

STORMWATER MANAGEMENT REPORT

Prepared for:

OUR LADY OF THE LAKE PARISH

Block 1906, Lot 13
22 Lakeside Avenue

Township of Verona
Essex County, New Jersey

Prepared by:



Bright View Engineering
Moving you forward

Bright View Engineering

N.J. Certificate of Authorization 24GA28347800

15 Oak Road, Suite 4
Fairfield, NJ 07004
973-228-0999
BVE File No. 250304



James Giurintano, P.E.
New Jersey Professional Engineer License No. 43104

July 2026

Table of Contents

Introduction	1
Stormwater Management Design Methodology	1
Rainfall Data	1
Site Soils	2
Curve Numbers	3
Time of Concentration	3
Pre-Development Site Conditions	3
Post-Development Site Conditions	3
Proposed Stormwater Management Strategies	4
Pipe Sizing	4
Stormwater Quantity Controls	4
Water Quality Controls	5
Groundwater Recharge	6
Soil Erosion and Sediment Control	6
Low-Impact Development and Nonstructural Stormwater Management Facilities	6
Conclusions	7

Appendices

Pre-Development Hydrographs - Current Adjusted Precipitation Depths	A
Post-Development Hydrographs - Current Adjusted Precipitation Depths	B
Pre-Development Hydrographs - Future Adjusted Precipitation Depths	C
Post-Development Hydrographs - Future Adjusted Precipitation Depths	D
Conveyance Calculations	E
Supporting documents	F
♦ NOAA Atlas 14 Precipitation Estimate Report	
♦ Pre vs Post Hydrograph Comparison	
MAPS	G
♦ Soil Map	
♦ Drainage Area Maps	
○ Existing Drainage Area Map	
○ Proposed Drainage Area Map	
○ Inlet Drainage Area Map	

Introduction

The subject property is located at 22 Lakeside Avenue in the Township of Verona, Essex County, New Jersey. The property is identified as Block 1906, Lot 13 on the Township of Verona Tax Map. The overall property is 4.50 acres in area and will hereafter be referred to as “the site”. The site is bordered by commercial uses to the north, County parkland to the east, and residential to the south and west. The scope of this study includes a stormwater analysis and stormwater management designs in accordance with Township requirements for the southwesterly portion of the site for which parking lot improvements are being proposed.

The subject area of this project is the southwesterly portion of the site which contains a single-family home and an asphalt parking lot for the Parish. The project area is not located in a flood hazard or riparian zone, and there are no mapped wetlands that impact the project. The proposed improvements include the demolition of the existing single-family home and the reconstruction of the existing Parish parking lot to include the area of the single-family home. The project also includes the demolition of a detached 2-car garage and the construction of a new detached 3-car garage. These improvements will result in the disturbance of greater than one-half acre of land and therefore qualifies as a Major Development and is subject to the requirements of Chapter 150 of the Township Ordinances.

This report summarizes the design objectives, methodology, and calculations for the conveyance, attenuation, treatment, and discharge of stormwater runoff leaving the site and is meant to accompany the Site Plan documents prepared by Bright View Engineering. Pre-development and post-development conditions are examined for analysis of the stormwater quantity, water quality, and groundwater recharge based on Chapter 150 of the Township Ordinances.

Stormwater Management Design Methodology

In accordance with Chapter 150 of the Township Code, the proposed development must meet the requirements for a major development, as appropriate, for stormwater quantity, water quality, and groundwater recharge. The assessment of stormwater runoff has been based upon the Soil Conservation Service Method (SCS) Unit Hydrograph. Theoretical storms are modeled with the 24-Hour SCS Unit Dimensionless Hydrograph using the NOAA Atlas 14 Type C rainfall distribution and recurrence intervals of 2, 10, and 100 years. Hydrograph creation and routings are accomplished using the HydroCAD stormwater modeling program by HydroCAD Software Solutions, LLC.

Rainfall Data

Rainfall data used in the stormwater calculations of this report are obtained from different sources based on the latest NJ stormwater management regulations (*NJAC 7:8*). The Water Quality storm event is based on the NJ BMP Manual Chapter 5 definition of having a total rainfall depth of 1.25 inches and a total duration of two (2) hours. Twenty-four-hour rainfall frequency data in Verona, NJ for all other storms has been obtained from the Engineering Field Handbook NJ Supplement last revised August 2012 (developed from data contained in NOAA Atlas 14 Volume 2). Per amended NJ stormwater management regulations dated July 17, 2023, the precipitation depths for the 2-, 10-, and 100-year storm events are determined using adjustment factors applied to the NOAA Atlas 14 rainfall estimates. The rainfall depth values used in this project are listed in the following tables

Current Adjusted, 24-Hour Rainfall Frequency Data

Event (year)	2	10	100
NOAA Atlas 14 Rainfall (inches)	3.43	5.21	8.71
Adjustment Factor	1.01	1.03	1.06
Current Adjusted Rainfall (inches)	3.46	5.37	9.23

Future Adjusted, 24-Hour Rainfall Frequency Data

Event (year)	2	10	100
NOAA Atlas 14 Rainfall (inches)	3.43	5.21	8.71
Adjustment Factor	1.19	1.22	1.33
Future Adjusted Rainfall (inches)	4.08	6.36	11.58

Site Soils

Site soil information has been obtained from the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey database. The soil types present within the studied watershed are shown in the Table below². The soils consist of hydrologic soil group (HSG) Type C, therefore the CN values used in calculations are those associated with Type C soils.

Site Soil Properties

Soil Symbol	Soil Name	Characteristics	Hydrologic Soil Group Rating
PercuuB	Peckmantown – Urban Land	Peckmantown substratum, 0 to 8 percent slopes	C
BouB	Boonton – Urban Land	Boonton substratum, 0 to 8 percent slopes	C

Curve Numbers

For determining the runoff flows, the cover types in combination with the HSG rating must be determined for each drainage area. These are used to determine the runoff curve number (CN) values that are used in the hydraulic calculations. The CN values used in this project are listed in the following table.

CN Values

Land Cover Description	HSG D
Open space, Good Condition (grass cover >75%)	74
Impervious Surfaces	98

Time of Concentration

The time of concentration (Tc) is calculated in accordance with Chapter 15 of the NRCS National Engineering Handbook and has been calculated separately for the pervious and impervious areas within each drainage area. Where there is a long stretch of sheet flow in the proposed condition, the McCuen-Spiess formula is used to determine the appropriate length, not to exceed 100 feet. McCuen-Spiess sheet flow length calculations are provided in the beginning of Appendices A & B, and full Tc calculations for each drainage area can be found in the HydroCAD summaries in Appendices A & B.

Pre-Development Site Conditions

The Property drains from west to east (from Montrose Avenue to Lakeside Avenue) and is collected and conveyed by the Lakeside Avenue drainage system, which drains into the Peckman River located just east of Lakeside Avenue. For the purpose of analysis, three (3) pre-development drainage areas have been delineated based on three (3) on-site drainage inlets and that currently receive the runoff from the project area. These drainage areas/conveyance systems ultimately combine and discharge into the Lakeside Avenue conveyance system, therefore, Lakeside Avenue is the common point of analysis for the drainage areas.

Post-Development Site Conditions

In the post development site conditions, the existing single-family dwelling will be demolished, and the parking lot will be reconstructed to include a drop-off lane as well as the removal of the existing detached 2-car garage and construction of a new detached 3-car garage. The improvement result in a minor decrease from existing conditions in impervious area (4,443 sf). Additionally, the time of concentration has been maintained such that there is no increase in the post development hydrograph above the pre development hydrograph at any point in time. As such, the project is not required to reduce the peak flows from the site. however, For the proposed conditions, the drainage patterns will match existing conditions, with runoff discharging to the three (3) existing drainage inlets at the downstream limits of the parking lot. Runoff within the drop-off area will not be controlled and will discharge to one (1) of the two (2) existing parking lot inlets at a rate equal to or less than existing conditions. Same as existing conditions, these

drainage areas/conveyance systems ultimately combine and discharge into the Lakeside Avenue conveyance system, therefore, Lakeside Avenue is the common point of analysis for the drainage areas.

Proposed Stormwater Management Strategies

Pipe Sizing

Calculations for sizing the stormwater pipe networks associated with the proposed stormwater management conveyance system can be found in Appendix F of this report. The Rational Method has been used to size the storm piping for the 25-year storm event. The calculations are based on a minimum time of concentration of 6 minute to any inlet. An Inlet Area Map is included in Appendix H.

Stormwater Quantity Controls

In compliance with the Stormwater Management Controls and outlined in the stormwater management rules, the stormwater management measures are designed to not increase the proposed rate of runoff above those which currently exist today. The following table shows the existing and proposed peak rates of runoff from the project area for these storm events (see Appendices A, B, C and D for supporting hydrograph and routing calculations for the existing and proposed condition):

Existing vs. Proposed Flow Summary
Current Adjusted Precipitation Depths

	Existing Peak Flow	Proposed Peak Flow
	CFS	CFS
2-Year Storm	3.94	3.52
10-Year Storm	6.46	6.24
100-Year Storm	11.69	12.21

Existing vs. Proposed Flow Summary
Future Adjusted Precipitation Depths

	Existing Peak Flow	Proposed Peak Flow
	CFS	CFS
2-Year Storm	4.74	2.00
10-Year Storm	7.78	4.06
100-Year Storm	14.94	10.94

In addition to the total off-site flows, the proposed drainage system has been designed so that the flow rates to the existing inlets receiving the on-site runoff do not exceed existing conditions. The following table shows the existing and proposed peak rates to each inlet for the existing and proposed conditions.

Existing Inlet 1 - Existing vs. Proposed Comparison

	Current Adjusted		Future Adjusted	
	Existing Peak Flow	Proposed Peak Flow	Existing Peak Flow	Proposed Peak Flow
	CFS	CFS	CFS	CFS
2-Year Storm	1.66	0.19	2.04	0.38
10-Year Storm	2.88	1.03	3.53	1.80
100-Year Storm	5.46	4.08	7.08	4.08

Existing Inlet 2 - Existing vs. Proposed Comparison

	Current Adjusted		Future Adjusted	
	Existing Peak Flow	Proposed Peak Flow	Existing Peak Flow	Proposed Peak Flow
	CFS	CFS	CFS	CFS
2-Year Storm	1.77	1.49	2.09	1.80
10-Year Storm	2.68	2.44	3.27	2.93
100-Year Storm	4.78	4.36	6.03	5.52

Water Quality Controls

As stated in the Township Stormwater Management Controls and Requirements Ordinance, the stormwater runoff quality standards are applicable when the development proposes any net increase in regulated impervious surface. The proposed development of the site will result in a minor decrease in impervious area (-129 s.f.) and a minor decrease in vehicle use area (-278.51 s.f.), and therefore water quality controls do not apply. It should be noted that water quality treatment is being provided via pervious pavement, which is also being provided for quantity control, and will treat 73% (0.70 acres) of the vehicle use area on site.

Groundwater Recharge

The subject site has been previously developed and is located within the Metropolitan Planning Area (PA1). As such, the site falls under the NJDEP's definition for an urban redevelopment area. Due to the conditions described above, no groundwater recharge is proposed as part of the stormwater management facilities on site.

Soil Erosion and Sediment Control

The Soil Erosion and Sediment Control plans and details are included within the Site Plan documents and must be followed throughout construction. Silt fences, stabilized construction entrances, a temporary stockpile and inlet filters are proposed during construction. This report and the Site Plan documents are being submitted to the Hudson Essex Passaic Soil Conservation District for approval.

The downstream off-site stability is met by decreasing the peak flows leaving the site by at least 50% for the 2-year storm and 75% for the 10-year storm for the areas to be disturbed.

Low-Impact Development and Nonstructural Stormwater Management Facilities

In accordance with the NJDEP regulations (NJAC 7:8-2.4) and the latest *New Jersey Stormwater Best Management Practices Manual*, several nonstructural stormwater management strategies have been incorporated into the design of the site and are listed below:

1. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss.

The footprint of the improvements has been minimized to below existing impervious coverage limits, and runoff will be discharged in a similar manor of existing conditions.

2. Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces.

The overall impervious coverage is not being increased for the site, and pervious pavement is being proposed through the parking lot to break up the flow of runoff over the impervious surfaces.

3. Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers, and pesticides.

A comprehensive landscape plan has been incorporated into the design of the proposed improvements which includes low maintenance landscaping. The use of lawn areas has been minimized and fertilizers and pesticides are to be used sparingly. Native plants, including ground cover, shrubs and trees, are proposed. The native plantings will also require little or no irrigation once they are established.

4. Provide other source controls to prevent or minimize the use or exposure of pollutants from development sites in order to prevent or minimize the release of those pollutants into stormwater runoff. These source controls include, but are not limited to:

- i. Development design features that help to prevent accumulation and discharge of trash and debris in drainage systems.

Proposed stormwater inlets have been specified with “N-Eco” type curb pieces. In addition, a “Stormwater Management Facilities Operation & Maintenance Manual” has been prepared for use by contractors and the owners that specify that street sweeping must occur on a bi-monthly schedule.

- ii. Development design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments.

Spills and accumulation of pollutants are not anticipated due to the type of use proposed. However, the proposed stormwater management facility intercepts stormwater from the majority of the impervious surfaces and the proposed roadways, which will provide a collection point for vehicular pollutants. The proposed pervious pavement will improve water quality from vehicular surfaces by 80%.

- iii. When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

The soil erosion and sediment control plans address the requirement for establishing vegetation. Preventative source controls include the use of “N-Eco” inlet curb pieces on storm drain inlets. Pollution prevention techniques such as water quality treatment have been implemented in the design. The soil erosion and sediment control plan addresses re-stabilizing vegetation and implementing soil erosion and sediment control protection measures. Prevention and maintenance are also addressed in the Stormwater Operations and Maintenance Manual prepared for the project.

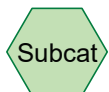
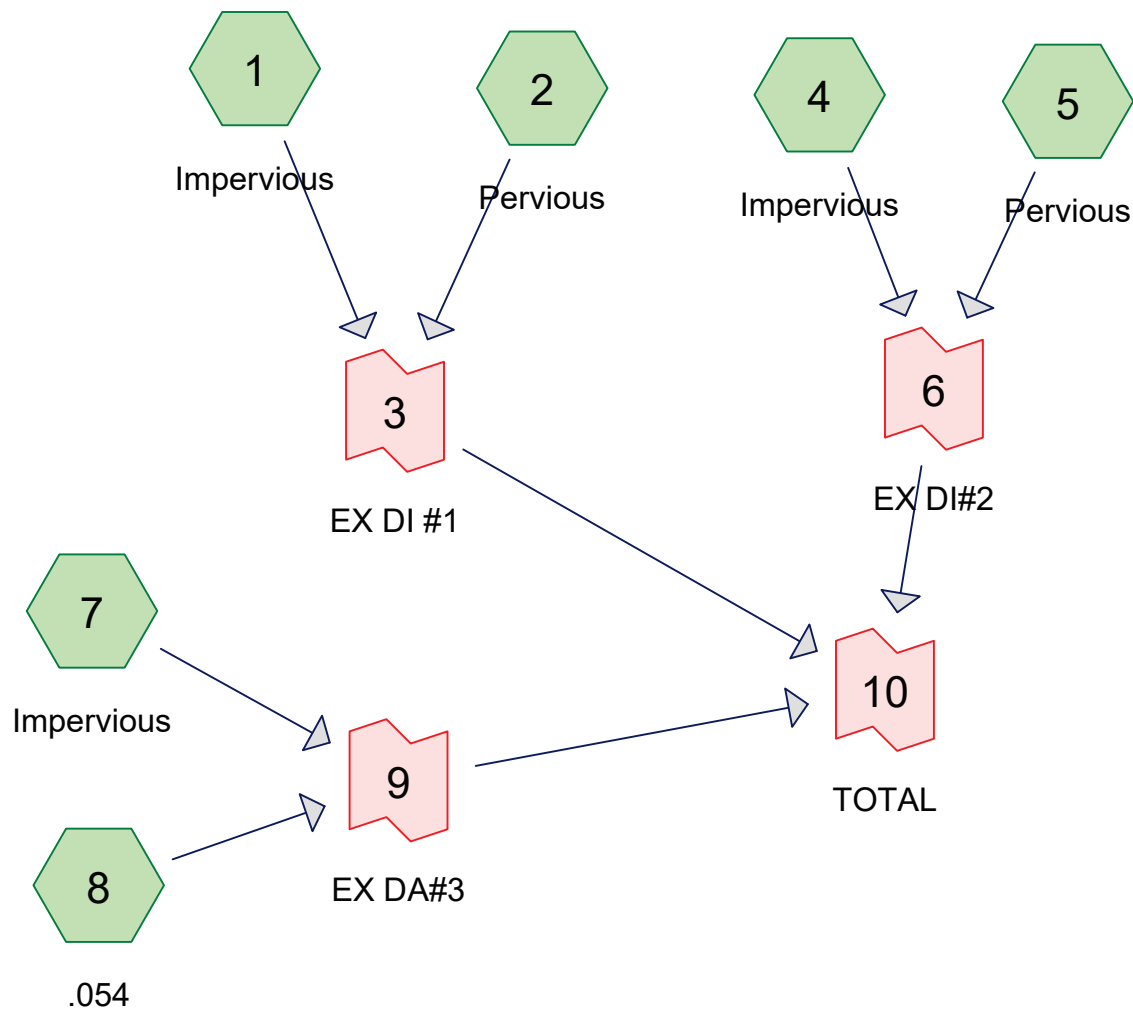
Conclusions

As demonstrated in the above sections, the stormwater management plan for the proposed development meets the current Township Stormwater Management Controls and Requirements Ordinance, and addresses the requirements for stormwater quantity reductions, water quality, groundwater recharge, and soil erosion and sediment control. As a result of the design calculations contained herein, Bright View Engineering anticipates that the stormwater design will not have a negative impact to surrounding areas.

APPENDIX A

Pre-Development Hydrographs

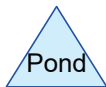
Current Adjusted Precipitation Depths



Subcat



Reach



Pond



Link

Routing Diagram for Existing Conditions

Prepared by Bright View Engineering, Printed 1/19/2026
HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Existing Conditions

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC	P2 (inches)
1	2-YEAR - ADJUSTED	NOAA 24-hr	C	Default	24.00	1	3.46	2	3.46
2	10-YEAR - ADJUSTED	NOAA 24-hr	C	Default	24.00	1	5.37	2	5.37
3	100-YEAR - ADJUSTED	NOAA 24-hr	C	Default	24.00	1	9.23	2	9.23

Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 3

Summary for Subcatchment 1: Impervious

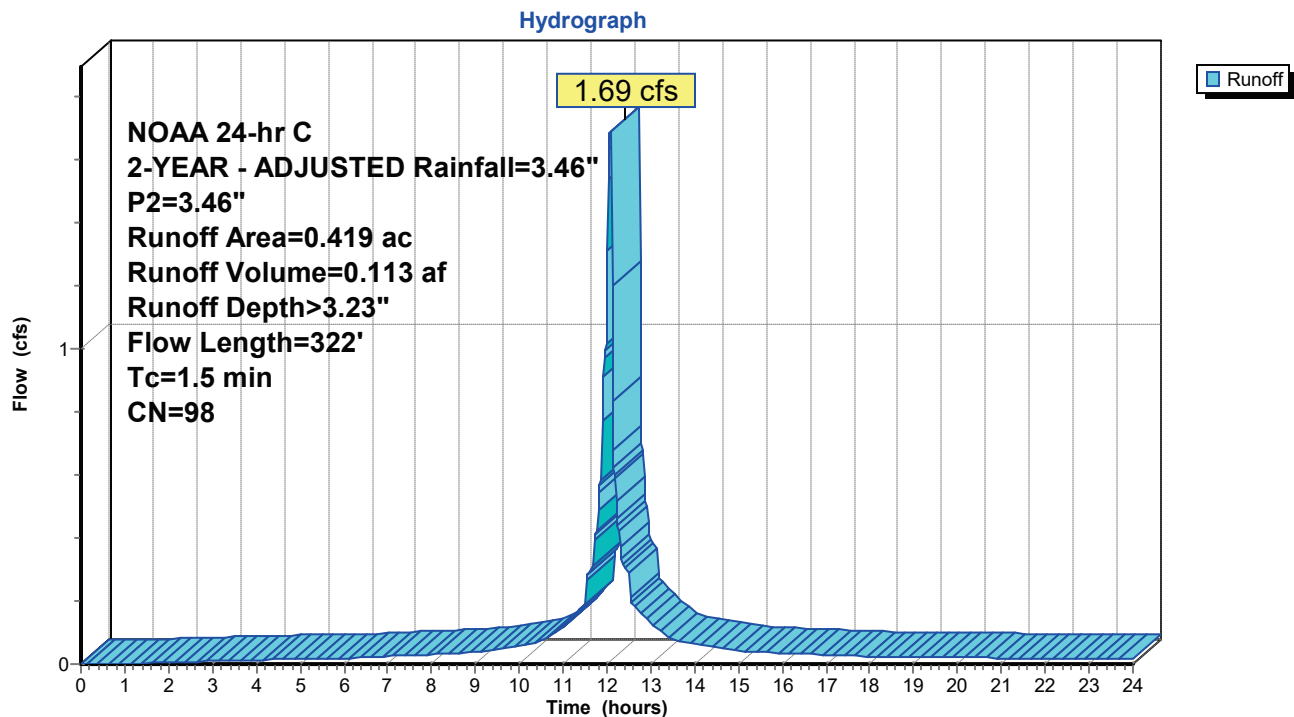
Runoff = 1.69 cfs @ 12.10 hrs, Volume= 0.113 af, Depth> 3.23"
Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.419	98	Paved parking, HSG C
0.419		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	14	0.0400	1.27		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.46"
1.3	308	0.0390	4.01		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.5	322	Total			

Subcatchment 1: Impervious



Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 4

Summary for Subcatchment 2: Pervious

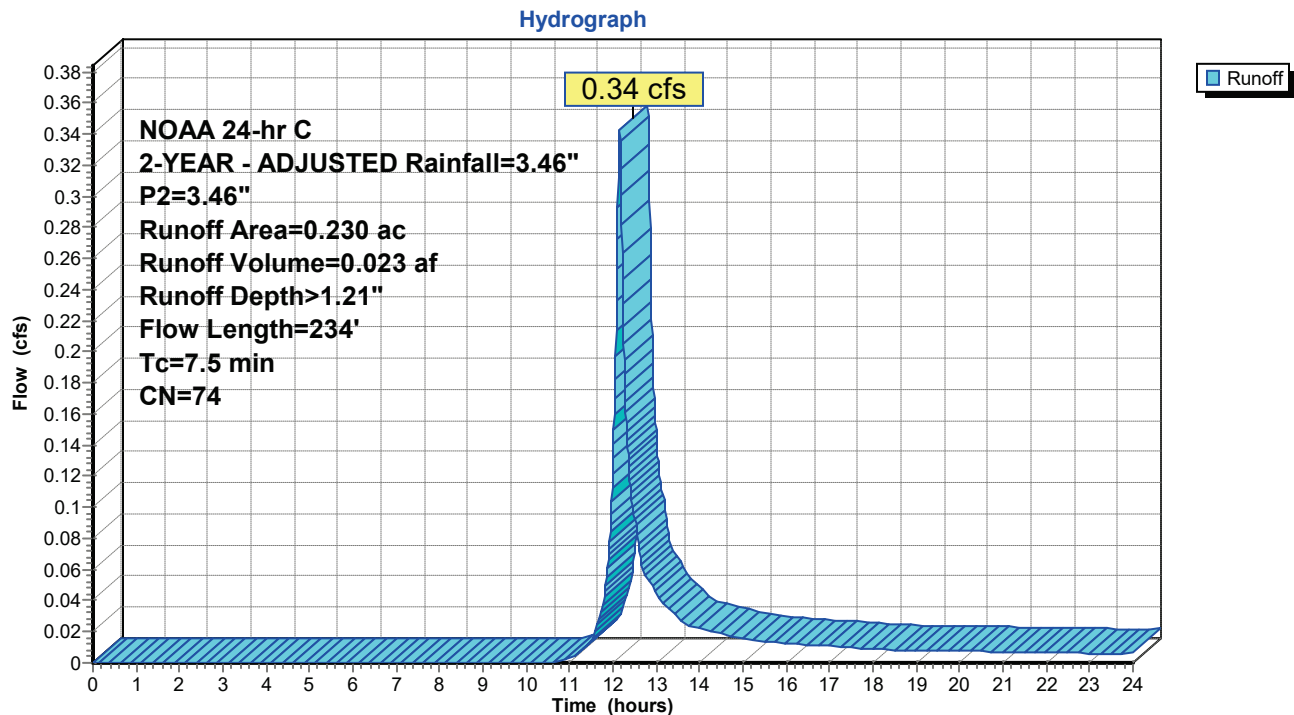
Runoff = 0.34 cfs @ 12.15 hrs, Volume= 0.023 af, Depth> 1.21"
Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.230	74	>75% Grass cover, Good, HSG C
0.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	70	0.0600	0.18		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.46"
0.3	30	0.0390	1.47		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 3.46"
0.6	134	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
7.5	234	Total			

Subcatchment 2: Pervious



Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 5

Summary for Subcatchment 4: Impervious

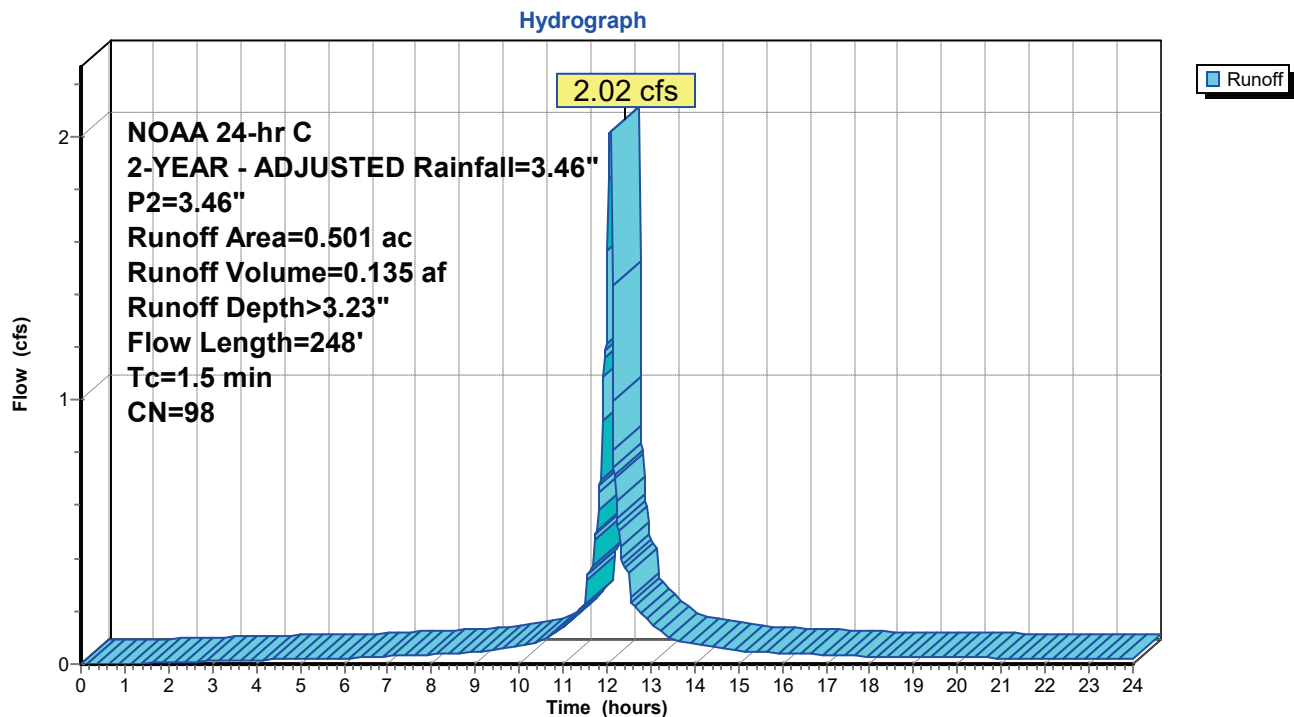
Runoff = 2.02 cfs @ 12.10 hrs, Volume= 0.135 af, Depth> 3.23"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.501	98	Paved parking, HSG C
0.501		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0440	1.96		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.46"
0.6	148	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
1.5	248	Total			

Subcatchment 4: Impervious



Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 6

Summary for Subcatchment 5: Pervious

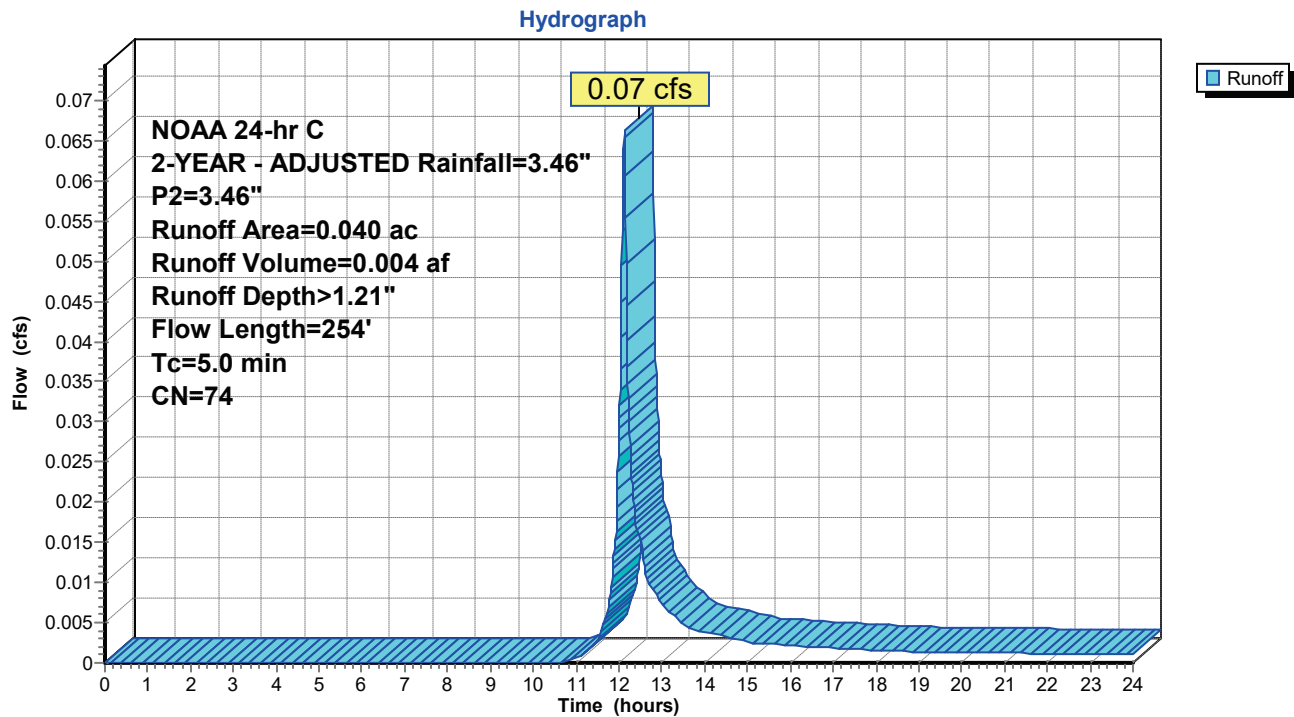
Runoff = 0.07 cfs @ 12.13 hrs, Volume= 0.004 af, Depth> 1.21"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.040	74	>75% Grass cover, Good, HSG C
0.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	28	0.0400	0.12		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.46"
0.6	72	0.0460	1.87		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 3.46"
0.6	154	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
5.0	254	Total			

Subcatchment 5: Pervious



Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 7

Summary for Subcatchment 7: Impervious

[49] Hint: $T_c < 2dt$ may require smaller dt

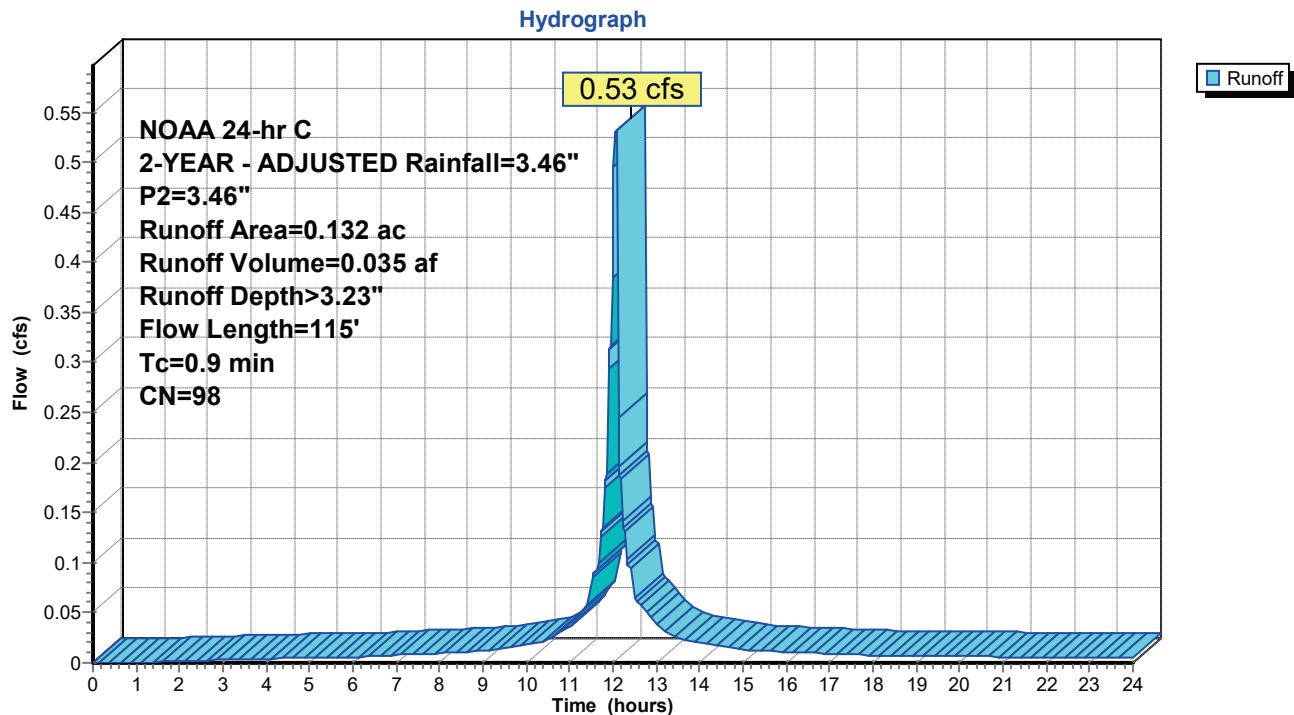
Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 3.23"
Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.01$ hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.132		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	85	0.0350	1.73		Sheet Flow, B-C Smooth surfaces $n=0.011$ P2= 3.46"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved $K_v=20.3$ fps
0.9	115	Total			

Subcatchment 7: Impervious



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 8

Summary for Subcatchment 8: .054

Runoff = 0.09 cfs @ 12.11 hrs, Volume= 0.005 af, Depth> 1.21"
Routed to Link 9 : EX DA#3

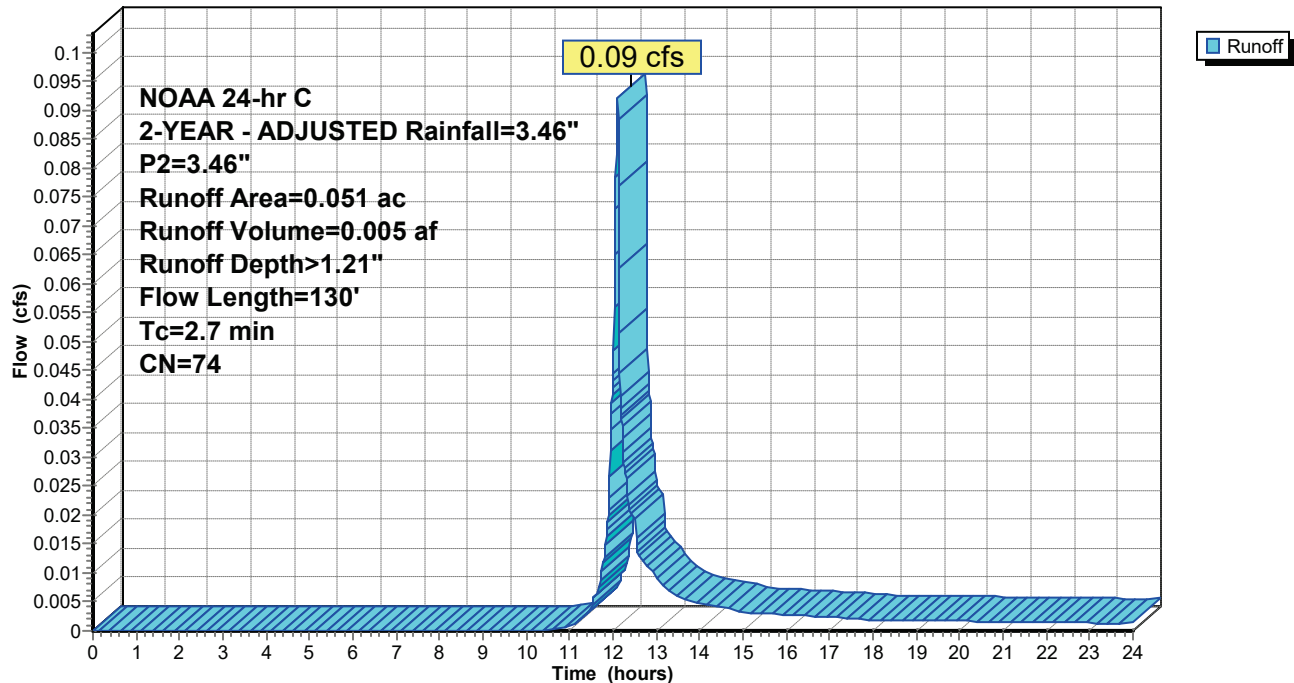
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.051	74	>75% Grass cover, Good, HSG C
0.051		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	15	0.0850	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.46"
0.9	85	0.0300	1.63		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 3.46"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
2.7	130	Total			

Subcatchment 8: .054

Hydrograph



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

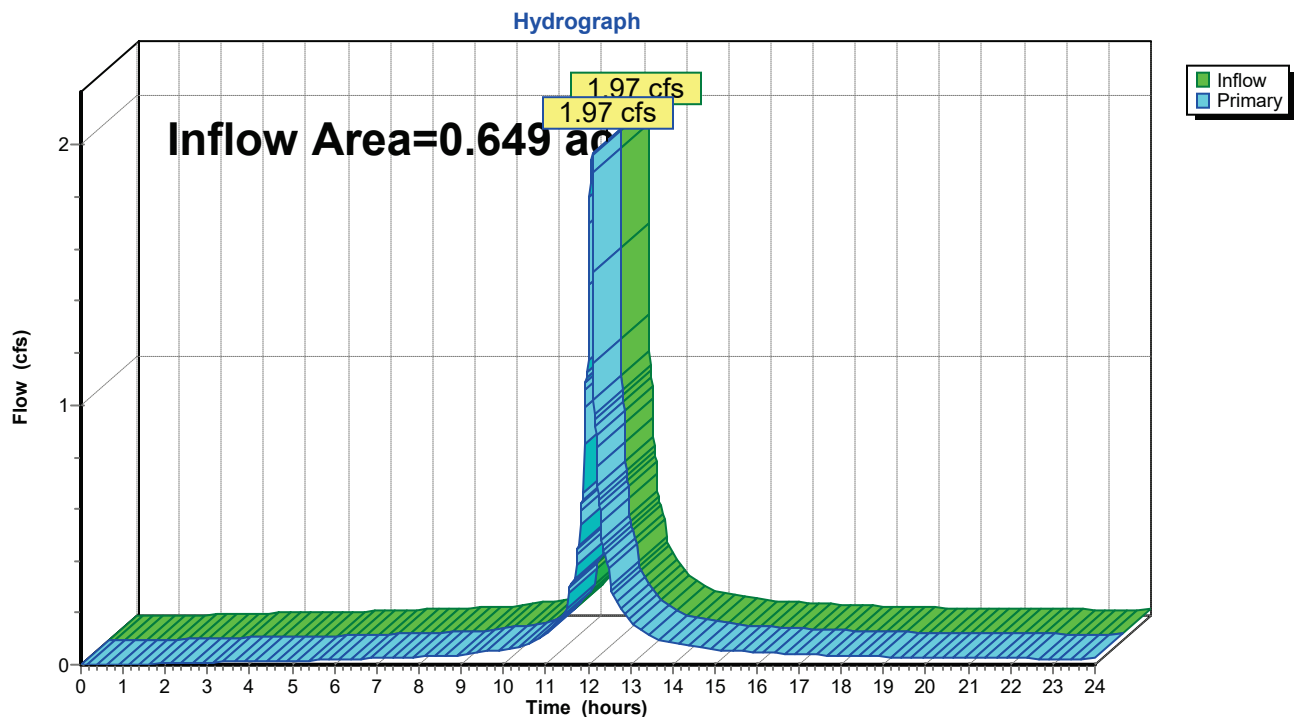
Page 9

Summary for Link 3: EX DI #1

Inflow Area = 0.649 ac, 64.56% Impervious, Inflow Depth > 2.51" for 2-YEAR - ADJUSTED event
Inflow = 1.97 cfs @ 12.10 hrs, Volume= 0.136 af
Primary = 1.97 cfs @ 12.10 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 3: EX DI #1



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

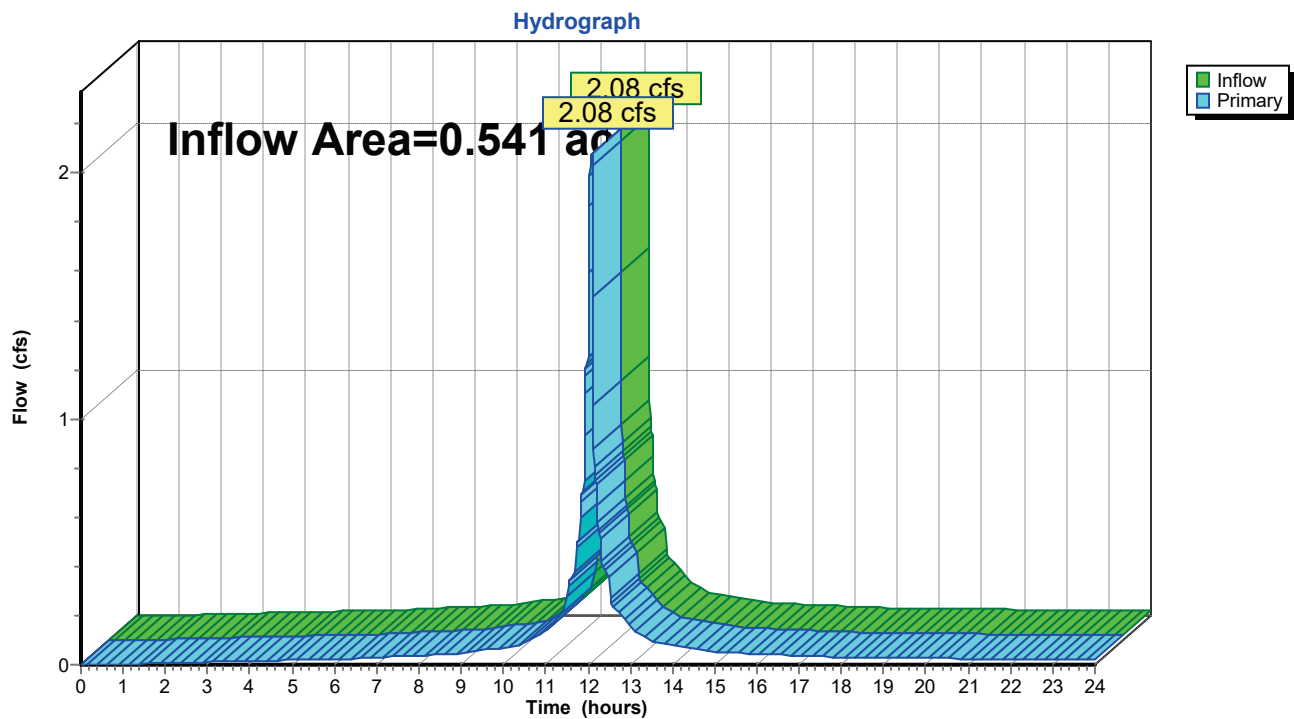
Page 10

Summary for Link 6: EX DI#2

Inflow Area = 0.541 ac, 92.61% Impervious, Inflow Depth > 3.08" for 2-YEAR - ADJUSTED event
Inflow = 2.08 cfs @ 12.10 hrs, Volume= 0.139 af
Primary = 2.08 cfs @ 12.10 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 6: EX DI#2



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

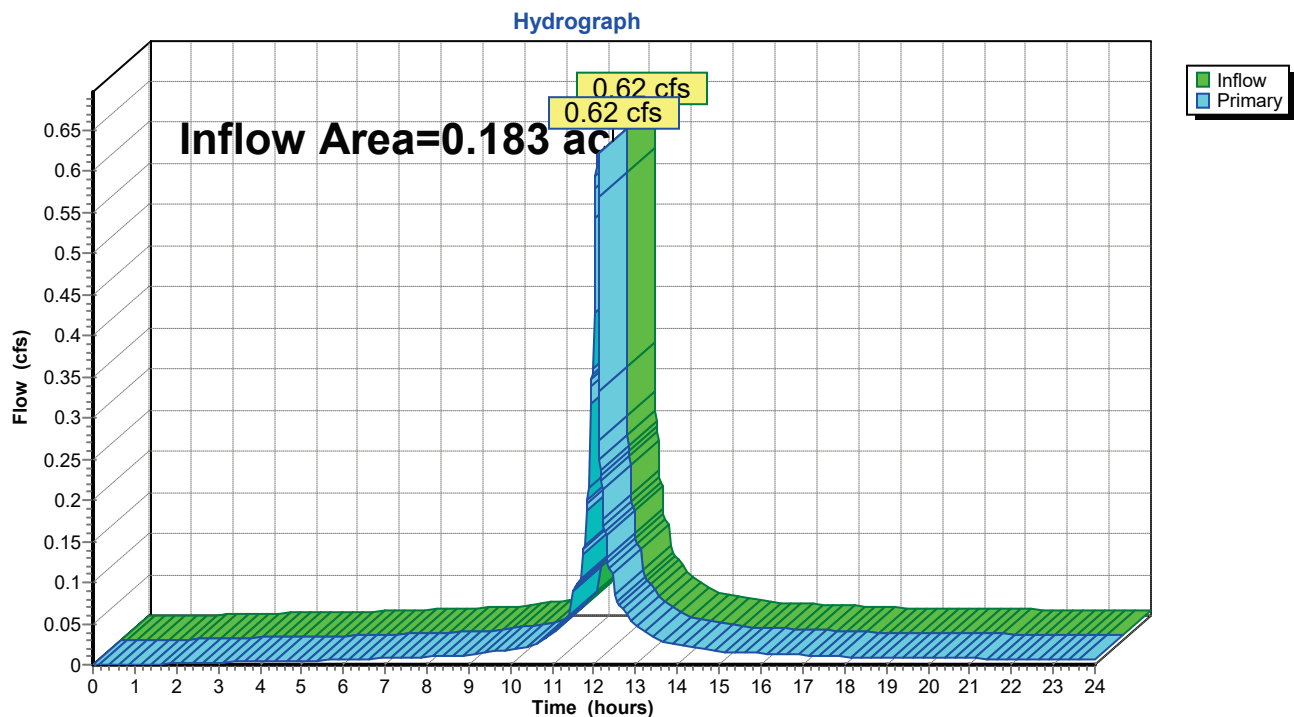
Page 11

Summary for Link 9: EX DA#3

Inflow Area = 0.183 ac, 72.13% Impervious, Inflow Depth > 2.66" for 2-YEAR - ADJUSTED event
Inflow = 0.62 cfs @ 12.10 hrs, Volume= 0.041 af
Primary = 0.62 cfs @ 12.10 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 9: EX DA#3



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

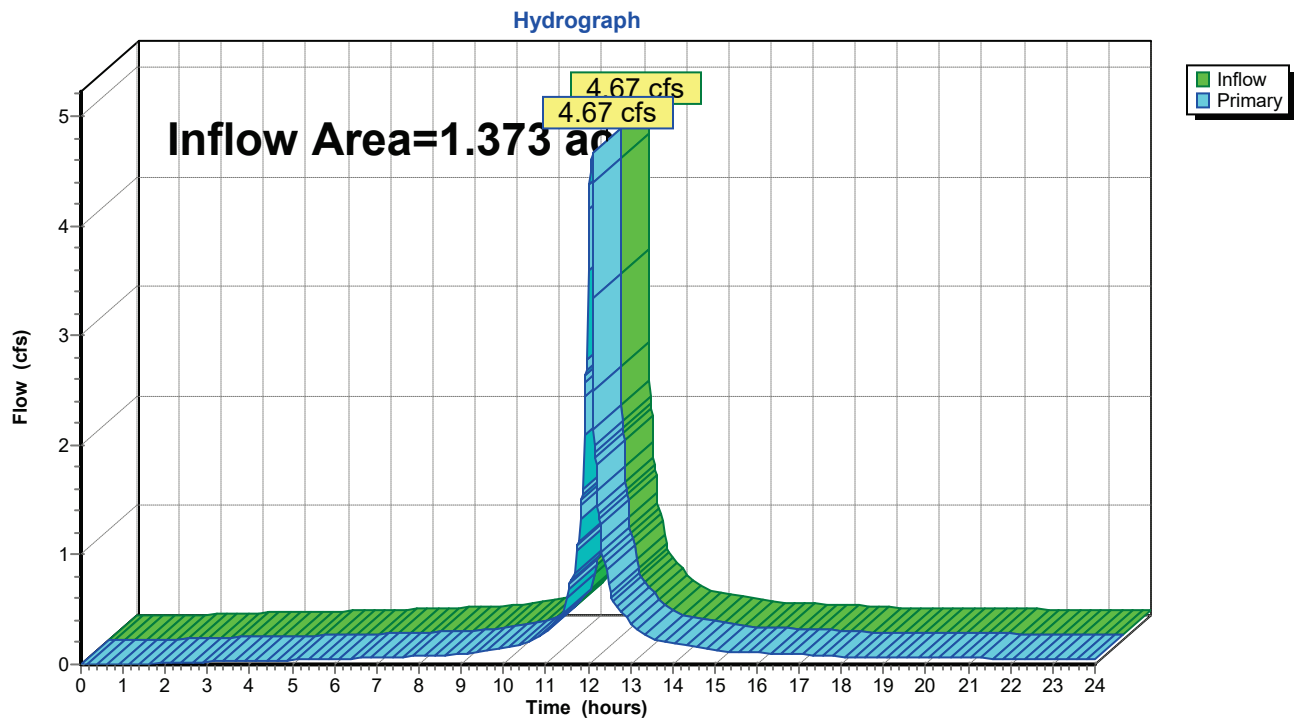
Page 12

Summary for Link 10: TOTAL

Inflow Area = 1.373 ac, 76.62% Impervious, Inflow Depth > 2.75" for 2-YEAR - ADJUSTED event
Inflow = 4.67 cfs @ 12.10 hrs, Volume= 0.315 af
Primary = 4.67 cfs @ 12.10 hrs, Volume= 0.315 af, Atten= 0%, Lag= 0.0 min

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

Link 10: TOTAL



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 13

Summary for Subcatchment 1: Impervious

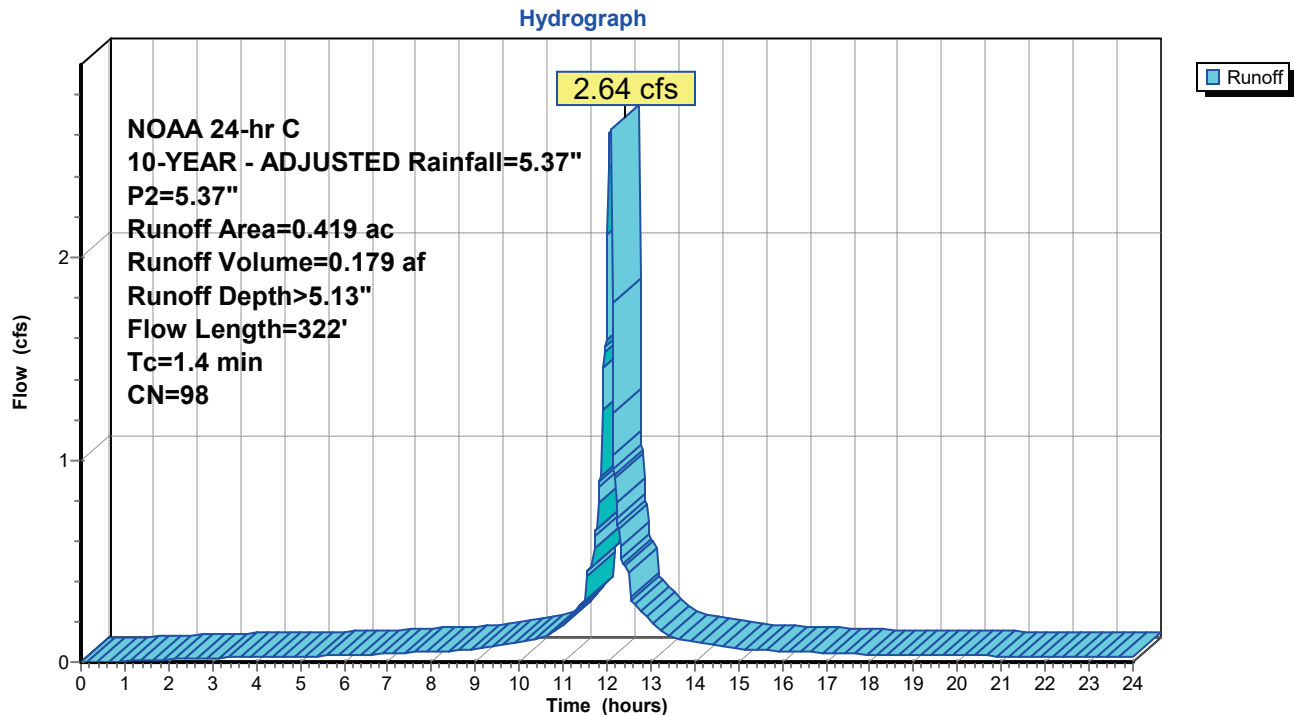
Runoff = 2.64 cfs @ 12.09 hrs, Volume= 0.179 af, Depth> 5.13"
Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Area (ac)	CN	Description
0.419	98	Paved parking, HSG C
0.419		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	14	0.0400	1.59		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 5.37"
1.3	308	0.0390	4.01		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.4	322	Total			

Subcatchment 1: Impervious



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 14

Summary for Subcatchment 2: Pervious

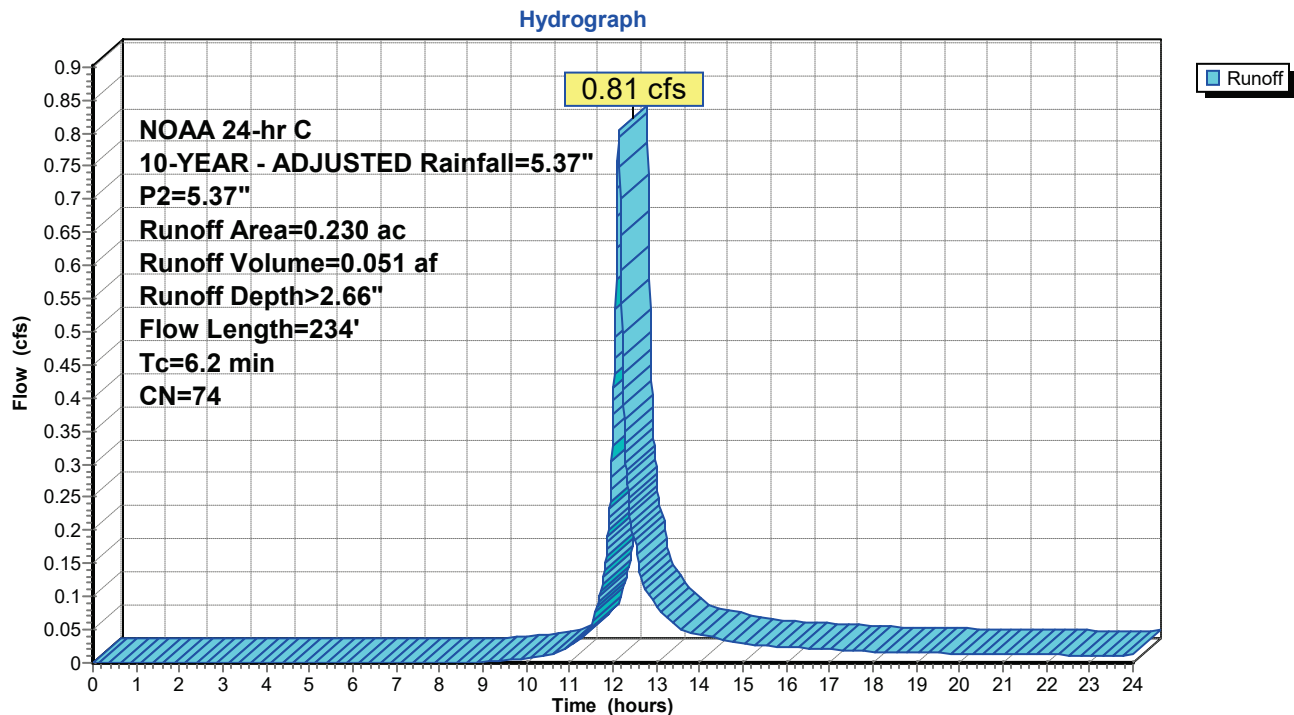
Runoff = 0.81 cfs @ 12.14 hrs, Volume= 0.051 af, Depth> 2.66"
Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Area (ac)	CN	Description
0.230	74	>75% Grass cover, Good, HSG C
0.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	70	0.0600	0.22		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 5.37"
0.3	30	0.0390	1.83		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 5.37"
0.6	134	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
6.2	234	Total			

Subcatchment 2: Pervious



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 15

Summary for Subcatchment 4: Impervious

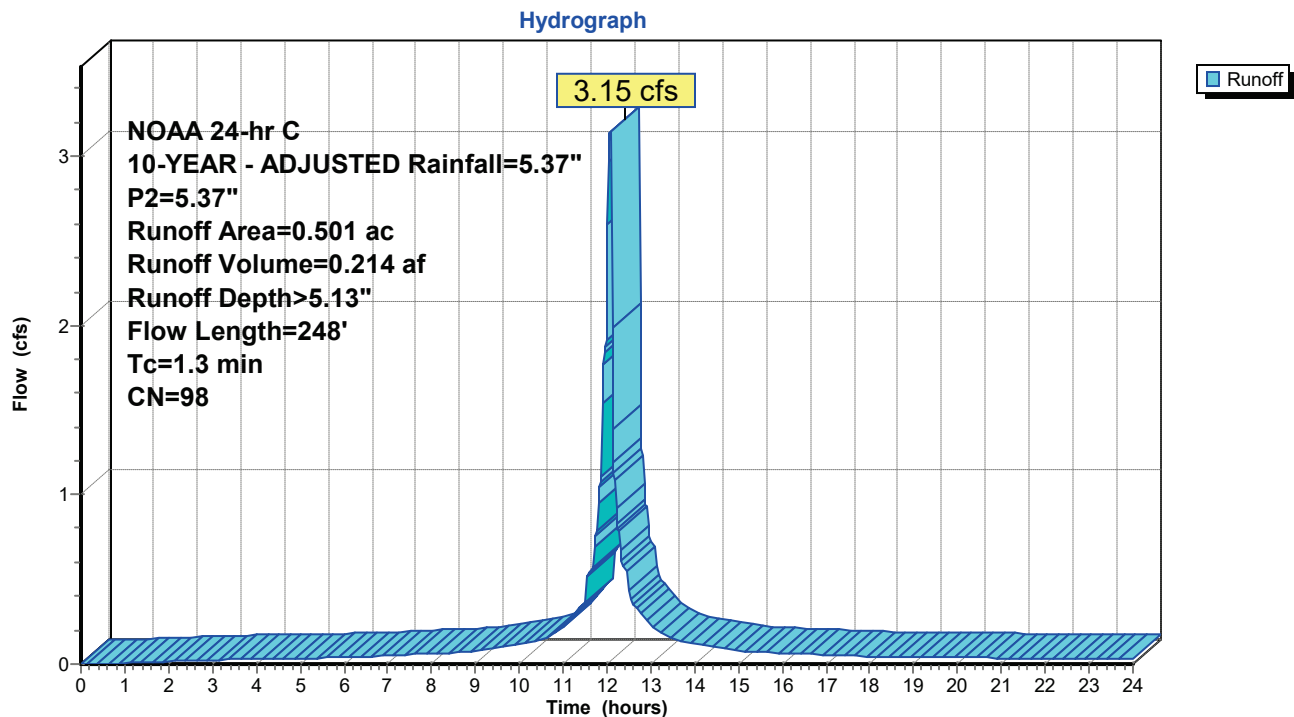
Runoff = 3.15 cfs @ 12.09 hrs, Volume= 0.214 af, Depth> 5.13"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Area (ac)	CN	Description
0.501	98	Paved parking, HSG C
0.501		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	100	0.0440	2.44		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 5.37"
0.6	148	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
1.3	248	Total			

Subcatchment 4: Impervious



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 16

Summary for Subcatchment 5: Pervious

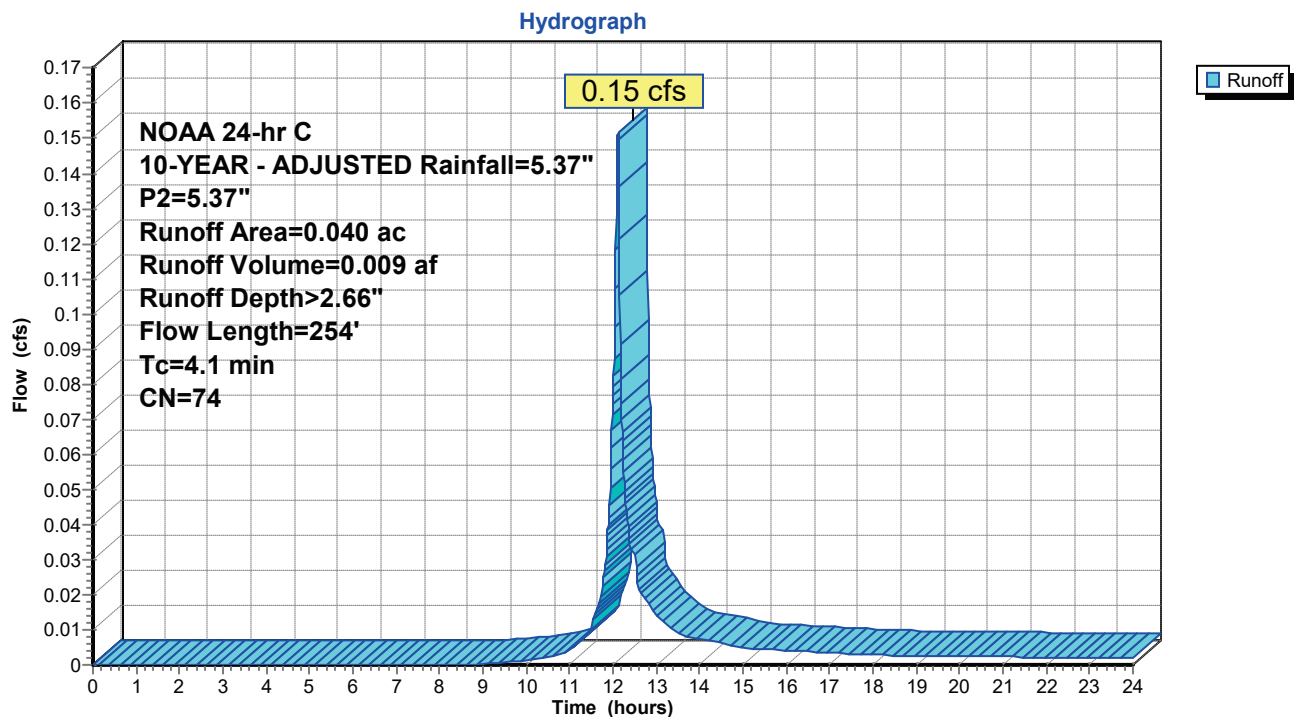
Runoff = 0.15 cfs @ 12.12 hrs, Volume= 0.009 af, Depth> 2.66"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Area (ac)	CN	Description
0.040	74	>75% Grass cover, Good, HSG C
0.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	28	0.0400	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 5.37"
0.5	72	0.0460	2.33		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 5.37"
0.6	154	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
4.1	254	Total			

Subcatchment 5: Pervious



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 17

Summary for Subcatchment 7: Impervious

[49] Hint: $T_c < 2dt$ may require smaller dt

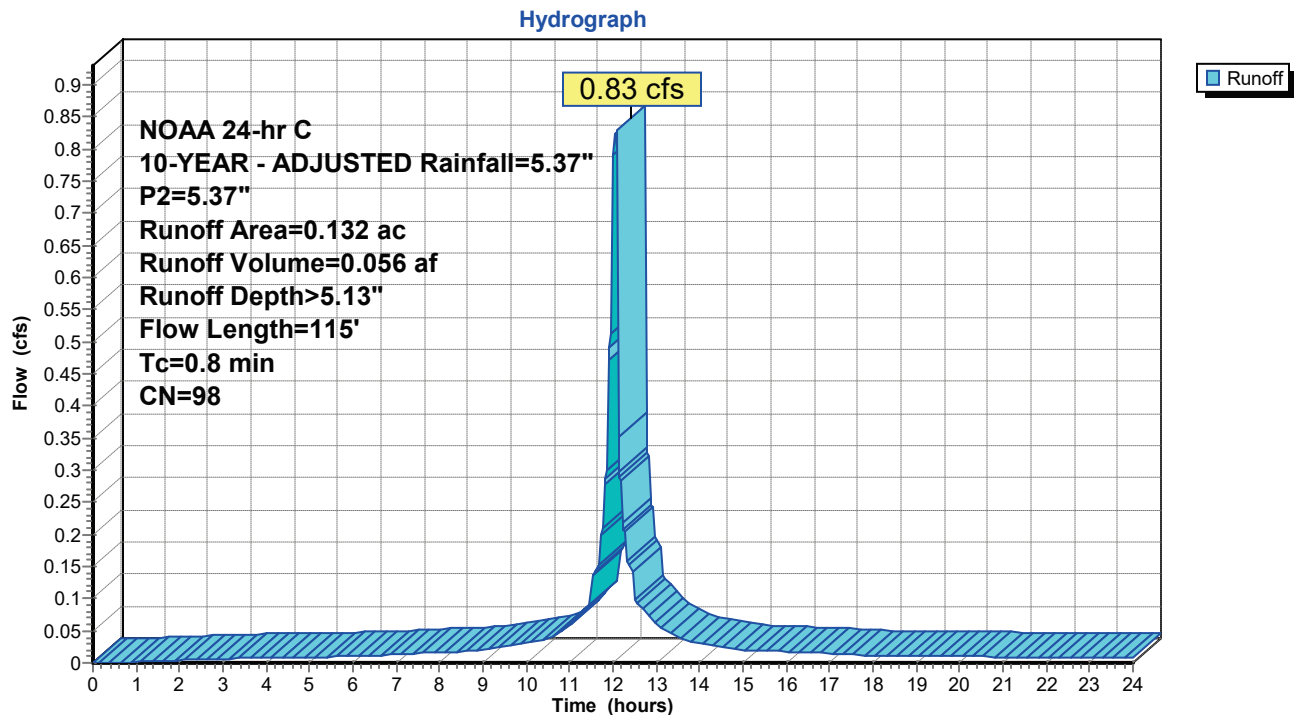
Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.056 af, Depth> 5.13"
Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.01$ hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.132		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	85	0.0350	2.16		Sheet Flow, B-C Smooth surfaces $n=0.011$ P2= 5.37"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved $K_v=20.3$ fps
0.8	115	Total			

Subcatchment 7: Impervious



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 18

Summary for Subcatchment 8: .054

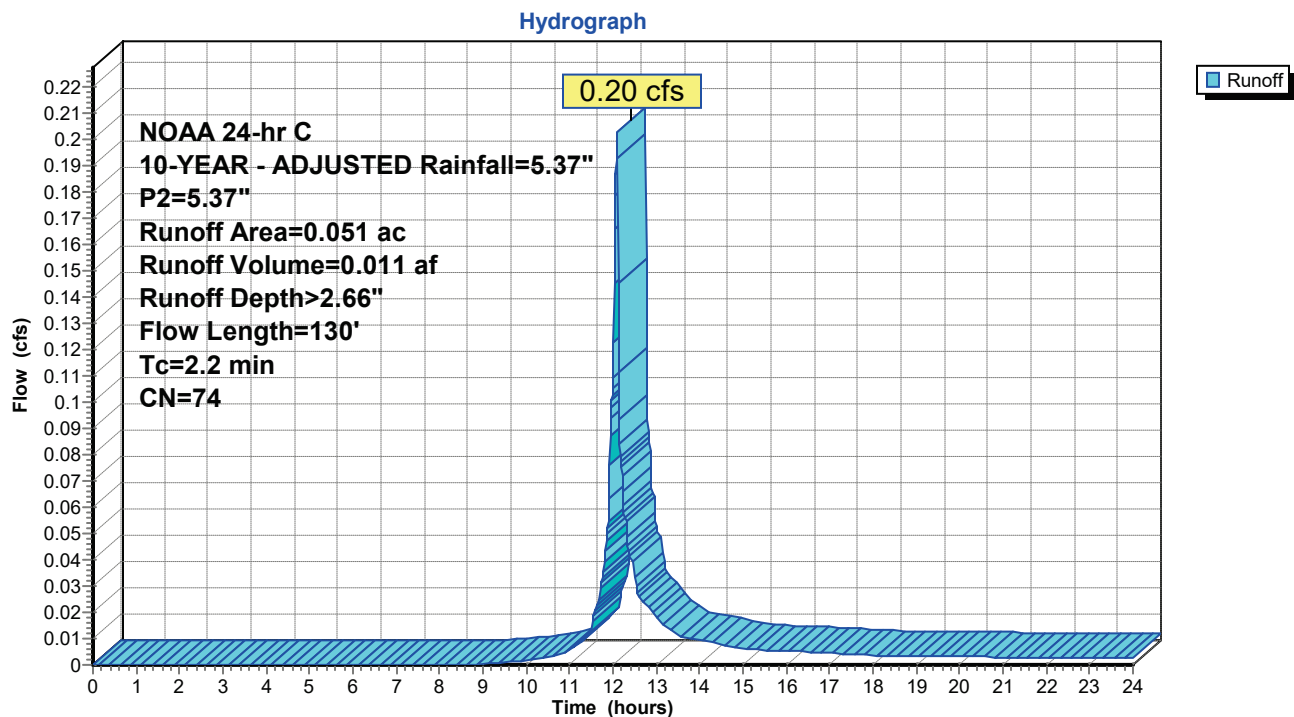
Runoff = 0.20 cfs @ 12.10 hrs, Volume= 0.011 af, Depth> 2.66"
Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Area (ac)	CN	Description
0.051	74	>75% Grass cover, Good, HSG C
0.051		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	15	0.0850	0.18		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 5.37"
0.7	85	0.0300	2.03		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 5.37"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
2.2	130	Total			

Subcatchment 8: .054



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

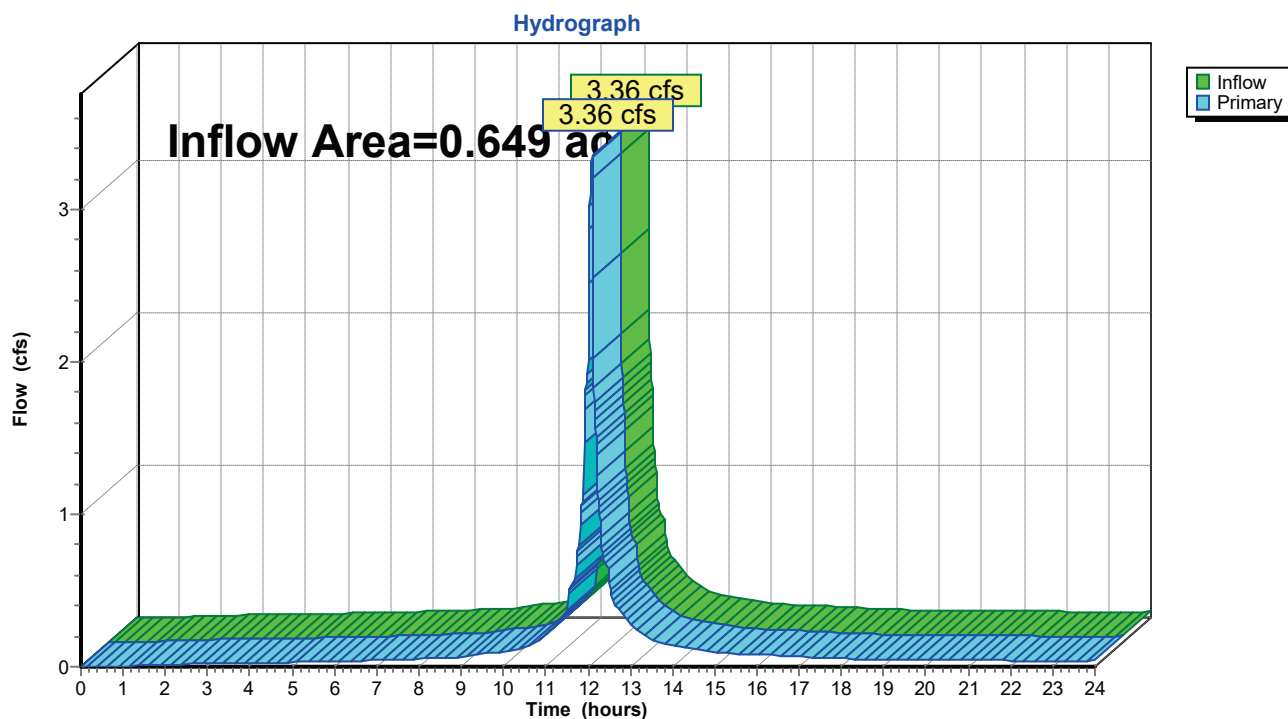
Page 19

Summary for Link 3: EX DI #1

Inflow Area = 0.649 ac, 64.56% Impervious, Inflow Depth > 4.25" for 10-YEAR - ADJUSTED event
Inflow = 3.36 cfs @ 12.10 hrs, Volume= 0.230 af
Primary = 3.36 cfs @ 12.10 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 3: EX DI #1



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

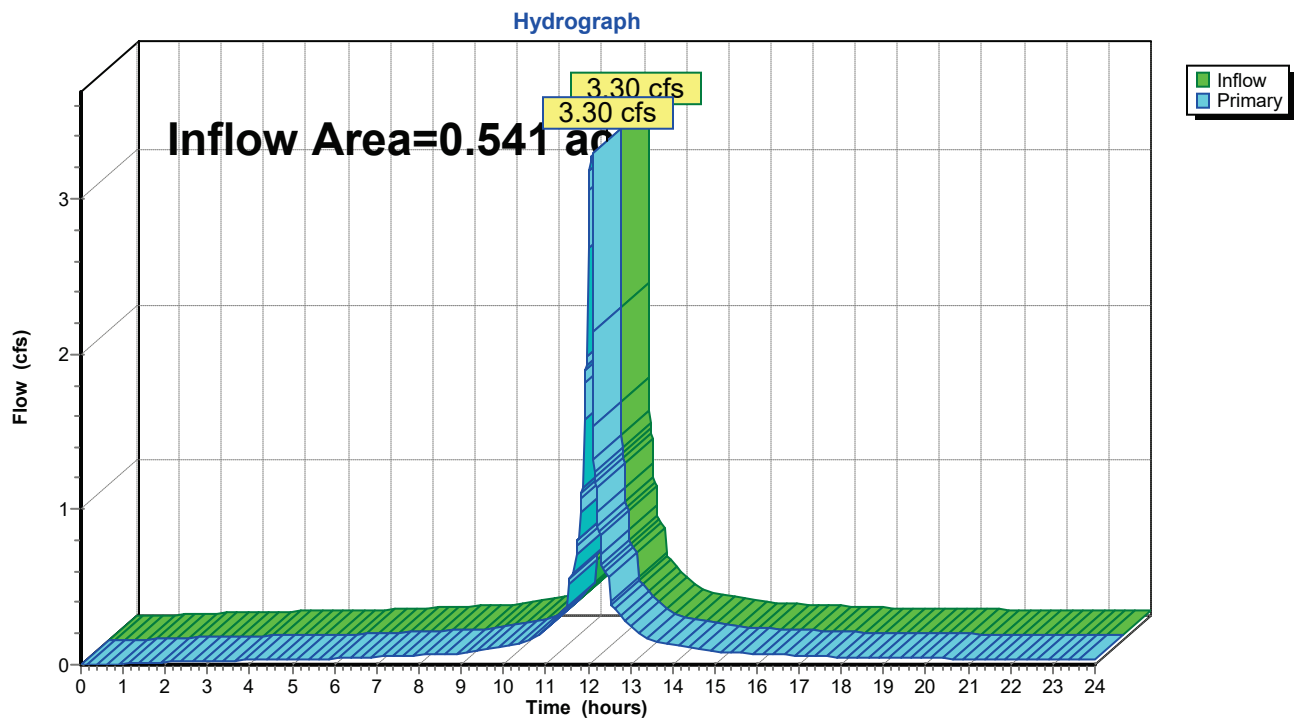
Page 20

Summary for Link 6: EX DI#2

Inflow Area = 0.541 ac, 92.61% Impervious, Inflow Depth > 4.95" for 10-YEAR - ADJUSTED event
Inflow = 3.30 cfs @ 12.10 hrs, Volume= 0.223 af
Primary = 3.30 cfs @ 12.10 hrs, Volume= 0.223 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 6: EX DI#2



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

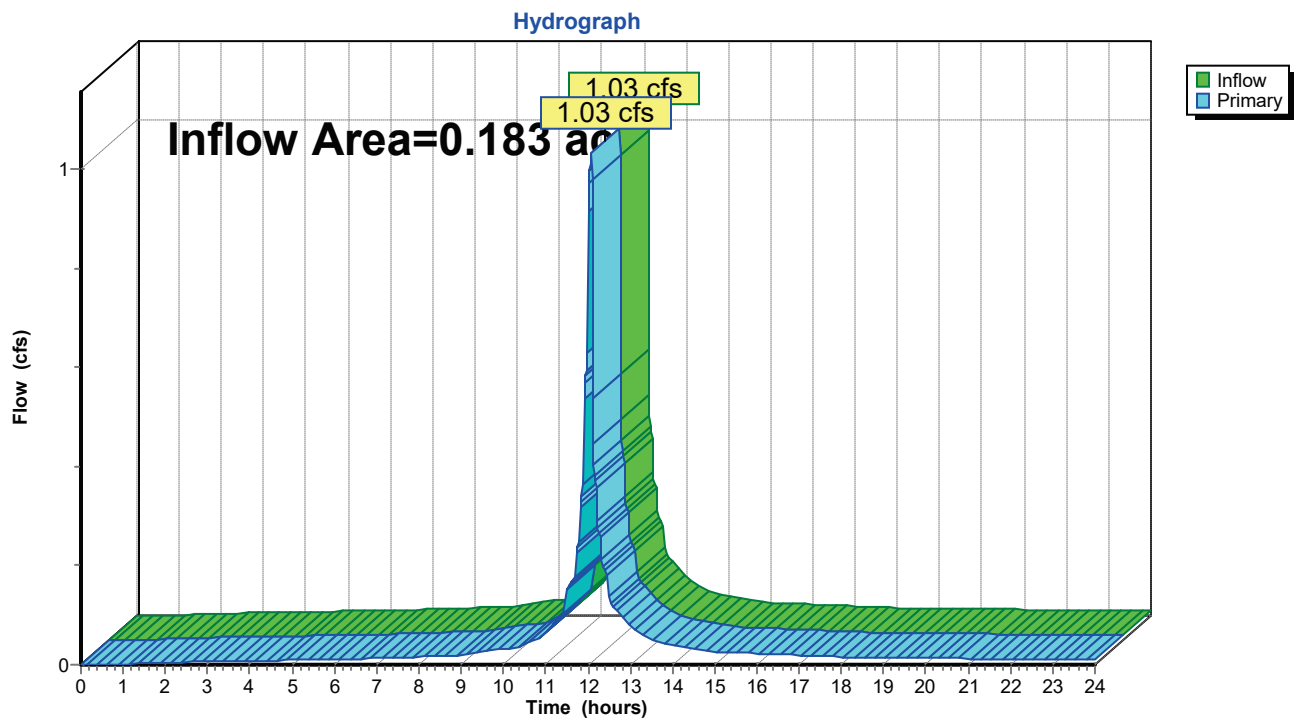
Page 21

Summary for Link 9: EX DA#3

Inflow Area = 0.183 ac, 72.13% Impervious, Inflow Depth > 4.44" for 10-YEAR - ADJUSTED event
Inflow = 1.03 cfs @ 12.09 hrs, Volume= 0.068 af
Primary = 1.03 cfs @ 12.09 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 9: EX DA#3



Existing Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=5.37"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

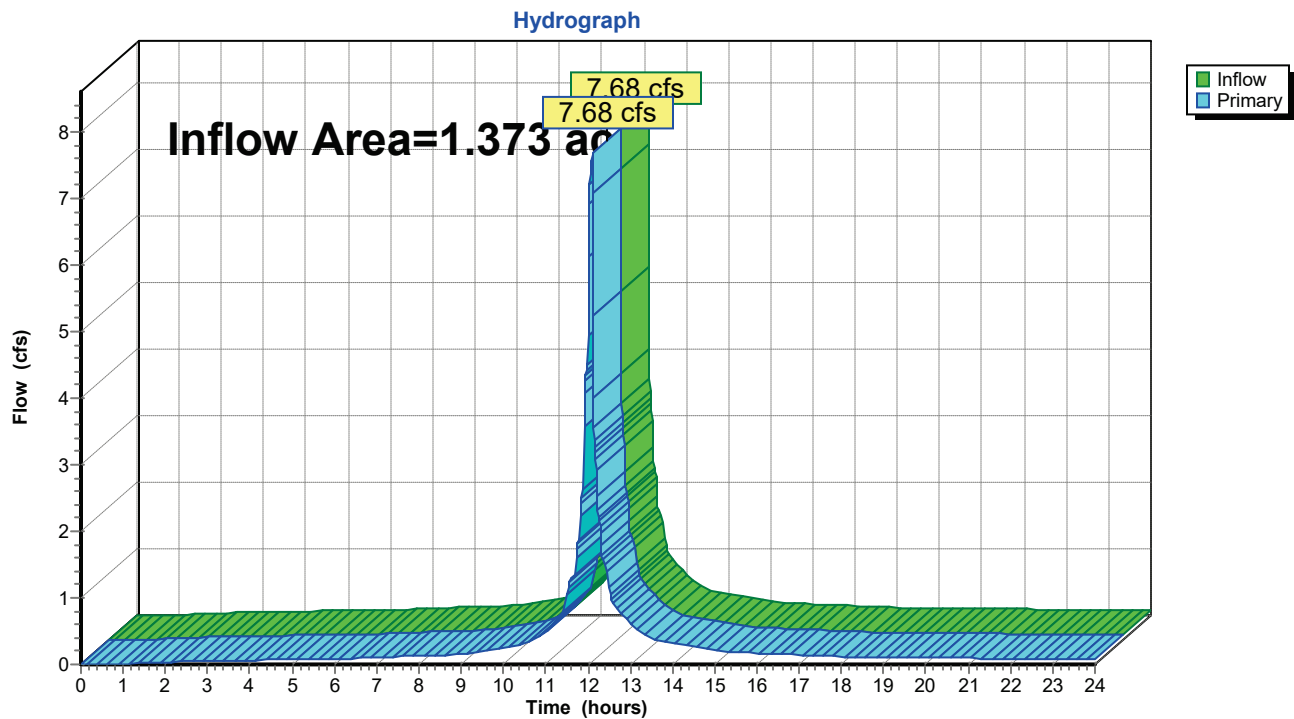
Page 22

Summary for Link 10: TOTAL

Inflow Area = 1.373 ac, 76.62% Impervious, Inflow Depth > 4.55" for 10-YEAR - ADJUSTED event
Inflow = 7.68 cfs @ 12.10 hrs, Volume= 0.521 af
Primary = 7.68 cfs @ 12.10 hrs, Volume= 0.521 af, Atten= 0%, Lag= 0.0 min

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

Link 10: TOTAL



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 23

Summary for Subcatchment 1: Impervious

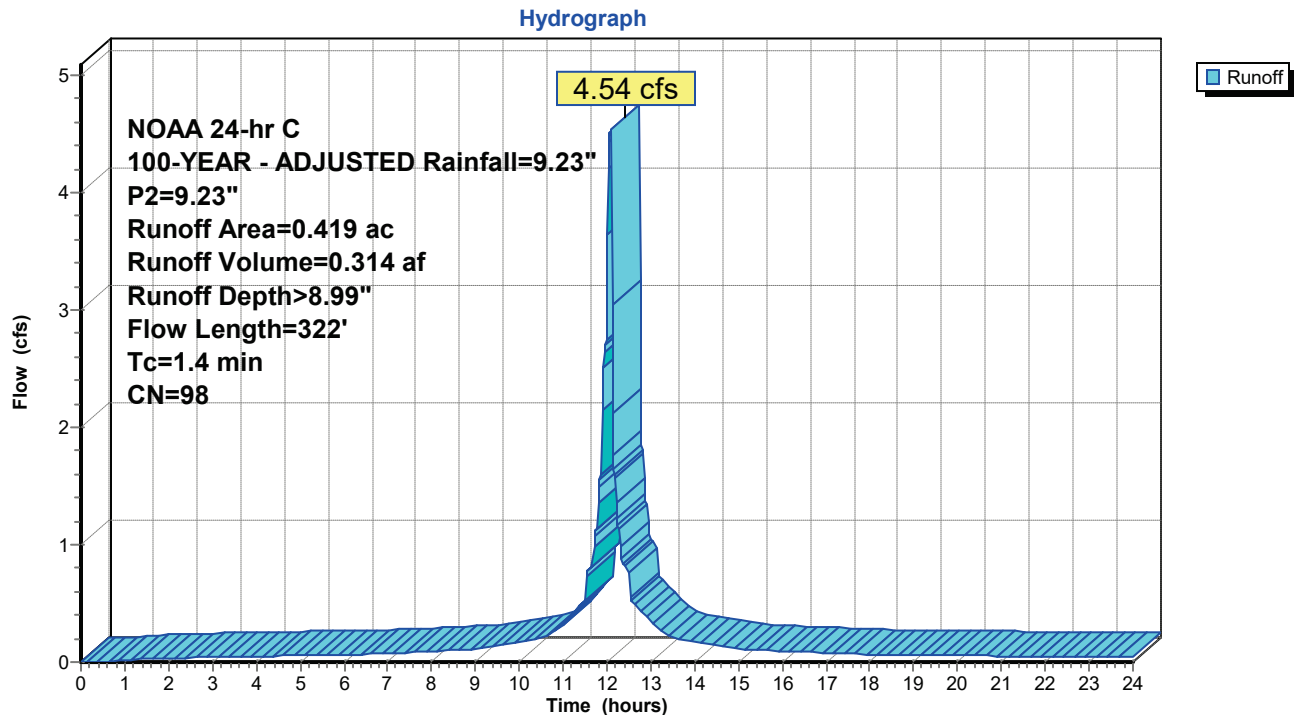
Runoff = 4.54 cfs @ 12.09 hrs, Volume= 0.314 af, Depth> 8.99"
Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Area (ac)	CN	Description
0.419	98	Paved parking, HSG C
0.419		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	14	0.0400	2.08		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 9.23"
1.3	308	0.0390	4.01		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.4	322	Total			

Subcatchment 1: Impervious



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 24

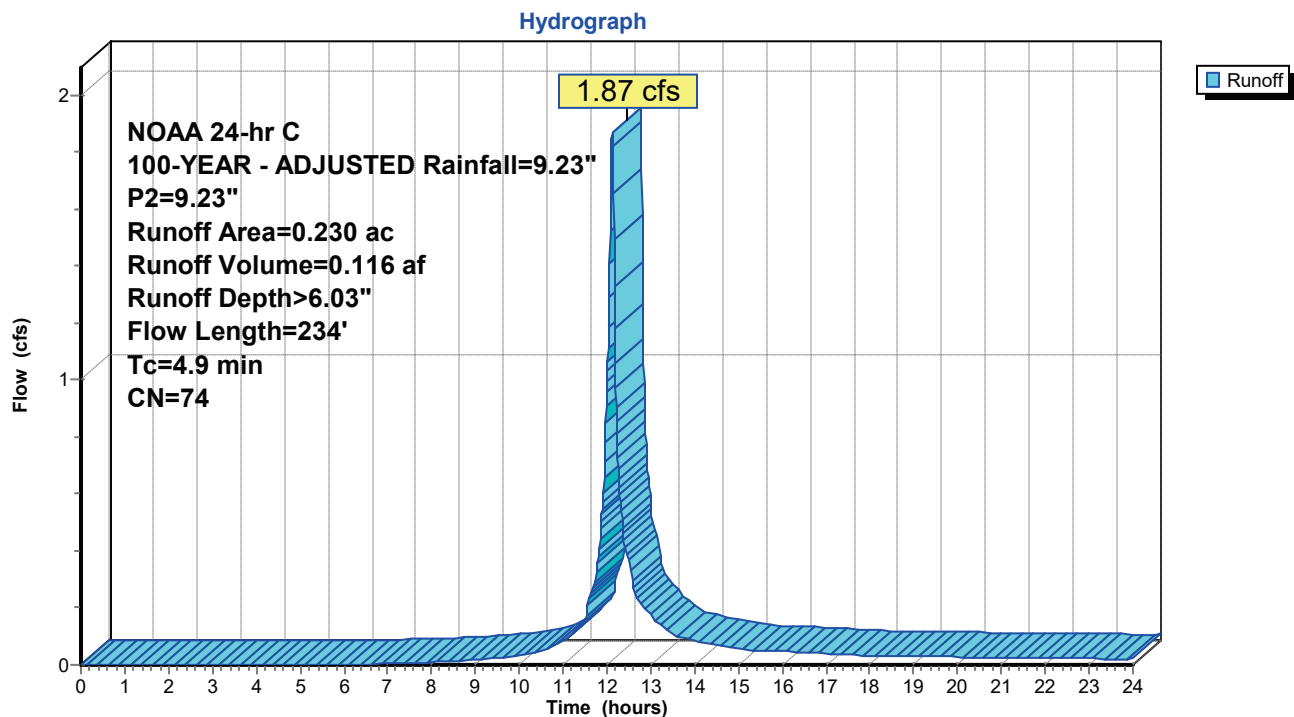
Summary for Subcatchment 2: Pervious

Runoff = 1.87 cfs @ 12.12 hrs, Volume= 0.116 af, Depth> 6.03"
Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Area (ac)	CN	Description
0.230	74	>75% Grass cover, Good, HSG C
0.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	70	0.0600	0.29		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 9.23"
0.2	30	0.0390	2.40		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 9.23"
0.6	134	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
4.9	234	Total			

Subcatchment 2: Pervious

Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 25

Summary for Subcatchment 4: Impervious

[49] Hint: $T_c < 2dt$ may require smaller dt

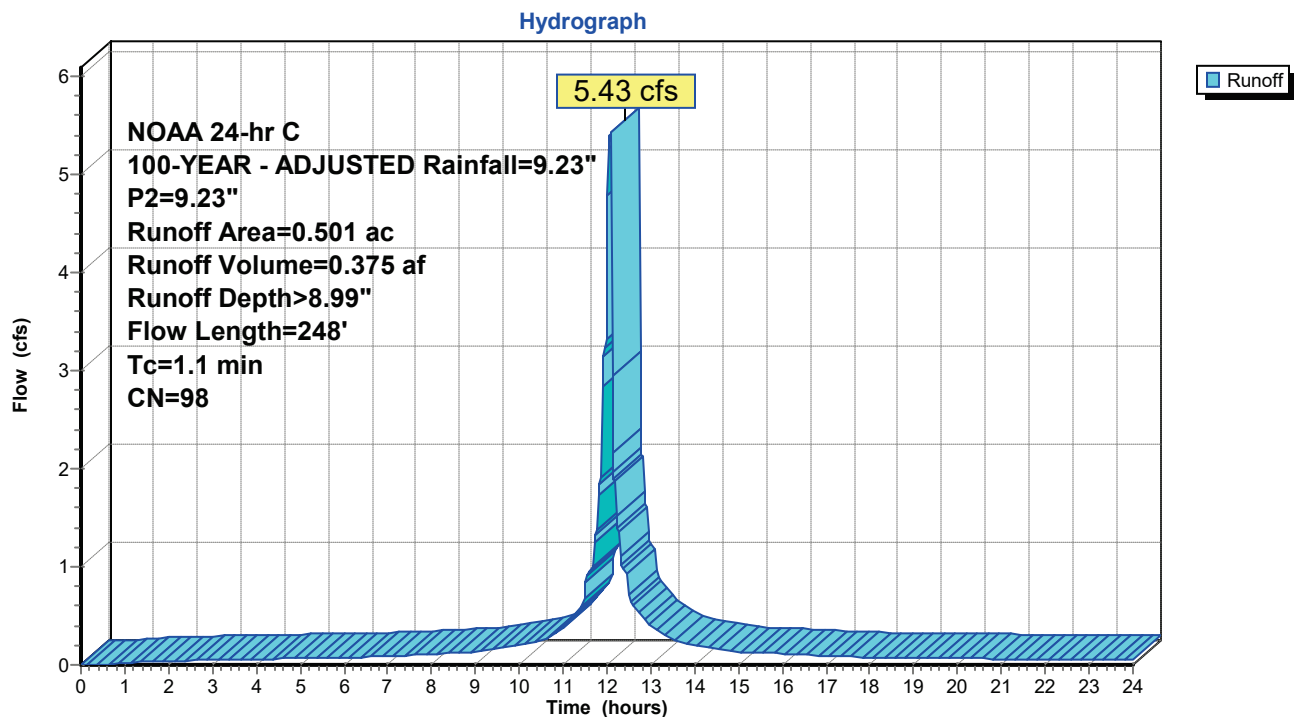
Runoff = 5.43 cfs @ 12.09 hrs, Volume= 0.375 af, Depth> 8.99"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.01$ hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Area (ac)	CN	Description
0.501	98	Paved parking, HSG C
0.501		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	100	0.0440	3.20		Sheet Flow, A-B Smooth surfaces $n=0.011$ P2= 9.23"
0.6	148	0.0390	4.01		Shallow Concentrated Flow, C-D Paved $K_v=20.3$ fps
1.1	248	Total			

Subcatchment 4: Impervious



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 26

Summary for Subcatchment 5: Pervious

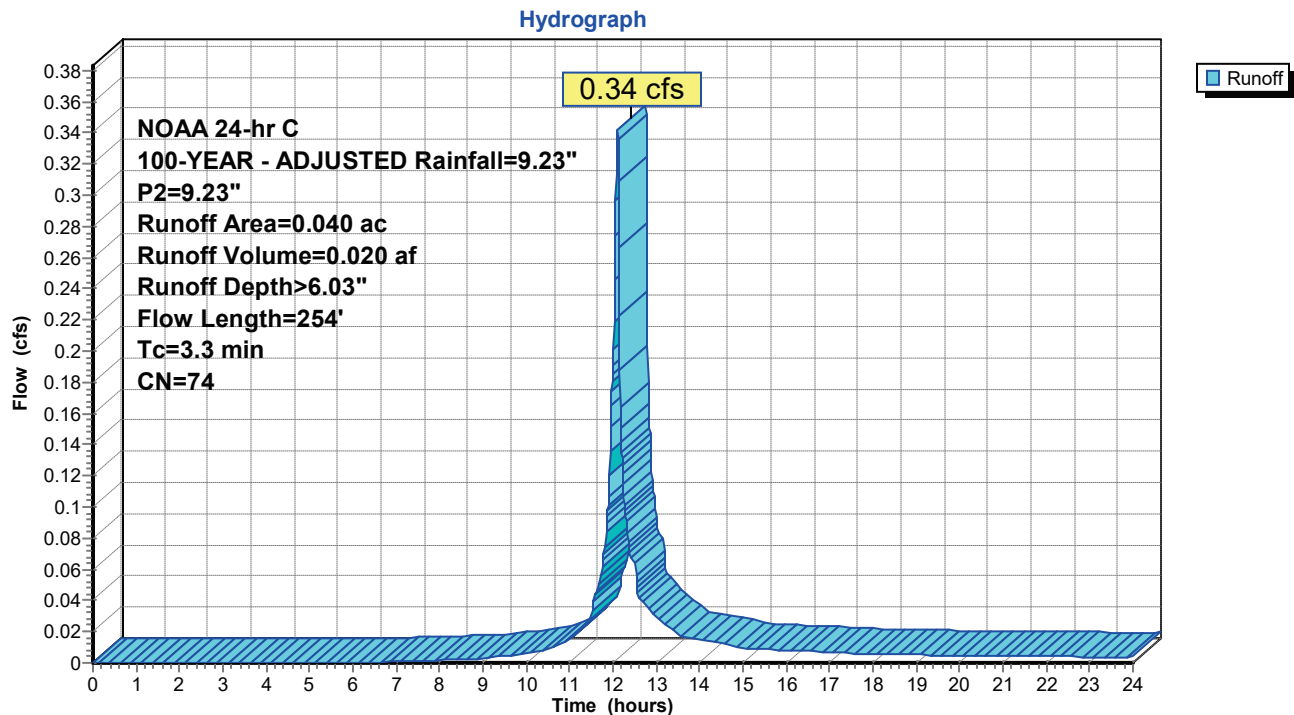
Runoff = 0.34 cfs @ 12.11 hrs, Volume= 0.020 af, Depth> 6.03"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Area (ac)	CN	Description
0.040	74	>75% Grass cover, Good, HSG C
0.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	28	0.0400	0.20		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 9.23"
0.4	72	0.0460	3.05		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 9.23"
0.6	154	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
3.3	254	Total			

Subcatchment 5: Pervious



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 27

Summary for Subcatchment 7: Impervious

[49] Hint: $T_c < 2dt$ may require smaller dt

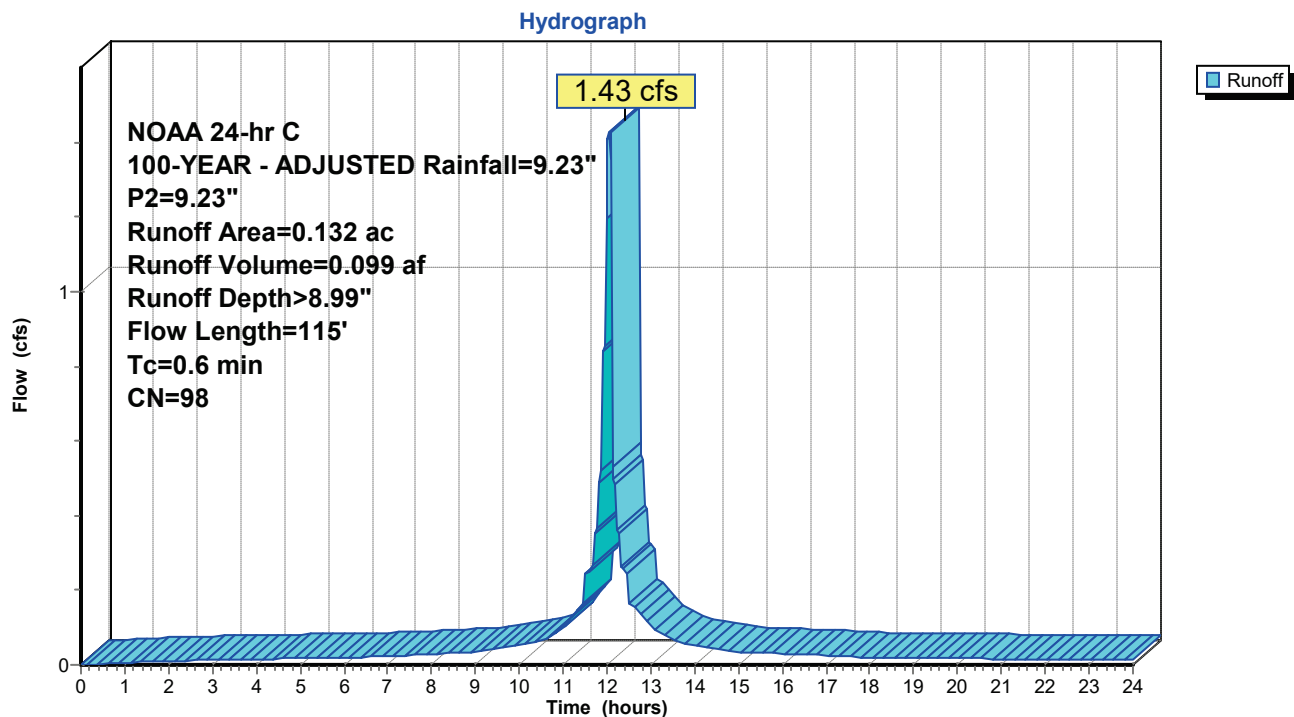
Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.099 af, Depth> 8.99"
Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.01$ hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.132		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	85	0.0350	2.83		Sheet Flow, B-C Smooth surfaces $n=0.011$ P2= 9.23"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved $K_v=20.3$ fps
0.6	115	Total			

Subcatchment 7: Impervious



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 28

Summary for Subcatchment 8: .054

Runoff = 0.45 cfs @ 12.10 hrs, Volume= 0.026 af, Depth> 6.04"
Routed to Link 9 : EX DA#3

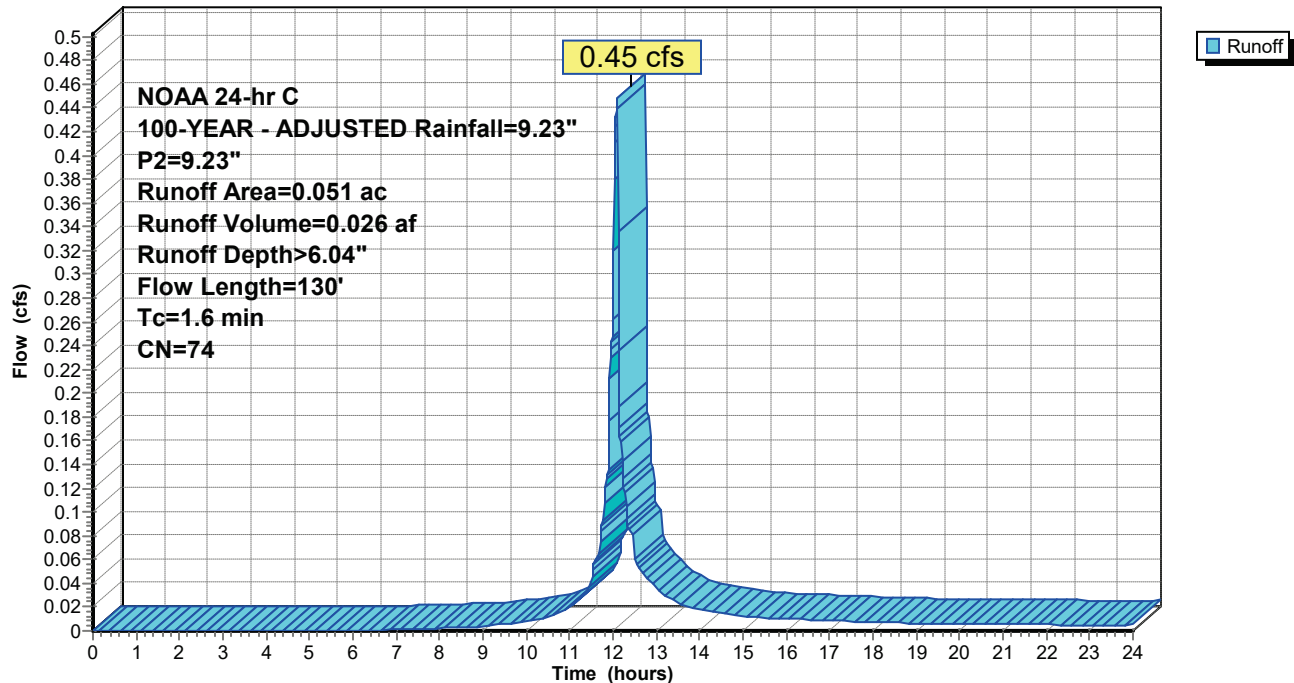
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Area (ac)	CN	Description
0.051	74	>75% Grass cover, Good, HSG C
0.051		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	15	0.0850	0.24		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 9.23"
0.5	85	0.0300	2.66		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 9.23"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
1.6	130	Total			

Subcatchment 8: .054

Hydrograph



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

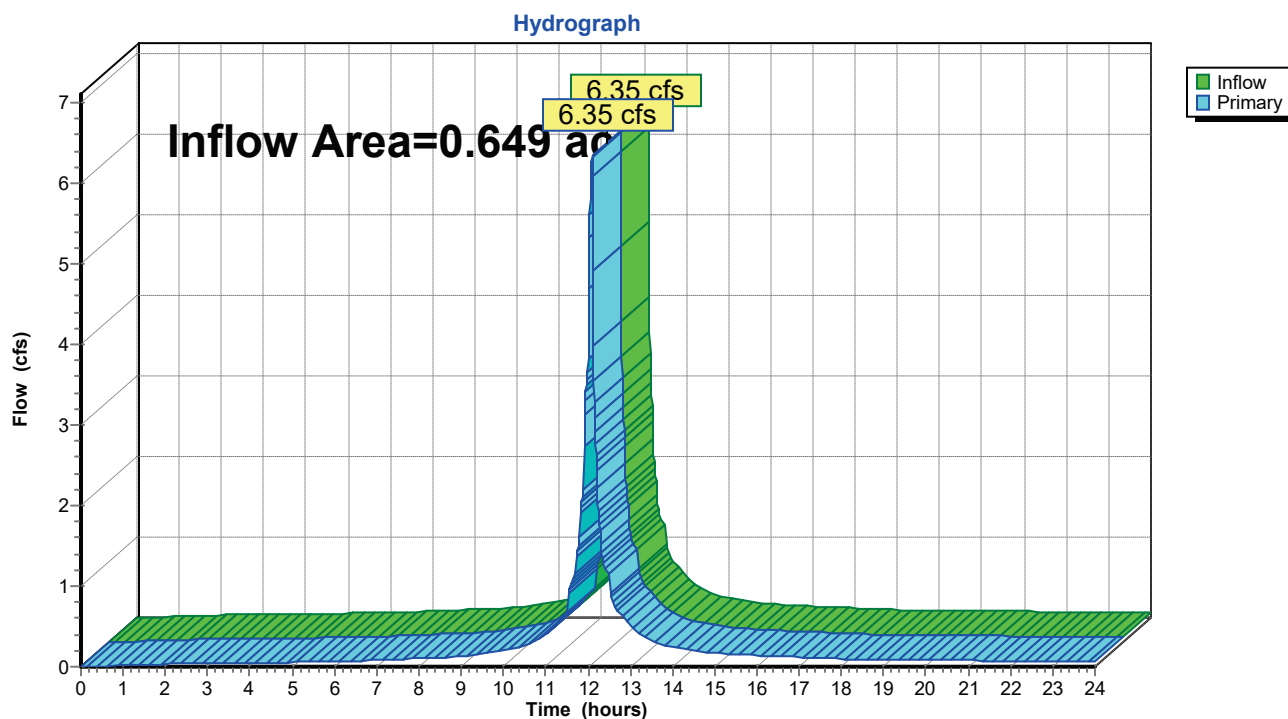
Page 29

Summary for Link 3: EX DI #1

Inflow Area = 0.649 ac, 64.56% Impervious, Inflow Depth > 7.94" for 100-YEAR - ADJUSTED event
Inflow = 6.35 cfs @ 12.10 hrs, Volume= 0.429 af
Primary = 6.35 cfs @ 12.10 hrs, Volume= 0.429 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 3: EX DI #1



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

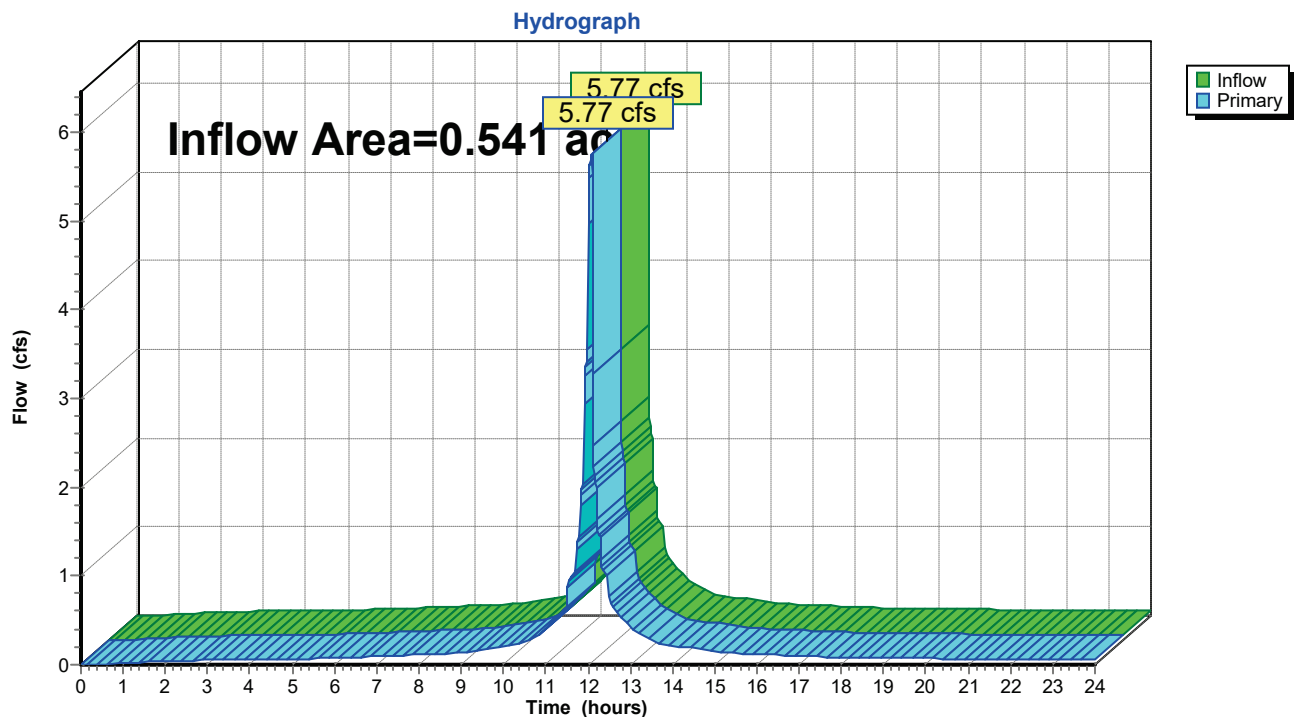
Page 30

Summary for Link 6: EX DI#2

Inflow Area = 0.541 ac, 92.61% Impervious, Inflow Depth > 8.77" for 100-YEAR - ADJUSTED event
Inflow = 5.77 cfs @ 12.10 hrs, Volume= 0.395 af
Primary = 5.77 cfs @ 12.10 hrs, Volume= 0.395 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 6: EX DI#2



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

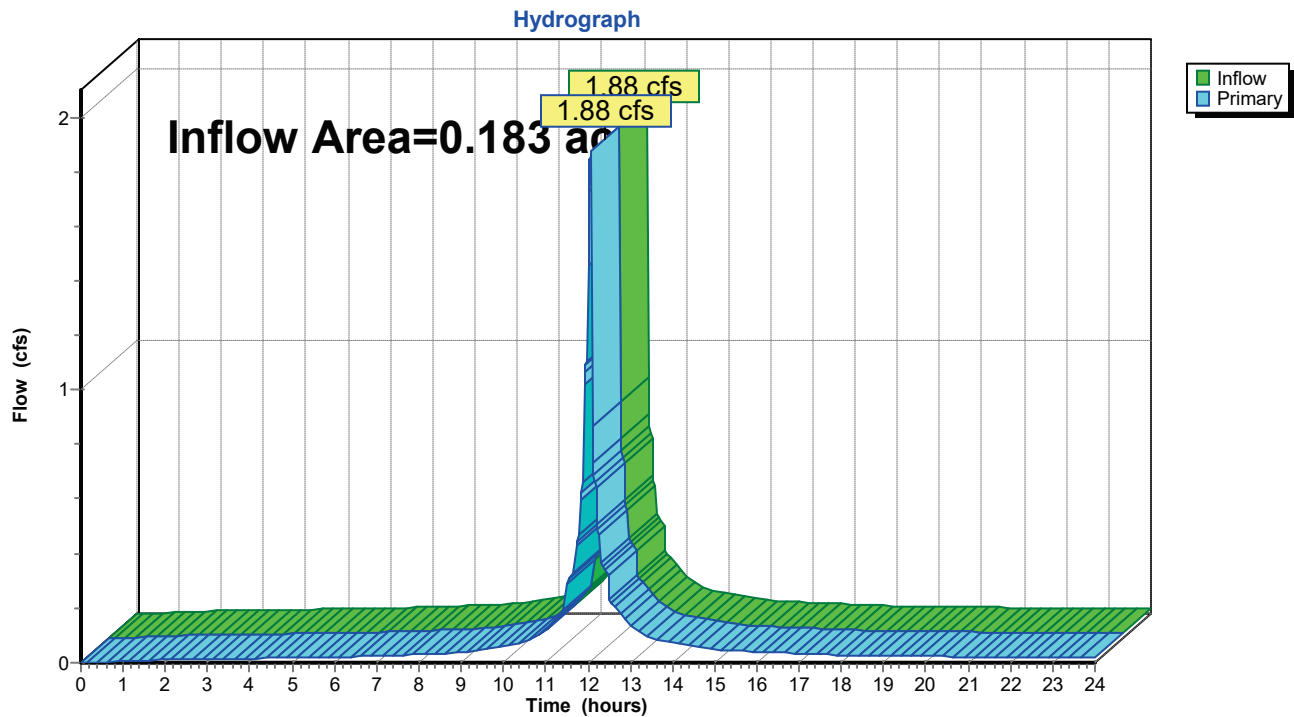
Page 31

Summary for Link 9: EX DA#3

Inflow Area = 0.183 ac, 72.13% Impervious, Inflow Depth > 8.17" for 100-YEAR - ADJUSTED event
Inflow = 1.88 cfs @ 12.09 hrs, Volume= 0.125 af
Primary = 1.88 cfs @ 12.09 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 9: EX DA#3



Existing Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=9.23"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 32

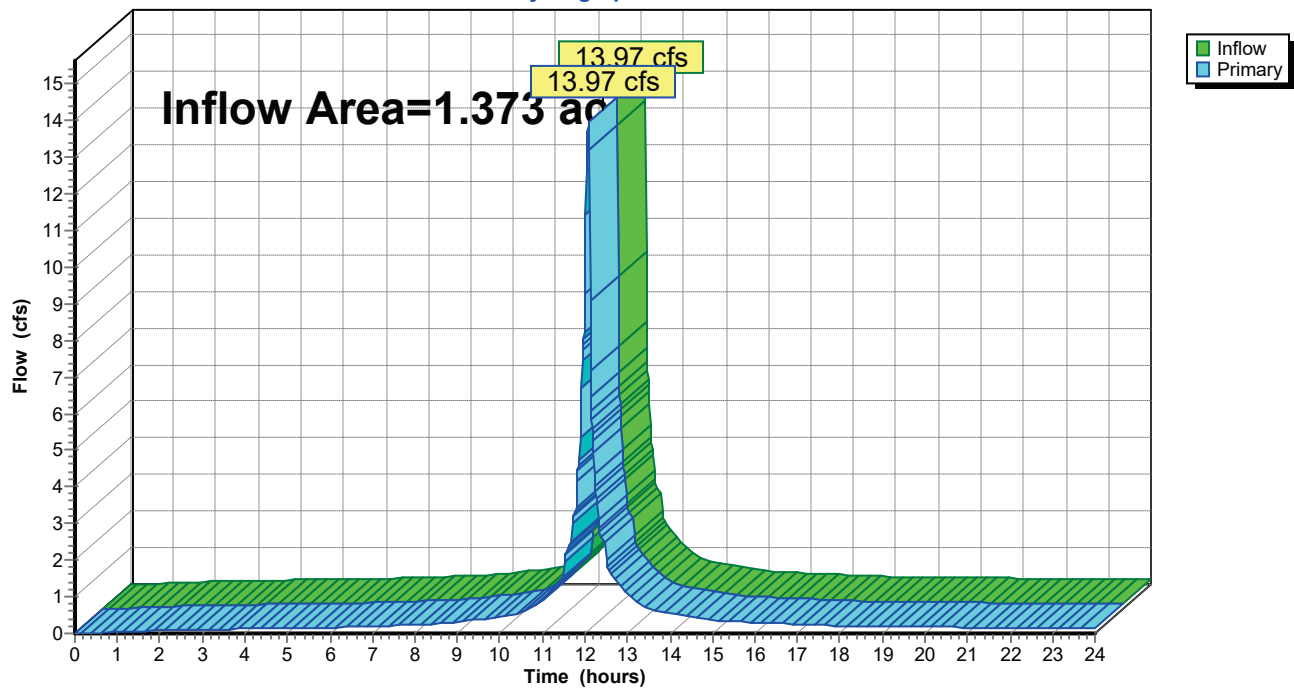
Summary for Link 10: TOTAL

Inflow Area = 1.373 ac, 76.62% Impervious, Inflow Depth > 8.30" for 100-YEAR - ADJUSTED event
Inflow = 13.97 cfs @ 12.10 hrs, Volume= 0.949 af
Primary = 13.97 cfs @ 12.10 hrs, Volume= 0.949 af, Atten= 0%, Lag= 0.0 min

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

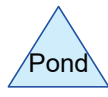
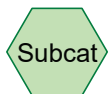
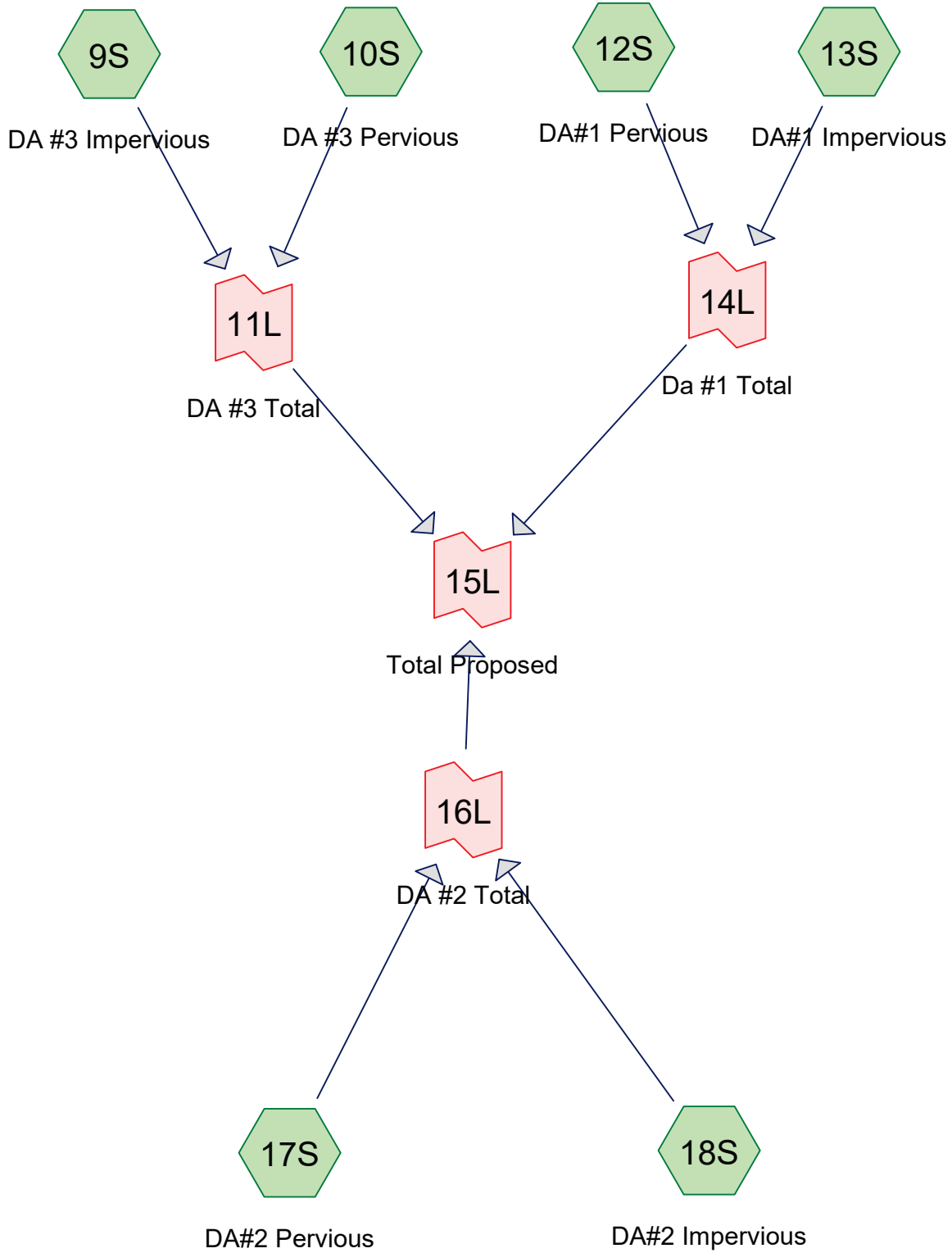
Link 10: TOTAL

Hydrograph



APPENDIX B

Post-Development Hydrographs Current Adjusted Precipitation Depths



Routing Diagram for Proposed Conditions

Prepared by Bright View Engineering, Printed 1/21/2026
HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 2

Summary for Subcatchment 9S: DA #3 Impervious

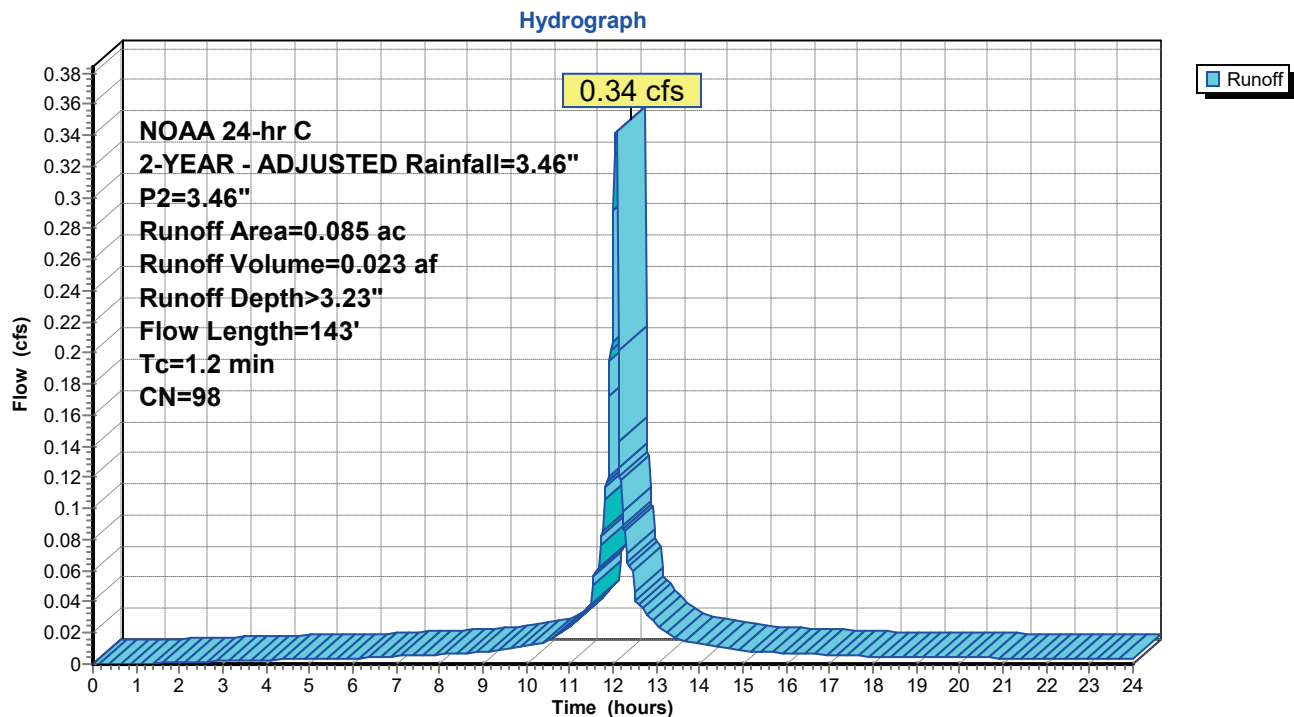
Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.023 af, Depth> 3.23"
Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.085	98	Paved parking, HSG C
0.085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	70	0.0500	1.92		Sheet Flow, Parking Segment 1
					Smooth surfaces n= 0.011 P2= 3.46"
0.6	73	0.0100	2.03		Shallow Concentrated Flow, Parking Segment 2
					Paved Kv= 20.3 fps
1.2	143	Total			

Subcatchment 9S: DA #3 Impervious



Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 3

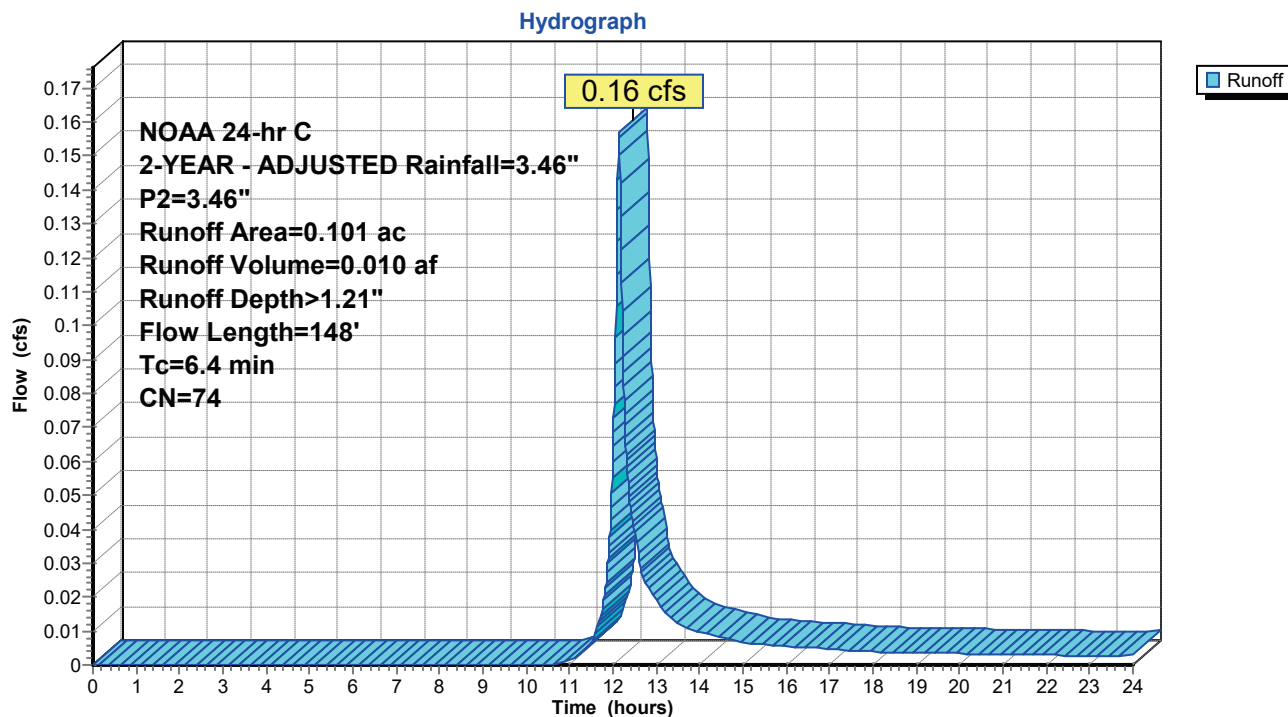
Summary for Subcatchment 10S: DA #3 Pervious

Runoff = 0.16 cfs @ 12.14 hrs, Volume= 0.010 af, Depth> 1.21"
Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.101	74	>75% Grass cover, Good, HSG C
0.101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	28	0.0140	0.08		Sheet Flow, Lawn area Grass: Dense n= 0.240 P2= 3.46"
0.2	43	0.0500	4.54		Shallow Concentrated Flow, Parking Lot 1 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Parking Segment 2 Paved Kv= 20.3 fps
0.2	21	0.0100	2.03		Shallow Concentrated Flow, Parking Third Segment Paved Kv= 20.3 fps
6.4	148	Total			

Subcatchment 10S: DA #3 Pervious

Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 4

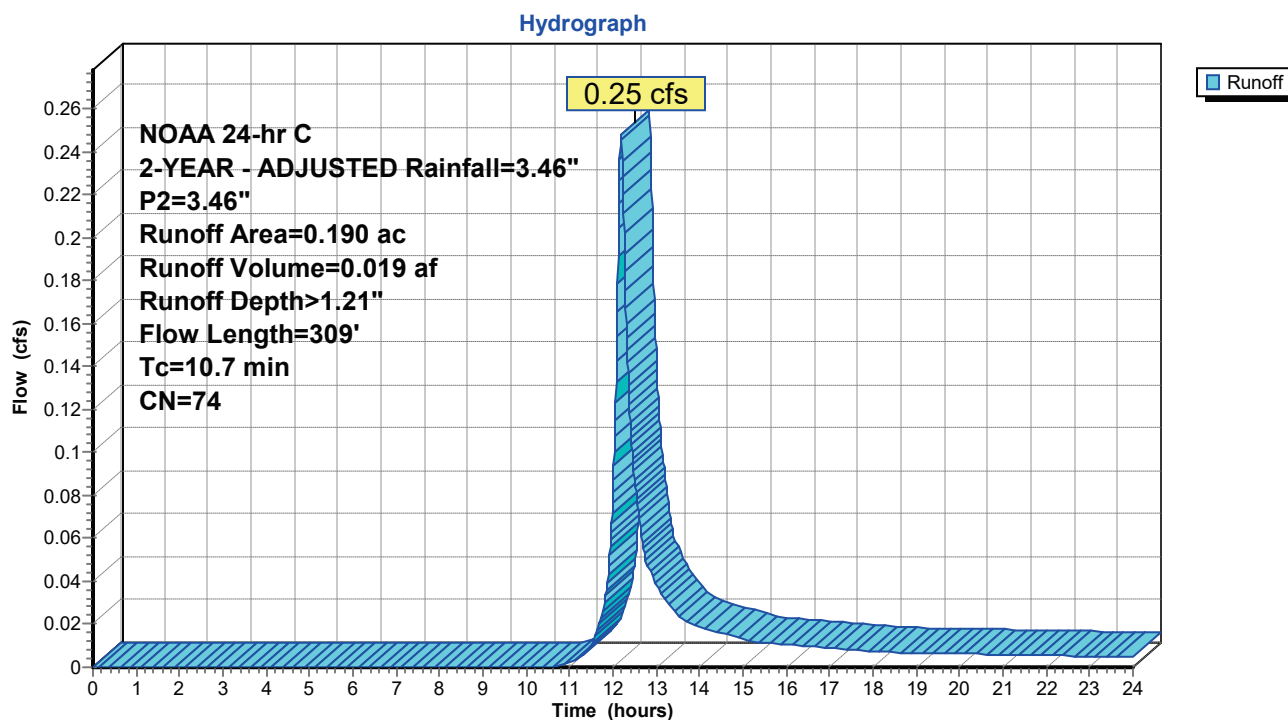
Summary for Subcatchment 12S: DA#1 Pervious

Runoff = 0.25 cfs @ 12.19 hrs, Volume= 0.019 af, Depth> 1.21"
Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.190	74	>75% Grass cover, Good, HSG C
0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	64	0.0500	0.16		Sheet Flow, Segment 1 Grass: Dense n= 0.240 P2= 3.46"
3.1	25	0.0500	0.13		Sheet Flow, Segment 2 Grass: Dense n= 0.240 P2= 3.46"
0.3	93	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.2	22	0.0100	2.03		Shallow Concentrated Flow, Segment 4 Paved Kv= 20.3 fps
0.4	105	0.0100	4.91	3.86	Pipe Channel, Pipe 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.7	309	Total			

Subcatchment 12S: DA#1 Pervious

Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 5

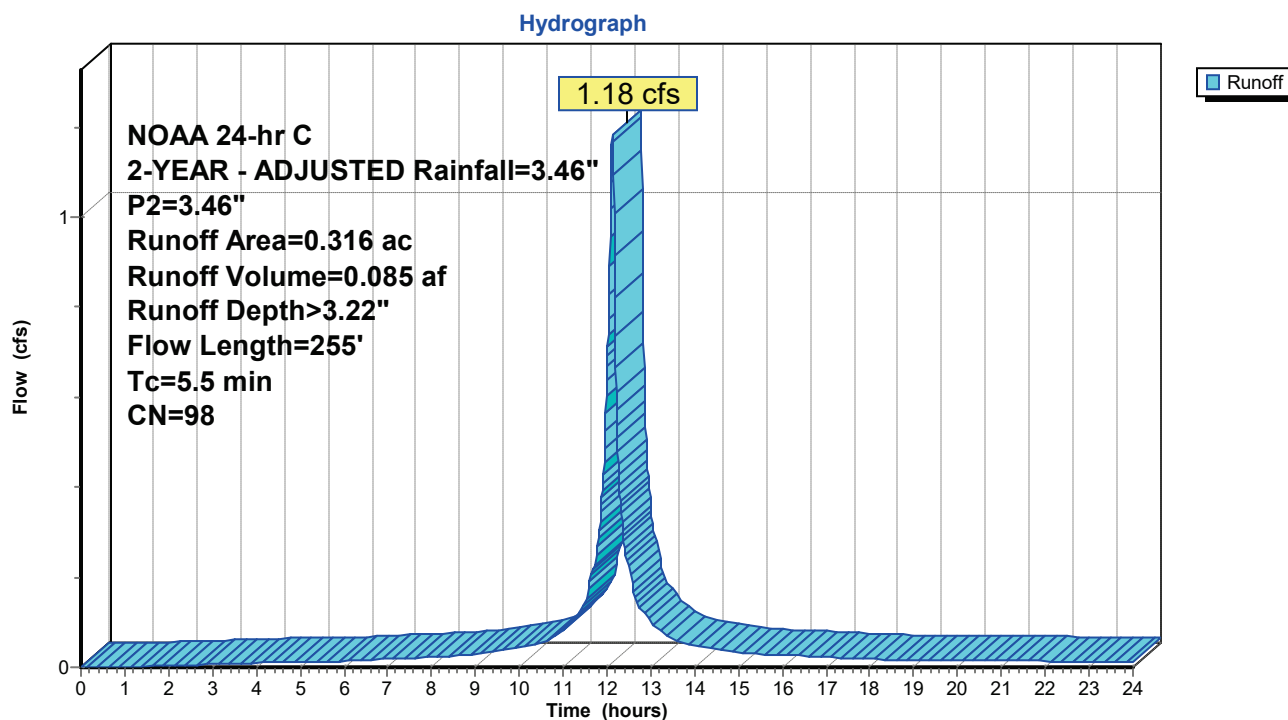
Summary for Subcatchment 13S: DA#1 Impervious

Runoff = 1.18 cfs @ 12.12 hrs, Volume= 0.085 af, Depth> 3.22"
Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.316	98	Paved parking, HSG C
0.316		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	28	0.0300	0.11		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 3.46"
0.4	44	0.0500	1.75		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 3.46"
0.2	60	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.5	61	0.0100	2.03		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
0.2	62	0.0100	4.91	3.86	Pipe Channel, Segment 5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.5	255	Total			

Subcatchment 13S: DA#1 Impervious

Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 6

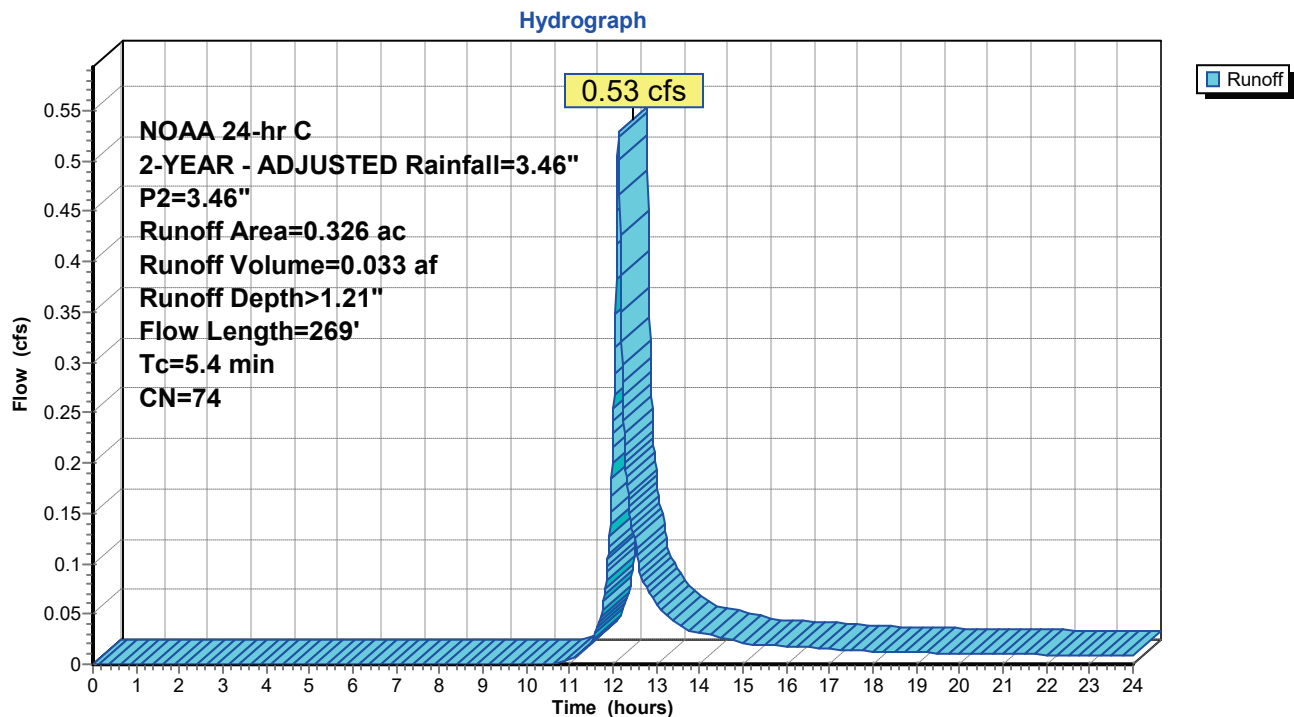
Summary for Subcatchment 17S: DA#2 Pervious

Runoff = 0.53 cfs @ 12.13 hrs, Volume= 0.033 af, Depth> 1.21"
Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.326	74	>75% Grass cover, Good, HSG C
0.326		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	30	0.0400	0.13		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 3.46"
0.3	30	0.0500	1.62		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 3.46"
0.5	123	0.0500	4.54		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.5	56	0.0100	2.03		Shallow Concentrated Flow, Segment #5 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #6 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.4	269	Total			

Subcatchment 17S: DA#2 Pervious

Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 7

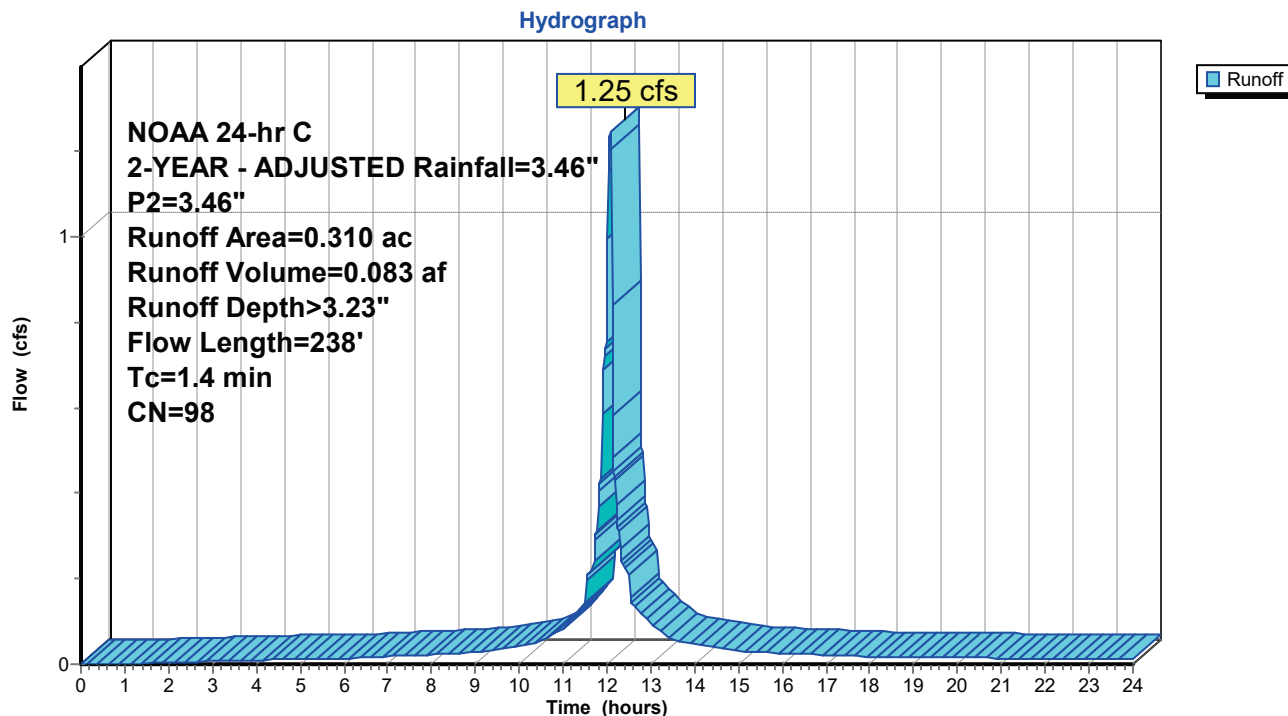
Summary for Subcatchment 18S: DA#2 Impervious

Runoff = 1.25 cfs @ 12.09 hrs, Volume= 0.083 af, Depth> 3.23"
Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG C
0.310		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	80	0.0500	1.97		Sheet Flow, Segment #1 Smooth surfaces n= 0.011 P2= 3.46"
0.3	72	0.0500	4.54		Shallow Concentrated Flow, Segment #2 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #4 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.4	238	Total			

Subcatchment 18S: DA#2 Impervious

Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

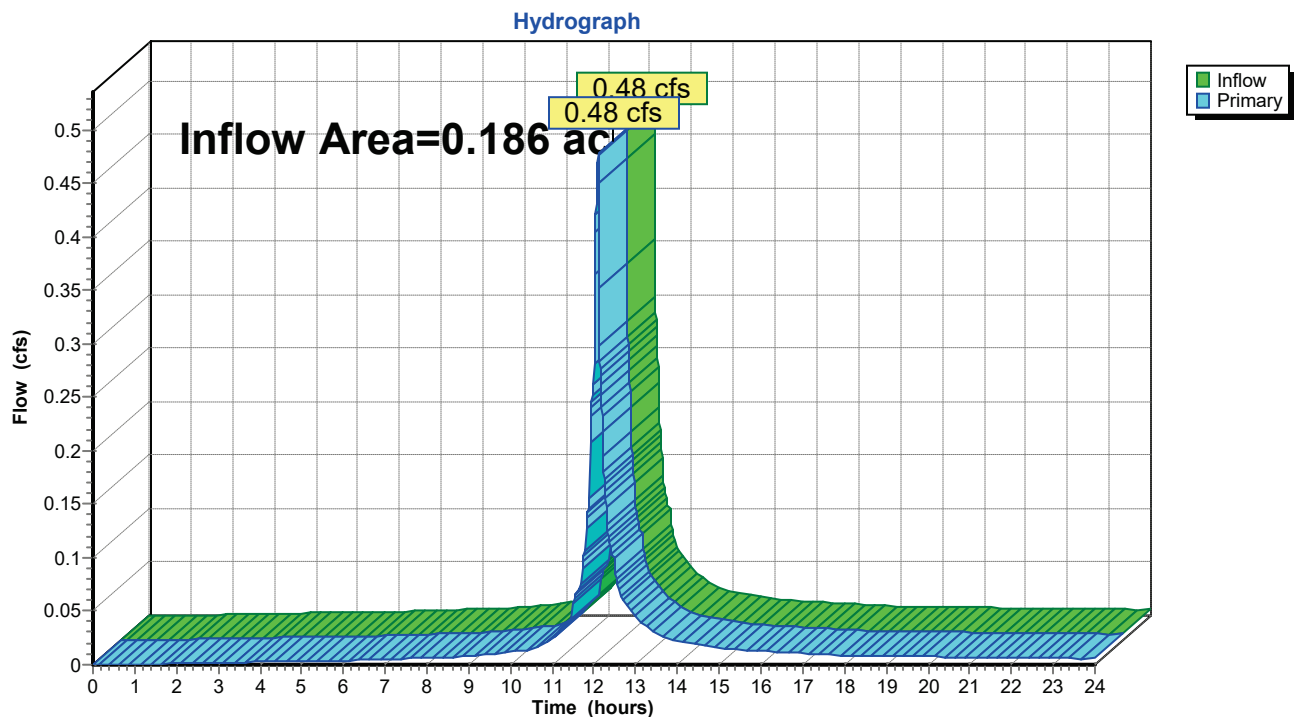
Page 8

Summary for Link 11L: DA #3 Total

Inflow Area = 0.186 ac, 45.70% Impervious, Inflow Depth > 2.13" for 2-YEAR - ADJUSTED event
Inflow = 0.48 cfs @ 12.10 hrs, Volume= 0.033 af
Primary = 0.48 cfs @ 12.10 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 11L: DA #3 Total



Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

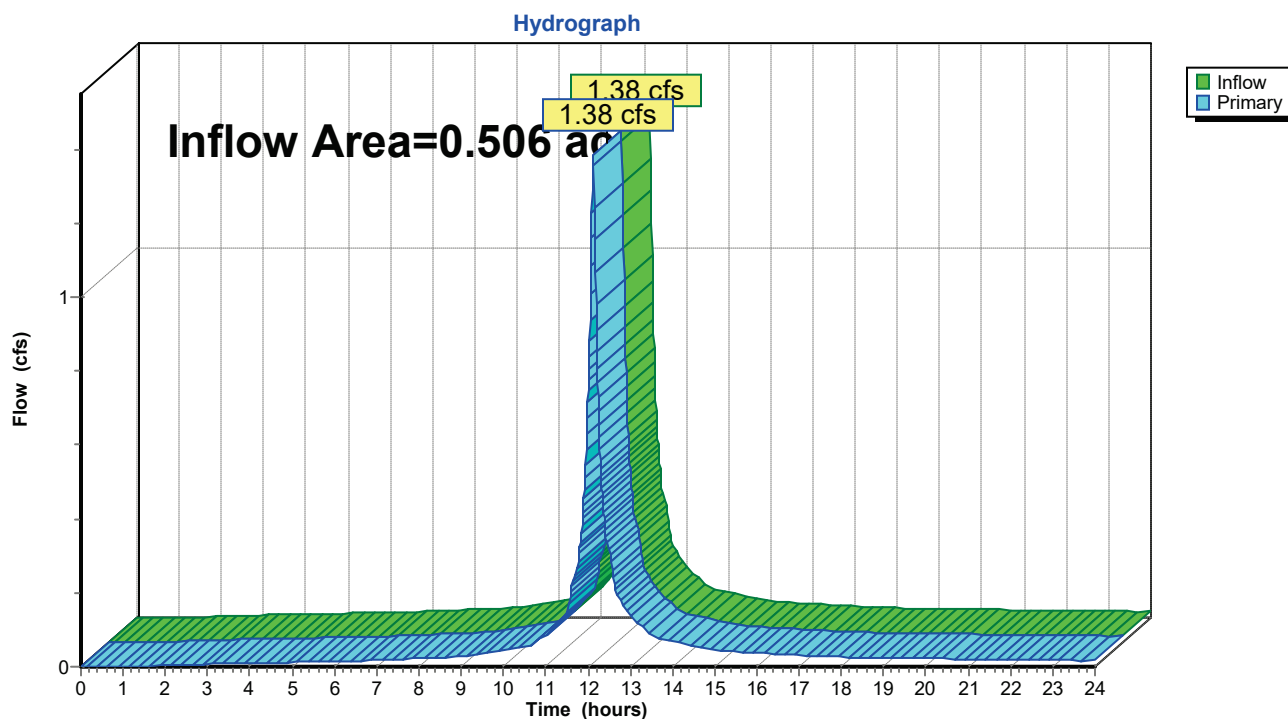
Page 9

Summary for Link 14L: Da #1 Total

Inflow Area = 0.506 ac, 62.45% Impervious, Inflow Depth > 2.47" for 2-YEAR - ADJUSTED event
Inflow = 1.38 cfs @ 12.13 hrs, Volume= 0.104 af
Primary = 1.38 cfs @ 12.13 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 14L: Da #1 Total



Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

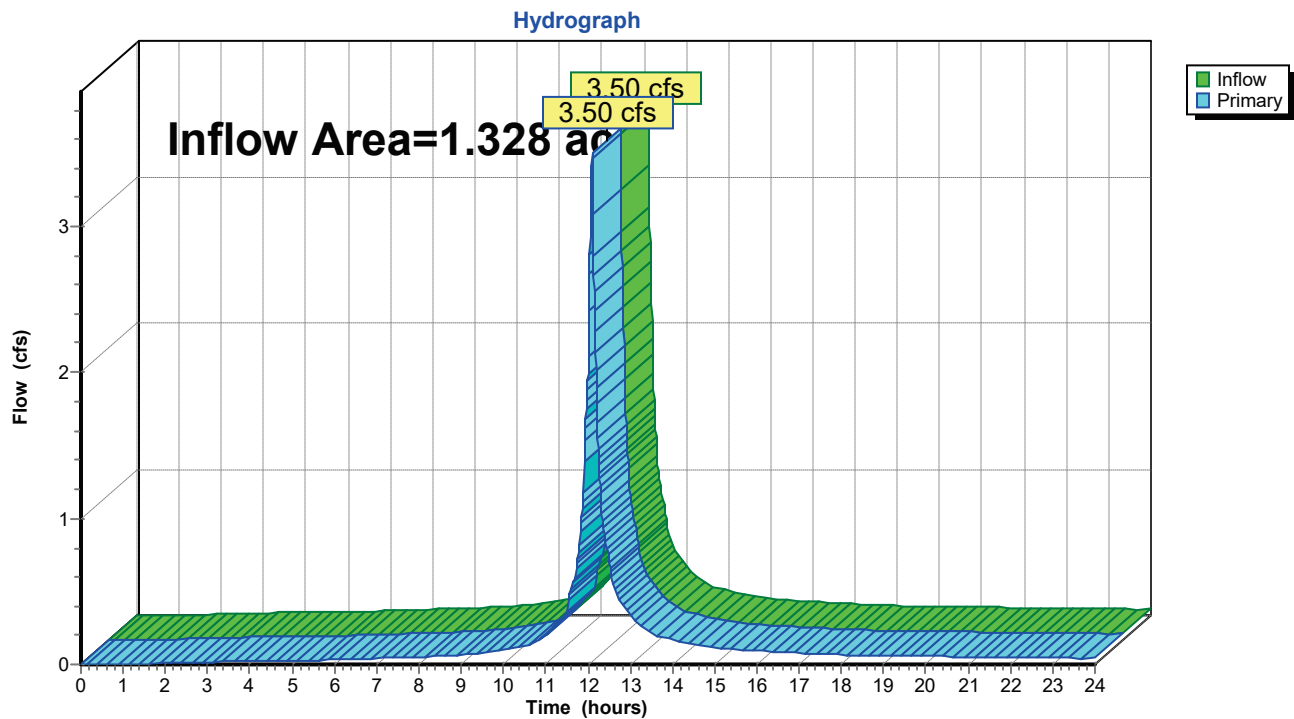
Page 10

Summary for Link 15L: Total Proposed

Inflow Area = 1.328 ac, 53.54% Impervious, Inflow Depth > 2.29" for 2-YEAR - ADJUSTED event
Inflow = 3.50 cfs @ 12.10 hrs, Volume= 0.253 af
Primary = 3.50 cfs @ 12.10 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min

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

Link 15L: Total Proposed



Proposed Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

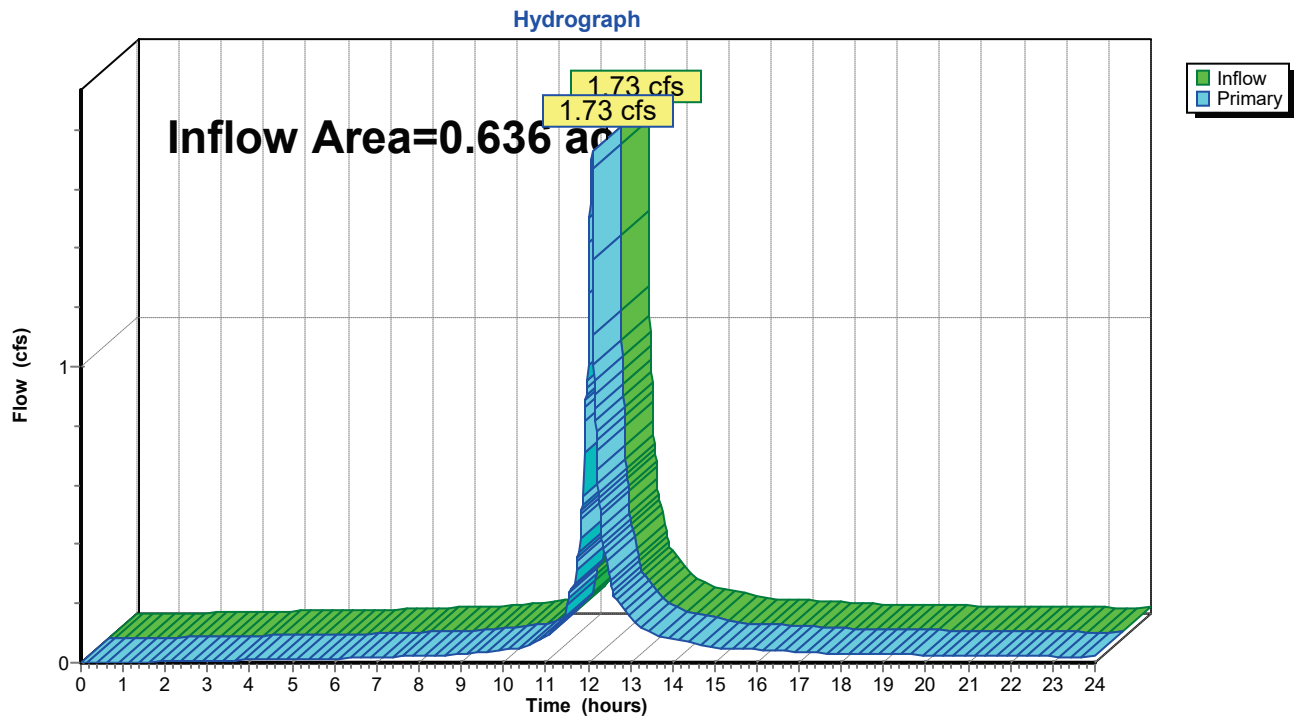
Page 11

Summary for Link 16L: DA #2 Total

Inflow Area = 0.636 ac, 48.74% Impervious, Inflow Depth > 2.19" for 2-YEAR - ADJUSTED event
Inflow = 1.73 cfs @ 12.10 hrs, Volume= 0.116 af
Primary = 1.73 cfs @ 12.10 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 16L: DA #2 Total



Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 12

Summary for Subcatchment 9S: DA #3 Impervious

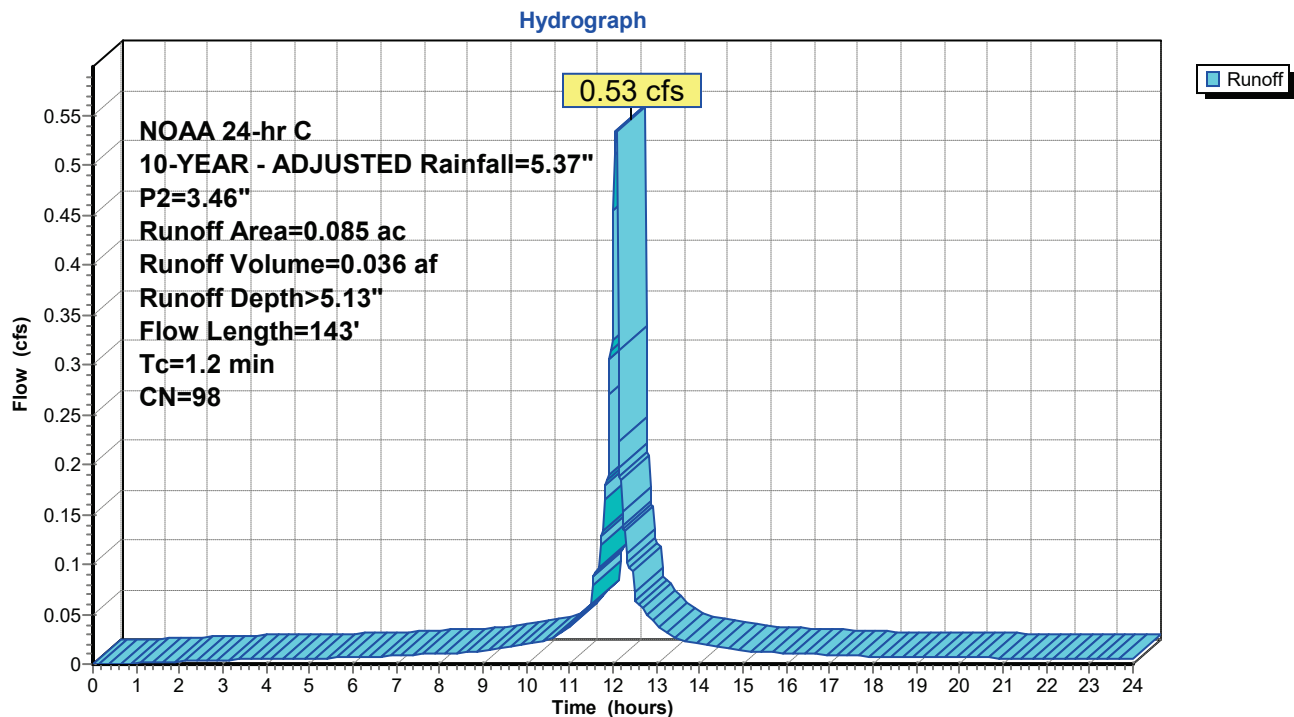
Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 5.13"
Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Area (ac)	CN	Description
0.085	98	Paved parking, HSG C
0.085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	70	0.0500	1.92		Sheet Flow, Parking Segment 1
					Smooth surfaces n= 0.011 P2= 3.46"
0.6	73	0.0100	2.03		Shallow Concentrated Flow, Parking Segment 2
					Paved Kv= 20.3 fps
1.2	143	Total			

Subcatchment 9S: DA #3 Impervious



Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 13

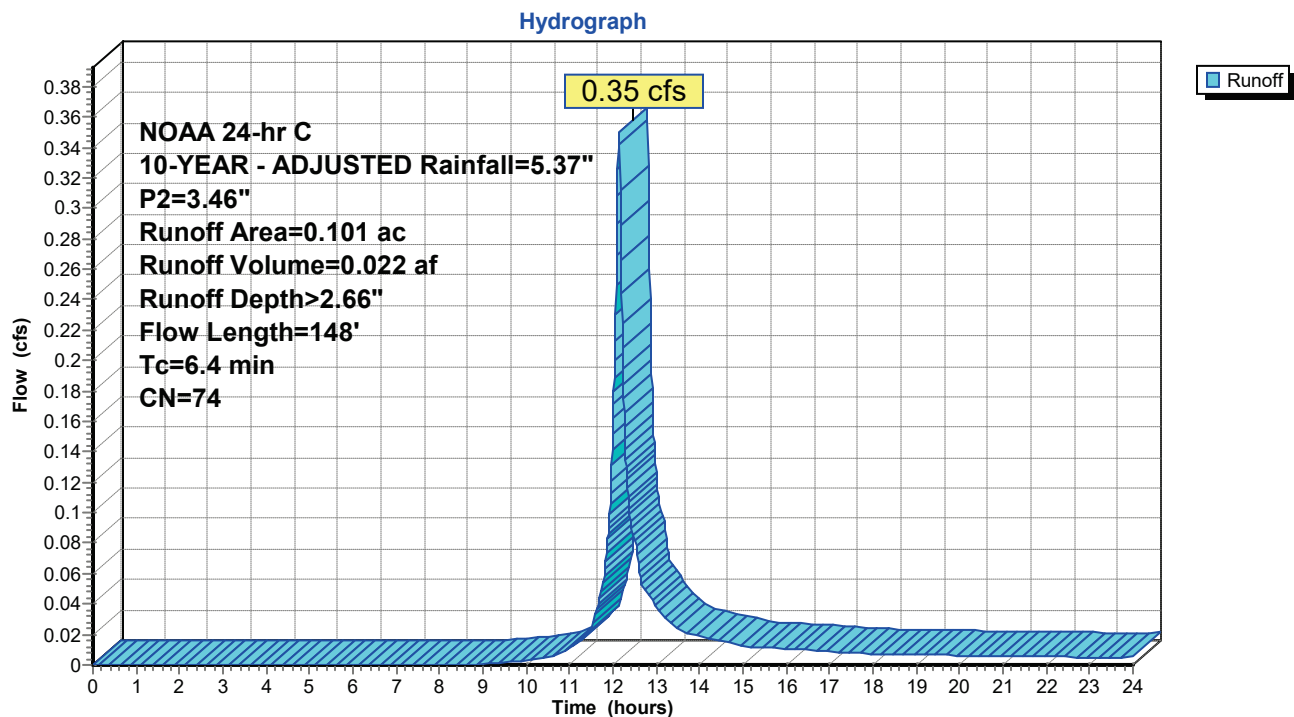
Summary for Subcatchment 10S: DA #3 Pervious

Runoff = 0.35 cfs @ 12.14 hrs, Volume= 0.022 af, Depth> 2.66"
Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Area (ac)	CN	Description
0.101	74	>75% Grass cover, Good, HSG C
0.101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	28	0.0140	0.08		Sheet Flow, Lawn area Grass: Dense n= 0.240 P2= 3.46"
0.2	43	0.0500	4.54		Shallow Concentrated Flow, Parking Lot 1 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Parking Segment 2 Paved Kv= 20.3 fps
0.2	21	0.0100	2.03		Shallow Concentrated Flow, Parking Third Segment Paved Kv= 20.3 fps
6.4	148	Total			

Subcatchment 10S: DA #3 Pervious

Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 14

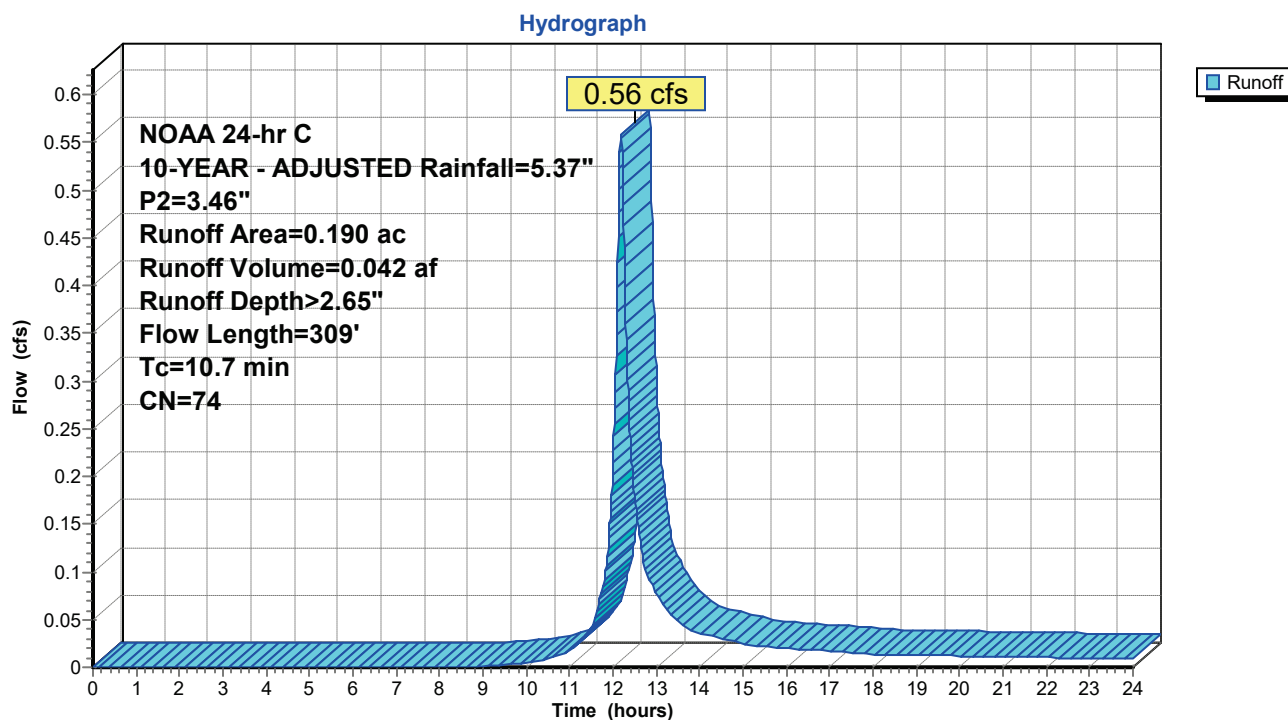
Summary for Subcatchment 12S: DA#1 Pervious

Runoff = 0.56 cfs @ 12.18 hrs, Volume= 0.042 af, Depth> 2.65"
Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Area (ac)	CN	Description
0.190	74	>75% Grass cover, Good, HSG C
0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	64	0.0500	0.16		Sheet Flow, Segment 1 Grass: Dense n= 0.240 P2= 3.46"
3.1	25	0.0500	0.13		Sheet Flow, Segment 2 Grass: Dense n= 0.240 P2= 3.46"
0.3	93	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.2	22	0.0100	2.03		Shallow Concentrated Flow, Segment 4 Paved Kv= 20.3 fps
0.4	105	0.0100	4.91	3.86	Pipe Channel, Pipe 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.7	309	Total			

Subcatchment 12S: DA#1 Pervious

Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 15

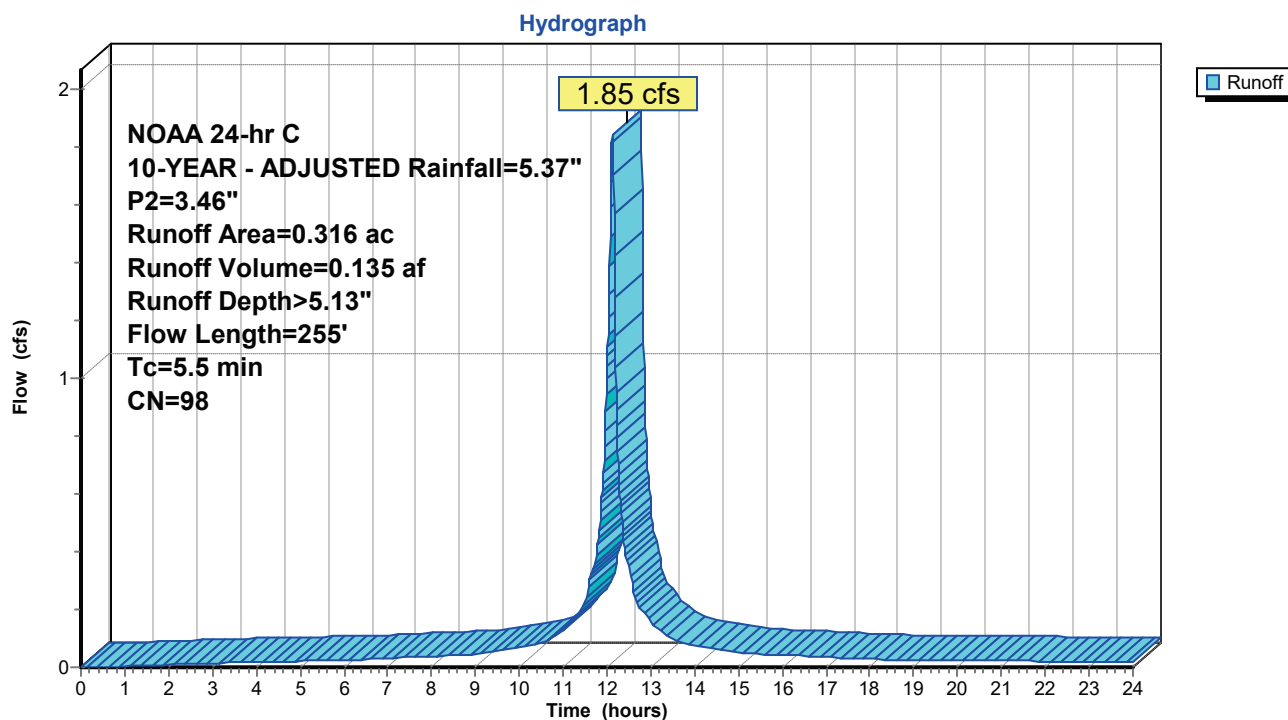
Summary for Subcatchment 13S: DA#1 Impervious

Runoff = 1.85 cfs @ 12.12 hrs, Volume= 0.135 af, Depth> 5.13"
Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Area (ac)	CN	Description
0.316	98	Paved parking, HSG C
0.316		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	28	0.0300	0.11		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 3.46"
0.4	44	0.0500	1.75		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 3.46"
0.2	60	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.5	61	0.0100	2.03		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
0.2	62	0.0100	4.91	3.86	Pipe Channel, Segment 5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.5	255	Total			

Subcatchment 13S: DA#1 Impervious

Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 16

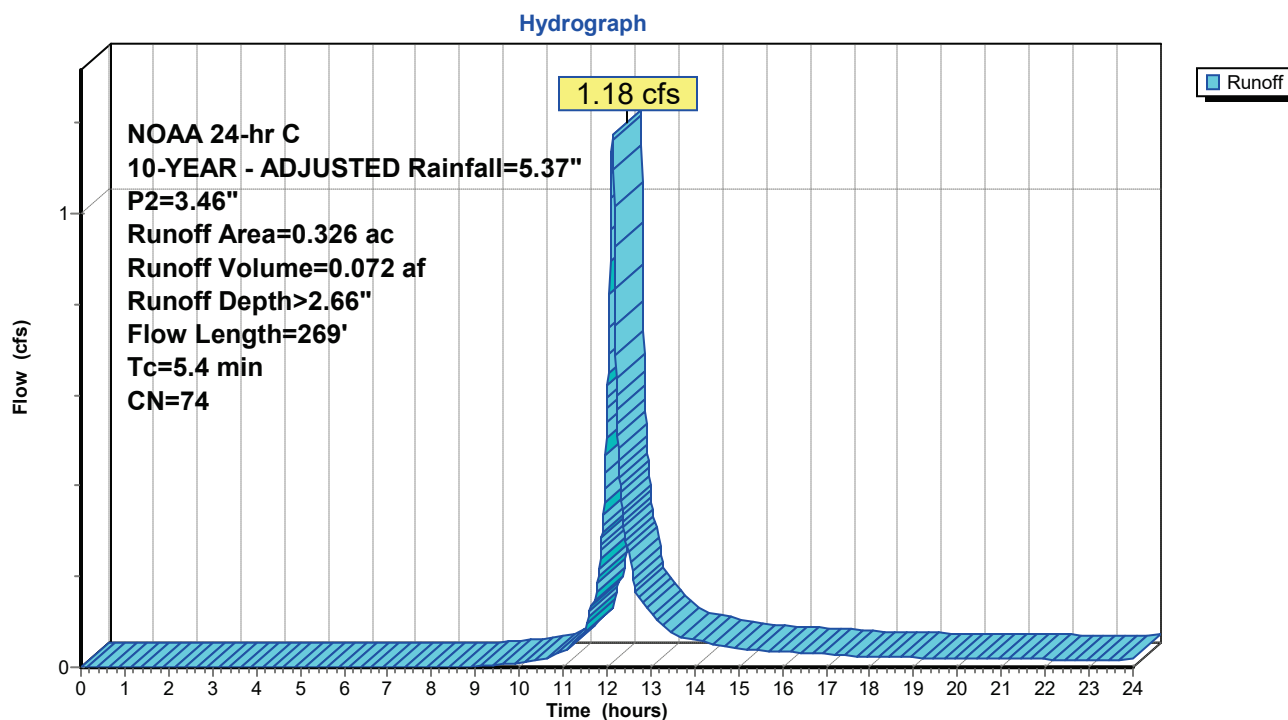
Summary for Subcatchment 17S: DA#2 Pervious

Runoff = 1.18 cfs @ 12.13 hrs, Volume= 0.072 af, Depth> 2.66"
Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Area (ac)	CN	Description
0.326	74	>75% Grass cover, Good, HSG C
0.326		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	30	0.0400	0.13		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 3.46"
0.3	30	0.0500	1.62		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 3.46"
0.5	123	0.0500	4.54		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.5	56	0.0100	2.03		Shallow Concentrated Flow, Segment #5 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #6 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.4	269	Total			

Subcatchment 17S: DA#2 Pervious

Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 17

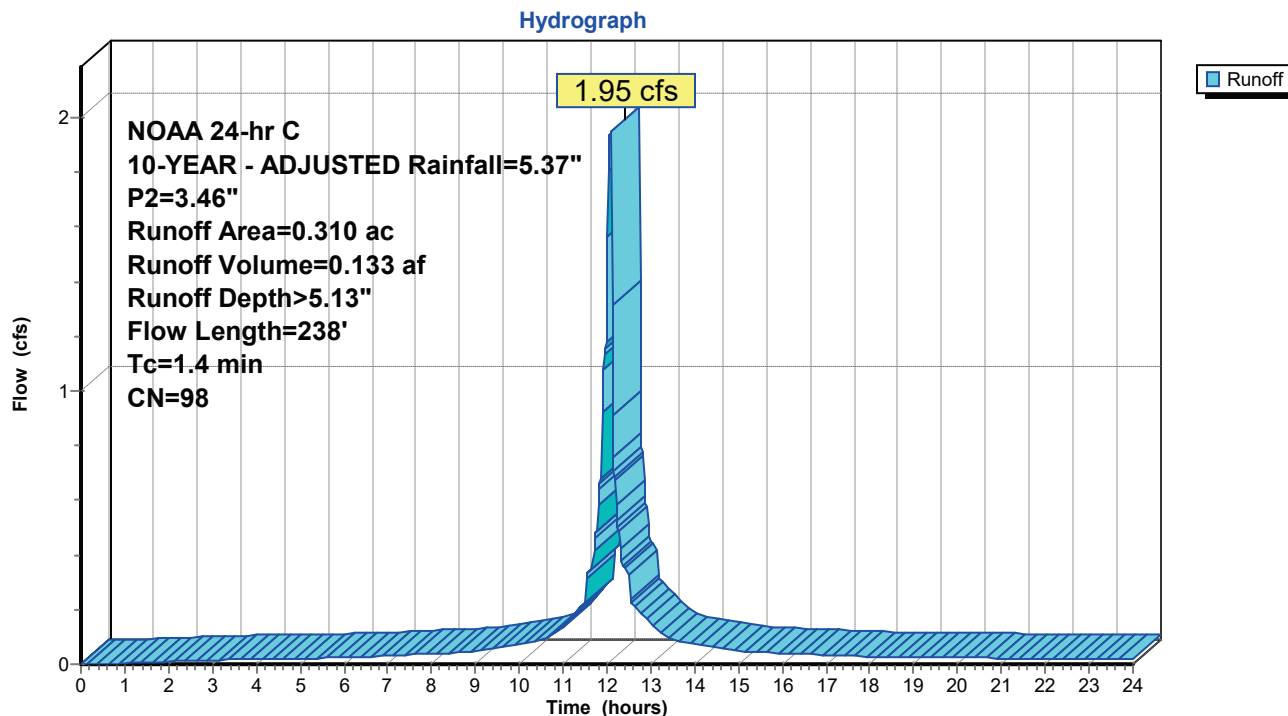
Summary for Subcatchment 18S: DA#2 Impervious

Runoff = 1.95 cfs @ 12.09 hrs, Volume= 0.133 af, Depth> 5.13"
Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG C
0.310		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	80	0.0500	1.97		Sheet Flow, Segment #1 Smooth surfaces n= 0.011 P2= 3.46"
0.3	72	0.0500	4.54		Shallow Concentrated Flow, Segment #2 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #4 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.4	238	Total			

Subcatchment 18S: DA#2 Impervious

Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

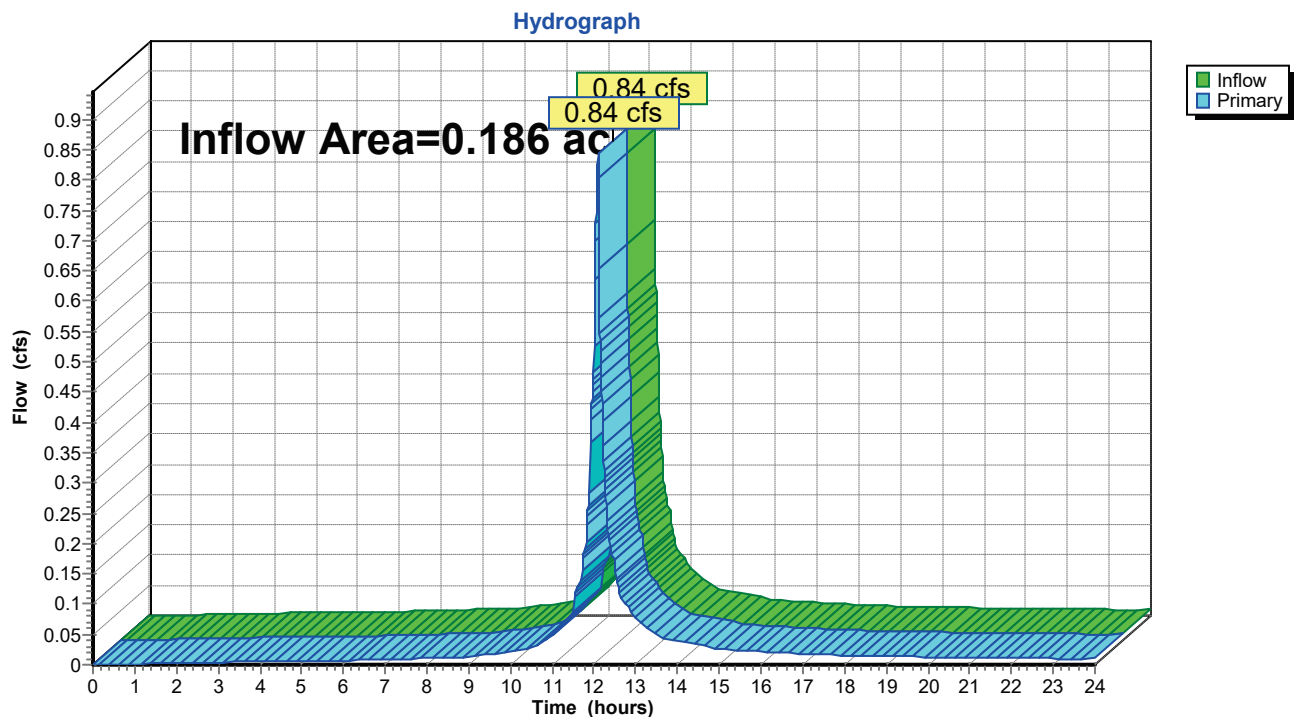
Page 18

Summary for Link 11L: DA #3 Total

Inflow Area = 0.186 ac, 45.70% Impervious, Inflow Depth > 3.79" for 10-YEAR - ADJUSTED event
Inflow = 0.84 cfs @ 12.10 hrs, Volume= 0.059 af
Primary = 0.84 cfs @ 12.10 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 11L: DA #3 Total



Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

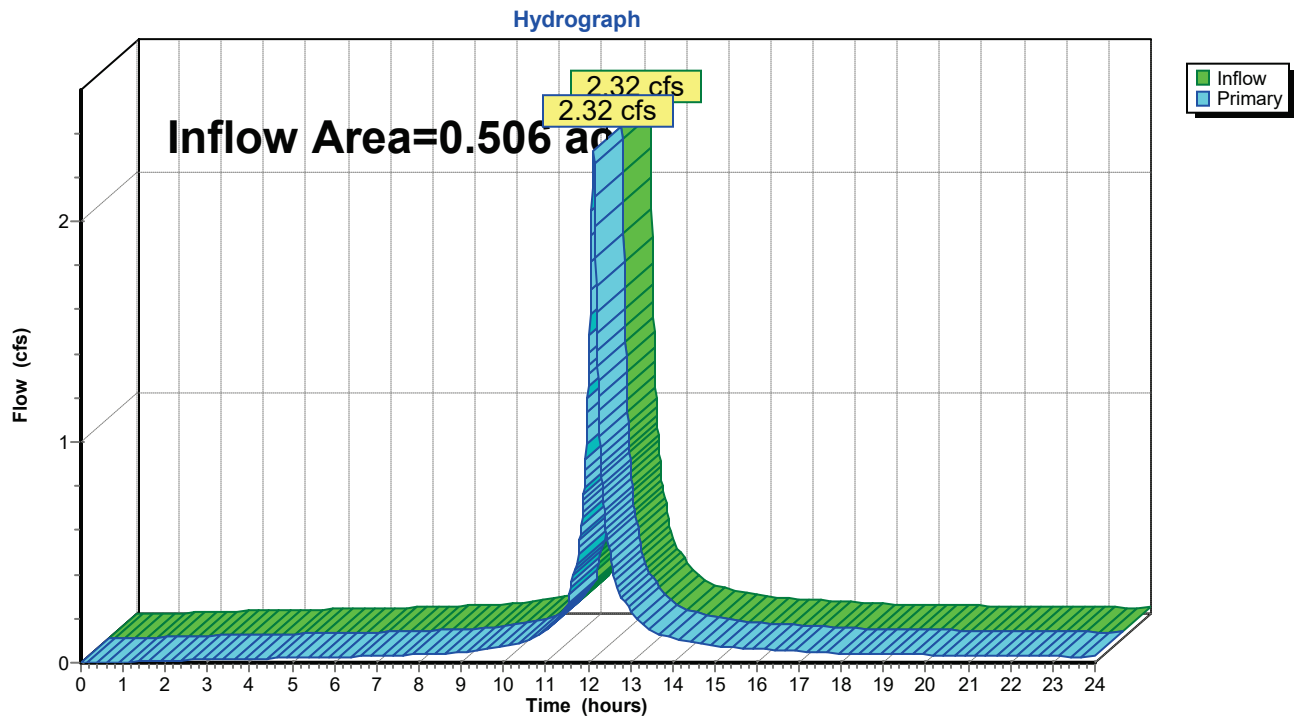
Page 19

Summary for Link 14L: Da #1 Total

Inflow Area = 0.506 ac, 62.45% Impervious, Inflow Depth > 4.20" for 10-YEAR - ADJUSTED event
Inflow = 2.32 cfs @ 12.13 hrs, Volume= 0.177 af
Primary = 2.32 cfs @ 12.13 hrs, Volume= 0.177 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 14L: Da #1 Total



Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

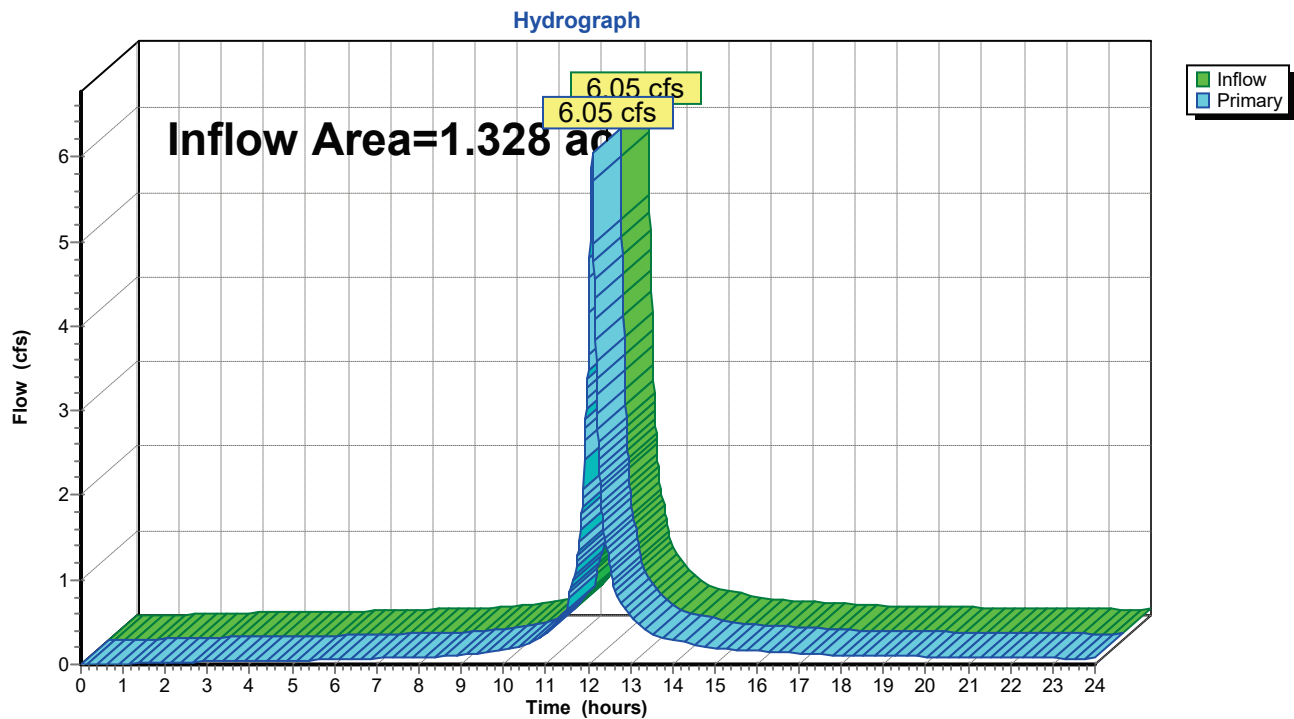
Page 20

Summary for Link 15L: Total Proposed

Inflow Area = 1.328 ac, 53.54% Impervious, Inflow Depth > 3.98" for 10-YEAR - ADJUSTED event
Inflow = 6.05 cfs @ 12.10 hrs, Volume= 0.441 af
Primary = 6.05 cfs @ 12.10 hrs, Volume= 0.441 af, Atten= 0%, Lag= 0.0 min

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

Link 15L: Total Proposed



Proposed Conditions

NOAA 24-hr C 10-YEAR - ADJUSTED Rainfall=5.37", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

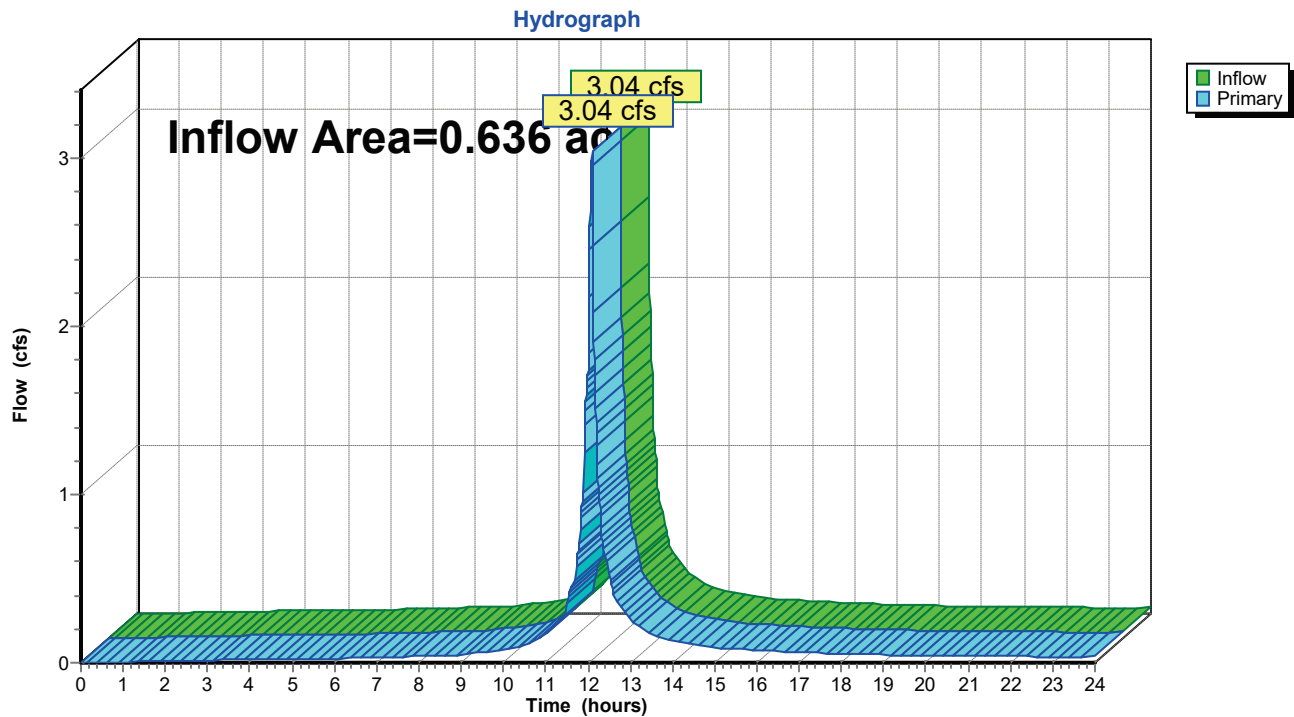
Page 21

Summary for Link 16L: DA #2 Total

Inflow Area = 0.636 ac, 48.74% Impervious, Inflow Depth > 3.86" for 10-YEAR - ADJUSTED event
Inflow = 3.04 cfs @ 12.10 hrs, Volume= 0.205 af
Primary = 3.04 cfs @ 12.10 hrs, Volume= 0.205 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 16L: DA #2 Total



Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 22

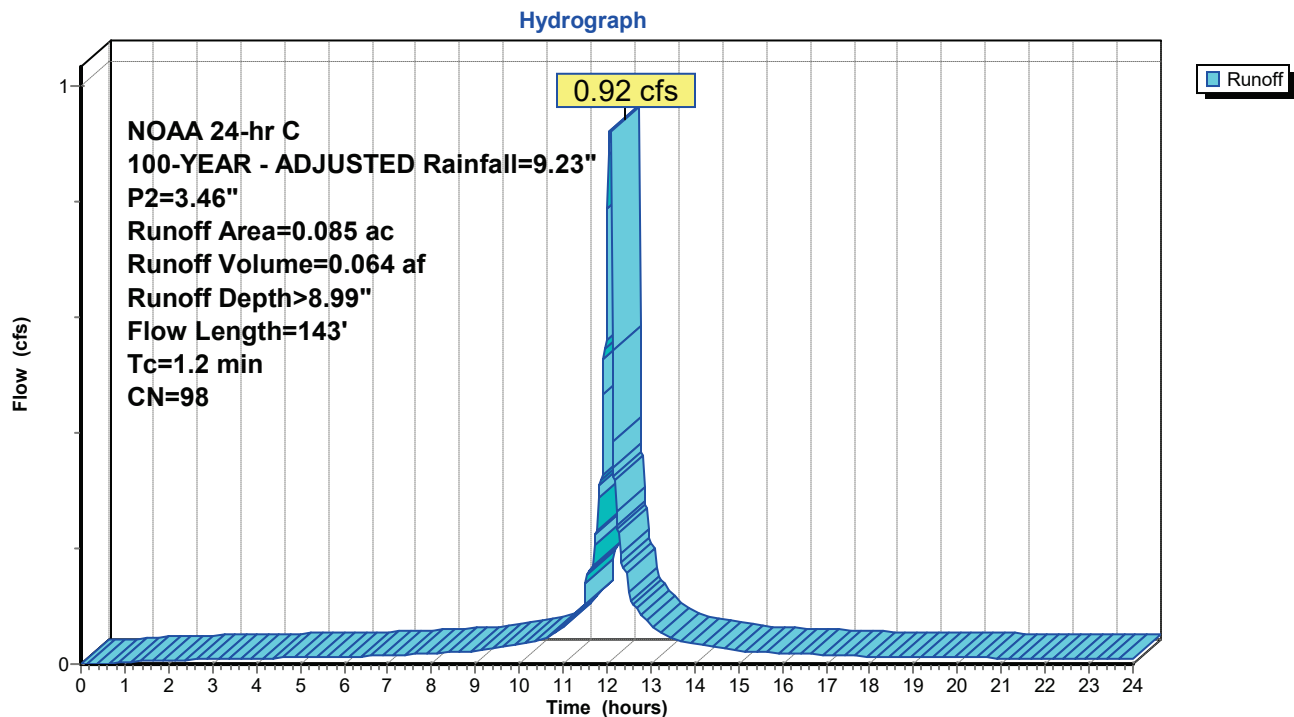
Summary for Subcatchment 9S: DA #3 Impervious

Runoff = 0.92 cfs @ 12.09 hrs, Volume= 0.064 af, Depth> 8.99"
Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Area (ac)	CN	Description
0.085	98	Paved parking, HSG C
0.085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	70	0.0500	1.92		Sheet Flow, Parking Segment 1 Smooth surfaces n= 0.011 P2= 3.46"
0.6	73	0.0100	2.03		Shallow Concentrated Flow, Parking Segment 2 Paved Kv= 20.3 fps
1.2	143	Total			

Subcatchment 9S: DA #3 Impervious

Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 23

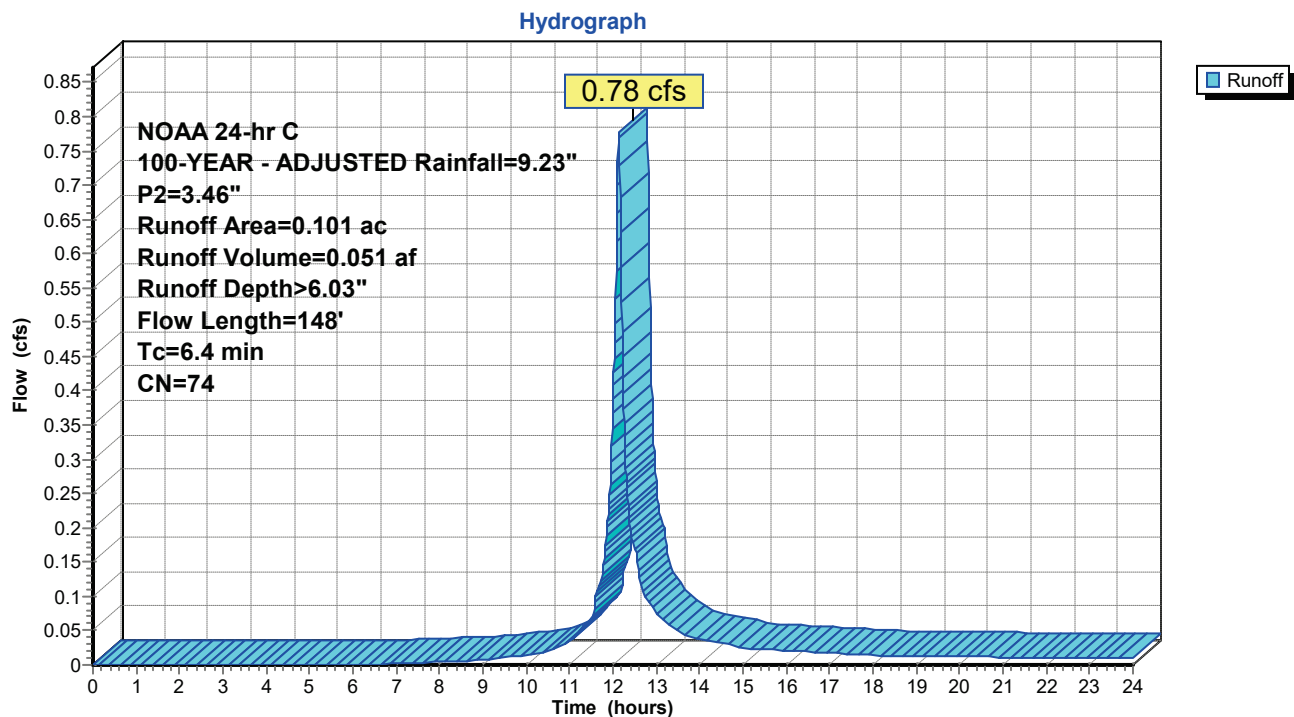
Summary for Subcatchment 10S: DA #3 Pervious

Runoff = 0.78 cfs @ 12.14 hrs, Volume= 0.051 af, Depth> 6.03"
Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Area (ac)	CN	Description
0.101	74	>75% Grass cover, Good, HSG C
0.101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	28	0.0140	0.08		Sheet Flow, Lawn area Grass: Dense n= 0.240 P2= 3.46"
0.2	43	0.0500	4.54		Shallow Concentrated Flow, Parking Lot 1 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Parking Segment 2 Paved Kv= 20.3 fps
0.2	21	0.0100	2.03		Shallow Concentrated Flow, Parking Third Segment Paved Kv= 20.3 fps
6.4	148	Total			

Subcatchment 10S: DA #3 Pervious

Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 24

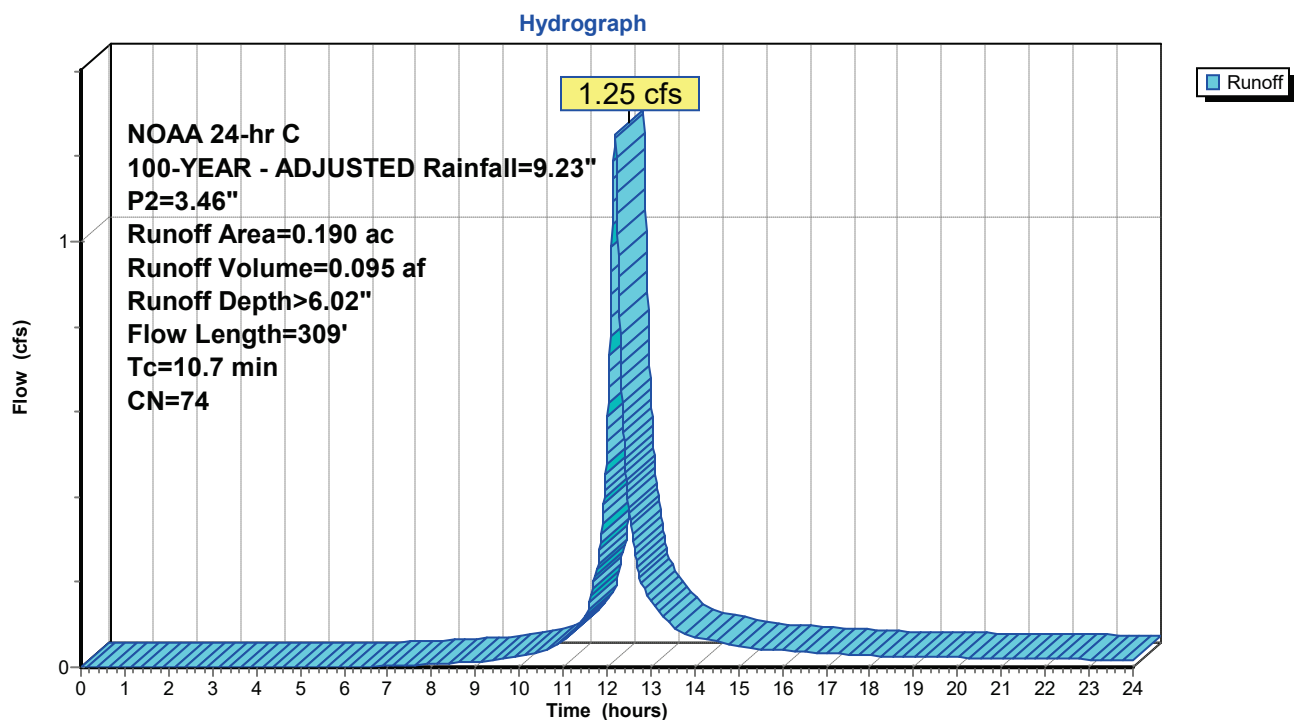
Summary for Subcatchment 12S: DA#1 Pervious

Runoff = 1.25 cfs @ 12.18 hrs, Volume= 0.095 af, Depth> 6.02"
Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Area (ac)	CN	Description
0.190	74	>75% Grass cover, Good, HSG C
0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	64	0.0500	0.16		Sheet Flow, Segment 1 Grass: Dense n= 0.240 P2= 3.46"
3.1	25	0.0500	0.13		Sheet Flow, Segment 2 Grass: Dense n= 0.240 P2= 3.46"
0.3	93	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.2	22	0.0100	2.03		Shallow Concentrated Flow, Segment 4 Paved Kv= 20.3 fps
0.4	105	0.0100	4.91	3.86	Pipe Channel, Pipe 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.7	309	Total			

Subcatchment 12S: DA#1 Pervious

Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 25

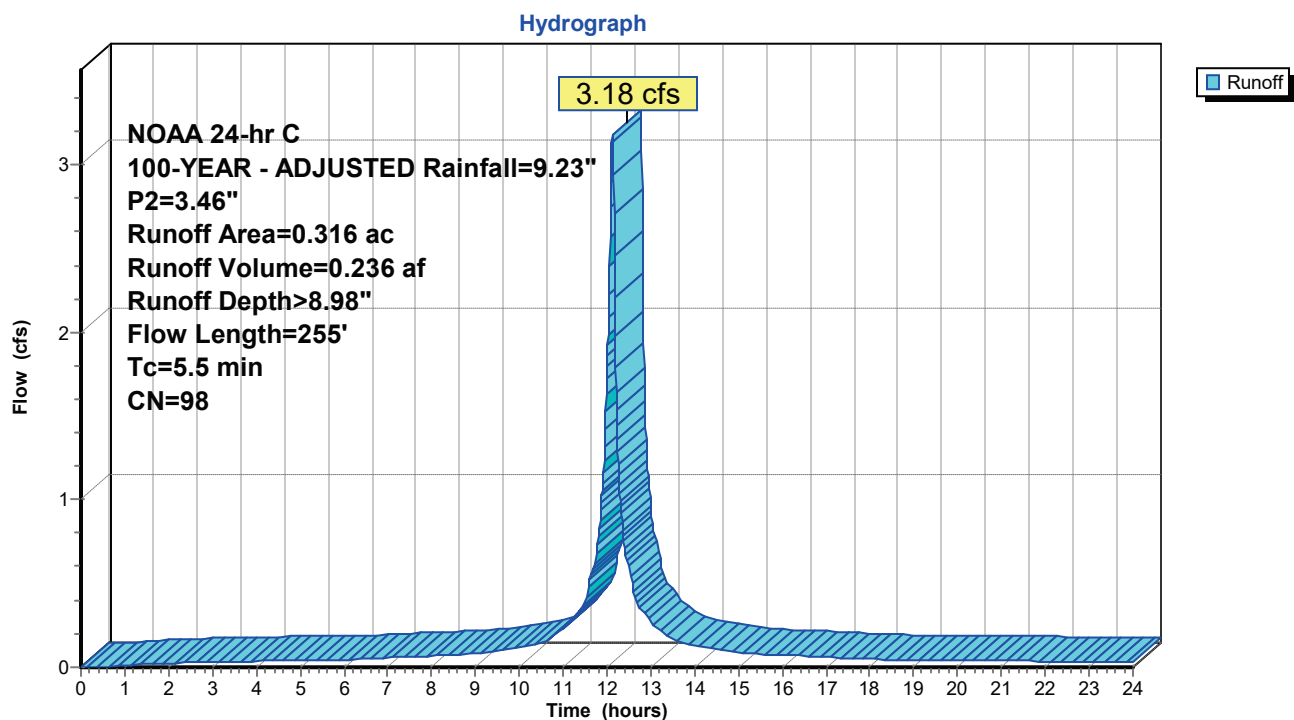
Summary for Subcatchment 13S: DA#1 Impervious

Runoff = 3.18 cfs @ 12.12 hrs, Volume= 0.236 af, Depth> 8.98"
Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Area (ac)	CN	Description
0.316	98	Paved parking, HSG C
0.316		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	28	0.0300	0.11		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 3.46"
0.4	44	0.0500	1.75		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 3.46"
0.2	60	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.5	61	0.0100	2.03		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
0.2	62	0.0100	4.91	3.86	Pipe Channel, Segment 5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.5	255	Total			

Subcatchment 13S: DA#1 Impervious

Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 26

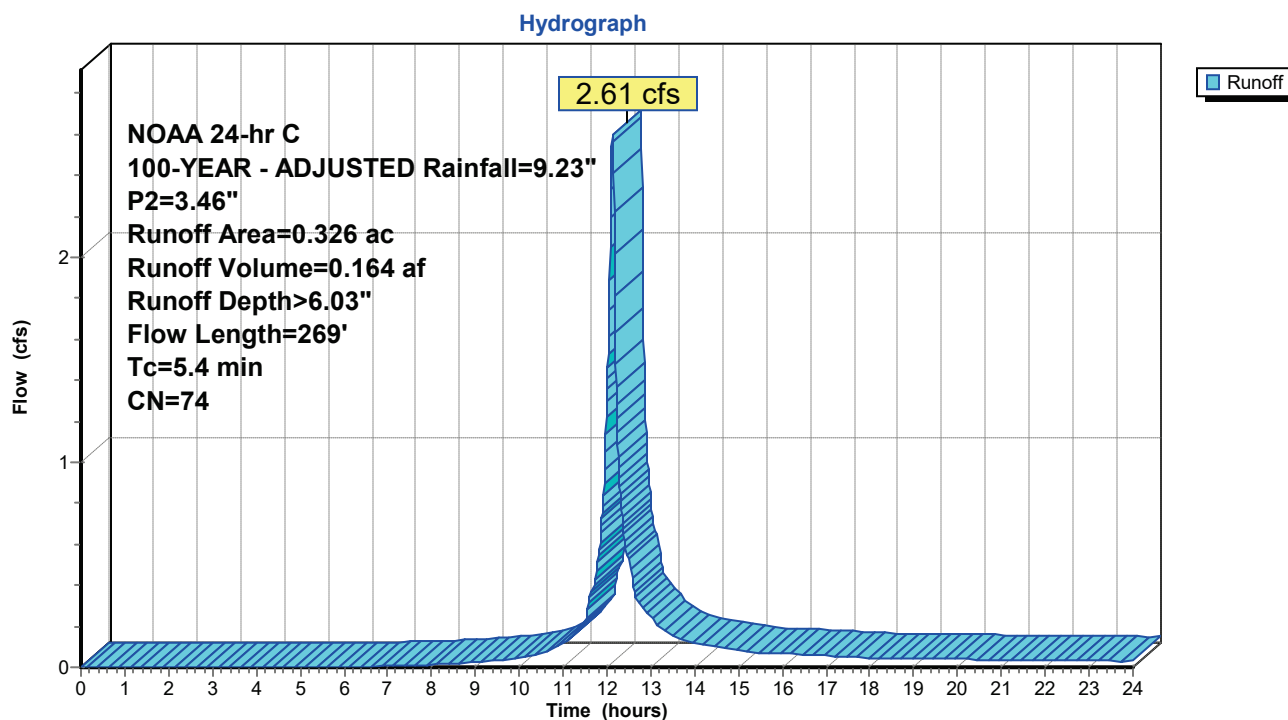
Summary for Subcatchment 17S: DA#2 Pervious

Runoff = 2.61 cfs @ 12.13 hrs, Volume= 0.164 af, Depth> 6.03"
Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Area (ac)	CN	Description
0.326	74	>75% Grass cover, Good, HSG C
0.326		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	30	0.0400	0.13		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 3.46"
0.3	30	0.0500	1.62		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 3.46"
0.5	123	0.0500	4.54		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.5	56	0.0100	2.03		Shallow Concentrated Flow, Segment #5 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #6 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.4	269	Total			

Subcatchment 17S: DA#2 Pervious

Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 27

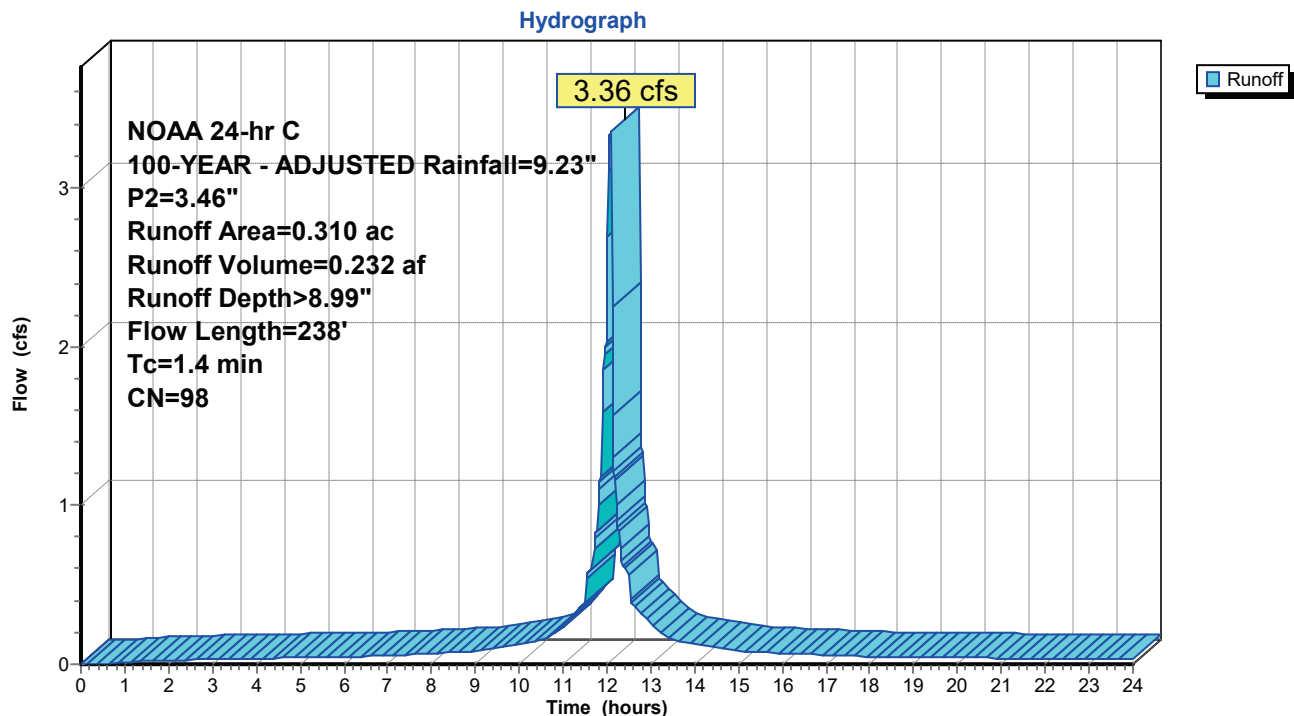
Summary for Subcatchment 18S: DA#2 Impervious

Runoff = 3.36 cfs @ 12.09 hrs, Volume= 0.232 af, Depth> 8.99"
Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG C
0.310		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	80	0.0500	1.97		Sheet Flow, Segment #1 Smooth surfaces n= 0.011 P2= 3.46"
0.3	72	0.0500	4.54		Shallow Concentrated Flow, Segment #2 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #4 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.4	238	Total			

Subcatchment 18S: DA#2 Impervious

Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

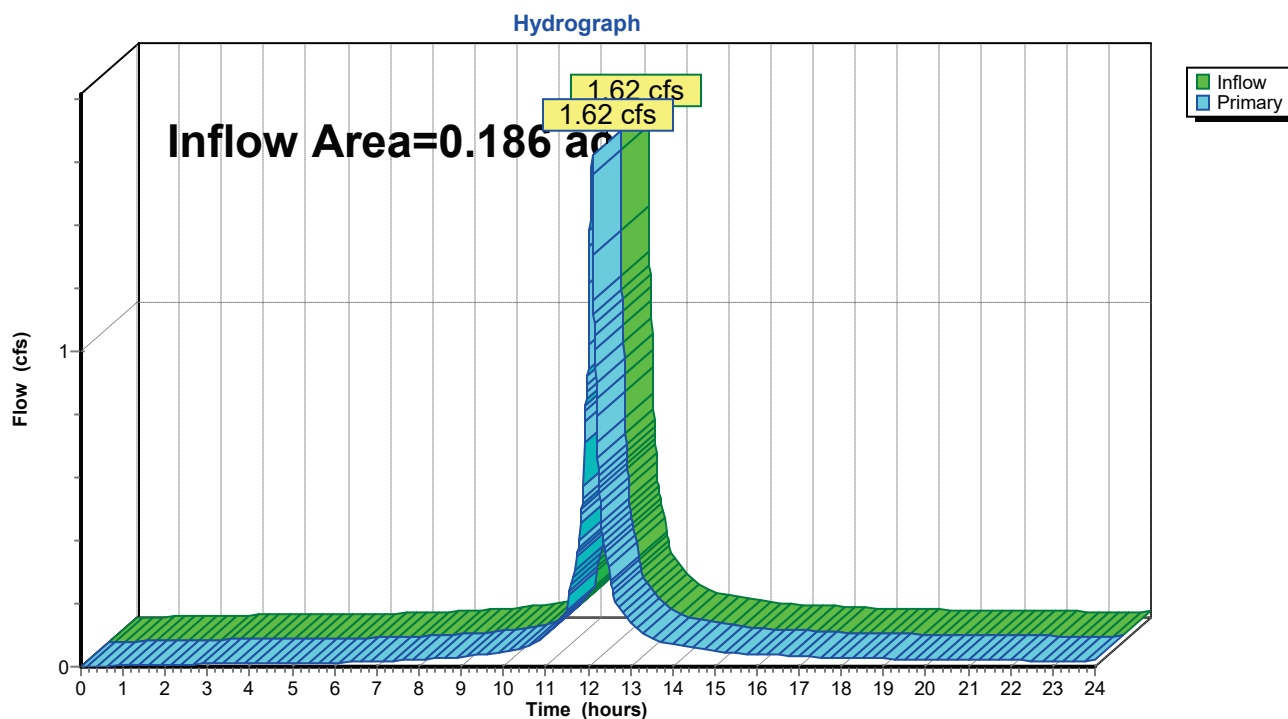
Page 28

Summary for Link 11L: DA #3 Total

Inflow Area = 0.186 ac, 45.70% Impervious, Inflow Depth > 7.38" for 100-YEAR - ADJUSTED event
Inflow = 1.62 cfs @ 12.10 hrs, Volume= 0.114 af
Primary = 1.62 cfs @ 12.10 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 11L: DA #3 Total



Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

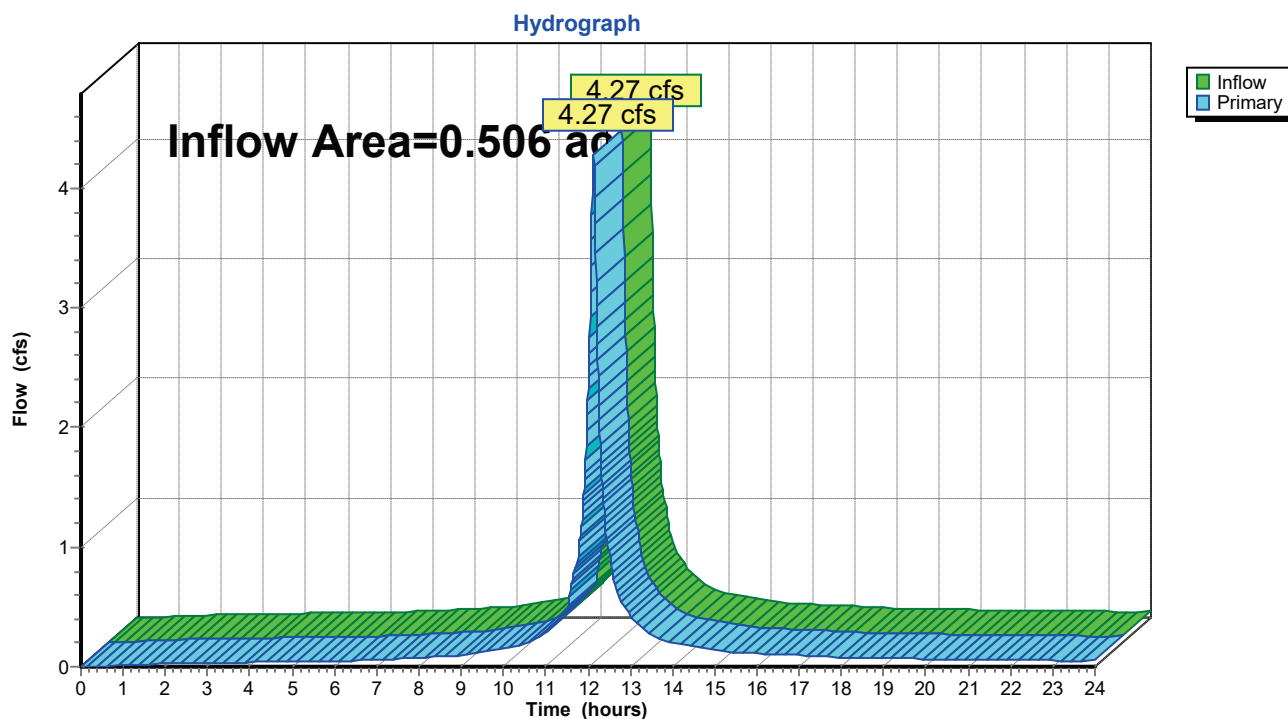
Page 29

Summary for Link 14L: Da #1 Total

Inflow Area = 0.506 ac, 62.45% Impervious, Inflow Depth > 7.87" for 100-YEAR - ADJUSTED event
Inflow = 4.27 cfs @ 12.13 hrs, Volume= 0.332 af
Primary = 4.27 cfs @ 12.13 hrs, Volume= 0.332 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 14L: Da #1 Total



Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

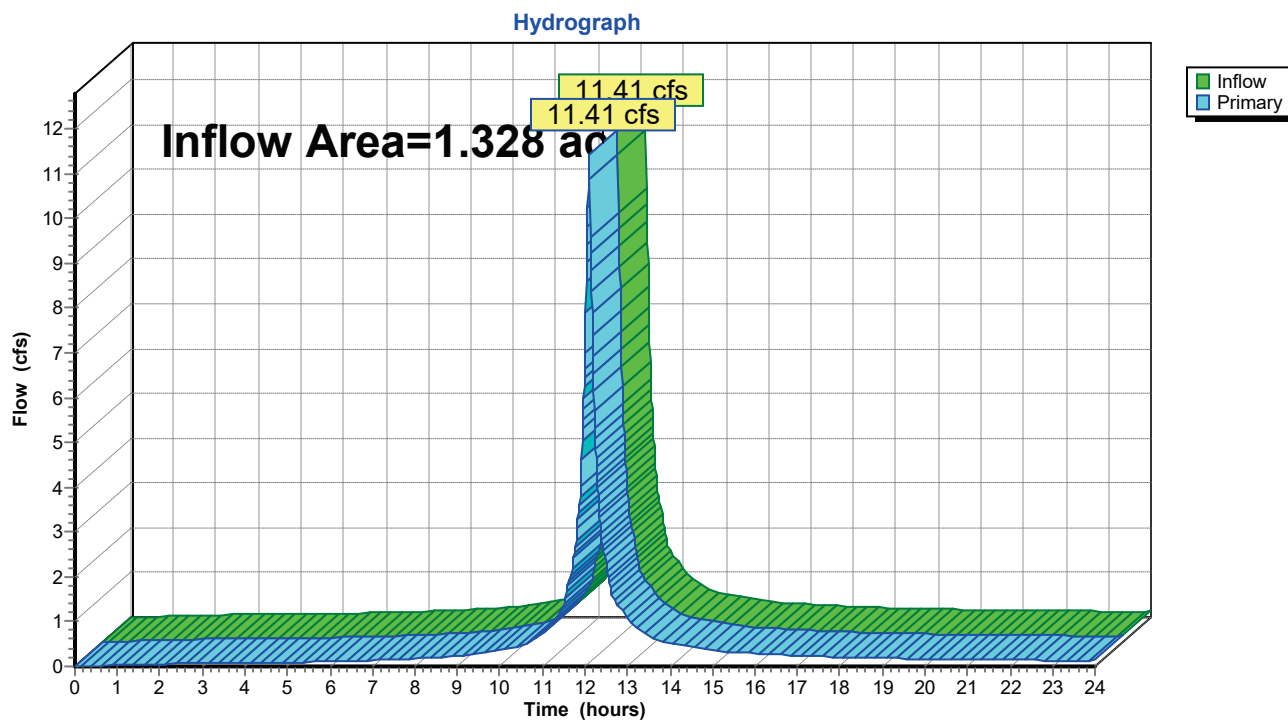
Page 30

Summary for Link 15L: Total Proposed

Inflow Area = 1.328 ac, 53.54% Impervious, Inflow Depth > 7.61" for 100-YEAR - ADJUSTED event
Inflow = 11.41 cfs @ 12.10 hrs, Volume= 0.842 af
Primary = 11.41 cfs @ 12.10 hrs, Volume= 0.842 af, Atten= 0%, Lag= 0.0 min

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

Link 15L: Total Proposed



Proposed Conditions

NOAA 24-hr C 100-YEAR - ADJUSTED Rainfall=9.23", P2=3.46"

Prepared by Bright View Engineering

Printed 1/21/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

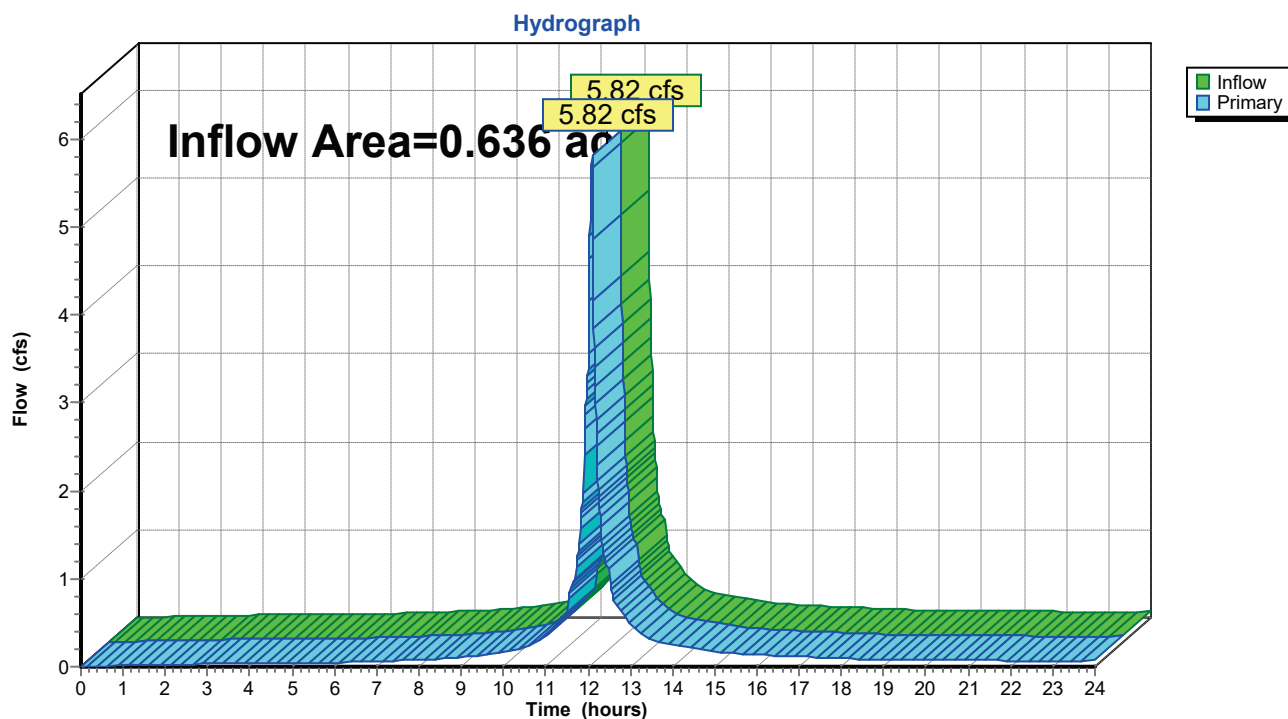
Page 31

Summary for Link 16L: DA #2 Total

Inflow Area = 0.636 ac, 48.74% Impervious, Inflow Depth > 7.47" for 100-YEAR - ADJUSTED event
Inflow = 5.82 cfs @ 12.10 hrs, Volume= 0.396 af
Primary = 5.82 cfs @ 12.10 hrs, Volume= 0.396 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

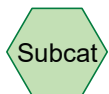
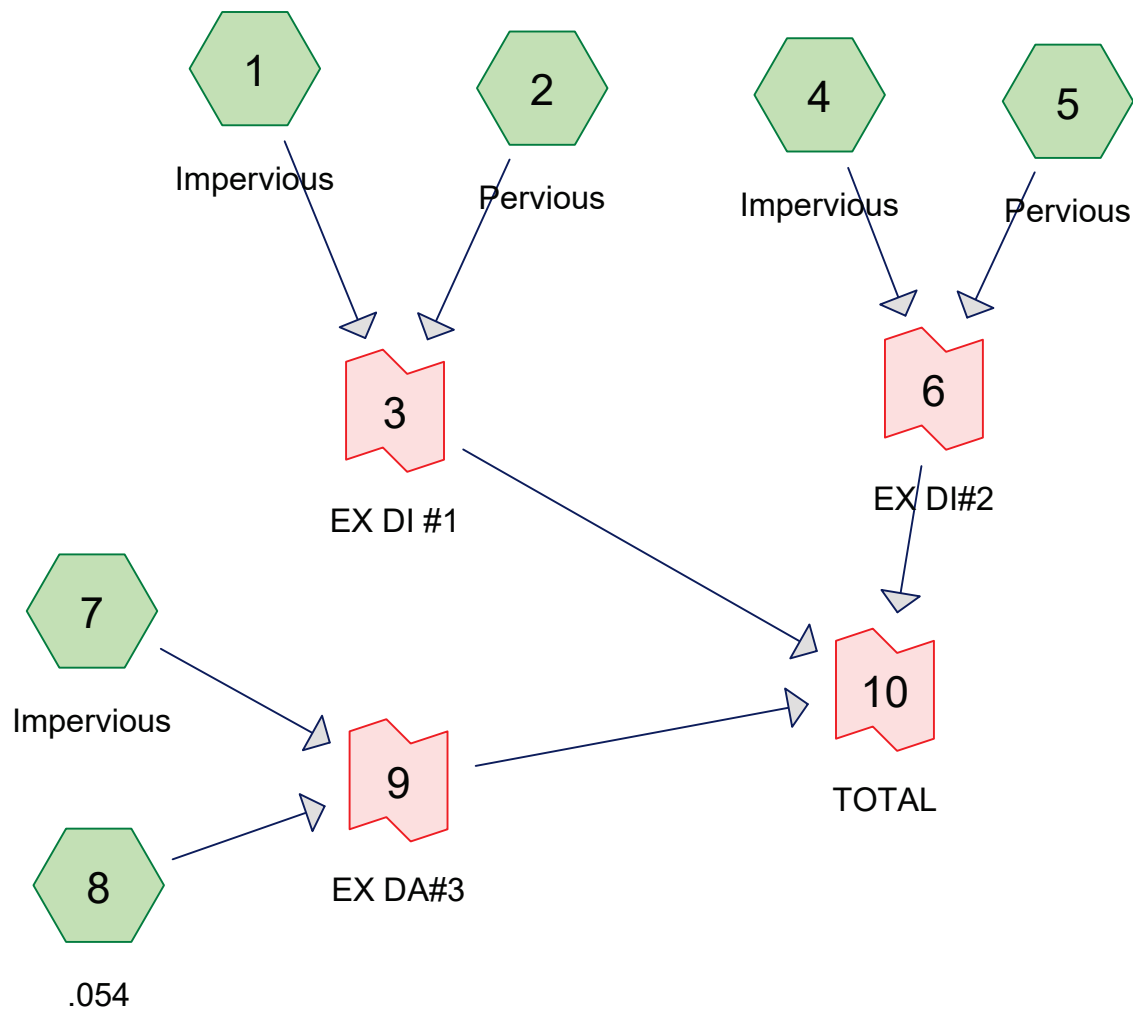
Link 16L: DA #2 Total



APPENDIX C

Pre-Development Hydrographs

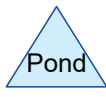
Future Adjusted Precipitation Depths



Subcat



Reach



Pond



Link

Routing Diagram for Existing Conditions

Prepared by Bright View Engineering, Printed 1/19/2026
HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Existing Conditions

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC	(inches)
1	2-YEAR - ADJUSTED	NOAA 24-hr	C	Default	24.00	1	3.46		3.46
2	2-YEAR - FUTURE ADJUSTED	NOAA 24-hr	C	Default	24.00	1	4.08		4.08
3	10-YEAR - FUTURE ADJUSTED	NOAA 24-hr	C	Default	24.00	1	6.36		6.36
4	100-YEAR - FUTURE ADJUSTED	NOAA 24-hr	C	Default	24.00	1	11.58		11.58

Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 3

Summary for Subcatchment 1: Impervious

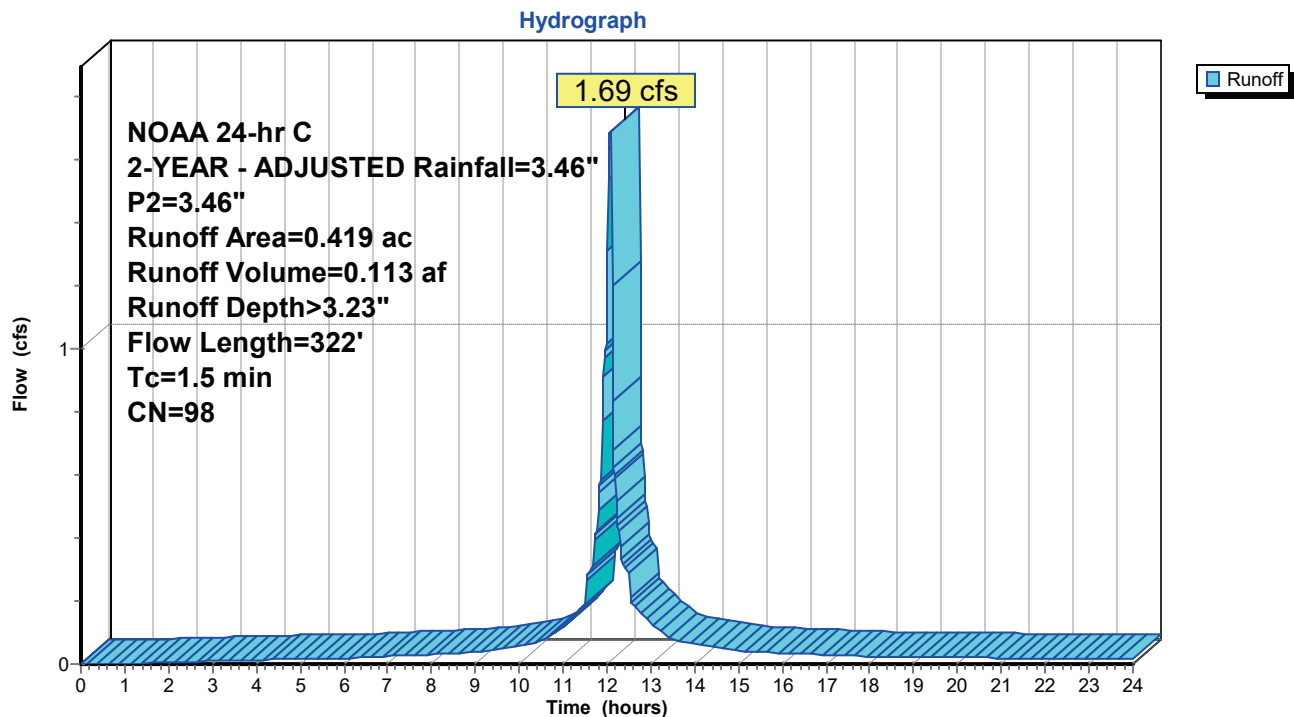
Runoff = 1.69 cfs @ 12.10 hrs, Volume= 0.113 af, Depth> 3.23"
Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.419	98	Paved parking, HSG C
0.419		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	14	0.0400	1.27		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.46"
1.3	308	0.0390	4.01		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.5	322	Total			

Subcatchment 1: Impervious



Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 4

Summary for Subcatchment 2: Pervious

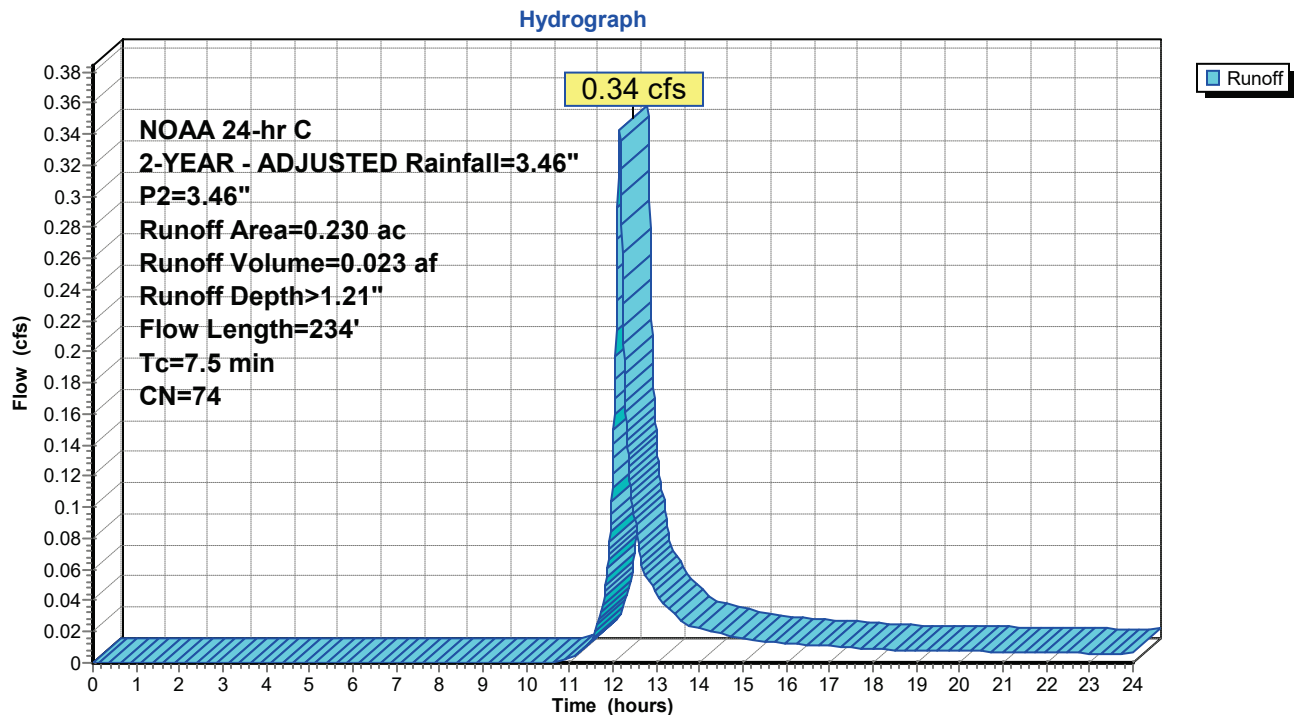
Runoff = 0.34 cfs @ 12.15 hrs, Volume= 0.023 af, Depth> 1.21"
Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.230	74	>75% Grass cover, Good, HSG C
0.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	70	0.0600	0.18		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.46"
0.3	30	0.0390	1.47		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 3.46"
0.6	134	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
7.5	234	Total			

Subcatchment 2: Pervious



Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 5

Summary for Subcatchment 4: Impervious

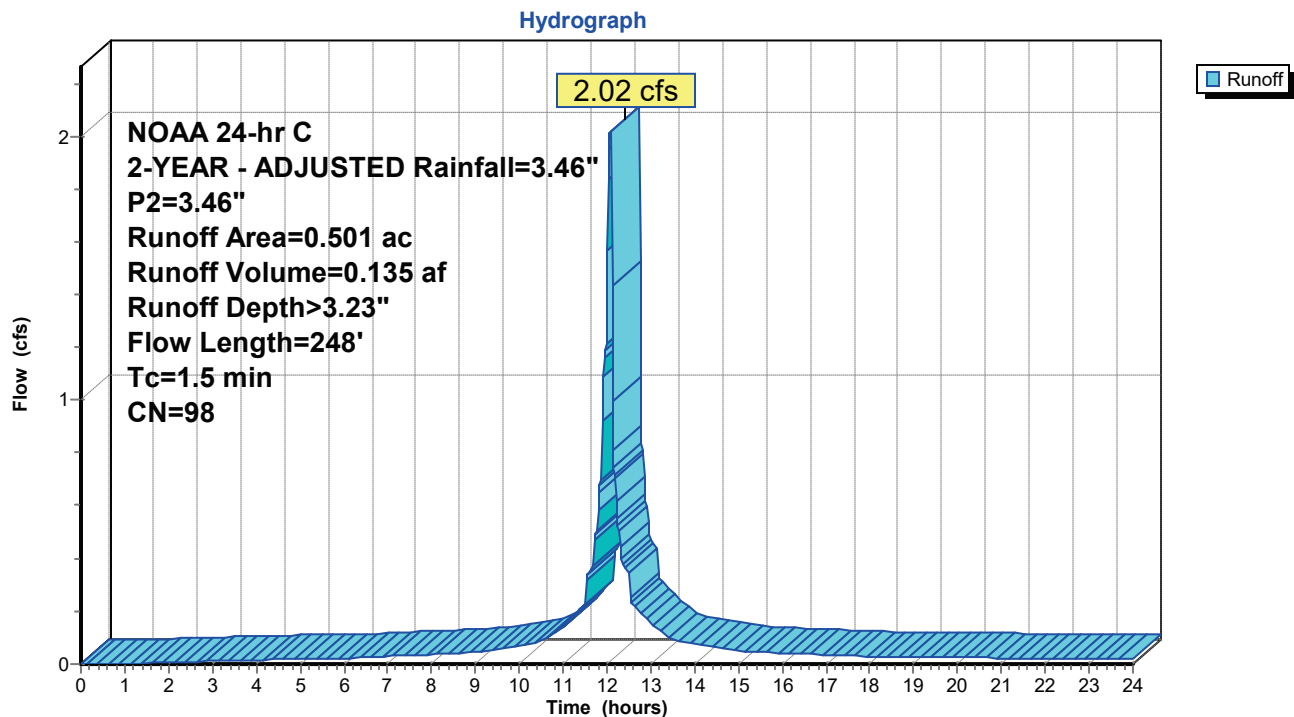
Runoff = 2.02 cfs @ 12.10 hrs, Volume= 0.135 af, Depth> 3.23"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.501	98	Paved parking, HSG C
0.501		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0440	1.96		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.46"
0.6	148	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
1.5	248	Total			

Subcatchment 4: Impervious



Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 6

Summary for Subcatchment 5: Pervious

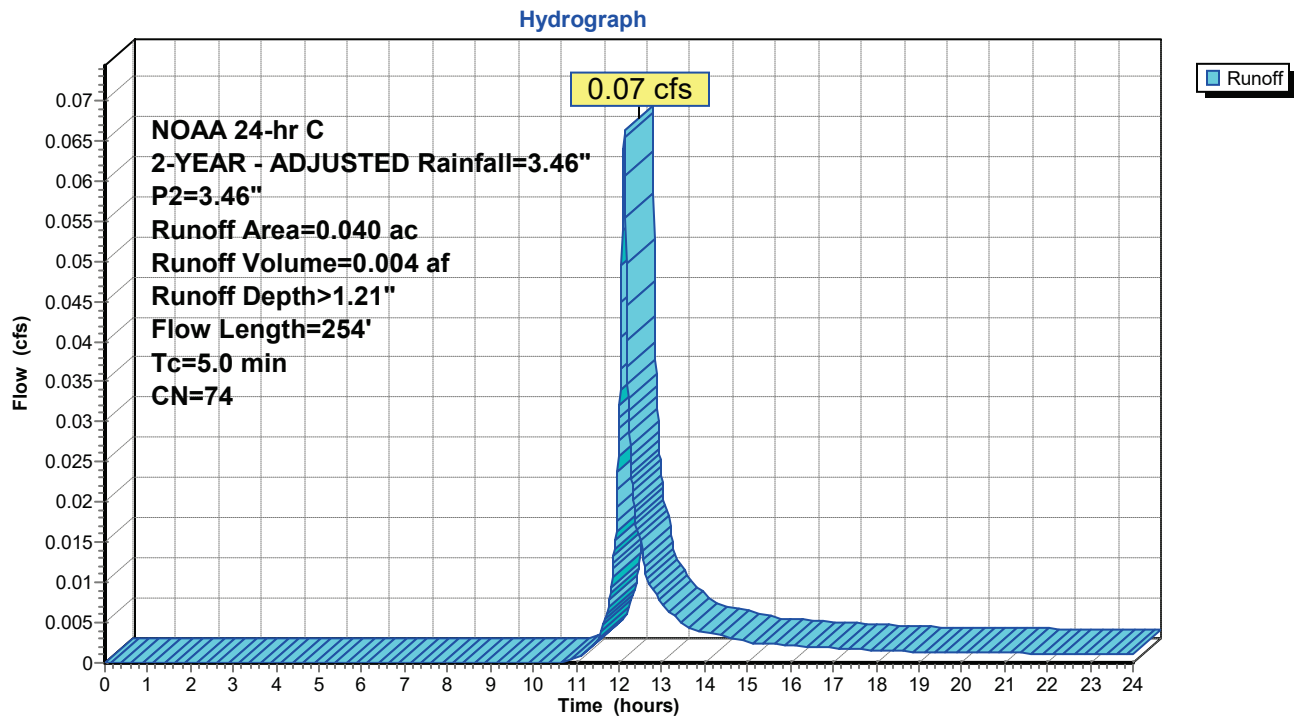
Runoff = 0.07 cfs @ 12.13 hrs, Volume= 0.004 af, Depth> 1.21"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.040	74	>75% Grass cover, Good, HSG C
0.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	28	0.0400	0.12		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.46"
0.6	72	0.0460	1.87		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 3.46"
0.6	154	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
5.0	254	Total			

Subcatchment 5: Pervious



Existing Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Printed 1/19/2026

Page 7

Summary for Subcatchment 7: Impervious

[49] Hint: $T_c < 2dt$ may require smaller dt

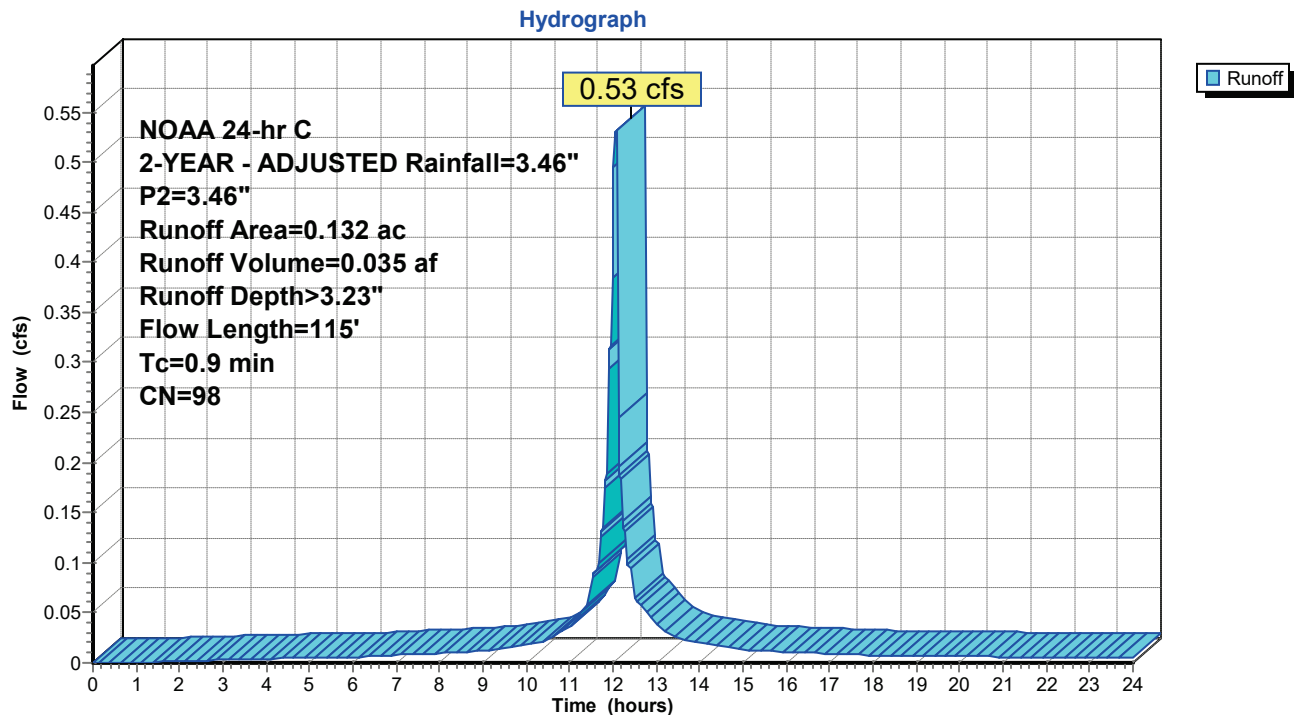
Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 3.23"
Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.01$ hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.132		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	85	0.0350	1.73		Sheet Flow, B-C Smooth surfaces $n=0.011$ P2= 3.46"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved $K_v=20.3$ fps
0.9	115	Total			

Subcatchment 7: Impervious



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Page 8

Summary for Subcatchment 8: .054

Runoff = 0.09 cfs @ 12.11 hrs, Volume= 0.005 af, Depth> 1.21"
Routed to Link 9 : EX DA#3

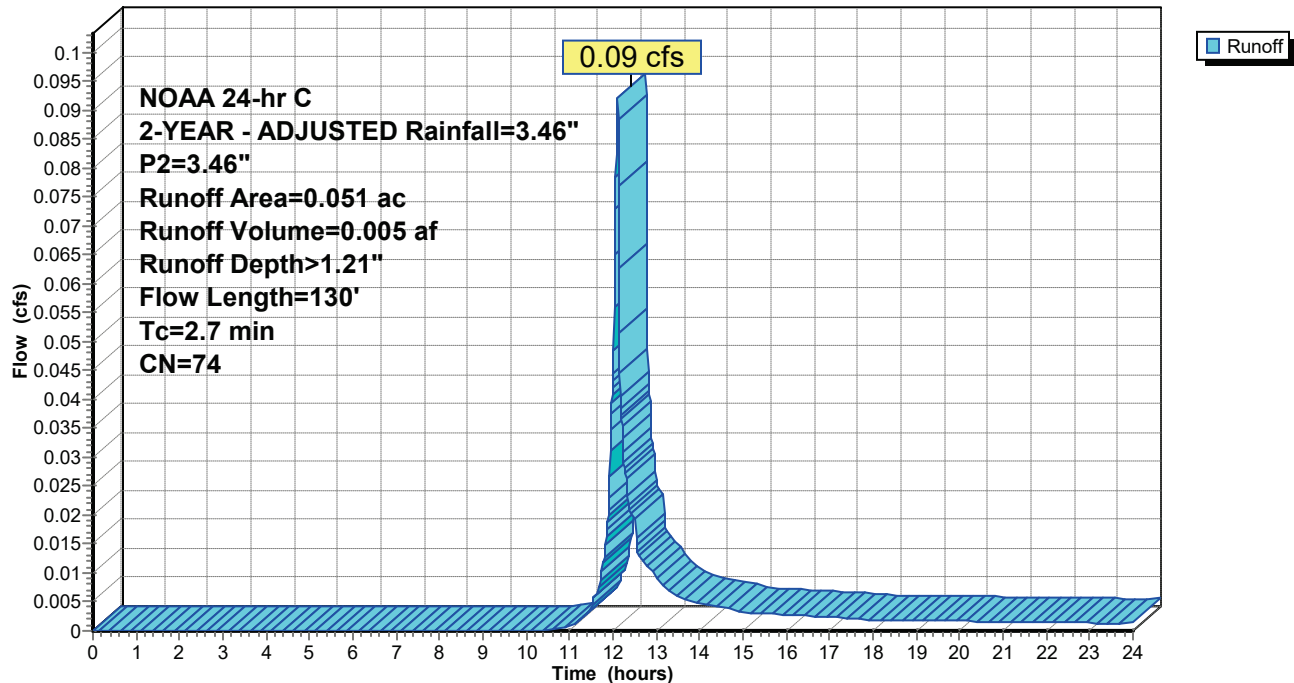
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Area (ac)	CN	Description
0.051	74	>75% Grass cover, Good, HSG C
0.051		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	15	0.0850	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.46"
0.9	85	0.0300	1.63		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 3.46"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
2.7	130	Total			

Subcatchment 8: .054

Hydrograph



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

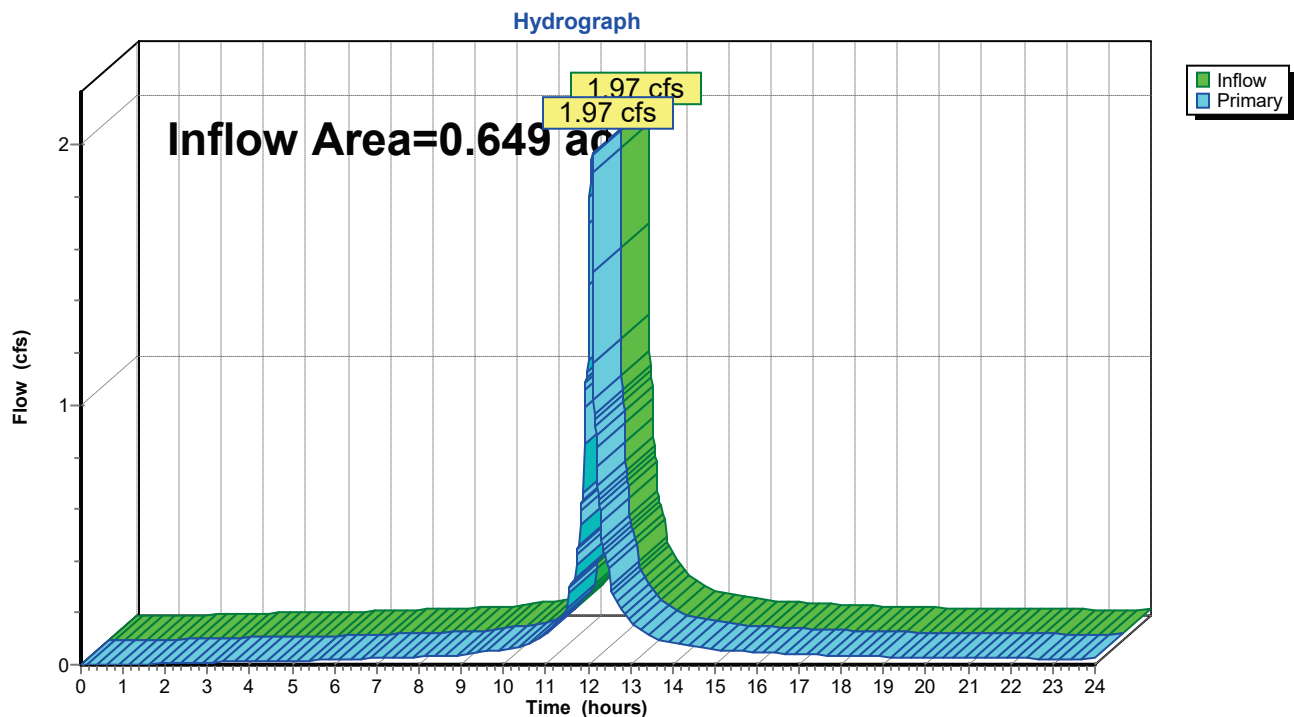
Page 9

Summary for Link 3: EX DI #1

Inflow Area = 0.649 ac, 64.56% Impervious, Inflow Depth > 2.51" for 2-YEAR - ADJUSTED event
Inflow = 1.97 cfs @ 12.10 hrs, Volume= 0.136 af
Primary = 1.97 cfs @ 12.10 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 3: EX DI #1



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

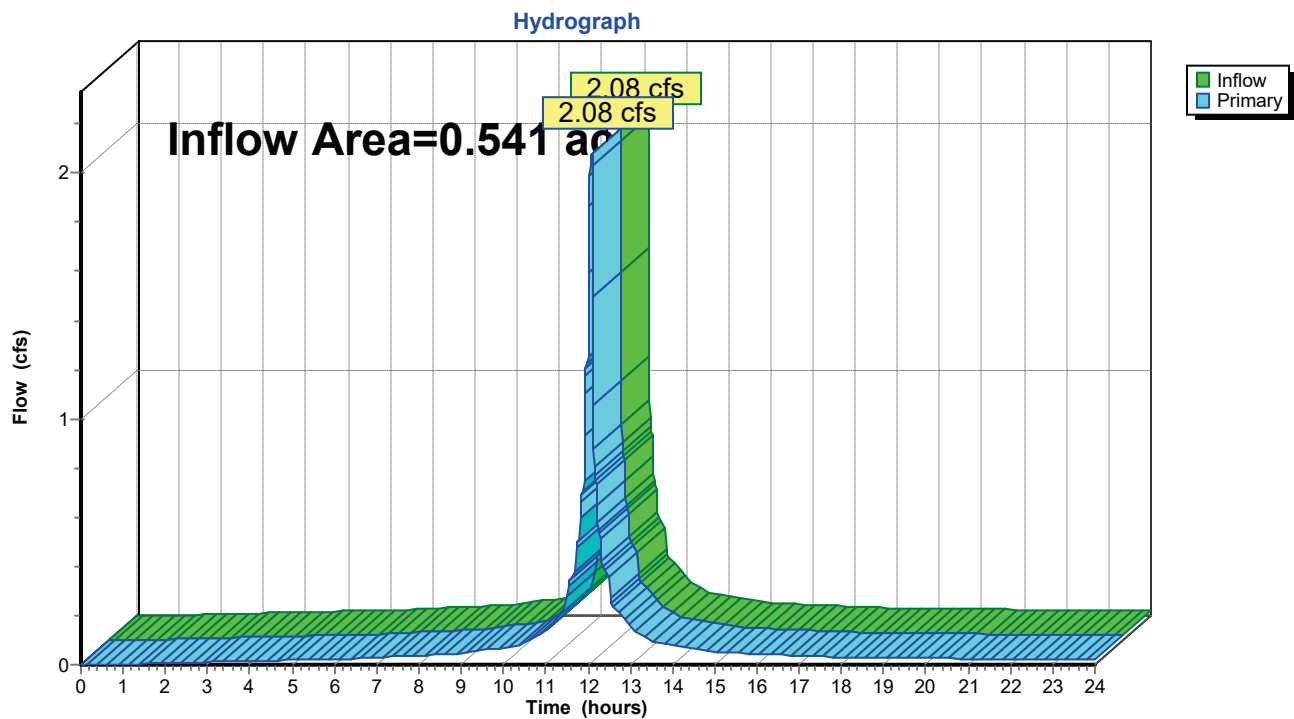
Page 10

Summary for Link 6: EX DI#2

Inflow Area = 0.541 ac, 92.61% Impervious, Inflow Depth > 3.08" for 2-YEAR - ADJUSTED event
Inflow = 2.08 cfs @ 12.10 hrs, Volume= 0.139 af
Primary = 2.08 cfs @ 12.10 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 6: EX DI#2



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

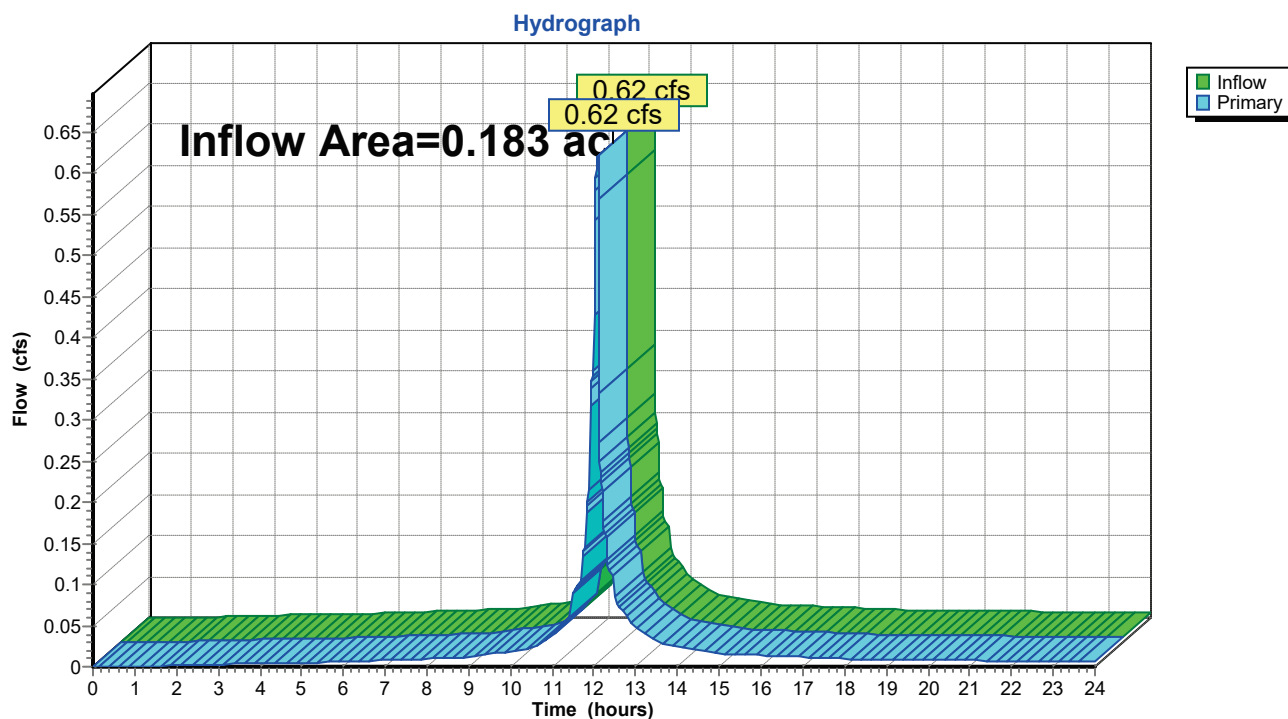
Page 11

Summary for Link 9: EX DA#3

Inflow Area = 0.183 ac, 72.13% Impervious, Inflow Depth > 2.66" for 2-YEAR - ADJUSTED event
Inflow = 0.62 cfs @ 12.10 hrs, Volume= 0.041 af
Primary = 0.62 cfs @ 12.10 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 9: EX DA#3



Existing Conditions

NOAA 24-hr C 2-YEAR - ADJUSTED Rainfall=3.46", P2=3.46"

Prepared by Bright View Engineering

Printed 1/19/2026

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

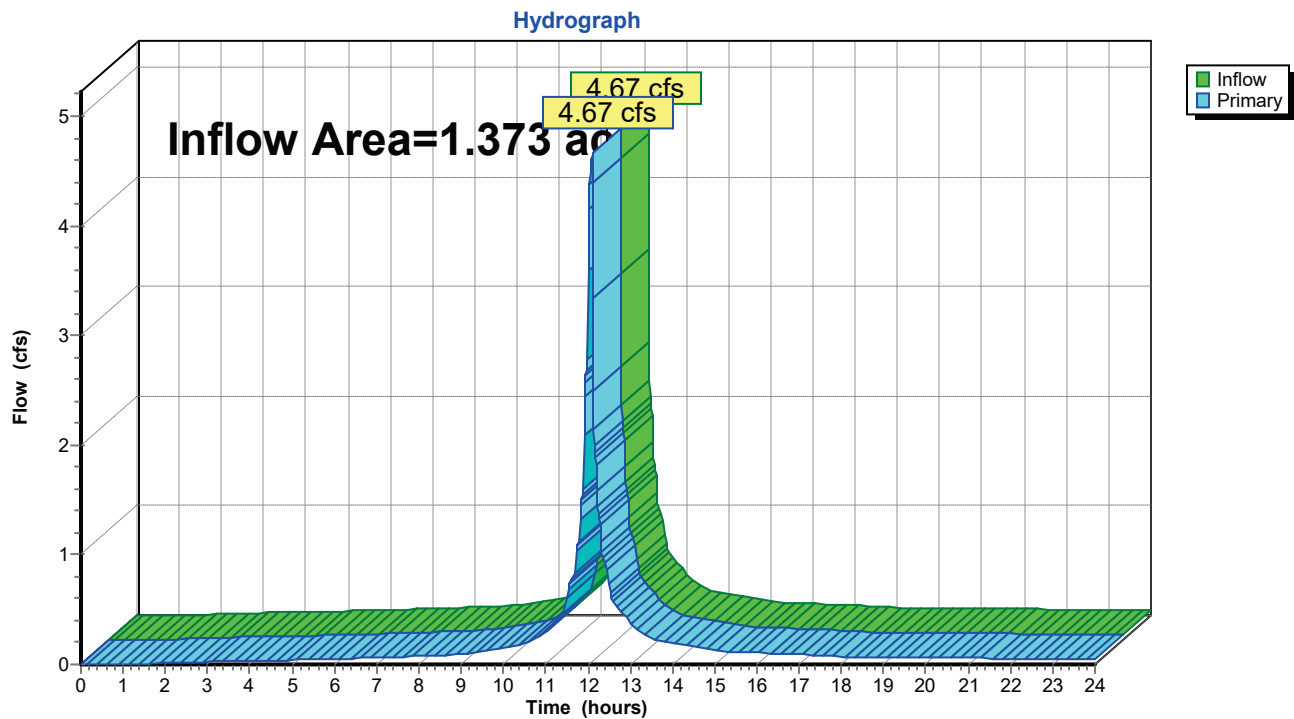
Page 12

Summary for Link 10: TOTAL

Inflow Area = 1.373 ac, 76.62% Impervious, Inflow Depth > 2.75" for 2-YEAR - ADJUSTED event
Inflow = 4.67 cfs @ 12.10 hrs, Volume= 0.315 af
Primary = 4.67 cfs @ 12.10 hrs, Volume= 0.315 af, Atten= 0%, Lag= 0.0 min

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

Link 10: TOTAL



Summary for Subcatchment 1: Impervious

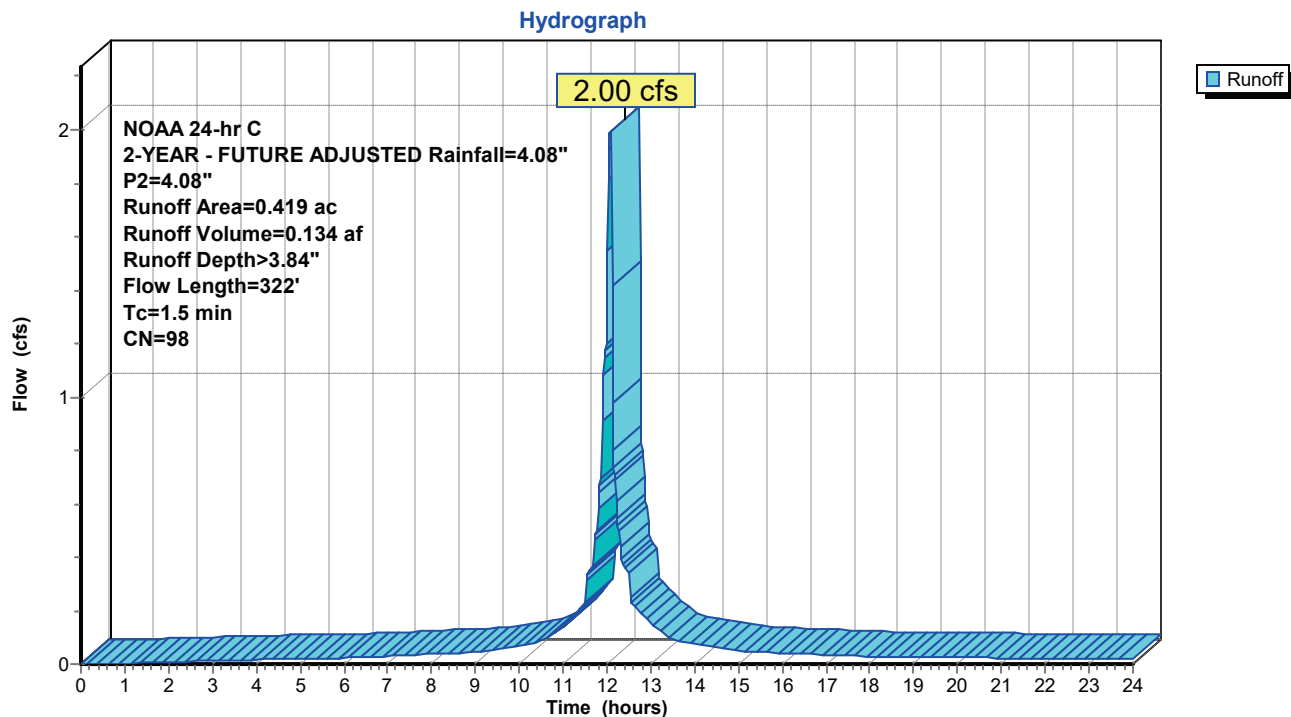
Runoff = 2.00 cfs @ 12.10 hrs, Volume= 0.134 af, Depth> 3.84"
 Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.419	98	Paved parking, HSG C
0.419		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	14	0.0400	1.38		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 4.08"
1.3	308	0.0390	4.01		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.5	322	Total			

Subcatchment 1: Impervious



Summary for Subcatchment 2: Pervious

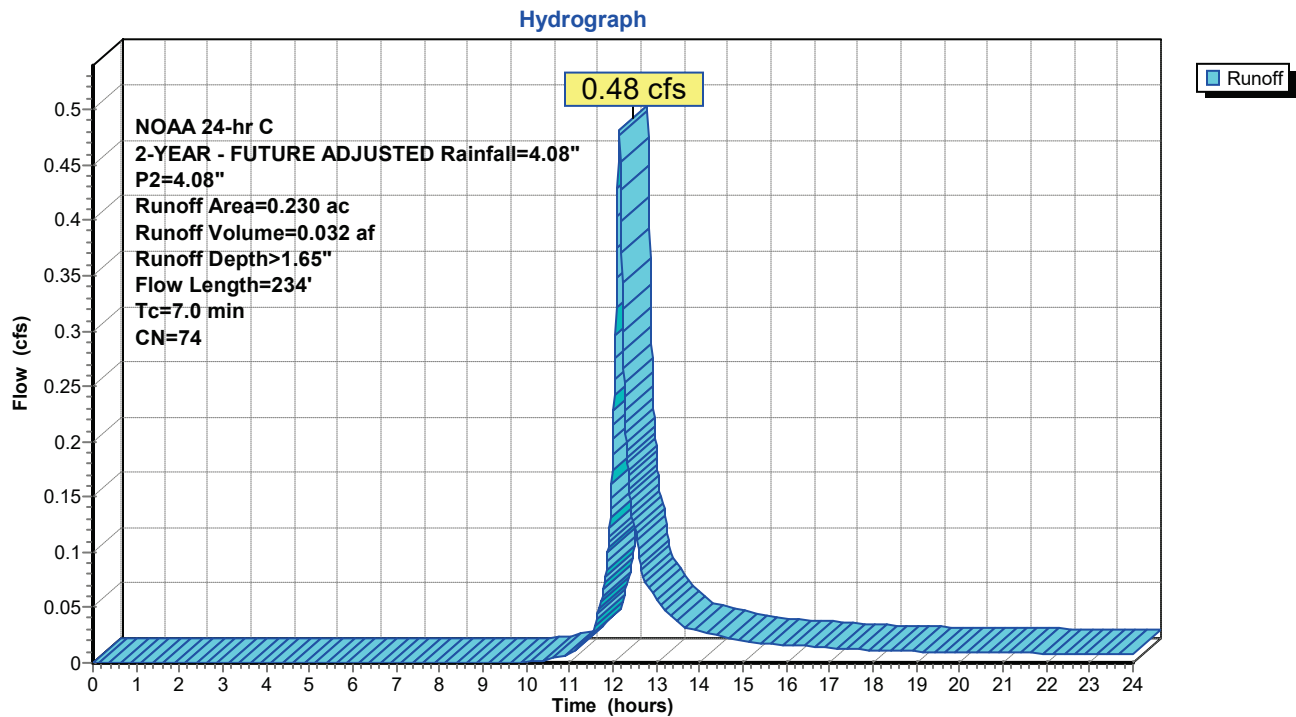
Runoff = 0.48 cfs @ 12.15 hrs, Volume= 0.032 af, Depth> 1.65"
 Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.230	74	>75% Grass cover, Good, HSG C
0.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	70	0.0600	0.19		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 4.08"
0.3	30	0.0390	1.59		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 4.08"
0.6	134	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
7.0	234	Total			

Subcatchment 2: Pervious



Summary for Subcatchment 4: Impervious

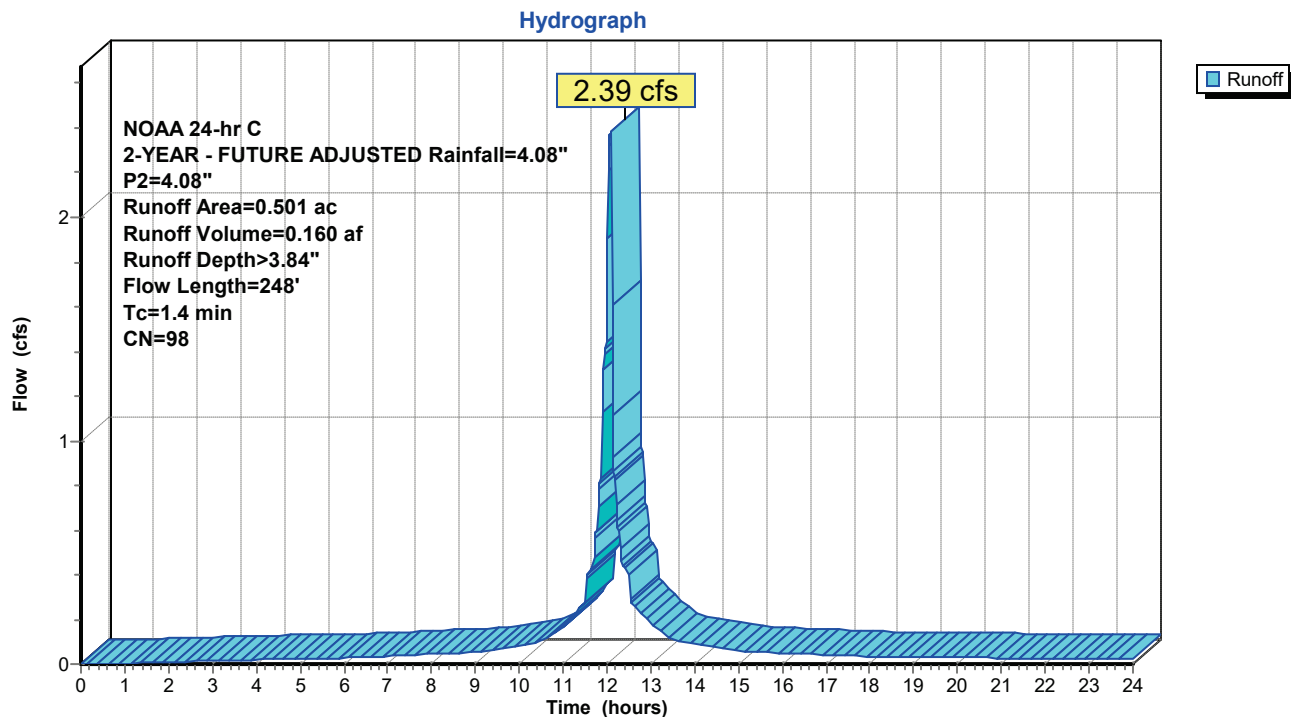
Runoff = 2.39 cfs @ 12.09 hrs, Volume= 0.160 af, Depth> 3.84"
 Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.501	98	Paved parking, HSG C
0.501		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	100	0.0440	2.13		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 4.08"
0.6	148	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
1.4	248	Total			

Subcatchment 4: Impervious



Summary for Subcatchment 5: Pervious

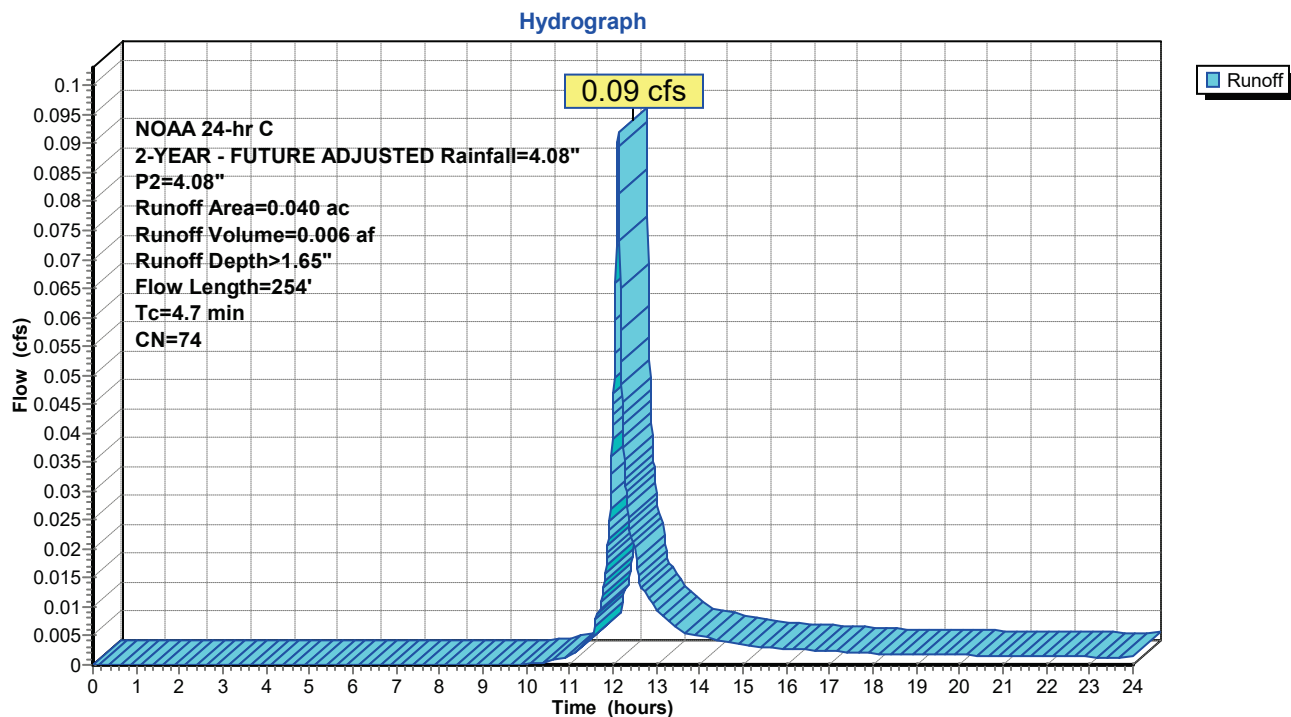
Runoff = 0.09 cfs @ 12.12 hrs, Volume= 0.006 af, Depth> 1.65"
 Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.040	74	>75% Grass cover, Good, HSG C
0.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	28	0.0400	0.13		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 4.08"
0.6	72	0.0460	2.03		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 4.08"
0.6	154	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
4.7	254	Total			

Subcatchment 5: Pervious



Summary for Subcatchment 7: Impervious

[49] Hint: $T_c < 2dt$ may require smaller dt

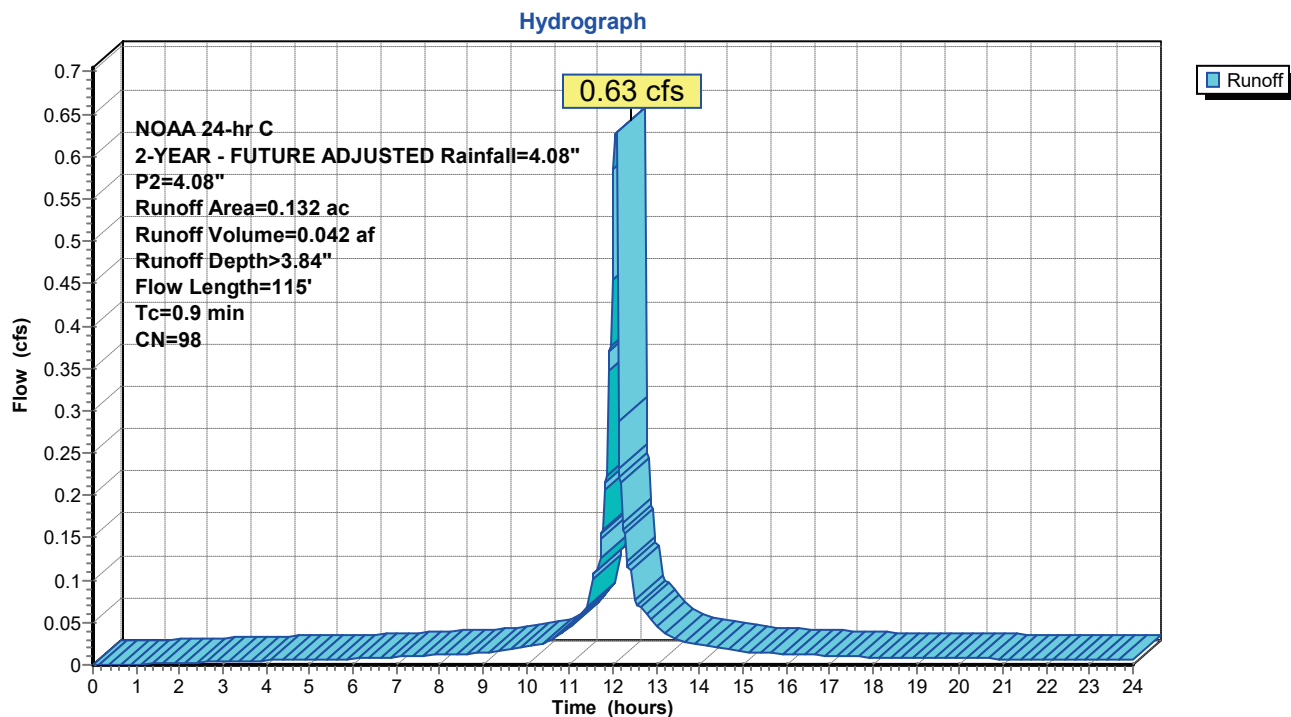
Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.042 af, Depth> 3.84"
 Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.01$ hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.132		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	85	0.0350	1.88		Sheet Flow, B-C
					Smooth surfaces $n=0.011$ P2= 4.08"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D
					Paved $K_v=20.3$ fps
0.9	115	Total			

Subcatchment 7: Impervious



Summary for Subcatchment 8: .054

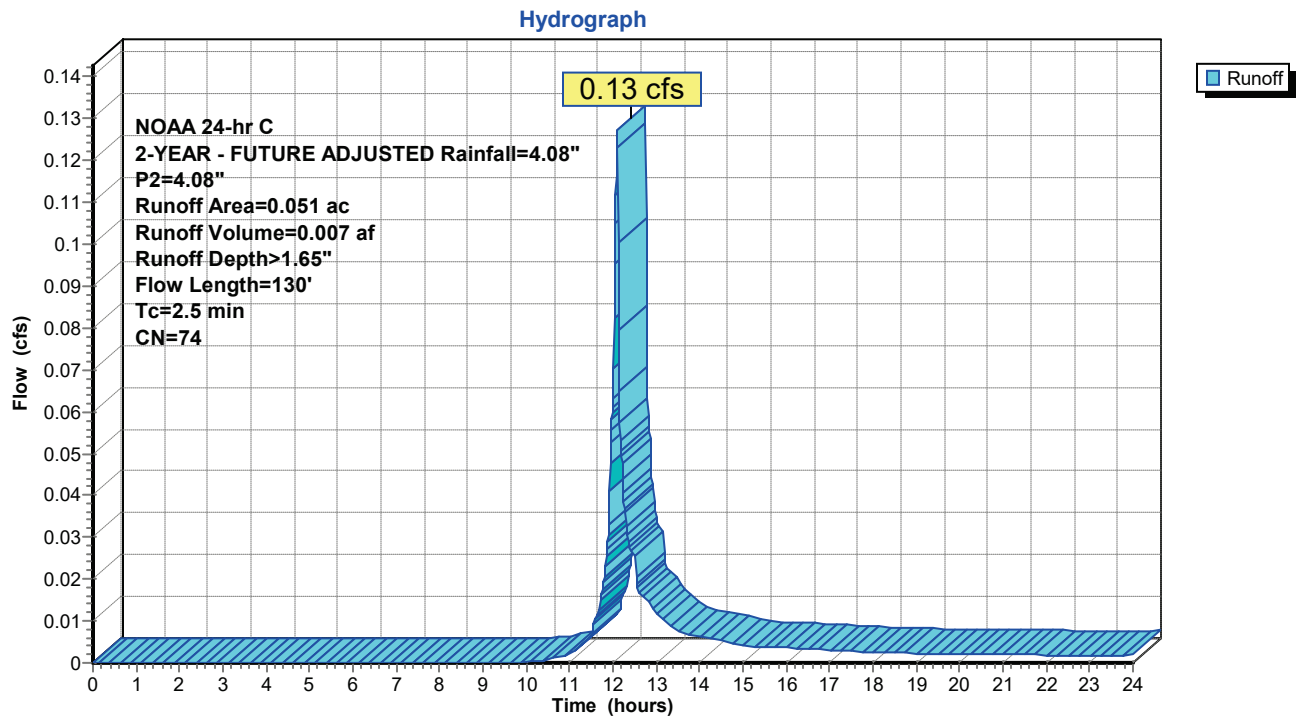
Runoff = 0.13 cfs @ 12.11 hrs, Volume= 0.007 af, Depth> 1.65"
 Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.051	74	>75% Grass cover, Good, HSG C
0.051		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	15	0.0850	0.16		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 4.08"
0.8	85	0.0300	1.77		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 4.08"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
2.5	130	Total			

Subcatchment 8: .054

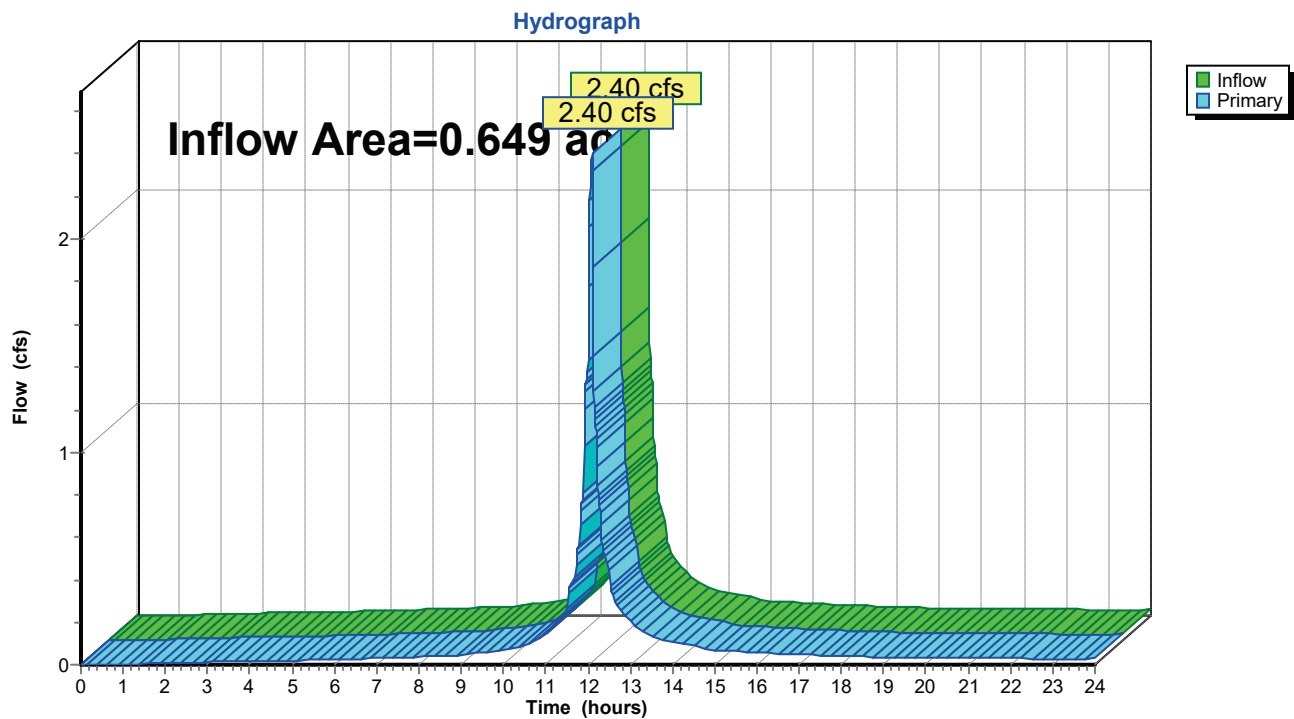


Summary for Link 3: EX DI #1

Inflow Area = 0.649 ac, 64.56% Impervious, Inflow Depth > 3.07" for 2-YEAR - FUTURE ADJUSTED event
Inflow = 2.40 cfs @ 12.10 hrs, Volume= 0.166 af
Primary = 2.40 cfs @ 12.10 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 3: EX DI #1

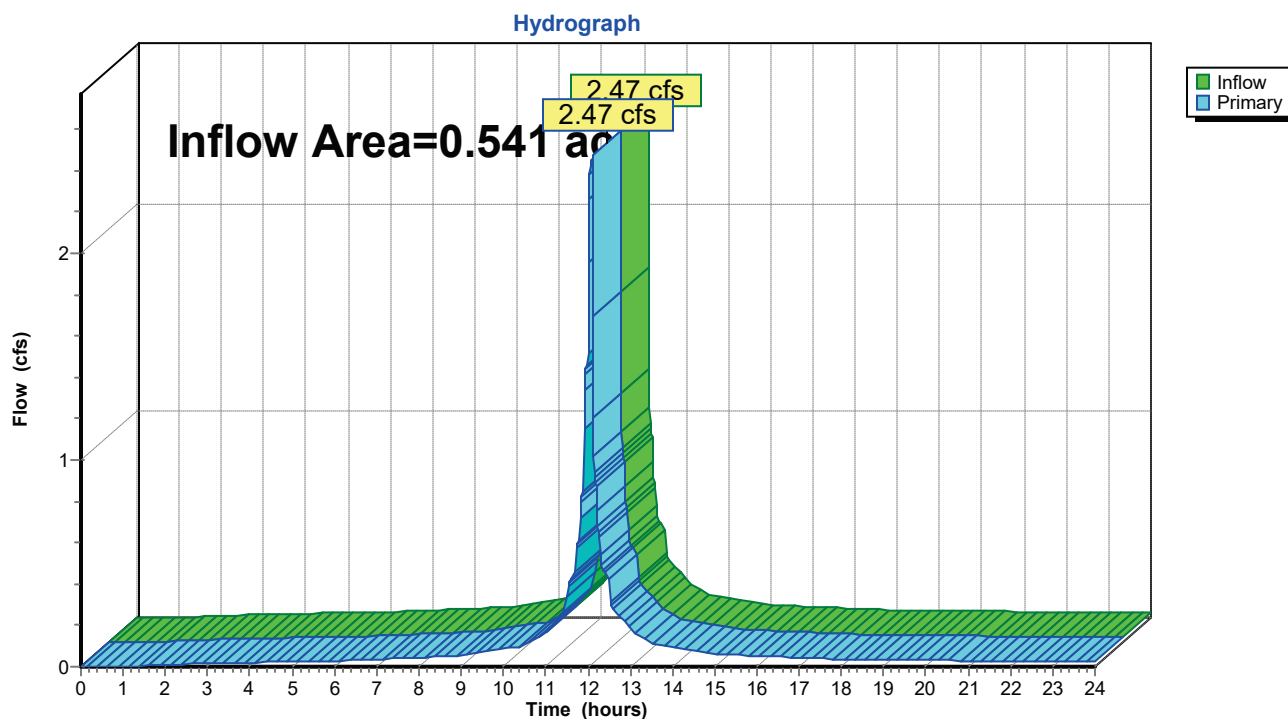


Summary for Link 6: EX DI#2

Inflow Area = 0.541 ac, 92.61% Impervious, Inflow Depth > 3.68" for 2-YEAR - FUTURE ADJUSTED event
Inflow = 2.47 cfs @ 12.10 hrs, Volume= 0.166 af
Primary = 2.47 cfs @ 12.10 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 6: EX DI#2

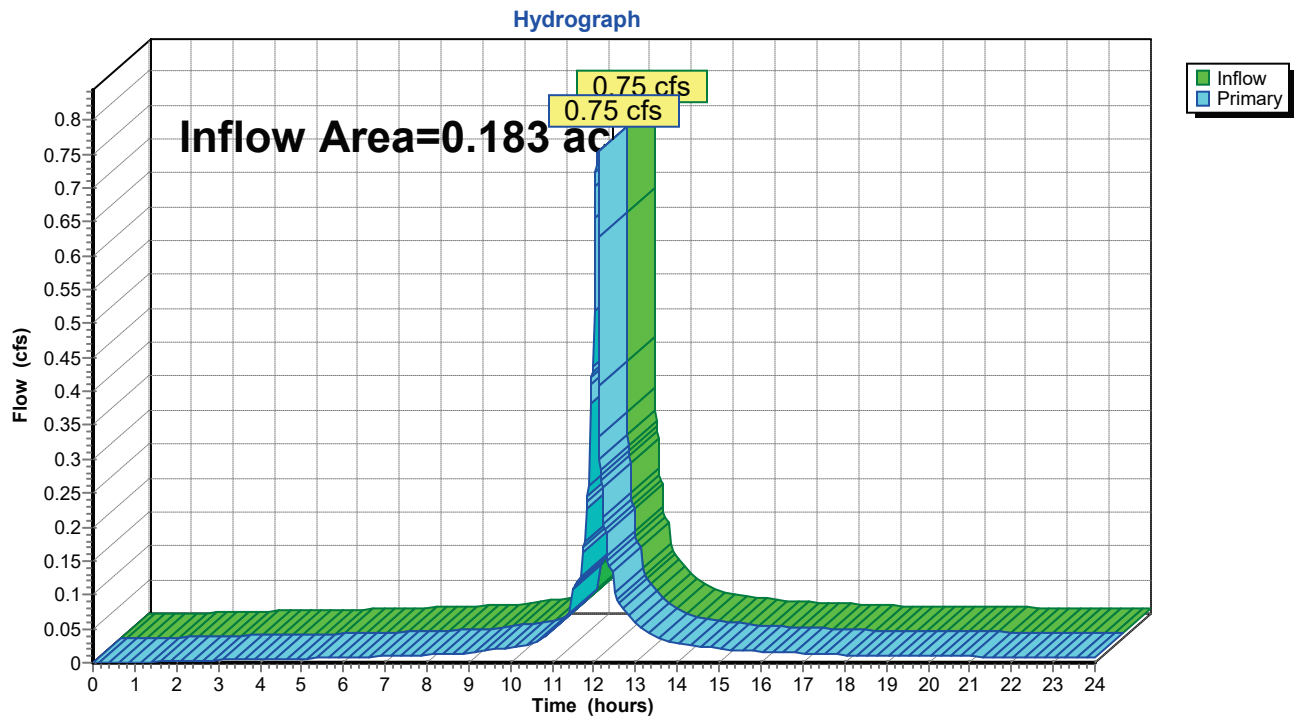


Summary for Link 9: EX DA#3

Inflow Area = 0.183 ac, 72.13% Impervious, Inflow Depth > 3.23" for 2-YEAR - FUTURE ADJUSTED event
Inflow = 0.75 cfs @ 12.10 hrs, Volume= 0.049 af
Primary = 0.75 cfs @ 12.10 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 9: EX DA#3

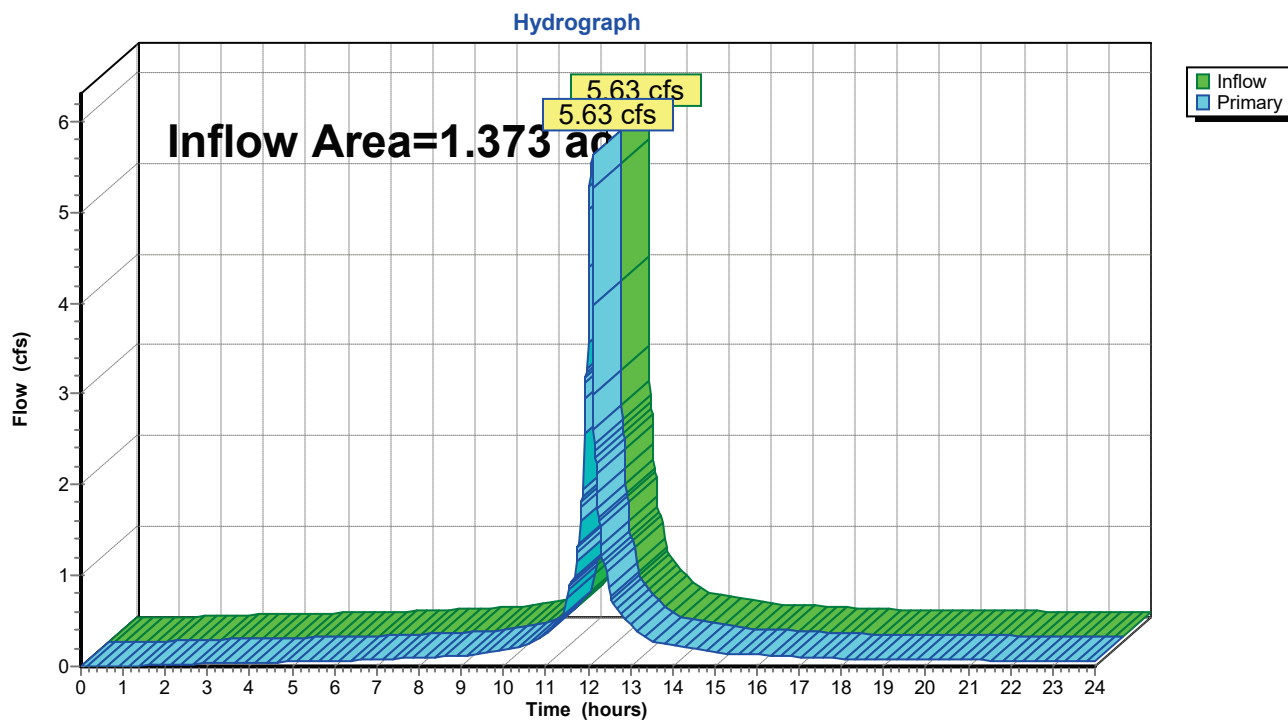


Summary for Link 10: TOTAL

Inflow Area = 1.373 ac, 76.62% Impervious, Inflow Depth > 3.33" for 2-YEAR - FUTURE ADJUSTED event
Inflow = 5.63 cfs @ 12.10 hrs, Volume= 0.381 af
Primary = 5.63 cfs @ 12.10 hrs, Volume= 0.381 af, Atten= 0%, Lag= 0.0 min

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

Link 10: TOTAL



Summary for Subcatchment 1: Impervious

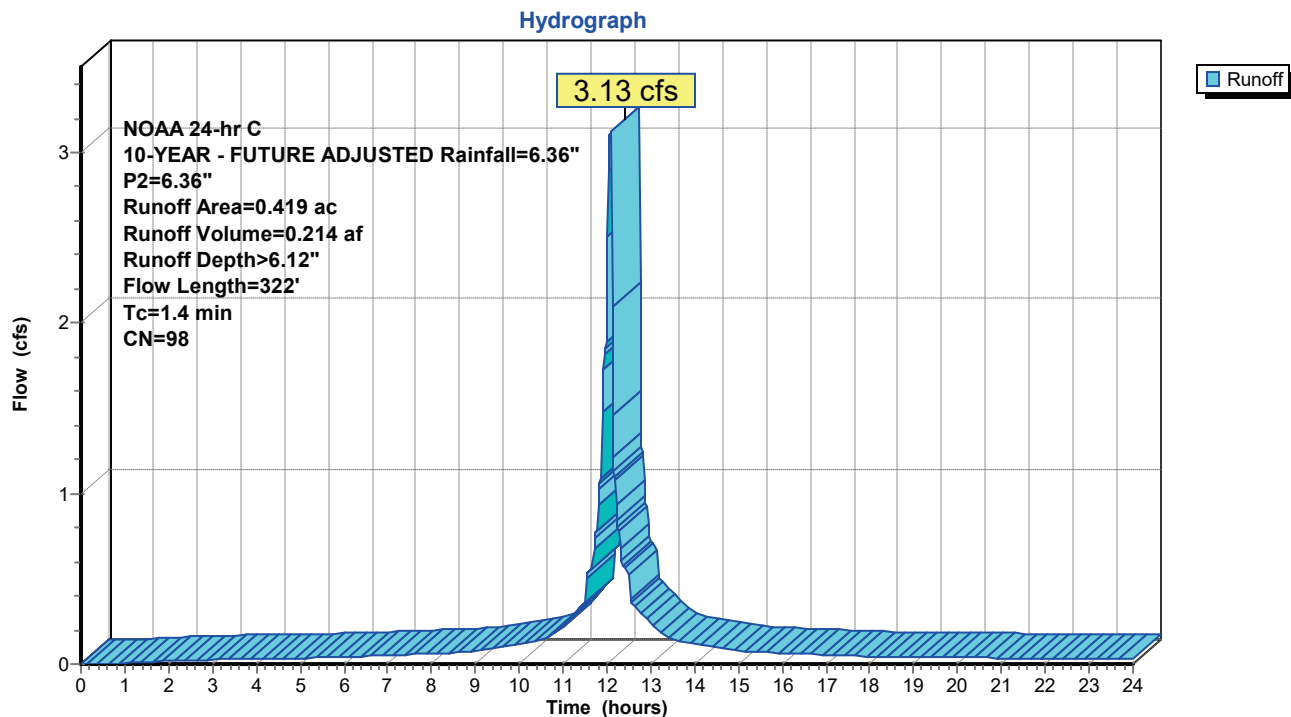
Runoff = 3.13 cfs @ 12.09 hrs, Volume= 0.214 af, Depth> 6.12"
 Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=6.36"

Area (ac)	CN	Description
0.419	98	Paved parking, HSG C
0.419		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	14	0.0400	1.73		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 6.36"
1.3	308	0.0390	4.01		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.4	322	Total			

Subcatchment 1: Impervious



Summary for Subcatchment 2: Pervious

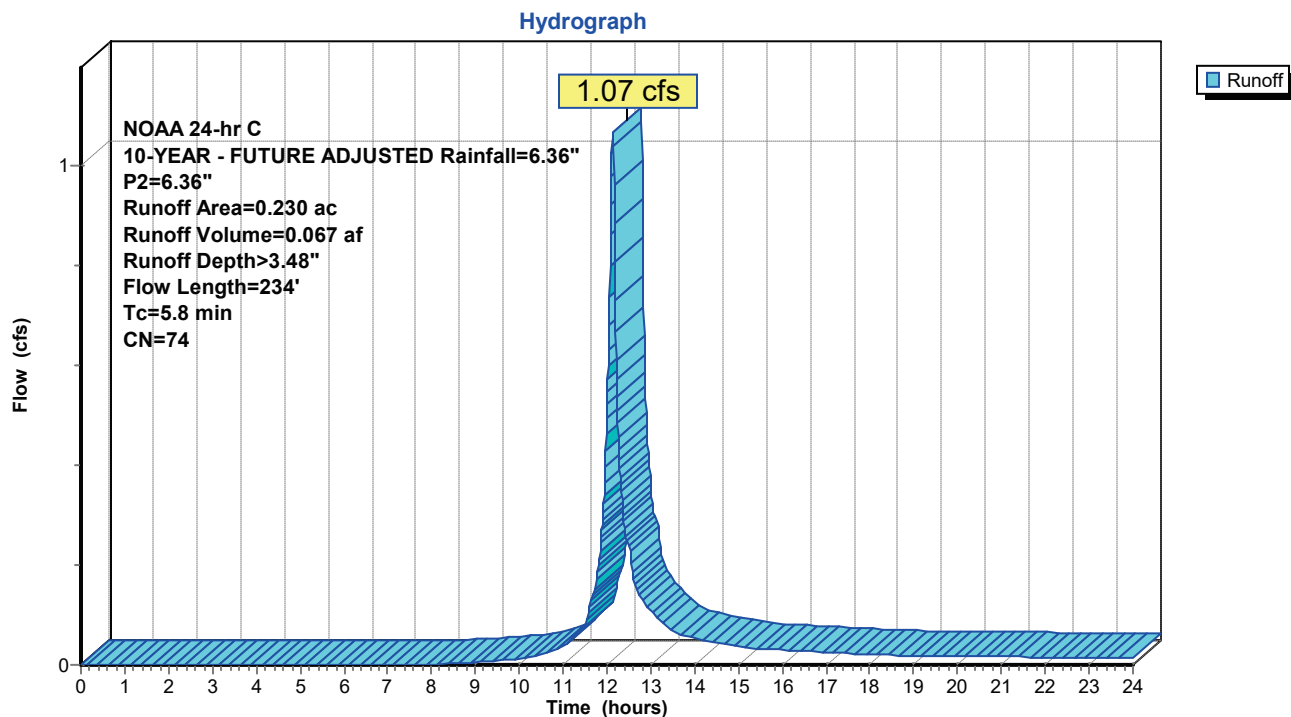
Runoff = 1.07 cfs @ 12.13 hrs, Volume= 0.067 af, Depth> 3.48"
 Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=6.36"

Area (ac)	CN	Description
0.230	74	>75% Grass cover, Good, HSG C
0.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	70	0.0600	0.24		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 6.36"
0.3	30	0.0390	1.99		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 6.36"
0.6	134	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
5.8	234	Total			

Subcatchment 2: Pervious



Summary for Subcatchment 4: Impervious

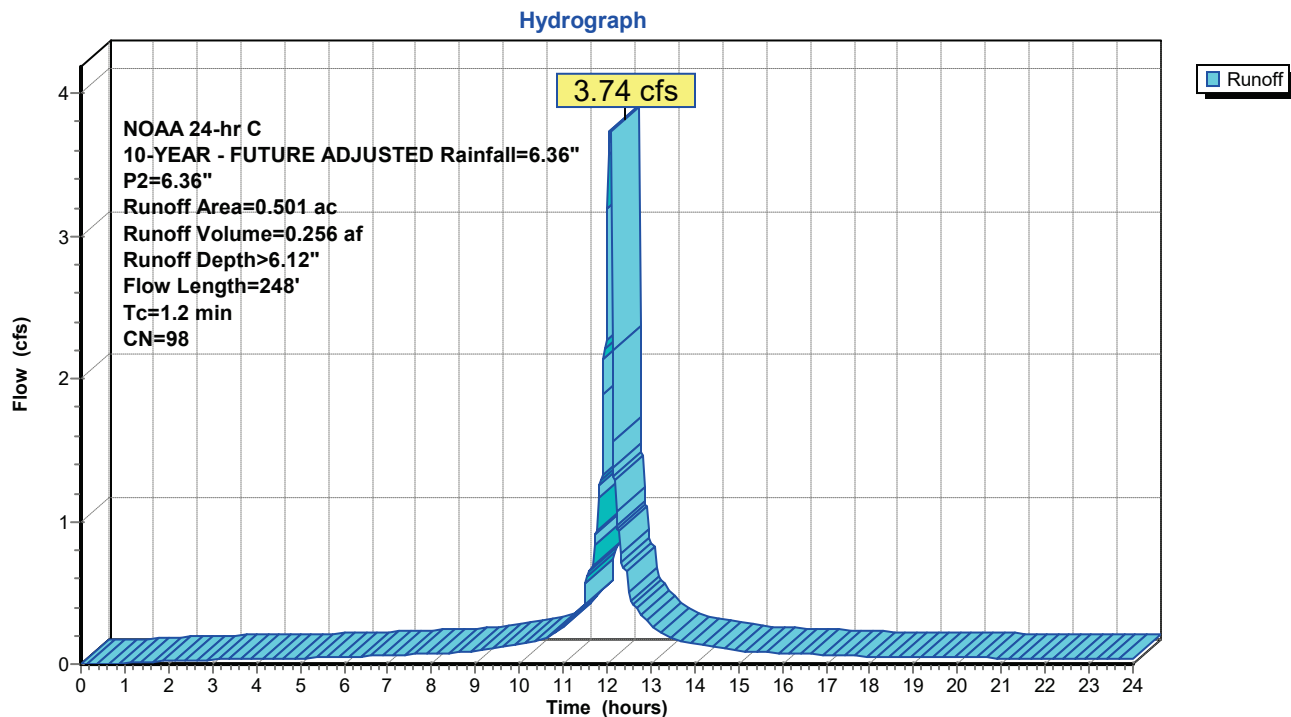
Runoff = 3.74 cfs @ 12.09 hrs, Volume= 0.256 af, Depth> 6.12"
 Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=6.36"

Area (ac)	CN	Description
0.501	98	Paved parking, HSG C
0.501		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.0440	2.66		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 6.36"
0.6	148	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
1.2	248	Total			

Subcatchment 4: Impervious



Summary for Subcatchment 5: Pervious

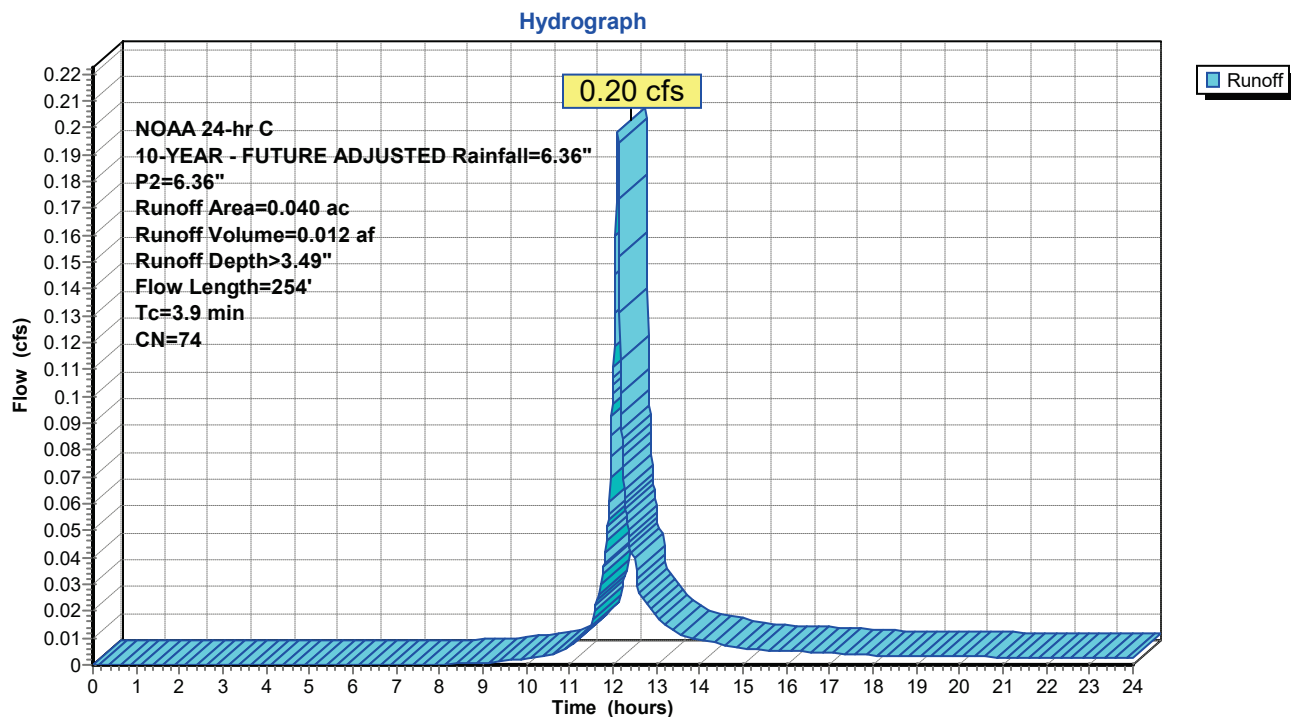
Runoff = 0.20 cfs @ 12.11 hrs, Volume= 0.012 af, Depth> 3.49"
 Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=6.36"

Area (ac)	CN	Description
0.040	74	>75% Grass cover, Good, HSG C
0.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	28	0.0400	0.17		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 6.36"
0.5	72	0.0460	2.53		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 6.36"
0.6	154	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
3.9	254	Total			

Subcatchment 5: Pervious



Summary for Subcatchment 7: Impervious

[49] Hint: $T_c < 2dt$ may require smaller dt

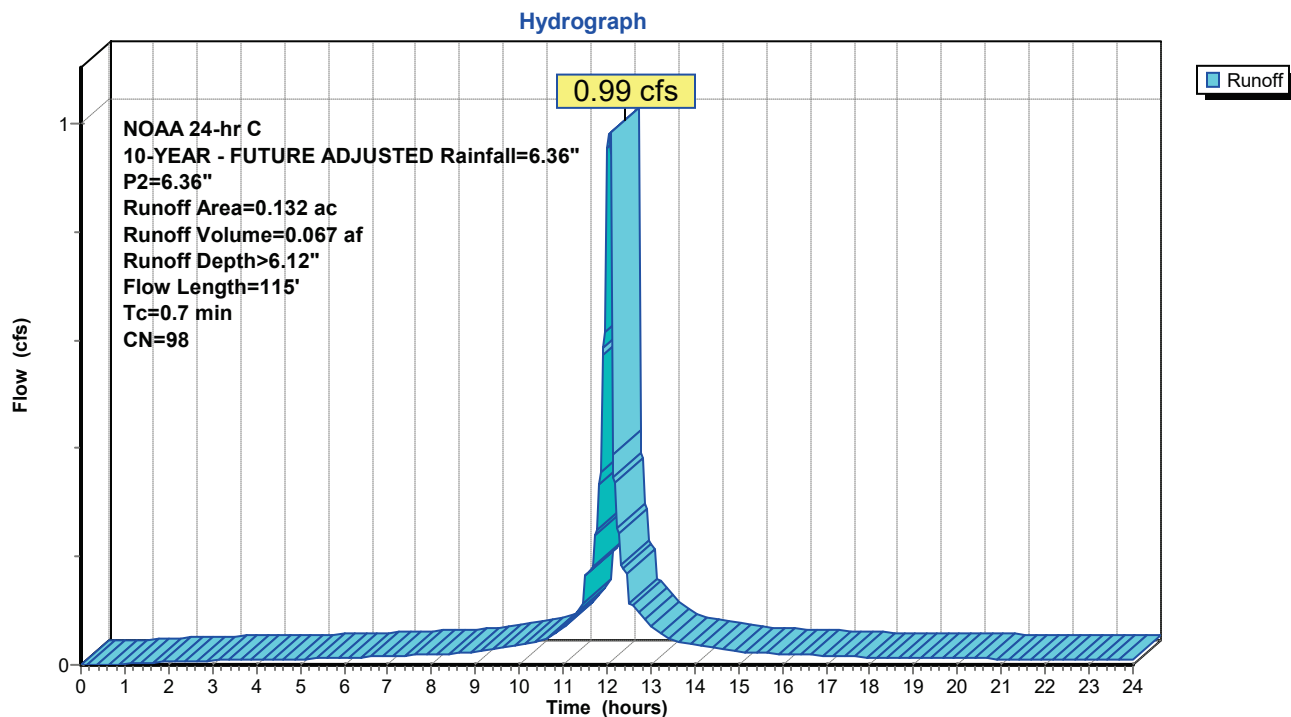
Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.067 af, Depth> 6.12"
 Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.01$ hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=6.36"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.132		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	85	0.0350	2.35		Sheet Flow, B-C
					Smooth surfaces $n=0.011$ P2= 6.36"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D
					Paved $K_v=20.3$ fps
0.7	115	Total			

Subcatchment 7: Impervious



Summary for Subcatchment 8: .054

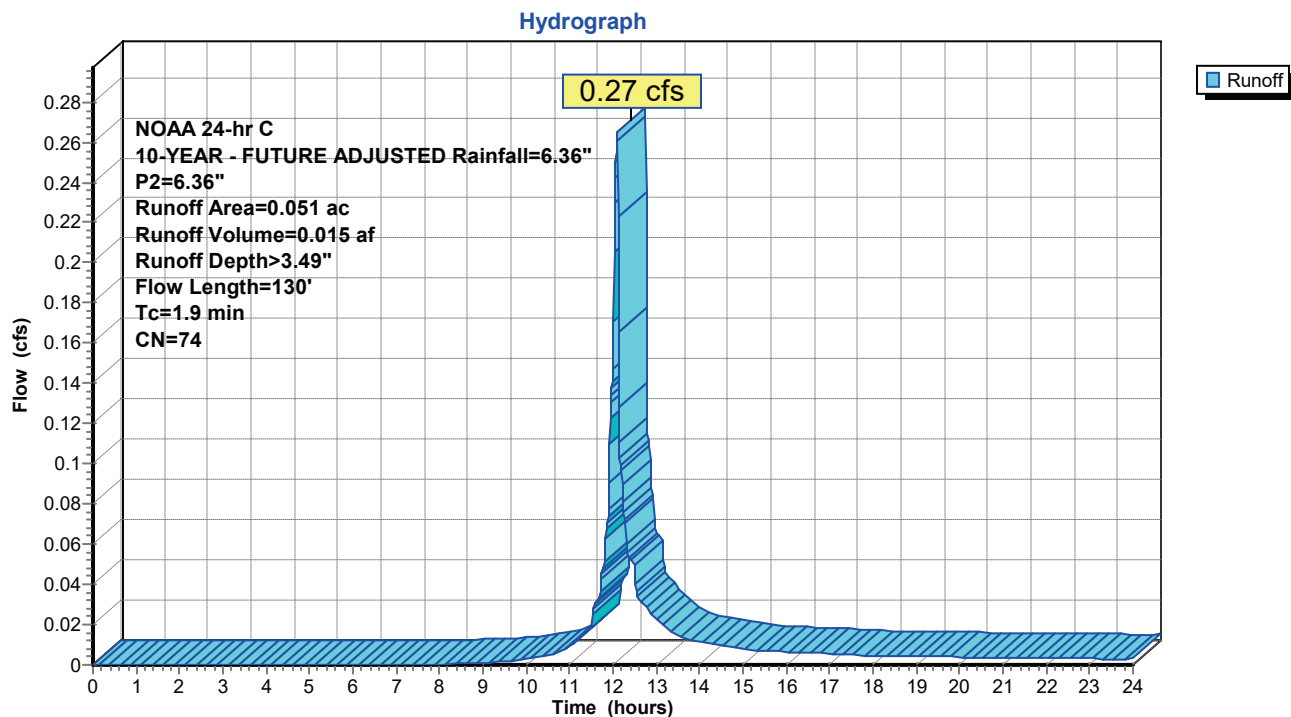
Runoff = 0.27 cfs @ 12.10 hrs, Volume= 0.015 af, Depth> 3.49"
 Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=6.36"

Area (ac)	CN	Description
0.051	74	>75% Grass cover, Good, HSG C
0.051		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15	0.0850	0.20		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 6.36"
0.6	85	0.0300	2.21		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 6.36"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
1.9	130	Total			

Subcatchment 8: .054

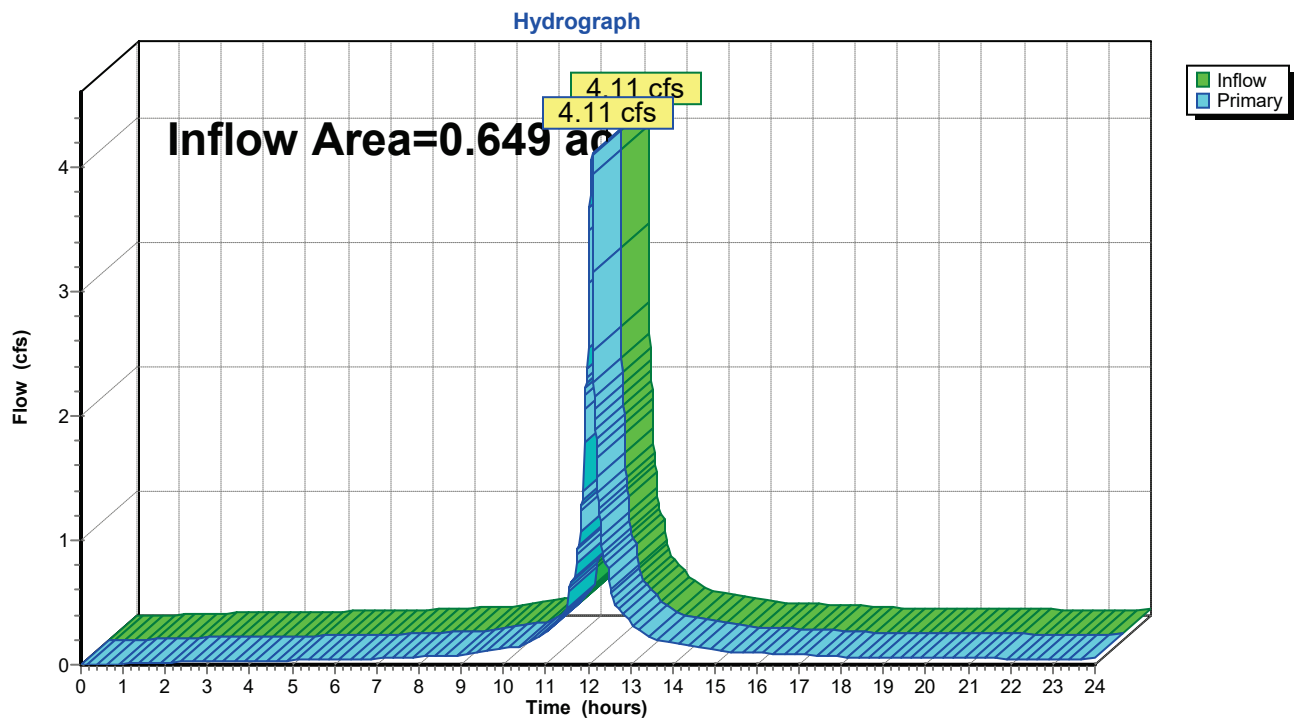


Summary for Link 3: EX DI #1

Inflow Area = 0.649 ac, 64.56% Impervious, Inflow Depth > 5.19" for 10-YEAR - FUTURE ADJUSTED even
Inflow = 4.11 cfs @ 12.10 hrs, Volume= 0.280 af
Primary = 4.11 cfs @ 12.10 hrs, Volume= 0.280 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 3: EX DI #1

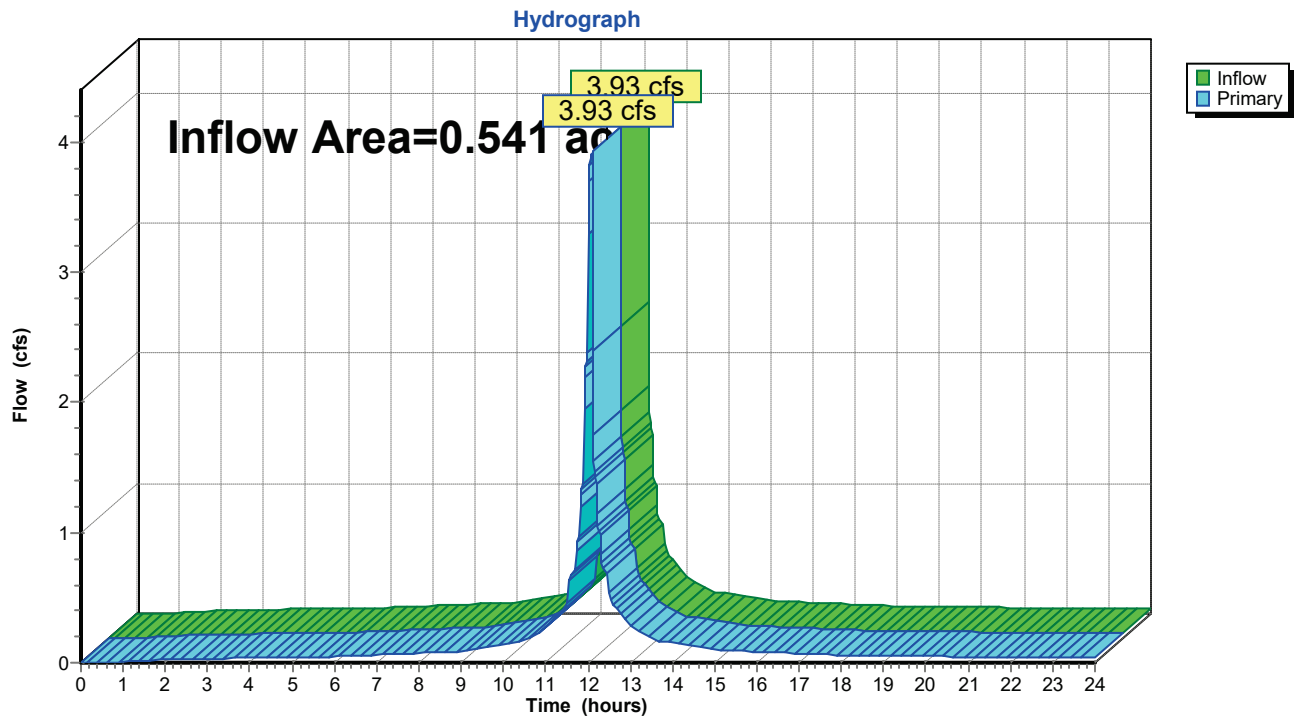


Summary for Link 6: EX DI#2

Inflow Area = 0.541 ac, 92.61% Impervious, Inflow Depth > 5.93" for 10-YEAR - FUTURE ADJUSTED even
Inflow = 3.93 cfs @ 12.10 hrs, Volume= 0.267 af
Primary = 3.93 cfs @ 12.10 hrs, Volume= 0.267 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 6: EX DI#2

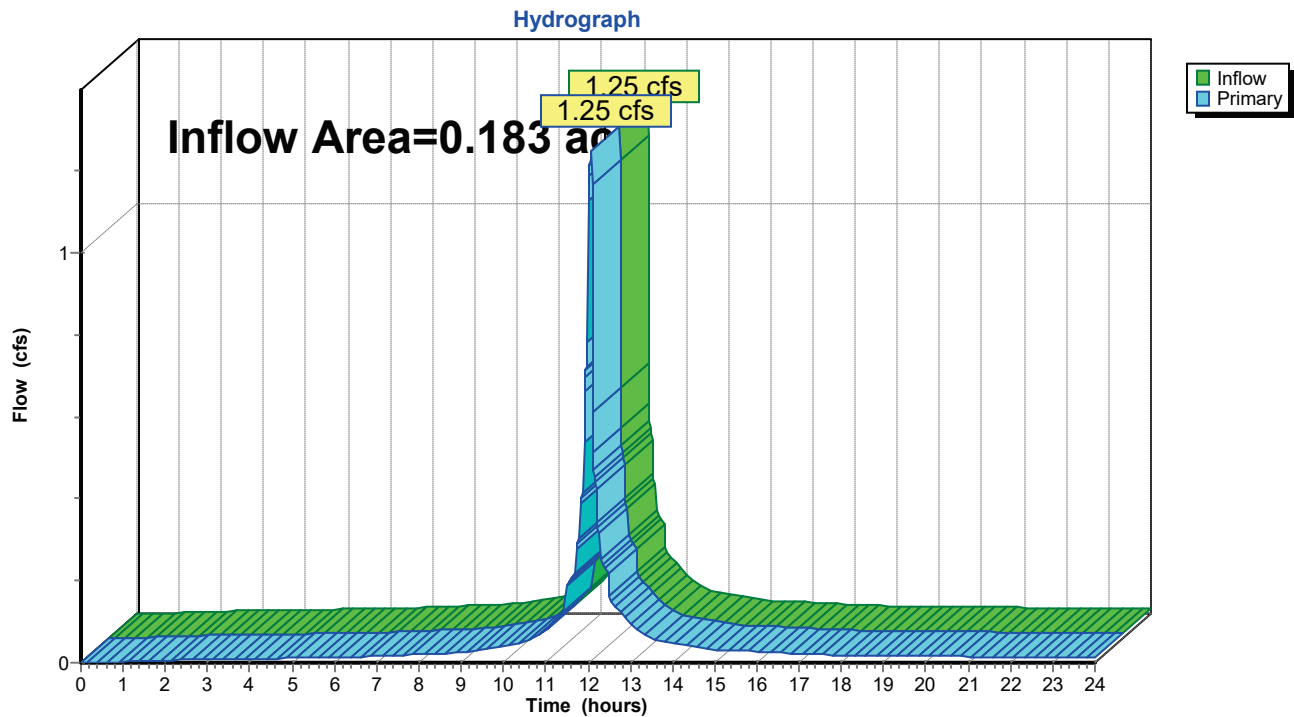


Summary for Link 9: EX DA#3

Inflow Area = 0.183 ac, 72.13% Impervious, Inflow Depth > 5.39" for 10-YEAR - FUTURE ADJUSTED even
Inflow = 1.25 cfs @ 12.09 hrs, Volume= 0.082 af
Primary = 1.25 cfs @ 12.09 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 9: EX DA#3

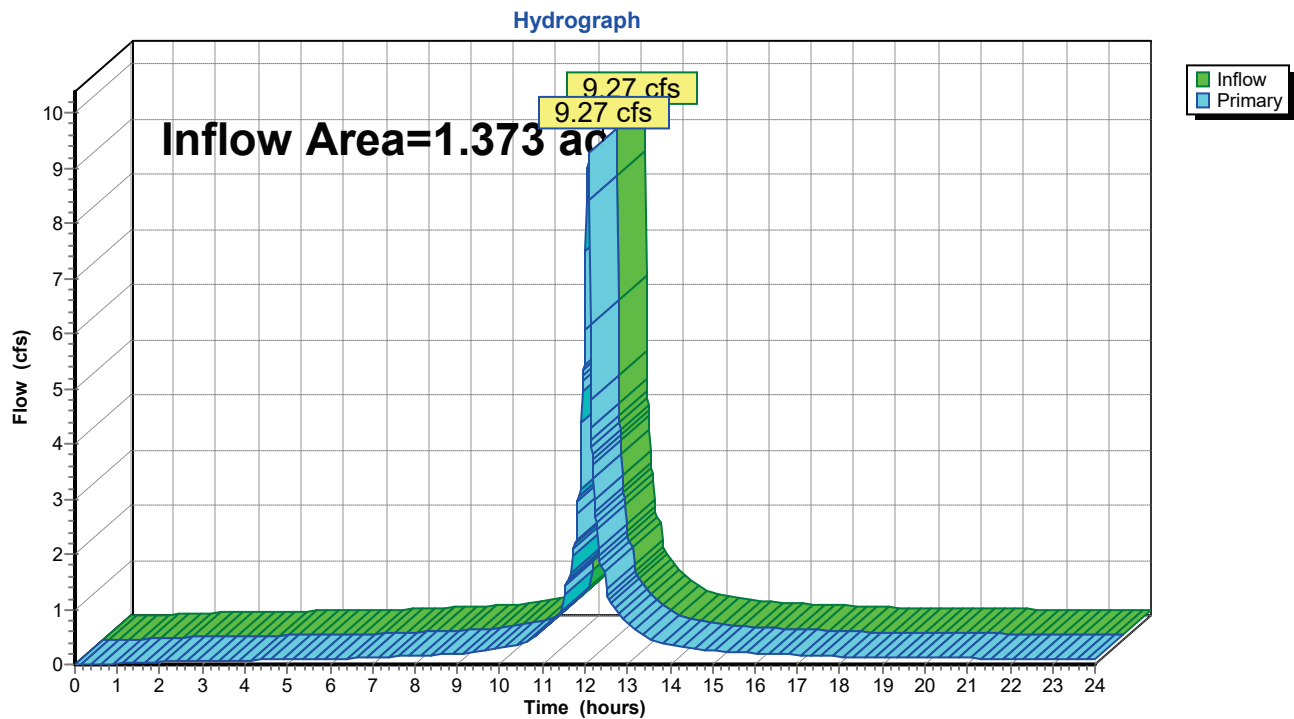


Summary for Link 10: TOTAL

Inflow Area = 1.373 ac, 76.62% Impervious, Inflow Depth > 5.50" for 10-YEAR - FUTURE ADJUSTED even
Inflow = 9.27 cfs @ 12.10 hrs, Volume= 0.630 af
Primary = 9.27 cfs @ 12.10 hrs, Volume= 0.630 af, Atten= 0%, Lag= 0.0 min

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

Link 10: TOTAL



Summary for Subcatchment 1: Impervious

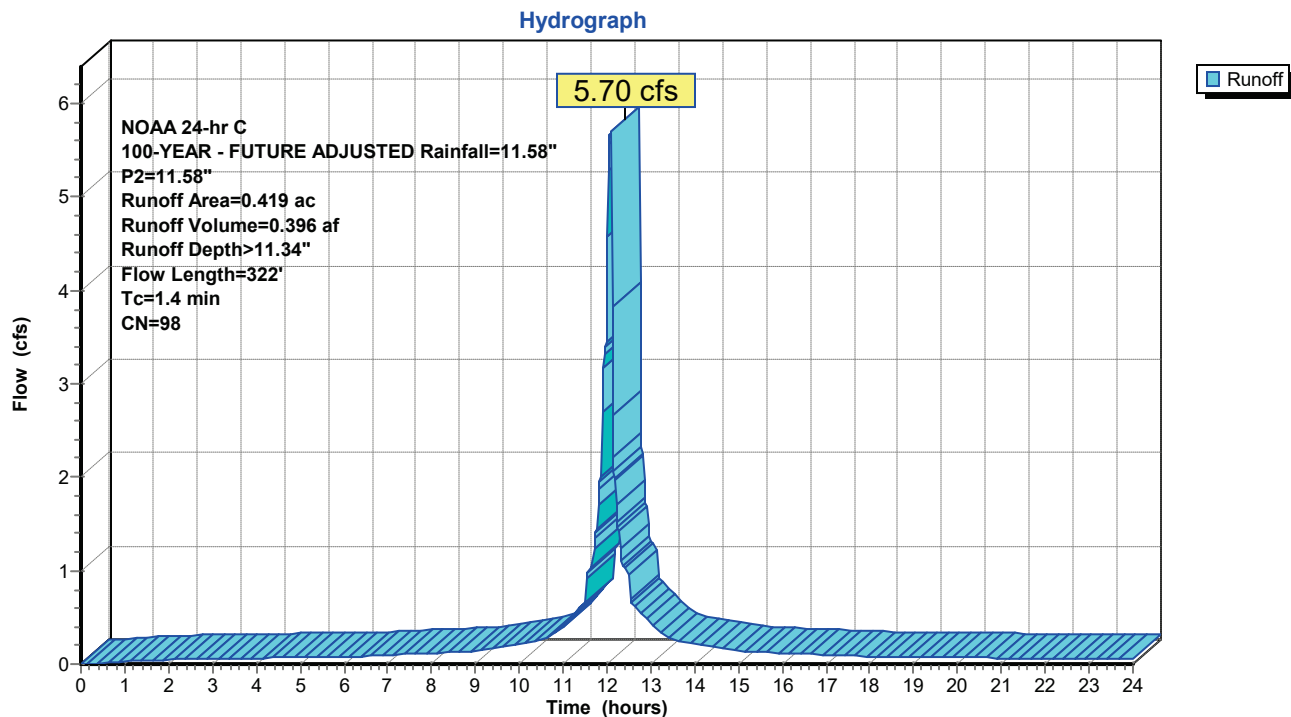
Runoff = 5.70 cfs @ 12.09 hrs, Volume= 0.396 af, Depth>11.34"
 Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=11.58"

Area (ac)	CN	Description
0.419	98	Paved parking, HSG C
0.419		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	14	0.0400	2.33		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 11.58"
1.3	308	0.0390	4.01		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.4	322	Total			

Subcatchment 1: Impervious



Summary for Subcatchment 2: Pervious

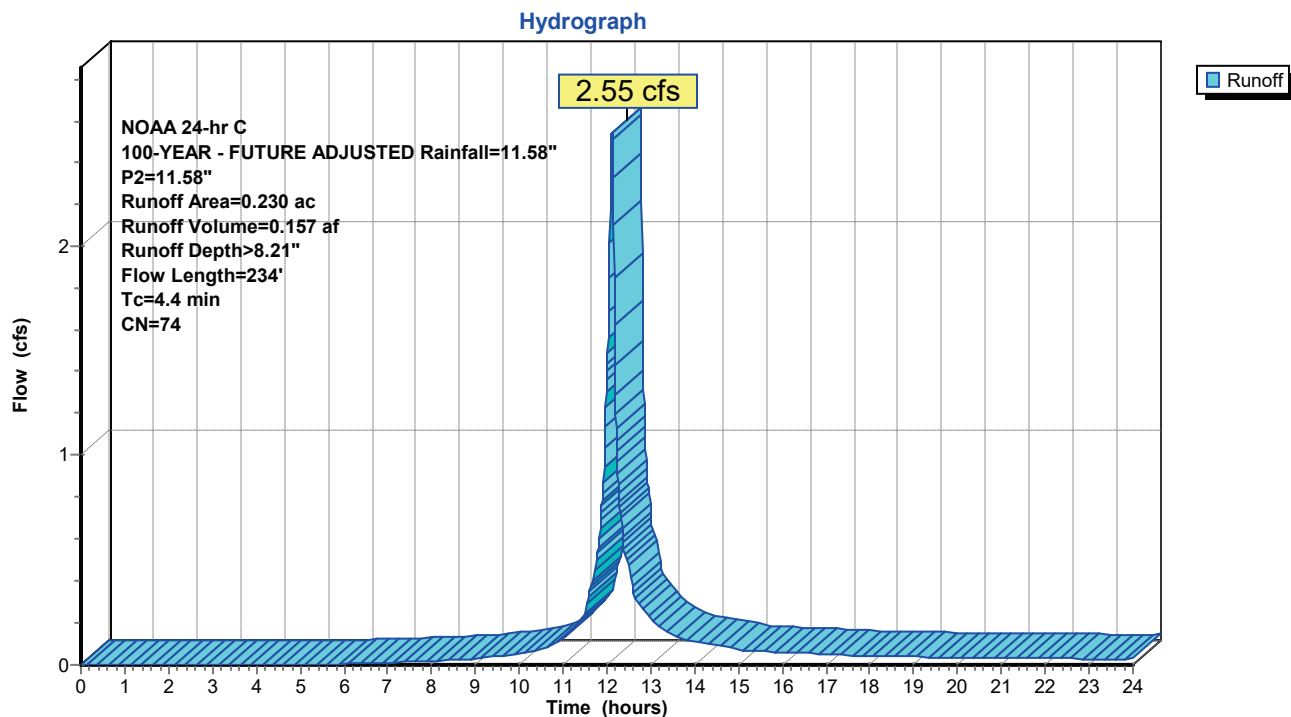
Runoff = 2.55 cfs @ 12.12 hrs, Volume= 0.157 af, Depth> 8.21"
 Routed to Link 3 : EX DI #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=11.58"

Area (ac)	CN	Description
0.230	74	>75% Grass cover, Good, HSG C
0.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	70	0.0600	0.32		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 11.58"
0.2	30	0.0390	2.69		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 11.58"
0.6	134	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
4.4	234	Total			

Subcatchment 2: Pervious



Summary for Subcatchment 4: Impervious

[49] Hint: Tc<2dt may require smaller dt

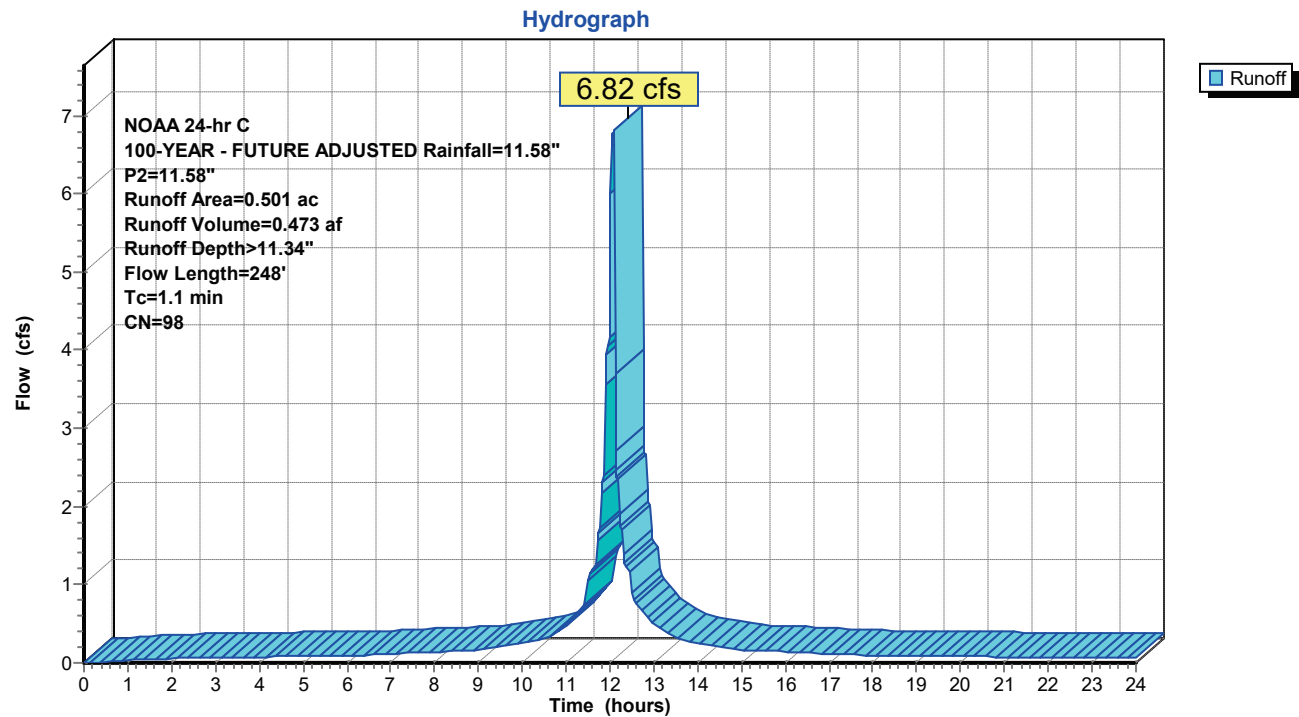
Runoff = 6.82 cfs @ 12.09 hrs, Volume= 0.473 af, Depth>11.34"
Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=11.58"

Area (ac)	CN	Description
0.501	98	Paved parking, HSG C
0.501		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	100	0.0440	3.59		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 11.58"
0.6	148	0.0390	4.01		Shallow Concentrated Flow, C-D
					Paved Kv= 20.3 fps
1.1	248	Total			

Subcatchment 4: Impervious



Summary for Subcatchment 5: Pervious

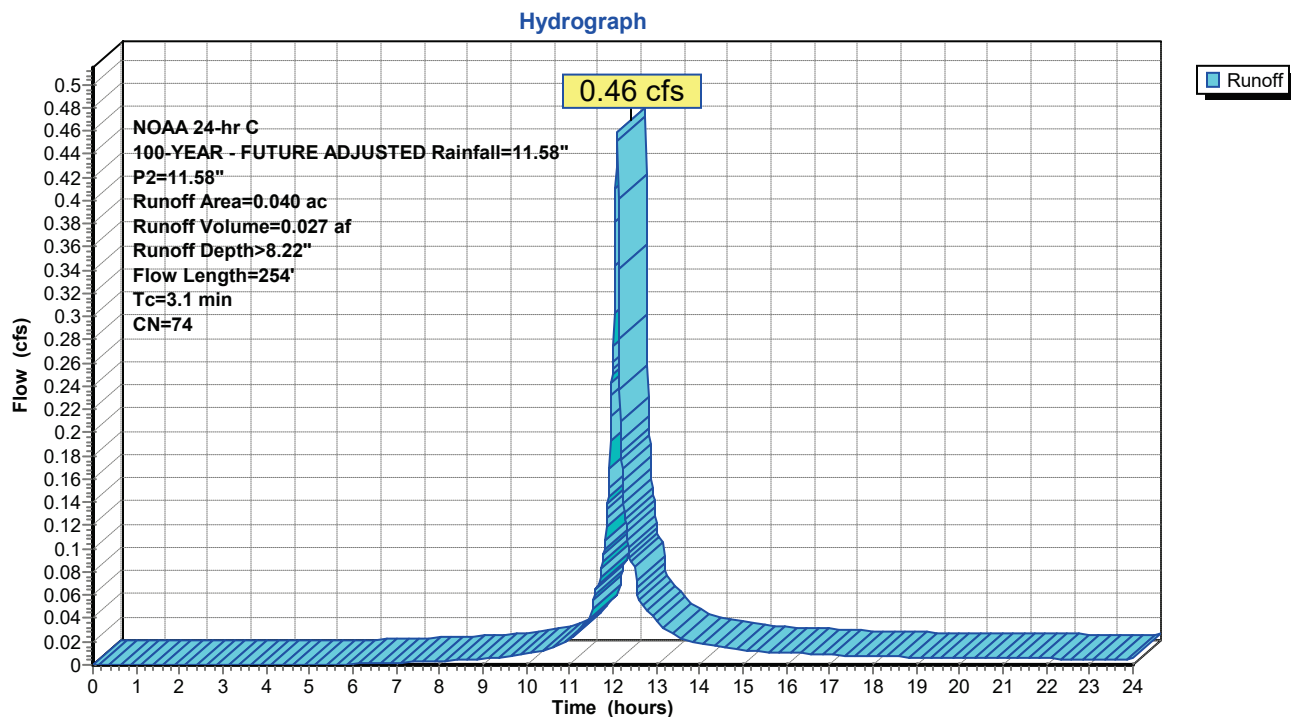
Runoff = 0.46 cfs @ 12.11 hrs, Volume= 0.027 af, Depth> 8.22"
 Routed to Link 6 : EX DI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=11.58"

Area (ac)	CN	Description
0.040	74	>75% Grass cover, Good, HSG C
0.040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	28	0.0400	0.23		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 11.58"
0.4	72	0.0460	3.42		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 11.58"
0.6	154	0.0390	4.01		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
3.1	254	Total			

Subcatchment 5: Pervious



Summary for Subcatchment 7: Impervious

[49] Hint: $T_c < 2dt$ may require smaller dt

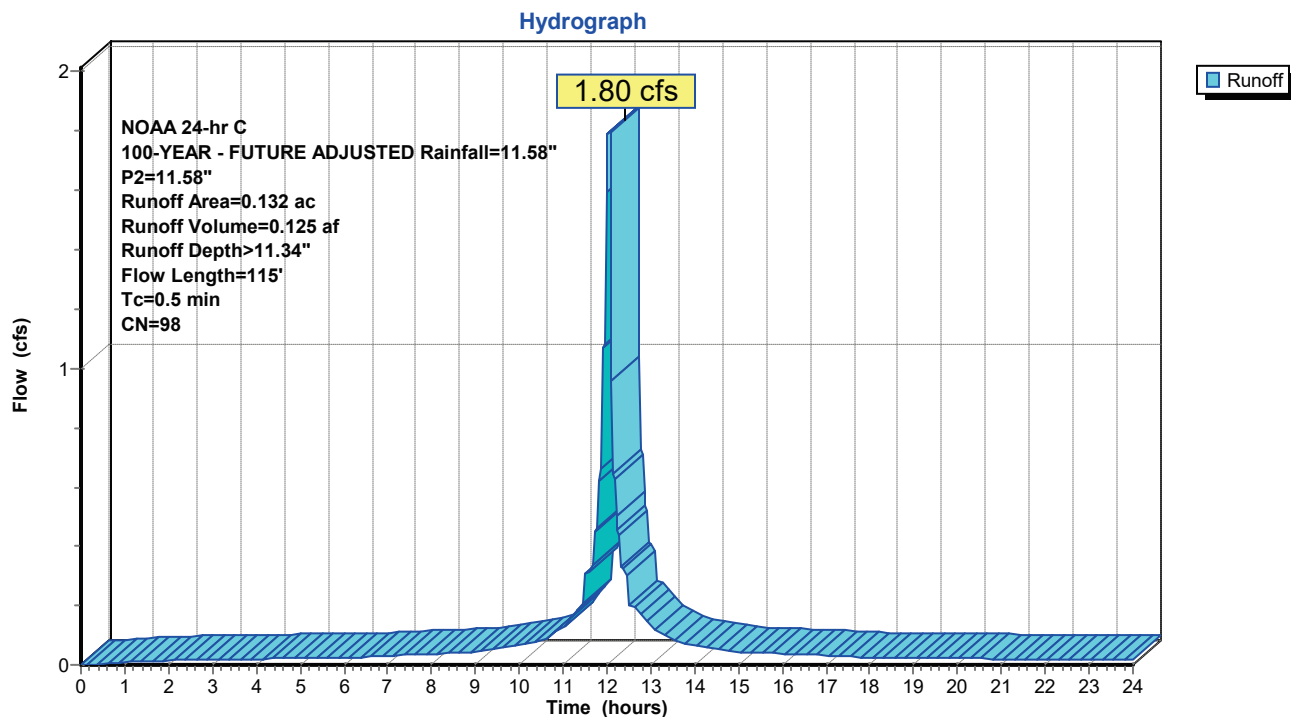
Runoff = 1.80 cfs @ 12.09 hrs, Volume= 0.125 af, Depth>11.34"
 Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.01$ hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=11.58"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.132		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	85	0.0350	3.17		Sheet Flow, B-C
					Smooth surfaces $n=0.011$ P2= 11.58"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D
					Paved $K_v=20.3$ fps
0.5	115	Total			

Subcatchment 7: Impervious



Summary for Subcatchment 8: .054

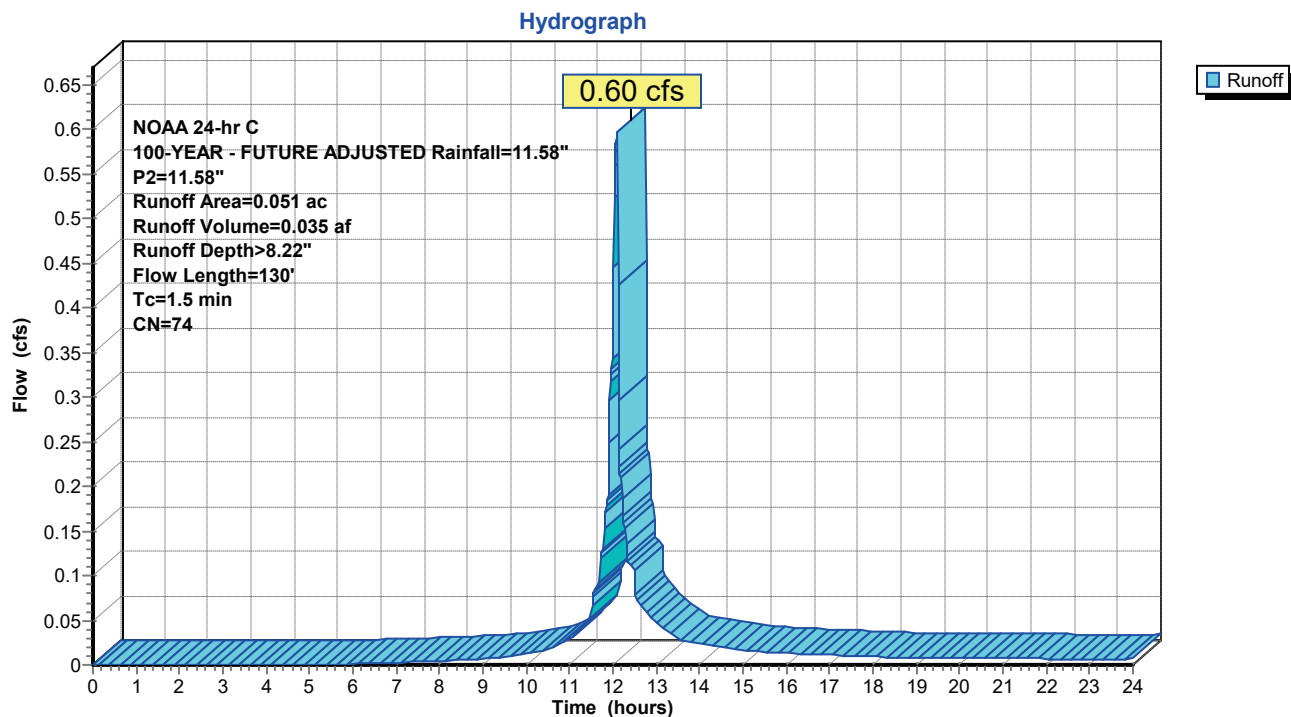
Runoff = 0.60 cfs @ 12.10 hrs, Volume= 0.035 af, Depth> 8.22"
 Routed to Link 9 : EX DA#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=11.58"

Area (ac)	CN	Description
0.051	74	>75% Grass cover, Good, HSG C
0.051		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.0850	0.27		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 11.58"
0.5	85	0.0300	2.98		Sheet Flow, B-C Smooth surfaces n= 0.011 P2= 11.58"
0.1	30	0.0300	3.52		Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps
1.5	130	Total			

Subcatchment 8: .054

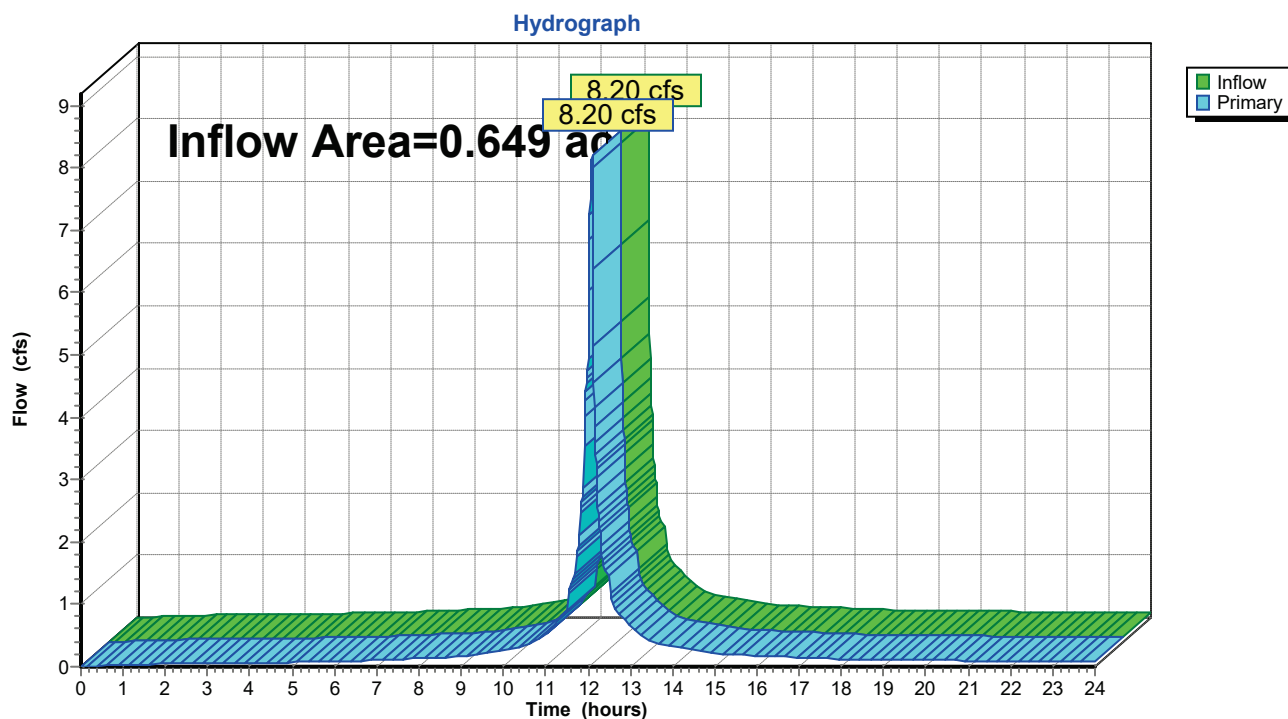


Summary for Link 3: EX DI #1

Inflow Area = 0.649 ac, 64.56% Impervious, Inflow Depth > 10.23" for 100-YEAR - FUTURE ADJUSTED event
Inflow = 8.20 cfs @ 12.10 hrs, Volume= 0.553 af
Primary = 8.20 cfs @ 12.10 hrs, Volume= 0.553 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 3: EX DI #1

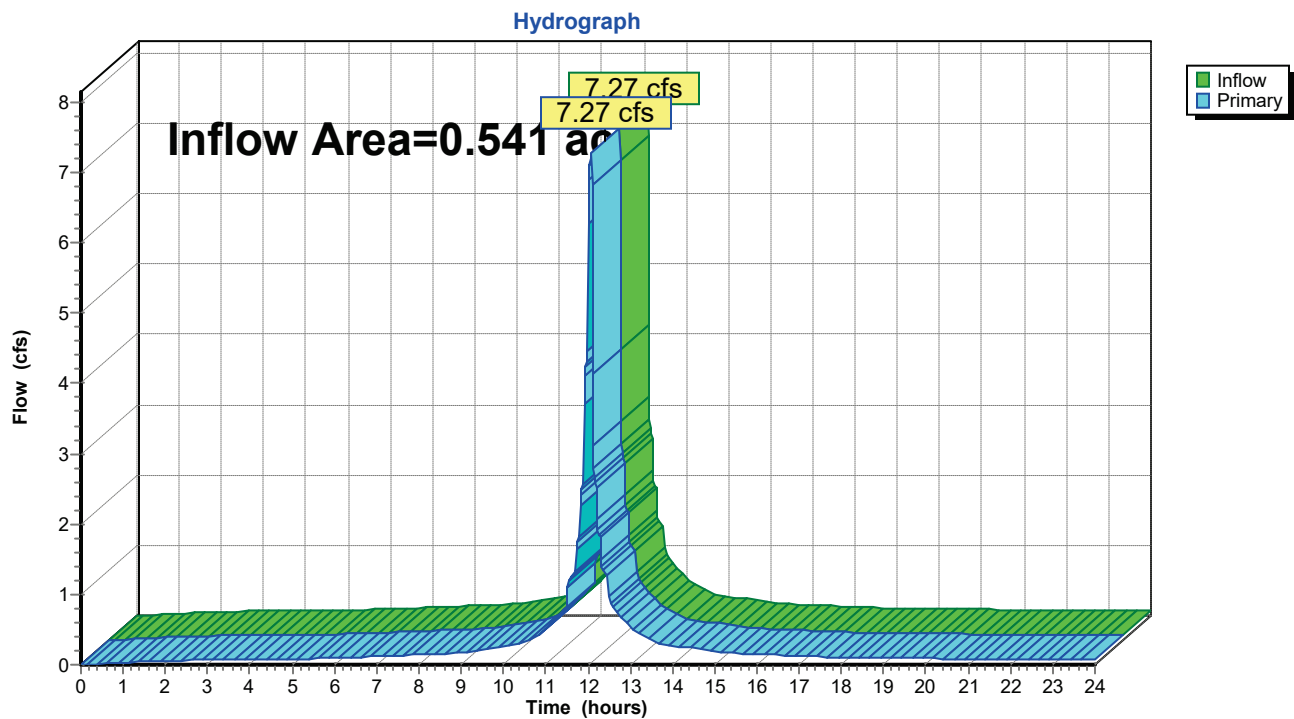


Summary for Link 6: EX DI#2

Inflow Area = 0.541 ac, 92.61% Impervious, Inflow Depth > 11.11" for 100-YEAR - FUTURE ADJUSTED event
Inflow = 7.27 cfs @ 12.09 hrs, Volume= 0.501 af
Primary = 7.27 cfs @ 12.09 hrs, Volume= 0.501 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 6: EX DI#2

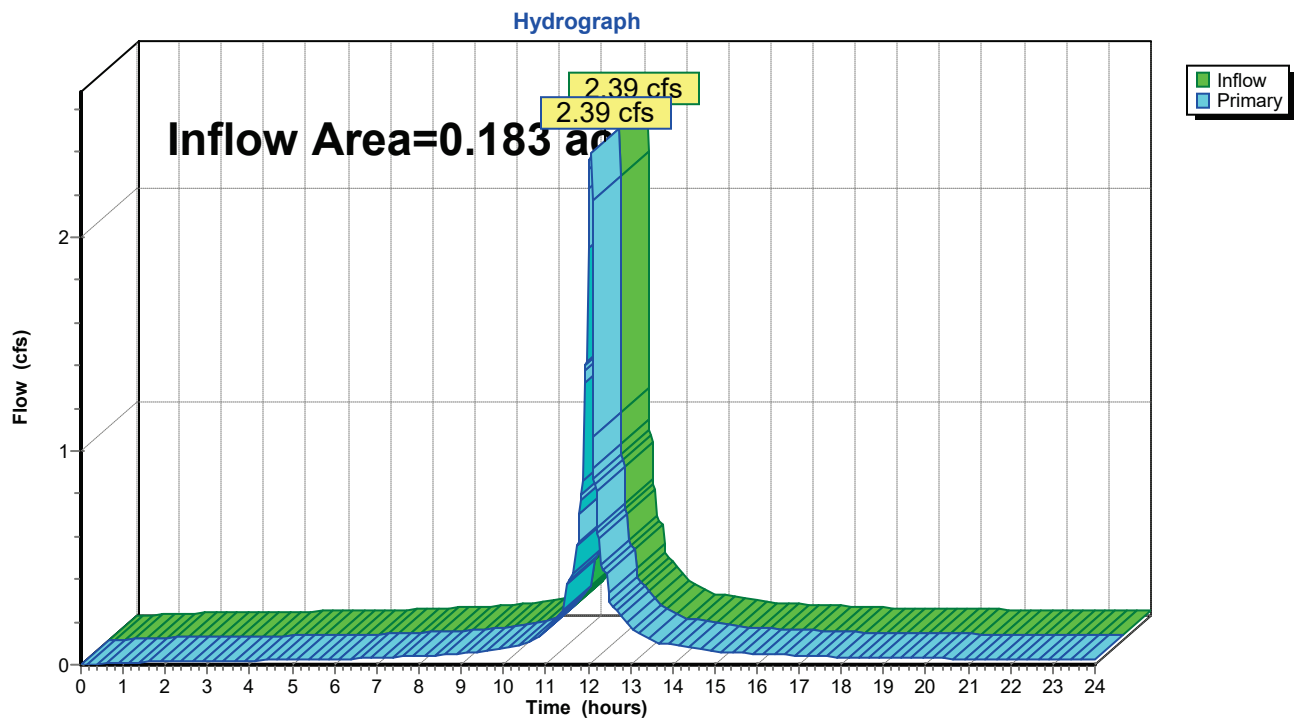


Summary for Link 9: EX DA#3

Inflow Area = 0.183 ac, 72.13% Impervious, Inflow Depth > 10.47" for 100-YEAR - FUTURE ADJUSTED event
Inflow = 2.39 cfs @ 12.09 hrs, Volume= 0.160 af
Primary = 2.39 cfs @ 12.09 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min
Routed to Link 10 : TOTAL

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

Link 9: EX DA#3

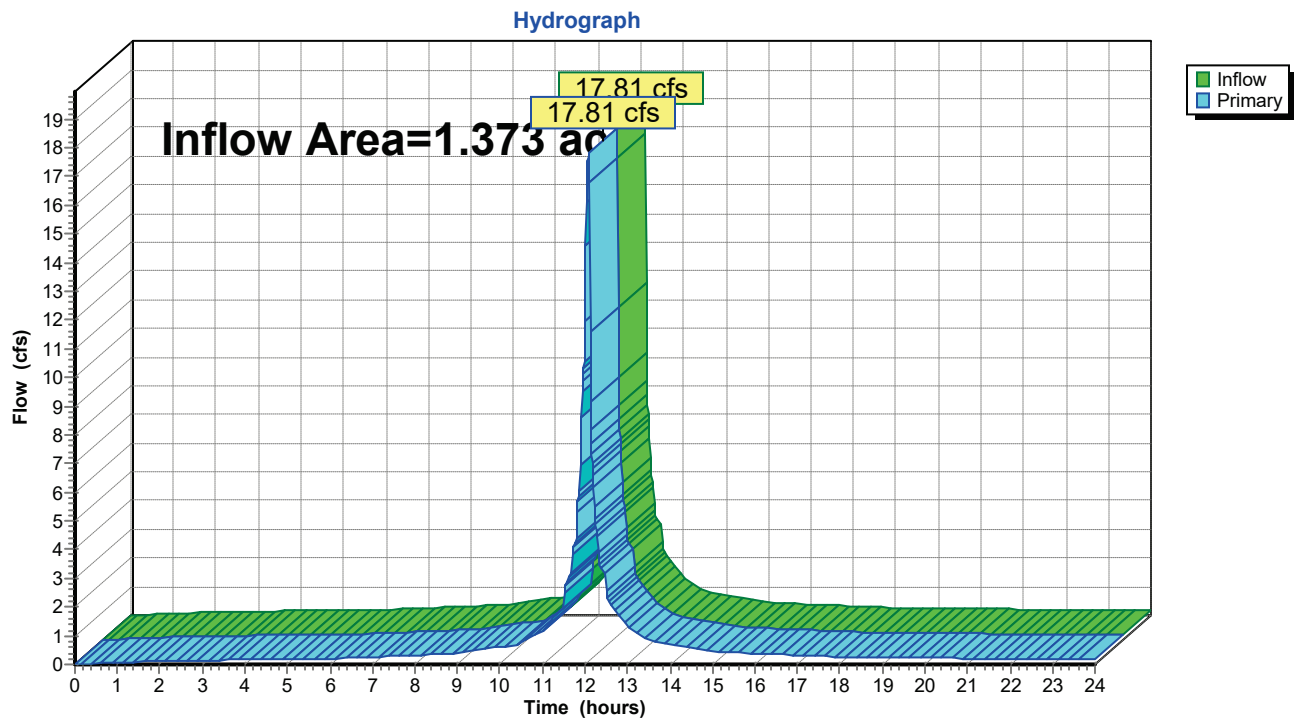


Summary for Link 10: TOTAL

Inflow Area = 1.373 ac, 76.62% Impervious, Inflow Depth > 10.61" for 100-YEAR - FUTURE ADJUSTED event
Inflow = 17.81 cfs @ 12.10 hrs, Volume= 1.214 af
Primary = 17.81 cfs @ 12.10 hrs, Volume= 1.214 af, Atten= 0%, Lag= 0.0 min

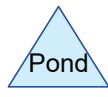
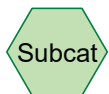
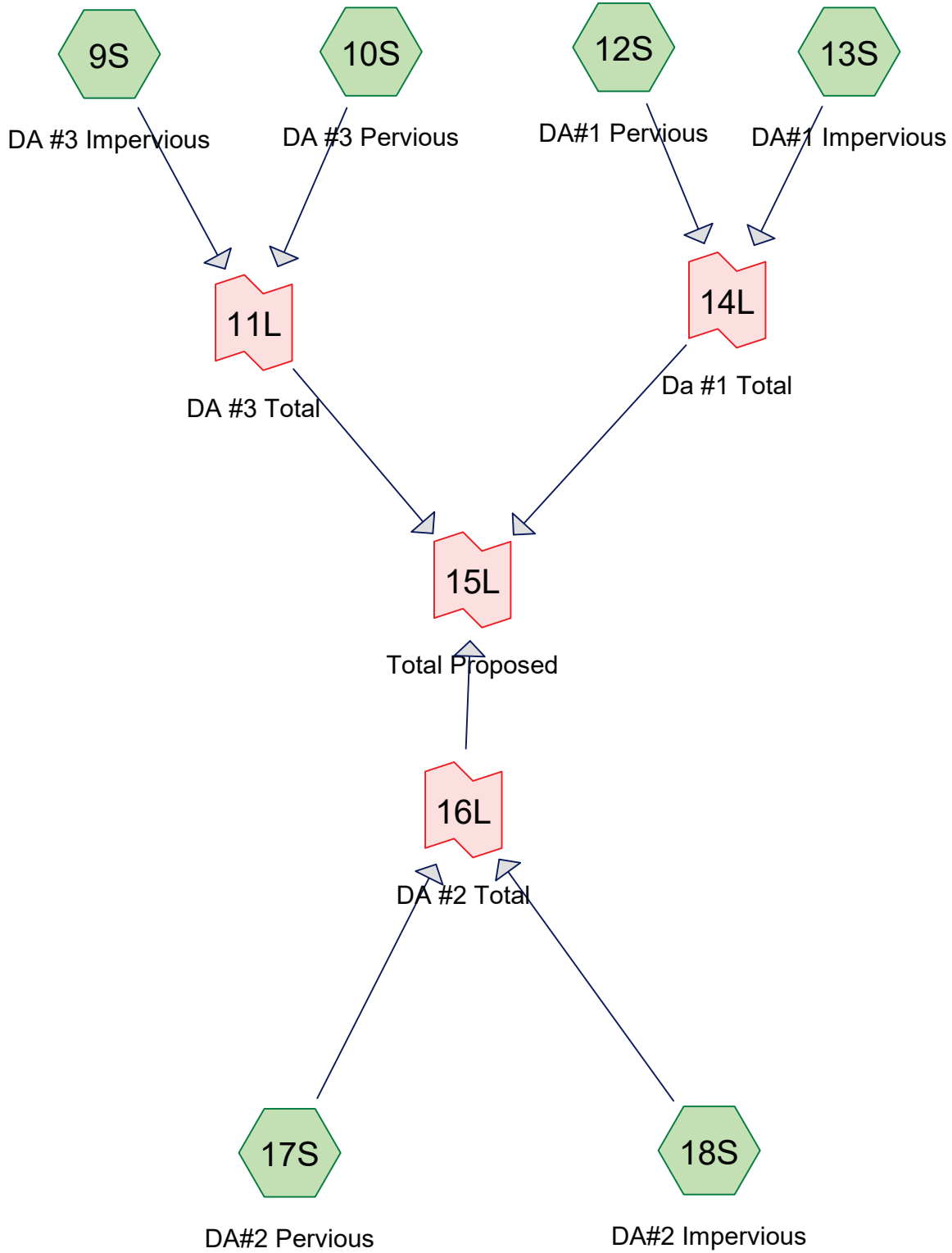
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 10: TOTAL



APPENDIX D

Post-Development Hydrographs Future Adjusted Precipitation Depths



Routing Diagram for Proposed Conditions
Prepared by Bright View Engineering, Printed 1/21/2026
HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Summary for Subcatchment 9S: DA #3 Impervious

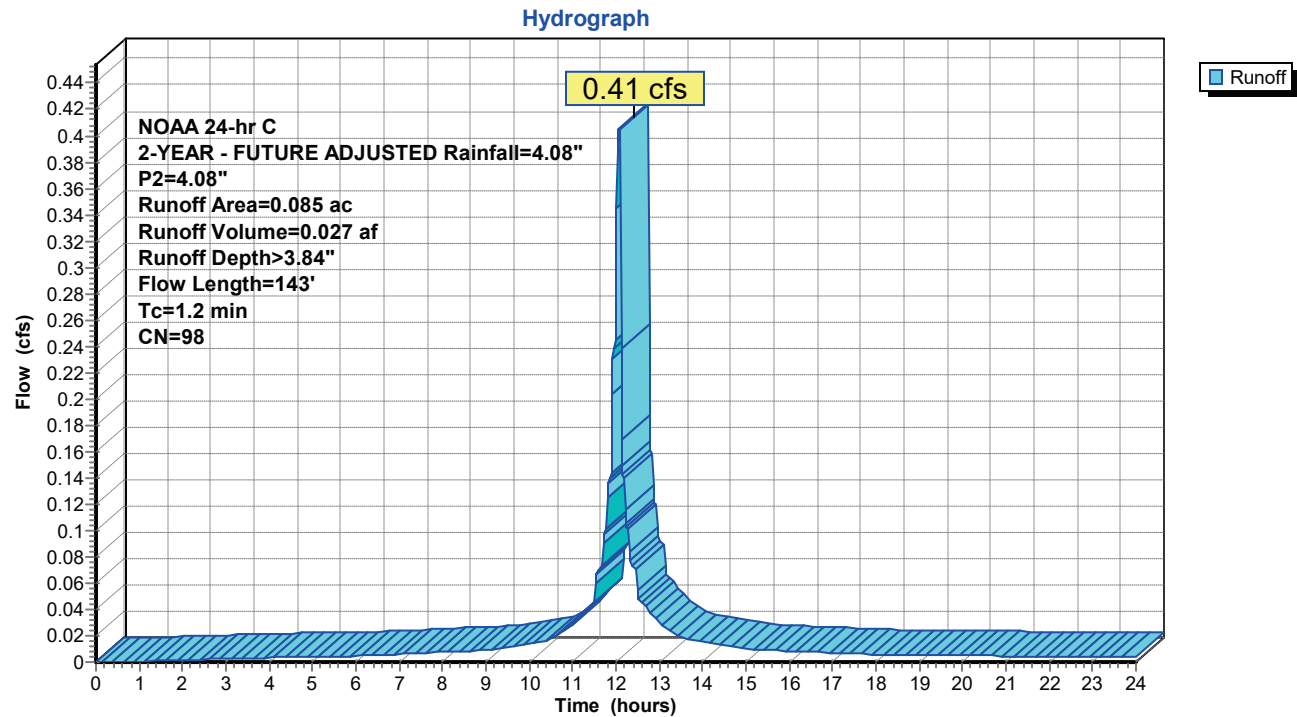
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 3.84"
Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.085	98	Paved parking, HSG C
0.085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	70	0.0500	2.09		Sheet Flow, Parking Segment 1
					Smooth surfaces n= 0.011 P2= 4.08"
0.6	73	0.0100	2.03		Shallow Concentrated Flow, Parking Segment 2
					Paved Kv= 20.3 fps
1.2	143	Total			

Subcatchment 9S: DA #3 Impervious



Summary for Subcatchment 10S: DA #3 Pervious

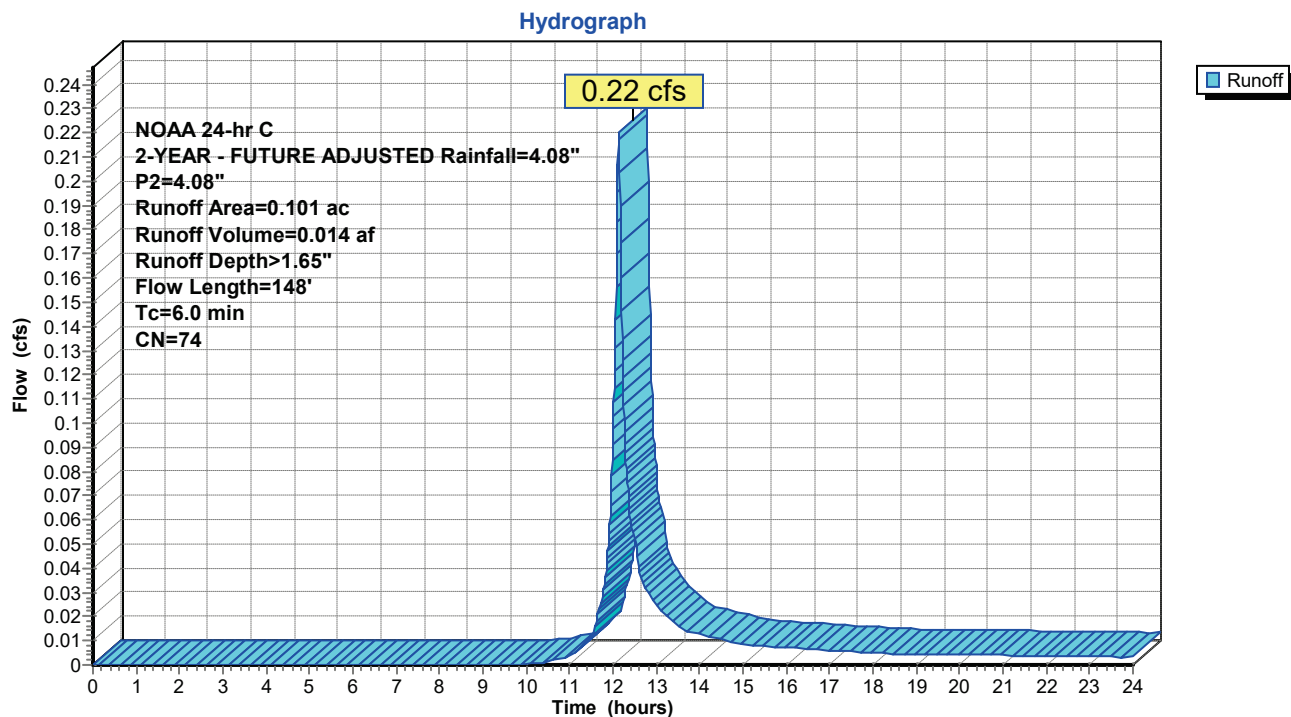
Runoff = 0.22 cfs @ 12.14 hrs, Volume= 0.014 af, Depth> 1.65"
 Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.101	74	>75% Grass cover, Good, HSG C
0.101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	28	0.0140	0.09		Sheet Flow, Lawn area Grass: Dense n= 0.240 P2= 4.08"
0.2	43	0.0500	4.54		Shallow Concentrated Flow, Parking Lot 1 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Parking Segment 2 Paved Kv= 20.3 fps
0.2	21	0.0100	2.03		Shallow Concentrated Flow, Parking Third Segment Paved Kv= 20.3 fps
6.0	148	Total			

Subcatchment 10S: DA #3 Pervious



Summary for Subcatchment 12S: DA#1 Pervious

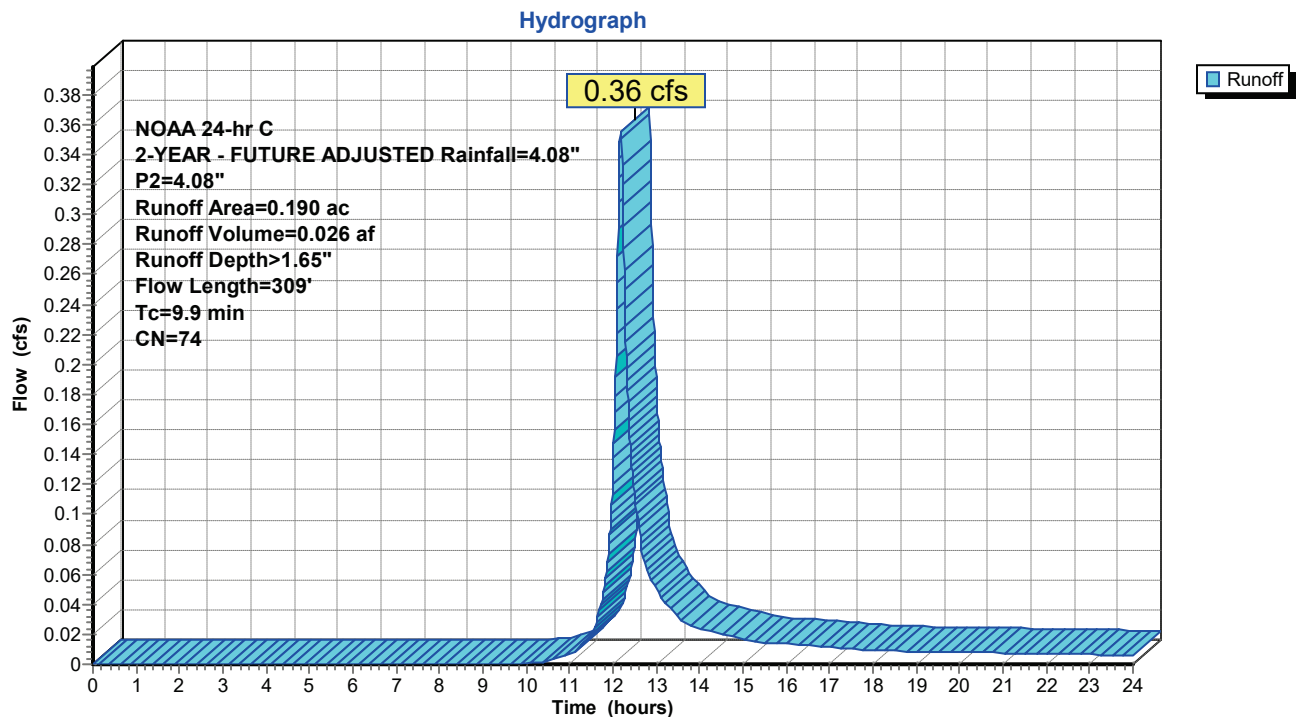
Runoff = 0.36 cfs @ 12.18 hrs, Volume= 0.026 af, Depth> 1.65"
 Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.190	74	>75% Grass cover, Good, HSG C
0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	64	0.0500	0.17		Sheet Flow, Segment 1 Grass: Dense n= 0.240 P2= 4.08"
2.9	25	0.0500	0.14		Sheet Flow, Segment 2 Grass: Dense n= 0.240 P2= 4.08"
0.3	93	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.2	22	0.0100	2.03		Shallow Concentrated Flow, Segment 4 Paved Kv= 20.3 fps
0.4	105	0.0100	4.91	3.86	Pipe Channel, Pipe 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
9.9	309	Total			

Subcatchment 12S: DA#1 Pervious



Summary for Subcatchment 13S: DA#1 Impervious

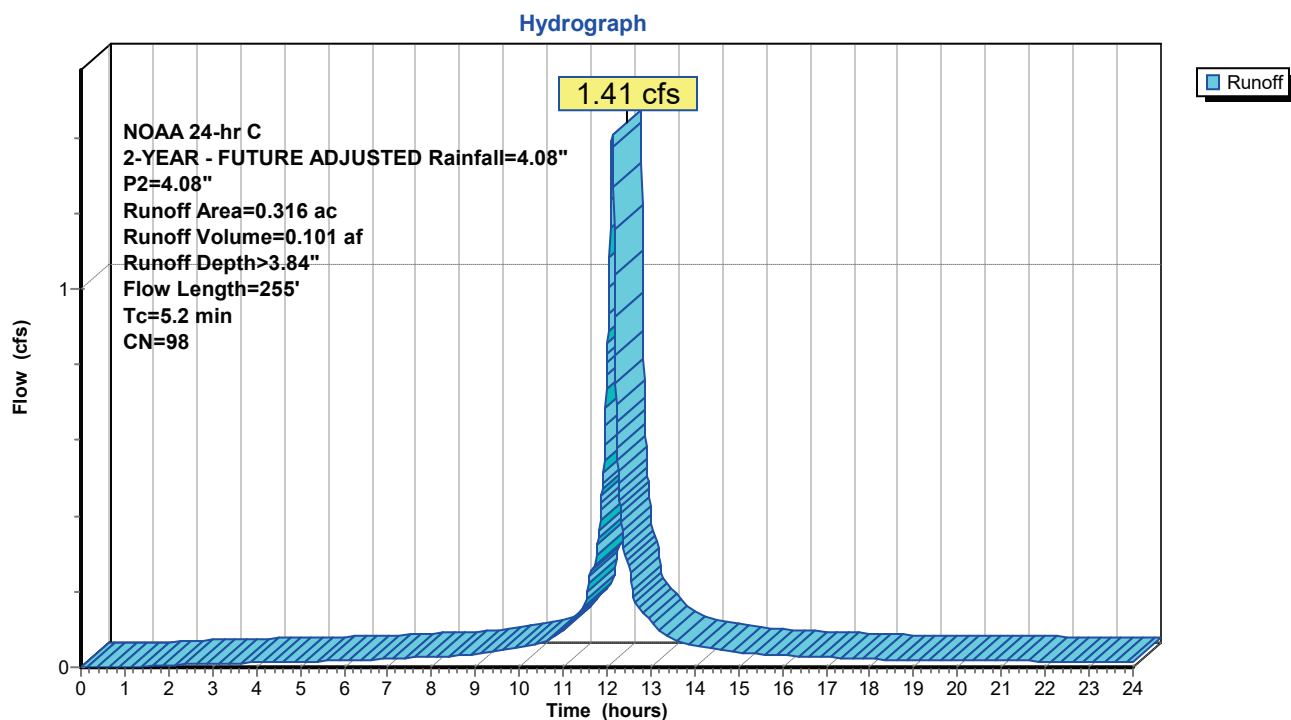
Runoff = 1.41 cfs @ 12.12 hrs, Volume= 0.101 af, Depth> 3.84"
 Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.316	98	Paved parking, HSG C
0.316		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	28	0.0300	0.12		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 4.08"
0.4	44	0.0500	1.90		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 4.08"
0.2	60	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.5	61	0.0100	2.03		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
0.2	62	0.0100	4.91	3.86	Pipe Channel, Segment 5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.2	255	Total			

Subcatchment 13S: DA#1 Impervious



Summary for Subcatchment 17S: DA#2 Pervious

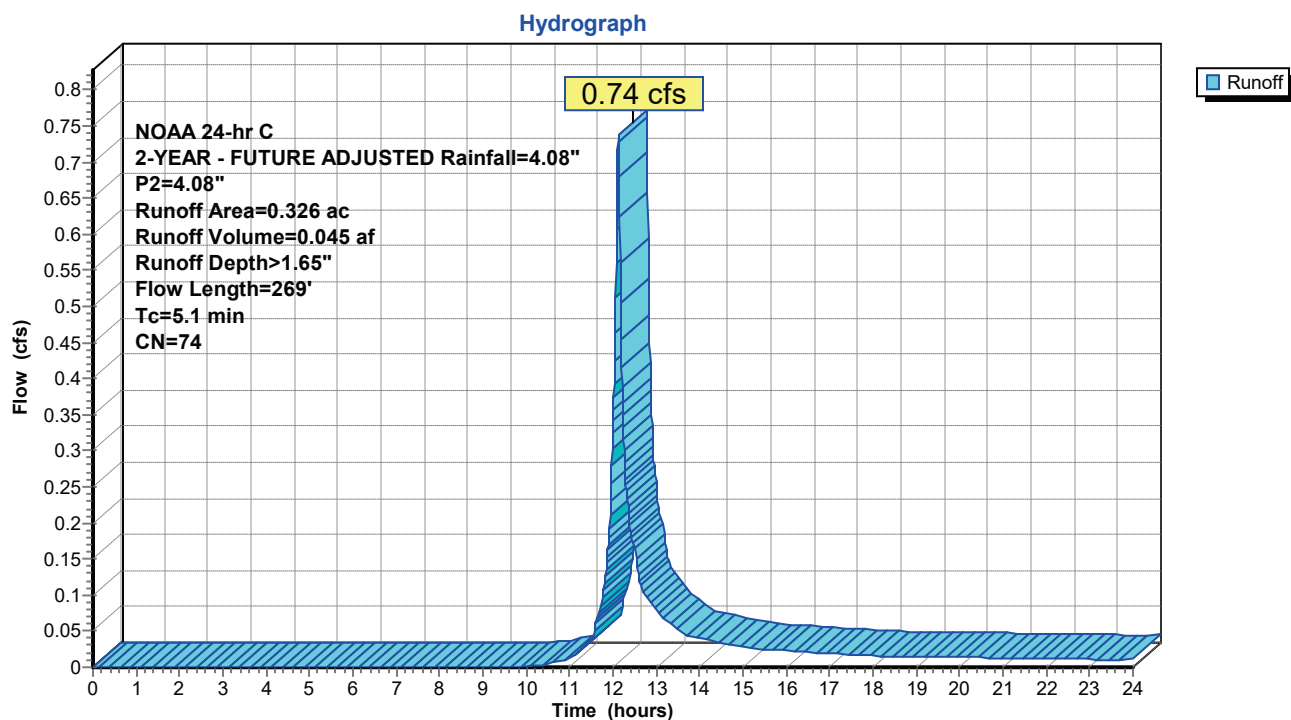
Runoff = 0.74 cfs @ 12.13 hrs, Volume= 0.045 af, Depth> 1.65"
 Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.326	74	>75% Grass cover, Good, HSG C
0.326		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	30	0.0400	0.14		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 4.08"
0.3	30	0.0500	1.76		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 4.08"
0.5	123	0.0500	4.54		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.5	56	0.0100	2.03		Shallow Concentrated Flow, Segment #5 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #6 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.1	269	Total			

Subcatchment 17S: DA#2 Pervious



Summary for Subcatchment 18S: DA#2 Impervious

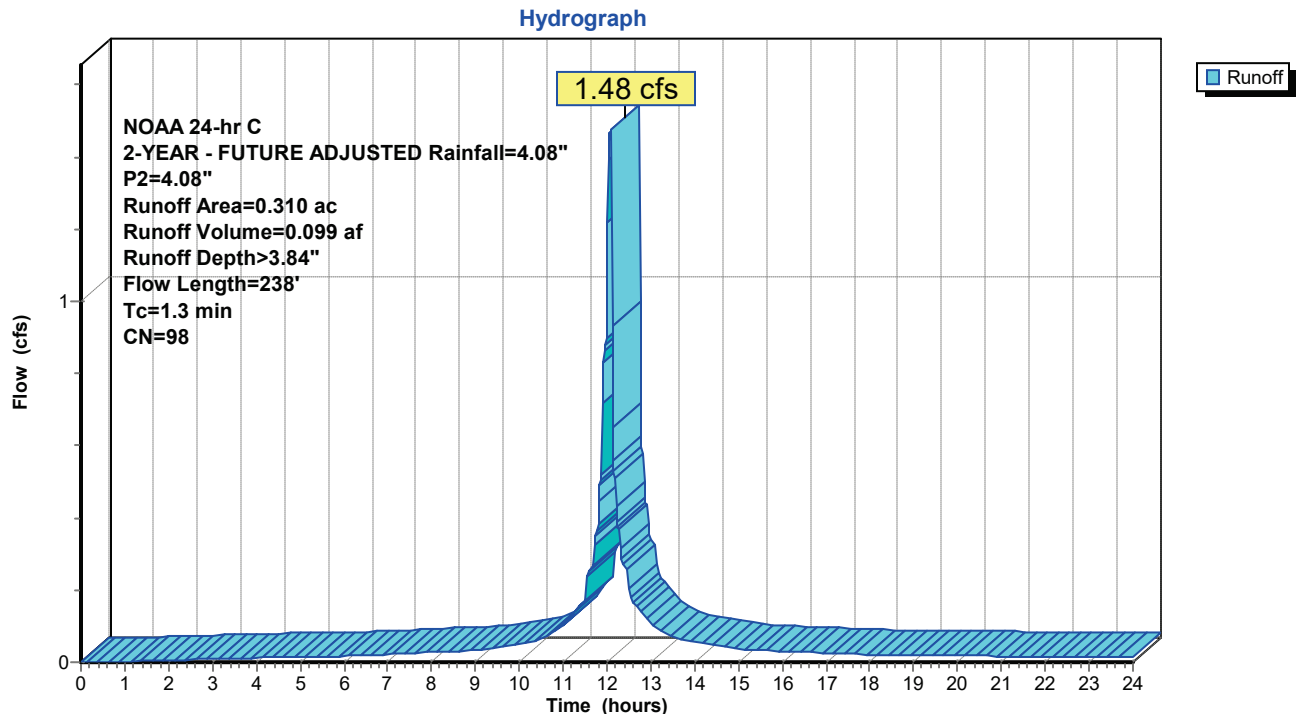
Runoff = 1.48 cfs @ 12.09 hrs, Volume= 0.099 af, Depth> 3.84"
 Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-YEAR - FUTURE ADJUSTED Rainfall=4.08", P2=4.08"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG C
0.310		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	80	0.0500	2.14		Sheet Flow, Segment #1 Smooth surfaces n= 0.011 P2= 4.08"
0.3	72	0.0500	4.54		Shallow Concentrated Flow, Segment #2 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #4 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.3	238	Total			

Subcatchment 18S: DA#2 Impervious

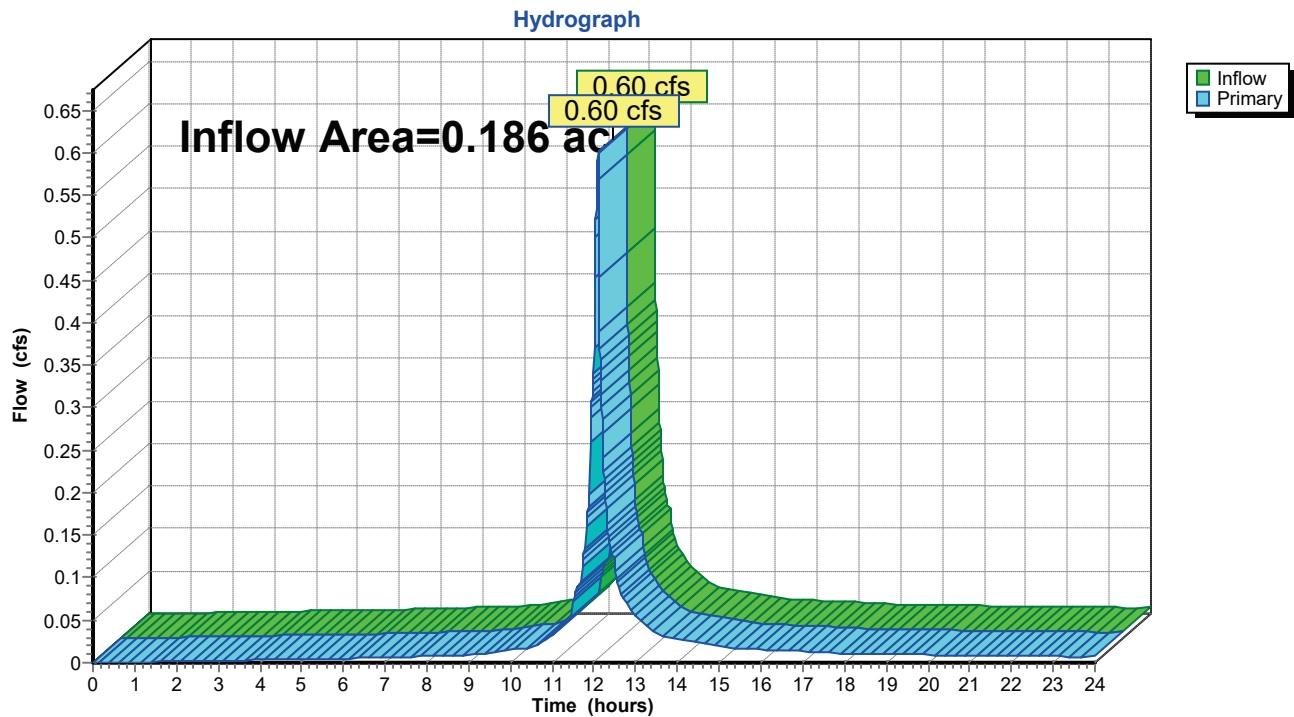


Summary for Link 11L: DA #3 Total

Inflow Area = 0.186 ac, 45.70% Impervious, Inflow Depth > 2.65" for 2-YEAR - FUTURE ADJUSTED event
Inflow = 0.60 cfs @ 12.10 hrs, Volume= 0.041 af
Primary = 0.60 cfs @ 12.10 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 11L: DA #3 Total

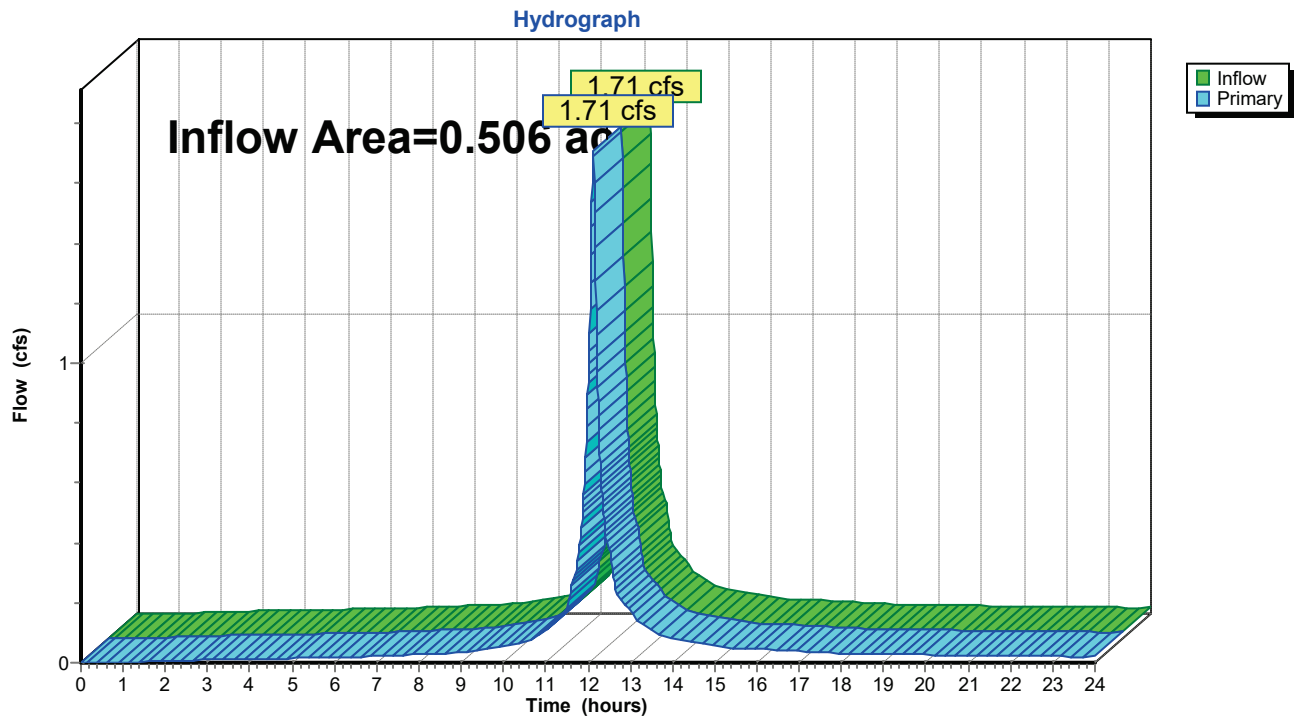


Summary for Link 14L: Da #1 Total

Inflow Area = 0.506 ac, 62.45% Impervious, Inflow Depth > 3.02" for 2-YEAR - FUTURE ADJUSTED event
Inflow = 1.71 cfs @ 12.13 hrs, Volume= 0.127 af
Primary = 1.71 cfs @ 12.13 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 14L: Da #1 Total

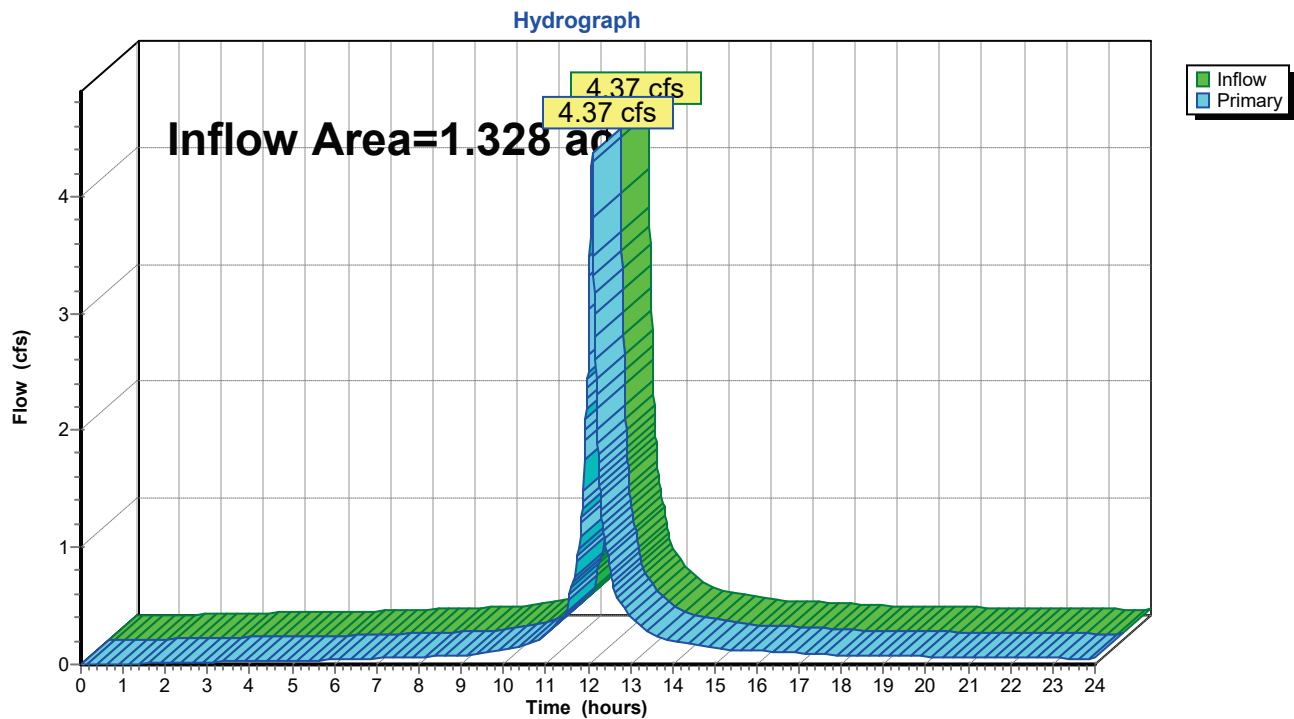


Summary for Link 15L: Total Proposed

Inflow Area = 1.328 ac, 53.54% Impervious, Inflow Depth > 2.82" for 2-YEAR - FUTURE ADJUSTED event
Inflow = 4.37 cfs @ 12.10 hrs, Volume= 0.313 af
Primary = 4.37 cfs @ 12.10 hrs, Volume= 0.313 af, Atten= 0%, Lag= 0.0 min

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

Link 15L: Total Proposed

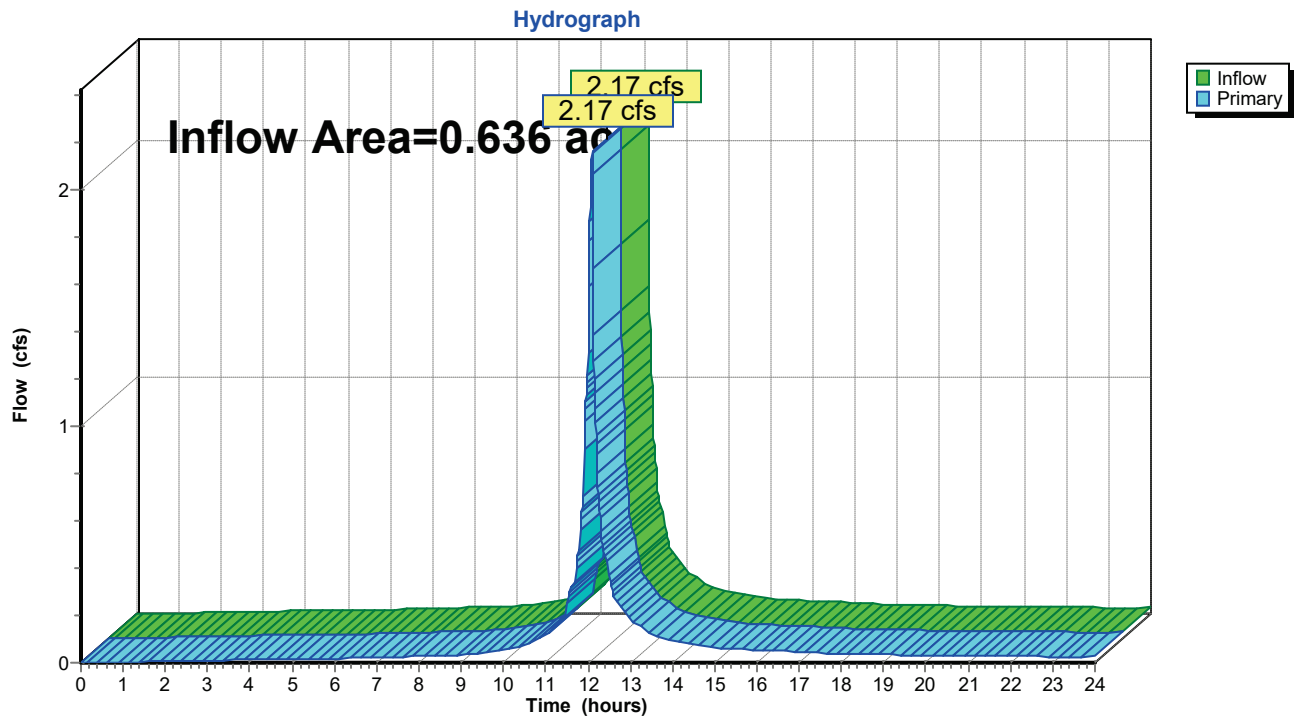


Summary for Link 16L: DA #2 Total

Inflow Area = 0.636 ac, 48.74% Impervious, Inflow Depth > 2.72" for 2-YEAR - FUTURE ADJUSTED event
Inflow = 2.17 cfs @ 12.10 hrs, Volume= 0.144 af
Primary = 2.17 cfs @ 12.10 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 16L: DA #2 Total



Summary for Subcatchment 9S: DA #3 Impervious

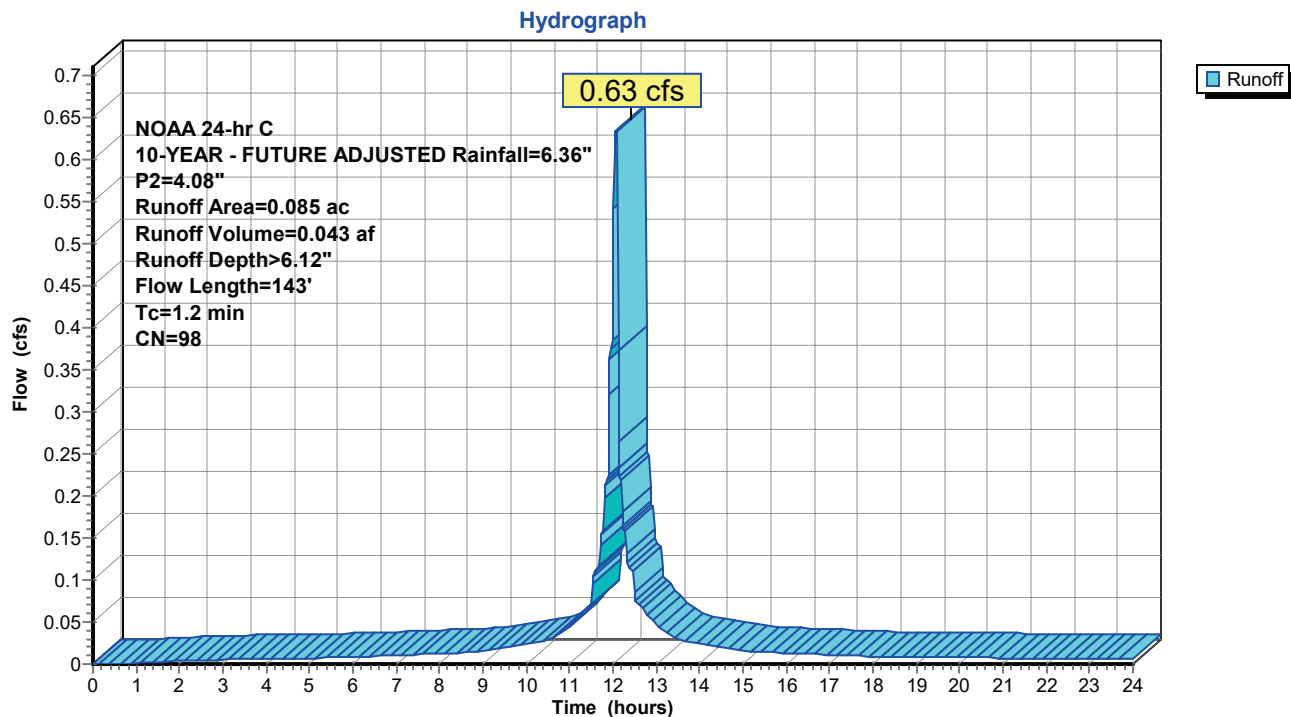
Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.043 af, Depth> 6.12"
 Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=4.08"

Area (ac)	CN	Description
0.085	98	Paved parking, HSG C
0.085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	70	0.0500	2.09		Sheet Flow, Parking Segment 1
					Smooth surfaces n= 0.011 P2= 4.08"
0.6	73	0.0100	2.03		Shallow Concentrated Flow, Parking Segment 2
					Paved Kv= 20.3 fps
1.2	143	Total			

Subcatchment 9S: DA #3 Impervious



Summary for Subcatchment 10S: DA #3 Pervious

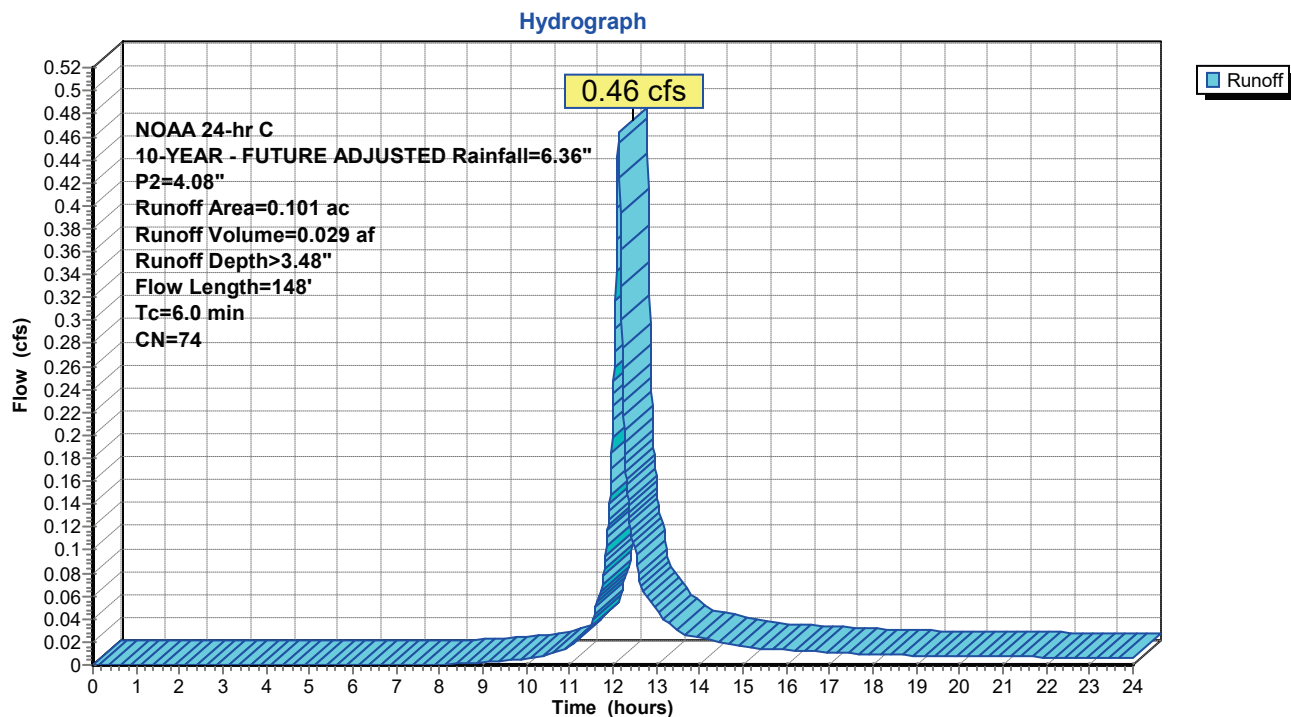
Runoff = 0.46 cfs @ 12.13 hrs, Volume= 0.029 af, Depth> 3.48"
 Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=4.08"

Area (ac)	CN	Description
0.101	74	>75% Grass cover, Good, HSG C
0.101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	28	0.0140	0.09		Sheet Flow, Lawn area Grass: Dense n= 0.240 P2= 4.08"
0.2	43	0.0500	4.54		Shallow Concentrated Flow, Parking Lot 1 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Parking Segment 2 Paved Kv= 20.3 fps
0.2	21	0.0100	2.03		Shallow Concentrated Flow, Parking Third Segment Paved Kv= 20.3 fps
6.0	148	Total			

Subcatchment 10S: DA #3 Pervious



Summary for Subcatchment 12S: DA#1 Pervious

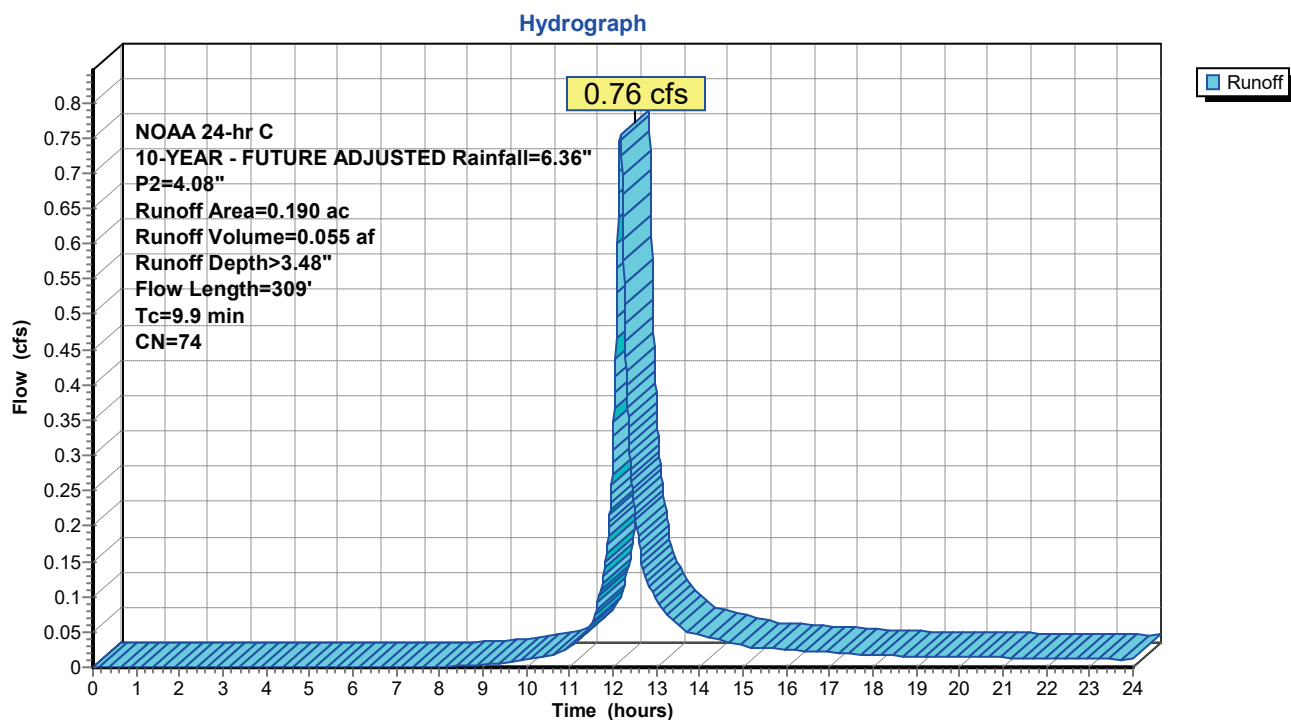
Runoff = 0.76 cfs @ 12.17 hrs, Volume= 0.055 af, Depth> 3.48"
 Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=4.08"

Area (ac)	CN	Description
0.190	74	>75% Grass cover, Good, HSG C
0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	64	0.0500	0.17		Sheet Flow, Segment 1 Grass: Dense n= 0.240 P2= 4.08"
2.9	25	0.0500	0.14		Sheet Flow, Segment 2 Grass: Dense n= 0.240 P2= 4.08"
0.3	93	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.2	22	0.0100	2.03		Shallow Concentrated Flow, Segment 4 Paved Kv= 20.3 fps
0.4	105	0.0100	4.91	3.86	Pipe Channel, Pipe 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
9.9	309	Total			

Subcatchment 12S: DA#1 Pervious



Summary for Subcatchment 13S: DA#1 Impervious

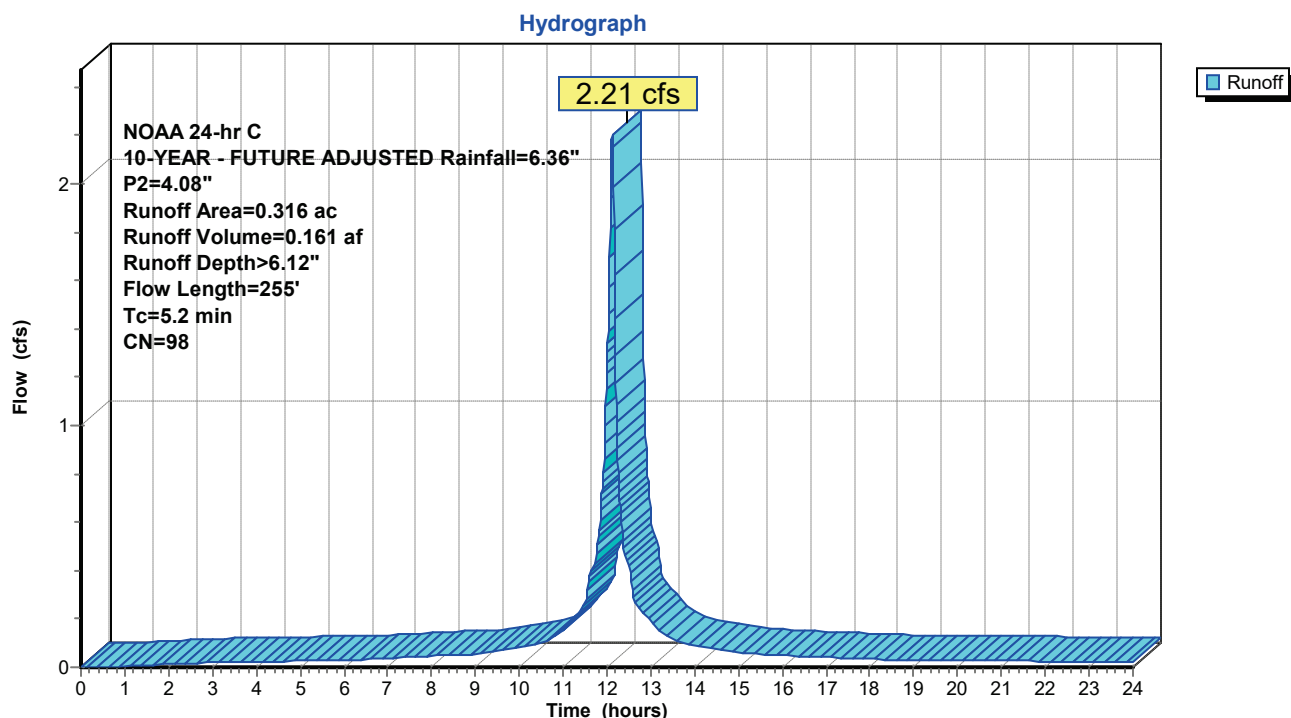
Runoff = 2.21 cfs @ 12.12 hrs, Volume= 0.161 af, Depth> 6.12"
 Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=4.08"

Area (ac)	CN	Description
0.316	98	Paved parking, HSG C
0.316		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	28	0.0300	0.12		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 4.08"
0.4	44	0.0500	1.90		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 4.08"
0.2	60	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.5	61	0.0100	2.03		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
0.2	62	0.0100	4.91	3.86	Pipe Channel, Segment 5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.2	255	Total			

Subcatchment 13S: DA#1 Impervious



Summary for Subcatchment 17S: DA#2 Pervious

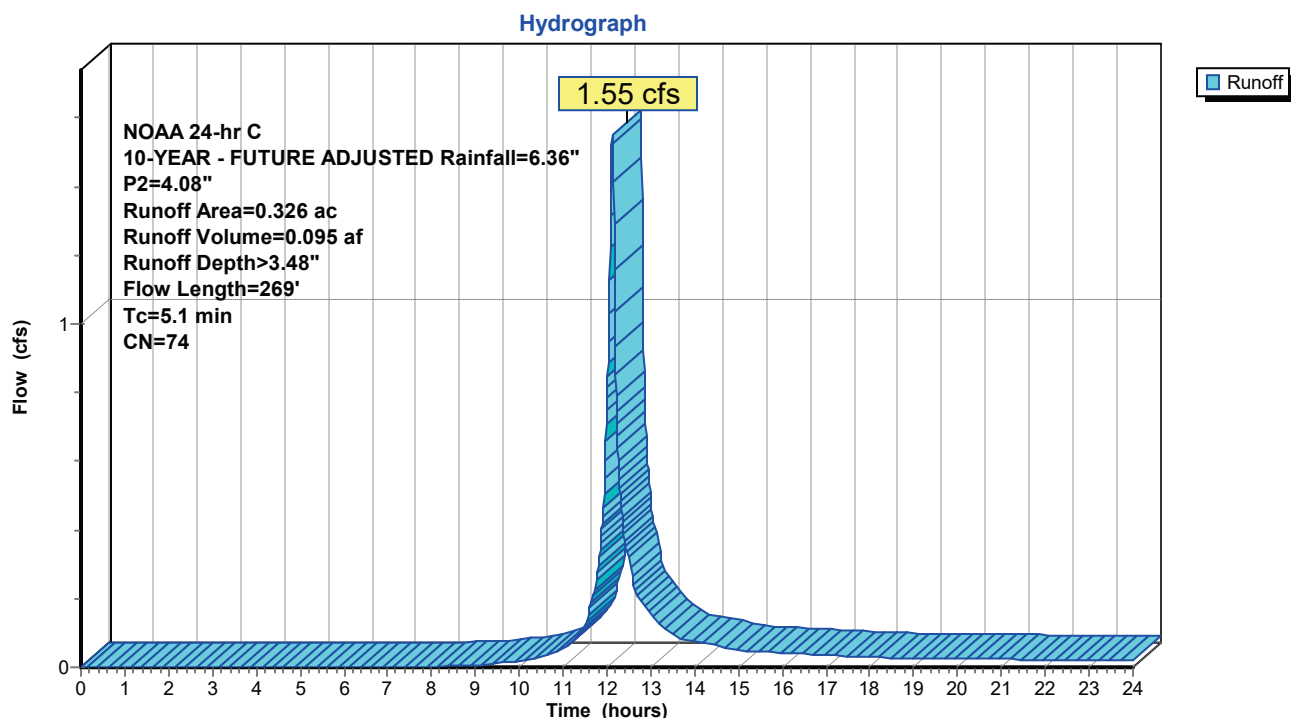
Runoff = 1.55 cfs @ 12.12 hrs, Volume= 0.095 af, Depth> 3.48"
 Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=4.08"

Area (ac)	CN	Description
0.326	74	>75% Grass cover, Good, HSG C
0.326		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	30	0.0400	0.14		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 4.08"
0.3	30	0.0500	1.76		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 4.08"
0.5	123	0.0500	4.54		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.5	56	0.0100	2.03		Shallow Concentrated Flow, Segment #5 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #6 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.1	269	Total			

Subcatchment 17S: DA#2 Pervious



Summary for Subcatchment 18S: DA#2 Impervious

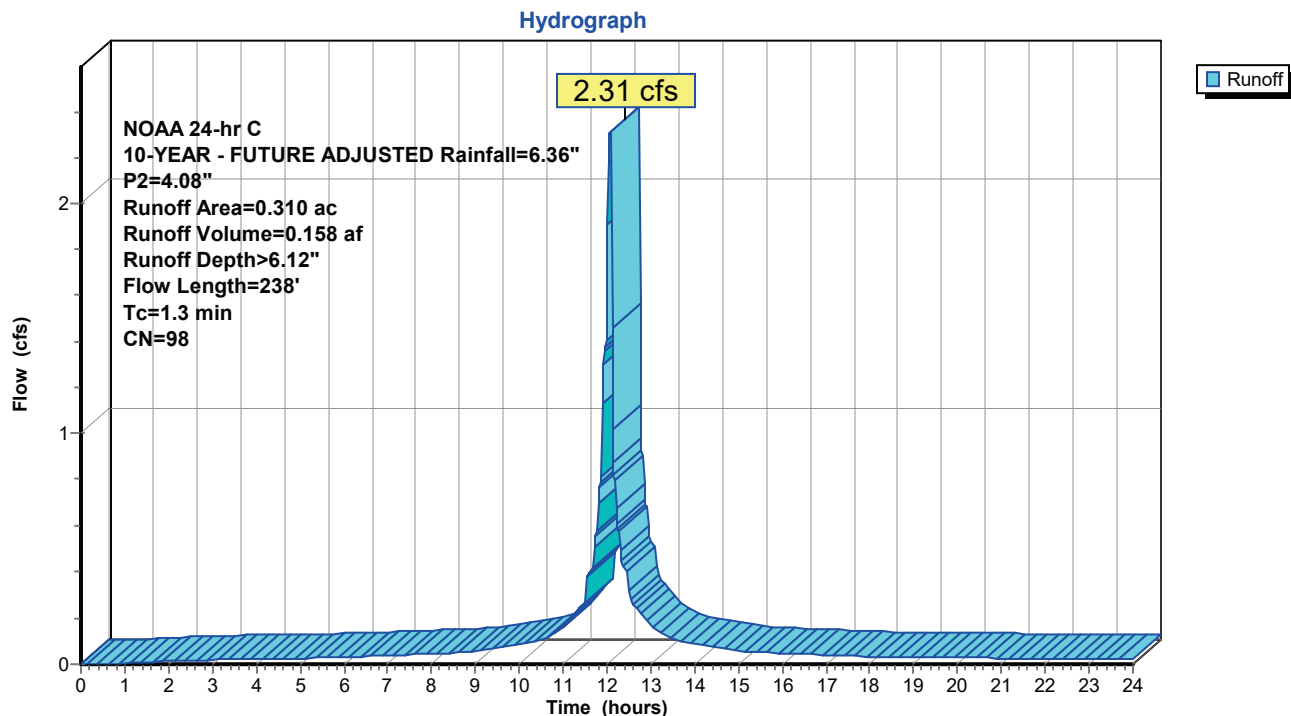
Runoff = 2.31 cfs @ 12.09 hrs, Volume= 0.158 af, Depth> 6.12"
 Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-YEAR - FUTURE ADJUSTED Rainfall=6.36", P2=4.08"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG C
0.310		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	80	0.0500	2.14		Sheet Flow, Segment #1 Smooth surfaces n= 0.011 P2= 4.08"
0.3	72	0.0500	4.54		Shallow Concentrated Flow, Segment #2 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #4 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.3	238				Total

Subcatchment 18S: DA#2 Impervious

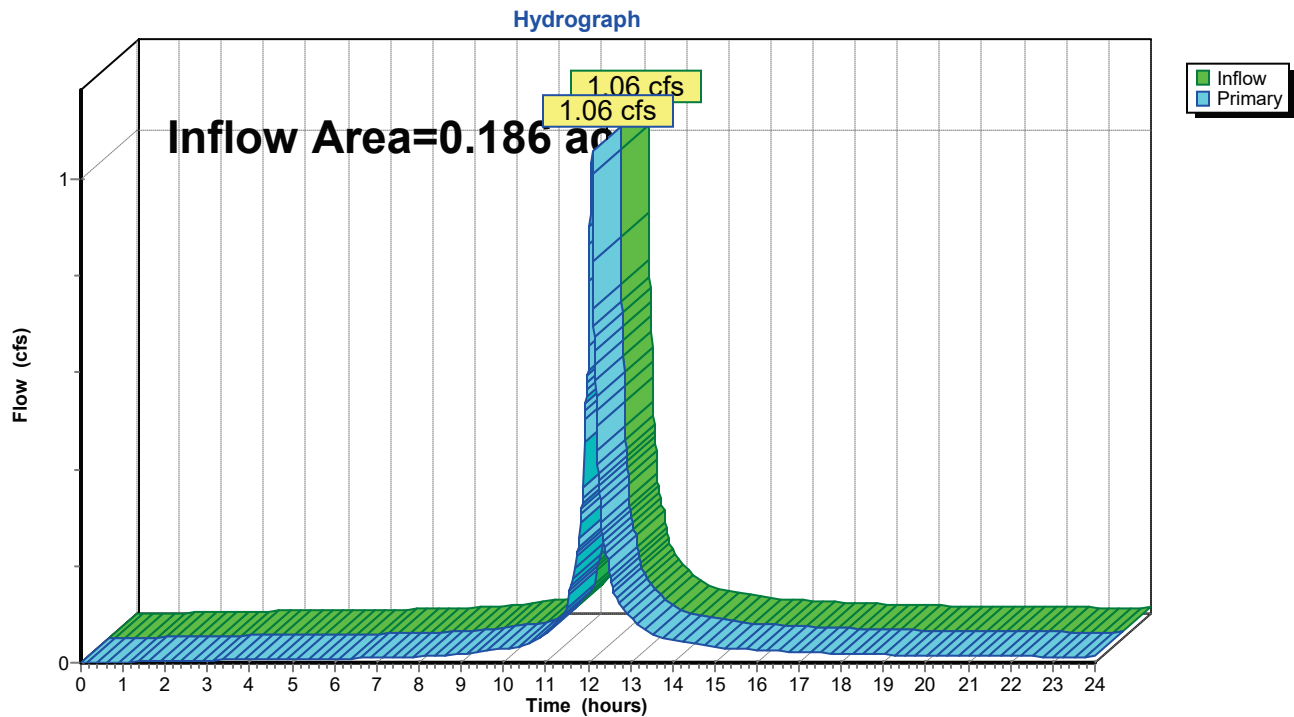


Summary for Link 11L: DA #3 Total

Inflow Area = 0.186 ac, 45.70% Impervious, Inflow Depth > 4.69" for 10-YEAR - FUTURE ADJUSTED even
Inflow = 1.06 cfs @ 12.10 hrs, Volume= 0.073 af
Primary = 1.06 cfs @ 12.10 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 11L: DA #3 Total

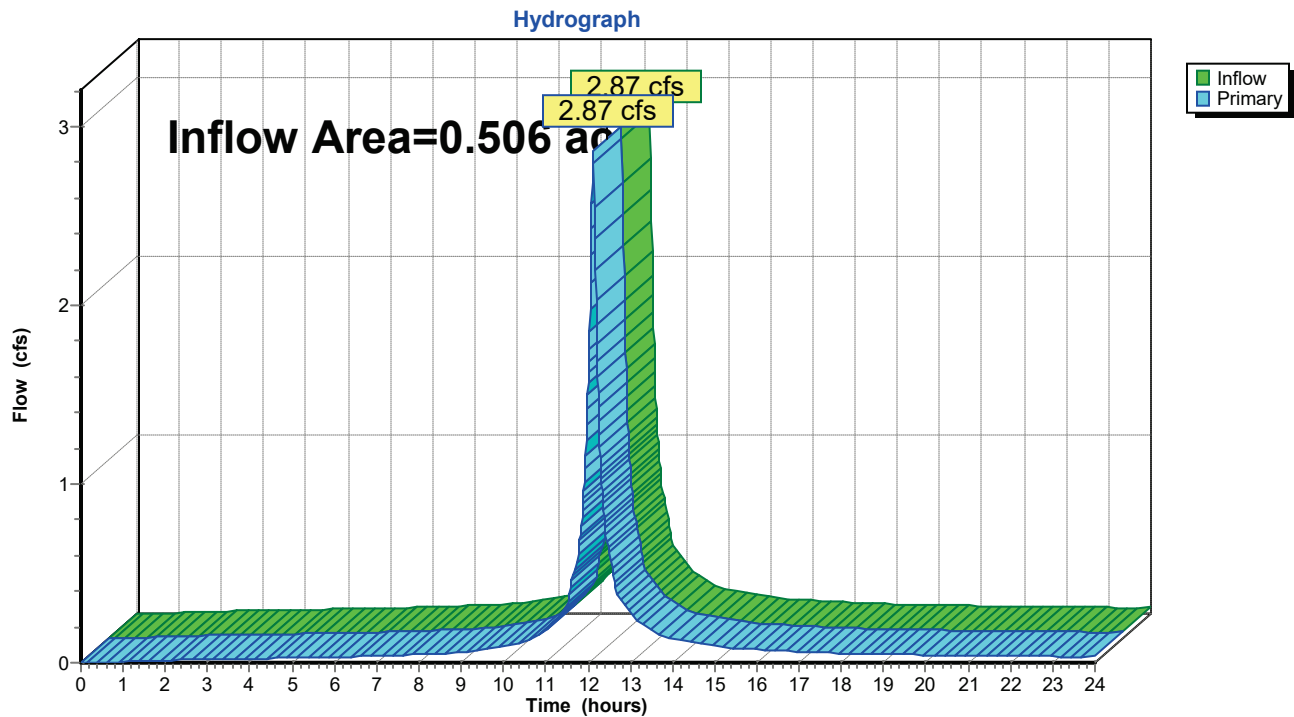


Summary for Link 14L: Da #1 Total

Inflow Area = 0.506 ac, 62.45% Impervious, Inflow Depth > 5.13" for 10-YEAR - FUTURE ADJUSTED even
Inflow = 2.87 cfs @ 12.13 hrs, Volume= 0.216 af
Primary = 2.87 cfs @ 12.13 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 14L: Da #1 Total

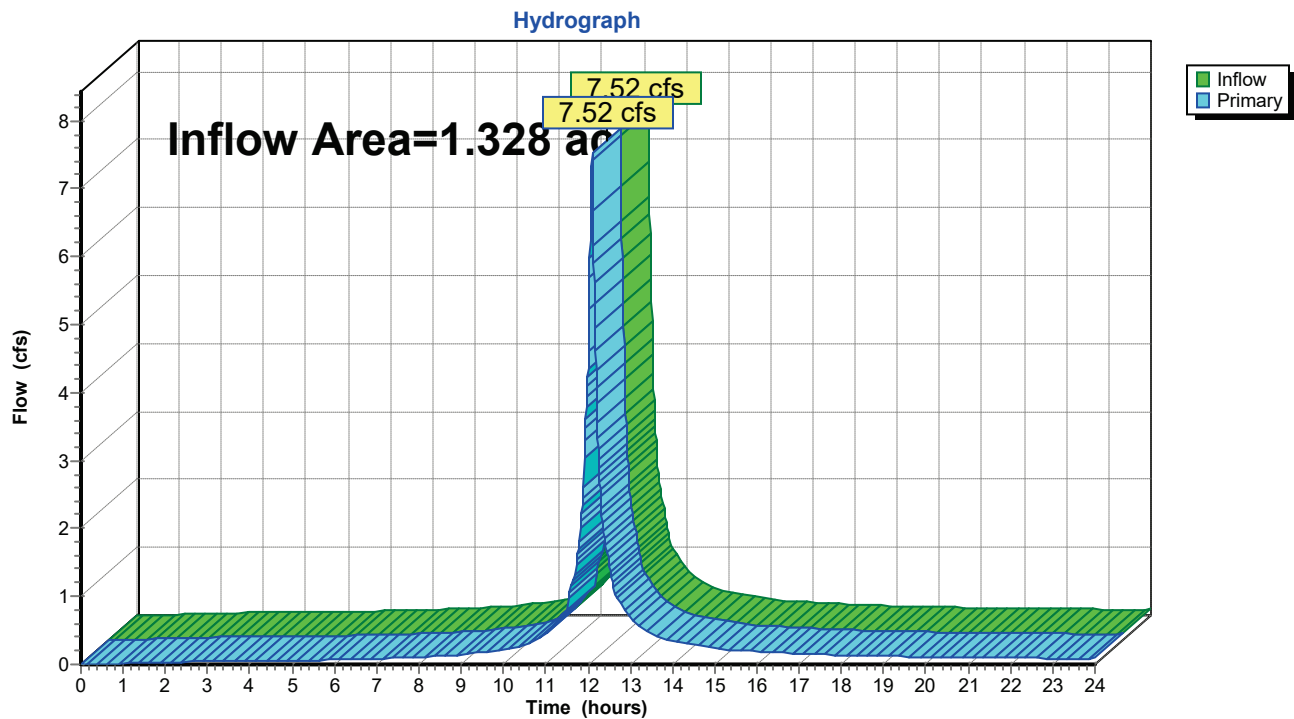


Summary for Link 15L: Total Proposed

Inflow Area = 1.328 ac, 53.54% Impervious, Inflow Depth > 4.89" for 10-YEAR - FUTURE ADJUSTED even
Inflow = 7.52 cfs @ 12.10 hrs, Volume= 0.542 af
Primary = 7.52 cfs @ 12.10 hrs, Volume= 0.542 af, Atten= 0%, Lag= 0.0 min

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

Link 15L: Total Proposed

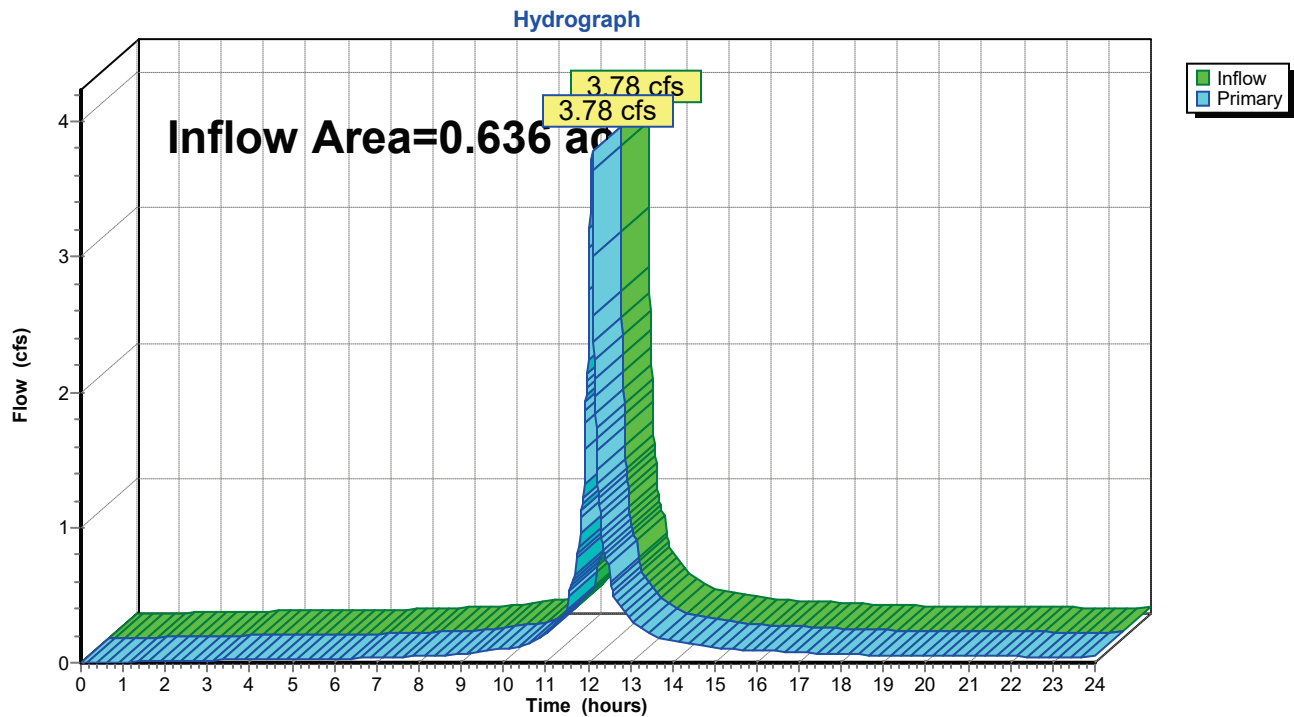


Summary for Link 16L: DA #2 Total

Inflow Area = 0.636 ac, 48.74% Impervious, Inflow Depth > 4.77" for 10-YEAR - FUTURE ADJUSTED even
Inflow = 3.78 cfs @ 12.10 hrs, Volume= 0.253 af
Primary = 3.78 cfs @ 12.10 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 16L: DA #2 Total



Summary for Subcatchment 9S: DA #3 Impervious

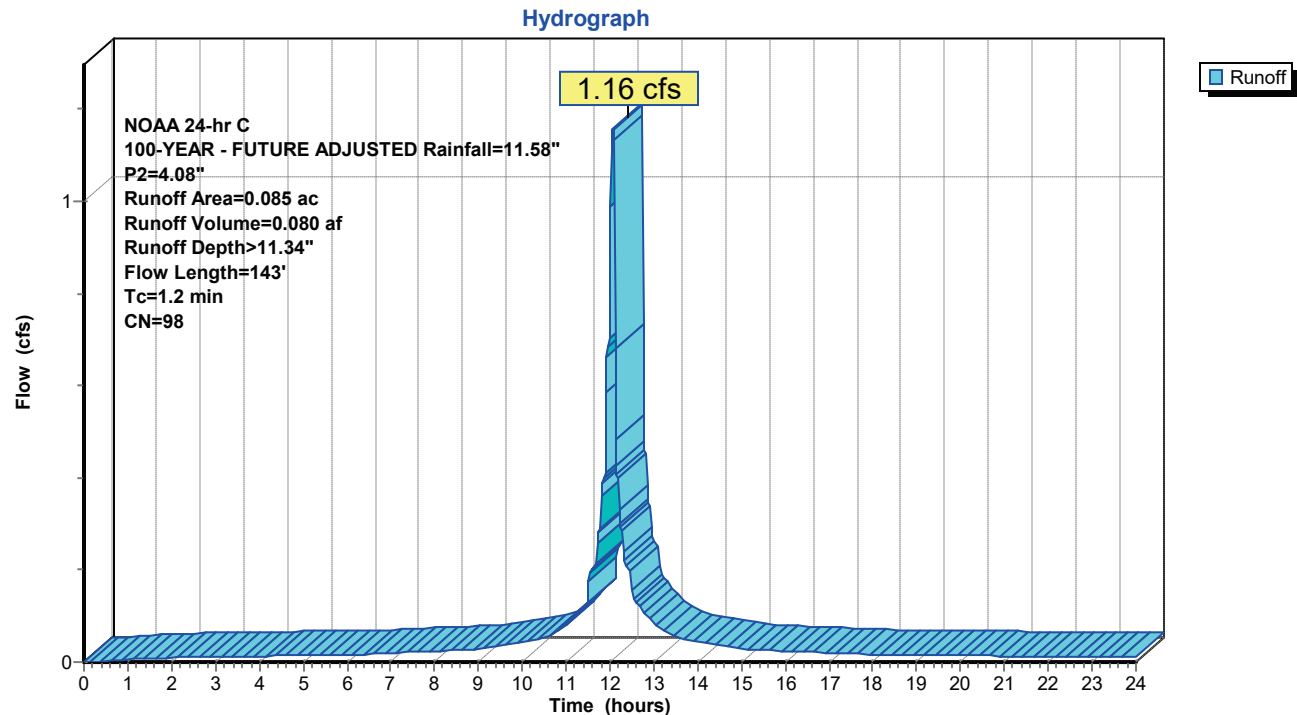
Runoff = 1.16 cfs @ 12.08 hrs, Volume= 0.080 af, Depth>11.34"
Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=4.08"

Area (ac)	CN	Description
0.085	98	Paved parking, HSG C
0.085		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	70	0.0500	2.09		Sheet Flow, Parking Segment 1
					Smooth surfaces n= 0.011 P2= 4.08"
0.6	73	0.0100	2.03		Shallow Concentrated Flow, Parking Segment 2
					Paved Kv= 20.3 fps
1.2	143	Total			

Subcatchment 9S: DA #3 Impervious



Summary for Subcatchment 10S: DA #3 Pervious

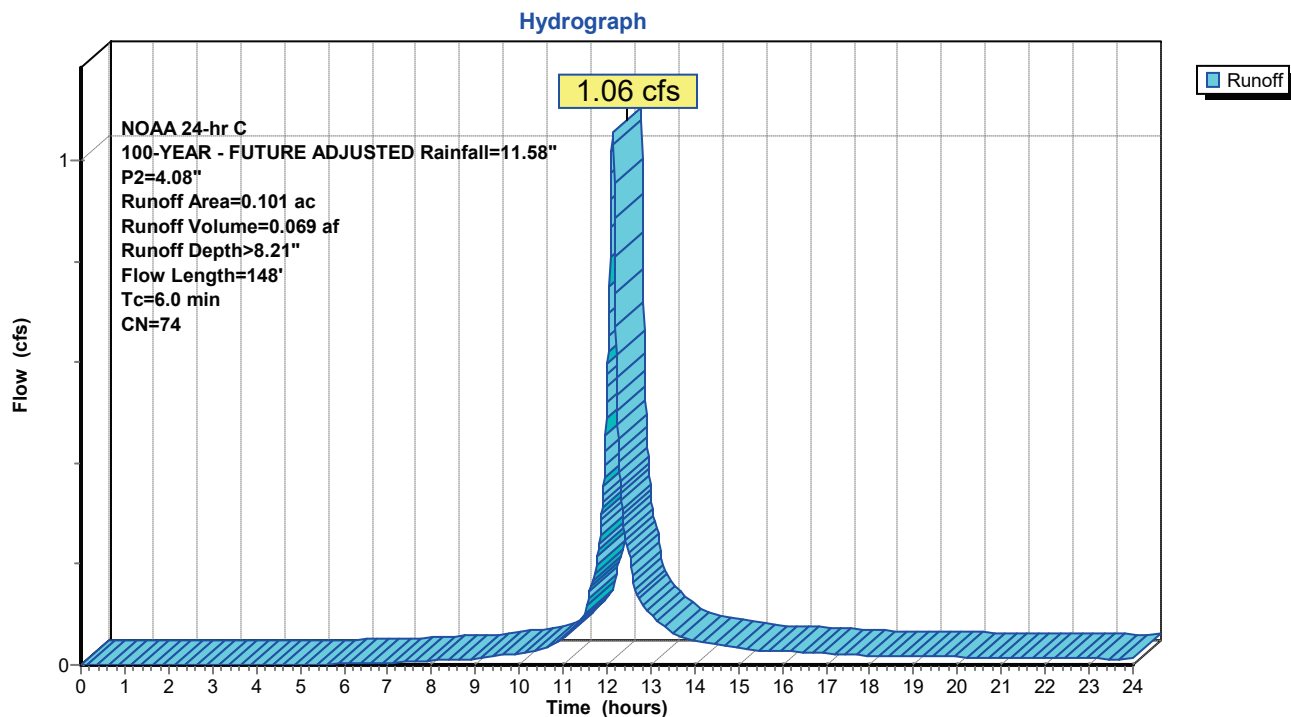
Runoff = 1.06 cfs @ 12.13 hrs, Volume= 0.069 af, Depth> 8.21"
 Routed to Link 11L : DA #3 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=4.08"

Area (ac)	CN	Description
0.101	74	>75% Grass cover, Good, HSG C
0.101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	28	0.0140	0.09		Sheet Flow, Lawn area Grass: Dense n= 0.240 P2= 4.08"
0.2	43	0.0500	4.54		Shallow Concentrated Flow, Parking Lot 1 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Parking Segment 2 Paved Kv= 20.3 fps
0.2	21	0.0100	2.03		Shallow Concentrated Flow, Parking Third Segment Paved Kv= 20.3 fps
6.0	148	Total			

Subcatchment 10S: DA #3 Pervious



Summary for Subcatchment 12S: DA#1 Pervious

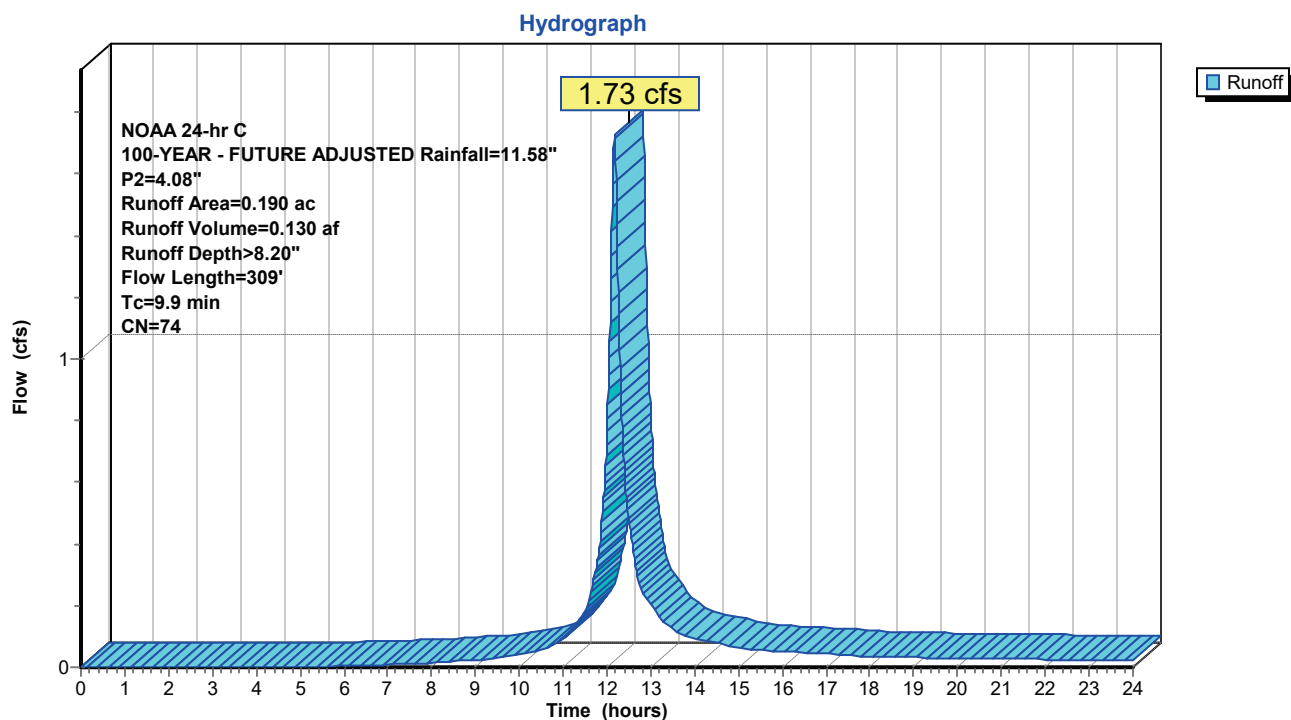
Runoff = 1.73 cfs @ 12.17 hrs, Volume= 0.130 af, Depth> 8.20"
 Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=4.08"

Area (ac)	CN	Description
0.190	74	>75% Grass cover, Good, HSG C
0.190		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	64	0.0500	0.17		Sheet Flow, Segment 1 Grass: Dense n= 0.240 P2= 4.08"
2.9	25	0.0500	0.14		Sheet Flow, Segment 2 Grass: Dense n= 0.240 P2= 4.08"
0.3	93	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.2	22	0.0100	2.03		Shallow Concentrated Flow, Segment 4 Paved Kv= 20.3 fps
0.4	105	0.0100	4.91	3.86	Pipe Channel, Pipe 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
9.9	309	Total			

Subcatchment 12S: DA#1 Pervious



Summary for Subcatchment 13S: DA#1 Impervious

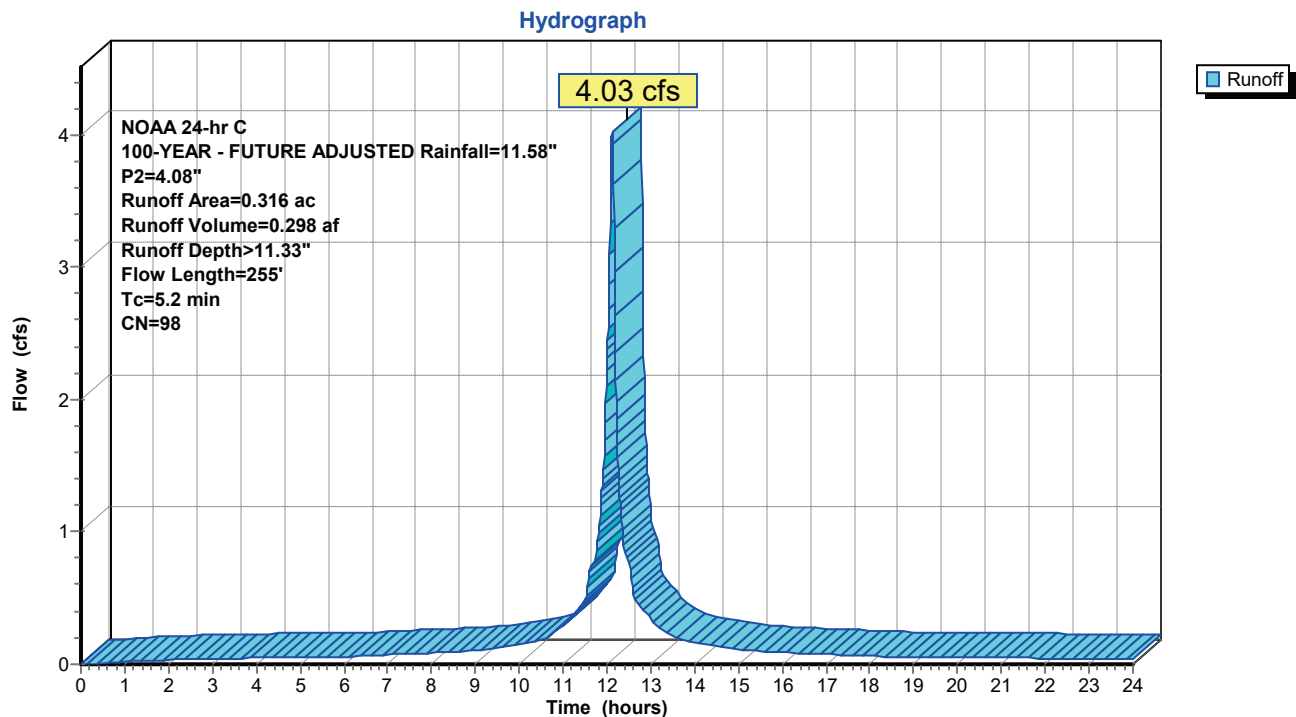
Runoff = 4.03 cfs @ 12.12 hrs, Volume= 0.298 af, Depth>11.33"
 Routed to Link 14L : Da #1 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=4.08"

Area (ac)	CN	Description
0.316	98	Paved parking, HSG C
0.316		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	28	0.0300	0.12		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 4.08"
0.4	44	0.0500	1.90		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 4.08"
0.2	60	0.0500	4.54		Shallow Concentrated Flow, Segment 3 Paved Kv= 20.3 fps
0.5	61	0.0100	2.03		Shallow Concentrated Flow, Segment #4 Paved Kv= 20.3 fps
0.2	62	0.0100	4.91	3.86	Pipe Channel, Segment 5 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.2	255	Total			

Subcatchment 13S: DA#1 Impervious



Summary for Subcatchment 17S: DA#2 Pervious

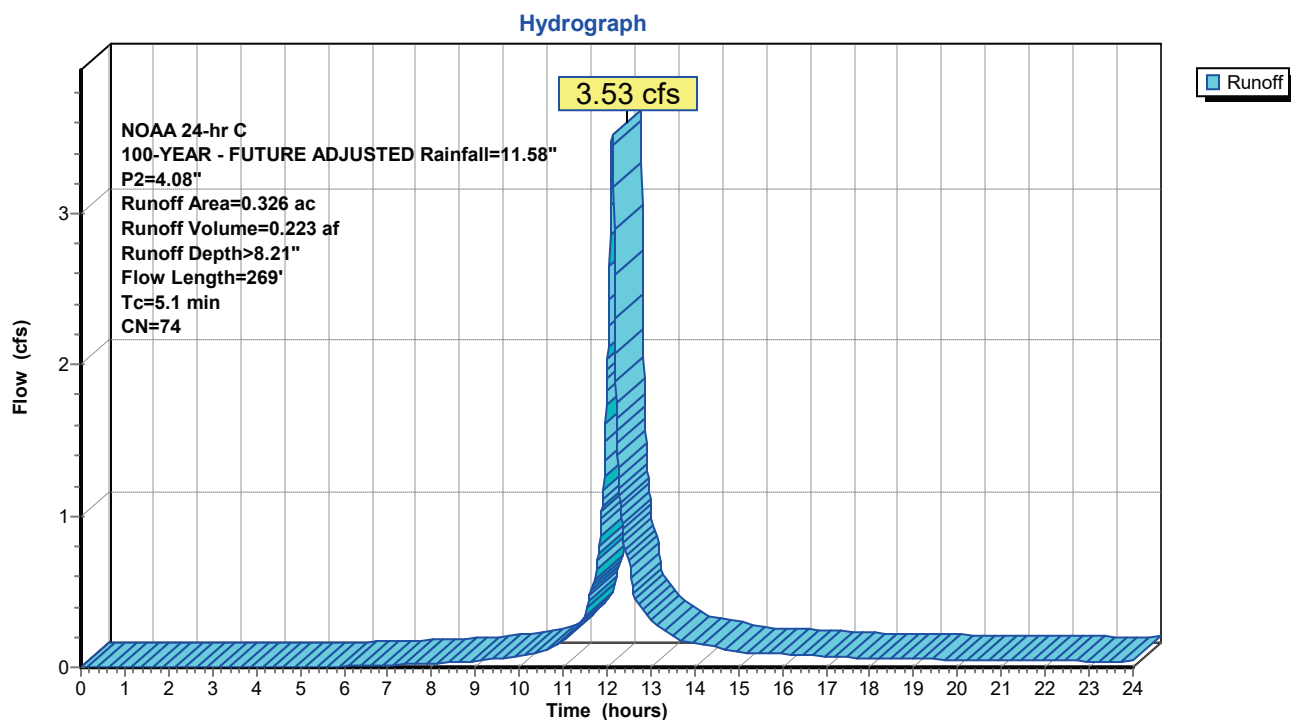
Runoff = 3.53 cfs @ 12.12 hrs, Volume= 0.223 af, Depth> 8.21"
 Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=4.08"

Area (ac)	CN	Description
0.326	74	>75% Grass cover, Good, HSG C
0.326		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	30	0.0400	0.14		Sheet Flow, Segment #1 Grass: Dense n= 0.240 P2= 4.08"
0.3	30	0.0500	1.76		Sheet Flow, Segment #2 Smooth surfaces n= 0.011 P2= 4.08"
0.5	123	0.0500	4.54		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.5	56	0.0100	2.03		Shallow Concentrated Flow, Segment #5 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #6 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
5.1	269	Total			

Subcatchment 17S: DA#2 Pervious



Summary for Subcatchment 18S: DA#2 Impervious

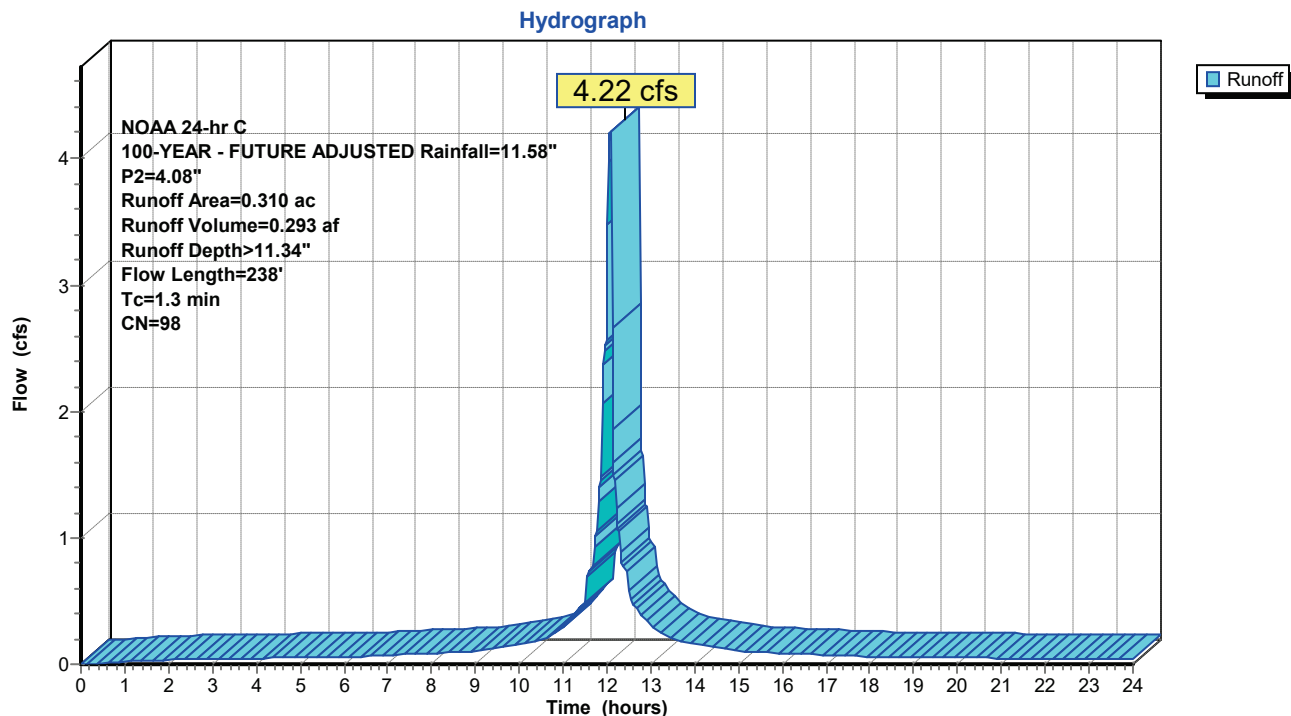
Runoff = 4.22 cfs @ 12.09 hrs, Volume= 0.293 af, Depth>11.34"
 Routed to Link 16L : DA #2 Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-YEAR - FUTURE ADJUSTED Rainfall=11.58", P2=4.08"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG C
0.310		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	80	0.0500	2.14		Sheet Flow, Segment #1 Smooth surfaces n= 0.011 P2= 4.08"
0.3	72	0.0500	4.54		Shallow Concentrated Flow, Segment #2 Paved Kv= 20.3 fps
0.3	56	0.0200	2.87		Shallow Concentrated Flow, Segment #3 Paved Kv= 20.3 fps
0.1	30	0.0100	4.91	3.86	Pipe Channel, Segment #4 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.3	238	Total			

Subcatchment 18S: DA#2 Impervious

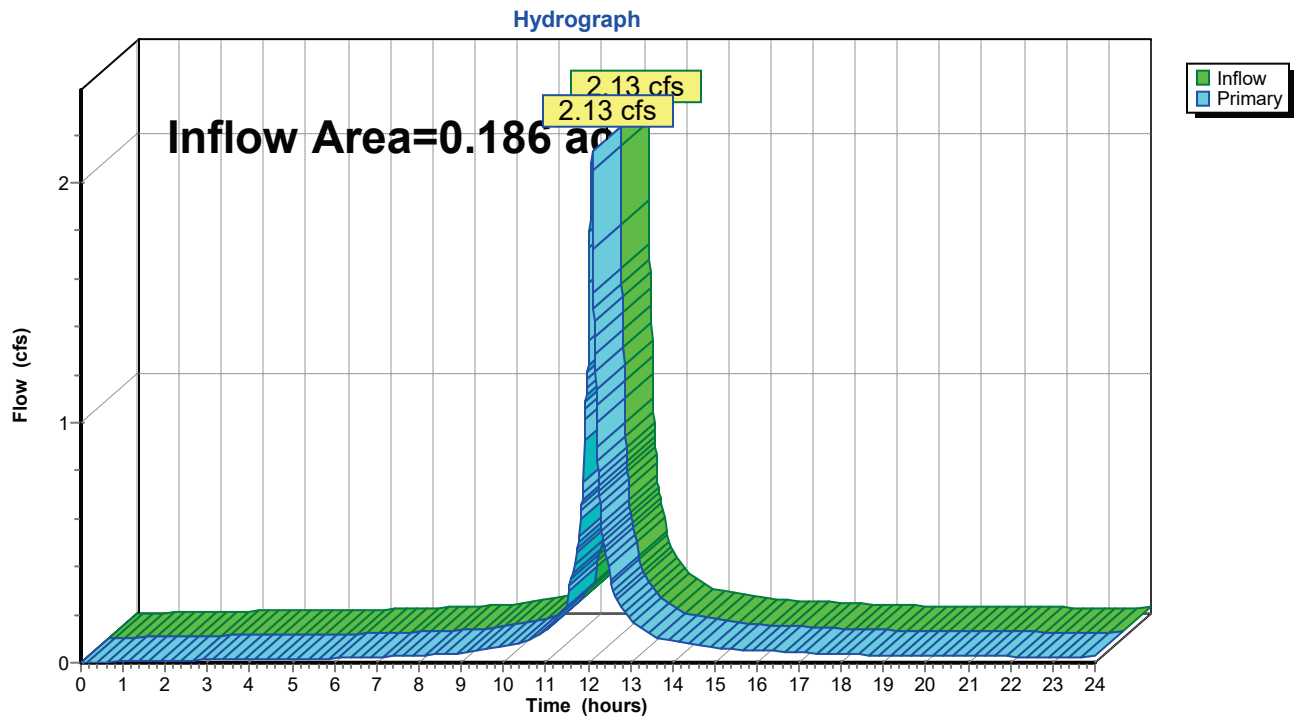


Summary for Link 11L: DA #3 Total

Inflow Area = 0.186 ac, 45.70% Impervious, Inflow Depth > 9.64" for 100-YEAR - FUTURE ADJUSTED event
Inflow = 2.13 cfs @ 12.10 hrs, Volume= 0.149 af
Primary = 2.13 cfs @ 12.10 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 11L: DA #3 Total

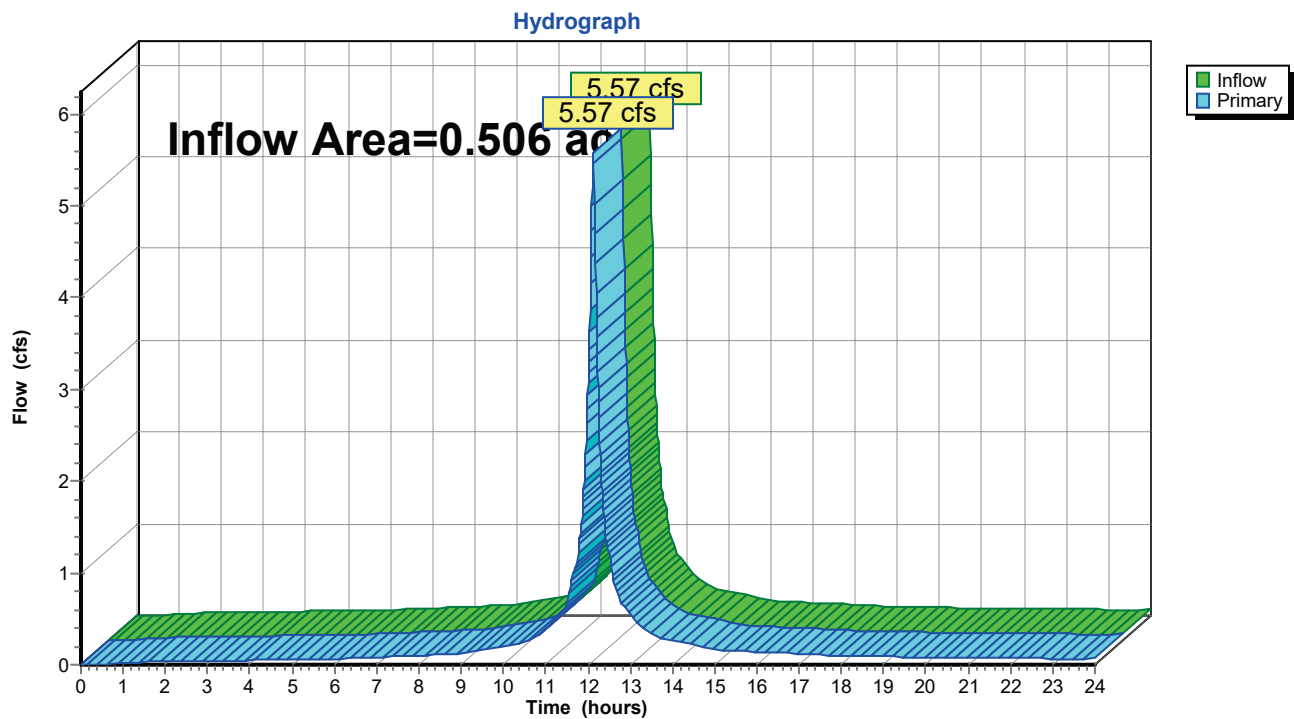


Summary for Link 14L: Da #1 Total

Inflow Area = 0.506 ac, 62.45% Impervious, Inflow Depth > 10.15" for 100-YEAR - FUTURE ADJUSTED event
Inflow = 5.57 cfs @ 12.13 hrs, Volume= 0.428 af
Primary = 5.57 cfs @ 12.13 hrs, Volume= 0.428 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

Link 14L: Da #1 Total

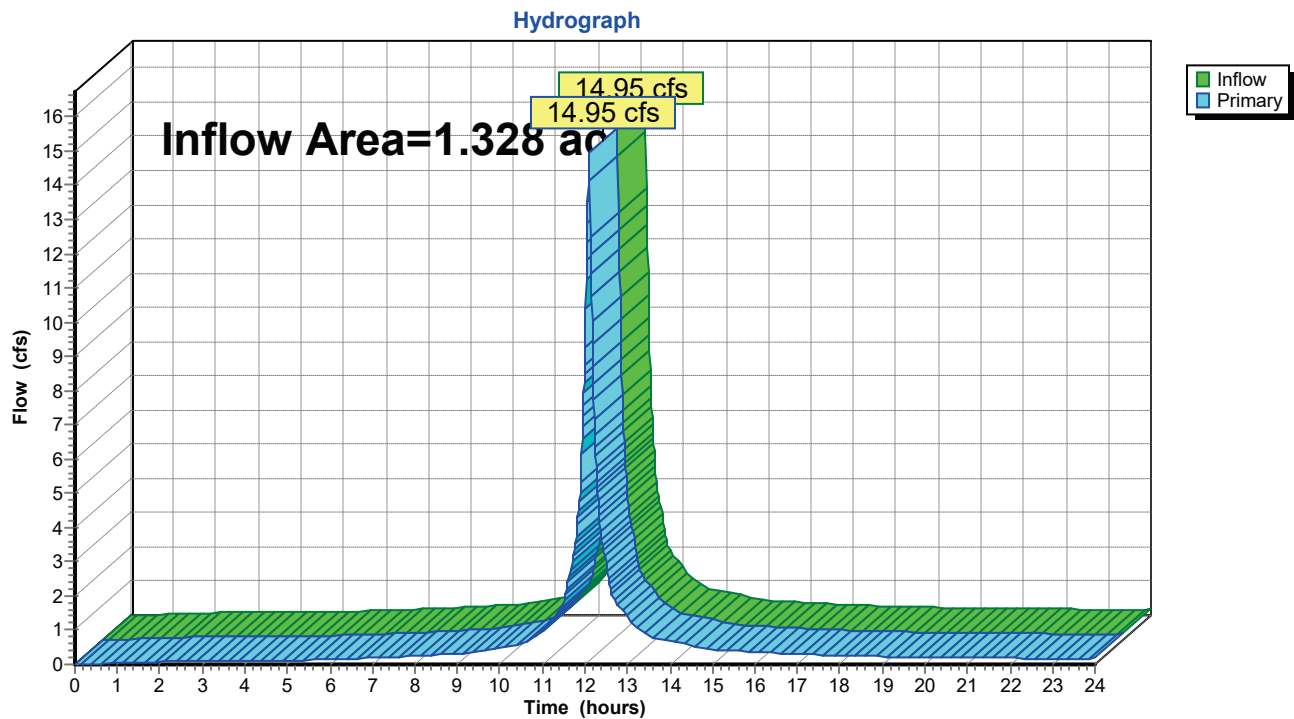


Summary for Link 15L: Total Proposed

Inflow Area = 1.328 ac, 53.54% Impervious, Inflow Depth > 9.88" for 100-YEAR - FUTURE ADJUSTED event
Inflow = 14.95 cfs @ 12.10 hrs, Volume= 1.094 af
Primary = 14.95 cfs @ 12.10 hrs, Volume= 1.094 af, Atten= 0%, Lag= 0.0 min

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

Link 15L: Total Proposed

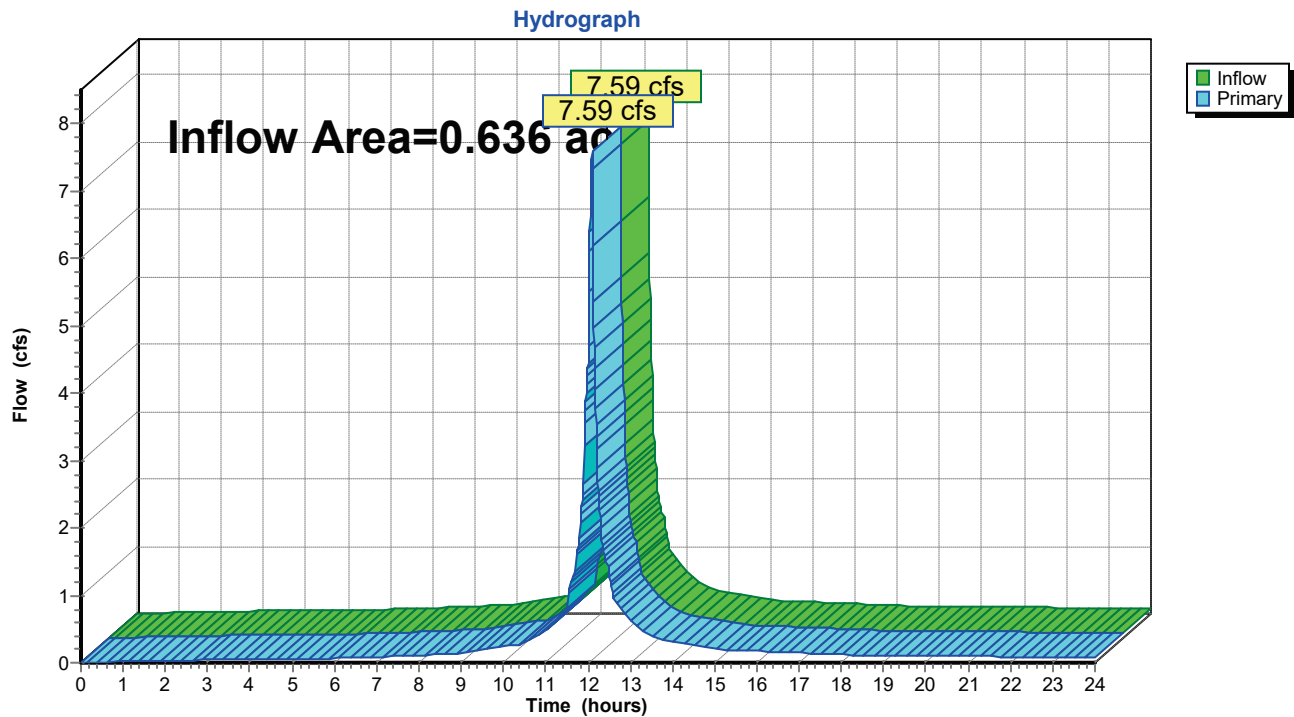


Summary for Link 16L: DA #2 Total

Inflow Area = 0.636 ac, 48.74% Impervious, Inflow Depth > 9.73" for 100-YEAR - FUTURE ADJUSTED event
Inflow = 7.59 cfs @ 12.10 hrs, Volume= 0.516 af
Primary = 7.59 cfs @ 12.10 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.0 min
Routed to Link 15L : Total Proposed

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

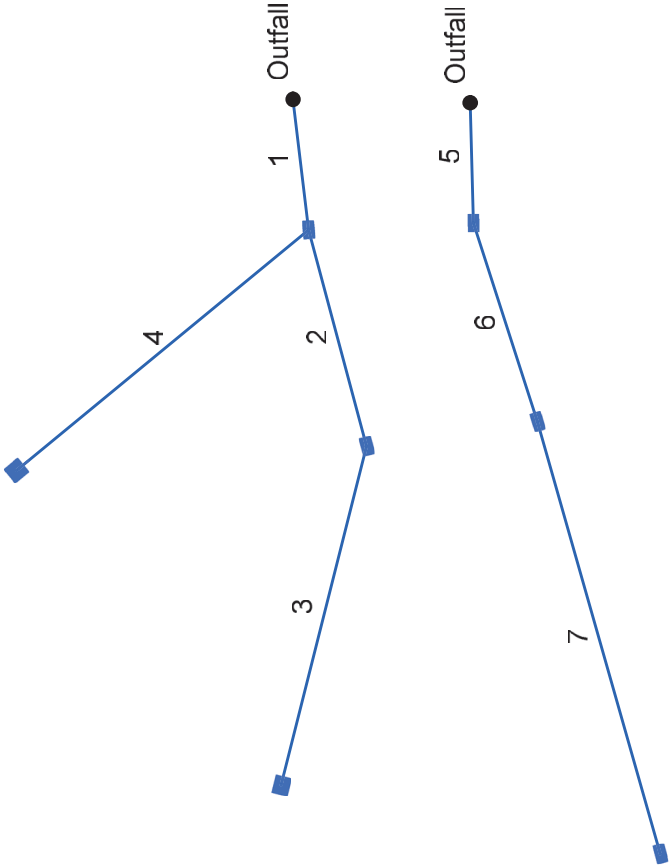
Link 16L: DA #2 Total



APPENDIX E

Conveyance Calculations

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



Project File: 250304.stm	Number of lines: 7	Date: 7/15/2026
Storm Sewers v2026.00		

Storm Sewer Tabulation

Station		Len	Dmg Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr	Total	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	28.929	0.29	0.63	0.82	0.24	0.53	6.0	13.3	5.2	2.73	4.24	4.25	12	1.21	374.42	374.77	375.25	375.48	0.00	379.12	EX1 -1-1
2	1	49.214	0.15	0.18	0.86	0.13	0.15	6.0	12.7	5.3	0.80	8.56	2.17	12	4.92	374.77	377.19	375.48	377.56	379.12	381.95	1-1 - 1-2
3	2	76.891	0.03	0.03	0.74	0.02	0.02	6.0	6.0	6.8	0.15	0.00	1.65	12	3.42	377.37	380.00	377.56	380.16	381.95	384.57	1-2 - 1-3
4	1	83.256	0.16	0.16	0.86	0.14	0.14	6.0	6.0	6.8	0.94	0.00	2.68	12	4.41	374.95	378.62	375.48	379.03	379.12	382.79	1-4 - 1-1
5	End	26.462	0.20	0.52	0.80	0.16	0.42	6.0	8.0	6.2	2.64	0.00	4.18	12	7.26	373.94	375.86	374.76	376.56	0.00	380.00	EX2 - 2-1
6	5	45.882	0.18	0.32	0.83	0.15	0.26	6.0	7.7	6.3	1.66	0.00	3.32	12	2.33	375.86	376.93	376.56	377.48	380.00	382.00	2-1 - 2-2
7	6	98.842	0.14	0.14	0.81	0.11	0.11	6.0	6.0	6.8	0.77	0.00	2.38	12	4.06	376.94	380.95	377.48	381.32	382.00	386.04	2-2 - 2-3
Project File: 250304.stm		Number of lines: 7										Run Date: 7/15/2026										

NOTES: Intensity = 51.50 / (Inlet time + 10.00) ^ 0.73; Return period = Yrs. 25 ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size (in) (2)	Q (cfs) (3)	Downstream								Len (ft) (12)	Upstream								Check		JL coeff (K) (23)	Minor loss (ft) (24)											
			Invert elev (ft) (4)	HGL elev (ft) (5)	Depth (ft) (6)	Area (sqft) (7)	Vel (ft/s) (8)	Vel head (ft) (9)	EGL elev (ft) (10)	Sf (%) (11)		Invert elev (ft) (13)	HGL elev (ft) (14)	Depth (ft) (15)	Area (sqft) (16)	Vel (ft/s) (17)	Vel head (ft) (18)	EGL elev (ft) (19)	Sf (%) (20)	Ave Sf (%) (21)	Enrgy loss (ft) (22)													
1	12	2.73	374.42	375.25	0.83	0.59	3.91	0.33	375.58	0.000	28.929	374.77	375.48 j	0.71**	0.59	4.59	0.33	375.80	0.000	0.000	n/a	1.30	0.43											
2	12	0.80	374.77	375.48	0.71	0.27	1.35	0.14	375.62	0.000	49.214	377.19	377.56 j	0.37**	0.27	2.99	0.14	377.70	0.000	0.000	n/a	0.81	0.11											
3	12	0.15	377.37	377.56	0.00	0.00	1.42	0.00	377.56	0.000	76.891	380.00	380.16	0.00**	0.00	1.88	0.00	380.16	0.000	0.000	0.000	1.00	n/a											
4	12	0.94	374.95	375.48	0.00	0.00	2.23	0.00	375.48	0.000	83.256	378.62	379.03	0.00**	0.00	3.13	0.00	379.03	0.000	0.000	0.000	1.00	n/a											
5	12	2.64	373.94	374.76	0.00	0.00	3.83	0.00	374.76	0.000	26.462	375.86	376.56	0.00**	0.00	4.53	0.00	376.56	0.000	0.000	0.000	0.50	n/a											
6	12	1.66	375.86	376.56	0.00	0.00	2.85	0.00	376.56	0.000	45.882	376.93	377.48	0.00**	0.00	3.78	0.00	377.48	0.000	0.000	0.000	0.50	n/a											
7	12	0.77	376.94	377.48	0.00	0.00	1.79	0.00	377.48	0.000	98.842	380.95	381.32	0.00**	0.00	2.96	0.00	381.32	0.000	0.000	0.000	1.00	n/a											
Project File: 250304.stm																																		
												Number of lines: 7												Run Date: 7/15/2026										

General Procedure:

Hydraflow computes the HGL using the Bernoulli energy equation. Manning's equation is used to determine energy losses due to pipe friction. In a standard step, iterative procedure, Hydraflow assumes upstream HGLs until the energy equation balances. If the energy equation cannot balance, supercritical flow exists and critical depth is temporarily assumed at the upstream end. A supercritical flow Profile is then computed using the same procedure in a downstream direction using momentum principles.

- Col. 1 The line number being computed. Calculations begin at Line 1 and proceed upstream.
- Col. 2 The line size. In the case of non-circular pipes, the line rise is printed above the span.
- Col. 3 Total flow rate in the line.
- Col. 4 The elevation of the downstream invert.
- Col. 5 Elevation of the hydraulic grade line at the downstream end. This is computed as the upstream HGL + Minor loss of this line's downstream line.
- Col. 6 The downstream depth of flow inside the pipe (HGL - Invert elevation) but not greater than the line size.
- Col. 7 Cross-sectional area of the flow at the downstream end.
- Col. 8 The velocity of the flow at the downstream end, (Col. 3 / Col. 7).
- Col. 9 Velocity head (Velocity squared / 2g).
- Col. 10 The elevation of the energy grade line at the downstream end, HGL + Velocity head, (Col. 5 + Col. 9).
- Col. 11 The friction slope at the downstream end (the S or Slope term in Manning's equation).
- Col. 12 The line length.
- Col. 13 The elevation of the upstream invert.
- Col. 14 Elevation of the hydraulic grade line at the upstream end.
- Col. 15 The upstream depth of flow inside the pipe (HGL - Invert elevation) but not greater than the line size.
- Col. 16 Cross-sectional area of the flow at the upstream end.
- Col. 17 The velocity of the flow at the upstream end, (Col. 3 / Col. 16).
- Col. 18 Velocity head (Velocity squared / 2g).
- Col. 19 The elevation of the energy grade line at the upstream end, HGL + Velocity head, (Col. 14 + Col. 18).
- Col. 20 The friction slope at the upstream end (the S or Slope term in Manning's equation).
- Col. 21 The average of the downstream and upstream friction slopes.
- Col. 22 Energy loss. Average $Sf/100 \times \text{Line Length}$ (Col. 21/100 x Col. 12). Equals (EGL upstream - EGL downstream) +/- tolerance.
- Col. 23 The junction loss coefficient (K).
- Col. 24 Minor loss. (Col. 23 x Col. 18). Is added to upstream HGL and used as the starting HGL for the next upstream line(s).

APPENDIX F

Supporting Documents



NOAA Atlas 14, Volume 2, Version 3
Location name: Township of Verona, New Jersey,
USA*

Latitude: 40.8309°, Longitude: -74.2464°

Elevation: 374 ft**

* source: ESRI Maps

** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.338 (0.308-0.371)	0.403 (0.368-0.442)	0.477 (0.435-0.523)	0.530 (0.482-0.580)	0.597 (0.542-0.654)	0.643 (0.581-0.705)	0.689 (0.619-0.754)	0.733 (0.655-0.803)	0.784 (0.694-0.861)	0.825 (0.725-0.909)
10-min	0.536 (0.490-0.589)	0.641 (0.586-0.704)	0.759 (0.692-0.833)	0.842 (0.766-0.923)	0.945 (0.857-1.04)	1.02 (0.918-1.11)	1.09 (0.976-1.19)	1.15 (1.02-1.26)	1.22 (1.08-1.34)	1.28 (1.12-1.41)
15-min	0.667 (0.609-0.733)	0.802 (0.733-0.880)	0.955 (0.871-1.05)	1.06 (0.964-1.16)	1.19 (1.08-1.30)	1.28 (1.16-1.40)	1.37 (1.23-1.50)	1.44 (1.29-1.58)	1.54 (1.36-1.69)	1.60 (1.40-1.76)
30-min	0.909 (0.830-0.998)	1.10 (1.01-1.21)	1.35 (1.23-1.48)	1.52 (1.39-1.67)	1.75 (1.59-1.92)	1.91 (1.72-2.09)	2.07 (1.86-2.27)	2.22 (1.98-2.43)	2.42 (2.14-2.65)	2.55 (2.24-2.81)
60-min	1.13 (1.03-1.24)	1.38 (1.26-1.51)	1.72 (1.57-1.89)	1.98 (1.80-2.17)	2.32 (2.10-2.54)	2.57 (2.32-2.82)	2.84 (2.55-3.10)	3.09 (2.76-3.39)	3.44 (3.04-3.78)	3.70 (3.25-4.07)
2-hr	1.38 (1.26-1.52)	1.69 (1.54-1.85)	2.13 (1.95-2.34)	2.49 (2.26-2.73)	2.97 (2.68-3.25)	3.37 (3.03-3.69)	3.78 (3.37-4.13)	4.20 (3.72-4.60)	4.80 (4.20-5.26)	5.28 (4.57-5.78)
3-hr	1.55 (1.42-1.70)	1.88 (1.72-2.07)	2.39 (2.18-2.62)	2.78 (2.54-3.05)	3.33 (3.02-3.64)	3.78 (3.40-4.13)	4.23 (3.79-4.62)	4.71 (4.18-5.15)	5.38 (4.72-5.88)	5.91 (5.13-6.47)
6-hr	2.00 (1.84-2.19)	2.43 (2.23-2.66)	3.08 (2.82-3.36)	3.60 (3.28-3.92)	4.35 (3.93-4.72)	4.97 (4.46-5.39)	5.63 (5.02-6.11)	6.34 (5.60-6.88)	7.36 (6.40-8.00)	8.21 (7.06-8.93)
12-hr	2.50 (2.28-2.75)	3.03 (2.77-3.34)	3.86 (3.52-4.24)	4.55 (4.13-4.99)	5.56 (5.00-6.08)	6.44 (5.74-7.01)	7.38 (6.51-8.03)	8.42 (7.34-9.17)	9.96 (8.52-10.8)	11.3 (9.49-12.3)
24-hr	2.83 (2.62-3.08)	3.43 (3.17-3.73)	4.39 (4.06-4.77)	5.21 (4.80-5.66)	6.45 (5.89-6.99)	7.52 (6.82-8.15)	8.71 (7.82-9.44)	10.0 (8.90-10.9)	12.0 (10.5-13.1)	13.7 (11.8-15.0)
2-day	3.35 (3.09-3.64)	4.05 (3.75-4.40)	5.17 (4.78-5.62)	6.10 (5.62-6.63)	7.47 (6.84-8.12)	8.64 (7.86-9.38)	9.91 (8.94-10.8)	11.3 (10.1-12.3)	13.4 (11.7-14.6)	15.1 (13.1-16.6)
3-day	3.52 (3.26-3.81)	4.26 (3.95-4.61)	5.41 (5.01-5.86)	6.36 (5.88-6.89)	7.75 (7.11-8.39)	8.92 (8.13-9.66)	10.2 (9.21-11.0)	11.6 (10.4-12.6)	13.6 (12.0-14.8)	15.3 (13.3-16.8)
4-day	3.69 (3.43-3.98)	4.46 (4.15-4.82)	5.65 (5.24-6.10)	6.62 (6.13-7.16)	8.02 (7.38-8.66)	9.20 (8.40-9.94)	10.5 (9.48-11.3)	11.8 (10.6-12.8)	13.8 (12.2-15.0)	15.4 (13.5-16.9)
7-day	4.36 (4.06-4.70)	5.24 (4.88-5.64)	6.51 (6.06-7.01)	7.56 (7.02-8.13)	9.06 (8.36-9.74)	10.3 (9.45-11.1)	11.6 (10.6-12.5)	13.0 (11.8-14.1)	15.1 (13.4-16.4)	16.8 (14.7-18.3)
10-day	5.01 (4.69-5.37)	5.98 (5.60-6.42)	7.32 (6.85-7.85)	8.42 (7.86-9.02)	9.97 (9.25-10.7)	11.2 (10.4-12.1)	12.6 (11.5-13.5)	14.0 (12.7-15.1)	16.0 (14.3-17.3)	17.6 (15.6-19.2)
20-day	6.77 (6.37-7.21)	8.04 (7.56-8.55)	9.59 (9.01-10.2)	10.8 (10.1-11.5)	12.5 (11.6-13.3)	13.8 (12.8-14.7)	15.1 (14.0-16.1)	16.4 (15.1-17.5)	18.1 (16.6-19.5)	19.5 (17.7-21.1)
30-day	8.44 (7.98-8.92)	9.96 (9.42-10.5)	11.6 (11.0-12.3)	12.9 (12.2-13.7)	14.6 (13.7-15.5)	15.9 (14.9-16.8)	17.1 (16.0-18.2)	18.3 (17.1-19.5)	19.9 (18.4-21.2)	21.0 (19.4-22.5)
45-day	10.7 (10.2-11.3)	12.6 (11.9-13.3)	14.5 (13.8-15.3)	16.0 (15.1-16.8)	17.9 (16.9-18.8)	19.3 (18.2-20.3)	20.6 (19.4-21.8)	21.9 (20.5-23.2)	23.5 (21.9-25.0)	24.7 (22.9-26.3)
60-day	12.8 (12.2-13.5)	15.1 (14.3-15.9)	17.2 (16.4-18.1)	18.8 (17.9-19.8)	20.8 (19.7-21.9)	22.3 (21.1-23.5)	23.6 (22.3-24.9)	24.9 (23.5-26.3)	26.5 (24.8-28.0)	27.6 (25.7-29.3)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

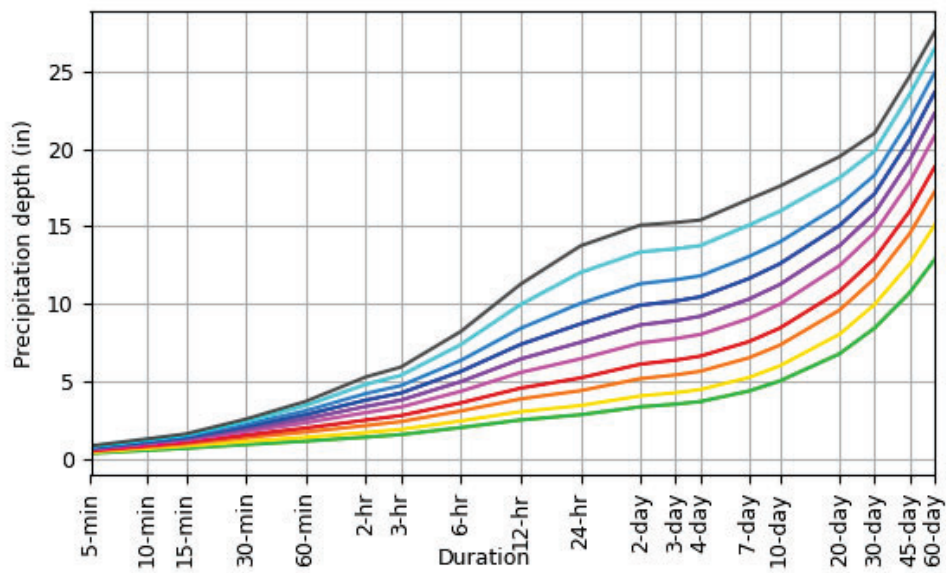
Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

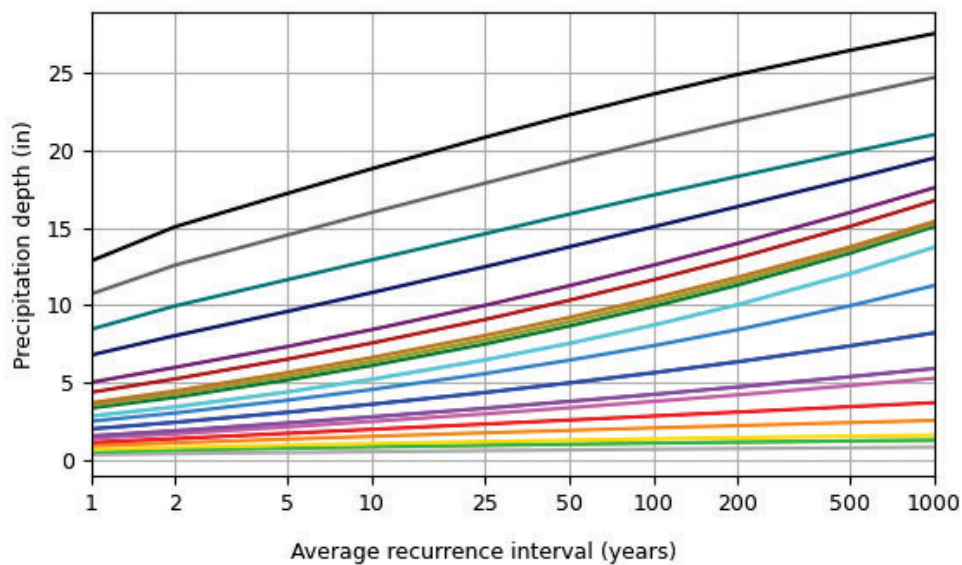
PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 40.8309°, Longitude: -74.2464°



Average recurrence interval (years)	
1	2
5	10
25	50
100	200
500	1000

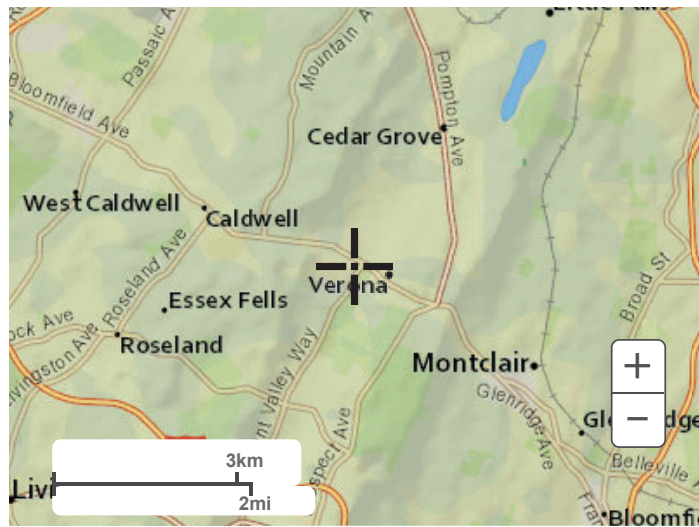


Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

[Back to Top](#)

Maps & aerials

Small scale terrain



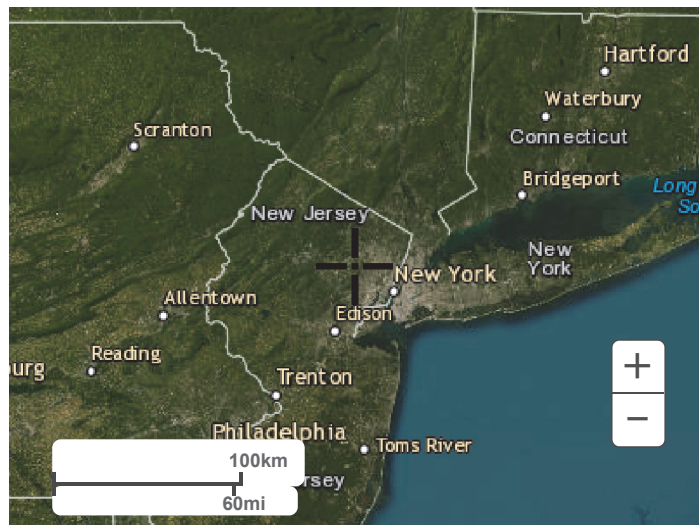
Large scale terrain



Large scale map



Large scale aerial



[Back to Top](#)

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

[Disclaimer](#)

Proposed Conditions

Prepared by Bright View Engineering

HydroCAD® 10.20-8a s/n 13803 © 2025 HydroCAD Software Solutions LLC

Printed 1/19/2026

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC	P2 (inches)
1	2-YEAR	NOAA 24-hr	C	Default	24.00	1	3.43	2	3.43
2	2-YEAR - ADJUSTED	NOAA 24-hr	C	Default	24.00	1	3.46	2	3.46
3	2-YEAR - FUTURE ADJUSTED	NOAA 24-hr	C	Default	24.00	1	4.08	2	4.08
4	10-YEAR	NOAA 24-hr	C	Default	24.00	1	5.21	2	3.43
5	10-YEAR - ADJUSTED	NOAA 24-hr	C	Default	24.00	1	5.37	2	3.46
6	10-YEAR - FUTURE ADJUSTED	NOAA 24-hr	C	Default	24.00	1	6.36	2	4.08
7	100-YEAR	NOAA 24-hr	C	Default	24.00	1	8.71	2	3.43
8	100-YEAR - ADJUSTED	NOAA 24-hr	C	Default	24.00	1	9.23	2	3.46
9	100-YEAR - FUTURE ADJUSTED	NOAA 24-hr	C	Default	24.00	1	11.58	2	4.08
10	NJ WQ Storm	NJ DEP 2-hr		Default	2.00	1	1.25	2	8.71
11	WORST CASE	NOAA 24-hr	C	Default	24.00	1	13.90	2	8.71



HYDROGRAPH COMPARISON

EVENT: 2 YEAR ADJUSTED

Time (hours)	Existing Rate (cfs)	Proposed Rate (cfs)	Change (cfs)*
0	0	0	0
0.5	0	0	0
1	0	0	0
1.5	0.01	0	0.01
2	0.01	0.01	0
2.5	0.02	0.01	0.01
3	0.02	0.02	0
3.5	0.03	0.02	0.01
4	0.03	0.02	0.01
4.5	0.04	0.02	0.02
5	0.04	0.03	0.01
5.5	0.04	0.03	0.01
6	0.05	0.03	0.02
6.5	0.05	0.04	0.01
7	0.06	0.04	0.02
7.5	0.07	0.05	0.02
8	0.08	0.05	0.03
8.5	0.09	0.06	0.03
9	0.09	0.06	0.03
9.5	0.12	0.08	0.04
10	0.15	0.1	0.05
10.5	0.18	0.12	0.06
11	0.28	0.2	0.08
11.5	0.48	0.35	0.13
12	2.74	1.99	0.75
12.5	0.87	0.76	0.11
13	0.39	0.35	0.04
13.5	0.25	0.22	0.03
14	0.19	0.17	0.02
14.5	0.16	0.14	0.02
15	0.13	0.11	0.02
15.5	0.12	0.1	0.02
16	0.11	0.09	0.02
16.5	0.1	0.09	0.01
17	0.09	0.08	0.01
17.5	0.08	0.07	0.01
18	0.07	0.06	0.01
18.5	0.07	0.06	0.01
19	0.07	0.06	0.01
19.5	0.06	0.06	0
20	0.06	0.06	0
20.5	0.06	0.05	0.01
21	0.06	0.05	0.01
21.5	0.06	0.05	0.01
22	0.05	0.05	0
22.5	0.05	0.05	0
23	0.05	0.04	0.01
23.5	0.05	0.04	0.01
24	0.06	0.05	0.01

* A negative value indicates an increase in runoff from existing to proposed

**HYDROGRAPH COMPARISON**

EVENT: 2 YEAR FUTURE

Time (hours)	Existing Rate (cfs)	Proposed Rate (cfs)	Change (cfs)*
0	0	0	0
0.5	0	0	0
1	0	0	0
1.5	0.01	0.01	0
2	0.02	0.01	0.01
2.5	0.03	0.02	0.01
3	0.03	0.02	0.01
3.5	0.04	0.02	0.02
4	0.04	0.03	0.01
4.5	0.05	0.03	0.02
5	0.05	0.03	0.02
5.5	0.05	0.04	0.01
6	0.06	0.04	0.02
6.5	0.07	0.04	0.03
7	0.08	0.05	0.03
7.5	0.08	0.06	0.02
8	0.09	0.06	0.03
8.5	0.1	0.07	0.03
9	0.11	0.08	0.03
9.5	0.14	0.1	0.04
10	0.18	0.12	0.06
10.5	0.21	0.15	0.06
11	0.35	0.25	0.1
11.5	0.59	0.44	0.15
12	3.31	2.5	0.81
12.5	1.04	0.92	0.12
13	0.47	0.42	0.05
13.5	0.29	0.27	0.02
14	0.23	0.21	0.02
14.5	0.19	0.17	0.02
15	0.15	0.14	0.01
15.5	0.14	0.12	0.02
16	0.13	0.11	0.02
16.5	0.12	0.11	0.01
17	0.11	0.1	0.01
17.5	0.1	0.09	0.01
18	0.09	0.08	0.01
18.5	0.08	0.07	0.01
19	0.08	0.07	0.01
19.5	0.08	0.07	0.01
20	0.07	0.07	0
20.5	0.07	0.07	0
21	0.07	0.06	0.01
21.5	0.07	0.06	0.01
22	0.06	0.06	0
22.5	0.06	0.06	0
23	0.06	0.05	0.01
23.5	0.06	0.05	0.01
24	0.07	0.06	0.01

* A negative value indicates an increase in runoff from existing to proposed

**HYDROGRAPH COMPARISON**

EVENT: 10 YEAR ADJUSTED

Time (hours)	Existing Rate (cfs)	Proposed Rate (cfs)	Change (cfs)*
0	0	0	0
0.5	0	0	0
1	0.01	0.01	0
1.5	0.02	0.01	0.01
2	0.03	0.02	0.01
2.5	0.04	0.03	0.01
3	0.05	0.03	0.02
3.5	0.06	0.04	0.02
4	0.06	0.04	0.02
4.5	0.07	0.05	0.02
5	0.07	0.05	0.02
5.5	0.08	0.05	0.03
6	0.08	0.05	0.03
6.5	0.09	0.06	0.03
7	0.1	0.07	0.03
7.5	0.12	0.08	0.04
8	0.13	0.09	0.04
8.5	0.14	0.09	0.05
9	0.15	0.11	0.04
9.5	0.2	0.14	0.06
10	0.25	0.18	0.07
10.5	0.3	0.22	0.08
11	0.48	0.36	0.12
11.5	0.81	0.63	0.18
12	4.52	3.48	1.04
12.5	1.4	1.3	0.1
13	0.63	0.59	0.04
13.5	0.4	0.37	0.03
14	0.31	0.29	0.02
14.5	0.26	0.24	0.02
15	0.21	0.19	0.02
15.5	0.19	0.17	0.02
16	0.17	0.16	0.01
16.5	0.16	0.15	0.01
17	0.14	0.13	0.01
17.5	0.13	0.12	0.01
18	0.12	0.11	0.01
18.5	0.11	0.1	0.01
19	0.11	0.1	0.01
19.5	0.1	0.1	0
20	0.1	0.09	0.01
20.5	0.1	0.09	0.01
21	0.09	0.09	0
21.5	0.09	0.08	0.01
22	0.09	0.08	0.01
22.5	0.08	0.08	0
23	0.08	0.07	0.01
23.5	0.08	0.07	0.01
24	0.09	0.08	0.01

* A negative value indicates an increase in runoff from existing to proposed

**HYDROGRAPH COMPARISON**

EVENT: 10 YEAR FUTURE

Time (hours)	Existing Rate (cfs)	Proposed Rate (cfs)	Change (cfs)*
0	0	0	0
0.5	0	0	0
1	0.02	0.01	0.01
1.5	0.03	0.02	0.01
2	0.05	0.03	0.02
2.5	0.06	0.04	0.02
3	0.06	0.04	0.02
3.5	0.07	0.05	0.02
4	0.08	0.05	0.03
4.5	0.08	0.06	0.02
5	0.09	0.06	0.03
5.5	0.09	0.06	0.03
6	0.1	0.07	0.03
6.5	0.11	0.08	0.03
7	0.13	0.09	0.04
7.5	0.14	0.09	0.05
8	0.16	0.11	0.05
8.5	0.17	0.12	0.05
9	0.19	0.14	0.05
9.5	0.24	0.18	0.06
10	0.3	0.23	0.07
10.5	0.36	0.28	0.08
11	0.58	0.45	0.13
11.5	0.98	0.79	0.19
12	5.47	4.35	1.12
12.5	1.68	1.57	0.11
13	0.76	0.71	0.05
13.5	0.47	0.45	0.02
14	0.37	0.35	0.02
14.5	0.31	0.29	0.02
15	0.25	0.23	0.02
15.5	0.22	0.21	0.01
16	0.21	0.19	0.02
16.5	0.19	0.18	0.01
17	0.17	0.16	0.01
17.5	0.16	0.15	0.01
18	0.14	0.13	0.01
18.5	0.13	0.12	0.01
19	0.13	0.12	0.01
19.5	0.12	0.12	0
20	0.12	0.11	0.01
20.5	0.12	0.11	0.01
21	0.11	0.1	0.01
21.5	0.11	0.1	0.01
22	0.1	0.1	0
22.5	0.1	0.09	0.01
23	0.1	0.09	0.01
23.5	0.09	0.09	0
24	0.11	0.1	0.01

* A negative value indicates an increase in runoff from existing to proposed

**HYDROGRAPH COMPARISON**

EVENT: 100 YEAR ADJUSTED

Time (hours)	Existing Rate (cfs)	Proposed Rate (cfs)	Change (cfs)*
0	0	0	0
0.5	0.01	0	0.01
1	0.04	0.03	0.01
1.5	0.07	0.04	0.03
2	0.08	0.06	0.02
2.5	0.1	0.06	0.04
3	0.11	0.07	0.04
3.5	0.12	0.08	0.04
4	0.12	0.08	0.04
4.5	0.13	0.09	0.04
5	0.14	0.09	0.05
5.5	0.14	0.1	0.04
6	0.15	0.1	0.05
6.5	0.17	0.12	0.05
7	0.2	0.14	0.06
7.5	0.22	0.16	0.06
8	0.24	0.18	0.06
8.5	0.27	0.2	0.07
9	0.29	0.23	0.06
9.5	0.38	0.29	0.09
10	0.46	0.37	0.09
10.5	0.56	0.45	0.11
11	0.89	0.73	0.16
11.5	1.5	1.27	0.23
12	8.28	6.65	1.63
12.5	2.5	2.42	0.08
13	1.12	1.09	0.03
13.5	0.7	0.68	0.02
14	0.55	0.53	0.02
14.5	0.46	0.44	0.02
15	0.37	0.35	0.02
15.5	0.33	0.31	0.02
16	0.3	0.29	0.01
16.5	0.28	0.27	0.01
17	0.26	0.24	0.02
17.5	0.23	0.22	0.01
18	0.21	0.2	0.01
18.5	0.2	0.19	0.01
19	0.19	0.18	0.01
19.5	0.18	0.17	0.01
20	0.18	0.17	0.01
20.5	0.17	0.16	0.01
21	0.17	0.16	0.01
21.5	0.16	0.15	0.01
22	0.15	0.14	0.01
22.5	0.15	0.14	0.01
23	0.14	0.13	0.01
23.5	0.13	0.13	0
24	0.16	0.14	0.02

* A negative value indicates an increase in runoff from existing to proposed

**HYDROGRAPH COMPARISON**

EVENT: 100 YEAR FUTURE

Time (hours)	Existing Rate (cfs)	Proposed Rate (cfs)	Change (cfs)*
0	0	0	0
0.5	0.02	0.01	0.01
1	0.07	0.04	0.03
1.5	0.1	0.06	0.04
2	0.11	0.08	0.03
2.5	0.13	0.09	0.04
3	0.14	0.09	0.05
3.5	0.15	0.1	0.05
4	0.16	0.11	0.05
4.5	0.17	0.11	0.06
5	0.18	0.12	0.06
5.5	0.19	0.13	0.06
6	0.2	0.14	0.06
6.5	0.23	0.16	0.07
7	0.26	0.19	0.07
7.5	0.29	0.22	0.07
8	0.32	0.25	0.07
8.5	0.35	0.28	0.07
9	0.38	0.31	0.07
9.5	0.49	0.4	0.09
10	0.6	0.5	0.1
10.5	0.72	0.61	0.11
11	1.15	0.98	0.17
11.5	1.93	1.68	0.25
12	10.61	8.76	1.85
12.5	3.16	3.08	0.08
13	1.41	1.38	0.03
13.5	0.89	0.86	0.03
14	0.7	0.67	0.03
14.5	0.58	0.56	0.02
15	0.46	0.45	0.01
15.5	0.42	0.4	0.02
16	0.38	0.37	0.01
16.5	0.35	0.34	0.01
17	0.32	0.31	0.01
17.5	0.29	0.28	0.01
18	0.26	0.25	0.01
18.5	0.25	0.24	0.01
19	0.24	0.23	0.01
19.5	0.23	0.22	0.01
20	0.22	0.21	0.01
20.5	0.22	0.21	0.01
21	0.21	0.2	0.01
21.5	0.2	0.19	0.01
22	0.19	0.18	0.01
22.5	0.18	0.18	0
23	0.18	0.17	0.01
23.5	0.17	0.16	0.01
24	0.2	0.18	0.02

* A negative value indicates an increase in runoff from existing to proposed

APPENDIX G

MAPS



Map Scale: 1:1,760 if printed on A landscape (11" x 8.5") sheet.



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

MAP INFORMATION

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Essex County, New Jersey
Survey Area Data: Version 20, Sep 3, 2024

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

Date(s) aerial images were photographed: Oct 10, 2022—Oct 16, 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.

MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)
Soils		Soil Map Unit Polygons
		Soil Map Unit Lines
		Soil Map Unit Points
Special Point Features		
		Blowout
		Borrow Pit
		Clay Spot
		Closed Depression
		Gravel Pit
		Gravelly Spot
		Landfill
		Lava Flow
		Marsh or swamp
		Mine or Quarry
		Miscellaneous Water
		Perennial Water
		Rock Outcrop
		Saline Spot
		Sandy Spot
		Severely Eroded Spot
		Sinkhole
		Slide or Slip
		Sodic Spot
Water Features		
		Streams and Canals
Transportation		
		Rails
		Interstate Highways
		US Routes
		Major Roads
		Local Roads
Background		
		Aerial Photography
		Special Line Features
		Other
		Wet Spot
		Very Stony Spot
		Stony Spot
		Spill Area

Map Unit Legend

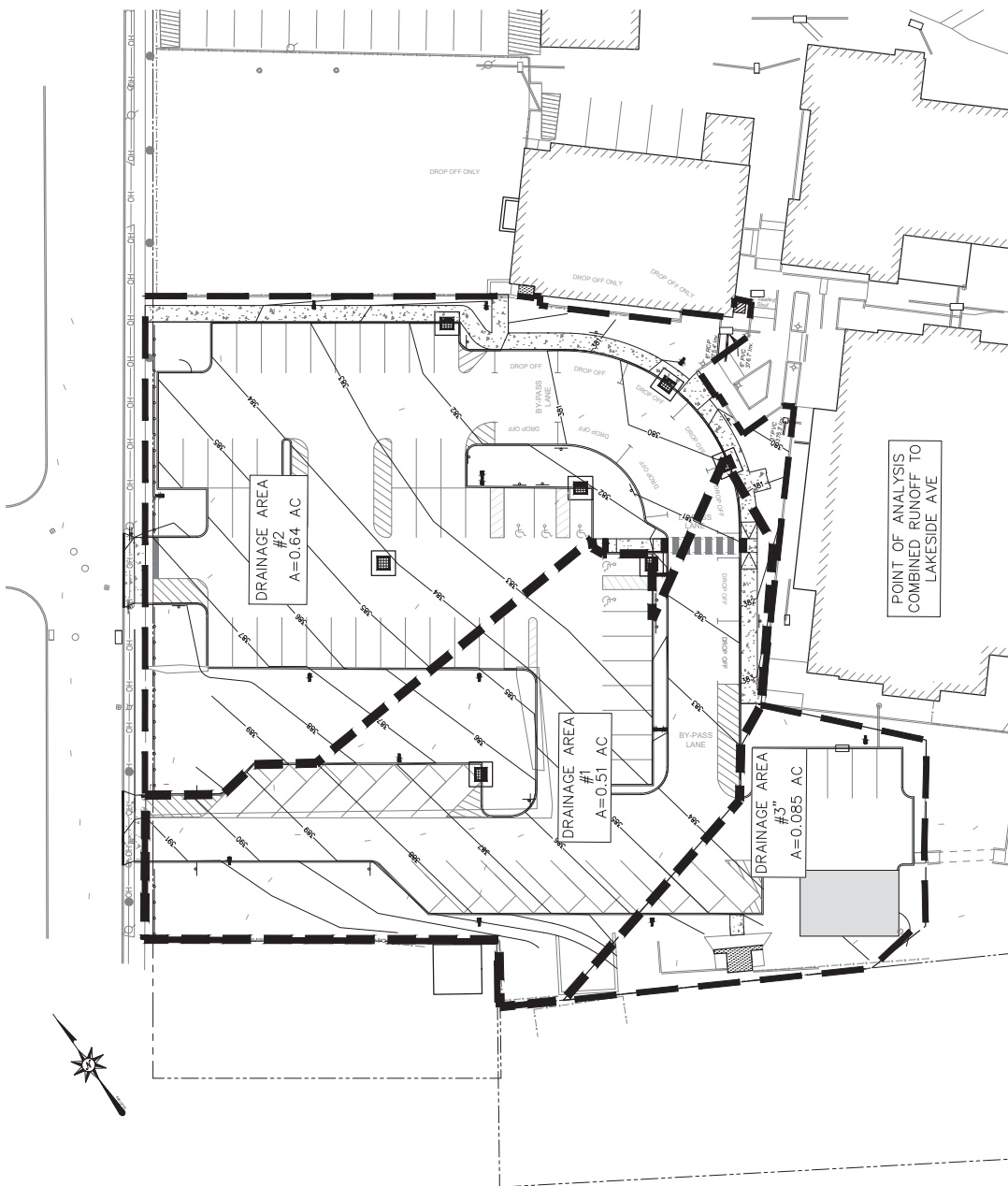
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BouB	Boonton - Urban land, Boonton substratum complex, 0 to 8 percent slopes	0.0	0.6%
PecuuB	Peckmantown - Urban land, Peckmantown substratum complex, 0 to 8 percent slopes	5.8	99.4%
Totals for Area of Interest		5.9	100.0%

PRELIMINARY AND FINAL MAJOR SITE PLANS FOR
OUR LADY OF THE LAKE PARISH
PARKING LOT IMPROVEMENTS
PROP DRAINAGE AREA MAP
BLOCK 1906, LOT 13
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

Bright View Engineering
Moving you forward
BRIGHT VIEW ENGINEERING, LLC
15 OAK ROAD, FAIRFIELD, NJ 07004
BrightViewEngineering.com | T: 973.228.0999
CERT. OF AUTH. No.: 24GA28283000

JAMES GIURINTANO
N.J. Professional Engineer
Lic: 24GE04310400

DATE: 250304
PROJ: 250304
CHKD: JG

[illegible]

SCALE: 1" = 20'

THESE PLANS ARE NOT
TO BE USED FOR BID
OR CONSTRUCTION
SEE SHEET 2 OF THIS SET
FOR GENERAL NOTES AND
REFERENCES

OUR LADY OF THE LAKE PARISH
PARKING LOT IMPROVEMENTS
INLET DRAINAGE AREA MAP
BLOCK 1906, LOT 13
TOWNSHIP OF VERONA, ESSEX COUNTY, NEW JERSEY

Bright View Engineering
Moving you forward

James Giurintano
JAMES GIURINTANO
I.J. Professional Engineer
Lic. 24GE04310400

THIS DRUG AND ALL
CONTAINED HEREIN IS A
USE ONLY BY THE PAID
THE WORK WAS CON-
WAGON IT IS CERTAIN
WAS NOT BE COME
DISCLOSED, DISSEM-
UPON FOR ANY OF THE
WITHOUT THE WRITING
MOSE CONSULTING S
© 2001 MOSE CONSULT
ALL RIGHTS RESERVED

CHKD	DATE	REVISION
		1
		2
		3
		4
		5
		6

