STORM WATER MANAGEMENT PLAN

F STREET CALEDONIA

Village of Caledonia, Wisconsin

PEG Project Number: 6046.00-WI

December 22, 2025

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INTRODUCTION

The proposed project is a multifamily living development with associated private roadways and utilities. The F Street Caledonia Multifamily Development is located southeast of the intersection of 4 Mile Road and North Green Bay Road in the Village of Caledonia, Wisconsin. A location map that illustrates the tract of land is included in **Appendix 1**. The improvements will disturb more than 1 acre and thus will require stormwater management. Pinnacle Engineering Group has prepared a plan to meet the Village of Caledonia and the Wisconsin DNR goals.

DESIGN CRITERIA

*Village of Caledonia **(Village)**:..... Title 9 Chapter 2, Municipal Code of Ordinances*

*Wisconsin Department of Natural Resources **(WDNR)**:*..... NR 216 & NR 151

Water Quantity: The Village of Caledonia requires the 100-year post-development peak runoff discharge to not exceed the 10-year pre-development peak runoff discharge or the maximum hydraulic capacity of existing downstream conveyance facilities (as determined by the Village), whichever is the most restrictive. The post-development runoff discharges for storms up to and including the 10-year shall not exceed the 2-year pre-development peak runoff discharge. The 1-year proposed storm event must also be kept at or below existing conditions for the 1-year storm per NR 151.

Water Quality: The Village and DNR requirements are to remove 80% of the total suspended solids (TSS) load on an average annual basis from the runoff from the site.

Infiltration: The Village requires developments with more than 40 percent and up to 80 percent connected imperviousness, design practices to infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 75 percent of the pre-development infiltration volume, based on an average annual rainfall. Infiltration is not required where the infiltration rate of the soil measured is less than 0.6 inches per hour. The DNR requires that post−development infiltration volume shall be at least 60% of the pre−development infiltration volume, based on an average annual rainfall unless site is exempt from infiltration requirements.

Protective Areas: The Village and DNR require protective areas where impervious areas are adjacent to and drain into wetlands.

EXISTING CONDITIONS

The existing site is comprised of open farmland. The site currently drains to the east, through the middle of the neighboring lot and into the large swale between the two neighbors' lots. The site acts as one drainage area. A Pre-Development Hydrology Exhibit can be found in **Appendix 2**.

The site is in soil classification group C/D according to the USDA Web Soil Survey Map (**Appendix 1**). A runoff curve number of 78 was used when analyzing the predevelopment conditions per Village of Caledonia ordinance for cropland on Hydrologic Soil Group C.

POST-DEVELOPMENT CONDITIONS

The proposed site is a multifamily development comprised of 5 buildings with associated private roads and utilities. The majority of runoff will drain to or discharge to the proposed Pond located along the Northern property line and 4 Mile Road via the proposed storm sewer system. The proposed site is divided into two drainage areas, the proposed onsite area that drains to the proposed pond and an undetained area. A Post-Development Hydrology Exhibit and Modeling can be found in **Appendix 3** and **Appendix 4**. The pond discharges northeast into the existing 4 Mile Road ditch.

The storm water facilities and associated outlet structures have been designed to comply with the requirements for the Village of Caledonia and the DNR.

ANALYSIS METHODS

HydroCAD® (Version 10.20-8a) software has been used to analyze stormwater characteristics for this stormwater management plan. HydroCAD uses the accepted TR-55 methodology for determining peak discharge runoff rates. Rainfall depths for the 1-year, 2-year, 10-year, and 100-year storm events are 2.35, 2.67, 3.77, and 5.92 inches in accordance with SEWRPC rainfall depths. MSE 3 24-hour rainfall distributions are used.

TSS reduction characteristics for the proposed water quality facilities were determined using WinSLAMM® (Version 10.5.0) Source Loading and Management Model.

SUMMARY OF RESULTS

Existing Flows

Area	Area (ac)	CN	Tc (min)	Peak Flows 1-year (cfs)	Peak Flows 2-year (cfs)	Peak Flows 10-year (cfs)	Peak Flows 100-year (cfs)
EXISTING	8.9	78	13.9	7.7	10.3	20.0	41.5

Proposed Flows

Area	Area (ac)	CN	Tc (min)	Peak Flows 1-year (cfs)	Peak Flows 2-year (cfs)	Peak Flows 10-year (cfs)	Peak Flows 100-year (cfs)
PROP AREA TO POND	7.9	90	10.0*	16.7	19.9	31.5	53.8
POND	---	---	---	1.4	1.5	4.5	5.2
UNDETAINED	1.0	75	10.0*	0.8	1.1	2.3	4.9
PROPOSED DISCHARGE	**---**	**---**	**---**	**2.1**	**2.4**	**5.5**	**9.6**

**A Tc of 10.0 min is used as it is the minimum allowed by the Village.*

Release Rate Summary Table

Area	ALLOWABLE 1-year (cfs)	PROP 1-year (cfs)	ALLOWABLE 2-year (cfs)	PROP 10-year (cfs)	ALLOWABLE 10-year (cfs)	PROP 100-year (cfs)
DISCHARGE	7.7	2.1	10.3	5.5	20.0	9.6

Basin Data

Pond	Bottom Elev.	Peak W.S. Elev. 1-year	Peak W.S. Elev. 2-year	Peak W.S. Elev. 10-year	Peak W.S. Elev. 100-year	Spillway Elev.	Top of Berm Elev.
POND	664.5	666.8	667.1	667.8	669.25	669.5	670.0

Runoff Water Quality

Post-development water quality will be obtained in the onsite ponds. The ponds have been designed to provide a minimum of 80% TSS removal.

Water Quality Summary

Area/Pond	Pounds of TSS Incoming	Pounds of TSS Remaining	Percent Removal
POND	2653	417	84.3%
UNDETAINED AREA	140	140	0%
Total	2794	557	**80.1%**

The WinSLAMM modeling indicates a TSS removal of approximately 80.1% (**Appendix 4**). The stormwater devices will meet the TSS removal requirements for the Village and DNR.

Infiltration

This site is exempt from stormwater infiltration due to the site being comprised of silt loam soils (class C) and thus infiltration has not been incorporated into this stormwater management plan.

Protective Areas

Protective areas are required along all wetlands in order to minimize impacts of pollutants from untreated impervious sources. There are no wetlands on site, therefore, protective areas do not apply to this design.

CONCLUSION

The stormwater management features for the development have been designed to comply with the requirements of the Village of Caledonia and the WDNR. This includes peak flow reduction, water quality, infiltration, and protective areas. The ponds will serve to meet all these goals. Maintenance is expected to occur on a regular basis. A maintenance agreement will be carried out to ensure this occurs.

APPENDIX 1
MAPS

Hydrologic Soil Group—Racine County, Wisconsin
(F STREET CALEDONIA)

Map Scale: 1:1,490 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 20 40 80 120

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: Racine County, Wisconsin
Survey Area Data: Version 4, Sep 10, 2025

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

Date(s) aerial images were photographed: Jul 25, 2022—Aug 24, 2022

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
7423B	Blount silt loam, 1 to 3 percent slopes	C/D	0.2	1.6%
7530B2	Ozaukee silt loam, 2 to 6 percent slopes, eroded	C	11.6	98.4%
Totals for Area of Interest			**11.8**	**100.0%**

Description

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

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

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

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

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

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

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

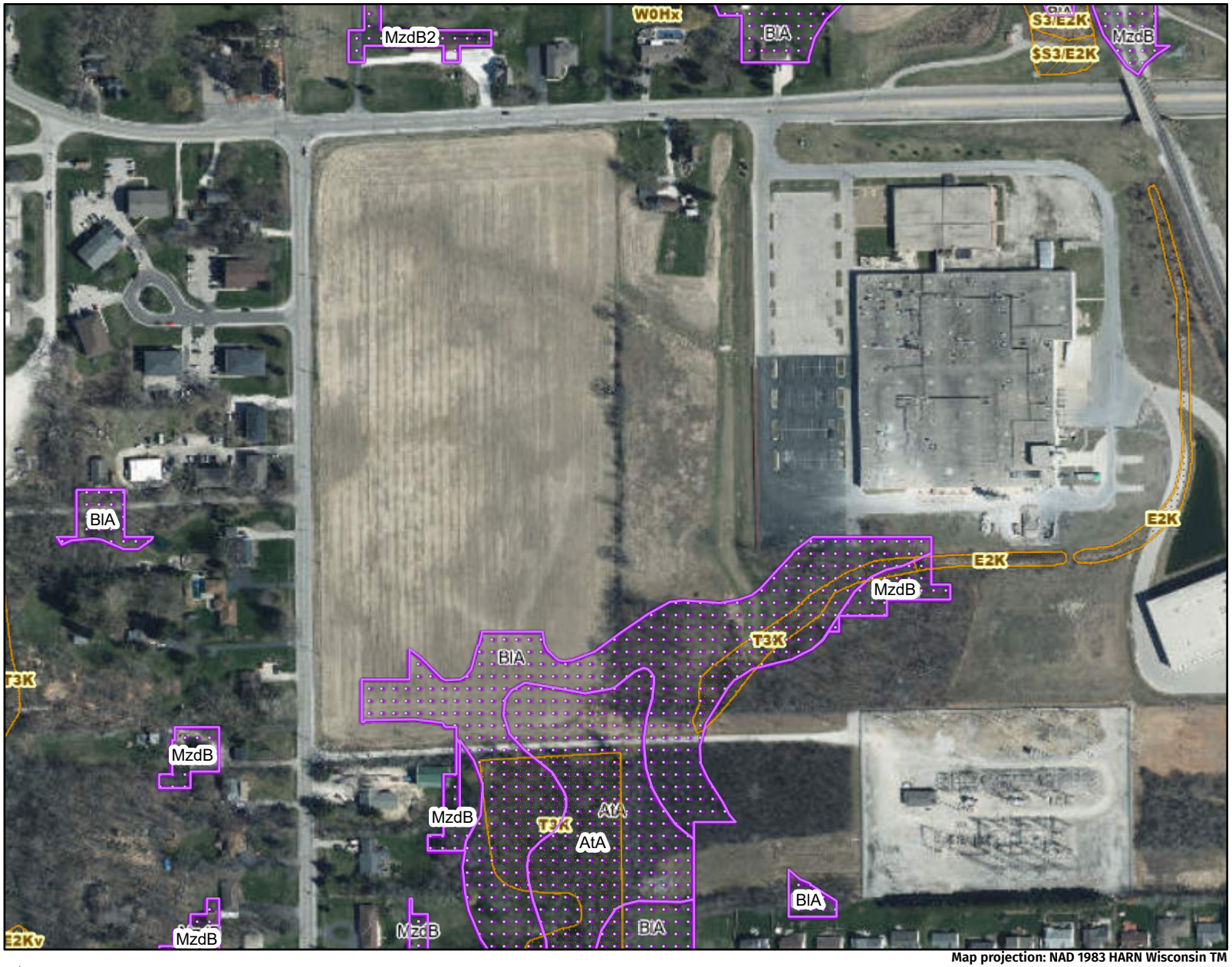
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

WISCONSIN DEPARTMENT OF NATURAL RESOURCES



Legend: (some map layers may not be displayed)

- Wetland Indicators
- Wetland Class Areas

Filled Areas

- Y
- Wetland Indicators

Notes:

Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 280 560 Feet
0 80 160 Meters

Service Layer Credits:
Wetland Indicators & Soils^: Surface Water Data Viewer Team, Latest Leaf Off: , DNR Basic Feature Vector Tile Layer WTM: , Surface Water (Cached): WiDNR, USGS, and other data, Wetland Inventory NWI (Dynamic): Calvin Lawrence, Dennis Weise, Nina Rihn

Date Printed: 12/22/2025 5:15 PM

National Flood Hazard Layer FIRMette

FEMA

87°49'22"W 42°47'12"N

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

1:6,000

87°48'45"W 42°46'45"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

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

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

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

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

N

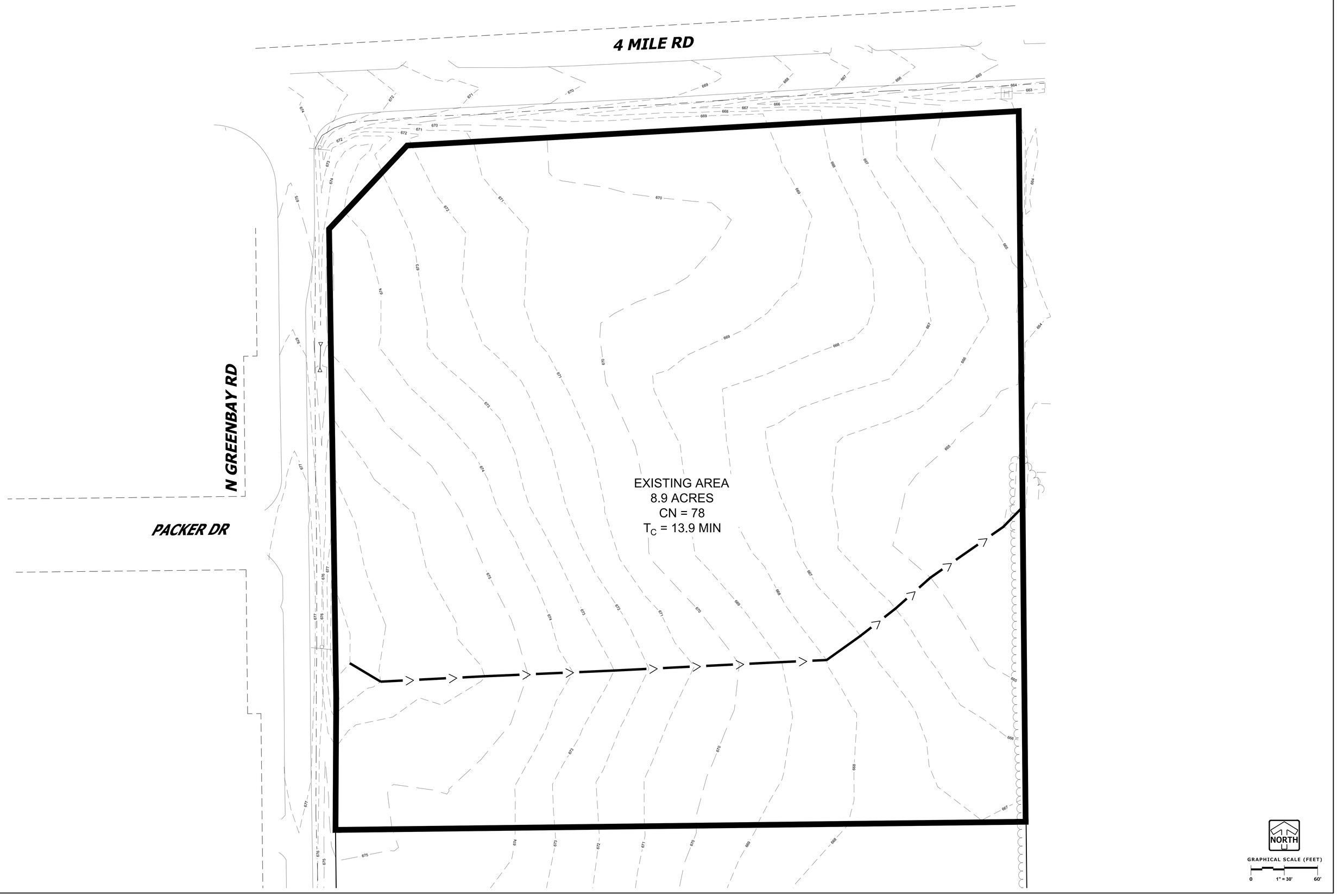
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/22/2025 at 11:20 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

APPENDIX 2
PRE DEVELOPMENT CONDITIONS



Z:\PROJECTS\2024\6046.00-WI\CAD\EXHIBITS\HYDROLOGY.DWG 12/22/2025 3:43 PM

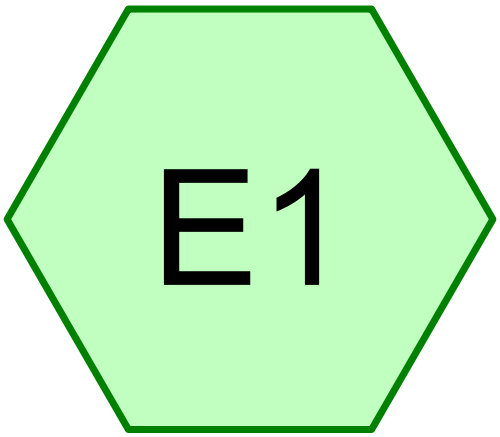
F STREET CALEDONIA HYDROLOGY EXHIBIT - PRE-DEVELOPMENT CONDITIONS

12/22/2025

PINNACLE ENGINEERING GROUP
20725 WATERTOWN ROAD | SUITE 100 | BROOKFIELD, WI 53186 | WWW.PINNACLE-ENGR.COM

PLAN | DESIGN | DELIVER

PEG JOB# 6046.00



EXISTING

Subcat Reach Pond Link

Routing Diagram for F STREET CALEDONIA
Prepared by Pinnacle Engineering Group, Printed 12/22/2025

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	MSE 24-hr	3	Default	24.00	1	2.35	2
2	2-Year	MSE 24-hr	3	Default	24.00	1	2.67	2
3	10-Year	MSE 24-hr	3	Default	24.00	1	3.77	2
4	100-Year	MSE 24-hr	3	Default	24.00	1	5.92	2

Summary for Subcatchment E1: EXISTING

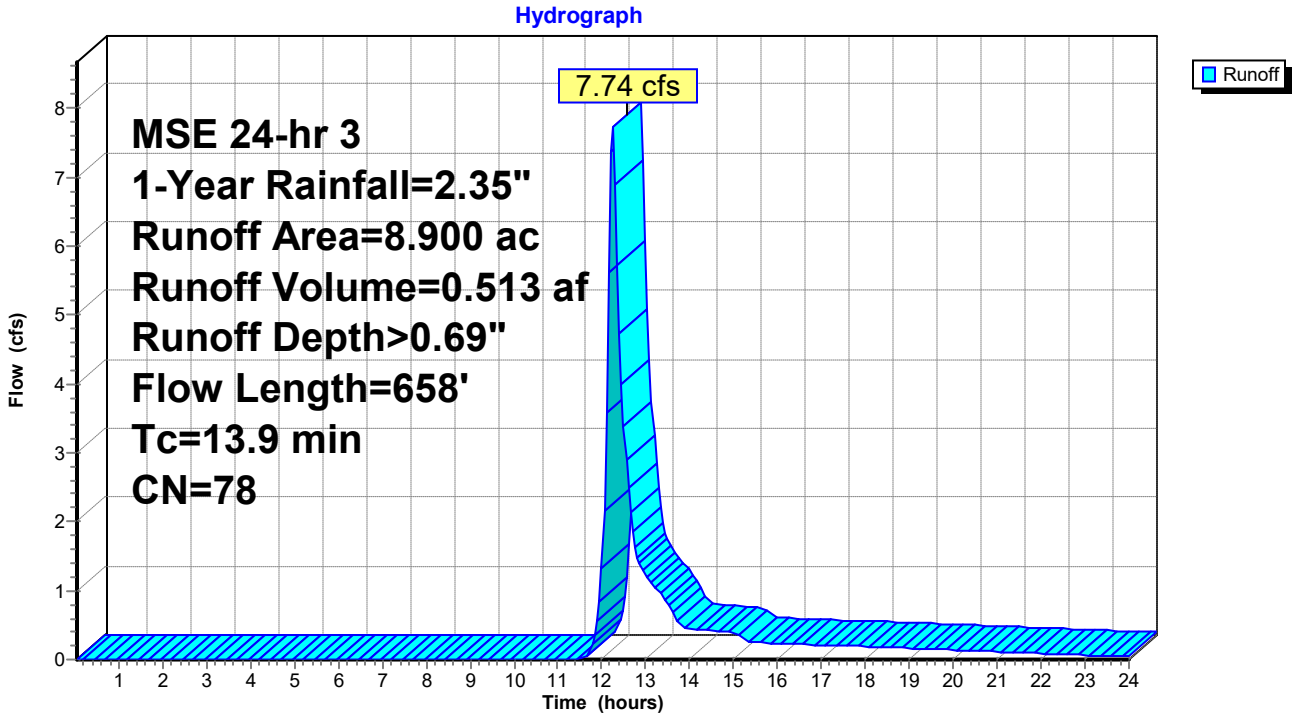
Runoff = 7.74 cfs @ 12.24 hrs, Volume= 0.513 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.35"

	Area (ac)	CN	Description
*	8.900	78	CROPLAND
	8.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0175	0.17		**Sheet Flow, SHEET** Range n= 0.130 P2= 2.67"
3.8	558	0.0230	2.44		**Shallow Concentrated Flow, SHALLOW** Unpaved Kv= 16.1 fps
13.9	658	Total			

Subcatchment E1: EXISTING



Summary for Subcatchment E1: EXISTING

Runoff = 10.29 cfs @ 12.24 hrs, Volume= 0.667 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.67"

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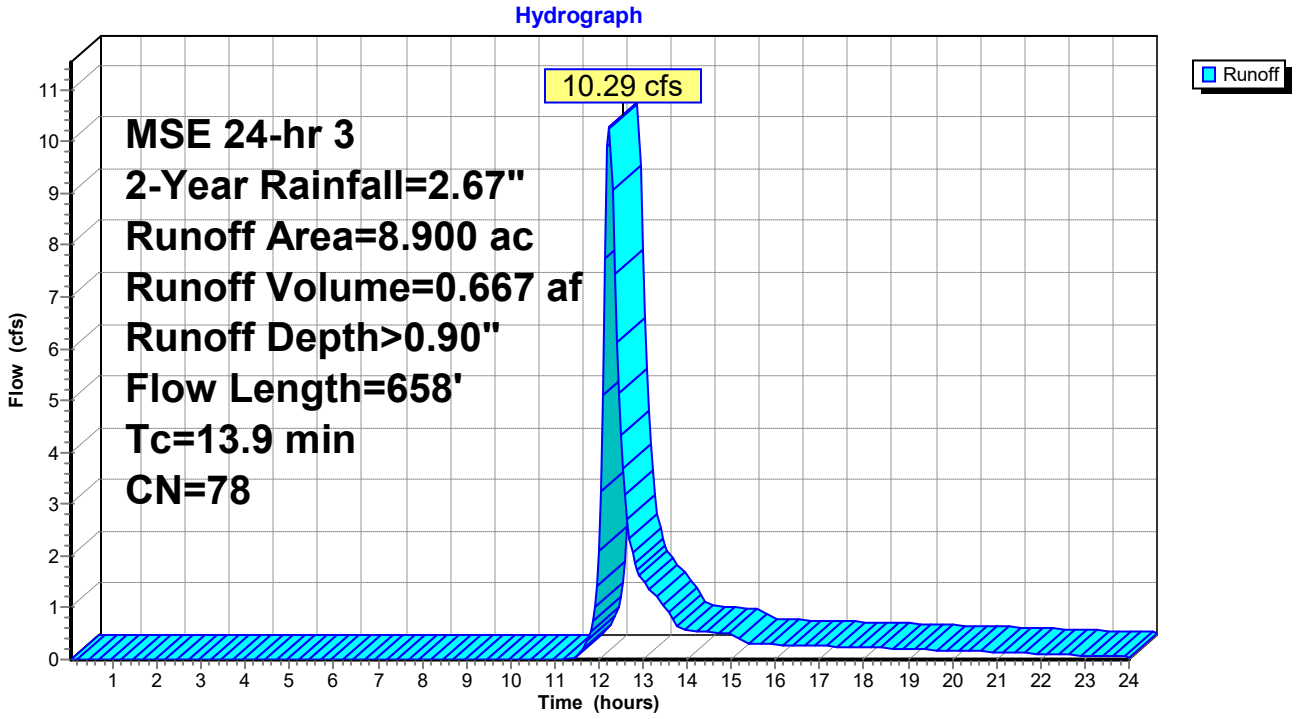
Subcatchment E1: EXISTING



Summary for Subcatchment E1: EXISTING

Runoff = 20.04 cfs @ 12.23 hrs, Volume= 1.264 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=3.77"

	Area (ac)	CN	Description
*	8.900	78	CROPLAND
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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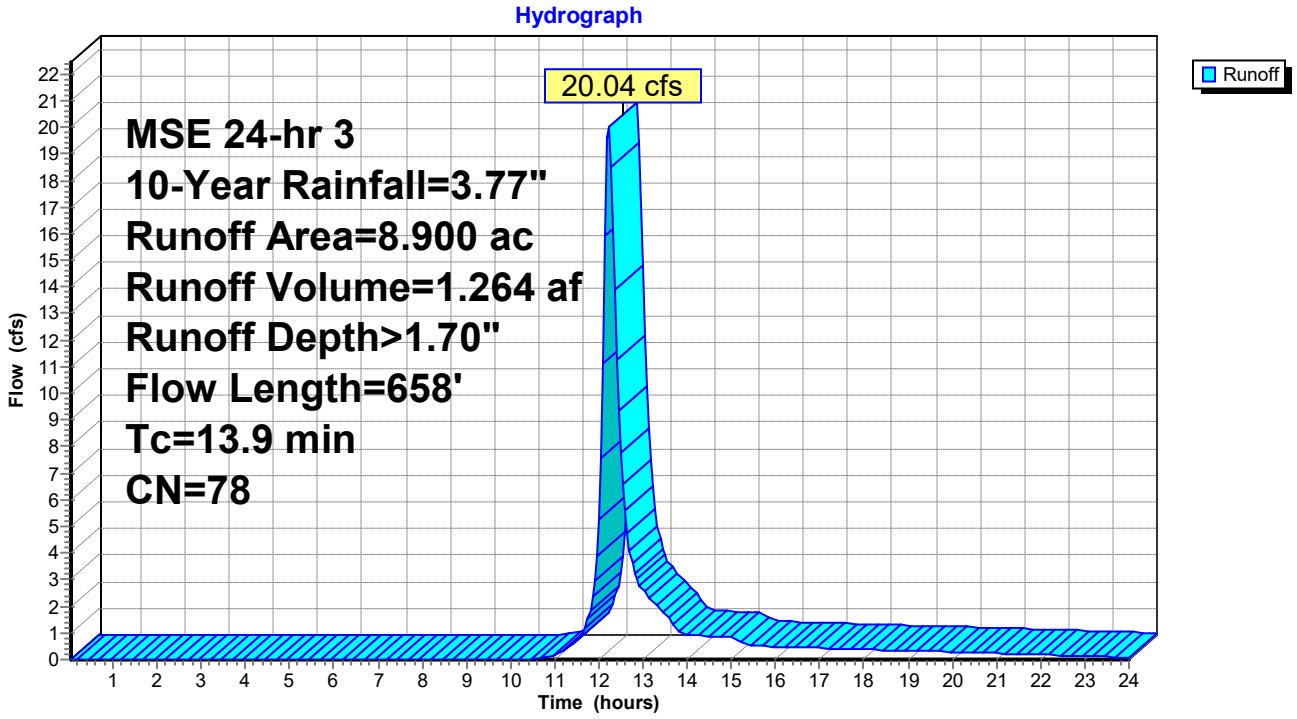

Summary for Subcatchment E1: EXISTING

Runoff = 41.45 cfs @ 12.22 hrs, Volume= 2.600 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=5.92"

	Area (ac)	CN	Description
*	8.900	78	CROPLAND
	8.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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13.9	658	Total			

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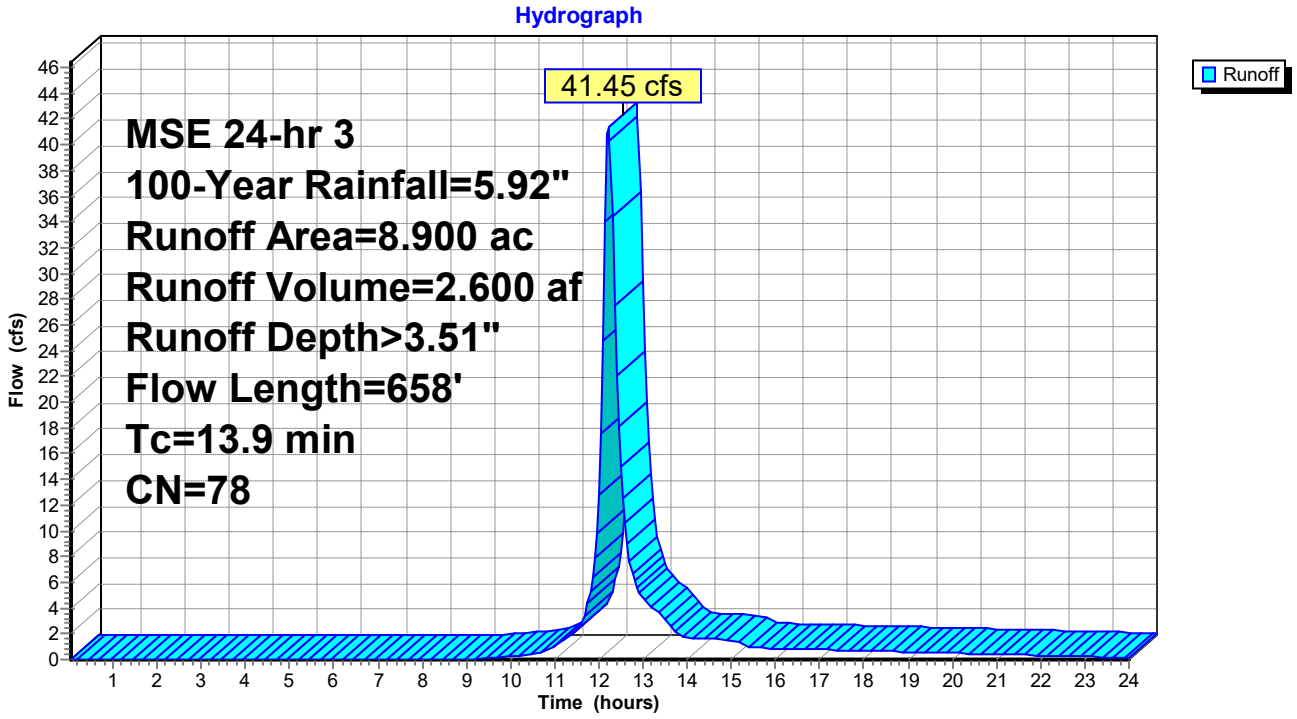

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MSE 24-hr 3 1-Year Rainfall=2.35"

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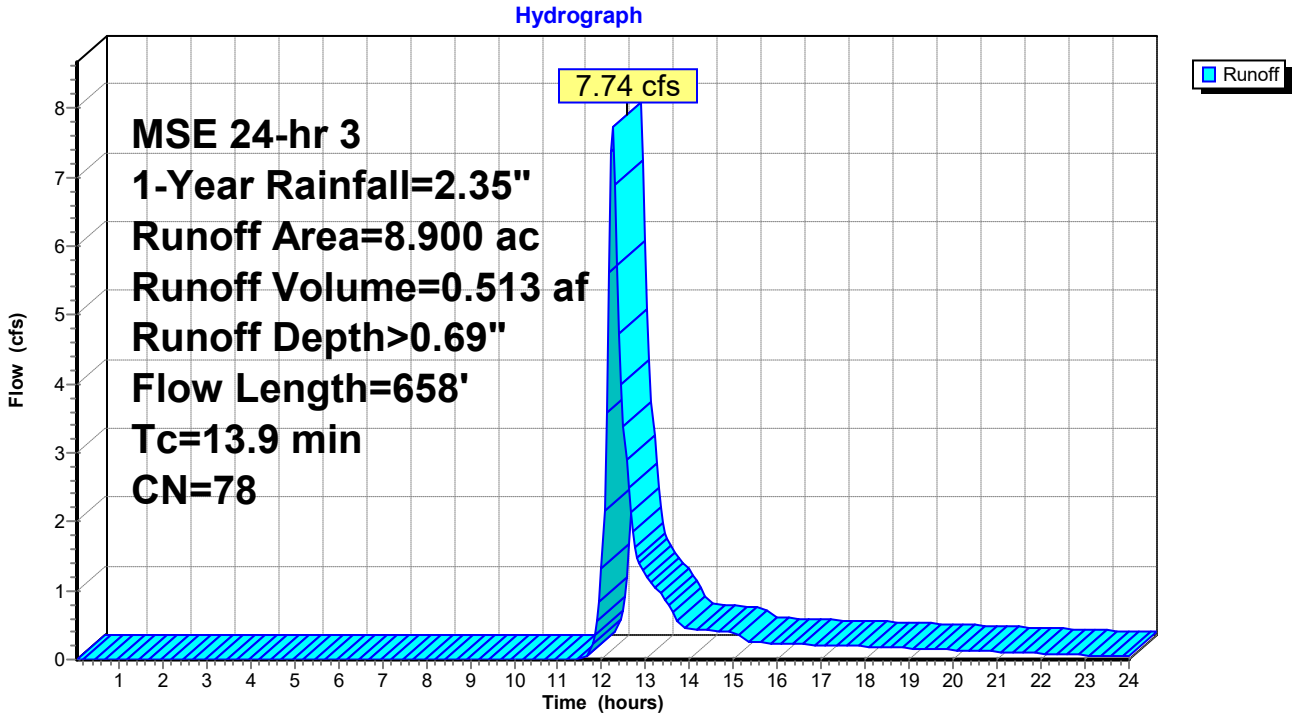

Summary for Subcatchment E1: EXISTING

Runoff = 10.29 cfs @ 12.24 hrs, Volume= 0.667 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.67"

	Area (ac)	CN	Description
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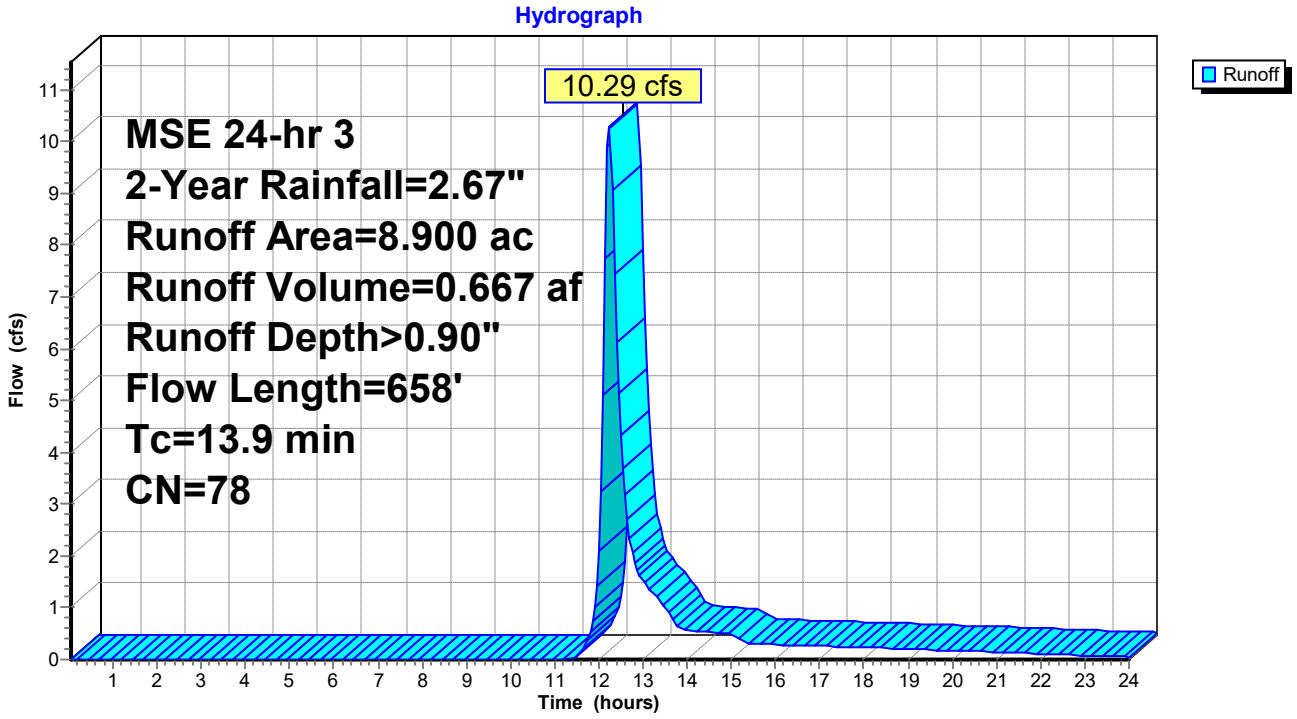

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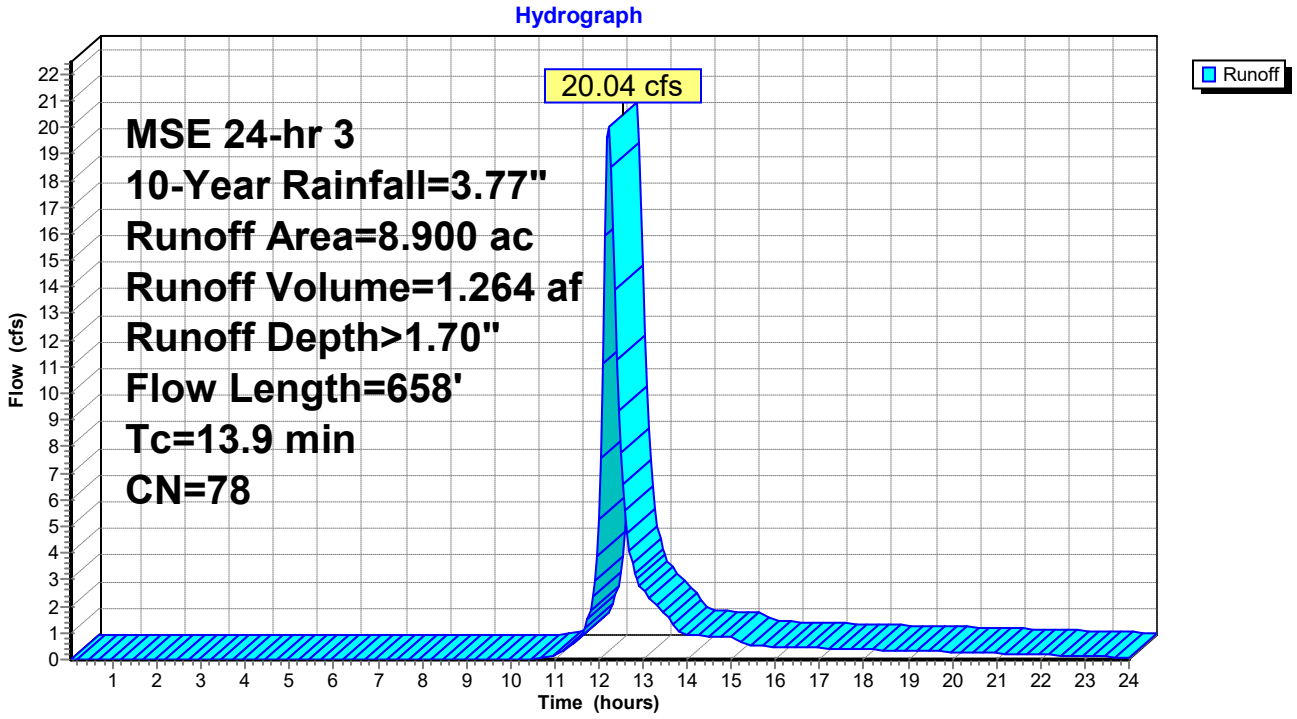
Subcatchment E1: EXISTING



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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=5.92"

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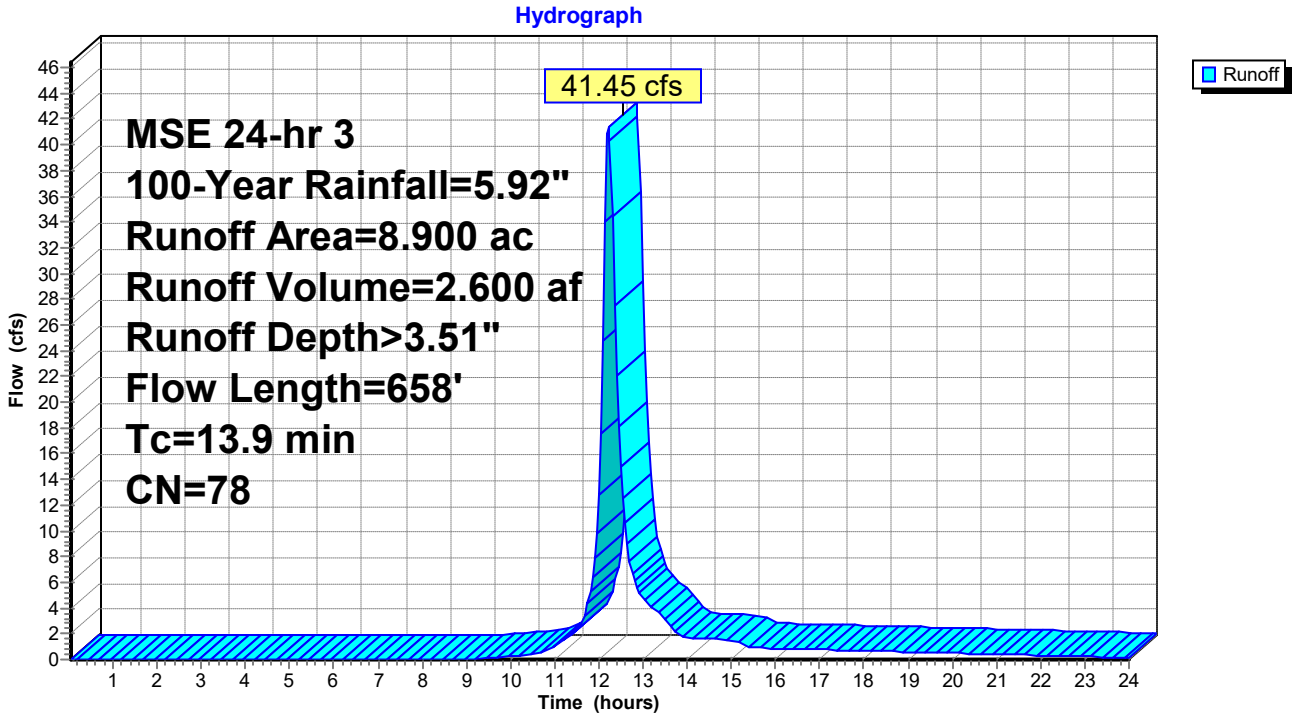
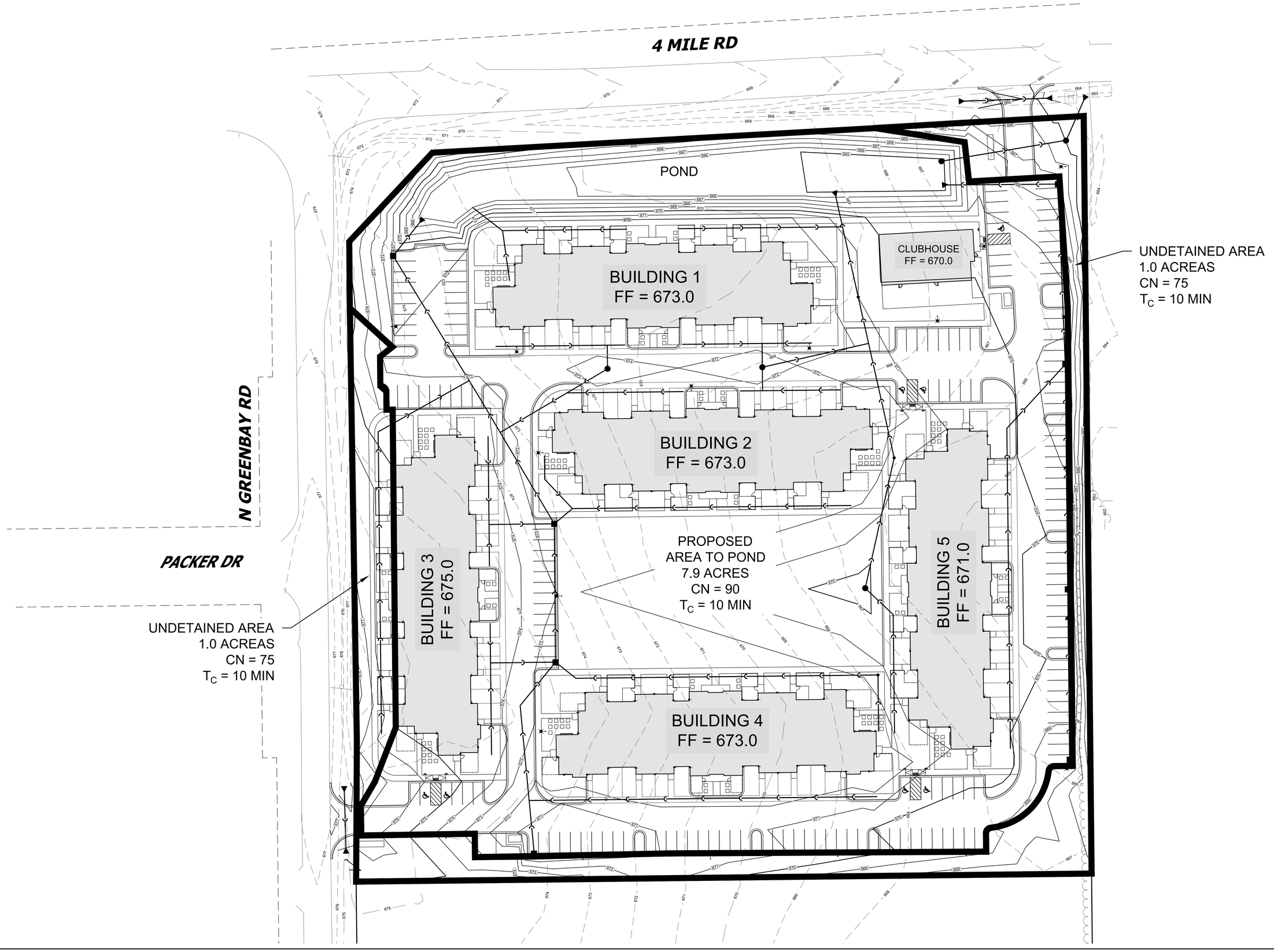
13.9	658	Total			

Subcatchment E1: EXISTING



APPENDIX 3
POST DEVELOPMENT CONDITIONS RATE ATTENUATION



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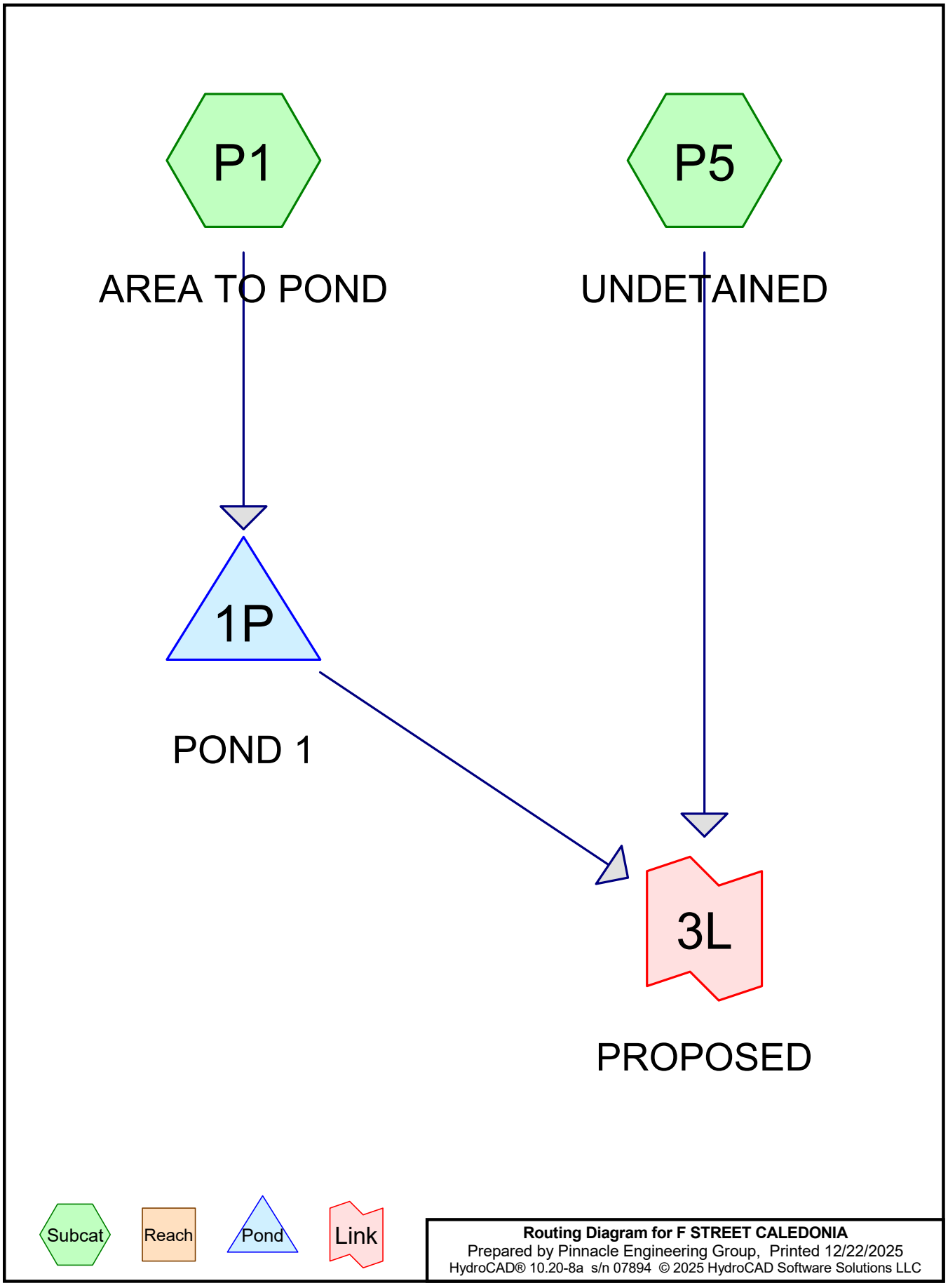
F STREET CALEDONIA HYDROLOGY EXHIBIT - POST-DEVELOPMENT CONDITIONS

12/22/2025

PINNACLE ENGINEERING GROUP
20725 WATERTOWN ROAD | SUITE 100 | BROOKFIELD, WI 53186 | WWW.PINNACLE-ENGR.COM

PLAN | DESIGN | DELIVER

PEG JOB# 6046.00



Routing Diagram for F STREET CALEDONIA
Prepared by Pinnacle Engineering Group, Printed 12/22/2025

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.950	74	>75% Grass cover, Good, HSG C (P5)
2.700	74	GRASS (P1)
3.000	98	PAVEMENT (P1)
0.300	99	POND SURFACE (P1)
0.050	98	ROAD/SIDEWALK (P5)
1.900	98	ROOF (P1)
8.900	**88**	**TOTAL AREA**

Time span=0.05-24.00 hrs, dt=0.05 hrs, 480 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: AREA TO POND Runoff Area=7.900 ac 65.82% Impervious Runoff Depth>1.40"
Tc=10.0 min CN=90 Runoff=16.65 cfs 0.920 af

Subcatchment P5: UNDETAINED Runoff Area=1.000 ac 5.00% Impervious Runoff Depth>0.56"
Tc=10.0 min CN=75 Runoff=0.79 cfs 0.047 af

Pond 1P: POND 1 Peak Elev=666.82' Storage=20,024 cf Inflow=16.65 cfs 0.920 af
Outflow=1.44 cfs 0.920 af

Link 3L: PROPOSED Inflow=2.06 cfs 0.967 af
Primary=2.06 cfs 0.967 af

Total Runoff Area = 8.900 ac Runoff Volume = 0.967 af Average Runoff Depth = 1.30"
41.01% Pervious = 3.650 ac 58.99% Impervious = 5.250 ac

Summary for Subcatchment P1: AREA TO POND

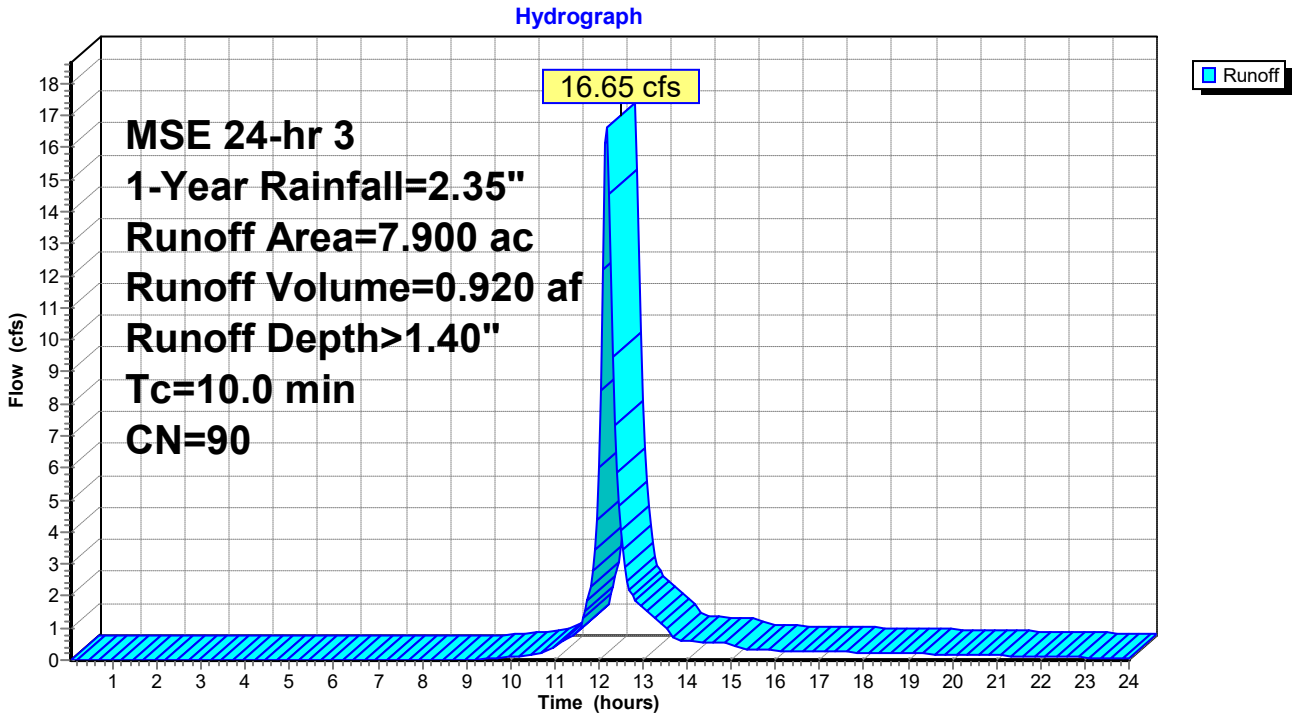
Runoff = 16.65 cfs @ 12.18 hrs, Volume= 0.920 af, Depth> 1.40"
Routed to Pond 1P : POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.35"

	Area (ac)	CN	Description
*	3.000	98	PAVEMENT
*	1.900	98	ROOF
*	2.700	74	GRASS
*	0.300	99	POND SURFACE
	7.900	90	Weighted Average
	2.700		34.18% Pervious Area
	5.200		65.82% Impervious Area

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

Subcatchment P1: AREA TO POND



Summary for Subcatchment P5: UNDETAINED

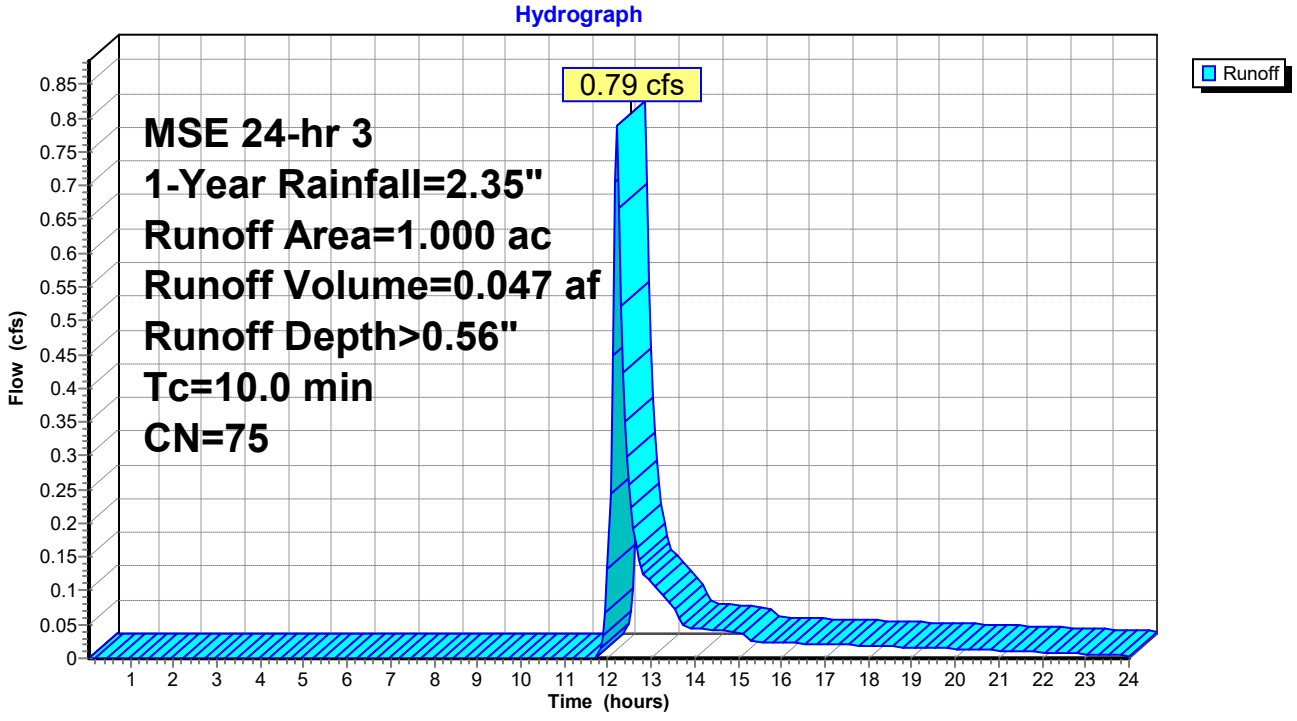
Runoff = 0.79 cfs @ 12.20 hrs, Volume= 0.047 af, Depth> 0.56"
Routed to Link 3L : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.35"

	Area (ac)	CN	Description
	0.950	74	>75% Grass cover, Good, HSG C
*	0.050	98	ROAD/SIDEWALK
	1.000	75	Weighted Average
	0.950		95.00% Pervious Area
	0.050		5.00% Impervious Area

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

Subcatchment P5: UNDETAINED



Summary for Pond 1P: POND 1

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 7.900 ac, 65.82% Impervious, Inflow Depth > 1.40" for 1-Year event
Inflow = 16.65 cfs @ 12.18 hrs, Volume= 0.920 af
Outflow = 1.44 cfs @ 13.16 hrs, Volume= 0.920 af, Atten= 91%, Lag= 59.0 min
Primary = 1.44 cfs @ 13.16 hrs, Volume= 0.920 af
Routed to Link 3L : PROPOSED

Routing by Stor-Ind method, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
Peak Elev= 666.82' @ 13.16 hrs Surf.Area= 16,796 sf Storage= 20,024 cf

Plug-Flow detention time= 133.3 min calculated for 0.920 af (100% of inflow)
Center-of-Mass det. time= 133.3 min (934.5 - 801.2)

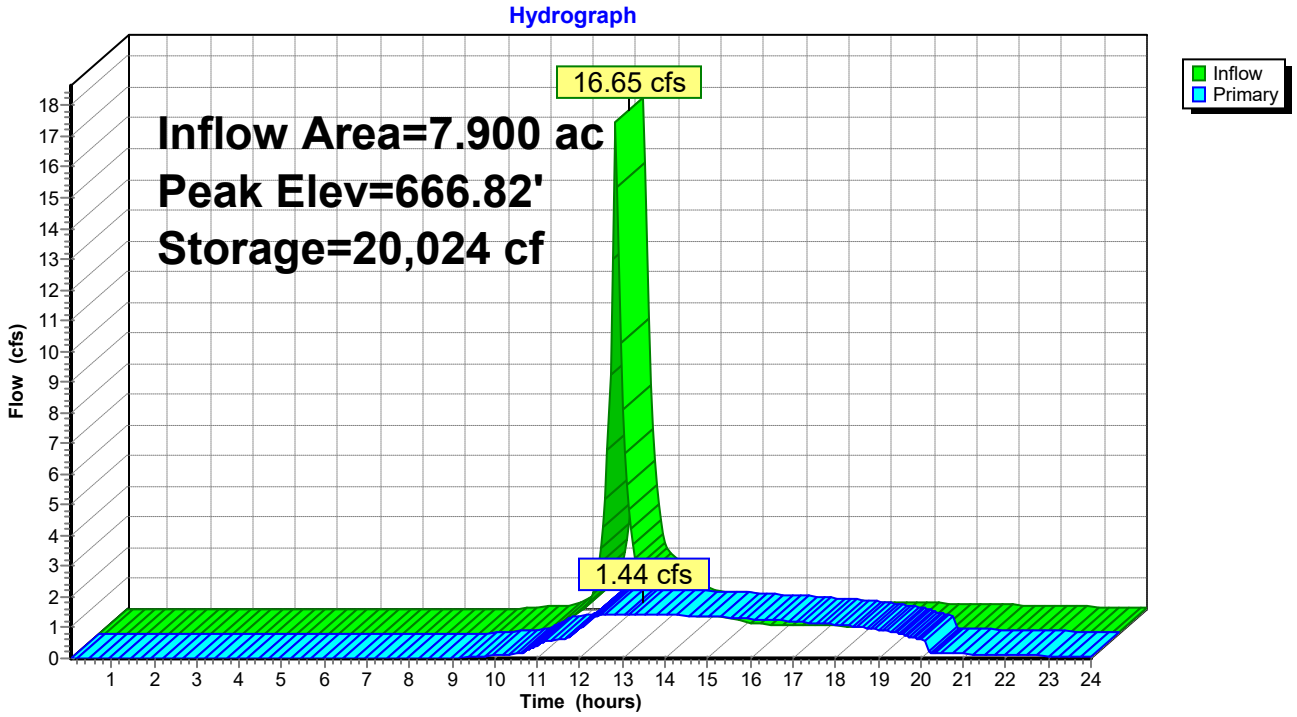
Volume	Invert	Avail.Storage	Storage Description
#1	664.50'	95,150 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
664.50	0	0	0
665.00	3,800	950	950
666.00	11,300	7,550	8,500
667.00	18,000	14,650	23,150
669.00	26,000	44,000	67,150
670.00	30,000	28,000	95,150

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**12.0" Round Culvert** L= 230.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.50' / 662.27' S= 0.0010 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	662.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	667.30'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.44 cfs @ 13.16 hrs HW=666.82' (Free Discharge)
└**1=Culvert** (Passes 1.44 cfs of 4.02 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.86 cfs @ 9.81 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.58 cfs @ 6.64 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: POND 1

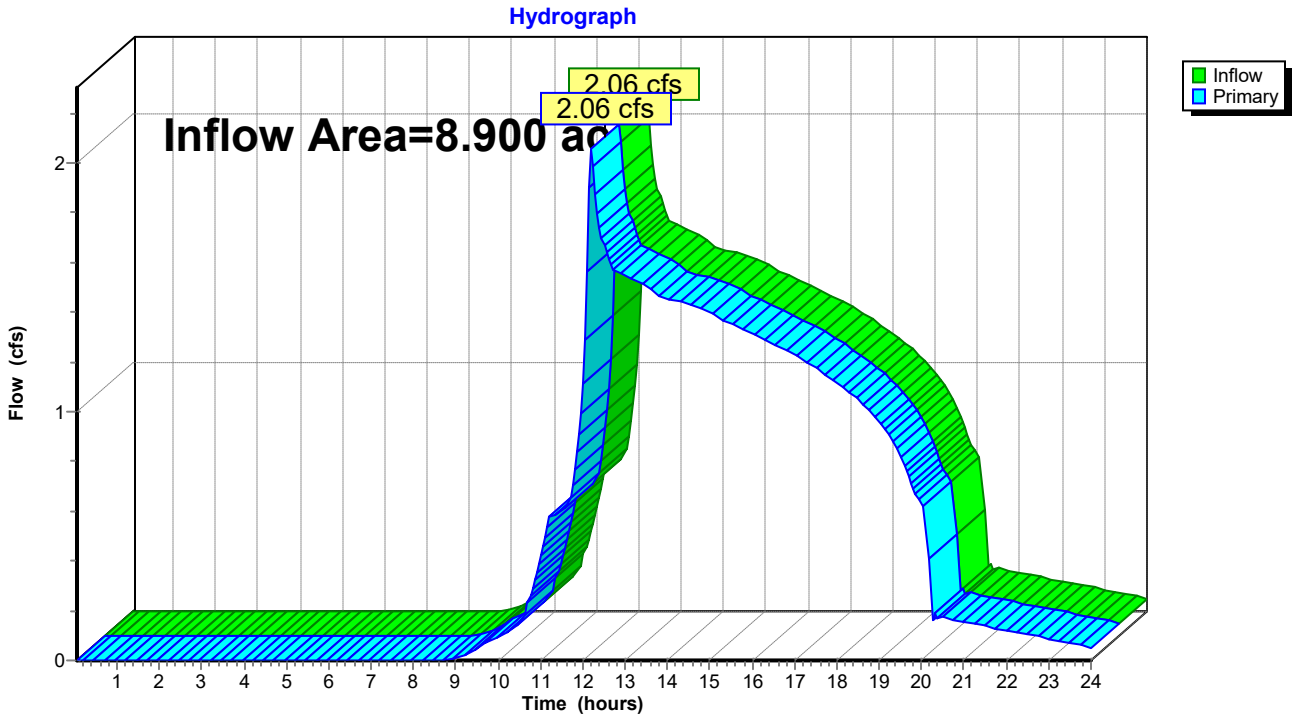


Summary for Link 3L: PROPOSED

Inflow Area = 8.900 ac, 58.99% Impervious, Inflow Depth > 1.30" for 1-Year event
Inflow = 2.06 cfs @ 12.21 hrs, Volume= 0.967 af
Primary = 2.06 cfs @ 12.21 hrs, Volume= 0.967 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs

Link 3L: PROPOSED



Time span=0.05-24.00 hrs, dt=0.05 hrs, 480 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: AREA TO POND Runoff Area=7.900 ac 65.82% Impervious Runoff Depth>1.68"
Tc=10.0 min CN=90 Runoff=19.94 cfs 1.108 af

Subcatchment P5: UNDETAINED Runoff Area=1.000 ac 5.00% Impervious Runoff Depth>0.75"
Tc=10.0 min CN=75 Runoff=1.09 cfs 0.063 af

Pond 1P: POND 1 Peak Elev=667.12' Storage=25,355 cf Inflow=19.94 cfs 1.108 af
Outflow=1.51 cfs 1.108 af

Link 3L: PROPOSED Inflow=2.41 cfs 1.170 af
Primary=2.41 cfs 1.170 af

Total Runoff Area = 8.900 ac Runoff Volume = 1.170 af Average Runoff Depth = 1.58"
41.01% Pervious = 3.650 ac 58.99% Impervious = 5.250 ac

Summary for Subcatchment P1: AREA TO POND

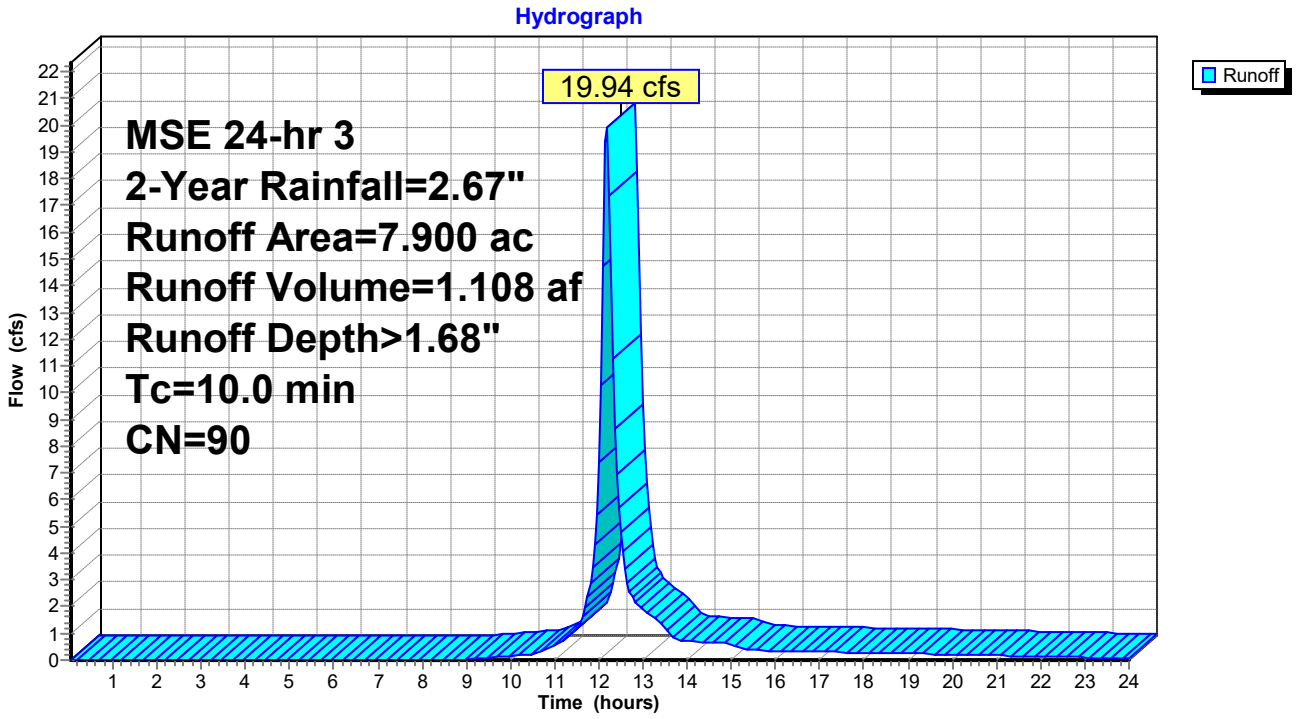
Runoff = 19.94 cfs @ 12.18 hrs, Volume= 1.108 af, Depth> 1.68"
Routed to Pond 1P : POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.67"

	Area (ac)	CN	Description
*	3.000	98	PAVEMENT
*	1.900	98	ROOF
*	2.700	74	GRASS
*	0.300	99	POND SURFACE
	7.900	90	Weighted Average
	2.700		34.18% Pervious Area
	5.200		65.82% Impervious Area

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

Subcatchment P1: AREA TO POND



Summary for Subcatchment P5: UNDETAINED

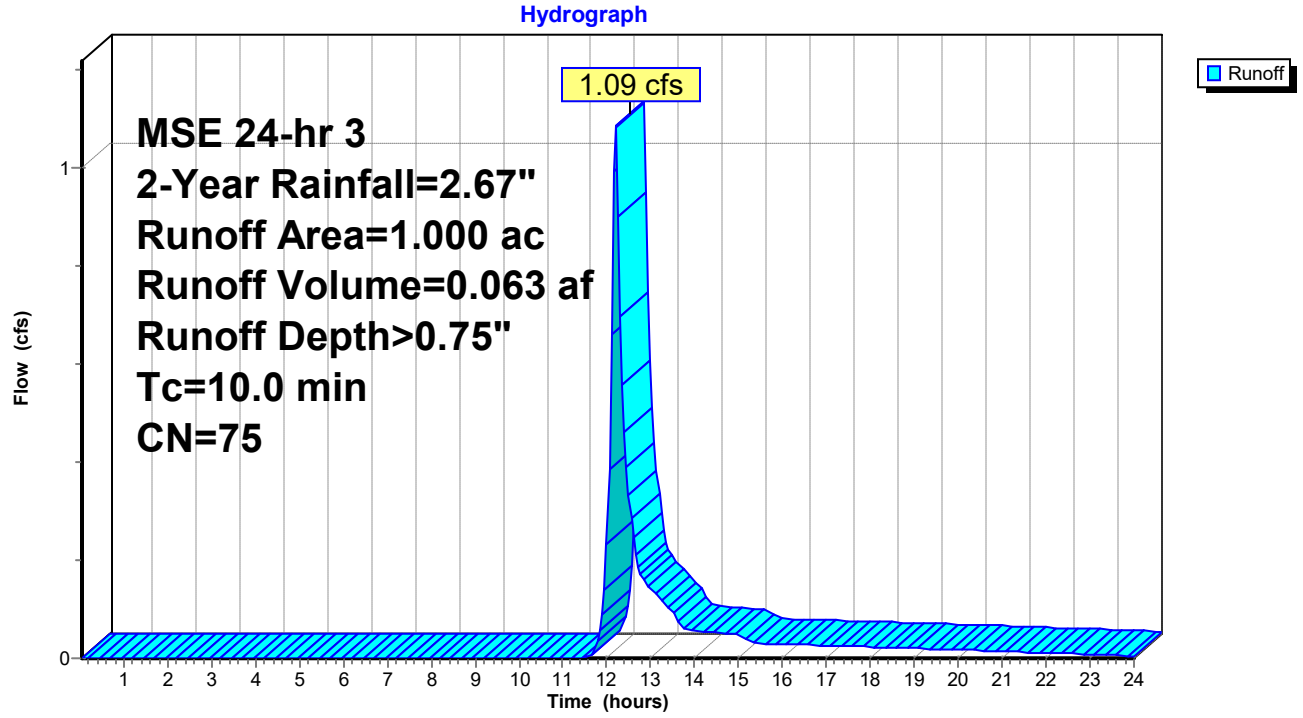
Runoff = 1.09 cfs @ 12.19 hrs, Volume= 0.063 af, Depth> 0.75"
Routed to Link 3L : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.67"

	Area (ac)	CN	Description
	0.950	74	>75% Grass cover, Good, HSG C
*	0.050	98	ROAD/SIDEWALK
	1.000	75	Weighted Average
	0.950		95.00% Pervious Area
	0.050		5.00% Impervious Area

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

Subcatchment P5: UNDETAINED



Summary for Pond 1P: POND 1

[44] Hint: Outlet device #2 is below defined storage
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 7.900 ac, 65.82% Impervious, Inflow Depth > 1.68" for 2-Year event
Inflow = 19.94 cfs @ 12.18 hrs, Volume= 1.108 af
Outflow = 1.51 cfs @ 13.29 hrs, Volume= 1.108 af, Atten= 92%, Lag= 66.6 min
Primary = 1.51 cfs @ 13.29 hrs, Volume= 1.108 af
Routed to Link 3L : PROPOSED

Routing by Stor-Ind method, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
Peak Elev= 667.12' @ 13.29 hrs Surf.Area= 18,484 sf Storage= 25,355 cf

Plug-Flow detention time= 163.4 min calculated for 1.108 af (100% of inflow)
Center-of-Mass det. time= 163.4 min (960.9 - 797.5)

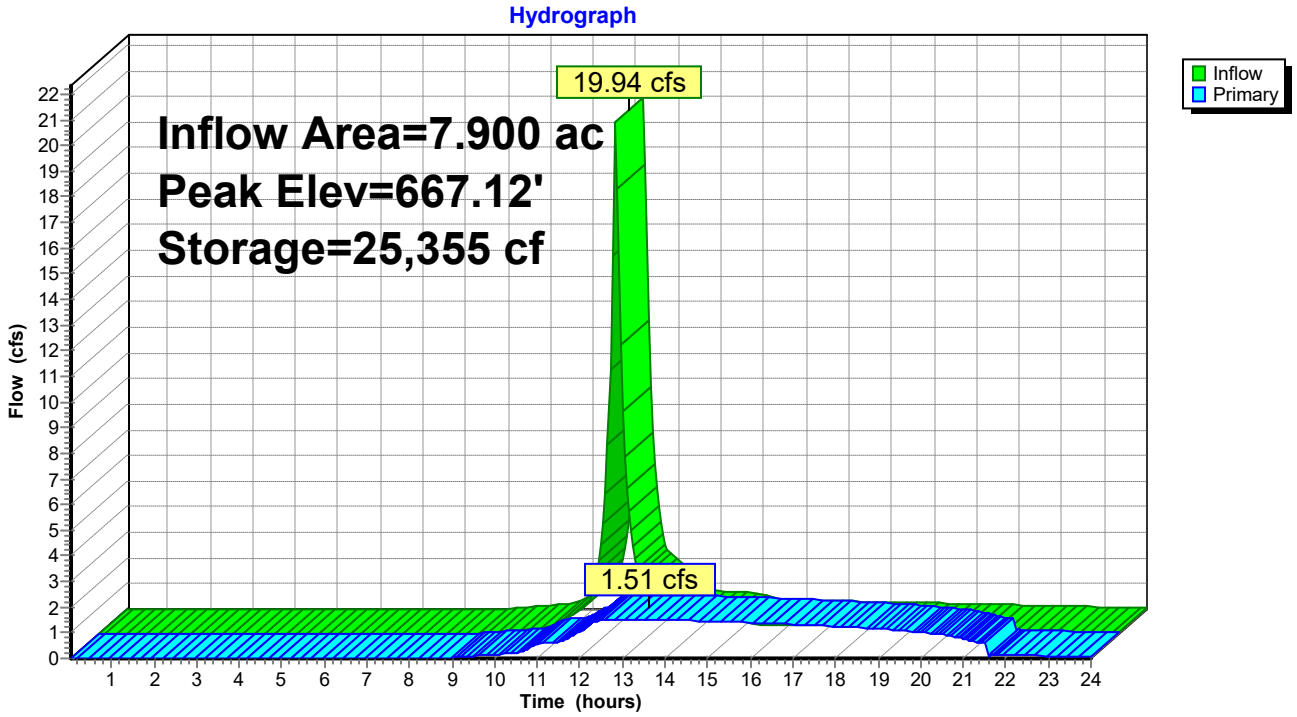
Volume	Invert	Avail.Storage	Storage Description
#1	664.50'	95,150 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
664.50	0	0	0
665.00	3,800	950	950
666.00	11,300	7,550	8,500
667.00	18,000	14,650	23,150
669.00	26,000	44,000	67,150
670.00	30,000	28,000	95,150

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**12.0" Round Culvert** L= 230.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.50' / 662.27' S= 0.0010 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	662.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	667.30'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.51 cfs @ 13.29 hrs HW=667.12' (Free Discharge)
└**1=Culvert** (Passes 1.51 cfs of 4.19 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.89 cfs @ 10.16 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.62 cfs @ 7.15 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: POND 1

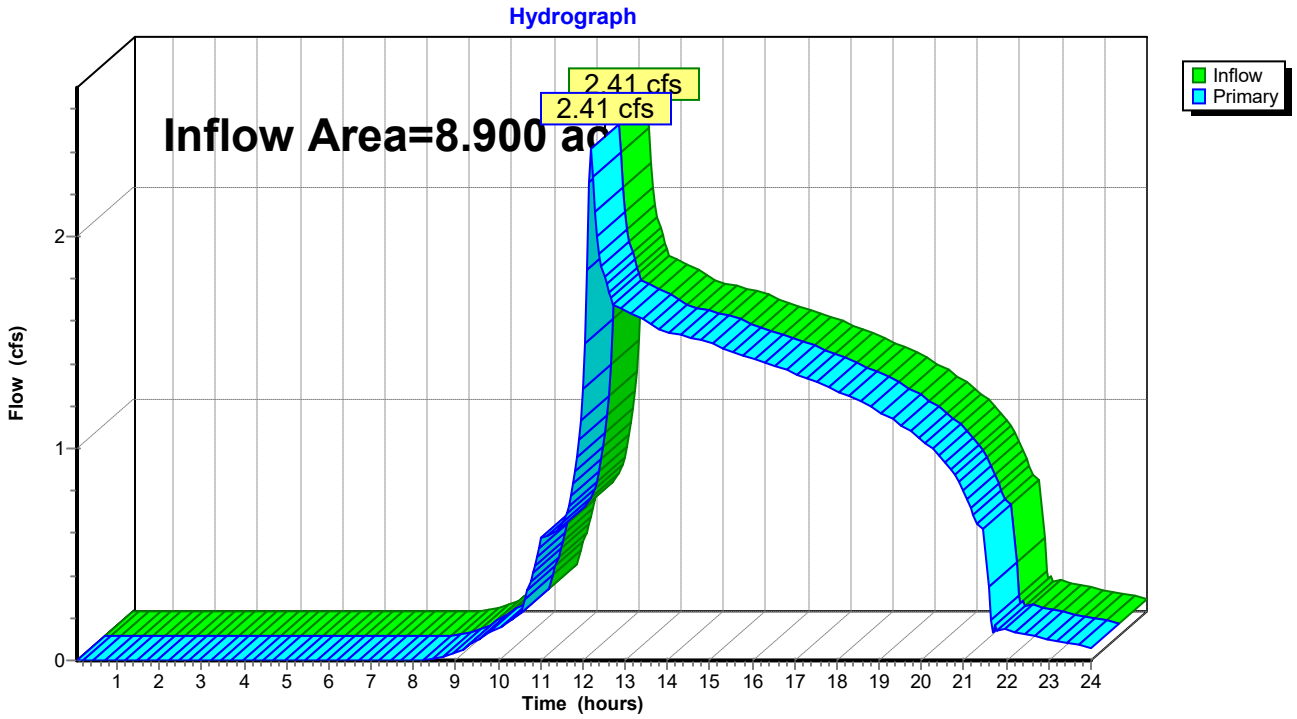


Summary for Link 3L: PROPOSED

Inflow Area = 8.900 ac, 58.99% Impervious, Inflow Depth > 1.58" for 2-Year event
Inflow = 2.41 cfs @ 12.20 hrs, Volume= 1.170 af
Primary = 2.41 cfs @ 12.20 hrs, Volume= 1.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs

Link 3L: PROPOSED



Time span=0.05-24.00 hrs, dt=0.05 hrs, 480 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: AREA TO POND Runoff Area=7.900 ac 65.82% Impervious Runoff Depth>2.70"
Tc=10.0 min CN=90 Runoff=31.47 cfs 1.778 af

Subcatchment P5: UNDETAINED Runoff Area=1.000 ac 5.00% Impervious Runoff Depth>1.50"
Tc=10.0 min CN=75 Runoff=2.26 cfs 0.125 af

Pond 1P: POND 1 Peak Elev=667.77' Storage=38,190 cf Inflow=31.47 cfs 1.778 af
Outflow=4.53 cfs 1.778 af

Link 3L: PROPOSED Inflow=5.52 cfs 1.902 af
Primary=5.52 cfs 1.902 af

Total Runoff Area = 8.900 ac Runoff Volume = 1.902 af Average Runoff Depth = 2.56"
41.01% Pervious = 3.650 ac 58.99% Impervious = 5.250 ac

Summary for Subcatchment P1: AREA TO POND

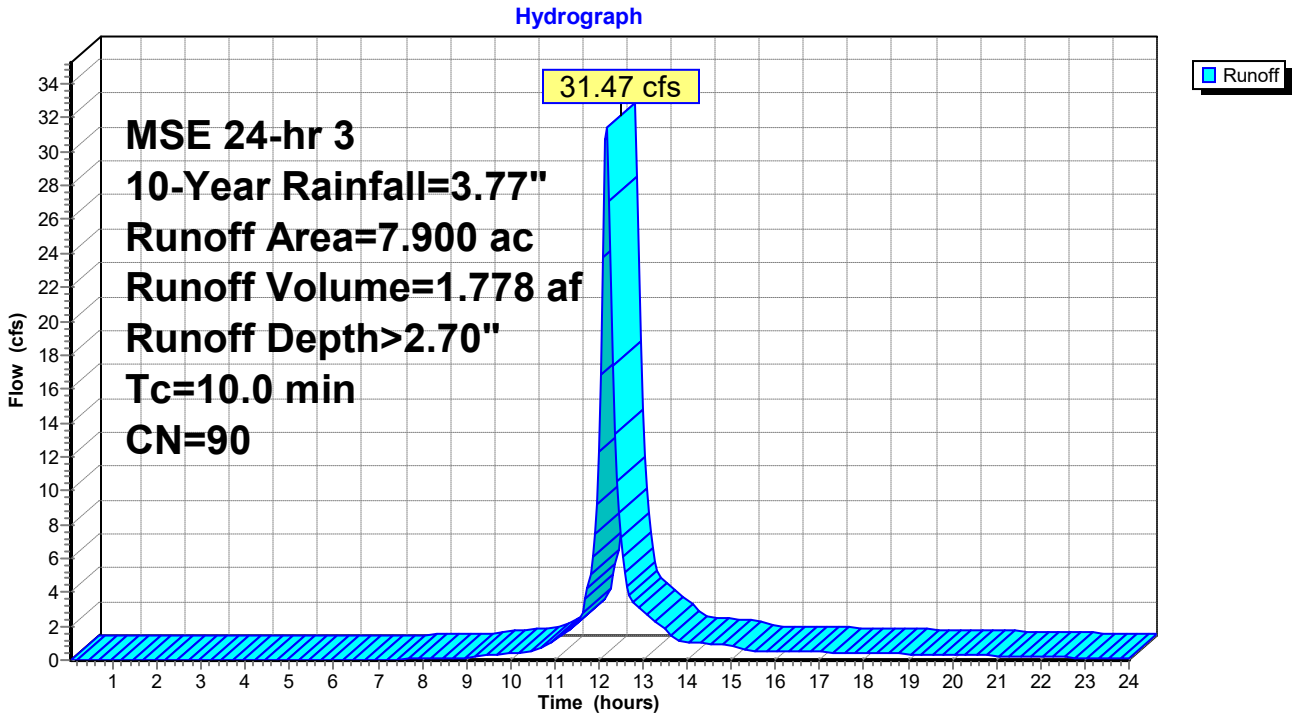
Runoff = 31.47 cfs @ 12.17 hrs, Volume= 1.778 af, Depth> 2.70"
Routed to Pond 1P : POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=3.77"

	Area (ac)	CN	Description
*	3.000	98	PAVEMENT
*	1.900	98	ROOF
*	2.700	74	GRASS
*	0.300	99	POND SURFACE
	7.900	90	Weighted Average
	2.700		34.18% Pervious Area
	5.200		65.82% Impervious Area

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

Subcatchment P1: AREA TO POND



Summary for Subcatchment P5: UNDETAINED

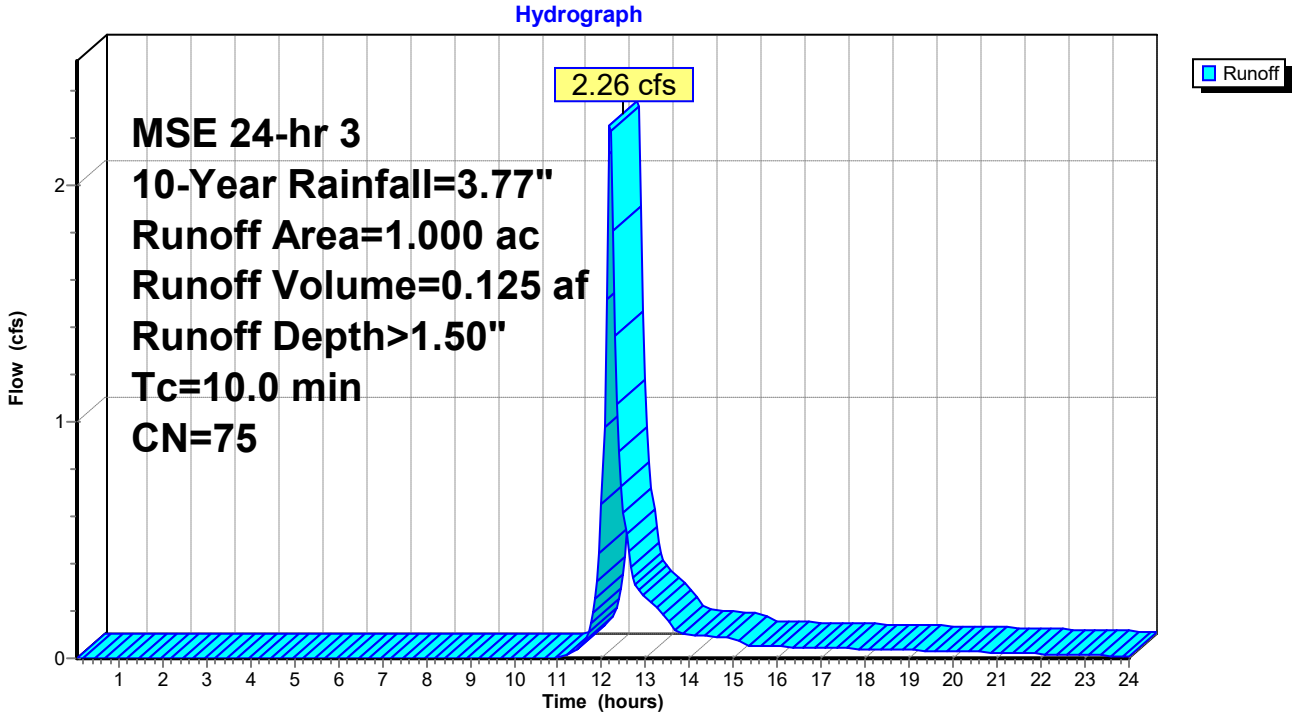
Runoff = 2.26 cfs @ 12.18 hrs, Volume= 0.125 af, Depth> 1.50"
Routed to Link 3L : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=3.77"

	Area (ac)	CN	Description
	0.950	74	>75% Grass cover, Good, HSG C
*	0.050	98	ROAD/SIDEWALK
	1.000	75	Weighted Average
	0.950		95.00% Pervious Area
	0.050		5.00% Impervious Area

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

Subcatchment P5: UNDETAINED



Summary for Pond 1P: POND 1

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 7.900 ac, 65.82% Impervious, Inflow Depth > 2.70" for 10-Year event
Inflow = 31.47 cfs @ 12.17 hrs, Volume= 1.778 af
Outflow = 4.53 cfs @ 12.64 hrs, Volume= 1.778 af, Atten= 86%, Lag= 28.3 min
Primary = 4.53 cfs @ 12.64 hrs, Volume= 1.778 af
Routed to Link 3L : PROPOSED

Routing by Stor-Ind method, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
Peak Elev= 667.77' @ 12.64 hrs Surf.Area= 21,079 sf Storage= 38,190 cf

Plug-Flow detention time= 160.9 min calculated for 1.778 af (100% of inflow)
Center-of-Mass det. time= 160.9 min (949.0 - 788.1)

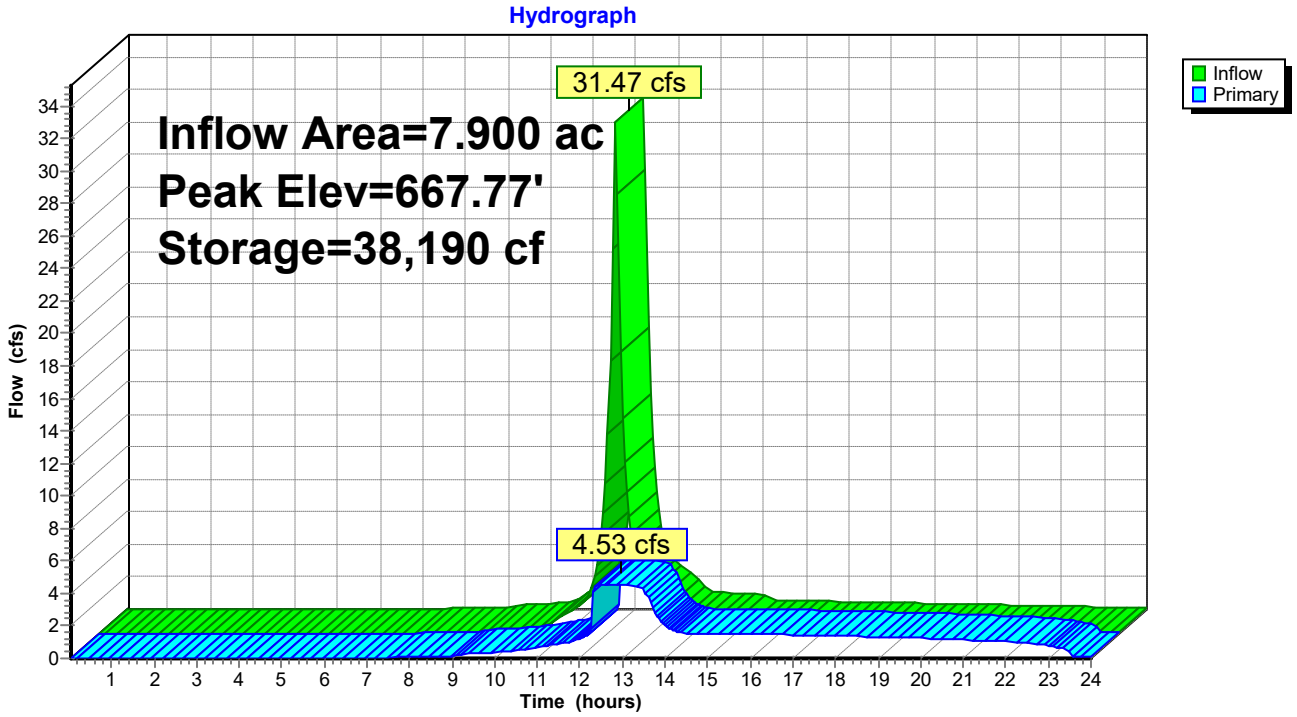
Volume	Invert	Avail.Storage	Storage Description
#1	664.50'	95,150 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
664.50	0	0	0
665.00	3,800	950	950
666.00	11,300	7,550	8,500
667.00	18,000	14,650	23,150
669.00	26,000	44,000	67,150
670.00	30,000	28,000	95,150

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**12.0" Round Culvert** L= 230.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.50' / 662.27' S= 0.0010 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	662.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	667.30'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.53 cfs @ 12.64 hrs HW=667.77' (Free Discharge)
└**1=Culvert** (Barrel Controls 4.53 cfs @ 5.76 fps)
├**2=Orifice/Grate** (Passes < 0.95 cfs potential flow)
├**3=Orifice/Grate** (Passes < 0.71 cfs potential flow)
└**4=Orifice/Grate** (Passes < 9.91 cfs potential flow)

Pond 1P: POND 1

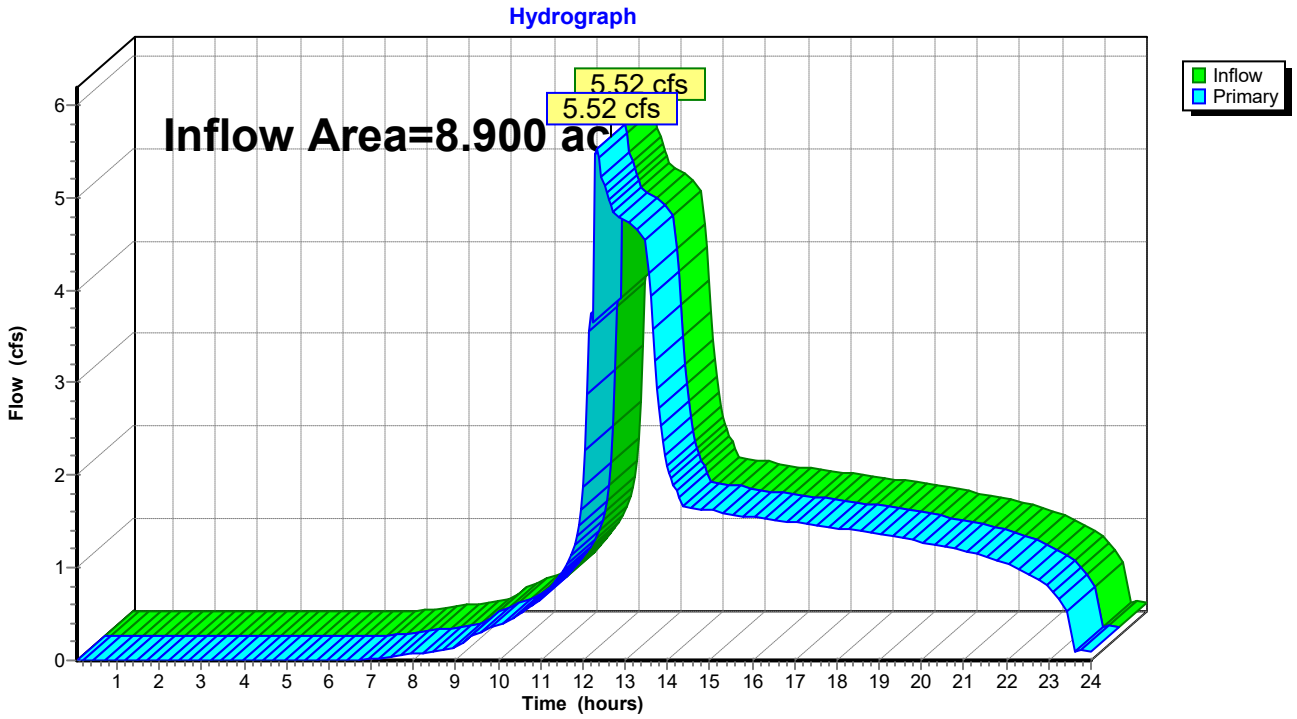


Summary for Link 3L: PROPOSED

Inflow Area = 8.900 ac, 58.99% Impervious, Inflow Depth > 2.56" for 10-Year event
Inflow = 5.52 cfs @ 12.33 hrs, Volume= 1.902 af
Primary = 5.52 cfs @ 12.33 hrs, Volume= 1.902 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs

Link 3L: PROPOSED



Time span=0.05-24.00 hrs, dt=0.05 hrs, 480 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: AREA TO POND Runoff Area=7.900 ac 65.82% Impervious Runoff Depth>4.77"
Tc=10.0 min CN=90 Runoff=53.84 cfs 3.138 af

Subcatchment P5: UNDETAINED Runoff Area=1.000 ac 5.00% Impervious Runoff Depth>3.21"
Tc=10.0 min CN=75 Runoff=4.87 cfs 0.268 af

Pond 1P: POND 1 Peak Elev=669.25' Storage=73,697 cf Inflow=53.84 cfs 3.138 af
Outflow=5.22 cfs 3.007 af

Link 3L: PROPOSED Inflow=9.56 cfs 3.275 af
Primary=9.56 cfs 3.275 af

Total Runoff Area = 8.900 ac Runoff Volume = 3.405 af Average Runoff Depth = 4.59"
41.01% Pervious = 3.650 ac 58.99% Impervious = 5.250 ac

Summary for Subcatchment P1: AREA TO POND

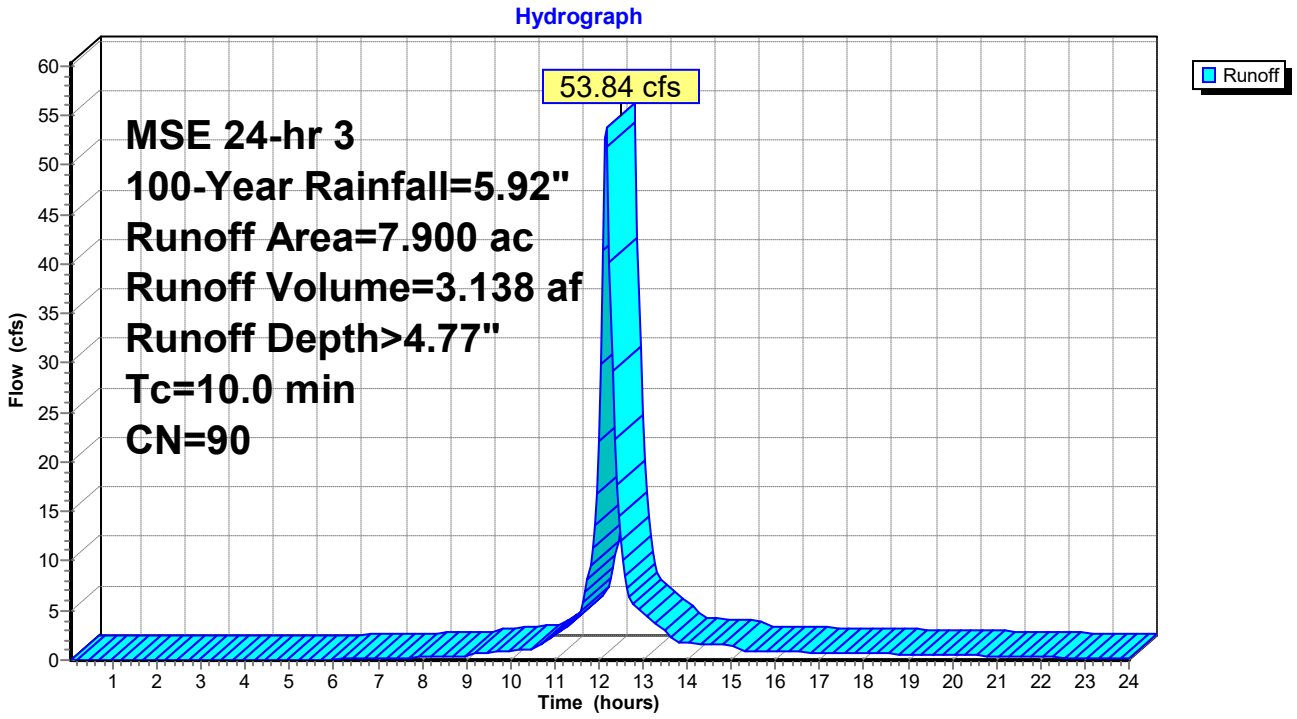
Runoff = 53.84 cfs @ 12.17 hrs, Volume= 3.138 af, Depth> 4.77"
Routed to Pond 1P : POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=5.92"

	Area (ac)	CN	Description
*	3.000	98	PAVEMENT
*	1.900	98	ROOF
*	2.700	74	GRASS
*	0.300	99	POND SURFACE
	7.900	90	Weighted Average
	2.700		34.18% Pervious Area
	5.200		65.82% Impervious Area

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

Subcatchment P1: AREA TO POND



Summary for Subcatchment P5: UNDETAINED

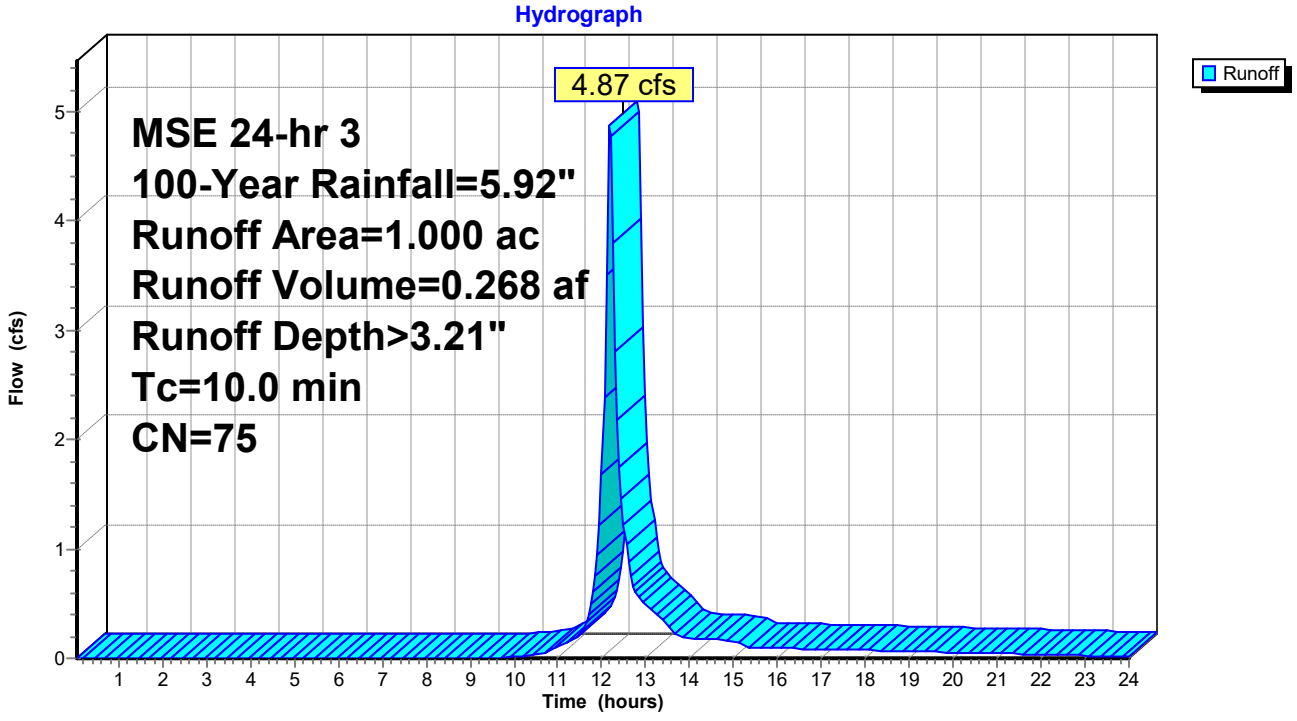
Runoff = 4.87 cfs @ 12.18 hrs, Volume= 0.268 af, Depth> 3.21"
Routed to Link 3L : PROPOSED

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=5.92"

	Area (ac)	CN	Description
	0.950	74	>75% Grass cover, Good, HSG C
*	0.050	98	ROAD/SIDEWALK
	1.000	75	Weighted Average
	0.950		95.00% Pervious Area
	0.050		5.00% Impervious Area

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

Subcatchment P5: UNDETAINED



Summary for Pond 1P: POND 1

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 7.900 ac, 65.82% Impervious, Inflow Depth > 4.77" for 100-Year event
Inflow = 53.84 cfs @ 12.17 hrs, Volume= 3.138 af
Outflow = 5.22 cfs @ 12.86 hrs, Volume= 3.007 af, Atten= 90%, Lag= 41.3 min
Primary = 5.22 cfs @ 12.86 hrs, Volume= 3.007 af
Routed to Link 3L : PROPOSED

Routing by Stor-Ind method, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs
Peak Elev= 669.25' @ 12.86 hrs Surf.Area= 26,988 sf Storage= 73,697 cf

Plug-Flow detention time= 179.9 min calculated for 3.001 af (96% of inflow)
Center-of-Mass det. time= 158.5 min (935.4 - 776.9)

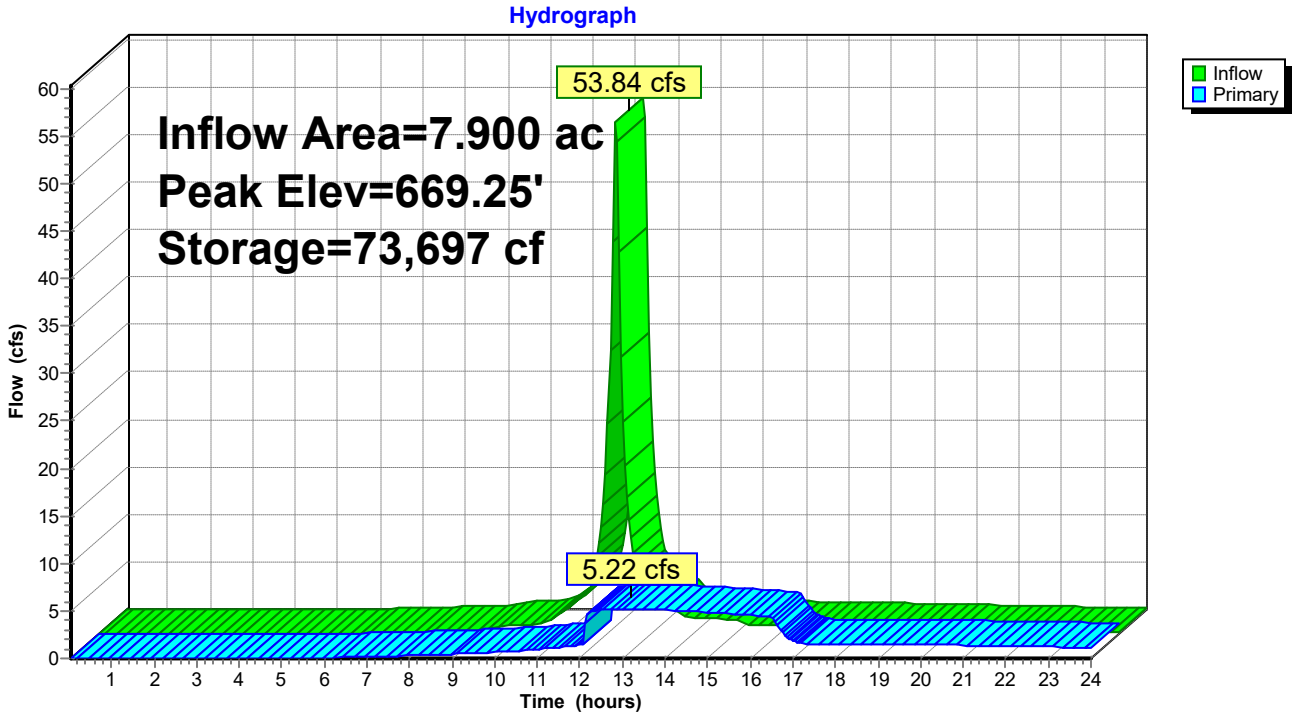
Volume	Invert	Avail.Storage	Storage Description
#1	664.50'	95,150 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
664.50	0	0	0
665.00	3,800	950	950
666.00	11,300	7,550	8,500
667.00	18,000	14,650	23,150
669.00	26,000	44,000	67,150
670.00	30,000	28,000	95,150

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**12.0" Round Culvert** L= 230.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 662.50' / 662.27' S= 0.0010 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	662.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	664.75'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	667.30'	**36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.22 cfs @ 12.86 hrs HW=669.25' (Free Discharge)
└**1=Culvert** (Barrel Controls 5.22 cfs @ 6.64 fps)
  ├**2=Orifice/Grate** (Passes < 1.08 cfs potential flow)
  ├**3=Orifice/Grate** (Passes < 0.87 cfs potential flow)
  └**4=Orifice/Grate** (Passes < 47.49 cfs potential flow)

Pond 1P: POND 1

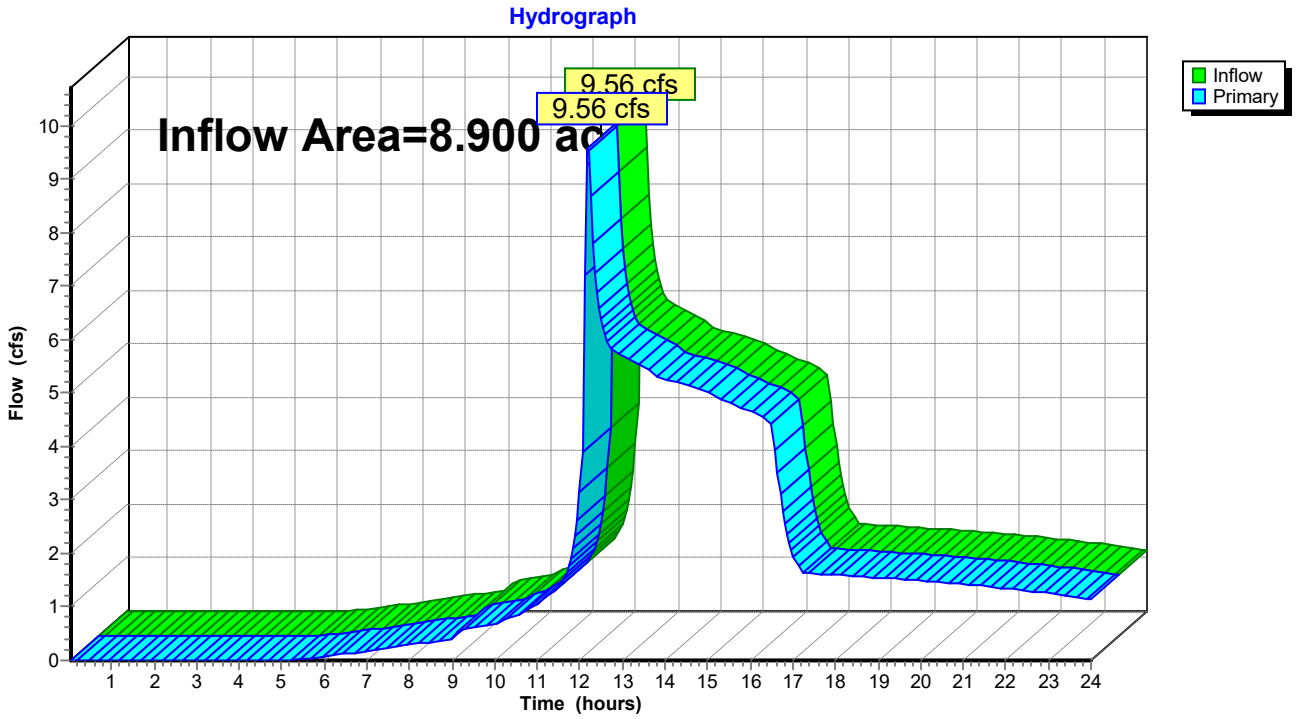


Summary for Link 3L: PROPOSED

Inflow Area = 8.900 ac, 58.99% Impervious, Inflow Depth > 4.42" for 100-Year event
Inflow = 9.56 cfs @ 12.19 hrs, Volume= 3.275 af
Primary = 9.56 cfs @ 12.19 hrs, Volume= 3.275 af, Atten= 0%, Lag= 0.0 min

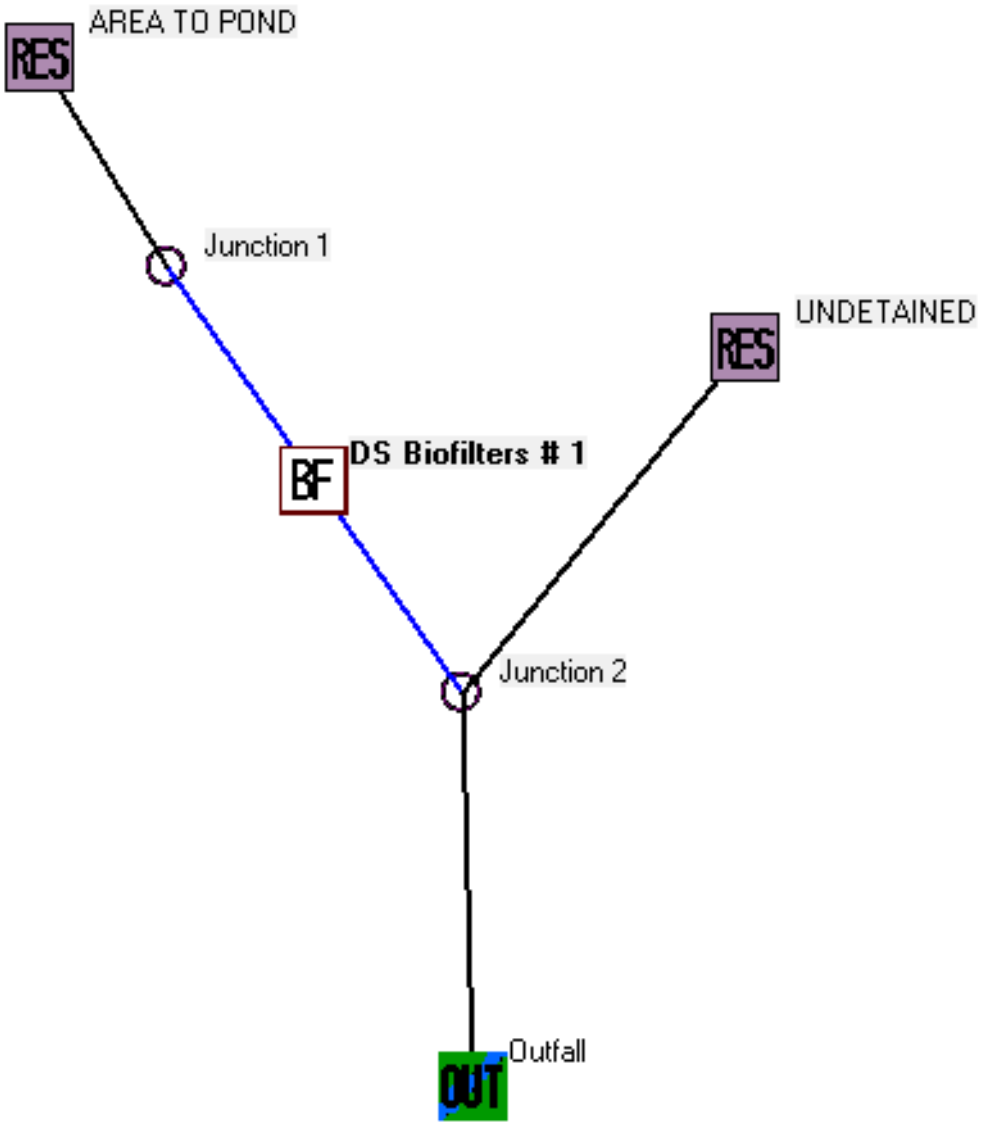
Primary outflow = Inflow, Time Span= 0.05-24.00 hrs, dt= 0.05 hrs

Link 3L: PROPOSED



APPENDIX 4
POST DEVELOPMENT CONDITIONS WATER QUALITY

SLAMM INPUT



Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Residential	AREA TO POND	7.900
2	Residential	UNDETAINED	1.000

CP #	Control Practice Type	Control Practice Name or Location
1	**Biofilter**	**DS Biofilters # 1**

SLAMM RESULTS

File Name:

Z:\Projects\2024\6046.00-WI\DESIGN\SWMP\SLAMM\F STREET.mdb

Outfall Output Summary

	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of All Land Uses without Controls	491090		0.46	91.13	2794	
Outfall Total with Controls	316405	35.57 %	0.30	28.22	557.4	80.05 %
Current File Output: Annualized Total After Outfall Controls	320800	Years in Model Run:	0.99		565.2	

Print Output Summary to .csv File

Print Output Summary to Text File

Print Output Summary to Printer

Total Area Modeled (ac): 8.900

A biofilter will clog. Review biofilter control practice summary tab to determine which biofilter it is.

Total Control Practice Costs

Capital Cost	N/A
Land Cost	N/A
Annual Maintenance Cost	N/A
Present Value of All Costs	N/A
Annualized Value of All Costs	N/A

Perform Outfall Flow Duration Curve Calculations

Receiving Water Impacts Due To Stormwater Runoff

(CWP Impervious Cover Model)

	Calculated Rv	Approximate Urban Stream Classification
Without Controls	0.46	Poor
With Controls	0.30	Poor

Data File: Z:\Projects\2024\604(TREET.mdb

Rain File: WisReg - Milwaukee W

Date: 12-22-25 Time: 4:58:10 PM

Site Description:

Col. #:	2	4	5	6	7	8	9
Control Practice No.	Control Practice Type	Total Inflow Volume (cf)	Total Outflow Volume (cf)	Percent Volume Reduction	Total Influent Load (lbs)	Total Effluent Load (lbs)	Percent Load Reduction
1	Biofilter	479896	305212	36.40	2653	416.8	84.29

Data file name: Z:\Projects\2024\6046.00-WI\DESIGN\SWMP\SLAMM\F STREET.mdb
WinSLAMM Version 10.5.0
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: 03/12
Date: 12-22-2025 Time: 15:55:18
Site information:

LU# 1 - Residential: AREA TO POND Total area (ac): 7.900
1 - Roofs 1: 1.900 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
13 - Paved Parking 1: 3.000 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 2.700 ac. Normal Clayey PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.300 ac. PSD File: Source Area PSD File:

LU# 2 - Residential: UNDETAINED Total area (ac): 1.000
25 - Driveways 1: 0.050 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.950 ac. Normal Clayey PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1
1. Top area (square feet) = 30000
2. Bottom aea (square feet) = 12100
3. Depth (ft): 8
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.1
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.01
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1
10. Porosity of rock filled volume = 0.35
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.25
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0
Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000
Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20
2. Weir crest width (ft): 20
3. Height of datum to bottom of weir opening: 7.5
Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 3
2. Stand pipe height above datum (ft): 5.3
Outlet type: Surface Discharge Pipe
1. Surface discharge pipe outlet diameter (ft): 0.33
2. Pipe invert elevation above datum (ft): 2.8
3. Number of surface pipe outlets: 1
Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.33
2. Invert elevation above datum (ft): 0.5
3. Number of underdrain outlets: 1

SLAMM for Windows Version 10.5.0

Data file name: Z:\Projects\2024\6046.00-WI\DESIGN\SWMP\SLAMM\F STREET.mdb
WinSLAMM Version 10.5.0
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: 03/12
Model Run Start Date: 01/05/69 Model Run End Date: 12/31/69
Date of run: 12-22-2025 Time of run: 15:57:17
Total Area Modeled (acres): 8.900
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:	491090	-	91.13	2794	-
Outfall Total with Controls:	316405	35.57%	28.22	557.4	80.05%
Annualized Total After Outfall Controls:	320800			565.2	

Biofilter # 1 is expected to clog in 9.72 years.. Percent Solids Reduction due to Engineered Media = 80