DiMarzo & Bereczky

Land Surveying | Engineering | Permitting

STORMWATER MANAGEMENT REPORT

819, 825, 827 & 831 EAST MAIN STREET +

15, 27 & 29, LAFAYETTE STREET,

STAMFORD, CT

(1.15 acres)

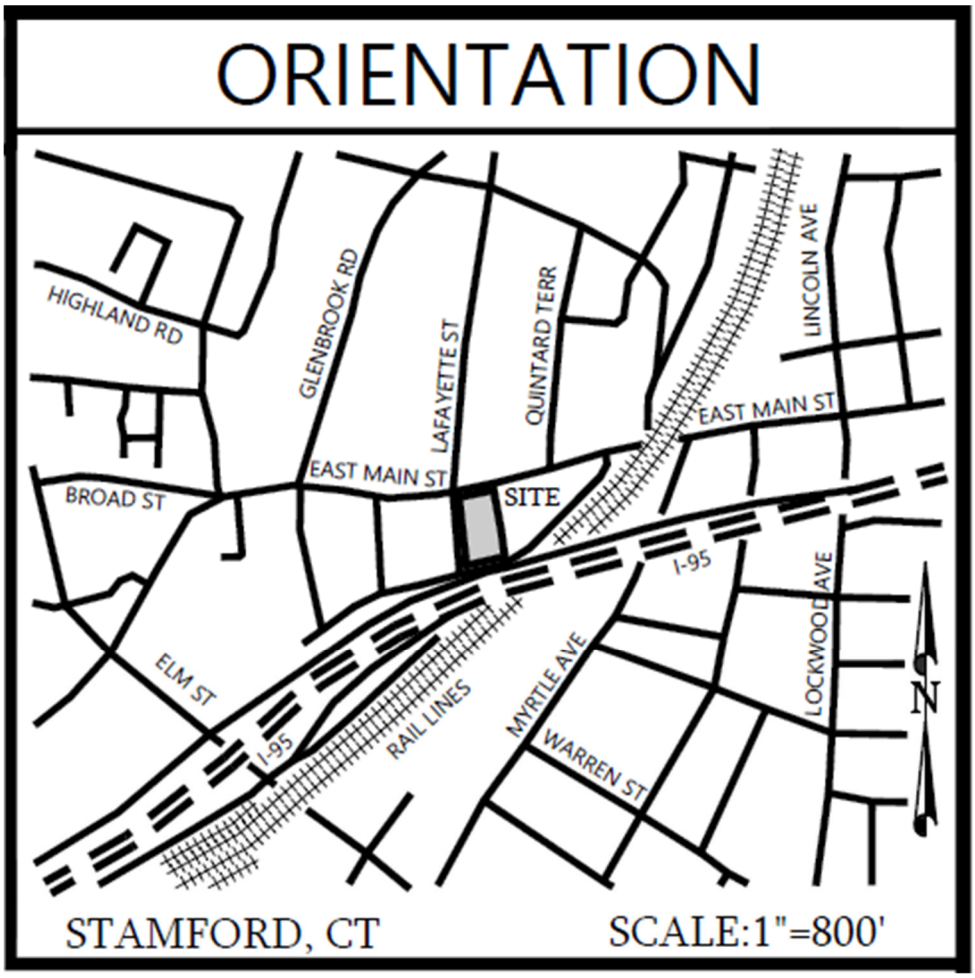
prepared for

819 EAST MAIN STREET, LLC

Date: 2/03/2022

191 Lloyd Drive | Fairfield, CT 06825 | Tel & Fax: 203.857.4110 | www.dimarzobereczky.com

SITE VICINITY MAP



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Introduction

The property owner is proposing a re-development of seven (7) contiguous parcels at 821, 825, 827, 831 East Main Street and 15, 27, 29 Lafayette Street for the construction of a five (5) story mixed-use building. The re-development includes one hundred thirty (130) dwelling units, 2,950 square feet (SF) of commercial area, off-street parking and associated site utilities. A total of one hundred fifty (150) parking spaces are proposed with on-site at-grade parking and within a parking garage below the first floor of the proposed building. Streetscape improvements are proposed along the street frontage of East Main Street, Lafayette Street, and North State Street.

The total project site area is 1.15 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, Lafayette Street to the west, and North State Street to the south. The commercial property of 835 East Main Street abuts the property to the east. The seven existing parcels are developed with buildings, surface parking, various hardscapes and various entrance drives on East Main Street, Lafayette Street, and North State 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, C-6, C-7, C-8, and C-9 prepared by DiMarzo & Bereczky, Inc. dated 2/03/2022. Our firm also prepared a Property and Topographic Survey dated 12/14/2021 and a Zoning Location Survey dated 2/03/2022. The anticipated construction schedule is 3/1/2022 to 2/28/2023.

Existing Conditions

The existing conditions of the project site consists of five (5) 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 six (6) 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 a fill layer in the six deep test pits. Three borehole infiltration tests were conducted to determine if the in-situ soil can adequately infiltrate stormwater. The field infiltration rates were 5.1, 4.6 and 8.6 inches per hour. Test pit and infiltration test results can be reviewed on site plan sheet C-5. The locations are shown on utility plan C-2.

The current onsite impervious coverage is 39,380 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 24-hour design storms analyzed include the 1, 2, 5, 10, 25, and 50 year storm events, with rainfall depths of 2.96, 3.58, 4.60, 5.45, 6.61 and 7.47 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	1.104	South	0.744	95.25	5.0	7.30
East	0.031	East	0.031	84.00	5.0	0.18
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 6,093 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 in 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	1.107	South -1	0.267	96.29	5.0	1.78
		South - 2	0.203	97.28	5.0	1.36
		South Bypass	0.327	97.46	5.0	4.27
East	0.029	East	0.029	84.00	5.0	0.16
North	0.018	North	0.018	87.85	5.0	0.11

The runoff from the proposed at-grade parking area shall be collected by an on-site stormwater management system of catch basins and a trench drain. The collected stormwaters shall be conveyed to two separate underground infiltration galleries. The gallery system labeled as BMP-1

consists of twenty (20) four-foot (4') high precast concrete galleries units and crushed stone. The second gallery system is labeled BMP-2, and it consists of sixteen (16) four-foot (4') high precast concrete galleries units and crushed stone. Both infiltration systems are metered with outlet devices within separate downstream manhole connections. Each manhole has a 4' wide weir overflow and two (2) six inch (6") vertical orifices within the weir wall. The orifice outlets are at a lower elevation than the overflow weir. Further downstream, a new manhole and a twelve-inch (12") storm drain are proposed within North State Street. They will connect to the City's existing storm sewer system at the intersection of Lafayette Street and 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	3.09	1.88	-39.2%
2	3.82	2.28	-40.3%
5	5.00	2.95	-41.0%
10	5.97	4.19	-29.8%
25	7.30	7.12	-2.5%
50	8.28	7.97	-3.7%

South Basin						
	Hydraulic Volume (cubic feet)			Hydraulic Volume (acre feet)		
Storm Event (yrs)	Existing	Proposed	% change	Exsiting	Proposed	% change
1	9752	6918	-29.1	0.224	0.159	-29.1
2	12188	9385	-23.0	0.280	0.215	-23.0
5	16222	13454	-17.1	0.372	0.309	-17.1
10	19596	16851	-14.0	0.450	0.387	-14.0
25	24213	21490	-11.2	0.556	0.493	-11.2
50	27641	24933	-9.8	0.635	0.572	-9.8

East Basin			
Storm Event (yrs)	Existing Peak Rate of Runoff (cfs)	Proposed Peak Rate of Runoff (cfs)	% change
1	0.06	0.05	-16.7%
2	0.08	0.07	-12.5%
5	0.11	0.10	-9.1%
10	0.14	0.13	-7.1%
25	0.18	0.16	-11.1%
50	0.21	0.19	-9.5%

East Basin						
	Hydraulic Volume (cubic feet)			Hydraulic Volume (acre feet)		
Storm Event (yrs)	Existing	Proposed	% change	Exsiting	Proposed	% change
1	167	154	-7.8	0.004	0.004	-7.8
2	226	209	-7.5	0.005	0.005	-7.5
5	328	303	-7.6	0.008	0.007	-7.6
10	415	384	-7.5	0.010	0.009	-7.5
25	538	497	-7.6	0.012	0.011	-7.6
50	630	582	-7.6	0.014	0.013	-7.6

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	0.07	0.05	-28.6%
5	0.09	0.07	-22.2%
10	0.10	0.09	-10.0%
25	0.12	0.11	-8.3%
50	0.14	0.12	-14.3%

North Basin						
	Hydraulic Volume (cubic feet)			Hydraulic Volume (acre feet)		
Storm Event (yrs)	Existing	Proposed	% change	Exsiting	Proposed	% change
1	175	114	-34.9	0.004	0.003	-34.9
2	216	150	-30.6	0.005	0.003	-30.6
5	284	211	-25.7	0.007	0.005	-25.7
10	341	263	-22.9	0.008	0.006	-22.9
25	418	335	-19.9	0.010	0.008	-19.9
50	475	389	-18.1	0.011	0.009	-18.1

Under post construction conditions, the calculations in the HGL analysis indicate that the City's existing system will continue to operate under current conditions. There are either decreases or no changes in the HGL elevations. 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	23.46	23.38	-0.08
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	30.45	30.38	-0.07
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 83.61 cfs to 83.42 cfs. Overall, the analysis shows a proposed peak flow rate of runoff decrease of 0.2% 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 the Lafayette and North State Street intersection 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, East Main Street, and North State 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 the full 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 site. The Water Quality Volume calculated for the proposed development site is 3,620 cubic feet per a calculation in conformance with the 2004 Connecticut Stormwater Quality Manual section 7.4.1. Refer to Appendix C. The two proposed stormwater infiltration systems provide for a cumulative 3,625 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 does not discharge directly into a water body or watercourse. Regardless, the project demonstrates compliance. The post development 24 hour 2-year storm event peak flow rate of runoff of 2.28 cfs is less than the pre-development 1-year peak flow rate of 3.09 cfs.
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, and the Conveyance calculations in Appendix D.
C. The post-development peak flow rates from the 1-year, 2-year, 5-year, 10-year, 25-year and 50- year, 24-hour storm events 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 separate metering manhole downstream. They are equipped with high overflow weir walls 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-4) 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 I.
B. The Low Impact Development Plan on sheet C-9 includes notes describing the long-term maintenance requirements for the project's drainage system. This includes routine and non-route 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.

<u>Summary</u>

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."

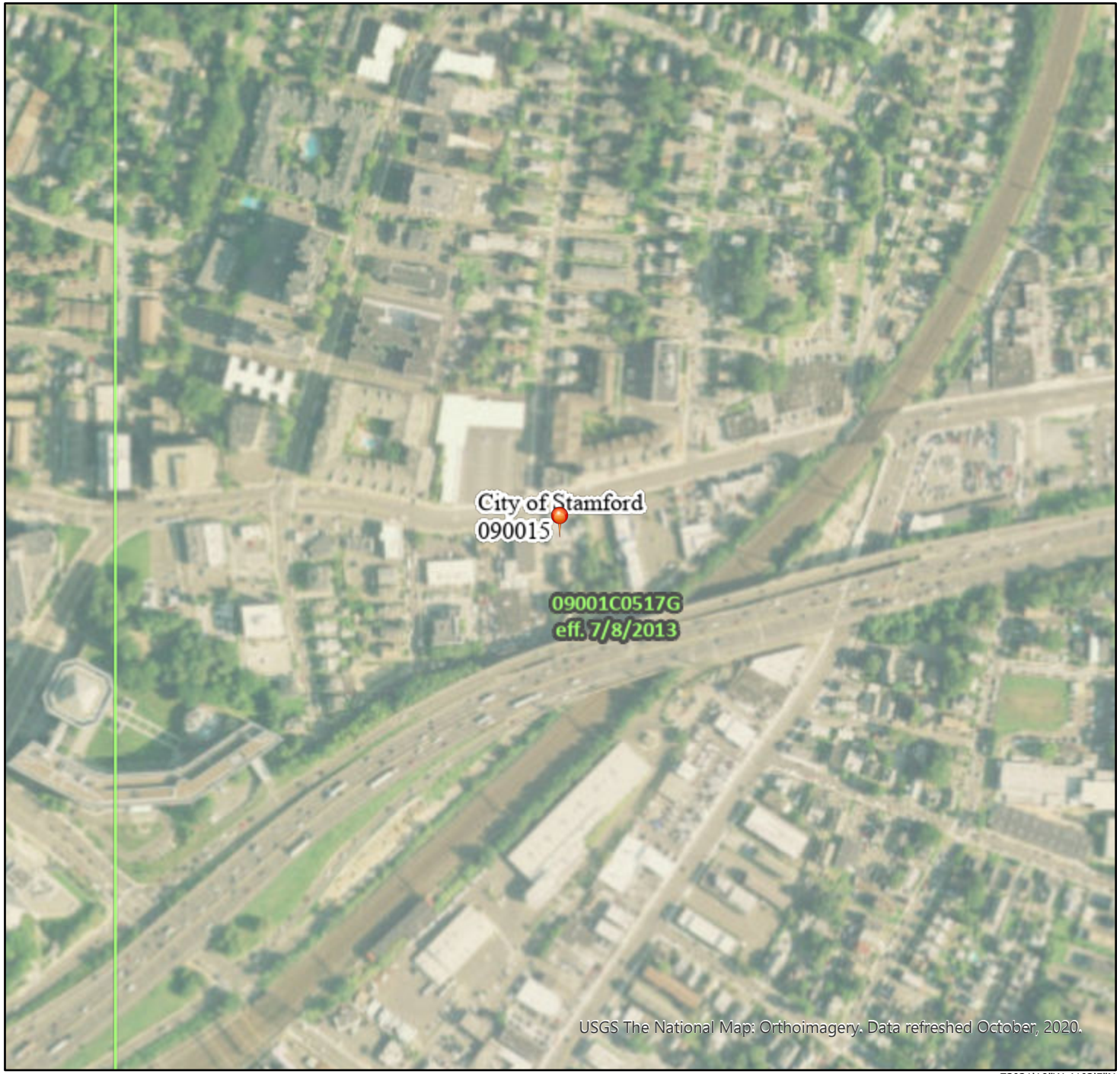
Louis DiMarzo, P.E.
CT Registration # 26847
February 3, 2022

APPENDIX – A

National Flood Hazard Layer FIRMette

FEMA

73°31'56"W 41°3'32"N



73°31'19"W 41°3'5"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- 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 *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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.

Map Scale: 1:625 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 5 10 20 30

Feet
0 30 60 120 180

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil 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 21, Sep 7, 2021

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

Date(s) aerial images were photographed: Oct 8, 2020—Oct 14, 2020

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
307	Urban land	D	1.3	100.0%
Totals for Area of Interest			**1.3**	**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

Tie-break Rule: Higher

NOAA Atlas 14, Volume 10, Version 3
Location name: Stamford, Connecticut, USA*
Latitude: 41.0551°, Longitude: -73.5271°
Elevation: 18.08 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.365** (0.282-0.463)	**0.425** (0.328-0.540)	**0.523** (0.403-0.667)	**0.605** (0.463-0.775)	**0.717** (0.532-0.951)	**0.802** (0.583-1.08)	**0.890** (0.628-1.24)	**0.985** (0.662-1.40)	**1.12** (0.724-1.64)	**1.23** (0.775-1.83)
10-min	**0.517** (0.400-0.657)	**0.602** (0.465-0.765)	**0.741** (0.571-0.945)	**0.856** (0.656-1.10)	**1.01** (0.753-1.35)	**1.14** (0.825-1.53)	**1.26** (0.889-1.75)	**1.40** (0.939-1.99)	**1.59** (1.03-2.32)	**1.74** (1.10-2.59)
15-min	**0.608** (0.470-0.772)	**0.708** (0.547-0.901)	**0.872** (0.671-1.11)	**1.01** (0.772-1.29)	**1.20** (0.886-1.59)	**1.34** (0.971-1.81)	**1.48** (1.05-2.06)	**1.64** (1.11-2.34)	**1.86** (1.21-2.73)	**2.04** (1.29-3.05)
30-min	**0.850** (0.658-1.08)	**0.991** (0.766-1.26)	**1.22** (0.941-1.56)	**1.41** (1.08-1.81)	**1.68** (1.24-2.22)	**1.88** (1.36-2.53)	**2.08** (1.47-2.89)	**2.30** (1.55-3.27)	**2.60** (1.69-3.81)	**2.84** (1.80-4.23)
60-min	**1.09** (0.845-1.39)	**1.27** (0.985-1.62)	**1.57** (1.21-2.00)	**1.82** (1.39-2.33)	**2.16** (1.60-2.86)	**2.42** (1.75-3.26)	**2.68** (1.89-3.72)	**2.96** (1.99-4.21)	**3.34** (2.16-4.89)	**3.63** (2.30-5.42)
2-hr	**1.41** (1.10-1.78)	**1.66** (1.29-2.10)	**2.07** (1.61-2.63)	**2.41** (1.86-3.08)	**2.88** (2.15-3.80)	**3.24** (2.37-4.35)	**3.61** (2.56-4.99)	**4.01** (2.71-5.66)	**4.57** (2.97-6.65)	**5.01** (3.18-7.44)
3-hr	**1.63** (1.27-2.05)	**1.93** (1.50-2.42)	**2.42** (1.88-3.05)	**2.82** (2.18-3.58)	**3.38** (2.53-4.45)	**3.80** (2.79-5.09)	**4.24** (3.02-5.86)	**4.73** (3.20-6.66)	**5.42** (3.53-7.86)	**5.98** (3.80-8.83)
6-hr	**2.05** (1.61-2.56)	**2.44** (1.92-3.05)	**3.08** (2.41-3.87)	**3.61** (2.81-4.55)	**4.35** (3.28-5.69)	**4.89** (3.62-6.52)	**5.47** (3.93-7.54)	**6.13** (4.16-8.57)	**7.07** (4.62-10.2)	**7.85** (5.00-11.5)
12-hr	**2.53** (2.00-3.14)	**3.03** (2.39-3.76)	**3.84** (3.03-4.78)	**4.51** (3.54-5.65)	**5.44** (4.13-7.08)	**6.14** (4.56-8.14)	**6.87** (4.97-9.42)	**7.72** (5.26-10.7)	**8.95** (5.87-12.8)	**9.98** (6.39-14.5)
24-hr	**2.96** (2.36-3.65)	**3.58** (2.85-4.42)	**4.60** (3.65-5.70)	**5.45** (4.29-6.77)	**6.61** (5.05-8.56)	**7.47** (5.59-9.87)	**8.40** (6.11-11.5)	**9.49** (6.49-13.1)	**11.1** (7.30-15.8)	**12.5** (8.00-18.0)
2-day	**3.31** (2.65-4.05)	**4.07** (3.26-4.99)	**5.32** (4.25-6.54)	**6.35** (5.04-7.85)	**7.78** (5.98-10.0)	**8.83** (6.66-11.6)	**9.97** (7.32-13.6)	**11.3** (7.79-15.6)	**13.4** (8.86-19.0)	**15.2** (9.80-21.9)
3-day	**3.57** (2.87-4.35)	**4.40** (3.54-5.38)	**5.77** (4.63-7.07)	**6.91** (5.50-8.50)	**8.47** (6.54-10.9)	**9.62** (7.28-12.6)	**10.9** (8.01-14.8)	**12.4** (8.52-16.9)	**14.7** (9.71-20.7)	**16.7** (10.7-23.9)
4-day	**3.82** (3.09-4.65)	**4.70** (3.79-5.73)	**6.14** (4.94-7.50)	**7.34** (5.86-9.00)	**8.98** (6.95-11.5)	**10.2** (7.73-13.3)	**11.5** (8.50-15.6)	**13.1** (9.03-17.9)	**15.5** (10.3-21.8)	**17.6** (11.4-25.1)
7-day	**4.55** (3.70-5.51)	**5.51** (4.47-6.67)	**7.07** (5.72-8.59)	**8.37** (6.72-10.2)	**10.2** (7.89-12.9)	**11.5** (8.73-14.9)	**12.9** (9.53-17.3)	**14.6** (10.1-19.8)	**17.1** (11.4-23.9)	**19.2** (12.5-27.3)
10-day	**5.27** (4.30-6.36)	**6.28** (5.11-7.58)	**7.92** (6.43-9.59)	**9.29** (7.49-11.3)	**11.2** (8.69-14.1)	**12.6** (9.57-16.2)	**14.1** (10.4-18.7)	**15.8** (11.0-21.3)	**18.3** (12.2-25.5)	**20.4** (13.2-28.9)
20-day	**7.44** (6.10-8.91)	**8.57** (7.02-10.3)	**10.4** (8.50-12.5)	**12.0** (9.69-14.4)	**14.1** (11.0-17.6)	**15.7** (11.9-19.9)	**17.3** (12.7-22.6)	**19.1** (13.3-25.6)	**21.5** (14.4-29.7)	**23.5** (15.3-33.0)
30-day	**9.23** (7.60-11.0)	**10.4** (8.60-12.5)	**12.4** (10.2-14.9)	**14.1** (11.5-17.0)	**16.4** (12.8-20.3)	**18.1** (13.9-22.9)	**19.9** (14.6-25.8)	**21.7** (15.2-28.9)	**24.1** (16.1-33.1)	**25.9** (16.9-36.2)
45-day	**11.4** (9.46-13.6)	**12.8** (10.5-15.2)	**14.9** (12.3-17.8)	**16.7** (13.7-20.0)	**19.2** (15.1-23.7)	**21.1** (16.2-26.5)	**23.0** (16.9-29.5)	**24.9** (17.5-33.0)	**27.2** (18.3-37.2)	**28.9** (18.9-40.3)
60-day	**13.3** (11.0-15.7)	**14.7** (12.2-17.4)	**17.0** (14.0-20.2)	**18.9** (15.5-22.6)	**21.5** (16.9-26.4)	**23.6** (18.1-29.4)	**25.6** (18.8-32.7)	**27.5** (19.3-36.3)	**29.8** (20.1-40.6)	**31.5** (20.6-43.7)

[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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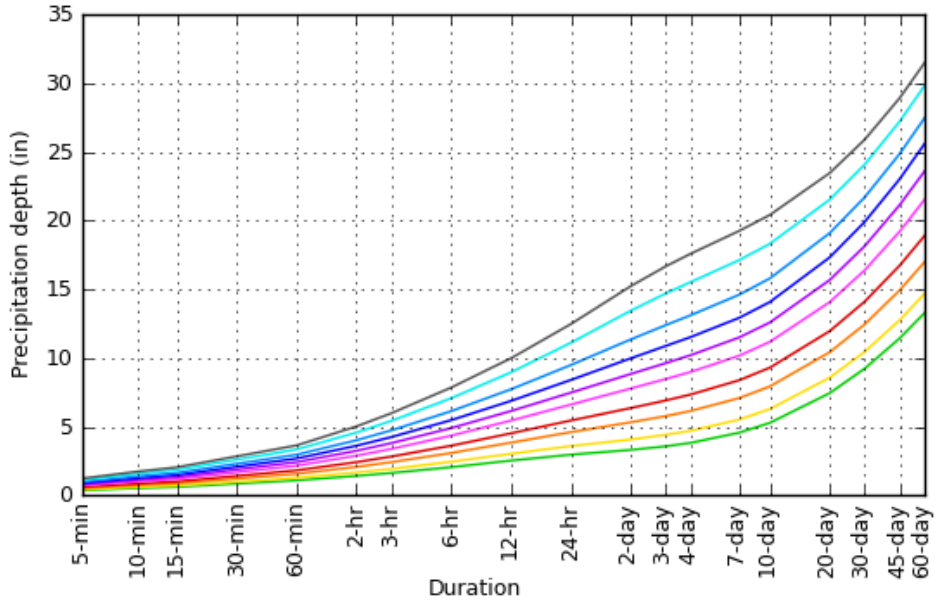
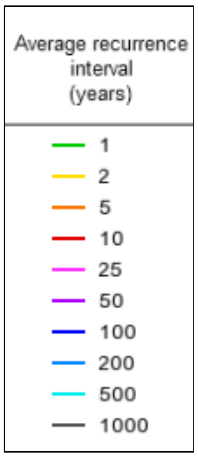
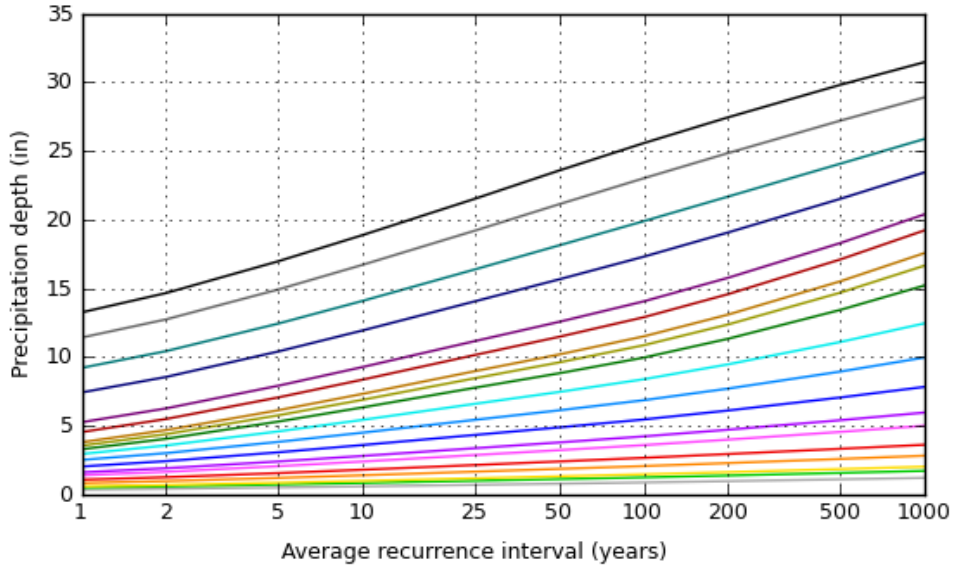
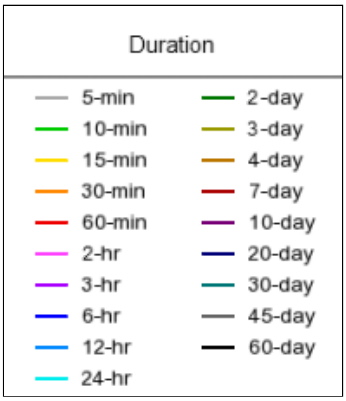
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.0551°, Longitude: -73.5271°









NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Thu Feb 3 11:03:24 2022

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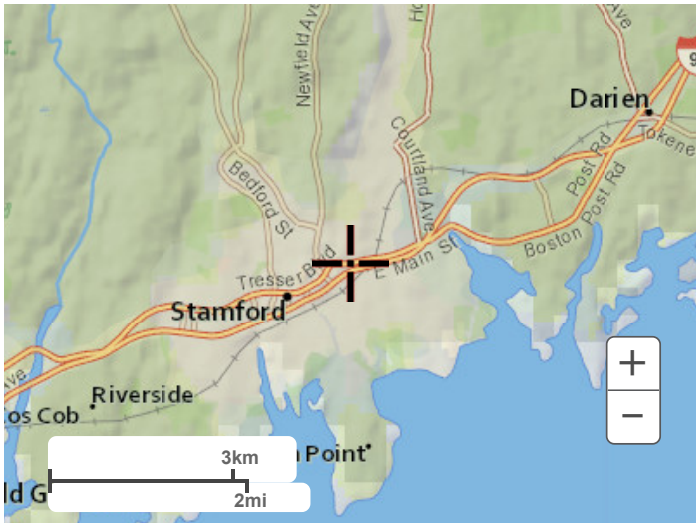
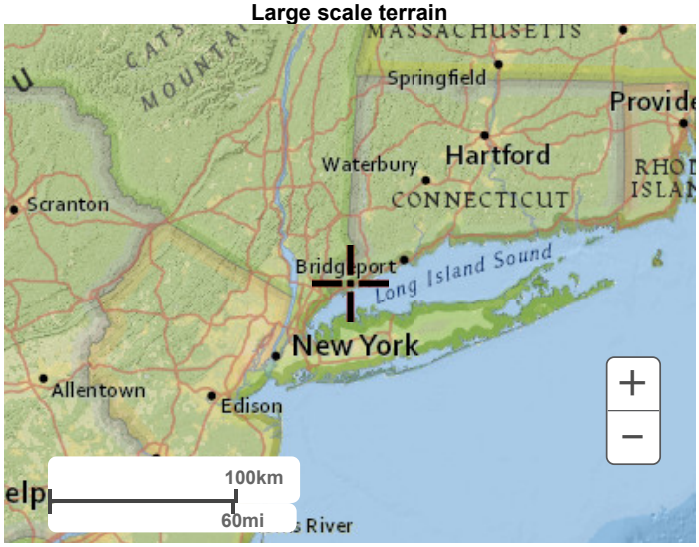
Maps & aerials

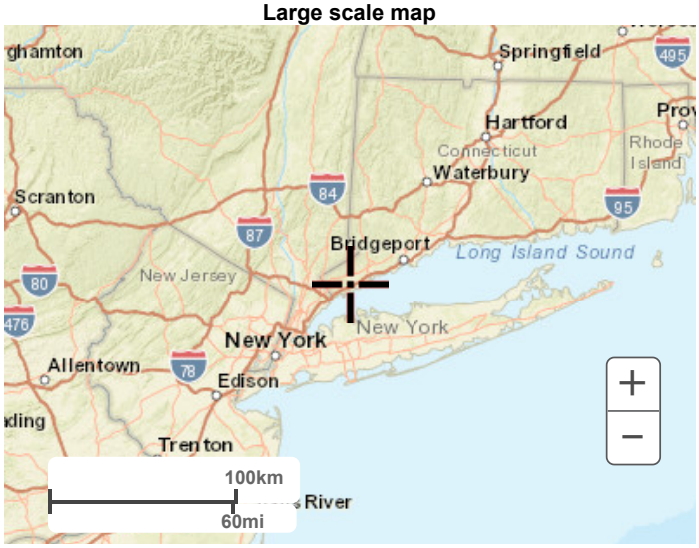
Small scale terrain



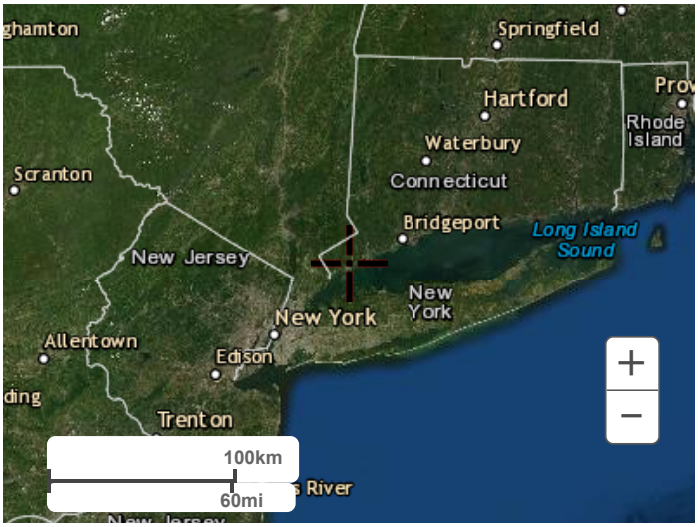
Large scale terrain



Large scale map



Large scale aerial



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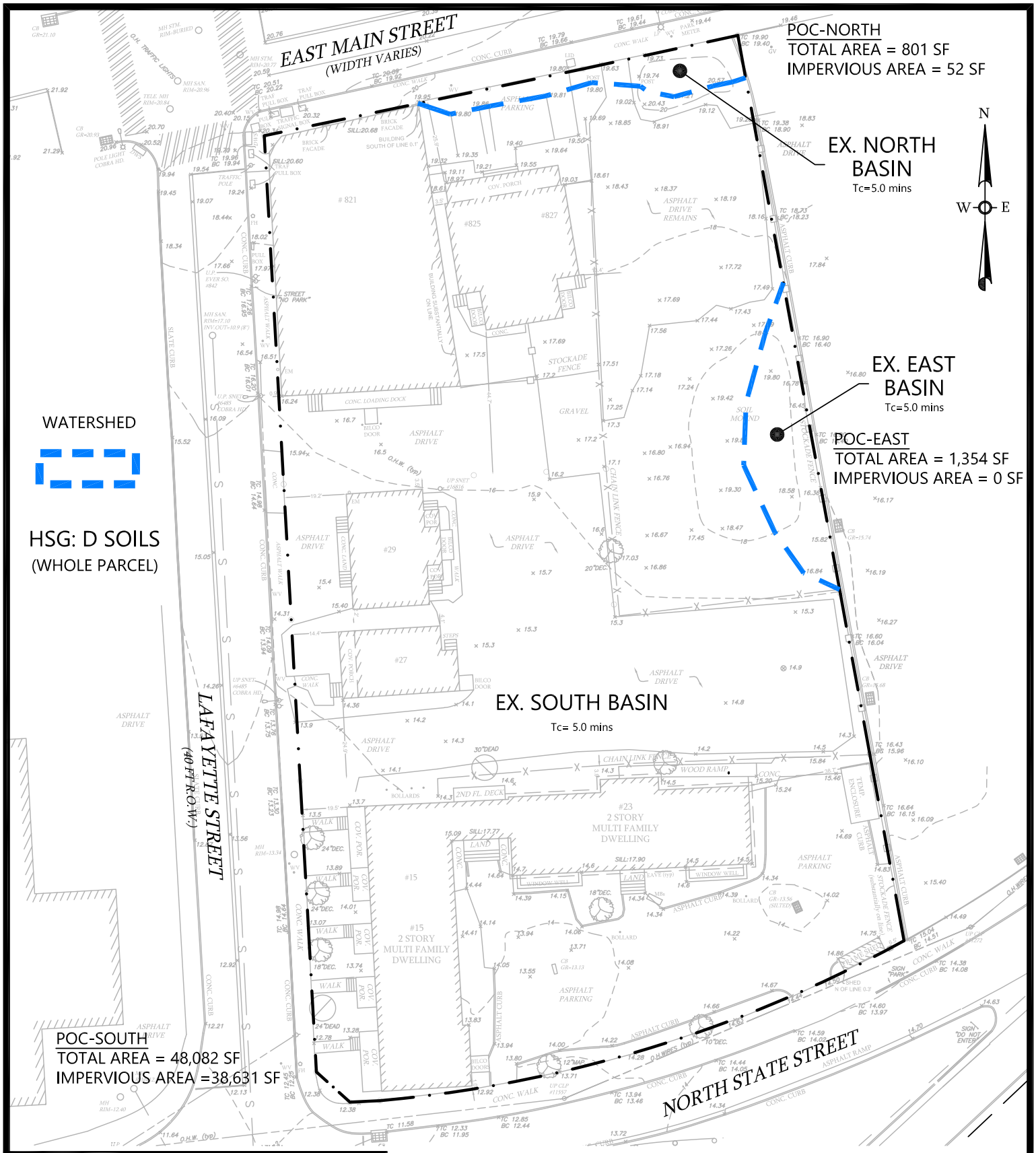
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

APPENDIX – B



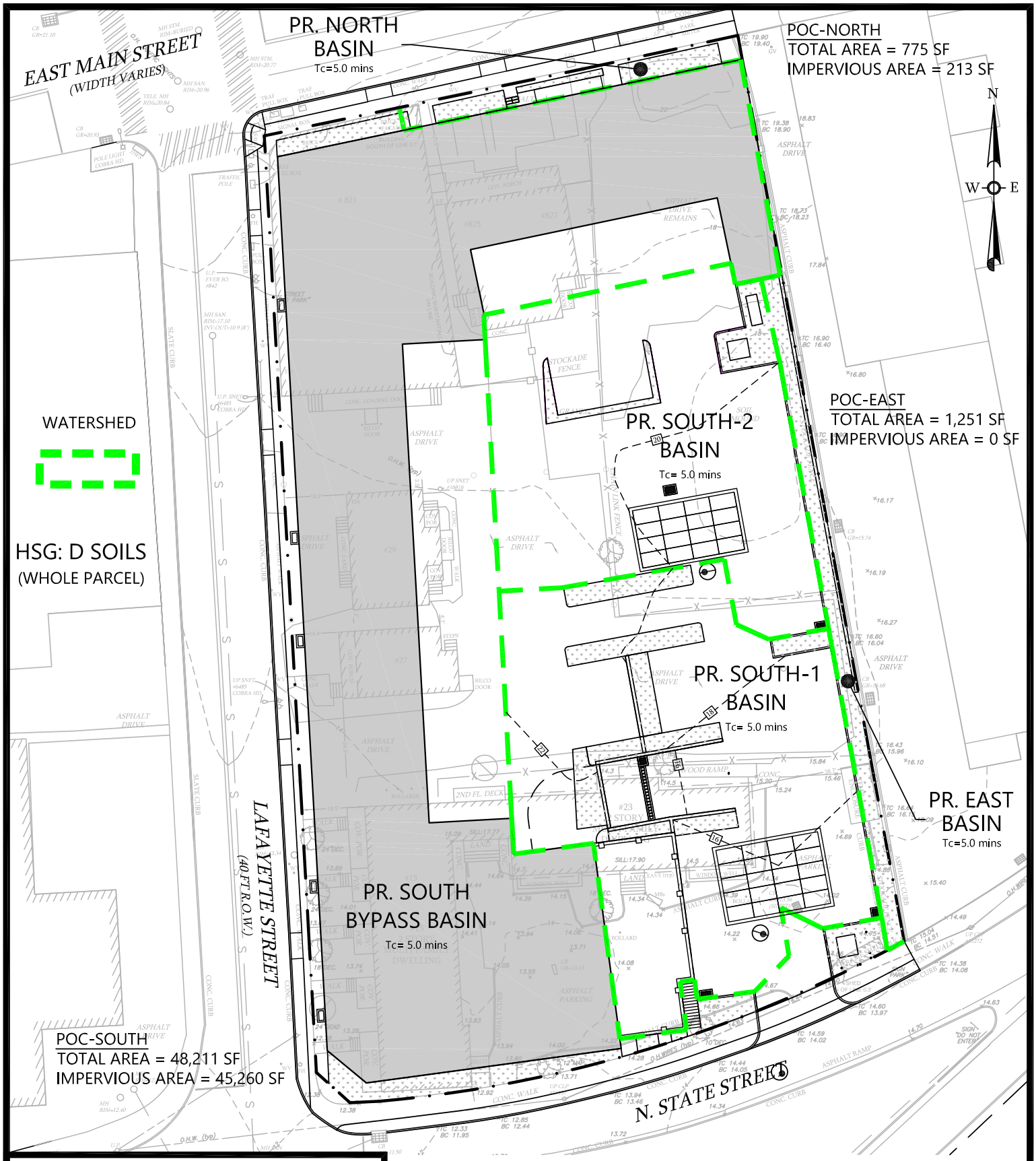
DiMARZO & BERECZKY
191 LLOYD DRIVE
FAIRFIELD, CT 06825
203.857.4110
LAND SURVEYING
CIVIL ENGINEERING
PERMITTING

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

DR-EX

DATE: 2/03/2022

SCALE: 1"=40' 0 40



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DRAINAGE BASIN MAP
ONSITE - PROPOSED CONDITIONS
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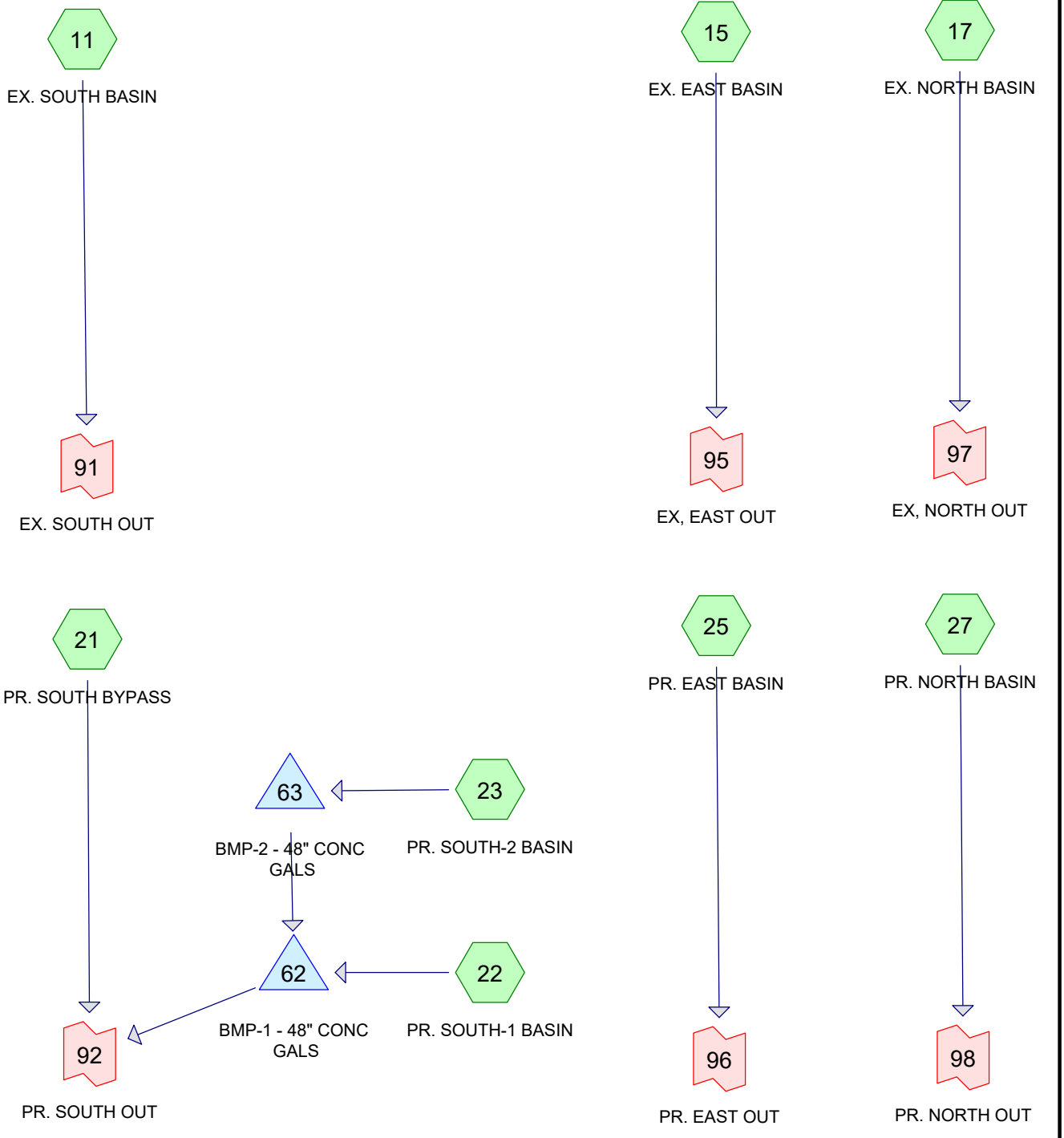
STAMFORD, CT

DR-PR

DATE: 2/03/2022

SCALE: 1"=40' 0 40



Routing Diagram for 173 HydroCAD onsite 2022-02-03
Prepared by DiMarzo - Bereczky Inc, Printed 02/07/2022

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=48,082 sf 80.34% Impervious Runoff Depth>2.43"
Tc=5.0 min CN=95.25 Runoff=3.09 cfs 9,752 cf

Subcatchment 15: EX. EAST BASIN Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>1.48"
Tc=5.0 min CN=84.00 Runoff=0.06 cfs 167 cf

Subcatchment 17: EX. NORTH BASIN Runoff Area=801 sf 93.51% Impervious Runoff Depth>2.63"
Tc=5.0 min CN=97.09 Runoff=0.05 cfs 175 cf

Subcatchment 21: PR. SOUTH BYPASS Runoff Area=27,749 sf 96.14% Impervious Runoff Depth>2.67"
Tc=5.0 min CN=97.46 Runoff=1.88 cfs 6,167 cf

Subcatchment 22: PR. SOUTH-1 BASIN Runoff Area=11,610 sf 87.75% Impervious Runoff Depth>2.54"
Tc=5.0 min CN=96.29 Runoff=0.77 cfs 2,459 cf

Subcatchment 23: PR. SOUTH-2 BASIN Runoff Area=8,852 sf 94.84% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=97.28 Runoff=0.60 cfs 1,953 cf

Subcatchment 25: PR. EAST BASIN Runoff Area=1,251 sf 0.00% Impervious Runoff Depth>1.48"
Tc=5.0 min CN=84.00 Runoff=0.05 cfs 154 cf

Subcatchment 27: PR. NORTH BASIN Runoff Area=775 sf 27.48% Impervious Runoff Depth>1.77"
Tc=5.0 min CN=87.85 Runoff=0.04 cfs 114 cf

Pond 62: BMP-1 - 48" CONC GALS Peak Elev=12.48' Storage=2,076 cf Inflow=0.77 cfs 2,802 cf
Outflow=0.04 cfs 751 cf

Pond 63: BMP-2 - 48" CONC GALS Peak Elev=16.45' Storage=1,630 cf Inflow=0.60 cfs 1,953 cf
Outflow=0.02 cfs 343 cf

Link 91: EX. SOUTH OUT Inflow=3.09 cfs 9,752 cf
Primary=3.09 cfs 9,752 cf

Link 92: PR. SOUTH OUT Inflow=1.88 cfs 6,918 cf
Primary=1.88 cfs 6,918 cf

Link 95: EX, EAST OUT Inflow=0.06 cfs 167 cf
Primary=0.06 cfs 167 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 175 cf
Primary=0.05 cfs 175 cf

Link 98: PR. NORTH OUT Inflow=0.04 cfs 114 cf
Primary=0.04 cfs 114 cf

Total Runoff Area = 100,474 sf Runoff Volume = 20,942 cf Average Runoff Depth = 2.50"
15.55% Pervious = 15,621 sf 84.45% Impervious = 84,853 sf

Summary for Subcatchment 11: EX. SOUTH BASIN

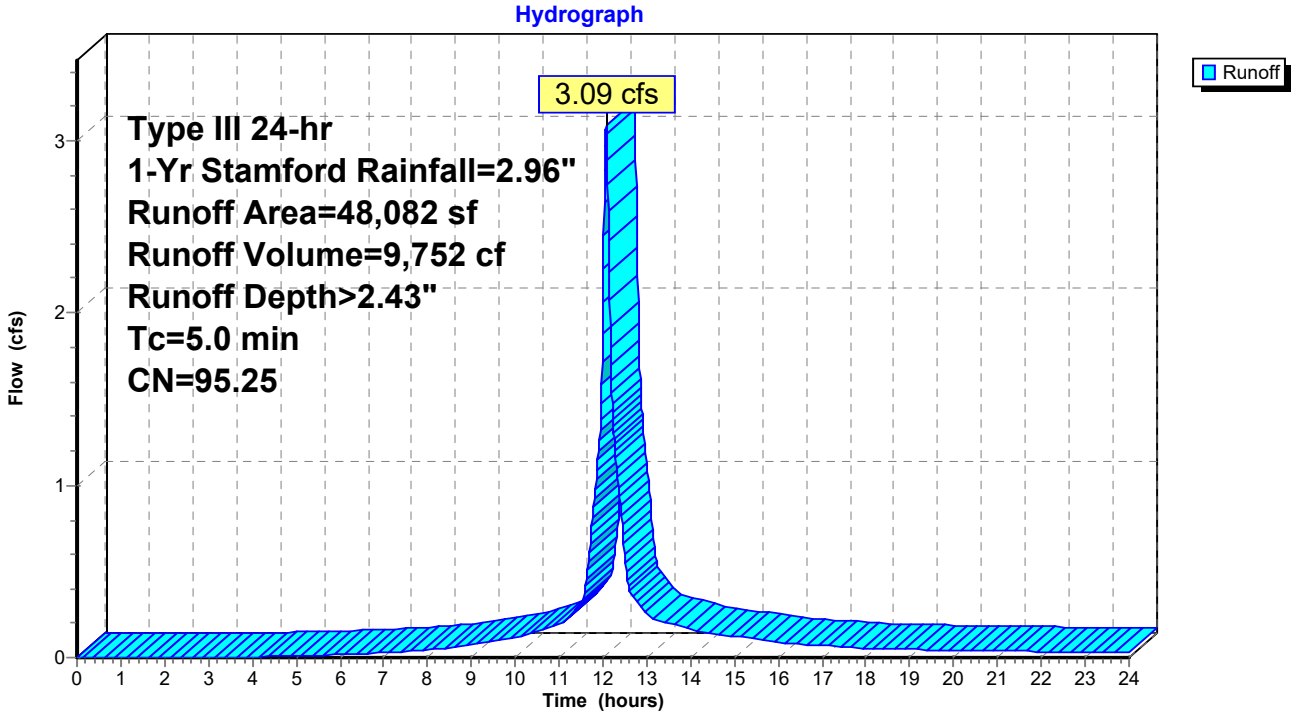
Runoff = 3.09 cfs @ 12.07 hrs, Volume= 9,752 cf, Depth> 2.43"
Routed to Link 91 : EX. SOUTH OUT

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=2.96"

	Area (sf)	CN	Description
	12,667	98.00	Roofs, HSG D
*	25,964	98.00	Paved Hardscapes, HSG D
	9,451	84.00	50-75% Grass cover, Fair, HSG D
	48,082	95.25	Weighted Average
	9,451		19.66% Pervious Area
	38,631		80.34% 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

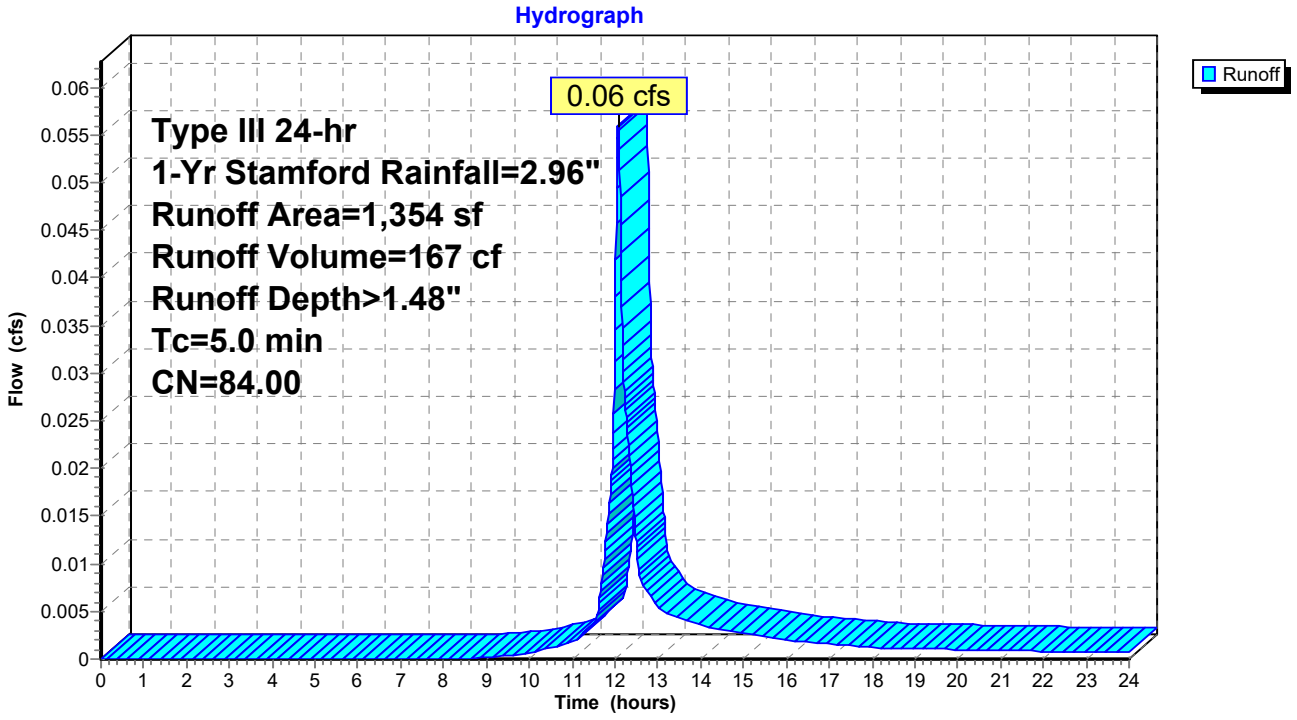
Runoff = 0.06 cfs @ 12.08 hrs, Volume= 167 cf, Depth> 1.48"
Routed to Link 95 : EX, EAST OUT

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=2.96"

	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



Summary for Subcatchment 17: EX. NORTH BASIN

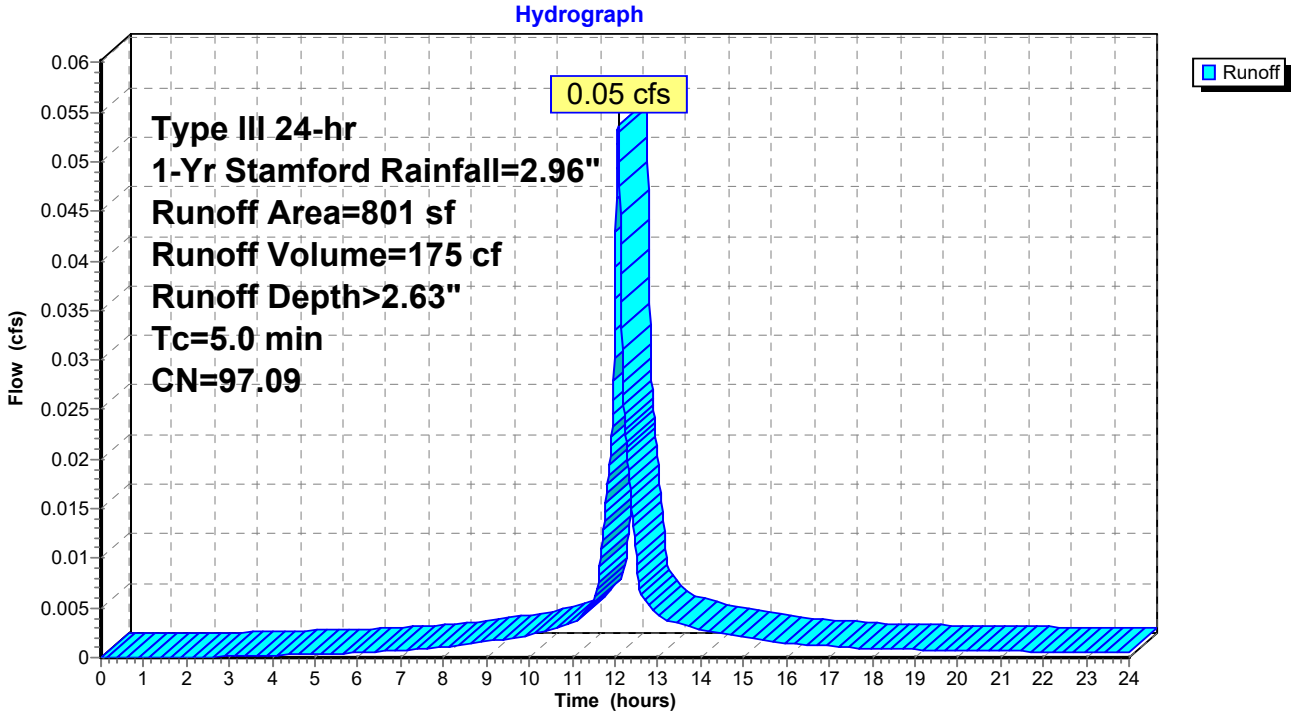
Runoff = 0.05 cfs @ 12.07 hrs, Volume= 175 cf, Depth> 2.63"
Routed to Link 97 : EX, NORTH OUT

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=2.96"

	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

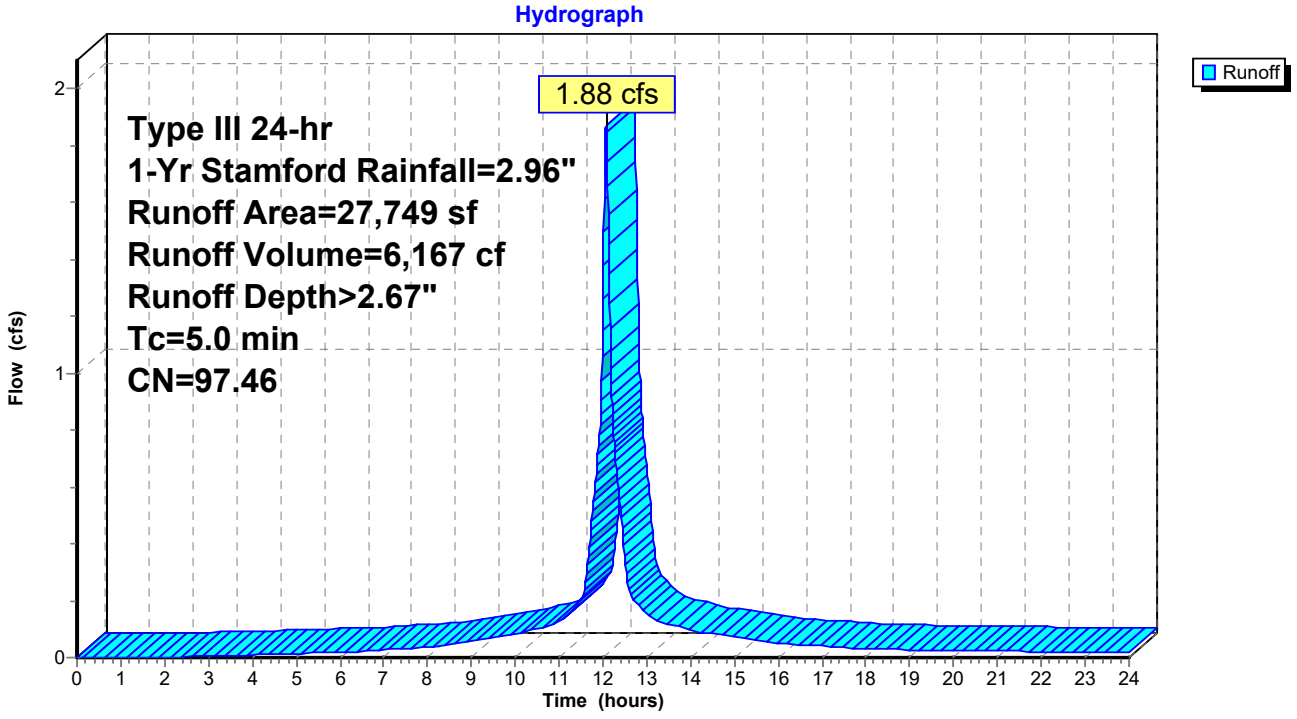
Runoff = 1.88 cfs @ 12.07 hrs, Volume= 6,167 cf, Depth> 2.67"
Routed to Link 92 : PR. SOUTH OUT

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=2.96"

	Area (sf)	CN	Description
	24,917	98.00	Roofs, HSG D
*	1,760	98.00	Paved Hardscapes, HSG D
	1,072	84.00	50-75% Grass cover, Fair, HSG D
	27,749	97.46	Weighted Average
	1,072		3.86% Pervious Area
	26,677		96.14% 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

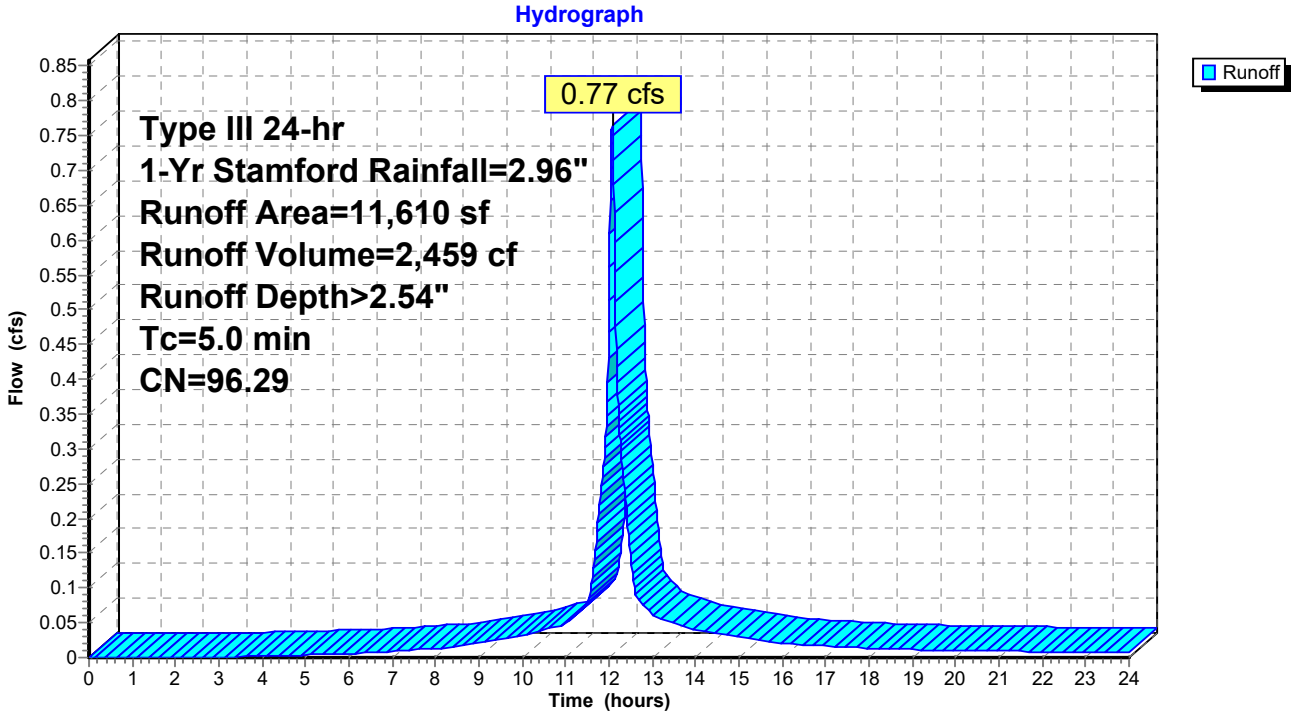
Runoff = 0.77 cfs @ 12.07 hrs, Volume= 2,459 cf, Depth> 2.54"
Routed to Pond 62 : BMP-1 - 48" CONC GALS

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=2.96"

	Area (sf)	CN	Description
	1,480	98.00	Roofs, HSG D
*	8,708	98.00	Paved Hardscapes, HSG D
	1,422	84.00	50-75% Grass cover, Fair, HSG D
	11,610	96.29	Weighted Average
	1,422		12.25% Pervious Area
	10,188		87.75% 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 23: PR. SOUTH-2 BASIN

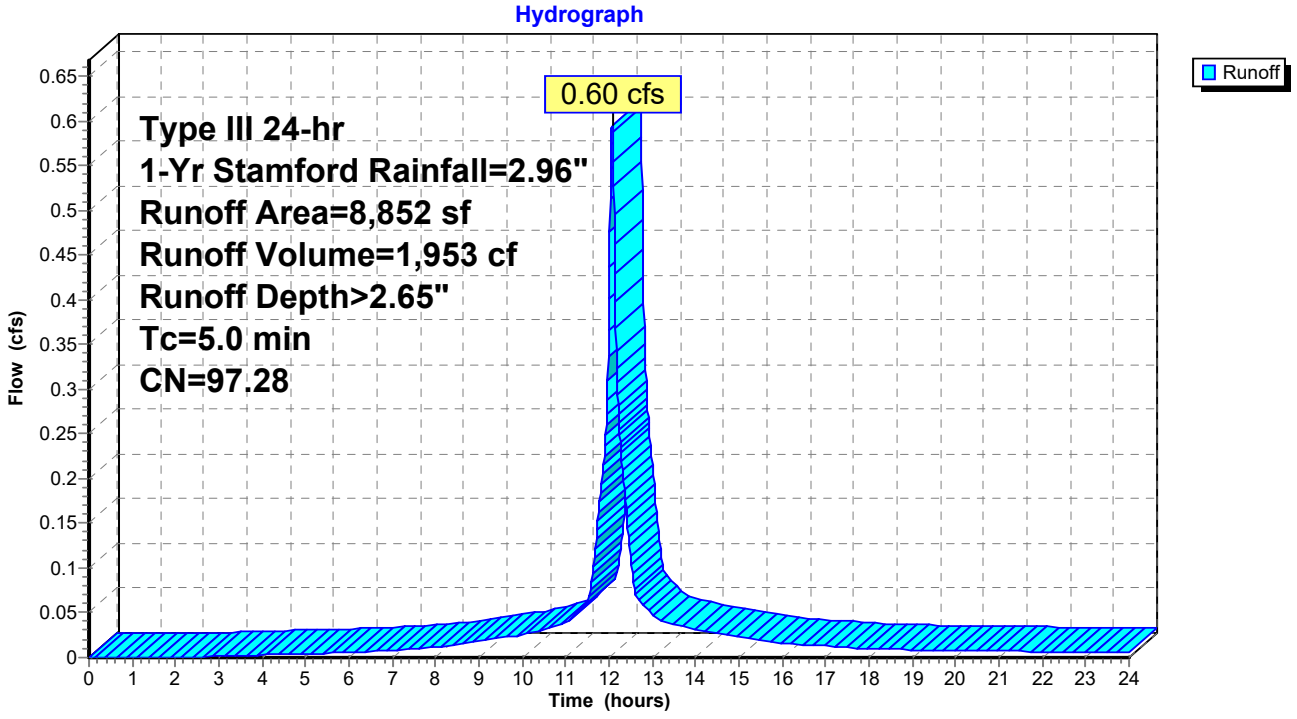
Runoff = 0.60 cfs @ 12.07 hrs, Volume= 1,953 cf, Depth> 2.65"
Routed to Pond 63 : BMP-2 - 48" CONC GALS

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=2.96"

	Area (sf)	CN	Description
	0	98.00	Roofs, HSG D
*	8,395	98.00	Paved Hardscapes, HSG D
	457	84.00	50-75% Grass cover, Fair, HSG D
	8,852	97.28	Weighted Average
	457		5.16% Pervious Area
	8,395		94.84% Impervious Area

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

Subcatchment 23: PR. SOUTH-2 BASIN



Summary for Subcatchment 25: PR. EAST BASIN

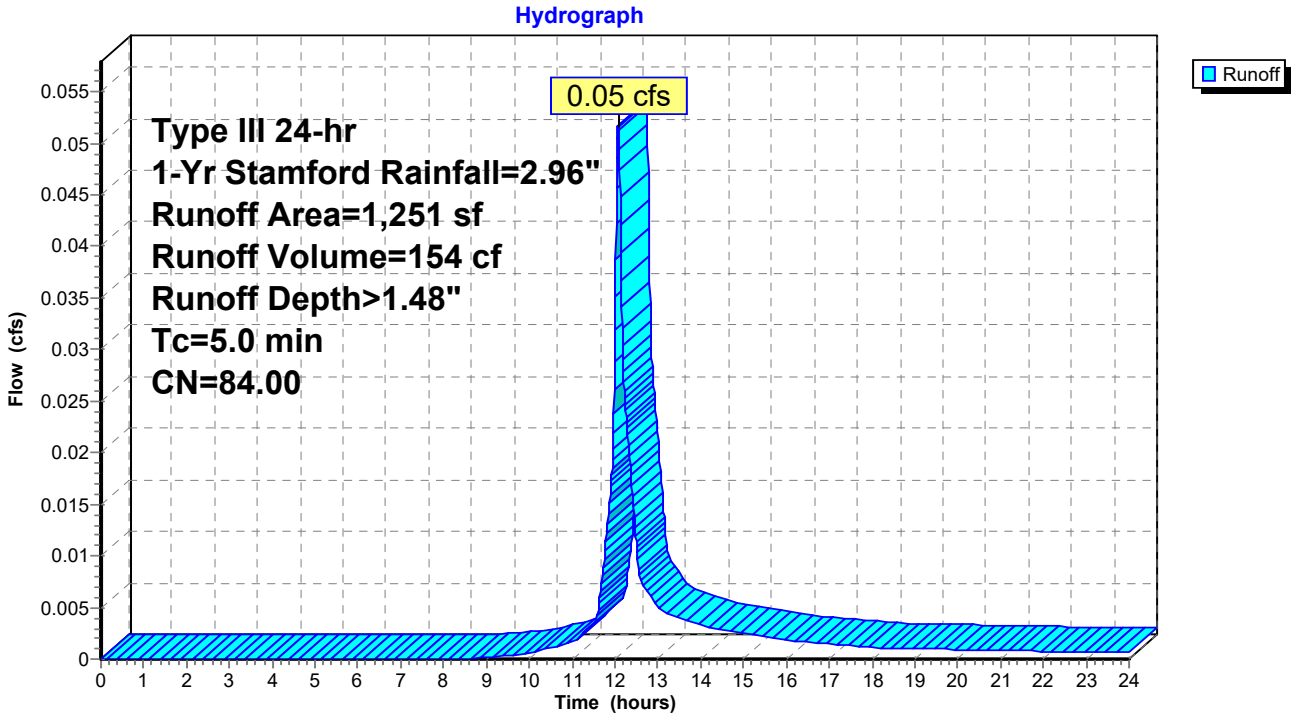
Runoff = 0.05 cfs @ 12.08 hrs, Volume= 154 cf, Depth> 1.48"
Routed to Link 96 : PR. EAST OUT

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=2.96"

	Area (sf)	CN	Description
	0	98.00	Roofs, HSG D
*	0	98.00	Paved Hardscapes, HSG D
	1,251	84.00	50-75% Grass cover, Fair, HSG D
	1,251	84.00	Weighted Average
	1,251		100.00% Pervious Area

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

Subcatchment 25: PR. EAST BASIN



Summary for Subcatchment 27: PR. NORTH BASIN

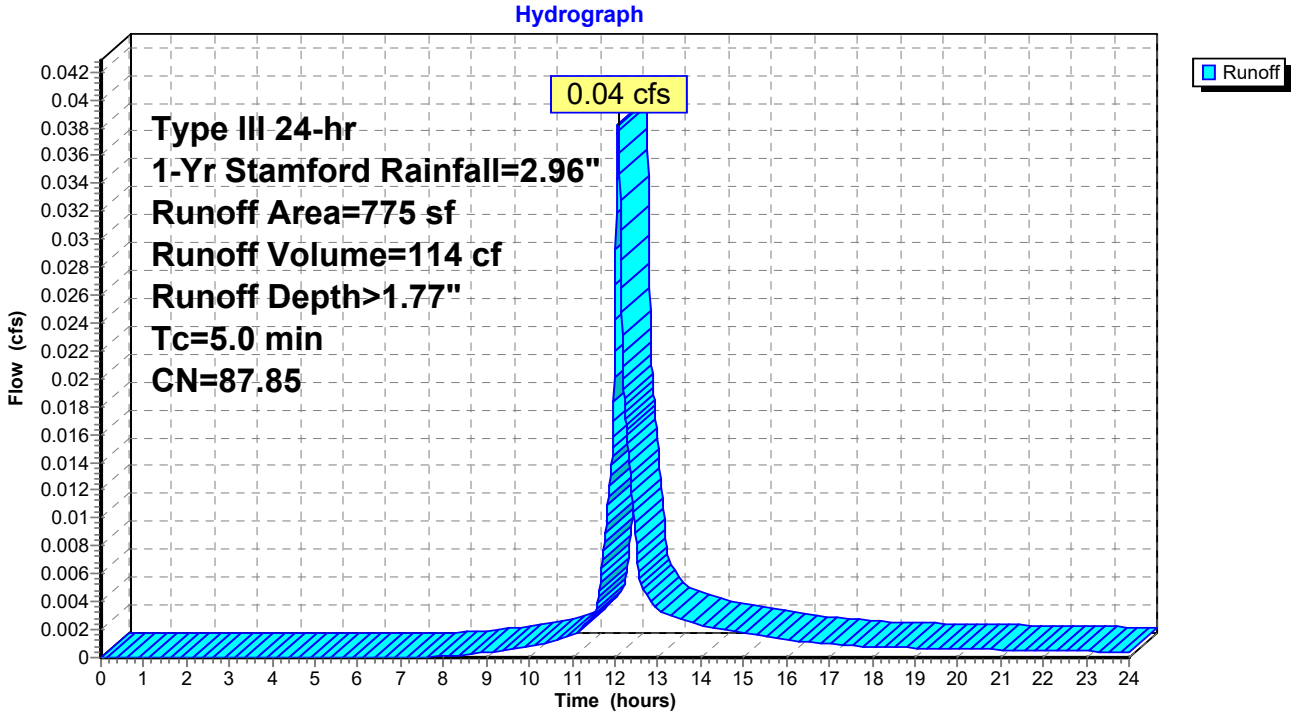
Runoff = 0.04 cfs @ 12.07 hrs, Volume= 114 cf, Depth> 1.77"
Routed to Link 98 : PR. NORTH OUT

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=2.96"

	Area (sf)	CN	Description
	0	98.00	Roofs, HSG D
*	213	98.00	Paved Hardscapes, HSG D
	562	84.00	50-75% Grass cover, Fair, HSG D
	775	87.85	Weighted Average
	562		72.52% Pervious Area
	213		27.48% Impervious Area

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

Subcatchment 27: PR. NORTH BASIN



Summary for Pond 62: BMP-1 - 48" CONC GALS

[79] Warning: Submerged Pond 63 Primary device # 3 OUTLET by 0.98'

Inflow Area = 20,462 sf, 90.82% Impervious, Inflow Depth > 1.64" for 1-Yr Stamford event
Inflow = 0.77 cfs @ 12.07 hrs, Volume= 2,802 cf
Outflow = 0.04 cfs @ 15.74 hrs, Volume= 751 cf, Atten= 95%, Lag= 220.0 min
Primary = 0.04 cfs @ 15.74 hrs, Volume= 751 cf
Routed to Link 92 : PR. SOUTH OUT

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 12.48' @ 15.74 hrs Surf.Area= 901 sf Storage= 2,076 cf

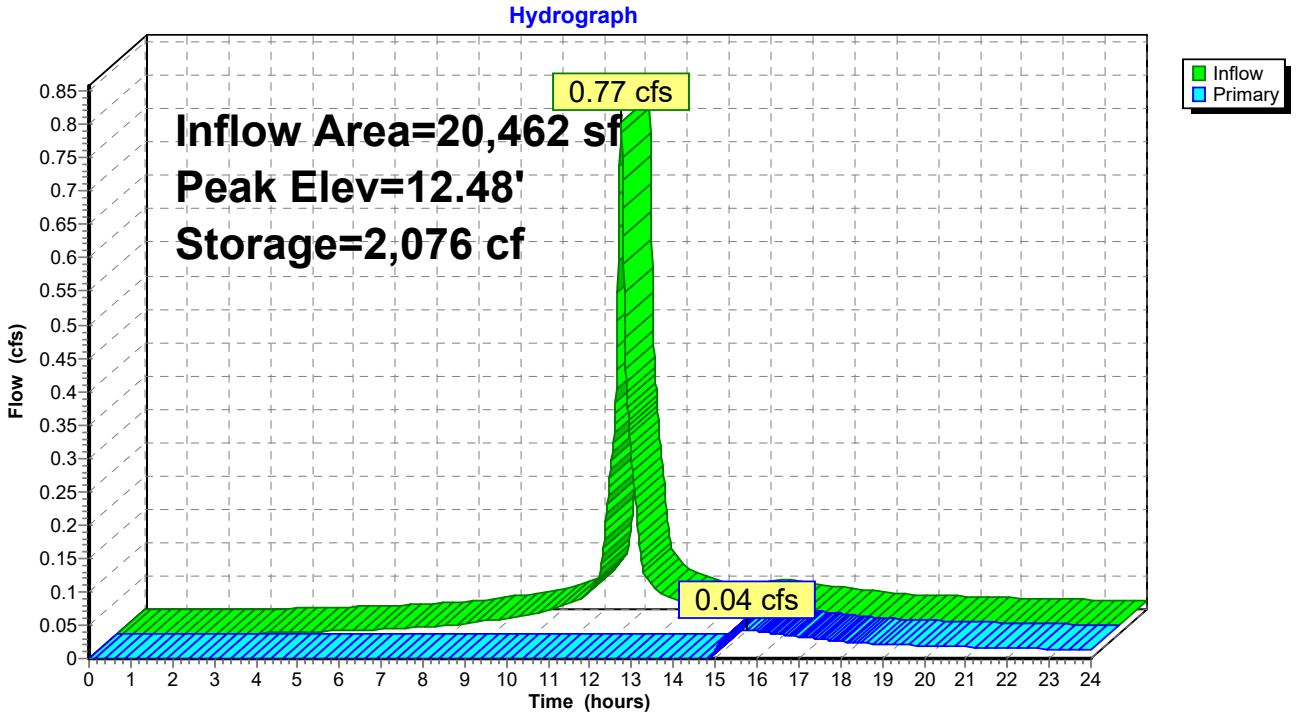
Plug-Flow detention time= 502.1 min calculated for 751 cf (27% of inflow)
Center-of-Mass det. time= 302.1 min (1,115.5 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	526 cf	**24.50'W x 34.00'L x 4.50'H Prismatoid** 3,749 cf Overall - 2,433 cf Embedded = 1,316 cf x 40.0% Voids
#2	9.50'	1,871 cf	**Concrete Galley 4x8x4** x 20 Inside #1 Inside= 42.0"W x 43.0"H => 12.47 sf x 7.50'L = 93.6 cf Outside= 52.8"W x 48.0"H => 15.20 sf x 8.00'L = 121.6 cf 20 Chambers in 5 Rows
#3	11.60'	41 cf	**3.00'W x 4.00'L x 3.40'H CB#2**
#4	11.75'	27 cf	**3.00'W x 4.00'L x 2.25'H CB#1**
#5	11.50'	67 cf	**12.0" Round Pipe Storage** L= 85.0' S= 0.0350 '/'
#6	11.00'	27 cf	**10.0" Round Pipe Storage** L= 50.0' S= 0.0200 '/'
#7	11.50'	14 cf	**10.0" Round Pipe Storage** L= 25.0' S= 0.0200 '/'
#8	11.00'	16 cf	**10.0" Round Pipe Storage** L= 30.0' S= 0.0200 '/'
		2,589 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	14.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 3	12.40'	**6.0" Vert. Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	10.80'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 10.80' / 10.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 15.74 hrs HW=12.48' TW=9.65' (Fixed TW Elev= 9.65')
└─**3=Culvert** (Passes 0.04 cfs of 4.11 cfs potential flow)
  ├─**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**2=Orifice** (Orifice Controls 0.04 cfs @ 0.95 fps)

Pond 62: BMP-1 - 48" CONC GALS



Stage-Area-Storage for Pond 62: BMP-1 - 48" CONC GALS

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
9.00	0	11.65	1,501	14.30	2,566
9.05	17	11.70	1,535	14.35	2,568
9.10	33	11.75	1,569	14.40	2,569
9.15	50	11.80	1,604	14.45	2,571
9.20	67	11.85	1,639	14.50	2,573
9.25	83	11.90	1,674	14.55	2,574
9.30	100	11.95	1,709	14.60	2,576
9.35	117	12.00	1,744	14.65	2,578
9.40	133	12.05	1,779	14.70	2,579
9.45	150	12.10	1,815	14.75	2,581
9.50	167	12.15	1,850	14.80	2,582
9.55	196	12.20	1,885	14.85	2,584
9.60	226	12.25	1,919	14.90	2,585
9.65	256	12.30	1,954	14.95	2,586
9.70	286	12.35	1,989	15.00	2,587
9.75	317	12.40	2,023	15.05	2,588
9.80	347	12.45	2,057	15.10	2,588
9.85	378	12.50	2,091	15.15	2,589
9.90	409	12.55	2,124	15.20	2,589
9.95	440	12.60	2,158	15.25	2,589
10.00	471	12.65	2,191	15.30	2,589
10.05	502	12.70	2,224	15.35	2,589
10.10	533	12.75	2,257	15.40	2,589
10.15	564	12.80	2,289	15.45	**2,589**
10.20	595	12.85	2,322		
10.25	626	12.90	2,355		
10.30	657	12.95	2,387		
10.35	688	13.00	2,420		
10.40	719	13.05	2,452		
10.45	750	13.10	2,475		
10.50	781	13.15	2,482		
10.55	811	13.20	2,489		
10.60	842	13.25	2,496		
10.65	873	13.30	2,504		
10.70	904	13.35	2,511		
10.75	935	13.40	2,518		
10.80	965	13.45	2,525		
10.85	996	13.50	2,532		
10.90	1,027	13.55	2,535		
10.95	1,058	13.60	2,537		
11.00	1,088	13.65	2,539		
11.05	1,119	13.70	2,542		
11.10	1,150	13.75	2,544		
11.15	1,181	13.80	2,546		
11.20	1,212	13.85	2,549		
11.25	1,243	13.90	2,551		
11.30	1,275	13.95	2,553		
11.35	1,307	14.00	2,556		
11.40	1,338	14.05	2,557		
11.45	1,370	14.10	2,559		
11.50	1,403	14.15	2,561		
11.55	1,435	14.20	2,562		
11.60	1,468	14.25	2,564		

Summary for Pond 63: BMP-2 - 48" CONC GALS

Inflow Area = 8,852 sf, 94.84% Impervious, Inflow Depth > 2.65" for 1-Yr Stamford event
Inflow = 0.60 cfs @ 12.07 hrs, Volume= 1,953 cf
Outflow = 0.02 cfs @ 15.61 hrs, Volume= 343 cf, Atten= 97%, Lag= 212.2 min
Primary = 0.02 cfs @ 15.61 hrs, Volume= 343 cf
Routed to Pond 62 : BMP-1 - 48" CONC GALS

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 16.45' @ 15.61 hrs Surf.Area= 713 sf Storage= 1,630 cf

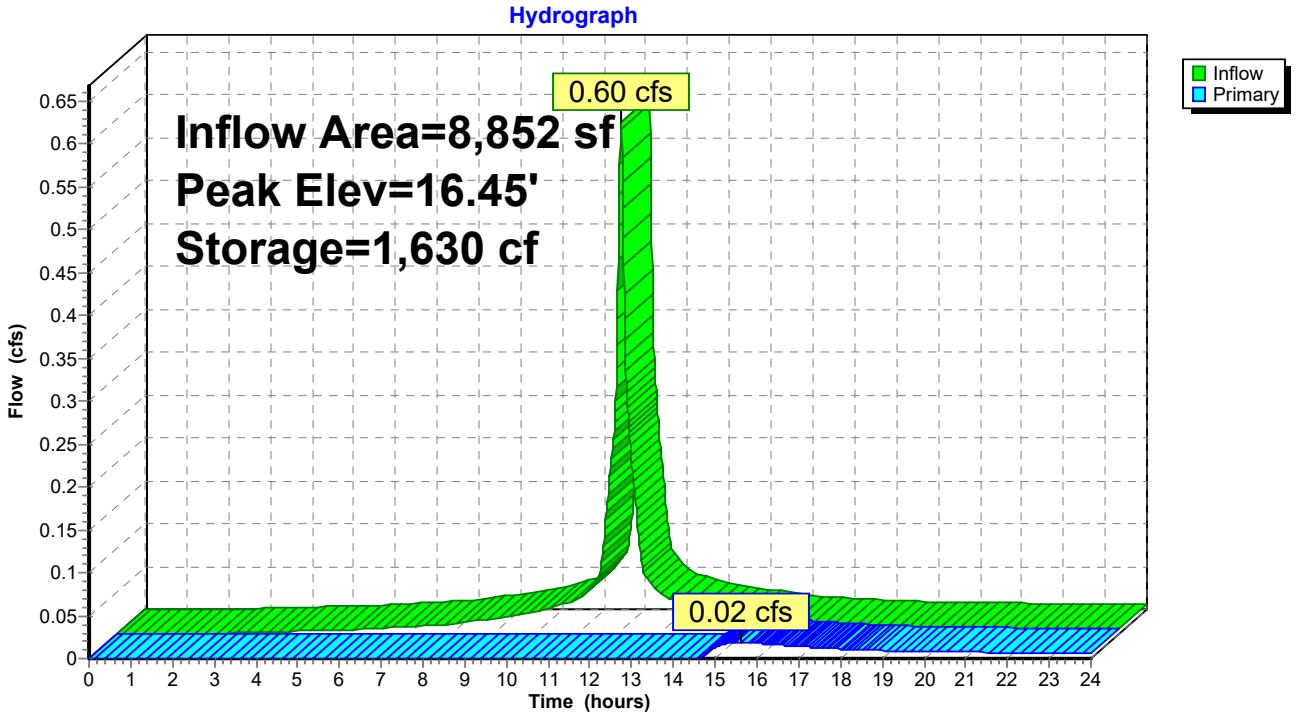
Plug-Flow detention time= 582.7 min calculated for 343 cf (18% of inflow)
Center-of-Mass det. time= 341.0 min (1,105.0 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	13.00'	446 cf	**20.00'W x 34.00'L x 4.50'H Prismatoid** 3,060 cf Overall - 1,946 cf Embedded = 1,114 cf x 40.0% Voids
#2	13.50'	1,497 cf	**Concrete Galley 4x8x4** x 16 Inside #1 Inside= 42.0"W x 43.0"H => 12.47 sf x 7.50'L = 93.6 cf Outside= 52.8"W x 48.0"H => 15.20 sf x 8.00'L = 121.6 cf 16 Chambers in 4 Rows
#3	16.10'	40 cf	**3.00'W x 4.00'L x 3.30'H CB#4**
#4	15.90'	27 cf	**3.00'W x 4.00'L x 2.25'H CB#3**
#5	15.20'	20 cf	**10.0" Round Pipe Storage** L= 36.0' S= 0.0200 '/'
		2,029 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Device 3	18.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 3	16.40'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	14.50'	**12.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 11.50' S= 0.0353 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 15.61 hrs HW=16.45' (Free Discharge)
└**3=Culvert** (Passes 0.02 cfs of 4.56 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.79 fps)

Pond 63: BMP-2 - 48" CONC GALS



Stage-Area-Storage for Pond 63: BMP-2 - 48" CONC GALS

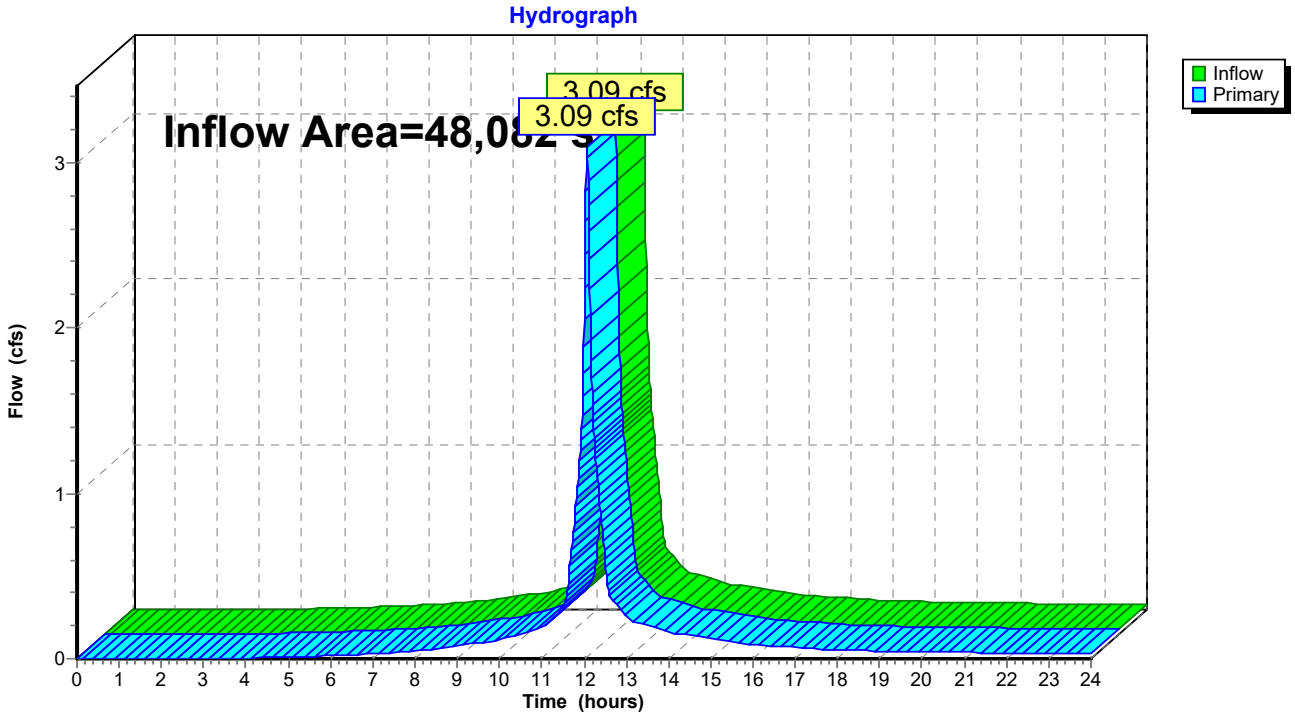
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
13.00	0	15.65	1,207	18.30	2,016
13.05	14	15.70	1,232	18.35	2,016
13.10	27	15.75	1,258	18.40	2,017
13.15	41	15.80	1,284	18.45	2,017
13.20	54	15.85	1,310	18.50	2,018
13.25	68	15.90	1,335	18.55	2,019
13.30	82	15.95	1,362	18.60	2,019
13.35	95	16.00	1,389	18.65	2,020
13.40	109	16.05	1,415	18.70	2,020
13.45	122	16.10	1,442	18.75	2,021
13.50	136	16.15	1,468	18.80	2,022
13.55	160	16.20	1,495	18.85	2,022
13.60	184	16.25	1,522	18.90	2,023
13.65	208	16.30	1,549	18.95	2,023
13.70	233	16.35	1,575	19.00	2,024
13.75	257	16.40	1,602	19.05	2,025
13.80	282	16.45	1,628	19.10	2,025
13.85	307	16.50	1,654	19.15	2,026
13.90	332	16.55	1,680	19.20	2,026
13.95	357	16.60	1,706	19.25	2,027
14.00	383	16.65	1,732	19.30	2,028
14.05	408	16.70	1,758	19.35	2,028
14.10	433	16.75	1,784	19.40	**2,029**
14.15	458	16.80	1,809		
14.20	483	16.85	1,835		
14.25	508	16.90	1,861		
14.30	533	16.95	1,886		
14.35	558	17.00	1,912		
14.40	583	17.05	1,938		
14.45	608	17.10	1,955		
14.50	633	17.15	1,961		
14.55	658	17.20	1,966		
14.60	682	17.25	1,971		
14.65	707	17.30	1,977		
14.70	732	17.35	1,982		
14.75	757	17.40	1,987		
14.80	782	17.45	1,993		
14.85	807	17.50	1,998		
14.90	832	17.55	1,999		
14.95	857	17.60	2,001		
15.00	882	17.65	2,002		
15.05	907	17.70	2,003		
15.10	931	17.75	2,004		
15.15	956	17.80	2,005		
15.20	981	17.85	2,007		
15.25	1,006	17.90	2,008		
15.30	1,031	17.95	2,009		
15.35	1,056	18.00	2,010		
15.40	1,081	18.05	2,011		
15.45	1,106	18.10	2,013		
15.50	1,131	18.15	2,014		
15.55	1,156	18.20	2,014		
15.60	1,181	18.25	2,015		

Summary for Link 91: EX. SOUTH OUT

Inflow Area = 48,082 sf, 80.34% Impervious, Inflow Depth > 2.43" for 1-Yr Stamford event
Inflow = 3.09 cfs @ 12.07 hrs, Volume= 9,752 cf
Primary = 3.09 cfs @ 12.07 hrs, Volume= 9,752 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

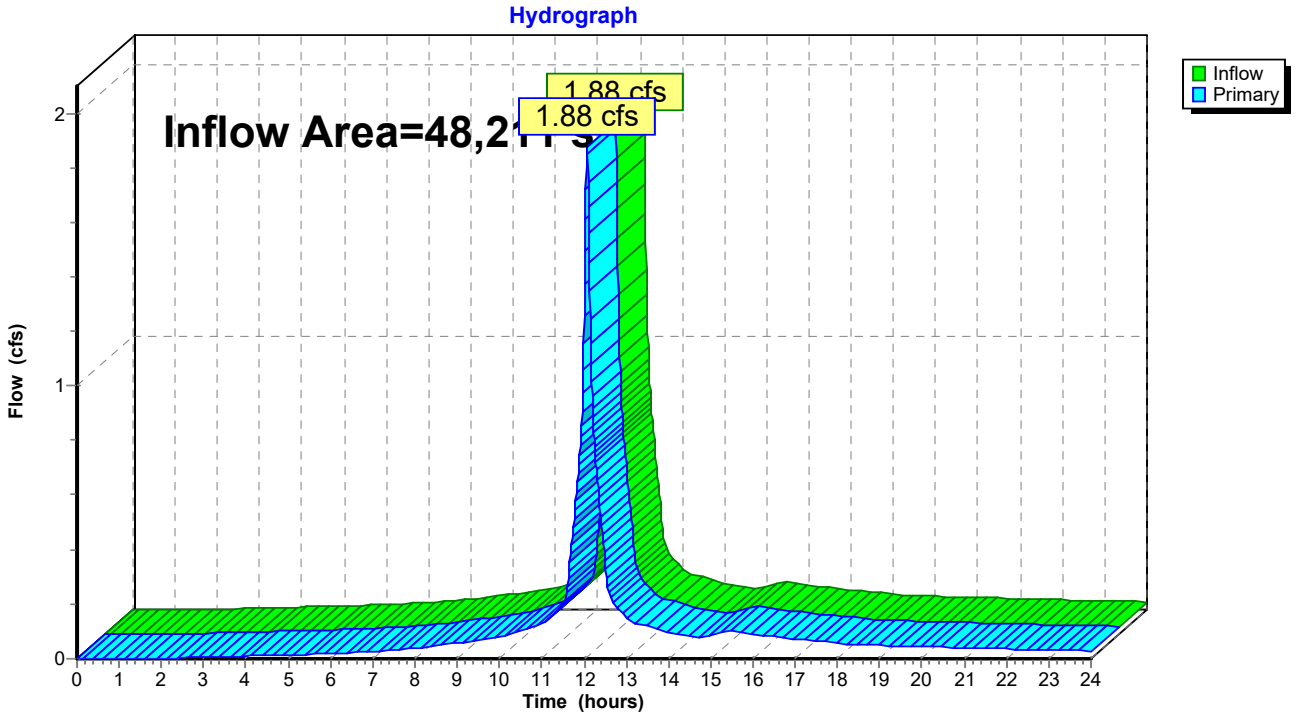


Summary for Link 92: PR. SOUTH OUT

Inflow Area = 48,211 sf, 93.88% Impervious, Inflow Depth > 1.72" for 1-Yr Stamford event
Inflow = 1.88 cfs @ 12.07 hrs, Volume= 6,918 cf
Primary = 1.88 cfs @ 12.07 hrs, Volume= 6,918 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

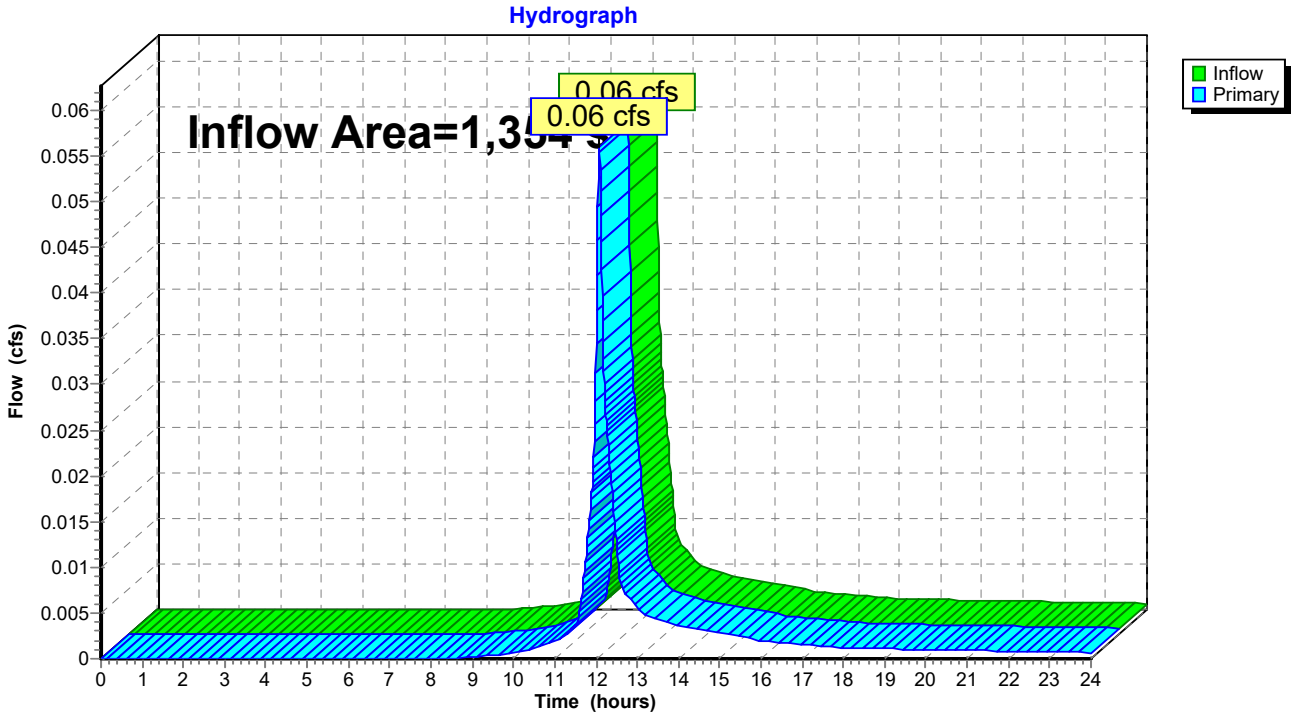


Summary for Link 95: EX, EAST OUT

Inflow Area = 1,354 sf, 0.00% Impervious, Inflow Depth > 1.48" for 1-Yr Stamford event
Inflow = 0.06 cfs @ 12.08 hrs, Volume= 167 cf
Primary = 0.06 cfs @ 12.08 hrs, Volume= 167 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

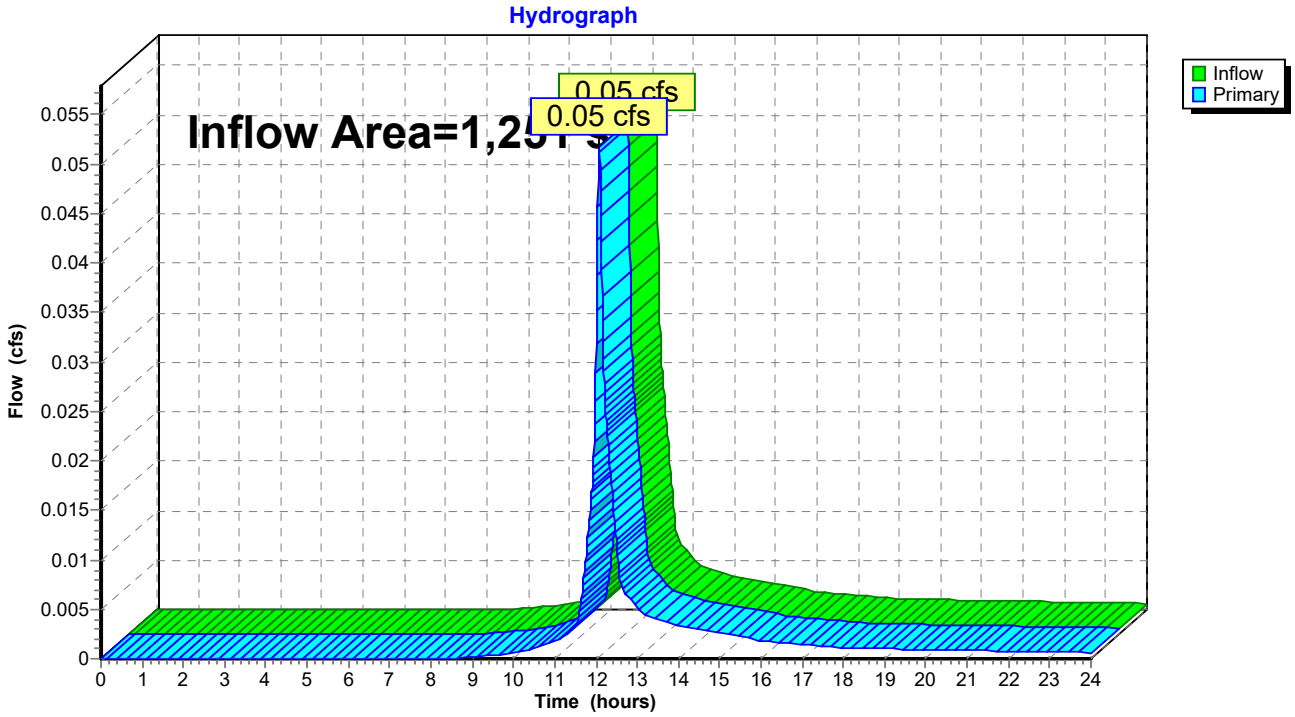


Summary for Link 96: PR. EAST OUT

Inflow Area = 1,251 sf, 0.00% Impervious, Inflow Depth > 1.48" 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

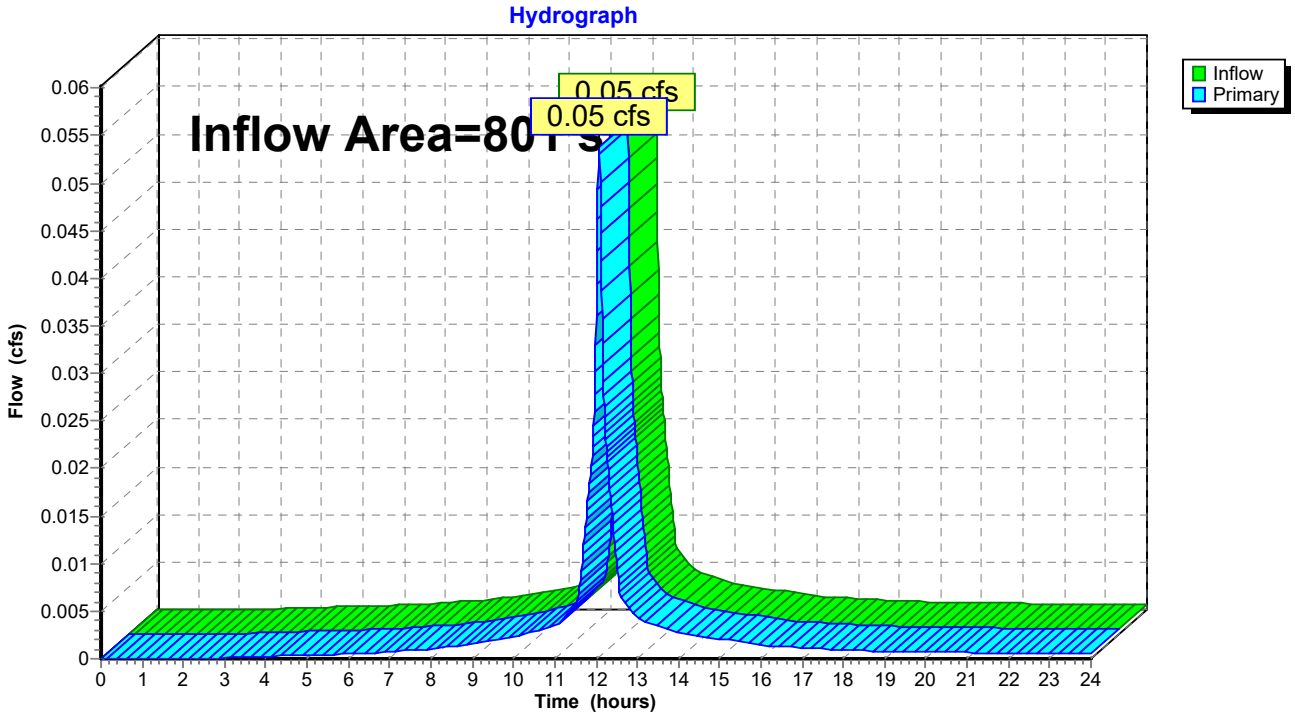


Summary for Link 97: EX, NORTH OUT

Inflow Area = 801 sf, 93.51% Impervious, Inflow Depth > 2.63" for 1-Yr Stamford event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 175 cf
Primary = 0.05 cfs @ 12.07 hrs, Volume= 175 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

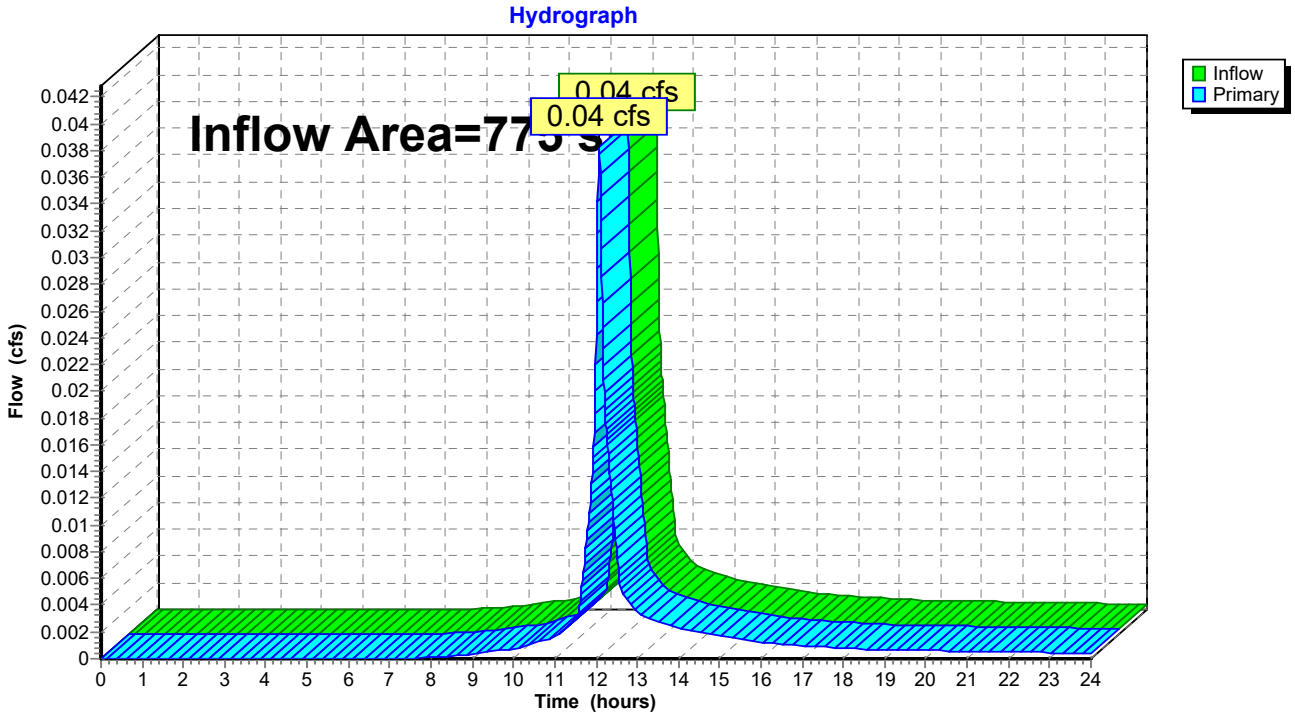


Summary for Link 98: PR. NORTH OUT

Inflow Area = 775 sf, 27.48% Impervious, Inflow Depth > 1.77" for 1-Yr Stamford event
Inflow = 0.04 cfs @ 12.07 hrs, Volume= 114 cf
Primary = 0.04 cfs @ 12.07 hrs, Volume= 114 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=48,082 sf 80.34% Impervious Runoff Depth>3.04"
Tc=5.0 min CN=95.25 Runoff=3.82 cfs 12,188 cf

Subcatchment 15: EX. EAST BASIN Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>2.00"
Tc=5.0 min CN=84.00 Runoff=0.08 cfs 226 cf

Subcatchment 17: EX. NORTH BASIN Runoff Area=801 sf 93.51% Impervious Runoff Depth>3.24"
Tc=5.0 min CN=97.09 Runoff=0.07 cfs 216 cf

Subcatchment 21: PR. SOUTH BYPASS Runoff Area=27,749 sf 96.14% Impervious Runoff Depth>3.28"
Tc=5.0 min CN=97.46 Runoff=2.28 cfs 7,592 cf

Subcatchment 22: PR. SOUTH-1 BASIN Runoff Area=11,610 sf 87.75% Impervious Runoff Depth>3.15"
Tc=5.0 min CN=96.29 Runoff=0.94 cfs 3,051 cf

Subcatchment 23: PR. SOUTH-2 BASIN Runoff Area=8,852 sf 94.84% Impervious Runoff Depth>3.26"
Tc=5.0 min CN=97.28 Runoff=0.73 cfs 2,407 cf

Subcatchment 25: PR. EAST BASIN Runoff Area=1,251 sf 0.00% Impervious Runoff Depth>2.00"
Tc=5.0 min CN=84.00 Runoff=0.07 cfs 209 cf

Subcatchment 27: PR. NORTH BASIN Runoff Area=775 sf 27.48% Impervious Runoff Depth>2.33"
Tc=5.0 min CN=87.85 Runoff=0.05 cfs 150 cf

Pond 62: BMP-1 - 48" CONC GALS Peak Elev=12.55' Storage=2,127 cf Inflow=0.94 cfs 3,846 cf
Outflow=0.14 cfs 1,794 cf

Pond 63: BMP-2 - 48" CONC GALS Peak Elev=16.50' Storage=1,654 cf Inflow=0.73 cfs 2,407 cf
Outflow=0.07 cfs 795 cf

Link 91: EX. SOUTH OUT Inflow=3.82 cfs 12,188 cf
Primary=3.82 cfs 12,188 cf

Link 92: PR. SOUTH OUT Inflow=2.28 cfs 9,385 cf
Primary=2.28 cfs 9,385 cf

Link 95: EX, EAST OUT Inflow=0.08 cfs 226 cf
Primary=0.08 cfs 226 cf

Link 96: PR. EAST OUT Inflow=0.07 cfs 209 cf
Primary=0.07 cfs 209 cf

Link 97: EX, NORTH OUT Inflow=0.07 cfs 216 cf
Primary=0.07 cfs 216 cf

Link 98: PR. NORTH OUT Inflow=0.05 cfs 150 cf
Primary=0.05 cfs 150 cf

Total Runoff Area = 100,474 sf Runoff Volume = 26,040 cf Average Runoff Depth = 3.11"
15.55% Pervious = 15,621 sf 84.45% Impervious = 84,853 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=48,082 sf 80.34% Impervious Runoff Depth>4.05"
Tc=5.0 min CN=95.25 Runoff=5.00 cfs 16,222 cf

Subcatchment 15: EX. EAST BASIN Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>2.90"
Tc=5.0 min CN=84.00 Runoff=0.11 cfs 328 cf

Subcatchment 17: EX. NORTH BASIN Runoff Area=801 sf 93.51% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=97.09 Runoff=0.09 cfs 284 cf

Subcatchment 21: PR. SOUTH BYPASS Runoff Area=27,749 sf 96.14% Impervious Runoff Depth>4.30"
Tc=5.0 min CN=97.46 Runoff=2.95 cfs 9,940 cf

Subcatchment 22: PR. SOUTH-1 BASIN Runoff Area=11,610 sf 87.75% Impervious Runoff Depth>4.17"
Tc=5.0 min CN=96.29 Runoff=1.22 cfs 4,030 cf

Subcatchment 23: PR. SOUTH-2 BASIN Runoff Area=8,852 sf 94.84% Impervious Runoff Depth>4.28"
Tc=5.0 min CN=97.28 Runoff=0.94 cfs 3,156 cf

Subcatchment 25: PR. EAST BASIN Runoff Area=1,251 sf 0.00% Impervious Runoff Depth>2.90"
Tc=5.0 min CN=84.00 Runoff=0.10 cfs 303 cf

Subcatchment 27: PR. NORTH BASIN Runoff Area=775 sf 27.48% Impervious Runoff Depth>3.27"
Tc=5.0 min CN=87.85 Runoff=0.07 cfs 211 cf

Pond 62: BMP-1 - 48" CONC GALS Peak Elev=12.82' Storage=2,304 cf Inflow=1.22 cfs 5,571 cf
Outflow=0.78 cfs 3,514 cf

Pond 63: BMP-2 - 48" CONC GALS Peak Elev=16.67' Storage=1,742 cf Inflow=0.94 cfs 3,156 cf
Outflow=0.38 cfs 1,541 cf

Link 91: EX. SOUTH OUT Inflow=5.00 cfs 16,222 cf
Primary=5.00 cfs 16,222 cf

Link 92: PR. SOUTH OUT Inflow=2.95 cfs 13,454 cf
Primary=2.95 cfs 13,454 cf

Link 95: EX, EAST OUT Inflow=0.11 cfs 328 cf
Primary=0.11 cfs 328 cf

Link 96: PR. EAST OUT Inflow=0.10 cfs 303 cf
Primary=0.10 cfs 303 cf

Link 97: EX, NORTH OUT Inflow=0.09 cfs 284 cf
Primary=0.09 cfs 284 cf

Link 98: PR. NORTH OUT Inflow=0.07 cfs 211 cf
Primary=0.07 cfs 211 cf

Total Runoff Area = 100,474 sf Runoff Volume = 34,473 cf Average Runoff Depth = 4.12"
15.55% Pervious = 15,621 sf 84.45% Impervious = 84,853 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=48,082 sf 80.34% Impervious Runoff Depth>4.89"
Tc=5.0 min CN=95.25 Runoff=5.97 cfs 19,596 cf

Subcatchment 15: EX. EAST BASIN Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>3.68"
Tc=5.0 min CN=84.00 Runoff=0.14 cfs 415 cf

Subcatchment 17: EX. NORTH BASIN Runoff Area=801 sf 93.51% Impervious Runoff Depth>5.10"
Tc=5.0 min CN=97.09 Runoff=0.10 cfs 341 cf

Subcatchment 21: PR. SOUTH BYPASS Runoff Area=27,749 sf 96.14% Impervious Runoff Depth>5.15"
Tc=5.0 min CN=97.46 Runoff=3.51 cfs 11,899 cf

Subcatchment 22: PR. SOUTH-1 BASIN Runoff Area=11,610 sf 87.75% Impervious Runoff Depth>5.01"
Tc=5.0 min CN=96.29 Runoff=1.46 cfs 4,847 cf

Subcatchment 23: PR. SOUTH-2 BASIN Runoff Area=8,852 sf 94.84% Impervious Runoff Depth>5.12"
Tc=5.0 min CN=97.28 Runoff=1.12 cfs 3,780 cf

Subcatchment 25: PR. EAST BASIN Runoff Area=1,251 sf 0.00% Impervious Runoff Depth>3.68"
Tc=5.0 min CN=84.00 Runoff=0.13 cfs 384 cf

Subcatchment 27: PR. NORTH BASIN Runoff Area=775 sf 27.48% Impervious Runoff Depth>4.08"
Tc=5.0 min CN=87.85 Runoff=0.09 cfs 263 cf

Pond 62: BMP-1 - 48" CONC GALS Peak Elev=13.30' Storage=2,504 cf Inflow=2.02 cfs 7,011 cf
Outflow=1.53 cfs 4,951 cf

Pond 63: BMP-2 - 48" CONC GALS Peak Elev=16.83' Storage=1,823 cf Inflow=1.12 cfs 3,780 cf
Outflow=0.79 cfs 2,164 cf

Link 91: EX. SOUTH OUT Inflow=5.97 cfs 19,596 cf
Primary=5.97 cfs 19,596 cf

Link 92: PR. SOUTH OUT Inflow=4.19 cfs 16,851 cf
Primary=4.19 cfs 16,851 cf

Link 95: EX, EAST OUT Inflow=0.14 cfs 415 cf
Primary=0.14 cfs 415 cf

Link 96: PR. EAST OUT Inflow=0.13 cfs 384 cf
Primary=0.13 cfs 384 cf

Link 97: EX, NORTH OUT Inflow=0.10 cfs 341 cf
Primary=0.10 cfs 341 cf

Link 98: PR. NORTH OUT Inflow=0.09 cfs 263 cf
Primary=0.09 cfs 263 cf

Total Runoff Area = 100,474 sf Runoff Volume = 41,527 cf Average Runoff Depth = 4.96"
15.55% Pervious = 15,621 sf 84.45% Impervious = 84,853 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=48,082 sf 80.34% Impervious Runoff Depth>6.04"
Tc=5.0 min CN=95.25 Runoff=7.30 cfs 24,213 cf

Subcatchment 15: EX. EAST BASIN Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>4.77"
Tc=5.0 min CN=84.00 Runoff=0.18 cfs 538 cf

Subcatchment 17: EX. NORTH BASIN Runoff Area=801 sf 93.51% Impervious Runoff Depth>6.26"
Tc=5.0 min CN=97.09 Runoff=0.12 cfs 418 cf

Subcatchment 21: PR. SOUTH BYPASS Runoff Area=27,749 sf 96.14% Impervious Runoff Depth>6.30"
Tc=5.0 min CN=97.46 Runoff=4.27 cfs 14,575 cf

Subcatchment 22: PR. SOUTH-1 BASIN Runoff Area=11,610 sf 87.75% Impervious Runoff Depth>6.17"
Tc=5.0 min CN=96.29 Runoff=1.78 cfs 5,965 cf

Subcatchment 23: PR. SOUTH-2 BASIN Runoff Area=8,852 sf 94.84% Impervious Runoff Depth>6.28"
Tc=5.0 min CN=97.28 Runoff=1.36 cfs 4,634 cf

Subcatchment 25: PR. EAST BASIN Runoff Area=1,251 sf 0.00% Impervious Runoff Depth>4.77"
Tc=5.0 min CN=84.00 Runoff=0.16 cfs 497 cf

Subcatchment 27: PR. NORTH BASIN Runoff Area=775 sf 27.48% Impervious Runoff Depth>5.19"
Tc=5.0 min CN=87.85 Runoff=0.11 cfs 335 cf

Pond 62: BMP-1 - 48" CONC GALS Peak Elev=14.12' Storage=2,559 cf Inflow=2.80 cfs 8,978 cf
Outflow=2.80 cfs 6,915 cf

Pond 63: BMP-2 - 48" CONC GALS Peak Elev=17.00' Storage=1,912 cf Inflow=1.36 cfs 4,634 cf
Outflow=1.12 cfs 3,014 cf

Link 91: EX. SOUTH OUT Inflow=7.30 cfs 24,213 cf
Primary=7.30 cfs 24,213 cf

Link 92: PR. SOUTH OUT Inflow=7.12 cfs 21,490 cf
Primary=7.12 cfs 21,490 cf

Link 95: EX, EAST OUT Inflow=0.18 cfs 538 cf
Primary=0.18 cfs 538 cf

Link 96: PR. EAST OUT Inflow=0.16 cfs 497 cf
Primary=0.16 cfs 497 cf

Link 97: EX, NORTH OUT Inflow=0.12 cfs 418 cf
Primary=0.12 cfs 418 cf

Link 98: PR. NORTH OUT Inflow=0.11 cfs 335 cf
Primary=0.11 cfs 335 cf

Total Runoff Area = 100,474 sf Runoff Volume = 51,175 cf Average Runoff Depth = 6.11"
15.55% Pervious = 15,621 sf 84.45% Impervious = 84,853 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=48,082 sf 80.34% Impervious Runoff Depth>6.90"
Tc=5.0 min CN=95.25 Runoff=8.28 cfs 27,641 cf

Subcatchment 15: EX. EAST BASIN Runoff Area=1,354 sf 0.00% Impervious Runoff Depth>5.58"
Tc=5.0 min CN=84.00 Runoff=0.21 cfs 630 cf

Subcatchment 17: EX. NORTH BASIN Runoff Area=801 sf 93.51% Impervious Runoff Depth>7.12"
Tc=5.0 min CN=97.09 Runoff=0.14 cfs 475 cf

Subcatchment 21: PR. SOUTH BYPASS Runoff Area=27,749 sf 96.14% Impervious Runoff Depth>7.16"
Tc=5.0 min CN=97.46 Runoff=4.83 cfs 16,560 cf

Subcatchment 22: PR. SOUTH-1 BASIN Runoff Area=11,610 sf 87.75% Impervious Runoff Depth>7.02"
Tc=5.0 min CN=96.29 Runoff=2.01 cfs 6,794 cf

Subcatchment 23: PR. SOUTH-2 BASIN Runoff Area=8,852 sf 94.84% Impervious Runoff Depth>7.14"
Tc=5.0 min CN=97.28 Runoff=1.54 cfs 5,267 cf

Subcatchment 25: PR. EAST BASIN Runoff Area=1,251 sf 0.00% Impervious Runoff Depth>5.58"
Tc=5.0 min CN=84.00 Runoff=0.19 cfs 582 cf

Subcatchment 27: PR. NORTH BASIN Runoff Area=775 sf 27.48% Impervious Runoff Depth>6.03"
Tc=5.0 min CN=87.85 Runoff=0.12 cfs 389 cf

Pond 62: BMP-1 - 48" CONC GALS Peak Elev=14.16' Storage=2,561 cf Inflow=3.17 cfs 10,438 cf
Outflow=3.16 cfs 8,373 cf

Pond 63: BMP-2 - 48" CONC GALS Peak Elev=17.11' Storage=1,957 cf Inflow=1.54 cfs 5,267 cf
Outflow=1.29 cfs 3,645 cf

Link 91: EX. SOUTH OUT Inflow=8.28 cfs 27,641 cf
Primary=8.28 cfs 27,641 cf

Link 92: PR. SOUTH OUT Inflow=7.97 cfs 24,933 cf
Primary=7.97 cfs 24,933 cf

Link 95: EX, EAST OUT Inflow=0.21 cfs 630 cf
Primary=0.21 cfs 630 cf

Link 96: PR. EAST OUT Inflow=0.19 cfs 582 cf
Primary=0.19 cfs 582 cf

Link 97: EX, NORTH OUT Inflow=0.14 cfs 475 cf
Primary=0.14 cfs 475 cf

Link 98: PR. NORTH OUT Inflow=0.12 cfs 389 cf
Primary=0.12 cfs 389 cf

Total Runoff Area = 100,474 sf Runoff Volume = 58,339 cf Average Runoff Depth = 6.97"
15.55% Pervious = 15,621 sf 84.45% Impervious = 84,853 sf

APPENDIX – C

Water Quality Volume Calculation

Project: 819 East Main St, Stamford, CT | **Date:** 02/03/2022

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

Proposed Conditions of Whole Site	Area=	1.1533	acres
	Impervious Area=	1.0439	acres
	I=	90.5%	[a]
	R=	0.865	[b]
	WQV=	0.0831	ac. ft. [c]
	WQV=	3,620	$ft.^3$

***Required WQV=**	**3,620 $ft.^3$**

* Retainage of **full 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 ttaken from 2004 Connecticut Stormwater Quality Manual section 7.4.1

Drawdown Calculations (72 hours max.)

$$TIME_{drawdown} = Vol / (K * SA_{bot})$$

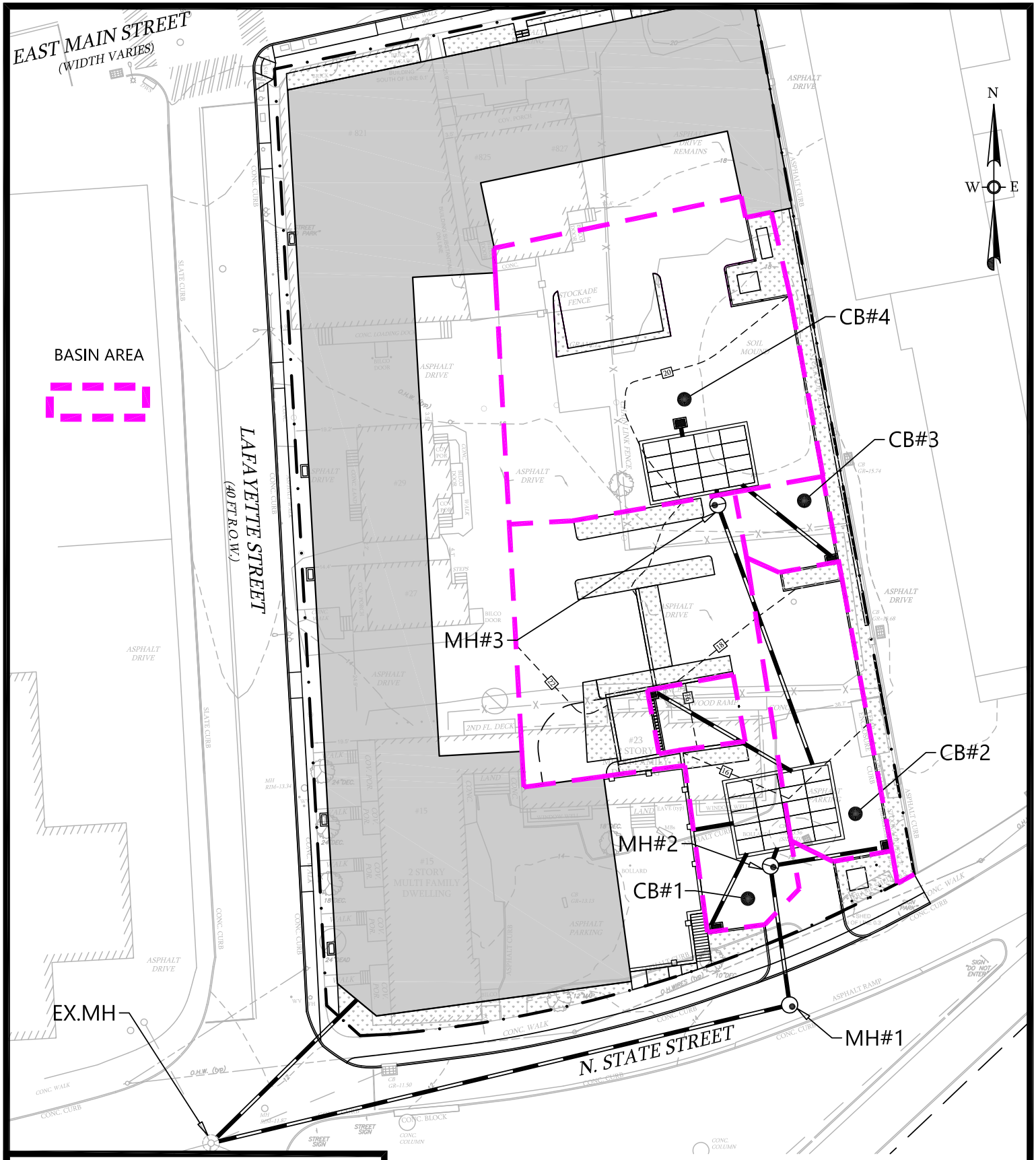
Refer to City of Stamford Stormwater Drainage Manual dated 6/10/2020 section 5.5 for Drawdown Analysis

* Volume of Infiltraton Storage is the total storage capacity at the weir outfall elevation.

	BMP - 1 - 48" PRECAST GALLERIES		
Volume of Infiltration Storage	* Vol =	2,556	cubic feet
Infiltration Rate BH#3 (2x Factor of Safety)	K =	8.60	inches per hour
Bottom Surface Area of Infiltration Storage	SA_{bot} =	833	square feet
	$TIME_{drawdown}$ =	4.28	hours

	BMP - 2 - 48" PRECAST GALLERIES		
Volume of Infiltration Storage	* Vol =	2,010	cubic feet
Infiltration Rate BH#1 (2x Factor of Safety)	K =	5.10	inches per hour
Bottom Surface Area of Infiltration Storage	SA_{bot} =	680	square feet
	$TIME_{drawdown}$ =	6.96	hours

APPENDIX – D



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CIVIL ENGINEERING
PERMITTING

DRAINAGE PIPE CONVEYANCE EXHIBIT
PREPARED FOR
819 EAST MAIN STREET
STAMFORD, CT

CONVEY-EXH

DATE: 2/03/2022

SCALE: 1"=40'
0 40

Conveyance Calculations

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

ROOF to EX.MH

Basin Description				Drainage Path				Q = ACI (cfs)		
Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q_{25}
0.572	0.95	Impervious	0.543							
0.000	0.30	Pervious	0.000							
0.572		Total	0.543					5	7.6	4.13

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 $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$
4.13	12	60	0.011	PVC	0.0150	5.17	79.9%	

MH#1 to EX.MH

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					HydroCAD Report		2.80

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 $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$
2.80	12	180	0.011	PVC	0.0100	4.22	66.3%	

MH#2to MH#1

Basin Description				Drainage Path				Q = ACI (cfs)		
Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q_{25}
0.000	0.95	Impervious	0.000							
0.000	0.30	Pervious	0.000							
0.000		Total	0.000					HydroCAD Report		2.80

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 $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$
2.80	12	40	0.011	PVC	0.020	5.97	46.9%	

Conveyance Calculations

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

MH#3 to BMP-1

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					HydroCAD Report		1.12

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 $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$
1.12	12	85	0.011	PVC	0.035	7.90	14.2%	

CB#1 to BMP-1

Basin Description				Drainage Path				Q = ACI (cfs)		
Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q_{25}
0.120	0.95	Impervious	0.114							
0.031	0.30	Pervious	0.009							
0.151		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	10	25	0.011	PVC	0.020	3.67	25.5%	

CB#2 to MH#2

Basin Description				Drainage Path				Q = ACI (cfs)		
Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q_{25}
0.058	0.95	Impervious	0.055							
0.002	0.30	Pervious	0.001							
0.060		Total	0.056					5	7.6	0.42

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 $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$
0.42	10	32	0.011	PVC	0.020	3.67	11.6%	

Conveyance Calculations

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

TD#1 to BMP-1

Basin Description				Drainage Path				Q = ACI (cfs)		
Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q_{25}
0.013	0.95	Impervious	0.012							
0.000	0.30	Pervious	0.000							
0.013		Total	0.012					5	7.6	0.09

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 $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$
0.09	10	48	0.011	PVC	0.020	3.67	2.5%	

CB#3 to BMP-2

Basin Description				Drainage Path				Q = ACI (cfs)		
Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q_{25}
0.016	0.95	Impervious	0.016							
0.000	0.30	Pervious	0.000							
0.016		Total	0.016					5	7.6	0.12

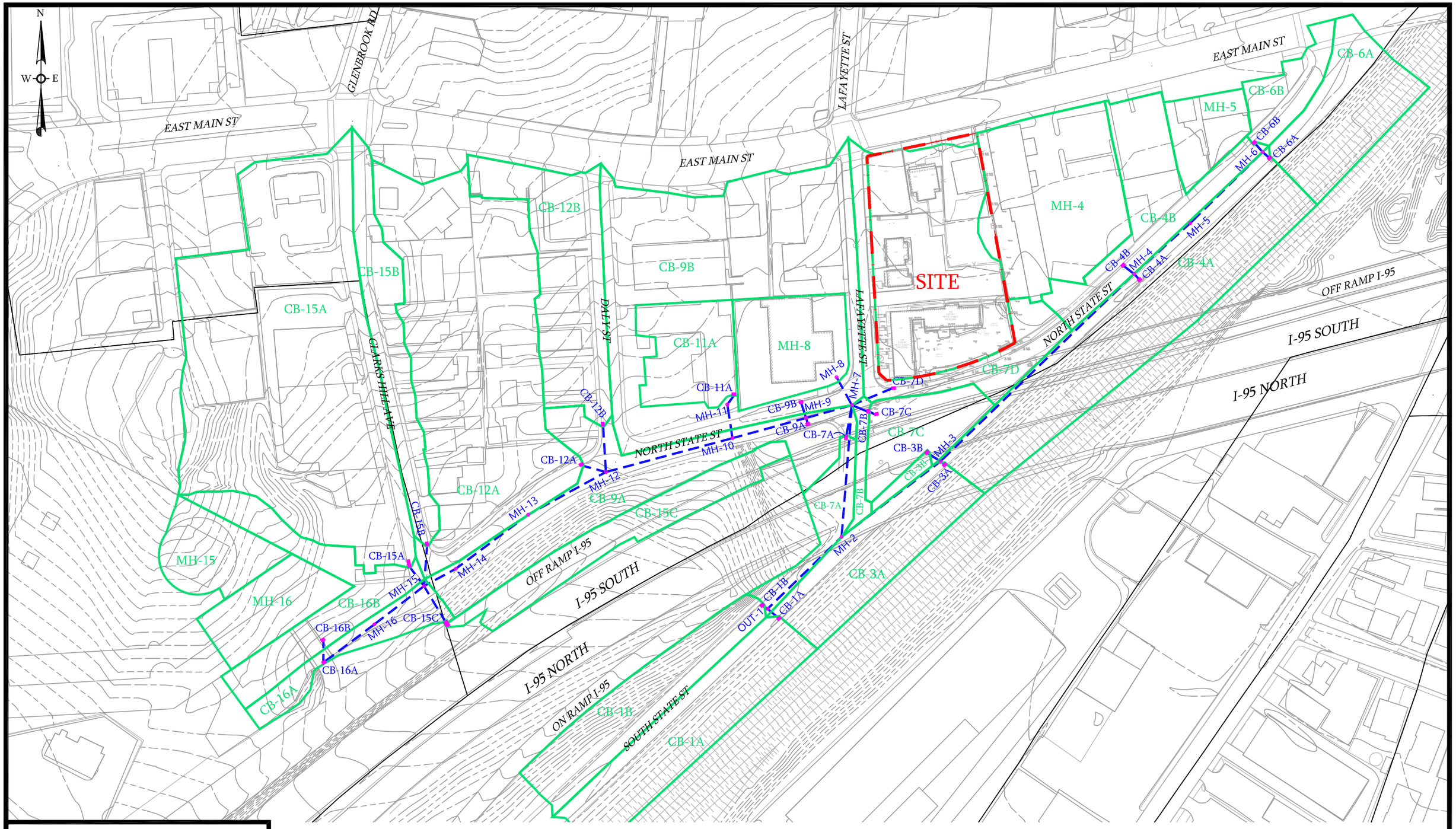
Q_{25} (cfs)	Pipe Size (inches)	Pipe Length (feet)	Roughness Coefficient (n)	Material	Slope (ft/ft)	Q_{full} (cfs)	Q_{25} / Q_{full} (%)	Pipe Flow Capacity per the Mannings Equation $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$
0.12	10	35	0.011	PVC	0.010	2.60	4.6%	

CB#4 to BMP-2

Basin Description				Drainage Path				Q = ACI (cfs)		
Acres	C	Description	AC	Length	ΔH	Slope %	Description	Time (min)	Intensity (in/hr)	Q_{25}
0.176	0.95	Impervious	0.167							
0.011	0.30	Pervious	0.003							
0.187		Total	0.171					5	7.6	1.30

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 $Q_{full}=(1.49/n)*A*S^{1/2}*R^{2/3}$
1.30	10	3	0.011	PVC	0.033	4.72	27.5%	

APPENDIX – E



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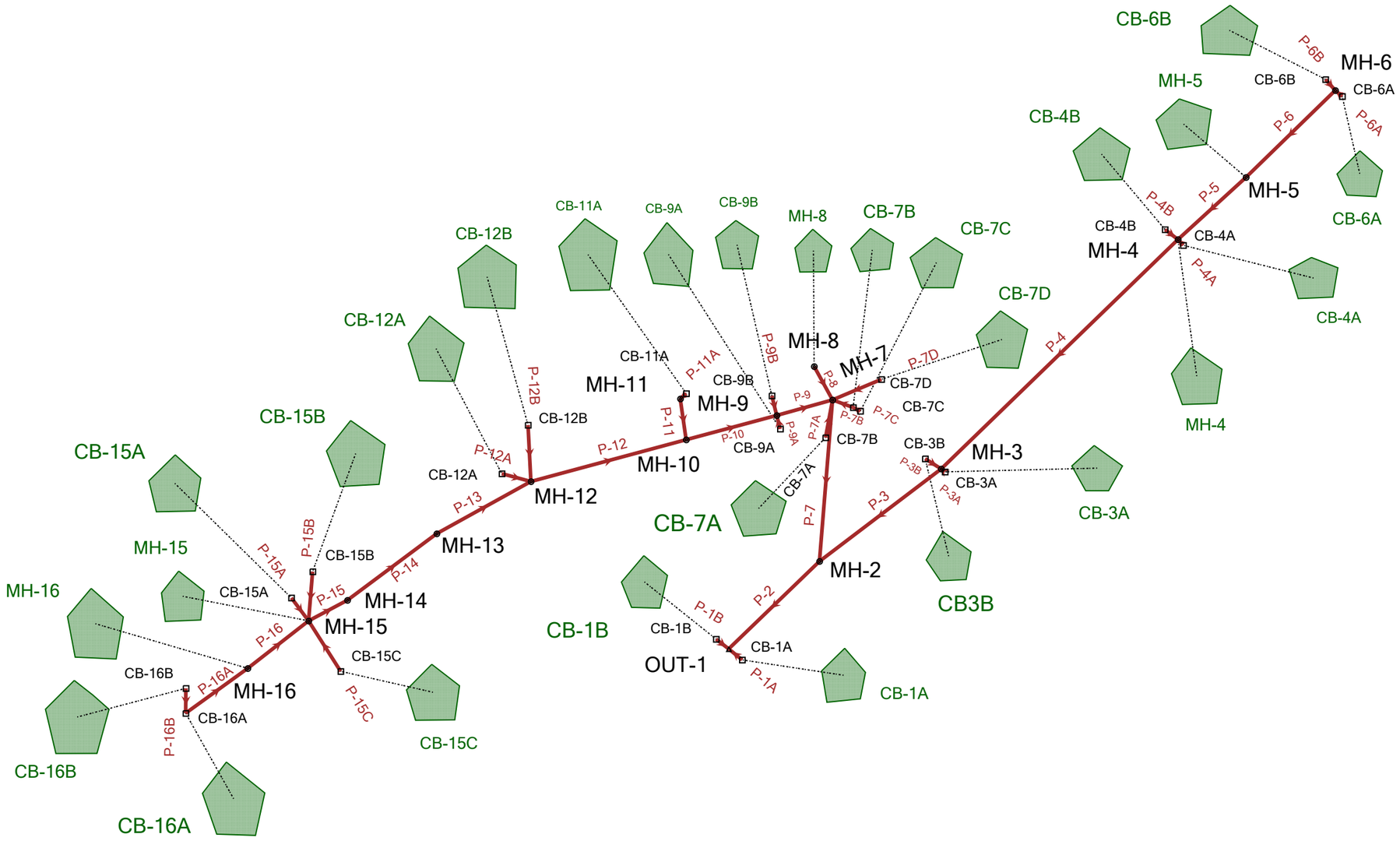
LAND SURVEYING
CIVIL ENGINEERING
PERMITTING

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

DR-EX-OFFSITE

SCALE: 1"=120' 0 120
DATE: 2/03/2022
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	23.46	6.84	17.48	7.40	5.40	134.0	0.011	24.0	Concrete	78.31	23.45	24.93
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	30.45	7.65	16.64	16.64	7.05	172.0	0.003	24.0	Concrete	64.11	13.36	20.41
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	11.86	8.50	11.75	11.75	8.05	5.0	0.090	15.0	Concrete	9.67	19.38	7.88
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 (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	9.67	7.30	9.67	6.50	True	0.885	16,776.9	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	78.31	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	64.11	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

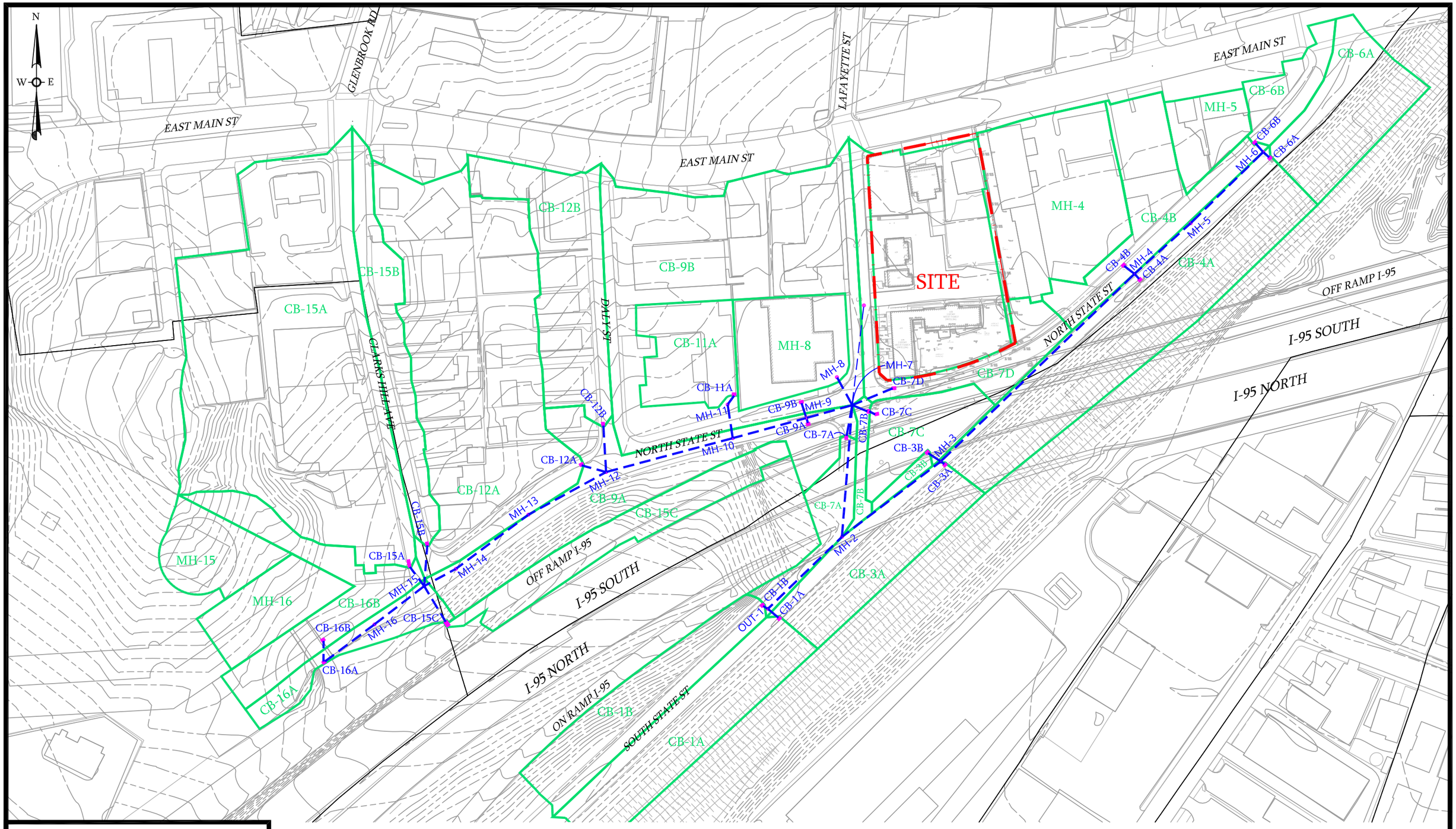
FlexTable: Outfall Table

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	83.61	

FlexTable: Catchment Table

Outflow Element	Area (User Defined) (ft²)	Runoff Coefficient (Rational)	Catchment CA (ft²)	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	18,957.0	0.885	16,776.9	10.000	2.37	
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



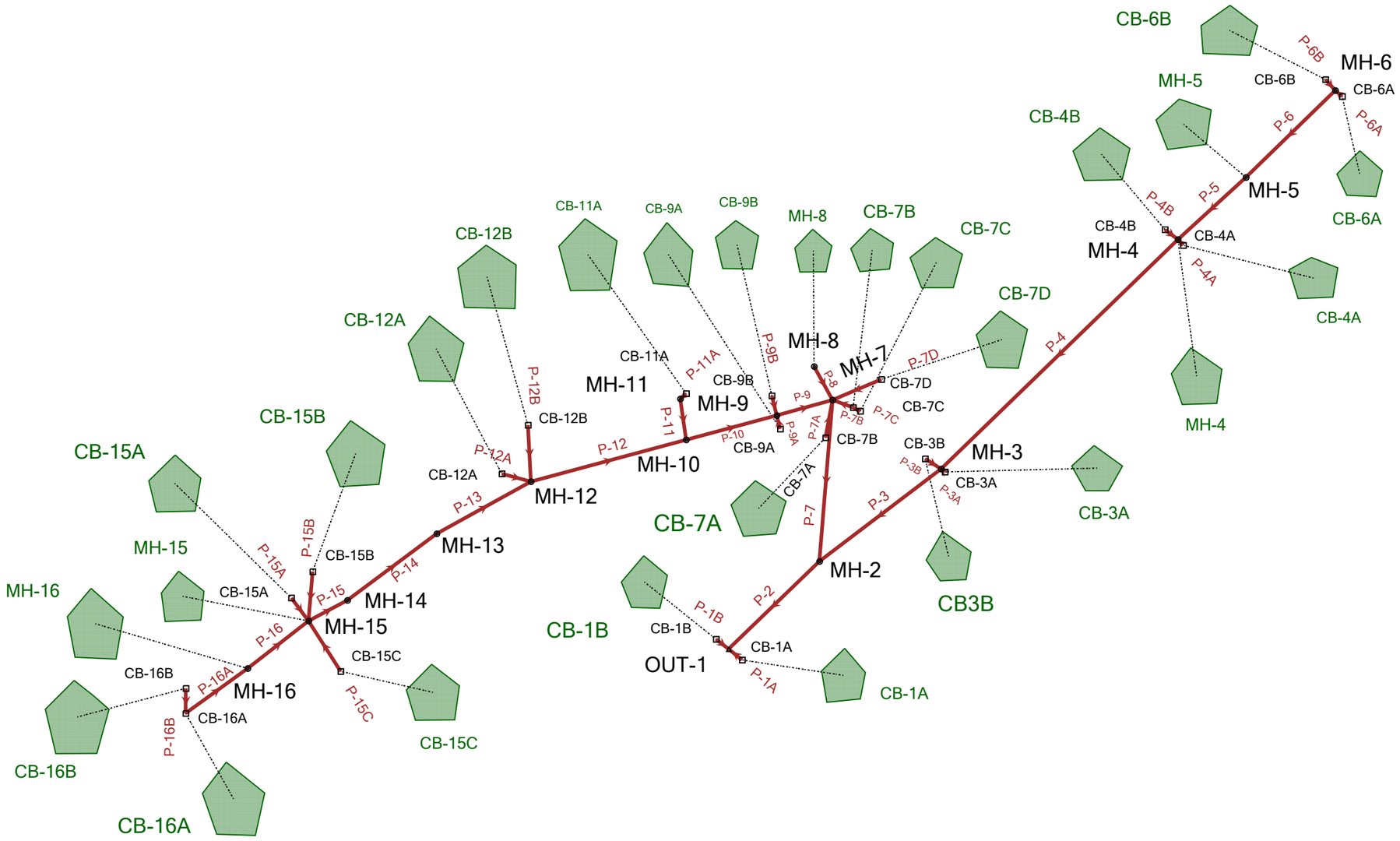
DiMARZO & BERECZKY
191 LLOYD DRIVE
FAIRFIELD, CT 06825
203.857.4110
LAND SURVEYING
CIVIL ENGINEERING
PERMITTING

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

DR-PR-OFFSITE

SCALE: 1"=120' 0 120
DATE: 2/03/2022
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	23.38	6.84	17.48	7.40	5.40	134.0	0.011	24.0	Concrete	78.12	23.45	24.87
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	10.01
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	23.54	8.90	15.50	15.50	7.50	355.0	0.004	18.0	Concrete	15.81	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	30.38	7.65	16.64	16.64	7.05	172.0	0.003	24.0	Concrete	63.93	13.36	20.35
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	11.76	8.50	11.75	11.75	8.05	5.0	0.090	15.0	Concrete	2.37	19.38	1.93
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	2.37	0.00	2.37	6.50	True	0.885	16,776.9	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	78.12	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	15.81	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	7.12	63.93	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	83.42	

FlexTable: Catchment Table

Outflow Element	Area (User Defined) (ft²)	Runoff Coefficient (Rational)	Catchment CA (ft²)	Time of Concentration (min)	Flow (Total Out) (cfs)	Notes
MH-4	40,081.0	0.853	34,169.1	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	18,957.0	0.885	16,776.9	10.000	2.37	
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 + 15, 27 & 29 LAFAYETTE STREET
Project Applicant	819 EAST MAIN STREET, LLC
Title of Plan	Site Plan depicting 821, 825, 827 & 831 East Main St, 15, 27, & 29 Lafayette St, Stamford, CT
Revision Date of Plan	2/03/2022
Tax Account Number	001-7666, 002-5499, 000-4640, 000-4639, 001-1420, 001-7662, 001-7663

Part 2: Project Details (All Projects)

1. What type of development is this? (choose from dropdown)	Development	
2. What is the total area of the project site?	50,237	ft^2
3. What is the total area of land disturbance for this project?	50,237	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 current (pre-development) ***DCIA*** for the site?	39,380	ft^2
6. Will the proposed development increase ***DCIA*** (without consideration of proposed stormwater management)? (Yes/No)	YES	
7. What is the proposed-development ***total impervious area*** for the site?	45,473	ft^2
Water Quality Volume (WQV)	3,620	ft^3
Standard 1 requirement	RETAIN FULL W.Q.V.	
Required treatment/retention volume	3,620	ft^3
Provided treatment/retention volume for proposed development	3,669	ft^3

Part 4: Proposed DCIA Tracking (Only for Standard 1 Projects)

Pre-development ***total impervious area***	39,380	ft^2
Current ***DCIA***	39,380	ft^2
Proposed-development ***total impervious area***	45,473	ft^2
Proposed-development ***DCIA*** (after stormwater management)	31,672	ft^2
Net change in ***DCIA*** from current to proposed-development	-7,708	ft^2

Part 5: Post-Development (As-Built Certified) DCIA Tracking (Only for Standard 1 Projects)

Post-development (per as-built) ***total impervious area***		ft^2
Post-development (per as-built) ***DCIA*** (after stormwater management)		ft^2
Net change in ***DCIA*** from current to post-development		ft^2

Certification Statement

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

Engineer's Signature L DM Date 2/03/2022 Engineer's Seal

STATE OF CONNECTICUT LOUIS DIMARZO LICENSED PROFESSIONAL ENGINEER NO. 00268

APPENDIX – H

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

CHECKLISTS

Project Name: 819 EAST MAIN STREET

Project Address 821, 825, 827 & 831 EAST MAIN STREET + 15, 27 & 29 LAFAYETTE STREET

Property Owner(s) 819 EAST MAIN STREET, LLC

Tax Account Number(s) 001-7666, 002-5499, 000-4640, 000-4639, 001-1420, 001-7662, 001-7663

Engineer's Signature _____ Date: 02/03/2022

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

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

Checklist for Existing Conditions Plan

I. General Information

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

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II. Existing Conditions Plan Elements

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

III. Resource Areas

N/A		Show and label limits of inland wetlands, tidal wetlands and any associated setbacks.
	✓	Show and label existing natural site features including tree canopy, outcroppings, permanent and intermittent watercourses, waterbodies, streams
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)

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Checklist for Stormwater Management Report

I. Project Report

A. Applicant / Site Information

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

B. Project Description and Purpose

✓	Project description including proposed project elements and anticipated construction schedule

C. Existing Conditions Description

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

E. Project Type in Accordance with Standard 1 Definitions

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

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F. Summary of LID Site Constraints

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

✓	Description of proposed stormwater management system
✓	Pre-development site hydrology with delineation of each watershed area and sub-basin
✓	Post-development site hydrology with delineation of each watershed area and sub-basin
✓	Comparison table of pre- and post-development hydrology, peak flow, volume, and percent difference
✓	Summary table of watershed areas and sub-basin areas, time of concentration and runoff coefficients
N.A.	Summary table demonstrating the 2-year, 24-hour post development peak flow rate is less than or equal to the lowest of either: - The pre-development 1-year, 24-hour storm peak flow rate - 50 percent of the pre-development 2-year, 24-hour storm peak flow rate
✓	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

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J. Summary of Compliance with Applicable Drainage Facility Design Requirements

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

K. Stormwater Management Report

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

II. Supporting Calculations (as appendix to Project Report)

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

L. Water Quality Volume / Water Quality Flow Calculations

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

M. Stormwater Treatment Practice Sizing Calculations

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

N. Hydrologic and Hydraulic Design Calculations

N.A.		Stream channel protection, Standard 2A
	✓	Conveyance protection, Standard 2B
	✓	Peak flow control (1-year, 2-year, 5-year, 10-year, 25-year, and 50-year storms), Standard 2C
N.A.		Inlet analysis
N.A.		Gutter flow (Site by site basis as requested by Engineering Bureau)
	✓	Storm sewers and culverts (velocities, capacity, hydraulics)
	✓	Hydraulic grade line required when pipe is flowing at full capacity o Provide existing and proposed summary table o Provide existing and proposed mapping, label structures
	✓	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)

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O. Hydrologic and Hydraulic Model, Existing and Proposed

✓	Drainage routing diagram
✓	Summary
✓	Storage pond input

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

✓	Downstream analysis, Standard 2E

III. Supporting Mapping (as appendix to Project Report)

Q. Pre-Development Drainage Basin Area Mapping

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

R. Post-Development Drainage Basin Area Mapping

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

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

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

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V. Proposed LID Review Map

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

A. General

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

B. LID Constraints:

✓	Boring / test pit locations
✓	Infiltration testing locations and results
✓	Vegetation and proposed limits of clearing / disturbance
✓	NRCS soils mapping
✓	Steep slopes
N.A.	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
N.A.	Other site constraints (e.g. brownfield caps)

C. Proposed Stormwater Treatment Measures:

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

D. Site Summary Table:

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

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Checklist for Stormwater Management Plan / Construction Plans

A. General

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

B. Site Development Plans

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

C. Erosion and Sedimentation Control Plan

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

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D. Construction Details

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

Checklist for Certificate of Occupancy

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

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

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

APPENDIX – I

CITY OF STAMFORD
OFFICE OF OPERATIONS
BUREAU OF ENGINEERING

WAIVER COVERING STORM SEWER CONNECTION

WHEREAS, the CITY OF STAMFORD has granted to the undersigned, the privilege to connect with the City-owned storm water sewer located on _____Street and being in the vicinity of property owned by undersigned, at _____Street, Stamford, Connecticut and which privilege of connecting with said storm water sewer and has been or shall be at the expense of the undersigned.

NOW, THEREFORE, I _____ of, the CITY OF STAMFORD, COUNTY OF FAIRFIELD AND STATE OF CONNECTICUT, the undersigned, owning property located at_____Street, Stamford, Connecticut for and in consideration of the privilege heretofore granted to me to connect with the storm water system of the City of Stamford, do hereby expressly waive any and all claims for damages after such connection has been made arising from the backing up of any water from said storm sewer onto my property or for failure of said storm water sewer to absorb any water origination on my said land or for the stoppage, failure or faulty construction of said storm water sewer where I have connected with the same or any part of the entire system, or for any other reason.

AND FURTHERMORE, I do hereby agree to hold the said City of Stamford free and harmless from any liability as aforesaid or from any suit or claim arising under the circumstances above stated, or from any suit or claim presented by any person claiming by, under or through me.

In the Present of:

_____(L.S.)

DATE_____

STATE OF CONNECTICUT)
) ss.Stamford
COUNTY OF FAIRFIELD)

Personally appeared signer and sealer of the foregoing instrument and acknowledged the same to be free act and deed, before me.

_____

Notary Public

Date_____

Block _____

AGREEMENT COVENANT

AGREEMENT made this _____ by and between _____ 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"), and the **ENVIRONMENTAL PROTECTION BOARD OF THE CITY OF STAMFORD,** acting herein by its duly authorized Chairman, Gary H. Stone (hereinafter referred to as the "EPB").

WITNESSETH:

WHEREAS, OWNER has commenced the planning and construction of _____ on a parcel of land owned by them and as more particularly described on Schedule "A", attached hereto and made a part hereof (the "Property").

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

WITNESSED:

_____ **THE CITY OF STAMFORD**

_____ BY: _____
David R. Martin
Its duly authorized Mayor

_____ **THE ENVIRONMENTAL PROTECTION BOARD**

_____ BY: _____
Gary H. Stone
Its duly authorized Chairman

_____ **OWNER**

BY: _____

_____

(Owner's Name)

(Acknowledgement on the Following Page)

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

Personally appeared 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 acknowledged the same to be_____free act and deed, before me.

_____
Commissioner of the Superior Court
or Notary Public

SCHEDULE "A"

SCHEDULE "B"