Wilde Subaru Waukesha

1570 E Moreland Blvd
Waukesha, WI

PREPARED FOR
Lithia Motors, Inc
150 N. Bartlett St
Medford, OR 97501

PREPARED BY

THE SIGMA GROUP
Single Source. Sound Solutions.

Project Number – 21736
2023/10/20

Michael Garner, E.I.T.
Project Engineer

Terry Meyer, P.E.
Senior Engineer

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Appendices

List of Figures

1. Introduction

This Storm Water Management memo presents the design calculations and considerations for the proposed development located at 1570 E Moreland Blvd Waukesha, WI. The proposed development encompasses approximately 4.49 acres. This storm water management report serves as a summary of calculations showing the proposed development meets all applicable ordinances.

2. Design Criteria

City of Waukesha Municipal Code Chapter 32

Water Quality

- Total Suspended Solids. BMPs shall be designed, installed, and maintained to control total suspended solids carried in runoff from the post-construction site as follows:
    - For redevelopment, 40% reduction of total suspended solids load from parking areas and roads.

Water Quantity and Management of Peak Runoff

- BMPs shall be designed, installed, and maintained to control the runoff rate (CFS) discharge from the post-construction site as follows:
    - The calculated post-development peak storm water discharge rate shall not exceed the calculated pre-development discharge rates for the 1-year, 2-year, 10-year, and 100-year, 24-hour design storms.

Wisconsin Department of Natural Resources

- WDNR – Technical Standards (NR151 and NR216)

3. Design Analysis

- Rainfall data used in the hydrologic analysis were obtained from the NOAA Atlas 14 precipitation depths, and the appropriate NRCS Wisconsin MSE3 precipitation distribution for 24 hour duration (1-yr, 2-yr, 10-yr, and 100-yr storm events).

1 year	2 year	10 year	100 year
2.40”	2.70”	3.81”	6.18”

- Curve numbers for the soils within the analysis region were selected from the values published in TR-55. Native soil types were determined from NRCS maps and borings.
- Time of concentration values were calculated based on the standard TR-55 method.
- The hydraulic calculations and analysis presented in this report were performed using HydroCad Watershed Modeling software which utilizes the methodologies of TR-55 for a hydrograph based analysis of watershed conditions. Hydrographs were developed using a standard MSE-3 24 hour hydrograph for the various 24-hr storm events.
- Sediment reduction characteristics for the proposed water quality facilities were determined using WinSLAMM (Version 10.3.4) Source Loading and Management Model.

4. Existing Condition Analysis

The existing site is located on the northwest corner of the intersection of E Moreland Blvd and Manhattan Drive in the City of Waukesha, WI. The existing site currently contains four commercial buildings with associated car parking areas and access driveways. The current addresses for these buildings are 1530, 1538, 1560, & 1570 E Moreland Blvd and 1733 Manhattan Drive. The existing site is

4.48 acres in size, with 3.72 of this area consisting of impervious surfaces. Based on NRCS soils mapping the site consists entirely of loamy land soils with a hydrologic soil group rating of D.

The site generally drains from south to north and from east to west. There are 4 existing drainage areas on site that each correspond to different outfall points where stormwater runoff will exit the site. Existing Drainage Area 1 (see figure SW 1.0) consists of 2.698 acres of the site that drains to the Manhattan Drive storm sewer system. Drainage Area 2 consists of 0.52 acres that drains to the Moreland Boulevard storm sewer system. Drainage Area 3 consists of 0.95 acres that also enters the Moreland Boulevard storm sewer system. Drainage Area 4 consists of greenspace at the far north of the site that will drain directly offsite to the north without entering any storm sewer. The existing storm sewer systems in Manhattan Drive and Moreland Boulevard both outfall to the Fox River.

5. Proposed Developed Conditions Description

The proposed site will include the construction of a 50,170 square foot car dealership building. The proposed site will also include the construction of car parking areas and access driveways. The proposed impervious area for the site is 3.75 acres, which results in a 0.03 acre increase in the overall impervious area for the site. Porous pavement will be constructed at the northwest corner of the site to allow for peak flow and total suspended solids reduction for the west side of the proposed site. Catch basins with Upflow Filters will be utilized in the proposed storm sewer system to allow for total suspended solids reduction for the south side of the site.

6. Storm Water Quantity Modeling

A summary of results can be viewed in the table below:

Storm Frequency	Pre-Development Site Conditions	Post-Development Site Conditions
Year	Peak Flow (cfs)	Peak Flow (cfs)
1	14.08	12.35
2	16.07	14.13
10	23.39	20.69
100	38.95	34.42

7. Storm Water Quality Modeling

NR 151 regulations require that the project employ BMPs to reduce sediment load leaving the site by 40% compared to no controls.

Quality Summary Table

Total Suspended Solids Loading	
Total TSS prior to controls/treatment	1580 lbs
Total TSS After controls/treatment	935 lbs
Total Percent TSS Reduction	40.82%

8. Storm Sewer Sizing

The proposed storm sewer piping has been sized to convey the 100-year storm event with no surcharge to the top of the structure.

9. Conclusion

The proposed stormwater management plan meets the requirements of the local municipality, WDNR, and other regulatory bodies through the implementation of best management practices described within this report to the greatest extent practicable.

10. Maintenance Plan

The Owner will be responsible for the regular inspection of the storm water management facilities to ensure that they are functioning properly and the Owner will be required to enter into a storm water maintenance agreement with the City. A draft storm water maintenance agreement including a listing of inspection and maintenance activities with frequencies included in Appendix D.

Appendix A Site Location Map

Surface Water Data Viewer Map

Legend

- County Boundary
- Cities, Towns & Villages
  - City
  - Village
  - Civil Town
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Railroads
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water

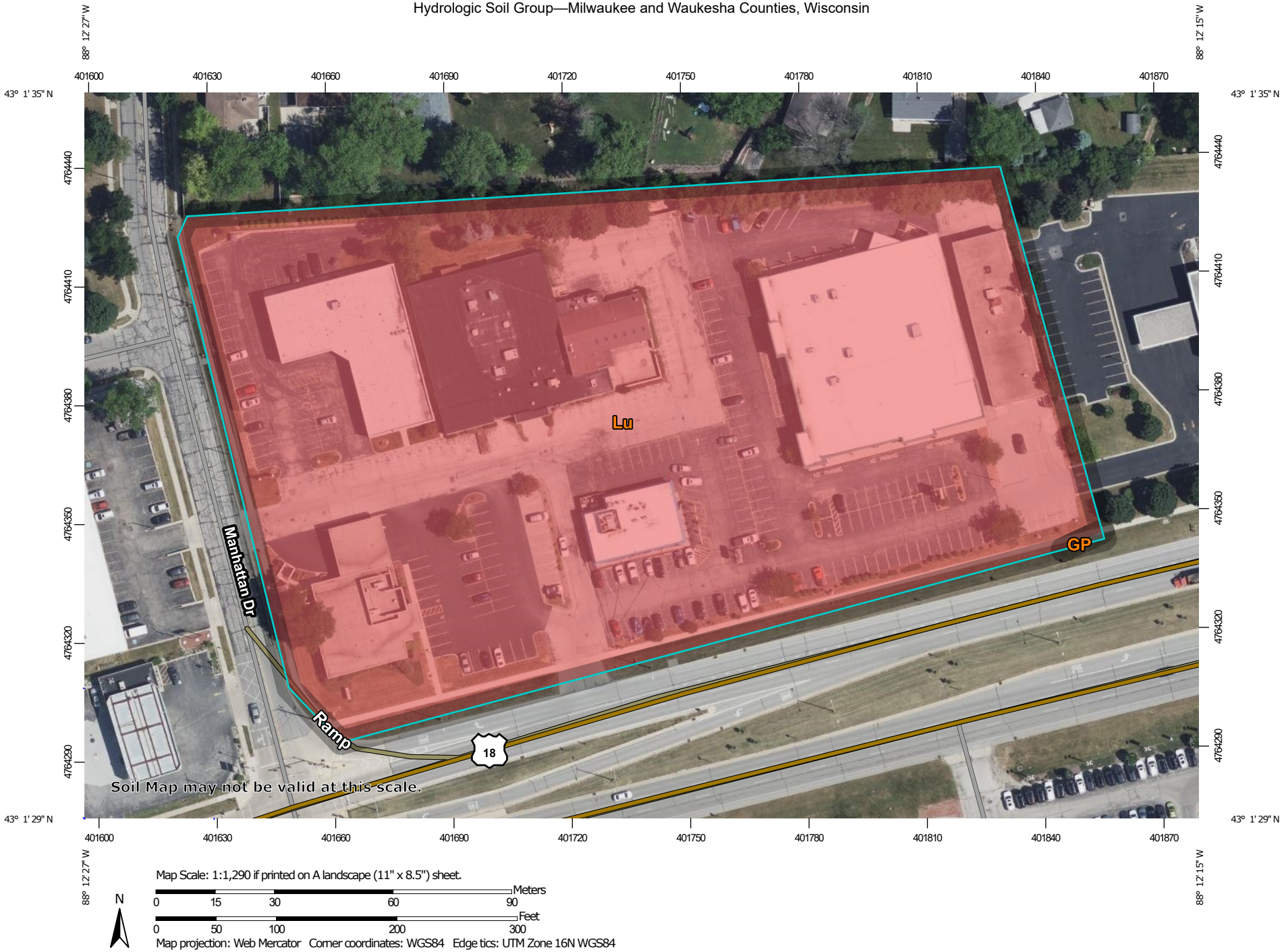
0.1 0 0.06 0.1 Miles

1: 3,960

NAD_1983_HARN_Wisconsin_TM

Notes

Appendix B NRCS Soils Map



Map Scale: 1:1,290 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N 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 1:15,800.

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: Milwaukee and Waukesha Counties, Wisconsin
Survey Area Data: Version 18, Sep 7, 2022

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

Date(s) aerial images were photographed: May 20, 2020—Aug 20, 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
GP	Gravel pit		0.0	0.0%
Lu	Loamy land	D	6.1	100.0%
Totals for Area of Interest			**6.1**	**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.

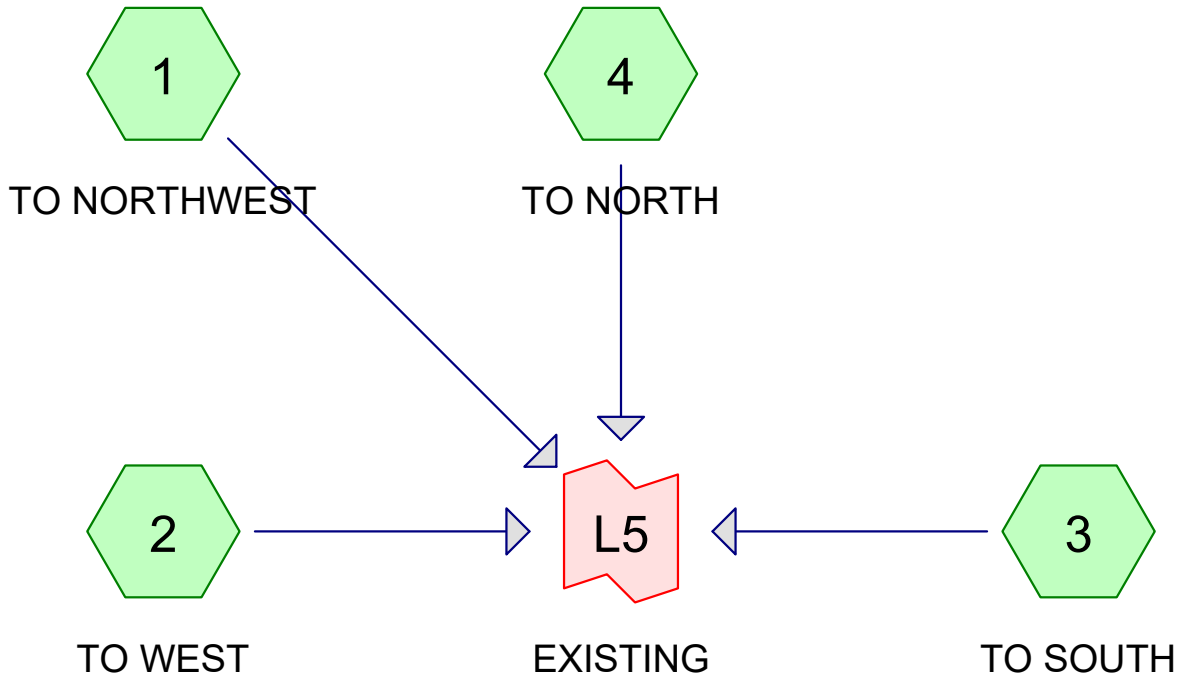
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Appendix C Calculations - Storm Water Quantity (HydroCAD Model)



Subcat Reach Pond Link

Routing Diagram for Existing SW
Prepared by The Sigma Group Inc, Printed 8/14/2023

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	MSE 24-hr	3	Default	24.00	1	2.40	2
2	2-YR	MSE 24-hr	3	Default	24.00	1	2.70	2
3	10-YR	MSE 24-hr	3	Default	24.00	1	3.81	2
4	100-YR	MSE 24-hr	3	Default	24.00	1	6.18	2

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: TO NORTHWEST Runoff Area=2.698 ac 90.17% Impervious Runoff Depth>1.90"
Tc=6.0 min CN=96 Runoff=8.71 cfs 0.427 af

Subcatchment2: TO WEST Runoff Area=0.521 ac 98.44% Impervious Runoff Depth>2.10"
Tc=6.0 min CN=98 Runoff=1.77 cfs 0.091 af

Subcatchment3: TO SOUTH Runoff Area=0.950 ac 92.74% Impervious Runoff Depth>2.00"
Tc=6.0 min CN=97 Runoff=3.15 cfs 0.158 af

Subcatchment4: TO NORTH Runoff Area=0.316 ac 0.00% Impervious Runoff Depth>0.78"
Tc=6.0 min CN=80 Runoff=0.46 cfs 0.020 af

Link L5: EXISTING Inflow=14.08 cfs 0.697 af
Primary=14.08 cfs 0.697 af

Total Runoff Area = 4.485 ac Runoff Volume = 0.697 af Average Runoff Depth = 1.87"
14.68% Pervious = 0.658 ac 85.32% Impervious = 3.827 ac

Summary for Subcatchment 1: TO NORTHWEST

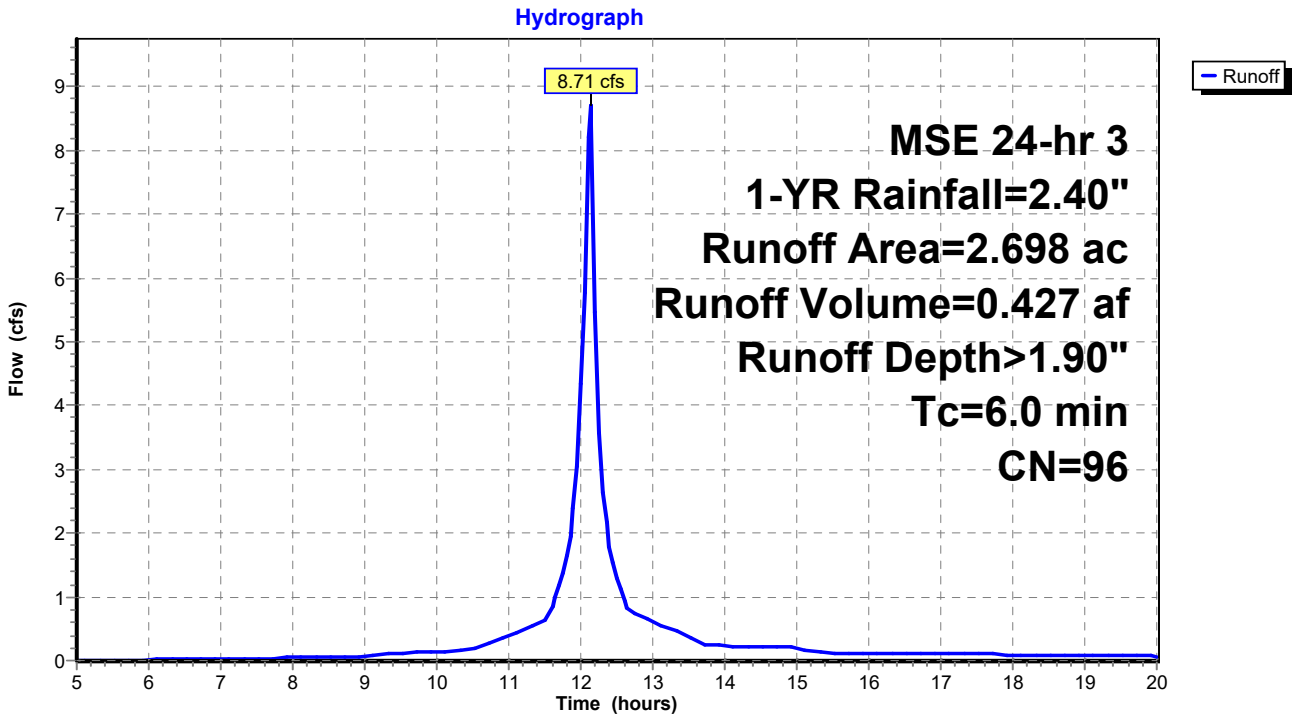
Runoff = 8.71 cfs @ 12.13 hrs, Volume= 0.427 af, Depth> 1.90"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
1.342	98	Paved parking, HSG D
0.265	80	>75% Grass cover, Good, HSG D
1.091	98	Roofs, HSG D
2.698	96	Weighted Average
0.265		9.83% Pervious Area
2.433		90.17% Impervious Area

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

Subcatchment 1: TO NORTHWEST



Summary for Subcatchment 2: TO WEST

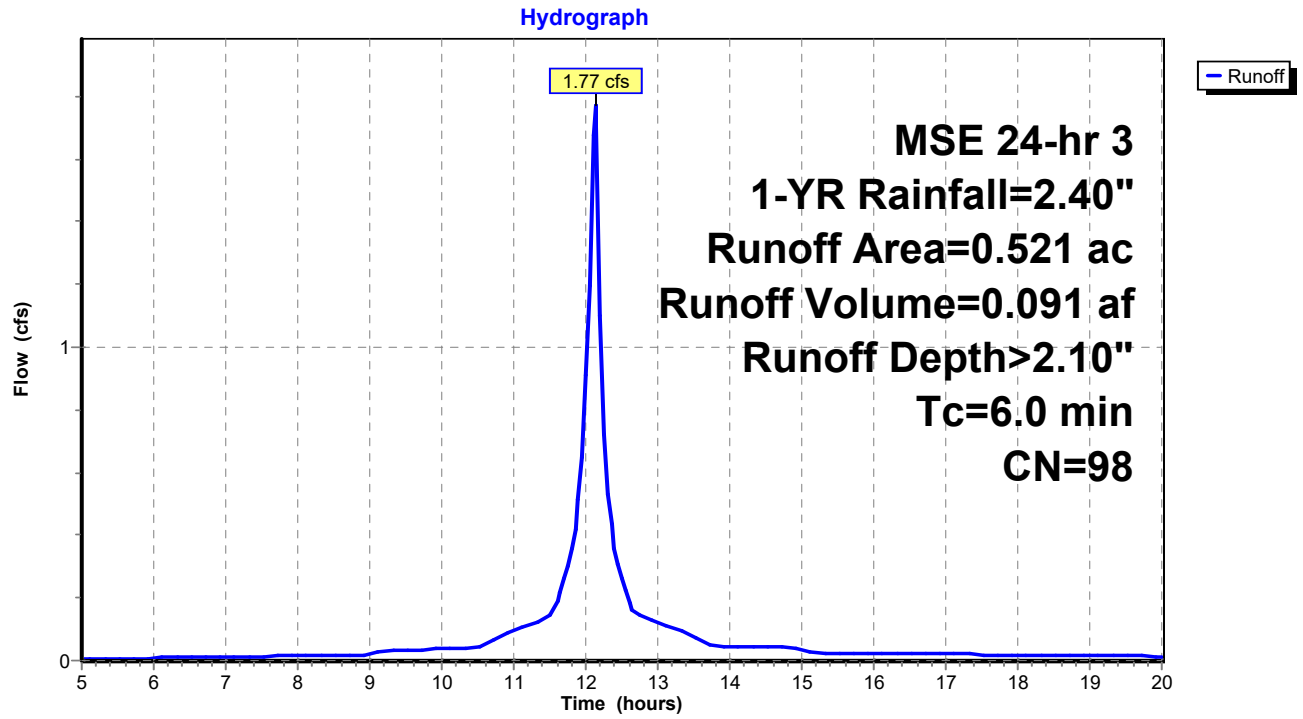
Runoff = 1.77 cfs @ 12.13 hrs, Volume= 0.091 af, Depth> 2.10"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.274	98	Paved parking, HSG D
0.008	80	>75% Grass cover, Good, HSG D
0.239	98	Roofs, HSG D
0.521	98	Weighted Average
0.008		1.56% Pervious Area
0.513		98.44% Impervious Area

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

Subcatchment 2: TO WEST



Summary for Subcatchment 3: TO SOUTH

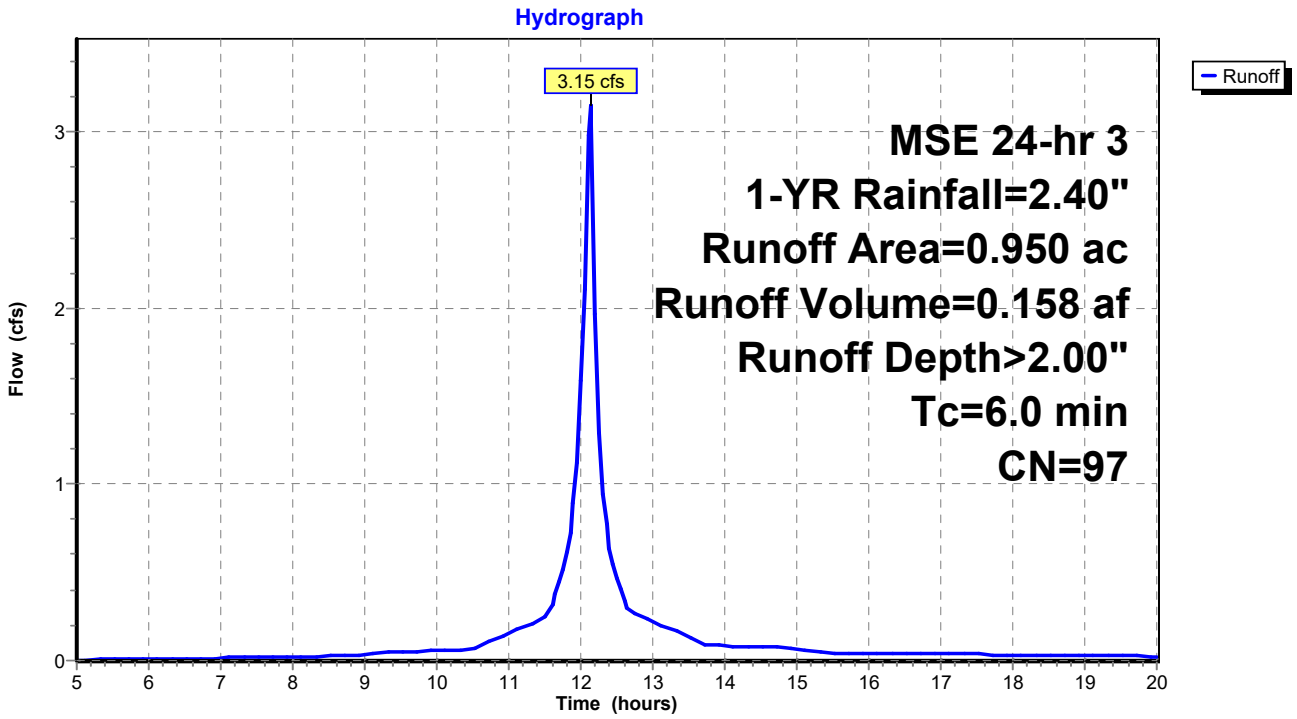
Runoff = 3.15 cfs @ 12.13 hrs, Volume= 0.158 af, Depth> 2.00"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.069	80	>75% Grass cover, Good, HSG D
0.031	98	Roofs, HSG D
0.850	98	Paved parking, HSG D
0.950	97	Weighted Average
0.069		7.26% Pervious Area
0.881		92.74% Impervious Area

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

Subcatchment 3: TO SOUTH



Summary for Subcatchment 4: TO NORTH

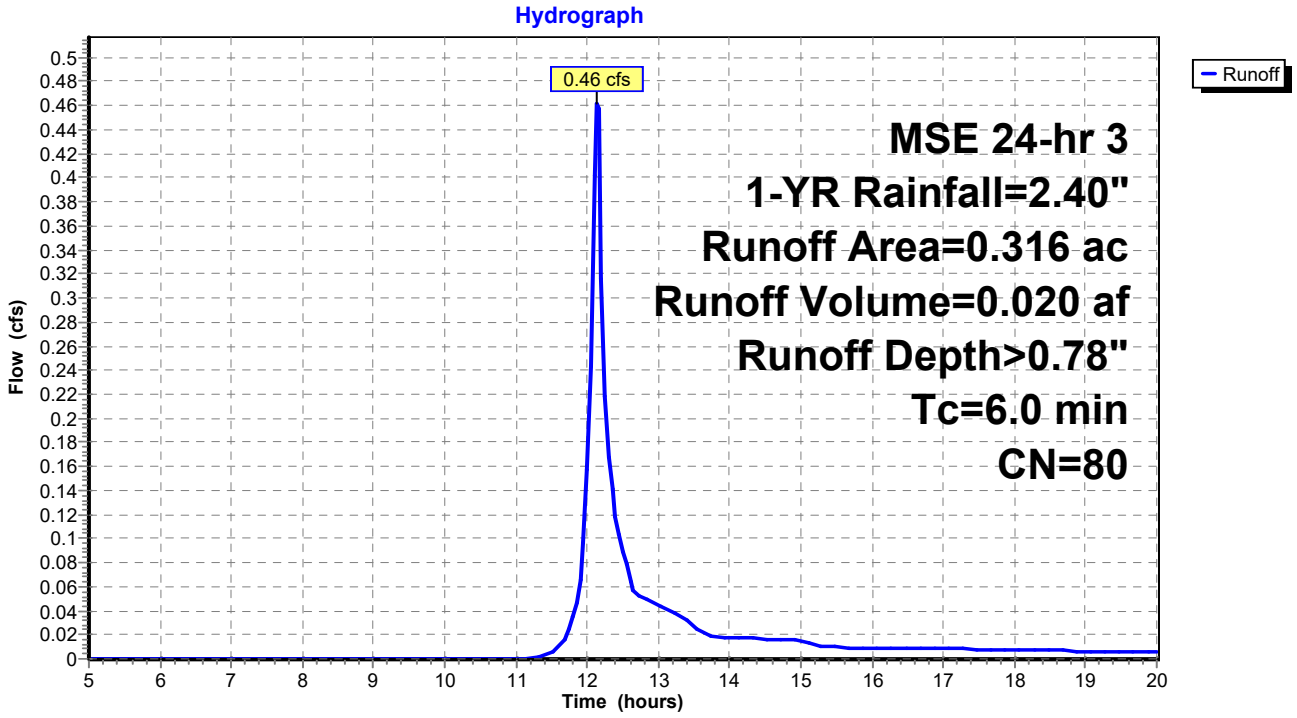
Runoff = 0.46 cfs @ 12.14 hrs, Volume= 0.020 af, Depth> 0.78"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.316	80	>75% Grass cover, Good, HSG D
0.316		100.00% Pervious Area

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

Subcatchment 4: TO NORTH

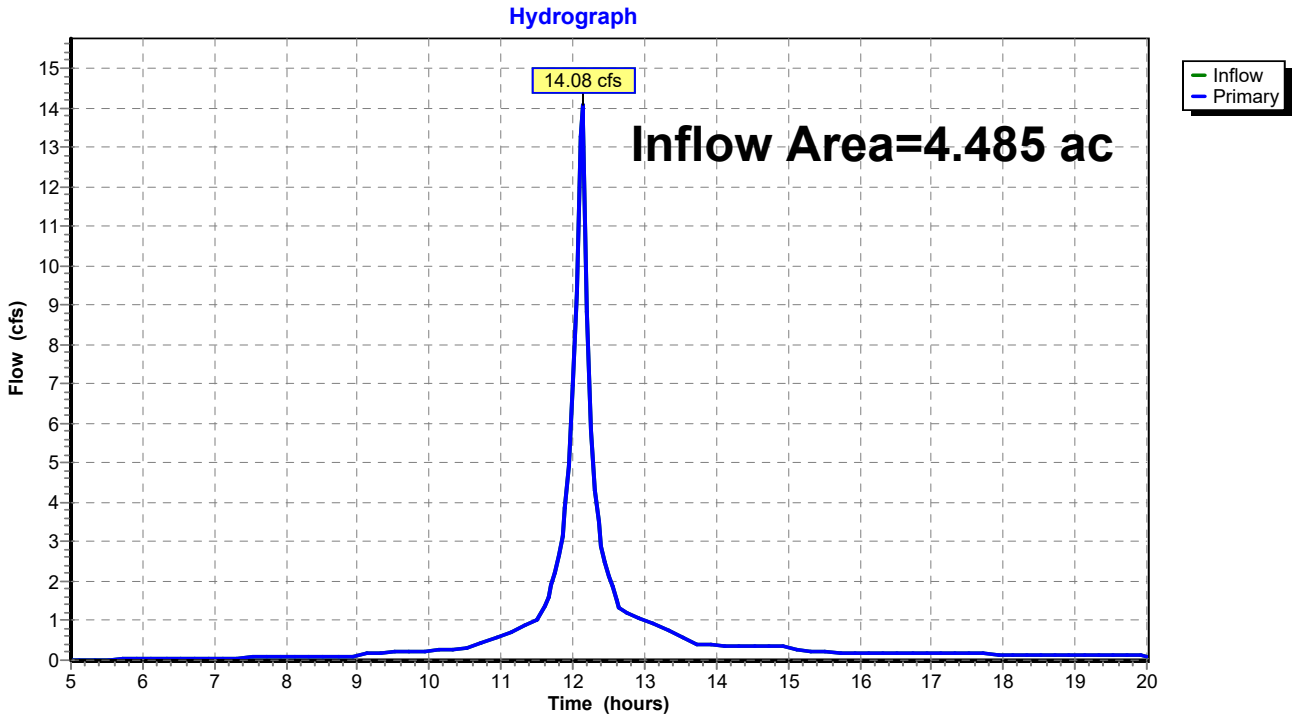


Summary for Link L5: EXISTING

Inflow Area = 4.485 ac, 85.32% Impervious, Inflow Depth > 1.87" for 1-YR event
Inflow = 14.08 cfs @ 12.13 hrs, Volume= 0.697 af
Primary = 14.08 cfs @ 12.13 hrs, Volume= 0.697 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link L5: EXISTING



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: TO NORTHWEST Runoff Area=2.698 ac 90.17% Impervious Runoff Depth>2.19"
Tc=6.0 min CN=96 Runoff=9.92 cfs 0.491 af

Subcatchment2: TO WEST Runoff Area=0.521 ac 98.44% Impervious Runoff Depth>2.39"
Tc=6.0 min CN=98 Runoff=1.99 cfs 0.104 af

Subcatchment3: TO SOUTH Runoff Area=0.950 ac 92.74% Impervious Runoff Depth>2.29"
Tc=6.0 min CN=97 Runoff=3.57 cfs 0.181 af

Subcatchment4: TO NORTH Runoff Area=0.316 ac 0.00% Impervious Runoff Depth>0.98"
Tc=6.0 min CN=80 Runoff=0.58 cfs 0.026 af

Link L5: EXISTING Inflow=16.07 cfs 0.802 af
Primary=16.07 cfs 0.802 af

Total Runoff Area = 4.485 ac Runoff Volume = 0.802 af Average Runoff Depth = 2.15"
14.68% Pervious = 0.658 ac 85.32% Impervious = 3.827 ac

Summary for Subcatchment 1: TO NORTHWEST

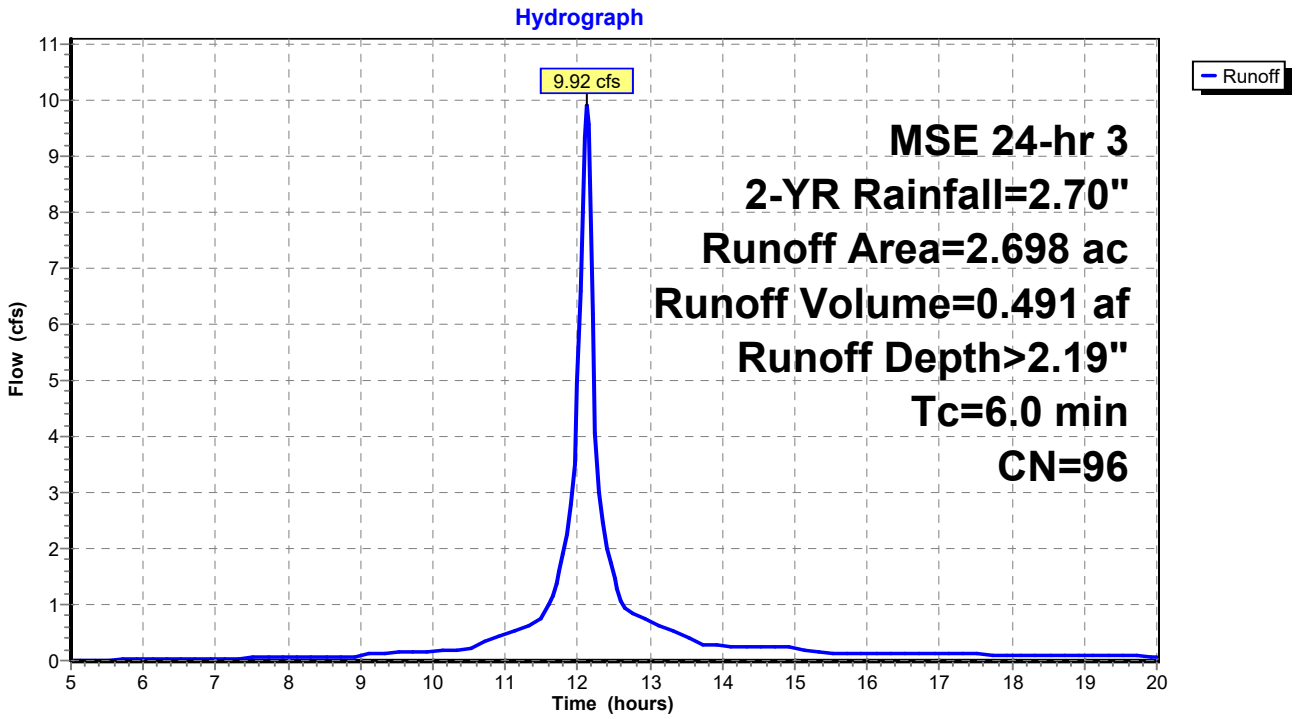
Runoff = 9.92 cfs @ 12.13 hrs, Volume= 0.491 af, Depth> 2.19"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
1.342	98	Paved parking, HSG D
0.265	80	>75% Grass cover, Good, HSG D
1.091	98	Roofs, HSG D
2.698	96	Weighted Average
0.265		9.83% Pervious Area
2.433		90.17% Impervious Area

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

Subcatchment 1: TO NORTHWEST



Summary for Subcatchment 2: TO WEST

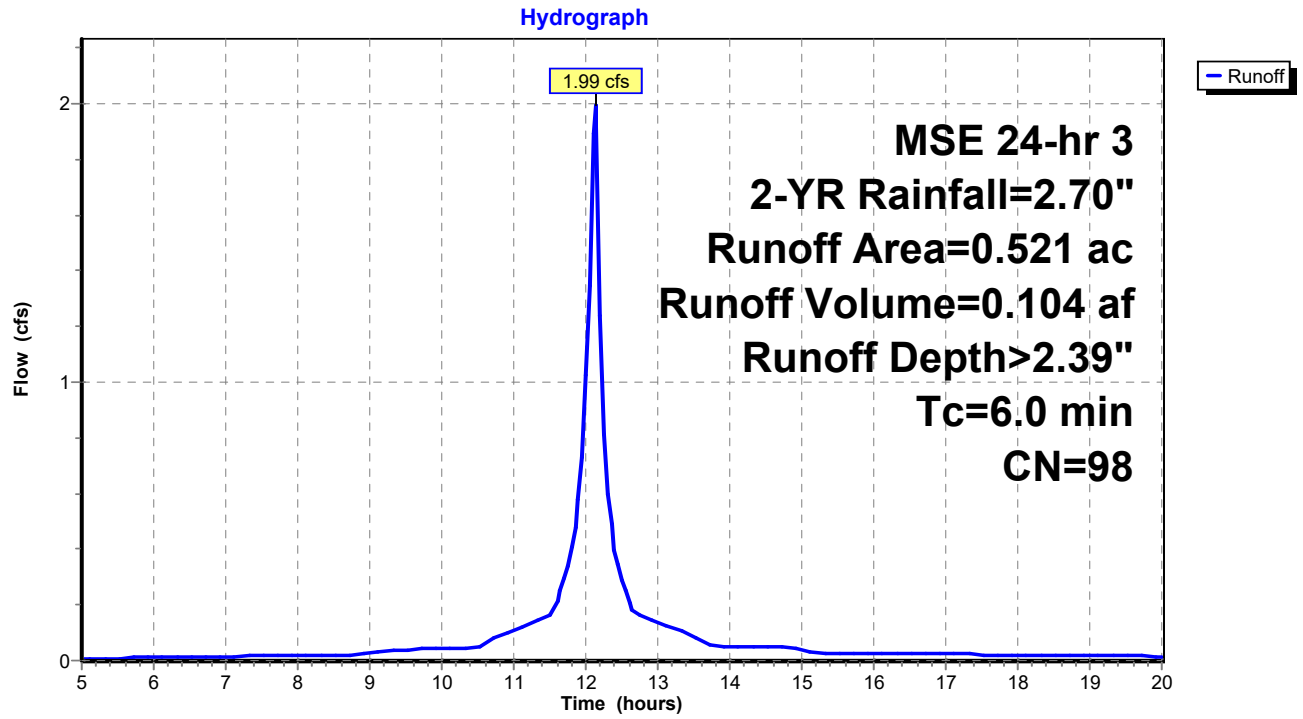
Runoff = 1.99 cfs @ 12.13 hrs, Volume= 0.104 af, Depth> 2.39"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.274	98	Paved parking, HSG D
0.008	80	>75% Grass cover, Good, HSG D
0.239	98	Roofs, HSG D
0.521	98	Weighted Average
0.008		1.56% Pervious Area
0.513		98.44% Impervious Area

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

Subcatchment 2: TO WEST



Summary for Subcatchment 3: TO SOUTH

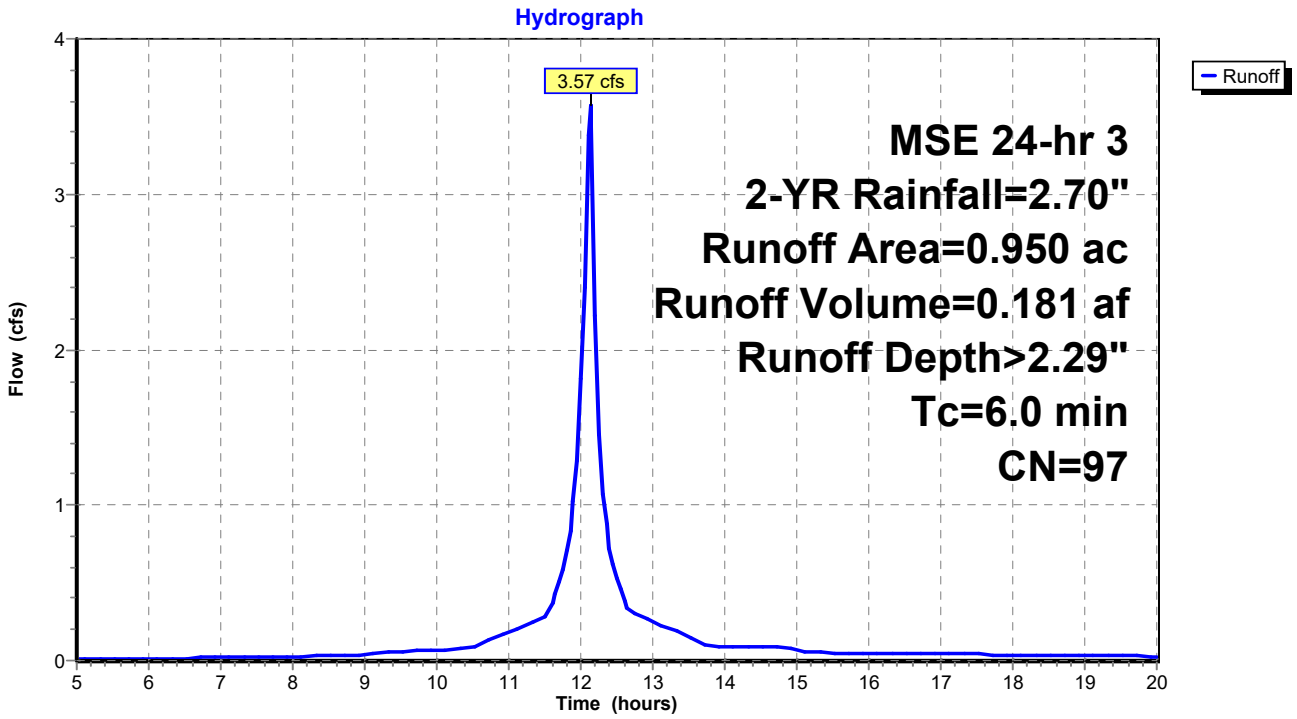
Runoff = 3.57 cfs @ 12.13 hrs, Volume= 0.181 af, Depth> 2.29"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.069	80	>75% Grass cover, Good, HSG D
0.031	98	Roofs, HSG D
0.850	98	Paved parking, HSG D
0.950	97	Weighted Average
0.069		7.26% Pervious Area
0.881		92.74% Impervious Area

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

Subcatchment 3: TO SOUTH



Summary for Subcatchment 4: TO NORTH

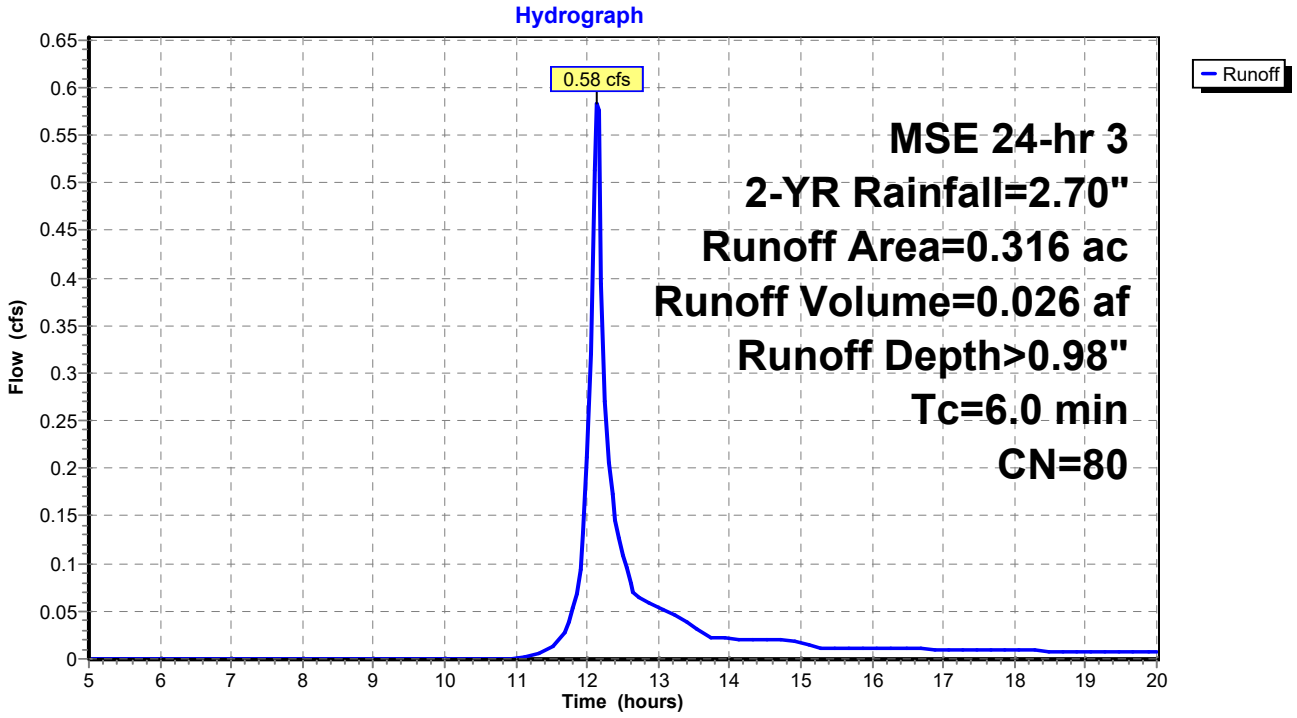
Runoff = 0.58 cfs @ 12.14 hrs, Volume= 0.026 af, Depth> 0.98"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.316	80	>75% Grass cover, Good, HSG D
0.316		100.00% Pervious Area

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

Subcatchment 4: TO NORTH

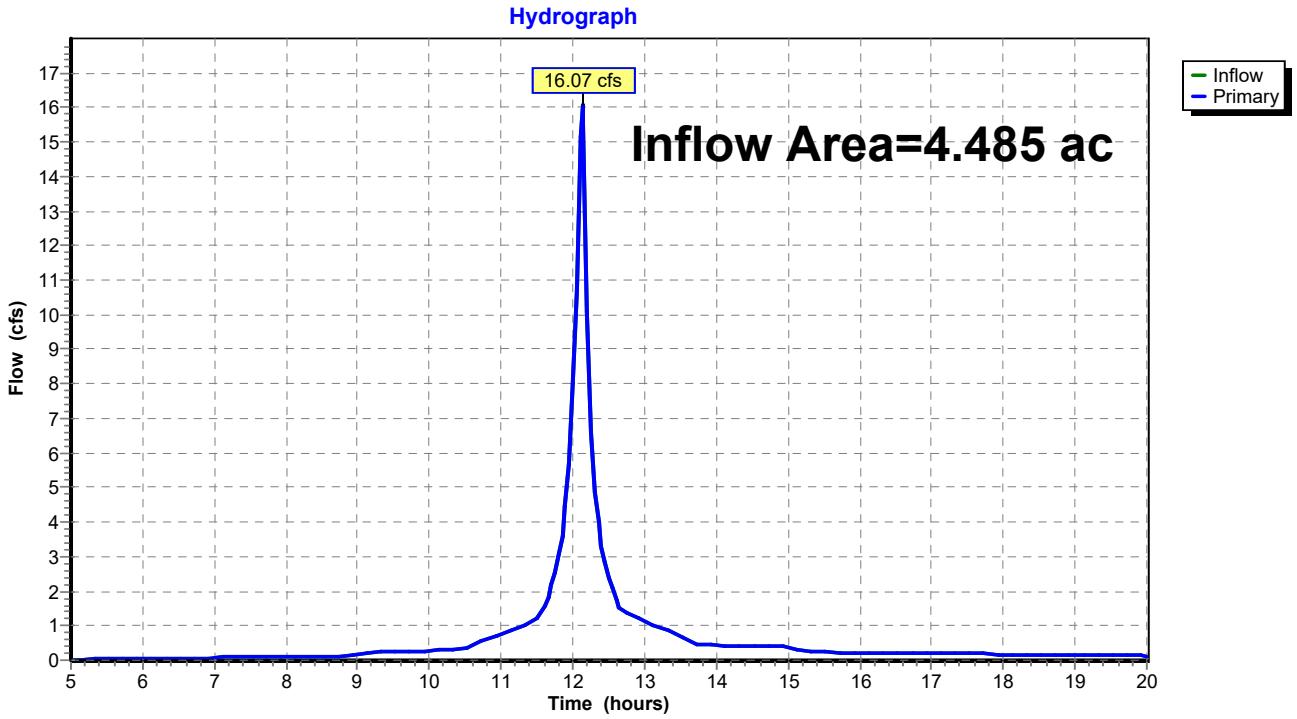


Summary for Link L5: EXISTING

Inflow Area = 4.485 ac, 85.32% Impervious, Inflow Depth > 2.15" for 2-YR event
Inflow = 16.07 cfs @ 12.13 hrs, Volume= 0.802 af
Primary = 16.07 cfs @ 12.13 hrs, Volume= 0.802 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link L5: EXISTING



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: TO NORTHWEST Runoff Area=2.698 ac 90.17% Impervious Runoff Depth>3.24"
Tc=6.0 min CN=96 Runoff=14.36 cfs 0.730 af

Subcatchment2: TO WEST Runoff Area=0.521 ac 98.44% Impervious Runoff Depth>3.44"
Tc=6.0 min CN=98 Runoff=2.84 cfs 0.149 af

Subcatchment3: TO SOUTH Runoff Area=0.950 ac 92.74% Impervious Runoff Depth>3.35"
Tc=6.0 min CN=97 Runoff=5.12 cfs 0.265 af

Subcatchment4: TO NORTH Runoff Area=0.316 ac 0.00% Impervious Runoff Depth>1.80"
Tc=6.0 min CN=80 Runoff=1.07 cfs 0.048 af

Link L5: EXISTING Inflow=23.39 cfs 1.191 af
Primary=23.39 cfs 1.191 af

Total Runoff Area = 4.485 ac Runoff Volume = 1.191 af Average Runoff Depth = 3.19"
14.68% Pervious = 0.658 ac 85.32% Impervious = 3.827 ac

Summary for Subcatchment 1: TO NORTHWEST

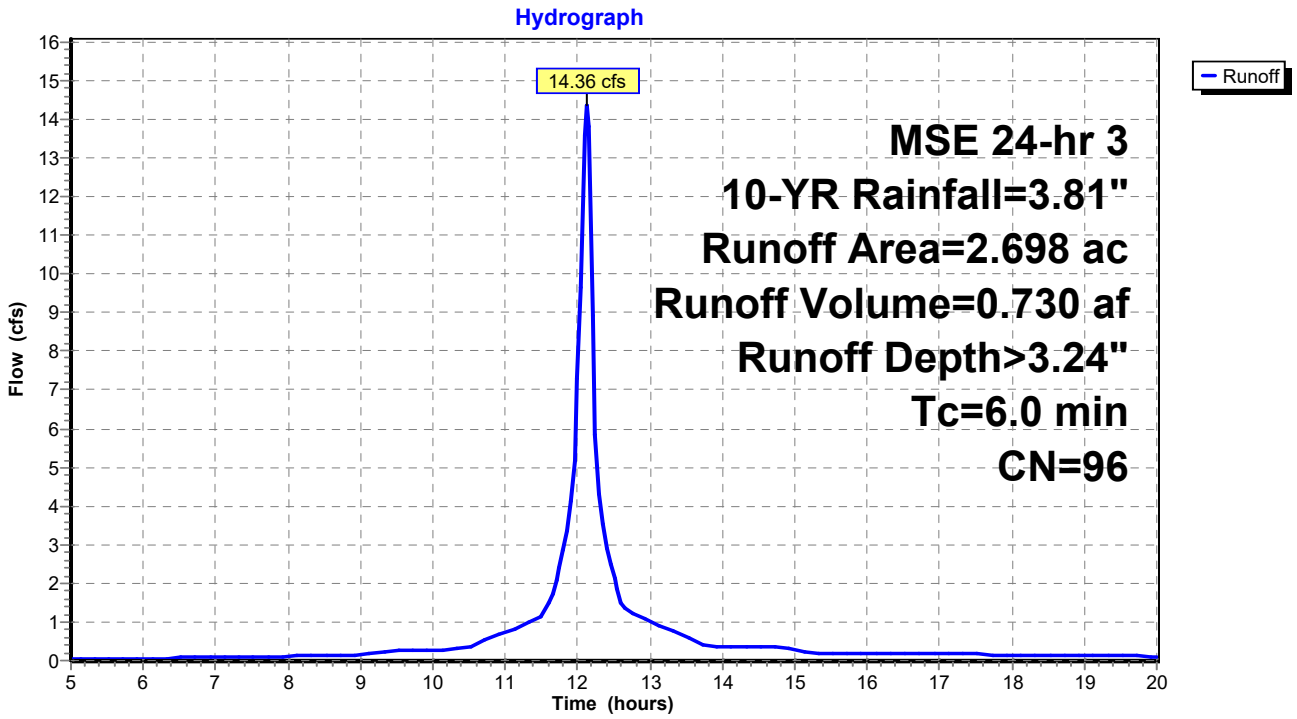
Runoff = 14.36 cfs @ 12.13 hrs, Volume= 0.730 af, Depth> 3.24"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
1.342	98	Paved parking, HSG D
0.265	80	>75% Grass cover, Good, HSG D
1.091	98	Roofs, HSG D
2.698	96	Weighted Average
0.265		9.83% Pervious Area
2.433		90.17% Impervious Area

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

Subcatchment 1: TO NORTHWEST



Summary for Subcatchment 2: TO WEST

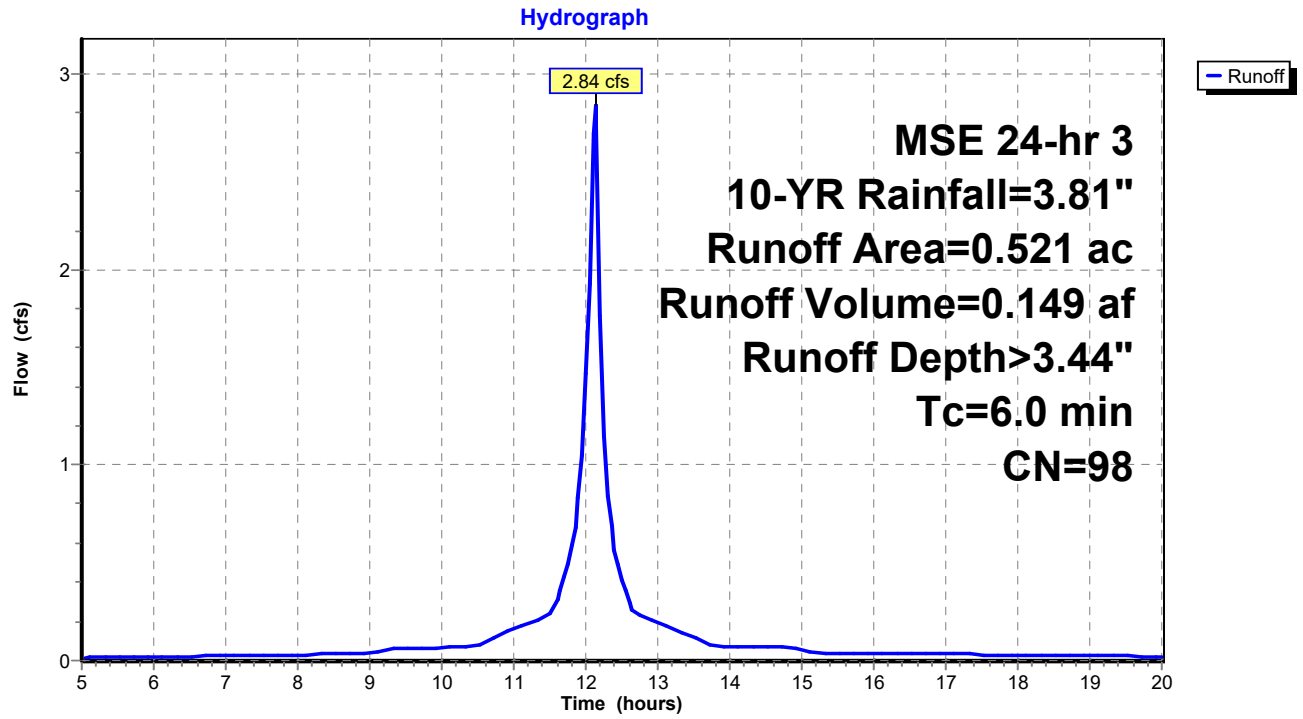
Runoff = 2.84 cfs @ 12.13 hrs, Volume= 0.149 af, Depth> 3.44"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.274	98	Paved parking, HSG D
0.008	80	>75% Grass cover, Good, HSG D
0.239	98	Roofs, HSG D
0.521	98	Weighted Average
0.008		1.56% Pervious Area
0.513		98.44% Impervious Area

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

Subcatchment 2: TO WEST



Summary for Subcatchment 3: TO SOUTH

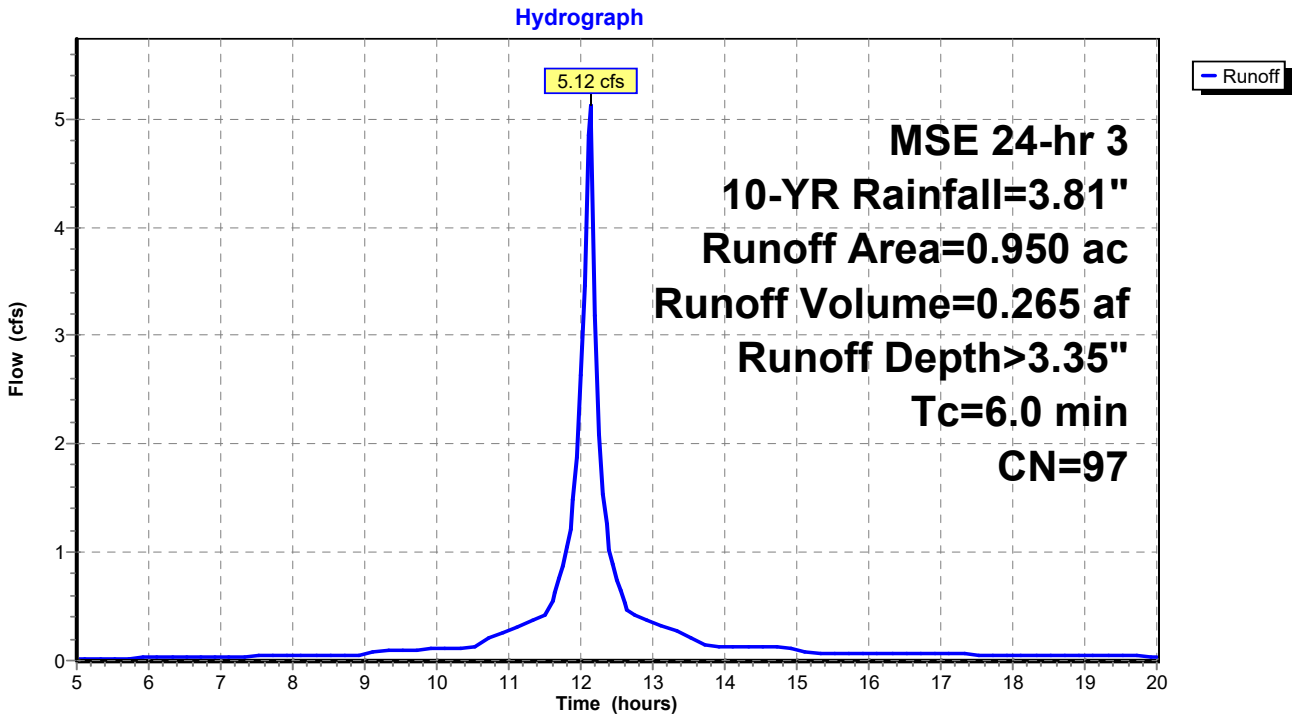
Runoff = 5.12 cfs @ 12.13 hrs, Volume= 0.265 af, Depth> 3.35"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.069	80	>75% Grass cover, Good, HSG D
0.031	98	Roofs, HSG D
0.850	98	Paved parking, HSG D
0.950	97	Weighted Average
0.069		7.26% Pervious Area
0.881		92.74% Impervious Area

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

Subcatchment 3: TO SOUTH



Summary for Subcatchment 4: TO NORTH

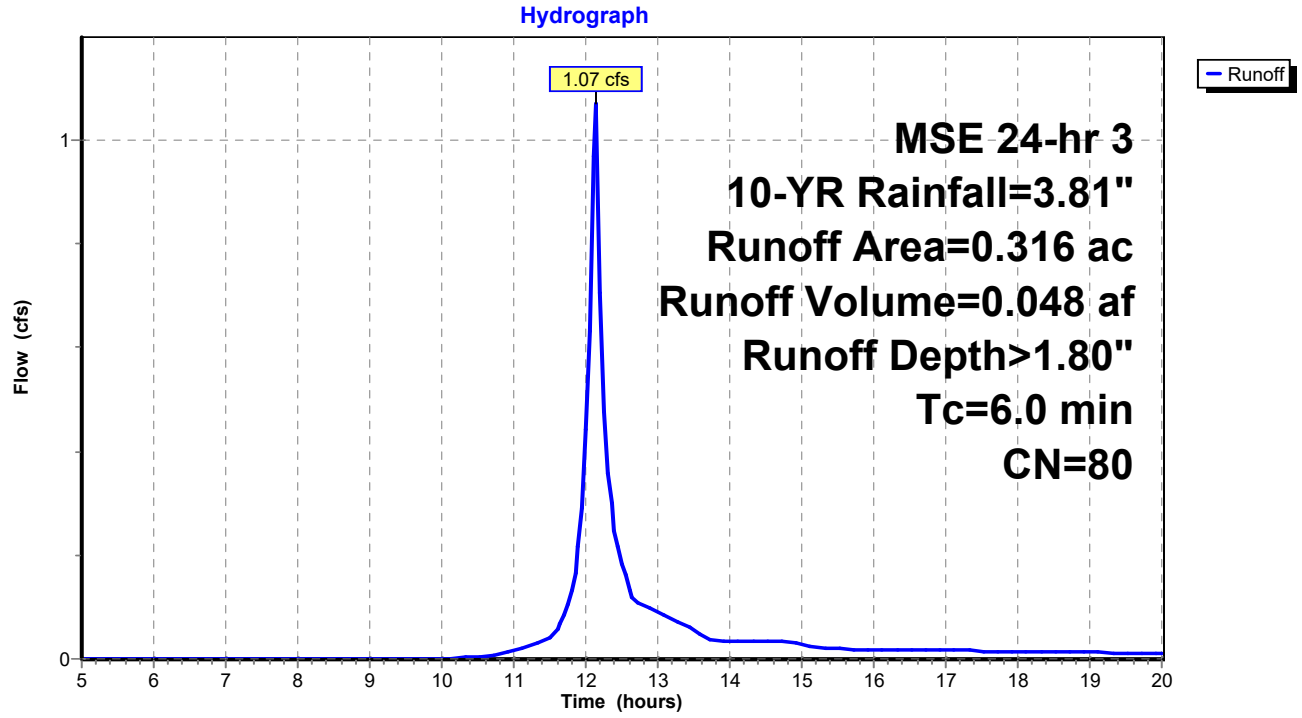
Runoff = 1.07 cfs @ 12.13 hrs, Volume= 0.048 af, Depth> 1.80"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.316	80	>75% Grass cover, Good, HSG D
0.316		100.00% Pervious Area

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

Subcatchment 4: TO NORTH

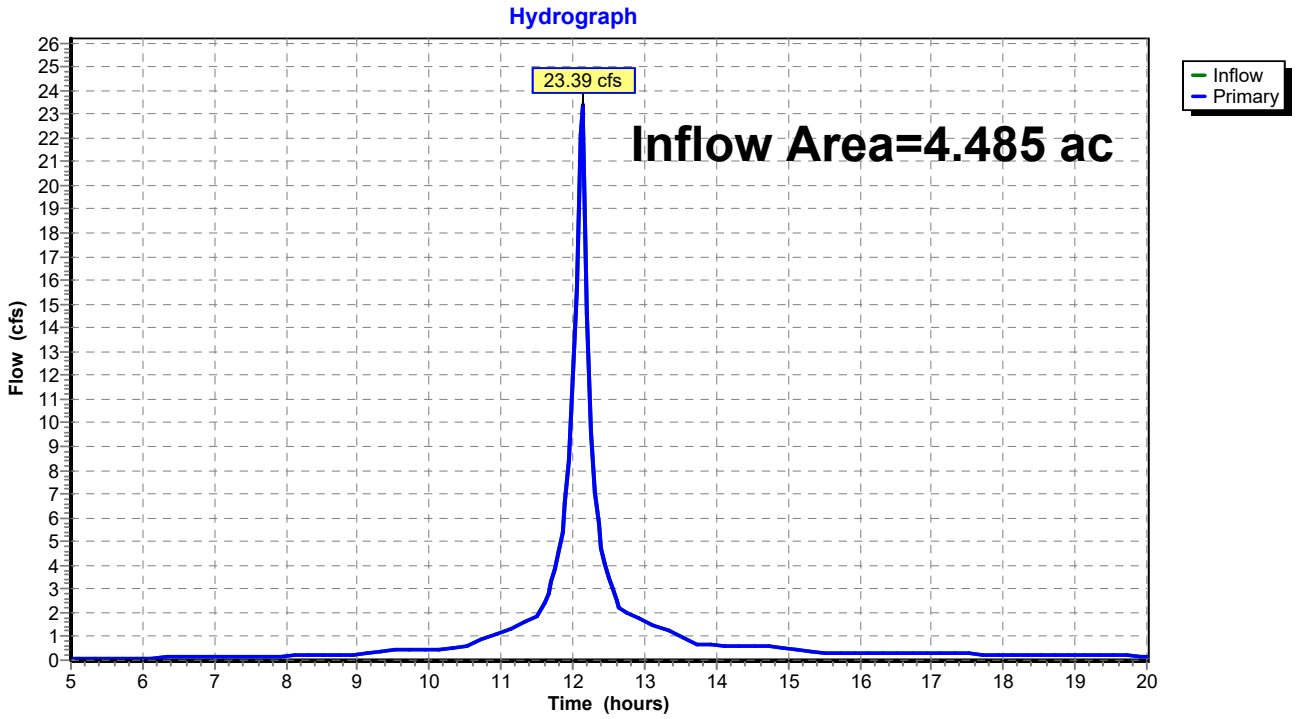


Summary for Link L5: EXISTING

Inflow Area = 4.485 ac, 85.32% Impervious, Inflow Depth > 3.19" for 10-YR event
Inflow = 23.39 cfs @ 12.13 hrs, Volume= 1.191 af
Primary = 23.39 cfs @ 12.13 hrs, Volume= 1.191 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link L5: EXISTING



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: TO NORTHWEST Runoff Area=2.698 ac 90.17% Impervious Runoff Depth>5.51"
Tc=6.0 min CN=96 Runoff=23.73 cfs 1.238 af

Subcatchment2: TO WEST Runoff Area=0.521 ac 98.44% Impervious Runoff Depth>5.69"
Tc=6.0 min CN=98 Runoff=4.63 cfs 0.247 af

Subcatchment3: TO SOUTH Runoff Area=0.950 ac 92.74% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=97 Runoff=8.41 cfs 0.444 af

Subcatchment4: TO NORTH Runoff Area=0.316 ac 0.00% Impervious Runoff Depth>3.79"
Tc=6.0 min CN=80 Runoff=2.19 cfs 0.100 af

Link L5: EXISTING Inflow=38.95 cfs 2.029 af
Primary=38.95 cfs 2.029 af

Total Runoff Area = 4.485 ac Runoff Volume = 2.029 af Average Runoff Depth = 5.43"
14.68% Pervious = 0.658 ac 85.32% Impervious = 3.827 ac

Summary for Subcatchment 1: TO NORTHWEST

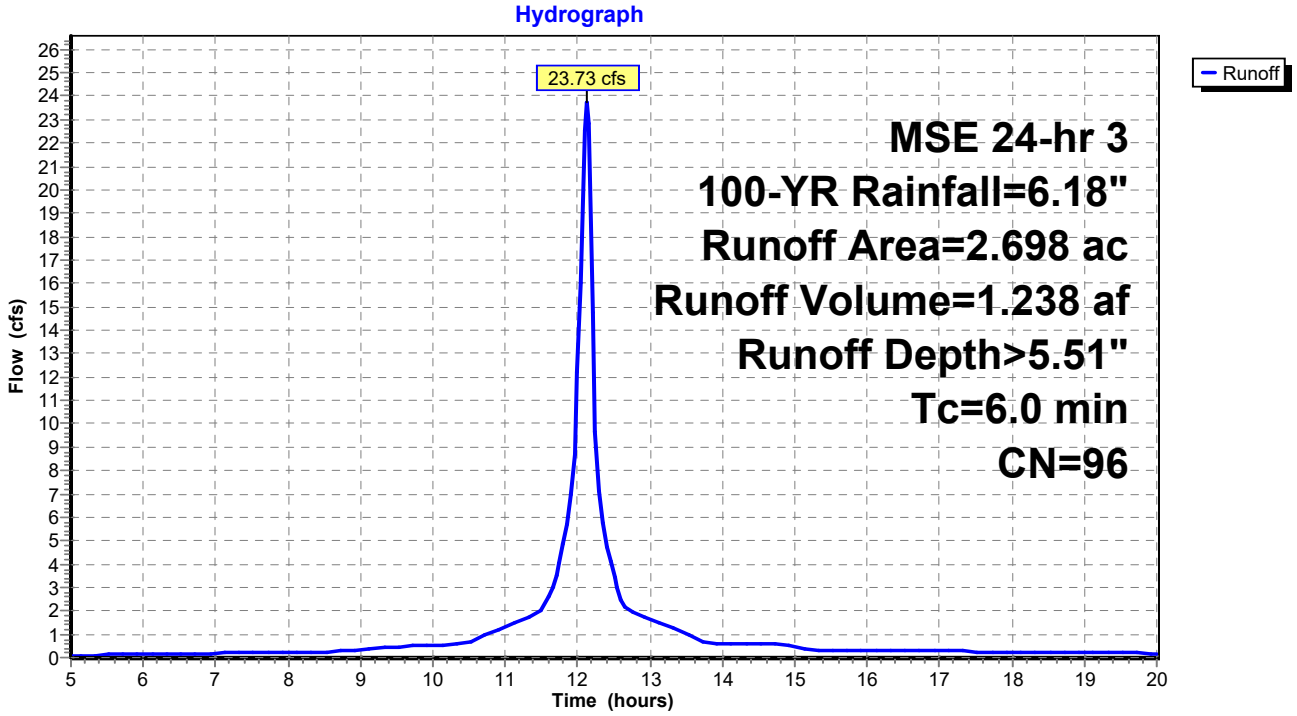
Runoff = 23.73 cfs @ 12.13 hrs, Volume= 1.238 af, Depth> 5.51"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
1.342	98	Paved parking, HSG D
0.265	80	>75% Grass cover, Good, HSG D
1.091	98	Roofs, HSG D
2.698	96	Weighted Average
0.265		9.83% Pervious Area
2.433		90.17% Impervious Area

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

Subcatchment 1: TO NORTHWEST



Summary for Subcatchment 2: TO WEST

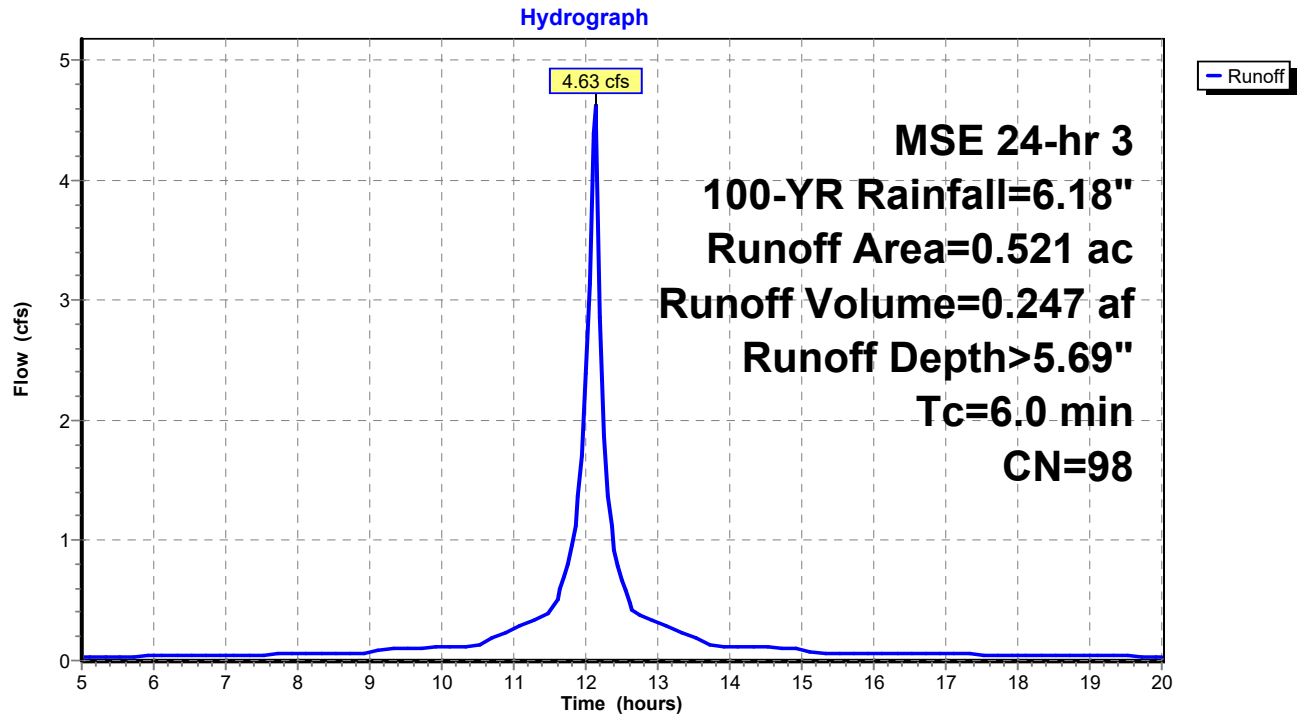
Runoff = 4.63 cfs @ 12.13 hrs, Volume= 0.247 af, Depth> 5.69"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.274	98	Paved parking, HSG D
0.008	80	>75% Grass cover, Good, HSG D
0.239	98	Roofs, HSG D
0.521	98	Weighted Average
0.008		1.56% Pervious Area
0.513		98.44% Impervious Area

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

Subcatchment 2: TO WEST



Summary for Subcatchment 3: TO SOUTH

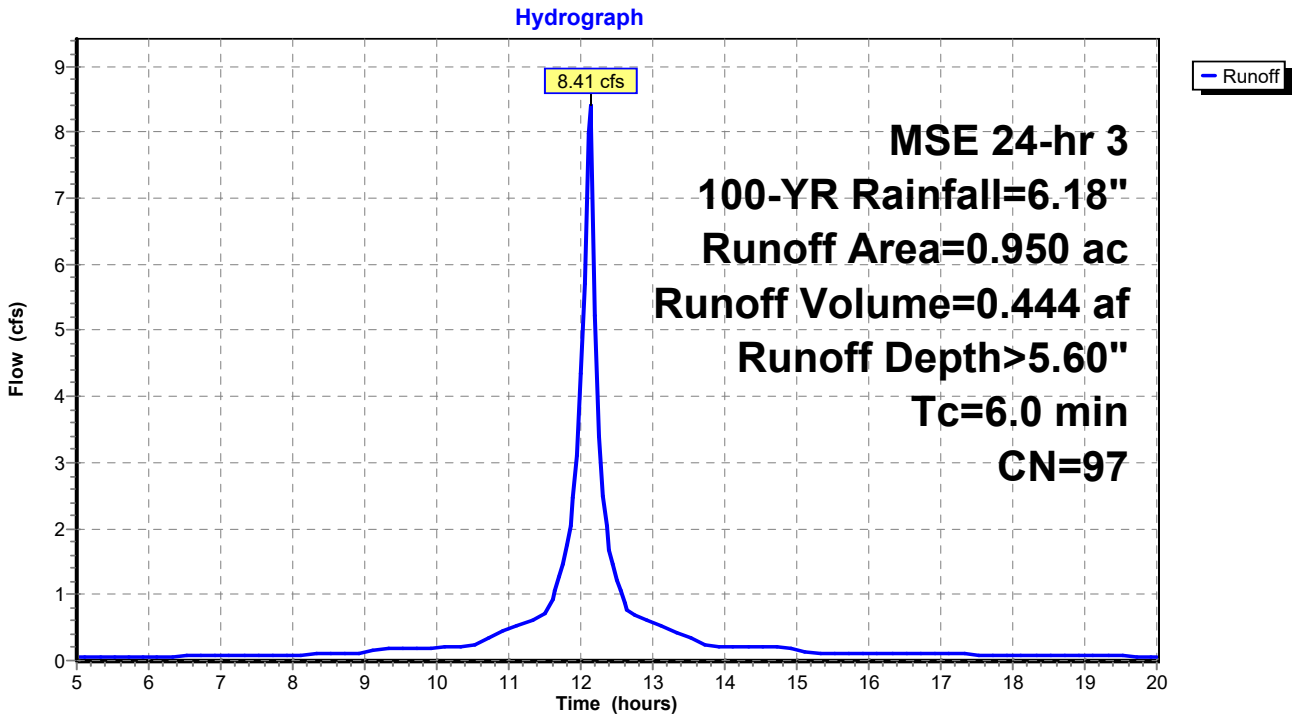
Runoff = 8.41 cfs @ 12.13 hrs, Volume= 0.444 af, Depth> 5.60"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.069	80	>75% Grass cover, Good, HSG D
0.031	98	Roofs, HSG D
0.850	98	Paved parking, HSG D
0.950	97	Weighted Average
0.069		7.26% Pervious Area
0.881		92.74% Impervious Area

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

Subcatchment 3: TO SOUTH



Summary for Subcatchment 4: TO NORTH

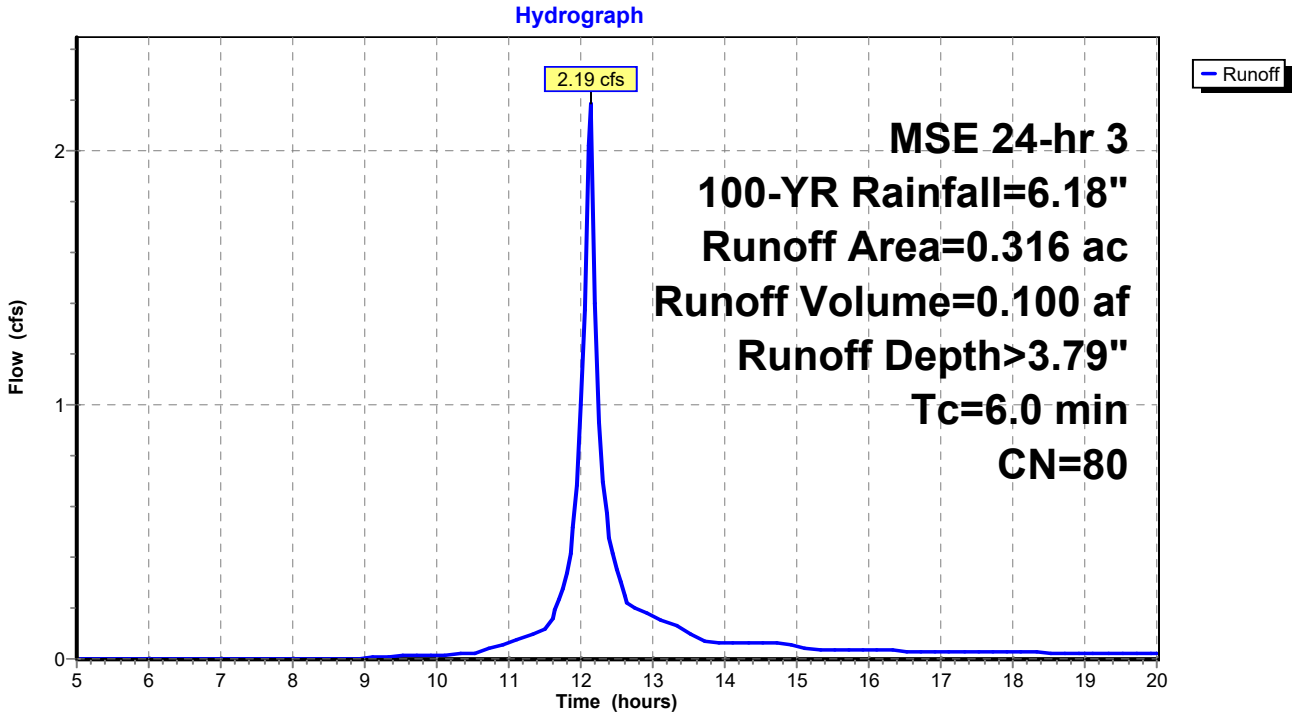
Runoff = 2.19 cfs @ 12.13 hrs, Volume= 0.100 af, Depth> 3.79"
Routed to Link L5 : EXISTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.316	80	>75% Grass cover, Good, HSG D
0.316		100.00% Pervious Area

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

Subcatchment 4: TO NORTH

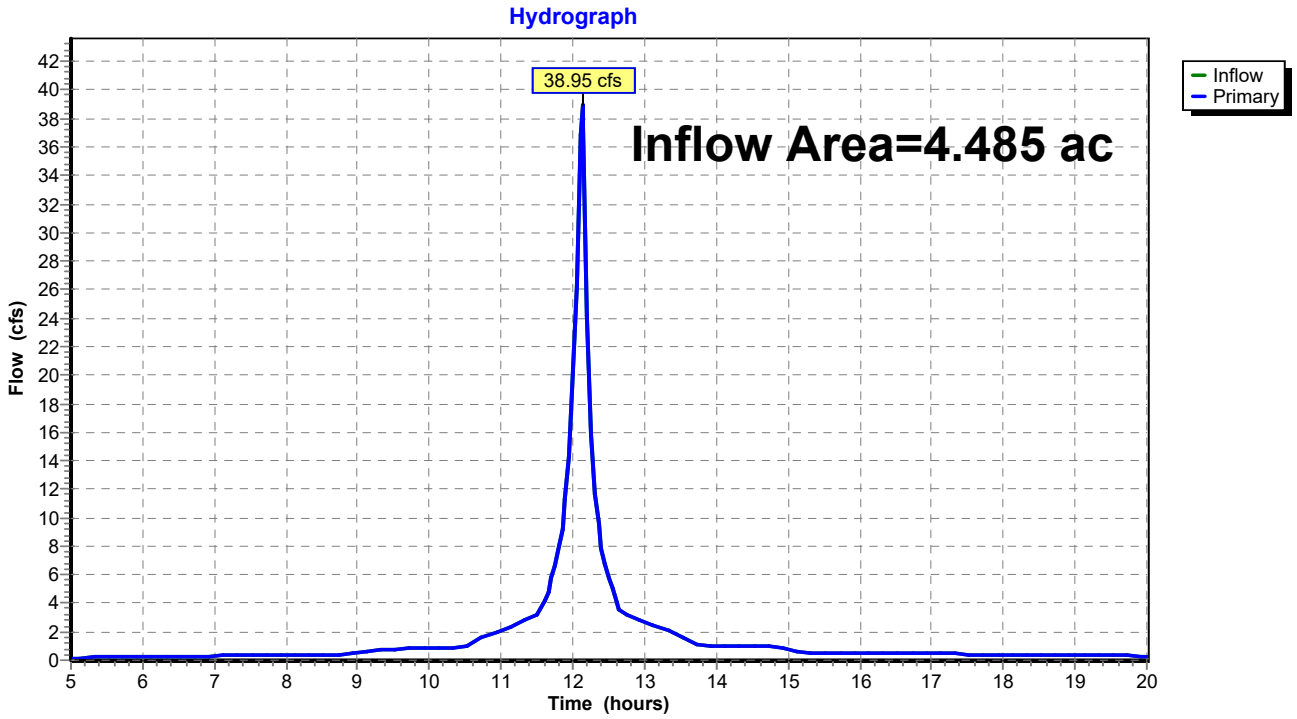


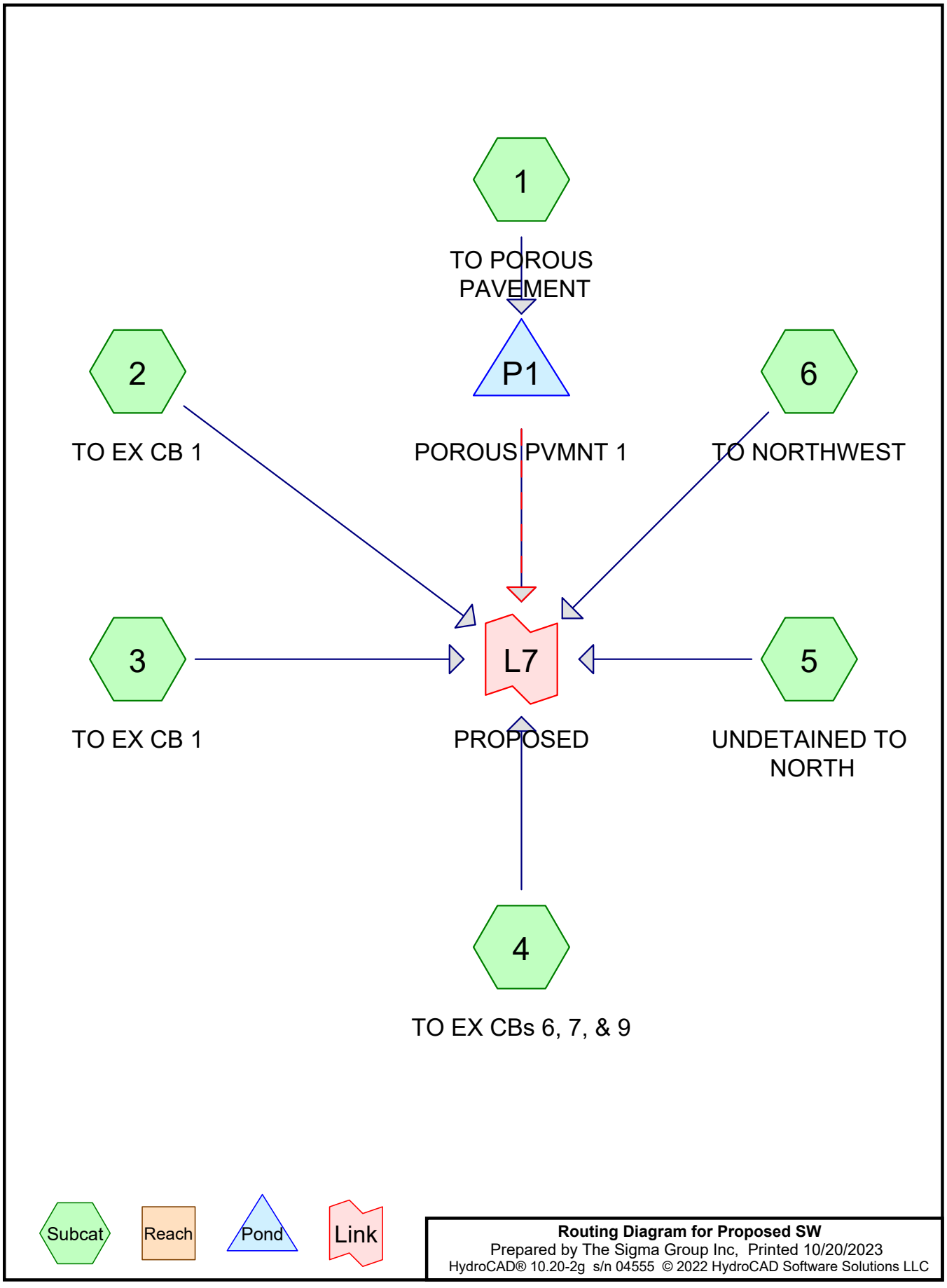
Summary for Link L5: EXISTING

Inflow Area = 4.485 ac, 85.32% Impervious, Inflow Depth > 5.43" for 100-YR event
Inflow = 38.95 cfs @ 12.13 hrs, Volume= 2.029 af
Primary = 38.95 cfs @ 12.13 hrs, Volume= 2.029 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link L5: EXISTING





Routing Diagram for Proposed SW
Prepared by The Sigma Group Inc, Printed 10/20/2023

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	MSE 24-hr	3	Default	24.00	1	2.40	2
2	2-YR	MSE 24-hr	3	Default	24.00	1	2.70	2
3	10-YR	MSE 24-hr	3	Default	24.00	1	3.81	2
4	100-YR	MSE 24-hr	3	Default	24.00	1	6.18	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.781	80	>75% Grass cover, Good, HSG D (1, 2, 3, 4, 5, 6)
2.528	98	Paved parking, HSG D (1, 2, 3, 4, 6)
1.176	98	Roofs, HSG D (1, 2, 3, 4)
4.485	**95**	**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: TO POROUS PAVEMENT Runoff Area=0.617 ac 96.47% Impervious Runoff Depth>2.00"
Tc=6.0 min CN=97 Runoff=2.05 cfs 0.103 af

Subcatchment2: TO EX CB 1 Runoff Area=0.283 ac 90.54% Impervious Runoff Depth>1.90"
Tc=6.0 min CN=96 Runoff=0.91 cfs 0.045 af

Subcatchment3: TO EX CB 1 Runoff Area=0.875 ac 82.32% Impervious Runoff Depth>1.80"
Tc=6.0 min CN=95 Runoff=2.74 cfs 0.132 af

Subcatchment4: TO EX CBs 6, 7, & 9 Runoff Area=2.061 ac 91.57% Impervious Runoff Depth>1.90"
Tc=6.0 min CN=96 Runoff=6.65 cfs 0.327 af

Subcatchment5: UNDETAINEDTO NORTH Runoff Area=0.292 ac 0.00% Impervious Runoff Depth>0.78"
Tc=6.0 min CN=80 Runoff=0.43 cfs 0.019 af

Subcatchment6: TO NORTHWEST Runoff Area=0.356 ac 68.47% Impervious Runoff Depth>1.54"
Tc=6.0 min CN=92 Runoff=0.99 cfs 0.046 af

Pond P1: POROUS PVMNT 1 Peak Elev=870.36' Storage=1,528 cf Inflow=2.05 cfs 0.103 af
Primary=0.75 cfs 0.100 af Secondary=0.00 cfs 0.000 af Outflow=0.75 cfs 0.100 af

Link L7: PROPOSED Inflow=12.35 cfs 0.667 af
Primary=12.35 cfs 0.667 af

Total Runoff Area = 4.485 ac Runoff Volume = 0.670 af Average Runoff Depth = 1.79"
17.42% Pervious = 0.781 ac 82.58% Impervious = 3.704 ac

Summary for Subcatchment 1: TO POROUS PAVEMENT

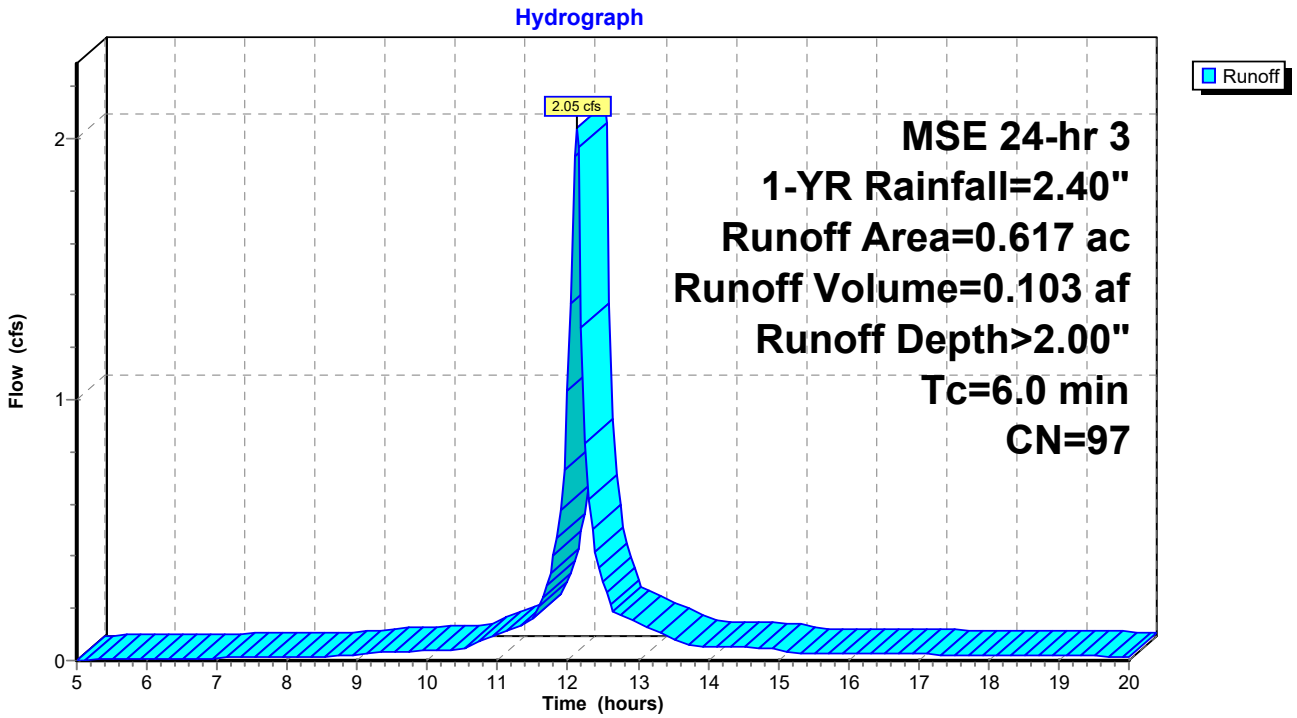
Runoff = 2.05 cfs @ 12.13 hrs, Volume= 0.103 af, Depth> 2.00"
Routed to Pond P1 : POROUS PVMNT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.022	80	>75% Grass cover, Good, HSG D
0.024	98	Roofs, HSG D
0.571	98	Paved parking, HSG D
0.617	97	Weighted Average
0.022		3.53% Pervious Area
0.595		96.47% Impervious Area

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

Subcatchment 1: TO POROUS PAVEMENT



Summary for Subcatchment 2: TO EX CB 1

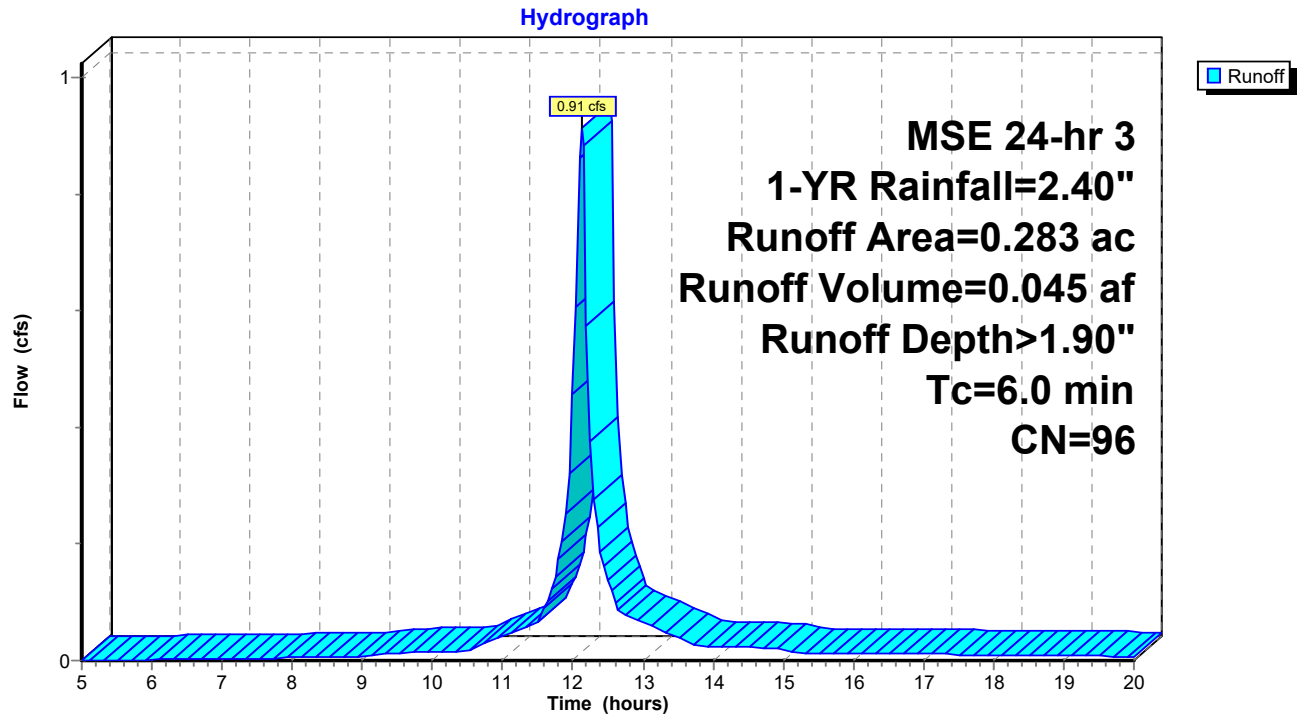
Runoff = 0.91 cfs @ 12.13 hrs, Volume= 0.045 af, Depth> 1.90"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.027	80	>75% Grass cover, Good, HSG D
0.000	98	Roofs, HSG D
0.256	98	Paved parking, HSG D
0.283	96	Weighted Average
0.027		9.46% Pervious Area
0.256		90.54% Impervious Area

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

Subcatchment 2: TO EX CB 1



Summary for Subcatchment 3: TO EX CB 1

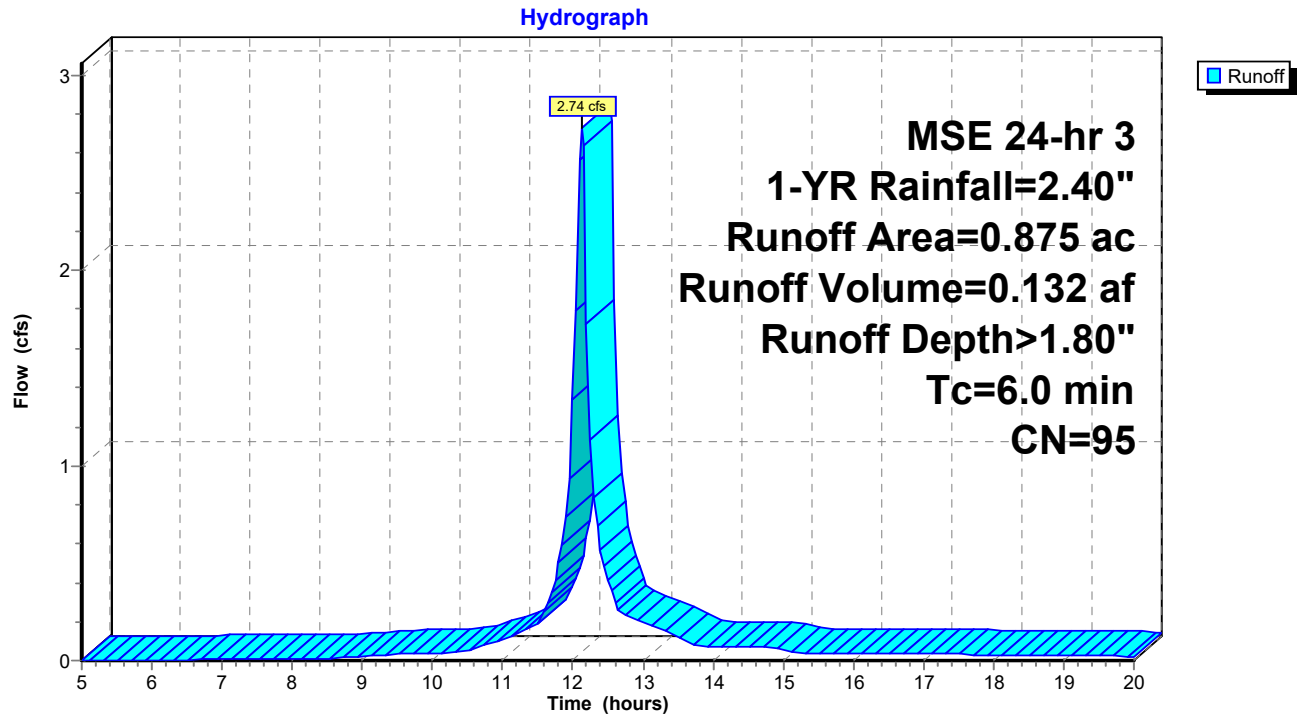
Runoff = 2.74 cfs @ 12.13 hrs, Volume= 0.132 af, Depth> 1.80"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.721	98	Paved parking, HSG D
0.155	80	>75% Grass cover, Good, HSG D
0.000	98	Roofs, HSG D
0.875	95	Weighted Average
0.155		17.68% Pervious Area
0.721		82.32% Impervious Area

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

Subcatchment 3: TO EX CB 1



Summary for Subcatchment 4: TO EX CBs 6, 7, & 9

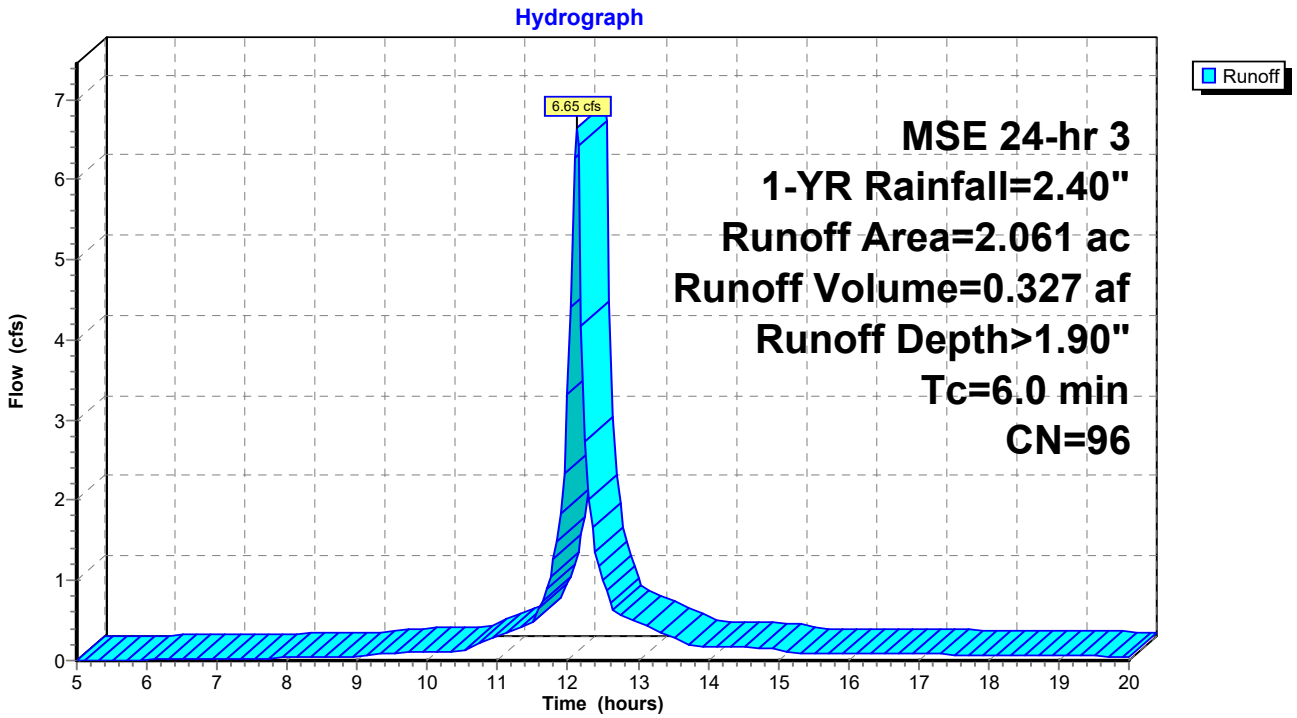
Runoff = 6.65 cfs @ 12.13 hrs, Volume= 0.327 af, Depth> 1.90"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.736	98	Paved parking, HSG D
0.174	80	>75% Grass cover, Good, HSG D
1.152	98	Roofs, HSG D
2.061	96	Weighted Average
0.174		8.43% Pervious Area
1.888		91.57% Impervious Area

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

Subcatchment 4: TO EX CBs 6, 7, & 9



Summary for Subcatchment 5: UNDETAINED TO NORTH

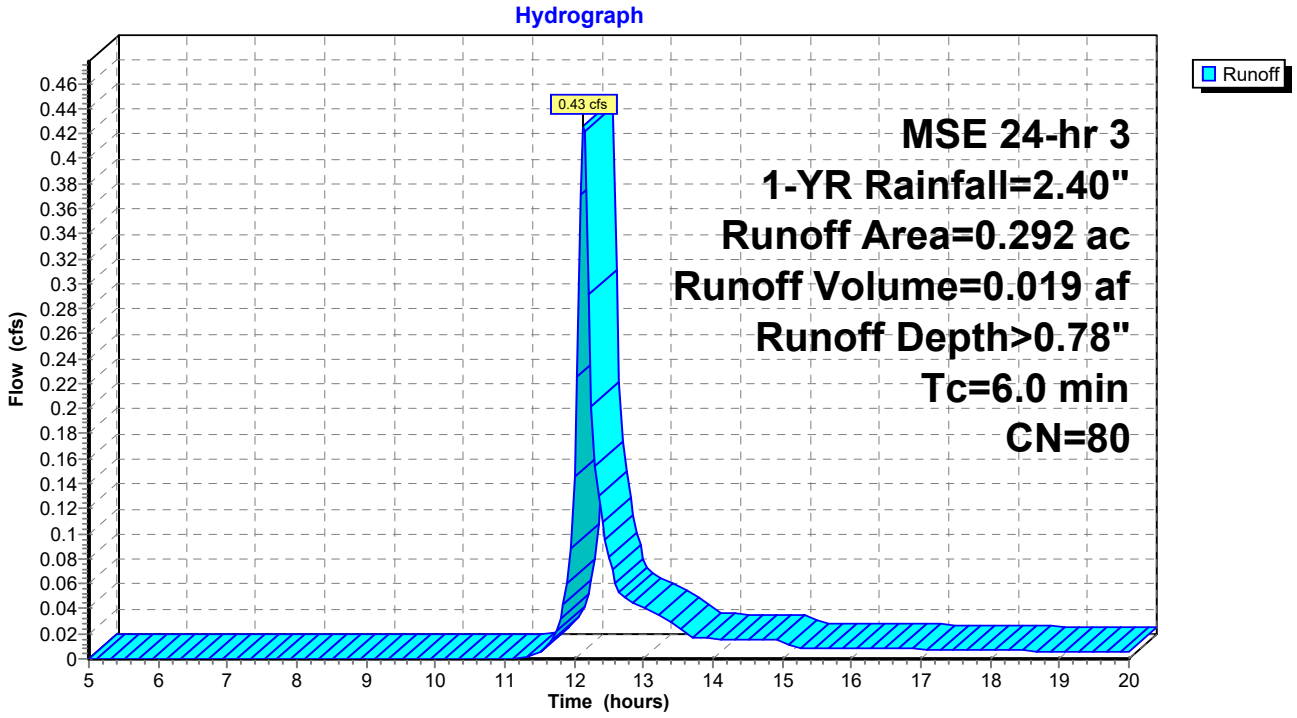
Runoff = 0.43 cfs @ 12.14 hrs, Volume= 0.019 af, Depth> 0.78"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.292	80	>75% Grass cover, Good, HSG D
0.292		100.00% Pervious Area

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

Subcatchment 5: UNDETAINED TO NORTH



Summary for Subcatchment 6: TO NORTHWEST

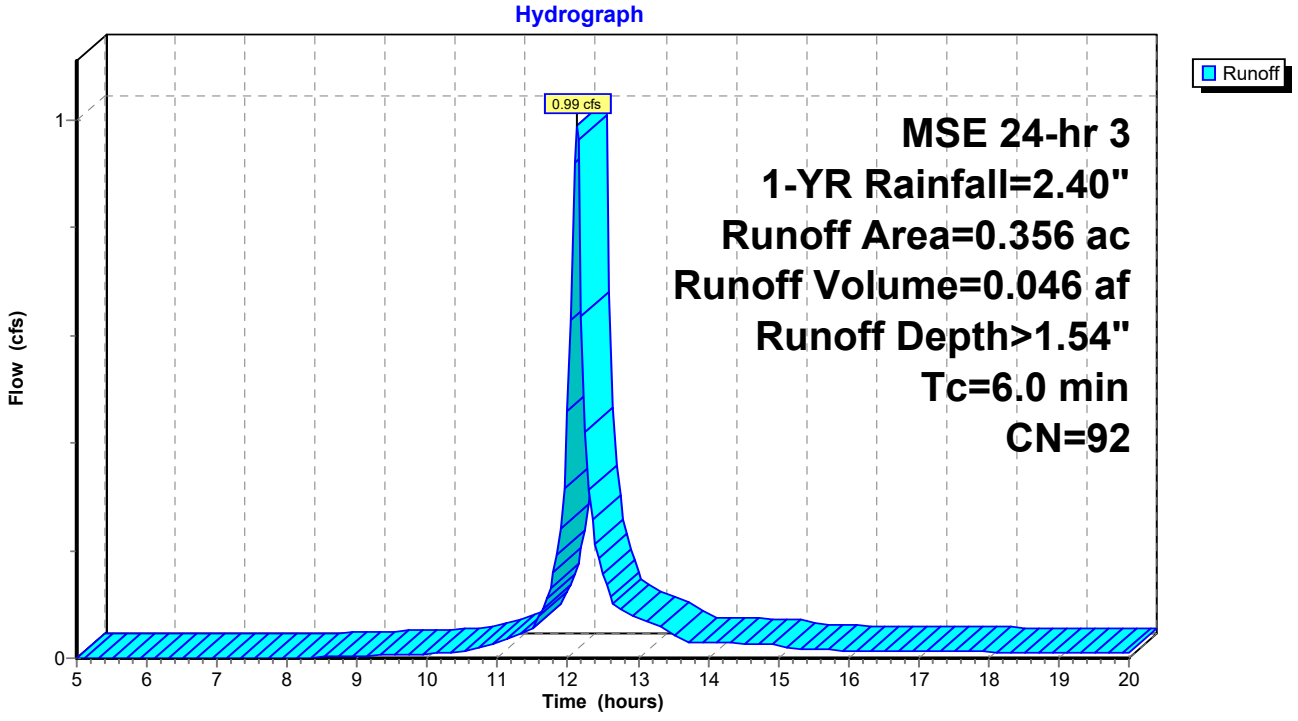
Runoff = 0.99 cfs @ 12.13 hrs, Volume= 0.046 af, Depth> 1.54"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-YR Rainfall=2.40"

Area (ac)	CN	Description
0.112	80	>75% Grass cover, Good, HSG D
0.244	98	Paved parking, HSG D
0.356	92	Weighted Average
0.112		31.53% Pervious Area
0.244		68.47% Impervious Area

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

Subcatchment 6: TO NORTHWEST



Summary for Pond P1: POROUS PVMNT 1

[82] Warning: Early inflow requires earlier time span
[92] Warning: Device #4 is above defined storage

Inflow Area = 0.617 ac, 96.47% Impervious, Inflow Depth > 2.00" for 1-YR event
Inflow = 2.05 cfs @ 12.13 hrs, Volume= 0.103 af
Outflow = 0.75 cfs @ 12.27 hrs, Volume= 0.100 af, Atten= 63%, Lag= 8.6 min
Primary = 0.75 cfs @ 12.27 hrs, Volume= 0.100 af
Routed to Link L7 : PROPOSED
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link L7 : PROPOSED

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 870.36' @ 12.27 hrs Surf.Area= 5,227 sf Storage= 1,528 cf

Plug-Flow detention time= 47.2 min calculated for 0.100 af (97% of inflow)
Center-of-Mass det. time= 35.4 min (784.0 - 748.6)

Volume	Invert	Avail.Storage	Storage Description
#1	869.47'	2,587 cf	**18" Aggregate Storage (Prismatic)** Listed below 7,841 cf Overall x 33.0% Voids
#2	870.97'	862 cf	**6" Aggregate Bedding (Prismatic)** Listed below 2,614 cf Overall x 33.0% Voids
#3	871.47'	549 cf	**5" Permeable Pavement (Prismatic)** Listed below 2,195 cf Overall x 25.0% Voids
#4	871.89'	65 cf	**Above Ground Storage (Prismatic)** Listed below
		4,064 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
869.47	5,227	0	0
870.97	5,227	7,841	7,841

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
870.97	5,227	0	0
871.47	5,227	2,614	2,614

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.47	5,227	0	0
871.89	5,227	2,195	2,195

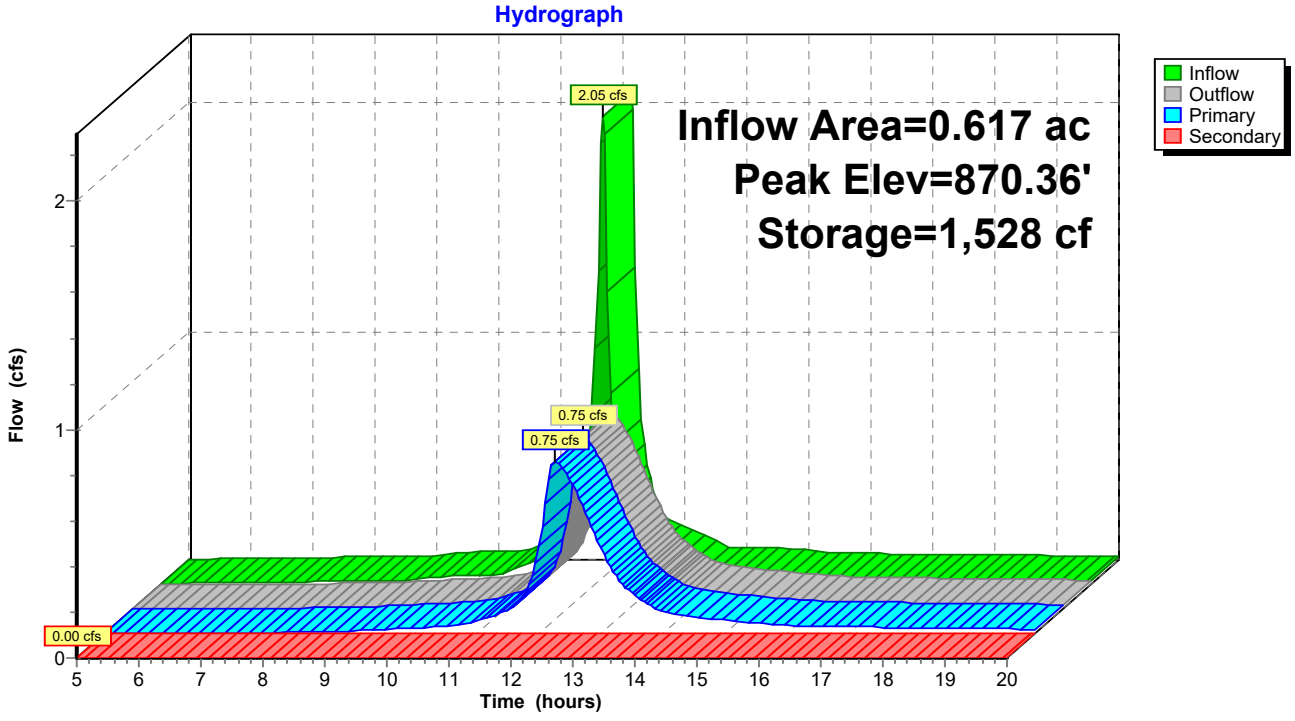
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.89	0	0	0
872.00	20	1	1
872.30	297	48	49
872.35	375	17	65

Device	Routing	Invert	Outlet Devices
#1	Primary	866.54'	**18.0" Round Culvert** L= 11.2' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 866.54' / 866.43' S= 0.0098 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Device 1	869.47'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	871.89'	**6.5" x 1.7" Horiz. Orifice/Grate X 4.00 columns** X 5 rows C= 0.600 in 36.5" x 19.2" Grate (32% open area) Limited to weir flow at low heads
#4	Secondary	872.39'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 26.28 59.61 Height (feet) 0.50 0.00 0.50

Primary OutFlow Max=0.75 cfs @ 12.27 hrs HW=870.35' (Free Discharge)
└─**1=Culvert** (Passes 0.75 cfs of 14.89 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 0.75 cfs @ 3.83 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=869.47' (Free Discharge)
└─**4=Asymmetrical Weir** (Controls 0.00 cfs)

Pond P1: POROUS PVMNT 1

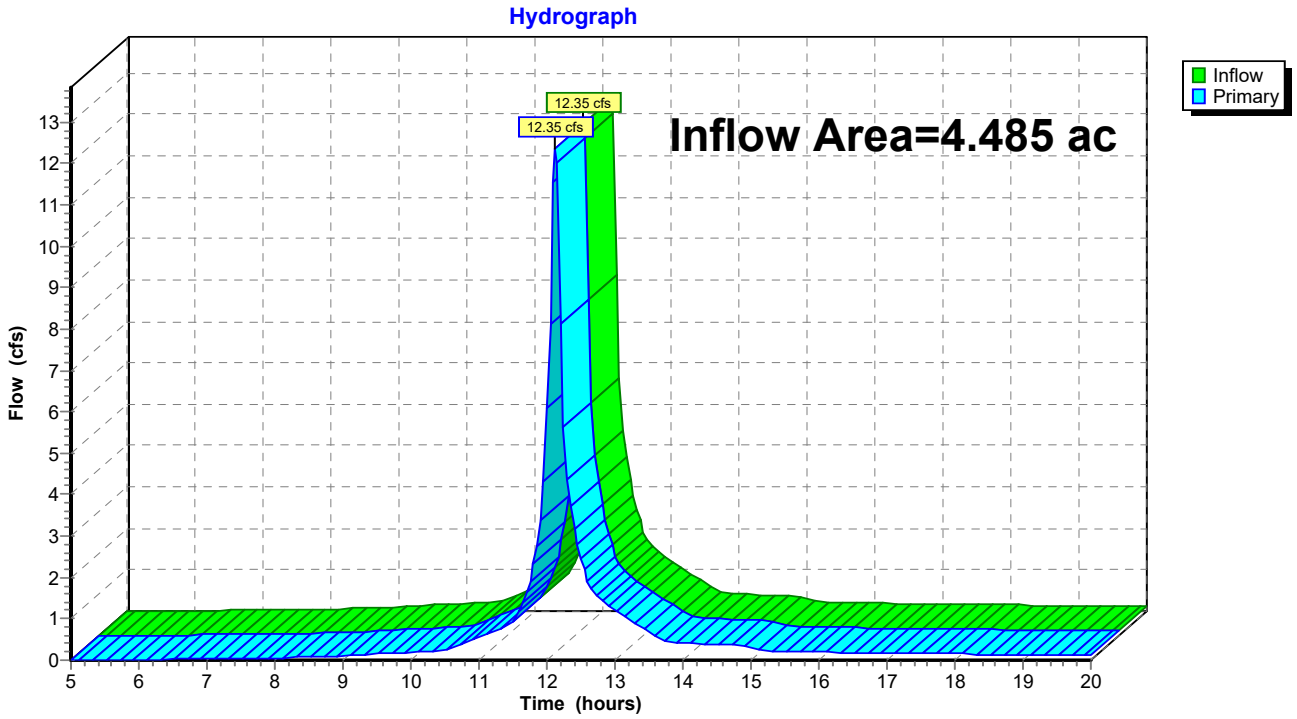


Summary for Link L7: PROPOSED

Inflow Area = 4.485 ac, 82.58% Impervious, Inflow Depth > 1.79" for 1-YR event
Inflow = 12.35 cfs @ 12.13 hrs, Volume= 0.667 af
Primary = 12.35 cfs @ 12.13 hrs, Volume= 0.667 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link L7: PROPOSED



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: TO POROUS PAVEMENT Runoff Area=0.617 ac 96.47% Impervious Runoff Depth>2.29"
Tc=6.0 min CN=97 Runoff=2.32 cfs 0.118 af

Subcatchment2: TO EX CB 1 Runoff Area=0.283 ac 90.54% Impervious Runoff Depth>2.19"
Tc=6.0 min CN=96 Runoff=1.04 cfs 0.052 af

Subcatchment3: TO EX CB 1 Runoff Area=0.875 ac 82.32% Impervious Runoff Depth>2.09"
Tc=6.0 min CN=95 Runoff=3.13 cfs 0.152 af

Subcatchment4: TO EX CBs 6, 7, & 9 Runoff Area=2.061 ac 91.57% Impervious Runoff Depth>2.19"
Tc=6.0 min CN=96 Runoff=7.58 cfs 0.375 af

Subcatchment5: UNDETAINEDTO NORTH Runoff Area=0.292 ac 0.00% Impervious Runoff Depth>0.98"
Tc=6.0 min CN=80 Runoff=0.54 cfs 0.024 af

Subcatchment6: TO NORTHWEST Runoff Area=0.356 ac 68.47% Impervious Runoff Depth>1.81"
Tc=6.0 min CN=92 Runoff=1.16 cfs 0.054 af

Pond P1: POROUS PVMNT 1 Peak Elev=870.48' Storage=1,734 cf Inflow=2.32 cfs 0.118 af
Primary=0.82 cfs 0.114 af Secondary=0.00 cfs 0.000 af Outflow=0.82 cfs 0.114 af

Link L7: PROPOSED Inflow=14.13 cfs 0.771 af
Primary=14.13 cfs 0.771 af

Total Runoff Area = 4.485 ac Runoff Volume = 0.774 af Average Runoff Depth = 2.07"
17.42% Pervious = 0.781 ac 82.58% Impervious = 3.704 ac

Summary for Subcatchment 1: TO POROUS PAVEMENT

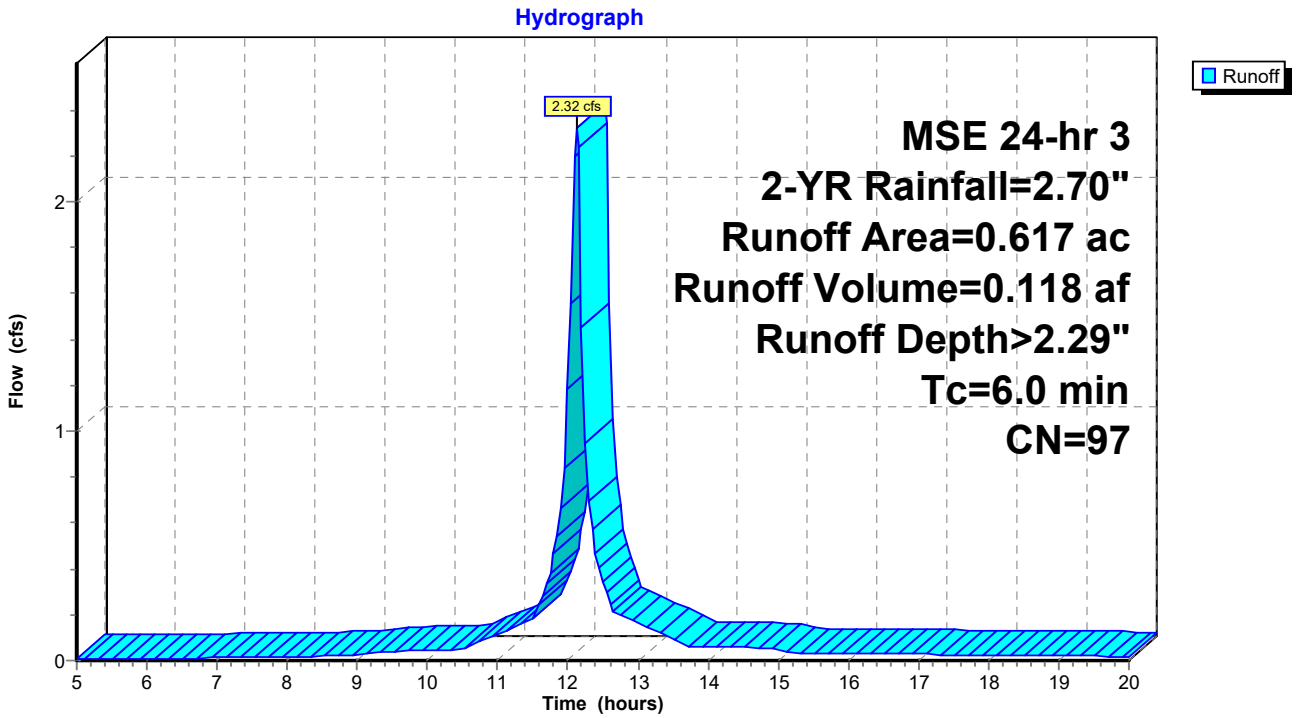
Runoff = 2.32 cfs @ 12.13 hrs, Volume= 0.118 af, Depth> 2.29"
Routed to Pond P1 : POROUS PVMNT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.022	80	>75% Grass cover, Good, HSG D
0.024	98	Roofs, HSG D
0.571	98	Paved parking, HSG D
0.617	97	Weighted Average
0.022		3.53% Pervious Area
0.595		96.47% Impervious Area

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

Subcatchment 1: TO POROUS PAVEMENT



Summary for Subcatchment 2: TO EX CB 1

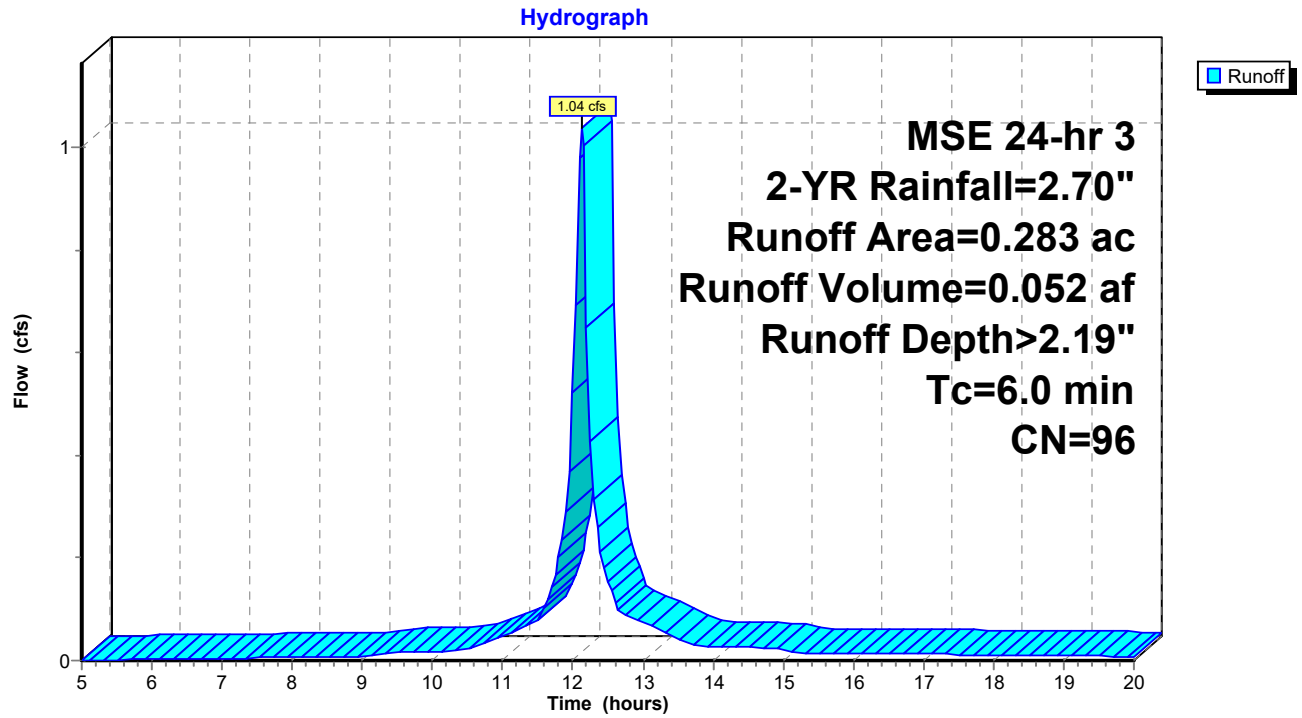
Runoff = 1.04 cfs @ 12.13 hrs, Volume= 0.052 af, Depth> 2.19"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.027	80	>75% Grass cover, Good, HSG D
0.000	98	Roofs, HSG D
0.256	98	Paved parking, HSG D
0.283	96	Weighted Average
0.027		9.46% Pervious Area
0.256		90.54% Impervious Area

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

Subcatchment 2: TO EX CB 1



Summary for Subcatchment 3: TO EX CB 1

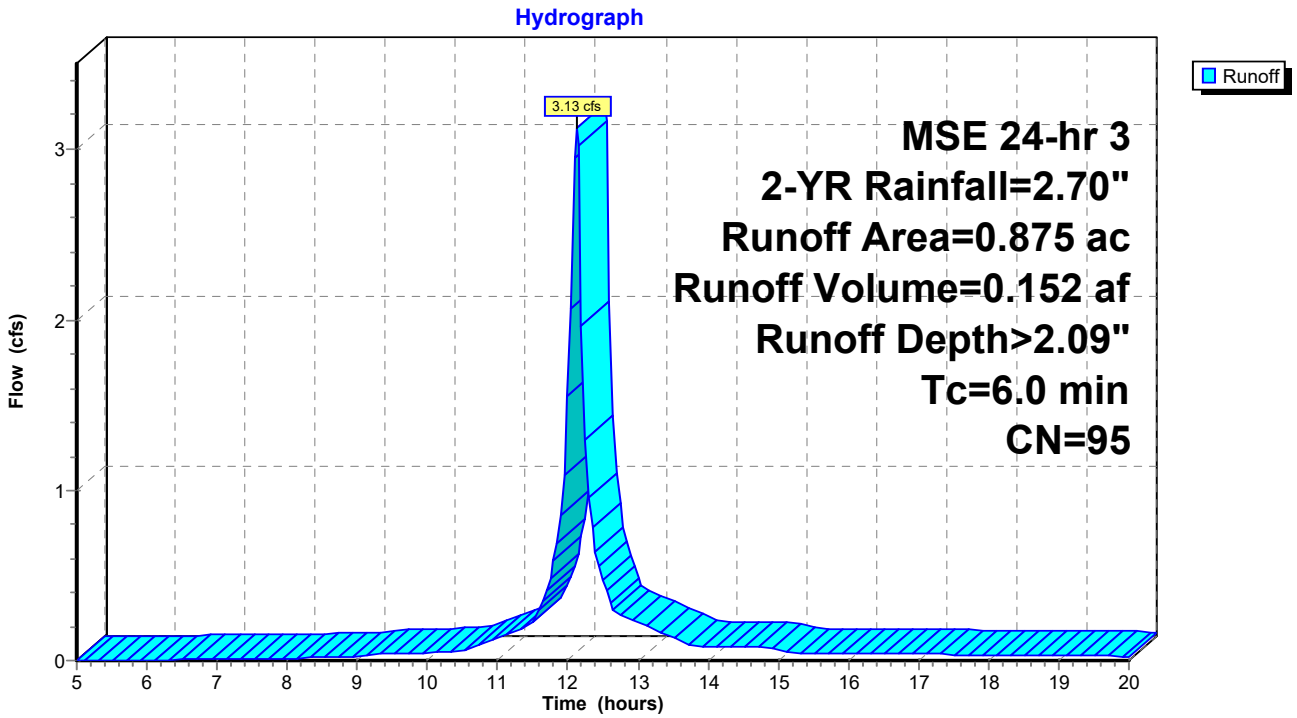
Runoff = 3.13 cfs @ 12.13 hrs, Volume= 0.152 af, Depth> 2.09"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.721	98	Paved parking, HSG D
0.155	80	>75% Grass cover, Good, HSG D
0.000	98	Roofs, HSG D
0.875	95	Weighted Average
0.155		17.68% Pervious Area
0.721		82.32% Impervious Area

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

Subcatchment 3: TO EX CB 1



Summary for Subcatchment 4: TO EX CBs 6, 7, & 9

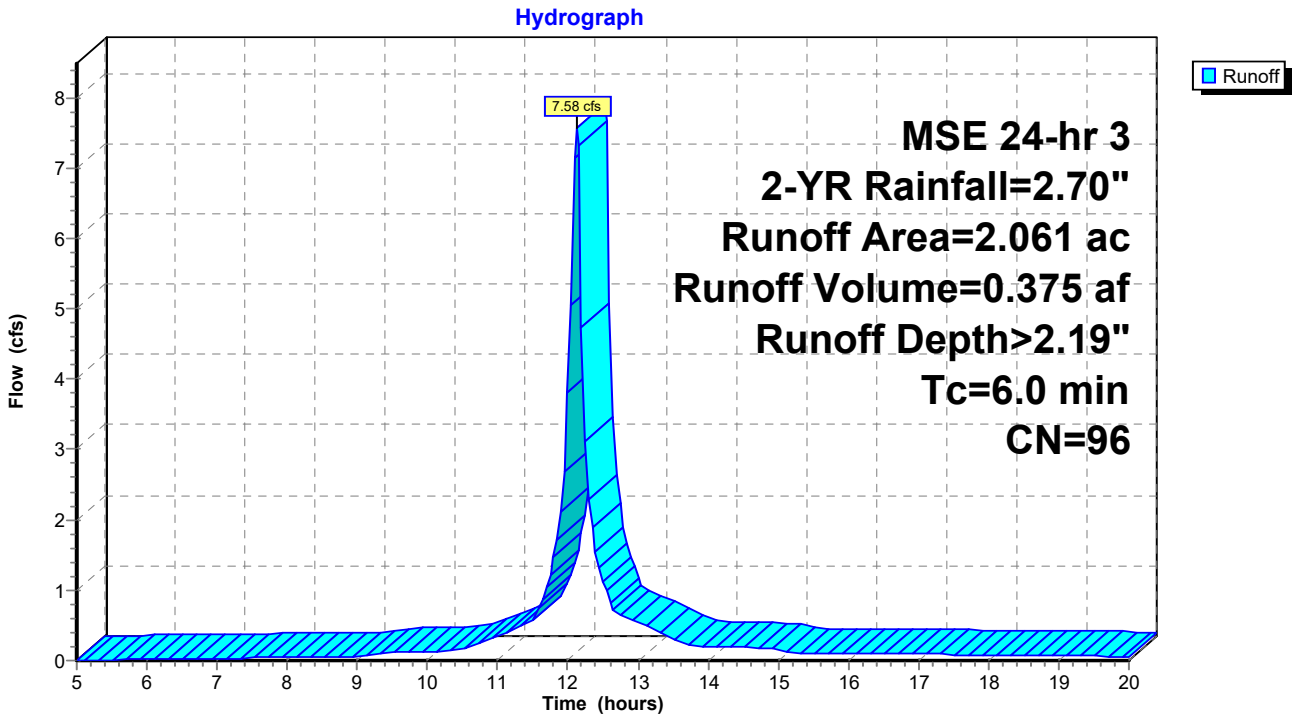
Runoff = 7.58 cfs @ 12.13 hrs, Volume= 0.375 af, Depth> 2.19"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.736	98	Paved parking, HSG D
0.174	80	>75% Grass cover, Good, HSG D
1.152	98	Roofs, HSG D
2.061	96	Weighted Average
0.174		8.43% Pervious Area
1.888		91.57% Impervious Area

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

Subcatchment 4: TO EX CBs 6, 7, & 9



Summary for Subcatchment 5: UNDETAINED TO NORTH

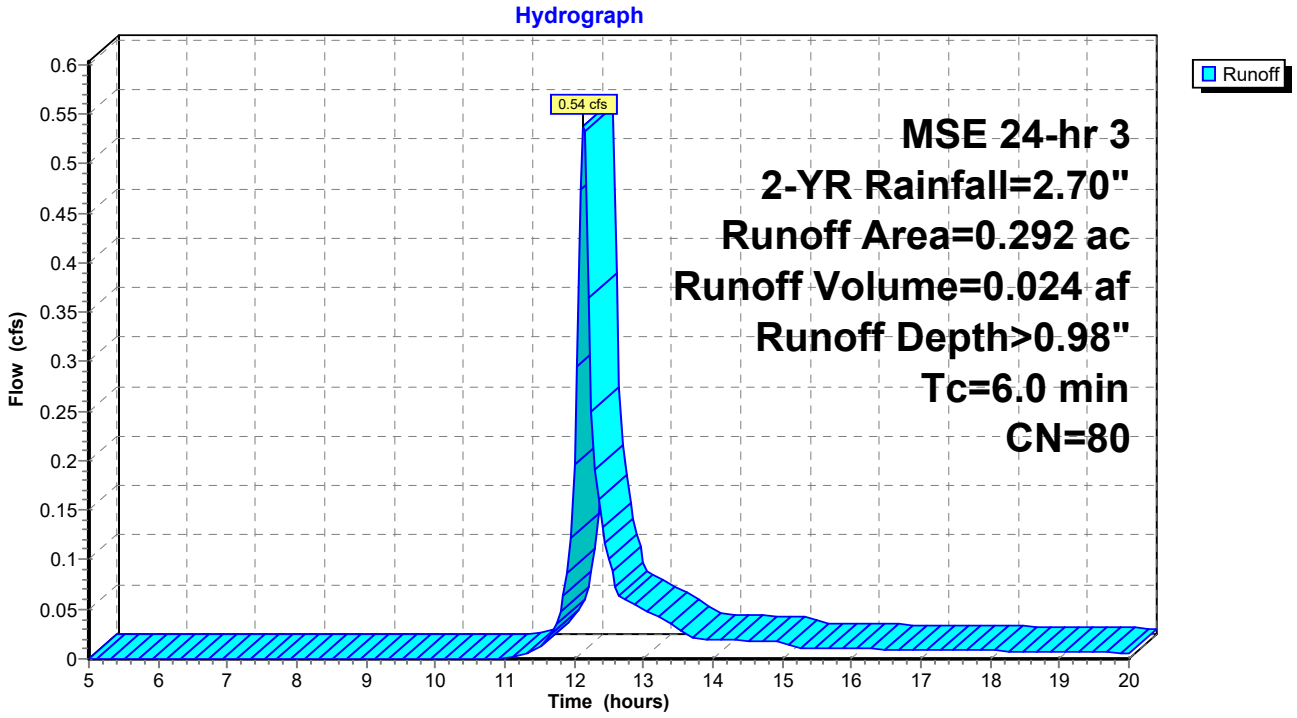
Runoff = 0.54 cfs @ 12.14 hrs, Volume= 0.024 af, Depth> 0.98"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.292	80	>75% Grass cover, Good, HSG D
0.292		100.00% Pervious Area

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

Subcatchment 5: UNDETAINED TO NORTH



Summary for Subcatchment 6: TO NORTHWEST

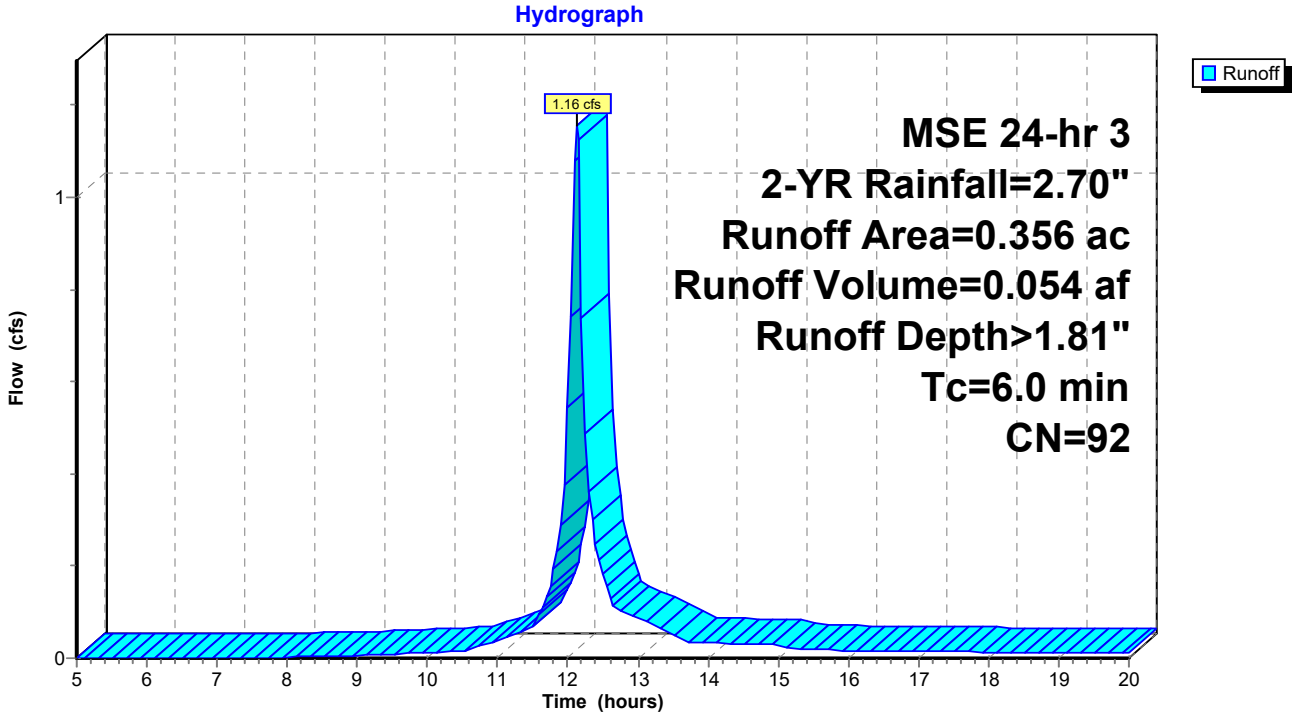
Runoff = 1.16 cfs @ 12.13 hrs, Volume= 0.054 af, Depth> 1.81"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-YR Rainfall=2.70"

Area (ac)	CN	Description
0.112	80	>75% Grass cover, Good, HSG D
0.244	98	Paved parking, HSG D
0.356	92	Weighted Average
0.112		31.53% Pervious Area
0.244		68.47% Impervious Area

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

Subcatchment 6: TO NORTHWEST



Summary for Pond P1: POROUS PVMNT 1

[82] Warning: Early inflow requires earlier time span
[92] Warning: Device #4 is above defined storage

Inflow Area = 0.617 ac, 96.47% Impervious, Inflow Depth > 2.29" for 2-YR event
Inflow = 2.32 cfs @ 12.13 hrs, Volume= 0.118 af
Outflow = 0.82 cfs @ 12.28 hrs, Volume= 0.114 af, Atten= 65%, Lag= 8.9 min
Primary = 0.82 cfs @ 12.28 hrs, Volume= 0.114 af
Routed to Link L7 : PROPOSED
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link L7 : PROPOSED

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 870.48' @ 12.28 hrs Surf.Area= 5,227 sf Storage= 1,734 cf

Plug-Flow detention time= 46.0 min calculated for 0.114 af (97% of inflow)
Center-of-Mass det. time= 35.1 min (781.7 - 746.7)

Volume	Invert	Avail.Storage	Storage Description
#1	869.47'	2,587 cf	**18" Aggregate Storage (Prismatic)** Listed below 7,841 cf Overall x 33.0% Voids
#2	870.97'	862 cf	**6" Aggregate Bedding (Prismatic)** Listed below 2,614 cf Overall x 33.0% Voids
#3	871.47'	549 cf	**5" Permeable Pavement (Prismatic)** Listed below 2,195 cf Overall x 25.0% Voids
#4	871.89'	65 cf	**Above Ground Storage (Prismatic)** Listed below
		4,064 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
869.47	5,227	0	0
870.97	5,227	7,841	7,841

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
870.97	5,227	0	0
871.47	5,227	2,614	2,614

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.47	5,227	0	0
871.89	5,227	2,195	2,195

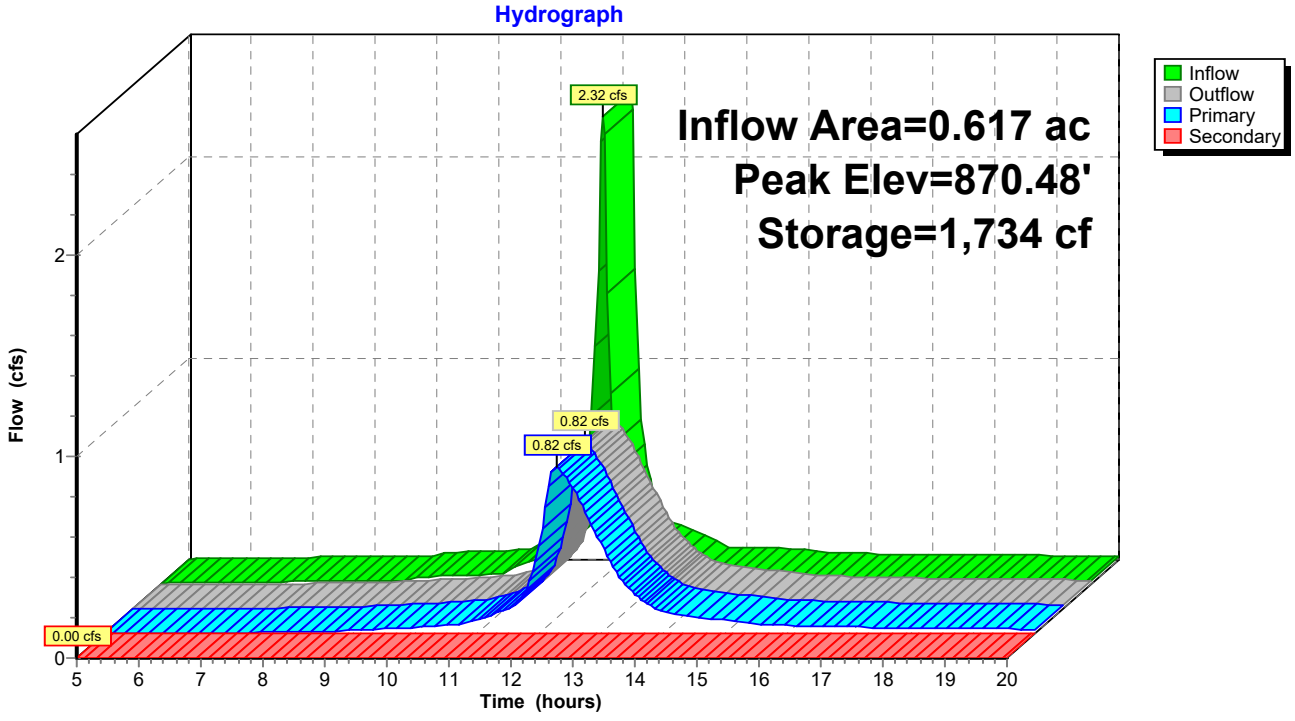
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.89	0	0	0
872.00	20	1	1
872.30	297	48	49
872.35	375	17	65

Device	Routing	Invert	Outlet Devices
#1	Primary	866.54'	**18.0" Round Culvert** L= 11.2' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 866.54' / 866.43' S= 0.0098 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Device 1	869.47'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	871.89'	**6.5" x 1.7" Horiz. Orifice/Grate X 4.00 columns** X 5 rows C= 0.600 in 36.5" x 19.2" Grate (32% open area) Limited to weir flow at low heads
#4	Secondary	872.39'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 26.28 59.61 Height (feet) 0.50 0.00 0.50

Primary OutFlow Max=0.82 cfs @ 12.28 hrs HW=870.47' (Free Discharge)
└─**1=Culvert** (Passes 0.82 cfs of 15.18 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 0.82 cfs @ 4.18 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=869.47' (Free Discharge)
└─**4=Asymmetrical Weir** (Controls 0.00 cfs)

Pond P1: POROUS PVMNT 1

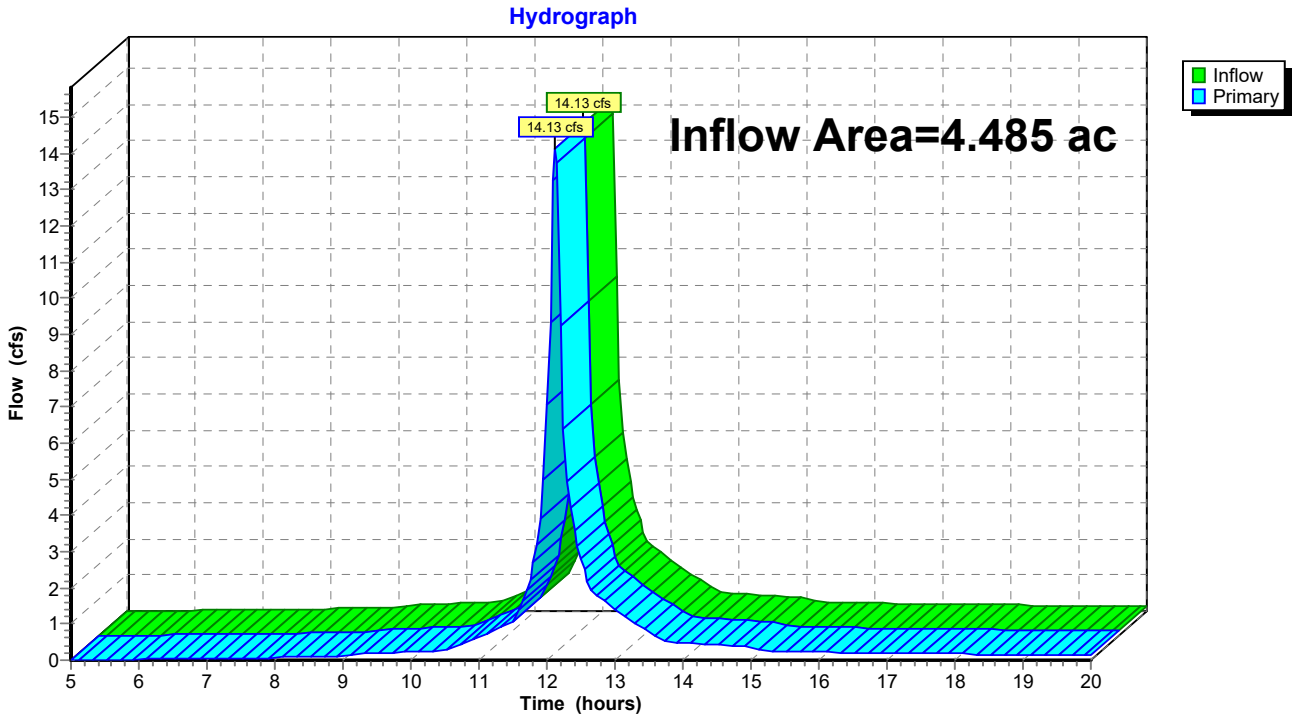


Summary for Link L7: PROPOSED

Inflow Area = 4.485 ac, 82.58% Impervious, Inflow Depth > 2.06" for 2-YR event
Inflow = 14.13 cfs @ 12.13 hrs, Volume= 0.771 af
Primary = 14.13 cfs @ 12.13 hrs, Volume= 0.771 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link L7: PROPOSED



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: TO POROUS PAVEMENT Runoff Area=0.617 ac 96.47% Impervious Runoff Depth>3.35"
Tc=6.0 min CN=97 Runoff=3.33 cfs 0.172 af

Subcatchment2: TO EX CB 1 Runoff Area=0.283 ac 90.54% Impervious Runoff Depth>3.24"
Tc=6.0 min CN=96 Runoff=1.51 cfs 0.077 af

Subcatchment3: TO EX CB 1 Runoff Area=0.875 ac 82.32% Impervious Runoff Depth>3.14"
Tc=6.0 min CN=95 Runoff=4.59 cfs 0.229 af

Subcatchment4: TO EX CBs 6, 7, & 9 Runoff Area=2.061 ac 91.57% Impervious Runoff Depth>3.24"
Tc=6.0 min CN=96 Runoff=10.97 cfs 0.557 af

Subcatchment5: UNDETAINEDTO NORTH Runoff Area=0.292 ac 0.00% Impervious Runoff Depth>1.80"
Tc=6.0 min CN=80 Runoff=0.99 cfs 0.044 af

Subcatchment6: TO NORTHWEST Runoff Area=0.356 ac 68.47% Impervious Runoff Depth>2.84"
Tc=6.0 min CN=92 Runoff=1.76 cfs 0.084 af

Pond P1: POROUS PVMNT 1 Peak Elev=870.95' Storage=2,546 cf Inflow=3.33 cfs 0.172 af
Primary=1.05 cfs 0.168 af Secondary=0.00 cfs 0.000 af Outflow=1.05 cfs 0.168 af

Link L7: PROPOSED Inflow=20.69 cfs 1.159 af
Primary=20.69 cfs 1.159 af

Total Runoff Area = 4.485 ac Runoff Volume = 1.163 af Average Runoff Depth = 3.11"
17.42% Pervious = 0.781 ac 82.58% Impervious = 3.704 ac

Summary for Subcatchment 1: TO POROUS PAVEMENT

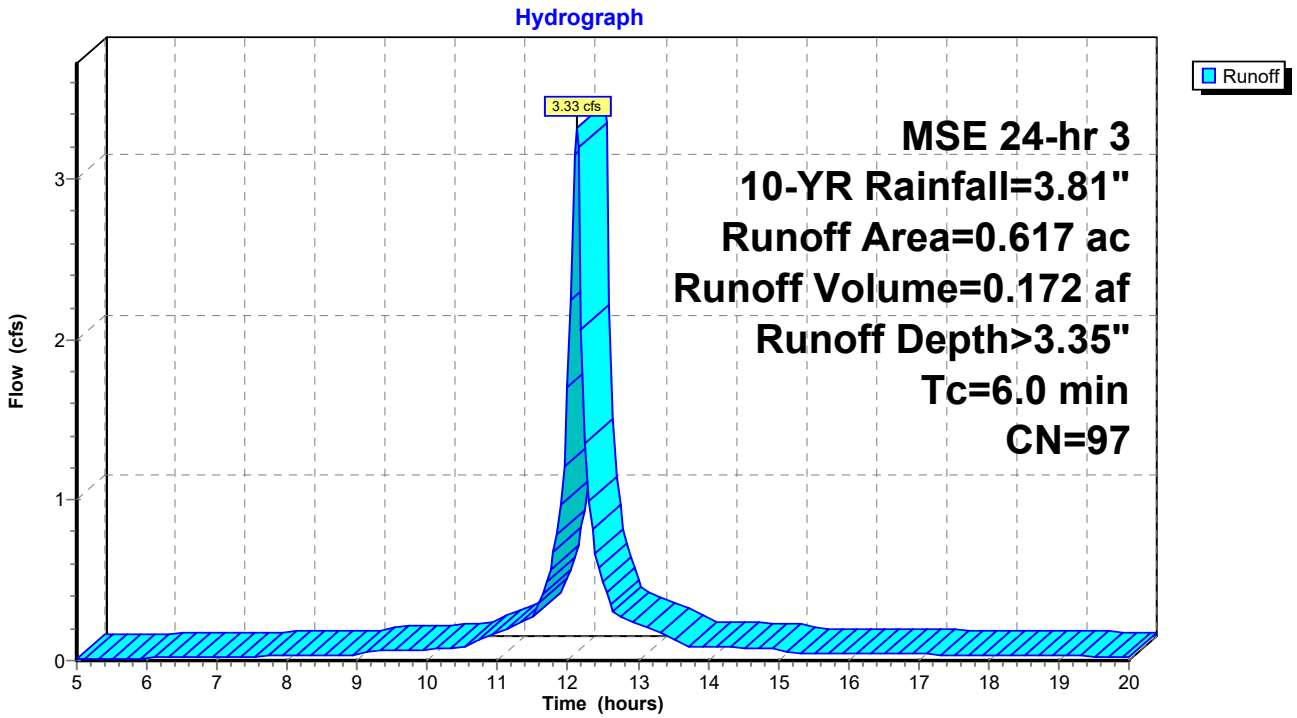
Runoff = 3.33 cfs @ 12.13 hrs, Volume= 0.172 af, Depth> 3.35"
Routed to Pond P1 : POROUS PVMNT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.022	80	>75% Grass cover, Good, HSG D
0.024	98	Roofs, HSG D
0.571	98	Paved parking, HSG D
0.617	97	Weighted Average
0.022		3.53% Pervious Area
0.595		96.47% Impervious Area

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

Subcatchment 1: TO POROUS PAVEMENT



Summary for Subcatchment 2: TO EX CB 1

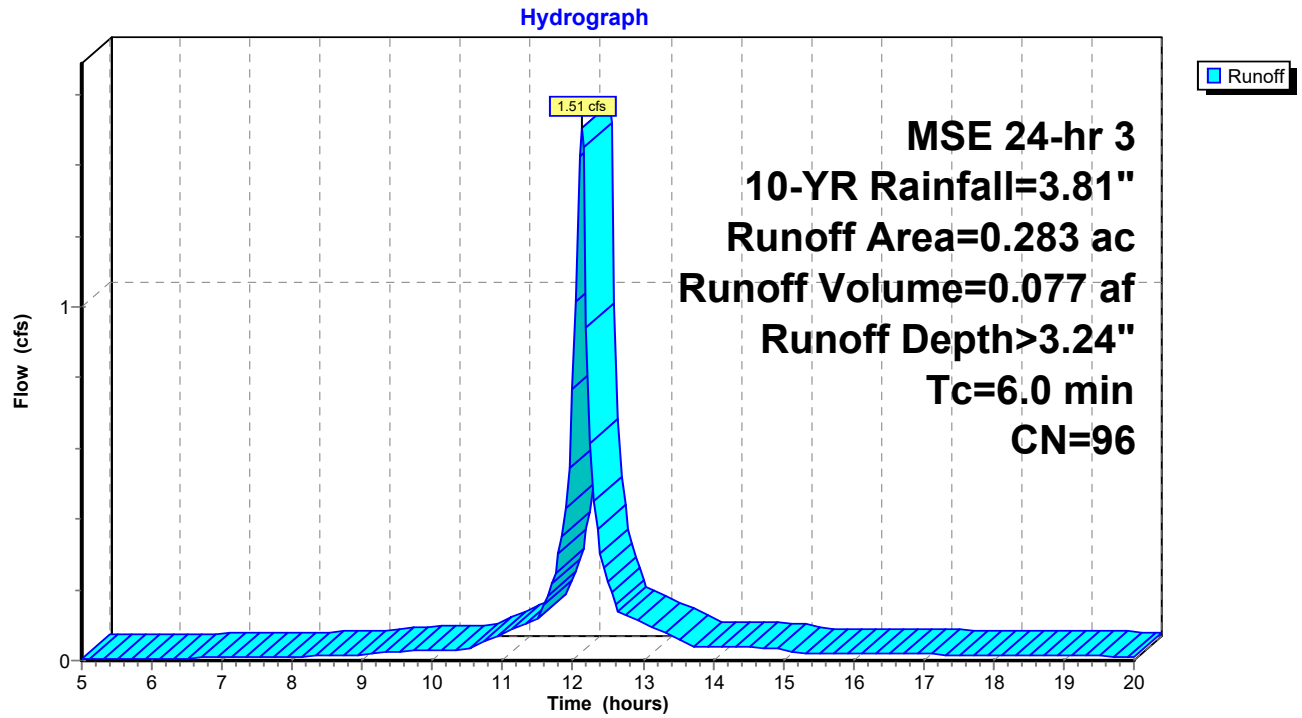
Runoff = 1.51 cfs @ 12.13 hrs, Volume= 0.077 af, Depth> 3.24"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.027	80	>75% Grass cover, Good, HSG D
0.000	98	Roofs, HSG D
0.256	98	Paved parking, HSG D
0.283	96	Weighted Average
0.027		9.46% Pervious Area
0.256		90.54% Impervious Area

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

Subcatchment 2: TO EX CB 1



Summary for Subcatchment 3: TO EX CB 1

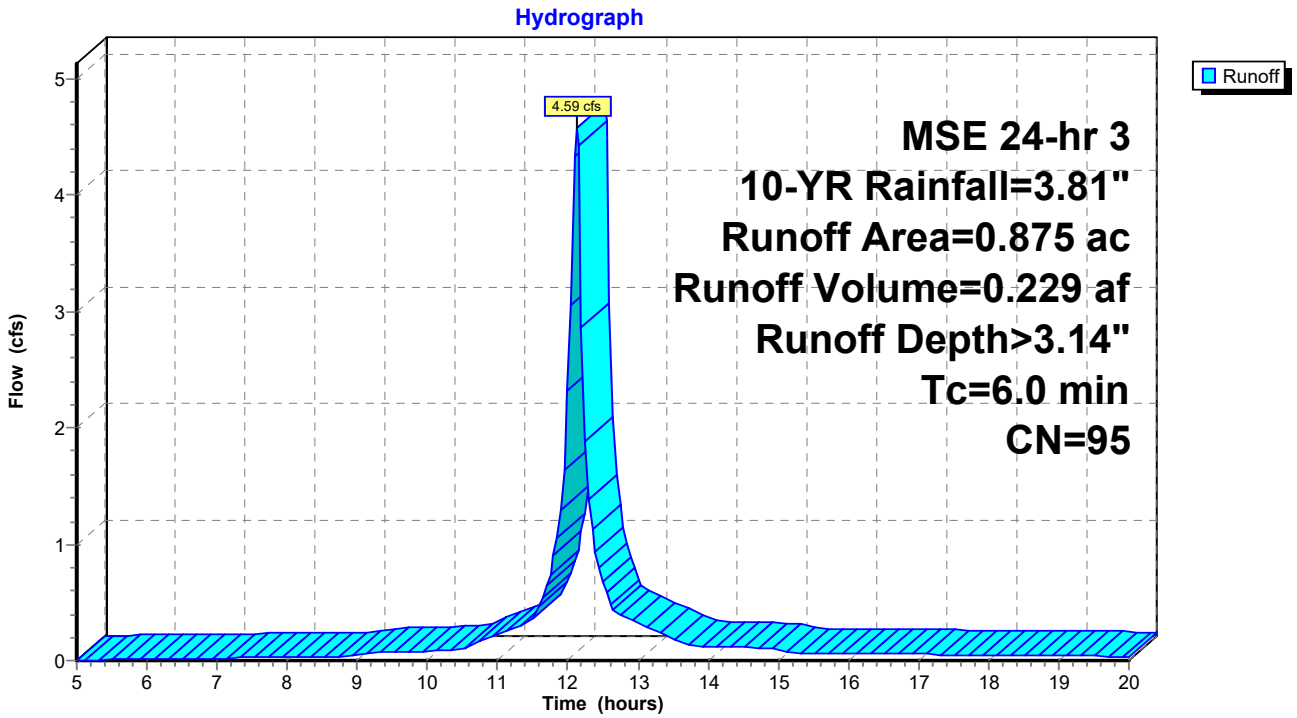
Runoff = 4.59 cfs @ 12.13 hrs, Volume= 0.229 af, Depth> 3.14"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.721	98	Paved parking, HSG D
0.155	80	>75% Grass cover, Good, HSG D
0.000	98	Roofs, HSG D
0.875	95	Weighted Average
0.155		17.68% Pervious Area
0.721		82.32% Impervious Area

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

Subcatchment 3: TO EX CB 1



Summary for Subcatchment 4: TO EX CBs 6, 7, & 9

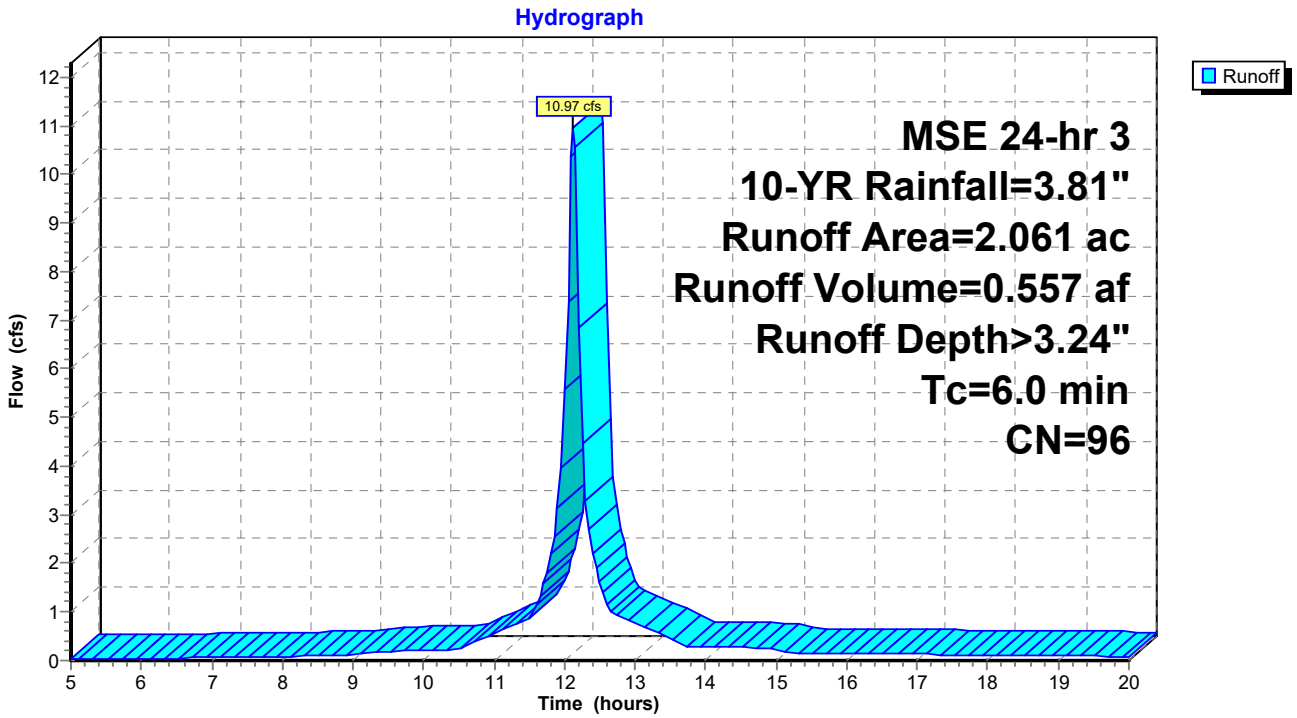
Runoff = 10.97 cfs @ 12.13 hrs, Volume= 0.557 af, Depth> 3.24"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.736	98	Paved parking, HSG D
0.174	80	>75% Grass cover, Good, HSG D
1.152	98	Roofs, HSG D
2.061	96	Weighted Average
0.174		8.43% Pervious Area
1.888		91.57% Impervious Area

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

Subcatchment 4: TO EX CBs 6, 7, & 9



Summary for Subcatchment 5: UNDETAINED TO NORTH

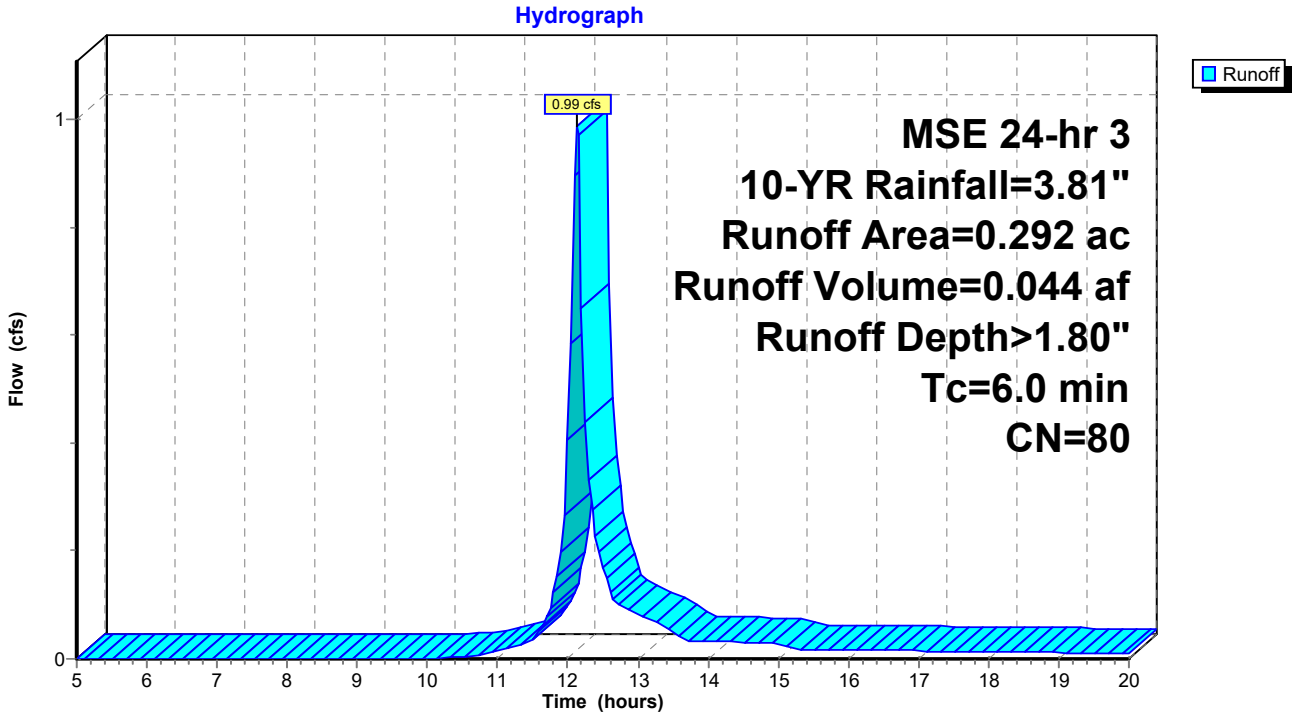
Runoff = 0.99 cfs @ 12.13 hrs, Volume= 0.044 af, Depth> 1.80"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.292	80	>75% Grass cover, Good, HSG D
0.292		100.00% Pervious Area

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

Subcatchment 5: UNDETAINED TO NORTH



Summary for Subcatchment 6: TO NORTHWEST

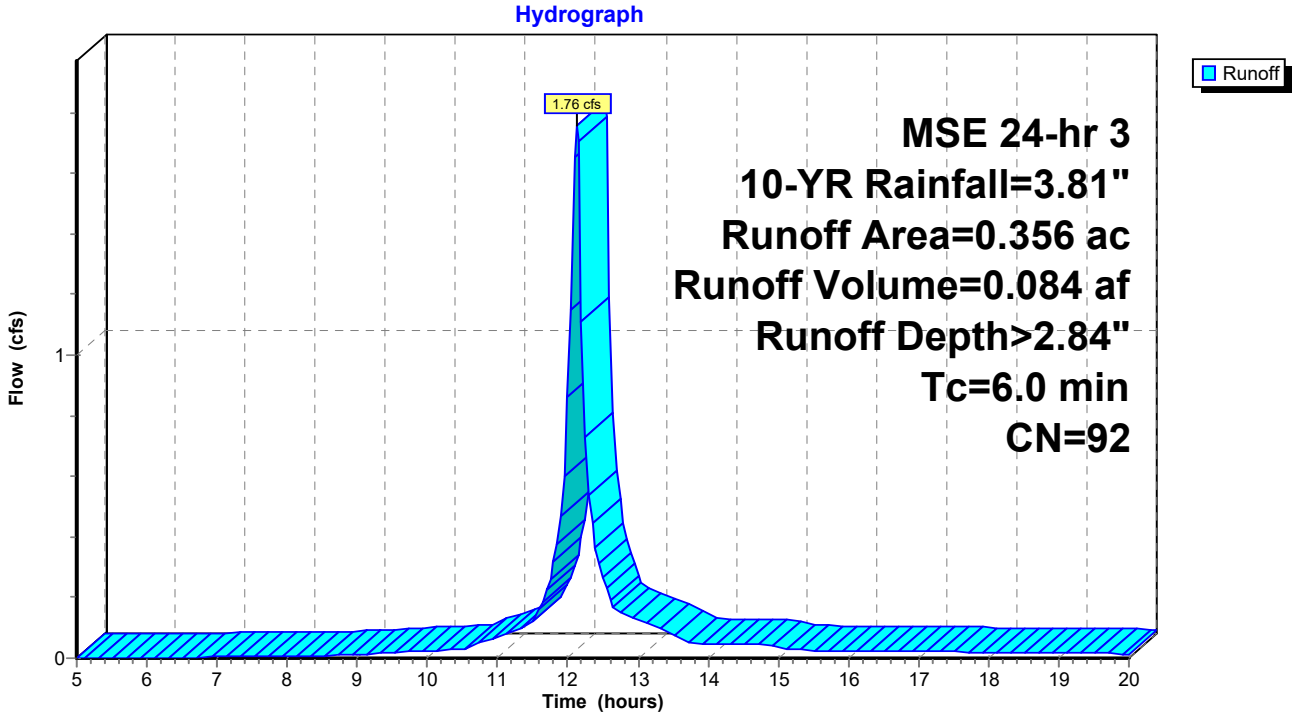
Runoff = 1.76 cfs @ 12.13 hrs, Volume= 0.084 af, Depth> 2.84"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-YR Rainfall=3.81"

Area (ac)	CN	Description
0.112	80	>75% Grass cover, Good, HSG D
0.244	98	Paved parking, HSG D
0.356	92	Weighted Average
0.112		31.53% Pervious Area
0.244		68.47% Impervious Area

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

Subcatchment 6: TO NORTHWEST



Summary for Pond P1: POROUS PVMNT 1

[82] Warning: Early inflow requires earlier time span
[92] Warning: Device #4 is above defined storage

Inflow Area = 0.617 ac, 96.47% Impervious, Inflow Depth > 3.35" for 10-YR event
Inflow = 3.33 cfs @ 12.13 hrs, Volume= 0.172 af
Outflow = 1.05 cfs @ 12.30 hrs, Volume= 0.168 af, Atten= 69%, Lag= 10.3 min
Primary = 1.05 cfs @ 12.30 hrs, Volume= 0.168 af
Routed to Link L7 : PROPOSED
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link L7 : PROPOSED

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 870.95' @ 12.30 hrs Surf.Area= 5,227 sf Storage= 2,546 cf

Plug-Flow detention time= 44.2 min calculated for 0.168 af (97% of inflow)
Center-of-Mass det. time= 34.9 min (776.7 - 741.8)

Volume	Invert	Avail.Storage	Storage Description
#1	869.47'	2,587 cf	**18" Aggregate Storage (Prismatic)** Listed below 7,841 cf Overall x 33.0% Voids
#2	870.97'	862 cf	**6" Aggregate Bedding (Prismatic)** Listed below 2,614 cf Overall x 33.0% Voids
#3	871.47'	549 cf	**5" Permeable Pavement (Prismatic)** Listed below 2,195 cf Overall x 25.0% Voids
#4	871.89'	65 cf	**Above Ground Storage (Prismatic)** Listed below
		4,064 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
869.47	5,227	0	0
870.97	5,227	7,841	7,841

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
870.97	5,227	0	0
871.47	5,227	2,614	2,614

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.47	5,227	0	0
871.89	5,227	2,195	2,195

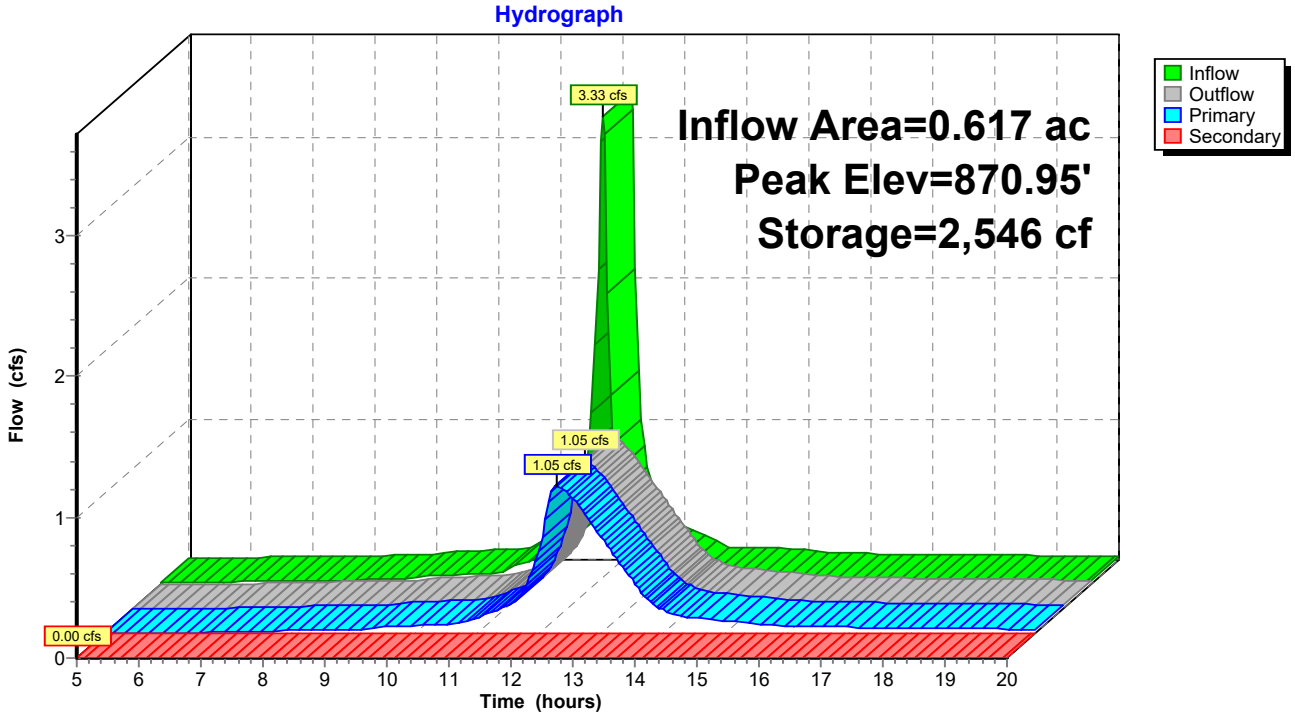
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.89	0	0	0
872.00	20	1	1
872.30	297	48	49
872.35	375	17	65

Device	Routing	Invert	Outlet Devices
#1	Primary	866.54'	**18.0" Round Culvert** L= 11.2' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 866.54' / 866.43' S= 0.0098 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Device 1	869.47'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	871.89'	**6.5" x 1.7" Horiz. Orifice/Grate X 4.00 columns** X 5 rows C= 0.600 in 36.5" x 19.2" Grate (32% open area) Limited to weir flow at low heads
#4	Secondary	872.39'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 26.28 59.61 Height (feet) 0.50 0.00 0.50

Primary OutFlow Max=1.05 cfs @ 12.30 hrs HW=870.95' (Free Discharge)
└─**1=Culvert** (Passes 1.05 cfs of 16.27 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 1.05 cfs @ 5.33 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=869.47' (Free Discharge)
└─**4=Asymmetrical Weir** (Controls 0.00 cfs)

Pond P1: POROUS PVMNT 1

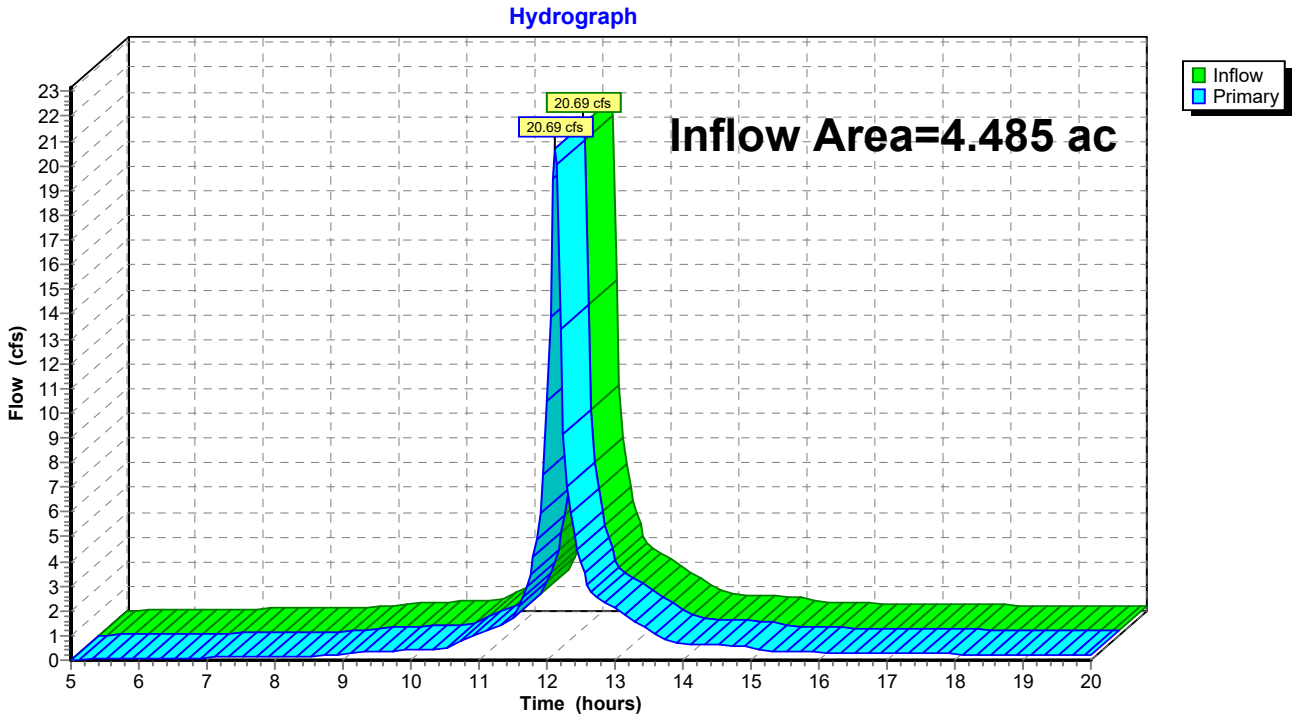


Summary for Link L7: PROPOSED

Inflow Area = 4.485 ac, 82.58% Impervious, Inflow Depth > 3.10" for 10-YR event
Inflow = 20.69 cfs @ 12.13 hrs, Volume= 1.159 af
Primary = 20.69 cfs @ 12.13 hrs, Volume= 1.159 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link L7: PROPOSED



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: TO POROUS PAVEMENT Runoff Area=0.617 ac 96.47% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=97 Runoff=5.46 cfs 0.288 af

Subcatchment2: TO EX CB 1 Runoff Area=0.283 ac 90.54% Impervious Runoff Depth>5.51"
Tc=6.0 min CN=96 Runoff=2.49 cfs 0.130 af

Subcatchment3: TO EX CB 1 Runoff Area=0.875 ac 82.32% Impervious Runoff Depth>5.40"
Tc=6.0 min CN=95 Runoff=7.65 cfs 0.394 af

Subcatchment4: TO EX CBs 6, 7, & 9 Runoff Area=2.061 ac 91.57% Impervious Runoff Depth>5.51"
Tc=6.0 min CN=96 Runoff=18.13 cfs 0.946 af

Subcatchment5: UNDETAINEDTO NORTH Runoff Area=0.292 ac 0.00% Impervious Runoff Depth>3.79"
Tc=6.0 min CN=80 Runoff=2.02 cfs 0.092 af

Subcatchment6: TO NORTHWEST Runoff Area=0.356 ac 68.47% Impervious Runoff Depth>5.08"
Tc=6.0 min CN=92 Runoff=3.02 cfs 0.151 af

Pond P1: POROUS PVMNT 1 Peak Elev=872.06' Storage=4,009 cf Inflow=5.46 cfs 0.288 af
Primary=3.43 cfs 0.283 af Secondary=0.00 cfs 0.000 af Outflow=3.43 cfs 0.283 af

Link L7: PROPOSED Inflow=34.42 cfs 1.997 af
Primary=34.42 cfs 1.997 af

Total Runoff Area = 4.485 ac Runoff Volume = 2.001 af Average Runoff Depth = 5.35"
17.42% Pervious = 0.781 ac 82.58% Impervious = 3.704 ac

Summary for Subcatchment 1: TO POROUS PAVEMENT

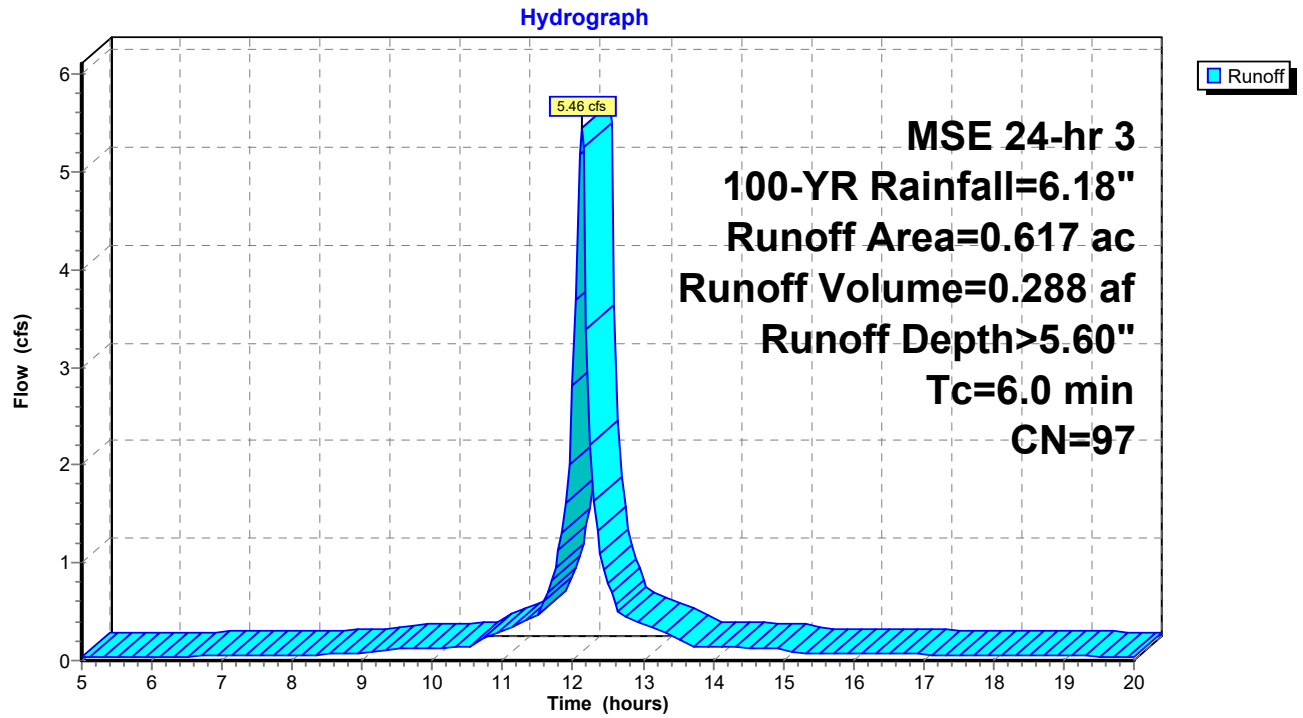
Runoff = 5.46 cfs @ 12.13 hrs, Volume= 0.288 af, Depth> 5.60"
Routed to Pond P1 : POROUS PVMNT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.022	80	>75% Grass cover, Good, HSG D
0.024	98	Roofs, HSG D
0.571	98	Paved parking, HSG D
0.617	97	Weighted Average
0.022		3.53% Pervious Area
0.595		96.47% Impervious Area

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

Subcatchment 1: TO POROUS PAVEMENT



Summary for Subcatchment 2: TO EX CB 1

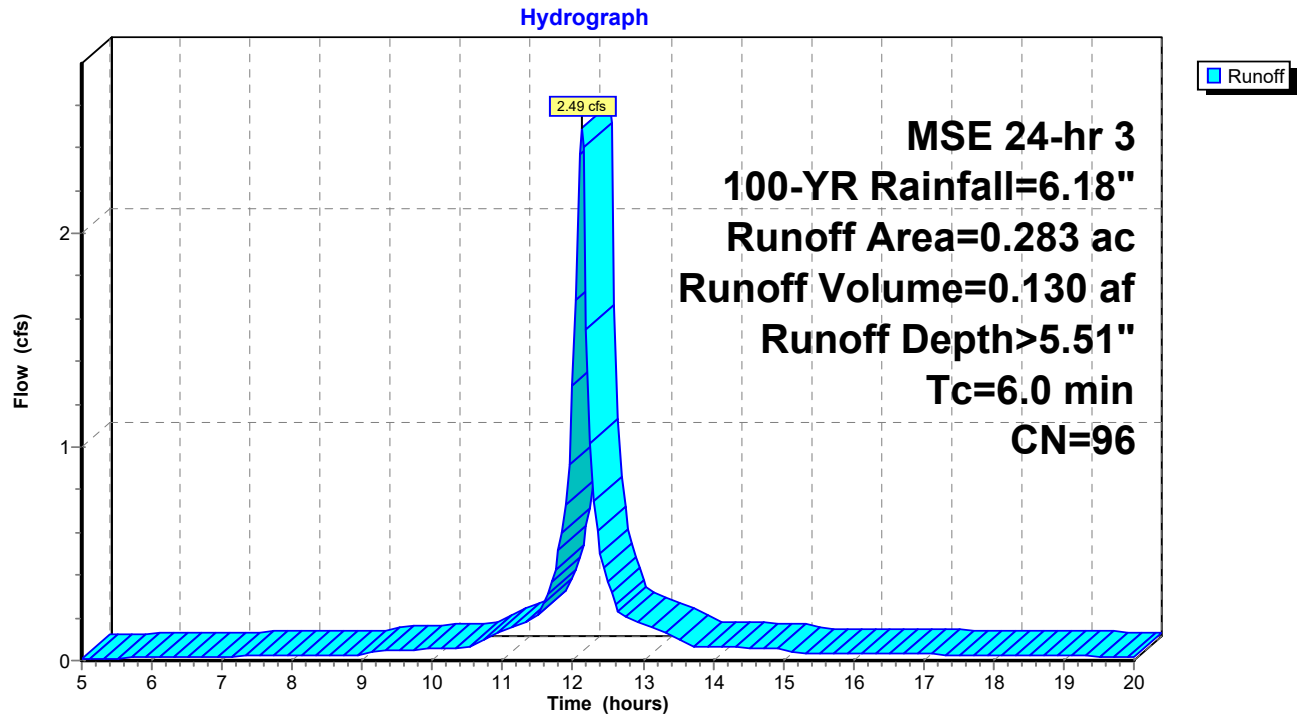
Runoff = 2.49 cfs @ 12.13 hrs, Volume= 0.130 af, Depth> 5.51"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.027	80	>75% Grass cover, Good, HSG D
0.000	98	Roofs, HSG D
0.256	98	Paved parking, HSG D
0.283	96	Weighted Average
0.027		9.46% Pervious Area
0.256		90.54% Impervious Area

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

Subcatchment 2: TO EX CB 1



Summary for Subcatchment 3: TO EX CB 1

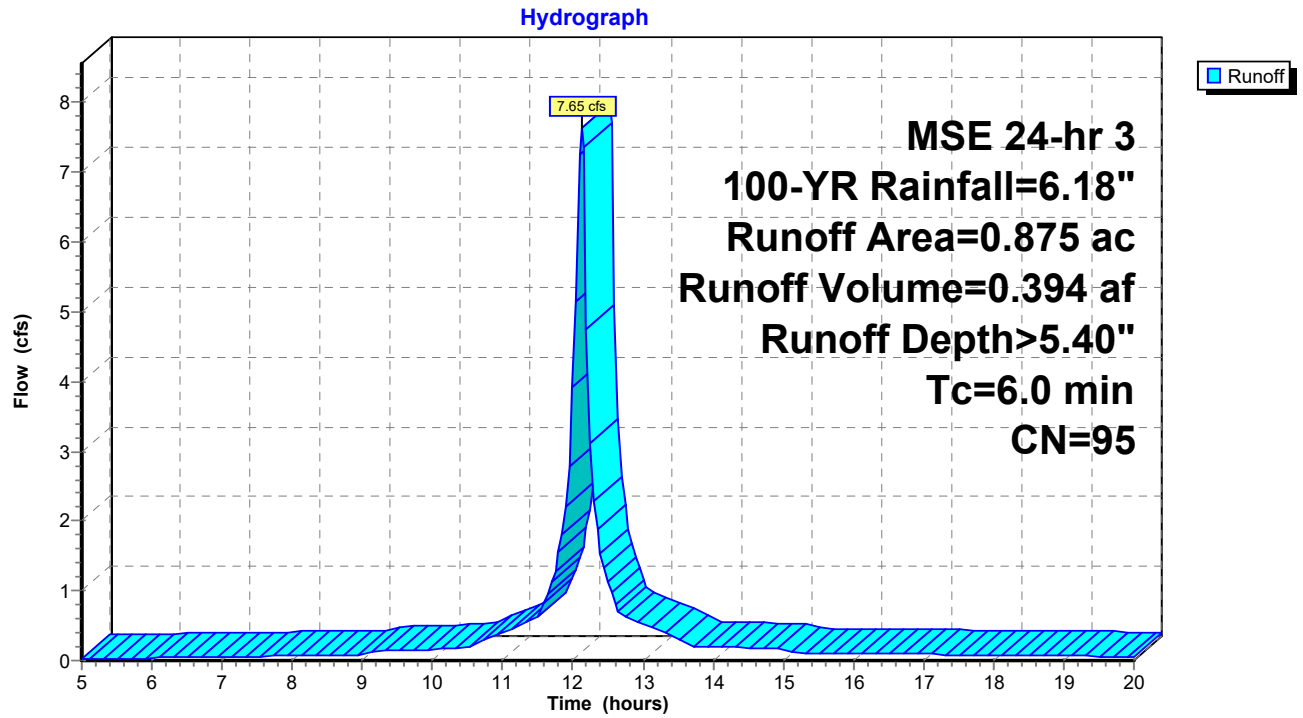
Runoff = 7.65 cfs @ 12.13 hrs, Volume= 0.394 af, Depth> 5.40"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.721	98	Paved parking, HSG D
0.155	80	>75% Grass cover, Good, HSG D
0.000	98	Roofs, HSG D
0.875	95	Weighted Average
0.155		17.68% Pervious Area
0.721		82.32% Impervious Area

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

Subcatchment 3: TO EX CB 1



Summary for Subcatchment 4: TO EX CBs 6, 7, & 9

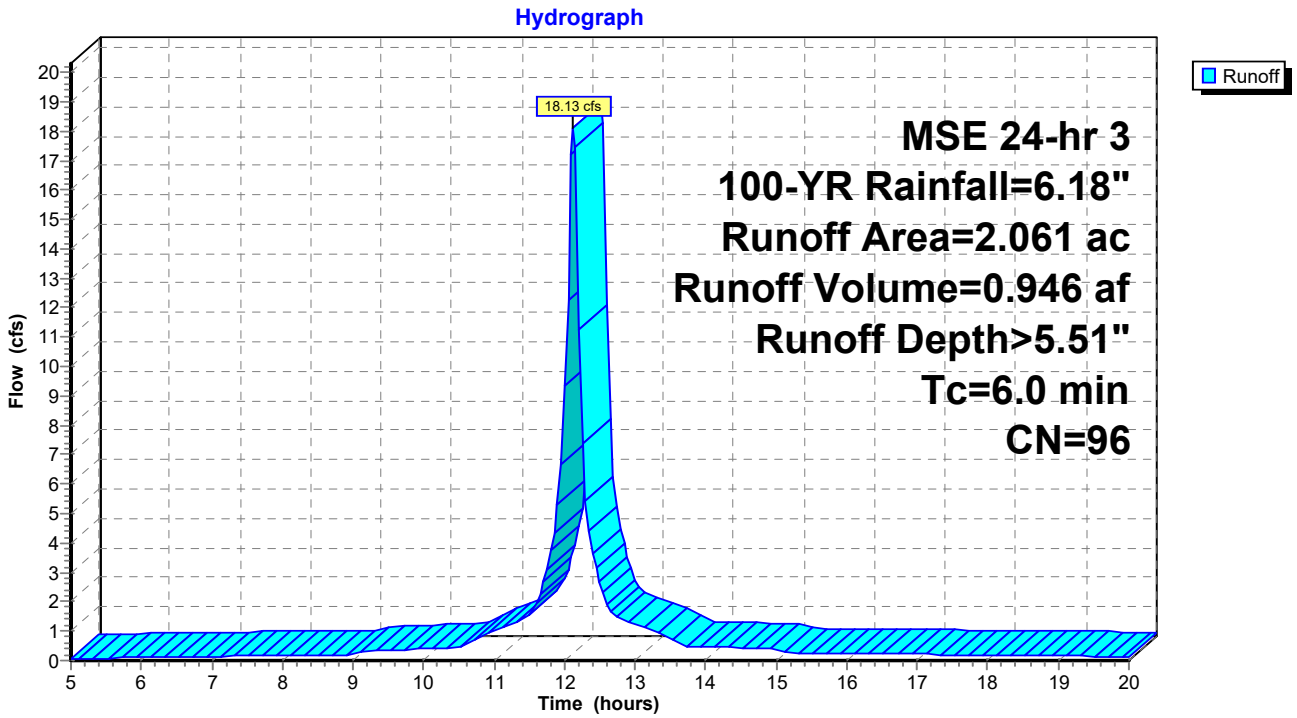
Runoff = 18.13 cfs @ 12.13 hrs, Volume= 0.946 af, Depth> 5.51"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.736	98	Paved parking, HSG D
0.174	80	>75% Grass cover, Good, HSG D
1.152	98	Roofs, HSG D
2.061	96	Weighted Average
0.174		8.43% Pervious Area
1.888		91.57% Impervious Area

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

Subcatchment 4: TO EX CBs 6, 7, & 9



Summary for Subcatchment 5: UNDETAINED TO NORTH

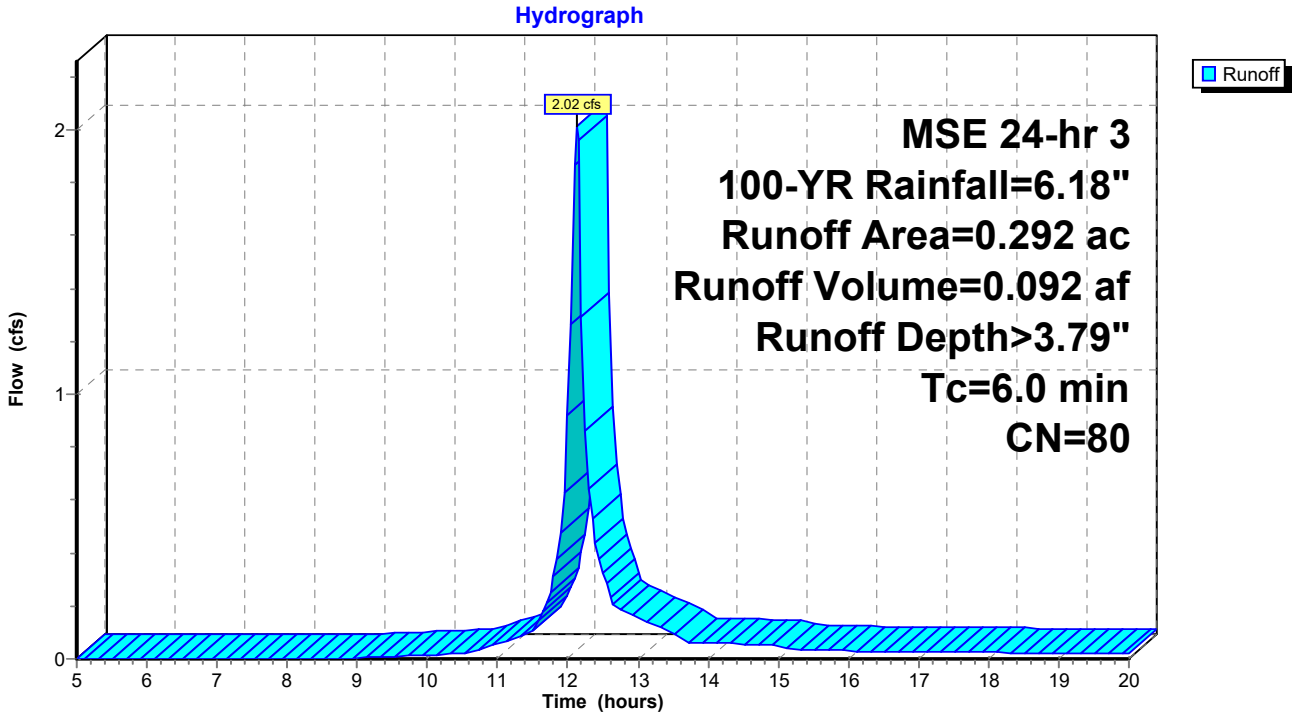
Runoff = 2.02 cfs @ 12.13 hrs, Volume= 0.092 af, Depth> 3.79"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.292	80	>75% Grass cover, Good, HSG D
0.292		100.00% Pervious Area

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

Subcatchment 5: UNDETAINED TO NORTH



Summary for Subcatchment 6: TO NORTHWEST

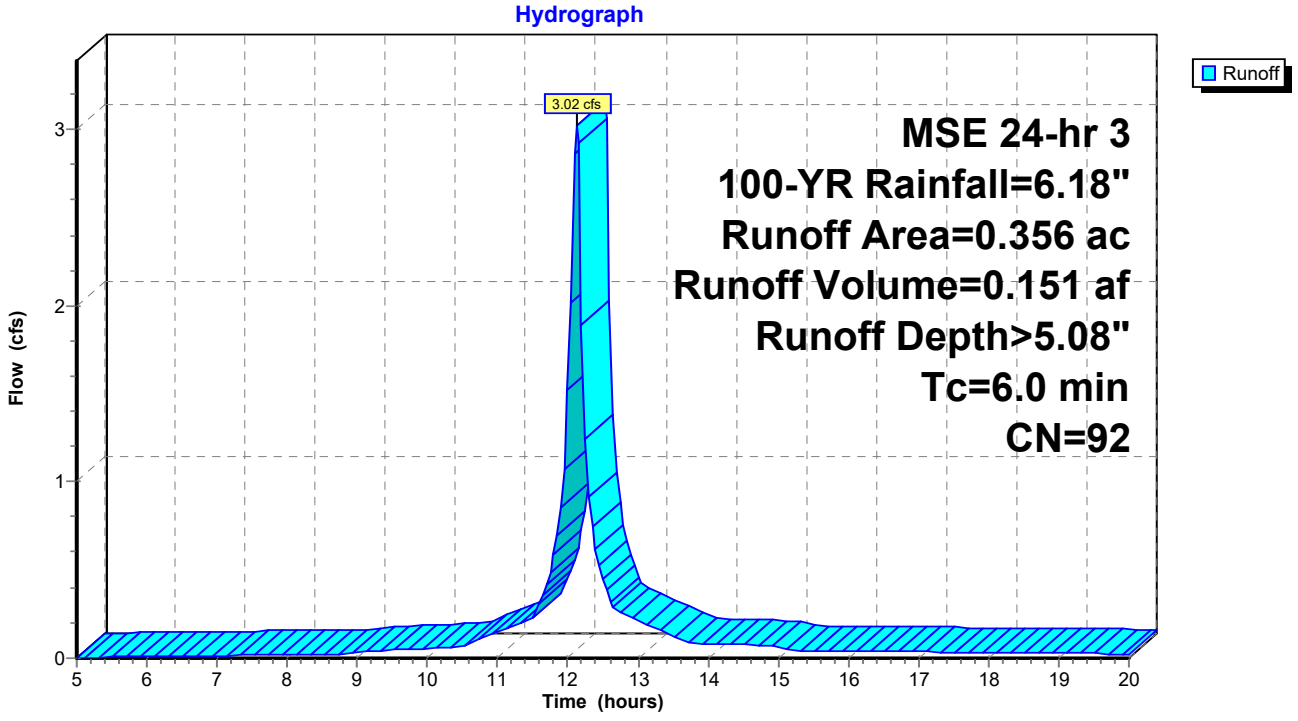
Runoff = 3.02 cfs @ 12.13 hrs, Volume= 0.151 af, Depth> 5.08"
Routed to Link L7 : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-YR Rainfall=6.18"

Area (ac)	CN	Description
0.112	80	>75% Grass cover, Good, HSG D
0.244	98	Paved parking, HSG D
0.356	92	Weighted Average
0.112		31.53% Pervious Area
0.244		68.47% Impervious Area

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

Subcatchment 6: TO NORTHWEST



Summary for Pond P1: POROUS PVMNT 1

[82] Warning: Early inflow requires earlier time span
[92] Warning: Device #4 is above defined storage

Inflow Area = 0.617 ac, 96.47% Impervious, Inflow Depth > 5.60" for 100-YR event
Inflow = 5.46 cfs @ 12.13 hrs, Volume= 0.288 af
Outflow = 3.43 cfs @ 12.24 hrs, Volume= 0.283 af, Atten= 37%, Lag= 7.1 min
Primary = 3.43 cfs @ 12.24 hrs, Volume= 0.283 af
Routed to Link L7 : PROPOSED
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link L7 : PROPOSED

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 872.06' @ 12.24 hrs Surf.Area= 15,755 sf Storage= 4,009 cf

Plug-Flow detention time= 42.1 min calculated for 0.282 af (98% of inflow)
Center-of-Mass det. time= 34.8 min (771.6 - 736.8)

Volume	Invert	Avail.Storage	Storage Description
#1	869.47'	2,587 cf	**18" Aggregate Storage (Prismatic)** Listed below 7,841 cf Overall x 33.0% Voids
#2	870.97'	862 cf	**6" Aggregate Bedding (Prismatic)** Listed below 2,614 cf Overall x 33.0% Voids
#3	871.47'	549 cf	**5" Permeable Pavement (Prismatic)** Listed below 2,195 cf Overall x 25.0% Voids
#4	871.89'	65 cf	**Above Ground Storage (Prismatic)** Listed below
		4,064 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
869.47	5,227	0	0
870.97	5,227	7,841	7,841

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
870.97	5,227	0	0
871.47	5,227	2,614	2,614

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.47	5,227	0	0
871.89	5,227	2,195	2,195

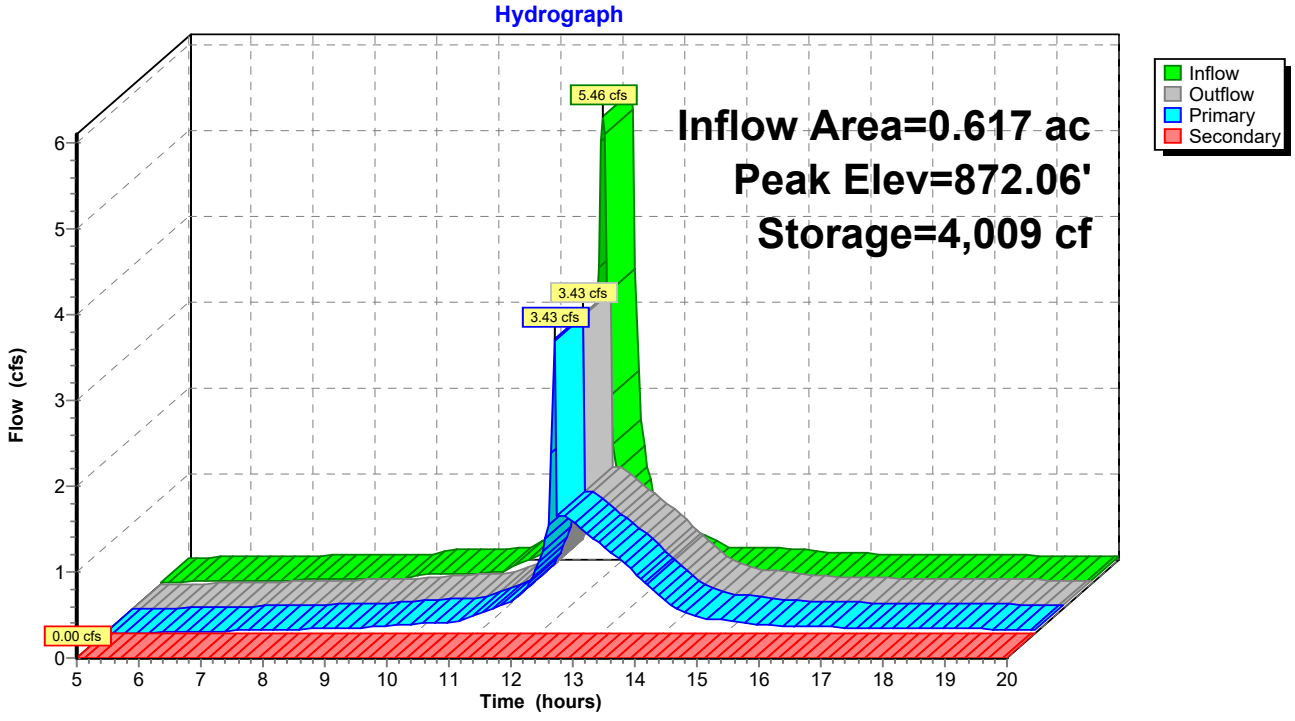
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
871.89	0	0	0
872.00	20	1	1
872.30	297	48	49
872.35	375	17	65

Device	Routing	Invert	Outlet Devices
#1	Primary	866.54'	**18.0" Round Culvert** L= 11.2' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 866.54' / 866.43' S= 0.0098 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf
#2	Device 1	869.47'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	871.89'	**6.5" x 1.7" Horiz. Orifice/Grate X 4.00 columns** X 5 rows C= 0.600 in 36.5" x 19.2" Grate (32% open area) Limited to weir flow at low heads
#4	Secondary	872.39'	**Asymmetrical Weir, C= 3.27** Offset (feet) 0.00 26.28 59.61 Height (feet) 0.50 0.00 0.50

Primary OutFlow Max=3.24 cfs @ 12.24 hrs HW=872.04' (Free Discharge)
└─**1=Culvert** (Passes 3.24 cfs of 18.55 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 1.44 cfs @ 7.34 fps)
  └─**3=Orifice/Grate** (Weir Controls 1.80 cfs @ 1.27 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=869.47' (Free Discharge)
└─**4=Asymmetrical Weir** (Controls 0.00 cfs)

Pond P1: POROUS PVMNT 1

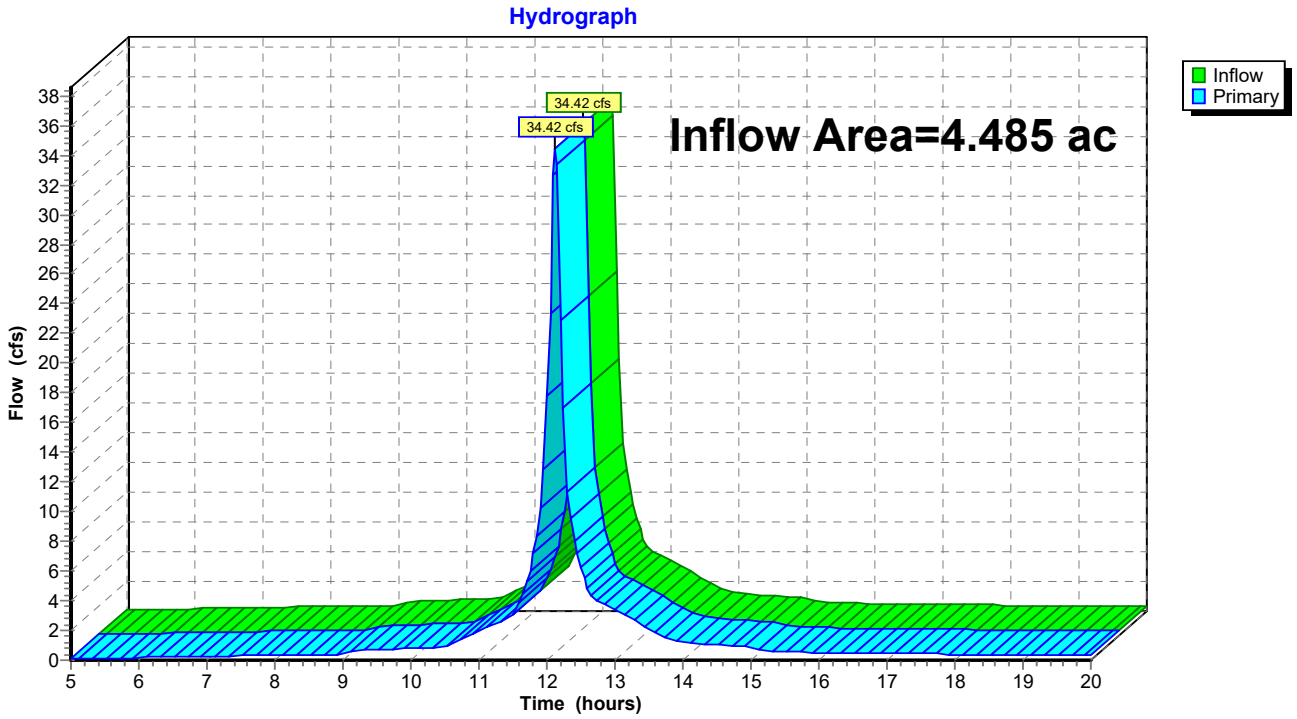


Summary for Link L7: PROPOSED

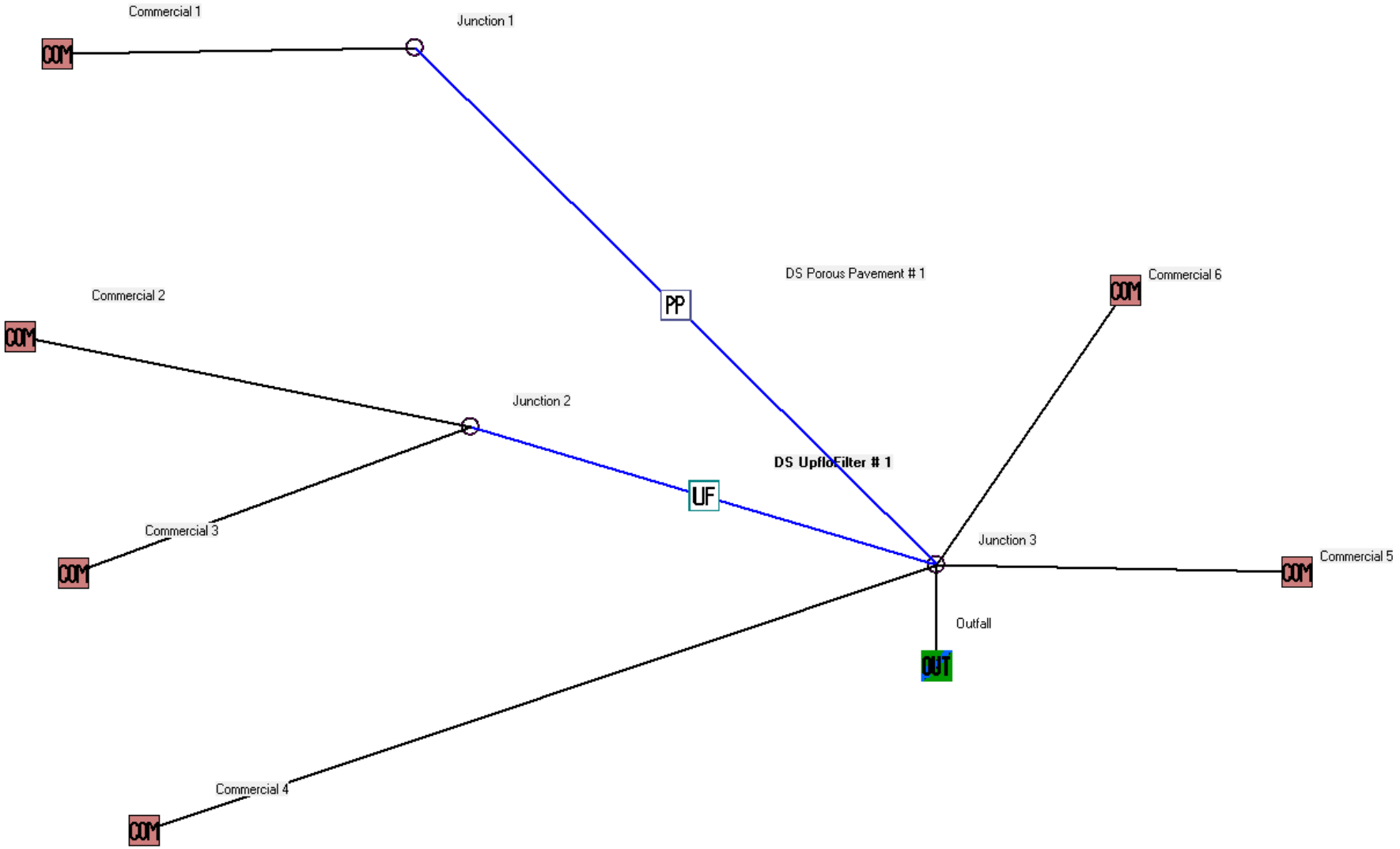
Inflow Area = 4.485 ac, 82.58% Impervious, Inflow Depth > 5.34" for 100-YR event
Inflow = 34.42 cfs @ 12.13 hrs, Volume= 1.997 af
Primary = 34.42 cfs @ 12.13 hrs, Volume= 1.997 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link L7: PROPOSED



Appendix D Calculations - Storm Water Quality (WinSLAMM)


Commercial 1
Junction 1
COM
DS Porous Pavement # 1
PP
Commercial 6
COM
Commercial 2
COM
Junction 2
DS UpfloFilter # 1
UF
Commercial 3
COM
Junction 3
Commercial 5
COM
Outfall
OUT
Commercial 4
COM

Data file name: I:\Lithia Motors, Inc\21736 Wilde Subaru\060 CAD\800_SWMP\040_WinSLAMM\21736 WinSLAMM Model Base.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/02 End of Winter Season: 03/28
Date: 10-20-2023 Time: 12:09:17
Site information:

LU# 1 - Commercial: Commercial 1 Total area (ac): 0.617
  1 - Roofs 1: 0.022 ac. Flat Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  13 - Paved Parking 1: 0.571 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  45 - Large Landscaped Areas 1: 0.024 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz OD-CP#7

LU# 2 - Commercial: Commercial 2 Total area (ac): 0.283
  13 - Paved Parking 1: 0.256 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  45 - Large Landscaped Areas 1: 0.027 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz OD-CP#6

LU# 3 - Commercial: Commercial 3 Total area (ac): 0.876
  13 - Paved Parking 1: 0.721 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  45 - Large Landscaped Areas 1: 0.155 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz OD-CP#5

LU# 4 - Commercial: Commercial 4   Total area (ac): 2.062
     1 - Roofs 1: 1.152 ac.   Pitched   Connected   Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz   OD-CP#9
     13 - Paved Parking 1: 0.736 ac.   Connected   Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1: 0.174 ac.   Normal Silty   Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz   OD-CP#4

LU# 5 - Commercial: Commercial 5   Total area (ac): 0.292
     45 - Large Landscaped Areas 1: 0.292 ac.   Normal Silty   Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz   OD-CP#2

LU# 6 - Commercial: Commercial 6   Total area (ac): 0.356
     13 - Paved Parking 1: 0.244 ac.   Connected   Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1: 0.112 ac.   Normal Silty   Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz   OD-CP#3

      Control Practice 1: Porous Pavement CP# 1 (DS) - DS Porous Pavement # 1
         Porous pavement area (ac):   0.174
         Inflow hydrograph peak to average flow ratio: 3.8
         Porous pavement thickness (in):   5
         Porous pavement porosity: 0.25
         Aggregate bedding thickness (in):   6
         Aggregate bedding porosity: 0.33
         Aggregate base reservoir thickness (in):   18
         Aggregate base reservoir porosity: 0.33
         Porous pavement surface area to aggregate base area ratio: 1
         Underdrain diameter (in):   6
         Underdrain outlet invert elevation (inches above datum):   0
         Number of underdrains: 1
         Subgrade seepage rate (in/hr):   0.3
         Use random number generation to account for uncertainty in seepage rate:
0
         Subgrade seepage rate COV: 0
         Surface pavement initial infiltration rate (in/hr):   100
         Surface Pavement Percent Solids Removal Upon Cleaning: 65
         Porous pavement surface clogging load (lbs/sf):   0.06
         Porous pavement restorative cleaning frequency:
         TSS concentration reduction percentage through underdrain: 0
         Porous pavement particle size distribution file name: Not needed -
calculated by program

      Control Practice 2: Other Device CP# 1 (SA) - SA Device, LU# 5 ,SA# 45
         Fraction of drainage area served by device (ac) = 1.00
         Particulate Concentration reduction fraction = 1.00
         Filterable Concentration reduction fraction = 0.00
         Runoff volume reduction fraction = 0

Control Practice 3: Other Device CP# 2 (SA) - SA Device, LU# 6 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 0.00
   Runoff volume reduction fraction = 0

Control Practice 4: Other Device CP# 3 (SA) - SA Device, LU# 4 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 0.00
   Runoff volume reduction fraction = 0

Control Practice 5: Other Device CP# 4 (SA) - SA Device, LU# 3 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 0.00
   Runoff volume reduction fraction = 0

Control Practice 6: Other Device CP# 5 (SA) - SA Device, LU# 2 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 0.00
   Runoff volume reduction fraction = 0

Control Practice 7: Other Device CP# 6 (SA) - SA Device, LU# 1 ,SA# 45
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 0.00
   Runoff volume reduction fraction = 0

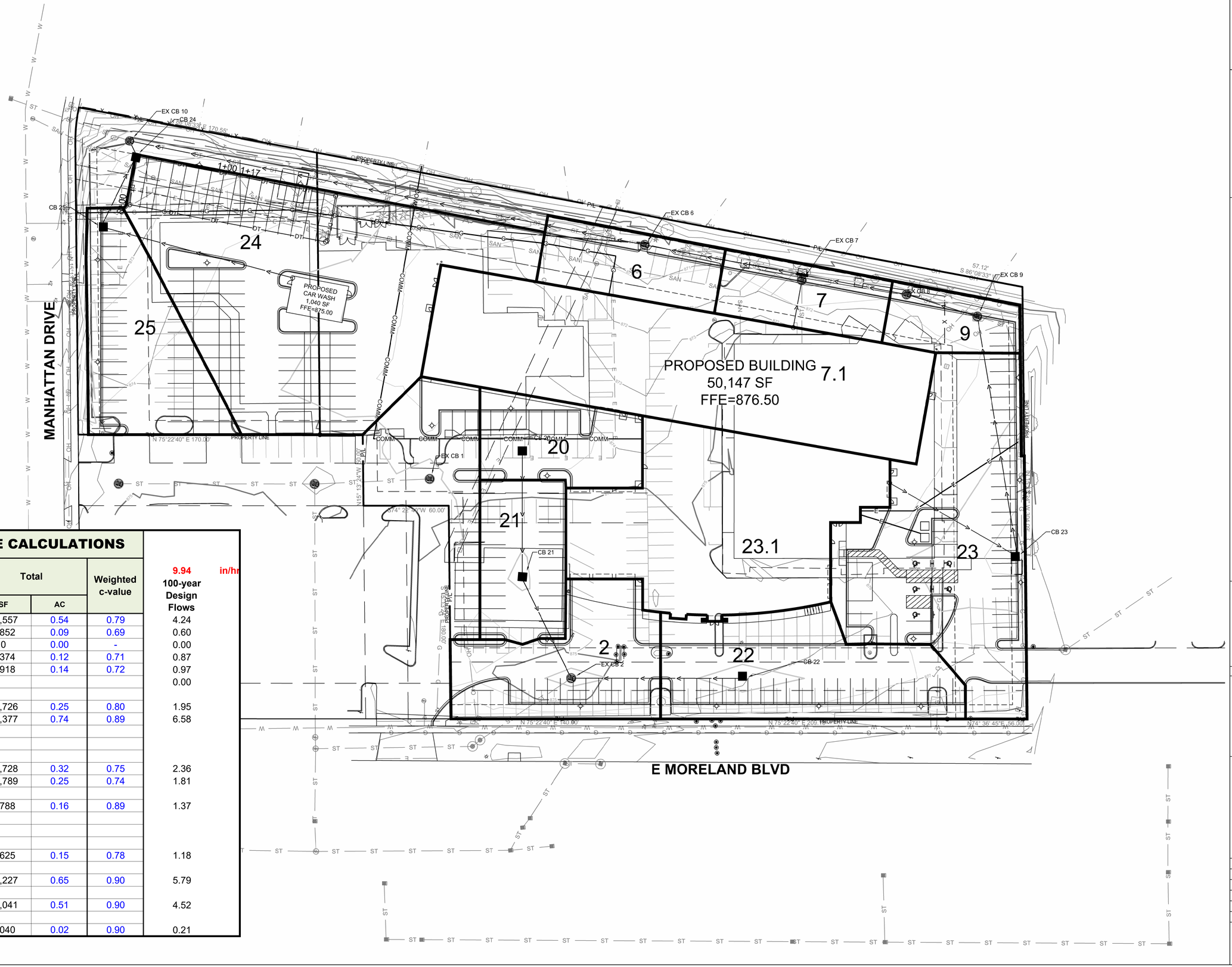
Control Practice 8: Upflo Filter CP# 1 (DS) - DS UpfloFilter # 1
   Media Type: CPZ
   Fraction of Area Served by Upflo Filters (0-1): 1.0
   Height from Outlet Invert to Structure Top (ft): 3.0
   Sump Depth (ft): 3.00
   Sump Cleaning/Filter Replacement is not considered during the model run
   Solve for Given Conditions
   Number of filters: 4
Control Practice 9: Other Device CP# 7 (SA) - SA Device, LU# 4 ,SA# 1
   Fraction of drainage area served by device (ac) = 1.00
   Particulate Concentration reduction fraction = 1.00
   Filterable Concentration reduction fraction = 0.00
   Runoff volume reduction fraction = 0

SLAMM for Windows Version 10.4.1

Data file name: I:\Lithia Motors, Inc\21736 Wilde Subaru\060 CAD\800_SWMP\040_WinSLAMM\21736 WinSLAMM Model Base.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/02 End of Winter Season: 03/28
Model Run Start Date: 01/05/69 Model Run End Date: 12/31/69
Date of run: 10-20-2023 Time of run: 12:10:57
Total Area Modeled (acres): 4.486
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	311720	-	81.19	1580	-
Outfall Total with Controls:	288391	7.48%	51.93	935.0	40.82%
Annualized Total After Outfall Controls:	292397			948.0	

Appendix E Storm Sizing



C-VALUE CALCULATIONS

Structure ID	Total SF	Total AC	Weighted c-value	9.94 in/hr 100-year Design Flows
23.0	23,557	0.54	0.79	4.24
9.0	3,852	0.09	0.69	0.60
8.0	0	0.00	-	0.00
7.0	5,374	0.12	0.71	0.87
6.0	5,918	0.14	0.72	0.97
				0.00
25.0	10,726	0.25	0.80	1.95
24.0	32,377	0.74	0.89	6.58
22.0	13,728	0.32	0.75	2.36
2.0	10,789	0.25	0.74	1.81
21.0	6,788	0.16	0.89	1.37
20.0	6,625	0.15	0.78	1.18
7.1	28,227	0.65	0.90	5.79
23.1	22,041	0.51	0.90	4.52
25.1	1,040	0.02	0.90	0.21

THE SIGMA GROUP
Single Source. Sound Solutions.
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1300 Wes: Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

WILDE SUBARU
E MORELAND BLVD & MANHATTAN DR
WAUKESHA, WI

STORM SEWER SIZING

PRELIMINARY
NOT FOR
CONSTRUCTION

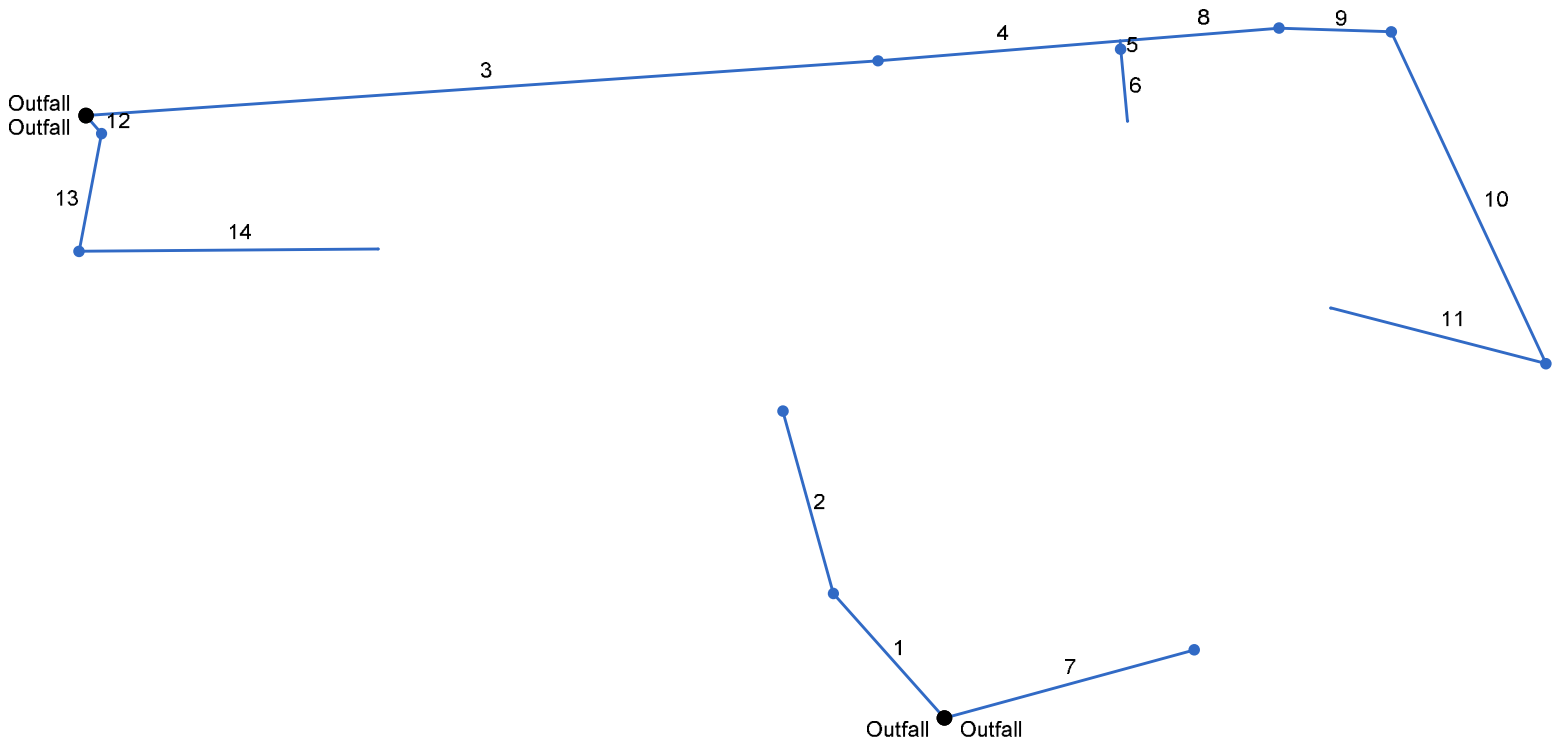
ISSUANCE	DATE
90% PLANS	09/11/23

NO.	REVISION	DATE

PROJECT NO:	21736
DESIGN DATE:	----
PLOT DATE:	2023.10.20
DRAWN BY:	----
CHECKED BY:	----
APPROVED BY:	----
SHEET NO:	SW3.0

2023.10.20
MGARNER
SW3.0
21736
I:\Lithia Motors, Inc\21736 Wilde Subaru\060 CAD\100_Civil\020_CAD Modeling (Data Shortcut)\030_Storm Sewer\21736 Storm Sewer.dwg

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Wilde Subaru HGLs.stm	Number of lines: 14	Date: 10/20/2023

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	77.840	-131.577	MH	1.37	0.00	0.00	0.0	871.41	0.41	871.73	10	Cir	0.012	0.50	874.78	Pipe - (23)
2	1	88.594	26.192	MH	1.18	0.00	0.00	0.0	871.73	0.36	872.05	10	Cir	0.012	1.00	875.33	Pipe - (24)
3	End	369.607	-3.980	MH	0.97	0.00	0.00	0.0	859.45	0.77	862.29	24	Cir	0.012	0.15	875.56	Pipe - (32)
4	3	113.235	-0.707	None	0.00	0.00	0.00	0.0	862.42	0.72	863.23	24	Cir	0.012	1.00	875.36	Pipe - (31) (2)
5	4	3.815	90.000	MH	0.87	0.00	0.00	0.0	863.48	2.10	863.56	18	Cir	0.012	0.15	875.28	Pipe - (34)
6	5	33.883	-0.698	None	5.79	0.00	0.00	0.0	871.80	2.07	872.50	12	Cir	0.012	1.00	875.50	Pipe - (29)
7	End	120.556	-15.342	MH	2.36	0.00	0.00	0.0	871.41	1.00	872.62	12	Cir	0.012	1.00	876.62	Pipe - (22)
8	4	74.290	0.000	MH	0.00	0.00	0.00	0.0	863.23	0.71	863.76	24	Cir	0.012	0.15	875.80	Pipe - (31)
9	8	52.180	6.588	MH	0.60	0.00	0.00	0.0	863.76	1.34	864.46	24	Cir	0.012	0.91	875.05	Pipe - (30)
10	9	171.245	63.246	MH	4.24	0.00	0.00	0.0	869.75	0.50	870.61	18	Cir	0.012	1.00	874.61	Pipe - (20)
11	10	103.605	129.405	None	4.52	0.00	0.00	0.0	870.86	1.04	871.94	12	Cir	0.012	1.00	876.50	Pipe - (38)
12	End	11.165	48.958	MH	6.58	0.00	0.00	0.0	866.43	0.99	866.54	18	Cir	0.012	0.82	871.90	Pipe - (18)
13	12	56.104	51.834	MH	1.95	0.00	0.00	0.0	866.54	0.80	866.99	12	Cir	0.012	1.00	872.09	Pipe - (19)
14	13	139.348	-101.235	None	0.21	0.00	0.00	0.0	869.01	1.04	870.46	6	Cir	0.012	1.00	875.00	Pipe - (37)

Project File: Wilde Subaru HGLs.stm | Number of lines: 14 | Date: 10/20/2023

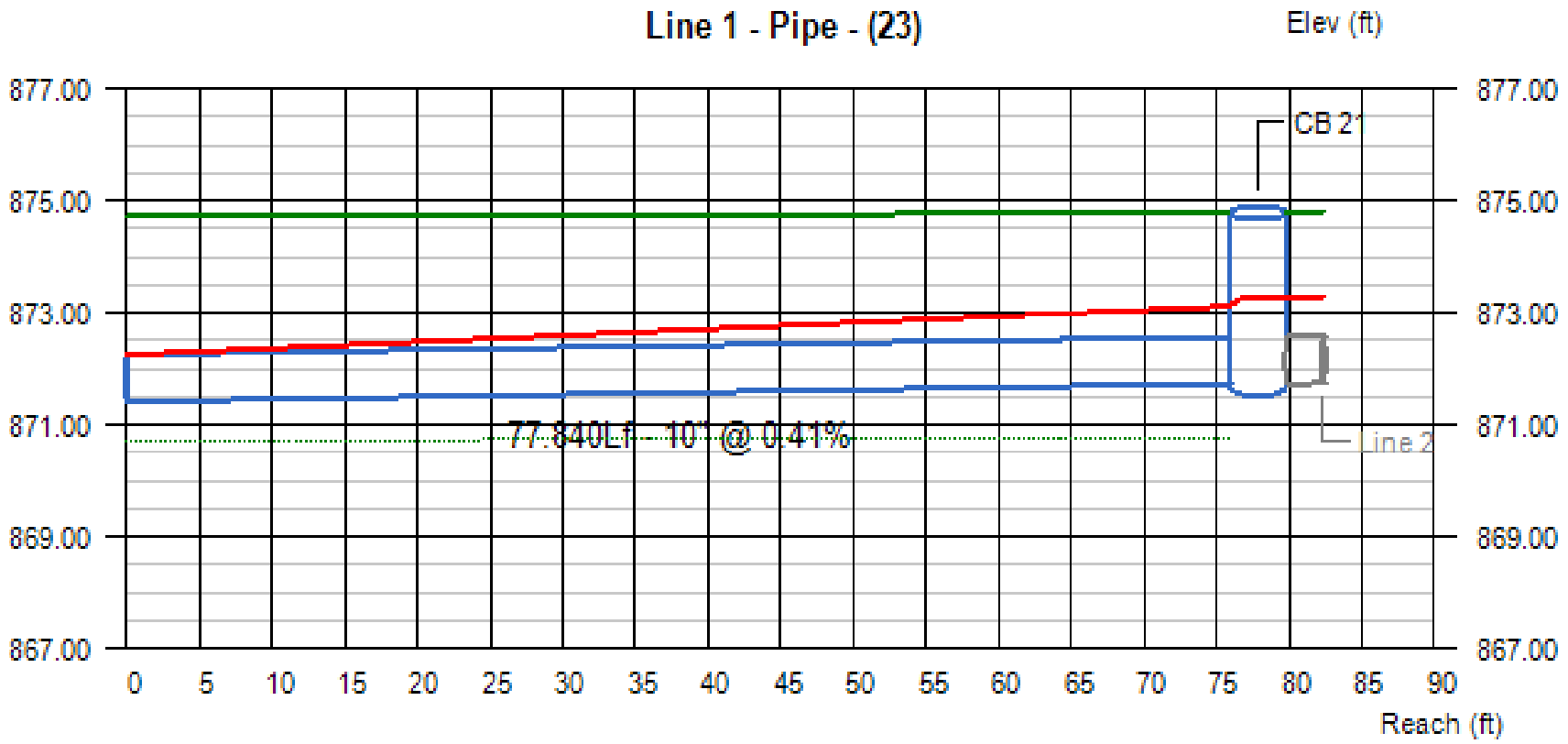
Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	10	2.55	871.41	872.24	0.83	0.55	4.68	0.34	872.58	1.095	77.840	871.73	873.12	0.83	0.55	4.68	0.34	873.46	1.155	1.125	0.876	0.50	0.17
2	10	1.18	871.73	873.29	0.83	0.55	2.16	0.07	873.36	0.247	88.594	872.05	873.51	0.83	0.55	2.16	0.07	873.58	0.247	0.247	0.219	1.00	0.07
3	24	16.99	859.45	860.79	0.00	0.00	7.58	0.00	860.79	0.000	369.607	862.29	863.77	0.00**	0.00	6.80	0.00	863.77	0.000	0.000	0.000	0.15	n/a
4	24	16.02	862.42	863.77	0.00	0.00	7.07	0.00	863.77	0.000	113.235	863.23	864.68	0.00**	0.00	6.61	0.00	864.68	0.000	0.000	0.000	1.00	n/a
5	18	6.66	863.48	864.68	0.00	0.00	4.41	0.00	864.68	0.000	3.815	863.56	864.56	0.00**	0.00	5.34	0.00	864.56	0.000	0.000	0.000	0.15	n/a
6	12	5.79	871.80	872.67	0.00	0.00	8.01	0.00	872.67	0.000	33.883	872.50	873.45	0.00**	0.00	7.52	0.00	873.45	0.000	0.000	0.000	1.00	n/a
7	12	2.36	871.41	871.97	0.00	0.00	5.16	0.00	871.97	0.000	120.556	872.62	873.28	0.00**	0.00	4.31	0.00	873.28	0.000	0.000	0.000	1.00	n/a
8	24	9.36	863.23	864.68	0.00	0.00	3.85	0.00	864.68	0.000	74.290	863.76	864.85	0.00**	0.00	5.33	0.00	864.85	0.000	0.000	0.000	0.15	n/a
9	24	9.36	863.76	864.85	0.00	0.00	5.33	0.00	864.85	0.000	52.180	864.46	865.55	0.00**	0.00	5.33	0.00	865.55	0.000	0.000	0.000	0.91	n/a
10	18	8.76	869.75	871.25	0.00*	0.00	4.96	0.00	871.25	0.000	171.245	870.61	872.27	0.00**	0.00	4.96	0.00	872.27	0.000	0.000	0.000	1.00	n/a
11	12	4.52	870.86	872.65	0.00	0.00	5.76	0.00	872.65	0.000	103.605	871.94	874.07	0.00**	0.00	5.76	0.00	874.07	0.000	0.000	0.000	1.00	n/a
12	18	8.74	866.43	867.42	0.00	0.00	7.06	0.00	867.42	0.000	11.165	866.54	867.68	0.00**	0.00	6.05	0.00	867.68	0.000	0.000	0.000	0.82	n/a
13	12	2.16	866.54	867.68	0.00	0.00	2.75	0.00	867.68	0.000	56.104	866.99	867.83	0.00**	0.00	3.08	0.00	867.83	0.000	0.000	0.000	1.00	n/a
14	6	0.21	869.01	869.21	0.00	0.00	2.85	0.00	869.21	0.000	139.348	870.46	870.69	0.00**	0.00	2.39	0.00	870.69	0.000	0.000	0.000	1.00	n/a

Project File: Wilde Subaru HGLs.stm | Number of lines: 14 | Run Date: 10/20/2023

Notes: * depth assumed; ** Critical depth. ; c = cir e = ellip b = box

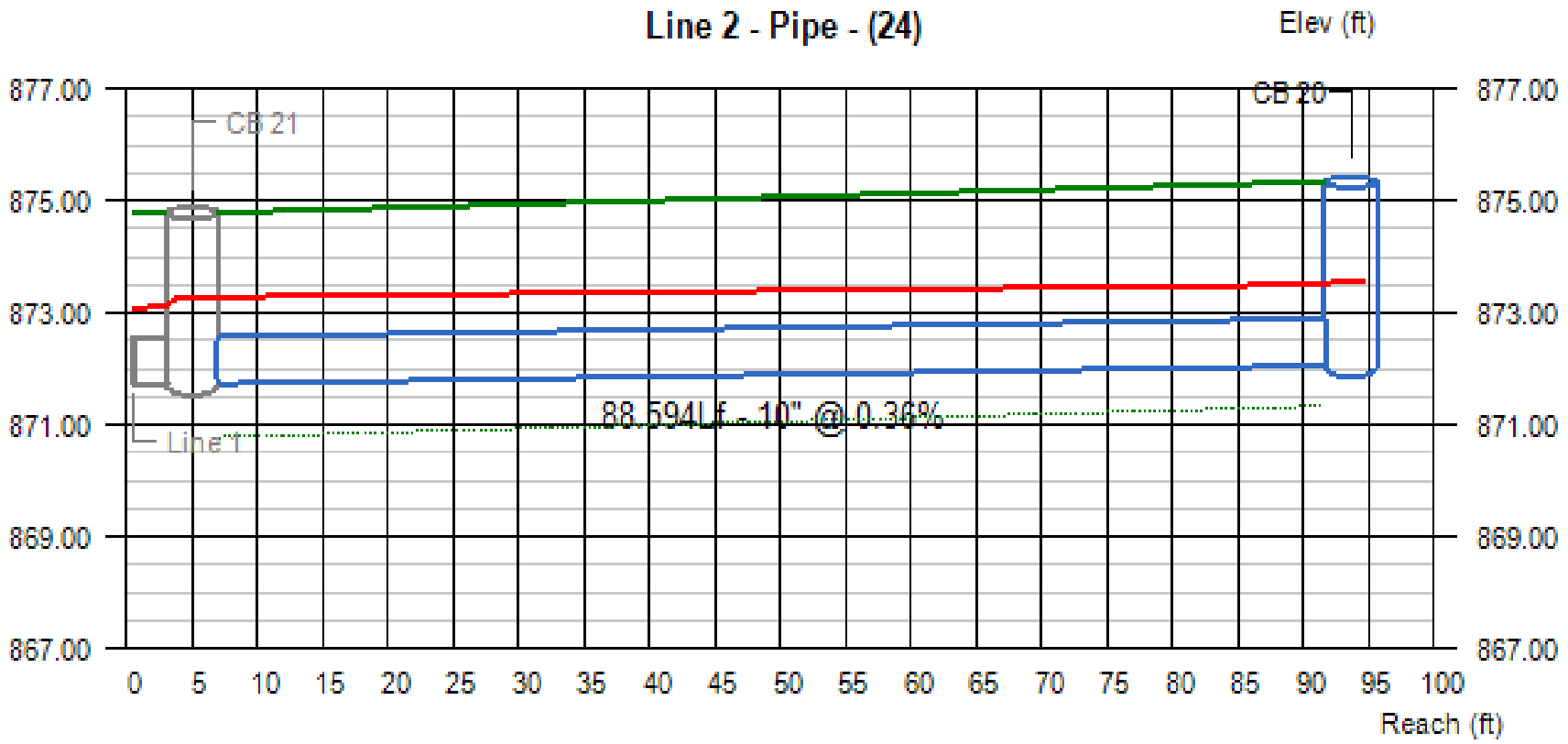
Line Profile (Line 1) - Pipe - (23)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
1	2.55	871.41	871.73	0.83	0.83	1.56	872.24	873.12	873.29	4.68	4.68	2.47	2.22

Project File: | No. Lines: 14 | Run Date: 10/20/2023

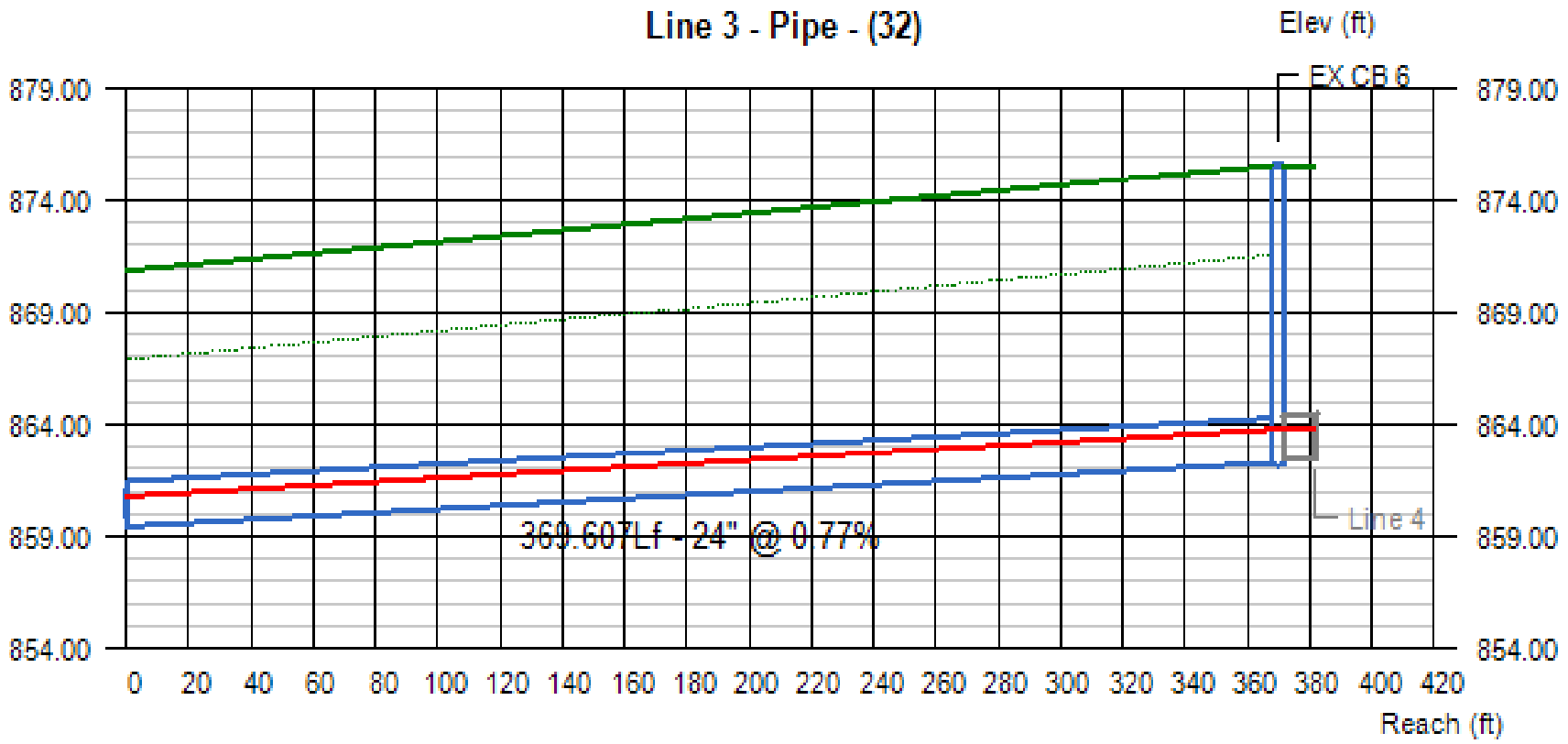
Line Profile (Line 2) - Pipe - (24)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
2	1.18	871.73	872.05	0.83	0.83	1.53	873.29	873.51	873.58	2.16	2.16	2.22	2.45

Project File: | No. Lines: 14 | Run Date: 10/20/2023

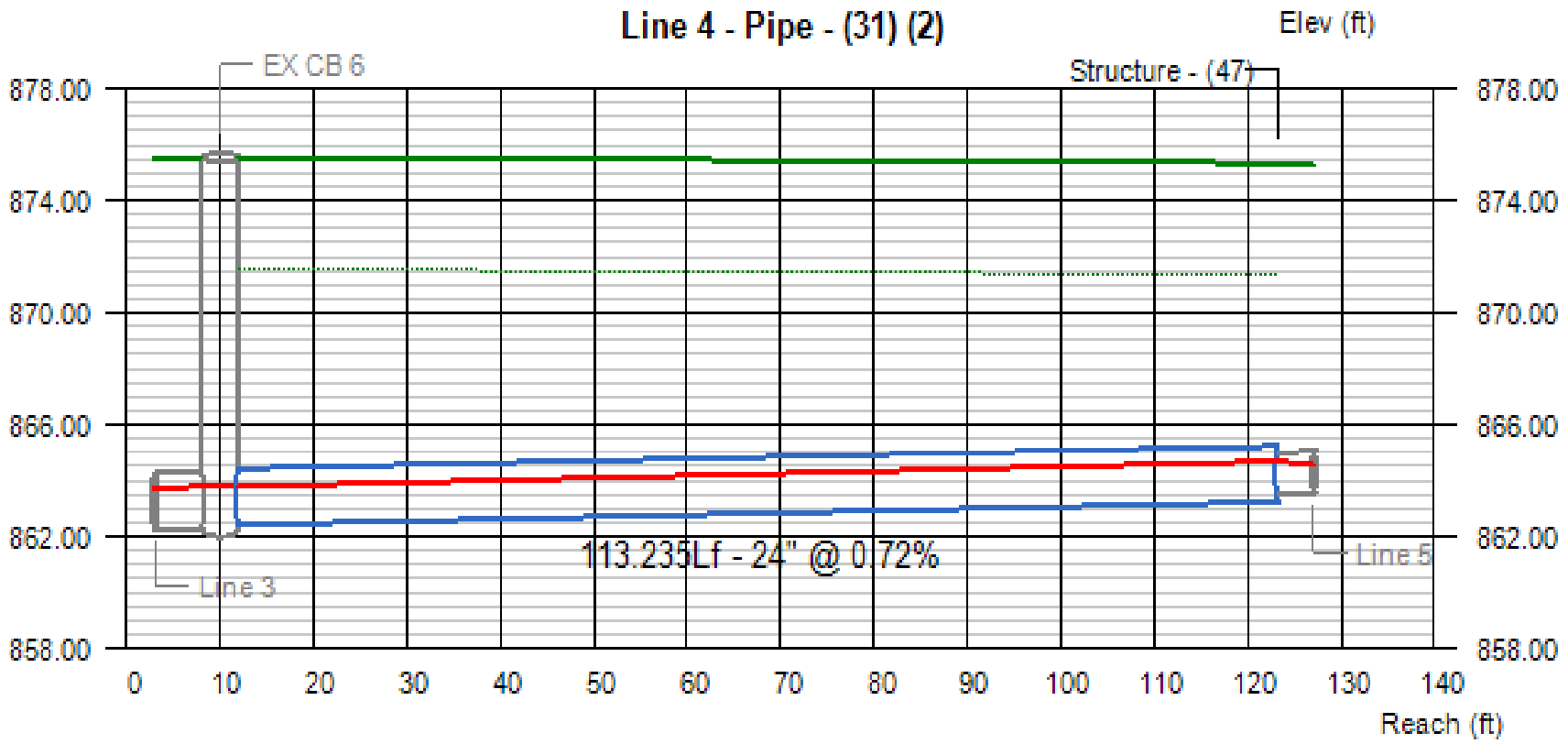
Line Profile (Line 3) - Pipe - (32)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
3	16.99	859.45	862.29	1.34	1.48	1.48	860.79	863.77	863.77	7.58	6.80	9.44	11.27

Project File: | No. Lines: 14 | Run Date: 10/20/2023

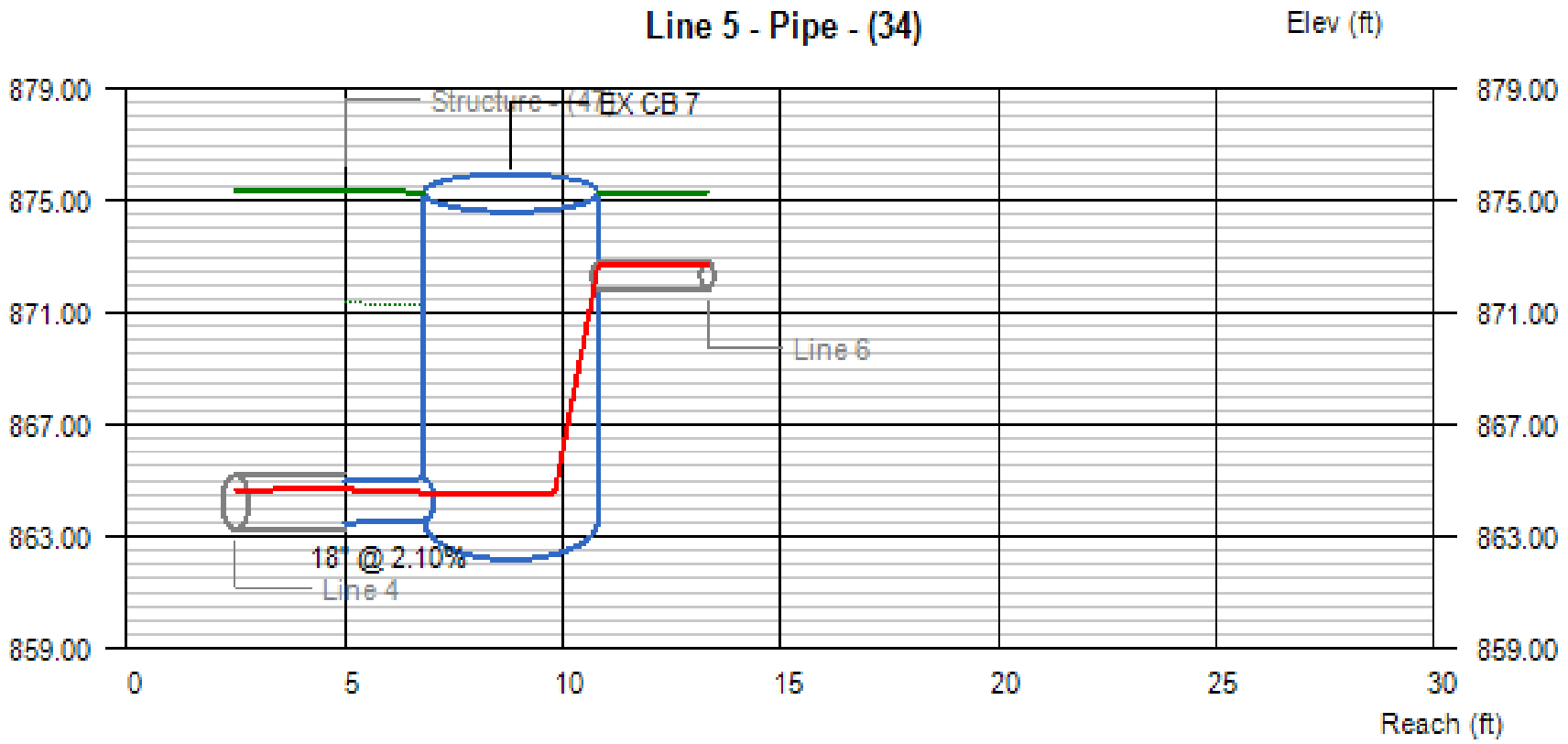
Line Profile (Line 4) - Pipe - (31) (2)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
4	16.02	862.42	863.23	1.35	1.44	1.44	863.77	864.68	864.68	7.07	6.61	11.14	10.12

Project File:	No. Lines: 14	Run Date: 10/20/2023

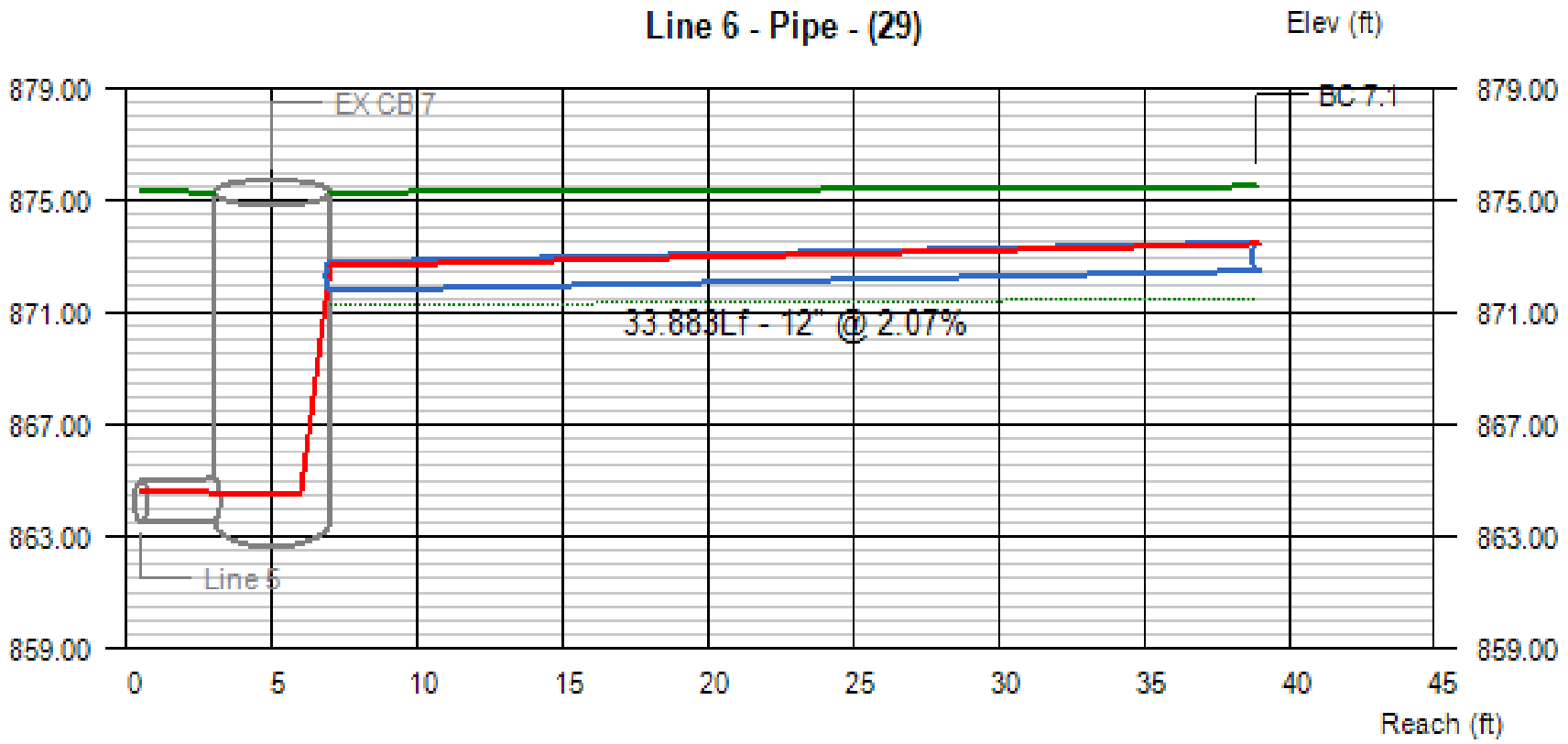
Line Profile (Line 5) - Pipe - (34)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
5	6.66	863.48	863.56	1.20	1.00	1.00	864.68	864.56	864.56	4.41	5.34	10.38	10.22

Project File:	No. Lines: 14	Run Date: 10/20/2023

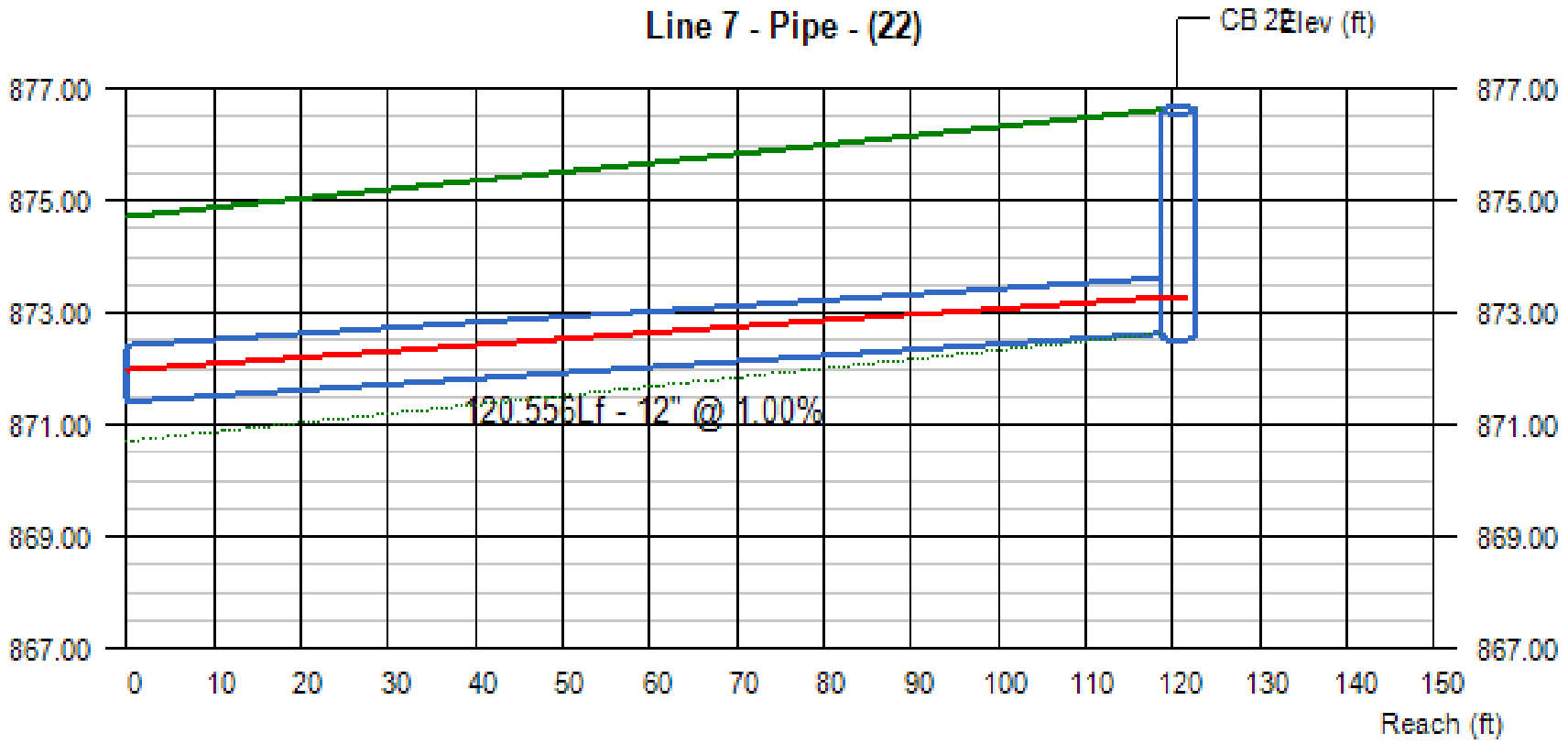
Line Profile (Line 6) - Pipe - (29)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
6	5.79	871.80	872.50	0.87	0.95	0.95	872.67	873.45	873.45	8.01	7.52	2.48	2.00

Project File: | No. Lines: 14 | Run Date: 10/20/2023

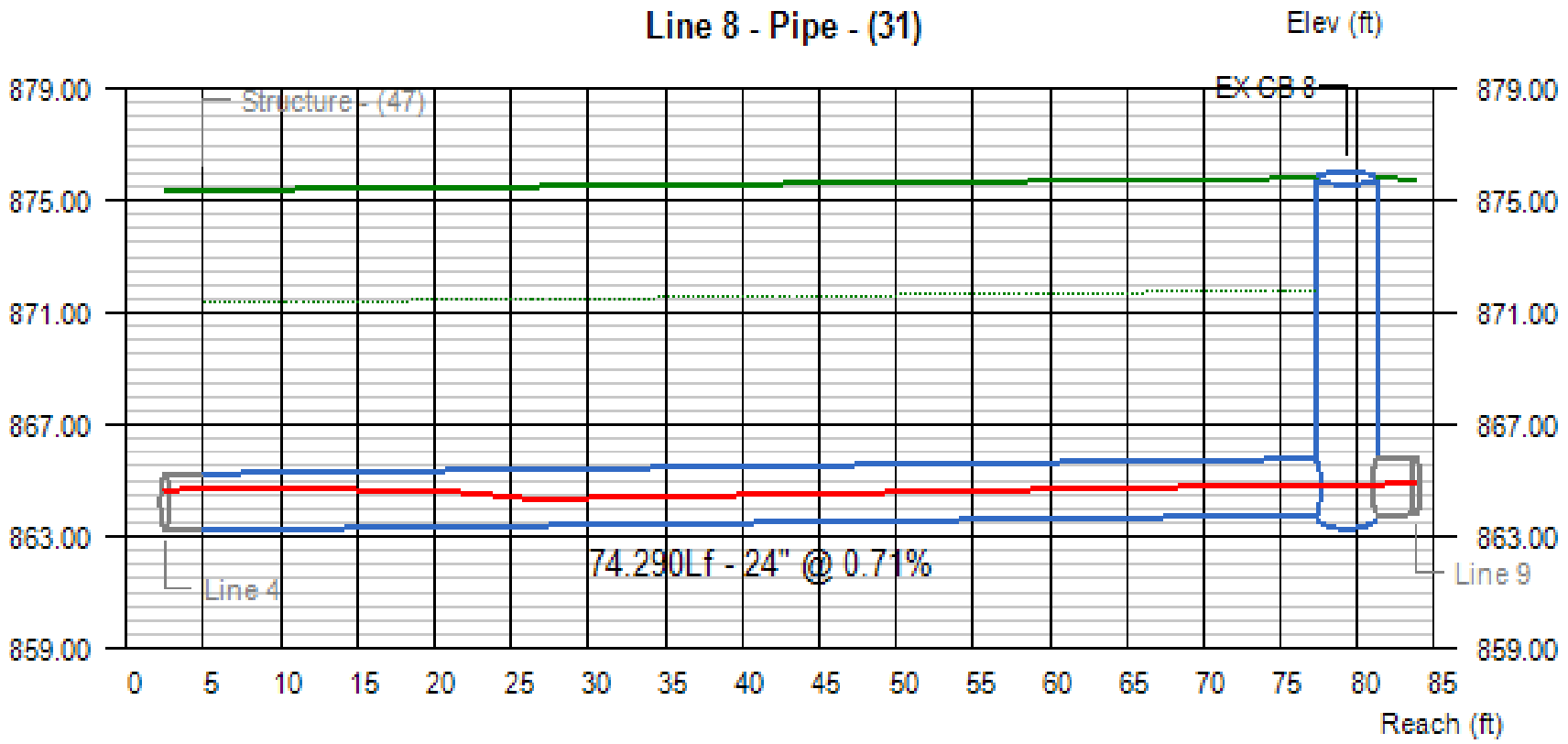
Line Profile (Line 7) - Pipe - (22)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
7	2.36	871.41	872.62	0.56	0.66	0.66	871.97	873.28	873.28	5.16	4.31	2.30	3.00

Project File: | No. Lines: 14 | Run Date: 10/20/2023

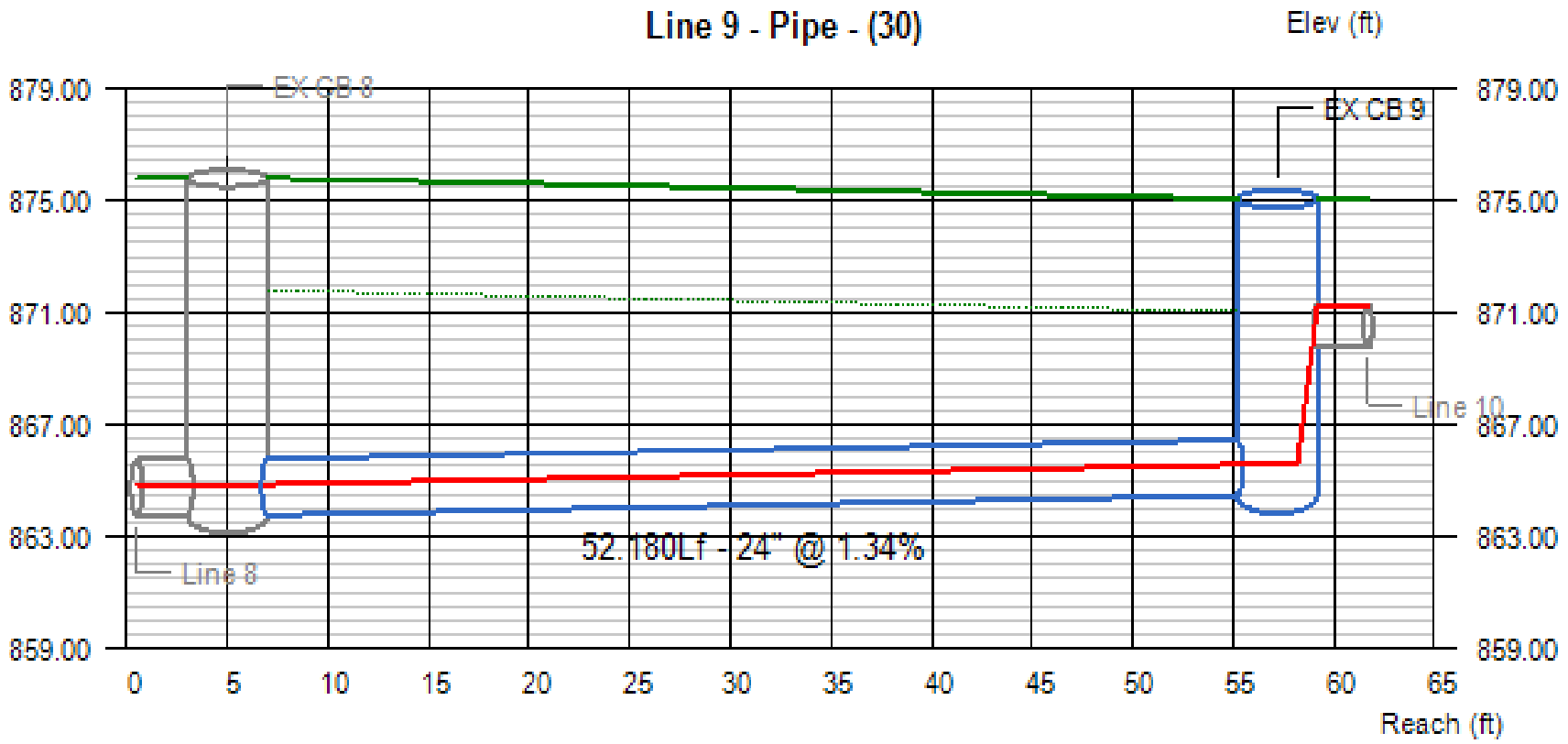
Line Profile (Line 8) - Pipe - (31)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
8	9.36	863.23	863.76	1.45	1.09	1.09	864.68	864.85 j	864.85	3.85	5.33	10.13	10.04

Project File:	No. Lines: 14	Run Date: 10/20/2023

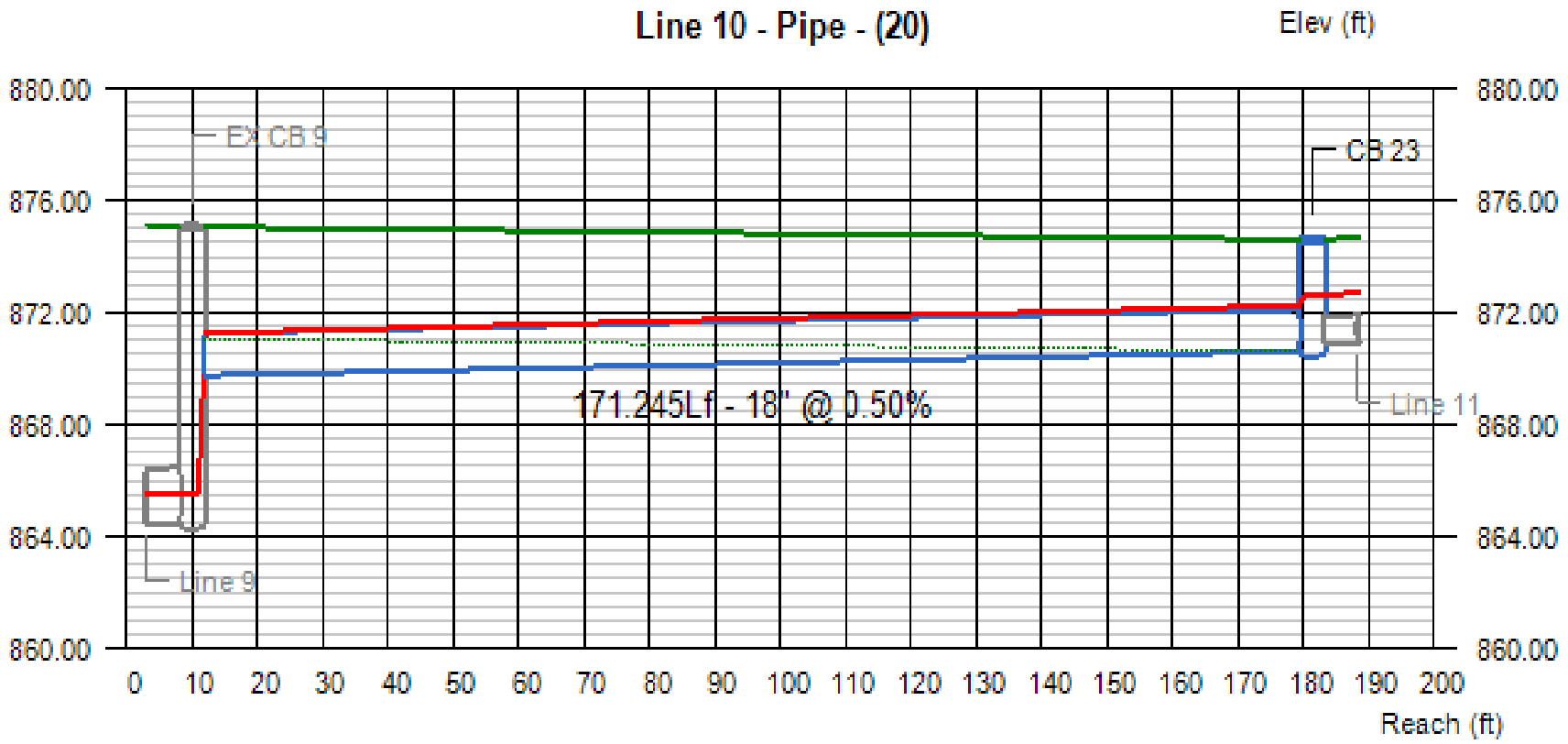
Line Profile (Line 9) - Pipe - (30)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
9	9.36	863.76	864.46	1.09	1.09	1.09	864.85	865.55	865.55	5.33	5.33	10.04	8.59

Project File: | No. Lines: 14 | Run Date: 10/20/2023

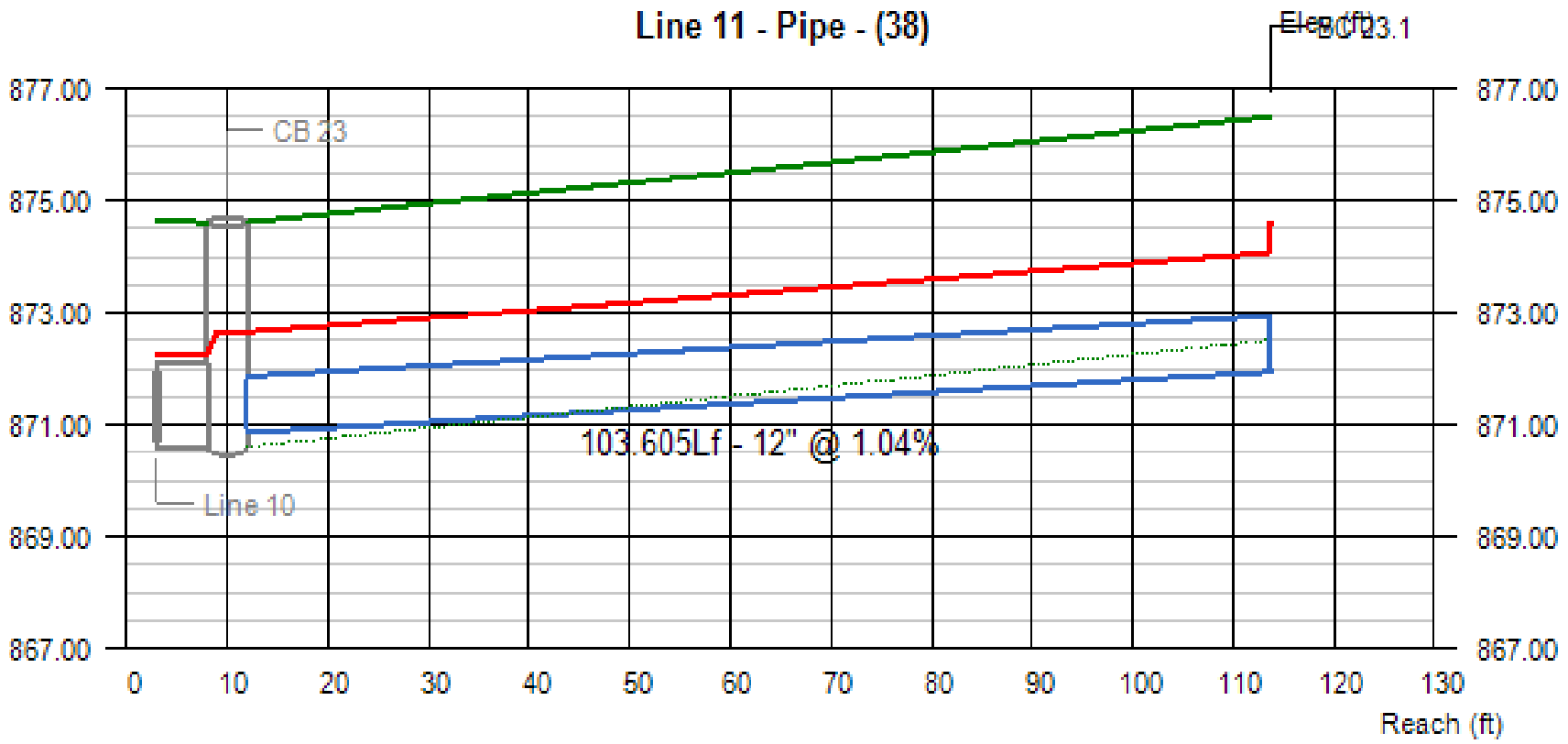
Line Profile (Line 10) - Pipe - (20)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
10	8.76	869.75	870.61	1.50	1.50	2.04	871.25	872.27	872.65	4.96	4.96	3.80	2.50

Project File: | No. Lines: 14 | Run Date: 10/20/2023

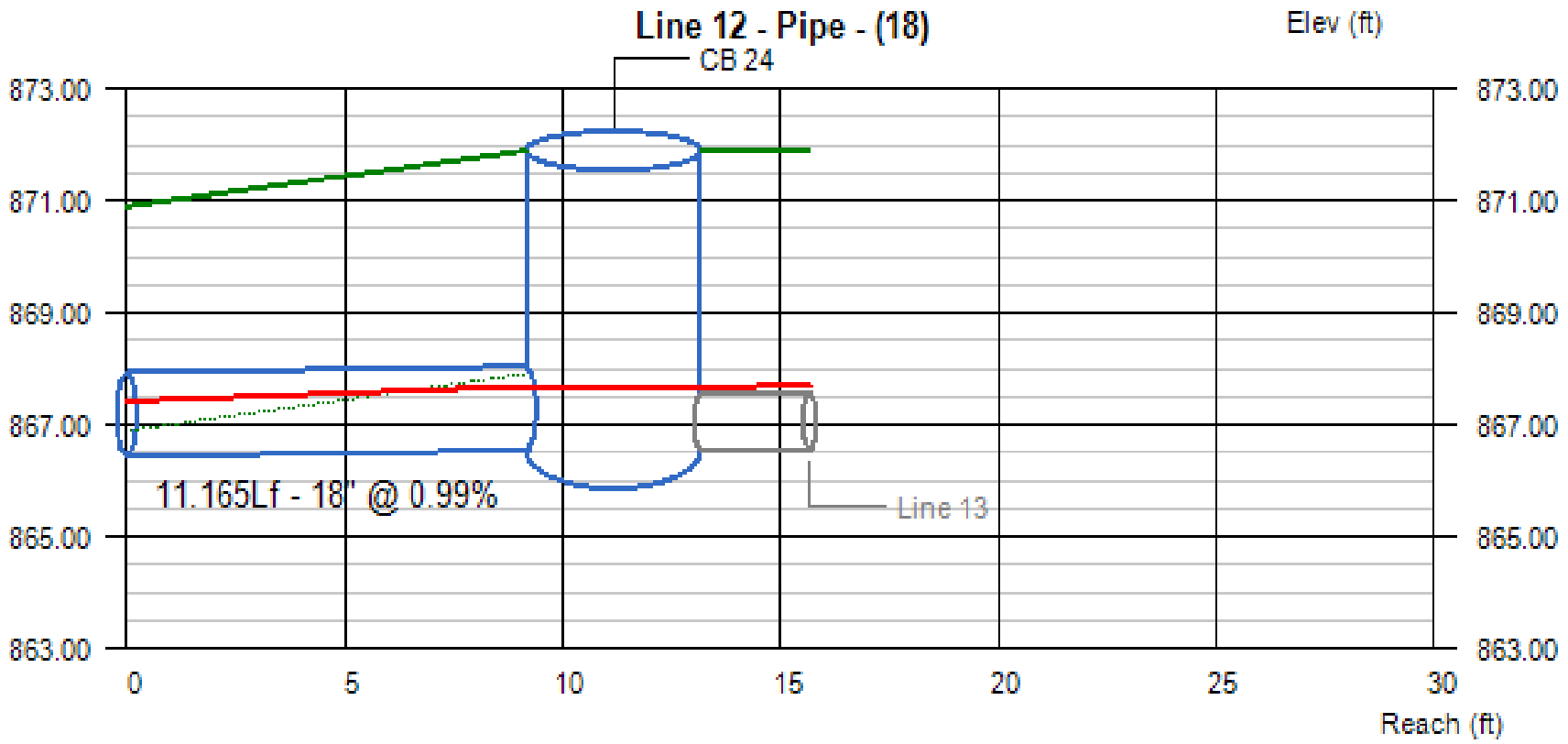
Line Profile (Line 11) - Pipe - (38)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
11	4.52	870.86	871.94	1.00	1.00	2.65	872.65	874.07	874.59	5.76	5.76	2.75	3.56

Project File: | No. Lines: 14 | Run Date: 10/20/2023

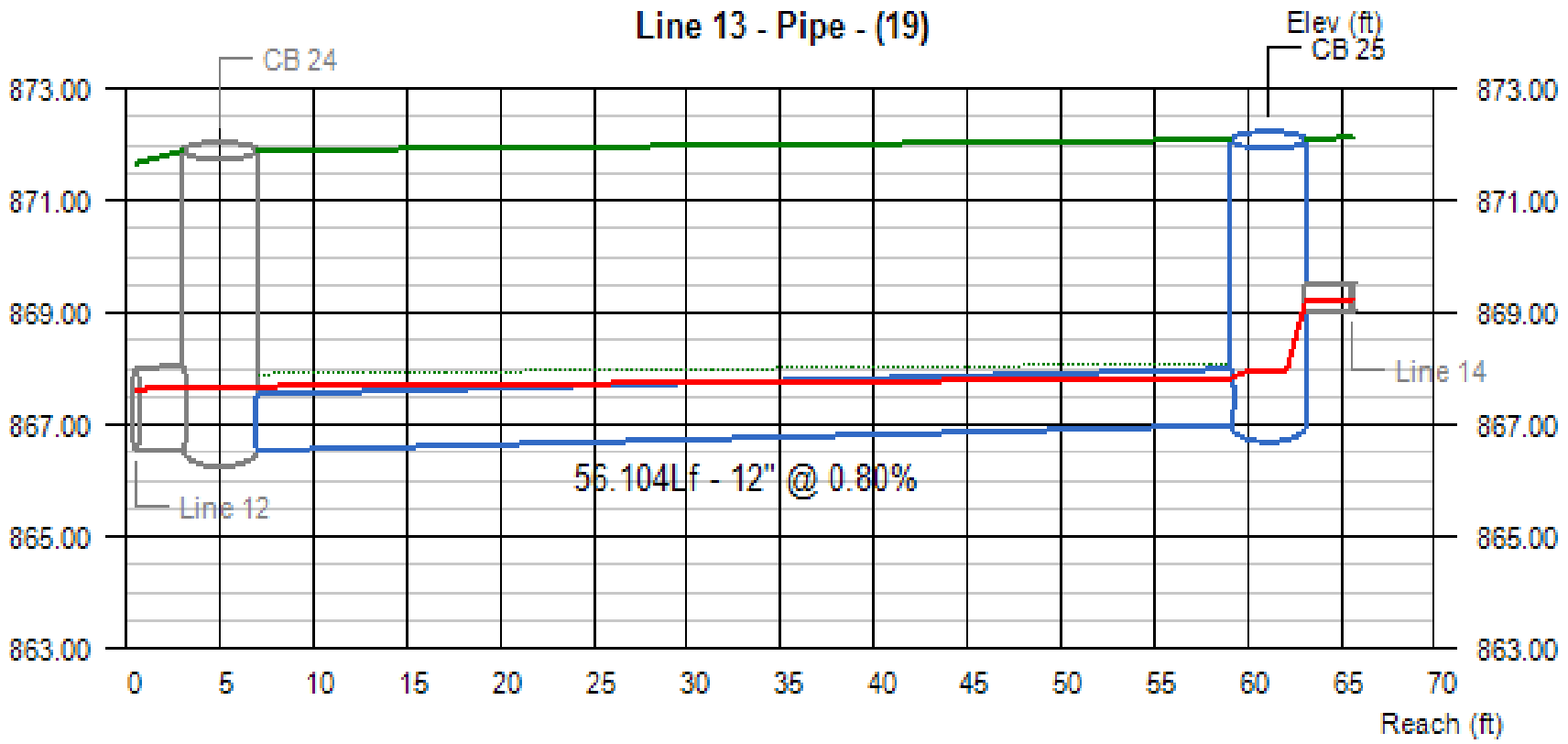
Line Profile (Line 12) - Pipe - (18)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
12	8.74	866.43	866.54	0.99	1.14	1.14	867.42	867.68	867.68	7.06	6.05	2.96	3.86

Project File: | No. Lines: 14 | Run Date: 10/20/2023

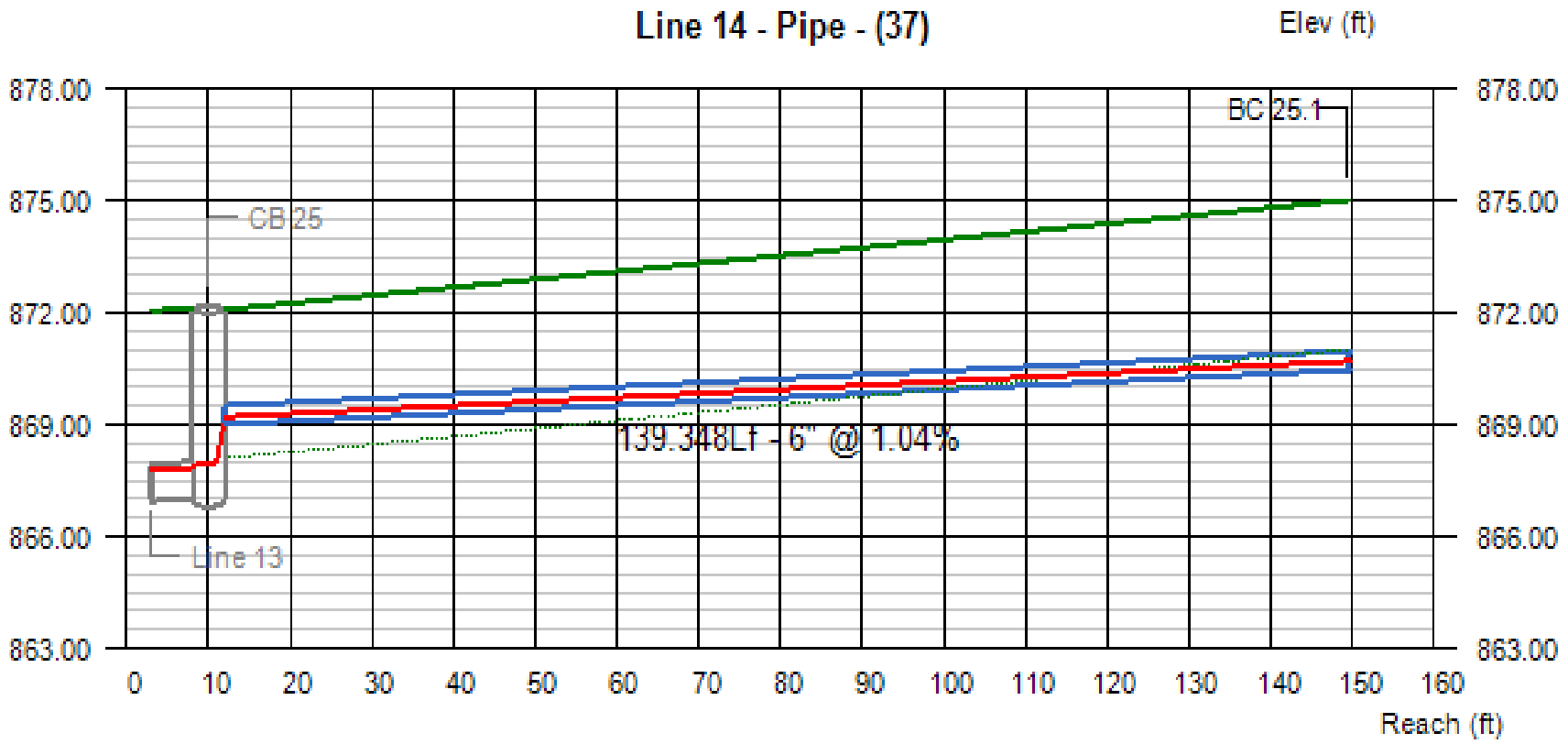
Line Profile (Line 13) - Pipe - (19)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
13	2.16	866.54	866.99	1.00	0.84	0.98	867.68	867.83	867.97	2.75	3.08	4.36	4.10

Project File: | No. Lines: 14 | Run Date: 10/20/2023

Line Profile (Line 14) - Pipe - (37)



Line #	Q	Invert Elevation		Depth of Flow			Hydraulic Grade Line			Velocity		Cover	
	(cfs)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Hw (ft)	Dn (ft)	Up (ft)	Jnct (ft)	Dn (ft/s)	Up (ft/s)	Dn (ft)	Up (ft)
14	0.21	869.01	870.46	0.20	0.23	0.23	869.21	870.69	870.69	2.85	2.39	2.58	4.04

Project File: | No. Lines: 14 | Run Date: 10/20/2023

Appendix F Storm Water Maintenance Agreement

Document Number

Storm Water Management Practice Maintenance Agreement

Lithia Real Estate, LLC, as "Owner" of the property described below, in accordance with Chapter 32 City of Waukesha Storm Water Management and Erosion Control, agrees to install and maintain storm water management practice(s) on the subject property in accordance with approved plans and Storm Water Management Plan conditions. The owner further agrees to the terms stated in this document to ensure that the storm water management practice(s) continues serving the intended functions in perpetuity. This Agreement includes the following exhibits:

Exhibit A: Legal Description of the real estate for which this Agreement applies ("Property").
Exhibit B: Location Map(s) – shows an accurate location of each storm water management practice affected by this Agreement.
Exhibit C: Maintenance Plan – prescribes those activities that must be carried out to maintain compliance with this Agreement.

Note: After construction verification has been accepted by the City of Waukesha, for all planned storm water management practices, an addendum(s) to this agreement shall be recorded by the Owner showing design and construction details. The addendum(s) may contain several additional exhibits, including certification by City of Waukesha of Storm Water and Erosion Control Permit termination, as described below.

Name and Return Address

City of Waukesha
201 Delafield Street
Waukesha, WI 53188

Parcel Identification Number(s)
WAKC1001415, WAKC1001995, WAKC1006984, WAKC1006985, WAKC1006986

Through this Agreement, the Owner hereby subjects the Property to the following covenants, conditions and restrictions:

1. The Owner shall be responsible for the routine and extraordinary maintenance and repair of the storm water management practice(s) and drainage easements identified in Exhibit B until Storm Water and Erosion Control Permit termination by the City of Waukesha in accordance with Chapter 32 of the City Code of Ordinances.
2. After Storm Water and Erosion Control Permit termination under 1., the current Owner(s) shall be solely responsible for maintenance and repair of the storm water management practices and drainage easements in accordance with the maintenance plan contained in Exhibit C.
3. The Owner(s) shall, at their own cost, complete inspections of the storm water management practices at the time intervals listed in Exhibit C, and conduct the inspections by a qualified professional, file the reports with the City of Waukesha after each inspection and complete any maintenance or repair work recommended in the report. The Owner(s) shall be liable for the failure to undertake any maintenance or repairs. After the work is completed by the Contractor, the qualified professional shall verify that the work was properly completed and submit the follow-up report to the City within 30 days.
4. In addition, and independent of the requirements under paragraph 3 above, the City of Waukesha, or its designee, is authorized to access the property as necessary to conduct inspections of the storm water management practices or drainage easements to ascertain compliance with the intent of this Agreement and the activities prescribed in Exhibit C. The City of Waukesha may require work to be done which differs from the report described in paragraph 3 above, if the City of Waukesha reasonably concludes that such work is necessary and consistent with the intent of this agreement. Upon notification by the City of Waukesha of required maintenance or repairs, the Owner(s) shall complete the specified maintenance or repairs within a reasonable time frame determined by the City of Waukesha.
5. If the Owner(s) do not complete an inspection under 3. above or required maintenance or repairs under 4. above within the specified time period, the City of Waukesha is authorized, but not required, to perform the specified inspections, maintenance or repairs. In the case of an emergency situation, as determined by the City of Waukesha, no notice shall be required prior to the City of Waukesha performing emergency maintenance or repairs. The City of Waukesha may levy the costs and expenses of such inspections, maintenance or repair

related actions as a special charge against the Property and collected as such in accordance with the procedures under s. 66.0627 Wis. Stats. or subch. VII of ch. 66 Wis. Stats.

6. This Agreement shall run with the Property and be binding upon all heirs, successors and assigns. After the Owner records the addendum noted above, the City of Waukesha shall have the sole authority to modify this agreement upon a 30-day notice to the current Owner(s).

Dated this ___ day of _____, 2023.

Owner:
Lithia Real Estate, LLC

By: _____

Name/Title: Michael Weiss/President of General Capital Management, Inc., manager of JPD GC Waukesha, LLC.

Acknowledgements

State of Wisconsin:
County of Waukesha

Personally came before me this ____ day of _____, 2022, the above named_____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____.
Notary Public, Waukesha County, WI
My commission expires:_____.

This document was drafted by:

The Sigma Group, Inc.
1300 W. Canal Street
Milwaukee, WI 53233

For Certification Stamp

City of Waukesha Common Council Approval

Dated this ___ day of _____, 2022.

_____

Shawn N. Reilly, Mayor

_____

Gina Kozlik, City Clerk

Acknowledgements

State of Wisconsin:
County of Waukesha

Personally came before me this ____ day of _____, 2022, the above named _____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____.
Notary Public, Waukesha County, WI
My commission expires:_____.

Exhibit A – Legal Description

The following description and reduced copy map identifies the land parcel(s) affected by this Agreement. For a larger scale view of the referenced document, contact the Waukesha County Register of Deeds office.

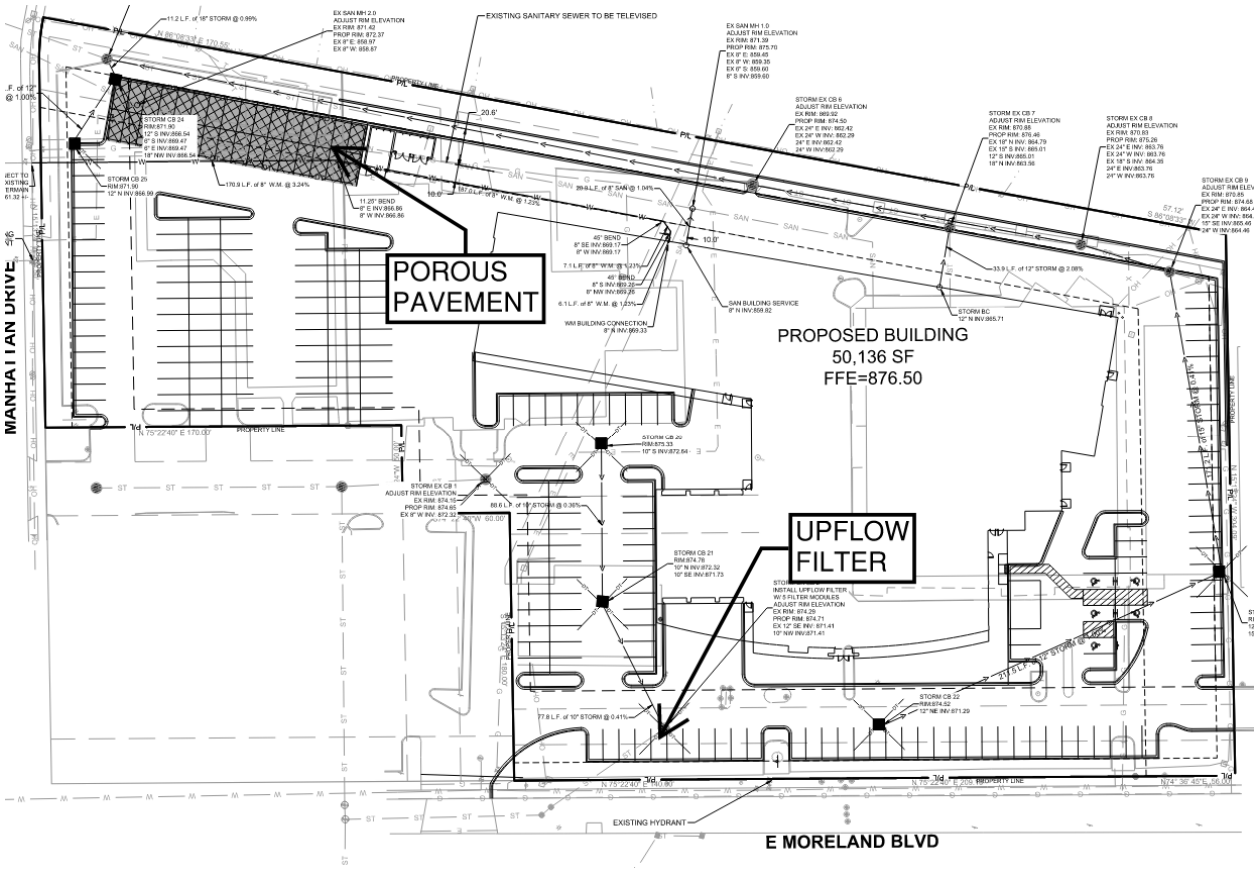
Project Identifier: Wilde Subaru Waukesha **Acres:** 4.485
Date of Recording: _, 2023
Map Produced By:
Legal Description:

Exhibit B - Location Map
Storm Water Management Practices Covered by this Agreement

The stormwater management practices covered by this Agreement are depicted in the reduced copy of a portion of the construction plans, as shown below. The practices include porous pavement and all associated pipes.

Development Name: Wilde Subaru Waukesha
Stormwater Practices: Porous Pavement, Upflow Filters
Location of Practices: East Moreland Boulevard and Manhattan Drive, Waukesha, WI
Owner: Lithia Real Estate, Inc.
Drafter Name:

Figure B1
Plan View of Storm Water Practices



Storm Water Easement Boundary Description:

Exhibit B Continued
Figure B2
Storm Water Easement Boundary and Description
Drafter Name:

Exhibit C
Storm Water Practice Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the minimum maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Owner(s) to enforcement of the provisions listed on page 1 of this Agreement by the City of Waukesha.

Storm Sewer and Storm Catch Basins Description:

The storm sewer directs the storm water from catch basin to the storm water facilities for control and treatment. The storm catch basin will provide pretreatment for the underground system and the Upflo filtration system will supplement treatment. Sediment will settle within the sump of the catch basin. "As-built" construction drawings, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after the City accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:

To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed by the Facility Manager:

1. Inspect all inlet/catch basins/area drains to ensure no clogging of the surface grates, or no blockage from floating debris or ice within the basins. Any blockage must be removed immediately.
2. Inspect the sump to determine the level of sediment build up. Remove sediment when it reaches a level within six inches of the discharge pipe invert.
3. Inspect the structural integrity of the structure/pipe connections. If any structural damage to the inlet/ catch basin structure/ pipe connections is identified the damage shall be repaired.
4. Inspect the pipe connections to ensure no clogging or blockage of the pipe. Any clogging or blockage must be removed immediately.
5. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City under the provisions listed on page 1 of this Agreement.

Up-Flo Filter Description

The Up-Flo filter system provides supplement treatment to the underground system. The system is designed to capture trash, oil, sediment and remove fine pollutants. "As-built" construction drawings, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after the City accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:

To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed by the Facility Manager:

1. A minimum of two inspections are required a year (May and October) to monitor sediment and pollutant accumulation:
    a. Inspect the Up-Flo system for sediment building up within the sump. When sediment depth in the sump is found to be greater than 16 inches, sediment removal is required. There should always be a minimum of 8 inches separation between outlet pipe invert and the sediment built up within the sump.
    b. Media filter bags shall be replaced at least once a year and properly disposed of media filter bags accordance with the Up-Flo manufacture's operation and maintenance manual.
    c. The Up-Flo filtration system shall be inspected for outlet pipe clogging/blockage of debris or ice within the basins. Any blockage must be removed immediately.
    d. Inspect the structural integrity of the structure/pipe connections. If any structural damage to the inlet/ catch basin structure/ pipe connections is identified the damage shall be repaired.
    e. For detailed inspection and maintenance requirements refer to manufactures operation and maintenance manual.
    f. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City under the provisions listed on page 1 of this Agreement.

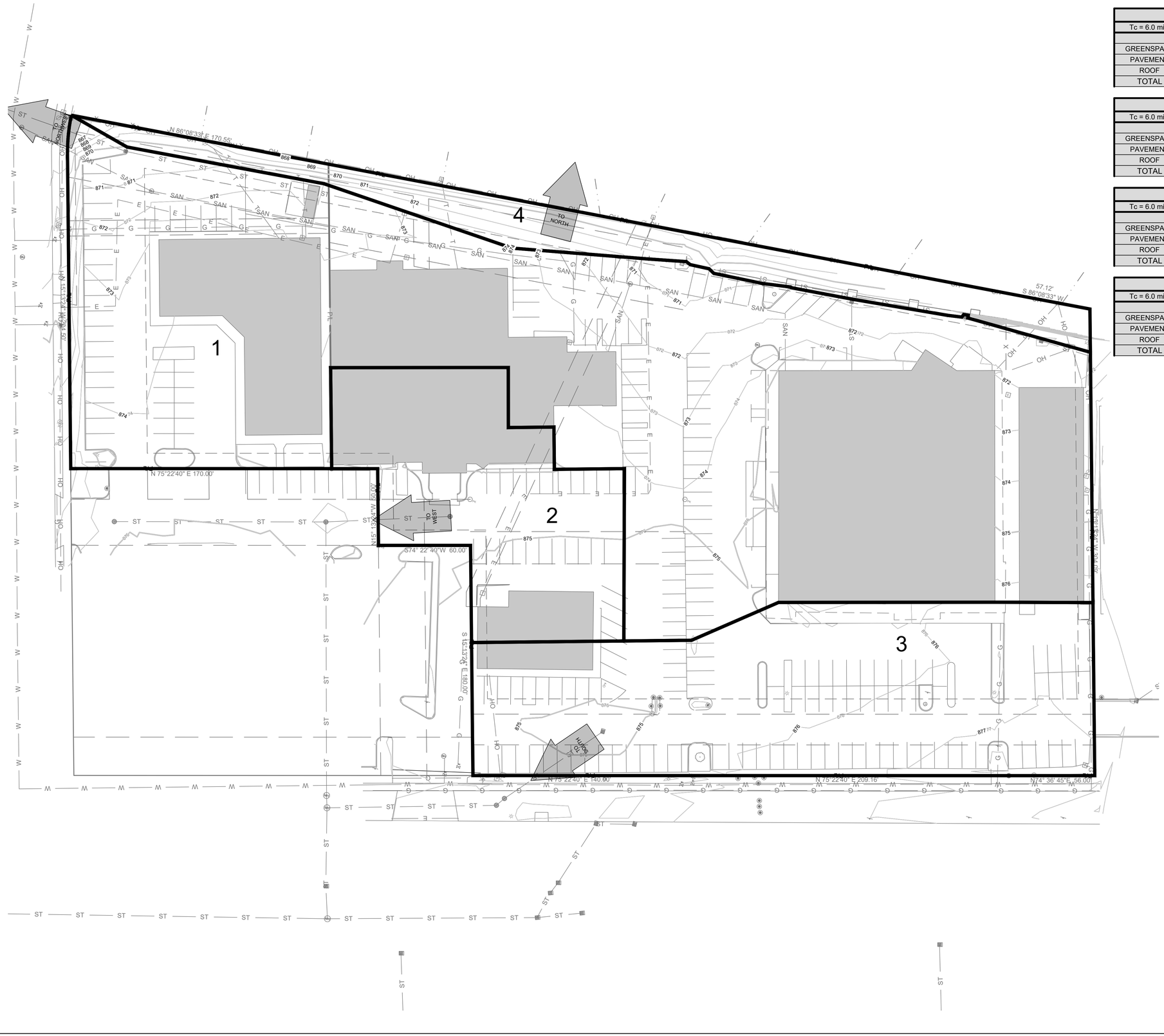
System Description:
The porous pavement system is designed to remove a minimum 40% of sediment in runoff from paved parking areas and roads and maintain pre-development downstream peak flows. To do this, porous pavement system must be maintained as specified in this Agreement (see Figures 1, 2 and 3).

The porous pavement system receives runoff from a 0.57 acre drainage area. The system consists of stormwater infiltrating through 5" porous pavement and into a 24" gravel storage layer. 6" drain tile throughout the gravel storage layer will direct stormwater to existing storm sewer. "As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after City of Waukesha accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:
To ensure the proper long-term function of the storm water management practice described above, the following activities must be completed by the Facility Manager:

1. Annual inspection of permeable pavement to evaluate the following in accordance with WDNR TS 1008.
2. Clean the pavement surface shall be conducted at least twice per year (April and October) using industry recommended methods, such as regenerative air or vacuum sweeping.
3. Snow and ice – Sand and anti-icing pre-treatments should not be used on pervious pavements. Vacuum cleaning MUST be performed after the winter season. Snow removal should not be performed using front end loaders or skid loaders by either scooping or back dragging to avoid damaging the surface.
4. Hazardous/toxic substances should never be located/used near or on pavement – A spill prevention plan must be implemented where there is likelihood of spills from hazardous materials (e.g. gasoline for lawn mowers, antifreeze for cars, solvents, pesticides, & cleaning aids) that can adversely affect SW if spilled. Releases shall be corrected as soon as identified.
5. Outlets provide stable conveyance out of facility – Trash, debris, or sediment accumulation or evidence of erosion should be checked for, at a minimum, every April and October.
6. Permeable pavement shall be vacuum swept every May and November with a regenerative air sweeper.
7. Preventative measures such as raking and removing leaves, vacuum sweeping, limited and controlled application of pesticides and fertilizers, and other good housekeeping practices that prevent pollutants from mixing with stormwater should be taken.
8. Performance – Biannually, verify that pervious pavement is draining as designed. If pavement is not draining precipitation per the designed rate, and/or ponding water is visible on the surface 8 hours after a rain event, the system is likely clogged. System must receive a deep or regenerative cleaning. After cleaning has been complete, system must be tested to confirm it is performing within an accepted range per the design.
9. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City of Waukesha under the provisions listed on page 1 of this Agreement.
10. The titleholder(s) or their designee must document all inspections as specified above. Documentation shall include as a minimum: (a) Inspectors Name, Address and Telephone Number, (b) Date of Inspections, (c) Condition Report of the Storm Water Management Practice, (d) Corrective Actions to be Taken and Time Frame for Completion, (e) Follow-up Documentation after Completion of the Maintenance Activities. All documentation is to be delivered to the attention of the City Engineer at the City of Waukesha Engineering Department on January 10th and July 10th each year.

Appendix G Figures



AREA 1 TO NORTHWEST			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	11543	0.26	80
PAVEMENT	58458	1.34	98
ROOF	47524	1.09	98
TOTAL	117525	2.70	96

AREA 2 TO WEST			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	348	0.01	80
PAVEMENT	11935	0.27	98
ROOF	10411	0.24	98
TOTAL	22694	0.52	98

AREA 3 TO SOUTH			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	3006	0.07	80
PAVEMENT	1350	0.03	98
ROOF	37026	0.85	98
TOTAL	41382	0.95	97

AREA 4 TO NORTH			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	13765	0.32	80
PAVEMENT	0	0.00	98
ROOF	0	0.00	98
TOTAL	13765	0.32	80

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GRAPHIC SCALE
0 30 60

WILDE SUBARU
E MORELAND BLVD & MANHATTAN DR
WAUKESHA, WI

EXISTING CONDITIONS

PRELIMINARY NOT FOR CONSTRUCTION

ISSUANCE	DATE

NO. REVISION	DATE

PROJECT NO:	21736
DESIGN DATE:	----
PLOT DATE:	2023.08.29
DRAWN BY:	----
CHECKED BY:	----
APPROVED BY:	----

SHEET NO:
SW1.0

2023.08.29
MGARNER
SW1.0
21736

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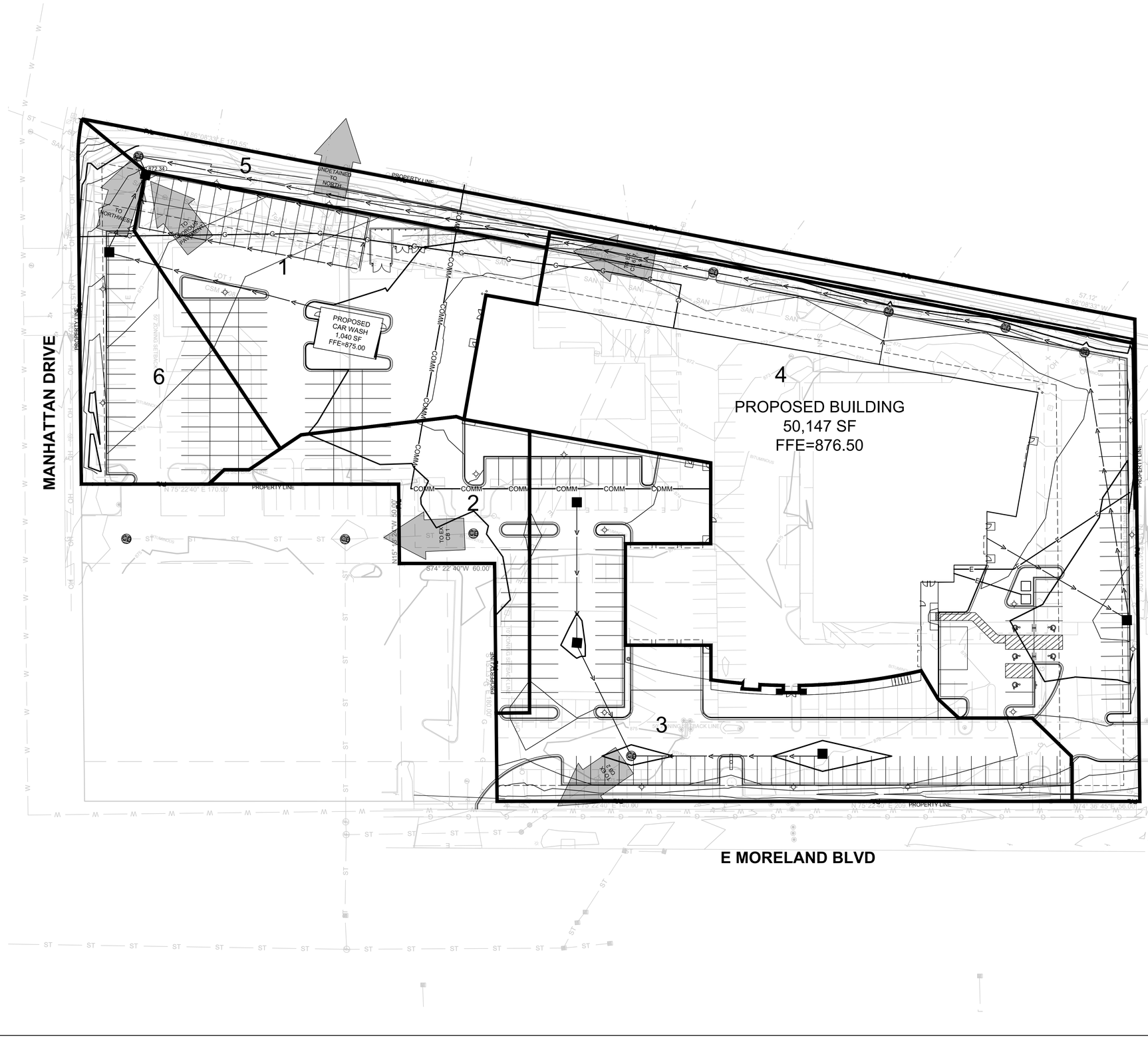

WATERSHED AREA 1			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	958	0.02	80
PAVEMENT	24873	0.57	98
ROOF	1045	0.02	98
TOTAL	26876	0.62	97

WATERSHED AREA 2			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	1176	0.03	80
PAVEMENT	11151	0.26	98
ROOF	0	0.00	98
TOTAL	12327	0.28	96

WATERSHED AREA 3			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	6752	0.16	80
PAVEMENT	31407	0.72	98
ROOF	0	0.00	98
TOTAL	38159	0.88	95

WATERSHED AREA 4			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	7579	0.17	80
PAVEMENT	32060	0.74	98
ROOF	50181	1.15	98
TOTAL	89820	2.06	96

WATERSHED AREA 5			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	12720	0.29	80
PAVEMENT	0	0.00	98
ROOF	0	0.00	98
TOTAL	12720	0.29	80

WATERSHED AREA 6			
Tc = 6.0 min.	SF	ACRE	CN
PROPOSED			
GREENSPACE	4879	0.11	80
PAVEMENT	10629	0.24	98
ROOF	0	0.00	98
TOTAL	15508	0.36	92

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Fax: 414-643-4210

GRAPHIC SCALE
0 30 60

WILDE SUBARU
E MORELAND BLVD & MANHATTAN DR
WAUKESHA, WI

PROPOSED CONDITIONS

PRELIMINARY
NOT FOR
CONSTRUCTION

ISSUANCE	DATE
90% PLANS	09/11/23

NO.	REVISION	DATE

PROJECT NO:	21736
DESIGN DATE:	----
PLOT DATE:	2023.10.20
DRAWN BY:	----
CHECKED BY:	----
APPROVED BY:	----

SHEET NO:
SW2.0

MGARNER
SW2.0
21736

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