



## **Trinkaus Engineering, LLC**

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August 19, 2020

### Stormwater Management Report – 1116 Hope Street – Stamford, Connecticut

#### Existing Site Conditions:

There is a single-family residence with a driveway and detached garage located in the northern portion of the site. There is also a church, which is no longer used as a church, and daycare facility on the site. A large, paved parking area is located along the entire western property line.

#### Proposed Conditions:

The single-family residence, driveway and garage will be removed. A portion of the western parking area will also be eliminated. A new apartment building will be constructed in the northwest corner of the site and the existing church building will be converted to residential apartments.

The western parking area will be restriped, and a small new parking area will be constructed in the northeast corner of the site off Hope Street. New walkways will be constructed to provide walking access between the existing and proposed buildings.

Overall, the impervious cover on the site will be reduced from 23,194 square feet to 21,3070 square feet, which is a reduction of 1,894 square feet. As there is a reduction in the impervious area on the site, this project is exempt from the requirements found in the recently adopted City of Stamford Drainage Manual.

#### Stormwater Management System:

A simple stormwater management system consisting of either standard catch basins or yard drains will be used to collect runoff from the new parking area and regraded areas and convey it to the easternmost of two 30” RCPs which are located along the western property line.

The hydrologic analyses were performed using HydroCAD software and the TR-55 Methodology to confirm the capacity of the proposed stormwater management system. The NOAA 14 data for the twenty-five-year storm event was used.

## Yard Drain #1

### Summary for Subcatchment 4S: YD#1

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Depth> 4.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span=0.00-24.00 hrs, dt=0.05 hrs  
Type III 24-hr 25-year Rainfall=6.67"

Area (sf)	CN	Adj	Description
800	79		50-75% Grass cover, Fair, HSGC
200	98		Unconnected pavement, HSGC
1,000	83	81	Weighted Average, UJ Adjusted
800			80.00% Pervious Area
200			20.00% Impervious Area
200			100.00% Unconnected

  

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

## Yard Drain #3

### Summary for Subcatchment 1S: YD#3

Runoff = 0.13 cfs @ 12.09 hrs, Volume= 0.010 af, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span=0.00-24.00 hrs, dt=0.05 hrs  
Type III 24-hr 25-year Rainfall=6.67"

Area (sf)	CN	Description
1,196	79	50-75% Grass cover, Fair, HSGC
1,196		100.00% Pervious Area

  

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	52	0.1500	0.34		<b>Sheet Flow,</b> Grass: Short n=0.150 P2=3.33"
3.5					<b>Direct Entry,</b>
6.0	52	Total			

## Yard Drain #4

### Summary for Subcatchment 2S: YD#4

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span=0.00-24.00 hrs, dt=0.05 hrs  
Type III 24-hr 25-year Rainfall=6.67"

Area (sf)	CN	Description
1,798	79	50-75% Grass cover, Fair, HSGC
1,798		100.00% Pervious Area

  

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	49	0.1600	0.35		Sheet Flow, Grass: Short n=0.150 P2= 3.33"
3.6					Direct Entry,
6.0	49	Total			

## Catch Basin #A

### Summary for Subcatchment 3S: CB#A

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 0.023 af, Depth> 6.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span=0.00-24.00 hrs, dt=0.05 hrs  
Type III 24-hr 25-year Rainfall=6.67"

Area (sf)	CN	Description
1,831	98	Roofs, HSGC
1,831		100.00% Impervious Area

  

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

Water Surface Elevation in Each Structure

Yard Drain #1

Rim = 83.50'

WS = 81.20'

Yard Drain #2

Rim = 84.20'

WS = 80.22'

Yard Drain #3

Rim = 93.37'

WS = 92.19'

Yard Drain #4

Rim = 92.74'

WS = 91.84'

Catch Basin "A"

Rim = 98.00'

WS = 94.24'

Yard Drain #5

Rim = 94.00'

WS = 91.84'

Manhole "B"

Rim = 88.00'

WS = 80.36'

Conclusion:

The proposed on-site stormwater management will easily convey the runoff generated by the twenty-year rainfall event to the existing 30" RCP.

Respectfully Submitted,  
Trinkaus Engineering, LLC



Steven D. Trinkaus, PE