

STORMWATER MANAGEMENT REPORT

819, 825, 827 & 831 EAST MAIN STREET +
27 & 29, LAFAYETTE STREET,
STAMFORD, CT
(0.79 acres)

prepared for
819 EAST MAIN STREET, LLC

Date: 4/23/2021

SITE VICINITY MAP

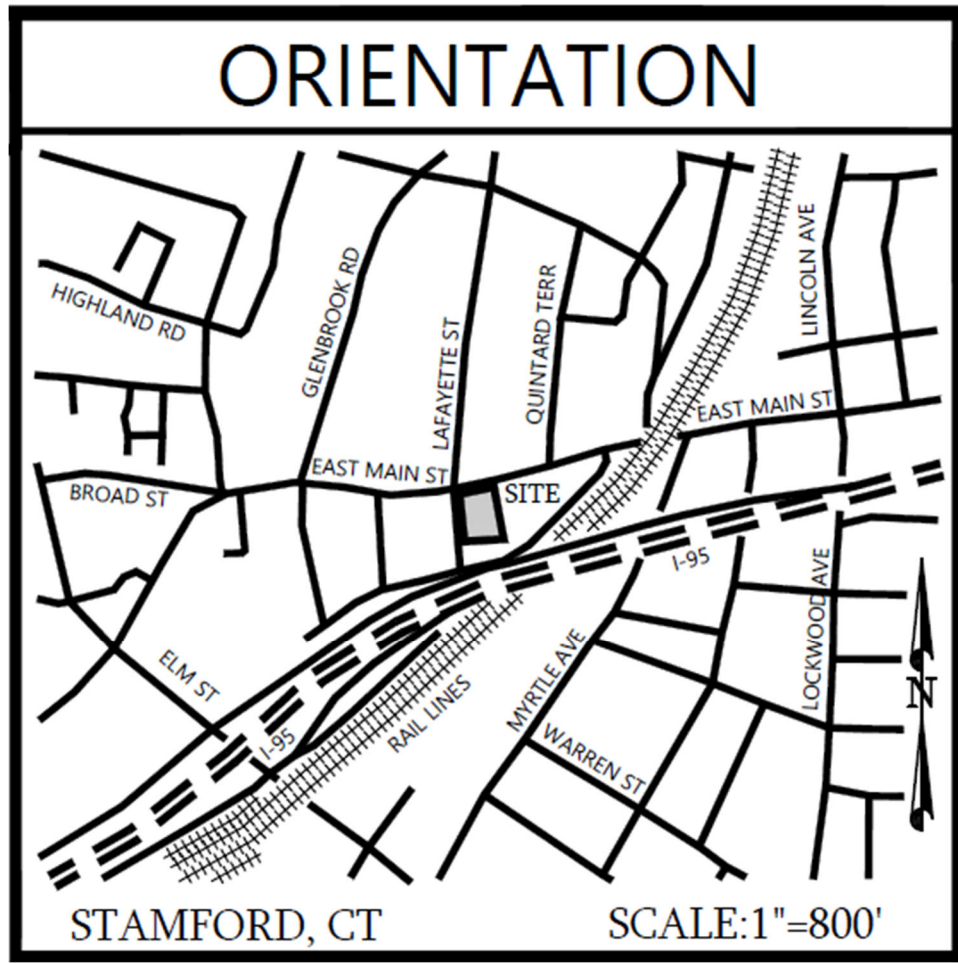


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Appendix F: Offsite Drainage Analysis for the Bayberrie & Westover Watershed

Proposed Conditions

Watershed Drainage Basin Map

Schematic Layout for Hydraulic Grade Line Analysis

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Introduction

The property owner is proposing a re-development of six (6) contiguous parcels at 821, 825, 827, 831 East Main Street and 27, 29 Lafayette Street for the construction of a five (5) story mixed-use building. The re-development includes eighty-five (85) dwelling units, 2,950 square feet (SF) of commercial area, off-street parking and associated site utilities. A total of eighty-five (85) parking spaces are proposed with at-grade parking behind the building and within a parking garage below the first floor of the proposed building. Streetscape improvements are proposed along the street frontage of both East Main Street and Lafayette Street.

The total project site area is 0.79 acres. The project is proposed to be re-zoned to MX-D. The contiguous parcels shall be consolidated into one corner lot. The project lot is bounded by East Main Street to the north and Lafayette Street to the west. The residential property of 15 Lafayette Street abuts the site to the south, and the commercial property of 835 East Main Street abuts the property to the east. The six existing parcels are developed with buildings, surface parking, various hardscapes and various entrance drives on both East Main Street and Lafayette Street. The properties are served by public water and City sewer.

Based on a review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Community Panel No. 09001C0517G map effective July 8, 2013, the re-development site is not located within a Flood Hazard Area. The site is tributary to the Southwest Shoreline basin and ultimately to Long Island Sound. The water quality classification for proximate surface water and groundwater is SB and GB, respectively, per the Connecticut Department of Energy & Environmental Protection. The Natural Resources Conservation Service (NRCS) information indicates the soils are in the D Hydrologic Soil Group. Refer to Appendix A for the NRCS web soil survey and the FEMA Flood Insurance map.

Reference is made to the project's Site Plan drawing sheets C-1, C-2, C-3, C-4, C-5 and C-6 prepared by DiMarzo & Berezky, Inc. dated 4/23/2021. Our firm also prepared a Property and Topographic Survey dated 11/02/2020 and a Zoning Location Survey dated 4/23/2021. The anticipated construction schedule is 9/15/2021 to 10/15/2022.

Existing Conditions

The existing conditions of the project site consists of four (4) buildings, asphalt pavement, gravel pavement, lawn and planting beds. Stormwater runoff flows from the site in three directions. Runoff from the vast majority of the property flows overland to the south, and its tributary to an existing storm drain at the intersection of North State Street and Lafayette Street. Runoff from a

small on-site area abutting East Main Street flows to the north. A small runoff area along the eastern property line flows to the abutting commercial property (BevMax) to an existing private stormwater management system.

The USDA Natural Resources Conservation Service’s Websoil Survey indicates the soils on the property are labeled as Urban Land within Hydrologic Soils Group D. Deep test pits and borehole infiltration tests were performed on-site to identify any sub-grade restrictive soil conditions (ledge, groundwater, etc.). A total of 4 deep test pits were performed. No groundwater, mottling or ledge were encountered in any of the test pits. A well-draining sand and gravel was found under shallow fill in all four deep test pits. Two borehole infiltration tests were conducted to determine if the in-situ soil can adequately infiltrate stormwater. The field infiltration rates were 5.1 and 4.6 inches per hour. Test pit and conductivity test results can be reviewed on site plan sheet C-4. The locations are shown on site plan C-1.

The current onsite impervious coverage is 25,949 square feet (SF). Runoff for the on-site drainage analysis is calculated using the computer program HydroCAD version 10.0 produced by HydroCAD Software Solutions, LLC. The project site is south of the Merritt Parkway. Thus, it has been designed to adequately accommodate peak runoff for all storms up to and including the 50-year design storm. The 24-hour design storms analyzed include the 1, 2, 5, 10, 25 and 50 year storm events, with rainfall depths of 2.93, 3.55, 4.57, 5.41, 6.57 and 7.43 inches respectively. The method used is USDA, NRCS TR-55. The rainfall information is provided by NOAA Atlas 14.

Refer to Appendix B for the Onsite HydroCAD report. The existing drainage basin areas, curve numbers, time of concentrations and 25-year peak flow rates are summarized as follows:

Existing Conditions - Onsite						
Basin	Area (acres)	Sub-Basin	Area (acres)	CN	Tc (min.)	Q ₂₅ (cfs)
South	0.744	South	0.744	94.89	5.0	4.75
East	0.031	East	0.031	84.00	5.0	0.17
North	0.018	North	0.018	97.09	5.0	0.12

In preparing the offsite drainage study, DiMarzo & Bereczky conducted site visits, surveyed portions of the existing City/State owned drainage system and used record information obtained from the City Engineering Bureau.

The offsite watershed for both the onsite southern and eastern basins consists of an urban land use, and it is over 19 acres in size. The outfall point of analysis is at the 24” diameter reinforced concrete pipe (RCP) storm sewer within South State Street just east of the on-ramp spur to I-95 northbound. Under existing conditions, 97.7% of the onsite project area is tributary to this system. Refer to the enclosed Watershed Drainage Basin Map in Appendix E.

A hydraulic grade line (HGL) analysis model has been created using StormCAD Connect Edition Update 3 by Bentley Systems for the offsite storm sewer network. The analysis uses a storm event recurrence interval of 25 years based on the NOAA rainfall information. A starting tail-water elevation of 6.4 NAVD’88 is applied at the outfall connection. This tail-water considers the 24” pipe in South State Street is running at a half-full depth.

The HGL model results in ten (10) of fifteen (15) manholes overflowing within the South State Street, North State Street and Lafayette Street stormwater sewer system. Twelve (12) of twenty-two (22) catch basins are overflowing. Refer to Appendix E for further detail.

Proposed Conditions

The proposed improvements are classified as a development project with more than a ½ acre of disturbance. Thus, the project must comply with Standards 1 through 5 of the Stamford Drainage Manual dated 6/10/2020. Under proposed conditions, the net increase in onsite impervious coverage is 5,510 SF. The proposed drainage design is focused on providing pollutant reduction, and reducing peak flow rates to the offsite watershed. In addition, the design shall match or decrease both peak flow rates and volume of runoff the northern basin. The northern basin is tributary to the East Main Street storm sewer. The proposed drainage basin onsite areas, curve numbers, time of concentrations and 25-year peak flow rates are summarized as follows:

Proposed Conditions - Onsite						
Basin	Area (acres)	Sub-Basin	Area (acres)	CN	Tc (min.)	Q ₂₅ (cfs)
South	0.748	South	0.421	97.36	5.0	2.73
		South Bypass	0.327	97.31	5.0	2.12
East	0.028	East	0.028	85.08	5.0	0.16
North	0.017	North	0.017	90.21	5.0	0.11

The runoff from the proposed at-grade parking area tributary to the Offsite watershed shall be collected by a stormwater management system of catch basins and a trench drain. The collected

stormwaters shall be conveyed to the proposed underground stormwater galleries. The stormwater gallery infiltration system consists of twelve (12) Cultec Recharge 330XLHD chamber units and crushed stone. The system is metered by a 4' wide weir overflow within an onsite manhole. A new manhole and fifteen-inch (15") storm drain are proposed within Lafayette street. The proposed drainage improvements shall connect to an existing manhole at the intersection with North State Street.

The following table depicts existing and proposed peak rates of runoff and the hydraulic volume comparisons for the three onsite drainage basins and their respective points of concern. Additional information may be found in the HydroCAD report in Appendix B.

South Basin			
Storm Event (yrs)	Existing Peak Rate of Runoff (cfs)	Proposed Peak Rate of Runoff (cfs)	% change
1	2.02	1.88	-6.9%
2	2.41	2.19	-9.1%
5	3.12	2.73	-12.5%
10	3.74	3.20	-14.4%
25	4.75	3.97	-16.4%
50	5.67	4.71	-16.9%

South Basin						
Storm Event (yrs)	Hydraulic Volume (cubic feet)			Hydraulic Volume (acre feet)		
	Existing	Proposed	% change	Existing	Proposed	% change
1	6317	6640	5.1	0.145	0.152	5.1
2	7636	7984	4.6	0.175	0.183	4.6
5	10026	10409	3.8	0.230	0.239	3.8
10	12161	12570	3.4	0.279	0.289	3.4
25	15643	16085	2.8	0.359	0.369	2.8
50	18864	19333	2.5	0.433	0.444	2.5

East Basin			
Storm Event (yrs)	Existing Peak Rate of Runoff (cfs)	Proposed Peak Rate of Runoff (cfs)	% change
1	0.05	0.05	0.0%
2	0.07	0.07	0.0%
5	0.10	0.09	-10.0%
10	0.13	0.12	-7.7%
25	0.17	0.16	-5.9%
50	0.21	0.19	-9.5%

East Basin						
Storm Event (yrs)	Hydraulic Volume (cubic feet)			Hydraulic Volume (acre feet)		
	Existing	Proposed	% change	Existing	Proposed	% change
1	162	154	-4.9	0.004	0.004	-4.9
2	209	198	-5.3	0.005	0.005	-5.3
5	297	279	-6.1	0.007	0.006	-6.1
10	379	354	-6.6	0.009	0.008	-6.6
25	515	479	-7.0	0.012	0.011	-7.0
50	644	596	-7.5	0.015	0.014	-7.5

North Basin			
Storm Event (yrs)	Existing Peak Rate of Runoff (cfs)	Proposed Peak Rate of Runoff (cfs)	% change
1	0.05	0.04	-20.0%
2	0.06	0.05	-16.7%
5	0.08	0.07	-12.5%
10	0.09	0.08	-11.1%
25	0.12	0.11	-8.3%
50	0.14	0.13	-7.1%

North Basin						
Storm Event (yrs)	Hydraulic Volume (cubic feet)			Hydraulic Volume (acre feet)		
	Existing	Proposed	% change	Existing	Proposed	% change
1	171	121	-29.2	0.004	0.003	-29.2
2	204	151	-26.0	0.005	0.003	-26.0
5	264	205	-22.3	0.006	0.005	-22.3
10	317	253	-20.2	0.007	0.006	-20.2
25	404	334	-17.3	0.009	0.008	-17.3
50	484	408	-15.7	0.011	0.009	-15.7

The area of runoff from the proposed re-development shall increase by 166 sf to the 19-acre offsite watershed. Subsequent to the proposed improvements, the calculations in the HGL analysis indicate that the City’s existing system will continue to operate under current conditions. The proposed storm sewer manhole in Lafayette Street shall convey piped runoff from the overflow of the metered infiltration system and roof runoff bypassing the system. There are either decreases or no changes in HGL elevation. Similar to the existing condition results, ten (10) of fifteen (15) manholes are overflowing and twelve (12) of twenty-two (22) catch basins are overflowing. The following chart compares the existing and proposed HGL elevations for the storm sewer network to the outfall.

Offsite Storm Sewer System Comparison					
from South State Street to the upstream networks of North State St and Lafayette Street					
Hydraulic Grade Line (H.G.L.) Elevation Change in Feet within the Storm Main (NAVD'88)					
Pipe	Structure (Upstream)	Rim Elevation	H.G.L. (Ex. Conditions)	H.G.L. (Pr. Conditions)	Change (ft)
P-2	MH-2	16.64	22.92	22.60	-0.32
P-3	MH-3	15.50	21.29	21.29	0.00
P-4	MH-4	13.70	23.55	23.54	-0.01
P-5	MH-5	14.41	14.12	14.12	0.00
P-6	MH-6	15.30	14.41	14.41	0.00
P-7	MH-7	11.75	29.92	29.59	-0.33
P-8	MH-8	12.39	11.95	11.95	0.00
P-9	MH-9	11.35	24.43	24.43	0.00
P-10	MH-10	11.46	24.00	24.00	0.00
P-11	MH-11	14.20	11.69	11.69	0.00
P-12	MH-12	13.43	31.72	31.72	0.00
P-13	MH-13	14.80	19.44	19.44	0.00
P-14	MH-14	17.83	20.98	20.98	0.00
P-15	MH-15	19.23	20.18	20.18	0.00
P-16	MH-16	20.20	19.96	19.96	0.00

Note: Pr. Conditions represent the proposed development with infiltration galleries.

The offsite watershed flow of runoff at the outfall decreases from 82.27 cfs to 81.48 cfs. Overall, the analysis shows a proposed peak flow rate of runoff decrease of 1.0% in the 25-year storm at the 24" rcp outfall.

Per our hydraulic analysis, the proposed pipe network from the development to the downstream connection at North State Street is sized to ensure adequate capacity to convey stormwater runoff from the 25-year storm event. Refer to Appendix D for conveyance calculations.

The project proposes to connect to public utilities such as the public sanitary sewer, public water, gas, electric and communication services within the fronting public right-of-ways of Lafayette Street and East Main Street.

Compliance with Stormwater Management Standards

Standard 1. Runoff and Pollutant Reduction

Per section 2.4 of the City Stormwater Drainage Manual, the project is required to retain ½ of the water quality volume (WQV) on-site using non-structural practices or infiltration best management practices.

Provisions shall be made to improve the quality of the stormwater runoff flowing from the proposed at-grade parking area. The Water Quality Volume calculated for the proposed development site is 2,503 cubic feet per a calculation in conformance with the 2004 Connecticut Stormwater Quality Manual section 7.4.1. The ½ WQV requirement is 1,252 cubic feet. Refer to Appendix E. The proposed stormwater infiltration system provides for 1,288 cubic feet prior to discharging pass the overflow weir.

Standard 2. Peak Flow Control

- A. Stream channel protection is not required for this project, because the property has less than one acre of impervious coverage.
- B. The proposed stormwater system is designed to adequately pass flows up to the 25-year design storm event as required in Section 3 of the drainage manual. Refer to the HydroCAD model found in Appendix B.
- 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. Reference is made to the HydroCAD report found in Appendix B.
- D. The infiltration galleries are designed with a metering manhole downstream. It is equipped with a high overflow weir wall to pass the larger 50 and 100-year storm events.
- E. A downstream hydraulic grade line analysis has been prepared for the project. Refer to Appendices E and F herein.

Standard 3. Construction Erosion and Sediment Control

- A. A detailed Erosion and Sediment Control Plan (sheet C-3) is designed to minimize erosion and contain and properly dispose of any accumulated sediment during construction. The erosion control measures proposed are to be installed and maintained in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control. Temporary sediment and erosion controls include an anti-tracking pad, silt fence, and tree protection. The proper use of the sediment and erosion control measures minimizes potential negative impacts during construction. Additionally, the proposed catch basins and trench drain will have two-foot (2') sumps and bell trap/pvc elbow to remove sediment and/or floatables.

Standard 4. Operation and Maintenance

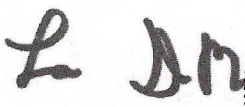
- A. A Standard City of Stamford Drainage Maintenance Agreement will be executed with the Environmental Protection Board at the completion of construction. A draft maintenance agreement has been prepared and is included in Appendix H.
- B. The construction plans will include notes describing the long-term maintenance requirements for the project's drainage system. This includes routine and non-routine inspection and maintenance tasks to be undertaken after construction is completed as well as the schedule for implementing these tasks.


Standard 5. Stormwater Management Report

- A. This document and its enclosed appendices serve as the required Stormwater Management.
- B. Our certification is provided herein.

Summary

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.”


Louis DiMarzo, P.E.
CT Registration # 26847
April 23, 2021

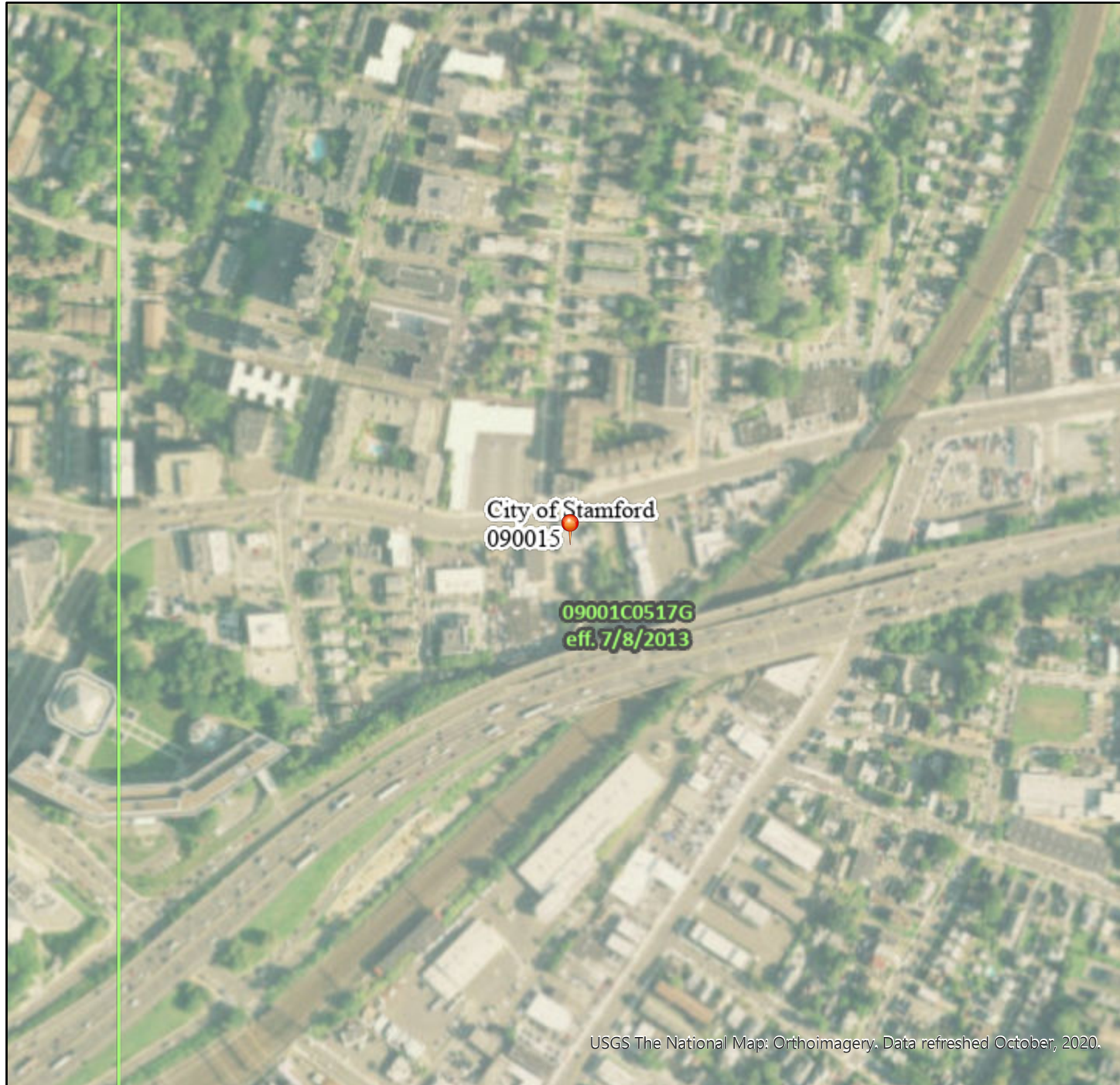


APPENDIX – A

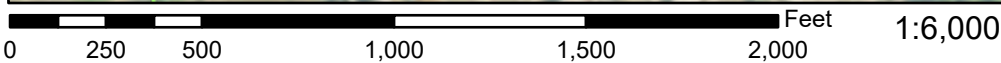
National Flood Hazard Layer FIRMMette



73°31'56"W 41°3'32"N



USGS The National Map: Orthoimagery. Data refreshed October, 2020.



73°31'19"W 41°3'5"N

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

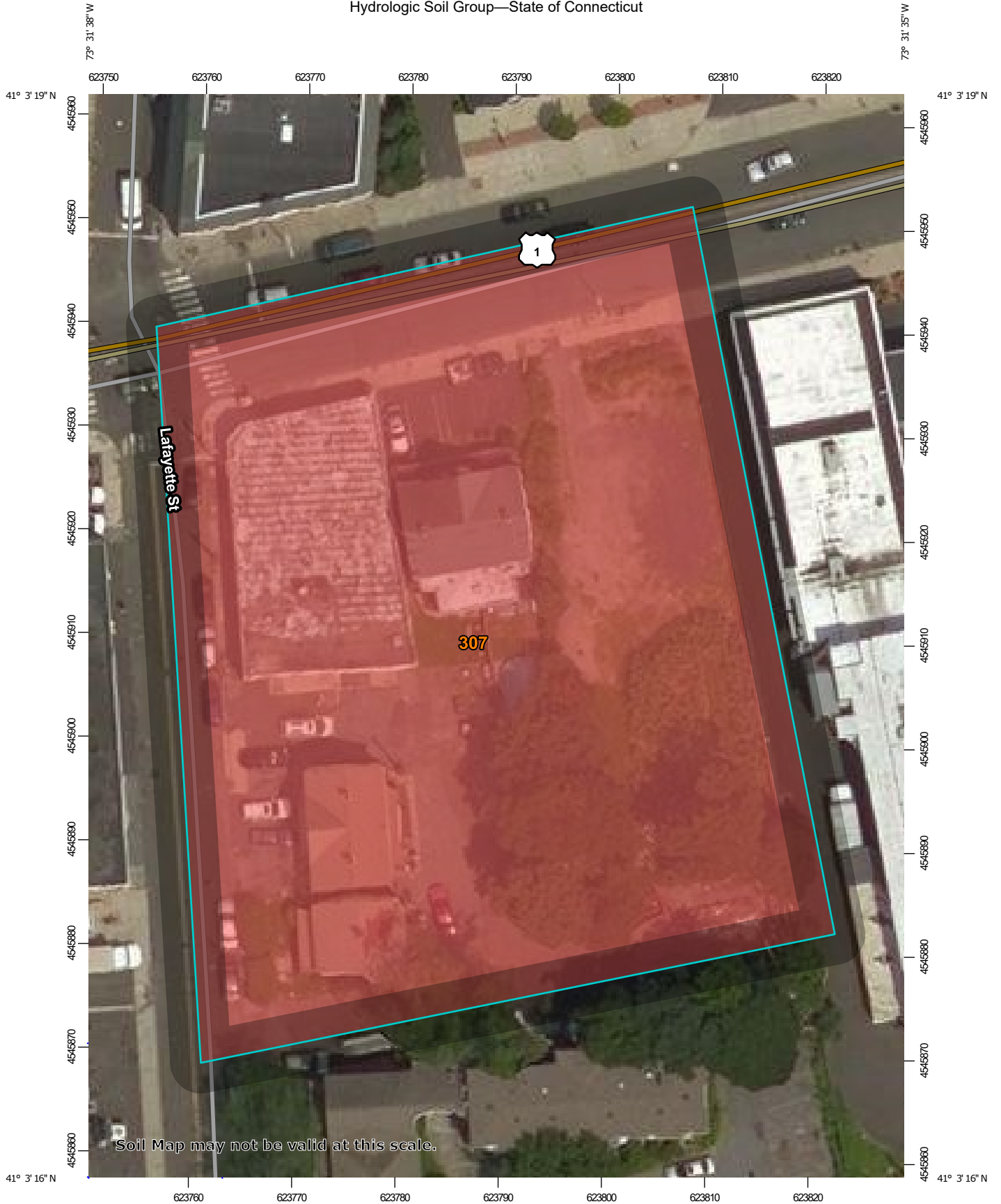


This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **11/9/2020 at 9:50 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

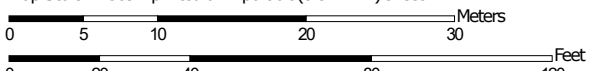
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Hydrologic Soil Group—State of Connecticut



Soil Map may not be valid at this scale.

Map Scale: 1:509 if printed on A portrait (8.5" x 11") sheet.



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



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: State of Connecticut
 Survey Area Data: Version 20, Jun 9, 2020

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

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

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
307	Urban land	D	1.0	100.0%
Totals for Area of Interest			1.0	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified



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

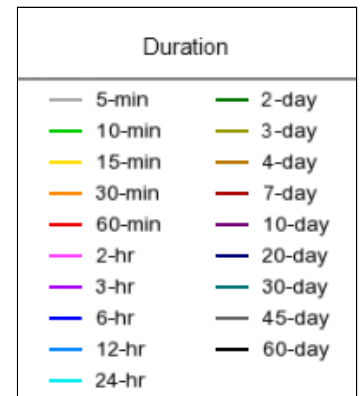
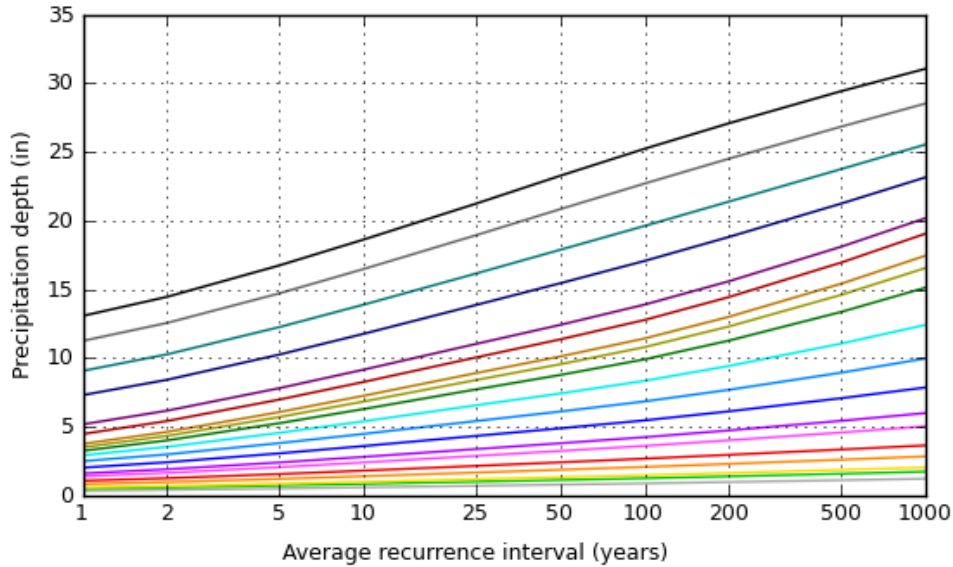
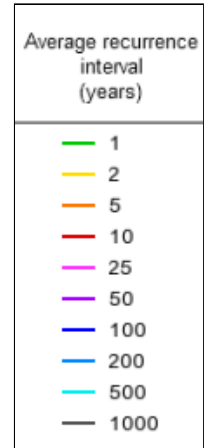
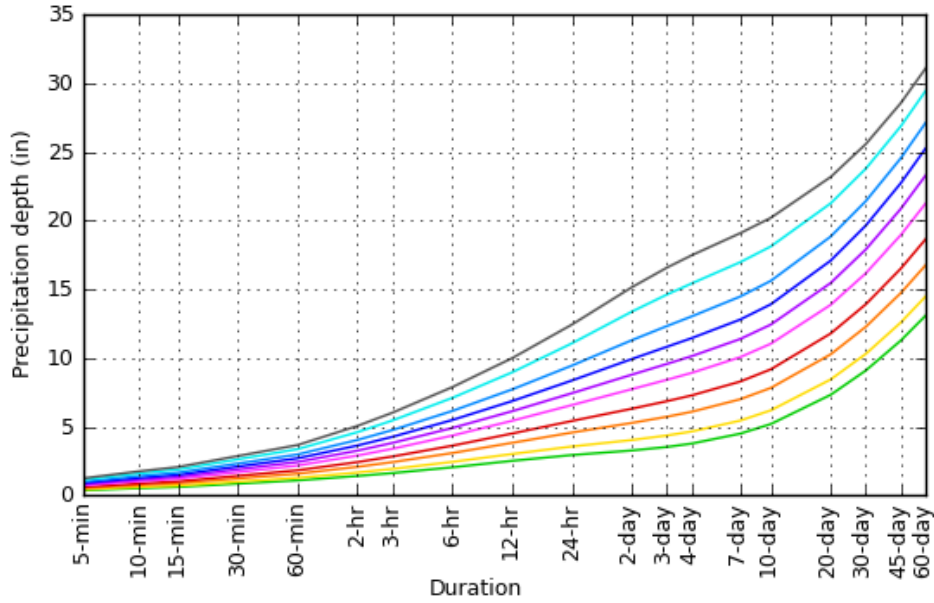
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.364 (0.283-0.462)	0.425 (0.330-0.540)	0.524 (0.406-0.668)	0.607 (0.467-0.777)	0.720 (0.537-0.956)	0.806 (0.588-1.09)	0.895 (0.633-1.25)	0.992 (0.668-1.41)	1.13 (0.731-1.66)	1.24 (0.782-1.85)
10-min	0.516 (0.401-0.655)	0.602 (0.467-0.765)	0.743 (0.575-0.946)	0.859 (0.660-1.10)	1.02 (0.760-1.36)	1.14 (0.834-1.54)	1.27 (0.897-1.77)	1.41 (0.946-2.00)	1.60 (1.03-2.35)	1.75 (1.11-2.62)
15-min	0.607 (0.472-0.770)	0.708 (0.550-0.900)	0.873 (0.676-1.11)	1.01 (0.778-1.30)	1.20 (0.894-1.59)	1.34 (0.980-1.82)	1.49 (1.06-2.08)	1.65 (1.11-2.36)	1.88 (1.22-2.76)	2.06 (1.30-3.09)
30-min	0.848 (0.659-1.08)	0.990 (0.769-1.26)	1.22 (0.947-1.56)	1.42 (1.09-1.81)	1.68 (1.25-2.23)	1.89 (1.37-2.55)	2.09 (1.48-2.91)	2.31 (1.56-3.30)	2.62 (1.70-3.85)	2.86 (1.81-4.28)
60-min	1.09 (0.846-1.38)	1.27 (0.988-1.62)	1.57 (1.22-2.01)	1.82 (1.40-2.33)	2.17 (1.61-2.87)	2.43 (1.77-3.28)	2.70 (1.90-3.74)	2.98 (2.01-4.24)	3.36 (2.18-4.94)	3.66 (2.32-5.48)
2-hr	1.41 (1.10-1.77)	1.66 (1.30-2.10)	2.08 (1.62-2.63)	2.42 (1.87-3.08)	2.89 (2.17-3.82)	3.25 (2.38-4.37)	3.62 (2.58-5.02)	4.03 (2.72-5.71)	4.60 (2.99-6.71)	5.05 (3.21-7.51)
3-hr	1.62 (1.27-2.04)	1.92 (1.51-2.42)	2.42 (1.89-3.05)	2.83 (2.19-3.58)	3.39 (2.55-4.46)	3.81 (2.81-5.11)	4.26 (3.04-5.89)	4.75 (3.22-6.70)	5.45 (3.55-7.93)	6.01 (3.82-8.91)
6-hr	2.04 (1.61-2.55)	2.43 (1.92-3.04)	3.08 (2.42-3.86)	3.61 (2.82-4.55)	4.35 (3.29-5.69)	4.90 (3.63-6.54)	5.48 (3.94-7.56)	6.14 (4.17-8.61)	7.09 (4.63-10.3)	7.87 (5.02-11.6)
12-hr	2.51 (2.00-3.11)	3.01 (2.39-3.73)	3.82 (3.03-4.76)	4.50 (3.54-5.63)	5.43 (4.13-7.06)	6.12 (4.57-8.12)	6.86 (4.97-9.42)	7.71 (5.26-10.7)	8.95 (5.87-12.9)	9.98 (6.39-14.6)
24-hr	2.93 (2.35-3.61)	3.55 (2.84-4.38)	4.57 (3.64-5.65)	5.41 (4.29-6.73)	6.57 (5.04-8.51)	7.43 (5.58-9.82)	8.36 (6.10-11.4)	9.45 (6.47-13.1)	11.1 (7.28-15.8)	12.4 (7.98-18.1)
2-day	3.26 (2.63-3.99)	4.03 (3.24-4.93)	5.27 (4.22-6.47)	6.30 (5.02-7.78)	7.73 (5.96-9.96)	8.78 (6.64-11.6)	9.92 (7.30-13.6)	11.3 (7.76-15.5)	13.4 (8.82-19.0)	15.1 (9.75-21.8)
3-day	3.52 (2.85-4.29)	4.36 (3.52-5.31)	5.72 (4.60-7.00)	6.85 (5.48-8.42)	8.41 (6.51-10.8)	9.56 (7.25-12.5)	10.8 (7.98-14.7)	12.3 (8.48-16.9)	14.6 (9.65-20.6)	16.6 (10.7-23.8)
4-day	3.77 (3.06-4.58)	4.64 (3.76-5.65)	6.08 (4.91-7.42)	7.27 (5.83-8.92)	8.91 (6.92-11.4)	10.1 (7.70-13.2)	11.4 (8.46-15.5)	13.0 (8.98-17.8)	15.4 (10.2-21.7)	17.5 (11.3-25.0)
7-day	4.49 (3.66-5.42)	5.44 (4.43-6.58)	6.99 (5.67-8.48)	8.28 (6.67-10.1)	10.1 (7.83-12.8)	11.4 (8.67-14.8)	12.8 (9.46-17.2)	14.5 (10.0-19.6)	17.0 (11.3-23.8)	19.1 (12.3-27.2)
10-day	5.19 (4.25-6.25)	6.19 (5.06-7.46)	7.82 (6.36-9.45)	9.17 (7.42-11.1)	11.0 (8.61-13.9)	12.4 (9.49-16.0)	13.9 (10.3-18.5)	15.6 (10.8-21.1)	18.1 (12.1-25.3)	20.2 (13.1-28.7)
20-day	7.32 (6.03-8.75)	8.43 (6.94-10.1)	10.3 (8.41-12.3)	11.8 (9.59-14.2)	13.9 (10.9-17.3)	15.5 (11.8-19.7)	17.1 (12.6-22.4)	18.8 (13.2-25.3)	21.2 (14.2-29.4)	23.2 (15.1-32.7)
30-day	9.08 (7.51-10.8)	10.3 (8.49-12.3)	12.3 (10.1-14.7)	13.9 (11.4-16.7)	16.2 (12.7-20.0)	17.9 (13.7-22.6)	19.6 (14.4-25.5)	21.4 (15.0-28.6)	23.8 (15.9-32.7)	25.6 (16.7-35.9)
45-day	11.3 (9.35-13.4)	12.6 (10.4-14.9)	14.7 (12.2-17.5)	16.5 (13.5-19.7)	18.9 (14.9-23.4)	20.8 (16.0-26.1)	22.7 (16.7-29.2)	24.5 (17.3-32.6)	26.8 (18.1-36.8)	28.5 (18.6-39.9)
60-day	13.1 (10.9-15.5)	14.5 (12.0-17.1)	16.7 (13.9-19.9)	18.6 (15.3-22.3)	21.2 (16.8-26.1)	23.3 (17.9-29.0)	25.2 (18.6-32.3)	27.1 (19.1-35.9)	29.4 (19.8-40.2)	31.1 (20.3-43.3)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

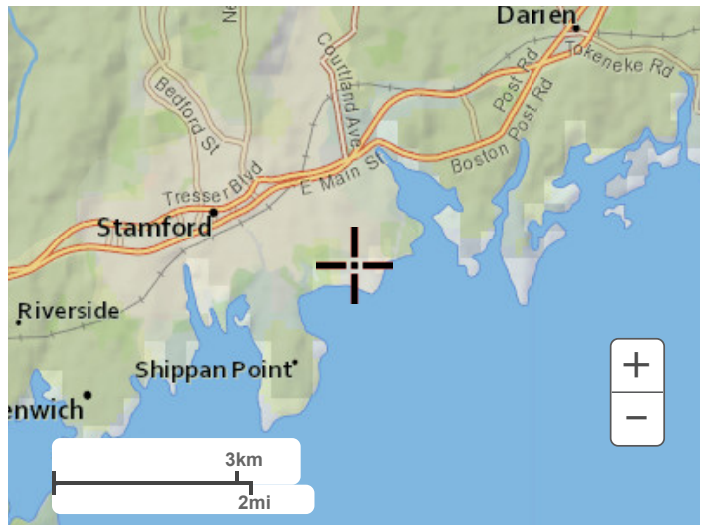
PDS-based depth-duration-frequency (DDF) curves
 Latitude: 41.0422°, Longitude: -73.5118°



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Maps & aerials

Small scale terrain



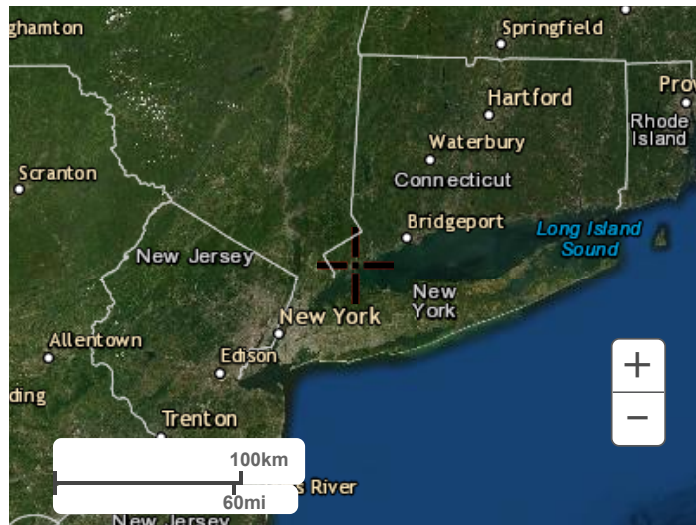
Large scale terrain



Large scale map



Large scale aerial



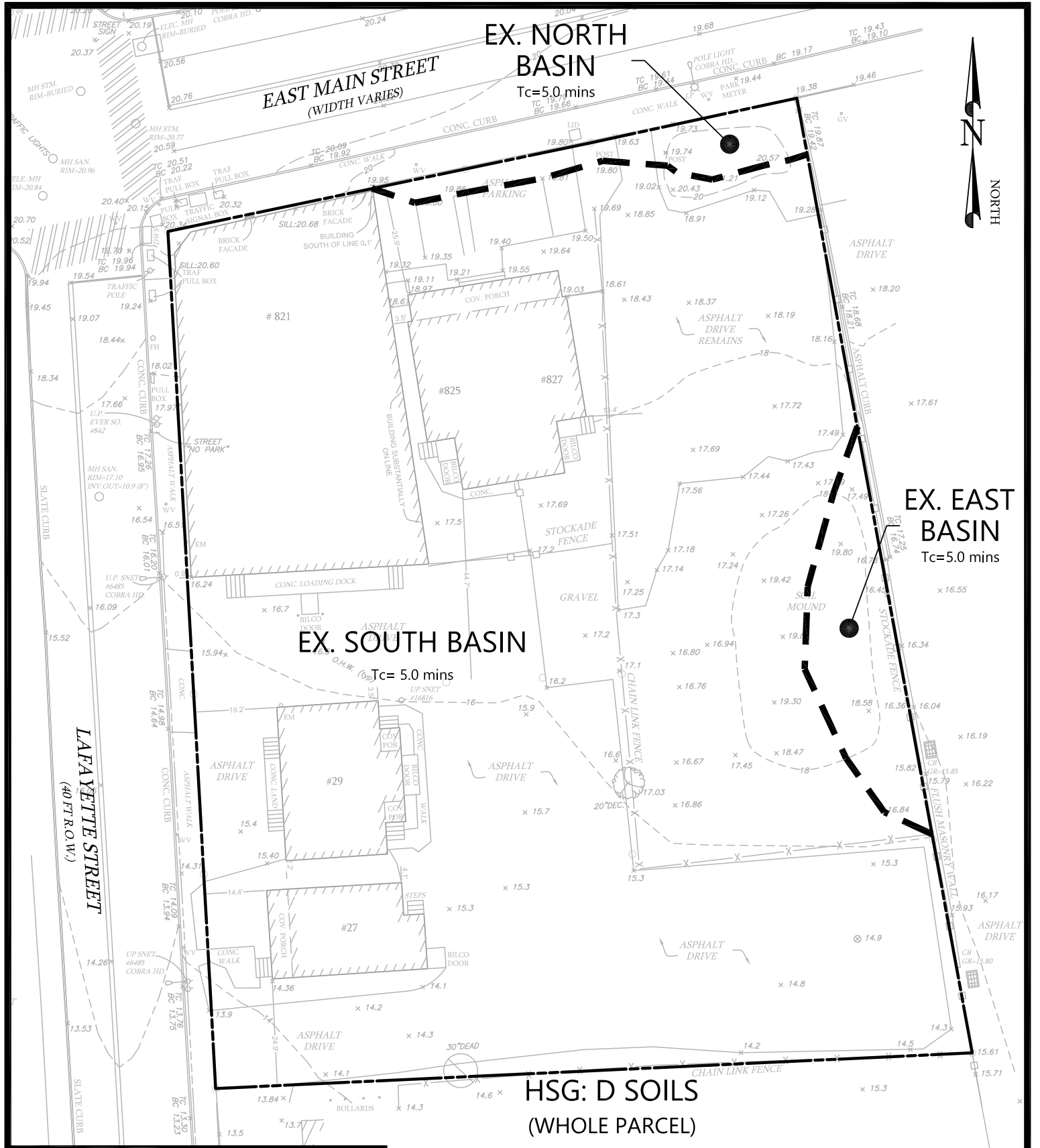
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1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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Tie-break Rule: Higher

APPENDIX – B



EX. NORTH BASIN

Tc=5.0 mins

EAST MAIN STREET
(WIDTH VARIES)

EX. SOUTH BASIN

Tc= 5.0 mins

EX. EAST BASIN

Tc=5.0 mins

HSG: D SOILS
(WHOLE PARCEL)

DIMARZO & BERECZKY

DRAINAGE BASIN MAP
ONSITE - EXISTING CONDITIONS
PREPARED FOR
819 EAST MAIN STREET
STAMFORD, CT

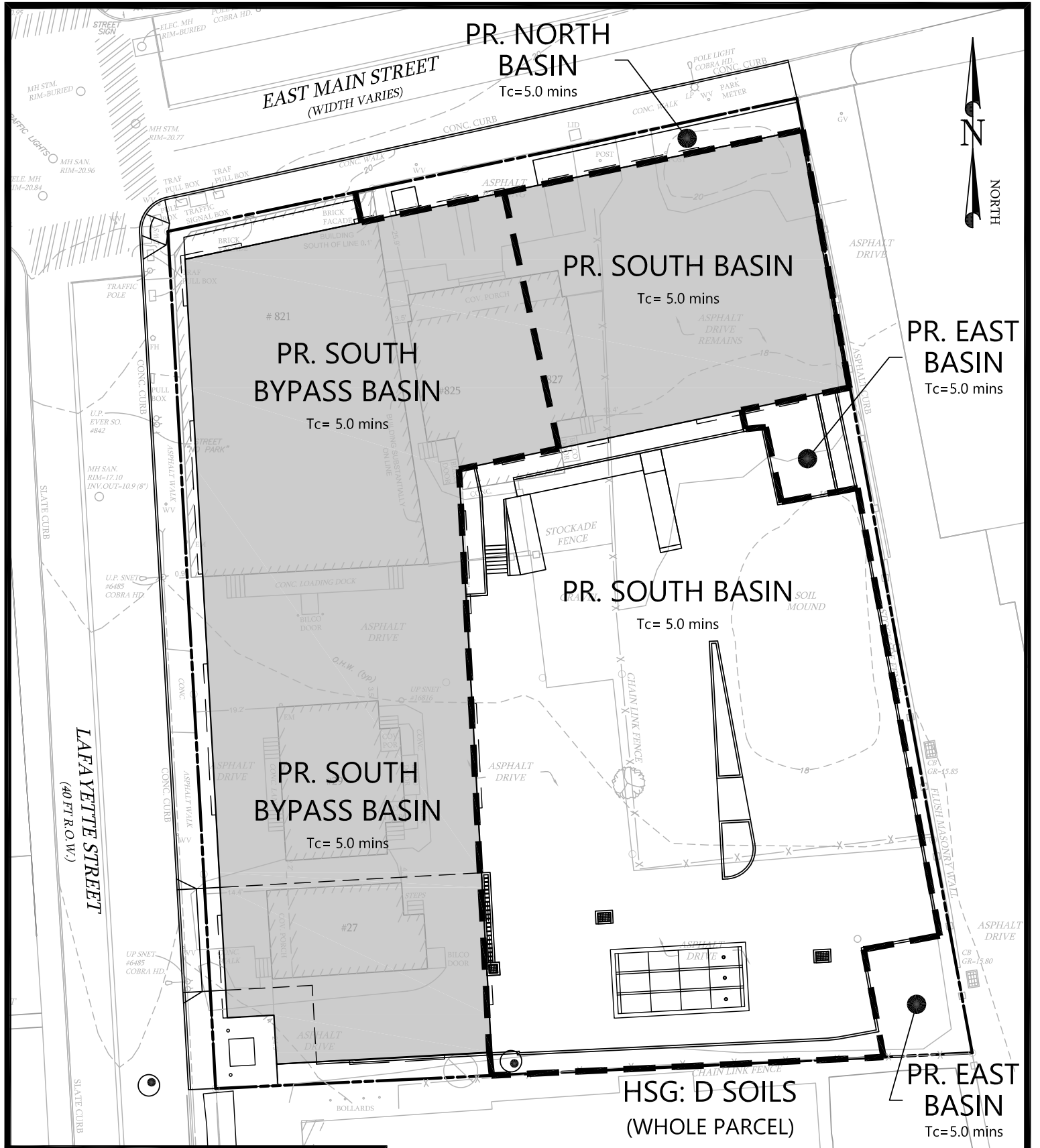
DR-EX

191 LLOYD DRIVE
FAIRFIELD, CT 06825
203.857.4110

LAND SURVEYING
CIVIL ENGINEERING
PERMITTING

DATE: 4/23/2021

SCALE: 0 30
1"=30'



PR. NORTH BASIN

Tc= 5.0 mins

PR. SOUTH BASIN

Tc= 5.0 mins

PR. SOUTH BYPASS BASIN

Tc= 5.0 mins

PR. SOUTH BASIN

Tc= 5.0 mins

PR. SOUTH BYPASS BASIN

Tc= 5.0 mins

PR. EAST BASIN

Tc= 5.0 mins

HSG: D SOILS
(WHOLE PARCEL)

PR. EAST BASIN

Tc= 5.0 mins

DIMARZO & BERECZKY

191 LLOYD DRIVE
FAIRFIELD, CT 06825
203.857.4110

LAND SURVEYING
CIVIL ENGINEERING
PERMITTING

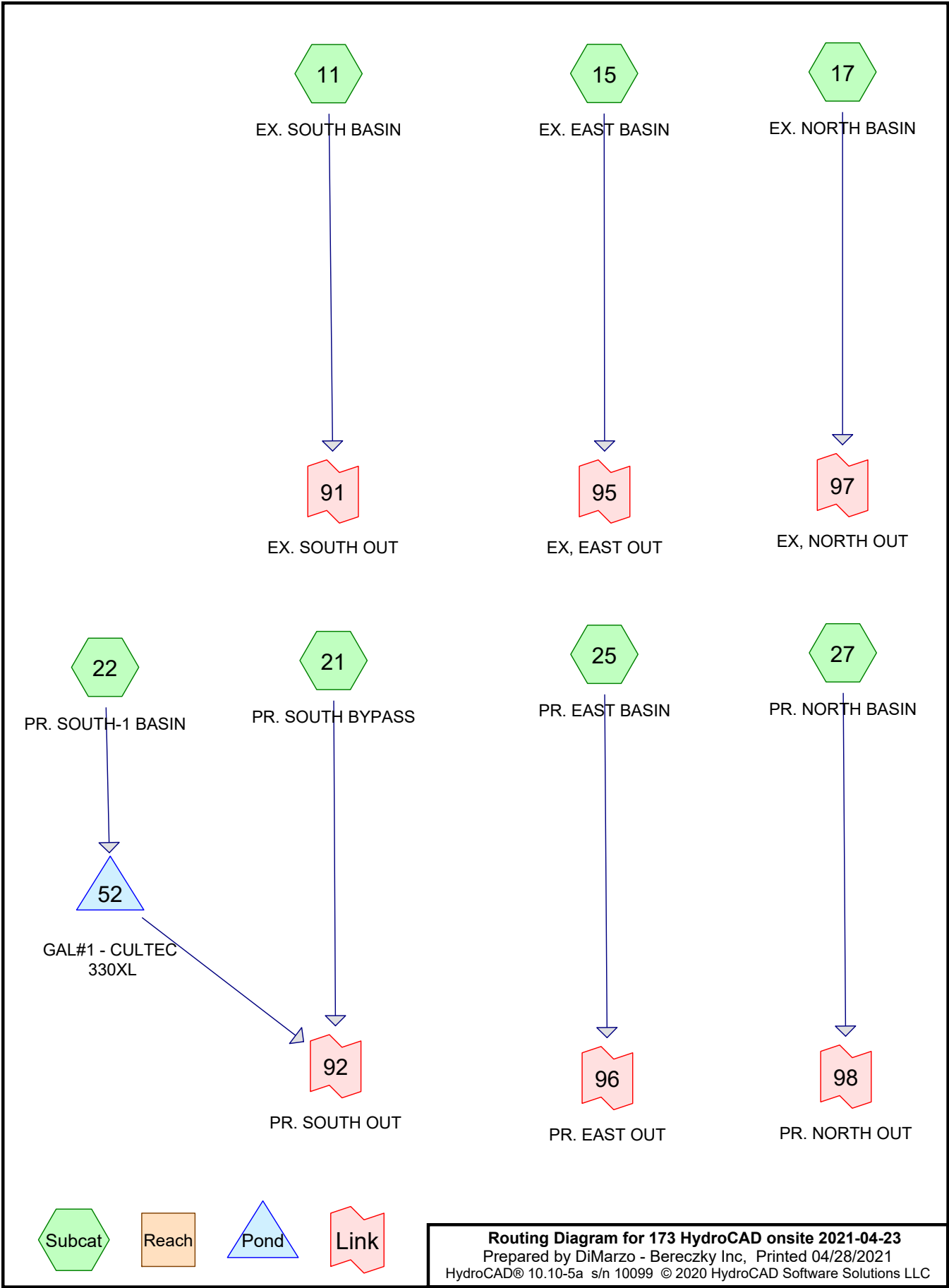
DRAINAGE BASIN MAP
ONSITE - PROPOSED CONDITIONS

PREPARED FOR
819 EAST MAIN STREET
STAMFORD, CT

DR-PR

DATE: 4/23/2021

SCALE: 0 30
1"=30'



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 11: EX. SOUTH BASIN	Runoff Area=32,407 sf 77.76% Impervious Runoff Depth>2.34" Tc=5.0 min CN=94.89 Runoff=2.02 cfs 6,317 cf
Subcatchment 15: EX. EAST BASIN	Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>1.43" Tc=5.0 min CN=84.00 Runoff=0.05 cfs 162 cf
Subcatchment 17: EX. NORTH BASIN	Runoff Area=801 sf 93.51% Impervious Runoff Depth>2.57" Tc=5.0 min CN=97.09 Runoff=0.05 cfs 171 cf
Subcatchment 21: PR. SOUTH BYPASS	Runoff Area=14,240 sf 95.06% Impervious Runoff Depth>2.59" Tc=5.0 min CN=97.31 Runoff=0.94 cfs 3,075 cf
Subcatchment 22: PR. SOUTH-1 BASIN	Runoff Area=18,333 sf 95.40% Impervious Runoff Depth>2.60" Tc=5.0 min CN=97.36 Runoff=1.21 cfs 3,967 cf
Subcatchment 25: PR. EAST BASIN	Runoff Area=1,227 sf 7.74% Impervious Runoff Depth>1.51" Tc=5.0 min CN=85.08 Runoff=0.05 cfs 154 cf
Subcatchment 27: PR. NORTH BASIN	Runoff Area=762 sf 44.36% Impervious Runoff Depth>1.91" Tc=5.0 min CN=90.21 Runoff=0.04 cfs 121 cf
Pond 52: GAL#1 - CULTEC 330XL	Peak Elev=11.19' Storage=704 cf Inflow=1.21 cfs 3,967 cf Outflow=1.00 cfs 3,565 cf
Link 91: EX. SOUTH OUT	Inflow=2.02 cfs 6,317 cf Primary=2.02 cfs 6,317 cf
Link 92: PR. SOUTH OUT	Inflow=1.88 cfs 6,640 cf Primary=1.88 cfs 6,640 cf
Link 95: EX, EAST OUT	Inflow=0.05 cfs 162 cf Primary=0.05 cfs 162 cf
Link 96: PR. EAST OUT	Inflow=0.05 cfs 154 cf Primary=0.05 cfs 154 cf
Link 97: EX, NORTH OUT	Inflow=0.05 cfs 171 cf Primary=0.05 cfs 171 cf
Link 98: PR. NORTH OUT	Inflow=0.04 cfs 121 cf Primary=0.04 cfs 121 cf

Total Runoff Area = 69,124 sf Runoff Volume = 13,967 cf Average Runoff Depth = 2.42"
16.95% Pervious = 11,716 sf 83.05% Impervious = 57,408 sf

Summary for Subcatchment 11: EX. SOUTH BASIN

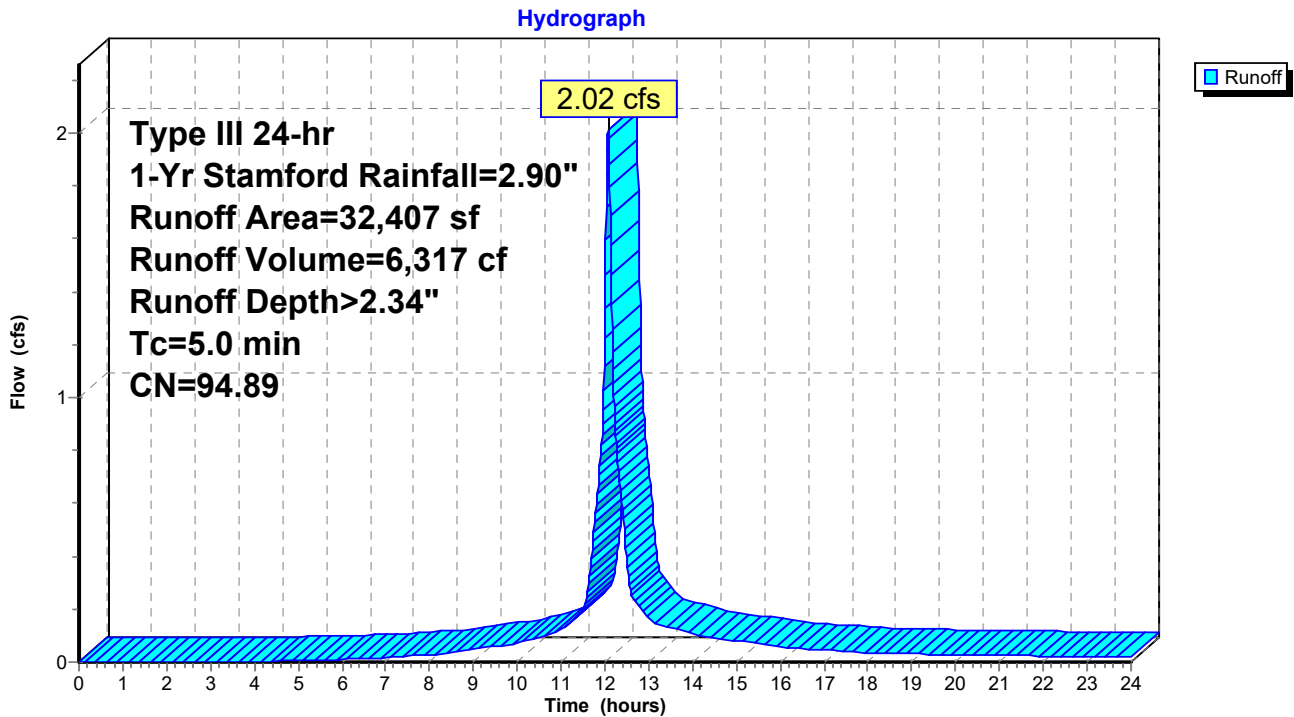
Runoff = 2.02 cfs @ 12.07 hrs, Volume= 6,317 cf, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Yr Stamford Rainfall=2.90"

Area (sf)	CN	Description
7,534	98.00	Roofs, HSG D
* 17,666	98.00	Paved Hardscapes, HSG D
7,207	84.00	50-75% Grass cover, Fair, HSG D
32,407	94.89	Weighted Average
7,207		22.24% Pervious Area
25,200		77.76% Impervious Area

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

Subcatchment 11: EX. SOUTH BASIN



Summary for Subcatchment 15: EX. EAST BASIN

Runoff = 0.05 cfs @ 12.08 hrs, Volume= 162 cf, Depth> 1.43"

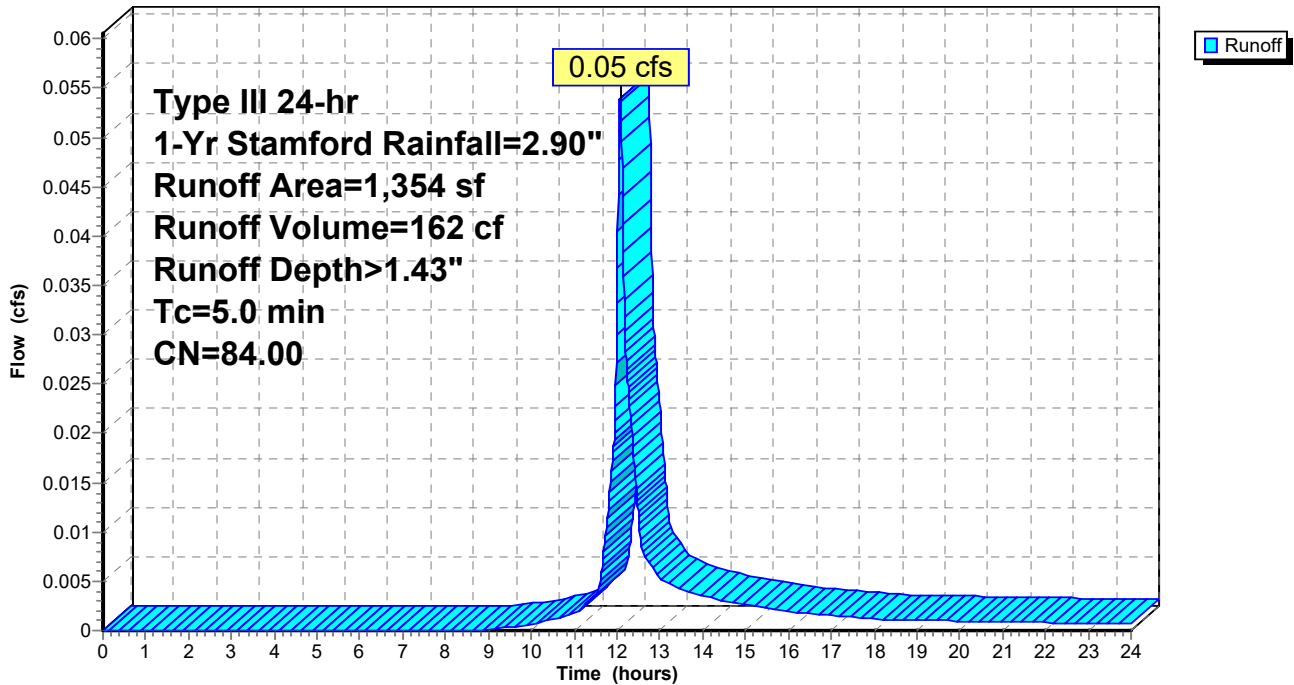
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Yr Stamford Rainfall=2.90"

Area (sf)	CN	Description
0	98.00	Roofs, HSG D
* 0	98.00	Paved Hardscapes, HSG D
1,354	84.00	50-75% Grass cover, Fair, HSG D
1,354	84.00	Weighted Average
1,354		100.00% Pervious Area

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

Subcatchment 15: EX. EAST BASIN

Hydrograph



Summary for Subcatchment 17: EX. NORTH BASIN

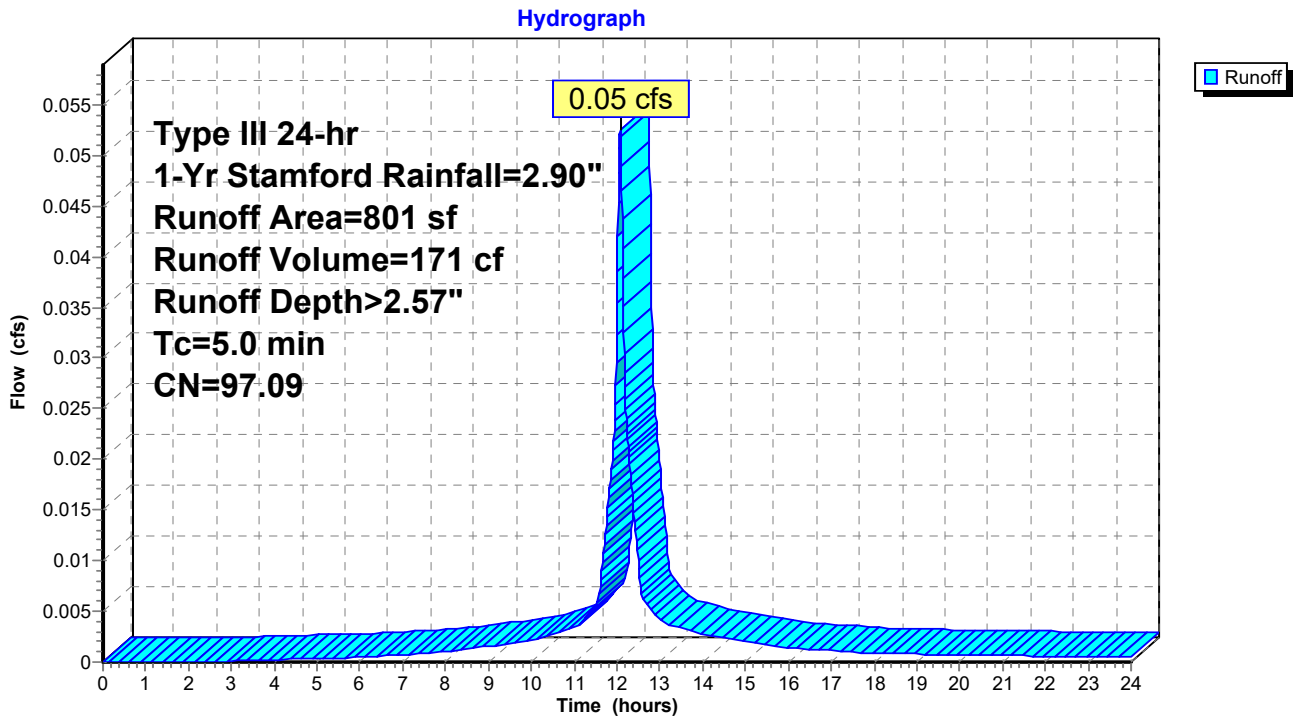
Runoff = 0.05 cfs @ 12.07 hrs, Volume= 171 cf, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Yr Stamford Rainfall=2.90"

Area (sf)	CN	Description
0	98.00	Roofs, HSG D
* 749	98.00	Paved Hardscapes, HSG D
52	84.00	50-75% Grass cover, Fair, HSG D
801	97.09	Weighted Average
52		6.49% Pervious Area
749		93.51% Impervious Area

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

Subcatchment 17: EX. NORTH BASIN



Summary for Subcatchment 21: PR. SOUTH BYPASS

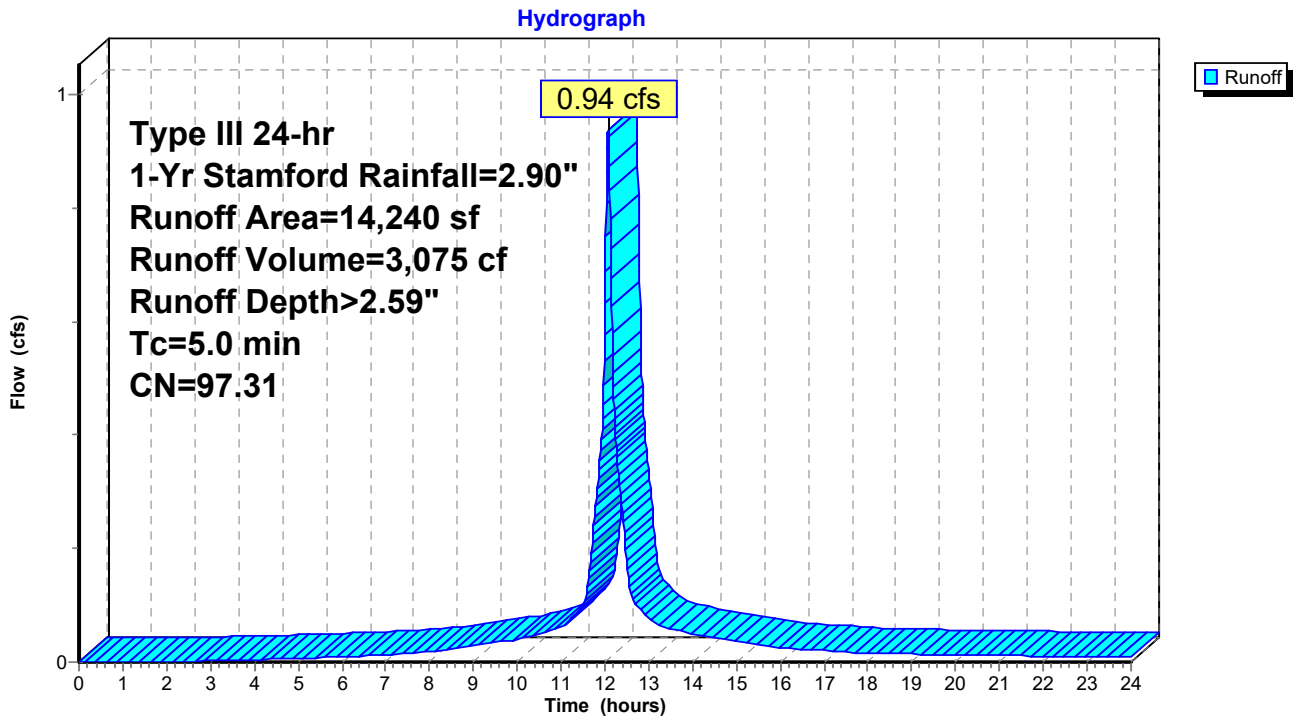
Runoff = 0.94 cfs @ 12.07 hrs, Volume= 3,075 cf, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Yr Stamford Rainfall=2.90"

Area (sf)	CN	Description
12,778	98.00	Roofs, HSG D
* 759	98.00	Paved Hardscapes, HSG D
703	84.00	50-75% Grass cover, Fair, HSG D
14,240	97.31	Weighted Average
703		4.94% Pervious Area
13,537		95.06% Impervious Area

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

Subcatchment 21: PR. SOUTH BYPASS



Summary for Subcatchment 22: PR. SOUTH-1 BASIN

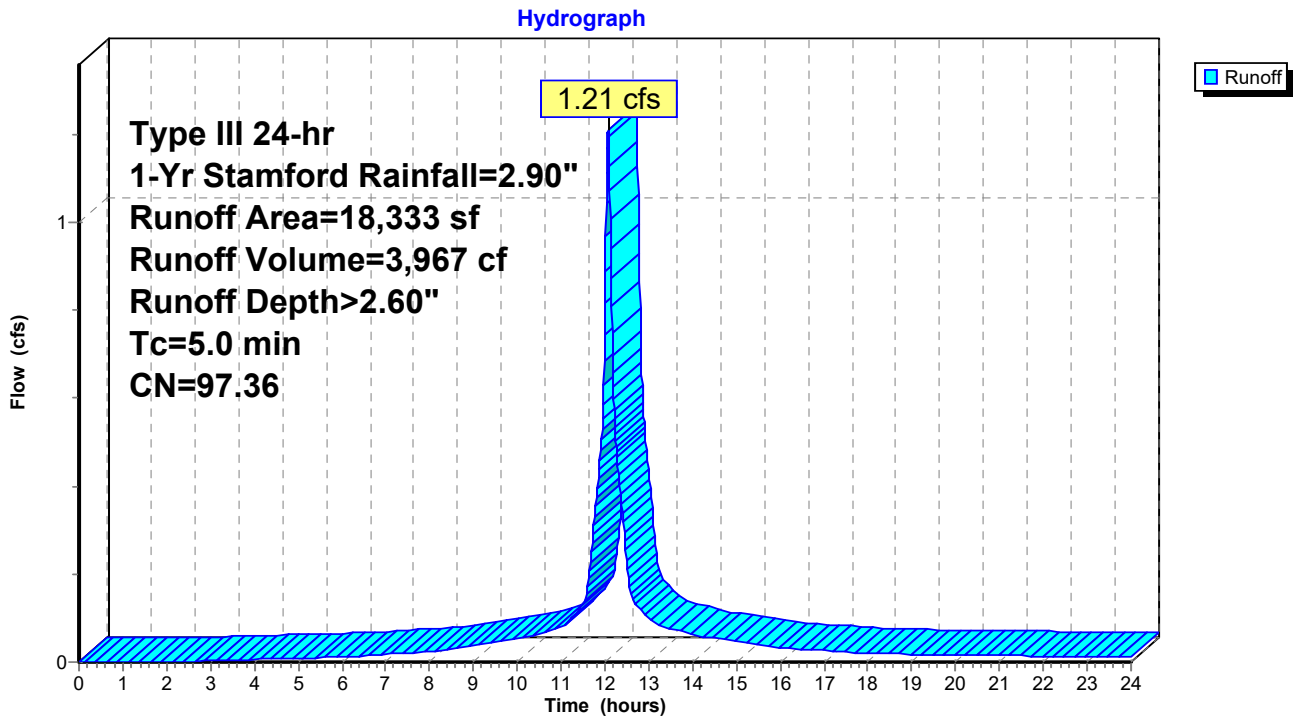
Runoff = 1.21 cfs @ 12.07 hrs, Volume= 3,967 cf, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Yr Stamford Rainfall=2.90"

Area (sf)	CN	Description
4,286	98.00	Roofs, HSG D
* 13,203	98.00	Paved Hardscapes, HSG D
844	84.00	50-75% Grass cover, Fair, HSG D
18,333	97.36	Weighted Average
844		4.60% Pervious Area
17,489		95.40% Impervious Area

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

Subcatchment 22: PR. SOUTH-1 BASIN



Summary for Subcatchment 25: PR. EAST BASIN

Runoff = 0.05 cfs @ 12.08 hrs, Volume= 154 cf, Depth> 1.51"

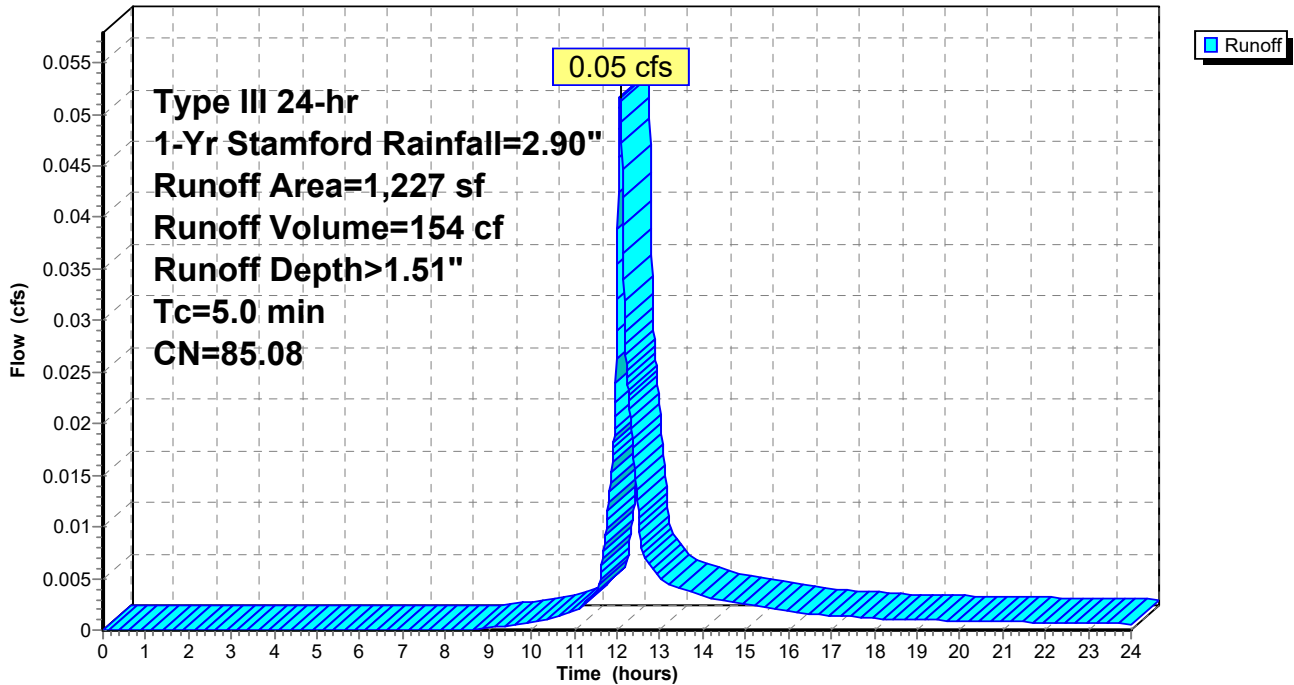
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Yr Stamford Rainfall=2.90"

Area (sf)	CN	Description
0	98.00	Roofs, HSG D
* 95	98.00	Paved Hardscapes, HSG D
1,132	84.00	50-75% Grass cover, Fair, HSG D
1,227	85.08	Weighted Average
1,132		92.26% Pervious Area
95		7.74% Impervious Area

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

Subcatchment 25: PR. EAST BASIN

Hydrograph



Summary for Subcatchment 27: PR. NORTH BASIN

Runoff = 0.04 cfs @ 12.07 hrs, Volume= 121 cf, Depth> 1.91"

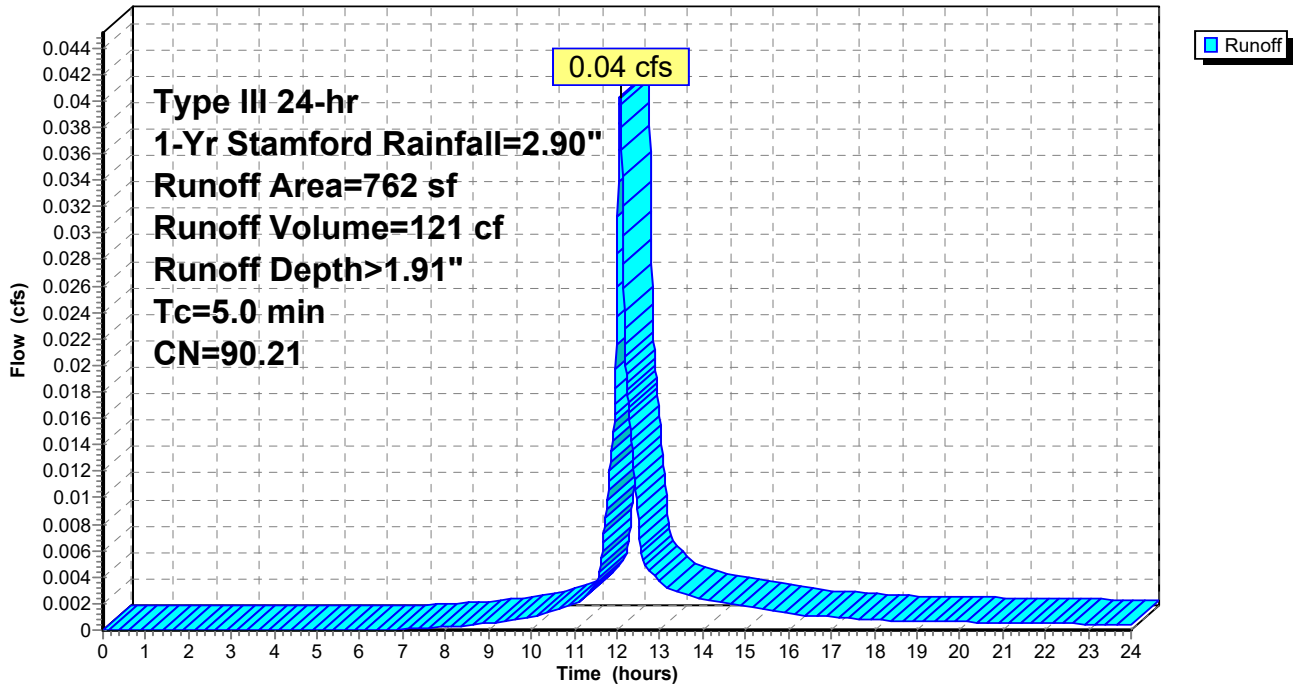
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1-Yr Stamford Rainfall=2.90"

Area (sf)	CN	Description
0	98.00	Roofs, HSG D
* 338	98.00	Paved Hardscapes, HSG D
424	84.00	50-75% Grass cover, Fair, HSG D
762	90.21	Weighted Average
424		55.64% Pervious Area
338		44.36% Impervious Area

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

Subcatchment 27: PR. NORTH BASIN

Hydrograph



Summary for Pond 52: GAL#1 - CULTEC 330XL

Inflow Area = 18,333 sf, 95.40% Impervious, Inflow Depth > 2.60" for 1-Yr Stamford event
 Inflow = 1.21 cfs @ 12.07 hrs, Volume= 3,967 cf
 Outflow = 1.00 cfs @ 12.12 hrs, Volume= 3,565 cf, Atten= 17%, Lag= 3.0 min
 Primary = 1.00 cfs @ 12.12 hrs, Volume= 3,565 cf

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 4
 Peak Elev= 11.19' @ 12.12 hrs Surf.Area= 561 sf Storage= 704 cf

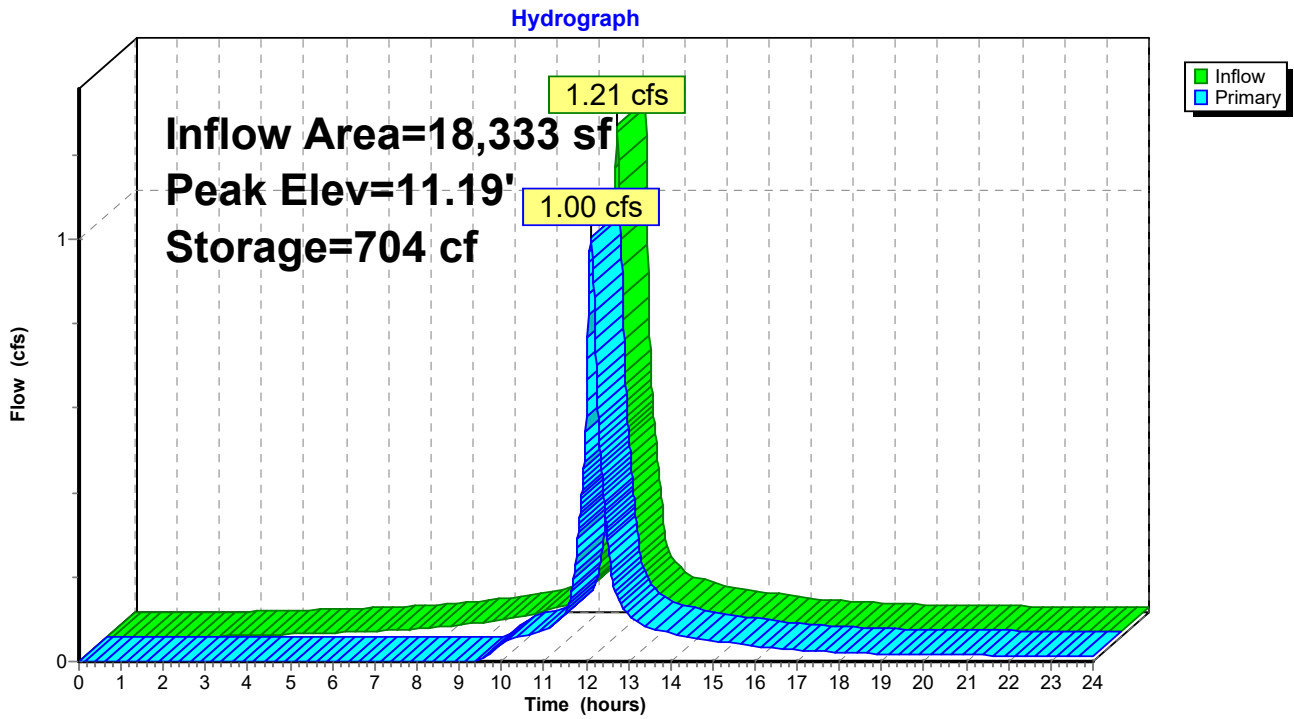
Plug-Flow detention time= 92.7 min calculated for 3,565 cf (90% of inflow)
 Center-of-Mass det. time= 43.4 min (807.2 - 763.8)

Volume	Invert	Avail.Storage	Storage Description
#1	9.40'	452 cf	16.00'W x 31.50'L x 3.55'H STONE DATA VOLUME 1,789 cf Overall - 659 cf Embedded = 1,130 cf x 40.0% Voids
#2	9.90'	659 cf	Cultec R-330XLHD x 12 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 3 rows
#3	10.50'	37 cf	3.00'W x 4.00'L x 3.10'H CB-1
#4	11.90'	37 cf	3.00'W x 4.00'L x 3.10'H CB-2
#5	9.90'	45 cf	4.00'D x 3.60'H MH-2
#6	9.90'	42 cf	8.0" Round Pipe Storage L= 120.0' S= 0.0300 'f'
#7	9.90'	6 cf	12.0" Round Pipe Storage L= 8.0' S= 0.0500 'f'
#8	9.90'	13 cf	12.0" Round Pipe Storage L= 17.0' S= 0.0500 'f'
#9	9.90'	21 cf	12.0" Round Pipe Storage L= 27.0'
#10	10.14'	14 cf	12.0" Round Pipe Storage L= 18.0' S= 0.0200 'f'
		1,328 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	13.10'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Device 3	10.50'	8.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	10.00'	12.0" Round 12" Round Culvert L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.00' / 9.10' S= 0.0100 'f' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.12 hrs HW=11.19' TW=9.65' (Fixed TW Elev= 9.65')
 3=12" Round Culvert (Passes 1.00 cfs of 3.14 cfs potential flow)
 1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
 2=Orifice/Grate (Orifice Controls 1.00 cfs @ 2.88 fps)

Pond 52: GAL#1 - CULTEC 330XL



Stage-Area-Storage for Pond 52: GAL#1 - CULTEC 330XL

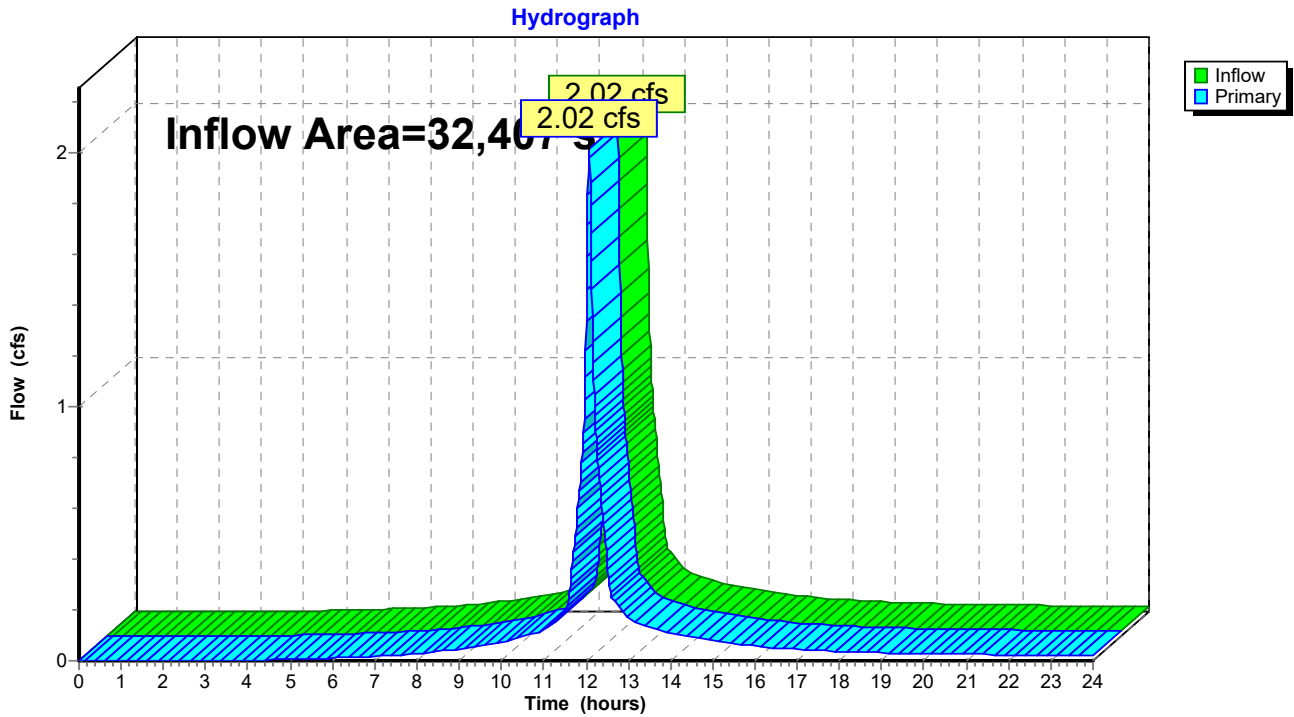
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
9.40	0	12.05	1,037	14.70	1,324
9.45	10	12.10	1,054	14.75	1,325
9.50	20	12.15	1,070	14.80	1,325
9.55	30	12.20	1,086	14.85	1,326
9.60	40	12.25	1,100	14.90	1,327
9.65	50	12.30	1,114	14.95	1,327
9.70	60	12.35	1,128	15.00	1,328
9.75	71	12.40	1,141		
9.80	81	12.45	1,153		
9.85	91	12.50	1,166		
9.90	101	12.55	1,178		
9.95	122	12.60	1,191		
10.00	144	12.65	1,203		
10.05	167	12.70	1,216		
10.10	189	12.75	1,228		
10.15	212	12.80	1,241		
10.20	235	12.85	1,253		
10.25	258	12.90	1,266		
10.30	281	12.95	1,278		
10.35	305	13.00	1,281		
10.40	328	13.05	1,283		
10.45	352	13.10	1,285		
10.50	377	13.15	1,288		
10.55	401	13.20	1,290		
10.60	426	13.25	1,293		
10.65	451	13.30	1,295		
10.70	475	13.35	1,298		
10.75	500	13.40	1,300		
10.80	524	13.45	1,302		
10.85	548	13.50	1,305		
10.90	572	13.55	1,307		
10.95	595	13.60	1,308		
11.00	618	13.65	1,309		
11.05	641	13.70	1,310		
11.10	664	13.75	1,311		
11.15	686	13.80	1,312		
11.20	708	13.85	1,313		
11.25	730	13.90	1,314		
11.30	751	13.95	1,315		
11.35	772	14.00	1,316		
11.40	793	14.05	1,316		
11.45	813	14.10	1,317		
11.50	833	14.15	1,318		
11.55	853	14.20	1,318		
11.60	873	14.25	1,319		
11.65	892	14.30	1,319		
11.70	911	14.35	1,320		
11.75	930	14.40	1,321		
11.80	948	14.45	1,321		
11.85	966	14.50	1,322		
11.90	984	14.55	1,322		
11.95	1,002	14.60	1,323		
12.00	1,020	14.65	1,324		

Summary for Link 91: EX. SOUTH OUT

Inflow Area = 32,407 sf, 77.76% Impervious, Inflow Depth > 2.34" for 1-Yr Stamford event
Inflow = 2.02 cfs @ 12.07 hrs, Volume= 6,317 cf
Primary = 2.02 cfs @ 12.07 hrs, Volume= 6,317 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 91: EX. SOUTH OUT

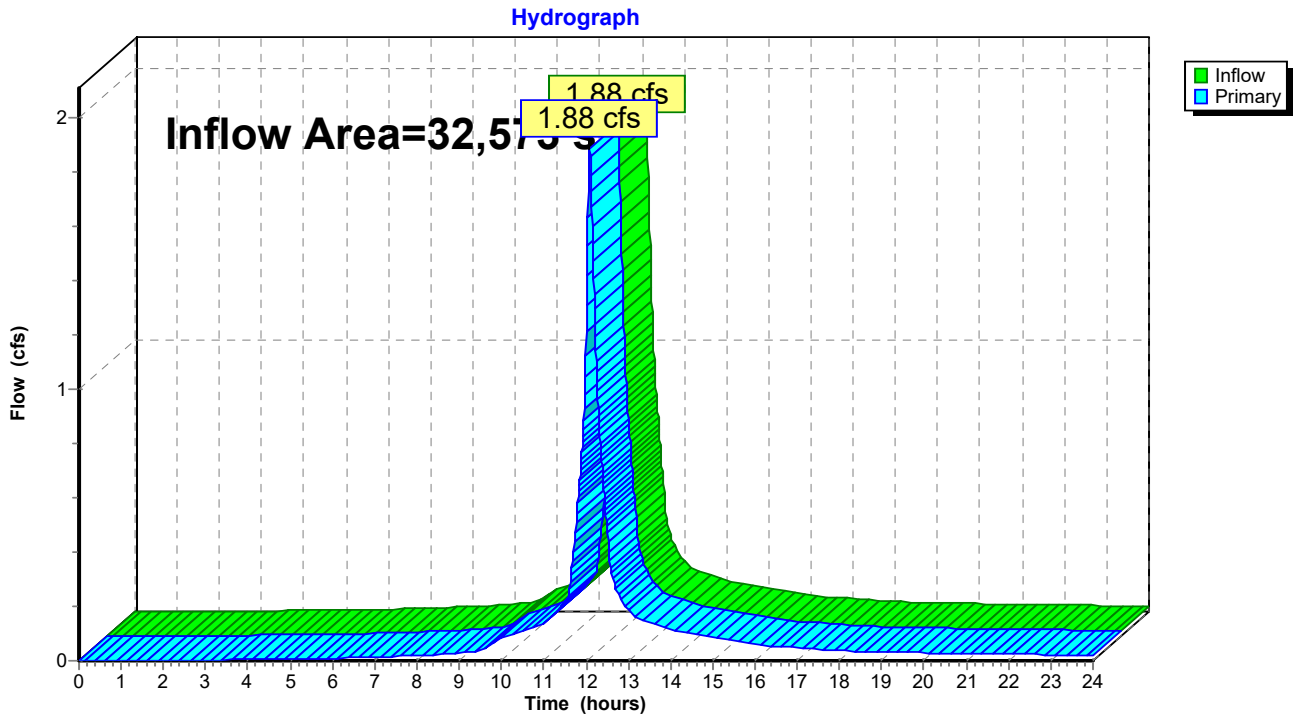


Summary for Link 92: PR. SOUTH OUT

Inflow Area = 32,573 sf, 95.25% Impervious, Inflow Depth > 2.45" for 1-Yr Stamford event
Inflow = 1.88 cfs @ 12.09 hrs, Volume= 6,640 cf
Primary = 1.88 cfs @ 12.09 hrs, Volume= 6,640 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 92: PR. SOUTH OUT

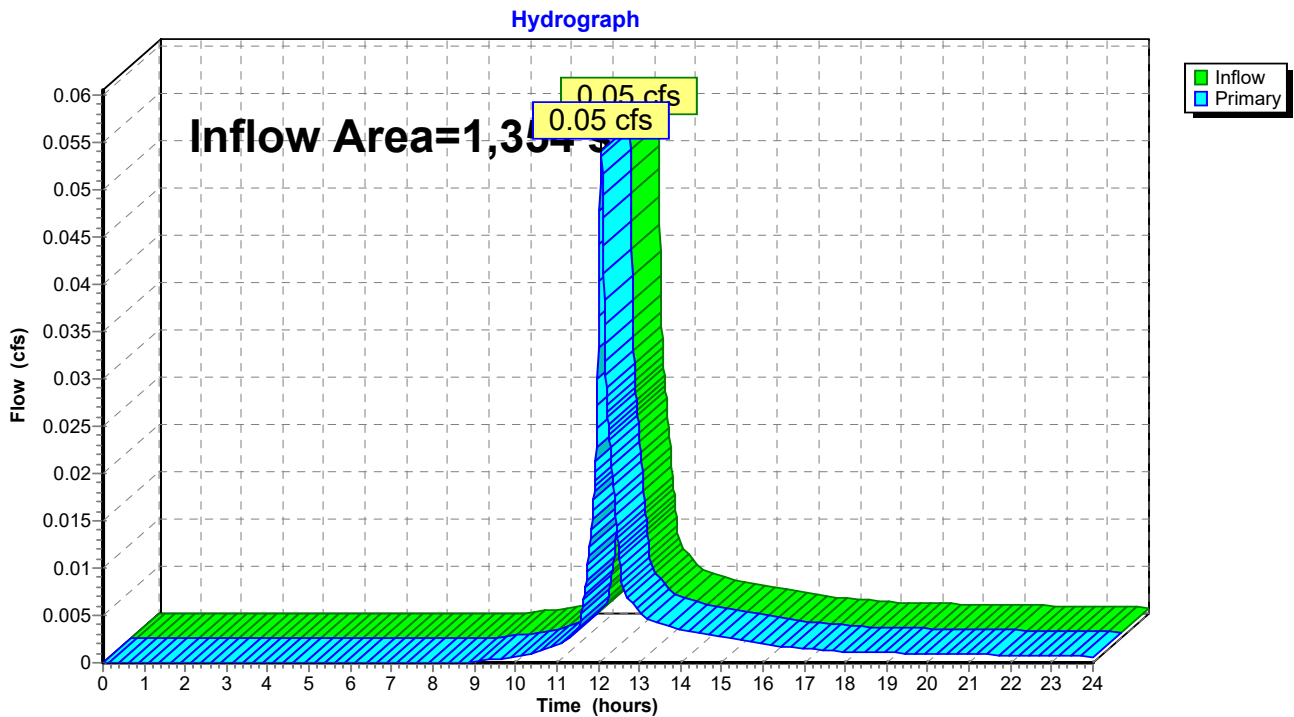


Summary for Link 95: EX, EAST OUT

Inflow Area = 1,354 sf, 0.00% Impervious, Inflow Depth > 1.43" for 1-Yr Stamford event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 162 cf
Primary = 0.05 cfs @ 12.08 hrs, Volume= 162 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 95: EX, EAST OUT

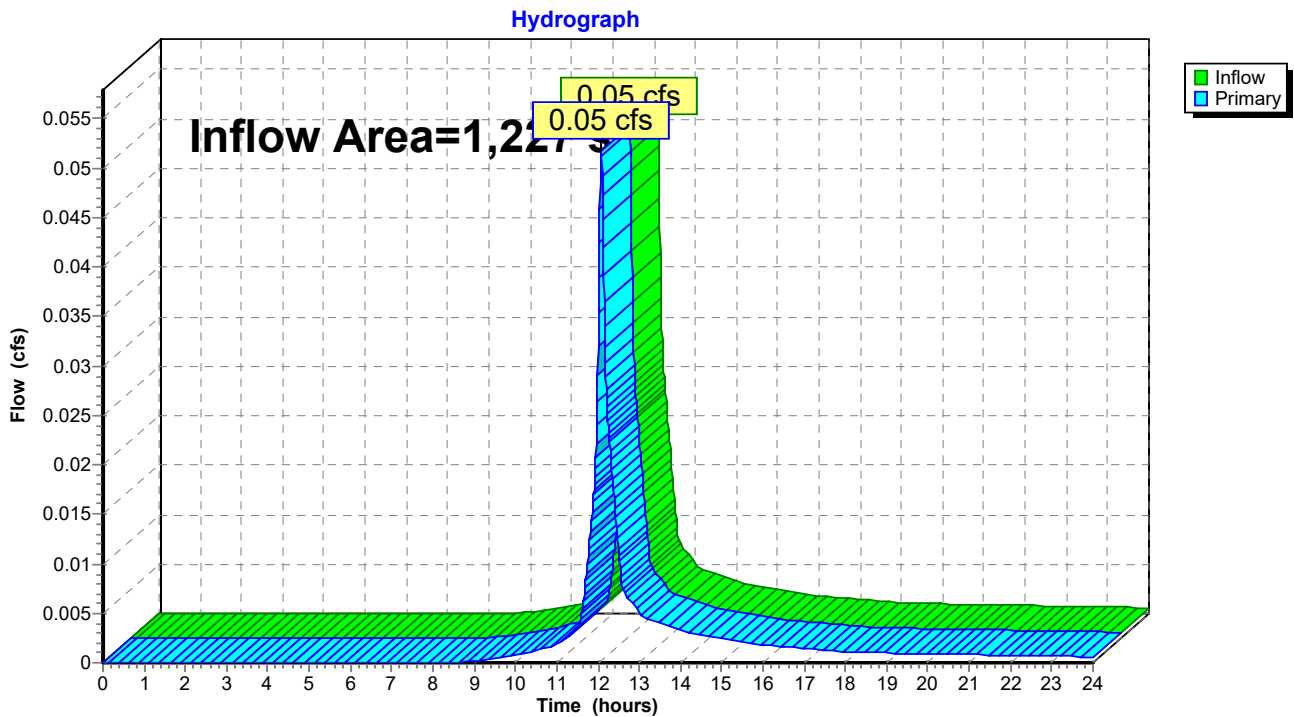


Summary for Link 96: PR. EAST OUT

Inflow Area = 1,227 sf, 7.74% Impervious, Inflow Depth > 1.51" for 1-Yr Stamford event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 154 cf
Primary = 0.05 cfs @ 12.08 hrs, Volume= 154 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 96: PR. EAST OUT

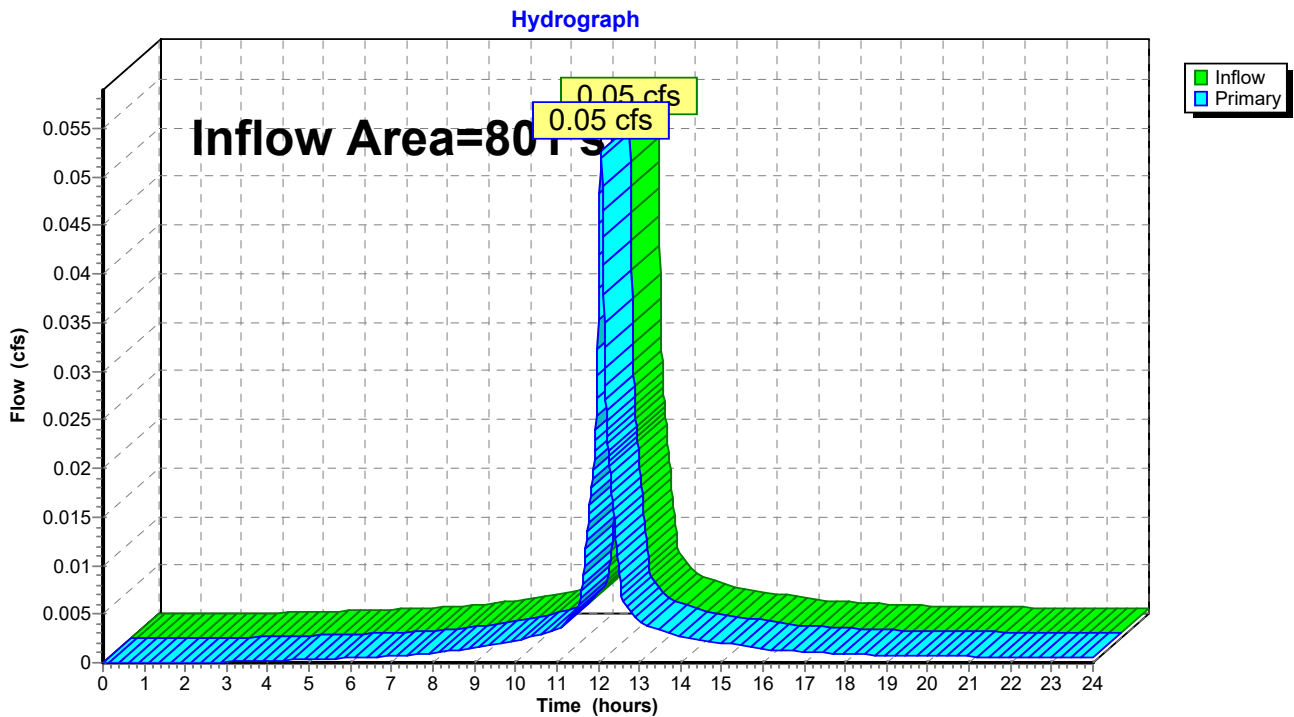


Summary for Link 97: EX, NORTH OUT

Inflow Area = 801 sf, 93.51% Impervious, Inflow Depth > 2.57" for 1-Yr Stamford event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 171 cf
Primary = 0.05 cfs @ 12.07 hrs, Volume= 171 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 97: EX, NORTH OUT

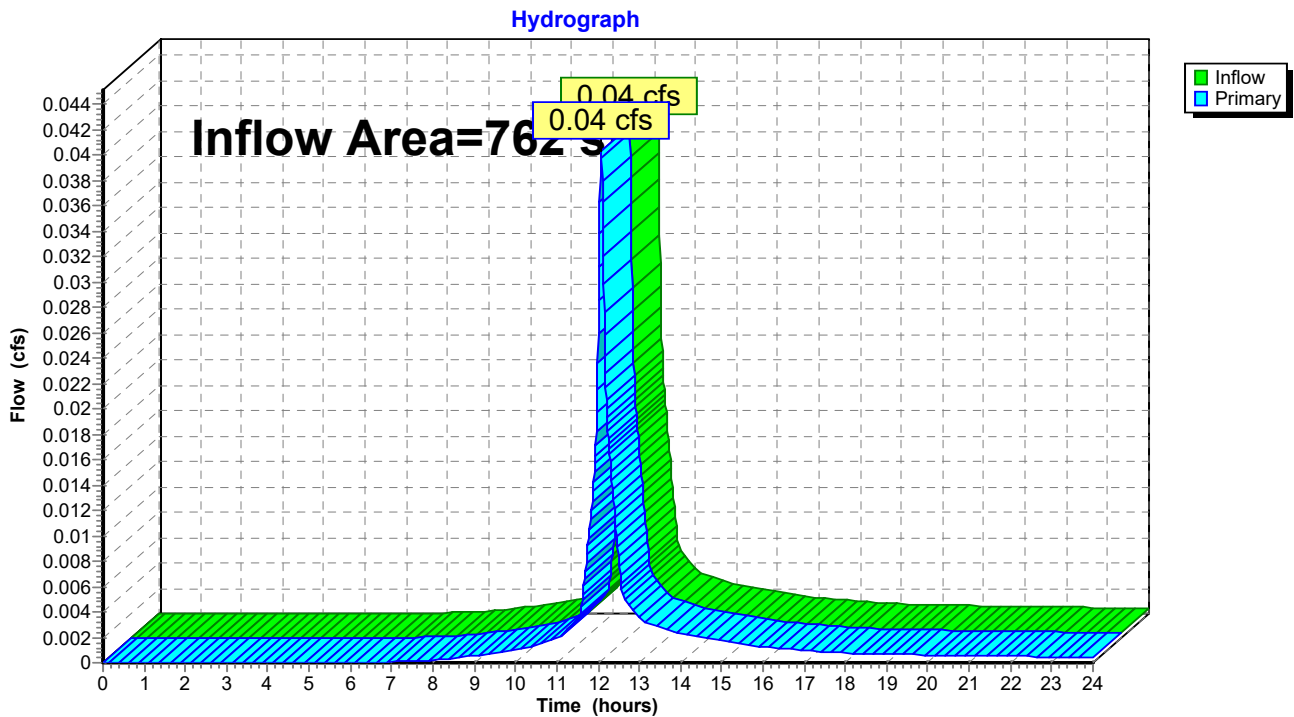


Summary for Link 98: PR. NORTH OUT

Inflow Area = 762 sf, 44.36% Impervious, Inflow Depth > 1.91" for 1-Yr Stamford event
Inflow = 0.04 cfs @ 12.07 hrs, Volume= 121 cf
Primary = 0.04 cfs @ 12.07 hrs, Volume= 121 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 98: PR. NORTH OUT



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 11: EX. SOUTH BASIN	Runoff Area=32,407 sf 77.76% Impervious Runoff Depth>2.83" Tc=5.0 min CN=94.89 Runoff=2.41 cfs 7,636 cf
Subcatchment 15: EX. EAST BASIN	Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>1.85" Tc=5.0 min CN=84.00 Runoff=0.07 cfs 209 cf
Subcatchment 17: EX. NORTH BASIN	Runoff Area=801 sf 93.51% Impervious Runoff Depth>3.06" Tc=5.0 min CN=97.09 Runoff=0.06 cfs 204 cf
Subcatchment 21: PR. SOUTH BYPASS	Runoff Area=14,240 sf 95.06% Impervious Runoff Depth>3.09" Tc=5.0 min CN=97.31 Runoff=1.11 cfs 3,664 cf
Subcatchment 22: PR. SOUTH-1 BASIN	Runoff Area=18,333 sf 95.40% Impervious Runoff Depth>3.09" Tc=5.0 min CN=97.36 Runoff=1.43 cfs 4,725 cf
Subcatchment 25: PR. EAST BASIN	Runoff Area=1,227 sf 7.74% Impervious Runoff Depth>1.93" Tc=5.0 min CN=85.08 Runoff=0.07 cfs 198 cf
Subcatchment 27: PR. NORTH BASIN	Runoff Area=762 sf 44.36% Impervious Runoff Depth>2.37" Tc=5.0 min CN=90.21 Runoff=0.05 cfs 151 cf
Pond 52: GAL#1 - CULTEC 330XL	Peak Elev=11.31' Storage=756 cf Inflow=1.43 cfs 4,725 cf Outflow=1.16 cfs 4,320 cf
Link 91: EX. SOUTH OUT	Inflow=2.41 cfs 7,636 cf Primary=2.41 cfs 7,636 cf
Link 92: PR. SOUTH OUT	Inflow=2.19 cfs 7,984 cf Primary=2.19 cfs 7,984 cf
Link 95: EX, EAST OUT	Inflow=0.07 cfs 209 cf Primary=0.07 cfs 209 cf
Link 96: PR. EAST OUT	Inflow=0.07 cfs 198 cf Primary=0.07 cfs 198 cf
Link 97: EX, NORTH OUT	Inflow=0.06 cfs 204 cf Primary=0.06 cfs 204 cf
Link 98: PR. NORTH OUT	Inflow=0.05 cfs 151 cf Primary=0.05 cfs 151 cf

Total Runoff Area = 69,124 sf Runoff Volume = 16,786 cf Average Runoff Depth = 2.91"
16.95% Pervious = 11,716 sf 83.05% Impervious = 57,408 sf

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 11: EX. SOUTH BASIN	Runoff Area=32,407 sf 77.76% Impervious Runoff Depth>3.71" Tc=5.0 min CN=94.89 Runoff=3.12 cfs 10,026 cf
Subcatchment 15: EX. EAST BASIN	Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>2.63" Tc=5.0 min CN=84.00 Runoff=0.10 cfs 297 cf
Subcatchment 17: EX. NORTH BASIN	Runoff Area=801 sf 93.51% Impervious Runoff Depth>3.96" Tc=5.0 min CN=97.09 Runoff=0.08 cfs 264 cf
Subcatchment 21: PR. SOUTH BYPASS	Runoff Area=14,240 sf 95.06% Impervious Runoff Depth>3.98" Tc=5.0 min CN=97.31 Runoff=1.41 cfs 4,726 cf
Subcatchment 22: PR. SOUTH-1 BASIN	Runoff Area=18,333 sf 95.40% Impervious Runoff Depth>3.99" Tc=5.0 min CN=97.36 Runoff=1.82 cfs 6,093 cf
Subcatchment 25: PR. EAST BASIN	Runoff Area=1,227 sf 7.74% Impervious Runoff Depth>2.73" Tc=5.0 min CN=85.08 Runoff=0.09 cfs 279 cf
Subcatchment 27: PR. NORTH BASIN	Runoff Area=762 sf 44.36% Impervious Runoff Depth>3.22" Tc=5.0 min CN=90.21 Runoff=0.07 cfs 205 cf
Pond 52: GAL#1 - CULTEC 330XL	Peak Elev=11.56' Storage=857 cf Inflow=1.82 cfs 6,093 cf Outflow=1.43 cfs 5,683 cf
Link 91: EX. SOUTH OUT	Inflow=3.12 cfs 10,026 cf Primary=3.12 cfs 10,026 cf
Link 92: PR. SOUTH OUT	Inflow=2.73 cfs 10,409 cf Primary=2.73 cfs 10,409 cf
Link 95: EX, EAST OUT	Inflow=0.10 cfs 297 cf Primary=0.10 cfs 297 cf
Link 96: PR. EAST OUT	Inflow=0.09 cfs 279 cf Primary=0.09 cfs 279 cf
Link 97: EX, NORTH OUT	Inflow=0.08 cfs 264 cf Primary=0.08 cfs 264 cf
Link 98: PR. NORTH OUT	Inflow=0.07 cfs 205 cf Primary=0.07 cfs 205 cf

Total Runoff Area = 69,124 sf Runoff Volume = 21,890 cf Average Runoff Depth = 3.80"
16.95% Pervious = 11,716 sf 83.05% Impervious = 57,408 sf

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 11: EX. SOUTH BASIN	Runoff Area=32,407 sf 77.76% Impervious Runoff Depth>4.50" Tc=5.0 min CN=94.89 Runoff=3.74 cfs 12,161 cf
Subcatchment 15: EX. EAST BASIN	Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>3.36" Tc=5.0 min CN=84.00 Runoff=0.13 cfs 379 cf
Subcatchment 17: EX. NORTH BASIN	Runoff Area=801 sf 93.51% Impervious Runoff Depth>4.75" Tc=5.0 min CN=97.09 Runoff=0.09 cfs 317 cf
Subcatchment 21: PR. SOUTH BYPASS	Runoff Area=14,240 sf 95.06% Impervious Runoff Depth>4.78" Tc=5.0 min CN=97.31 Runoff=1.68 cfs 5,672 cf
Subcatchment 22: PR. SOUTH-1 BASIN	Runoff Area=18,333 sf 95.40% Impervious Runoff Depth>4.79" Tc=5.0 min CN=97.36 Runoff=2.17 cfs 7,311 cf
Subcatchment 25: PR. EAST BASIN	Runoff Area=1,227 sf 7.74% Impervious Runoff Depth>3.47" Tc=5.0 min CN=85.08 Runoff=0.12 cfs 354 cf
Subcatchment 27: PR. NORTH BASIN	Runoff Area=762 sf 44.36% Impervious Runoff Depth>3.99" Tc=5.0 min CN=90.21 Runoff=0.08 cfs 253 cf
Pond 52: GAL#1 - CULTEC 330XL	Peak Elev=11.82' Storage=955 cf Inflow=2.17 cfs 7,311 cf Outflow=1.67 cfs 6,898 cf
Link 91: EX. SOUTH OUT	Inflow=3.74 cfs 12,161 cf Primary=3.74 cfs 12,161 cf
Link 92: PR. SOUTH OUT	Inflow=3.20 cfs 12,570 cf Primary=3.20 cfs 12,570 cf
Link 95: EX, EAST OUT	Inflow=0.13 cfs 379 cf Primary=0.13 cfs 379 cf
Link 96: PR. EAST OUT	Inflow=0.12 cfs 354 cf Primary=0.12 cfs 354 cf
Link 97: EX, NORTH OUT	Inflow=0.09 cfs 317 cf Primary=0.09 cfs 317 cf
Link 98: PR. NORTH OUT	Inflow=0.08 cfs 253 cf Primary=0.08 cfs 253 cf

Total Runoff Area = 69,124 sf Runoff Volume = 26,448 cf Average Runoff Depth = 4.59"
16.95% Pervious = 11,716 sf 83.05% Impervious = 57,408 sf

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 11: EX. SOUTH BASIN	Runoff Area=32,407 sf 77.76% Impervious Runoff Depth>5.79" Tc=5.0 min CN=94.89 Runoff=4.75 cfs 15,643 cf
Subcatchment 15: EX. EAST BASIN	Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>4.57" Tc=5.0 min CN=84.00 Runoff=0.17 cfs 515 cf
Subcatchment 17: EX. NORTH BASIN	Runoff Area=801 sf 93.51% Impervious Runoff Depth>6.05" Tc=5.0 min CN=97.09 Runoff=0.12 cfs 404 cf
Subcatchment 21: PR. SOUTH BYPASS	Runoff Area=14,240 sf 95.06% Impervious Runoff Depth>6.08" Tc=5.0 min CN=97.31 Runoff=2.12 cfs 7,210 cf
Subcatchment 22: PR. SOUTH-1 BASIN	Runoff Area=18,333 sf 95.40% Impervious Runoff Depth>6.08" Tc=5.0 min CN=97.36 Runoff=2.73 cfs 9,291 cf
Subcatchment 25: PR. EAST BASIN	Runoff Area=1,227 sf 7.74% Impervious Runoff Depth>4.69" Tc=5.0 min CN=85.08 Runoff=0.16 cfs 479 cf
Subcatchment 27: PR. NORTH BASIN	Runoff Area=762 sf 44.36% Impervious Runoff Depth>5.26" Tc=5.0 min CN=90.21 Runoff=0.11 cfs 334 cf
Pond 52: GAL#1 - CULTEC 330XL	Peak Elev=12.33' Storage=1,122 cf Inflow=2.73 cfs 9,291 cf Outflow=2.05 cfs 8,875 cf
Link 91: EX. SOUTH OUT	Inflow=4.75 cfs 15,643 cf Primary=4.75 cfs 15,643 cf
Link 92: PR. SOUTH OUT	Inflow=3.97 cfs 16,085 cf Primary=3.97 cfs 16,085 cf
Link 95: EX, EAST OUT	Inflow=0.17 cfs 515 cf Primary=0.17 cfs 515 cf
Link 96: PR. EAST OUT	Inflow=0.16 cfs 479 cf Primary=0.16 cfs 479 cf
Link 97: EX, NORTH OUT	Inflow=0.12 cfs 404 cf Primary=0.12 cfs 404 cf
Link 98: PR. NORTH OUT	Inflow=0.11 cfs 334 cf Primary=0.11 cfs 334 cf

Total Runoff Area = 69,124 sf Runoff Volume = 33,876 cf Average Runoff Depth = 5.88"
16.95% Pervious = 11,716 sf 83.05% Impervious = 57,408 sf

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 11: EX. SOUTH BASIN	Runoff Area=32,407 sf 77.76% Impervious Runoff Depth>6.99" Tc=5.0 min CN=94.89 Runoff=5.67 cfs 18,864 cf
Subcatchment 15: EX. EAST BASIN	Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>5.71" Tc=5.0 min CN=84.00 Runoff=0.21 cfs 644 cf
Subcatchment 17: EX. NORTH BASIN	Runoff Area=801 sf 93.51% Impervious Runoff Depth>7.25" Tc=5.0 min CN=97.09 Runoff=0.14 cfs 484 cf
Subcatchment 21: PR. SOUTH BYPASS	Runoff Area=14,240 sf 95.06% Impervious Runoff Depth>7.27" Tc=5.0 min CN=97.31 Runoff=2.52 cfs 8,631 cf
Subcatchment 22: PR. SOUTH-1 BASIN	Runoff Area=18,333 sf 95.40% Impervious Runoff Depth>7.28" Tc=5.0 min CN=97.36 Runoff=3.25 cfs 11,121 cf
Subcatchment 25: PR. EAST BASIN	Runoff Area=1,227 sf 7.74% Impervious Runoff Depth>5.83" Tc=5.0 min CN=85.08 Runoff=0.19 cfs 596 cf
Subcatchment 27: PR. NORTH BASIN	Runoff Area=762 sf 44.36% Impervious Runoff Depth>6.43" Tc=5.0 min CN=90.21 Runoff=0.13 cfs 408 cf
Pond 52: GAL#1 - CULTEC 330XL	Peak Elev=12.94' Storage=1,275 cf Inflow=3.25 cfs 11,121 cf Outflow=2.44 cfs 10,702 cf
Link 91: EX. SOUTH OUT	Inflow=5.67 cfs 18,864 cf Primary=5.67 cfs 18,864 cf
Link 92: PR. SOUTH OUT	Inflow=4.71 cfs 19,333 cf Primary=4.71 cfs 19,333 cf
Link 95: EX, EAST OUT	Inflow=0.21 cfs 644 cf Primary=0.21 cfs 644 cf
Link 96: PR. EAST OUT	Inflow=0.19 cfs 596 cf Primary=0.19 cfs 596 cf
Link 97: EX, NORTH OUT	Inflow=0.14 cfs 484 cf Primary=0.14 cfs 484 cf
Link 98: PR. NORTH OUT	Inflow=0.13 cfs 408 cf Primary=0.13 cfs 408 cf

Total Runoff Area = 69,124 sf Runoff Volume = 40,749 cf Average Runoff Depth = 7.07"
16.95% Pervious = 11,716 sf 83.05% Impervious = 57,408 sf

APPENDIX – C

Water Quality Volume Calculation

Project: 819 East Main St, Stamford, CT

Date: 04/23/2021

WQV = Water Quality Volume = (1.0" * R * A)/12

Proposed Conditions of Whole Site	Area=	0.7934	acres
	Impervious Area=	0.7222	acres
	I=	91.0%	^a
	R=	0.869	^b
	WQV=	0.0575	ac. ft. ^c
	WQV=	2,503	ft. ³

*Required WQV=	1,252 ft.³
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* Retainage of 1/2 WQV is required per the City of Stamford Stormwater Drainage Manual Standard 1 of section 2.4 Stormwater Management Standards

^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=(1.0"xRxA)/12; Water Quality Volume, Equation taken from 2004 Connecticut Stormwater Quality Manual section 7.4.1

Drawdown Calculations (72 hours max.)			
Galleries, Cultec 330XLHD			
$TIME_{drawdown} = Vol / (K * SA_{bot})$			
Volume of Infiltration Storage	* Vol =	1,285	cubic feet
Infiltration Rate (2x Factor of Safety)	K =	4.60	inches per hour
Bottom Surface Area of Infiltration Storage	$SA_{bot} =$	504	square feet
$TIME_{drawdown} =$		6.65	hours
<p>Refer to City of Stamford Stormwater Drainage Manual dated 6/10/2020 section 5.5 for Drawdown Analysis</p> <p>* Volume of Infiltration Storage is the total storage capacity at the weir outfall elevation.</p>			

APPENDIX – D

Conveyance Calculations											
Rational Method - Peak Rate of Runoff - 25 Year Storm Event											
ROOF to GALLERY	Basin Description				Drainage Path				Q = ACI (cfs)		
	Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q ₂₅
	0.098	0.95	Impervious	0.093							
	0.000	0.30	Pervious	0.000							
	0.098		Total	0.093					5	7.6	0.71
	Q ₂₅ (cfs)	Pipe Size (inches)	Pipe Length (feet)	Roughness Coefficient (n)	Material	Slope (ft/ft)	Q _{full} (cfs)	Q ₂₅ / Q _{full} (%)	Pipe Flow Capacity per the Mannings Equation $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$		
0.71	8	120	0.011	PVC	0.030	2.48	28.6%				
CB#2 to GALLERY	Basin Description				Drainage Path				Q = ACI (cfs)		
	Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q ₂₅
	0.129	0.95	Impervious	0.123							
	0.002	0.30	Pervious	0.001							
	0.131		Total	0.123					5	7.6	0.94
	Q ₂₅ (cfs)	Pipe Size (inches)	Pipe Length (feet)	Roughness Coefficient (n)	Material	Slope (ft/ft)	Q _{full} (cfs)	Q ₂₅ / Q _{full} (%)	Pipe Flow Capacity per the Mannings Equation $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$		
0.94	12	17	0.011	PVC	0.050	9.44	9.9%				
CB#1 to GALLERY	Basin Description				Drainage Path				Q = ACI (cfs)		
	Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q ₂₅
	0.160	0.95	Impervious	0.152							
	0.017	0.30	Pervious	0.005							
	0.177		Total	0.157					5	7.6	1.19
	Q ₂₅ (cfs)	Pipe Size (inches)	Pipe Length (feet)	Roughness Coefficient (n)	Material	Slope (ft/ft)	Q _{full} (cfs)	Q ₂₅ / Q _{full} (%)	Pipe Flow Capacity per the Mannings Equation $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$		
1.19	12	8	0.011	PVC	0.050	9.44	12.6%				

Conveyance Calculations
Rational Method - Peak Rate of Runoff - 25 Year Storm Event

TD#1 to GALLERY	Basin Description				Drainage Path				Q = ACI (cfs)		
	Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q ₂₅
	0.014	0.95	Impervious	0.014							
	0.000	0.30	Pervious	0.000							
	0.014		Total	0.014					5	7.6	0.10
Q ₂₅ (cfs)	Pipe Size (inches)	Pipe Length (feet)	Roughness Coefficient (n)	Material	Slope (ft/ft)	Q _{full} (cfs)	Q ₂₅ / Q _{full} (%)	Pipe Flow Capacity per the Mannings Equation Q _{full} =(1.49/n)*A*S ^{1/2} *R ^{2/3}			
0.10	12	18	0.011	PVC	0.020	5.97	1.7%				

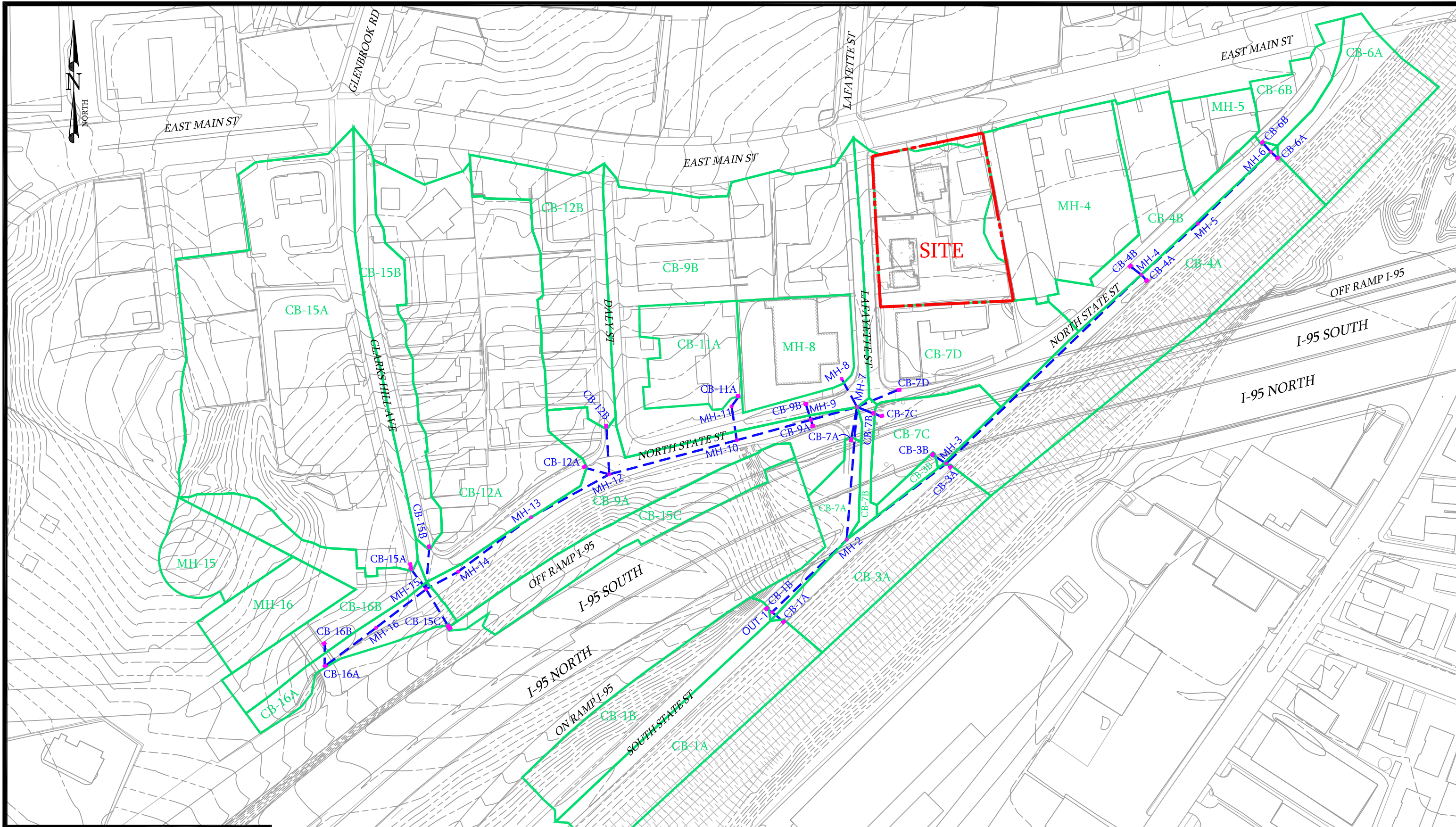
MH#2 to MH#1 (* 25 year storm flow from HydroCAD report)	Basin Description				Drainage Path				Q = ACI (cfs)		
	Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	*Q ₂₅
	0.000	0.95	Impervious	0.000							
	0.000	0.30	Pervious	0.000							
	0.000		Total	0.000							2.05
*Q ₂₅ (cfs)	Pipe Size (inches)	Pipe Length (feet)	Roughness Coefficient (n)	Material	Slope (ft/ft)	Q _{full} (cfs)	Q ₂₅ / Q _{full} (%)	Pipe Flow Capacity per the Mannings Equation Q _{full} =(1.49/n)*A*S ^{1/2} *R ^{2/3}			
2.05	12	80	0.011	PVC	0.010	4.22	48.6%				

ROOF to MH#1	Basin Description				Drainage Path				Q = ACI (cfs)		
	Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q ₂₅
	0.293	0.95	Impervious	0.279							
	0.000	0.30	Pervious	0.000							
	0.293		Total	0.279					5	7.6	2.12
Q ₂₅ (cfs)	Pipe Size (inches)	Pipe Length (feet)	Roughness Coefficient (n)	Material	Slope (ft/ft)	Q _{full} (cfs)	Q ₂₅ / Q _{full} (%)	Pipe Flow Capacity per the Mannings Equation Q _{full} =(1.49/n)*A*S ^{1/2} *R ^{2/3}			
2.12	12	52	0.011	PVC	0.010	4.22	50.2%				

Conveyance Calculations
Rational Method - Peak Rate of Runoff - 25 Year Storm Event

MH#1 to EX. MH (* 25 year storm flow from HydroCAD report)	Basin Description				Drainage Path				Q = ACI (cfs)		
	Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	*Q ₂₅
	0.293	0.95	Impervious	0.279							
	0.000	0.30	Pervious	0.000							
0.293		Total	0.279							3.97	
*Q ₂₅ (cfs)	Pipe Size (inches)	Pipe Length (feet)	Roughness Coefficient (n)	Material	Slope (ft/ft)	Q _{full} (cfs)	Q ₂₅ / Q _{full} (%)	Pipe Flow Capacity per the Mannings Equation $Q_{full} = (1.49/n) * A * S^{1/2} * R^{2/3}$			
3.97	15	131	0.011	PVC	0.010	7.65	51.9%				

APPENDIX – E



**DIMARZO &
BERECKZY**

191 LLOYD DRIVE
FAIRFIELD, CT 06825
203.857.4110

LAND SURVEYING
CIVIL ENGINEERING
PERMITTING

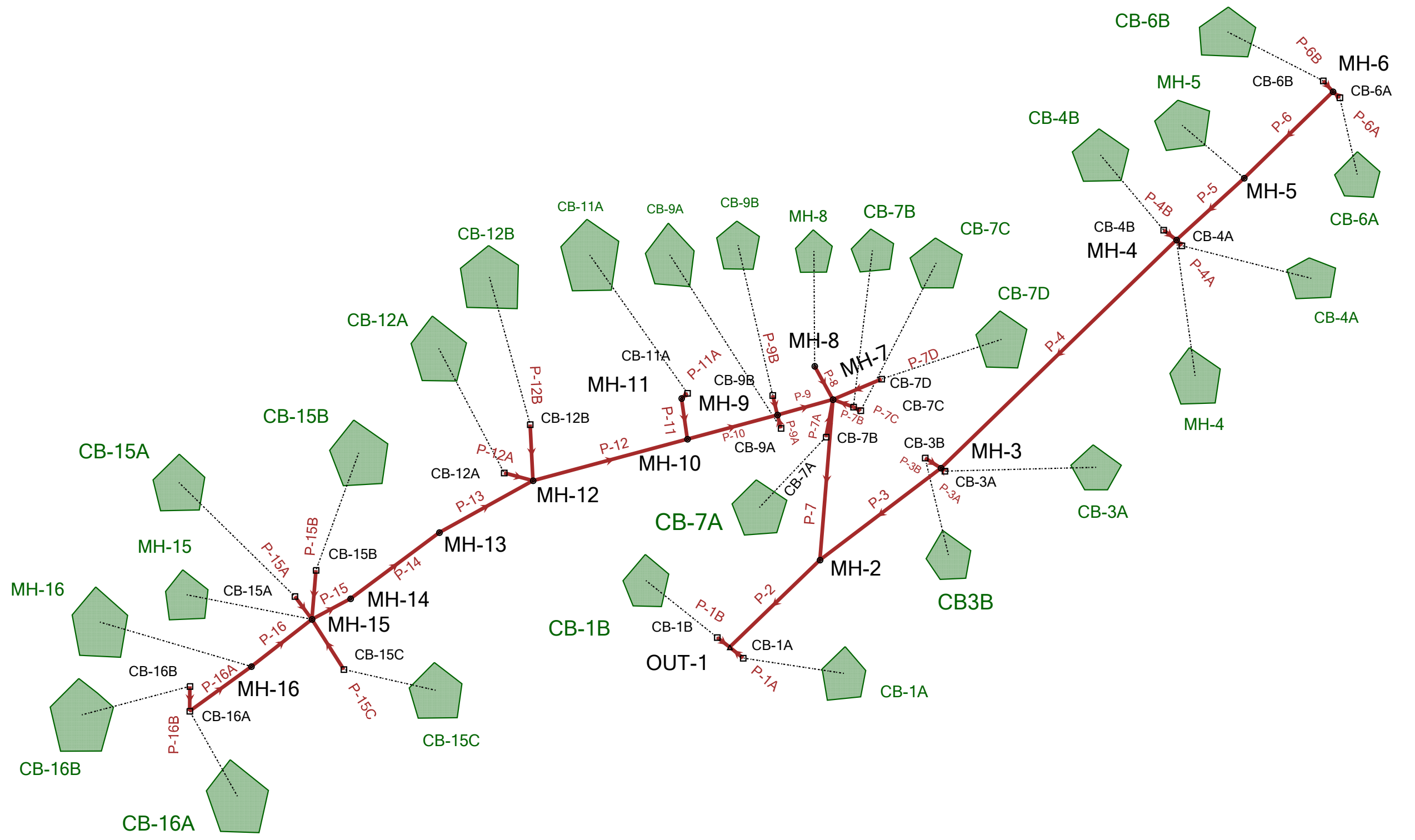
**EXISTING CONDITIONS
OFFSITE - DRAINAGE BASIN MAP**
PREPARED FOR
**819 EAST MAIN STREET
STAMFORD, CT**

DR-EX-OFFSITE

SCALE: 0 120
1"=120'

DATE: 4/23/2021
JOB NO. 173

Scenario: Existing Conditions



FlexTable: Conduit Table

Label	Start Node	Stop Node	Elevation Ground (Start) (ft)	Hydraulic Grade Line (In) (ft)	Invert (Start) (ft)	Elevation Ground (Stop) (ft)	Hydraulic Grade Line (Out) (ft)	Invert (Stop) (ft)	Length (User Defined) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Material	Flow (cfs)	Capacity (Full Flow) (cfs)	Velocity (ft/s)
P-1A	CB-1A	OUT-1	17.18	14.03	13.30	17.48	13.44	12.88	19.0	0.022	12.0	Concrete	2.94	5.30	6.92
P-1B	CB-1B	OUT-1	17.30	13.89	13.20	17.48	13.39	12.90	6.5	0.046	12.0	Concrete	2.59	7.65	8.80
P-2	MH-2	OUT-1	16.64	22.92	6.84	17.48	7.40	5.40	134.0	0.011	24.0	Concrete	76.98	23.45	24.50
P-3	MH-3	MH-2	15.50	21.29	7.50	16.64	16.64	6.90	164.0	0.004	18.0	Concrete	17.69	6.35	10.01
P-3A	CB-3A	MH-3	15.38	15.52	11.60	15.50	15.50	11.40	5.0	0.040	12.0	Concrete	2.18	7.13	2.78
P-3B	CB-3B	MH-3	14.90	15.50	11.80	15.50	15.50	11.40	20.0	0.020	12.0	Concrete	0.27	5.04	0.35
P-4	MH-4	MH-3	13.70	23.55	8.90	15.50	15.50	7.50	355.0	0.004	18.0	Concrete	15.82	6.60	8.95
P-4A	CB-4A	MH-4	13.18	13.73	9.10	13.70	13.70	8.90	8.0	0.025	15.0	Concrete	3.94	10.21	3.21
P-4B	CB-4B	MH-4	13.25	13.77	9.20	13.70	13.70	8.90	15.0	0.020	15.0	Concrete	4.32	9.14	3.52
P-5	MH-5	MH-4	14.41	14.12	9.20	13.70	13.70	8.95	98.0	0.003	15.0	Concrete	4.23	3.26	3.44
P-6	MH-6	MH-5	15.30	14.41	10.00	14.41	14.12	9.30	132.0	0.005	15.0	Concrete	3.03	4.70	2.47
P-6A	CB-6A	MH-6	14.78	14.43	10.30	15.30	14.41	10.10	10.0	0.020	12.0	Concrete	1.79	5.04	2.28
P-6B	CB-6B	MH-6	14.83	14.44	10.40	15.30	14.41	10.10	15.0	0.020	12.0	Concrete	1.55	5.04	1.97
P-7	MH-7	MH-2	11.75	29.92	7.65	16.64	16.64	7.05	172.0	0.003	24.0	Concrete	62.86	13.36	20.01
P-7A	CB-7A	MH-7	11.78	11.76	8.60	11.75	11.75	8.25	39.0	0.009	15.0	Concrete	0.78	6.12	0.63
P-7B	CB-7B	MH-7	11.60	11.79	7.90	11.75	11.75	7.75	20.0	0.008	15.0	Concrete	2.84	5.59	2.31
P-7C	CB-7C	CB-7B	11.45	11.61	8.15	11.60	11.60	7.90	8.0	0.031	15.0	Concrete	2.37	11.42	1.93
P-7D	CB-7D	MH-7	11.50	11.84	8.50	11.75	11.75	8.05	5.0	0.090	15.0	Concrete	8.44	19.38	6.88
P-8	MH-8	MH-7	12.39	11.95	8.50	11.75	11.75	8.10	39.0	0.010	12.0	PVC	3.30	4.69	4.20
P-9	MH-9	MH-7	11.35	24.43	7.95	11.75	11.75	7.70	58.0	0.004	18.0	Concrete	49.11	6.90	27.79
P-9A	CB-9A	MH-9	10.80	11.38	8.20	11.35	11.35	8.10	4.0	0.025	12.0	Concrete	2.87	5.63	3.65
P-9B	CB-9B	MH-9	10.84	11.88	8.35	11.35	11.35	8.05	16.0	0.019	12.0	PVC	8.42	6.34	10.72
P-10	MH-10	MH-9	11.46	24.00	8.30	11.35	11.35	8.00	96.0	0.003	18.0	Concrete	38.13	5.87	21.58
P-11	MH-11	MH-10	14.20	11.69	9.00	11.46	11.46	8.60	43.0	0.009	12.0	Concrete	2.58	3.44	3.29
P-11A	CB-11A	MH-11	14.66	11.72	10.70	14.20	11.69	10.50	6.0	0.033	12.0	Concrete	2.58	6.50	3.29
P-12	MH-12	MH-10	13.43	31.72	9.10	11.46	11.46	8.40	170.0	0.004	18.0	Concrete	36.26	6.74	20.52
P-12A	CB-12A	MH-12	13.32	13.97	9.70	13.43	13.43	9.30	31.0	0.013	15.0	Concrete	8.50	7.34	6.93
P-12B	CB-12B	MH-12	15.00	13.64	10.90	13.43	13.43	9.50	59.0	0.024	15.0	Concrete	3.90	9.95	3.18
P-13	MH-13	MH-12	14.80	19.44	10.80	13.43	13.43	9.20	114.0	0.014	18.0	Concrete	24.13	12.44	13.65
P-14	MH-14	MH-13	17.83	20.98	13.50	14.80	14.80	10.90	116.0	0.022	18.0	Concrete	24.24	15.73	13.72
P-15	MH-15	MH-14	19.23	20.18	14.10	17.83	17.83	13.60	44.0	0.011	18.0	Concrete	24.28	11.20	13.74
P-15A	CB-15A	MH-15	19.80	20.47	16.00	19.23	19.23	15.10	30.0	0.030	15.0	Concrete	13.12	11.19	10.69
P-15B	CB-15B	MH-15	20.43	19.34	17.20	19.23	19.23	14.80	51.0	0.047	15.0	Concrete	3.06	14.01	2.49
P-15C	CB-15C	MH-15	41.10	20.67	20.00	19.23	19.23	14.30	53.0	0.108	15.0	Concrete	2.75	21.18	11.90
P-16	MH-16	MH-15	20.20	19.96	15.00	19.23	19.23	14.20	79.0	0.010	15.0	Concrete	6.21	6.50	5.06
P-16A	CB-16A	MH-16	19.00	20.88	15.90	20.20	19.96	15.10	78.0	0.010	12.0	Concrete	3.87	3.61	4.93
P-16B	CB-16B	CB-16A	19.20	19.13	16.40	19.00	19.00	16.00	27.0	0.015	12.0	Concrete	2.51	4.34	3.20

FlexTable: Catch Basin Table

Label	Elevation (Ground) (ft)	Hydraulic Grade Line (Out) (ft)	Is Overflowing?	Flow (Captured) (cfs)	Flow (Additional Carryover) (cfs)	Flow (Total Out) (cfs)	Elevation (Invert) (ft)	Is Surcharged?	Inlet C	Local CA (ft ²)	Structure Type	Length (ft)	Width (ft)	Inlet Location	Longitudinal Slope (Inlet) (ft/ft)
CB-1A	17.18	14.03	False	2.94	0.00	2.94	11.30	False	0.690	20,807.0	Box Structure	5.40	4.40	On Grade	0.011
CB-1B	17.30	13.89	False	2.59	0.00	2.59	11.20	False	0.755	18,380.5	Box Structure	5.40	4.40	On Grade	0.011
CB-3A	15.38	15.38	True	2.18	0.00	2.18	9.40	True	0.625	15,456.3	Box Structure	5.40	4.40	On Grade	0.004
CB-3B	14.90	14.90	True	0.27	0.00	0.27	9.80	True	0.950	1,543.7	Box Structure	5.40	4.40	On Grade	0.004
CB-4A	13.18	13.18	True	3.94	0.00	3.94	7.10	True	0.495	27,909.1	Box Structure	5.40	4.40	On Grade	0.004
CB-4B	13.25	13.25	True	4.32	0.00	4.32	7.20	True	0.950	24,538.5	Box Structure	5.40	4.40	On Grade	0.004
CB-6A	14.78	14.43	False	1.79	0.00	1.79	8.30	True	0.528	12,703.3	Box Structure	5.40	4.40	On Grade	0.005
CB-6B	14.83	14.44	False	1.55	0.00	1.55	8.40	True	0.950	8,787.5	Box Structure	5.40	4.40	On Grade	0.005
CB-7A	11.78	11.76	False	0.78	0.00	0.78	6.65	True	0.495	4,416.4	Box Structure	5.40	4.40	On Grade	0.009
CB-7B	11.60	11.60	True	0.48	0.00	2.84	5.90	True	0.950	2,745.5	Box Structure	5.40	4.40	In Sag	
CB-7C	11.45	11.45	True	2.37	0.00	2.37	6.15	True	0.950	13,448.2	Box Structure	5.40	4.40	In Sag	
CB-7D	11.50	11.50	True	8.44	4.75	8.44	6.50	True	0.755	26,147.2	Box Structure	5.40	4.40	In Sag	
CB-9A	10.80	10.80	True	2.87	0.00	2.87	6.20	True	0.495	20,313.8	Box Structure	5.40	4.40	In Sag	
CB-9B	10.84	10.84	True	8.42	0.00	8.42	6.35	True	0.788	59,663.4	Box Structure	5.40	4.40	In Sag	
CB-11A	14.66	11.72	False	2.58	0.00	2.58	8.70	True	0.885	14,693.7	Box Structure	5.40	4.40	On Grade	0.010
CB-12A	13.32	13.32	True	8.50	0.00	8.50	7.70	True	0.690	60,211.5	Box Structure	5.40	4.40	On Grade	0.010
CB-12B	15.00	13.64	False	3.90	0.00	3.90	8.90	True	0.820	27,611.0	Box Structure	5.40	4.40	On Grade	0.010
CB-15A	19.80	19.80	True	13.12	0.00	13.12	14.00	True	0.788	92,914.8	Box Structure	10.80	4.40	On Grade	0.012
CB-15B	20.43	19.34	False	3.06	0.00	3.06	15.20	True	0.820	17,393.8	Box Structure	5.40	4.40	On Grade	0.012
CB-15C	41.10	20.67	False	2.75	0.00	2.75	20.00	False	0.820	15,608.7	Box Structure	10.80	4.40	On Grade	0.060
CB-16A	19.00	19.00	True	1.38	0.00	3.87	13.90	True	0.755	7,865.6	Box Structure	5.40	4.40	In Sag	
CB-16B	19.20	19.13	False	2.51	0.00	2.51	14.40	True	0.625	14,271.3	Box Structure	5.40	4.40	In Sag	

FlexTable: Manhole Table

Label	Elevation (Ground) (ft)	Hydraulic Grade Line (Out) (ft)	Is Overflowing?	Flow (Known) (cfs)	Flow (Total Out) (cfs)	Elevation (Invert) (ft)	Is Surcharged?
MH-2	16.64	16.64	True	0.00	76.98	6.84	True
MH-3	15.50	15.50	True	0.00	17.69	6.90	True
MH-4	13.70	13.70	True	0.00	15.82	8.90	True
MH-5	14.41	14.12	False	0.00	4.23	9.20	True
MH-6	15.30	14.41	False	0.00	3.03	10.00	True
MH-7	11.75	11.75	True	0.00	62.86	7.65	True
MH-8	12.39	11.95	False	0.00	3.30	8.50	True
MH-9	11.35	11.35	True	0.00	49.11	7.95	True
MH-10	11.46	11.46	True	0.00	38.13	8.30	True
MH-11	14.20	11.69	False	0.00	2.58	9.00	True
MH-12	13.43	13.43	True	0.00	36.26	9.10	True
MH-13	14.80	14.80	True	0.00	24.13	10.80	True
MH-14	17.83	17.83	True	0.00	24.24	13.50	True
MH-15	19.23	19.23	True	0.00	24.28	14.10	True
MH-16	20.20	19.96	False	0.00	6.21	15.00	True

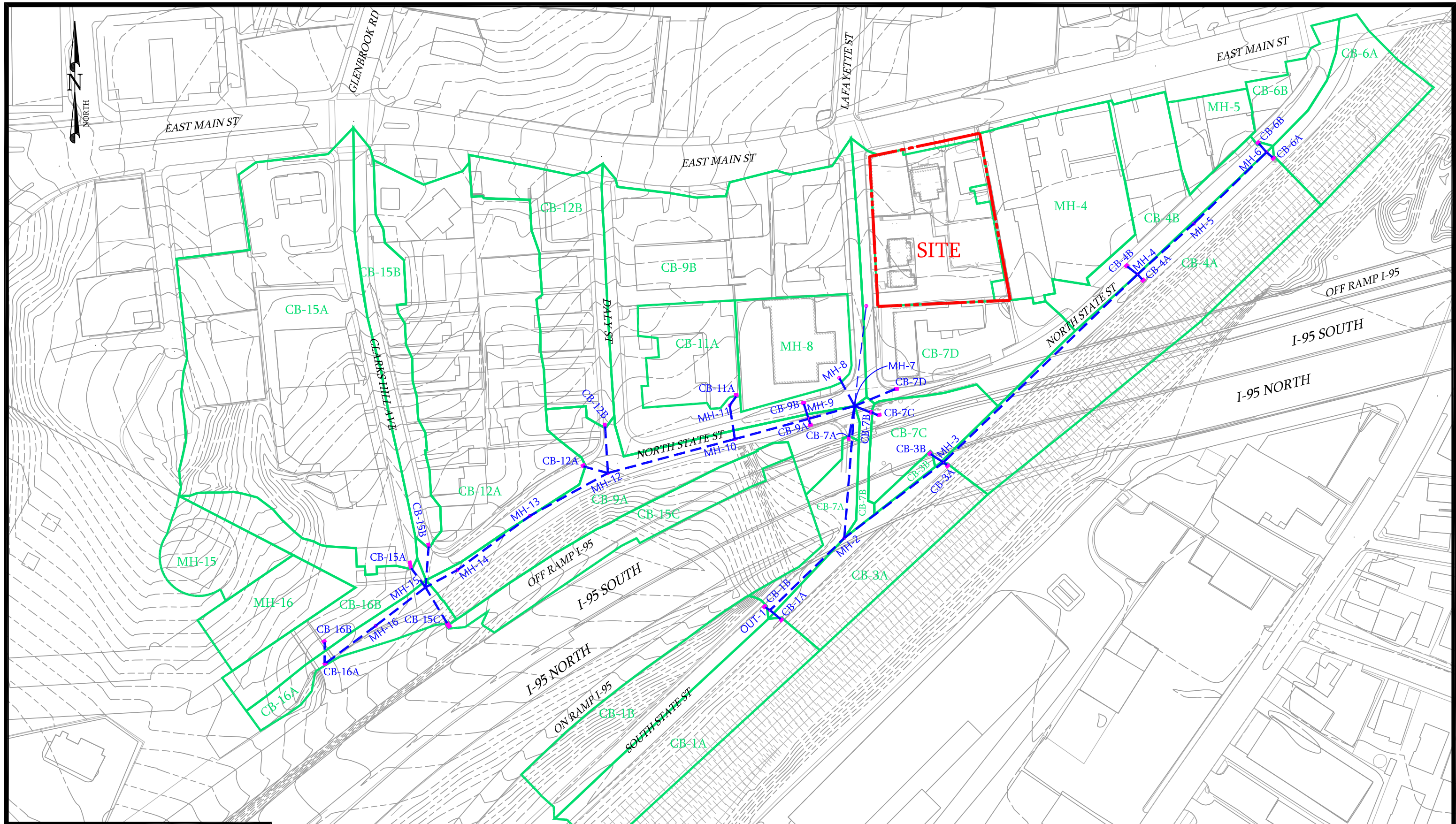
FlexTable: Outfall Table

Label	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Elevation (User Defined Tailwater) (ft)	Boundary Condition Type	Hydraulic Grade (ft)	Flow (Total Out) (cfs)	Notes
OUT-1	17.48	5.40	6.40	User Defined Tailwater	13.39	82.27	

FlexTable: Catchment Table

Outflow Element	Area (User Defined) (ft ²)	Runoff Coefficient (Rational)	Catchment CA (ft ²)	Time of Concentration (min)	Flow (Total Out) (cfs)	Notes
MH-4	40,184.0	0.853	34,256.9	5.000	6.02	
MH-15	13,864.0	0.755	10,467.3	5.000	1.84	
MH-8	19,736.0	0.950	18,749.2	5.000	3.30	
MH-16	14,484.0	0.950	13,759.8	5.000	2.42	
MH-5	9,915.0	0.950	9,419.3	5.000	1.66	
CB-1A	30,155.0	0.690	20,807.0	10.000	2.94	
CB-1B	24,345.0	0.755	18,380.5	10.000	2.59	
CB-3B	1,625.0	0.950	1,543.8	5.000	0.27	
CB-3A	24,730.0	0.625	15,456.3	10.000	2.18	
CB-4B	25,830.0	0.950	24,538.5	5.000	4.32	
CB-4A	56,382.0	0.495	27,909.1	10.000	3.94	
CB-6A	24,082.0	0.528	12,703.3	10.000	1.79	
CB-6B	9,250.0	0.950	8,787.5	5.000	1.55	
CB-7B	2,890.0	0.950	2,745.5	5.000	0.48	
CB-7C	14,156.0	0.950	13,448.2	5.000	2.37	
CB-7A	8,922.0	0.495	4,416.4	5.000	0.78	
CB-7D	34,632.0	0.755	26,147.2	10.000	3.69	
CB-11A	16,603.0	0.885	14,693.7	5.000	2.58	
CB-12B	33,672.0	0.820	27,611.0	10.000	3.90	
CB-12A	87,263.0	0.690	60,211.5	10.000	8.50	
CB-15A	117,987.0	0.788	92,914.8	10.000	13.12	
CB-15B	21,212.0	0.820	17,393.8	5.000	3.06	
CB-16B	22,834.0	0.625	14,271.3	5.000	2.51	
CB-16A	10,418.0	0.755	7,865.6	5.000	1.38	
CB-9A	41,038.0	0.495	20,313.8	10.000	2.87	
CB-9B	75,763.0	0.788	59,663.4	10.000	8.42	
CB-15C	19,035.0	0.820	15,608.7	5.000	2.75	

APPENDIX – F



**DIMARZO &
BERECKZY**

191 LLOYD DRIVE
FAIRFIELD, CT 06825
203.857.4110

LAND SURVEYING
CIVIL ENGINEERING
PERMITTING

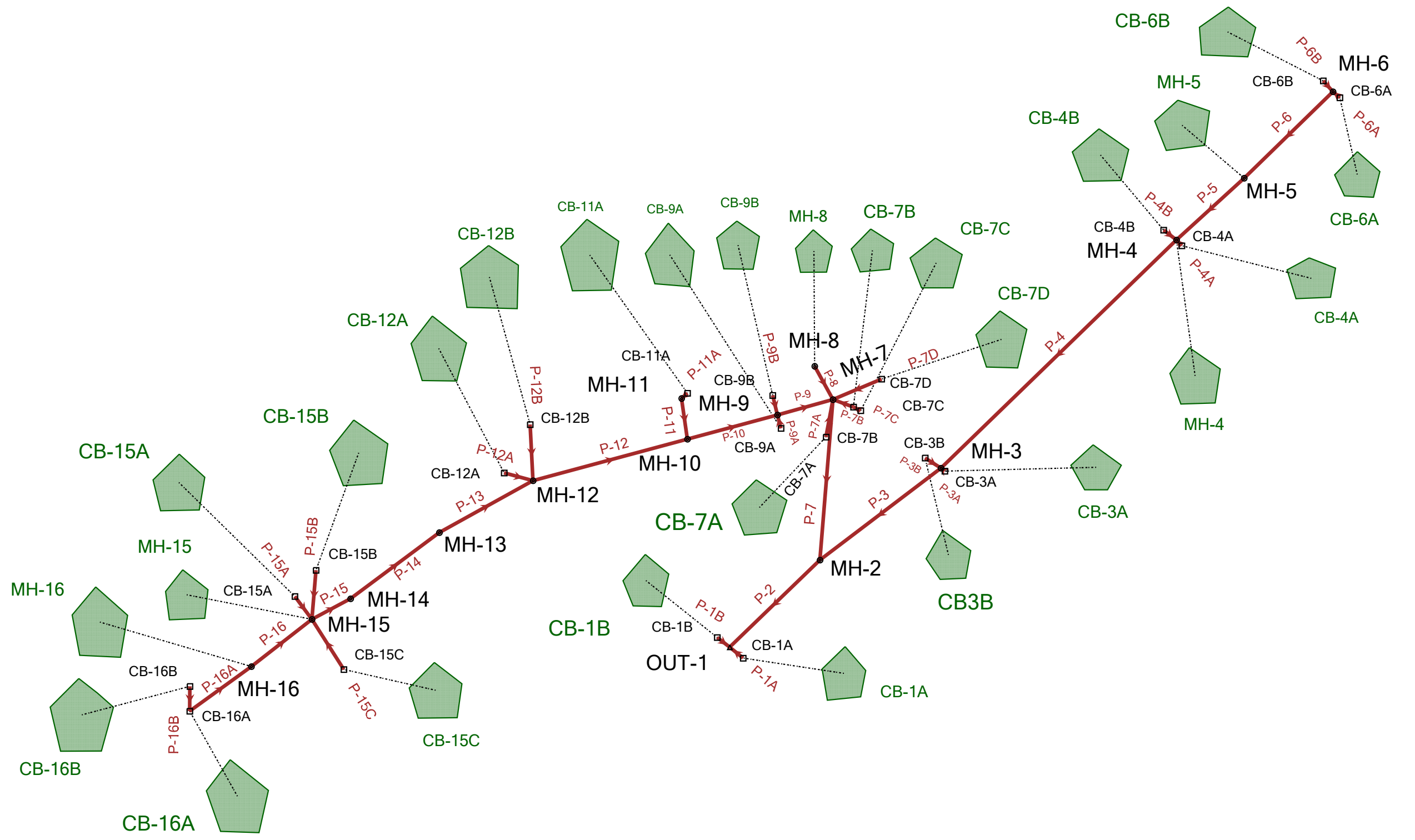
**PROPOSED CONDITIONS
OFFSITE - DRAINAGE BASIN MAP**
PREPARED FOR
**819 EAST MAIN STREET
STAMFORD, CT**

DR-PR-OFFSITE

SCALE: 0 120
1"=120'

DATE: 4/23/2021
JOB NO. 173

Scenario: Proposed Conditions



FlexTable: Conduit Table

Label	Start Node	Stop Node	Elevation Ground (Start) (ft)	Hydraulic Grade Line (In) (ft)	Invert (Start) (ft)	Elevation Ground (Stop) (ft)	Hydraulic Grade Line (Out) (ft)	Invert (Stop) (ft)	Length (User Defined) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Material	Flow (cfs)	Capacity (Full Flow) (cfs)	Velocity (ft/s)
P-1A	CB-1A	OUT-1	17.18	14.03	13.30	17.48	13.44	12.88	19.0	0.022	12.0	Concrete	2.94	5.30	6.92
P-1B	CB-1B	OUT-1	17.30	13.89	13.20	17.48	13.39	12.90	6.5	0.046	12.0	Concrete	2.59	7.65	8.80
P-2	MH-2	OUT-1	16.64	22.60	6.84	17.48	7.40	5.40	134.0	0.011	24.0	Concrete	76.19	23.45	24.25
P-3	MH-3	MH-2	15.50	21.29	7.50	16.64	16.64	6.90	164.0	0.004	18.0	Concrete	17.68	6.35	10.00
P-3A	CB-3A	MH-3	15.38	15.52	11.60	15.50	15.50	11.40	5.0	0.040	12.0	Concrete	2.18	7.13	2.78
P-3B	CB-3B	MH-3	14.90	15.50	11.80	15.50	15.50	11.40	20.0	0.020	12.0	Concrete	0.27	5.04	0.35
P-4	MH-4	MH-3	13.70	23.54	8.90	15.50	15.50	7.50	355.0	0.004	18.0	Concrete	15.80	6.60	8.94
P-4A	CB-4A	MH-4	13.18	13.73	9.10	13.70	13.70	8.90	8.0	0.025	15.0	Concrete	3.94	10.21	3.21
P-4B	CB-4B	MH-4	13.25	13.77	9.20	13.70	13.70	8.90	15.0	0.020	15.0	Concrete	4.32	9.14	3.52
P-5	MH-5	MH-4	14.41	14.12	9.20	13.70	13.70	8.95	98.0	0.003	15.0	Concrete	4.23	3.26	3.44
P-6	MH-6	MH-5	15.30	14.41	10.00	14.41	14.12	9.30	132.0	0.005	15.0	Concrete	3.03	4.70	2.47
P-6A	CB-6A	MH-6	14.78	14.43	10.30	15.30	14.41	10.10	10.0	0.020	12.0	Concrete	1.79	5.04	2.28
P-6B	CB-6B	MH-6	14.83	14.44	10.40	15.30	14.41	10.10	15.0	0.020	12.0	Concrete	1.55	5.04	1.97
P-7	MH-7	MH-2	11.75	29.59	7.65	16.64	16.64	7.05	172.0	0.003	24.0	Concrete	62.08	13.36	19.76
P-7A	CB-7A	MH-7	11.78	11.76	8.60	11.75	11.75	8.25	39.0	0.009	15.0	Concrete	0.78	6.12	0.63
P-7B	CB-7B	MH-7	11.60	11.79	7.90	11.75	11.75	7.75	20.0	0.008	15.0	Concrete	2.84	5.59	2.31
P-7C	CB-7C	CB-7B	11.45	11.61	8.15	11.60	11.60	7.90	8.0	0.031	15.0	Concrete	2.37	11.42	1.93
P-7D	CB-7D	MH-7	11.50	11.77	8.50	11.75	11.75	8.05	5.0	0.090	15.0	Concrete	3.69	19.38	3.01
P-8	MH-8	MH-7	12.39	11.95	8.50	11.75	11.75	8.10	39.0	0.010	12.0	PVC	3.30	4.69	4.20
P-9	MH-9	MH-7	11.35	24.43	7.95	11.75	11.75	7.70	58.0	0.004	18.0	Concrete	49.11	6.90	27.79
P-9A	CB-9A	MH-9	10.80	11.38	8.20	11.35	11.35	8.10	4.0	0.025	12.0	Concrete	2.87	5.63	3.65
P-9B	CB-9B	MH-9	10.84	11.88	8.35	11.35	11.35	8.05	16.0	0.019	12.0	PVC	8.42	6.34	10.72
P-10	MH-10	MH-9	11.46	24.00	8.30	11.35	11.35	8.00	96.0	0.003	18.0	Concrete	38.13	5.87	21.58
P-11	MH-11	MH-10	14.20	11.69	9.00	11.46	11.46	8.60	43.0	0.009	12.0	Concrete	2.58	3.44	3.29
P-11A	CB-11A	MH-11	14.66	11.72	10.70	14.20	11.69	10.50	6.0	0.033	12.0	Concrete	2.58	6.50	3.29
P-12	MH-12	MH-10	13.43	31.72	9.10	11.46	11.46	8.40	170.0	0.004	18.0	Concrete	36.26	6.74	20.52
P-12A	CB-12A	MH-12	13.32	13.97	9.70	13.43	13.43	9.30	31.0	0.013	15.0	Concrete	8.50	7.34	6.93
P-12B	CB-12B	MH-12	15.00	13.64	10.90	13.43	13.43	9.50	59.0	0.024	15.0	Concrete	3.90	9.95	3.18
P-13	MH-13	MH-12	14.80	19.44	10.80	13.43	13.43	9.20	114.0	0.014	18.0	Concrete	24.13	12.44	13.65
P-14	MH-14	MH-13	17.83	20.98	13.50	14.80	14.80	10.90	116.0	0.022	18.0	Concrete	24.24	15.73	13.72
P-15	MH-15	MH-14	19.23	20.18	14.10	17.83	17.83	13.60	44.0	0.011	18.0	Concrete	24.28	11.20	13.74
P-15A	CB-15A	MH-15	19.80	20.47	16.00	19.23	19.23	15.10	30.0	0.030	15.0	Concrete	13.12	11.19	10.69
P-15B	CB-15B	MH-15	20.43	19.34	17.20	19.23	19.23	14.80	51.0	0.047	15.0	Concrete	3.06	14.01	2.49
P-15C	CB-15C	MH-15	41.10	20.67	20.00	19.23	19.23	14.30	53.0	0.108	15.0	Concrete	2.75	21.18	11.90
P-16	MH-16	MH-15	20.20	19.96	15.00	19.23	19.23	14.20	79.0	0.010	15.0	Concrete	6.21	6.50	5.06
P-16A	CB-16A	MH-16	19.00	20.88	15.90	20.20	19.96	15.10	78.0	0.010	12.0	Concrete	3.87	3.61	4.93
P-16B	CB-16B	CB-16A	19.20	19.13	16.40	19.00	19.00	16.00	27.0	0.015	12.0	Concrete	2.51	4.34	3.20

FlexTable: Catch Basin Table

Label	Elevation (Ground) (ft)	Hydraulic Grade Line (Out) (ft)	Is Overflowing?	Flow (Captured) (cfs)	Flow (Additional Carryover) (cfs)	Flow (Total Out) (cfs)	Elevation (Invert) (ft)	Is Surcharged?	Inlet C	Local CA (ft²)	Structure Type	Length (ft)	Width (ft)	Inlet Location	Longitudinal Slope (Inlet) (ft/ft)
CB-1A	17.18	14.03	False	2.94	0.00	2.94	11.30	False	0.690	20,807.0	Box Structure	5.40	4.40	On Grade	0.011
CB-1B	17.30	13.89	False	2.59	0.00	2.59	11.20	False	0.755	18,380.5	Box Structure	5.40	4.40	On Grade	0.011
CB-3A	15.38	15.38	True	2.18	0.00	2.18	9.40	True	0.625	15,456.3	Box Structure	5.40	4.40	On Grade	0.004
CB-3B	14.90	14.90	True	0.27	0.00	0.27	9.80	True	0.950	1,543.7	Box Structure	5.40	4.40	On Grade	0.004
CB-4A	13.18	13.18	True	3.94	0.00	3.94	7.10	True	0.495	27,909.1	Box Structure	5.40	4.40	On Grade	0.004
CB-4B	13.25	13.25	True	4.32	0.00	4.32	7.20	True	0.950	24,538.5	Box Structure	5.40	4.40	On Grade	0.004
CB-6A	14.78	14.43	False	1.79	0.00	1.79	8.30	True	0.528	12,703.3	Box Structure	5.40	4.40	On Grade	0.005
CB-6B	14.83	14.44	False	1.55	0.00	1.55	8.40	True	0.950	8,787.5	Box Structure	5.40	4.40	On Grade	0.005
CB-7A	11.78	11.76	False	0.78	0.00	0.78	6.65	True	0.495	4,416.4	Box Structure	5.40	4.40	On Grade	0.009
CB-7B	11.60	11.60	True	0.48	0.00	2.84	5.90	True	0.950	2,745.5	Box Structure	5.40	4.40	In Sag	
CB-7C	11.45	11.45	True	2.37	0.00	2.37	6.15	True	0.950	13,448.2	Box Structure	5.40	4.40	In Sag	
CB-7D	11.50	11.50	True	3.69	0.00	3.69	6.50	True	0.755	26,147.2	Box Structure	5.40	4.40	In Sag	
CB-9A	10.80	10.80	True	2.87	0.00	2.87	6.20	True	0.495	20,313.8	Box Structure	5.40	4.40	In Sag	
CB-9B	10.84	10.84	True	8.42	0.00	8.42	6.35	True	0.788	59,663.4	Box Structure	5.40	4.40	In Sag	
CB-11A	14.66	11.72	False	2.58	0.00	2.58	8.70	True	0.885	14,693.7	Box Structure	5.40	4.40	On Grade	0.010
CB-12A	13.32	13.32	True	8.50	0.00	8.50	7.70	True	0.690	60,211.5	Box Structure	5.40	4.40	On Grade	0.010
CB-12B	15.00	13.64	False	3.90	0.00	3.90	8.90	True	0.820	27,611.0	Box Structure	5.40	4.40	On Grade	0.010
CB-15A	19.80	19.80	True	13.12	0.00	13.12	14.00	True	0.788	92,914.8	Box Structure	10.80	4.40	On Grade	0.012
CB-15B	20.43	19.34	False	3.06	0.00	3.06	15.20	True	0.820	17,393.8	Box Structure	5.40	4.40	On Grade	0.012
CB-15C	41.10	20.67	False	2.75	0.00	2.75	20.00	False	0.820	15,608.7	Box Structure	10.80	4.40	On Grade	0.060
CB-16A	19.00	19.00	True	1.38	0.00	3.87	13.90	True	0.755	7,865.6	Box Structure	5.40	4.40	In Sag	
CB-16B	19.20	19.13	False	2.51	0.00	2.51	14.40	True	0.625	14,271.3	Box Structure	5.40	4.40	In Sag	

FlexTable: Manhole Table

Label	Elevation (Ground) (ft)	Hydraulic Grade Line (Out) (ft)	Is Overflowing?	Flow (Known) (cfs)	Flow (Total Out) (cfs)	Elevation (Invert) (ft)	Is Surcharged?
MH-2	16.64	16.64	True	0.00	76.19	6.84	True
MH-3	15.50	15.50	True	0.00	17.68	6.90	True
MH-4	13.70	13.70	True	0.00	15.80	8.90	True
MH-5	14.41	14.12	False	0.00	4.23	9.20	True
MH-6	15.30	14.41	False	0.00	3.03	10.00	True
MH-7	11.75	11.75	True	3.97	62.08	7.65	True
MH-8	12.39	11.95	False	0.00	3.30	8.50	True
MH-9	11.35	11.35	True	0.00	49.11	7.95	True
MH-10	11.46	11.46	True	0.00	38.13	8.30	True
MH-11	14.20	11.69	False	0.00	2.58	9.00	True
MH-12	13.43	13.43	True	0.00	36.26	9.10	True
MH-13	14.80	14.80	True	0.00	24.13	10.80	True
MH-14	17.83	17.83	True	0.00	24.24	13.50	True
MH-15	19.23	19.23	True	0.00	24.28	14.10	True
MH-16	20.20	19.96	False	0.00	6.21	15.00	True

FlexTable: Outfall Table

Label	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Elevation (User Defined Tailwater) (ft)	Boundary Condition Type	Hydraulic Grade (ft)	Flow (Total Out) (cfs)	Notes
OUT-1	17.48	5.40	6.40	User Defined Tailwater	13.39	81.48	

FlexTable: Catchment Table

Outflow Element	Area (User Defined) (ft ²)	Runoff Coefficient (Rational)	Catchment CA (ft ²)	Time of Concentration (min)	Flow (Total Out) (cfs)	Notes
MH-4	40,057.0	0.853	34,148.6	5.000	6.01	
MH-15	13,864.0	0.755	10,467.3	5.000	1.84	
MH-8	19,736.0	0.950	18,749.2	5.000	3.30	
MH-16	14,484.0	0.950	13,759.8	5.000	2.42	
MH-5	9,915.0	0.950	9,419.3	5.000	1.66	
CB-1A	30,155.0	0.690	20,807.0	10.000	2.94	
CB-1B	24,345.0	0.755	18,380.5	10.000	2.59	
CB-3B	1,625.0	0.950	1,543.8	5.000	0.27	
CB-3A	24,730.0	0.625	15,456.3	10.000	2.18	
CB-4B	25,830.0	0.950	24,538.5	5.000	4.32	
CB-4A	56,382.0	0.495	27,909.1	10.000	3.94	
CB-6A	24,082.0	0.528	12,703.3	10.000	1.79	
CB-6B	9,250.0	0.950	8,787.5	5.000	1.55	
CB-7B	2,890.0	0.950	2,745.5	5.000	0.48	
CB-7C	14,156.0	0.950	13,448.2	5.000	2.37	
CB-7A	8,922.0	0.495	4,416.4	5.000	0.78	
CB-7D	34,632.0	0.755	26,147.2	10.000	3.69	
CB-11A	16,603.0	0.885	14,693.7	5.000	2.58	
CB-12B	33,672.0	0.820	27,611.0	10.000	3.90	
CB-12A	87,263.0	0.690	60,211.5	10.000	8.50	
CB-15A	117,987.0	0.788	92,914.8	10.000	13.12	
CB-15B	21,212.0	0.820	17,393.8	5.000	3.06	
CB-16B	22,834.0	0.625	14,271.3	5.000	2.51	
CB-16A	10,418.0	0.755	7,865.6	5.000	1.38	
CB-9A	41,038.0	0.495	20,313.8	10.000	2.87	
CB-9B	75,763.0	0.788	59,663.4	10.000	8.42	
CB-15C	19,035.0	0.820	15,608.7	5.000	2.75	

APPENDIX – G

Directly Connected Impervious Area Tracking Worksheet
City of Stamford Drainage Manual



Note to user: complete all cells of this color only, as indicated by section headings

Part 1: General Information (All Projects)	
Project Name	819 EAST MAIN STREET
Project Address	821, 825, 827 & 831 EAST MAIN STREET + 27 & 29 LAFAYETTE STREET
Project Applicant	819 EAST MAIN STREET, LLC
Title of Plan	SITE PLAN PREPARED FOR 819 EAST MAIN STREET, LLC
Revision Date of Plan	4/23/2021
Tax Account Number	001-7666, 002-5499, 000-4640, 000-4639, 001-7662, 001-7663

Part 2: Project Details (All Projects)	
1. What type of development is this? (choose from dropdown)	Redevelopment
2. What is the total area of the project site?	34,562 ft ²
3. What is the total area of land disturbance for this project?	34,562 ft ²
4. Does project site drain to High Quality Waters, a Direct Waterfront, or within 500 ft. of Tidal Wetlands? (Yes/No)	NO
Does Standard 1 apply based on information above?	YES

Part 3: Water Quality Target Total (Only for Standard 1 Projects)	
5. What is the <u>current (pre-development) DCIA</u> for the site?	25,949 ft ²
6. Will the proposed development increase DCIA (without consideration of proposed stormwater management)? (Yes/No)	YES
7. What is the <u>proposed-development total impervious area</u> for the site?	31,459 ft ²
Water Quality Volume (WQV)	2,503 ft ³
Standard 1 requirement	Retain 1/2 WQV
Required treatment/retention volume	1,252 ft ³
Provided treatment/retention volume for proposed development	1,285 ft ³

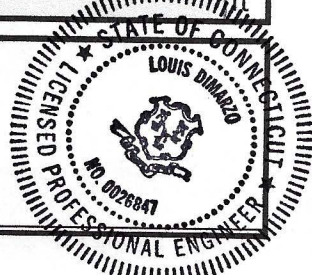
Part 4: Proposed DCIA Tracking (Only for Standard 1 Projects)	
Pre-development <u>total impervious area</u>	25,949 ft ²
Current <u>DCIA</u>	25,949 ft ²
Proposed-development <u>total impervious area</u>	31,459 ft ²
Proposed-development <u>DCIA</u> (after stormwater management)	14,065 ft ²
Net change in <u>DCIA</u> from <u>current</u> to <u>proposed-development</u>	11,117 ft ²

Part 5: Post-Development (As-Built Certified) DCIA Tracking (Only for Standard 1 Projects)	
Post-development (per as-built) <u>total impervious area</u>	ft ²
Post-development (per as-built) <u>DCIA</u> (after stormwater management)	ft ²
Net change in <u>DCIA</u> from <u>current</u> to <u>post-development</u>	ft ²

Certification Statement

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

Engineer's Signature L. DM Date 4/23/2021 Engineer's Seal



APPENDIX – H



City of Stamford
 Engineering Bureau
 888 Washington Boulevard, 7th Floor Stamford, CT 06901
 Phone 203-977-4189

CHECKLISTS

Project Name: _____

Project Address _____

Property Owner(s) _____

Tax Account Number(s) _____

Engineer's Signature L DM Date: _____

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



City of Stamford
 Engineering Bureau
 888 Washington Boulevard, 7th Floor Stamford, CT 06901
 Phone 203-977-4189

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
N.A.	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
N.A.	Show and label Connecticut Coastal Jurisdiction Line (CJL)
N.A.	Show and label existing steep slopes (25% and greater)



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
N.A.	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
N.A.	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)
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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



F. Summary of LID Site Constraints

N.A.	Description of sensitive areas for protection
N.A.	Mature tree inventory, which shall include 8-inch (dbh) diameter trees or greater
N.A.	Steep slopes
N.A.	Ledge and bedrock depth
N.A.	Seasonal high groundwater elevation
N.A.	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

N.A.	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
	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
	Conveyance protection, emergency outlet sizing
	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



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)

	<u>Applying under "Lite" Stormwater Management: Skip to Section N</u>
--	--

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.
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N. Hydrologic and Hydraulic Design Calculations

N.A.	Stream channel protection, Standard 2A
	Conveyance protection, Standard 2B
	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)
N.A.	Storm sewers and culverts (velocities, capacity, hydraulics)
	Hydraulic grade line required when pipe is flowing at full capacity <ul style="list-style-type: none"> o Provide existing and proposed summary table o Provide existing and proposed mapping, label structures
	Detention facilities (outlet structure, stage/storage, freeboard)
	Emergency outlet sizing, safely pass the 100 year storm, Standard 2D
	Outlet protection calculations, based on conveyance protection (i.e. riprap, energy dissipater)



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)

	Downstream analysis, Standard 2E
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III. Supporting Mapping (as appendix to Project Report)

Q. Pre-Development Drainage Basin Area Mapping

N.A.

	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

N.A.

	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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City of Stamford
 Engineering Bureau
 888 Washington Boulevard, 7th Floor Stamford, CT 06901
 Phone 203-977-4189

V. Proposed LID Review Map

	Applying under "Lite" Stormwater Management - Proposed LID Review Map <u>NOT</u> required.
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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
N.A. 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 – I

Block _____ .

AGREEMENT COVENANT

AGREEMENT made this ____ day of _____ by and between _____ of _____ in the City of Stamford, County of Fairfield and State of Connecticut (hereinafter referred to as "Owner"); 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, David R. Martin (hereinafter referred to as the "CITY"), 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 a new _____ on land owned by it and as more particularly described on Schedule "A" annexed hereto and made of part hereof (hereinafter referred to as the "Property"); and

WHEREAS, certain drainage facilities ("Drainage Facilities"), including but not limited to _____ 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 _____ Permit No. _____ issued by the _____ Board of the City of Stamford (_____) issued

therefore, ("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: _____

David R. Martin
Its duly authorized Mayor

(ACKNOWLEDGEMENT ON THE FOLLOWING PAGE)

THE ENVIRONMENTAL PROTECTION BOARD

BY: _____

Gary H. Stone
Its duly authorized Chairman

OWNER

BY: _____

OWNER

BY: _____

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

Date: _____

Personally appeared David R. Martin, 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 acknowledge the same to be _____ free act and deed, before me.

Commissioner of the Superior Court
or Notary Public