SITE ENGINEERING REPORT

40 Signal Road
Stamford, CT

Prepared For
Sound Beach Landing, LLC

Prepared by
Redniss & Mead, Inc.
22 First Street
Stamford, CT
(203) 327-0500

Issued on
December 21, 2022

Revised on
January 27, 2023

(Revisions are in bold italics)

Ted Milone, P.E., LEED AP BD+C
CT #22563

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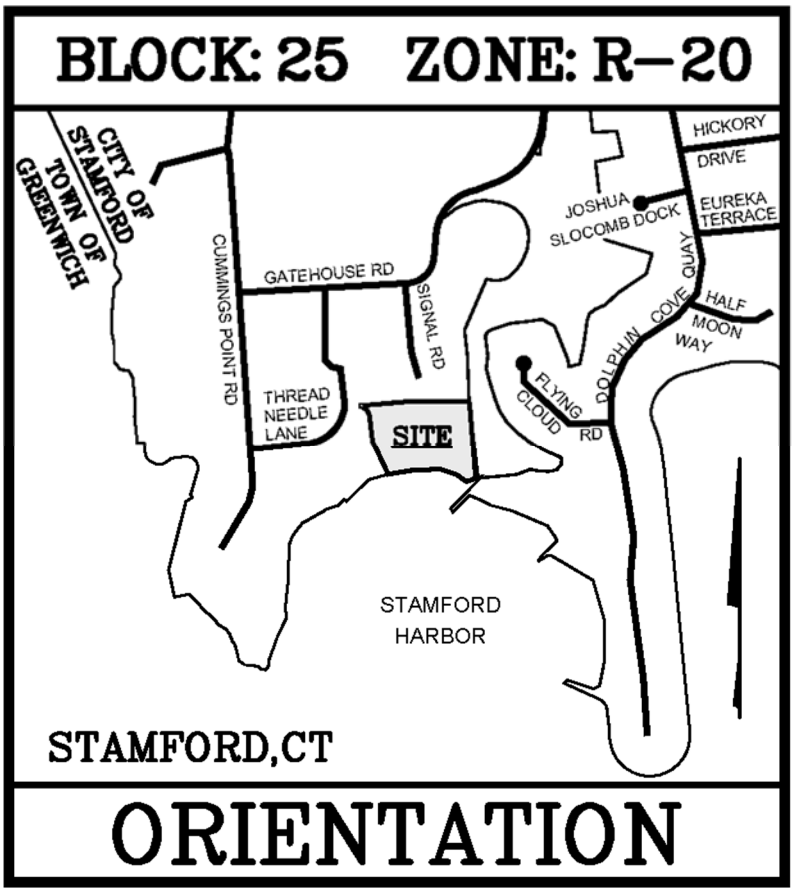
Appendices


BLOCK: 25 ZONE: R–20
CITY OF STAMFORD
TOWN OF GREENWICH
CUMMINGS POINT RD
GATEHOUSE RD
SIGNAL RD
THREAD NEEDLE LANE
SITE
HICKORY DRIVE
JOSHUA SLOCOMB DOCK
EUREKA TERRACE
QUAY
HALF MOON WAY
DOLPHIN COVE
FLYING CLOUD RD
STAMFORD HARBOR
STAMFORD,CT
ORIENTATION

Narrative

Project Description:

Sound Beach Landing, LLC, is submitting an application for Subdivision Approval for the property located at 40 Signal Road. The subject property consists of two previously subdivided lots formally know as Tax Account Numbers 002-8017 and 003-1160. For purposes of this study, the existing parcels and proposed parcels have been studied as one entity hereon referred to as "the property" (40 Signal Road).

The 2.3± acre property lies within in the R-20 Zoning District, west of Cummings Point Road at the easterly tip of the unconstructed portion of Thread Needle Lane and south of Signal Road. The site remains serviced by public water and sewers. This Site Engineering Report reflects the Site Civil Plan set (SE-1 through SE-6 dated ***January 27, 2023***) prepared by Redniss & Mead, Inc.

Existing Conditions:

The property is currently developed with a large office building, driveways, parking lots, a dock & pier, along with other incidental site features. Existing landscaping includes mature trees, gardens with accent plants and shrubs, and manicured lawns. Site elevations range from 3.4 (Mean High Water) abutting the Long Island Sound to 25 at the northwest corner of the property touching Thread Needle Lane. The site primarily consists of moderately flat slopes ranging from 0-5%. The property does not lie within a drinking water supply watershed. The property lies within FEMA flood zones VE-16, Coastal AE-12, AE-12 with a portion within Zone X as shown on the Flood Insurance Rate Map 09001C0519G, effective July 8, 2013.

Drainage Patterns & Conveyance Systems

Existing drainage basins include the "Existing North Basin" and the "Existing South Basin" as depicted on the Existing Drainage Basin Exhibit in Appendix B. Approximately 0.81 acres is tributary to the "Existing North Basin" which is collected in the stormwater conveyance network under the abutting property to the north which discharges directly into the Long Island Sound. The remaining 1.52± acres of the site is tributary to the "Existing South Basin" which flows overland into the Long Island Sound. Although the site ultimately discharges into the Long Island Sound, the North Basin has been studied independently strictly for reporting purposes to understand the effects of the proposed development on the existing stormwater conveyance network to the north.

Soils

The USDA Natural Resources Conservation Service's Web Soil Survey describes the soils within the development area on the property to be primarily Urban Land within Hydrologic Soils Group B. The remaining portion of the site, which is proposed to remain undeveloped, consists of beach sand. Soil testing, consisting of a series of deep test pits, was performed on-site to identify any sub-grade restrictive soil conditions and to confirm the hydrologic soil classification. A total of thirteen (13) deep test pits were

performed. Mottling and ledge were encountered on the property, although groundwater was not encountered. Restrictive layers were observed below the Coastal Jurisdiction Elevation of 5.5 in several test pits. The location of each test is depicted on the Proposed LID Map (Appendix C).

Saturated hydraulic conductivity testing was not required as the USDA Web Soil Survey classified on site soils as HSG B. As such, an infiltration rate of 0.52 inches per hour was used in accordance with Table 5-1 in the City of Stamford Stormwater Drainage Manual.

Proposed Conditions:

The project includes the redevelopment of the site to include four (4) new single-family dwellings, along with driveways, patios, pools, decks, walkways and other incidental site improvements as depicted on the plans. The proposed development also includes a shared driveway which will be 20' wide and provide access to all four lots. This report focuses on two points of concern including direct discharge to the Long Island Sound and discharge to the Long Island Sound via the stormwater conveyance network within the properties to the north as depicted on the Proposed Drainage Basin Exhibit in Appendix B.

Stormwater Management System

The proposed improvements as shown on the associated site plans would result in an increase in impervious coverage of ***6,507 SQ.FT.*** when compared to that which exists today. The proposed development is classified as a redevelopment project with more than 1/2 an acre of disturbance on a direct waterfront property making it ineligible for a drainage exemption and, therefore, must comply with Standards 1 through 5 of the Stamford Stormwater Drainage Manual. To comply with Standard 1, this project needs to provide 100% Water Quality Volume (WQV) via non-structural practices OR infiltration best management practices (BMP's). The design approach chosen is to provide the required water quality volume (WQV) via infiltration BMP's consisting entirely of permeable paver driveways and patios (see "Proposed Stormwater Treatment Practices"). With respect to Standard 2, no increase is being proposed towards the northern property. A waiver is being requested to increase flow towards the Long Island Sound as the increase towards a large water body will have no impact and will not result in adverse impacts to neighboring properties or City owned infrastructure.

Methodology & General Design Criteria

The peak rates of runoff for all storms up to and including the 50-year design storm are proposed to decrease towards neighboring properties located to the north and west. We are requesting a waiver to allow an increase in runoff towards the Long Island Sound. The peak rates of runoff have been mitigated to the greatest extent practical (see "Hydrologic Analysis of Peak Rates of Runoff"). The stormwater mitigation systems have been designed for Type III, 24-hour storm events with storm rainfall amounts, and distributions obtained from the latest NOAA Atlas 14 Point Precipitation Frequency Estimates and Storm Distributions (Appendix A).

Project Classification

The proposed development is classified as a redevelopment project on a Direct Waterfront parcel with directly connected impervious area less than 40%, therefore must comply with Standards 1 through 5 of the Stamford Drainage Manual. To comply with Standard 1, this project must retain 100% of the Water Quality Volume (WQV) via non-structural practices OR infiltration best management practices (BMP's).

Proposed LID Techniques

Low impact development and site planning techniques were used to the maximum extent practicable given the existing constraints of this site. LID techniques utilized include development within areas already developed, limiting the amount of disturbance around the proposed improvements, and minimizing impervious surfaces where possible. The limit of disturbance for the proposed development has been set to allow for the proposed development, while aiming to minimize impact to adjacent trees and vegetation.

Proposed Stormwater Treatment Practices

The design approach chosen to satisfy Standard 1 of the Stamford Drainage Manual is to provide the required water quality volume via subsurface infiltration. These systems are described in detail below. Reference is also made to Appendix D which includes information on water quality volumes, BMP volume, and drawdown times. It shall be noted that all permeable paver systems shall be constructed with the same base profile, however, in accordance with the Stamford Drainage Manual, only portions of the system which are at least 1' above their respective restrictive soil elevations have been modeled and accounted for in terms of water quality and retention volume provided.

- **Lot 1 Porous Driveway** is located north of the proposed residence on Lot 1. It will consist of 4" thick open-joint pavers on a 14" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the northern portion of the roof of the associated dwelling as well as the driveway itself totaling ***2,281± SQ.FT.*** of impervious coverage. The BMP is designed to store ***166± CU.FT.*** of stormwater within the ***300± SQ.FT.*** footprint system and drain within ***12.8± hours***.
- **Lot 2 Porous Driveway** is located north of the proposed residence on Lot 2. It will consist of 4" thick open-joint pavers on a 14" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the northern portion of the roof of the associated dwelling as well as the driveway itself totaling ***2,360± SQ.FT.*** of impervious coverage. The BMP is designed to store ***322± CU.FT.*** of stormwater within the ***650± SQ.FT.*** footprint system and drain within ***11.4± hours***.
- **Lot 3 Porous Driveway** is located north of the proposed residence on Lot 3. It will consist of 4" thick open-joint pavers on a 14" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the northern portion of the roof of the associated dwelling as well as the driveway itself totaling ***2,457± SQ.FT.*** of impervious coverage. The BMP is designed to store ***322± CU.FT.*** of stormwater within the ***650± SQ.FT.*** footprint system and drain within ***11.4± hours***.

- **Lot 4 Porous Driveway** is located northwest of the proposed residence on Lot 4. It will consist of 4" thick open-joint pavers on a 14" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the northern portion of the roof of the associated dwelling, the garage roof, and the driveway itself totaling ***2,681± SQ.FT.*** of impervious coverage. The BMP is designed to store ***536± CU.FT.*** of stormwater within the ***1,070± SQ.FT.*** footprint system and drain within ***11.6± hours***.
- **Lot 1 Permeable Patio** is located south of the proposed residence on Lot 1. It will consist of 4" thick open-joint pavers on a 12" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the southern portion of the roof of the associated dwelling, the pool, and the patio itself totaling ***2,956±*** SQ.FT. of impervious coverage. The BMP is designed to store ***548± CU.FT.*** of stormwater within the ***1,248± SQ.FT.*** footprint system and drain within ***10.1± hours***.
- **Lot 2 Permeable Patio** is located south of the proposed residence on Lot 2. It will consist of 4" thick open-joint pavers on a 12" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the southern portion of the roof of the associated dwelling, the pool, and the patio itself totaling ***2,956± SQ.FT.*** of impervious coverage. The BMP is designed to store ***557± CU.FT.*** of stormwater within the ***1,265± SQ.FT.*** footprint system and drain within ***10.2± hours***.
- **Lot 3 Permeable Patio** is located south of the proposed residence on Lot 3. It will consist of 4" thick open-joint pavers on a 12" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the southern portion of the roof of the associated dwelling, the pool, and the patio itself totaling ***2,956± SQ.FT.*** of impervious coverage. The BMP is designed to store ***557± CU.FT.*** of stormwater within the ***1,265± SQ.FT.*** footprint system and drain within ***10.2± hours***.
- **Lot 4 Permeable Patio** is located south of the proposed residence on Lot 4. It will consist of 4" thick open-joint pavers on a 12" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the southern portion of the roof of the associated dwelling, the pool, and the patio itself totaling ***3,073± SQ.FT.*** of impervious coverage. The BMP is designed to store ***458± CU.FT.*** of stormwater within the ***1,086± SQ.FT.*** footprint system and drain within ***9.7± hours***.
- **Right-of-Way (R.O.W.) Porous Driveway 1** is located in the western side of the proposed common driveway. It will consist of 4" thick open-joint pavers on a 14" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the utility pads, walks, and walls in the right-of-way as well as the driveway itself totaling ***2,735± SQ.FT.*** of impervious coverage. The BMP is designed to store ***1,370± CU.FT.*** of stormwater within the ***2,417± SQ.FT.*** footprint system and drain within ***13.1± hours***.
- **Right-of-Way (R.O.W.) Porous Driveway 2** is located in the center of the proposed common driveway. It will consist of 4" thick open-joint pavers on a 14" deep stone base and will collect, treat, and infiltrate stormwater runoff generated from the walks and walls in the right-of-way as well as the driveway itself totaling ***3,835± SQ.FT.*** of impervious coverage. The BMP is designed to store ***634± CU.FT.*** of stormwater within the ***1,118± SQ.FT.*** footprint system and drain within ***13.1± hours.***

A summary of the Water Quality required and provided by the stormwater practice is provided below:

Standard 1 (Retention and Treatment) Calculations					
Drainage Area ID	**Description**	**Total Area (SF)**	**Impervious Area (SF)**	**WQV Required (CF)**	**Retention Volume Provided (CF)**
Lot 1 Porous Driveway (1PD)	Lot 1 Roof & Driveway	2,664	2,281	182.2	166
Lot 2 Porous Driveway (2PD)	Lot 2 Roof & Driveway	2,875	2,360	189.0	322
Lot 3 Porous Driveway (3PD)	Lot 3 Roof & Driveway	3,030	2,457	196.9	322
Lot 4 Porous Driveway (4PD)	Lot 4 Roof & Driveway	2,985	2,681	213.5	536
Lot 1 Permeable Patio (1PP)	Lot 1 Roof, Pool & Patio	2,956	2,956	234.0	548
Lot 2 Permeable Patio (2PP)	Lot 2 Roof, Pool & Patio	2,956	2,956	234.0	557
Lot 3 Permeable Patio (3PP)	Lot 3 Roof, Pool & Patio	2,956	2,956	234.0	557
Lot 4 Permeable Patio (4PP)	Lot 4 Roof, Pool & Patio	3,073	3,073	243.3	458
R.O.W. Porous Driveway 1 (RPD1)	R.O.W. Improvements	3,517	2,735	219.8	1370
R.O.W. Porous Driveway 2 (RPD2)	R.O.W. Improvements	5,029	3,835	308.6	634
North Bypass (NB)	R.O.W. Areas Captured by Off-Site Area Drains	3,209	270	33.7	-
South Bypass (SB)	Remaining Site	66,354	5,210	667.2	-
TOTAL		**101,604**	**33,770**	**2,956**	**5,470**

Hydrologic Analysis of Peak Rates of Runoff

Hydrologic models have been prepared utilizing the SCS Runoff Curve Number Method from NRCS TR-55 to analyze the pre- and post-development rainfall runoff rates and volumes. Watershed areas, curve numbers (CN), and times of concentration (TC) were calculated for each contributing watershed. The pre-development drainage basin boundaries and the post-development drainage basin boundaries are shown in Appendix B. The results of the HydroCad model used to analyze the pre- and post-development watershed conditions are presented in Appendix E. ***A comparison of the pre- and post-development peak discharge rates is provided in the tables below.***

Links E-SS & P-SS	Storm Sewer Peak Flow (cfs)			
Return Period (years)	Ex (E-SS)	Pr (P-SS)	Change	% Change
1	1.30	0.03	-1.27	-97.7%
2	1.79	0.05	-1.74	-97.2%
5	2.65	0.29	-2.36	-89.1%
10	3.38	0.64	-2.74	-81.1%
25	4.38	0.91	-3.47	-79.2%
50	5.13	1.07	-4.06	-79.1%

Links E-LIS & P-LIS	Long Island Sound Peak Flow (cfs)			
Return Period (years)	Ex (E-LIS)	Pr (P-LIS)	Change	% Change
1	1.44	0.79	-0.65	-45.1%
2	2.16	1.51	-0.65	-30.1%
5	3.45	3.99	0.54	15.7%
10	4.58	6.29	1.71	37.3%
25	6.22	8.62	2.40	38.6%
50	7.46	10.32	2.86	38.3%

Comparison of the peak discharge rates for pre- and post-development watershed conditions demonstrates that the peak rate of runoff from the proposed development towards the northerly property (North Basin) will be decreased from pre-development conditions for all storm events up to and including the 50-year storm. The overall development will decrease the peak rates of runoff for the 1 and 2-year storm events. A waiver is being requested to increase flow towards the Long Island Sound as an increase to a large body of water will not have an impact and will not result in adverse impacts to neighboring properties or City-owned infrastructure. As such, the proposed development will not adversely impact adjacent or downstream properties or City-owned drainage facilities.

Compliance with Stormwater Management Standards

The project site will be designed to meet the Stamford Stormwater Management Standards to the maximum extent practicable as summarized below:

Standard 1: Runoff and Pollutant Reduction

A. The runoff and pollutant reduction requirements for this project are to retain 100% of the WQV on-site using Non-Structural Practices or Infiltration BMP's. The proposed Stormwater Treatment Practice (subsurface infiltration) stores more than the required WQV. See "Proposed Conditions" for a detailed description of the system, its required WQV and provided storage volume.
B. Not Applicable. Stormwater systems retain 100% of WQV.
C. The proposed development has been designed to minimize site disturbance and overall impact on the site by limiting the footprint of construction activities. To prevent impacts to the Long Island Sound, it is proposed to delineate all construction activities with silt fence and install an anti-tracking pad at the construction entrance to prevent polluted runoff from flowing into the Sound.
D. Noted
E. Not required as the development does not contain a parking lot that serves six or more parking spaces.
F. The development considers non-structural practices such as preserving natural areas (beaches), avoiding disturbance on steep slopes along Dolphin Cove Lagoon, and limiting clearing and grubbing to areas already developed.

Standard 2: Peak Flow Control

A. Stream channel protection is not required for this project as the subject development does not propose one or more acres of impervious coverage.
B. The proposed stormwater system is designed to adequately pass flows leading to, from and through it up to and including the 25-year design storm event as required in section 3 of the drainage manual. Refer to the HydroCAD model found in Appendix E.
C. The post-development peak flow rates from the 1-year, 2-year, 5-year, 10-year, 25-year and 50-year, 24-hour storms are controlled to the corresponding pre-development peak discharge rates for the site as described in "Hydraulic Analysis of Peak Rates of Runoff" above. No increase is being proposed towards the northern property. A waiver is being requested to increase flow towards the Long Island Sound as the increase towards a large water body will have no impact and will not result in adverse impacts to neighboring properties or City owned infrastructure. Reference is made to the HydroCAD report found in Appendix E.
D. The ten permeable paver infiltration systems are proposed to overflow to surrounding areas when the systems exceed capacity and no tributary area is piped into the systems. As such, there are no restrictive outlets that could demonstrate a lack of adequate conveyance to pass the 100-year storm runoff.
E. Noted

Standard 3: Construction Erosion and Sediment Control

A. The aforementioned site plans depict erosion control measures to be implemented on the site to control construction related impacts. Sediment and erosion controls such as silt fencing, stone tracking pads at construction zone entrance/exit point, hay bale inlet protection, and silt fence are proposed.

Standard 4: Operation and Maintenance

A. A Standard City of Stamford Drainage Maintenance Agreement will be executed with the Environmental Protection Board (EPB). A draft maintenance agreement has been prepared and is included in Appendix F.
B. The construction plans will include notes describing the long-term maintenance requirements for the site-specific drainage system(s) including routine and non-route inspection and maintenance tasks to be undertaken after construction is completed as well as the schedule for implementing these tasks. This information will be added to the plan set prior to filing for a building permit.

Standard 5: Stormwater Management Report

A. This document and its associated appendices serve as the required Stormwater Management Report.
B. Based on the above information, the proposed improvements are designed in accordance with the City of Stamford Stormwater Drainage Manual and will not adversely impact adjacent or downstream properties or City-owned drainage facilities.

Conclusion:

As noted above, the proposed improvements are designed in accordance with the City of Stamford Stormwater Drainage Manual and will not adversely impact adjacent or downstream properties or City-owned drainage facilities.

Sanitary Sewer Summary

A 12" sanitary sewer main exists within Signal Road flowing north towards Gate House Road. According to City tax records, the existing building is 10,900± SF and has historically functioned as an office. Using the CT Public Health Code guidelines (20 GPD for every 200 SF of office space), the existing sanitary sewer flow from the buildings is estimated at 1,090 GPD (refer to the Sanitary Sewer Capacity Calculations attached in Appendix H). Using a peak factor of 4, the peak sewage flow is 4,360 GPD (0.01 cfs).

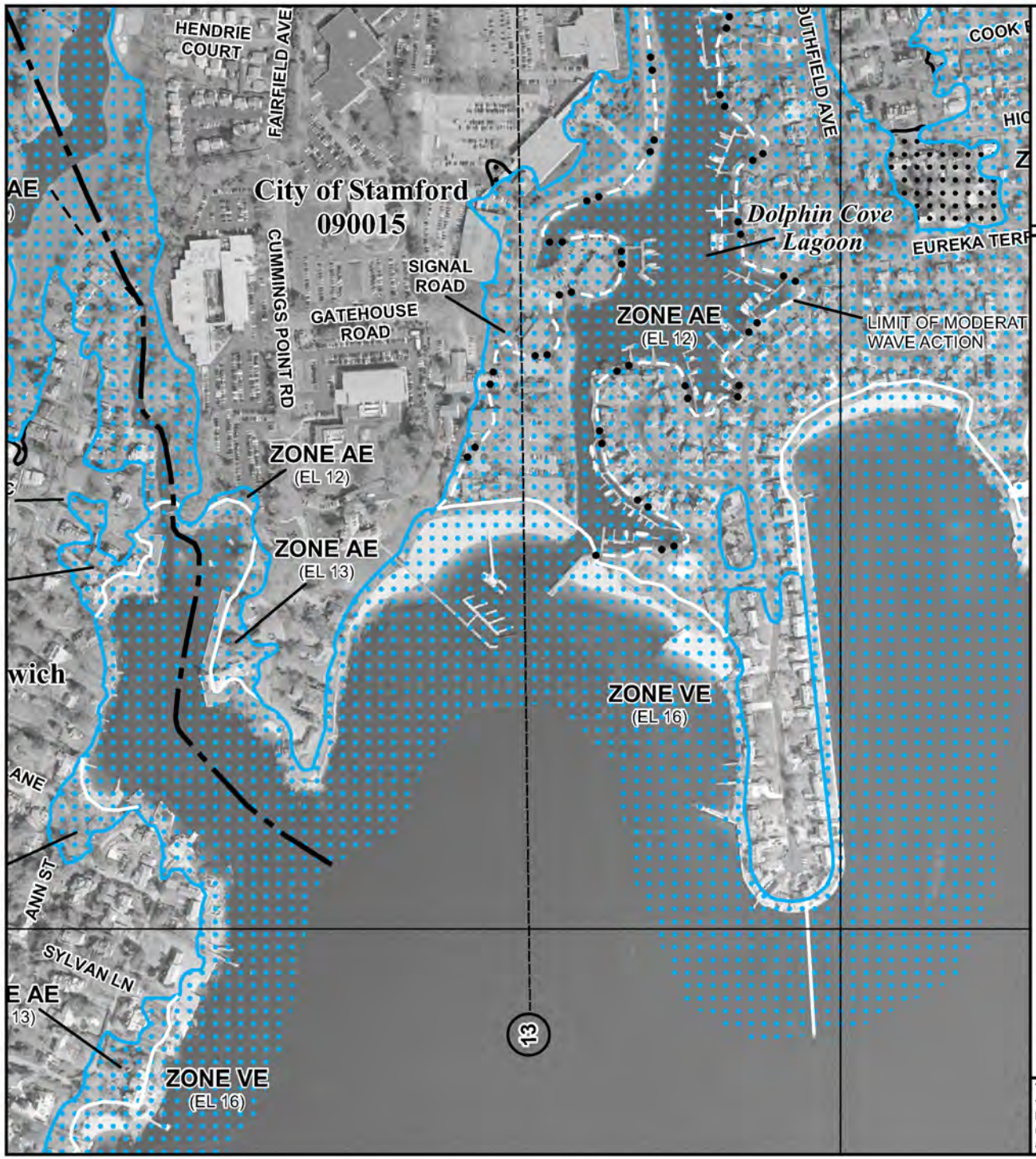
The proposed development would result in the construction of 4 single family 5-bedroom homes. Assuming 150 GPD per bedroom per the CT Public Health Code guidelines, the proposed improvements would result in a total average daily sewage flow of 3,000 GPD. Using a peak factor of 4, the peak sewage flow is estimated at 12,600 GPD (0.02 cfs). Please refer to Appendix 5 for attached calculations.

As part of the development of 43 Gatehouse Road, a visual inspection was conducted on March 10, 2016 in the manhole located at the intersection of Gate House Road and Signal Road. During the inspection, there was minimal flow in the 12" sanitary main that services the properties. The maximum capacity of the 12" sanitary pipe is 1.83 cfs. The total proposed peak flow from the subject property using a peak factor of 4 is 0.02 cfs. The proposed peak sewage flow from the development represents approximately 1% of the maximum capacity of the main. The residential development peak flow is not anticipated to coincide with the peak flow from the surrounding office uses. With the above information in mind, it is our opinion the system can accommodate the proposed development and will not result in adverse impacts to the sanitary sewer system.

Based on the above information, the sanitary sewer system has sufficient capacity to accommodate the proposed development, and with proper implementation of the design drawings, the proposed development will not adversely impact the existing sanitary sewer system.

Appendix A

FEMA Flood Insurance Map
USGS Quadrangle Map – Site Vicinity Map
City of Stamford Rainfall Intensity – Duration Curves
NOAA Atlas 14 Volume 10 – Precipitation Frequency
NRCS Web Soil Survey



MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 M

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0518G

FIRM

FLOOD INSURANCE RATE MAP

FAIRFIELD COUNTY, CONNECTICUT (ALL JURISDICTIONS)

PANEL 518 OF 626

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

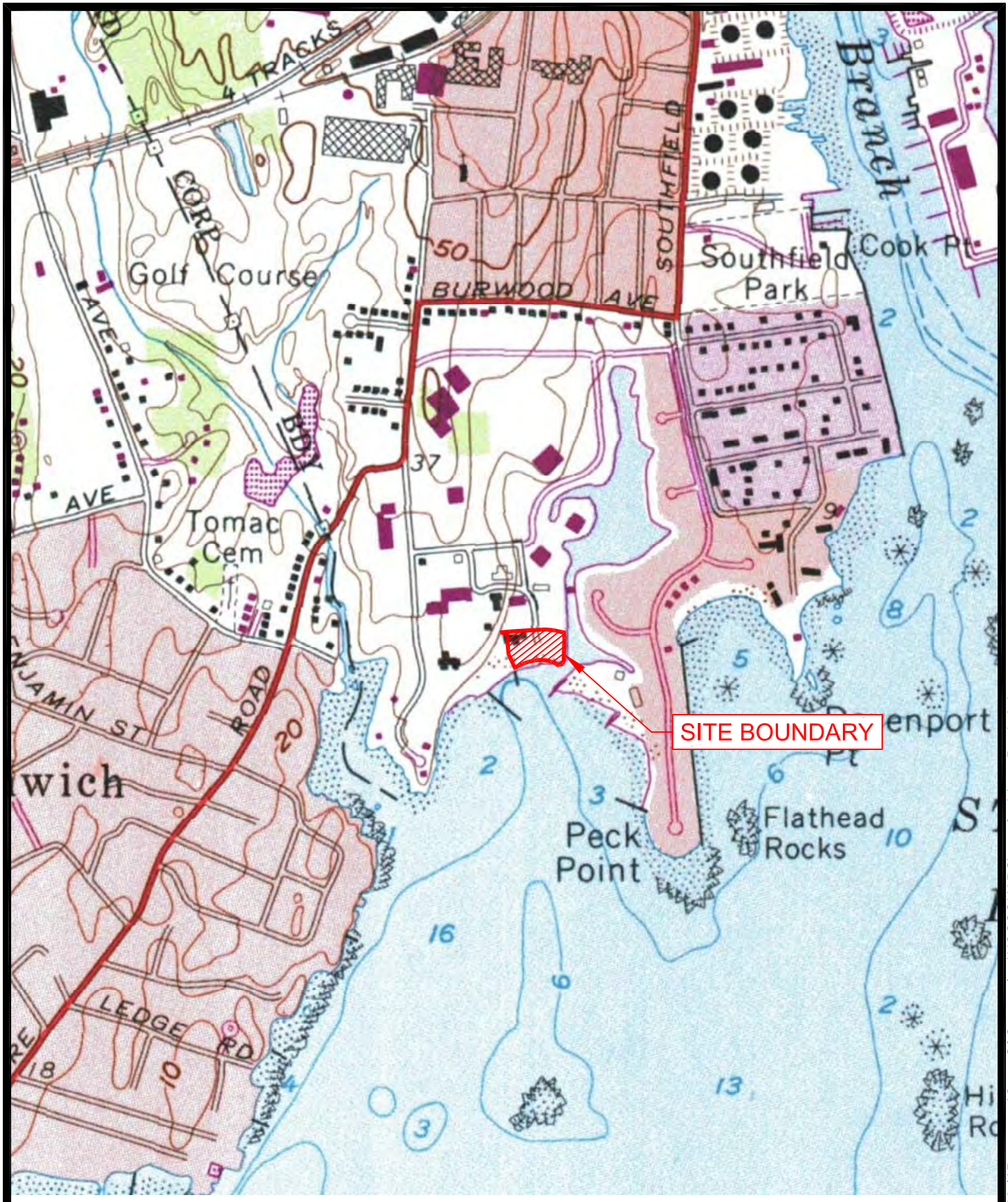
COMMUNITY	NUMBER	PANEL	SUFFIX
GREENWICH, TOWN OF	090008	0518	G
STAMFORD, CITY OF	090015	0518	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
09001C0518G

MAP REVISED
JULY 8, 2013

Federal Emergency Management Agency



USGS QUADRANGLE MAP

40 SIGNAL ROAD

STAMFORD, CT

COMM. NO.: 2008 DATE: 12/21/2022 SCALE: 1"=1,000'

REDNISS & MEAD

12/21/2022 11:19 AM I:\Resources\State Of Connecticut\USGSQUADS\stamford (new Border).dwg

NOAA Atlas 14, Volume 10, Version 3
Location name: Stamford, Connecticut, USA*
Latitude: 41.0266°, Longitude: -73.5515°
Elevation: 8.04 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.364** (0.280-0.466)	**0.425** (0.327-0.545)	**0.525** (0.403-0.675)	**0.608** (0.464-0.784)	**0.723** (0.534-0.964)	**0.810** (0.587-1.10)	**0.899** (0.633-1.25)	**0.997** (0.670-1.42)	**1.13** (0.734-1.66)	**1.24** (0.787-1.86)
10-min	**0.516** (0.397-0.660)	**0.603** (0.463-0.772)	**0.745** (0.571-0.957)	**0.862** (0.657-1.11)	**1.02** (0.757-1.37)	**1.15** (0.831-1.56)	**1.27** (0.897-1.78)	**1.41** (0.948-2.01)	**1.61** (1.04-2.36)	**1.76** (1.12-2.63)
15-min	**0.607** (0.467-0.776)	**0.709** (0.545-0.908)	**0.876** (0.671-1.12)	**1.01** (0.773-1.31)	**1.21** (0.891-1.61)	**1.35** (0.977-1.83)	**1.50** (1.06-2.09)	**1.66** (1.12-2.37)	**1.89** (1.22-2.77)	**2.07** (1.31-3.09)
30-min	**0.848** (0.653-1.09)	**0.992** (0.763-1.27)	**1.23** (0.940-1.58)	**1.42** (1.08-1.83)	**1.69** (1.25-2.25)	**1.89** (1.37-2.57)	**2.10** (1.48-2.93)	**2.33** (1.56-3.32)	**2.64** (1.71-3.87)	**2.88** (1.82-4.30)
60-min	**1.09** (0.839-1.39)	**1.27** (0.980-1.63)	**1.58** (1.21-2.03)	**1.83** (1.40-2.36)	**2.18** (1.61-2.90)	**2.44** (1.77-3.30)	**2.71** (1.90-3.77)	**2.99** (2.01-4.26)	**3.38** (2.19-4.96)	**3.69** (2.33-5.50)
2-hr	**1.42** (1.10-1.80)	**1.67** (1.29-2.12)	**2.08** (1.60-2.65)	**2.42** (1.86-3.10)	**2.89** (2.15-3.83)	**3.25** (2.36-4.38)	**3.62** (2.55-5.01)	**4.01** (2.71-5.68)	**4.57** (2.97-6.65)	**5.01** (3.18-7.42)
3-hr	**1.64** (1.27-2.07)	**1.93** (1.50-2.45)	**2.42** (1.87-3.08)	**2.82** (2.17-3.60)	**3.38** (2.52-4.47)	**3.80** (2.78-5.11)	**4.24** (3.01-5.86)	**4.72** (3.19-6.65)	**5.39** (3.51-7.82)	**5.93** (3.77-8.76)
6-hr	**2.05** (1.61-2.59)	**2.44** (1.91-3.08)	**3.08** (2.40-3.89)	**3.61** (2.79-4.57)	**4.33** (3.25-5.70)	**4.88** (3.59-6.53)	**5.45** (3.90-7.52)	**6.09** (4.13-8.54)	**7.02** (4.58-10.1)	**7.77** (4.96-11.4)
12-hr	**2.52** (1.98-3.15)	**3.01** (2.37-3.77)	**3.82** (2.99-4.80)	**4.49** (3.50-5.66)	**5.42** (4.09-7.09)	**6.11** (4.52-8.14)	**6.85** (4.93-9.41)	**7.69** (5.23-10.7)	**8.91** (5.84-12.8)	**9.93** (6.35-14.5)
24-hr	**2.93** (2.32-3.64)	**3.55** (2.81-4.42)	**4.57** (3.60-5.69)	**5.41** (4.24-6.78)	**6.57** (4.99-8.55)	**7.43** (5.54-9.86)	**8.35** (6.06-11.5)	**9.44** (6.45-13.1)	**11.1** (7.27-15.7)	**12.4** (7.97-18.0)
2-day	**3.28** (2.61-4.04)	**4.03** (3.21-4.98)	**5.27** (4.18-6.53)	**6.30** (4.96-7.84)	**7.71** (5.90-10.0)	**8.76** (6.57-11.6)	**9.90** (7.24-13.6)	**11.3** (7.71-15.5)	**13.3** (8.79-18.9)	**15.1** (9.73-21.7)
3-day	**3.54** (2.83-4.35)	**4.37** (3.49-5.38)	**5.72** (4.55-7.06)	**6.84** (5.41-8.48)	**8.39** (6.44-10.8)	**9.53** (7.17-12.6)	**10.8** (7.90-14.7)	**12.3** (8.42-16.8)	**14.6** (9.61-20.5)	**16.5** (10.6-23.6)
4-day	**3.79** (3.04-4.65)	**4.66** (3.73-5.72)	**6.09** (4.85-7.49)	**7.27** (5.76-8.98)	**8.89** (6.83-11.4)	**10.1** (7.61-13.2)	**11.4** (8.37-15.5)	**13.0** (8.91-17.7)	**15.3** (10.1-21.6)	**17.4** (11.2-24.8)
7-day	**4.51** (3.63-5.51)	**5.45** (4.39-6.66)	**6.99** (5.60-8.56)	**8.27** (6.58-10.2)	**10.0** (7.73-12.8)	**11.3** (8.56-14.8)	**12.7** (9.36-17.1)	**14.4** (9.93-19.5)	**16.9** (11.2-23.6)	**19.0** (12.3-26.9)
10-day	**5.22** (4.22-6.35)	**6.21** (5.01-7.55)	**7.82** (6.28-9.54)	**9.15** (7.31-11.2)	**11.0** (8.50-14.0)	**12.4** (9.36-16.0)	**13.8** (10.2-18.5)	**15.5** (10.7-21.0)	**18.0** (12.0-25.0)	**20.1** (13.0-28.4)
20-day	**7.36** (5.98-8.88)	**8.46** (6.87-10.2)	**10.3** (8.30-12.4)	**11.8** (9.45-14.3)	**13.8** (10.7-17.4)	**15.4** (11.7-19.6)	**17.0** (12.4-22.3)	**18.7** (13.0-25.1)	**21.1** (14.1-29.1)	**23.0** (15.0-32.3)
30-day	**9.12** (7.44-11.0)	**10.3** (8.40-12.4)	**12.3** (9.95-14.8)	**13.9** (11.2-16.8)	**16.1** (12.5-20.1)	**17.8** (13.5-22.6)	**19.5** (14.3-25.4)	**21.3** (14.9-28.4)	**23.6** (15.8-32.4)	**25.4** (16.5-35.5)
45-day	**11.3** (9.26-13.6)	**12.6** (10.3-15.1)	**14.7** (12.0-17.7)	**16.5** (13.3-19.9)	**18.9** (14.7-23.4)	**20.8** (15.8-26.2)	**22.6** (16.5-29.1)	**24.4** (17.1-32.5)	**26.7** (17.9-36.5)	**28.4** (18.5-39.5)
60-day	**13.1** (10.8-15.7)	**14.5** (11.9-17.4)	**16.8** (13.7-20.1)	**18.6** (15.1-22.4)	**21.2** (16.6-26.2)	**23.2** (17.7-29.1)	**25.2** (18.4-32.3)	**27.0** (19.0-35.8)	**29.3** (19.7-39.9)	**30.9** (20.2-42.9)

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

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

Please refer to NOAA Atlas 14 document for more information.

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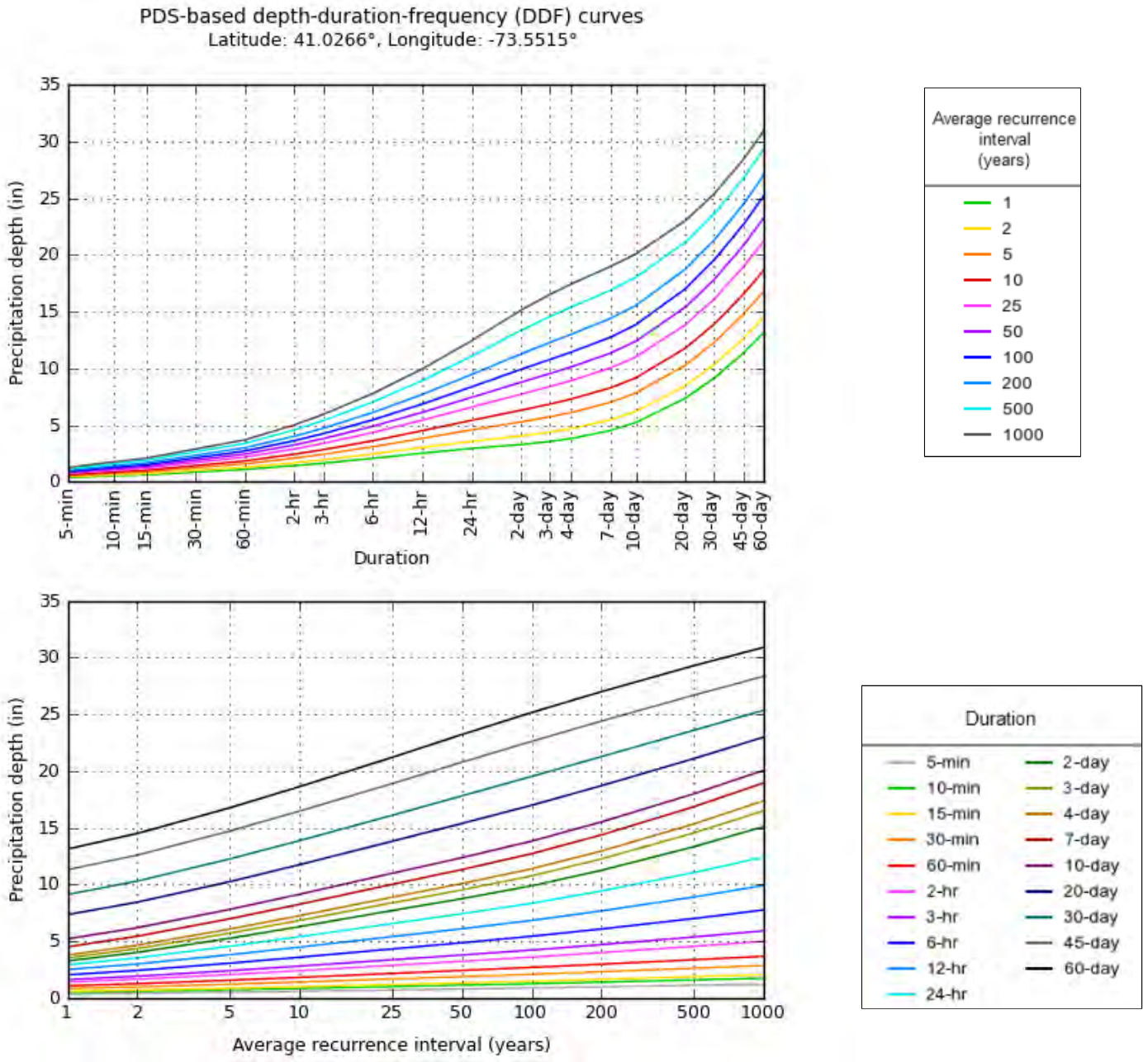
PF graphical



NOAA Atlas 14, Volume 10, Version 3 Created (GMT): Tue Dec 20 11:13:39 2022

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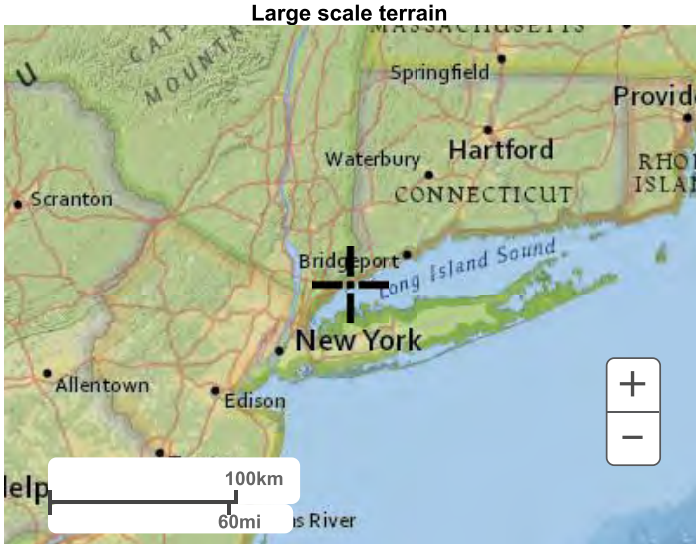
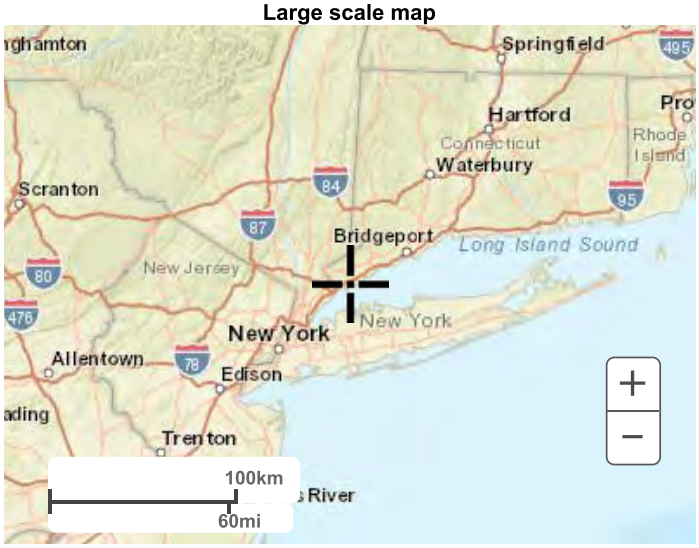
Maps & aerials

Small scale terrain

Large scale terrain



Large scale map



Large scale aerial

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

Disclaimer

Appendix B

Existing On-Site Drainage Basin Map
Proposed On-Site Drainage Basin Map

NORTH – MAP 10183 S.L.R.

DOLPHIN COVE LAGOON

ebb

N/F DOLPHIN COVE ASSOCIATION

MEAN HIGH WATER ELEV=3.4' 8/3/2021

100 LF SHEET FLOW @ 0.008 FPF

NORTH BASIN (N)

SOUTH BASIN (S)

U.G. SEWER

2nd story wood deck

SP

MEAN HIGH WATER ELEV=3.4' 8/3/2021

THREAD NEEDLE LANE (not constructed)

EXISTING CONDITIONS DRAINAGE BASIN MAP

40SIGNAL ROAD

STAMFORD, CT

REDNISS & MEAD

LAND SURVEYING
CIVIL ENGINEERING
PLANNING & ZONING CONSULTING
PERMITTING

22 First Street | Stamford, CT 06905
Tel: 203.327.0500 | Fax: 203.357.1118
www.rednissmead.com

COMM. NO.:	DATE:
2008	12/21/2022
	SCALE: 1" = 40'

12/21/2022 8:37 AM G:\JOBFILES\2000\2000\2008\DWG\2008 Master 2 Subdivision.dwg

NORTH – MAP 10183 S.L.R.

DOLPHIN COVE LAGOON

ebb

N/F DOLPHIN COVE ASSOCIATION

MEAN HIGH WATER ELEV=3.4' 8/3/2021

LOT 4 POROUS DRIVEWAY BASIN (4PD)

LOT 4 PERMEABLE PATIO BASIN (4PP)

NORTH BYPASS BASIN (NB)

LOT 3 POROUS DRIVEWAY BASIN (3PD)

LOT 3 PERMEABLE PATIO BASIN (3PP)

52 LF SHEET FLOW @ 0.035 FPF

22 LF SHALLOW CONCENTRATED FLOW @ 0.064 FPF

68 LF SHALLOW CONCENTRATED FLOW @ 0.012 FPF

R.O.W. POROUS DRIVEWAY 2 BASIN (RPD2)

SOUTH BYPASS BASIN (SB)

LOT 2 POROUS DRIVEWAY BASIN (2PD)

LOT 2 PERMEABLE PATIO BASIN (2PP)

NORTH BYPASS BASIN (NB)

R.O.W. POROUS DRIVEWAY 1 BASIN (RPD1)

LOT 1 POROUS DRIVEWAY BASIN (1PD)

LOT 1 PERMEABLE PATIO BASIN (1PP)

MEAN HIGH WATER ELEV=3.4' 8/3/2021

THREAD NEEDLE LANE (not constructed)

PROPOSED CONDITIONS DRAINAGE BASIN MAP

40 SIGNAL ROAD

STAMFORD, CT

REDNISS & MEAD

LAND SURVEYING
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PLANNING & ZONING CONSULTING
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	SCALE: 1" = 40'

1/27/2023 1:45 PM G:\JOBFILES\2000\2000\2008\DWG\2008 Master 3 Subdivision (Reduced Front Yard).dwg

Appendix C

LID Review Map

LEGEND

- LIMIT OF DISTURBANCE
- TEST PIT LOCATION — TP#X
- WATERSHED TO BMP
- PROPOSED BMP
- STEEP SLOPES
- PROPOSED BUILDING
- IMPERVIOUS AREA
- PERVIOUS AREA
- SURFACE WATER
- FLOODPLAIN

NORTH – MAP 10183 S.L.R.

LAGOON

ebb

FEMA 0900 (LIN

TP#1 TP#2 TP#3 TP#4 TP#5 TP#6 TP#7 TP#8 TP#9 TP#10 TP#11 TP#12 TP#13

ZONE AE–12

ZONE VE–16

LIMIT OF DISTURBANCE:
76,500 SF (1.74 AC)

ZONE AE–12

ZONE X

SP

MEAN HIGH WATER
ELEV=3.4'
8/3/2021

NOTE: ALL SITE SOILS CLASSIFIED AS NRCS HSG B

LOW IMPACT DEVELOPMENT MAP

40 SIGNAL ROAD
STAMFORD, CT

SUMMARY TABLE			
TOTAL SITE AREA	101,604 SF	TOTAL DISTURBED AREA	76,500 SF
PRE-DEVELOPMENT IMPERVIOUS	27,202 SF	POST-DEVELOPMENT IMPERVIOUS	33,770 SF
REQUIRED RETENTION/ TREATMENT VOLUME	2,956.1 CF	PROVIDED RETENTION/ TREATMENT VOLUME	5,470 CF
PRE-DEVELOPMENT DCIA	20,219 SF	POST-DEVELOPMENT DCIA	270 SF
DIFFERENCE IN DCIA		-19,949 SF	

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DATE: 01/27/2023

SCALE: 1" = 40'

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Appendix D

Water Quality Volume Calculations
BMP Volume Calculations
72 Hour Drawdown Calculations

WATER QUALITY VOLUME CALCULATIONS

Project:	*40 Signal Road Subdivision*	**Project #:**	*2008*	**Date:**	*1/27/2023*
Location:	*Stamford, CT*	**By:**	*SPC*	**Checked:**	*TM*

Lot 1 Porous Driveway Basin		
Area=	0.061	acres
Impervious Area=	0.052	acres
I=	0.856	[a]
R=	0.821	[b]
WQV=	0.004	ac. ft. [c]
WQV Required=	**182.2**	**ft.^{3}**
WQV Provided=	**166**	**ft.^{3} [d]**

Lot 1 Permeable Patio Basin		
Area=	0.068	acres
Impervious Area=	0.068	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.005	ac. ft. [c]
WQV Required=	**234.0**	**ft.^{3}**
WQV Provided=	**548**	**ft.^{3} [d]**

Lot 1 Bypass (Included in South Bypass Basin)		
Area=	0.363	acres
Impervious Area=	0.020	acres
I=	0.056	[a]
R=	0.101	[b]
WQV=	0.003	ac. ft. [c]
WQV Required=	**132.6**	**ft.^{3}**

Total Required WQV Lot 1	**548.7**	**ft.^{3}**
Total Provided WQV Lot 1	**714**	**ft.^{3}**

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1

[c] WQV=(1"xRxA)/12; Water Quality Volume, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1. Note Water quality volume defined as the runoff generated by one inch of rainfall on a site.

[d] Taken from the attached HydroCAD report.

WATER QUALITY VOLUME CALCULATIONS

Project:	*40 Signal Road Subdivision*	**Project #:**	*2008*	**Date:**	*1/27/2023*
Location:	*Stamford, CT*	**By:**	*SPC*	**Checked:**	*TM*

Lot 2 Porous Driveway Basin		
Area=	0.066	acres
Impervious Area=	0.054	acres
I=	0.821	[a]
R=	0.789	[b]
WQV=	0.004	ac. ft. [c]
WQV Required=	**189.0**	**ft.^{3}**
WQV Provided=	**322**	**ft.^{3} [d]**

Lot 2 Permeable Patio Basin		
Area=	0.068	acres
Impervious Area=	0.068	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.005	ac. ft. [c]
WQV Required=	**234.0**	**ft.^{3}**
WQV Provided=	**557**	**ft.^{3} [d]**

Lot 2 Bypass (Included in South Bypass Basin)		
Area=	0.344	acres
Impervious Area=	0.029	acres
I=	0.084	[a]
R=	0.125	[b]
WQV=	0.004	ac. ft. [c]
WQV Required=	**156.3**	**ft.^{3}**

Total Required WQV Lot 2	**579.3**	**ft.^{3}**
Total Provided WQV Lot 2	**879**	**ft.^{3}**

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1

[c] WQV=(1"xRxA)/12; Water Quality Volume, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1. Note Water quality volume defined as the runoff generated by one inch of rainfall on a site.

[d] Taken from the attached HydroCAD report.

WATER QUALITY VOLUME CALCULATIONS

Project:	*40 Signal Road Subdivision*	**Project #:**	*2008*	**Date:**	*1/27/2023*
Location:	*Stamford, CT*	**By:**	*SPC*	**Checked:**	*TM*

Lot 3 Porous Driveway Basin		
Area=	0.070	acres
Impervious Area=	0.056	acres
I=	0.811	[a]
R=	0.780	[b]
WQV=	0.005	ac. ft. [c]
WQV Required=	**196.9**	**ft.^{3}**
WQV Provided=	**322**	**ft.^{3} [d]**

Lot 3 Permeable Patio Basin		
Area=	0.068	acres
Impervious Area=	0.068	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.005	ac. ft. [c]
WQV Required=	**234.0**	**ft.^{3}**
WQV Provided=	**557**	**ft.^{3} [d]**

Lot 3 Bypass (Included in South Bypass Basin)		
Area=	0.346	acres
Impervious Area=	0.019	acres
I=	0.054	[a]
R=	0.099	[b]
WQV=	0.003	ac. ft. [c]
WQV Required=	**124.1**	**ft.^{3}**

Total Required WQV Lot 3	**555.0**	**ft.^{3}**
Total Provided WQV Lot 3	**879**	**ft.^{3}**

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1

[c] WQV=(1"xRxA)/12; Water Quality Volume, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1. Note Water quality volume defined as the runoff generated by one inch of rainfall on a site.

[d] Taken from the attached HydroCAD report.

WATER QUALITY VOLUME CALCULATIONS

Project:	*40 Signal Road Subdivision*	**Project #:**	*2008*	**Date:**	*1/27/2023*
Location:	*Stamford, CT*	**By:**	*SPC*	**Checked:**	*TM*

Lot 4 Porous Driveway Basin		
Area=	0.069	acres
Impervious Area=	0.062	acres
I=	0.898	[a]
R=	0.858	[b]
WQV=	0.005	ac. ft. [c]
WQV Required=	**213.5**	**ft.^{3}**
WQV Provided=	**536**	**ft.^{3} [d]**

Lot 4 Permeable Patio Basin		
Area=	0.071	acres
Impervious Area=	0.071	acres
I=	1.000	[a]
R=	0.950	[b]
WQV=	0.006	ac. ft. [c]
WQV Required=	**243.3**	**ft.^{3}**
WQV Provided=	**458**	**ft.^{3} [d]**

Lot 4 Bypass			
	South Bypass	**North Bypass**	
Area=	0.361	0.026	acres
Impervious Area=	0.027	0.000	acres
I=	0.076	0.001	[a]
R=	0.118	0.051	[b]
WQV=	0.004	0.000	ac. ft. [c]
WQV Required=	**154.7**	**4.8**	**ft.^{3}**

Total Required WQV Lot 4	**616.3**	**ft.^{3}**
Total Provided WQV Lot 4	**994**	**ft.^{3}**

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1

[c] WQV=(1"xRxA)/12; Water Quality Volume, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1. Note Water quality volume defined as the runoff generated by one inch of rainfall on a site.

[d] Taken from the attached HydroCAD report.

WATER QUALITY VOLUME CALCULATIONS

Project:	*40 Signal Road Subdivision*	**Project #:**	*2008*	**Date:**	*1/27/2023*
Location:	*Stamford, CT*	**By:**	*SPC*	**Checked:**	*TM*

R.O.W. Porous Driveway 1 Basin		
Area=	0.081	acres
Impervious Area=	0.063	acres
I=	0.778	[a]
R=	0.750	[b]
WQV=	0.005	ac. ft. [c]
WQV Required=	**219.8**	**ft.^{3}**
WQV Provided=	**1,370**	**ft.^{3} [d]**

R.O.W. Porous Driveway 2 Basin		
Area=	0.115	acres
Impervious Area=	0.088	acres
I=	0.763	[a]
R=	0.736	[b]
WQV=	0.007	ac. ft. [c]
WQV Required=	**308.6**	**ft.^{3}**
WQV Provided=	**634**	**ft.^{3} [d]**

R.O.W. Bypass			
	South Bypass	**North Bypass**	
Area=	0.110	0.048	acres
Impervious Area=	0.024	0.006	acres
I=	0.220	0.130	[a]
R=	0.248	0.167	[b]
WQV=	0.002	0.001	ac. ft. [c]
WQV Required=	**99.5**	**28.9**	**ft.^{3}**

Total Required WQV R.O.W.	**656.8 ft.^{3}**
Total Provided WQV R.O.W.	**2,004 ft.^{3}**

[a] I=Percent Impervious Coverage

[b] R=0.05+0.009(I); Volumetric runoff Coefficient, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1

[c] WQV=(1"xRxA)/12; Water Quality Volume, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1. Note Water quality volume defined as the runoff generated by one inch of rainfall on a site.

[d] Taken from the attached HydroCAD report.

Stage-Area-Storage for Pond 1D: Lot 1 Porous Driveway

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
8.30	0	9.36	121
8.32	0	9.38	124
8.34	1	9.40	126
8.36	2	9.42	128
8.38	4	9.44	131
8.40	6	9.46	133
8.42	8	9.48	136
8.44	11	9.50	138
8.46	13	9.52	140
8.48	16	9.54	142
8.50	18	9.56	144
8.52	20	9.58	146
8.54	23	9.60	148
8.56	25	9.62	149
8.58	28	9.64	151
8.60	30	9.66	153
8.62	32	9.68	155
8.64	35	9.70	157
8.66	37	9.72	158
8.68	40	9.74	160
8.70	42	9.76	162
8.72	44	9.78	164
8.74	47	9.80	166
8.76	49	9.82	168
8.78	52	9.84	171
8.80	54	9.86	175
8.82	56	9.88	180
8.84	59	9.90	185
8.86	61	9.92	191
8.88	64	9.94	197
8.90	66	9.96	203
8.92	68	9.98	209
8.94	71	10.00	**215**
8.96	73	10.02	215
8.98	76	10.04	215
9.00	78	10.06	215
9.02	80	10.08	215
9.04	83	10.10	215
9.06	85	10.12	215
9.08	88	10.14	215
9.10	90	10.16	215
9.12	92	10.18	215
9.14	95	10.20	215
9.16	97	10.22	215
9.18	100	10.24	215
9.20	102	10.26	215
9.22	104	10.28	215
9.24	107	10.30	215
9.26	109		
9.28	112		
9.30	114		
9.32	116		
9.34	119		

WQV Provided by Lot 1 Porous Driveway = 166 CU. FT.

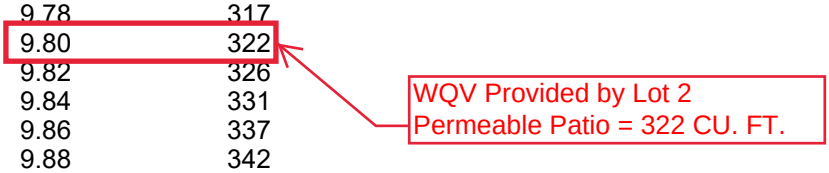
Stage-Area-Storage for Pond 1P: Lot 1 Permeable Patio

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.67	0	8.73	426	9.79	1,299
7.69	0	8.75	436	9.81	1,320
7.71	1	8.77	446	9.83	1,340
7.73	1	8.79	455	9.85	1,361
7.75	2	8.81	465	9.87	1,381
7.77	3	8.83	475	9.89	1,401
7.79	5	8.85	484	9.91	1,421
7.81	6	8.87	494	9.93	1,441
7.83	8	8.89	503	9.95	1,460
7.85	11	8.91	512	9.97	1,480
7.87	13	8.93	522	9.99	1,499
7.89	16	8.95	529	10.01	1,518
7.91	19	8.97	537	10.03	1,537
7.93	27	8.99	544	10.05	1,556
7.95	37	9.01	552	10.07	1,574
7.97	47	9.03	560	10.09	1,593
7.99	57	9.05	568	10.11	1,611
8.01	67	9.07	577	10.13	1,629
8.03	77	9.09	587	10.15	1,647
8.05	87	9.11	596	10.17	1,665
8.07	97	9.13	607	10.19	1,683
8.09	107	9.15	617	10.21	1,700
8.11	117	9.17	629	10.23	1,718
8.13	127	9.19	640	10.25	**1,735**
8.15	137	9.21	652		
8.17	147	9.23	665		
8.19	157	9.25	682		
8.21	167	9.27	707		
8.23	177	9.29	732		
8.25	187	9.31	756		
8.27	197	9.33	781		
8.29	207	9.35	805		
8.31	217	9.37	829		
8.33	227	9.39	853		
8.35	237	9.41	877		
8.37	247	9.43	900		
8.39	257	9.45	924		
8.41	267	9.47	947		
8.43	277	9.49	970		
8.45	287	9.51	993		
8.47	297	9.53	1,016		
8.49	307	9.55	1,039		
8.51	317	9.57	1,062		
8.53	327	9.59	1,084		
8.55	336	9.61	1,106		
8.57	346	9.63	1,128		
8.59	356	9.65	1,150		
8.61	366	9.67	1,172		
8.63	376	9.69	1,193		
8.65	386	9.71	1,215		
8.67	396	9.73	1,236		
8.69	406	9.75	1,257		
8.71	416	9.77	1,278		

WQV Provided by Lot 1
Permeable Patio = 548 CU. FT.
(Outlet Elevation = 9.00)

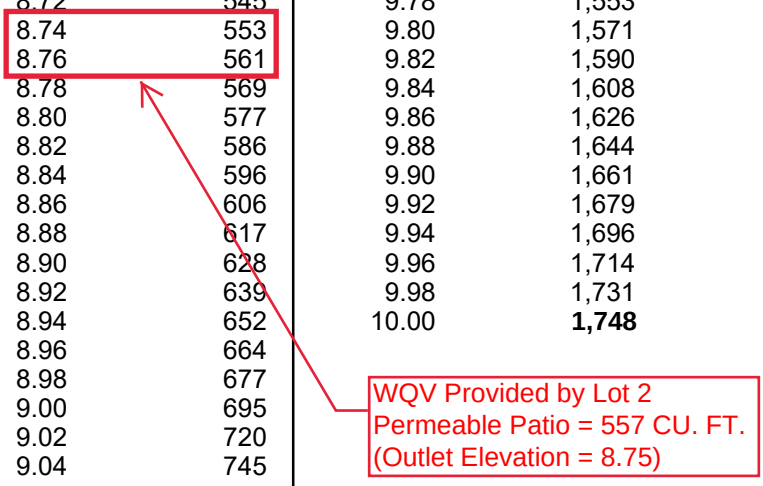
Stage-Area-Storage for Pond 2D: Lot 2 Porous Driveway

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
8.30	0	9.36	211
8.32	0	9.38	216
8.34	0	9.40	221
8.36	1	9.42	226
8.38	2	9.44	231
8.40	3	9.46	237
8.42	4	9.48	242
8.44	5	9.50	247
8.46	7	9.52	252
8.48	8	9.54	257
8.50	10	9.56	262
8.52	13	9.58	267
8.54	15	9.60	272
8.56	18	9.62	277
8.58	20	9.64	282
8.60	23	9.66	287
8.62	27	9.68	292
8.64	30	9.70	297
8.66	34	9.72	302
8.68	38	9.74	307
8.70	42	9.76	312
8.72	46	9.78	317
8.74	50	9.80	322
8.76	55	9.82	326
8.78	60	9.84	331
8.80	65	9.86	337
8.82	70	9.88	342
8.84	75	9.90	348
8.86	81	9.92	353
8.88	86	9.94	359
8.90	91	9.96	365
8.92	96	9.98	372
8.94	101	10.00	378
8.96	107	10.02	385
8.98	112	10.04	393
9.00	117	10.06	401
9.02	122	10.08	409
9.04	127	10.10	418
9.06	133	10.12	427
9.08	138	10.14	437
9.10	143	10.16	447
9.12	148	10.18	457
9.14	153	10.20	468
9.16	159	10.22	479
9.18	164	10.24	490
9.20	169	10.26	502
9.22	174	10.28	515
9.24	179	10.30	**528**
9.26	185		
9.28	190		
9.30	195		
9.32	200		
9.34	205		



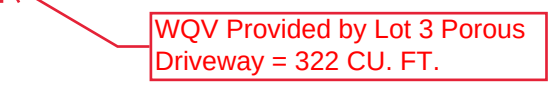
Stage-Area-Storage for Pond 2P: Lot 2 Permeable Patio

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.42	0	8.48	433	9.54	1,316
7.44	0	8.50	443	9.56	1,337
7.46	1	8.52	453	9.58	1,357
7.48	1	8.54	463	9.60	1,378
7.50	2	8.56	473	9.62	1,398
7.52	4	8.58	482	9.64	1,418
7.54	5	8.60	492	9.66	1,437
7.56	7	8.62	502	9.68	1,457
7.58	9	8.64	511	9.70	1,476
7.60	11	8.66	520	9.72	1,496
7.62	14	8.68	530	9.74	1,515
7.64	17	8.70	538	9.76	1,534
7.66	20	8.72	545	9.78	1,553
7.68	29	8.74	553	9.80	1,571
7.70	39	8.76	561	9.82	1,590
7.72	49	8.78	569	9.84	1,608
7.74	59	8.80	577	9.86	1,626
7.76	69	8.82	586	9.88	1,644
7.78	79	8.84	596	9.90	1,661
7.80	90	8.86	606	9.92	1,679
7.82	100	8.88	617	9.94	1,696
7.84	110	8.90	628	9.96	1,714
7.86	120	8.92	639	9.98	1,731
7.88	130	8.94	652	10.00	**1,748**
7.90	140	8.96	664		
7.92	150	8.98	677		
7.94	160	9.00	695		
7.96	171	9.02	720		
7.98	181	9.04	745		
8.00	191	9.06	770		
8.02	201	9.08	795		
8.04	211	9.10	819		
8.06	221	9.12	844		
8.08	231	9.14	868		
8.10	241	9.16	892		
8.12	251	9.18	916		
8.14	262	9.20	940		
8.16	272	9.22	963		
8.18	282	9.24	986		
8.20	292	9.26	1,010		
8.22	302	9.28	1,033		
8.24	312	9.30	1,055		
8.26	322	9.32	1,078		
8.28	332	9.34	1,101		
8.30	343	9.36	1,123		
8.32	353	9.38	1,145		
8.34	363	9.40	1,167		
8.36	373	9.42	1,189		
8.38	383	9.44	1,211		
8.40	393	9.46	1,232		
8.42	403	9.48	1,253		
8.44	413	9.50	1,274		
8.46	423	9.52	1,295		



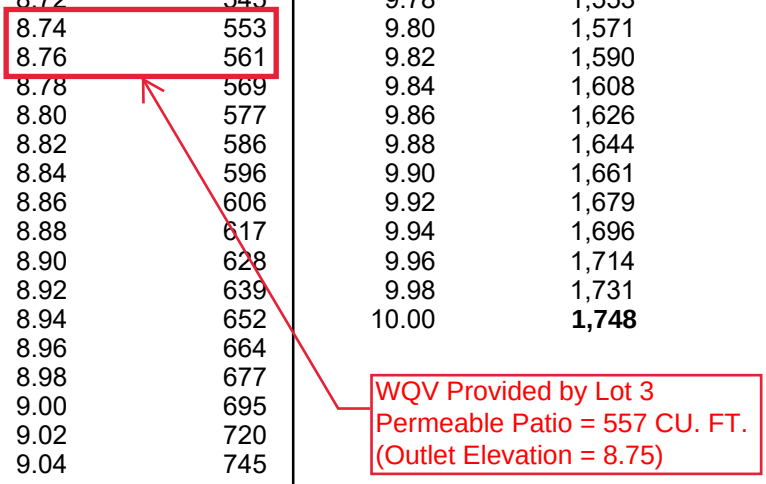
Stage-Area-Storage for Pond 3D: Lot 3 Porous Driveway

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
8.30	0	9.36	211
8.32	0	9.38	216
8.34	0	9.40	221
8.36	1	9.42	226
8.38	2	9.44	231
8.40	3	9.46	237
8.42	4	9.48	242
8.44	5	9.50	247
8.46	7	9.52	252
8.48	8	9.54	257
8.50	10	9.56	262
8.52	13	9.58	267
8.54	15	9.60	272
8.56	18	9.62	277
8.58	20	9.64	282
8.60	23	9.66	287
8.62	27	9.68	292
8.64	30	9.70	297
8.66	34	9.72	302
8.68	38	9.74	307
8.70	42	9.76	312
8.72	46	9.78	317
8.74	50	9.80	322
8.76	55	9.82	326
8.78	60	9.84	331
8.80	65	9.86	337
8.82	70	9.88	342
8.84	75	9.90	348
8.86	81	9.92	353
8.88	86	9.94	359
8.90	91	9.96	365
8.92	96	9.98	372
8.94	101	10.00	378
8.96	107	10.02	385
8.98	112	10.04	393
9.00	117	10.06	401
9.02	122	10.08	409
9.04	127	10.10	418
9.06	133	10.12	427
9.08	138	10.14	437
9.10	143	10.16	447
9.12	148	10.18	457
9.14	153	10.20	468
9.16	159	10.22	479
9.18	164	10.24	490
9.20	169	10.26	502
9.22	174	10.28	515
9.24	179	10.30	**528**
9.26	185		
9.28	190		
9.30	195		
9.32	200		
9.34	205		



Stage-Area-Storage for Pond 3P: Lot 3 Permeable Patio

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.42	0	8.48	433	9.54	1,316
7.44	0	8.50	443	9.56	1,337
7.46	1	8.52	453	9.58	1,357
7.48	1	8.54	463	9.60	1,378
7.50	2	8.56	473	9.62	1,398
7.52	4	8.58	482	9.64	1,418
7.54	5	8.60	492	9.66	1,437
7.56	7	8.62	502	9.68	1,457
7.58	9	8.64	511	9.70	1,476
7.60	11	8.66	520	9.72	1,496
7.62	14	8.68	530	9.74	1,515
7.64	17	8.70	538	9.76	1,534
7.66	20	8.72	545	9.78	1,553
7.68	29	8.74	553	9.80	1,571
7.70	39	8.76	561	9.82	1,590
7.72	49	8.78	569	9.84	1,608
7.74	59	8.80	577	9.86	1,626
7.76	69	8.82	586	9.88	1,644
7.78	79	8.84	596	9.90	1,661
7.80	90	8.86	606	9.92	1,679
7.82	100	8.88	617	9.94	1,696
7.84	110	8.90	628	9.96	1,714
7.86	120	8.92	639	9.98	1,731
7.88	130	8.94	652	10.00	**1,748**
7.90	140	8.96	664		
7.92	150	8.98	677		
7.94	160	9.00	695		
7.96	171	9.02	720		
7.98	181	9.04	745		
8.00	191	9.06	770		
8.02	201	9.08	795		
8.04	211	9.10	819		
8.06	221	9.12	844		
8.08	231	9.14	868		
8.10	241	9.16	892		
8.12	251	9.18	916		
8.14	262	9.20	940		
8.16	272	9.22	963		
8.18	282	9.24	986		
8.20	292	9.26	1,010		
8.22	302	9.28	1,033		
8.24	312	9.30	1,055		
8.26	322	9.32	1,078		
8.28	332	9.34	1,101		
8.30	343	9.36	1,123		
8.32	353	9.38	1,145		
8.34	363	9.40	1,167		
8.36	373	9.42	1,189		
8.38	383	9.44	1,211		
8.40	393	9.46	1,232		
8.42	403	9.48	1,253		
8.44	413	9.50	1,274		
8.46	423	9.52	1,295		



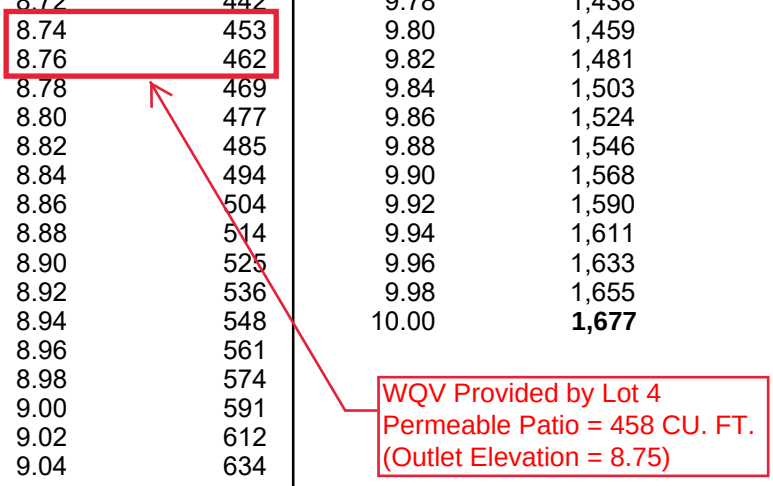
Stage-Area-Storage for Pond 4D: Lot 4 Porous Driveway

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.50	0	8.56	368
7.52	0	8.58	377
7.54	1	8.60	385
7.56	2	8.62	394
7.58	3	8.64	402
7.60	5	8.66	411
7.62	8	8.68	419
7.64	10	8.70	428
7.66	14	8.72	436
7.68	17	8.74	444
7.70	21	8.76	452
7.72	26	8.78	460
7.74	31	8.80	468
7.76	36	8.82	475
7.78	42	8.84	483
7.80	48	8.86	490
7.82	55	8.88	497
7.84	62	8.90	504
7.86	69	8.92	511
7.88	77	8.94	517
7.90	86	8.96	524
7.92	94	8.98	530
7.94	103	9.00	536
7.96	111	9.02	543
7.98	120	9.04	550
8.00	128	9.06	559
8.02	137	9.08	568
8.04	146	9.10	578
8.06	154	9.12	589
8.08	163	9.14	601
8.10	171	9.16	613
8.12	180	9.18	626
8.14	188	9.20	640
8.16	197	9.22	654
8.18	205	9.24	669
8.20	214	9.26	685
8.22	223	9.28	702
8.24	231	9.30	719
8.26	240	9.32	738
8.28	248	9.34	756
8.30	257	9.36	776
8.32	265	9.38	796
8.34	274	9.40	**817**
8.36	282	9.42	817
8.38	291	9.44	817
8.40	300	9.46	817
8.42	308	9.48	817
8.44	317	9.50	817
8.46	325		
8.48	334		
8.50	342		
8.52	351		
8.54	360		

WQV Provided by Lot 4 Porous Driveway = 536 CU. FT.

Stage-Area-Storage for Pond 4P: Lot 4 Permeable Patio

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.42	0	8.48	342	9.54	1,177
7.44	0	8.50	349	9.56	1,199
7.46	1	8.52	356	9.58	1,220
7.48	2	8.54	363	9.60	1,242
7.50	3	8.56	370	9.62	1,264
7.52	4	8.58	377	9.64	1,286
7.54	6	8.60	385	9.66	1,307
7.56	8	8.62	393	9.68	1,329
7.58	11	8.64	401	9.70	1,351
7.60	14	8.66	409	9.72	1,372
7.62	17	8.68	419	9.74	1,394
7.64	21	8.70	431	9.76	1,416
7.66	25	8.72	442	9.78	1,438
7.68	32	8.74	453	9.80	1,459
7.70	41	8.76	462	9.82	1,481
7.72	50	8.78	469	9.84	1,503
7.74	58	8.80	477	9.86	1,524
7.76	67	8.82	485	9.88	1,546
7.78	76	8.84	494	9.90	1,568
7.80	84	8.86	504	9.92	1,590
7.82	93	8.88	514	9.94	1,611
7.84	102	8.90	525	9.96	1,633
7.86	110	8.92	536	9.98	1,655
7.88	119	8.94	548	10.00	**1,677**
7.90	128	8.96	561		
7.92	136	8.98	574		
7.94	145	9.00	591		
7.96	154	9.02	612		
7.98	162	9.04	634		
8.00	170	9.06	656		
8.02	179	9.08	677		
8.04	187	9.10	699		
8.06	195	9.12	721		
8.08	203	9.14	743		
8.10	211	9.16	764		
8.12	218	9.18	786		
8.14	226	9.20	808		
8.16	234	9.22	829		
8.18	241	9.24	851		
8.20	248	9.26	873		
8.22	256	9.28	895		
8.24	263	9.30	916		
8.26	270	9.32	938		
8.28	277	9.34	960		
8.30	284	9.36	981		
8.32	290	9.38	1,003		
8.34	297	9.40	1,025		
8.36	304	9.42	1,047		
8.38	310	9.44	1,068		
8.40	316	9.46	1,090		
8.42	323	9.48	1,112		
8.44	329	9.50	1,134		
8.46	335	9.52	1,155		



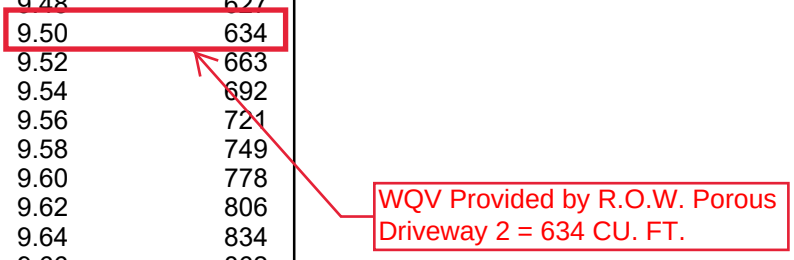
Stage-Area-Storage for Pond RD1: R.O.W. Porous Driveway 1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
10.50	0	11.56	1,025	12.62	2,824
10.52	19	11.58	1,044	12.64	2,871
10.54	39	11.60	1,063	12.66	2,917
10.56	58	11.62	1,083	12.68	2,964
10.58	77	11.64	1,102	12.70	3,011
10.60	97	11.66	1,121	12.72	3,058
10.62	116	11.68	1,138	12.74	3,105
10.64	135	11.70	1,153	12.76	3,152
10.66	155	11.72	1,167	12.78	3,199
10.68	174	11.74	1,182	12.80	3,246
10.70	193	11.76	1,196	12.82	3,293
10.72	213	11.78	1,211	12.84	3,339
10.74	232	11.80	1,225	12.86	3,386
10.76	251	11.82	1,240	12.88	3,433
10.78	271	11.84	1,254	12.90	3,480
10.80	290	11.86	1,269	12.92	3,527
10.82	309	11.88	1,283	12.94	3,574
10.84	329	11.90	1,298	12.96	3,621
10.86	348	11.92	1,312	12.98	3,668
10.88	367	11.94	1,327	13.00	**3,714**
10.90	387	11.96	1,341		
10.92	406	11.98	1,356		
10.94	425	12.00	1,370		
10.96	445	12.02	1,417		
10.98	464	12.04	1,464		
11.00	483	12.06	1,511		
11.02	503	12.08	1,558		
11.04	522	12.10	1,605		
11.06	541	12.12	1,652		
11.08	561	12.14	1,699		
11.10	580	12.16	1,745		
11.12	599	12.18	1,792		
11.14	619	12.20	1,839		
11.16	638	12.22	1,886		
11.18	657	12.24	1,933		
11.20	677	12.26	1,980		
11.22	696	12.28	2,027		
11.24	715	12.30	2,074		
11.26	735	12.32	2,121		
11.28	754	12.34	2,167		
11.30	773	12.36	2,214		
11.32	793	12.38	2,261		
11.34	812	12.40	2,308		
11.36	831	12.42	2,355		
11.38	851	12.44	2,402		
11.40	870	12.46	2,449		
11.42	889	12.48	2,496		
11.44	909	12.50	2,542		
11.46	928	12.52	2,589		
11.48	947	12.54	2,636		
11.50	967	12.56	2,683		
11.52	986	12.58	2,730		
11.54	1,005	12.60	2,777		

WQV Provided by R.O.W. Porous Driveway 1 = 1,370 CU. FT.

Stage-Area-Storage for Pond RD2: R.O.W. Porous Driveway 2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
8.00	0	9.06	474	10.12	1,471
8.02	9	9.08	483	10.14	1,495
8.04	18	9.10	492	10.16	1,520
8.06	27	9.12	501	10.18	1,545
8.08	36	9.14	510	10.20	1,569
8.10	45	9.16	519	10.22	1,593
8.12	54	9.18	527	10.24	1,618
8.14	63	9.20	533	10.26	1,642
8.16	72	9.22	540	10.28	1,666
8.18	80	9.24	547	10.30	1,689
8.20	89	9.26	553	10.32	1,713
8.22	98	9.28	560	10.34	1,736
8.24	107	9.30	567	10.36	1,760
8.26	116	9.32	574	10.38	1,783
8.28	125	9.34	580	10.40	1,806
8.30	134	9.36	587	10.42	1,829
8.32	143	9.38	594	10.44	1,852
8.34	152	9.40	600	10.46	1,875
8.36	161	9.42	607	10.48	1,897
8.38	170	9.44	614	10.50	**1,920**
8.40	179	9.46	620		
8.42	188	9.48	627		
8.44	197	9.50	634		
8.46	206	9.52	663		
8.48	215	9.54	692		
8.50	224	9.56	721		
8.52	233	9.58	749		
8.54	241	9.60	778		
8.56	250	9.62	806		
8.58	259	9.64	834		
8.60	268	9.66	862		
8.62	277	9.68	890		
8.64	286	9.70	918		
8.66	295	9.72	946		
8.68	304	9.74	973		
8.70	313	9.76	1,000		
8.72	322	9.78	1,028		
8.74	331	9.80	1,055		
8.76	340	9.82	1,082		
8.78	349	9.84	1,109		
8.80	358	9.86	1,135		
8.82	367	9.88	1,162		
8.84	376	9.90	1,188		
8.86	385	9.92	1,215		
8.88	394	9.94	1,241		
8.90	402	9.96	1,267		
8.92	411	9.98	1,293		
8.94	420	10.00	1,319		
8.96	429	10.02	1,344		
8.98	438	10.04	1,370		
9.00	447	10.06	1,395		
9.02	456	10.08	1,420		
9.04	465	10.10	1,446		



72-Hour Draw Down Calculations

Project: *40 Signal Road*	**Project #:** *2008*	**Date:** *1/27/2023*
Location: *Stamford, CT*	**By:** *SPC*	**Checked:** *TM*

Porous Driveway Draw Down Calculation

Lot 1 Porous Driveway (1PD)		
Surface Area of Infiltration System (SA)	300	ft^2
Volume of Storage of Infiltration System (VS)	166.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	6.64	in^a
Time of Draw Down	**12.77**	**hr^b**

Lot 2 Porous Driveway (2PD)		
Surface Area of Infiltration System (SA)	650	ft^2
Volume of Storage of Infiltration System (VS)	322.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	5.94	in^a
Time of Draw Down	**11.43**	**hr^b**

Lot 3 Porous Driveway (3PD)		
Surface Area of Infiltration System (SA)	650	ft^2
Volume of Storage of Infiltration System (VS)	322.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	5.94	in^a
Time of Draw Down	**11.43**	**hr^b**

Lot 4 Porous Driveway (4PD)		
Surface Area of Infiltration System (SA)	1,070	ft^2
Volume of Storage of Infiltration System (VS)	536.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	6.01	in^a
Time of Draw Down	**11.56**	**hr^b**

[a] Theoretical Water Column Height (WCH) = VS/SA*12

[b] Time of Draw Down = WCH/IR

[c] Infiltration Rate (IR) taken from the City of Stamford Stormwater Drainage Manual Table 5-1 for NRCS HSG-B Loam.

72-Hour Draw Down Calculations

Project: *40 Signal Road*	**Project #:** *2008*	**Date:** *1/27/2023*
Location: *Stamford, CT*	**By:** *SPC*	**Checked:** *TM*

Permeable Patio Draw Down Calculation

Lot 1 Permeable Patio (1PP)		
Surface Area of Infiltration System (SA)	1,248	ft^2
Volume of Storage of Infiltration System (VS)	548.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	5.27	in^a
Time of Draw Down	**10.13**	**hr^b**

Lot 2 Permeable Patio (2PP)		
Surface Area of Infiltration System (SA)	1,265	ft^2
Volume of Storage of Infiltration System (VS)	557.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	5.28	in^a
Time of Draw Down	**10.16**	**hr^b**

Lot 3 Permeable Patio (3PP)		
Surface Area of Infiltration System (SA)	1,265	ft^2
Volume of Storage of Infiltration System (VS)	557.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	5.28	in^a
Time of Draw Down	**10.16**	**hr^b**

Lot 4 Permeable Patio (4PP)		
Surface Area of Infiltration System (SA)	1,086	ft^2
Volume of Storage of Infiltration System (VS)	458.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	5.06	in^a
Time of Draw Down	**9.73**	**hr^b**

[a] Theoretical Water Column Height (WCH) = VS/SA*12

[b] Time of Draw Down = WCH/IR

[c] Infiltration Rate (IR) taken from the City of Stamford Stormwater Drainage Manual Table 5-1 for NRCS HSG-B Loam.

72-Hour Draw Down Calculations

Project: *40 Signal Road*	**Project #:** *2008*	**Date:** *1/27/2023*
Location: *Stamford, CT*	**By:** *SPC*	**Checked:** *TM*

R.O.W. Porous Driveway Draw Down Calculation

R.O.W. Porous Driveway 1 (RD1)		
Surface Area of Infiltration System (SA)	2,417	ft^2
Volume of Storage of Infiltration System (VS)	1,370.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	6.80	in^a
Time of Draw Down	**13.08**	**hr^b**

R.O.W. Porous Driveway 2 (RD2)		
Surface Area of Infiltration System (SA)	1,118	ft^2
Volume of Storage of Infiltration System (VS)	634.0	ft^3
Infiltration Rate (IR)	0.52	in/hr^c
Theoretical Water Column Height	6.81	in^a
Time of Draw Down	**13.09**	**hr^b**

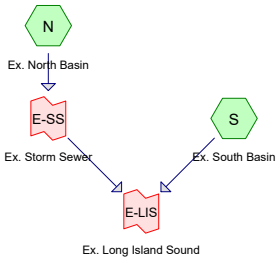
[a] Theoretical Water Column Height (WCH) = VS/SA*12

[b] Time of Draw Down = WCH/IR

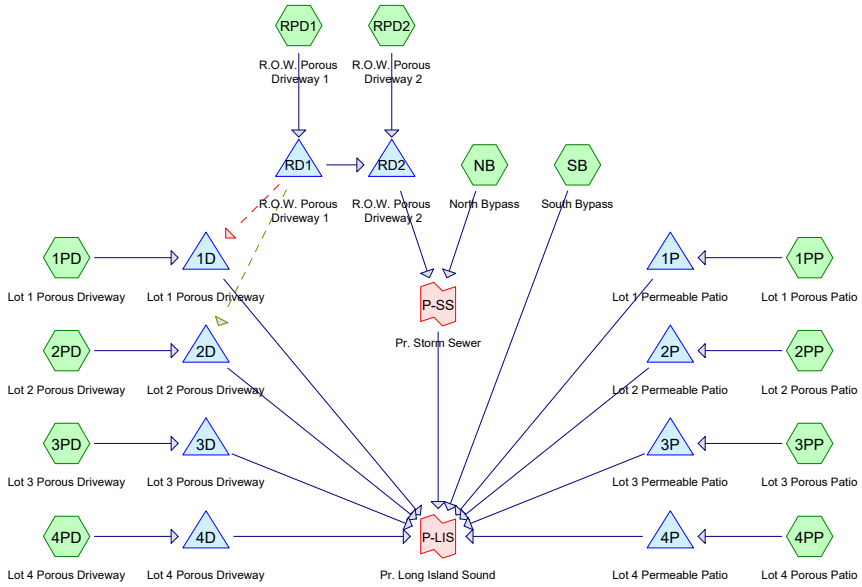
[c] Infiltration Rate (IR) taken from the City of Stamford Stormwater Drainage Manual Table 5-1 for NRCS HSG-B Loam.

Appendix E

HydroCAD Report



EXISTING



PROPOSED

Subcat Reach Pond Link

Routing Diagram for 2008 HydroCAD (2023-01-27)
Prepared by Redniss & Mead, Inc., Printed 1/27/2023

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.93	2
2	2-Year	Type III 24-hr		Default	24.00	1	3.55	2
3	5-Year	Type III 24-hr		Default	24.00	1	4.57	2
4	10-Year	Type III 24-hr		Default	24.00	1	5.41	2
5	25-Year	Type III 24-hr		Default	24.00	1	6.57	2
6	50-Year	Type III 24-hr		Default	24.00	1	7.43	2
7	100-Year	Type III 24-hr		Default	24.00	1	8.35	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
13,587	61.00	Lot 1 >75% Grass cover, Good, HSG B (1PD, N, S, SB)
15,906	68.00	Lot 1 Beach (S, SB)
11,532	98.00	Lot 1 Impervious (1PD, 1PP, N, S, SB)
675	100.00	Lot 1 Pool (1PP)
13,672	61.00	Lot 2 >75% Grass cover, Good, HSG B (2PD, N, S, SB)
14,298	68.00	Lot 2 Beach (S, SB)
11,847	98.00	Lot 2 Impervious (2PD, 2PP, N, S, SB)
675	100.00	Lot 2 Pool (2PP)
20,794	61.00	Lot 3 >75% Grass cover, Good, HSG B (3PD, N, S, SB)
13,362	68.00	Lot 3 Beach (S, SB)
5,719	98.00	Lot 3 Impervious (3PD, 3PP, N, S, SB)
675	100.00	Lot 3 Pool (3PP)
30,861	61.00	Lot 4 >75% Grass cover, Good, HSG B (4PD, N, NB, S, SB)
4,916	68.00	Lot 4 Beach (S, SB)
9,352	98.00	Lot 4 Impervious (4PD, 4PP, N, S, SB)
675	100.00	Lot 4 Pool (4PP)
14,840	61.00	R.O.W. >75% Grass cover, Good, HSG B (1PD, 2PD, 3PD, N, NB, RPD1, RPD2, S, SB)
19,822	98.00	R.O.W. Impervious (1PD, 2PD, 3PD, N, NB, RPD1, RPD2, SB)
203,208	**73.80**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PD: Lot 1 Porous Driveway Runoff Area=2,664 sf 85.62% Impervious Runoff Depth>2.16"
Tc=5.0 min CN=92.68 Runoff=0.16 cfs 479 cf

Subcatchment 1PP: Lot 1 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=98.46 Runoff=0.20 cfs 677 cf

Subcatchment 2PD: Lot 2 Porous Driveway Runoff Area=2,875 sf 82.09% Impervious Runoff Depth>2.04"
Tc=5.0 min CN=91.37 Runoff=0.16 cfs 488 cf

Subcatchment 2PP: Lot 2 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=98.46 Runoff=0.20 cfs 677 cf

Subcatchment 3PD: Lot 3 Porous Driveway Runoff Area=3,030 sf 81.09% Impervious Runoff Depth>2.00"
Tc=5.0 min CN=91.00 Runoff=0.17 cfs 506 cf

Subcatchment 3PP: Lot 3 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=98.46 Runoff=0.20 cfs 677 cf

Subcatchment 4PD: Lot 4 Porous Driveway Runoff Area=2,985 sf 89.82% Impervious Runoff Depth>2.30"
Tc=5.0 min CN=94.23 Runoff=0.18 cfs 573 cf

Subcatchment 4PP: Lot 4 Porous Patio Runoff Area=3,073 sf 100.00% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=98.44 Runoff=0.21 cfs 703 cf

Subcatchment N: Ex. North Basin Runoff Area=35,355 sf 57.19% Impervious Runoff Depth>1.33"
Tc=5.0 min CN=82.16 Runoff=1.30 cfs 3,928 cf

Subcatchment NB: North Bypass Runoff Area=3,209 sf 8.41% Impervious Runoff Depth>0.44"
Tc=5.0 min CN=64.11 Runoff=0.03 cfs 118 cf

Subcatchment RPD1: R.O.W. Porous Runoff Area=3,517 sf 77.77% Impervious Runoff Depth>1.90"
Tc=5.0 min CN=89.77 Runoff=0.18 cfs 557 cf

Subcatchment RPD2: R.O.W. Porous Runoff Area=5,029 sf 76.26% Impervious Runoff Depth>1.85"
Tc=5.0 min CN=89.22 Runoff=0.26 cfs 777 cf

Subcatchment S: Ex. South Basin Runoff Area=66,249 sf 10.54% Impervious Runoff Depth>0.57"
Flow Length=100' Slope=0.0080 '/' Tc=19.8 min CN=67.46 Runoff=0.54 cfs 3,121 cf

Subcatchment SB: South Bypass Runoff Area=66,354 sf 7.85% Impervious Runoff Depth>0.53"
Flow Length=140' Tc=9.0 min CN=66.46 Runoff=0.64 cfs 2,919 cf

Pond 1D: Lot 1 Porous Driveway Peak Elev=9.88' Storage=179 cf Inflow=0.16 cfs 479 cf
Outflow=0.14 cfs 312 cf

Pond 1P: Lot 1 Permeable Patio Peak Elev=9.00' Storage=548 cf Inflow=0.20 cfs 677 cf
Outflow=0.01 cfs 129 cf

Pond 2D: Lot 2 Porous Driveway Peak Elev=9.83' Storage=328 cf Inflow=0.16 cfs 488 cf
Outflow=0.01 cfs 165 cf

Pond 2P: Lot 2 Permeable Patio Peak Elev=8.75' Storage=557 cf Inflow=0.20 cfs 677 cf
Outflow=0.01 cfs 120 cf

Pond 3D: Lot 3 Porous Driveway Peak Elev=9.83' Storage=329 cf Inflow=0.17 cfs 506 cf
Outflow=0.01 cfs 183 cf

Pond 3P: Lot 3 Permeable Patio Peak Elev=8.75' Storage=557 cf Inflow=0.20 cfs 677 cf
Outflow=0.01 cfs 120 cf

Pond 4D: Lot 4 Porous Driveway Peak Elev=9.00' Storage=536 cf Inflow=0.18 cfs 573 cf
Outflow=0.00 cfs 37 cf

Pond 4P: Lot 4 Permeable Patio Peak Elev=8.76' Storage=461 cf Inflow=0.21 cfs 703 cf
Outflow=0.05 cfs 244 cf

Pond RD1: R.O.W. Porous Driveway 1 Peak Elev=11.08' Storage=557 cf Inflow=0.18 cfs 557 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond RD2: R.O.W. Porous Driveway 2 Peak Elev=9.50' Storage=635 cf Inflow=0.26 cfs 777 cf
Outflow=0.01 cfs 142 cf

Link E-LIS: Ex. Long Island Sound Inflow=1.44 cfs 7,049 cf
Primary=1.44 cfs 7,049 cf

Link E-SS: Ex. Storm Sewer Inflow=1.30 cfs 3,928 cf
Primary=1.30 cfs 3,928 cf

Link P-LIS: Pr. Long Island Sound Inflow=0.79 cfs 4,490 cf
Primary=0.79 cfs 4,490 cf

Link P-SS: Pr. Storm Sewer Inflow=0.03 cfs 261 cf
Primary=0.03 cfs 261 cf

Total Runoff Area = 203,208 sf Runoff Volume = 16,200 cf Average Runoff Depth = 0.96"
70.00% Pervious = 142,236 sf 30.00% Impervious = 60,972 sf

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PD: Lot 1 Porous Driveway Runoff Area=2,664 sf 85.62% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=92.68 Runoff=0.20 cfs 610 cf

Subcatchment 1PP: Lot 1 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>3.37"
Tc=5.0 min CN=98.46 Runoff=0.24 cfs 829 cf

Subcatchment 2PD: Lot 2 Porous Driveway Runoff Area=2,875 sf 82.09% Impervious Runoff Depth>2.62"
Tc=5.0 min CN=91.37 Runoff=0.20 cfs 628 cf

Subcatchment 2PP: Lot 2 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>3.37"
Tc=5.0 min CN=98.46 Runoff=0.24 cfs 829 cf

Subcatchment 3PD: Lot 3 Porous Driveway Runoff Area=3,030 sf 81.09% Impervious Runoff Depth>2.59"
Tc=5.0 min CN=91.00 Runoff=0.21 cfs 653 cf

Subcatchment 3PP: Lot 3 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>3.37"
Tc=5.0 min CN=98.46 Runoff=0.24 cfs 829 cf

Subcatchment 4PD: Lot 4 Porous Driveway Runoff Area=2,985 sf 89.82% Impervious Runoff Depth>2.91"
Tc=5.0 min CN=94.23 Runoff=0.23 cfs 723 cf

Subcatchment 4PP: Lot 4 Porous Patio Runoff Area=3,073 sf 100.00% Impervious Runoff Depth>3.36"
Tc=5.0 min CN=98.44 Runoff=0.25 cfs 862 cf

Subcatchment N: Ex. North Basin Runoff Area=35,355 sf 57.19% Impervious Runoff Depth>1.83"
Tc=5.0 min CN=82.16 Runoff=1.79 cfs 5,405 cf

Subcatchment NB: North Bypass Runoff Area=3,209 sf 8.41% Impervious Runoff Depth>0.73"
Tc=5.0 min CN=64.11 Runoff=0.05 cfs 196 cf

Subcatchment RPD1: R.O.W. Porous Runoff Area=3,517 sf 77.77% Impervious Runoff Depth>2.47"
Tc=5.0 min CN=89.77 Runoff=0.24 cfs 724 cf

Subcatchment RPD2: R.O.W. Porous Runoff Area=5,029 sf 76.26% Impervious Runoff Depth>2.42"
Tc=5.0 min CN=89.22 Runoff=0.33 cfs 1,015 cf

Subcatchment S: Ex. South Basin Runoff Area=66,249 sf 10.54% Impervious Runoff Depth>0.90"
Flow Length=100' Slope=0.0080 '/' Tc=19.8 min CN=67.46 Runoff=0.96 cfs 4,952 cf

Subcatchment SB: South Bypass Runoff Area=66,354 sf 7.85% Impervious Runoff Depth>0.85"
Flow Length=140' Tc=9.0 min CN=66.46 Runoff=1.18 cfs 4,693 cf

Pond 1D: Lot 1 Porous Driveway Peak Elev=9.89' Storage=182 cf Inflow=0.20 cfs 610 cf
Outflow=0.19 cfs 444 cf

Pond 1P: Lot 1 Permeable Patio Peak Elev=9.01' Storage=550 cf Inflow=0.24 cfs 829 cf
Outflow=0.05 cfs 282 cf

Pond 2D: Lot 2 Porous Driveway Peak Elev=9.86' Storage=336 cf Inflow=0.20 cfs 628 cf
Outflow=0.07 cfs 305 cf

Pond 2P: Lot 2 Permeable Patio Peak Elev=8.75' Storage=558 cf Inflow=0.24 cfs 829 cf
Outflow=0.05 cfs 272 cf

Pond 3D: Lot 3 Porous Driveway Peak Elev=9.86' Storage=337 cf Inflow=0.21 cfs 653 cf
Outflow=0.08 cfs 329 cf

Pond 3P: Lot 3 Permeable Patio Peak Elev=8.75' Storage=558 cf Inflow=0.24 cfs 829 cf
Outflow=0.05 cfs 272 cf

Pond 4D: Lot 4 Porous Driveway Peak Elev=9.00' Storage=537 cf Inflow=0.23 cfs 723 cf
Outflow=0.01 cfs 187 cf

Pond 4P: Lot 4 Permeable Patio Peak Elev=8.76' Storage=463 cf Inflow=0.25 cfs 862 cf
Outflow=0.14 cfs 405 cf

Pond RD1: R.O.W. Porous Driveway 1 Peak Elev=11.25' Storage=724 cf Inflow=0.24 cfs 724 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond RD2: R.O.W. Porous Driveway 2 Peak Elev=9.50' Storage=638 cf Inflow=0.33 cfs 1,015 cf
Outflow=0.03 cfs 380 cf

Link E-LIS: Ex. Long Island Sound Inflow=2.16 cfs 10,357 cf
Primary=2.16 cfs 10,357 cf

Link E-SS: Ex. Storm Sewer Inflow=1.79 cfs 5,405 cf
Primary=1.79 cfs 5,405 cf

Link P-LIS: Pr. Long Island Sound Inflow=1.51 cfs 7,766 cf
Primary=1.51 cfs 7,766 cf

Link P-SS: Pr. Storm Sewer Inflow=0.05 cfs 577 cf
Primary=0.05 cfs 577 cf

Total Runoff Area = 203,208 sf Runoff Volume = 22,950 cf Average Runoff Depth = 1.36"
70.00% Pervious = 142,236 sf 30.00% Impervious = 60,972 sf

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PD: Lot 1 Porous Driveway Runoff Area=2,664 sf 85.62% Impervious Runoff Depth>3.74"
Tc=5.0 min CN=92.68 Runoff=0.26 cfs 830 cf

Subcatchment 1PP: Lot 1 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98.46 Runoff=0.31 cfs 1,080 cf

Subcatchment 2PD: Lot 2 Porous Driveway Runoff Area=2,875 sf 82.09% Impervious Runoff Depth>3.60"
Tc=5.0 min CN=91.37 Runoff=0.28 cfs 863 cf

Subcatchment 2PP: Lot 2 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98.46 Runoff=0.31 cfs 1,080 cf

Subcatchment 3PD: Lot 3 Porous Driveway Runoff Area=3,030 sf 81.09% Impervious Runoff Depth>3.56"
Tc=5.0 min CN=91.00 Runoff=0.29 cfs 900 cf

Subcatchment 3PP: Lot 3 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98.46 Runoff=0.31 cfs 1,080 cf

Subcatchment 4PD: Lot 4 Porous Driveway Runoff Area=2,985 sf 89.82% Impervious Runoff Depth>3.91"
Tc=5.0 min CN=94.23 Runoff=0.30 cfs 972 cf

Subcatchment 4PP: Lot 4 Porous Patio Runoff Area=3,073 sf 100.00% Impervious Runoff Depth>4.38"
Tc=5.0 min CN=98.44 Runoff=0.33 cfs 1,122 cf

Subcatchment N: Ex. North Basin Runoff Area=35,355 sf 57.19% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=82.16 Runoff=2.65 cfs 7,984 cf

Subcatchment NB: North Bypass Runoff Area=3,209 sf 8.41% Impervious Runoff Depth>1.31"
Tc=5.0 min CN=64.11 Runoff=0.11 cfs 351 cf

Subcatchment RPD1: R.O.W. Porous Runoff Area=3,517 sf 77.77% Impervious Runoff Depth>3.44"
Tc=5.0 min CN=89.77 Runoff=0.33 cfs 1,007 cf

Subcatchment RPD2: R.O.W. Porous Runoff Area=5,029 sf 76.26% Impervious Runoff Depth>3.38"
Tc=5.0 min CN=89.22 Runoff=0.46 cfs 1,417 cf

Subcatchment S: Ex. South Basin Runoff Area=66,249 sf 10.54% Impervious Runoff Depth>1.53"
Flow Length=100' Slope=0.0080 '/' Tc=19.8 min CN=67.46 Runoff=1.76 cfs 8,471 cf

Subcatchment SB: South Bypass Runoff Area=66,354 sf 7.85% Impervious Runoff Depth>1.47"
Flow Length=140' Tc=9.0 min CN=66.46 Runoff=2.22 cfs 8,127 cf

Pond 1D: Lot 1 Porous Driveway Peak Elev=9.90' Storage=185 cf Inflow=0.26 cfs 830 cf
Outflow=0.26 cfs 664 cf

Pond 1P: Lot 1 Permeable Patio Peak Elev=9.02' Storage=555 cf Inflow=0.31 cfs 1,080 cf
Outflow=0.29 cfs 537 cf

Pond 2D: Lot 2 Porous Driveway Peak Elev=9.90' Storage=347 cf Inflow=0.28 cfs 863 cf
Outflow=0.24 cfs 538 cf

Pond 2P: Lot 2 Permeable Patio Peak Elev=8.77' Storage=563 cf Inflow=0.31 cfs 1,080 cf
Outflow=0.22 cfs 526 cf

Pond 3D: Lot 3 Porous Driveway Peak Elev=9.91' Storage=349 cf Inflow=0.29 cfs 900 cf
Outflow=0.28 cfs 576 cf

Pond 3P: Lot 3 Permeable Patio Peak Elev=8.77' Storage=563 cf Inflow=0.31 cfs 1,080 cf
Outflow=0.22 cfs 526 cf

Pond 4D: Lot 4 Porous Driveway Peak Elev=9.01' Storage=541 cf Inflow=0.30 cfs 972 cf
Outflow=0.13 cfs 437 cf

Pond 4P: Lot 4 Permeable Patio Peak Elev=8.77' Storage=467 cf Inflow=0.33 cfs 1,122 cf
Outflow=0.32 cfs 660 cf

Pond RD1: R.O.W. Porous Driveway 1 Peak Elev=11.54' Storage=1,007 cf Inflow=0.33 cfs 1,007 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond RD2: R.O.W. Porous Driveway 2 Peak Elev=9.52' Storage=662 cf Inflow=0.46 cfs 1,417 cf
Outflow=0.22 cfs 784 cf

Link E-LIS: Ex. Long Island Sound Inflow=3.45 cfs 16,454 cf
Primary=3.45 cfs 16,454 cf

Link E-SS: Ex. Storm Sewer Inflow=2.65 cfs 7,984 cf
Primary=2.65 cfs 7,984 cf

Link P-LIS: Pr. Long Island Sound Inflow=3.99 cfs 13,725 cf
Primary=3.99 cfs 13,725 cf

Link P-SS: Pr. Storm Sewer Inflow=0.29 cfs 1,135 cf
Primary=0.29 cfs 1,135 cf

Total Runoff Area = 203,208 sf Runoff Volume = 35,285 cf Average Runoff Depth = 2.08"
70.00% Pervious = 142,236 sf 30.00% Impervious = 60,972 sf

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PD: Lot 1 Porous Driveway Runoff Area=2,664 sf 85.62% Impervious Runoff Depth>4.56"
Tc=5.0 min CN=92.68 Runoff=0.32 cfs 1,013 cf

Subcatchment 1PP: Lot 1 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>5.22"
Tc=5.0 min CN=98.46 Runoff=0.37 cfs 1,287 cf

Subcatchment 2PD: Lot 2 Porous Driveway Runoff Area=2,875 sf 82.09% Impervious Runoff Depth>4.42"
Tc=5.0 min CN=91.37 Runoff=0.33 cfs 1,059 cf

Subcatchment 2PP: Lot 2 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>5.22"
Tc=5.0 min CN=98.46 Runoff=0.37 cfs 1,287 cf

Subcatchment 3PD: Lot 3 Porous Driveway Runoff Area=3,030 sf 81.09% Impervious Runoff Depth>4.38"
Tc=5.0 min CN=91.00 Runoff=0.35 cfs 1,105 cf

Subcatchment 3PP: Lot 3 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>5.22"
Tc=5.0 min CN=98.46 Runoff=0.37 cfs 1,287 cf

Subcatchment 4PD: Lot 4 Porous Driveway Runoff Area=2,985 sf 89.82% Impervious Runoff Depth>4.74"
Tc=5.0 min CN=94.23 Runoff=0.36 cfs 1,178 cf

Subcatchment 4PP: Lot 4 Porous Patio Runoff Area=3,073 sf 100.00% Impervious Runoff Depth>5.22"
Tc=5.0 min CN=98.44 Runoff=0.39 cfs 1,337 cf

Subcatchment N: Ex. North Basin Runoff Area=35,355 sf 57.19% Impervious Runoff Depth>3.46"
Tc=5.0 min CN=82.16 Runoff=3.38 cfs 10,198 cf

Subcatchment NB: North Bypass Runoff Area=3,209 sf 8.41% Impervious Runoff Depth>1.86"
Tc=5.0 min CN=64.11 Runoff=0.16 cfs 497 cf

Subcatchment RPD1: R.O.W. Porous Runoff Area=3,517 sf 77.77% Impervious Runoff Depth>4.25"
Tc=5.0 min CN=89.77 Runoff=0.40 cfs 1,244 cf

Subcatchment RPD2: R.O.W. Porous Runoff Area=5,029 sf 76.26% Impervious Runoff Depth>4.19"
Tc=5.0 min CN=89.22 Runoff=0.56 cfs 1,754 cf

Subcatchment S: Ex. South Basin Runoff Area=66,249 sf 10.54% Impervious Runoff Depth>2.12"
Flow Length=100' Slope=0.0080 '/' Tc=19.8 min CN=67.46 Runoff=2.50 cfs 11,715 cf

Subcatchment SB: South Bypass Runoff Area=66,354 sf 7.85% Impervious Runoff Depth>2.05"
Flow Length=140' Tc=9.0 min CN=66.46 Runoff=3.20 cfs 11,312 cf

Pond 1D: Lot 1 Porous Driveway Peak Elev=9.91' Storage=188 cf Inflow=0.32 cfs 1,013 cf
Outflow=0.31 cfs 846 cf

Pond 1P: Lot 1 Permeable Patio Peak Elev=9.02' Storage=557 cf Inflow=0.37 cfs 1,287 cf
Outflow=0.37 cfs 745 cf

Pond 2D: Lot 2 Porous Driveway Peak Elev=9.91' Storage=351 cf Inflow=0.33 cfs 1,059 cf
Outflow=0.33 cfs 734 cf

Pond 2P: Lot 2 Permeable Patio Peak Elev=8.77' Storage=566 cf Inflow=0.37 cfs 1,287 cf
Outflow=0.37 cfs 729 cf

Pond 3D: Lot 3 Porous Driveway Peak Elev=9.91' Storage=352 cf Inflow=0.35 cfs 1,105 cf
Outflow=0.34 cfs 780 cf

Pond 3P: Lot 3 Permeable Patio Peak Elev=8.77' Storage=566 cf Inflow=0.37 cfs 1,287 cf
Outflow=0.37 cfs 729 cf

Pond 4D: Lot 4 Porous Driveway Peak Elev=9.03' Storage=546 cf Inflow=0.36 cfs 1,178 cf
Outflow=0.33 cfs 634 cf

Pond 4P: Lot 4 Permeable Patio Peak Elev=8.78' Storage=468 cf Inflow=0.39 cfs 1,337 cf
Outflow=0.38 cfs 876 cf

Pond RD1: R.O.W. Porous Driveway 1 Peak Elev=11.83' Storage=1,244 cf Inflow=0.40 cfs 1,244 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond RD2: R.O.W. Porous Driveway 2 Peak Elev=9.53' Storage=683 cf Inflow=0.56 cfs 1,754 cf
Outflow=0.49 cfs 1,122 cf

Link E-LIS: Ex. Long Island Sound Inflow=4.58 cfs 21,913 cf
Primary=4.58 cfs 21,913 cf

Link E-SS: Ex. Storm Sewer Inflow=3.38 cfs 10,198 cf
Primary=3.38 cfs 10,198 cf

Link P-LIS: Pr. Long Island Sound Inflow=6.29 cfs 19,004 cf
Primary=6.29 cfs 19,004 cf

Link P-SS: Pr. Storm Sewer Inflow=0.64 cfs 1,619 cf
Primary=0.64 cfs 1,619 cf

Total Runoff Area = 203,208 sf Runoff Volume = 46,273 cf Average Runoff Depth = 2.73"
70.00% Pervious = 142,236 sf 30.00% Impervious = 60,972 sf

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PD: Lot 1 Porous Driveway Runoff Area=2,664 sf 85.62% Impervious Runoff Depth>5.71"
Tc=5.0 min CN=92.68 Runoff=0.39 cfs 1,267 cf

Subcatchment 1PP: Lot 1 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>6.38"
Tc=5.0 min CN=98.46 Runoff=0.45 cfs 1,572 cf

Subcatchment 2PD: Lot 2 Porous Driveway Runoff Area=2,875 sf 82.09% Impervious Runoff Depth>5.55"
Tc=5.0 min CN=91.37 Runoff=0.41 cfs 1,331 cf

Subcatchment 2PP: Lot 2 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>6.38"
Tc=5.0 min CN=98.46 Runoff=0.45 cfs 1,572 cf

Subcatchment 3PD: Lot 3 Porous Driveway Runoff Area=3,030 sf 81.09% Impervious Runoff Depth>5.51"
Tc=5.0 min CN=91.00 Runoff=0.44 cfs 1,392 cf

Subcatchment 3PP: Lot 3 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>6.38"
Tc=5.0 min CN=98.46 Runoff=0.45 cfs 1,572 cf

Subcatchment 4PD: Lot 4 Porous Driveway Runoff Area=2,985 sf 89.82% Impervious Runoff Depth>5.88"
Tc=5.0 min CN=94.23 Runoff=0.44 cfs 1,464 cf

Subcatchment 4PP: Lot 4 Porous Patio Runoff Area=3,073 sf 100.00% Impervious Runoff Depth>6.38"
Tc=5.0 min CN=98.44 Runoff=0.47 cfs 1,634 cf

Subcatchment N: Ex. North Basin Runoff Area=35,355 sf 57.19% Impervious Runoff Depth>4.53"
Tc=5.0 min CN=82.16 Runoff=4.38 cfs 13,343 cf

Subcatchment NB: North Bypass Runoff Area=3,209 sf 8.41% Impervious Runoff Depth>2.69"
Tc=5.0 min CN=64.11 Runoff=0.23 cfs 718 cf

Subcatchment RPD1: R.O.W. Porous Runoff Area=3,517 sf 77.77% Impervious Runoff Depth>5.37"
Tc=5.0 min CN=89.77 Runoff=0.50 cfs 1,575 cf

Subcatchment RPD2: R.O.W. Porous Runoff Area=5,029 sf 76.26% Impervious Runoff Depth>5.31"
Tc=5.0 min CN=89.22 Runoff=0.71 cfs 2,225 cf

Subcatchment S: Ex. South Basin Runoff Area=66,249 sf 10.54% Impervious Runoff Depth>3.00"
Flow Length=100' Slope=0.0080 '/' Tc=19.8 min CN=67.46 Runoff=3.60 cfs 16,560 cf

Subcatchment SB: South Bypass Runoff Area=66,354 sf 7.85% Impervious Runoff Depth>2.91"
Flow Length=140' Tc=9.0 min CN=66.46 Runoff=4.63 cfs 16,089 cf

Pond 1D: Lot 1 Porous Driveway Peak Elev=9.92' Storage=191 cf Inflow=0.39 cfs 1,313 cf
Outflow=0.38 cfs 1,145 cf

Pond 1P: Lot 1 Permeable Patio Peak Elev=9.03' Storage=558 cf Inflow=0.45 cfs 1,572 cf
Outflow=0.44 cfs 1,023 cf

Pond 2D: Lot 2 Porous Driveway Peak Elev=9.92' Storage=354 cf Inflow=0.41 cfs 1,414 cf
Outflow=0.41 cfs 1,087 cf

Pond 2P: Lot 2 Permeable Patio Peak Elev=8.78' Storage=567 cf Inflow=0.45 cfs 1,572 cf
Outflow=0.44 cfs 1,017 cf

Pond 3D: Lot 3 Porous Driveway Peak Elev=9.92' Storage=355 cf Inflow=0.44 cfs 1,392 cf
Outflow=0.43 cfs 1,066 cf

Pond 3P: Lot 3 Permeable Patio Peak Elev=8.78' Storage=567 cf Inflow=0.45 cfs 1,572 cf
Outflow=0.44 cfs 1,017 cf

Pond 4D: Lot 4 Porous Driveway Peak Elev=9.04' Storage=549 cf Inflow=0.44 cfs 1,464 cf
Outflow=0.44 cfs 931 cf

Pond 4P: Lot 4 Permeable Patio Peak Elev=8.78' Storage=469 cf Inflow=0.47 cfs 1,634 cf
Outflow=0.46 cfs 1,175 cf

Pond RD1: R.O.W. Porous Driveway 1 Peak Elev=12.00' Storage=1,372 cf Inflow=0.50 cfs 1,575 cf
Primary=0.00 cfs 74 cf Secondary=0.00 cfs 46 cf Tertiary=0.01 cfs 83 cf Outflow=0.01 cfs 204 cf

Pond RD2: R.O.W. Porous Driveway 2 Peak Elev=9.54' Storage=696 cf Inflow=0.71 cfs 2,300 cf
Outflow=0.68 cfs 1,664 cf

Link E-LIS: Ex. Long Island Sound Inflow=6.22 cfs 29,903 cf
Primary=6.22 cfs 29,903 cf

Link E-SS: Ex. Storm Sewer Inflow=4.38 cfs 13,343 cf
Primary=4.38 cfs 13,343 cf

Link P-LIS: Pr. Long Island Sound Inflow=8.62 cfs 26,933 cf
Primary=8.62 cfs 26,933 cf

Link P-SS: Pr. Storm Sewer Inflow=0.91 cfs 2,382 cf
Primary=0.91 cfs 2,382 cf

Total Runoff Area = 203,208 sf Runoff Volume = 62,314 cf Average Runoff Depth = 3.68"
70.00% Pervious = 142,236 sf 30.00% Impervious = 60,972 sf

Summary for Subcatchment 1PD: Lot 1 Porous Driveway

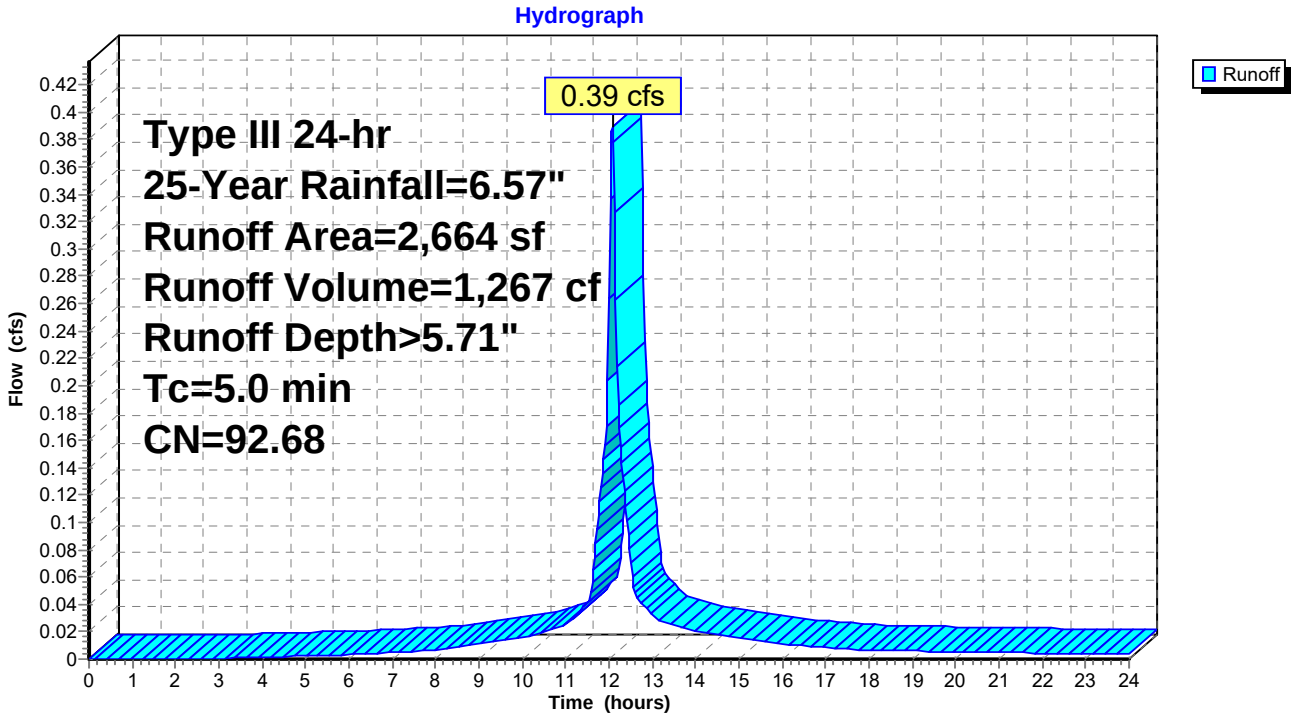
Runoff = 0.39 cfs @ 12.07 hrs, Volume= 1,267 cf, Depth> 5.71"
Routed to Pond 1D : Lot 1 Porous Driveway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	1,846	98.00	Lot 1 Impervious
*	256	61.00	Lot 1 >75% Grass cover, Good, HSG B
*	435	98.00	R.O.W. Impervious
*	127	61.00	R.O.W. >75% Grass cover, Good, HSG B
	2,664	92.68	Weighted Average
	383		14.38% Pervious Area
	2,281		85.62% Impervious Area

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

Subcatchment 1PD: Lot 1 Porous Driveway



Summary for Subcatchment 1PP: Lot 1 Porous Patio

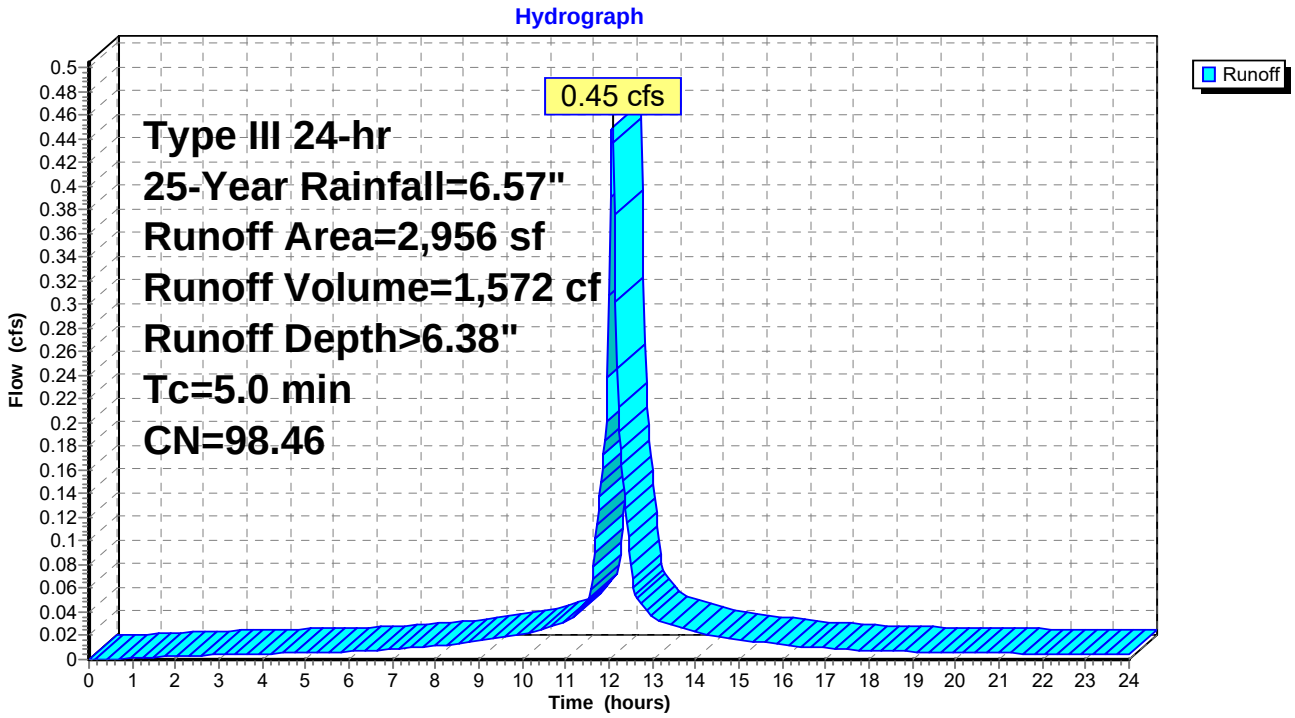
Runoff = 0.45 cfs @ 12.07 hrs, Volume= 1,572 cf, Depth> 6.38"
Routed to Pond 1P : Lot 1 Permeable Patio

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	2,281	98.00	Lot 1 Impervious
*	675	100.00	Lot 1 Pool
	2,956	98.46	Weighted Average
	2,956		100.00% Impervious Area

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

Subcatchment 1PP: Lot 1 Porous Patio



Summary for Subcatchment 2PD: Lot 2 Porous Driveway

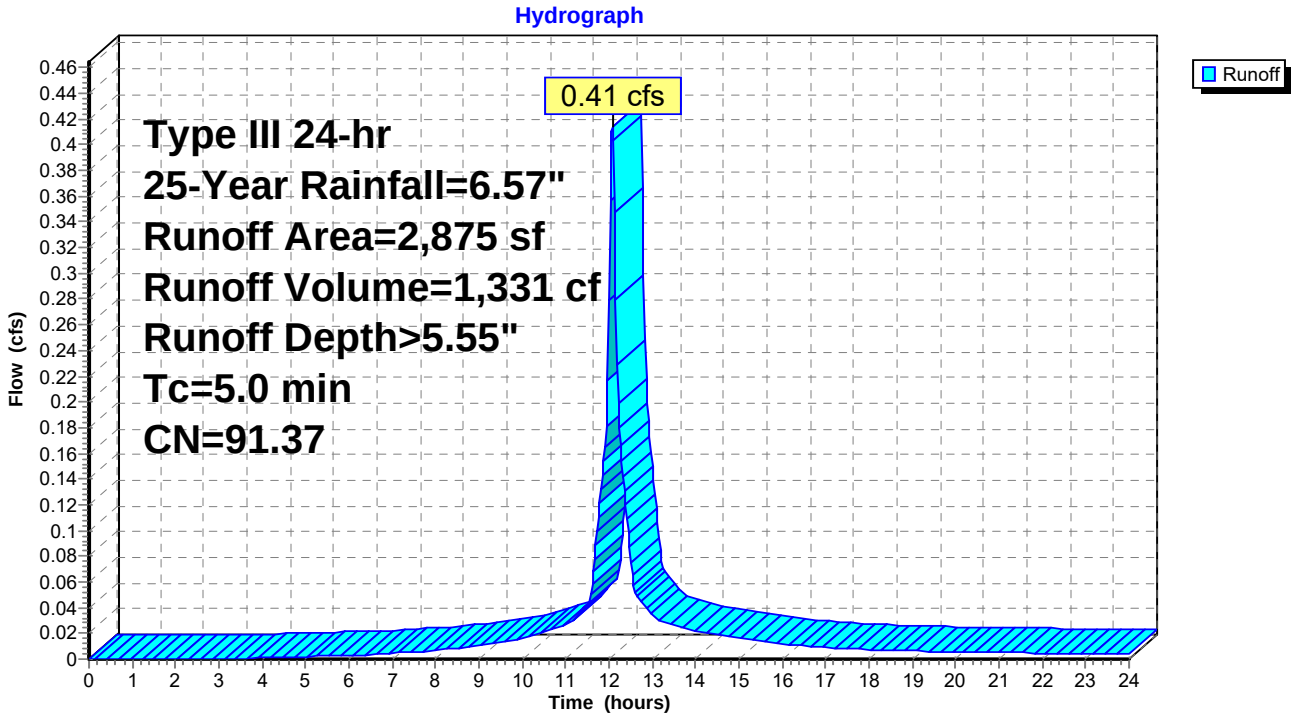
Runoff = 0.41 cfs @ 12.07 hrs, Volume= 1,331 cf, Depth> 5.55"
Routed to Pond 2D : Lot 2 Porous Driveway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	1,944	98.00	Lot 2 Impervious
*	366	61.00	Lot 2 >75% Grass cover, Good, HSG B
*	416	98.00	R.O.W. Impervious
*	149	61.00	R.O.W. >75% Grass cover, Good, HSG B
	2,875	91.37	Weighted Average
	515		17.91% Pervious Area
	2,360		82.09% Impervious Area

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

Subcatchment 2PD: Lot 2 Porous Driveway



Summary for Subcatchment 2PP: Lot 2 Porous Patio

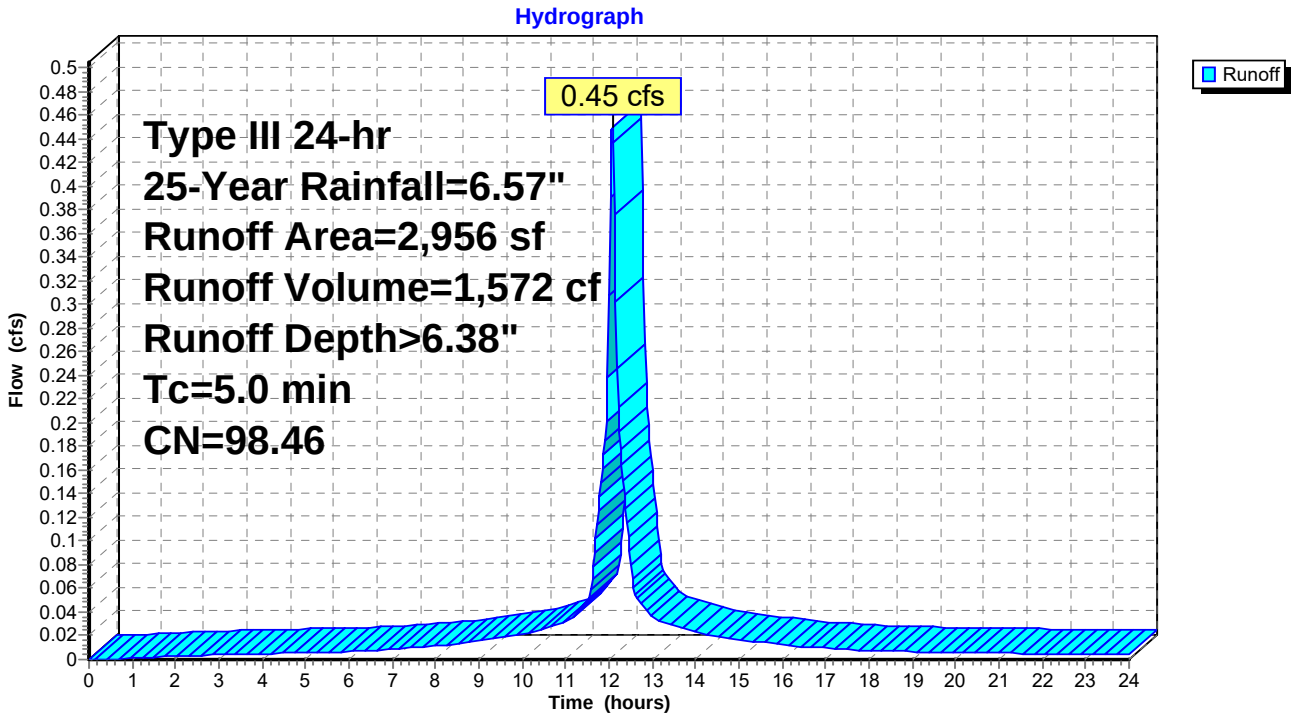
Runoff = 0.45 cfs @ 12.07 hrs, Volume= 1,572 cf, Depth> 6.38"
Routed to Pond 2P : Lot 2 Permeable Patio

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	2,281	98.00	Lot 2 Impervious
*	675	100.00	Lot 2 Pool
	2,956	98.46	Weighted Average
	2,956		100.00% Impervious Area

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

Subcatchment 2PP: Lot 2 Porous Patio



Summary for Subcatchment 3PD: Lot 3 Porous Driveway

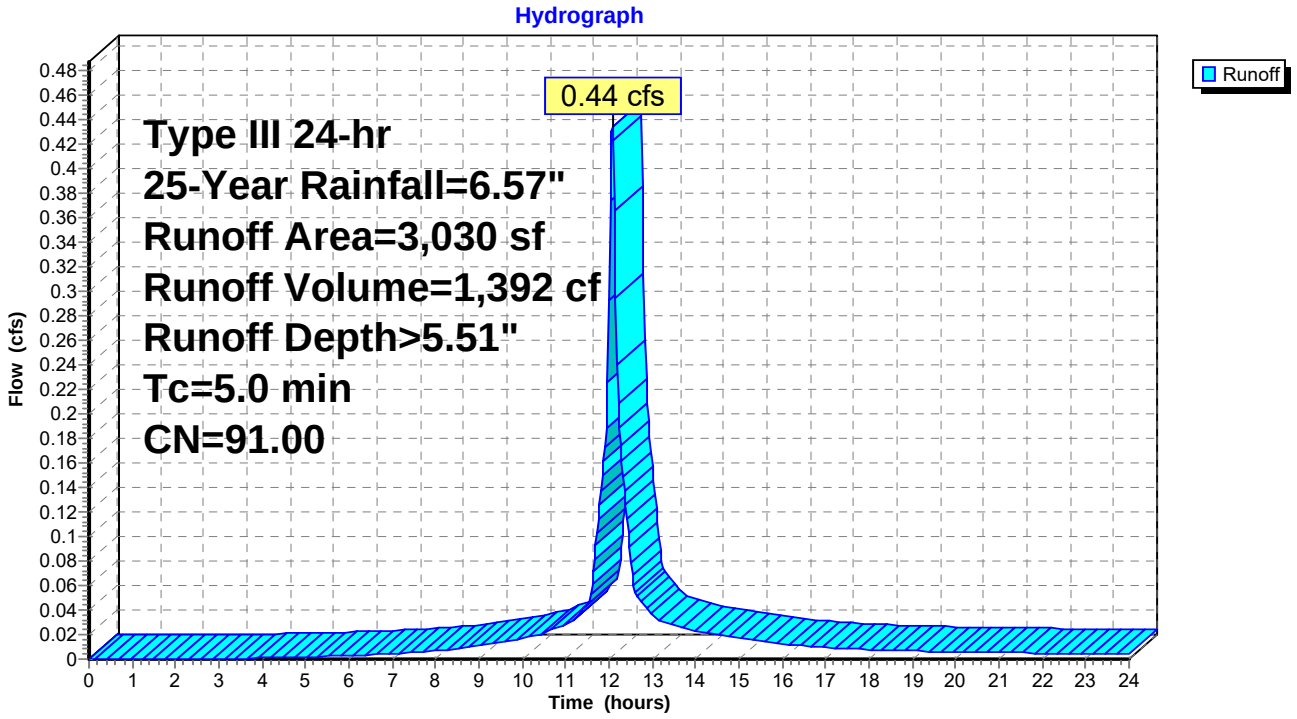
Runoff = 0.44 cfs @ 12.07 hrs, Volume= 1,392 cf, Depth> 5.51"
Routed to Pond 3D : Lot 3 Porous Driveway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	1,894	98.00	Lot 3 Impervious
*	360	61.00	Lot 3 >75% Grass cover, Good, HSG B
*	563	98.00	R.O.W. Impervious
*	213	61.00	R.O.W. >75% Grass cover, Good, HSG B
	3,030	91.00	Weighted Average
	573		18.91% Pervious Area
	2,457		81.09% Impervious Area

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

Subcatchment 3PD: Lot 3 Porous Driveway



Summary for Subcatchment 3PP: Lot 3 Porous Patio

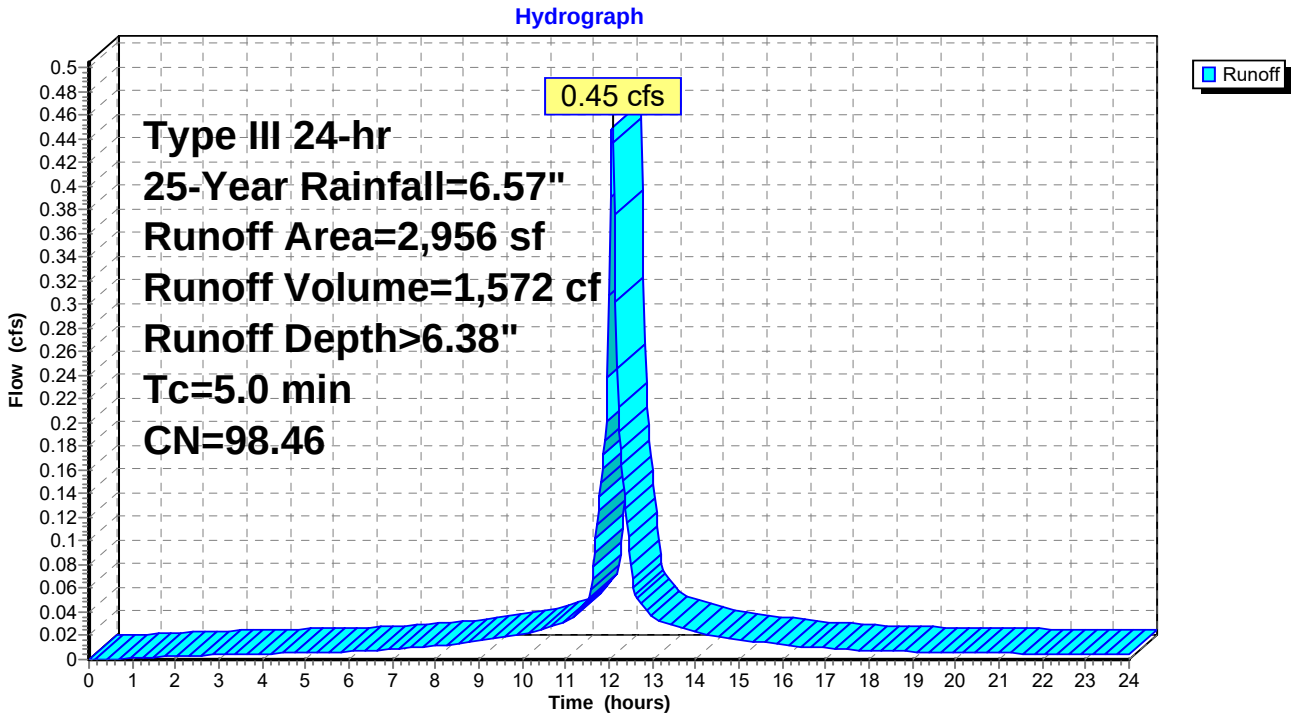
Runoff = 0.45 cfs @ 12.07 hrs, Volume= 1,572 cf, Depth> 6.38"
Routed to Pond 3P : Lot 3 Permeable Patio

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	2,281	98.00	Lot 3 Impervious
*	675	100.00	Lot 3 Pool
	2,956	98.46	Weighted Average
	2,956		100.00% Impervious Area

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

Subcatchment 3PP: Lot 3 Porous Patio



Summary for Subcatchment 4PD: Lot 4 Porous Driveway

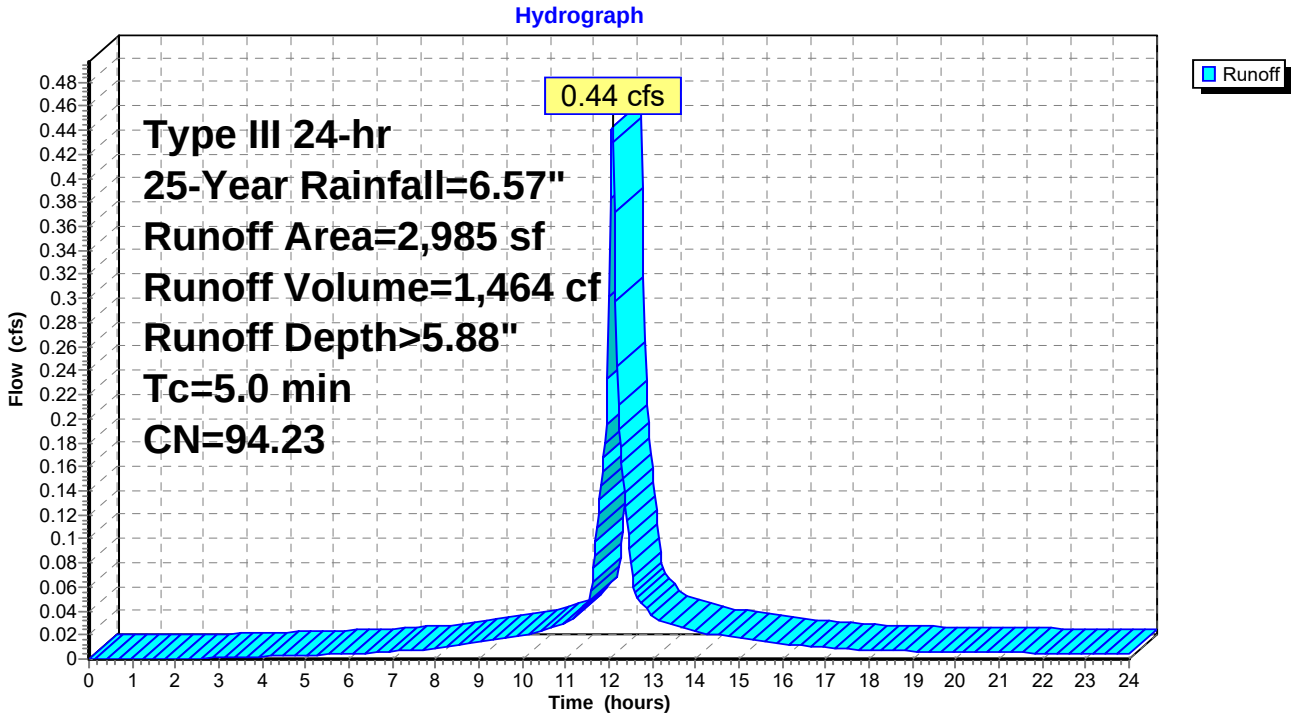
Runoff = 0.44 cfs @ 12.07 hrs, Volume= 1,464 cf, Depth> 5.88"
Routed to Pond 4D : Lot 4 Porous Driveway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	2,681	98.00	Lot 4 Impervious
*	304	61.00	Lot 4 >75% Grass cover, Good, HSG B
	2,985	94.23	Weighted Average
	304		10.18% Pervious Area
	2,681		89.82% Impervious Area

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

Subcatchment 4PD: Lot 4 Porous Driveway



Summary for Subcatchment 4PP: Lot 4 Porous Patio

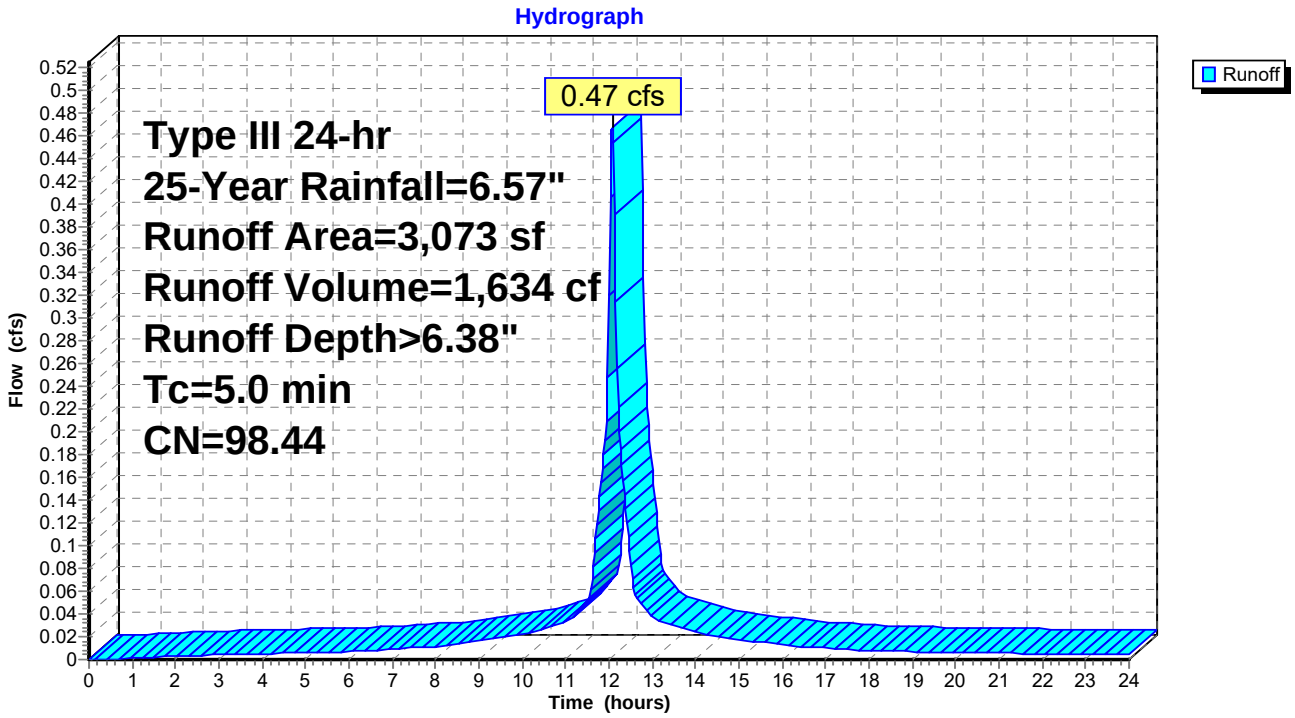
Runoff = 0.47 cfs @ 12.07 hrs, Volume= 1,634 cf, Depth> 6.38"
Routed to Pond 4P : Lot 4 Permeable Patio

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	2,398	98.00	Lot 4 Impervious
*	675	100.00	Lot 4 Pool
	3,073	98.44	Weighted Average
	3,073		100.00% Impervious Area

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

Subcatchment 4PP: Lot 4 Porous Patio



Summary for Subcatchment N: Ex. North Basin

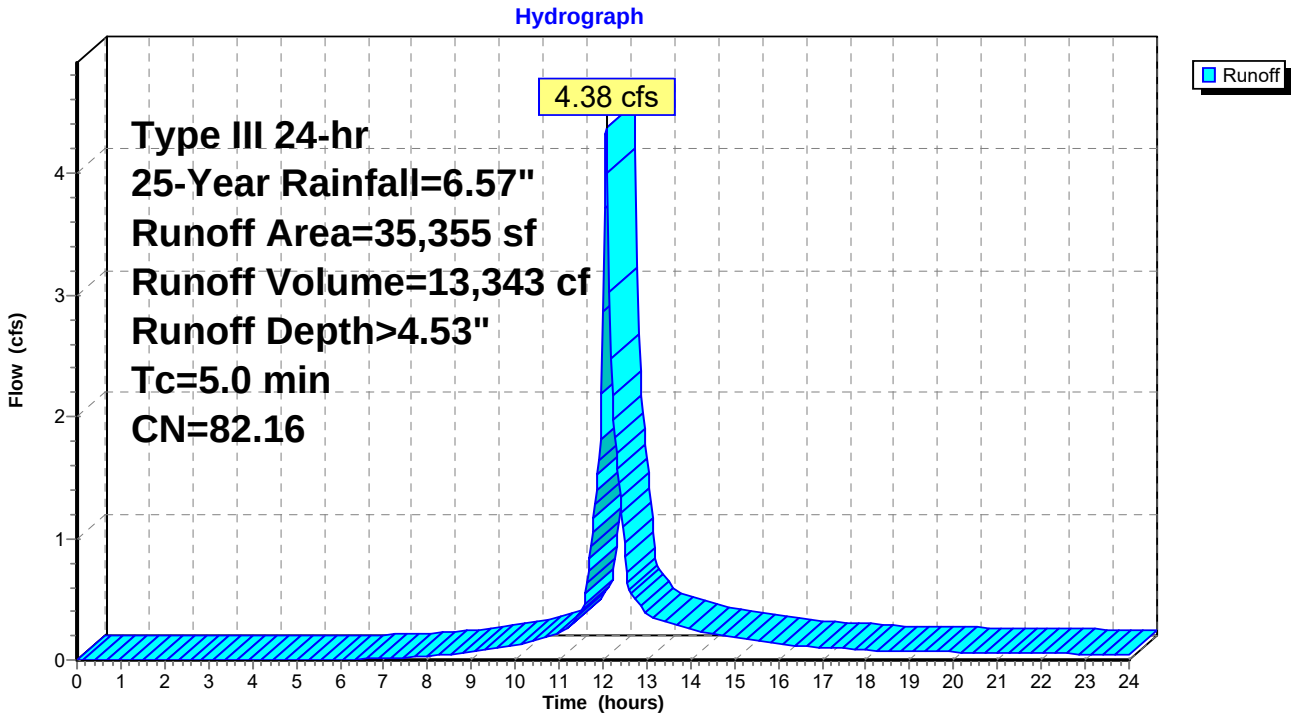
Runoff = 4.38 cfs @ 12.07 hrs, Volume= 13,343 cf, Depth> 4.53"
Routed to Link E-SS : Ex. Storm Sewer

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	3,994	98.00	Lot 1 Impervious
*	641	61.00	Lot 1 >75% Grass cover, Good, HSG B
*	2,542	98.00	Lot 2 Impervious
*	1,216	61.00	Lot 2 >75% Grass cover, Good, HSG B
*	422	98.00	Lot 3 Impervious
*	4,839	61.00	Lot 3 >75% Grass cover, Good, HSG B
*	2,753	98.00	Lot 4 Impervious
*	1,623	61.00	Lot 4 >75% Grass cover, Good, HSG B
*	10,508	98.00	R.O.W. Impervious
*	6,817	61.00	R.O.W. >75% Grass cover, Good, HSG B
	35,355	82.16	Weighted Average
	15,136		42.81% Pervious Area
	20,219		57.19% Impervious Area

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

Subcatchment N: Ex. North Basin



Summary for Subcatchment NB: North Bypass

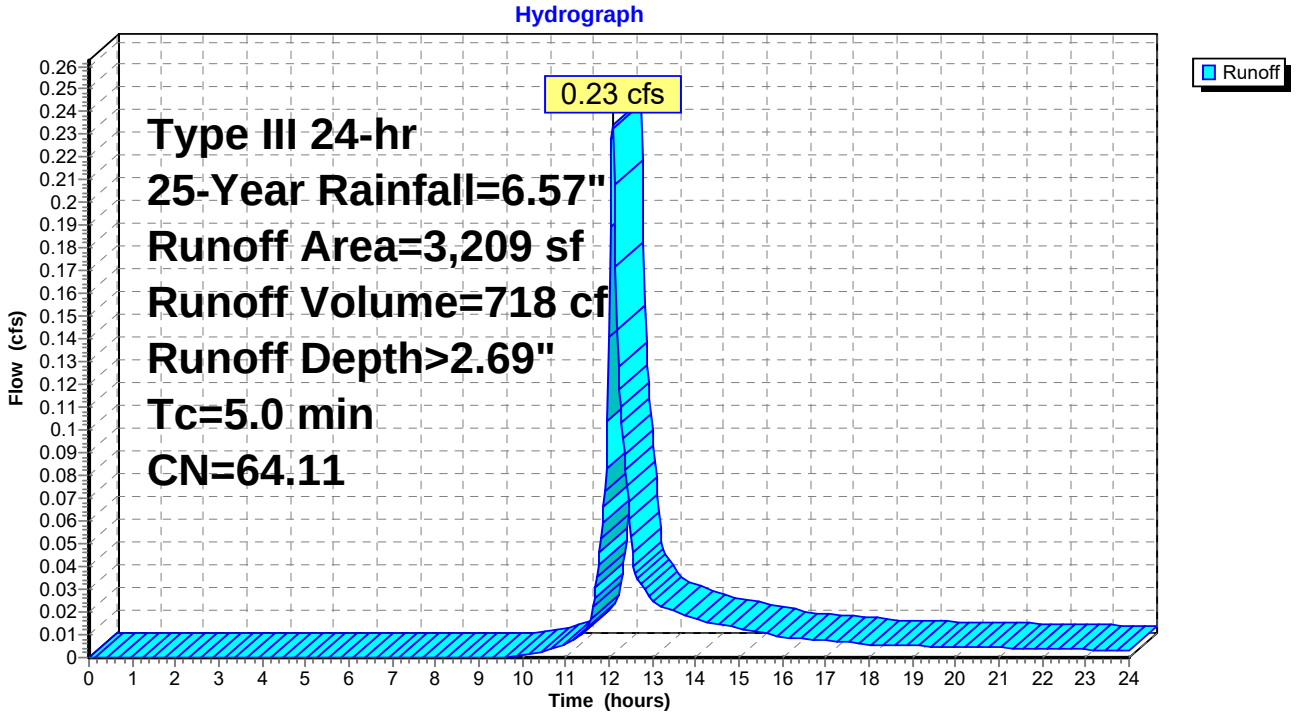
Runoff = 0.23 cfs @ 12.08 hrs, Volume= 718 cf, Depth> 2.69"
Routed to Link P-SS : Pr. Storm Sewer

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	1,137	61.00	Lot 4 >75% Grass cover, Good, HSG B
*	270	98.00	R.O.W. Impervious
*	1,802	61.00	R.O.W. >75% Grass cover, Good, HSG B
	3,209	64.11	Weighted Average
	2,939		91.59% Pervious Area
	270		8.41% Impervious Area

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

Subcatchment NB: North Bypass



Summary for Subcatchment RPD1: R.O.W. Porous Driveway 1

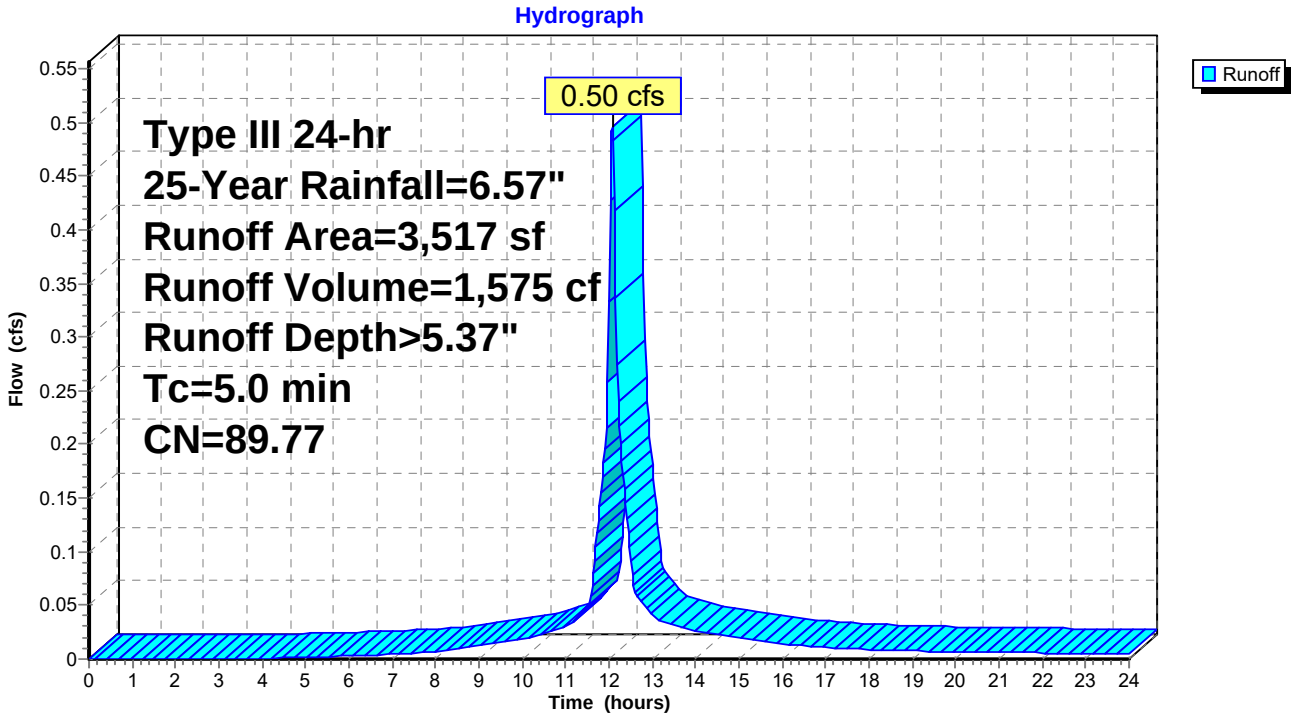
Runoff = 0.50 cfs @ 12.07 hrs, Volume= 1,575 cf, Depth> 5.37"
Routed to Pond RD1 : R.O.W. Porous Driveway 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	2,735	98.00	R.O.W. Impervious
*	782	61.00	R.O.W. >75% Grass cover, Good, HSG B
	3,517	89.77	Weighted Average
	782		22.23% Pervious Area
	2,735		77.77% Impervious Area

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

Subcatchment RPD1: R.O.W. Porous Driveway 1



Summary for Subcatchment RPD2: R.O.W. Porous Driveway 2

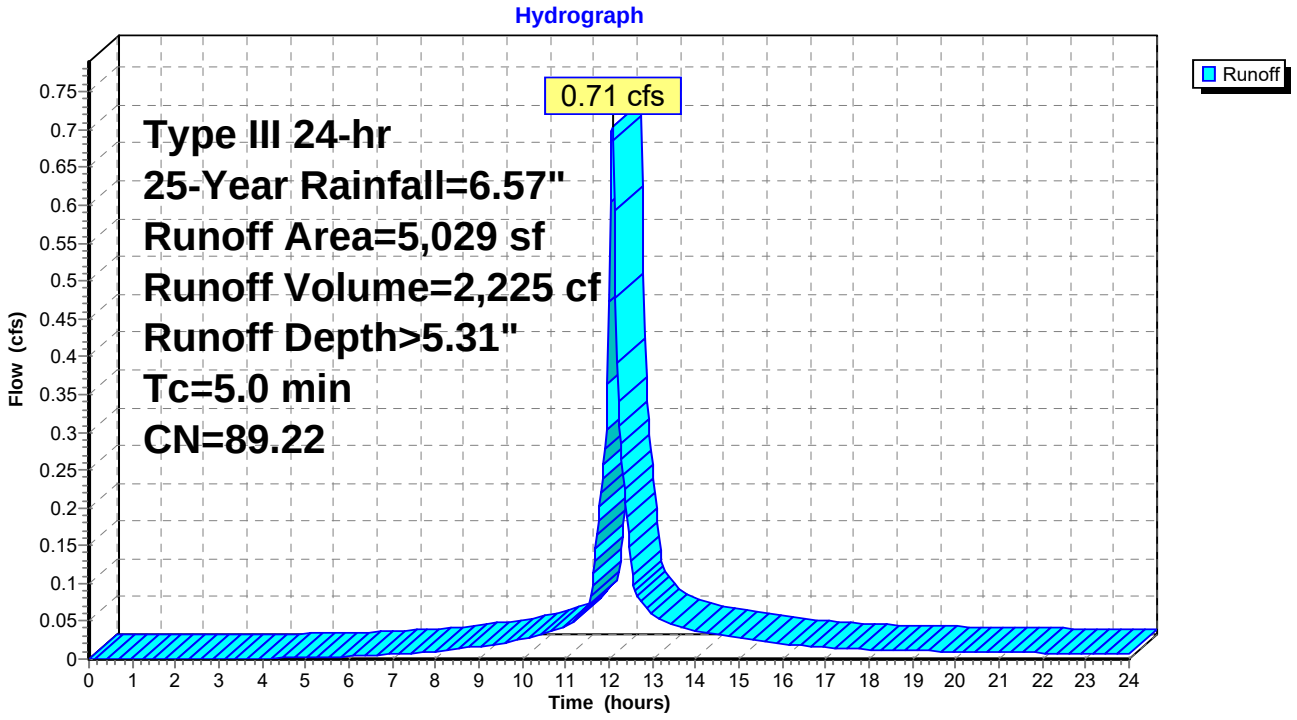
Runoff = 0.71 cfs @ 12.07 hrs, Volume= 2,225 cf, Depth> 5.31"
Routed to Pond RD2 : R.O.W. Porous Driveway 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	3,835	98.00	R.O.W. Impervious
*	1,194	61.00	R.O.W. >75% Grass cover, Good, HSG B
	5,029	89.22	Weighted Average
	1,194		23.74% Pervious Area
	3,835		76.26% Impervious Area

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

Subcatchment RPD2: R.O.W. Porous Driveway 2



Summary for Subcatchment S: Ex. South Basin

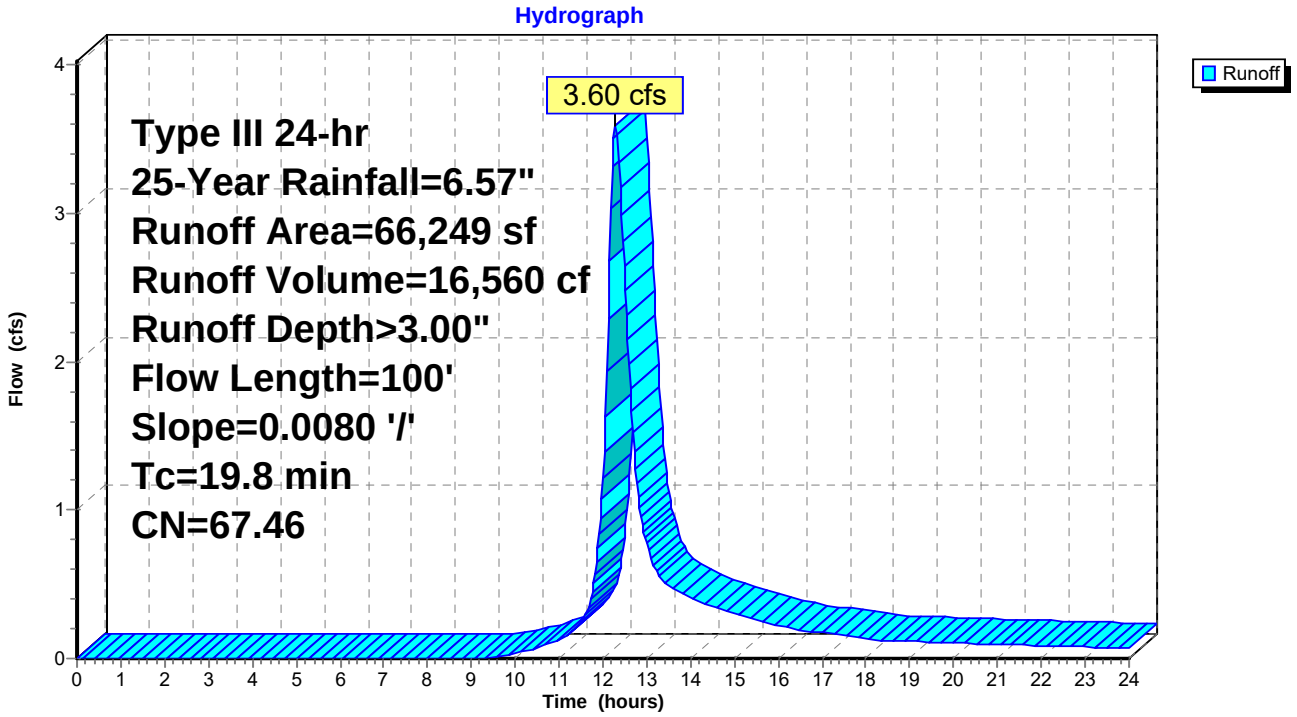
Runoff = 3.60 cfs @ 12.28 hrs, Volume= 16,560 cf, Depth> 3.00"
Routed to Link E-LIS : Ex. Long Island Sound

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	2,521	98.00	Lot 1 Impervious
*	5,741	61.00	Lot 1 >75% Grass cover, Good, HSG B
*	7,953	68.00	Lot 1 Beach
*	3,828	98.00	Lot 2 Impervious
*	5,511	61.00	Lot 2 >75% Grass cover, Good, HSG B
*	7,149	68.00	Lot 2 Beach
*	304	98.00	Lot 3 Impervious
*	8,029	61.00	Lot 3 >75% Grass cover, Good, HSG B
*	6,681	68.00	Lot 3 Beach
*	330	98.00	Lot 4 Impervious
*	15,738	61.00	Lot 4 >75% Grass cover, Good, HSG B
*	2,458	68.00	Lot 4 Beach
*	6	61.00	R.O.W. >75% Grass cover, Good, HSG B
	66,249	67.46	Weighted Average
	59,266		89.46% Pervious Area
	6,983		10.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	100	0.0080	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.45"

Subcatchment S: Ex. South Basin



Summary for Subcatchment SB: South Bypass

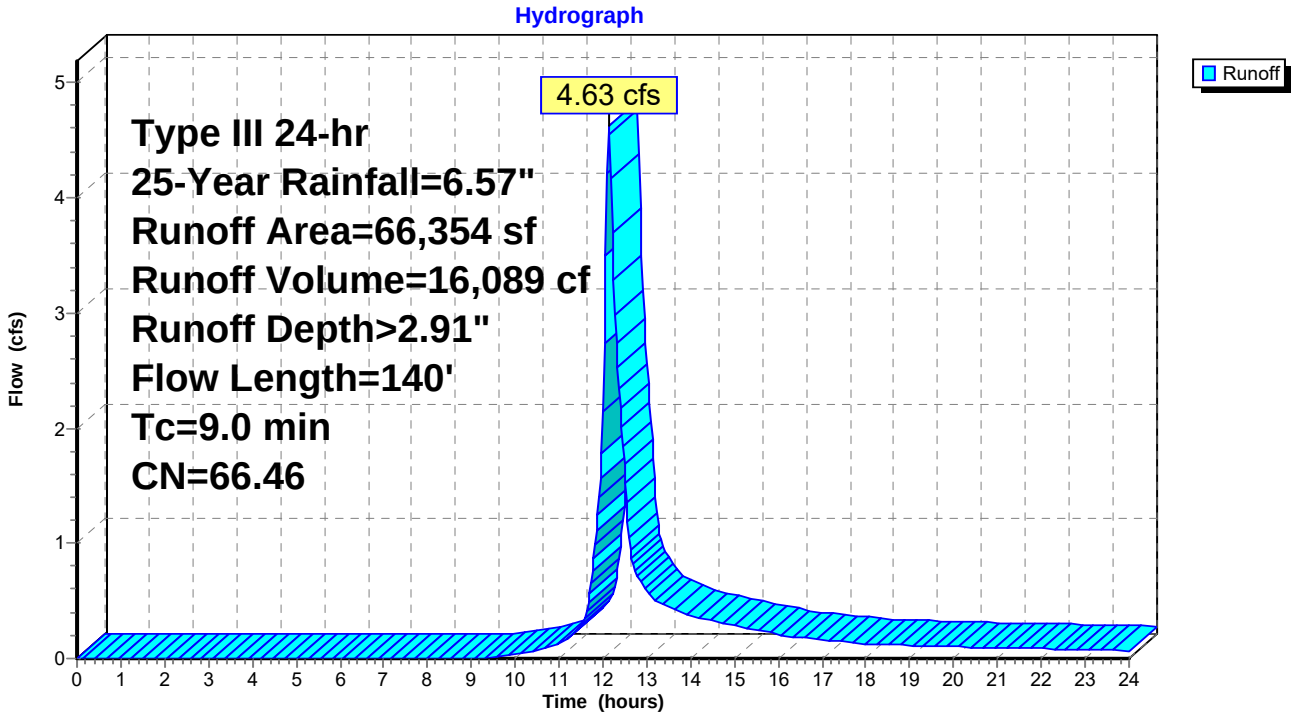
Runoff = 4.63 cfs @ 12.13 hrs, Volume= 16,089 cf, Depth> 2.91"
Routed to Link P-LIS : Pr. Long Island Sound

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.57"

	Area (sf)	CN	Description
*	890	98.00	Lot 1 Impervious
*	6,949	61.00	Lot 1 >75% Grass cover, Good, HSG B
*	7,953	68.00	Lot 1 Beach
*	1,252	98.00	Lot 2 Impervious
*	6,579	61.00	Lot 2 >75% Grass cover, Good, HSG B
*	7,149	68.00	Lot 2 Beach
*	818	98.00	Lot 3 Impervious
*	7,566	61.00	Lot 3 >75% Grass cover, Good, HSG B
*	6,681	68.00	Lot 3 Beach
*	1,190	98.00	Lot 4 Impervious
*	12,059	61.00	Lot 4 >75% Grass cover, Good, HSG B
*	2,458	68.00	Lot 4 Beach
*	1,060	98.00	R.O.W. Impervious
*	3,750	61.00	R.O.W. >75% Grass cover, Good, HSG B
	66,354	66.46	Weighted Average
	61,144		92.15% Pervious Area
	5,210		7.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	72	0.0350	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.45"
0.6	68	0.0120	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.0	140	Total			

Subcatchment SB: South Bypass



Summary for Pond 1D: Lot 1 Porous Driveway

Inflow Area = 2,664 sf, 85.62% Impervious, Inflow Depth > 5.91" for 25-Year event
Inflow = 0.39 cfs @ 12.07 hrs, Volume= 1,313 cf
Outflow = 0.38 cfs @ 12.08 hrs, Volume= 1,145 cf, Atten= 2%, Lag= 0.8 min
Primary = 0.38 cfs @ 12.08 hrs, Volume= 1,145 cf
Routed to Link P-LIS : Pr. Long Island Sound

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 9.92' @ 12.08 hrs Surf.Area= 300 sf Storage= 191 cf

Plug-Flow detention time= 103.5 min calculated for 1,145 cf (87% of inflow)
Center-of-Mass det. time= 42.1 min (826.6 - 784.6)

Volume	Invert	Avail.Storage	Storage Description
#1	8.30'	140 cf	**Stone Storage* (Excludes stone within 1' of restrictive soil) (Prismatic)**i 351 cf Overall x 40.0% Voids
#2	9.47'	30 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 99 cf Overall x 30.0% Voids
#3	9.80'	45 cf	**Open Air Storage Above Pavers (Prismatic)**Listed below (Recalc)
		215 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.30	0	0	0
8.40	300	15	15
9.47	300	321	336
9.57	0	15	351

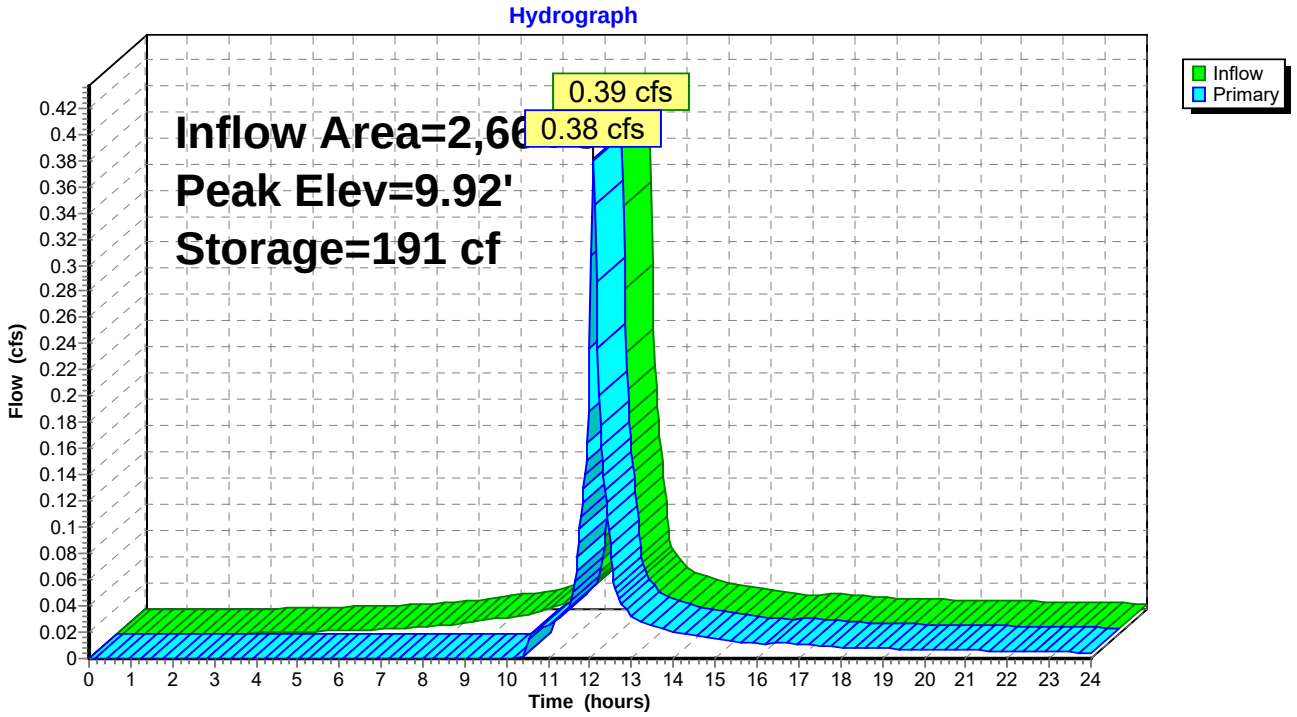
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.47	0	0	0
9.57	300	15	15
9.80	300	69	84
9.90	0	15	99

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.80	0	0	0
9.90	300	15	15
10.00	300	30	45

Device	Routing	Invert	Outlet Devices
#1	Primary	9.80'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 5.00 9.99 10.00 Height (feet) 0.50 0.00 0.10 0.50

Primary OutFlow Max=0.38 cfs @ 12.08 hrs HW=9.92' (Free Discharge)
↑—**1=Asymmetrical Weir** (Weir Controls 0.38 cfs @ 0.51 fps)

Pond 1D: Lot 1 Porous Driveway



Stage-Area-Storage for Pond 1D: Lot 1 Porous Driveway

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
8.30	0	9.36	121
8.32	0	9.38	124
8.34	1	9.40	126
8.36	2	9.42	128
8.38	4	9.44	131
8.40	6	9.46	133
8.42	8	9.48	136
8.44	11	9.50	138
8.46	13	9.52	140
8.48	16	9.54	142
8.50	18	9.56	144
8.52	20	9.58	146
8.54	23	9.60	148
8.56	25	9.62	149
8.58	28	9.64	151
8.60	30	9.66	153
8.62	32	9.68	155
8.64	35	9.70	157
8.66	37	9.72	158
8.68	40	9.74	160
8.70	42	9.76	162
8.72	44	9.78	164
8.74	47	9.80	166
8.76	49	9.82	168
8.78	52	9.84	171
8.80	54	9.86	175
8.82	56	9.88	180
8.84	59	9.90	185
8.86	61	9.92	191
8.88	64	9.94	197
8.90	66	9.96	203
8.92	68	9.98	209
8.94	71	10.00	**215**
8.96	73	10.02	215
8.98	76	10.04	215
9.00	78	10.06	215
9.02	80	10.08	215
9.04	83	10.10	215
9.06	85	10.12	215
9.08	88	10.14	215
9.10	90	10.16	215
9.12	92	10.18	215
9.14	95	10.20	215
9.16	97	10.22	215
9.18	100	10.24	215
9.20	102	10.26	215
9.22	104	10.28	215
9.24	107	10.30	215
9.26	109		
9.28	112		
9.30	114		
9.32	116		
9.34	119		

Summary for Pond 1P: Lot 1 Permeable Patio

Inflow Area = 2,956 sf,100.00% Impervious, Inflow Depth > 6.38" for 25-Year event
Inflow = 0.45 cfs @ 12.07 hrs, Volume= 1,572 cf
Outflow = 0.44 cfs @ 12.08 hrs, Volume= 1,023 cf, Atten= 1%, Lag= 0.3 min
Primary = 0.44 cfs @ 12.08 hrs, Volume= 1,023 cf
Routed to Link P-LIS : Pr. Long Island Sound

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 9.03' @ 12.08 hrs Surf.Area= 2,108 sf Storage= 558 cf

Plug-Flow detention time= 203.1 min calculated for 1,023 cf (65% of inflow)
Center-of-Mass det. time= 99.0 min (838.0 - 739.1)

Volume	Invert	Avail.Storage	Storage Description
#1	7.67'	502 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 1,254 cf Overall x 40.0% Voids
#2	8.67'	125 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 418 cf Overall x 30.0% Voids
#3	9.00'	1,108 cf	**Open Air Storage Over Pavers (Prismatic)**Listed below (Recalc)
		1,735 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.67	0	0	0
7.91	390	47	47
7.92	1,248	8	55
8.67	1,248	936	991
8.92	858	263	1,254

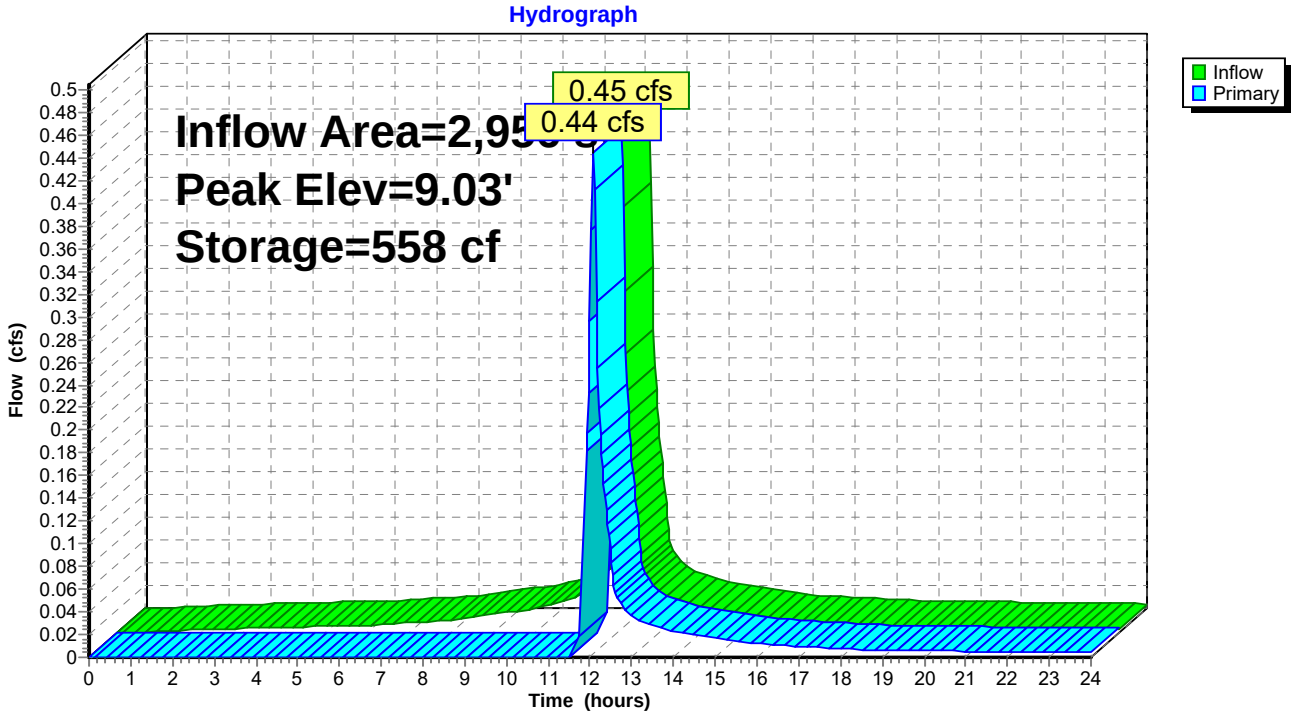
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.67	0	0	0
8.91	390	47	47
8.92	1,248	8	55
9.00	1,248	100	155
9.25	858	263	418

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	0	0	0
9.24	390	47	47
9.25	1,248	8	55
10.25	858	1,053	1,108

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**34.0' 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=0.40 cfs @ 12.08 hrs HW=9.03' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.40 cfs @ 0.45 fps)

Pond 1P: Lot 1 Permeable Patio



Stage-Area-Storage for Pond 1P: Lot 1 Permeable Patio

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.67	0	8.73	426	9.79	1,299
7.69	0	8.75	436	9.81	1,320
7.71	1	8.77	446	9.83	1,340
7.73	1	8.79	455	9.85	1,361
7.75	2	8.81	465	9.87	1,381
7.77	3	8.83	475	9.89	1,401
7.79	5	8.85	484	9.91	1,421
7.81	6	8.87	494	9.93	1,441
7.83	8	8.89	503	9.95	1,460
7.85	11	8.91	512	9.97	1,480
7.87	13	8.93	522	9.99	1,499
7.89	16	8.95	529	10.01	1,518
7.91	19	8.97	537	10.03	1,537
7.93	27	8.99	544	10.05	1,556
7.95	37	9.01	552	10.07	1,574
7.97	47	9.03	560	10.09	1,593
7.99	57	9.05	568	10.11	1,611
8.01	67	9.07	577	10.13	1,629
8.03	77	9.09	587	10.15	1,647
8.05	87	9.11	596	10.17	1,665
8.07	97	9.13	607	10.19	1,683
8.09	107	9.15	617	10.21	1,700
8.11	117	9.17	629	10.23	1,718
8.13	127	9.19	640	10.25	**1,735**
8.15	137	9.21	652		
8.17	147	9.23	665		
8.19	157	9.25	682		
8.21	167	9.27	707		
8.23	177	9.29	732		
8.25	187	9.31	756		
8.27	197	9.33	781		
8.29	207	9.35	805		
8.31	217	9.37	829		
8.33	227	9.39	853		
8.35	237	9.41	877		
8.37	247	9.43	900		
8.39	257	9.45	924		
8.41	267	9.47	947		
8.43	277	9.49	970		
8.45	287	9.51	993		
8.47	297	9.53	1,016		
8.49	307	9.55	1,039		
8.51	317	9.57	1,062		
8.53	327	9.59	1,084		
8.55	336	9.61	1,106		
8.57	346	9.63	1,128		
8.59	356	9.65	1,150		
8.61	366	9.67	1,172		
8.63	376	9.69	1,193		
8.65	386	9.71	1,215		
8.67	396	9.73	1,236		
8.69	406	9.75	1,257		
8.71	416	9.77	1,278		

Summary for Pond 2D: Lot 2 Porous Driveway

Inflow Area = 2,875 sf, 82.09% Impervious, Inflow Depth > 5.90" for 25-Year event
Inflow = 0.41 cfs @ 12.07 hrs, Volume= 1,414 cf
Outflow = 0.41 cfs @ 12.08 hrs, Volume= 1,087 cf, Atten= 2%, Lag= 0.7 min
Primary = 0.41 cfs @ 12.08 hrs, Volume= 1,087 cf
Routed to Link P-LIS : Pr. Long Island Sound

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 9.92' @ 12.08 hrs Surf.Area= 584 sf Storage= 354 cf

Plug-Flow detention time= 157.0 min calculated for 1,087 cf (77% of inflow)
Center-of-Mass det. time= 62.6 min (861.5 - 798.8)

Volume	Invert	Avail.Storage	Storage Description
#1	8.30'	304 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 761 cf Overall x 40.0% Voids
#2	9.47'	61 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 203 cf Overall x 30.0% Voids
#3	9.80'	163 cf	**Open Air Storage Above Pavers (Prismatic)**Listed below (Recalc)
		528 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.30	0	0	0
8.80	650	163	163
9.47	650	435	598
9.97	0	163	761

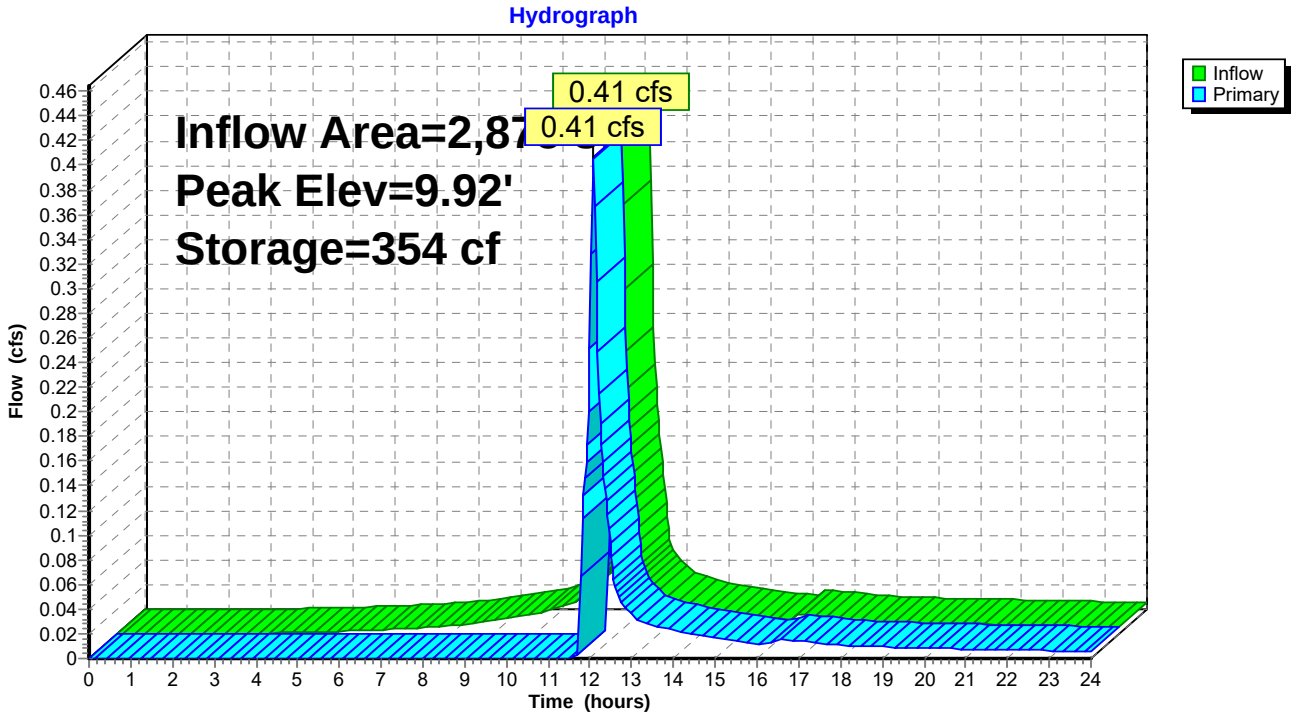
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.47	0	0	0
9.80	502	83	83
9.97	309	69	152
10.30	0	51	203

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.80	0	0	0
10.30	650	163	163

Device	Routing	Invert	Outlet Devices
#1	Primary	9.80'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 5.00 9.99 10.00 Height (feet) 0.50 0.00 0.10 0.50

Primary OutFlow Max=0.40 cfs @ 12.08 hrs HW=9.92' (Free Discharge)
1=Asymmetrical Weir (Weir Controls 0.40 cfs @ 0.53 fps)

Pond 2D: Lot 2 Porous Driveway



Stage-Area-Storage for Pond 2D: Lot 2 Porous Driveway

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
8.30	0	9.36	211
8.32	0	9.38	216
8.34	0	9.40	221
8.36	1	9.42	226
8.38	2	9.44	231
8.40	3	9.46	237
8.42	4	9.48	242
8.44	5	9.50	247
8.46	7	9.52	252
8.48	8	9.54	257
8.50	10	9.56	262
8.52	13	9.58	267
8.54	15	9.60	272
8.56	18	9.62	277
8.58	20	9.64	282
8.60	23	9.66	287
8.62	27	9.68	292
8.64	30	9.70	297
8.66	34	9.72	302
8.68	38	9.74	307
8.70	42	9.76	312
8.72	46	9.78	317
8.74	50	9.80	322
8.76	55	9.82	326
8.78	60	9.84	331
8.80	65	9.86	337
8.82	70	9.88	342
8.84	75	9.90	348
8.86	81	9.92	353
8.88	86	9.94	359
8.90	91	9.96	365
8.92	96	9.98	372
8.94	101	10.00	378
8.96	107	10.02	385
8.98	112	10.04	393
9.00	117	10.06	401
9.02	122	10.08	409
9.04	127	10.10	418
9.06	133	10.12	427
9.08	138	10.14	437
9.10	143	10.16	447
9.12	148	10.18	457
9.14	153	10.20	468
9.16	159	10.22	479
9.18	164	10.24	490
9.20	169	10.26	502
9.22	174	10.28	515
9.24	179	10.30	**528**
9.26	185		
9.28	190		
9.30	195		
9.32	200		
9.34	205		

Summary for Pond 2P: Lot 2 Permeable Patio

Inflow Area = 2,956 sf,100.00% Impervious, Inflow Depth > 6.38" for 25-Year event
Inflow = 0.45 cfs @ 12.07 hrs, Volume= 1,572 cf
Outflow = 0.44 cfs @ 12.08 hrs, Volume= 1,017 cf, Atten= 1%, Lag= 0.3 min
Primary = 0.44 cfs @ 12.08 hrs, Volume= 1,017 cf
Routed to Link P-LIS : Pr. Long Island Sound

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 8.78' @ 12.08 hrs Surf.Area= 2,107 sf Storage= 567 cf

Plug-Flow detention time= 204.6 min calculated for 1,017 cf (65% of inflow)
Center-of-Mass det. time= 99.8 min (838.8 - 739.1)

Volume	Invert	Avail.Storage	Storage Description
#1	7.42'	509 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 1,271 cf Overall x 40.0% Voids
#2	8.42'	127 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 424 cf Overall x 30.0% Voids
#3	8.75'	1,112 cf	**Open Air Storage Over Pavers (Prismatic)**Listed below (Recalc)
		1,748 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.42	0	0	0
7.66	425	51	51
7.67	1,265	8	59
8.42	1,265	949	1,008
8.67	840	263	1,271

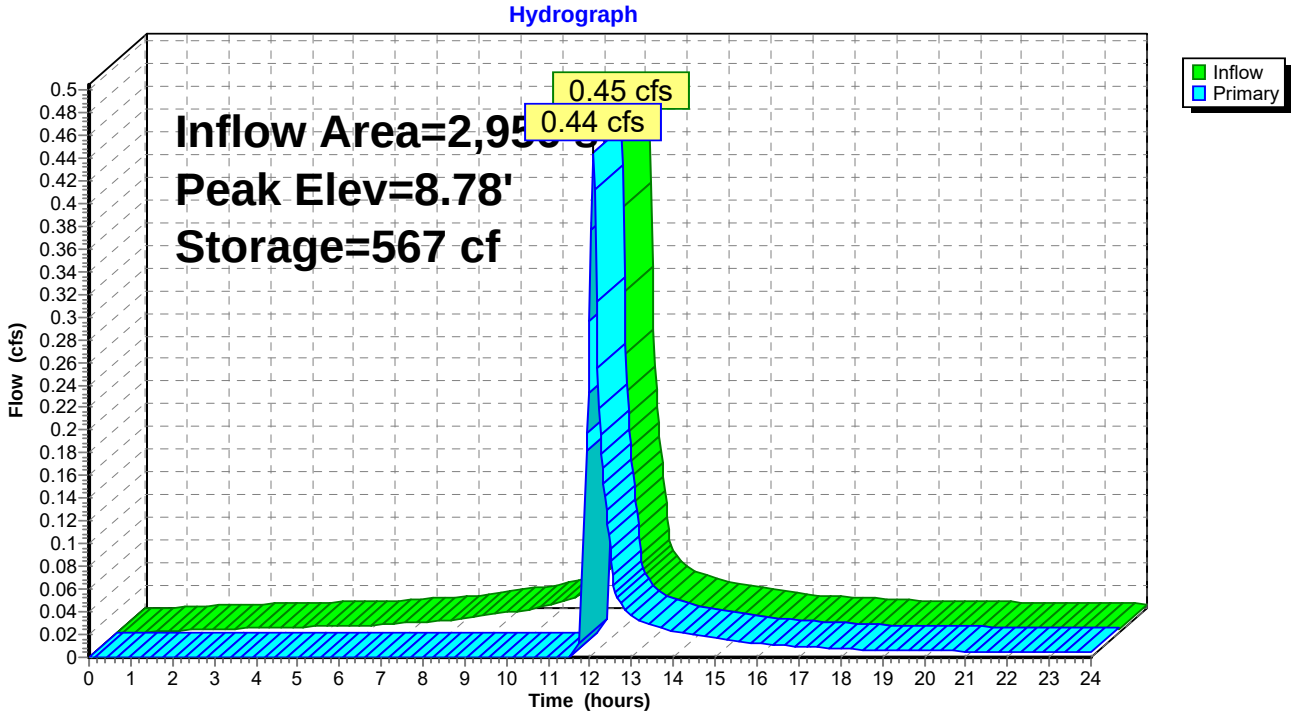
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.42	0	0	0
8.66	425	51	51
8.67	1,265	8	59
8.75	1,265	101	161
9.00	840	263	424

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.75	0	0	0
8.99	425	51	51
9.00	1,265	8	59
10.00	840	1,053	1,112

Device	Routing	Invert	Outlet Devices
#1	Primary	8.75'	**34.0' 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=0.40 cfs @ 12.08 hrs HW=8.78' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.40 cfs @ 0.45 fps)

Pond 2P: Lot 2 Permeable Patio



Stage-Area-Storage for Pond 2P: Lot 2 Permeable Patio

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.42	0	8.48	433	9.54	1,316
7.44	0	8.50	443	9.56	1,337
7.46	1	8.52	453	9.58	1,357
7.48	1	8.54	463	9.60	1,378
7.50	2	8.56	473	9.62	1,398
7.52	4	8.58	482	9.64	1,418
7.54	5	8.60	492	9.66	1,437
7.56	7	8.62	502	9.68	1,457
7.58	9	8.64	511	9.70	1,476
7.60	11	8.66	520	9.72	1,496
7.62	14	8.68	530	9.74	1,515
7.64	17	8.70	538	9.76	1,534
7.66	20	8.72	545	9.78	1,553
7.68	29	8.74	553	9.80	1,571
7.70	39	8.76	561	9.82	1,590
7.72	49	8.78	569	9.84	1,608
7.74	59	8.80	577	9.86	1,626
7.76	69	8.82	586	9.88	1,644
7.78	79	8.84	596	9.90	1,661
7.80	90	8.86	606	9.92	1,679
7.82	100	8.88	617	9.94	1,696
7.84	110	8.90	628	9.96	1,714
7.86	120	8.92	639	9.98	1,731
7.88	130	8.94	652	10.00	**1,748**
7.90	140	8.96	664		
7.92	150	8.98	677		
7.94	160	9.00	695		
7.96	171	9.02	720		
7.98	181	9.04	745		
8.00	191	9.06	770		
8.02	201	9.08	795		
8.04	211	9.10	819		
8.06	221	9.12	844		
8.08	231	9.14	868		
8.10	241	9.16	892		
8.12	251	9.18	916		
8.14	262	9.20	940		
8.16	272	9.22	963		
8.18	282	9.24	986		
8.20	292	9.26	1,010		
8.22	302	9.28	1,033		
8.24	312	9.30	1,055		
8.26	322	9.32	1,078		
8.28	332	9.34	1,101		
8.30	343	9.36	1,123		
8.32	353	9.38	1,145		
8.34	363	9.40	1,167		
8.36	373	9.42	1,189		
8.38	383	9.44	1,211		
8.40	393	9.46	1,232		
8.42	403	9.48	1,253		
8.44	413	9.50	1,274		
8.46	423	9.52	1,295		

Summary for Pond 3D: Lot 3 Porous Driveway

Inflow Area = 3,030 sf, 81.09% Impervious, Inflow Depth > 5.51" for 25-Year event
Inflow = 0.44 cfs @ 12.07 hrs, Volume= 1,392 cf
Outflow = 0.43 cfs @ 12.08 hrs, Volume= 1,066 cf, Atten= 2%, Lag= 0.7 min
Primary = 0.43 cfs @ 12.08 hrs, Volume= 1,066 cf
Routed to Link P-LIS : Pr. Long Island Sound

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 9.92' @ 12.08 hrs Surf.Area= 581 sf Storage= 355 cf

Plug-Flow detention time= 138.5 min calculated for 1,065 cf (76% of inflow)
Center-of-Mass det. time= 57.8 min (834.8 - 776.9)

Volume	Invert	Avail.Storage	Storage Description
#1	8.30'	304 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 761 cf Overall x 40.0% Voids
#2	9.47'	61 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 203 cf Overall x 30.0% Voids
#3	9.80'	163 cf	**Open Air Storage Above Pavers (Prismatic)**Listed below (Recalc)
		528 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.30	0	0	0
8.80	650	163	163
9.47	650	435	598
9.97	0	163	761

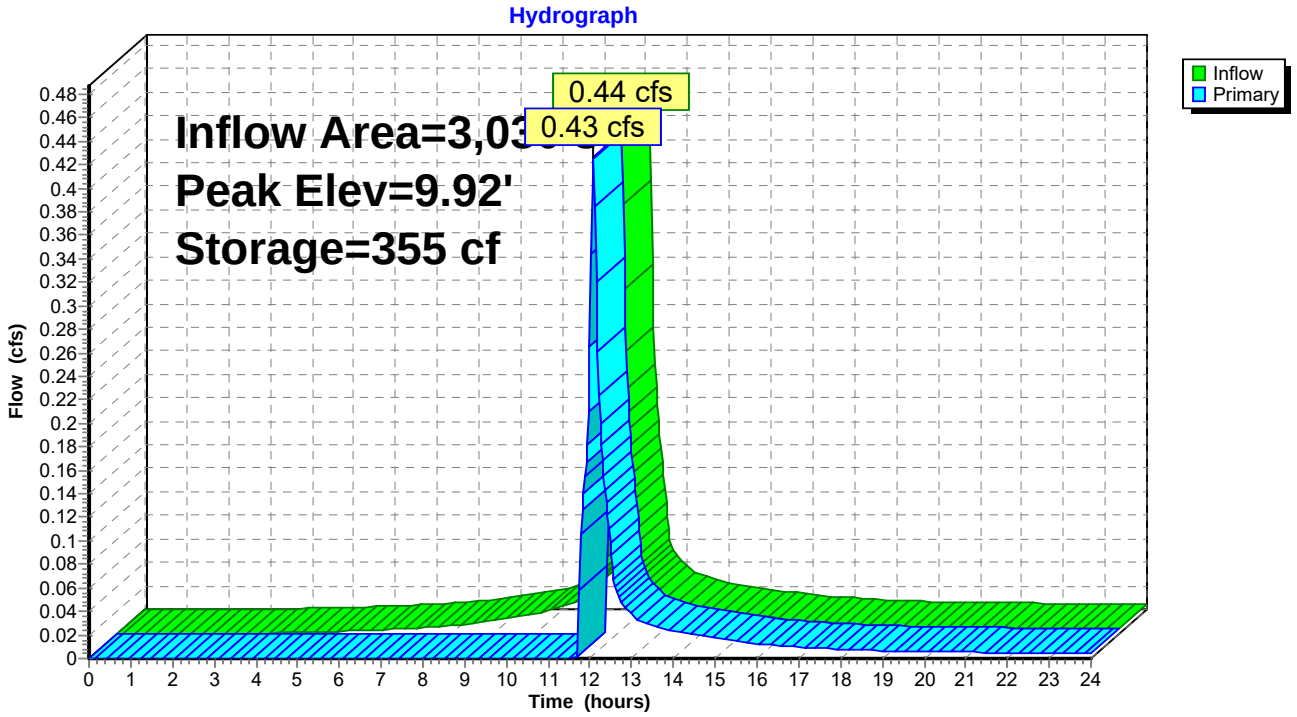
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.47	0	0	0
9.80	502	83	83
9.97	309	69	152
10.30	0	51	203

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.80	0	0	0
10.30	650	163	163

Device	Routing	Invert	Outlet Devices
#1	Primary	9.80'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 5.00 9.99 10.00 Height (feet) 0.50 0.00 0.10 0.50

Primary OutFlow Max=0.42 cfs @ 12.08 hrs HW=9.92' (Free Discharge)
1=Asymmetrical Weir (Weir Controls 0.42 cfs @ 0.54 fps)

Pond 3D: Lot 3 Porous Driveway



Stage-Area-Storage for Pond 3D: Lot 3 Porous Driveway

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
8.30	0	9.36	211
8.32	0	9.38	216
8.34	0	9.40	221
8.36	1	9.42	226
8.38	2	9.44	231
8.40	3	9.46	237
8.42	4	9.48	242
8.44	5	9.50	247
8.46	7	9.52	252
8.48	8	9.54	257
8.50	10	9.56	262
8.52	13	9.58	267
8.54	15	9.60	272
8.56	18	9.62	277
8.58	20	9.64	282
8.60	23	9.66	287
8.62	27	9.68	292
8.64	30	9.70	297
8.66	34	9.72	302
8.68	38	9.74	307
8.70	42	9.76	312
8.72	46	9.78	317
8.74	50	9.80	322
8.76	55	9.82	326
8.78	60	9.84	331
8.80	65	9.86	337
8.82	70	9.88	342
8.84	75	9.90	348
8.86	81	9.92	353
8.88	86	9.94	359
8.90	91	9.96	365
8.92	96	9.98	372
8.94	101	10.00	378
8.96	107	10.02	385
8.98	112	10.04	393
9.00	117	10.06	401
9.02	122	10.08	409
9.04	127	10.10	418
9.06	133	10.12	427
9.08	138	10.14	437
9.10	143	10.16	447
9.12	148	10.18	457
9.14	153	10.20	468
9.16	159	10.22	479
9.18	164	10.24	490
9.20	169	10.26	502
9.22	174	10.28	515
9.24	179	10.30	**528**
9.26	185		
9.28	190		
9.30	195		
9.32	200		
9.34	205		

Summary for Pond 3P: Lot 3 Permeable Patio

Inflow Area = 2,956 sf,100.00% Impervious, Inflow Depth > 6.38" for 25-Year event
Inflow = 0.45 cfs @ 12.07 hrs, Volume= 1,572 cf
Outflow = 0.44 cfs @ 12.08 hrs, Volume= 1,017 cf, Atten= 1%, Lag= 0.3 min
Primary = 0.44 cfs @ 12.08 hrs, Volume= 1,017 cf
Routed to Link P-LIS : Pr. Long Island Sound

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 8.78' @ 12.08 hrs Surf.Area= 2,107 sf Storage= 567 cf

Plug-Flow detention time= 204.6 min calculated for 1,017 cf (65% of inflow)
Center-of-Mass det. time= 99.8 min (838.8 - 739.1)

Volume	Invert	Avail.Storage	Storage Description
#1	7.42'	509 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 1,271 cf Overall x 40.0% Voids
#2	8.42'	127 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 424 cf Overall x 30.0% Voids
#3	8.75'	1,112 cf	**Open Air Storage Over Pavers (Prismatic)**Listed below (Recalc)
		1,748 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.42	0	0	0
7.66	425	51	51
7.67	1,265	8	59
8.42	1,265	949	1,008
8.67	840	263	1,271

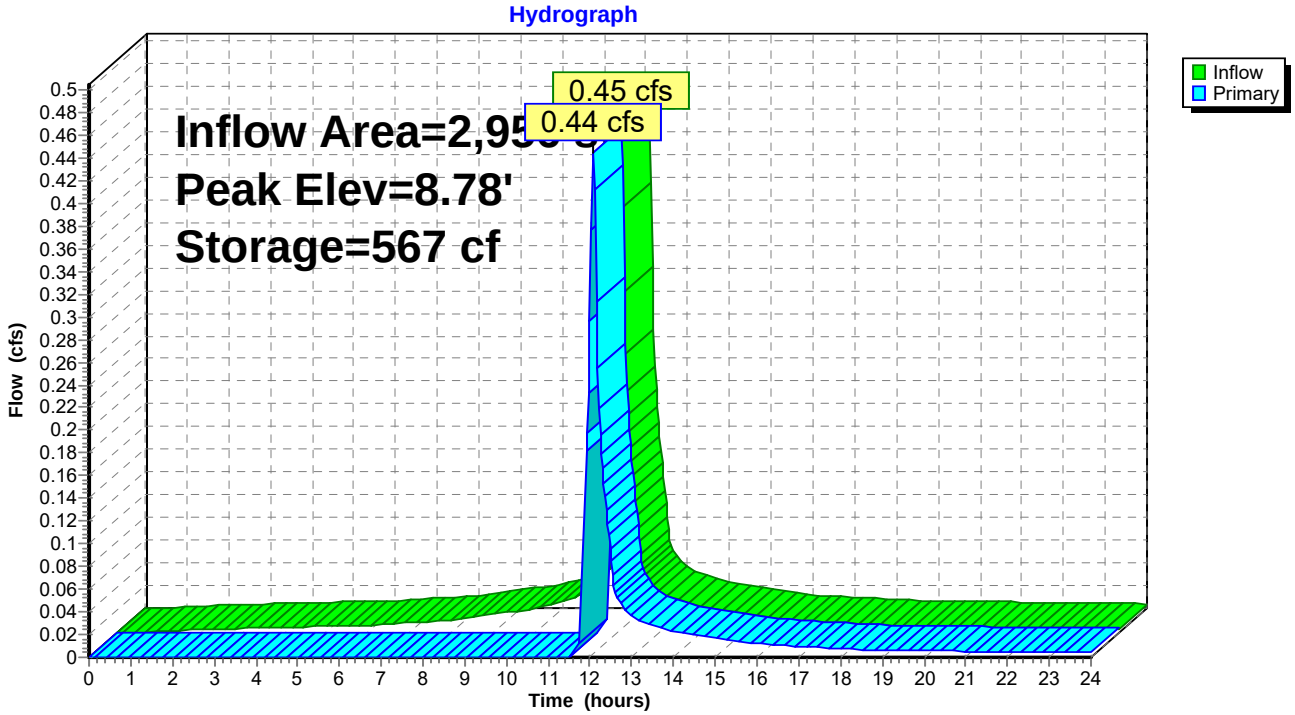
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.42	0	0	0
8.66	425	51	51
8.67	1,265	8	59
8.75	1,265	101	161
9.00	840	263	424

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.75	0	0	0
8.99	425	51	51
9.00	1,265	8	59
10.00	840	1,053	1,112

Device	Routing	Invert	Outlet Devices
#1	Primary	8.75'	**34.0' 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=0.40 cfs @ 12.08 hrs HW=8.78' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.40 cfs @ 0.45 fps)

Pond 3P: Lot 3 Permeable Patio



Stage-Area-Storage for Pond 3P: Lot 3 Permeable Patio

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.42	0	8.48	433	9.54	1,316
7.44	0	8.50	443	9.56	1,337
7.46	1	8.52	453	9.58	1,357
7.48	1	8.54	463	9.60	1,378
7.50	2	8.56	473	9.62	1,398
7.52	4	8.58	482	9.64	1,418
7.54	5	8.60	492	9.66	1,437
7.56	7	8.62	502	9.68	1,457
7.58	9	8.64	511	9.70	1,476
7.60	11	8.66	520	9.72	1,496
7.62	14	8.68	530	9.74	1,515
7.64	17	8.70	538	9.76	1,534
7.66	20	8.72	545	9.78	1,553
7.68	29	8.74	553	9.80	1,571
7.70	39	8.76	561	9.82	1,590
7.72	49	8.78	569	9.84	1,608
7.74	59	8.80	577	9.86	1,626
7.76	69	8.82	586	9.88	1,644
7.78	79	8.84	596	9.90	1,661
7.80	90	8.86	606	9.92	1,679
7.82	100	8.88	617	9.94	1,696
7.84	110	8.90	628	9.96	1,714
7.86	120	8.92	639	9.98	1,731
7.88	130	8.94	652	10.00	**1,748**
7.90	140	8.96	664		
7.92	150	8.98	677		
7.94	160	9.00	695		
7.96	171	9.02	720		
7.98	181	9.04	745		
8.00	191	9.06	770		
8.02	201	9.08	795		
8.04	211	9.10	819		
8.06	221	9.12	844		
8.08	231	9.14	868		
8.10	241	9.16	892		
8.12	251	9.18	916		
8.14	262	9.20	940		
8.16	272	9.22	963		
8.18	282	9.24	986		
8.20	292	9.26	1,010		
8.22	302	9.28	1,033		
8.24	312	9.30	1,055		
8.26	322	9.32	1,078		
8.28	332	9.34	1,101		
8.30	343	9.36	1,123		
8.32	353	9.38	1,145		
8.34	363	9.40	1,167		
8.36	373	9.42	1,189		
8.38	383	9.44	1,211		
8.40	393	9.46	1,232		
8.42	403	9.48	1,253		
8.44	413	9.50	1,274		
8.46	423	9.52	1,295		

Summary for Pond 4D: Lot 4 Porous Driveway

Inflow Area = 2,985 sf, 89.82% Impervious, Inflow Depth > 5.88" for 25-Year event
Inflow = 0.44 cfs @ 12.07 hrs, Volume= 1,464 cf
Outflow = 0.44 cfs @ 12.08 hrs, Volume= 931 cf, Atten= 2%, Lag= 0.4 min
Primary = 0.44 cfs @ 12.08 hrs, Volume= 931 cf
Routed to Link P-LIS : Pr. Long Island Sound

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 9.04' @ 12.08 hrs Surf.Area= 1,044 sf Storage= 549 cf

Plug-Flow detention time= 187.1 min calculated for 931 cf (64% of inflow)
Center-of-Mass det. time= 86.6 min (850.4 - 763.8)

Volume	Invert	Avail.Storage	Storage Description
#1	7.50'	501 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 1,252 cf Overall x 40.0% Voids
#2	8.67'	102 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 342 cf Overall x 30.0% Voids
#3	9.00'	214 cf	**Open Air Storage Above Pavers (Prismatic)**Listed below (Recalc)
		817 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.50	0	0	0
7.90	1,070	214	214
8.67	1,070	824	1,038
9.07	0	214	1,252

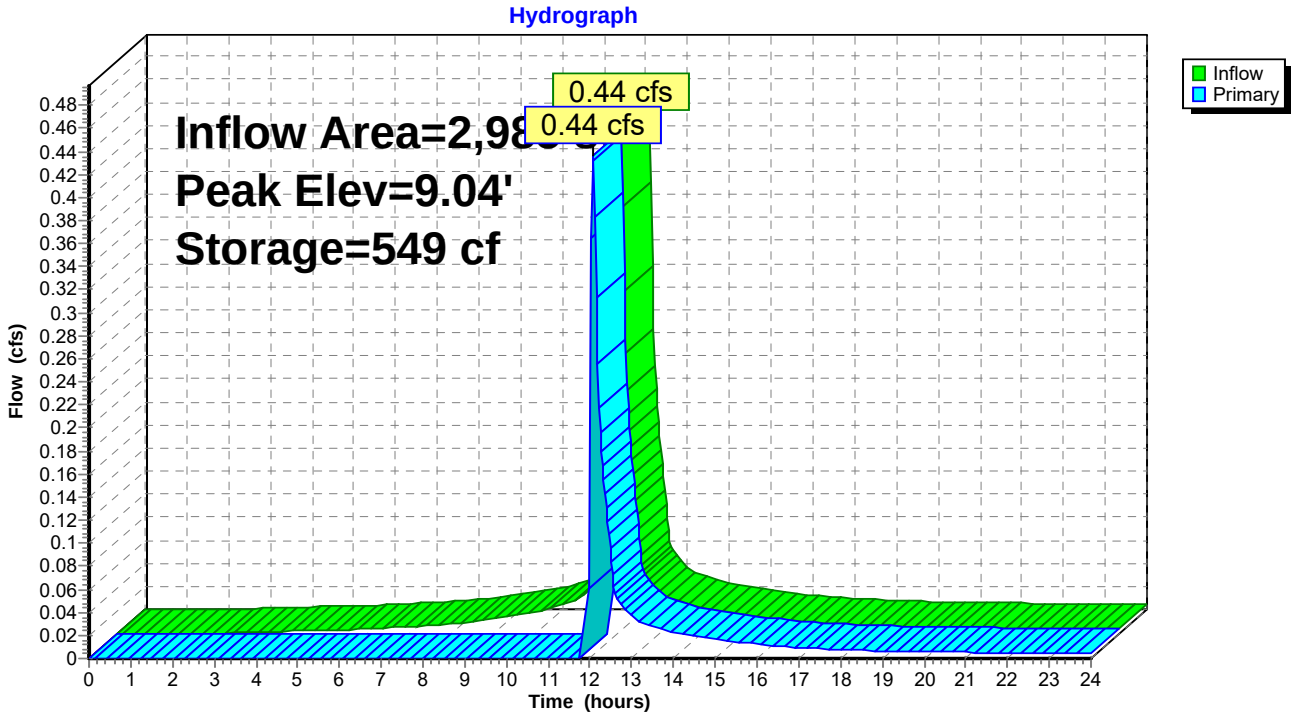
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.67	0	0	0
9.00	768	127	127
9.07	940	60	187
9.40	0	155	342

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	0	0	0
9.40	1,070	214	214

Device	Routing	Invert	Outlet Devices
#1	Primary	9.00'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 0.01 18.99 19.00 Height (feet) 0.50 0.00 0.00 0.50

Primary OutFlow Max=0.42 cfs @ 12.08 hrs HW=9.04' (Free Discharge)
1=Asymmetrical Weir (Weir Controls 0.42 cfs @ 0.62 fps)

Pond 4D: Lot 4 Porous Driveway



Stage-Area-Storage for Pond 4D: Lot 4 Porous Driveway

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.50	0	8.56	368
7.52	0	8.58	377
7.54	1	8.60	385
7.56	2	8.62	394
7.58	3	8.64	402
7.60	5	8.66	411
7.62	8	8.68	419
7.64	10	8.70	428
7.66	14	8.72	436
7.68	17	8.74	444
7.70	21	8.76	452
7.72	26	8.78	460
7.74	31	8.80	468
7.76	36	8.82	475
7.78	42	8.84	483
7.80	48	8.86	490
7.82	55	8.88	497
7.84	62	8.90	504
7.86	69	8.92	511
7.88	77	8.94	517
7.90	86	8.96	524
7.92	94	8.98	530
7.94	103	9.00	536
7.96	111	9.02	543
7.98	120	9.04	550
8.00	128	9.06	559
8.02	137	9.08	568
8.04	146	9.10	578
8.06	154	9.12	589
8.08	163	9.14	601
8.10	171	9.16	613
8.12	180	9.18	626
8.14	188	9.20	640
8.16	197	9.22	654
8.18	205	9.24	669
8.20	214	9.26	685
8.22	223	9.28	702
8.24	231	9.30	719
8.26	240	9.32	737
8.28	248	9.34	756
8.30	257	9.36	776
8.32	265	9.38	796
8.34	274	9.40	**817**
8.36	282	9.42	817
8.38	291	9.44	817
8.40	300	9.46	817
8.42	308	9.48	817
8.44	317	9.50	817
8.46	325		
8.48	334		
8.50	342		
8.52	351		
8.54	360		

Summary for Pond 4P: Lot 4 Permeable Patio

Inflow Area = 3,073 sf,100.00% Impervious, Inflow Depth > 6.38" for 25-Year event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 1,634 cf
Outflow = 0.46 cfs @ 12.08 hrs, Volume= 1,175 cf, Atten= 1%, Lag= 0.3 min
Primary = 0.46 cfs @ 12.08 hrs, Volume= 1,175 cf
Routed to Link P-LIS : Pr. Long Island Sound

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 8.78' @ 12.08 hrs Surf.Area= 1,661 sf Storage= 469 cf

Plug-Flow detention time= 179.2 min calculated for 1,175 cf (72% of inflow)
Center-of-Mass det. time= 86.3 min (825.5 - 739.2)

Volume	Invert	Avail.Storage	Storage Description
#1	7.42'	412 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 1,029 cf Overall x 40.0% Voids
#2	8.42'	109 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 364 cf Overall x 30.0% Voids
#3	8.75'	1,156 cf	**Open Air Storage Over Pavers (Prismatic)**Listed below (Recalc)
		1,677 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.42	0	0	0
7.66	514	62	62
7.67	1,086	8	70
7.92	1,086	272	341
8.75	572	688	1,029

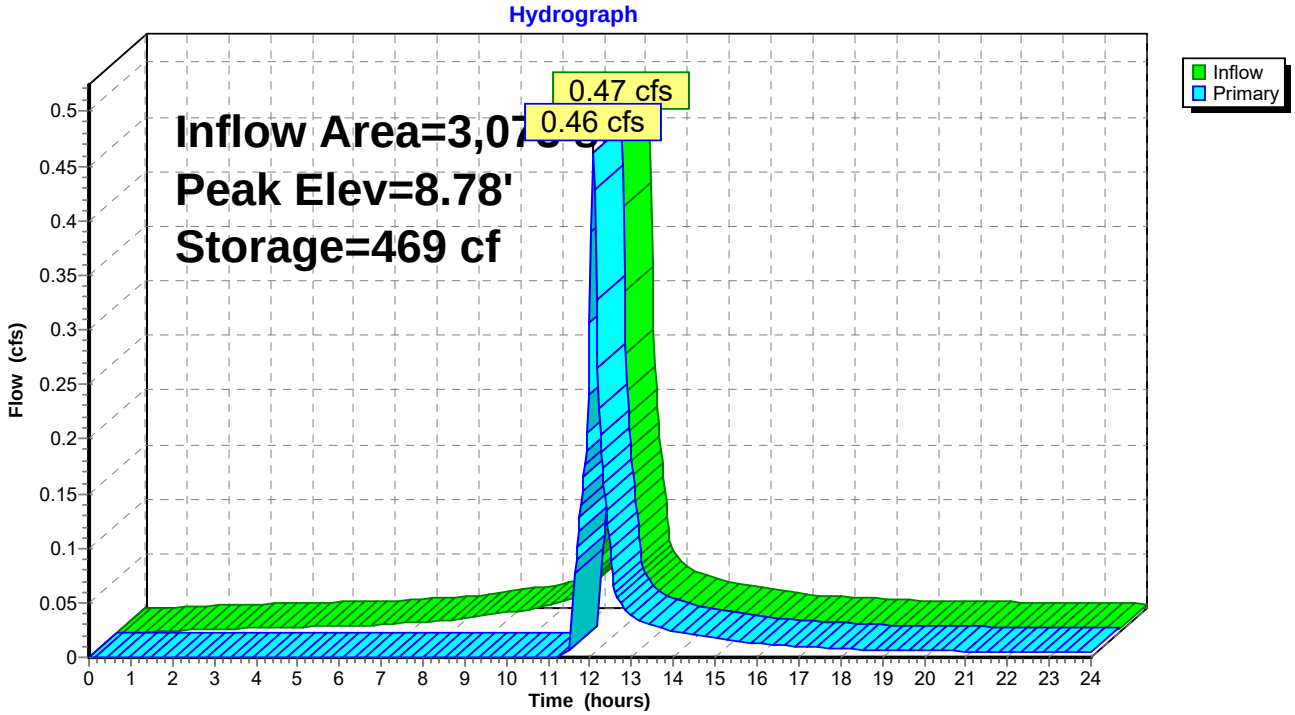
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.42	0	0	0
8.66	514	62	62
8.67	1,086	8	70
8.75	1,086	87	157
9.00	572	207	364

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.75	0	0	0
8.99	514	62	62
9.00	1,086	8	70
10.00	1,086	1,086	1,156

Device	Routing	Invert	Outlet Devices
#1	Primary	8.75'	**29.0' 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=0.43 cfs @ 12.08 hrs HW=8.78' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.43 cfs @ 0.49 fps)

Pond 4P: Lot 4 Permeable Patio



Stage-Area-Storage for Pond 4P: Lot 4 Permeable Patio

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
7.42	0	8.48	342	9.54	1,177
7.44	0	8.50	349	9.56	1,199
7.46	1	8.52	356	9.58	1,220
7.48	2	8.54	363	9.60	1,242
7.50	3	8.56	370	9.62	1,264
7.52	4	8.58	377	9.64	1,286
7.54	6	8.60	385	9.66	1,307
7.56	8	8.62	393	9.68	1,329
7.58	11	8.64	401	9.70	1,351
7.60	14	8.66	409	9.72	1,372
7.62	17	8.68	419	9.74	1,394
7.64	21	8.70	431	9.76	1,416
7.66	25	8.72	442	9.78	1,438
7.68	32	8.74	453	9.80	1,459
7.70	41	8.76	462	9.82	1,481
7.72	50	8.78	469	9.84	1,503
7.74	58	8.80	477	9.86	1,524
7.76	67	8.82	485	9.88	1,546
7.78	76	8.84	494	9.90	1,568
7.80	84	8.86	504	9.92	1,590
7.82	93	8.88	514	9.94	1,611
7.84	102	8.90	525	9.96	1,633
7.86	110	8.92	536	9.98	1,655
7.88	119	8.94	548	10.00	**1,677**
7.90	128	8.96	561		
7.92	136	8.98	574		
7.94	145	9.00	591		
7.96	154	9.02	612		
7.98	162	9.04	634		
8.00	170	9.06	656		
8.02	179	9.08	677		
8.04	187	9.10	699		
8.06	195	9.12	721		
8.08	203	9.14	743		
8.10	211	9.16	764		
8.12	218	9.18	786		
8.14	226	9.20	808		
8.16	234	9.22	829		
8.18	241	9.24	851		
8.20	248	9.26	873		
8.22	256	9.28	895		
8.24	263	9.30	916		
8.26	270	9.32	938		
8.28	277	9.34	960		
8.30	284	9.36	981		
8.32	290	9.38	1,003		
8.34	297	9.40	1,025		
8.36	304	9.42	1,047		
8.38	310	9.44	1,068		
8.40	316	9.46	1,090		
8.42	323	9.48	1,112		
8.44	329	9.50	1,134		
8.46	335	9.52	1,155		

Summary for Pond RD1: R.O.W. Porous Driveway 1

Inflow Area = 3,517 sf, 77.77% Impervious, Inflow Depth > 5.37" for 25-Year event
Inflow = 0.50 cfs @ 12.07 hrs, Volume= 1,575 cf
Outflow = 0.01 cfs @ 16.39 hrs, Volume= 204 cf, Atten= 97%, Lag= 259.1 min
Primary = 0.00 cfs @ 16.39 hrs, Volume= 74 cf
Routed to Pond RD2 : R.O.W. Porous Driveway 2
Secondary = 0.00 cfs @ 16.39 hrs, Volume= 46 cf
Routed to Pond 1D : Lot 1 Porous Driveway
Tertiary = 0.01 cfs @ 16.39 hrs, Volume= 83 cf
Routed to Pond 2D : Lot 2 Porous Driveway

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 12.00' @ 16.39 hrs Surf.Area= 7,178 sf Storage= 1,372 cf

Plug-Flow detention time= 628.8 min calculated for 203 cf (13% of inflow)
Center-of-Mass det. time= 389.7 min (1,170.9 - 781.3)

Volume	Invert	Avail.Storage	Storage Description
#1	10.50'	1,131 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 2,828 cf Overall x 40.0% Voids
#2	11.67'	239 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 798 cf Overall x 30.0% Voids
#3	12.00'	2,344 cf	**Open Air Storage Above Pavers (Prismatic)**Listed below (Recalc)
		3,714 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
10.50	2,417	0	0
11.67	2,417	2,828	2,828

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
11.67	2,417	0	0
12.00	2,417	798	798

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.00	2,344	0	0
13.00	2,344	2,344	2,344

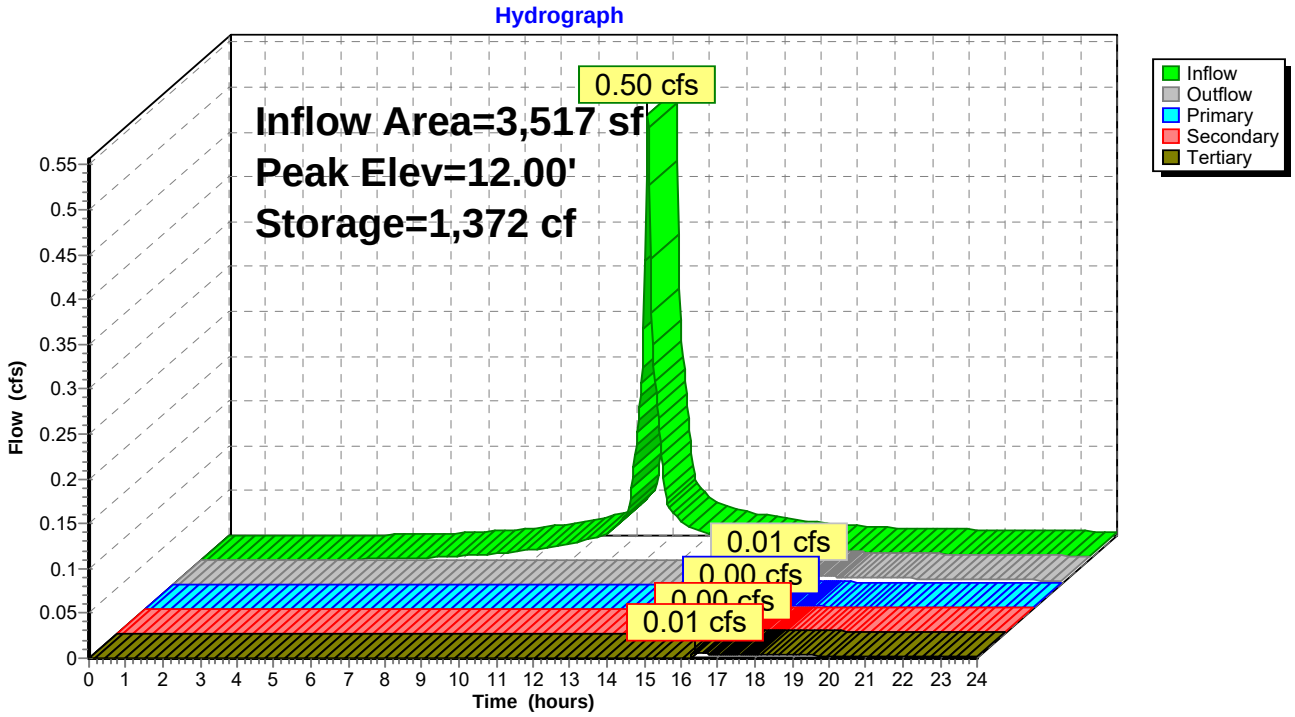
Device	Routing	Invert	Outlet Devices
#1	Primary	12.00'	**20.5' long + 100.0 '/' SideZ x 0.5' breadth Common Driveway** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Secondary	12.00'	**12.0' long + 100.0 '/' SideZ x 0.5' breadth Lot 2 Driveway** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Tertiary	12.00'	**23.2' long + 100.0 '/' SideZ x 0.5' breadth Lot 1 Driveway** 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=0.00 cfs @ 16.39 hrs HW=12.00' (Free Discharge)
└**1=Common Driveway** (Weir Controls 0.00 cfs @ 0.06 fps)

Secondary OutFlow Max=0.00 cfs @ 16.39 hrs HW=12.00' (Free Discharge)
└**2=Lot 2 Driveway** (Weir Controls 0.00 cfs @ 0.06 fps)

Tertiary OutFlow Max=0.00 cfs @ 16.39 hrs HW=12.00' (Free Discharge)
└**3=Lot 1 Driveway** (Weir Controls 0.00 cfs @ 0.06 fps)

Pond RD1: R.O.W. Porous Driveway 1



Stage-Area-Storage for Pond RD1: R.O.W. Porous Driveway 1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
10.50	0	11.56	1,025	12.62	2,824
10.52	19	11.58	1,044	12.64	2,871
10.54	39	11.60	1,063	12.66	2,917
10.56	58	11.62	1,083	12.68	2,964
10.58	77	11.64	1,102	12.70	3,011
10.60	97	11.66	1,121	12.72	3,058
10.62	116	11.68	1,138	12.74	3,105
10.64	135	11.70	1,153	12.76	3,152
10.66	155	11.72	1,167	12.78	3,199
10.68	174	11.74	1,182	12.80	3,246
10.70	193	11.76	1,196	12.82	3,293
10.72	213	11.78	1,211	12.84	3,339
10.74	232	11.80	1,225	12.86	3,386
10.76	251	11.82	1,240	12.88	3,433
10.78	271	11.84	1,254	12.90	3,480
10.80	290	11.86	1,269	12.92	3,527
10.82	309	11.88	1,283	12.94	3,574
10.84	329	11.90	1,298	12.96	3,621
10.86	348	11.92	1,312	12.98	3,668
10.88	367	11.94	1,327	13.00	**3,714**
10.90	387	11.96	1,341		
10.92	406	11.98	1,356		
10.94	425	12.00	1,370		
10.96	445	12.02	1,417		
10.98	464	12.04	1,464		
11.00	483	12.06	1,511		
11.02	503	12.08	1,558		
11.04	522	12.10	1,605		
11.06	541	12.12	1,652		
11.08	561	12.14	1,699		
11.10	580	12.16	1,745		
11.12	599	12.18	1,792		
11.14	619	12.20	1,839		
11.16	638	12.22	1,886		
11.18	657	12.24	1,933		
11.20	677	12.26	1,980		
11.22	696	12.28	2,027		
11.24	715	12.30	2,074		
11.26	735	12.32	2,121		
11.28	754	12.34	2,167		
11.30	773	12.36	2,214		
11.32	793	12.38	2,261		
11.34	812	12.40	2,308		
11.36	831	12.42	2,355		
11.38	851	12.44	2,402		
11.40	870	12.46	2,449		
11.42	889	12.48	2,496		
11.44	909	12.50	2,542		
11.46	928	12.52	2,589		
11.48	947	12.54	2,636		
11.50	967	12.56	2,683		
11.52	986	12.58	2,730		
11.54	1,005	12.60	2,777		

Summary for Pond RD2: R.O.W. Porous Driveway 2

Inflow Area = 8,546 sf, 76.88% Impervious, Inflow Depth > 3.23" for 25-Year event
Inflow = 0.71 cfs @ 12.07 hrs, Volume= 2,300 cf
Outflow = 0.68 cfs @ 12.09 hrs, Volume= 1,664 cf, Atten= 4%, Lag= 1.1 min
Primary = 0.68 cfs @ 12.09 hrs, Volume= 1,664 cf
Routed to Link P-SS : Pr. Storm Sewer

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 9.54' @ 12.09 hrs Surf.Area= 3,306 sf Storage= 696 cf

Plug-Flow detention time= 161.8 min calculated for 1,661 cf (72% of inflow)
Center-of-Mass det. time= 65.5 min (861.2 - 795.7)

Volume	Invert	Avail.Storage	Storage Description
#1	8.00'	523 cf	**Stone Storage (Prismatic)**Listed below (Recalc) 1,308 cf Overall x 40.0% Voids
#2	9.17'	278 cf	**Paver Storage (Prismatic)**Listed below (Recalc) 928 cf Overall x 30.0% Voids
#3	9.50'	1,118 cf	**Open Air Storage Above Pavers (Prismatic)**Listed below (Recalc)
		1,920 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.00	1,118	0	0
9.17	1,118	1,308	1,308

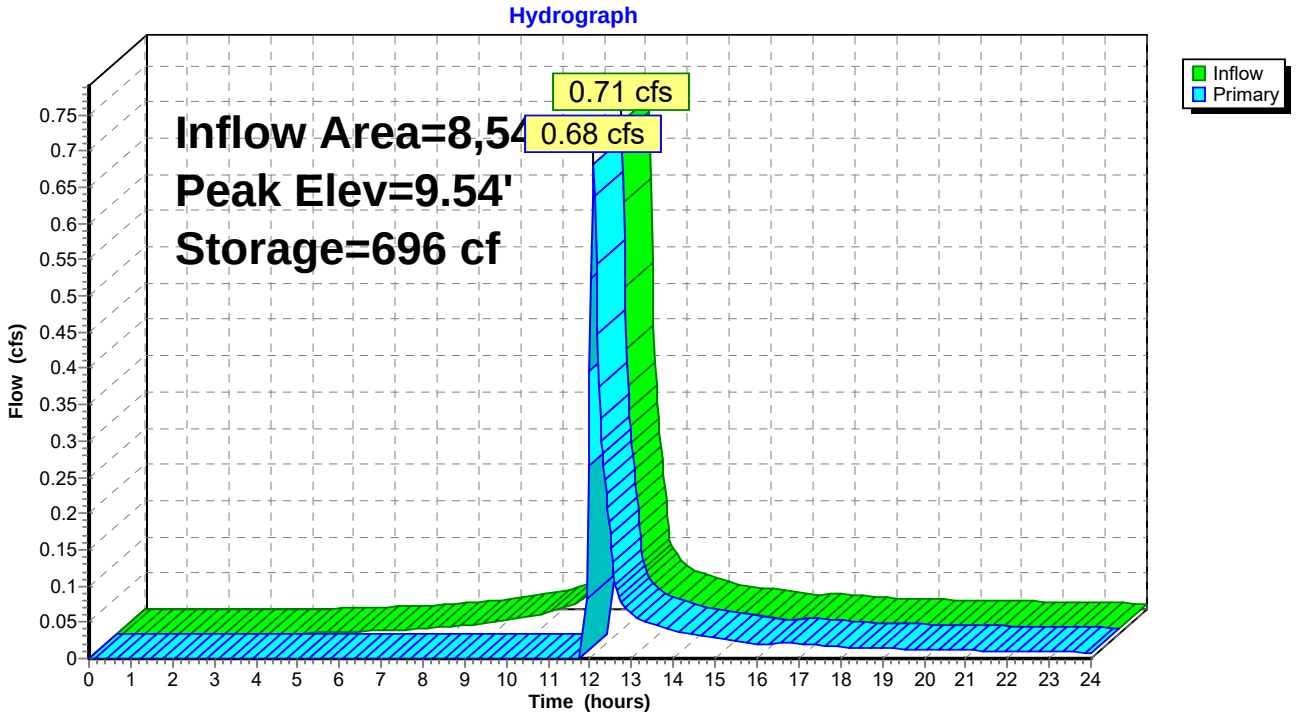
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.17	1,118	0	0
9.50	1,118	369	369
10.50	0	559	928

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.50	1,118	0	0
10.50	1,118	1,118	1,118

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 0.01 9.40 31.70 40.99 41.00 Height (feet) 1.00 0.50 0.00 0.00 0.50 1.00

Primary OutFlow Max=0.66 cfs @ 12.09 hrs HW=9.54' (Free Discharge)
1=Asymmetrical Weir (Weir Controls 0.66 cfs @ 0.65 fps)

Pond RD2: R.O.W. Porous Driveway 2



Stage-Area-Storage for Pond RD2: R.O.W. Porous Driveway 2

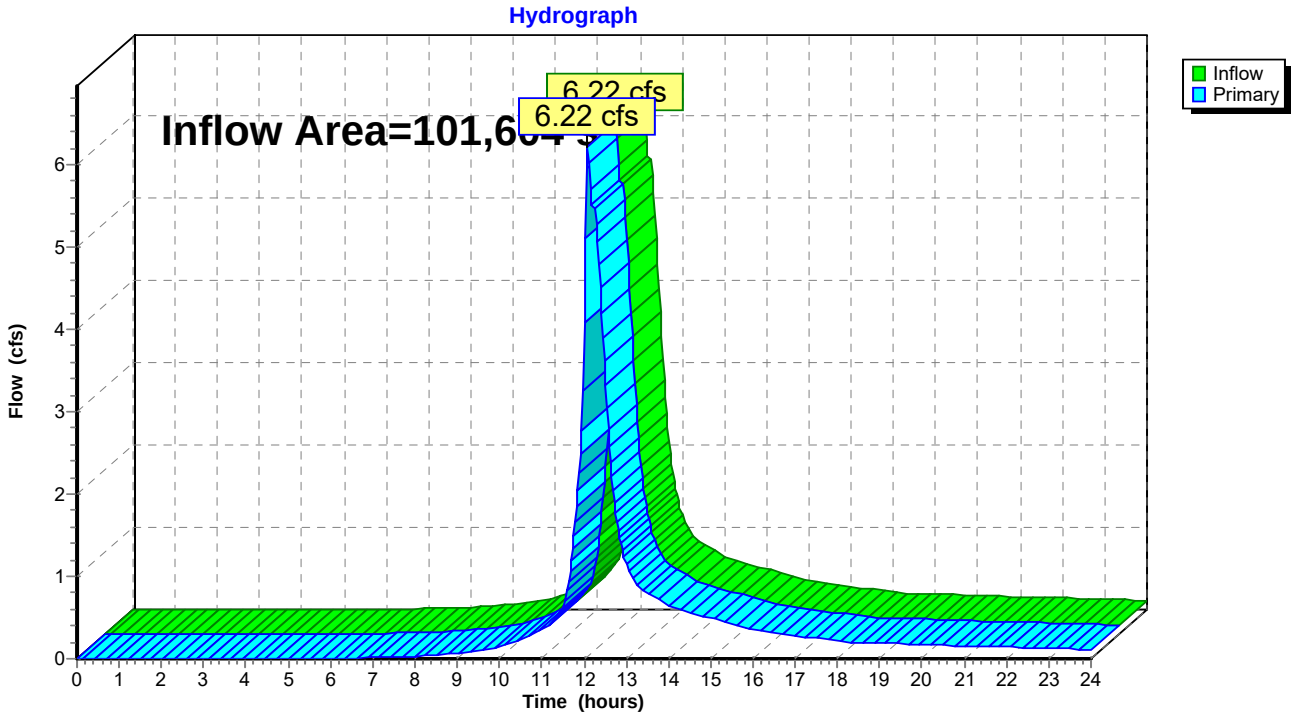
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
8.00	0	9.06	474	10.12	1,471
8.02	9	9.08	483	10.14	1,495
8.04	18	9.10	492	10.16	1,520
8.06	27	9.12	501	10.18	1,545
8.08	36	9.14	510	10.20	1,569
8.10	45	9.16	519	10.22	1,593
8.12	54	9.18	527	10.24	1,618
8.14	63	9.20	533	10.26	1,642
8.16	72	9.22	540	10.28	1,666
8.18	80	9.24	547	10.30	1,689
8.20	89	9.26	553	10.32	1,713
8.22	98	9.28	560	10.34	1,736
8.24	107	9.30	567	10.36	1,760
8.26	116	9.32	574	10.38	1,783
8.28	125	9.34	580	10.40	1,806
8.30	134	9.36	587	10.42	1,829
8.32	143	9.38	594	10.44	1,852
8.34	152	9.40	600	10.46	1,875
8.36	161	9.42	607	10.48	1,897
8.38	170	9.44	614	10.50	**1,920**
8.40	179	9.46	620		
8.42	188	9.48	627		
8.44	197	9.50	634		
8.46	206	9.52	663		
8.48	215	9.54	692		
8.50	224	9.56	721		
8.52	233	9.58	749		
8.54	241	9.60	778		
8.56	250	9.62	806		
8.58	259	9.64	834		
8.60	268	9.66	862		
8.62	277	9.68	890		
8.64	286	9.70	918		
8.66	295	9.72	946		
8.68	304	9.74	973		
8.70	313	9.76	1,000		
8.72	322	9.78	1,028		
8.74	331	9.80	1,055		
8.76	340	9.82	1,082		
8.78	349	9.84	1,109		
8.80	358	9.86	1,135		
8.82	367	9.88	1,162		
8.84	376	9.90	1,188		
8.86	385	9.92	1,215		
8.88	394	9.94	1,241		
8.90	402	9.96	1,267		
8.92	411	9.98	1,293		
8.94	420	10.00	1,319		
8.96	429	10.02	1,344		
8.98	438	10.04	1,370		
9.00	447	10.06	1,395		
9.02	456	10.08	1,420		
9.04	465	10.10	1,446		

Summary for Link E-LIS: Ex. Long Island Sound

Inflow Area = 101,604 sf, 26.77% Impervious, Inflow Depth > 3.53" for 25-Year event
Inflow = 6.22 cfs @ 12.09 hrs, Volume= 29,903 cf
Primary = 6.22 cfs @ 12.09 hrs, Volume= 29,903 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link E-LIS: Ex. Long Island Sound

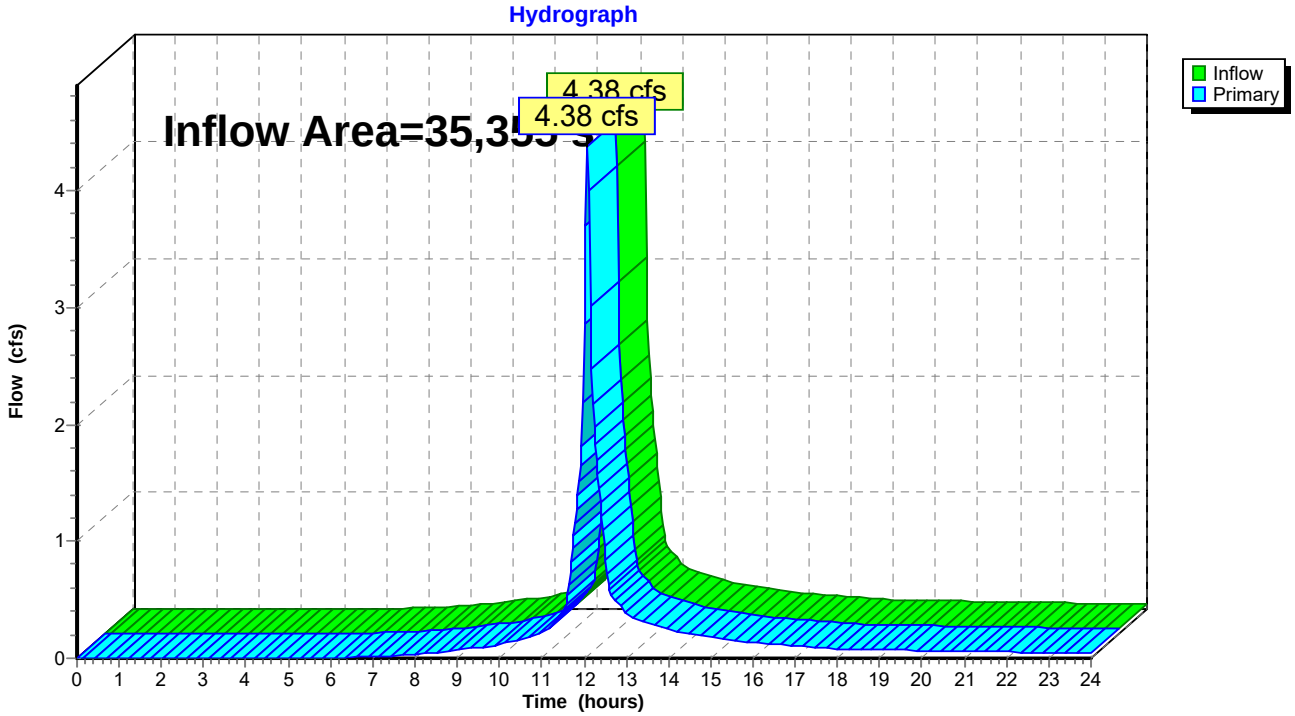


Summary for Link E-SS: Ex. Storm Sewer

Inflow Area = 35,355 sf, 57.19% Impervious, Inflow Depth > 4.53" for 25-Year event
Inflow = 4.38 cfs @ 12.07 hrs, Volume= 13,343 cf
Primary = 4.38 cfs @ 12.07 hrs, Volume= 13,343 cf, Atten= 0%, Lag= 0.0 min
Routed to Link E-LIS : Ex. Long Island Sound

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link E-SS: Ex. Storm Sewer

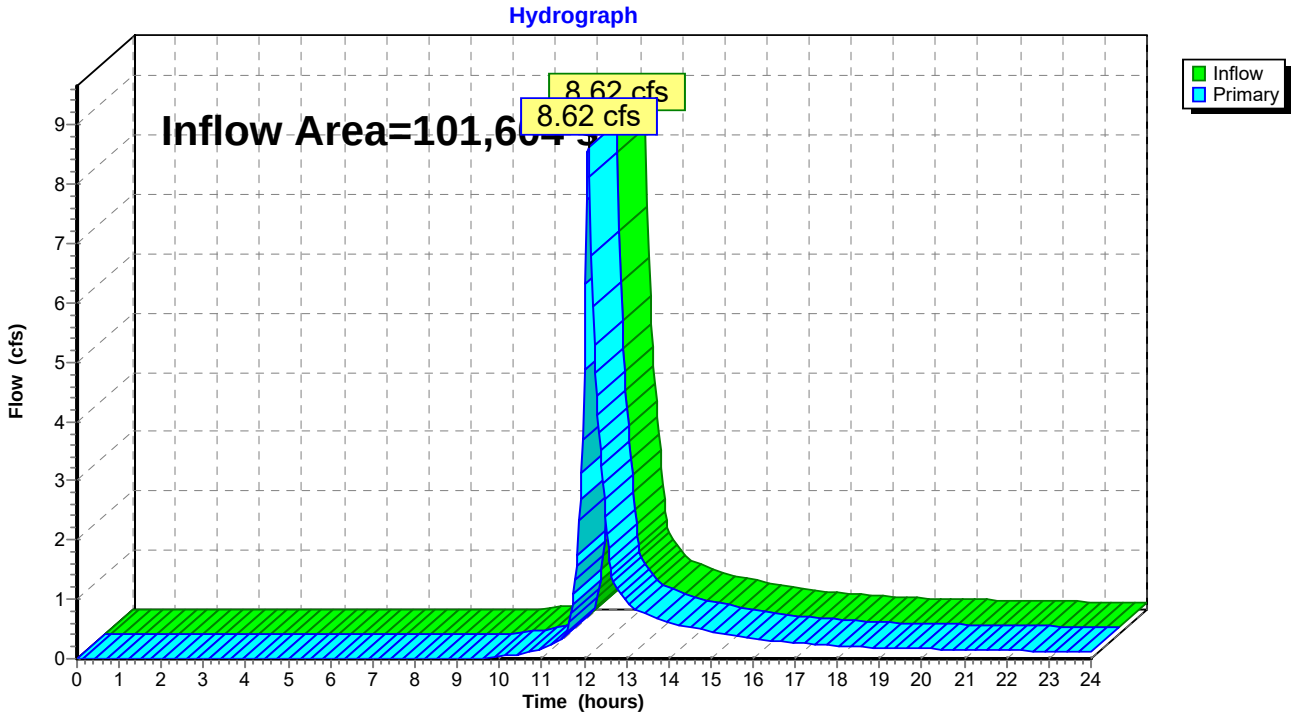


Summary for Link P-LIS: Pr. Long Island Sound

Inflow Area = 101,604 sf, 33.24% Impervious, Inflow Depth > 3.18" for 25-Year event
Inflow = 8.62 cfs @ 12.10 hrs, Volume= 26,933 cf
Primary = 8.62 cfs @ 12.10 hrs, Volume= 26,933 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link P-LIS: Pr. Long Island Sound

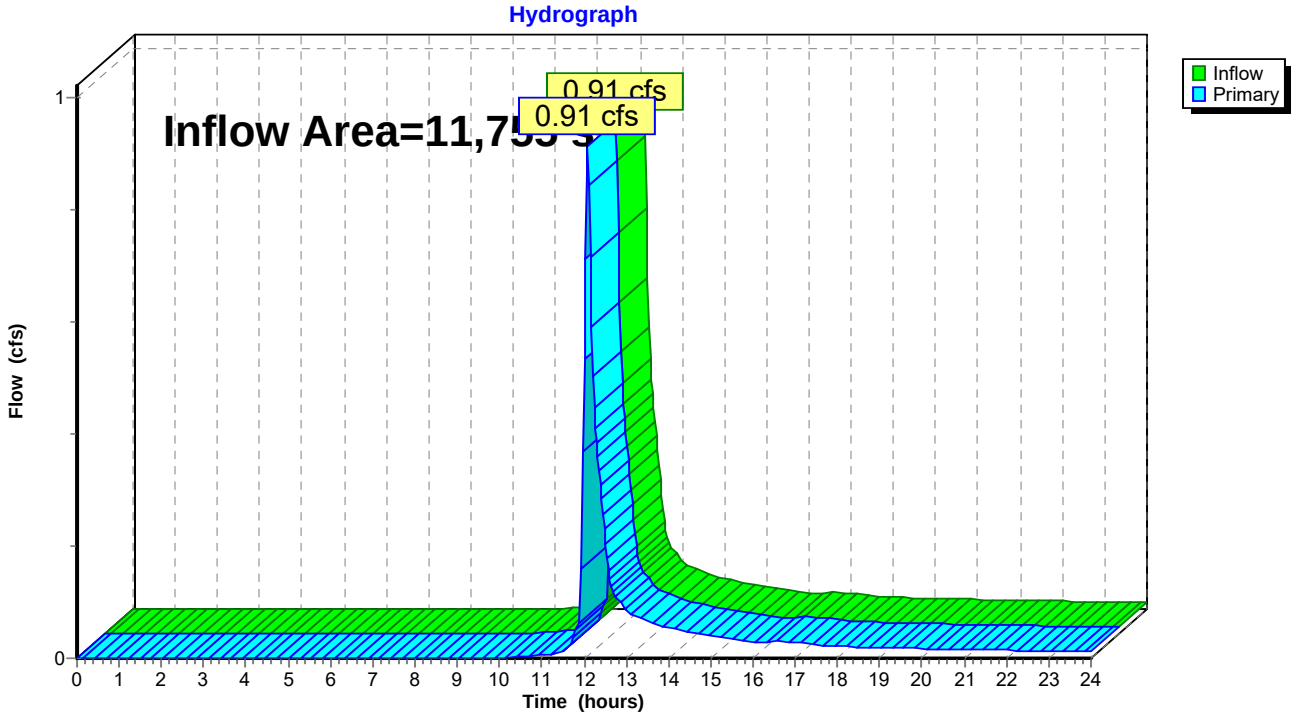


Summary for Link P-SS: Pr. Storm Sewer

Inflow Area = 11,755 sf, 58.19% Impervious, Inflow Depth > 2.43" for 25-Year event
Inflow = 0.91 cfs @ 12.09 hrs, Volume= 2,382 cf
Primary = 0.91 cfs @ 12.09 hrs, Volume= 2,382 cf, Atten= 0%, Lag= 0.0 min
Routed to Link P-LIS : Pr. Long Island Sound

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link P-SS: Pr. Storm Sewer



Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PD: Lot 1 Porous Driveway Runoff Area=2,664 sf 85.62% Impervious Runoff Depth>6.56"
Tc=5.0 min CN=92.68 Runoff=0.44 cfs 1,455 cf

Subcatchment 1PP: Lot 1 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>7.24"
Tc=5.0 min CN=98.46 Runoff=0.51 cfs 1,784 cf

Subcatchment 2PD: Lot 2 Porous Driveway Runoff Area=2,875 sf 82.09% Impervious Runoff Depth>6.40"
Tc=5.0 min CN=91.37 Runoff=0.47 cfs 1,534 cf

Subcatchment 2PP: Lot 2 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>7.24"
Tc=5.0 min CN=98.46 Runoff=0.51 cfs 1,784 cf

Subcatchment 3PD: Lot 3 Porous Driveway Runoff Area=3,030 sf 81.09% Impervious Runoff Depth>6.36"
Tc=5.0 min CN=91.00 Runoff=0.50 cfs 1,605 cf

Subcatchment 3PP: Lot 3 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>7.24"
Tc=5.0 min CN=98.46 Runoff=0.51 cfs 1,784 cf

Subcatchment 4PD: Lot 4 Porous Driveway Runoff Area=2,985 sf 89.82% Impervious Runoff Depth>6.74"
Tc=5.0 min CN=94.23 Runoff=0.50 cfs 1,676 cf

Subcatchment 4PP: Lot 4 Porous Patio Runoff Area=3,073 sf 100.00% Impervious Runoff Depth>7.24"
Tc=5.0 min CN=98.44 Runoff=0.53 cfs 1,854 cf

Subcatchment N: Ex. North Basin Runoff Area=35,355 sf 57.19% Impervious Runoff Depth>5.33"
Tc=5.0 min CN=82.16 Runoff=5.13 cfs 15,718 cf

Subcatchment NB: North Bypass Runoff Area=3,209 sf 8.41% Impervious Runoff Depth>3.34"
Tc=5.0 min CN=64.11 Runoff=0.29 cfs 893 cf

Subcatchment RPD1: R.O.W. Porous Runoff Area=3,517 sf 77.77% Impervious Runoff Depth>6.21"
Tc=5.0 min CN=89.77 Runoff=0.57 cfs 1,821 cf

Subcatchment RPD2: R.O.W. Porous Runoff Area=5,029 sf 76.26% Impervious Runoff Depth>6.15"
Tc=5.0 min CN=89.22 Runoff=0.81 cfs 2,577 cf

Subcatchment S: Ex. South Basin Runoff Area=66,249 sf 10.54% Impervious Runoff Depth>3.69"
Flow Length=100' Slope=0.0080 '/' Tc=19.8 min CN=67.46 Runoff=4.45 cfs 20,357 cf

Subcatchment SB: South Bypass Runoff Area=66,354 sf 7.85% Impervious Runoff Depth>3.59"
Flow Length=140' Tc=9.0 min CN=66.46 Runoff=5.75 cfs 19,843 cf

Pond 1D: Lot 1 Porous Driveway Peak Elev=9.93' Storage=193 cf Inflow=0.44 cfs 1,558 cf
Outflow=0.44 cfs 1,390 cf

Pond 1P: Lot 1 Permeable Patio Peak Elev=9.03' Storage=559 cf Inflow=0.51 cfs 1,784 cf
Outflow=0.50 cfs 1,237 cf

Pond 2D: Lot 2 Porous Driveway Peak Elev=9.93' Storage=356 cf Inflow=0.47 cfs 1,718 cf
Outflow=0.46 cfs 1,391 cf

Pond 2P: Lot 2 Permeable Patio Peak Elev=8.78' Storage=568 cf Inflow=0.51 cfs 1,784 cf
Outflow=0.50 cfs 1,226 cf

Pond 3D: Lot 3 Porous Driveway Peak Elev=9.93' Storage=357 cf Inflow=0.50 cfs 1,605 cf
Outflow=0.49 cfs 1,279 cf

Pond 3P: Lot 3 Permeable Patio Peak Elev=8.78' Storage=568 cf Inflow=0.51 cfs 1,784 cf
Outflow=0.50 cfs 1,226 cf

Pond 4D: Lot 4 Porous Driveway Peak Elev=9.04' Storage=550 cf Inflow=0.50 cfs 1,676 cf
Outflow=0.50 cfs 1,139 cf

Pond 4P: Lot 4 Permeable Patio Peak Elev=8.78' Storage=471 cf Inflow=0.53 cfs 1,854 cf
Outflow=0.52 cfs 1,395 cf

Pond RD1: R.O.W. Porous Driveway 1 Peak Elev=12.00' Storage=1,373 cf Inflow=0.57 cfs 1,821 cf
Primary=0.01 cfs 164 cf Secondary=0.01 cfs 102 cf Tertiary=0.01 cfs 184 cf Outflow=0.03 cfs 450 cf

Pond RD2: R.O.W. Porous Driveway 2 Peak Elev=9.55' Storage=702 cf Inflow=0.81 cfs 2,742 cf
Outflow=0.78 cfs 2,106 cf

Link E-LIS: Ex. Long Island Sound Inflow=7.46 cfs 36,075 cf
Primary=7.46 cfs 36,075 cf

Link E-SS: Ex. Storm Sewer Inflow=5.13 cfs 15,718 cf
Primary=5.13 cfs 15,718 cf

Link P-LIS: Pr. Long Island Sound Inflow=10.32 cfs 33,125 cf
Primary=10.32 cfs 33,125 cf

Link P-SS: Pr. Storm Sewer Inflow=1.07 cfs 2,999 cf
Primary=1.07 cfs 2,999 cf

Total Runoff Area = 203,208 sf Runoff Volume = 74,687 cf Average Runoff Depth = 4.41"
70.00% Pervious = 142,236 sf 30.00% Impervious = 60,972 sf

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PD: Lot 1 Porous Driveway Runoff Area=2,664 sf 85.62% Impervious Runoff Depth>7.47"
Tc=5.0 min CN=92.68 Runoff=0.50 cfs 1,658 cf

Subcatchment 1PP: Lot 1 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>8.16"
Tc=5.0 min CN=98.46 Runoff=0.57 cfs 2,010 cf

Subcatchment 2PD: Lot 2 Porous Driveway Runoff Area=2,875 sf 82.09% Impervious Runoff Depth>7.31"
Tc=5.0 min CN=91.37 Runoff=0.54 cfs 1,751 cf

Subcatchment 2PP: Lot 2 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>8.16"
Tc=5.0 min CN=98.46 Runoff=0.57 cfs 2,010 cf

Subcatchment 3PD: Lot 3 Porous Driveway Runoff Area=3,030 sf 81.09% Impervious Runoff Depth>7.27"
Tc=5.0 min CN=91.00 Runoff=0.56 cfs 1,835 cf

Subcatchment 3PP: Lot 3 Porous Patio Runoff Area=2,956 sf 100.00% Impervious Runoff Depth>8.16"
Tc=5.0 min CN=98.46 Runoff=0.57 cfs 2,010 cf

Subcatchment 4PD: Lot 4 Porous Driveway Runoff Area=2,985 sf 89.82% Impervious Runoff Depth>7.65"
Tc=5.0 min CN=94.23 Runoff=0.57 cfs 1,904 cf

Subcatchment 4PP: Lot 4 Porous Patio Runoff Area=3,073 sf 100.00% Impervious Runoff Depth>8.16"
Tc=5.0 min CN=98.44 Runoff=0.60 cfs 2,089 cf

Subcatchment N: Ex. North Basin Runoff Area=35,355 sf 57.19% Impervious Runoff Depth>6.21"
Tc=5.0 min CN=82.16 Runoff=5.93 cfs 18,289 cf

Subcatchment NB: North Bypass Runoff Area=3,209 sf 8.41% Impervious Runoff Depth>4.07"
Tc=5.0 min CN=64.11 Runoff=0.36 cfs 1,089 cf

Subcatchment RPD1: R.O.W. Porous Runoff Area=3,517 sf 77.77% Impervious Runoff Depth>7.12"
Tc=5.0 min CN=89.77 Runoff=0.65 cfs 2,086 cf

Subcatchment RPD2: R.O.W. Porous Runoff Area=5,029 sf 76.26% Impervious Runoff Depth>7.05"
Tc=5.0 min CN=89.22 Runoff=0.92 cfs 2,956 cf

Subcatchment S: Ex. South Basin Runoff Area=66,249 sf 10.54% Impervious Runoff Depth>4.45"
Flow Length=100' Slope=0.0080 '/' Tc=19.8 min CN=67.46 Runoff=5.38 cfs 24,565 cf

Subcatchment SB: South Bypass Runoff Area=66,354 sf 7.85% Impervious Runoff Depth>4.34"
Flow Length=140' Tc=9.0 min CN=66.46 Runoff=6.98 cfs 24,013 cf

Pond 1D: Lot 1 Porous Driveway Peak Elev=9.93' Storage=195 cf Inflow=0.50 cfs 1,820 cf
Outflow=0.49 cfs 1,652 cf

Pond 1P: Lot 1 Permeable Patio Peak Elev=9.03' Storage=561 cf Inflow=0.57 cfs 2,010 cf
Outflow=0.57 cfs 1,461 cf

Pond 2D: Lot 2 Porous Driveway Peak Elev=9.94' Storage=358 cf Inflow=0.54 cfs 2,043 cf
Outflow=0.53 cfs 1,716 cf

Pond 2P: Lot 2 Permeable Patio Peak Elev=8.78' Storage=569 cf Inflow=0.57 cfs 2,010 cf
Outflow=0.56 cfs 1,453 cf

Pond 3D: Lot 3 Porous Driveway Peak Elev=9.94' Storage=359 cf Inflow=0.56 cfs 1,835 cf
Outflow=0.55 cfs 1,508 cf

Pond 3P: Lot 3 Permeable Patio Peak Elev=8.78' Storage=569 cf Inflow=0.57 cfs 2,010 cf
Outflow=0.56 cfs 1,453 cf

Pond 4D: Lot 4 Porous Driveway Peak Elev=9.04' Storage=551 cf Inflow=0.57 cfs 1,904 cf
Outflow=0.56 cfs 1,370 cf

Pond 4P: Lot 4 Permeable Patio Peak Elev=8.79' Storage=472 cf Inflow=0.60 cfs 2,089 cf
Outflow=0.59 cfs 1,631 cf

Pond RD1: R.O.W. Porous Driveway 1 Peak Elev=12.00' Storage=1,377 cf Inflow=0.65 cfs 2,086 cf
Primary=0.03 cfs 261 cf Secondary=0.02 cfs 162 cf Tertiary=0.03 cfs 292 cf Outflow=0.07 cfs 715 cf

Pond RD2: R.O.W. Porous Driveway 2 Peak Elev=9.55' Storage=709 cf Inflow=0.92 cfs 3,216 cf
Outflow=0.89 cfs 2,581 cf

Link E-LIS: Ex. Long Island Sound Inflow=8.81 cfs 42,854 cf
Primary=8.81 cfs 42,854 cf

Link E-SS: Ex. Storm Sewer Inflow=5.93 cfs 18,289 cf
Primary=5.93 cfs 18,289 cf

Link P-LIS: Pr. Long Island Sound Inflow=12.17 cfs 39,927 cf
Primary=12.17 cfs 39,927 cf

Link P-SS: Pr. Storm Sewer Inflow=1.25 cfs 3,670 cf
Primary=1.25 cfs 3,670 cf

Total Runoff Area = 203,208 sf Runoff Volume = 88,265 cf Average Runoff Depth = 5.21"
70.00% Pervious = 142,236 sf 30.00% Impervious = 60,972 sf

Appendix F

Draft Operation and Maintenance Agreement

Block 25

AGREEMENT COVENANT

AGREEMENT made this _____ by and between Sound Beach Landing, LLC and the **CITY OF STAMFORD,** a municipal corporation lying within the County of Fairfield and State of Connecticut, acting herein by its duly authorized Mayor, Caroline Simmons (hereinafter referred to as the "City"), and the **ENVIRONMENTAL PROTECTION BOARD OF THE CITY OF STAMFORD,** acting herein by its duly authorized Chairman, Gary H. Stone (hereinafter referred to as the "EPB").

WITNESSETH:

WHEREAS, OWNER has commenced the planning and construction of four single-family residences, pools, decks, patios, walkways, and other site improvements on a parcel of land owned by them and as more particularly described on Schedule "A", attached hereto and made a part hereof (the "Property").

WHEREAS, certain drainage facilities ("Drainage Facilities"), including but not limited to structures, pipes, and infiltration systems as more particularly described on Schedule "B" attached (the "Construction Plans") shall be installed in connection with the aforesaid construction and in accordance with the Construction Plans and _____ issued therefore, (the "Permit") and;

WHEREAS, OWNER, the CITY and EPB share a joint concern that the Drainage Facilities be maintained in a functioning condition so as to avoid pollution of surface and groundwaters, flooding and/or improper drainage.

NOW, THEREFORE, in consideration of ten dollars and other good and valuable consideration receipt of which is hereby acknowledged by the OWNER, it is hereby agreed as follows:

1) OWNER shall clean the drainage facilities or cause such facilities to be cleaned by periodic removal of accumulated sediment and debris in a good and workman-like manner, at least two (2) times during every twelve (12) month period, which times shall be in the period between April and June and between October and December and more often as the City may determine to be necessary.

2) OWNER shall sweep, or cause to be swept, garage facilities, driveways and roadway surfaces located on the Property at least once per calendar quarter.

3) OWNER shall utilize only sand or calcium chloride in connection with the de-icing of areas within the Property meaning and intending that road salt (Sodium Chloride) shall not be used for said purpose.

4) OWNER shall repair or replace any defects or defective drainage facilities so as to maintain the drainage facilities, at all times, in a fully functional capacity.

5) OWNER shall file as-built drainage plans with the EPB immediately upon the completion of work. Said plans shall be prepared by a professional engineer/surveyor registered in the State of Connecticut.

6) OWNER grants the CITY and/or EPB, its agents, and employees, the right to enter the Property at all reasonable times upon twenty-four (24) hours notice to the OWNER for the purpose of inspecting the Property to determine if OWNER is complying with the requirements hereunder. A representative of the Owner shall have the right to accompany the City and/or EPB on their inspection of the Property.

7) If, after an inspection is made pursuant to Paragraph Six (6) hereof, the CITY and/or EPB determines that the owner has failed to comply with the aforesaid undertakings, then the CITY and/or EPB shall give written notice of said determination to the then OWNER of the Property which notice shall also specify the said failure. Said notice shall be sent by registered or certified mail to the last known address of said Owner. If the Owner disputes the claim, he shall give written notice thereof to City and/or EPB within ten (10) days of receipt of said notice, and the EPB shall hold a hearing as promptly as possible to decide the merits of the disputed claim. If the claim is not disputed within said ten (10) days, the OWNER shall have thirty (30) days from the receipt of said notice to correct said failure, unless it is impossible to cure said defect within said time, in which case, the necessary repairs shall be immediately commenced and diligently pursued to completion within a reasonable time.

8) If the said failure is not remedied within the time frame herein stated, the CITY and/or EPB may proceed to cure the same and charge the actual cost thereof to the OWNER of the Property.

9) OWNER agrees to reimburse the CITY and/or EPB for reasonable legal fees and court costs if it becomes necessary for the CITY and/or EPB to sue for reimbursement of sums expended by the CITY and/or EPB in performance of OWNER'S obligation.

10) OWNER agrees and covenants to indemnify and save harmless the CITY and the EPB against any and all claims, suits, actions or judgments arising out of the delay in the performance of any of their obligations pursuant to this Agreement.

11) OWNER agrees that this covenant and restriction shall apply to and run with the land. It shall be binding on all future owners, administrators, executors, successors and assigns.

12) The OWNER hereby represents to the CITY and EPB that he/she is the owner, in fee simple, of all of the property described in "Schedule A" attached hereto and made a part hereof.

13) OWNER agrees that this Agreement and restrictive covenant upon execution of the same, shall be recorded on the land records at the OWNER'S expense at the time that a permit is issued for the Property herein and while the OWNER is in title.

14) OWNER agrees not to assert the invalidity of this document.

15) OWNER agrees that nothing herein shall be construed to be a limitation upon the right of the EPB to assert and enforce any rights it may have under federal, state or City statute, ordinance or regulation.

16) This agreement shall be governed by the laws of the State of Connecticut.

IN WITNESS WHEREOF, the said parties hereto have hereunto set their hands and seals, the day and year first above written.

WITNESSED:

_____ **THE CITY OF STAMFORD**

_____ BY: _____

Caroline Simmons
Its duly authorized Mayor

_____ **THE ENVIRONMENTAL PROTECTION BOARD**

_____ BY: _____

Gary H. Stone
Its duly authorized Chairman

_____ **OWNER**

BY: _____

_____

(Owner's Name)

(Acknowledgement on the Following Page)

STATE OF CONNECTICUT}
} ss: STAMFORD Date: _____
COUNTY OF FAIRFIELD }

Personally appeared Caroline Simmons, Mayor of the City of Stamford, signer and sealer of the foregoing Instrument, and acknowledged the same to be his free act and deed and the free act and deed of said City, before me.

_____
Commissioner of the Superior
Court or Notary Public

STATE OF CONNECTICUT}
} ss: STAMFORD Date: _____
COUNTY OF FAIRFIELD }

Personally appeared Gary H. Stone, Chairman of the Environmental Protection Board of the City of Stamford, signer and sealer of the foregoing Instrument, and acknowledged the same to be his free act and deed and the free act and deed of said Commission, before me.

_____
Commissioner of the Superior Court
or Notary Public

STATE OF CONNECTICUT}
} ss: STAMFORD Date: _____
COUNTY OF FAIRFIELD }

Personally appeared_____signer and sealer of the foregoing instrument, and acknowledged the same to be____free act and deed, before me.

_____
Commissioner of the Superior Court
or Notary Public

SCHEDULE "A"

SCHEDULE "B"

Appendix G

DCIA Tracking Spreadsheet
Checklist for Stormwater Management Report

Directly Connected Impervious Area Tracking Worksheet
City of Stamford Drainage Manual

Note to user: complete all cells of this color *only*

Part 1: General Information	
Project Name	40 Signal Road
Project Address	40 Signal Road, Stamford, CT
Project Applicant	Sound Beach Landing, LLC
Date of Submittal	27-Jan-23
Tax Account Number	002-8017 & 003-1160

Part 2: Project Details		
1. What type of development is this? (choose from dropdown)	Redevelopment	
2. What is the total area of the project site?	101,604	ft^2
3. What is the total area of land disturbance for this project?	76,500	ft^2
4. Does project site drain to High Quality Waters, a Direct Waterfront, or within 500 ft. of Tidal Wetlands? (Yes/No)	Yes	
5. What is the current ***DCIA*** for the site?	20,219	ft^2
6. Will the proposed development increase ***DCIA*** (without consideration of proposed stormwater management)? (Yes/No)	No	
7. What is the proposed-development ***total impervious area*** for the site?	33,770	ft^2

Part 3: Water Quality Target Total		
Does Standard 1 apply based on information above?	Yes	
Water Quality Volume (WQV)	2956.1	ft^3
Standard 1 requirement	Retain WQV on-site	
Required retention volume	2956.1	ft^3
Provided retention volume for proposed development	5,470.0	ft^3

Part 4: Proposed DCIA Tracking		
Pre-development ***total impervious area***	27,202	ft^2
Current ***DCIA***	20,219	ft^2
Proposed-development ***total impervious area***	33,770	ft^2
Proposed-development ***DCIA*** (after stormwater management)	270	ft^2
Net change in ***DCIA*** from pre-development to proposed-development	-19,949	ft^2

Part 5: Post-Development (As-Built Certified) DCIA Tracking		
Post-development (per as-built) ***total impervious area***		ft^2
Post-development (per as-built) ***DCIA*** (after stormwater management)		ft^2
Net change in ***DCIA*** from pre-development to post-development		ft^2

Certification Statement

I hereby certify that the information contained in this worksheet is true and correct.

Engineer's Signature _____ Date _____ Engineer's Seal _____

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CHECKLISTS

Project Name: Signal Road Subdivision

Project Address 40 Signal Rpad, Stamford, CT

Property Owner(s) Sound Beach Landing, LLC

Tax Account Number(s) 002-8017 & 003-1160

Engineer's Signature _____ Date: 12/21/2022

All checklists must be completed and submitted. Provide a brief explanation for any items not provided. Check boxes as completed or N/A as not applicable.

✔	**Existing Conditions Plan**
✔	**Stormwater Management Report**
✔	**Stormwater Management Plan / Construction Plan**
	Certificate of Occupancy

Checklist for Existing Conditions Plan

I. General Information

✔	Site address
✔	Orientation, block, zone, City, street name
✔	Applicant name and legal address
✔	Surveyor name, address, contact information
✔	North arrow, bar scale, horizontal and vertical datum
✔	24" x 36" sheet size unless otherwise approved
✔	Existing conditions survey shall be prepared in accordance with the Minimum Standards for Surveys and Maps in the State of Connecticut. The class of survey shall be A-2 and T-2 and shall be represented as such on the map. The base map shall be sealed and signed by a Professional Land Surveyor licensed in the State of Connecticut.
✔	Drawing scale shall be set at 1" = 20' or 1" = 40' when possible

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II. Existing Conditions Plan Elements

✔	Show and label all property boundaries with linear bearing / distances and curve information
✔	Required zoning setbacks
✔	Show and label monument information
✔	Show and label at least one permanent benchmark on the parcel with northing, easting and elevation
✔	Label adjacent property ownership information
✔	Existing contours based on NAVD 88 (no exceptions) at 2 foot contour interval or 1 foot contour interval when slope is flatter than 2 percent at a minimum of 20 ft. beyond the property boundaries of the subject parcel
✔	Show spot elevations at low points, high points, and where topography is flatter than 2 percent
✔	All buildings and structures (label current use and finished floor elevations)
✔	All pavement, parking, driveways, property access points
✔	All roadways, streets, and rights-of-way. Label streets as public or private with street name
✔	All patios, decks, walkways, sidewalks, curb ramps (both adjacent to and opposite and existing roadways or intersections)
✔	Show and label (size, material, inverts) all existing utilities (overhead and underground) within the right-of-way and the project site (label ownership) including but not limited to water, gas and electrical services, wells, storm sewers, sanitary sewers and subsurface sewerage disposal systems.
✔	Show and label existing conveyance systems (swales, ditches, storm drains) including dimensions, elevations, sizes, slopes, and direction of flow
✔	Show and label boundaries of all easements, both public and private, with type, owner, and width
✔	Show and label all other existing features and improvements (e.g. light poles, mature trees of 8" (dbh) diameter or greater, vegetation, walls with top and bottom elevations, fences, pavement markings)

III. Resource Areas

N/A		Show and label limits of inland wetlands, tidal wetlands and any associated setbacks.
	✔	Show and label existing natural site features including tree canopy, outcroppings, permanent and intermittent watercourses, waterbodies, streams
	✔	Show and label limits of floodplain and floodway along with FIRM references (Community Number, Panel, Suffix, and Date) including any effective Letters of Map Revision/Amendment, zone designation and elevation.
N/A		Show and label any Conservation Easement Areas
	✔	Show and label Connecticut Coastal Jurisdiction Line (CJL)
	✔	Show and label existing steep slopes (25% and greater)

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Checklist for Stormwater Management Report

I. Project Report

A. Applicant / Site Information

✔	Applicant name, legal address, contact information (email & phone)
✔	Engineers name, legal address, contact information (email & phone)
✔	Site address and legal description
✔	Current / proposed zoning and land use
✔	Site vicinity map (8.5" x 11")

B. Project Description and Purpose

✔	Project description including proposed project elements and anticipated construction schedule

C. Existing Conditions Description

✔	Site area, ground cover, vegetation, features (roads, buildings, utilities, etc.)
✔	Site topography, slopes, drainage patterns, conveyances systems (swales, storm drains, etc.), stormwater discharge locations
✔	Receiving waterbody information including stormwater impairments and TMDL information (See the most recent State of Connecticut Integrated Water Quality Report)
✔	Site soils information including soil types, hydrologic soil group, bedrock / outcroppings, groundwater elevation, significant geologic features
✔	Provide NRCS Soils Mapping
✔	Resource protection areas (wetlands, streams, lakes, etc.), buffers, floodplains, floodways

D. Summary of Applicable General Design Criteria

✔	Methodology, design storm frequency
✔	Hydrologic design criteria
✔	Hydraulic design criteria
✔	Flood hazard areas

	Applying under "Lite" Stormwater Management: Skip to Section I (Refer to Flow Chart on page vii of the City of Stamford Stormwater Drainage Manual)

E. Project Type in Accordance with Standard 1 Definitions

✔	Area of disturbance, receiving waterbody classification (High Quality, Tidal Wetlands, Direct Waterfront)
✔	Project type (development, redevelopment, linear development)
✔	Pollutant reduction standard per flowchart Section 2.4

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F. Summary of LID Site Constraints

✔	Description of sensitive areas for protection
✔	Mature tree inventory, which shall include 8-inch (dbh) diameter trees or greater
✔	Steep slopes
✔	Ledge and bedrock depth
✔	Seasonal high groundwater elevation
✔	Pollutant hotspots
✔	Summary of infiltration rates

G. Summary of Proposed Stormwater Treatment Practices

✔	Proposed LID controls (i.e. minimize impervious, minimize DCIA, minimize disturbance, increase time of concentrations, other LID controls and strategies)
✔	Location, size, types
✔	Design criteria and references
✔	Stormwater treatment practice, drainage area characteristics / details

H. Summary of Compliance with Standards 1

✔	Required pollutant reduction criteria
✔	Provided pollutant reduction (WQV) by stormwater treatment practice
✔	Summary of compliance with Standard 1

I. Summary of Compliance with Standards 2, 3, and 4

	✔	Description of proposed stormwater management system
	✔	Pre-development site hydrology with delineation of each watershed area and sub-basin
	✔	Post-development site hydrology with delineation of each watershed area and sub-basin
	✔	Comparison table of pre- and post-development hydrology, peak flow, volume, and percent difference
	✔	Summary table of watershed areas and sub-basin areas, time of concentration and runoff coefficients
N/A		Summary table demonstrating the 2-year, 24-hour post development peak flow rate is less than or equal to the lowest of either: - The pre-development 1-year, 24-hour storm peak flow rate - 50 percent of the pre-development 2-year, 24-hour storm peak flow rate
N/A		Conveyance protection, emergency outlet sizing
N/A		Hydraulic grade line summary and tail water elevation used in analysis
	✔	Construction erosion and sediment control description, Standard 3
	✔	Operation and Maintenance, maintenance tasks and schedule on construction plans per Standard 4

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J. Summary of Compliance with Applicable Drainage Facility Design Requirements

✔	Description of applicable design requirements and compliance
✔	Description of proposed drainage facilities and compliance

K. Stormwater Management Report

✔	Signed and stamped by professional engineer licensed in the State of Connecticut
✔	Drainage impact statement in accordance with Standard 5B.

II. Supporting Calculations (as appendix to Project Report)

	Applying under "Lite" Stormwater Management: Skip to Section N

L. Water Quality Volume / Water Quality Flow Calculations

✔	Calculations demonstrating the total Water Quality Volume generated by the post-development site and the required retention/treatment volume per Standard 1 in cubic feet.
✔	Calculations demonstrating the total Water Quality Volume retained/treated by each stormwater treatment practice and the total Water Quality Volume generated by the post-development contributing drainage area to each stormwater treatment practice

M. Stormwater Treatment Practice Sizing Calculations

✔	Calculations demonstrating how each stormwater treatment practice has been designed and sized in accordance with the Structural Stormwater BMP Design references in Appendix B. Calculations will vary by stormwater treatment practice, but a minimum, applicants shall provide calculations in accordance with design criteria from the Connecticut Stormwater Quality Manual.

N. Hydrologic and Hydraulic Design Calculations

N/A		Stream channel protection, Standard 2A
	✔	Conveyance protection, Standard 2B
WAIVER REQUESTED	✔	Peak flow control (1-year, 2-year, 5-year, 10-year, 25-year, and 50-year storms), Standard 2C
N/A		Inlet analysis
N/A		Gutter flow (Site by site basis as requested by Engineering Bureau)
	✔	Storm sewers and culverts (velocities, capacity, hydraulics)
N/A		Hydraulic grade line required when pipe is flowing at full capacity o Provide existing and proposed summary table o Provide existing and proposed mapping, label structures
N/A		Detention facilities (outlet structure, stage/storage, freeboard)
N/A		Emergency outlet sizing, safely pass the 100 year storm, Standard 2D
N/A		Outlet protection calculations, based on conveyance protection (i.e. riprap, energy dissipater)

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O. Hydrologic and Hydraulic Model, Existing and Proposed

✔	Drainage routing diagram
✔	Summary
✔	Storage pond input

P. Downstream analysis (Site by site basis as required by the Engineering Bureau)

N/A	Downstream analysis, Standard 2E

III. Supporting Mapping (as appendix to Project Report)

Q. Pre-Development Drainage Basin Area Mapping

✔	11" x 17" or 8.5" x 11" sheet size
✔	Topography, drainage patterns, drainage area boundaries and sub basins, flow paths, times of concentration
✔	Locations of existing stormwater discharges
✔	Perennial and intermittent streams, wetlands, and floodplain / floodways
✔	NRCS soil types, locations, boring locations, infiltration testing locations
✔	Vegetation and groundcover
✔	Existing roads, buildings, driveways, parking areas, walks, patios, pools and other impervious surfaces, decks and other structures
✔	Location, size, type of existing structural stormwater controls, facilities and conveyance systems

R. Post-Development Drainage Basin Area Mapping

✔	11" x 17" or 8.5" x 11" sheet size
✔	Topography, drainage patterns, drainage area boundaries and sub basins, flow paths, times of concentration
✔	Locations of proposed stormwater discharges
✔	Perennial and intermittent streams, wetlands, and floodplain / floodways
✔	NRCS soil types, locations, boring locations, infiltration testing locations
✔	Vegetation, ground cover and proposed limits of clearing/disturbance
✔	Proposed, roads, buildings, driveways, parking areas, walks, patios, pools and other impervious surfaces, decks and other structures
✔	Location, size, type of proposed structural stormwater controls, facilities and conveyance systems

IV. DCIA Tracking Worksheet (as appendix to Project Report)

✔	DCIA Tracking Worksheet (Use form found in Appendix E)

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V. Proposed LID Review Map

	Applying under "Lite" Stormwater Management - Proposed LID Review Map NOT required.

A. General

✔	Site address
✔	Applicant name, legal address, contact information
✔	Engineers name, address, contact information
✔	North arrow, bar scale, horizontal and vertical datum
✔	Drawing scale shall be set at 1"=20' or 1"=40' when possible
✔	Signed and stamped by a Licensed Professional Engineer in the State of Connecticut
✔	11" x 17" or 24" x 36" sheet size unless otherwise approved
✔	Existing and proposed contours based on NAVD 88 at 2 foot contour interval or 1 foot contour interval when slope is flatter than 2 percent
✔	Locations of existing stormwater discharges
✔	Roads, buildings, driveways, parking areas, walks, patios, pools and other impervious surfaces, and decks and other structures
✔	Location, size, ownership of stormwater conveyance systems (swales, pipes, etc.)

B. LID Constraints:

✔	Boring / test pit locations
✔	Infiltration testing locations and results
✔	Vegetation and proposed limits of clearing / disturbance
✔	NRCS soils mapping
✔	Steep slopes
✔	Surface waters / Perennial and intermittent streams
✔	Resource protection areas and buffers, wetlands, floodplain / floodways
✔	Existing vegetation and mature trees, which shall include 8-inch (dbh) diameter trees or greater
✔	Poor soils (HSG C & D)
✔	Shallow bedrock / ledge
✔	Seasonal high groundwater elevation
	Other site constraints (e.g. brownfield caps)

C. Proposed Stormwater Treatment Measures:

✔	Location, size, type, limits, and WQV provided by each proposed stormwater treatment practices
✔	Drainage area to each proposed stormwater treatment practice (total area, impervious area, WQV)

D. Site Summary Table:

✔	Total site area, disturbed area, pre- and post-development impervious areas
✔	Required pollutant reduction volume (retention or detention)
✔	Provided pollutant reduction volume (retention or detention)

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Checklist for Stormwater Management Plan / Construction Plans

A. General

✔	Site orientation, address and legal description
✔	Applicant name, legal address, contact information
✔	Engineers name, address, contact information
✔	North arrow, bar scale, horizontal and vertical datum
✔	Drawing scale shall be set at 1"=20' or 1"=40' when possible
✔	Stamped by a Licensed Professional Engineer in the State of Connecticut
✔	24" x 36" sheet size unless otherwise approved

B. Site Development Plans

✔	City of Stamford Standard Notes
✔	As required by the Drainage Maintenance Agreement, provide a written narrative describing the nature of the proposed development activity and the program for operation and maintenance of drainage facilities and control measures throughout the life of the project.
✔	Existing and proposed contours based on NAVD 88 at 2 foot contour interval or 1 foot contour interval when slope is flatter than 2 percent
✔	All required spot elevations to clearly depict positive pitch
✔	Top and bottom elevation of all walls
✔	Roads, buildings, driveways, parking areas, walks, patios, pools and other impervious surfaces, and decks and other structures
✔	All utilities and easements
✔	Location, size, maintenance access, type of proposed structural stormwater controls and facilities with elevations and inverts
✔	Location, size, maintenance access, type of proposed non-structural stormwater controls and facilities with elevations and inverts
✔	Location, size, type of proposed stormwater infrastructure, inlets, manholes, infiltration and detentions systems, control structures with elevations and inverts
✔	Location, size, ownership of stormwater conveyance systems (swales, pipes, etc.) with elevations and inverts
✔	Identify roof leaders, curtain drains and foundation drains with elevations and inverts
✔	Proposed water quality treatment systems, size and model type
✔	Final stabilization measures which may include slope stabilization

C. Erosion and Sedimentation Control Plan

✔	Phasing and schedule
✔	Construction access and staging and stock pile areas
✔	Operation and maintenance of erosion and sedimentation controls
✔	Tree protection
✔	Downstream protection such as location of silt fencing
✔	Limit of disturbance
✔	Construction fencing

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D. Construction Details

✔	Standard City of Stamford details
✔	Infiltration system details
✔	Control structure details
✔	Water quality treatment details
✔	Infiltration testing results

Checklist for Certificate of Occupancy

	Final Improvement Location Survey
	Stormwater Management Certification Form
	Final DCIA Tracking Worksheet
	Standard City of Stamford Drainage Maintenance Agreement (Agreement Covenant)

Other Certifications at the discretion of the Engineering Bureau and/or EPB

	Wall Certification
	Landscape Certification
	Landscape Maintenance Agreement
	Waiver Covering Storm Sewer Connection
	Waiver Covering Granite Block, Depressed Curb, and Driveway Aprons
	Flood Certification

Appendix H

Sanitary Sewer Capacity Calculations

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Mannings Equation - Circular Pipe

Project:	*40 Signal Road*	**Project #:**	*2008*		
Location:	*Stamford CT*	**By:**	*SPC*	**Date:**	*12/21/2022*
Description:	*Manning's Equation, Circular Pipe*	**Checked:**	*TM*	**Date:**	*12/21/2022*

12" Sanitary Main

Calculate the maximum flow capacity using Manning's equation.

Pipe material	Reinforced Concrete Pipe (RCP)		
Manning's n	0.013		
Pipe diameter, D	1	ft	
Area, A	0.79	ft^2	$A = \frac{\pi}{4} D^2$
Wetted perimeter, P	3.14	ft	$P = \pi D$
Hydraulic radius, R_h	0.25	ft	$R_h = \frac{A}{P}$
Slope, S	0.00265	ft/ft	
Flow, Q	**1.83**	**cfs**	$Q = \frac{1.486}{n} A R_h^{2/3} S^{1/2}$