Appendix E
PRELIMINARY
STORMWATER POLLUTION PREVENTION PLAN
(SWPPP)

INSITE
ENGINEERING, SURVEYING &
LANDSCAPE ARCHITECTURE, P.C.

PRELIMINARY STORMWATER POLLUTION PREVENTION PLAN

For

Brewster Yards

Pugsley Road

Town of Southeast, New York

March 23, 2022

Owner Information:

Town of Southeast
1360 Route 22
Brewster, NY 10509

Applicant Information:

ProSwing Sports Realty, Inc.
27 Radio Circle Drive
Mount Kisco, NY 10590

Note: This report in conjunction with the project plans make up the complete Preliminary Stormwater Pollution Prevention Plan.

Prepared by:
Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

CONTENTS

1.0 INTRODUCTION

1.1 Project Description:

The project is located on two (2) parcels totaling 153.5± acres on Pugsley Road in the Town of Southeast. The parcels are identified as Tax Map No. 45.-1-10 and 45.1-11. The parcels are located in the Rural Community (RC) zone. The project site is bordered by Interstate-84 to the east and Pugsley Road and Fields Corner Road to the west with Barrett Road running east and west between the two parcels. The project proposes to develop the two parcels with the following:

- 4 Baseball Fields
- 1 Showcase Field
- 4 Little League Fields
- 1 Multi-Sport Fields
- 3 Batting Cage Facilities
- 3 Concession/Restroom Facilities
- 2 Concession Facilities
- 35,000 s.f. Indoor Facility
- Parking Areas (449 Parking Spaces, 8 Bus Parking Spaces)
- 1 Playground

The site is currently undeveloped and consists mainly of wooded areas. The two parcels consist of areas of steep slopes, Town of Southeast ridgeline protection and a NYSDEC regulated wetland, LC-28. The project site is located in the Middle Branch Watershed. The following permits are required for the project:

TOWN OF SOUTHEAST
Planning Board Site Plan and Lot Line Adjustment Approval
Wetland Permit
PUTNAM COUNTY DEPARTMENT OF HEALTH
Septic and Well Approval
NEW YORK CITY DEPARTMENT OF ENVIROMENTAL PROTECTION
SWPPP Approval
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SWPPP General Permit Coverage (GP-0-20-001)
Freshwater Wetland Permit

There are no known enforcement actions, and no lawsuits or administrative proceedings, commenced against the applicant, or any principal affiliate of the applicant, for any alleged violations of law related to the applicant of the site, in the five years preceding this application.

1.2 Existing Site Conditions

The project site is located on two parcels on Pugsley Road in the Town of Southeast. .The parcels are bordered by Interstate 84 to the east and Pugsley Road and Fields Corner Road to the west with Barrett Road running east and west between the two parcels. Land cover at the site consists of mainly forested areas. An existing NYSDEC wetland, LC-28 is located on the southern portion of the site. The site also consists of areas of steep slopes and Town of Southeast protected ridgeline on the northern end of the site. Stormwater runoff across the project site generally flows from north to south from the protected ridgeline area to the NYSDEC wetland. Two Design Lines will be utilized to analyze the stormwater runoff both qualitatively and quantitatively and the impact to the existing natural resources on the project site. Design Line 1 is located along the northern property line and will be used to analyze the stormwater runoff that leaves the project site to the north. Design Line 2 is located along the onsite NYSDEC wetland.

The hydrologic soils groups for the project consists of “B”, “C”, and “D”. The designations of the onsite soils located within the proposed limits of disturbance consist of Catden Muck (Ce), Charlton Fine Sandy Loam (ChB), Charlton-Chatfield Complex (CrC), Chatfield-Charlton Complex (CsD), Chatfield-Hollis-Rock Outcrop Complex (CtC), Hollis-Rock Outcrop Complex (HrF), Leicester Loam

(LcB), Natchaug Muck (NcA), Paxton Fine Sandy Loam (PnB), Ridgebury Complex (RdB), Sun Loam (Sh), Sutton Loam (SuB), Udorthents (Ub), and Woodbridge Loam (WdB), as identified on the Soil Conservation Service Web Soil Survey.

1.3 Proposed Site Conditions

As noted above the proposed project site will be developed with multiple baseball fields, little league fields and multi-use sports fields. The development will also include the construction of a 35,000± square foot indoor facility, restroom and concession buildings, parking areas and associated pedestrian walkways. Access to the project site will be provided from Pugsley Road. In addition to the buildings, parking areas, walkways and playing fields, improvements will include water, sewer, and stormwater infrastructure.

Onsite runoff will be captured and treated in multiple stormwater infiltration basins. Pretreatment for the proposed stormwater infiltration basins shall be provided by extended detention dry sediment basins upstream of the infiltration basins. A flowsplitter will be design upstream of the infiltration basins to send the water quality volume to the downstream practice while bypassing the larger storms. The infiltration basins are proposed to to meet the RR_v and Water Quality Volume (WQ_v) requirements of the *New York State Stormwater Management Design Manual* (Design Manual).

With respect to runoff volume, the project SWPPP will need to satisfy the RR_V requirements of Design Manual. These requirements are intended to replicate pre-development hydrology through the implementation of infiltration practices. In order to replicate pre-development hydrology to the maximum extent practicable, it is proposed to minimize the creation of impervious surfaces, and utilize infiltration to reduce 100% of the required RR_v, if practical.

The NYCDEP Rules and Regulations encourage the use of infiltration practices "to minimize loss of annual recharge to groundwater by maximizing the use of stormwater infiltration practices where suitable soil conditions exist". Consistent with the Rules and Regulations, infiltration practices have been proposed to treat stormwater runoff from the proposed impervious surfaces.

On-site soil testing witnessed by the New York City Department of Environmental Protection (NYCDEP) has been performed to verify the soils in the location of the proposed SMP's are adequate to support the design requirements for infiltration practices as stated in the Design Manual.

2.0 STORMWATER MANAGEMENT

The proposed stormwater management system for the proposed project has been designed to meet the requirements of local, regional, and state stormwater ordinances and guidelines, including but not limited to those of the Town of Southeast, the NYSDEC, and the NYCDEP. Specifically, the following codes / regulations have been used to design this SWPPP:

- *NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities, General Permit GP-0-20-001* (GP-0-20-001).
- *NYCDEP Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and its Sources* (Rules and Regulations).
- *Town of Southeast Town Code, Chapter 119 – Stormwater Management and Erosion and Sediment Control*.

Since the subject project proposes the disturbance of more than 1 acre, coverage under the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit No. GP-0-20-001 is required. In order to meet the requirements set forth by this permit, the latest edition of the NYSDEC *New York State Stormwater Management Design Manual* (Design Manual) was referenced for the design of the proposed stormwater management system. The Design Manual specifies five design criteria that are discussed in detail below. They are Runoff Reduction Volume (RR_v), Water Quality Volume (WQ_v), Stream Channel Protection Volume (CP_v), Overbank Flood Control (Q_f), and Extreme Storm Control (Q_p). The first two requirements relate to treating water quality, while the later pertain to stormwater quantity (peak flow) attenuation.

In order to meet the requirements set forth by GP-0-20-001, and the latest edition of the NYSDEC *New York State Stormwater Management Design Manual* (NYSSMDM), including the requirements listed in Chapter 10: *Enhanced Phosphorus Removal Standards* (Chapter 10) was referenced for the design of the proposed stormwater collection, conveyance and treatment system. The Design Manual specifies five design criteria that are discussed in detail below. They are Runoff Reduction Volume (RR_v), Water Quality Volume (WQ_v), Stream Channel Protection Volume (CP_v), Overbank Flood Control (Q_f), and Extreme Storm Control (Q_p). The first two requirements relate to treating water quality, while the later pertain to stormwater quantity (peak flow) attenuation.

With regard to NYCDEP requirements, Section 18-39 of the Rules and Regulations requires a SWPPP Approval for this project. This project meets three (3) of the thresholds that require SWPPP approval from the NYCDEP. For further discussion on NYCDEP requirements, refer to Section 2.6 below. However, it should be noted that in addition to the Design Manual requirements, two different SMP's are required to be placed in series when drainage areas to an SMP is over 20% impervious and infiltration cannot be provided. This project proposes the use of infiltration practices and as such meets this requirement.

Where WQv/RRv treatment is required, the following post construction green infrastructure and stormwater management practices are proposed for the project:

Table 2.0.1 – Proposed GIP/SMP Design Criteria Summary Table

GIP/SMP ID	Proposed Subcatchment	NYSSMDM Ch. 6 Design Designation	NYSDEC Uniform Stormwater Sizing Criteria Satisfied	NYCDEP Requirement Satisfied
1.3 IB	1.1S, 1.2S, 1.3S	I-2 Infiltration Basin	RRv, WQ_v, CP_v[1]	Only Practice Required to be Provided.
2.6 IB	2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S			
1.2 EDB	1.1S, 1.2S	Dry Extended Detention Basin	Q_p, Q_f	Pretreatment and Attenuation
1.4 EDB	1.4S			
2.2 EDB	2.1S, 2.2S			
2.5 EDB	2.3S, 2.4S, 2.5S			
2.7 EDB	2.7S			

[1] The infiltration practices achieve the CP_v requirement as they are designed to infiltration the 1-year storm as a result of Chapter 10 requirements.

To address stormwater quantity requirements of the NYSDEC, the "HydroCAD" Stormwater Modeling System," by HydroCAD Software Solutions LLC in Tamworth, New Hampshire, was used to model and assess the peak stormwater flows for the subject project. HydroCAD is a computer aided design program for modeling the hydrology and hydraulics of stormwater runoff. It is based primarily on hydrology techniques developed by the United States Department of Agriculture, Soil Conservation Service (USDA, SCS) TR-20 method combined with standard hydraulic calculations. Additionally, HydroCAD directly implements some of the key features of TR-55, such as curve-number lookup and calculating time-of-concentration. For details on the input data for the subcatchments and design storms, refer to Appendices A through C and for the supporting data relative to the soils breakdown within the overall contributing area shown in the HydroCAD analysis, see Figures 2 and 3 of this report:

The input requirements for the HydroCAD computer program are as follows:

Subcatchments (contributing watershed/sub-watersheds)

- Design storm rainfall in inches

- CN (runoff curve number) values which are based on soil type and land use/ground cover
- Tc (time of concentration) flow path information

Flow Splitters / Subsurface Infiltration System

- Surface area at appropriate elevations
- Flood elevation
- Outlet structure information

The following is a general description of the input data used to calculate the pre- and post-development stormwater runoff values. For detailed information for each subcatchment and practice, see Appendices B & C. The precipitation values for the 1-Year, 10-Year, 25-Year, & 100-Year 24-hour design storm events and rainfall distribution curves utilized for this report were obtained from the information provided by Northeast Regional Climate Center(NRCC) and the Natural Resources Conservation Service(NRCS) which is available online at *www.precip.eas.cornell.edu*. The values provided for all design storms analyzed are listed below.

Design Storm	**24-Hour Rainfall**
1-Year	2.76”
10-Year	4.94”
25-Year	6.21”
100-Year	8.77”

The CN (runoff curve number) values utilized in this report were referenced from the USDA, SCS publication *Urban Hydrology for Small Watersheds*.

2.1 Chapter 10: Enhanced Phosphorus Removal Standards

As noted above, the New York City East of Hudson Watershed has been identified in the SPDES General Permit GP-0-20-001 as a watershed requiring compliance with the Enhanced Phosphorus Removal Standards when post-construction stormwater management practices are proposed. Chapter 10 establishes four goals to meet sizing performance standards:

- Goal 1: Reducing Runoff Volumes
- Goal 2: Effective Bypass Treatment
- Goal 3: Achieving Effluent Concentrations for Particulate Phosphorus
- Goal 4: Achieving Effluent Concentrations for Dissolved Phosphorus

In order to achieve the first goal, the site design shall,” assess the feasibility of hydrological source controls and reduce the total water quality volume by source control, implementation of green infrastructure, or standard SMP’s with RR_v capacity, according to the process defined in Chapters 3 and 4 of the Design Manual. Each plan must include a rationale for acceptance and rejection of the various controls.” A discussion on RR_v can be found in section 2.2 below. Based upon the results of onsite soil testing, the soils onsite in select areas are suitable for infiltration. Therefore, the use of infiltration practices (classified as Standard SMP’s with RRv capacity) has been maximized, specifically infiltration basins were selected to treat the stormwater runoff from the proposed impervious surfaces and satisfy RRv requirements. As such, Goal 1 has been achieved in this SWPPP.

Goal 2 cites that proposed stormwater management practices should achieve less than 15% effective treatment bypass of the long-term runoff volume. Chapter 10 further notes this goal is satisfied by capturing and treating the 1-year 24-hour design storm. The NYSDEC stormwater quality treatment practices proposed for this have been designed in accordance with Chapter 10 by utilizing the 1-yr, 24-hour design storm to generate the WQ_v / RR_v. As such, Goal 2 has been achieved in this SWPPP.

Achieving effluent concentrations for particulate phosphorus, Goal 3, is satisfied by achieving an 80% net removal of particulate phosphorus for a median influent concentration of 0.5mg/l. Chapter 10 states that through designing proposed SMP's in accordance with Section 10.4 this goal will be achieved. The proposed infiltration systems have been designed in accordance with Section 10.4.3 of Chapter 10 thus satisfying the requirements of this goal.

Goal 4, achieving effluent concentration for dissolved phosphorus, is achieved by obtaining a 60% net removal of dissolved phosphorus given a median influent concentration of 0.15mg/l. As with Goal 3, Goal 4 is achieved by designing the proposed SMP's in accordance with Section 10.4 of Chapter 10. As noted above the proposed infiltration system have been designed in accordance with section 10.4.3 of Chapter 10 thus satisfying the requirements of this goal.

Given the project's location within the NYC EOH Watershed, the stormwater design will be developed in accordance with Chapter 10 (Enhanced Phosphorus Removal Supplement) of the New York State Stormwater Management Design Manual (Design Manual) as well as NYCDEP Rules and Regulations. These enhanced design requirements require targeted practices which are larger and more efficient at the removal of phosphorus than standard practices. Per Design Manual Section 10.1.3 Treatment Performance Goals, (specifically goals 3 and 4), stormwater practices will be designed in accordance with Chapter 10 to meet the phosphorus removal goals. Specifically the stormwater practices provide a minimum of 80% net removal of particulate phosphorus and 60% net removal of dissolved phosphorus. Although design in accordance with enhanced stormwater design in accordance with Chapter 10 is required per NYSDEC standards, supplemental simple method phosphorus loading calculations will be provided to show the pre development phosphorus load is equivalent to the post development phosphorus load from the completed project. The calculations will support the basis of Chapter 10 of the Design Manual, in that stormwater practices designed in accordance with the enhanced phosphorus standards will meet regional goals of not increasing phosphorus from new development.

2.2 NYSDEC Runoff Reduction Volume (RR_v)

The Runoff Reduction Volume (RR_v) criterion is intended to replicate pre-development hydrology by maintaining preconstruction infiltration, peak flow runoff, discharge volume, as well as minimizing concentrated stormwater flow. As stated in Chapter 4 of the NYSSMDM, RR_v may be treated with standard stormwater management practices (SMP's) sized in accordance with the Chapter 4/6 requirements, or with green infrastructure practices (GIP's) sized in accordance with the requirements set forth for each practice in Chapter 5. This requirement has been achieved on the subject project providing an infiltration practice, designed as a SMP in accordance with the latest design standards. Runoff reduction is achieved when runoff from a percentage of the impervious area on the site is captured, routed through a SMP or a GIP, infiltrated to the ground, reused, reduced by evapotranspiration, and eventually removed from the stormwater discharge from the site. Through this implementation, the design of the underground infiltration system as a SMP with the runoff reduction capacity equal to 100% of the WQ_v the RRv requirements will be achieved.

Section 4.3 of the NYSSMDM states for sites that do not achieve runoff reduction to pre-construction condition must, at a minimum reduce a percentage of the runoff from impervious areas to be constructed on the site a minimum RR_v. The following equation can be used to determine the minimum runoff reduction volume:

The minimum runoff reduction volume shall be $RRv_{minimum} = \frac{(P)(R_v)(Ai)}{12}$

Where,

S	= Hydrologic Soil Group (HSG) Specific Reduction Factor
A*i*c	= Total Area of New Impervious Cover
A*i*	= Impervious cover targeted for Runoff Reduction
	= (S)(A*i*c)
Rv	= 0.95

For detailed calculations of the runoff reduction for the proposed stormwater infiltration system see Appendix A. Listed in Table 2.2.1 below is a summary of the NYSDEC compliant practice, and its satisfaction of the NYSDEC RRv requirements:

Table 2.2.1 Runoff Reduction Volume Summary

Subcatchments	RR_v *Required* = WQ_v (c.f.) From Appendix C	RR_v *Minimum* (c.f.) Calculated in Appendix A	NYSDEC Practice Designation	Allowable % of WQv provided to be applied towards RRv	Storage Volume Provided below System Outlet (c.f.) (From Appendix C)	RRv *Provided* (c.f.)
1.1S, 1.2S, 1.3S	84,768	10,279	I-2 Infiltration Basin	100%	85,280	84,768
2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S	98,881	25,651		100%	99,028	98,881

As shown in the table above the RRv *provided* in each of the subcatchments is greater than the RRv *minimum* and RRv *required* , therefore the RRv requirement has been met for the subject project.

2.3 NYSDEC Water Quality Volume (WQ_v)

The stormwater infiltration practices have been sized in accordance with Chapter 6 of the Design Manual, as it has been sized to capture and treat the entire water quality volume (WQ_v) from the proposed project. The subject project is located in the New York City Watershed, which is listed as a phosphorus-limited watershed per the NYSDEC regulations. Therefore the stormwater management practices have been designed in general accordance with the Enhanced Phosphorus Removal Supplement (Chapter 10) of the Design Manual. As outlined in Chapter 10, the treatment volume for the WQv is the runoff volume produced during the 1-year 24-hour design storm. See table 2.6.1 for a summary of the WQv that would be generated by the proposed project during the 1-year, 24-hour storm.

Table 2.2.1 above and table 2.3.1 below summarize the WQv treatment and Required Elements for the proposed infiltration practices, sized in accordance with Chapters 6 & 10 of the NYSSMDM for the proposed practice.

The infiltration practices have been sized to provide 100% storage of the water quality volume between the bottom of the practice and the outlet condition of the practice. By providing 100% storage of the WQv in the infiltration practices the water quality volume storage requirements set forth in the NYSSMDM have been met for the proposed system. By meeting the Water Quality Volume requirements through employment of the infiltration practices, the water quality objectives of the NYSDEC will be met.

Pretreatment for the proposed infiltration practices have been provided by Extended Detention Dry Pretreatment Basins upstream of the proposed infiltration basins (1.3 IB and 2.6 IB). The Extended Detention Pretreatment Basins (1.2 EDB, 2.2 EDB, and 2.5 EDB) have been sized to provide pretreatment of their respective water quality volumes. The basin 1.2EDB has been sized to provide storage of 25% of the WQv and basins 2.2EDB & 2.5 EDB have been sized to provide storage of 100% of the WQv as shown in Appendix C. Required storage of the WQv is provided below the weir in the outlet structure in the basins as shown in Table 2.3.1 below.

Table 2.3.1 Pretreatment Volume Summary

Subcatchments	WQ_v (c.f.) (From Appendix C)	Infiltration Rate (in/hr)	Required Minimum Pretreatment (%)	Minimum Pretreatment Volume (c.f.) (% of WQv)	Storage Volume Provided Below Overflow Weir (c.f.) (From Appendix C)
1.1S, 1.2S, 1.3S	84,768	0.5	25%	21,192	70,656
2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S	98,881	102*	100%	98,881	109,355

* A conservative rate of 20 in/hr was used for the purposes of simulating the exfiltration rate in HydroCAD.

2.4 NYSDEC Stream Channel Protection Volume, CP_v

The Stream Channel Protection (CP_v) criterion is intended to protect stream channels from erosion and is accomplished by the 24-hour extended detention of the center-of-mass of the one-year, 24-hour storm event. As noted in Table 2.1.1 the stormwater infiltration system has been designed with a storage volume greater than the volume of stormwater runoff from the 1-year storm. By providing a stormwater infiltration practice to fully infiltrate the volume of stormwater runoff from the 1-year, 24-hour design storm, the CP_v has been met for the project. Soil and infiltration testing was performed in the locations of the proposed stormwater management practices and witnessed by the NYCDEP. Testing results can be found on the Testing Plans (Figure 4 of this report). The test results verify the design requirements for infiltration practices set forth in the NYSSMDM. All infiltration rates in the areas of the proposed infiltration practice we equal to or exceeded the minimum 0.5 inches/hour requirement.

2.5 NYSDEC Overbank Flood Control, Q_p, and Extreme Storm Control, Q_f

The Overbank Flood Control (Q_p) requirement is intended to prevent an increase in the frequency and magnitude of out-of-bank flooding events generated by urban development. Overbank control requires storage to attenuate the post-development 10-year, 24-hour peak discharge to pre-development rates. The Extreme Flood Control (Q_f) requirement is intended to prevent the increased risk of flood damage from large storm events, maintain the boundaries of the pre-development 100-year flood plain, and protect the physical integrity of stormwater management practice. Extreme flood control requires storage to attenuate the post-development 100-year, 24-hour peak discharge to pre-development rates. As shown in Table 2.5.1 attenuation for both the 10-year 25-year and 100-year 24-hour storms has been provided thus satisfying the Q_p and Q_f requirements.

Table 2.5.1– Existing and Proposed Conditions Peak Flows

	24-HOUR DESIGN STORM PEAK FLOWS (c.f.s.)							
	1-YEAR		10-YEAR (Channel Protection Volume)		25-YEAR		100-YEAR (Extreme Flood Control)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Design Line 1	3.02	1.84	23.34	15.04	38.30	24.81	72.15	70.44
Design Line 2	2.94	4.46*	28.52	27.38	49.12	43.48	96.74	93.70

*The post development peak flow for the 1-year, 24 hour storm has no design criteria requiring mitigation as outlined in the NYSSMDM. A decrease in Tc path length and duration for the subcatchment outside the project area resulted in an increase in peek flow and a decrease in total runoff volume. Additionally, CPv criterion for the design line have been achieved through complete infiltration of the 1-year, 24-hour storm within the project area.

As shown in the above table the peak flows from the contributing areas to the design lines in the post development condition has been mitigated to below the existing condition levels, thus meeting the general requirements of the NYSDEC.

2.6 NYCDEP Requirements

As previously discussed the proposed project meets three (3) of the thresholds that require SWPPP approval from the NYCDEP per Section 18-39 of the Rules and Regulations. The project meets the following thresholds listed in Section 18-39(b)(4) that require NYCDEP SWPPP approval:

(i) Plans for development or sale of land that will result in the disturbance of five (5) or more acres of total land area.

(iii) Construction of a new industrial, institutional, municipal, commercial, or multi-family residential project that will result in the creation of an impervious surface totaling over 40,000 square feet in size.

(iv) A land clearing project, involving two or more acres, located at least in part within the limiting distance of 100 feet of a watercourse or wetland, or within the limiting distance of 300 feet of a reservoir, reservoir stem or controlled lake or on a slope exceeding 15 percent.

There is no proposed stormwater discharge from industrial activities for the proposed development. The proposed project does not include any new solid waste management facilities or alterations / modifications to existing facilities.

The Rules and Regulations parallel the requirements of the NYSDEC and the Town of Southeast, with the exception that two different NYSDEC standard SMP's are required in series when the drainage area to a SMP is greater than 20% impervious and an infiltration practice is not provided. Although there are subcatchments where the percent impervious exceeds 20% (as shown in Table 2.6.2 below), by providing infiltration practices, there is no need for two different NYSDEC standard SMP's in series for all subcatchments.

Per the Rules and Regulations, the stormwater treatment volume used shall be the greater of the runoff volume from the 1-year, 24-hour storm event or the volume generated by the 90% storm. The initial WQ_v from the 1-year storm event was discussed above. The following equation, per Chapter 4, was used to determine the water quality volume for the 90% storm event for the subcatchments.

The water quality volume shall be $WQ_v = \frac{(P)(R_v)(A) \times 43{,}560 \text{ (ac/s.f.)}}{12}$

Where,

WQ_{v90} = water quality volume (in c.f.)

P = 90% Rainfall Event Number (1.4 in)

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

A = site area in acres

Table 2.6.1 - Water Quality Volume Calculation Summary 90% Storm vs. 1-Year Storm Comparison

Subcatchments	P (in.)	R_v[1]	A[2] (ac.)	WQ_{v90} (c.f.)	WQ_v[3] 1-year (c.f.)
1.1S, 1.2S, 1.3S	1.4	0.20	17.9	18,194	84,768
2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S		0.39	20.5	40,631	98,881

[1] A minimum R_v of 0.2 will be used.
[2] Information regarding contributing areas for the 1-year 24-hour storm event is shown in Appendix C.
[3] Refer to Appendix C for 1-year 24-hour water quality volume calculation.

As shown in Table 2.6.1 above, the volume produced by the 1-year, 24-hour design storm for subcatchments is larger than the volume produced by the 90% storm. Therefore, the 1-year, 24-hour design storm volumes shall be used for the WQv sizing for all of the proposed stormwater management practices.

The following table summarizes the amount of proposed impervious surfaces for each subcatchment and shows the proposed stormwater management practice that will treat each sub-watershed:

Table 2.6.2 – Imperviousness of Tributary Areas & Stormwater Management Practice

Sub-Catchments	Total Area (acres)	Existing Impervious Surface Within Subcatchment	Proposed Impervious Surface Within Subcatchment	% Impervious Surface of Total Subcatchment Area	Proposed Stormwater Management Practice (SMP) Treatment Train[1]	
					RR_v/SMP 1	SMP 2 (A second practice in series is only provided when % impervious is greater than 20% and infiltration is not provided)
1.1S, 1.2S, 1.3S	17.9	0.0	3.0	17%	I-2, Infiltration Basin	Not Required
2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S	20.5	0.0	7.7	38%	I-2, Infiltration Basin	Not Required

[1] This table lists the standard SMP's used to treat the balance of the WQ_v / RR_v after the application of GIP's.

As shown in the above table, all the subcatchments where treatment is required are greater than 20% imperviousness. To satisfy the requirement for two practices in series, standard SMP's with RRv capacity or infiltration practices have been used as the GIP's for the project. By proposing infiltration practices for all subcatchments, per the NYSDEP requirements, a second stormwater management practice in series is not required.

3.0 STORMWATER CONVEYANCE SYSTEM

The stormwater collection and conveyance systems for the project will consist of catch basins and HDPE pipe. As required by the Design Manual and NYCDEP the pipe system will be sized to collect and convey at minimum the 10-year, 1-hour design storm using the Rational Method. The Rational Method is a standard method used by engineers to develop flow rates for sizing collection systems. The Rational Method calculates flows based on a one-hour design storm. The collection system has been sized to convey, at a minimum, the 10-year design storm.

4.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment control should be accomplished by four basic principles: diversion of clean water, containment of sediment, treatment of dirty water, and stabilization of disturbed areas. Diversion of clean water should be accomplished with swales. This diverted water should be safely conveyed around the construction area as necessary and discharged downstream of the disturbed areas. Sediment should be contained with the use of silt fence at the toe of disturbed slopes. Disturbed areas should be permanently stabilized within 7 days of final grading to limit the required length of time that the temporary facilities must be utilized. The owner will be responsible for the maintenance of the temporary erosion control facilities. Refer to the Project Drawings for further information on the implementation of the Erosion Control Plan and Construction Sequence.

4.1 Temporary Erosion and Sediment Control Facilities

Temporary erosion and sediment control facilities should be installed and maintained as required to reduce the impacts to off-site properties. The owner will be required to provide maintenance for the temporary erosion and sediment control facilities. In general, the following temporary methods and materials should be used to control erosion and sedimentation from the project site:

- Stabilized Construction Entrance
- Silt Fence Barriers
- Storm Drain Inlet Protection

- Temporary Soil Stabilization
- Temporary Sediment Trap

All temporary erosion control measures shall be maintained in accordance with the Erosion & Sediment Control Maintenance Schedule contained on the Project Drawings, and as discussed below.

A stabilized construction entrance should be installed at the site entrance as shown on the project plans. The design drawings will include details to guide the contractor in the construction of this entrance. The intent of the stabilized construction entrance is to prevent the "tracking" of soil from the site. Dust control should be accomplished with water sprinkling trucks if required. During dry periods, sprinkler trucks should wet all exposed earth surfaces as required to prevent the transport of air-borne particles to adjoining areas.

Siltation barriers constructed of geosynthetic filter cloth should be installed at the toe of all disturbed slopes. The intent of these barriers is to contain silt and sediment at the source and inhibit its transport by stormwater runoff. The siltation barriers will also help reduce the rate of runoff by creating filters through which the stormwater must pass. During construction, the siltation barriers shall be inspected weekly and after a rainfall event and shall be cleaned/replaced when needed.

Storm drain inlet protection in the form of stone drop inlet protection will be installed around all proposed inlets. The stone drop inlet protection will serve to filter stormwater runoff before it enters the collection system. Throughout construction the concrete drainage structures, associated piping and inlet protections shall be inspected weekly and after a rainfall event. These items shall be cleaned, repaired and/or replaced when needed.

The extended detention stormwater basins will act as temporary sediment traps during construction of the site. The stormwater runoff from disturbed areas will be directed to the sediment traps. These traps have been sized in accordance with the NYSSSESC, as shown in Appendix H of this report.

When land is exposed during development, the exposure shall be kept to the shortest practical period, but in no case more than 7 days. Temporary grass seed and mulch shall be applied to any construction area idle for two weeks. The temporary seeding and mulching shall be performed in accordance with the seeding notes illustrated on the project drawings. Disturbance shall be minimized in the areas required to perform construction. Upon completion of final grading topsoil, permanent seeding and mulch shall be applied in accordance with the project drawings.

The stormwater runoff will be managed by the temporary erosion and sediment control facilities during construction. As discussed in the construction sequences provided the project plans the stabilized construction entrance shall be installed at the site entrance and silt fence shall be installed along the down hill perimeter of where soil disturbing activities will occur containing sediment laden stormwater runoff on-site.

4.2 Permanent Erosion and Sediment Control Facilities

Permanent erosion and sediment control will be accomplished by diverting stormwater runoff from steep slopes, controlling/reducing stormwater runoff velocities and volumes, and vegetative and structural surface stabilization. All of the permanent facilities are relatively maintenance free and only require periodic inspections. The owner will provide maintenance for all the permanent erosion and sediment control facilities.

Rock outlet protection will be provided at the discharge end of all piped drainage systems, and will be sized in accordance with the Blue Book. The purpose of the rock outlet protection is to reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving downstream reach. The rock outlet protection shall be inspected for evidence of scour beneath the riprap and/or for any dislodged stones. Inspections of the rock outlet protection shall be performed during the inspections of the post-construction SMP's for the project.

Other than the paved or gravel surfaces, disturbed surfaces will be stabilized with vegetation within 10 days of final grading. Permanent seed mix and mulch shall be applied to idle areas to minimize the amount of exposed soil. Permanent seed mixtures are proposed for the project and illustrated on project drawings. Application rates for the seed and mulch are provided on the project

drawings. The vegetation will control stormwater runoff by preventing soil erosion, reducing runoff volume and velocities, and providing a filter medium. Permanent seeding should optimally be undertaken in the spring from March 21st through May 20th and in late summer from August 15th to October 15th.

5.0 IMPLEMENTATION, MAINTENANCE & GENERAL HOUSEKEEPING

5.1 Construction Phase

Details associated with the implementation and maintenance of the proposed stormwater facilities and erosion control measures during construction are shown on the project drawings. Soil disturbance for the proposed project will be phased so it will not exceed five acres at one time. The erosion control plan will include associated details and notes to aid the contractor in implementing the plan.

During construction, a Site Log Book, Appendix D, is required to be kept per NYSDEC SPDES General Permit GP-0-20-001. Erosion and sediment control inspections are required to be conducted as necessary under coverage of the permit. The erosion and sediment control inspections must be performed daily by a trained contractor and the two (2) weekly inspection performed by a qualified inspector shall be performed on days separated by two (2) full calendar days. The owner or operator must begin implementing corrective actions within one business day and complete the corrective actions in a reasonable time frame. An updated logbook and a copy of the SWPPP is required to be kept on site for the duration of the construction activities. The Construction Site Log Book is an appendix taken from the *New York Standards and Specifications for Erosion and Sediment Control* (Blue Book).

In addition to the proposed erosion and sediment control facilities, the following good housekeeping best management practices shall be implemented to mitigate potential pollution during the construction phase of the project. The general contractor overseeing the day-to-day site operation shall be responsible for the good housekeeping best management practices included in the following general categories:

- Material Handling and Waste Management
- Establishment of Staging Areas
- Establishment of Washout Areas
- Proper Equipment Fueling and Maintenance Practices
- Spill Prevention and Control Plan

All construction waste materials shall be collected and removed from the site regularly by the general contractor. The general contractor shall supply waste barrels for proper disposal of waste materials. All personnel working on the site shall be instructed of the proper procedures for construction waste disposal.

Although it is not anticipated any hazardous waste materials will be utilized during construction, any hazardous waste materials shall be disposed of in accordance with federal, state, and local regulations. No hazardous waste shall be disposed of on-site. Hazardous waste materials shall be stored in appropriate and clearly marked containers and segregated from the other non-waste materials. All hazardous waste shall be stored in a structurally sound and sealed shipping containers located in the staging areas. Material safety data sheets, material inventory, and emergency contact numbers will be maintained in the office trailer. All personnel working on the site shall be instructed of the proper procedures for hazardous waste disposal.

Temporary sanitary facilities (portable toilets) shall be provided on site during the entire length of construction. The sanitary facilities shall be located in the project staging area, or in an alternate area away from the construction activities on the site. The portable toilets shall be inspected weekly for evidence of leaking holding tanks.

All recyclables, including wood pallets, cardboard boxes, and all other recyclable construction scraps shall be disposed of in a designated recycling barrel provided by the contractor and removed from the site regularly. All personnel working on the site shall be instructed of the proper procedures for construction waste recycling.

All construction equipment and maintenance materials shall be stored in a construction staging area. Silt fence shall be installed down gradient of the construction staging area. Shipping containers shall be utilized to store hand tools, small parts, and other construction materials, not taken off site daily. Construction waste barrels, recycling barrels and if necessary hazardous waste containers shall be located within the limits of the construction staging area.

Throughout the construction of the project several types of vehicles and equipment will be used on-site. Fueling of the equipment shall occur within the limits of the construction staging area. Fuel will be delivered to the site as needed, by the general contractor, or a party chosen by the general contractor. Only minor vehicle equipment maintenance shall occur on-site, all major maintenance shall be performed off-site. All equipment fluids generated from minor maintenance activities shall be disposed of into designated drums and stored in accordance with the hazardous waste storage as previously discussed.

Vehicles and equipment shall be inspected on each day of use. Any leak discovered shall be repaired immediately. All leaking equipment unable to be repaired shall be removed from the site. Ample supplies of absorbent, spill-cleanup materials, and spill kits shall be located in the construction staging area. All spills shall be cleaned up immediately upon discovery. Spent absorbent materials and rags shall be hauled off-site immediately after the spill is cleaned for disposal at a local landfill. All personnel working on the site shall be instructed of the proper procedures for spill prevention and control. Any spill large enough to discharge to surface water will be immediately reported to the local fire / police departments, NYCDEP, and the National Response Center 1-800-424-8802.

Vegetation should be inspected every 30 days and after every major storm event until established, after which inspections should take place on a quarterly basis and after every large storm event. Damaged areas should be immediately re-seeded and re-mulched.

5.2 Soil Restoration

Soil Restoration is required to be applied across areas of the development site where soils have been disturbed and will be vegetated. The purpose is to recover the original properties and porosity of the soil compacted during construction activity. Soil Restoration is applied in the cleanup, restoration, and landscaping phase of construction followed by the permanent establishment of an appropriate, deep-rooted groundcover to help maintain the restored soil structure. Soil restoration includes mechanical decompaction and compost amendment. The table below describes various soil disturbance activities related to land development, soil types and the requirements for soil restoration for each activity as identified in the Design Manual. Restoration is applied across areas of a development site where soils have been compacted and will be vegetated according to the criteria defined in the table below:

<table>
<tr><th colspan="4">Soil Restoration Requirements[1, 2,4]
(Onsite soils within the limit of disturbance belong to Hydrologic Soil Groups (HSG) A, B & D)</th></tr>
<tr><th>Type of Soil Disturbance</th><th colspan="2">Soil Restoration Requirement</th><th>Comments/Examples</th></tr>
<tr><td>No soil disturbance</td><td colspan="2">Restoration not permitted</td><td>Preservation of Natural Features</td></tr>
<tr><td>Minimal soil disturbance</td><td colspan="2">Restoration not required</td><td>Clearing and grubbing</td></tr>
<tr><td rowspan="2">Areas where topsoil is stripped only - no change in grade</td><td>HSG A & B</td><td>HSG C&D</td><td rowspan="2">Protect area from any ongoing construction activities.</td></tr>
<tr><td>Apply 6 inches of topsoil</td><td>Aerate[3] and apply 6 inches of topsoil</td></tr>
<tr><td rowspan="2">Areas of cut or fill</td><td>HSG A &B</td><td>HSG C&D</td><td rowspan="2"></td></tr>
<tr><td>Aerate[1] and apply 6 inches of topsoil</td><td>Apply full Soil Restoration [2]</td></tr>
</table>

Soil Restoration Requirements[1, 2,4] (Onsite soils within the limit of disturbance belong to Hydrologic Soil Groups (HSG) A, B & D)		
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5-foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost Enhancement[6])	
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.	Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area
Redevelopment projects	Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.	

1. Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.
2. Per "Deep Ripping and De-compaction, DEC 2008".
3. Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which functions like a mini-subsoiler.
4. During periods of relatively low to moderate subsoil moisture, the disturbed soils are returned to rough grade and the following Soil Restoration steps applied:
   - 5.1. Apply 3 inches of compost over subsoil.
   - 5.2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing, and circulating air and compost into subsoils.
   - 5.3. Rock-pick until uplifted stone/rock materials of four inches and larger size area cleaned off the site.
   - 5.4. Apply topsoil to a depth of 6 inches.
   - 5.5. Vegetate as required by seeding notes located on the project drawings.
   - 5.6. Tilling should not be performed within the drip line of any existing trees or over any utility installations that are within 24 inches of the surface.
   - 6. Compost shall be aged, from plant derived materials, free of viable weed seeds, have no visible free water or dust produced when handling, pass through a half inch screen and have a pH suitable to grow desired plants.

After soil restoration is completed, an inspector should be able to push a 3/8" metal bar twelve inches into the soil with just body weight. Following decompaction/soil restoration activities, the following maintenance is anticipated during the first year:

- Initial inspections for the first six months (once after each storm greater than a half-inch).
- Reseeding to repair bare or eroding areas to assure grass stabilization.
- Water once every three days for first month, and then provide a half inch of water per week during first year. Irrigation plan may be adjusted according to the rain event.
- Fertilization may be needed in the fall after the first growing season to increase plant vigor.

In order to ensure the soil remains decompacted the following ongoing maintenance is recommended:

- Planting the appropriate ground cover with deep roots to maintain the soil structure.
- Keeping the site free of vehicular and foot traffic or other weight loads. Consider pedestrian footpaths (sometimes it may be necessary to de-thatch the turf every few years).

5.3 Long Term Maintenance Plan

The stormwater facilities for the subject project have been designed to minimize the required maintenance. This section discusses the minimum maintenance requirements to insure long-term performance of the stormwater facilities. Initially the stormwater facilities will require an increased maintenance and inspection schedule until all portions of the site are stable. Generally the stormwater facilities consist of either collection and conveyance components or treatment components.

The owner will be responsible for the maintenance of the permanent erosion control and stormwater facilities. Each spring the paved areas should be cleaned to remove the winter's accumulation of traction sand. After this is completed, all catch basin sumps and pipes should be checked for debris and blockages and cleaned as required. During the cleaning process, the catch basins and pipes should be inspected for structural integrity and overall condition; repairs and/or replacement will be made as required.

Once the desired vegetative cover is established over the infiltration system, only limited maintenance is required. The infiltration system should be inspected after major storm events and semi-annually. During the inspections, the following should be checked:

- Evidence of clogging in the outlet structures / flow splitters.
- Drain down times exceeding 48 hours in the infiltration system and basins
- Adequacy of upstream/downstream channel erosion control measures.
- Sources of erosion in the contributory drainage, which should be stabilized

In addition to guidelines discussed above all maintenance requirements outlined in the Design Manual shall be followed. See Appendix G.

APPENDIX A
RR_v Calculations

APPENDIX B
Pre Development Computer Data

APPENDIX C
Post Development Computer Data

APPENDIX D

NYSDEC SPDES for Construction Activities Construction Site Log Book

APPENDIX E

Project and Owner Information

Site Data:

160 & 132 Pugsley Road
Town of Southeast, New York 10509
Area: 153.5 acres ±

Owner Information:

Town of Southeast
1360 Route 22
Brewster, NY 10509
845-279-4313
thay@southeast-ny.gov

Applicant Information:

ProSwing Sports Realty, Inc.
27 Radio Circle Drive
Mount Kisco, NY 10590
914-242-1626
Dan@proswingbaseball.com

Parties Responsible for Implementation of the Short and Long Term Maintenance Plan:

To Be Determined

Qualified Professional Responsible for Inspection of the Stormwater Pollution Prevention Plan:

Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512
845-225-9690

APPENDIX F
NYSDEC Stormwater Design Manual Chapter 5 Analysis

Table Key: ● = Practice Used in Accordance with Chapter 5 Requirements
o = Practice Not Used
- = Practice is Not Applicable

NYSDEC Chapter 5 Requirements	Remarks		
	Design Line 1	Design Line 2	
Practices			
Preservation of Undisturbed Areas	●	●	See Note #1
Preservation of Buffers	●	●	See Note #1
Reduction of Clearing & Grading	●	●	See Note #2
Locating Development in Less Sensitive Areas	●	●	See Note #1
Open Space Design	-		
Soil Restoration	●	●	See Note #3
Practices			
Roadway Reduction	●	●	See Note #2
Sidewalk Reduction	●	●	See Note #2
Driveway Reduction	-		
Cul-de-sac Reduction	-		
Building Footprint Reduction	-		
Parking Reduction	●	●	
Conservation of Natural Areas	●	●	See Note #1
Sheetflow to Riparian Buffers or Filter Strips	o		
Vegetated Swale	o		See Note #4
Tree Planting / Tree Pit	o		
Disconnection of Rooftop Runoff	o		
Stream Daylighting	o		
Rain Gardens	o		
Green Roofs	o		
Stormwater Planters	o		
Rain Barrels / Cisterns	o	o	See Note #4
Porous Pavement	o		See Note #4

Notes:

1. Although no formal calculations have been provided, the subject project has provided conservation of natural areas, development in less sensitive areas and preservation of buffers and undisturbed areas to the maximum extent practical.
2. The reduction in clearing and grading as well as the driveway and parking areas foot print reduction will be enforced with the approval of the project SWPPP. Notes on the project plans, establish that any changes in the project plans would require an amended approval from the necessary regulatory agencies.
3. Soil restoration notes have been provided on the project plans.
4. Two (2) infiltration practices have been designed as a standard stormwater management practice (SMP) and are proposed for treatment of the RRv and WQv from the proposed development.

APPENDIX G

NYSDEC Stormwater Management Practice Construction and Maintenance Checklists

APPENDIX H

Temporary Sediment Trap Sizing Calculations

3,600 CF minimum of storage required for each acre of contributing area

Sediment Trap #	Contributing Area (Acres)	Minimum Volume Required (cf)	Volume Provided (cf)
1.2	9.0	32,400	70,656
1.4	8.9	32,040	82,370
2.2	6.8	24,480	34,670
2.5	6.9	24,840	74,685
2.7	6.8	24,480	81,307

FIGURES

APPENDIX A
RR_v Calculations

RRv Calculation Worksheet - 1.1, 1.2, 1.3

Project: Brewster Yards
Project #: 19249.100
Date: 1/18/2022

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

1. RRv Initial = Water Quality Volume (WQv) *1.946 ac-ft* = *84,768 c.f.*
(refer to HydroCAD Subcatchments 1.1S for Water Quality Volume)

2. *RRv Minimum* = [(P) (Rv) (S) (Aic)] /12 where…

P = Rainfall (in.)	=	2.76	in.
Rv = 0.05 + 0.009 (100%)	=	0.95	
S = Hydrologic Soil Group Specific Reduction Factor	=	0.36	
[HSG A = 0.55] [HSG B = 0.40] [HSG C = 0.30] [HSG D = 0.20]			
Aic = Total area of new impervious cover	=	3.0	Acres
RRv Minimum	=	*10,279*	*c.f.*

3. *RRv Required* = RRv Initial - Green Infrastructure Practice (GIP) with Area Reduction

GIP with Area Reduction Applied in Project		
5.3.1 Conservation of Natural Area	N/A	
5.3.2 Sheet Flow to Riparian Buffers or Filter Strips	N/A	
5.3.4 Tree Planting / Tree Box		c.f.
5.3.5 Disconnection of Rooftop Runoff	-	
5.3.6 Stream Daylighting	N/A	
RRv Required(=WQv-RRV by area)(Refer to HydroCAD output in this Appendix) =	84,768	c.f.

4. *RRv Provided*

GIP with Volume Reduction Applied in Project	WQv Treated (c.f.)	% of WQv Applied to *RRv Provided*	*RRv Provided (c.f.)*
5.3.3 Vegetated Open Swales		20%	0
[HSG A / B = 20%] [HSG C / D = 10%] {Modified HSG C - D = 15% - 12%]		10%	0
5.3.7 Rain Garden		40%	0
[No underdrains / Good Soils = 100%] [With underdrains / Poor Soils = 40%]			
5.3.8 Green Roof		100%	0
[RRv provided equals volume provided in Green Roof]			
5.3.9 Stormwater Planters		45%	0
[Infiltration Planters = 100%] [Flow Through HSG C = 45%] [Flow Though HSG D = 30%]			
5.3.10 Rain Tank / Cisterns		100%	0
5.3.11 Porous Pavement		100%	0
Infiltration Practice (Standard SMP)	84,768	100%	84,768
Bioretention Practice (Standard SMP)		40%	0
[Without Underdrains HSG A/B = 80%] [With Underdrain HSG C\D = 40%]			
Dry Swale (Open Channel Practice) (Standard SMP)		20%	0
[HSG A/B = 40%] [HSG C/D = 20%]			
RRv Provided =			*84,768*

5. Summary

RRv Initial	=	84,768 c.f.	
RRv Required	=	84,768 c.f.	
RRv Minimum	=	10,279 c.f.	
RRv Provided	=	84,768 c.f.	
WQv Required for Downstream SMP	=	0 c.f.	(= RRv Required - RRv Provided)

Is RRv Provided greater than or equal to RRv Minimum? Yes

Refer to the " Analysis of Green Infrastructure Practices" contained in Appendix F for an explanation demonstrating the maximum RRv Provided has been achieved for the site.

RRv Calculation Worksheet - 2.1, 2.2, 2.3, 2.4, 2.5, 2.6

Project: Brewster Yards
Project #: 19249.100
Date: 1/18/2022

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

1. RRv Initial = Water Quality Volume (WQv) *2.270 ac-ft* = *98,881 c.f.*
(refer to HydroCAD Subcatchments 1.1S for Water Quality Volume)

2. *RRv Minimum* = [(P) (Rv) (S) (Aic)] /12 where…

P = Rainfall (in.)	=	2.76	in.
Rv = 0.05 + 0.009 (100%)	=	0.95	
S = Hydrologic Soil Group Specific Reduction Factor	=	0.35	
[HSG A = 0.55] [HSG B = 0.40] [HSG C = 0.30] [HSG D = 0.20]			
Aic = Total area of new impervious cover	=	7.7	Acres
RRv Minimum	=	*25,651*	*c.f.*

3. *RRv Required* = RRv Initial - Green Infrastructure Practice (GIP) with Area Reduction

GIP with Area Reduction Applied in Project		
5.3.1 Conservation of Natural Area	N/A	
5.3.2 Sheet Flow to Riparian Buffers or Filter Strips	N/A	
5.3.4 Tree Planting / Tree Box		c.f.
5.3.5 Disconnection of Rooftop Runoff	-	
5.3.6 Stream Daylighting	N/A	
RRv Required(=WQv-RRV by area)(Refer to HydroCAD output in this Appendix)	= 98,881	c.f.

4. *RRv Provided*

GIP with Volume Reduction Applied in Project	WQv Treated (c.f.)	% of WQv Applied to *RRv Provided*	*RRv Provided (c.f.)*
5.3.3 Vegetated Open Swales		20%	0
[HSG A / B = 20%] [HSG C / D = 10%] {Modified HSG C - D = 15% - 12%]		10%	0
5.3.7 Rain Garden		40%	0
[No underdrains / Good Soils = 100%] [With underdrains / Poor Soils = 40%]			
5.3.8 Green Roof		100%	0
[RRv provided equals volume provided in Green Roof]			
5.3.9 Stormwater Planters		45%	0
[Infiltration Planters = 100%] [Flow Through HSG C = 45%] [Flow Though HSG D = 30%]			
5.3.10 Rain Tank / Cisterns		100%	0
5.3.11 Porous Pavement		100%	0
Infiltration Practice (Standard SMP)	98,881	100%	98,881
Bioretention Practice (Standard SMP)		40%	0
[Without Underdrains HSG A/B = 80%] [With Underdrain HSG C\D = 40%]			
Dry Swale (Open Channel Practice) (Standard SMP)		20%	0
[HSG A/B = 40%] [HSG C/D = 20%]			
RRv Provided =			*98,881*

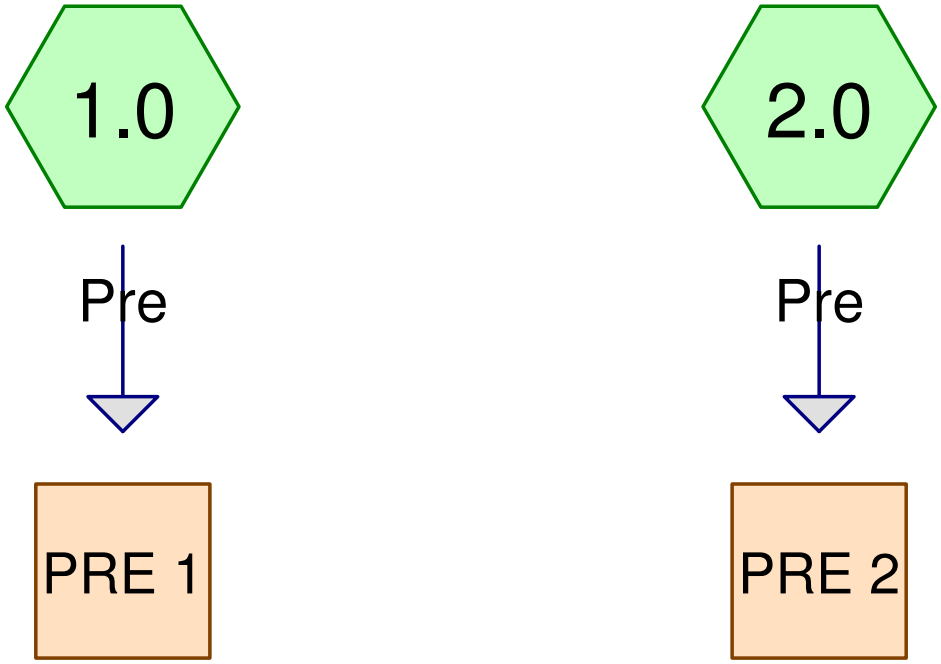
5. Summary

RRv Initial	=	98,881 c.f.	
RRv Required	=	98,881 c.f.	
RRv Minimum	=	25,651 c.f.	
RRv Provided	=	98,881 c.f.	
WQv Required for Downstream SMP	=	0 c.f.	(= RRv Required - RRv Provided)

Is RRv Provided greater than or equal to RRv Minimum? Yes

Refer to the " Analysis of Green Infrastructure Practices" contained in Appendix F for an explanation demonstrating the maximum RRv Provided has been achieved for the site.

APPENDIX B
Pre Development Computer Data



Subcat Reach Pond Link

Routing Diagram for Brewster Yards Pre

Prepared by Insite Engineering, Surveying & Landscape Architecture, P.C., Printed 3/1/2022

Summary for Subcatchment 1.0: Pre

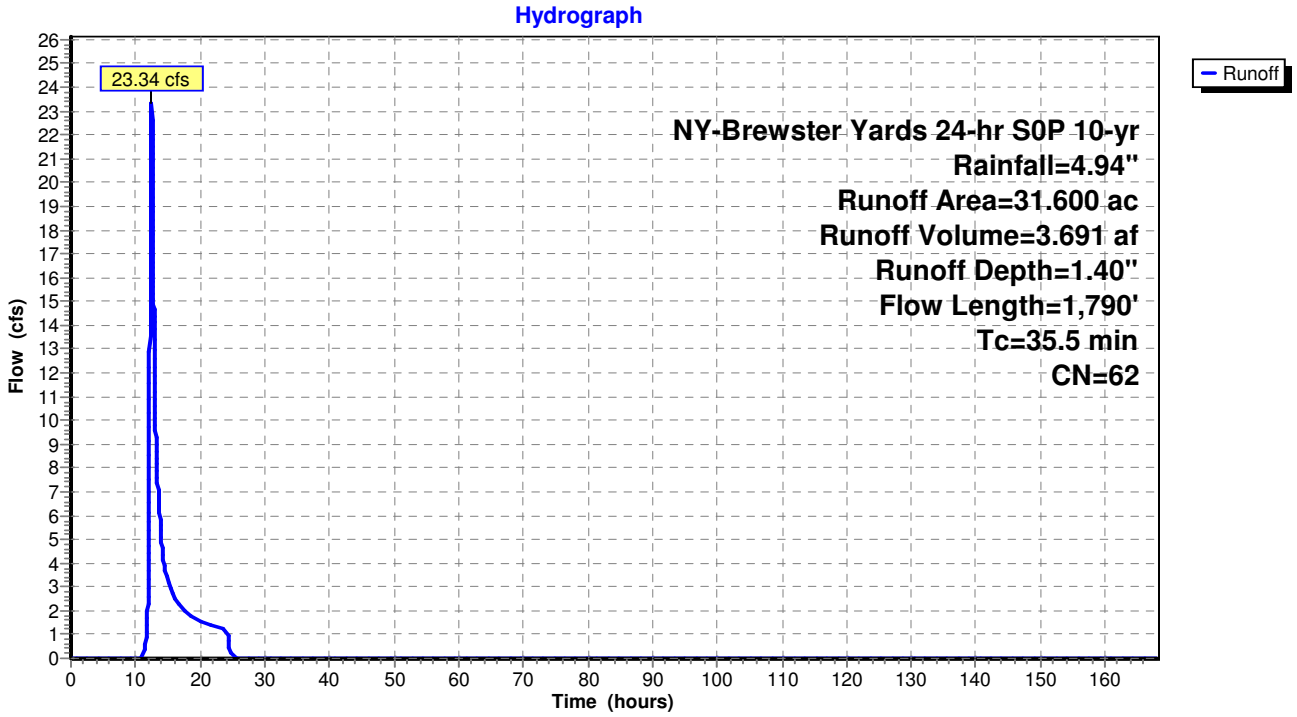
Runoff = 23.34 cfs @ 12.50 hrs, Volume= 3.691 af, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
16.900	55	Woods, Good, HSG B
14.500	70	Woods, Good, HSG C
0.200	77	Woods, Good, HSG D
31.600	62	Weighted Average
31.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
2.8	380	0.2020	2.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	655	0.0490	1.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	230	0.1830	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	280	0.1070	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	145	0.1100	4.39	21.97	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
35.5	1,790	Total			

Subcatchment 1.0: Pre



Summary for Subcatchment 2.0: Pre

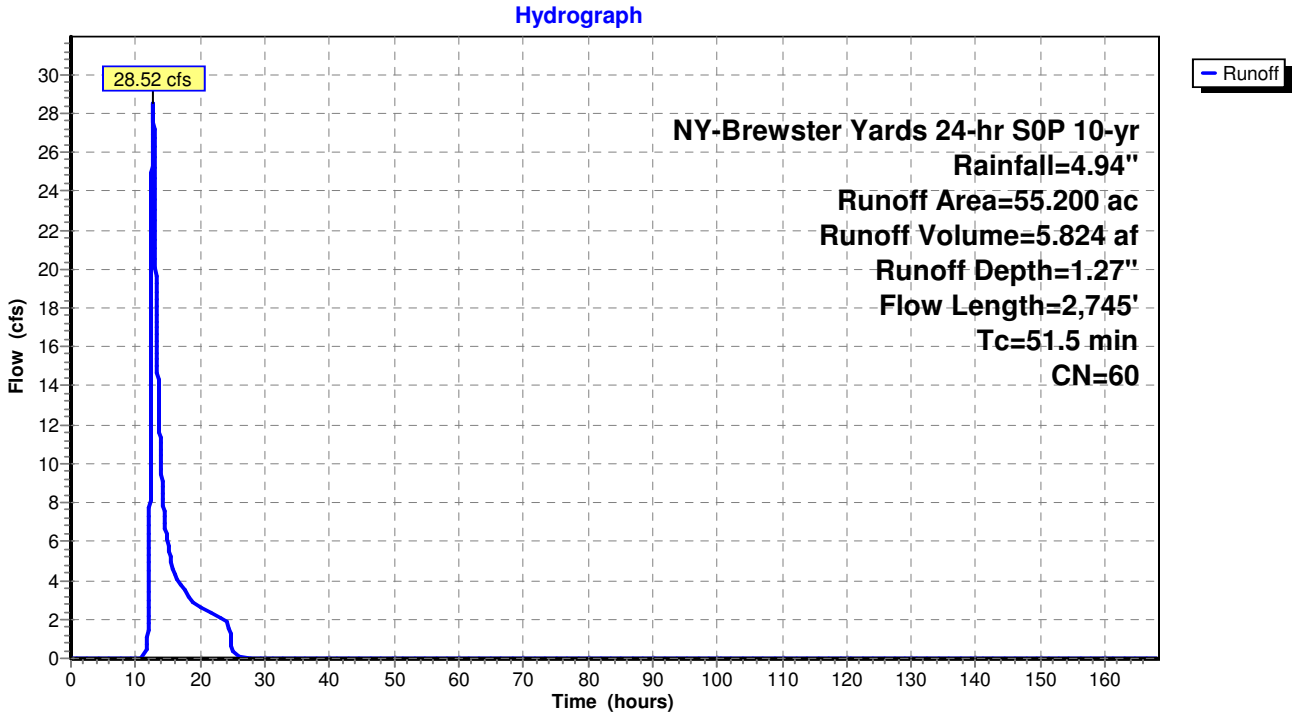
Runoff = 28.52 cfs @ 12.71 hrs, Volume= 5.824 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
43.500	55	Woods, Good, HSG B
0.100	70	Woods, Good, HSG C
11.600	77	Woods, Good, HSG D
55.200	60	Weighted Average
55.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0500	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
3.0	380	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.8	355	0.0620	1.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	375	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	655	0.0490	1.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	85	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.2	365	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.5	430	0.0470	2.87	14.36	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
51.5	2,745	Total			

Subcatchment 2.0: Pre

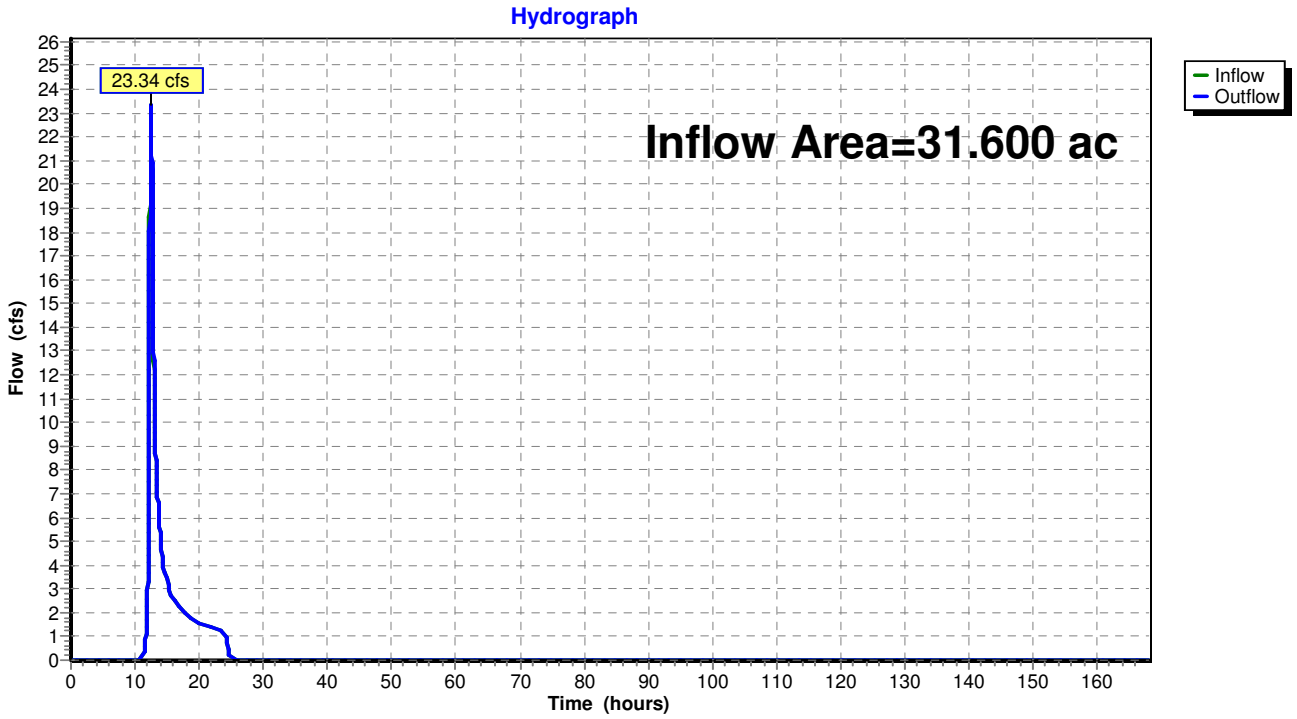


Summary for Reach PRE 1:

Inflow Area = 31.600 ac, 0.00% Impervious, Inflow Depth = 1.40" for 10-yr event
Inflow = 23.34 cfs @ 12.50 hrs, Volume= 3.691 af
Outflow = 23.34 cfs @ 12.51 hrs, Volume= 3.691 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach PRE 1:

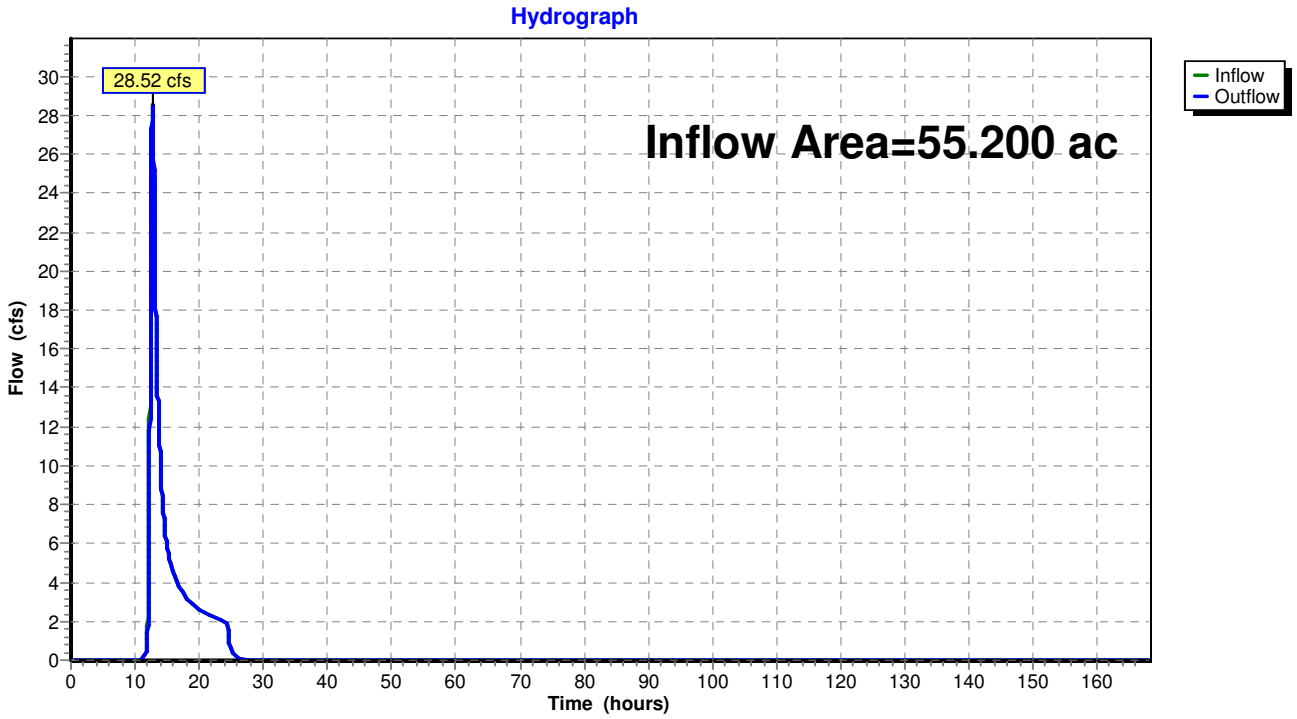


Summary for Reach PRE 2:

Inflow Area = 55.200 ac, 0.00% Impervious, Inflow Depth = 1.27" for 10-yr event
Inflow = 28.52 cfs @ 12.71 hrs, Volume= 5.824 af
Outflow = 28.52 cfs @ 12.72 hrs, Volume= 5.824 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach PRE 2:



Summary for Subcatchment 1.0: Pre

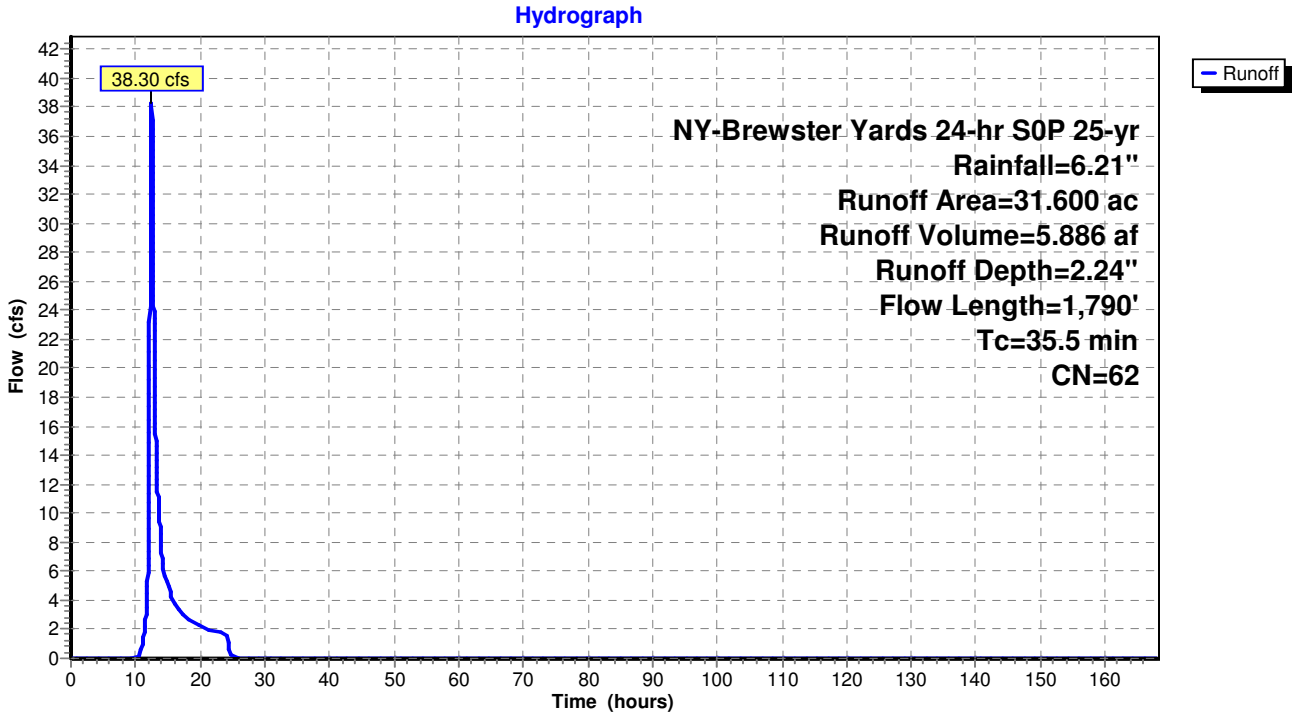
Runoff = 38.30 cfs @ 12.47 hrs, Volume= 5.886 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
16.900	55	Woods, Good, HSG B
14.500	70	Woods, Good, HSG C
0.200	77	Woods, Good, HSG D
31.600	62	Weighted Average
31.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
2.8	380	0.2020	2.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	655	0.0490	1.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	230	0.1830	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	280	0.1070	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	145	0.1100	4.39	21.97	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
35.5	1,790	Total			

Subcatchment 1.0: Pre



Summary for Subcatchment 2.0: Pre

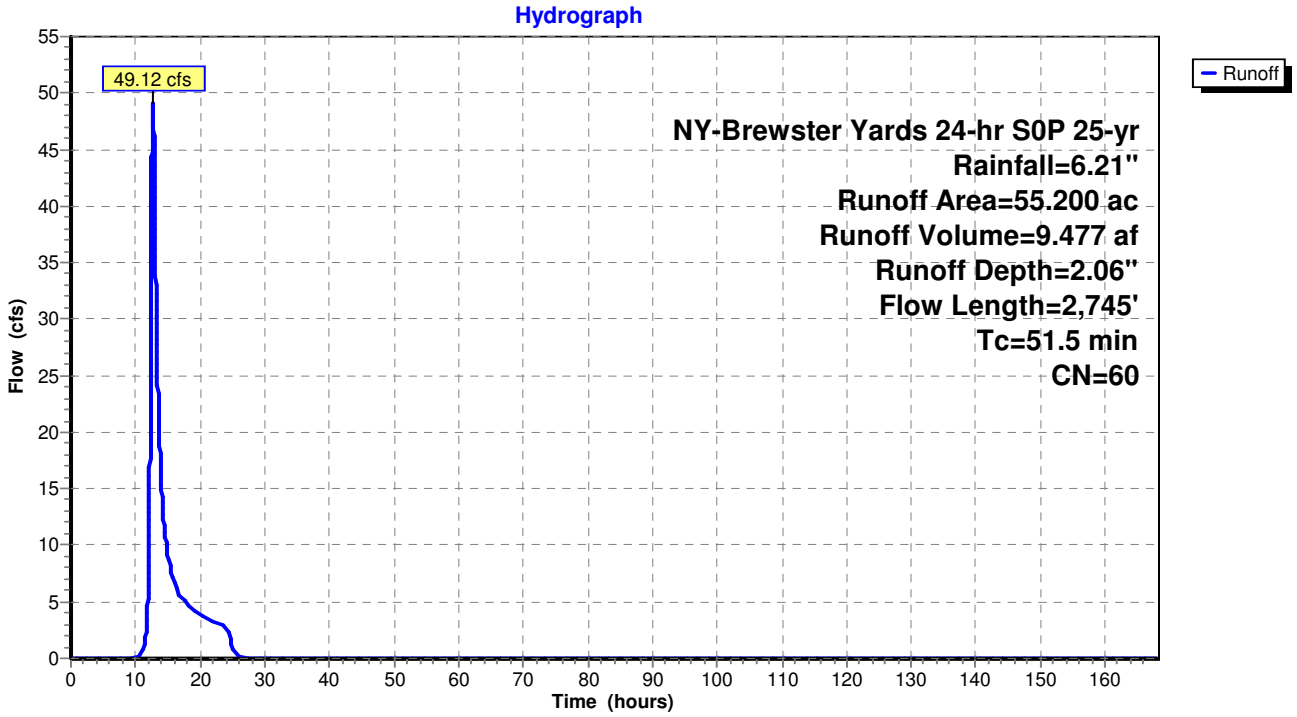
Runoff = 49.12 cfs @ 12.70 hrs, Volume= 9.477 af, Depth= 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
43.500	55	Woods, Good, HSG B
0.100	70	Woods, Good, HSG C
11.600	77	Woods, Good, HSG D
55.200	60	Weighted Average
55.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0500	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
3.0	380	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.8	355	0.0620	1.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	375	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	655	0.0490	1.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	85	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.2	365	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.5	430	0.0470	2.87	14.36	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
51.5	2,745	Total			

Subcatchment 2.0: Pre

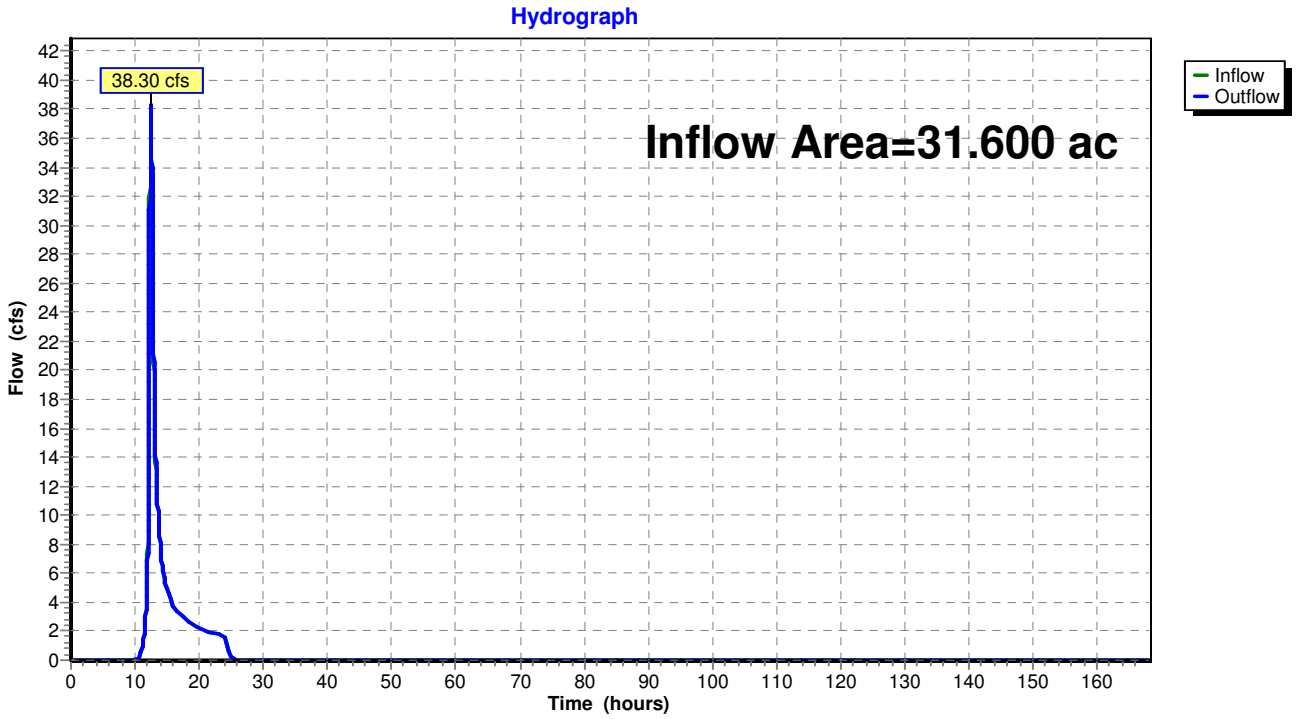


Summary for Reach PRE 1:

Inflow Area = 31.600 ac, 0.00% Impervious, Inflow Depth = 2.24" for 25-yr event
Inflow = 38.30 cfs @ 12.47 hrs, Volume= 5.886 af
Outflow = 38.30 cfs @ 12.48 hrs, Volume= 5.886 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach PRE 1:

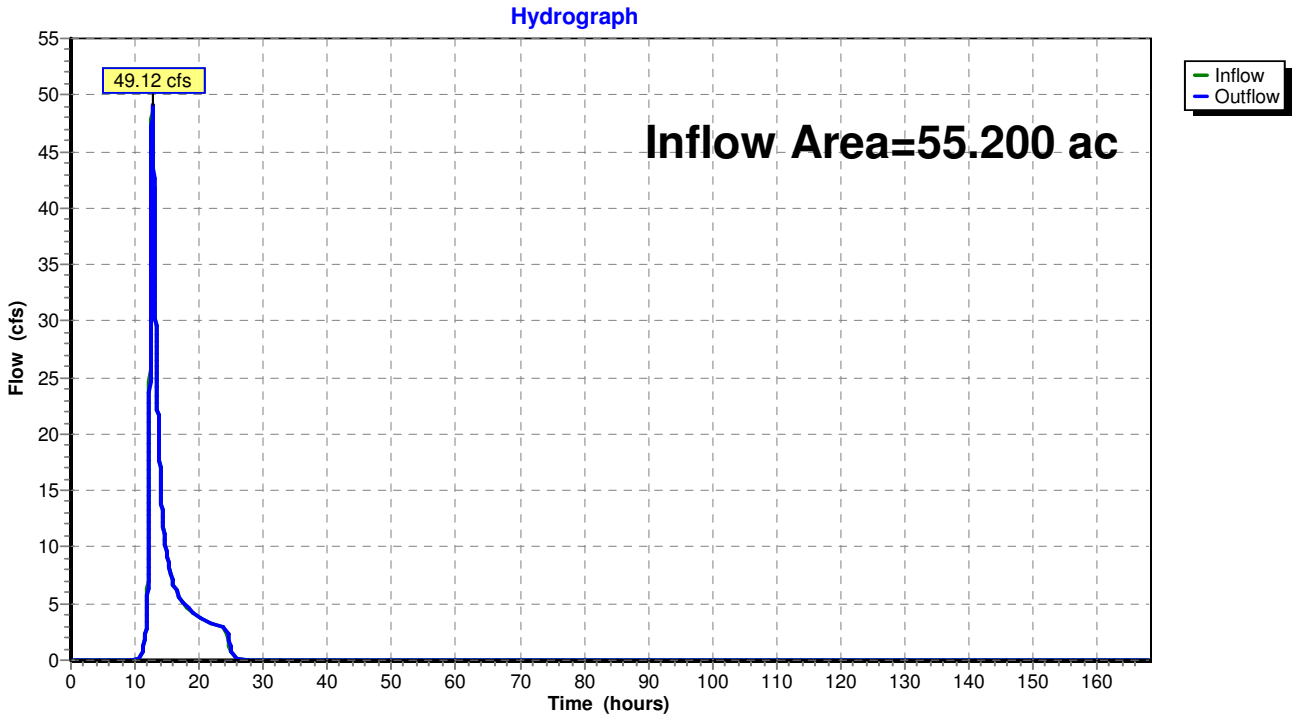


Summary for Reach PRE 2:

Inflow Area = 55.200 ac, 0.00% Impervious, Inflow Depth = 2.06" for 25-yr event
Inflow = 49.12 cfs @ 12.70 hrs, Volume= 9.477 af
Outflow = 49.12 cfs @ 12.71 hrs, Volume= 9.477 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach PRE 2:



Summary for Subcatchment 1.0: Pre

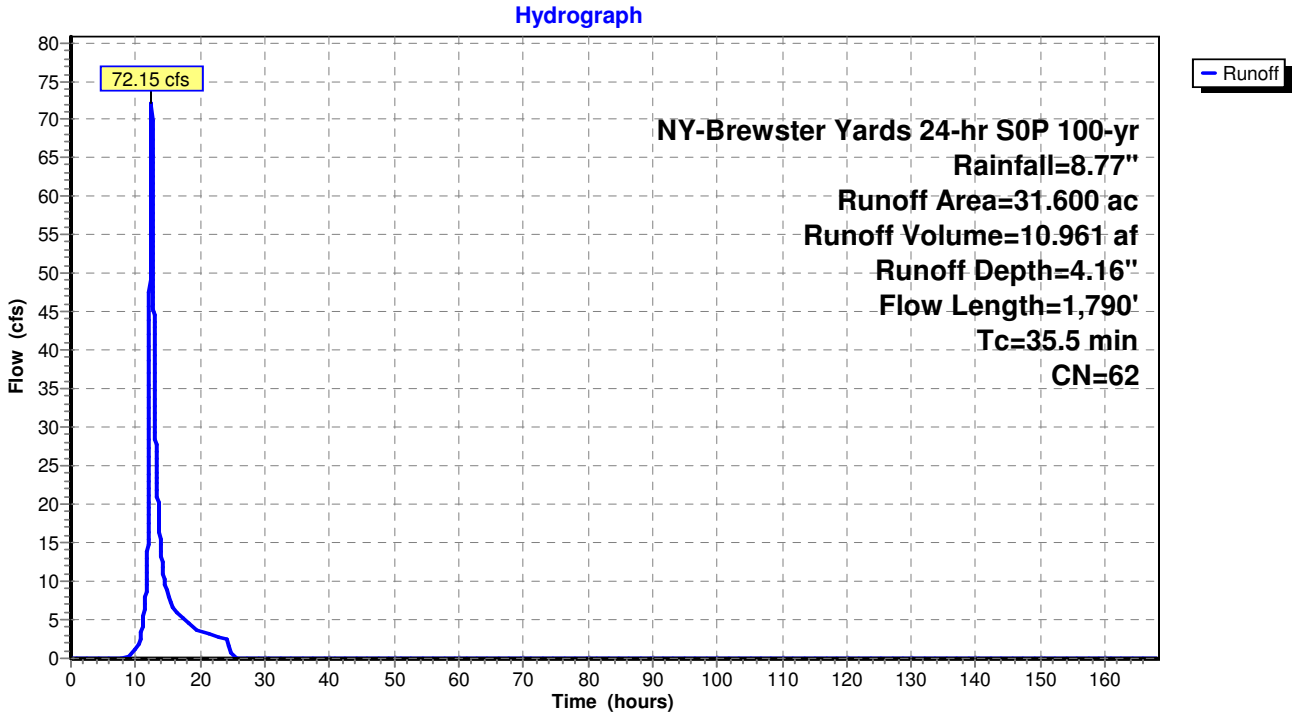
Runoff = 72.15 cfs @ 12.46 hrs, Volume= 10.961 af, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
16.900	55	Woods, Good, HSG B
14.500	70	Woods, Good, HSG C
0.200	77	Woods, Good, HSG D
31.600	62	Weighted Average
31.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
2.8	380	0.2020	2.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	655	0.0490	1.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	230	0.1830	2.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	280	0.1070	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	145	0.1100	4.39	21.97	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
35.5	1,790	Total			

Subcatchment 1.0: Pre



Summary for Subcatchment 2.0: Pre

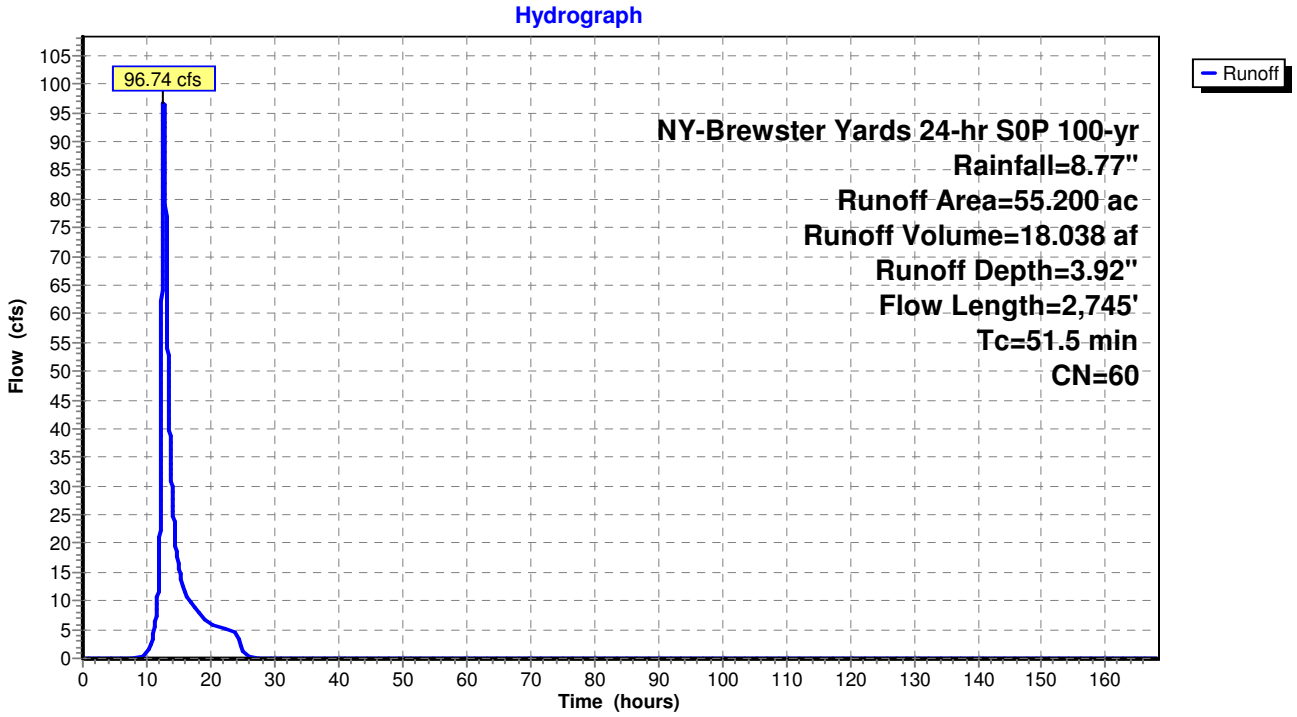
Runoff = 96.74 cfs @ 12.65 hrs, Volume= 18.038 af, Depth= 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
43.500	55	Woods, Good, HSG B
0.100	70	Woods, Good, HSG C
11.600	77	Woods, Good, HSG D
55.200	60	Weighted Average
55.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0500	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
3.0	380	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.8	355	0.0620	1.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	375	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	655	0.0490	1.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	85	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.2	365	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.5	430	0.0470	2.87	14.36	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
51.5	2,745	Total			

Subcatchment 2.0: Pre

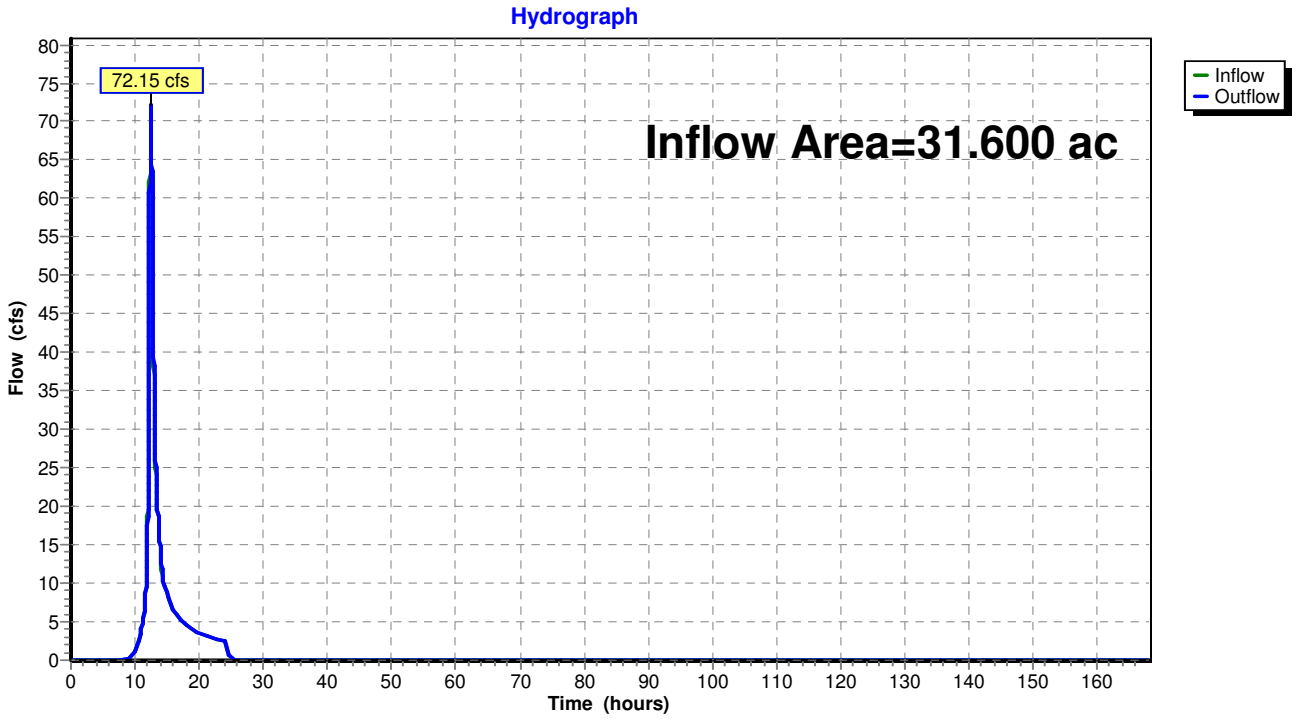


Summary for Reach PRE 1:

Inflow Area = 31.600 ac, 0.00% Impervious, Inflow Depth = 4.16" for 100-yr event
Inflow = 72.15 cfs @ 12.46 hrs, Volume= 10.961 af
Outflow = 72.15 cfs @ 12.47 hrs, Volume= 10.961 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach PRE 1:

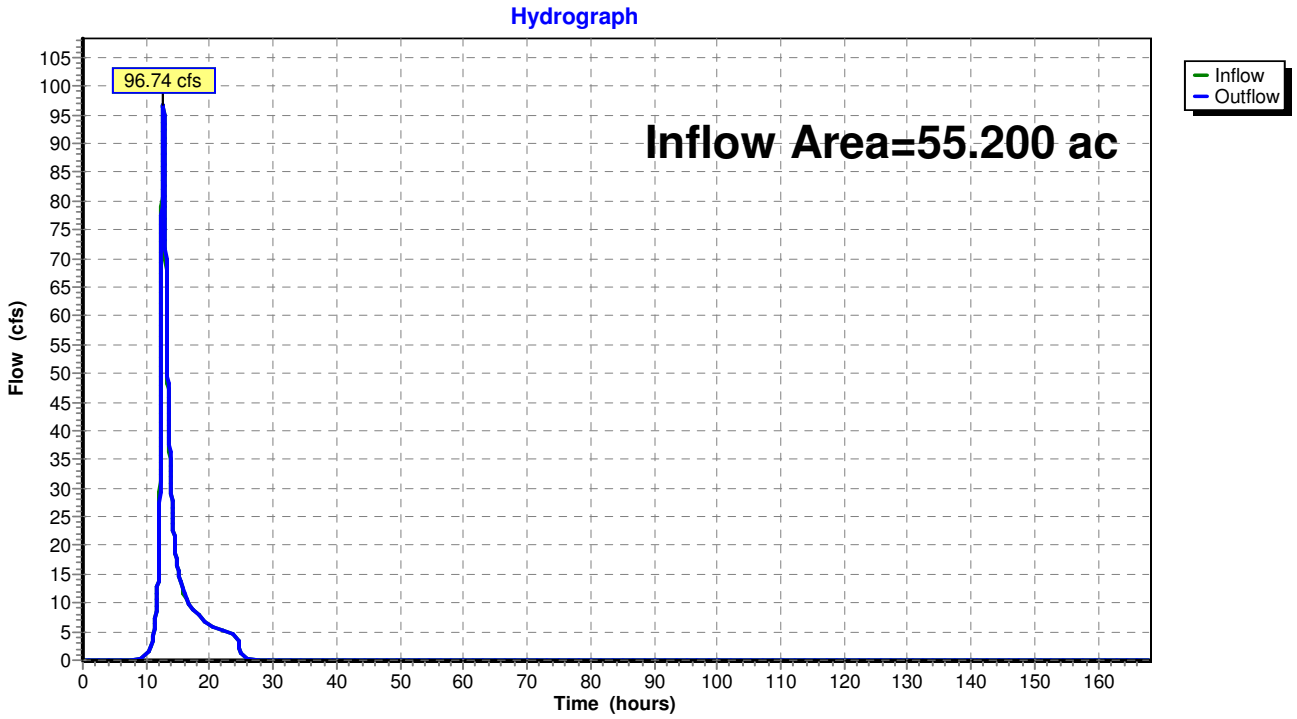


Summary for Reach PRE 2:

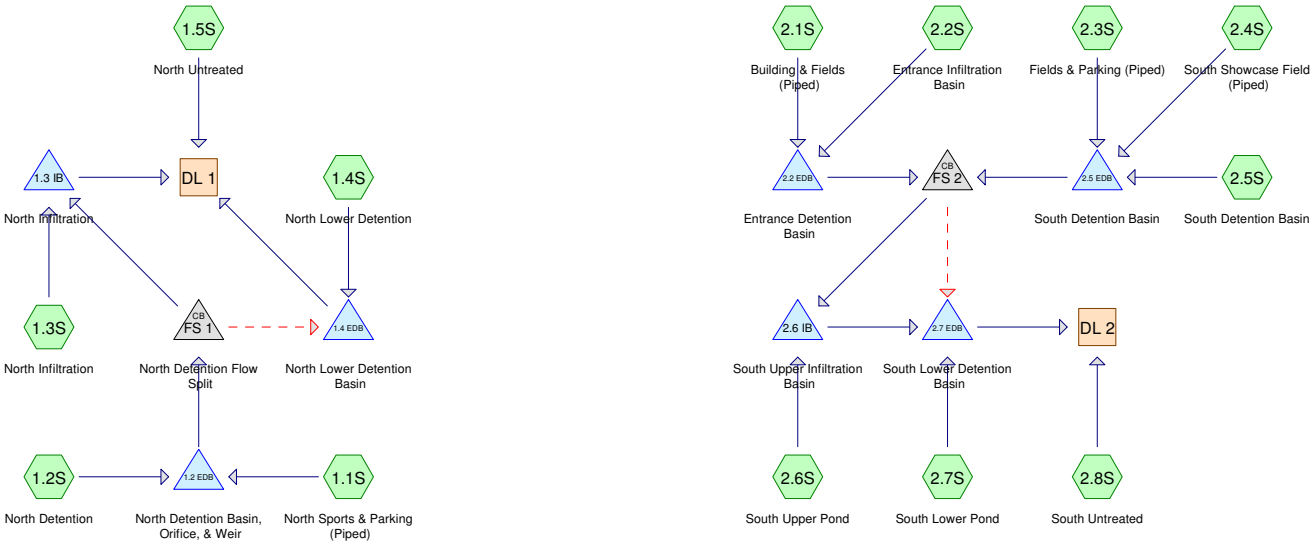
Inflow Area = 55.200 ac, 0.00% Impervious, Inflow Depth = 3.92" for 100-yr event
Inflow = 96.74 cfs @ 12.65 hrs, Volume= 18.038 af
Outflow = 96.74 cfs @ 12.66 hrs, Volume= 18.038 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach PRE 2:



APPENDIX C
Post Development Computer Data



Subcat Reach Pond Link

Routing Diagram for Brewster Yards Post

Prepared by Insite Engineering, Surveying & Landscape Architecture, P.C., Printed 2/28/2022

Summary for Subcatchment 1.1S: North Sports & Parking (Piped)

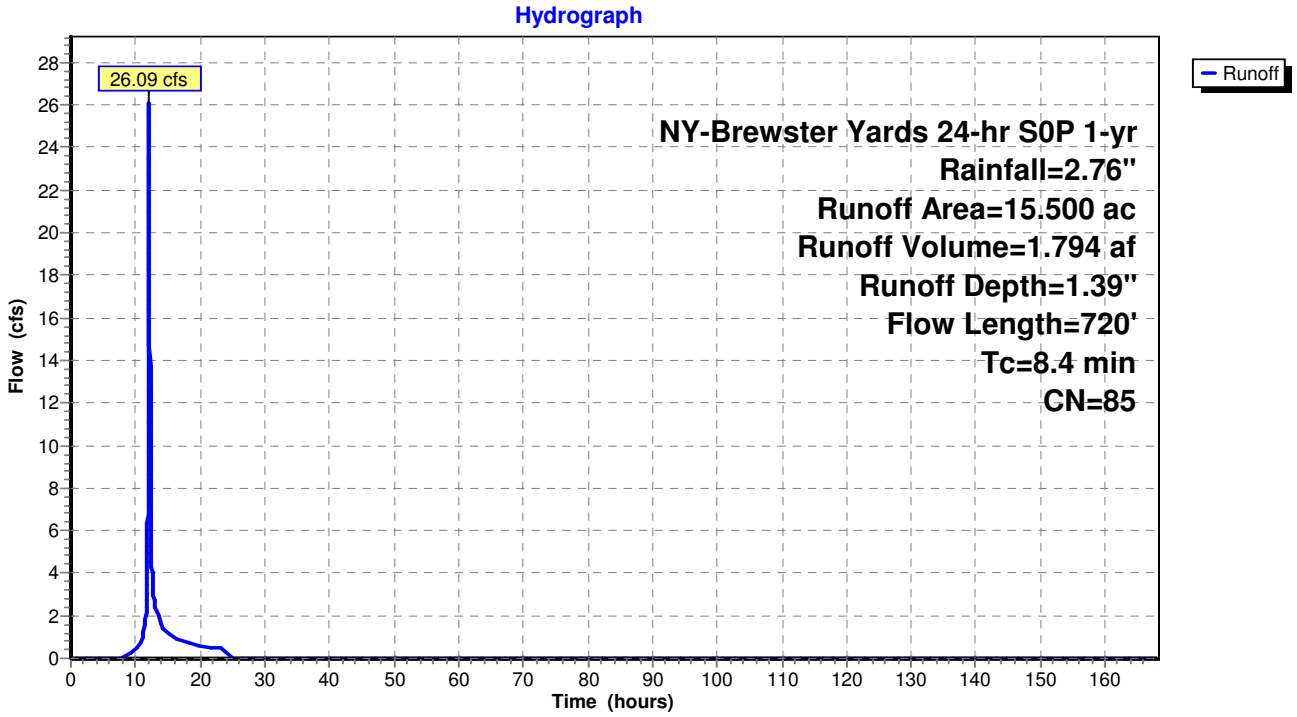
Runoff = 26.09 cfs @ 12.08 hrs, Volume= 1.794 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

	Area (ac)	CN	Description
*	9.900	86	Field Turf
	1.400	61	>75% Grass cover, Good, HSG B
	1.200	74	>75% Grass cover, Good, HSG C
*	3.000	98	Impervious
	15.500	85	Weighted Average
	12.500		80.65% Pervious Area
	3.000		19.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
0.8	160	0.0438	3.14		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	190	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	270	0.0200	10.18	31.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
8.4	720	Total			

Subcatchment 1.1S: North Sports & Parking (Piped)



Summary for Subcatchment 1.2S: North Detention

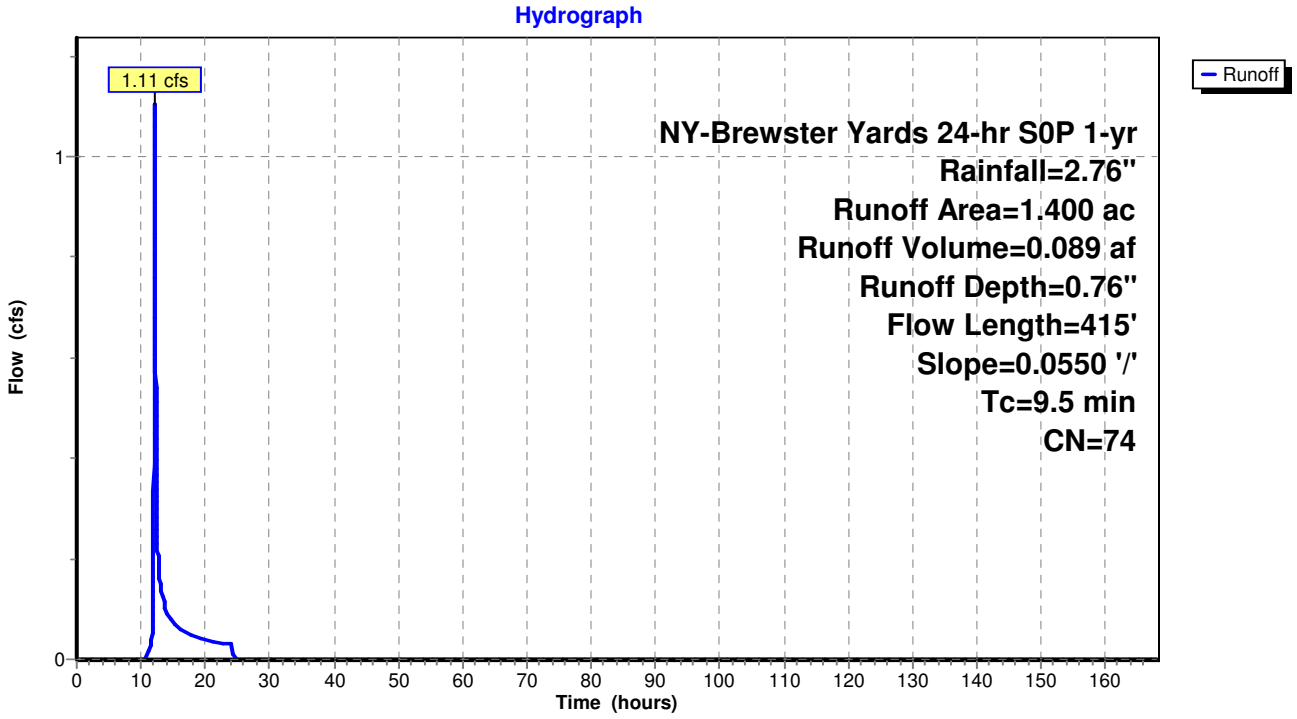
Runoff = 1.11 cfs @ 12.11 hrs, Volume= 0.089 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
1.400	74	>75% Grass cover, Good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0550	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
3.2	315	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.5	415	Total			

Subcatchment 1.2S: North Detention



Summary for Subcatchment 1.3S: North Infiltration

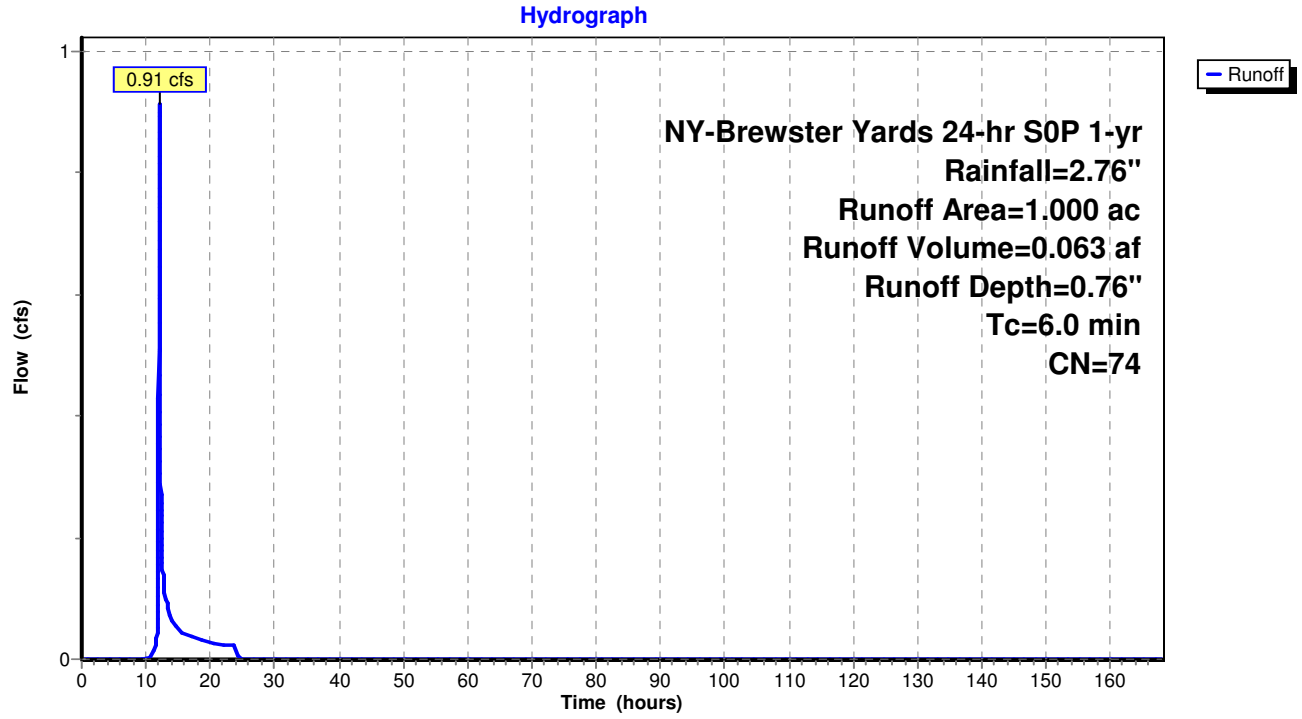
Runoff = 0.91 cfs @ 12.05 hrs, Volume= 0.063 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
1.000	74	>75% Grass cover, Good, HSG C
1.000		100.00% Pervious Area

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

Subcatchment 1.3S: North Infiltration



Summary for Subcatchment 1.4S: North Lower Detention

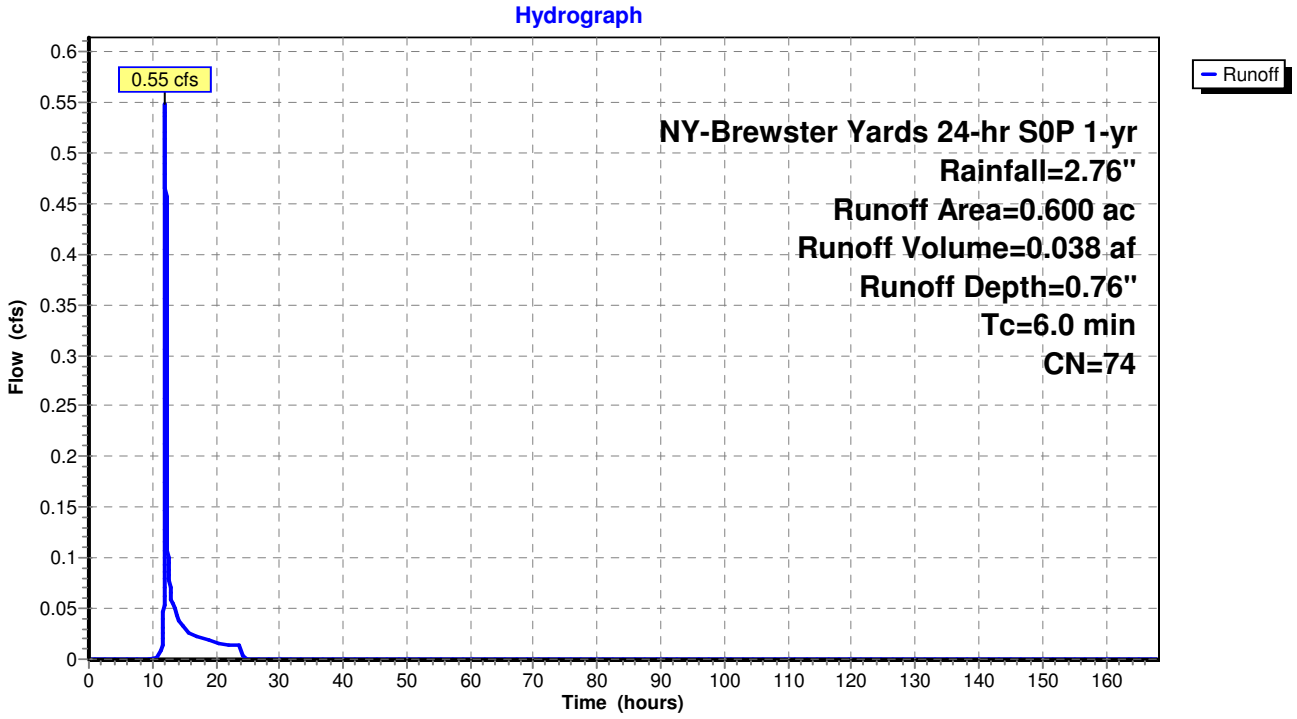
Runoff = 0.55 cfs @ 12.05 hrs, Volume= 0.038 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.600	74	>75% Grass cover, Good, HSG C
0.600		100.00% Pervious Area

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

Subcatchment 1.4S: North Lower Detention



Summary for Subcatchment 1.5S: North Untreated

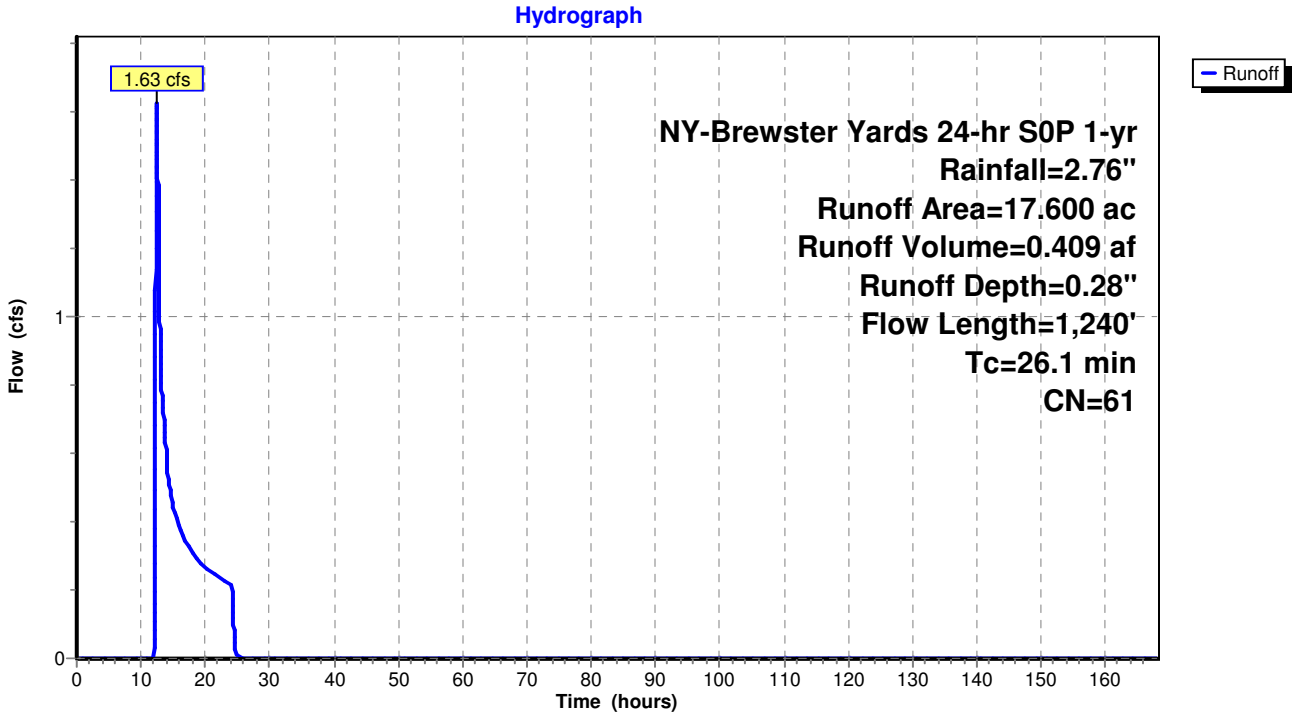
Runoff = 1.63 cfs @ 12.44 hrs, Volume= 0.409 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
10.300	55	Woods, Good, HSG B
5.800	70	Woods, Good, HSG C
0.200	77	Woods, Good, HSG D
0.300	61	>75% Grass cover, Good, HSG B
1.000	74	>75% Grass cover, Good, HSG C
17.600	61	Weighted Average
17.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
0.5	60	0.1330	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	200	0.2900	2.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	150	0.0930	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	160	0.2875	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.4	350	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	220	0.1100	4.39	21.97	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
26.1	1,240	Total			

Subcatchment 1.5S: North Untreated



Summary for Subcatchment 2.1S: Building & Fields (Piped)

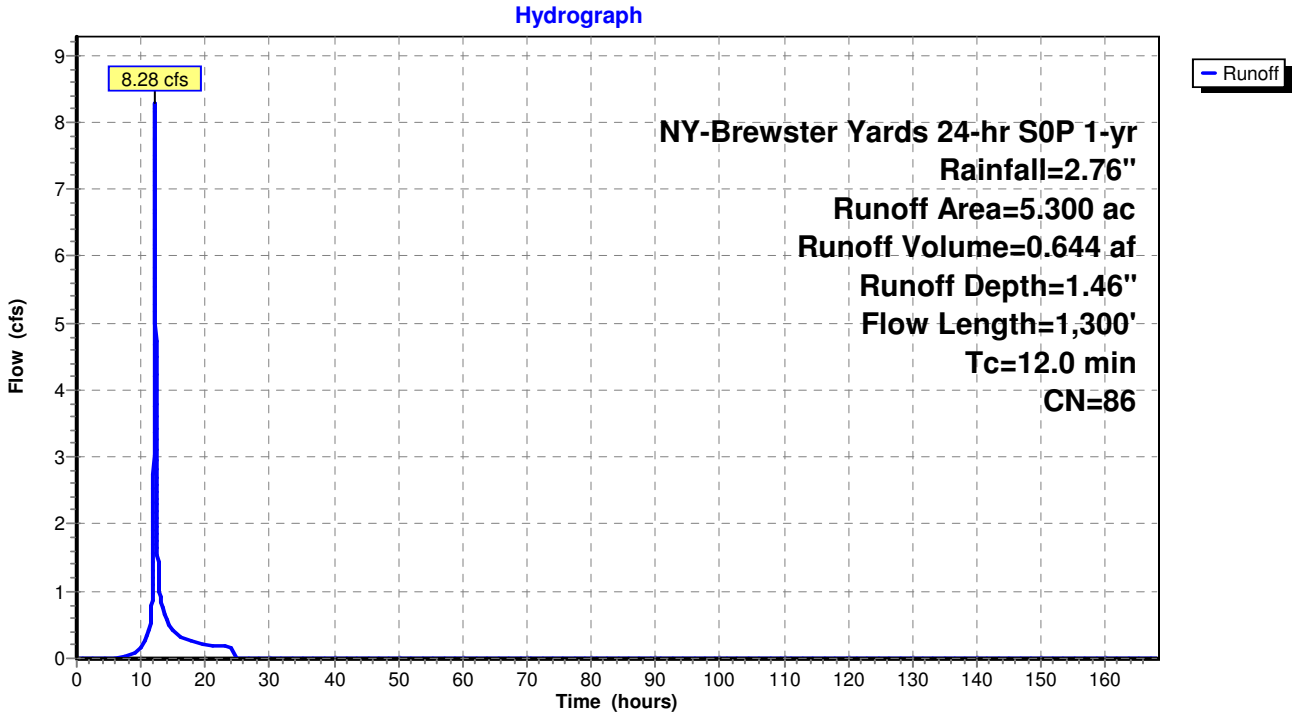
Runoff = 8.28 cfs @ 12.13 hrs, Volume= 0.644 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

	Area (ac)	CN	Description
*	2.700	98	Impervious
*	1.400	86	Field Turf
	1.200	61	>75% Grass cover, Good, HSG B
	5.300	86	Weighted Average
	2.600		49.06% Pervious Area
	2.700		50.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
1.2	150	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	800	0.0412	14.62	45.92	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
12.0	1,300	Total			

Subcatchment 2.1S: Building & Fields (Piped)



Summary for Subcatchment 2.2S: Entrance Infiltration Basin

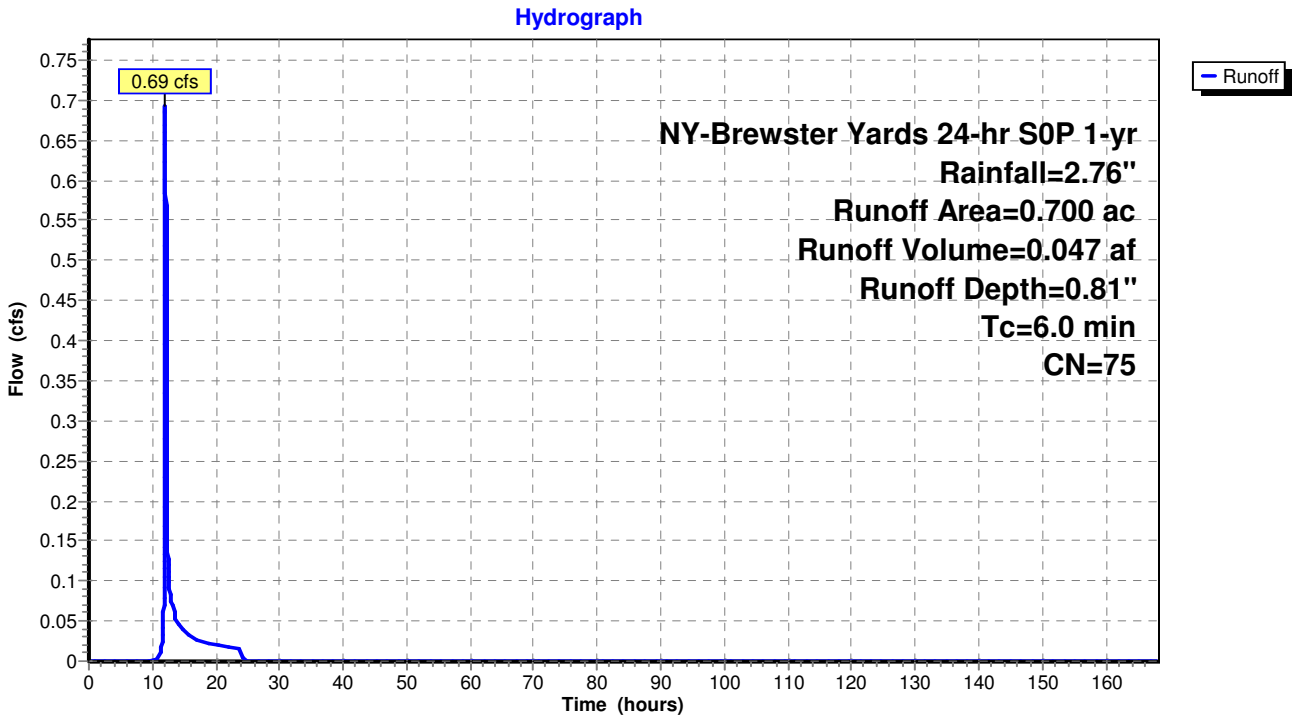
Runoff = 0.69 cfs @ 12.05 hrs, Volume= 0.047 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.200	61	>75% Grass cover, Good, HSG B
0.500	80	>75% Grass cover, Good, HSG D
0.700	75	Weighted Average
0.700		100.00% Pervious Area

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

Subcatchment 2.2S: Entrance Infiltration Basin



Summary for Subcatchment 2.3S: Fields & Parking (Piped)

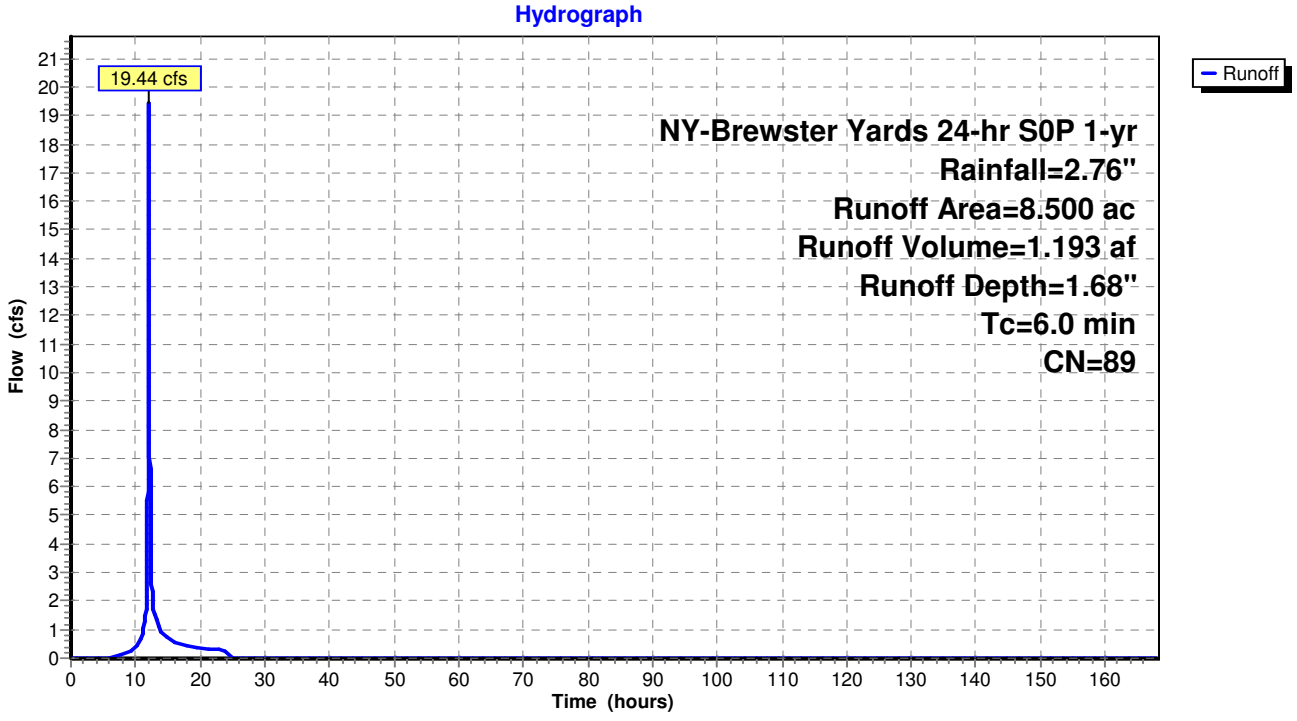
Runoff = 19.44 cfs @ 12.04 hrs, Volume= 1.193 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

	Area (ac)	CN	Description
*	4.700	98	Impervious
*	2.400	86	Filed Turf
	1.400	61	>75% Grass cover, Good, HSG B
	8.500	89	Weighted Average
	3.800		44.71% Pervious Area
	4.700		55.29% Impervious Area

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

Subcatchment 2.3S: Fields & Parking (Piped)



Summary for Subcatchment 2.4S: South Showcase Field (Piped)

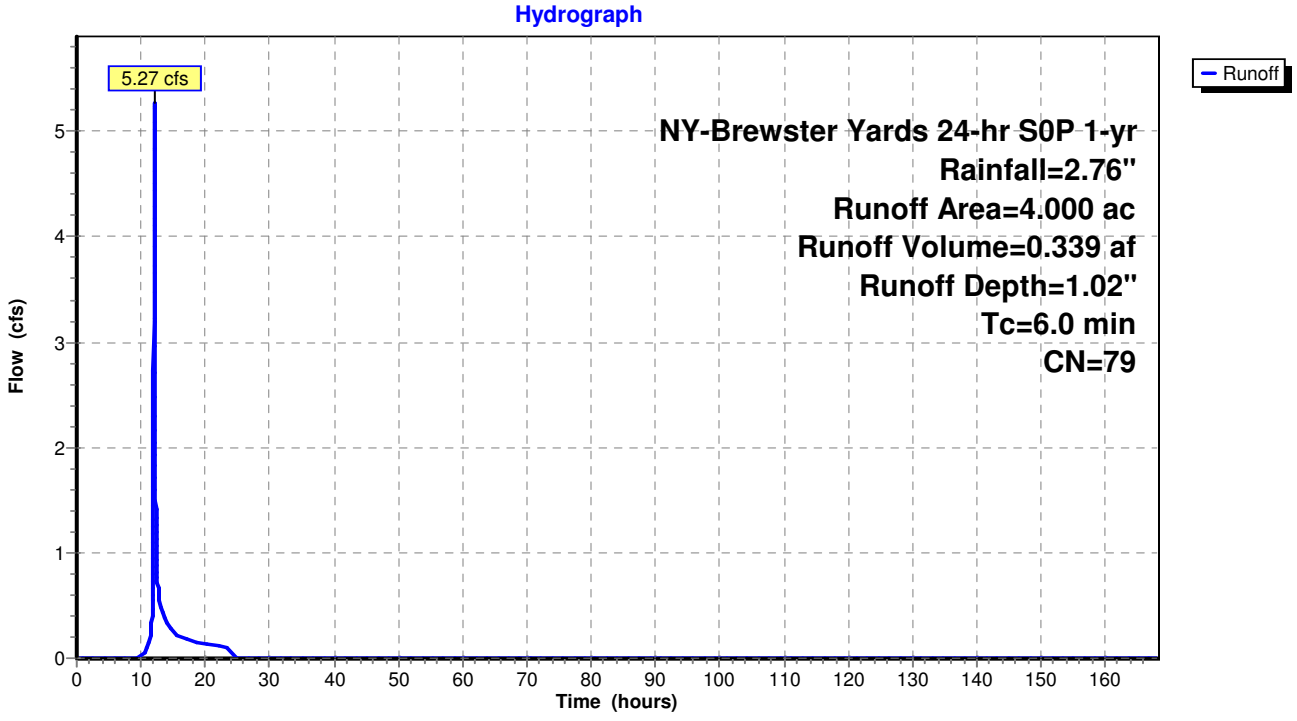
Runoff = 5.27 cfs @ 12.05 hrs, Volume= 0.339 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

	Area (ac)	CN	Description
*	0.300	98	Impervious
*	2.500	86	Filed Turf
	1.200	61	>75% Grass cover, Good, HSG B
	4.000	79	Weighted Average
	3.700		92.50% Pervious Area
	0.300		7.50% Impervious Area

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

Subcatchment 2.4S: South Showcase Field (Piped)



Summary for Subcatchment 2.5S: South Detention Basin

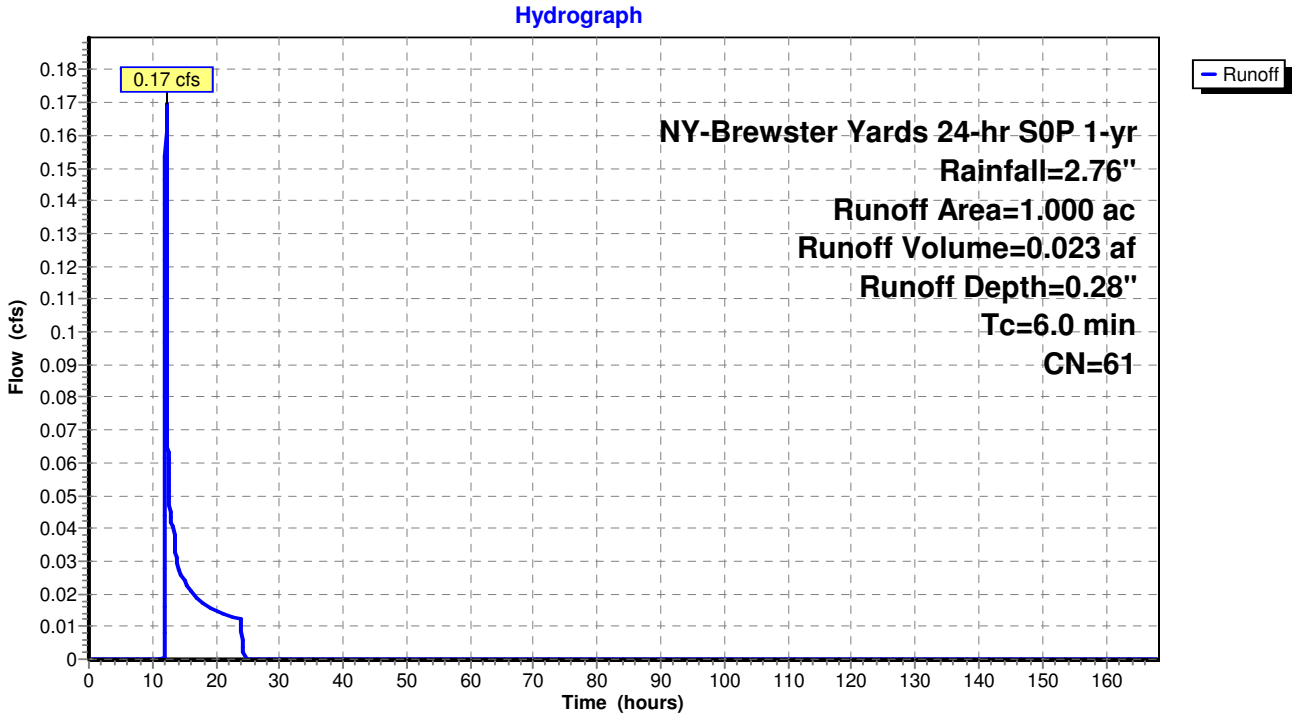
Runoff = 0.17 cfs @ 12.14 hrs, Volume= 0.023 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
1.000	61	>75% Grass cover, Good, HSG B
1.000		100.00% Pervious Area

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

Subcatchment 2.5S: South Detention Basin



Summary for Subcatchment 2.6S: South Upper Pond

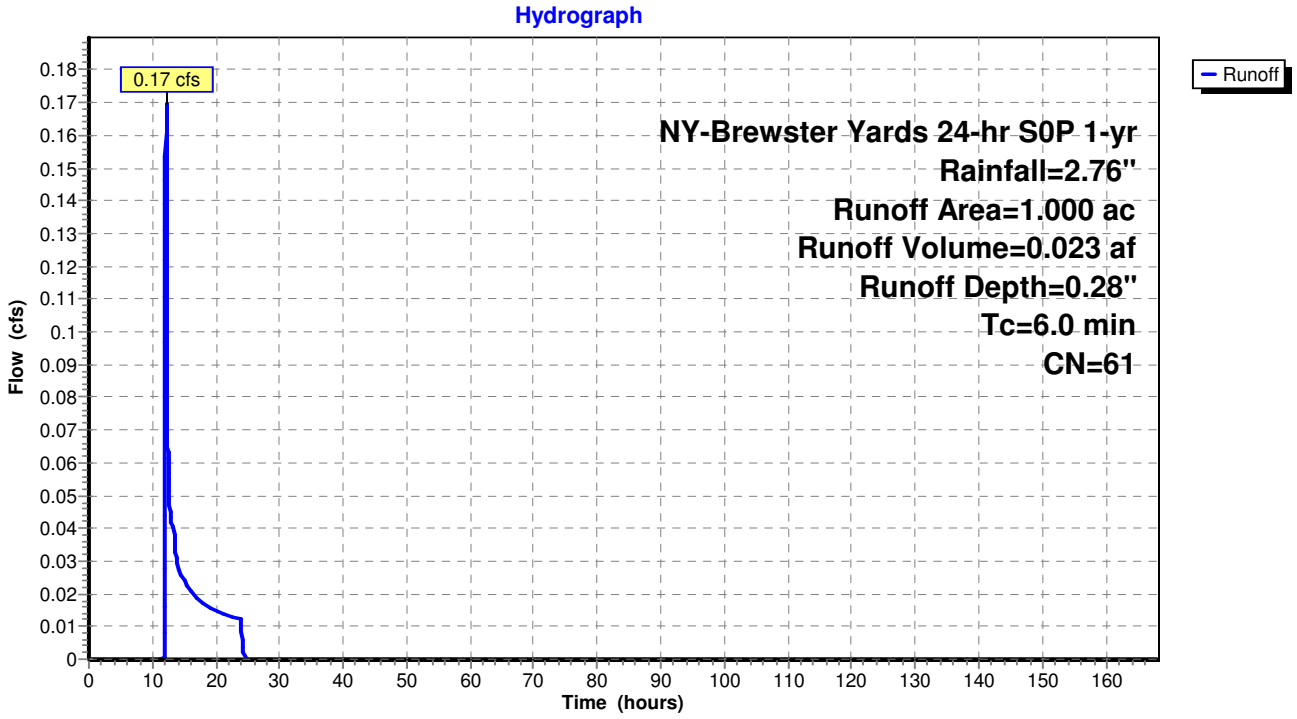
Runoff = 0.17 cfs @ 12.14 hrs, Volume= 0.023 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
1.000	61	>75% Grass cover, Good, HSG B
1.000		100.00% Pervious Area

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

Subcatchment 2.6S: South Upper Pond



Summary for Subcatchment 2.7S: South Lower Pond

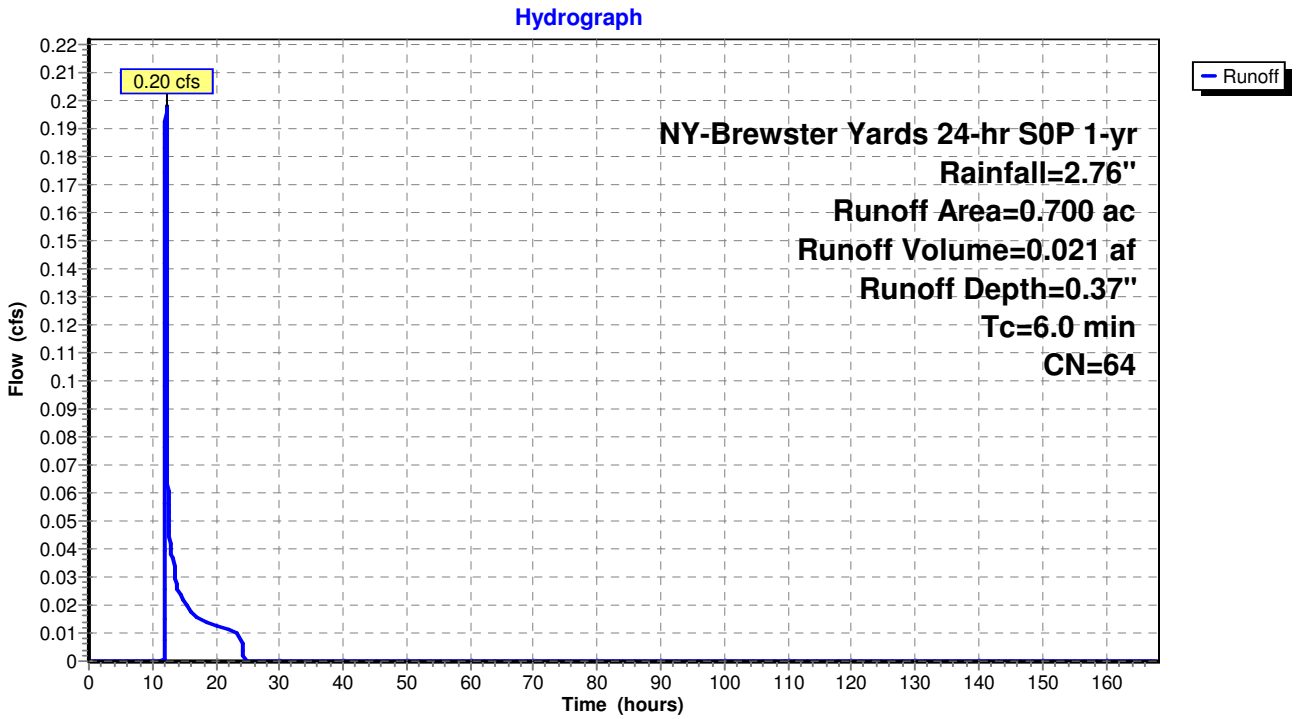
Runoff = 0.20 cfs @ 12.13 hrs, Volume= 0.021 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.600	61	>75% Grass cover, Good, HSG B
0.100	80	>75% Grass cover, Good, HSG D
0.700	64	Weighted Average
0.700		100.00% Pervious Area

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

Subcatchment 2.7S: South Lower Pond



Summary for Subcatchment 2.8S: South Untreated

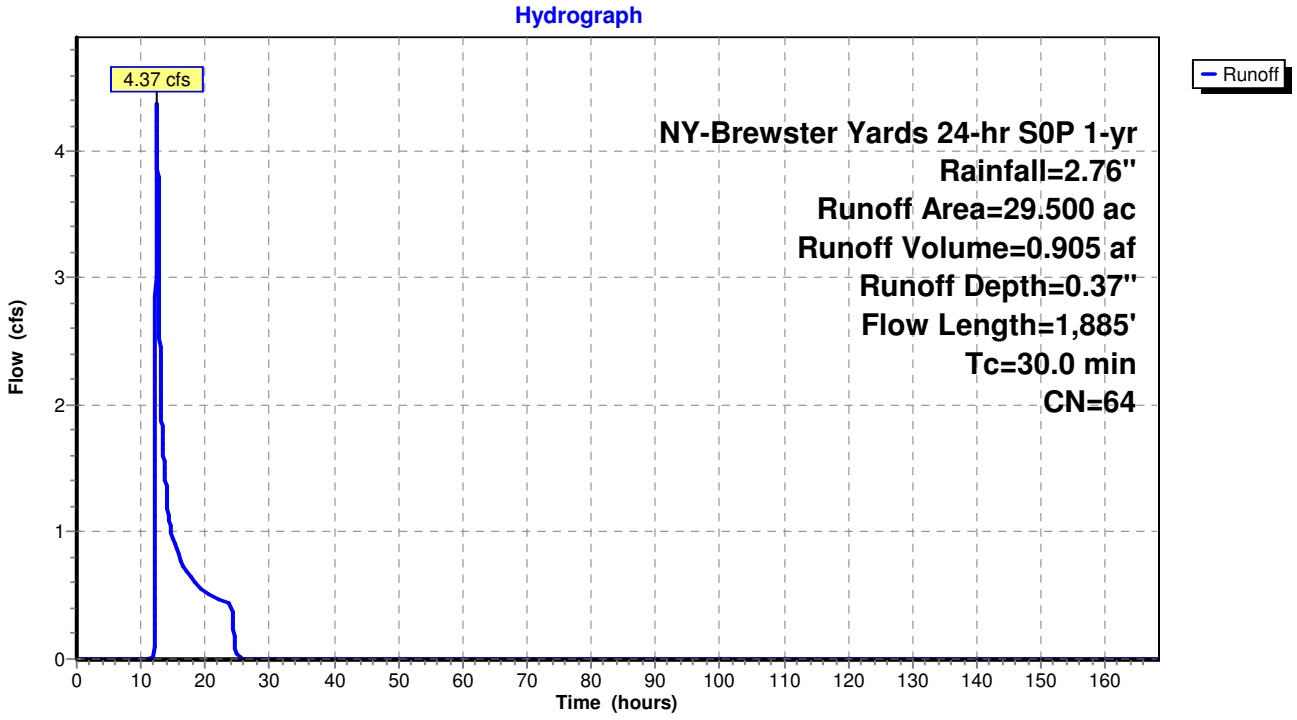
Runoff = 4.37 cfs @ 12.47 hrs, Volume= 0.905 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 1-yr Rainfall=2.76"

Area (ac)	CN	Description
14.800	55	Woods, Good, HSG B
0.100	70	Woods, Good, HSG C
10.300	77	Woods, Good, HSG D
4.100	61	>75% Grass cover, Good, HSG B
0.200	80	>75% Grass cover, Good, HSG D
29.500	64	Weighted Average
29.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.3	100	0.0240	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
7.8	885	0.1430	1.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	900	0.0500	5.09	71.20	**Channel Flow,** Area= 14.0 sf Perim= 45.0' r= 0.31' n= 0.030 Earth, grassed & winding
30.0	1,885	Total			

Subcatchment 2.8S: South Untreated

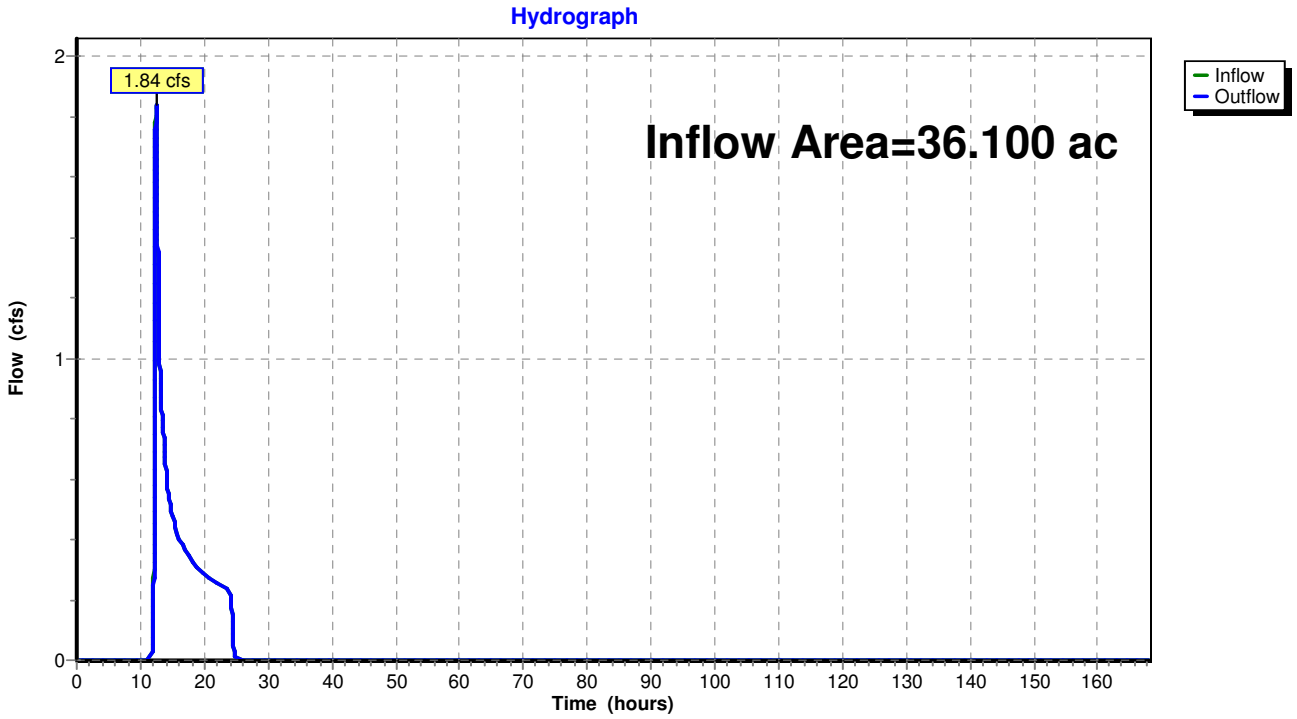


Summary for Reach DL 1:

Inflow Area = 36.100 ac, 8.31% Impervious, Inflow Depth = 0.15" for 1-yr event
Inflow = 1.84 cfs @ 12.44 hrs, Volume= 0.447 af
Outflow = 1.84 cfs @ 12.45 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach DL 1:

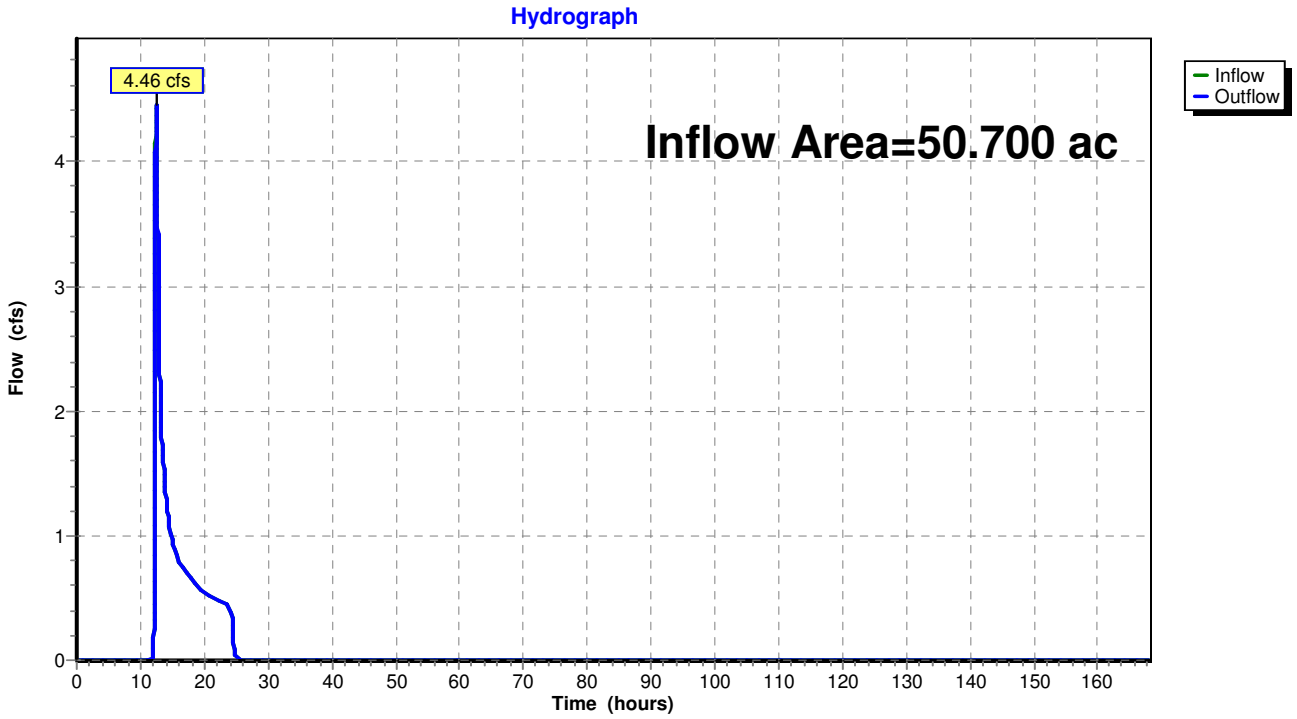


Summary for Reach DL 2:

Inflow Area = 50.700 ac, 15.19% Impervious, Inflow Depth = 0.22" for 1-yr event
Inflow = 4.46 cfs @ 12.47 hrs, Volume= 0.927 af
Outflow = 4.46 cfs @ 12.48 hrs, Volume= 0.927 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach DL 2:



Summary for Pond 1.2 EDB: North Detention Basin, Orifice, & Weir

Inflow Area = 16.900 ac, 17.75% Impervious, Inflow Depth = 1.34" for 1-yr event
Inflow = 27.14 cfs @ 12.08 hrs, Volume= 1.883 af
Outflow = 0.28 cfs @ 24.11 hrs, Volume= 1.883 af, Atten= 99%, Lag= 722.1 min
Primary = 0.28 cfs @ 24.11 hrs, Volume= 1.883 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 666.60' @ 24.11 hrs Surf.Area= 21,743 sf Storage= 68,536 cf
Flood Elev= 669.50' Surf.Area= 34,100 sf Storage= 147,015 cf

Plug-Flow detention time= 2,420.1 min calculated for 1.882 af (100% of inflow)
Center-of-Mass det. time= 2,420.2 min (3,274.8 - 854.5)

Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	240 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 600 cf Overall x 40.0% Voids
#2	660.00'	164,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		164,340 cf	Total Available Storage

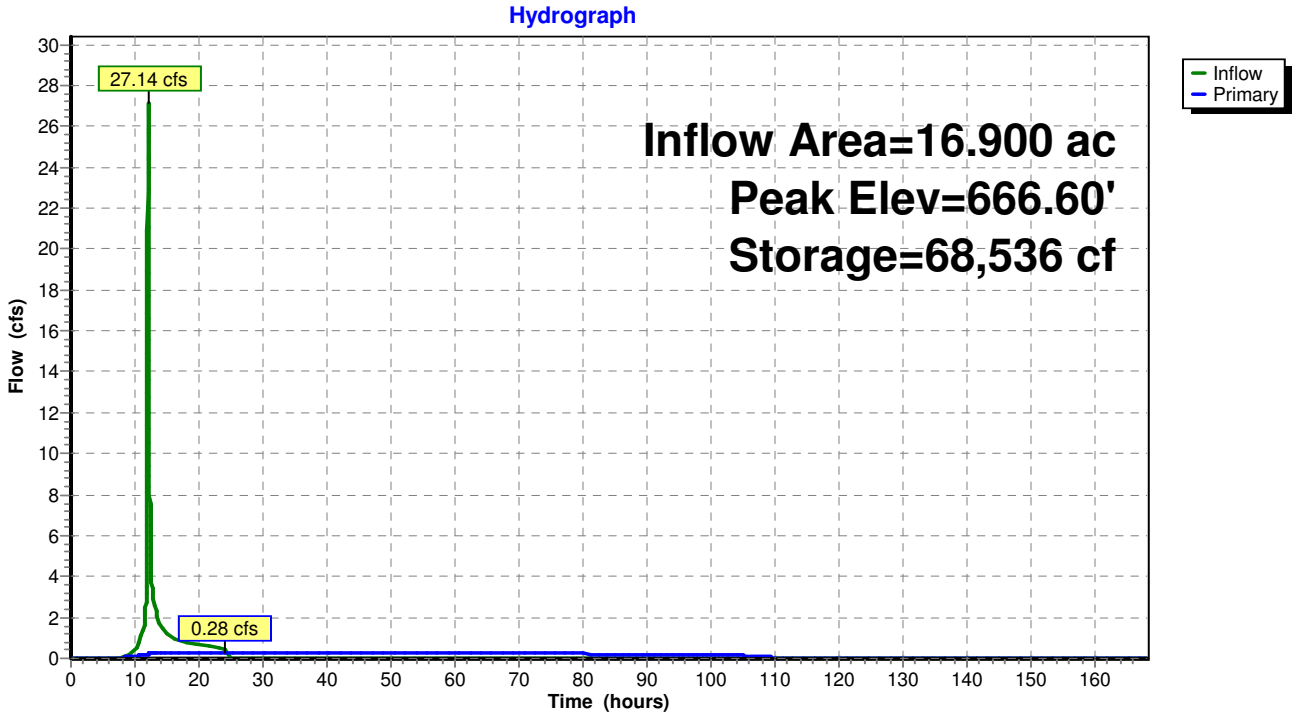
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	600	0	0
660.00	600	600	600

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.00	1,900	0	0
662.00	6,000	7,900	7,900
664.00	11,800	17,800	25,700
666.00	18,800	30,600	56,300
668.00	26,600	45,400	101,700
670.00	35,800	62,400	164,100

Device	Routing	Invert	Outlet Devices
#1	Primary	659.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	666.70'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.28 cfs @ 24.11 hrs HW=666.60' TW=659.52' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.28 cfs @ 12.81 fps)
└—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.2 EDB: North Detention Basin, Orifice, & Weir



Stage-Area-Storage for Pond 1.2 EDB: North Detention Basin, Orifice, & Weir

Elevation (feet)	Storage (cubic-feet)
659.00	0
659.15	36
659.30	72
659.45	108
659.60	144
659.75	180
659.90	216
660.05	338
660.20	661
660.35	1,031
660.50	1,446
660.65	1,908
660.80	2,416
660.95	2,970
661.10	3,570
661.25	4,217
661.40	4,909
661.55	5,648
661.70	6,432
661.85	7,263
662.00	8,140
662.15	9,073
662.30	10,070
662.45	11,134
662.60	12,262
662.75	13,456
662.90	14,714
663.05	16,039
663.20	17,428
663.35	18,883
663.50	20,403
663.65	21,988
663.80	23,638
663.95	25,354
664.10	27,138
664.25	28,999
664.40	30,940
664.55	32,959
664.70	35,058
664.85	37,234
665.00	39,490
665.15	41,824
665.30	44,237
665.45	46,729
665.60	49,300
665.75	51,949
665.90	54,677
666.05	57,485
666.20	60,378
666.35	63,359
666.50	66,428
666.65	69,584
666.80	72,828
666.95	76,160
667.10	79,580
667.25	83,087
667.40	86,682
667.55	90,365
667.70	94,136
667.85	97,994
668.00	101,940
668.15	105,982
668.30	110,127
668.45	114,376
668.60	118,728
668.75	123,184
668.90	127,743
669.05	132,406
669.20	137,172
669.35	142,042
669.50	147,015
669.65	152,092
669.80	157,272
669.95	**162,556**

Summary for Pond 1.3 IB: North Infiltration

Inflow Area = 17.900 ac, 16.76% Impervious, Inflow Depth = 1.30" for 1-yr event
Inflow = 1.12 cfs @ 12.05 hrs, Volume= 1.946 af
Outflow = 0.18 cfs @ 92.11 hrs, Volume= 1.946 af, Atten= 84%, Lag= 4,803.5 min
Discarded = 0.18 cfs @ 92.11 hrs, Volume= 1.946 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 655.68' @ 92.11 hrs Surf.Area= 15,922 sf Storage= 24,194 cf
Flood Elev= 659.00' Surf.Area= 22,300 sf Storage= 87,500 cf

Plug-Flow detention time= 1,485.8 min calculated for 1.946 af (100% of inflow)
Center-of-Mass det. time= 1,485.8 min (4,683.8 - 3,198.0)

Volume	Invert	Avail.Storage	Storage Description
#1	654.00'	110,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

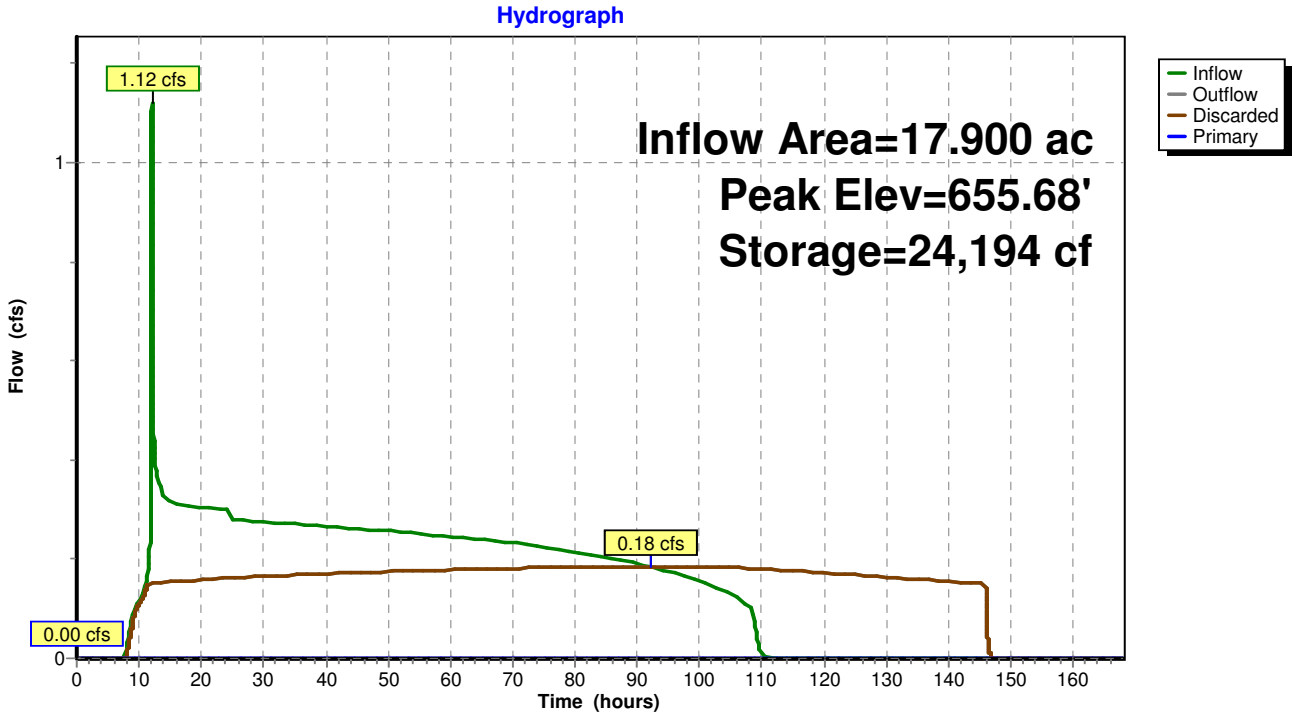
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
654.00	12,900	0	0
656.00	16,500	29,400	29,400
658.00	20,300	36,800	66,200
660.00	24,300	44,600	110,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	654.00'	**0.500 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	658.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.18 cfs @ 92.11 hrs HW=655.68' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=654.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.3 IB: North Infiltration



Stage-Area-Storage for Pond 1.3 IB: North Infiltration

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
654.00	12,900	0
654.10	13,080	1,299
654.20	13,260	2,616
654.30	13,440	3,951
654.40	13,620	5,304
654.50	13,800	6,675
654.60	13,980	8,064
654.70	14,160	9,471
654.80	14,340	10,896
654.90	14,520	12,339
655.00	14,700	13,800
655.10	14,880	15,279
655.20	15,060	16,776
655.30	15,240	18,291
655.40	15,420	19,824
655.50	15,600	21,375
655.60	15,780	22,944
655.70	15,960	24,531
655.80	16,140	26,136
655.90	16,320	27,759
656.00	16,500	29,400
656.10	16,690	31,060
656.20	16,880	32,738
656.30	17,070	34,435
656.40	17,260	36,152
656.50	17,450	37,888
656.60	17,640	39,642
656.70	17,830	41,416
656.80	18,020	43,208
656.90	18,210	45,019
657.00	18,400	46,850
657.10	18,590	48,700
657.20	18,780	50,568
657.30	18,970	52,455
657.40	19,160	54,362
657.50	19,350	56,288
657.60	19,540	58,232
657.70	19,730	60,196
657.80	19,920	62,178
657.90	20,110	64,179
658.00	20,300	66,200
658.10	20,500	68,240
658.20	20,700	70,300
658.30	20,900	72,380
658.40	21,100	74,480
658.50	21,300	76,600
658.60	21,500	78,740
658.70	21,700	80,900
658.80	21,900	83,080
658.90	22,100	85,280
659.00	22,300	87,500
659.10	22,500	89,740
659.20	22,700	92,000
659.30	22,900	94,280
659.40	23,100	96,580
659.50	23,300	98,900
659.60	23,500	101,240
659.70	23,700	103,600
659.80	23,900	105,980
659.90	24,100	108,380
660.00	**24,300**	**110,800**

Summary for Pond 1.4 EDB: North Lower Detention Basin

Inflow Area = 0.600 ac, 0.00% Impervious, Inflow Depth = 0.76" for 1-yr event
Inflow = 0.55 cfs @ 12.05 hrs, Volume= 0.038 af
Outflow = 0.31 cfs @ 12.19 hrs, Volume= 0.038 af, Atten= 43%, Lag= 8.4 min
Primary = 0.31 cfs @ 12.19 hrs, Volume= 0.038 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Starting Elev= 594.00' Surf.Area= 0 sf Storage= 0 cf
Peak Elev= 651.72' @ 12.19 hrs Surf.Area= 800 sf Storage= 232 cf
Flood Elev= 659.50' Surf.Area= 17,950 sf Storage= 90,758 cf

Plug-Flow detention time= 19.2 min calculated for 0.038 af (100% of inflow)
Center-of-Mass det. time= 19.5 min (915.9 - 896.4)

Volume	Invert	Avail.Storage	Storage Description
#1	651.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	652.00'	99,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		99,520 cf	Total Available Storage

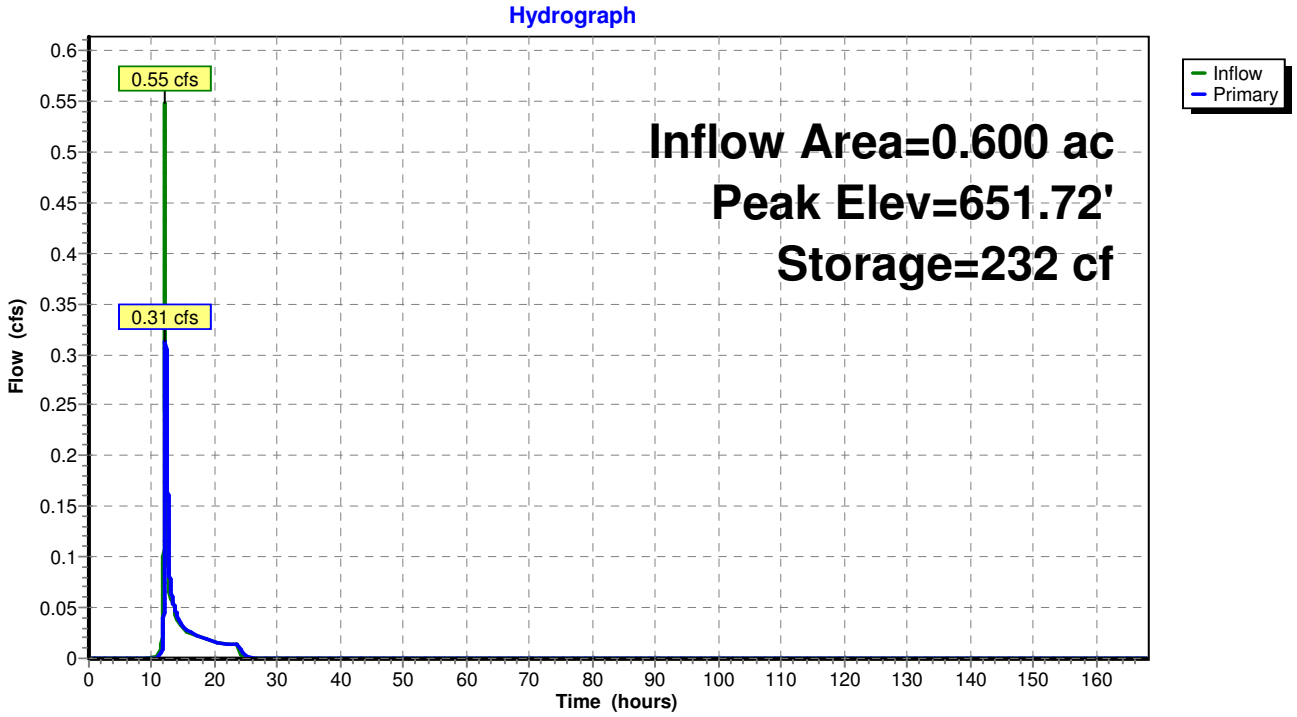
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
651.00	800	0	0
652.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
652.00	7,500	0	0
654.00	9,800	17,300	17,300
656.00	12,200	22,000	39,300
658.00	14,900	27,100	66,400
660.00	17,900	32,800	99,200

Device	Routing	Invert	Outlet Devices
#1	Primary	651.00'	**36.0" Round Culvert** L= 600.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 651.00' / 640.00' S= 0.0183 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	654.80'	**1.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	651.00'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.31 cfs @ 12.19 hrs HW=651.72' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.31 cfs of 3.81 cfs potential flow)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.31 cfs @ 3.59 fps)

Pond 1.4 EDB: North Lower Detention Basin



Stage-Area-Storage for Pond 1.4 EDB: North Lower Detention Basin

Elevation (feet)	Storage (cubic-feet)
651.00	0
651.10	32
651.20	64
651.30	96
651.40	128
651.50	160
651.60	192
651.70	224
651.80	256
651.90	288
652.00	320
652.10	1,076
652.20	1,843
652.30	2,622
652.40	3,412
652.50	4,214
652.60	5,027
652.70	5,852
652.80	6,688
652.90	7,536
653.00	8,395
653.10	9,266
653.20	10,148
653.30	11,042
653.40	11,947
653.50	12,864
653.60	13,792
653.70	14,732
653.80	15,683
653.90	16,646
654.00	17,620
654.10	18,606
654.20	19,604
654.30	20,614
654.40	21,636
654.50	22,670
654.60	23,716
654.70	24,774
654.80	25,844
654.90	26,926
655.00	28,020
655.10	29,126
655.20	30,244
655.30	31,374
655.40	32,516
655.50	33,670
655.60	34,836
655.70	36,014
655.80	37,204
655.90	38,406
656.00	39,620
656.10	40,847
656.20	42,087
656.30	43,341
656.40	44,608
656.50	45,889
656.60	47,183
656.70	48,491
656.80	49,812
656.90	51,147
657.00	52,495
657.10	53,857
657.20	55,232
657.30	56,621
657.40	58,023
657.50	59,439
657.60	60,868
657.70	62,311
657.80	63,767
657.90	65,237
658.00	66,720
658.10	68,218
658.20	69,730
658.30	71,257
658.40	72,800
658.50	74,358
658.60	75,930
658.70	77,518
658.80	79,120
658.90	80,737
659.00	82,370
659.10	84,018
659.20	85,680
659.30	87,357
659.40	89,050
659.50	90,758
659.60	92,480
659.70	94,218
659.80	95,970
659.90	97,737
660.00	**99,520**

Summary for Pond 2.2 EDB: Entrance Detention Basin

Inflow Area = 6.000 ac, 45.00% Impervious, Inflow Depth = 1.38" for 1-yr event
Inflow = 8.84 cfs @ 12.13 hrs, Volume= 0.691 af
Outflow = 0.55 cfs @ 14.20 hrs, Volume= 0.691 af, Atten= 94%, Lag= 124.6 min
Primary = 0.55 cfs @ 14.20 hrs, Volume= 0.691 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 668.63' @ 14.20 hrs Surf.Area= 5,620 sf Storage= 13,718 cf
Flood Elev= 673.00' Surf.Area= 12,550 sf Storage= 50,895 cf

Plug-Flow detention time= 274.8 min calculated for 0.691 af (100% of inflow)
Center-of-Mass det. time= 274.5 min (1,128.4 - 853.9)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	120 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 300 cf Overall x 40.0% Voids
#2	664.00'	64,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		64,120 cf	Total Available Storage

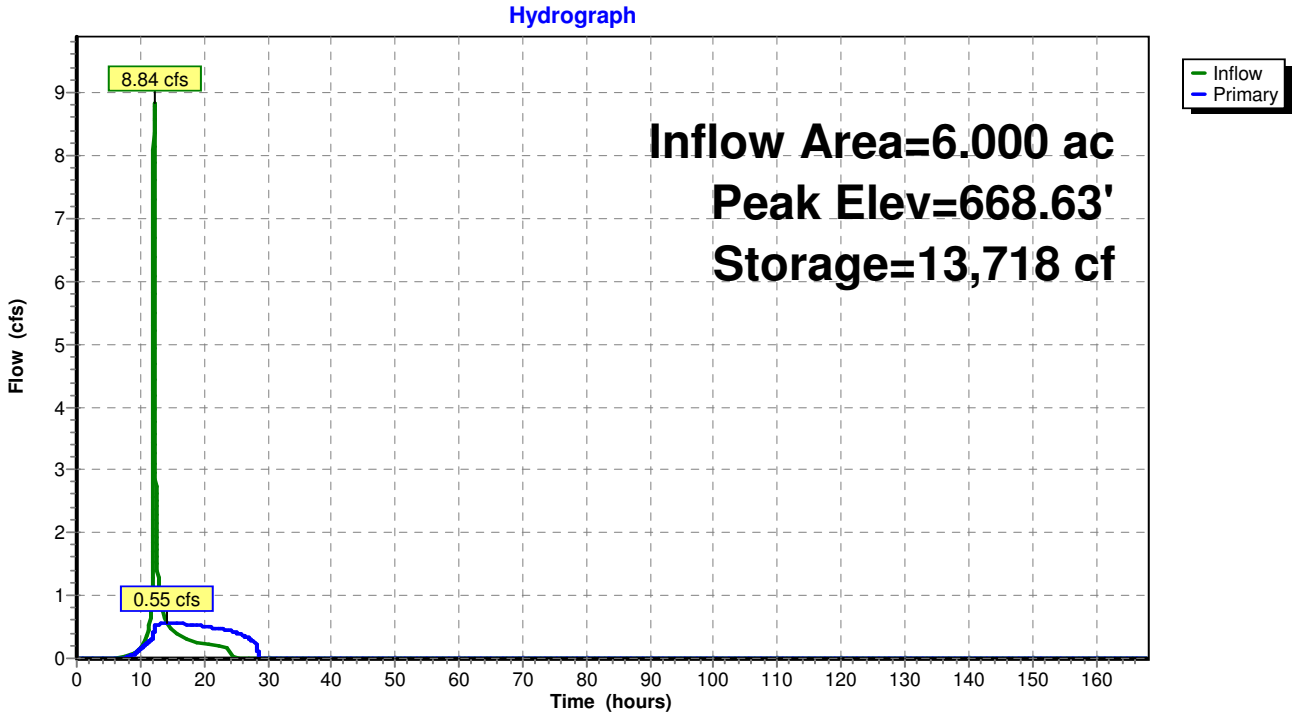
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	300	0	0
664.00	300	300	300

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
664.00	1,000	0	0
666.00	2,500	3,500	3,500
668.00	4,500	7,000	10,500
670.00	7,100	11,600	22,100
672.00	10,300	17,400	39,500
674.00	14,200	24,500	64,000

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**18.0" Round Culvert** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 663.00' / 656.00' S= 0.0437 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	663.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	671.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.55 cfs @ 14.20 hrs HW=668.63' TW=617.11' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.55 cfs of 18.80 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.55 cfs @ 11.30 fps)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2.2 EDB: Entrance Detention Basin



Stage-Area-Storage for Pond 2.2 EDB: Entrance Detention Basin

Elevation (feet)	Storage (cubic-feet)
663.00	0
663.15	18
663.30	36
663.45	54
663.60	72
663.75	90
663.90	108
664.05	171
664.20	335
664.35	516
664.50	714
664.65	928
664.80	1,160
664.95	1,408
665.10	1,674
665.25	1,956
665.40	2,255
665.55	2,571
665.70	2,904
665.85	3,253
666.00	3,620
666.15	4,006
666.30	4,415
666.45	4,846
666.60	5,300
666.75	5,776
666.90	6,275
667.05	6,796
667.20	7,340
667.35	7,906
667.50	8,495
667.65	9,106
667.80	9,740
667.95	10,396
668.10	11,077
668.25	11,786
668.40	12,524
668.55	13,292
668.70	14,089
668.85	14,915
669.00	15,770
669.15	16,655
669.30	17,568
669.45	18,512
669.60	19,484
669.75	20,486
669.90	21,516
670.05	22,577
670.20	23,672
670.35	24,803
670.50	25,970
670.65	27,173
670.80	28,412
670.95	29,687
671.10	30,998
671.25	32,345
671.40	33,728
671.55	35,147
671.70	36,602
671.85	38,093
672.00	39,620
672.15	41,187
672.30	42,798
672.45	44,452
672.60	46,151
672.75	47,893
672.90	49,680
673.05	51,510
673.20	53,384
673.35	55,302
673.50	57,264
673.65	59,269
673.80	61,319
673.95	**63,412**

Summary for Pond 2.5 EDB: South Detention Basin

Inflow Area = 13.500 ac, 37.04% Impervious, Inflow Depth = 1.38" for 1-yr event
Inflow = 24.79 cfs @ 12.04 hrs, Volume= 1.555 af
Outflow = 0.57 cfs @ 18.65 hrs, Volume= 1.555 af, Atten= 98%, Lag= 396.4 min
Primary = 0.57 cfs @ 18.65 hrs, Volume= 1.555 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 625.84' @ 18.65 hrs Surf.Area= 12,402 sf Storage= 42,119 cf
Flood Elev= 631.50' Surf.Area= 20,525 sf Storage= 130,014 cf

Plug-Flow detention time= 851.4 min calculated for 1.555 af (100% of inflow)
Center-of-Mass det. time= 851.2 min (1,694.0 - 842.8)

Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	621.00'	139,750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		140,070 cf	Total Available Storage

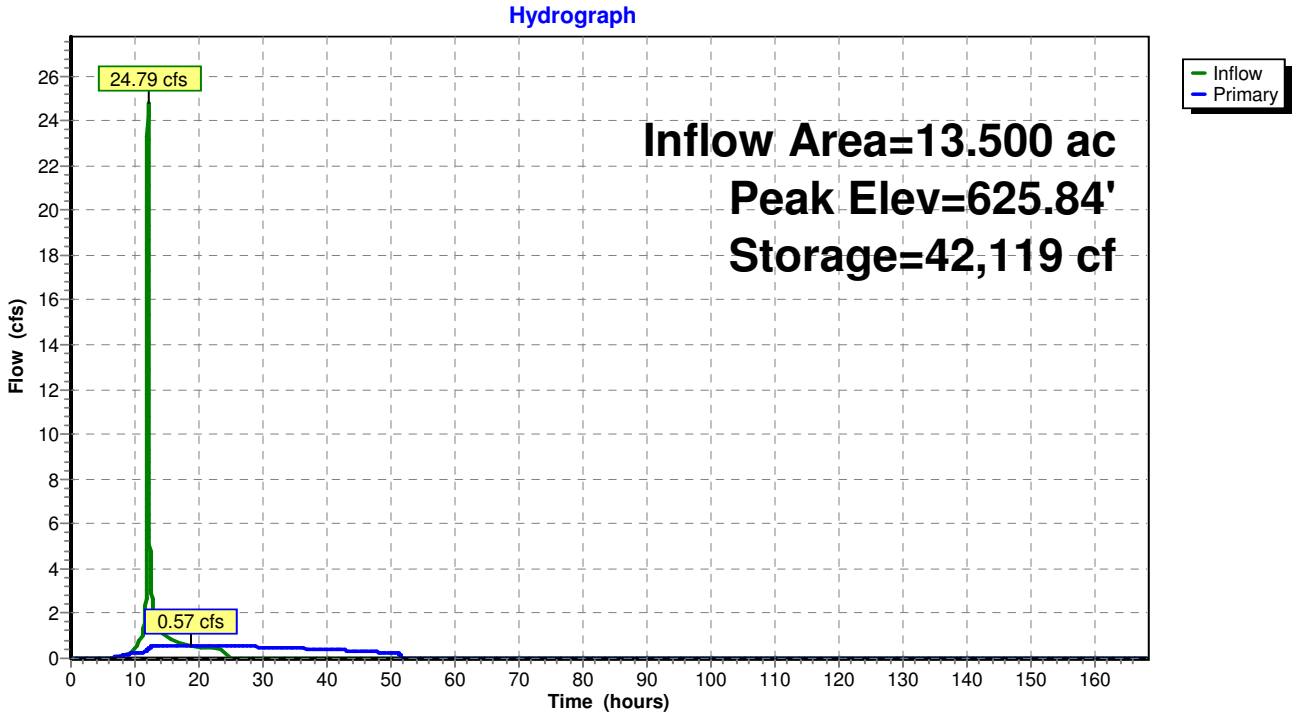
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	800	0	0
621.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	5,200	0	0
622.00	7,100	6,150	6,150
624.00	9,300	16,400	22,550
626.00	11,800	21,100	43,650
628.00	14,500	26,300	69,950
630.00	17,400	31,900	101,850
632.00	20,500	37,900	139,750

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**24.0" Round Culvert** L= 450.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 620.00' / 615.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	628.30'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	620.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.57 cfs @ 18.65 hrs HW=625.84' TW=617.08' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.57 cfs of 27.31 cfs potential flow)
  ├─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Orifice Controls 0.57 cfs @ 11.51 fps)

Pond 2.5 EDB: South Detention Basin



Stage-Area-Storage for Pond 2.5 EDB: South Detention Basin

Elevation (feet)	Storage (cubic-feet)
620.00	0
620.15	48
620.30	96
620.45	144
620.60	192
620.75	240
620.90	288
621.05	582
621.20	1,398
621.35	2,256
621.50	3,158
621.65	4,101
621.80	5,088
621.95	6,117
622.10	7,186
622.25	8,279
622.40	9,398
622.55	10,541
622.70	11,710
622.85	12,902
623.00	14,120
623.15	15,362
623.30	16,629
623.45	17,921
623.60	19,238
623.75	20,579
623.90	21,945
624.05	23,337
624.20	24,755
624.35	26,202
624.50	27,676
624.65	29,179
624.80	30,710
624.95	32,269
625.10	33,856
625.25	35,472
625.40	37,115
625.55	38,787
625.70	40,486
625.85	42,214
626.00	43,970
626.15	45,755
626.30	47,571
626.45	49,417
626.60	51,293
626.75	53,200
626.90	55,137
627.05	57,104
627.20	59,102
627.35	61,130
627.50	63,189
627.65	65,278
627.80	67,397
627.95	69,547
628.10	71,727
628.25	73,940
628.40	76,186
628.55	78,464
628.70	80,775
628.85	83,119
629.00	85,495
629.15	87,904
629.30	90,345
629.45	92,819
629.60	95,326
629.75	97,865
629.90	100,437
630.05	103,042
630.20	105,681
630.35	108,355
630.50	111,064
630.65	113,807
630.80	116,586
630.95	119,399
631.10	122,248
631.25	125,131
631.40	128,049
631.55	131,002
631.70	133,990
631.85	137,012
632.00	**140,070**

Summary for Pond 2.6 IB: South Upper Infiltration Basin

Inflow Area = 20.500 ac, 37.56% Impervious, Inflow Depth = 1.33" for 1-yr event
Inflow = 1.13 cfs @ 14.85 hrs, Volume= 2.270 af
Outflow = 1.13 cfs @ 14.86 hrs, Volume= 2.270 af, Atten= 0%, Lag= 0.7 min
Discarded = 1.13 cfs @ 14.86 hrs, Volume= 2.270 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 609.01' @ 14.86 hrs Surf.Area= 6,609 sf Storage= 49 cf
Flood Elev= 617.50' Surf.Area= 18,675 sf Storage= 104,556 cf

Plug-Flow detention time= 0.7 min calculated for 2.270 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (1,515.6 - 1,514.9)

Volume	Invert	Avail.Storage	Storage Description
#1	609.00'	114,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

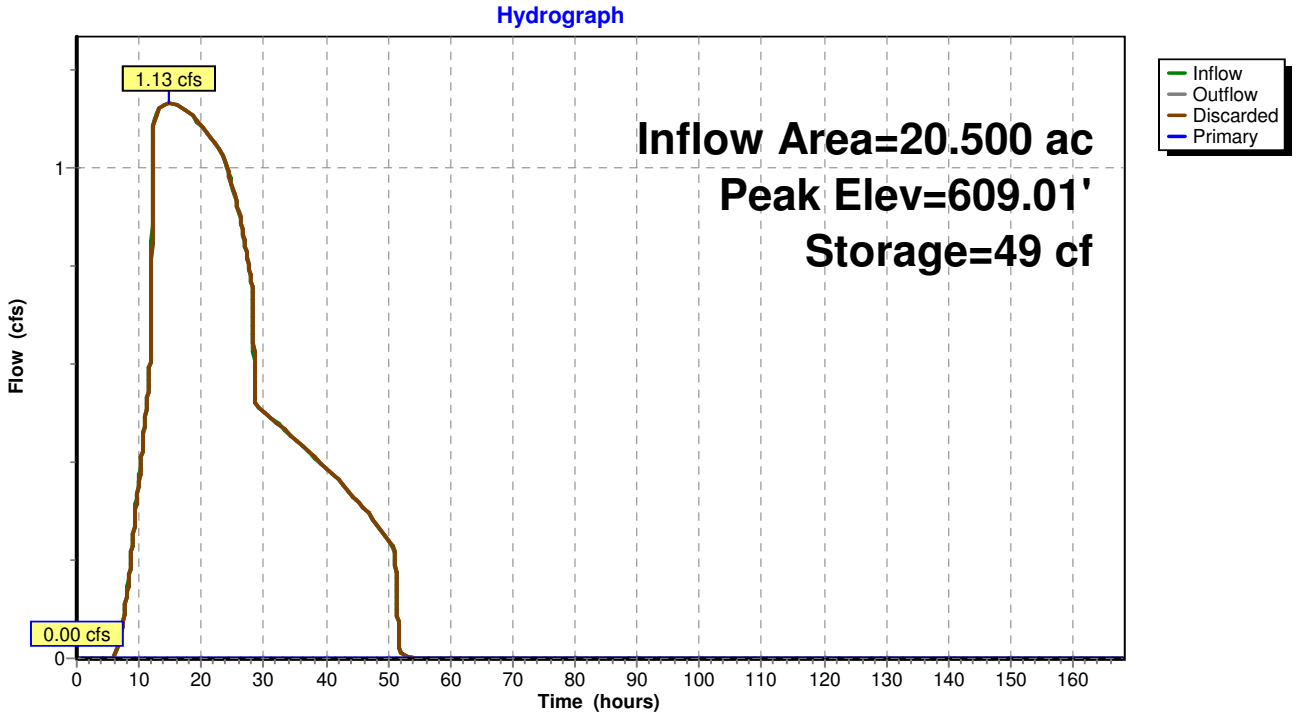
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.00	6,600	0	0
610.00	7,800	7,200	7,200
612.00	10,400	18,200	25,400
614.00	13,200	23,600	49,000
616.00	16,200	29,400	78,400
618.00	19,500	35,700	114,100

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**12.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.00' / 594.00' S= 0.1875 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	617.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Discarded	609.00'	**20.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=1.13 cfs @ 14.86 hrs HW=609.01' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 1.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=609.00' TW=593.00' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2.6 IB: South Upper Infiltration Basin



Stage-Area-Storage for Pond 2.6 IB: South Upper Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
609.00	6,600	0
609.10	6,720	666
609.20	6,840	1,344
609.30	6,960	2,034
609.40	7,080	2,736
609.50	7,200	3,450
609.60	7,320	4,176
609.70	7,440	4,914
609.80	7,560	5,664
609.90	7,680	6,426
610.00	7,800	7,200
610.10	7,930	7,987
610.20	8,060	8,786
610.30	8,190	9,598
610.40	8,320	10,424
610.50	8,450	11,263
610.60	8,580	12,114
610.70	8,710	12,979
610.80	8,840	13,856
610.90	8,970	14,746
611.00	9,100	15,650
611.10	9,230	16,567
611.20	9,360	17,496
611.30	9,490	18,438
611.40	9,620	19,394
611.50	9,750	20,363
611.60	9,880	21,344
611.70	10,010	22,339
611.80	10,140	23,346
611.90	10,270	24,366
612.00	10,400	25,400
612.10	10,540	26,447
612.20	10,680	27,508
612.30	10,820	28,583
612.40	10,960	29,672
612.50	11,100	30,775
612.60	11,240	31,892
612.70	11,380	33,023
612.80	11,520	34,168
612.90	11,660	35,327
613.00	11,800	36,500
613.10	11,940	37,687
613.20	12,080	38,888
613.30	12,220	40,103
613.40	12,360	41,332
613.50	12,500	42,575
613.60	12,640	43,832
613.70	12,780	45,103
613.80	12,920	46,388
613.90	13,060	47,687
614.00	13,200	49,000
614.10	13,350	50,328
614.20	13,500	51,670
614.30	13,650	53,027
614.40	13,800	54,400
614.50	13,950	55,788
614.60	14,100	57,190
614.70	14,250	58,608
614.80	14,400	60,040
614.90	14,550	61,487
615.00	14,700	62,950
615.10	14,850	64,428
615.20	15,000	65,920
615.30	15,150	67,427
615.40	15,300	68,950
615.50	15,450	70,488
615.60	15,600	72,040
615.70	15,750	73,608
615.80	15,900	75,190
615.90	16,050	76,787
616.00	16,200	78,400
616.10	16,365	80,028
616.20	16,530	81,673
616.30	16,695	83,334
616.40	16,860	85,012
616.50	17,025	86,706
616.60	17,190	88,417
616.70	17,355	90,144
616.80	17,520	91,888
616.90	17,685	93,648
617.00	17,850	95,425
617.10	18,015	97,218
617.20	18,180	99,028
617.30	18,345	100,854
617.40	18,510	102,697
617.50	18,675	104,556
617.60	18,840	106,432
617.70	19,005	108,324
617.80	19,170	110,233
617.90	19,335	112,158
618.00	**19,500**	**114,100**

Summary for Pond 2.7 EDB: South Lower Detention Basin

Inflow Area = 21.200 ac, 36.32% Impervious, Inflow Depth = 0.01" for 1-yr event
Inflow = 0.20 cfs @ 12.13 hrs, Volume= 0.021 af
Outflow = 0.10 cfs @ 12.27 hrs, Volume= 0.021 af, Atten= 49%, Lag= 8.4 min
Primary = 0.10 cfs @ 12.27 hrs, Volume= 0.021 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 593.31' @ 12.27 hrs Surf.Area= 800 sf Storage= 99 cf
Flood Elev= 605.50' Surf.Area= 16,125 sf Storage= 100,089 cf

Plug-Flow detention time= 28.6 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 28.6 min (977.5 - 949.0)

Volume	Invert	Avail.Storage	Storage Description
#1	593.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	594.00'	107,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		107,920 cf	Total Available Storage

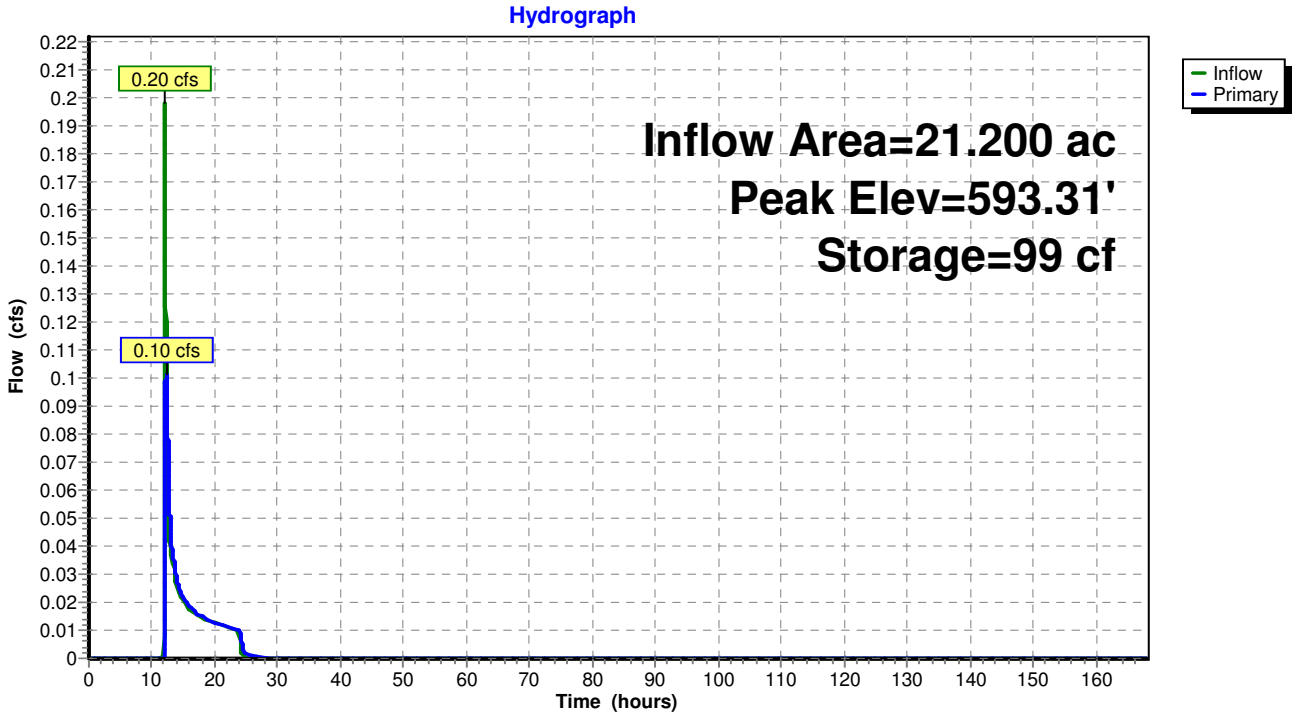
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
593.00	800	0	0
594.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
594.00	3,200	0	0
596.00	4,800	8,000	8,000
598.00	6,600	11,400	19,400
600.00	8,600	15,200	34,600
602.00	10,900	19,500	54,100
604.00	13,300	24,200	78,300
606.00	16,000	29,300	107,600

Device	Routing	Invert	Outlet Devices
#1	Primary	593.00'	**36.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 593.00' / 590.00' S= 0.0353 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	604.20'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	593.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.10 cfs @ 12.27 hrs HW=593.31' TW=0.00' (Dynamic Tailwater)
↑└─**1=Culvert** (Passes 0.10 cfs of 0.73 cfs potential flow)
↑ ├─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**3=Orifice/Grate** (Orifice Controls 0.10 cfs @ 2.06 fps)

Pond 2.7 EDB: South Lower Detention Basin



Stage-Area-Storage for Pond 2.7 EDB: South Lower Detention Basin

Elevation (feet)	Storage (cubic-feet)
593.00	0
593.15	48
593.30	96
593.45	144
593.60	192
593.75	240
593.90	288
594.05	481
594.20	976
594.35	1,489
594.50	2,020
594.65	2,569
594.80	3,136
594.95	3,721
595.10	4,324
595.25	4,945
595.40	5,584
595.55	6,241
595.70	6,916
595.85	7,609
596.00	8,320
596.15	9,050
596.30	9,800
596.45	10,571
596.60	11,362
596.75	12,173
596.90	13,004
597.05	13,856
597.20	14,728
597.35	15,620
597.50	16,533
597.65	17,465
597.80	18,418
597.95	19,391
598.10	20,385
598.25	21,401
598.40	22,440
598.55	23,501
598.70	24,585
598.85	25,691
599.00	26,820
599.15	27,971
599.30	29,145
599.45	30,341
599.60	31,560
599.75	32,801
599.90	34,065
600.05	35,351
600.20	36,663
600.35	38,000
600.50	39,364
600.65	40,753
600.80	42,168
600.95	43,609
601.10	45,076
601.25	46,568
601.40	48,087
601.55	49,631
601.70	51,202
601.85	52,798
602.00	54,420
602.15	56,068
602.30	57,744
602.45	59,447
602.60	61,176
602.75	62,933
602.90	64,716
603.05	66,526
603.20	68,364
603.35	70,229
603.50	72,120
603.65	74,038
603.80	75,984
603.95	77,957
604.10	79,957
604.25	81,987
604.40	84,048
604.55	86,139
604.70	88,261
604.85	90,413
605.00	92,595
605.15	94,808
605.30	97,051
605.45	99,324
605.60	101,628
605.75	103,962
605.90	**106,327**

Summary for Pond FS 1: North Detention Flow Split

Inflow Area = 16.900 ac, 17.75% Impervious, Inflow Depth = 1.34" for 1-yr event
Inflow = 0.28 cfs @ 24.11 hrs, Volume= 1.883 af
Outflow = 0.28 cfs @ 24.12 hrs, Volume= 1.883 af, Atten= 0%, Lag= 0.6 min
Primary = 0.28 cfs @ 24.12 hrs, Volume= 1.883 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

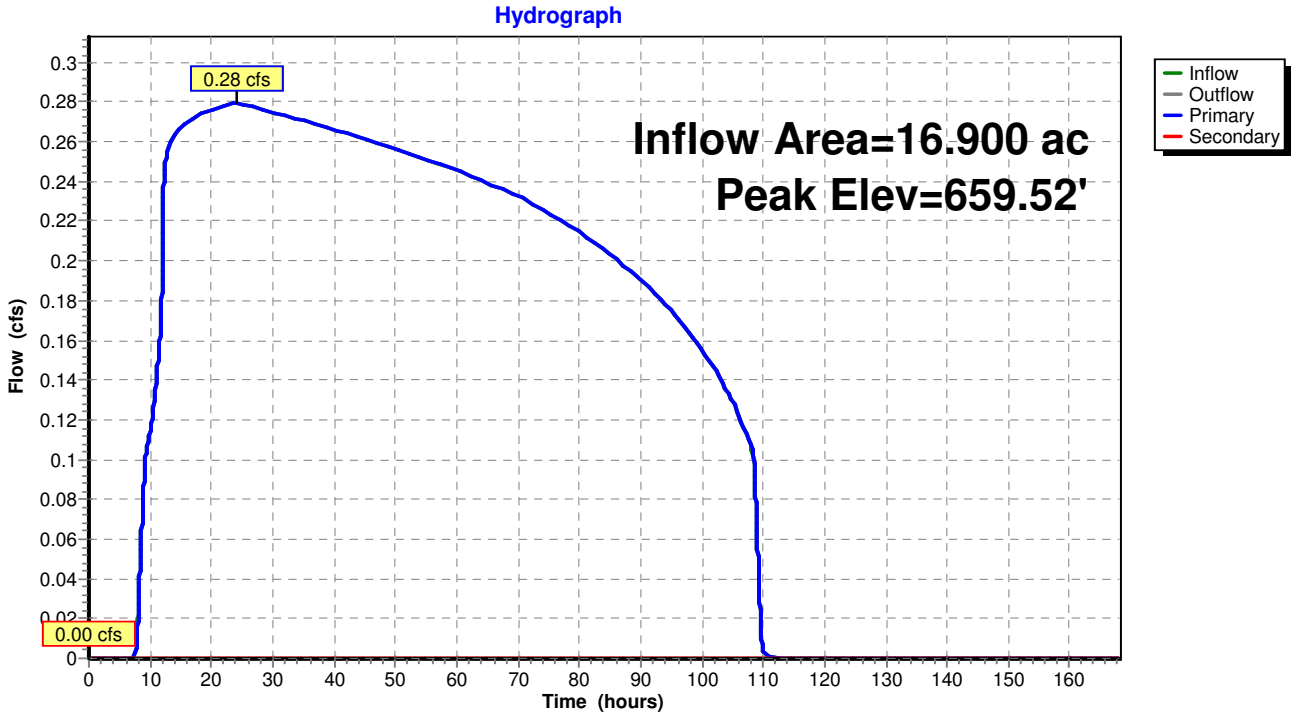
Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 659.52' @ 24.12 hrs
Flood Elev= 669.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	658.00'	**6.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 658.00' / 656.00' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	658.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Secondary	659.60'	**36.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 659.60' / 656.00' S= 0.0450 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=0.28 cfs @ 24.12 hrs HW=659.52' TW=654.59' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.28 cfs of 0.75 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.28 cfs @ 5.69 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=658.00' TW=651.00' (Dynamic Tailwater)
↑**3=Culvert** (Controls 0.00 cfs)

Pond FS 1: North Detention Flow Split



Stage-Area-Storage for Pond FS 1: North Detention Flow Split

Elevation (feet)	Storage (cubic-feet)
658.00	**0**
658.15	0
658.30	0
658.45	0
658.60	0
658.75	0
658.90	0
659.05	0
659.20	0
659.35	0
659.50	0
659.65	0
659.80	0
659.95	0
660.10	0
660.25	0
660.40	0
660.55	0
660.70	0
660.85	0
661.00	0
661.15	0
661.30	0
661.45	0
661.60	0
661.75	0
661.90	0
662.05	0
662.20	0
662.35	0
662.50	0
662.65	0
662.80	0
662.95	0
663.10	0
663.25	0
663.40	0
663.55	0
663.70	0
663.85	0
664.00	0
664.15	0
664.30	0
664.45	0
664.60	0
664.75	0
664.90	0
665.05	0
665.20	0
665.35	0
665.50	0
665.65	0
665.80	0
665.95	0
666.10	0
666.25	0
666.40	0
666.55	0
666.70	0
666.85	0
667.00	0
667.15	0
667.30	0
667.45	0
667.60	0
667.75	0
667.90	0
668.05	0
668.20	0
668.35	0
668.50	0
668.65	0
668.80	0
668.95	0

Summary for Pond FS 2:

Inflow Area = 19.500 ac, 39.49% Impervious, Inflow Depth = 1.38" for 1-yr event
Inflow = 1.11 cfs @ 15.41 hrs, Volume= 2.246 af
Outflow = 1.11 cfs @ 15.42 hrs, Volume= 2.246 af, Atten= 0%, Lag= 0.6 min
Primary = 1.11 cfs @ 15.42 hrs, Volume= 2.246 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

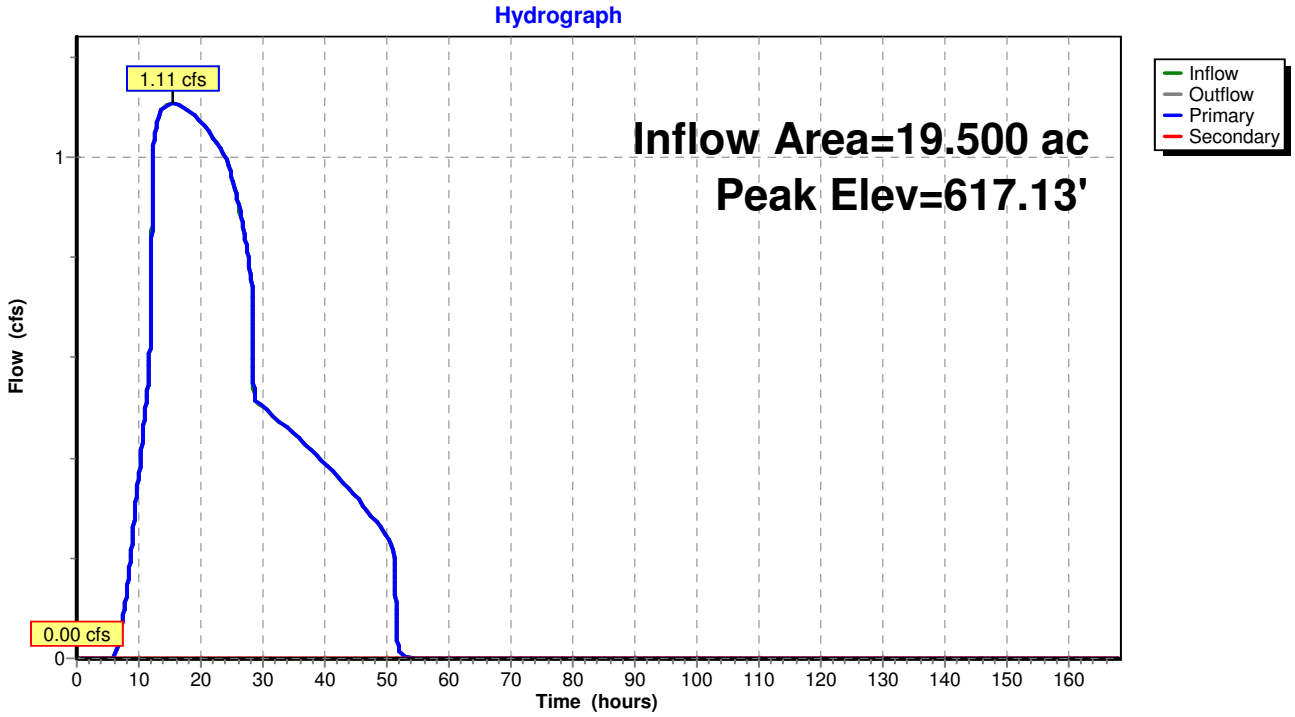
Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 617.13' @ 15.42 hrs
Flood Elev= 629.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	615.50'	**6.0" Round Culvert** L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 615.50' / 609.00' S= 0.0542 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 3	617.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Secondary	615.50'	**30.0" Round Culvert** L= 180.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 615.50' / 610.80' S= 0.0261 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=1.11 cfs @ 15.42 hrs HW=617.13' TW=609.01' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.11 cfs @ 5.65 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=615.50' TW=593.00' (Dynamic Tailwater)
└**3=Culvert** (Controls 0.00 cfs)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond FS 2:


Hydrograph
1.11 cfs
0.00 cfs
Inflow Area=19.500 ac
Peak Elev=617.13'
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)
0
1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

Stage-Area-Storage for Pond FS 2:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
615.50	**0**	623.30	0
615.65	0	623.45	0
615.80	0	623.60	0
615.95	0	623.75	0
616.10	0	623.90	0
616.25	0	624.05	0
616.40	0	624.20	0
616.55	0	624.35	0
616.70	0	624.50	0
616.85	0	624.65	0
617.00	0	624.80	0
617.15	0	624.95	0
617.30	0	625.10	0
617.45	0	625.25	0
617.60	0	625.40	0
617.75	0	625.55	0
617.90	0	625.70	0
618.05	0	625.85	0
618.20	0	626.00	0
618.35	0	626.15	0
618.50	0	626.30	0
618.65	0	626.45	0
618.80	0	626.60	0
618.95	0	626.75	0
619.10	0	626.90	0
619.25	0	627.05	0
619.40	0	627.20	0
619.55	0	627.35	0
619.70	0	627.50	0
619.85	0	627.65	0
620.00	0	627.80	0
620.15	0	627.95	0
620.30	0	628.10	0
620.45	0	628.25	0
620.60	0	628.40	0
620.75	0	628.55	0
620.90	0	628.70	0
621.05	0	628.85	0
621.20	0	629.00	0
621.35	0	629.15	0
621.50	0	629.30	0
621.65	0	629.45	0
621.80	0		
621.95	0		
622.10	0		
622.25	0		
622.40	0		
622.55	0		
622.70	0		
622.85	0		
623.00	0		
623.15	0		

Summary for Subcatchment 1.1S: North Sports & Parking (Piped)

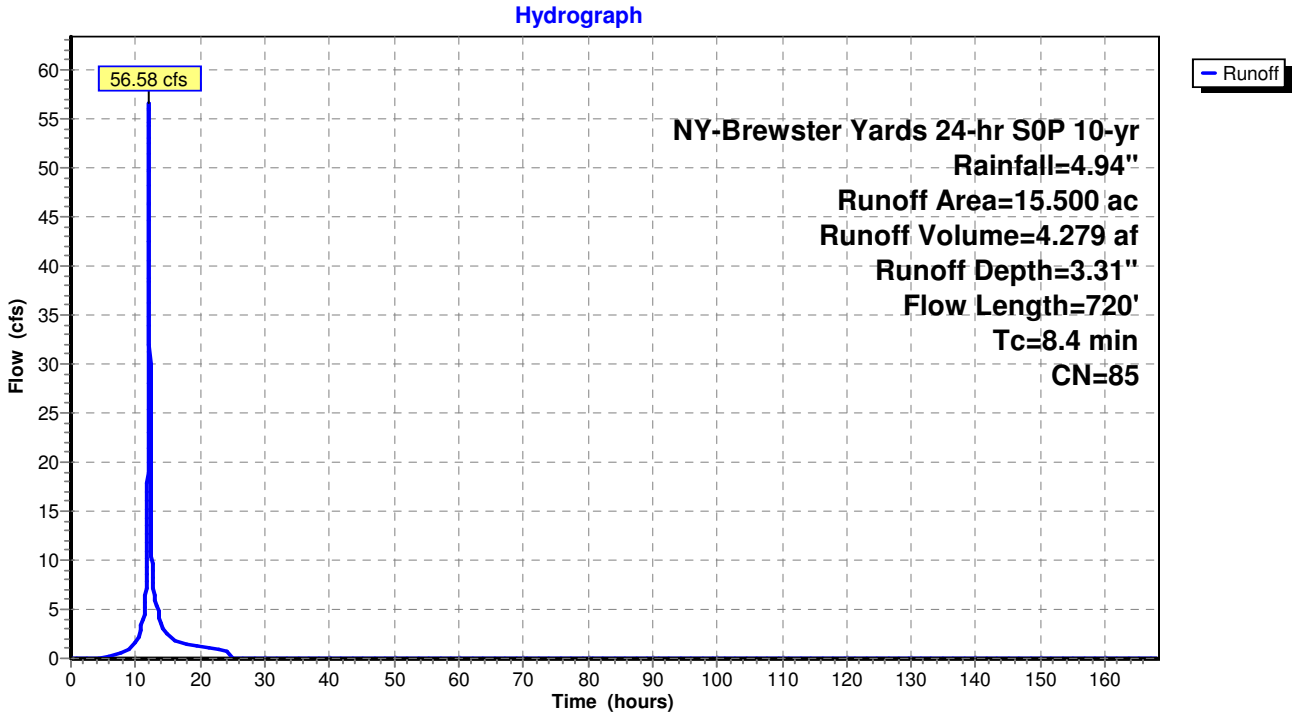
Runoff = 56.58 cfs @ 12.07 hrs, Volume= 4.279 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

	Area (ac)	CN	Description
*	9.900	86	Field Turf
	1.400	61	>75% Grass cover, Good, HSG B
	1.200	74	>75% Grass cover, Good, HSG C
*	3.000	98	Impervious
	15.500	85	Weighted Average
	12.500		80.65% Pervious Area
	3.000		19.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
0.8	160	0.0438	3.14		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	190	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	270	0.0200	10.18	31.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
8.4	720	Total			

Subcatchment 1.1S: North Sports & Parking (Piped)



Summary for Subcatchment 1.2S: North Detention

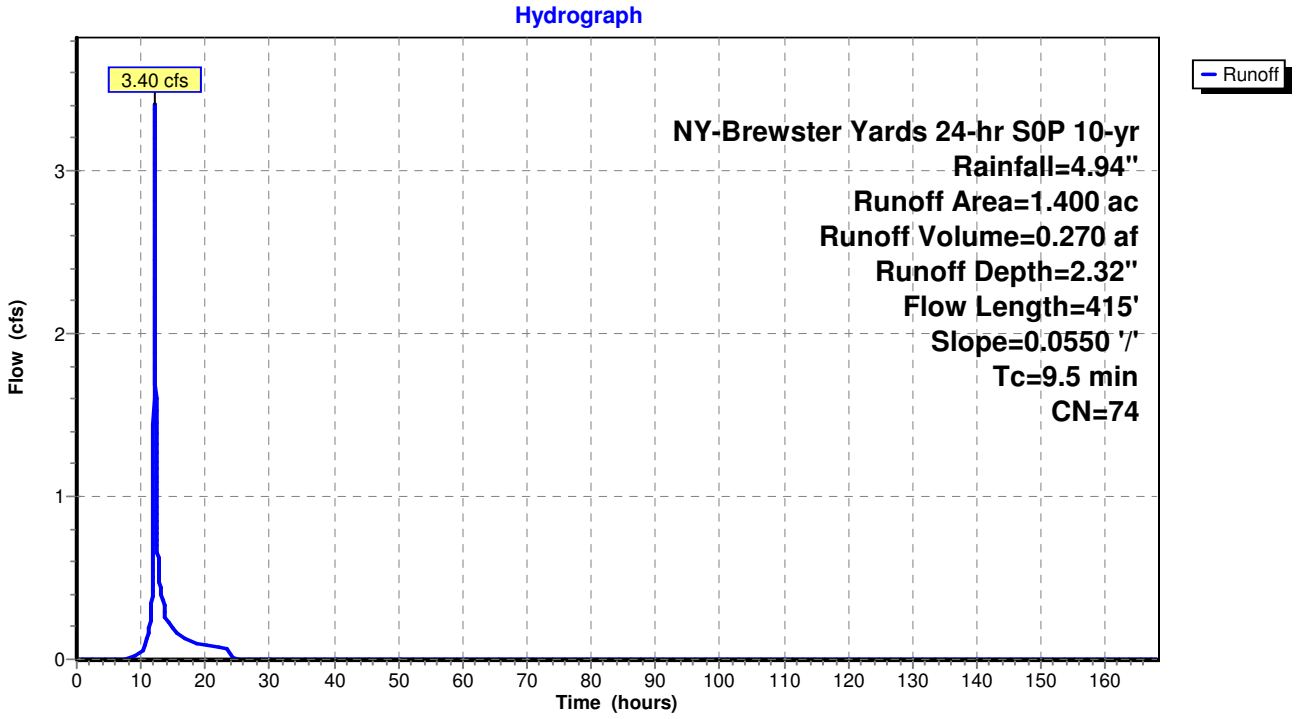
Runoff = 3.40 cfs @ 12.09 hrs, Volume= 0.270 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
1.400	74	>75% Grass cover, Good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0550	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
3.2	315	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.5	415	Total			

Subcatchment 1.2S: North Detention



Summary for Subcatchment 1.3S: North Infiltration

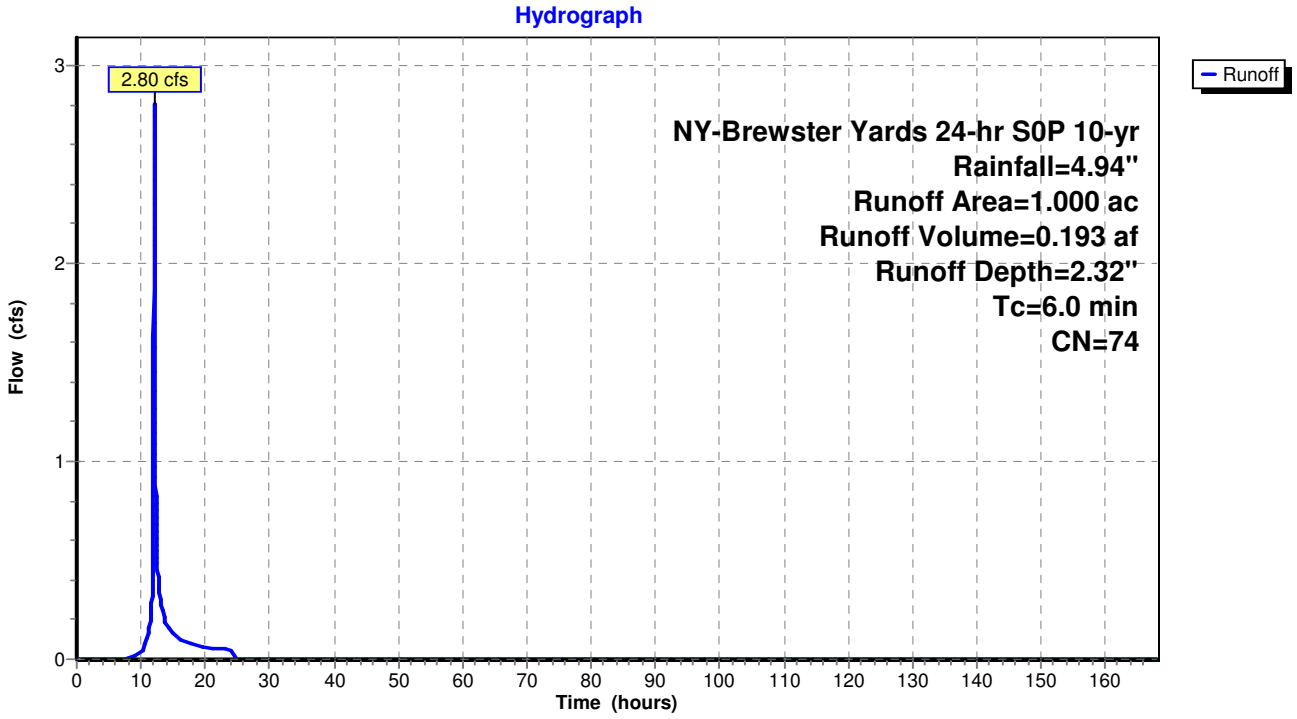
Runoff = 2.80 cfs @ 12.04 hrs, Volume= 0.193 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
1.000	74	>75% Grass cover, Good, HSG C
1.000		100.00% Pervious Area

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

Subcatchment 1.3S: North Infiltration



Summary for Subcatchment 1.4S: North Lower Detention

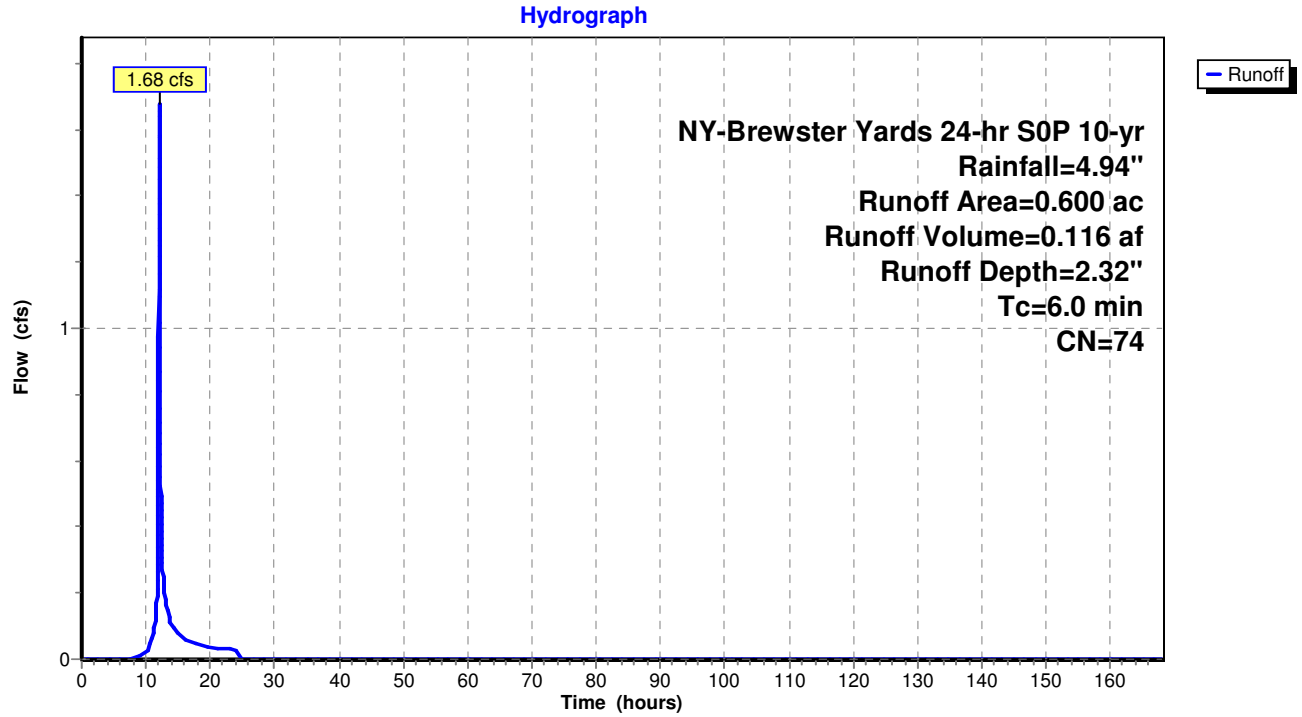
Runoff = 1.68 cfs @ 12.04 hrs, Volume= 0.116 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
0.600	74	>75% Grass cover, Good, HSG C
0.600		100.00% Pervious Area

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

Subcatchment 1.4S: North Lower Detention



Summary for Subcatchment 1.5S: North Untreated

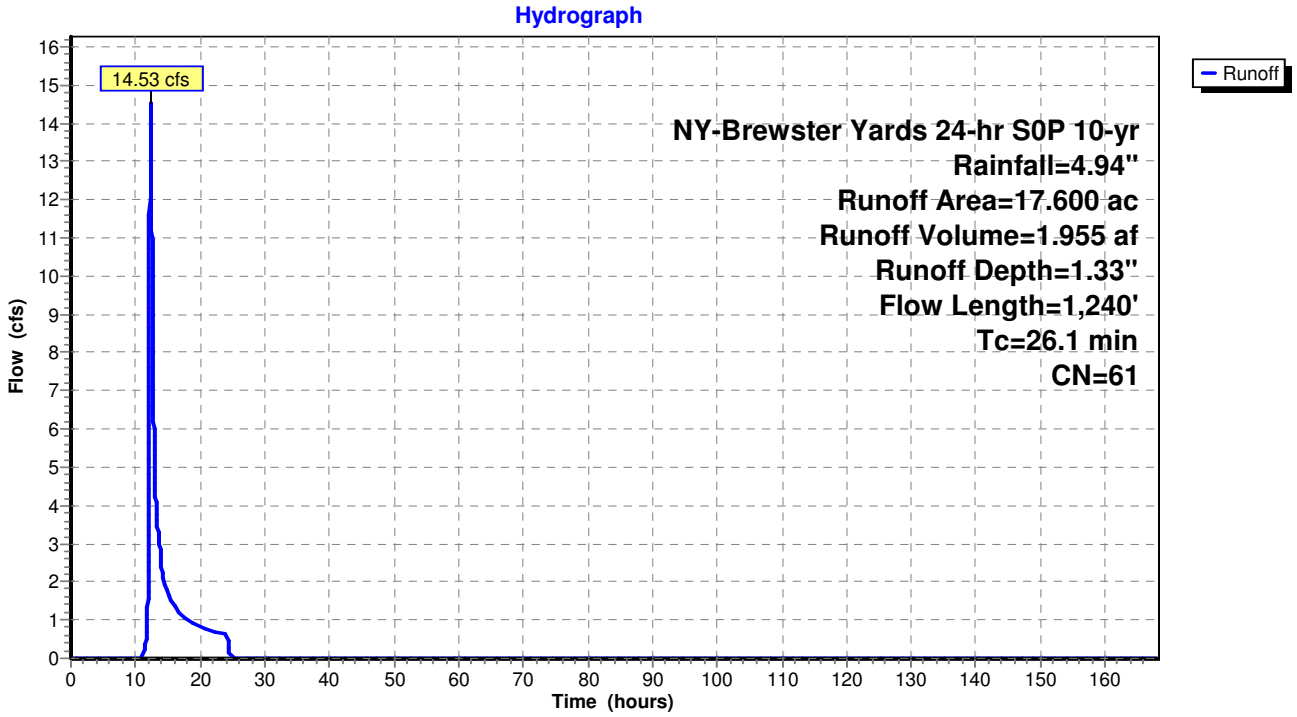
Runoff = 14.53 cfs @ 12.35 hrs, Volume= 1.955 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
10.300	55	Woods, Good, HSG B
5.800	70	Woods, Good, HSG C
0.200	77	Woods, Good, HSG D
0.300	61	>75% Grass cover, Good, HSG B
1.000	74	>75% Grass cover, Good, HSG C
17.600	61	Weighted Average
17.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
0.5	60	0.1330	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	200	0.2900	2.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	150	0.0930	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	160	0.2875	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.4	350	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	220	0.1100	4.39	21.97	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
26.1	1,240	Total			

Subcatchment 1.5S: North Untreated



Summary for Subcatchment 2.1S: Building & Fields (Piped)

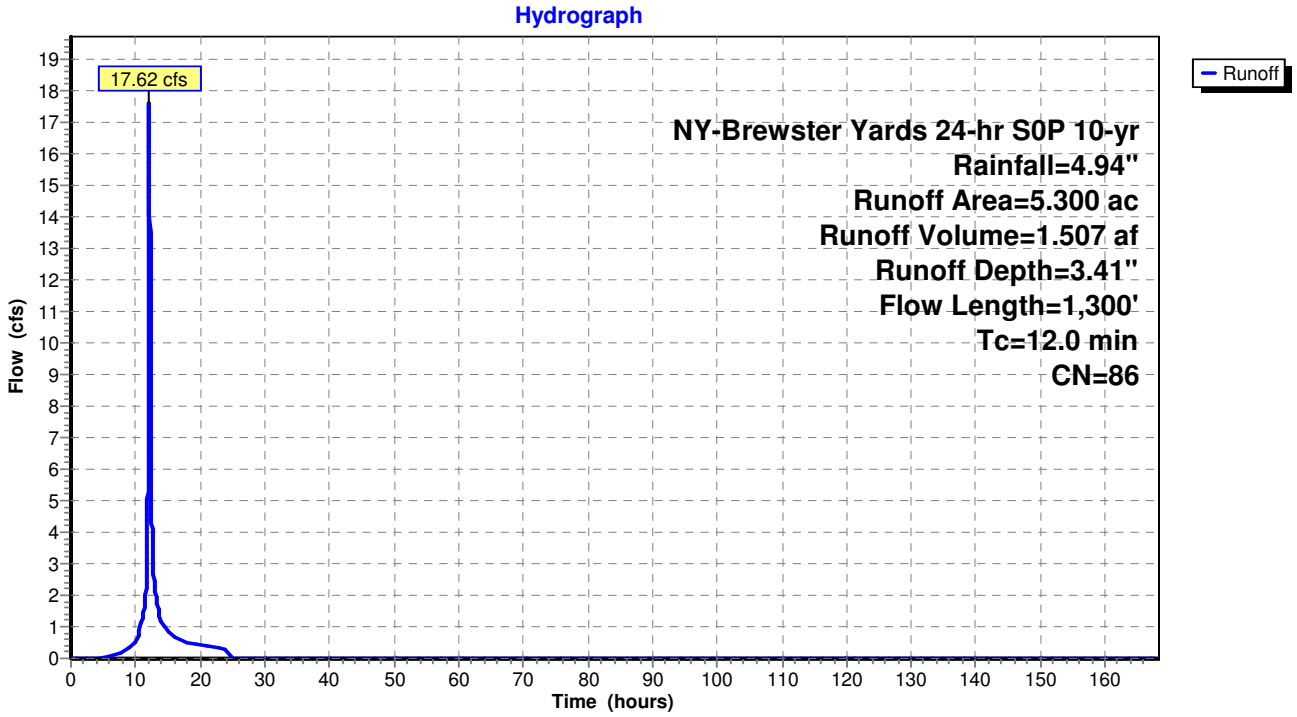
Runoff = 17.62 cfs @ 12.12 hrs, Volume= 1.507 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

	Area (ac)	CN	Description
*	2.700	98	Impervious
*	1.400	86	Field Turf
	1.200	61	>75% Grass cover, Good, HSG B
	5.300	86	Weighted Average
	2.600		49.06% Pervious Area
	2.700		50.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
1.2	150	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	800	0.0412	14.62	45.92	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
12.0	1,300	Total			

Subcatchment 2.1S: Building & Fields (Piped)



Summary for Subcatchment 2.2S: Entrance Infiltration Basin

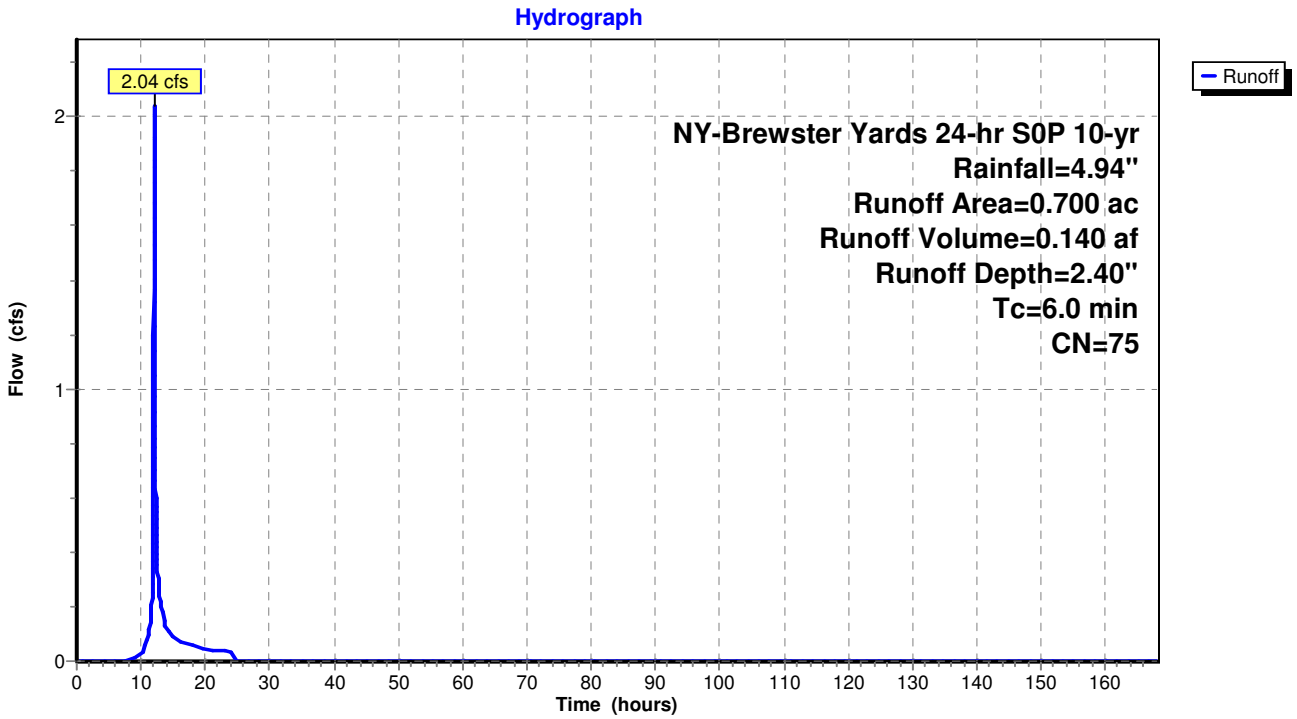
Runoff = 2.04 cfs @ 12.04 hrs, Volume= 0.140 af, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
0.200	61	>75% Grass cover, Good, HSG B
0.500	80	>75% Grass cover, Good, HSG D
0.700	75	Weighted Average
0.700		100.00% Pervious Area

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

Subcatchment 2.2S: Entrance Infiltration Basin



Summary for Subcatchment 2.3S: Fields & Parking (Piped)

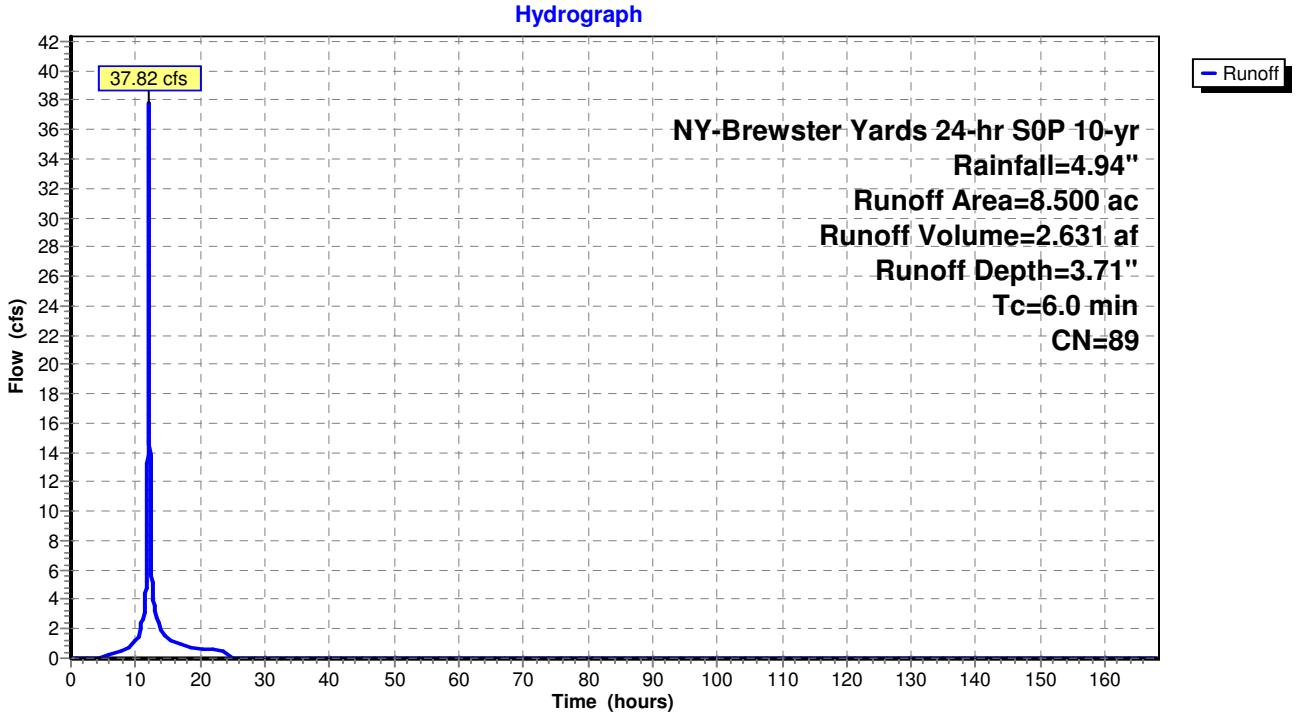
Runoff = 37.82 cfs @ 12.04 hrs, Volume= 2.631 af, Depth= 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

	Area (ac)	CN	Description
*	4.700	98	Impervious
*	2.400	86	Filed Turf
	1.400	61	>75% Grass cover, Good, HSG B
	8.500	89	Weighted Average
	3.800		44.71% Pervious Area
	4.700		55.29% Impervious Area

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

Subcatchment 2.3S: Fields & Parking (Piped)



Summary for Subcatchment 2.4S: South Showcase Field (Piped)

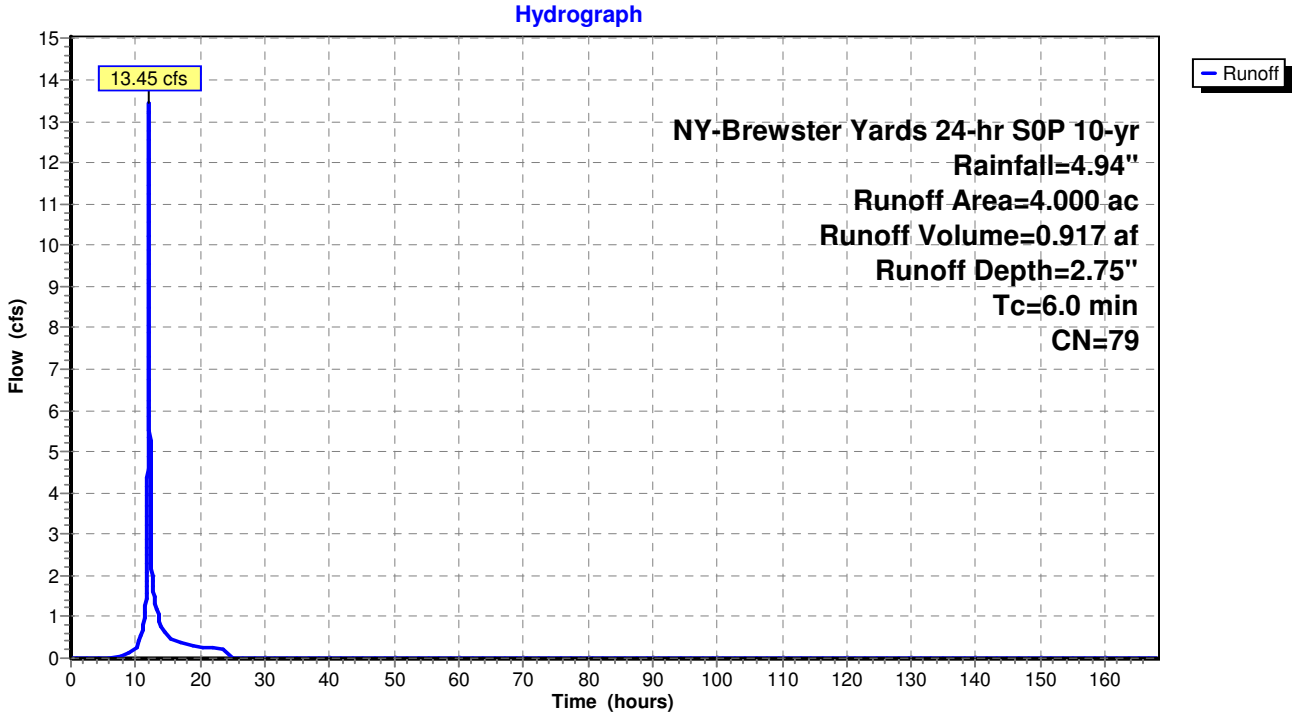
Runoff = 13.45 cfs @ 12.04 hrs, Volume= 0.917 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

	Area (ac)	CN	Description
*	0.300	98	Impervious
*	2.500	86	Filed Turf
	1.200	61	>75% Grass cover, Good, HSG B
	4.000	79	Weighted Average
	3.700		92.50% Pervious Area
	0.300		7.50% Impervious Area

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

Subcatchment 2.4S: South Showcase Field (Piped)



Summary for Subcatchment 2.5S: South Detention Basin

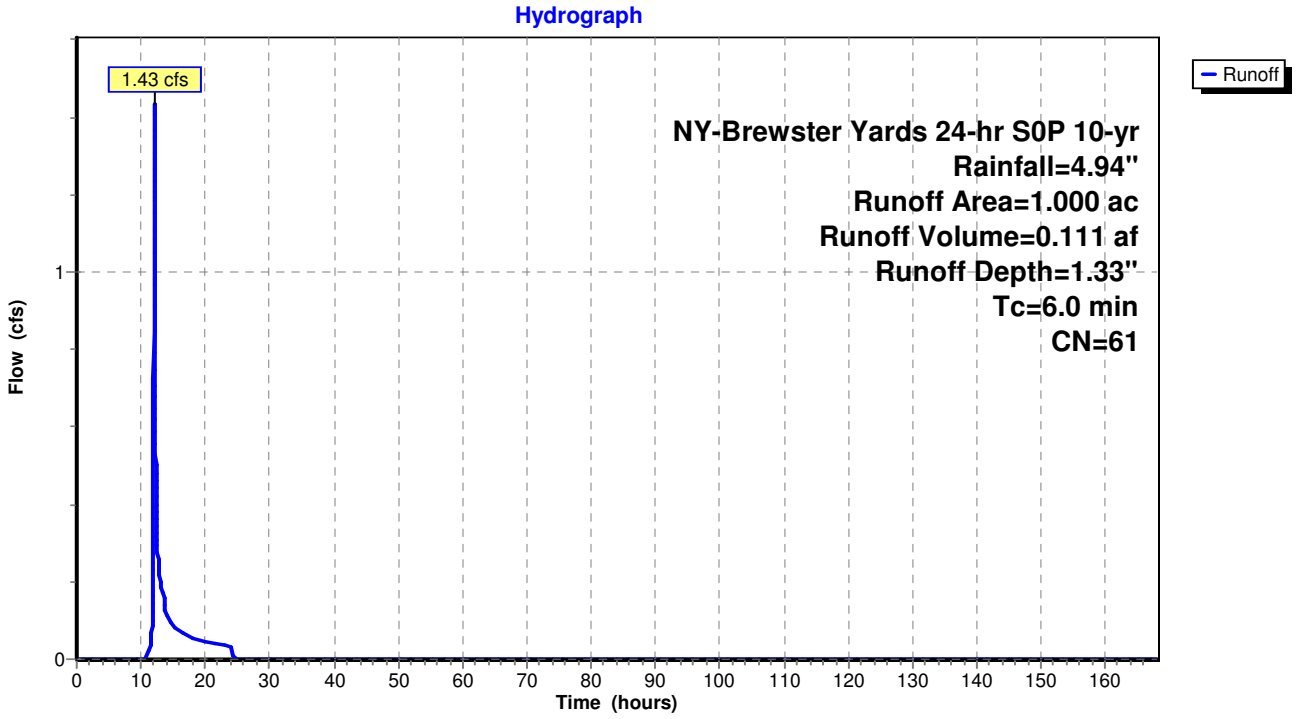
Runoff = 1.43 cfs @ 12.05 hrs, Volume= 0.111 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
1.000	61	>75% Grass cover, Good, HSG B
1.000		100.00% Pervious Area

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

Subcatchment 2.5S: South Detention Basin



Summary for Subcatchment 2.6S: South Upper Pond

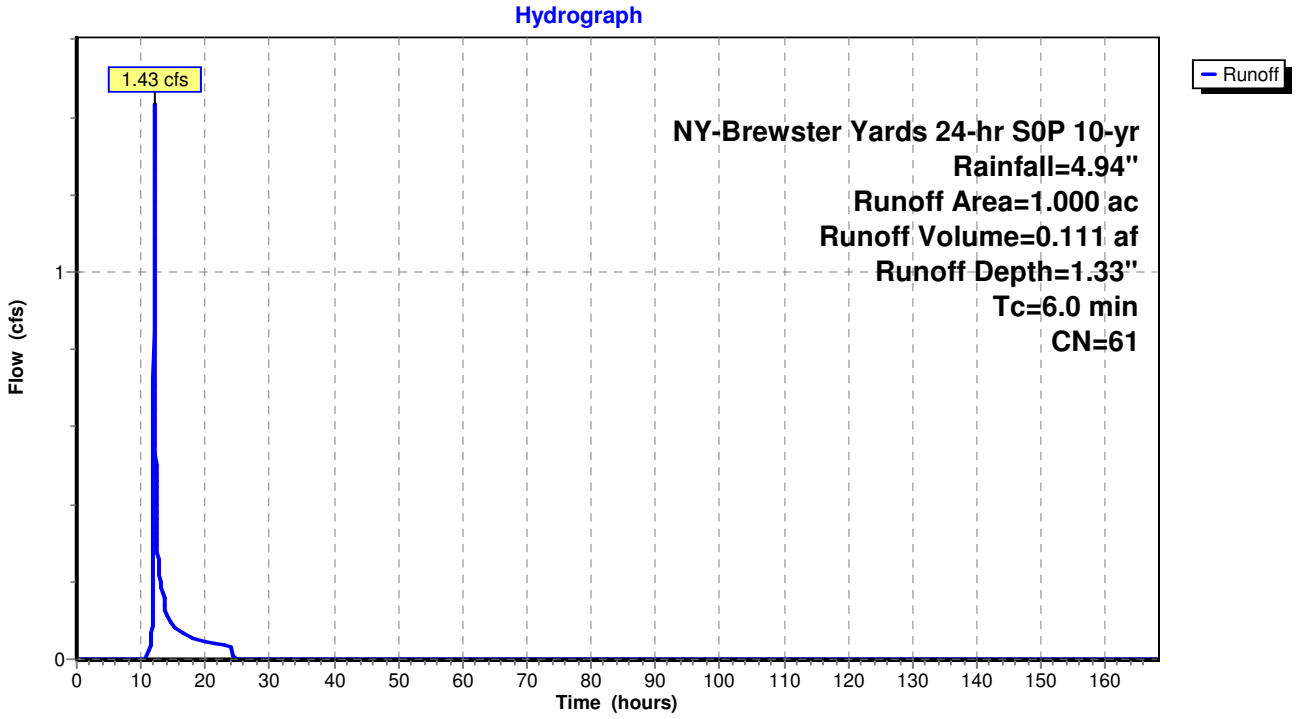
Runoff = 1.43 cfs @ 12.05 hrs, Volume= 0.111 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
1.000	61	>75% Grass cover, Good, HSG B
1.000		100.00% Pervious Area

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

Subcatchment 2.6S: South Upper Pond



Summary for Subcatchment 2.7S: South Lower Pond

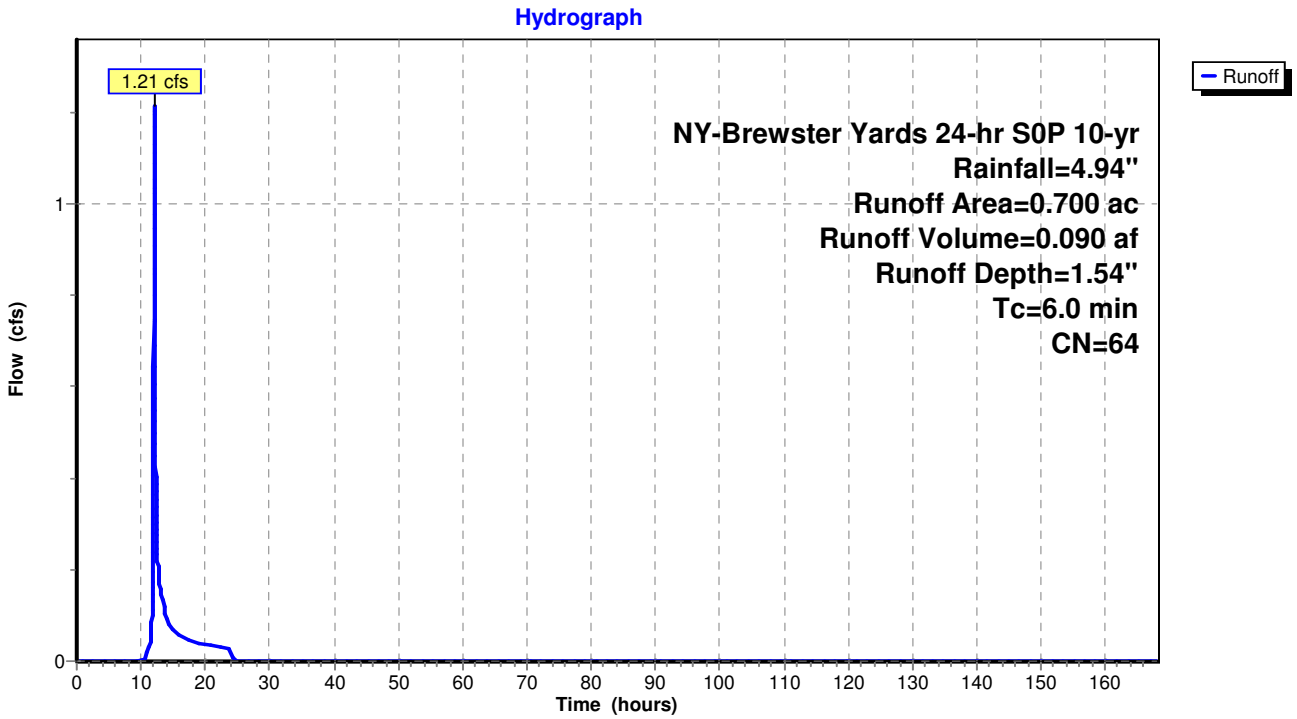
Runoff = 1.21 cfs @ 12.05 hrs, Volume= 0.090 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
0.600	61	>75% Grass cover, Good, HSG B
0.100	80	>75% Grass cover, Good, HSG D
0.700	64	Weighted Average
0.700		100.00% Pervious Area

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

Subcatchment 2.7S: South Lower Pond



Summary for Subcatchment 2.8S: South Untreated

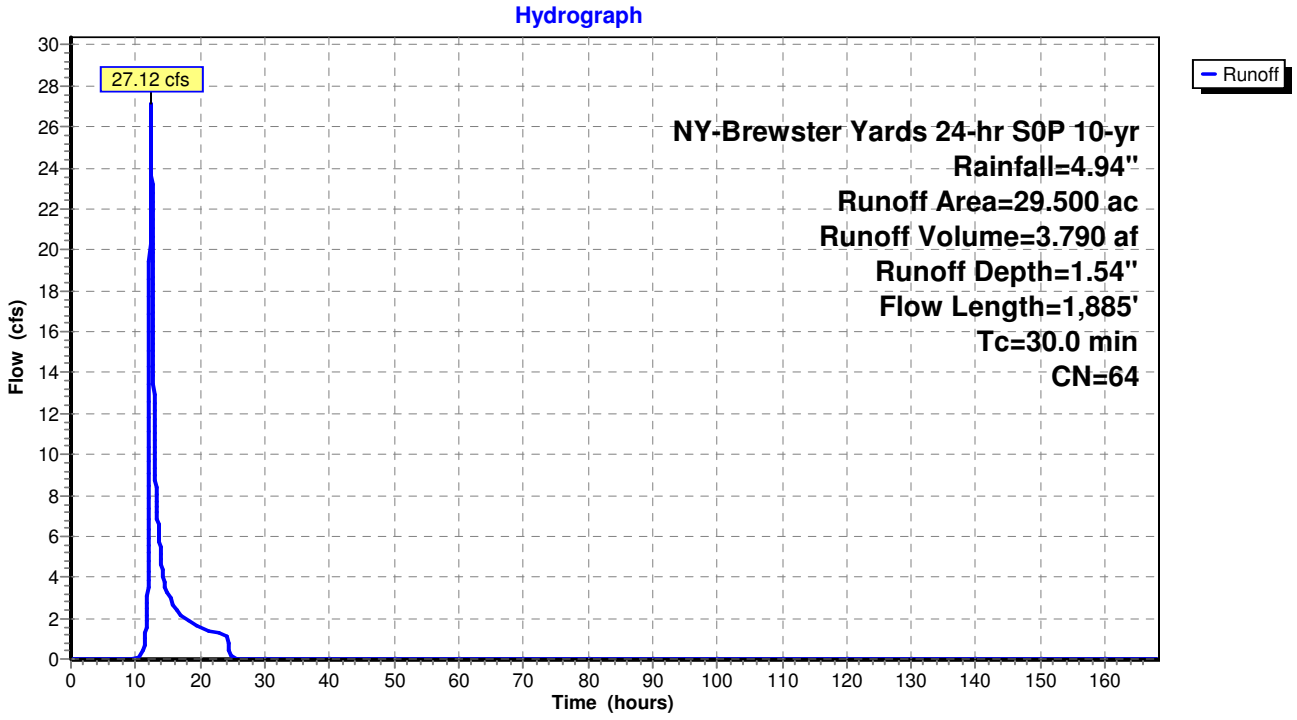
Runoff = 27.12 cfs @ 12.40 hrs, Volume= 3.790 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 10-yr Rainfall=4.94"

Area (ac)	CN	Description
14.800	55	Woods, Good, HSG B
0.100	70	Woods, Good, HSG C
10.300	77	Woods, Good, HSG D
4.100	61	>75% Grass cover, Good, HSG B
0.200	80	>75% Grass cover, Good, HSG D
29.500	64	Weighted Average
29.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.3	100	0.0240	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
7.8	885	0.1430	1.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	900	0.0500	5.09	71.20	**Channel Flow,** Area= 14.0 sf Perim= 45.0' r= 0.31' n= 0.030 Earth, grassed & winding
30.0	1,885	Total			

Subcatchment 2.8S: South Untreated

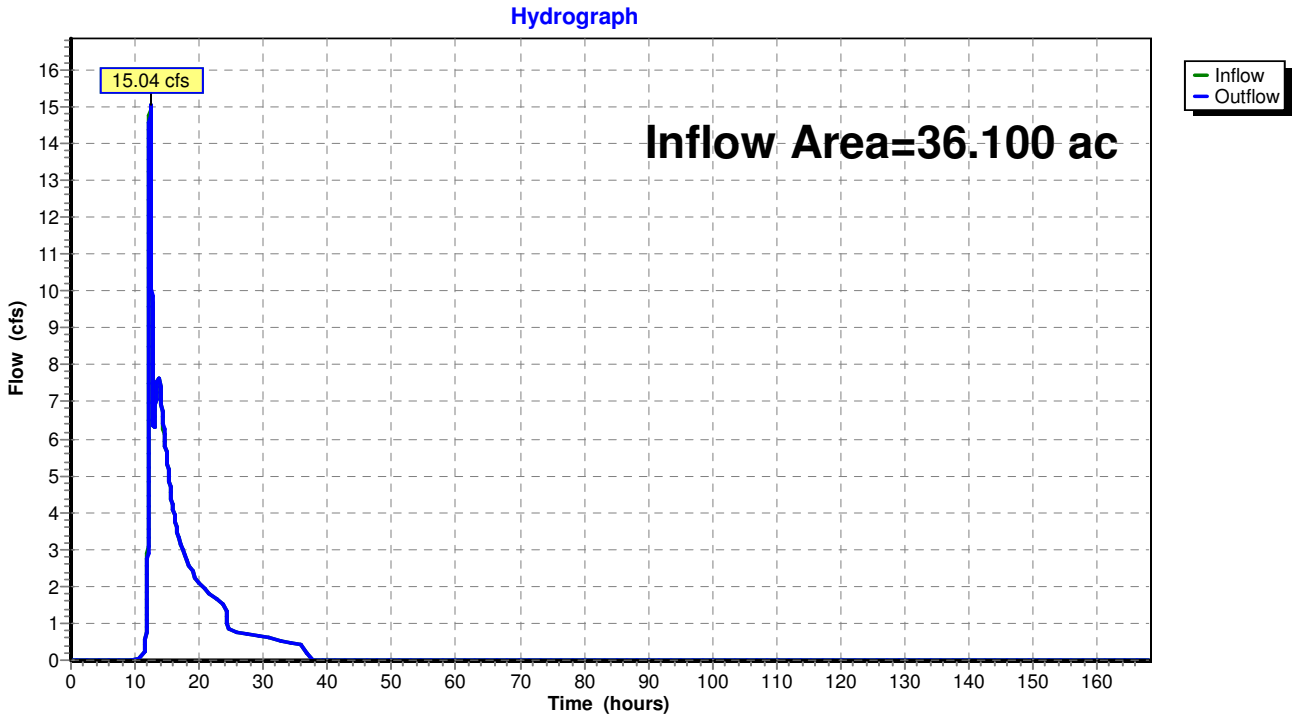


Summary for Reach DL 1:

Inflow Area = 36.100 ac, 8.31% Impervious, Inflow Depth = 1.51" for 10-yr event
Inflow = 15.04 cfs @ 12.35 hrs, Volume= 4.536 af
Outflow = 15.04 cfs @ 12.36 hrs, Volume= 4.536 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach DL 1:

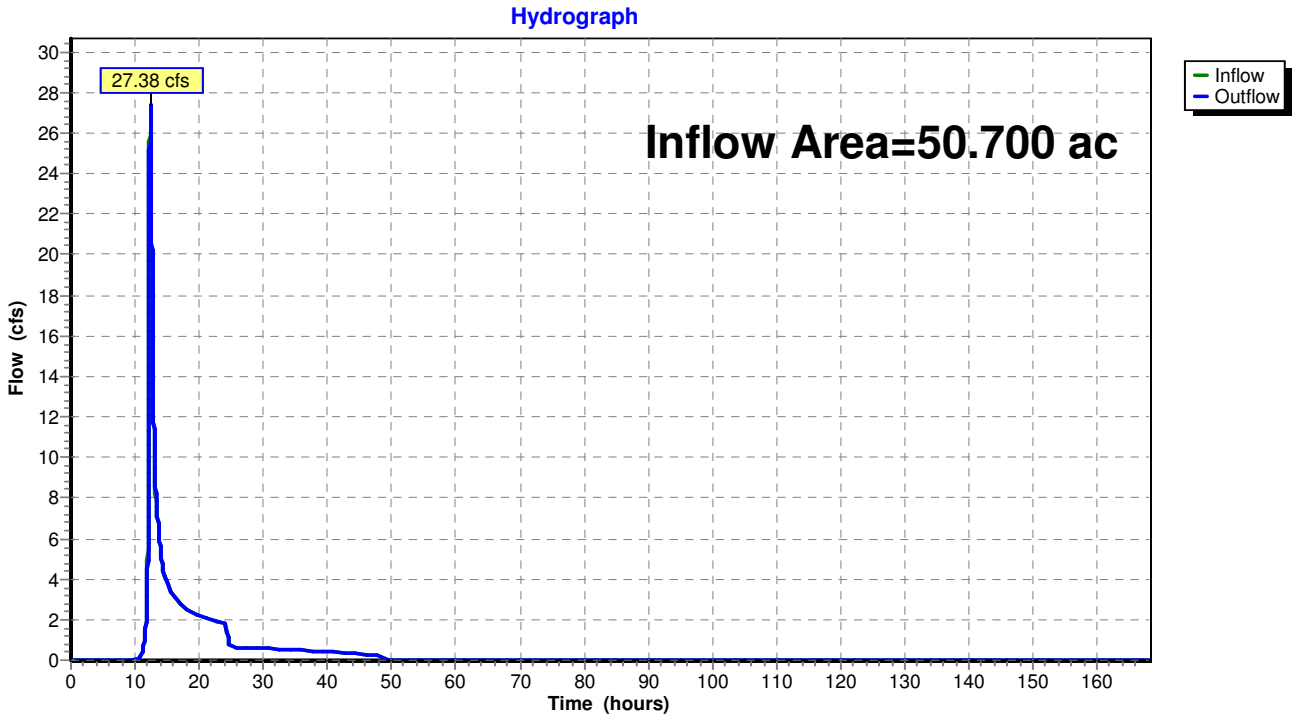


Summary for Reach DL 2:

Inflow Area = 50.700 ac, 15.19% Impervious, Inflow Depth = 1.27" for 10-yr event
Inflow = 27.38 cfs @ 12.40 hrs, Volume= 5.354 af
Outflow = 27.38 cfs @ 12.41 hrs, Volume= 5.354 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach DL 2:



Summary for Pond 1.2 EDB: North Detention Basin, Orifice, & Weir

Inflow Area = 16.900 ac, 17.75% Impervious, Inflow Depth = 3.23" for 10-yr event
Inflow = 59.90 cfs @ 12.07 hrs, Volume= 4.549 af
Outflow = 12.47 cfs @ 12.47 hrs, Volume= 4.549 af, Atten= 79%, Lag= 23.6 min
Primary = 12.47 cfs @ 12.47 hrs, Volume= 4.549 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 667.65' @ 12.47 hrs Surf.Area= 25,818 sf Storage= 92,761 cf
Flood Elev= 669.50' Surf.Area= 34,100 sf Storage= 147,015 cf

Plug-Flow detention time= 1,169.9 min calculated for 4.549 af (100% of inflow)
Center-of-Mass det. time= 1,170.1 min (1,991.9 - 821.8)

Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	240 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 600 cf Overall x 40.0% Voids
#2	660.00'	164,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		164,340 cf	Total Available Storage

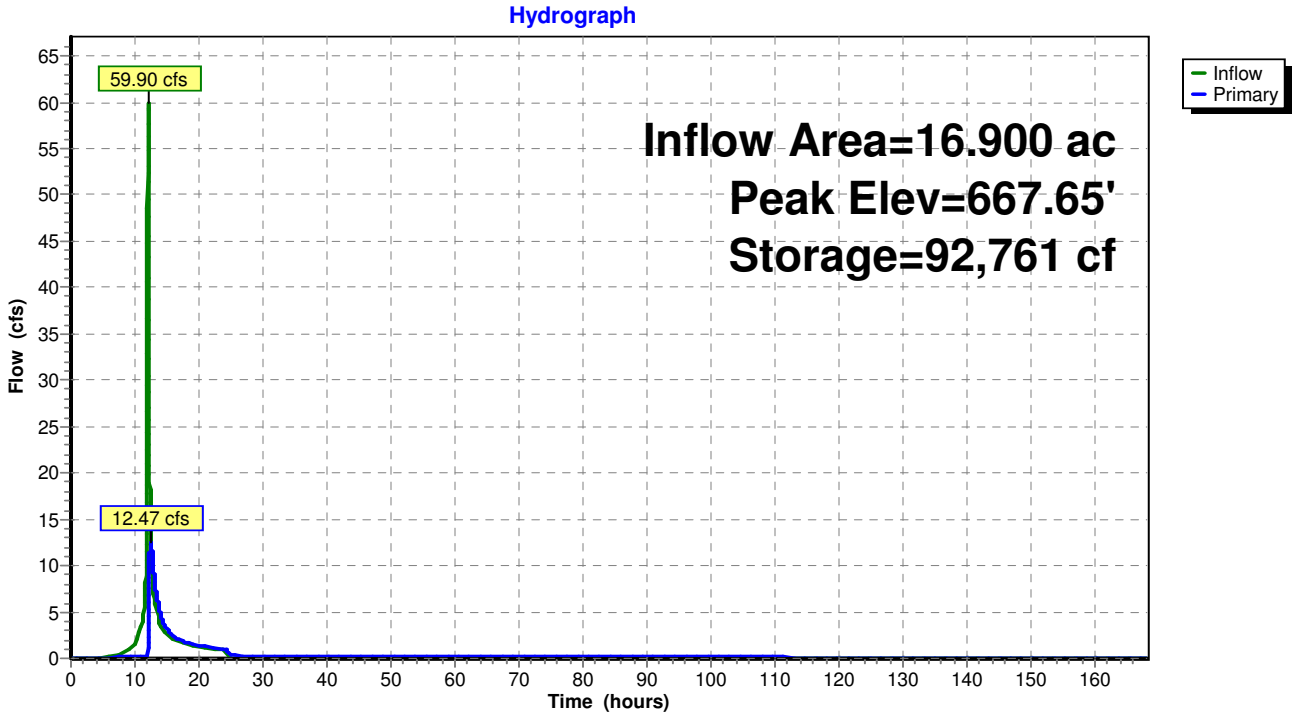
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	600	0	0
660.00	600	600	600

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.00	1,900	0	0
662.00	6,000	7,900	7,900
664.00	11,800	17,800	25,700
666.00	18,800	30,600	56,300
668.00	26,600	45,400	101,700
670.00	35,800	62,400	164,100

Device	Routing	Invert	Outlet Devices
#1	Primary	659.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	666.70'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=12.47 cfs @ 12.47 hrs HW=667.65' TW=660.94' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.27 cfs @ 12.47 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 12.19 cfs @ 3.22 fps)

Pond 1.2 EDB: North Detention Basin, Orifice, & Weir



Stage-Area-Storage for Pond 1.2 EDB: North Detention Basin, Orifice, & Weir

Elevation (feet)	Storage (cubic-feet)
659.00	0
659.15	36
659.30	72
659.45	108
659.60	144
659.75	180
659.90	216
660.05	338
660.20	661
660.35	1,031
660.50	1,446
660.65	1,908
660.80	2,416
660.95	2,970
661.10	3,570
661.25	4,217
661.40	4,909
661.55	5,648
661.70	6,432
661.85	7,263
662.00	8,140
662.15	9,073
662.30	10,070
662.45	11,134
662.60	12,262
662.75	13,456
662.90	14,714
663.05	16,039
663.20	17,428
663.35	18,883
663.50	20,403
663.65	21,988
663.80	23,638
663.95	25,354
664.10	27,138
664.25	28,999
664.40	30,940
664.55	32,959
664.70	35,058
664.85	37,234
665.00	39,490
665.15	41,824
665.30	44,237
665.45	46,729
665.60	49,300
665.75	51,949
665.90	54,677
666.05	57,485
666.20	60,378
666.35	63,359
666.50	66,428
666.65	69,584
666.80	72,828
666.95	76,160
667.10	79,580
667.25	83,087
667.40	86,682
667.55	90,365
667.70	94,136
667.85	97,994
668.00	101,940
668.15	105,982
668.30	110,127
668.45	114,376
668.60	118,728
668.75	123,184
668.90	127,743
669.05	132,406
669.20	137,172
669.35	142,042
669.50	147,015
669.65	152,092
669.80	157,272
669.95	**162,556**

Summary for Pond 1.3 IB: North Infiltration

Inflow Area = 17.900 ac, 16.76% Impervious, Inflow Depth = 1.53" for 10-yr event
Inflow = 3.07 cfs @ 12.04 hrs, Volume= 2.278 af
Outflow = 0.19 cfs @ 92.84 hrs, Volume= 2.278 af, Atten= 94%, Lag= 4,847.9 min
Discarded = 0.19 cfs @ 92.84 hrs, Volume= 2.278 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 656.13' @ 92.84 hrs Surf.Area= 16,741 sf Storage= 31,504 cf
Flood Elev= 659.00' Surf.Area= 22,300 sf Storage= 87,500 cf

Plug-Flow detention time= 1,938.4 min calculated for 2.278 af (100% of inflow)
Center-of-Mass det. time= 1,938.5 min (4,989.0 - 3,050.5)

Volume	Invert	Avail.Storage	Storage Description
#1	654.00'	110,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

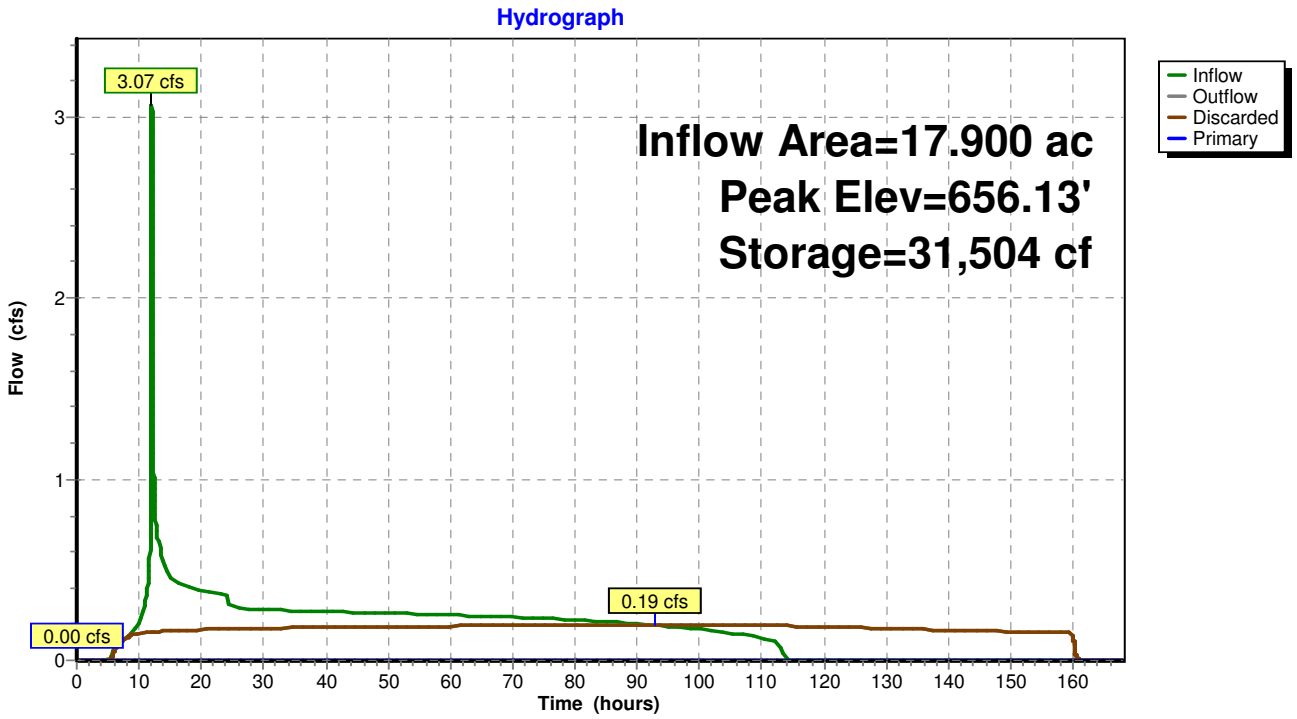
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
654.00	12,900	0	0
656.00	16,500	29,400	29,400
658.00	20,300	36,800	66,200
660.00	24,300	44,600	110,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	654.00'	**0.500 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	658.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.19 cfs @ 92.84 hrs HW=656.13' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=654.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.3 IB: North Infiltration



Stage-Area-Storage for Pond 1.3 IB: North Infiltration

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
654.00	12,900	0
654.10	13,080	1,299
654.20	13,260	2,616
654.30	13,440	3,951
654.40	13,620	5,304
654.50	13,800	6,675
654.60	13,980	8,064
654.70	14,160	9,471
654.80	14,340	10,896
654.90	14,520	12,339
655.00	14,700	13,800
655.10	14,880	15,279
655.20	15,060	16,776
655.30	15,240	18,291
655.40	15,420	19,824
655.50	15,600	21,375
655.60	15,780	22,944
655.70	15,960	24,531
655.80	16,140	26,136
655.90	16,320	27,759
656.00	16,500	29,400
656.10	16,690	31,060
656.20	16,880	32,738
656.30	17,070	34,435
656.40	17,260	36,152
656.50	17,450	37,888
656.60	17,640	39,642
656.70	17,830	41,416
656.80	18,020	43,208
656.90	18,210	45,019
657.00	18,400	46,850
657.10	18,590	48,700
657.20	18,780	50,568
657.30	18,970	52,455
657.40	19,160	54,362
657.50	19,350	56,288
657.60	19,540	58,232
657.70	19,730	60,196
657.80	19,920	62,178
657.90	20,110	64,179
658.00	20,300	66,200
658.10	20,500	68,240
658.20	20,700	70,300
658.30	20,900	72,380
658.40	21,100	74,480
658.50	21,300	76,600
658.60	21,500	78,740
658.70	21,700	80,900
658.80	21,900	83,080
658.90	22,100	85,280
659.00	22,300	87,500
659.10	22,500	89,740
659.20	22,700	92,000
659.30	22,900	94,280
659.40	23,100	96,580
659.50	23,300	98,900
659.60	23,500	101,240
659.70	23,700	103,600
659.80	23,900	105,980
659.90	24,100	108,380
660.00	**24,300**	**110,800**

Summary for Pond 1.4 EDB: North Lower Detention Basin

Inflow Area = 0.600 ac, 0.00% Impervious, Inflow Depth = 51.61" for 10-yr event
Inflow = 12.38 cfs @ 12.47 hrs, Volume= 2.580 af
Outflow = 4.83 cfs @ 13.89 hrs, Volume= 2.580 af, Atten= 61%, Lag= 85.2 min
Primary = 4.83 cfs @ 13.89 hrs, Volume= 2.580 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Starting Elev= 594.00' Surf.Area= 0 sf Storage= 0 cf
Peak Elev= 655.92' @ 13.89 hrs Surf.Area= 12,900 sf Storage= 38,603 cf
Flood Elev= 659.50' Surf.Area= 17,950 sf Storage= 90,758 cf

Plug-Flow detention time= 273.6 min calculated for 2.580 af (100% of inflow)
Center-of-Mass det. time= 273.7 min (1,195.8 - 922.1)

Volume	Invert	Avail.Storage	Storage Description
#1	651.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	652.00'	99,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		99,520 cf	Total Available Storage

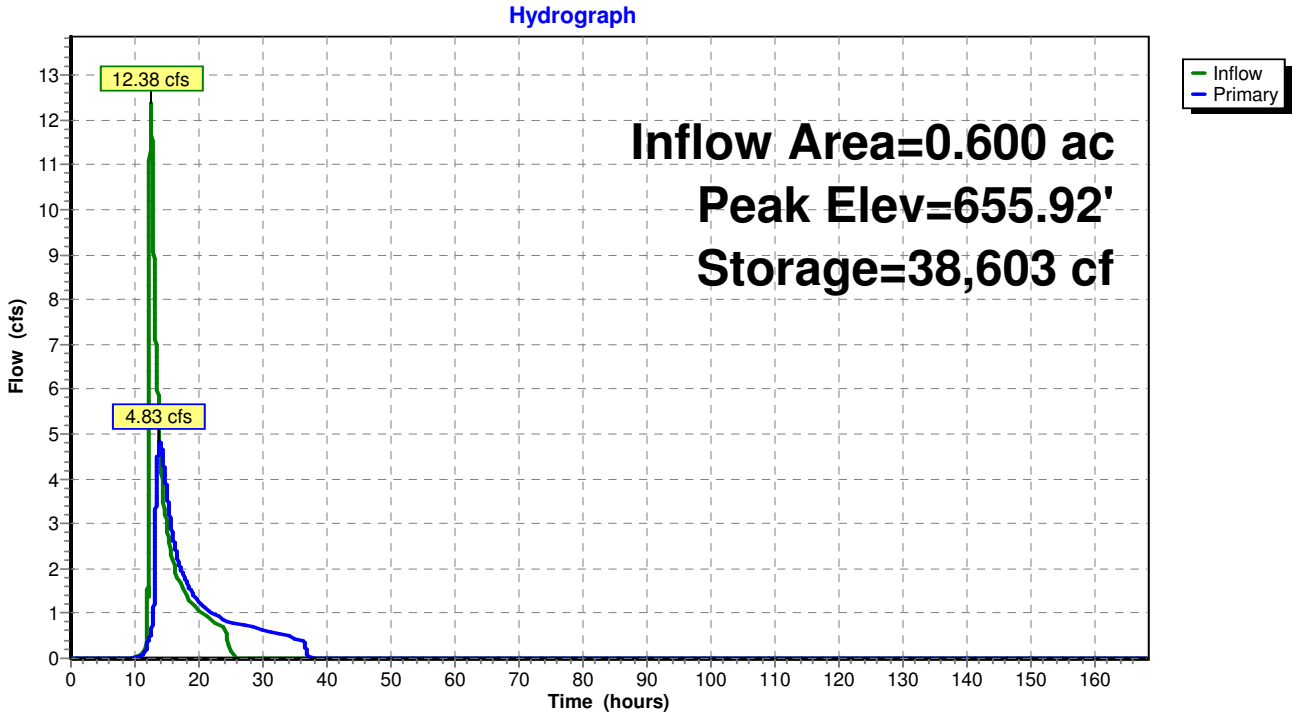
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
651.00	800	0	0
652.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
652.00	7,500	0	0
654.00	9,800	17,300	17,300
656.00	12,200	22,000	39,300
658.00	14,900	27,100	66,400
660.00	17,900	32,800	99,200

Device	Routing	Invert	Outlet Devices
#1	Primary	651.00'	**36.0" Round Culvert** L= 600.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 651.00' / 640.00' S= 0.0183 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	654.80'	**1.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	651.00'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.83 cfs @ 13.89 hrs HW=655.92' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 4.83 cfs of 62.91 cfs potential flow)
  - **2=Broad-Crested Rectangular Weir** (Weir Controls 3.92 cfs @ 3.51 fps)
  - **3=Orifice/Grate** (Orifice Controls 0.92 cfs @ 10.49 fps)

Pond 1.4 EDB: North Lower Detention Basin



Stage-Area-Storage for Pond 1.4 EDB: North Lower Detention Basin

Elevation (feet)	Storage (cubic-feet)
651.00	0
651.10	32
651.20	64
651.30	96
651.40	128
651.50	160
651.60	192
651.70	224
651.80	256
651.90	288
652.00	320
652.10	1,076
652.20	1,843
652.30	2,622
652.40	3,412
652.50	4,214
652.60	5,027
652.70	5,852
652.80	6,688
652.90	7,536
653.00	8,395
653.10	9,266
653.20	10,148
653.30	11,042
653.40	11,947
653.50	12,864
653.60	13,792
653.70	14,732
653.80	15,683
653.90	16,646
654.00	17,620
654.10	18,606
654.20	19,604
654.30	20,614
654.40	21,636
654.50	22,670
654.60	23,716
654.70	24,774
654.80	25,844
654.90	26,926
655.00	28,020
655.10	29,126
655.20	30,244
655.30	31,374
655.40	32,516
655.50	33,670
655.60	34,836
655.70	36,014
655.80	37,204
655.90	38,406
656.00	39,620
656.10	40,847
656.20	42,087
656.30	43,341
656.40	44,608
656.50	45,889
656.60	47,183
656.70	48,491
656.80	49,812
656.90	51,147
657.00	52,495
657.10	53,857
657.20	55,232
657.30	56,621
657.40	58,023
657.50	59,439
657.60	60,868
657.70	62,311
657.80	63,767
657.90	65,237
658.00	66,720
658.10	68,218
658.20	69,730
658.30	71,257
658.40	72,800
658.50	74,358
658.60	75,930
658.70	77,518
658.80	79,120
658.90	80,737
659.00	82,370
659.10	84,018
659.20	85,680
659.30	87,357
659.40	89,050
659.50	90,758
659.60	92,480
659.70	94,218
659.80	95,970
659.90	97,737
660.00	**99,520**

Summary for Pond 2.2 EDB: Entrance Detention Basin

Inflow Area = 6.000 ac, 45.00% Impervious, Inflow Depth = 3.29" for 10-yr event
Inflow = 19.18 cfs @ 12.12 hrs, Volume= 1.647 af
Outflow = 1.89 cfs @ 13.47 hrs, Volume= 1.647 af, Atten= 90%, Lag= 80.9 min
Primary = 1.89 cfs @ 13.47 hrs, Volume= 1.647 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 671.72' @ 13.47 hrs Surf.Area= 10,159 sf Storage= 36,845 cf
Flood Elev= 673.00' Surf.Area= 12,550 sf Storage= 50,895 cf

Plug-Flow detention time= 512.0 min calculated for 1.647 af (100% of inflow)
Center-of-Mass det. time= 511.8 min (1,333.7 - 821.9)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	120 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 300 cf Overall x 40.0% Voids
#2	664.00'	64,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		64,120 cf	Total Available Storage

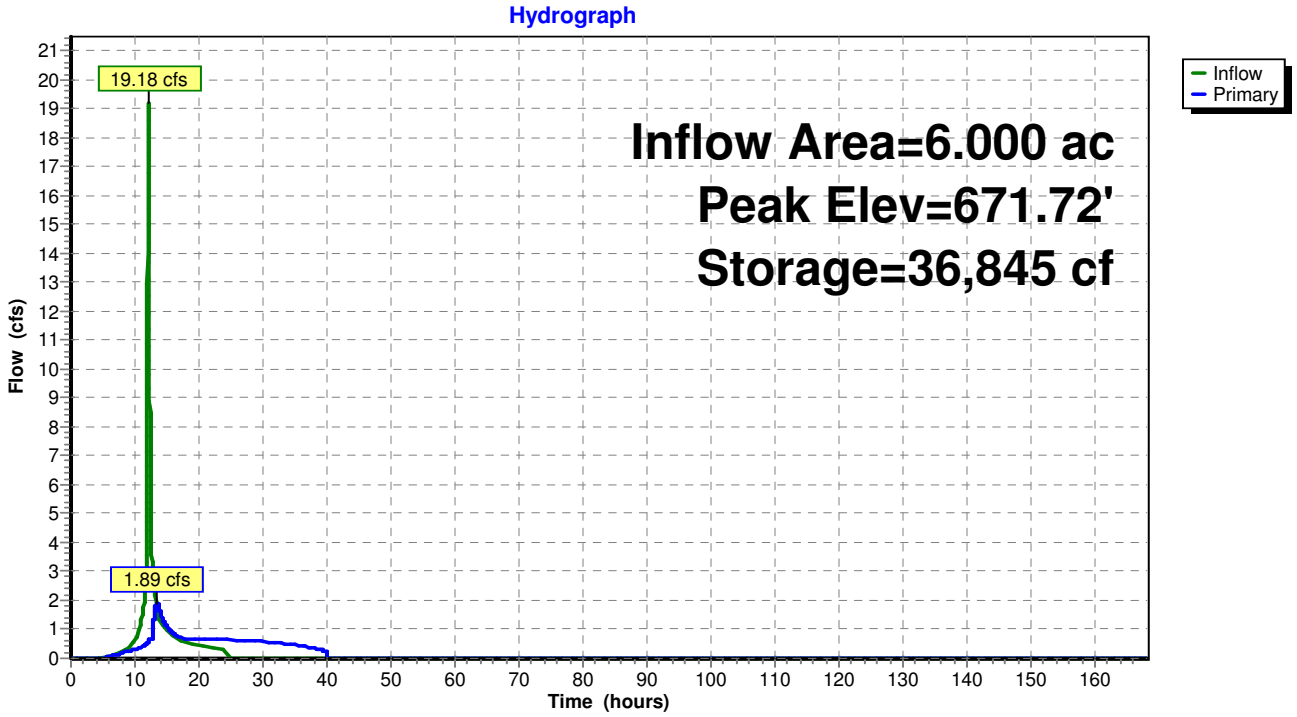
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	300	0	0
664.00	300	300	300

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
664.00	1,000	0	0
666.00	2,500	3,500	3,500
668.00	4,500	7,000	10,500
670.00	7,100	11,600	22,100
672.00	10,300	17,400	39,500
674.00	14,200	24,500	64,000

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**18.0" Round Culvert** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 663.00' / 656.00' S= 0.0437 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	663.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	671.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.89 cfs @ 13.47 hrs HW=671.72' TW=617.75' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.89 cfs of 24.03 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.69 cfs @ 14.12 fps)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 1.20 cfs @ 1.33 fps)

Pond 2.2 EDB: Entrance Detention Basin



Stage-Area-Storage for Pond 2.2 EDB: Entrance Detention Basin

Elevation (feet)	Storage (cubic-feet)
663.00	0
663.15	18
663.30	36
663.45	54
663.60	72
663.75	90
663.90	108
664.05	171
664.20	335
664.35	516
664.50	714
664.65	928
664.80	1,160
664.95	1,408
665.10	1,674
665.25	1,956
665.40	2,255
665.55	2,571
665.70	2,904
665.85	3,253
666.00	3,620
666.15	4,006
666.30	4,415
666.45	4,846
666.60	5,300
666.75	5,776
666.90	6,275
667.05	6,796
667.20	7,340
667.35	7,906
667.50	8,495
667.65	9,106
667.80	9,740
667.95	10,396
668.10	11,077
668.25	11,786
668.40	12,524
668.55	13,292
668.70	14,089
668.85	14,915
669.00	15,770
669.15	16,655
669.30	17,568
669.45	18,512
669.60	19,484
669.75	20,486
669.90	21,516
670.05	22,577
670.20	23,672
670.35	24,803
670.50	25,970
670.65	27,173
670.80	28,412
670.95	29,687
671.10	30,998
671.25	32,345
671.40	33,728
671.55	35,147
671.70	36,602
671.85	38,093
672.00	39,620
672.15	41,187
672.30	42,798
672.45	44,452
672.60	46,151
672.75	47,893
672.90	49,680
673.05	51,510
673.20	53,384
673.35	55,302
673.50	57,264
673.65	59,269
673.80	61,319
673.95	**63,412**

Summary for Pond 2.5 EDB: South Detention Basin

Inflow Area = 13.500 ac, 37.04% Impervious, Inflow Depth = 3.25" for 10-yr event
Inflow = 52.68 cfs @ 12.04 hrs, Volume= 3.659 af
Outflow = 6.48 cfs @ 12.67 hrs, Volume= 3.659 af, Atten= 88%, Lag= 37.6 min
Primary = 6.48 cfs @ 12.67 hrs, Volume= 3.659 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 628.69' @ 12.67 hrs Surf.Area= 16,308 sf Storage= 80,697 cf
Flood Elev= 631.50' Surf.Area= 20,525 sf Storage= 130,014 cf

Plug-Flow detention time= 874.4 min calculated for 3.659 af (100% of inflow)
Center-of-Mass det. time= 874.6 min (1,688.1 - 813.6)

Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	621.00'	139,750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		140,070 cf	Total Available Storage

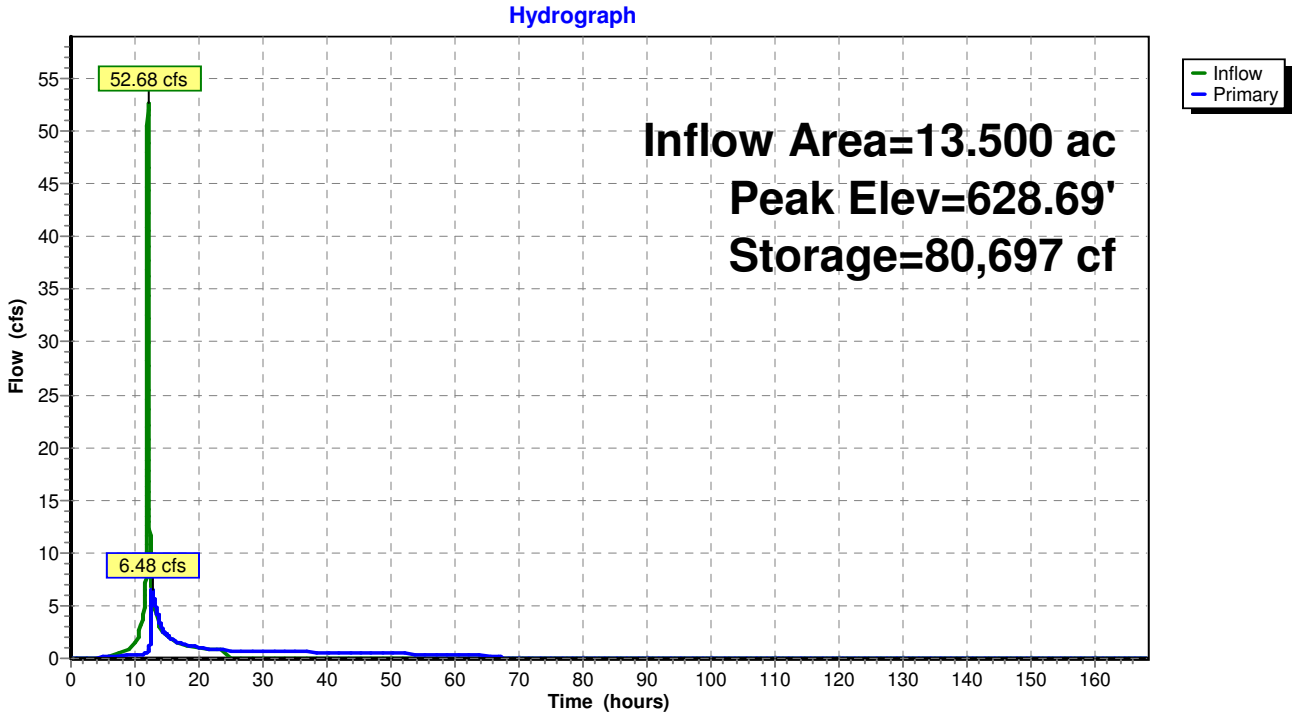
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	800	0	0
621.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	5,200	0	0
622.00	7,100	6,150	6,150
624.00	9,300	16,400	22,550
626.00	11,800	21,100	43,650
628.00	14,500	26,300	69,950
630.00	17,400	31,900	101,850
632.00	20,500	37,900	139,750

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**24.0" Round Culvert** L= 450.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 620.00' / 615.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	628.30'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	620.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=6.48 cfs @ 12.67 hrs HW=628.69' TW=617.80' (Dynamic Tailwater)
└─**1=Culvert** (Passes 6.48 cfs of 31.20 cfs potential flow)
  ├─**2=Broad-Crested Rectangular Weir** (Weir Controls 5.79 cfs @ 1.83 fps)
  └─**3=Orifice/Grate** (Orifice Controls 0.69 cfs @ 14.10 fps)

Pond 2.5 EDB: South Detention Basin



Stage-Area-Storage for Pond 2.5 EDB: South Detention Basin

Elevation (feet)	Storage (cubic-feet)
620.00	0
620.15	48
620.30	96
620.45	144
620.60	192
620.75	240
620.90	288
621.05	582
621.20	1,398
621.35	2,256
621.50	3,158
621.65	4,101
621.80	5,088
621.95	6,117
622.10	7,186
622.25	8,279
622.40	9,398
622.55	10,541
622.70	11,710
622.85	12,902
623.00	14,120
623.15	15,362
623.30	16,629
623.45	17,921
623.60	19,238
623.75	20,579
623.90	21,945
624.05	23,337
624.20	24,755
624.35	26,202
624.50	27,676
624.65	29,179
624.80	30,710
624.95	32,269
625.10	33,856
625.25	35,472
625.40	37,115
625.55	38,787
625.70	40,486
625.85	42,214
626.00	43,970
626.15	45,755
626.30	47,571
626.45	49,417
626.60	51,293
626.75	53,200
626.90	55,137
627.05	57,104
627.20	59,102
627.35	61,130
627.50	63,189
627.65	65,278
627.80	67,397
627.95	69,547
628.10	71,727
628.25	73,940
628.40	76,186
628.55	78,464
628.70	80,775
628.85	83,119
629.00	85,495
629.15	87,904
629.30	90,345
629.45	92,819
629.60	95,326
629.75	97,865
629.90	100,437
630.05	103,042
630.20	105,681
630.35	108,355
630.50	111,064
630.65	113,807
630.80	116,586
630.95	119,399
631.10	122,248
631.25	125,131
631.40	128,049
631.55	131,002
631.70	133,990
631.85	137,012
632.00	**140,070**

Summary for Pond 2.6 IB: South Upper Infiltration Basin

Inflow Area = 20.500 ac, 37.56% Impervious, Inflow Depth = 2.31" for 10-yr event
Inflow = 2.56 cfs @ 12.06 hrs, Volume= 3.943 af
Outflow = 2.56 cfs @ 12.07 hrs, Volume= 3.943 af, Atten= 0%, Lag= 0.7 min
Discarded = 2.56 cfs @ 12.07 hrs, Volume= 3.943 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 609.02' @ 12.07 hrs Surf.Area= 6,620 sf Storage= 110 cf
Flood Elev= 617.50' Surf.Area= 18,675 sf Storage= 104,556 cf

Plug-Flow detention time= 0.7 min calculated for 3.943 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (1,797.8 - 1,797.0)

Volume	Invert	Avail.Storage	Storage Description
#1	609.00'	114,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

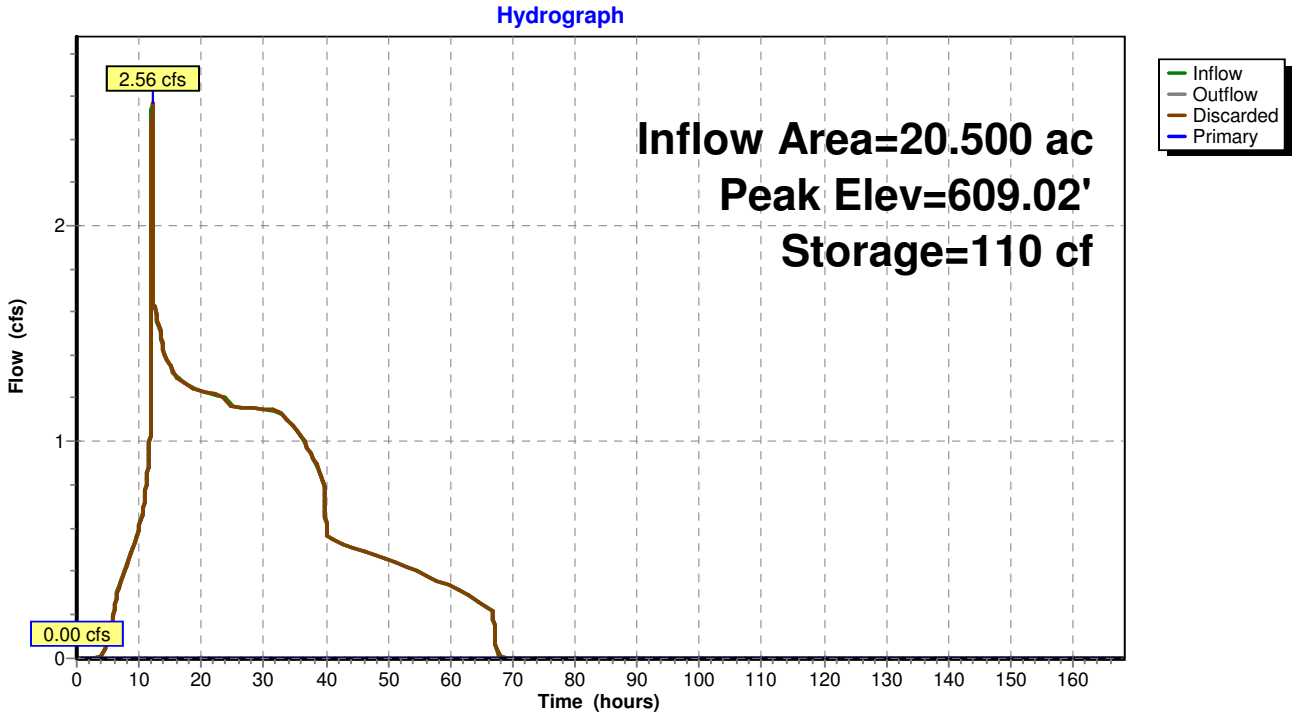
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.00	6,600	0	0
610.00	7,800	7,200	7,200
612.00	10,400	18,200	25,400
614.00	13,200	23,600	49,000
616.00	16,200	29,400	78,400
618.00	19,500	35,700	114,100

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**12.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.00' / 594.00' S= 0.1875 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	617.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Discarded	609.00'	**20.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=2.56 cfs @ 12.07 hrs HW=609.02' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 2.56 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=609.00' TW=593.00' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2.6 IB: South Upper Infiltration Basin



Stage-Area-Storage for Pond 2.6 IB: South Upper Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
609.00	6,600	0
609.10	6,720	666
609.20	6,840	1,344
609.30	6,960	2,034
609.40	7,080	2,736
609.50	7,200	3,450
609.60	7,320	4,176
609.70	7,440	4,914
609.80	7,560	5,664
609.90	7,680	6,426
610.00	7,800	7,200
610.10	7,930	7,987
610.20	8,060	8,786
610.30	8,190	9,598
610.40	8,320	10,424
610.50	8,450	11,263
610.60	8,580	12,114
610.70	8,710	12,979
610.80	8,840	13,856
610.90	8,970	14,746
611.00	9,100	15,650
611.10	9,230	16,567
611.20	9,360	17,496
611.30	9,490	18,438
611.40	9,620	19,394
611.50	9,750	20,363
611.60	9,880	21,344
611.70	10,010	22,339
611.80	10,140	23,346
611.90	10,270	24,366
612.00	10,400	25,400
612.10	10,540	26,447
612.20	10,680	27,508
612.30	10,820	28,583
612.40	10,960	29,672
612.50	11,100	30,775
612.60	11,240	31,892
612.70	11,380	33,023
612.80	11,520	34,168
612.90	11,660	35,327
613.00	11,800	36,500
613.10	11,940	37,687
613.20	12,080	38,888
613.30	12,220	40,103
613.40	12,360	41,332
613.50	12,500	42,575
613.60	12,640	43,832
613.70	12,780	45,103
613.80	12,920	46,388
613.90	13,060	47,687
614.00	13,200	49,000
614.10	13,350	50,328
614.20	13,500	51,670
614.30	13,650	53,027
614.40	13,800	54,400
614.50	13,950	55,788
614.60	14,100	57,190
614.70	14,250	58,608
614.80	14,400	60,040
614.90	14,550	61,487
615.00	14,700	62,950
615.10	14,850	64,428
615.20	15,000	65,920
615.30	15,150	67,427
615.40	15,300	68,950
615.50	15,450	70,488
615.60	15,600	72,040
615.70	15,750	73,608
615.80	15,900	75,190
615.90	16,050	76,787
616.00	16,200	78,400
616.10	16,365	80,028
616.20	16,530	81,673
616.30	16,695	83,334
616.40	16,860	85,012
616.50	17,025	86,706
616.60	17,190	88,417
616.70	17,355	90,144
616.80	17,520	91,888
616.90	17,685	93,648
617.00	17,850	95,425
617.10	18,015	97,218
617.20	18,180	99,028
617.30	18,345	100,854
617.40	18,510	102,697
617.50	18,675	104,556
617.60	18,840	106,432
617.70	19,005	108,324
617.80	19,170	110,233
617.90	19,335	112,158
618.00	**19,500**	**114,100**

Summary for Pond 2.7 EDB: South Lower Detention Basin

Inflow Area = 21.200 ac, 36.32% Impervious, Inflow Depth = 0.89" for 10-yr event
Inflow = 6.00 cfs @ 12.67 hrs, Volume= 1.564 af
Outflow = 0.66 cfs @ 18.95 hrs, Volume= 1.564 af, Atten= 89%, Lag= 376.8 min
Primary = 0.66 cfs @ 18.95 hrs, Volume= 1.564 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 600.85' @ 18.95 hrs Surf.Area= 10,372 sf Storage= 42,601 cf
Flood Elev= 605.50' Surf.Area= 16,125 sf Storage= 100,089 cf

Plug-Flow detention time= 753.2 min calculated for 1.564 af (100% of inflow)
Center-of-Mass det. time= 753.3 min (1,692.9 - 939.6)

Volume	Invert	Avail.Storage	Storage Description
#1	593.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	594.00'	107,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		107,920 cf	Total Available Storage

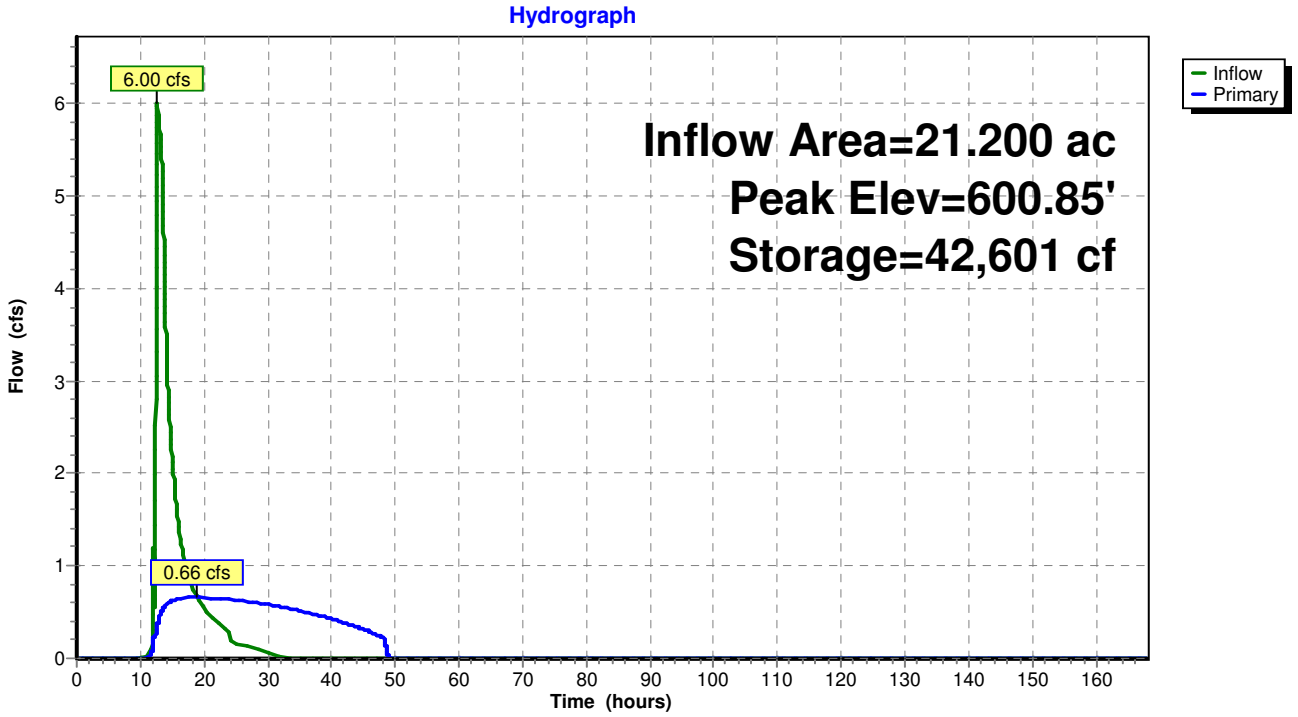
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
593.00	800	0	0
594.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
594.00	3,200	0	0
596.00	4,800	8,000	8,000
598.00	6,600	11,400	19,400
600.00	8,600	15,200	34,600
602.00	10,900	19,500	54,100
604.00	13,300	24,200	78,300
606.00	16,000	29,300	107,600

Device	Routing	Invert	Outlet Devices
#1	Primary	593.00'	**36.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 593.00' / 590.00' S= 0.0353 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	604.20'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	593.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.66 cfs @ 18.95 hrs HW=600.85' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.66 cfs of 85.73 cfs potential flow)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**3=Orifice/Grate** (Orifice Controls 0.66 cfs @ 13.38 fps)

Pond 2.7 EDB: South Lower Detention Basin



Stage-Area-Storage for Pond 2.7 EDB: South Lower Detention Basin

Elevation (feet)	Storage (cubic-feet)
593.00	0
593.15	48
593.30	96
593.45	144
593.60	192
593.75	240
593.90	288
594.05	481
594.20	976
594.35	1,489
594.50	2,020
594.65	2,569
594.80	3,136
594.95	3,721
595.10	4,324
595.25	4,945
595.40	5,584
595.55	6,241
595.70	6,916
595.85	7,609
596.00	8,320
596.15	9,050
596.30	9,800
596.45	10,571
596.60	11,362
596.75	12,173
596.90	13,004
597.05	13,856
597.20	14,728
597.35	15,620
597.50	16,533
597.65	17,465
597.80	18,418
597.95	19,391
598.10	20,385
598.25	21,401
598.40	22,440
598.55	23,501
598.70	24,585
598.85	25,691
599.00	26,820
599.15	27,971
599.30	29,145
599.45	30,341
599.60	31,560
599.75	32,801
599.90	34,065
600.05	35,351
600.20	36,663
600.35	38,000
600.50	39,364
600.65	40,753
600.80	42,168
600.95	43,609
601.10	45,076
601.25	46,568
601.40	48,087
601.55	49,631
601.70	51,202
601.85	52,798
602.00	54,420
602.15	56,068
602.30	57,744
602.45	59,447
602.60	61,176
602.75	62,933
602.90	64,716
603.05	66,526
603.20	68,364
603.35	70,229
603.50	72,120
603.65	74,038
603.80	75,984
603.95	77,957
604.10	79,957
604.25	81,987
604.40	84,048
604.55	86,139
604.70	88,261
604.85	90,413
605.00	92,595
605.15	94,808
605.30	97,051
605.45	99,324
605.60	101,628
605.75	103,962
605.90	**106,327**

Summary for Pond FS 1: North Detention Flow Split

Inflow Area = 16.900 ac, 17.75% Impervious, Inflow Depth = 3.23" for 10-yr event
Inflow = 12.47 cfs @ 12.47 hrs, Volume= 4.549 af
Outflow = 12.47 cfs @ 12.48 hrs, Volume= 4.549 af, Atten= 0%, Lag= 0.6 min
Primary = 0.40 cfs @ 12.48 hrs, Volume= 2.085 af
Secondary = 12.07 cfs @ 12.48 hrs, Volume= 2.464 af

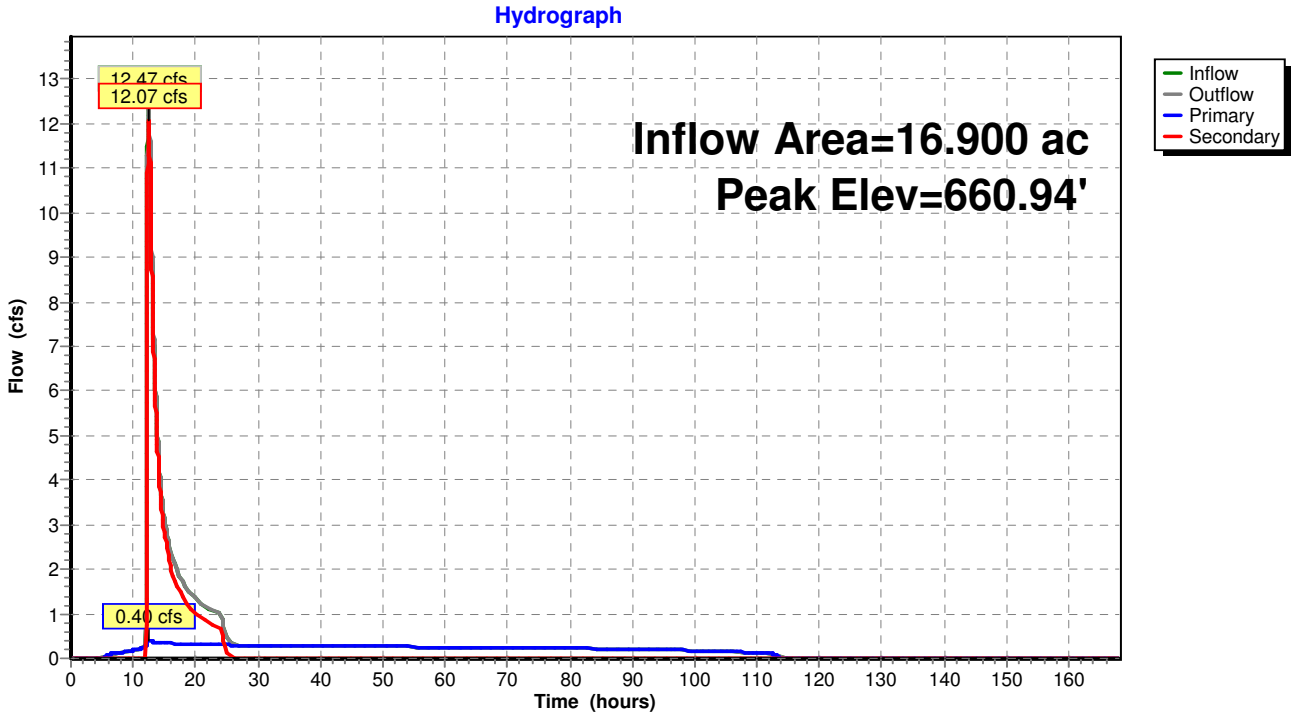
Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 660.94' @ 12.48 hrs
Flood Elev= 669.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	658.00'	**6.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 658.00' / 656.00' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	658.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Secondary	659.60'	**36.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 659.60' / 656.00' S= 0.0450 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=0.40 cfs @ 12.48 hrs HW=660.94' TW=654.37' (Dynamic Tailwater)
↑└**1=Culvert** (Passes 0.40 cfs of 0.91 cfs potential flow)
↑└**2=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.08 fps)

Secondary OutFlow Max=12.07 cfs @ 12.48 hrs HW=660.94' TW=653.28' (Dynamic Tailwater)
↑└**3=Culvert** (Inlet Controls 12.07 cfs @ 3.94 fps)

Pond FS 1: North Detention Flow Split



Stage-Area-Storage for Pond FS 1: North Detention Flow Split

Elevation (feet)	Storage (cubic-feet)
658.00	**0**
658.15	0
658.30	0
658.45	0
658.60	0
658.75	0
658.90	0
659.05	0
659.20	0
659.35	0
659.50	0
659.65	0
659.80	0
659.95	0
660.10	0
660.25	0
660.40	0
660.55	0
660.70	0
660.85	0
661.00	0
661.15	0
661.30	0
661.45	0
661.60	0
661.75	0
661.90	0
662.05	0
662.20	0
662.35	0
662.50	0
662.65	0
662.80	0
662.95	0
663.10	0
663.25	0
663.40	0
663.55	0
663.70	0
663.85	0
664.00	0
664.15	0
664.30	0
664.45	0
664.60	0
664.75	0
664.90	0
665.05	0
665.20	0
665.35	0
665.50	0
665.65	0
665.80	0
665.95	0
666.10	0
666.25	0
666.40	0
666.55	0
666.70	0
666.85	0
667.00	0
667.15	0
667.30	0
667.45	0
667.60	0
667.75	0
667.90	0
668.05	0
668.20	0
668.35	0
668.50	0
668.65	0
668.80	0
668.95	0

Summary for Pond FS 2:

Inflow Area = 19.500 ac, 39.49% Impervious, Inflow Depth = 3.26" for 10-yr event
Inflow = 7.17 cfs @ 12.67 hrs, Volume= 5.305 af
Outflow = 7.17 cfs @ 12.68 hrs, Volume= 5.305 af, Atten= 0%, Lag= 0.6 min
Primary = 1.36 cfs @ 12.68 hrs, Volume= 3.832 af
Secondary = 5.81 cfs @ 12.68 hrs, Volume= 1.474 af

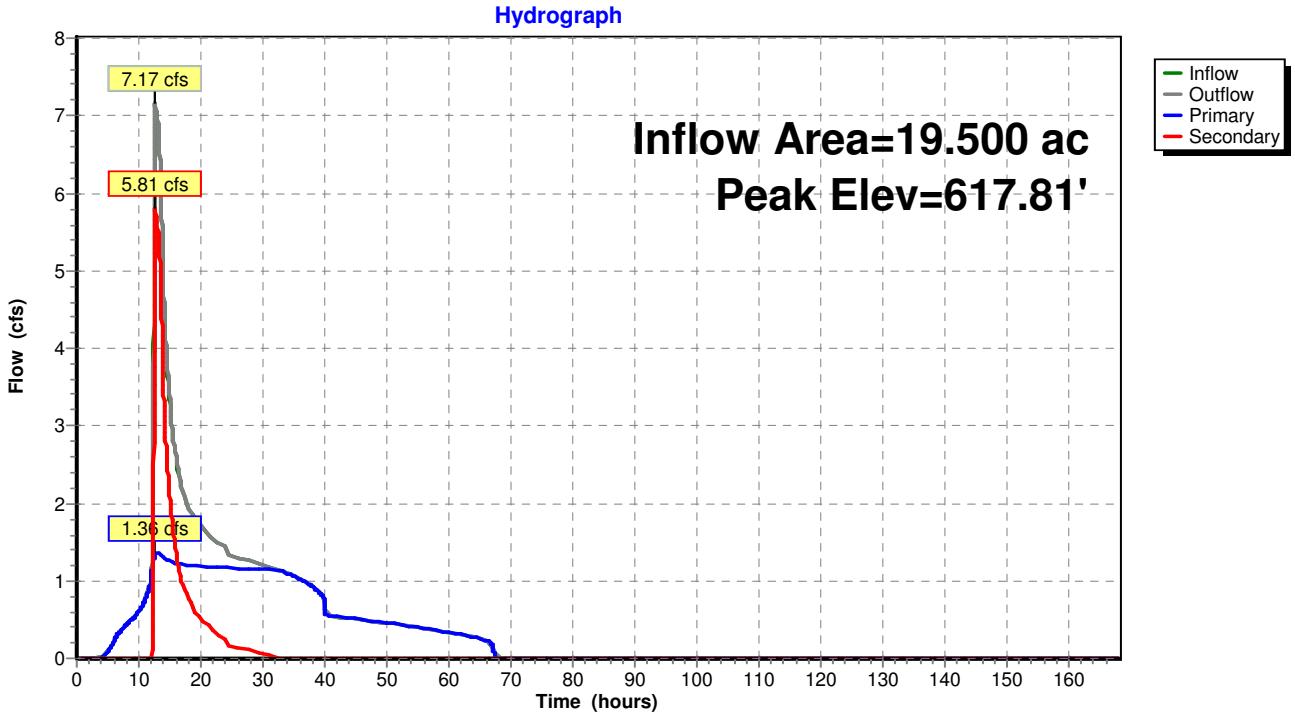
Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 617.81' @ 12.68 hrs
Flood Elev= 629.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	615.50'	**6.0" Round Culvert** L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 615.50' / 609.00' S= 0.0542 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 3	617.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Secondary	615.50'	**30.0" Round Culvert** L= 180.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 615.50' / 610.80' S= 0.0261 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=1.36 cfs @ 12.68 hrs HW=617.81' TW=609.01' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.36 cfs @ 6.90 fps)

Secondary OutFlow Max=5.81 cfs @ 12.68 hrs HW=617.81' TW=595.48' (Dynamic Tailwater)
└**3=Culvert** (Passes 5.81 cfs of 24.46 cfs potential flow)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 5.81 cfs @ 2.40 fps)

Pond FS 2:


Hydrograph
Inflow Area=19.500 ac
Peak Elev=617.81'
7.17 cfs
5.81 cfs
1.36 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)
0
1
2
3
4
5
6
7
8
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160

Stage-Area-Storage for Pond FS 2:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
615.50	**0**	623.30	0
615.65	0	623.45	0
615.80	0	623.60	0
615.95	0	623.75	0
616.10	0	623.90	0
616.25	0	624.05	0
616.40	0	624.20	0
616.55	0	624.35	0
616.70	0	624.50	0
616.85	0	624.65	0
617.00	0	624.80	0
617.15	0	624.95	0
617.30	0	625.10	0
617.45	0	625.25	0
617.60	0	625.40	0
617.75	0	625.55	0
617.90	0	625.70	0
618.05	0	625.85	0
618.20	0	626.00	0
618.35	0	626.15	0
618.50	0	626.30	0
618.65	0	626.45	0
618.80	0	626.60	0
618.95	0	626.75	0
619.10	0	626.90	0
619.25	0	627.05	0
619.40	0	627.20	0
619.55	0	627.35	0
619.70	0	627.50	0
619.85	0	627.65	0
620.00	0	627.80	0
620.15	0	627.95	0
620.30	0	628.10	0
620.45	0	628.25	0
620.60	0	628.40	0
620.75	0	628.55	0
620.90	0	628.70	0
621.05	0	628.85	0
621.20	0	629.00	0
621.35	0	629.15	0
621.50	0	629.30	0
621.65	0	629.45	0
621.80	0		
621.95	0		
622.10	0		
622.25	0		
622.40	0		
622.55	0		
622.70	0		
622.85	0		
623.00	0		
623.15	0		

Summary for Subcatchment 1.1S: North Sports & Parking (Piped)

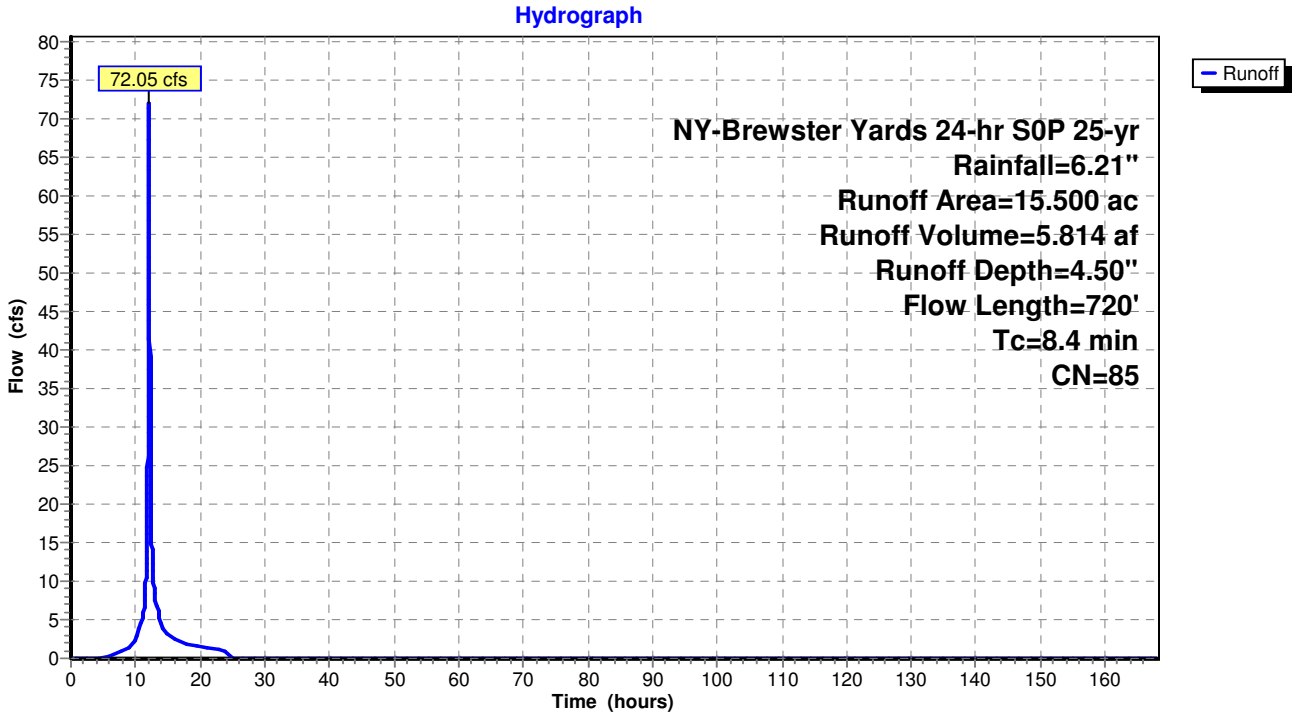
Runoff = 72.05 cfs @ 12.07 hrs, Volume= 5.814 af, Depth= 4.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

	Area (ac)	CN	Description
*	9.900	86	Field Turf
	1.400	61	>75% Grass cover, Good, HSG B
	1.200	74	>75% Grass cover, Good, HSG C
*	3.000	98	Impervious
	15.500	85	Weighted Average
	12.500		80.65% Pervious Area
	3.000		19.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
0.8	160	0.0438	3.14		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	190	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	270	0.0200	10.18	31.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
8.4	720	Total			

Subcatchment 1.1S: North Sports & Parking (Piped)



Summary for Subcatchment 1.2S: North Detention

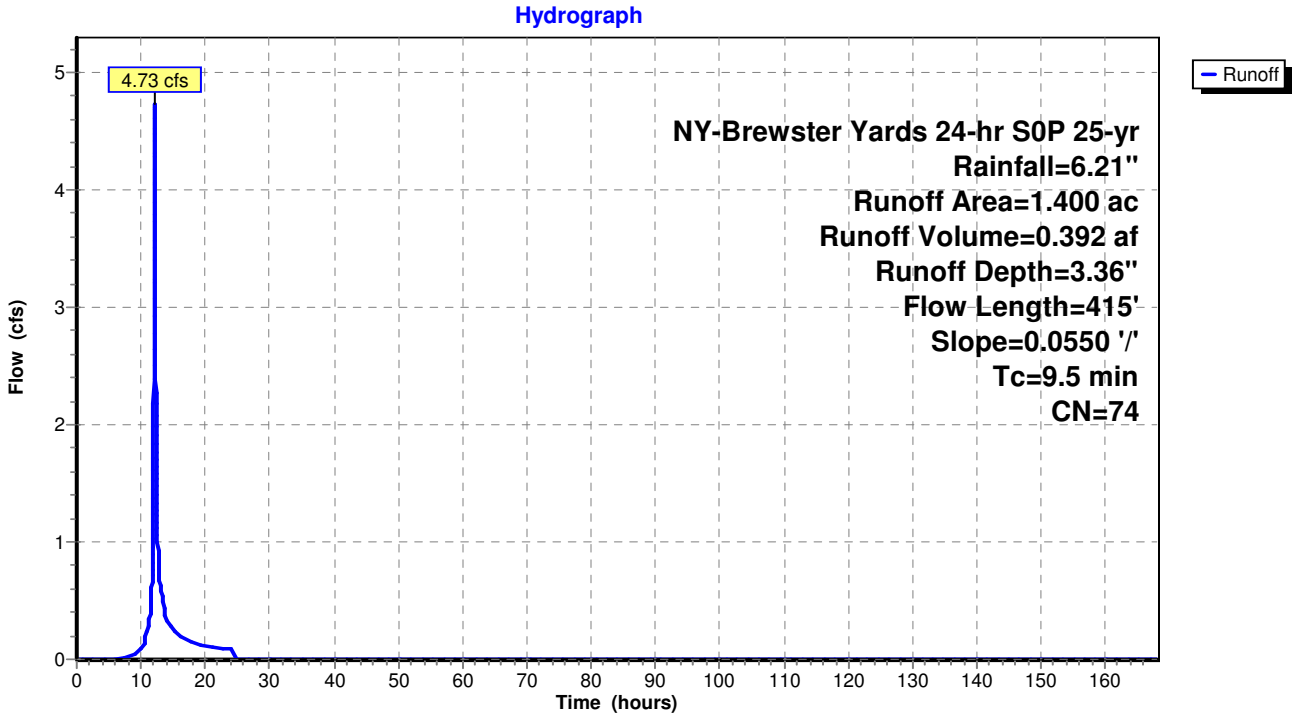
Runoff = 4.73 cfs @ 12.09 hrs, Volume= 0.392 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
1.400	74	>75% Grass cover, Good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0550	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
3.2	315	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.5	415	Total			

Subcatchment 1.2S: North Detention



Summary for Subcatchment 1.3S: North Infiltration

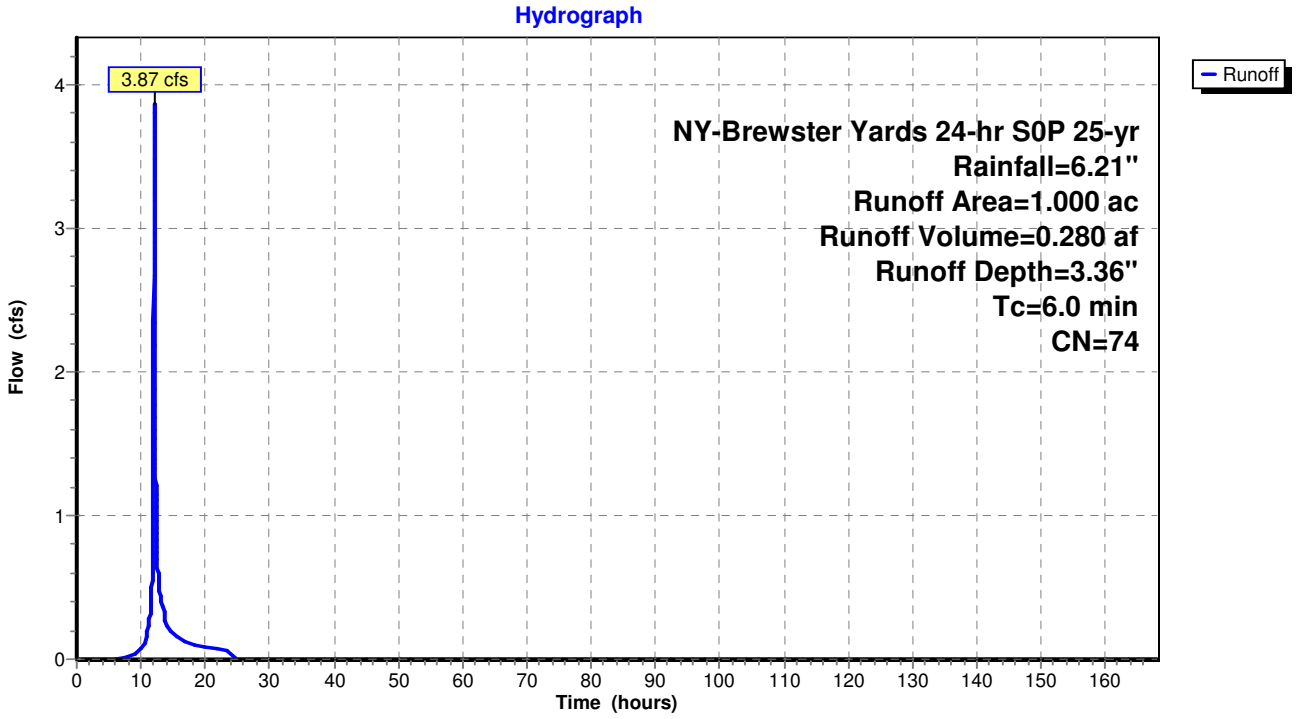
Runoff = 3.87 cfs @ 12.04 hrs, Volume= 0.280 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
1.000	74	>75% Grass cover, Good, HSG C
1.000		100.00% Pervious Area

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

Subcatchment 1.3S: North Infiltration



Summary for Subcatchment 1.4S: North Lower Detention

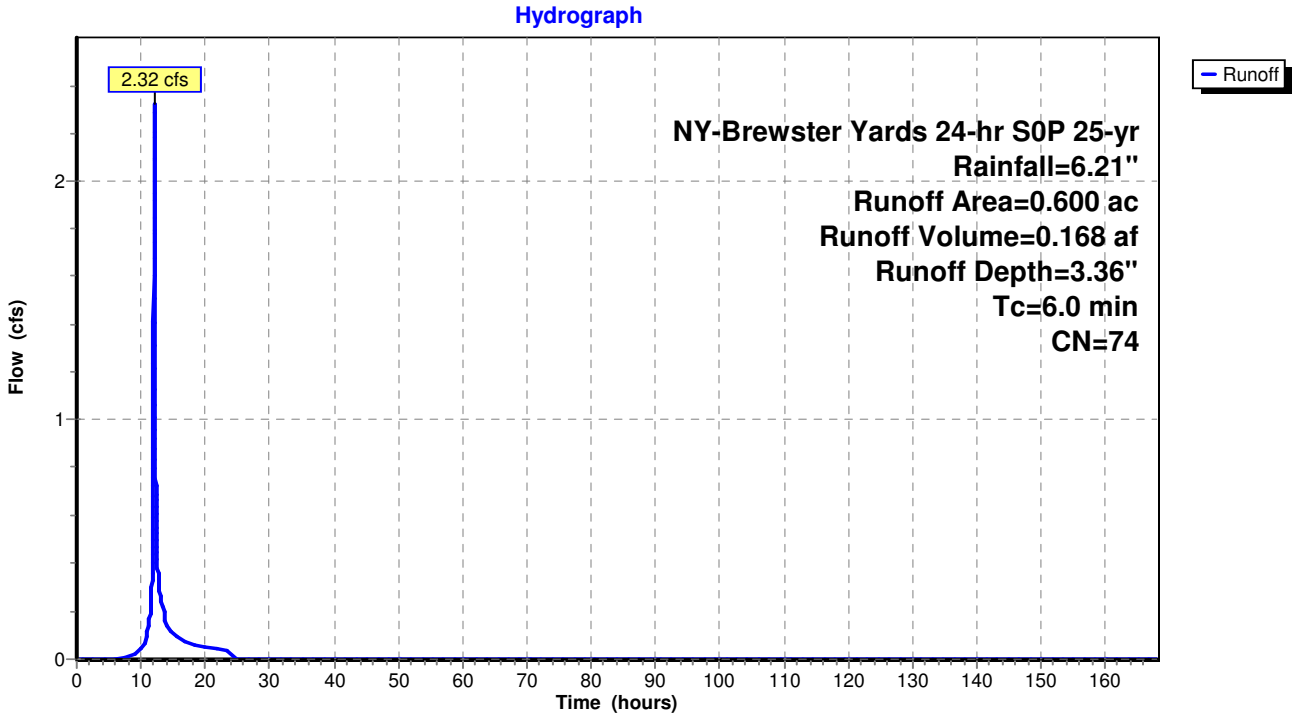
Runoff = 2.32 cfs @ 12.04 hrs, Volume= 0.168 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
0.600	74	>75% Grass cover, Good, HSG C
0.600		100.00% Pervious Area

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

Subcatchment 1.4S: North Lower Detention



Summary for Subcatchment 1.5S: North Untreated

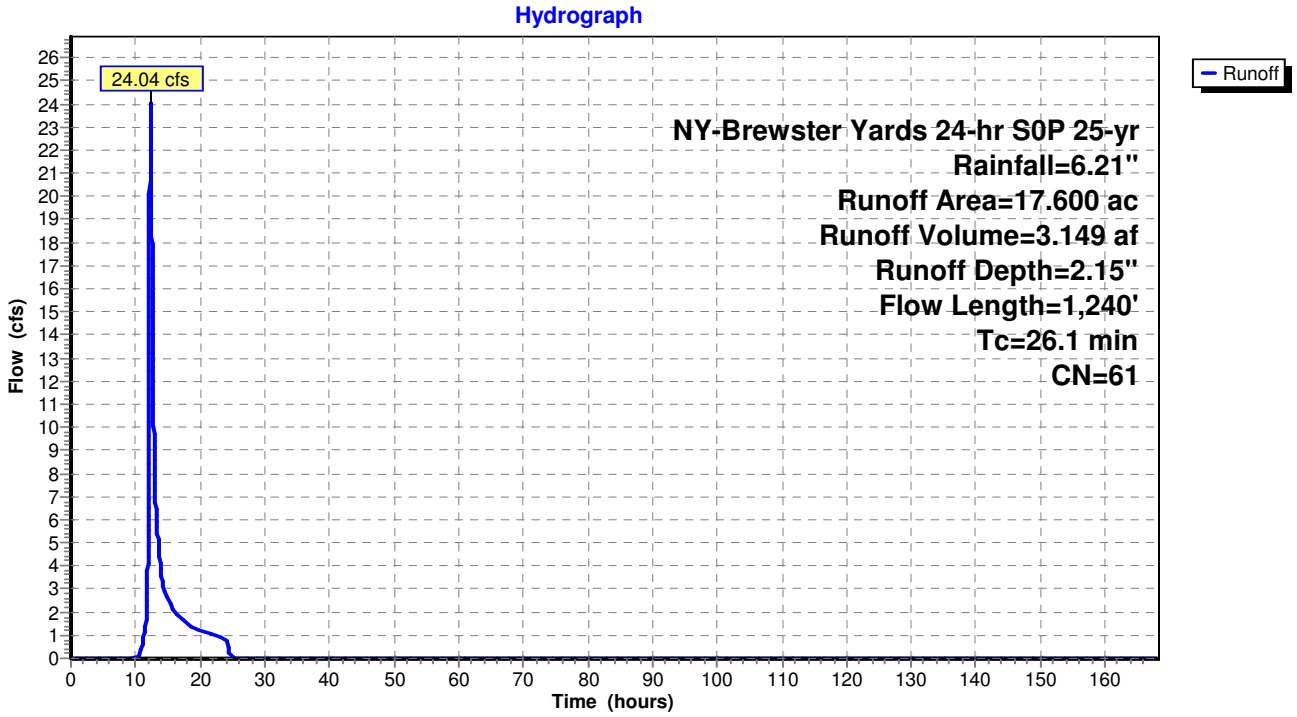
Runoff = 24.04 cfs @ 12.33 hrs, Volume= 3.149 af, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
10.300	55	Woods, Good, HSG B
5.800	70	Woods, Good, HSG C
0.200	77	Woods, Good, HSG D
0.300	61	>75% Grass cover, Good, HSG B
1.000	74	>75% Grass cover, Good, HSG C
17.600	61	Weighted Average
17.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
0.5	60	0.1330	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	200	0.2900	2.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	150	0.0930	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	160	0.2875	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.4	350	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	220	0.1100	4.39	21.97	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
26.1	1,240	Total			

Subcatchment 1.5S: North Untreated



Summary for Subcatchment 2.1S: Building & Fields (Piped)

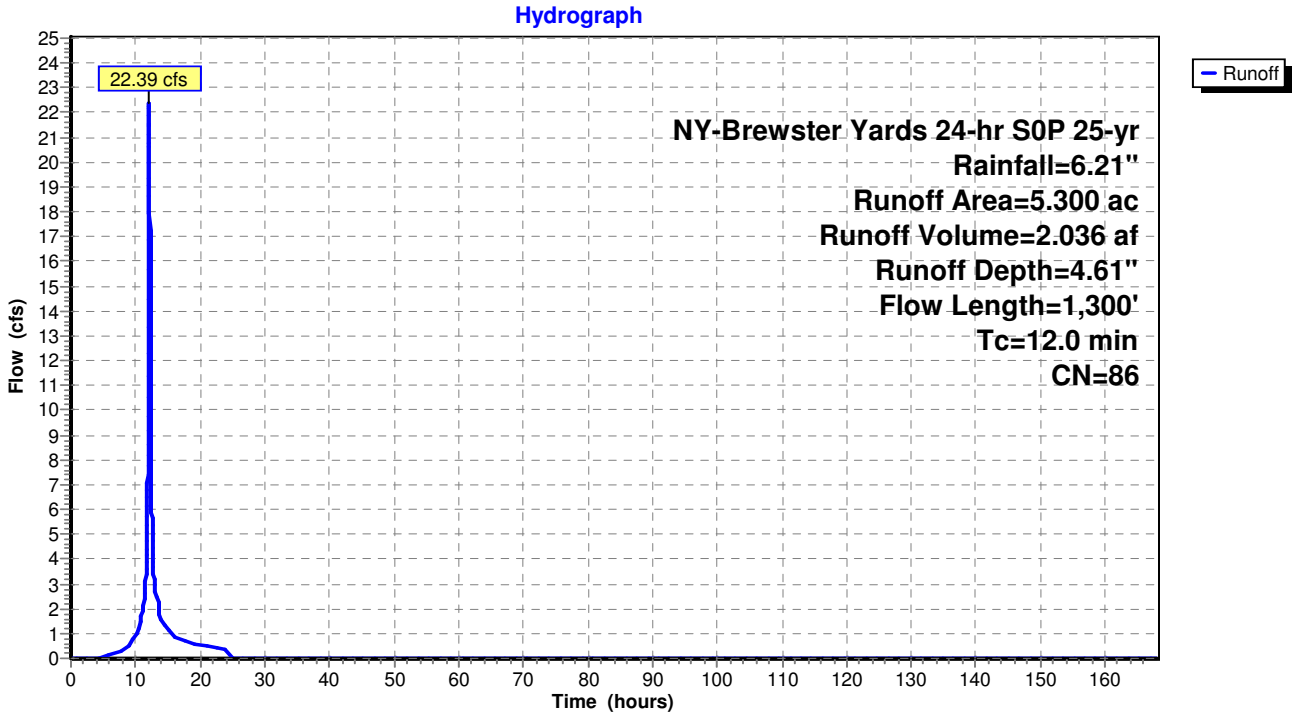
Runoff = 22.39 cfs @ 12.12 hrs, Volume= 2.036 af, Depth= 4.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

	Area (ac)	CN	Description
*	2.700	98	Impervious
*	1.400	86	Field Turf
	1.200	61	>75% Grass cover, Good, HSG B
	5.300	86	Weighted Average
	2.600		49.06% Pervious Area
	2.700		50.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
1.2	150	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	800	0.0412	14.62	45.92	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
12.0	1,300	Total			

Subcatchment 2.1S: Building & Fields (Piped)



Summary for Subcatchment 2.2S: Entrance Infiltration Basin

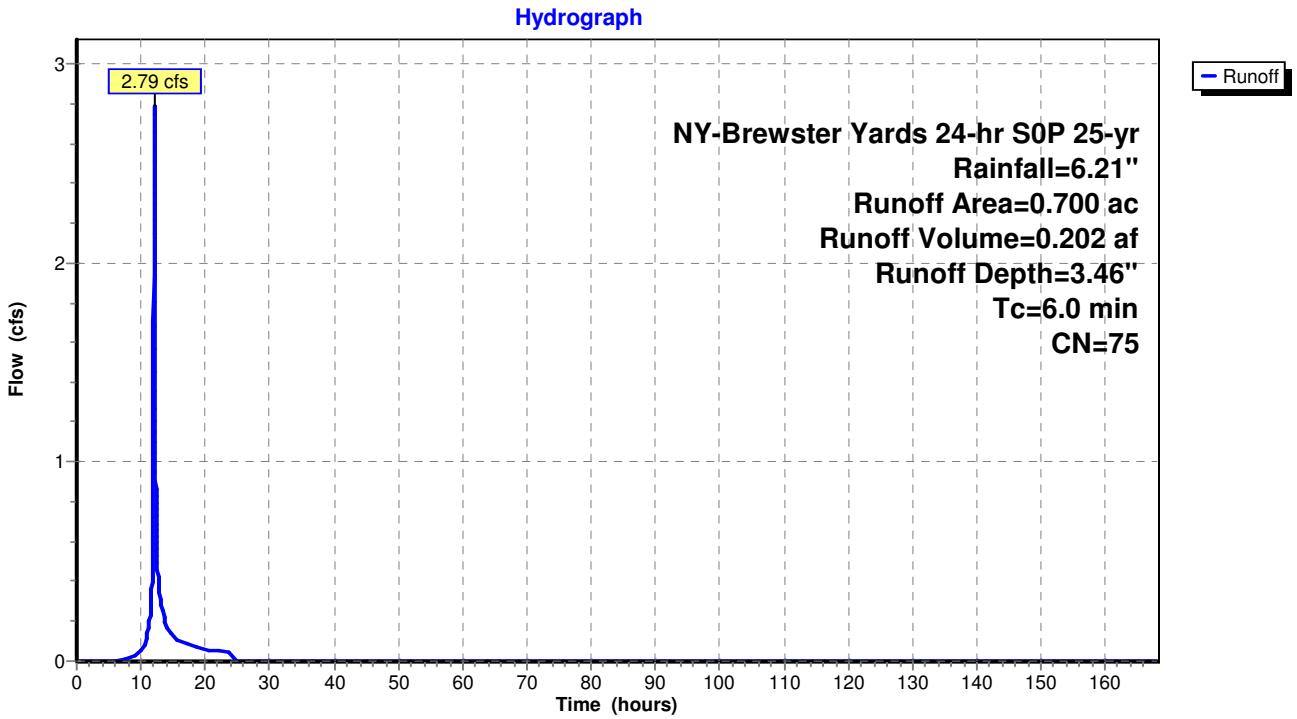
Runoff = 2.79 cfs @ 12.04 hrs, Volume= 0.202 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
0.200	61	>75% Grass cover, Good, HSG B
0.500	80	>75% Grass cover, Good, HSG D
0.700	75	Weighted Average
0.700		100.00% Pervious Area

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

Subcatchment 2.2S: Entrance Infiltration Basin



Summary for Subcatchment 2.3S: Fields & Parking (Piped)

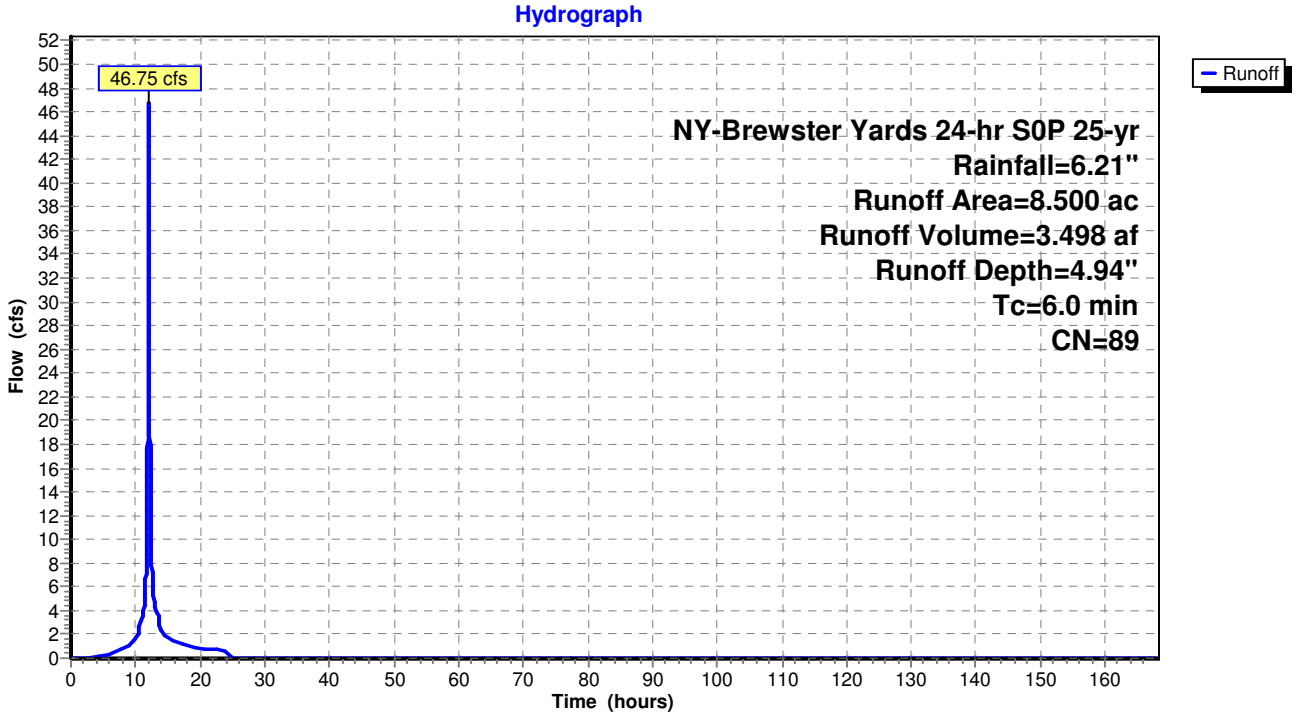
Runoff = 46.75 cfs @ 12.04 hrs, Volume= 3.498 af, Depth= 4.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

	Area (ac)	CN	Description
*	4.700	98	Impervious
*	2.400	86	Filed Turf
	1.400	61	>75% Grass cover, Good, HSG B
	8.500	89	Weighted Average
	3.800		44.71% Pervious Area
	4.700		55.29% Impervious Area

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

Subcatchment 2.3S: Fields & Parking (Piped)



Summary for Subcatchment 2.4S: South Showcase Field (Piped)

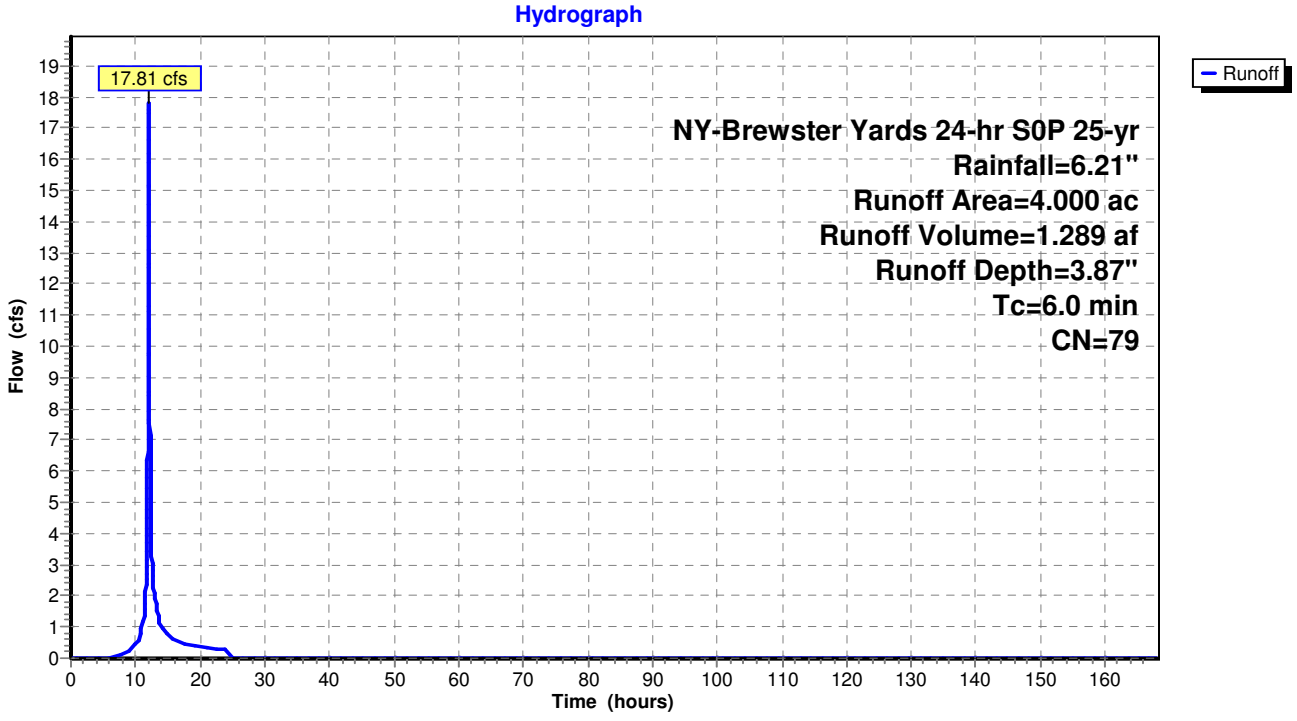
Runoff = 17.81 cfs @ 12.04 hrs, Volume= 1.289 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

	Area (ac)	CN	Description
*	0.300	98	Impervious
*	2.500	86	Filed Turf
	1.200	61	>75% Grass cover, Good, HSG B
	4.000	79	Weighted Average
	3.700		92.50% Pervious Area
	0.300		7.50% Impervious Area

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

Subcatchment 2.4S: South Showcase Field (Piped)



Summary for Subcatchment 2.5S: South Detention Basin

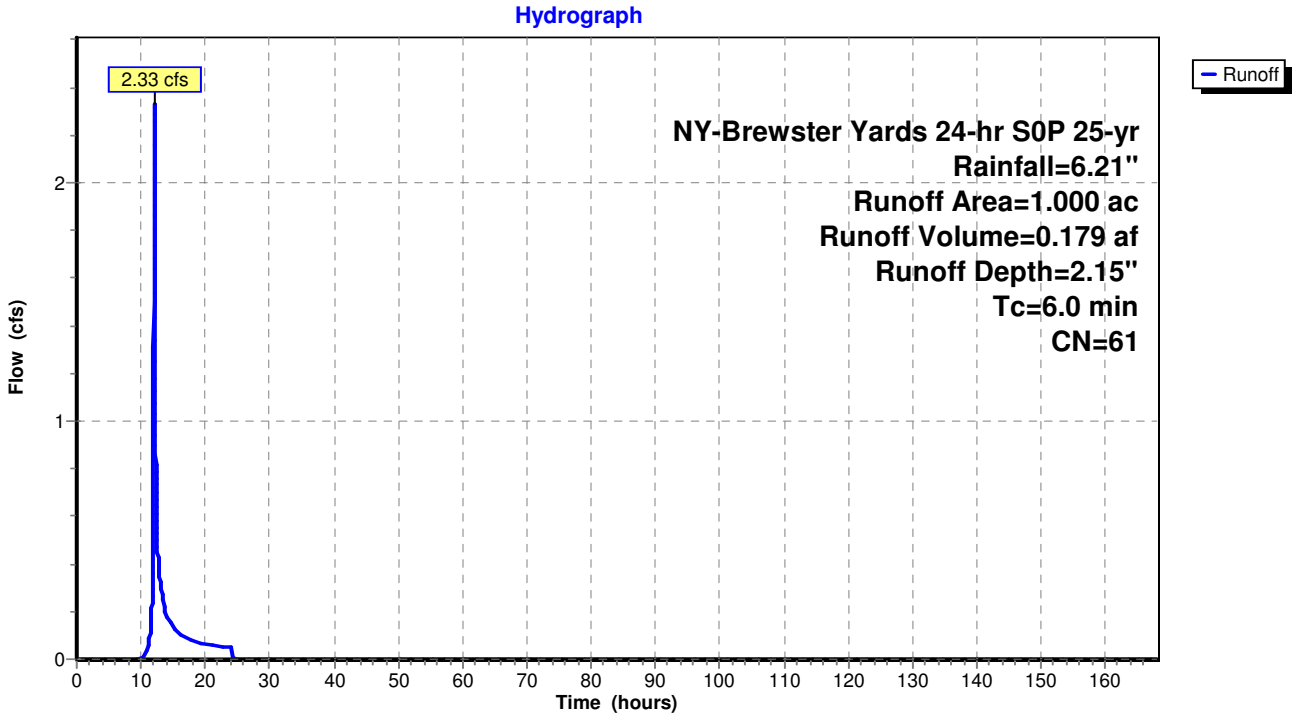
Runoff = 2.33 cfs @ 12.05 hrs, Volume= 0.179 af, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
1.000	61	>75% Grass cover, Good, HSG B
1.000		100.00% Pervious Area

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

Subcatchment 2.5S: South Detention Basin



Summary for Subcatchment 2.6S: South Upper Pond

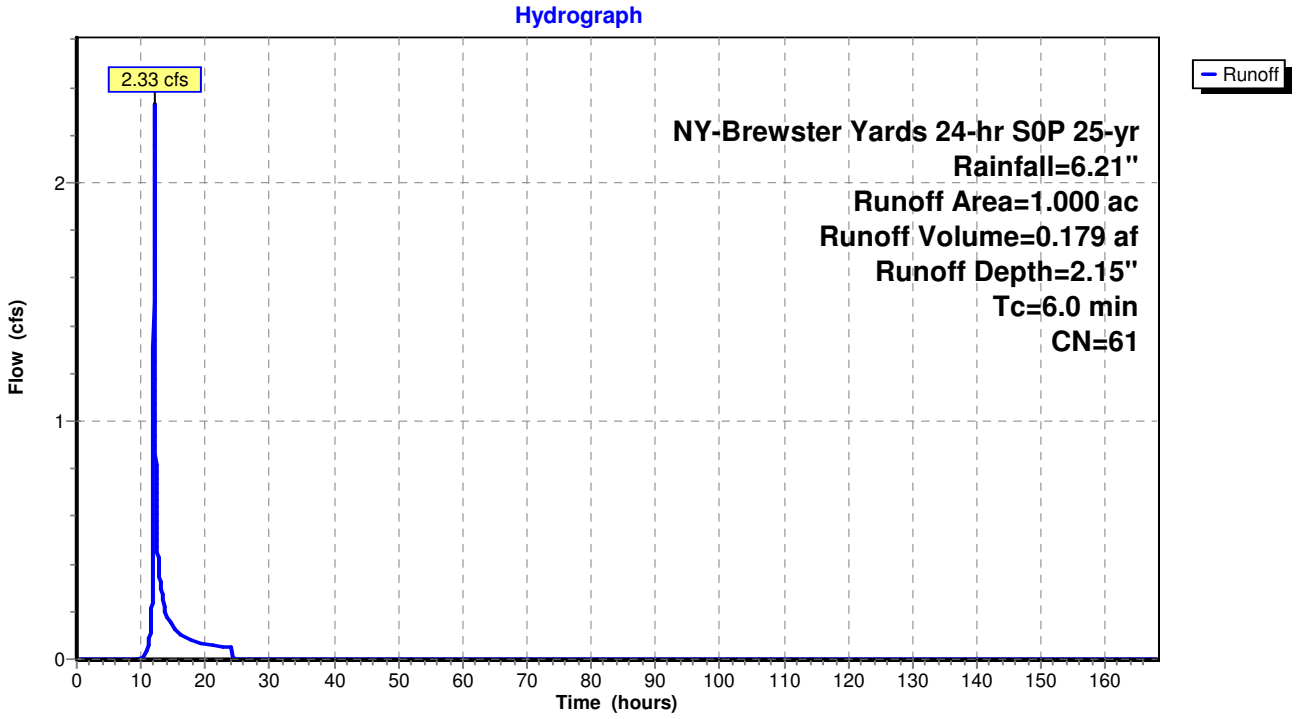
Runoff = 2.33 cfs @ 12.05 hrs, Volume= 0.179 af, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
1.000	61	>75% Grass cover, Good, HSG B
1.000		100.00% Pervious Area

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

Subcatchment 2.6S: South Upper Pond



Summary for Subcatchment 2.7S: South Lower Pond

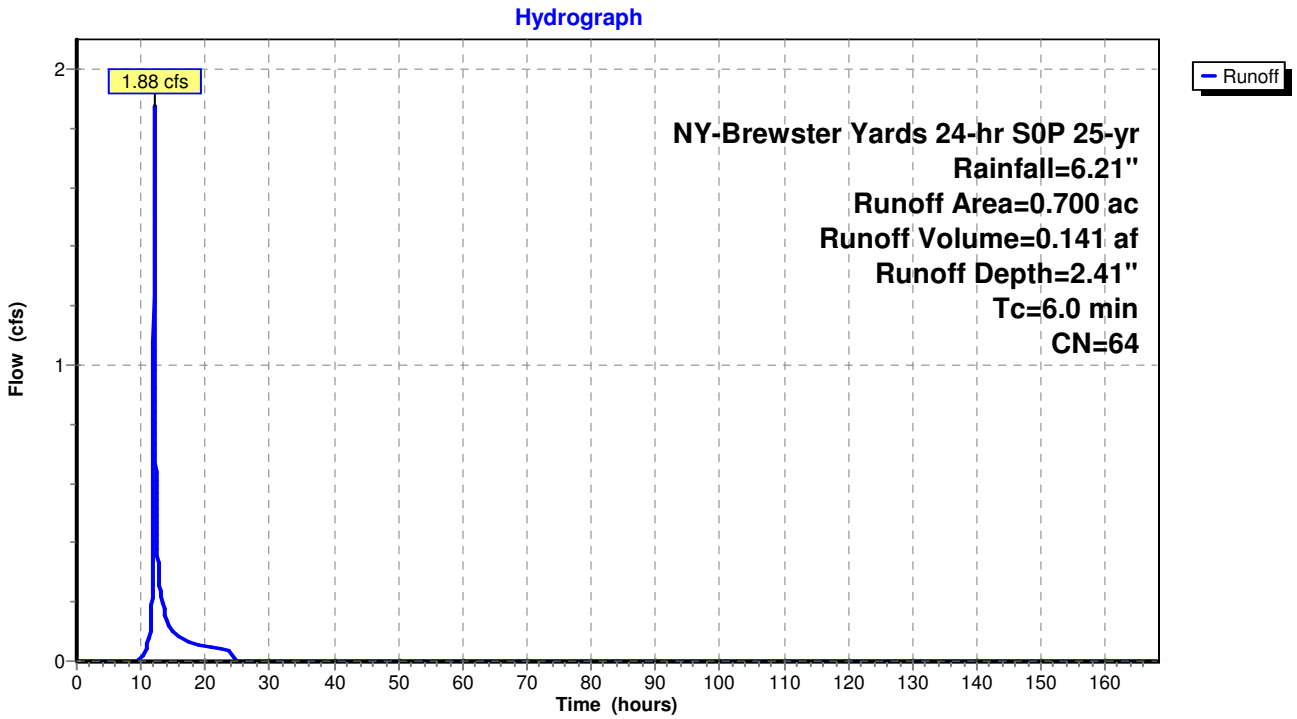
Runoff = 1.88 cfs @ 12.05 hrs, Volume= 0.141 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
0.600	61	>75% Grass cover, Good, HSG B
0.100	80	>75% Grass cover, Good, HSG D
0.700	64	Weighted Average
0.700		100.00% Pervious Area

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

Subcatchment 2.7S: South Lower Pond



Summary for Subcatchment 2.8S: South Untreated

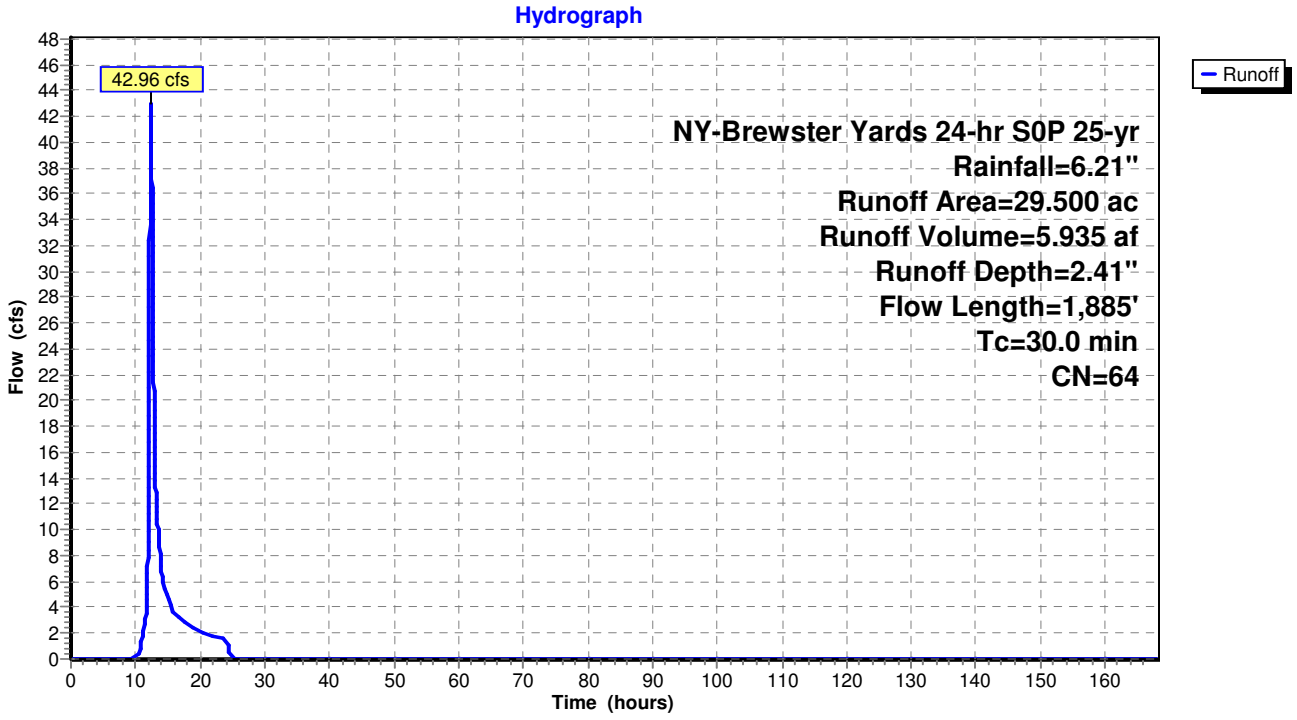
Runoff = 42.96 cfs @ 12.37 hrs, Volume= 5.935 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 25-yr Rainfall=6.21"

Area (ac)	CN	Description
14.800	55	Woods, Good, HSG B
0.100	70	Woods, Good, HSG C
10.300	77	Woods, Good, HSG D
4.100	61	>75% Grass cover, Good, HSG B
0.200	80	>75% Grass cover, Good, HSG D
29.500	64	Weighted Average
29.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.3	100	0.0240	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
7.8	885	0.1430	1.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	900	0.0500	5.09	71.20	**Channel Flow,** Area= 14.0 sf Perim= 45.0' r= 0.31' n= 0.030 Earth, grassed & winding
30.0	1,885	Total			

Subcatchment 2.8S: South Untreated

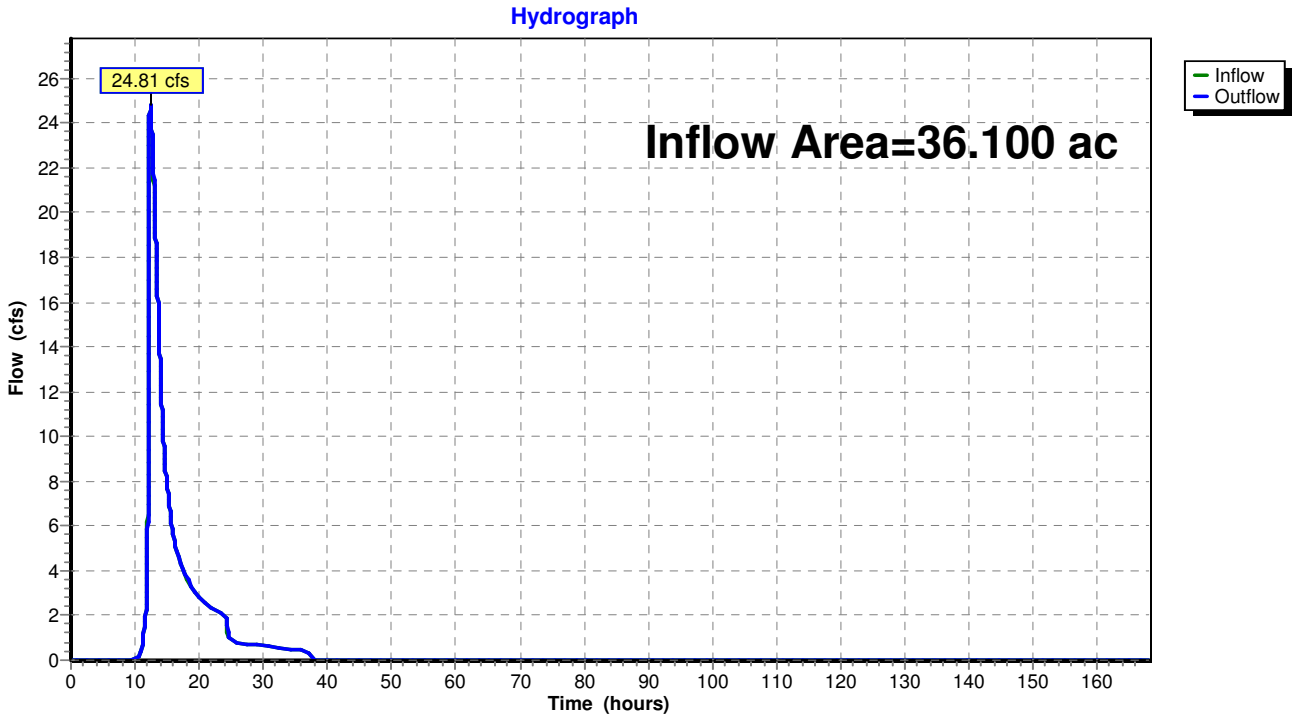


Summary for Reach DL 1:

Inflow Area = 36.100 ac, 8.31% Impervious, Inflow Depth = 2.46" for 25-yr event
Inflow = 24.81 cfs @ 12.33 hrs, Volume= 7.404 af
Outflow = 24.81 cfs @ 12.34 hrs, Volume= 7.404 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach DL 1:

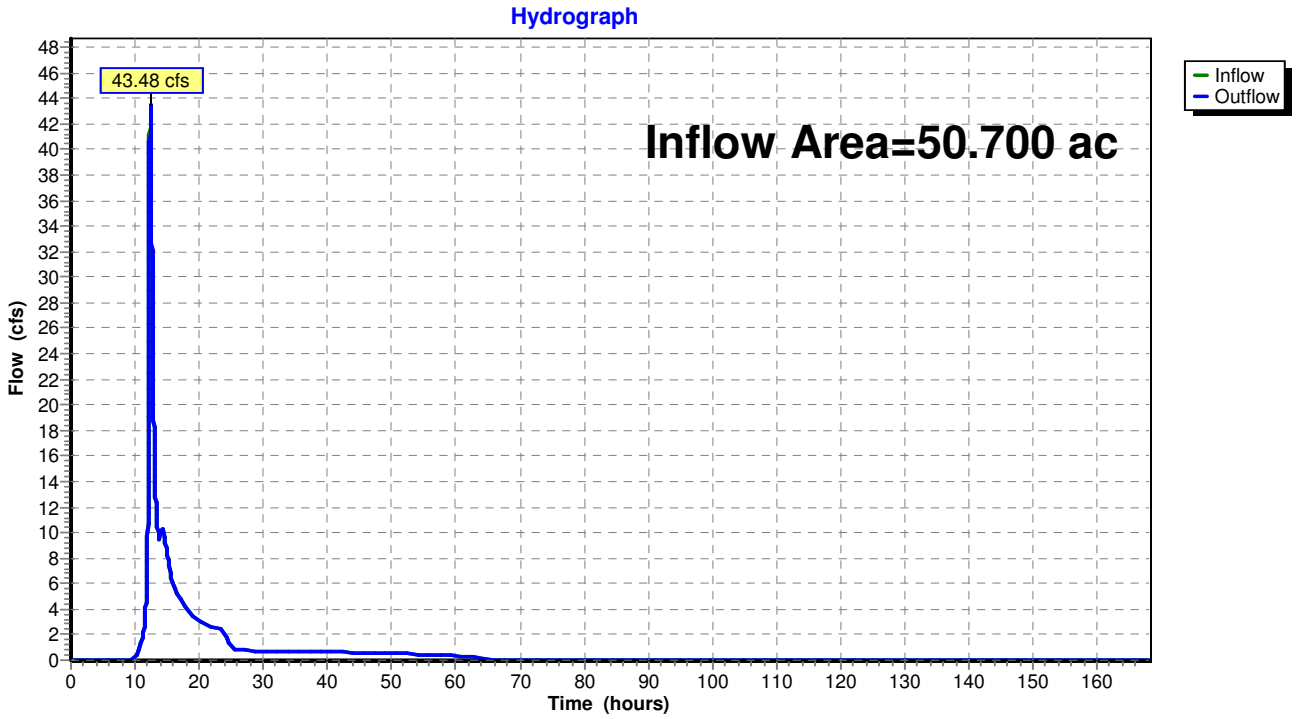


Summary for Reach DL 2:

Inflow Area = 50.700 ac, 15.19% Impervious, Inflow Depth = 2.20" for 25-yr event
Inflow = 43.48 cfs @ 12.37 hrs, Volume= 9.286 af
Outflow = 43.48 cfs @ 12.38 hrs, Volume= 9.286 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach DL 2:



Summary for Pond 1.2 EDB: North Detention Basin, Orifice, & Weir

Inflow Area = 16.900 ac, 17.75% Impervious, Inflow Depth = 4.41" for 25-yr event
Inflow = 76.68 cfs @ 12.07 hrs, Volume= 6.206 af
Outflow = 29.90 cfs @ 12.30 hrs, Volume= 6.206 af, Atten= 61%, Lag= 13.8 min
Primary = 29.90 cfs @ 12.30 hrs, Volume= 6.206 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 668.41' @ 12.30 hrs Surf.Area= 29,074 sf Storage= 113,160 cf
Flood Elev= 669.50' Surf.Area= 34,100 sf Storage= 147,015 cf

Plug-Flow detention time= 876.0 min calculated for 6.206 af (100% of inflow)
Center-of-Mass det. time= 875.9 min (1,686.6 - 810.6)

Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	240 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 600 cf Overall x 40.0% Voids
#2	660.00'	164,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		164,340 cf	Total Available Storage

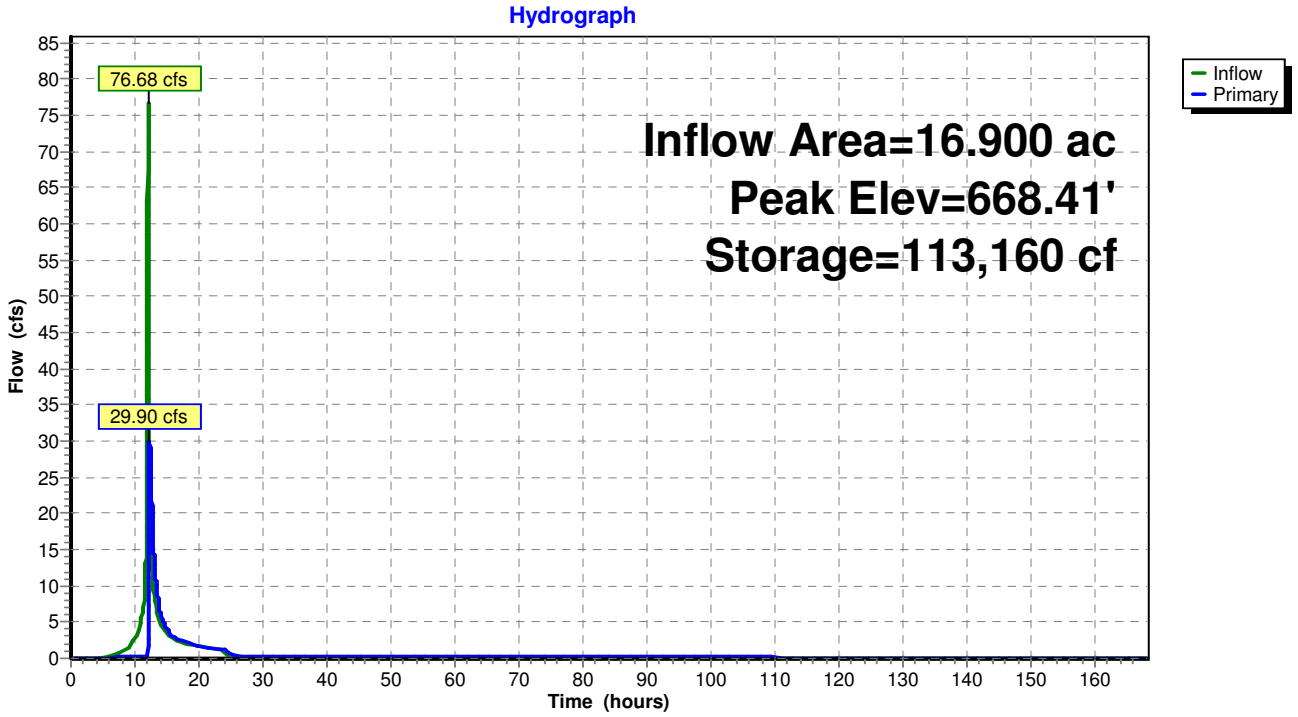
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	600	0	0
660.00	600	600	600

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.00	1,900	0	0
662.00	6,000	7,900	7,900
664.00	11,800	17,800	25,700
666.00	18,800	30,600	56,300
668.00	26,600	45,400	101,700
670.00	35,800	62,400	164,100

Device	Routing	Invert	Outlet Devices
#1	Primary	659.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	666.70'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=29.89 cfs @ 12.30 hrs HW=668.41' TW=661.87' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.27 cfs @ 12.31 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 29.63 cfs @ 4.34 fps)

Pond 1.2 EDB: North Detention Basin, Orifice, & Weir



Stage-Area-Storage for Pond 1.2 EDB: North Detention Basin, Orifice, & Weir

Elevation (feet)	Storage (cubic-feet)
659.00	0
659.15	36
659.30	72
659.45	108
659.60	144
659.75	180
659.90	216
660.05	338
660.20	661
660.35	1,031
660.50	1,446
660.65	1,908
660.80	2,416
660.95	2,970
661.10	3,570
661.25	4,217
661.40	4,909
661.55	5,648
661.70	6,432
661.85	7,263
662.00	8,140
662.15	9,073
662.30	10,070
662.45	11,134
662.60	12,262
662.75	13,456
662.90	14,714
663.05	16,039
663.20	17,428
663.35	18,883
663.50	20,403
663.65	21,988
663.80	23,638
663.95	25,354
664.10	27,138
664.25	28,999
664.40	30,940
664.55	32,959
664.70	35,058
664.85	37,234
665.00	39,490
665.15	41,824
665.30	44,237
665.45	46,729
665.60	49,300
665.75	51,949
665.90	54,677
666.05	57,485
666.20	60,378
666.35	63,359
666.50	66,428
666.65	69,584
666.80	72,828
666.95	76,160
667.10	79,580
667.25	83,087
667.40	86,682
667.55	90,365
667.70	94,136
667.85	97,994
668.00	101,940
668.15	105,982
668.30	110,127
668.45	114,376
668.60	118,728
668.75	123,184
668.90	127,743
669.05	132,406
669.20	137,172
669.35	142,042
669.50	147,015
669.65	152,092
669.80	157,272
669.95	**162,556**

Summary for Pond 1.3 IB: North Infiltration

Inflow Area = 17.900 ac, 16.76% Impervious, Inflow Depth = 1.61" for 25-yr event
Inflow = 4.20 cfs @ 12.04 hrs, Volume= 2.399 af
Outflow = 0.20 cfs @ 91.43 hrs, Volume= 2.399 af, Atten= 95%, Lag= 4,763.1 min
Discarded = 0.20 cfs @ 91.43 hrs, Volume= 2.399 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 656.32' @ 91.43 hrs Surf.Area= 17,103 sf Storage= 34,731 cf
Flood Elev= 659.00' Surf.Area= 22,300 sf Storage= 87,500 cf

Plug-Flow detention time= 2,128.6 min calculated for 2.399 af (100% of inflow)
Center-of-Mass det. time= 2,128.6 min (5,072.5 - 2,943.8)

Volume	Invert	Avail.Storage	Storage Description
#1	654.00'	110,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

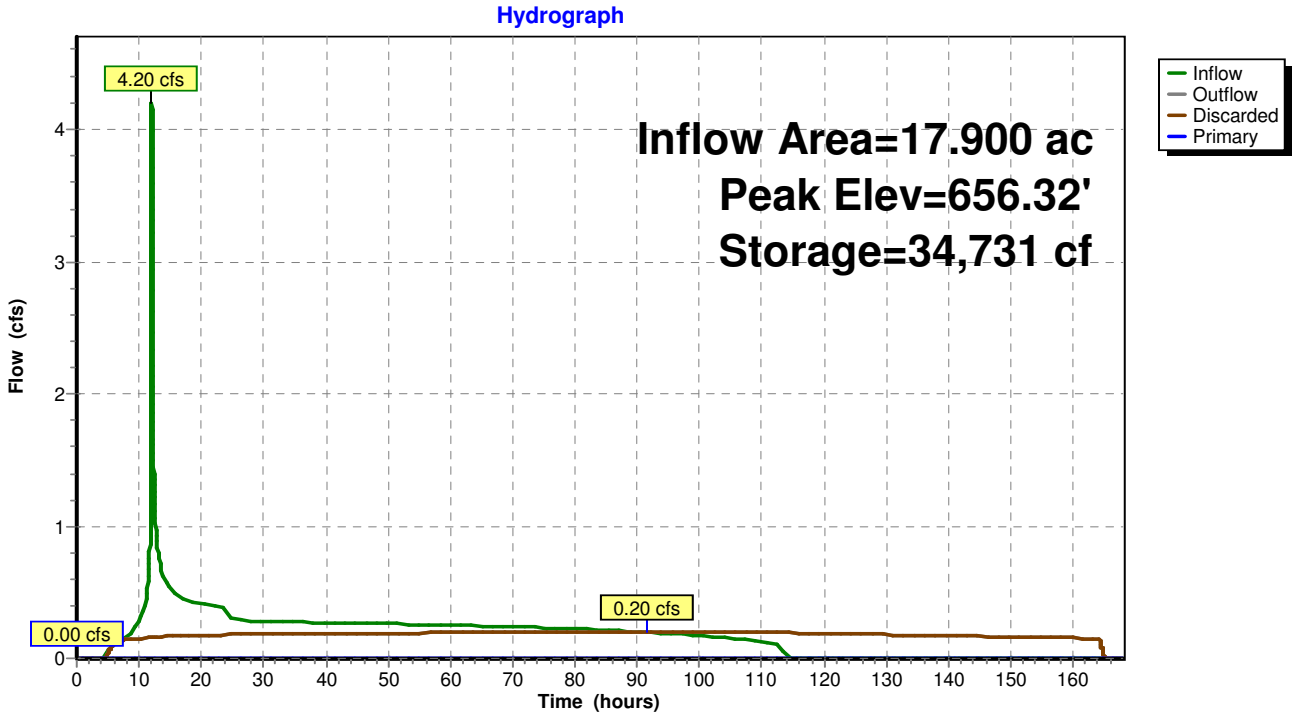
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
654.00	12,900	0	0
656.00	16,500	29,400	29,400
658.00	20,300	36,800	66,200
660.00	24,300	44,600	110,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	654.00'	**0.500 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	658.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.20 cfs @ 91.43 hrs HW=656.32' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=654.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.3 IB: North Infiltration



Stage-Area-Storage for Pond 1.3 IB: North Infiltration

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
654.00	12,900	0
654.10	13,080	1,299
654.20	13,260	2,616
654.30	13,440	3,951
654.40	13,620	5,304
654.50	13,800	6,675
654.60	13,980	8,064
654.70	14,160	9,471
654.80	14,340	10,896
654.90	14,520	12,339
655.00	14,700	13,800
655.10	14,880	15,279
655.20	15,060	16,776
655.30	15,240	18,291
655.40	15,420	19,824
655.50	15,600	21,375
655.60	15,780	22,944
655.70	15,960	24,531
655.80	16,140	26,136
655.90	16,320	27,759
656.00	16,500	29,400
656.10	16,690	31,060
656.20	16,880	32,738
656.30	17,070	34,435
656.40	17,260	36,152
656.50	17,450	37,888
656.60	17,640	39,642
656.70	17,830	41,416
656.80	18,020	43,208
656.90	18,210	45,019
657.00	18,400	46,850
657.10	18,590	48,700
657.20	18,780	50,568
657.30	18,970	52,455
657.40	19,160	54,362
657.50	19,350	56,288
657.60	19,540	58,232
657.70	19,730	60,196
657.80	19,920	62,178
657.90	20,110	64,179
658.00	20,300	66,200
658.10	20,500	68,240
658.20	20,700	70,300
658.30	20,900	72,380
658.40	21,100	74,480
658.50	21,300	76,600
658.60	21,500	78,740
658.70	21,700	80,900
658.80	21,900	83,080
658.90	22,100	85,280
659.00	22,300	87,500
659.10	22,500	89,740
659.20	22,700	92,000
659.30	22,900	94,280
659.40	23,100	96,580
659.50	23,300	98,900
659.60	23,500	101,240
659.70	23,700	103,600
659.80	23,900	105,980
659.90	24,100	108,380
660.00	**24,300**	**110,800**

Summary for Pond 1.4 EDB: North Lower Detention Basin

Inflow Area = 0.600 ac, 0.00% Impervious, Inflow Depth = 85.10" for 25-yr event
Inflow = 30.11 cfs @ 12.31 hrs, Volume= 4.255 af
Outflow = 13.10 cfs @ 13.06 hrs, Volume= 4.255 af, Atten= 56%, Lag= 45.0 min
Primary = 13.10 cfs @ 13.06 hrs, Volume= 4.255 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Starting Elev= 594.00' Surf.Area= 0 sf Storage= 0 cf
Peak Elev= 657.16' @ 13.06 hrs Surf.Area= 14,572 sf Storage= 54,742 cf
Flood Elev= 659.50' Surf.Area= 17,950 sf Storage= 90,758 cf

Plug-Flow detention time= 189.0 min calculated for 4.255 af (100% of inflow)
Center-of-Mass det. time= 189.1 min (1,078.1 - 889.0)

Volume	Invert	Avail.Storage	Storage Description
#1	651.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	652.00'	99,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		99,520 cf	Total Available Storage

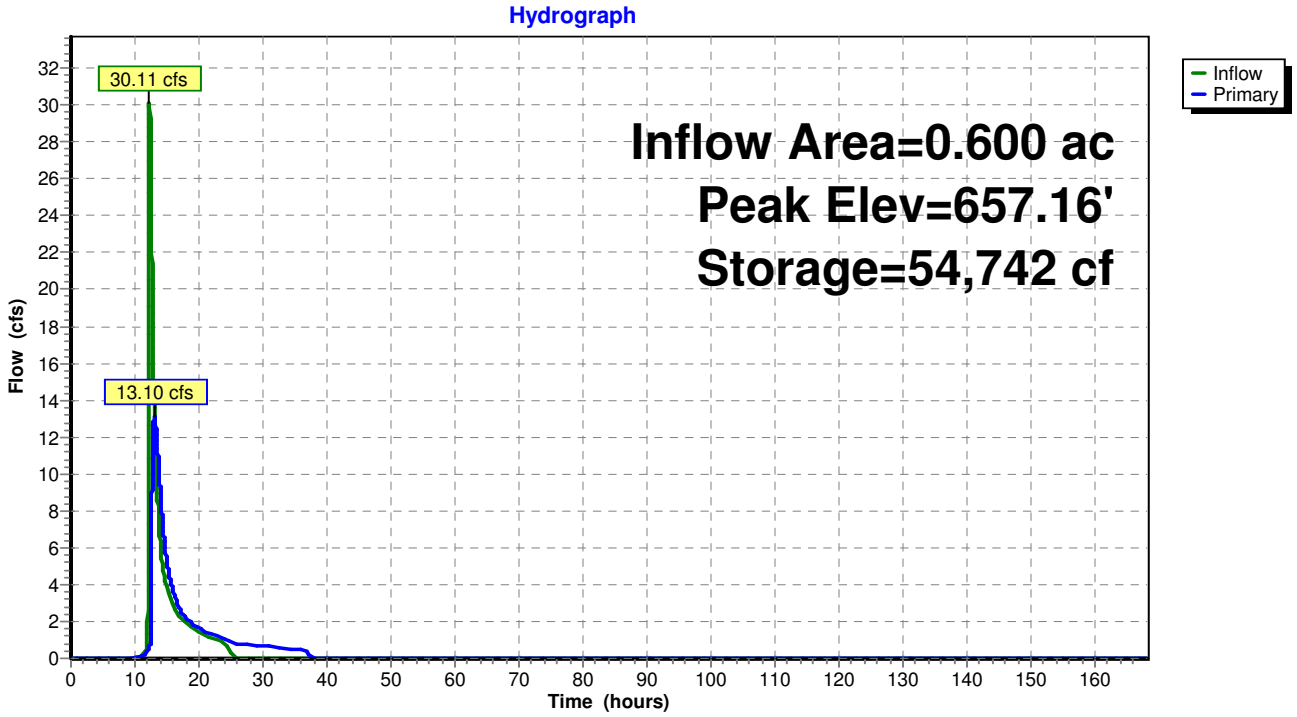
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
651.00	800	0	0
652.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
652.00	7,500	0	0
654.00	9,800	17,300	17,300
656.00	12,200	22,000	39,300
658.00	14,900	27,100	66,400
660.00	17,900	32,800	99,200

Device	Routing	Invert	Outlet Devices
#1	Primary	651.00'	**36.0" Round Culvert** L= 600.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 651.00' / 640.00' S= 0.0183 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	654.80'	**1.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	651.00'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=13.10 cfs @ 13.06 hrs HW=657.16' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 13.10 cfs of 73.51 cfs potential flow)
  ├─**2=Broad-Crested Rectangular Weir** (Weir Controls 12.07 cfs @ 5.11 fps)
  └─**3=Orifice/Grate** (Orifice Controls 1.03 cfs @ 11.79 fps)

Pond 1.4 EDB: North Lower Detention Basin



Stage-Area-Storage for Pond 1.4 EDB: North Lower Detention Basin

Elevation (feet)	Storage (cubic-feet)
651.00	0
651.10	32
651.20	64
651.30	96
651.40	128
651.50	160
651.60	192
651.70	224
651.80	256
651.90	288
652.00	320
652.10	1,076
652.20	1,843
652.30	2,622
652.40	3,412
652.50	4,214
652.60	5,027
652.70	5,852
652.80	6,688
652.90	7,536
653.00	8,395
653.10	9,266
653.20	10,148
653.30	11,042
653.40	11,947
653.50	12,864
653.60	13,792
653.70	14,732
653.80	15,683
653.90	16,646
654.00	17,620
654.10	18,606
654.20	19,604
654.30	20,614
654.40	21,636
654.50	22,670
654.60	23,716
654.70	24,774
654.80	25,844
654.90	26,926
655.00	28,020
655.10	29,126
655.20	30,244
655.30	31,374
655.40	32,516
655.50	33,670
655.60	34,836
655.70	36,014
655.80	37,204
655.90	38,406
656.00	39,620
656.10	40,847
656.20	42,087
656.30	43,341
656.40	44,608
656.50	45,889
656.60	47,183
656.70	48,491
656.80	49,812
656.90	51,147
657.00	52,495
657.10	53,857
657.20	55,232
657.30	56,621
657.40	58,023
657.50	59,439
657.60	60,868
657.70	62,311
657.80	63,767
657.90	65,237
658.00	66,720
658.10	68,218
658.20	69,730
658.30	71,257
658.40	72,800
658.50	74,358
658.60	75,930
658.70	77,518
658.80	79,120
658.90	80,737
659.00	82,370
659.10	84,018
659.20	85,680
659.30	87,357
659.40	89,050
659.50	90,758
659.60	92,480
659.70	94,218
659.80	95,970
659.90	97,737
660.00	**99,520**

Summary for Pond 2.2 EDB: Entrance Detention Basin

Inflow Area = 6.000 ac, 45.00% Impervious, Inflow Depth = 4.48" for 25-yr event
Inflow = 24.53 cfs @ 12.12 hrs, Volume= 2.238 af
Outflow = 7.28 cfs @ 12.48 hrs, Volume= 2.238 af, Atten= 70%, Lag= 21.4 min
Primary = 7.28 cfs @ 12.48 hrs, Volume= 2.238 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 672.15' @ 12.48 hrs Surf.Area= 10,893 sf Storage= 41,188 cf
Flood Elev= 673.00' Surf.Area= 12,550 sf Storage= 50,895 cf

Plug-Flow detention time= 414.5 min calculated for 2.238 af (100% of inflow)
Center-of-Mass det. time= 414.5 min (1,225.5 - 811.0)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	120 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 300 cf Overall x 40.0% Voids
#2	664.00'	64,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		64,120 cf	Total Available Storage

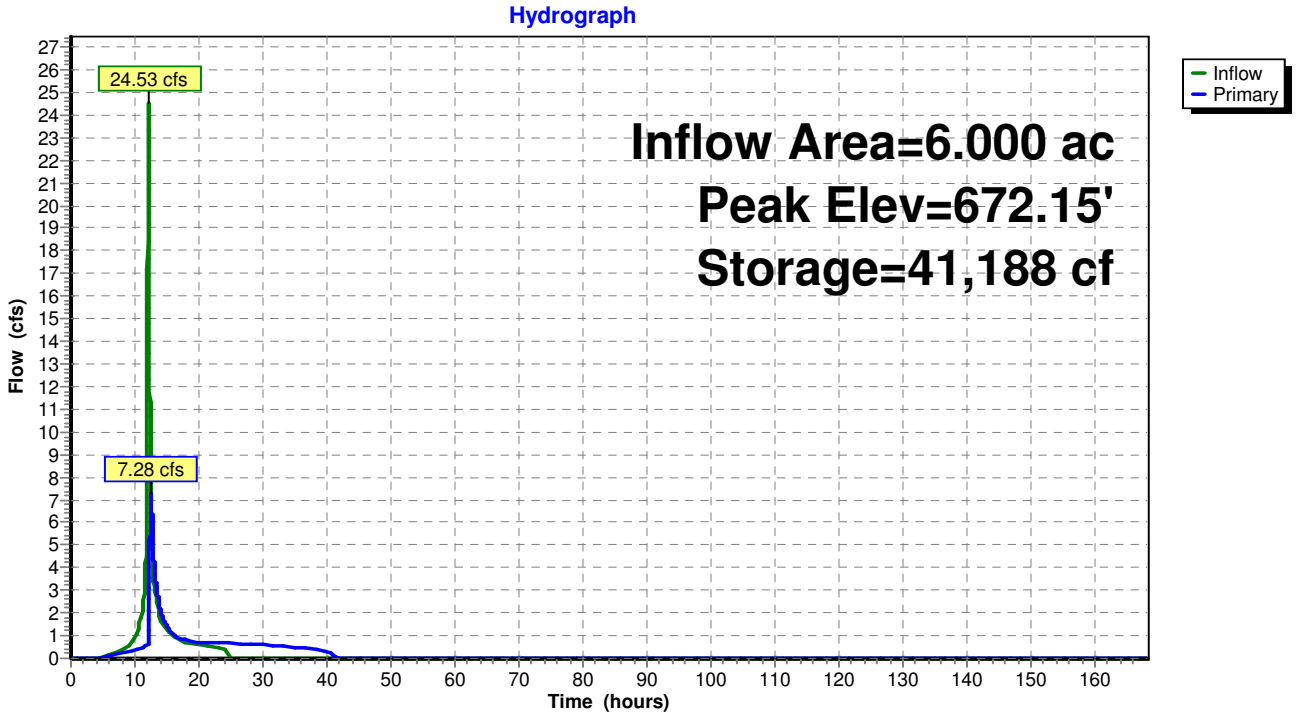
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	300	0	0
664.00	300	300	300

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
664.00	1,000	0	0
666.00	2,500	3,500	3,500
668.00	4,500	7,000	10,500
670.00	7,100	11,600	22,100
672.00	10,300	17,400	39,500
674.00	14,200	24,500	64,000

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**18.0" Round Culvert** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 663.00' / 656.00' S= 0.0437 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	663.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	671.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=7.28 cfs @ 12.48 hrs HW=672.15' TW=618.63' (Dynamic Tailwater)
└─**1=Culvert** (Passes 7.28 cfs of 24.66 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.71 cfs @ 14.46 fps)
  └─**3=Broad-Crested Rectangular Weir** (Weir Controls 6.57 cfs @ 2.53 fps)

Pond 2.2 EDB: Entrance Detention Basin



Stage-Area-Storage for Pond 2.2 EDB: Entrance Detention Basin

Elevation (feet)	Storage (cubic-feet)
663.00	0
663.15	18
663.30	36
663.45	54
663.60	72
663.75	90
663.90	108
664.05	171
664.20	335
664.35	516
664.50	714
664.65	928
664.80	1,160
664.95	1,408
665.10	1,674
665.25	1,956
665.40	2,255
665.55	2,571
665.70	2,904
665.85	3,253
666.00	3,620
666.15	4,006
666.30	4,415
666.45	4,846
666.60	5,300
666.75	5,776
666.90	6,275
667.05	6,796
667.20	7,340
667.35	7,906
667.50	8,495
667.65	9,106
667.80	9,740
667.95	10,396
668.10	11,077
668.25	11,786
668.40	12,524
668.55	13,292
668.70	14,089
668.85	14,915
669.00	15,770
669.15	16,655
669.30	17,568
669.45	18,512
669.60	19,484
669.75	20,486
669.90	21,516
670.05	22,577
670.20	23,672
670.35	24,803
670.50	25,970
670.65	27,173
670.80	28,412
670.95	29,687
671.10	30,998
671.25	32,345
671.40	33,728
671.55	35,147
671.70	36,602
671.85	38,093
672.00	39,620
672.15	41,187
672.30	42,798
672.45	44,452
672.60	46,151
672.75	47,893
672.90	49,680
673.05	51,510
673.20	53,384
673.35	55,302
673.50	57,264
673.65	59,269
673.80	61,319
673.95	**63,412**

Summary for Pond 2.5 EDB: South Detention Basin

Inflow Area = 13.500 ac, 37.04% Impervious, Inflow Depth = 4.41" for 25-yr event
Inflow = 66.87 cfs @ 12.04 hrs, Volume= 4.967 af
Outflow = 27.11 cfs @ 12.23 hrs, Volume= 4.967 af, Atten= 59%, Lag= 11.2 min
Primary = 27.11 cfs @ 12.23 hrs, Volume= 4.967 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 629.30' @ 12.23 hrs Surf.Area= 17,179 sf Storage= 90,278 cf
Flood Elev= 631.50' Surf.Area= 20,525 sf Storage= 130,014 cf

Plug-Flow detention time= 659.2 min calculated for 4.967 af (100% of inflow)
Center-of-Mass det. time= 659.0 min (1,462.5 - 803.5)

Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	621.00'	139,750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		140,070 cf	Total Available Storage

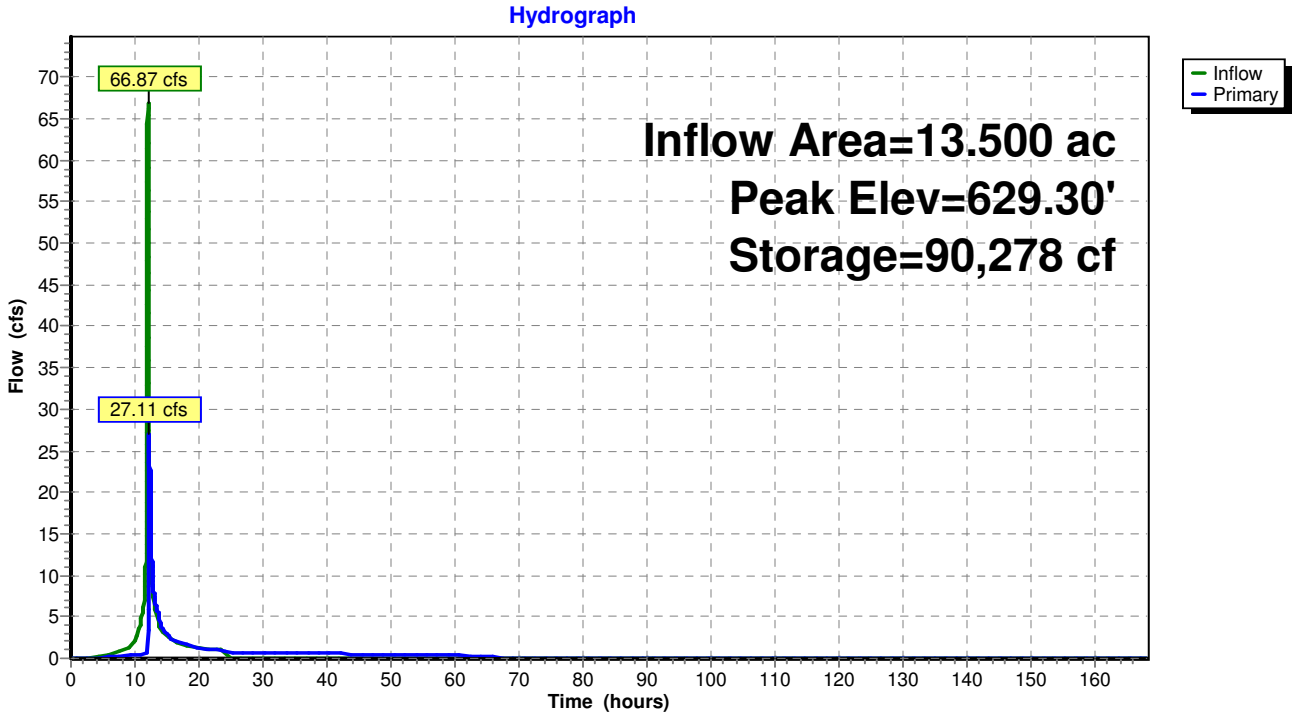
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	800	0	0
621.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	5,200	0	0
622.00	7,100	6,150	6,150
624.00	9,300	16,400	22,550
626.00	11,800	21,100	43,650
628.00	14,500	26,300	69,950
630.00	17,400	31,900	101,850
632.00	20,500	37,900	139,750

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**24.0" Round Culvert** L= 450.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 620.00' / 615.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	628.30'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	620.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=27.10 cfs @ 12.23 hrs HW=629.30' TW=618.78' (Dynamic Tailwater)
└─**1=Culvert** (Passes 27.10 cfs of 30.67 cfs potential flow)
  ├─**2=Broad-Crested Rectangular Weir** (Weir Controls 26.38 cfs @ 3.31 fps)
  └─**3=Orifice/Grate** (Orifice Controls 0.72 cfs @ 14.58 fps)

Pond 2.5 EDB: South Detention Basin



Stage-Area-Storage for Pond 2.5 EDB: South Detention Basin

Elevation (feet)	Storage (cubic-feet)
620.00	0
620.15	48
620.30	96
620.45	144
620.60	192
620.75	240
620.90	288
621.05	582
621.20	1,398
621.35	2,256
621.50	3,158
621.65	4,101
621.80	5,088
621.95	6,117
622.10	7,186
622.25	8,279
622.40	9,398
622.55	10,541
622.70	11,710
622.85	12,902
623.00	14,120
623.15	15,362
623.30	16,629
623.45	17,921
623.60	19,238
623.75	20,579
623.90	21,945
624.05	23,337
624.20	24,755
624.35	26,202
624.50	27,676
624.65	29,179
624.80	30,710
624.95	32,269
625.10	33,856
625.25	35,472
625.40	37,115
625.55	38,787
625.70	40,486
625.85	42,214
626.00	43,970
626.15	45,755
626.30	47,571
626.45	49,417
626.60	51,293
626.75	53,200
626.90	55,137
627.05	57,104
627.20	59,102
627.35	61,130
627.50	63,189
627.65	65,278
627.80	67,397
627.95	69,547
628.10	71,727
628.25	73,940
628.40	76,186
628.55	78,464
628.70	80,775
628.85	83,119
629.00	85,495
629.15	87,904
629.30	90,345
629.45	92,819
629.60	95,326
629.75	97,865
629.90	100,437
630.05	103,042
630.20	105,681
630.35	108,355
630.50	111,064
630.65	113,807
630.80	116,586
630.95	119,399
631.10	122,248
631.25	125,131
631.40	128,049
631.55	131,002
631.70	133,990
631.85	137,012
632.00	**140,070**

Summary for Pond 2.6 IB: South Upper Infiltration Basin

Inflow Area = 20.500 ac, 37.56% Impervious, Inflow Depth = 2.44" for 25-yr event
Inflow = 3.49 cfs @ 12.05 hrs, Volume= 4.173 af
Outflow = 3.08 cfs @ 12.16 hrs, Volume= 4.173 af, Atten= 12%, Lag= 6.9 min
Discarded = 3.08 cfs @ 12.16 hrs, Volume= 4.173 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 609.04' @ 12.16 hrs Surf.Area= 6,648 sf Storage= 266 cf
Flood Elev= 617.50' Surf.Area= 18,675 sf Storage= 104,556 cf

Plug-Flow detention time= 0.7 min calculated for 4.173 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (1,760.7 - 1,760.0)

Volume	Invert	Avail.Storage	Storage Description
#1	609.00'	114,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

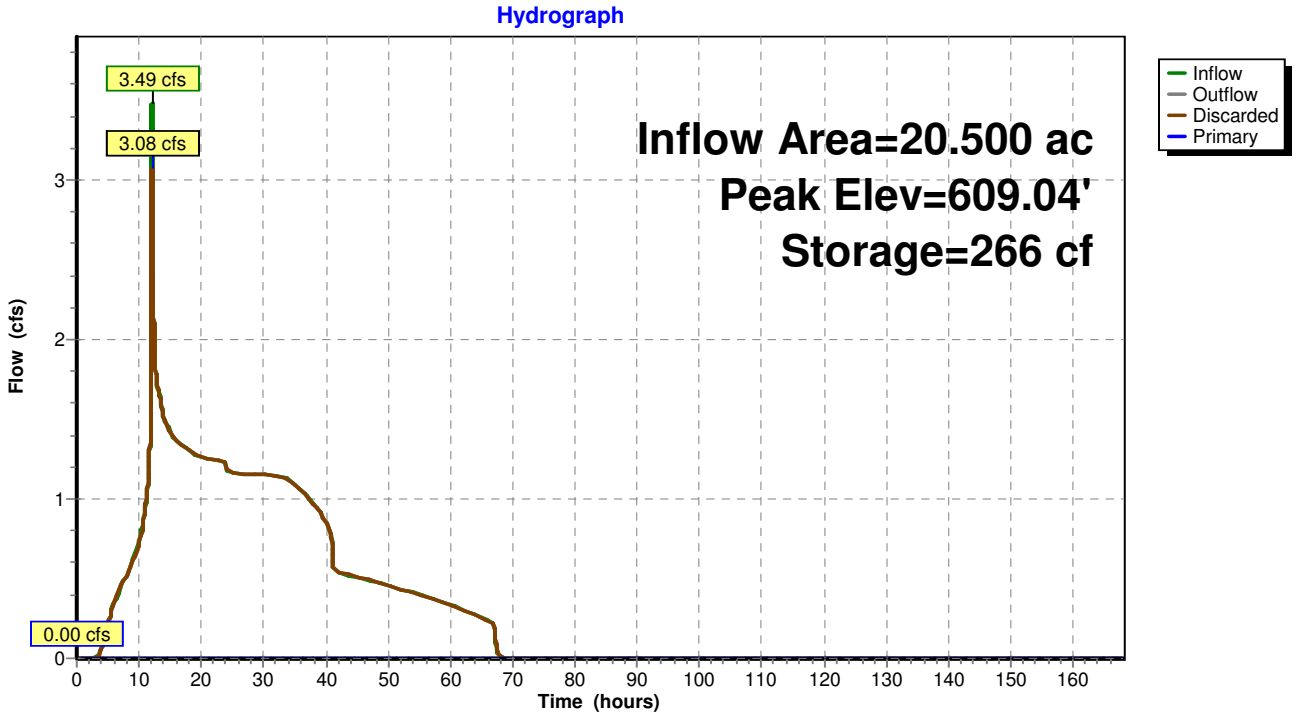
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.00	6,600	0	0
610.00	7,800	7,200	7,200
612.00	10,400	18,200	25,400
614.00	13,200	23,600	49,000
616.00	16,200	29,400	78,400
618.00	19,500	35,700	114,100

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**12.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.00' / 594.00' S= 0.1875 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	617.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Discarded	609.00'	**20.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=3.08 cfs @ 12.16 hrs HW=609.04' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 3.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=609.00' TW=593.00' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2.6 IB: South Upper Infiltration Basin



Stage-Area-Storage for Pond 2.6 IB: South Upper Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
609.00	6,600	0
609.10	6,720	666
609.20	6,840	1,344
609.30	6,960	2,034
609.40	7,080	2,736
609.50	7,200	3,450
609.60	7,320	4,176
609.70	7,440	4,914
609.80	7,560	5,664
609.90	7,680	6,426
610.00	7,800	7,200
610.10	7,930	7,987
610.20	8,060	8,786
610.30	8,190	9,598
610.40	8,320	10,424
610.50	8,450	11,263
610.60	8,580	12,114
610.70	8,710	12,979
610.80	8,840	13,856
610.90	8,970	14,746
611.00	9,100	15,650
611.10	9,230	16,567
611.20	9,360	17,496
611.30	9,490	18,438
611.40	9,620	19,394
611.50	9,750	20,363
611.60	9,880	21,344
611.70	10,010	22,339
611.80	10,140	23,346
611.90	10,270	24,366
612.00	10,400	25,400
612.10	10,540	26,447
612.20	10,680	27,508
612.30	10,820	28,583
612.40	10,960	29,672
612.50	11,100	30,775
612.60	11,240	31,892
612.70	11,380	33,023
612.80	11,520	34,168
612.90	11,660	35,327
613.00	11,800	36,500
613.10	11,940	37,687
613.20	12,080	38,888
613.30	12,220	40,103
613.40	12,360	41,332
613.50	12,500	42,575
613.60	12,640	43,832
613.70	12,780	45,103
613.80	12,920	46,388
613.90	13,060	47,687
614.00	13,200	49,000
614.10	13,350	50,328
614.20	13,500	51,670
614.30	13,650	53,027
614.40	13,800	54,400
614.50	13,950	55,788
614.60	14,100	57,190
614.70	14,250	58,608
614.80	14,400	60,040
614.90	14,550	61,487
615.00	14,700	62,950
615.10	14,850	64,428
615.20	15,000	65,920
615.30	15,150	67,427
615.40	15,300	68,950
615.50	15,450	70,488
615.60	15,600	72,040
615.70	15,750	73,608
615.80	15,900	75,190
615.90	16,050	76,787
616.00	16,200	78,400
616.10	16,365	80,028
616.20	16,530	81,673
616.30	16,695	83,334
616.40	16,860	85,012
616.50	17,025	86,706
616.60	17,190	88,417
616.70	17,355	90,144
616.80	17,520	91,888
616.90	17,685	93,648
617.00	17,850	95,425
617.10	18,015	97,218
617.20	18,180	99,028
617.30	18,345	100,854
617.40	18,510	102,697
617.50	18,675	104,556
617.60	18,840	106,432
617.70	19,005	108,324
617.80	19,170	110,233
617.90	19,335	112,158
618.00	**19,500**	**114,100**

Summary for Pond 2.7 EDB: South Lower Detention Basin

Inflow Area = 21.200 ac, 36.32% Impervious, Inflow Depth = 1.90" for 25-yr event
Inflow = 28.06 cfs @ 12.29 hrs, Volume= 3.351 af
Outflow = 4.25 cfs @ 14.29 hrs, Volume= 3.351 af, Atten= 85%, Lag= 120.2 min
Primary = 4.25 cfs @ 14.29 hrs, Volume= 3.351 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 604.48' @ 14.29 hrs Surf.Area= 14,754 sf Storage= 85,218 cf
Flood Elev= 605.50' Surf.Area= 16,125 sf Storage= 100,089 cf

Plug-Flow detention time= 955.3 min calculated for 3.351 af (100% of inflow)
Center-of-Mass det. time= 955.2 min (1,833.7 - 878.5)

Volume	Invert	Avail.Storage	Storage Description
#1	593.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	594.00'	107,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		107,920 cf	Total Available Storage

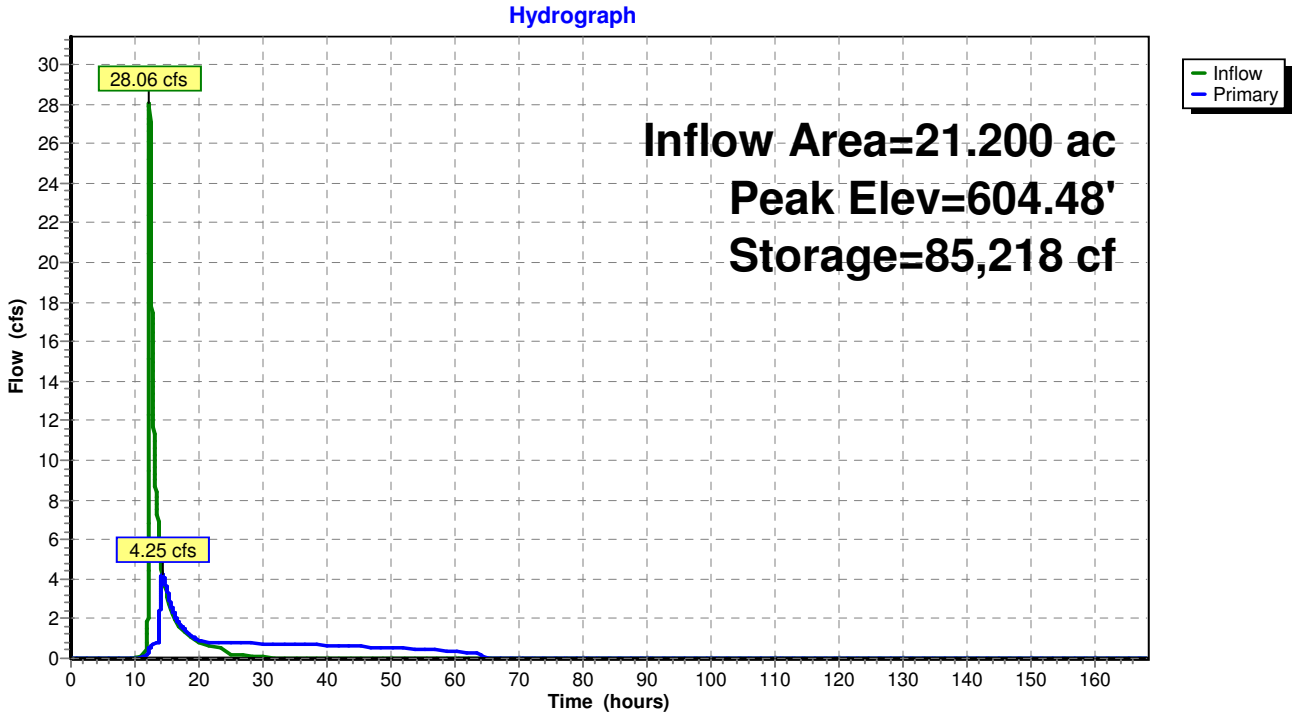
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
593.00	800	0	0
594.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
594.00	3,200	0	0
596.00	4,800	8,000	8,000
598.00	6,600	11,400	19,400
600.00	8,600	15,200	34,600
602.00	10,900	19,500	54,100
604.00	13,300	24,200	78,300
606.00	16,000	29,300	107,600

Device	Routing	Invert	Outlet Devices
#1	Primary	593.00'	**36.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 593.00' / 590.00' S= 0.0353 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	604.20'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	593.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.25 cfs @ 14.29 hrs HW=604.48' TW=0.00' (Dynamic Tailwater)
↑└─**1=Culvert** (Passes 4.25 cfs of 107.54 cfs potential flow)
↑ ├─**2=Broad-Crested Rectangular Weir** (Weir Controls 3.46 cfs @ 1.52 fps)
└─**3=Orifice/Grate** (Orifice Controls 0.80 cfs @ 16.23 fps)

Pond 2.7 EDB: South Lower Detention Basin



Stage-Area-Storage for Pond 2.7 EDB: South Lower Detention Basin

Elevation (feet)	Storage (cubic-feet)
593.00	0
593.15	48
593.30	96
593.45	144
593.60	192
593.75	240
593.90	288
594.05	481
594.20	976
594.35	1,489
594.50	2,020
594.65	2,569
594.80	3,136
594.95	3,721
595.10	4,324
595.25	4,945
595.40	5,584
595.55	6,241
595.70	6,916
595.85	7,609
596.00	8,320
596.15	9,050
596.30	9,800
596.45	10,571
596.60	11,362
596.75	12,173
596.90	13,004
597.05	13,856
597.20	14,728
597.35	15,620
597.50	16,533
597.65	17,465
597.80	18,418
597.95	19,391
598.10	20,385
598.25	21,401
598.40	22,440
598.55	23,501
598.70	24,585
598.85	25,691
599.00	26,820
599.15	27,971
599.30	29,145
599.45	30,341
599.60	31,560
599.75	32,801
599.90	34,065
600.05	35,351
600.20	36,663
600.35	38,000
600.50	39,364
600.65	40,753
600.80	42,168
600.95	43,609
601.10	45,076
601.25	46,568
601.40	48,087
601.55	49,631
601.70	51,202
601.85	52,798
602.00	54,420
602.15	56,068
602.30	57,744
602.45	59,447
602.60	61,176
602.75	62,933
602.90	64,716
603.05	66,526
603.20	68,364
603.35	70,229
603.50	72,120
603.65	74,038
603.80	75,984
603.95	77,957
604.10	79,957
604.25	81,987
604.40	84,048
604.55	86,139
604.70	88,261
604.85	90,413
605.00	92,595
605.15	94,808
605.30	97,051
605.45	99,324
605.60	101,628
605.75	103,962
605.90	**106,327**

Summary for Pond FS 1: North Detention Flow Split

Inflow Area = 16.900 ac, 17.75% Impervious, Inflow Depth = 4.41" for 25-yr event
Inflow = 29.90 cfs @ 12.30 hrs, Volume= 6.206 af
Outflow = 29.90 cfs @ 12.31 hrs, Volume= 6.206 af, Atten= 0%, Lag= 0.6 min
Primary = 0.46 cfs @ 12.31 hrs, Volume= 2.119 af
Secondary = 29.44 cfs @ 12.31 hrs, Volume= 4.087 af

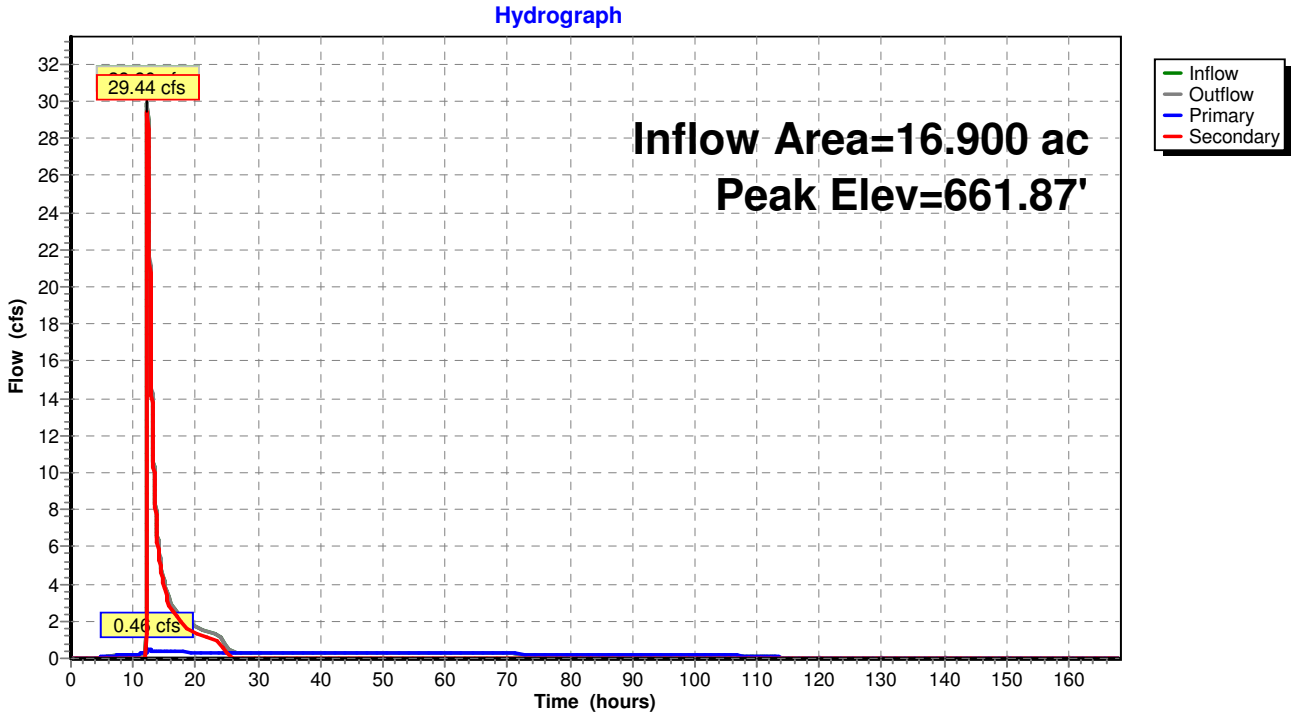
Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 661.87' @ 12.31 hrs
Flood Elev= 669.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	658.00'	**6.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 658.00' / 656.00' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	658.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Secondary	659.60'	**36.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 659.60' / 656.00' S= 0.0450 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=0.46 cfs @ 12.31 hrs HW=661.87' TW=654.51' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.46 cfs of 1.00 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.46 cfs @ 9.32 fps)

Secondary OutFlow Max=29.44 cfs @ 12.31 hrs HW=661.87' TW=654.28' (Dynamic Tailwater)
└─**3=Culvert** (Inlet Controls 29.44 cfs @ 5.13 fps)

Pond FS 1: North Detention Flow Split



Stage-Area-Storage for Pond FS 1: North Detention Flow Split

Elevation (feet)	Storage (cubic-feet)
658.00	**0**
658.15	0
658.30	0
658.45	0
658.60	0
658.75	0
658.90	0
659.05	0
659.20	0
659.35	0
659.50	0
659.65	0
659.80	0
659.95	0
660.10	0
660.25	0
660.40	0
660.55	0
660.70	0
660.85	0
661.00	0
661.15	0
661.30	0
661.45	0
661.60	0
661.75	0
661.90	0
662.05	0
662.20	0
662.35	0
662.50	0
662.65	0
662.80	0
662.95	0
663.10	0
663.25	0
663.40	0
663.55	0
663.70	0
663.85	0
664.00	0
664.15	0
664.30	0
664.45	0
664.60	0
664.75	0
664.90	0
665.05	0
665.20	0
665.35	0
665.50	0
665.65	0
665.80	0
665.95	0
666.10	0
666.25	0
666.40	0
666.55	0
666.70	0
666.85	0
667.00	0
667.15	0
667.30	0
667.45	0
667.60	0
667.75	0
667.90	0
668.05	0
668.20	0
668.35	0
668.50	0
668.65	0
668.80	0
668.95	0

Summary for Pond FS 2:

Inflow Area = 19.500 ac, 39.49% Impervious, Inflow Depth = 4.43" for 25-yr event
Inflow = 28.88 cfs @ 12.28 hrs, Volume= 7.204 af
Outflow = 28.88 cfs @ 12.29 hrs, Volume= 7.204 af, Atten= 0%, Lag= 0.6 min
Primary = 1.45 cfs @ 12.29 hrs, Volume= 3.994 af
Secondary = 27.43 cfs @ 12.29 hrs, Volume= 3.210 af

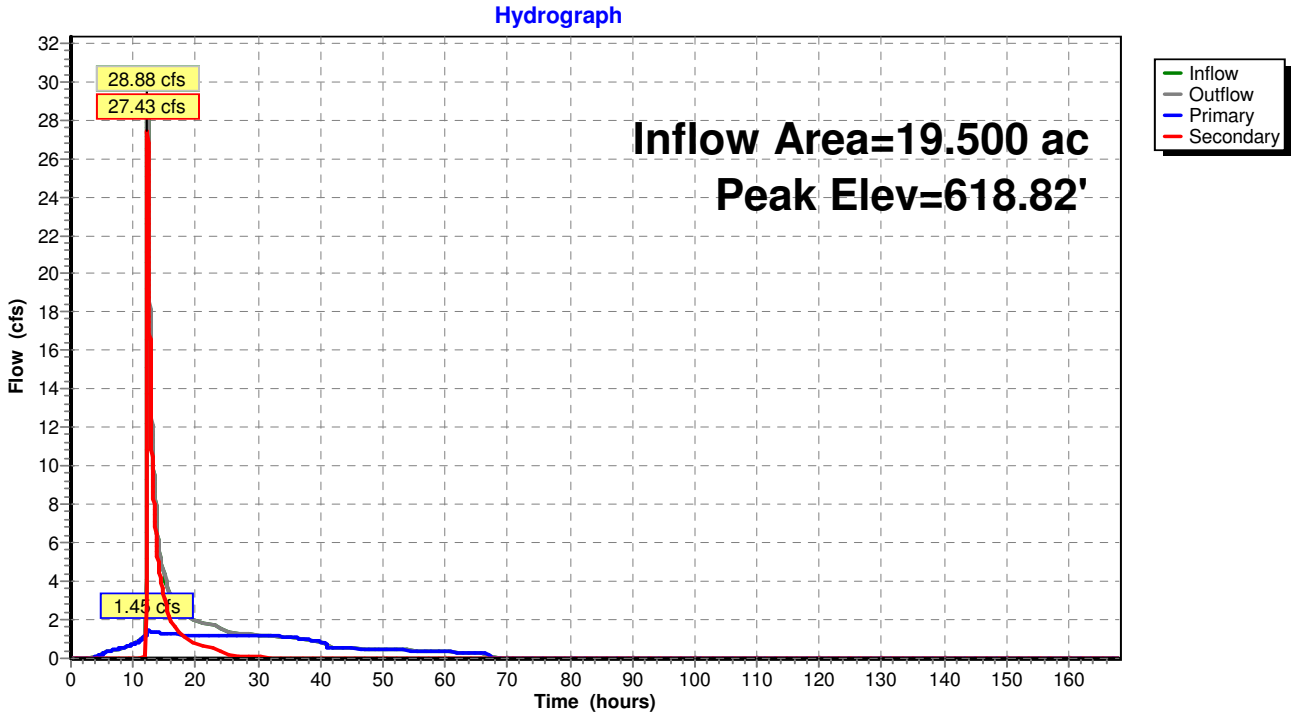
Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 618.82' @ 12.29 hrs
Flood Elev= 629.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	615.50'	**6.0" Round Culvert** L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 615.50' / 609.00' S= 0.0542 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 3	617.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Secondary	615.50'	**30.0" Round Culvert** L= 180.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 615.50' / 610.80' S= 0.0261 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=1.45 cfs @ 12.29 hrs HW=618.82' TW=609.02' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 1.45 cfs @ 7.39 fps)

Secondary OutFlow Max=27.42 cfs @ 12.29 hrs HW=618.82' TW=597.37' (Dynamic Tailwater)
└**3=Culvert** (Passes 27.42 cfs of 34.02 cfs potential flow)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 27.42 cfs @ 4.23 fps)

Pond FS 2:


Hydrograph
Inflow Area=19.500 ac
Peak Elev=618.82'
28.88 cfs
27.43 cfs
1.45 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160

Stage-Area-Storage for Pond FS 2:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
615.50	**0**	623.30	0
615.65	0	623.45	0
615.80	0	623.60	0
615.95	0	623.75	0
616.10	0	623.90	0
616.25	0	624.05	0
616.40	0	624.20	0
616.55	0	624.35	0
616.70	0	624.50	0
616.85	0	624.65	0
617.00	0	624.80	0
617.15	0	624.95	0
617.30	0	625.10	0
617.45	0	625.25	0
617.60	0	625.40	0
617.75	0	625.55	0
617.90	0	625.70	0
618.05	0	625.85	0
618.20	0	626.00	0
618.35	0	626.15	0
618.50	0	626.30	0
618.65	0	626.45	0
618.80	0	626.60	0
618.95	0	626.75	0
619.10	0	626.90	0
619.25	0	627.05	0
619.40	0	627.20	0
619.55	0	627.35	0
619.70	0	627.50	0
619.85	0	627.65	0
620.00	0	627.80	0
620.15	0	627.95	0
620.30	0	628.10	0
620.45	0	628.25	0
620.60	0	628.40	0
620.75	0	628.55	0
620.90	0	628.70	0
621.05	0	628.85	0
621.20	0	629.00	0
621.35	0	629.15	0
621.50	0	629.30	0
621.65	0	629.45	0
621.80	0		
621.95	0		
622.10	0		
622.25	0		
622.40	0		
622.55	0		
622.70	0		
622.85	0		
623.00	0		
623.15	0		

Summary for Subcatchment 1.1S: North Sports & Parking (Piped)

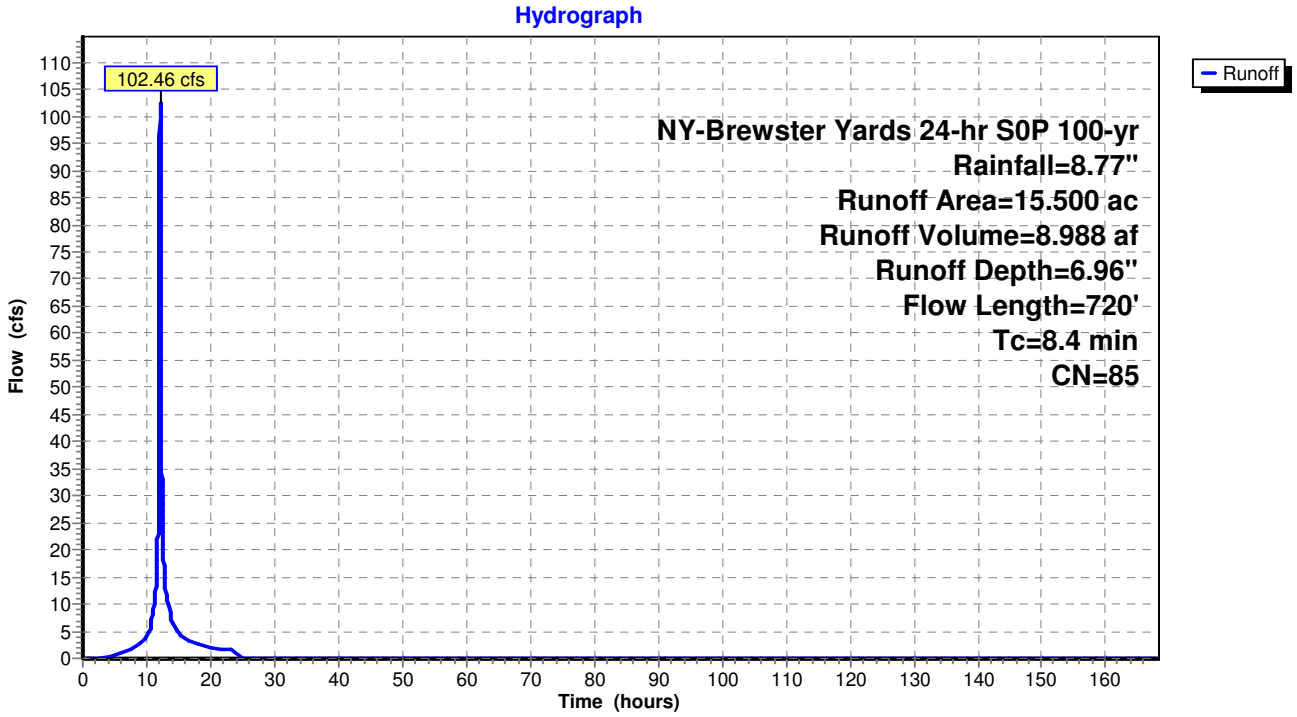
Runoff = 102.46 cfs @ 12.07 hrs, Volume= 8.988 af, Depth= 6.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

	Area (ac)	CN	Description
*	9.900	86	Field Turf
	1.400	61	>75% Grass cover, Good, HSG B
	1.200	74	>75% Grass cover, Good, HSG C
*	3.000	98	Impervious
	15.500	85	Weighted Average
	12.500		80.65% Pervious Area
	3.000		19.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	100	0.0600	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
0.8	160	0.0438	3.14		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	190	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	270	0.0200	10.18	31.99	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
8.4	720	Total			

Subcatchment 1.1S: North Sports & Parking (Piped)



Summary for Subcatchment 1.2S: North Detention

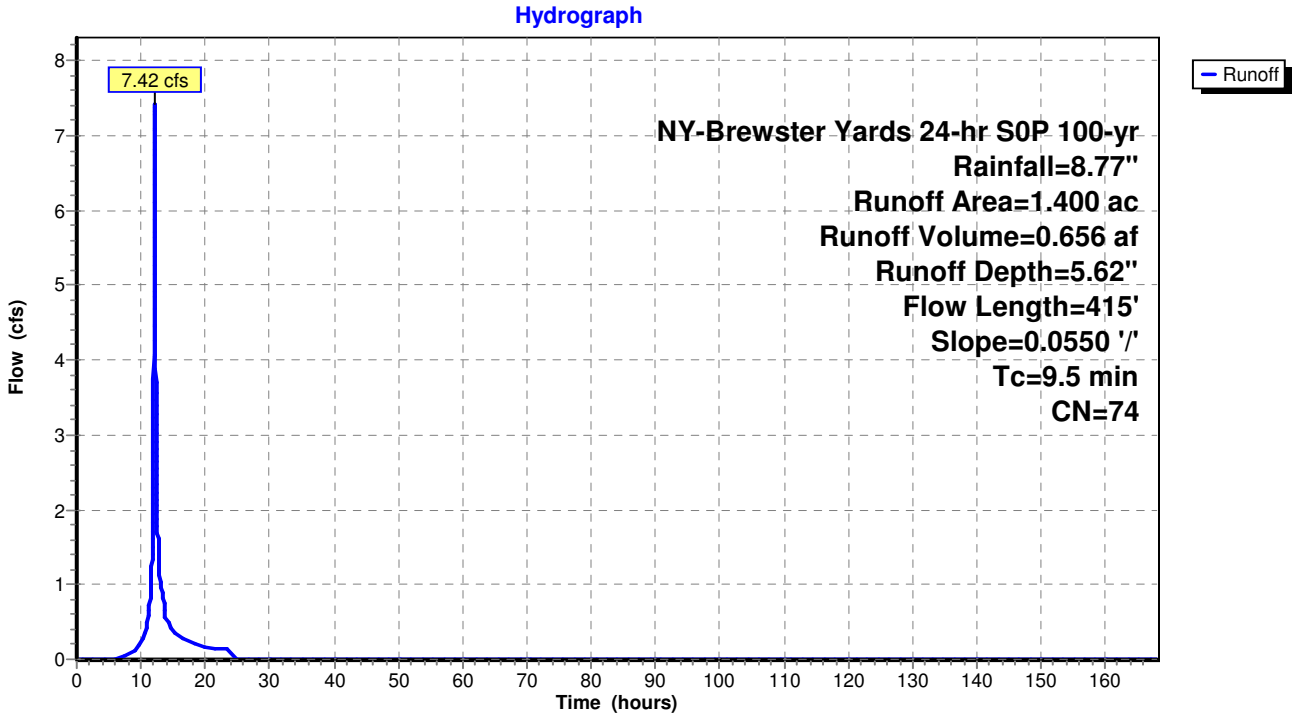
Runoff = 7.42 cfs @ 12.09 hrs, Volume= 0.656 af, Depth= 5.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
1.400	74	>75% Grass cover, Good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0550	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
3.2	315	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.5	415	Total			

Subcatchment 1.2S: North Detention



Summary for Subcatchment 1.3S: North Infiltration

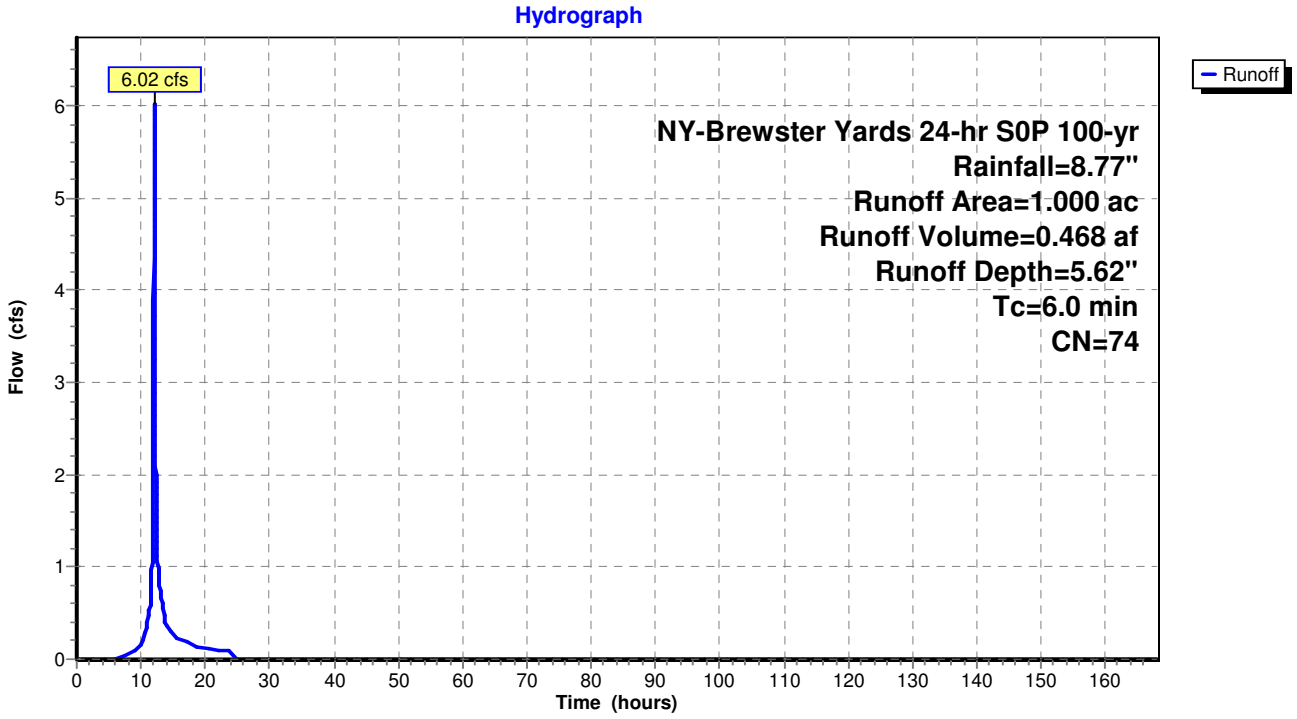
Runoff = 6.02 cfs @ 12.04 hrs, Volume= 0.468 af, Depth= 5.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
1.000	74	>75% Grass cover, Good, HSG C
1.000		100.00% Pervious Area

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

Subcatchment 1.3S: North Infiltration



Summary for Subcatchment 1.4S: North Lower Detention

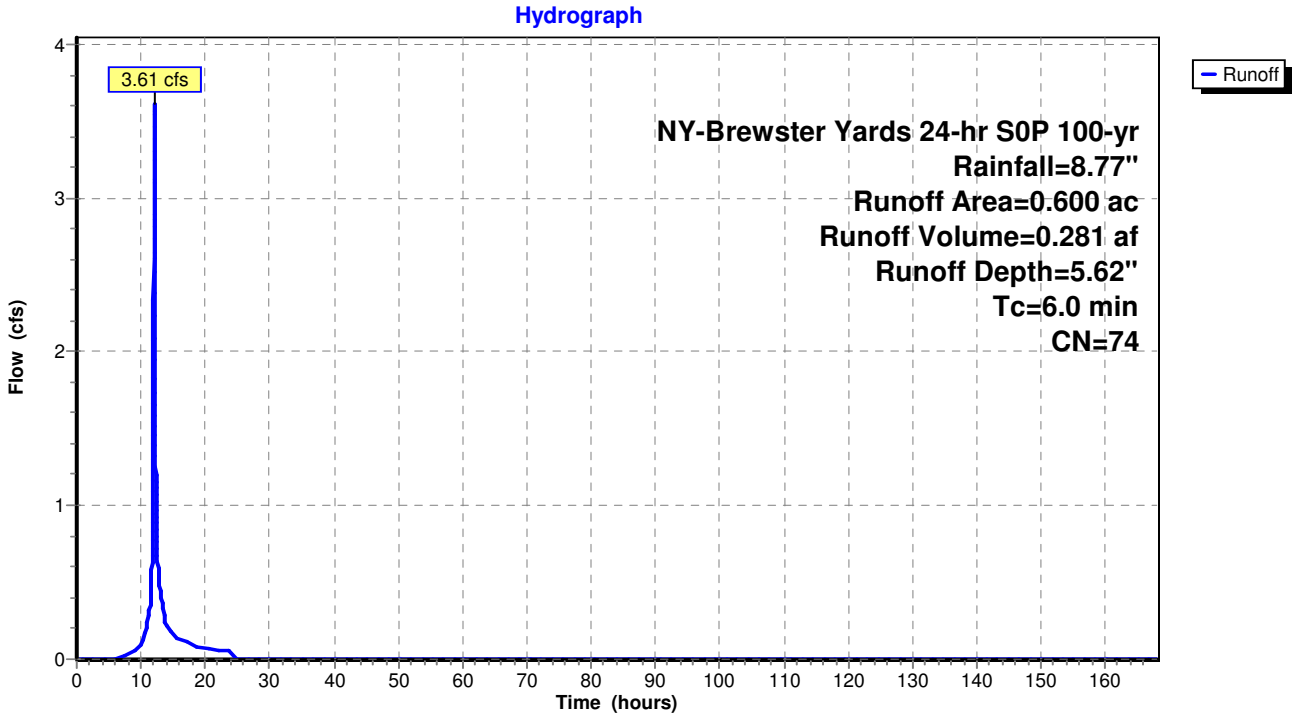
Runoff = 3.61 cfs @ 12.04 hrs, Volume= 0.281 af, Depth= 5.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
0.600	74	>75% Grass cover, Good, HSG C
0.600		100.00% Pervious Area

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

Subcatchment 1.4S: North Lower Detention



Summary for Subcatchment 1.5S: North Untreated

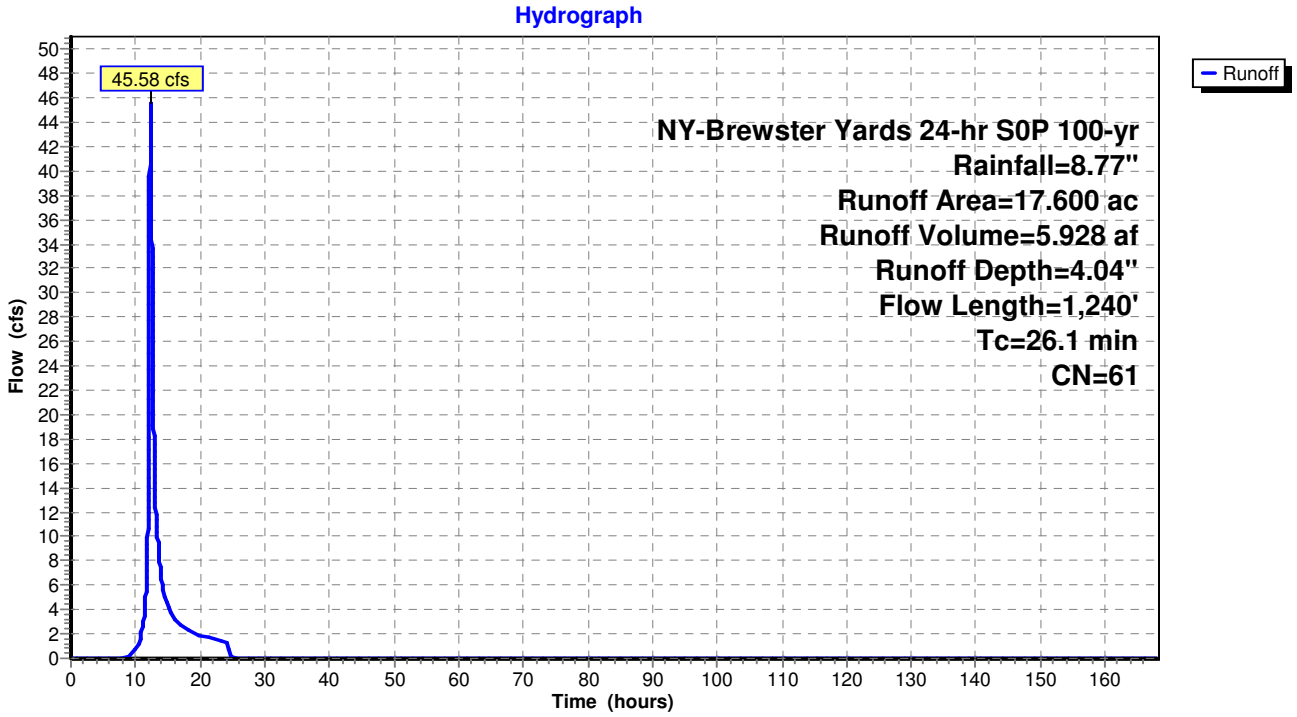
Runoff = 45.58 cfs @ 12.33 hrs, Volume= 5.928 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
10.300	55	Woods, Good, HSG B
5.800	70	Woods, Good, HSG C
0.200	77	Woods, Good, HSG D
0.300	61	>75% Grass cover, Good, HSG B
1.000	74	>75% Grass cover, Good, HSG C
17.600	61	Weighted Average
17.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0300	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
0.5	60	0.1330	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	200	0.2900	2.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	150	0.0930	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	160	0.2875	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.4	350	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	220	0.1100	4.39	21.97	**Channel Flow,** Area= 5.0 sf Perim= 8.3' r= 0.60' n= 0.080 Earth, long dense weeds
26.1	1,240	Total			

Subcatchment 1.5S: North Untreated



Summary for Subcatchment 2.1S: Building & Fields (Piped)

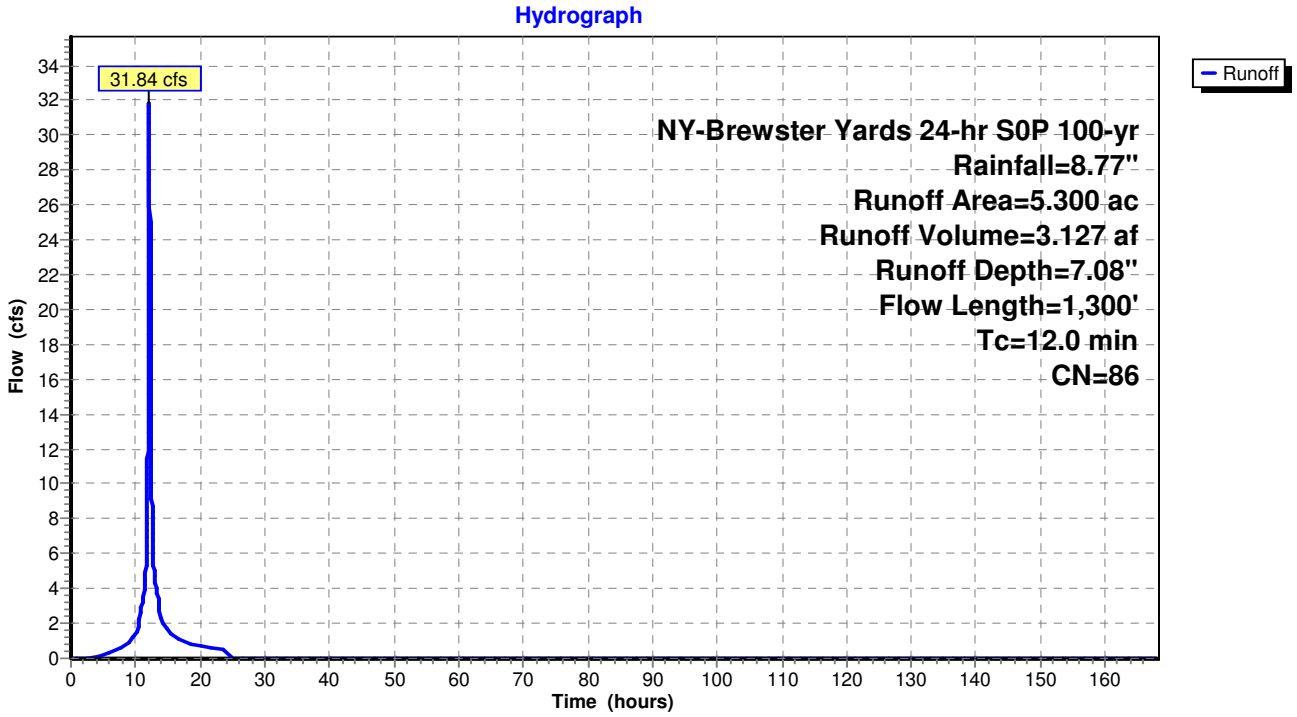
Runoff = 31.84 cfs @ 12.12 hrs, Volume= 3.127 af, Depth= 7.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

	Area (ac)	CN	Description
*	2.700	98	Impervious
*	1.400	86	Field Turf
	1.200	61	>75% Grass cover, Good, HSG B
	5.300	86	Weighted Average
	2.600		49.06% Pervious Area
	2.700		50.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.44"
1.2	150	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	800	0.0412	14.62	45.92	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
12.0	1,300	Total			

Subcatchment 2.1S: Building & Fields (Piped)



Summary for Subcatchment 2.2S: Entrance Infiltration Basin

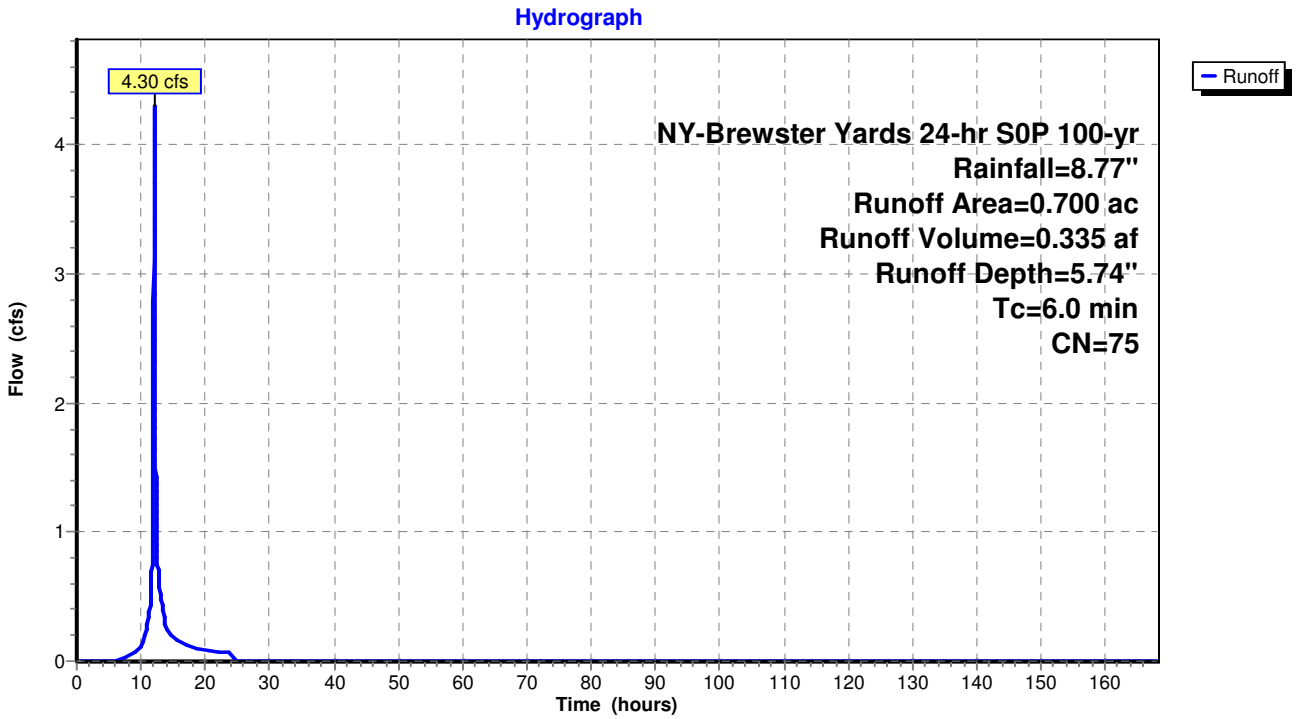
Runoff = 4.30 cfs @ 12.04 hrs, Volume= 0.335 af, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
0.200	61	>75% Grass cover, Good, HSG B
0.500	80	>75% Grass cover, Good, HSG D
0.700	75	Weighted Average
0.700		100.00% Pervious Area

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

Subcatchment 2.2S: Entrance Infiltration Basin



Summary for Subcatchment 2.3S: Fields & Parking (Piped)

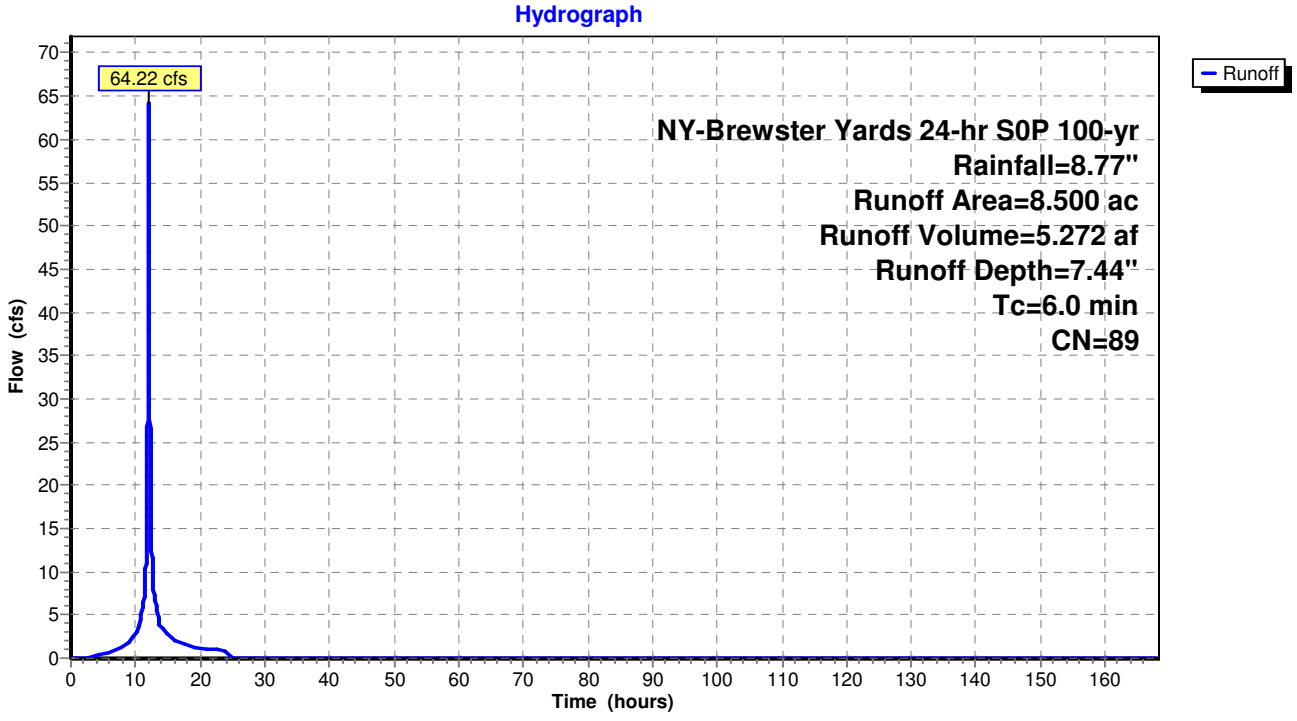
Runoff = 64.22 cfs @ 12.04 hrs, Volume= 5.272 af, Depth= 7.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

	Area (ac)	CN	Description
*	4.700	98	Impervious
*	2.400	86	Filed Turf
	1.400	61	>75% Grass cover, Good, HSG B
	8.500	89	Weighted Average
	3.800		44.71% Pervious Area
	4.700		55.29% Impervious Area

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

Subcatchment 2.3S: Fields & Parking (Piped)



Summary for Subcatchment 2.4S: South Showcase Field (Piped)

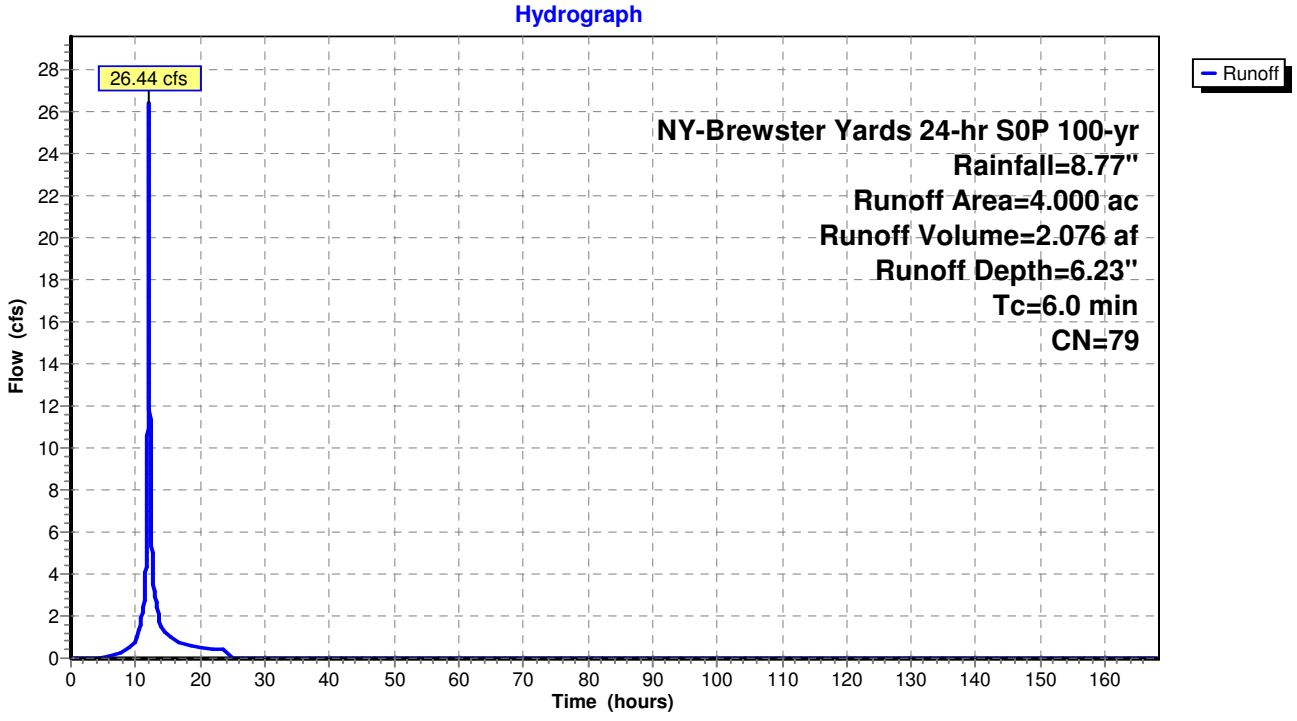
Runoff = 26.44 cfs @ 12.04 hrs, Volume= 2.076 af, Depth= 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

	Area (ac)	CN	Description
*	0.300	98	Impervious
*	2.500	86	Filed Turf
	1.200	61	>75% Grass cover, Good, HSG B
	4.000	79	Weighted Average
	3.700		92.50% Pervious Area
	0.300		7.50% Impervious Area

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

Subcatchment 2.4S: South Showcase Field (Piped)



Summary for Subcatchment 2.5S: South Detention Basin

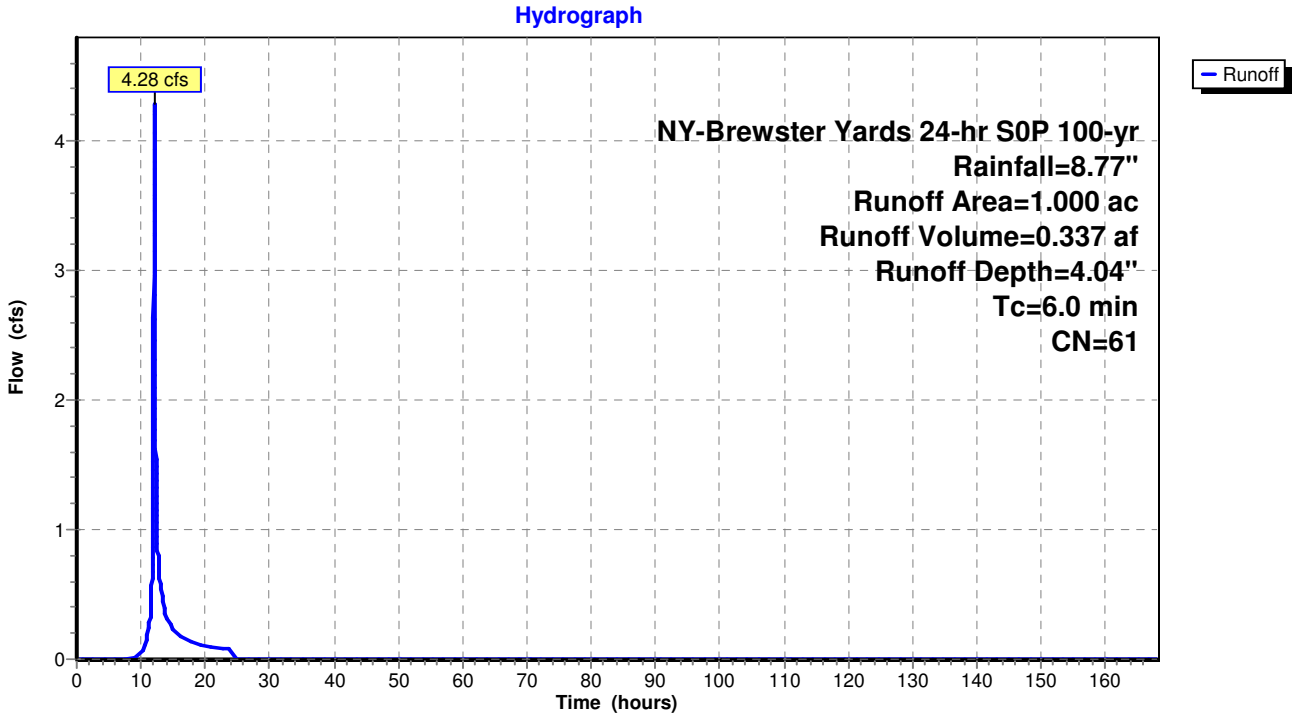
Runoff = 4.28 cfs @ 12.04 hrs, Volume= 0.337 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
1.000	61	>75% Grass cover, Good, HSG B
1.000		100.00% Pervious Area

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

Subcatchment 2.5S: South Detention Basin



Summary for Subcatchment 2.6S: South Upper Pond

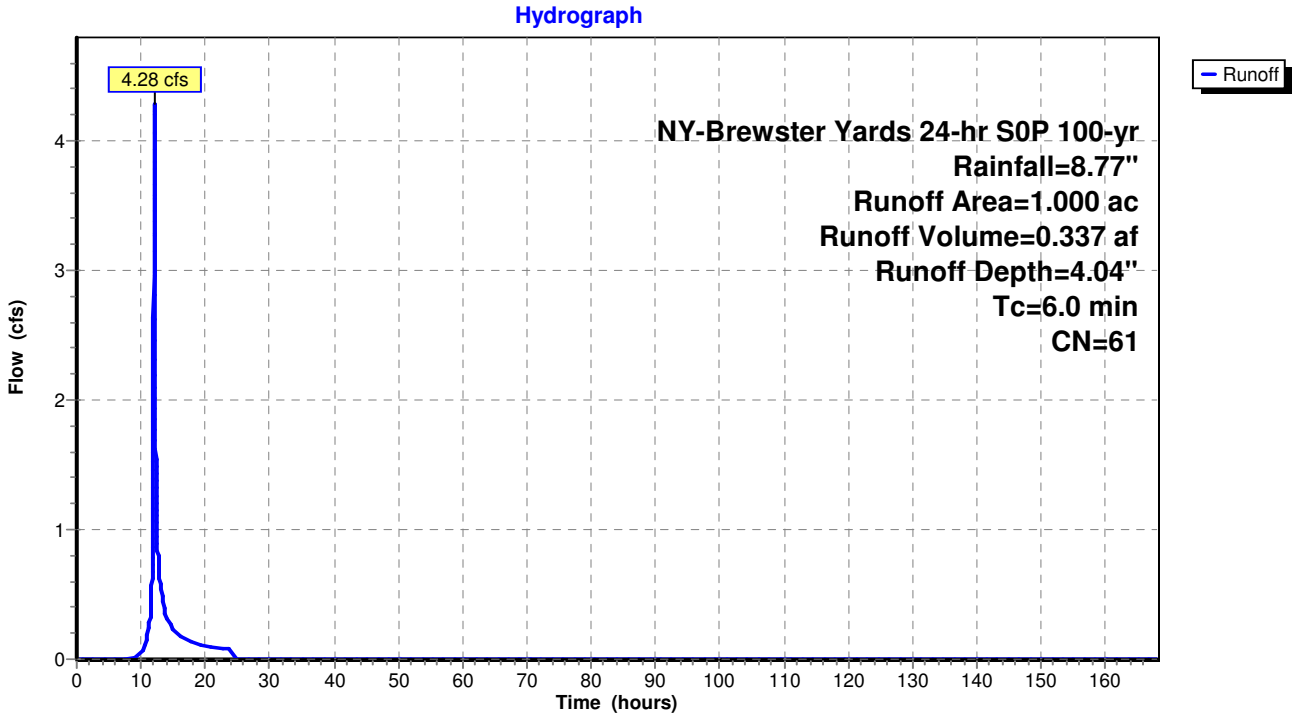
Runoff = 4.28 cfs @ 12.04 hrs, Volume= 0.337 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
1.000	61	>75% Grass cover, Good, HSG B
1.000		100.00% Pervious Area

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

Subcatchment 2.6S: South Upper Pond



Summary for Subcatchment 2.7S: South Lower Pond

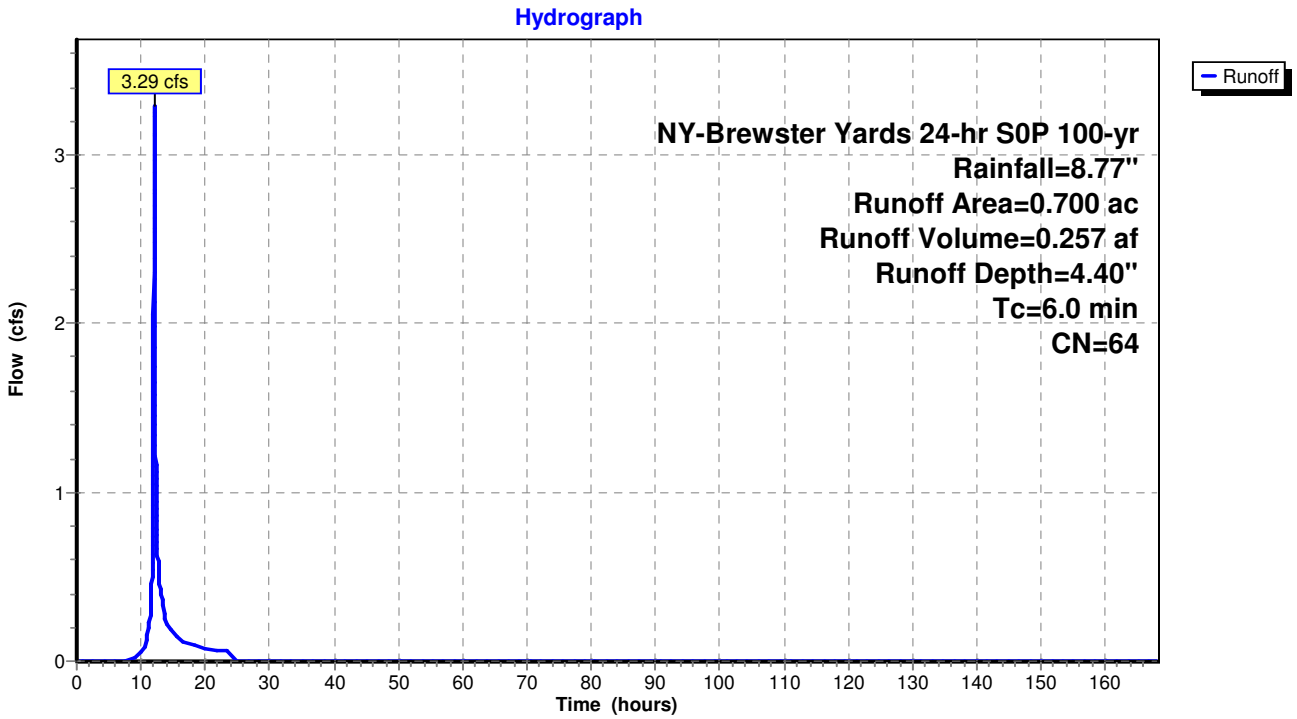
Runoff = 3.29 cfs @ 12.04 hrs, Volume= 0.257 af, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
0.600	61	>75% Grass cover, Good, HSG B
0.100	80	>75% Grass cover, Good, HSG D
0.700	64	Weighted Average
0.700		100.00% Pervious Area

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

Subcatchment 2.7S: South Lower Pond



Summary for Subcatchment 2.8S: South Untreated

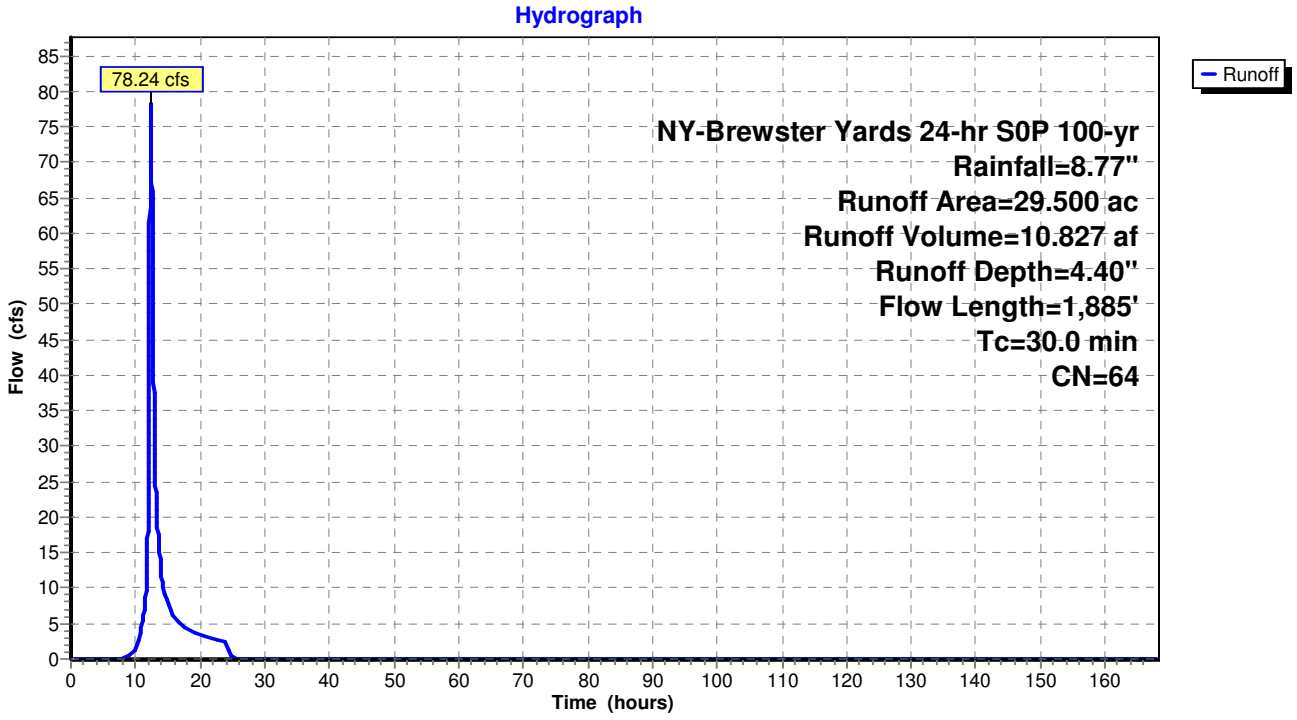
Runoff = 78.24 cfs @ 12.37 hrs, Volume= 10.827 af, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NY-Brewster Yards 24-hr S0P 100-yr Rainfall=8.77"

Area (ac)	CN	Description
14.800	55	Woods, Good, HSG B
0.100	70	Woods, Good, HSG C
10.300	77	Woods, Good, HSG D
4.100	61	>75% Grass cover, Good, HSG B
0.200	80	>75% Grass cover, Good, HSG D
29.500	64	Weighted Average
29.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.3	100	0.0240	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.44"
7.8	885	0.1430	1.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	900	0.0500	5.09	71.20	**Channel Flow,** Area= 14.0 sf Perim= 45.0' r= 0.31' n= 0.030 Earth, grassed & winding
30.0	1,885	Total			

Subcatchment 2.8S: South Untreated

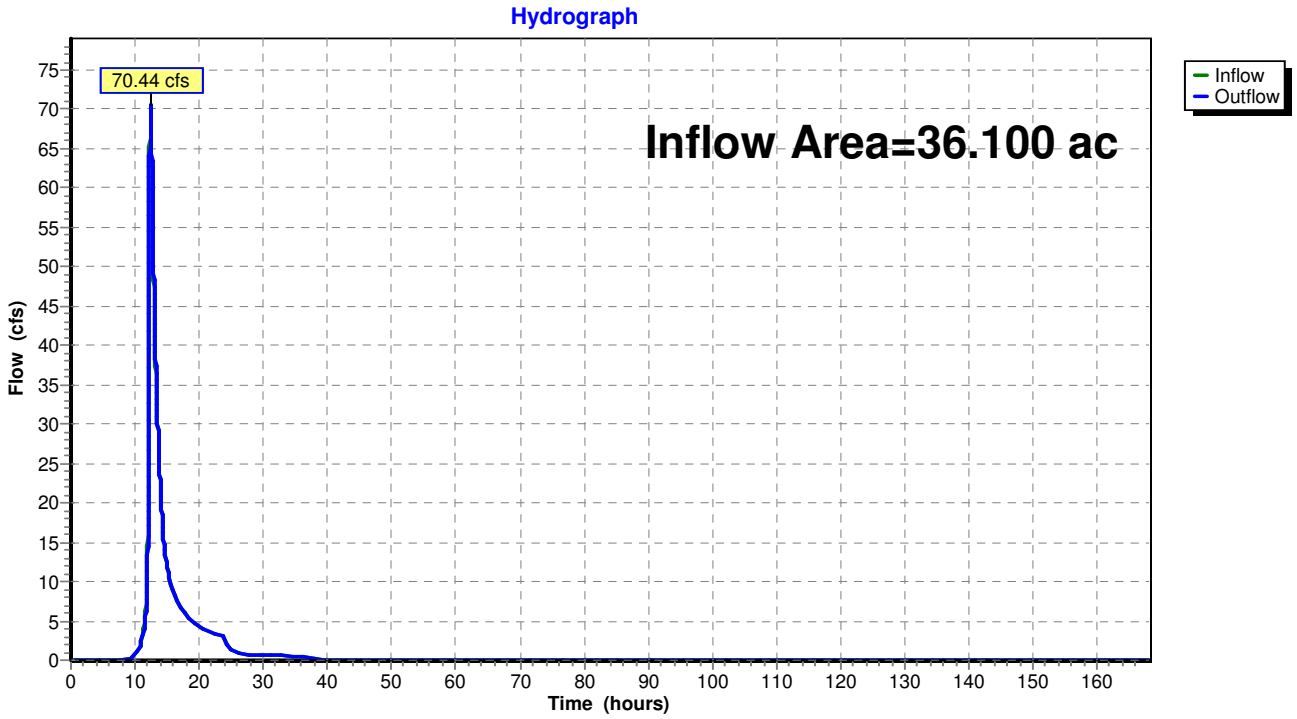


Summary for Reach DL 1:

Inflow Area = 36.100 ac, 8.31% Impervious, Inflow Depth = 4.55" for 100-yr event
Inflow = 70.44 cfs @ 12.41 hrs, Volume= 13.677 af
Outflow = 70.44 cfs @ 12.42 hrs, Volume= 13.677 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach DL 1:

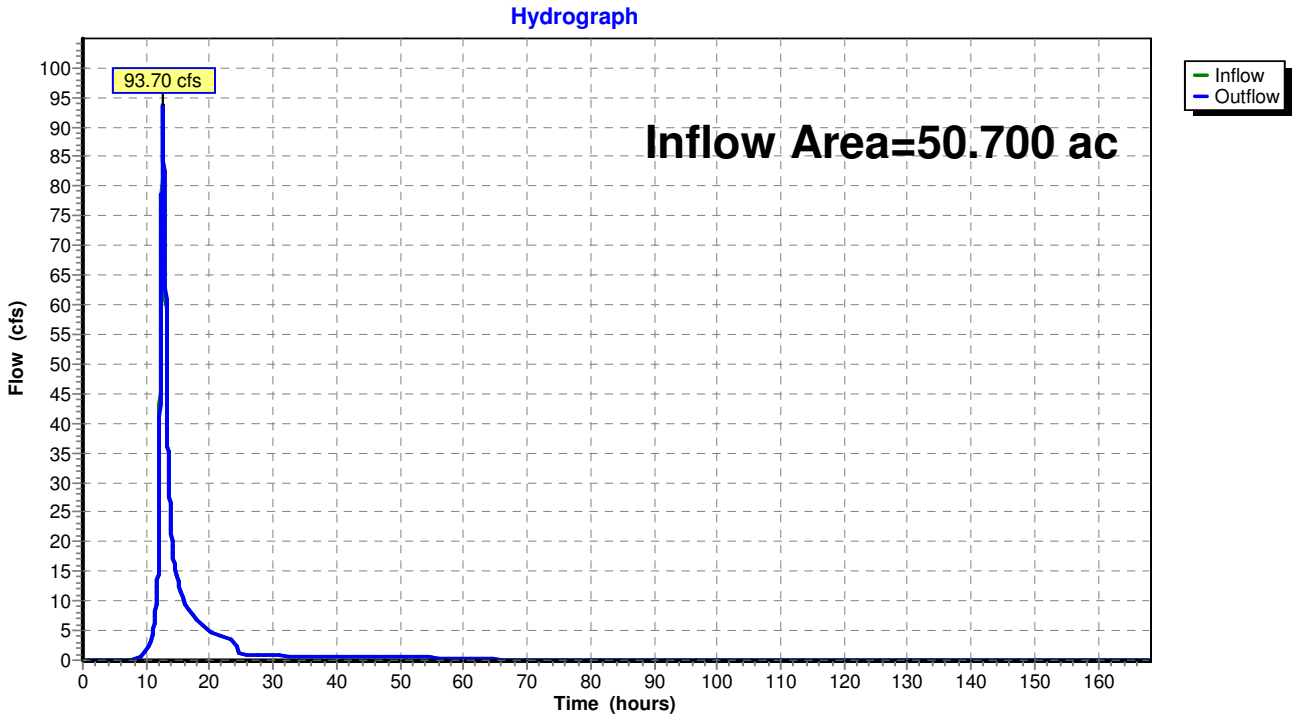


Summary for Reach DL 2:

Inflow Area = 50.700 ac, 15.19% Impervious, Inflow Depth = 4.26" for 100-yr event
Inflow = 93.70 cfs @ 12.59 hrs, Volume= 18.004 af
Outflow = 93.70 cfs @ 12.60 hrs, Volume= 18.004 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs

Reach DL 2:



Summary for Pond 1.2 EDB: North Detention Basin, Orifice, & Weir

Inflow Area = 16.900 ac, 17.75% Impervious, Inflow Depth = 6.85" for 100-yr event
Inflow = 109.75 cfs @ 12.07 hrs, Volume= 9.643 af
Outflow = 62.13 cfs @ 12.24 hrs, Volume= 9.643 af, Atten= 43%, Lag= 10.0 min
Primary = 62.13 cfs @ 12.24 hrs, Volume= 9.643 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 669.49' @ 12.24 hrs Surf.Area= 34,055 sf Storage= 146,686 cf
Flood Elev= 669.50' Surf.Area= 34,100 sf Storage= 147,015 cf

Plug-Flow detention time= 586.2 min calculated for 9.643 af (100% of inflow)
Center-of-Mass det. time= 586.1 min (1,381.9 - 795.8)

Volume	Invert	Avail.Storage	Storage Description
#1	659.00'	240 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 600 cf Overall x 40.0% Voids
#2	660.00'	164,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		164,340 cf	Total Available Storage

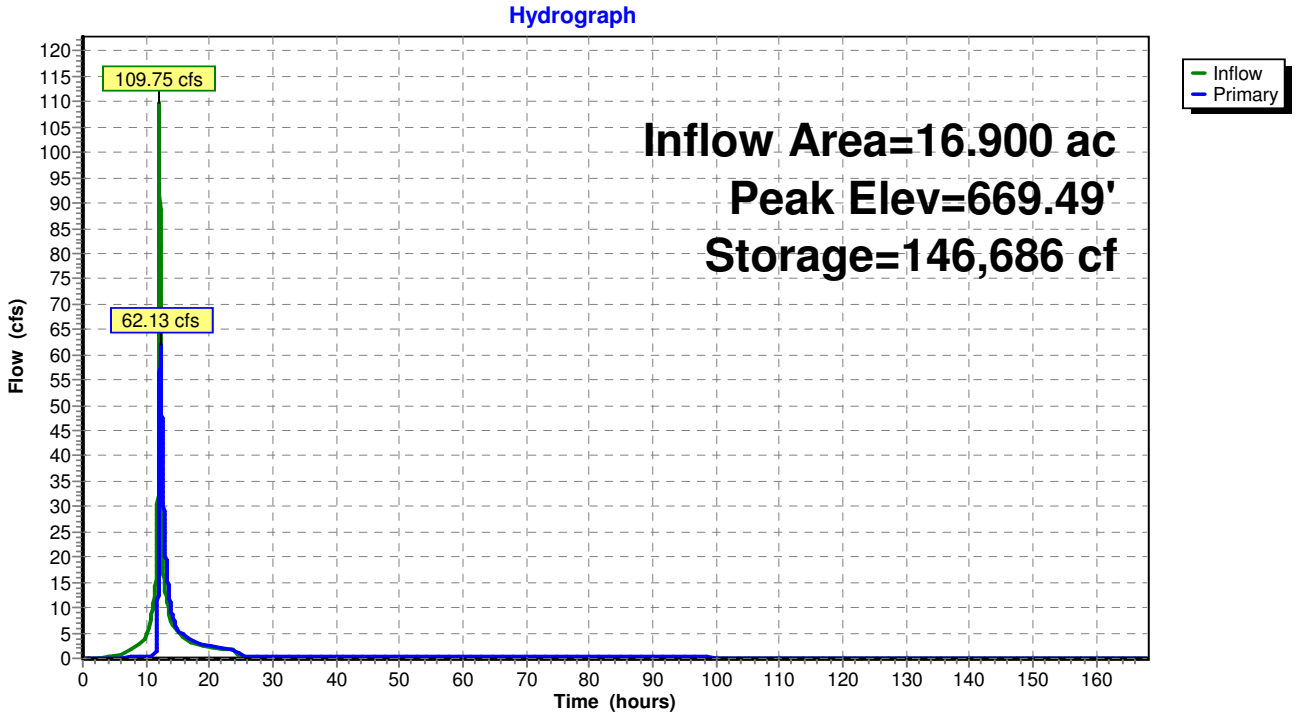
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
659.00	600	0	0
660.00	600	600	600

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
660.00	1,900	0	0
662.00	6,000	7,900	7,900
664.00	11,800	17,800	25,700
666.00	18,800	30,600	56,300
668.00	26,600	45,400	101,700
670.00	35,800	62,400	164,100

Device	Routing	Invert	Outlet Devices
#1	Primary	659.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	666.70'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=62.12 cfs @ 12.24 hrs HW=669.49' TW=664.36' (Dynamic Tailwater)
↑—**1=Orifice/Grate** (Orifice Controls 0.24 cfs @ 10.90 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 61.88 cfs @ 5.55 fps)

Pond 1.2 EDB: North Detention Basin, Orifice, & Weir



Stage-Area-Storage for Pond 1.2 EDB: North Detention Basin, Orifice, & Weir

Elevation (feet)	Storage (cubic-feet)
659.00	0
659.15	36
659.30	72
659.45	108
659.60	144
659.75	180
659.90	216
660.05	338
660.20	661
660.35	1,031
660.50	1,446
660.65	1,908
660.80	2,416
660.95	2,970
661.10	3,570
661.25	4,217
661.40	4,909
661.55	5,648
661.70	6,432
661.85	7,263
662.00	8,140
662.15	9,073
662.30	10,070
662.45	11,134
662.60	12,262
662.75	13,456
662.90	14,714
663.05	16,039
663.20	17,428
663.35	18,883
663.50	20,403
663.65	21,988
663.80	23,638
663.95	25,354
664.10	27,138
664.25	28,999
664.40	30,940
664.55	32,959
664.70	35,058
664.85	37,234
665.00	39,490
665.15	41,824
665.30	44,237
665.45	46,729
665.60	49,300
665.75	51,949
665.90	54,677
666.05	57,485
666.20	60,378
666.35	63,359
666.50	66,428
666.65	69,584
666.80	72,828
666.95	76,160
667.10	79,580
667.25	83,087
667.40	86,682
667.55	90,365
667.70	94,136
667.85	97,994
668.00	101,940
668.15	105,982
668.30	110,127
668.45	114,376
668.60	118,728
668.75	123,184
668.90	127,743
669.05	132,406
669.20	137,172
669.35	142,042
669.50	147,015
669.65	152,092
669.80	157,272
669.95	**162,556**

Summary for Pond 1.3 IB: North Infiltration

Inflow Area = 17.900 ac, 16.76% Impervious, Inflow Depth = 1.77" for 100-yr event
Inflow = 6.48 cfs @ 12.04 hrs, Volume= 2.644 af
Outflow = 0.21 cfs @ 88.06 hrs, Volume= 2.574 af, Atten= 97%, Lag= 4,561.2 min
Discarded = 0.21 cfs @ 88.06 hrs, Volume= 2.574 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 656.71' @ 88.06 hrs Surf.Area= 17,851 sf Storage= 41,613 cf
Flood Elev= 659.00' Surf.Area= 22,300 sf Storage= 87,500 cf

Plug-Flow detention time= 2,470.1 min calculated for 2.574 af (97% of inflow)
Center-of-Mass det. time= 2,364.8 min (5,117.3 - 2,752.5)

Volume	Invert	Avail.Storage	Storage Description
#1	654.00'	110,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

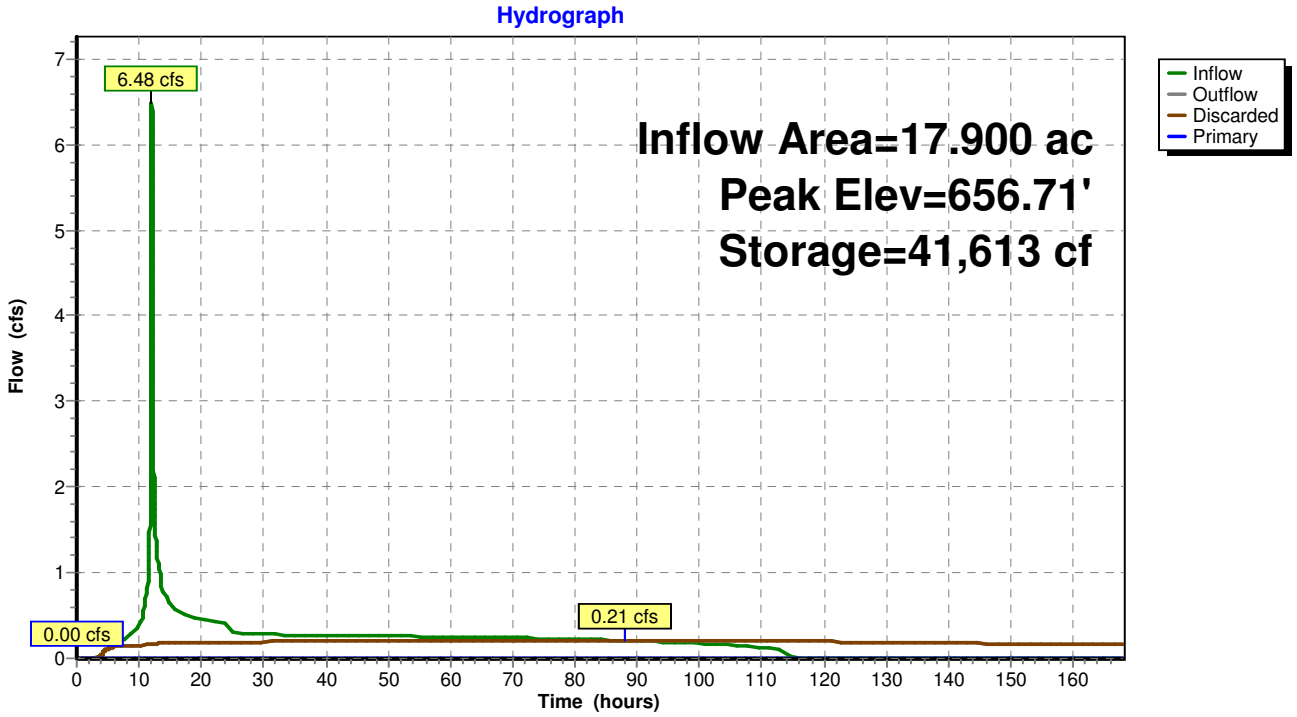
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
654.00	12,900	0	0
656.00	16,500	29,400	29,400
658.00	20,300	36,800	66,200
660.00	24,300	44,600	110,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	654.00'	**0.500 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	658.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.21 cfs @ 88.06 hrs HW=656.71' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=654.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.3 IB: North Infiltration



Stage-Area-Storage for Pond 1.3 IB: North Infiltration

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
654.00	12,900	0
654.10	13,080	1,299
654.20	13,260	2,616
654.30	13,440	3,951
654.40	13,620	5,304
654.50	13,800	6,675
654.60	13,980	8,064
654.70	14,160	9,471
654.80	14,340	10,896
654.90	14,520	12,339
655.00	14,700	13,800
655.10	14,880	15,279
655.20	15,060	16,776
655.30	15,240	18,291
655.40	15,420	19,824
655.50	15,600	21,375
655.60	15,780	22,944
655.70	15,960	24,531
655.80	16,140	26,136
655.90	16,320	27,759
656.00	16,500	29,400
656.10	16,690	31,060
656.20	16,880	32,738
656.30	17,070	34,435
656.40	17,260	36,152
656.50	17,450	37,888
656.60	17,640	39,642
656.70	17,830	41,416
656.80	18,020	43,208
656.90	18,210	45,019
657.00	18,400	46,850
657.10	18,590	48,700
657.20	18,780	50,568
657.30	18,970	52,455
657.40	19,160	54,362
657.50	19,350	56,288
657.60	19,540	58,232
657.70	19,730	60,196
657.80	19,920	62,178
657.90	20,110	64,179
658.00	20,300	66,200
658.10	20,500	68,240
658.20	20,700	70,300
658.30	20,900	72,380
658.40	21,100	74,480
658.50	21,300	76,600
658.60	21,500	78,740
658.70	21,700	80,900
658.80	21,900	83,080
658.90	22,100	85,280
659.00	22,300	87,500
659.10	22,500	89,740
659.20	22,700	92,000
659.30	22,900	94,280
659.40	23,100	96,580
659.50	23,300	98,900
659.60	23,500	101,240
659.70	23,700	103,600
659.80	23,900	105,980
659.90	24,100	108,380
660.00	**24,300**	**110,800**

Summary for Pond 1.4 EDB: North Lower Detention Basin

Inflow Area = 0.600 ac, 0.00% Impervious, Inflow Depth = 154.97" for 100-yr event
Inflow = 63.03 cfs @ 12.24 hrs, Volume= 7.749 af
Outflow = 34.92 cfs @ 12.70 hrs, Volume= 7.749 af, Atten= 45%, Lag= 27.2 min
Primary = 34.92 cfs @ 12.70 hrs, Volume= 7.749 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Starting Elev= 594.00' Surf.Area= 0 sf Storage= 0 cf
Peak Elev= 659.49' @ 12.70 hrs Surf.Area= 17,933 sf Storage= 90,565 cf
Flood Elev= 659.50' Surf.Area= 17,950 sf Storage= 90,758 cf

Plug-Flow detention time= 123.0 min calculated for 7.749 af (100% of inflow)
Center-of-Mass det. time= 122.8 min (983.4 - 860.6)

Volume	Invert	Avail.Storage	Storage Description
#1	651.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	652.00'	99,200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		99,520 cf	Total Available Storage

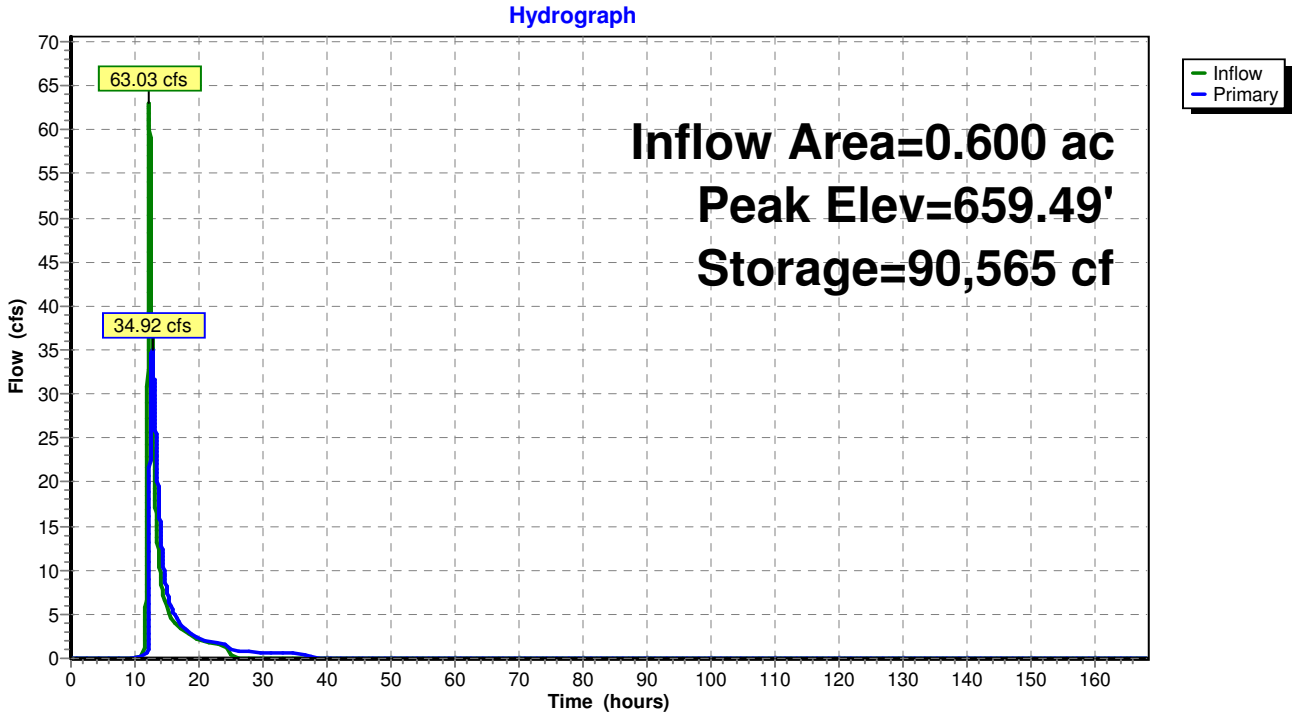
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
651.00	800	0	0
652.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
652.00	7,500	0	0
654.00	9,800	17,300	17,300
656.00	12,200	22,000	39,300
658.00	14,900	27,100	66,400
660.00	17,900	32,800	99,200

Device	Routing	Invert	Outlet Devices
#1	Primary	651.00'	**36.0" Round Culvert** L= 600.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 651.00' / 640.00' S= 0.0183 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	654.80'	**1.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	651.00'	**4.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=34.92 cfs @ 12.70 hrs HW=659.49' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 34.92 cfs of 89.98 cfs potential flow)
  ├─**2=Broad-Crested Rectangular Weir** (Weir Controls 33.71 cfs @ 7.19 fps)
  └─**3=Orifice/Grate** (Orifice Controls 1.21 cfs @ 13.89 fps)

Pond 1.4 EDB: North Lower Detention Basin



Stage-Area-Storage for Pond 1.4 EDB: North Lower Detention Basin

Elevation (feet)	Storage (cubic-feet)
651.00	0
651.10	32
651.20	64
651.30	96
651.40	128
651.50	160
651.60	192
651.70	224
651.80	256
651.90	288
652.00	320
652.10	1,076
652.20	1,843
652.30	2,622
652.40	3,412
652.50	4,214
652.60	5,027
652.70	5,852
652.80	6,688
652.90	7,536
653.00	8,395
653.10	9,266
653.20	10,148
653.30	11,042
653.40	11,947
653.50	12,864
653.60	13,792
653.70	14,732
653.80	15,683
653.90	16,646
654.00	17,620
654.10	18,606
654.20	19,604
654.30	20,614
654.40	21,636
654.50	22,670
654.60	23,716
654.70	24,774
654.80	25,844
654.90	26,926
655.00	28,020
655.10	29,126
655.20	30,244
655.30	31,374
655.40	32,516
655.50	33,670
655.60	34,836
655.70	36,014
655.80	37,204
655.90	38,406
656.00	39,620
656.10	40,847
656.20	42,087
656.30	43,341
656.40	44,608
656.50	45,889
656.60	47,183
656.70	48,491
656.80	49,812
656.90	51,147
657.00	52,495
657.10	53,857
657.20	55,232
657.30	56,621
657.40	58,023
657.50	59,439
657.60	60,868
657.70	62,311
657.80	63,767
657.90	65,237
658.00	66,720
658.10	68,218
658.20	69,730
658.30	71,257
658.40	72,800
658.50	74,358
658.60	75,930
658.70	77,518
658.80	79,120
658.90	80,737
659.00	82,370
659.10	84,018
659.20	85,680
659.30	87,357
659.40	89,050
659.50	90,758
659.60	92,480
659.70	94,218
659.80	95,970
659.90	97,737
660.00	**99,520**

Summary for Pond 2.2 EDB: Entrance Detention Basin

Inflow Area = 6.000 ac, 45.00% Impervious, Inflow Depth = 6.92" for 100-yr event
Inflow = 35.17 cfs @ 12.12 hrs, Volume= 3.462 af
Outflow = 24.04 cfs @ 12.26 hrs, Volume= 3.462 af, Atten= 32%, Lag= 8.6 min
Primary = 24.04 cfs @ 12.26 hrs, Volume= 3.462 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 672.95' @ 12.26 hrs Surf.Area= 12,462 sf Storage= 50,343 cf
Flood Elev= 673.00' Surf.Area= 12,550 sf Storage= 50,895 cf

Plug-Flow detention time= 300.7 min calculated for 3.462 af (100% of inflow)
Center-of-Mass det. time= 300.5 min (1,096.9 - 796.5)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	120 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 300 cf Overall x 40.0% Voids
#2	664.00'	64,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		64,120 cf	Total Available Storage

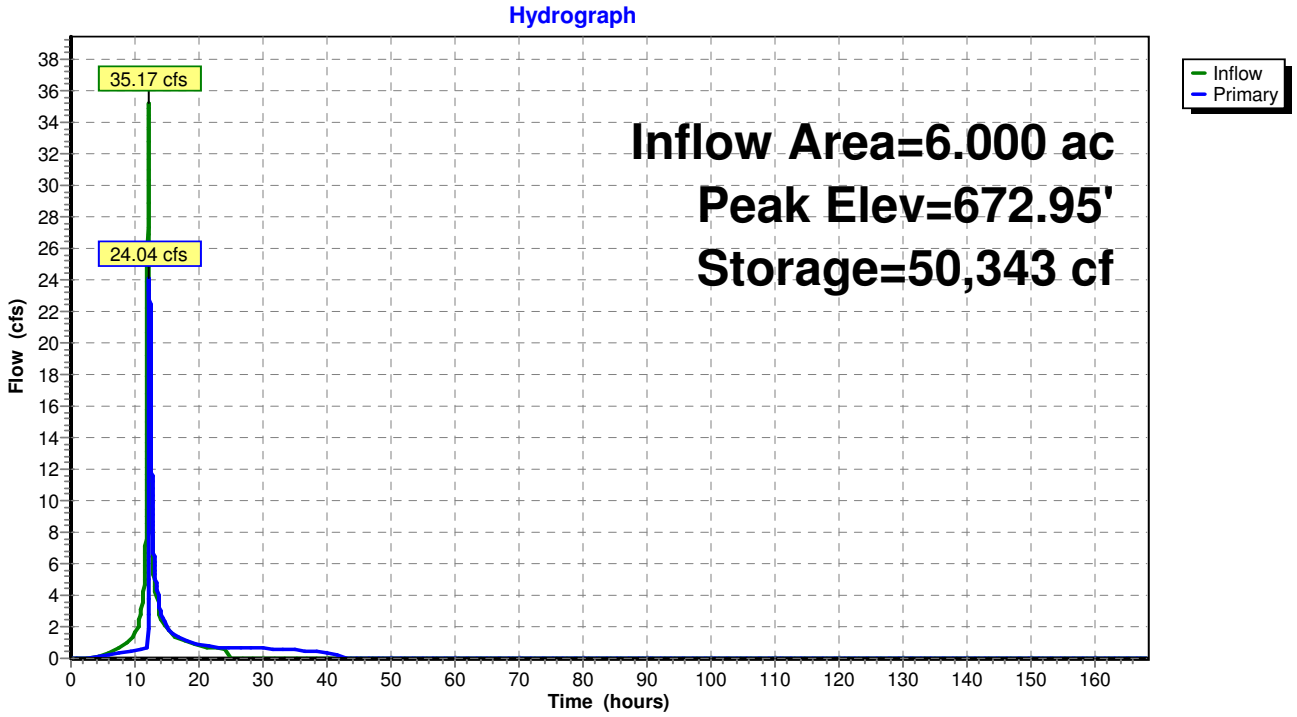
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	300	0	0
664.00	300	300	300

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
664.00	1,000	0	0
666.00	2,500	3,500	3,500
668.00	4,500	7,000	10,500
670.00	7,100	11,600	22,100
672.00	10,300	17,400	39,500
674.00	14,200	24,500	64,000

Device	Routing	Invert	Outlet Devices
#1	Primary	663.00'	**18.0" Round Culvert** L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 663.00' / 656.00' S= 0.0437 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	663.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	671.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=24.04 cfs @ 12.26 hrs HW=672.95' TW=621.61' (Dynamic Tailwater)
└─**1=Culvert** (Passes 24.04 cfs of 25.81 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.74 cfs @ 15.10 fps)
  └─**3=Broad-Crested Rectangular Weir** (Weir Controls 23.29 cfs @ 4.00 fps)

Pond 2.2 EDB: Entrance Detention Basin



Stage-Area-Storage for Pond 2.2 EDB: Entrance Detention Basin

Elevation (feet)	Storage (cubic-feet)
663.00	0
663.15	18
663.30	36
663.45	54
663.60	72
663.75	90
663.90	108
664.05	171
664.20	335
664.35	516
664.50	714
664.65	928
664.80	1,160
664.95	1,408
665.10	1,674
665.25	1,956
665.40	2,255
665.55	2,571
665.70	2,904
665.85	3,253
666.00	3,620
666.15	4,006
666.30	4,415
666.45	4,846
666.60	5,300
666.75	5,776
666.90	6,275
667.05	6,796
667.20	7,340
667.35	7,906
667.50	8,495
667.65	9,106
667.80	9,740
667.95	10,396
668.10	11,077
668.25	11,786
668.40	12,524
668.55	13,292
668.70	14,089
668.85	14,915
669.00	15,770
669.15	16,655
669.30	17,568
669.45	18,512
669.60	19,484
669.75	20,486
669.90	21,516
670.05	22,577
670.20	23,672
670.35	24,803
670.50	25,970
670.65	27,173
670.80	28,412
670.95	29,687
671.10	30,998
671.25	32,345
671.40	33,728
671.55	35,147
671.70	36,602
671.85	38,093
672.00	39,620
672.15	41,187
672.30	42,798
672.45	44,452
672.60	46,151
672.75	47,893
672.90	49,680
673.05	51,510
673.20	53,384
673.35	55,302
673.50	57,264
673.65	59,269
673.80	61,319
673.95	**63,412**

Summary for Pond 2.5 EDB: South Detention Basin

Inflow Area = 13.500 ac, 37.04% Impervious, Inflow Depth = 6.83" for 100-yr event
Inflow = 94.92 cfs @ 12.04 hrs, Volume= 7.685 af
Outflow = 32.01 cfs @ 12.09 hrs, Volume= 7.685 af, Atten= 66%, Lag= 2.9 min
Primary = 32.01 cfs @ 12.09 hrs, Volume= 7.685 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 631.50' @ 12.30 hrs Surf.Area= 20,526 sf Storage= 130,025 cf
Flood Elev= 631.50' Surf.Area= 20,525 sf Storage= 130,014 cf

Plug-Flow detention time= 448.4 min calculated for 7.685 af (100% of inflow)
Center-of-Mass det. time= 448.2 min (1,238.2 - 790.0)

Volume	Invert	Avail.Storage	Storage Description
#1	620.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	621.00'	139,750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		140,070 cf	Total Available Storage

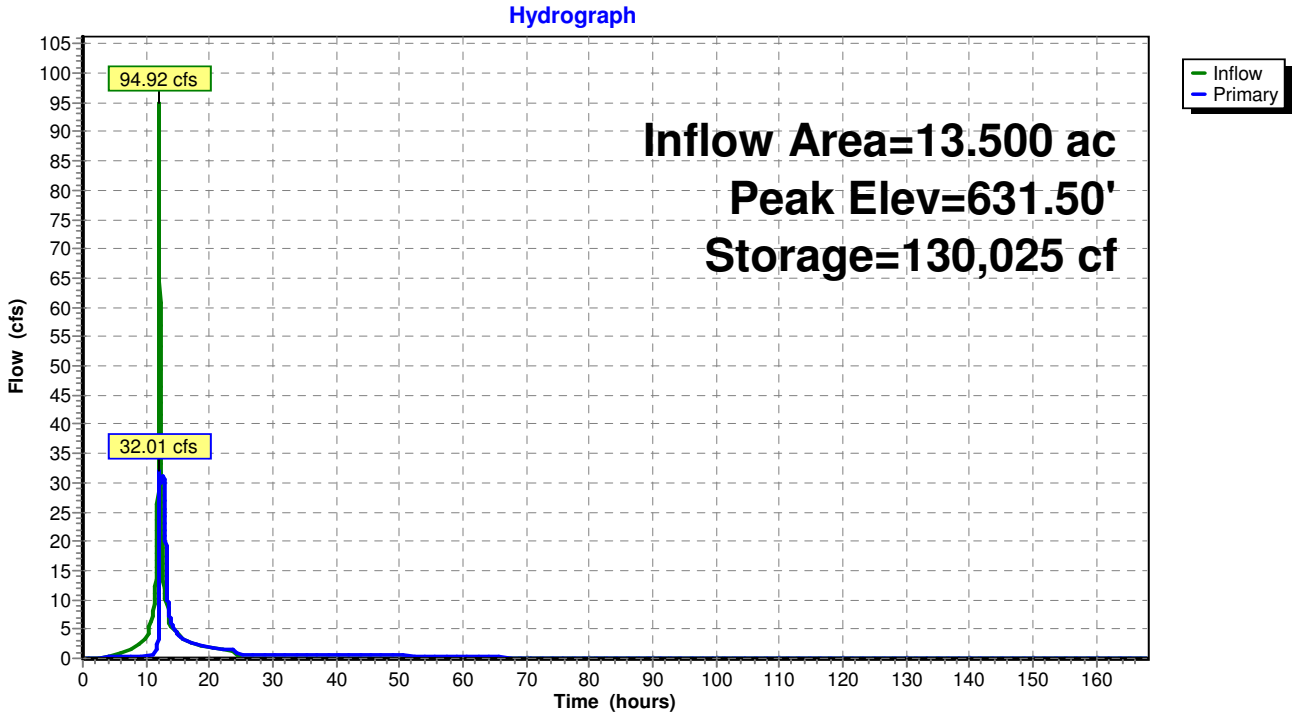
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
620.00	800	0	0
621.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
621.00	5,200	0	0
622.00	7,100	6,150	6,150
624.00	9,300	16,400	22,550
626.00	11,800	21,100	43,650
628.00	14,500	26,300	69,950
630.00	17,400	31,900	101,850
632.00	20,500	37,900	139,750

Device	Routing	Invert	Outlet Devices
#1	Primary	620.00'	**24.0" Round Culvert** L= 450.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 620.00' / 615.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	628.30'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	620.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=31.73 cfs @ 12.09 hrs HW=630.60' TW=619.34' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 31.73 cfs @ 10.10 fps)
└─**2=Broad-Crested Rectangular Weir** (Passes < 92.82 cfs potential flow)
└─**3=Orifice/Grate** (Passes < 0.77 cfs potential flow)

Pond 2.5 EDB: South Detention Basin



Stage-Area-Storage for Pond 2.5 EDB: South Detention Basin

Elevation (feet)	Storage (cubic-feet)
620.00	0
620.15	48
620.30	96
620.45	144
620.60	192
620.75	240
620.90	288
621.05	582
621.20	1,398
621.35	2,256
621.50	3,158
621.65	4,101
621.80	5,088
621.95	6,117
622.10	7,186
622.25	8,279
622.40	9,398
622.55	10,541
622.70	11,710
622.85	12,902
623.00	14,120
623.15	15,362
623.30	16,629
623.45	17,921
623.60	19,238
623.75	20,579
623.90	21,945
624.05	23,337
624.20	24,755
624.35	26,202
624.50	27,676
624.65	29,179
624.80	30,710
624.95	32,269
625.10	33,856
625.25	35,472
625.40	37,115
625.55	38,787
625.70	40,486
625.85	42,214
626.00	43,970
626.15	45,755
626.30	47,571
626.45	49,417
626.60	51,293
626.75	53,200
626.90	55,137
627.05	57,104
627.20	59,102
627.35	61,130
627.50	63,189
627.65	65,278
627.80	67,397
627.95	69,547
628.10	71,727
628.25	73,940
628.40	76,186
628.55	78,464
628.70	80,775
628.85	83,119
629.00	85,495
629.15	87,904
629.30	90,345
629.45	92,819
629.60	95,326
629.75	97,865
629.90	100,437
630.05	103,042
630.20	105,681
630.35	108,355
630.50	111,064
630.65	113,807
630.80	116,586
630.95	119,399
631.10	122,248
631.25	125,131
631.40	128,049
631.55	131,002
631.70	133,990
631.85	137,012
632.00	**140,070**

Summary for Pond 2.6 IB: South Upper Infiltration Basin

Inflow Area = 20.500 ac, 37.56% Impervious, Inflow Depth = 2.67" for 100-yr event
Inflow = 5.75 cfs @ 12.05 hrs, Volume= 4.564 af
Outflow = 3.21 cfs @ 12.29 hrs, Volume= 4.564 af, Atten= 44%, Lag= 14.9 min
Discarded = 3.21 cfs @ 12.29 hrs, Volume= 4.564 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 609.27' @ 12.29 hrs Surf.Area= 6,929 sf Storage= 1,852 cf
Flood Elev= 617.50' Surf.Area= 18,675 sf Storage= 104,556 cf

Plug-Flow detention time= 1.0 min calculated for 4.564 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (1,694.6 - 1,693.6)

Volume	Invert	Avail.Storage	Storage Description
#1	609.00'	114,100 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

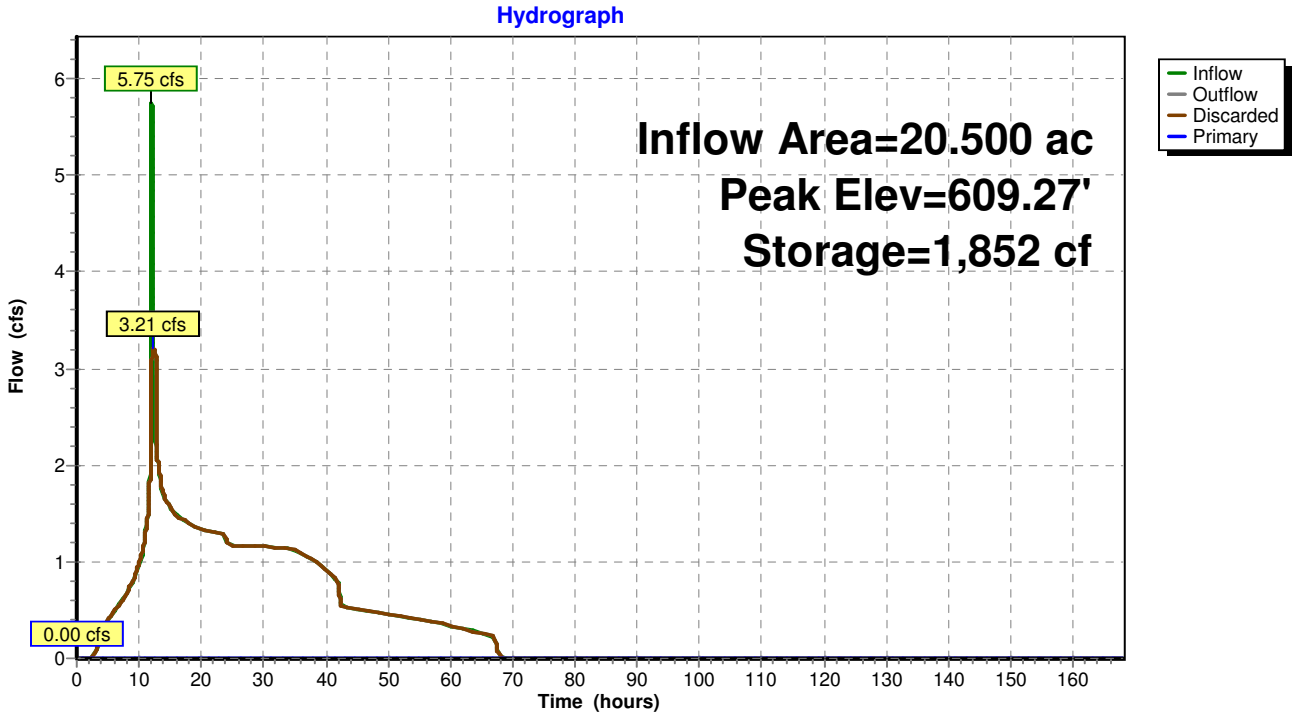
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.00	6,600	0	0
610.00	7,800	7,200	7,200
612.00	10,400	18,200	25,400
614.00	13,200	23,600	49,000
616.00	16,200	29,400	78,400
618.00	19,500	35,700	114,100

Device	Routing	Invert	Outlet Devices
#1	Primary	609.00'	**12.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.00' / 594.00' S= 0.1875 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	617.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Discarded	609.00'	**20.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=3.21 cfs @ 12.29 hrs HW=609.27' (Free Discharge)
↑—**3=Exfiltration** (Exfiltration Controls 3.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=609.00' TW=593.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2.6 IB: South Upper Infiltration Basin



Stage-Area-Storage for Pond 2.6 IB: South Upper Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
609.00	6,600	0
609.10	6,720	666
609.20	6,840	1,344
609.30	6,960	2,034
609.40	7,080	2,736
609.50	7,200	3,450
609.60	7,320	4,176
609.70	7,440	4,914
609.80	7,560	5,664
609.90	7,680	6,426
610.00	7,800	7,200
610.10	7,930	7,987
610.20	8,060	8,786
610.30	8,190	9,598
610.40	8,320	10,424
610.50	8,450	11,263
610.60	8,580	12,114
610.70	8,710	12,979
610.80	8,840	13,856
610.90	8,970	14,746
611.00	9,100	15,650
611.10	9,230	16,567
611.20	9,360	17,496
611.30	9,490	18,438
611.40	9,620	19,394
611.50	9,750	20,363
611.60	9,880	21,344
611.70	10,010	22,339
611.80	10,140	23,346
611.90	10,270	24,366
612.00	10,400	25,400
612.10	10,540	26,447
612.20	10,680	27,508
612.30	10,820	28,583
612.40	10,960	29,672
612.50	11,100	30,775
612.60	11,240	31,892
612.70	11,380	33,023
612.80	11,520	34,168
612.90	11,660	35,327
613.00	11,800	36,500
613.10	11,940	37,687
613.20	12,080	38,888
613.30	12,220	40,103
613.40	12,360	41,332
613.50	12,500	42,575
613.60	12,640	43,832
613.70	12,780	45,103
613.80	12,920	46,388
613.90	13,060	47,687
614.00	13,200	49,000
614.10	13,350	50,328
614.20	13,500	51,670
614.30	13,650	53,027
614.40	13,800	54,400
614.50	13,950	55,788
614.60	14,100	57,190
614.70	14,250	58,608
614.80	14,400	60,040
614.90	14,550	61,487
615.00	14,700	62,950
615.10	14,850	64,428
615.20	15,000	65,920
615.30	15,150	67,427
615.40	15,300	68,950
615.50	15,450	70,488
615.60	15,600	72,040
615.70	15,750	73,608
615.80	15,900	75,190
615.90	16,050	76,787
616.00	16,200	78,400
616.10	16,365	80,028
616.20	16,530	81,673
616.30	16,695	83,334
616.40	16,860	85,012
616.50	17,025	86,706
616.60	17,190	88,417
616.70	17,355	90,144
616.80	17,520	91,888
616.90	17,685	93,648
617.00	17,850	95,425
617.10	18,015	97,218
617.20	18,180	99,028
617.30	18,345	100,854
617.40	18,510	102,697
617.50	18,675	104,556
617.60	18,840	106,432
617.70	19,005	108,324
617.80	19,170	110,233
617.90	19,335	112,158
618.00	**19,500**	**114,100**

Summary for Pond 2.7 EDB: South Lower Detention Basin

Inflow Area = 21.200 ac, 36.32% Impervious, Inflow Depth = 4.06" for 100-yr event
Inflow = 53.43 cfs @ 12.26 hrs, Volume= 7.177 af
Outflow = 39.94 cfs @ 12.75 hrs, Volume= 7.177 af, Atten= 25%, Lag= 29.4 min
Primary = 39.94 cfs @ 12.75 hrs, Volume= 7.177 af

Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 605.49' @ 12.75 hrs Surf.Area= 16,117 sf Storage= 100,001 cf
Flood Elev= 605.50' Surf.Area= 16,125 sf Storage= 100,089 cf

Plug-Flow detention time= 478.9 min calculated for 7.177 af (100% of inflow)
Center-of-Mass det. time= 478.7 min (1,327.7 - 849.0)

Volume	Invert	Avail.Storage	Storage Description
#1	593.00'	320 cf	**Underdrain Gravel (Prismatic)** Listed below (Recalc) 800 cf Overall x 40.0% Voids
#2	594.00'	107,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		107,920 cf	Total Available Storage

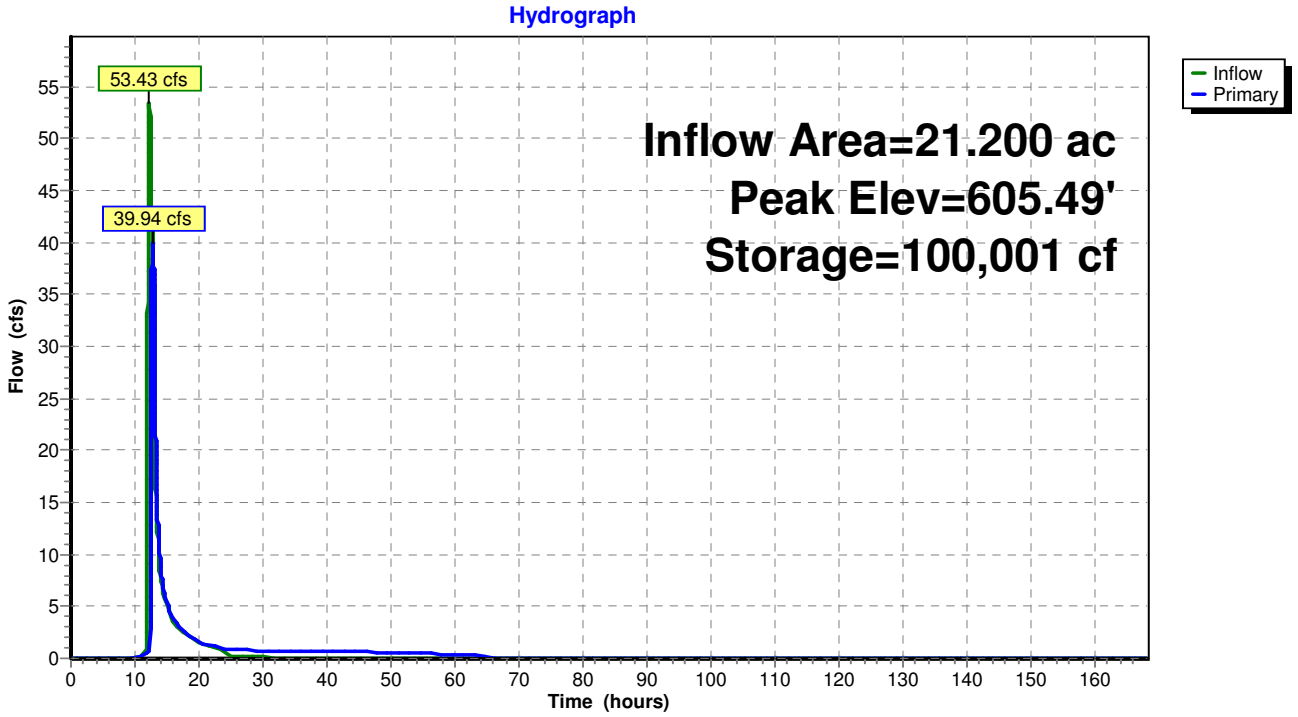
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
593.00	800	0	0
594.00	800	800	800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
594.00	3,200	0	0
596.00	4,800	8,000	8,000
598.00	6,600	11,400	19,400
600.00	8,600	15,200	34,600
602.00	10,900	19,500	54,100
604.00	13,300	24,200	78,300
606.00	16,000	29,300	107,600

Device	Routing	Invert	Outlet Devices
#1	Primary	593.00'	**36.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 593.00' / 590.00' S= 0.0353 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	604.20'	**8.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Device 1	593.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=39.94 cfs @ 12.75 hrs HW=605.49' TW=0.00' (Dynamic Tailwater)
↑└─**1=Culvert** (Passes 39.94 cfs of 112.85 cfs potential flow)
↑ ├─**2=Broad-Crested Rectangular Weir** (Weir Controls 39.11 cfs @ 3.78 fps)
└─**3=Orifice/Grate** (Orifice Controls 0.83 cfs @ 16.93 fps)

Pond 2.7 EDB: South Lower Detention Basin



Stage-Area-Storage for Pond 2.7 EDB: South Lower Detention Basin

Elevation (feet)	Storage (cubic-feet)
593.00	0
593.15	48
593.30	96
593.45	144
593.60	192
593.75	240
593.90	288
594.05	481
594.20	976
594.35	1,489
594.50	2,020
594.65	2,569
594.80	3,136
594.95	3,721
595.10	4,324
595.25	4,945
595.40	5,584
595.55	6,241
595.70	6,916
595.85	7,609
596.00	8,320
596.15	9,050
596.30	9,800
596.45	10,571
596.60	11,362
596.75	12,173
596.90	13,004
597.05	13,856
597.20	14,728
597.35	15,620
597.50	16,533
597.65	17,465
597.80	18,418
597.95	19,391
598.10	20,385
598.25	21,401
598.40	22,440
598.55	23,501
598.70	24,585
598.85	25,691
599.00	26,820
599.15	27,971
599.30	29,145
599.45	30,341
599.60	31,560
599.75	32,801
599.90	34,065
600.05	35,351
600.20	36,663
600.35	38,000
600.50	39,364
600.65	40,753
600.80	42,168
600.95	43,609
601.10	45,076
601.25	46,568
601.40	48,087
601.55	49,631
601.70	51,202
601.85	52,798
602.00	54,420
602.15	56,068
602.30	57,744
602.45	59,447
602.60	61,176
602.75	62,933
602.90	64,716
603.05	66,526
603.20	68,364
603.35	70,229
603.50	72,120
603.65	74,038
603.80	75,984
603.95	77,957
604.10	79,957
604.25	81,987
604.40	84,048
604.55	86,139
604.70	88,261
604.85	90,413
605.00	92,595
605.15	94,808
605.30	97,051
605.45	99,324
605.60	101,628
605.75	103,962
605.90	**106,327**

Summary for Pond FS 1: North Detention Flow Split

Inflow Area = 16.900 ac, 17.75% Impervious, Inflow Depth = 6.85" for 100-yr event
Inflow = 62.13 cfs @ 12.24 hrs, Volume= 9.643 af
Outflow = 62.13 cfs @ 12.25 hrs, Volume= 9.643 af, Atten= 0%, Lag= 0.6 min
Primary = 0.59 cfs @ 12.25 hrs, Volume= 2.176 af
Secondary = 61.54 cfs @ 12.25 hrs, Volume= 7.468 af

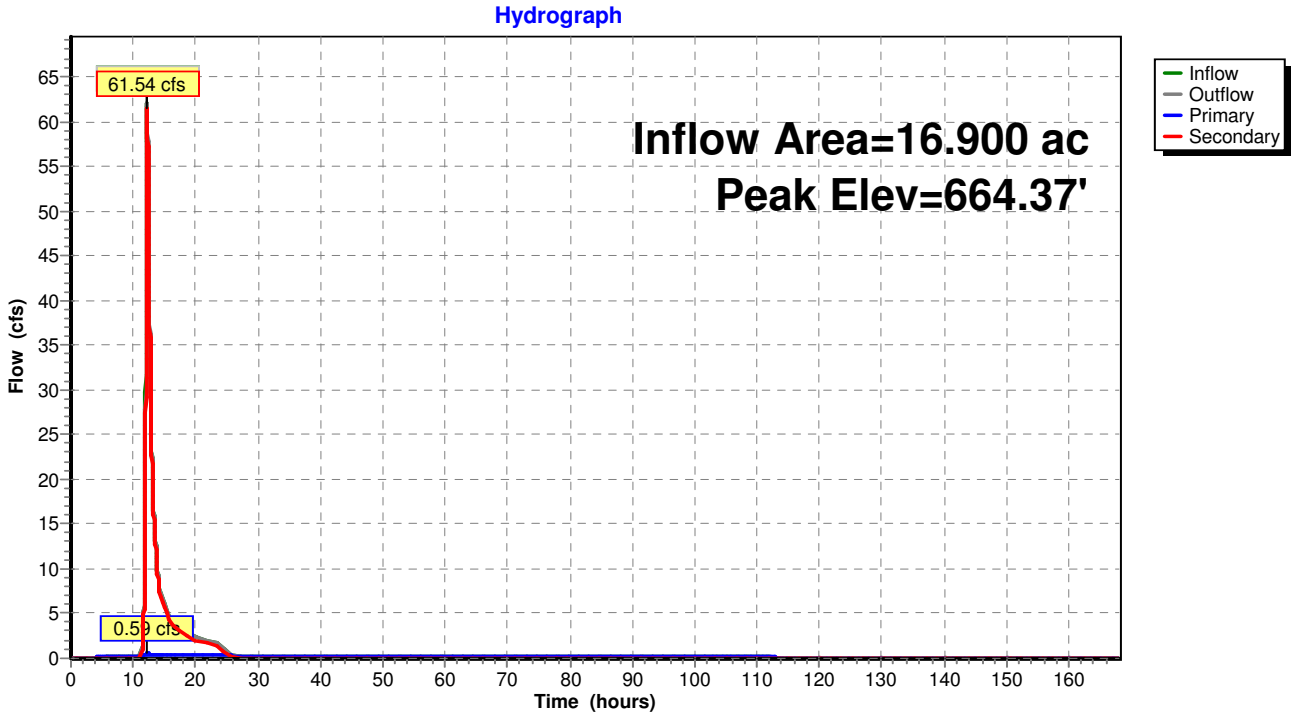
Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 664.37' @ 12.25 hrs
Flood Elev= 669.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	658.00'	**6.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 658.00' / 656.00' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	658.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Secondary	659.60'	**36.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 659.60' / 656.00' S= 0.0450 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=0.59 cfs @ 12.25 hrs HW=664.37' TW=654.84' (Dynamic Tailwater)
↑└**1=Culvert** (Passes 0.59 cfs of 1.21 cfs potential flow)
↑└**2=Orifice/Grate** (Orifice Controls 0.59 cfs @ 12.03 fps)

Secondary OutFlow Max=61.53 cfs @ 12.25 hrs HW=664.37' TW=657.26' (Dynamic Tailwater)
↑└**3=Culvert** (Inlet Controls 61.53 cfs @ 8.70 fps)

Pond FS 1: North Detention Flow Split



Stage-Area-Storage for Pond FS 1: North Detention Flow Split

Elevation (feet)	Storage (cubic-feet)
658.00	**0**
658.15	0
658.30	0
658.45	0
658.60	0
658.75	0
658.90	0
659.05	0
659.20	0
659.35	0
659.50	0
659.65	0
659.80	0
659.95	0
660.10	0
660.25	0
660.40	0
660.55	0
660.70	0
660.85	0
661.00	0
661.15	0
661.30	0
661.45	0
661.60	0
661.75	0
661.90	0
662.05	0
662.20	0
662.35	0
662.50	0
662.65	0
662.80	0
662.95	0
663.10	0
663.25	0
663.40	0
663.55	0
663.70	0
663.85	0
664.00	0
664.15	0
664.30	0
664.45	0
664.60	0
664.75	0
664.90	0
665.05	0
665.20	0
665.35	0
665.50	0
665.65	0
665.80	0
665.95	0
666.10	0
666.25	0
666.40	0
666.55	0
666.70	0
666.85	0
667.00	0
667.15	0
667.30	0
667.45	0
667.60	0
667.75	0
667.90	0
668.05	0
668.20	0
668.35	0
668.50	0
668.65	0
668.80	0
668.95	0

Summary for Pond FS 2:

Inflow Area = 19.500 ac, 39.49% Impervious, Inflow Depth = 6.86" for 100-yr event
Inflow = 53.78 cfs @ 12.26 hrs, Volume= 11.147 af
Outflow = 53.78 cfs @ 12.27 hrs, Volume= 11.147 af, Atten= 0%, Lag= 0.6 min
Primary = 1.65 cfs @ 12.27 hrs, Volume= 4.228 af
Secondary = 52.12 cfs @ 12.27 hrs, Volume= 6.920 af

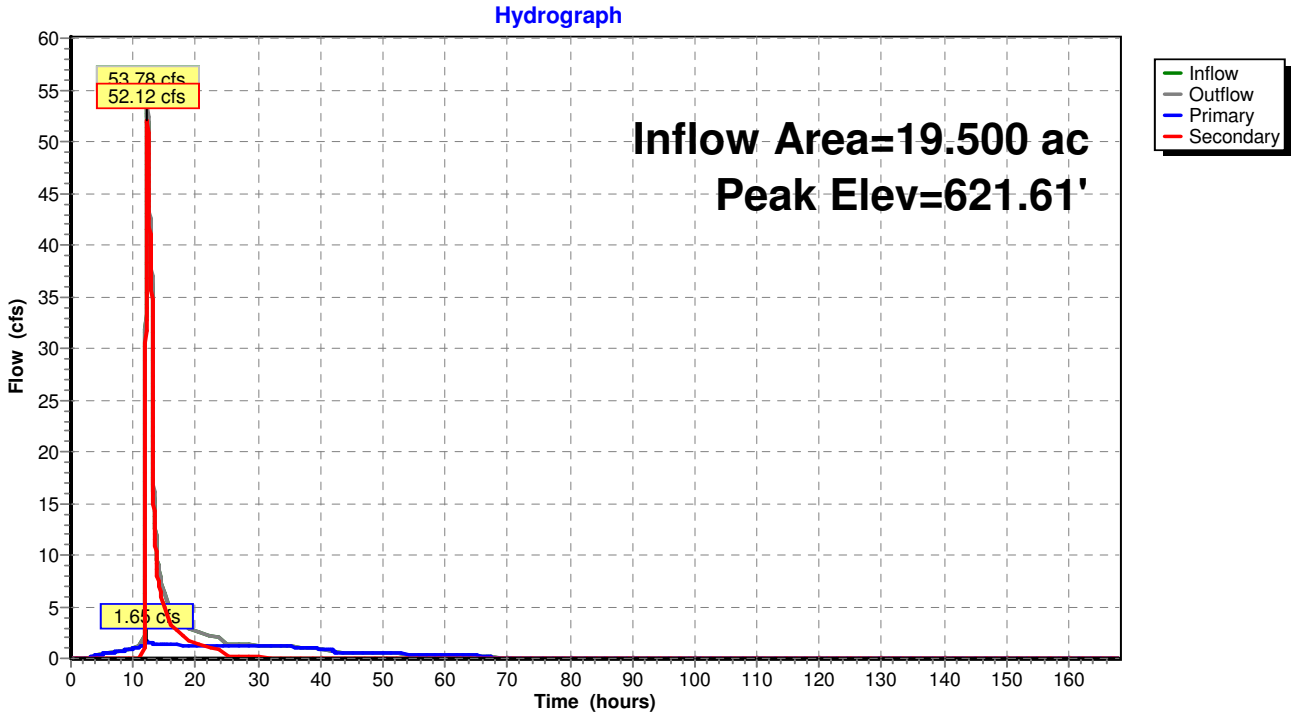
Routing by Sim-Route method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Peak Elev= 621.61' @ 12.27 hrs
Flood Elev= 629.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	615.50'	**6.0" Round Culvert** L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 615.50' / 609.00' S= 0.0542 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 3	617.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Secondary	615.50'	**30.0" Round Culvert** L= 180.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 615.50' / 610.80' S= 0.0261 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=1.65 cfs @ 12.27 hrs HW=621.61' TW=609.27' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 1.65 cfs @ 8.42 fps)

Secondary OutFlow Max=52.12 cfs @ 12.27 hrs HW=621.61' TW=601.72' (Dynamic Tailwater)
└**3=Culvert** (Inlet Controls 52.12 cfs @ 10.62 fps)
└**2=Broad-Crested Rectangular Weir** (Passes 52.12 cfs of 123.13 cfs potential flow)

Pond FS 2:


Hydrograph
Inflow Area=19.500 ac
Peak Elev=621.61'
53.78 cfs
52.12 cfs
1.65 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)
0
5
10
15
20
25
30
35
40
45
50
55
60
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160

Stage-Area-Storage for Pond FS 2:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
615.50	**0**	623.30	0
615.65	0	623.45	0
615.80	0	623.60	0
615.95	0	623.75	0
616.10	0	623.90	0
616.25	0	624.05	0
616.40	0	624.20	0
616.55	0	624.35	0
616.70	0	624.50	0
616.85	0	624.65	0
617.00	0	624.80	0
617.15	0	624.95	0
617.30	0	625.10	0
617.45	0	625.25	0
617.60	0	625.40	0
617.75	0	625.55	0
617.90	0	625.70	0
618.05	0	625.85	0
618.20	0	626.00	0
618.35	0	626.15	0
618.50	0	626.30	0
618.65	0	626.45	0
618.80	0	626.60	0
618.95	0	626.75	0
619.10	0	626.90	0
619.25	0	627.05	0
619.40	0	627.20	0
619.55	0	627.35	0
619.70	0	627.50	0
619.85	0	627.65	0
620.00	0	627.80	0
620.15	0	627.95	0
620.30	0	628.10	0
620.45	0	628.25	0
620.60	0	628.40	0
620.75	0	628.55	0
620.90	0	628.70	0
621.05	0	628.85	0
621.20	0	629.00	0
621.35	0	629.15	0
621.50	0	629.30	0
621.65	0	629.45	0
621.80	0		
621.95	0		
622.10	0		
622.25	0		
622.40	0		
622.55	0		
622.70	0		
622.85	0		
623.00	0		
623.15	0		

APPENDIX D

NYSDEC SPDES for Construction Activities Construction Site Log Book

APPENDIX F
CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG BOOK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

SAMPLE CONSTRUCTION SITE LOG BOOK

Table of Contents

I. **PRE-CONSTRUCTION MEETING DOCUMENTS**

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. **Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

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

Required Elements:

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

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

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

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

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

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

SITE PLAN/SKETCH

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

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

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA
[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA
[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

APPENDIX E

Project and Owner Information

Site Data:

160 & 132 Pugsley Road
Town of Southeast, New York 10509
Area: 153.5 acres ±

Owner Information:

Town of Southeast
1360 Route 22
Brewster, NY 10509
845-279-4313
thay@southeast-ny.gov

Applicant Information:

ProSwing Sports Realty, Inc.
27 Radio Circle Drive
Mount Kisco, NY 10590
914-242-1626
Dan@proswingbaseball.com

Parties Responsible for Implementation of the Short and Long Term Maintenance Plan:

To Be Determined

Qualified Professional Responsible for Inspection of the Stormwater Pollution Prevention Plan:

Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512
845-225-9690

APPENDIX F
NYSDEC Stormwater Design Manual Chapter 5 Analysis

Table Key: ● = Practice Used in Accordance with Chapter 5 Requirements
o = Practice Not Used
- = Practice is Not Applicable

NYSDEC Chapter 5 Requirements	Remarks		
	Design Line 1	Design Line 2	
Practices			
Preservation of Undisturbed Areas	●	●	See Note #1
Preservation of Buffers	●	●	See Note #1
Reduction of Clearing & Grading	●	●	See Note #2
Locating Development in Less Sensitive Areas	●	●	See Note #1
Open Space Design	-		
Soil Restoration	●	●	See Note #3
Practices			
Roadway Reduction	●	●	See Note #2
Sidewalk Reduction	●	●	See Note #2
Driveway Reduction	-		
Cul-de-sac Reduction	-		
Building Footprint Reduction	-		
Parking Reduction	●	●	
Conservation of Natural Areas	●	●	See Note #1
Sheetflow to Riparian Buffers or Filter Strips	o		
Vegetated Swale	o		See Note #4
Tree Planting / Tree Pit	o		
Disconnection of Rooftop Runoff	o		
Stream Daylighting	o		
Rain Gardens	o		
Green Roofs	o		
Stormwater Planters	o		
Rain Barrels / Cisterns	o	o	See Note #4
Porous Pavement	o		See Note #4

Notes:

1. Although no formal calculations have been provided, the subject project has provided conservation of natural areas, development in less sensitive areas and preservation of buffers and undisturbed areas to the maximum extent practical.
2. The reduction in clearing and grading as well as the driveway and parking areas foot print reduction will be enforced with the approval of the project SWPPP. Notes on the project plans, establish that any changes in the project plans would require an amended approval from the necessary regulatory agencies.
3. Soil restoration notes have been provided on the project plans.
4. Two (2) infiltration practices have been designed as a standard stormwater management practice (SMP) and are proposed for treatment of the RRv and WQv from the proposed development.

APPENDIX G

NYSDEC Stormwater Management Practice Construction and Maintenance Checklists

Infiltration Basin Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Runoff diverted		
Soil permeability tested		
Groundwater / bedrock depth		
2. Excavation		
Size and location		
Side slopes stable		
Excavation does not compact subsoils		
3. Embankment		
Barrel		
Anti-seep collar or Filter diaphragm		
Fill material		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Final Excavation		
Drainage area stabilized		
Sediment removed from facility		
Basin floor tilled		
Facility stabilized		
5. Final Inspection		
Pretreatment facility in place		
Inlets / outlets		
Contributing watershed stabilized before flow is routed to the factility		

Comments:

Actions to be Taken:

Stormwater/Wetland Pond Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Pre-Construction/Materials and Equipment		
Pre-construction meeting		
Pipe and appurtenances on-site prior to construction and dimensions checked		
1. Material (including protective coating, if specified)		
2. Diameter		
3. Dimensions of metal riser or pre-cast concrete outlet structure		
4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans		
5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope		
6. Number and dimensions of prefabricated anti-seep collars		
7. Watertight connectors and gaskets		
8. Outlet drain valve		
Project benchmark near pond site		
Equipment for temporary de-watering		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
2. Subgrade Preparation		
Area beneath embankment stripped of all vegetation, topsoil, and organic matter		
3. Pipe Spillway Installation		
Method of installation detailed on plans		
A. Bed preparation		
Installation trench excavated with specified side slopes		
Stable, uniform, dry subgrade of relatively impervious material (If subgrade is wet, contractor shall have defined steps before proceeding with installation)		
Invert at proper elevation and grade		
B. Pipe placement		
Metal / plastic pipe		
1. Watertight connectors and gaskets properly installed		
2. Anti-seep collars properly spaced and having watertight connections to pipe		
3. Backfill placed and tamped by hand under “haunches” of pipe		
4. Remaining backfill placed in max. 8 inch lifts using small power tamping equipment until 2 feet cover over pipe is reached		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
3. Pipe Spillway Installation		
Concrete pipe		
1. Pipe set on blocks or concrete slab for pouring of low cradle		
2. Pipe installed with rubber gasket joints with no spalling in gasket interface area		
3. Excavation for lower half of anti-seep collar(s) with reinforcing steel set		
4. Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant		
5. Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix		
6. Upper half of anti-seep collar(s) formed with reinforcing steel set		
7. Concrete for collar of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
8. Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary.		
C. Backfilling		
Fill placed in maximum 8 inch lifts		
Backfill taken minimum 2 feet above top of anti-seep collar elevation before traversing with heavy equipment		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Riser / Outlet Structure Installation		
Riser located within embankment		
A. Metal riser		
Riser base excavated or formed on stable subgrade to design dimensions		
Set on blocks to design elevations and plumbed		
Reinforcing bars placed at right angles and projecting into sides of riser		
Concrete poured so as to fill inside of riser to invert of barrel		
B. Pre-cast concrete structure		
Dry and stable subgrade		
Riser base set to design elevation		
If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely		
Watertight and structurally sound collar or gasket joint where structure connects to pipe spillway		
C. Poured concrete structure		
Footing excavated or formed on stable subgrade, to design dimensions with reinforcing steel set		
Structure formed to design dimensions, with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
Forms stripped & inspected for “honeycomb” prior to backfilling; parge if necessary		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Embankment Construction		
Fill material		
Compaction		
Embankment		
1. Fill placed in specified lifts and compacted with appropriate equipment		
2. Constructed to design cross-section, side slopes and top width		
3. Constructed to design elevation plus allowance for settlement		
6. Impounded Area Construction		
Excavated / graded to design contours and side slopes		
Inlet pipes have adequate outfall protection		
Forebay(s)		
Pond benches		
7. Earth Emergency Spillway Construction		
Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.		
Excavated to proper cross-section, side slopes and bottom width		
Entrance channel, crest, and exit channel constructed to design grades and elevations		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
8. Outlet Protection		
A. End section		
Securely in place and properly backfilled		
B. Endwall		
Footing excavated or formed on stable subgrade, to design dimensions and reinforcing steel set, if specified		
Endwall formed to design dimensions with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing, if necessary)		
Forms stripped and structure inspected for "honeycomb" prior to backfilling; parge if necessary		
C. Riprap apron / channel		
Apron / channel excavated to design cross-section with proper transition to existing ground		
Filter fabric in place		
Stone sized as per plan and uniformly place at the thickness specified		
9. Vegetative Stabilization		
Approved seed mixture or sod		
Proper surface preparation and required soil amendments		
Excelsior mat or other stabilization, as per plan		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
10. Miscellaneous		
Drain for ponds having a permanent pool		
Trash rack / anti-vortex device secured to outlet structure		
Trash protection for low flow pipes, orifices, etc.		
Fencing (when required)		
Access road		
Set aside for clean-out maintenance		
11. Stormwater Wetlands		
Adequate water balance		
Variety of depth zones present		
Approved pondscaping plan in place Reinforcement budget for additional plantings		
Plants and materials ordered 6 months prior to construction		
Construction planned to allow for adequate planting and establishment of plant community (April-June planting window)		
Wetland buffer area preserved to maximum extent possible		

Comments:

Actions to be Taken:

Infiltration Trench Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Trench surface clear of debris		
Inflow pipes clear of debris		
Overflow spillway clear of debris		
Inlet area clear of debris		
2. Sediment Traps or Forebays (Annual)		
Obviously trapping sediment		
Greater than 50% of storage volume remaining		
3. Dewatering (Monthly)		
Trench dewaters between storms		
4. Sediment Cleanout of Trench (Annual)		
No evidence of sedimentation in trench		
Sediment accumulation doesn't yet require cleanout		
5. Inlets (Annual)		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Good condition		
No evidence of erosion		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repair		
No evidence of erosion		
7. Aggregate Repairs (Annual)		
Surface of aggregate clean		
Top layer of stone does not need replacement		
Trench does not need rehabilitation		

Comments:

Actions to be Taken:

Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist

Project _____
Location: _____
Site Status: _____

Date: _____
Time: _____

Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway (Annual, After Major Storms)		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6.Pond, toe & chimney drains clear and functioning		
7.Seeps/leaks on downstream face		
8.Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam “As-Built”		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
2. Riser and principal spillway (Annual)		
Type: Reinforced concrete _____ Corrugated pipe _____ Masonry _____ 1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Permanent Pool (Wet Ponds) (monthly)		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
4. Sediment Forebays		
1.Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
5. Dry Pond Areas		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
6. Condition of Outfalls (Annual , After Major Storms)		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4.Endwalls / Headwalls		
5. Other (specify)		
7. Other (Monthly)		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
2. Complaints from residents		
3.Aesthetics a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
8. Wetland Vegetation (Annual)		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

Comments:

Actions to be Taken:

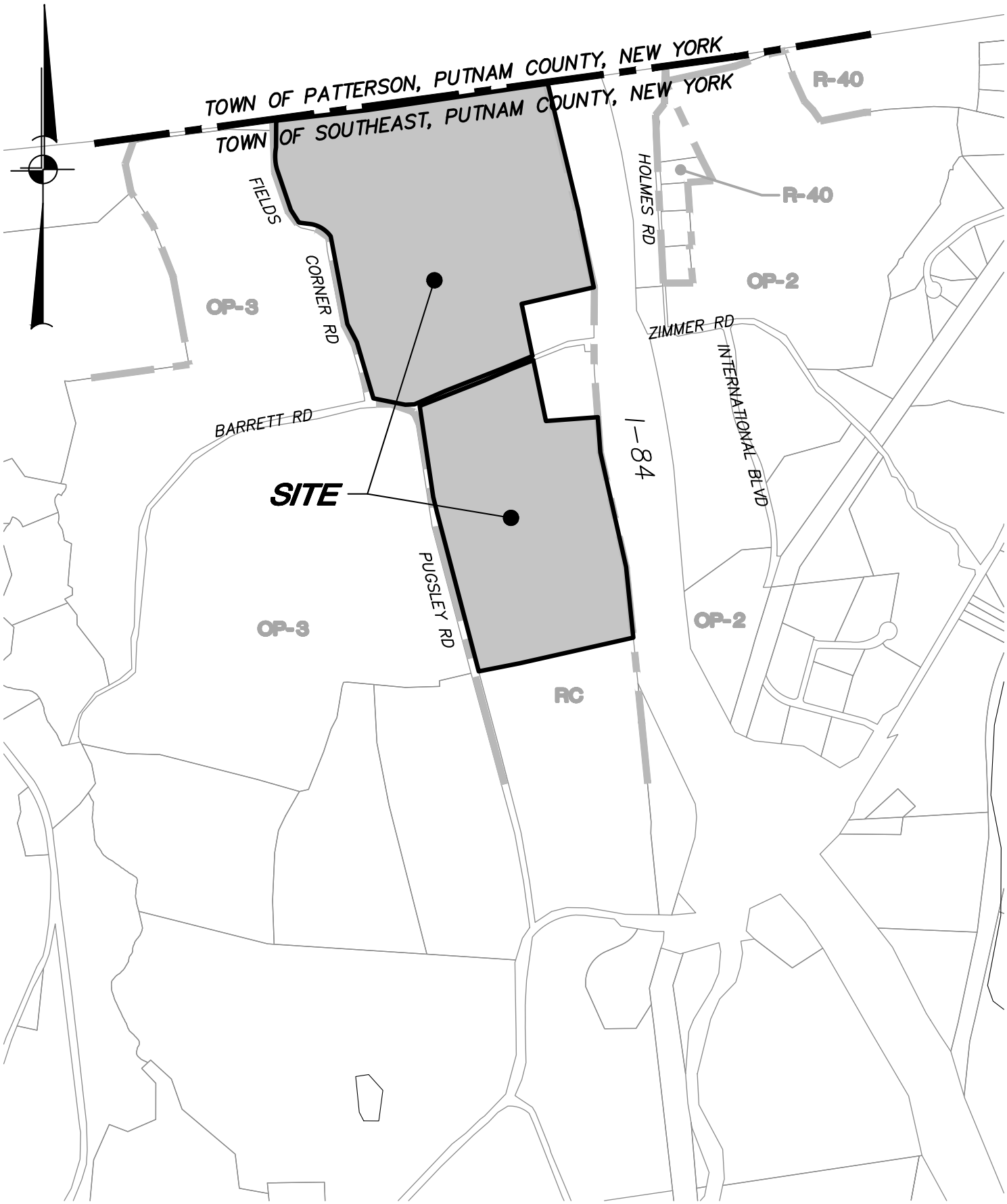
APPENDIX H

Temporary Sediment Trap Sizing Calculations

3,600 CF minimum of storage required for each acre of contributing area

Sediment Trap #	Contributing Area (Acres)	Minimum Volume Required (cf)	Volume Provided (cf)
1.2	9.0	32,400	70,656
1.4	8.9	32,040	82,370
2.2	6.8	24,480	34,670
2.5	6.9	24,840	74,685
2.7	6.8	24,480	81,307

FIGURES



PROJECT:

BREWSTER YARDS

160 & 132 PUGSLEY ROAD, TOWN OF SOUTHEAST, PUTNAM COUNTY, NY

DRAWING:

LOCATION MAP

PREPARED BY:

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place • Carmel, New York 10512
Phone (845) 225-9690 • Fax (845) 225-9717
www.insite-eng.com

DATE:	01-18-22
SCALE:	1" = 1,000'
PROJECT NO.:	19249.100
FIGURE:	1

SOILS LEGEND

SOILS	DESCRIPTION	HYDROLOGICAL GROUP
ChC	Charlton loam, 8% to 15% slopes	B
CrC	Charlton–Chatfield complex, rolling, very rocky	B
CsD	Chatfield–Charlton complex, hilly, very rocky	B
CtC	Chatfield–Hollis–Rock outcrop complex, rolling	B,C/D
HrF	Hollis–Rock outcrop complex, very steep	C/D
LcB	Leicester loam, 3% to 8% slopes, stony	C
PnC	Paxton fine sandy loam, 8% to 15% slopes	C
RgB	Ridgebury loam, 2% to 8% slopes, very stony	C
	NRCS Soil Boundary Line	

LEGEND

1.0	SUBCATCHMENT
SF	TIME OF CONCENTRATION SHEET FLOW
SCF	TIME OF CONCENTRATION SHALLOW CONCENTRATED FLOW
DESIGN LINE	DESIGN LINE
	SUBCATCHMENT CONTRIBUTING AREA

NO.	DATE	REVISION	BY
1	8-23-21	PLANNING BOARD SUBMISSION	JLT

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:

BREWSTER YARDS

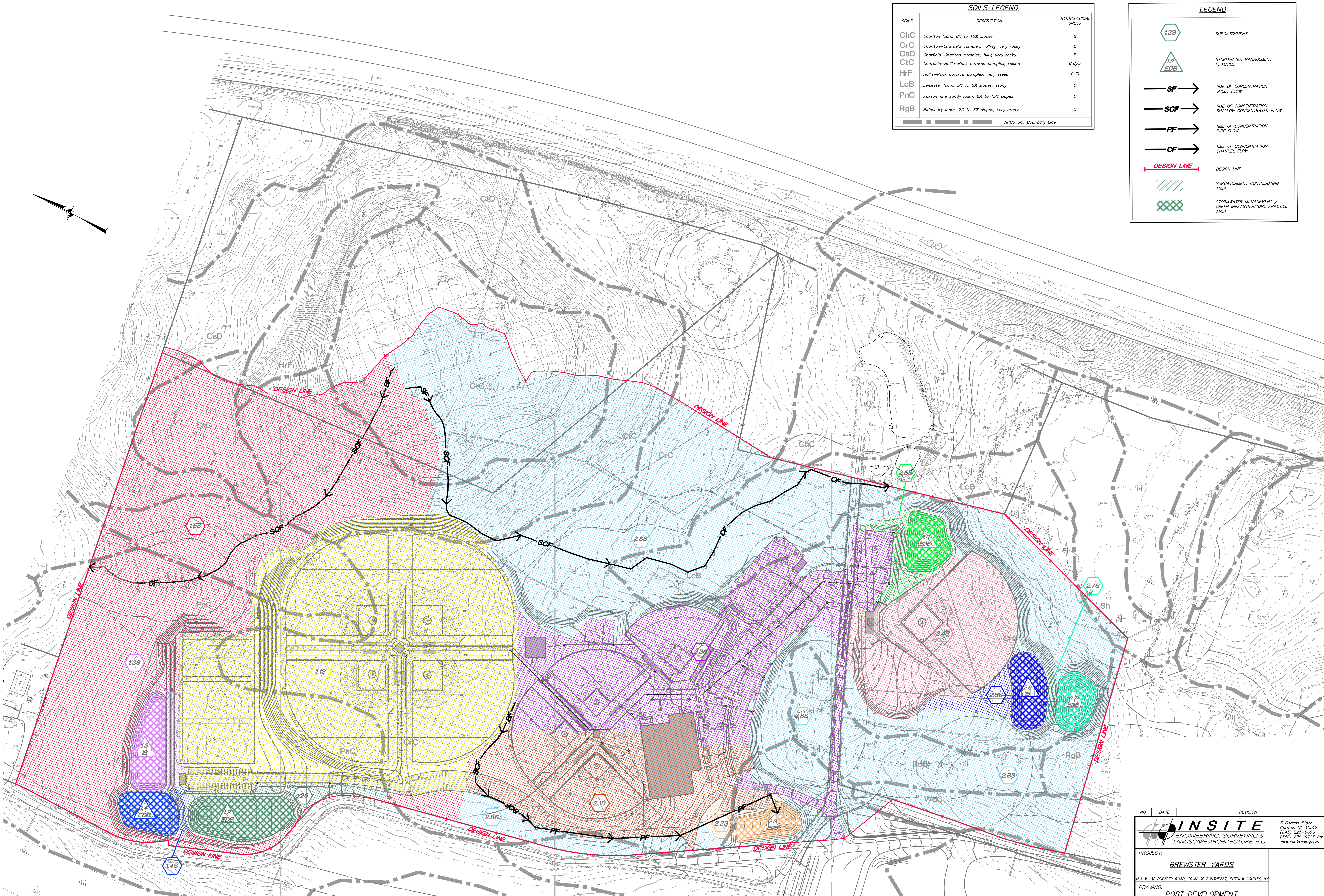
160 & 132 PUGSLEY ROAD, TOWN OF SOUTHEAST, PUTNAM COUNTY, NY

DRAWING:

PRE DEVELOPMENT DRAINAGE MAP

PROJECT NUMBER	19249.100	PROJECT MANAGER	J.M.W.
DATE	7-6-21	DRAWN BY	M.E.U.
SCALE	1" = 100'	CHECKED BY	K.M.G.

FIGURE NO. 2



SOILS LEGEND

SOILS	DESCRIPTION	HYDROLOGICAL GROUP
ChC	Charlton loam, 8% to 15% slopes	B
CrC	Charlton–Chatfield complex, rolling, very rocky	B
CsD	Chatfield–Charlton complex, hilly, very rocky	B
CtC	Chatfield–Hollis–Rock outcrop complex, rolling	B,C/D
HrF	Hollis–Rock outcrop complex, very steep	C/D
LcB	Leicester loam, 3% to 8% slopes, stony	C
PnC	Paxton fine sandy loam, 8% to 15% slopes	C
RgB	Ridgebury loam, 2% to 8% slopes, very stony	C

NRCS Soil Boundary Line

LEGEND

1.2S	SUBCATCHMENT
1.2 EDB	STORMWATER MANAGEMENT PRACTICE
SF	TIME OF CONCENTRATION SHEET FLOW
SCF	TIME OF CONCENTRATION SHALLOW CONCENTRATED FLOW
PF	TIME OF CONCENTRATION PIPE FLOW
CF	TIME OF CONCENTRATION CHANNEL FLOW
DESIGN LINE	DESIGN LINE
	SUBCATCHMENT CONTRIBUTING AREA
	STORMWATER MANAGEMENT / GREEN INFRASTRUCTURE PRACTICE AREA

GRAPHIC SCALE

0 50 100 200

(IN FEET)
1 inch = 100 ft.

NO.	DATE	REVISION	BY

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:

BREWSTER YARDS

160 & 132 PUGSLEY ROAD, TOWN OF SOUTHEAST, PUTNAM COUNTY, NY

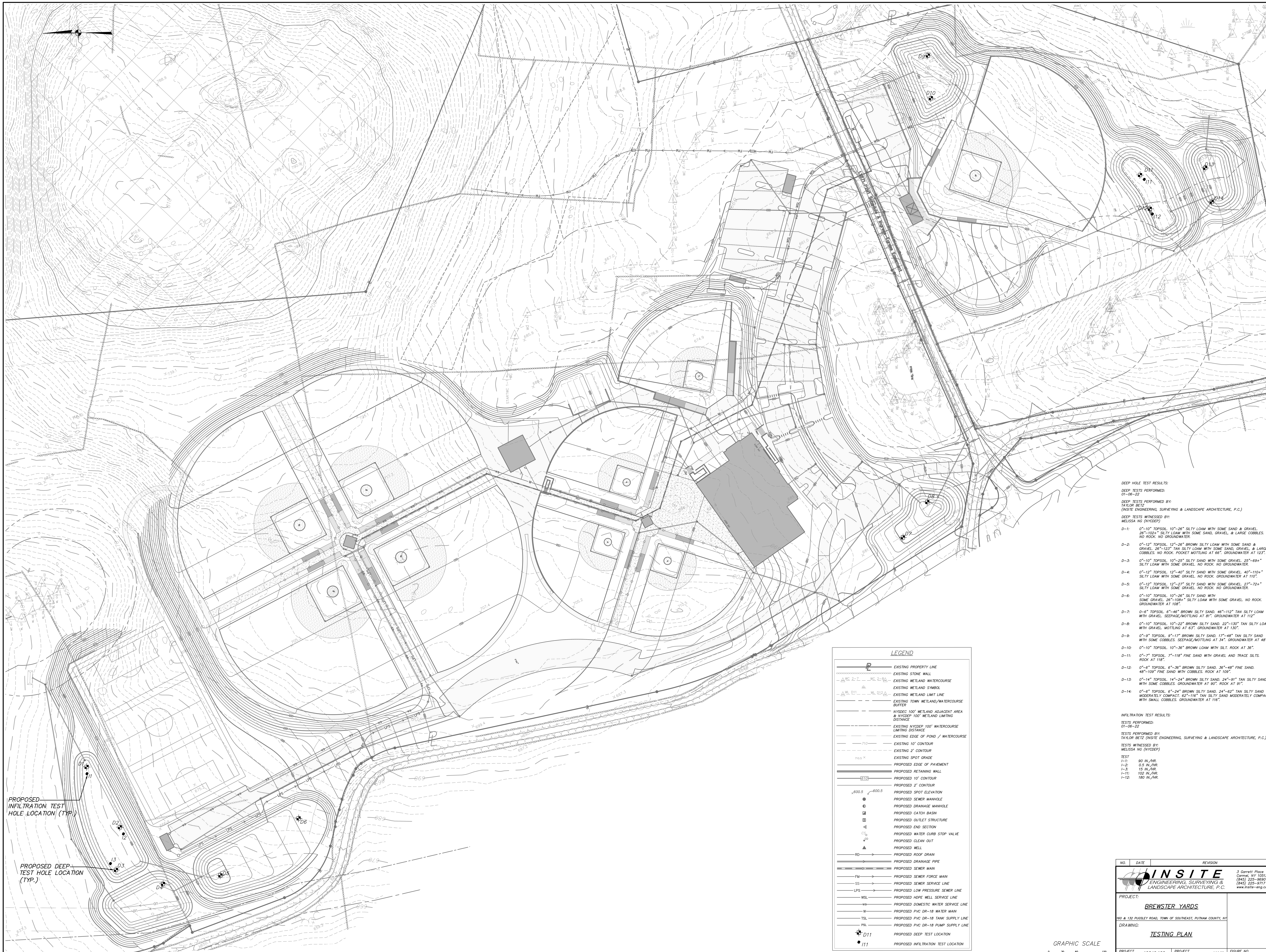
DRAWING:

POST DEVELOPMENT DRAINAGE MAP

PROJECT NUMBER	19249.100	PROJECT MANAGER	J.M.W.
DATE	01-18-22	DRAWN BY	T.M.B.
SCALE	1" = 100'	CHECKED BY	Z.M.P.

FIGURE NO.

3



DEEP HOLE TEST RESULTS:

DEEP TESTS PERFORMED:
01-06-22

DEEP TESTS PERFORMED BY:
TAYLOR BETZ
(INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.)

DEEP TESTS WITNESSED BY:
MELISSA NG (NYCDEP)

D-1: 0"-10" TOPSOIL. 10"-26" SILTY LOAM WITH SOME SAND & GRAVEL. 26"-102+" SILTY LOAM WITH SOME SAND, GRAVEL, & LARGE COBBLES. NO ROCK. NO GROUNDWATER.

D-2: 0"-12" TOPSOIL. 12"-26" BROWN SILTY LOAM WITH SOME SAND & GRAVEL. 26"-123" TAN SILTY LOAM WITH SOME SAND, GRAVEL, & LARGE COBBLES. NO ROCK. POCKET MOTTLING AT 66". GROUNDWATER AT 123".

D-3: 0"-10" TOPSOIL. 10"-25" SILTY SAND WITH SOME GRAVEL. 25"-69+" SILTY LOAM WITH SOME GRAVEL. NO ROCK. NO GROUNDWATER.

D-4: 0"-12" TOPSOIL. 12"-40" SILTY SAND WITH SOME GRAVEL. 40"-110+" SILTY LOAM WITH SOME GRAVEL. NO ROCK. GROUNDWATER AT 110".

D-5: 0"-12" TOPSOIL. 12"-27" SILTY SAND WITH SOME GRAVEL. 27"-72+" SILTY LOAM WITH SOME GRAVEL. NO ROCK. NO GROUNDWATER.

D-6: 0"-10" TOPSOIL. 10"-26" SILTY SAND WITH SOME GRAVEL. 26"-108+" SILTY LOAM WITH SOME GRAVEL. NO ROCK. GROUNDWATER AT 108".

D-7: 0-6" TOPSOIL. 6"-46" BROWN SILTY SAND. 46"-112" TAN SILTY LOAM WITH GRAVEL. SEEPAGE/MOTTLING AT 81". GROUNDWATER AT 112"

D-8: 0"-10" TOPSOIL. 10"-22" BROWN SILTY SAND. 22"-130" TAN SILTY LOAM WITH GRAVEL. MOTTLING AT 63". GROUNDWATER AT 130".

D-9: 0"-9" TOPSOIL. 9"-17" BROWN SILTY SAND. 17"-48" TAN SILTY SAND WITH SOME COBBLES. SEEPAGE/MOTTLING AT 34". GROUNDWATER AT 48".

D-10: 0"-10" TOPSOIL. 10"-36" BROWN LOAM WITH SILT. ROCK AT 36".

D-11: 0"-7" TOPSOIL. 7"-118" FINE SAND WITH GRAVEL AND TRACE SILTS. ROCK AT 118".

D-12: 0"-6" TOPSOIL. 6"-36" BROWN SILTY SAND. 36"-48" FINE SAND. 48"-109" FINE SAND WITH COBBLES. ROCK AT 109".

D-13: 0"-14" TOPSOIL. 14"-24" BROWN SILTY SAND. 24"-91" TAN SILTY SAND WITH SOME COBBLES. GROUNDWATER AT 90". ROCK AT 91".

D-14: 0"-6" TOPSOIL. 6"-24" BROWN SILTY SAND. 24"-62" TAN SILTY SAND MODERATELY COMPACT. 62"-116" TAN SILTY SAND MODERATELY COMPACT WITH SMALL COBBLES. GROUNDWATER AT 116".

INFILTRATION TEST RESULTS:

TESTS PERFORMED:
01-06-22

TESTS PERFORMED BY:
TAYLOR BETZ (INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.)

TESTS WITNESSED BY:
MELISSA NG (NYCDEP)

TEST	
I-1:	90 IN./HR.
I-2:	0.5 IN./HR.
I-3:	15 IN./HR.
I-11:	102 IN./HR.
I-12:	180 IN./HR.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING STONE WALL
- EXISTING WETLAND WATERCOURSE
- EXISTING WETLAND SYMBOL
- EXISTING WETLAND LIMIT LINE
- EXISTING TOWN WETLAND/WATERCOURSE BUFFER
- NYSDEC 100' WETLAND ADJACENT AREA & NYCDEP 100' WETLAND LIMITING DISTANCE
- EXISTING NYCDEP 100' WATERCOURSE LIMITING DISTANCE
- EXISTING EDGE OF POND / WATERCOURSE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING SPOT GRADE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED RETAINING WALL
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED SEWER MANHOLE
- PROPOSED DRAINAGE MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED OUTLET STRUCTURE
- PROPOSED END SECTION
- PROPOSED WATER CURB STOP VALVE
- PROPOSED CLEAN OUT
- PROPOSED WELL
- RD — PROPOSED ROOF DRAIN
- PROPOSED DRAINAGE PIPE
- PROPOSED SEWER MAIN
- FM — PROPOSED SEWER FORCE MAIN
- SS — PROPOSED SEWER SERVICE LINE
- LPS — PROPOSED LOW PRESSURE SEWER LINE
- WSL — PROPOSED HDPE WELL SERVICE LINE
- WS — PROPOSED DOMESTIC WATER SERVICE LINE
- W — PROPOSED PVC DR-18 WATER MAIN
- TSL — PROPOSED PVC DR-18 TANK SUPPLY LINE
- PSL — PROPOSED PVC DR-18 PUMP SUPPLY LINE
- D11 — PROPOSED DEEP TEST LOCATION
- I11 — PROPOSED INFILTRATION TEST LOCATION

GRAPHIC SCALE
0 30 60 120
(IN FEET)
1 inch = 60 ft.

NO.	DATE	REVISION	BY

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
BREWSTER YARDS
160 & 132 PUGSLEY ROAD, TOWN OF SOUTHEAST, PUTNAM COUNTY, NY

DRAWING:
TESTING PLAN

PROJECT NUMBER	19249.100	PROJECT MANAGER	J.M.W.	FIGURE NO.
DATE	01-17-22	DRAWN BY	P.J.M.	4
SCALE	1" = 60'	CHECKED BY	T.M.B.	