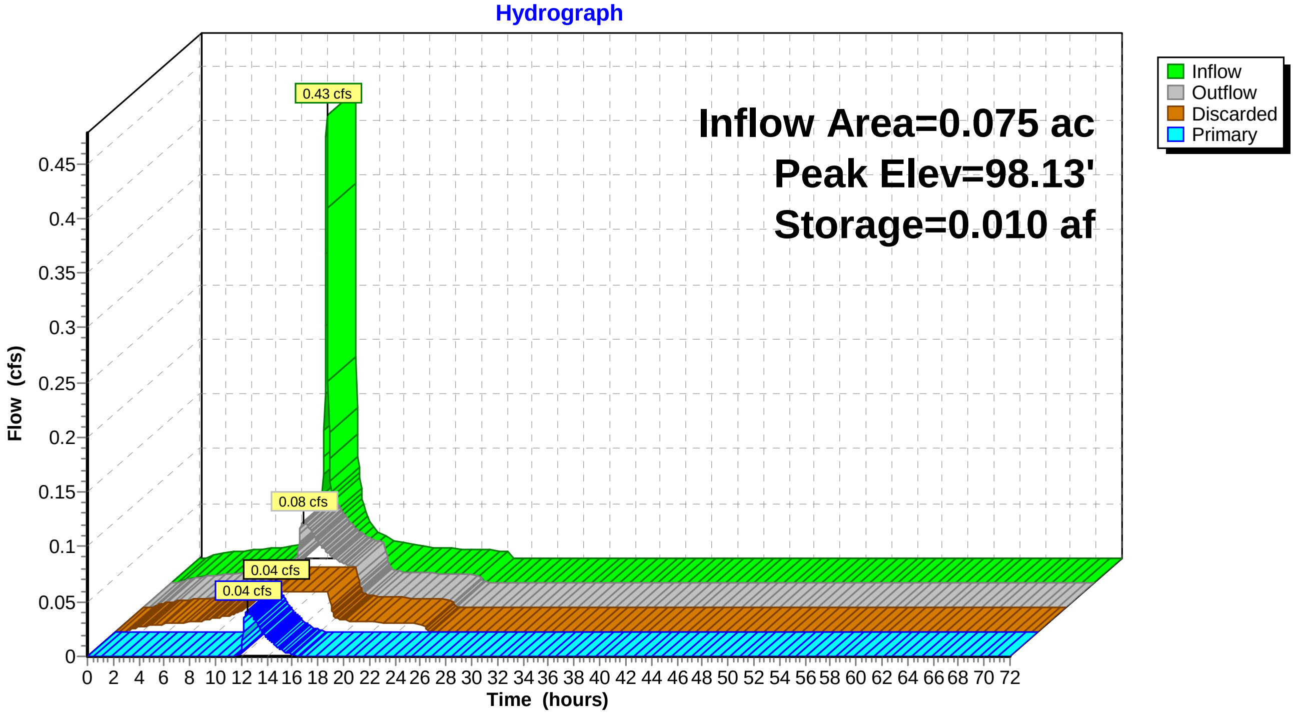
Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.049 af	**100.00'W x 32.00'L x 0.67'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**6.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 97.00' S= 0.0455 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	98.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -11.70'

Discarded OutFlow Max=0.04 cfs @ 12.50 hrs HW=98.13' (Free Discharge)
└**2=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.04 cfs @ 12.50 hrs HW=98.13' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.04 cfs @ 0.98 fps)

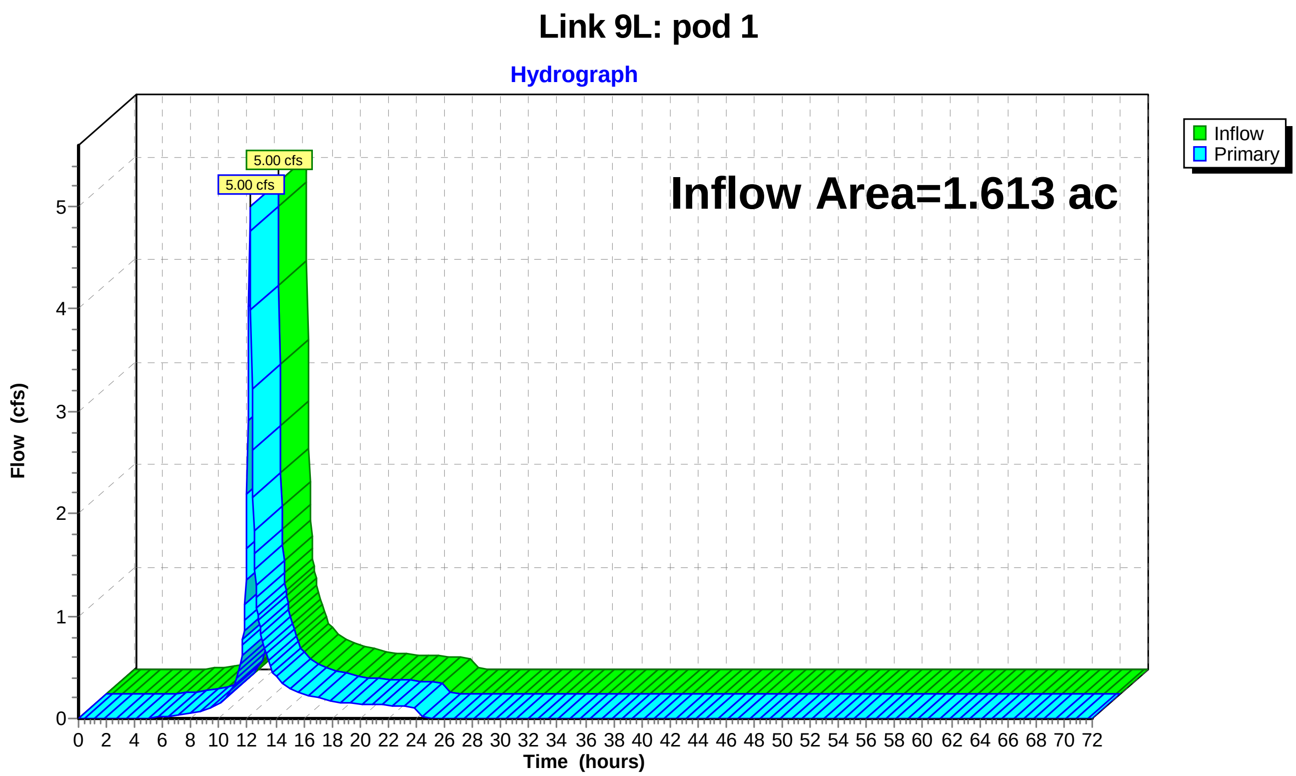
Pond 12P: Playground Subsurface



Summary for Link 9L: pod 1

Inflow Area = 1.613 ac, 29.03% Impervious, Inflow Depth = 3.54" for 25-Year event
Inflow = 5.00 cfs @ 12.17 hrs, Volume= 0.476 af
Primary = 5.00 cfs @ 12.17 hrs, Volume= 0.476 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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 1S: 1 Runoff Area=15,481 sf 7.00% Impervious Runoff Depth=5.71"
Flow Length=137' Tc=7.9 min CN=71 Runoff=2.04 cfs 0.169 af

Subcatchment 2S: 2 Runoff Area=9,657 sf 65.76% Impervious Runoff Depth=7.82"
Flow Length=132' Tc=8.1 min CN=88 Runoff=1.61 cfs 0.145 af

Subcatchment 3S: 3 Runoff Area=6,881 sf 100.00% Impervious Runoff Depth=9.04"
Tc=6.0 min CN=98 Runoff=1.29 cfs 0.119 af

Subcatchment 4S: 4 Runoff Area=26,642 sf 0.00% Impervious Runoff Depth=5.46"
Flow Length=210' Tc=11.4 min CN=69 Runoff=2.97 cfs 0.278 af

Subcatchment 11S: Playground Runoff Area=3,267 sf 100.00% Impervious Runoff Depth=9.04"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.056 af

Subcatchment 12S: 5 Runoff Area=8,352 sf 33.81% Impervious Runoff Depth=6.71"
Tc=6.0 min CN=79 Runoff=1.34 cfs 0.107 af

Pond 5P: (new Pond) Peak Elev=96.41' Inflow=8.25 cfs 0.803 af
12.0" Round Culvert n=0.010 L=155.0' S=0.0465 '/' Outflow=8.25 cfs 0.803 af

Pond 11P: StormTank Peak Elev=94.97' Storage=0.026 af Inflow=2.88 cfs 0.264 af
Discarded=0.02 cfs 0.030 af Primary=2.17 cfs 0.234 af Outflow=2.19 cfs 0.264 af

Pond 12P: Playground Subsurface Peak Elev=98.20' Storage=0.015 af Inflow=0.61 cfs 0.056 af
Discarded=0.04 cfs 0.042 af Primary=0.09 cfs 0.015 af Outflow=0.13 cfs 0.056 af

Link 9L: pod 1 Inflow=8.25 cfs 0.803 af
Primary=8.25 cfs 0.803 af

Total Runoff Area = 1.613 ac Runoff Volume = 0.874 af Average Runoff Depth = 6.50"
70.97% Pervious = 1.145 ac 29.03% Impervious = 0.468 ac

Summary for Subcatchment 1S: 1

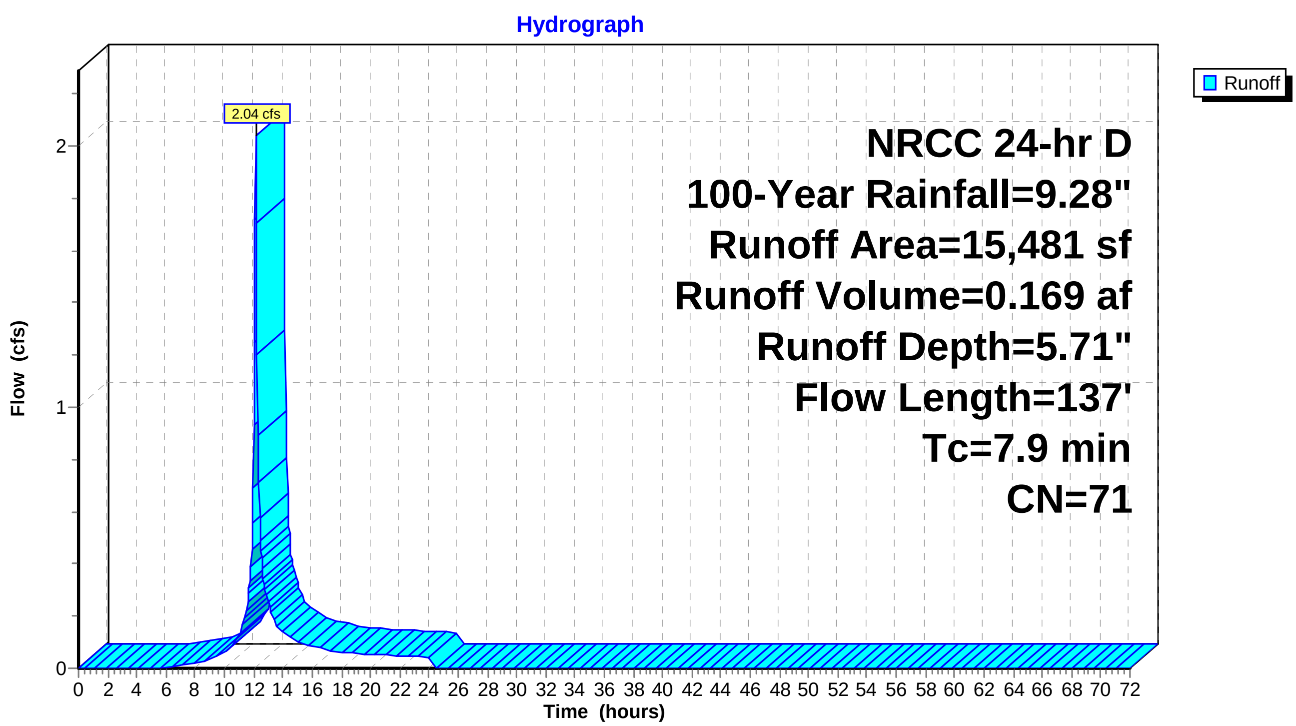
Runoff = 2.04 cfs @ 12.15 hrs, Volume= 0.169 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
	11,422	69	50-75% Grass cover, Fair, HSG B
	2,976	69	50-75% Grass cover, Fair, HSG B
*	1,083	98	Sidewalk
	15,481	71	Weighted Average
	14,398		93.00% Pervious Area
	1,083		7.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0950	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.2	37	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	137	Total			

Subcatchment 1S: 1



Summary for Subcatchment 2S: 2

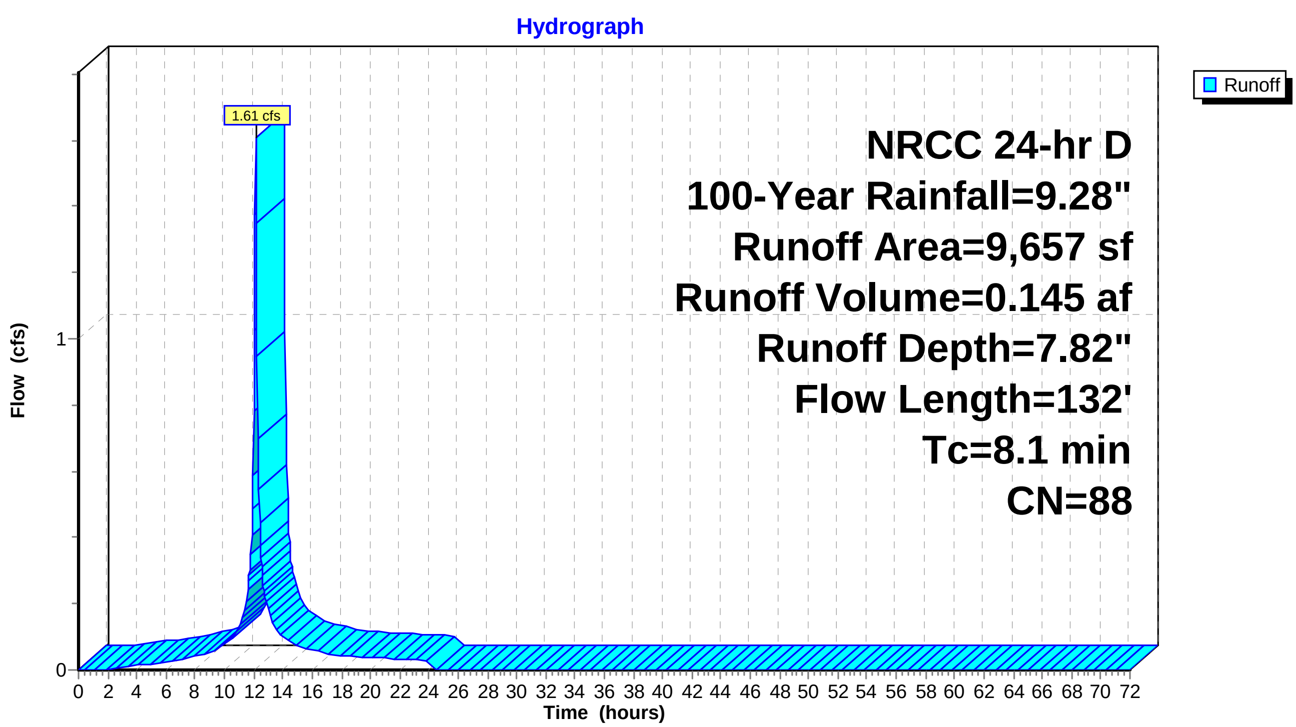
Runoff = 1.61 cfs @ 12.15 hrs, Volume= 0.145 af, Depth= 7.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	6,350	98	Pavement
	3,307	69	50-75% Grass cover, Fair, HSG B
	9,657	88	Weighted Average
	3,307		34.24% Pervious Area
	6,350		65.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0850	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.1	32	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	132	Total			

Subcatchment 2S: 2



Summary for Subcatchment 3S: 3

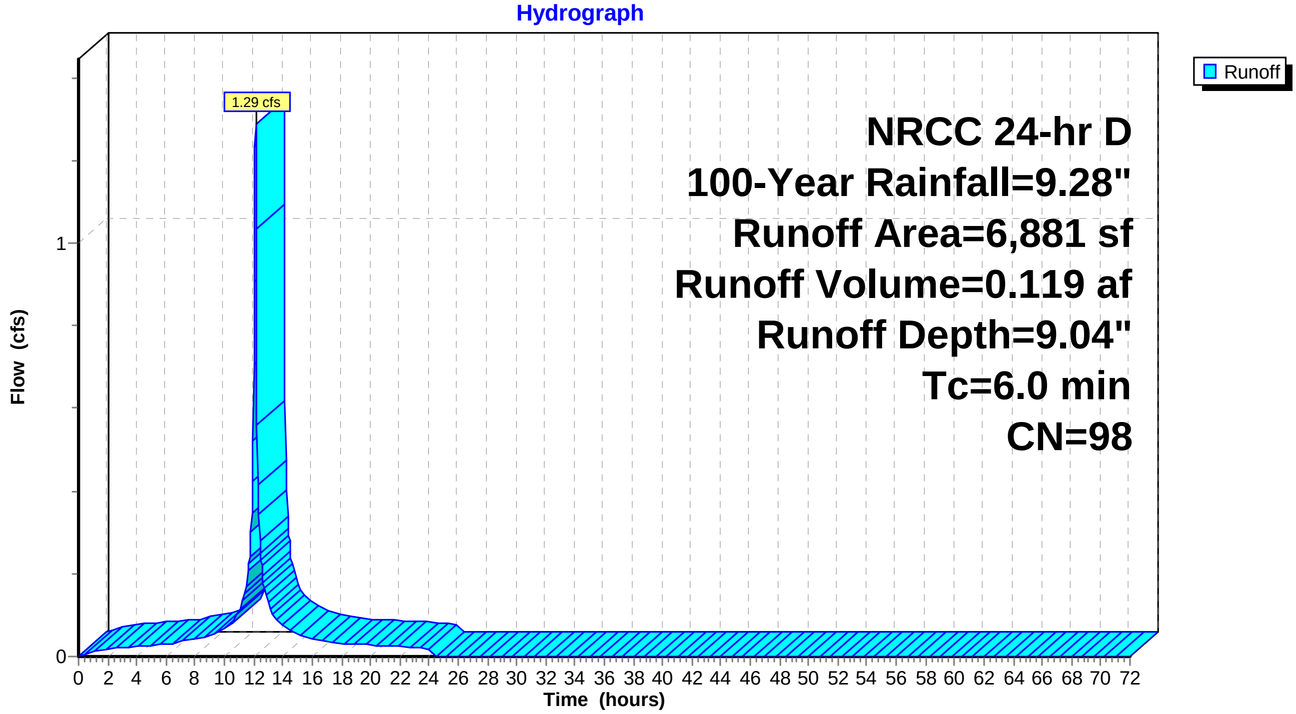
Runoff = 1.29 cfs @ 12.13 hrs, Volume= 0.119 af, Depth= 9.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

Area (sf)	CN	Description
6,881	98	Roofs, HSG A
6,881		100.00% Impervious Area

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

Subcatchment 3S: 3



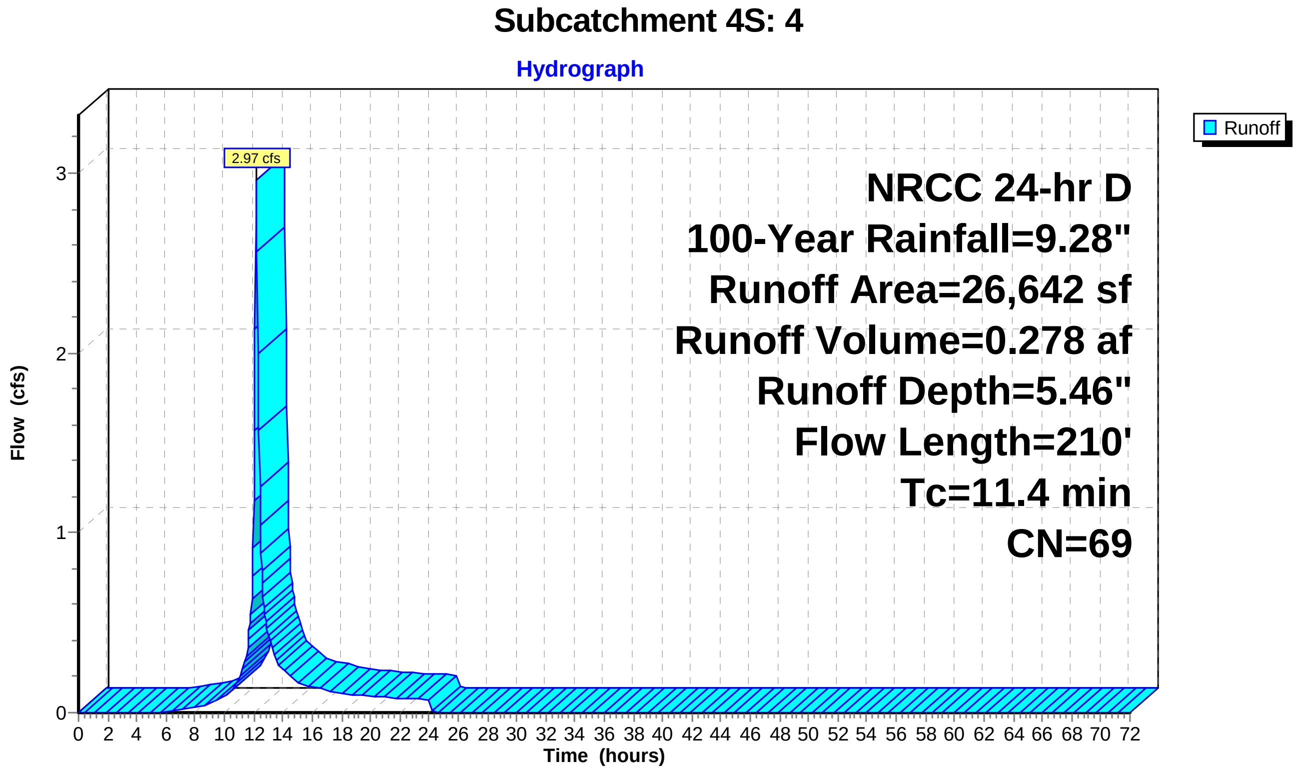
Summary for Subcatchment 4S: 4

Runoff = 2.97 cfs @ 12.19 hrs, Volume= 0.278 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

Area (sf)	CN	Description
26,642	69	50-75% Grass cover, Fair, HSG B
26,642		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0400	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 1.50"
0.6	110	0.0450	3.18		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.4	210	Total			



Summary for Subcatchment 11S: Playground

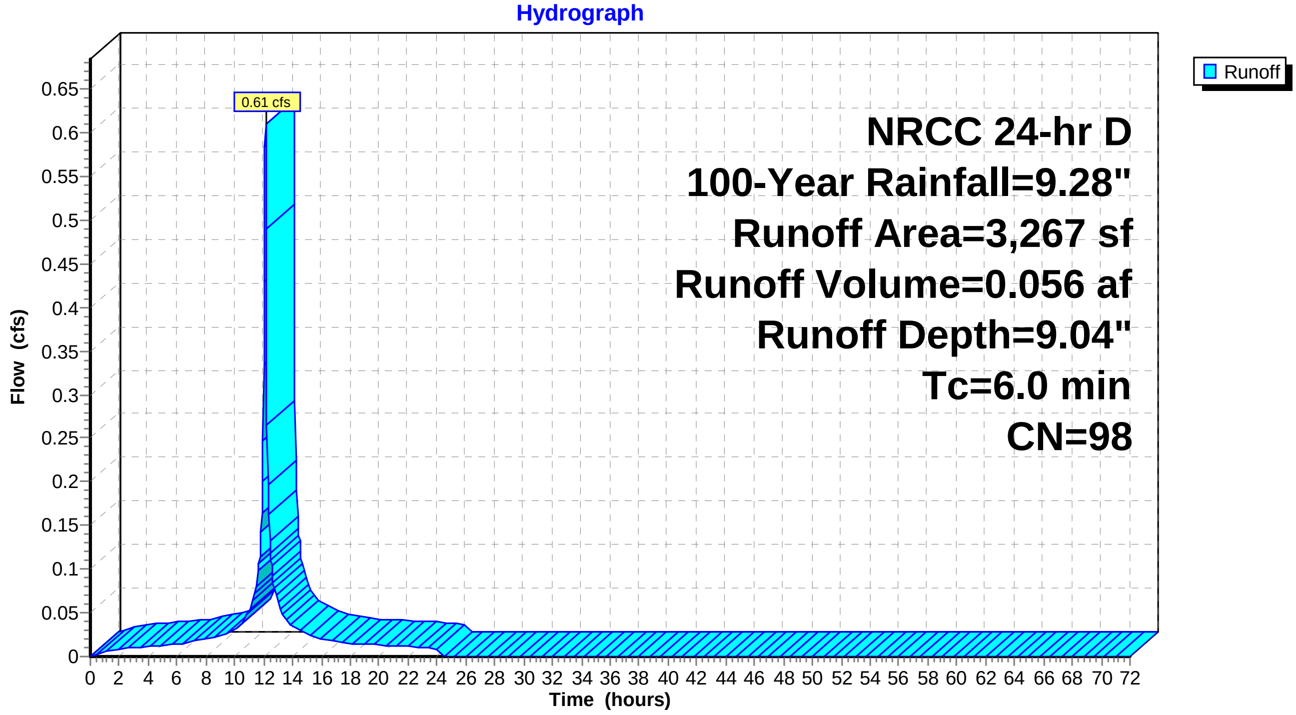
Runoff = 0.61 cfs @ 12.13 hrs, Volume= 0.056 af, Depth= 9.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
*	3,267	98	Playground
	3,267		100.00% Impervious Area

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

Subcatchment 11S: Playground



Summary for Subcatchment 12S: 5

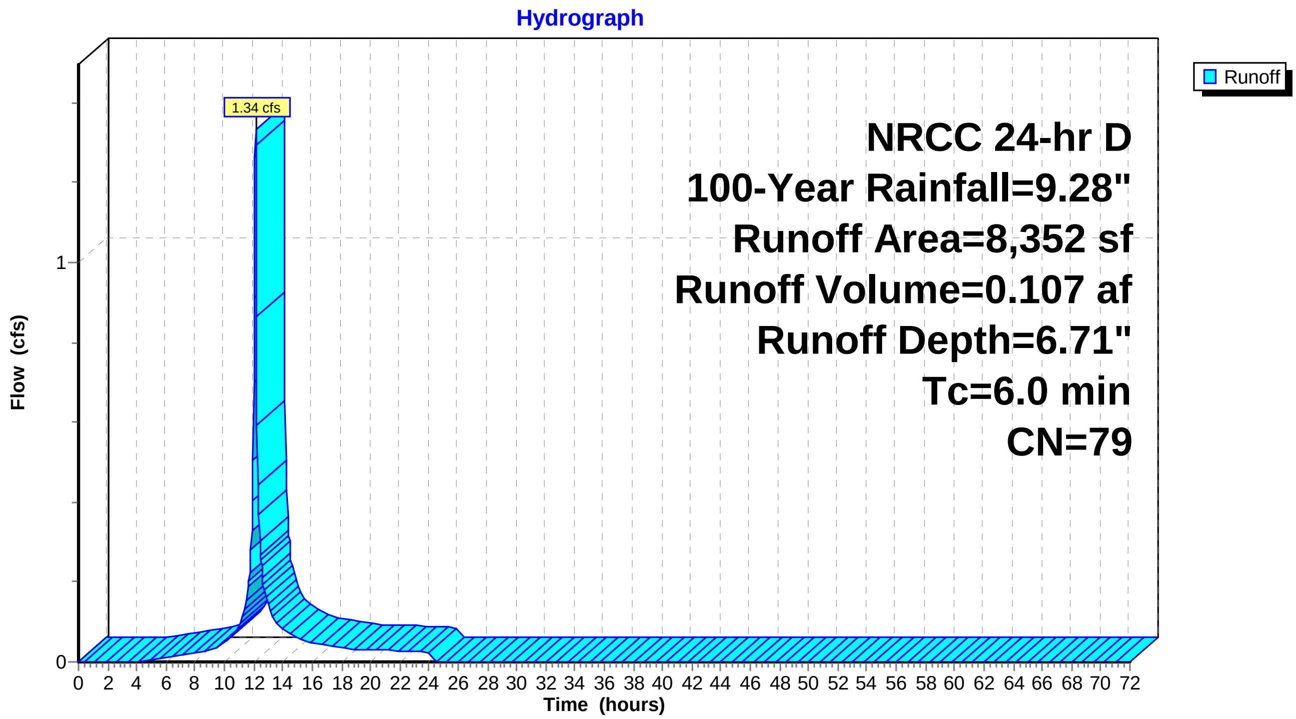
Runoff = 1.34 cfs @ 12.13 hrs, Volume= 0.107 af, Depth= 6.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-Year Rainfall=9.28"

	Area (sf)	CN	Description
	1,373	69	50-75% Grass cover, Fair, HSG B
*	2,824	98	Sidewalks
	569	69	50-75% Grass cover, Fair, HSG B
	3,586	69	50-75% Grass cover, Fair, HSG B
	8,352	79	Weighted Average
	5,528		66.19% Pervious Area
	2,824		33.81% Impervious Area

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

Subcatchment 12S: 5



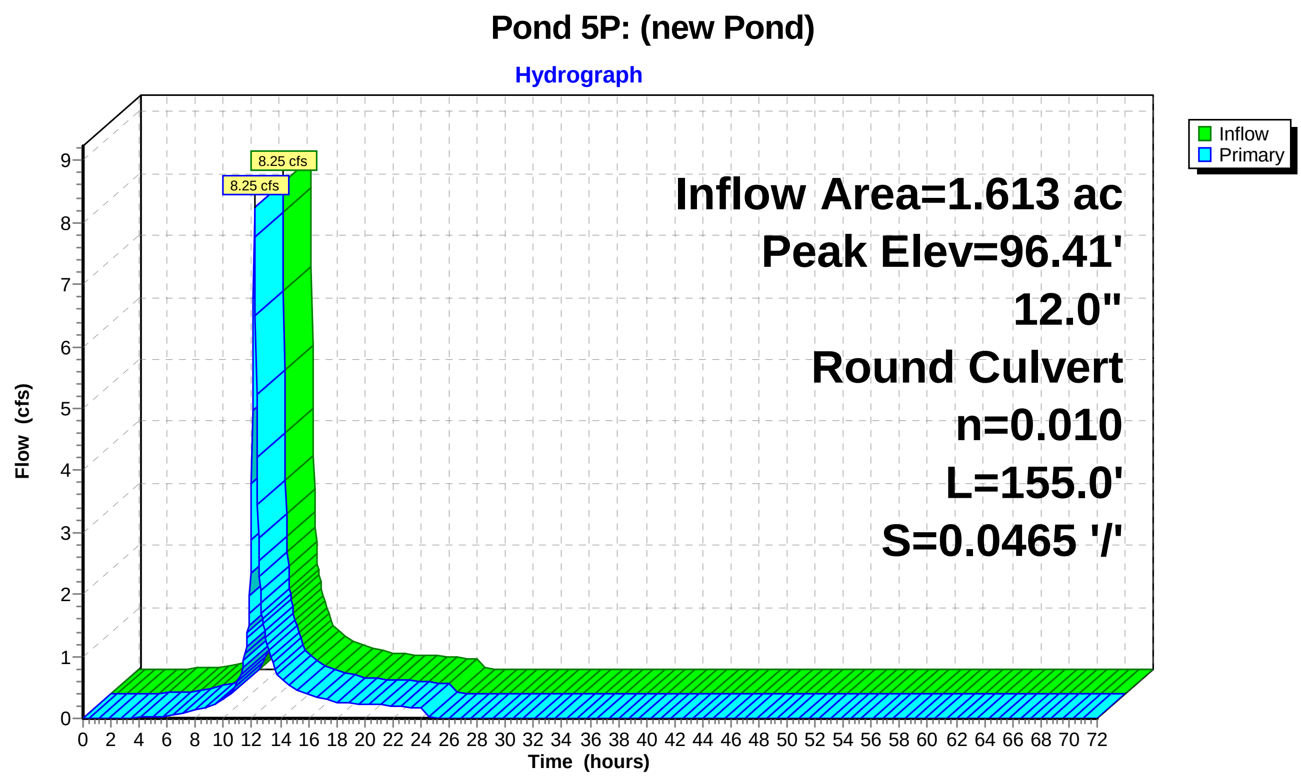
Summary for Pond 5P: (new Pond)

Inflow Area = 1.613 ac, 29.03% Impervious, Inflow Depth = 5.97" for 100-Year event
Inflow = 8.25 cfs @ 12.16 hrs, Volume= 0.803 af
Outflow = 8.25 cfs @ 12.16 hrs, Volume= 0.803 af, Atten= 0%, Lag= 0.0 min
Primary = 8.25 cfs @ 12.16 hrs, Volume= 0.803 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 96.41' @ 12.16 hrs
Flood Elev= 92.97'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.30'	**12.0" Round Culvert** L= 155.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.30' / 81.10' S= 0.0465 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=8.07 cfs @ 12.16 hrs HW=96.11' (Free Discharge)
└─**1=Culvert** (Inlet Controls 8.07 cfs @ 10.27 fps)



Summary for Pond 11P: StormTank

Inflow Area =	0.380 ac,	80.00% Impervious,	Inflow Depth = 8.33"	for 100-Year event
Inflow =	2.88 cfs @	12.14 hrs, Volume=	0.264 af	
Outflow =	2.19 cfs @	12.20 hrs, Volume=	0.264 af,	Atten= 24%, Lag= 3.9 min
Discarded =	0.02 cfs @	12.20 hrs, Volume=	0.030 af	
Primary =	2.17 cfs @	12.20 hrs, Volume=	0.234 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 94.97' @ 12.20 hrs Surf.Area= 0.030 ac Storage= 0.026 af

Plug-Flow detention time= 19.9 min calculated for 0.263 af (100% of inflow)
Center-of-Mass det. time= 19.9 min (786.8 - 766.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	94.00'	0.003 af	**31.93'W x 40.61'L x 2.00'H Field A** 0.060 af Overall - 0.053 af Embedded = 0.006 af x 40.0% Voids
#2A	94.00'	0.051 af	**StormTank 20 Series 24"** x 187 Inside #1 Inside= 21.1"W x 24.0"H => 3.36 sf x 3.51'L = 11.8 cf Outside= 21.1"W x 24.0"H => 3.52 sf x 3.51'L = 12.4 cf 187 Chambers in 17 Rows
		0.053 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	94.00'	**12.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 94.00' / 90.00' S= 0.1000 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf
#2	Discarded	94.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -11.70'
#3	Primary	95.00'	**4.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Primary	94.00'	**2.0" Round Culvert** L= 1.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 94.00' / 94.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.02 sf

Discarded OutFlow Max=0.02 cfs @ 12.20 hrs HW=94.96' (Free Discharge)
└—**2=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=2.17 cfs @ 12.20 hrs HW=94.96' (Free Discharge)
├—**1=Culvert** (Inlet Controls 2.04 cfs @ 2.63 fps)
├—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**4=Culvert** (Inlet Controls 0.12 cfs @ 5.64 fps)

Pond 11P: StormTank - Chamber Wizard Field A

Chamber Model = StormTank 20 Series 24" (StormTank Module 20 Series)
Inside= 21.1"W x 24.0"H => 3.36 sf x 3.51'L = 11.8 cf
Outside= 21.1"W x 24.0"H => 3.52 sf x 3.51'L = 12.4 cf

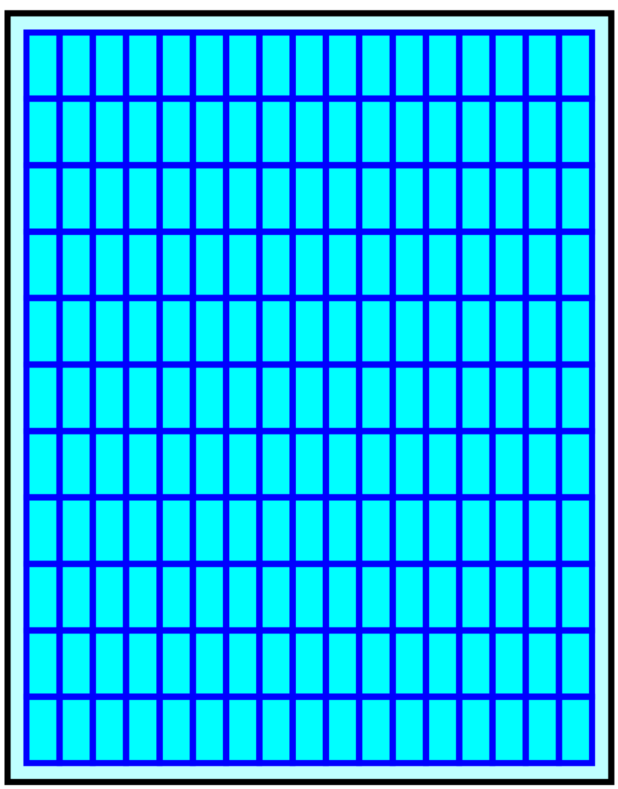
11 Chambers/Row x 3.51' Long = 38.61' Row Length +12.0" End Stone x 2 = 40.61' Base Length
17 Rows x 21.1" Wide + 12.0" Side Stone x 2 = 31.93' Base Width
24.0" Chamber Height = 2.00' Field Height

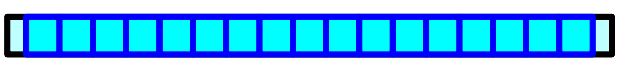
187 Chambers x 11.8 cf = 2,204.5 cf Chamber Storage
187 Chambers x 12.4 cf = 2,311.2 cf Displacement

2,593.4 cf Field - 2,311.2 cf Chambers = 282.2 cf Stone x 40.0% Voids = 112.9 cf Stone Storage

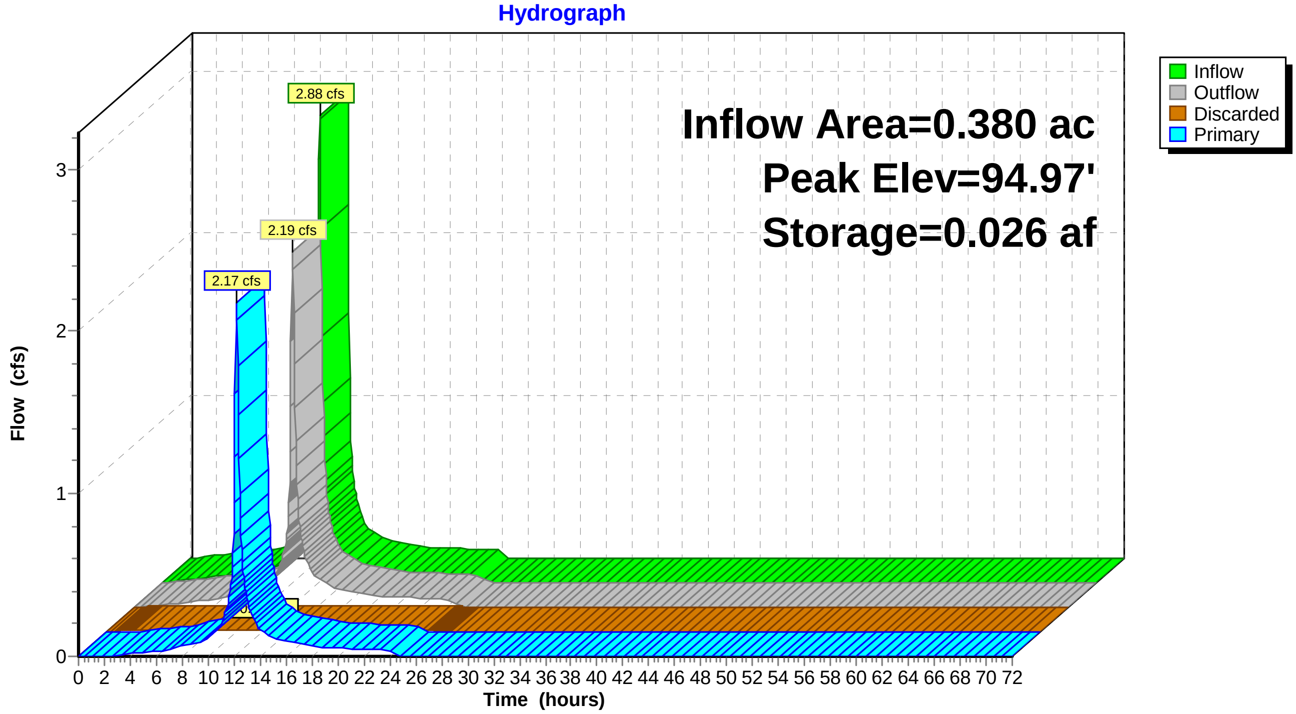
Chamber Storage + Stone Storage = 2,317.3 cf = 0.053 af
Overall Storage Efficiency = 89.4%
Overall System Size = 40.61' x 31.93' x 2.00'

187 Chambers
96.1 cy Field
10.5 cy Stone





Pond 11P: StormTank



Summary for Pond 12P: Playground Subsurface

Inflow Area =	0.075 ac,100.00% Impervious,	Inflow Depth = 9.04"	for 100-Year event	
Inflow =	0.61 cfs @	12.13 hrs, Volume=	0.056 af	
Outflow =	0.13 cfs @	12.42 hrs, Volume=	0.056 af,	Atten= 79%, Lag= 17.8 min
Discarded =	0.04 cfs @	12.42 hrs, Volume=	0.042 af	
Primary =	0.09 cfs @	12.42 hrs, Volume=	0.015 af	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 98.20' @ 12.42 hrs Surf.Area= 0.073 ac Storage= 0.015 af

Plug-Flow detention time= 50.9 min calculated for 0.056 af (100% of inflow)
Center-of-Mass det. time= 50.9 min (791.6 - 740.7)

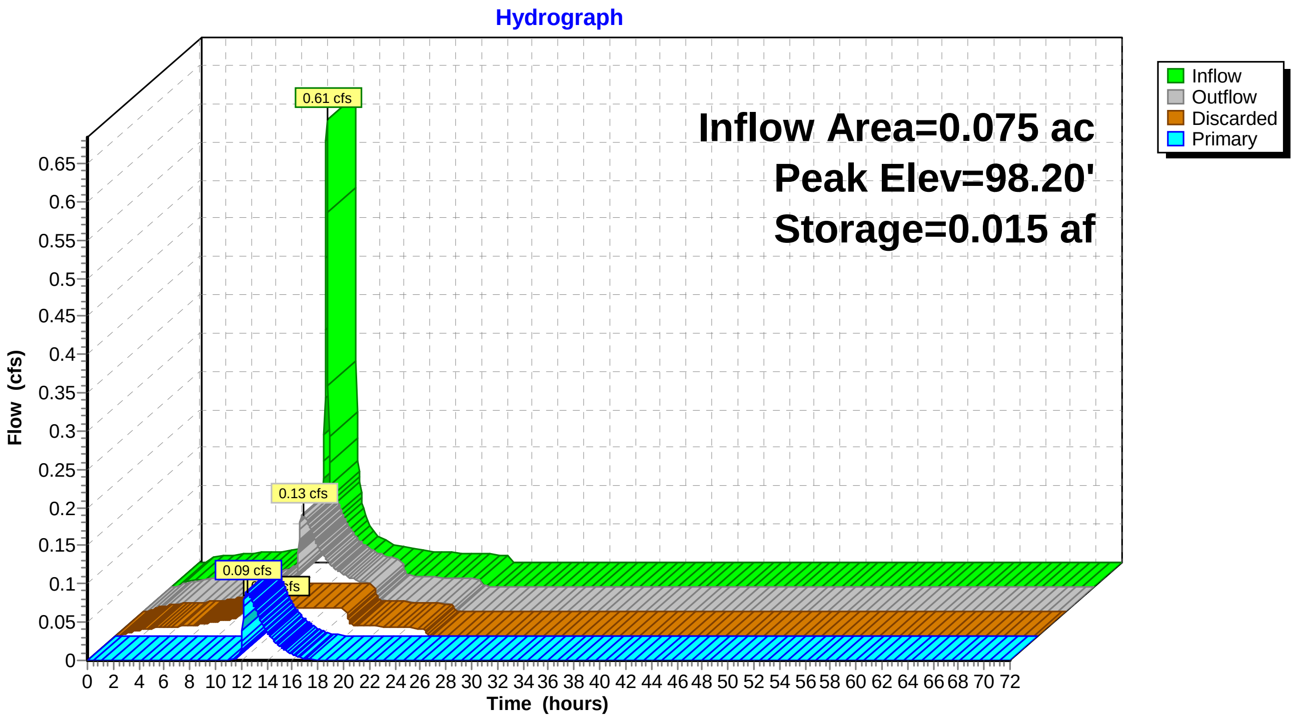
Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	0.049 af	**100.00'W x 32.00'L x 0.67'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**6.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 98.00' / 97.00' S= 0.0455 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	98.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = -11.70'

Discarded OutFlow Max=0.04 cfs @ 12.42 hrs HW=98.20' (Free Discharge)
└─**2=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.09 cfs @ 12.42 hrs HW=98.20' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.09 cfs @ 1.21 fps)

Pond 12P: Playground Subsurface

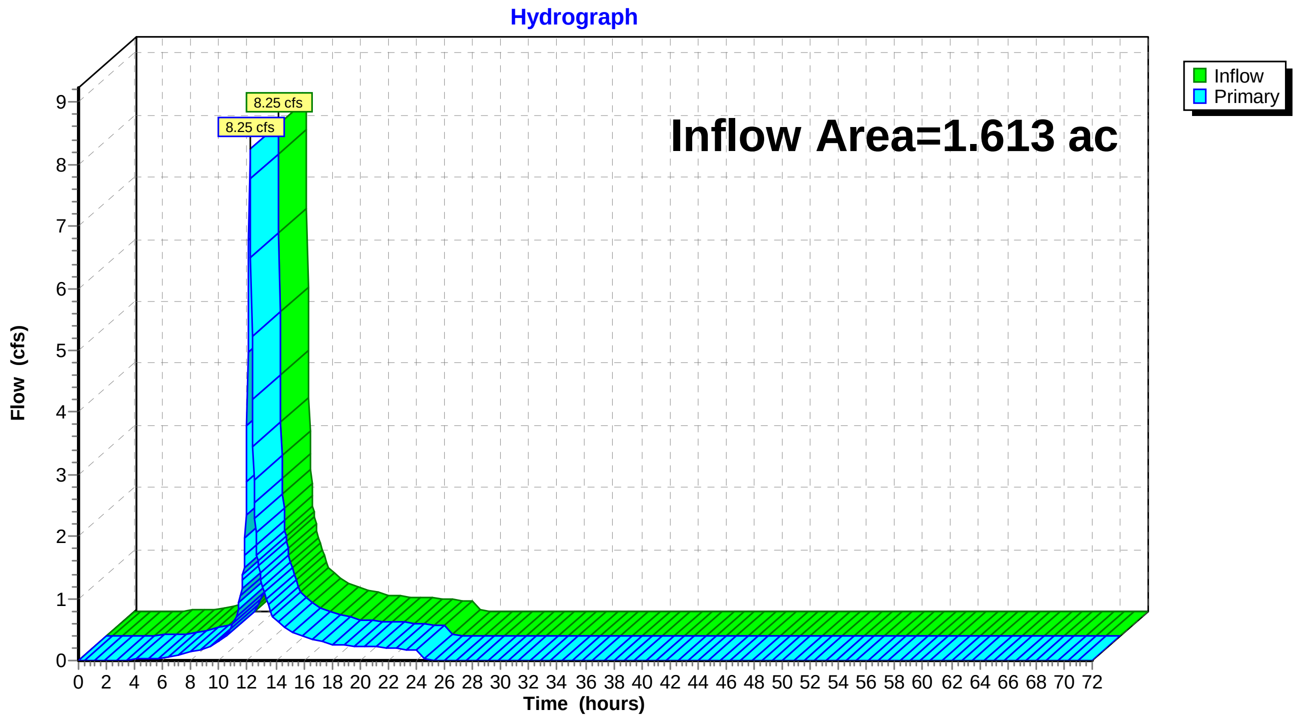


Summary for Link 9L: pod 1

Inflow Area = 1.613 ac, 29.03% Impervious, Inflow Depth = 5.97" for 100-Year event
Inflow = 8.25 cfs @ 12.16 hrs, Volume= 0.803 af
Primary = 8.25 cfs @ 12.16 hrs, Volume= 0.803 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 9L: pod 1



STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Osborn School DATE: 10/9/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 1.60 acres HSG(s): B

PLANNING

1 Plan to Perserve, Avoid, and Minimize:

Technique	Utilized (Y/N)
A. Preserve undisturbed, natural buffer, and critical envirnmental areas	Y
B. Employ open space, conservation, and clustering site design techniques	N
C. Avoid developing in environmentally sensitive areas: floodplains, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, and unstable soils	Y
D. Minimize impervious surfaces: building footprints, parking lots, roads, sidewalks, and driveways	Y
E. Minimize clearing and grading	Y

BASE WATER QUALITY VOLUME

2a. Calculate the base water quality volume (WQv):
WQv = [(P) * (A) * (Rv)] / 12
Rv = 0.05 + [(0.009)*(i)]

Contributing Area (DA) =		acres
Impervious Area (AI) =		acres
i =		%
Rv =		
Redevelopment Reduction =	25.00	%
WQv =	*0.000*	*ac ft*
	0.00	*c.f.*

2b. Calculate the additional impervious water quality volume (WQv):

Contributing Area (DA) =	0.13	acres
Impervious Area (AI) =	0.13	acres
i =	100.00	%
Rv =	0.95	
WQv =	*0.015*	*ac ft*
	656.94	*c.f.*

STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Osborn School DATE: 10/9/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 1.60 acres HSG(s): B

2c. Total WQv *WQv =* *0.015* *ac ft*
656.94 *c.f.*

MINIMUM RUNOFF REDUCTION REQUIREMENTS

3 Calculate the minimum required runoff reduction volume (RRv) for use when 100% of the RRv can not be obtained:

RRv = [(P) * (.95) * (S) * (AI)] / 12

S =	0.55 (A soils)		0.3 (C soils)
	0.4 (B soils)		0.2 (D soils)

or weighted using the average HSG for the DA

RRv = *0.006* *ac ft*

AREA REDUCTION PRACTICES

4 Incorporate area reduction practices for all applicable practices (area includes practice and contributing area):

A. Conservation of Natural Areas:	Contributing Area =	0.000	acres
	Contributing AI =	0.000	acres
B. Riparian buffers/filter Strips:	Contributing Area =	0.000	acres
	Contributing AI =	0.000	acres
C. Tree Planting/Preservation:	Contributing Area =	0.000	acres
	Contributing AI =	0.000	acres
D. Disconnection of Rooftop Runoff:	Contributing AI =	0.000	acres
E. Stream Daylighting:	Contributing AI =	0.000	acres

Total Area Reduction (DA_r)= 0.00 acres

Total Impervious Area Within Area Reduction (AI_r)= 0.00 acres

5 Subtract Total Area Reduction from original DA:

Remaining Drainage Area (#2 DA - #4 DA_r) = 0.13 acres

Remaining Impervious Area (#2 AI - #4 AI_r) = 0.13 acres

6 Recalculate WQv for site area remaining after area reductions:

Impervious Area of Remaining Areas = 100.00 %

Rv = 0.95

Reduced WQv = 0.015 ac ft

STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Osborn School DATE: 10/9/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 1.60 acres HSG(s): B

7 Calculate Runoff Reduction Volume (RRv) provided:
RRv provided = (#2 WQv - #6 Reduced WQv)
RRv prov'd = 0.000 ac ft

ROOFTOP DISCONNECTION

8 Incorporate rooftop area disconnection:
Total Disconnected Rooftop Area (AI_d) = 0.000 acres

9 Recalculate WQv resulting from Rooftop Area Disconnection:
DA = 0.13 acres Modified AI = 0.13 acres
Modified Rv = 0.95 **Rv Reduced WQv = 0.000 ac ft**

10 Runoff Reduction Volume Provided:
RRv prov'd = (#6 Reduced WQv) - (#9 Reduced WQv)
RRv prov'd = 0.000 ac ft

SOURCE CONTROL RRv TRERATMENT PRACTICES

These values were taken from the Source Control WQv Treatment Practices Worksheet

11 a	Subtotal DA tributary to Source Control RRv treatment practices =	0.38	acres
11 b	Subtotal AI tributary to Source Control RRv treatment practices =	0.30	acres
11 c	Subtotal Runoff Reduction Volume (RRv) provided =	0.048	ac ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

12 a	Total drainage area treated with area reduction and source control RRv practices (DA_t) =	0.38	acres
12 b	Total impervious area treated with area reduction and source control RRv practices (AI_t) =	0.30	acres
13	Total RRv provided (RRv_t) =	0.048	ac ft
14	Is provided RRv > original WQv ?	Yes	**
	** If Yes, skip to #19.		
15	Is Provided RRv > minimum RRv (#3) ?		***

STANDARD WQv TREATMENT

16 Provide additional treatment for any remaining untreated watershed DA with standard WQv

STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT:	Osborn School	DATE:	10/9/2020
LOCATION:		PERFORMED BY:	ZAL

90% RAIN (P): 1.50 inches DA: 1.60 acres HSG(s): B

treatment practices:

Remaining untreated DA (Da_u) = #2 DA - RRv DA (#12a)

DA_u = -0.25 acres

Remaining untreated AI (AI_u) = #2 AI - RRv AI (#12b)

AI_u = 0.00 acres

<u>These values were taken from the Source Control WQv Treatment Practices Worksheet</u>

Ponds	Trib. DA =	acres	Treated AI =	acres
		WQv provided =		ac ft
Wetlands	Trib. DA =	acres	Treated AI =	acres
		WQv provided =		ac ft
Infiltration	Trib. DA =	acres	Treated AI =	acres
		WQv provided =		ac ft
Filters	Trib. DA =	acres	Treated AI =	acres
		WQv provided =		ac ft
Open Channels	Trib. DA =	acres	Treated AI =	acres
		WQv provided =		ac ft
Total	**Trib. DA = 0**	**acres**	**Treated AI = 0**	**acres**
		WQv provided =	**0**	**ac ft**

TOTAL WQv TREATMENT

Total Required WQv =	**0.015**	**ac-ft**
Total WQv provided through RRv and Standard Practices =	**0.048**	**ac-ft**

The provided WQv exceeds the required WQv, Design is good.

DRAINAGE AREA TREATED

17 A	Total DA treated with RRv practices (#12A) =	0.38	acres
17 B	Total DA treated with standard WQv practices (#16) =	0.00	acres
17 C	**Total DA treated =**	**0.38**	**acres**

18 Is all of the required watershed DA treated by either RRv practices or standard WQv treatment practices?**** Yes

**** If **No**, provide additional treatment and recalculate or provide justification

PEAK FLOW ATTENUATION

19 Calculate peak runoff rate for pre-development site conditions:

STORMWATER MANAGEMENT PLAN
WORKSHEET FOR NEW PROJECTS IN NON-IMPARIED WATERSHEDS

PROJECT: Osborn School DATE: 10/9/2020
LOCATION: PERFORMED BY: ZAL

90% RAIN (P): 1.50 inches DA: 1.60 acres HSG(s): B

Q_1 =	1.06	cfs	Q_{25} =	5.15	cfs
	2.10	ac-ft/day		10.22	ac-ft/day
Q_{10} =	3.54	cfs	Q_{100} =	8.56	cfs
	7.02	ac-ft/day		16.98	ac-ft/day

20 Calculate peak runoff rate for post-development site conditions:

Q_1 =	1.06	cfs	Q_{25} =	5.00	cfs
	2.10	ac-ft/day		9.92	ac-ft/day
Q_{10} =	3.46	cfs	Q_{100} =	8.25	cfs
	6.86	ac-ft/day		16.36	ac-ft/day

STORMWATER MANAGEMENT PLAN
SOURCE CONTROL WQv TREATMENT PRACTICES WORKSHEET

PROJECT:	Osborn School	DATE:	10/9/2020
LOCATION:	0	PERFORMED BY:	ZAL

90% RAIN (P): 1.50 inches DA: 1.60 acres HSG(s): B

STANDARD PRACTICES USED AS SOURCE CONTROL

A. Infiltration (for soils with k>0.5"/hr only):

DA tributary to Practice(s) =	0.380	acres	Area of footprint of system (sf)=	1,394.00
AI tributary to Practice(s) =	0.304	acres	Ht. of storage w/in system (ft) =	2.00
Rv =	0.77		Storage stone void space (%) =	40.00
WQvRequired =	*0.015*	*ac-ft*	Storage volume w/in system =	**2,317.0**
Allowable Runoff Reduction Volume, RRv =	**0.048**	**ac-ft**	**WQv Provided (ac-ft) =**	**0.053**

B. Bioretention (BR):

DA tributary to Practice(s) =		acres	Area of BR device (sf) =	
AI tributary to Practice(s) =		acres	Ht of water above bed (ft) =	
Rv =			Filter bed depth (ft) =	
WQv Required =	*0.015*	*ac-ft*	Filter bed drain time (days) =	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**	**WQv provided (ac-ft) =**	**0.000**

C. Dry Swale:

DA tributary to Practice(s) =		acres	Cross-sectional area of swale (sf)* =	
AI tributary to Practice(s) =		acres	Length of swale (ft) =	
Rv =			**WQv provided in swale (ac-ft) =**	**0.000**
WQv Required =		*ac-ft*	* Longitudinal slope of swale ≤ 4%	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**		

GREEN INFRASTRUCTURE PRACTICES

A. Vegetated Swale:

DA tributary to Practice(s) =		acres	Cross-sectional area of swale (sf)* =	
AI tributary to Practice(s) =		acres	Length of swale (ft) =	
Rv =			**WQv provided in swale (ac-ft) =**	**0.000**
WQv Required =		*ac-ft*	* Longitudinal slope of swale ≤ 4%	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**		

B. Green Roof:

Area of Green Roof =		sf	Depth of Drainage Layer (ft) =	
Depth of soil media =		ft	Porosity of drainage layer =	
Porosity of soil media =			Depth of Ponding above surface (ft) =	
Rv =			**WQv provided in green roof (cf) =**	**0.000**
Area feeding into practice =		sf	**(ac-ft) =**	**0.000**
WQv Required =		*cf*	**Allow. Runoff Red. Vol., RRv (ac-ft) =**	**0.000**
=		*ac-ft*		

STORMWATER MANAGEMENT PLAN
SOURCE CONTROL WQv TREATMENT PRACTICES WORKSHEET

PROJECT:	Osborn School	DATE:	10/9/2020
LOCATION:	0	PERFORMED BY:	ZAL

90% RAIN (P): 1.50 inches DA: 1.60 acres HSG(s): B

C. Rain Garden:

DA tributary to Practice(s) =		sf	Rain Garden Surface Area (sf) =	
AI tributary to Practice(s) =		sf	Depth of Soil Media (ft) =	
Rv =			Depth of Drainage Layer (ft) =	
WQv Required =		*cf*	Porosity of Soil media =	
WQv Provided =	**0**	**cf**	Porosity of drainage layer =	
=	**0.000**	**ac-ft**	Ponding Depth (ft) =	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**	Underdrains (Y/N)?	

D. Stormwater Planters:

DA tributary to Practice(s) =		acres	Area of stormwater planter (sf) =	
AI tributary to Practice(s) =		acres	Depth of soil media (ft) =	
Rv =			Hydraulic conductivity (ft/day) =	
WQv Required =		*ac-ft*	Avg. Ht above planter bed (ft) =	
			Filter time (days) =	
Allowable Runoff Reduction Volume, RRv =	**0.000**	**ac-ft**	**WQv provided (cf) =**	**0.00**

E. Cisterns / Rain Barrels:

DA tributary to Practice(s) =		sf	Storage volume of C/RB (gal.) =	
AI tributary to Practice(s) =		sf	Storage volume of C/RB (cf) =	
Rv =				
WQv Required =		*cf*	**WQv Provided (cf) =**	**0.00**
			(ac-ft) =	**0.000**
			Allowable Runoff Reduction Volume (ac-ft) =	**0.000**

F. Porous Pavement:

DA tributary to Practice(s) =		acres	Depth of Gravel Bed/Reservoir (ft) =	
AI tributary to Practice(s) =		acres	Porosity of gravel bed/Reservoir =	
Rv =			Area of Practice (sf) =	
Area feeding into practice =	0.00	sf	**WQv provided (cf) =**	**0.00**
WQv Required =		*cf*	**(ac-ft) =**	**0.000**
=		*ac-ft*	**Allow. Runoff Red. Vol., RRv (ac-ft) =**	**0.000**

Total Tributary Drainage Area (DA) to Source Control Practices =	0.38	acres
Total Impervious Area (AI) treated by Source Control Practices =	0.30	acres
Total Allowable Runoff Reduction Volume from Source Control Practices, RRv =	**0.048**	ac-ft

APPENDIX G

NYS DEC SPDES GENERAL PERMIT, GP-0-20-001

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

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

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

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

PREFACE

Pursuant to Section 402 of the Clean Water Act (“CWA”), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System (“NPDES”)* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of “*construction activity*”, as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

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

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

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

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

B. Effluent Limitations Applicable to Discharges from Construction Activities

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

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

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

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

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

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

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

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

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

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

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

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

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

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

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

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

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

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

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

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

(i) Wastewater from washout of concrete;

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

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

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

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

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

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

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

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

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

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

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be calculated in accordance with the criteria in Section 10.3 of the Design Manual.

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

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

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

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

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

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

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

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

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

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

D. Maintaining Water Quality

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

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

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

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

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

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

E. Eligibility Under This General Permit

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

    a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

        - 1-5 acres of disturbance - 20 feet
        - 5-20 acres of disturbance - 50 feet
        - 20+ acres of disturbance - 100 feet, or

    b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
        (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
        (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
        (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
        (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

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

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

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

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

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

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

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

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

B. Notice of Intent (NOI) Submittal

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

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

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land* *use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

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

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

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

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

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

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

B. Required SWPPP Contents

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

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

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* <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 not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

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

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

   a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

   c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

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

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

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

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

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

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

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

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

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

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; <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 not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

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

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

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

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

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

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

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* <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* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River **-** Figure 1
- Onondaga Lake Watershed **-** Figure 2
- Greenwood Lake Watershed **-**Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

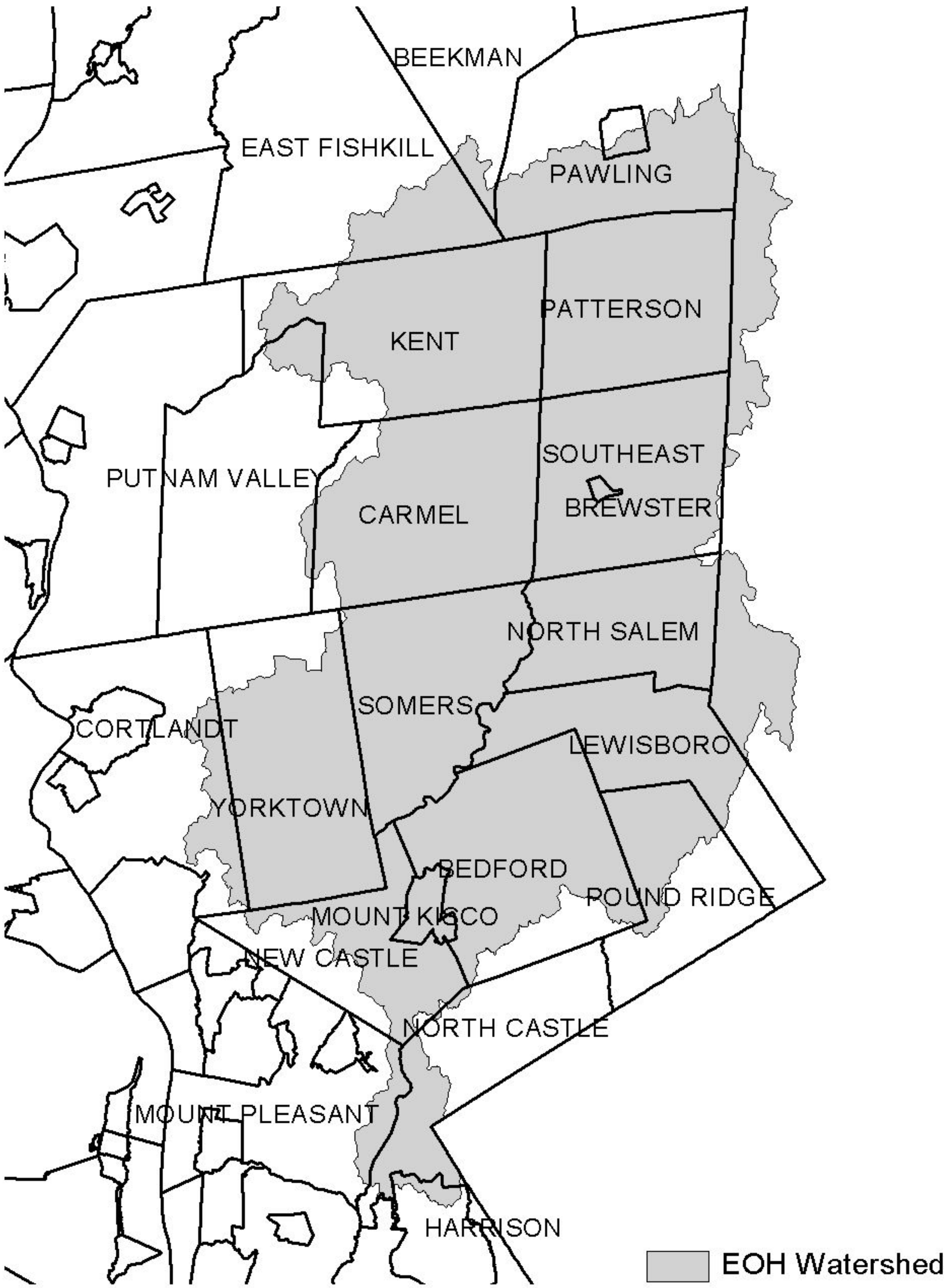


Figure 2 - Onondaga Lake Watershed

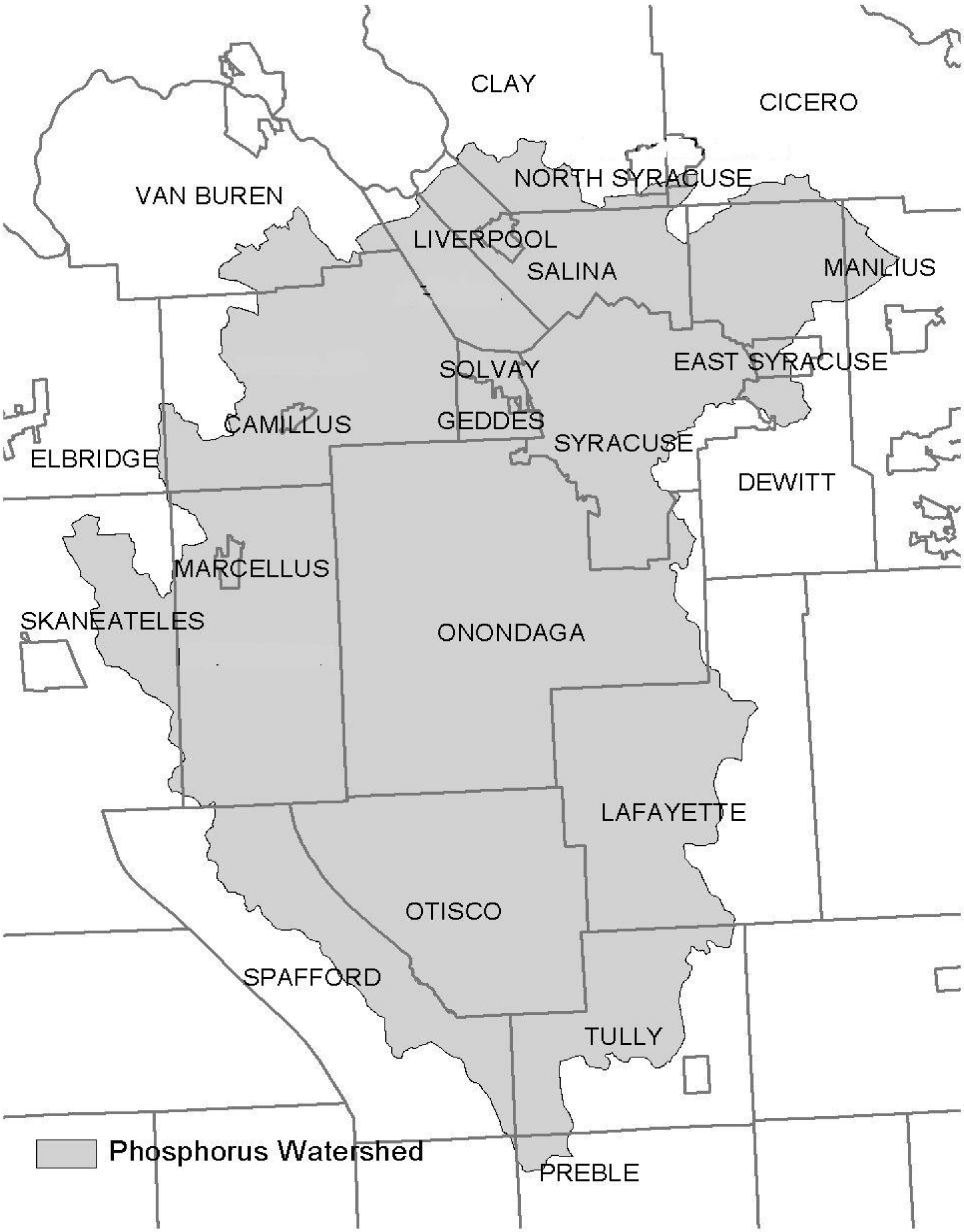


Figure 3 - Greenwood Lake Watershed

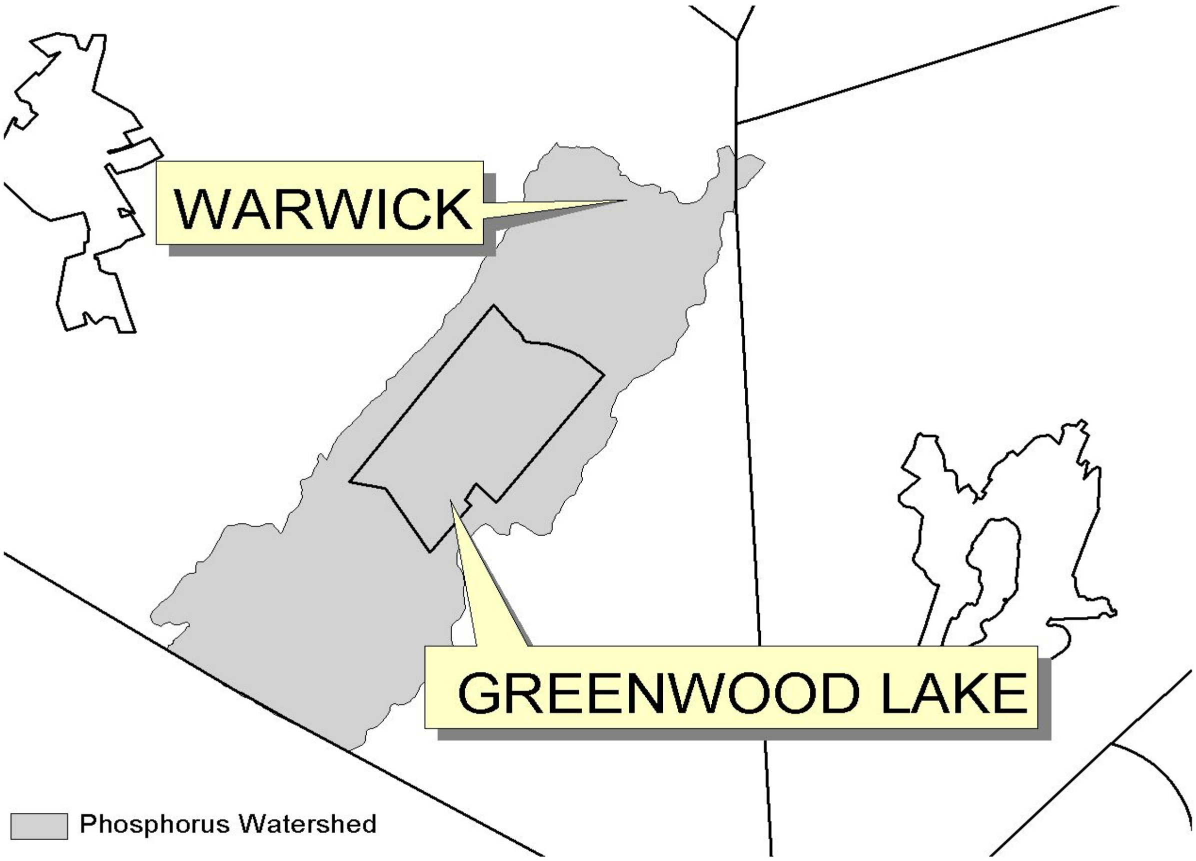
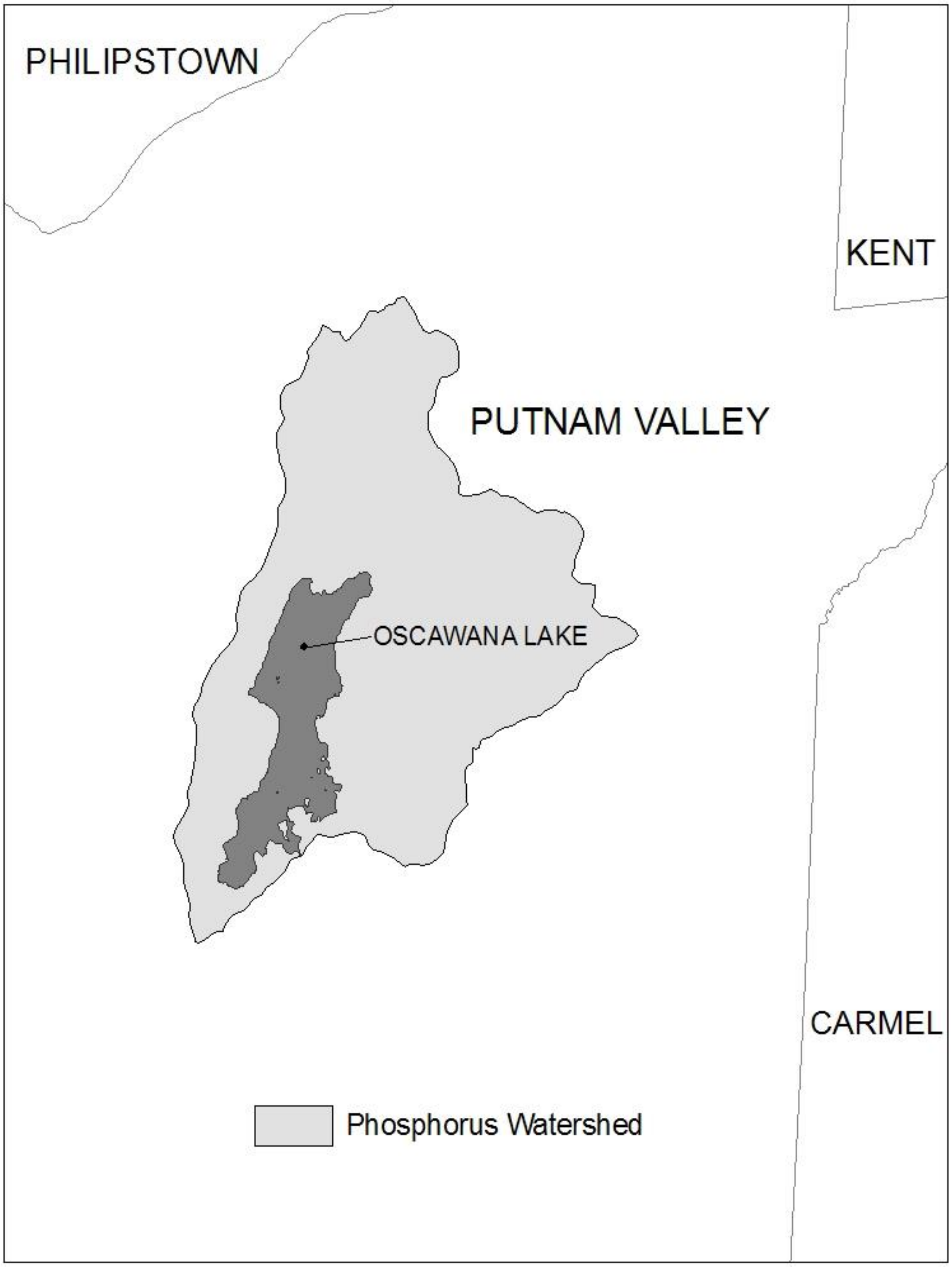
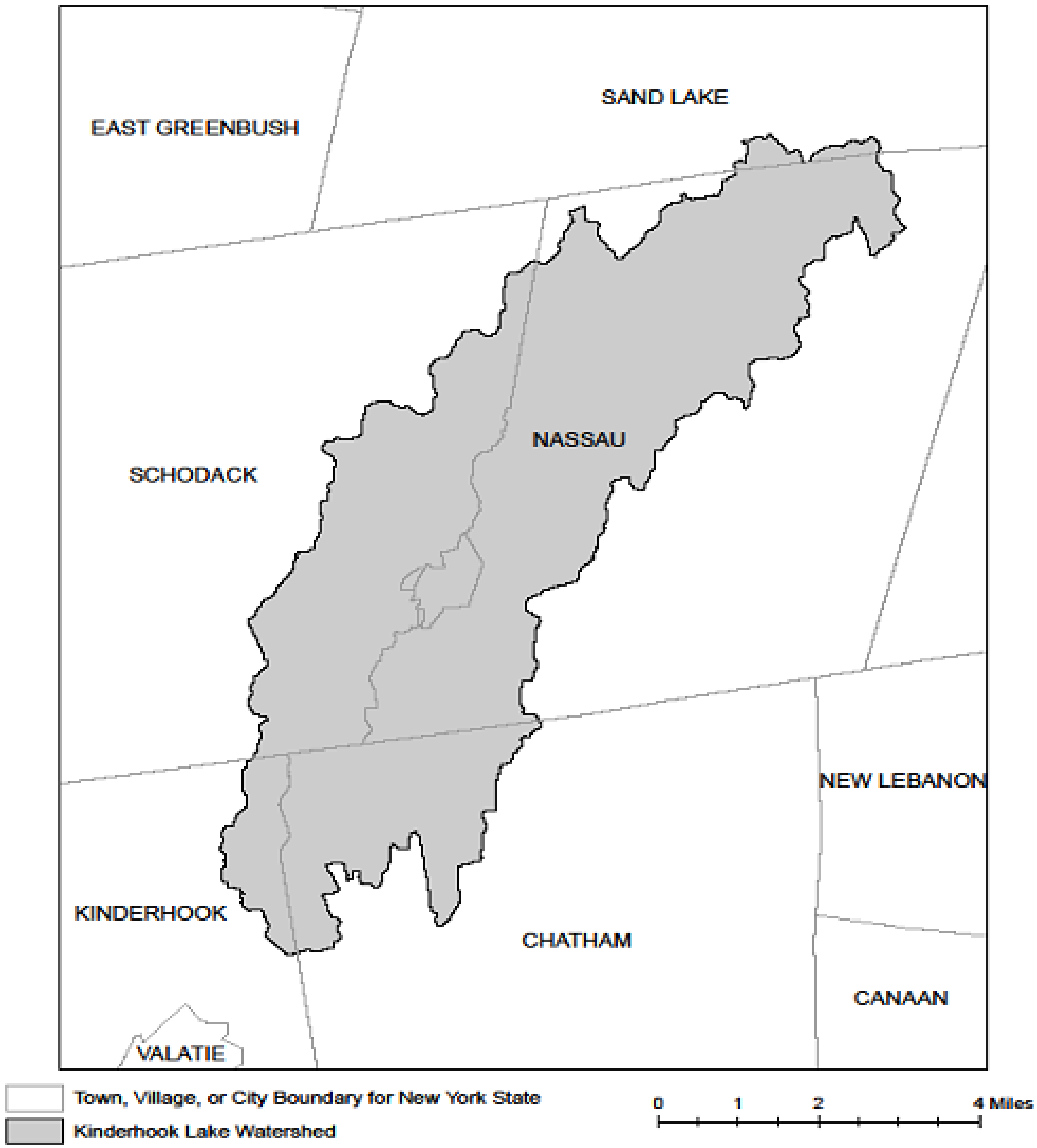


Figure 4 - Oscawana Lake Watershed



<u>Figure 5 - Kinderhook Lake Watershed</u>



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 H

SWPPP/ CONSTRUCTION INSPECTION FORMS

SWPPP INSPECTION FORM

PROJECT: Rye City School Capital Plan - Midland Elementary School Improvements DATE:________________

LOCATION: 312 Midland Avenue New York, 10580________________________ TIME:________________

OWNER/OPERATOR: Rye City School District____________________________ TEMP.:________________

OWNER/OPERATOR ADDRESS: 555Theodore Frmed Ave, Rye, New York 10580______ WEATHER:____________

SOIL CONDITIONS:________________ PROJECT PHASE:________________ PERMIT NO.:__________

GENERAL OBSERVATIONS

____
____
____
____
____
____
____
____
____
____
____
____
____
____
____
____
____

SITE SKETCH/LAYOUT

TOTAL SITE AREA:________________ DISTURBANCE AREA:______________

EROSION & SEDIMENT CONTROL PRACTICES					
	Installed Correctly		Operating Correctly		
E&S Measure	Yes	No	Yes	No	Comments

PERMANENT STORMWATER MANAGEMENT PRACTICES					
	Installed Correctly		Operating Correctly		
Stormwater Practice	Yes	No	Yes	No	Comments

ADDITIONAL NOTES & COMMENTS

FOLLOW-UP ITEMS

Qualified Inspector:

Name:____ Company:____________________

Signature:____ Date:_______________________

Address:____ Phone:______________________

Qualified Professional:

Name:____ Company:____________________

Signature:____ Date:_______________________

Address:____ Phone:______________________

Owner’s Representative:

Name:____ Company:____________________

Signature:____ Date:_______________________

Address:____ Phone:______________________

APPENDIX I

SWPPP MONTHLY INSPECTION FORMS

MONTHLY SWPPP INSPECTION SUMMARY

PROJECT: Rye City School Capital Plan – Osborn Elementary School Improvements ____________

LOCATION: 10 Osborn Road Rye, NY 10580 ____________

PROJECT PHASE: ____________ TOTAL PHASES: ____________

PERIOD: ____________ to ____________ WEEKLY REPORTS COVERED: ____________

WEATHER CONDITIONS: ____________ DATE: ____________

INSPECTOR COMPANY: ____________

GENERAL OBSERVATIONS			
Items	Yes	No	Comments
Are the SWPPP, NOI, NOI LOA, MS4 Acceptance Form, General Permit, and Contractor's Certifications Located on site?			
At the time of Inspection, are there any site discharges?			
Is there a significant difference in turbidity in the receiving waters?			
Are there any signs of sediment leaving the site?			
Are there any disturbed or stabilized areas/ items in need of repair?			
Are the public roadways clean at the site's entrance?			
Estimated Disturbed Area:		Total Site Acreage:	

EROSION AND SEDIMENT CONTROL PRACTICES					
	Installed Correctly		Operating Correctly		
Stormwater Practice	Yes	No	Yes	No	Comments

PERMANENT STORMWATER MANAGEMENT PRACTICES					
	Installed Correctly		Operating Correctly		
Stormwater Practice	Yes	No	Yes	No	Comments

ADDITIONAL NOTES & COMMENTS

Inspector:

Name:________________________________ Company:________________

Signature:______________________________ Date:________________

Address:______________________________ Phone:________________

APPENDIX J

SWPPP MODIFICATION FORMS

SWPPP MODIFICATION REPORT

PROJECT: Rye City School Capital Plan – Osborn Elementary School Improvements

LOCATION: 10 Osborn Road Rye, NY 10580

OWNER/OPERATOR: Rye City School District

OWNER/OPERATOR ADDRESS: 555 Theodore Fremd Ave Suite B-101 Rye, NY 10580

SWPPP MOD. NO.:________________ DATE:________________

Modification Submitted To:________________ Company:________________

Address:________________ Telephone:________________

Inspector:________________ Signature:________________

Inspector Qualifications:________________

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

REASONS FOR CHANGES

To Be Performed By:______________________________

Performed On or Before:______________________________

Contractor:______________________________

Signature:______________________________

Date:______________________________

Site Supervisor:______________________________

Signature:______________________________

Date:______________________________

Owner/Operator:______________________________

Signature:______________________________

Date:______________________________

APPENDIX K

HAZARDOUS MATERIAL SPILL LOGS

HAZARDOUS MATERIALS SPILL LOG

PROJECT: Rye City School Capital Plan – Osborn Elementary School Improvements

LOCATION: 10 Osborn Road Rye, NY 10580

OWNER/OPERATOR: Rye City School District

OWNER/OPERATOR ADDRESS: 555 Theodore Fremd Ave Suite B-101 Rye, NY 10580

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:______________________ Company:______________________

Signature:______________________ Date:______________________

Address:______________________ Phone:______________________

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:______________________ Company:______________________

Signature:______________________ Date:______________________

Address:______________________ Phone:______________________

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:______________________________ Company:____________________

Signature:____________________________ Date:______________________

Address:_____________________________ Phone:_____________________

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:______________________________ Company:____________________

Signature:____________________________ Date:______________________

Address:_____________________________ Phone:_____________________

Date of Spill:	
Entity Responsible for Spill (Spiller):	
Material Spilled:	
Quantity Spilled:	
Location of Spill:	
NYSDEC Notification Required (Yes or No):	
NYSDEC Notification Date and Time:	
On-Site Action Taken:	

Project/Construction Manager:

Name:______________________________ Company:____________________

Signature:____________________________ Date:______________________

Address:_____________________________ Phone:_____________________

APPENDIX L

FINAL SWPPP INSPECTION FORM

FINAL SWPPP INSPECTION FORM

PROJECT: Rye City School Capital Plan – Osborn Elementary School Improvements DATE:________________

LOCATION: 10 Osborn Road Rye, NY 10580 TIME:________________

OWNER/OPERATOR: Rye City School District TEMP.:________________

OWNER/OPERATOR ADDRESS: 555 Theodore Fremd Ave Suite B-101 Rye, NY 10580 WEATHER:____________

SOIL CONDITIONS:________________ PROJECT PHASE:________________ PERMIT NO.:__________

Prior to the Owner/Operator submitting a Notice of Termination to the NYSDEC to terminate the permit coverage, a qualified inspector must perform a final site inspection to certify the completion of the following items:		
Item	Yes	No
Have all of the disturbed areas achieves final stabilization?		
Have all of the temporary erosion and sediment control measures been removed?		
Have all of the permanent stormwater management practices been installed?		
Have all of the practices been installed in accordance with the SWPPP?		
Have photographs been taken of the completed site?		

Qualified Inspector:

Name:________________________________ Title:________________________________

Signature:____________________________ Company:____________________________

Address:______________________________ Phone:______________________________

Prior to issuing the Notice of Termination, the Owner/Operator must ensure one of the following permit requirements be met:		
Item	Yes	No
Projects in which Stormwater Management Practices will be owned & operated by the Municipality:		
Post construction Operations & Maintenance Plan established?		
Stormwater management parcels deeded to the Municipality?		
Are the R.O.W. and easements needed for access to the practices recorded?		
Projects in which Stormwater Management Practices will be maintained by the Municipality & owned by an HOA:		
Has a maintenance agreement been executed with the Municipality that will maintain the practices?		
If privately owned & maintained, has a deed restriction been established that requires operation & maintenance in accordance with the Operations & Maintenance Plan?		
If owned by a public/private institution or government agency, are there policies and procedures to ensure operation and maintenance in accordance with the Operations & Maintenance Plan?		

Owner/Operator/Authorized Representative:

Name:________________________________ Title:________________________________

Signature:____________________________ Company:____________________________

Address:______________________________ Phone:______________________________

APPENDIX M

NOTICE OF TERMINATION (NOT)

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

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

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

I. Owner or Operator Information	
1. Owner/Operator Name:	
2. Street Address:	
3. City/State/Zip:	
4. Contact Person:	4a.Telephone:
4b. Contact Person E-Mail:	
II. Project Site Information	
5. Project/Site Name:	
6. Street Address:	
7. City/Zip:	
8. County:	
III. Reason for Termination	
9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): ________________________________	
9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ____ ____ ____ ____ ____ ____ (Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)	
9c. □ Other (Explain on Page 2)	
IV. Final Site Information:	
10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)	
10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)	
10c. Identify the entity responsible for long-term operation and maintenance of practice(s)? ________________________________	

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

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

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

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

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

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

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

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

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

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

V. Additional Information/Explanation:

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

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

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

Printed Name:

Title/Position:

Signature:	Date:

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

VII. Qualified Inspector Certification - Final Stabilization:	
I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:

APPENDIX N

SOIL EROSION & SEDIMENT CONTROL PLANS

CONSTRUCTION NOTES:

PROTECT EXISTING TREES TO REMAIN (AND THEIR CRITICAL ROOT ZONE) BY NOT DISTURBING GRADES, OPERATING EQUIPMENT, OR STORING MATERIALS WITHIN LIMITS.

PROVIDE ALL REQUIRED EROSION CONTROL MEASURES / PROTECT ALL STORM INLETS FROM SEDIMENT DEPOSITION DURING CONSTRUCTION, AS SHOWN ON GRADING & EROSION & SEDIMENT CONTROL PLAN.

ALL DISTURBED AREAS, NOT OTHERWISE TREATED, SHALL BE TOPSOILED, FINE GRADED AND SEEDED WITH AN ACCEPTABLE PERENNIAL GRASS MIXTURE.

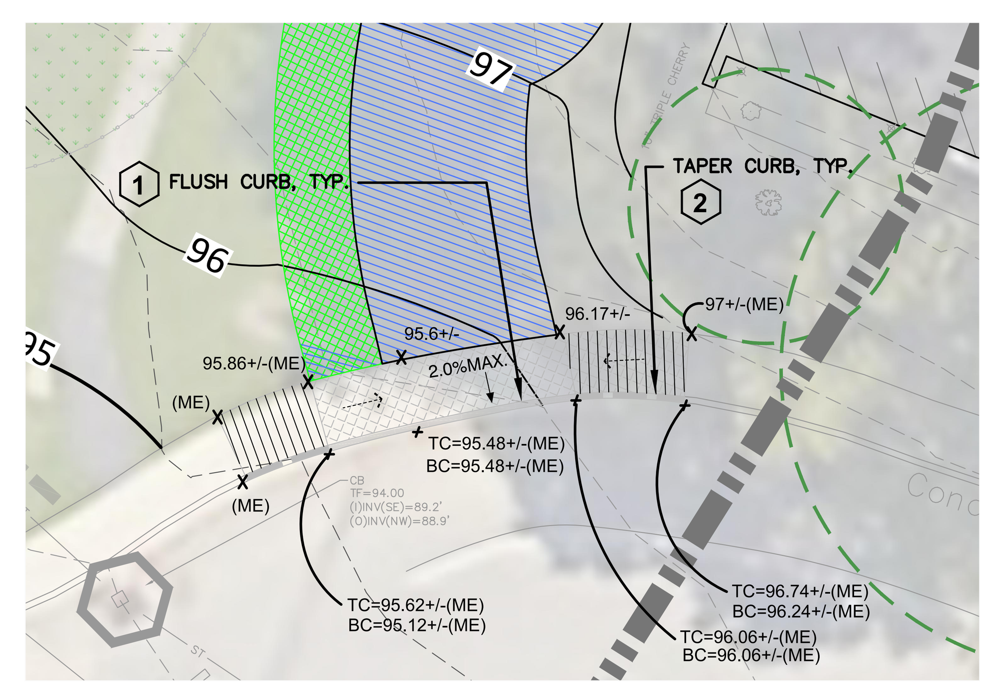
PROVIDE CONCRETE TAPER CURB TO TRANSITION FROM FLUSH CURB TO STANDARD CURB (MATCH EXISTING).

PROVIDE SMOOTH TRANSITION IN LINE AND GRADE FROM CONCRETE SIDEWALK TO ASPHALT DRIVE.

ENSURE FLUSH (SMOOTH) TRANSITION FROM ASPHALT DRIVE TO GRASSPAVER ALONG ENTIRE LENGTH, TYP.

1 **GRADING AND EROSION AND SEDIMENT CONTROL PLAN**
SCALE: BAR SCALE

0' 5' 10' 20' 40'
SCALE: 1" = 20'-0"



1. PROVIDE FLUSH CURB FOR HANDICAPP ACCESSIBITY & MAINTENANCE VEHICLES.
2. PROVIDE CONCRETE TAPER CURB TO TRANSITION FROM FLUSH CURB TO STANDARD CURB (MATCH EXISTING).

2 **ENLARGEMENT A**
SCALE: 1" = 10'

Revision Schedule		
No.	Description	Date

Geddis Architects
Architecture. Planning. Interiors
71 Old Post Road
P.O. Box 1020
Southport, CT 06890
(203) 256-8700

Fielding International
Transforming Education by Design
259 Water Street Suite 1L
Warren , RI 02885 USA
+1 401-289-2789

Construction Manager
SAVIN ENGINEERS, P.C.
3 Campus Drive
Pleasantville, NY 10570
914-769-3200

Structural Engineer
ODEH ENGINEERS
1223 Mineral Spring Ave
North Providence, RI 02904
401-724-1771

Civil Engineer
WESTON & SAMPSON
1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

MEP Engineer
BARILE GALLAGHER & ASSOCIATES
CONSULTING ENGINEERS
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776-3027
978-443-7871

SED #: 6618-0001-0001-024

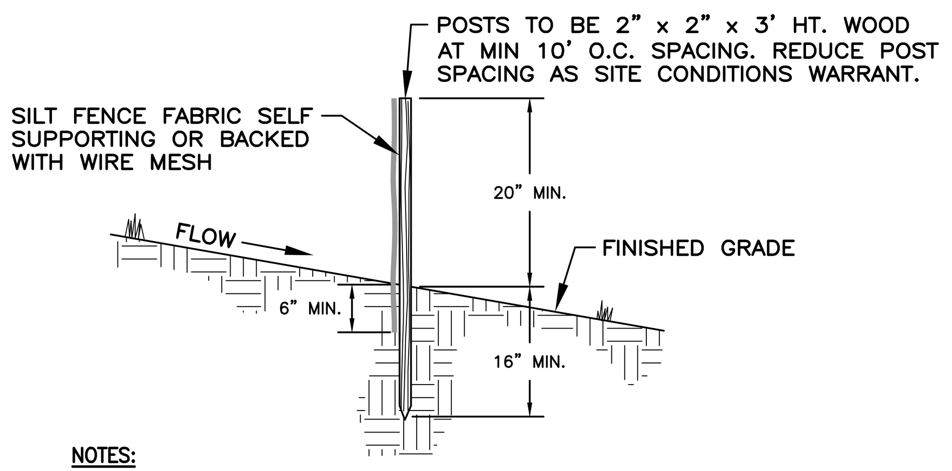
PROJECT
Rye City School District
555 Theodore Fremd Ave, Rye, NY 10580

Osborn Elementary School
10 Osborn Road, Rye, New York 10580

GRADING AND EROSION AND SEDIMENT CONTROL PLAN
ISSUED FOR BID

SEAL & SIGNATURE

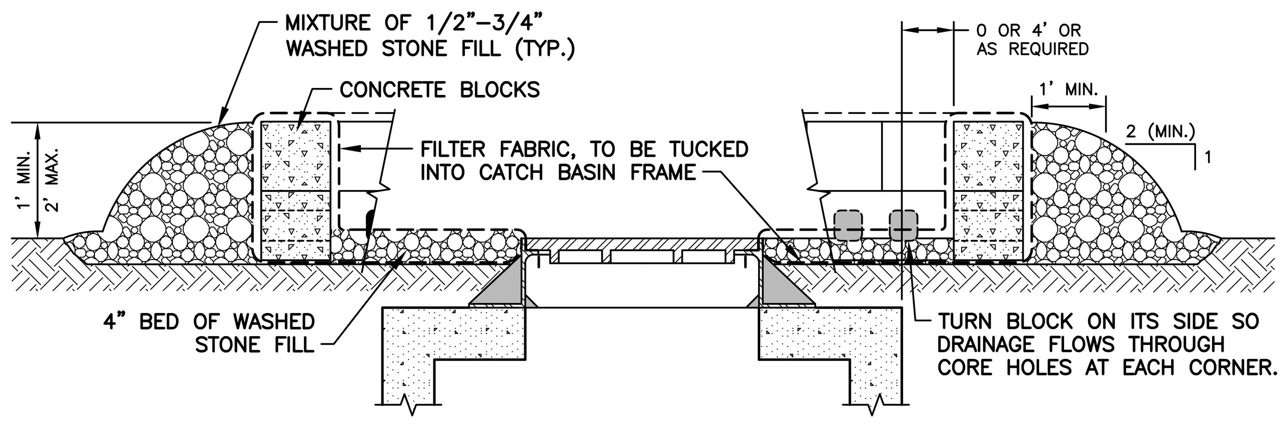
DATE:	08/09/20
PROJECT No:	
DRAWING BY:	KSK
CHK BY:	JFB
DWG No:	C3-102



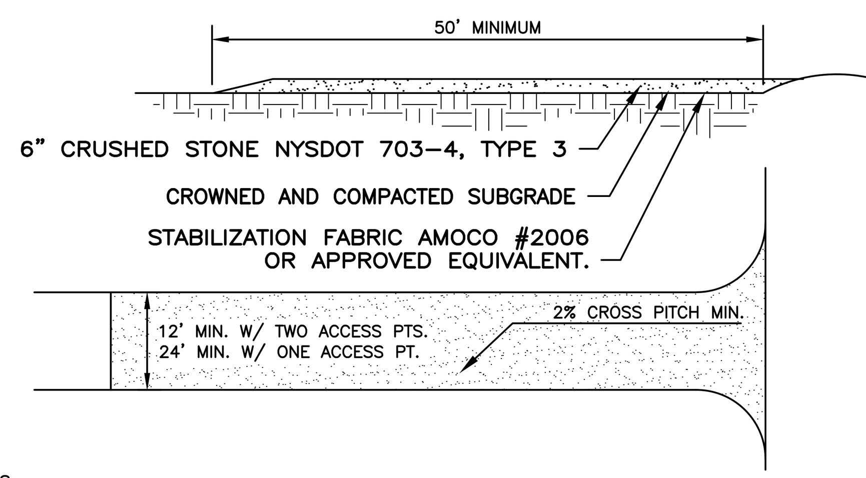
NOTES:

1. SILT FENCE FABRIC SHALL BE FIRMLY ATTACHED TO POSTS USING WIRE TIES OR STAPLES.
2. EMBED FILTER CLOTH A MINIMUM OF 6" BELOW FINISHED GRADE.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED A MINIMUM OF SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED WHEN BULGES OF MATERIAL DEVELOP IN FENCES.

1 **SILT FENCE**
SCALE: N.T.S.



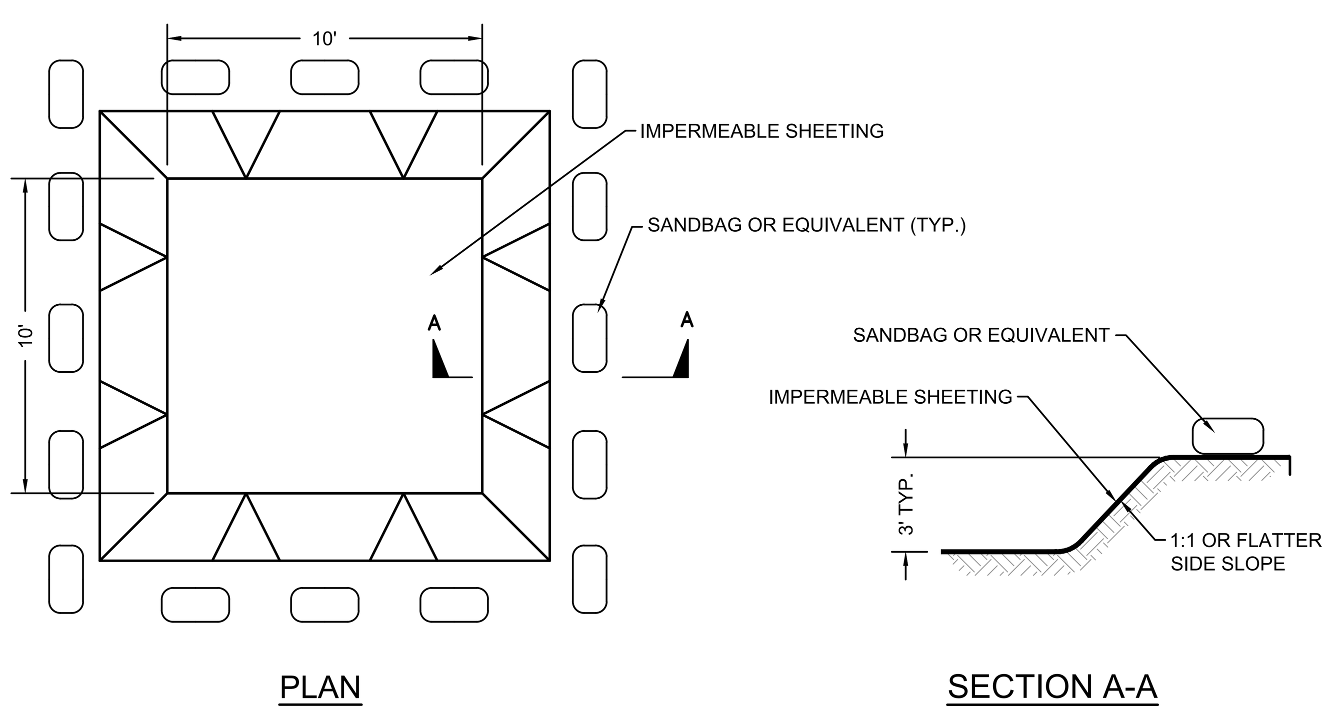
2 **STONE AND BLOCK DROP INLET PROTECTION AT CATCH BASIN**
SCALE: N.T.S.



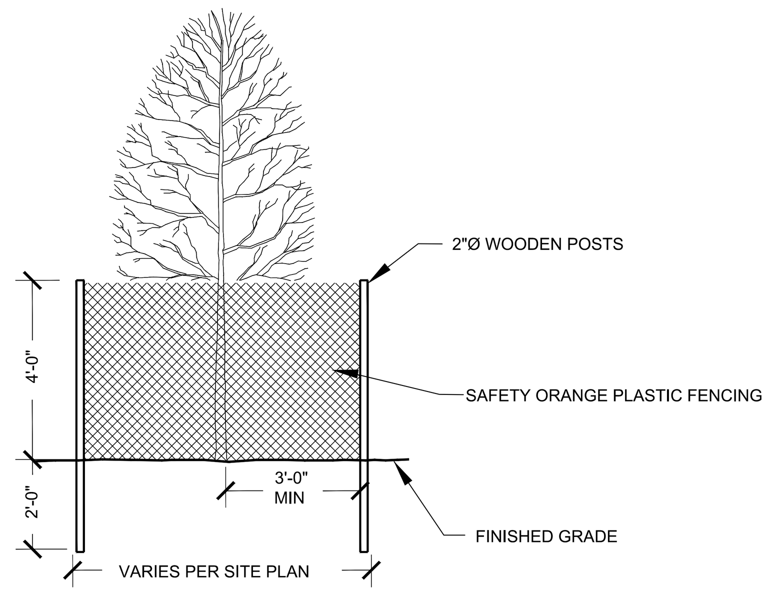
NOTES:

1. STABILIZATION FABRIC SHALL BE PLACED OVER THE ENTIRE ENTRANCE AREA PRIOR TO PLACING OF STONE. OVERLAP FABRIC PER MANUFACTURER'S SPECIFICATIONS.
2. ALL SURFACE WATER FLOWING OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE ROAD.
3. WHEN EQUIPMENT WASHING IS REQUIRED IT SHALL BE DONE ON A SEPARATE AREA ADJACENT TO THE ENTRANCE ROAD AND STABILIZED WITH STONE. EQUIPMENT WASHING WILL BE REQUIRED IF ROAD RECEIVES SIGNIFICANT SOILS OR DEBRIS ACCORDING TO JUDGMENT BY OWNER OR OWNER'S REPRESENTATIVE.
4. KEEP ROADS CLEAR OF STONES, MUD, AND OTHER CONSTRUCTION DEBRIS. CLEAN PAVEMENT AS ACCUMULATIONS WARRANT AND AS ORDERED BY ENGINEER.
5. REMOVE SILT ACCUMULATIONS ROUTINELY AND DISPOSE OF PROPERLY SUCH THAT WATER QUALITY IS NOT IMPAIRED. DO NOT INTRODUCE SILT INTO DRAINAGE SYSTEM OR TOPSOIL/RESTORATION AREAS.

3 **CONSTRUCTION ENTRANCE**
SCALE: N.T.S.



4 **CONCRETE WASHOUT**
SCALE: N.T.S.



NOTES:

1. OUTSIDE EDGE OF GUARD SHOULD BE PLACED AT DRIPLINE. GUARDS MAY BE PLACED AROUND SINGLE TREES OR GROUPS OF TREES.

5 **TREE PROTECTION FENCE**
SCALE: N.T.S.

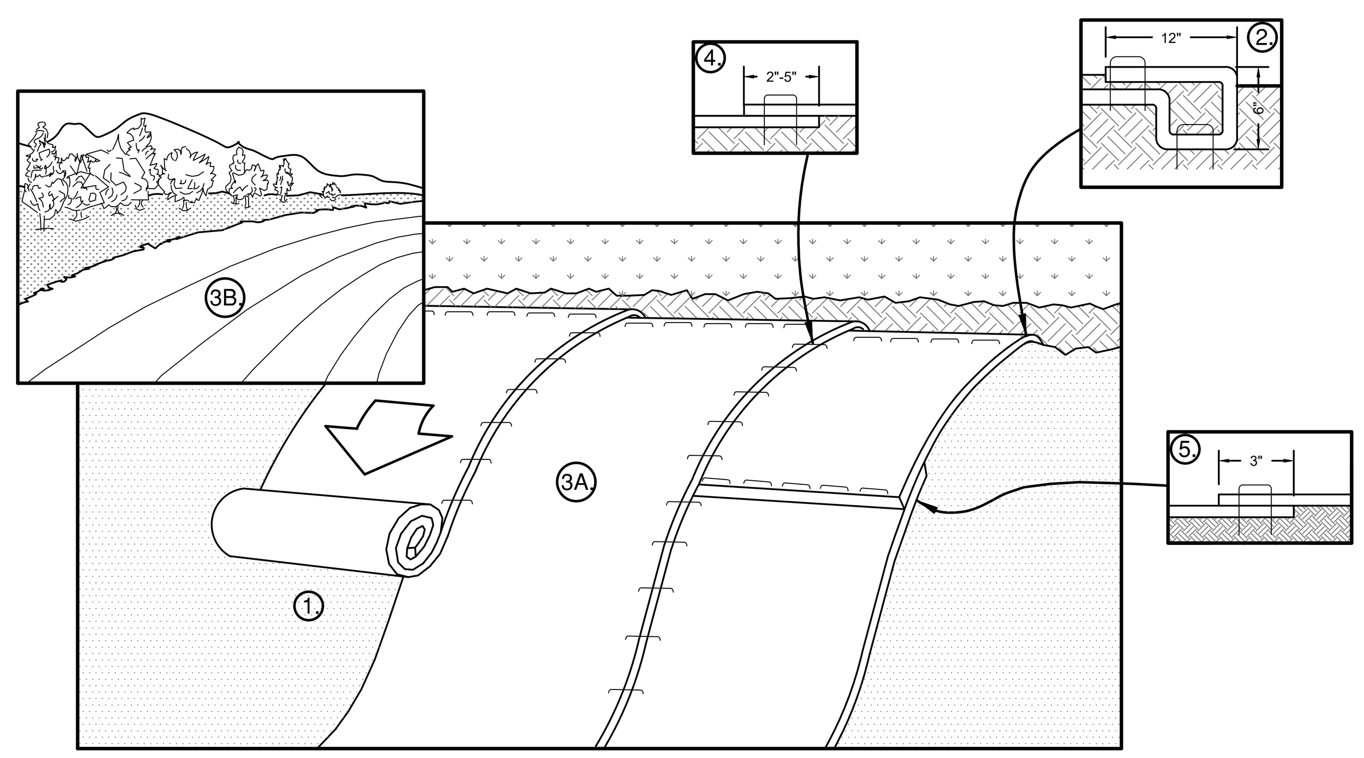
GENERAL MAINTENANCE PLAN:

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF PRODUCING RAINFALL, BUT IN NO CASE LESS THAN ONCE EVERY WEEK, IN ACCORDANCE WITH THE SWPPP AND NYSDEC SPDES GENERAL PERMIT No. GP-0-15-002. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT WILL BE REMOVED FROM BEHIND STRAW BALE DIKES AND BEHIND SILT FENCES WHEN IT BECOMES 6" DEEP AT THE DIKE/FENCE OR WHEN ACCUMULATIONS HAVE ADVERSELY AFFECTED IT'S FUNCTION. STRAW BALE DIKES AND SILT FENCES WILL BE REPAIRED BY REMOVING SILT AND SEDIMENTS AND THEN TAMPING LOOSE SOIL ALONG BASE, REPLACING DAMAGED OR WEAKENED POSTS AND STAKES, OR AS NECESSARY TO MAINTAIN A BARRIER.
3. SEDIMENT WILL BE REMOVED AND FILTER DEVICES CLEANED OR REPLACED AT CATCH BASINS WHEN THE SEDIMENT POOL NO LONGER DRAINS FREELY. SEDIMENT ACCUMULATIONS WITHIN DRAINAGE STRUCTURES AND PIPING SHALL BE CLEANED OUT AT THE PROJECT COMPLETION AND AS ORDERED BY ENGINEER WHEN DETERMINED THAT PRE-COMPLETION INSTALLATIONS NO LONGER FUNCTION PROPERLY DUE TO SEDIMENT OR DEBRIS. EVENTUAL SYSTEM CLEANING IS NOT AN EXCUSE TO NOT IMPLEMENT APPROPRIATE CONTROLS UPSTREAM. THE ENGINEER SHALL BE THE FINAL JUDGE REGARDING WHETHER THE PIPING SYSTEM REQUIRES CLEANING. THE CONTRACTOR CAN MINIMIZE THE NECESSITY OF EXTENSIVE SILT AND SEDIMENT ACCUMULATION REMOVALS BY EFFECTIVE IMPLEMENTATION OF THE SWPPP.
4. ALL DISTURBED AREAS WILL BE FERTILIZED, SEEDED AND MULCHED ACCORDING TO LANDSCAPE RESTORATION SPECIFICATIONS TO MAINTAIN VIGOROUS, DENSE VEGETATION. REPAIR ANY ERODED SLOPES, REAPPLY TOPSOIL, RESEED AND STABILIZE REPAIR AREA AS REQUIRED FOR PERMANENT OR TEMPORARY MEANS. REPAIR SOIL AREAS DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT.
5. IMMEDIATELY REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION EQUIPMENT, MAINTENANCE OR OTHER ACTIVITY TO ANY EROSION CONTROL MEASURE, OR BEST MANAGEMENT PRACTICE OR DEVICE.
6. THE PRIME CONTRACTOR(S) ARE RESPONSIBLE FOR THE PERFORMANCE AND COMPLIANCE OF THEIR SUB-CONTRACTOR'S ACTIVITIES RELATING TO THE SWPPP. THEY SHALL MAKE FREQUENT INSPECTIONS OF THEIR WORK AND COORDINATE APPROPRIATE INSTALLATION AND MAINTENANCE OF EROSION CONTROL AND WATER QUALITY DEVICES.
7. EMPLOY POLLUTION PREVENTION MEASURES TO CONTROL LITTER, CONSTRUCTION CHEMICALS, SEDIMENT AND CONSTRUCTION DEBRIS INCLUDING, BUT NOT LIMITED, TO THE FOLLOWING: SALVAGE AND REUSE OF MATERIALS, MINIMIZING PACKAGING WASTE, RECYCLING, PROPER DISPOSAL AT FREQUENT INTERVALS IN ACCORDANCE WITH PREVAILING LAWS, ONSITE INSTRUCTION REGARDING APPROPRIATE SEPARATION/HANDLING/RECYCLING, PERIODIC DEBRIS REMOVAL AT DRAINAGE STRUCTURES (GRATES AND SUMPS)/SEDIMENT TRAPS/ FOREBAY AND OTHER BMP'S, PROPER MAINTENANCE OF SEDIMENT/ EROSION CONTROL SYSTEMS, ROUTINE AND EVENT RELATED INSPECTIONS OF DRAINAGE AND BMP SYSTEMS PER PERMIT REQUIREMENTS, PROVIDE APPROPRIATE SANITARY FACILITIES FOR ONSITE PERSONNEL, PICK UP TRASH AND DEBRIS FREQUENTLY AND USE WATER MIST, CALCIUM CHLORIDE OR OTHER LEGAL MEANS TO LIMIT THE SPREAD OF DUST AND SOIL PARTICLES.

SWPPP
(STORMWATER POLLUTION PREVENTION PLAN)

- ☑ HAS BEEN DETERMINED TO BE REQUIRED BASED ON SCOPE OF PROJECT. SWPPP REQUIRES DOCUMENTS FROM CONSTRUCTION TEAM.
- ☐ HAS BEEN DETERMINED NOT TO BE REQUIRED BASED ON SCOPE OF PROJECT.
- REFER TO REQUIREMENTS LISTED ON THIS SHEET AND SPECIFICATION SECTION 01560 ENCLOSED IN THE SWPPP. IF SCOPE OF PROJECT CHANGES, THE REQUIREMENT FOR A SWPPP AND NYSDEC PERMITTING MAY REQUIRE RE-EVALUATION.

THE SWPPP HAS BEEN COMPLETED AND THE CONTRACTOR CAN OBTAIN AN ELECTRONIC COPY OF THE OWNERS SWPPP PLAN UPON REQUEST.



NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED. WHEN USING CELL-O-SEED, DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP'S.
3. ROLL THE RECP'S DOWN (A) OR HORIZONTALLY (B) ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECP'S SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS THE ENTIRE RECP'S TYPE. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE STAKES LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

6 **SLOPE STABILIZATION MATTING**
SCALE: N.T.S.

SUGGESTED EROSION CONTROL CONSTRUCTION SCHEDULE:

1. FLAG THE GRADING LIMITS AND MARK A 10' BUFFER AREA BEYOND THE GRADING LIMITS FOR PROTECTION.
2. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AT APPROXIMATE LOCATION OF DRIVEWAY IF DRIVEWAY STONE HAS NOT YET BEEN PLACED.
3. INSTALL PROTECTIVE MEASURES AROUND TREES TO BE RETAINED WITHIN GRADING LIMITS.
4. INSTALL BRIGHTLY COLORED CONSTRUCTION FENCE ALONG ROAD TO LIMIT VEHICULAR ACCESS TO STONE DRIVEWAY OR CONSTRUCTION ACCESS DRIVE.
5. INSTALL INLET PROTECTION DEVICES AT CATCH BASINS DOWN SLOPE FROM THE SITE THAT ARE VULNERABLE TO SEDIMENT ACCUMULATIONS.
6. COMPLETE SITE CLEARING, STOCKPILE SAVED MATERIALS IN DESIGNATED AREAS.
7. INSTALL SILT FENCES IN LOCATIONS AROUND THE PERIMETER OF SITE WORK, STOCKPILE AREA AND ALONG THE CONTOUR OF ALL DISTURBED SLOPES AT A MINIMUM OF EVERY 50' OF HORIZONTAL DISTANCE OR AS SPECIFIED, MEASURED PERPENDICULAR TO THE SLOPE.
8. ROUGH GRADE SWALES AROUND PROPOSED EARTHWORK AND STRUCTURES TO EXTENT POSSIBLE WITHIN GRADING LIMITS, INSTALL SILT FENCES, STRAW BALE DIKES, DIVERSION SWALES AND OTHER EROSION CONTROL MEASURES AS SHOWN ON PLANS, AND AS NECESSARY TO COMPLY WITH THE SWPPP AND ENSURE WATER QUALITY OF RUNOFF.
9. CONTRACTOR MUST ROUTINELY INSPECT AND MAINTAIN EROSION CONTROL DEVICES AND BEST MANAGEMENT PRACTICES (BMP'S). DOCUMENT WEEKLY INSPECTIONS IN SEPARATE CONTRACTOR'S LOG.
10. ROUTE ALL DEWATERING AND SUMP PUMP OUTFALLS, OF TURBID WATER, DIRECTLY TO SEDIMENT BASINS OR OTHER APPROPRIATE BMP.
11. 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 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 OF THE GENERAL PERMIT, 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.
12. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION IS ATTAINED. REMOVAL OF ANY EROSION CONTROL MEASURES MUST FIRST BE APPROVED BY THE ENGINEER AND/OR THE JURISDICTION HAVING AUTHORITY.
13. WHEN WEATHER CONDITIONS PROHIBIT SEED GERMINATION, DISTURBED GROUND SHOULD BE MULCHED WITH STRAW OR FIBER MULCH AND RECEIVE A BINDER/TACK APPLICATION OR EQUIVALENT.
14. THE SCHEDULE DESCRIPTIONS ABOVE ARE SUGGESTIONS PROVIDED TO ASSIST THE CONTRACTOR(S) IN DEVELOPING THEIR STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SCHEDULE SPECIFIC TO THIS PROJECT. THE OWNER SHALL PROVIDE A CERTIFIED SWPPP INSPECTOR DURING ALL PHASES OF CONSTRUCTION. THE EROSION AND SEDIMENT CONTROL PLAN AND DEVICES SHOWN ARE CONSIDERED TO COMPRISE THE MAJORITY OF EFFORTS NEEDED, BUT NOT NECESSARILY ALL THAT WILL BE REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE TO IMPLEMENT ALL MEASURES AND EFFORTS NEEDED. WEATHER, SITE AND UNFORESEEN CONDITIONS CAN DICTATE THAT GREATER EFFORTS WILL BE NECESSARY BY THE CONTRACTOR. IN THE CASE OF PROJECTS THAT DISTURB MORE THAN 1 ACRE OF LAND, THE OWNER, OR OWNER'S REPRESENTATIVE, WILL DEVELOP THE SWPPP WITH SUBMITTED CONTRIBUTIONS FROM THE ASSIGNED CONTRACTORS PERFORMING PROJECT SITE WORK. THESE CONTRIBUTIONS WILL CONSIST OF AN EROSION AND CONTROL SCHEDULE (AS SPECIFIED IN THE PROJECT MANUAL), SHORT NARRATIVE OF ANTICIPATED EROSION CONTROL ACTIVITIES, INSPECTION REPORTS AND LOGS AND SIGNED CERTIFICATION STATEMENTS AND PRE-CONSTRUCTION PHOTOGRAPHS AS SPECIFIED. THIS COMPETENT PERSON SHALL BE EITHER A LICENSED ENGINEER, LANDSCAPE ARCHITECT OR CERTIFIED EROSION CONTROL SPECIALIST.

PROTECTION OF TREES:

PROTECT EXISTING TREES WHICH ARE TO REMAIN AND WHICH MAY BE INJURED, BRUISED, DEFACED, OR OTHERWISE DAMAGED BY CONSTRUCTION OPERATIONS, UTILIZING STANDARD TREE PROTECTION CRITERIA INCLUDING:

1. INSTALLATION OF SAFETY ORANGE PLASTIC FENCING (MINIMUM4' IN HEIGHT) AROUND INDIVIDUAL TREES DESIGNATED FOR PROTECTION. FENCING SHALL BE INSTALLED AT THE OUTWARD LIMIT OF THE TREE'S DRIPLINE OR EXTENT OF CANOPY COVER.
2. INSTALLATION OF SAFETY ORANGE PLASTIC FENCING (MINIMUM 4' IN HEIGHT) AROUND GROUPS OF TREES DESIGNATED FOR PROTECTION.
3. TREE AND/OR SHRUB BRANCHES IN THE WAY OF EQUIPMENT SHALL BE TRIMMED ACCORDING TO PROFESSIONAL HORTICULTURAL STANDARDS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR AND SUB-CONTRACTORS USE EQUIPMENT TO DEMOLISH BRANCHES AS WORK PROCEEDS.

REQUIRED FENCING SHALL BE INSTALLED PRIOR TO THE INITIATION OF LAND DISTURBING ACTIVITIES AND SHALL BE REMOVED AT THE CONCLUSION OF CONSTRUCTION. REMOVE DISPLACED ROCKS FROM UNCLEARED AREAS. BY APPROVED EXCAVATION, REMOVE TREES WITH 30 PERCENT OR MORE OF THEIR ROOT SYSTEMS DESTROYED. REMOVAL OF TREES AND THE PROCEDURE FOR REMOVAL REQUIRES APPROVAL OF THE OWNER OR LANDSCAPE ARCHITECT. TREES DESIGNATED FOR REMOVAL SHALL BE REMOVED IN A MANNER THAT WILL NOT IMPACT ADJACENT TREES.

LANDSCAPE REPLACEMENT:

REMOVE TREES AND OTHER LANDSCAPE FEATURES SCARRED OR DAMAGED BY EQUIPMENT OPERATIONS, AND REPLACE WITH EQUIVALENT, UNDAMAGED TREES AND LANDSCAPE FEATURES. OBTAIN OWNER'S OR LANDSCAPE ARCHITECT'S APPROVAL BEFORE REPLACEMENT. REPLACEMENT OF TREES SHALL OCCUR ON A ONE-TO-ONE BASIS, UNLESS OTHERWISE NOTED.

Revision Schedule

No.	Description	Date

Geddis Architects
Architecture. Planning. Interiors
71 Old Post Road
P.O. Box 1020
Southport, CT 06890
(203) 256-8700

Fielding International
Transforming Education by Design
259 Water Street Suite 1L
Warren , RI 02885 USA
+1 401-289-2789

Construction Manager
SAVIN ENGINEERS, P.C.
3 Campus Drive
Pleasantville, NY 10570
914-769-3200

Structural Engineer
ODEH ENGINEERS
1223 Mineral Spring Ave
North Providence, RI 02904
401-724-1771

Civil Engineer
WESTON & SAMPSON
1 Winners Circle, Suite 130
Albany, NY 12205
518-463-4400

MEP Engineer
BARILE GALLAGHER & ASSOCIATES
CONSULTING ENGINEERS
39 Marble Avenue, 2nd Floor
Pleasantville, NY 10570
914-328-6060

Acoustic Consultant
DP DESIGN
12 Cold Spring Street
Providence, RI
401-861-3218

AV Consultant
CAVANAUGH TOCCI
327 F Boston Post Road
Sudbury, MA 01776-3027
978-443-7871

SED #: 6618-0001-0001-024

PROJECT
Rye City School District
555 Theodore Fremd Ave, Rye, NY 10580

Osborn Elementary School
10 Osborn Road, Rye, New York 10580

CONSTRUCTION DETAILS

ISSUED FOR BID

SEAL & SIGNATURE	DATE:	08/09/20
	PROJECT No:	
	DRAWING BY:	KSK
	CHK BY:	JFB
	DWG No:	C3-503

APPENDIX O

OPERATION & MAINTENACE FORMS AND INFORMATION

Stormwater System Inspection Checklist

Site: ______________________________

Inspector: ______________________________

Company: ______________________________

Component	Condition	Comments	Action	Date
Catch Basins				
CB-2				
CB-3				
CB-4				
CB-5				
CB-6				
CB-7				
CB-8				
Stormwater Hydrodynamic Separator				
HS-1				
Underground Stormwater Management Gallery				
SW-1				
Diversion Manhole / Outlet Control				
DM-1				
Connection to existing storm sewer system				
CBX 1				

APPENDIX P

OPERATION & MAINTENACE MANUAL

westonandsampson.com

1 Winners Circle, Suite 130
Albany, NY 12205
tel: 518.463.4400

REPORT

August 2021

Rye City School District

Osborn School Improvements

SWPPP Operation & Maintenance Manual

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1.0 INTRODUCTION

This long-term Stormwater Management System Operations and Maintenance (O&M) Plan, shall be implemented at the Osborn Elementary School at 10 Osborn Road Rye, NY 10580 to ensure that the stormwater management systems function as designed. The Owner possesses the primary responsibility for overseeing and implementing the O&M Plan and assigning the appropriate staff who will be responsible for the proper operation and maintenance of the stormwater structures. This manual identifies the key components of the stormwater system and a log for tracking inspections and maintenance. The stormwater management system protects and enhances the stormwater runoff water quality through the removal of sediment and pollutants. Preventive maintenance of the system will include a comprehensive source reduction program of regular vacuuming and litter removal.

2.0 RESPONSIBILITY

The purpose of the O&M Plan is to ensure inspection of the system, removal of accumulated sediments and debris, and implementation of corrective action and record keeping activities. The ongoing responsibility is of the Owner, its successors and assignees. Adequate maintenance is defined in this document as good working condition. Contact information is provided below:

Contact Information:
Robert Gimigliano
555 Theodore Frmed Avenue
Rye, NY 10580

3.0 DOCUMENTATION

An Inspection and Maintenance Record Log shall be retained by the Owner summarizing inspections, maintenance, repairs and any corrective actions taken. The log shall include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Inspection & Maintenance Logs shall be kept on file at the Albany City School District Facilities Office.

4.0 OPERATION AND MAINTENANCE PLAN

The O&M Plan presents the operation and maintenance required for the installed stormwater system and provides guidelines for when the stormwater system should be cleaned and associated recordkeeping. Please note, this system is a passive system. Manual operation of the system is not required for any of its components during normal use. The site includes the following components:

- Storm Drain Piping
- Catch Basins
- Subsurface Stormwater Infiltration System
- Hydrodynamic Separators

Additional information is also provided in the attached appendices including as-built information for this project.

The maintenance staff of Rye City School District will be responsible for the operation and maintenance of the above stormwater structures. Checklists shall be utilized during the inspection and cleaning process and kept on file in the corporation’s office.

4.1 Storm Drain Piping

Storm drain pipe are typically underground structures that connect drainage structures such as catch basins and storm manholes. The pipes range from 4-inches to 5-feet in diameter and are typically made of HDPE, PVC, reinforced concrete, ductile iron, corrugated metal, or cast iron.

Maintenance Requirements

- Storm drainage piping should be inspected quarterly and cleaned as necessary.
- Remove any sediment or debris buildup in the collection pipe by hand or hydraulic jet. Pipes can be accessed from the downstream catch basin for hydraulic jetting.
- Sediment and hydrocarbons should be properly handled and disposed of off-site, in accordance with local, state, federal guidelines, and regulations.
- Pipe outlets should be cleaned away from the stormwater basins to prevent discharge of sediment into the basin.

4.2 Catch Basins

Catch Basins are point source stormwater collection structures that allow the stormwater to enter the subsurface collection system. The catch basins are typically made of precast concrete with exposed removable cast iron grates. The catch basins have one-foot sumps for grit and sediment collection that must be cleaned periodically. To access the catch basin sump, the cast iron grate may be removed with a manhole cover puller, pick or magnetic manhole removal device.

Maintenance Requirements

- Sediment removal is required when sediment depths within the sump of the catch basin exceed 75% (9-inches) of capacity.
- Removal of sediment and debris can be achieved by shoveling by hand or use of a vacuum truck.

4.3 Subsurface Stormwater Infiltration System

Subsurface Stormwater Infiltration Systems collect, retain, and infiltrate stormwater in subsurface, gravel encapsulated, structural PVC modules. The modules are connected with a PVC pipe header system.

Maintenance Requirements (Routine): This maintenance is to be completed monthly in the first year and annually every spring and fall thereafter.

- Sediment buildup should inspected routinely, if possible, through an inspection port, access manhole, or upstream catch basin.
- The owner shall keep a maintenance log which documents any events which may affect the system's operational capacity.
- If possible, inlets and outlets should be checked for clogging and any debris found shall be removed properly disposed in accordance with applicable laws and regulations.

Maintenance Requirements (Major): Every five years, inspect the infiltration chambers shall be inspected using Closed Circuit Television (CCTV) or comparable technique to document that the feeder connections and management chambers are functioning properly. The frequency of the inspections may be adjusted based on prior inspection experience after commissioning.

- After 45 to 50 years after commissioning, determine the remaining life expectancy and replace or restore the stormwater management chambers as required.

4.4 Hydrodynamic Separators

A hydrodynamic separator is a pretreatment structure that separates sediment, floatables, and oils (typically present from normal automotive use on paved surfaces) from the collected stormwater to prevent accumulation in the subsurface stormwater infiltrator chambers. As sediment, floatables, and oils collect in the hydrodynamic separator over time, the system should be cleaned out every six months. The hydrodynamic separator consists of a precast concrete manhole with an internal HDPE conical vortex tray and sediment holding tank. To access the hydrodynamic separator sediment trap, remove the center cast iron cover with a manhole pick or magnetic manhole removal device. To remove the oils and floatables, remove the outer cast iron cover with a manhole pick or magnetic manhole removal device.

Maintenance Requirements

- Inspect hydrodynamic separator every six months and cleanout as necessary.

APPENDIX Q

GEOTECHNICAL REPORT

FINAL REPORT

GEOTECHNICAL INVESTIGATION AND FOUNDATION RECOMMENDATIONS

OSBORN ELEMENTARY SCHOOL
10 OSBORN ROAD,
RYE, NY

Prepared for:

Ms. Gabrielle O'Connor
Asst. Superintendent for Business
Rye City School District
555 Theodore Fremd Ave, Suite B 101
Rye, NY 10580

May 7, 2020

STATE OF NEW YORK
ZIAD H. MAAD
080833
LICENSED PROFESSIONAL ENGINEER

Prepared By:

Geotechnical Engineering Services, P.C.
6 Bayberry Road
Elmsford, New York 10523

May 08.2020

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1.1 GENERAL

As described by our geotechnical proposal, dated March 17, 2020, this report presents the results of a subsurface investigation and geotechnical recommendations for the proposed construction at Osborn Elementary School, in Rye, New York. The objectives for this investigation were to determine the in-situ subsurface conditions at the site, as well as provide foundation design and construction-related recommendations for the proposed one-to-two-story addition.

1.2 PROJECT LOCATION, DESCRIPTION, GEOLOGY AND SITE HISTORY

The proposed one-to-two story addition is located at the western end of the existing one-story Osborn Elementary School at 10 Osborn Road in Rye, New York. The proposed footprint of the addition is currently occupied by lawn and an existing children's playground. The proposed addition is bordered by lawn and asphalt pavement, and Osborn Road further to the south, grass fields to the north and west, and the existing Osborn Elementary School to the east. The exact proposed square footage of the addition is not currently known at this time, though appears to be about 6,000-square-feet in footprint area. No new cellar levels are planned at this time. No New York City Transit Authority (TA) rail lines are within 200 feet of the proposed addition.

Geotechnical Engineering Services, P.C. (GES) did not perform any surveying and solely relied on information as measured in the field, as well as a December 18, 2019 First Floor Plan Phase 2, by Geddis Architects, provided by Mr. Robert J. Firneis of Savin Engineers, P.C. This plan did not include a Property Line Survey, nor were we provided with one. Therefore, no elevations have been provided in this report, and all depths referenced in this report are measured from surrounding grade, unless otherwise noted. The existing grade within the proposed new addition footprint generally slopes downward slightly to the west, starting from the first-floor slab level of the existing one-story school building.

The exact bottom of excavation is unknown to us at this time. We understand that the final foundation design has not been completed yet. We request that should the proposed construction be modified in such a way that deviates from our recommendations noted herein, that we be given an opportunity to revise our geotechnical recommendations.

Site History and Geology

Based on a review of historic maps, aerial photographs, and geologic maps for this area, it appears that the school was constructed between 1954 and 1966, and several additions have been added over the years onto the original school building, which was located further to the east. It appears the existing one-story addition to the southeast was constructed between 1974 and 1994, while the addition to the northeast was built between 1966 and 1974. No layout changes to the existing adjacent addition are apparent since 1994. Prior to construction, the site of the school was occupied by an empty grass field. No previous structures appear to have occupied the site of the planned extension.

According to Isachsen and Fisher's "Geologic Map of New York" (1970), the bedrock at the site maps as the Hartland Formation, which is characterized by fine to coarse-grained gray to tan weathering, quartzfeldspathic, muscovite-biotite-garnet schist. This area is located well north of the terminal moraine, of the last advance of glacial ice in this region.

1.3 OBJECTIVES AND SCOPE OF SERVICES

The objectives of this investigation were to evaluate the subsurface conditions beneath the footprint of the proposed addition, and to provide geotechnical and construction-related recommendations. The following scope of services was performed:

1. Performed three (3) geotechnical borings approximately where shown on the proposed boring and test pit location plan, provided to us, and as shown on the attached Boring and Test Pit Location Plan on Drawing No. B-100.00 in Figure 1.
2. Performed one (1) exploratory test pit at the site, as shown in the sketch in Appendix B.
3. Provided full-time controlled inspection of the drilling and test pit excavation operations.
4. Prepared this report that includes the following:
   a) Description of the methodology of drilling and sampling, and test pit excavation, with respect to the proposed construction;
   b) A Boring and Test Pit Location Plan showing the as-drilled/excavated locations of the borings and test pit, respectively;
   c) Results of engineering evaluations and recommendations regarding the foundation design including:
      - Foundation type and estimated allowable bearing pressure;
      - Geotechnical earthquake engineering considerations including site classification and liquefaction evaluation;
      - Permanent and temporary groundwater control measures;
      - Support of excavation, underpinning, and lateral earth pressure considerations;
      - First floor slab-on-grade and new footing subgrade preparation;
      - Compaction control, excavation, and backfilling;
      - Construction monitoring considerations including optical and vibration monitoring, including protection of the existing school building, nearby utilities, and surrounding lawns.
   d) List of Figures, which includes the Boring and Test Pit Location Plan and a plot of ambient groundwater levels at the site, and rising head testing, performed within the monitoring well.
   e) Appendices A through D, which include geotechnical boring logs, a hand-drawn sketch of the test pit, a test pit photographic log, and laboratory test data.

2.1 GENERAL

Our subsurface investigation consisted of field locating and drilling three (3) geotechnical borings and excavating one (1) exploratory test pit, as shown on our attached Boring and Test Pit Location Plan. Typed boring logs are attached to this report as Appendix A. The hand-drawn test pit sketch and a test pit photographic log of Test Pit TP-1, are also available in Appendices B and C, respectively. Laboratory test data for select samples from the borings are available in Appendix D. The details of the subsurface investigation program and the generalized subsurface conditions, and information regarding the existing building foundation are described below.

2.2 GEOTECHNICAL BORINGS

Three (3) geotechnical borings, denoted as B-1 through B-3 were performed by Municipal Testing Laboratory, Inc. (MTL) of Hauppauge, New York, using a small Fordia Track-Mounted Drill Rig, on April 6 and 7, 2020, as shown on the Boring and Test Pit Location Plan on Figure 1. The borings were continuously inspected by Messrs. Aflaaz Saleem and Michael Torino, P.E. of GES. In accordance with the RFP, Borings B-2 and B-3 were grouted upon completion.

The borings were drilled utilizing the mud-rotary drilling technique with a 3-7/8-inch diameter tri-cone roller bit and 4-inch diameter steel casing to stabilize the boring. Soil samples were obtained using techniques and equipment in general accordance with the American Society for Testing and Materials (ASTM) Standard Specification D1586-Standard Penetration Test (SPT). The SPT consists of driving a 2-inch O.D. split-spoon sampler typically to 24 inches of penetration, using repeated blows of a 140-lb hammer, free-falling a height of 30-inches. The standard penetration value, or N-value, is determined as the number of blows required to advance the sampler the sum of the second and third 6-inch intervals of a typical 24-inch penetration.

The hammer used was <u>an automatic trip hammer.</u> This hammer operates with an efficiency of about 90% whereas the manual (cathead and rope) hammer operates at an efficiency of about 60%. This means that the blow counts that are reported on the boring logs, where the automatic hammer was used, are about 2/3 of the values that would be reported if a conventional donut-type hammer had been used. A correction factor of 1.3 is generally used to convert the N-values from the automatic hammer to the normalized N-value (N_{60}).

Where the split-spoon sampler could not be advanced through rock or an obstruction, the sampler was driven for 50 blows, and distance of actual penetration less than 6 inches was recorded. Soil samples were placed in jars following completion of sampler advance and brought to Terrasense in Totowa, NJ for testing and confirmation of sample classifications. Boring logs showing N-Values and stratigraphy are attached as Appendix A. The recovered split-spoon soil samples were labeled with the project name, boring number, sample number, depth of sample, SPT blow counts and length of recovery.

All borings were drilled within or within 25 feet of the footprint of the proposed addition. MTL pre-cleared all boring locations for utilities, using a post-hole digger in the uppermost four (4) feet. Once cleared for utilities, SPT split-spoon soil sampling was generally performed continuously to 12 or 20 feet, then on five-foot centers to the completion depth of the borings, or top of rock, whichever is shallower.

- Boring B-1 was drilled just outside the southeastern corner of the proposed new addition to a depth of 20.1 feet, encountering decomposed rock at a depth of about 15 feet. A PVC groundwater monitoring well was installed, with 10 feet each of PVC slotted screen and riser, to ground surface.
- Boring B-2 was drilled at the northwestern corner of the proposed new addition to a depth of about 18.1 feet, encountering decomposed rock at a depth of about 14 feet.
- Boring B-3 was drilled at the northeastern corner of the proposed new addition to a depth of about 26.6 feet, encountering decomposed rock at a depth of about 10 feet.

2.3 LABORATORY TESTING

Upon completion of the geotechnical investigation, laboratory testing was assigned and performed, which includes determination of water content, Atterberg Limits, Sieve Analysis, as well as re-classification and verification of sample descriptions. Laboratory testing was performed at TerraSense Laboratory in Totowa, New Jersey. All laboratory test results are presented in Appendix D.

- ***Water Content (ASTM D2216):*** Natural water contents were obtained for select samples, and are reported on the boring logs, as well as attached to this report. The water content assists in sample classification and in establishing useful relationships with other soil parameters.
- ***Atterberg Limits (ASTM D4318):*** The Atterberg Limits are index tests that aid in soil classification and in establishing relationships with other soil parameters. Atterberg Limits were determined for select cohesive samples.
- ***Sieve Analysis (ASTM D422):*** A Sieve Analysis is a quantitative determination of the distribution of particle sizes within soils. Granular portions of the soil are retained on sieves after mechanical shaking, while the fines content is determined by the amount remaining on the #200 Sieve.

2.4 TEST PIT AND DESCRIPTION

One (1) exploratory test pit, denoted as TP-1, was performed where shown on the Boring and Test Pit Location Plan in Figure 1. The location of Test Pit TP-1 was selected by others. TP-1 was excavated, backfilled, and compacted by MTL, using hand-tools, on April 3, 2020, under continuous inspection by Mr. Michael Torino, P.E., of GES. Upon encountering the bottom of foundation, GES photographed, logged, and measured the test pit. The test pit was excavated and backfilled with the excavated soil in lifts, and compacted using a hand tamper. In accordance with the RFP, MTL removed all excavated material from the site, and replaced the grass using seeds at grade. No groundwater or bedrock were encountered.

Detailed descriptions of the test pit excavation are presented below. All depths are relative to top of surrounding grade. The test pit sketch is attached as Appendix B, and a photographic log is attached as Appendix C:

- **Test Pit TP-1** *(3.9-feet-wide x 4-feet-long x 4.4-feet deep)* was excavated at the corner between two existing additions for the existing school building, at the eastern edge of the proposed new addition. Subsurface conditions consisted of about 4 inches of topsoil, overlying uncontrolled fill, consisting of brown silty medium to fine sand, with some gravel, extending to 3.9 feet depth. Underlying the fill and the foundation at this location, GES encountered natural gray medium to fine sand, with some clay, and trace silt and mica.

The test pit revealed that the existing additions at both the south and east sides of the test pit are composed of a brick wall above ground, underlain by a concrete strip footing for a concrete foundation wall. The strip footing at the east side, juts to the west by about 7 inches and is 10 inches thick. The strip footing at the south side, juts to the north by about 8 inches and is 9 inches thick. The bottom of foundation for both footings was found at 4.0 and 3.9 feet, respectively. GES attempted to probe laterally by about 1.6 feet in both directions but was unable to find the width of the footings.

2.5 GENERALIZED SUBSURFACE CONDITIONS

The following general descriptions of the subsurface strata are based on our interpretations of the results of the field investigation. All depths are relative to surrounding grade, which was grass at grade. Blow counts have not been corrected for the use of the automatic hammer. As noted above, a hand-auger was used in the uppermost four (4) feet to pre-clear each hole for utilities:

Stratum 1: Fill – The Fill generally consists of medium dense to dense brown medium to fine sand, with some gravel, and varying amounts of silt, asphalt and brick fragments. The fill layer was found in all borings, extending from 6 to 8 feet below grade, shallower at Boring B-3, nearer to the existing school building. SPT N-Values within this stratum ranged from 24 to 49 blows per foot (bpf) with an average of 33 bpf.

Stratum 2: Medium Dense to Very Dense Sand – Encountered below Stratum 1 in all borings and the test pit, this stratum consists of medium dense to very dense brown medium to fine sand with varying amounts of gravel and silt. Stratum 2 was measured to range in thickness from 4 to 7 feet, and extend to depths ranging from 10 to 15 feet, shallower at Boring B-3, nearer to the existing school building. SPT N-Values for Stratum 2 ranged from 24 to 61 bpf with an average of 41 bpf indicative of dense sand. One sample reached refusal before extending the full two feet into the soil, and was not counted in the average N-Value above.

Stratum 3: Glacial Till – Encountered below Stratum 2 in all borings to the completion depth of all borings, this stratum generally consists of very dense gray coarse to fine sand with decomposed rock fragments and gravel, and varying amounts of silt. SPT N-Values for this stratum ranged from 18 to 50 bpf, though two-thirds of the samples encountered refusal before extending the full two feet into the soil.

2.6 GROUNDWATER CONDITIONS

Following completion of Boring B-1, MTL installed a 20-foot-deep groundwater observation well on April 6, 2020 in the completed borehole, consisting of ten (10) feet of PVC slotted screen and ten (10) feet of riser surrounded by filter sand. Groundwater readings were taken manually on April 16, 2020 and April 23, 2020 using an electronic water level indicator. An electronic piezometer was also installed to take hourly readings of the water levels from April 7 to 23, 2020.

As shown in the attached plot of Groundwater levels in Figure 2, and based on the manual and electronic readings, the groundwater level was fairly consistent and ranged from about 11.5 to 13 feet depth at Boring B-1. Percolation testing was also performed, as discussed below.

With consideration of the data collected, and our analysis of the results, we therefore recommend a design groundwater level of 9.5 ft below grade at Boring B-1. We would also recommend that a property line survey be performed, so that a design groundwater elevation can be provided, to ensure accuracy of the recommendation.

Please note that changes in groundwater levels may occur due to variations in seasonal influences, precipitation amounts, local pumping, utility leakage, and other factors different from those existing at the time the observations were made.

2.7 PERCOLATION TESTING

Our methodology was to perform two (2) rising head tests within the monitoring well, in order to show the infiltration rate of groundwater from the surrounding soil, into the monitoring well. All percolation testing discussed below is in terms of depth below surrounding grade, and is at the location of Boring B-1, just east of the southeast corner of the proposed new addition. The plots of the rising head tests performed can be found in Figure 3, and is discussed herein.

Methodology

After installation of the groundwater monitoring well in Boring B-1 ("the well") on April 7, 2020, the well was flushed to disperse any drill fluid from the perimeter of the drill hole. Mr. Michael Torino, P.E. of GES returned to the site on April 16, 2020, and took an initial water level reading of 11.7 feet depth below grade. GES then filled the well to surrounding ground level with water, to pre-soak the soil surrounding the piezometer, prior to percolation testing. GES then used a motorized pump to remove as much water as possible from within the well, which temporarily reduced the groundwater level to 18.9 feet below ground, as each test began. GES timed the rise in head of water within the well, at incremental readings from 15 seconds to 5 minutes until the head of water in the well reached the initial water level, i.e. for about 18 to 25 minutes. This rising head test was repeated once more following the initial test, for redundancy in results. Please see Figure 3 for a plot of our testing.

Results and Analysis

Based on the proposed scope of a one-to-two-story addition, no proposed cellar levels, the subsurface soils encountered, and the depth at which groundwater was encountered, it appears highly unlikely that groundwater would be encountered during construction. However, if the project also entails the placement of planters, trees, or shrubs which may depend on freely draining soil and deeper groundwater, it may be beneficial to have this data. Dry-wells, also if required for this project, will also heavily rely upon the ability for the soil to disperse stormwater. We have not been asked to provide a design for a dry-well, but can submit a separate proposal to provide special inspection of a dry-well, if required for this project, upon the client's request. The soil appears to be fairly permeable and permit free draining or recharge of surface or groundwater.

Please see our recommendations in Section 3.5 and 4.2 concerning permanent and temporary control of stormwater and protection from water infiltration into the concrete.

3.1 GENERAL

This section of the report presents seismic considerations, our recommendations for feasible foundation and floor slab systems, lateral earth pressures, and permanent control of groundwater. Our evaluation and recommendations are based on the subsurface conditions encountered at the boring locations, our understanding of the site geology, foundation loading information, and construction considerations.

3.2 SEISMIC CONSIDERATIONS

Considering the medium dense to dense nature of the soils encountered, liquefaction is not a concern at this site. A Site Class of "D" is recommended for this site.

3.3 FOUNDATION RECOMMENDATIONS

As noted above, we understand that you plan to construct an about 6,000-square-foot, one-to-two-story addition, onto the west side of the existing Osborn Elementary School. We understand the proposed addition will not have any cellar levels. Our test pit (TP-1) revealed the bottom of the west side of the existing school building is founded at about 4 feet below grade. We therefore recommend that the proposed addition can be founded on shallow foundations, matching the adjacent building foundation depth, to avoid underpinning the existing foundation, and to a minimum required depth to be below the frost line in this area. Based on the soil encountered, groundwater level, and expected loading of the addition, we recommend that the footings can be designed to bear on Stratum 1 (Fill), with a maximum allowable bearing pressure of 1.5 tons per square foot (tsf), provided the subgrade for any new footings is proof-rolled with a minimum of six (6) overlapping passes of a vibratory roller, or as otherwise approved by the Engineer.

The fill used as bearing material must be free of voids, and extensive inclusions of mud and organic materials, such as paper, wood, garbage, cans, or metallic objects and debris. It is anticipated that settlement under the building loads is expected to be on the order of ½ inch, though most of the settlement is expected to occur during construction. A minimum of 6 inches of ¾-inch crushed stone should be placed under the footings and slab-on-grade and compacted. The recommended bearing pressure is also dependent on GES being retained to provide controlled inspection of the subgrade.

Prior to construction of the footings, the subgrade of the spread footings shall be inspected by a NYS-licensed geotechnical engineer, familiar with the soil conditions. Should the soil at the design subgrade elevation be found to be unsuitable for further construction, softer and wetter areas may need to be removed and replaced by ¾-inch clean crushed stone and compacted in maximum 12-inch-thick lifts.

3.4 LATERAL EARTH PRESSURES

The design lateral pressures for permanent below grade foundation elements consist of static pressures that are influenced by the thickness and type of overburden material. For design purposes, we recommend that the below grade foundation elements above the design groundwater level be designed for a static lateral soil pressure of 45 pcf.

The New York State Building Code also requires that the below grade foundation elements be designed to resist seismic loads. We recommend using a seismic lateral soil force of $6H^2$ (lb/ft of foundation element), where H is the total vertical height in feet. This force is in addition to the static force, applied at a distance of H/3 from the top of the foundation element (pressure is an inverted triangle).

The recommended lateral pressure does not include any surcharge loads adjacent to the walls or at the ground surface. We recommend adding a uniform (i.e., rectangular) lateral pressure distribution of 0.40 times the surcharge to the lateral soil pressure distribution. The structural engineer should determine the magnitude of the surcharge loads (i.e., live loads), based on the final design of the surrounding area.

3.5 PERMANENT GROUNDWATER CONTROL

Our groundwater monitoring well in Boring B-1 showed that groundwater was encountered between 11.5 and 13 feet below grade. No cellar levels are planned for the proposed new addition. Therefore, it is unlikely that groundwater would be encountered while constructing the proposed addition. However, we recommend that a vapor barrier be placed below any subsurface foundation element to prevent intrusion of moisture into the concrete. The material used for the vapor barrier should be submitted to the geotechnical engineer for review and approval. We recommend that the vapor barrier be inspected by a controlled inspector, or installed by a certified installer.

4.1 GENERAL

The following sections provide recommendations regarding temporary surface water control during foundation construction, temporary support of excavation and underpinning, preparation of the subgrade for shallow foundations / slab-on-grade, excavation considerations, backfill and compaction control, pre- and post-construction surveys of the existing building or utilities, construction monitoring, and geotechnical engineer inspection requirements.

4.2 TEMPORARY GROUNDWATER CONTROL

Groundwater was encountered within 11.5 to 13 feet of the existing ground level at the location of Boring B-1. Since the bottom of the new footings will likely be constructed only about four (4) feet below existing grade, a temporary groundwater control system will not likely be required. We recommend that any surface water from rain events, or other reasons be disposed of by the use of sump pumps. All foundation subgrades, which include slabs-on-grade and new footing subgrades should be protected from rain events before the placement of concrete. All concrete placement should be performed in the dry and maintain dry working conditions during foundation construction.

4.3 TEMPORARY SUPPORT OF EXCAVATION AND UNDERPINNING

It is our understanding that the proposed new building will not have a basement level, and the new building's foundations will not likely extend any deeper than about four (4) feet, to ensure the foundation for the new one-to-two-story building will bear below the frost line. The bottom of the existing school footings was encountered at about four (4) below surrounding grade. We recommended above in Section 3.3, that the new footings should be constructed at the same depth as the existing footings to prevent imposing lateral loads on the existing foundation and the need for underpinning.

We recommend that the excavation for any new footings/grade beams or trenches for utilities can be supported by using timber sheeted pits, with wood lagging and bracing. Deeper utilities could require the design and installation of a support of excavation system, which can be addressed once the final design requirements for utilities have been determined. The design of any temporary excavation support system should be the responsibility of a highly experienced, licensed New York State Professional Engineer. All excavations of temporary support systems should conform to pertinent OSHA and local safety regulations. The soil parameters used in the design of the temporary support system should be reviewed by the geotechnical engineer prior to construction of the support structures. Excavations and bracing are subject to controlled inspection.

An alternative to sheeted pits is the use of sloping or benching excavations to the design subgrade level. We recommend that any slopes be carefully graded using a flat-plated excavator bucket to a slope no steeper than 1.5H to 1V. Benching of excavations should also be performed using a flat-plated bucket, with a maximum step height of two feet, and minimum bench width of three feet.

4.4 SUBGRADE PREPARATION

In order to limit differential settlement of the first-floor slab-on-grade and footings, we recommend that the soil subgrade be proof-rolled with a minimum of six (6) passes of a dual drum vibrating roller with a minimum 10-ton static weight, or other approved equipment having similar energy.

Any unstable areas encountered which cannot be stabilized by additional compaction should be excavated to competent material and the area backfilled with compacted select or structural backfill. The proof-rolling should not be performed when the subgrade is wet, muddy, or frozen. If the footings/slab-on-grade are constructed in the winter, the subgrade should be protected from frost action to limit possible subgrade deterioration resulting from freezing and thawing cycles. Subgrade preparation and inspection are subject to controlled inspection.

4.5 EXCAVATION CONSIDERATIONS

As stated above, the proposed new building will not have any cellar levels. We recommend that excavation for the new building footings be performed using a flat-plated excavator bucket. This would also include sloping of any excavations, which must not be steeper than a 1.5H to 1V envelope as noted above. Final cut for the subgrade for new footings or slabs must either be performed by hand, i.e. shovels, or using the flat-plated bucket attached to an excavator. Any over-excavated areas for footing subgrade disturbed by construction or excavation activities must be completely removed and replaced with select backfill or crushed stone and compacted. Excavation shall not penetrate a 1.5H:1V envelope below the bottom of any nearby foundation element/utility, so as to not undermine the bearing material. We recommend that excavation and grading be performed under the continuous inspection of a geotechnical engineer.

Temporary support of excavation systems must follow recommendations as outlined in Section 4.3 above. The design of such system is the responsibility of the contractor and must adhere to all relevant codes and acceptable industry standards and practices.

4.6 BACKFILL AND COMPACTION REQUIREMENTS

Where needed, select backfill or structural backfill should be granular material only, free of cinder, brick, asphalt, ash, silt/clay, and other unsuitable materials. We recommend that structural backfill or select backfill beneath slabs-on-grade be compacted to a minimum of 95% of the maximum dry density, as determined by ASTM D1557, Method C. All backfill should be placed in lifts not exceeding 8 inches in loose thickness. All crushed stone should be placed in lifts not exceeding 12 inches in loose thickness. The subgrade underneath the backfill should be satisfactorily proof-rolled prior to placement of backfill and should also meet the same density requirements as the backfill to be placed above the subgrade. All fill placement shall be subject to special inspection.

4.7 PRE-CONSTRUCTION SURVEY AND MONITORING

A pre-construction survey should be performed for any structure/utility within 25 feet of the construction site. We recommend a monitoring plan be assembled by an experienced Professional Engineer. At a minimum, the plan should include the existing school building and the surveyed locations and elevations of any nearby utilities within 25 feet of the site, to ensure they are protected and supported throughout construction. We recommend these utilities be monitored on a routine basis, as determined by the geotechnical engineer assembling the plan, to ensure no settlement/movement occurs.

At this time, we recommend that the maximum peak particle velocity (PPV) readings be kept below 1 in/sec for the school building or any nearby utility, as measured by seismographs. Additionally, we recommend that the maximum permissible vertical and horizontal movement of the school building be limited to ½ inch, as measured by optical prism points on the existing school building. These levels may be further lowered depending on the condition of this building, and based on the pre-construction survey. We also recommend that all portions of the building within 25 feet of the site be monitored for cracks or damage on a routine basis, to ensure no damage occurs to the existing school building.

4.8 CONSTRUCTION INSPECTION

Our recommendations are contingent upon the proper review and observation during excavation and foundation construction operations by a geotechnical engineer familiar with the subsurface conditions and foundation design criteria. The geotechnical engineer's role should include the following:

- Review and approval of contractor submittals related to foundation construction;
- Observation and documentation of all phases of excavation and foundation construction;
- Controlled inspection of subgrade preparation;
- Monitoring of subgrade preparation and structural fill placement and compaction.

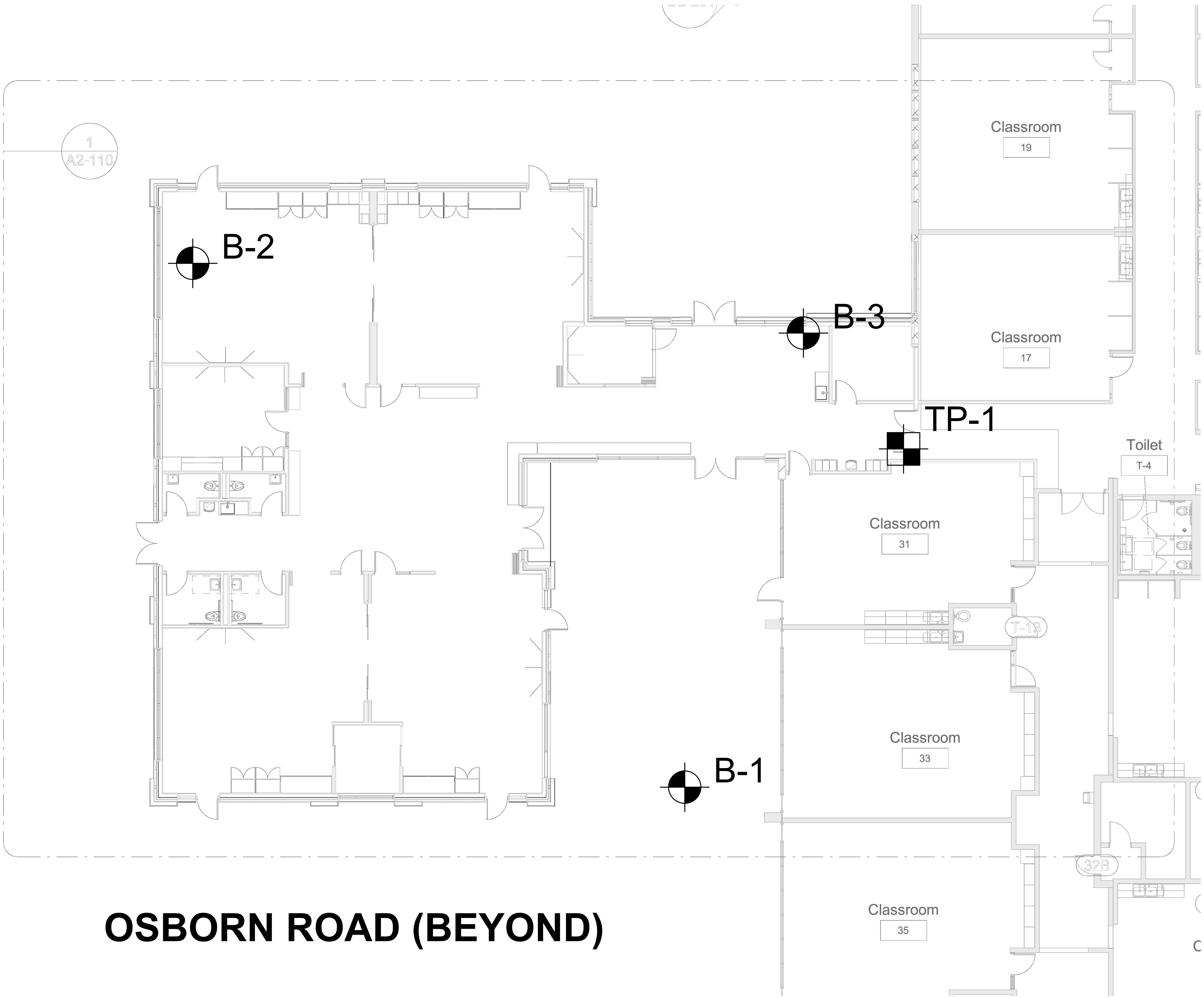
Our conclusions and summary of recommendations are as follows:

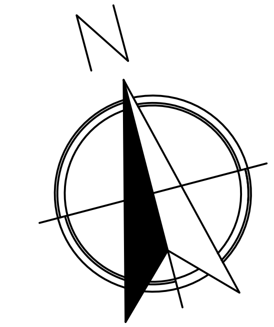
1. Considering the dense nature of the soils below the water table, liquefaction is not a concern at this site. A Site Class of “D” is recommended for this site.
2. We recommend that the proposed new building can be supported by shallow footings bearing on Stratum 1 (Fill), with a maximum allowable bearing pressure not exceeding 1.5 tsf. The fill used as bearing material must be free of voids, and extensive inclusions of mud and organic materials, such as paper, wood, garbage, cans, or metallic objects and debris, provided the subgrade for any new footings is proof-rolled with a minimum of six (6) overlapping passes of a vibratory roller, or as otherwise approved by the geotechnical engineer. Prior to construction of the footings, the subgrade of the spread footings shall be inspected by a NYS-licensed geotechnical engineer, familiar with the soil conditions.
3. Groundwater was measured to be between 11.5 to 13 feet at the location of Boring B-1. A design groundwater level of 9.5 feet below grade was recommended for foundation design. Permanent groundwater control measures will likely not be required. We recommend that a vapor barrier be placed below any subsurface foundation element to prevent intrusion of moisture into the concrete.
4. We recommend the contractor be prepared to control any runoff water by the use of sump pumps or other suitable means. The subgrade for any new footing or slab must also be protected from rainwater or runoff, to prevent undermining the approved subgrade.
5. We recommend that the excavation for any new footings or trenches for utilities be supported by using timber sheeted pits, with wood lagging and bracing. The design of any temporary excavation support system should be the responsibility of a highly experienced and licensed New York State Professional Engineer. Another alternative to sheeted pits is the use of sloping or benching excavations to the design subgrade level at a no steeper than 1.5H to 1V. We recommend that sloping/benching be performed using a flat-plated excavator bucket.
6. Where needed, select backfill or structural backfill should be granular material only, free of cinder, brick, asphalt, ash, silt/clay, and other unsuitable materials, compacted to minimum 95% of maximum dry density, and not exceeding 8 inches in loose thickness. All crushed stone should be placed in lifts not exceeding 12 inches in loose thickness. All fill placement shall be subject to special inspection by a special inspector.
7. Final cut for the subgrade for new foundation elements must either be performed by hand, i.e. shovels, or using the flat-plated bucket attached to an excavator. Any over-excavated areas or footing subgrade disturbed by construction or excavation activities must be completely removed and replaced with select backfill or crushed stone and compacted.
8. A pre-construction survey should be performed for any structure or utility within 25 feet of the construction site. A monitoring plan be assembled by an experienced Professional Engineer. We recommend that vibrations be monitored within the existing school building and not exceed 1 ips, and movement of the building be limited to a maximum of ½”, as monitored by optical prism points. Limits subject to modification by the Engineer assembling the monitoring plan.
9. Our recommendations are contingent upon GES being retained for controlled inspections as stated above.

Professional judgments were necessary in relation to determining stratigraphy and soil properties from the subsurface investigations. Such judgments were based partly on the evaluation of the technical information gathered, and partly on our experience with similar projects. If further investigation reveals differences in the subsurface conditions and/or groundwater level, or if the proposed building design is different from indicated herein, or is changed, it is recommended that we be given the opportunity to review the new information and modify our recommendations, if deemed appropriate.

The results presented in this report are applicable only to the present study, and should not be used for any other purpose without our review and consent. This study has been conducted in accordance with the standard of care commonly used as state-of-the-practice in the profession. No other warranties are either expressed or implied.

FIGURES





No.	DESCRIPTION	DATE	BY

GES

GEOTECHNICAL ENGINEERING SERVICES, P.C.

6 BAYBERRY ROAD
ELMSFORD, NEW YORK 10523
PHONE:914-592-4616 FAX:914-592-0416

RYE CITY SCHOOLS
OSBORN ELEMENTARY SCHOOL
10 OSBORN ROAD, RYE, NY

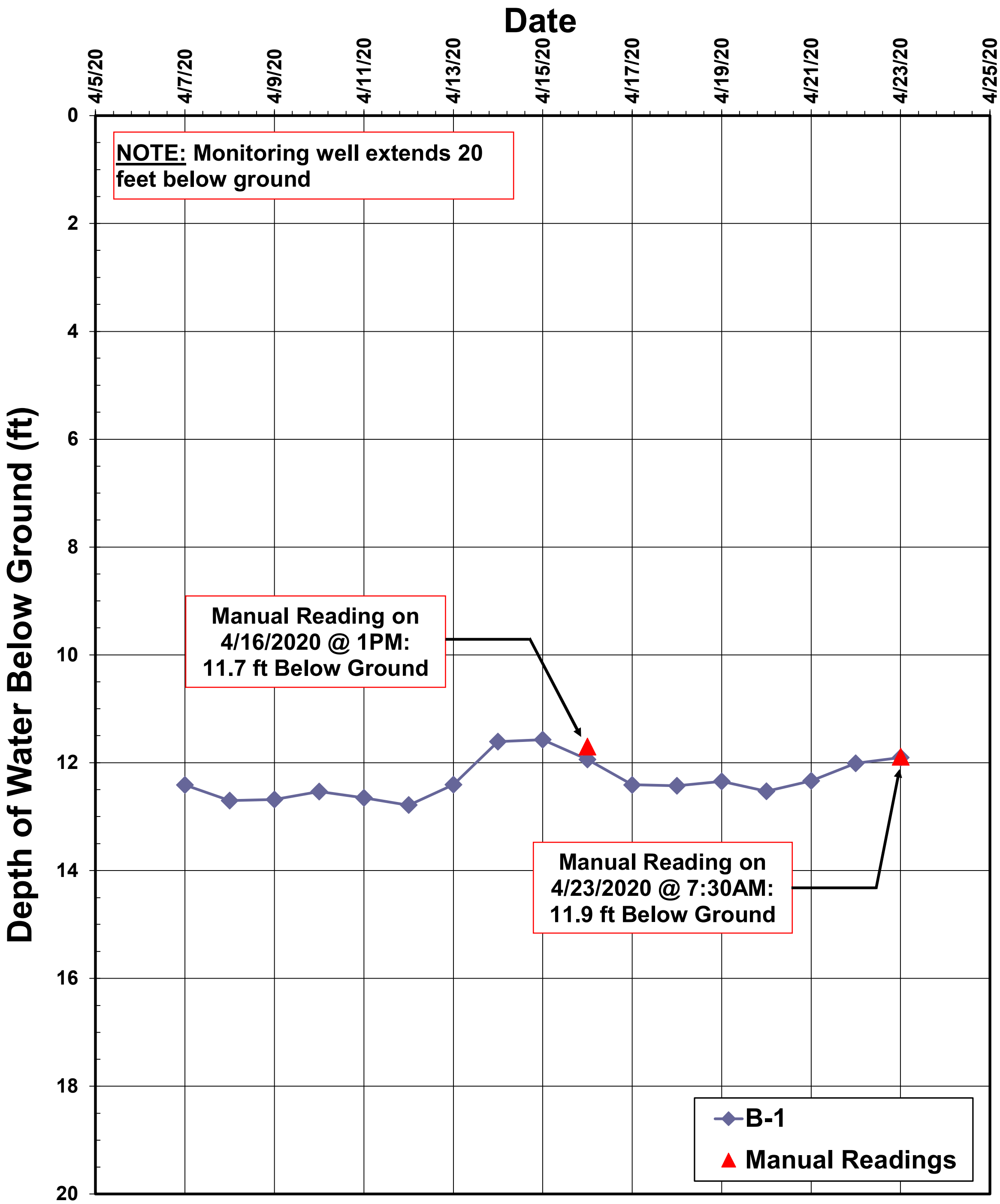
BLOCK: LOT: ZONE: MAP:

BORING AND TEST PIT LOCATION PLAN

PROFESSIONAL ENGINEER

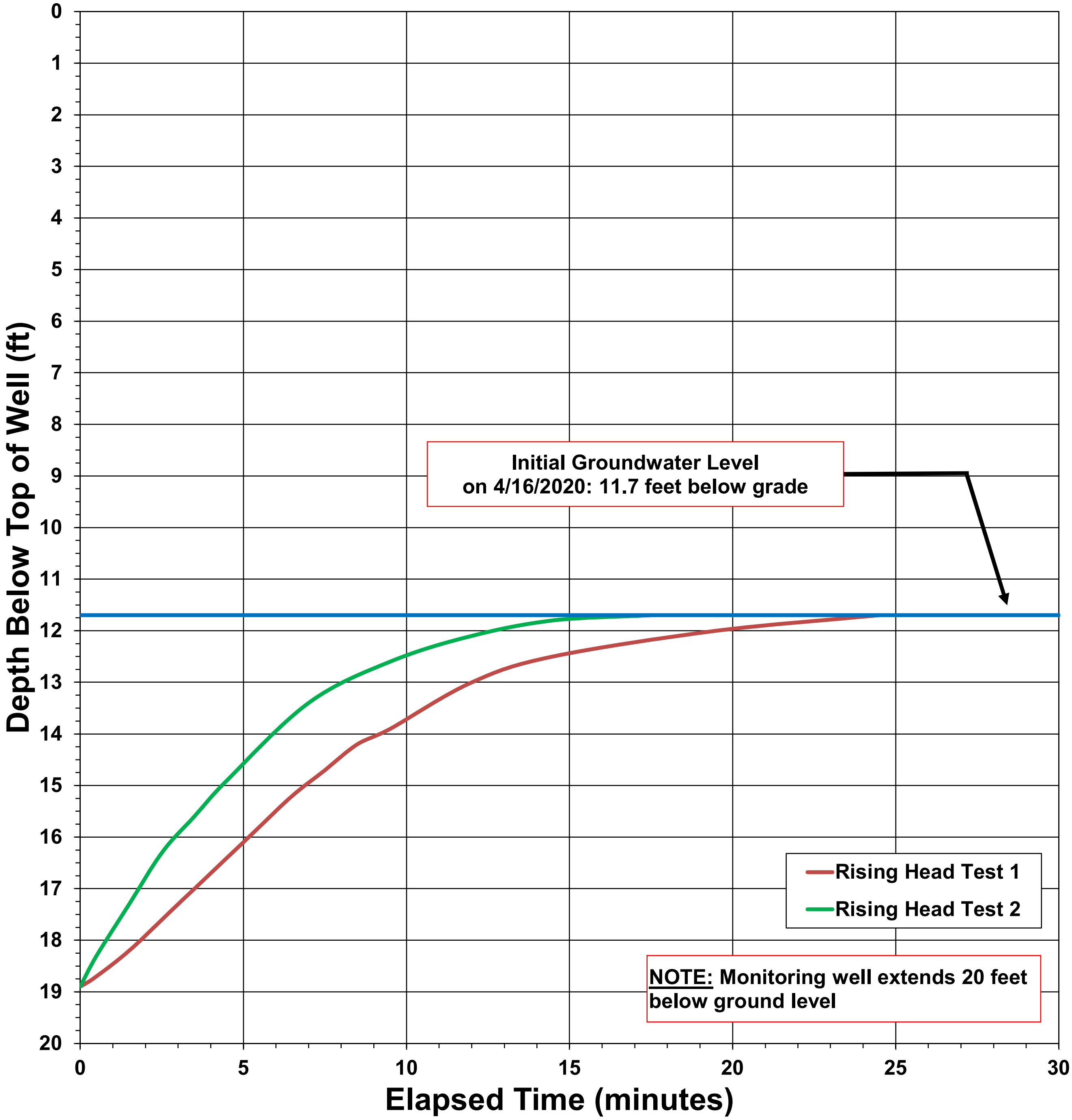
PROJECT #:	2020024
SCALE:	NTS
DATE:	04/21/2020
DRAWING NO:	B-100.00
SHEET NO:	1 OF 1

Osborn Elementary School
Groundwater Levels



Water Level Readings Boring B-1 Osborn Elementary School Rye, NY 10580		
GES, P.C. Elmsford, New York		
DRAWN BY: MT	SCALE: AS SHOWN	PROJ NO: 2020024
CHECKED BY: ZHM	DATE: 4/23/2020	FIGURE NO: 2

Osborn Elementary School
Rising Head Infiltration Plots



Rising Head Infiltration Plots Boring B-1 Osborn Elementary School Rye, NY 10580		
GES, P.C. Elmsford, New York		
DRAWN BY: MT	**SCALE:** AS SHOWN	**PROJ NO:** 2020024
CHECKED BY: ZHM	**DATE:** 4/17/2020	**FIGURE NO:** 3

APPENDIX A

Log of Boring B-1

Project: Osborn Elementary School				**Project Number: 2020024**	
Location: 10 Osborn Road, Rye, NY					
Date(s) Drilled	**4/6/20 - 4/6/20**	Inspector	**Aflaaz Saleem**	Coordinates	**North:** **East:**
Drilling Agency	**MTL**	Foreman	**Dave Johnson**	Approximate Surface Elevation (feet)	**NA**
Drilling Equipment	**Fordia EMCI 300**	Drilling Method	**Mud Rotary**	Completion Depth (feet) **20.1**	Rock Depth (feet) **NA**
Casing Size/Type	**4" Steel**	Size/Type of Bit	**3-7/8" Roller Bit**	Sampler Type(s)	**2" Split Spoon**
Groundwater Level and Date Measured	**NA** **NA**	Hammer Wt/Drop **140/30" (Auto)**	Casing Hammer Wt/Drop **140/30" (Auto)**	Size/Type of Core Barrel	**NA**
Boring Location	**See Boring Location Plan (Figure 1)**			No. of Samples	**Dist.: 7 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
0	HA-1							FILL: Brown silty medium to fine Sand, some Gravel, trace Asphalt fragments, Silt.					Hand auger to 4 ft. Sample HA-1: Moist
5	S-1	1.7	10 13 15 21					Brown medium to fine Sand, some Gravel, trace Silt.					Sample S-1: Moist
	S-2	1.6	16 16 24 29					Brown medium to fine Sand, some Gravel, Brick fragments, trace Silt.					Sample S-2: Moist
	S-3	1.5	6 10 14 14					NATURAL: Brown Silty medium to fine Sand, some Gravel. (SM)					Cased to 5 ft. Sample S-3: Wet
10	S-4	1.2	12 14 22 36					Brown medium to fine Sand, some Gravel, trace Mica. (SP)					Sample S-4: Wet
15	S-5	0.9	50 50 50/0"					Dark brown and gray micaceous coarse to fine Sand, some Gravel, decomposed Rock fragments. (SP-GP)					Sample S-5: Wet Spoon refusal at 16 ft.
20													

Template: GENERAL GES LOGO Proj ID: RYE OSBORN SCHOOL.GPJ

Log of Boring B-1

Project: Osborn Elementary School | **Project Number: 2020024**

Location: 10 Osborn Road, Rye, NY

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
20	S-6	0.1	50/1"					Brown gray medium to fine Sand. (SP)					Sample S-6: Wet Decomposed Rock fragments.
								Boring completed at 20.1 ft. 20 ft. PVC Well Installed. 10 ft. Screen. 10 ft. Riser. Electronic Piezometer Installed on 04/07/20					
25													
30													
35													
40													

Template: GENERAL GES LOGO Proj ID: RYE OSBORN SCHOOL.GPJ

Log of Boring B-2

Project: Osborn Elementary School	**Project Number: 2020024**
Location: 10 Osborn Road, Rye, NY	

Date(s) Drilled	**4/7/20 - 4/7/20**	Inspector	**Aflaaz Saleem**	Coordinates	**North:** **East:**
Drilling Agency	**MTL**	Foreman	**Dave Johnson**	Approximate Surface Elevation (feet)	**NA**
Drilling Equipment	**Fordia EMCI 300**	Drilling Method	**Mud Rotary**	Completion Depth (feet) **18.1**	Rock Depth (feet) **NA**
Casing Size/Type	**4" Steel**	Size/Type of Bit	**3-7/8" Roller Bit**	Sampler Type(s)	**2" Split Spoon**
Groundwater Level and Date Measured	**NA** **NA**	Hammer Wt/Drop **140/30" (Auto)**	Casing Hammer Wt/Drop **140/30" (Auto)**	Size/Type of Core Barrel	**NA**
Boring Location	**See Boring Location Plan (Figure 1)**			No. of Samples	**Dist.: 9 Undist.: 0 Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
0	HA-1							FILL: Brown medium to fine Sand, some Gravel, trace Silt, root fragments.					Hand auger to 4 ft. Sample HA-1: Moist
5	S-1	1.8	11 12 12 13					Dark brown medium to fine Sand, some Gravel, trace Silt, Brick fragments.					Sample S-1: Moist
	S-2	1.5	16 24 25 29					Brown coarse to fine Sand, some medium Gravel, Silt.					Sample S-2: Moist
	S-3	1.4	7 44 17 37					NATURAL: Brown coarse to fine Sand, some Gravel, trace Silt. (SP)					Cased to 5 ft. Sample S-3: Moist
10	S-4	1.2	6 13 42 24					Brown coarse to fine silty Sand. (SM)		23	9	15	Sample S-4: Moist
	S-5	0.9	43 50/4"					Gray coarse to fine Sand, some coarse Gravel, trace Silt. (SP)					Sample S-5: Wet
15	S-6	0.2	50/2"					Gray coarse to fine Sand, some Gravel, trace Silt. (SP-GP)					Sample S-6: Wet
	S-7	0.1	50/2"					Same as above. (SP-GP)					Samples S-6, S-7, S-8: Decomposed rock fragments. Sample S-7: Wet
20	S-8	0.1	50/2"					Same as above. (SP-GP) Boring completed at 18.1 ft. Backfilled with soil cuttings mixed with grout upon completion.					Sample S-8: Wet

Template: GENERAL GES LOGO Proj ID: RYE OSBORN SCHOOL.GPJ

Log of Boring B-3

Project: Osborn Elementary School				**Project Number: 2020024**	
Location: 10 Osborn Road, Rye, NY					
Date(s) Drilled	**4/7/20 - 4/7/20**	Inspector	**Aflaaz Saleem**	Coordinates	**North:** **East:**
Drilling Agency	**MTL**	Foreman	**Dave Johnson**	Approximate Surface Elevation (feet)	**NA**
Drilling Equipment	**Fordia EMCI 300**	Drilling Method	**Mud Rotary**	Completion Depth (feet) **26.6**	Rock Depth (feet) **NA**
Casing Size/Type	**4" Steel**	Size/Type of Bit	**3-7/8" Roller Bit**	Sampler Type(s)	**2" Split Spoon**
Groundwater Level and Date Measured	**NA** **NA**	Hammer Wt/Drop **140/30" (Auto)**	Casing Hammer Wt/Drop **140/30" (Auto)**	Size/Type of Core Barrel	**NA**
Boring Location	**See Boring Location Plan (Figure 1)**			No. of Samples	**Dist.: 8** **Undist.: 0** **Core (ft): 0**

Depth, feet	Soil Samples: Type, Number	Recov. (ft)	Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Recov. (%)	RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont. (%)	% Fines	REMARKS
0	HA-1							FILL: Brown medium to fine Sand, some Gravel, trace Silt.					Hand auger to 4 ft. Sample HA-1: Moist
5	S-1	1.4	10 11 15 40					Brown medium to fine Sand, some Gravel.					Sample S-1: Moist
	S-2	1.1	5 8 38 50/1"					NATURAL: Brown Silty medium to fine Sand, some medium Gravel (SM)			11	22	Cased to 5 ft. Sample S-2: Moist Spoon refusal at 7.9 ft.
	S-3	1.2	10 12 14 31					Brown medium to fine Sand, some Gravel. (SM)					Sample S-3: Moist
10	S-4	0.8	4 4 14 40					Gray medium to fine Sand and decomposed Rock fragments. (SP-GP)					Sample S-4: Moist
15	S-5	1.4	35 31 19 17					Same as above. (SP-GP)					Sample S-5: Wet
20													

Template: GENERAL GES LOGO Proj ID: RYE OSBORN SCHOOL.GPJ

Log of Boring B-3

Project: Osborn Elementary School	**Project Number:** 2020024
Location: 10 Osborn Road, Rye, NY	

Depth, feet	Soil Samples: Type, Number	Soil Samples: Recov. (ft)	Soil Samples: Pen. Resist. (blows/6 in)	Rock Coring: Run Number	Rock Coring: Recov. (%)	Rock Coring: RQD (%)	Graphic Log	DESCRIPTION	Liquid Limit	Plastic Limit	Water Cont.(%)	% Fines	REMARKS
20	S-6	0.2	50 50/2"					Same as above. (SP-GP)					Sample S-6: Wet Spoon refusal at 20.7 ft.
25	S-7	1.2	15 16 14 50/1"					Same as above. (SP-GP)					Sample S-7: Wet
								Boring completed at 26.6 ft. Backfilled with soil cuttings mixed with grout upon completion.					Spoon refusal at 26.6 ft.
30													
35													
40													

APPENDIX B

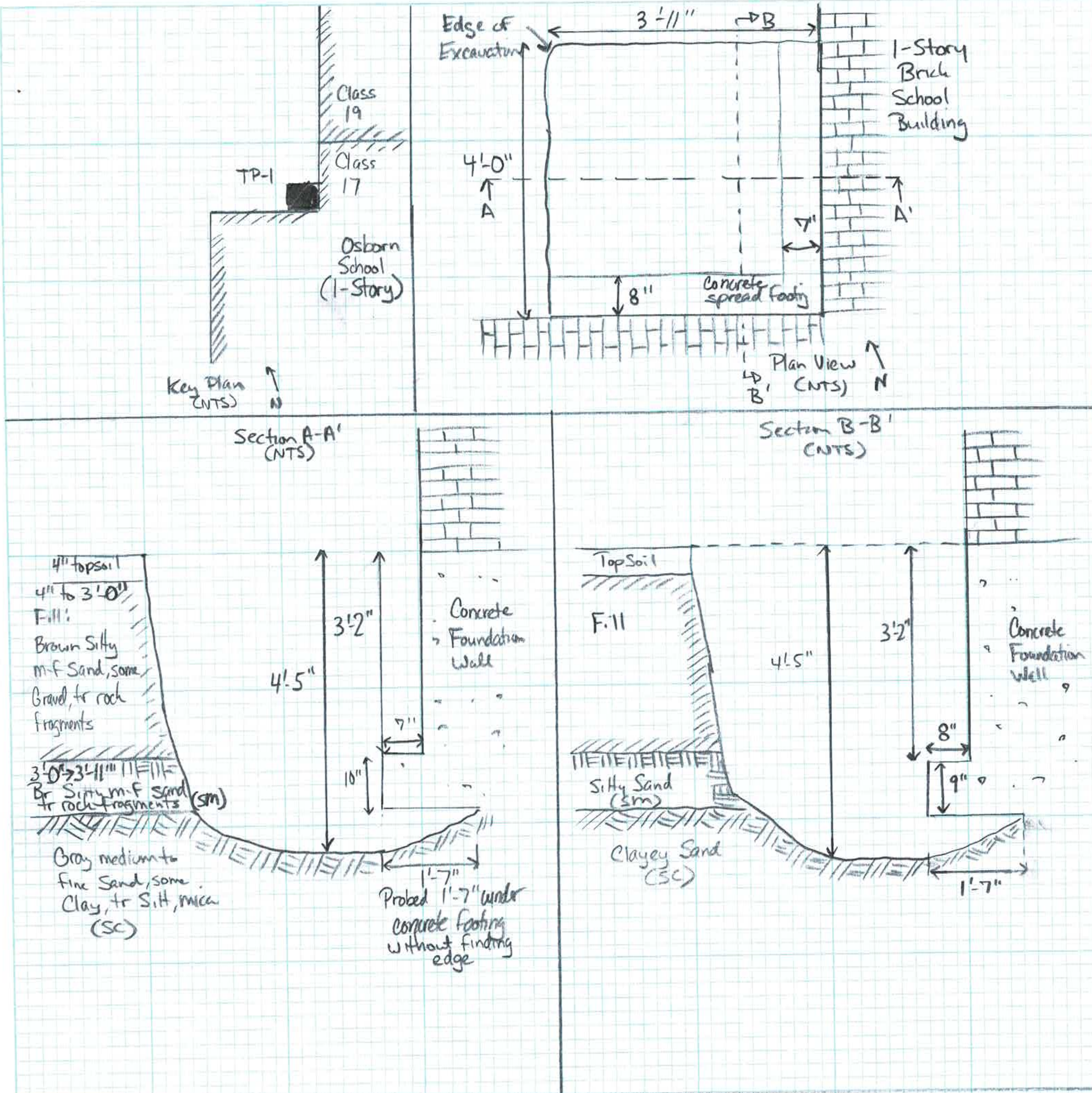
GES

Project Name / Project #: Osborn School 2020024

Description: Test Pit TP-1

Date: 4/9/2020 Page: 1 of 1

Engineer: MT Checked By: DJG



Notes
1. No groundwater or bedrock observed
2. Test Pit excavated by Municipal Testing Laboratories (MTL) using hand tools
3. All excavated material removed from site
4. All work performed April 3, 2020 under constant supervision by GES

APPENDIX C

GES Geotechnical Engineering Services, P.C.

TEST PIT PHOTO LOG

Client Name:	Site Location:	Project No.
Ms. Gabrielle O'Connor, Asst. Superintendent for Business Rye City School District 555 Theodore Fremd Ave, Suite B 101 Rye, NY 10580	Osborn Elementary School 10 Osborn Road Rye, New York	2020024

Photo No. 1

Date: 04-09-20

Direction:

Plan View
Facing East

Description:

TP-1

Bottom of stone footing 4'-0" below ground level

Bottom of concrete footing 3'-11" below ground level

Photo No. 2

Date: 04-09-20

Direction:

Facing South

Description:

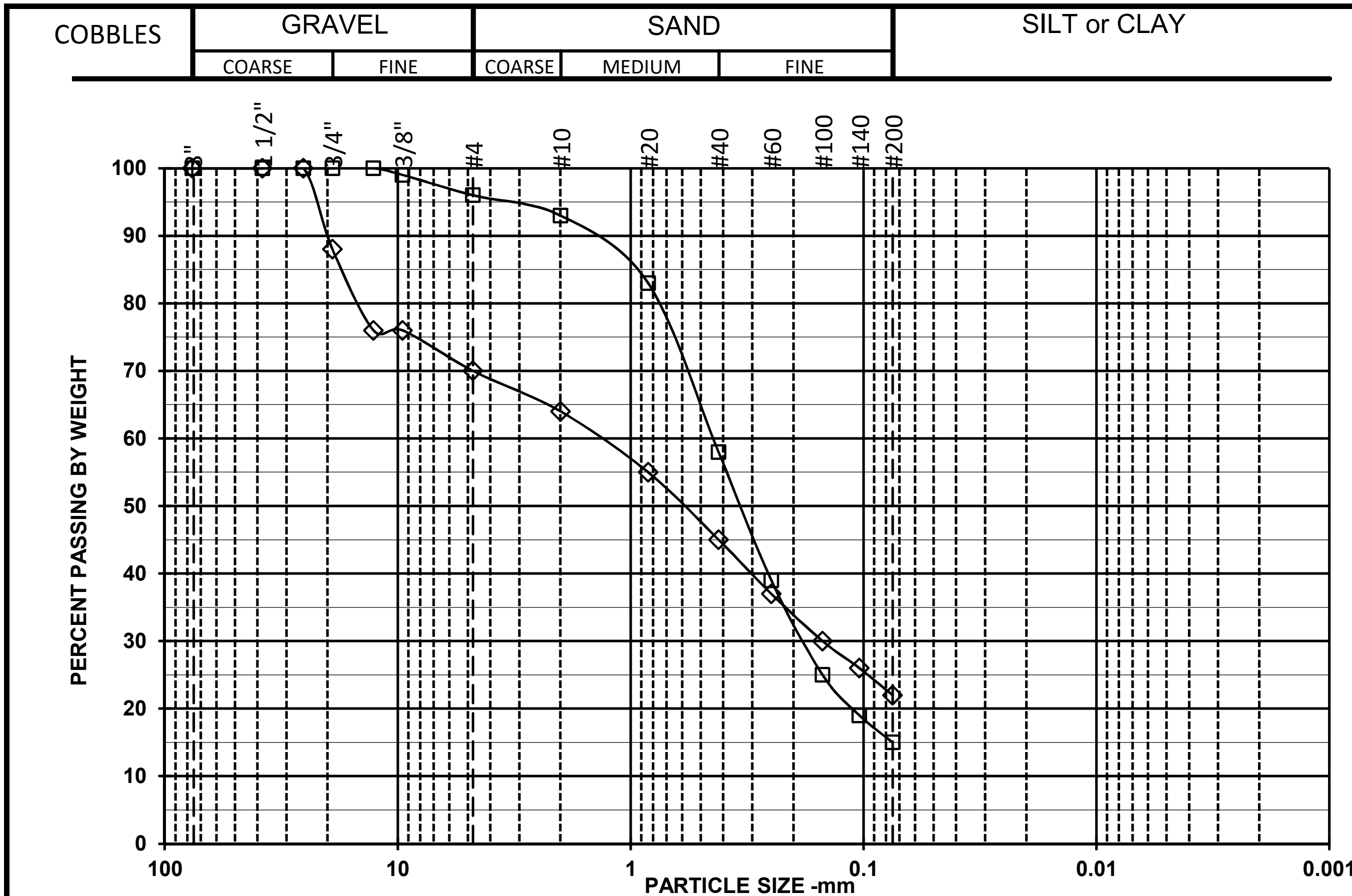
TP-1

APPENDIX D

GES, P.C.
Osborn School - Rye, NY
LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS						REMARKS
			WATER CONTENT (%)	LIQUID LIMIT (-)	PLASTIC LIMIT (-)	PLAS. INDEX (-)	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	
B-2	S-4	10-12	8.6	-	23	NP	SM	15	
B-3	S-2	6-8	10.5				SM	22	

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.



Open Symbols: Sieve analysis by ASTM D6913
Filled symbols: Hydrometer analysis by ASTM D7928 corrected for complete sample

Symbol	□	◇	○
Boring	B-2	B-3	
Sample	S-4	S-2	
Depth	10-12	6-8	
% +3"	0	0	
% Gravel	4	30	
% SAND	81	48	
%C SAND	3	6	
%M SAND	35	19	
%F SAND	43	23	
% FINES	15	22	
D_{100} (mm)	12.7	25.4	
D_{60} (mm)	0.443	1.36	
D_{30} (mm)	0.18	0.15	
D_{10} (mm)			
Cc			
Cu			

Sieve Size/ID #	Percent Finer Data		
6"	100	100	
4"	100	100	
3"	100	100	
1 1/2"	100	100	
1"	100	100	
3/4"	100	88	
1/2"	100	76	
3/8"	99	76	
#4	96	70	
#10	93	64	
#20	83	55	
#40	58	45	
#60	39	37	
#100	25	30	
#140	19	26	
#200	15	22	
5µ m			
2µ m			
1µ m			

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	8.6		23	NP	SM		Brown, Silty sand	04/10/20
◇	10.5				SM		Brown, Silty sand with gravel	04/10/20
○								

GES, P.C.

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