POST-CONSTRUCTION STORMWATER NARRATIVE

Mercer Node Development

Prepared for:

Mercer Node, LLC

Prepared by:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
MOON TOWNSHIP, PENNSYLVANIA

CEC Project 353-024

April 2026
Revised August 2026

TABLE OF CONTENTS

2 – Methodology, Data, Special Concerns and Logical Resolutions

3 – PCSM Spreadsheet
- a. Phase 1
- b. Phase 2 & 3

4 – Pre-Development Analysis Drainage Area Map

5 – Pre-Development Rate Calculations
- a. Phase 1
- b. Phase 2 & 3

6 – Post-Development Analysis Drainage Map
- a. Phase 1
- b. Phase 2 & 3

7 – Post-Development Rate Calculations
- a. Phase 1
- b. Phase 2 & 3

8– MRC Information
- a. Summary Sheet – Phase 1
- b. Summary Sheet – Phase 2 & 3

9 – Inlet Drainage Area Map
- a. Phase 1
- b. Phase 2 & 3

10 – Storm Sewer Calculations
- a. Phase 1
- b. Phase 2 & 3

Appendix A – Soils Information

Appendix B – SCM Feasibility Evaluation

Appendix C – Off Site Flow Path Exhibit

2 - METHODOLOGY, DATA, SPECIAL CONCERNS AND LOGICAL RESOLUTIONS

POST-CONSTRUCTION STORMWATER MANAGEMENT NARRATIVE

April 2026

Revised August 2026

Introduction

On behalf of Mercer Node, LLC, Civil & Environmental Consultants, Inc. (CEC) prepared the following technical narrative for the proposed development located in the City of Sharon, Mercer County PA.

The site is approximately 17.43 acres and has a total limit of disturbance area of 14.69 acres. Mercer Node, LLC is proposing to construct two buildings totaling 186,000 SF, equipment yards, parking, two substation pads, access roads, and associated site features.

The development will be built in multiple phases. Phase I of the development will be the construction of the 80MW substation that will power the sites existing infrastructure and one of the future buildings. Phase I has a limit of disturbance of 2.29 acres.

Phase 2 and Phase 3 will be constructed simultaneously and consists of the construction of two buildings totaling 186,000 SF, equipment yards, parking, the 30 MW substation, access roads, and the associated site features.

FEMA Map

The project site is located with the Federal Emergency Management Agency (FEMA) Community Panel Map 42085C0307D effective June 9, 2014, which indicates the limit of disturbance areas are not within a mapped floodplain.

Receiving Water and Watershed

Stormwater runoff from the project drains to the Shenango River. The receiving water, as with all streams in Pennsylvania, is classified based upon its designated and existing uses, water quality criteria, and whether it supports the natural reproduction of trout. The project site is located within the Shenango River watershed. The 12-digit Hydrologic Unit Code for this watershed is 050301020603.

These items were obtained from the PADEP eMAP online database in April 2026.

Table 1: Receiving Stream Information

Receiving Stream	**Shenango River**
Existing Use	N/A
Designated Use	Warm Water Fishes (WWF)
TMDL	Chlordane, Polychlorinated Biphenyls (PCBS); Organics

Soils Map

The approximate limits of each soil type are depicted on the plans and in the Soils Report provided in Appendix A. Udorthents and Urban Land make up the project area. Udorthents has a hydrologic soil group of C. Urban Land does not have a hydrologic soil rating. For modeling, a hydrologic soil type of C was utilized to be consistent with the soils in the surrounding project area. The soil limitations for the site's soils are listed within the E&S Control Plan and Details.

Methodology

The Natural Resources Conservation Service (NRCS) Technical Release No. 20 (TR-20) methodology was utilized within the HydroCAD computer program to determine the peak rates of runoff. Curve numbers (CN) and Time of Concentrations were calculated within HydroCAD, and the NOAA 24-HR Curve C storm was utilized in the model. A minimum time of concentration of 6.0 minutes was utilized for all drainage areas with calculated time of concentrations less than 6.0 minutes. The HydroCAD model utilizes a "weighted-Q" procedure. This procedure in HydroCAD performs a separate runoff calculation for each CN value and then combines the flows (Q) to produce the total runoff for the entire subcatchment.

The rainfall data used to calculate the peak discharge rates were obtained from NOAA Atlas 14 rainfall data from the nearest station to the site. The peak runoffs were routed to the appropriate points of analysis, as shown in Pre-Development and Post-Development Drainage Area Map. The NOAA 24-HR Storm Curve A was used within the HydroCAD model.

Table 2: NOAA Rainfall Data

	NOAA Atlas 14 (inches)
2-year	2.40
10-year	3.38
50-year	4.50
100-year	5.02

Design Criteria

The site was analyzed to meet the design criteria as outlined in the 25 PA Code, Chapter 102, Chapter 1476 of the City of Sharon Zoning Ordinance, and Section 410 of the Mercer County Subdivision and Land Development Ordinances, stormwater requirements as outlined below.

- Analysis demonstrating that the Post-Construction Stormwater Management (PCSM) Stormwater Control Measures (SCMs) will meet the rate requirements specified in an applicable Department approved and current Act 167 stormwater management watershed plan; or manage the net change in peak rate for the 2-, 10-, 50-, and 100-year/24-hour storm events in a manner not to exceed pre-development rates.

- When the existing project site contains impervious areas, 20% of the existing impervious areas to be disturbed must be considered meadow in good condition or better.

- Analysis demonstrating that the PCSM SCMs will meet the volume reduction and water quality requirements specified in an applicable Department approved and current Act 167 stormwater management watershed plan; or manage the net change for storms up to and including the 2-year/24-hour storm event when compared to pre-development runoff volume and water quality.

Existing Conditions

The existing site is previously developed land consisting of concrete and gravel areas. The existing project site drains to the west to four existing Discharge Points (DPs). The DPs drain to the Shenango River located approximately 250 feet from the site. Refer to the Pre-Development Drainage Area Map (HYD-1) for locations of DPs and drainage areas.

The drainage area to DP 001 includes a portion of the southern project site and the offsite area to the southwest and southeast that drains to the southwestern property line.

The drainage area to DP 002 includes a portion of the southern project site and the offsite area to the southwest and southeast that drains to an existing stormwater vault located to the west of the property in the railroad right-of-way identified as DP 002.

The drainage area to DP 003 includes portions from the north and south areas of the project site and the offsite area to the west and east that drain to an existing stormwater inlet located within Clark Street identified as DP 003.

The drainage area to DP 004 includes a portion of the northern project site that drains to the northwest property line.

The Pre-/Post- analysis was modeled for both Phase I post-construction and complete development (Phase 2 & 3) post construction conditions. In the Phase I pre-construction conditions 0.46 acres of existing impervious was modeled as meadow in good condition as this is the area of the limit of disturbance. In the complete development pre-construction conditions, an additional 2.48 acres

of existing impervious was modeled as meadow in good condition consistent with the increase in the limit of disturbance. Therefore, the pre-existing rates vary between the Phase I and complete development conditions due to the varying project site limits where 20% of the existing impervious is to be modeled as Meadow in good condition.

Post-Construction Stormwater Management

CEC analyzed the pre- and post-development in two scenarios. The Phase I construction and the complete development post-construction conditions (Phase 2 & 3).

For both the Phase I and full development, CEC analyzed the pre- and post-development drainage areas within the limit of disturbance and off-site drainage through the site. The site has four DPs where stormwater leaves the site. Refer to the Post-Development Drainage Area Map (HYD-2 and HYD-3) for locations of DPs and drainage areas. The enclosed HydroCAD reports detail the pre- and post-development hydrologic analyses for site stormwater runoff that reaches each discharge point. The site was then analyzed as one point of analysis (POA 001) for the overall rate of the site. Additionally, the site was analyzed as one area for volume management. It was determined that infiltration is not allowed because of contamination at the site. Due to this and the flat terrain on the site, Non-Structural SCMs were not achievable on this site. Managed Release Control (MRC) Storage System SCMs were therefore used to manage the change in volume and were designed to be consistent with Managed Release Concept White Paper revised on August 15, 2025 (Version). Refer to the Appendix B for the Stormwater Control Measure Feasibility Evaluation for additional information and evaluation of SCM selection. Below is a summary of the structural SCMs utilized in each of the DPs.

A pre-/post- development analysis was not conducted for DP 001, since the proposed drainage area to DP 001 is located outside of the limits of disturbance and no additional impervious area is proposed. This area is shown for reference on the pre-/post- development drainage area maps.

In Phase I, Stormwater runoff within DP-002 will be managed via one structural SCM with managed release control. The MRC is broken into two cells. Additional stormwater drainage is not proposed in DP 001, DP 003, and DP 004; therefore only the MRC is required for rate.

In the full development post-construction condition, in addition to MRC cells designed and constructed in Phase I. Stormwater runoff within DP-003 will be managed via two structural SCMs that are dry extended detention basins. Most of the drainage area to DP-004 is not within the proposed disturbance of the site. A small portion of the area to DP-004 will be routed to DP-003. Therefore, the rates for DP-004 do not increase and a SCM is not needed. The outlet control structures will need to be modified per the design plans during the conversion from Phase I to the full development post-construction plan. Refer to the PCSM plans for additional details.

Table 3: Calculation Summary

Metric	Calculations Provided	Outcome
Volume	A summary of the volume calculations from the PADEP Worksheets is enclosed.	The project meets PADEP volume requirements.
Peak Rate	HydroCAD reports for pre- and post-development flows are enclosed. A summary of the rates within the HydroCAD report is in the table below.	The project meets the PA DEP, City of Sharon, and Mercer County Code of Ordinances rate reduction requirement.
Water Quality	A summary of the water quality calculations from the PADEP Worksheets is enclosed.	The project meets PADEP water quality requirements.

Table 4: Peak Rate Summary Table - Phase I

Discharge Point/ Point of Analysis	Storm Event	Phase I – Pre-Development Conditions	Phase I – Post- Development Conditions
DP-002	1-YR	10.85	6.81
	2-YR	13.11	8.20
	10-YR	18.79	16.08
	50-YR	25.28	22.38
	100-YR	28.30	25.43
POA-001	1-YR	43.06	39.29
	2-YR	51.94	47.31
	10-YR	74.21	71.29
	50-YR	99.60	97.43
	100-YR	111.38	109.43

Table 5: Peak Rate Summary Table – Full Development Post-Construction

Discharge Point/ Point of Analysis	Storm Event	Pre-Development Conditions	Post- Development Conditions
DP-002	1-YR	9.96	3.48
	2-YR	12.12	4.18
	10-YR	17.65	10.96
	50-YR	24.05	17.42
	100-YR	27.05	20.17
DP-003	1-YR	21.32	12.41
	2-YR	26.05	18.16
	10-YR	38.18	33.24
	50-YR	52.32	48.52
	100-YR	58.95	54.17
DP-004	1-YR	6.48	5.65
	2-YR	7.88	6.80
	10-YR	11.44	9.67
	50-YR	15.55	12.93
	100-YR	17.48	14.44
POA-001	1-YR	38.16	23.19
	2-YR	46.52	29.66
	10-YR	67.91	56.67
	50-YR	92.75	83.98
	100-YR	104.38	92.73

Erosion Potential Analysis (Offsite Flow) Path

An erosion potential analysis was not needed as the proposed outfalls from the SCMs onsite during- and post-construction outlet to an existing storm sewer systems that discharge directly to the Shenango River. There are 3 proposed outfalls. Their general flow path is described below and depicted on the map in Appendix C.

In DP-002, the areas detained within the proposed SCMs discharge to an existing stormwater vault system located west of the site. It is assumed that the stormwater flows within an existing storm sewer system until reaching the Shenango River.

In DP-003, there are two outfalls from SCMs. The areas detained within the proposed SCMs discharge to an existing storm sewer system within Clark Street. The stormwater flows within the storm sewer system until reaching the Shenango River.

3A - PCSM SPREADSHEETS – PHASE 1

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP PCSM Spreadsheet
Version 2.2, June 2026

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

General Information

Instructions | *General* | Volume | Rate | Quality

Project Name: **Sharon Data Center - Phase 1**

Application Type: **Individual NPDES Application**

County: **Mercer**

Municipality: **Sharon City**

Project Type: **Other**

(●) New Project ( ) Minor / Major Amendment

Area: **17.430** acres
(In Watershed)

Total Earth Disturbance: **2.290** acres
(In Watershed)

No. of Post-Construction Points of Analysis: **1**

at: **001**

Point of Analysis (POA) No.	Total Drainage Area (DA) (acres)	Project Site DA (acres)	Existing Imp., Project Site DA (acres)	Proposed Imp., Project Site DA (acres)	Receiving Waters	Ch. 93 Class	Structural SCM(s)
001	2.210	2.040	2.040	2.040	Discharge to Combined Sewer System	WWF	Yes
Undetained Areas	18.060	15.390	15.390	15.390	Discharge to Combined Sewer System	WWF	
Totals:	**20.270**	**17.430**	**17.430**	**17.430**			

Volume Management

Project: Sharon Data Center - Phase 1

Instructions | General | *Volume* | Rate | Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): **2.4** inches

Alternative 2-Year / 24-Hour Storm Event _____ inches

Alternative Source: _____

Pre-Construction Conditions: *No. Rows:* **3**

☐ *Exempt from Meadow in Good Condition* ☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	Outside LOD	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	1.830	C	☐	98	0.041	2.17	14,424
Impervious as Meadow	0.460	C	☐	71	0.817	0.44	738
Impervious Areas: Industrial	15.140	C	☑	98	0.041	2.17	119,334
TOTAL (ACRES):	**17.430**					**TOTAL (CF):**	**134,496**

Post-Construction Conditions: *No. Rows:* **2**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Industrial	2.290	C	98	0.041	2.17	18,050
Impervious Areas: Industrial	15.140	C	98	0.041	2.17	119,334
TOTAL (ACRES):	**17.430**				**TOTAL (CF):**	**137,383**

NET CHANGE IN VOLUME TO MANAGE (CF): **2,887**

Non-Structural SCM Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Description: | **CREDIT (CF):**

Structural SCM Volume Credits: *No. Structural SCMs:* **1** *Start SCM Numbering at:* **2**

POA No.	SCM No.	SCM Name	MRC?	Discharge	Incremental SCM DA (acres)	Total Vol. Routed to SCM (CF)	Off-Site Vol. Routed to SCM (CF)	Infiltration / Vegetated Area (SF)	Infil. Rate (in/hr)	Infil. Period (hrs)	Vegeta-ted?	Media Depth (ft)	Stored Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	2A/ 2B	Dry Extended Detention Basin	Y	Off-Site	2.210	17,419	1,340	0	0		No	1.3			
													Totals:	**0**	**0**

INFILTRATION & ET CREDITS - TOTAL (CF):	**0**
INFILTRATION & ET CREDITS - PROJECT SITE (CF):	**0**
MANAGED RELEASE CREDIT (CF):	**16,079**
NET CHANGE IN VOLUME TO MANAGE (CF):	**2,887**
TOTAL CREDITS (CF):	**16,079**

Rate Control

Project: Sharon Data Center - Phase 1

Instructions | General | Volume | *Rate* | Quality

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	**2.4**	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):	**3.38**	Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):	**4.5**	Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):	**5.02**	Alternative 100-Year 24-Hour Storm Event (in):	

☑ **Report Summary of Peak Rates Only**

Attach model input and output data or other calculations to support the rates reported below.

	Peak Discharge Rates (cfs)			
	Pre-Construction	**Post-Construction**	**Net Change**	
2-Year Storm:	**51.94**	**47.31**	**-4.63**	***Rate Control Satisfied***
10-Year Storm:	**74.21**	**71.29**	**-2.92**	***Rate Control Satisfied***
50-Year Storm:	**99.60**	**97.43**	**-2.17**	***Rate Control Satisfied***
100-Year Storm:	**111.38**	**109.43**	**-1.95**	***Rate Control Satisfied***

Water Quality

Project: Sharon Data Center - Phase 1

PRINT

Instructions | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	1.83	C	14,424	65.0	0.29	2.05	58.54	0.26	1.85
Impervious as Meadow	Grassland/Herbaceous	0.46	C	738	48.8	0.22	2.30	2.25	0.01	0.11
Impervious Areas: Industrial	Industrial	15.14	C	119,334	81.0	0.24	2.01	603.57	1.79	14.98
	TOTAL (ACRES):	**17.43**					**TOTALS:**	**664.37**	**2.06**	**16.93**

Post-Construction Pollutant Loads (without SCMs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Industrial	Industrial	2.29	C	18,050	81.0	0.24	2.01	91.29	0.27	2.27
Impervious Areas: Industrial	Industrial	15.14	C	119,334	81.0	0.24	2.01	603.57	1.79	14.98

TOTAL (ACRES):	**17.43**	**TOTALS:**	**694.86**	**2.06**	**17.24**

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	**30.50**	**0.00**	**0.31**

☐ **Characterize Undetained Areas (for Untreated Stormwater)**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)

Non-Structural SCM Water Quality Credits:

☐ Pervious Undetained Area Credit

☐ Other (attach calculations)

Structural SCM Water Quality Credits:

☑ *Use default SCM Outflows and Median SCM Outflow Concentrations*

POA No.	SCM No.	SCM Name	MRC?	SCM DA (acres)	Vol. Routed to SCM (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	2A/ 2B	Dry Extended Detention Basin	Y	2.21	16,079			16,079	-	-	-	-	-	-

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL SCM (TREATED) OUTFLOWS (LBS):	**0.00**	**0.00**	**0.00**
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	**613.54**	**1.82**	**15.22**
NON-STRUCTURAL SCM WATER QUALITY CREDITS (LBS):			
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	**613.54**	**1.82**	**15.22**
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	**664.37**	**2.06**	**16.93**

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Emily Helbling	7/28/2026
Spreadsheet User Name	Date

3B - PCSM SPREADSHEETS – PHASE 2 & 3

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP PCSM Spreadsheet
Version 2.2, June 2026

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

General Information

Instructions | *General* | Volume | Rate | Quality

Project Name: **Sharon Data Center - Phase 2 and 3**

Application Type: **Individual NPDES Application**

County: **Mercer**

Municipality: **Sharon City**

Project Type: **Other**

(●) New Project ( ) Minor / Major Amendment

Area: **17.430** acres
(In Watershed)

Total Earth Disturbance: **14.690** acres
(In Watershed)

No. of Post-Construction Points of Analysis: **1**

at: **001**

Point of Analysis (POA) No.	Total Drainage Area (DA) (acres)	Project Site DA (acres)	Existing Imp., Project Site DA (acres)	Proposed Imp., Project Site DA (acres)	Receiving Waters	Ch. 93 Class	Structural SCM(s)
001	15.030	13.820	13.820	13.820	Discharge to Combined Sewer System	WWF	Yes
Undetained Areas	5.230	3.610	3.610	3.610	Discharge to Combined Sewer System	WWF	
Totals:	**20.260**	**17.430**	**17.430**	**17.430**			

Volume Management

Project: Sharon Data Center - Phase 2 and 3

Instructions | General | *Volume* | Rate | Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): **2.4** inches

Alternative 2-Year / 24-Hour Storm Event _____ inches

Alternative Source: _____

Pre-Construction Conditions: *No. Rows:* **3**

☐ *Exempt from Meadow in Good Condition* ☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	Outside LOD	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Industrial	11.750	C	☐	98	0.041	2.17	92,614
Impervious as Meadow	2.940	C	☐	71	0.817	0.44	4,719
Impervious Areas: Industrial	2.740	C	☑	98	0.041	2.17	21,597
TOTAL (ACRES):	**17.430**					**TOTAL (CF):**	**118,929**

Post-Construction Conditions: *No. Rows:* **2**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Industrial	14.690	C	98	0.041	2.17	115,787
Impervious Areas: Industrial	2.740	C	98	0.041	2.17	21,597
TOTAL (ACRES):	**17.430**				**TOTAL (CF):**	**137,383**

NET CHANGE IN VOLUME TO MANAGE (CF): **18,454**

Non-Structural SCM Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Description: | **CREDIT (CF):**

Structural SCM Volume Credits: *No. Structural SCMs:* **3** *Start SCM Numbering at:*

POA No.	SCM No.	SCM Name	MRC?	Discharge	Incremental SCM DA (acres)	Total Vol. Routed to SCM (CF)	Off-Site Vol. Routed to SCM (CF)	Infiltration / Vegetated Area (SF)	Infil. Rate (in/hr)	Infil. Period (hrs)	Vegeta-ted?	Media Depth (ft)	Stored Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	2A/ 2B	Dry Extended Detention Basin	Y	Off-Site	2.510	19,784	788	0	0		No	1.3			
001	3A	Dry Extended Detention Basin	-	Off-Site	8.060	63,529	4,887	0	0		No				
001	3B	Dry Extended Detention Basin	-	Off-Site	4.460	35,154	3,547	0	0		No				
													Totals:	**0**	**0**

INFILTRATION & ET CREDITS - TOTAL (CF):	**0**
INFILTRATION & ET CREDITS - PROJECT SITE (CF):	**0**
MANAGED RELEASE CREDIT (CF):	**18,996**

NET CHANGE IN VOLUME TO MANAGE (CF):	**18,454**
TOTAL CREDITS (CF):	**18,996**

Rate Control

Project: Sharon Data Center - Phase 2 and 3

Instructions | General | Volume | *Rate* | Quality

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	**2.4**	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):	**3.38**	Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):	**4.5**	Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):	**5.02**	Alternative 100-Year 24-Hour Storm Event (in):	

☑ **Report Summary of Peak Rates Only**

Attach model input and output data or other calculations to support the rates reported below.

	Peak Discharge Rates (cfs)			
	Pre-Construction	**Post-Construction**	**Net Change**	
2-Year Storm:	**46.52**	**29.66**	**-16.86**	***Rate Control Satisfied***
10-Year Storm:	**67.91**	**56.67**	**-11.24**	***Rate Control Satisfied***
50-Year Storm:	**92.75**	**83.98**	**-8.77**	***Rate Control Satisfied***
100-Year Storm:	**104.38**	**92.73**	**-11.65**	***Rate Control Satisfied***

Water Quality

Project: Sharon Data Center - Phase 2 and 3

PRINT

Instructions | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Industrial	Industrial	11.75	C	92,614	81.0	0.24	2.01	468.43	1.39	11.62
Impervious as Meadow	Grassland/Herbaceous	2.94	C	4,719	48.8	0.22	2.30	14.38	0.06	0.68
Impervious Areas: Industrial	Industrial	2.74	C	21,597	81.0	0.24	2.01	109.23	0.32	2.71
	TOTAL (ACRES):	**17.43**					**TOTALS:**	**592.04**	**1.78**	**15.01**

Post-Construction Pollutant Loads (without SCMs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Industrial	Industrial	14.69	C	115,787	81.0	0.24	2.01	585.63	1.74	14.53
Impervious Areas: Industrial	Industrial	2.74	C	21,597	81.0	0.24	2.01	109.23	0.32	2.71

TOTAL (ACRES):	**17.43**	**TOTALS:**	**694.86**	**2.06**	**17.24**

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	**102.83**	**0.28**	**2.23**

☑ **Characterize Undetained Areas (for Untreated Stormwater)** *No. Rows:*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Industrial	1.660	C	**98**	**0.041**	**2.17**	**13,084**
	1.660					

Non-Structural SCM Water Quality Credits:

☐ Pervious Undetained Area Credit

☐ Other (attach calculations)

Structural SCM Water Quality Credits:

☑ *Use default SCM Outflows and Median SCM Outflow Concentrations*

POA No.	SCM No.	SCM Name	MRC?	SCM DA (acres)	Vol. Routed to SCM (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	2A/ 2B	Dry Extended Detention Basin	Y	2.51	18,996			18,996	-	-	-	-	-	-
001	3A	Dry Extended Detention Basin	-	8.06	58,642			58,642	22.00	0.19	1.22	80.56	0.70	4.47
001	3B	Dry Extended Detention Basin	-	4.46	31,607			31,607	22.00	0.19	1.22	43.42	0.37	2.41

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL SCM (TREATED) OUTFLOWS (LBS):	**123.98**	**1.07**	**6.88**
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	**66.18**	**0.20**	**1.64**

NON-STRUCTURAL SCM WATER QUALITY CREDITS (LBS):			
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	**190.16**	**1.27**	**8.52**
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	**592.04**	**1.78**	**15.01**

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Emily Helbling	8/4/2026
Spreadsheet User Name	Date

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

RUNOFF VOLUME TRIBUTARY TO PCSM SCM 3A FOR 2-YR STORM EVENT

Project: Sharon Data Center - Phase 2 and 3
Drainage Area: PCSM SCM 3A
2-Year Rainfall: 2.40 in

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	I_a [1] (in)	Q Runoff [2] (in)	Runoff Volume [3] (ft^3)
Impervious	N/A	351,094	8.060	98	0.2	0.0	2.2	63,529
Total		**351,094**	**8.060**					**63,529**

1. Initial Abstraction (in) = I_a =0.2*S, where

S = (1000/CN) - 10

2. If 2-Year Rainfall > Initial Abstraction: Runoff (in) = Q = (P - 0.2S)2 / (P + 0.8S), where:

P = 2-Year Rainfall (in)

S = (1000/CN) - 10

If 2-Year Rainfall <= Initial Abstraction: Runoff (in) = Q = 0

3. Runoff Volume (CF) = Q X Area X 1/12 x 43560 ft^2/acre, where:

Q = Runoff (in)

Area = Stormwater Management Area (ac) from Worksheet 3

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

RUNOFF VOLUME TRIBUTARY TO PCSM SCM 3A OUTSIDE PROJECT SITE FOR 2-YR STORM EVENT

Project: Sharon Data Center - Phase 2 and 3
Drainage Area: PCSM SCM 3A
2-Year Rainfall: 2.40 in

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	I_a [1] (in)	Q Runoff [2] (in)	Runoff Volume [3] (ft^3)
Impervious	N/A	27,007	0.620	98	0.2	0.0	2.2	4,887
Total		**27,007**	**0.620**					**4,887**

1. Initial Abstraction (in) = I_a =0.2*S, where

   S = (1000/CN) - 10

2. If 2-Year Rainfall > Initial Abstraction: Runoff (in) = Q = (P - 0.2S)2 / (P + 0.8S), where:

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

   If 2-Year Rainfall <= Initial Abstraction: Runoff (in) = Q = 0

3. Runoff Volume (CF) = Q X Area X 1/12 x 43560 ft^2/acre, where:

   Q = Runoff (in)

   Area = Stormwater Management Area (ac) from Worksheet 3

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

RUNOFF VOLUME TRIBUTARY TO PCSM SCM 3B FOR 2-YR STORM EVENT

Project: Sharon Data Center - Phase 2 and 3
Drainage Area: PCSM SCM 3B
2-Year Rainfall: 2.40 in

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	I_a [1](in)	Q Runoff[2](in)	Runoff Volume[3] (ft^3)
Impervious	N/A	194,278	4.460	98	0.2	0.0	2.2	35,154
Total		**194,278**	**4.460**					**35,154**

1. Initial Abstraction (in) = I_a =0.2*S, where

S = (1000/CN) - 10

2. If 2-Year Rainfall > Initial Abstraction: Runoff (in) = Q = (P - 0.2S)2 / (P + 0.8S), where:

P = 2-Year Rainfall (in)

S = (1000/CN) - 10

If 2-Year Rainfall <= Initial Abstraction: Runoff (in) = Q = 0

3. Runoff Volume (CF) = Q X Area X 1/12 x 43560 ft^2/acre, where:

Q = Runoff (in)

Area = Stormwater Management Area (ac) from Worksheet 3

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

RUNOFF VOLUME TRIBUTARY TO PCSM SCM 3B OUTSIDE PROJECT SITE FOR 2-YR STORM EVENT

Project: Sharon Data Center - Phase 2 and 3
Drainage Area: PCSM SCM 3B
2-Year Rainfall: 2.40 in

Cover Type	Soil Type	Area (sf)	Area (ac)	CN	S	I_a [1] (in)	Q Runoff [2] (in)	Runoff Volume [3] (ft^3)
Impervious	N/A	19,602	0.450	98	0.2	0.0	2.2	3,547
Total		**19,602**	**0.450**					**3,547**

1. Initial Abstraction (in) = I_a =0.2*S, where

   S = (1000/CN) - 10

2. If 2-Year Rainfall > Initial Abstraction: Runoff (in) = Q = (P - 0.2S)2 / (P + 0.8S), where:

   P = 2-Year Rainfall (in)

   S = (1000/CN) - 10

   If 2-Year Rainfall <= Initial Abstraction: Runoff (in) = Q = 0

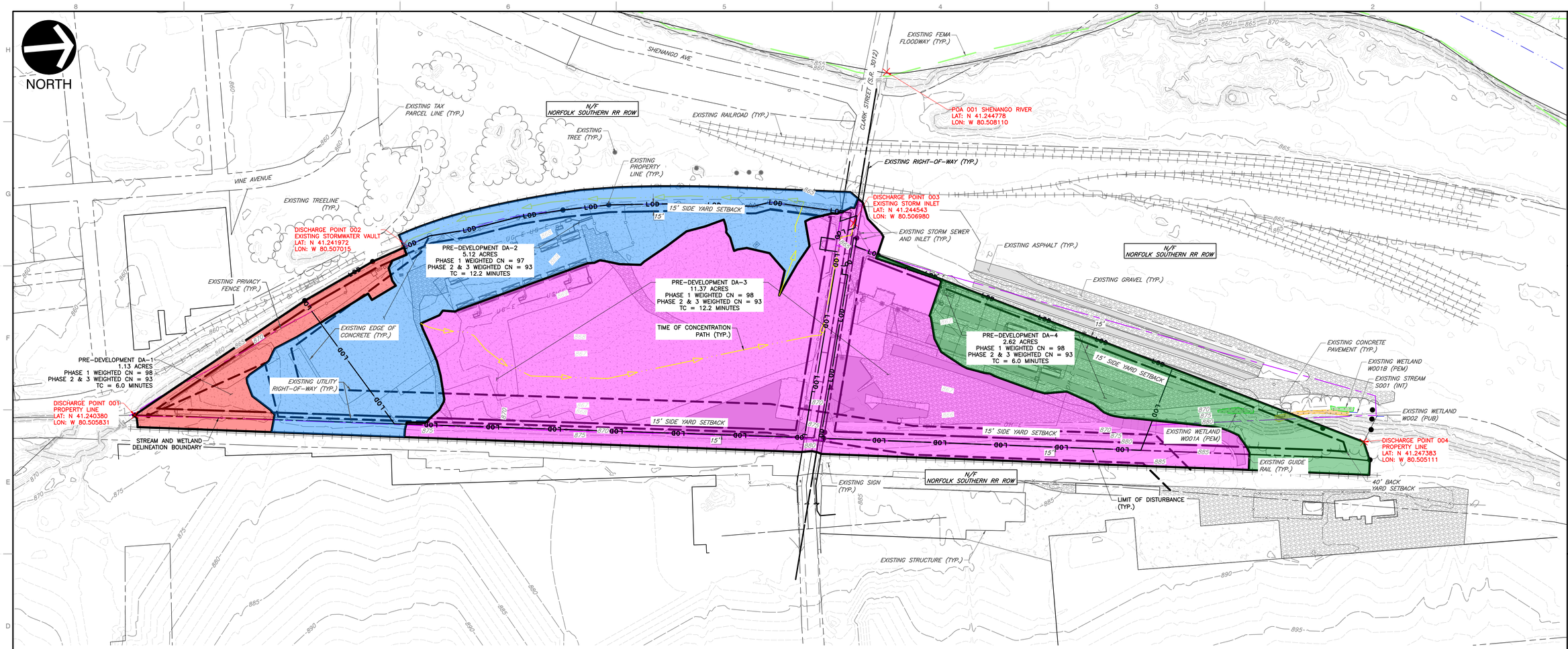
3. Runoff Volume (CF) = Q X Area X 1/12 x 43560 ft^2/acre, where:

   Q = Runoff (in)

   Area = Stormwater Management Area (ac) from Worksheet 3

Note: Runoff Volume must be calculated for EACH land use type and soil.
The use of a weighted CN value for volume calculations is not acceptable.

4 – PRE-DEVELOPMENT ANALYSIS DRAINAGE AREA MAP



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING TAX PARCEL LINE
- EXISTING UTILITY RIGHT-OF-WAY
- EXISTING SETBACK
- EXISTING RIGHT-OF-WAY
- EXISTING RAILROAD
- EXISTING TREE LINE AND TREE
- EXISTING SECURITY FENCE LINE
- EXISTING PRIVACY FENCE LINE
- EXISTING ASPHALT PAVEMENT
- EXISTING GRAVEL
- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING GRAVEL (DIGITIZED FROM AERIAL)
- EXISTING CONCRETE PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING STRUCTURE
- EXISTING GUIDE RAIL
- EXISTING SIGN
- STREAM AND WETLAND DELINEATION BOUNDARY
- EXISTING STREAM
- EXISTING WETLAND (PEM)
- EXISTING WETLAND (PUB)
- EXISTING STORM SEWER
- EXISTING STORM INLET/DRAIN AND MANHOLE
- EXISTING AC UNIT
- EXISTING STREAM
- EXISTING FEMA FLOODWAY
- PRE-DEVELOPMENT DA-1
- PRE-DEVELOPMENT DA-2
- PRE-DEVELOPMENT DA-3
- PRE-DEVELOPMENT DA-4
- TIME OF CONCENTRATION PATH
- LIMIT OF DISTURBANCE

REFERENCES

1. EXISTING SITE FEATURES AND UTILITIES ARE BASED ON A COMBINATION OF SURVEY PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) DATED 07-14-2025 THROUGH 10-22-2025 AND ALTA SURVEY COMPLETED 10-30-2025 BY CEC.
2. PLAN NORTH IS BASED ON PENNSYLVANIA STATE PLANE NAD83-2011, NORTH ZONE, AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
3. VERTICAL DATUM IS BASED ON NAVD88 (GEOID 18), AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
4. STREAM AND WETLAND DELINEATION PERFORMED BY CEC ON 07-11-2025.
5. PROPERTY IS LOCATED IN FLOOD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS DEPICTED ON FLOOD INSURANCE RATE MAP 42085C0307D, EFFECTIVE DATE 08-09-2014, MERCER COUNTY COUNTY, PENNSYLVANIA. THIS STATEMENT DOES NOT GUARANTEE THAT THE SUBJECT PROPERTY WILL OR WILL NOT FLOOD.
6. EXISTING CONTOURS ARE DERIVED FROM PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) 2 AND 10 CONTOURS DATED 2006-2008.
7. SUBSTATION LAYOUT PROVIDED BY ASPLUNDH ENGINEERING SERVICES ON 02-4-2026.
8. CLARK STREET IS A PADOT STREET PER MERCER COUNTY 10 MAP PREPARED BY THE PADOT DATED 2024
9. AERIAL PHOTOGRAPHY PROVIDED BY GOOGLE EARTH, ACCESS THROUGH FROM PLEX EARTH ON 01/28/2026. DATE OF PHOTOGRAPHY 10-02-2024.
10. APPROXIMATE GROUND WATER MONITORING WELL LOCATIONS ARE BASED ON THE DIGITIZATION OF AN EXHIBIT ISSUED BY ENVIRON 04/30/2014, AND FIELD SURVEY BY CEC IF ABOVE GROUND EVIDENCE WAS OBSERVED AND SHOULD NOT BE CONSIDERED ACCURATE.

SCALE IN FEET
0 100 200

REVISION RECORD

NO	DATE	DESCRIPTION
1	08/13/2026	RESPONSE TO INCOMPLETENESS LETTER DATED 7/24/2026.
2	08/13/2026	RESPONSE TO TECHNICAL DEFICIENCY LETTER DATED 07/31/2026.

PERMITTING, DRAFTING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF PA, PLLC. SERVICES IN NORTH DAKOTA WILL BE PROVIDED BY CEC ENGINEERING, PLLC. SURVEYING SERVICES IN OHIO WILL BE PROVIDED BY CEC ENGINEERING & SURVEYING, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTURE, LLC.

700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 · 800.365.2324
www.cecinc.com

Civil & Environmental Consultants, Inc.

MERCER NODE PROPERTY, LLC
MERCER NODE DEVELOPMENT
200-201 CLARK STREET
CITY OF SHARON
MERCER COUNTY, PA

PRE-DEVELOPMENT HYDROLOGY MAP

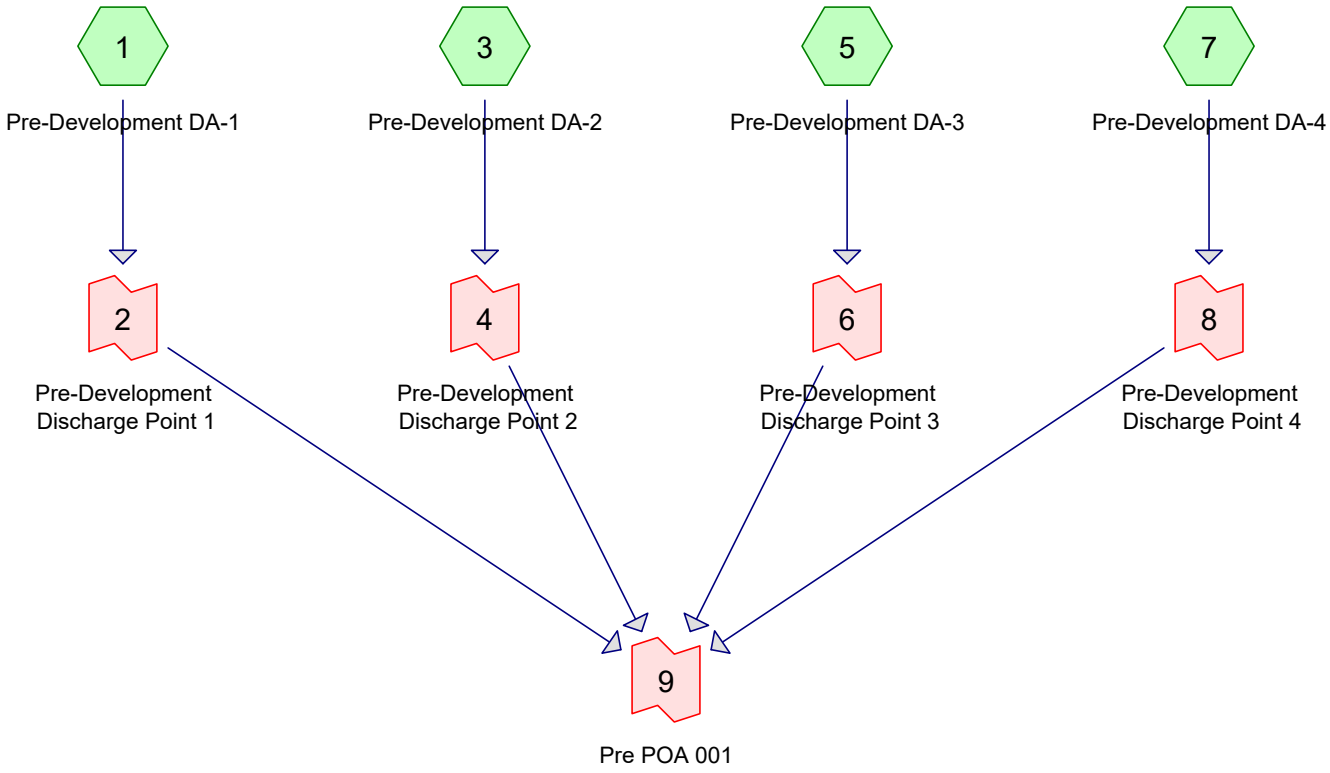
DATE:	APRIL 2026
DRAWN BY:	VMF
CHECKED BY:	BJH
DWG SCALE:	1" = 100'
PROJECT NO:	353-024
APPROVED BY:	RIM

DRAWING NO.:
HYD-1

\\ cecinc.com \ global \ Projects \ 300-001 \ 353-024 \ -CAD \ Dwg \ CIVIL \ 353024-CIVIL-PRE-HYD Map.dwg [HYD-1] 8/13/2026 - emeberg - LP: 8/12/2026 2:23 PM

5A – PRE-DEVELOPMENT RATE CALCULATIONS – PHASE 1

Pre



PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

Subcat Reach Pond Link

Routing Diagram for 353-024 Sharon Substation_PH 1
Prepared by CEC Inc, Printed 8/10/2026
HydroCAD® 10.20-6a s/n 01006 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment 1: Pre-Development DA-1

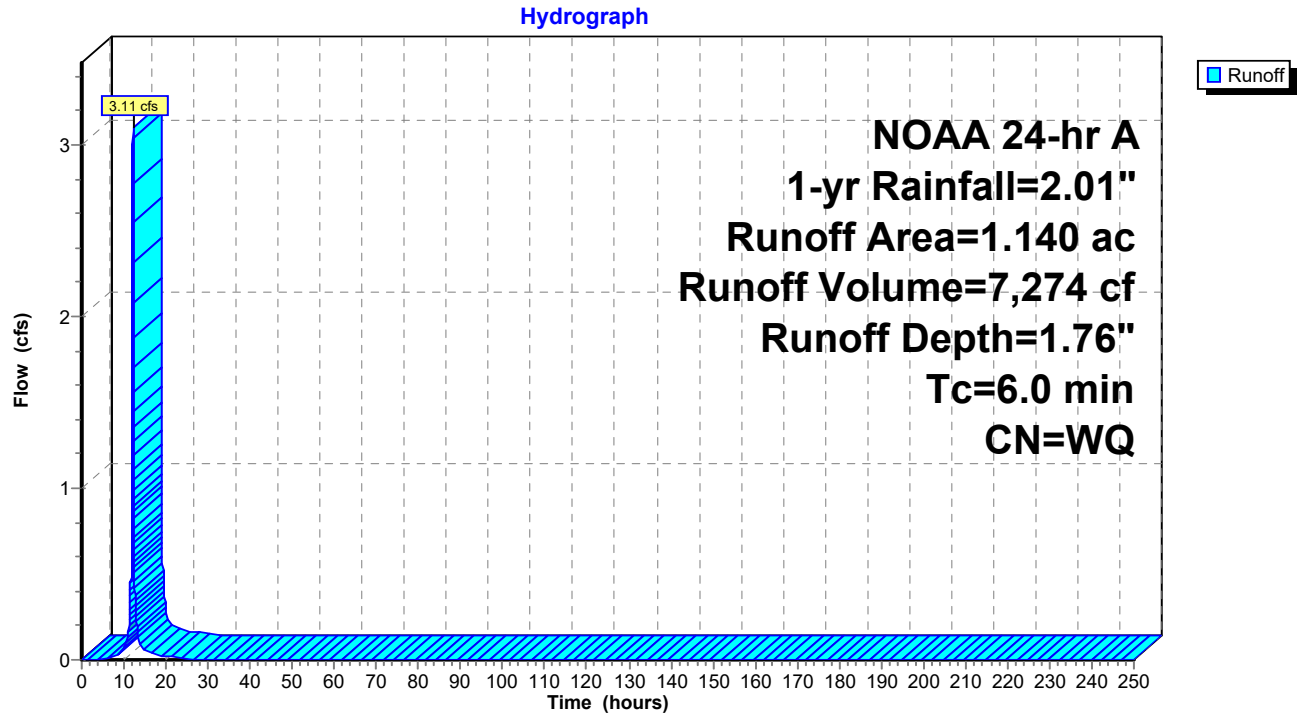
Runoff = 3.11 cfs @ 12.13 hrs, Volume= 7,274 cf, Depth= 1.76"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	0.060	98	Paved parking, HSG C
*	0.020	71	20% Impervious as Meadow, HSG C
*	1.060	98	Imp Outside LOD
	1.140		Weighted Average
	0.020		1.75% Pervious Area
	1.120		98.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

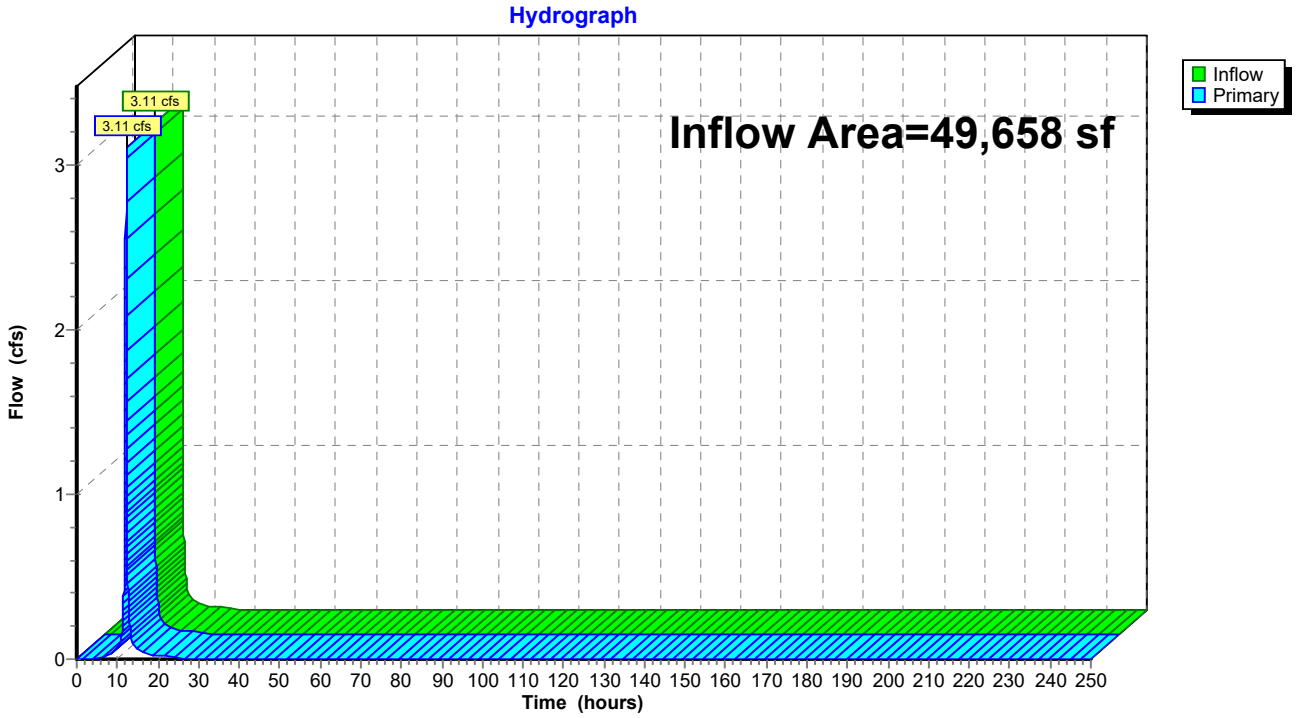


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,658 sf, 98.25% Impervious, Inflow Depth = 1.76" for 1-yr event
Inflow = 3.11 cfs @ 12.13 hrs, Volume= 7,274 cf
Primary = 3.11 cfs @ 12.13 hrs, Volume= 7,274 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

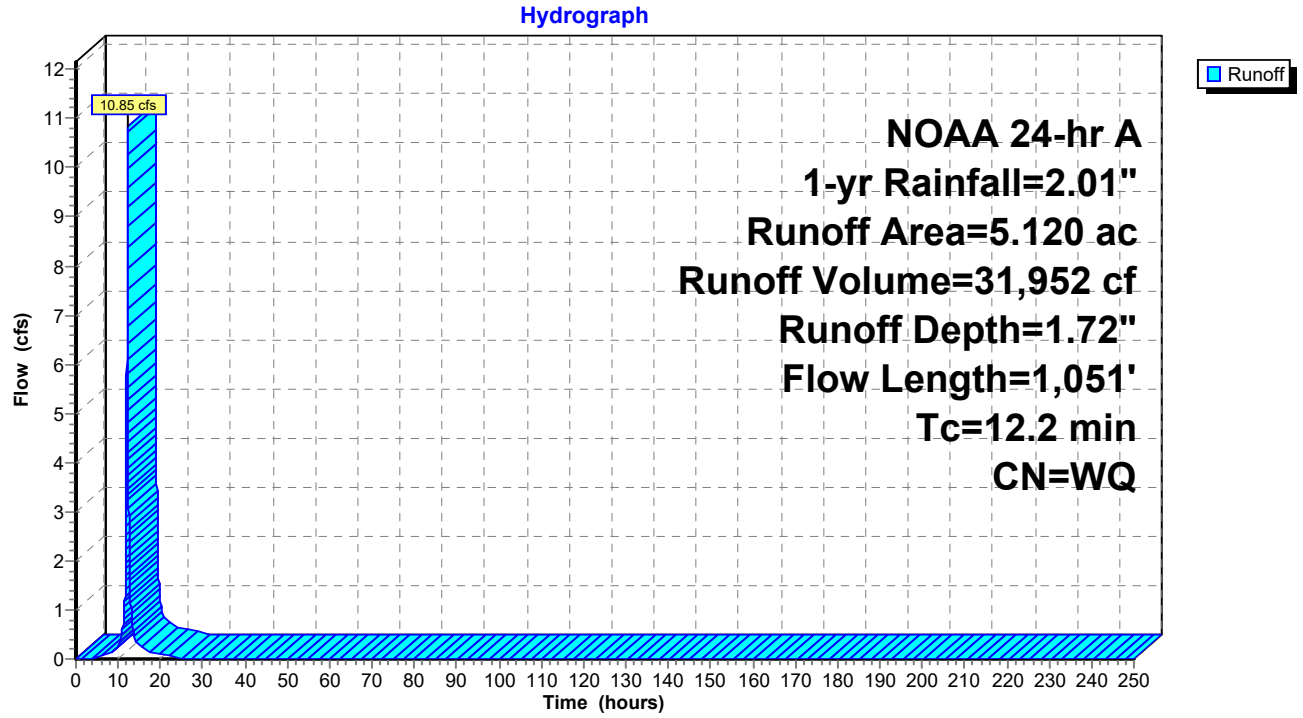
Runoff = 10.85 cfs @ 12.19 hrs, Volume= 31,952 cf, Depth= 1.72"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	0.890	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	4.010	98	Imp Outside LOD
	5.120		Weighted Average
	0.220		4.30% Pervious Area
	4.900		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

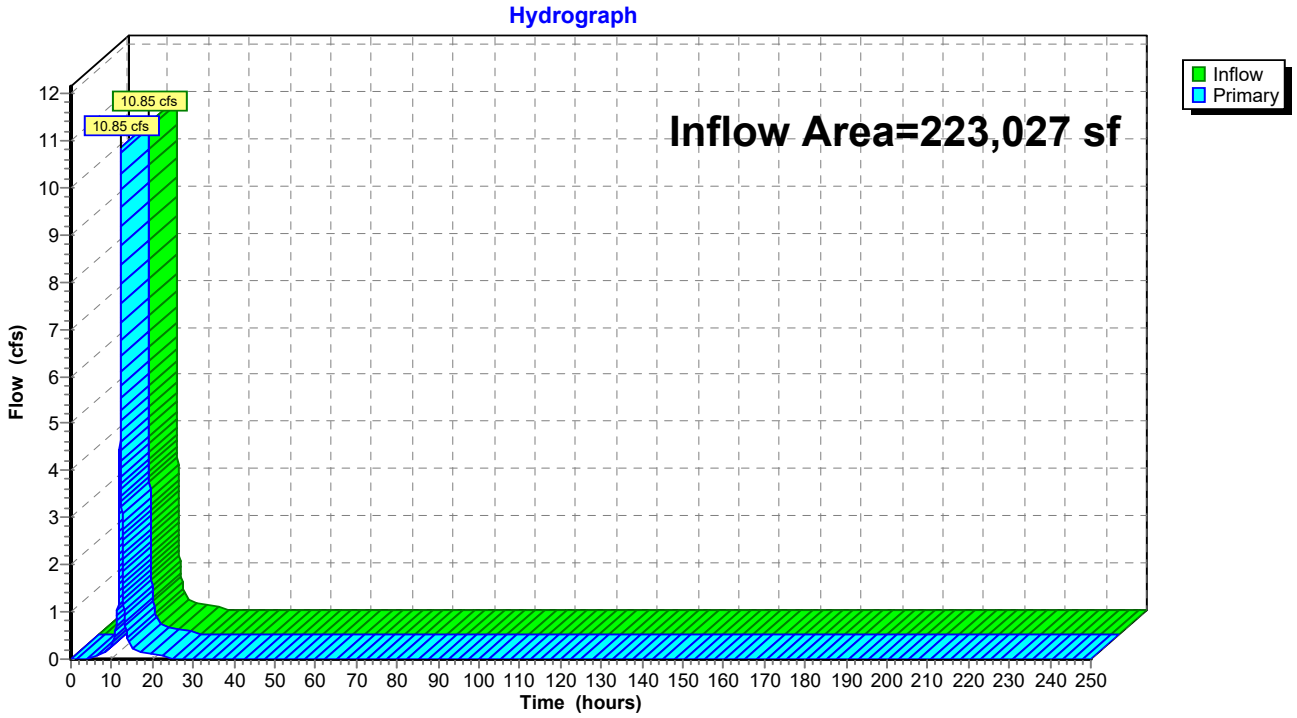


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 95.70% Impervious, Inflow Depth = 1.72" for 1-yr event
Inflow = 10.85 cfs @ 12.19 hrs, Volume= 31,952 cf
Primary = 10.85 cfs @ 12.19 hrs, Volume= 31,952 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

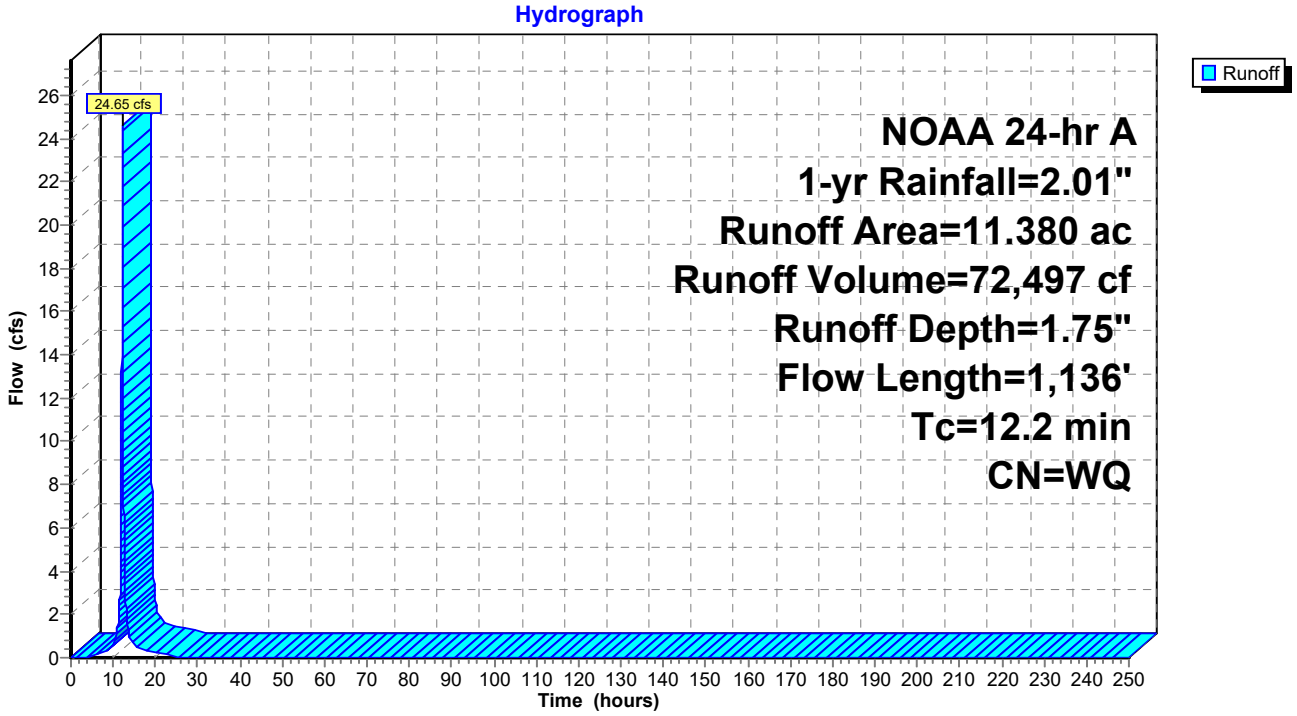
Runoff = 24.65 cfs @ 12.19 hrs, Volume= 72,497 cf, Depth= 1.75"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	0.880	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	10.280	98	Imp Outside LOD
	11.380		Weighted Average
	0.220		1.93% Pervious Area
	11.160		98.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

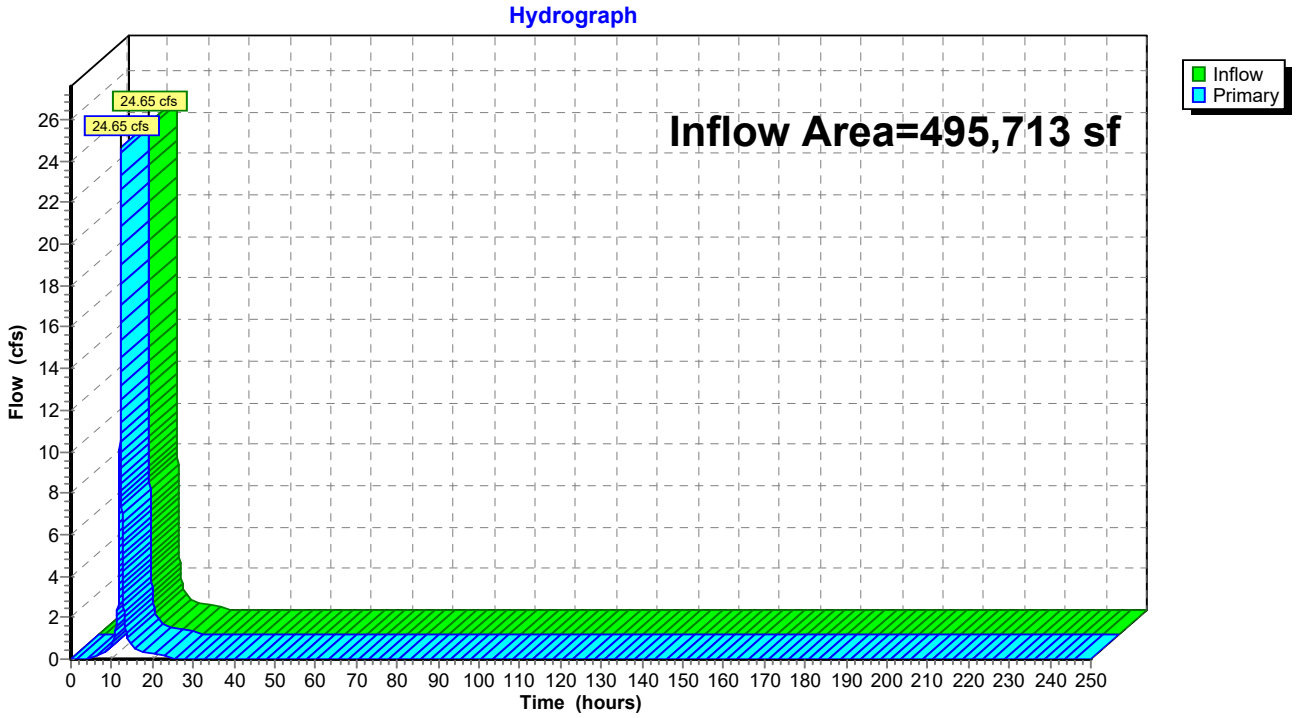


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,713 sf, 98.07% Impervious, Inflow Depth = 1.75" for 1-yr event
Inflow = 24.65 cfs @ 12.19 hrs, Volume= 72,497 cf
Primary = 24.65 cfs @ 12.19 hrs, Volume= 72,497 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

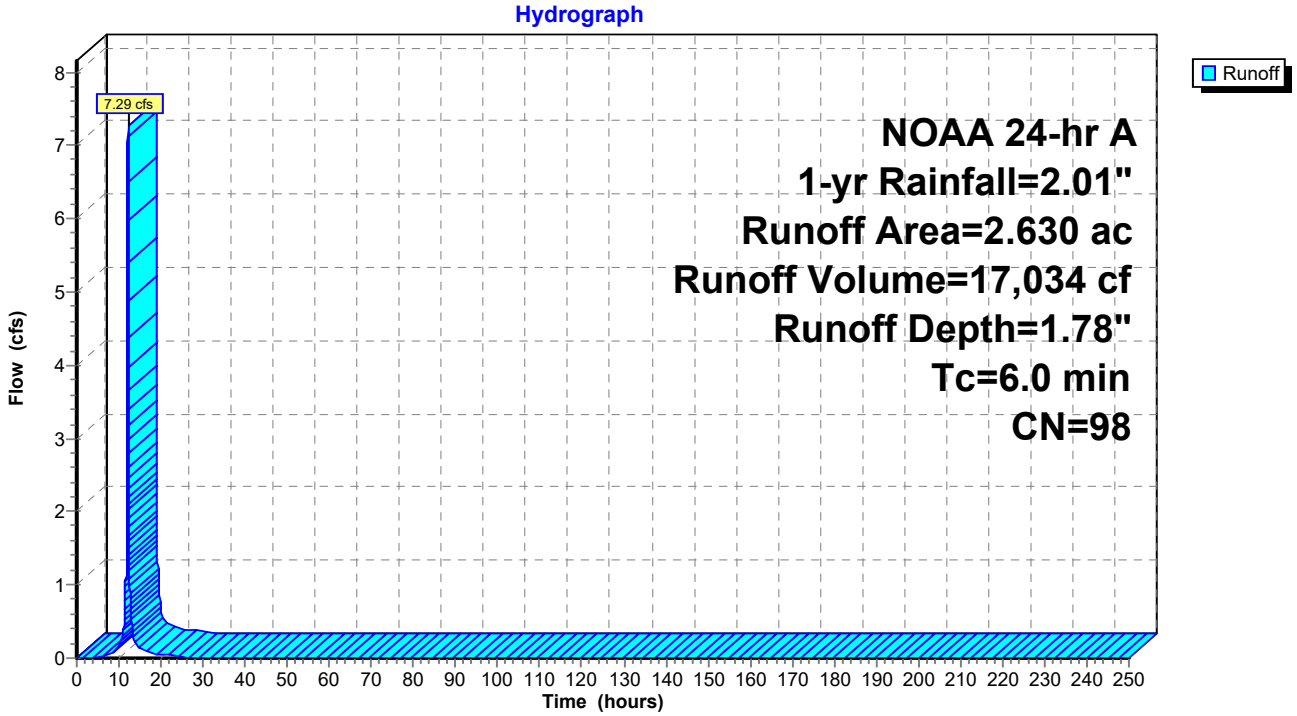
Runoff = 7.29 cfs @ 12.13 hrs, Volume= 17,034 cf, Depth= 1.78"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
2.630	98	Paved parking, HSG C
2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

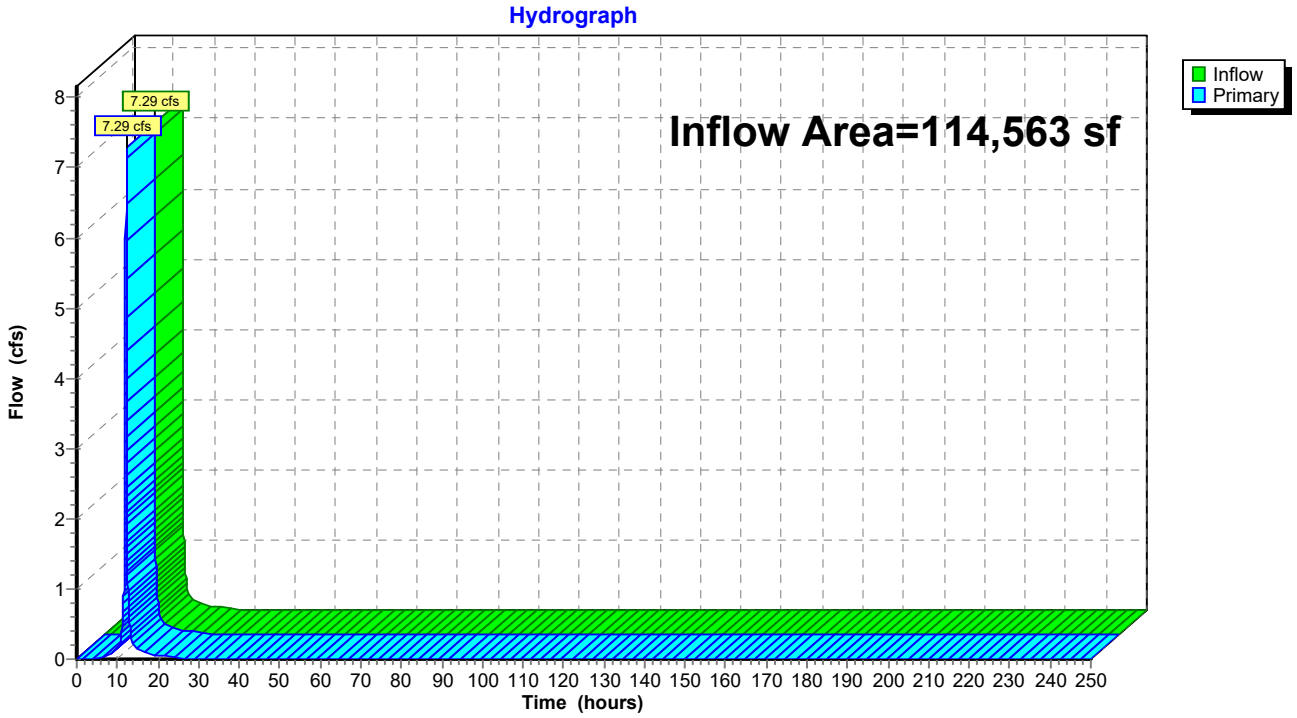


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 7.29 cfs @ 12.13 hrs, Volume= 17,034 cf
Primary = 7.29 cfs @ 12.13 hrs, Volume= 17,034 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

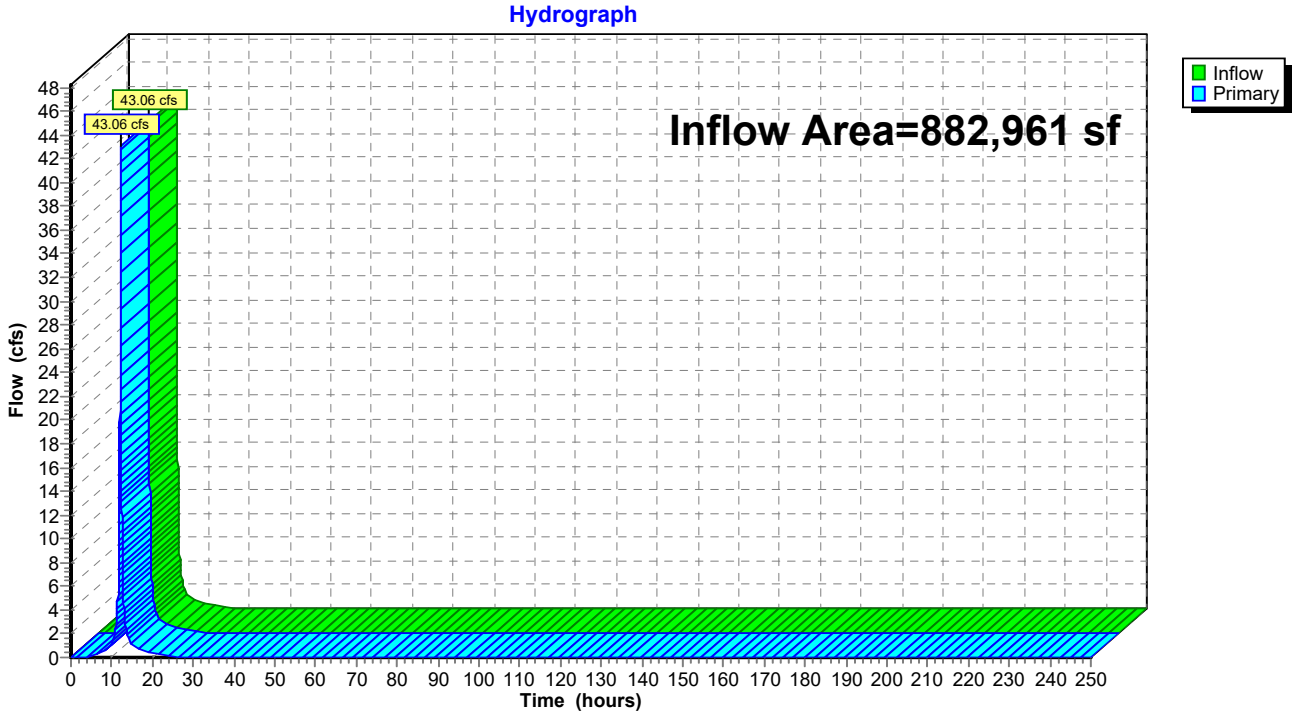


Summary for Link 9: Pre POA 001

Inflow Area = 882,961 sf, 97.73% Impervious, Inflow Depth = 1.75" for 1-yr event
Inflow = 43.06 cfs @ 12.17 hrs, Volume= 128,758 cf
Primary = 43.06 cfs @ 12.17 hrs, Volume= 128,758 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: Pre POA 001



Summary for Subcatchment 1: Pre-Development DA-1

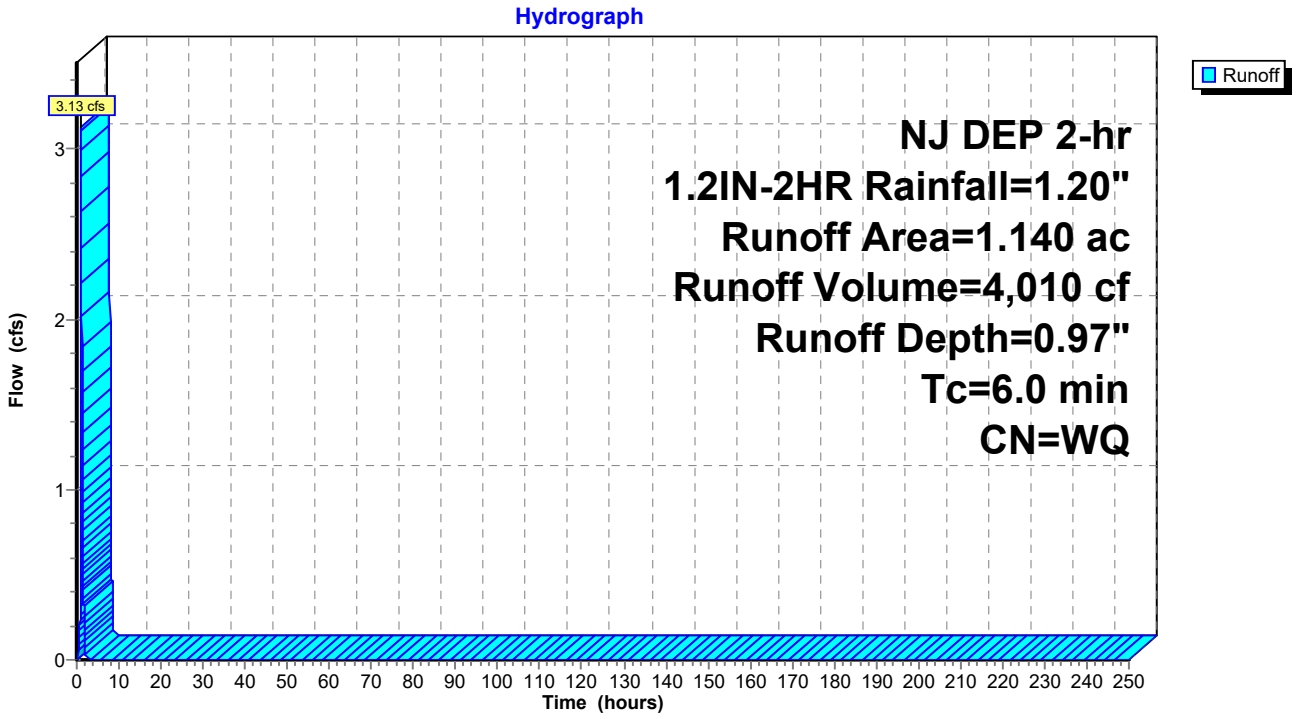
Runoff = 3.13 cfs @ 1.11 hrs, Volume= 4,010 cf, Depth= 0.97"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	0.060	98	Paved parking, HSG C
*	0.020	71	20% Impervious as Meadow, HSG C
*	1.060	98	Imp Outside LOD
	1.140		Weighted Average
	0.020		1.75% Pervious Area
	1.120		98.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

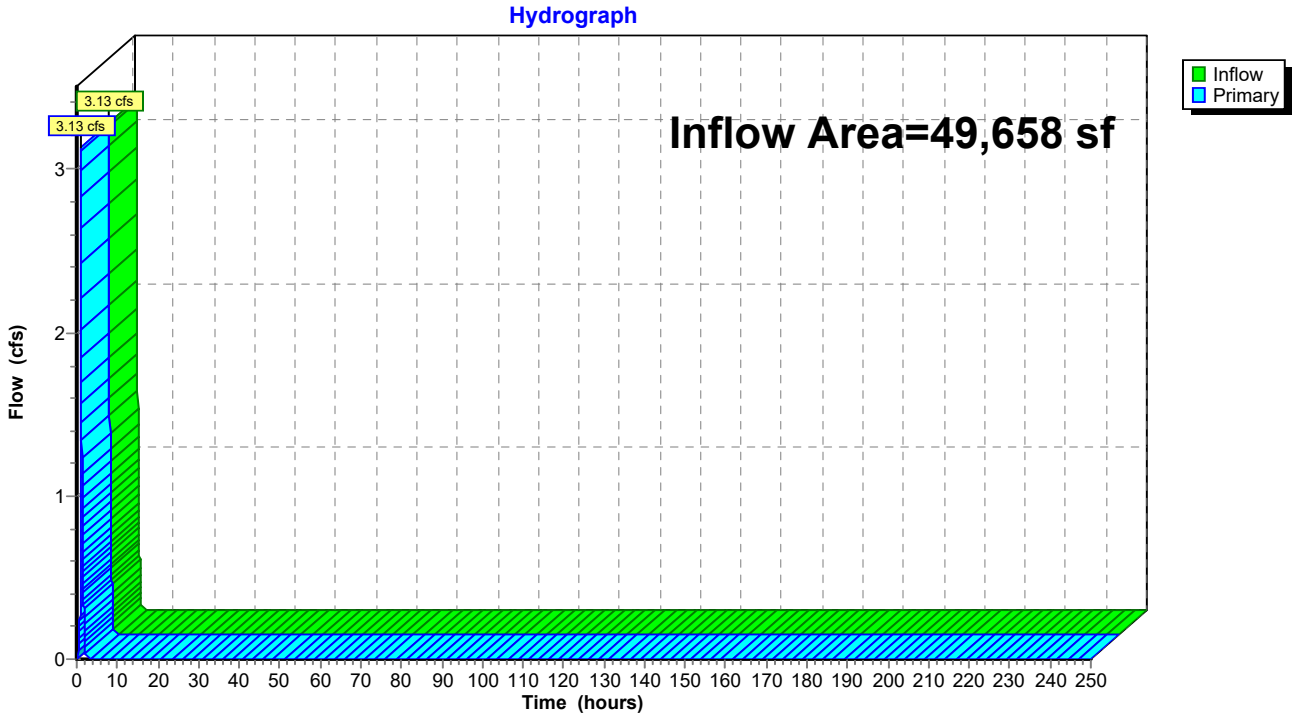


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,658 sf, 98.25% Impervious, Inflow Depth = 0.97" for 1.2IN-2HR event
Inflow = 3.13 cfs @ 1.11 hrs, Volume= 4,010 cf
Primary = 3.13 cfs @ 1.11 hrs, Volume= 4,010 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

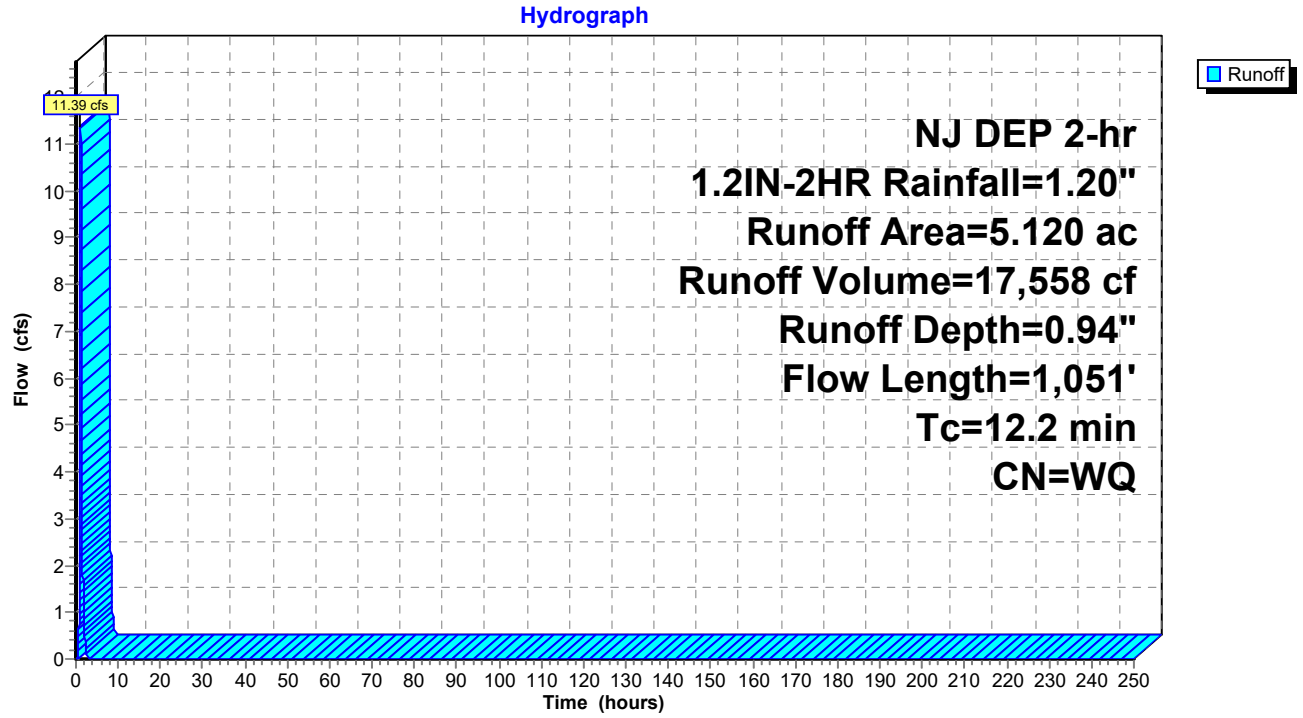
Runoff = 11.39 cfs @ 1.17 hrs, Volume= 17,558 cf, Depth= 0.94"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	0.890	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	4.010	98	Imp Outside LOD
	5.120		Weighted Average
	0.220		4.30% Pervious Area
	4.900		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

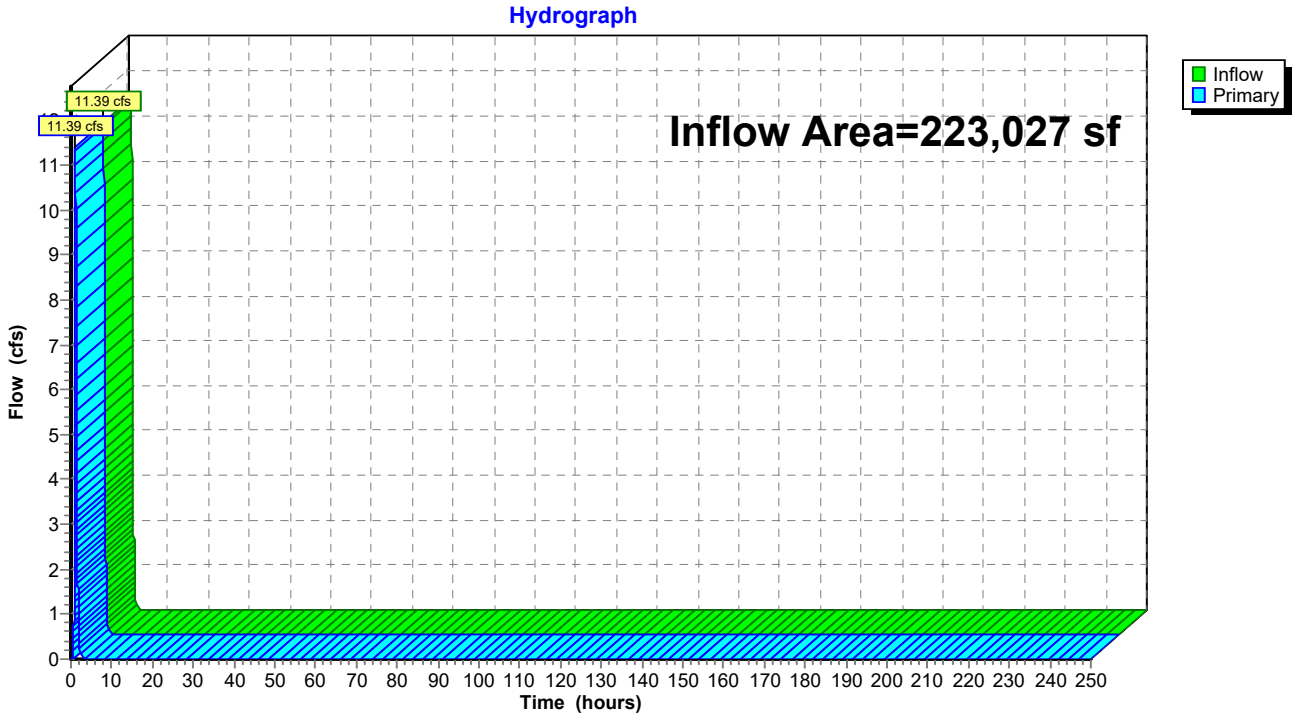


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 95.70% Impervious, Inflow Depth = 0.94" for 1.2IN-2HR event
Inflow = 11.39 cfs @ 1.17 hrs, Volume= 17,558 cf
Primary = 11.39 cfs @ 1.17 hrs, Volume= 17,558 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

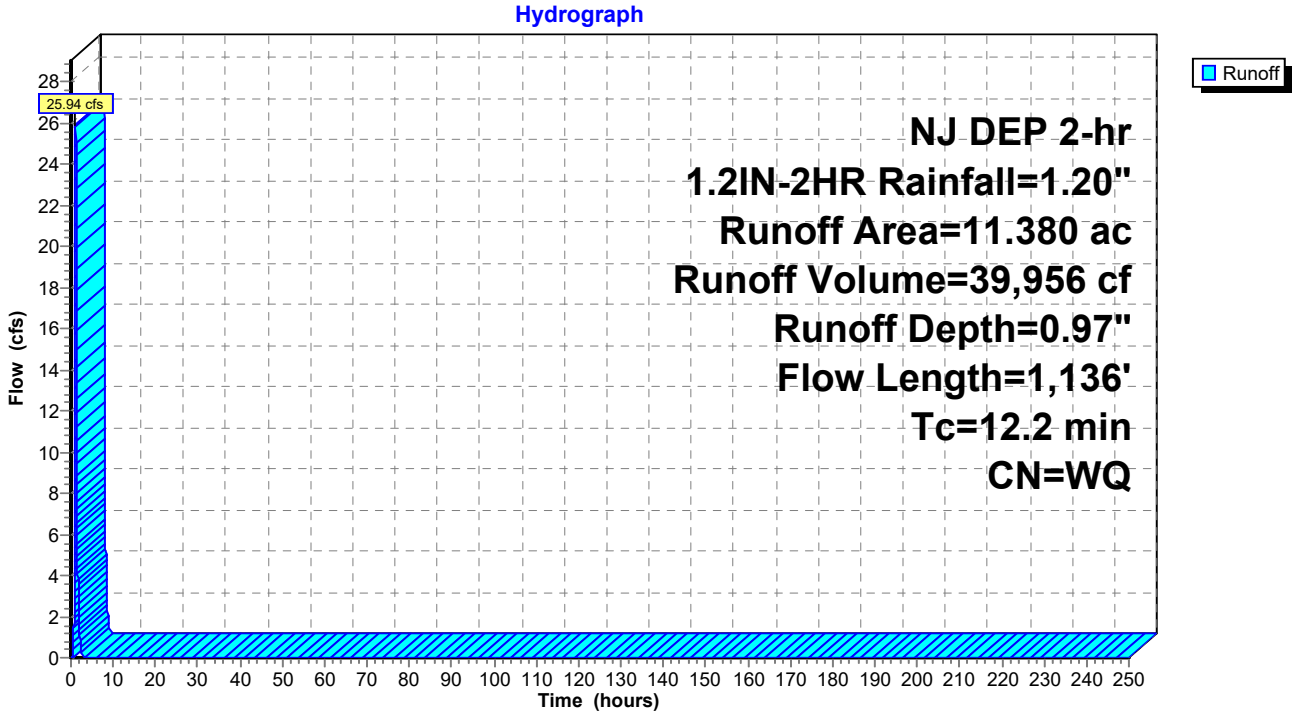
Runoff = 25.94 cfs @ 1.17 hrs, Volume= 39,956 cf, Depth= 0.97"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	0.880	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	10.280	98	Imp Outside LOD
	11.380		Weighted Average
	0.220		1.93% Pervious Area
	11.160		98.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

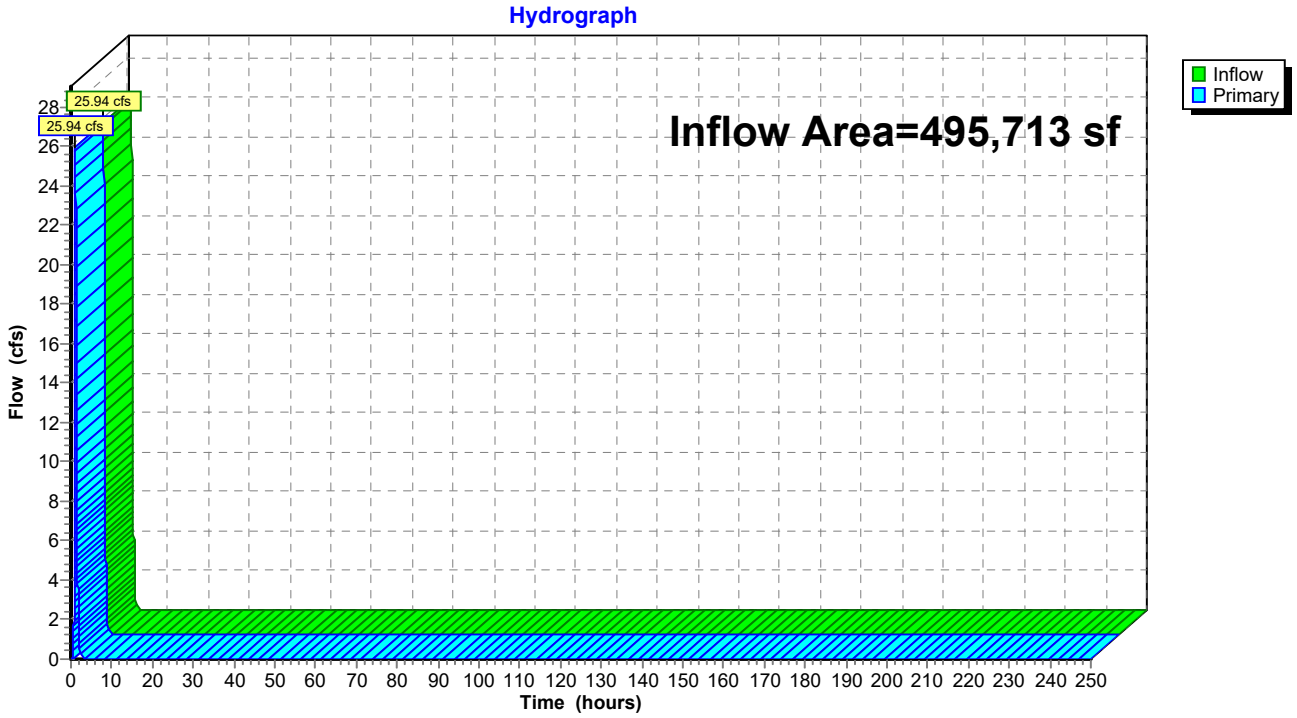


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,713 sf, 98.07% Impervious, Inflow Depth = 0.97" for 1.2IN-2HR event
Inflow = 25.94 cfs @ 1.17 hrs, Volume= 39,956 cf
Primary = 25.94 cfs @ 1.17 hrs, Volume= 39,956 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

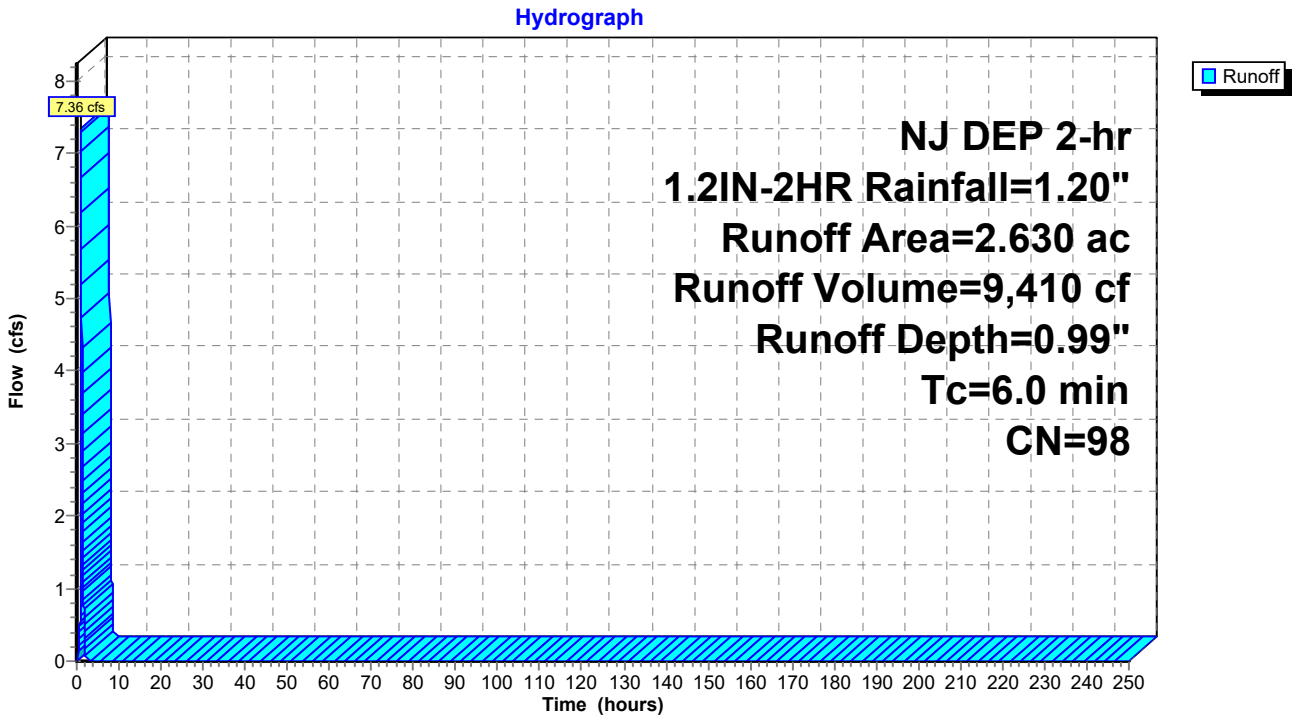
Runoff = 7.36 cfs @ 1.11 hrs, Volume= 9,410 cf, Depth= 0.99"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
2.630	98	Paved parking, HSG C
2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

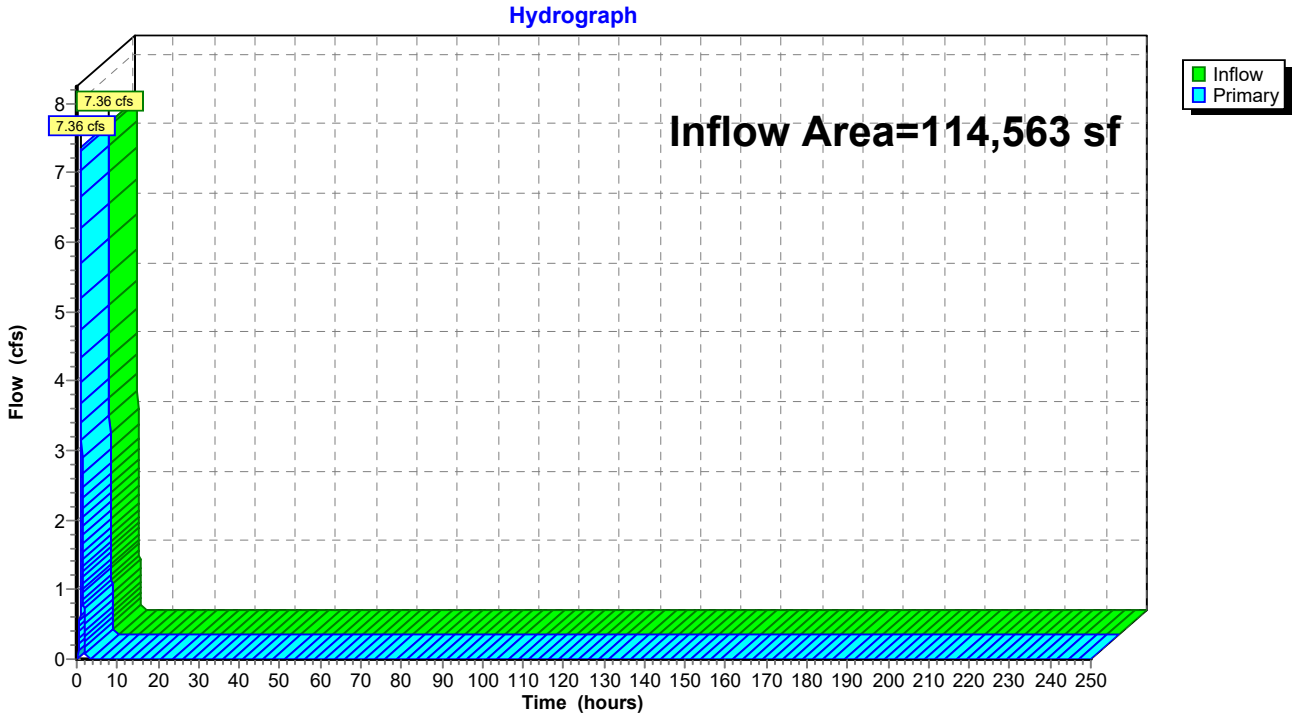


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 7.36 cfs @ 1.11 hrs, Volume= 9,410 cf
Primary = 7.36 cfs @ 1.11 hrs, Volume= 9,410 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

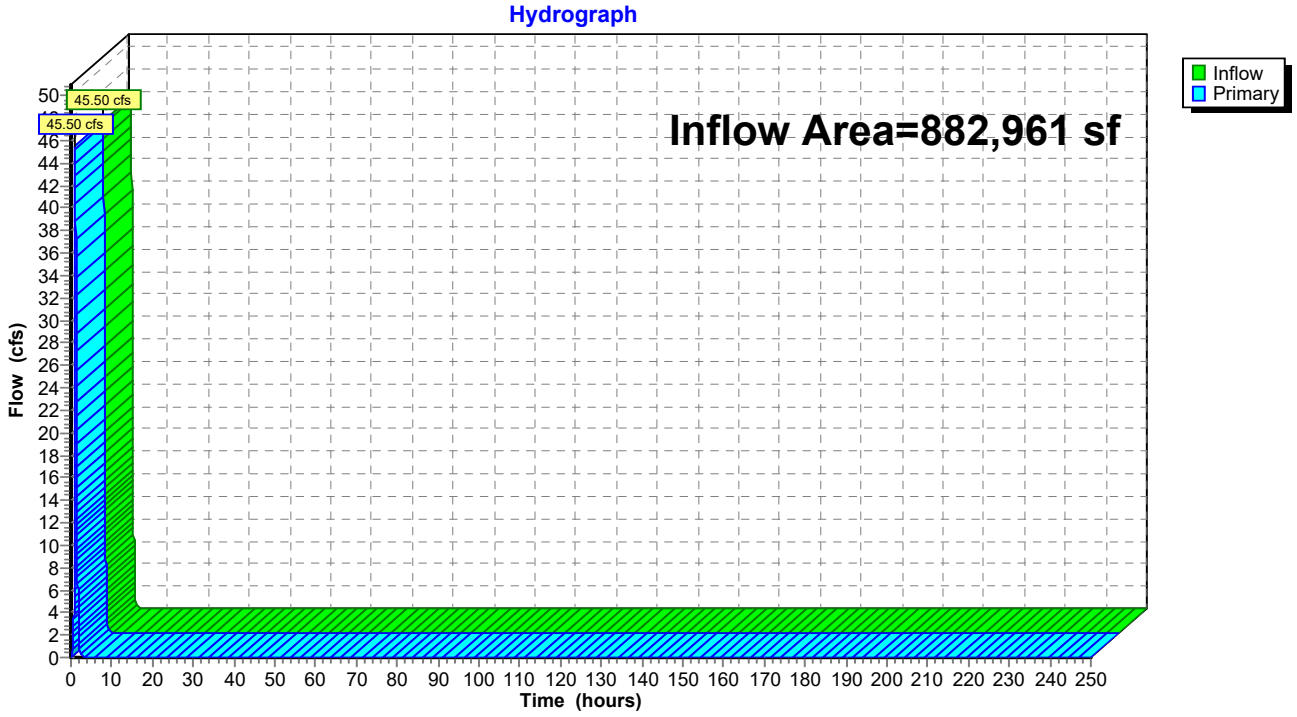


Summary for Link 9: Pre POA 001

Inflow Area = 882,961 sf, 97.73% Impervious, Inflow Depth = 0.96" for 1.2IN-2HR event
Inflow = 45.50 cfs @ 1.15 hrs, Volume= 70,933 cf
Primary = 45.50 cfs @ 1.15 hrs, Volume= 70,933 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: Pre POA 001



Summary for Subcatchment 1: Pre-Development DA-1

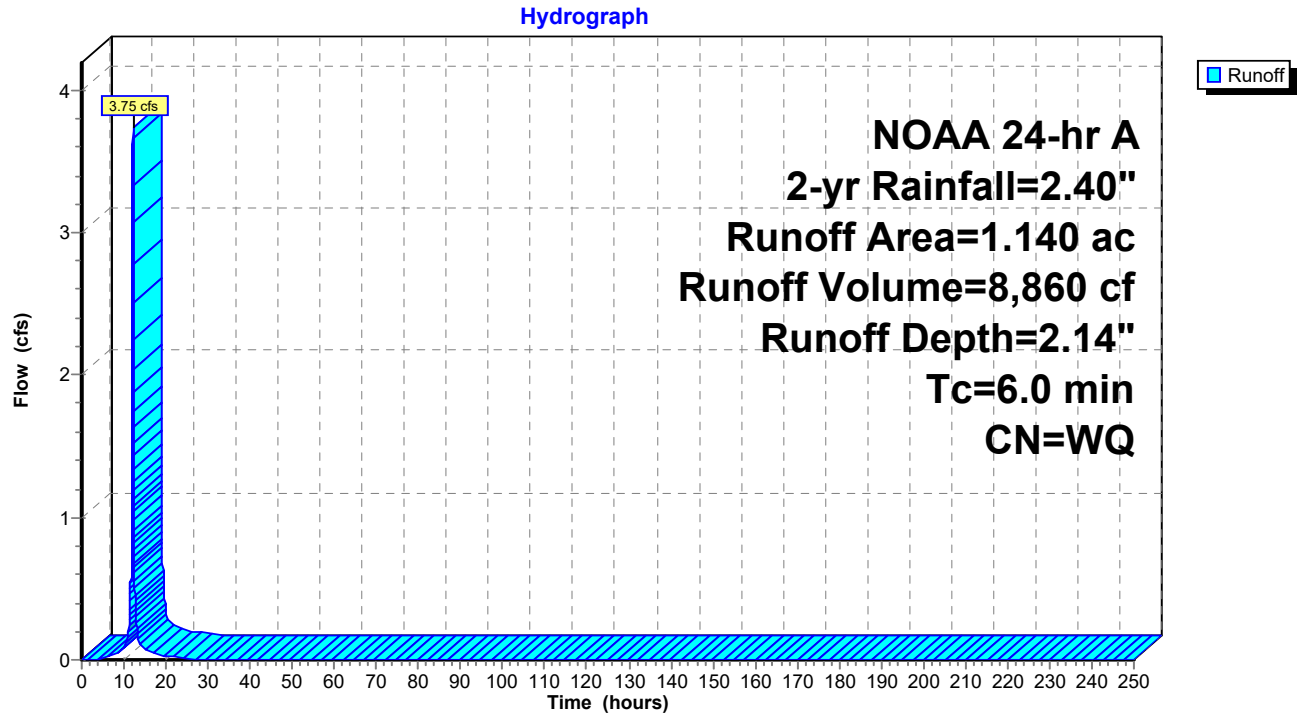
Runoff = 3.75 cfs @ 12.13 hrs, Volume= 8,860 cf, Depth= 2.14"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	0.060	98	Paved parking, HSG C
*	0.020	71	20% Impervious as Meadow, HSG C
*	1.060	98	Imp Outside LOD
	1.140		Weighted Average
	0.020		1.75% Pervious Area
	1.120		98.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

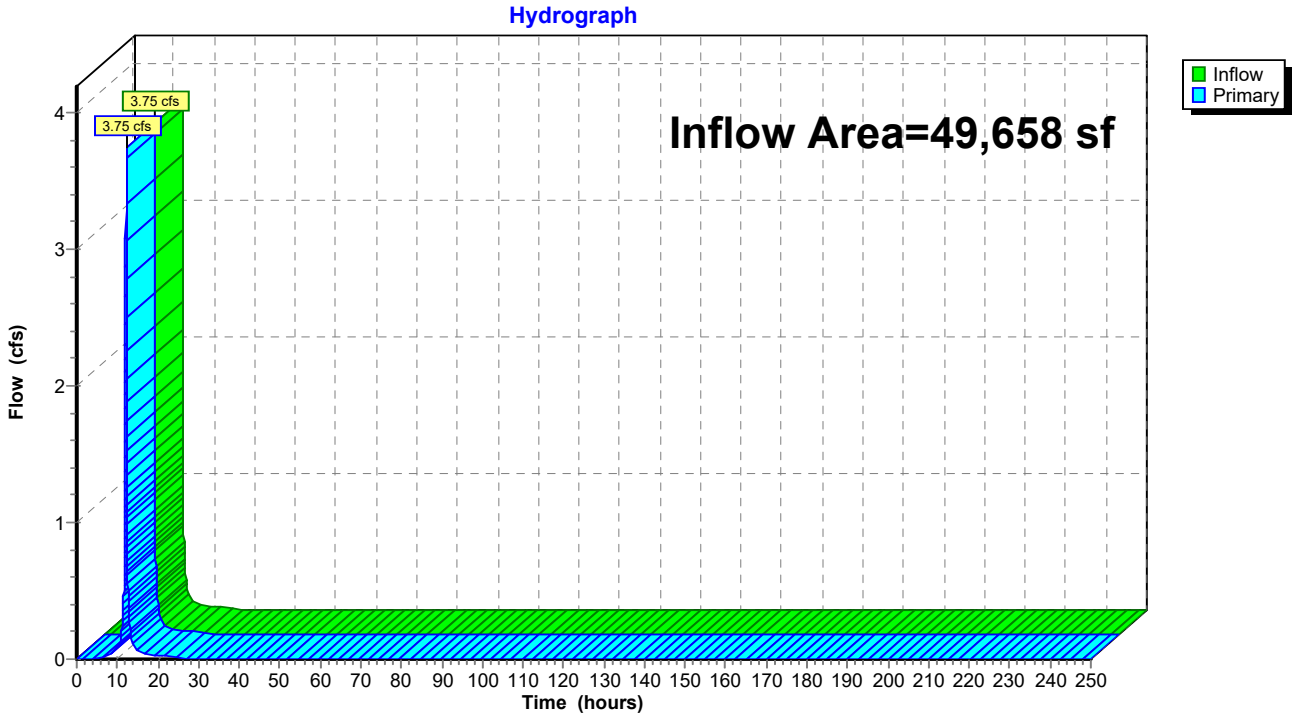


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,658 sf, 98.25% Impervious, Inflow Depth = 2.14" for 2-yr event
Inflow = 3.75 cfs @ 12.13 hrs, Volume= 8,860 cf
Primary = 3.75 cfs @ 12.13 hrs, Volume= 8,860 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

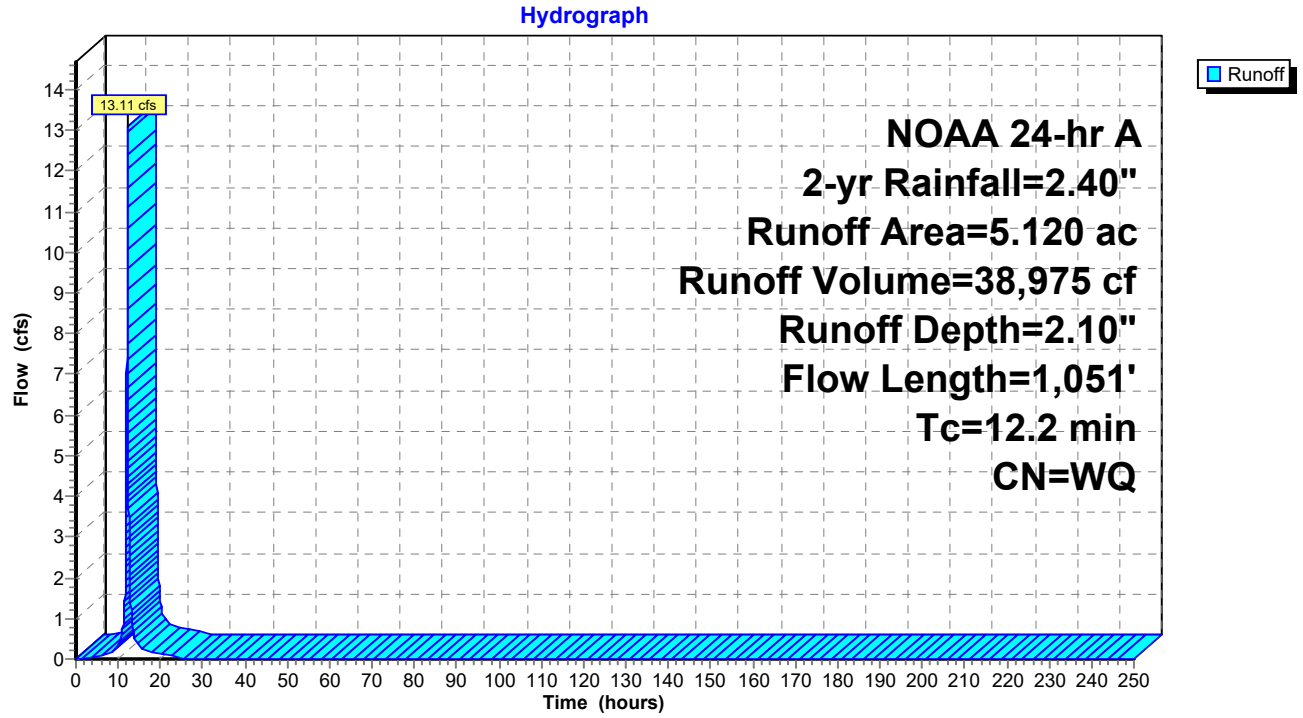
Runoff = 13.11 cfs @ 12.19 hrs, Volume= 38,975 cf, Depth= 2.10"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	0.890	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	4.010	98	Imp Outside LOD
	5.120		Weighted Average
	0.220		4.30% Pervious Area
	4.900		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

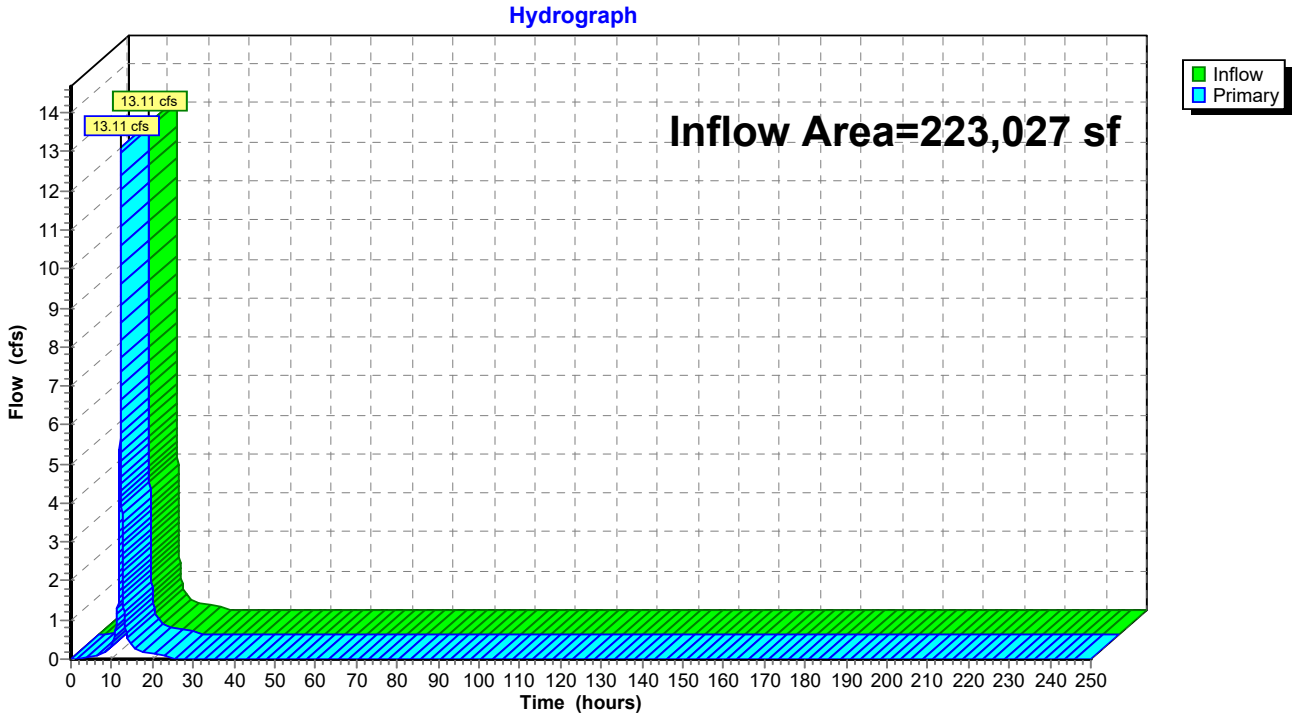


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 95.70% Impervious, Inflow Depth = 2.10" for 2-yr event
Inflow = 13.11 cfs @ 12.19 hrs, Volume= 38,975 cf
Primary = 13.11 cfs @ 12.19 hrs, Volume= 38,975 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

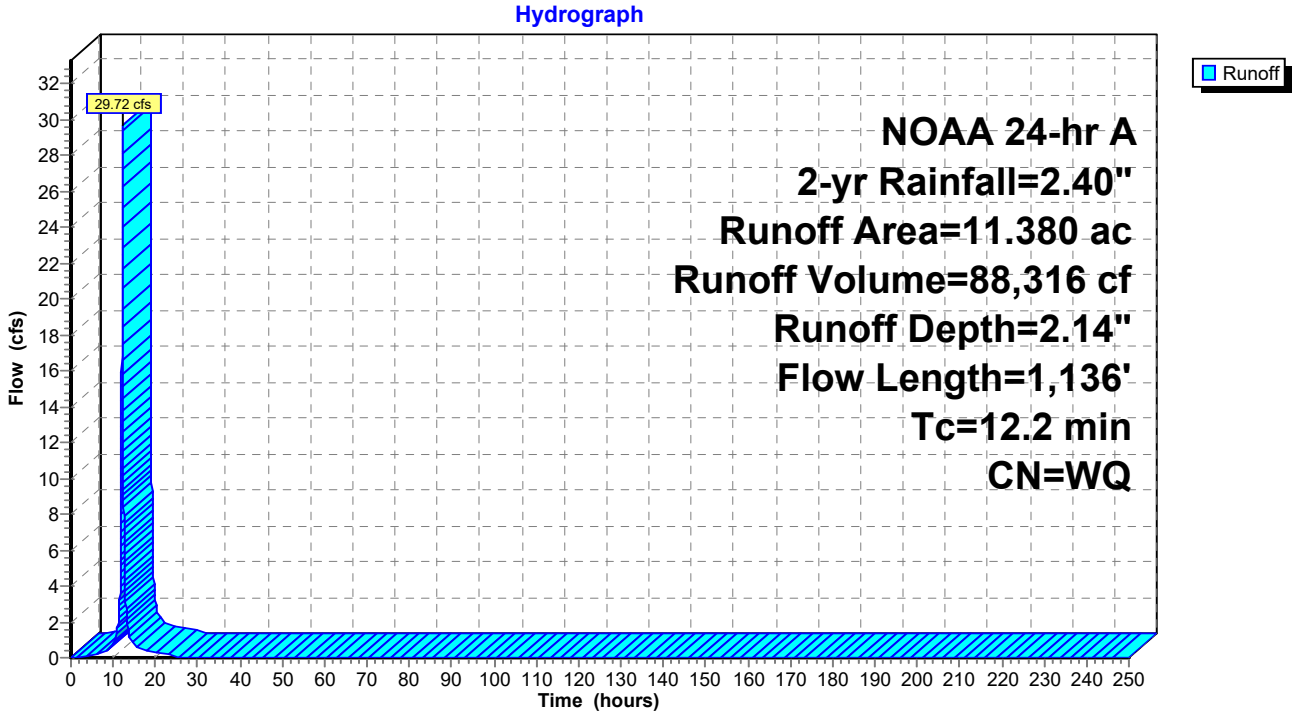
Runoff = 29.72 cfs @ 12.19 hrs, Volume= 88,316 cf, Depth= 2.14"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	0.880	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	10.280	98	Imp Outside LOD
	11.380		Weighted Average
	0.220		1.93% Pervious Area
	11.160		98.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

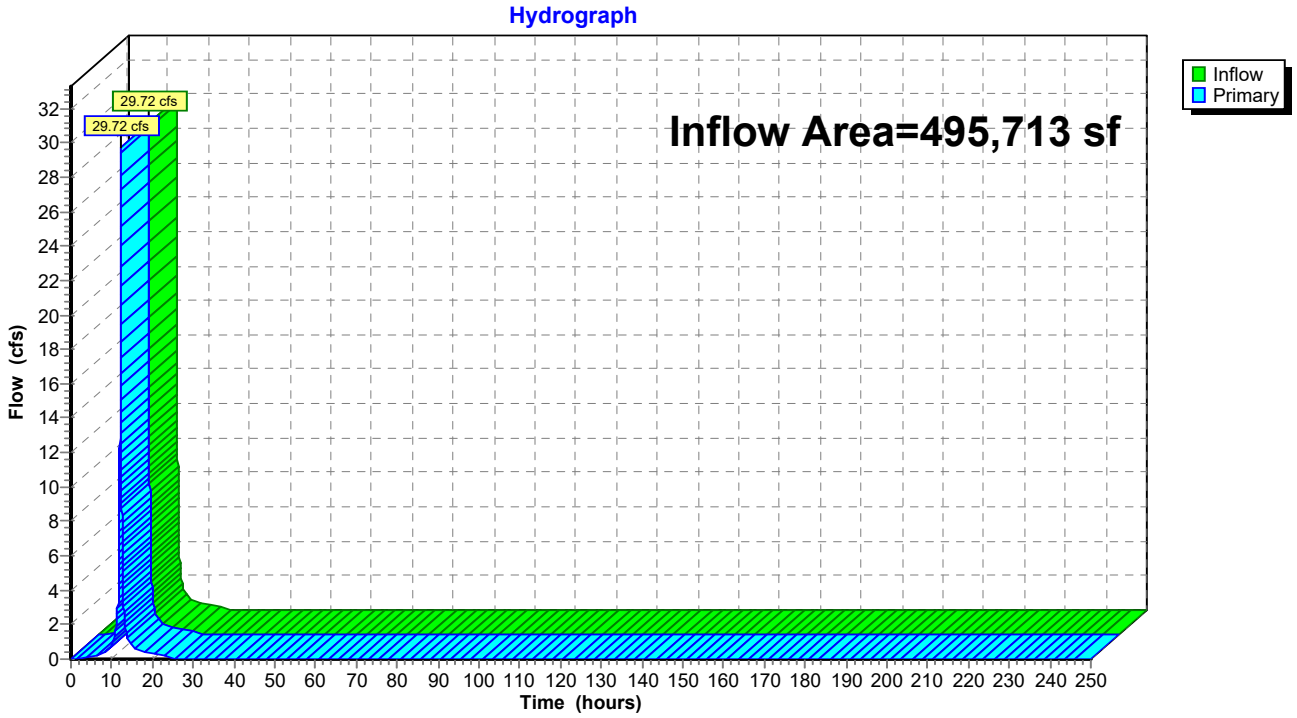


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,713 sf, 98.07% Impervious, Inflow Depth = 2.14" for 2-yr event
Inflow = 29.72 cfs @ 12.19 hrs, Volume= 88,316 cf
Primary = 29.72 cfs @ 12.19 hrs, Volume= 88,316 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

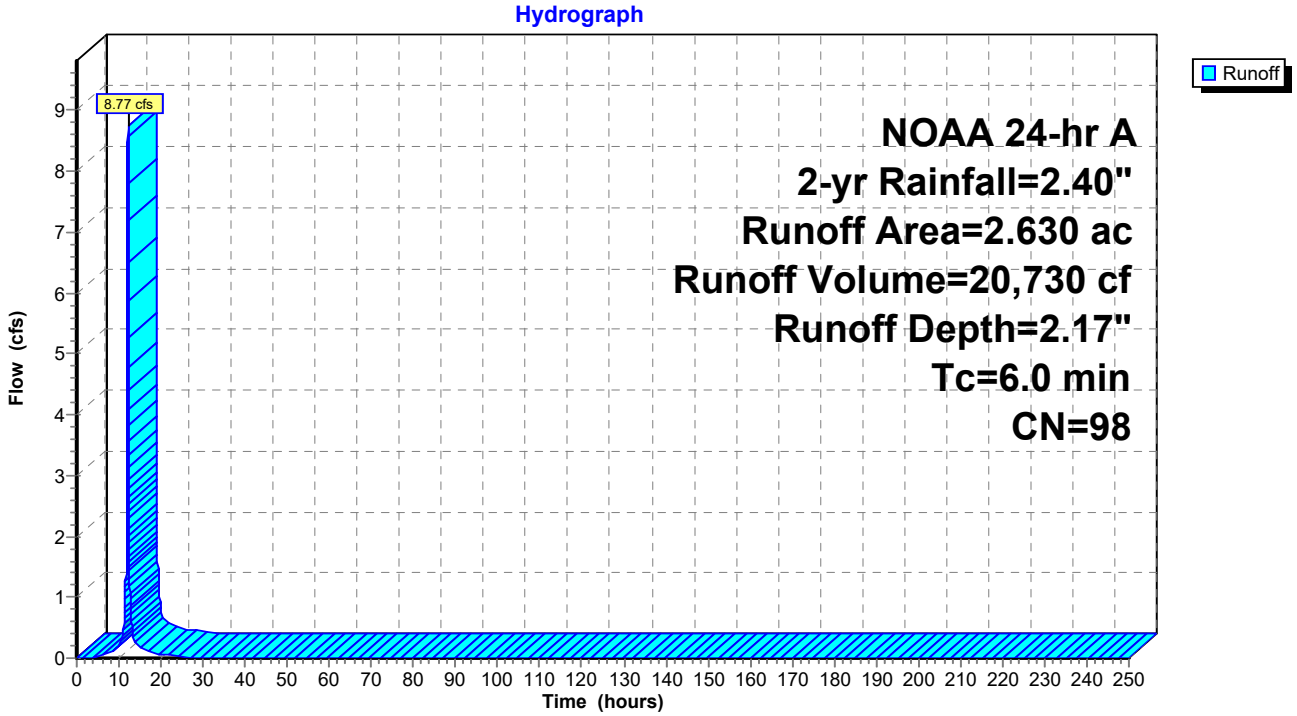
Runoff = 8.77 cfs @ 12.13 hrs, Volume= 20,730 cf, Depth= 2.17"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
2.630	98	Paved parking, HSG C
2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

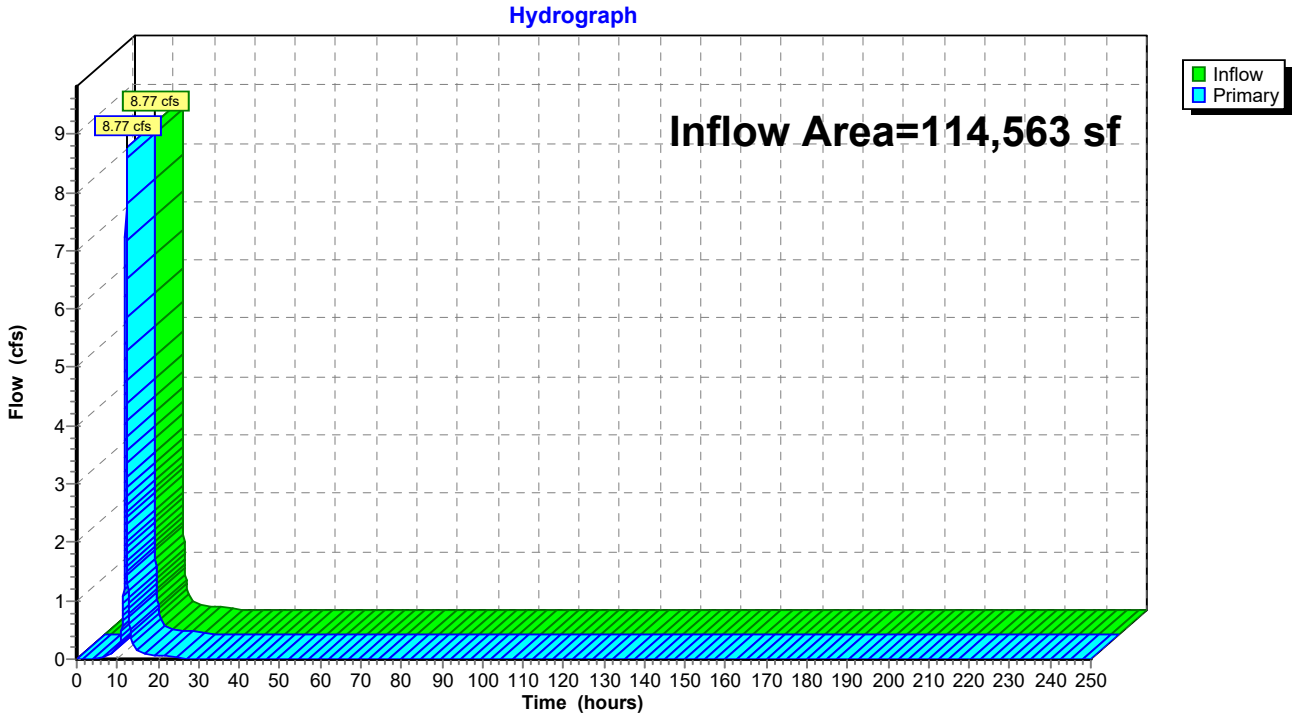


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 8.77 cfs @ 12.13 hrs, Volume= 20,730 cf
Primary = 8.77 cfs @ 12.13 hrs, Volume= 20,730 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

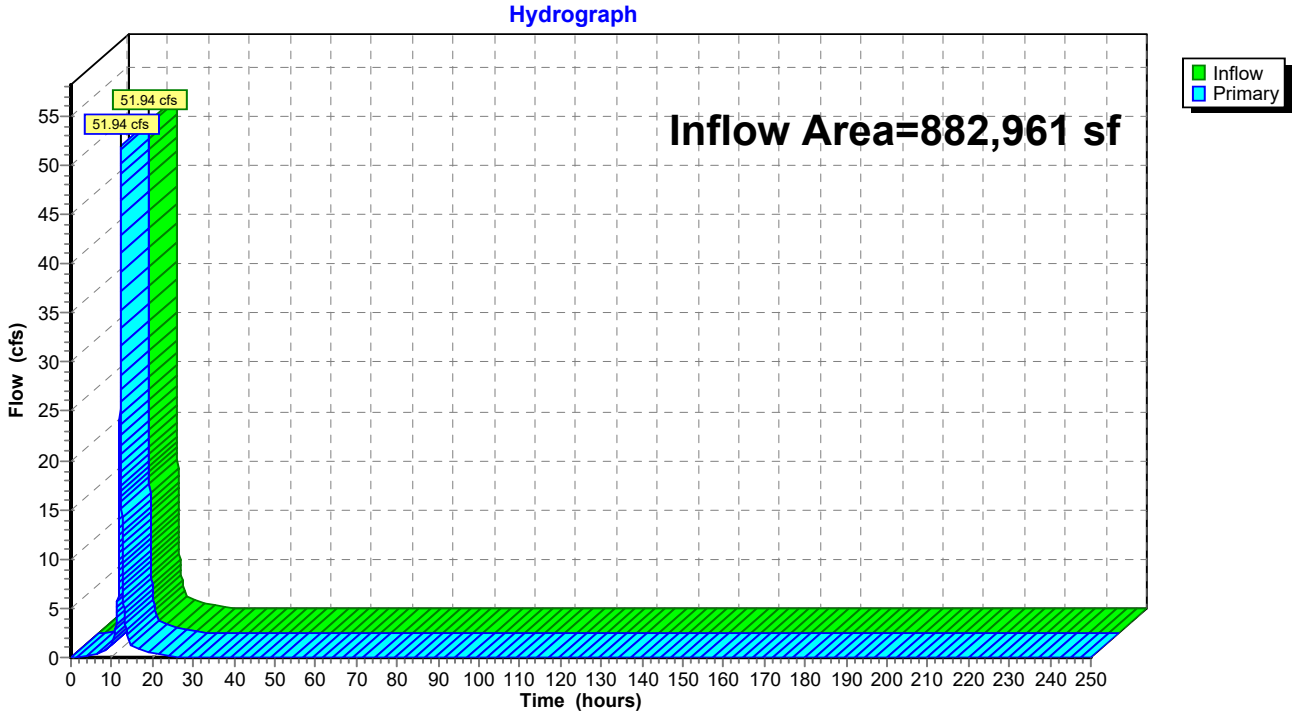


Summary for Link 9: Pre POA 001

Inflow Area = 882,961 sf, 97.73% Impervious, Inflow Depth = 2.13" for 2-yr event
Inflow = 51.94 cfs @ 12.17 hrs, Volume= 156,881 cf
Primary = 51.94 cfs @ 12.17 hrs, Volume= 156,881 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: Pre POA 001



Summary for Subcatchment 1: Pre-Development DA-1

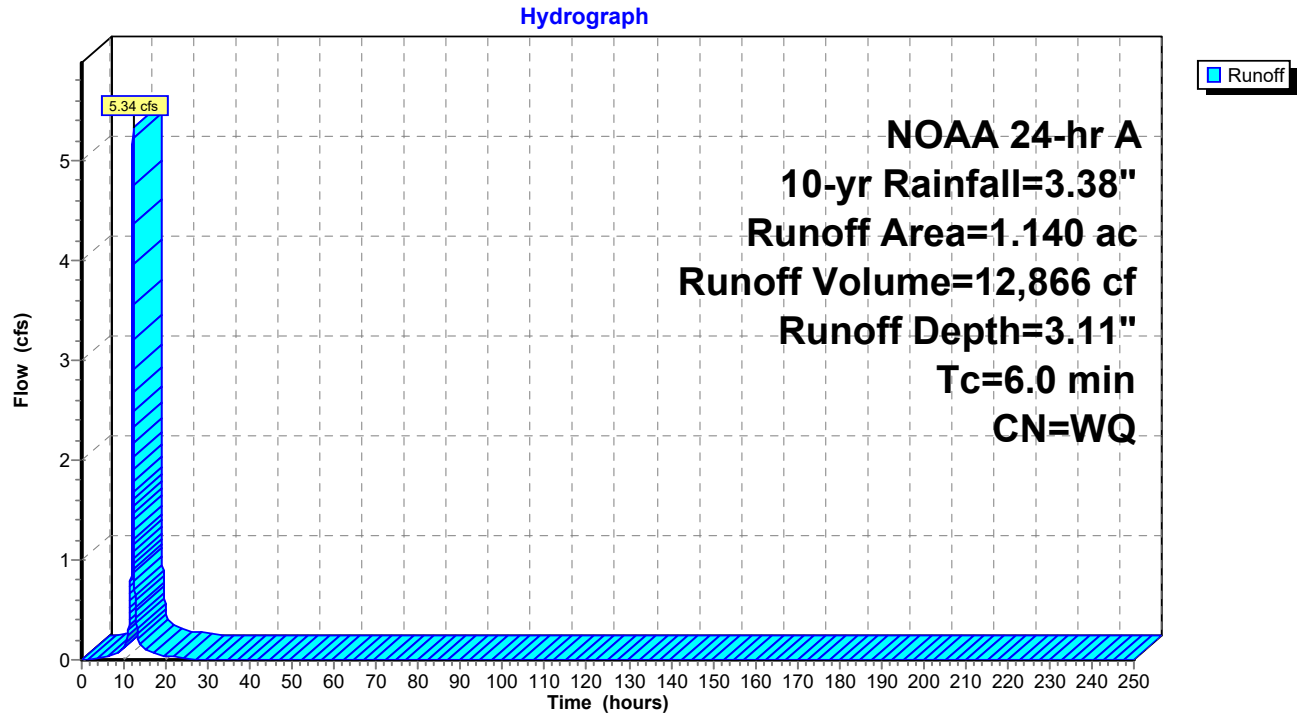
Runoff = 5.34 cfs @ 12.13 hrs, Volume= 12,866 cf, Depth= 3.11"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	0.060	98	Paved parking, HSG C
*	0.020	71	20% Impervious as Meadow, HSG C
*	1.060	98	Imp Outside LOD
	1.140		Weighted Average
	0.020		1.75% Pervious Area
	1.120		98.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

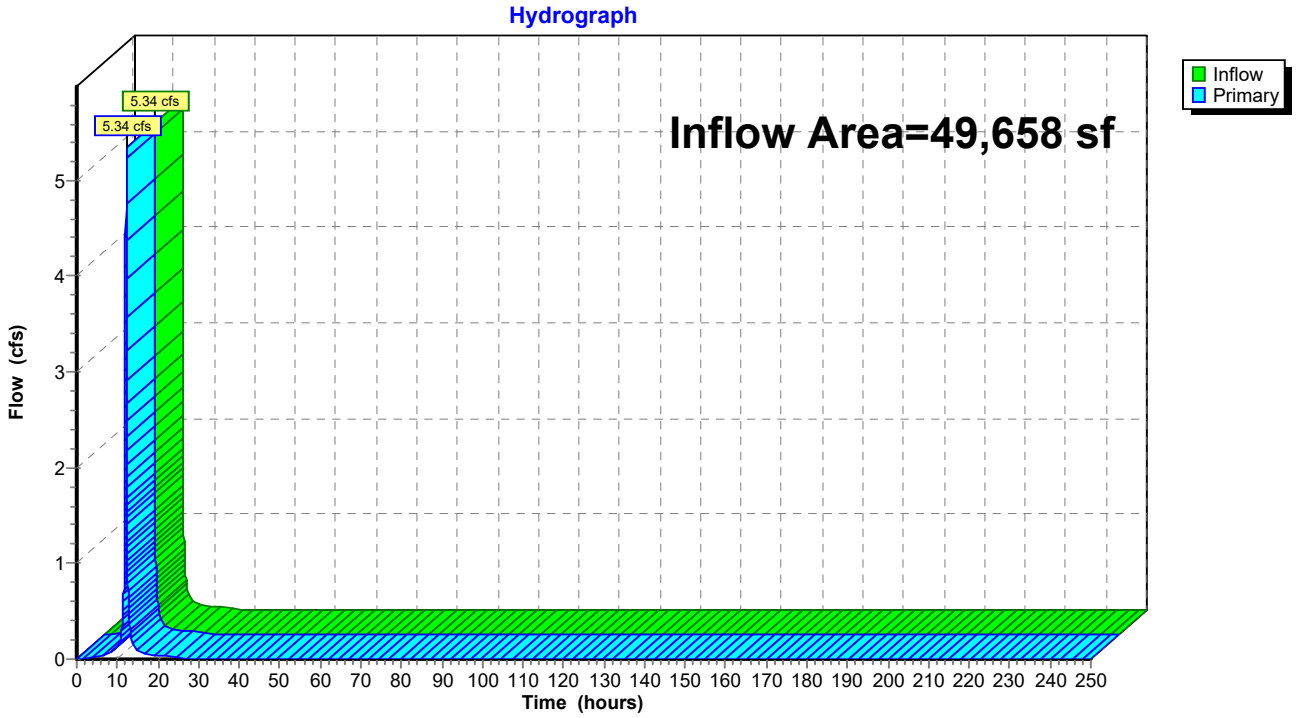


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,658 sf, 98.25% Impervious, Inflow Depth = 3.11" for 10-yr event
Inflow = 5.34 cfs @ 12.13 hrs, Volume= 12,866 cf
Primary = 5.34 cfs @ 12.13 hrs, Volume= 12,866 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

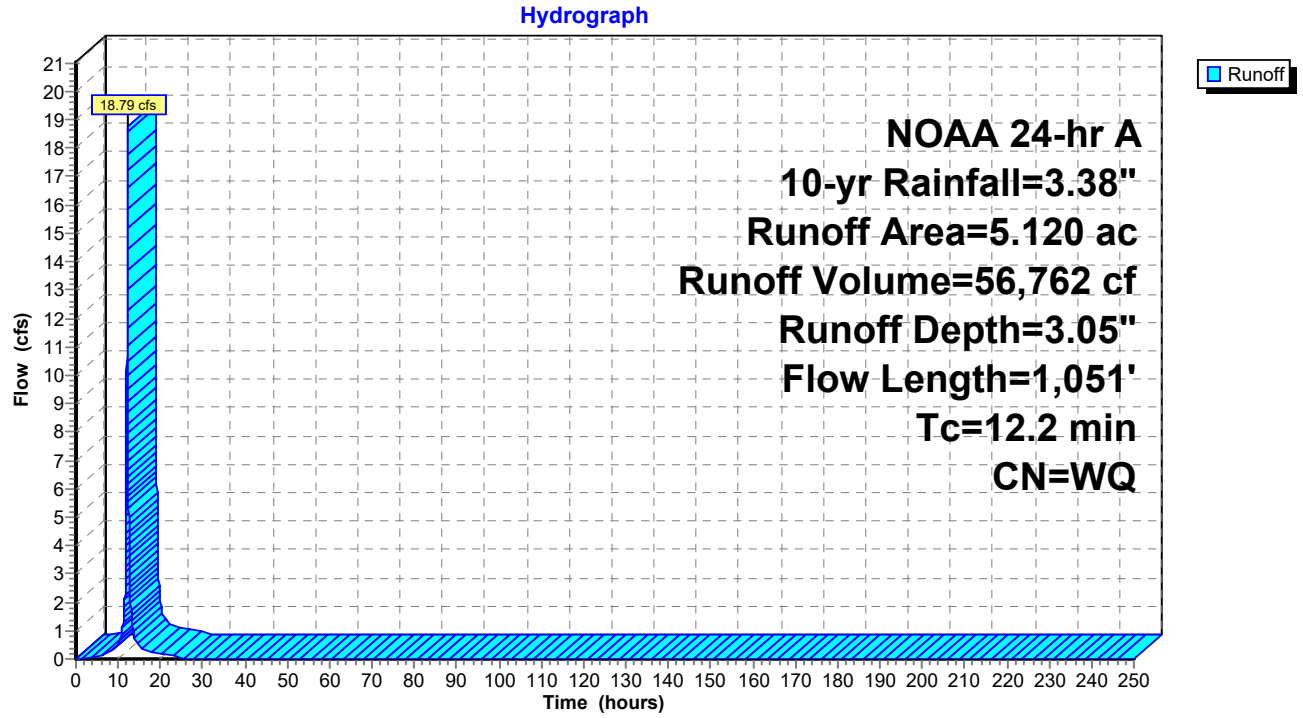
Runoff = 18.79 cfs @ 12.19 hrs, Volume= 56,762 cf, Depth= 3.05"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	0.890	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	4.010	98	Imp Outside LOD
	5.120		Weighted Average
	0.220		4.30% Pervious Area
	4.900		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

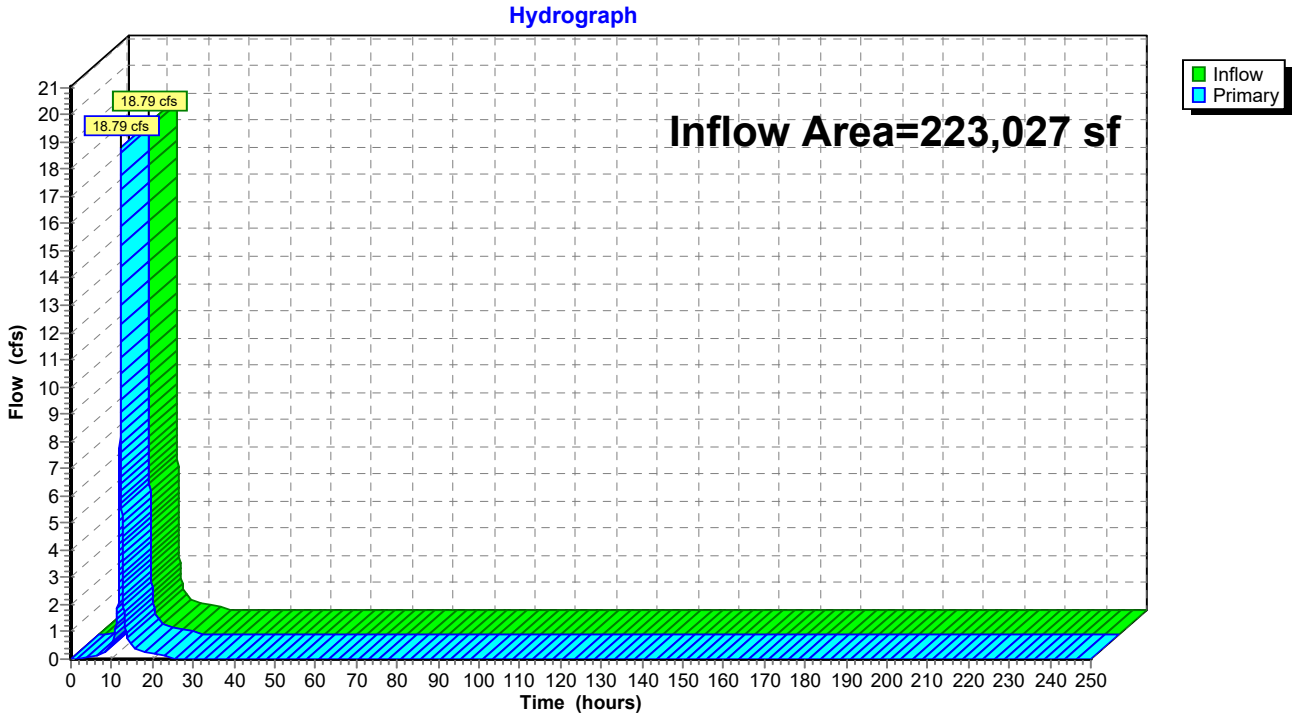


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 95.70% Impervious, Inflow Depth = 3.05" for 10-yr event
Inflow = 18.79 cfs @ 12.19 hrs, Volume= 56,762 cf
Primary = 18.79 cfs @ 12.19 hrs, Volume= 56,762 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

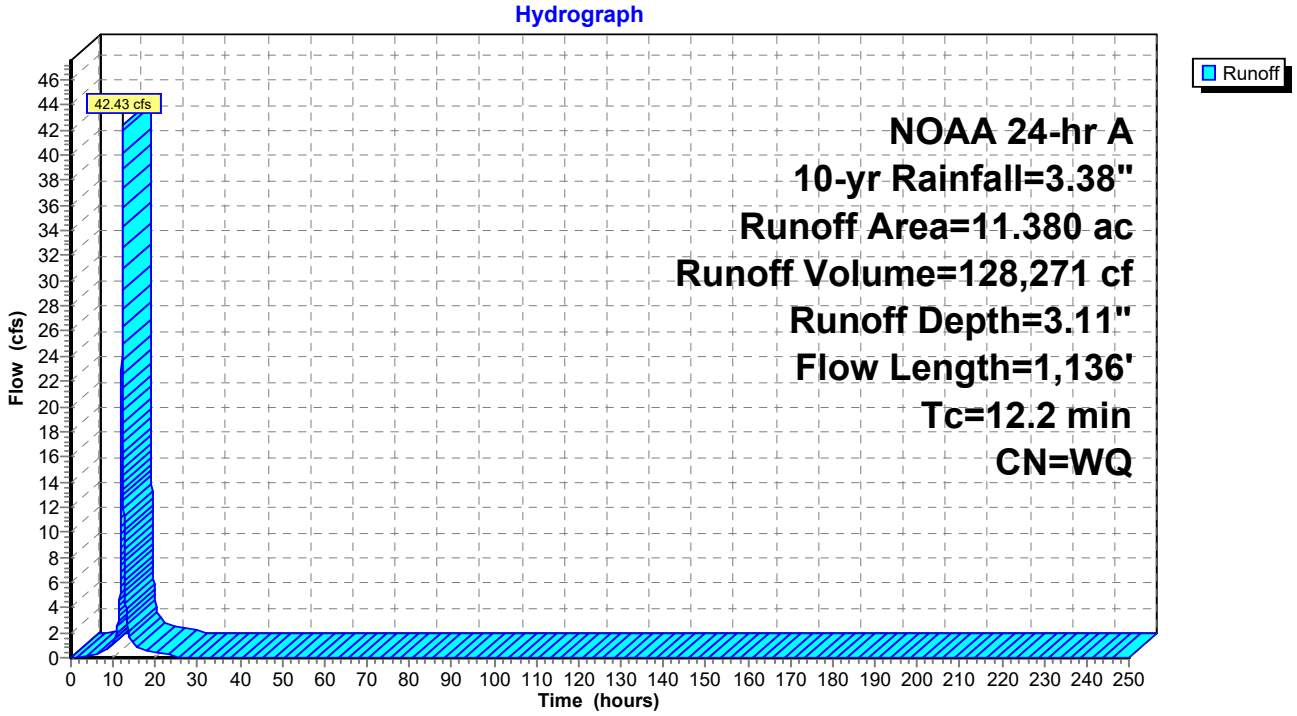
Runoff = 42.43 cfs @ 12.19 hrs, Volume= 128,271 cf, Depth= 3.11"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	0.880	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	10.280	98	Imp Outside LOD
	11.380		Weighted Average
	0.220		1.93% Pervious Area
	11.160		98.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

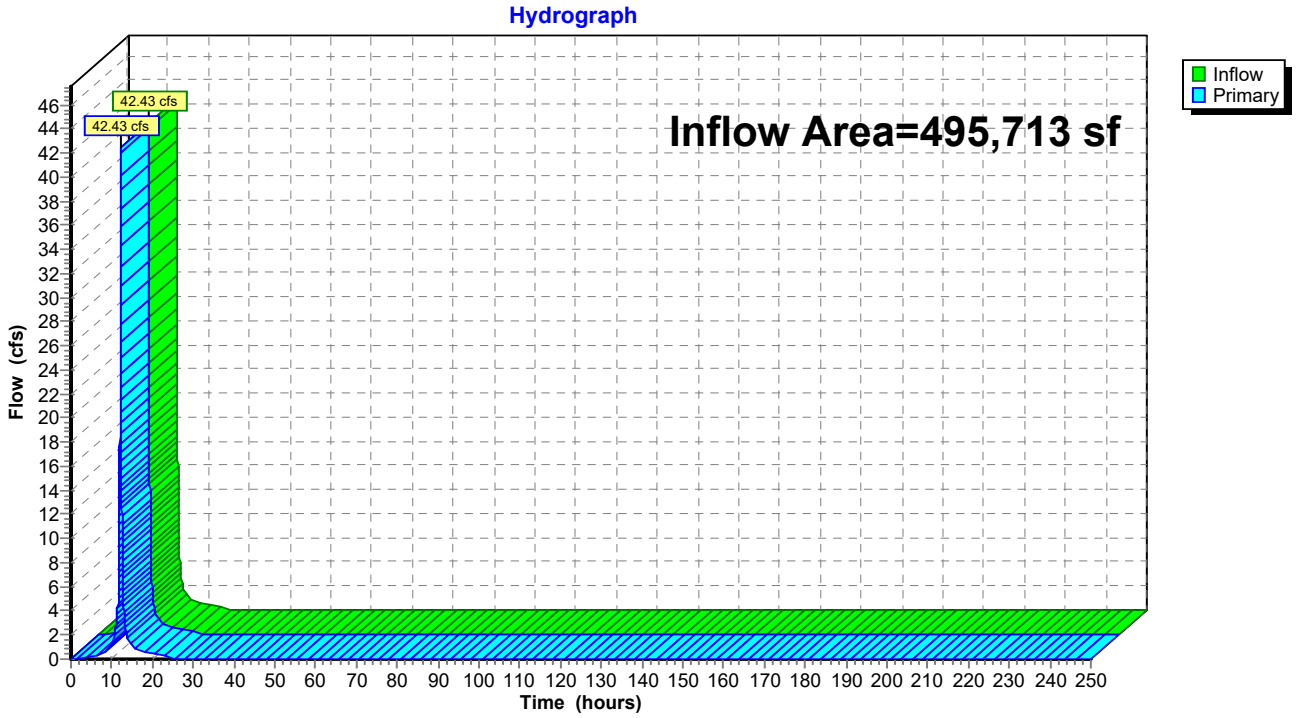


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,713 sf, 98.07% Impervious, Inflow Depth = 3.11" for 10-yr event
Inflow = 42.43 cfs @ 12.19 hrs, Volume= 128,271 cf
Primary = 42.43 cfs @ 12.19 hrs, Volume= 128,271 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

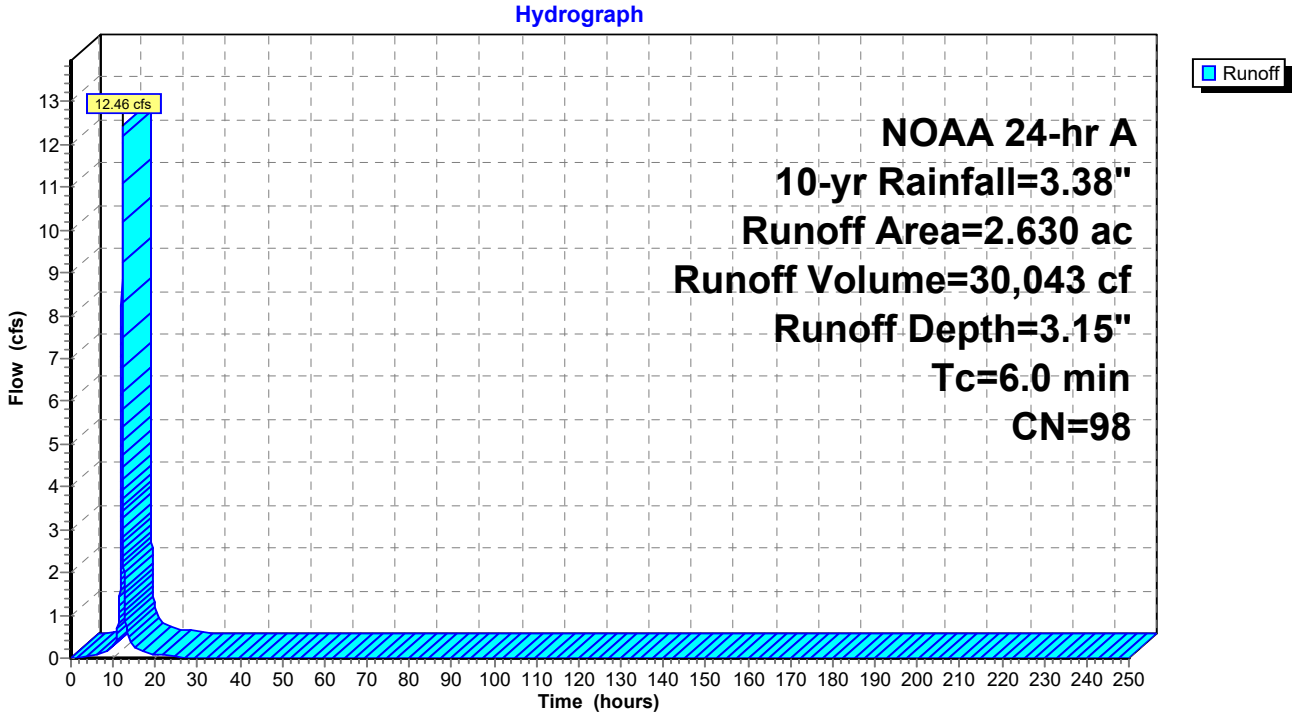
Runoff = 12.46 cfs @ 12.13 hrs, Volume= 30,043 cf, Depth= 3.15"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
2.630	98	Paved parking, HSG C
2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

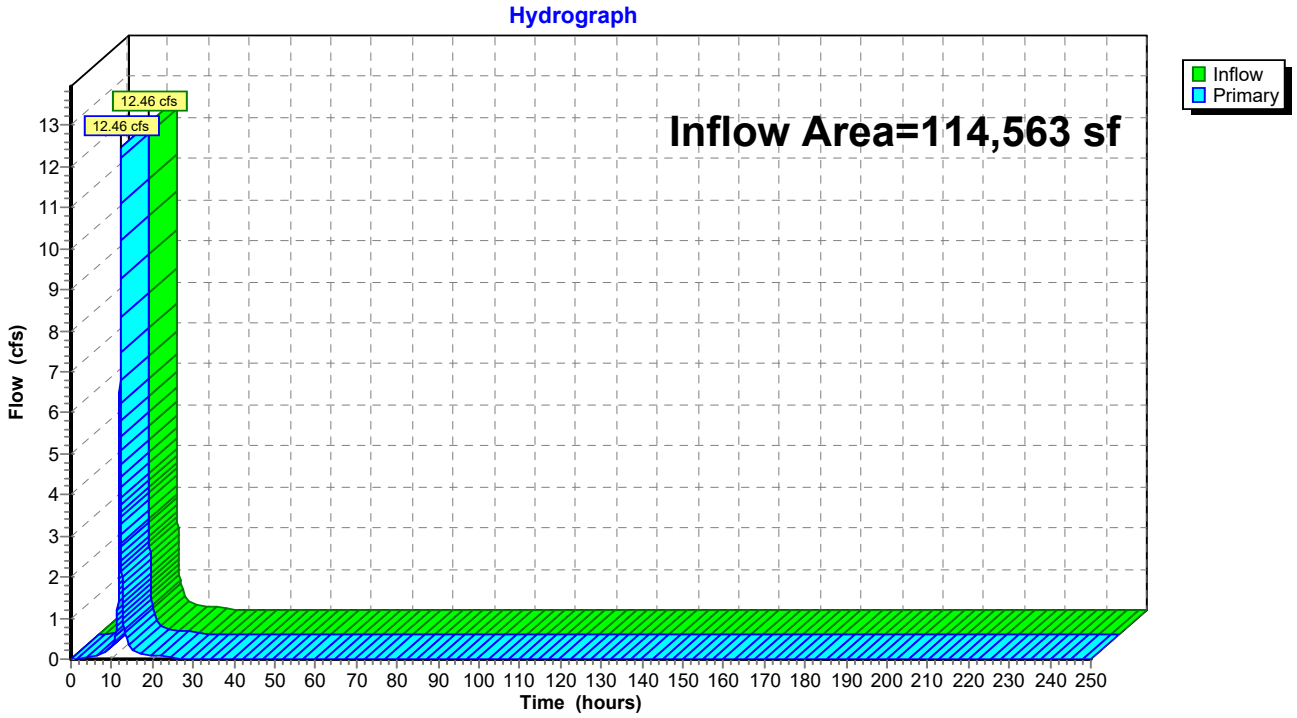


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 12.46 cfs @ 12.13 hrs, Volume= 30,043 cf
Primary = 12.46 cfs @ 12.13 hrs, Volume= 30,043 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

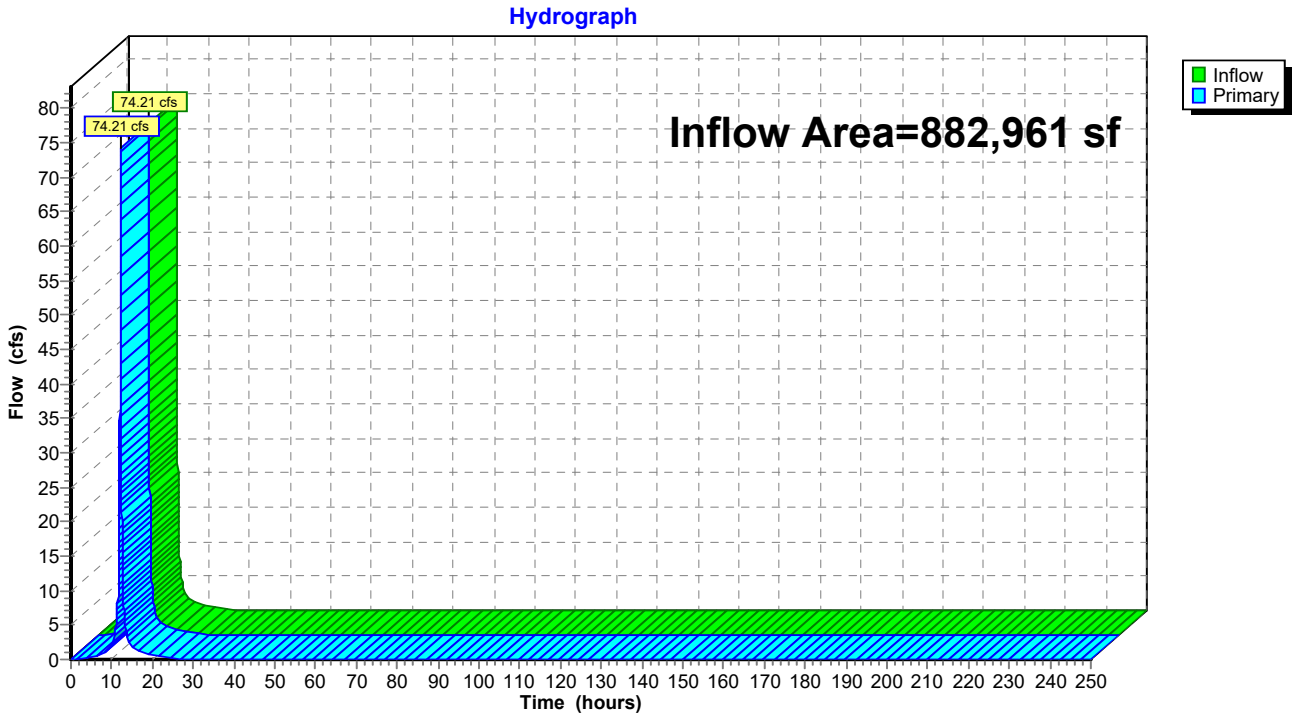


Summary for Link 9: Pre POA 001

Inflow Area = 882,961 sf, 97.73% Impervious, Inflow Depth = 3.10" for 10-yr event
Inflow = 74.21 cfs @ 12.17 hrs, Volume= 227,942 cf
Primary = 74.21 cfs @ 12.17 hrs, Volume= 227,942 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: Pre POA 001



Summary for Subcatchment 1: Pre-Development DA-1

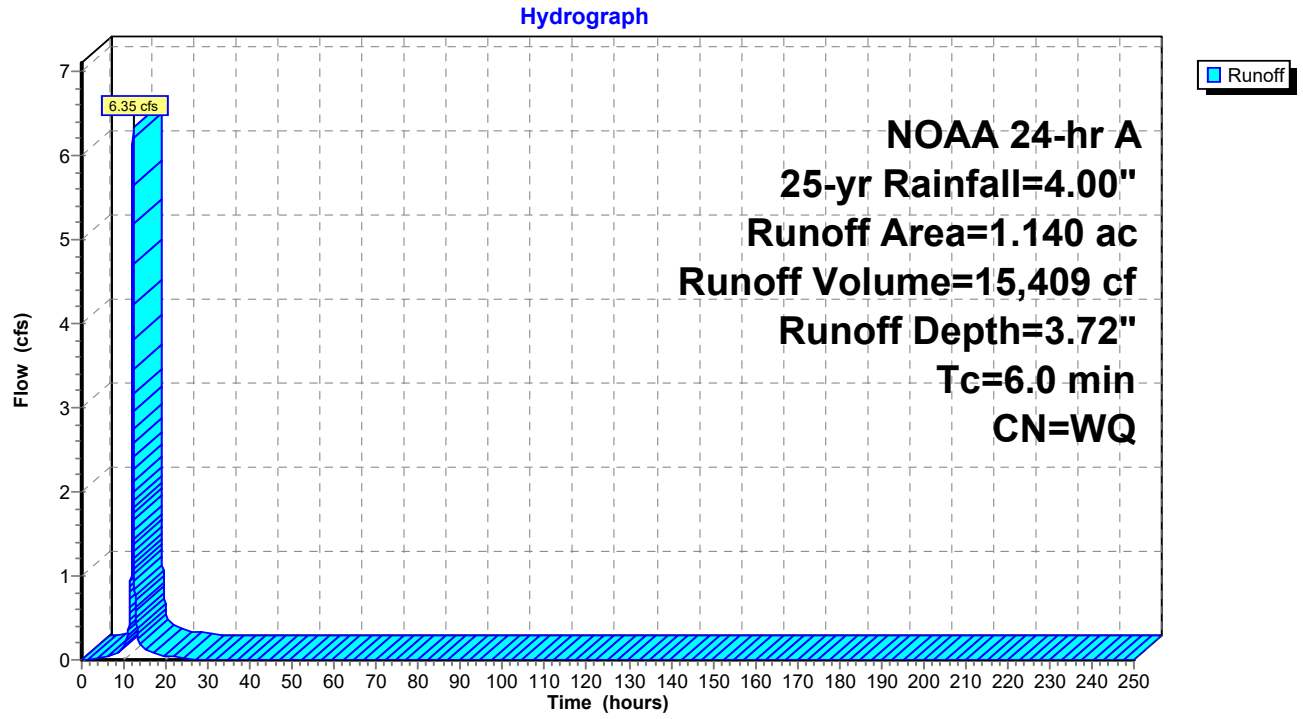
Runoff = 6.35 cfs @ 12.13 hrs, Volume= 15,409 cf, Depth= 3.72"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	0.060	98	Paved parking, HSG C
*	0.020	71	20% Impervious as Meadow, HSG C
*	1.060	98	Imp Outside LOD
	1.140		Weighted Average
	0.020		1.75% Pervious Area
	1.120		98.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

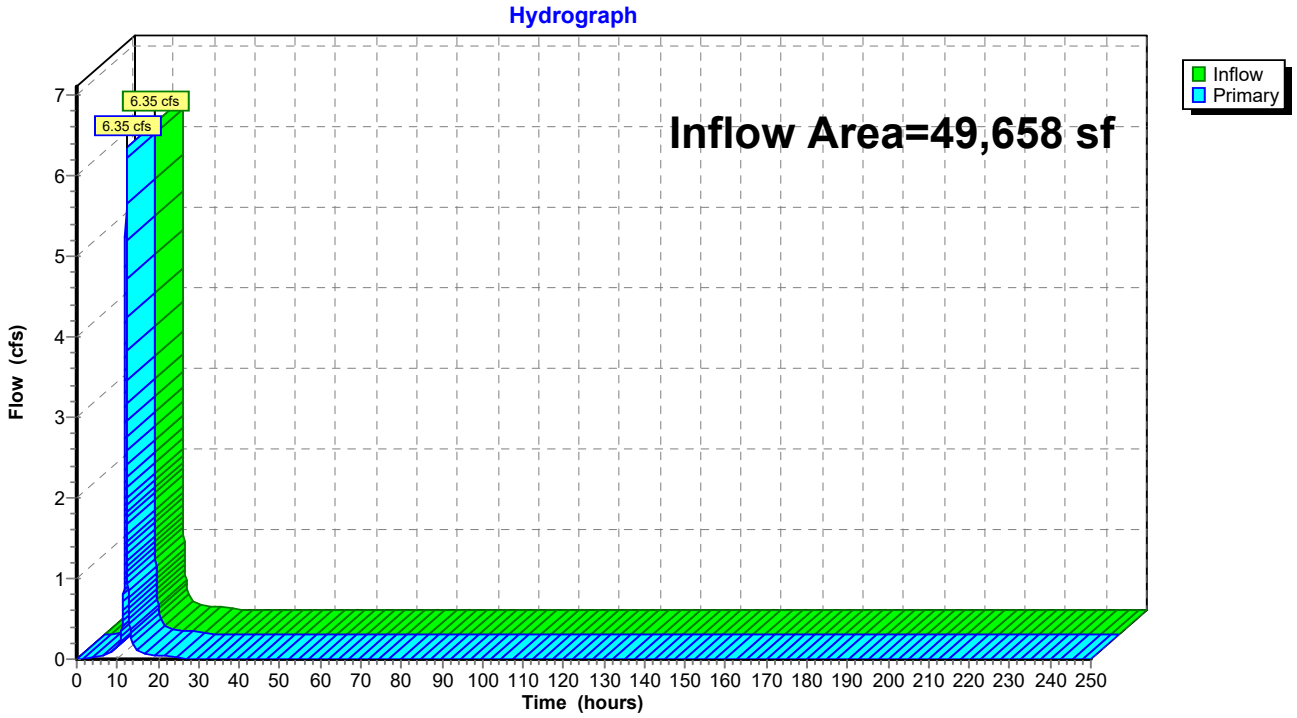


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,658 sf, 98.25% Impervious, Inflow Depth = 3.72" for 25-yr event
Inflow = 6.35 cfs @ 12.13 hrs, Volume= 15,409 cf
Primary = 6.35 cfs @ 12.13 hrs, Volume= 15,409 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

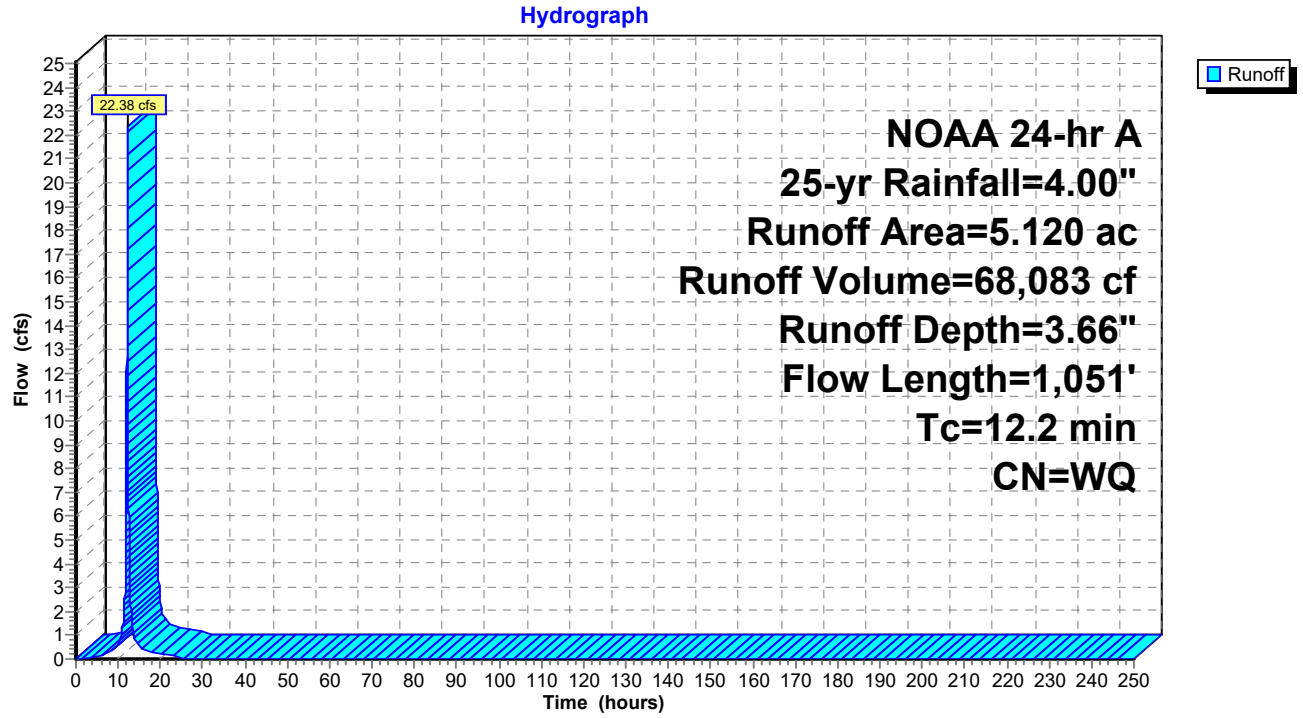
Runoff = 22.38 cfs @ 12.19 hrs, Volume= 68,083 cf, Depth= 3.66"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	0.890	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	4.010	98	Imp Outside LOD
	5.120		Weighted Average
	0.220		4.30% Pervious Area
	4.900		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

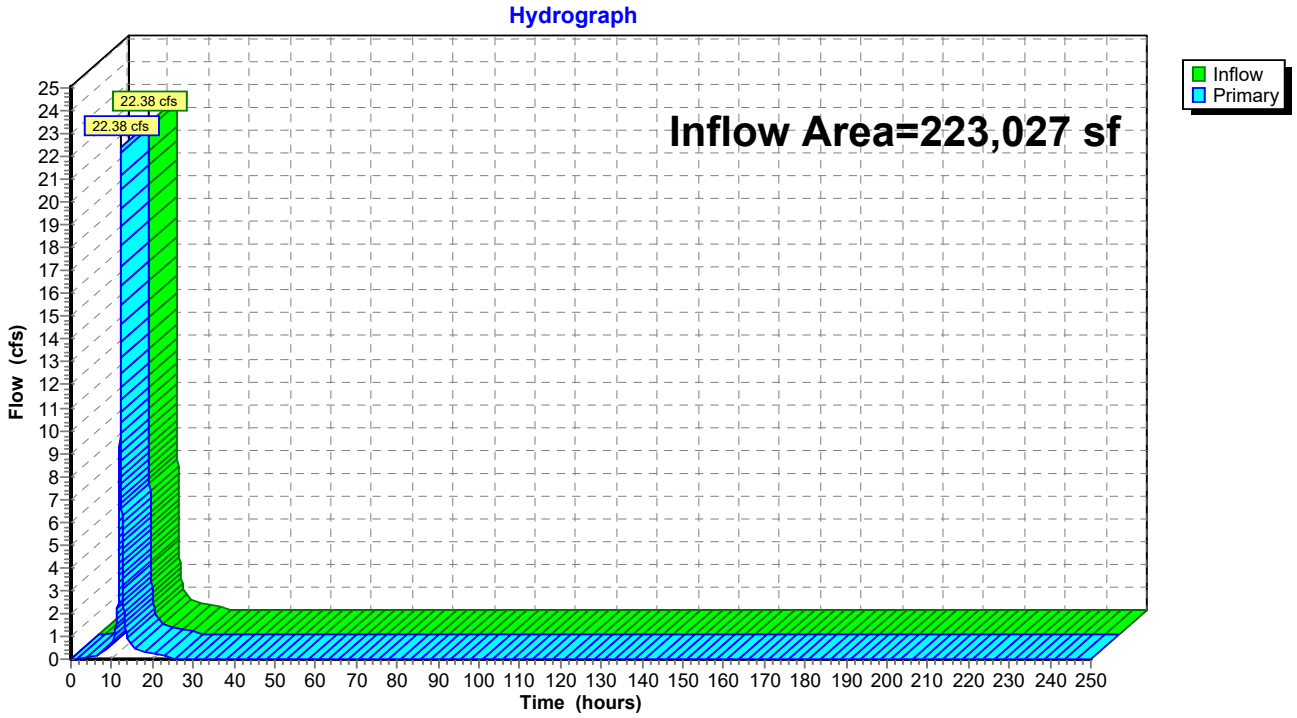


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 95.70% Impervious, Inflow Depth = 3.66" for 25-yr event
Inflow = 22.38 cfs @ 12.19 hrs, Volume= 68,083 cf
Primary = 22.38 cfs @ 12.19 hrs, Volume= 68,083 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

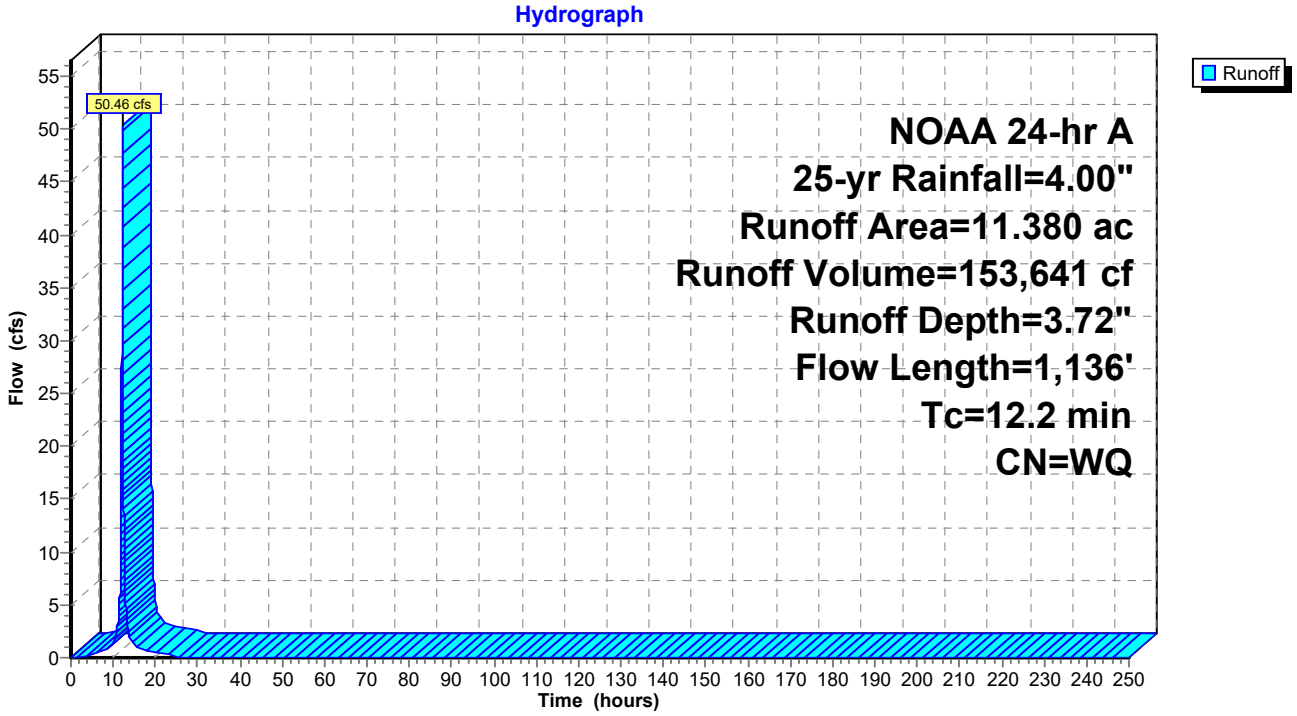
Runoff = 50.46 cfs @ 12.19 hrs, Volume= 153,641 cf, Depth= 3.72"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	0.880	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	10.280	98	Imp Outside LOD
	11.380		Weighted Average
	0.220		1.93% Pervious Area
	11.160		98.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

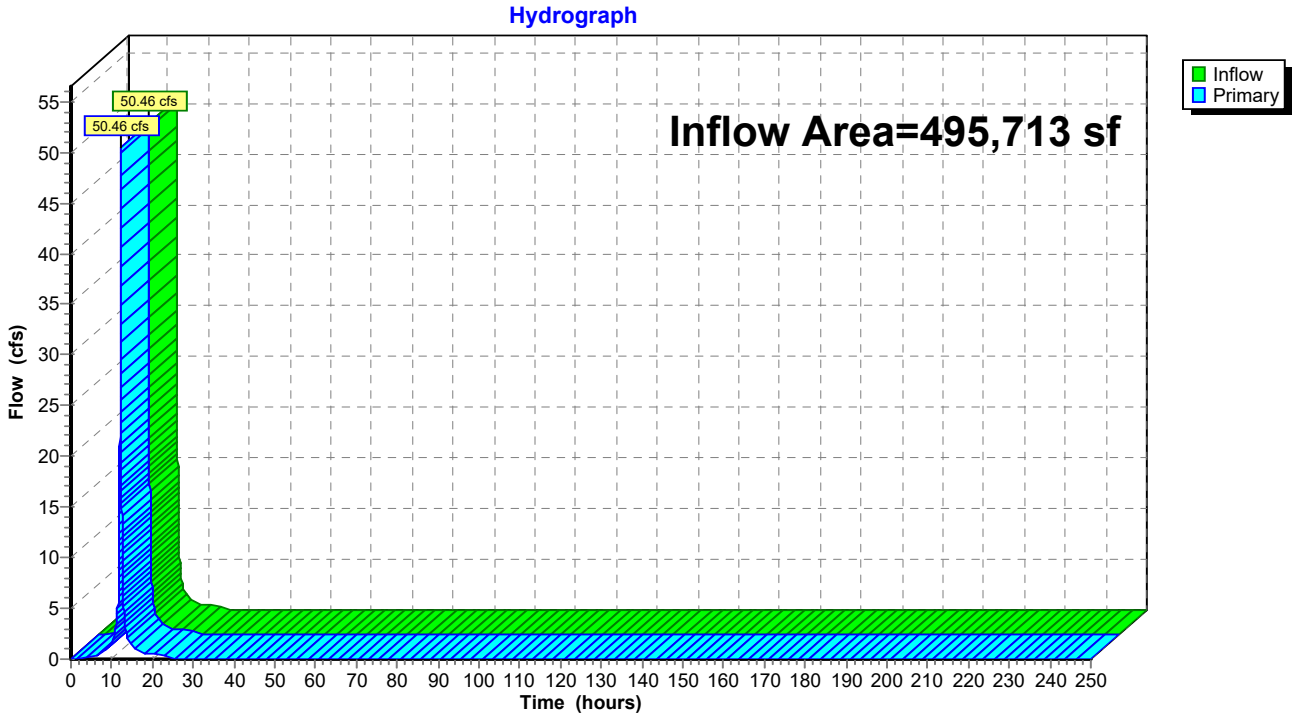


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,713 sf, 98.07% Impervious, Inflow Depth = 3.72" for 25-yr event
Inflow = 50.46 cfs @ 12.19 hrs, Volume= 153,641 cf
Primary = 50.46 cfs @ 12.19 hrs, Volume= 153,641 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

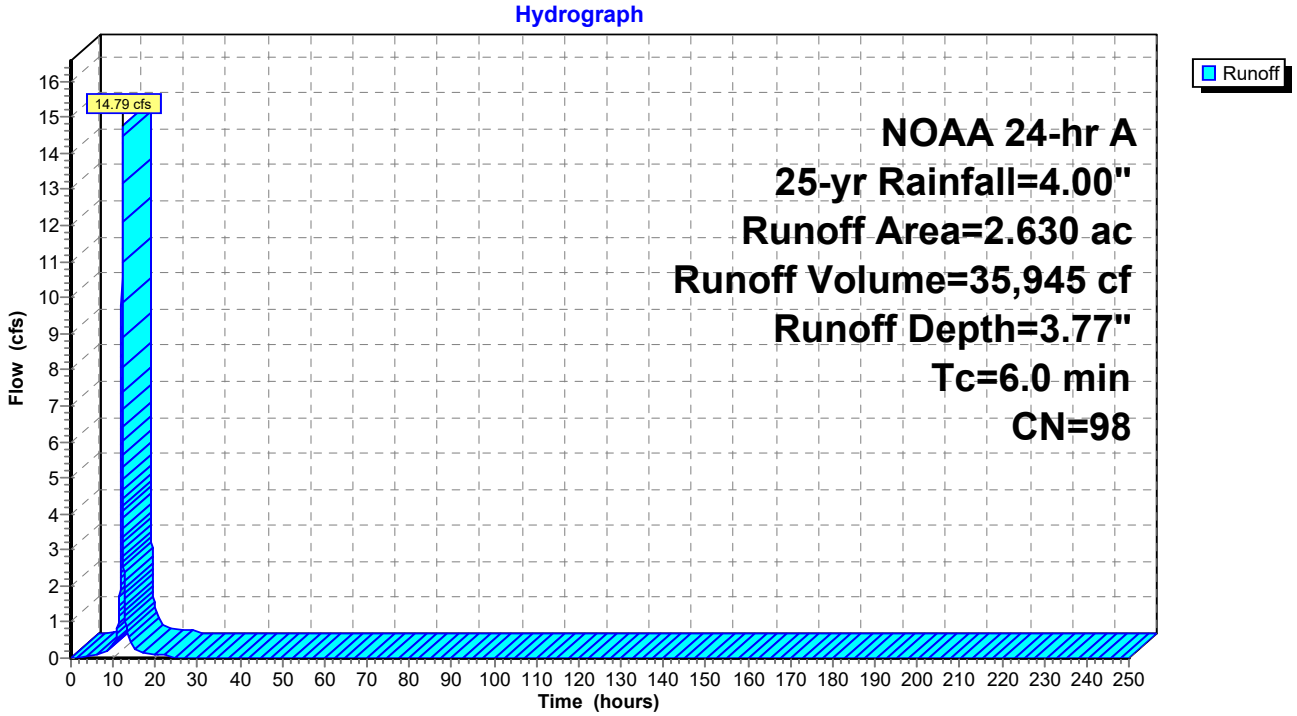
Runoff = 14.79 cfs @ 12.13 hrs, Volume= 35,945 cf, Depth= 3.77"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
2.630	98	Paved parking, HSG C
2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

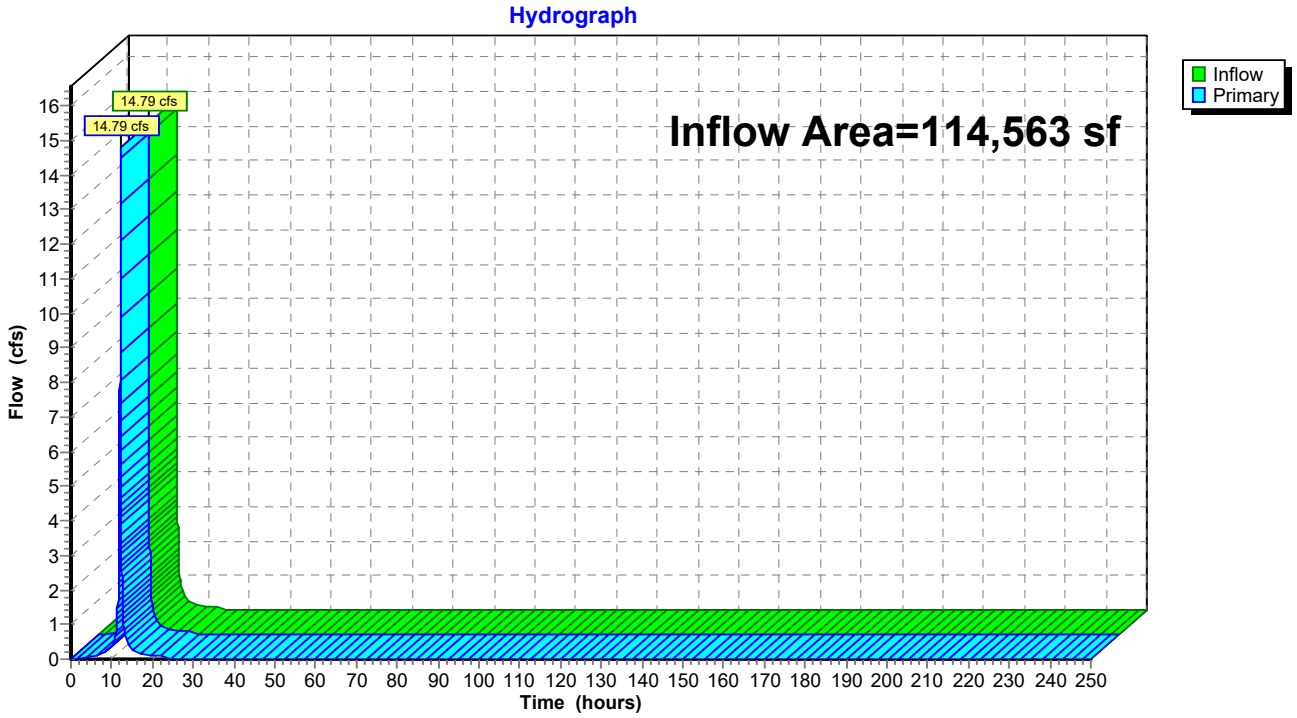


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 14.79 cfs @ 12.13 hrs, Volume= 35,945 cf
Primary = 14.79 cfs @ 12.13 hrs, Volume= 35,945 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

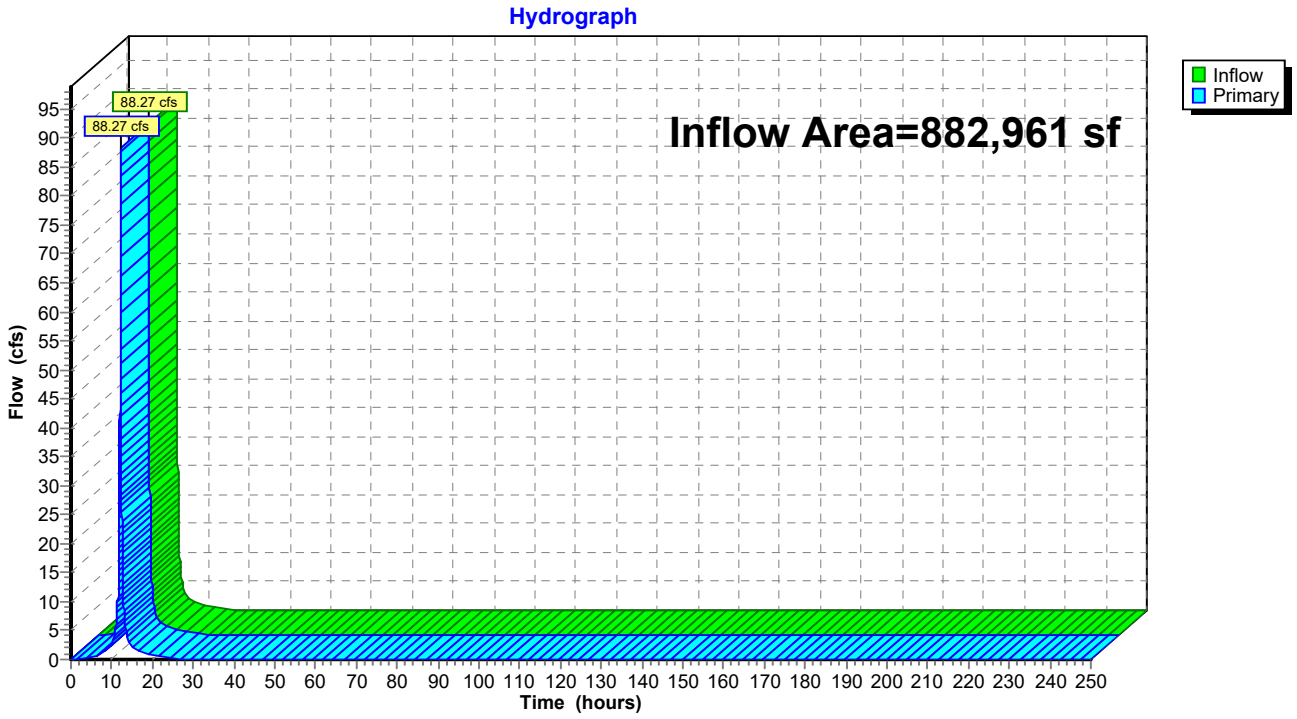


Summary for Link 9: Pre POA 001

Inflow Area = 882,961 sf, 97.73% Impervious, Inflow Depth = 3.71" for 25-yr event
Inflow = 88.27 cfs @ 12.17 hrs, Volume= 273,078 cf
Primary = 88.27 cfs @ 12.17 hrs, Volume= 273,078 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: Pre POA 001



Summary for Subcatchment 1: Pre-Development DA-1

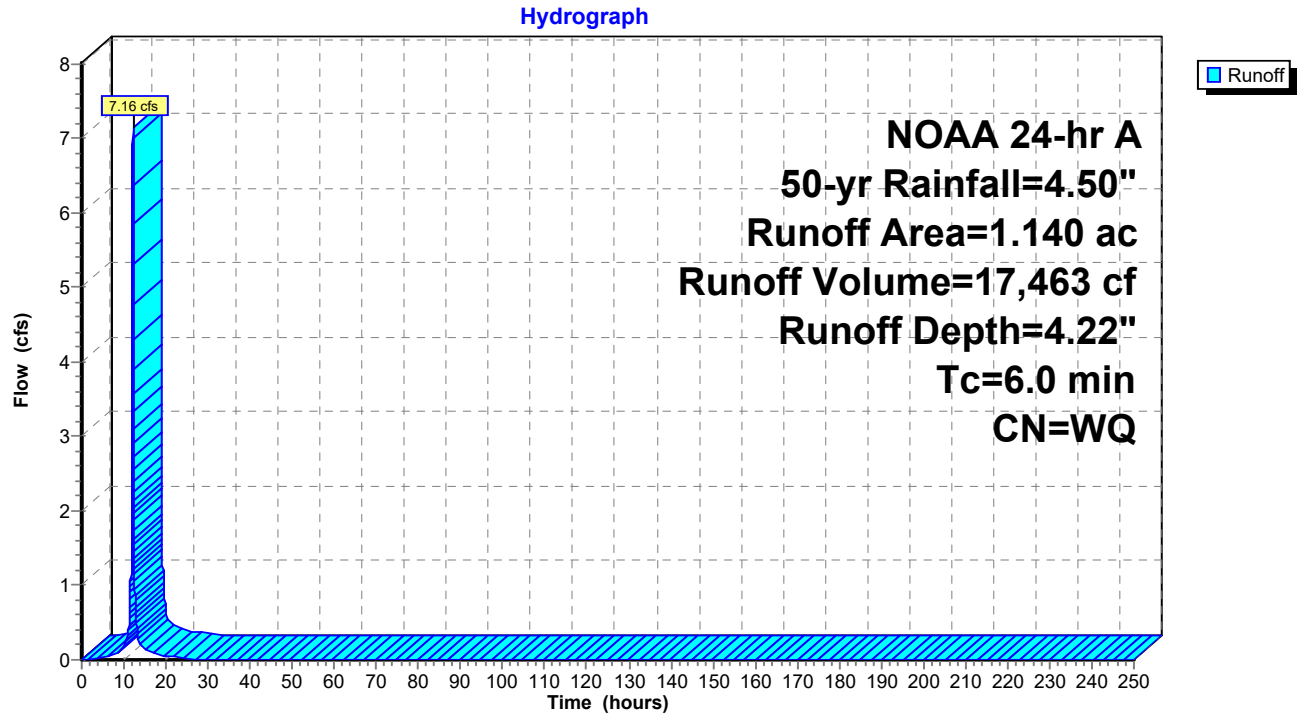
Runoff = 7.16 cfs @ 12.13 hrs, Volume= 17,463 cf, Depth= 4.22"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	0.060	98	Paved parking, HSG C
*	0.020	71	20% Impervious as Meadow, HSG C
*	1.060	98	Imp Outside LOD
	1.140		Weighted Average
	0.020		1.75% Pervious Area
	1.120		98.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

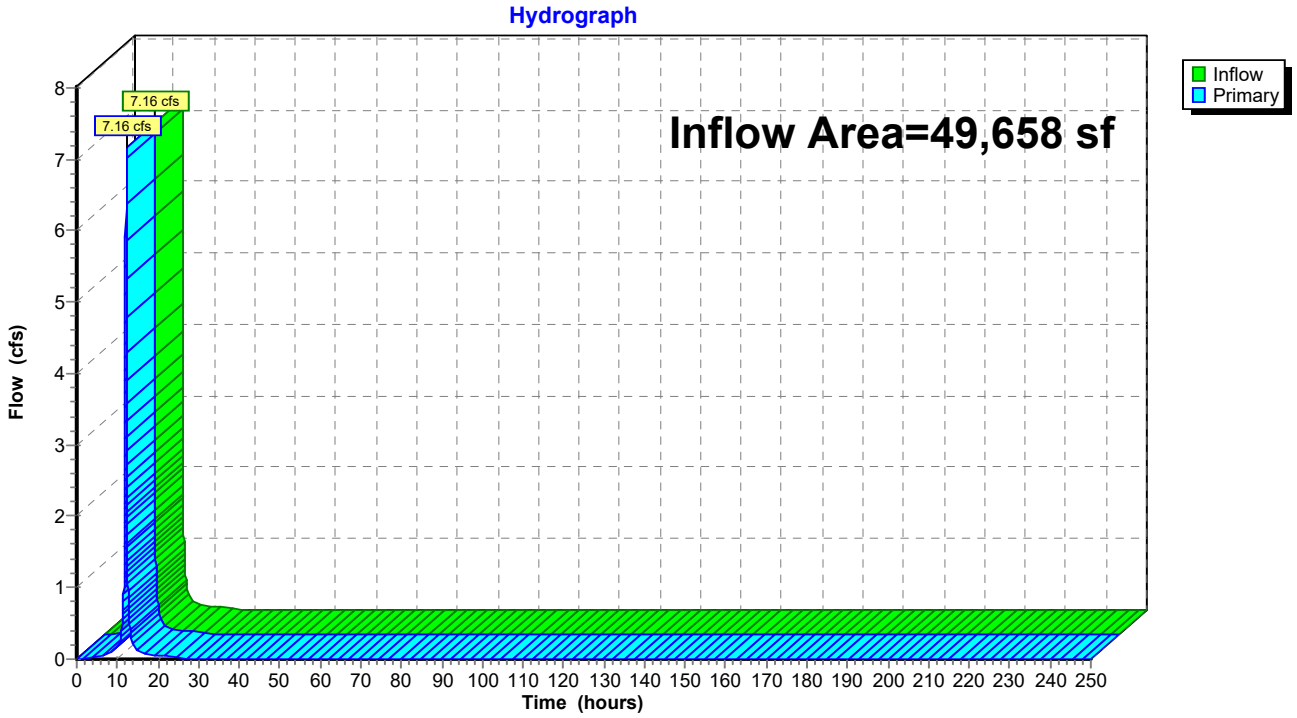


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,658 sf, 98.25% Impervious, Inflow Depth = 4.22" for 50-yr event
Inflow = 7.16 cfs @ 12.13 hrs, Volume= 17,463 cf
Primary = 7.16 cfs @ 12.13 hrs, Volume= 17,463 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

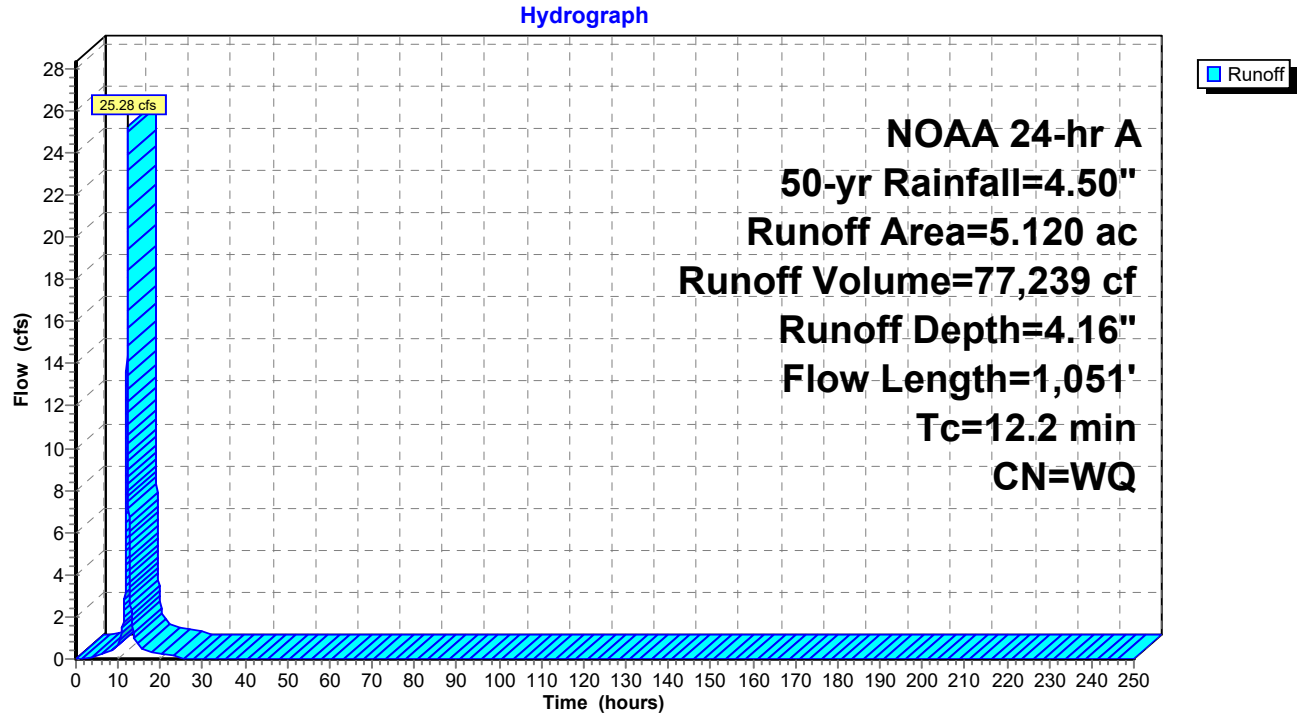
Runoff = 25.28 cfs @ 12.19 hrs, Volume= 77,239 cf, Depth= 4.16"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	0.890	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	4.010	98	Imp Outside LOD
	5.120		Weighted Average
	0.220		4.30% Pervious Area
	4.900		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

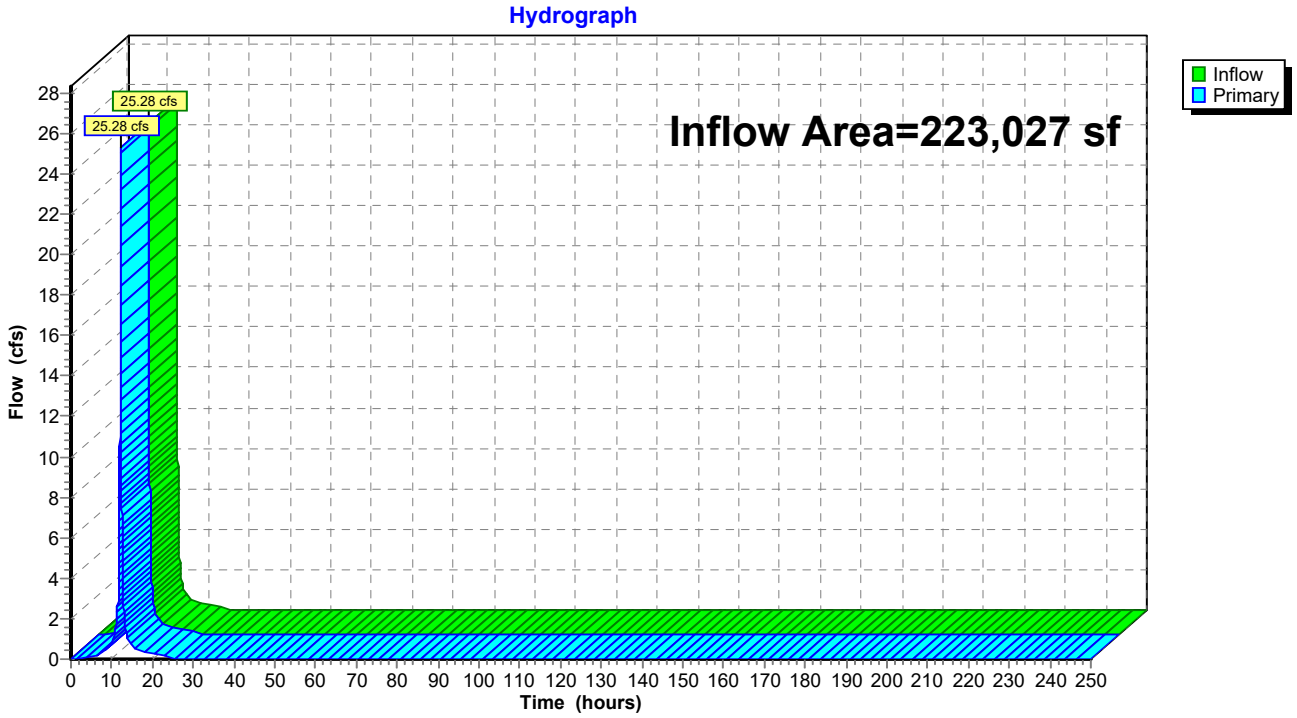


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 95.70% Impervious, Inflow Depth = 4.16" for 50-yr event
Inflow = 25.28 cfs @ 12.19 hrs, Volume= 77,239 cf
Primary = 25.28 cfs @ 12.19 hrs, Volume= 77,239 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

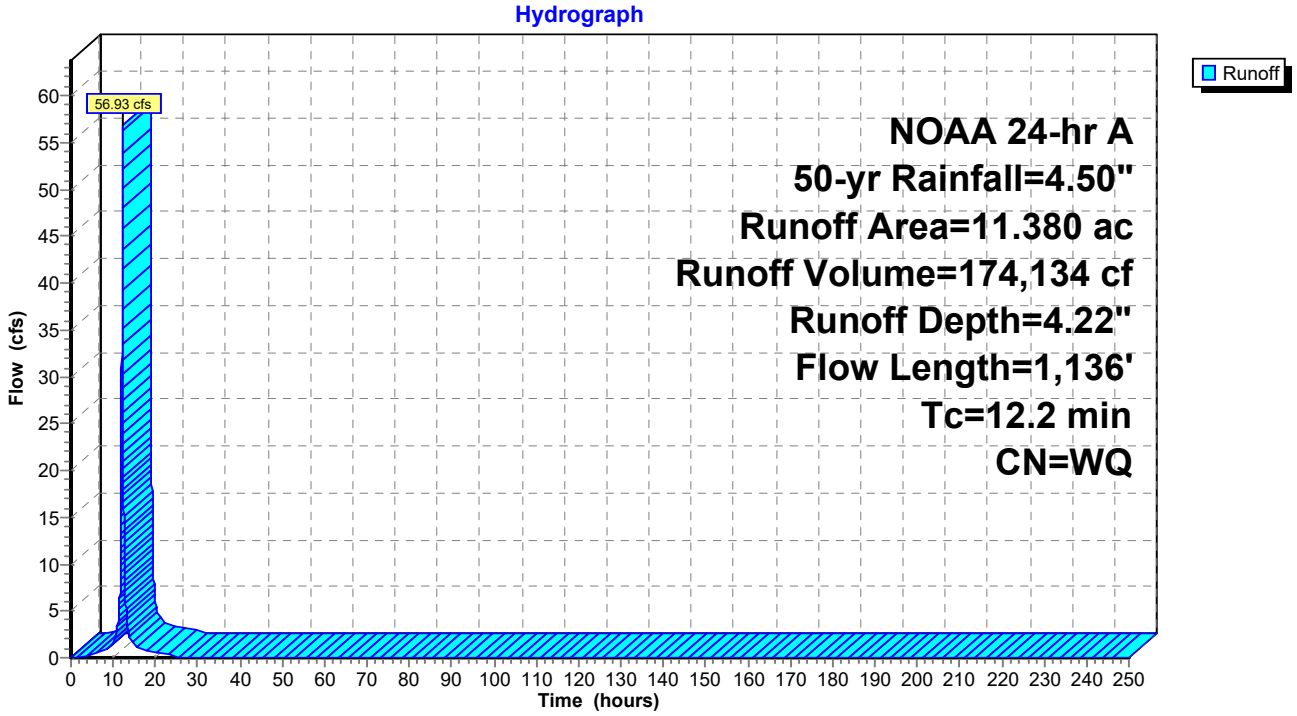
Runoff = 56.93 cfs @ 12.19 hrs, Volume= 174,134 cf, Depth= 4.22"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	0.880	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	10.280	98	Imp Outside LOD
	11.380		Weighted Average
	0.220		1.93% Pervious Area
	11.160		98.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

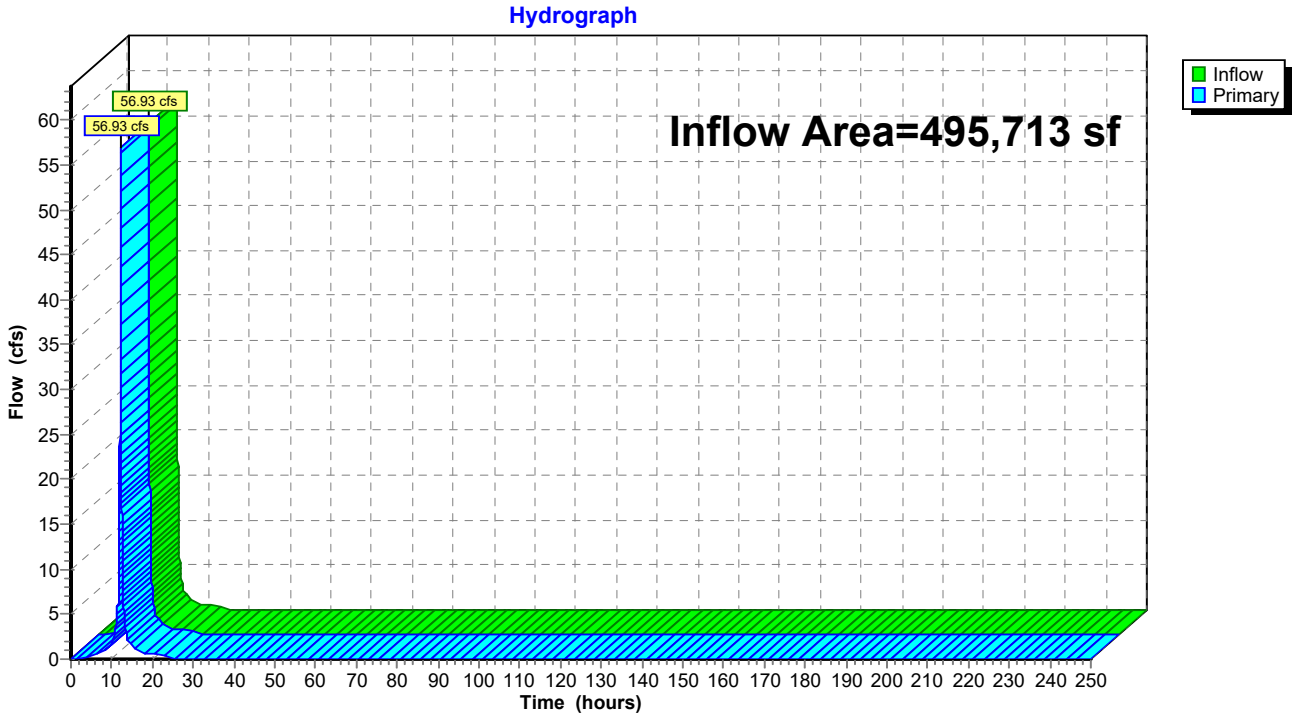


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,713 sf, 98.07% Impervious, Inflow Depth = 4.22" for 50-yr event
Inflow = 56.93 cfs @ 12.19 hrs, Volume= 174,134 cf
Primary = 56.93 cfs @ 12.19 hrs, Volume= 174,134 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

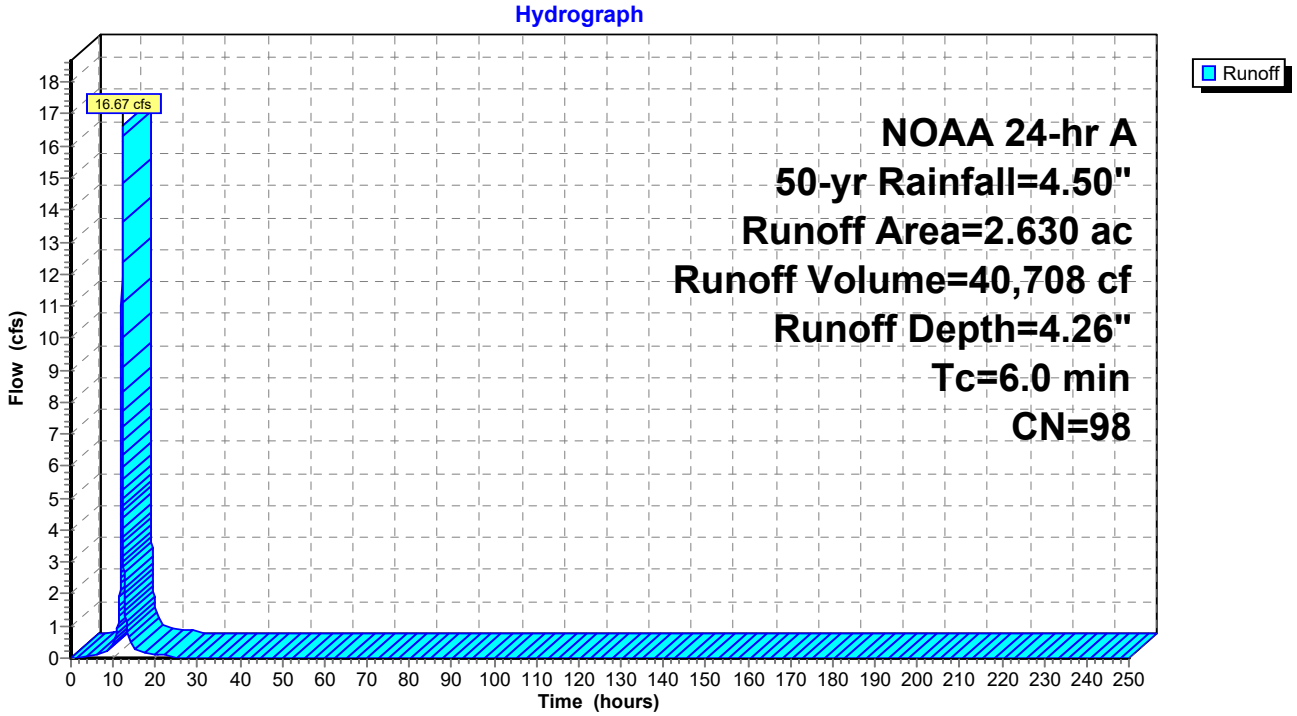
Runoff = 16.67 cfs @ 12.13 hrs, Volume= 40,708 cf, Depth= 4.26"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
2.630	98	Paved parking, HSG C
2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

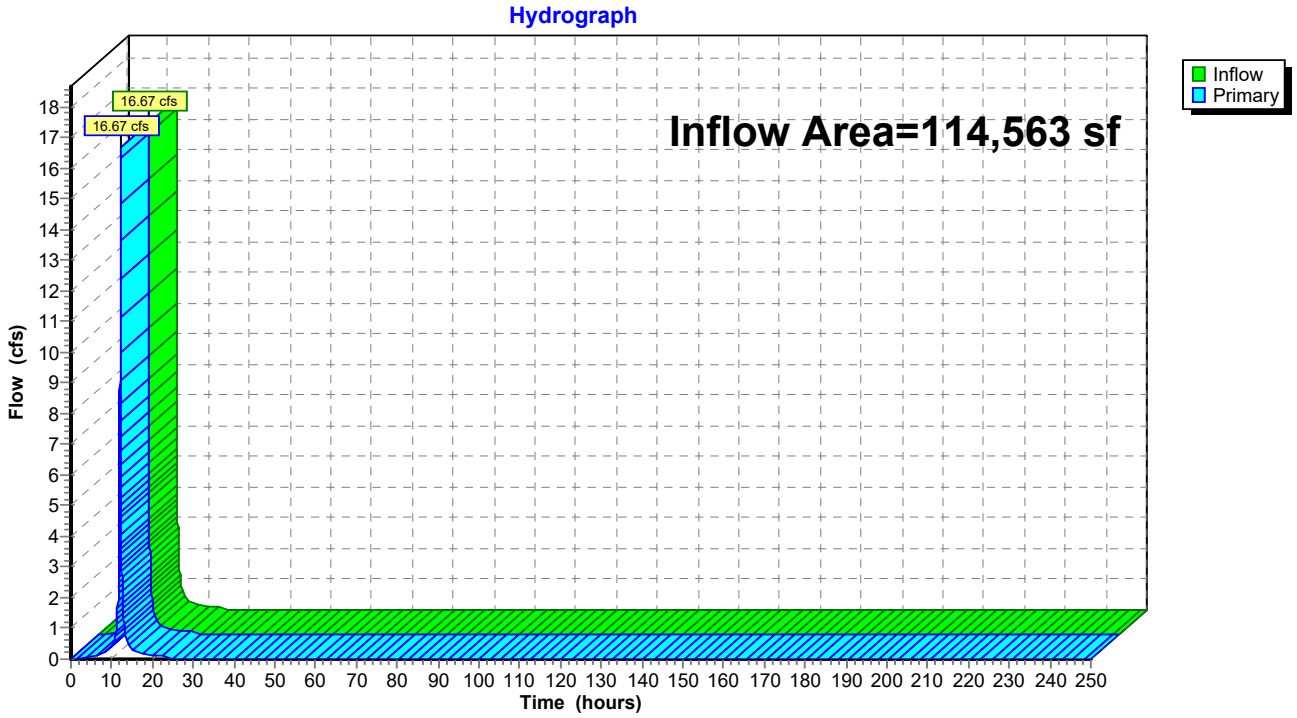


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 16.67 cfs @ 12.13 hrs, Volume= 40,708 cf
Primary = 16.67 cfs @ 12.13 hrs, Volume= 40,708 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

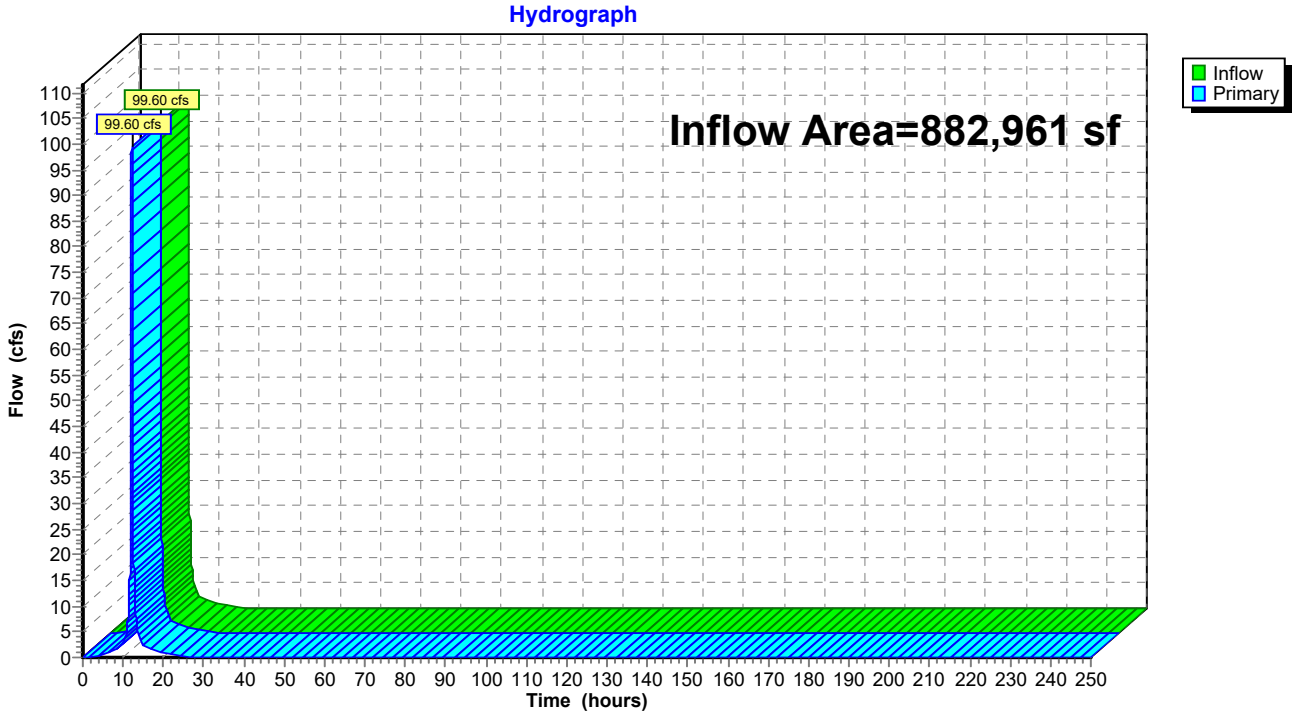


Summary for Link 9: Pre POA 001

Inflow Area = 882,961 sf, 97.73% Impervious, Inflow Depth = 4.21" for 50-yr event
Inflow = 99.60 cfs @ 12.17 hrs, Volume= 309,544 cf
Primary = 99.60 cfs @ 12.17 hrs, Volume= 309,544 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: Pre POA 001



Summary for Subcatchment 1: Pre-Development DA-1

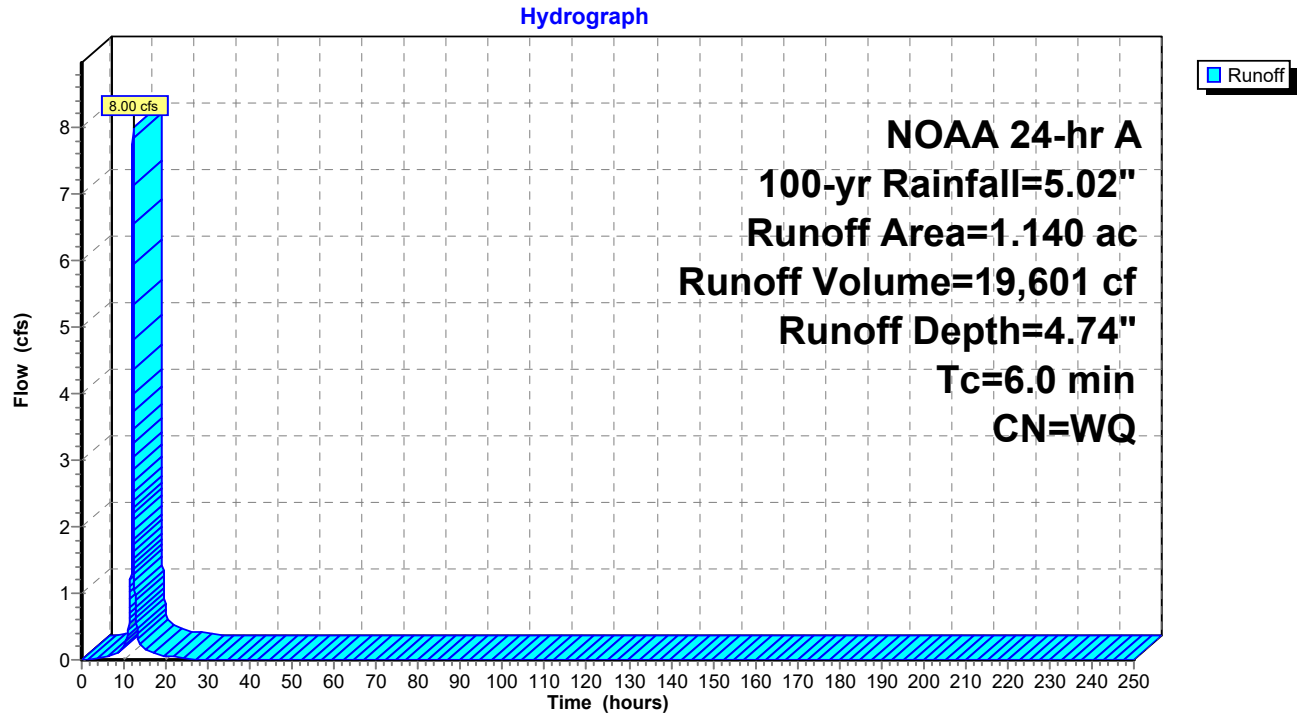
Runoff = 8.00 cfs @ 12.13 hrs, Volume= 19,601 cf, Depth= 4.74"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	0.060	98	Paved parking, HSG C
*	0.020	71	20% Impervious as Meadow, HSG C
*	1.060	98	Imp Outside LOD
	1.140		Weighted Average
	0.020		1.75% Pervious Area
	1.120		98.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

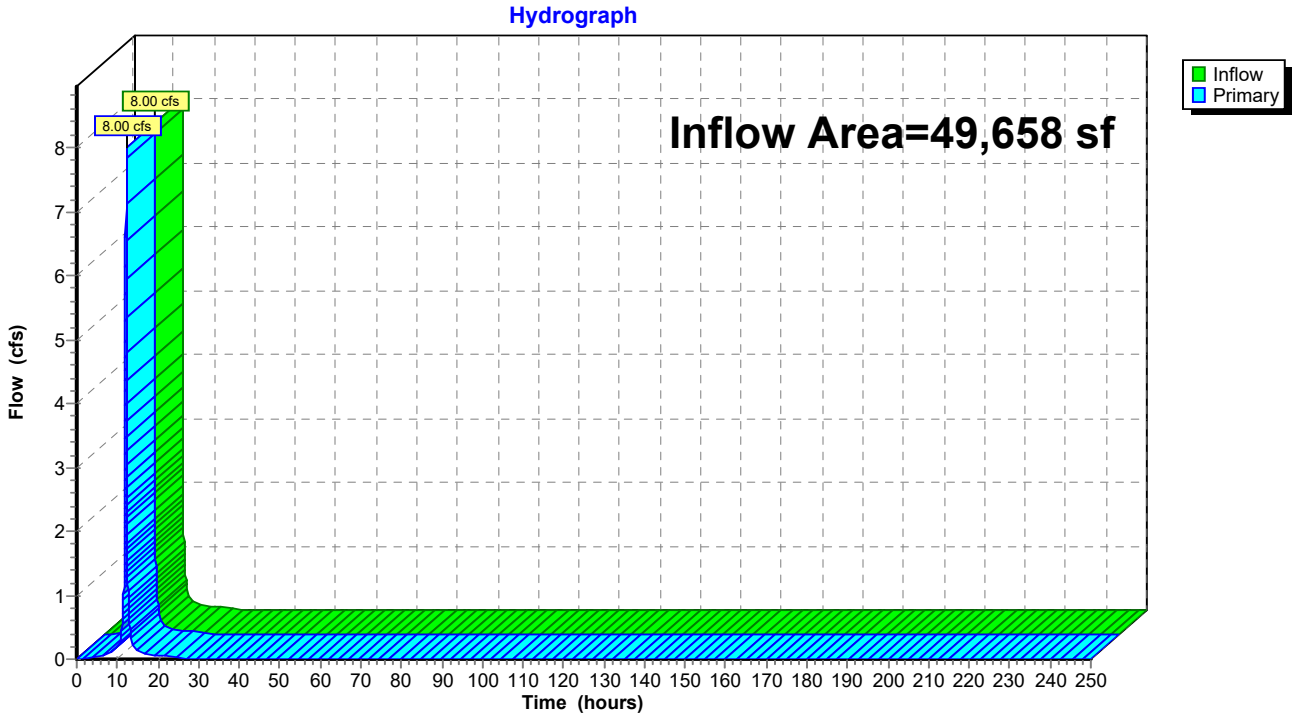


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,658 sf, 98.25% Impervious, Inflow Depth = 4.74" for 100-yr event
Inflow = 8.00 cfs @ 12.13 hrs, Volume= 19,601 cf
Primary = 8.00 cfs @ 12.13 hrs, Volume= 19,601 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

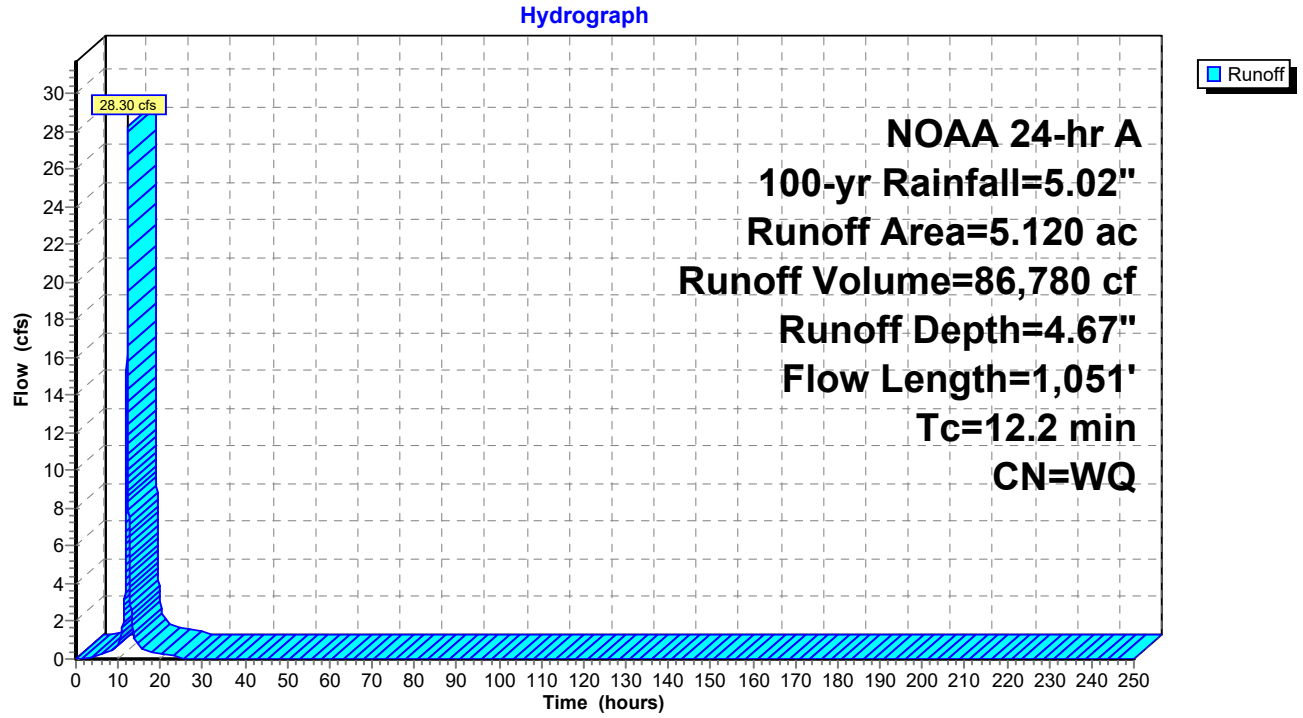
Runoff = 28.30 cfs @ 12.19 hrs, Volume= 86,780 cf, Depth= 4.67"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	0.890	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	4.010	98	Imp Outside LOD
	5.120		Weighted Average
	0.220		4.30% Pervious Area
	4.900		95.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

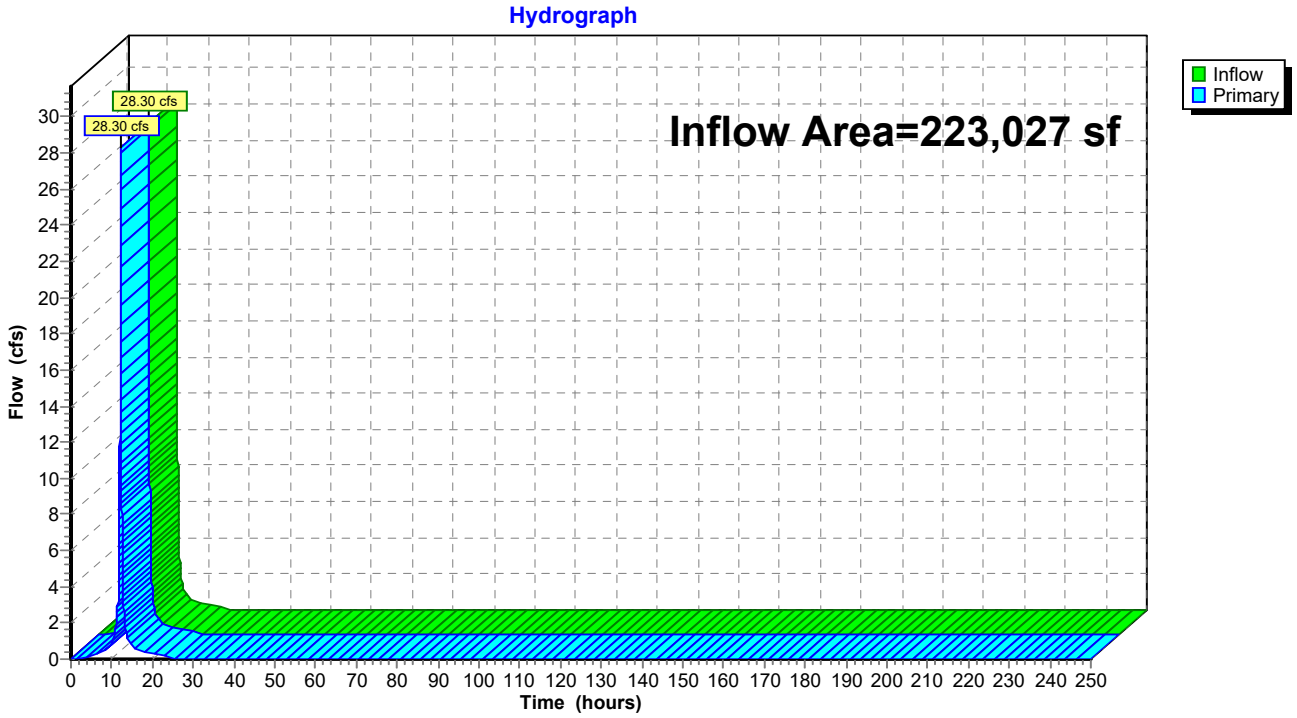


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 95.70% Impervious, Inflow Depth = 4.67" for 100-yr event
Inflow = 28.30 cfs @ 12.19 hrs, Volume= 86,780 cf
Primary = 28.30 cfs @ 12.19 hrs, Volume= 86,780 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

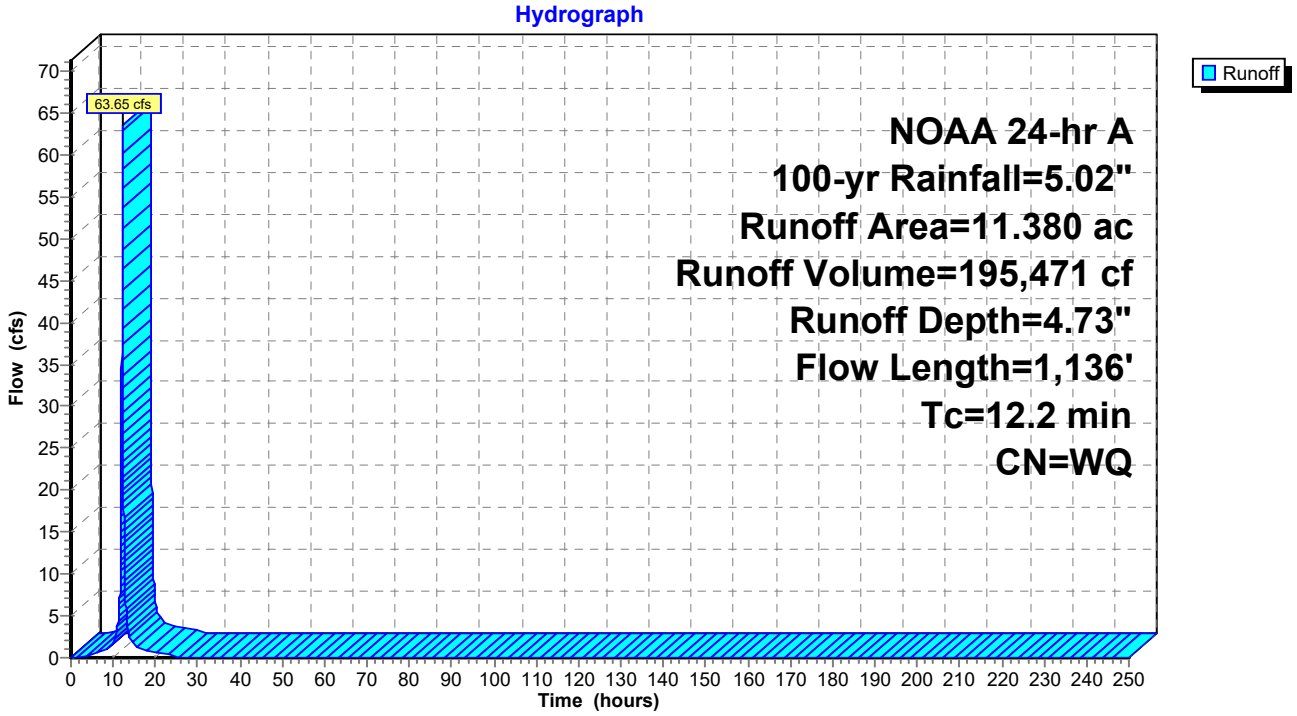
Runoff = 63.65 cfs @ 12.19 hrs, Volume= 195,471 cf, Depth= 4.73"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	0.880	98	Paved parking, HSG C
*	0.220	71	20% Impervious as Meadow, HSG C
*	10.280	98	Imp Outside LOD
	11.380		Weighted Average
	0.220		1.93% Pervious Area
	11.160		98.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

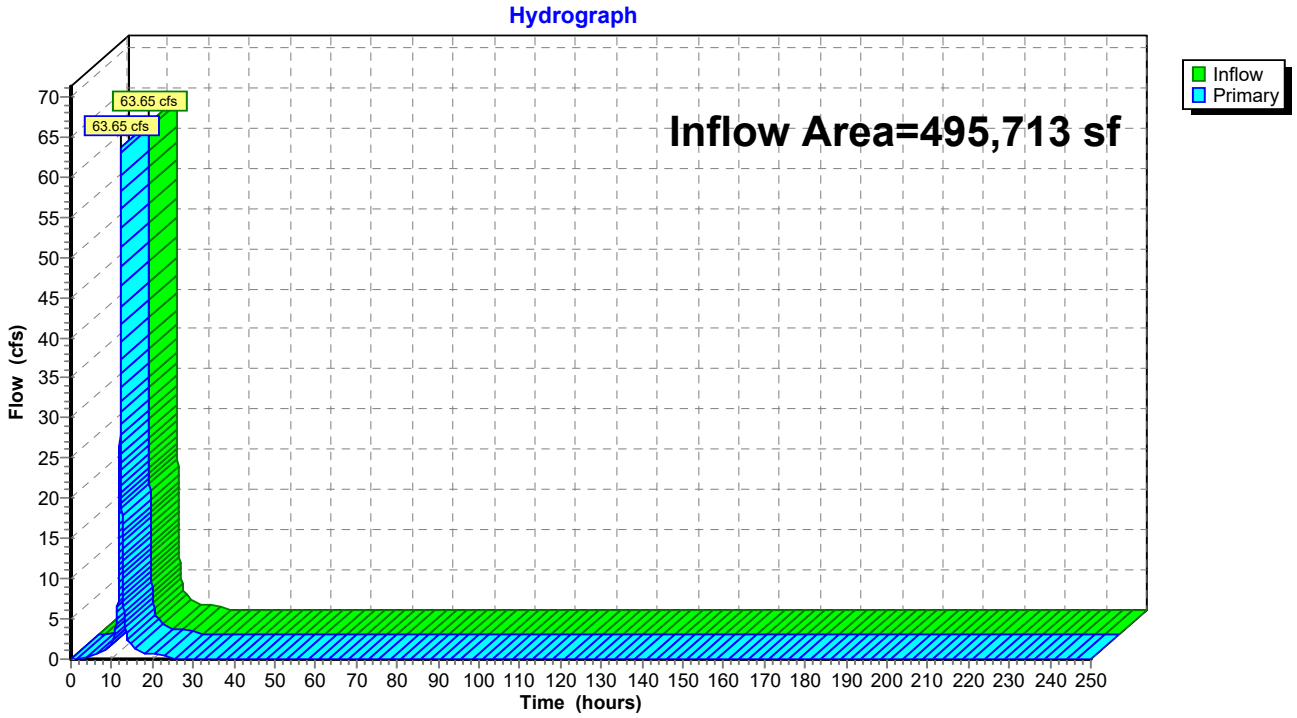


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,713 sf, 98.07% Impervious, Inflow Depth = 4.73" for 100-yr event
Inflow = 63.65 cfs @ 12.19 hrs, Volume= 195,471 cf
Primary = 63.65 cfs @ 12.19 hrs, Volume= 195,471 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

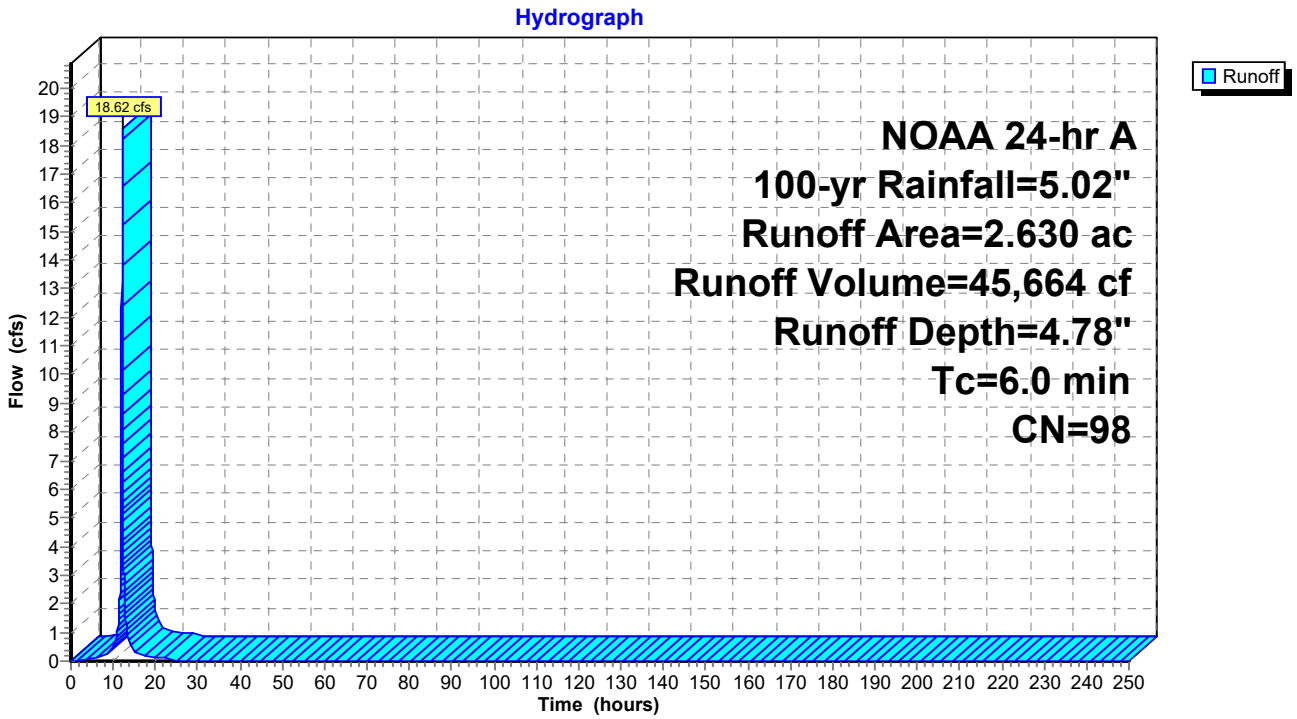
Runoff = 18.62 cfs @ 12.13 hrs, Volume= 45,664 cf, Depth= 4.78"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
2.630	98	Paved parking, HSG C
2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

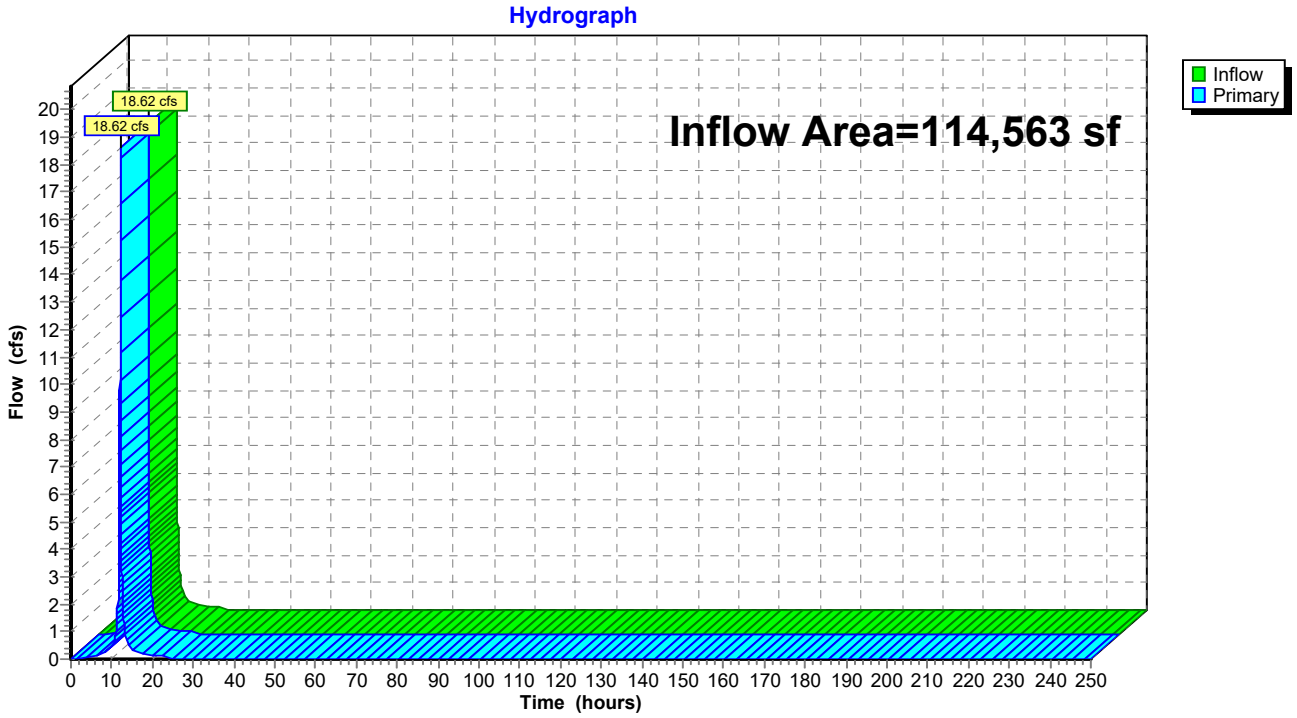


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 18.62 cfs @ 12.13 hrs, Volume= 45,664 cf
Primary = 18.62 cfs @ 12.13 hrs, Volume= 45,664 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : Pre POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

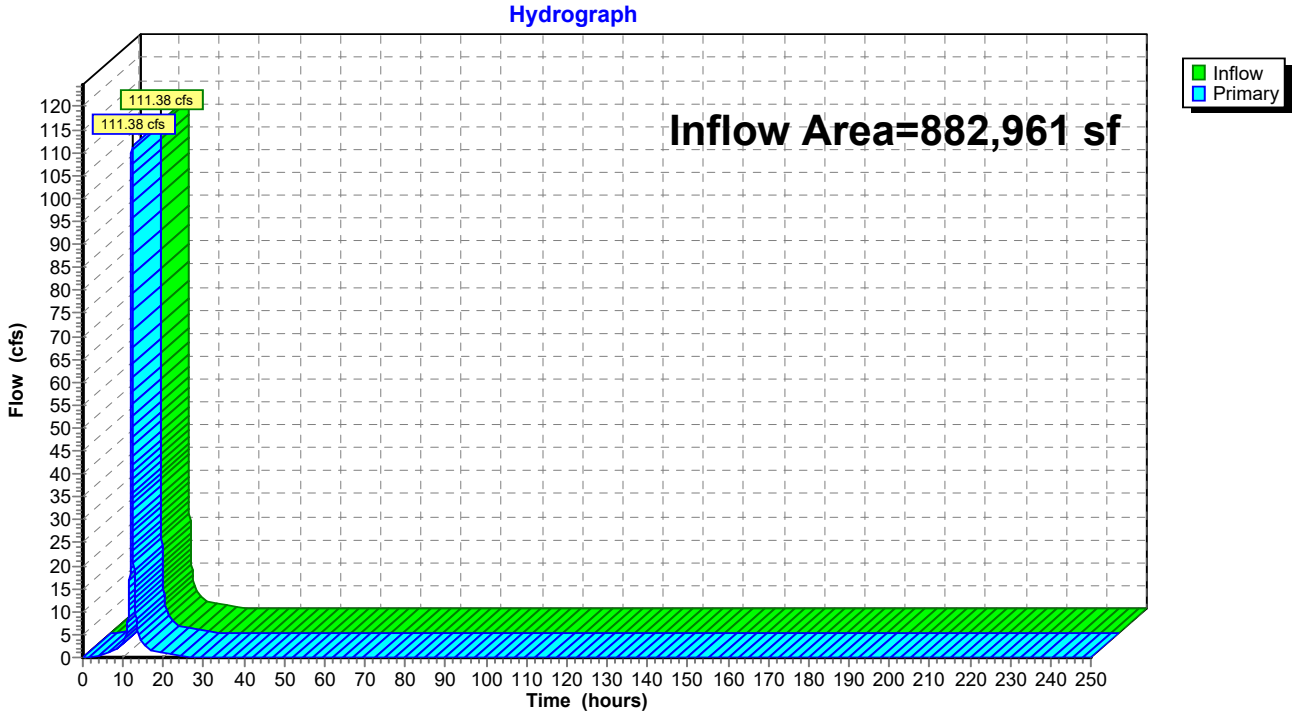


Summary for Link 9: Pre POA 001

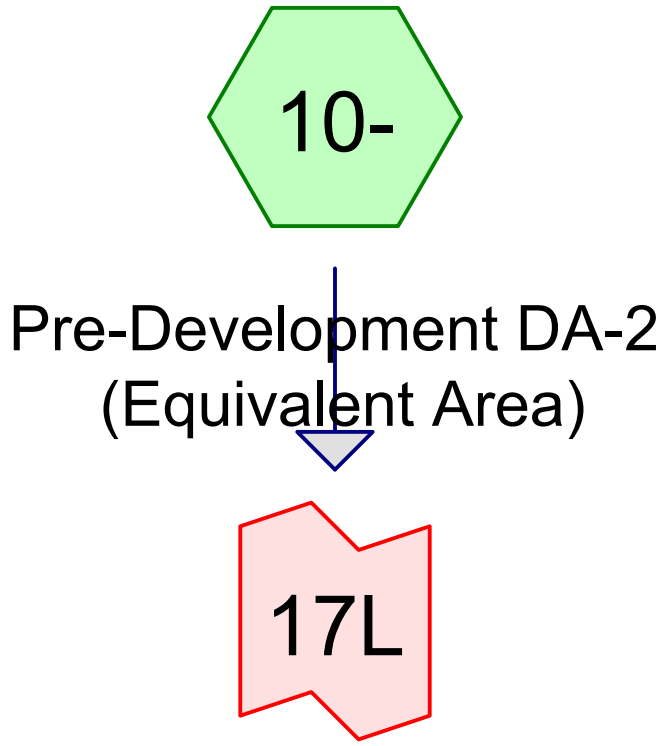
Inflow Area = 882,961 sf, 97.73% Impervious, Inflow Depth = 4.72" for 100-yr event
Inflow = 111.38 cfs @ 12.17 hrs, Volume= 347,516 cf
Primary = 111.38 cfs @ 12.17 hrs, Volume= 347,516 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

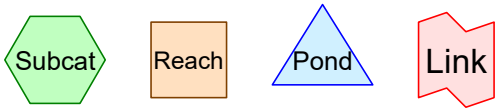
Link 9: Pre POA 001



Pre Equivalent Drainage Area



PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026



Routing Diagram for 353-024 Sharon Substation_PH 1
Prepared by CEC Inc, Printed 8/10/2026
HydroCAD® 10.20-6a s/n 01006 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NOAA 24-hr	A	Default	24.00	1	2.01	2

Summary for Subcatchment 10-: Pre-Development DA-2 (Equivalent Area)

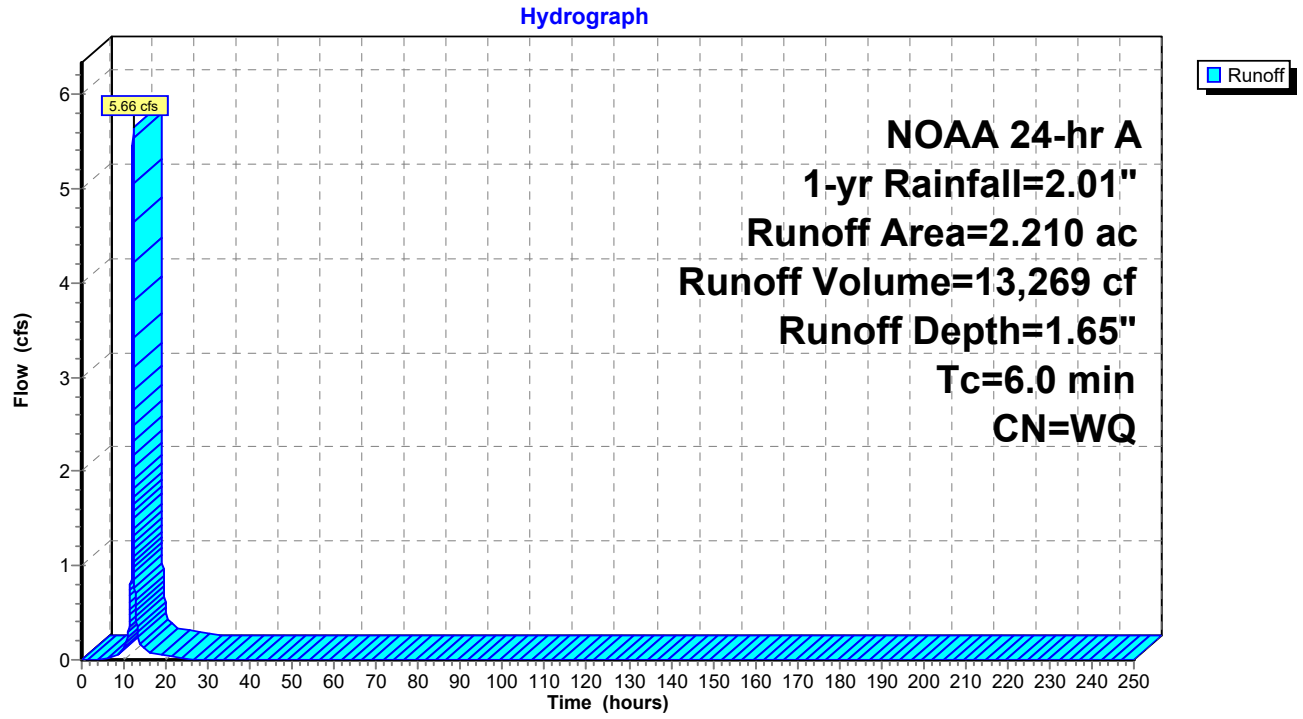
Runoff = 5.66 cfs @ 12.13 hrs, Volume= 13,269 cf, Depth= 1.65"
Routed to Link 17L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	0.740	98	Paved parking, HSG C
*	0.190	71	20% Impervious as Meadow, HSG C
*	1.280	98	Imp Outside LOD
	2.210		Weighted Average
	0.190		8.60% Pervious Area
	2.020		91.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 10-: Pre-Development DA-2 (Equivalent Area)

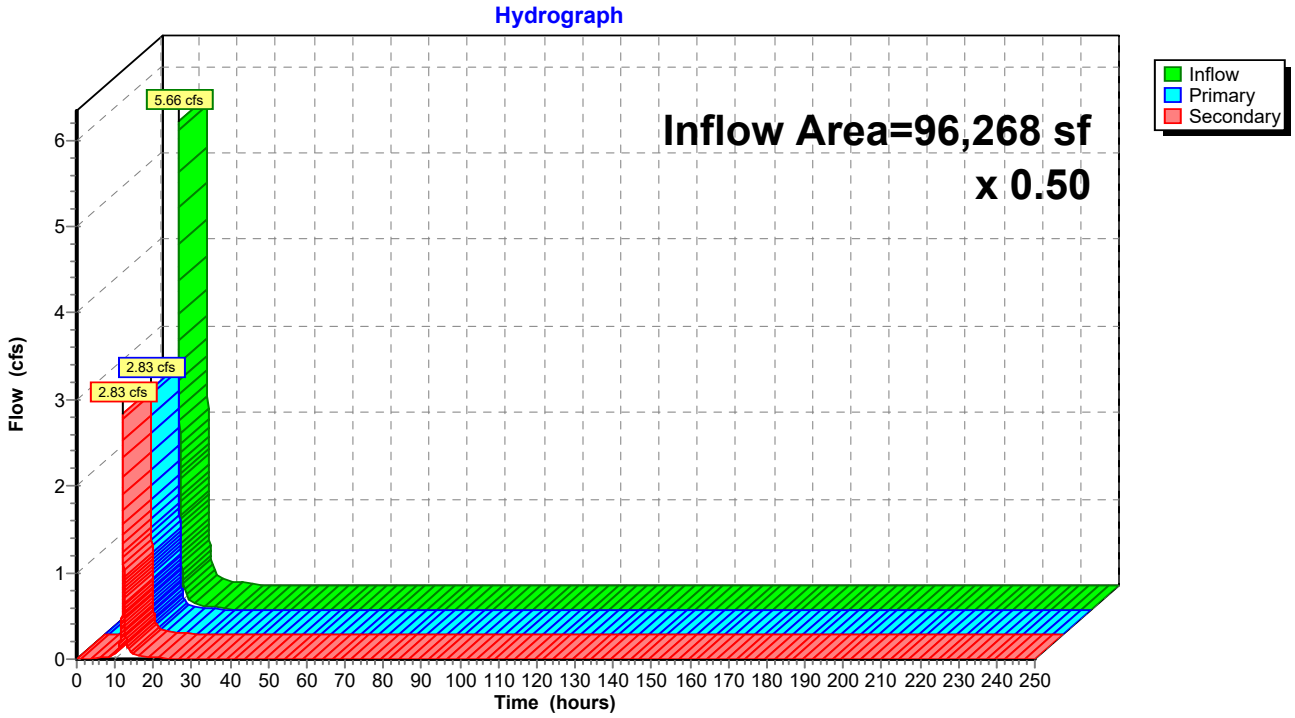


Summary for Link 17L:

Inflow Area = 96,268 sf, 91.40% Impervious, Inflow Depth = 1.65" for 1-yr event
Inflow = 5.66 cfs @ 12.13 hrs, Volume= 13,269 cf
Primary = 2.83 cfs @ 12.13 hrs, Volume= 6,635 cf, Atten= 50%, Lag= 0.0 min
Secondary = 2.83 cfs @ 12.13 hrs, Volume= 6,635 cf

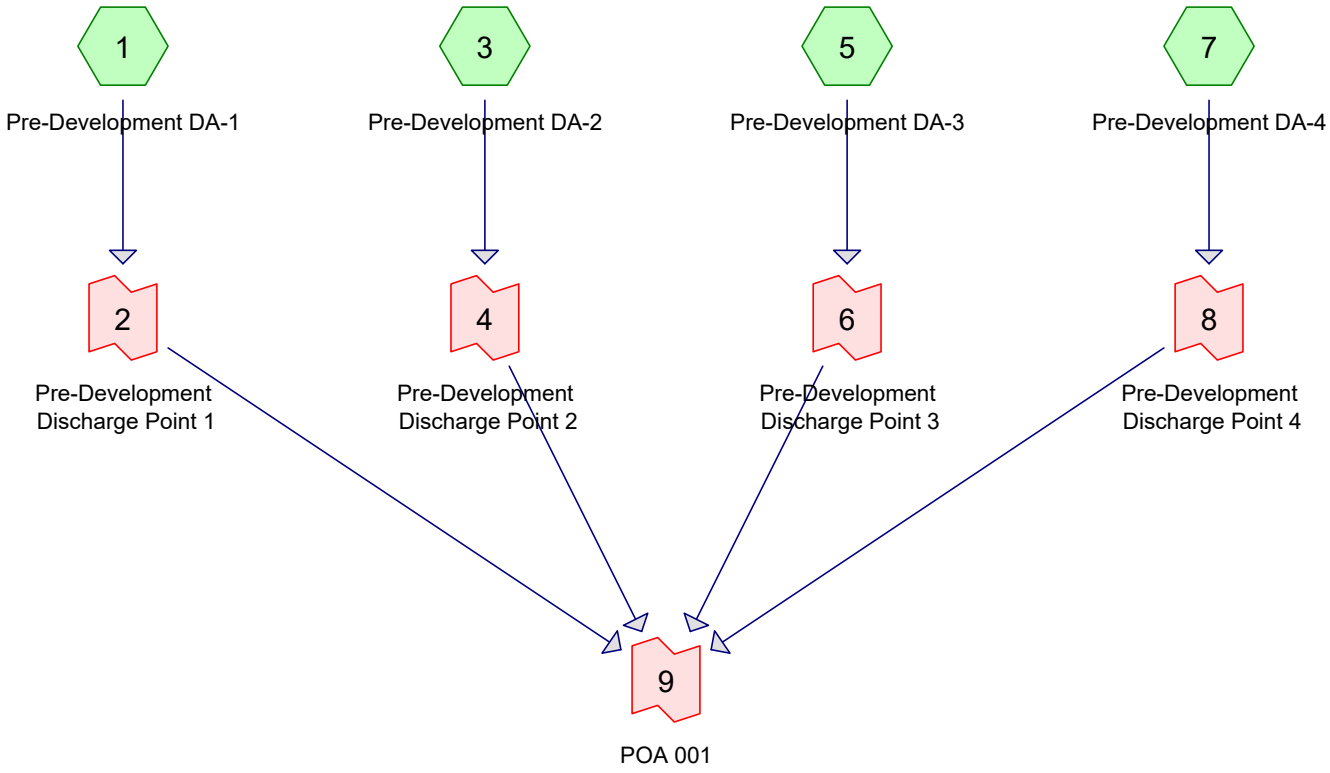
Primary outflow = Inflow x 0.50, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 17L:



5B – PRE-DEVELOPMENT RATE CALCULATIONS – PHASE 2 & 3

Pre



PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

Subcat Reach Pond Link

Routing Diagram for 353-024 Sharon Substation
Prepared by CEC Inc, Printed 8/10/2026
HydroCAD® 10.20-6a s/n 01006 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment 1: Pre-Development DA-1

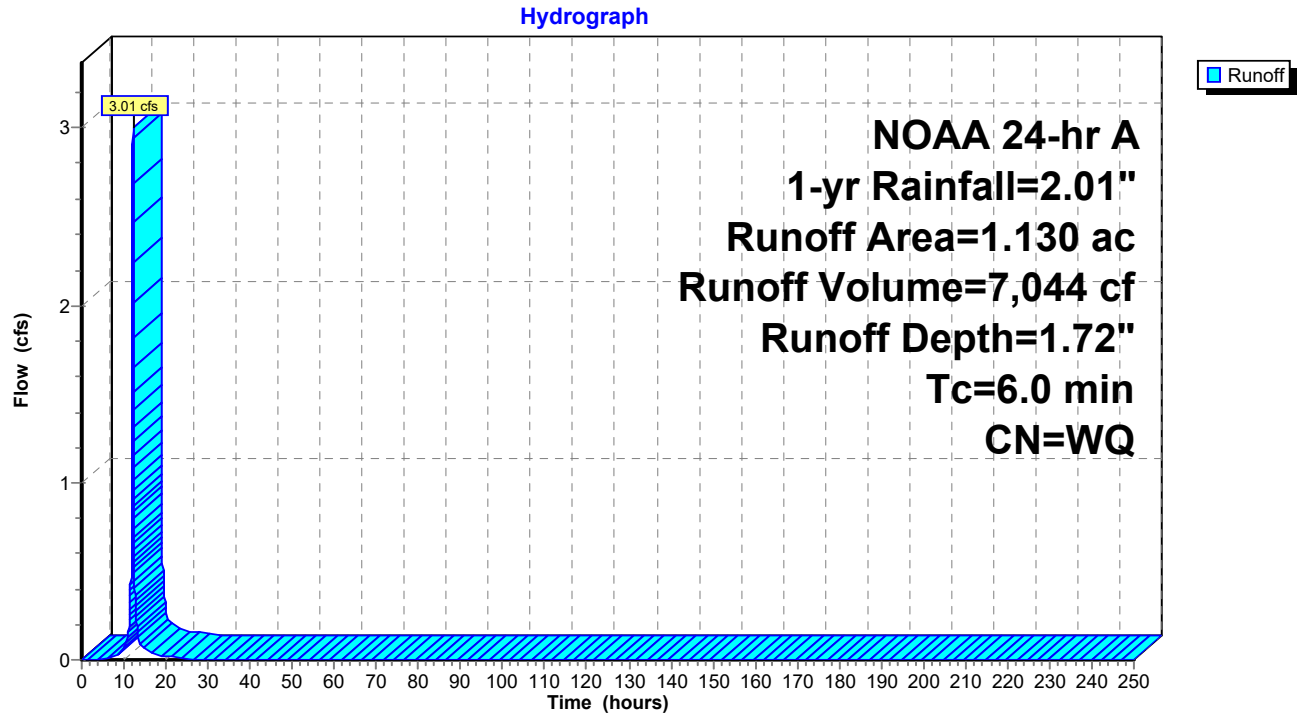
Runoff = 3.01 cfs @ 12.13 hrs, Volume= 7,044 cf, Depth= 1.72"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	0.210	98	Paved parking, HSG C
*	0.050	71	20% Impervious as Meadow, HSG C
*	0.870	98	Imp Outside LOD
	1.130		Weighted Average
	0.050		4.42% Pervious Area
	1.080		95.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

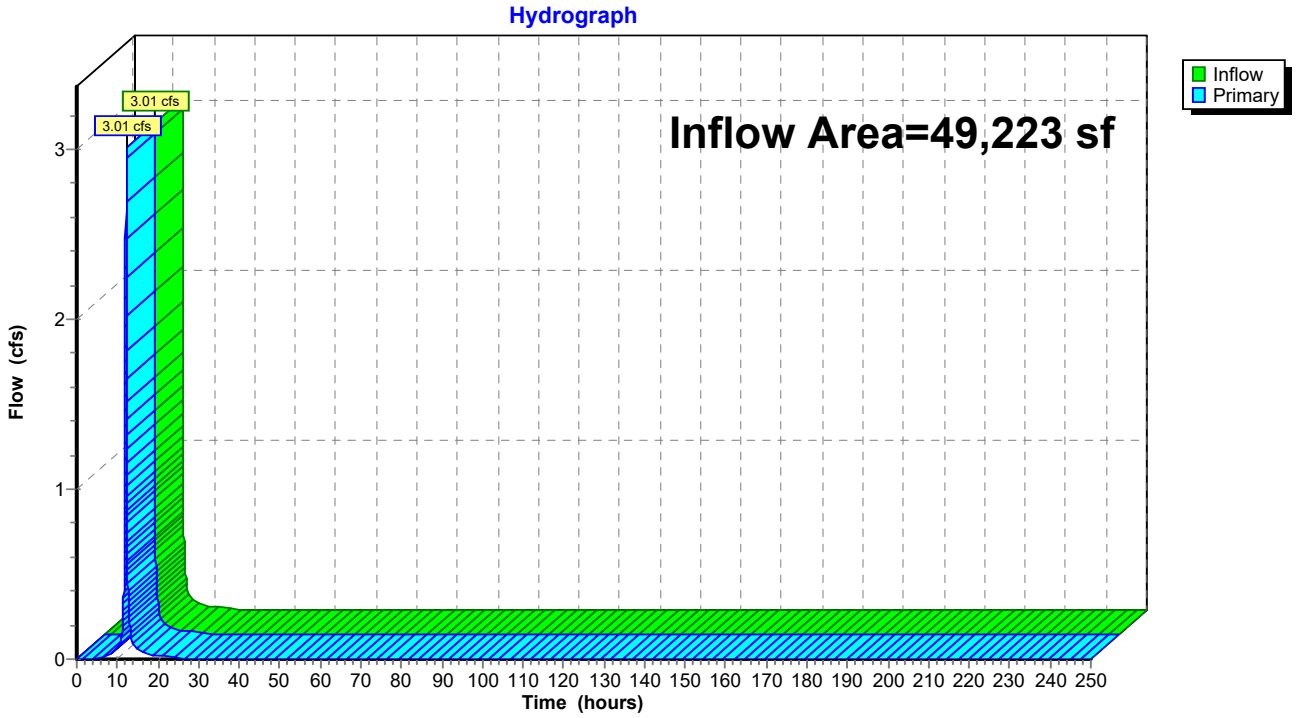


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,223 sf, 95.58% Impervious, Inflow Depth = 1.72" for 1-yr event
Inflow = 3.01 cfs @ 12.13 hrs, Volume= 7,044 cf
Primary = 3.01 cfs @ 12.13 hrs, Volume= 7,044 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

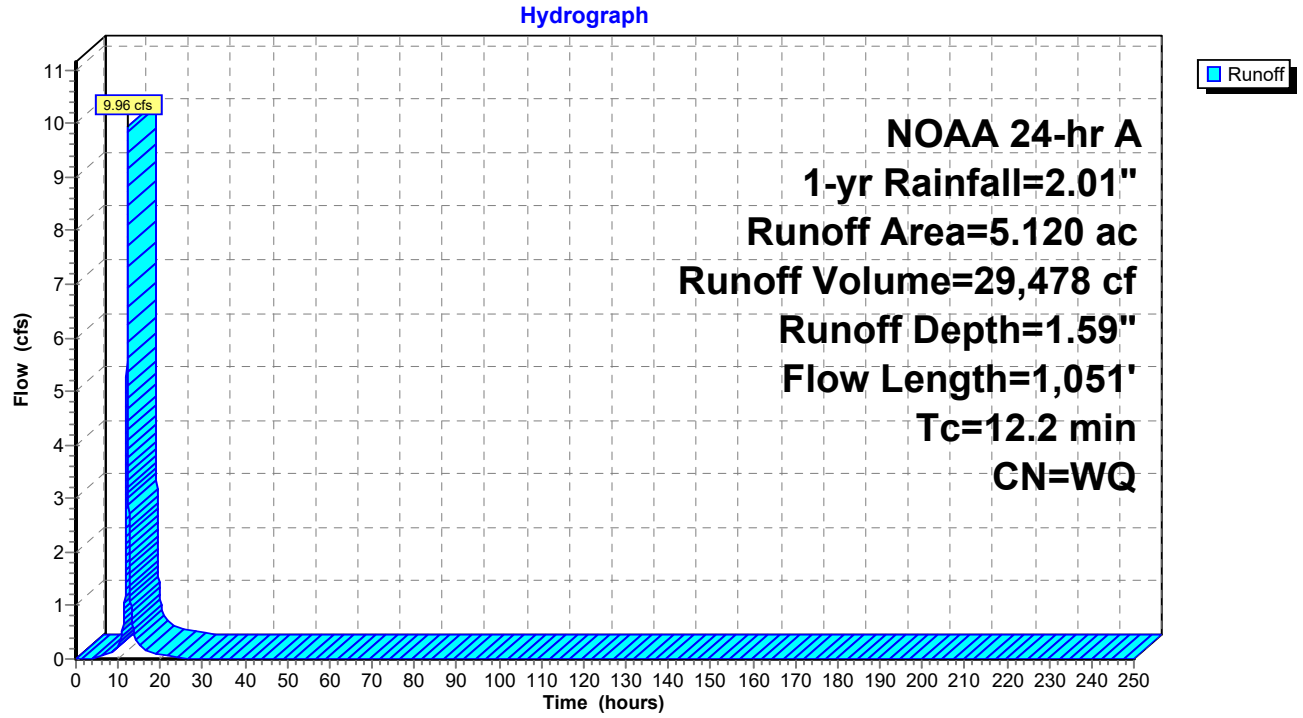
Runoff = 9.96 cfs @ 12.19 hrs, Volume= 29,478 cf, Depth= 1.59"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	2.670	98	Paved parking, HSG C
*	0.670	71	20% Impervious as Meadow, HSG C
*	1.780	98	Imp Outside LOD
	5.120		Weighted Average
	0.670		13.09% Pervious Area
	4.450		86.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

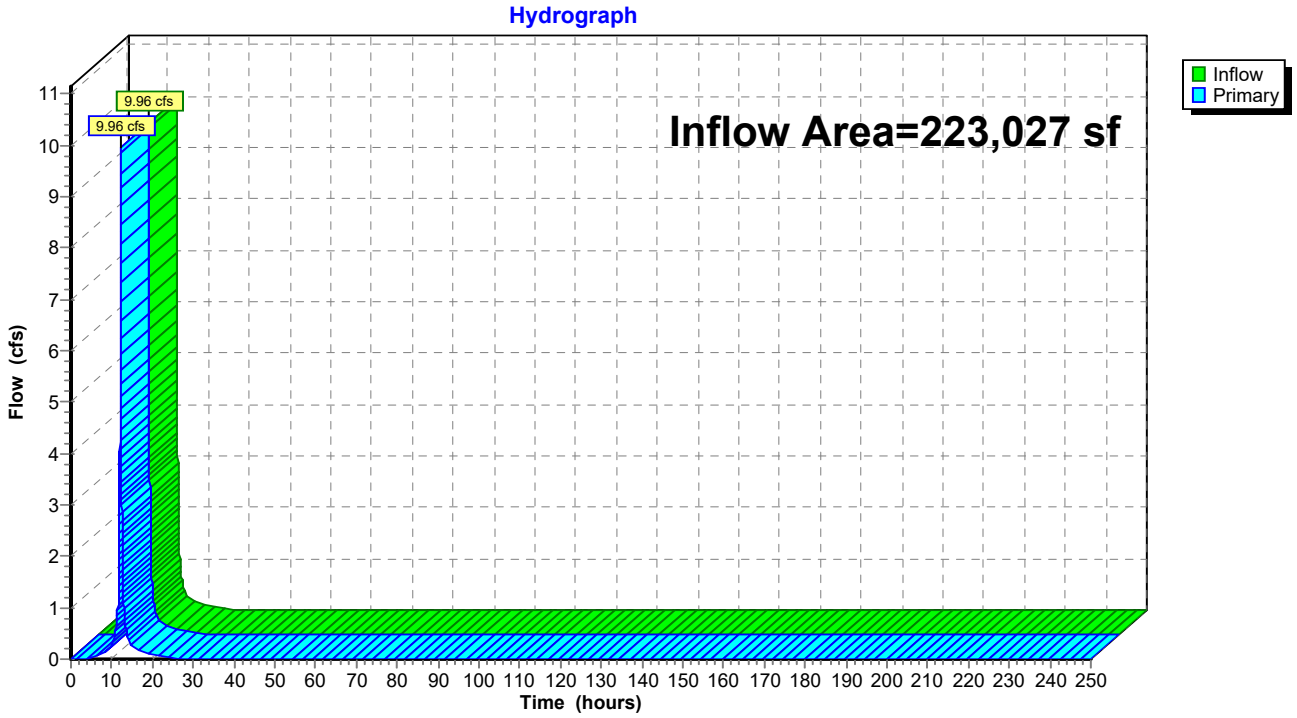


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 86.91% Impervious, Inflow Depth = 1.59" for 1-yr event
Inflow = 9.96 cfs @ 12.19 hrs, Volume= 29,478 cf
Primary = 9.96 cfs @ 12.19 hrs, Volume= 29,478 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

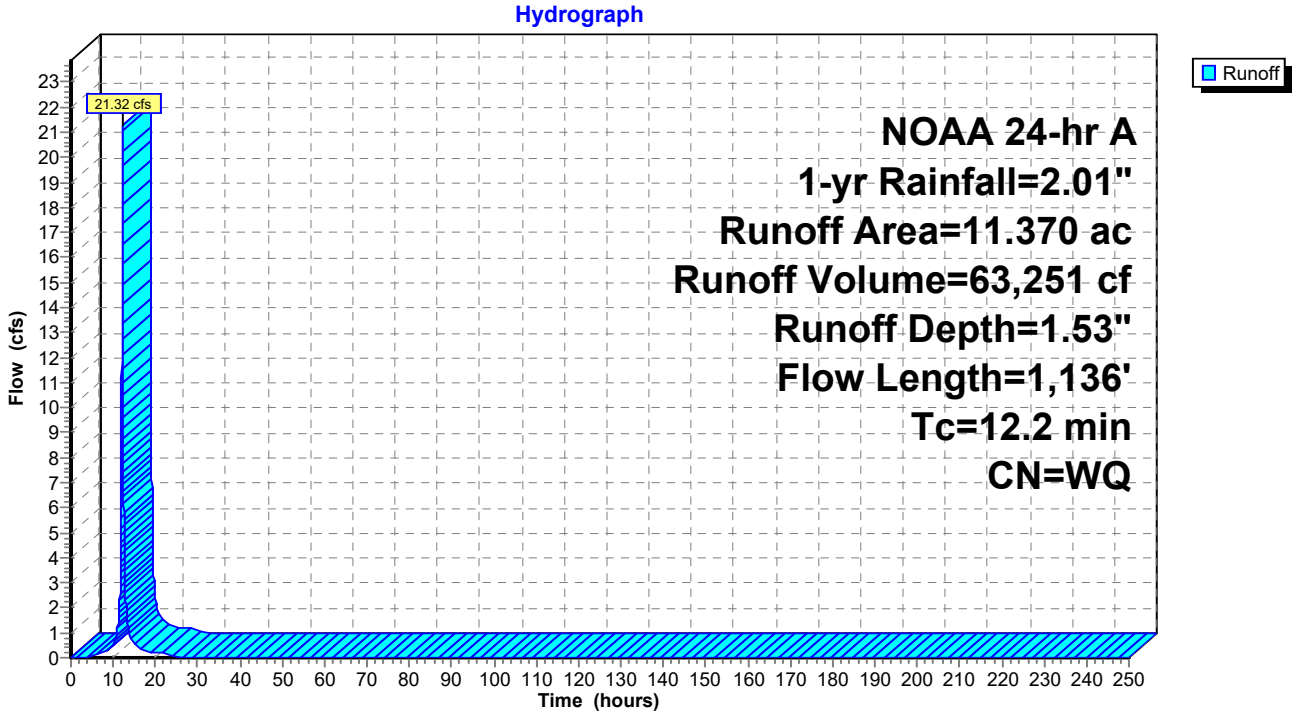
Runoff = 21.32 cfs @ 12.19 hrs, Volume= 63,251 cf, Depth= 1.53"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	7.570	98	Paved parking, HSG C
*	1.890	71	20% Impervious as Meadow, HSG C
*	1.910	98	Imp Outside LOD
	11.370		Weighted Average
	1.890		16.62% Pervious Area
	9.480		83.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

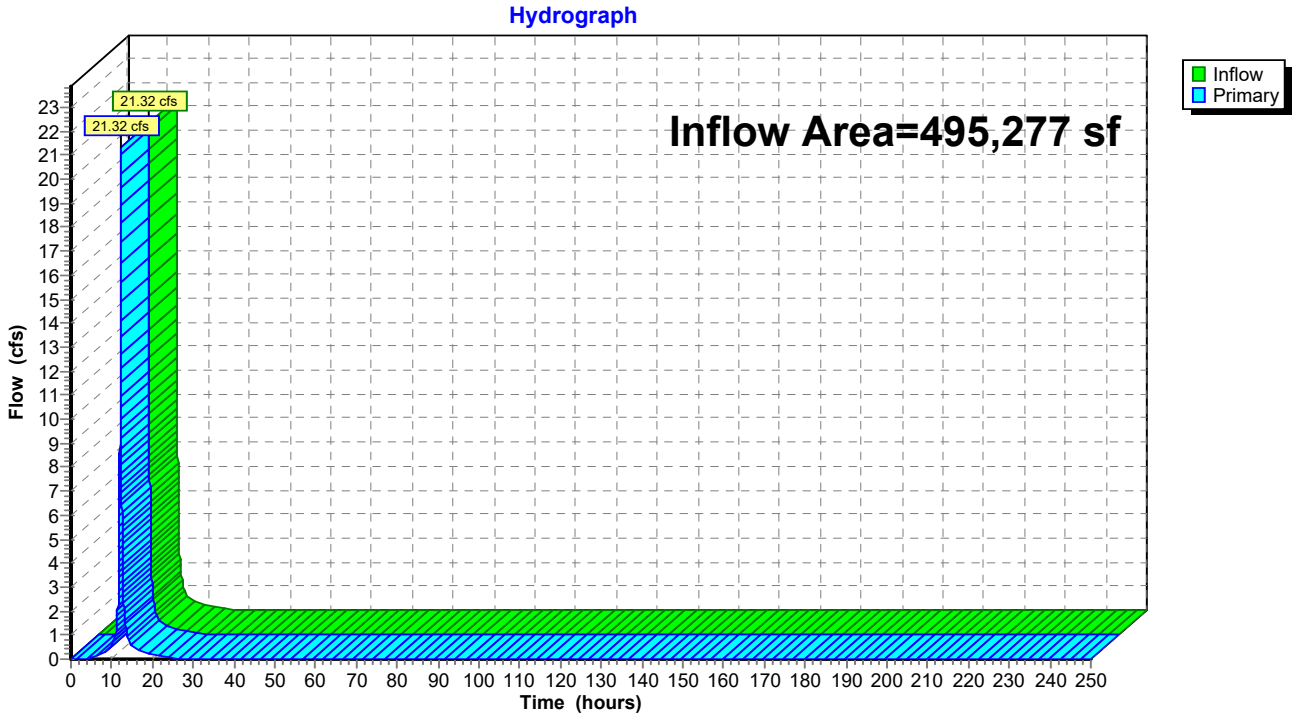


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,277 sf, 83.38% Impervious, Inflow Depth = 1.53" for 1-yr event
Inflow = 21.32 cfs @ 12.19 hrs, Volume= 63,251 cf
Primary = 21.32 cfs @ 12.19 hrs, Volume= 63,251 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

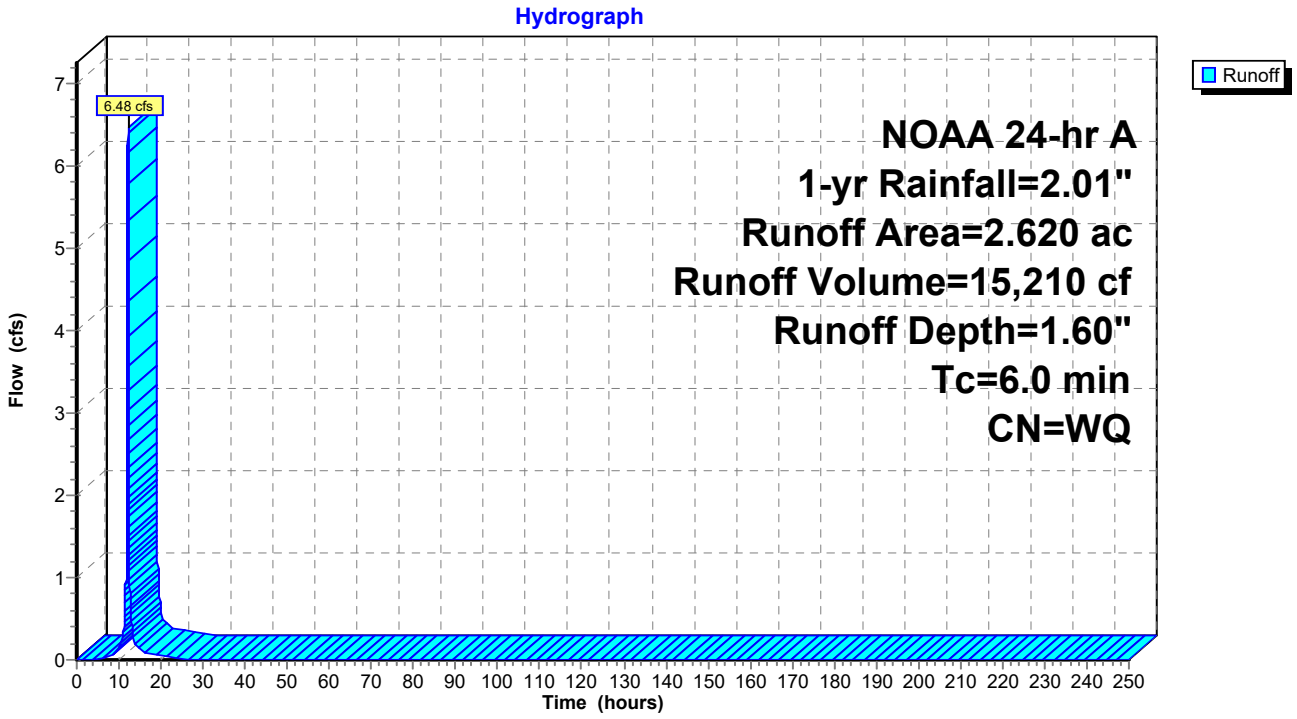
Runoff = 6.48 cfs @ 12.13 hrs, Volume= 15,210 cf, Depth= 1.60"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	1.290	98	Paved parking, HSG C
*	0.320	71	20% Impervious as Meadow, HSG C
*	1.010	98	Imp Outside LOD
	2.620		Weighted Average
	0.320		12.21% Pervious Area
	2.300		87.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

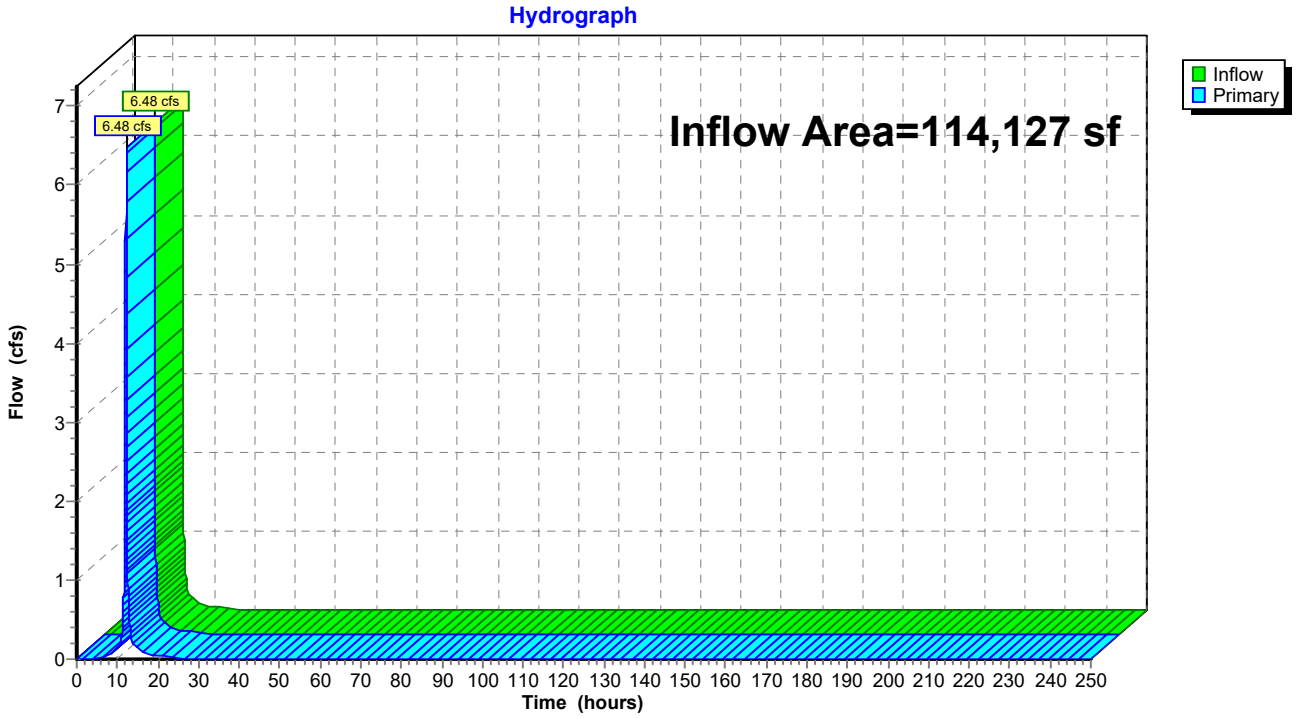


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,127 sf, 87.79% Impervious, Inflow Depth = 1.60" for 1-yr event
Inflow = 6.48 cfs @ 12.13 hrs, Volume= 15,210 cf
Primary = 6.48 cfs @ 12.13 hrs, Volume= 15,210 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

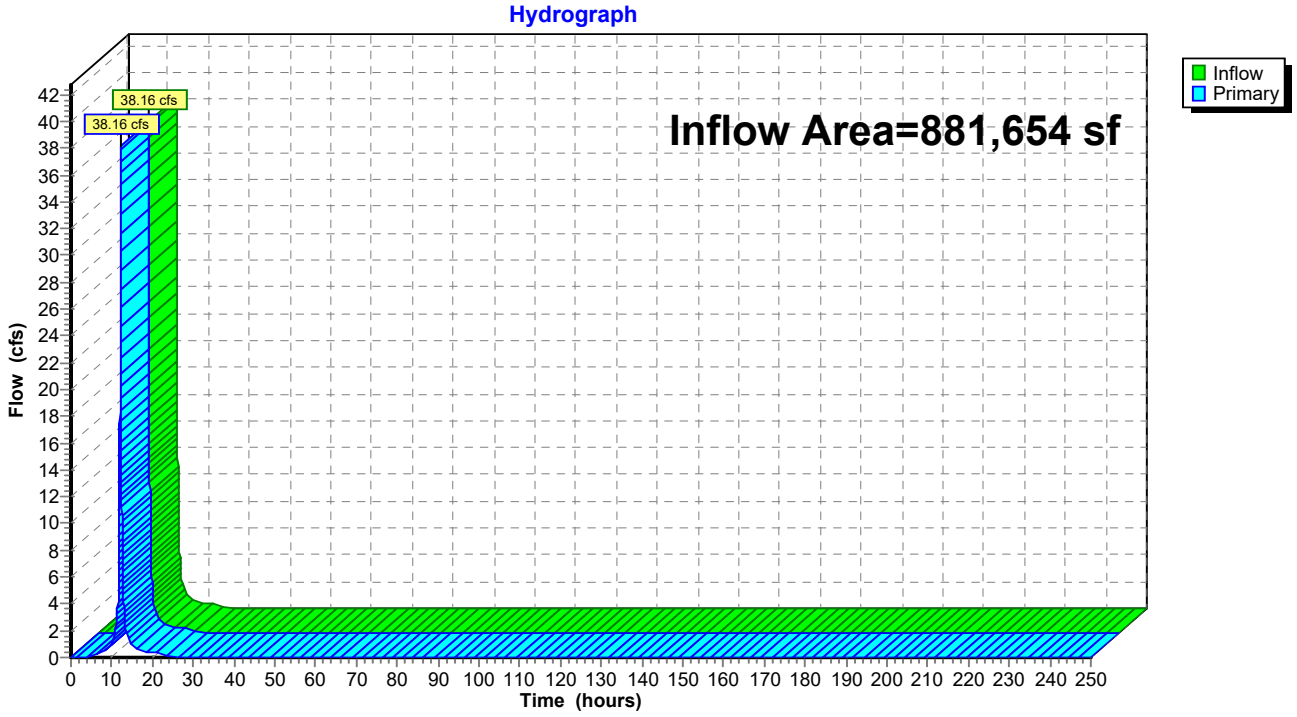


Summary for Link 9: POA 001

Inflow Area = 881,654 sf, 85.52% Impervious, Inflow Depth = 1.57" for 1-yr event
Inflow = 38.16 cfs @ 12.17 hrs, Volume= 114,984 cf
Primary = 38.16 cfs @ 12.17 hrs, Volume= 114,984 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: POA 001



Summary for Subcatchment 1: Pre-Development DA-1

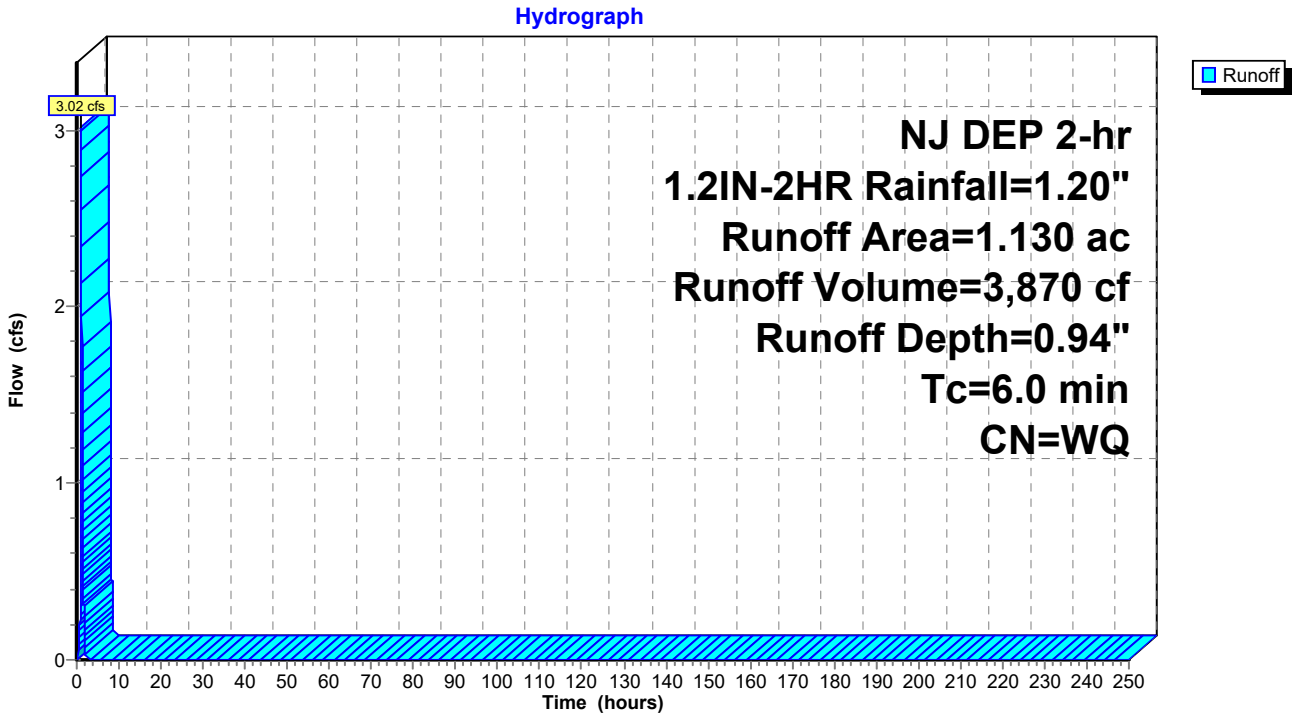
Runoff = 3.02 cfs @ 1.11 hrs, Volume= 3,870 cf, Depth= 0.94"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	0.210	98	Paved parking, HSG C
*	0.050	71	20% Impervious as Meadow, HSG C
*	0.870	98	Imp Outside LOD
	1.130		Weighted Average
	0.050		4.42% Pervious Area
	1.080		95.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

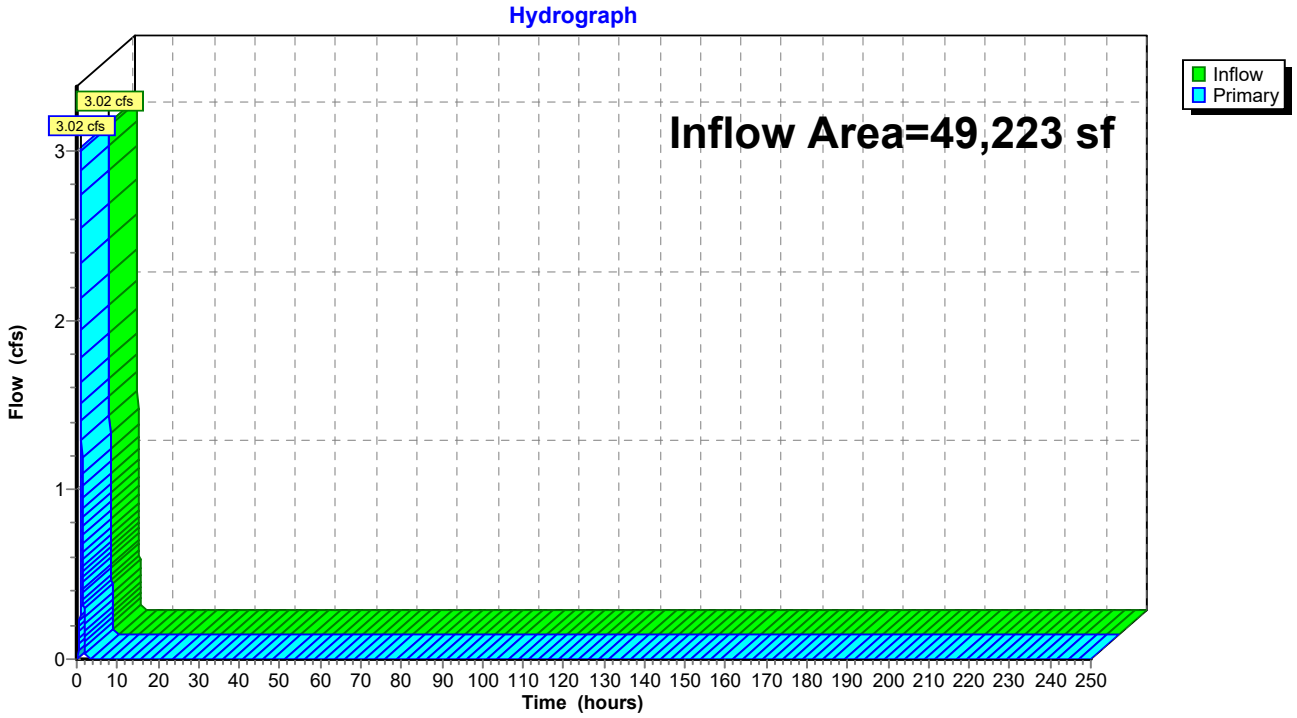


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,223 sf, 95.58% Impervious, Inflow Depth = 0.94" for 1.2IN-2HR event
Inflow = 3.02 cfs @ 1.11 hrs, Volume= 3,870 cf
Primary = 3.02 cfs @ 1.11 hrs, Volume= 3,870 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

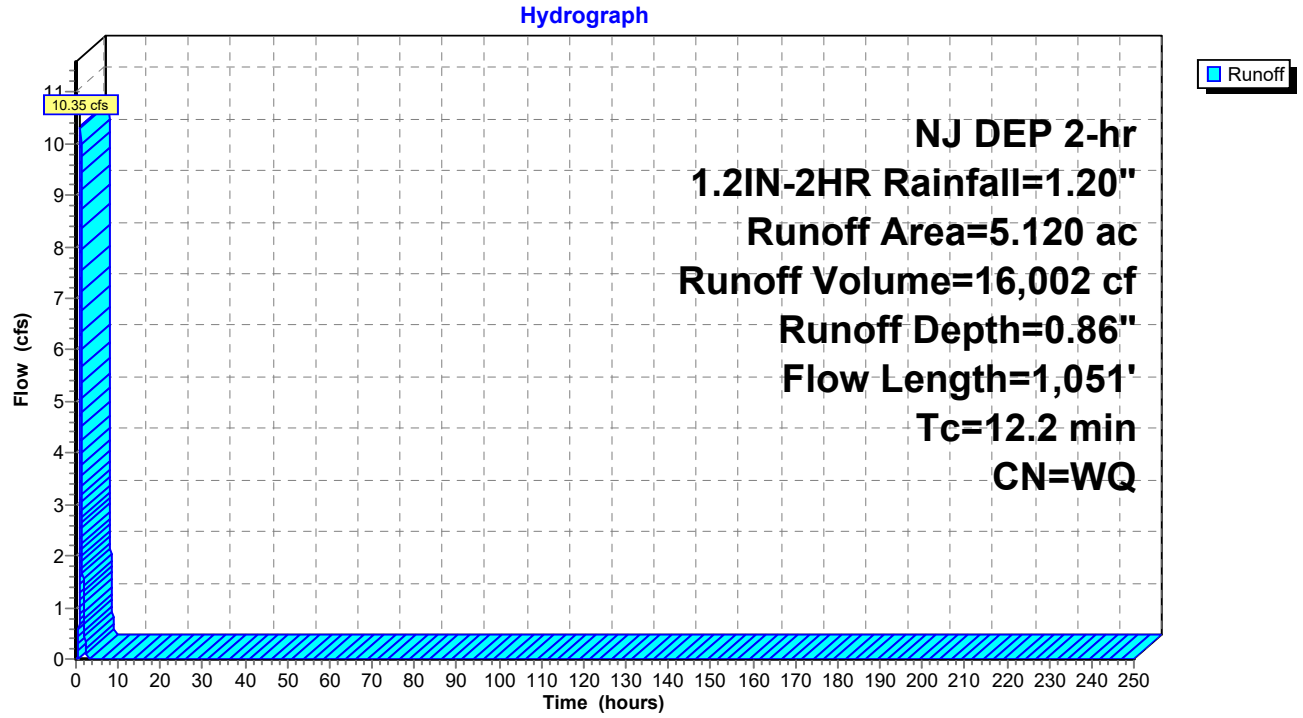
Runoff = 10.35 cfs @ 1.17 hrs, Volume= 16,002 cf, Depth= 0.86"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	2.670	98	Paved parking, HSG C
*	0.670	71	20% Impervious as Meadow, HSG C
*	1.780	98	Imp Outside LOD
	5.120		Weighted Average
	0.670		13.09% Pervious Area
	4.450		86.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

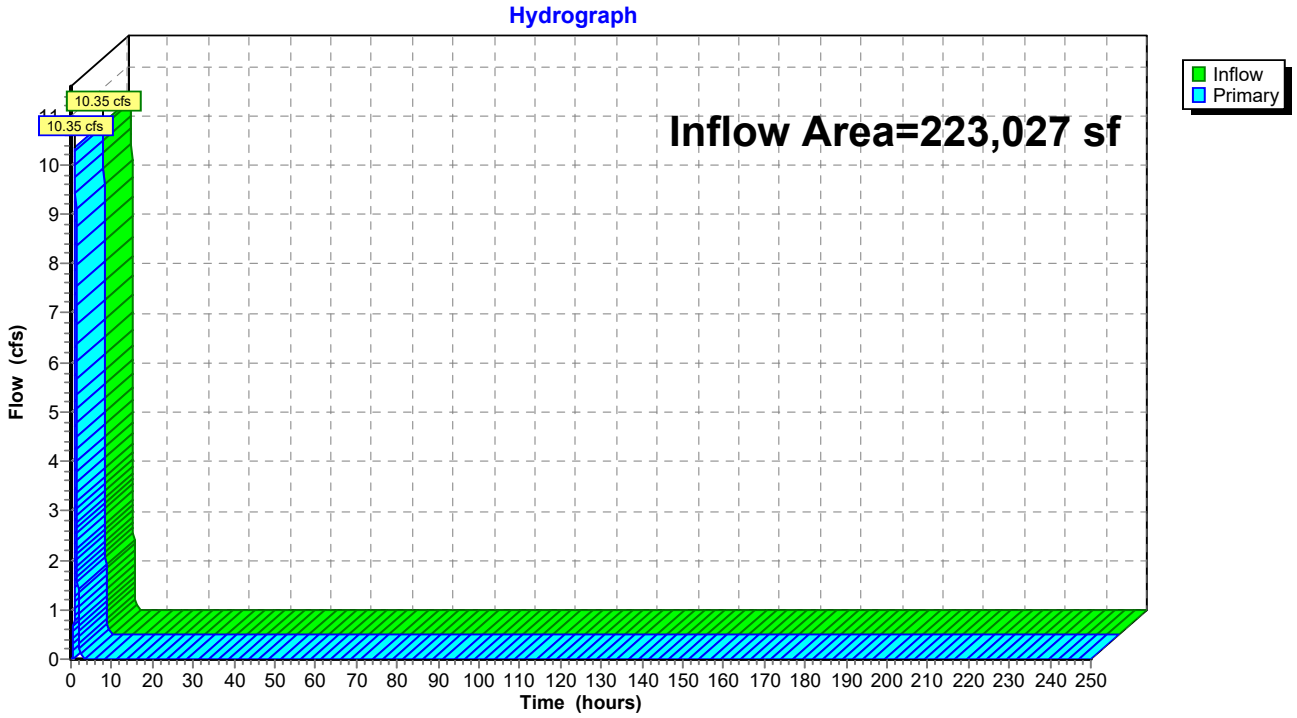


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 86.91% Impervious, Inflow Depth = 0.86" for 1.2IN-2HR event
Inflow = 10.35 cfs @ 1.17 hrs, Volume= 16,002 cf
Primary = 10.35 cfs @ 1.17 hrs, Volume= 16,002 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

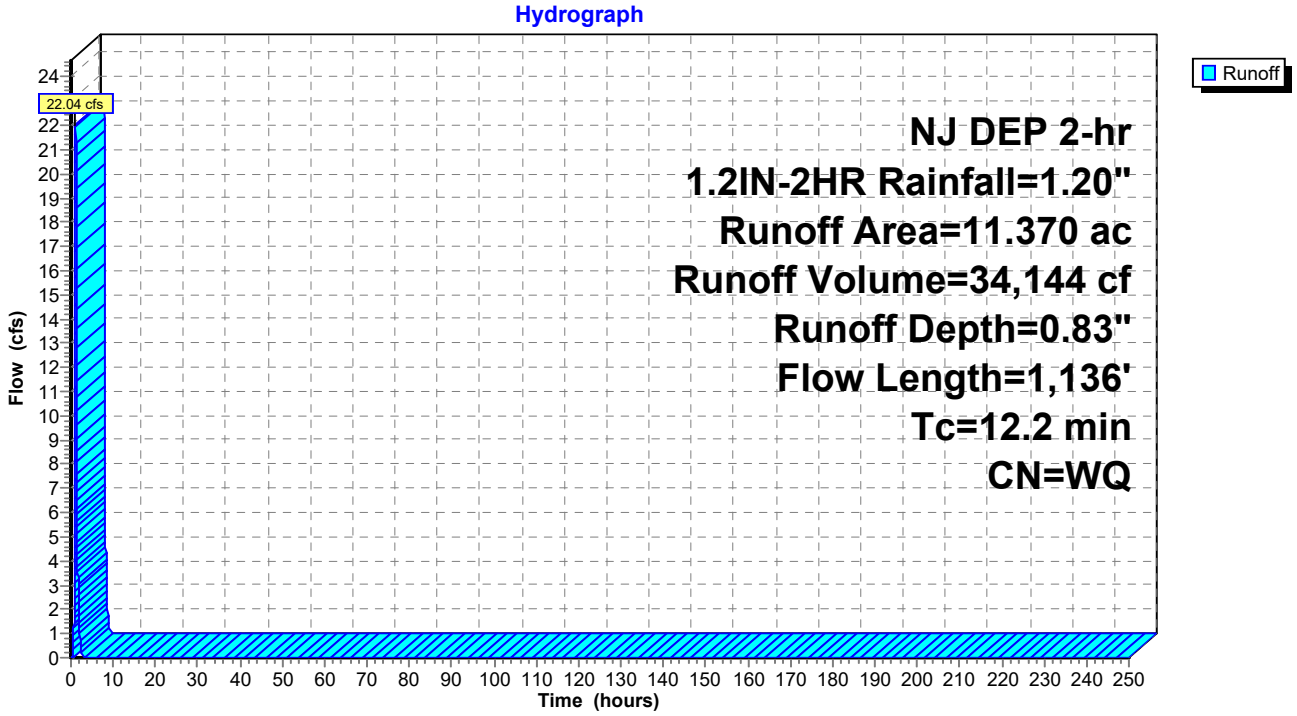
Runoff = 22.04 cfs @ 1.17 hrs, Volume= 34,144 cf, Depth= 0.83"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	7.570	98	Paved parking, HSG C
*	1.890	71	20% Impervious as Meadow, HSG C
*	1.910	98	Imp Outside LOD
	11.370		Weighted Average
	1.890		16.62% Pervious Area
	9.480		83.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

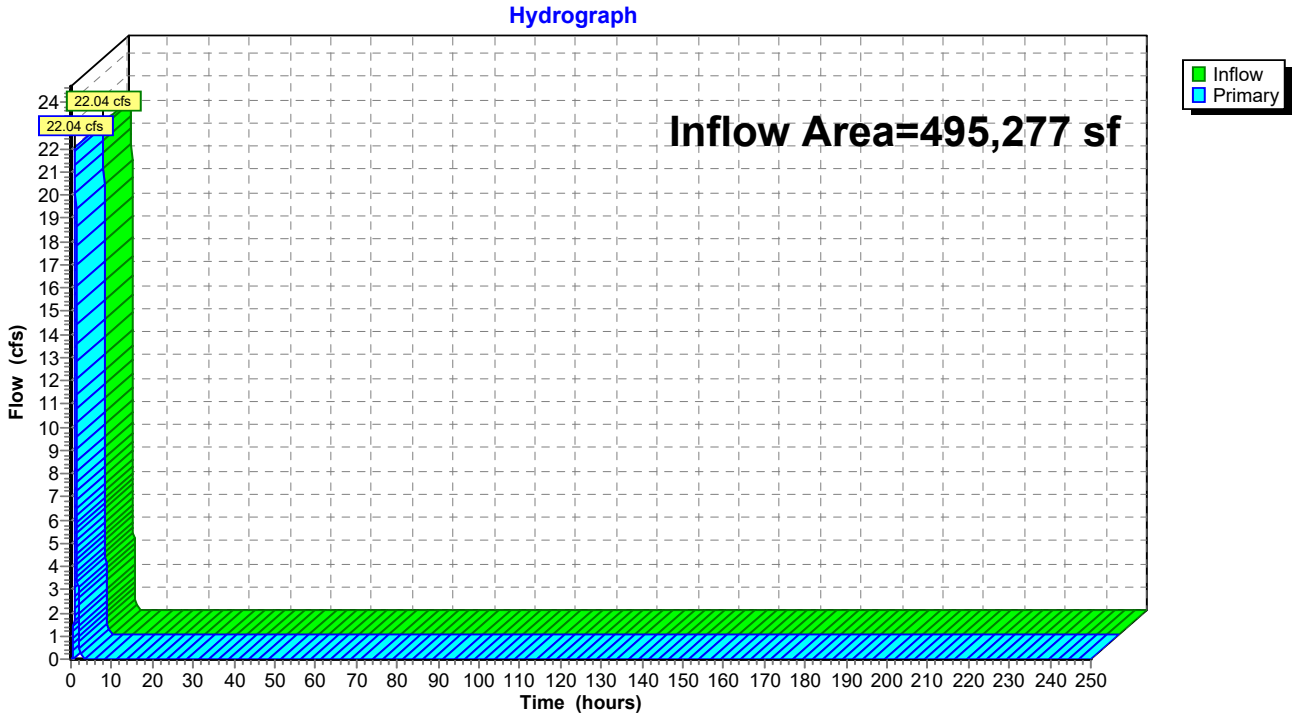


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,277 sf, 83.38% Impervious, Inflow Depth = 0.83" for 1.2IN-2HR event
Inflow = 22.04 cfs @ 1.17 hrs, Volume= 34,144 cf
Primary = 22.04 cfs @ 1.17 hrs, Volume= 34,144 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

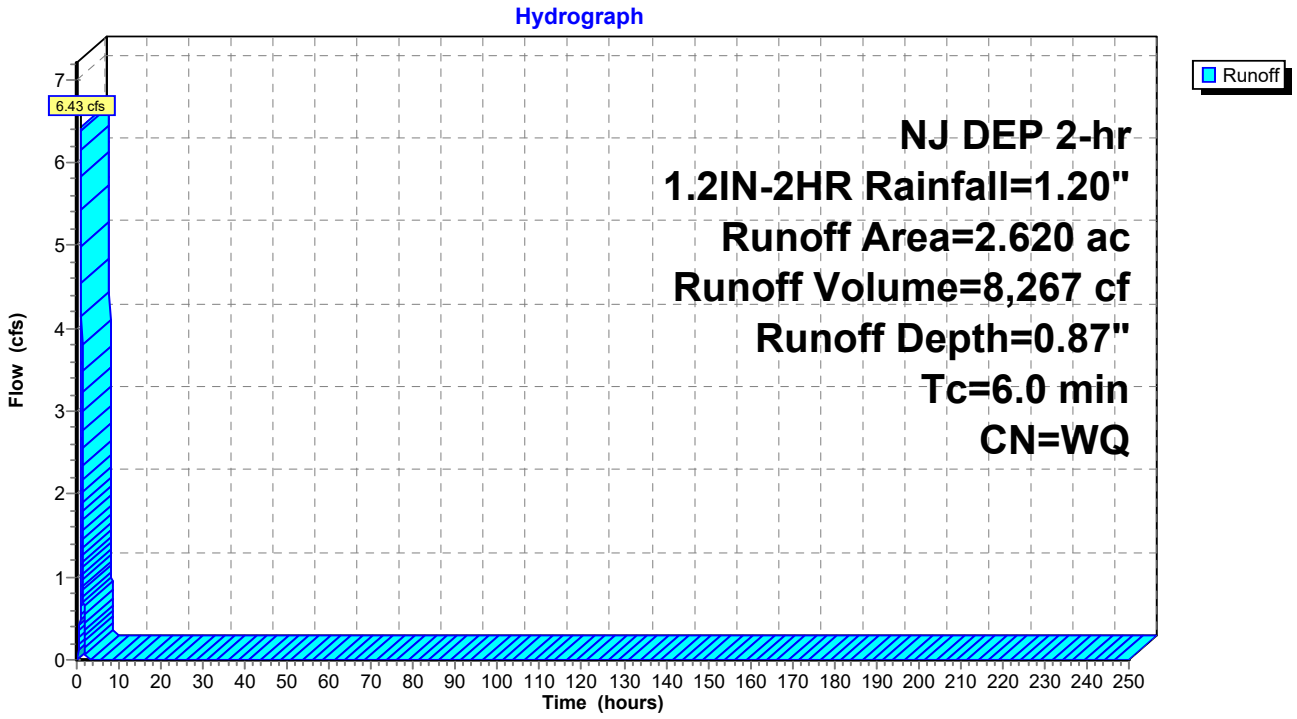
Runoff = 6.43 cfs @ 1.11 hrs, Volume= 8,267 cf, Depth= 0.87"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	1.290	98	Paved parking, HSG C
*	0.320	71	20% Impervious as Meadow, HSG C
*	1.010	98	Imp Outside LOD
	2.620		Weighted Average
	0.320		12.21% Pervious Area
	2.300		87.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

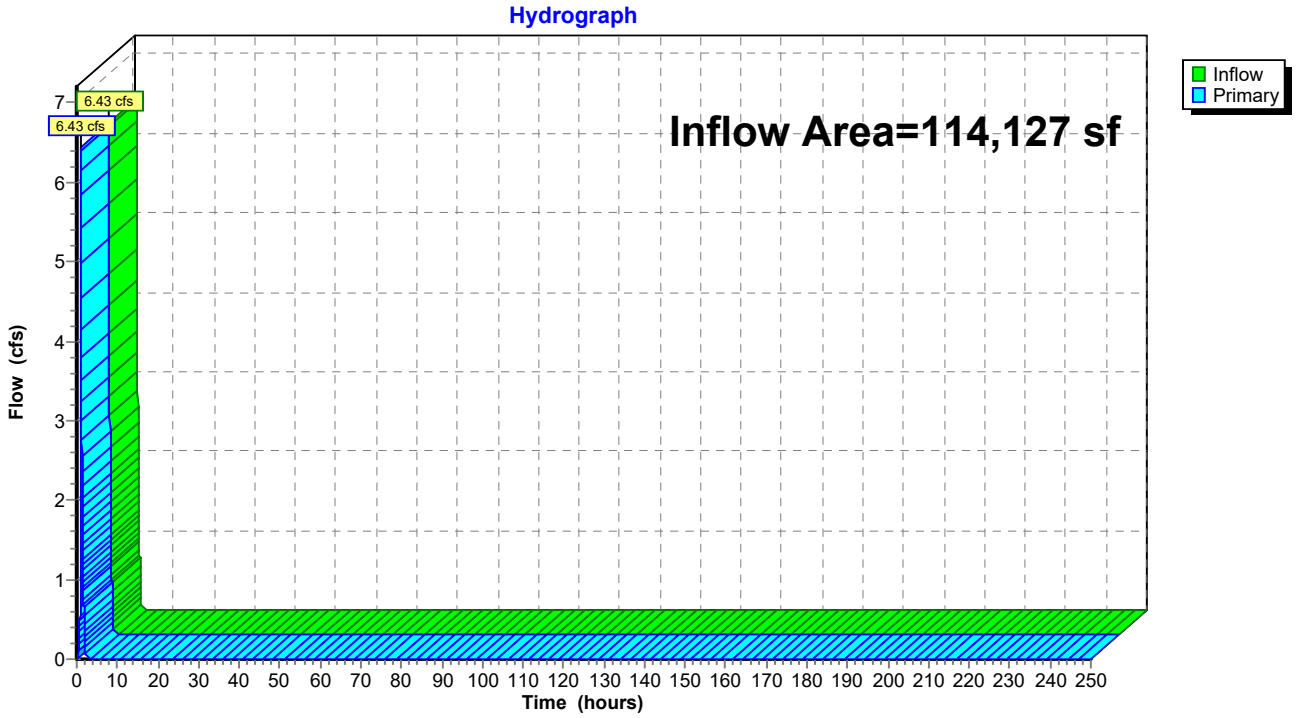


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,127 sf, 87.79% Impervious, Inflow Depth = 0.87" for 1.2IN-2HR event
Inflow = 6.43 cfs @ 1.11 hrs, Volume= 8,267 cf
Primary = 6.43 cfs @ 1.11 hrs, Volume= 8,267 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

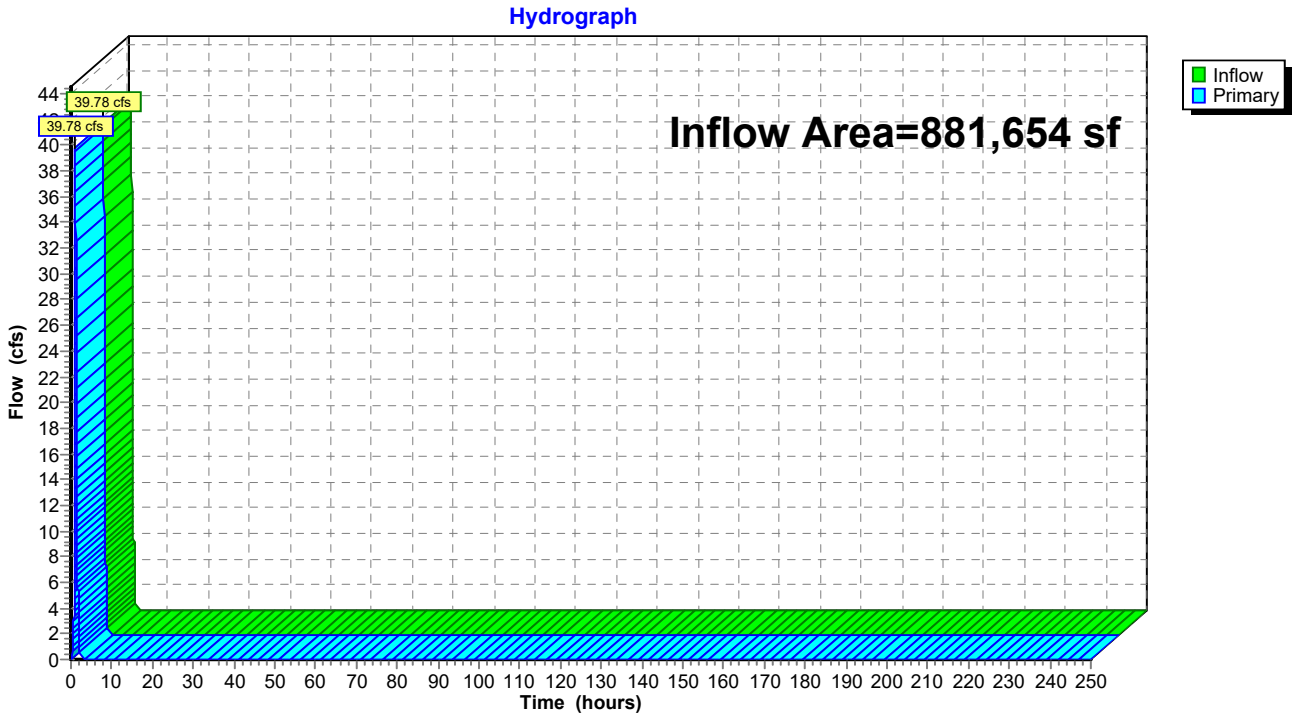


Summary for Link 9: POA 001

Inflow Area = 881,654 sf, 85.52% Impervious, Inflow Depth = 0.85" for 1.2IN-2HR event
Inflow = 39.78 cfs @ 1.15 hrs, Volume= 62,283 cf
Primary = 39.78 cfs @ 1.15 hrs, Volume= 62,283 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: POA 001



Summary for Subcatchment 1: Pre-Development DA-1

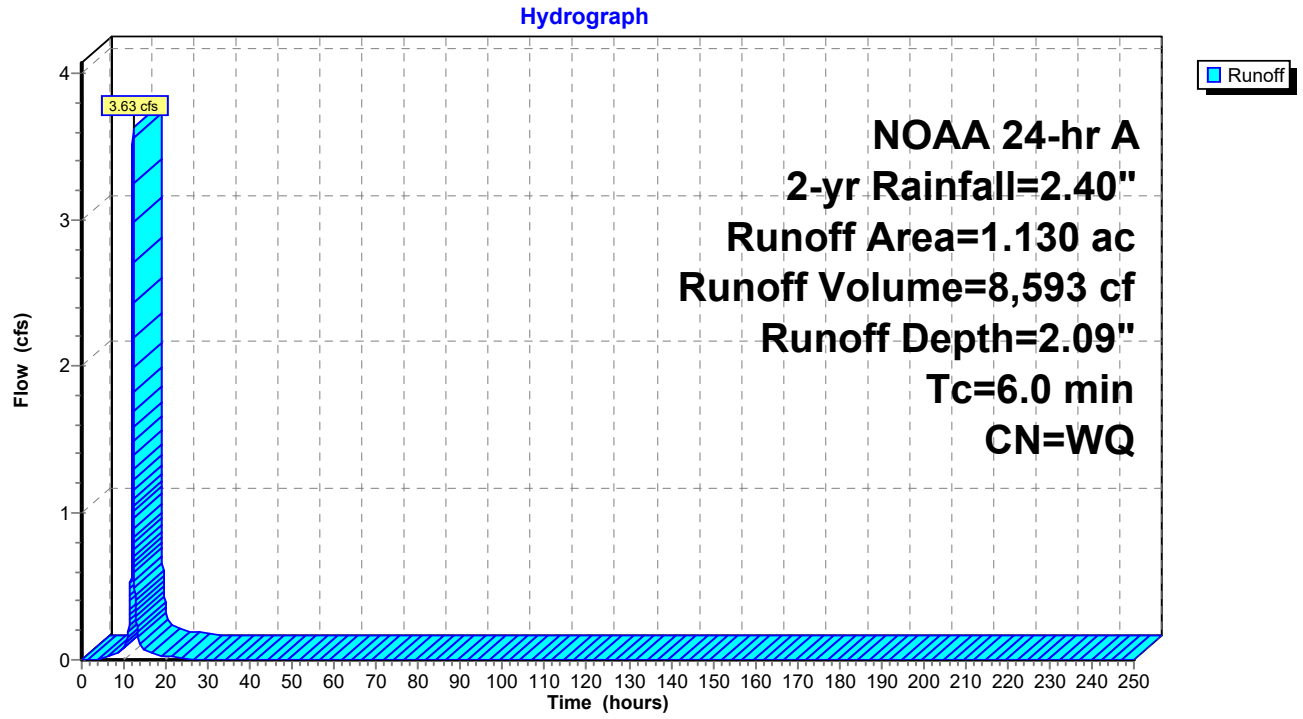
Runoff = 3.63 cfs @ 12.13 hrs, Volume= 8,593 cf, Depth= 2.09"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	0.210	98	Paved parking, HSG C
*	0.050	71	20% Impervious as Meadow, HSG C
*	0.870	98	Imp Outside LOD
	1.130		Weighted Average
	0.050		4.42% Pervious Area
	1.080		95.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

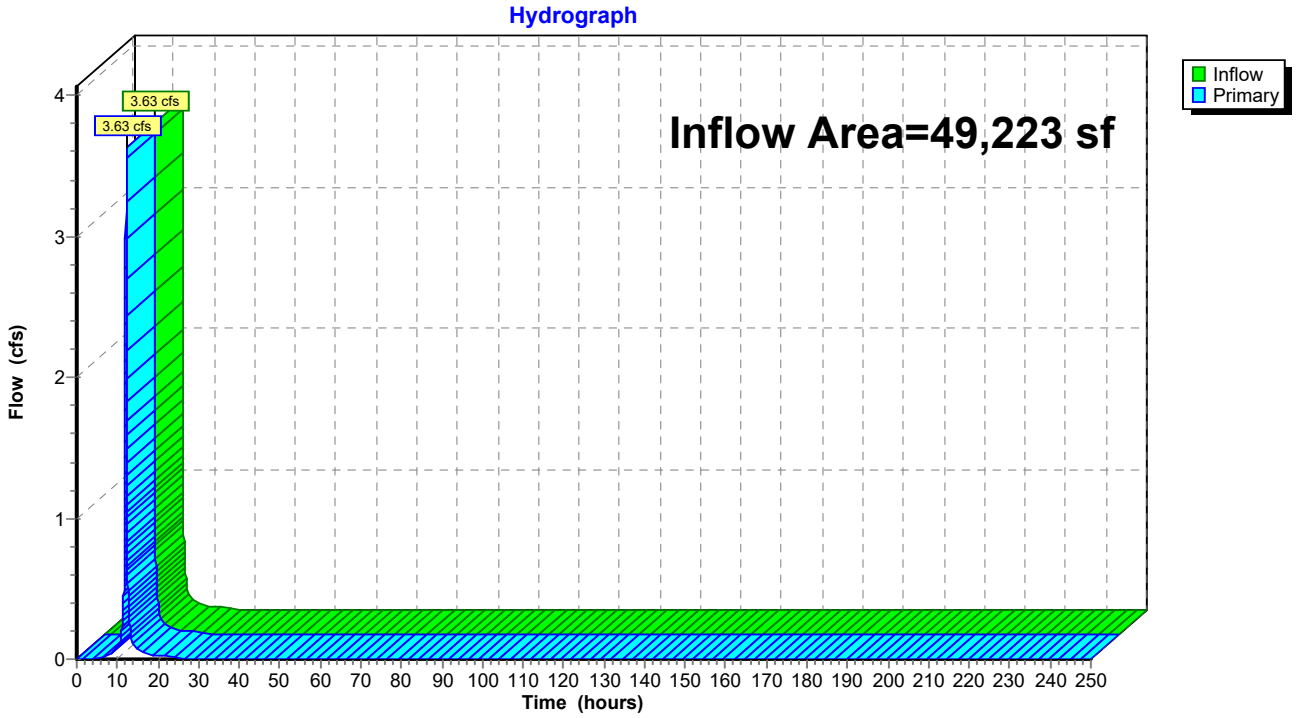


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,223 sf, 95.58% Impervious, Inflow Depth = 2.09" for 2-yr event
Inflow = 3.63 cfs @ 12.13 hrs, Volume= 8,593 cf
Primary = 3.63 cfs @ 12.13 hrs, Volume= 8,593 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

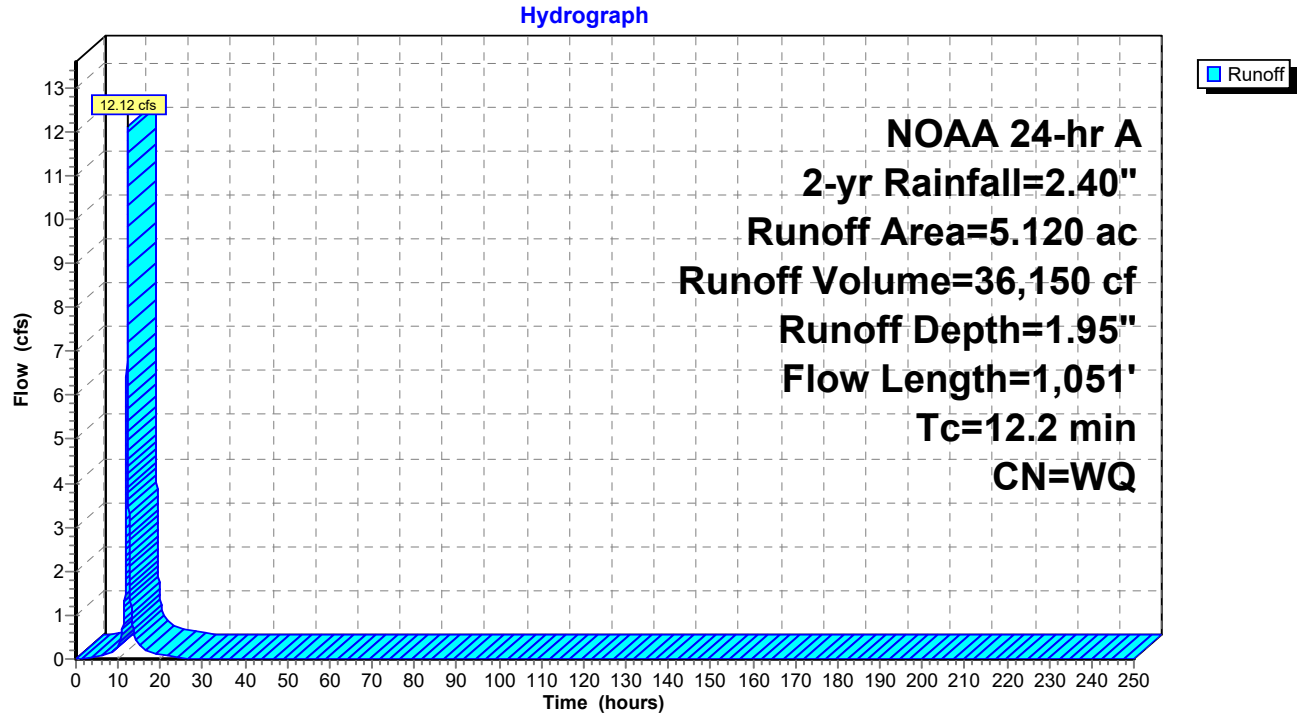
Runoff = 12.12 cfs @ 12.19 hrs, Volume= 36,150 cf, Depth= 1.95"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	2.670	98	Paved parking, HSG C
*	0.670	71	20% Impervious as Meadow, HSG C
*	1.780	98	Imp Outside LOD
	5.120		Weighted Average
	0.670		13.09% Pervious Area
	4.450		86.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

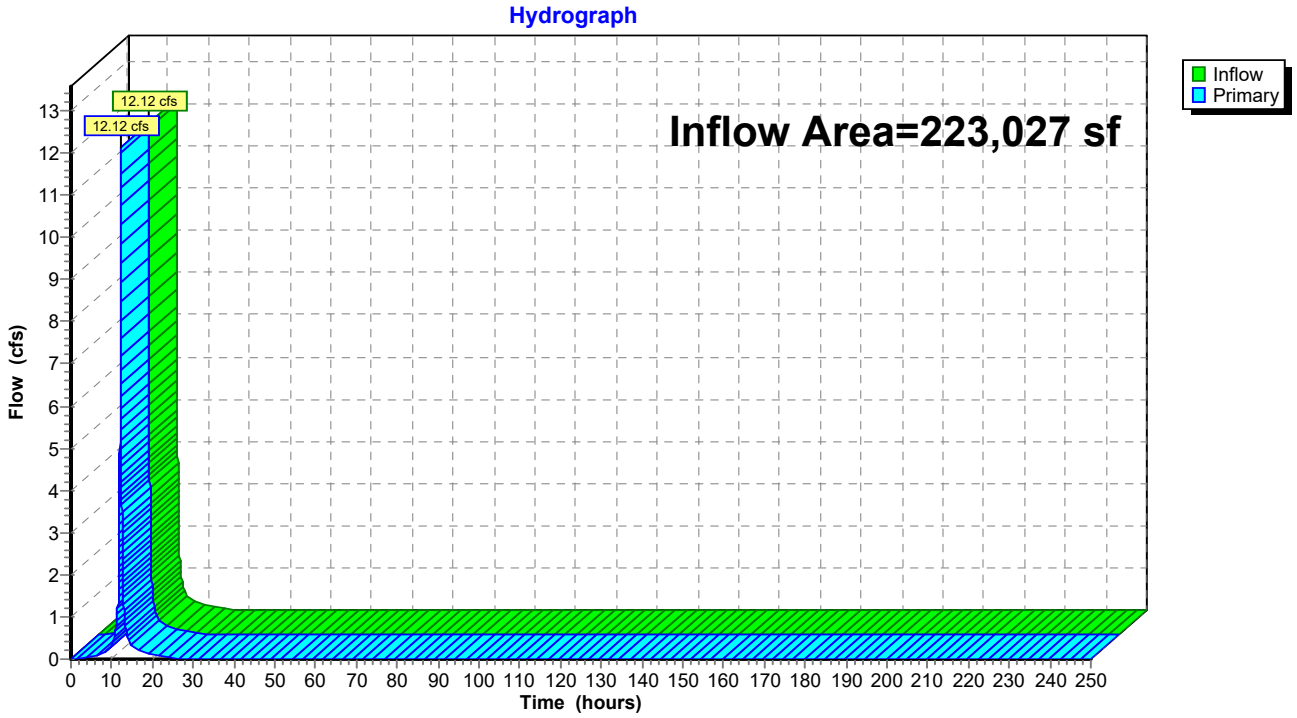


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 86.91% Impervious, Inflow Depth = 1.95" for 2-yr event
Inflow = 12.12 cfs @ 12.19 hrs, Volume= 36,150 cf
Primary = 12.12 cfs @ 12.19 hrs, Volume= 36,150 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

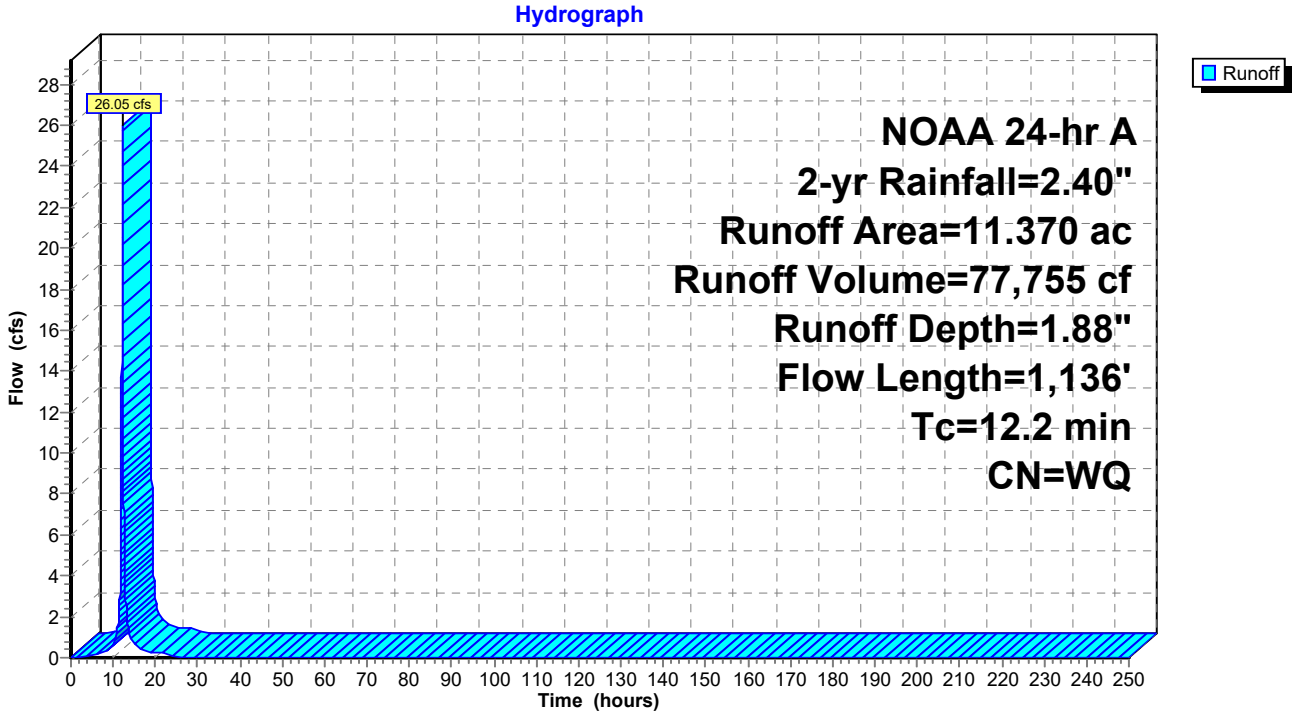
Runoff = 26.05 cfs @ 12.19 hrs, Volume= 77,755 cf, Depth= 1.88"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	7.570	98	Paved parking, HSG C
*	1.890	71	20% Impervious as Meadow, HSG C
*	1.910	98	Imp Outside LOD
	11.370		Weighted Average
	1.890		16.62% Pervious Area
	9.480		83.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

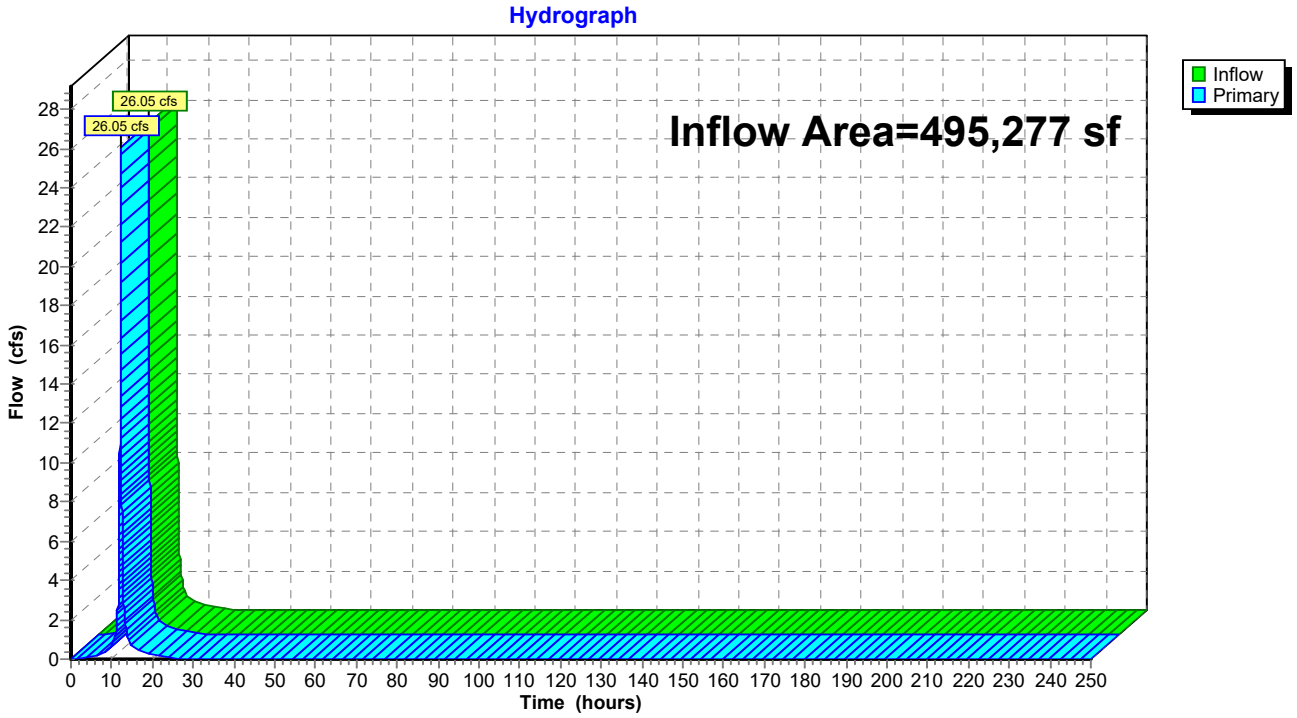


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,277 sf, 83.38% Impervious, Inflow Depth = 1.88" for 2-yr event
Inflow = 26.05 cfs @ 12.19 hrs, Volume= 77,755 cf
Primary = 26.05 cfs @ 12.19 hrs, Volume= 77,755 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

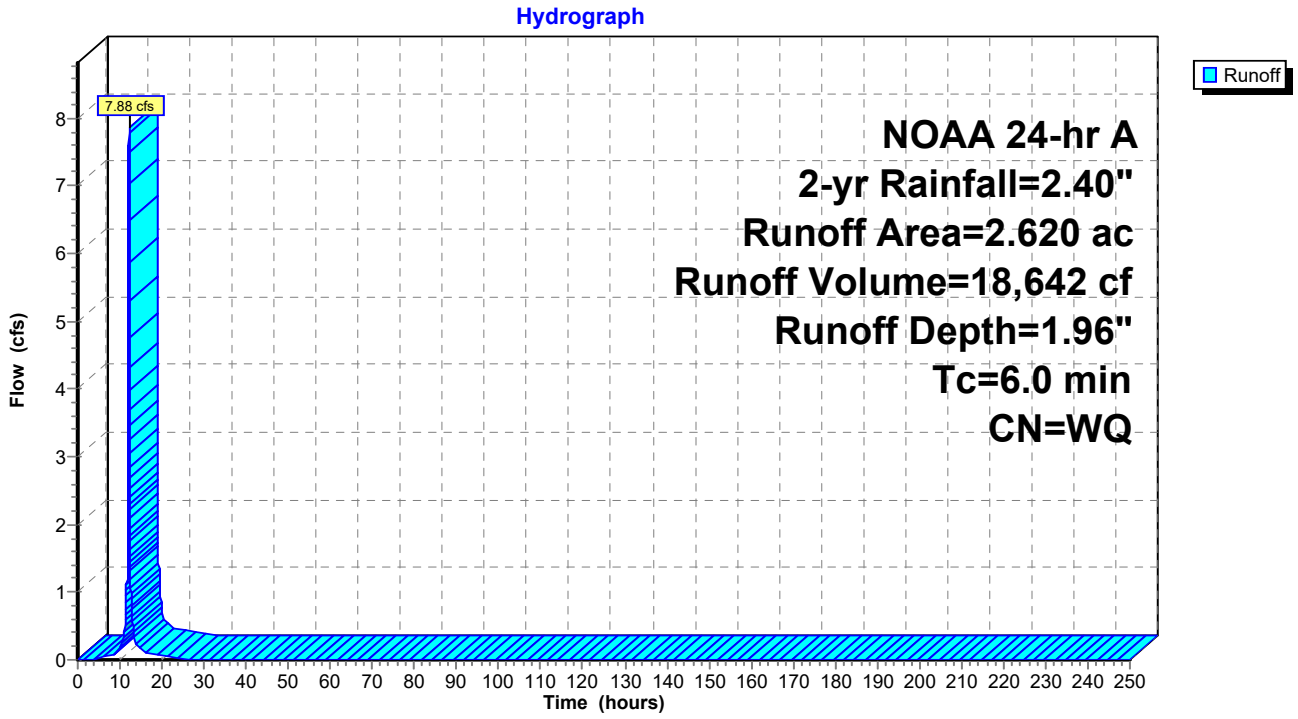
Runoff = 7.88 cfs @ 12.13 hrs, Volume= 18,642 cf, Depth= 1.96"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	1.290	98	Paved parking, HSG C
*	0.320	71	20% Impervious as Meadow, HSG C
*	1.010	98	Imp Outside LOD
	2.620		Weighted Average
	0.320		12.21% Pervious Area
	2.300		87.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

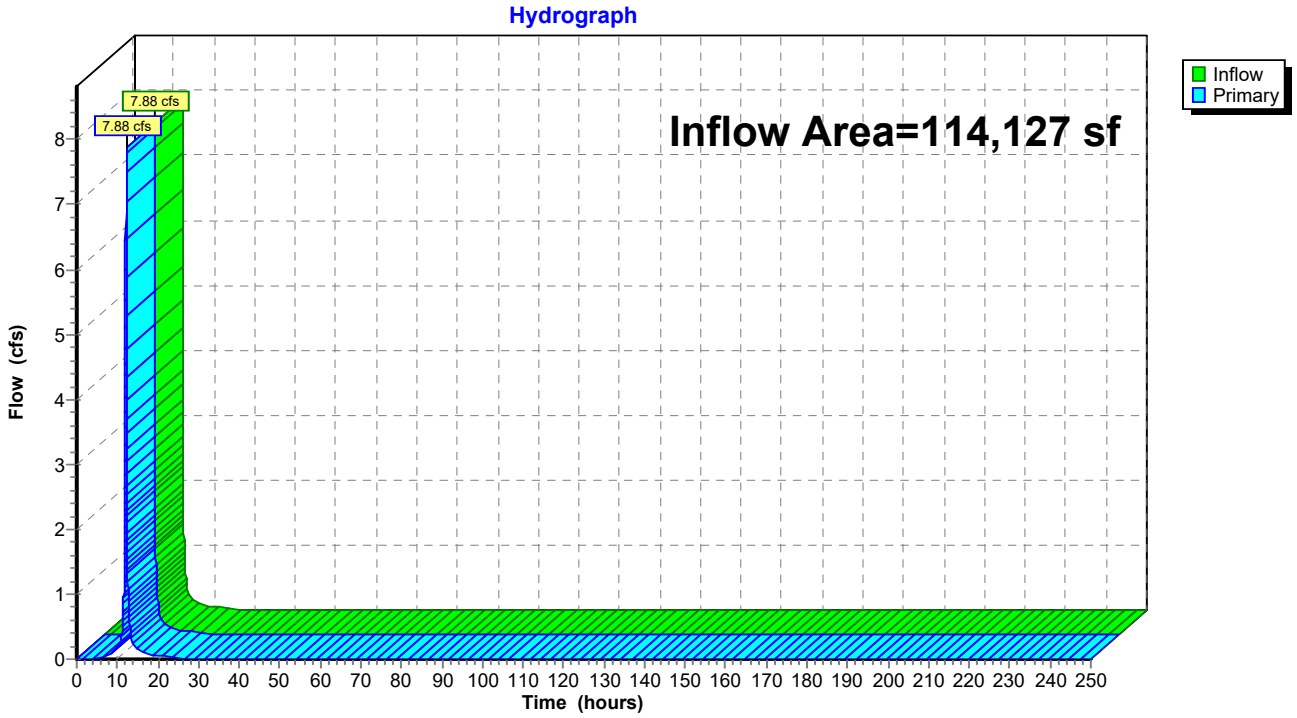


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,127 sf, 87.79% Impervious, Inflow Depth = 1.96" for 2-yr event
Inflow = 7.88 cfs @ 12.13 hrs, Volume= 18,642 cf
Primary = 7.88 cfs @ 12.13 hrs, Volume= 18,642 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

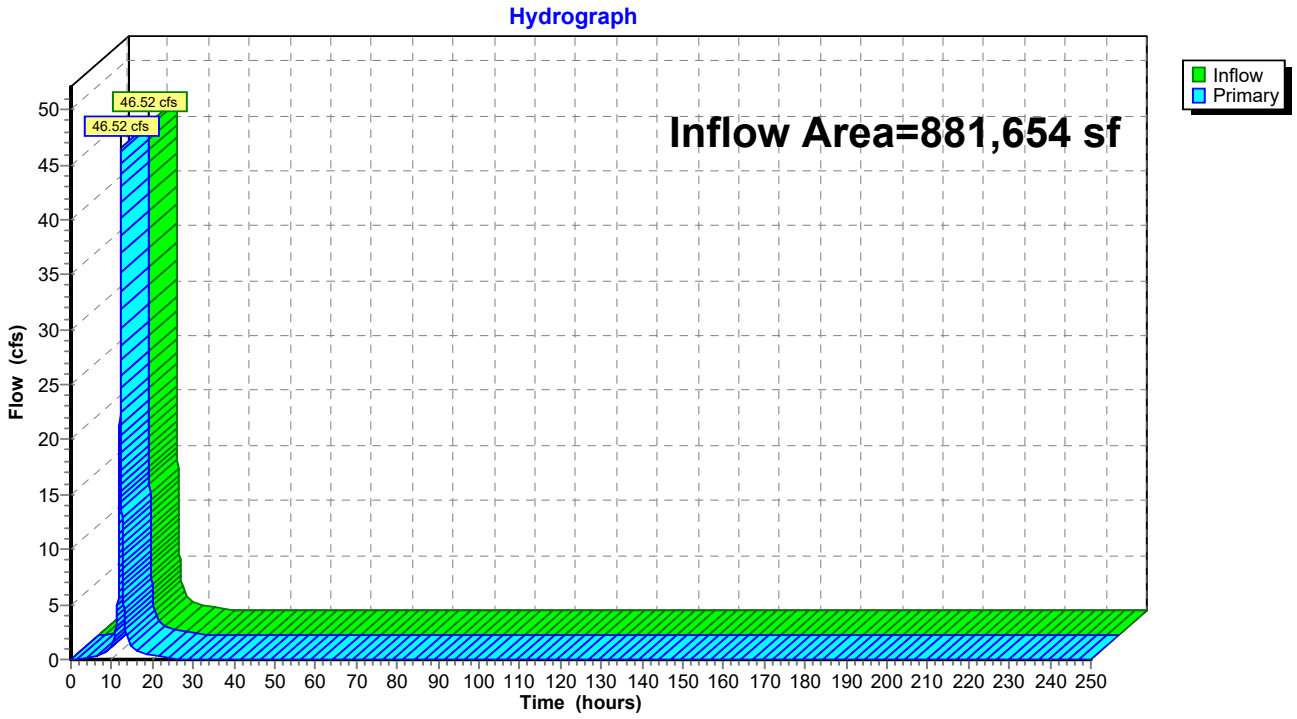


Summary for Link 9: POA 001

Inflow Area = 881,654 sf, 85.52% Impervious, Inflow Depth = 1.92" for 2-yr event
Inflow = 46.52 cfs @ 12.17 hrs, Volume= 141,141 cf
Primary = 46.52 cfs @ 12.17 hrs, Volume= 141,141 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: POA 001



Summary for Subcatchment 1: Pre-Development DA-1

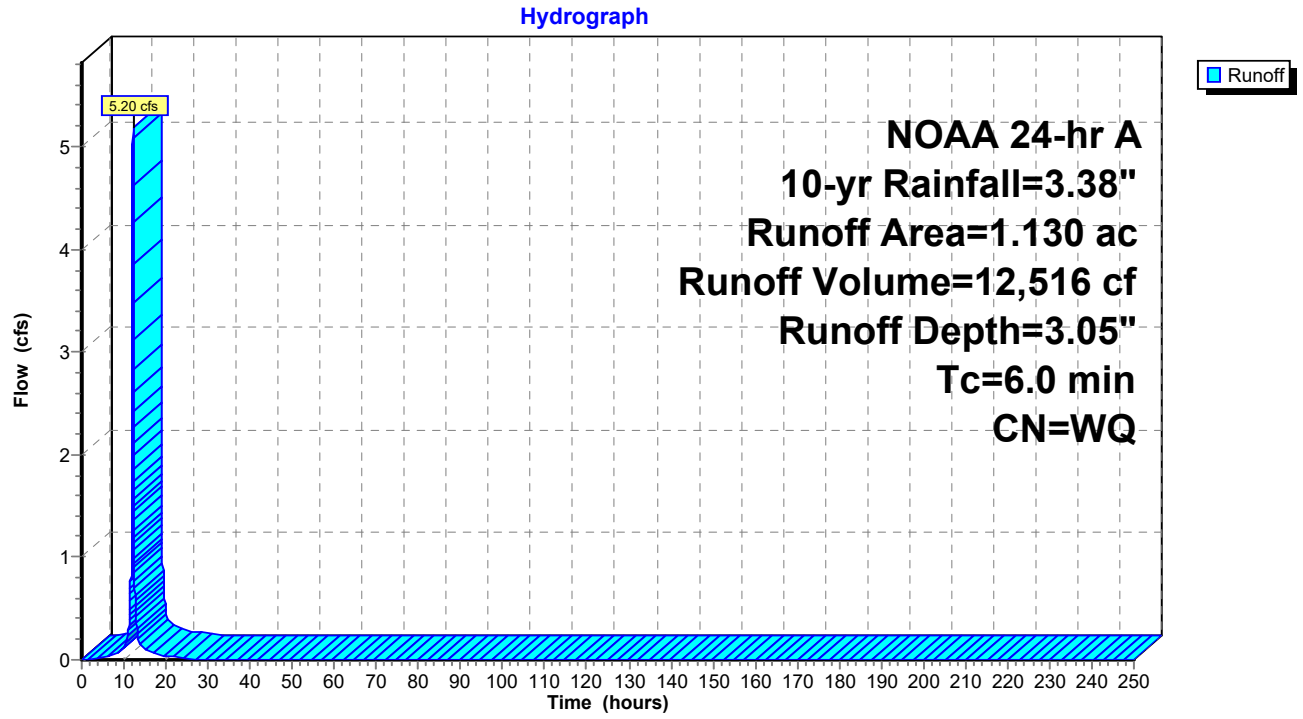
Runoff = 5.20 cfs @ 12.13 hrs, Volume= 12,516 cf, Depth= 3.05"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	0.210	98	Paved parking, HSG C
*	0.050	71	20% Impervious as Meadow, HSG C
*	0.870	98	Imp Outside LOD
	1.130		Weighted Average
	0.050		4.42% Pervious Area
	1.080		95.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

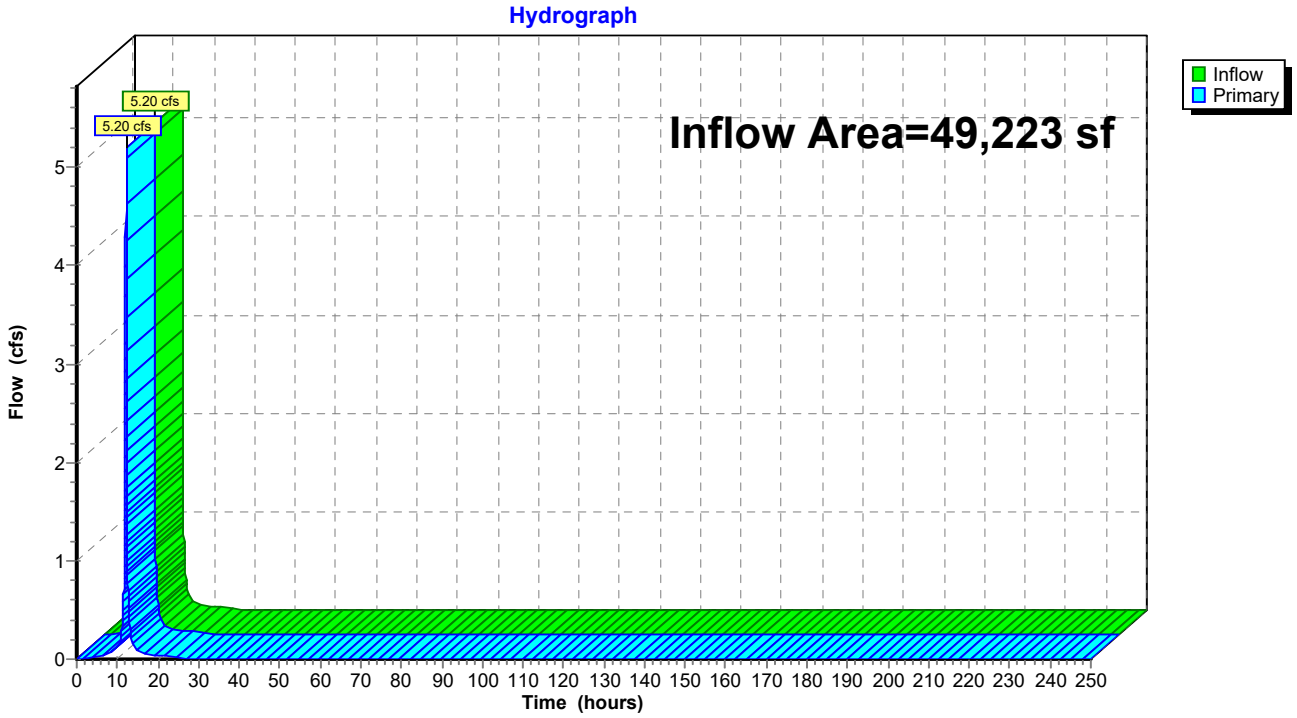


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,223 sf, 95.58% Impervious, Inflow Depth = 3.05" for 10-yr event
Inflow = 5.20 cfs @ 12.13 hrs, Volume= 12,516 cf
Primary = 5.20 cfs @ 12.13 hrs, Volume= 12,516 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

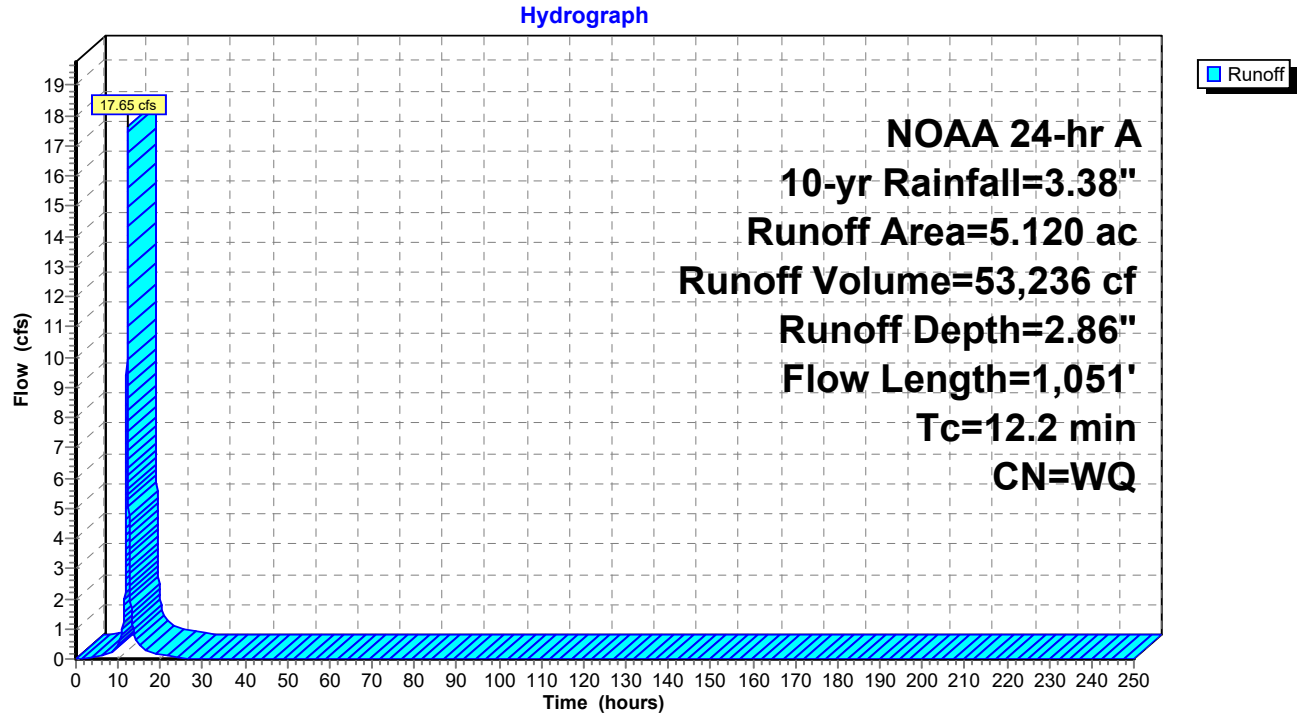
Runoff = 17.65 cfs @ 12.19 hrs, Volume= 53,236 cf, Depth= 2.86"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	2.670	98	Paved parking, HSG C
*	0.670	71	20% Impervious as Meadow, HSG C
*	1.780	98	Imp Outside LOD
	5.120		Weighted Average
	0.670		13.09% Pervious Area
	4.450		86.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

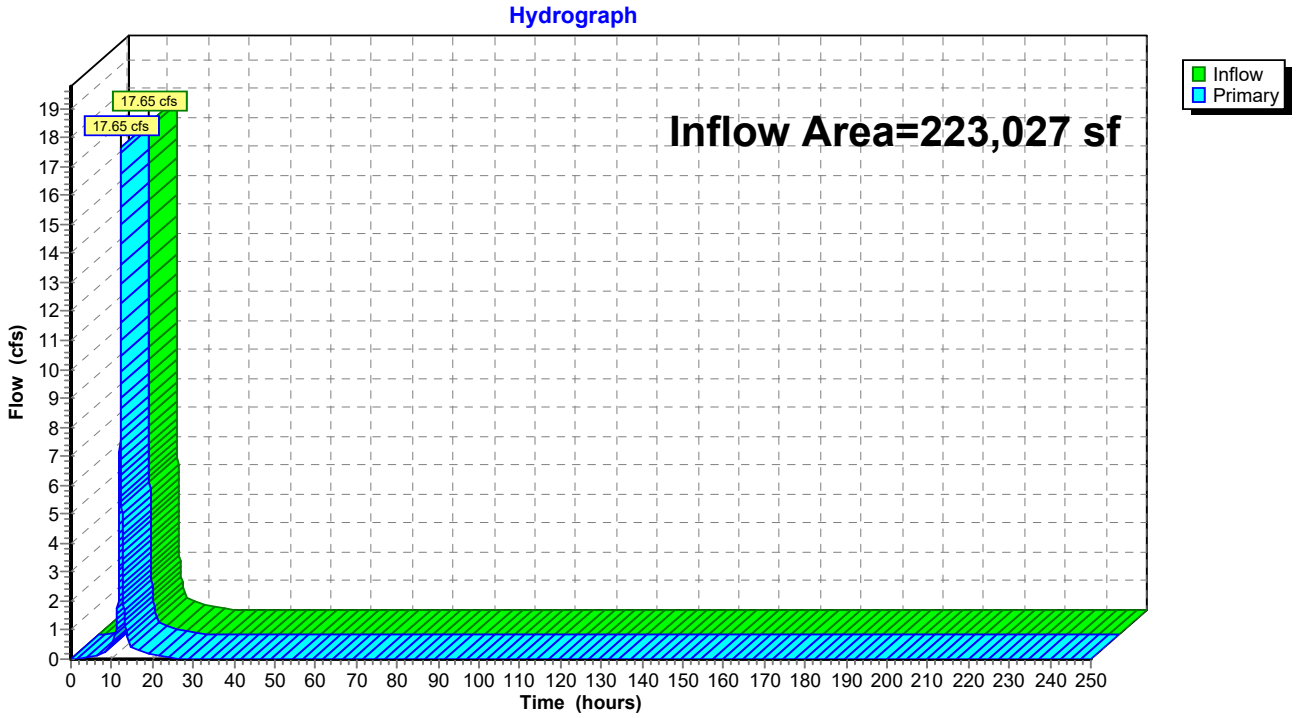


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 86.91% Impervious, Inflow Depth = 2.86" for 10-yr event
Inflow = 17.65 cfs @ 12.19 hrs, Volume= 53,236 cf
Primary = 17.65 cfs @ 12.19 hrs, Volume= 53,236 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

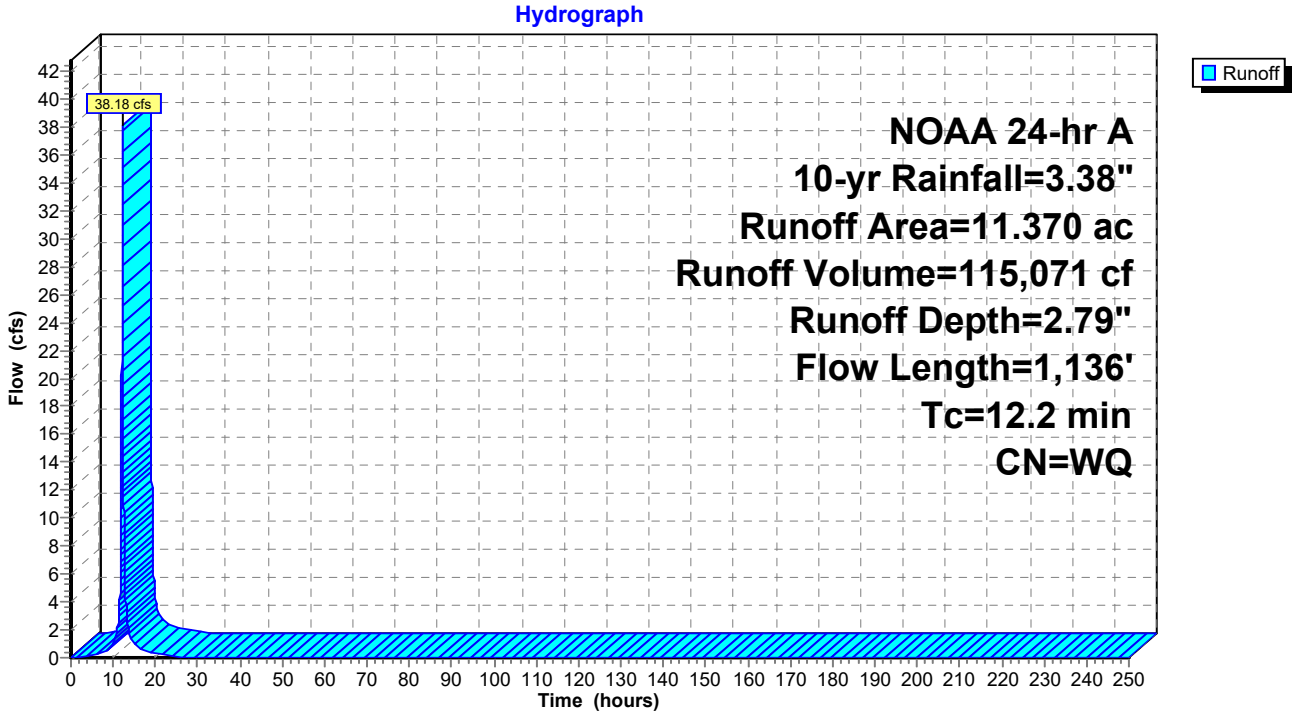
Runoff = 38.18 cfs @ 12.19 hrs, Volume= 115,071 cf, Depth= 2.79"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	7.570	98	Paved parking, HSG C
*	1.890	71	20% Impervious as Meadow, HSG C
*	1.910	98	Imp Outside LOD
	11.370		Weighted Average
	1.890		16.62% Pervious Area
	9.480		83.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

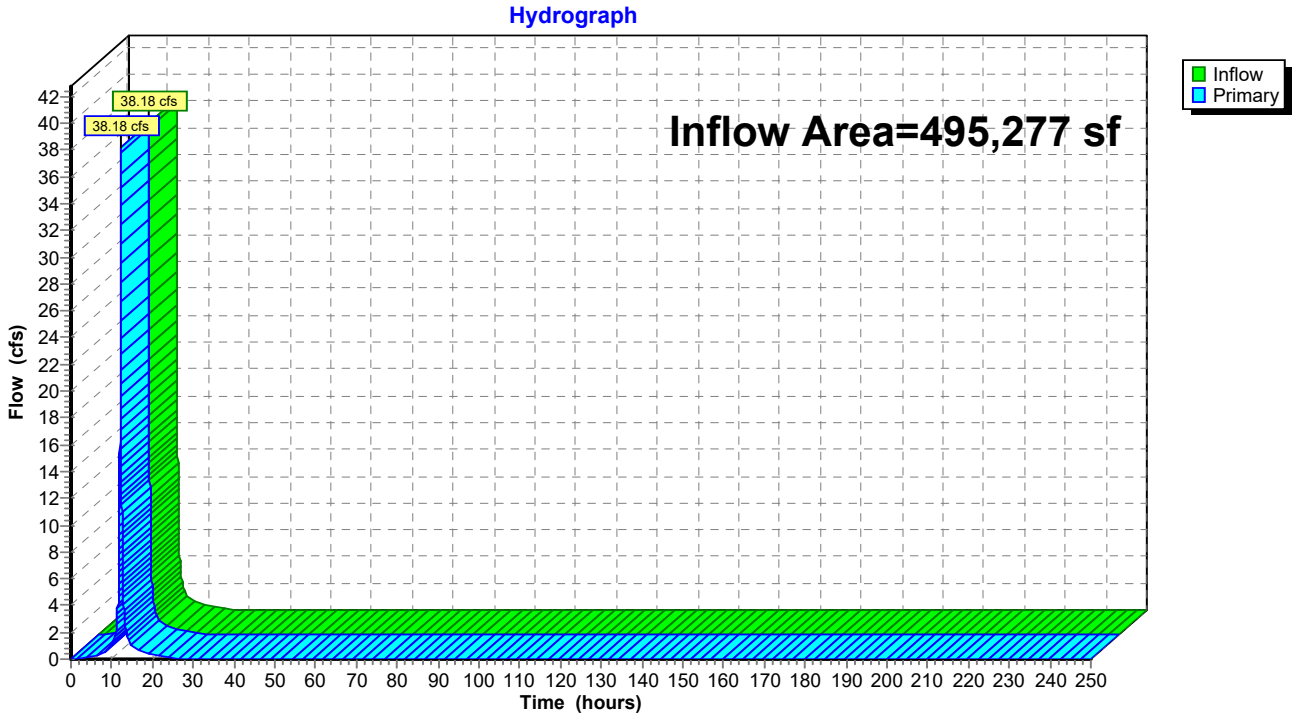


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,277 sf, 83.38% Impervious, Inflow Depth = 2.79" for 10-yr event
Inflow = 38.18 cfs @ 12.19 hrs, Volume= 115,071 cf
Primary = 38.18 cfs @ 12.19 hrs, Volume= 115,071 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

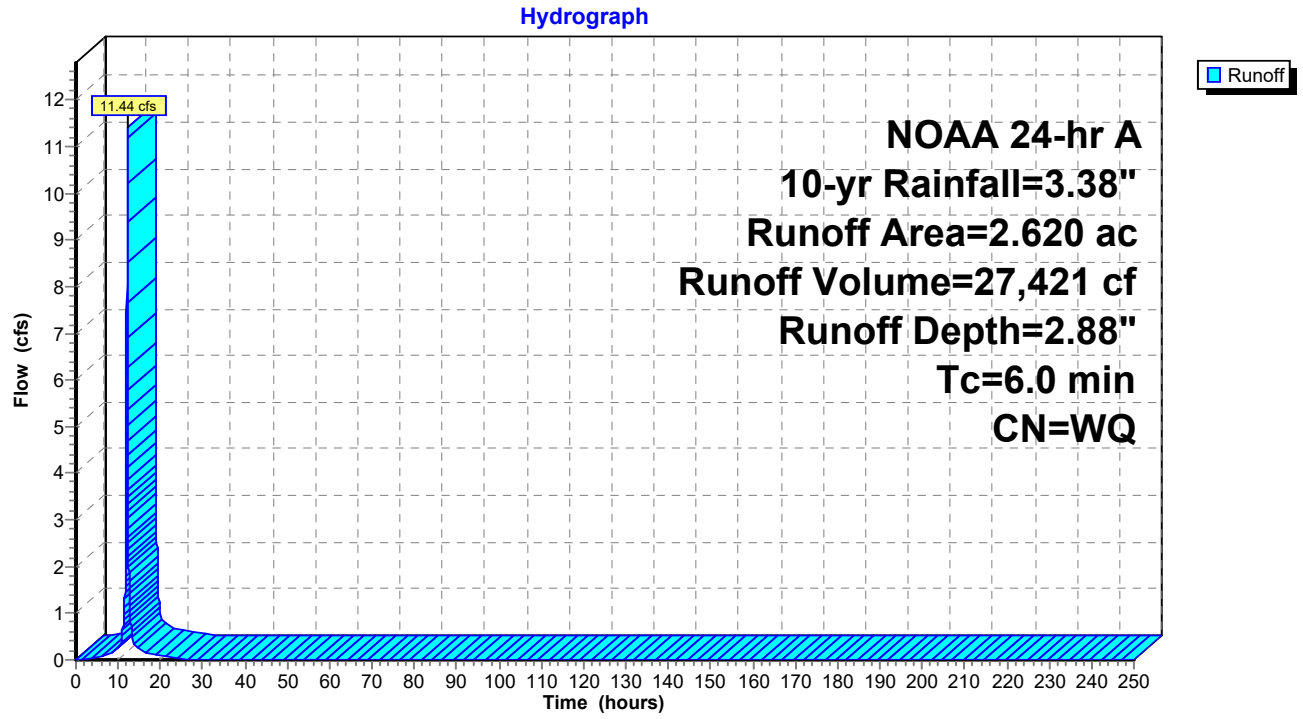
Runoff = 11.44 cfs @ 12.13 hrs, Volume= 27,421 cf, Depth= 2.88"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	1.290	98	Paved parking, HSG C
*	0.320	71	20% Impervious as Meadow, HSG C
*	1.010	98	Imp Outside LOD
	2.620		Weighted Average
	0.320		12.21% Pervious Area
	2.300		87.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

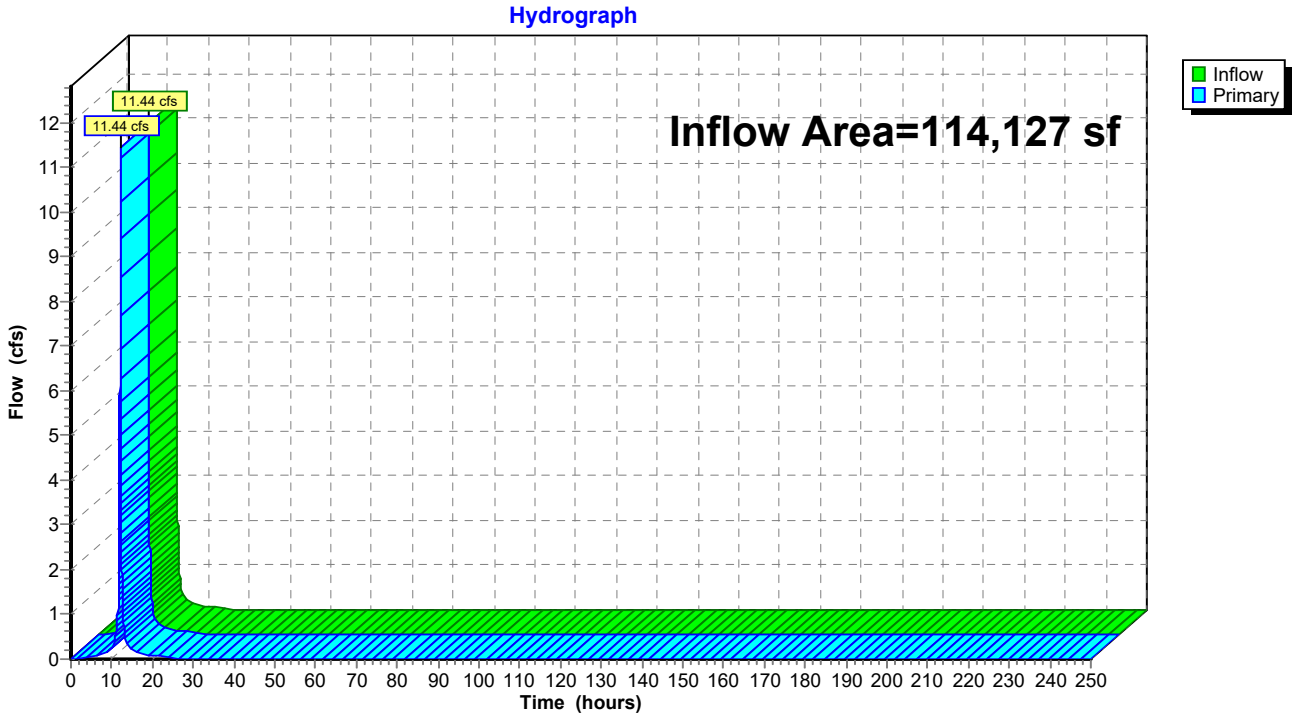


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,127 sf, 87.79% Impervious, Inflow Depth = 2.88" for 10-yr event
Inflow = 11.44 cfs @ 12.13 hrs, Volume= 27,421 cf
Primary = 11.44 cfs @ 12.13 hrs, Volume= 27,421 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

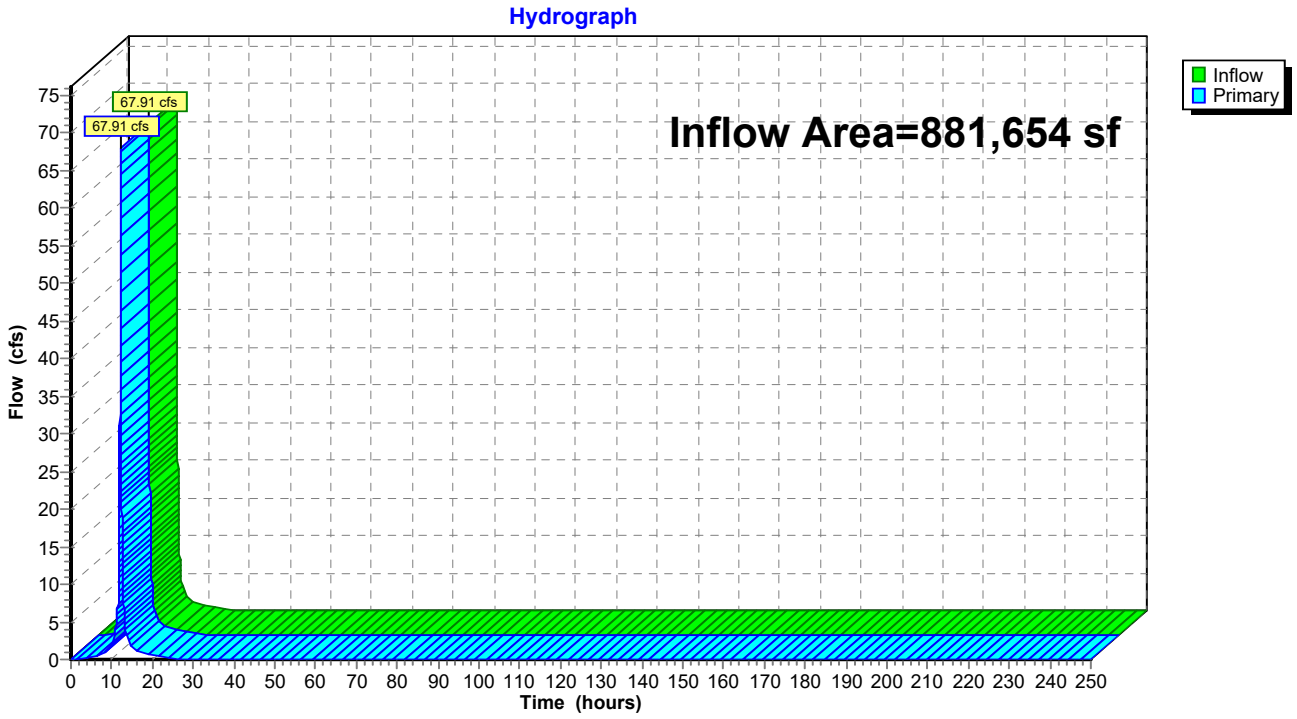


Summary for Link 9: POA 001

Inflow Area = 881,654 sf, 85.52% Impervious, Inflow Depth = 2.83" for 10-yr event
Inflow = 67.91 cfs @ 12.17 hrs, Volume= 208,245 cf
Primary = 67.91 cfs @ 12.17 hrs, Volume= 208,245 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: POA 001



Summary for Subcatchment 1: Pre-Development DA-1

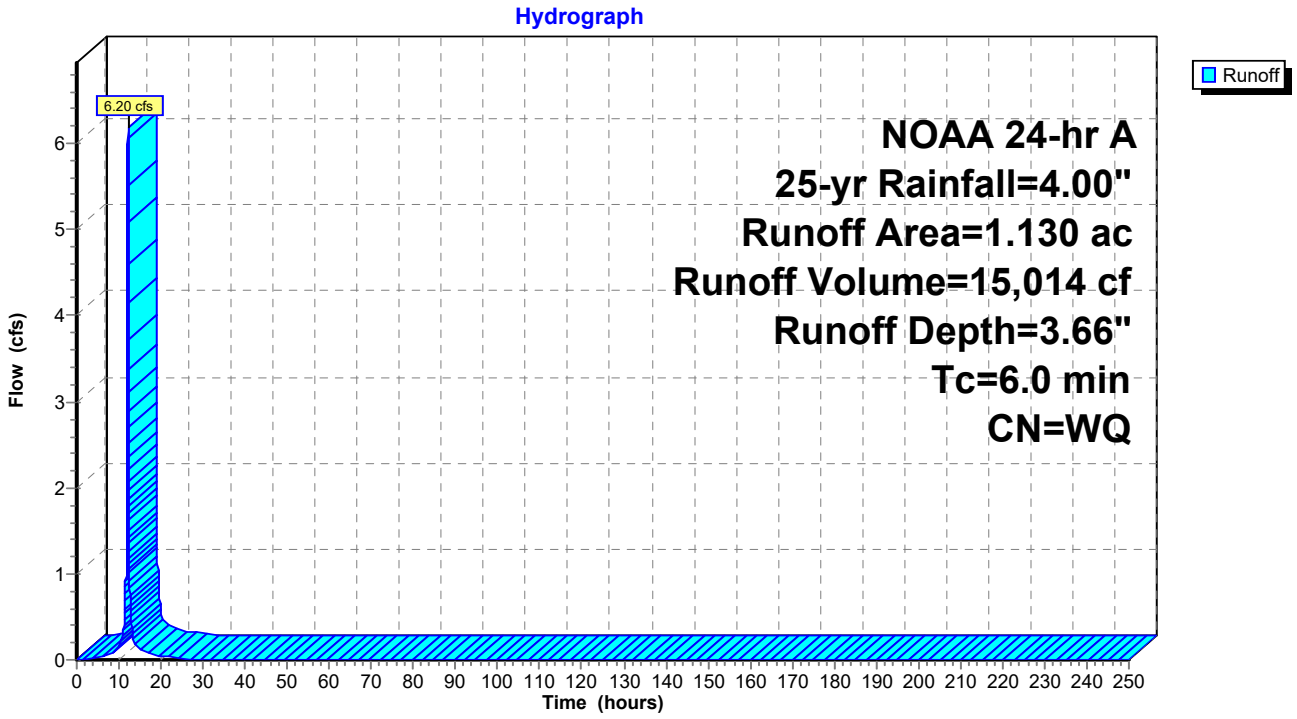
Runoff = 6.20 cfs @ 12.13 hrs, Volume= 15,014 cf, Depth= 3.66"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	0.210	98	Paved parking, HSG C
*	0.050	71	20% Impervious as Meadow, HSG C
*	0.870	98	Imp Outside LOD
	1.130		Weighted Average
	0.050		4.42% Pervious Area
	1.080		95.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

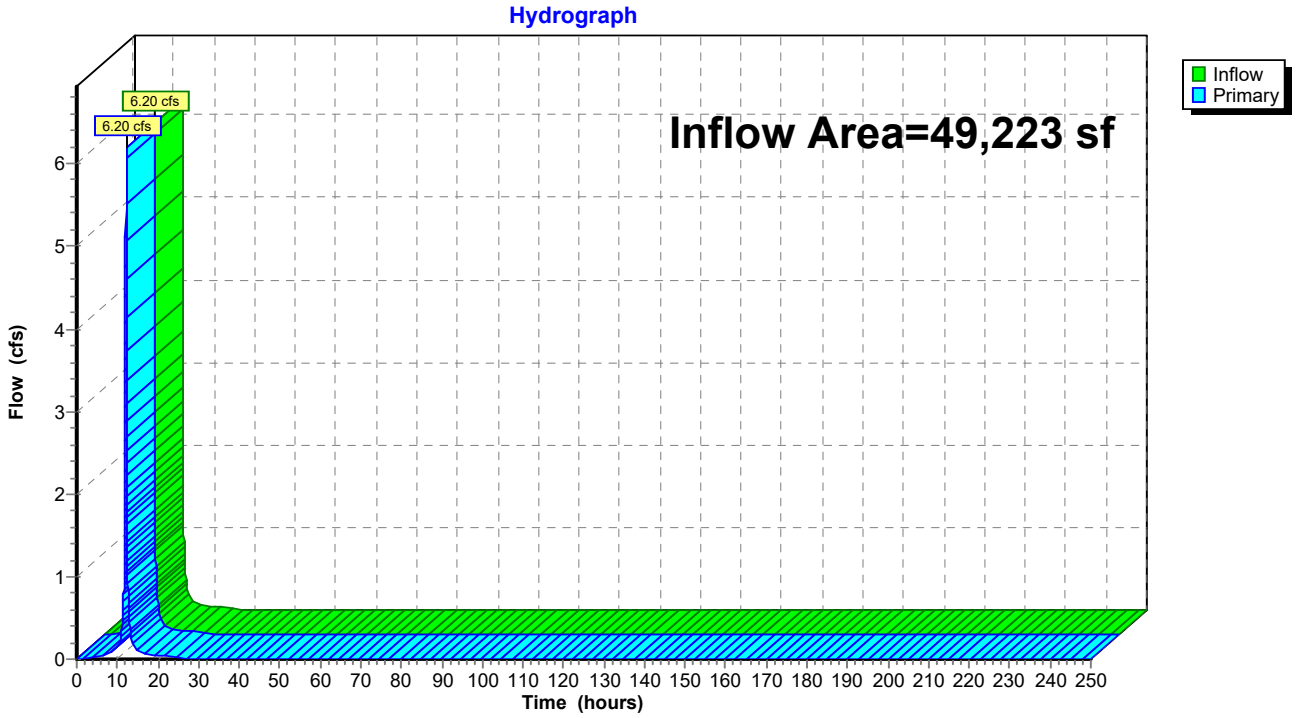


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,223 sf, 95.58% Impervious, Inflow Depth = 3.66" for 25-yr event
Inflow = 6.20 cfs @ 12.13 hrs, Volume= 15,014 cf
Primary = 6.20 cfs @ 12.13 hrs, Volume= 15,014 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

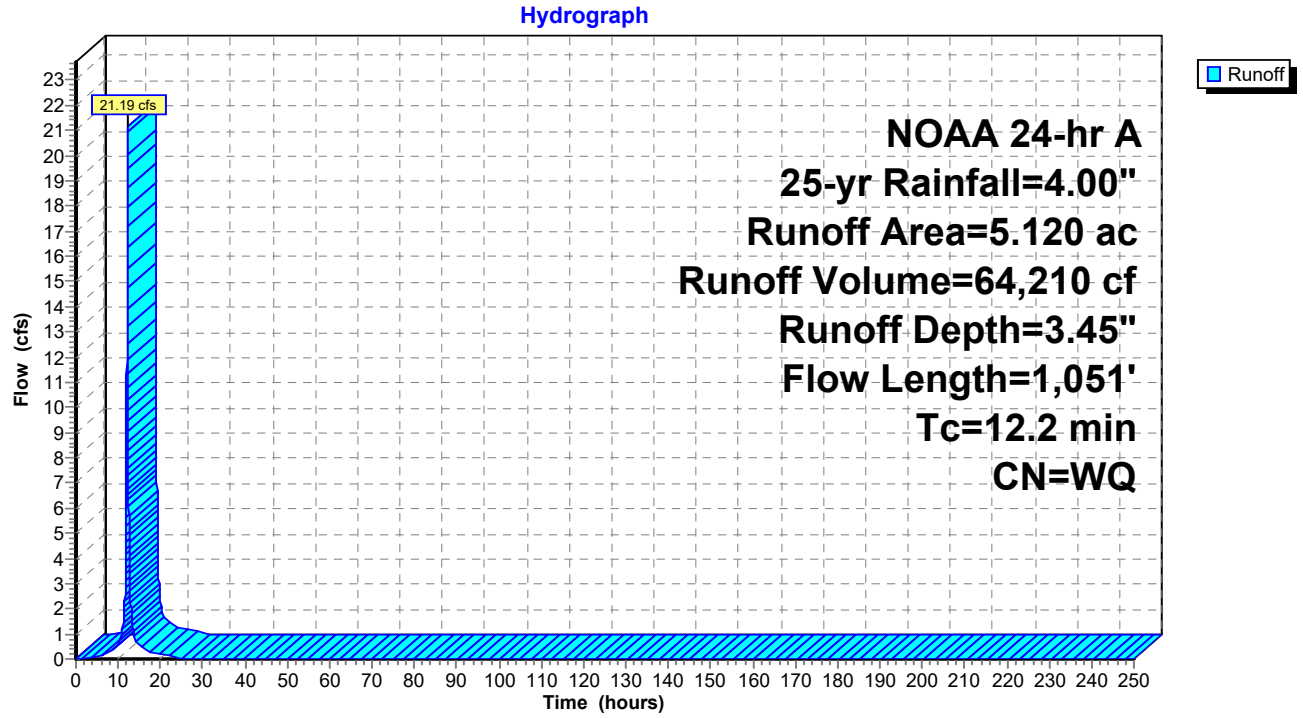
Runoff = 21.19 cfs @ 12.19 hrs, Volume= 64,210 cf, Depth= 3.45"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	2.670	98	Paved parking, HSG C
*	0.670	71	20% Impervious as Meadow, HSG C
*	1.780	98	Imp Outside LOD
	5.120		Weighted Average
	0.670		13.09% Pervious Area
	4.450		86.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

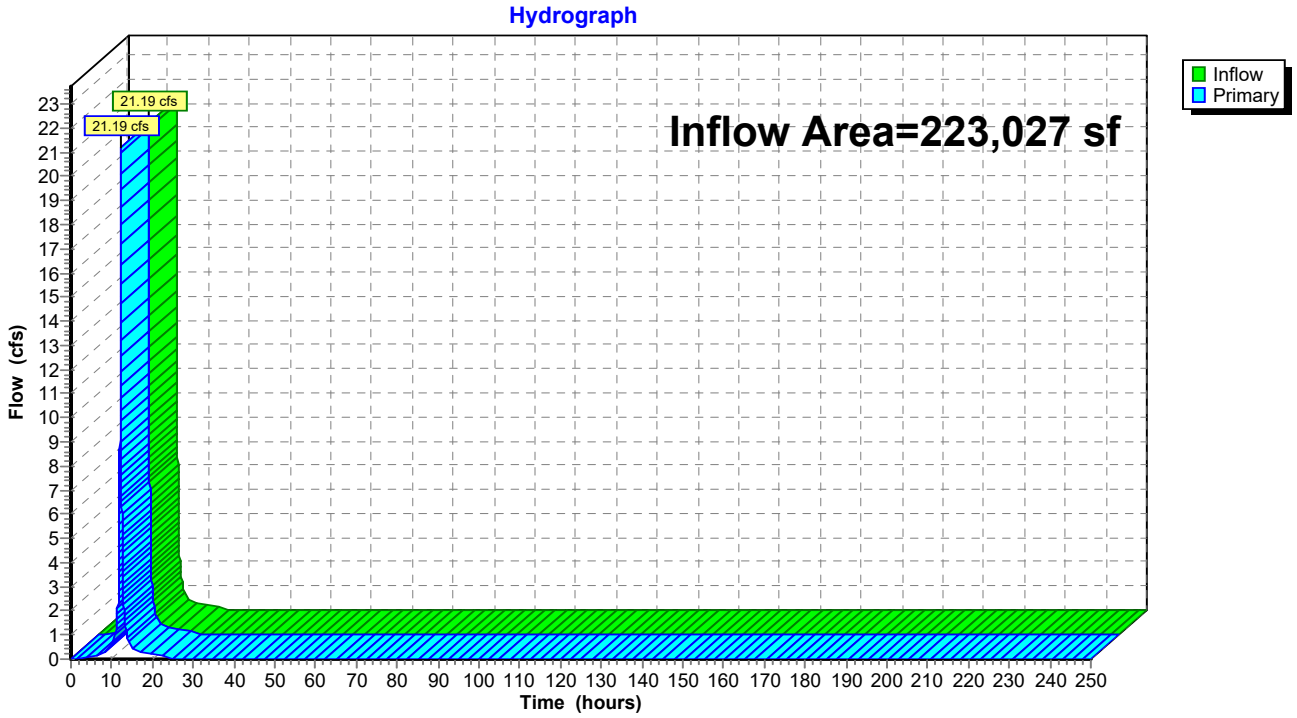


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 86.91% Impervious, Inflow Depth = 3.45" for 25-yr event
Inflow = 21.19 cfs @ 12.19 hrs, Volume= 64,210 cf
Primary = 21.19 cfs @ 12.19 hrs, Volume= 64,210 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

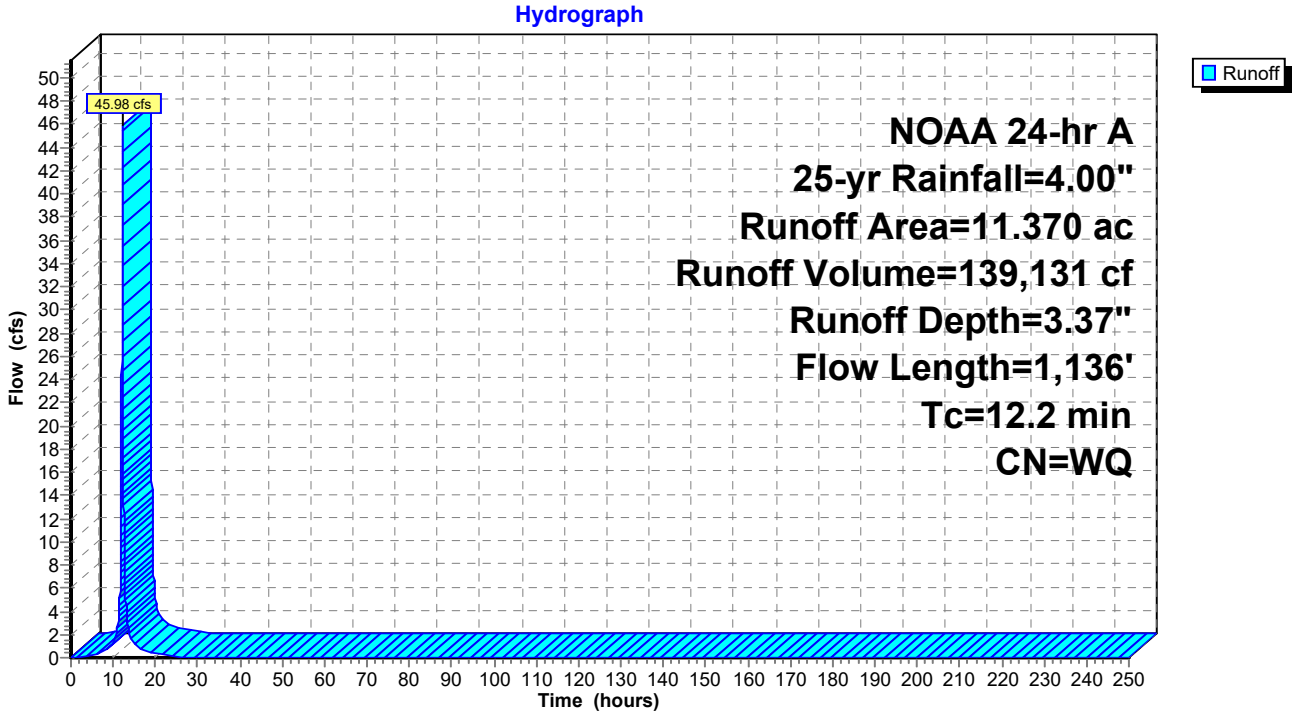
Runoff = 45.98 cfs @ 12.19 hrs, Volume= 139,131 cf, Depth= 3.37"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	7.570	98	Paved parking, HSG C
*	1.890	71	20% Impervious as Meadow, HSG C
*	1.910	98	Imp Outside LOD
	11.370		Weighted Average
	1.890		16.62% Pervious Area
	9.480		83.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

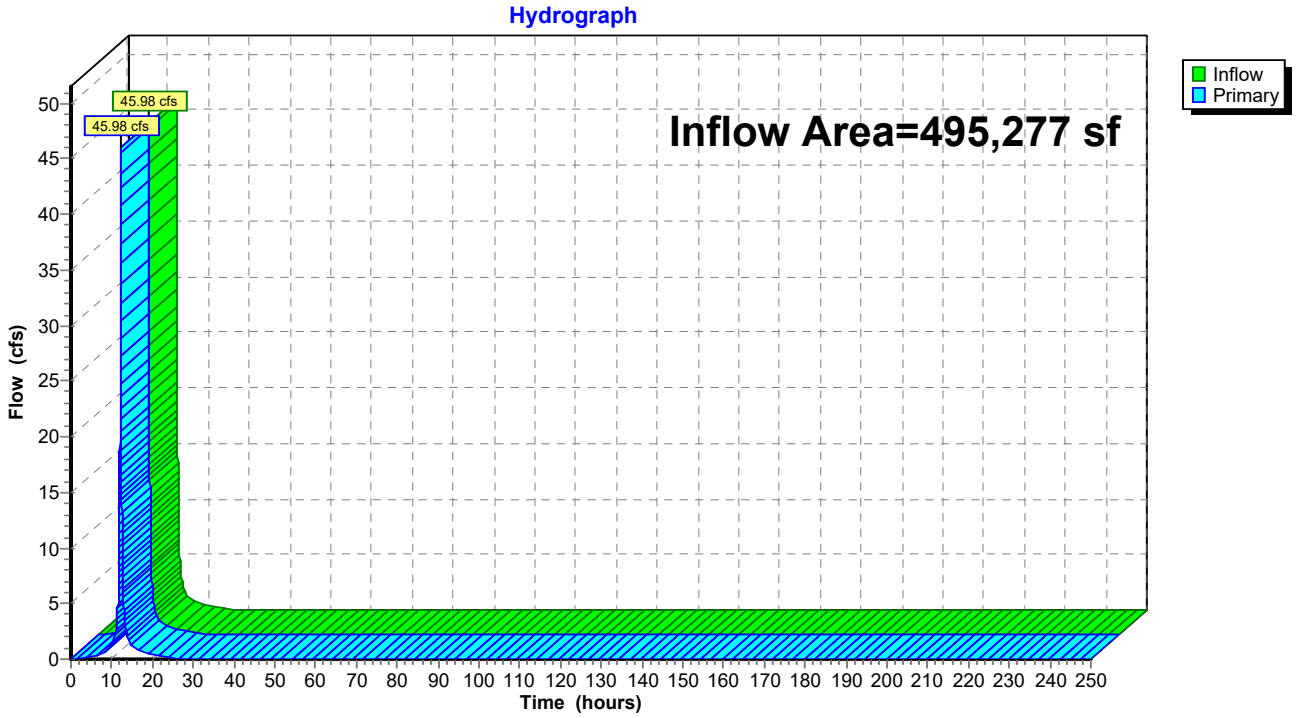


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,277 sf, 83.38% Impervious, Inflow Depth = 3.37" for 25-yr event
Inflow = 45.98 cfs @ 12.19 hrs, Volume= 139,131 cf
Primary = 45.98 cfs @ 12.19 hrs, Volume= 139,131 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

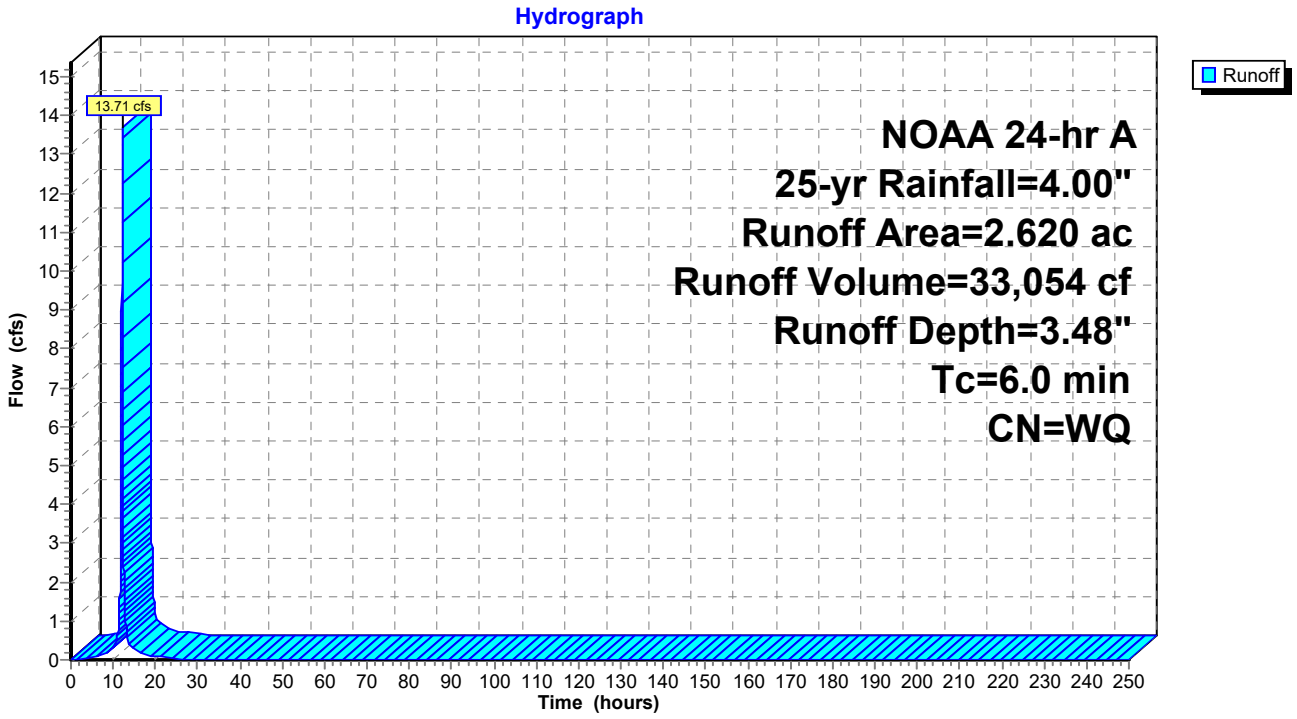
Runoff = 13.71 cfs @ 12.13 hrs, Volume= 33,054 cf, Depth= 3.48"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	1.290	98	Paved parking, HSG C
*	0.320	71	20% Impervious as Meadow, HSG C
*	1.010	98	Imp Outside LOD
	2.620		Weighted Average
	0.320		12.21% Pervious Area
	2.300		87.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

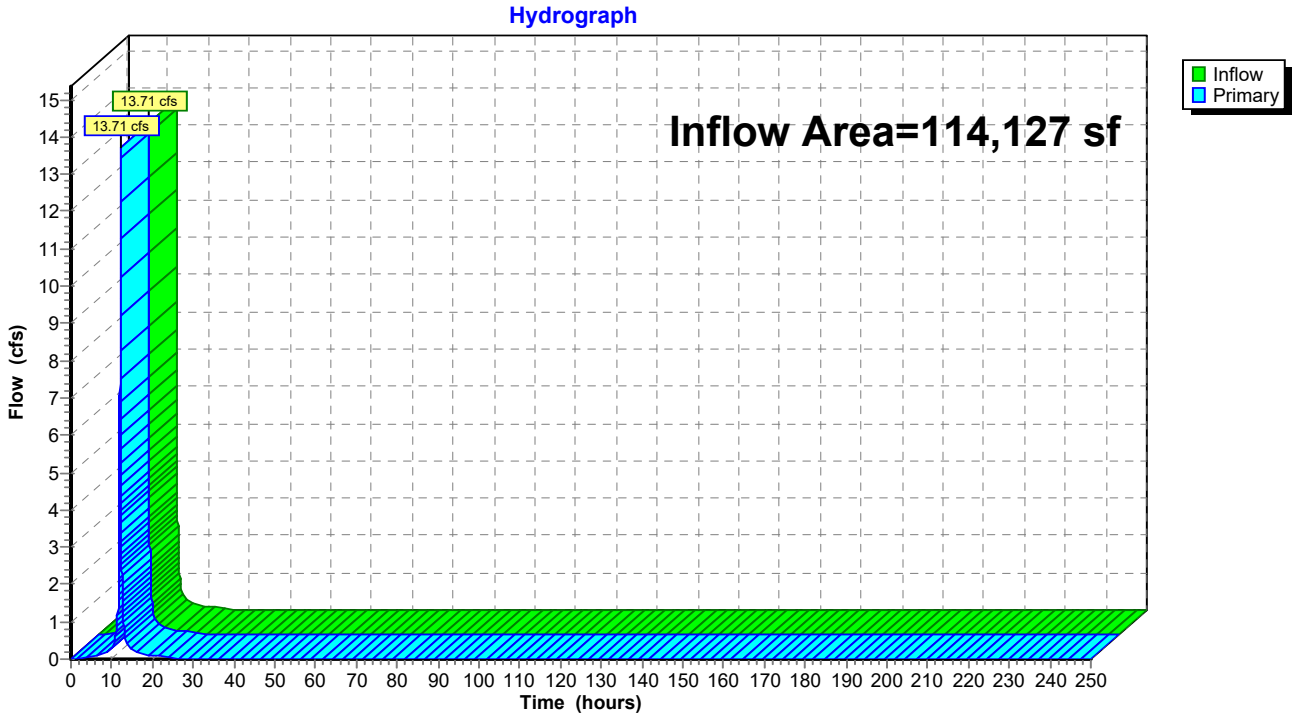


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,127 sf, 87.79% Impervious, Inflow Depth = 3.48" for 25-yr event
Inflow = 13.71 cfs @ 12.13 hrs, Volume= 33,054 cf
Primary = 13.71 cfs @ 12.13 hrs, Volume= 33,054 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

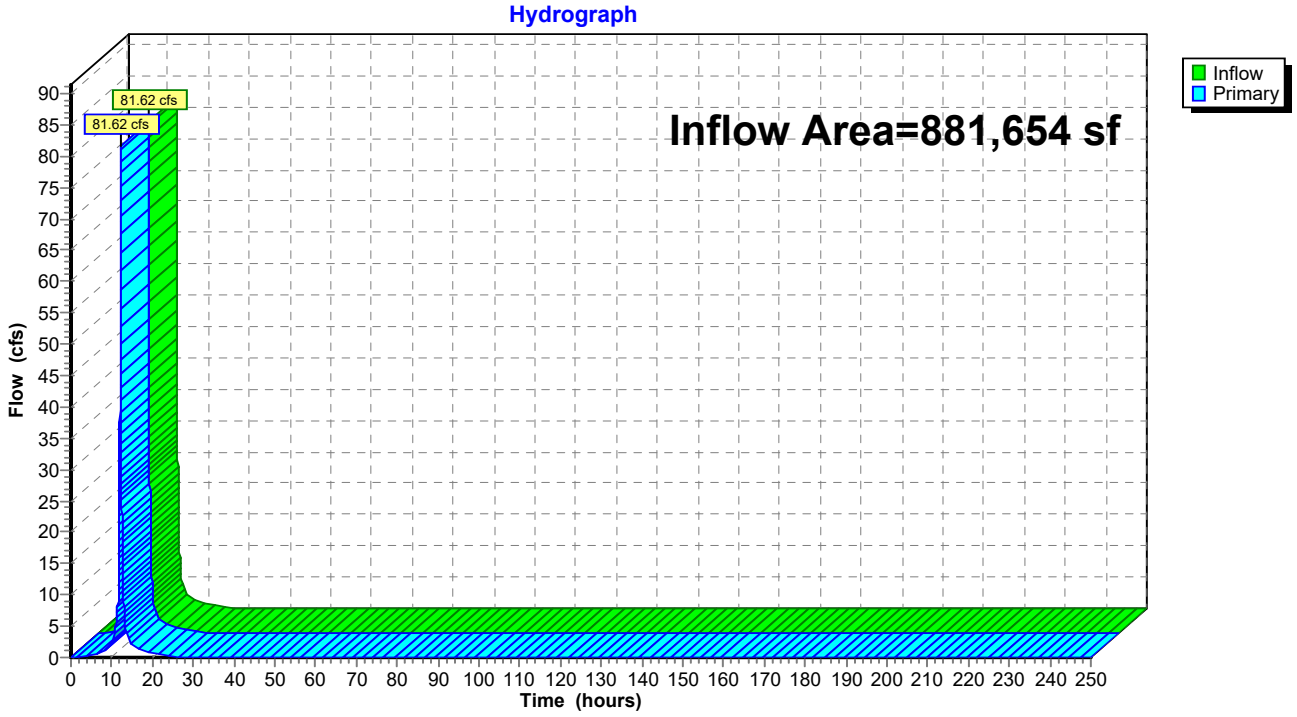


Summary for Link 9: POA 001

Inflow Area = 881,654 sf, 85.52% Impervious, Inflow Depth = 3.42" for 25-yr event
Inflow = 81.62 cfs @ 12.17 hrs, Volume= 251,410 cf
Primary = 81.62 cfs @ 12.17 hrs, Volume= 251,410 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: POA 001



Summary for Subcatchment 1: Pre-Development DA-1

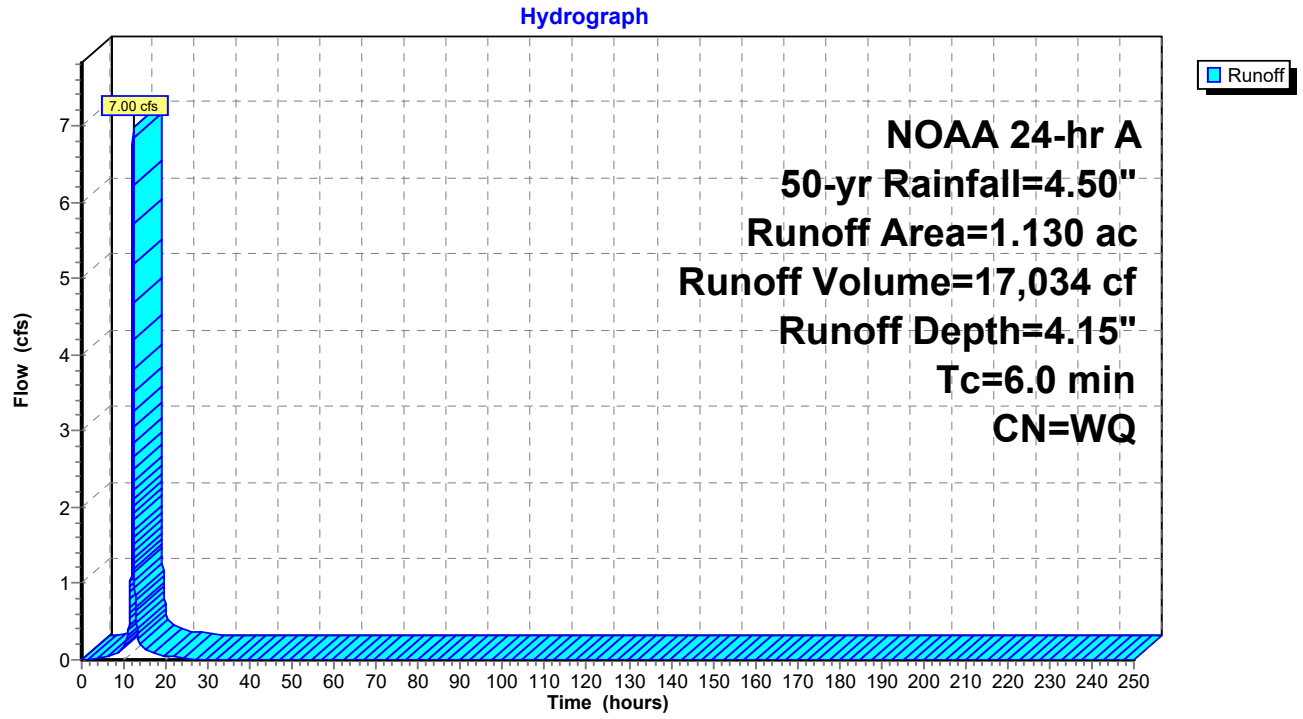
Runoff = 7.00 cfs @ 12.13 hrs, Volume= 17,034 cf, Depth= 4.15"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	0.210	98	Paved parking, HSG C
*	0.050	71	20% Impervious as Meadow, HSG C
*	0.870	98	Imp Outside LOD
	1.130		Weighted Average
	0.050		4.42% Pervious Area
	1.080		95.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

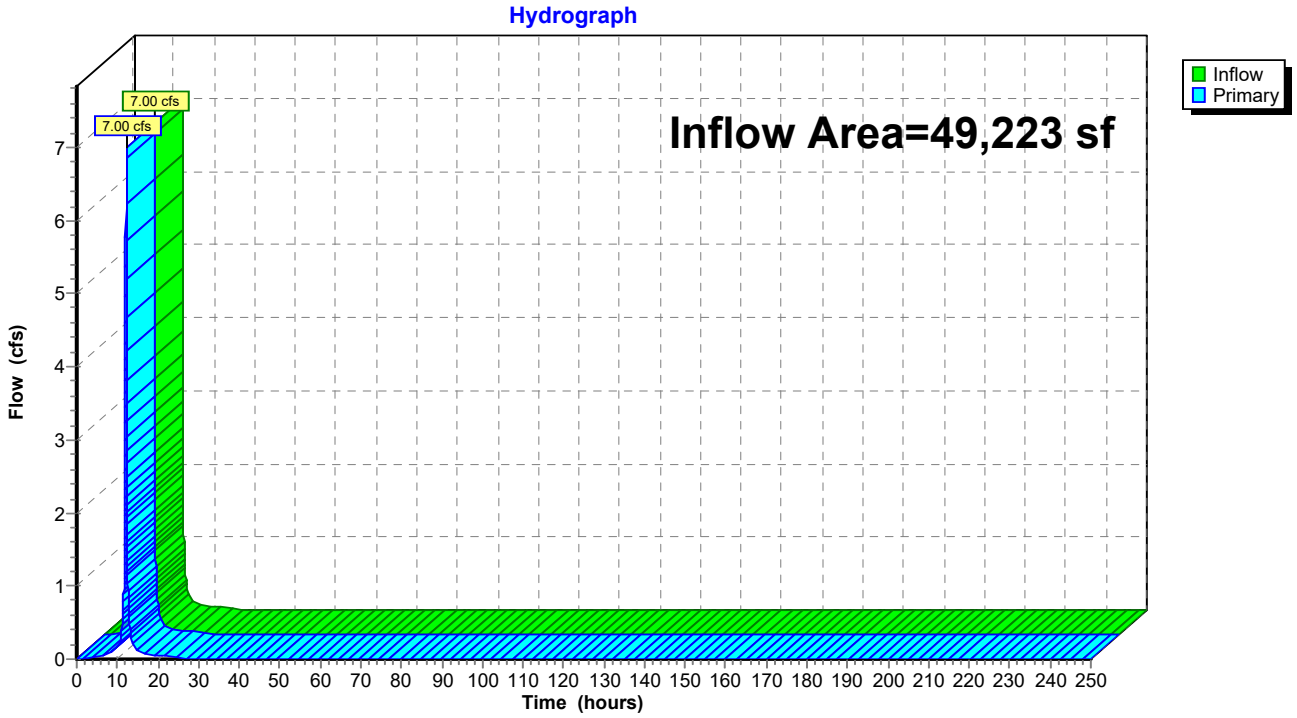


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,223 sf, 95.58% Impervious, Inflow Depth = 4.15" for 50-yr event
Inflow = 7.00 cfs @ 12.13 hrs, Volume= 17,034 cf
Primary = 7.00 cfs @ 12.13 hrs, Volume= 17,034 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

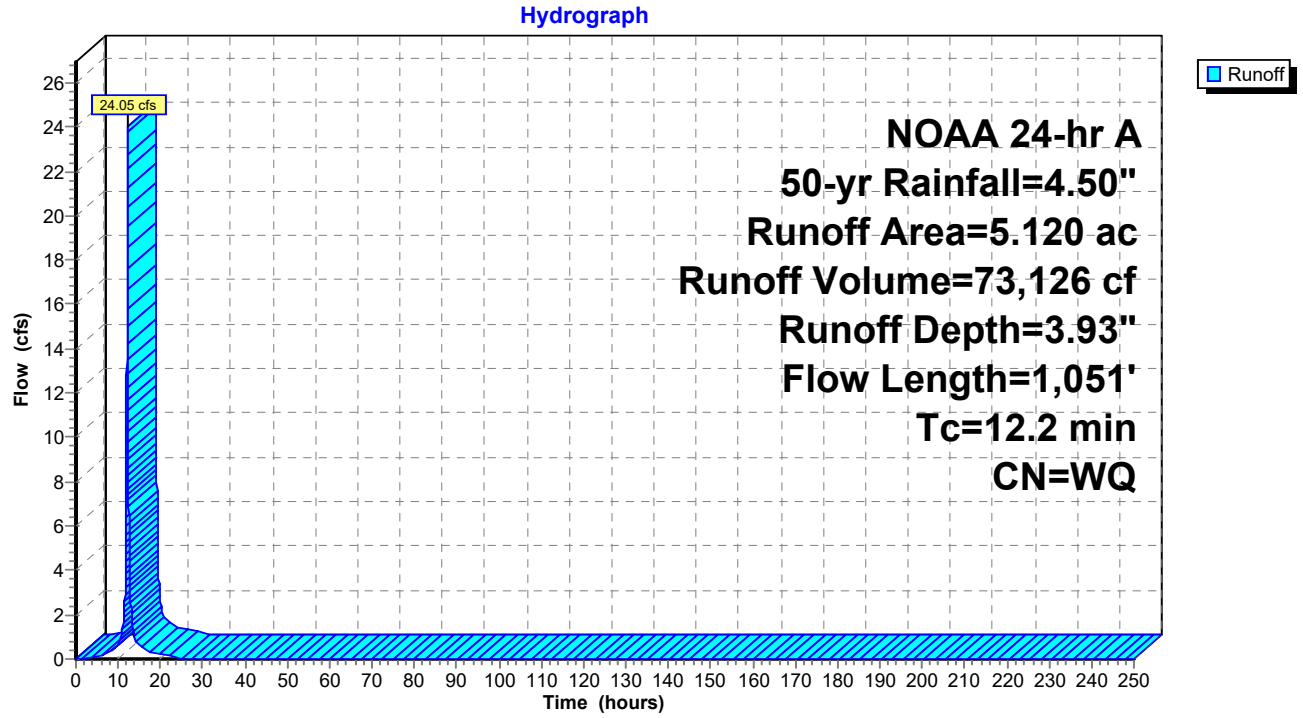
Runoff = 24.05 cfs @ 12.19 hrs, Volume= 73,126 cf, Depth= 3.93"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	2.670	98	Paved parking, HSG C
*	0.670	71	20% Impervious as Meadow, HSG C
*	1.780	98	Imp Outside LOD
	5.120		Weighted Average
	0.670		13.09% Pervious Area
	4.450		86.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

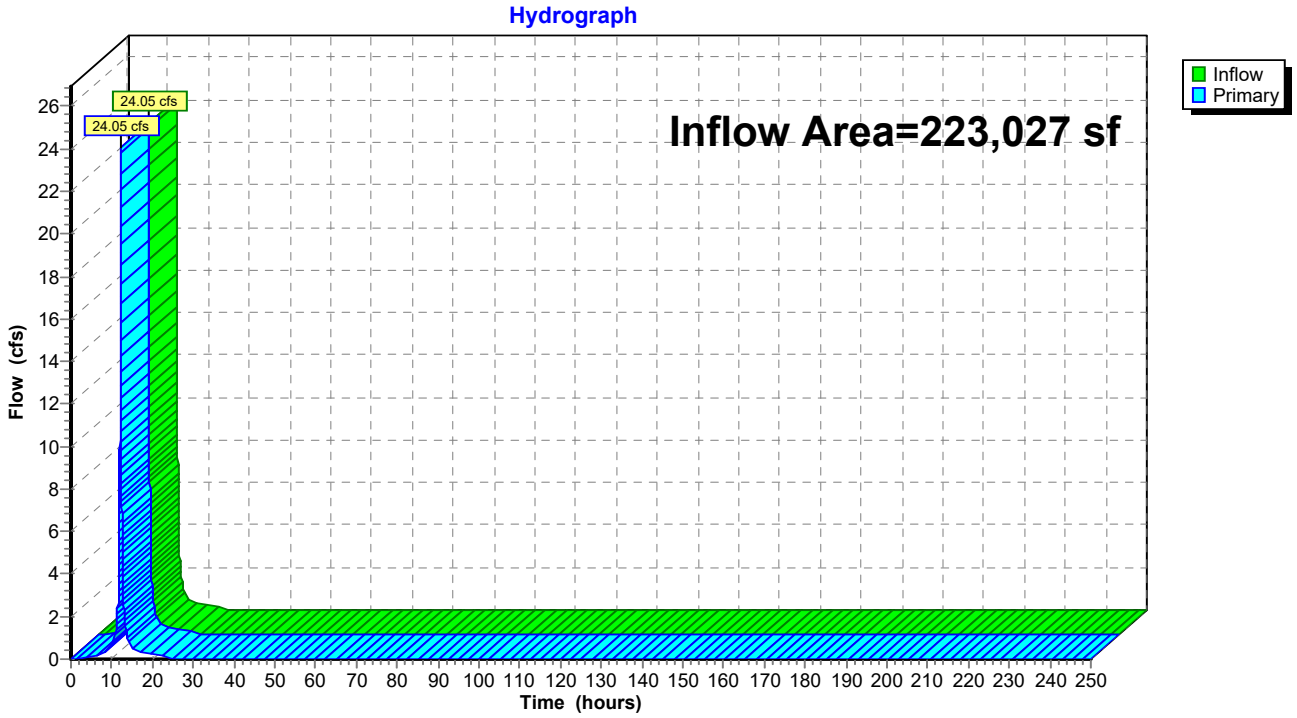


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 86.91% Impervious, Inflow Depth = 3.93" for 50-yr event
Inflow = 24.05 cfs @ 12.19 hrs, Volume= 73,126 cf
Primary = 24.05 cfs @ 12.19 hrs, Volume= 73,126 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

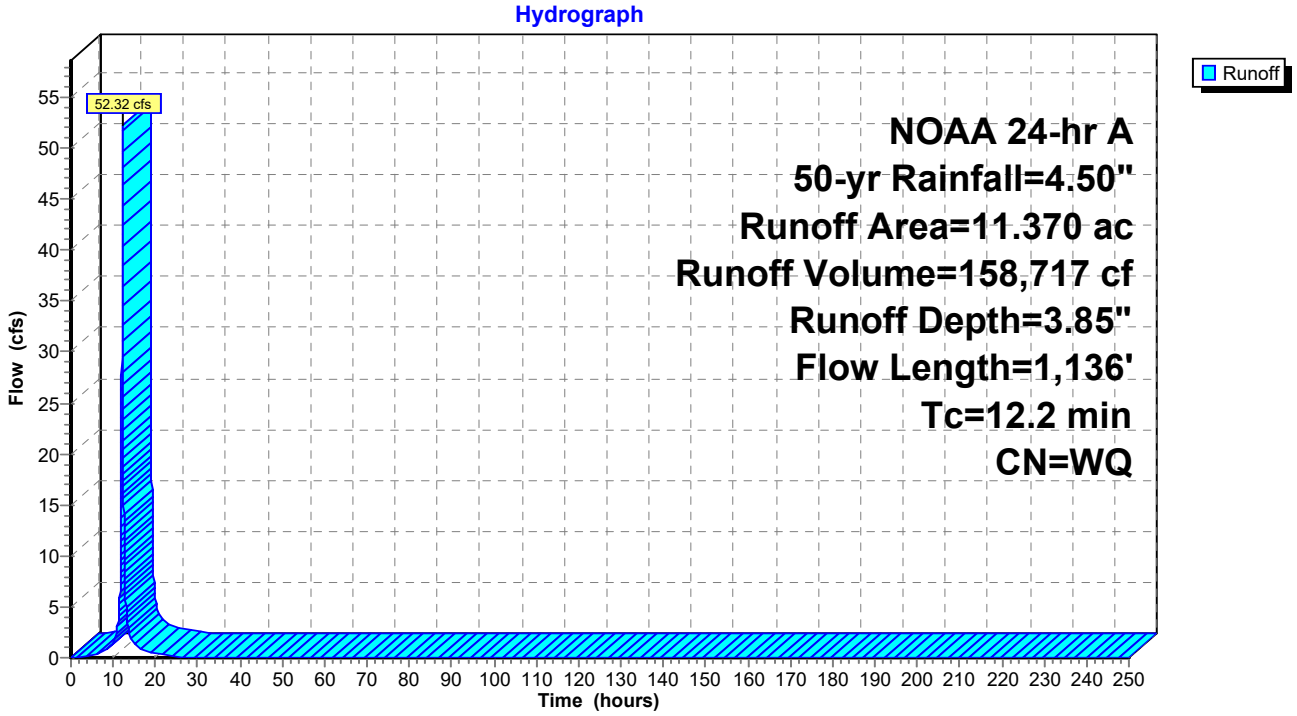
Runoff = 52.32 cfs @ 12.19 hrs, Volume= 158,717 cf, Depth= 3.85"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	7.570	98	Paved parking, HSG C
*	1.890	71	20% Impervious as Meadow, HSG C
*	1.910	98	Imp Outside LOD
	11.370		Weighted Average
	1.890		16.62% Pervious Area
	9.480		83.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

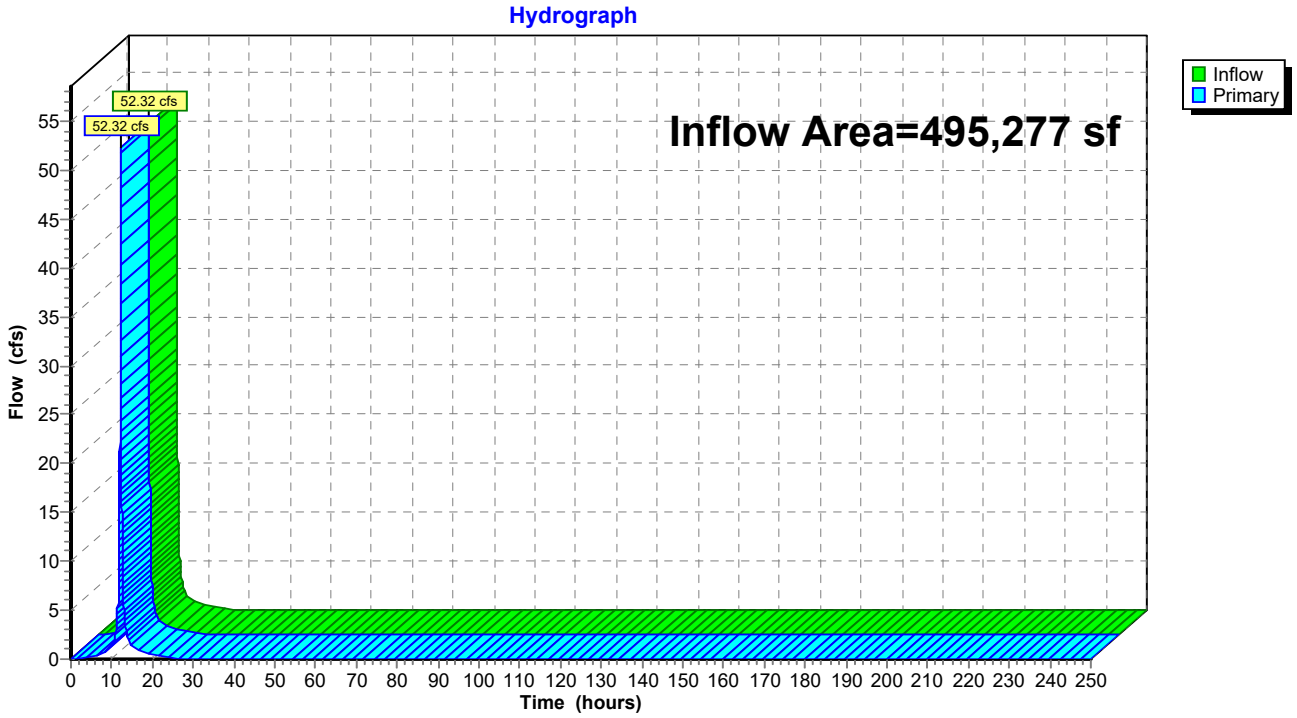


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,277 sf, 83.38% Impervious, Inflow Depth = 3.85" for 50-yr event
Inflow = 52.32 cfs @ 12.19 hrs, Volume= 158,717 cf
Primary = 52.32 cfs @ 12.19 hrs, Volume= 158,717 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

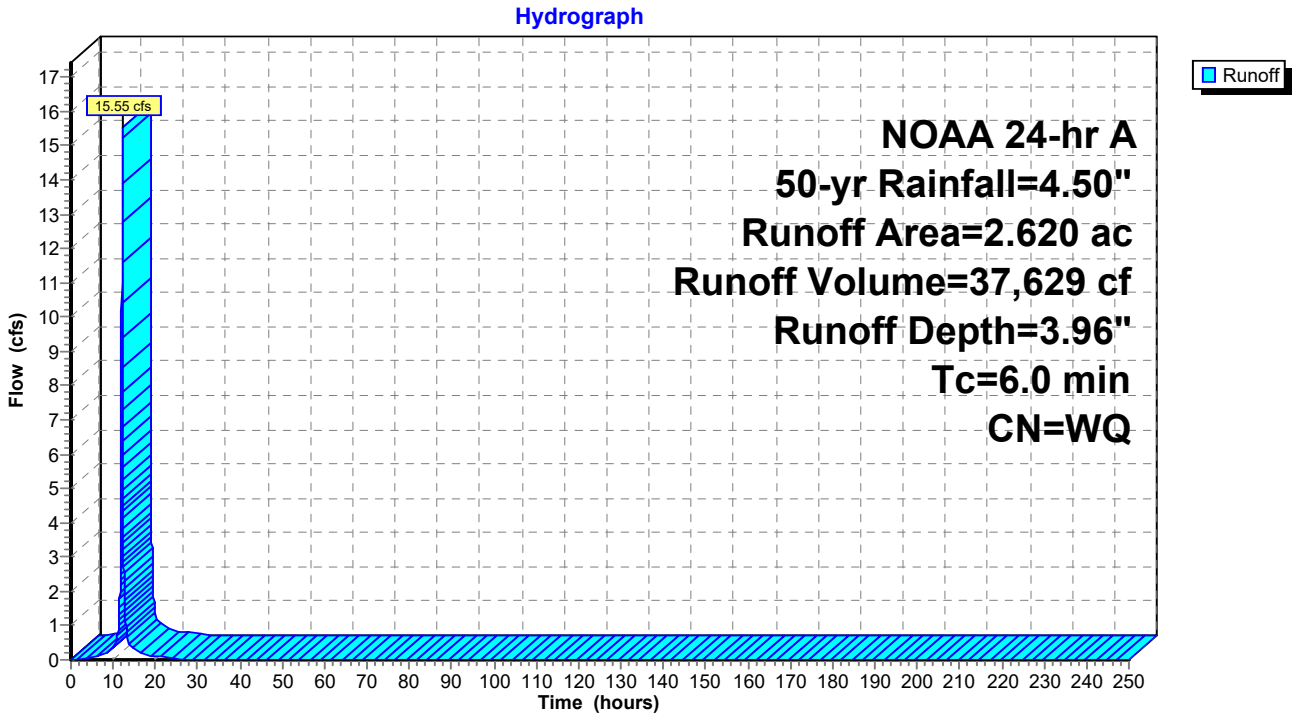
Runoff = 15.55 cfs @ 12.13 hrs, Volume= 37,629 cf, Depth= 3.96"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	1.290	98	Paved parking, HSG C
*	0.320	71	20% Impervious as Meadow, HSG C
*	1.010	98	Imp Outside LOD
	2.620		Weighted Average
	0.320		12.21% Pervious Area
	2.300		87.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

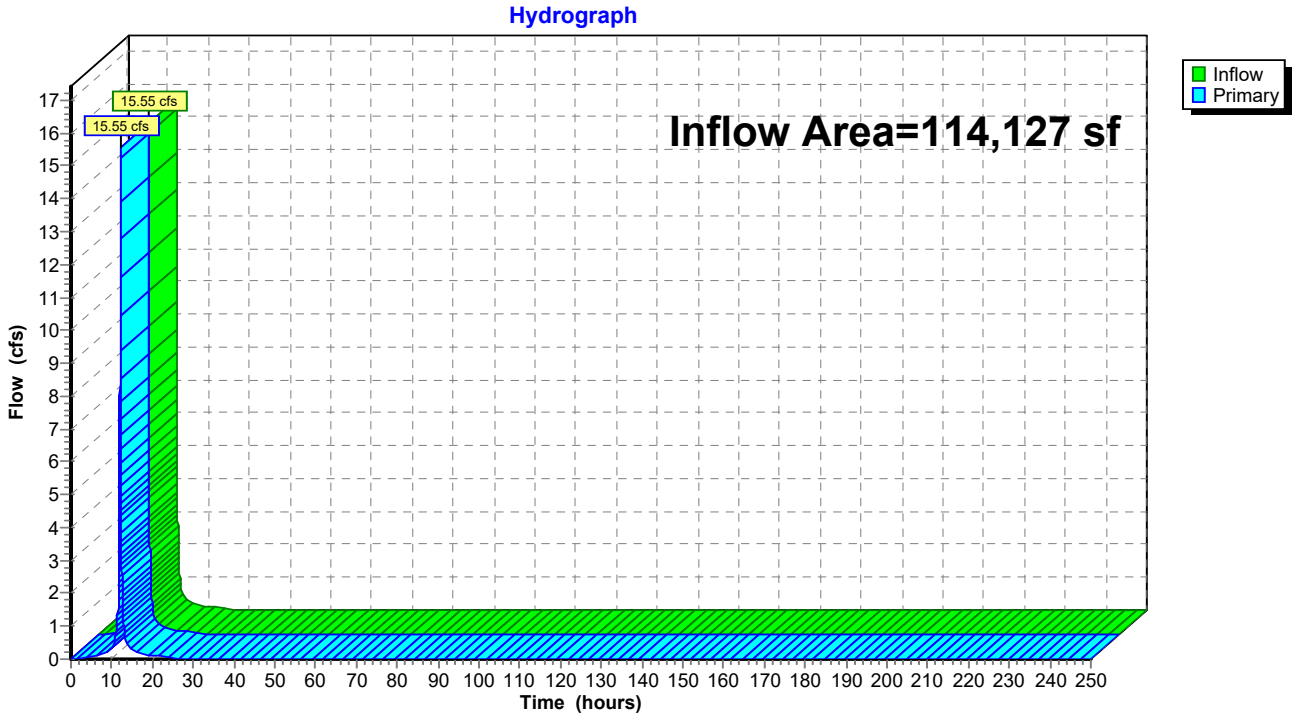


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,127 sf, 87.79% Impervious, Inflow Depth = 3.96" for 50-yr event
Inflow = 15.55 cfs @ 12.13 hrs, Volume= 37,629 cf
Primary = 15.55 cfs @ 12.13 hrs, Volume= 37,629 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

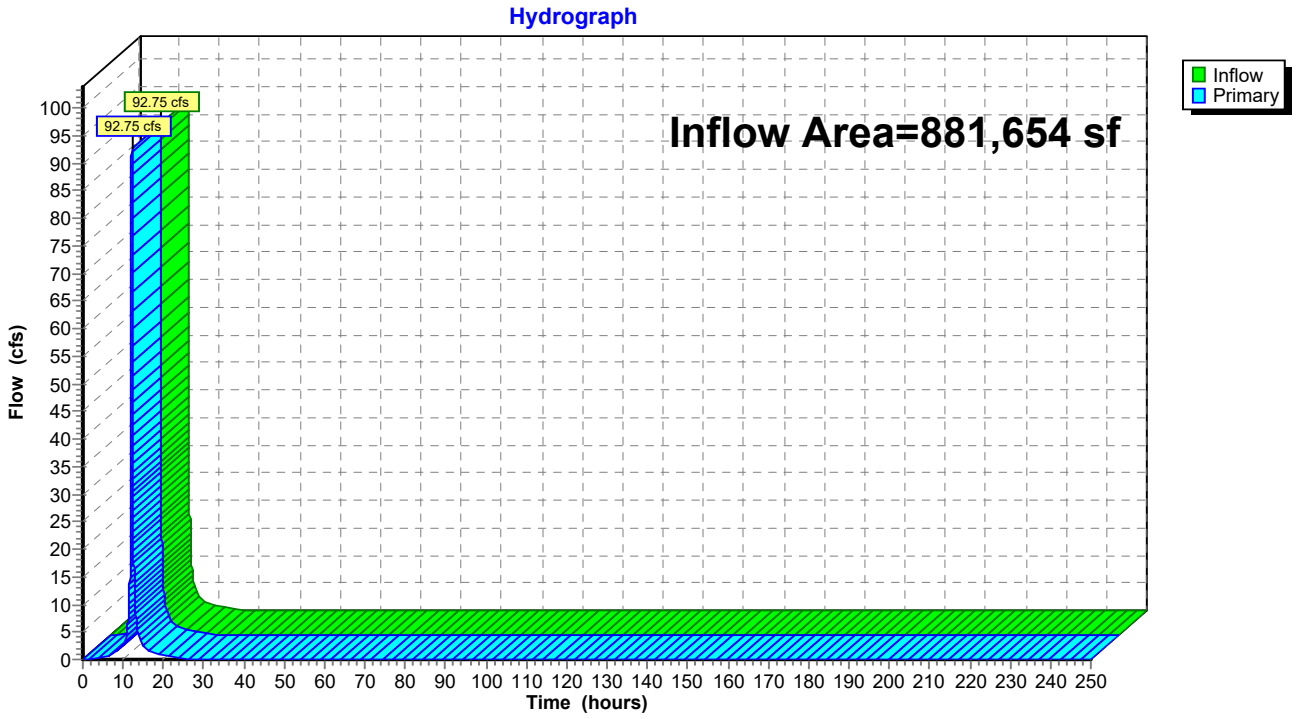


Summary for Link 9: POA 001

Inflow Area = 881,654 sf, 85.52% Impervious, Inflow Depth = 3.90" for 50-yr event
Inflow = 92.75 cfs @ 12.17 hrs, Volume= 286,506 cf
Primary = 92.75 cfs @ 12.17 hrs, Volume= 286,506 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 9: POA 001



Summary for Subcatchment 1: Pre-Development DA-1

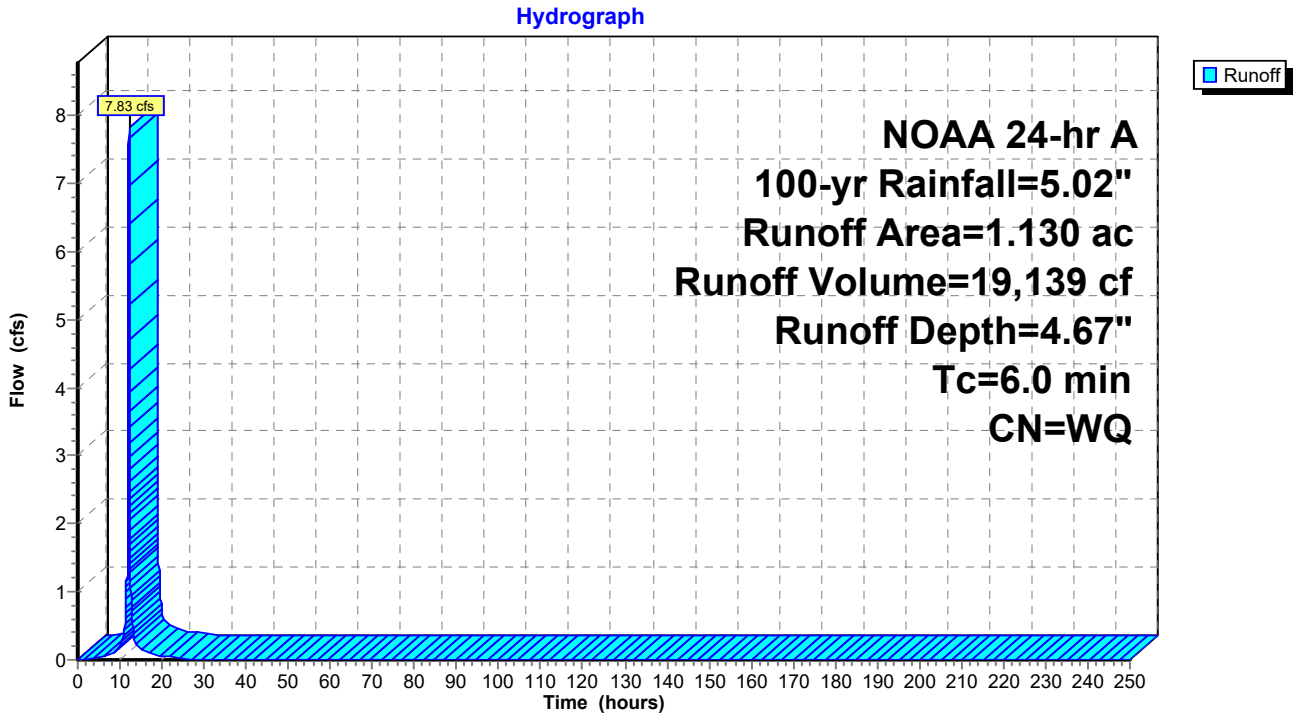
Runoff = 7.83 cfs @ 12.13 hrs, Volume= 19,139 cf, Depth= 4.67"
Routed to Link 2 : Pre-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	0.210	98	Paved parking, HSG C
*	0.050	71	20% Impervious as Meadow, HSG C
*	0.870	98	Imp Outside LOD
	1.130		Weighted Average
	0.050		4.42% Pervious Area
	1.080		95.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 1: Pre-Development DA-1

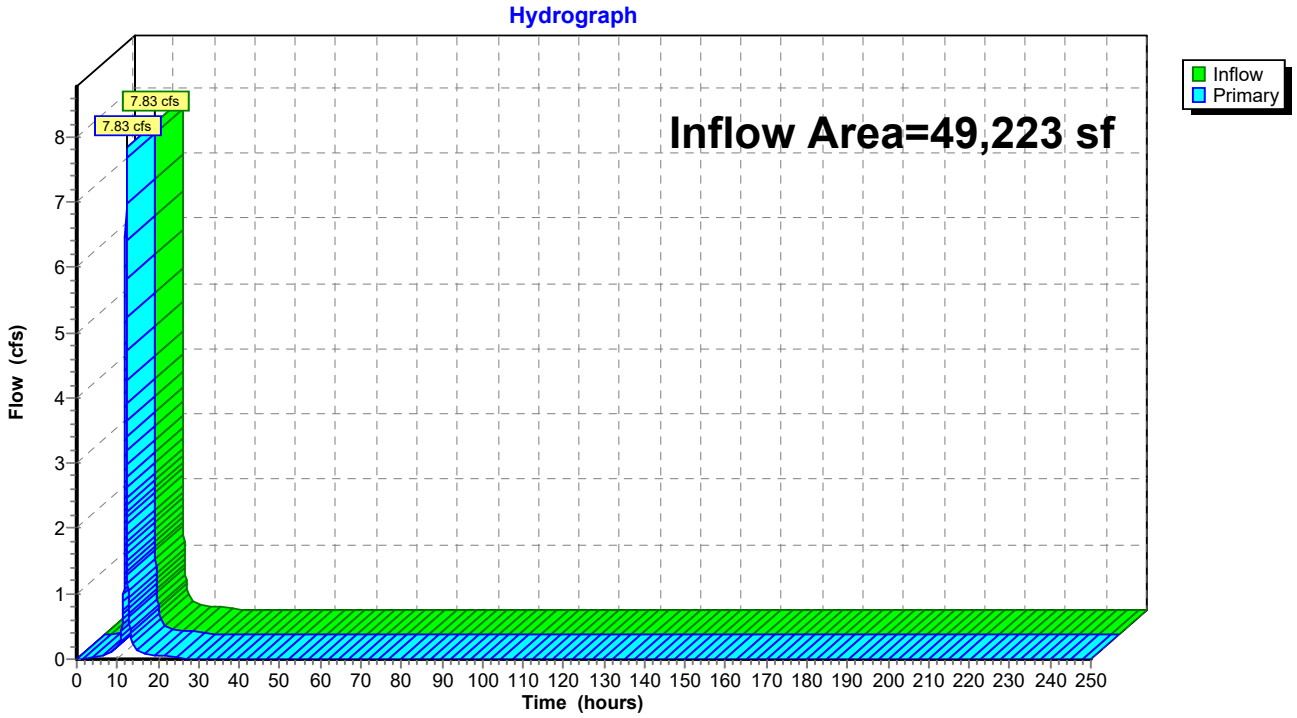


Summary for Link 2: Pre-Development Discharge Point 1

Inflow Area = 49,223 sf, 95.58% Impervious, Inflow Depth = 4.67" for 100-yr event
Inflow = 7.83 cfs @ 12.13 hrs, Volume= 19,139 cf
Primary = 7.83 cfs @ 12.13 hrs, Volume= 19,139 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 2: Pre-Development Discharge Point 1



Summary for Subcatchment 3: Pre-Development DA-2

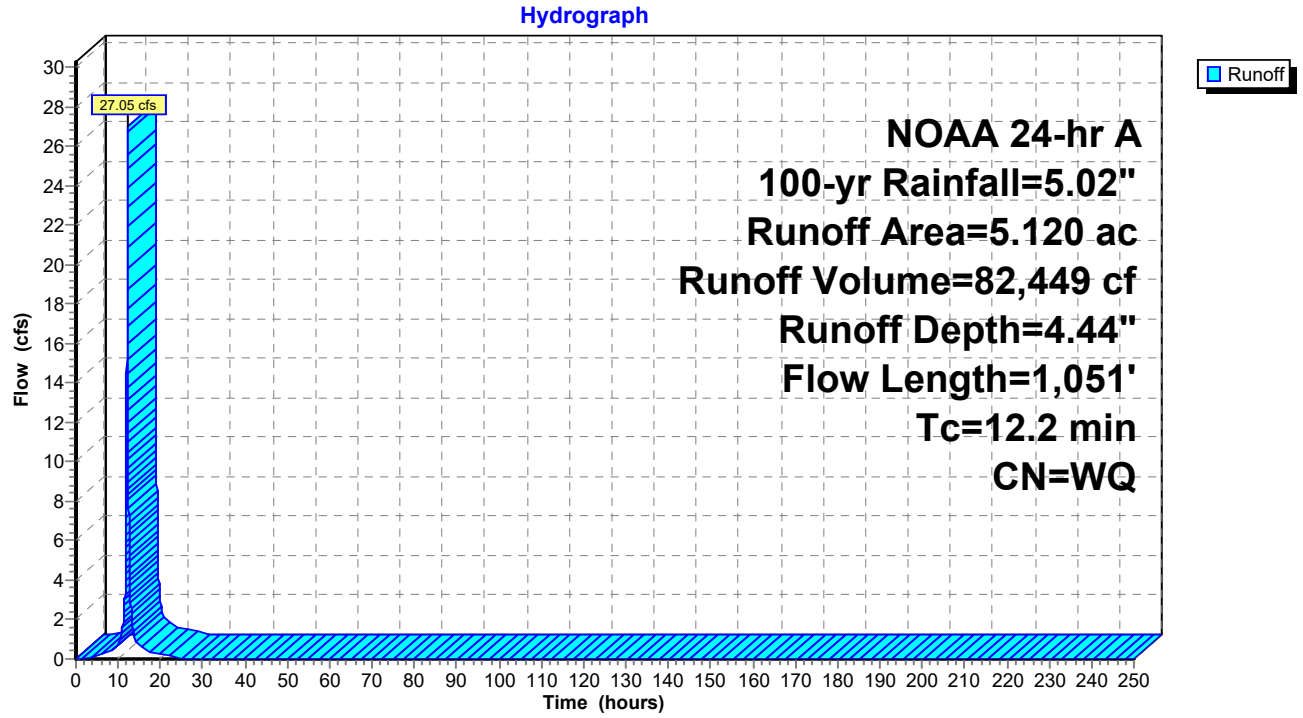
Runoff = 27.05 cfs @ 12.19 hrs, Volume= 82,449 cf, Depth= 4.44"
Routed to Link 4 : Pre-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	2.670	98	Paved parking, HSG C
*	0.670	71	20% Impervious as Meadow, HSG C
*	1.780	98	Imp Outside LOD
	5.120		Weighted Average
	0.670		13.09% Pervious Area
	4.450		86.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	50	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.3	155	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.8	846	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	1,051	Total			

Subcatchment 3: Pre-Development DA-2

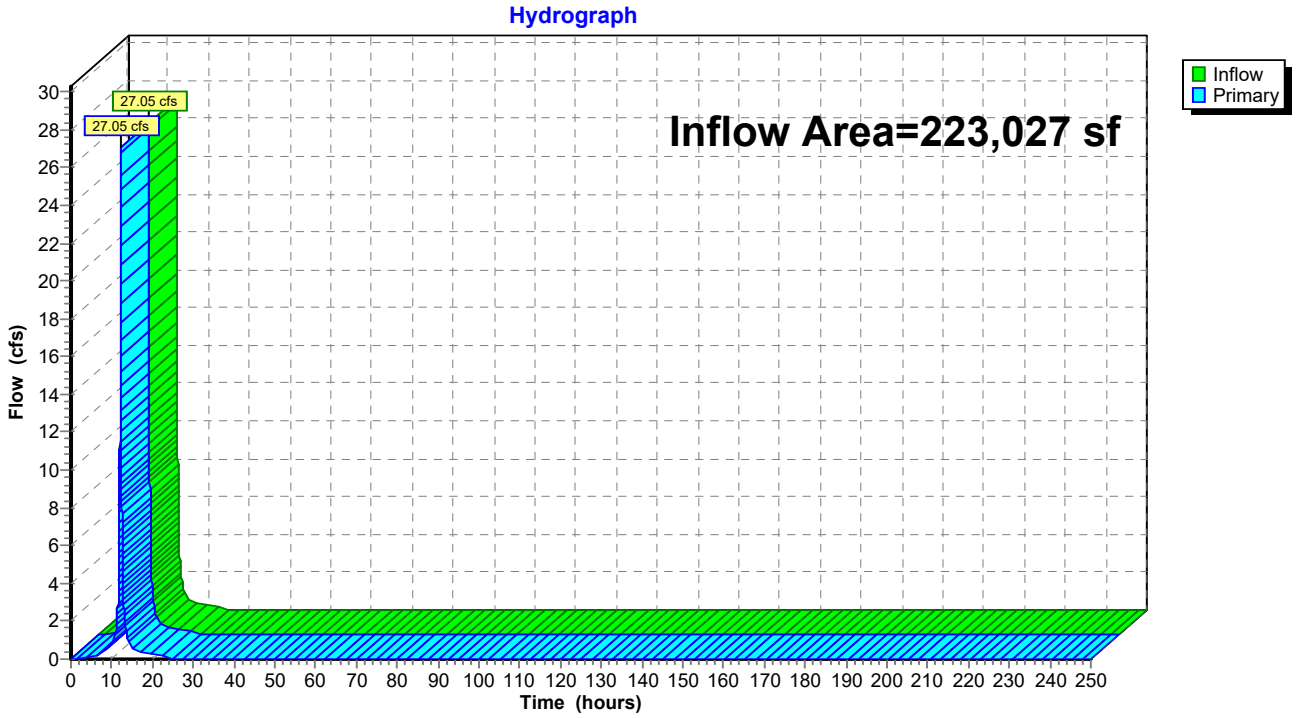


Summary for Link 4: Pre-Development Discharge Point 2

Inflow Area = 223,027 sf, 86.91% Impervious, Inflow Depth = 4.44" for 100-yr event
Inflow = 27.05 cfs @ 12.19 hrs, Volume= 82,449 cf
Primary = 27.05 cfs @ 12.19 hrs, Volume= 82,449 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 4: Pre-Development Discharge Point 2



Summary for Subcatchment 5: Pre-Development DA-3

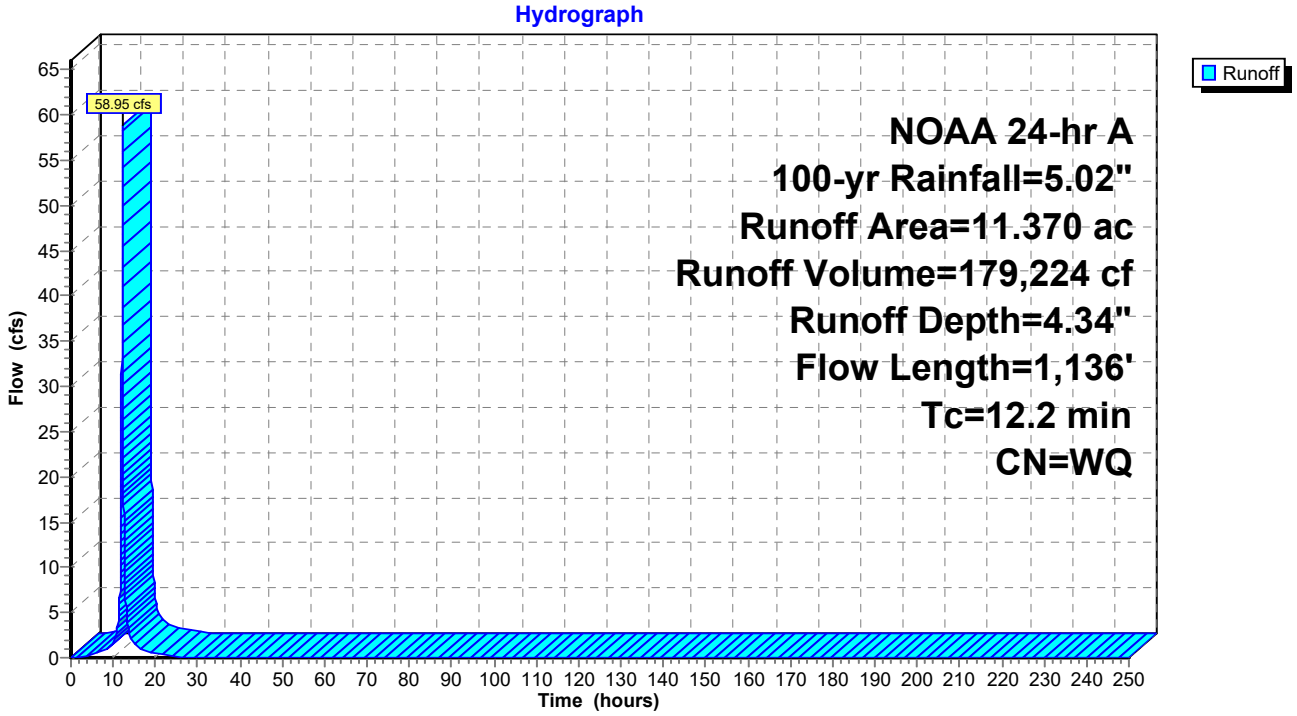
Runoff = 58.95 cfs @ 12.19 hrs, Volume= 179,224 cf, Depth= 4.34"
Routed to Link 6 : Pre-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	7.570	98	Paved parking, HSG C
*	1.890	71	20% Impervious as Meadow, HSG C
*	1.910	98	Imp Outside LOD
	11.370		Weighted Average
	1.890		16.62% Pervious Area
	9.480		83.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	50	0.0050	0.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.40"
1.2	214	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.5	822	0.0050	1.44		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	50	0.1400	15.03	8.20	**Pipe Channel,** 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.013
12.2	1,136	Total			

Subcatchment 5: Pre-Development DA-3

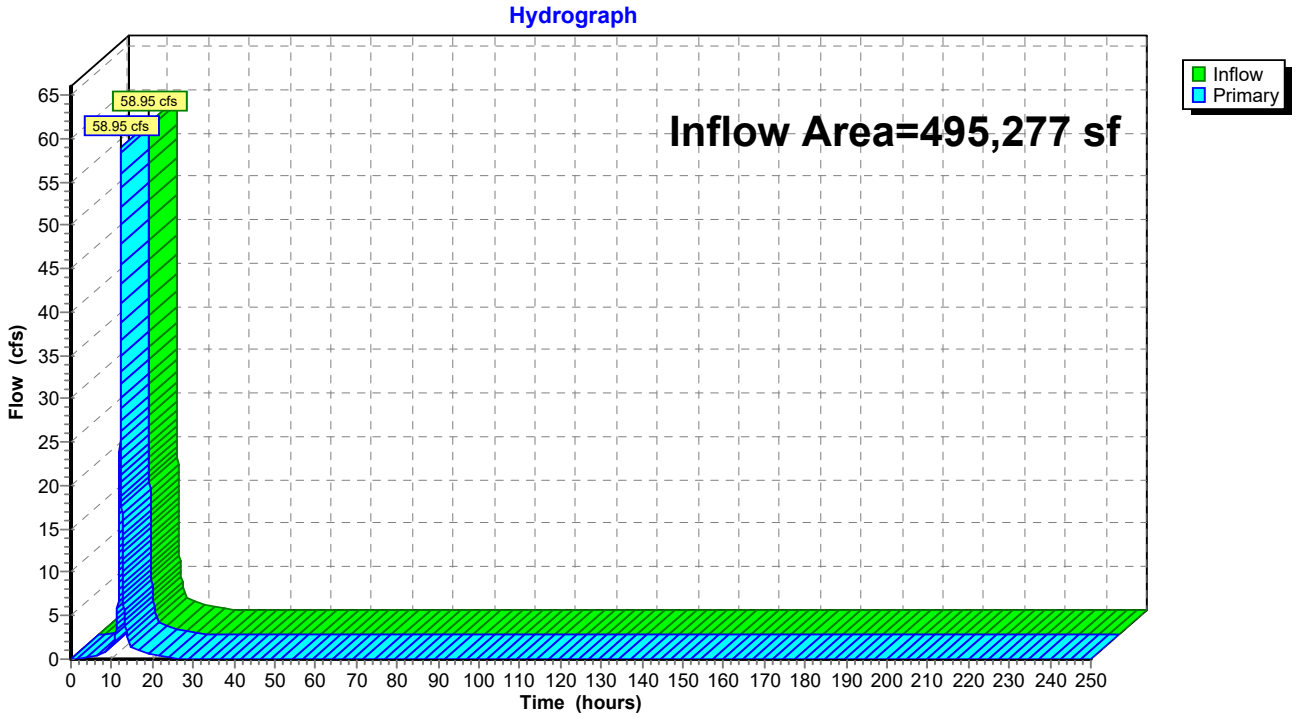


Summary for Link 6: Pre-Development Discharge Point 3

Inflow Area = 495,277 sf, 83.38% Impervious, Inflow Depth = 4.34" for 100-yr event
Inflow = 58.95 cfs @ 12.19 hrs, Volume= 179,224 cf
Primary = 58.95 cfs @ 12.19 hrs, Volume= 179,224 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 6: Pre-Development Discharge Point 3



Summary for Subcatchment 7: Pre-Development DA-4

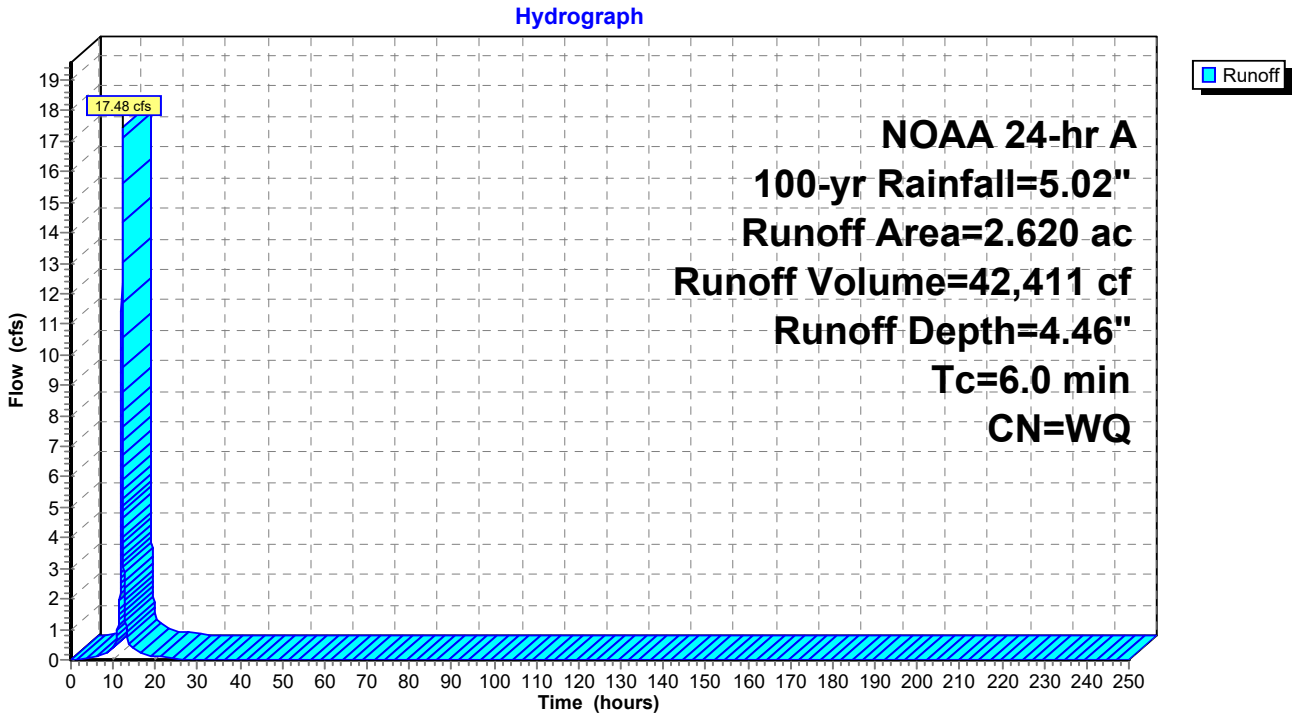
Runoff = 17.48 cfs @ 12.13 hrs, Volume= 42,411 cf, Depth= 4.46"
Routed to Link 8 : Pre-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	1.290	98	Paved parking, HSG C
*	0.320	71	20% Impervious as Meadow, HSG C
*	1.010	98	Imp Outside LOD
	2.620		Weighted Average
	0.320		12.21% Pervious Area
	2.300		87.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 7: Pre-Development DA-4

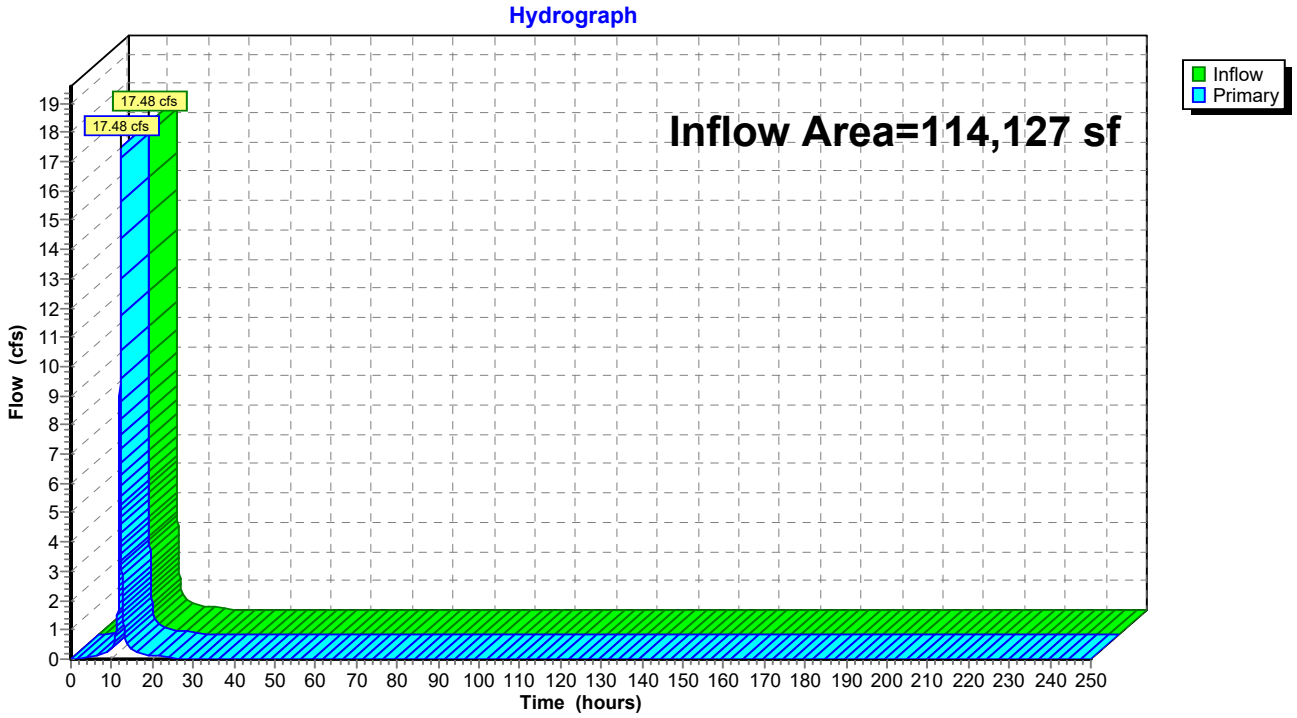


Summary for Link 8: Pre-Development Discharge Point 4

Inflow Area = 114,127 sf, 87.79% Impervious, Inflow Depth = 4.46" for 100-yr event
Inflow = 17.48 cfs @ 12.13 hrs, Volume= 42,411 cf
Primary = 17.48 cfs @ 12.13 hrs, Volume= 42,411 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 9 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 8: Pre-Development Discharge Point 4

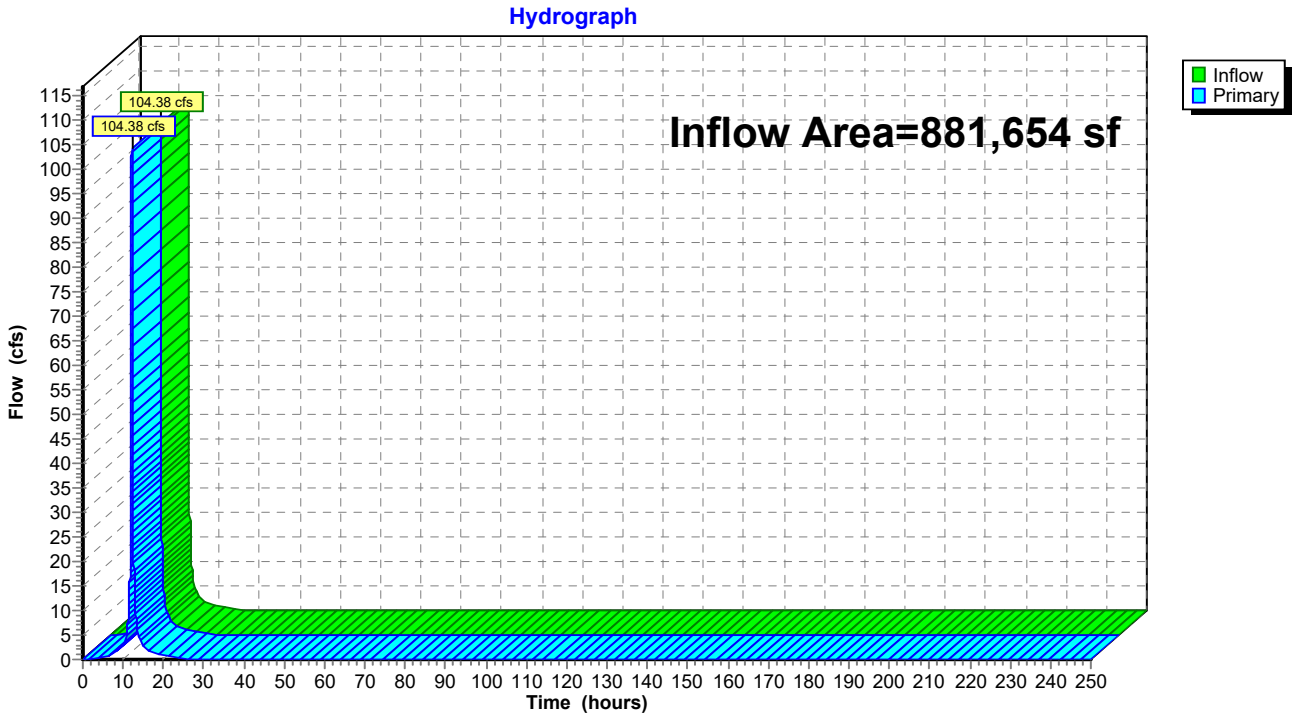


Summary for Link 9: POA 001

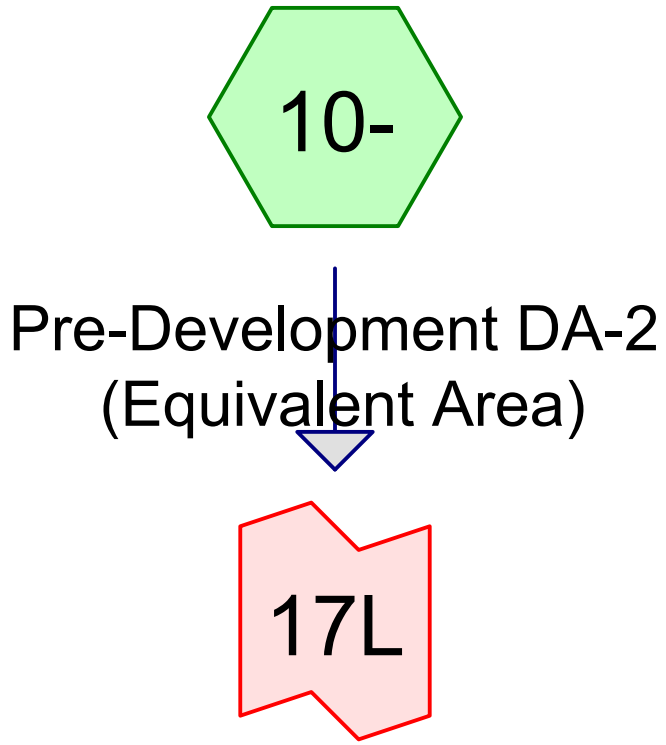
Inflow Area = 881,654 sf, 85.52% Impervious, Inflow Depth = 4.40" for 100-yr event
Inflow = 104.38 cfs @ 12.17 hrs, Volume= 323,222 cf
Primary = 104.38 cfs @ 12.17 hrs, Volume= 323,222 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

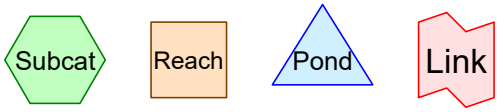
Link 9: POA 001



Pre Equivalent Drainage Area



PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026



Routing Diagram for 353-024 Sharon Substation
Prepared by CEC Inc, Printed 8/10/2026
HydroCAD® 10.20-6a s/n 01006 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment 10-: Pre-Development DA-2 (Equivalent Area)

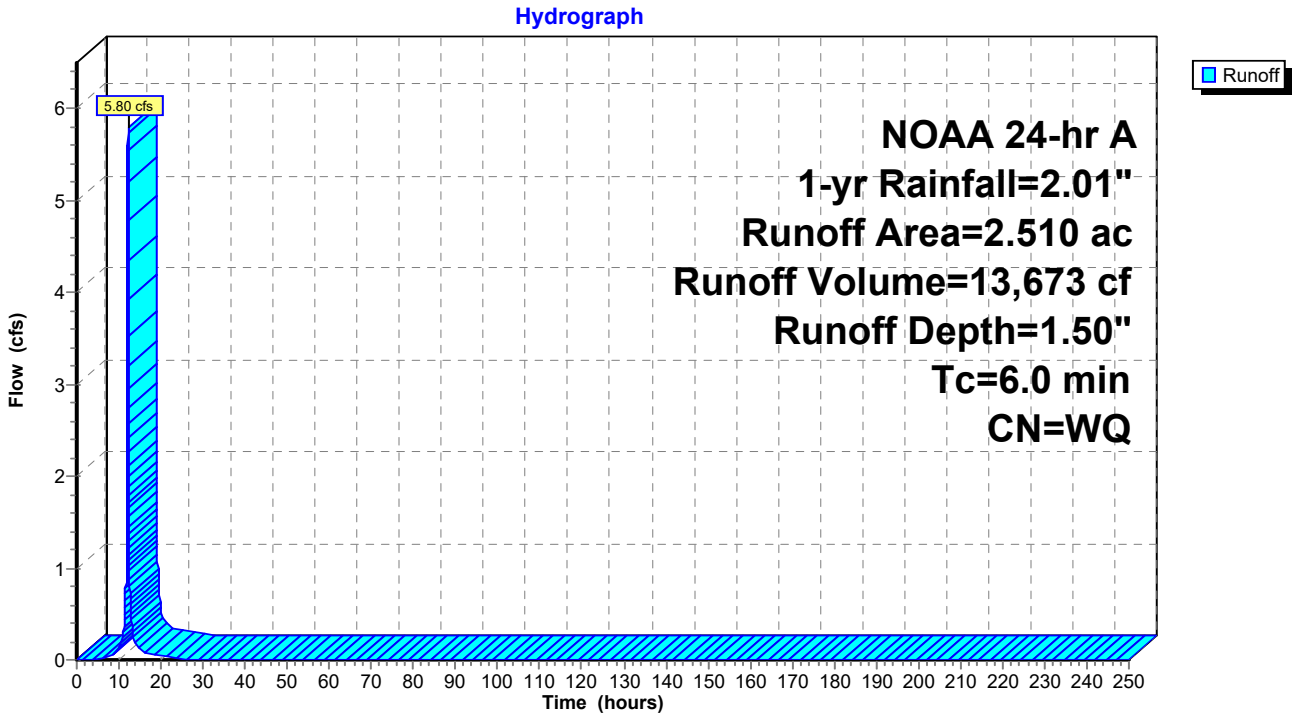
Runoff = 5.80 cfs @ 12.13 hrs, Volume= 13,673 cf, Depth= 1.50"
Routed to Link 17L :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	1.900	98	Paved parking, HSG C
*	0.470	71	Impervious as Meadow
*	0.140	98	Imp Outside LOD
	2.510		Weighted Average
	0.470		18.73% Pervious Area
	2.040		81.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 10-: Pre-Development DA-2 (Equivalent Area)

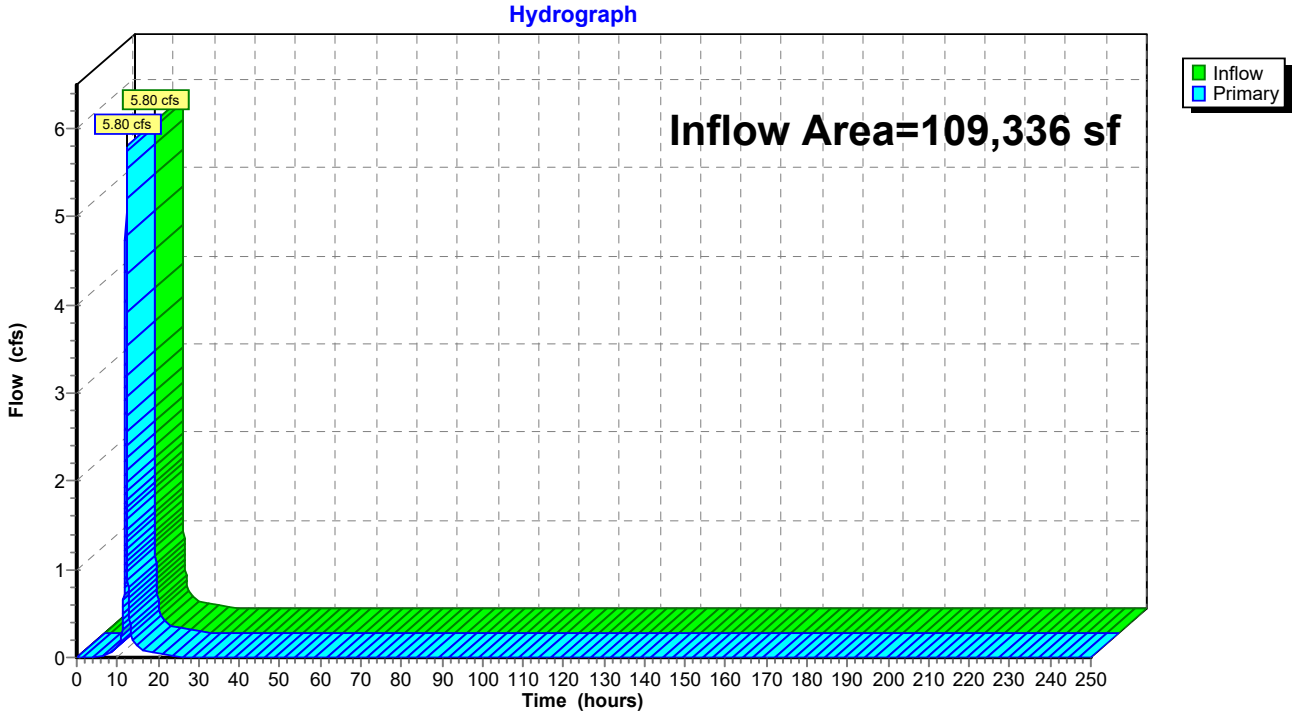


Summary for Link 17L:

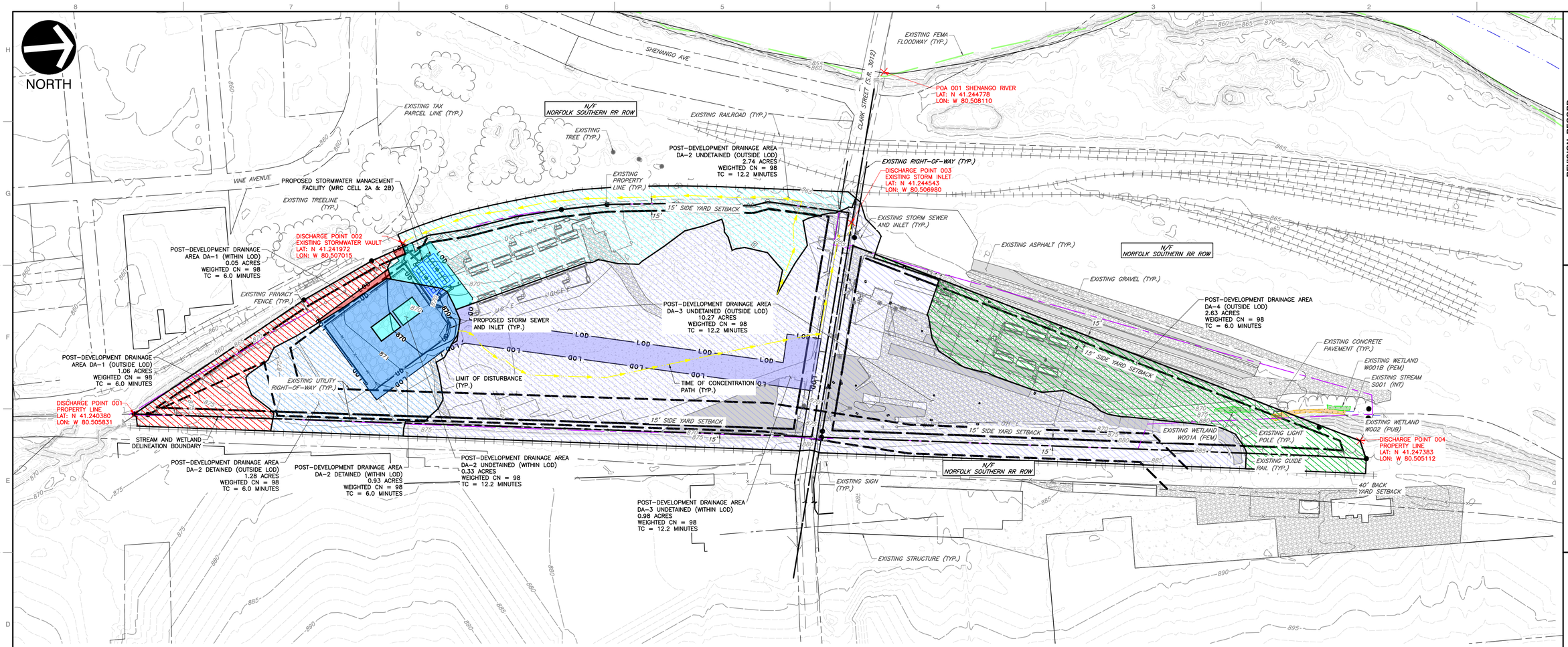
Inflow Area = 109,336 sf, 81.27% Impervious, Inflow Depth = 1.50" for 1-yr event
Inflow = 5.80 cfs @ 12.13 hrs, Volume= 13,673 cf
Primary = 5.80 cfs @ 12.13 hrs, Volume= 13,673 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 17L:



6A – POST-DEVELOPMENT ANALYSIS DRAINAGE MAP – PHASE 1



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING TAX PARCEL LINE
- EXISTING UTILITY RIGHT-OF-WAY
- EXISTING SETBACK
- EXISTING RIGHT-OF-WAY
- EXISTING RAILROAD
- EXISTING TREE LINE AND TREE
- EXISTING SECURITY FENCE LINE
- EXISTING PRIVACY FENCE LINE
- EXISTING ASPHALT PAVEMENT
- EXISTING GRAVEL
- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING GRAVEL (DIGITIZED FROM AERIAL)
- EXISTING CONCRETE PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING STRUCTURE
- EXISTING GUIDE RAIL
- EXISTING SIGN
- STREAM AND WETLAND DELINEATION BOUNDARY
- EXISTING STREAM
- EXISTING WETLAND (PEM)
- EXISTING WETLAND (PUB)
- EXISTING STORM SEWER
- EXISTING STORM INLET/DRAIN AND MANHOLE
- EXISTING AC UNIT
- EXISTING STREAM
- EXISTING FEMA FLOODWAY
- PROPOSED STORM INLET AND MANHOLE
- PROPOSED STORM SEWER
- POST-DEVELOPMENT DA-1 (UNDETAINED – OUTSIDE LOD)
- POST-DEVELOPMENT DA-2 (DETAINED – WITHIN LOD)
- POST-DEVELOPMENT DA-2 (DETAINED – OUTSIDE LOD)
- POST-DEVELOPMENT DA-2 (UNDETAINED – WITHIN LOD)
- POST-DEVELOPMENT DA-2 (UNDETAINED – OUTSIDE LOD)
- POST-DEVELOPMENT DA-3 (UNDETAINED – WITHIN LOD)
- POST-DEVELOPMENT DA-3 (UNDETAINED – OUTSIDE LOD)
- POST-DEVELOPMENT DA-4 (UNDETAINED – OUTSIDE LOD)
- LIMIT OF DISTURBANCE

REFERENCES

1. EXISTING SITE FEATURES AND UTILITIES ARE BASED ON A COMBINATION OF SURVEY PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) DATED 07-14-2025 THROUGH 10-22-2025 AND ALTA SURVEY COMPLETED 10-30-2025 BY CEC.
2. PLAN NORTH IS BASED ON PENNSYLVANIA STATE PLANE NAD83-2011, NORTH ZONE, AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
3. VERTICAL DATUM IS BASED ON NAVD88 (GEOID 18), AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
4. STREAM AND WETLAND DELINEATION PERFORMED BY CEC ON 07-11-2025.
5. PROPERTY IS LOCATED IN FLOOD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS DEPICTED ON FLOOD INSURANCE RATE MAP 42085C0307D, EFFECTIVE DATE 06-09-2014, MERCER COUNTY COUNTY, PENNSYLVANIA. THIS STATEMENT DOES NOT GUARANTEE THAT THE SUBJECT PROPERTY WILL OR WILL NOT FLOOD.
6. EXISTING CONTOURS ARE DERIVED FROM PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) 2 AND 10 CONTOURS DATED 2006-2008.
7. SUBSTATION LAYOUT PROVIDED BY ASPLUNDH ENGINEERING SERVICES ON 02-4-2026.
8. CLARK STREET IS A PADOT STREET PER MERCER COUNTY 10 MAP PREPARED BY THE PADOT DATED 2024
9. AERIAL PHOTOGRAPHY PROVIDED BY GOOGLE EARTH, ACCESS THROUGH FROM PLEX EARTH ON 01/28/2026. DATE OF PHOTOGRAPHY 10-02-2024.
10. APPROXIMATE GROUND WATER MONITORING WELL LOCATIONS ARE BASED ON THE DIGITIZATION OF AN EXHIBIT ISSUED BY ENVIRON 04/30/2014, AND FIELD SURVEY BY CEC IF ABOVE GROUND EVIDENCE WAS OBSERVED AND SHOULD NOT BE CONSIDERED ACCURATE.

SCALE IN FEET
0 100 200

REVISION RECORD		
NO	DATE	DESCRIPTION
1	09/05/2026	RESPONSE TO INCOMPLETENESS LETTER DATED 09/04/2026.
2	09/14/2026	RESPONSE TO TECHNICAL DEFICIENCY LETTER DATED 09/11/2026.

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF PENNSYLVANIA WILL BE PROVIDED BY CONSOCIATED ARCHITECTS, LLC.

Civil & Environmental Consultants, Inc.
700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 · 800.365.2324
www.cecinc.com

MERCER NODE PROPERTY, LLC
MERCER NODE DEVELOPMENT
200-201 CLARK STREET
CITY OF SHARON
MERCER COUNTY, PA

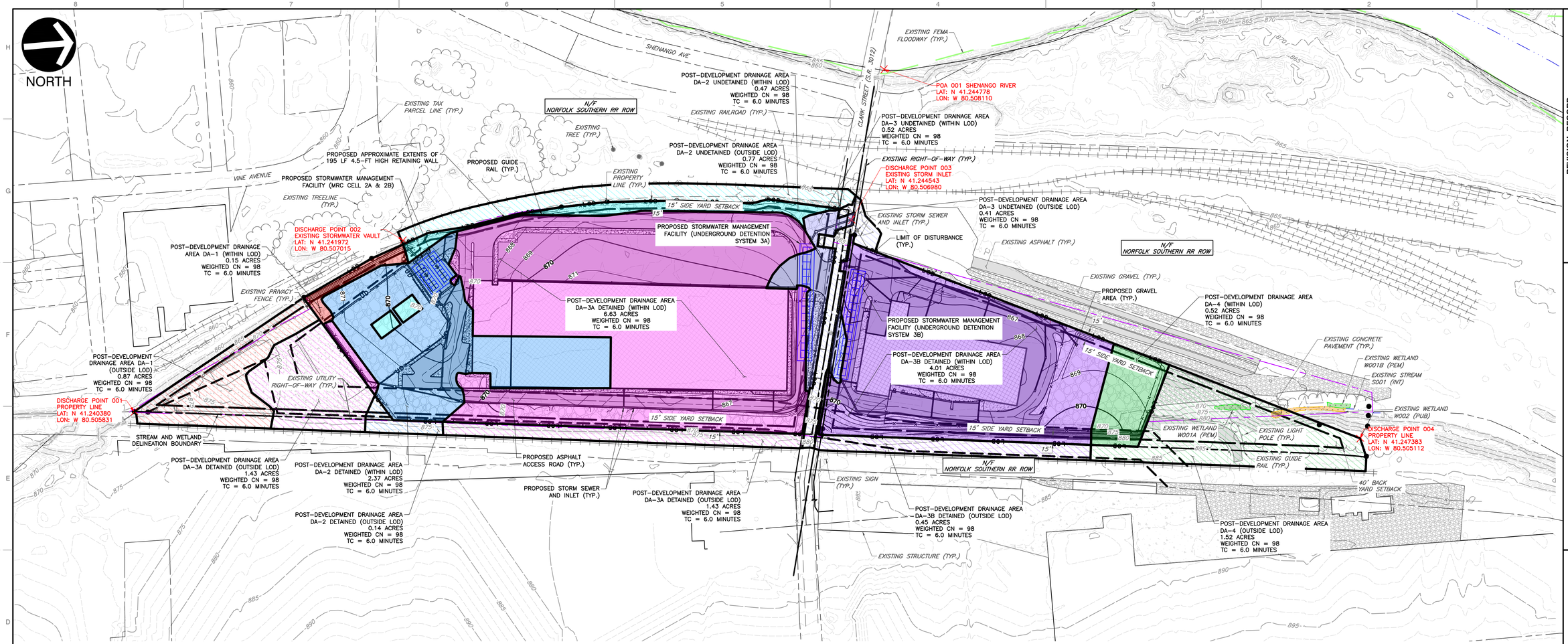
POST-DEVELOPMENT HYDROLOGY MAP PHASE 1

DATE:	APRIL 2026
DWG SCALE:	1" = 100'
PROJECT NO.	353-024
DRAWN BY:	VMF
CHECKED BY:	BJH
APPROVED BY:	RIM

DRAWING NO.:
HYD-2

\\ Cecinc.com\global\Projects\350-399\353-024\1-CAD\Dwg\CIVIL\353024-CIVIL-POST-HYD Map-Phase1.dwg(HYD-2) LS(8/12/2026 - shebling) - LP: 8/12/2026 2:10 PM

6B – POST-DEVELOPMENT ANALYSIS DRAINAGE MAP – PHASE 2 & 3



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING TAX PARCEL LINE
- EXISTING UTILITY RIGHT-OF-WAY
- EXISTING SETBACK
- EXISTING RIGHT-OF-WAY
- EXISTING RAILROAD
- EXISTING TREE LINE AND TREE
- EXISTING SECURITY FENCE LINE
- EXISTING PRIVACY FENCE LINE
- EXISTING ASPHALT PAVEMENT
- EXISTING GRAVEL
- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING GRAVEL (DIGITIZED FROM AERIAL)
- EXISTING CONCRETE PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING STRUCTURE
- EXISTING GUIDE RAIL
- EXISTING SIGN
- STREAM AND WETLAND DELINEATION BOUNDARY
- EXISTING STREAM
- EXISTING WETLAND (PEM)
- EXISTING WETLAND (PUB)
- EXISTING STORM SEWER
- EXISTING STORM INLET/DRAIN AND MANHOLE
- EXISTING AC UNIT
- EXISTING STREAM
- EXISTING FEMA FLOODWAY
- PROPOSED STORM INLET AND MANHOLE
- PROPOSED STORM SEWER
- PROPOSED STORMWATER MANAGEMENT FACILITY
- POST-DEVELOPMENT DA-1 (UNDETAINED – OUTSIDE LOD)
- POST-DEVELOPMENT DA-2 (DETAINED – WITHIN LOD)
- POST-DEVELOPMENT DA-2 (UNDETAINED – WITHIN LOD)
- POST-DEVELOPMENT DA-2 (UNDETAINED – OUTSIDE LOD)
- POST-DEVELOPMENT DA-3 (UNDETAINED – WITHIN LOD)
- POST-DEVELOPMENT DA-3 (UNDETAINED – OUTSIDE LOD)
- POST-DEVELOPMENT DA-3A (DETAINED – WITHIN LOD) (SOUTH)
- POST-DEVELOPMENT DA-3A (DETAINED – OUTSIDE LOD) (SOUTH)
- POST-DEVELOPMENT DA-3B (DETAINED – WITHIN LOD) (NORTH)
- POST-DEVELOPMENT DA-3B (DETAINED – OUTSIDE LOD) (NORTH)
- **POST-DEVELOPMENT DA-4 (UNDETAINED – WITHIN LOD)**
- POST-DEVELOPMENT DA-4 (UNDETAINED – OUTSIDE LOD)
- **LOD** LIMIT OF DISTURBANCE

REFERENCES

1. EXISTING SITE FEATURES AND UTILITIES ARE BASED ON A COMBINATION OF SURVEY PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) DATED 07-14-2025 THROUGH 10-22-2025 AND ALTA SURVEY COMPLETED 10-30-2025 BY CEC.
2. PLAN NORTH IS BASED ON PENNSYLVANIA STATE PLAN NAD83-2011, NORTH ZONE, AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
3. VERTICAL DATUM IS BASED ON NAVD88 (GEOID 18), AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
4. STREAM AND WETLAND DELINEATION PERFORMED BY CEC ON 07-11-2025.
5. PROPERTY IS LOCATED IN FLOOD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS DEPICTED ON FLOOD INSURANCE RATE MAP 42085C0307D, EFFECTIVE DATE 06-09-2014, MERCER COUNTY COUNTY, PENNSYLVANIA. THIS STATEMENT DOES NOT GUARANTEE THAT THE SUBJECT PROPERTY WILL OR WILL NOT FLOOD.
6. EXISTING CONTOURS ARE DERIVED FROM PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) 2 AND 10 CONTOURS DATED 2006-2008.
7. SUBSTATION LAYOUT PROVIDED BY ASPLUNDH ENGINEERING SERVICES ON 02-4-2026.
8. CLARK STREET IS A PADOT STREET PER MERCER COUNTY 10 MAP PREPARED BY THE PADOT DATED 2024
9. AERIAL PHOTOGRAPHY PROVIDED BY GOOGLE EARTH, ACCESS THROUGH FROM PLEX EARTH ON 01/28/2026. DATE OF PHOTOGRAPHY 10-02-2024.
10. APPROXIMATE GROUND WATER MONITORING WELL LOCATIONS ARE BASED ON THE DIGITIZATION OF AN EXHIBIT ISSUED BY ENVIRON 04/30/2014, AND FIELD SURVEY BY CEC IF ABOVE GROUND EVIDENCE WAS OBSERVED AND SHOULD NOT BE CONSIDERED ACCURATE.

SCALE IN FEET
0 100 200

REVISION RECORD

NO	DATE	DESCRIPTION
1	09/05/2026	RESPONSE TO INCOMPLETENESS LETTER DATED 09/04/2026.
2	09/14/2026	RESPONSE TO TECHNICAL DEFICIENCY LETTER DATED 09/11/2026.

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, INC.

Civil & Environmental Consultants, Inc.
700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 · 800.365.2324
www.cecinc.com

MERCER NODE PROPERTY, LLC
MERCER NODE DEVELOPMENT
200-201 CLARK STREET
CITY OF SHARON
MERCER COUNTY, PA

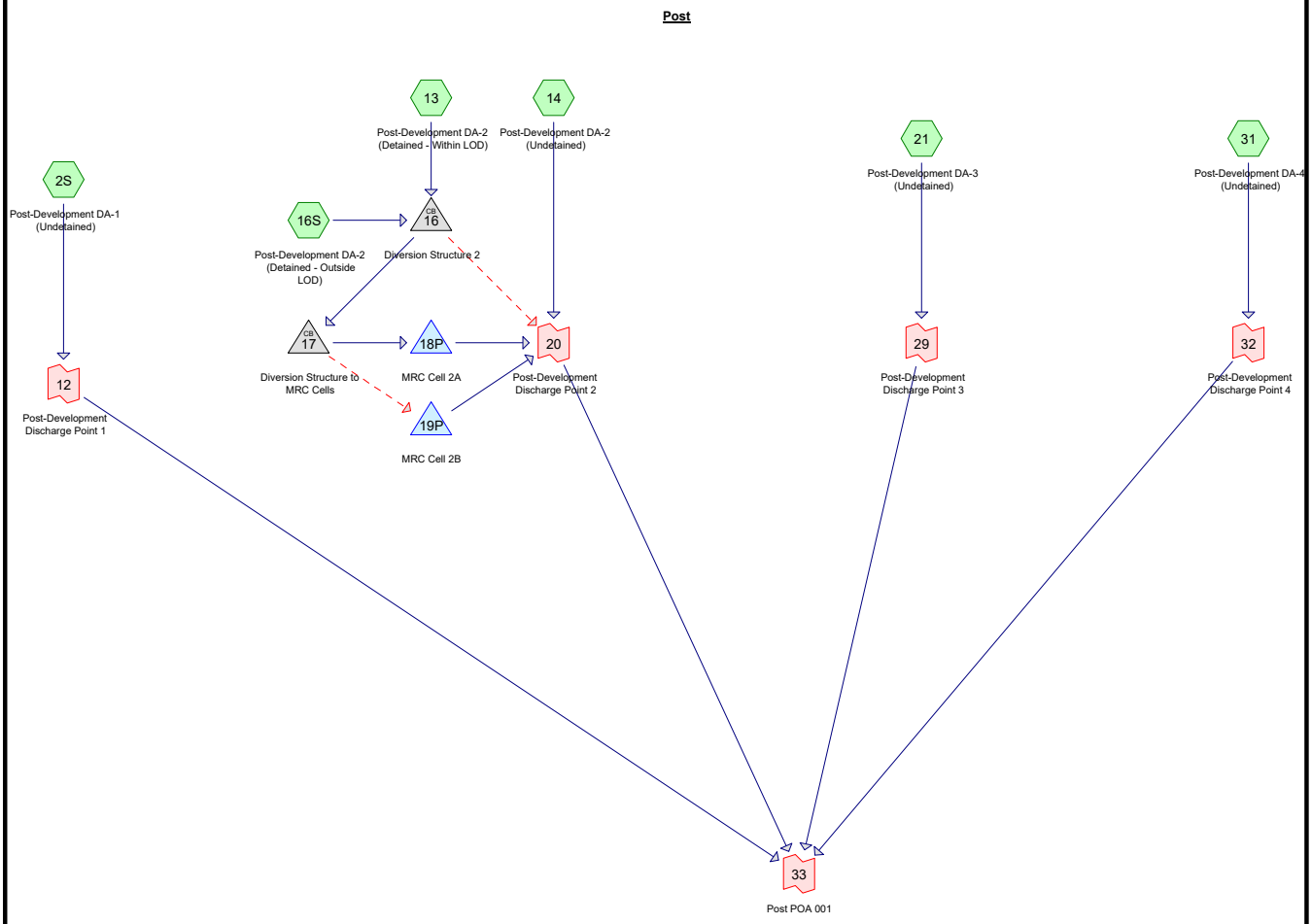
POST-DEVELOPMENT HYDROLOGY MAP PHASE 1, 2 & 3

DATE:	APRIL 2026
DWG SCALE:	1" = 100'
PROJECT NO:	353-024
DRAWN BY:	VMF
CHECKED BY:	BJH
APPROVED BY:	RIM

DRAWING NO.:
HYD-3

\\cecinc.com\global\Projects\350-699\353-024\1-CAD\Dwg\CIVIL\353024-CIVIL-POST-HYD Map.dwg(HYD-3) LS(8/12/2026 - shebbing) - LP: 8/12/2026 2:20 PM

7A – POST-DEVELOPMENT RATE CALCULATIONS – PHASE 1



PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

Subcat Reach Pond Link

Routing Diagram for 353-024 Sharon Substation_PH 1
Prepared by CEC Inc, Printed 8/10/2026
HydroCAD® 10.20-6a s/n 01006 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment 2S: Post-Development DA-1 (Undetained)

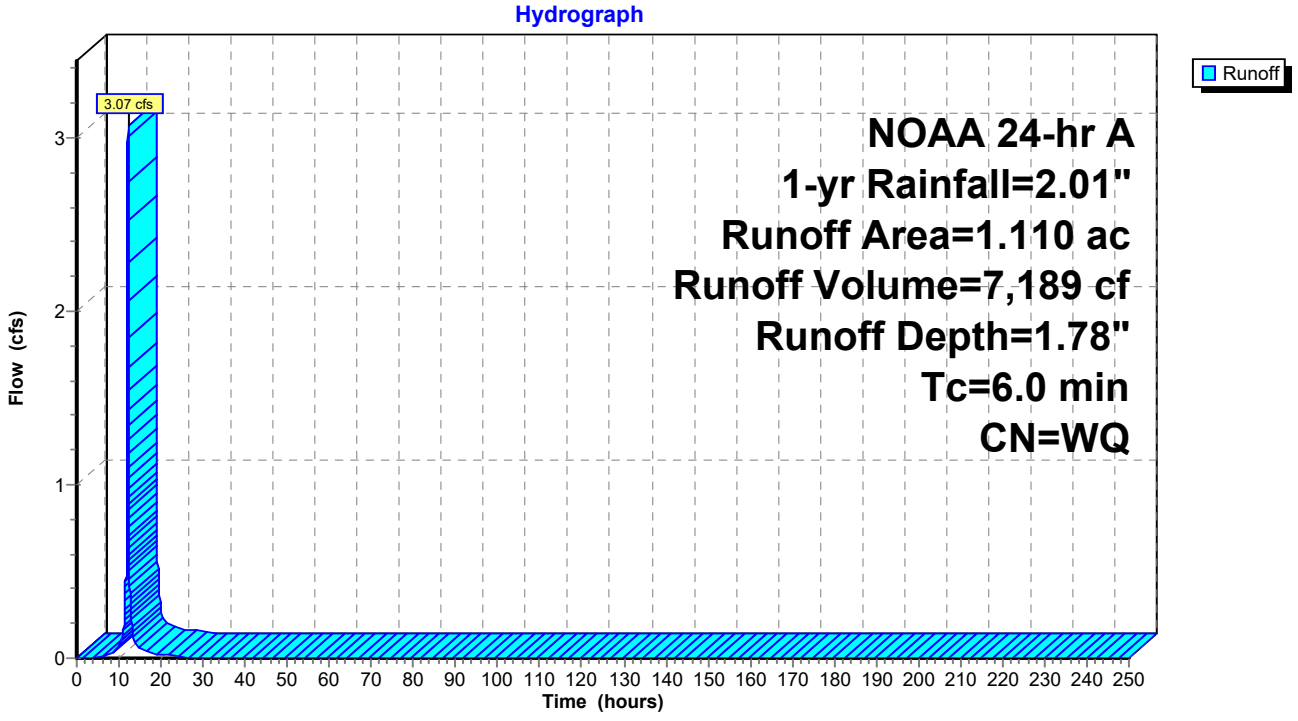
Runoff = 3.07 cfs @ 12.13 hrs, Volume= 7,189 cf, Depth= 1.78"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	0.050	98	Paved parking, HSG C
*	1.060	98	Imp Outside LOD
	1.110		Weighted Average
	1.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Undetained)

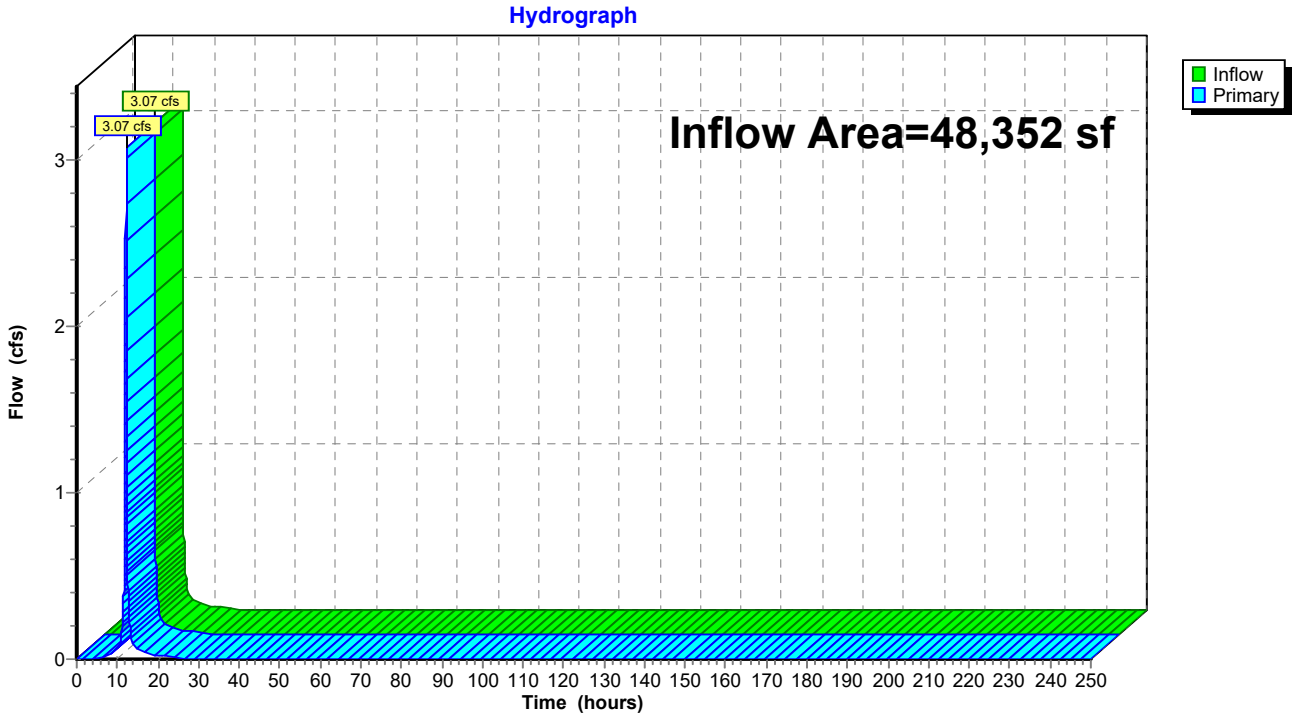


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 48,352 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 3.07 cfs @ 12.13 hrs, Volume= 7,189 cf
Primary = 3.07 cfs @ 12.13 hrs, Volume= 7,189 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

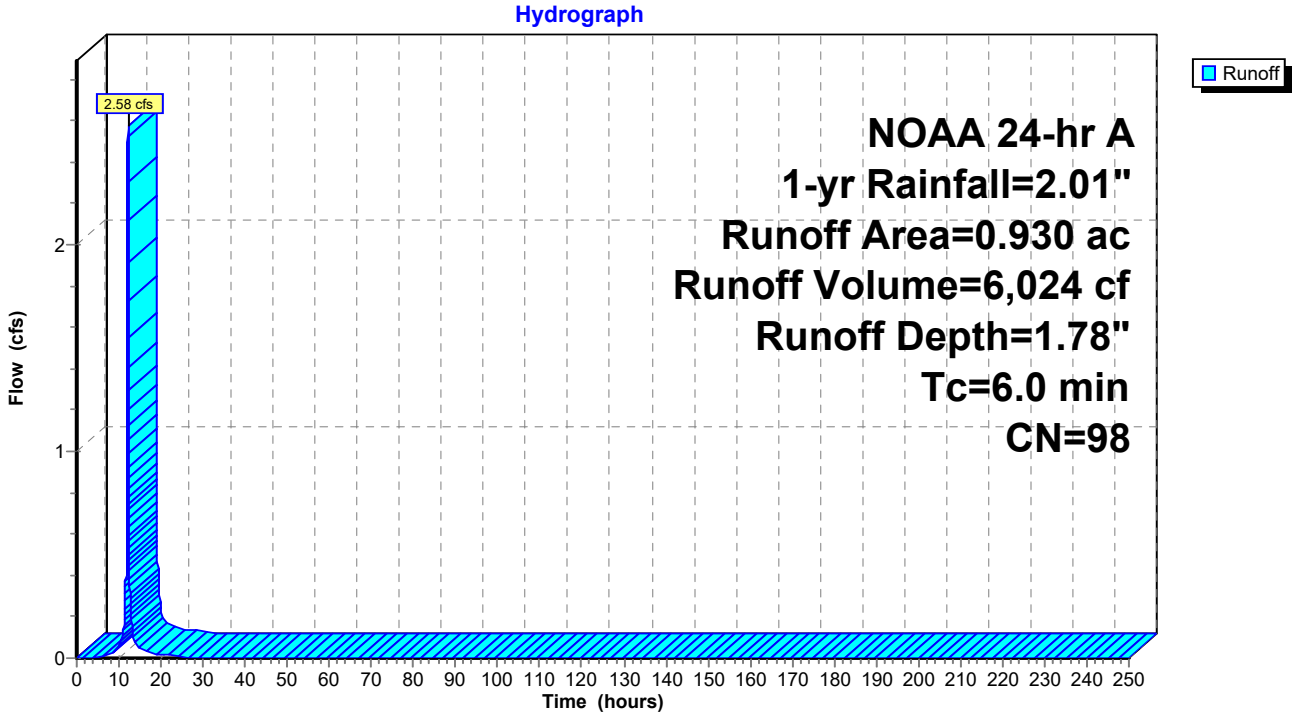
Runoff = 2.58 cfs @ 12.13 hrs, Volume= 6,024 cf, Depth= 1.78"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG C
0.930		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained)

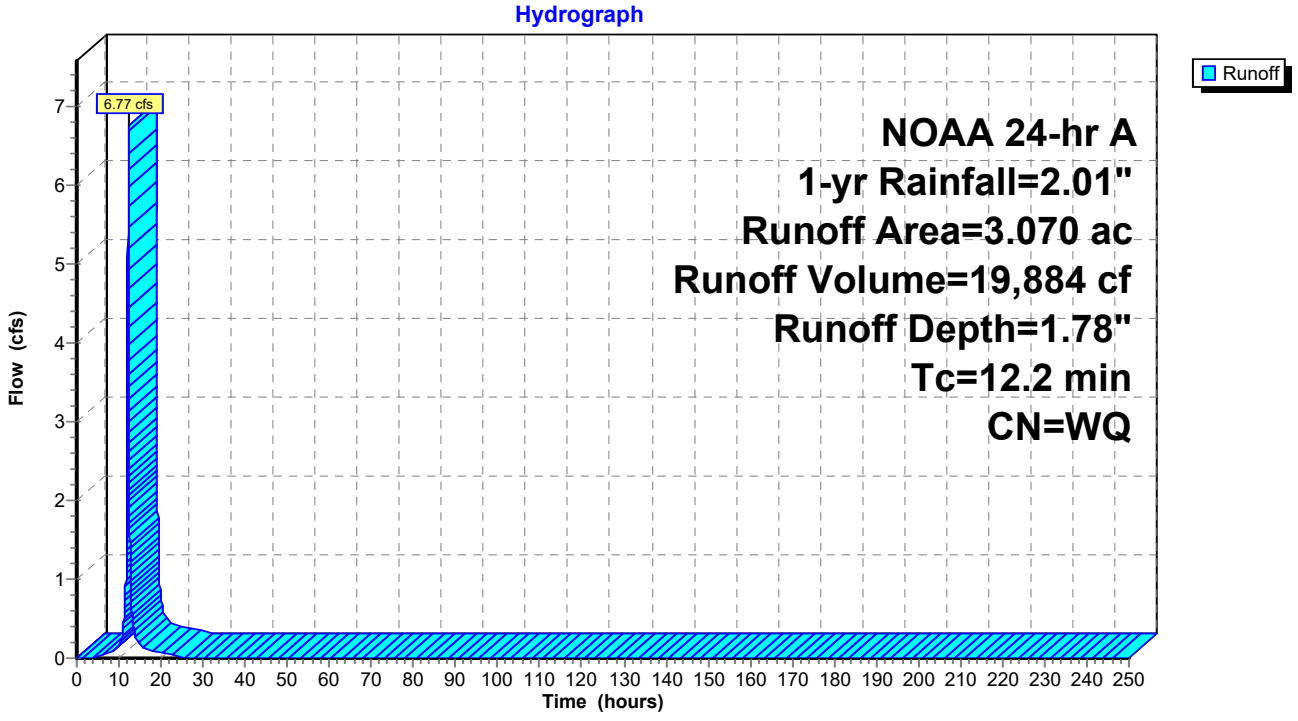
Runoff = 6.77 cfs @ 12.19 hrs, Volume= 19,884 cf, Depth= 1.78"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	0.330	98	Paved parking, HSG C
*	2.740	98	Imp Outside LOD
	3.070		Weighted Average
	3.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre Development TC**

Subcatchment 14: Post-Development DA-2 (Undetained)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 6.12 cfs @ 12.13 hrs, Volume= 14,314 cf
Outflow = 6.12 cfs @ 12.13 hrs, Volume= 14,314 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.12 cfs @ 12.13 hrs, Volume= 14,314 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 20 : Post-Development Discharge Point 2

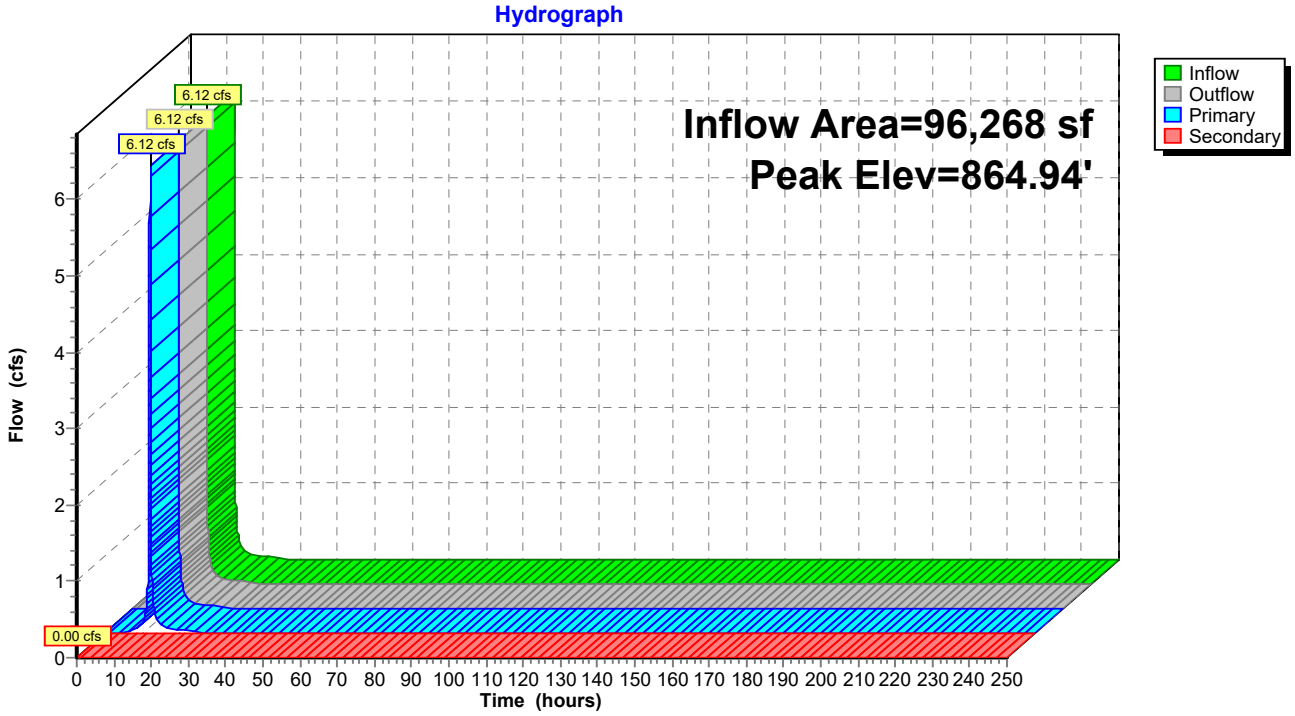
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.94' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=6.05 cfs @ 12.13 hrs HW=864.93' TW=864.63' (Dynamic Tailwater)
└**1=Culvert to MRC** (Outlet Controls 6.05 cfs @ 3.27 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=863.70' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Controls 0.00 cfs)
└**3=Diversion Weir** (Controls 0.00 cfs)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

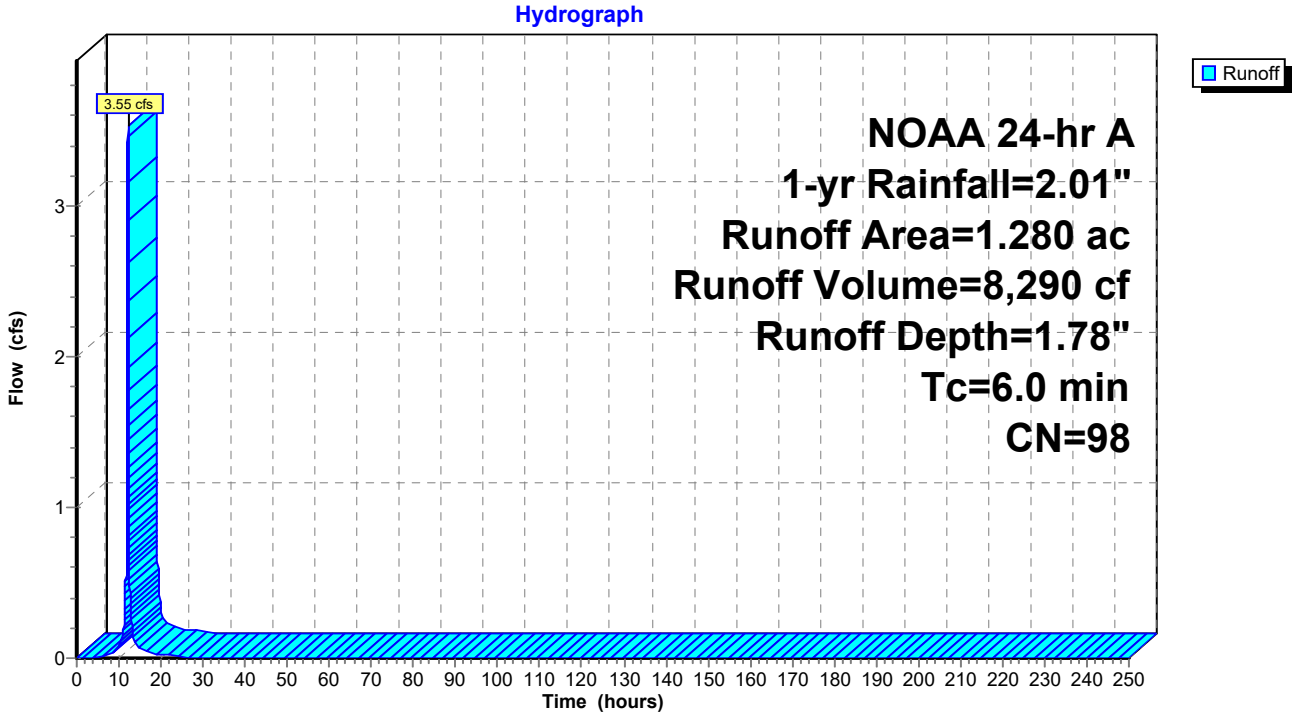
Runoff = 3.55 cfs @ 12.13 hrs, Volume= 8,290 cf, Depth= 1.78"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG C
1.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 6.12 cfs @ 12.13 hrs, Volume= 14,314 cf
Outflow = 6.12 cfs @ 12.13 hrs, Volume= 14,314 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.06 cfs @ 12.13 hrs, Volume= 7,157 cf
Routed to Pond 18P : MRC Cell 2A
Secondary = 3.06 cfs @ 12.13 hrs, Volume= 7,157 cf
Routed to Pond 19P : MRC Cell 2B

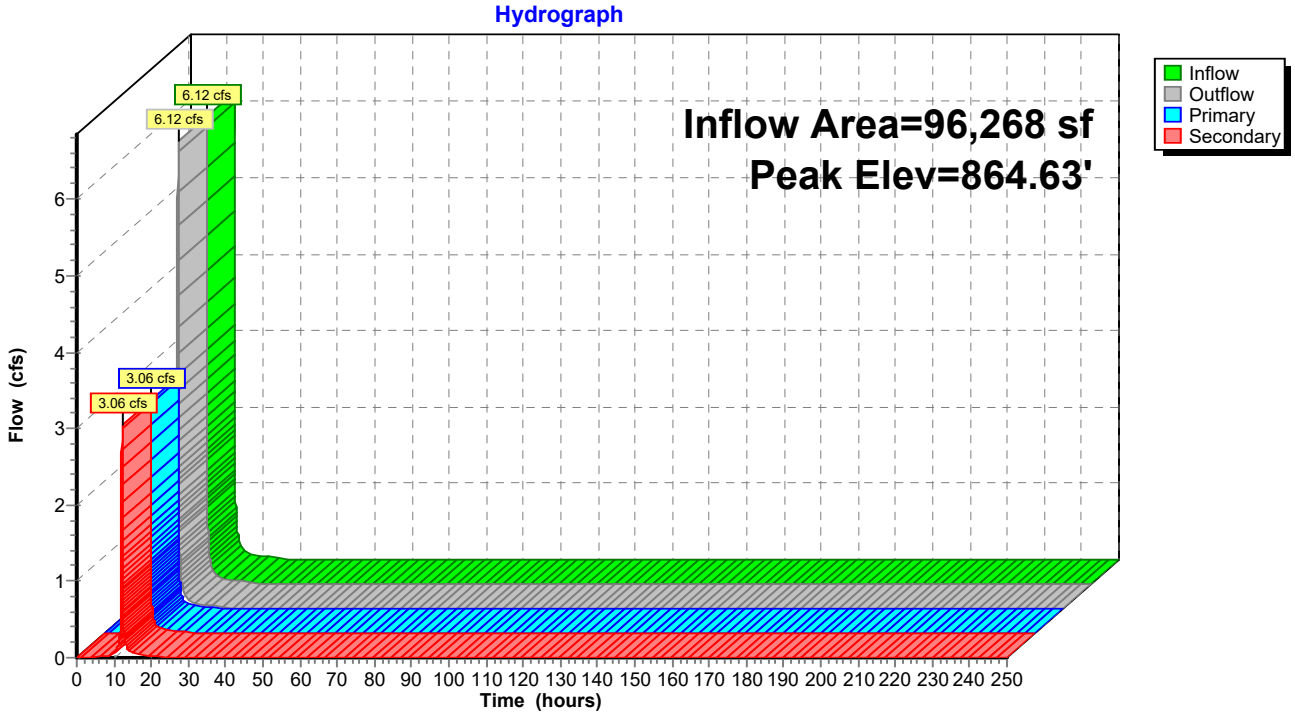
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.63' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.06 cfs @ 12.13 hrs HW=864.63' TW=861.63' (Dynamic Tailwater)
↑└**1=Culvert to MRC Cell 2A** (Barrel Controls 3.06 cfs @ 3.34 fps)

Secondary OutFlow Max=3.06 cfs @ 12.13 hrs HW=864.63' TW=861.63' (Dynamic Tailwater)
↑└**2=Culvert to MRC Cell 2B** (Barrel Controls 3.06 cfs @ 3.34 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18P: MRC Cell 2A

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 0.89" for 1-yr event
Inflow = 3.06 cfs @ 12.13 hrs, Volume= 7,157 cf
Outflow = 0.16 cfs @ 13.20 hrs, Volume= 7,150 cf, Atten= 95%, Lag= 64.0 min
Primary = 0.16 cfs @ 13.20 hrs, Volume= 7,150 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.64' @ 13.20 hrs Storage= 5,288 cf

Plug-Flow detention time= 1,986.1 min calculated for 7,150 cf (100% of inflow)
Center-of-Mass det. time= 1,985.5 min (2,747.5 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

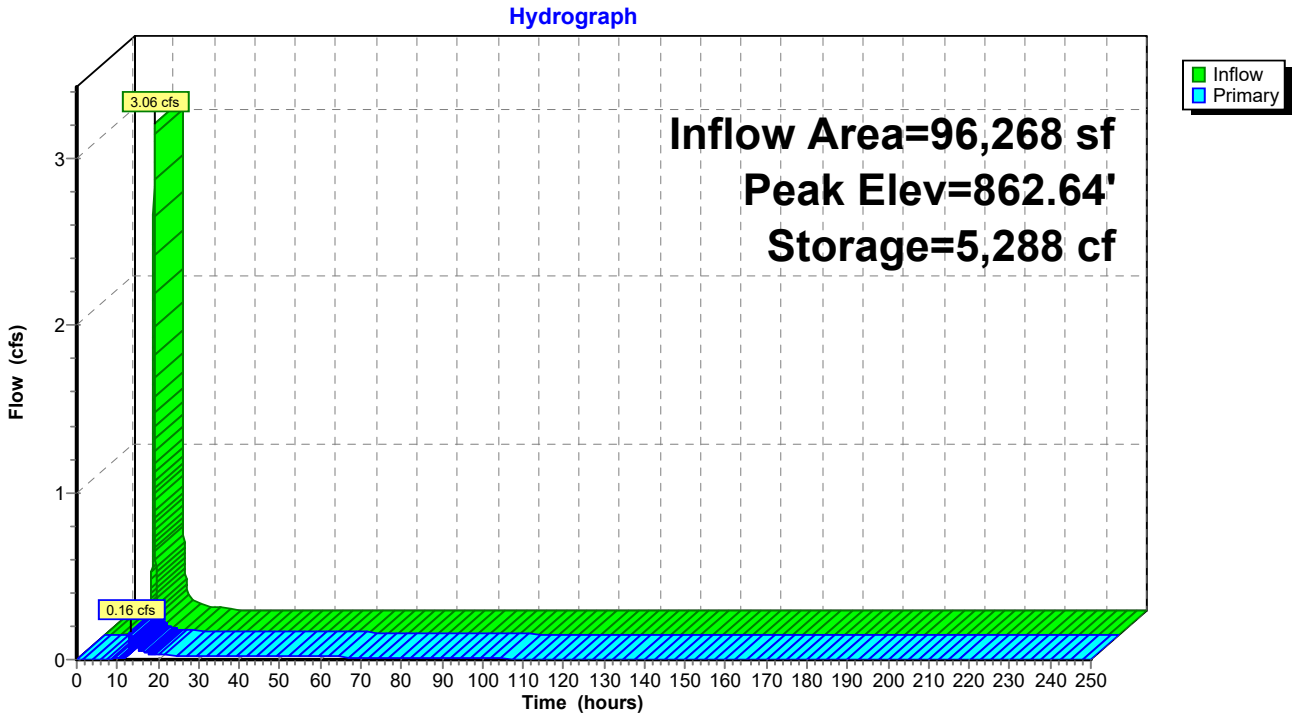
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.16 cfs @ 13.20 hrs HW=862.64' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 0.16 cfs of 10.32 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 7.77 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 0.14 cfs @ 1.28 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18P: MRC Cell 2A



Summary for Pond 19P: MRC Cell 2B

Inflow = 3.06 cfs @ 12.13 hrs, Volume= 7,157 cf
Outflow = 0.16 cfs @ 13.20 hrs, Volume= 7,150 cf, Atten= 95%, Lag= 64.0 min
Primary = 0.16 cfs @ 13.20 hrs, Volume= 7,150 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.64' @ 13.20 hrs Storage= 5,288 cf

Plug-Flow detention time= 1,986.1 min calculated for 7,150 cf (100% of inflow)
Center-of-Mass det. time= 1,985.5 min (2,747.5 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

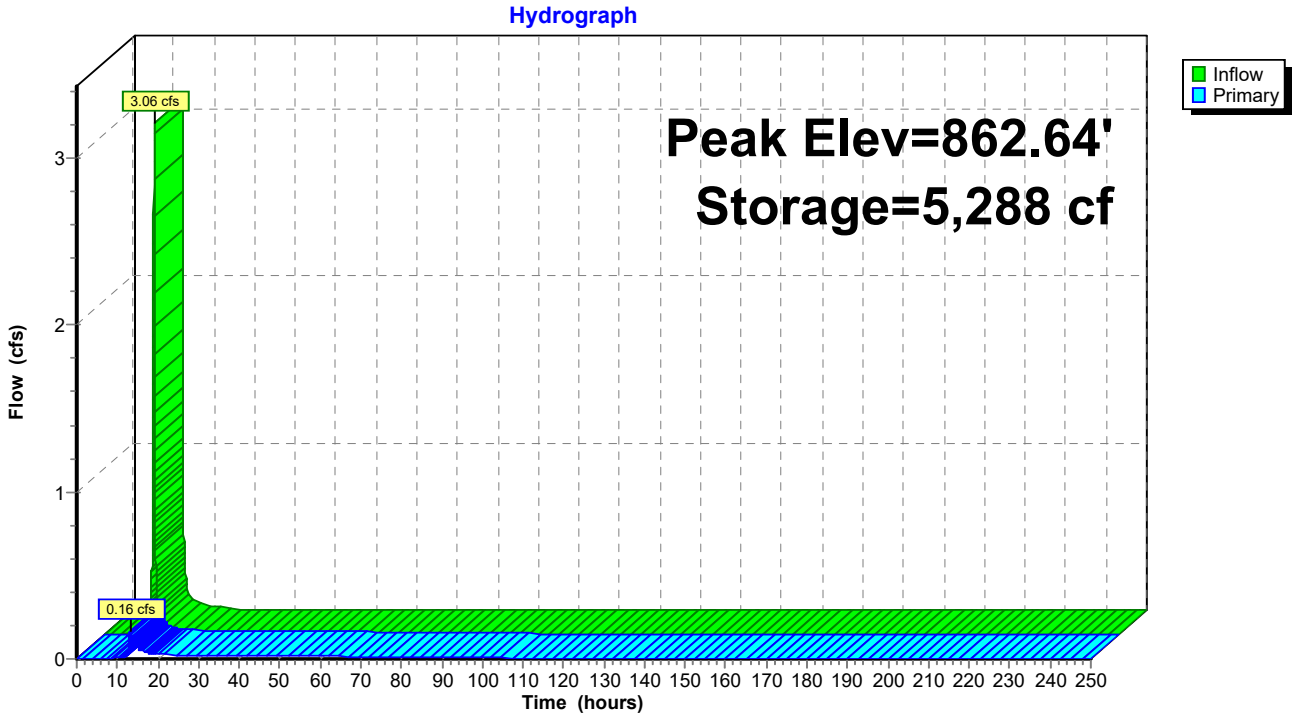
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.16 cfs @ 13.20 hrs HW=862.64' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 0.16 cfs of 10.32 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 7.77 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 0.14 cfs @ 1.28 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19P: MRC Cell 2B

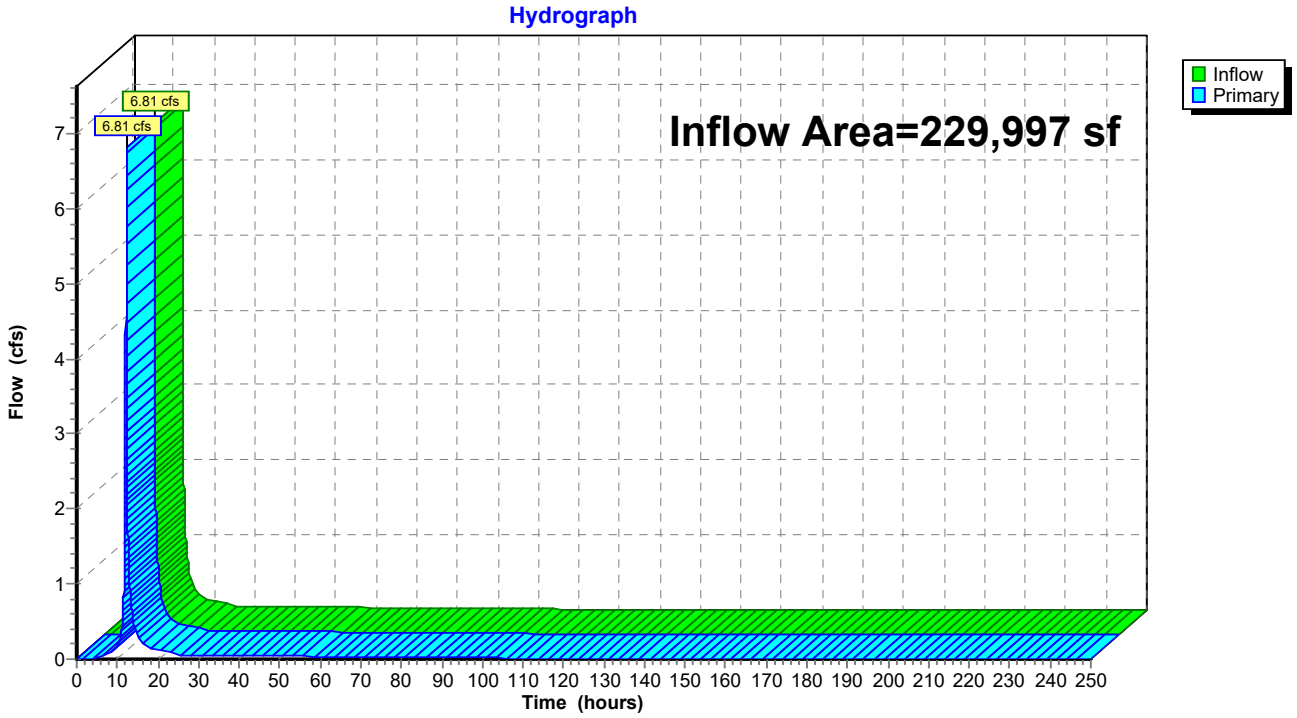


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 229,997 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 6.81 cfs @ 12.19 hrs, Volume= 34,184 cf
Primary = 6.81 cfs @ 12.19 hrs, Volume= 34,184 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained)

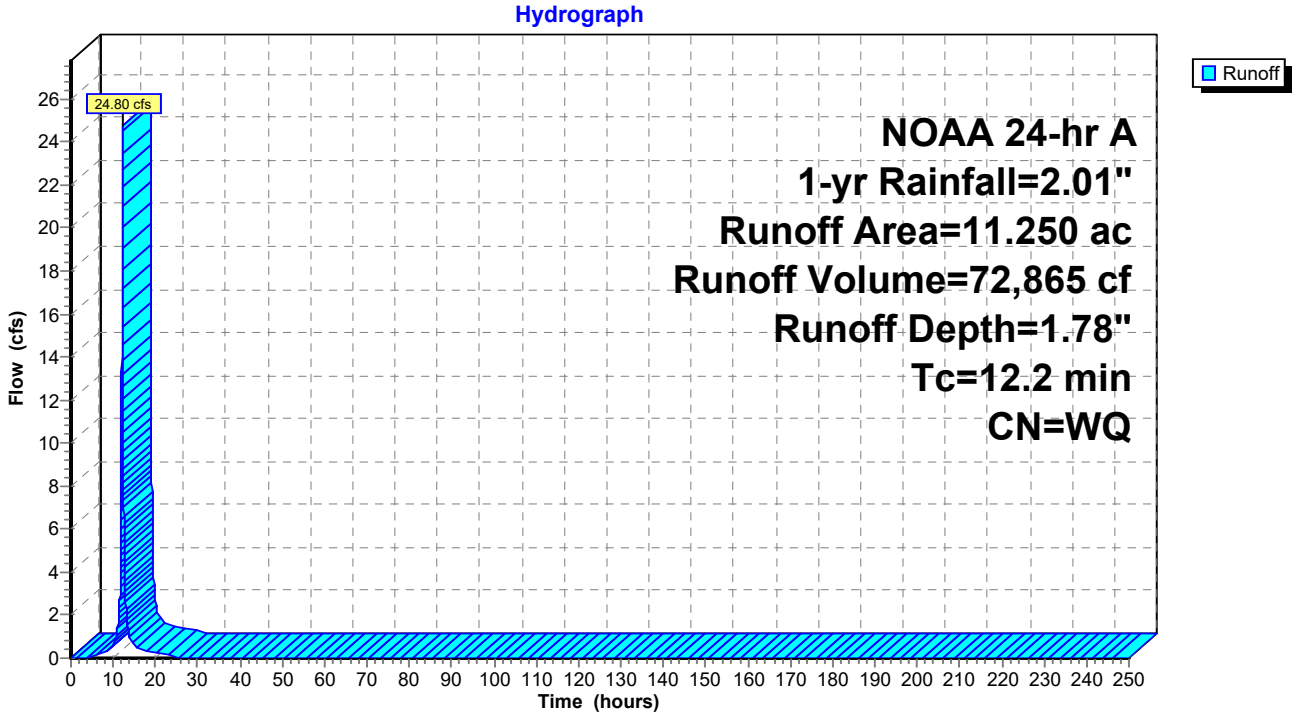
Runoff = 24.80 cfs @ 12.19 hrs, Volume= 72,865 cf, Depth= 1.78"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
	0.980	98	Paved parking, HSG C
*	10.270	98	Imp Outside LOD
	11.250		Weighted Average
	11.250		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre-Development TC**

Subcatchment 21: Post-Development DA-3 (Undetained)

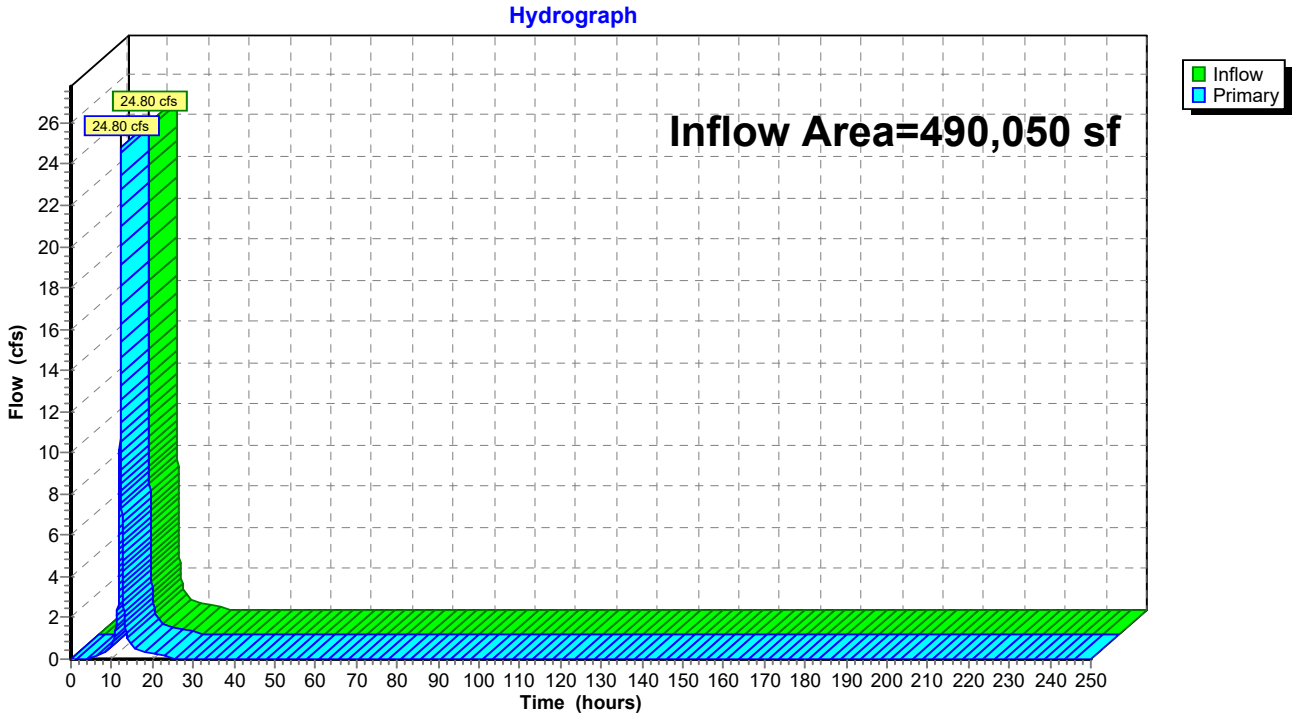


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 490,050 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 24.80 cfs @ 12.19 hrs, Volume= 72,865 cf
Primary = 24.80 cfs @ 12.19 hrs, Volume= 72,865 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 31: Post-Development DA-4 (Undetained)

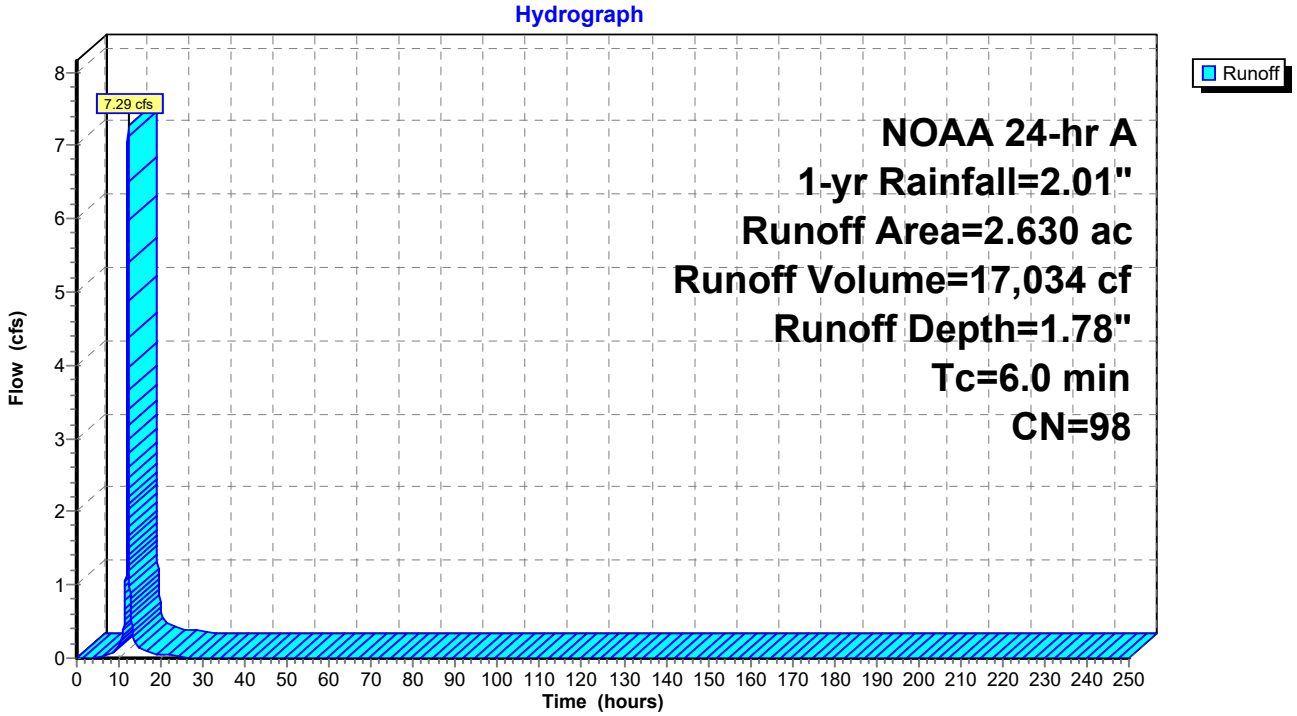
Runoff = 7.29 cfs @ 12.13 hrs, Volume= 17,034 cf, Depth= 1.78"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

	Area (ac)	CN	Description
*	2.630	98	Imp Outside LOD
	2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained)

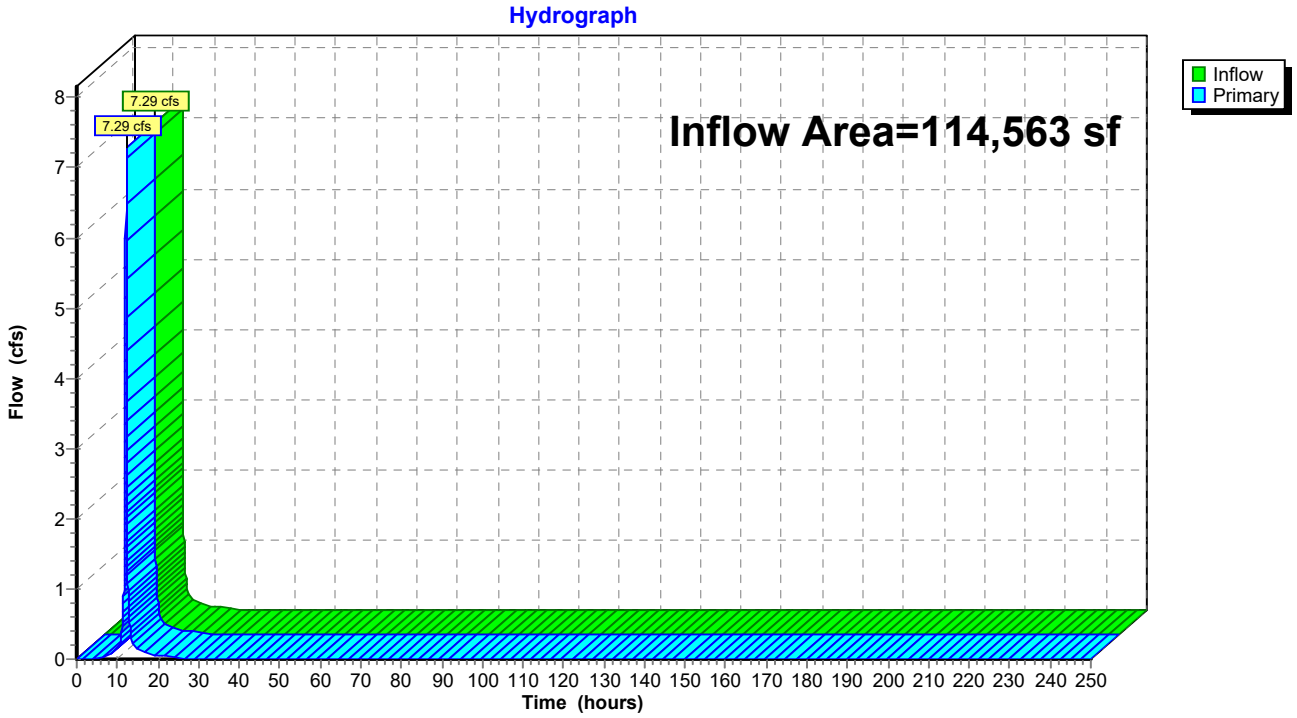


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 7.29 cfs @ 12.13 hrs, Volume= 17,034 cf
Primary = 7.29 cfs @ 12.13 hrs, Volume= 17,034 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

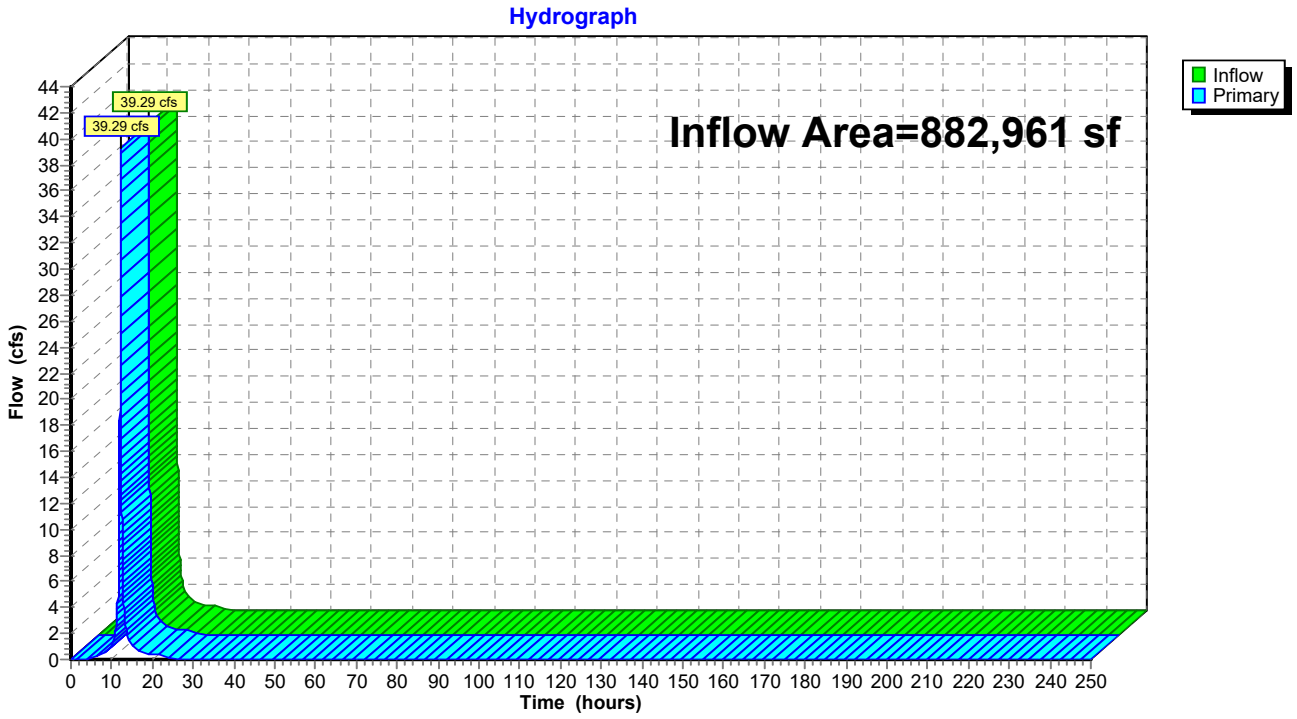


Summary for Link 33: Post POA 001

Inflow Area = 882,961 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 39.29 cfs @ 12.17 hrs, Volume= 131,272 cf
Primary = 39.29 cfs @ 12.17 hrs, Volume= 131,272 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: Post POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Undetained)

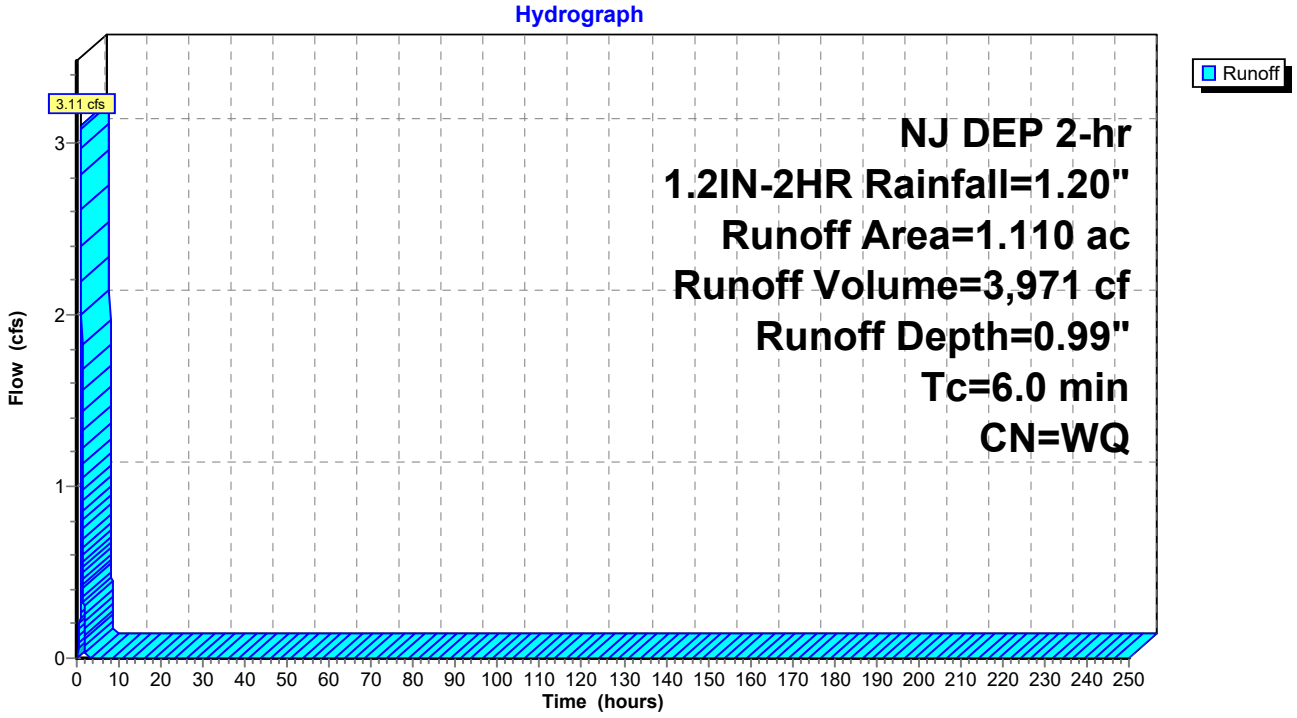
Runoff = 3.11 cfs @ 1.11 hrs, Volume= 3,971 cf, Depth= 0.99"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	0.050	98	Paved parking, HSG C
*	1.060	98	Imp Outside LOD
	1.110		Weighted Average
	1.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Undetained)

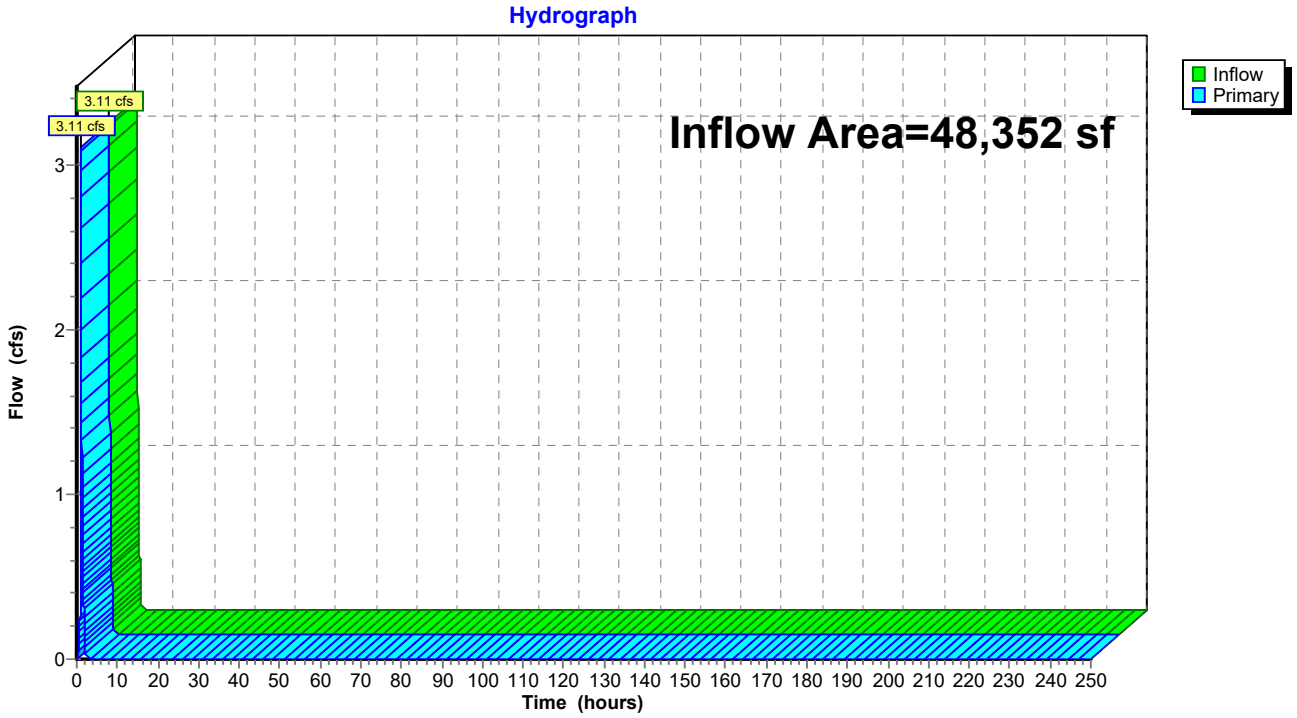


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 48,352 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 3.11 cfs @ 1.11 hrs, Volume= 3,971 cf
Primary = 3.11 cfs @ 1.11 hrs, Volume= 3,971 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

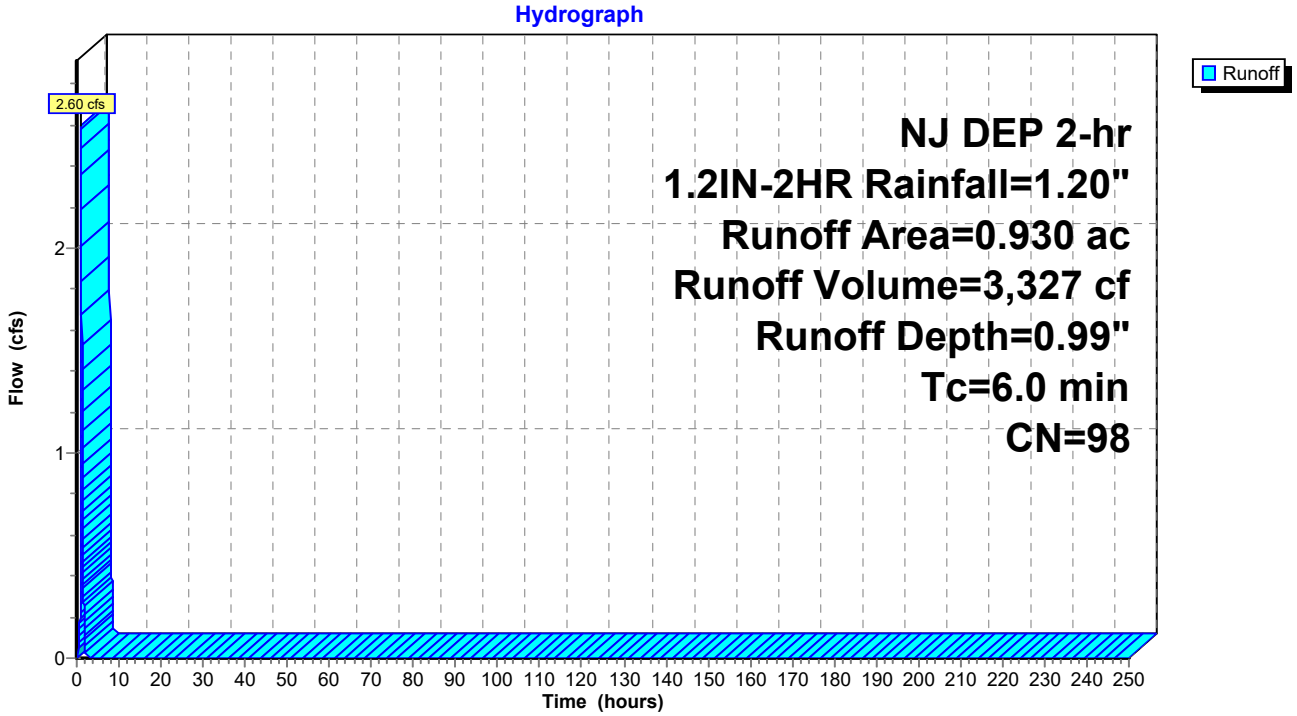
Runoff = 2.60 cfs @ 1.11 hrs, Volume= 3,327 cf, Depth= 0.99"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG C
0.930		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained)

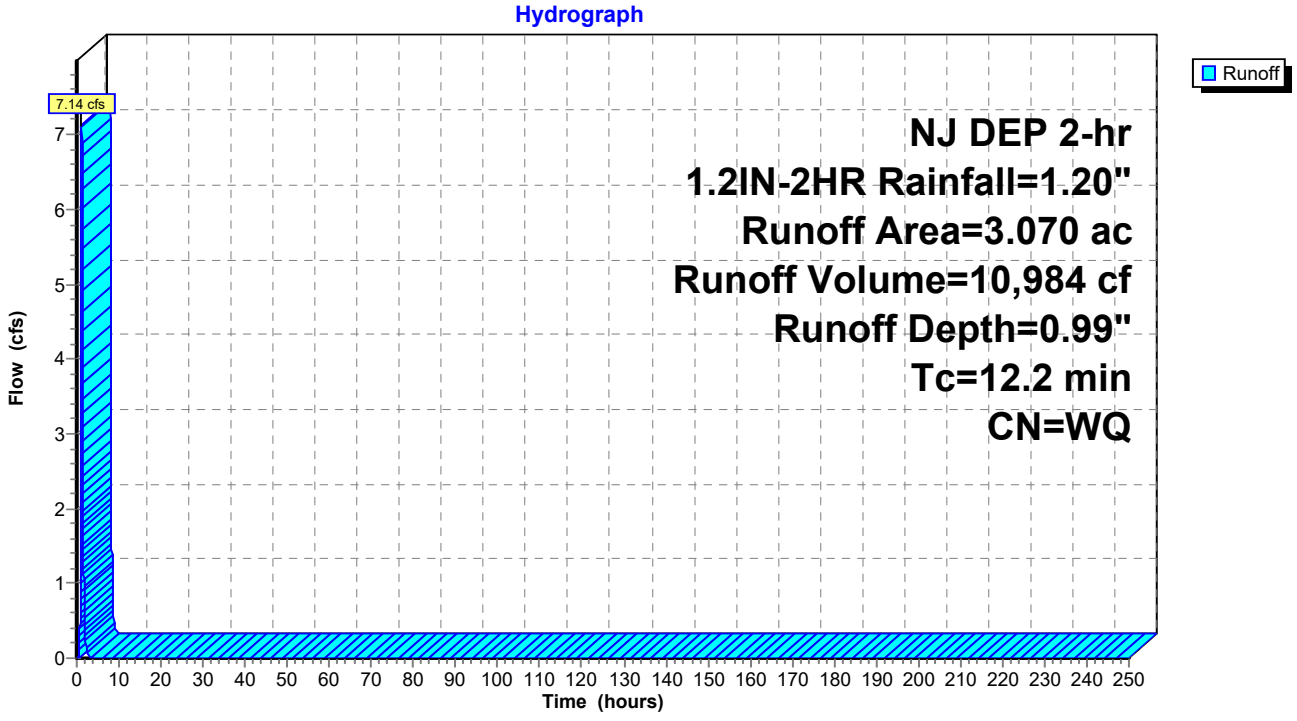
Runoff = 7.14 cfs @ 1.17 hrs, Volume= 10,984 cf, Depth= 0.99"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	0.330	98	Paved parking, HSG C
*	2.740	98	Imp Outside LOD
	3.070		Weighted Average
	3.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre Development TC**

Subcatchment 14: Post-Development DA-2 (Undetained)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 6.18 cfs @ 1.11 hrs, Volume= 7,907 cf
Outflow = 6.18 cfs @ 1.11 hrs, Volume= 7,907 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.18 cfs @ 1.11 hrs, Volume= 7,907 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 20 : Post-Development Discharge Point 2

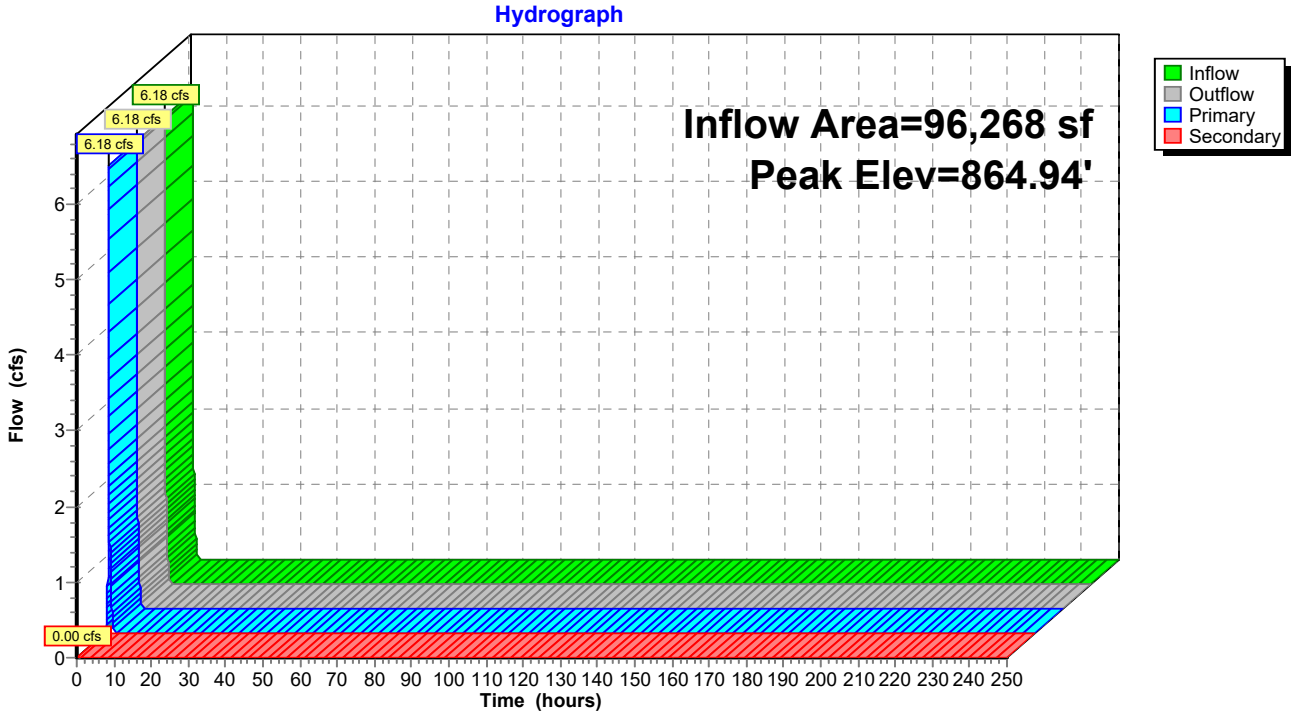
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.94' @ 1.11 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=6.14 cfs @ 1.11 hrs HW=864.94' TW=864.63' (Dynamic Tailwater)
↑└**1=Culvert to MRC** (Outlet Controls 6.14 cfs @ 3.28 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=863.70' TW=0.00' (Dynamic Tailwater)
↑└**2=> 2YR Storm Overflow** (Controls 0.00 cfs)
↑└**3=Diversion Weir** (Controls 0.00 cfs)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

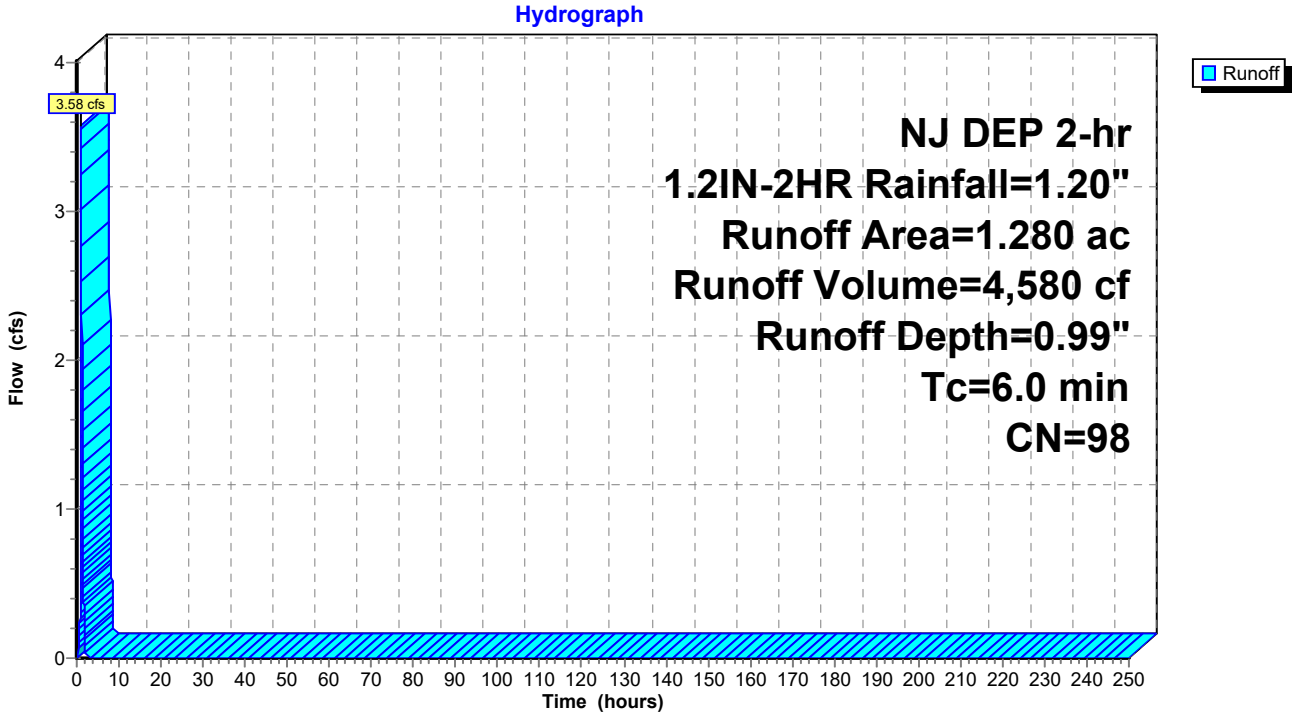
Runoff = 3.58 cfs @ 1.11 hrs, Volume= 4,580 cf, Depth= 0.99"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG C
1.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 6.18 cfs @ 1.11 hrs, Volume= 7,907 cf
Outflow = 6.18 cfs @ 1.11 hrs, Volume= 7,907 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.09 cfs @ 1.11 hrs, Volume= 3,954 cf
Routed to Pond 18P : MRC Cell 2A
Secondary = 3.09 cfs @ 1.11 hrs, Volume= 3,954 cf
Routed to Pond 19P : MRC Cell 2B

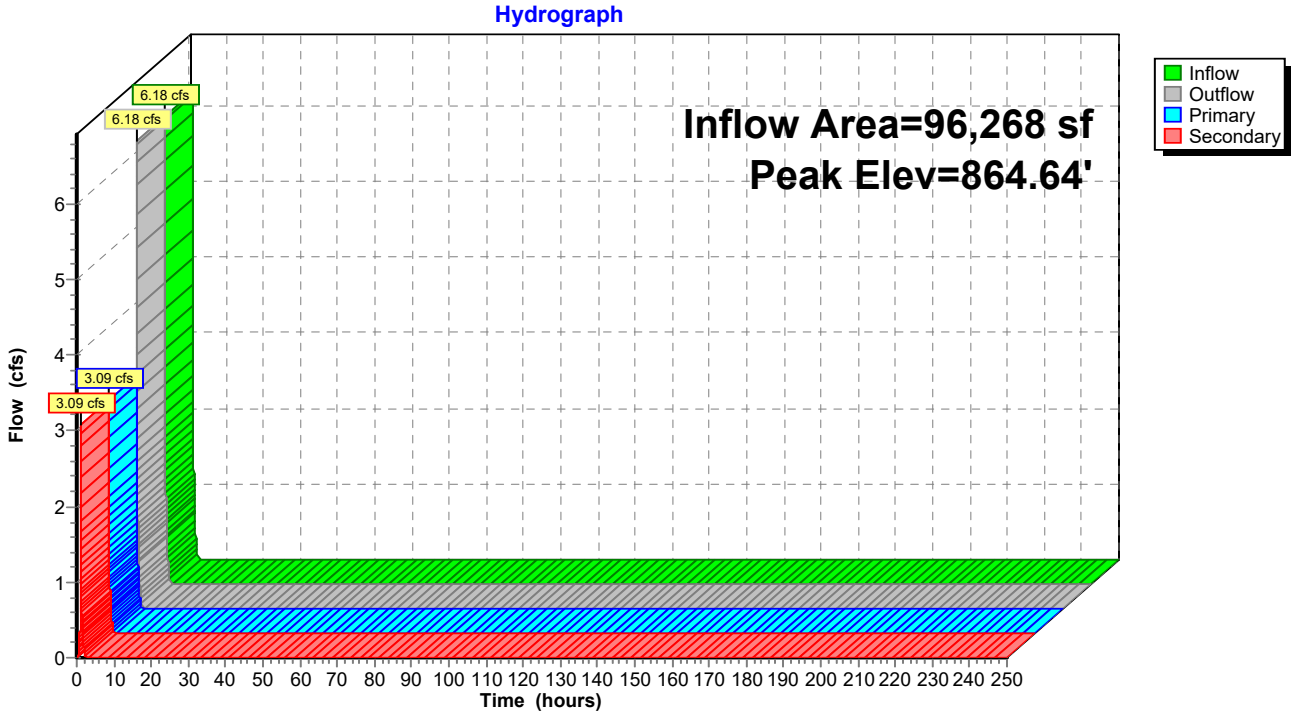
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.64' @ 1.11 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.09 cfs @ 1.11 hrs HW=864.63' TW=860.90' (Dynamic Tailwater)
↑—**1=Culvert to MRC Cell 2A** (Barrel Controls 3.09 cfs @ 3.34 fps)

Secondary OutFlow Max=3.09 cfs @ 1.11 hrs HW=864.63' TW=860.90' (Dynamic Tailwater)
↑—**2=Culvert to MRC Cell 2B** (Barrel Controls 3.09 cfs @ 3.34 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18P: MRC Cell 2A

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 0.49" for 1.2IN-2HR event
Inflow = 3.09 cfs @ 1.11 hrs, Volume= 3,954 cf
Outflow = 0.02 cfs @ 2.12 hrs, Volume= 3,948 cf, Atten= 99%, Lag= 60.7 min
Primary = 0.02 cfs @ 2.12 hrs, Volume= 3,948 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 861.93' @ 2.12 hrs Storage= 3,860 cf

Plug-Flow detention time= 1,915.1 min calculated for 3,948 cf (100% of inflow)
Center-of-Mass det. time= 1,915.0 min (1,985.4 - 70.4)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

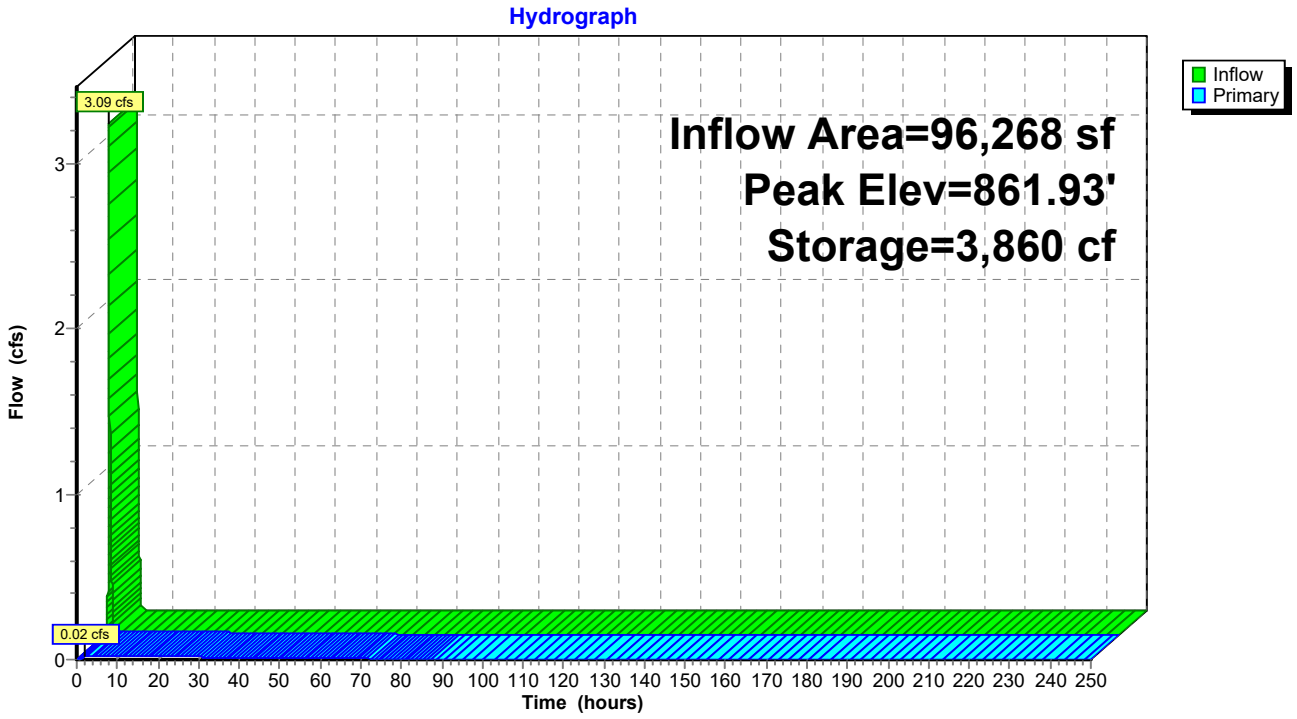
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.02 cfs @ 2.12 hrs HW=861.93' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 0.02 cfs of 7.68 cfs potential flow)
  └─**2=Underdrain** (Orifice Controls 0.02 cfs @ 6.63 fps)
  └─**3=Orifice Row #1** (Controls 0.00 cfs)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18P: MRC Cell 2A



Summary for Pond 19P: MRC Cell 2B

Inflow = 3.09 cfs @ 1.11 hrs, Volume= 3,954 cf
Outflow = 0.02 cfs @ 2.12 hrs, Volume= 3,948 cf, Atten= 99%, Lag= 60.7 min
Primary = 0.02 cfs @ 2.12 hrs, Volume= 3,948 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 861.93' @ 2.12 hrs Storage= 3,860 cf

Plug-Flow detention time= 1,915.1 min calculated for 3,948 cf (100% of inflow)
Center-of-Mass det. time= 1,915.0 min (1,985.4 - 70.4)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

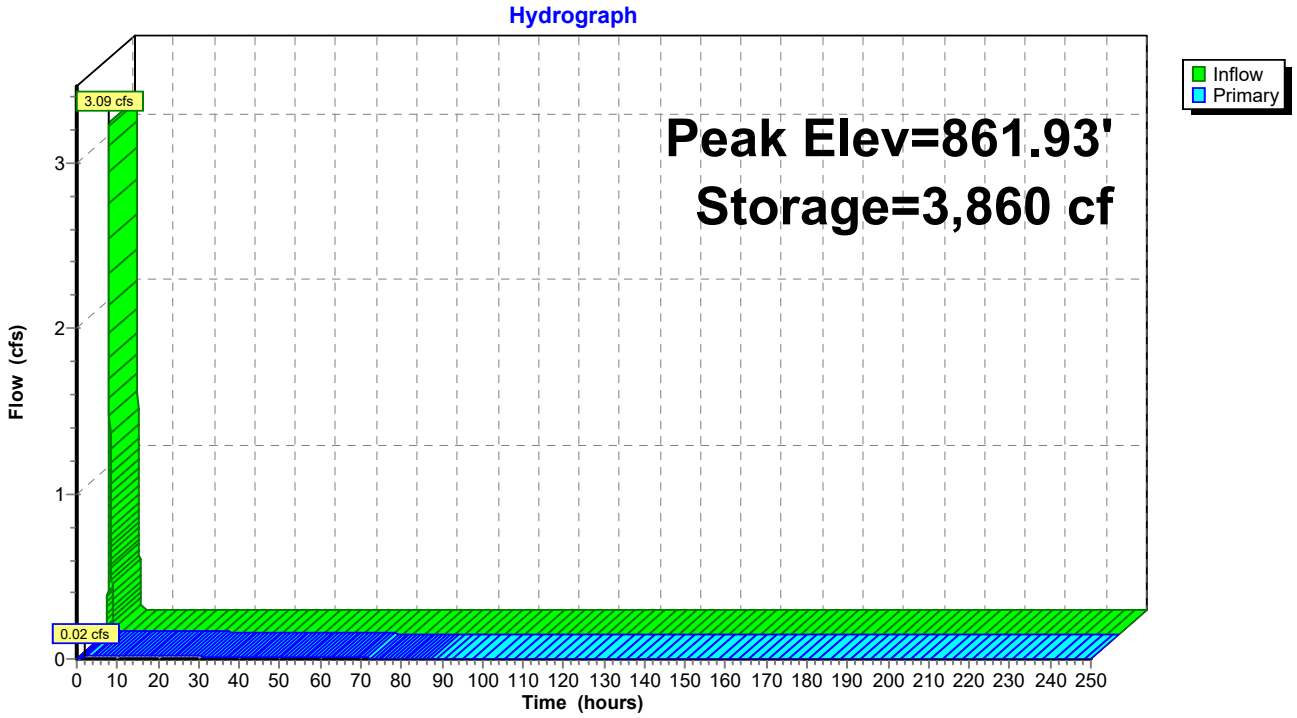
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.02 cfs @ 2.12 hrs HW=861.93' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 0.02 cfs of 7.68 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.02 cfs @ 6.63 fps)
  ├─**3=Orifice Row #1** (Controls 0.00 cfs)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19P: MRC Cell 2B

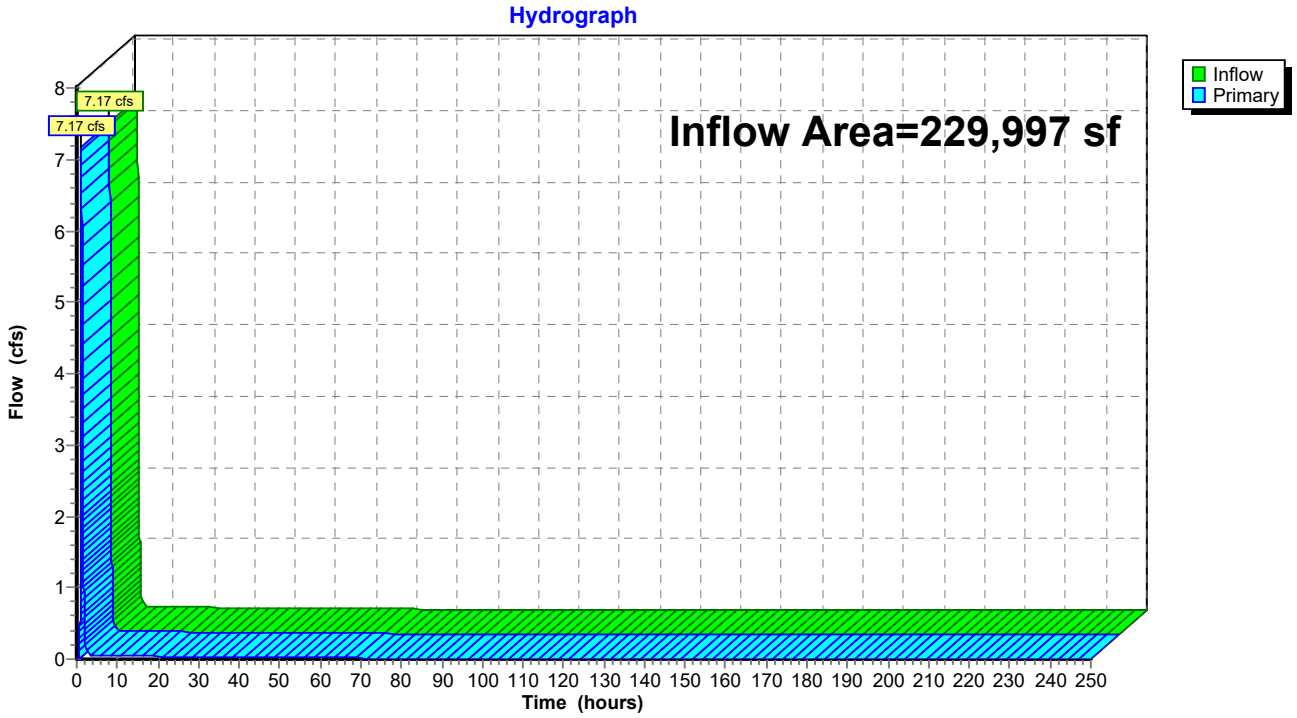


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 229,997 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 7.17 cfs @ 1.17 hrs, Volume= 18,880 cf
Primary = 7.17 cfs @ 1.17 hrs, Volume= 18,880 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained)

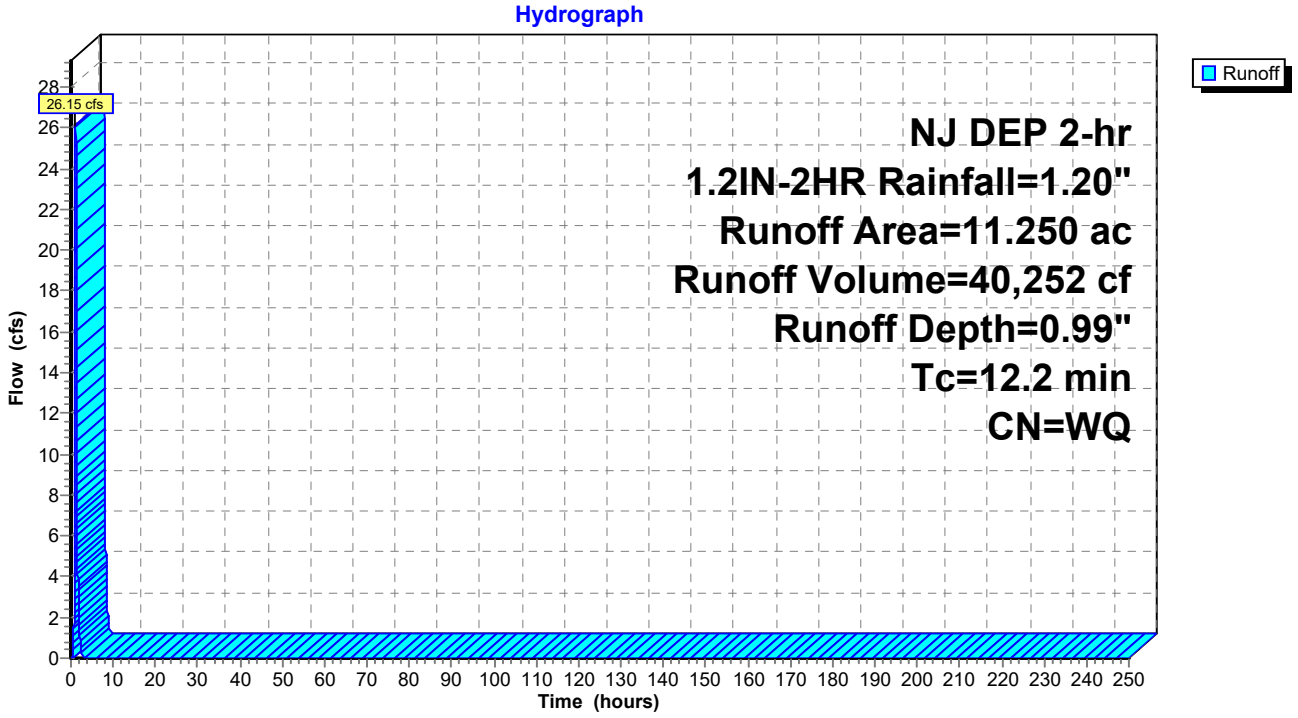
Runoff = 26.15 cfs @ 1.17 hrs, Volume= 40,252 cf, Depth= 0.99"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
	0.980	98	Paved parking, HSG C
*	10.270	98	Imp Outside LOD
	11.250		Weighted Average
	11.250		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre-Development TC**

Subcatchment 21: Post-Development DA-3 (Undetained)

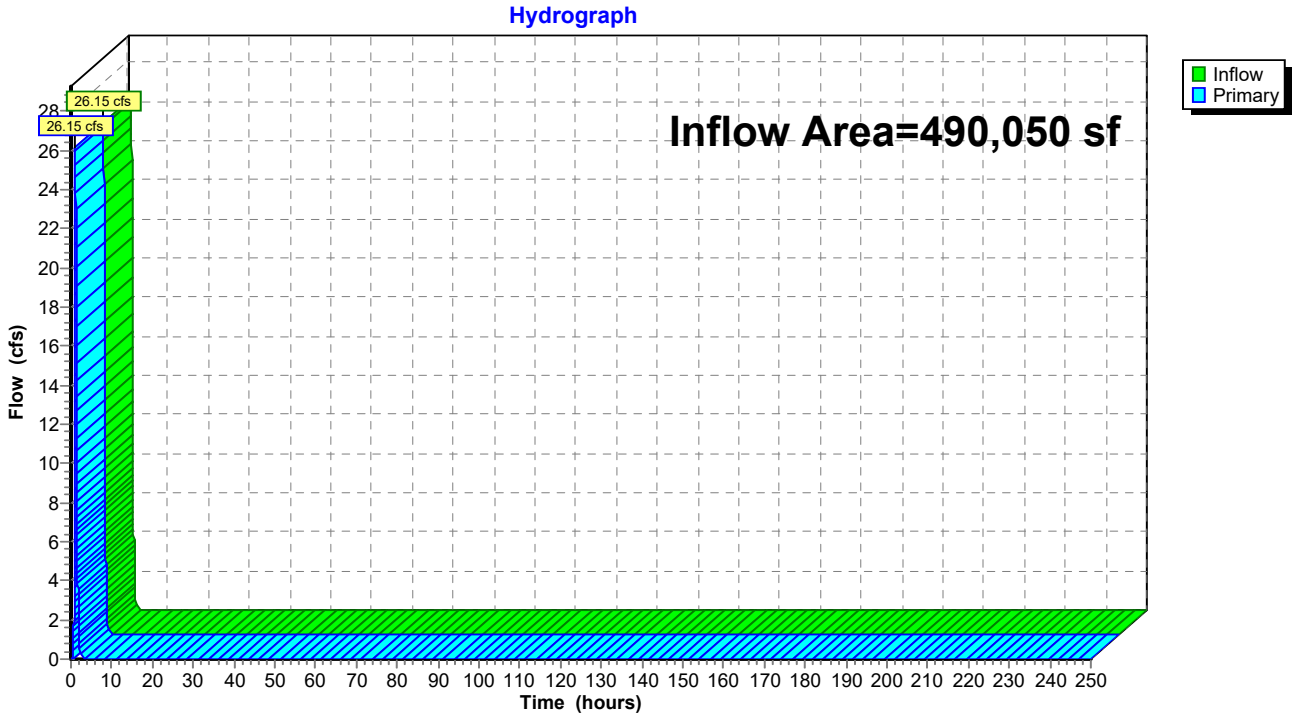


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 490,050 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 26.15 cfs @ 1.17 hrs, Volume= 40,252 cf
Primary = 26.15 cfs @ 1.17 hrs, Volume= 40,252 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 31: Post-Development DA-4 (Undetained)

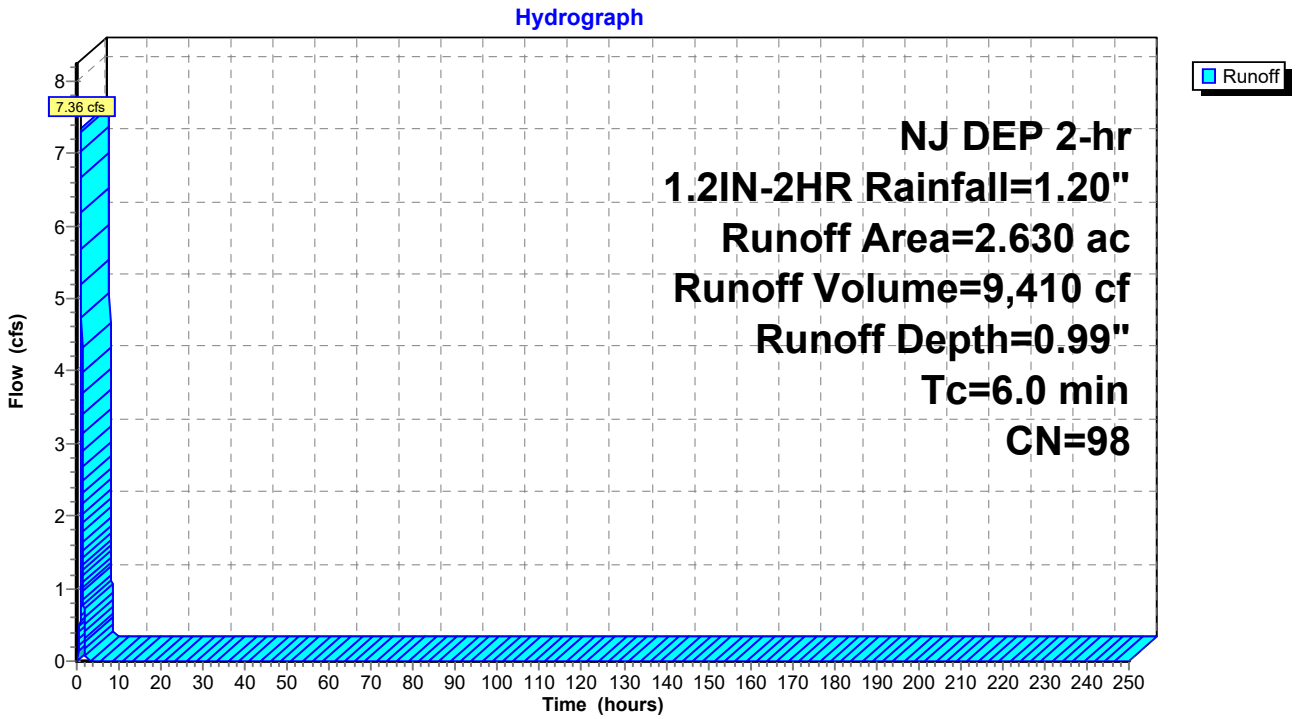
Runoff = 7.36 cfs @ 1.11 hrs, Volume= 9,410 cf, Depth= 0.99"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

	Area (ac)	CN	Description
*	2.630	98	Imp Outside LOD
	2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained)

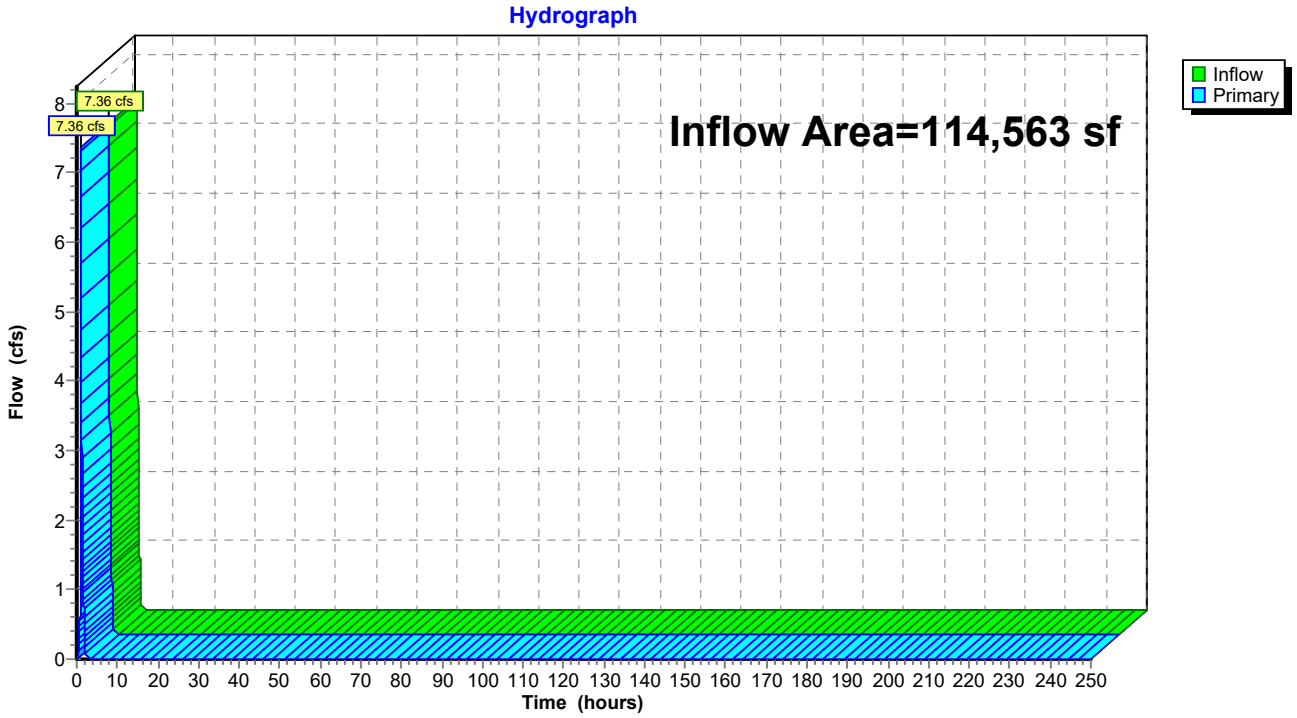


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 7.36 cfs @ 1.11 hrs, Volume= 9,410 cf
Primary = 7.36 cfs @ 1.11 hrs, Volume= 9,410 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

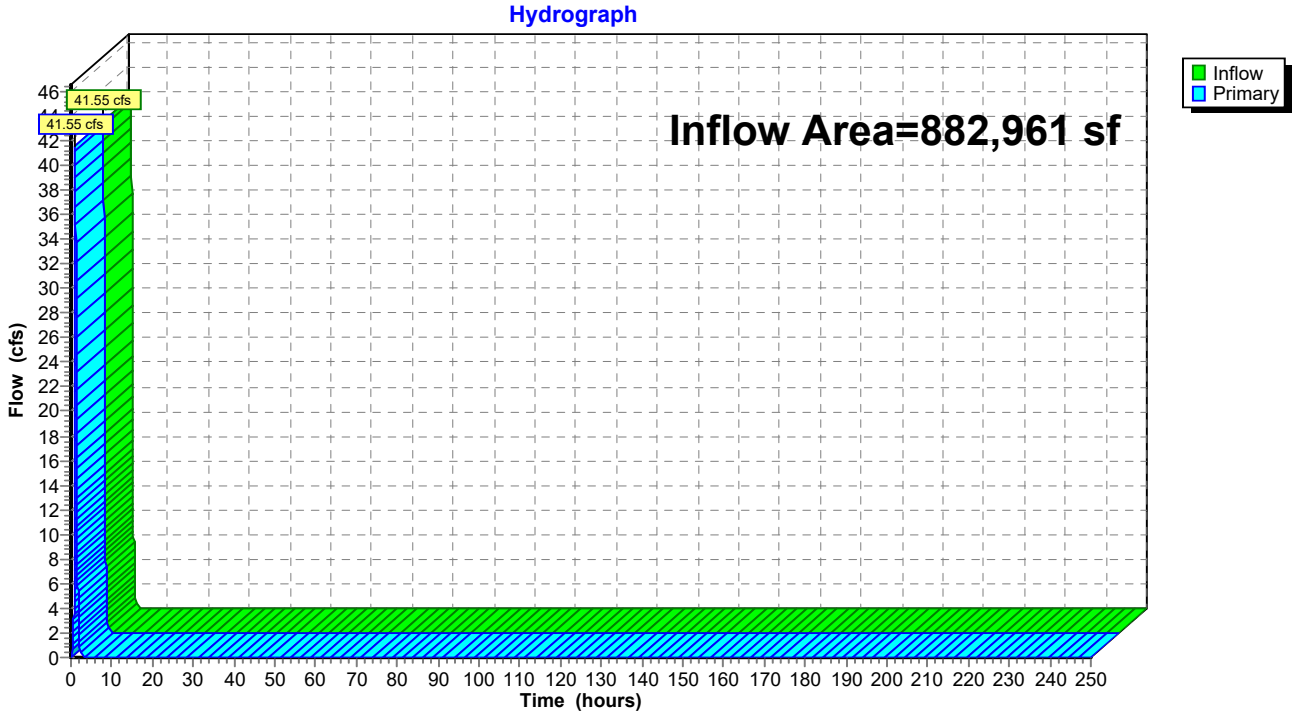


Summary for Link 33: Post POA 001

Inflow Area = 882,961 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 41.55 cfs @ 1.15 hrs, Volume= 72,513 cf
Primary = 41.55 cfs @ 1.15 hrs, Volume= 72,513 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: Post POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Undetained)

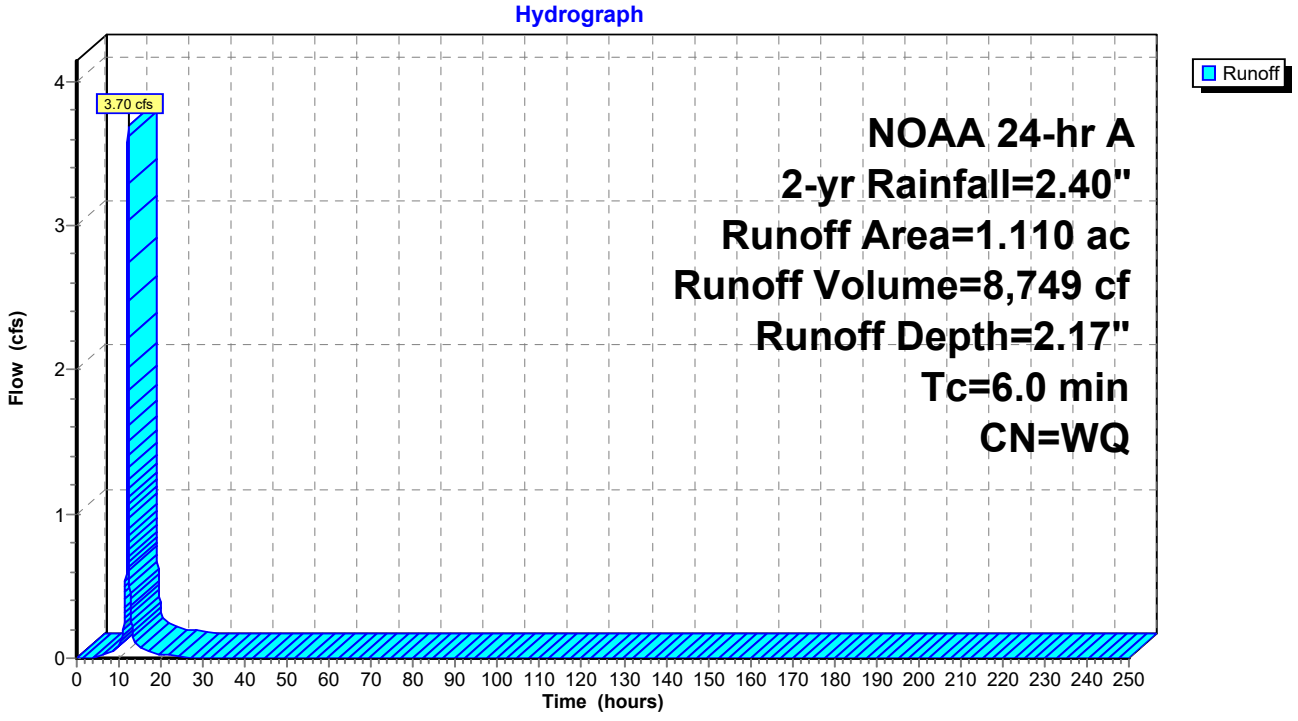
Runoff = 3.70 cfs @ 12.13 hrs, Volume= 8,749 cf, Depth= 2.17"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	0.050	98	Paved parking, HSG C
*	1.060	98	Imp Outside LOD
	1.110		Weighted Average
	1.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Undetained)

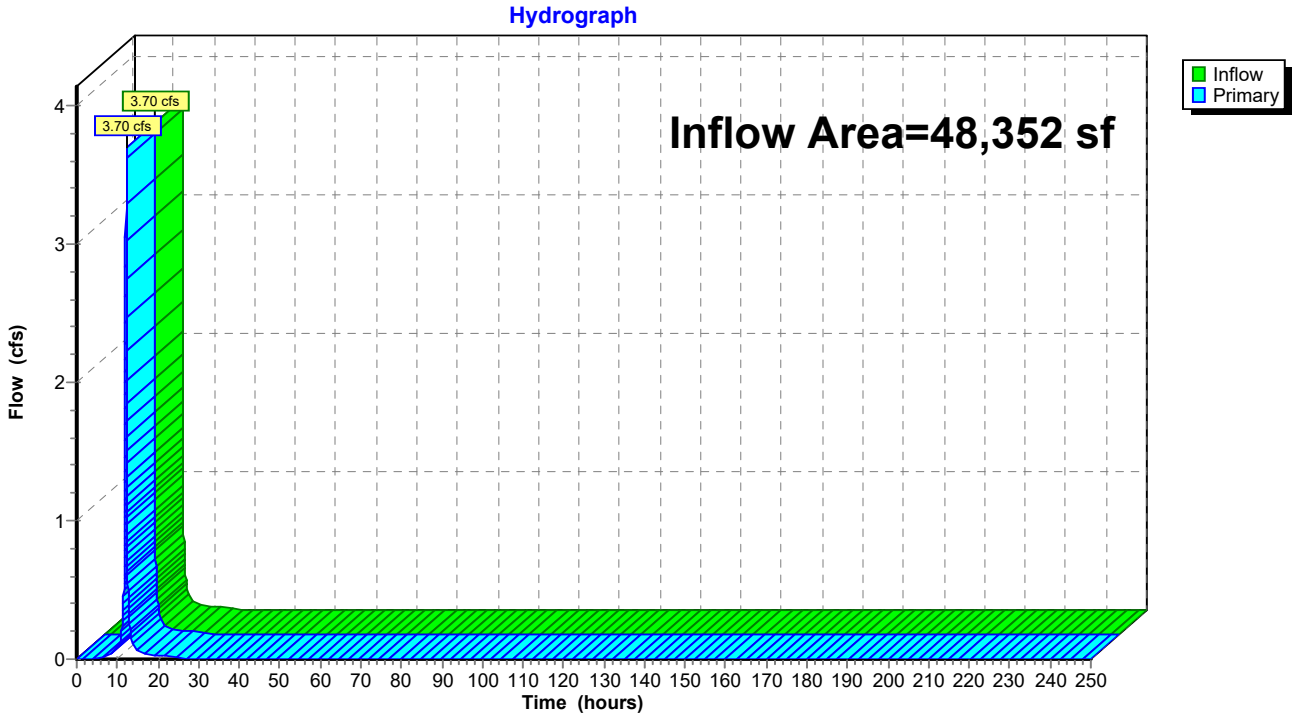


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 48,352 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 3.70 cfs @ 12.13 hrs, Volume= 8,749 cf
Primary = 3.70 cfs @ 12.13 hrs, Volume= 8,749 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

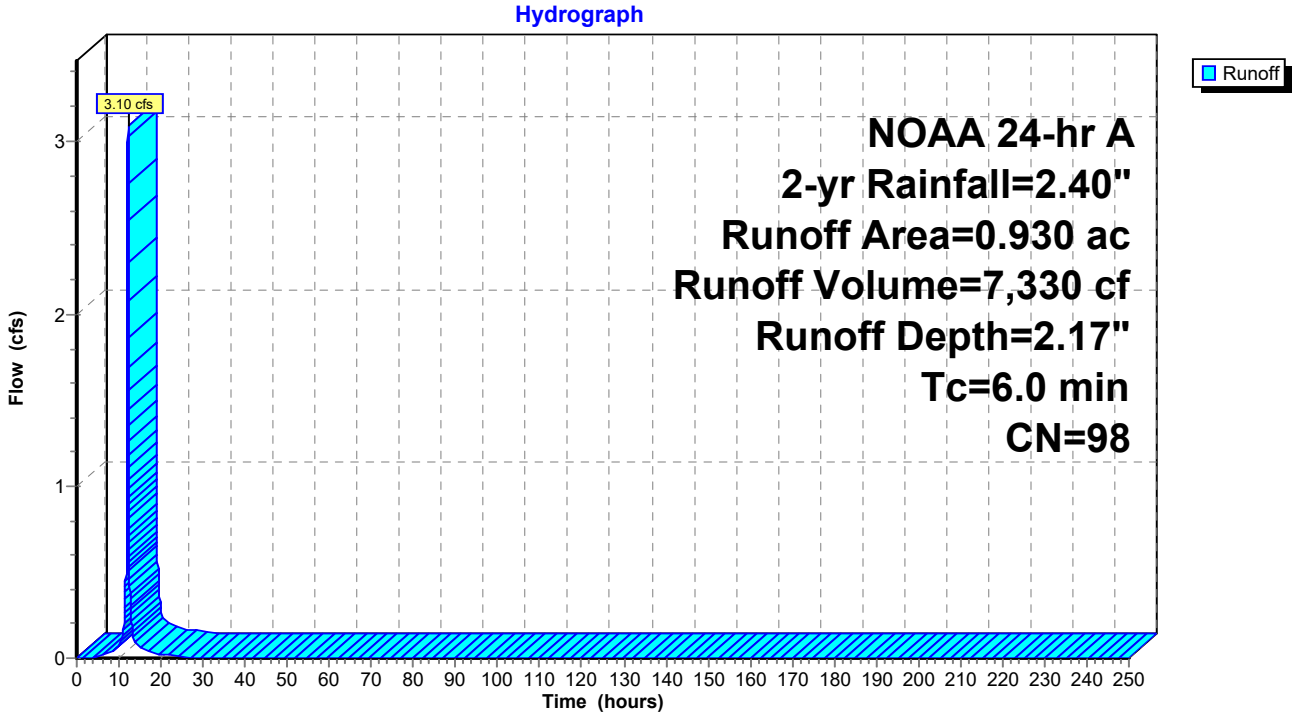
Runoff = 3.10 cfs @ 12.13 hrs, Volume= 7,330 cf, Depth= 2.17"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG C
0.930		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained)

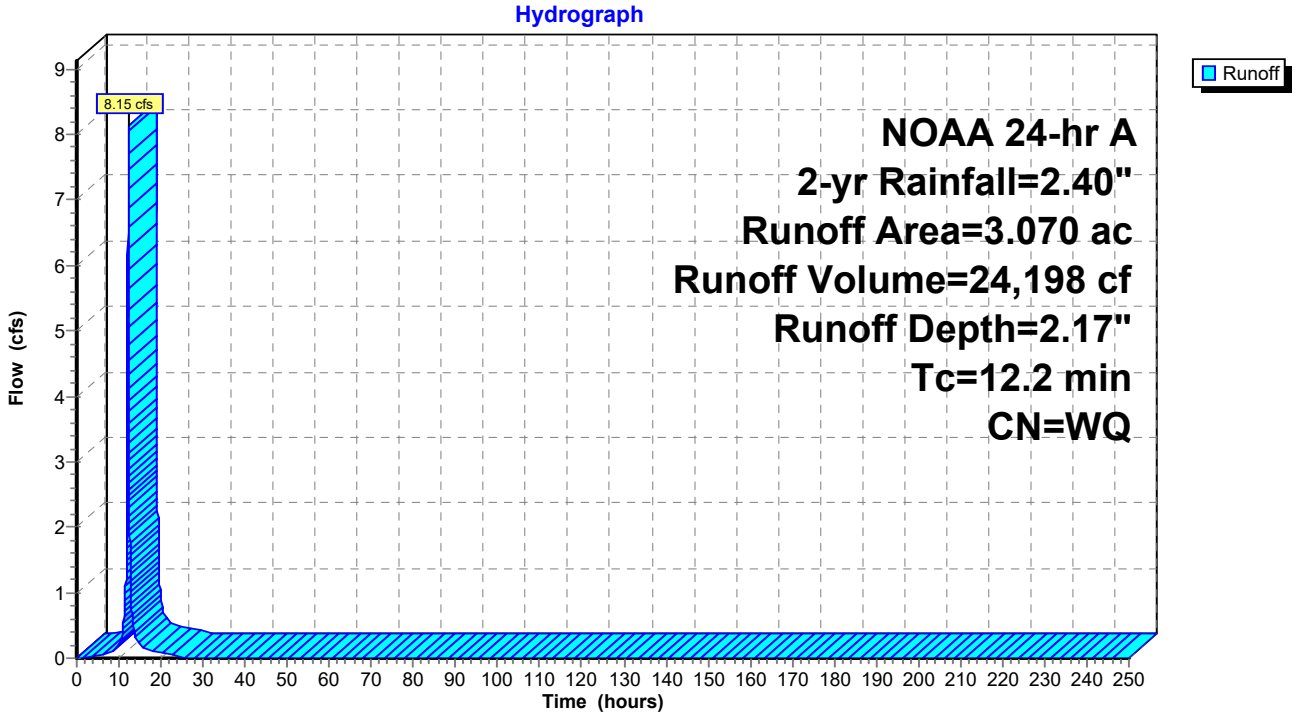
Runoff = 8.15 cfs @ 12.19 hrs, Volume= 24,198 cf, Depth= 2.17"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	0.330	98	Paved parking, HSG C
*	2.740	98	Imp Outside LOD
	3.070		Weighted Average
	3.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre Development TC**

Subcatchment 14: Post-Development DA-2 (Undetained)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 7.37 cfs @ 12.13 hrs, Volume= 17,419 cf
Outflow = 7.37 cfs @ 12.13 hrs, Volume= 17,419 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.37 cfs @ 12.13 hrs, Volume= 17,419 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 20 : Post-Development Discharge Point 2

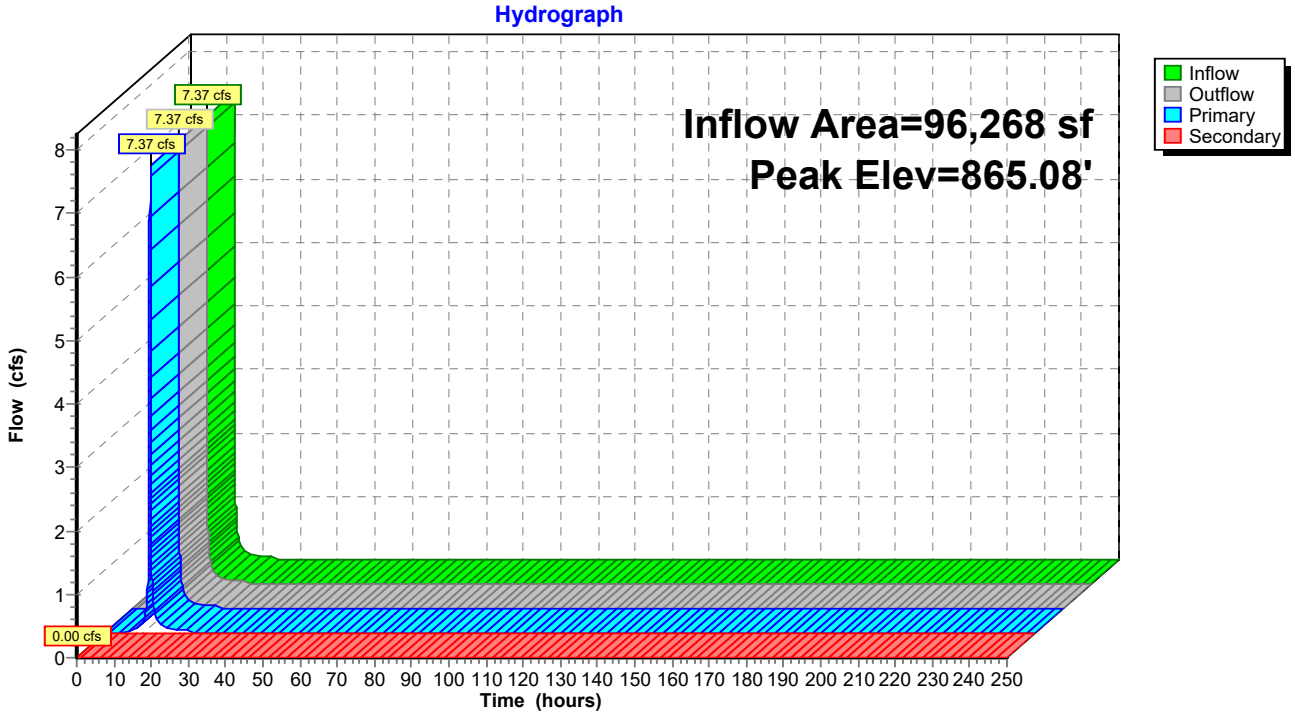
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.08' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=7.28 cfs @ 12.13 hrs HW=865.07' TW=864.75' (Dynamic Tailwater)
↑└**1=Culvert to MRC** (Outlet Controls 7.28 cfs @ 3.39 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=863.70' TW=0.00' (Dynamic Tailwater)
↑└**2=> 2YR Storm Overflow** (Controls 0.00 cfs)
↑└**3=Diversion Weir** (Controls 0.00 cfs)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

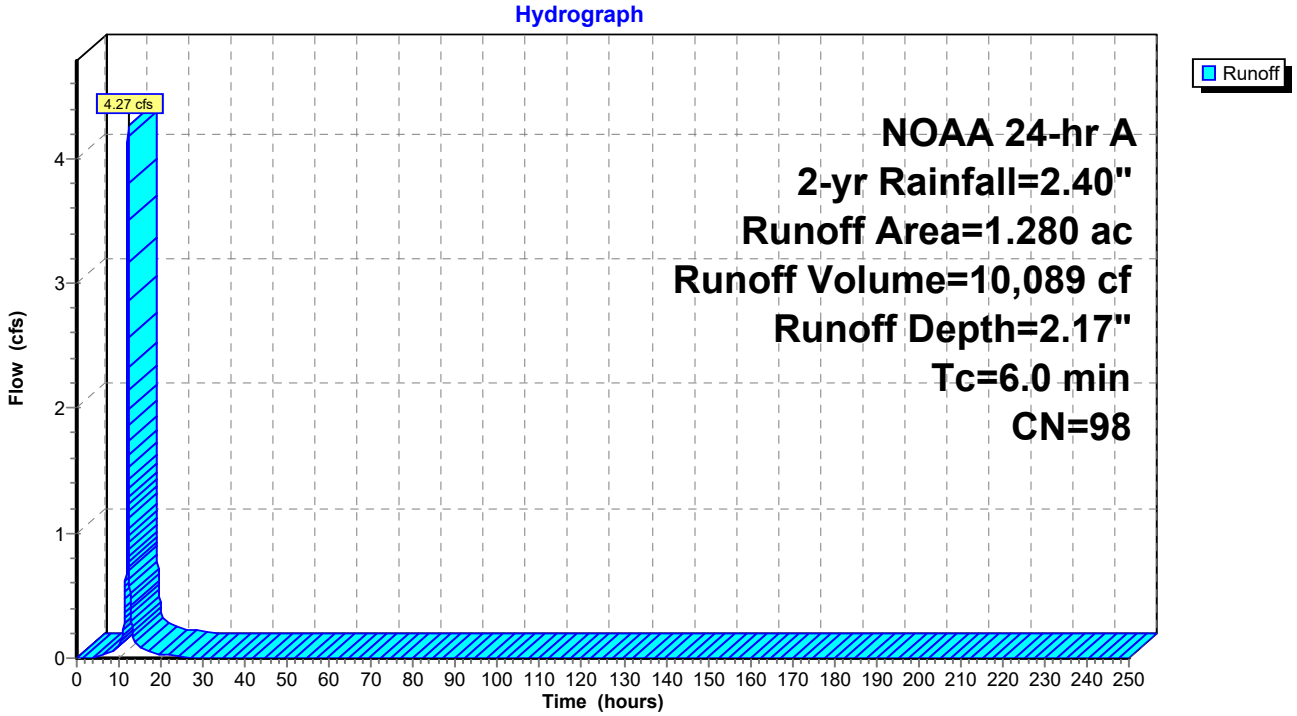
Runoff = 4.27 cfs @ 12.13 hrs, Volume= 10,089 cf, Depth= 2.17"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG C
1.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 7.37 cfs @ 12.13 hrs, Volume= 17,419 cf
Outflow = 7.37 cfs @ 12.13 hrs, Volume= 17,419 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.68 cfs @ 12.13 hrs, Volume= 8,710 cf
Routed to Pond 18P : MRC Cell 2A
Secondary = 3.68 cfs @ 12.13 hrs, Volume= 8,710 cf
Routed to Pond 19P : MRC Cell 2B

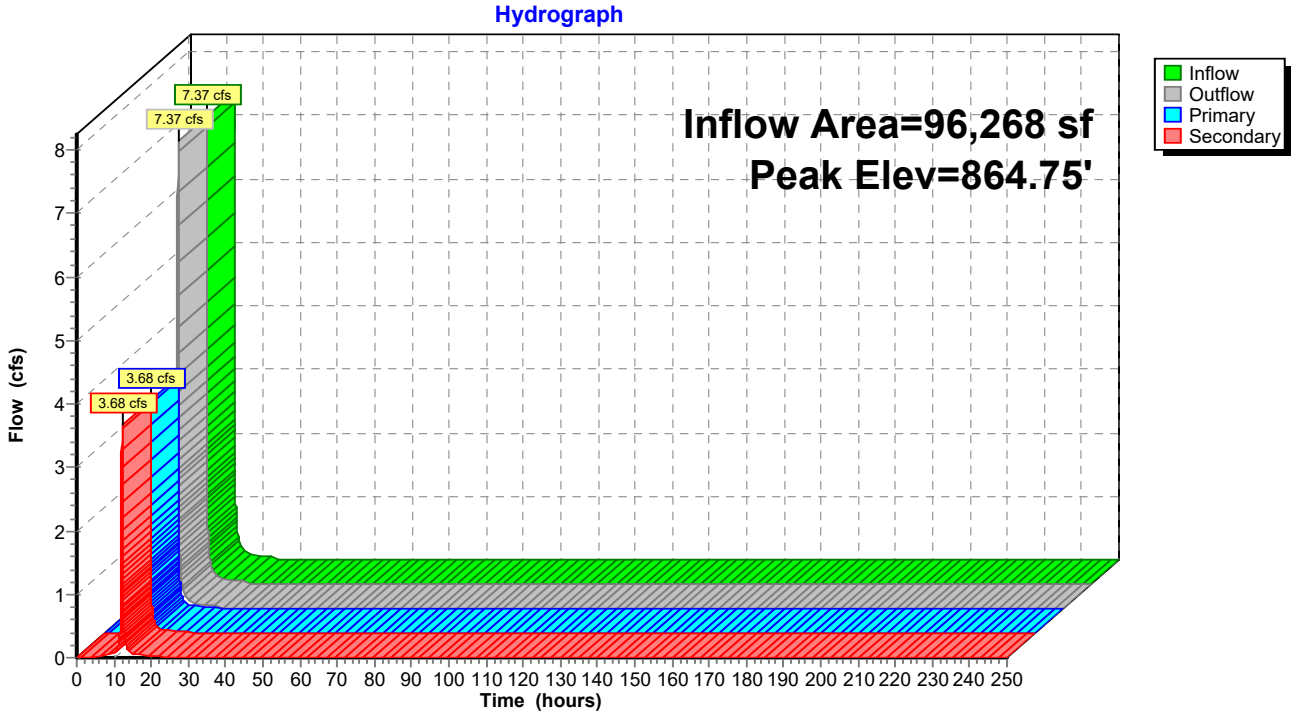
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.75' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.68 cfs @ 12.13 hrs HW=864.75' TW=862.02' (Dynamic Tailwater)
↑—**1=Culvert to MRC Cell 2A** (Barrel Controls 3.68 cfs @ 3.50 fps)

Secondary OutFlow Max=3.68 cfs @ 12.13 hrs HW=864.75' TW=862.02' (Dynamic Tailwater)
↑—**2=Culvert to MRC Cell 2B** (Barrel Controls 3.68 cfs @ 3.50 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18P: MRC Cell 2A

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 1.09" for 2-yr event
Inflow = 3.68 cfs @ 12.13 hrs, Volume= 8,710 cf
Outflow = 0.58 cfs @ 12.55 hrs, Volume= 8,703 cf, Atten= 84%, Lag= 25.2 min
Primary = 0.58 cfs @ 12.55 hrs, Volume= 8,703 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.79' @ 12.55 hrs Storage= 5,595 cf

Plug-Flow detention time= 1,666.2 min calculated for 8,702 cf (100% of inflow)
Center-of-Mass det. time= 1,666.1 min (2,424.6 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

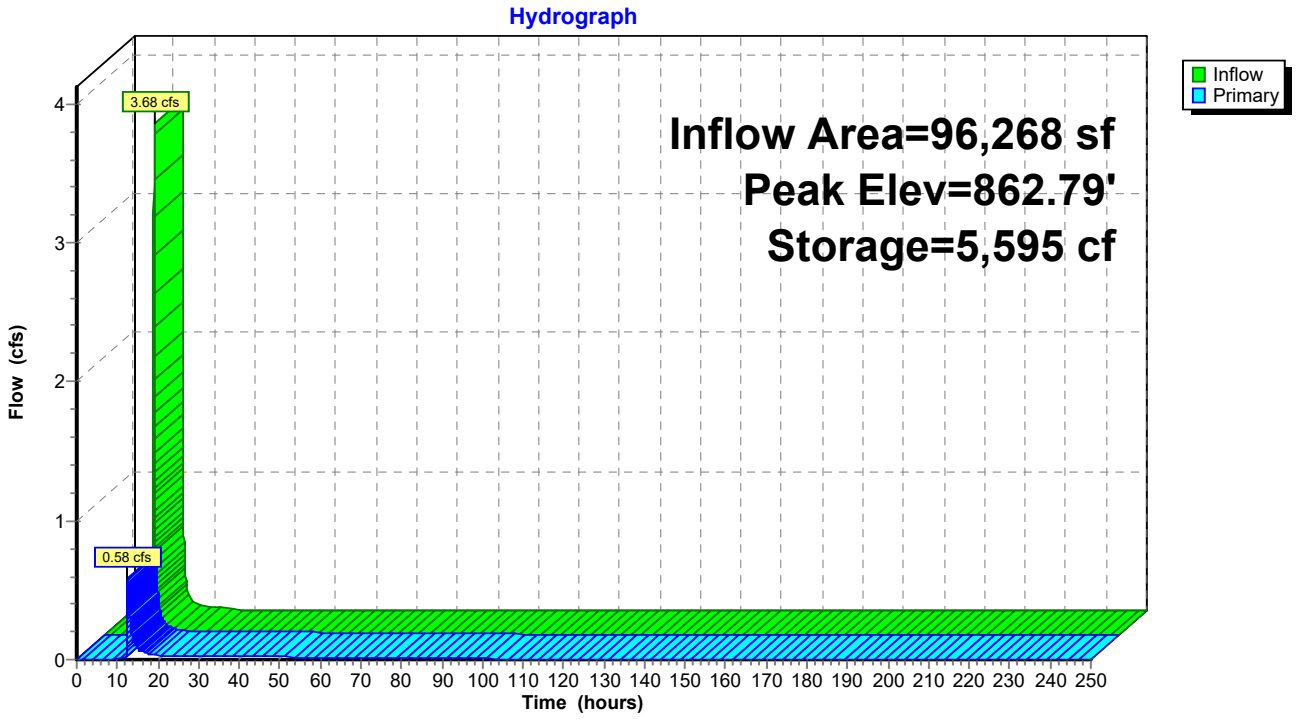
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.58 cfs @ 12.55 hrs HW=862.79' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 0.58 cfs of 10.73 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 8.00 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 0.55 cfs @ 1.85 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18P: MRC Cell 2A



Summary for Pond 19P: MRC Cell 2B

Inflow = 3.68 cfs @ 12.13 hrs, Volume= 8,710 cf
Outflow = 0.58 cfs @ 12.55 hrs, Volume= 8,703 cf, Atten= 84%, Lag= 25.2 min
Primary = 0.58 cfs @ 12.55 hrs, Volume= 8,703 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.79' @ 12.55 hrs Storage= 5,595 cf

Plug-Flow detention time= 1,666.2 min calculated for 8,702 cf (100% of inflow)
Center-of-Mass det. time= 1,666.1 min (2,424.6 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

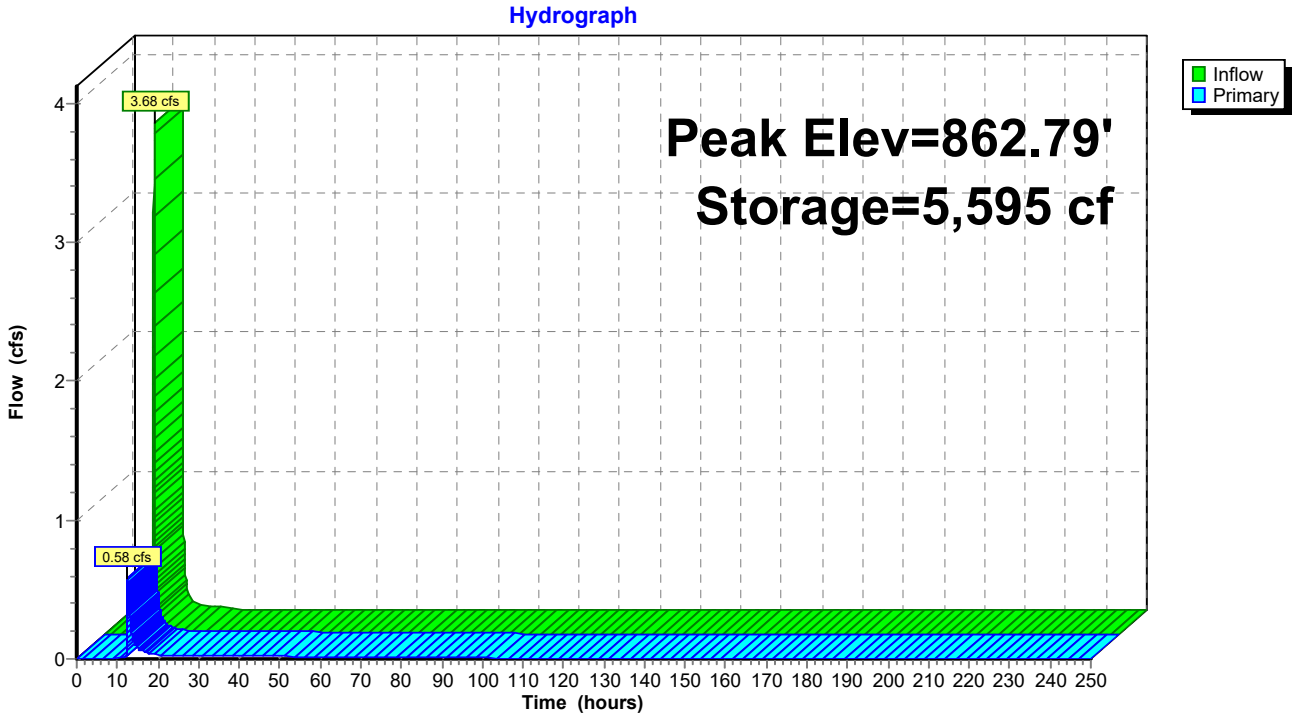
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.58 cfs @ 12.55 hrs HW=862.79' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 0.58 cfs of 10.73 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 8.00 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 0.55 cfs @ 1.85 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19P: MRC Cell 2B

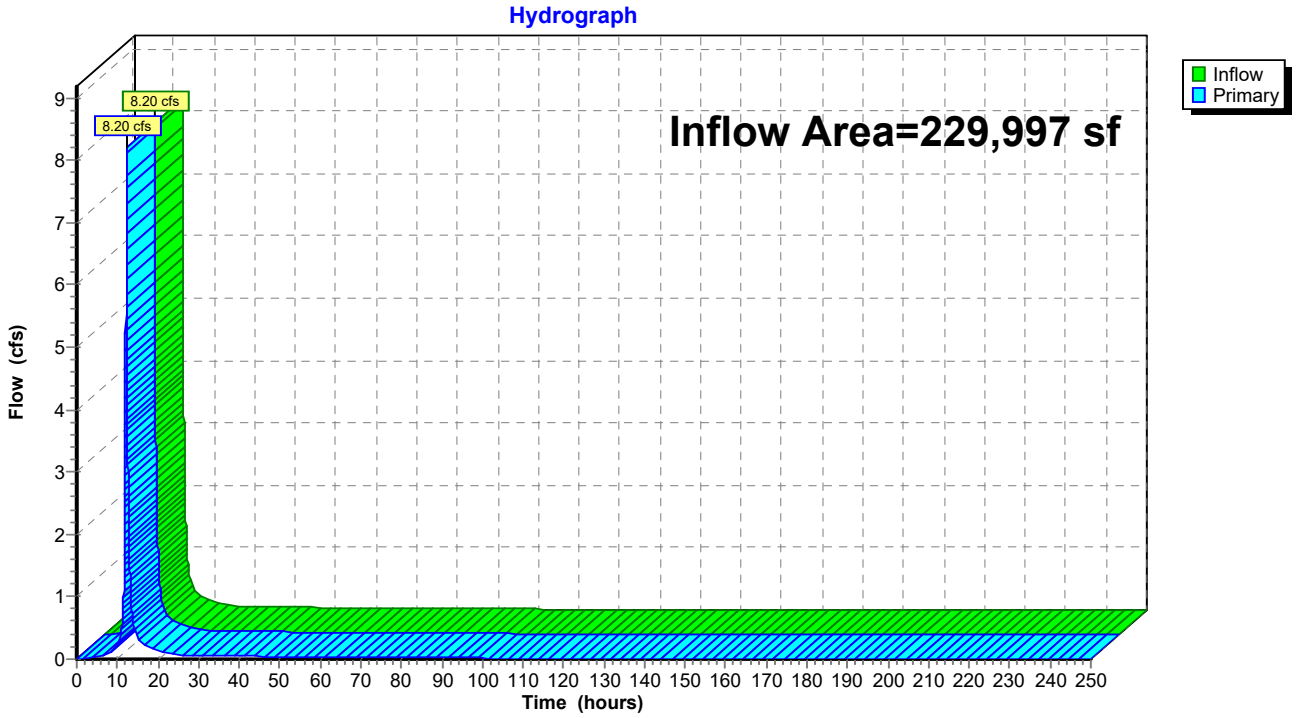


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 229,997 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 8.20 cfs @ 12.19 hrs, Volume= 41,603 cf
Primary = 8.20 cfs @ 12.19 hrs, Volume= 41,603 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained)

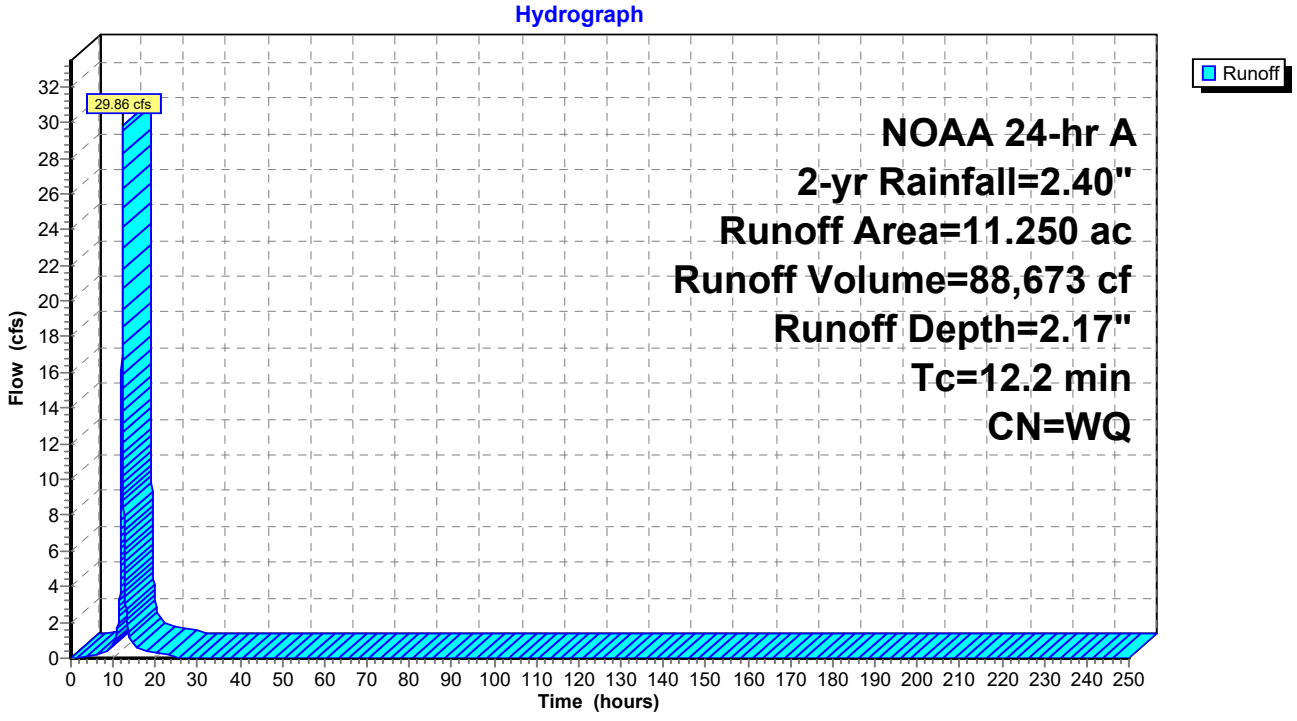
Runoff = 29.86 cfs @ 12.19 hrs, Volume= 88,673 cf, Depth= 2.17"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
	0.980	98	Paved parking, HSG C
*	10.270	98	Imp Outside LOD
	11.250		Weighted Average
	11.250		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre-Development TC**

Subcatchment 21: Post-Development DA-3 (Undetained)

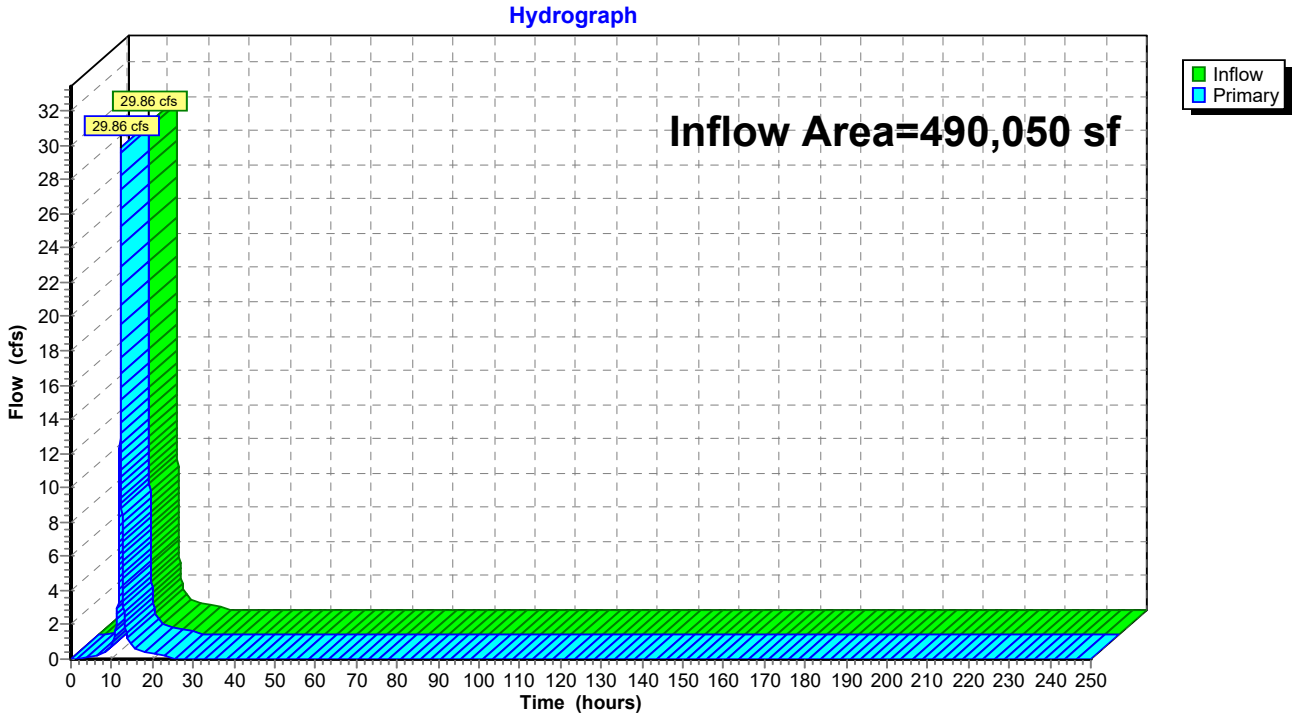


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 490,050 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 29.86 cfs @ 12.19 hrs, Volume= 88,673 cf
Primary = 29.86 cfs @ 12.19 hrs, Volume= 88,673 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 31: Post-Development DA-4 (Undetained)

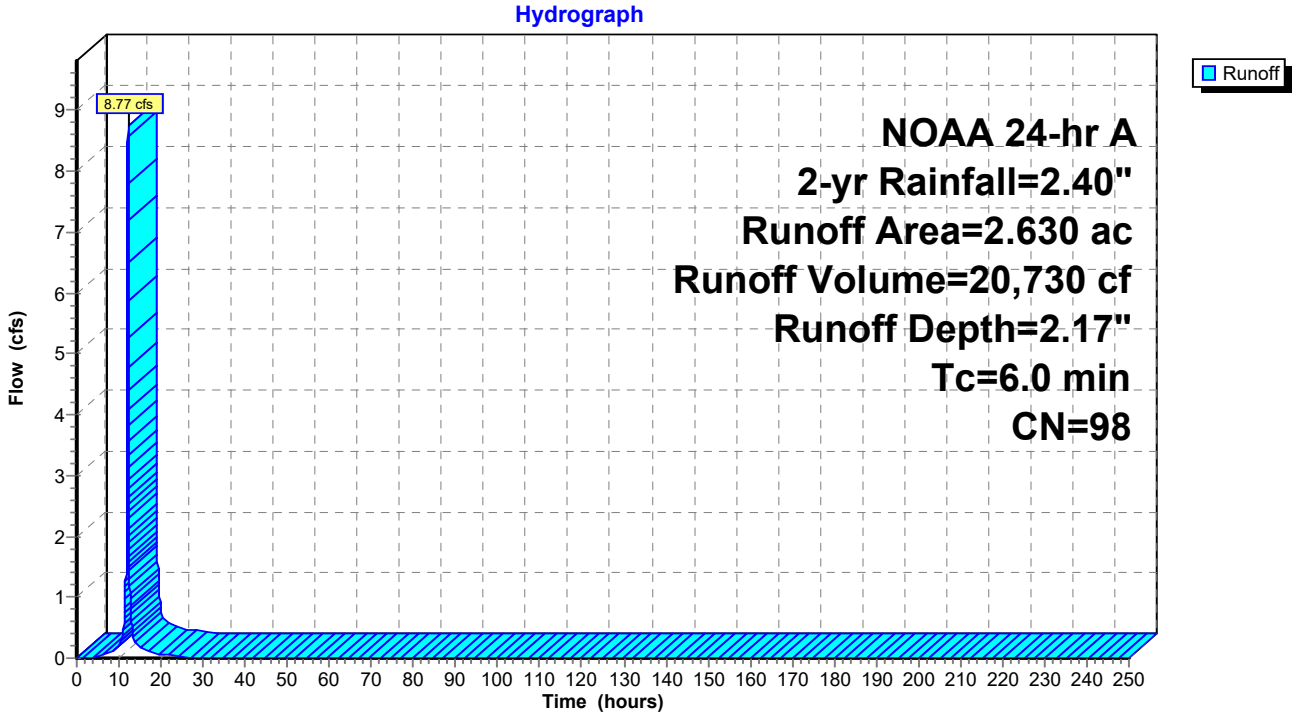
Runoff = 8.77 cfs @ 12.13 hrs, Volume= 20,730 cf, Depth= 2.17"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

	Area (ac)	CN	Description
*	2.630	98	Imp Outside LOD
	2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained)

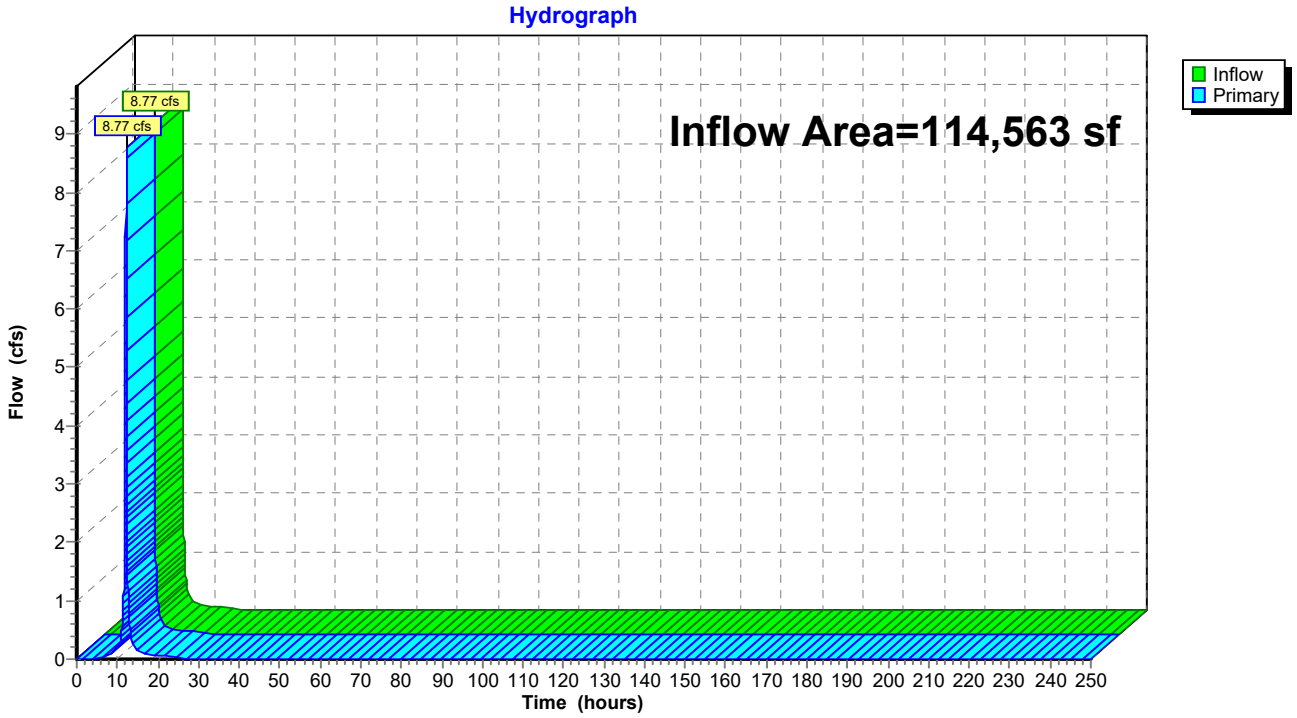


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 8.77 cfs @ 12.13 hrs, Volume= 20,730 cf
Primary = 8.77 cfs @ 12.13 hrs, Volume= 20,730 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

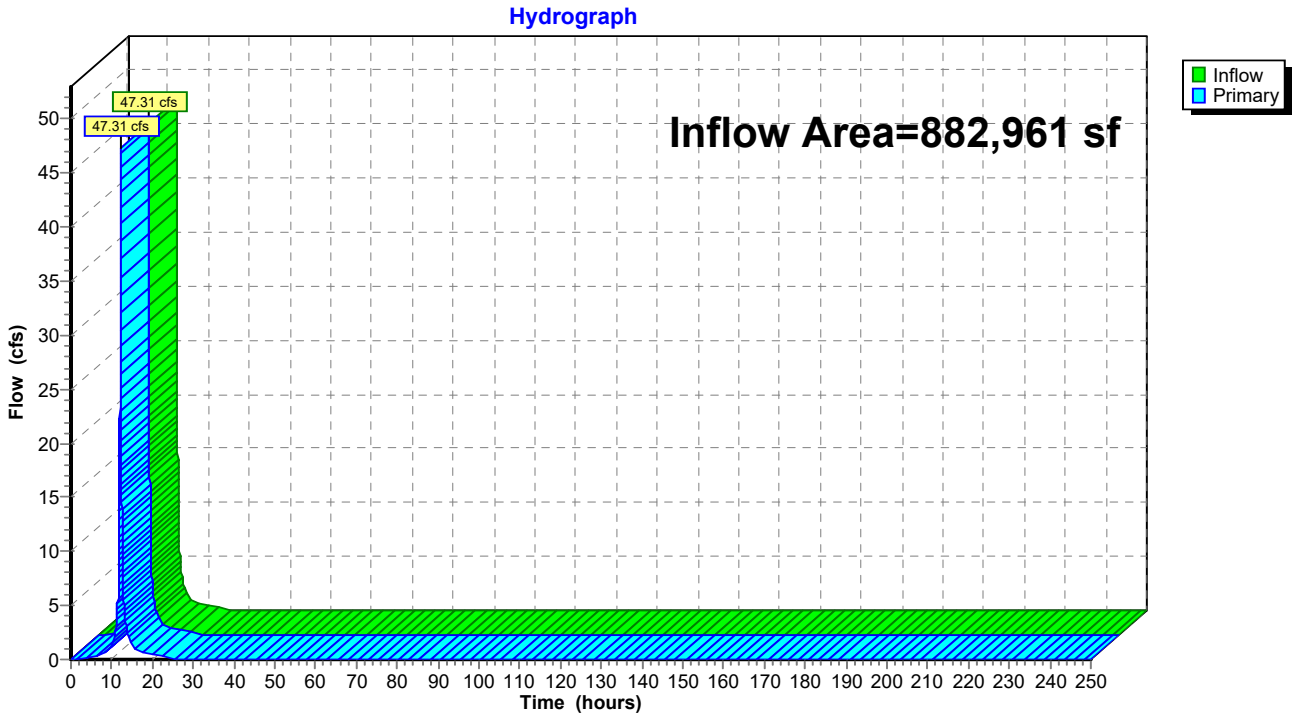


Summary for Link 33: Post POA 001

Inflow Area = 882,961 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 47.31 cfs @ 12.17 hrs, Volume= 159,754 cf
Primary = 47.31 cfs @ 12.17 hrs, Volume= 159,754 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: Post POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Undetained)

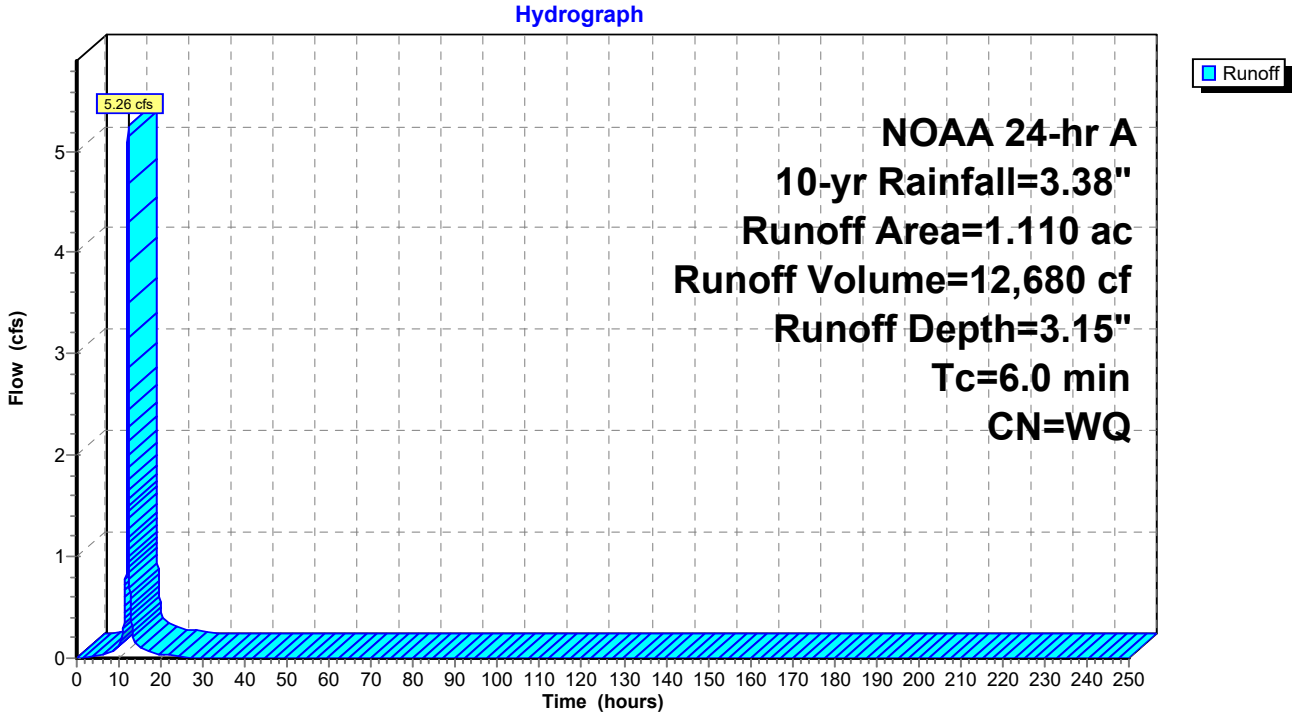
Runoff = 5.26 cfs @ 12.13 hrs, Volume= 12,680 cf, Depth= 3.15"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	0.050	98	Paved parking, HSG C
*	1.060	98	Imp Outside LOD
	1.110		Weighted Average
	1.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Undetained)

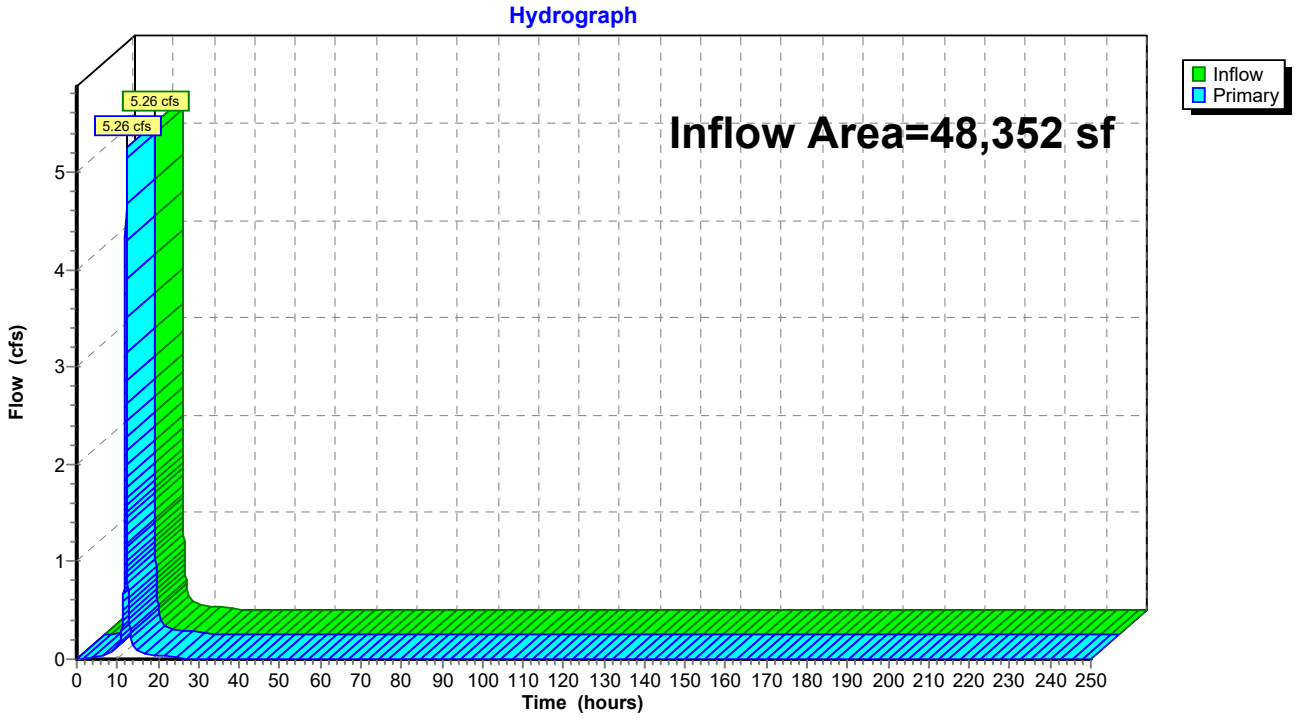


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 48,352 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 5.26 cfs @ 12.13 hrs, Volume= 12,680 cf
Primary = 5.26 cfs @ 12.13 hrs, Volume= 12,680 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

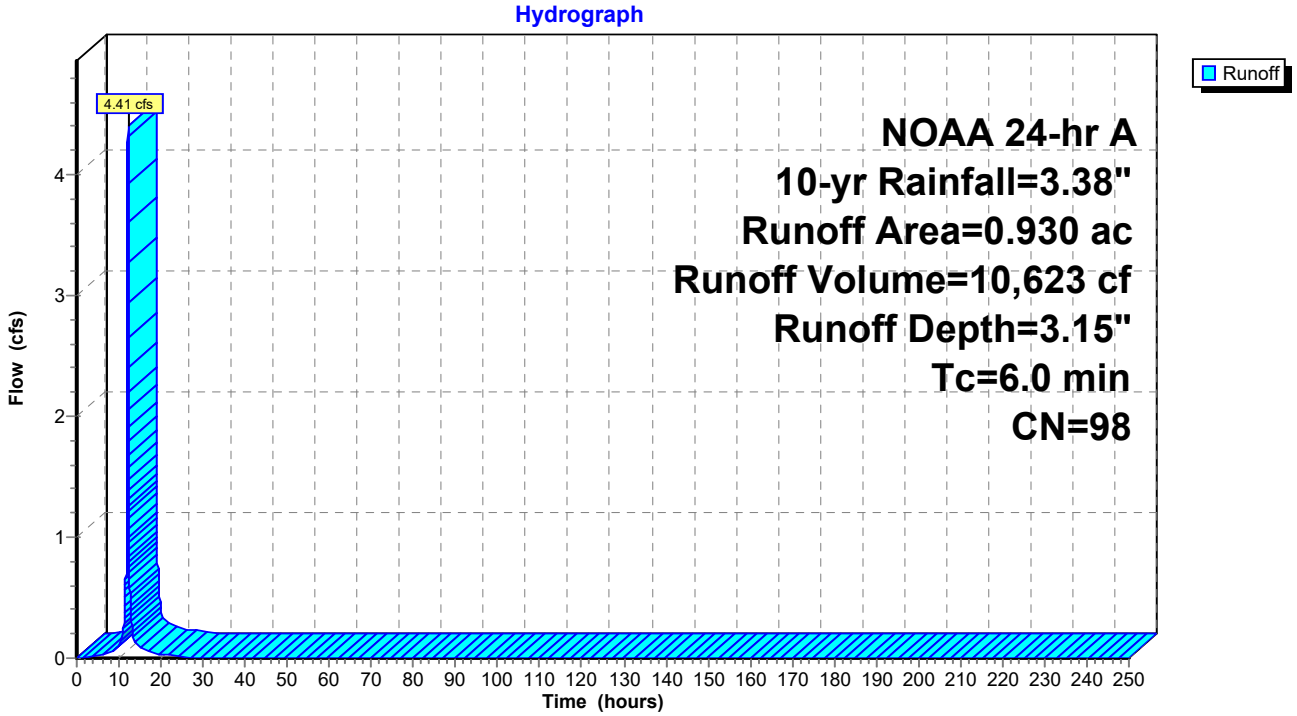
Runoff = 4.41 cfs @ 12.13 hrs, Volume= 10,623 cf, Depth= 3.15"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG C
0.930		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained)

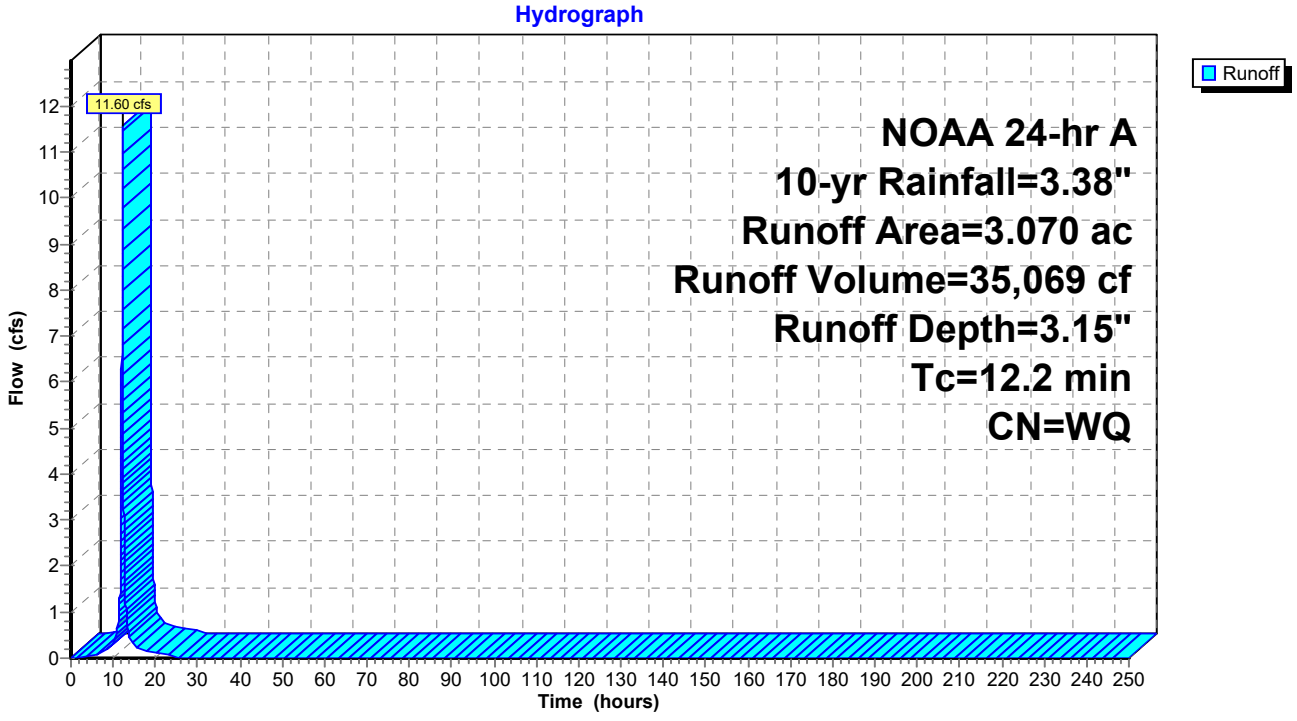
Runoff = 11.60 cfs @ 12.19 hrs, Volume= 35,069 cf, Depth= 3.15"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	0.330	98	Paved parking, HSG C
*	2.740	98	Imp Outside LOD
	3.070		Weighted Average
	3.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre Development TC**

Subcatchment 14: Post-Development DA-2 (Undetained)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 10.47 cfs @ 12.13 hrs, Volume= 25,245 cf
Outflow = 10.47 cfs @ 12.13 hrs, Volume= 25,245 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.47 cfs @ 12.13 hrs, Volume= 25,245 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.00 cfs @ 12.13 hrs, Volume= 0 cf
Routed to Link 20 : Post-Development Discharge Point 2

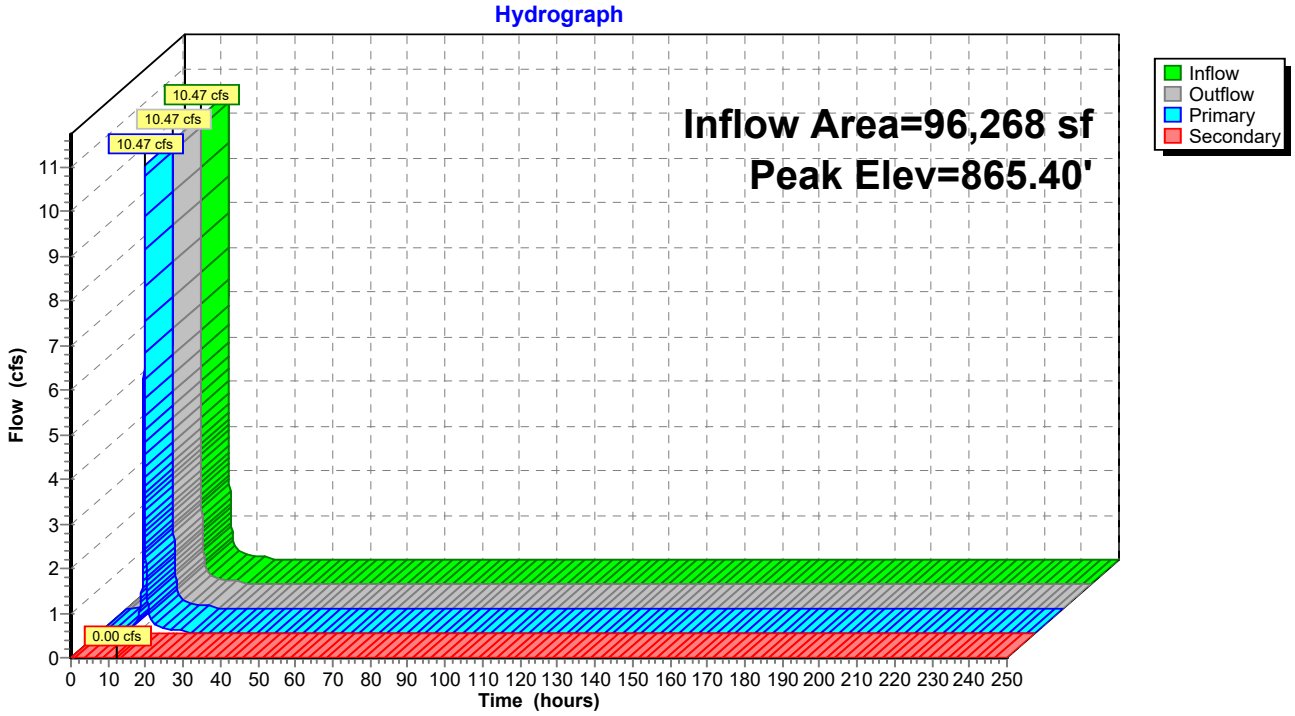
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.40' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=10.32 cfs @ 12.13 hrs HW=865.40' TW=865.04' (Dynamic Tailwater)
└─**1=Culvert to MRC** (Outlet Controls 10.32 cfs @ 3.61 fps)

Secondary OutFlow Max=0.00 cfs @ 12.13 hrs HW=865.40' TW=0.00' (Dynamic Tailwater)
└─**2=> 2YR Storm Overflow** (Passes 0.00 cfs of 5.00 cfs potential flow)
└─**3=Diversion Weir** (Weir Controls 0.00 cfs @ 0.13 fps)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

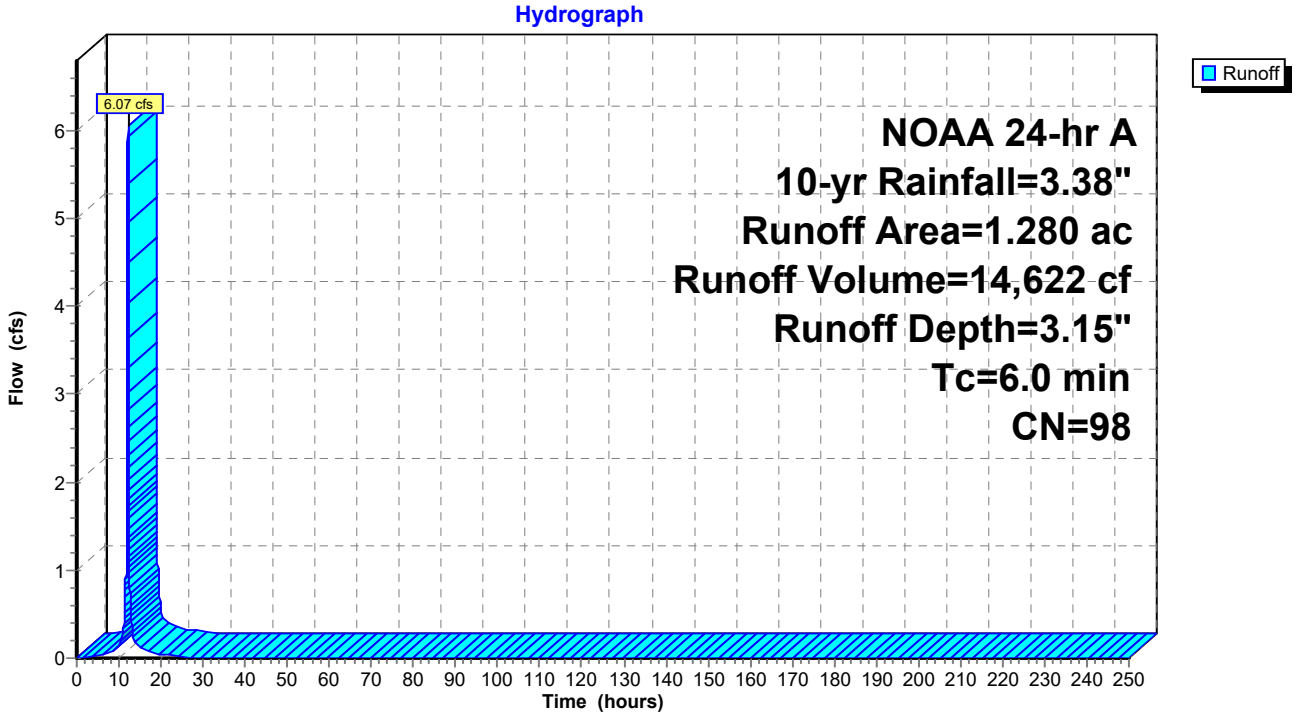
Runoff = 6.07 cfs @ 12.13 hrs, Volume= 14,622 cf, Depth= 3.15"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG C
1.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 10.47 cfs @ 12.13 hrs, Volume= 25,245 cf
Outflow = 10.47 cfs @ 12.13 hrs, Volume= 25,245 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.24 cfs @ 12.13 hrs, Volume= 12,622 cf
Routed to Pond 18P : MRC Cell 2A
Secondary = 5.24 cfs @ 12.13 hrs, Volume= 12,622 cf
Routed to Pond 19P : MRC Cell 2B

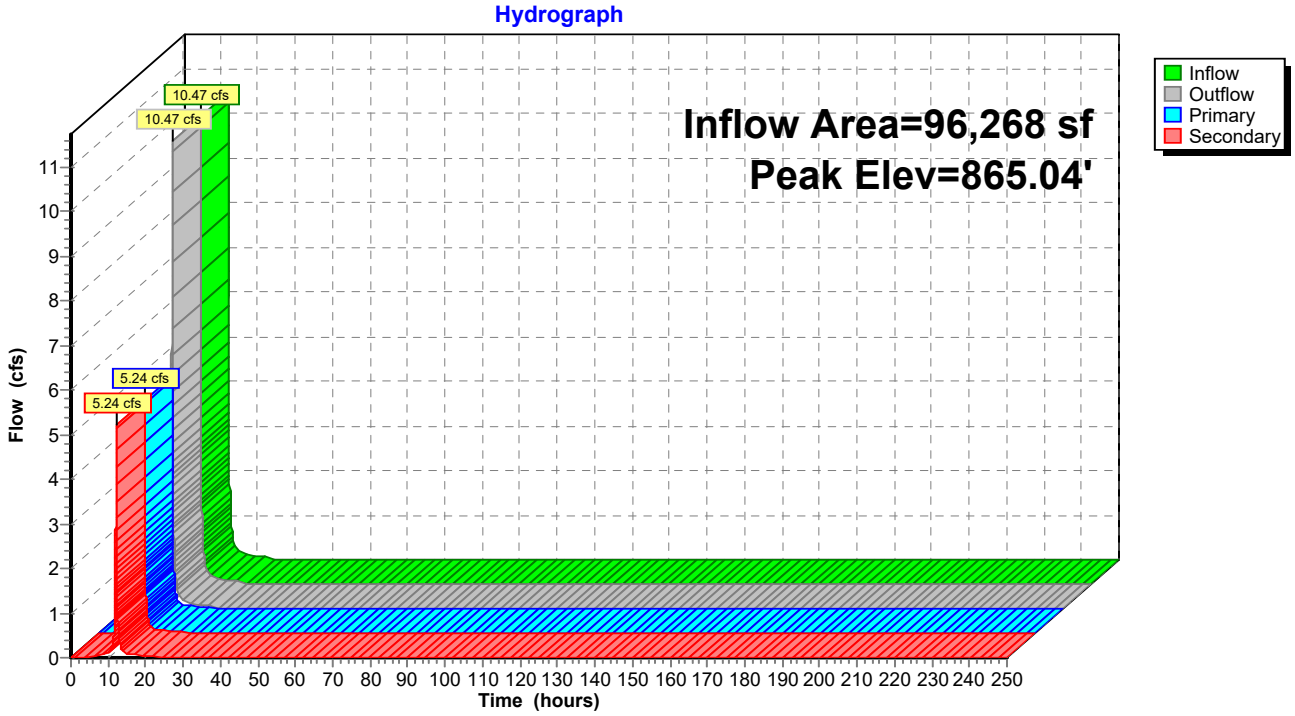
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.04' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.23 cfs @ 12.13 hrs HW=865.04' TW=862.95' (Dynamic Tailwater)
↑—**1=Culvert to MRC Cell 2A** (Barrel Controls 5.23 cfs @ 3.85 fps)

Secondary OutFlow Max=5.23 cfs @ 12.13 hrs HW=865.04' TW=862.95' (Dynamic Tailwater)
↑—**2=Culvert to MRC Cell 2B** (Barrel Controls 5.23 cfs @ 3.85 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18P: MRC Cell 2A

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 1.57" for 10-yr event
Inflow = 5.24 cfs @ 12.13 hrs, Volume= 12,622 cf
Outflow = 2.32 cfs @ 12.24 hrs, Volume= 12,615 cf, Atten= 56%, Lag= 6.5 min
Primary = 2.32 cfs @ 12.24 hrs, Volume= 12,615 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.30' @ 12.24 hrs Storage= 6,605 cf

Plug-Flow detention time= 1,185.4 min calculated for 12,615 cf (100% of inflow)
Center-of-Mass det. time= 1,185.0 min (1,937.3 - 752.3)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

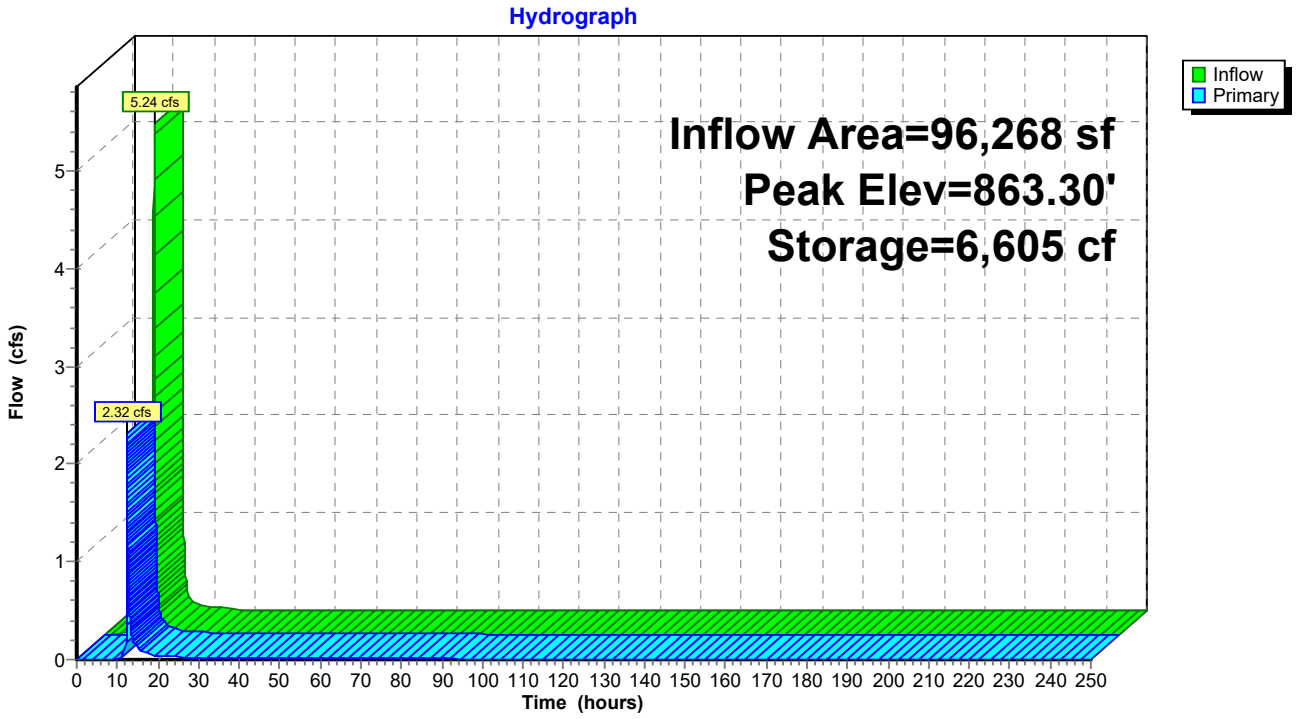
Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads

#4	Device 1	864.00'	**3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=2.32 cfs @ 12.24 hrs HW=863.30' TW=0.00' (Dynamic Tailwater)
- **1=MRC Outfall 200A** (Passes 2.32 cfs of 11.98 cfs potential flow)
  - **2=Underdrain** (Orifice Controls 0.03 cfs @ 8.70 fps)
  - **3=Orifice Row #1** (Orifice Controls 2.29 cfs @ 3.28 fps)
  - **4=Weir** (Controls 0.00 cfs)

Pond 18P: MRC Cell 2A



Summary for Pond 19P: MRC Cell 2B

Inflow = 5.24 cfs @ 12.13 hrs, Volume= 12,622 cf
Outflow = 2.32 cfs @ 12.24 hrs, Volume= 12,615 cf, Atten= 56%, Lag= 6.5 min
Primary = 2.32 cfs @ 12.24 hrs, Volume= 12,615 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.30' @ 12.24 hrs Storage= 6,605 cf

Plug-Flow detention time= 1,185.4 min calculated for 12,615 cf (100% of inflow)
Center-of-Mass det. time= 1,185.0 min (1,937.3 - 752.3)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

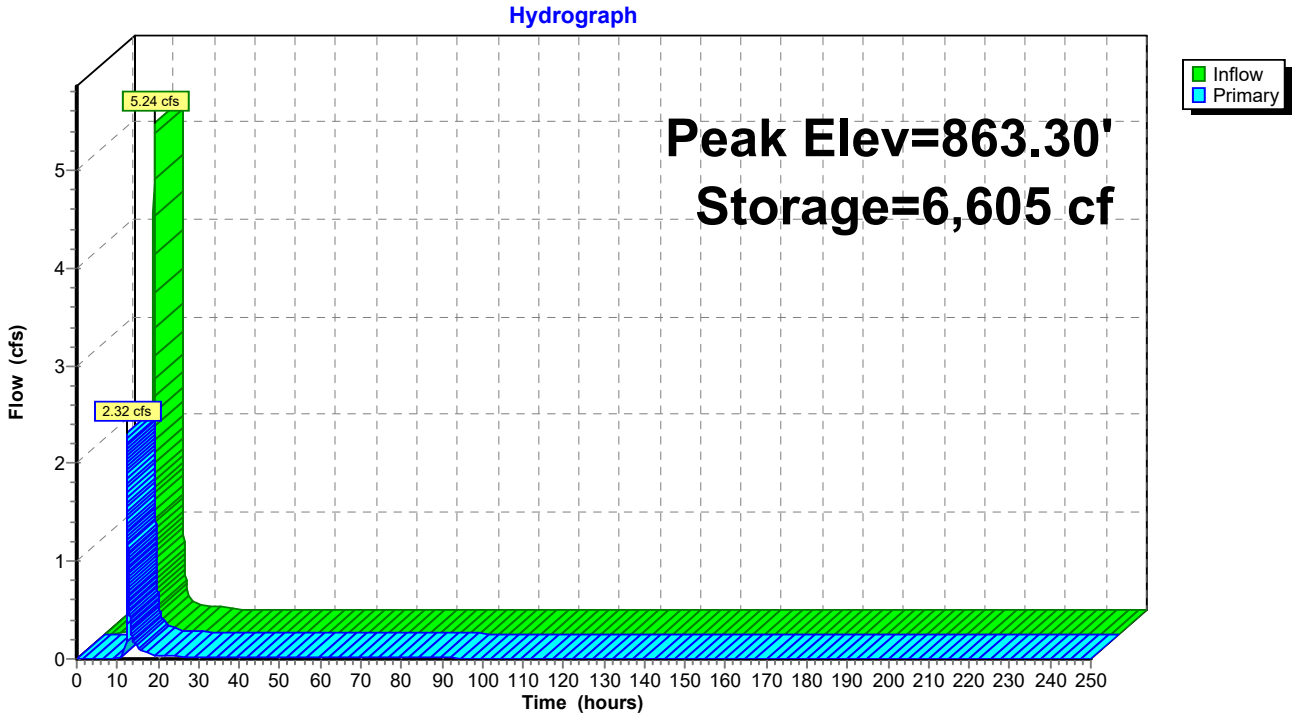
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=2.32 cfs @ 12.24 hrs HW=863.30' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 2.32 cfs of 11.98 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 8.70 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 2.29 cfs @ 3.28 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19P: MRC Cell 2B

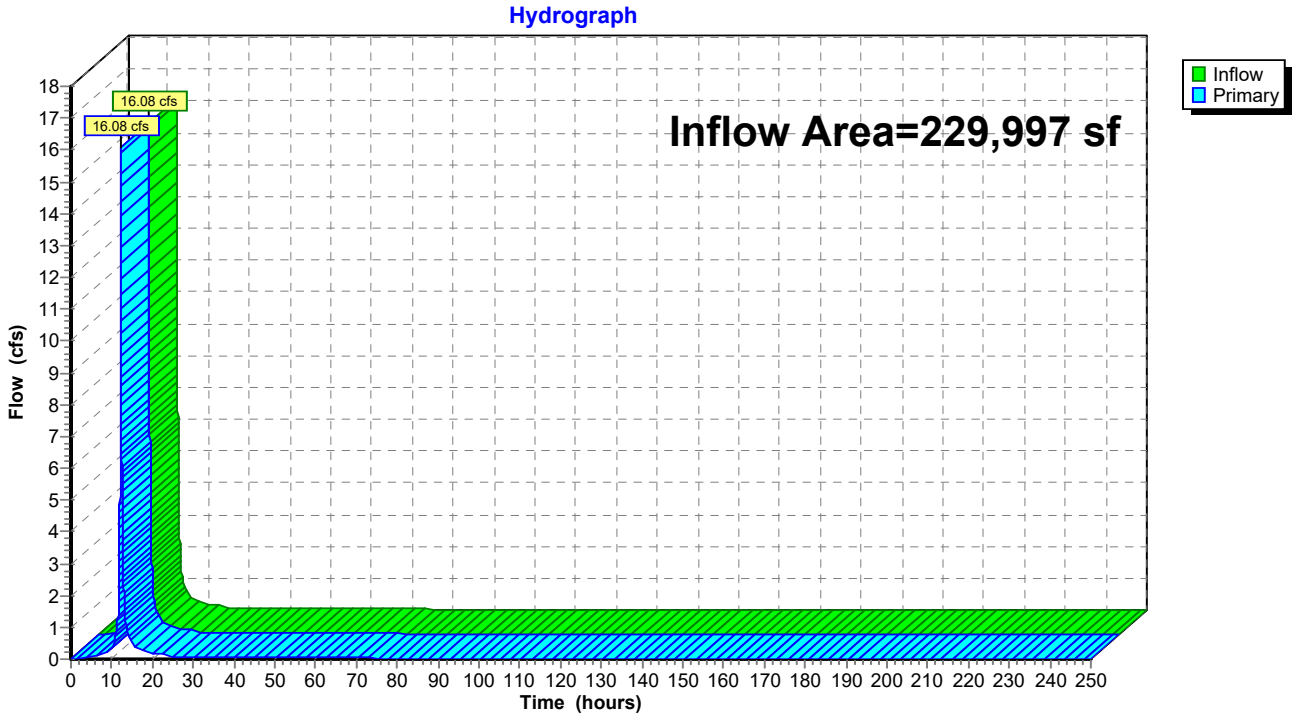


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 229,997 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 16.08 cfs @ 12.20 hrs, Volume= 60,300 cf
Primary = 16.08 cfs @ 12.20 hrs, Volume= 60,300 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained)

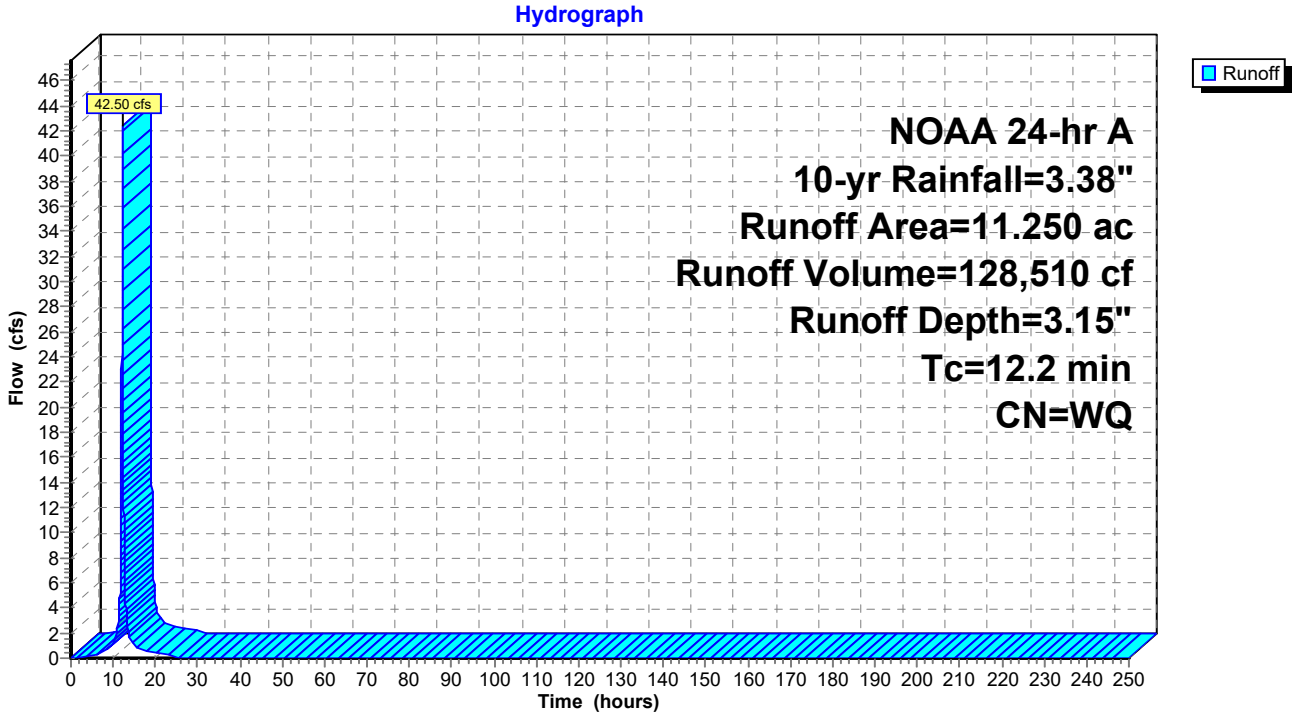
Runoff = 42.50 cfs @ 12.19 hrs, Volume= 128,510 cf, Depth= 3.15"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
	0.980	98	Paved parking, HSG C
*	10.270	98	Imp Outside LOD
	11.250		Weighted Average
	11.250		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre-Development TC**

Subcatchment 21: Post-Development DA-3 (Undetained)

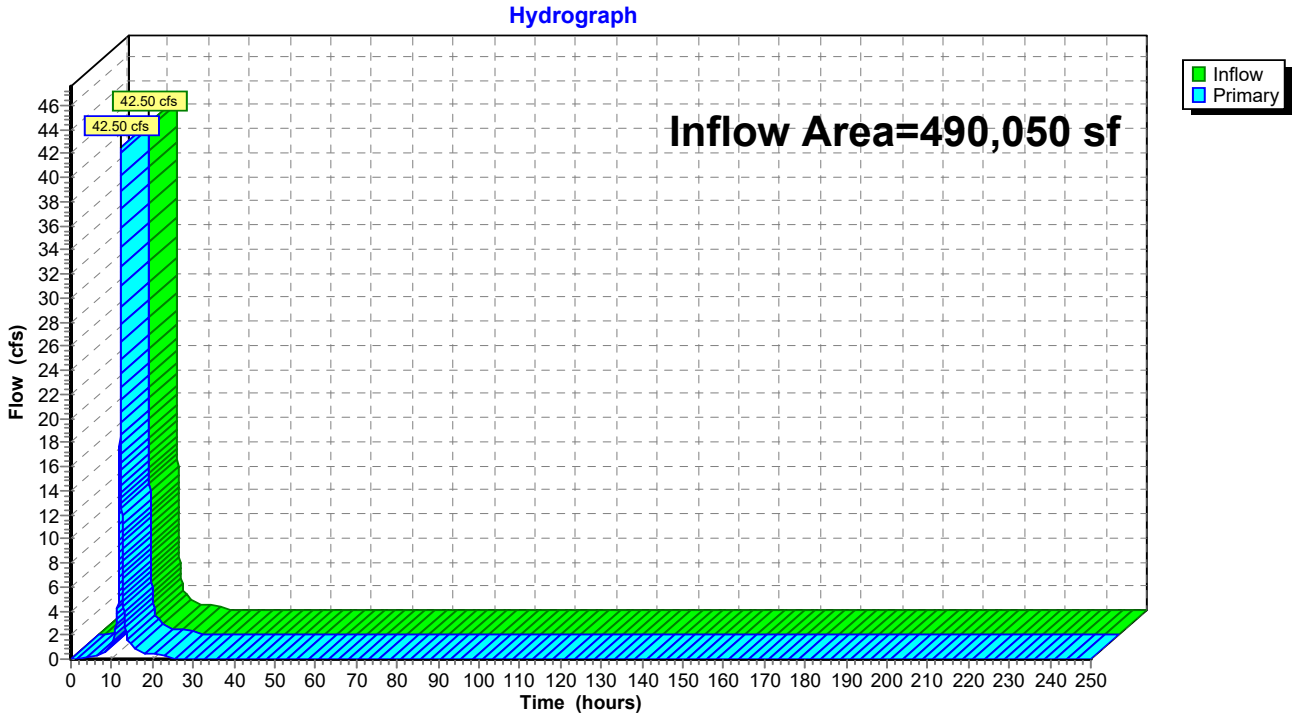


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 490,050 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 42.50 cfs @ 12.19 hrs, Volume= 128,510 cf
Primary = 42.50 cfs @ 12.19 hrs, Volume= 128,510 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 31: Post-Development DA-4 (Undetained)

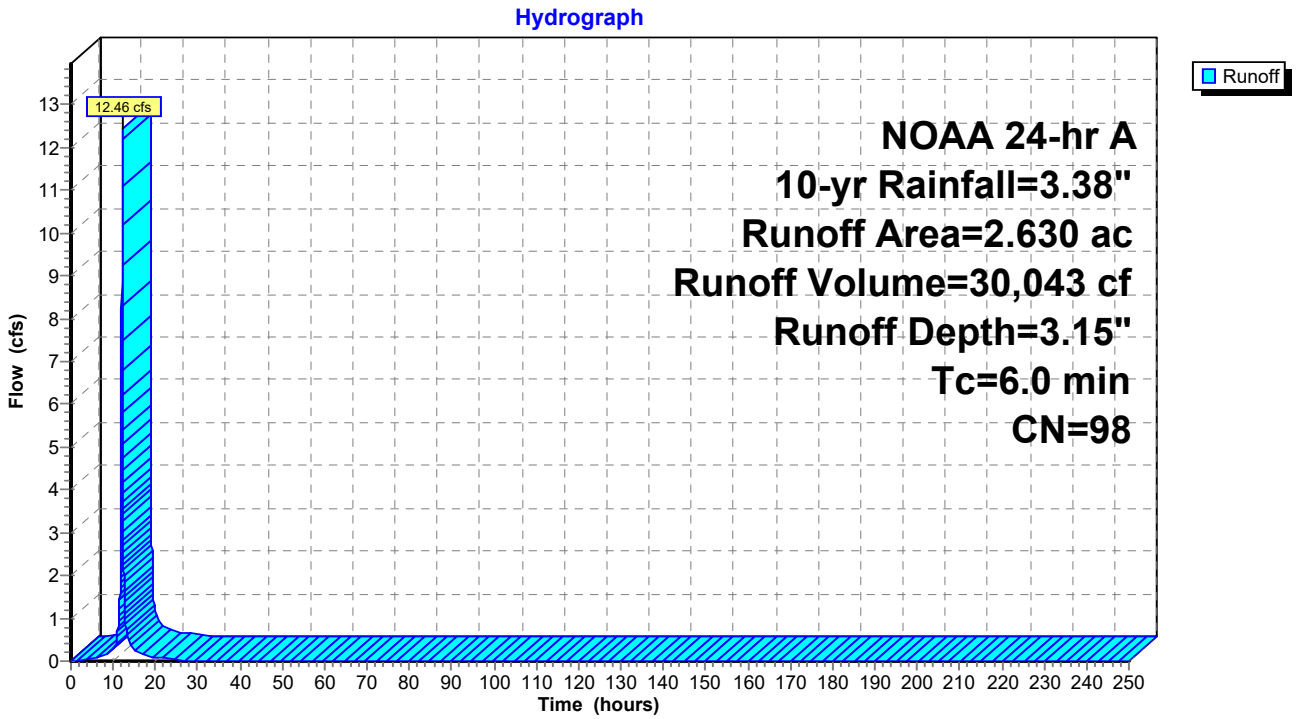
Runoff = 12.46 cfs @ 12.13 hrs, Volume= 30,043 cf, Depth= 3.15"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

	Area (ac)	CN	Description
*	2.630	98	Imp Outside LOD
	2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained)

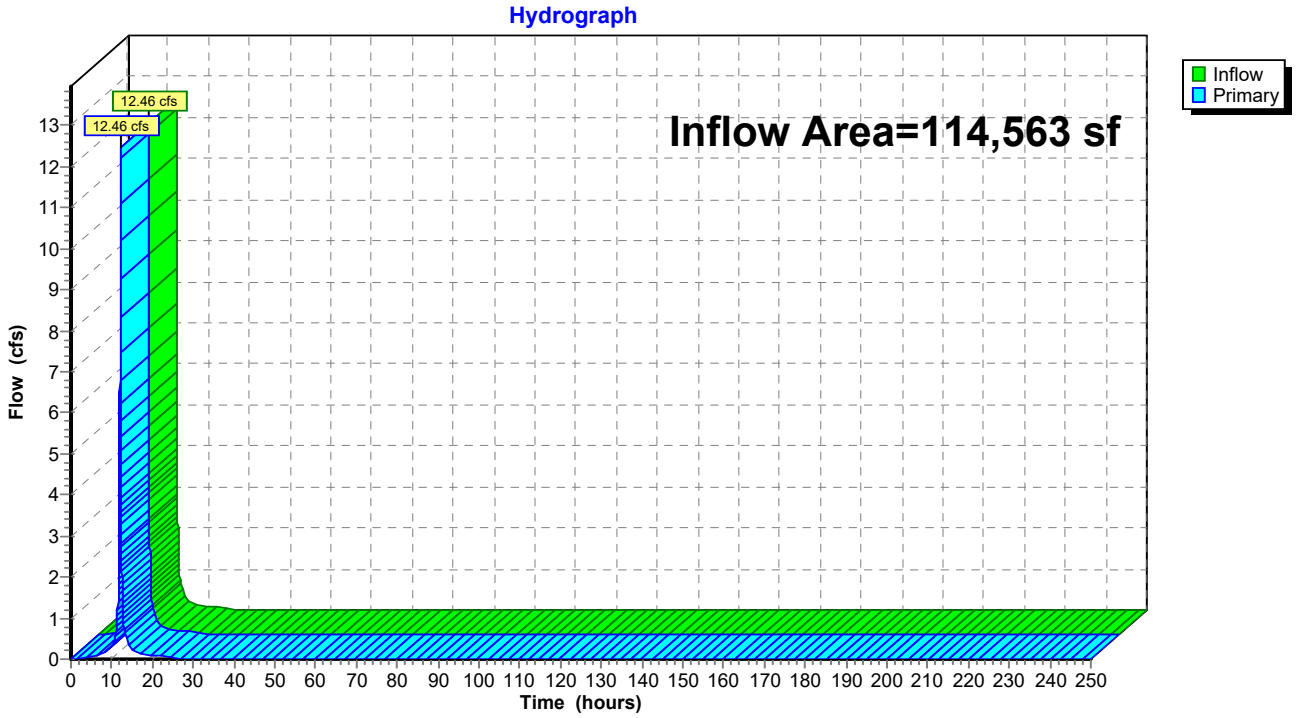


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 12.46 cfs @ 12.13 hrs, Volume= 30,043 cf
Primary = 12.46 cfs @ 12.13 hrs, Volume= 30,043 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

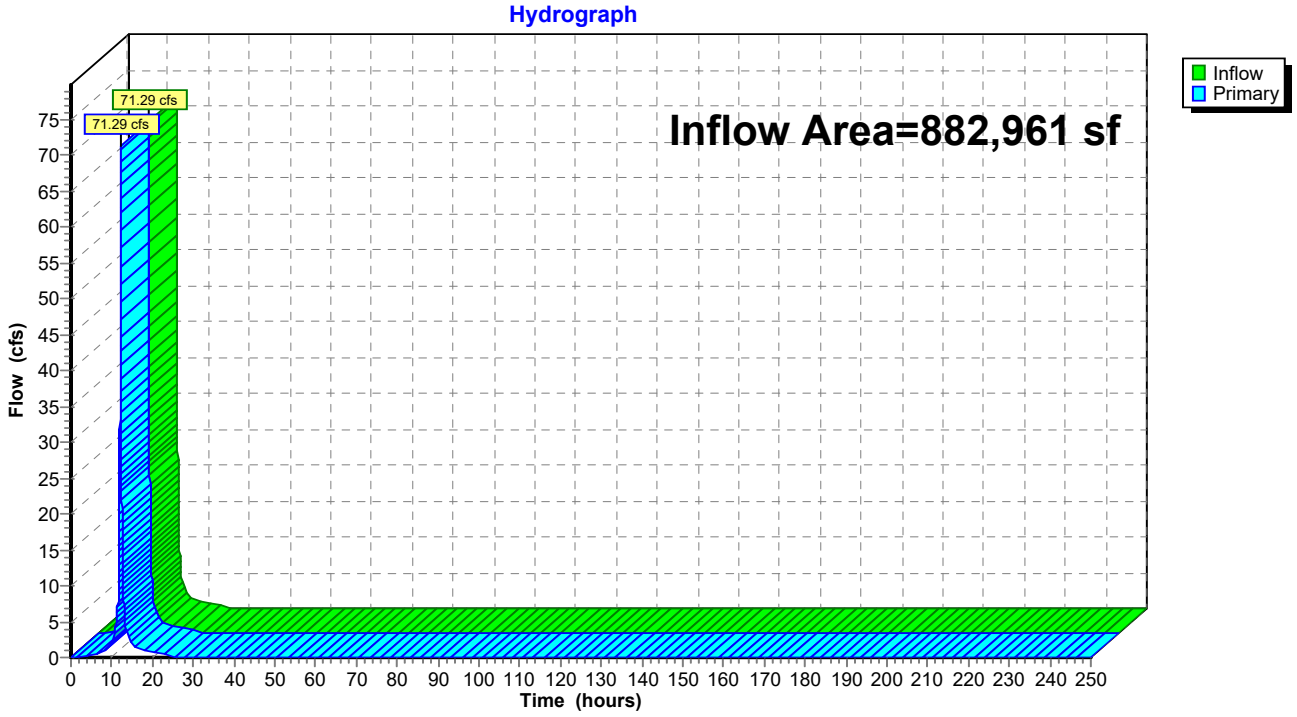


Summary for Link 33: Post POA 001

Inflow Area = 882,961 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 71.29 cfs @ 12.17 hrs, Volume= 231,532 cf
Primary = 71.29 cfs @ 12.17 hrs, Volume= 231,532 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: Post POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Undetained)

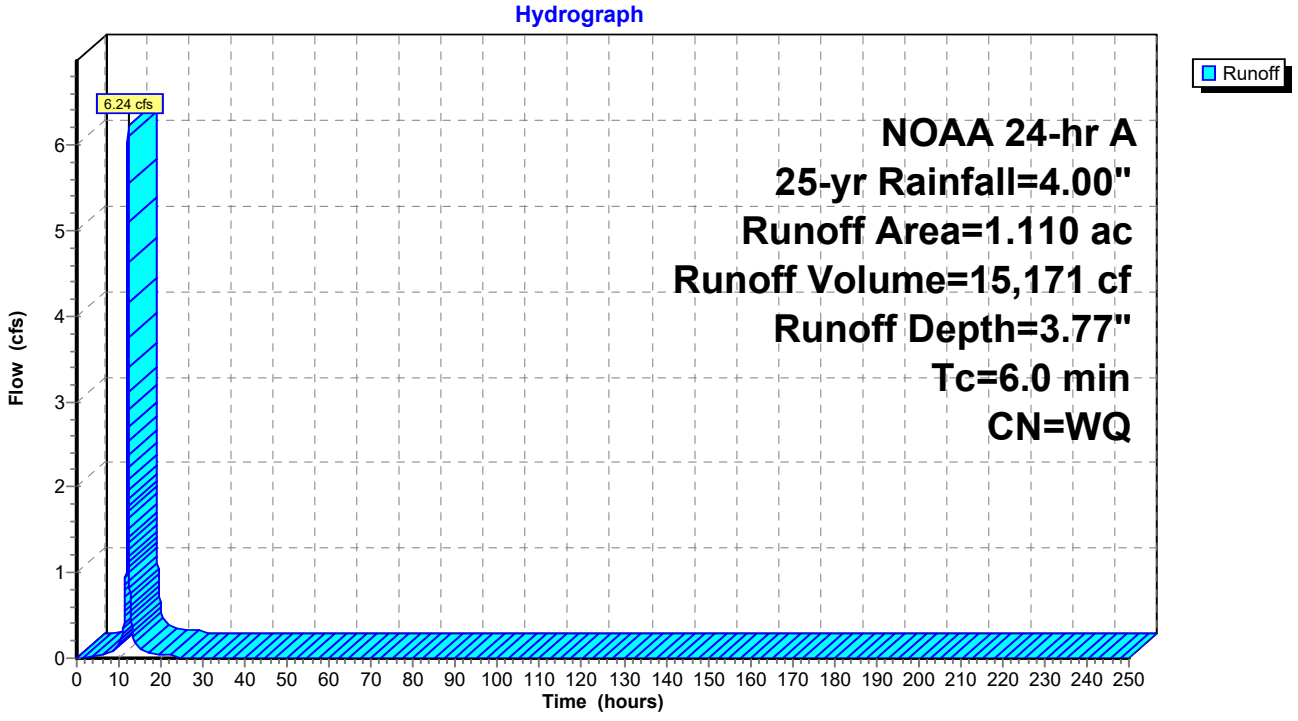
Runoff = 6.24 cfs @ 12.13 hrs, Volume= 15,171 cf, Depth= 3.77"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	0.050	98	Paved parking, HSG C
*	1.060	98	Imp Outside LOD
	1.110		Weighted Average
	1.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Undetained)

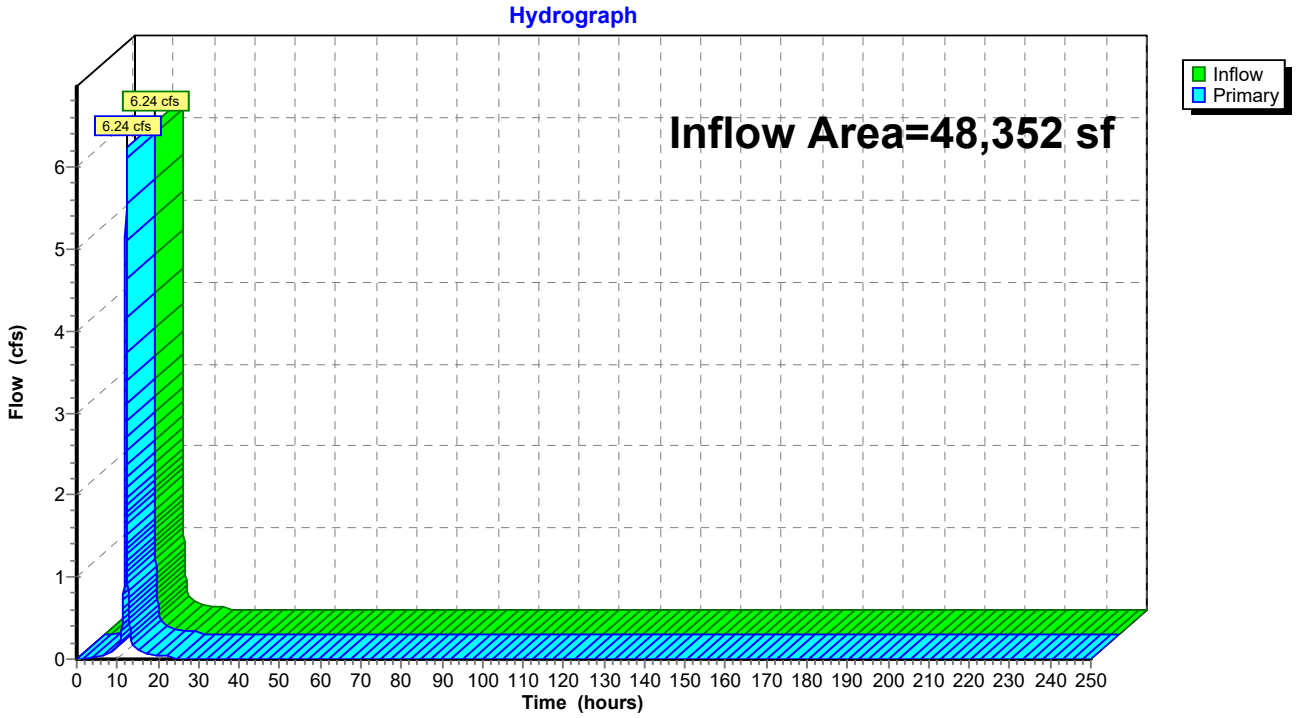


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 48,352 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 6.24 cfs @ 12.13 hrs, Volume= 15,171 cf
Primary = 6.24 cfs @ 12.13 hrs, Volume= 15,171 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

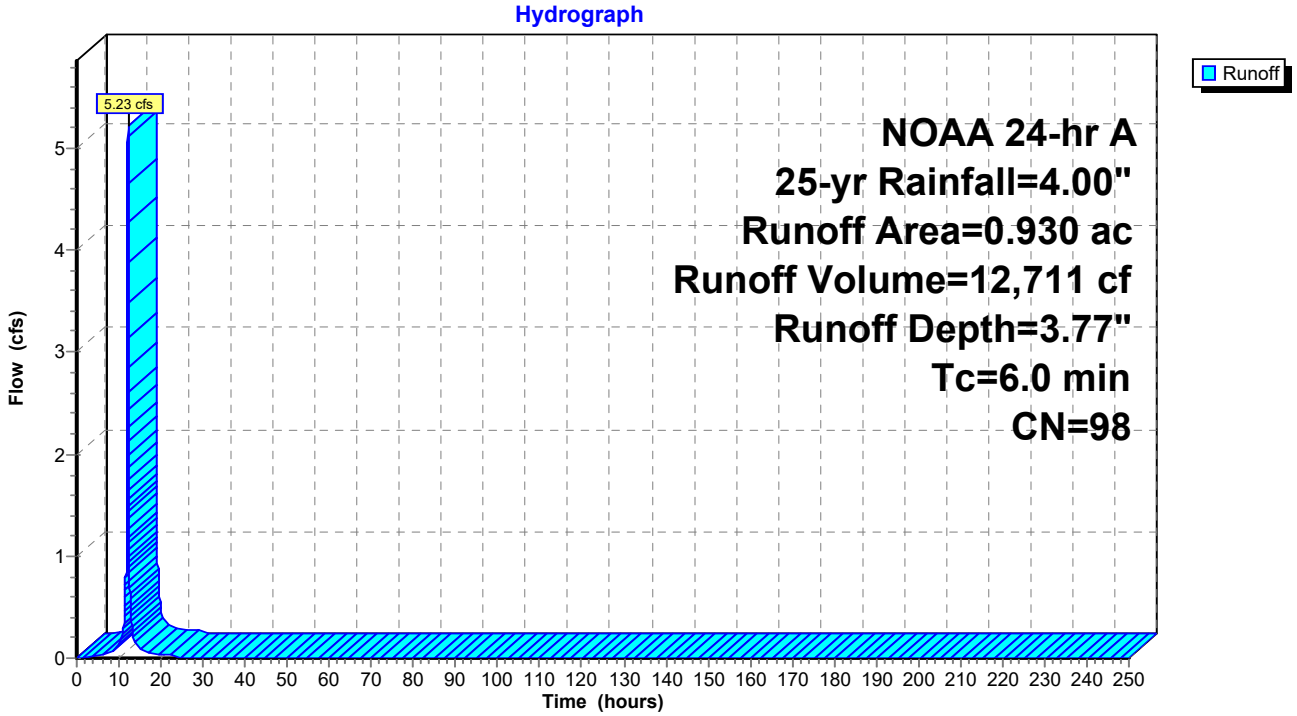
Runoff = 5.23 cfs @ 12.13 hrs, Volume= 12,711 cf, Depth= 3.77"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG C
0.930		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained)

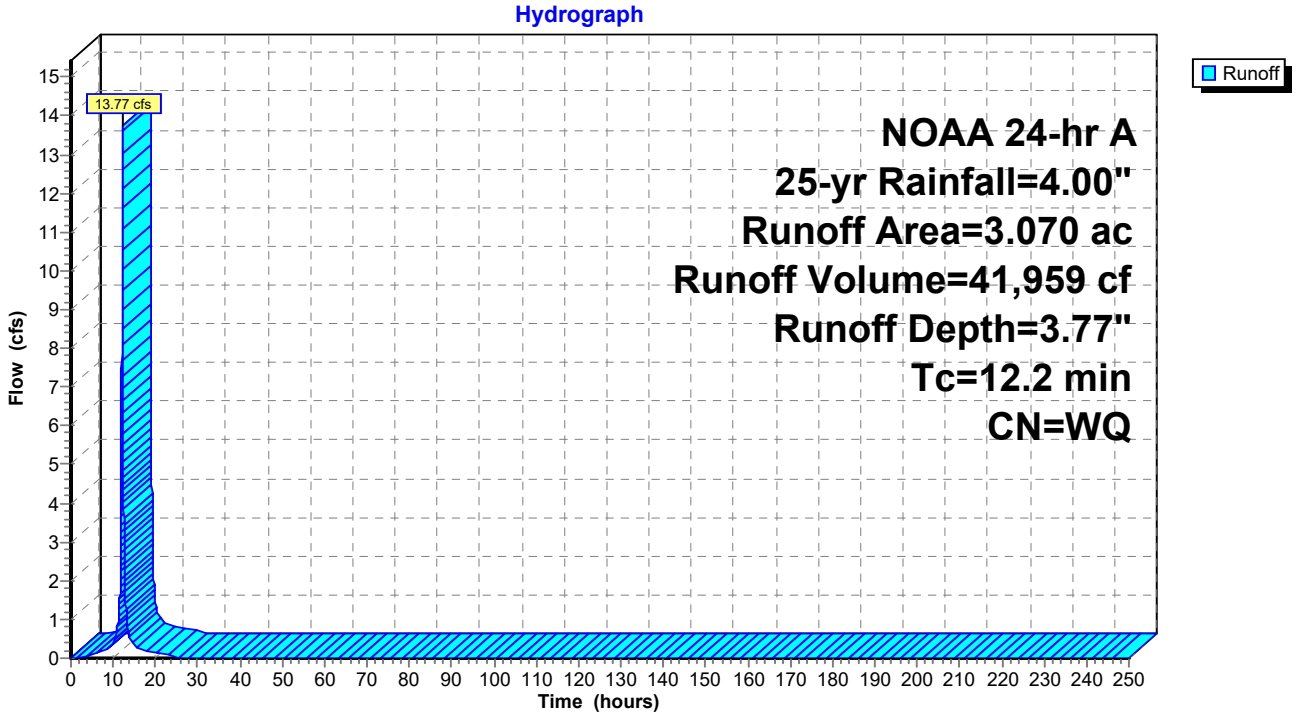
Runoff = 13.77 cfs @ 12.19 hrs, Volume= 41,959 cf, Depth= 3.77"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	0.330	98	Paved parking, HSG C
*	2.740	98	Imp Outside LOD
	3.070		Weighted Average
	3.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre Development TC**

Subcatchment 14: Post-Development DA-2 (Undetained)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 12.43 cfs @ 12.13 hrs, Volume= 30,205 cf
Outflow = 12.43 cfs @ 12.13 hrs, Volume= 30,205 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.61 cfs @ 12.13 hrs, Volume= 30,054 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.83 cfs @ 12.13 hrs, Volume= 151 cf
Routed to Link 20 : Post-Development Discharge Point 2

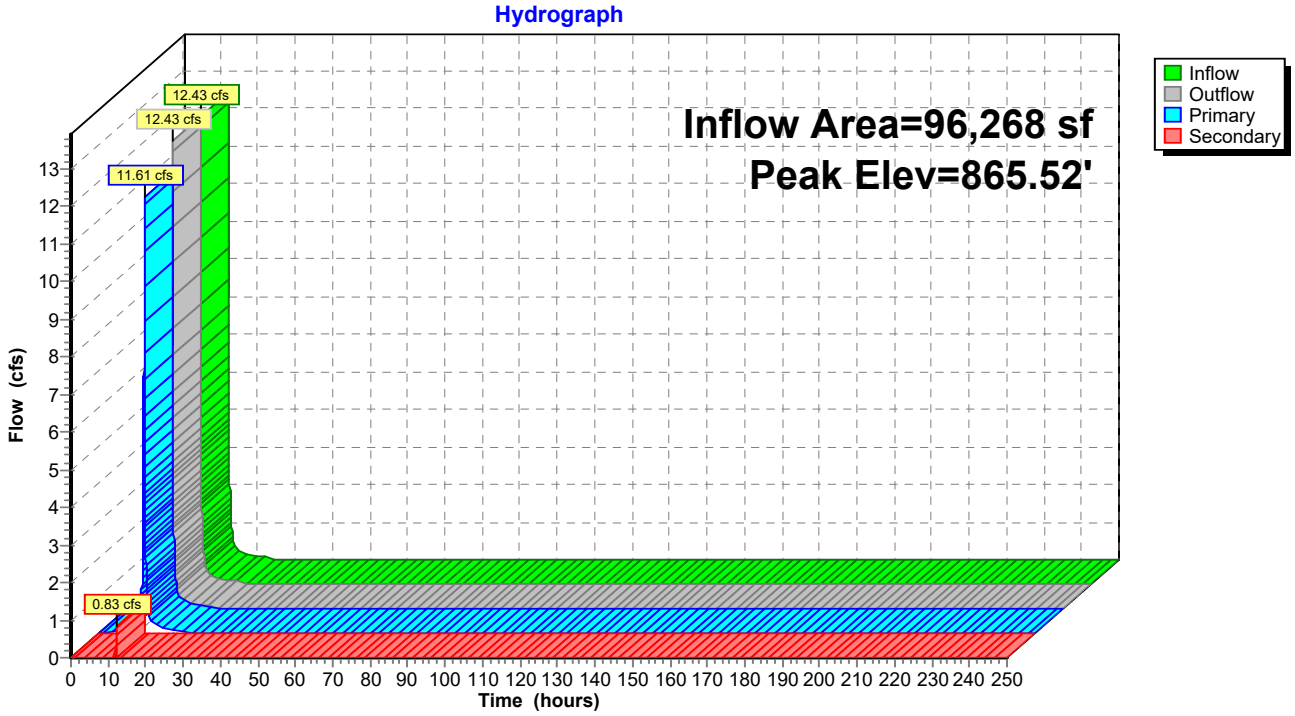
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.52' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=11.52 cfs @ 12.13 hrs HW=865.52' TW=865.14' (Dynamic Tailwater)
└**1=Culvert to MRC** (Outlet Controls 11.52 cfs @ 3.68 fps)

Secondary OutFlow Max=0.82 cfs @ 12.13 hrs HW=865.52' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Passes 0.82 cfs of 5.33 cfs potential flow)
└**3=Diversion Weir** (Weir Controls 0.82 cfs @ 1.14 fps)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

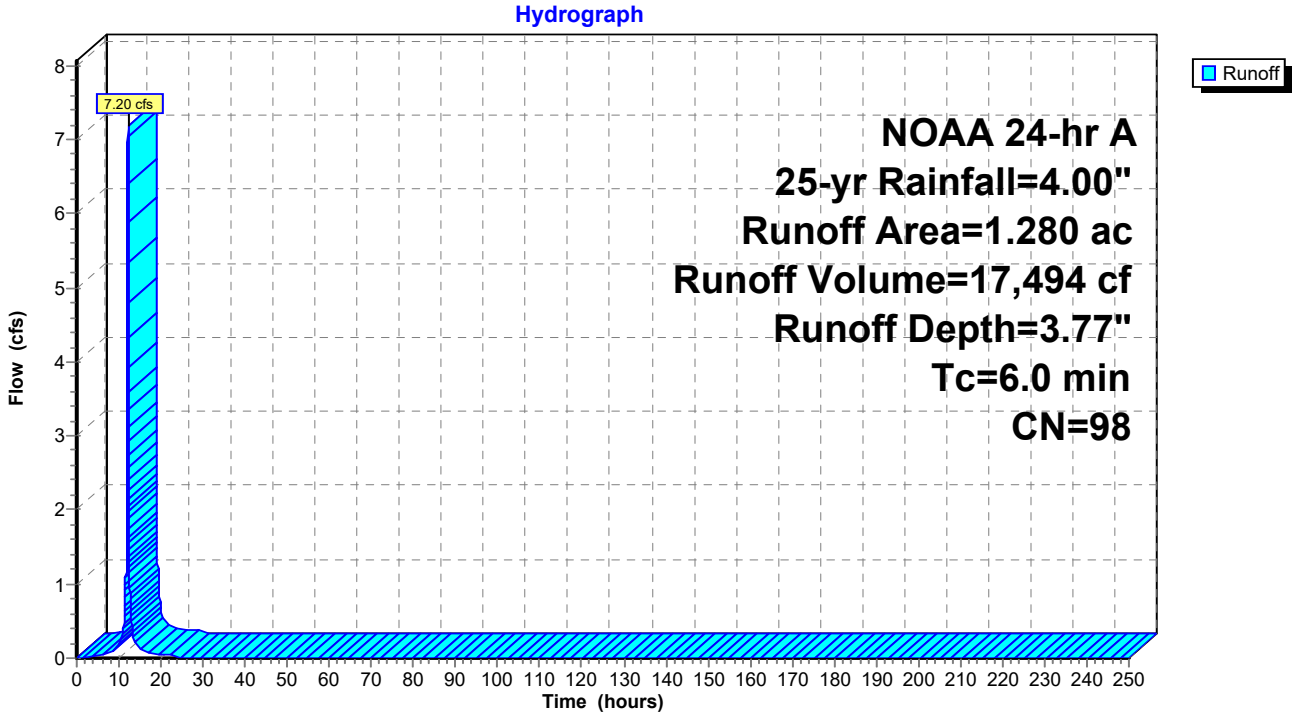
Runoff = 7.20 cfs @ 12.13 hrs, Volume= 17,494 cf, Depth= 3.77"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG C
1.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 3.75" for 25-yr event
Inflow = 11.61 cfs @ 12.13 hrs, Volume= 30,054 cf
Outflow = 11.61 cfs @ 12.13 hrs, Volume= 30,054 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.81 cfs @ 12.13 hrs, Volume= 15,027 cf
Routed to Pond 18P : MRC Cell 2A
Secondary = 5.81 cfs @ 12.13 hrs, Volume= 15,027 cf
Routed to Pond 19P : MRC Cell 2B

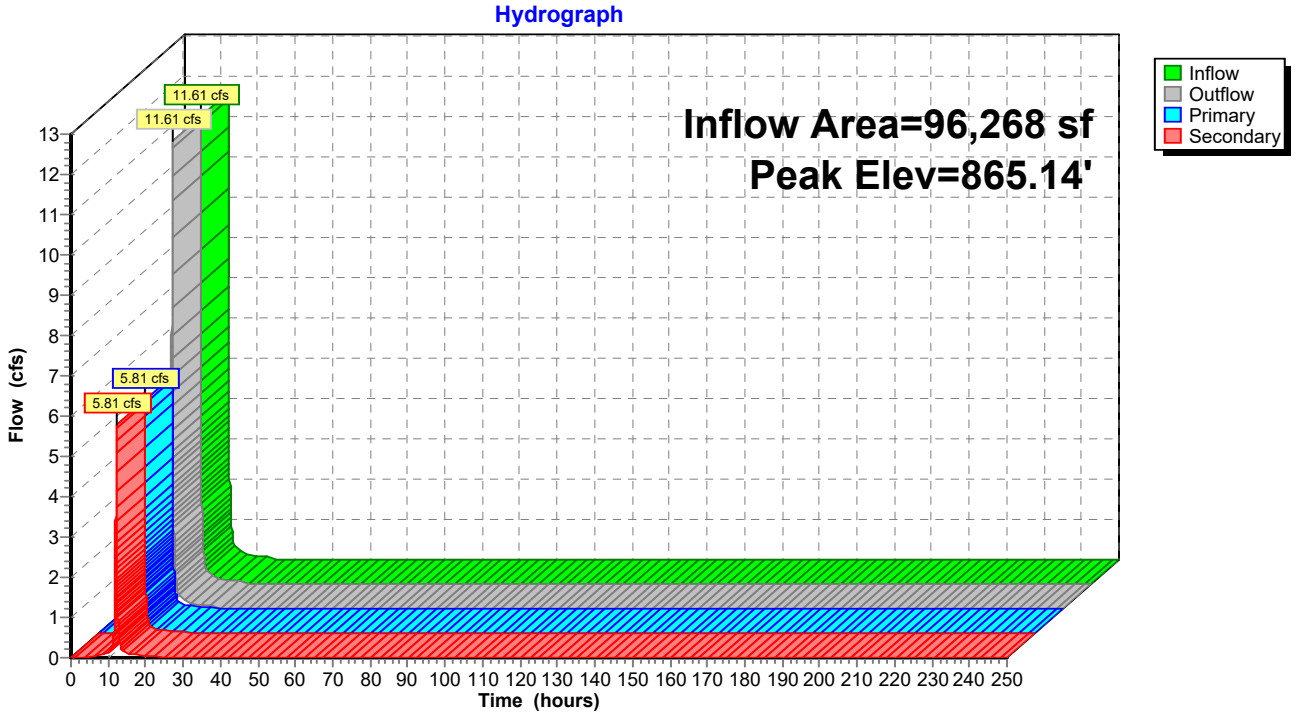
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.14' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.80 cfs @ 12.13 hrs HW=865.14' TW=863.33' (Dynamic Tailwater)
↑—**1=Culvert to MRC Cell 2A** (Barrel Controls 5.80 cfs @ 3.97 fps)

Secondary OutFlow Max=5.80 cfs @ 12.13 hrs HW=865.14' TW=863.33' (Dynamic Tailwater)
↑—**2=Culvert to MRC Cell 2B** (Barrel Controls 5.80 cfs @ 3.97 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18P: MRC Cell 2A

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 1.87" for 25-yr event
Inflow = 5.81 cfs @ 12.13 hrs, Volume= 15,027 cf
Outflow = 3.06 cfs @ 12.22 hrs, Volume= 15,020 cf, Atten= 47%, Lag= 5.8 min
Primary = 3.06 cfs @ 12.22 hrs, Volume= 15,020 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.65' @ 12.22 hrs Storage= 7,301 cf

Plug-Flow detention time= 1,008.6 min calculated for 15,019 cf (100% of inflow)
Center-of-Mass det. time= 1,008.7 min (1,758.4 - 749.7)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

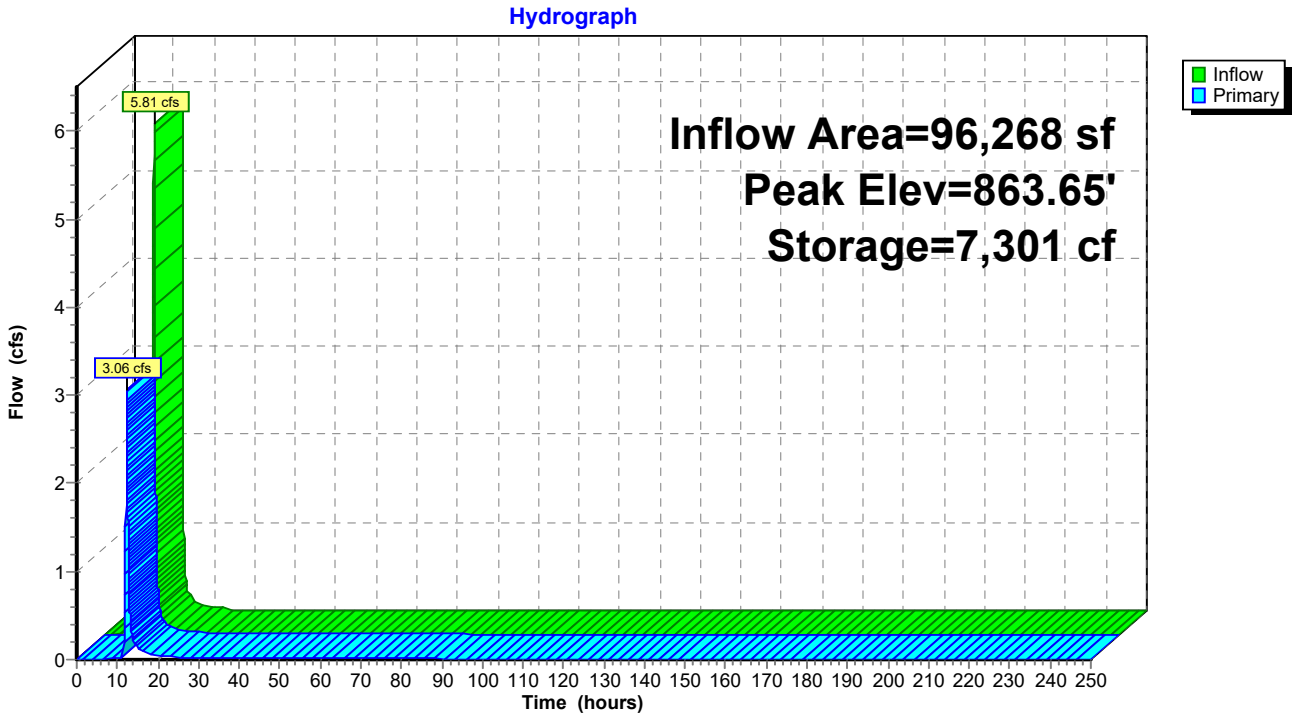
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=3.06 cfs @ 12.22 hrs HW=863.65' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 3.06 cfs of 12.77 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.15 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.03 cfs @ 4.34 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18P: MRC Cell 2A



Summary for Pond 19P: MRC Cell 2B

Inflow = 5.81 cfs @ 12.13 hrs, Volume= 15,027 cf
Outflow = 3.06 cfs @ 12.22 hrs, Volume= 15,020 cf, Atten= 47%, Lag= 5.8 min
Primary = 3.06 cfs @ 12.22 hrs, Volume= 15,020 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.65' @ 12.22 hrs Storage= 7,301 cf

Plug-Flow detention time= 1,008.6 min calculated for 15,019 cf (100% of inflow)
Center-of-Mass det. time= 1,008.7 min (1,758.4 - 749.7)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

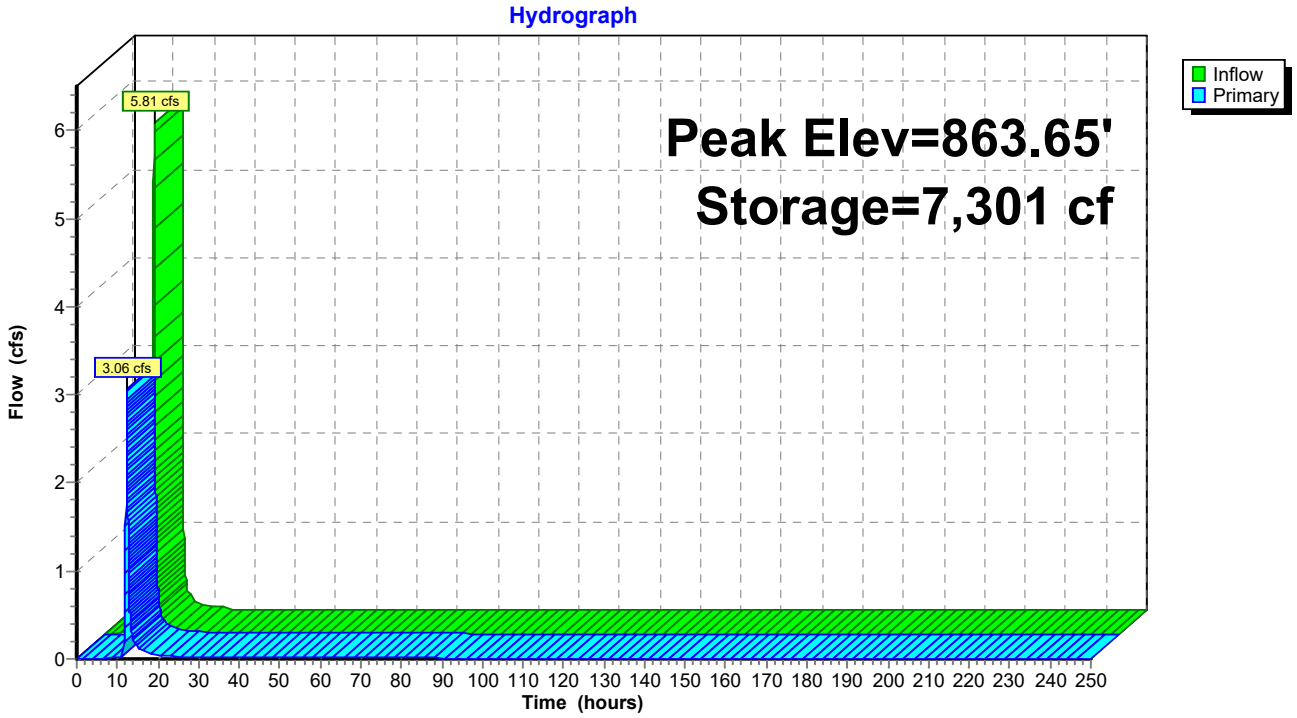
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=3.06 cfs @ 12.22 hrs HW=863.65' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 3.06 cfs of 12.77 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.15 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.03 cfs @ 4.34 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19P: MRC Cell 2B

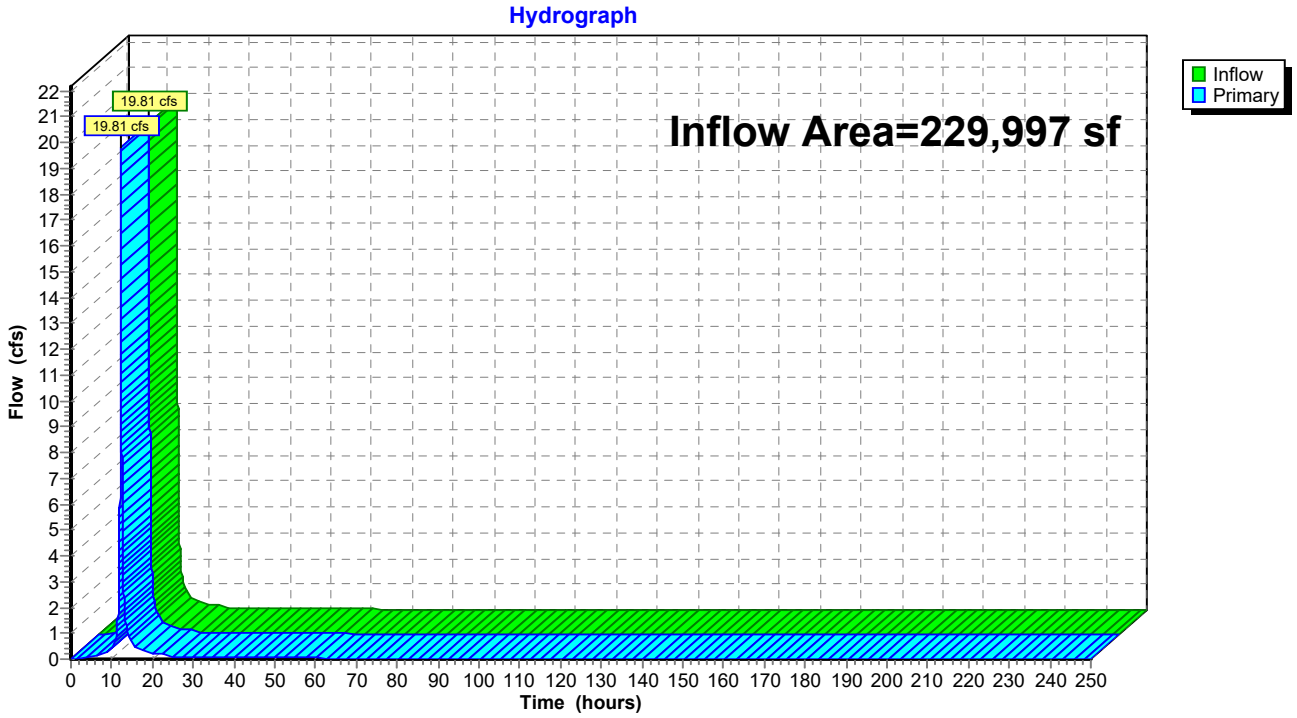


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 229,997 sf,100.00% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 19.81 cfs @ 12.20 hrs, Volume= 72,149 cf
Primary = 19.81 cfs @ 12.20 hrs, Volume= 72,149 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained)

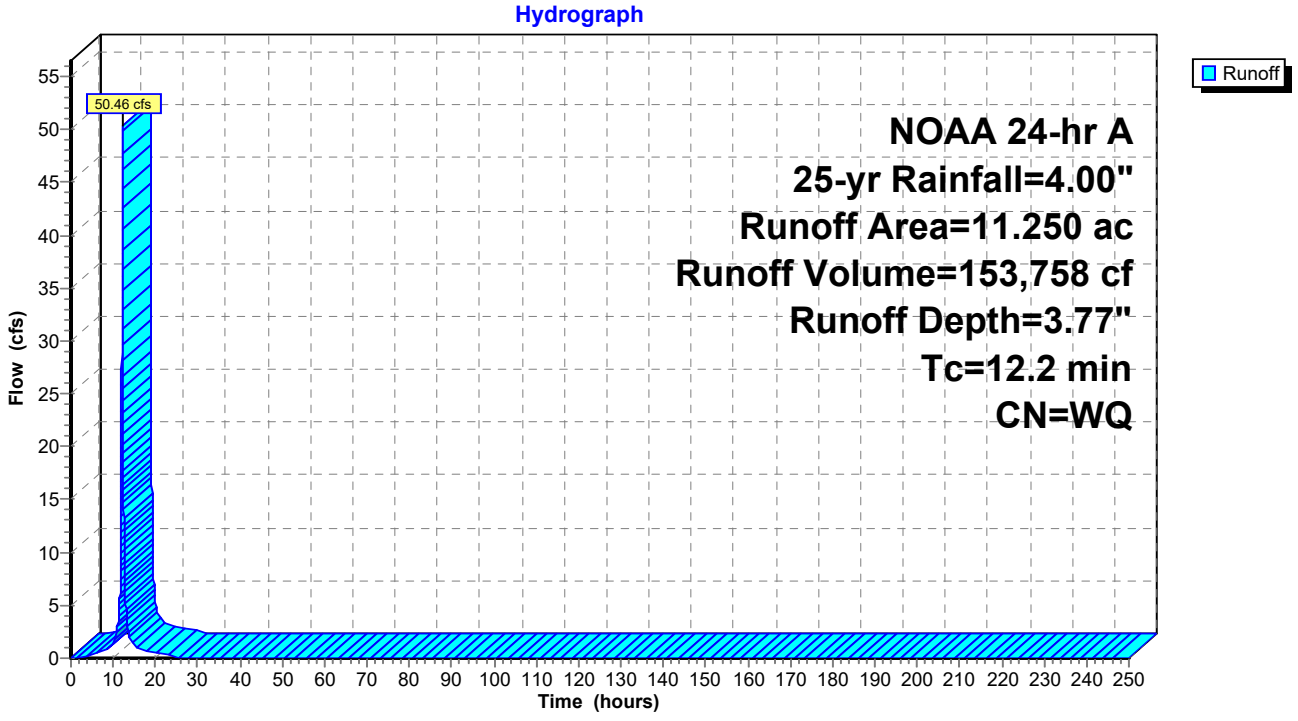
Runoff = 50.46 cfs @ 12.19 hrs, Volume= 153,758 cf, Depth= 3.77"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
	0.980	98	Paved parking, HSG C
*	10.270	98	Imp Outside LOD
	11.250		Weighted Average
	11.250		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre-Development TC**

Subcatchment 21: Post-Development DA-3 (Undetained)

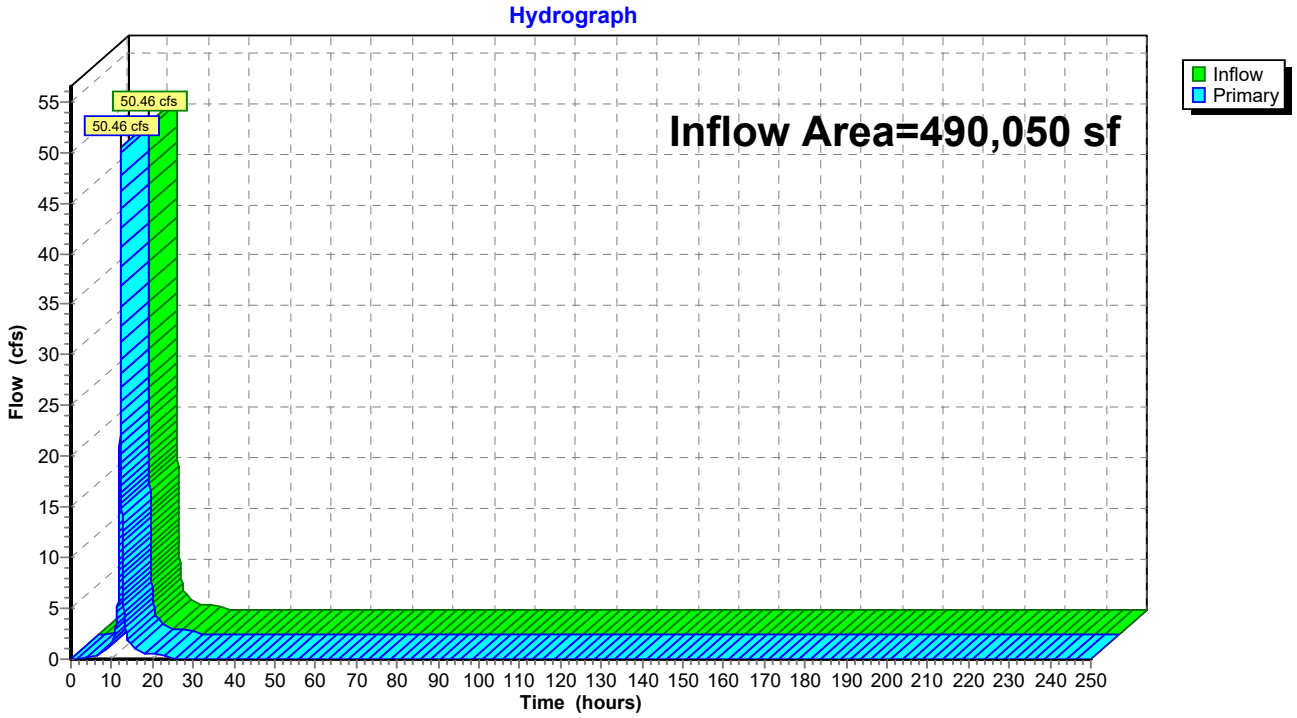


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 490,050 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 50.46 cfs @ 12.19 hrs, Volume= 153,758 cf
Primary = 50.46 cfs @ 12.19 hrs, Volume= 153,758 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 31: Post-Development DA-4 (Undetained)

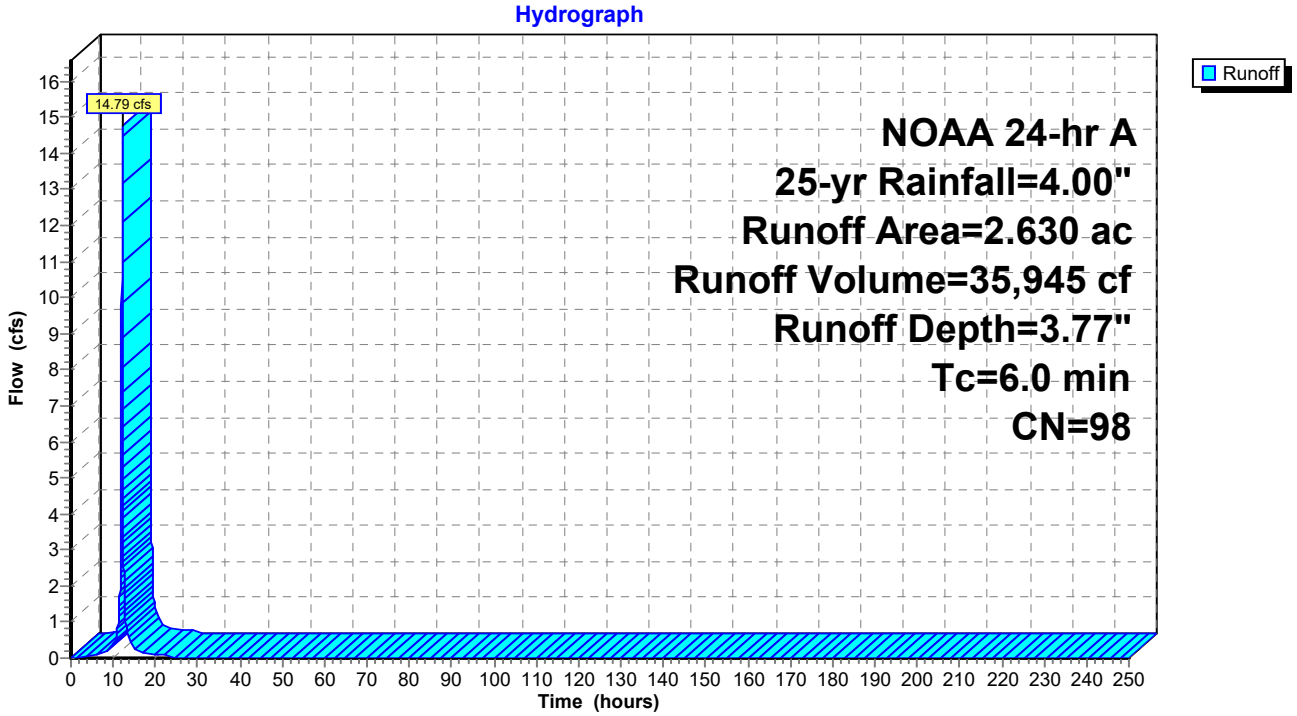
Runoff = 14.79 cfs @ 12.13 hrs, Volume= 35,945 cf, Depth= 3.77"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

	Area (ac)	CN	Description
*	2.630	98	Imp Outside LOD
	2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained)

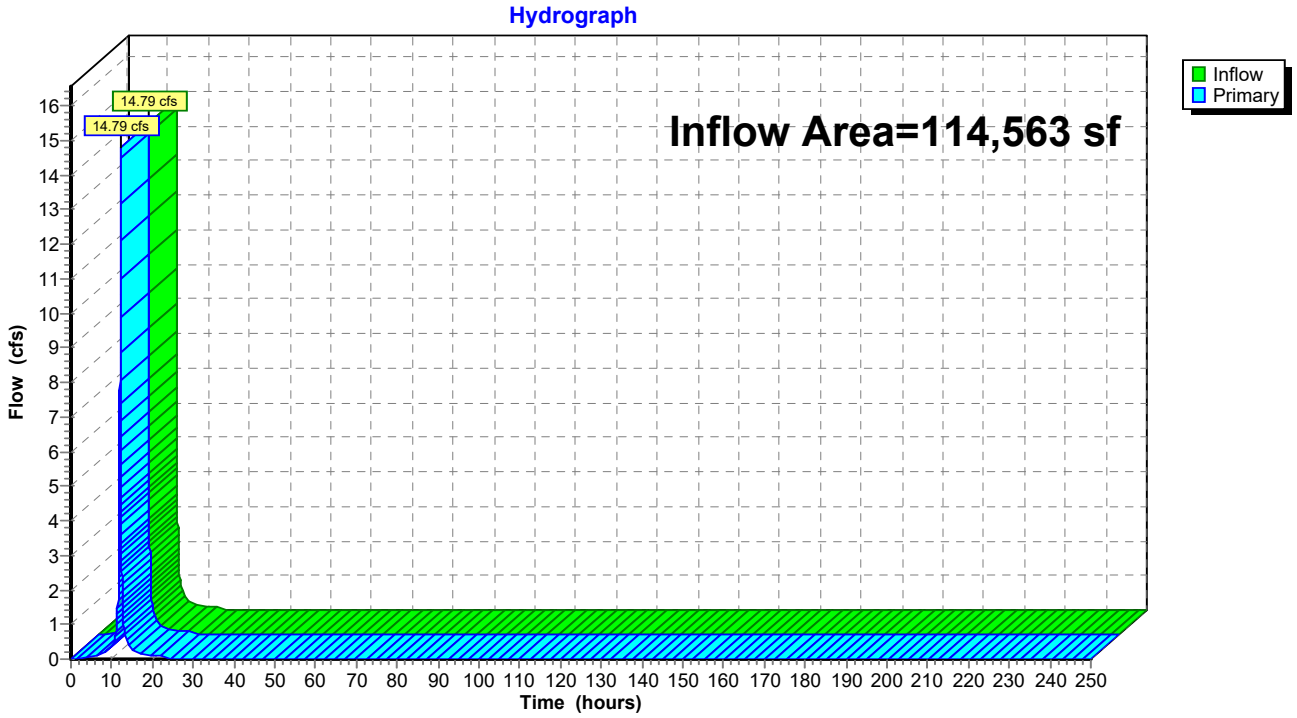


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 14.79 cfs @ 12.13 hrs, Volume= 35,945 cf
Primary = 14.79 cfs @ 12.13 hrs, Volume= 35,945 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

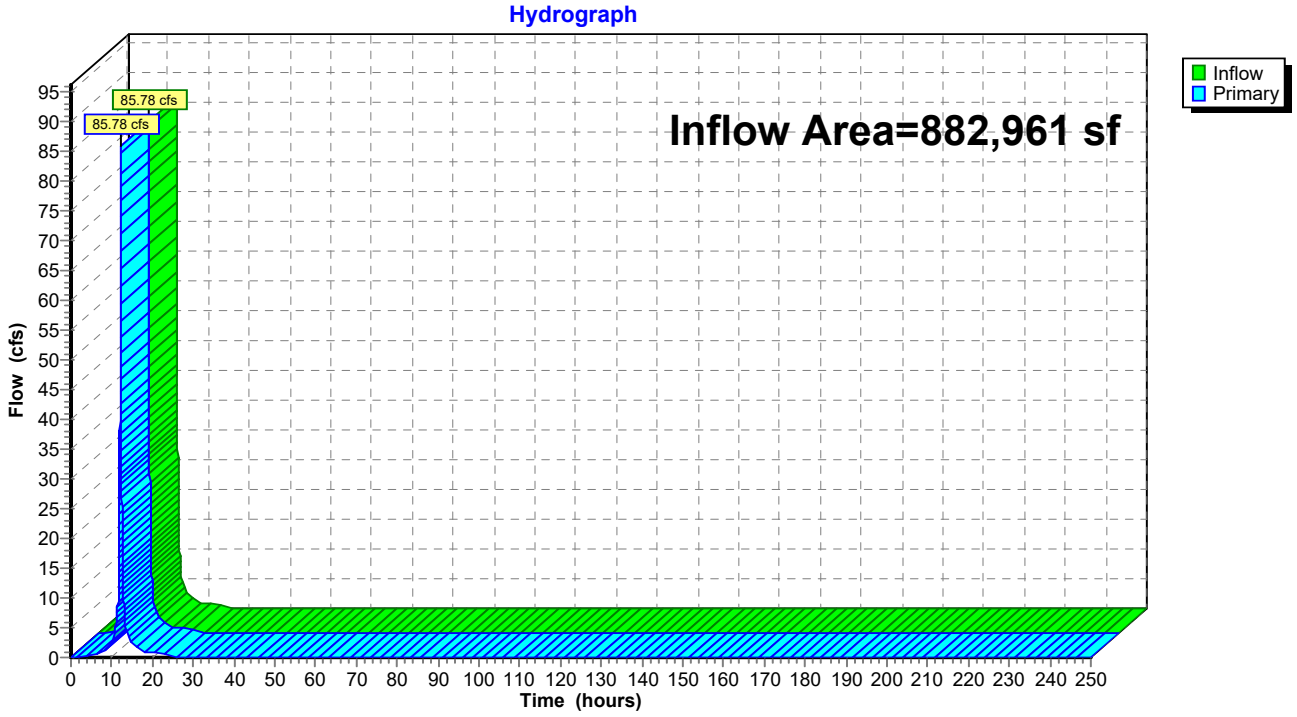


Summary for Link 33: Post POA 001

Inflow Area = 882,961 sf,100.00% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 85.78 cfs @ 12.16 hrs, Volume= 277,023 cf
Primary = 85.78 cfs @ 12.16 hrs, Volume= 277,023 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: Post POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Undetained)

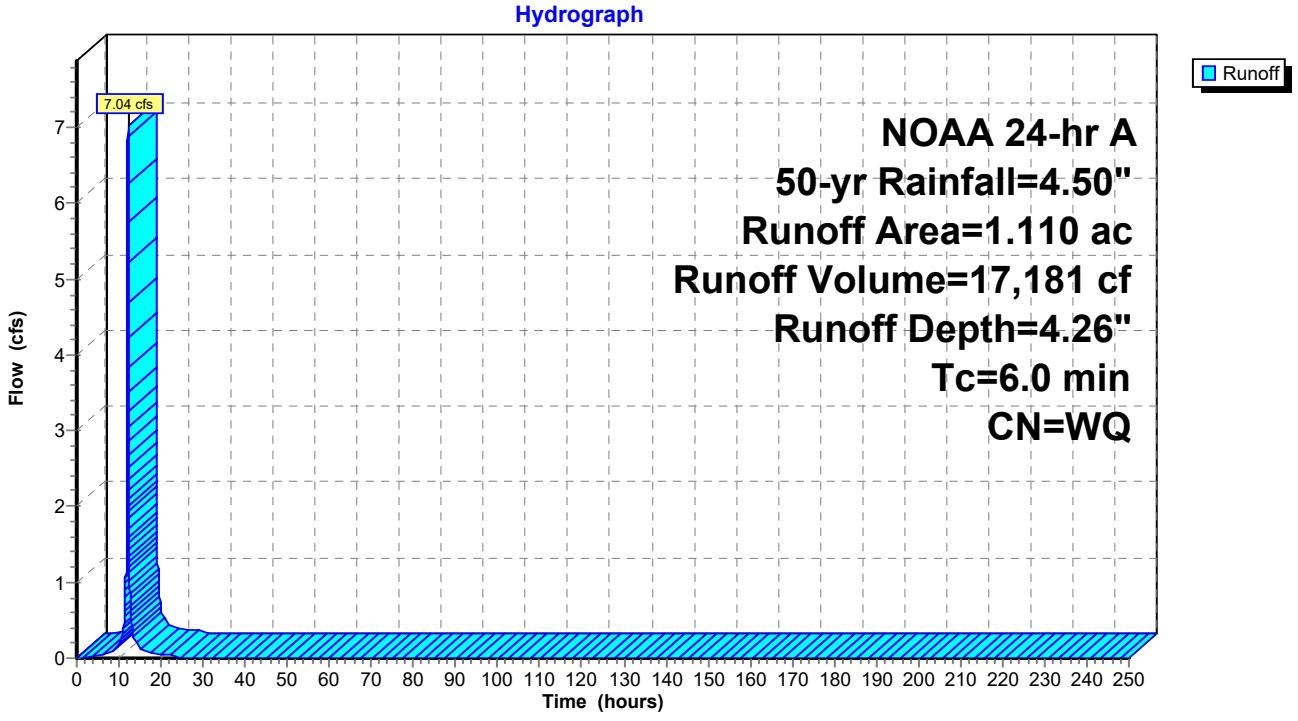
Runoff = 7.04 cfs @ 12.13 hrs, Volume= 17,181 cf, Depth= 4.26"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	0.050	98	Paved parking, HSG C
*	1.060	98	Imp Outside LOD
	1.110		Weighted Average
	1.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Undetained)

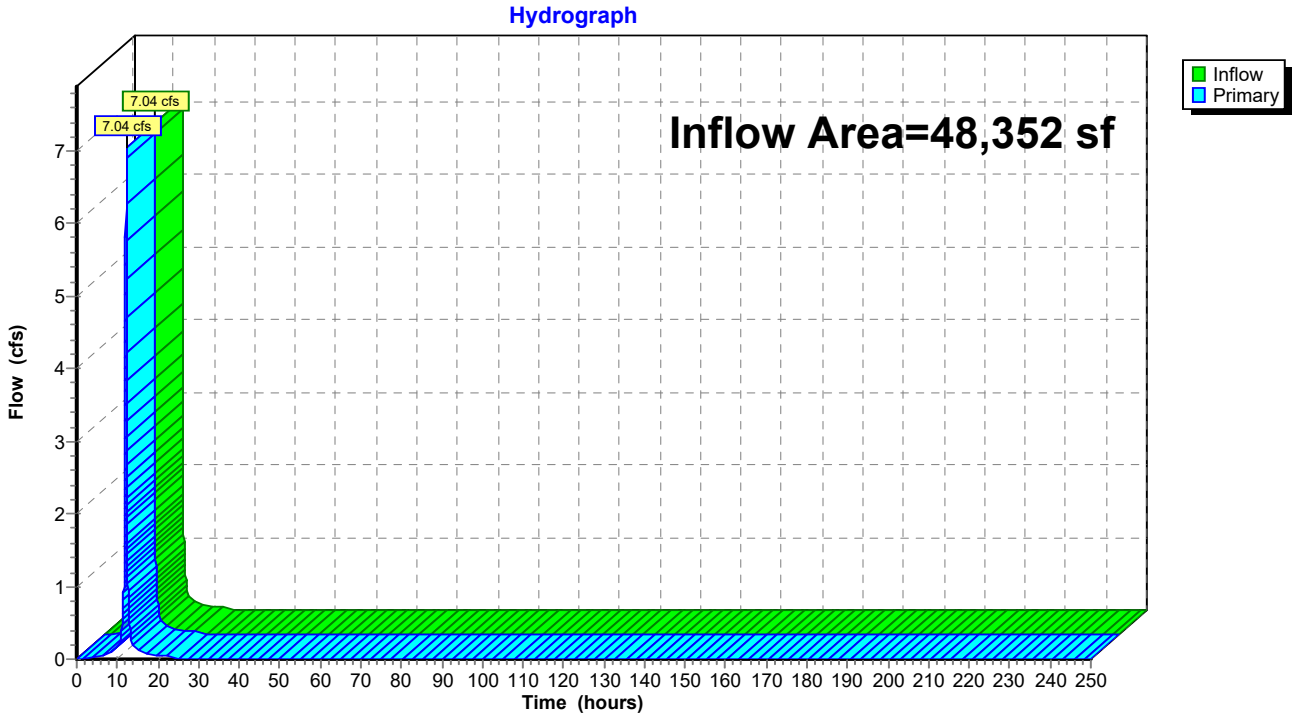


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 48,352 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 7.04 cfs @ 12.13 hrs, Volume= 17,181 cf
Primary = 7.04 cfs @ 12.13 hrs, Volume= 17,181 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

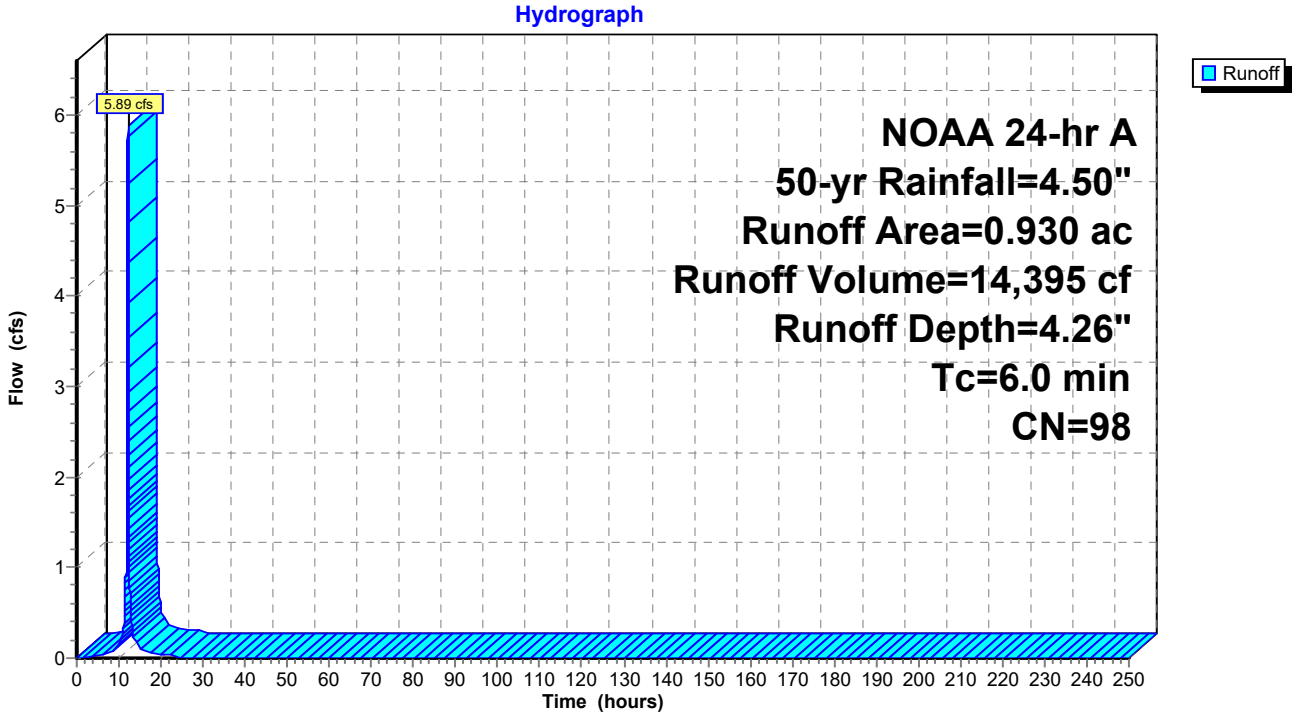
Runoff = 5.89 cfs @ 12.13 hrs, Volume= 14,395 cf, Depth= 4.26"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG C
0.930		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained)

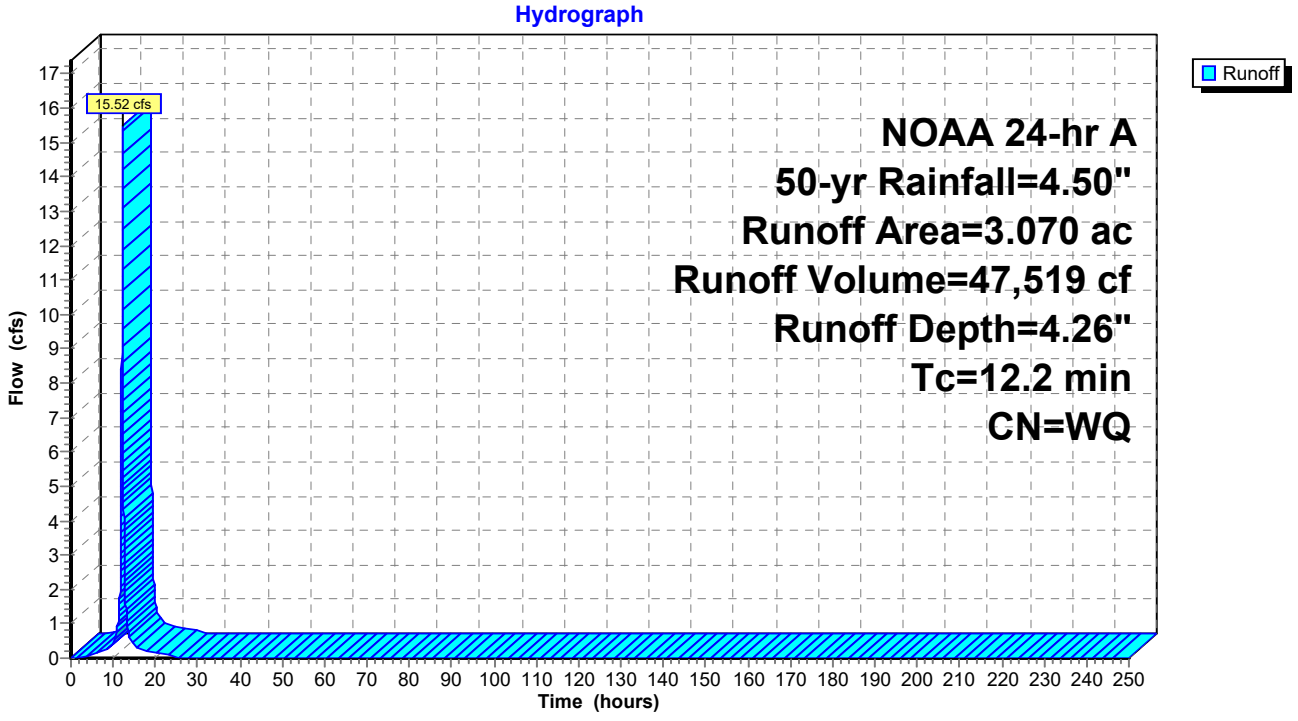
Runoff = 15.52 cfs @ 12.19 hrs, Volume= 47,519 cf, Depth= 4.26"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	0.330	98	Paved parking, HSG C
*	2.740	98	Imp Outside LOD
	3.070		Weighted Average
	3.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre Development TC**

Subcatchment 14: Post-Development DA-2 (Undetained)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 14.01 cfs @ 12.13 hrs, Volume= 34,207 cf
Outflow = 14.01 cfs @ 12.13 hrs, Volume= 34,207 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.33 cfs @ 12.13 hrs, Volume= 33,804 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 1.68 cfs @ 12.13 hrs, Volume= 404 cf
Routed to Link 20 : Post-Development Discharge Point 2

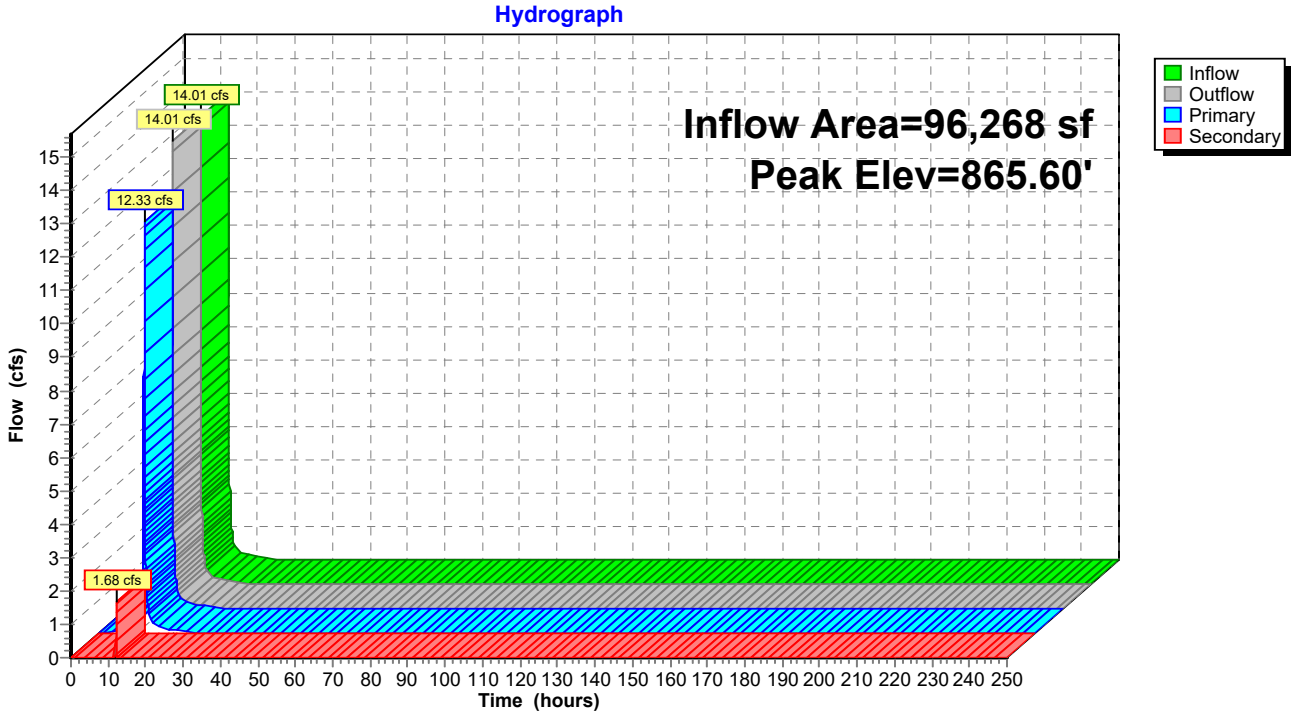
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.60' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=12.23 cfs @ 12.13 hrs HW=865.59' TW=865.21' (Dynamic Tailwater)
└**1=Culvert to MRC** (Outlet Controls 12.23 cfs @ 3.72 fps)

Secondary OutFlow Max=1.67 cfs @ 12.13 hrs HW=865.59' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Passes 1.67 cfs of 5.53 cfs potential flow)
└**3=Diversion Weir** (Weir Controls 1.67 cfs @ 1.44 fps)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

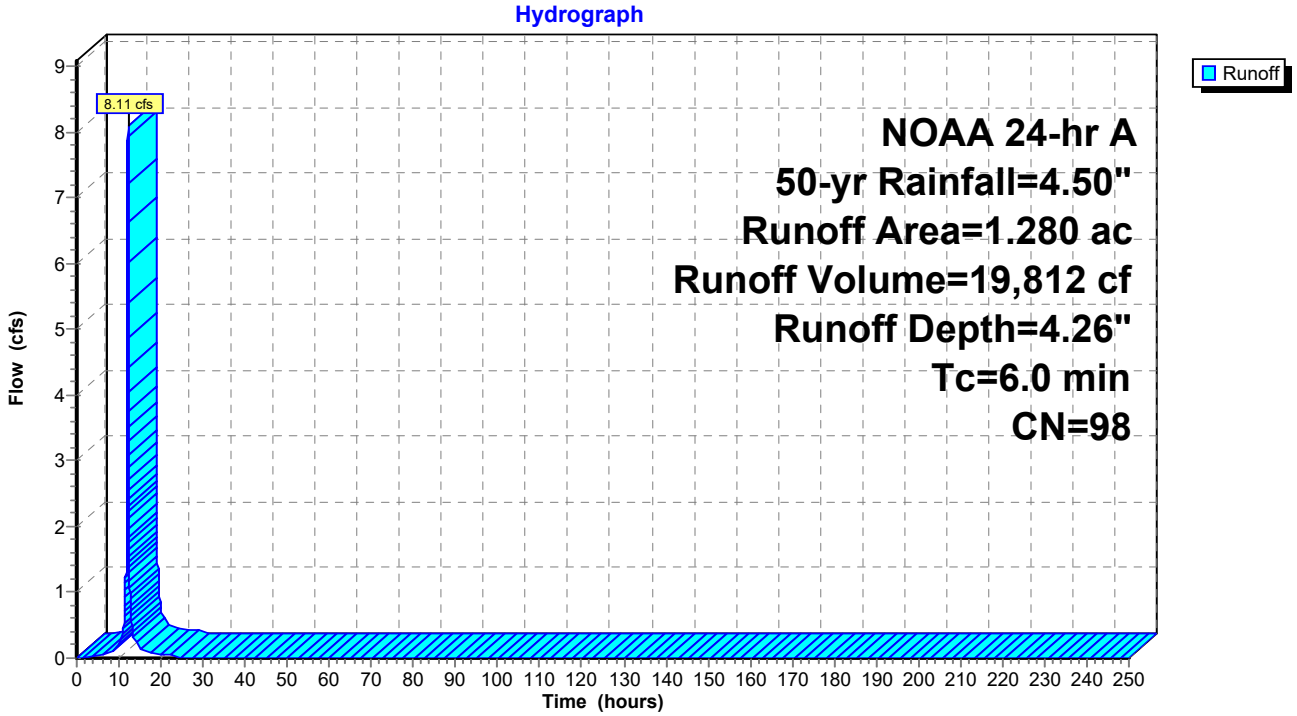
Runoff = 8.11 cfs @ 12.13 hrs, Volume= 19,812 cf, Depth= 4.26"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG C
1.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 4.21" for 50-yr event
Inflow = 12.33 cfs @ 12.13 hrs, Volume= 33,804 cf
Outflow = 12.33 cfs @ 12.13 hrs, Volume= 33,804 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.17 cfs @ 12.13 hrs, Volume= 16,902 cf
Routed to Pond 18P : MRC Cell 2A
Secondary = 6.17 cfs @ 12.13 hrs, Volume= 16,902 cf
Routed to Pond 19P : MRC Cell 2B

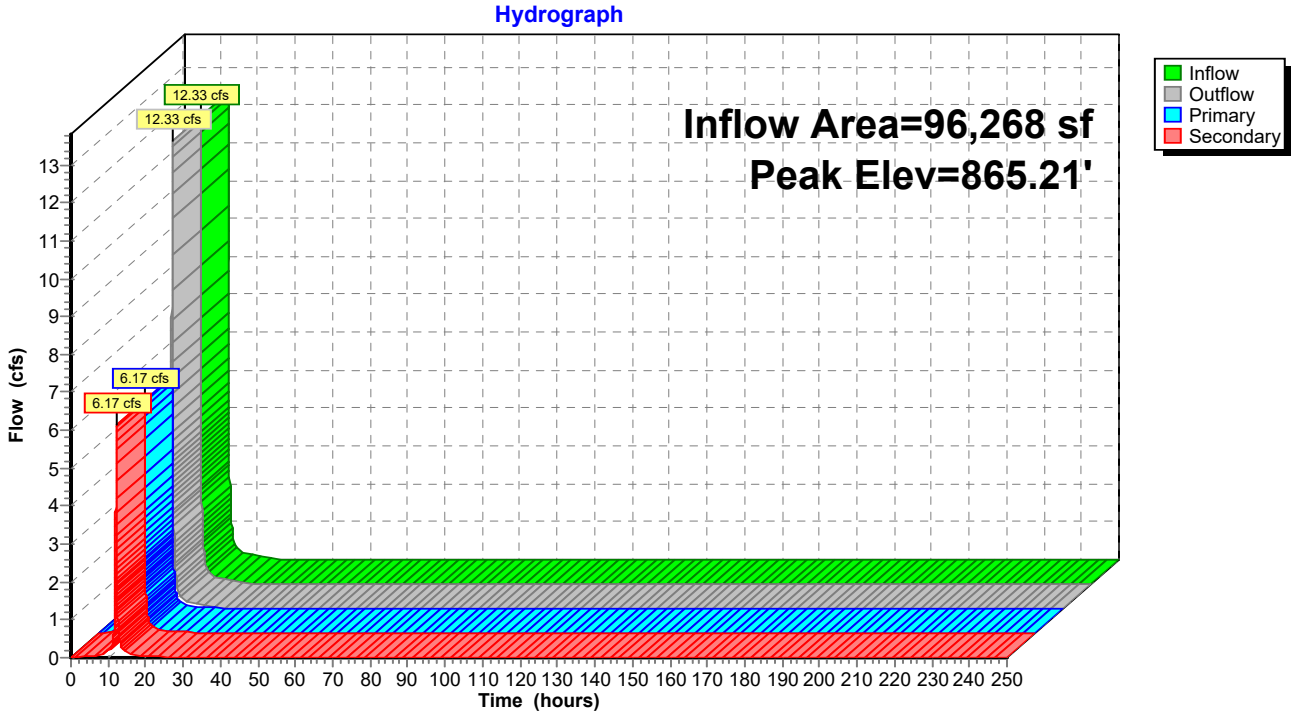
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.21' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.16 cfs @ 12.13 hrs HW=865.21' TW=863.56' (Dynamic Tailwater)
↑—**1=Culvert to MRC Cell 2A** (Barrel Controls 6.16 cfs @ 4.04 fps)

Secondary OutFlow Max=6.16 cfs @ 12.13 hrs HW=865.21' TW=863.56' (Dynamic Tailwater)
↑—**2=Culvert to MRC Cell 2B** (Barrel Controls 6.16 cfs @ 4.04 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18P: MRC Cell 2A

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 2.11" for 50-yr event
Inflow = 6.17 cfs @ 12.13 hrs, Volume= 16,902 cf
Outflow = 3.47 cfs @ 12.22 hrs, Volume= 16,895 cf, Atten= 44%, Lag= 5.7 min
Primary = 3.47 cfs @ 12.22 hrs, Volume= 16,895 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.88' @ 12.22 hrs Storage= 7,770 cf

Plug-Flow detention time= 905.7 min calculated for 16,895 cf (100% of inflow)
Center-of-Mass det. time= 905.4 min (1,653.4 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

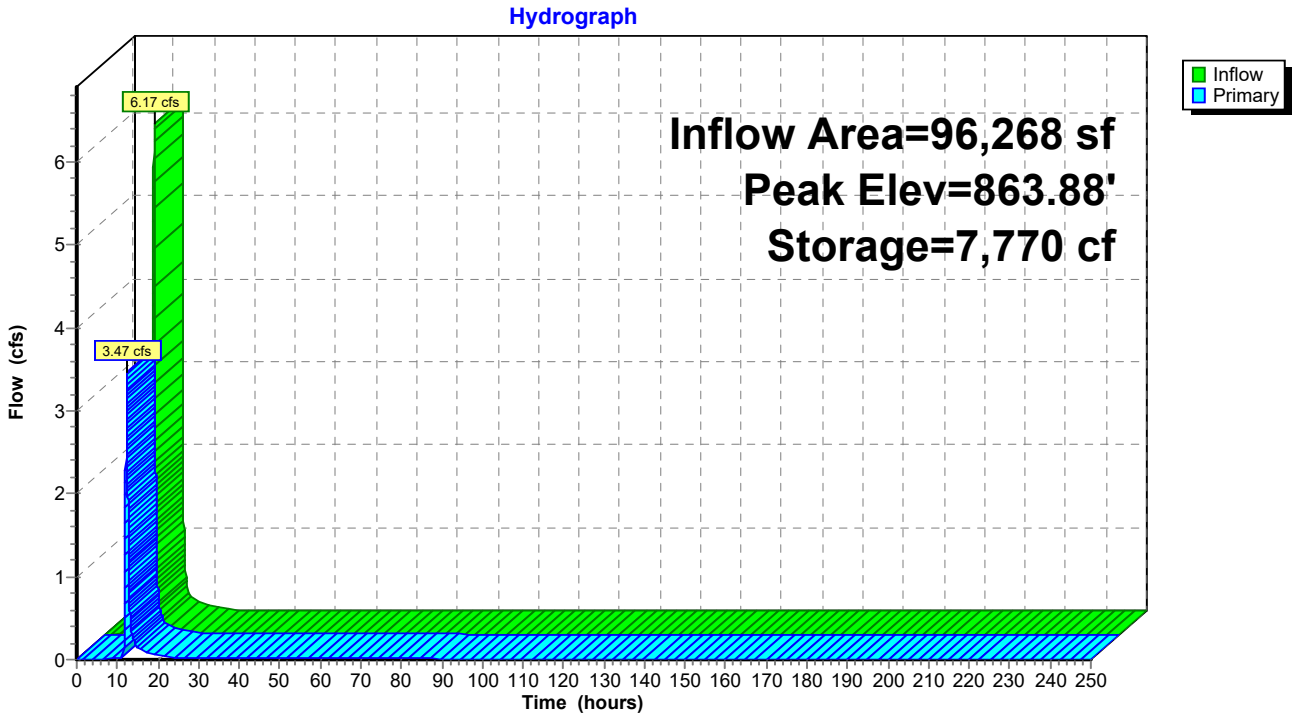
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=3.47 cfs @ 12.22 hrs HW=863.88' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 3.47 cfs of 13.28 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.44 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.44 cfs @ 4.92 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18P: MRC Cell 2A



Summary for Pond 19P: MRC Cell 2B

Inflow = 6.17 cfs @ 12.13 hrs, Volume= 16,902 cf
Outflow = 3.47 cfs @ 12.22 hrs, Volume= 16,895 cf, Atten= 44%, Lag= 5.7 min
Primary = 3.47 cfs @ 12.22 hrs, Volume= 16,895 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.88' @ 12.22 hrs Storage= 7,770 cf

Plug-Flow detention time= 905.7 min calculated for 16,895 cf (100% of inflow)
Center-of-Mass det. time= 905.4 min (1,653.4 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

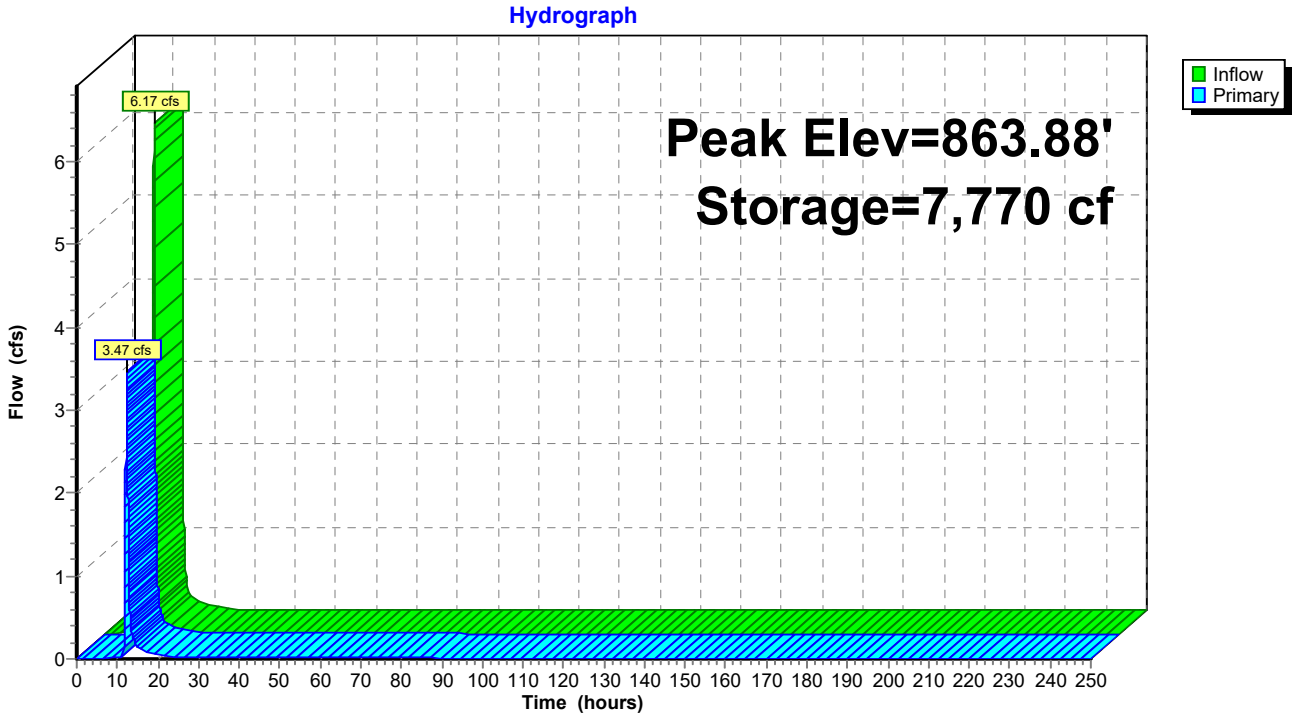
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=3.47 cfs @ 12.22 hrs HW=863.88' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 3.47 cfs of 13.28 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.44 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.44 cfs @ 4.92 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19P: MRC Cell 2B

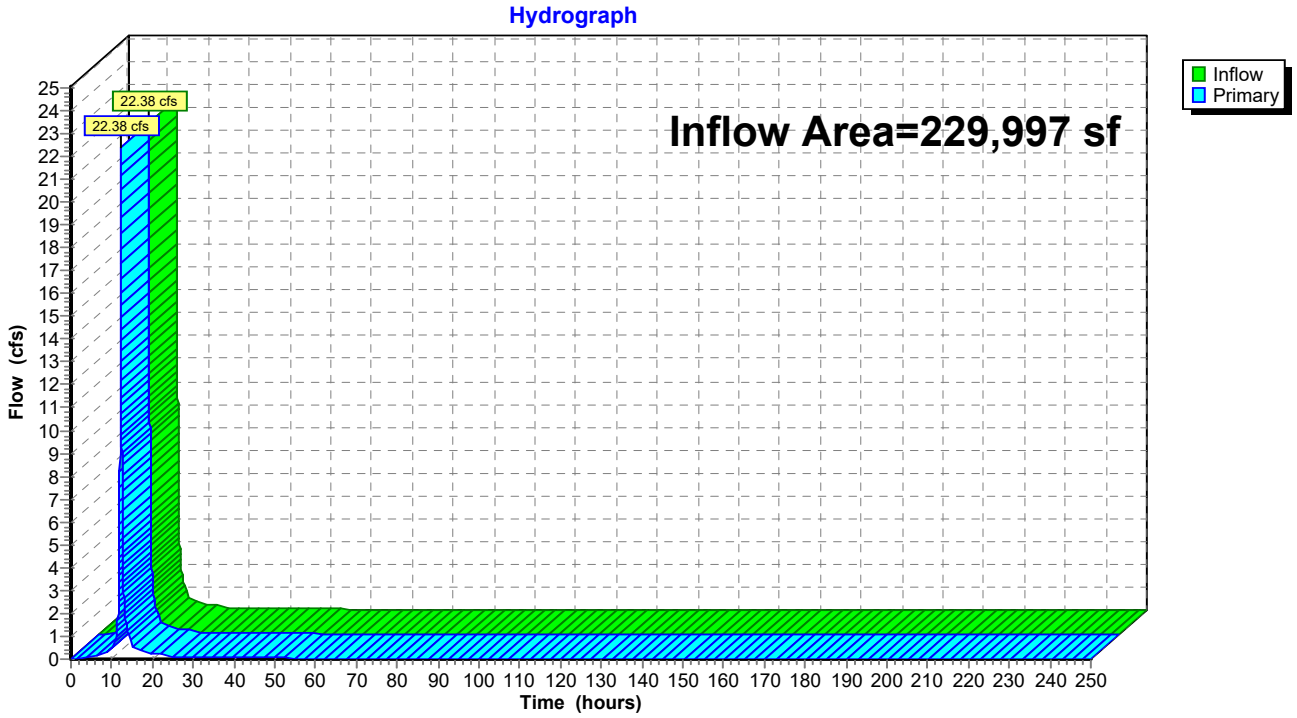


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 229,997 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 22.38 cfs @ 12.20 hrs, Volume= 81,712 cf
Primary = 22.38 cfs @ 12.20 hrs, Volume= 81,712 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained)

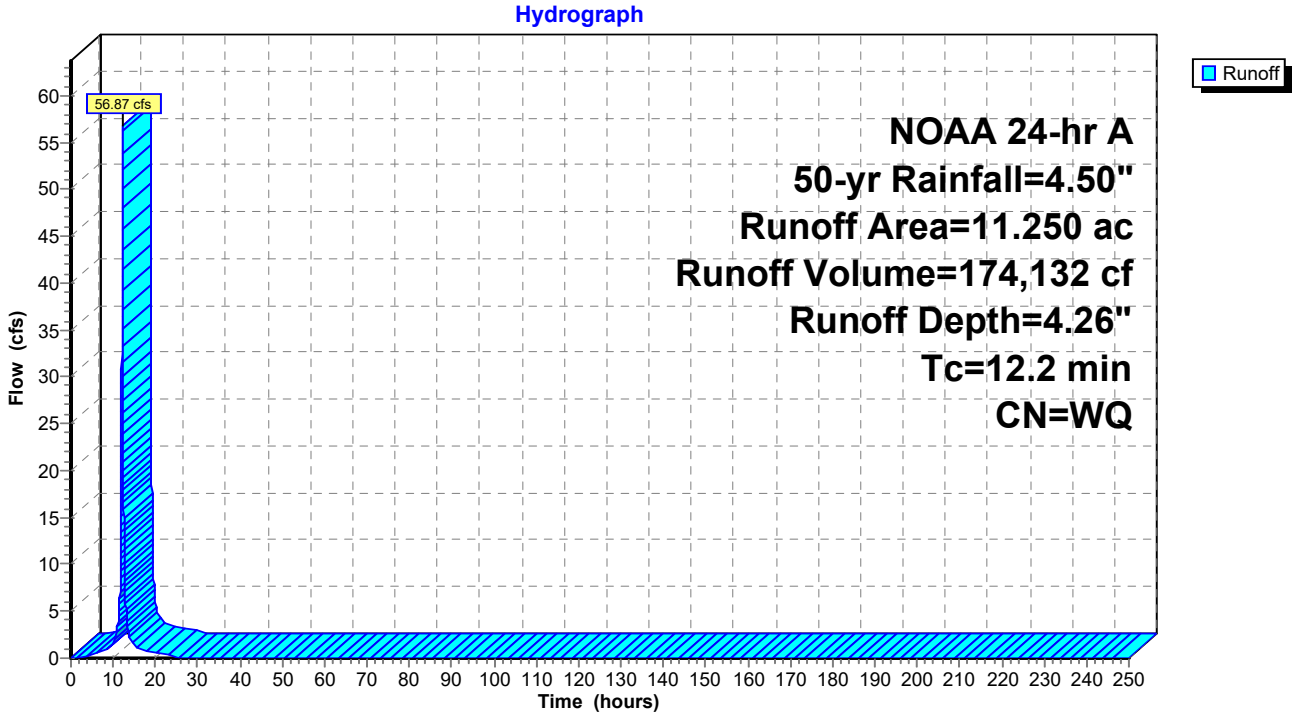
Runoff = 56.87 cfs @ 12.19 hrs, Volume= 174,132 cf, Depth= 4.26"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
	0.980	98	Paved parking, HSG C
*	10.270	98	Imp Outside LOD
	11.250		Weighted Average
	11.250		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre-Development TC**

Subcatchment 21: Post-Development DA-3 (Undetained)

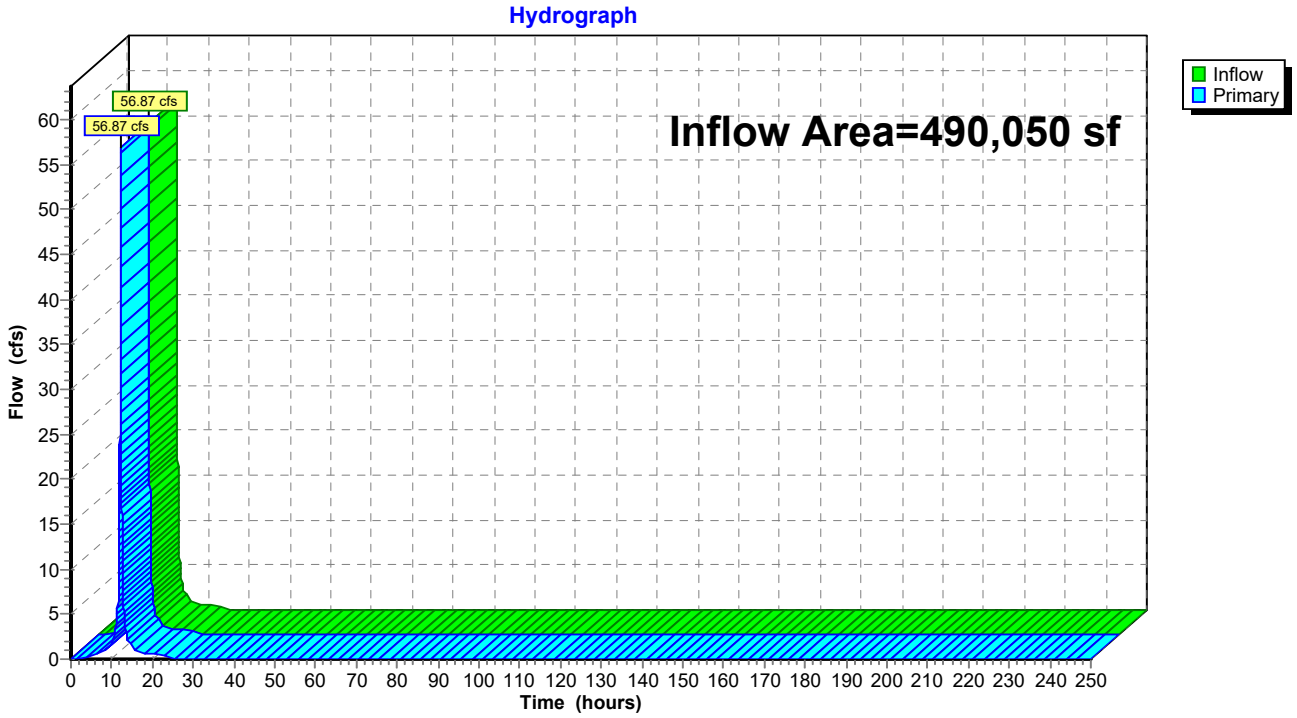


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 490,050 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 56.87 cfs @ 12.19 hrs, Volume= 174,132 cf
Primary = 56.87 cfs @ 12.19 hrs, Volume= 174,132 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 31: Post-Development DA-4 (Undetained)

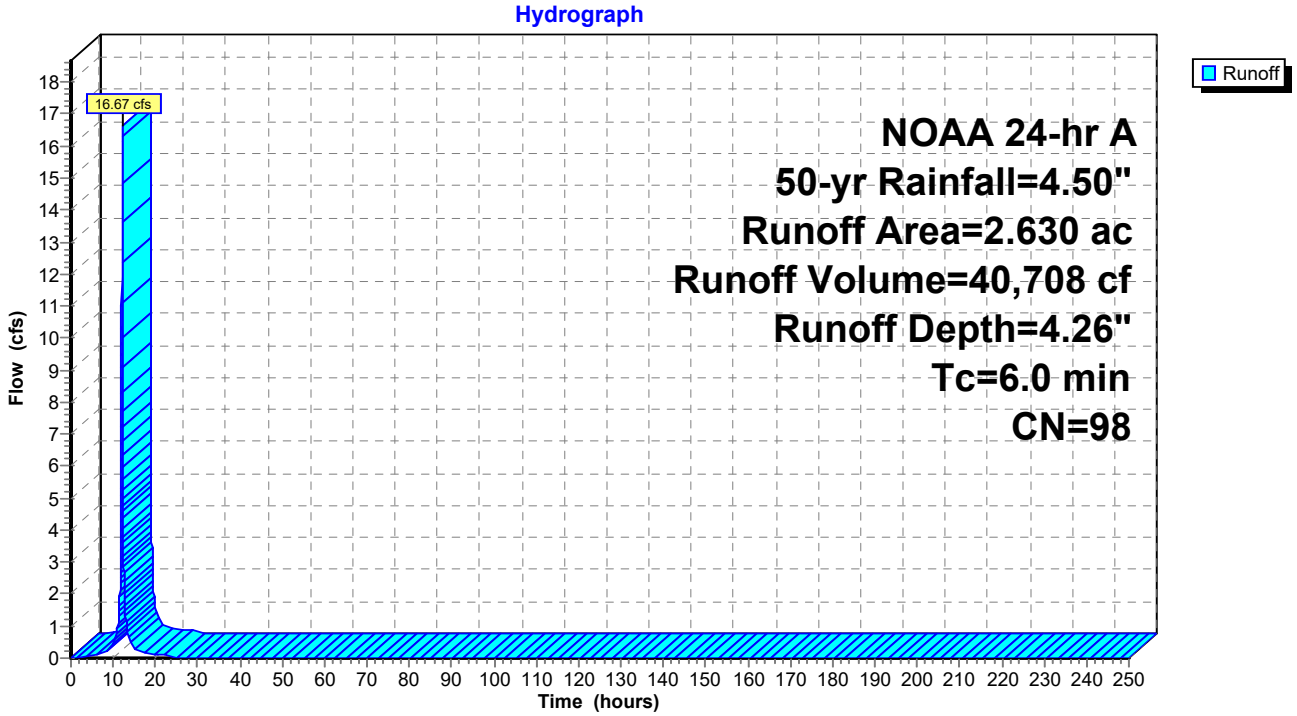
Runoff = 16.67 cfs @ 12.13 hrs, Volume= 40,708 cf, Depth= 4.26"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

	Area (ac)	CN	Description
*	2.630	98	Imp Outside LOD
	2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained)

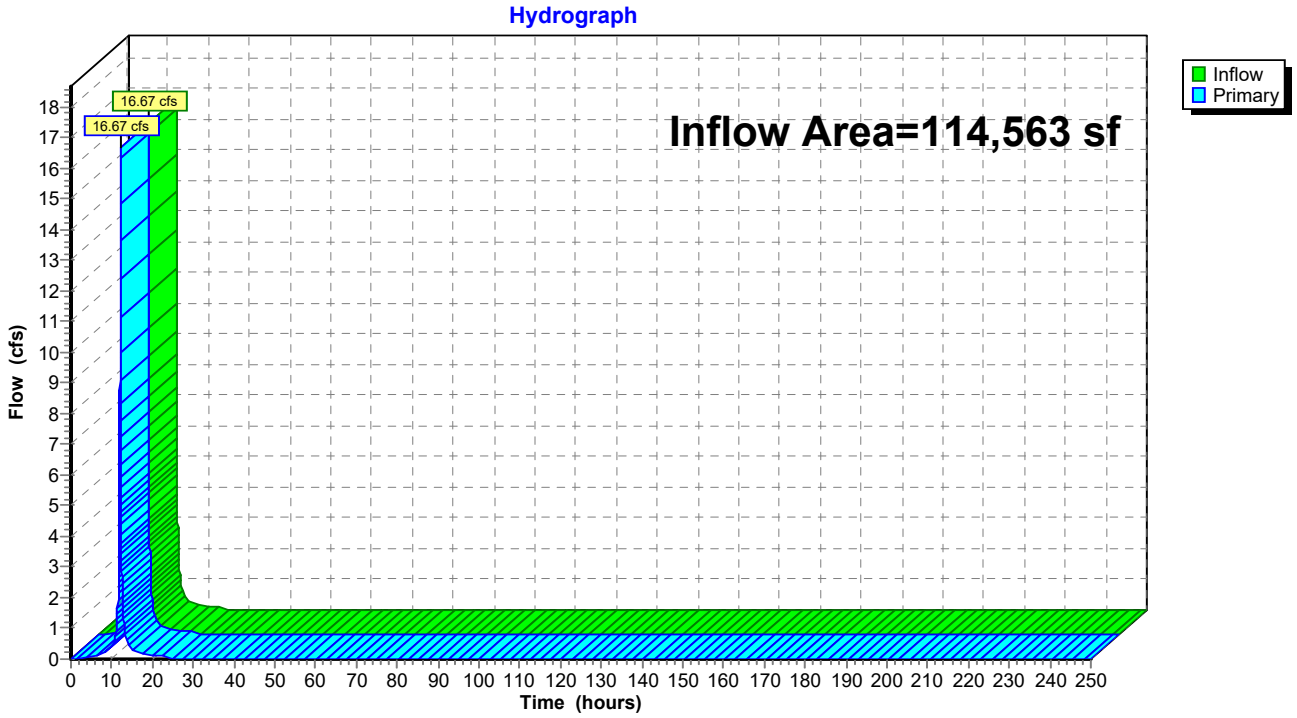


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 16.67 cfs @ 12.13 hrs, Volume= 40,708 cf
Primary = 16.67 cfs @ 12.13 hrs, Volume= 40,708 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

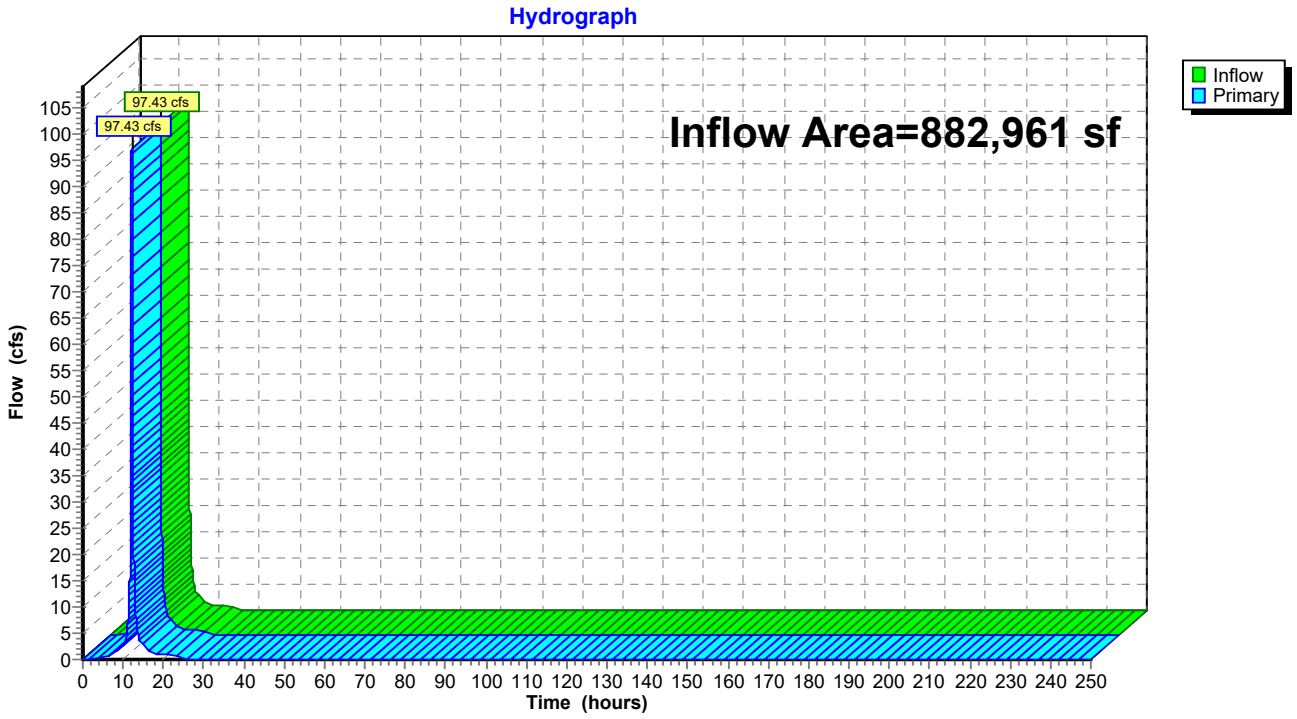


Summary for Link 33: Post POA 001

Inflow Area = 882,961 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 97.43 cfs @ 12.16 hrs, Volume= 313,734 cf
Primary = 97.43 cfs @ 12.16 hrs, Volume= 313,734 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: Post POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Undetained)

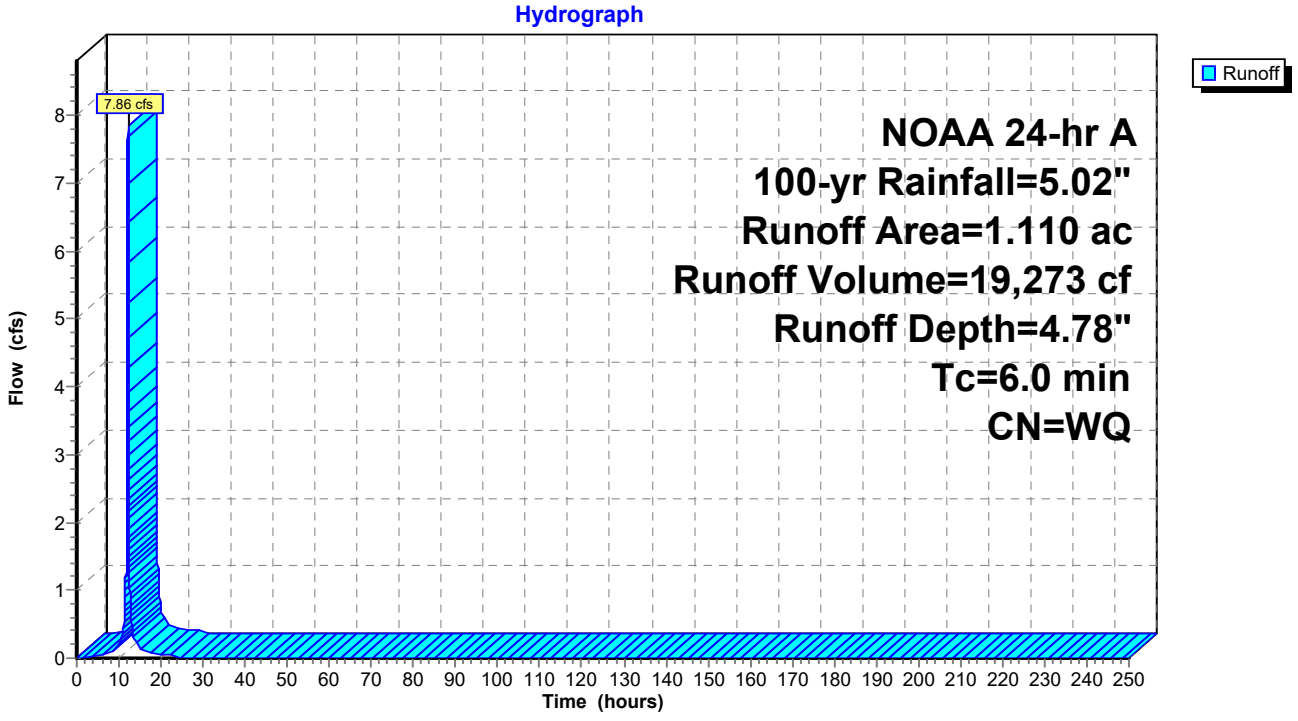
Runoff = 7.86 cfs @ 12.13 hrs, Volume= 19,273 cf, Depth= 4.78"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	0.050	98	Paved parking, HSG C
*	1.060	98	Imp Outside LOD
	1.110		Weighted Average
	1.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Undetained)

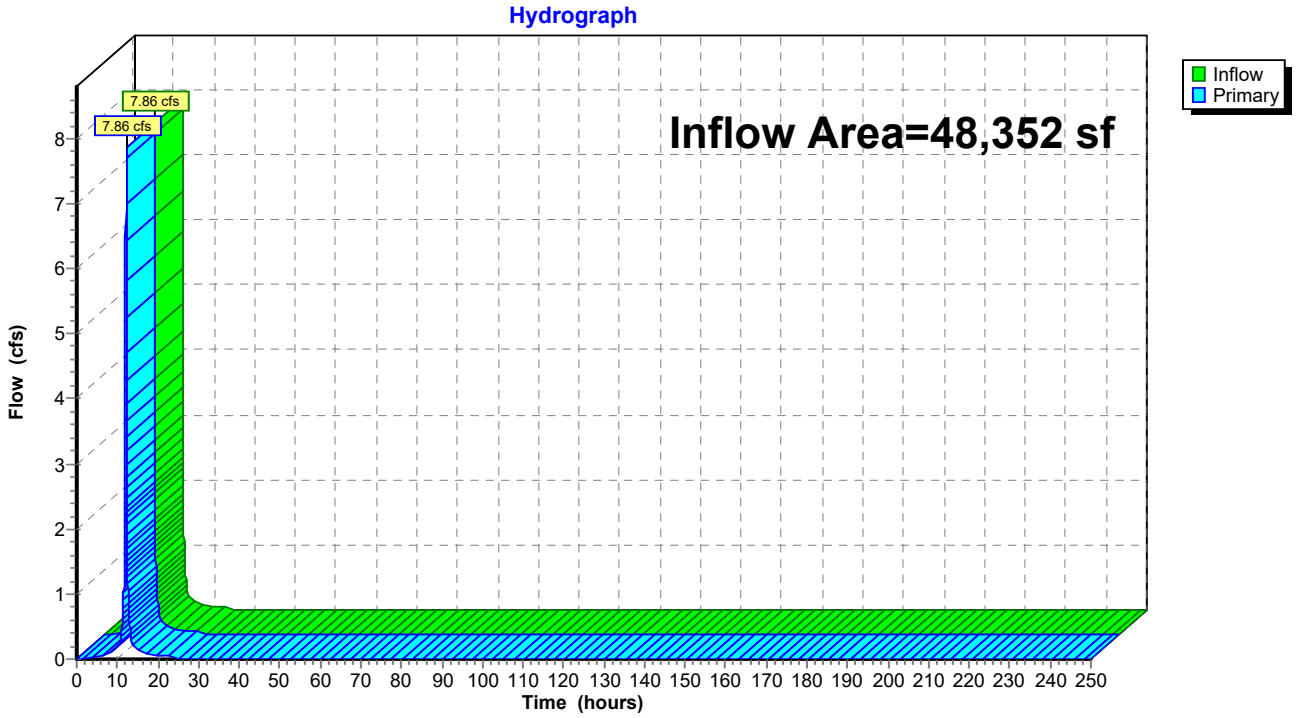


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 48,352 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 7.86 cfs @ 12.13 hrs, Volume= 19,273 cf
Primary = 7.86 cfs @ 12.13 hrs, Volume= 19,273 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

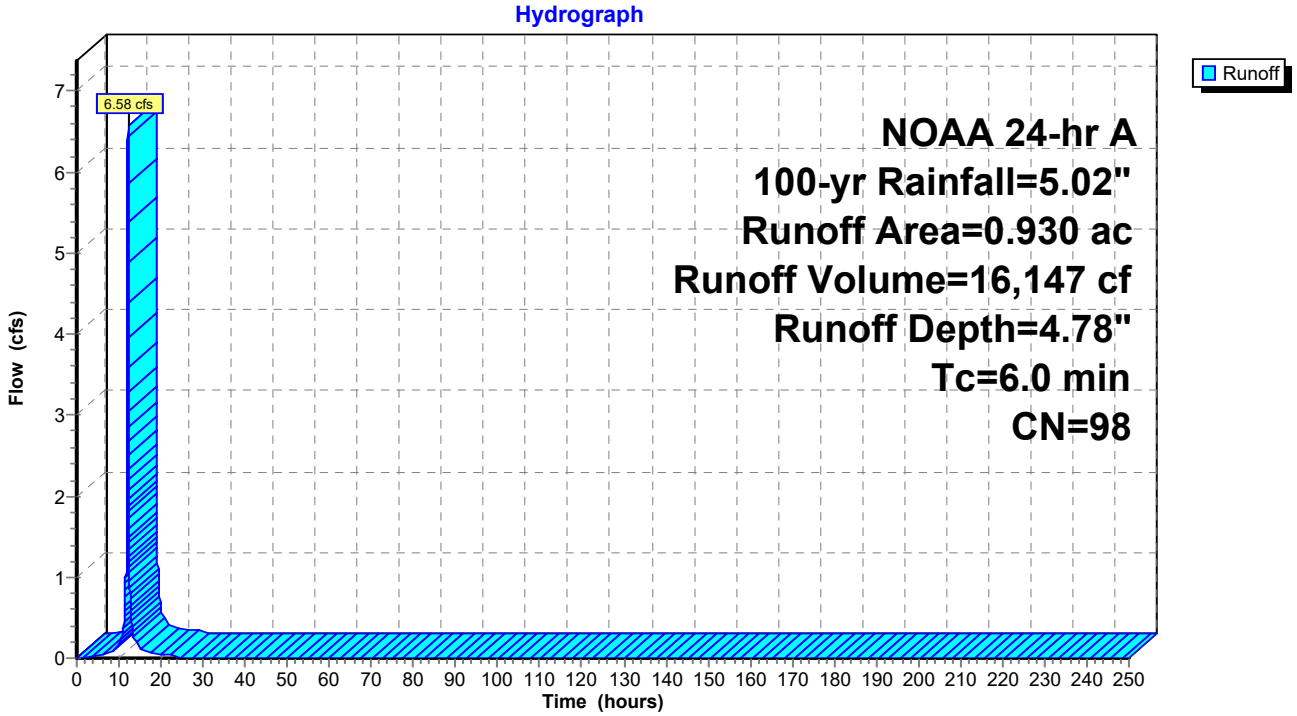
Runoff = 6.58 cfs @ 12.13 hrs, Volume= 16,147 cf, Depth= 4.78"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.930	98	Paved parking, HSG C
0.930		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained)

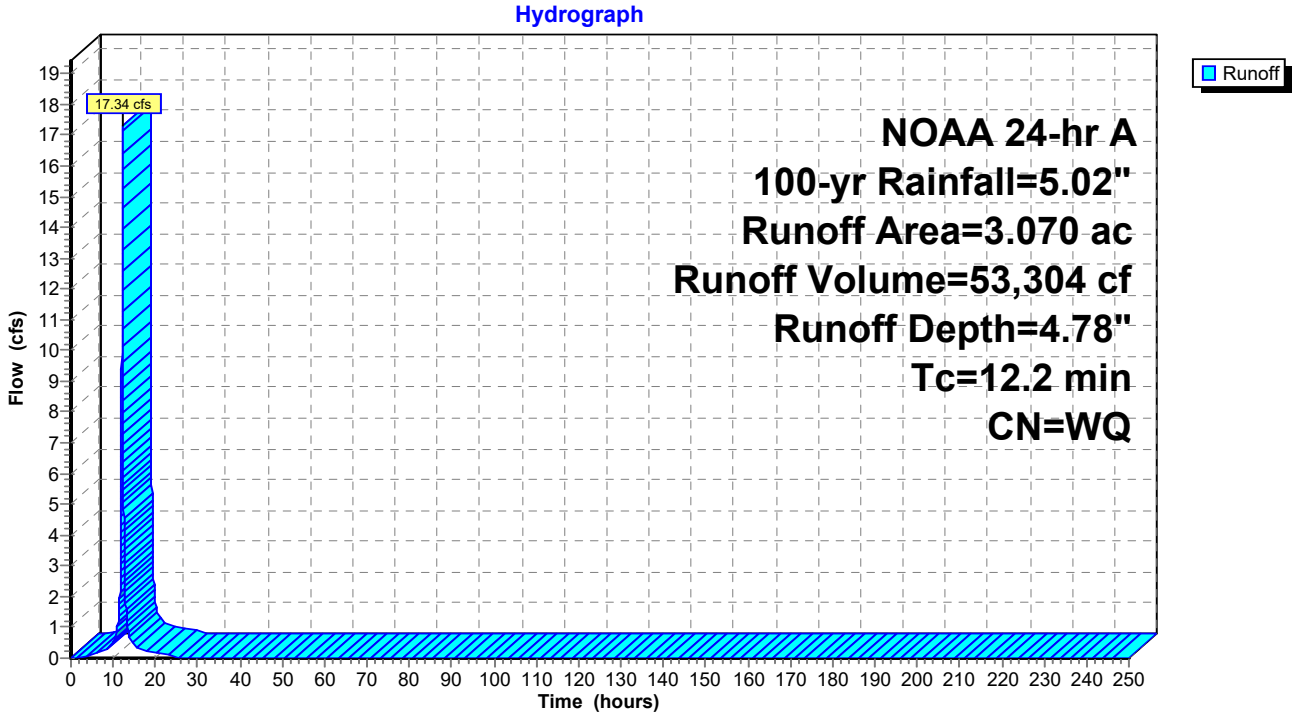
Runoff = 17.34 cfs @ 12.19 hrs, Volume= 53,304 cf, Depth= 4.78"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	0.330	98	Paved parking, HSG C
*	2.740	98	Imp Outside LOD
	3.070		Weighted Average
	3.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre Development TC**

Subcatchment 14: Post-Development DA-2 (Undetained)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 15.65 cfs @ 12.13 hrs, Volume= 38,372 cf
Outflow = 15.65 cfs @ 12.13 hrs, Volume= 38,372 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.00 cfs @ 12.13 hrs, Volume= 37,620 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 2.65 cfs @ 12.13 hrs, Volume= 752 cf
Routed to Link 20 : Post-Development Discharge Point 2

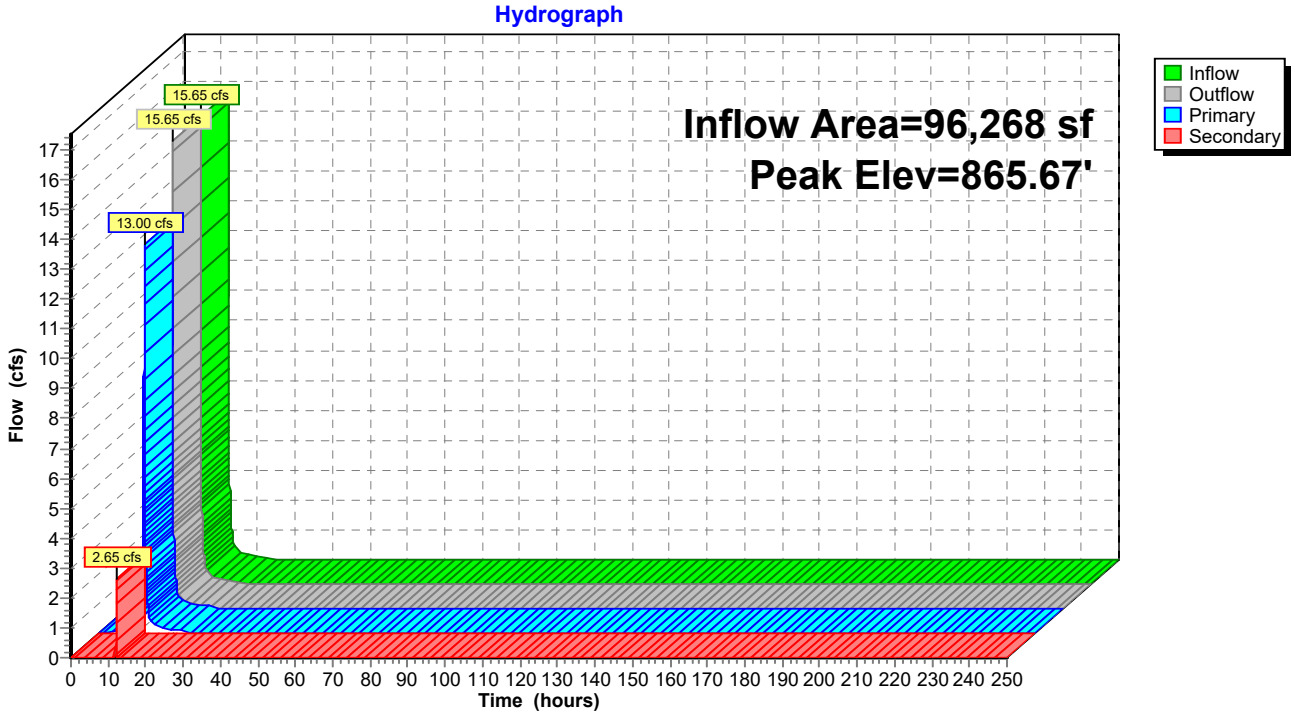
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.67' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=12.90 cfs @ 12.13 hrs HW=865.66' TW=865.27' (Dynamic Tailwater)
└**1=Culvert to MRC** (Outlet Controls 12.90 cfs @ 3.74 fps)

Secondary OutFlow Max=2.64 cfs @ 12.13 hrs HW=865.66' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Passes 2.64 cfs of 5.71 cfs potential flow)
└**3=Diversion Weir** (Weir Controls 2.64 cfs @ 1.68 fps)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

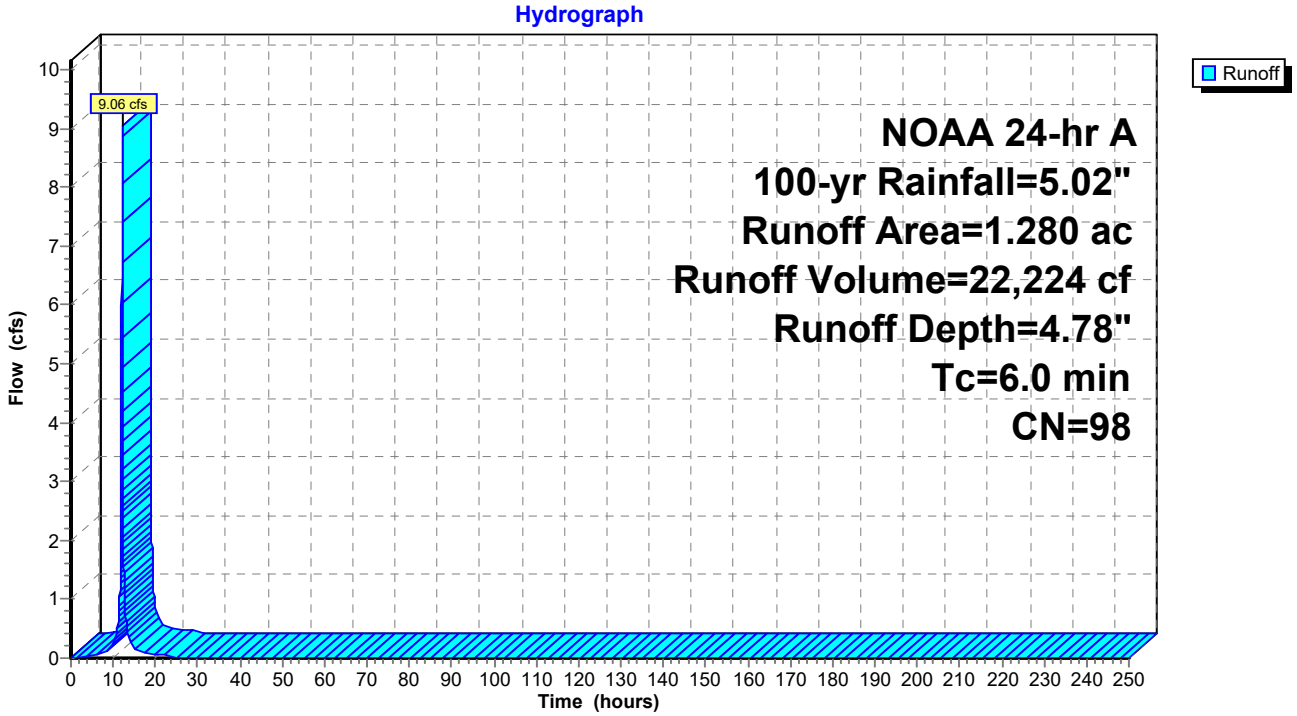
Runoff = 9.06 cfs @ 12.13 hrs, Volume= 22,224 cf, Depth= 4.78"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG C
1.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 4.69" for 100-yr event
Inflow = 13.00 cfs @ 12.13 hrs, Volume= 37,620 cf
Outflow = 13.00 cfs @ 12.13 hrs, Volume= 37,620 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.50 cfs @ 12.13 hrs, Volume= 18,810 cf
Routed to Pond 18P : MRC Cell 2A
Secondary = 6.50 cfs @ 12.13 hrs, Volume= 18,810 cf
Routed to Pond 19P : MRC Cell 2B

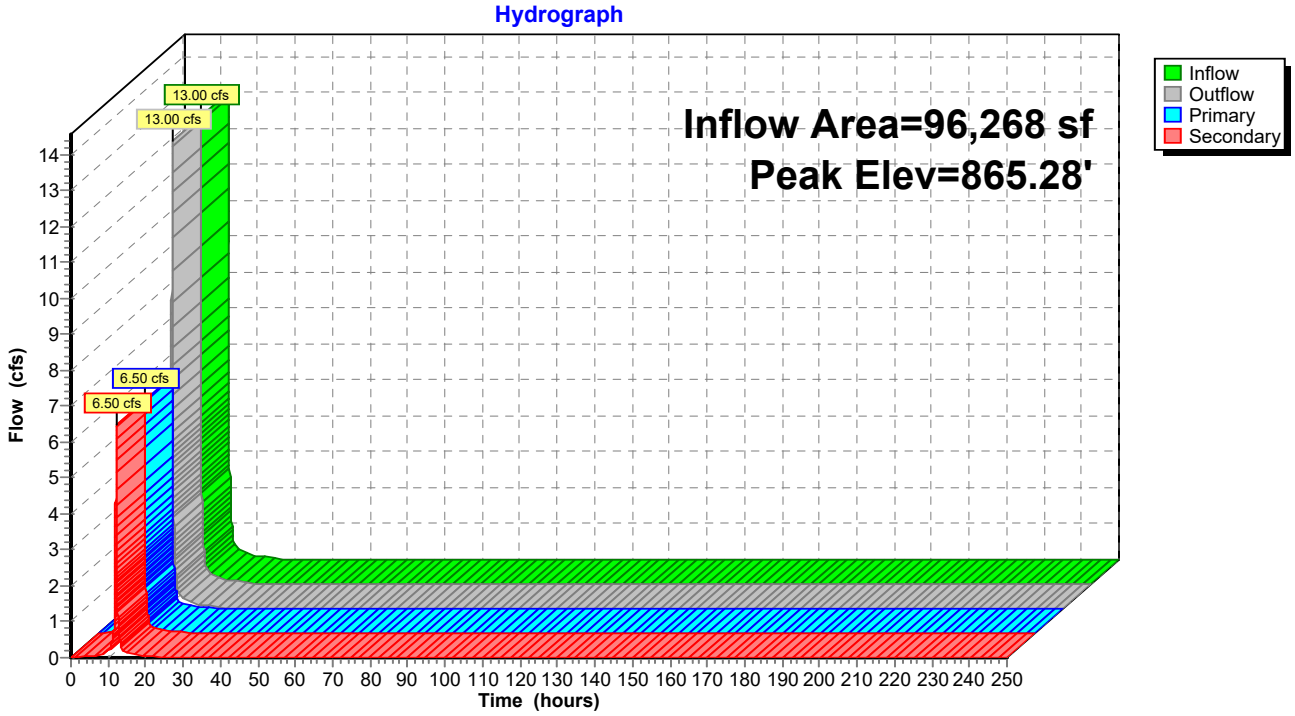
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.28' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.49 cfs @ 12.13 hrs HW=865.27' TW=863.76' (Dynamic Tailwater)
↑**1=Culvert to MRC Cell 2A** (Barrel Controls 6.49 cfs @ 4.11 fps)

Secondary OutFlow Max=6.49 cfs @ 12.13 hrs HW=865.27' TW=863.76' (Dynamic Tailwater)
↑**2=Culvert to MRC Cell 2B** (Barrel Controls 6.49 cfs @ 4.11 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18P: MRC Cell 2A

Inflow Area = 96,268 sf,100.00% Impervious, Inflow Depth = 2.34" for 100-yr event
Inflow = 6.50 cfs @ 12.13 hrs, Volume= 18,810 cf
Outflow = 3.98 cfs @ 12.22 hrs, Volume= 18,803 cf, Atten= 39%, Lag= 5.6 min
Primary = 3.98 cfs @ 12.22 hrs, Volume= 18,803 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.08' @ 12.22 hrs Storage= 8,163 cf

Plug-Flow detention time= 820.9 min calculated for 18,802 cf (100% of inflow)
Center-of-Mass det. time= 821.1 min (1,567.6 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

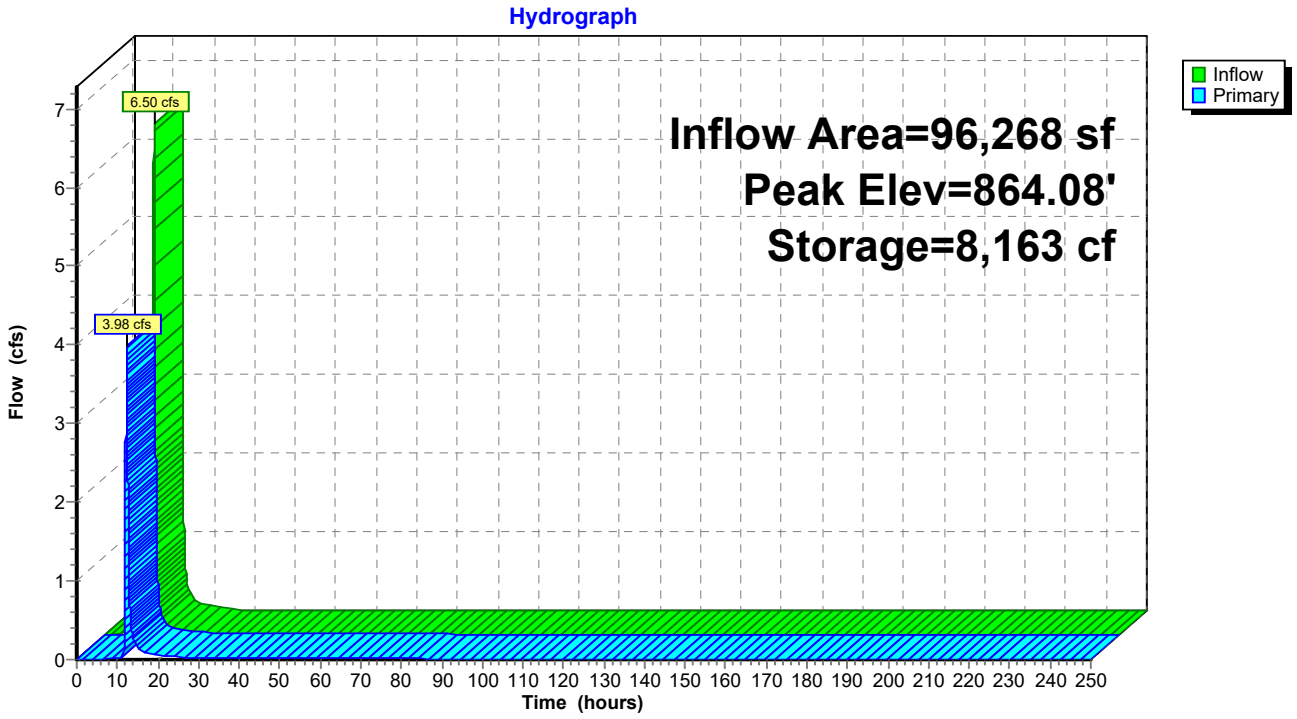
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=3.98 cfs @ 12.22 hrs HW=864.08' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 3.98 cfs of 13.69 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.68 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.75 cfs @ 5.37 fps)
  └─**4=Weir** (Weir Controls 0.20 cfs @ 0.90 fps)

Pond 18P: MRC Cell 2A



Summary for Pond 19P: MRC Cell 2B

Inflow = 6.50 cfs @ 12.13 hrs, Volume= 18,810 cf
Outflow = 3.99 cfs @ 12.22 hrs, Volume= 18,803 cf, Atten= 39%, Lag= 5.6 min
Primary = 3.99 cfs @ 12.22 hrs, Volume= 18,803 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.08' @ 12.22 hrs Storage= 8,163 cf

Plug-Flow detention time= 821.4 min calculated for 18,803 cf (100% of inflow)
Center-of-Mass det. time= 821.1 min (1,567.6 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

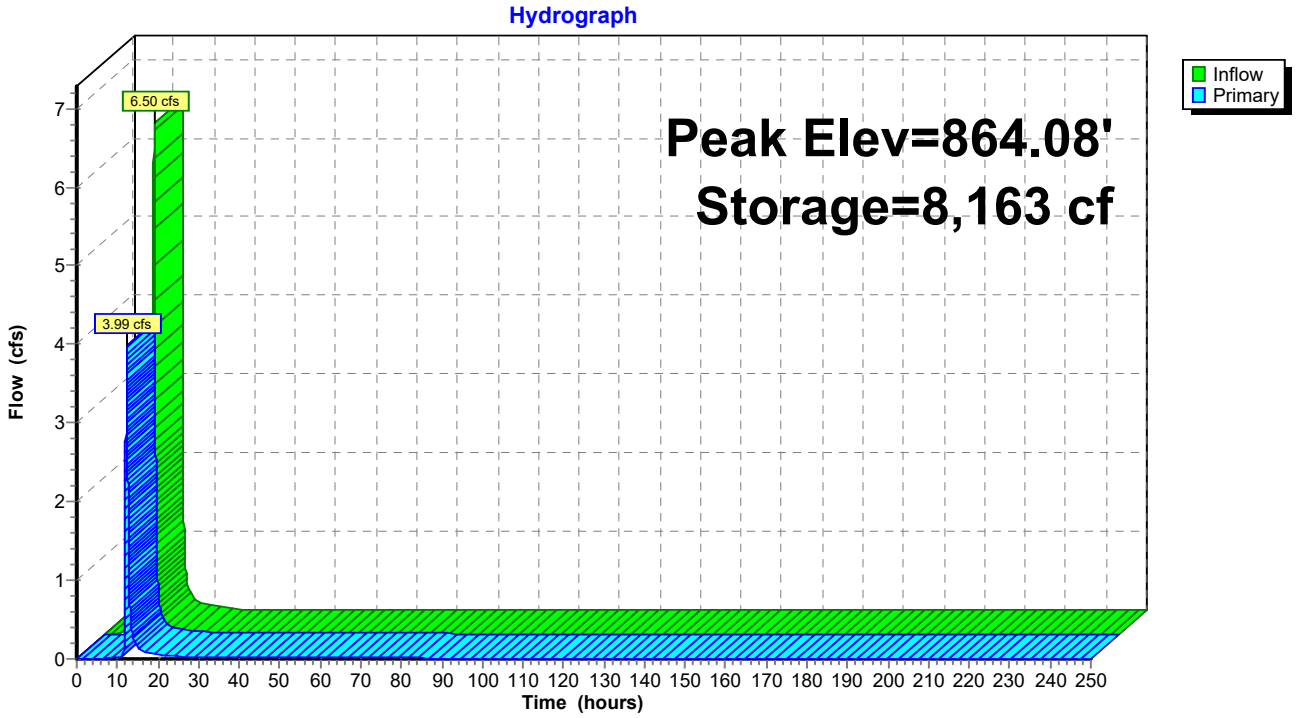
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=3.98 cfs @ 12.22 hrs HW=864.08' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 3.98 cfs of 13.69 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.68 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.75 cfs @ 5.37 fps)
  └─**4=Weir** (Weir Controls 0.20 cfs @ 0.90 fps)

Pond 19P: MRC Cell 2B

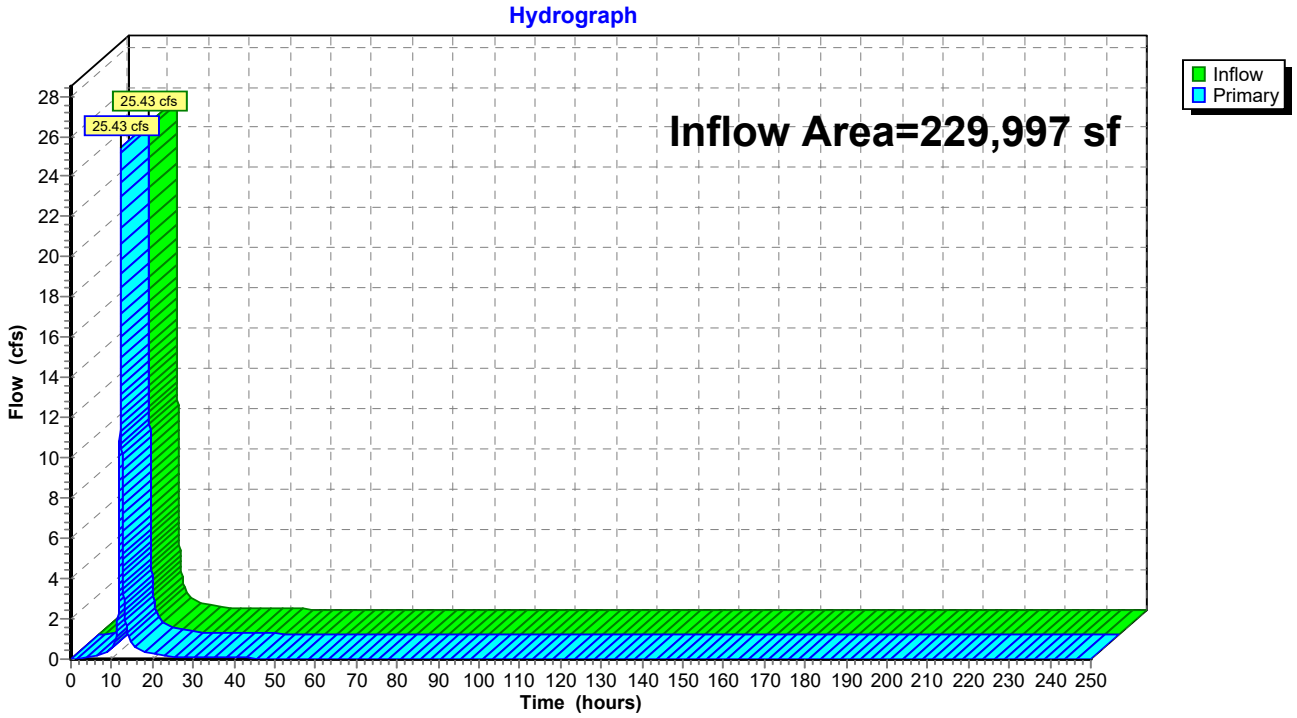


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 229,997 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 25.43 cfs @ 12.16 hrs, Volume= 91,661 cf
Primary = 25.43 cfs @ 12.16 hrs, Volume= 91,661 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained)

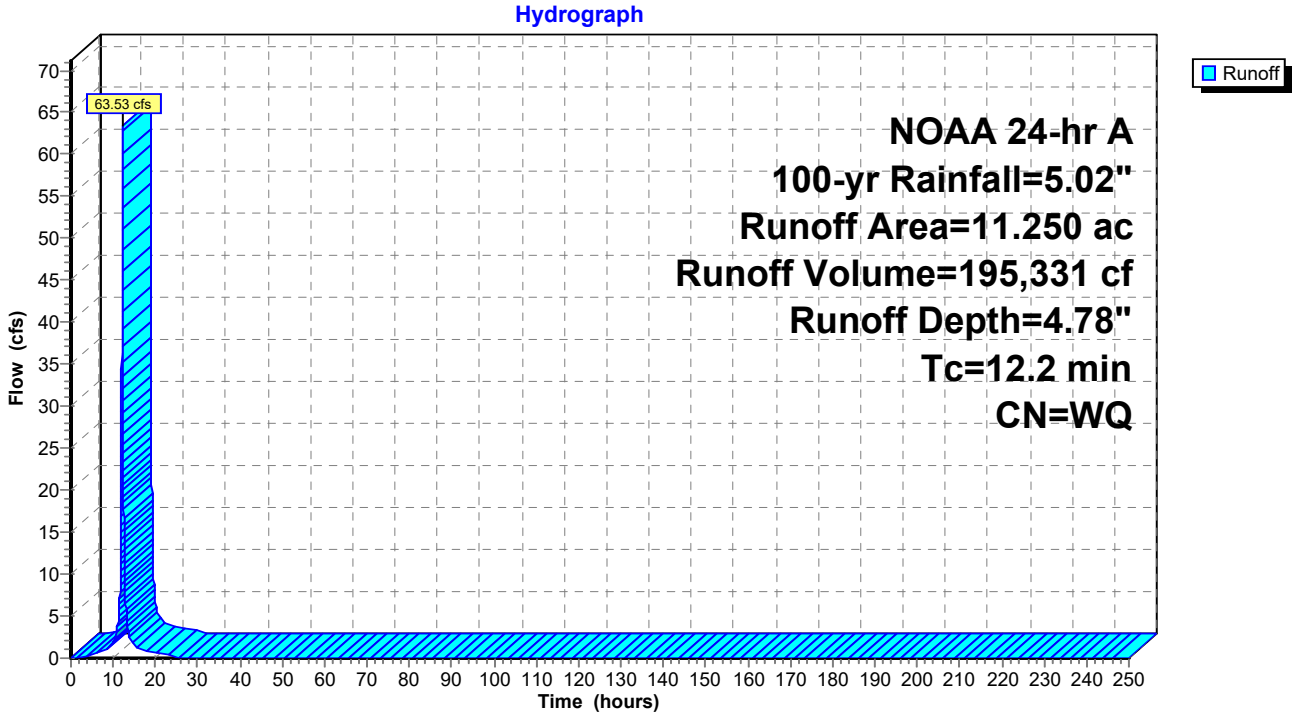
Runoff = 63.53 cfs @ 12.19 hrs, Volume= 195,331 cf, Depth= 4.78"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
	0.980	98	Paved parking, HSG C
*	10.270	98	Imp Outside LOD
	11.250		Weighted Average
	11.250		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2					**Direct Entry, Pre-Development TC**

Subcatchment 21: Post-Development DA-3 (Undetained)

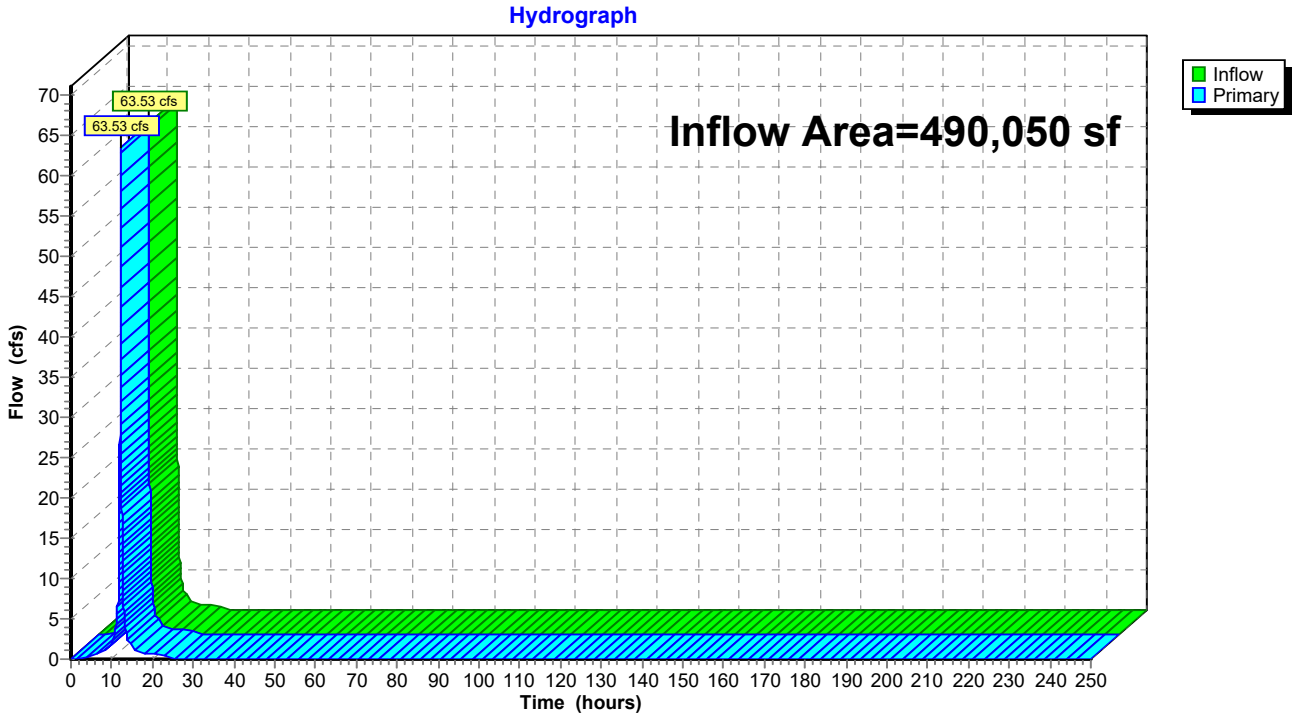


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 490,050 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 63.53 cfs @ 12.19 hrs, Volume= 195,331 cf
Primary = 63.53 cfs @ 12.19 hrs, Volume= 195,331 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 31: Post-Development DA-4 (Undetained)

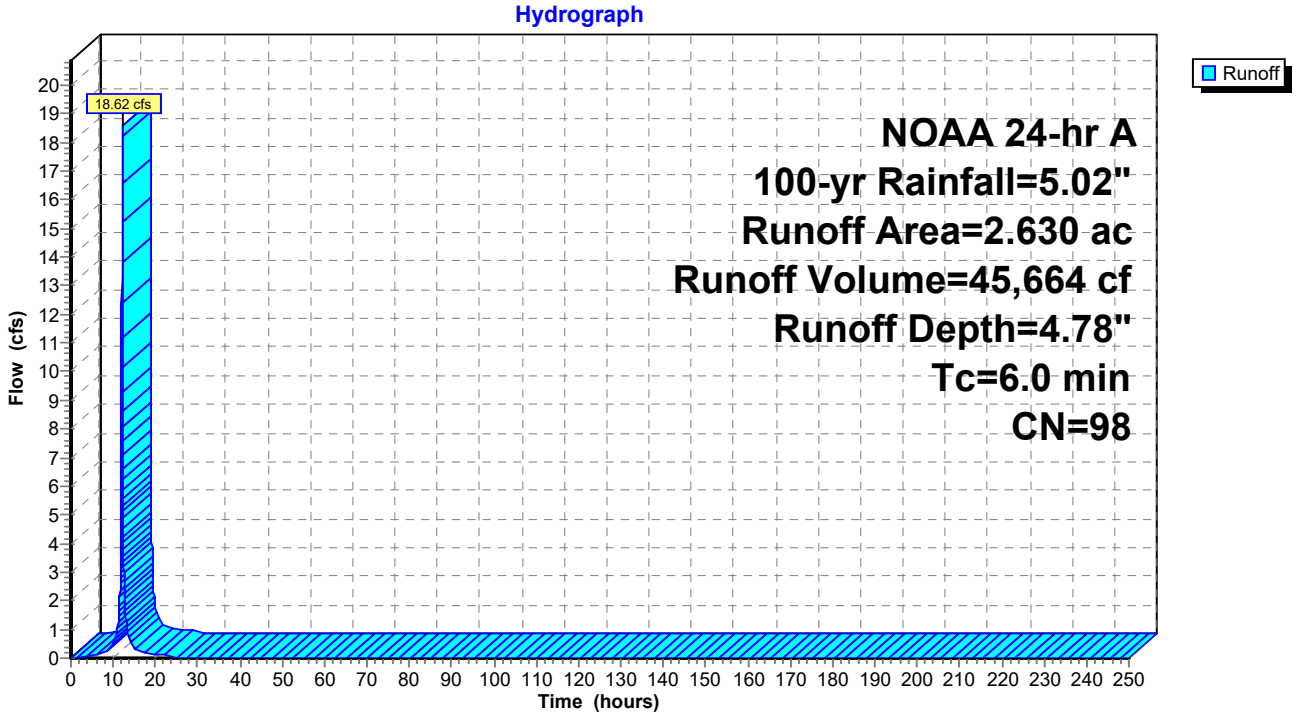
Runoff = 18.62 cfs @ 12.13 hrs, Volume= 45,664 cf, Depth= 4.78"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

	Area (ac)	CN	Description
*	2.630	98	Imp Outside LOD
	2.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained)

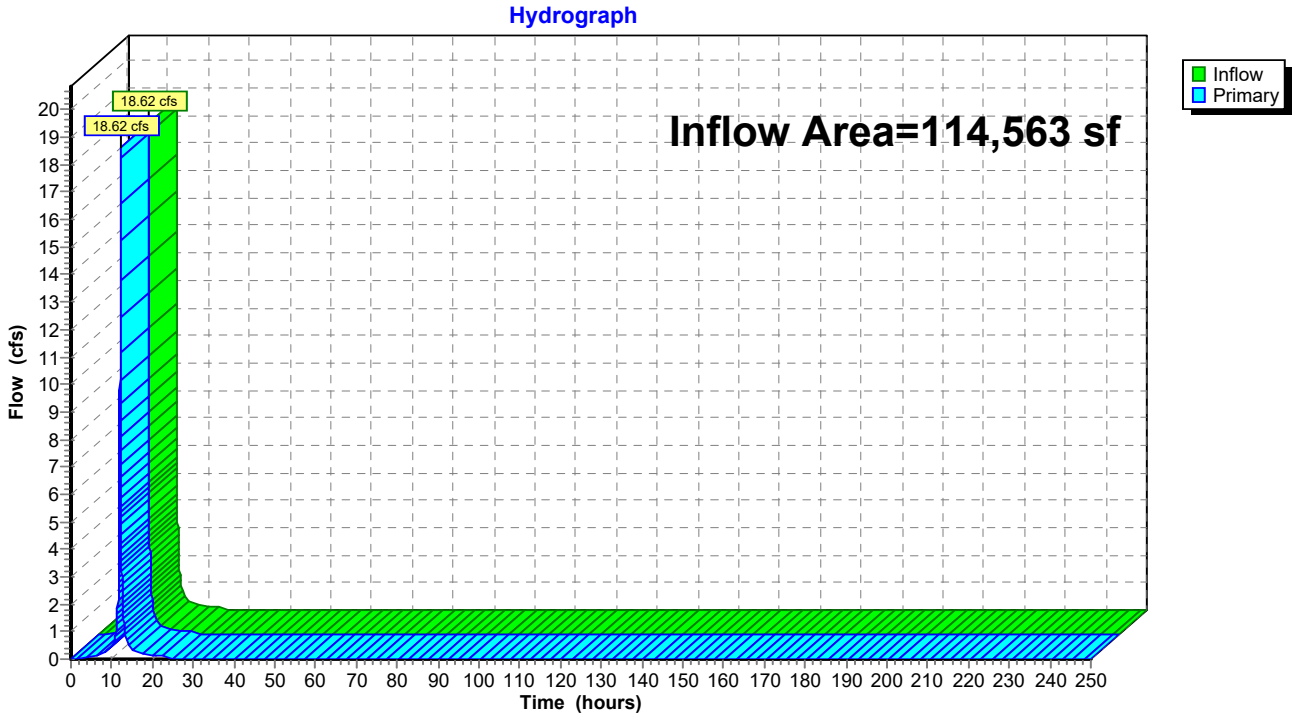


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 114,563 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 18.62 cfs @ 12.13 hrs, Volume= 45,664 cf
Primary = 18.62 cfs @ 12.13 hrs, Volume= 45,664 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : Post POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

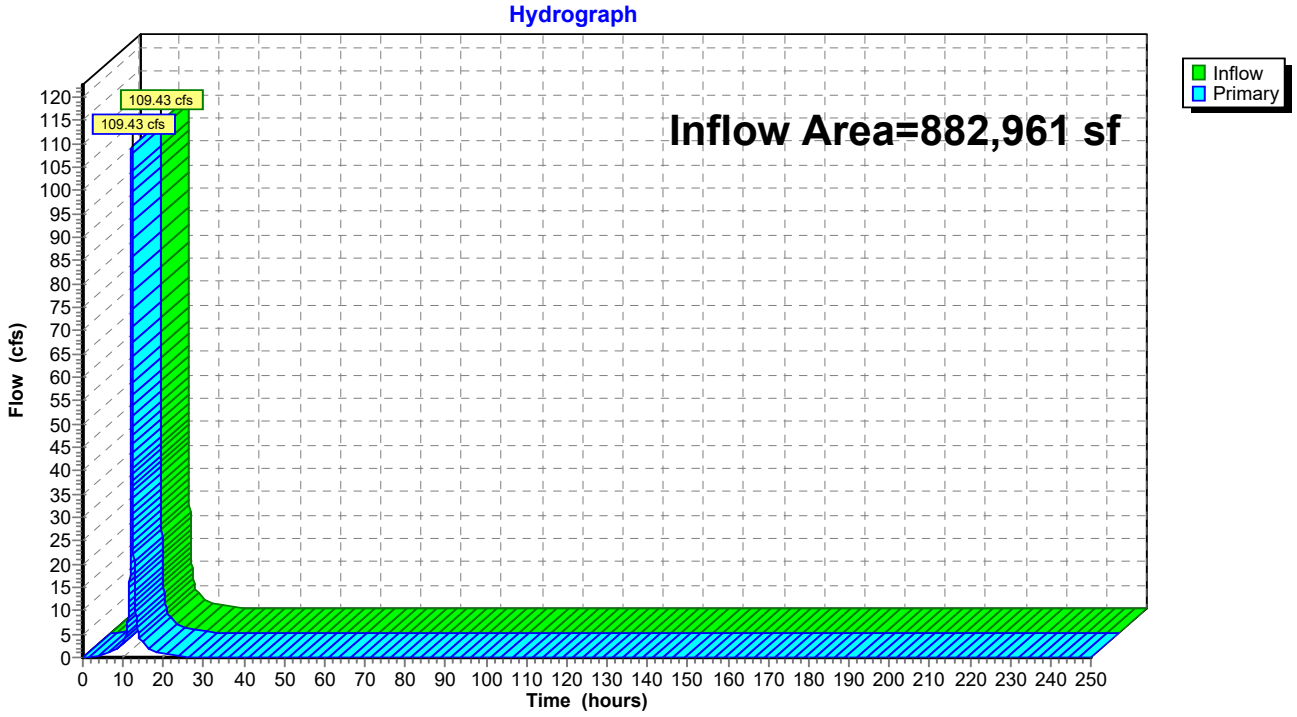


Summary for Link 33: Post POA 001

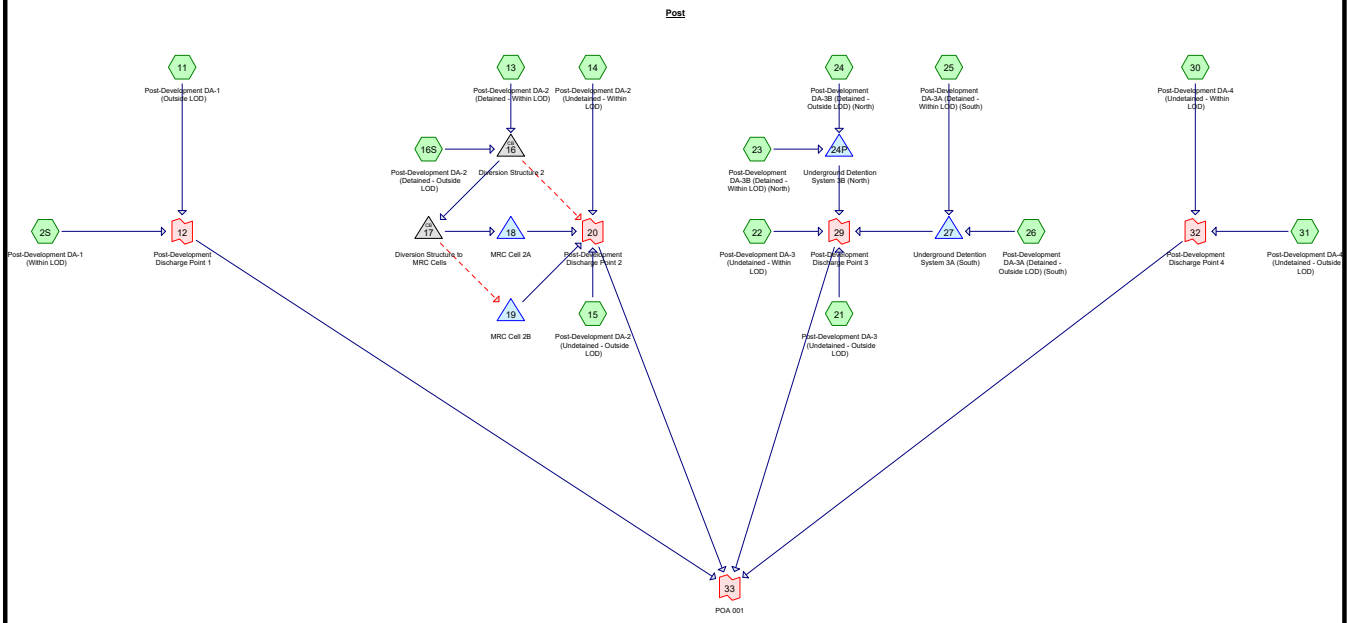
Inflow Area = 882,961 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 109.43 cfs @ 12.16 hrs, Volume= 351,929 cf
Primary = 109.43 cfs @ 12.16 hrs, Volume= 351,929 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: Post POA 001



7B – POST-DEVELOPMENT RATE CALCULATIONS – PHASE 2 & 3



PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

Subcat Reach Pond Link

Routing Diagram for 353-024 Sharon Substation
Prepared by CEC Inc, Printed 8/10/2026
HydroCAD® 10.20-6a s/n 01006 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment 2S: Post-Development DA-1 (Within LOD)

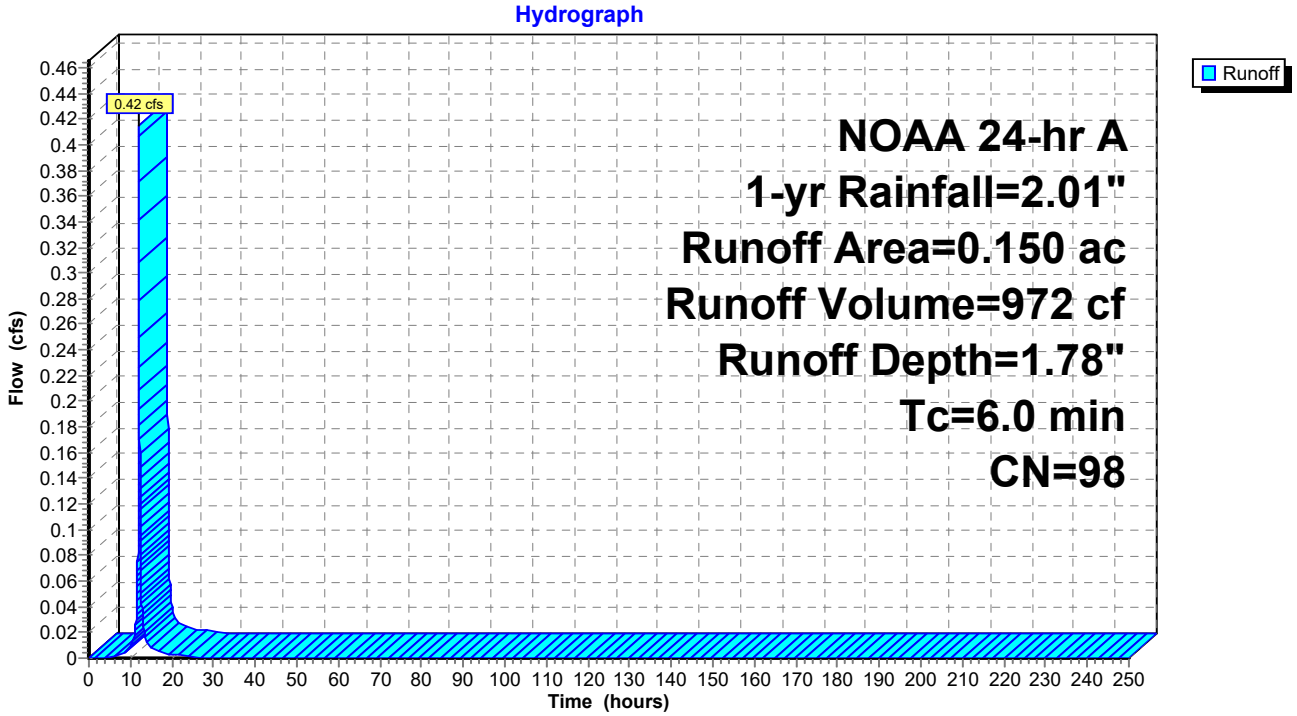
Runoff = 0.42 cfs @ 12.13 hrs, Volume= 972 cf, Depth= 1.78"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Within LOD)



Summary for Subcatchment 11: Post-Development DA-1 (Outside LOD)

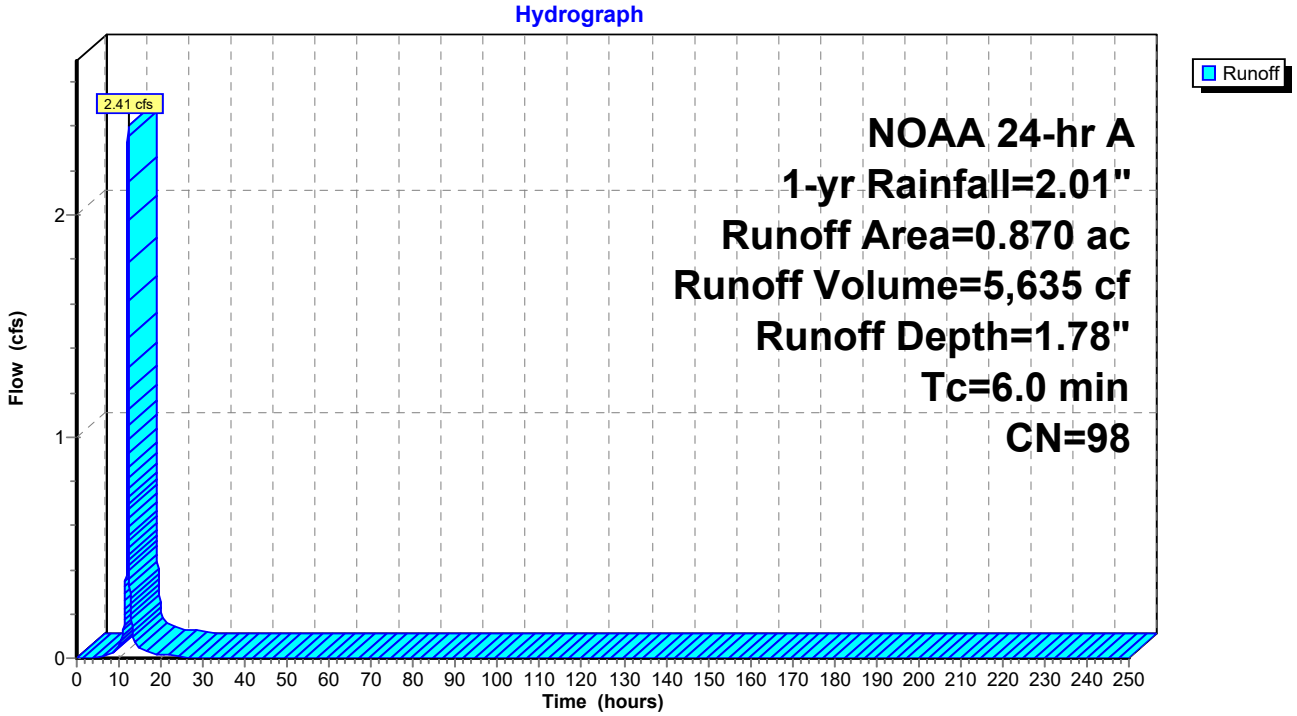
Runoff = 2.41 cfs @ 12.13 hrs, Volume= 5,635 cf, Depth= 1.78"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.870	98	Paved parking, HSG C
0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 11: Post-Development DA-1 (Outside LOD)

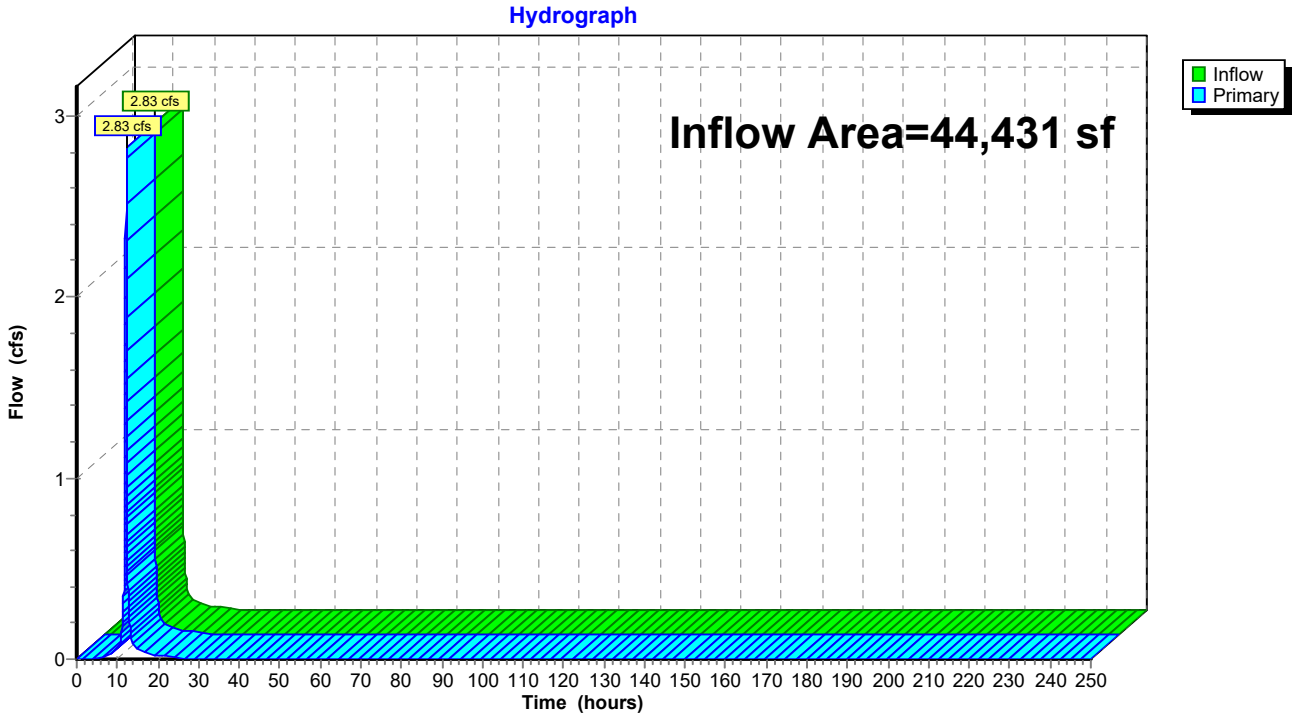


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 44,431 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 2.83 cfs @ 12.13 hrs, Volume= 6,606 cf
Primary = 2.83 cfs @ 12.13 hrs, Volume= 6,606 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

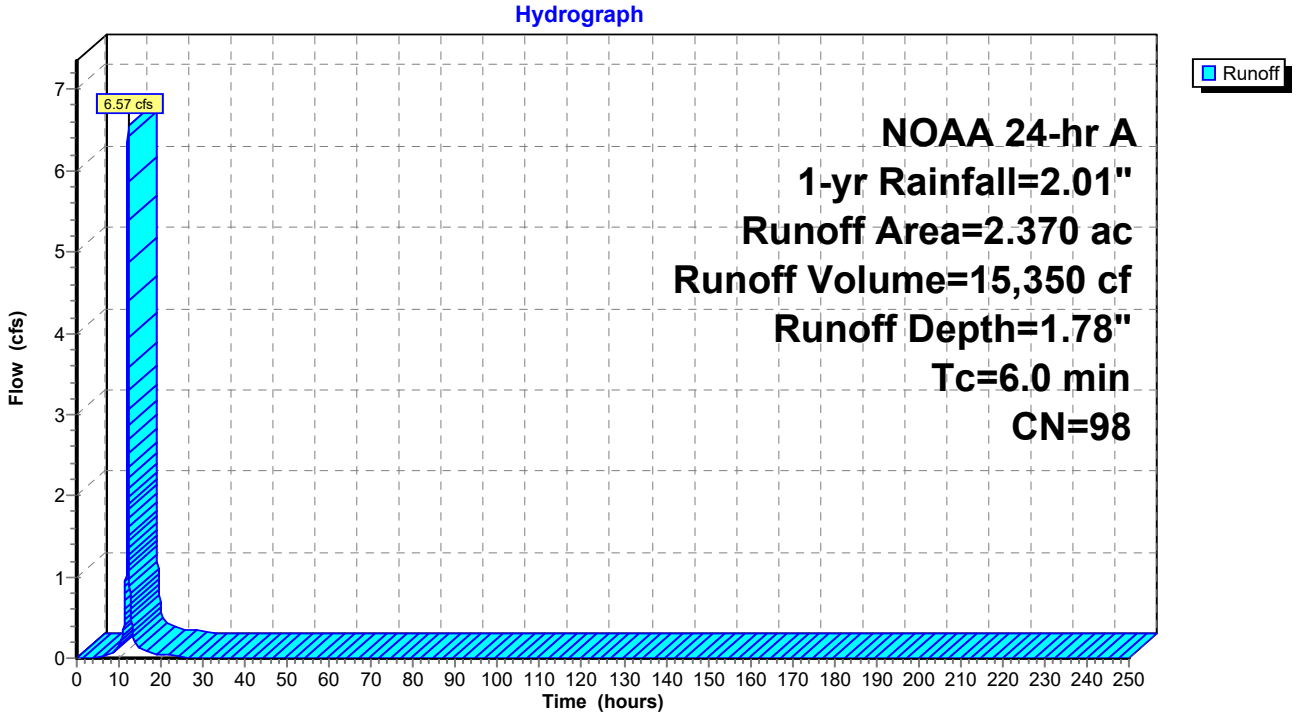
Runoff = 6.57 cfs @ 12.13 hrs, Volume= 15,350 cf, Depth= 1.78"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
2.370	98	Paved parking, HSG C
2.370		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)

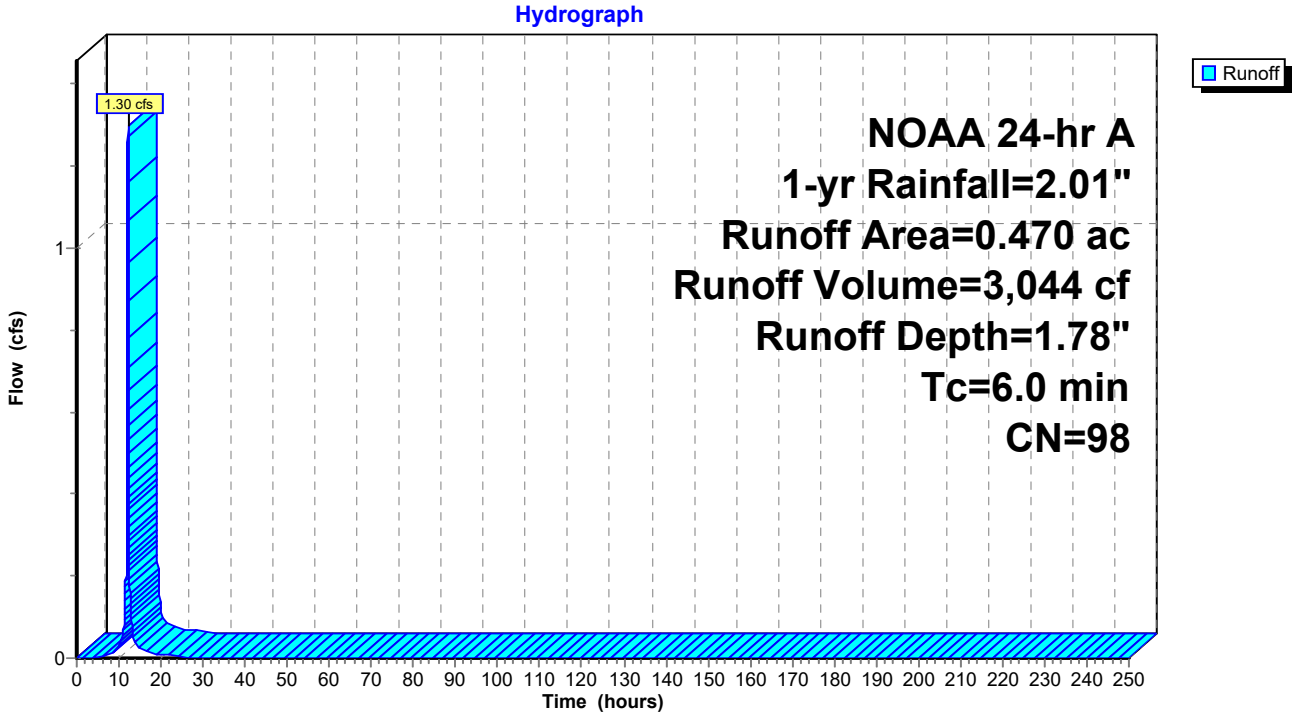
Runoff = 1.30 cfs @ 12.13 hrs, Volume= 3,044 cf, Depth= 1.78"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG C
0.470		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)



Summary for Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)

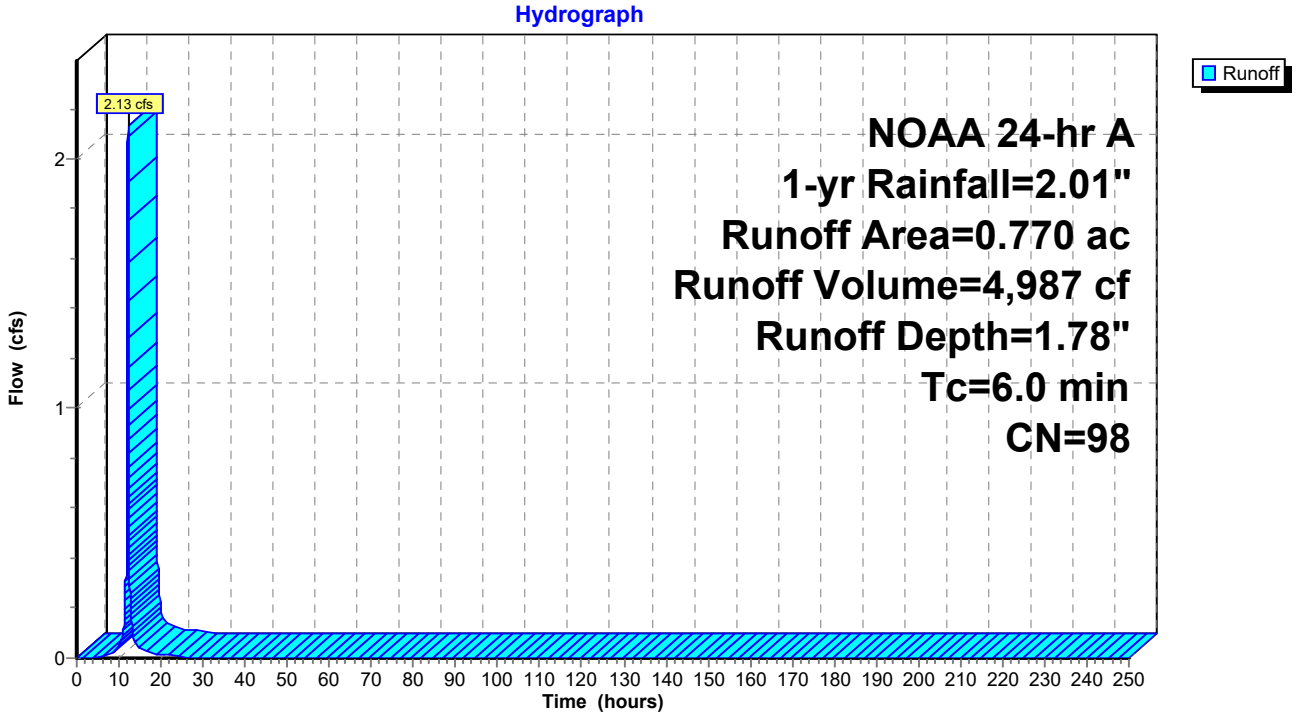
Runoff = 2.13 cfs @ 12.13 hrs, Volume= 4,987 cf, Depth= 1.78"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.770	98	Paved parking, HSG C
0.770		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 6.95 cfs @ 12.13 hrs, Volume= 16,257 cf
Outflow = 6.95 cfs @ 12.13 hrs, Volume= 16,257 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.95 cfs @ 12.13 hrs, Volume= 16,257 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 20 : Post-Development Discharge Point 2

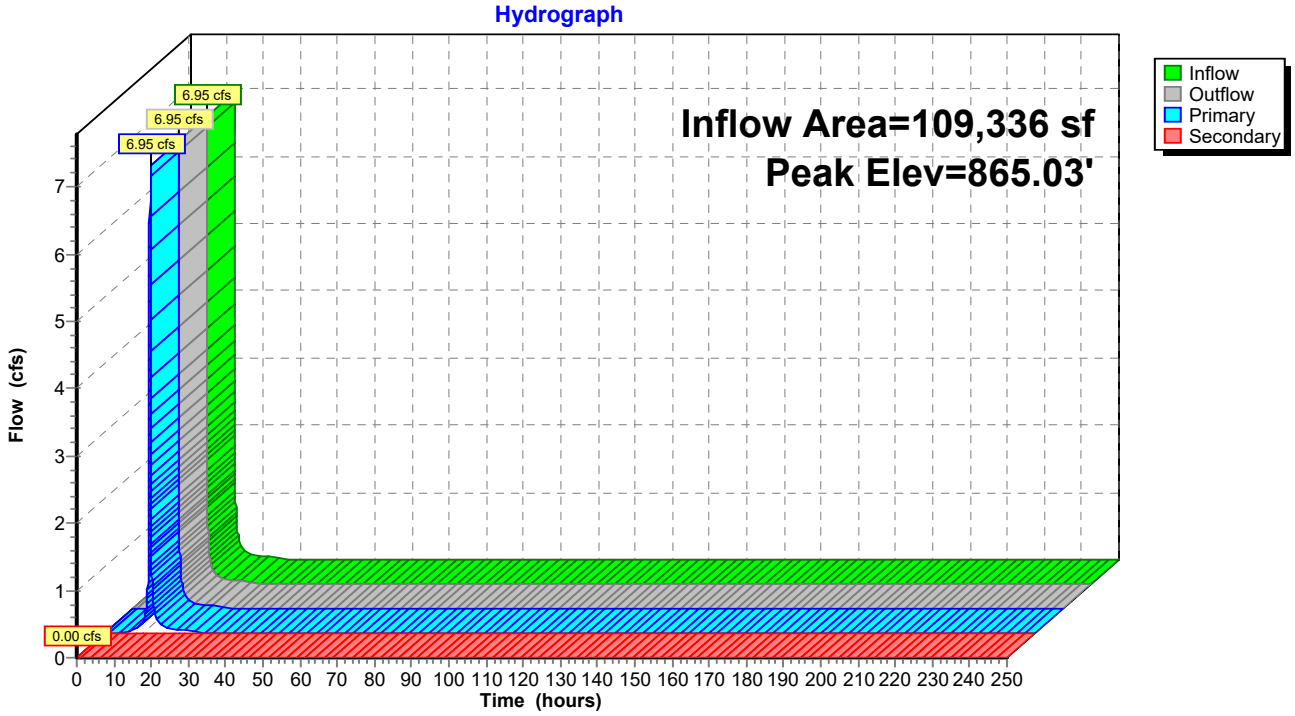
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.03' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=6.87 cfs @ 12.13 hrs HW=865.03' TW=864.71' (Dynamic Tailwater)
└**1=Culvert to MRC** (Outlet Controls 6.87 cfs @ 3.35 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=863.70' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Controls 0.00 cfs)
└**3=Diversion Weir** (Controls 0.00 cfs)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

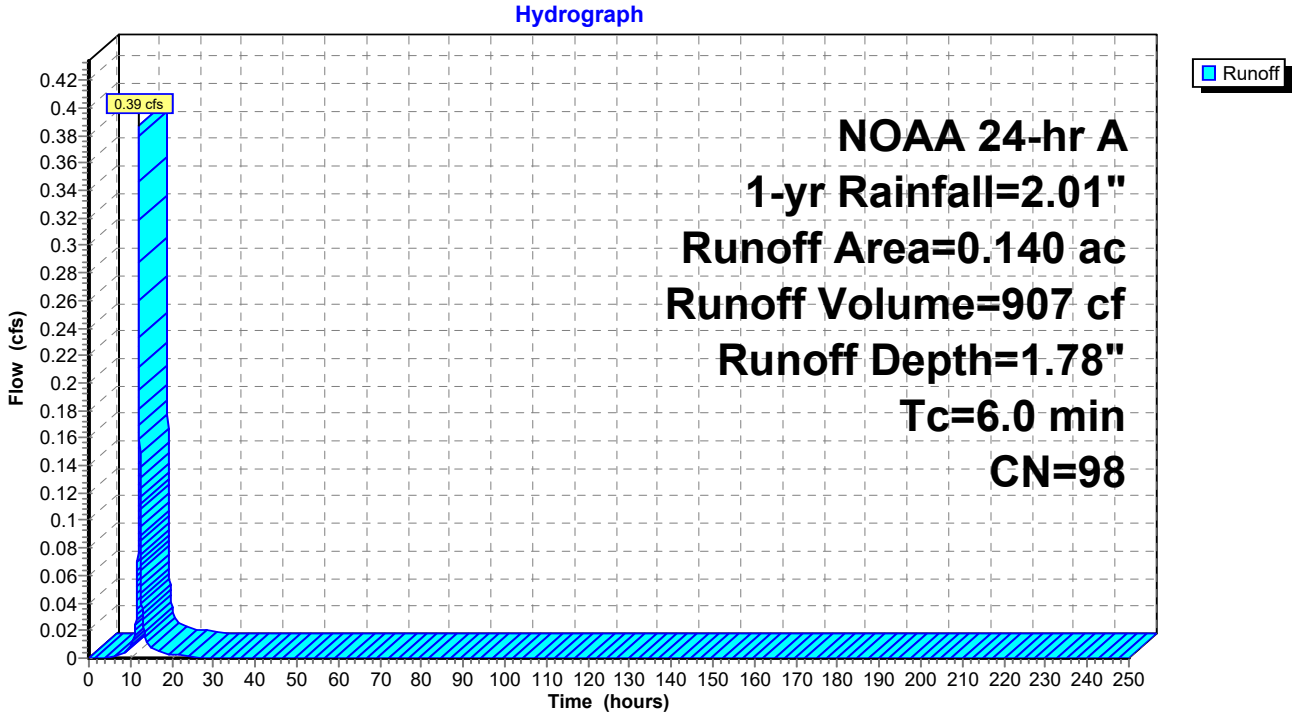
Runoff = 0.39 cfs @ 12.13 hrs, Volume= 907 cf, Depth= 1.78"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 6.95 cfs @ 12.13 hrs, Volume= 16,257 cf
Outflow = 6.95 cfs @ 12.13 hrs, Volume= 16,257 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.48 cfs @ 12.13 hrs, Volume= 8,128 cf
Routed to Pond 18 : MRC Cell 2A
Secondary = 3.48 cfs @ 12.13 hrs, Volume= 8,128 cf
Routed to Pond 19 : MRC Cell 2B

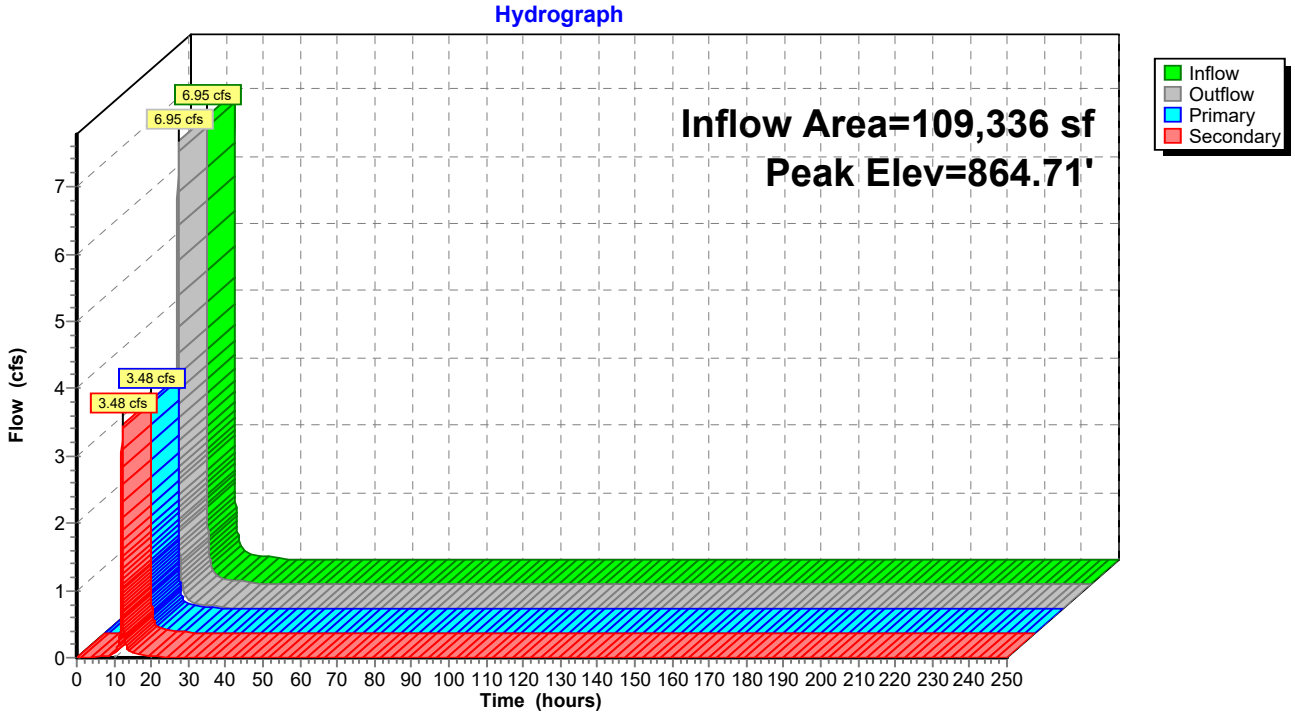
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.71' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.47 cfs @ 12.13 hrs HW=864.71' TW=861.86' (Dynamic Tailwater)
↑└**1=Culvert to MRC Cell 2A** (Barrel Controls 3.47 cfs @ 3.45 fps)

Secondary OutFlow Max=3.47 cfs @ 12.13 hrs HW=864.71' TW=861.86' (Dynamic Tailwater)
↑└**2=Culvert to MRC Cell 2B** (Barrel Controls 3.47 cfs @ 3.45 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18: MRC Cell 2A

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 0.89" for 1-yr event
Inflow = 3.48 cfs @ 12.13 hrs, Volume= 8,128 cf
Outflow = 0.39 cfs @ 12.63 hrs, Volume= 8,121 cf, Atten= 89%, Lag= 30.2 min
Primary = 0.39 cfs @ 12.63 hrs, Volume= 8,121 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.73' @ 12.63 hrs Storage= 5,476 cf

Plug-Flow detention time= 1,773.6 min calculated for 8,121 cf (100% of inflow)
Center-of-Mass det. time= 1,773.0 min (2,535.0 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

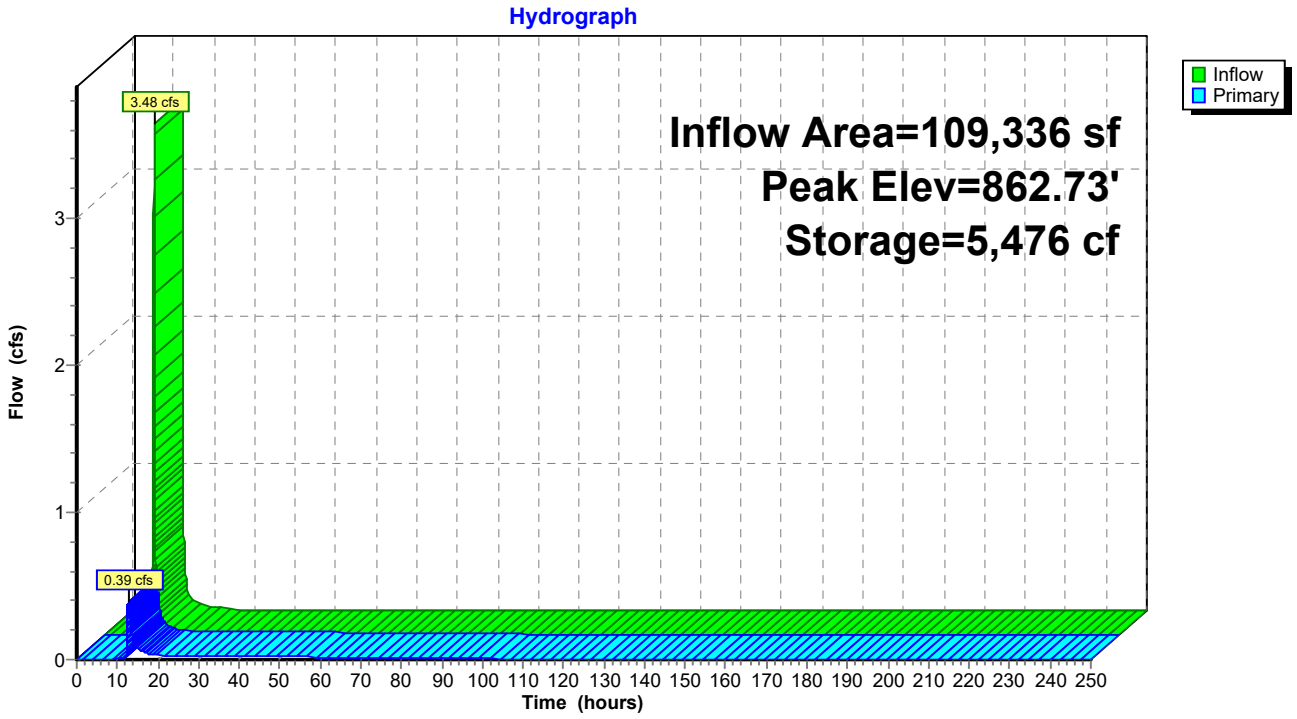
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.39 cfs @ 12.63 hrs HW=862.73' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 0.39 cfs of 10.58 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 7.91 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 0.36 cfs @ 1.65 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18: MRC Cell 2A



Summary for Pond 19: MRC Cell 2B

Inflow = 3.48 cfs @ 12.13 hrs, Volume= 8,128 cf
Outflow = 0.39 cfs @ 12.63 hrs, Volume= 8,121 cf, Atten= 89%, Lag= 30.2 min
Primary = 0.39 cfs @ 12.63 hrs, Volume= 8,121 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.73' @ 12.63 hrs Storage= 5,476 cf

Plug-Flow detention time= 1,773.6 min calculated for 8,121 cf (100% of inflow)
Center-of-Mass det. time= 1,773.0 min (2,535.0 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

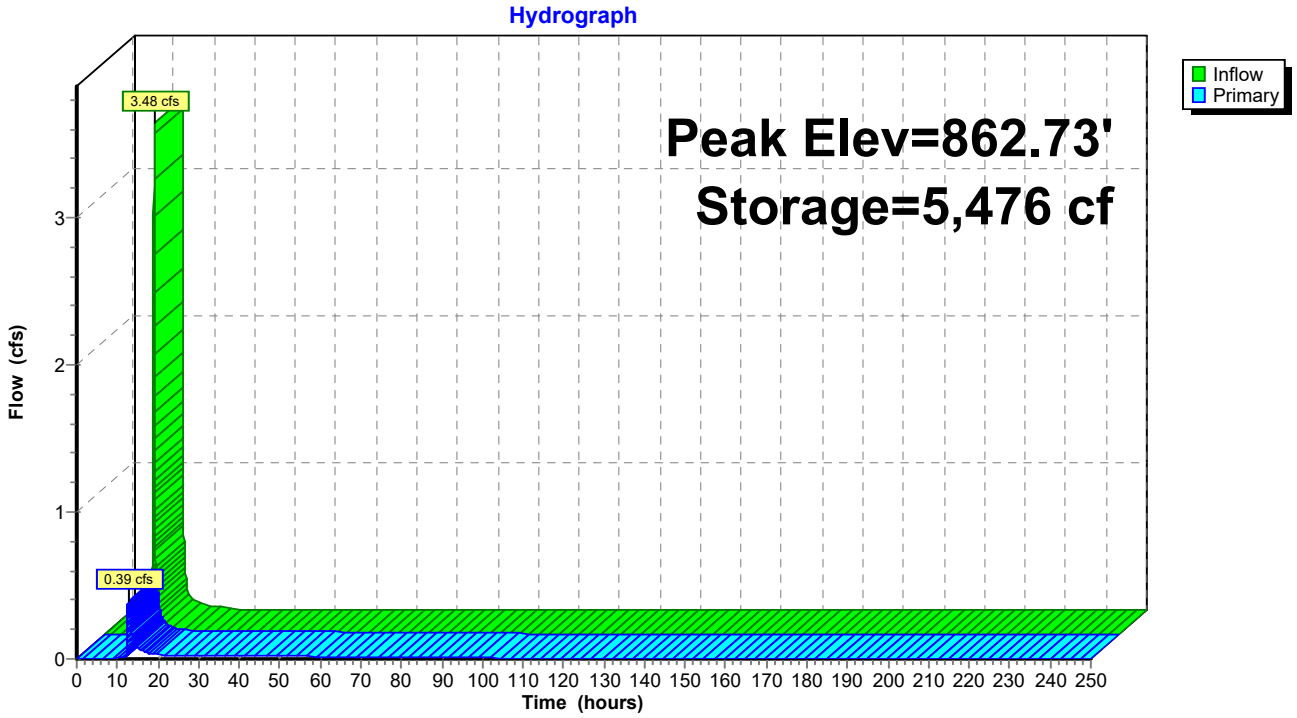
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.39 cfs @ 12.63 hrs HW=862.73' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 0.39 cfs of 10.58 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 7.91 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 0.36 cfs @ 1.65 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19: MRC Cell 2B

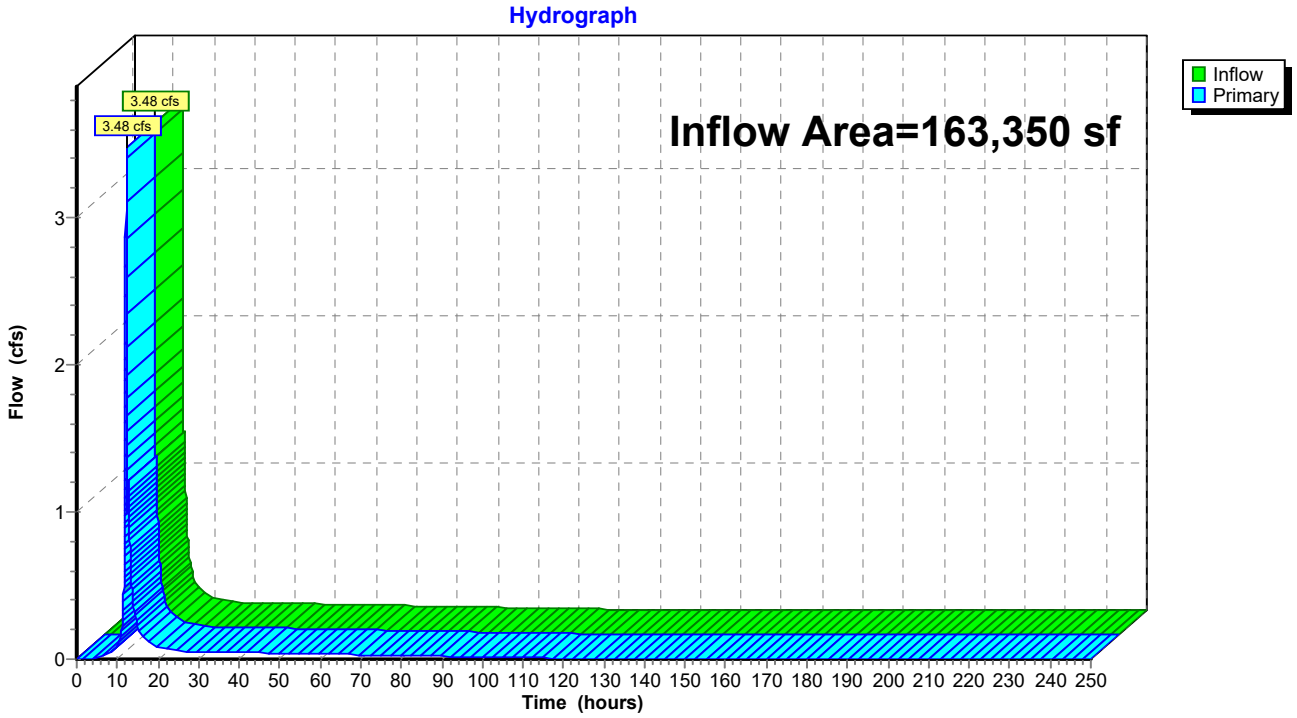


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 163,350 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 3.48 cfs @ 12.13 hrs, Volume= 24,274 cf
Primary = 3.48 cfs @ 12.13 hrs, Volume= 24,274 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)

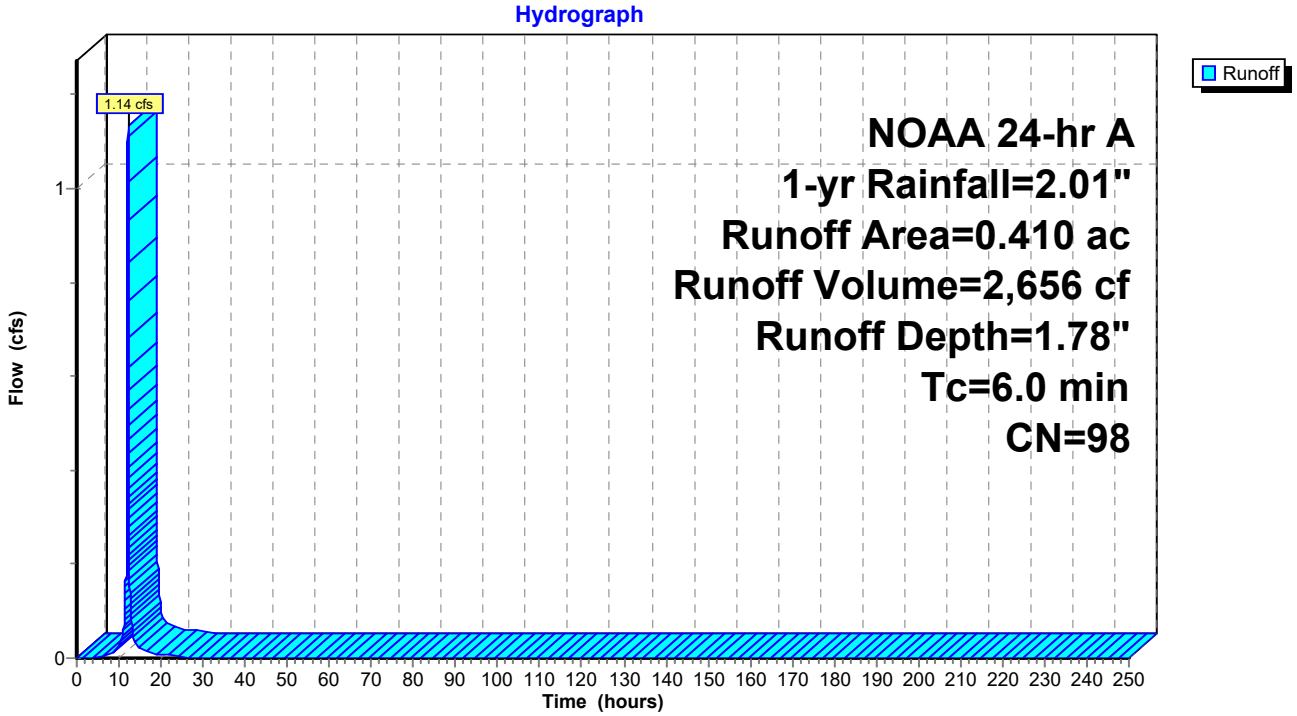
Runoff = 1.14 cfs @ 12.13 hrs, Volume= 2,656 cf, Depth= 1.78"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG C
0.410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)



Summary for Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)

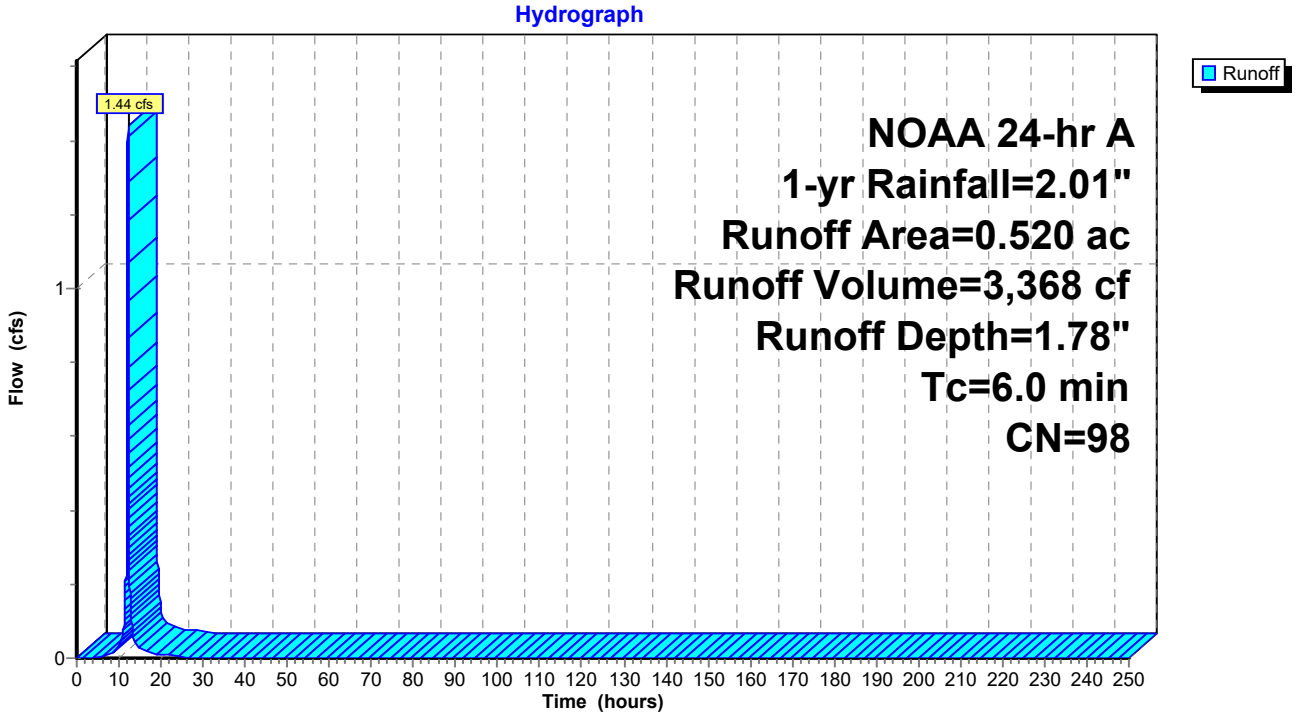
Runoff = 1.44 cfs @ 12.13 hrs, Volume= 3,368 cf, Depth= 1.78"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)



Summary for Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)

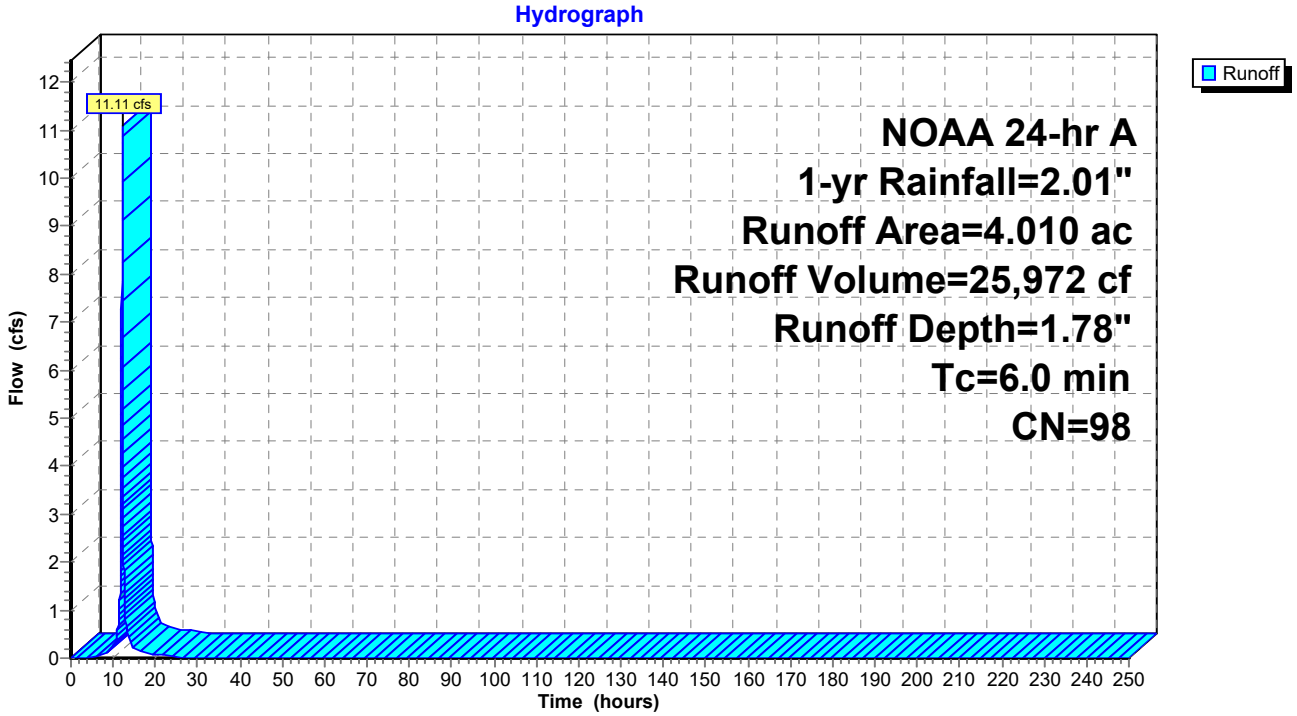
Runoff = 11.11 cfs @ 12.13 hrs, Volume= 25,972 cf, Depth= 1.78"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
4.010	98	Paved parking, HSG C
4.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)



Summary for Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)

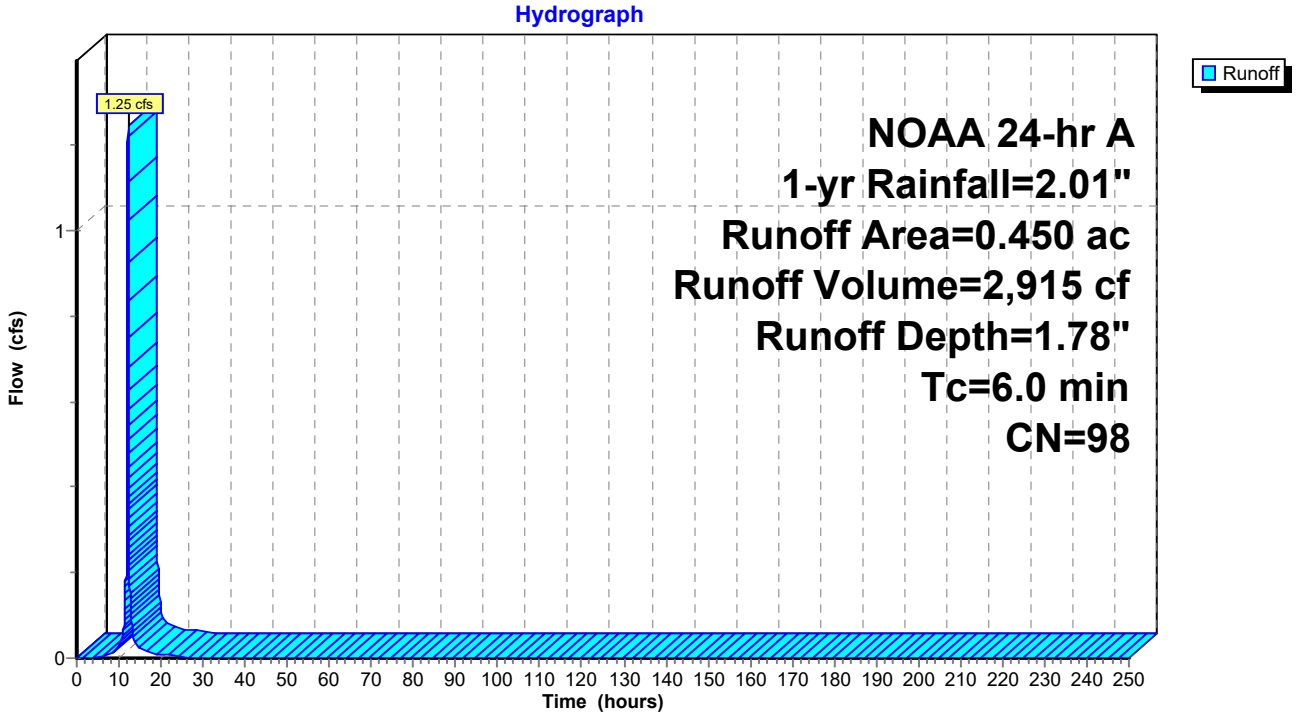
Runoff = 1.25 cfs @ 12.13 hrs, Volume= 2,915 cf, Depth= 1.78"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.450	98	Paved parking, HSG C
0.450		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)



Summary for Pond 24P: Underground Detention System 3B (North)

Inflow Area = 194,278 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 12.35 cfs @ 12.13 hrs, Volume= 28,887 cf
Outflow = 1.03 cfs @ 12.86 hrs, Volume= 28,871 cf, Atten= 92%, Lag= 43.7 min
Primary = 1.03 cfs @ 12.86 hrs, Volume= 28,871 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 858.42' @ 12.86 hrs Storage= 16,519 cf

Plug-Flow detention time= 229.4 min calculated for 28,871 cf (100% of inflow)
Center-of-Mass det. time= 229.1 min (991.1 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	855.75'	37,071 cf	**Storm Trap - 6'-0" Single Trap Stage Data** Listed below

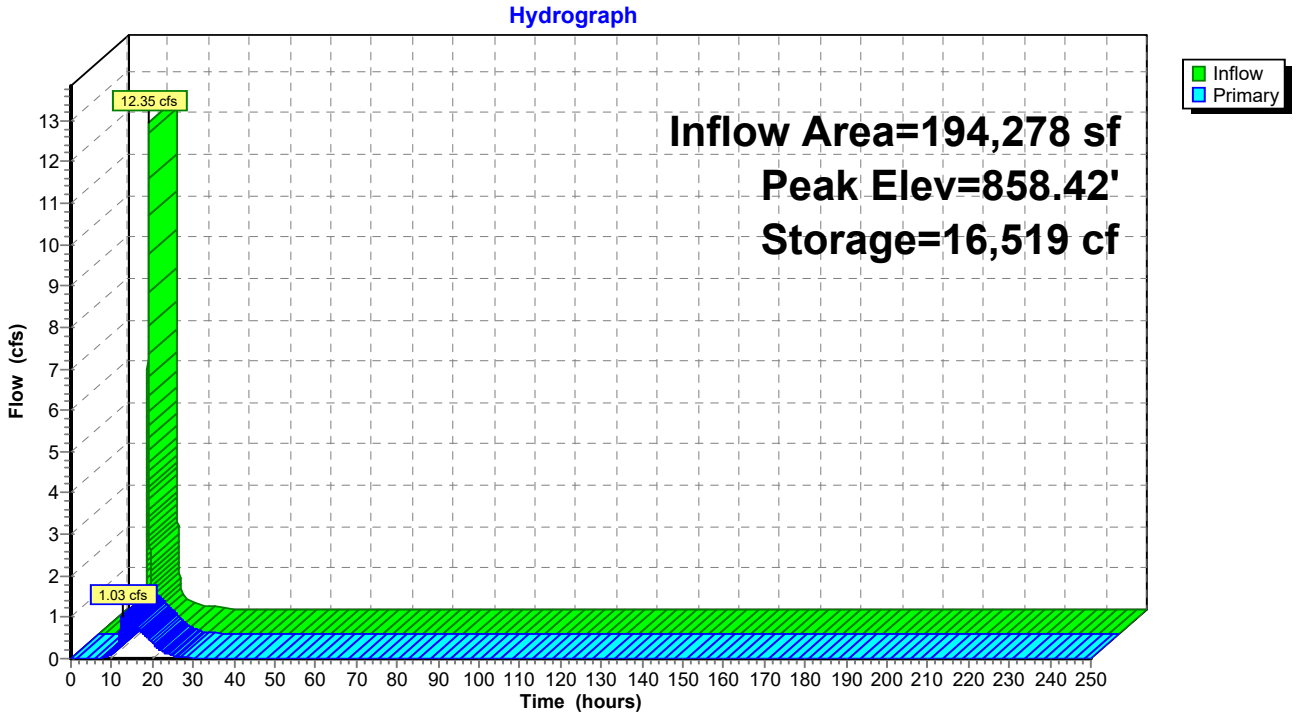
Elevation (feet)	Cum.Store (cubic-feet)
855.75	0
856.00	1,544
856.25	3,089
856.50	4,634
856.75	6,179
857.00	7,723
857.25	9,268
857.50	10,813
857.75	12,357
858.00	13,902
858.25	15,446
858.50	16,991
858.75	18,535
859.00	20,080
859.25	21,625
859.50	23,170
859.75	24,714
860.00	26,259
860.25	27,804
860.50	29,348
860.75	30,893
861.00	32,437
861.25	33,982
861.50	35,527
861.75	37,071

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**24.0" Round Culvert** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.85' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2	Device 1	855.75'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	859.60'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	861.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.03 cfs @ 12.86 hrs HW=858.42' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.03 cfs of 20.78 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.03 cfs @ 7.56 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Underground Detention System 3B (North)



Summary for Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)

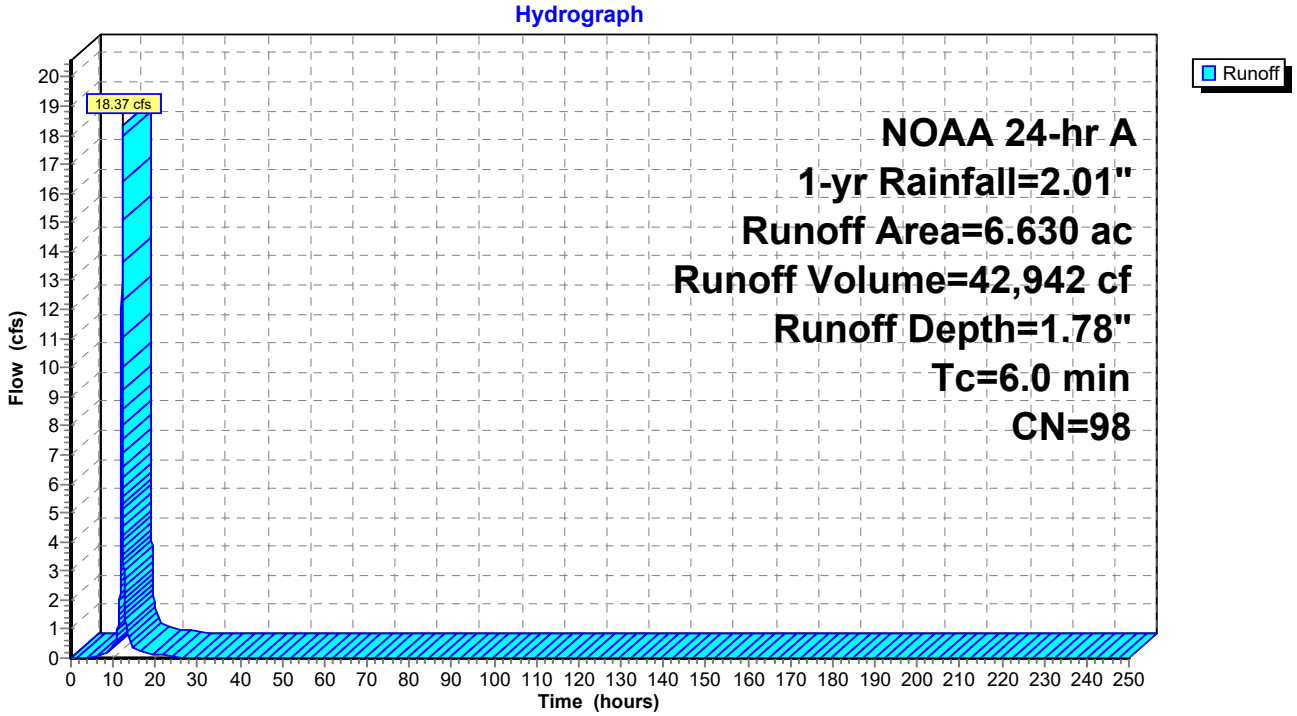
Runoff = 18.37 cfs @ 12.13 hrs, Volume= 42,942 cf, Depth= 1.78"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
6.630	98	Paved parking, HSG C
6.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)



Summary for Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)

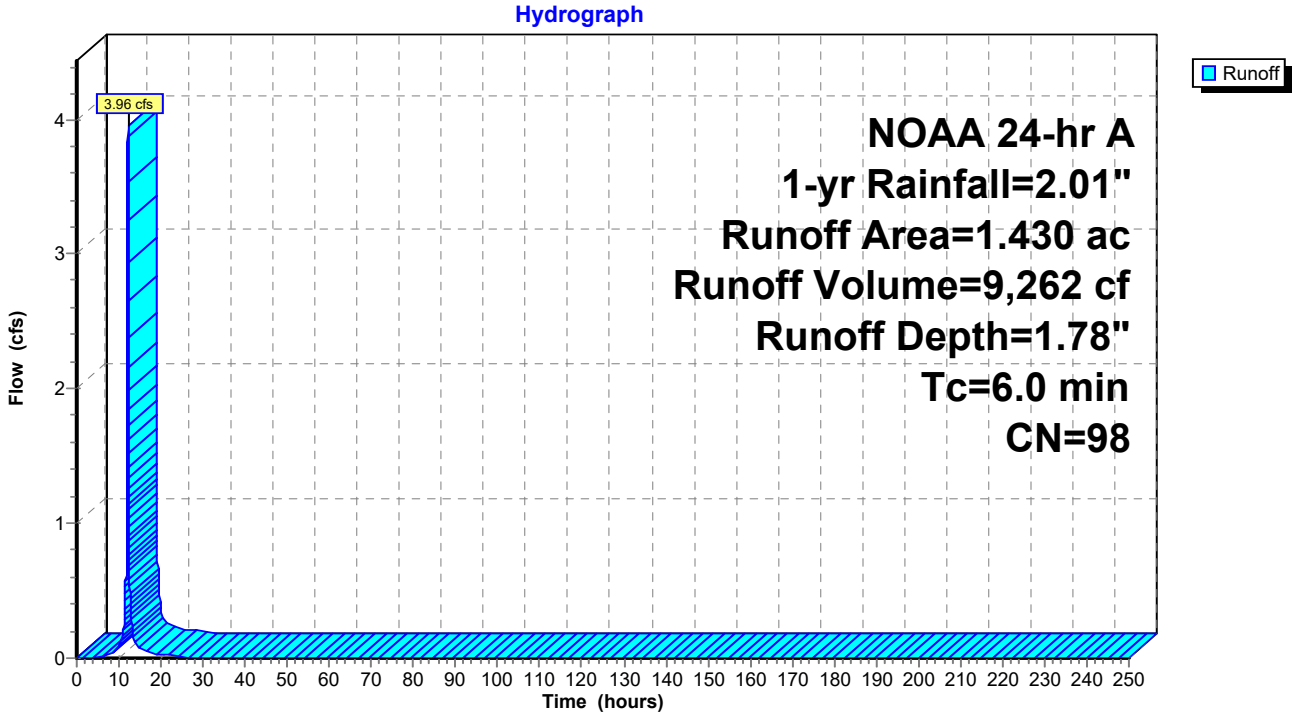
Runoff = 3.96 cfs @ 12.13 hrs, Volume= 9,262 cf, Depth= 1.78"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
1.430	98	Paved parking, HSG C
1.430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)



Summary for Pond 27: Underground Detention System 3A (South)

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 22.33 cfs @ 12.13 hrs, Volume= 52,204 cf
Outflow = 9.97 cfs @ 12.24 hrs, Volume= 45,565 cf, Atten= 55%, Lag= 6.5 min
Primary = 9.97 cfs @ 12.24 hrs, Volume= 45,565 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 858.29' @ 12.24 hrs Storage= 21,848 cf

Plug-Flow detention time= 126.7 min calculated for 45,563 cf (87% of inflow)
Center-of-Mass det. time= 77.5 min (839.5 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	855.00'	39,792 cf	**Storm Trap - 6'-0" Double Trap Stage Data** Listed below

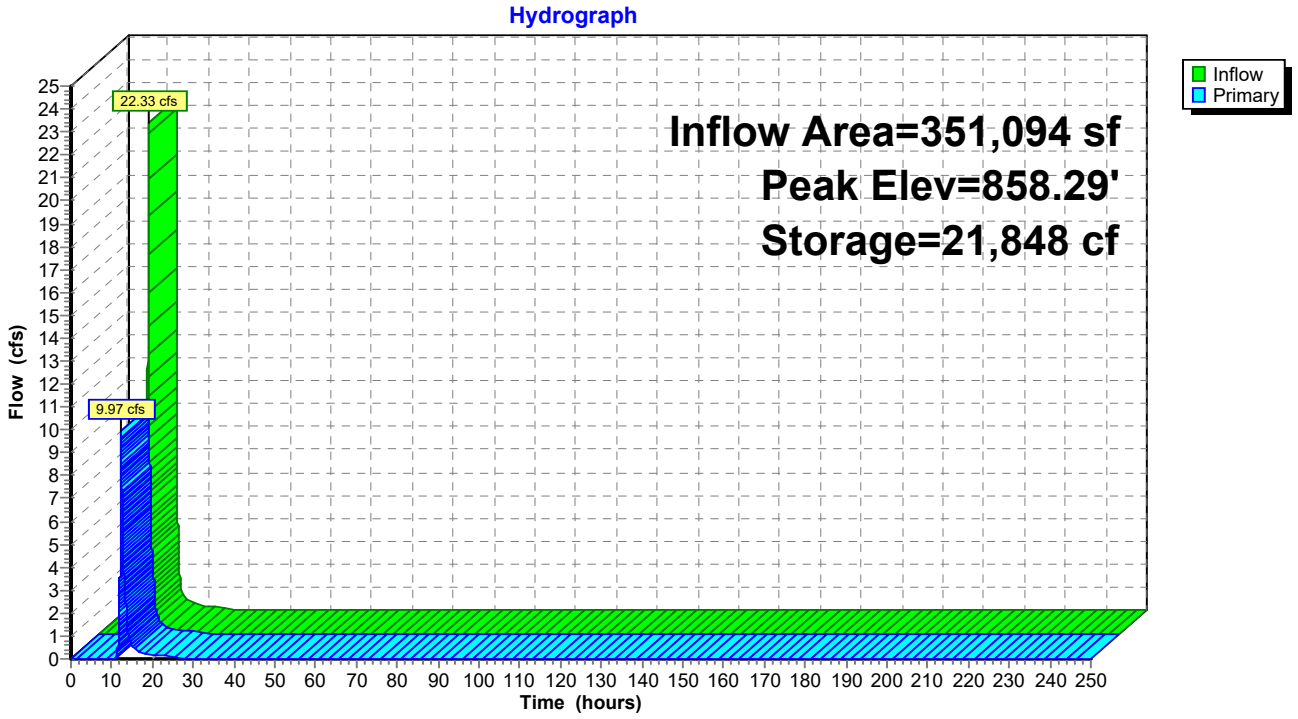
Elevation (feet)	Cum.Store (cubic-feet)
855.00	0
855.25	1,658
855.50	3,316
855.75	4,974
856.00	6,632
856.25	8,290
856.50	9,948
856.75	11,066
857.00	13,264
857.25	14,922
857.50	16,580
857.75	18,238
858.00	19,896
858.25	21,554
858.50	23,212
858.75	24,870
859.00	26,528
859.25	28,186
859.50	29,844
859.75	31,502
860.00	33,160
860.25	34,818
860.50	36,476
860.75	38,134
861.00	39,792

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**30.0" Round SCM Outfall 300A** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.86' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

#2	Device 1	856.00'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	857.20'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	858.20'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=9.97 cfs @ 12.24 hrs HW=858.29' TW=0.00' (Dynamic Tailwater)
- **1=SCM Outfall 300A** (Passes 9.97 cfs of 27.93 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 5.89 cfs @ 6.67 fps)
  - **3=Orifice/Grate** (Orifice Controls 3.61 cfs @ 4.08 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 0.47 cfs @ 1.00 fps)

Pond 27: Underground Detention System 3A (South)

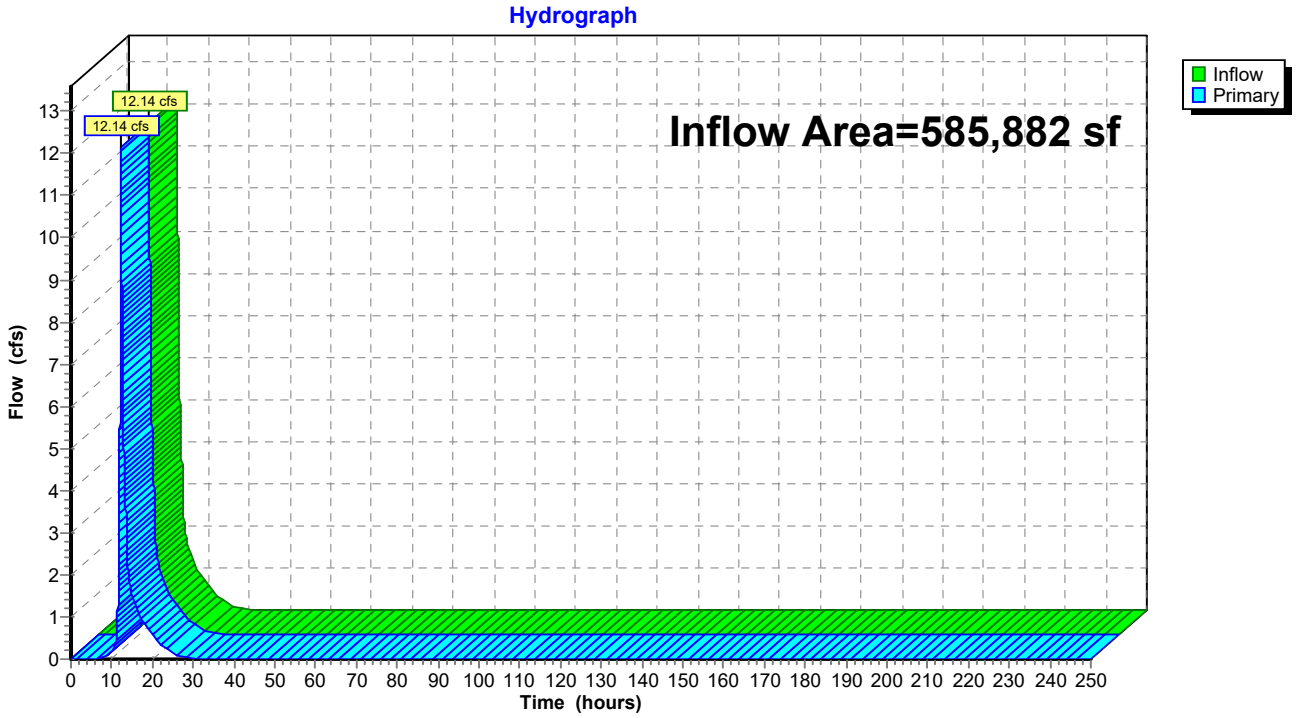


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 585,882 sf,100.00% Impervious, Inflow Depth = 1.65" for 1-yr event
Inflow = 12.14 cfs @ 12.22 hrs, Volume= 80,459 cf
Primary = 12.14 cfs @ 12.22 hrs, Volume= 80,459 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)

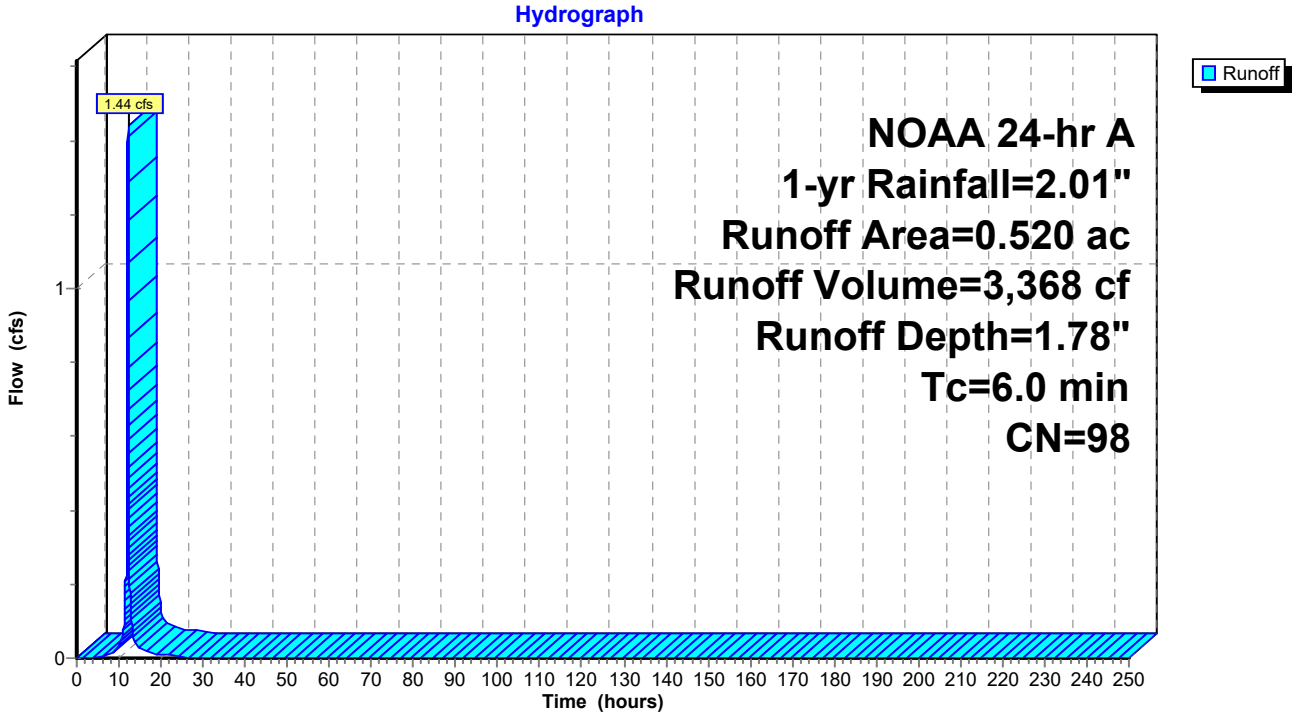
Runoff = 1.44 cfs @ 12.13 hrs, Volume= 3,368 cf, Depth= 1.78"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)



Summary for Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

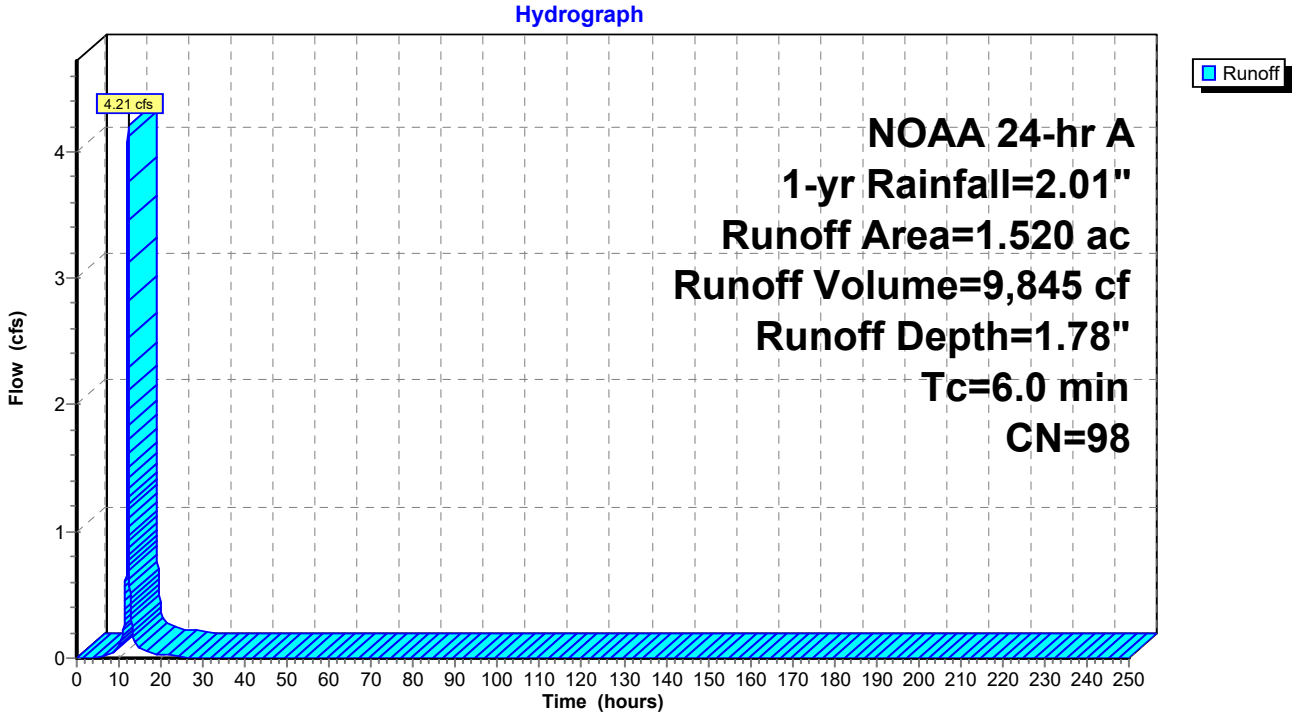
Runoff = 4.21 cfs @ 12.13 hrs, Volume= 9,845 cf, Depth= 1.78"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 1-yr Rainfall=2.01"

Area (ac)	CN	Description
1.520	98	Paved parking, HSG C
1.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

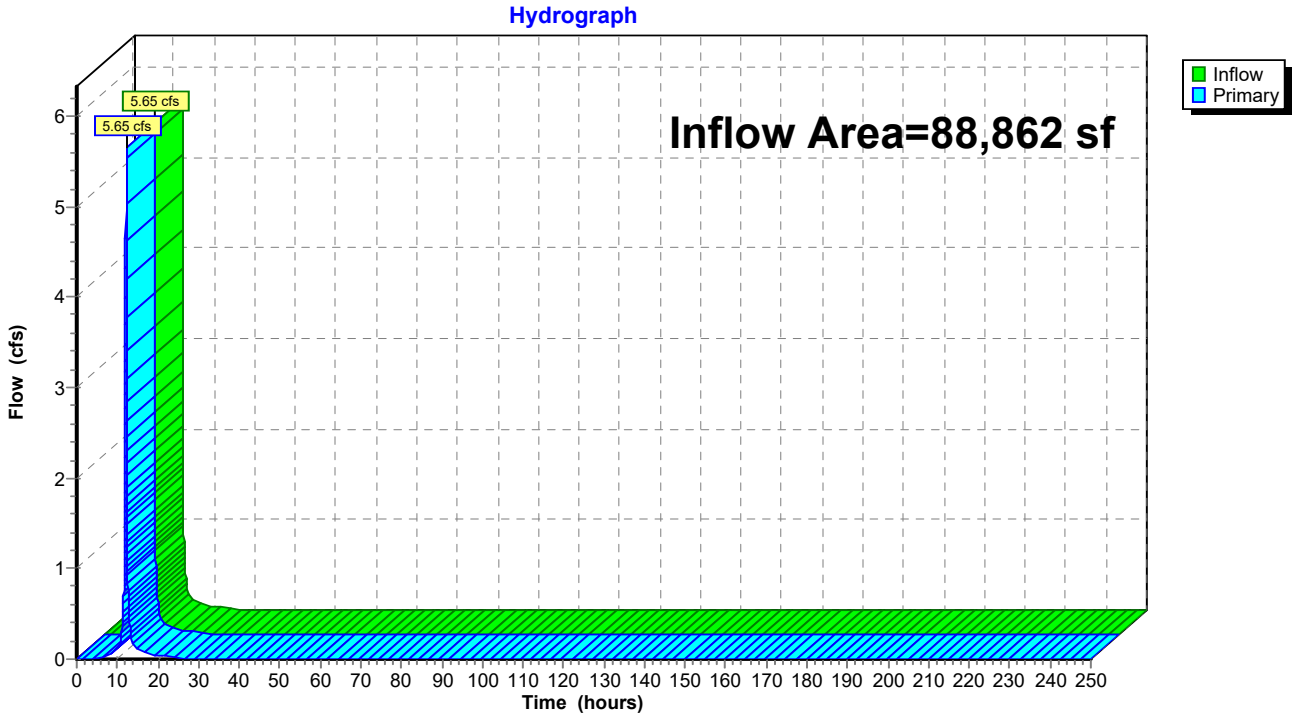


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 88,862 sf,100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
Inflow = 5.65 cfs @ 12.13 hrs, Volume= 13,213 cf
Primary = 5.65 cfs @ 12.13 hrs, Volume= 13,213 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

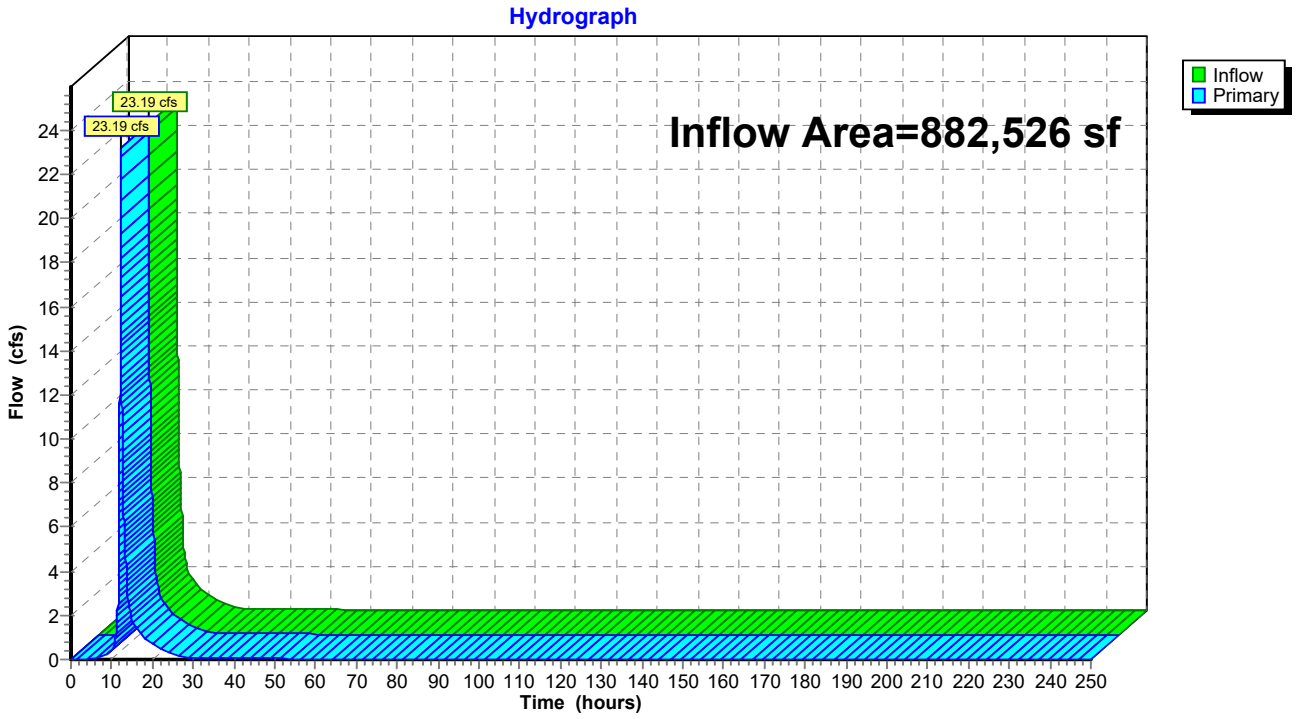


Summary for Link 33: POA 001

Inflow Area = 882,526 sf,100.00% Impervious, Inflow Depth = 1.69" for 1-yr event
Inflow = 23.19 cfs @ 12.14 hrs, Volume= 124,553 cf
Primary = 23.19 cfs @ 12.14 hrs, Volume= 124,553 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Within LOD)

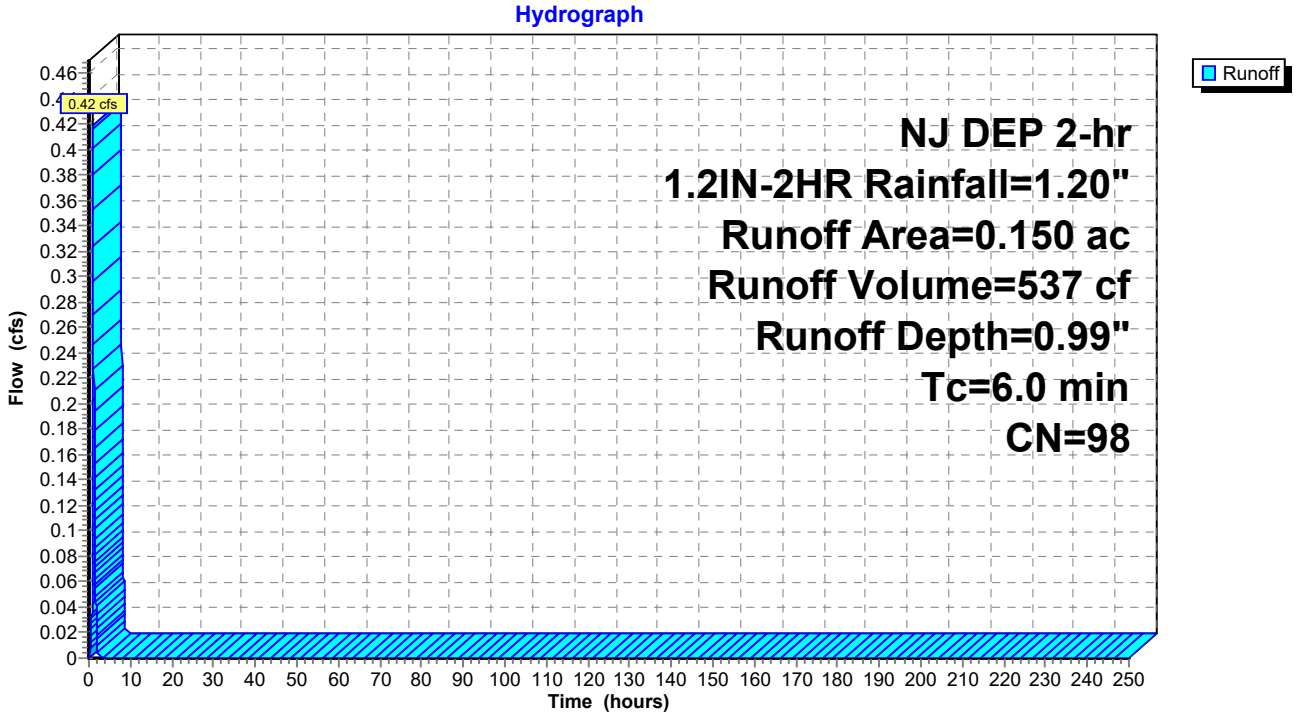
Runoff = 0.42 cfs @ 1.11 hrs, Volume= 537 cf, Depth= 0.99"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Within LOD)



Summary for Subcatchment 11: Post-Development DA-1 (Outside LOD)

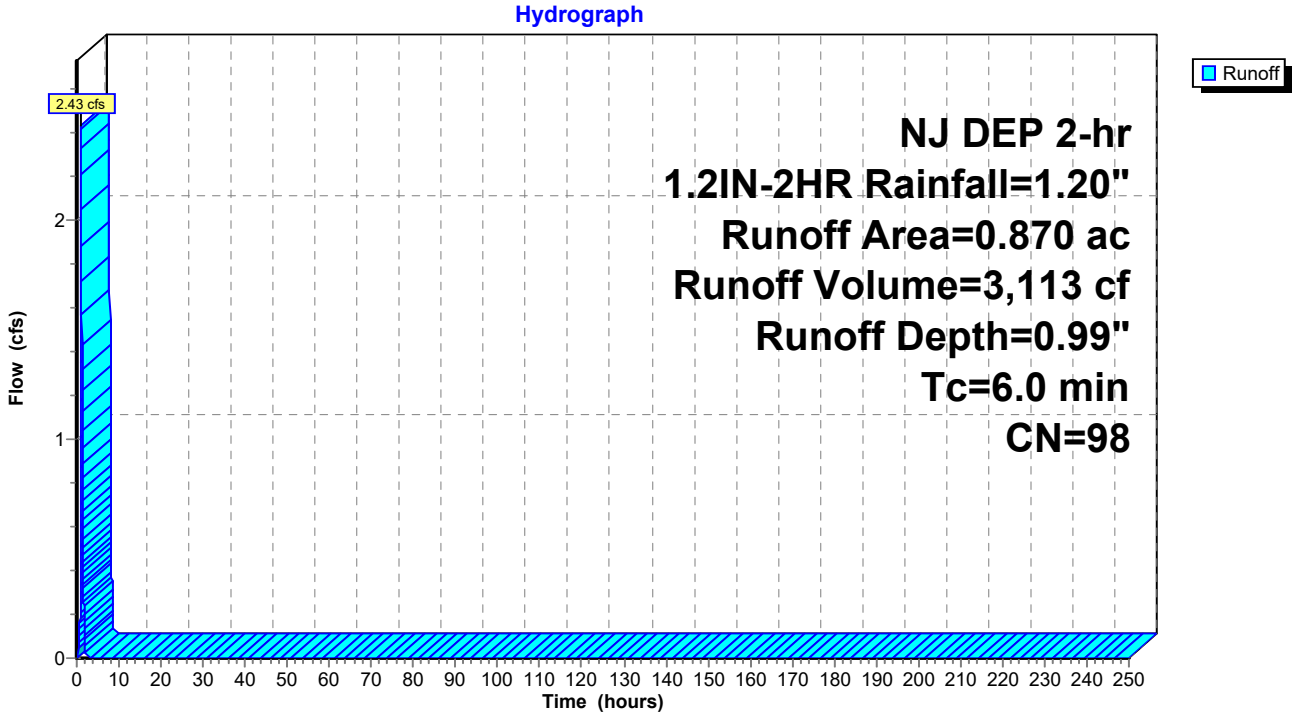
Runoff = 2.43 cfs @ 1.11 hrs, Volume= 3,113 cf, Depth= 0.99"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.870	98	Paved parking, HSG C
0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 11: Post-Development DA-1 (Outside LOD)

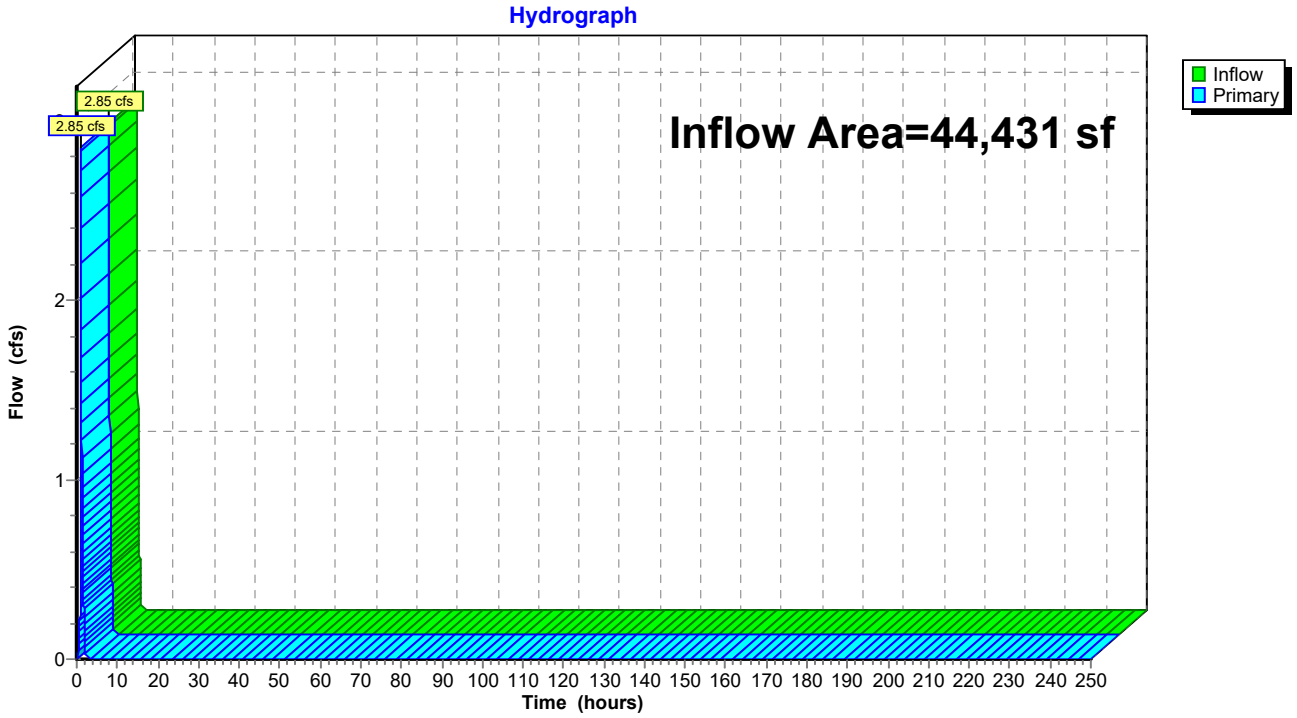


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 44,431 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 2.85 cfs @ 1.11 hrs, Volume= 3,649 cf
Primary = 2.85 cfs @ 1.11 hrs, Volume= 3,649 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

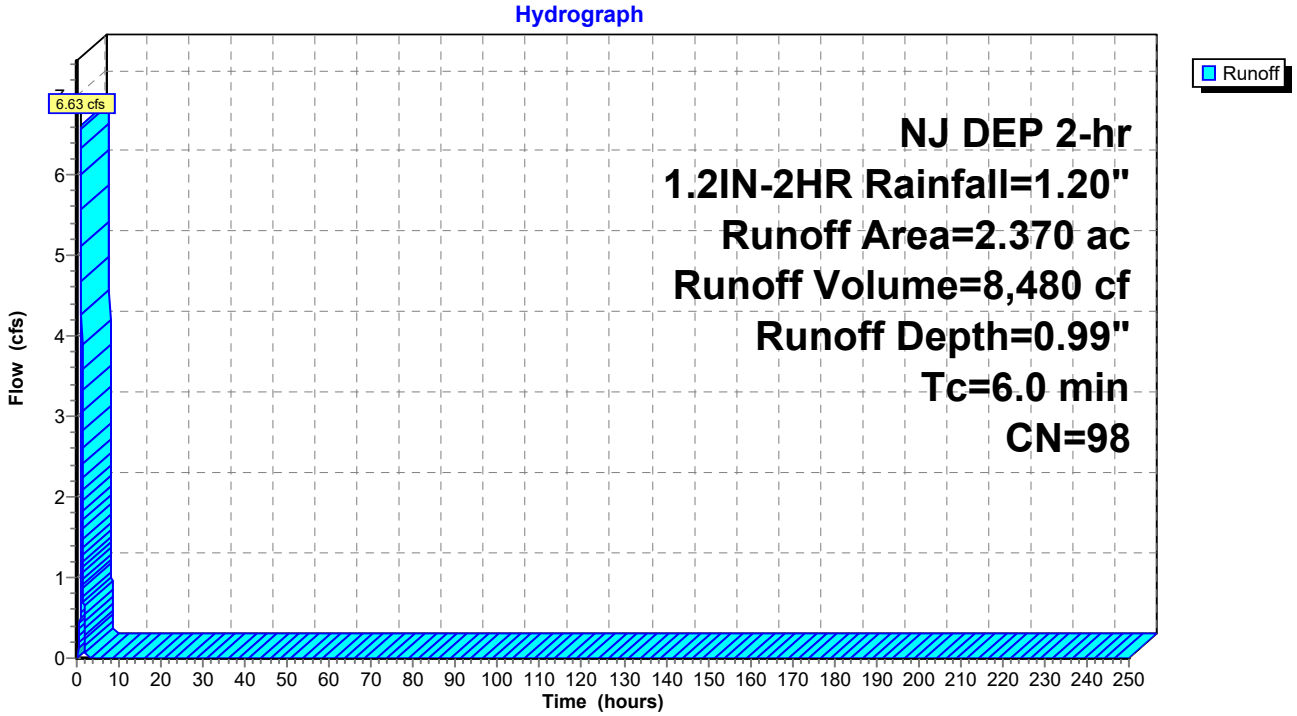
Runoff = 6.63 cfs @ 1.11 hrs, Volume= 8,480 cf, Depth= 0.99"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
2.370	98	Paved parking, HSG C
2.370		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)

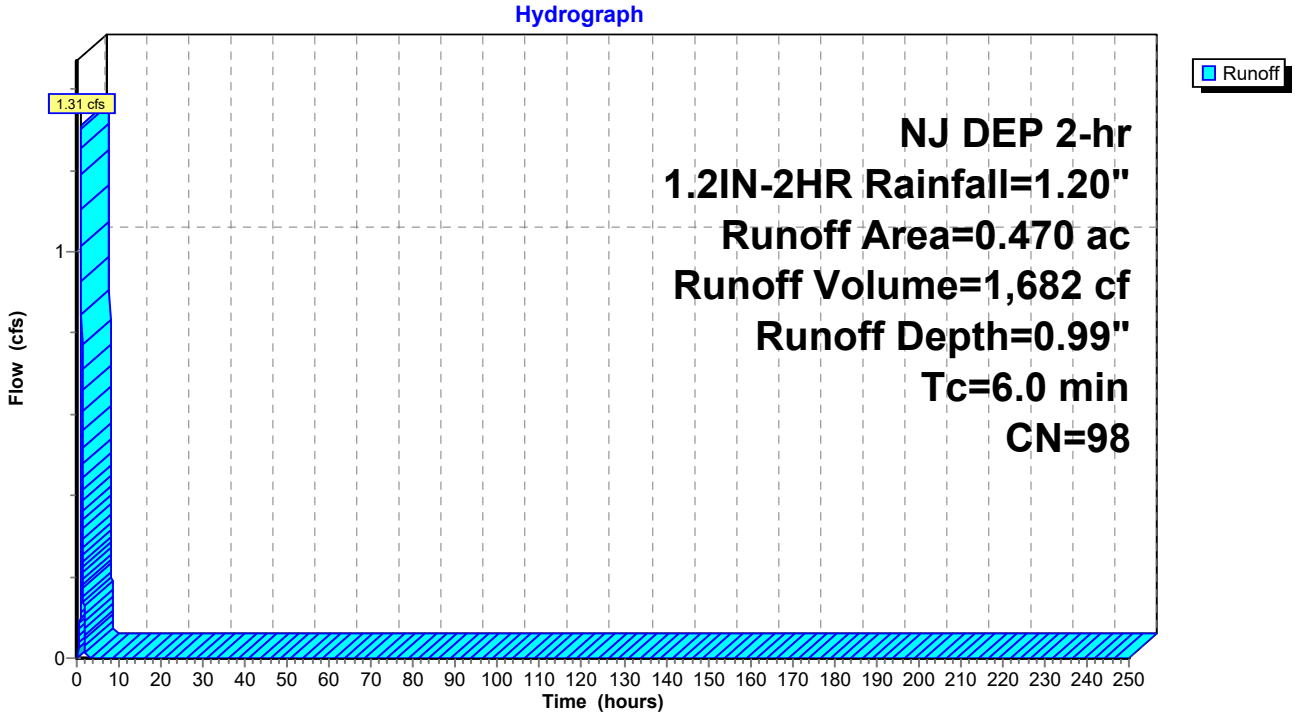
Runoff = 1.31 cfs @ 1.11 hrs, Volume= 1,682 cf, Depth= 0.99"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG C
0.470		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)



Summary for Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)

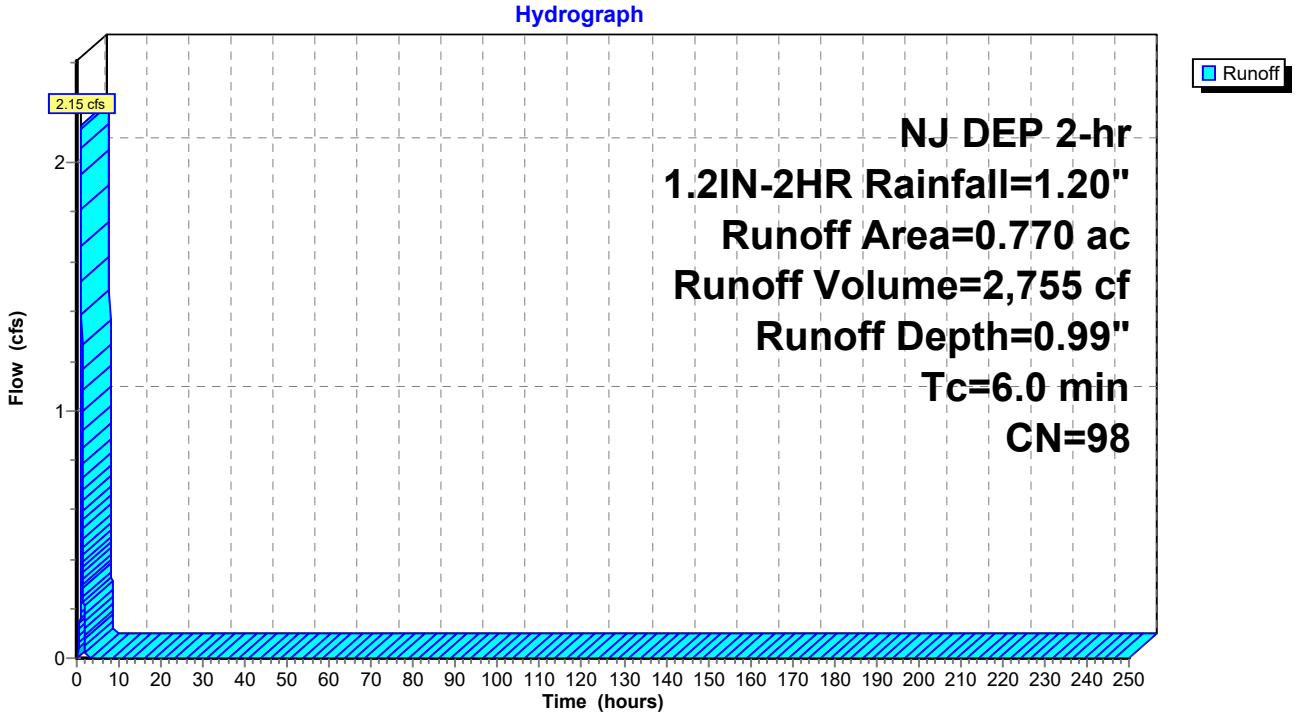
Runoff = 2.15 cfs @ 1.11 hrs, Volume= 2,755 cf, Depth= 0.99"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.770	98	Paved parking, HSG C
0.770		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 7.02 cfs @ 1.11 hrs, Volume= 8,981 cf
Outflow = 7.02 cfs @ 1.11 hrs, Volume= 8,981 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.02 cfs @ 1.11 hrs, Volume= 8,981 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 20 : Post-Development Discharge Point 2

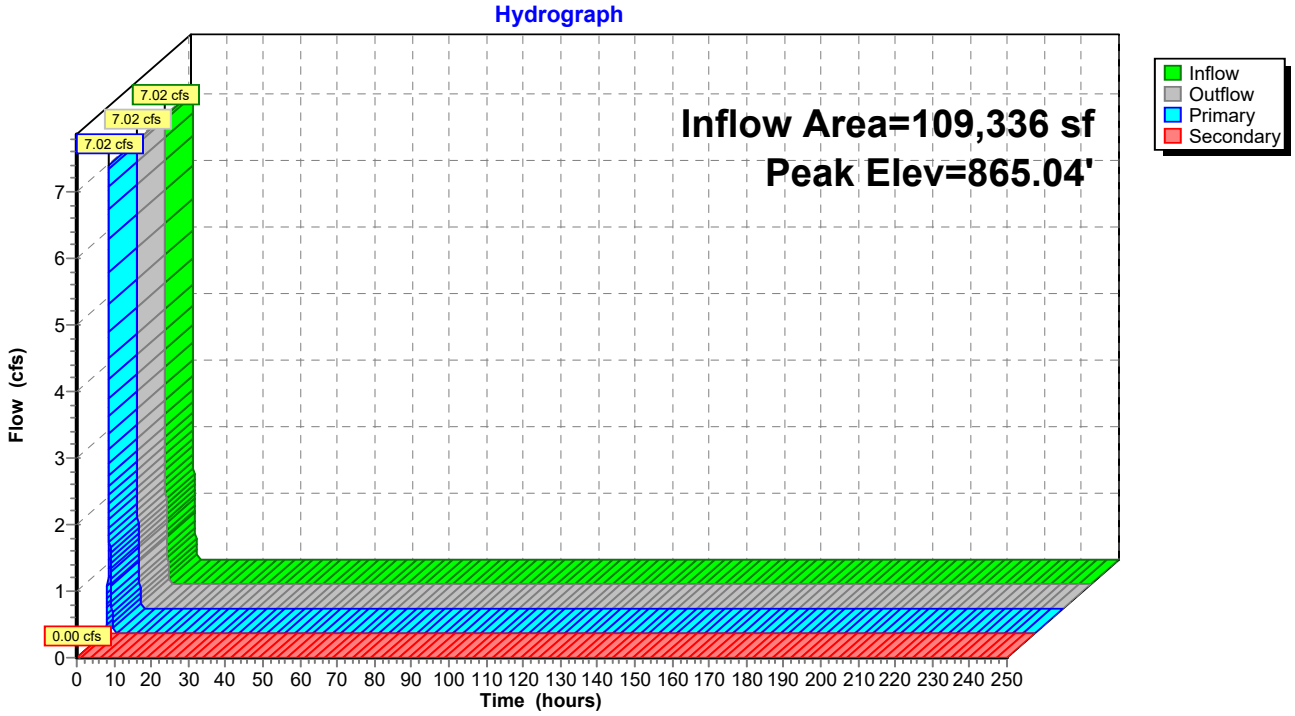
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.04' @ 1.11 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=6.97 cfs @ 1.11 hrs HW=865.04' TW=864.72' (Dynamic Tailwater)
↑└**1=Culvert to MRC** (Outlet Controls 6.97 cfs @ 3.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=863.70' TW=0.00' (Dynamic Tailwater)
↑└**2=> 2YR Storm Overflow** (Controls 0.00 cfs)
↑└**3=Diversion Weir** (Controls 0.00 cfs)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

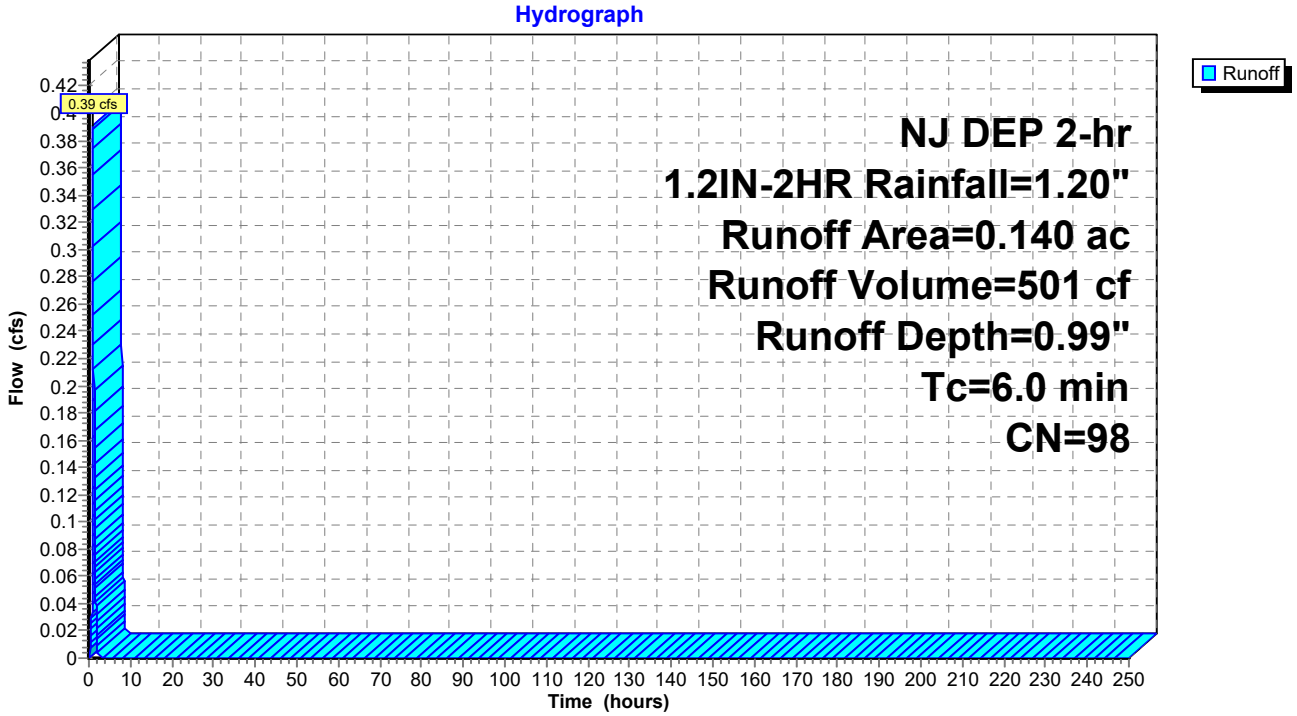
Runoff = 0.39 cfs @ 1.11 hrs, Volume= 501 cf, Depth= 0.99"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 7.02 cfs @ 1.11 hrs, Volume= 8,981 cf
Outflow = 7.02 cfs @ 1.11 hrs, Volume= 8,981 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.51 cfs @ 1.11 hrs, Volume= 4,490 cf
Routed to Pond 18 : MRC Cell 2A
Secondary = 3.51 cfs @ 1.11 hrs, Volume= 4,490 cf
Routed to Pond 19 : MRC Cell 2B

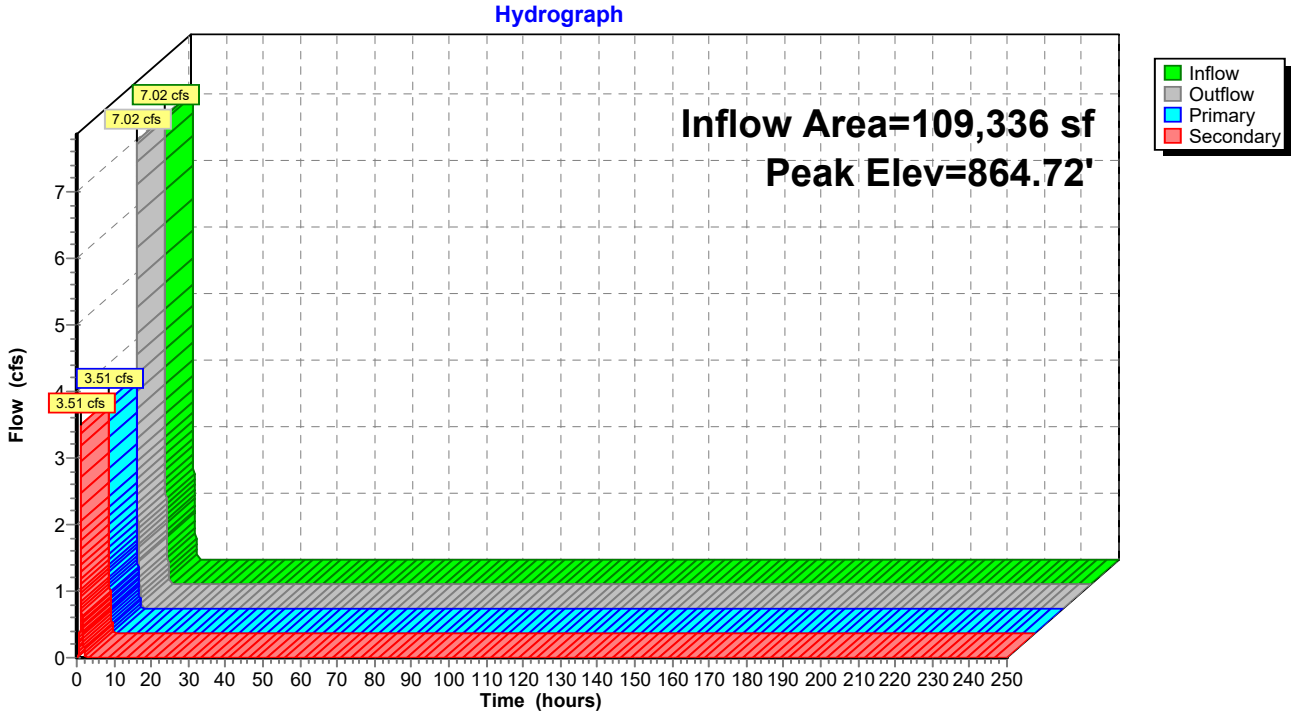
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.72' @ 1.11 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.50 cfs @ 1.11 hrs HW=864.72' TW=861.02' (Dynamic Tailwater)
↑**1=Culvert to MRC Cell 2A** (Barrel Controls 3.50 cfs @ 3.46 fps)

Secondary OutFlow Max=3.50 cfs @ 1.11 hrs HW=864.72' TW=861.02' (Dynamic Tailwater)
↑**2=Culvert to MRC Cell 2B** (Barrel Controls 3.50 cfs @ 3.46 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18: MRC Cell 2A

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 0.49" for 1.2IN-2HR event
Inflow = 3.51 cfs @ 1.11 hrs, Volume= 4,490 cf
Outflow = 0.02 cfs @ 2.12 hrs, Volume= 4,484 cf, Atten= 99%, Lag= 60.9 min
Primary = 0.02 cfs @ 2.12 hrs, Volume= 4,484 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.19' @ 2.12 hrs Storage= 4,390 cf

Plug-Flow detention time= 2,031.4 min calculated for 4,484 cf (100% of inflow)
Center-of-Mass det. time= 2,031.4 min (2,101.7 - 70.4)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

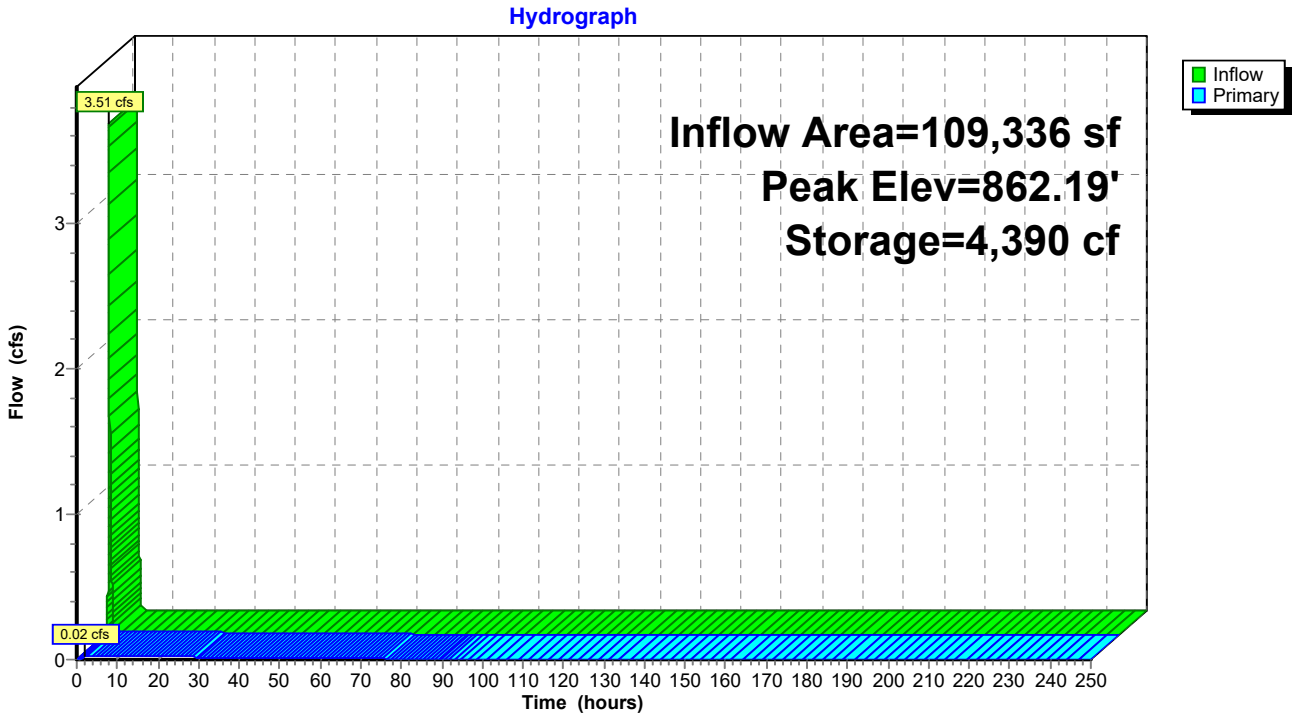
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.02 cfs @ 2.12 hrs HW=862.19' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 0.02 cfs of 8.91 cfs potential flow)
  └─**2=Underdrain** (Orifice Controls 0.02 cfs @ 7.07 fps)
  └─**3=Orifice Row #1** (Controls 0.00 cfs)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18: MRC Cell 2A



Summary for Pond 19: MRC Cell 2B

Inflow = 3.51 cfs @ 1.11 hrs, Volume= 4,490 cf
Outflow = 0.02 cfs @ 2.12 hrs, Volume= 4,484 cf, Atten= 99%, Lag= 60.9 min
Primary = 0.02 cfs @ 2.12 hrs, Volume= 4,484 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.19' @ 2.12 hrs Storage= 4,390 cf

Plug-Flow detention time= 2,031.4 min calculated for 4,484 cf (100% of inflow)
Center-of-Mass det. time= 2,031.4 min (2,101.7 - 70.4)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

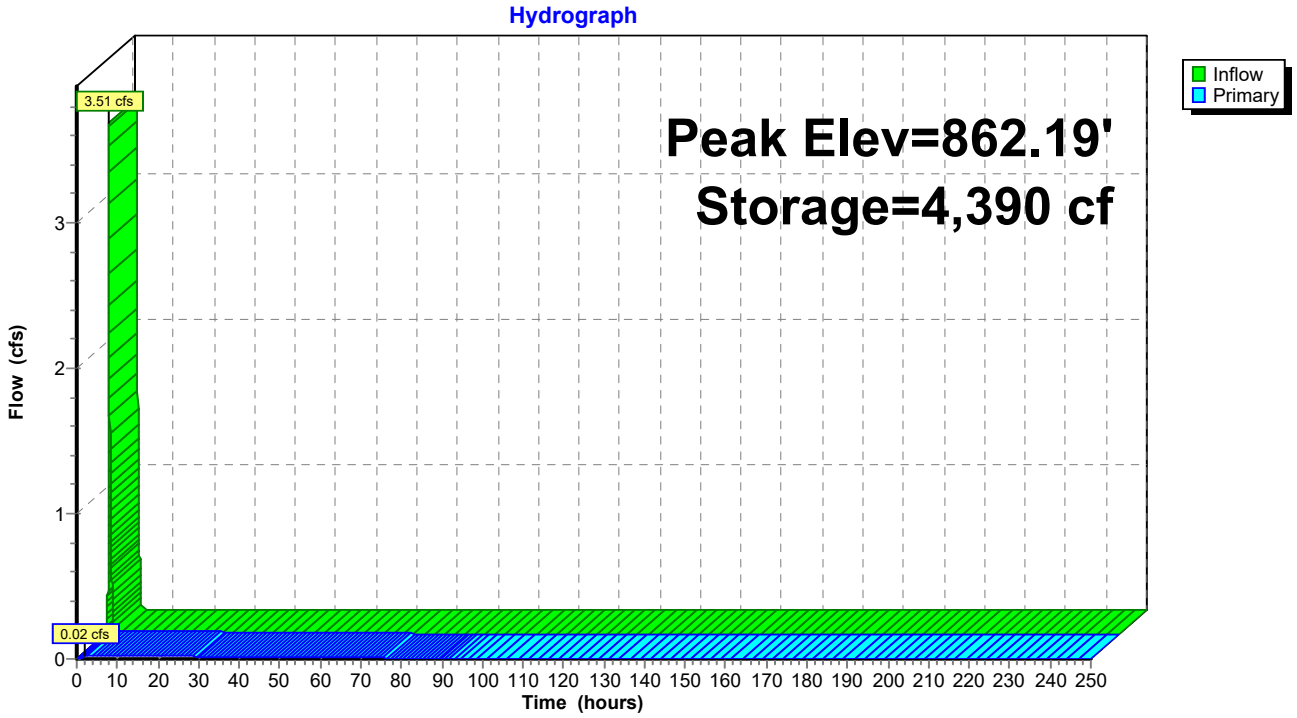
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=0.02 cfs @ 2.12 hrs HW=862.19' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 0.02 cfs of 8.91 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.02 cfs @ 7.07 fps)
  ├─**3=Orifice Row #1** (Controls 0.00 cfs)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19: MRC Cell 2B

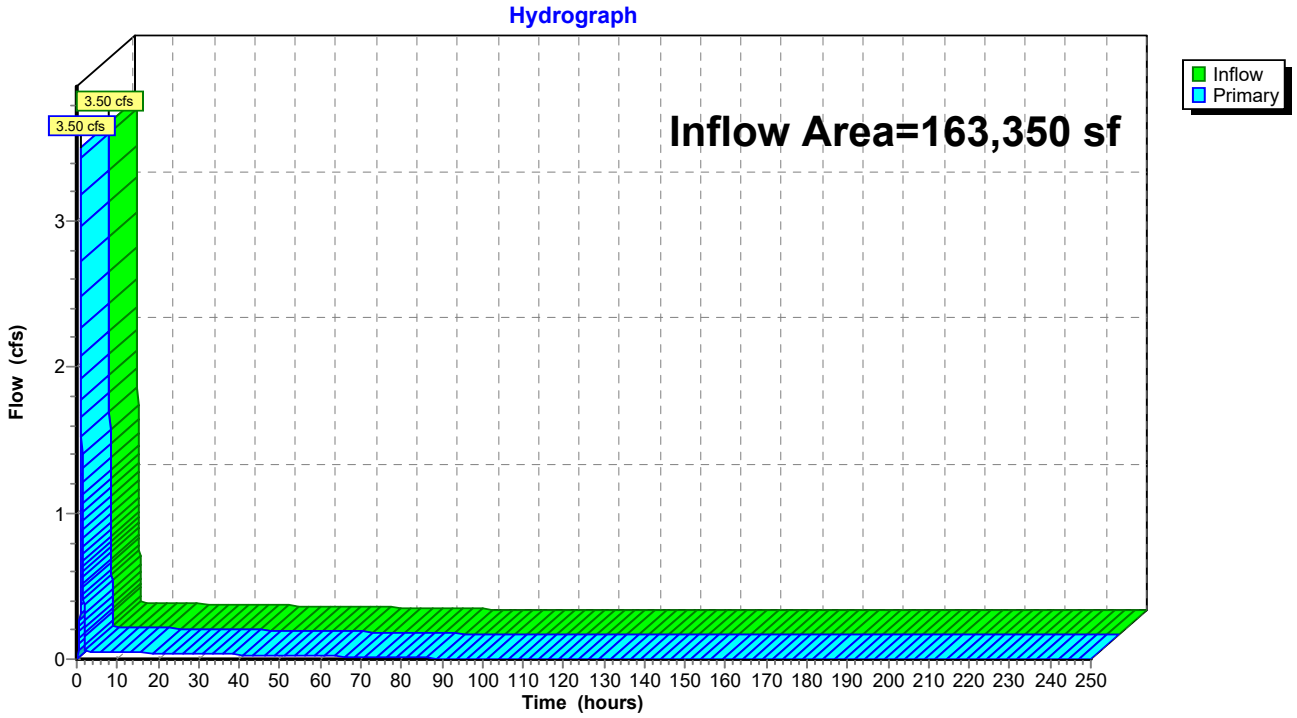


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 163,350 sf,100.00% Impervious, Inflow Depth = 0.98" for 1.2IN-2HR event
Inflow = 3.50 cfs @ 1.11 hrs, Volume= 13,405 cf
Primary = 3.50 cfs @ 1.11 hrs, Volume= 13,405 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)

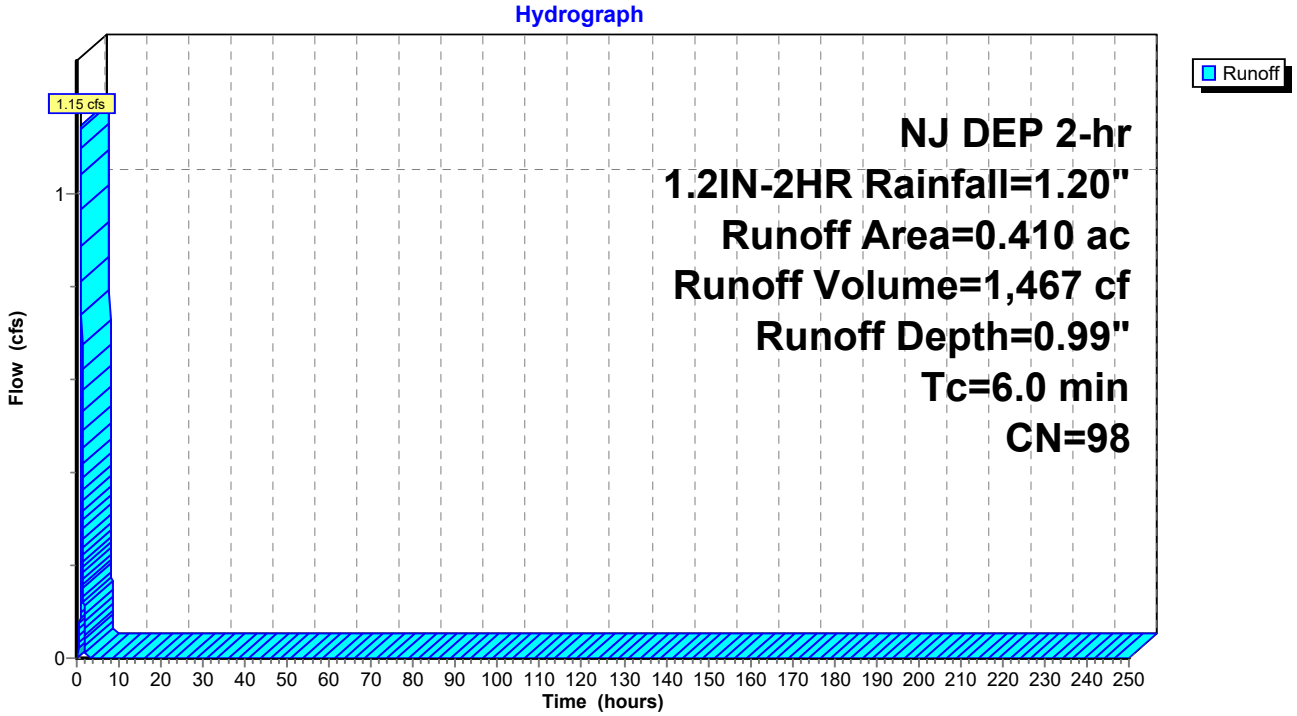
Runoff = 1.15 cfs @ 1.11 hrs, Volume= 1,467 cf, Depth= 0.99"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG C
0.410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)



Summary for Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)

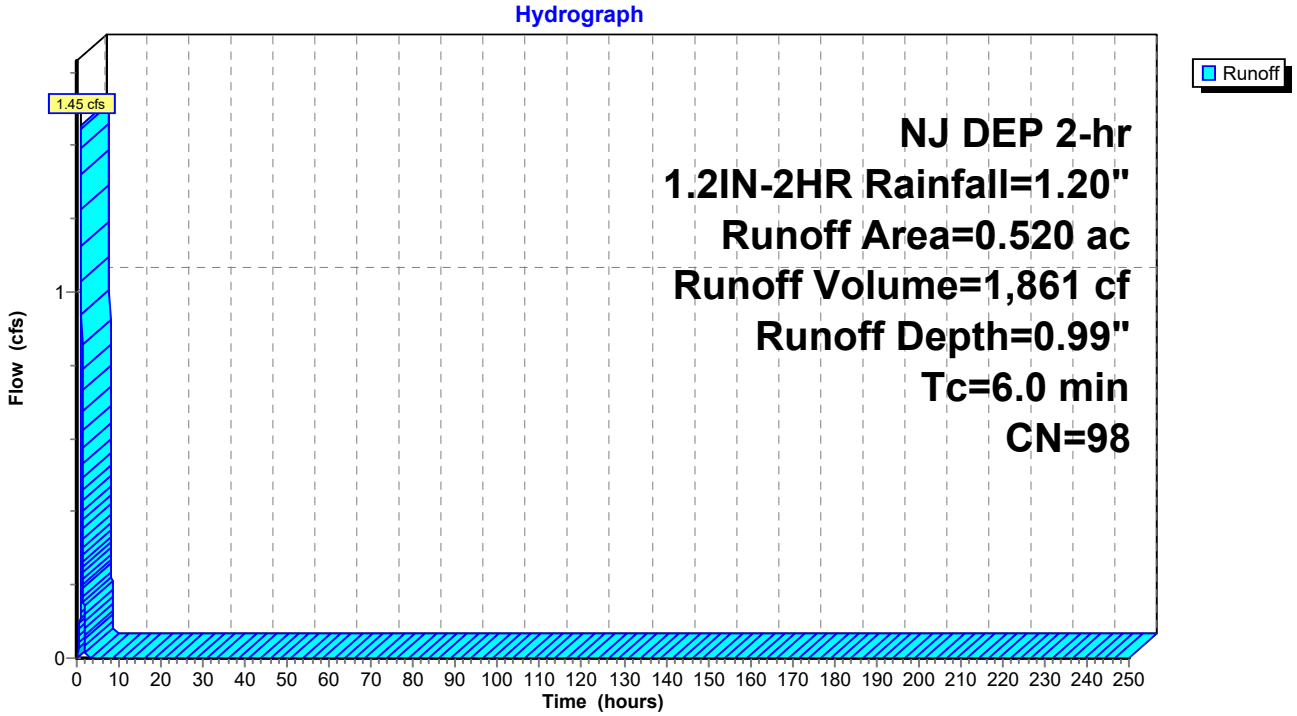
Runoff = 1.45 cfs @ 1.11 hrs, Volume= 1,861 cf, Depth= 0.99"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)



Summary for Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)

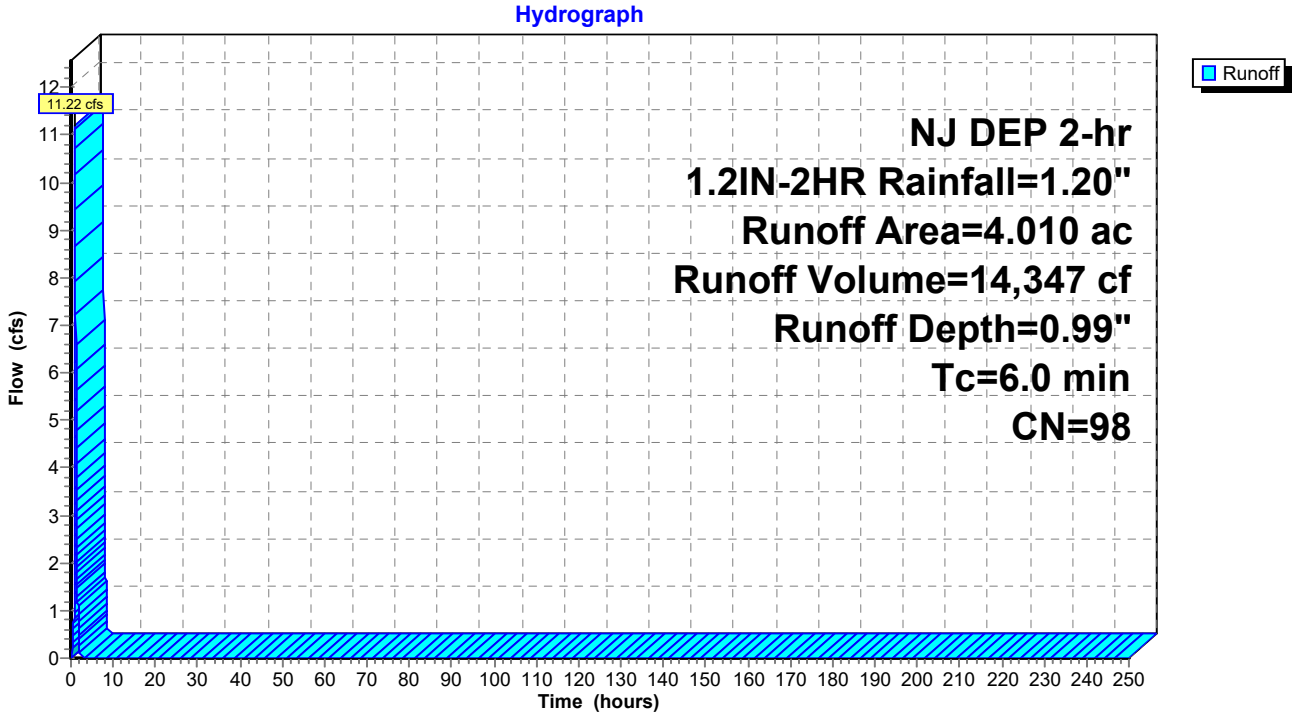
Runoff = 11.22 cfs @ 1.11 hrs, Volume= 14,347 cf, Depth= 0.99"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
4.010	98	Paved parking, HSG C
4.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)



Summary for Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)

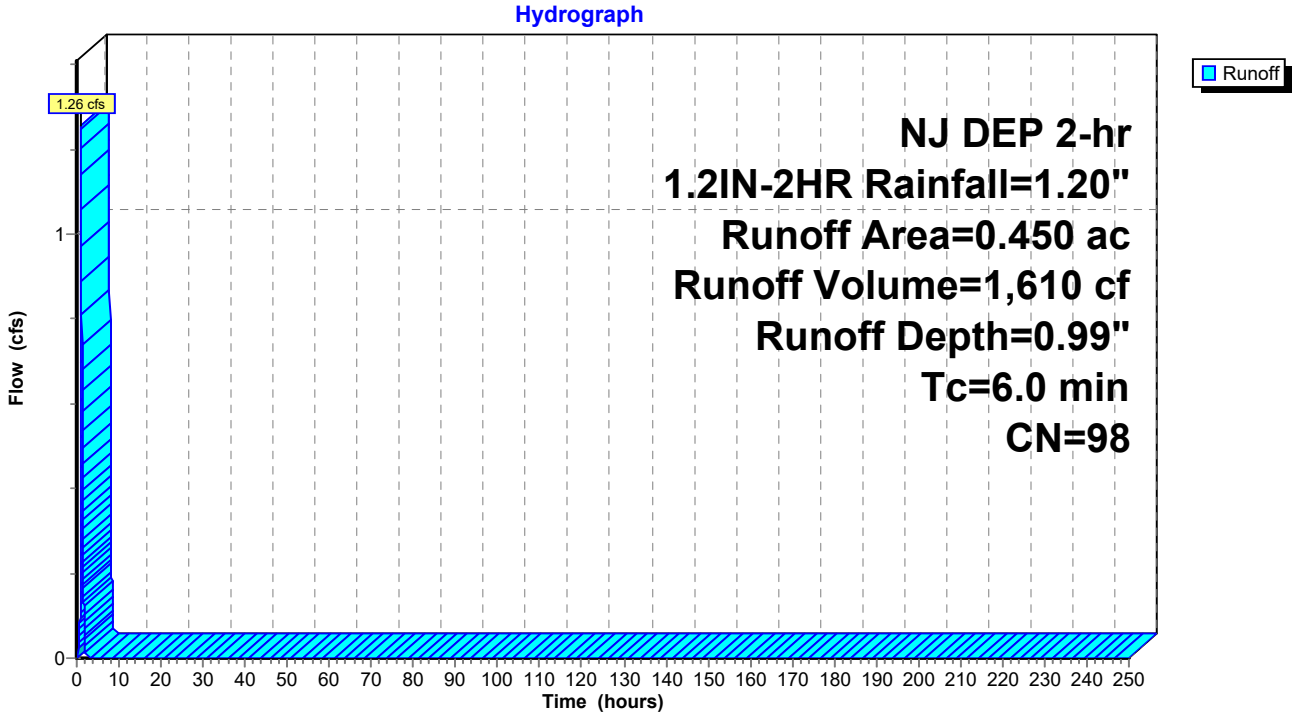
Runoff = 1.26 cfs @ 1.11 hrs, Volume= 1,610 cf, Depth= 0.99"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.450	98	Paved parking, HSG C
0.450		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)



Summary for Pond 24P: Underground Detention System 3B (North)

Inflow Area = 194,278 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 12.48 cfs @ 1.11 hrs, Volume= 15,958 cf
Outflow = 0.90 cfs @ 1.83 hrs, Volume= 15,943 cf, Atten= 93%, Lag= 43.3 min
Primary = 0.90 cfs @ 1.83 hrs, Volume= 15,943 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 857.85' @ 1.83 hrs Storage= 12,945 cf

Plug-Flow detention time= 228.5 min calculated for 15,942 cf (100% of inflow)
Center-of-Mass det. time= 229.0 min (299.4 - 70.4)

Volume	Invert	Avail.Storage	Storage Description
#1	855.75'	37,071 cf	**Storm Trap - 6'-0" Single Trap Stage Data** Listed below

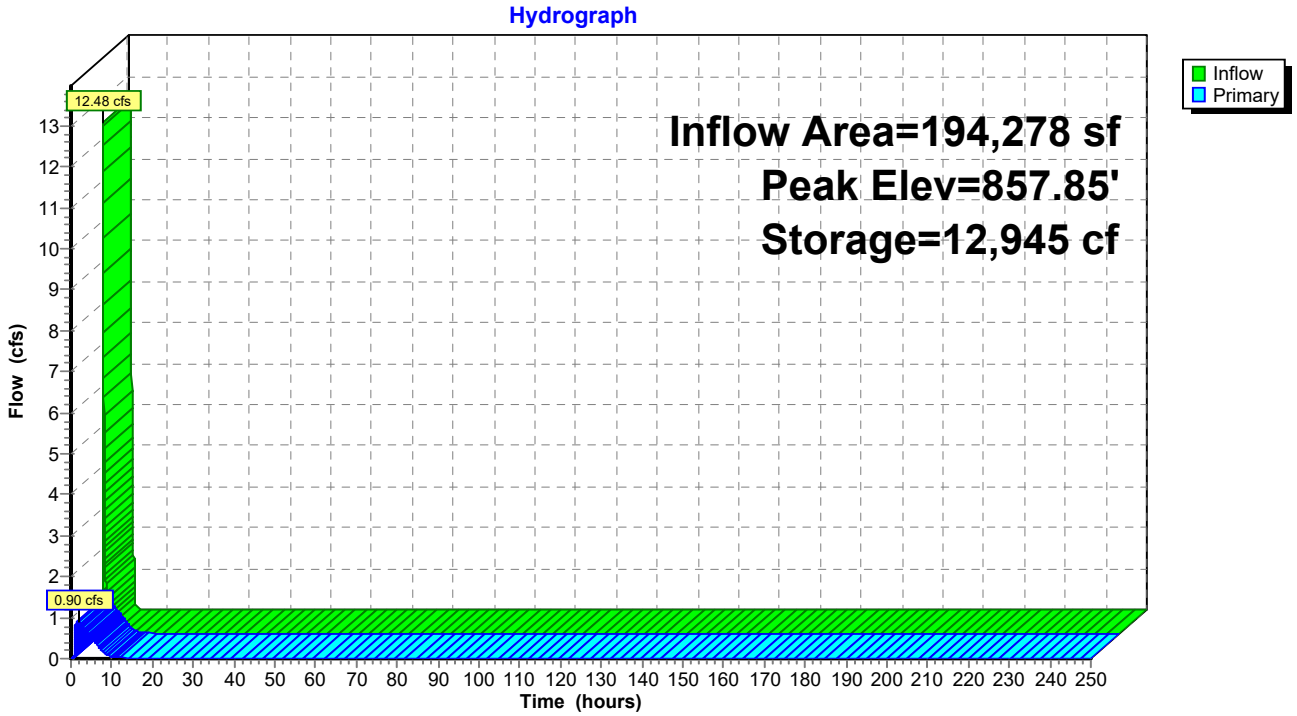
Elevation (feet)	Cum.Store (cubic-feet)
855.75	0
856.00	1,544
856.25	3,089
856.50	4,634
856.75	6,179
857.00	7,723
857.25	9,268
857.50	10,813
857.75	12,357
858.00	13,902
858.25	15,446
858.50	16,991
858.75	18,535
859.00	20,080
859.25	21,625
859.50	23,170
859.75	24,714
860.00	26,259
860.25	27,804
860.50	29,348
860.75	30,893
861.00	32,437
861.25	33,982
861.50	35,527
861.75	37,071

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**24.0" Round Culvert** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.85' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2	Device 1	855.75'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	859.60'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	861.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.90 cfs @ 1.83 hrs HW=857.85' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.90 cfs of 17.75 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.90 cfs @ 6.61 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Underground Detention System 3B (North)



Summary for Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)

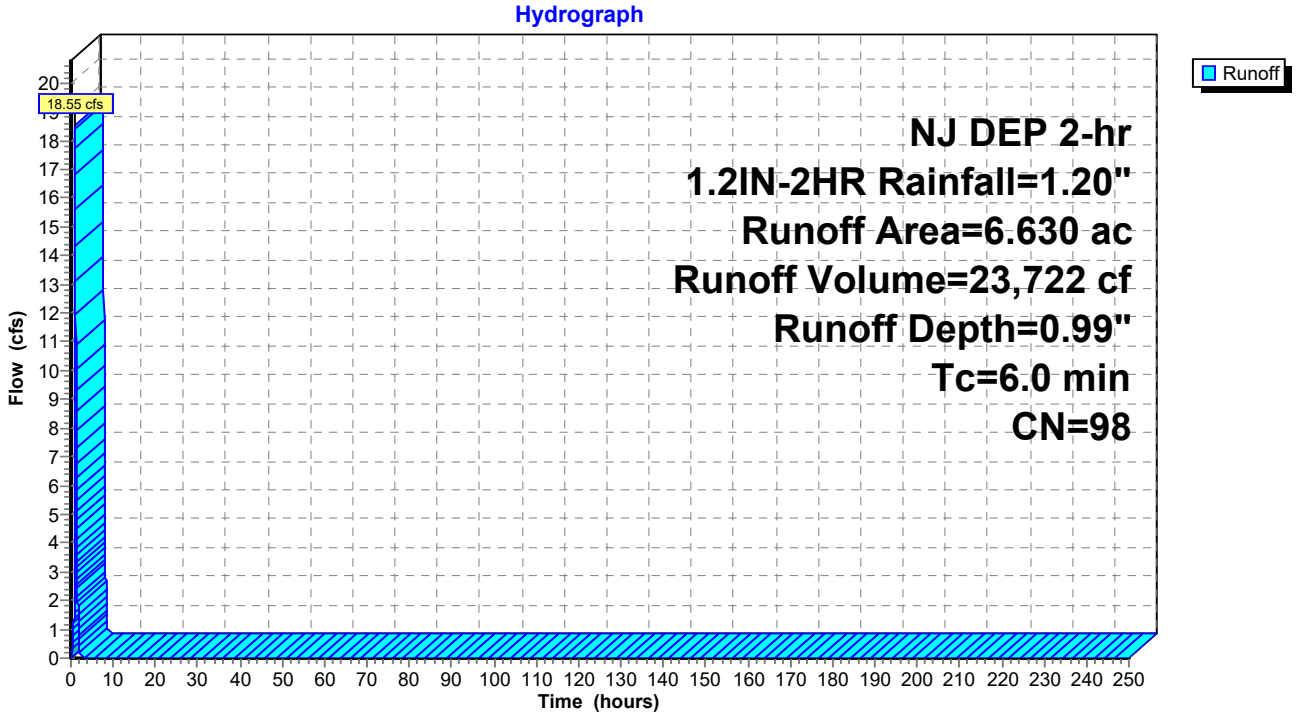
Runoff = 18.55 cfs @ 1.11 hrs, Volume= 23,722 cf, Depth= 0.99"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
6.630	98	Paved parking, HSG C
6.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)



Summary for Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)

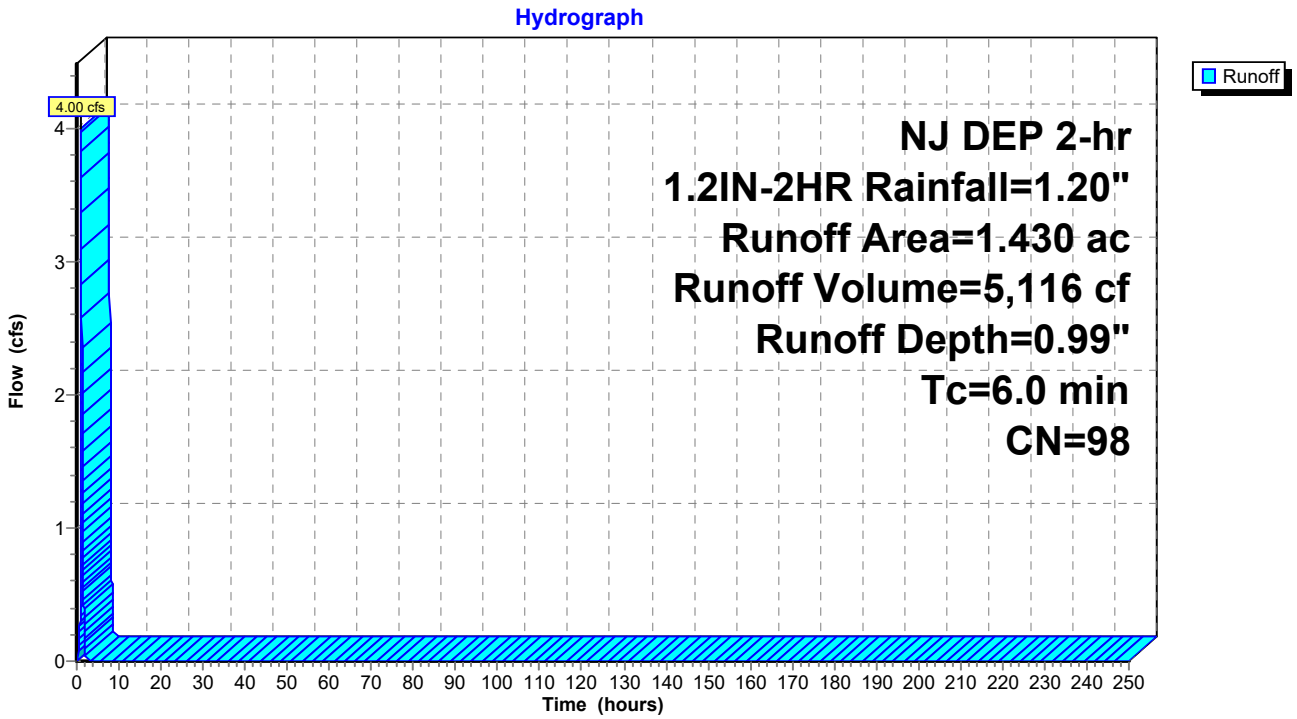
Runoff = 4.00 cfs @ 1.11 hrs, Volume= 5,116 cf, Depth= 0.99"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
1.430	98	Paved parking, HSG C
1.430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)



Summary for Pond 27: Underground Detention System 3A (South)

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 22.55 cfs @ 1.11 hrs, Volume= 28,838 cf
Outflow = 6.64 cfs @ 1.28 hrs, Volume= 22,200 cf, Atten= 71%, Lag= 10.4 min
Primary = 6.64 cfs @ 1.28 hrs, Volume= 22,200 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 857.74' @ 1.28 hrs Storage= 18,141 cf

Plug-Flow detention time= 62.7 min calculated for 22,200 cf (77% of inflow)
Center-of-Mass det. time= 55.5 min (125.9 - 70.4)

Volume	Invert	Avail.Storage	Storage Description
#1	855.00'	39,792 cf	**Storm Trap - 6'-0" Double Trap Stage Data** Listed below

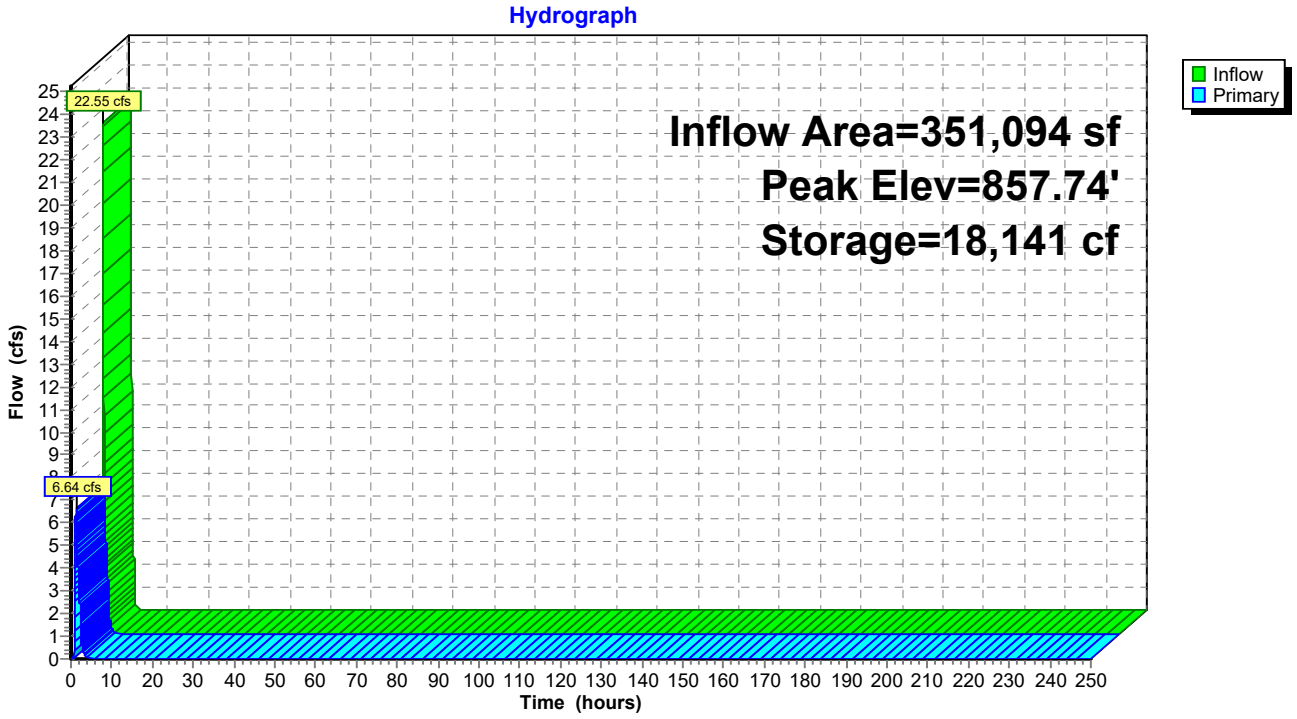
Elevation (feet)	Cum.Store (cubic-feet)
855.00	0
855.25	1,658
855.50	3,316
855.75	4,974
856.00	6,632
856.25	8,290
856.50	9,948
856.75	11,066
857.00	13,264
857.25	14,922
857.50	16,580
857.75	18,238
858.00	19,896
858.25	21,554
858.50	23,212
858.75	24,870
859.00	26,528
859.25	28,186
859.50	29,844
859.75	31,502
860.00	33,160
860.25	34,818
860.50	36,476
860.75	38,134
861.00	39,792

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**30.0" Round SCM Outfall 300A** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.86' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

#2	Device 1	856.00'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	857.20'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	858.20'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.64 cfs @ 1.28 hrs HW=857.74' TW=0.00' (Dynamic Tailwater)
└─**1=SCM Outfall 300A** (Passes 6.64 cfs of 22.93 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 4.96 cfs @ 5.62 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 1.68 cfs @ 2.49 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 27: Underground Detention System 3A (South)

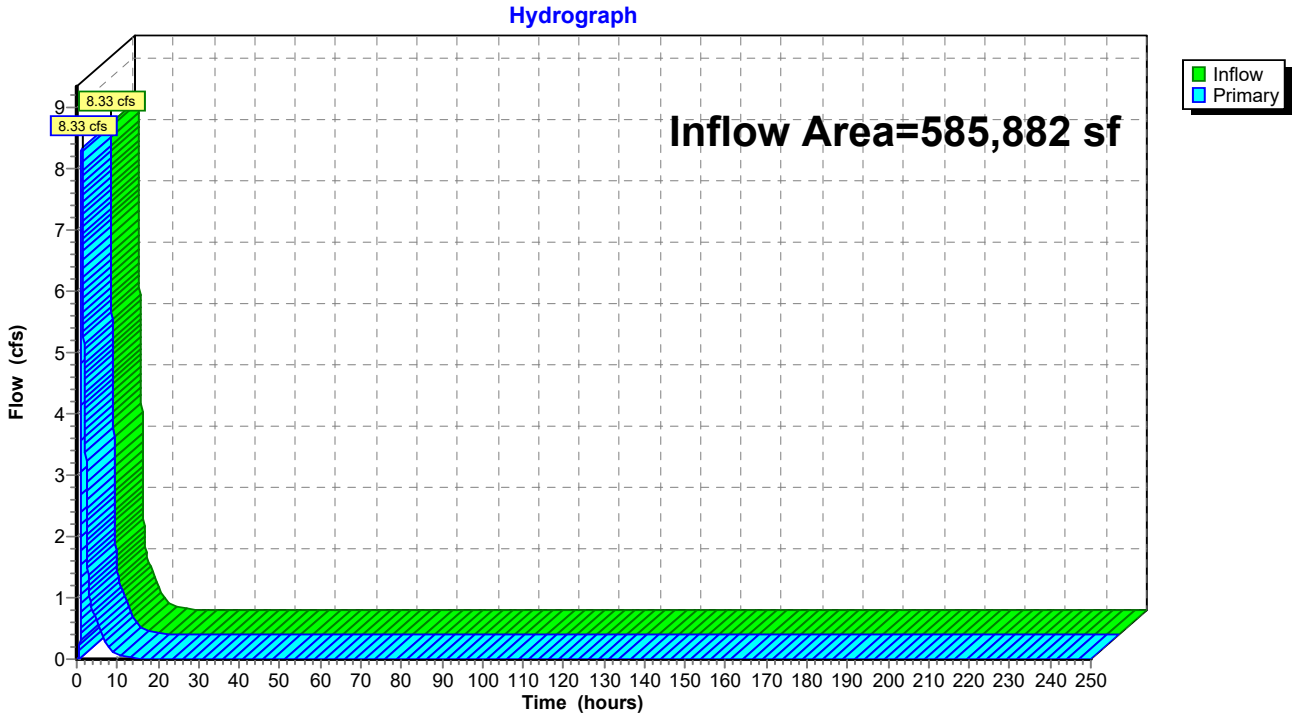


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 585,882 sf,100.00% Impervious, Inflow Depth = 0.85" for 1.2IN-2HR event
Inflow = 8.33 cfs @ 1.25 hrs, Volume= 41,470 cf
Primary = 8.33 cfs @ 1.25 hrs, Volume= 41,470 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)

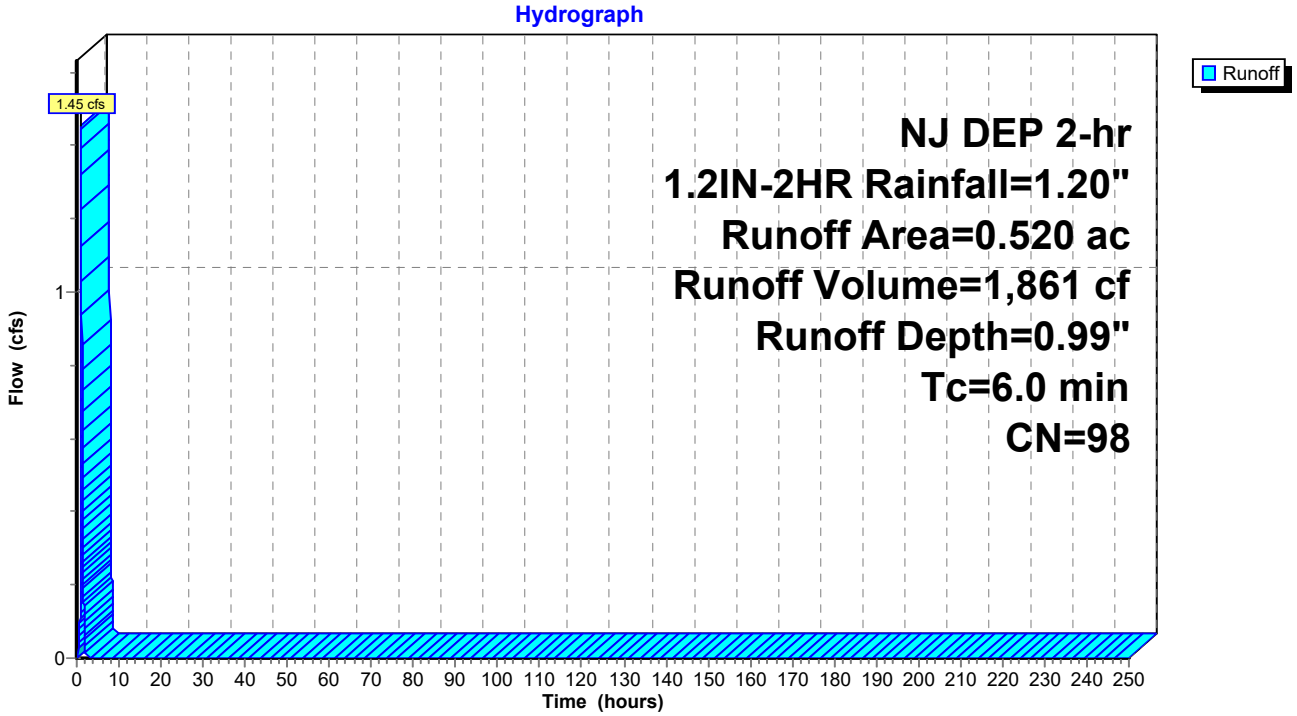
Runoff = 1.45 cfs @ 1.11 hrs, Volume= 1,861 cf, Depth= 0.99"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)



Summary for Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

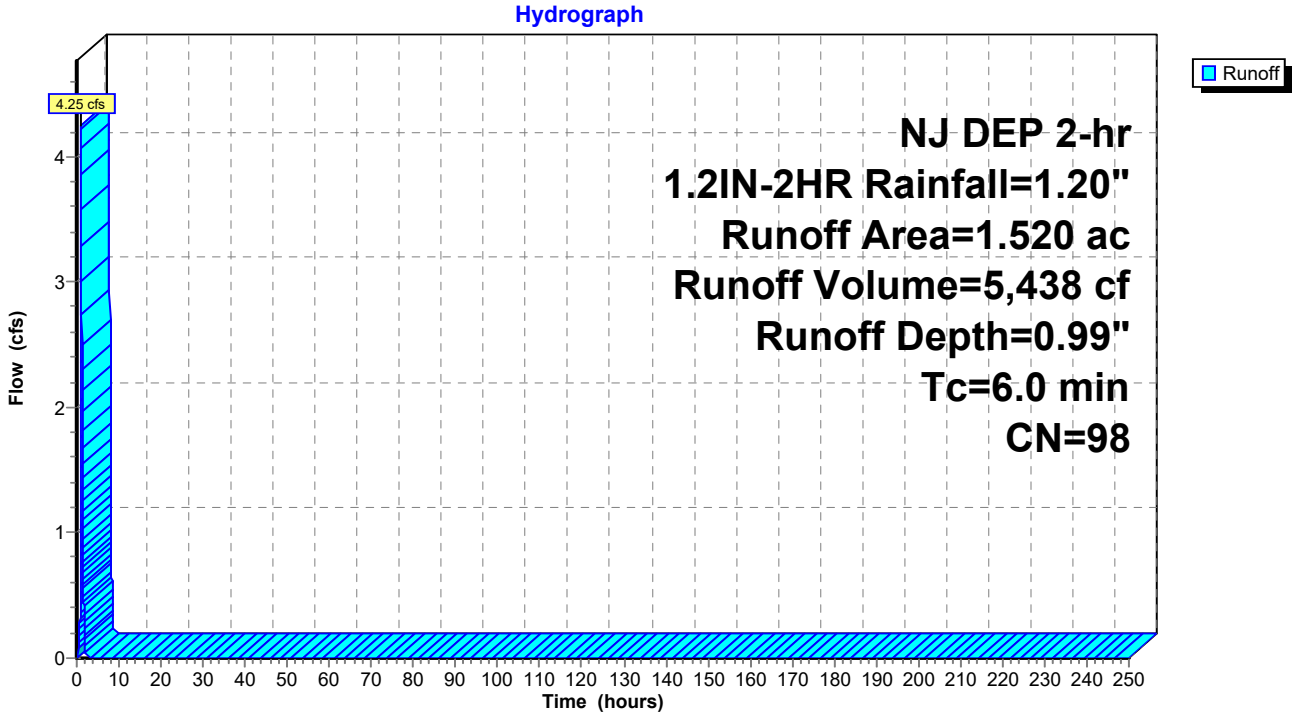
Runoff = 4.25 cfs @ 1.11 hrs, Volume= 5,438 cf, Depth= 0.99"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2IN-2HR Rainfall=1.20"

Area (ac)	CN	Description
1.520	98	Paved parking, HSG C
1.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

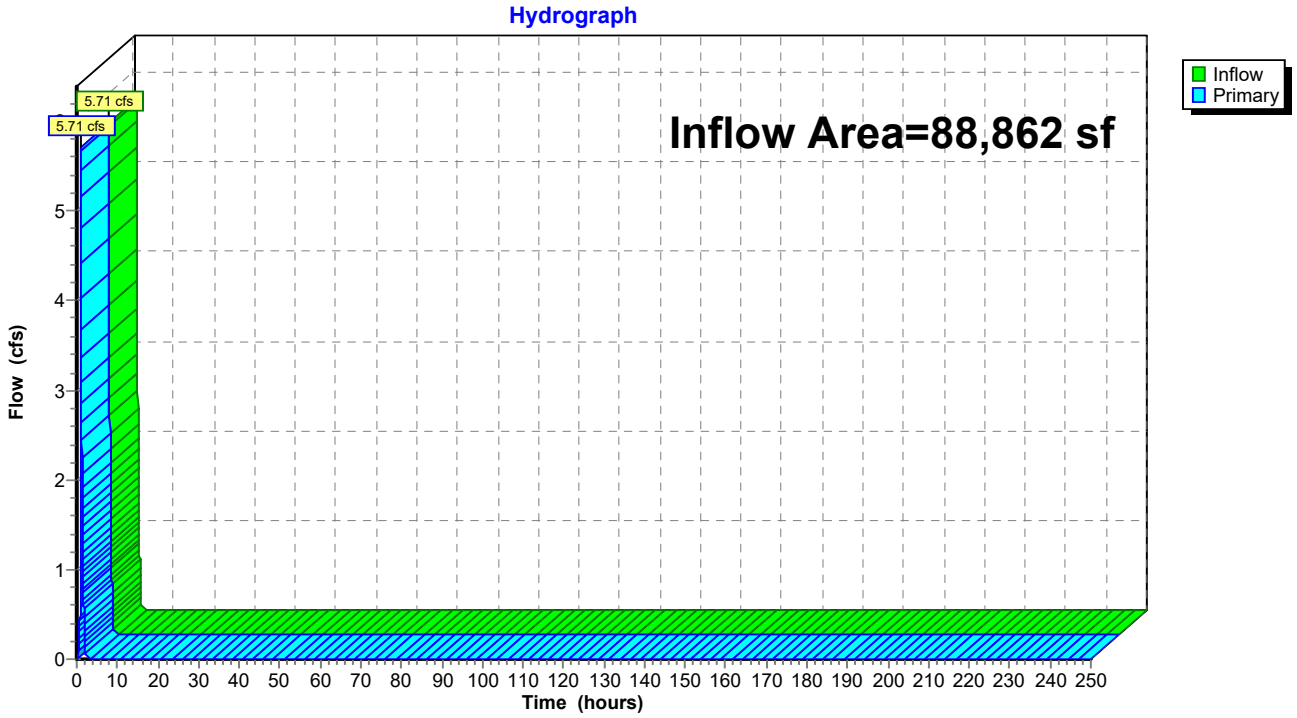


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 88,862 sf,100.00% Impervious, Inflow Depth = 0.99" for 1.2IN-2HR event
Inflow = 5.71 cfs @ 1.11 hrs, Volume= 7,299 cf
Primary = 5.71 cfs @ 1.11 hrs, Volume= 7,299 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

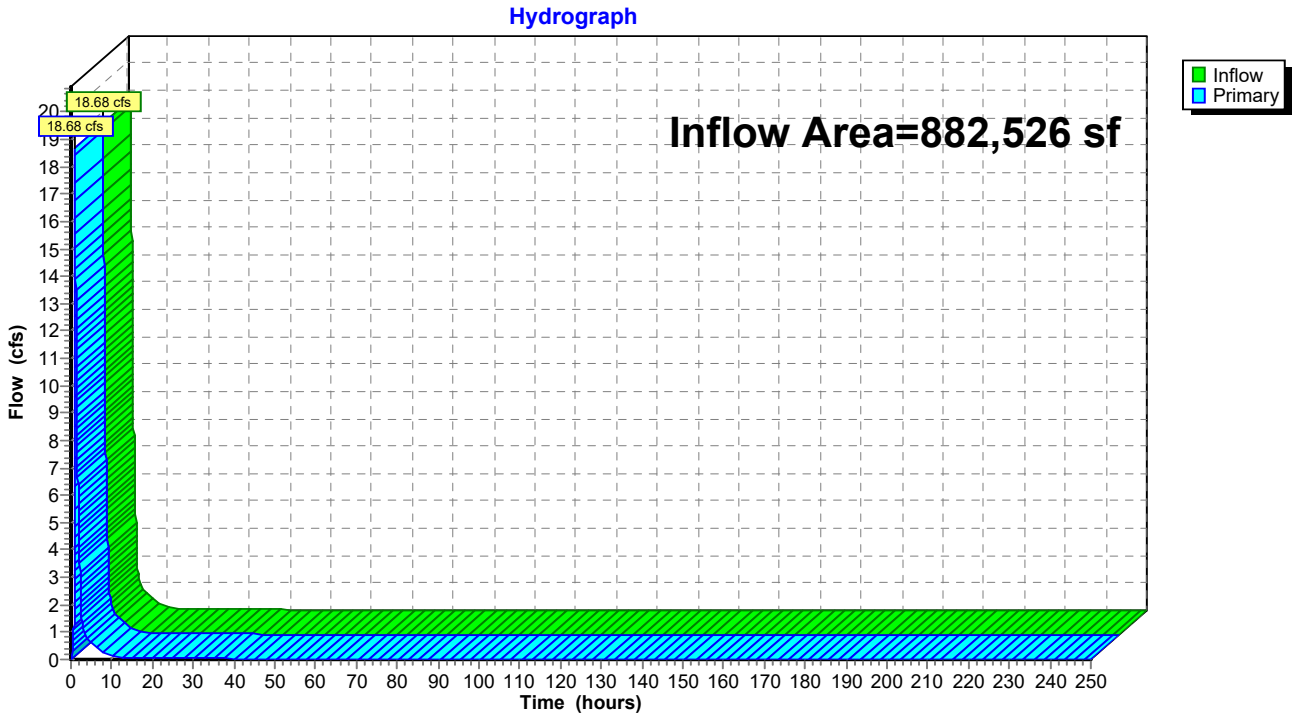


Summary for Link 33: POA 001

Inflow Area = 882,526 sf,100.00% Impervious, Inflow Depth = 0.90" for 1.2IN-2HR event
Inflow = 18.68 cfs @ 1.12 hrs, Volume= 65,824 cf
Primary = 18.68 cfs @ 1.12 hrs, Volume= 65,824 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Within LOD)

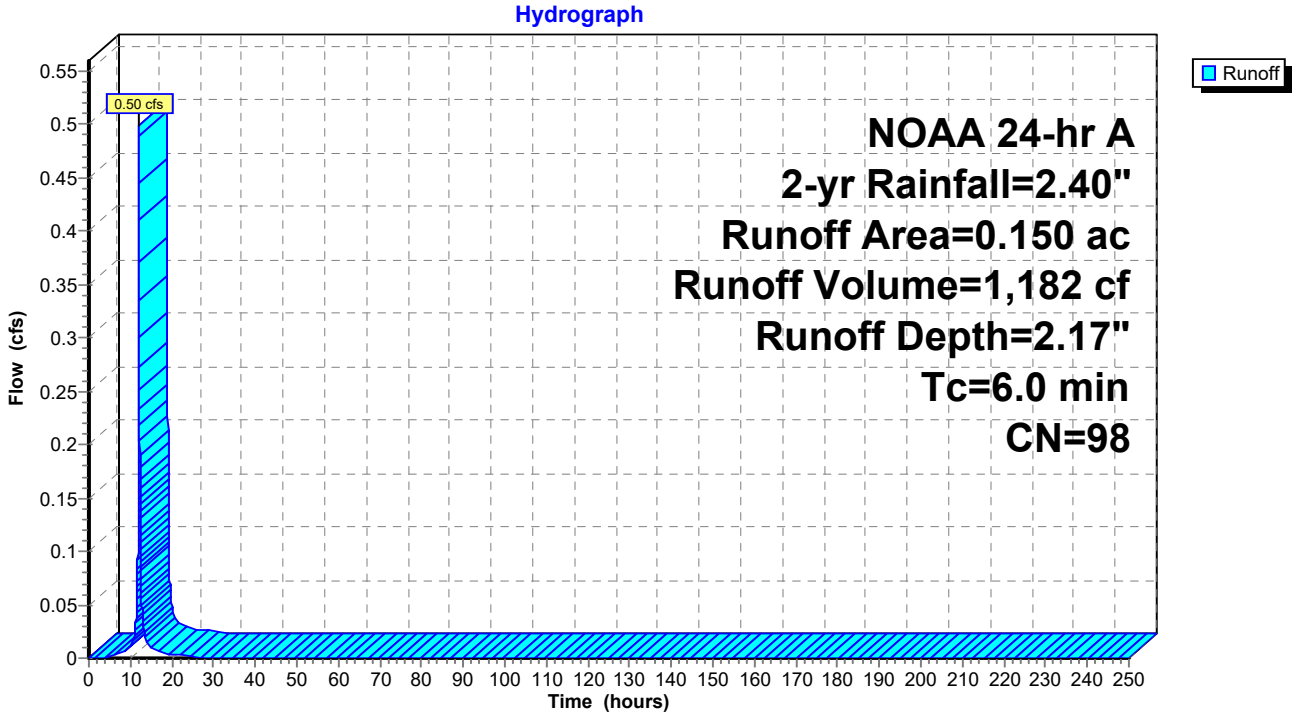
Runoff = 0.50 cfs @ 12.13 hrs, Volume= 1,182 cf, Depth= 2.17"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Within LOD)



Summary for Subcatchment 11: Post-Development DA-1 (Outside LOD)

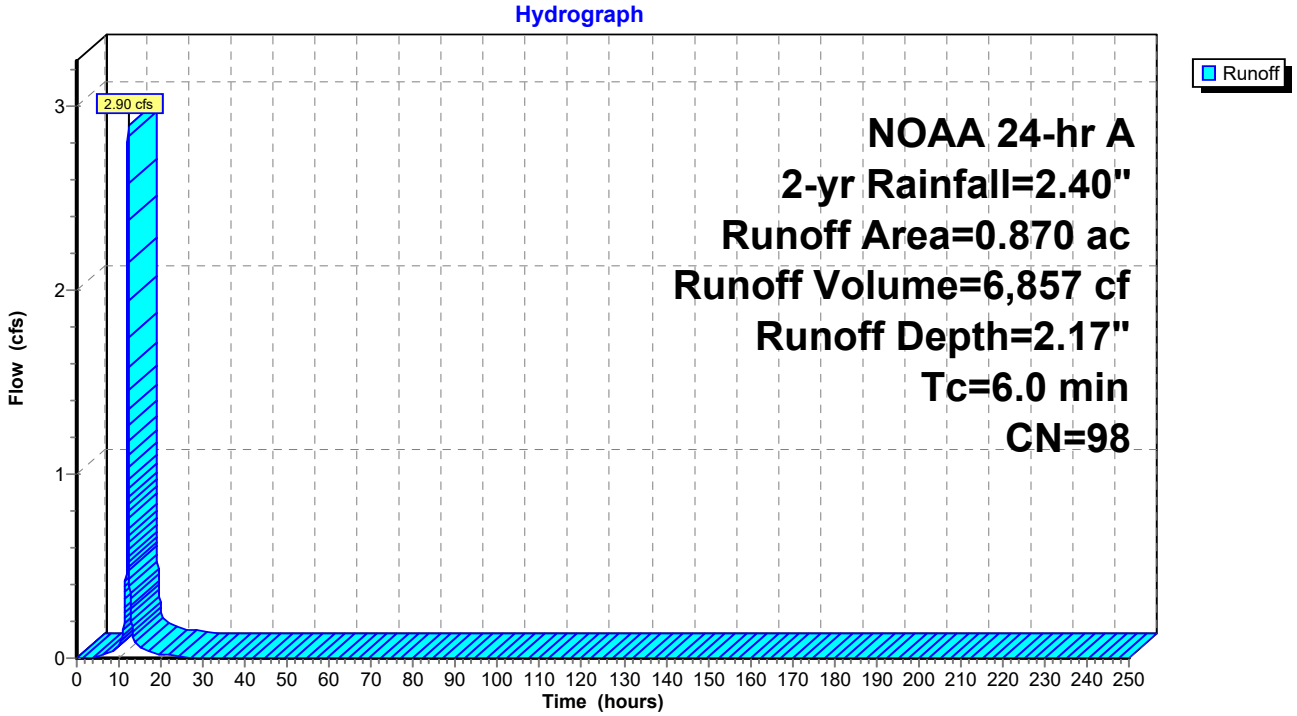
Runoff = 2.90 cfs @ 12.13 hrs, Volume= 6,857 cf, Depth= 2.17"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.870	98	Paved parking, HSG C
0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 11: Post-Development DA-1 (Outside LOD)

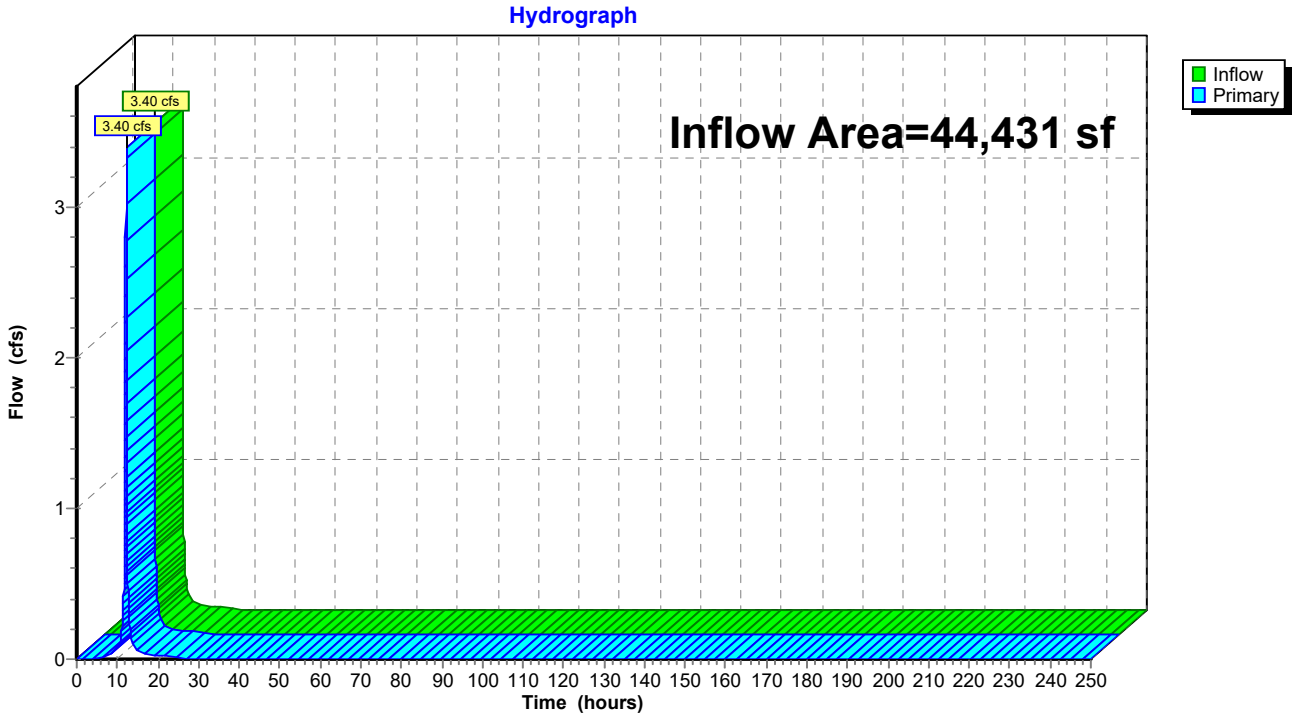


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 44,431 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 3.40 cfs @ 12.13 hrs, Volume= 8,040 cf
Primary = 3.40 cfs @ 12.13 hrs, Volume= 8,040 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

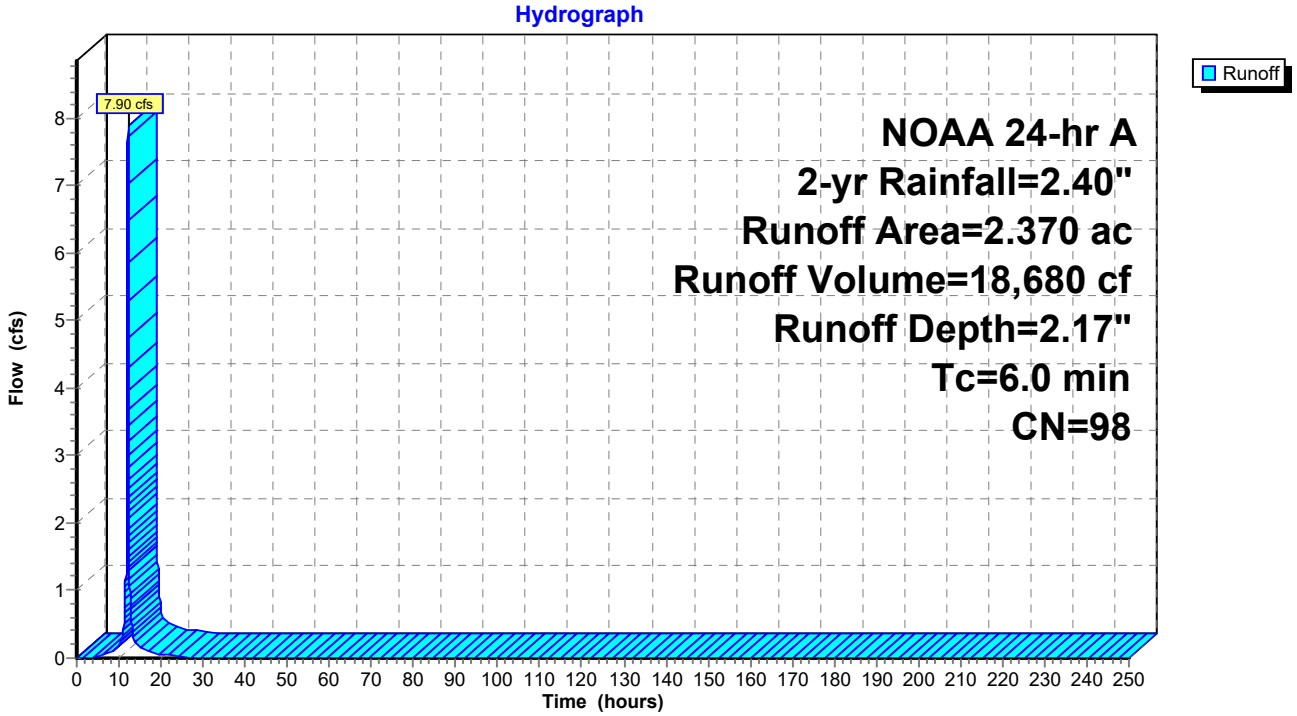
Runoff = 7.90 cfs @ 12.13 hrs, Volume= 18,680 cf, Depth= 2.17"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
2.370	98	Paved parking, HSG C
2.370		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)

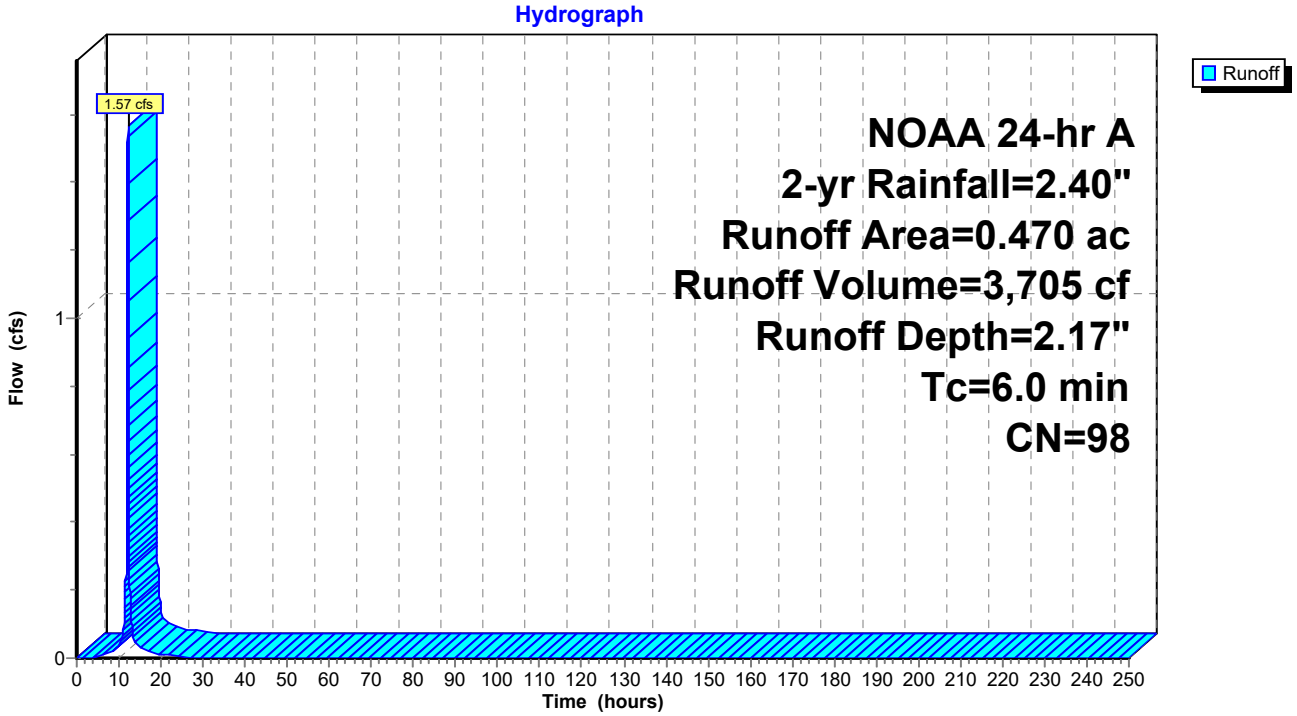
Runoff = 1.57 cfs @ 12.13 hrs, Volume= 3,705 cf, Depth= 2.17"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG C
0.470		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)



Summary for Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)

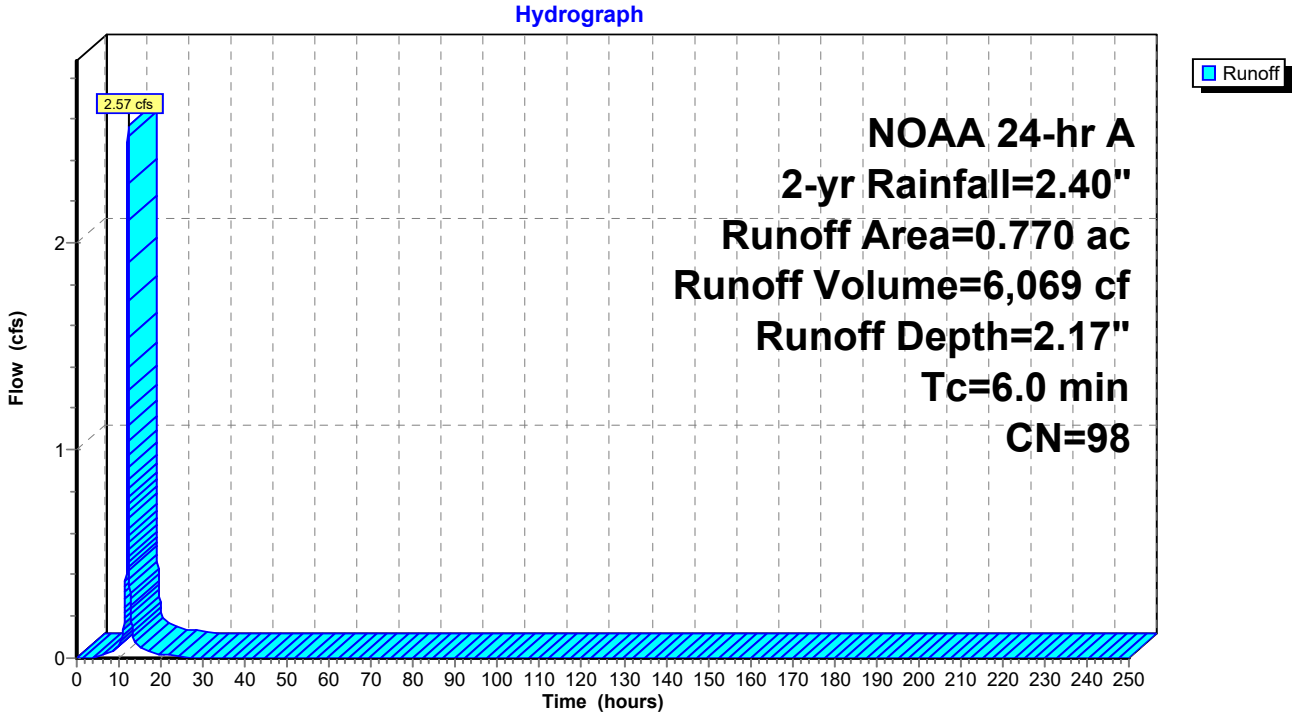
Runoff = 2.57 cfs @ 12.13 hrs, Volume= 6,069 cf, Depth= 2.17"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.770	98	Paved parking, HSG C
0.770		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 8.37 cfs @ 12.13 hrs, Volume= 19,784 cf
Outflow = 8.37 cfs @ 12.13 hrs, Volume= 19,784 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.37 cfs @ 12.13 hrs, Volume= 19,784 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 20 : Post-Development Discharge Point 2

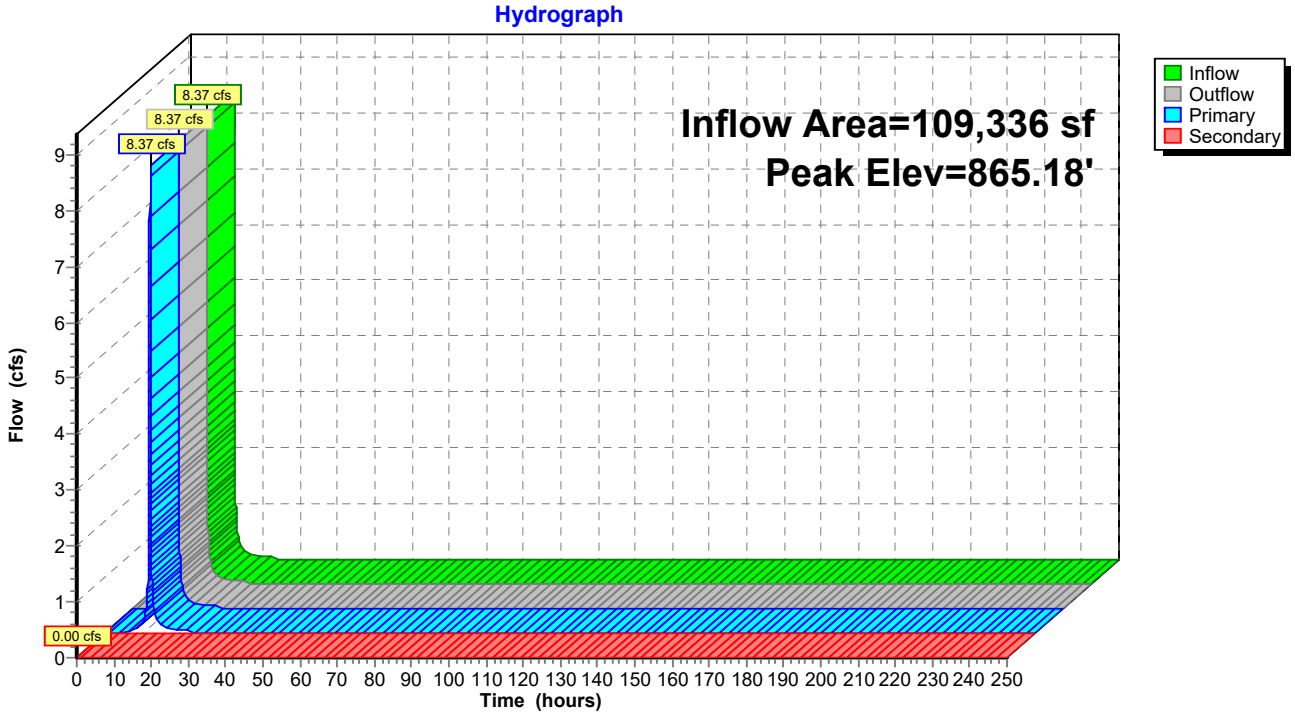
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.18' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=8.26 cfs @ 12.13 hrs HW=865.18' TW=864.84' (Dynamic Tailwater)
↑└**1=Culvert to MRC** (Outlet Controls 8.26 cfs @ 3.47 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=863.70' TW=0.00' (Dynamic Tailwater)
↑└**2=> 2YR Storm Overflow** (Controls 0.00 cfs)
↑└**3=Diversion Weir** (Controls 0.00 cfs)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

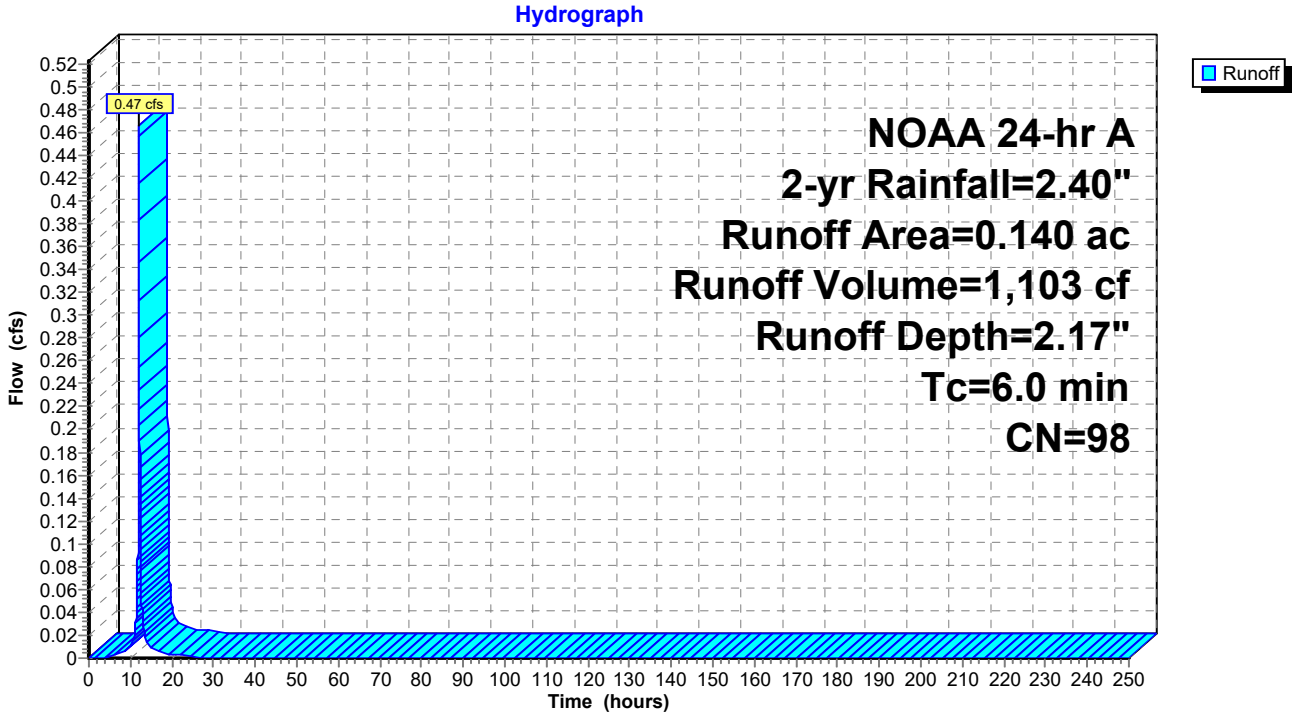
Runoff = 0.47 cfs @ 12.13 hrs, Volume= 1,103 cf, Depth= 2.17"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 8.37 cfs @ 12.13 hrs, Volume= 19,784 cf
Outflow = 8.37 cfs @ 12.13 hrs, Volume= 19,784 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.18 cfs @ 12.13 hrs, Volume= 9,892 cf
Routed to Pond 18 : MRC Cell 2A
Secondary = 4.18 cfs @ 12.13 hrs, Volume= 9,892 cf
Routed to Pond 19 : MRC Cell 2B

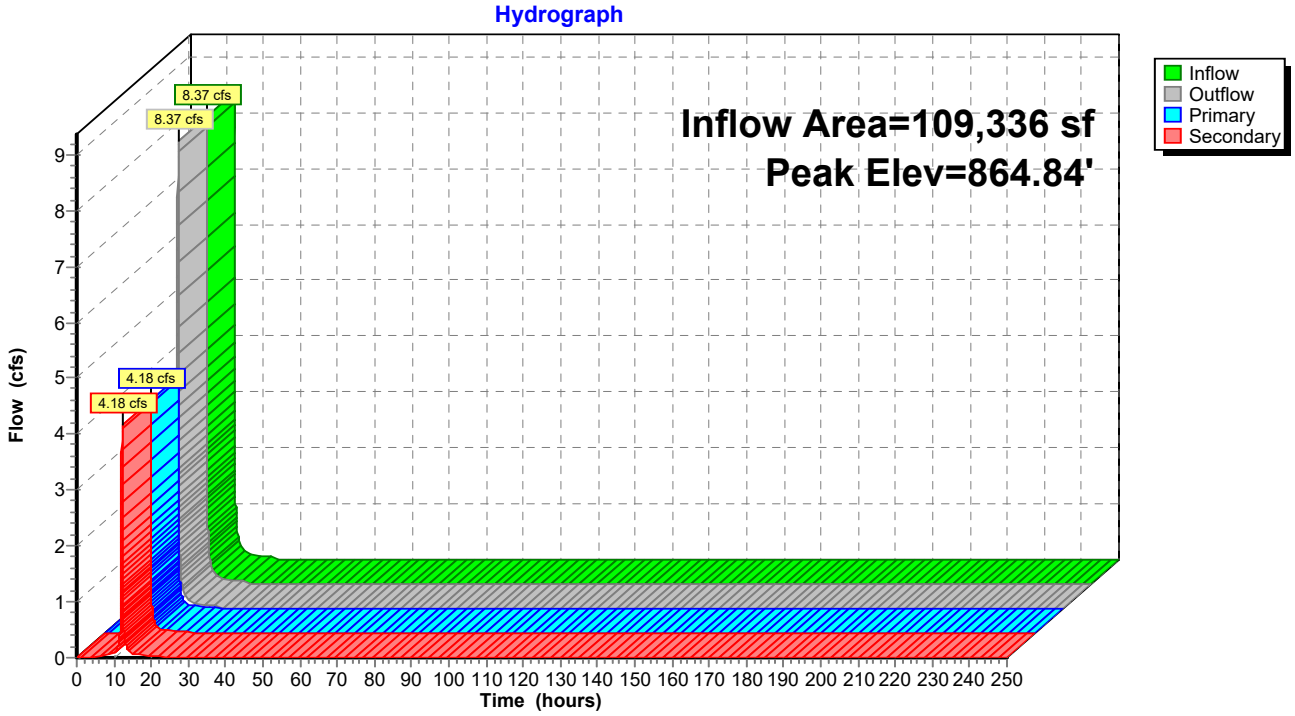
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.84' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.18 cfs @ 12.13 hrs HW=864.84' TW=862.29' (Dynamic Tailwater)
↑└**1=Culvert to MRC Cell 2A** (Barrel Controls 4.18 cfs @ 3.62 fps)

Secondary OutFlow Max=4.18 cfs @ 12.13 hrs HW=864.84' TW=862.29' (Dynamic Tailwater)
↑└**2=Culvert to MRC Cell 2B** (Barrel Controls 4.18 cfs @ 3.62 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18: MRC Cell 2A

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 1.09" for 2-yr event
Inflow = 4.18 cfs @ 12.13 hrs, Volume= 9,892 cf
Outflow = 1.04 cfs @ 12.35 hrs, Volume= 9,885 cf, Atten= 75%, Lag= 13.3 min
Primary = 1.04 cfs @ 12.35 hrs, Volume= 9,885 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.92' @ 12.35 hrs Storage= 5,843 cf

Plug-Flow detention time= 1,483.4 min calculated for 9,884 cf (100% of inflow)
Center-of-Mass det. time= 1,483.4 min (2,241.9 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

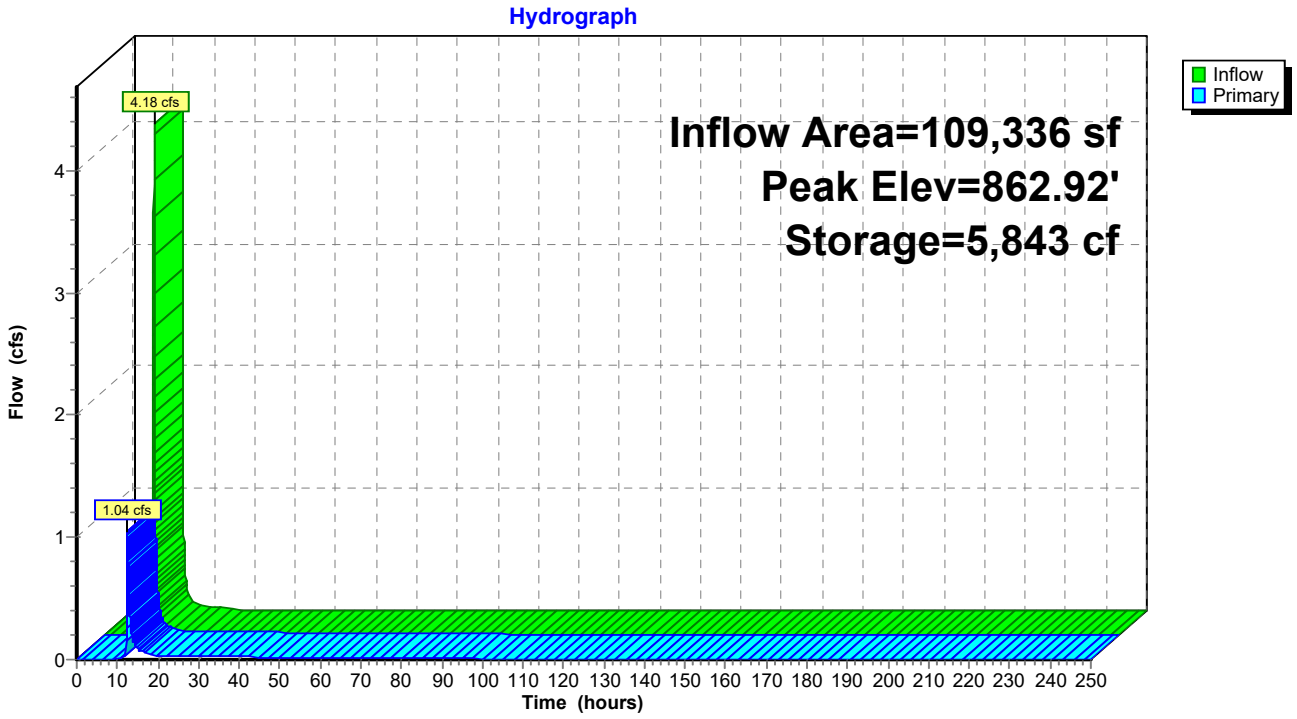
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=1.04 cfs @ 12.35 hrs HW=862.92' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 1.04 cfs of 11.05 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 8.18 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 1.01 cfs @ 2.20 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18: MRC Cell 2A



Summary for Pond 19: MRC Cell 2B

Inflow = 4.18 cfs @ 12.13 hrs, Volume= 9,892 cf
Outflow = 1.04 cfs @ 12.35 hrs, Volume= 9,885 cf, Atten= 75%, Lag= 13.3 min
Primary = 1.04 cfs @ 12.35 hrs, Volume= 9,885 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 862.92' @ 12.35 hrs Storage= 5,843 cf

Plug-Flow detention time= 1,483.4 min calculated for 9,884 cf (100% of inflow)
Center-of-Mass det. time= 1,483.4 min (2,241.9 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

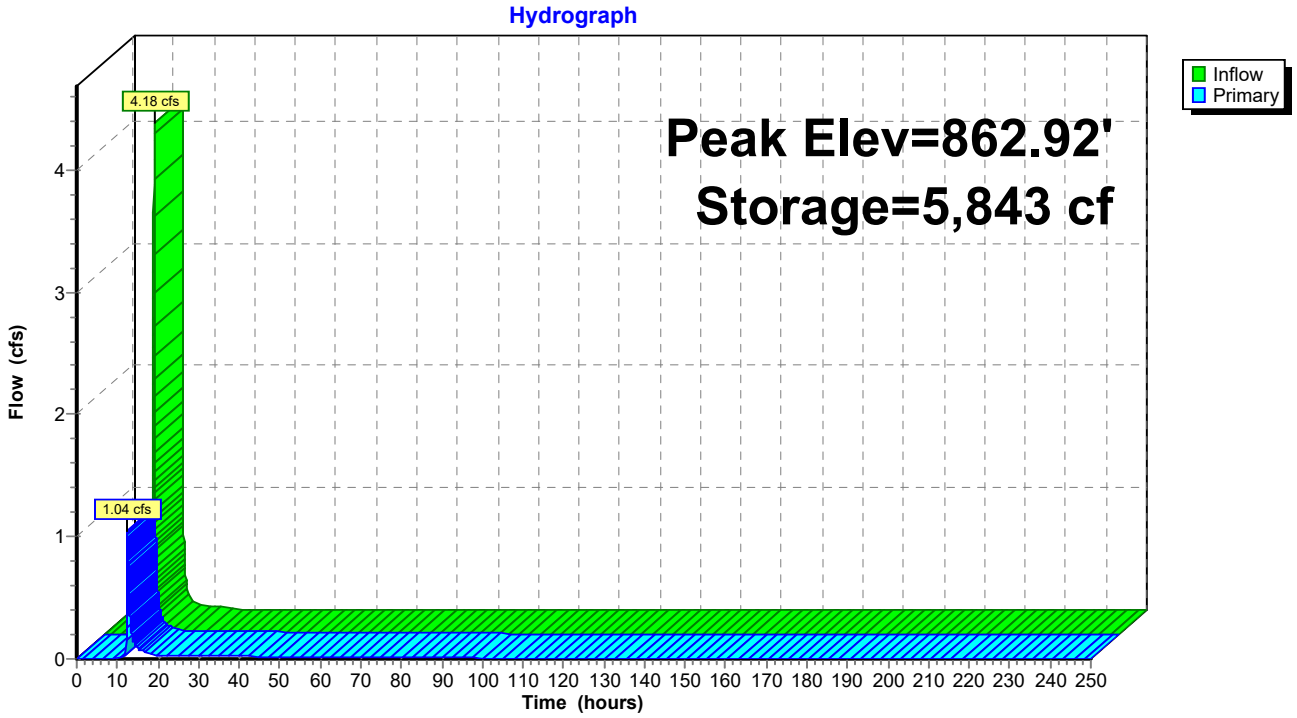
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=1.04 cfs @ 12.35 hrs HW=862.92' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 1.04 cfs of 11.05 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 8.18 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 1.01 cfs @ 2.20 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19: MRC Cell 2B

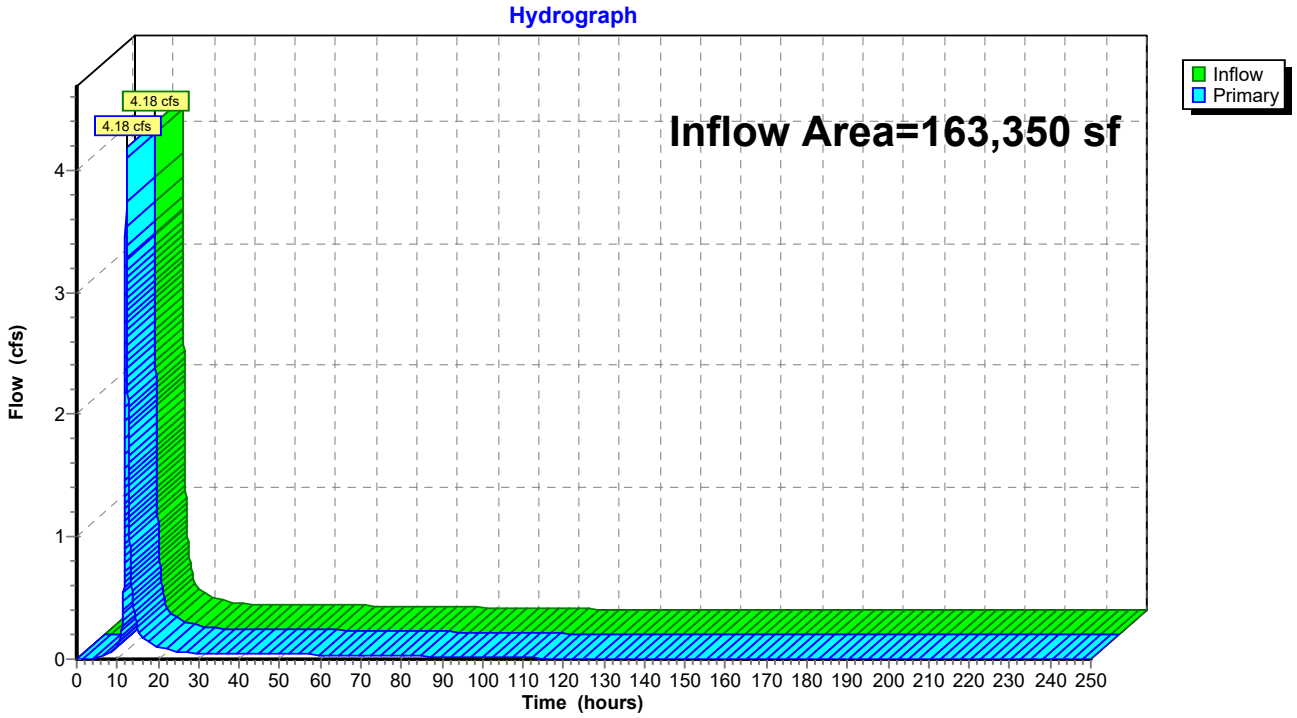


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 163,350 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 4.18 cfs @ 12.13 hrs, Volume= 29,543 cf
Primary = 4.18 cfs @ 12.13 hrs, Volume= 29,543 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)

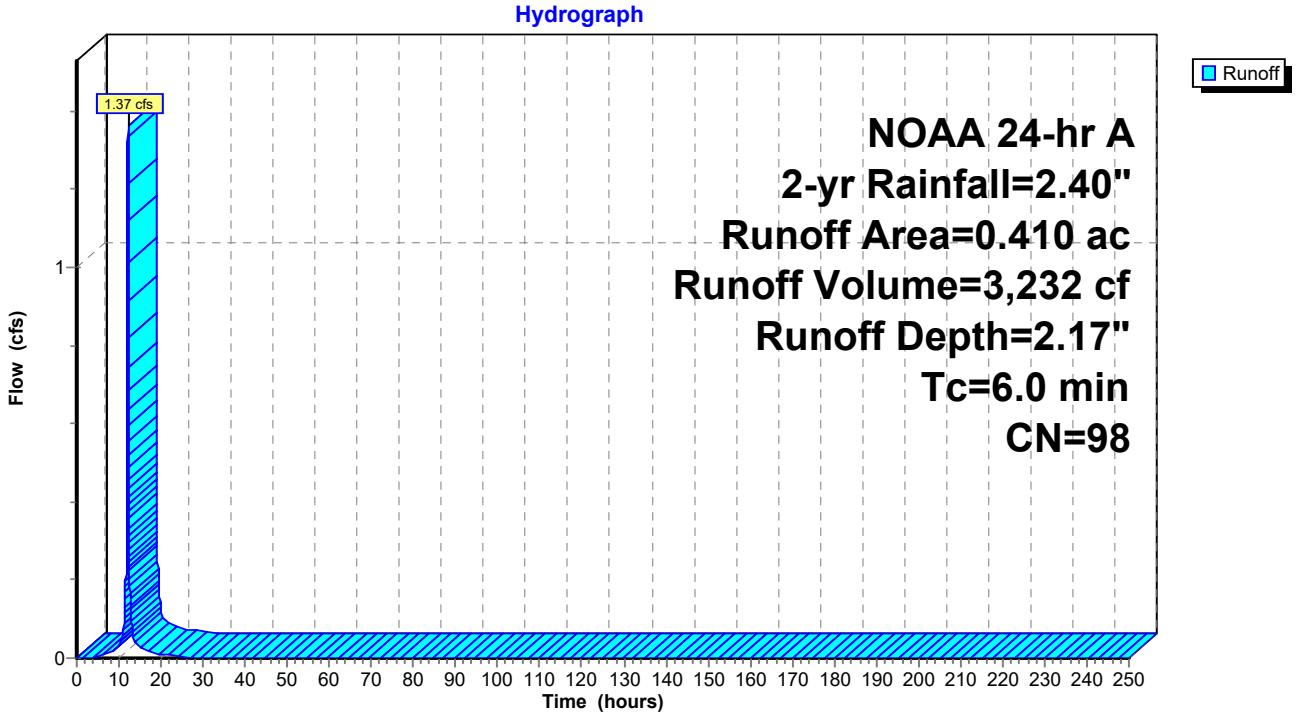
Runoff = 1.37 cfs @ 12.13 hrs, Volume= 3,232 cf, Depth= 2.17"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG C
0.410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)



Summary for Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)

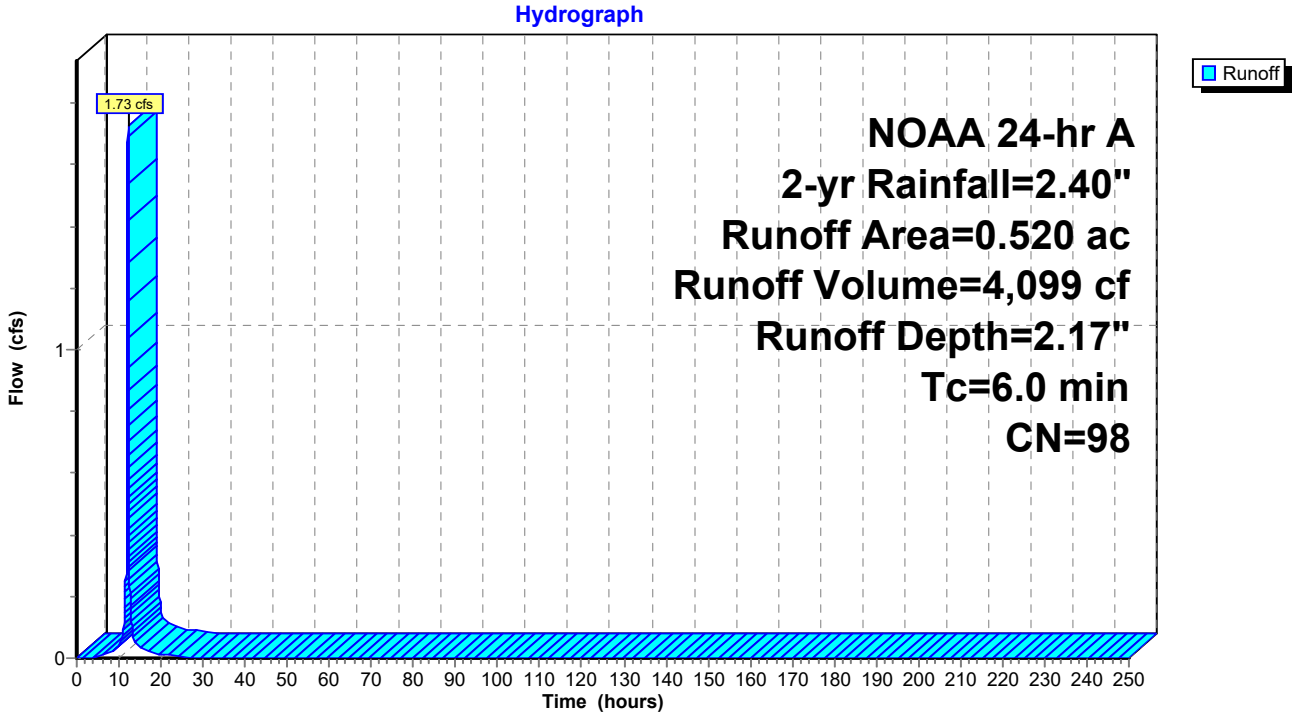
Runoff = 1.73 cfs @ 12.13 hrs, Volume= 4,099 cf, Depth= 2.17"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)



Summary for Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)

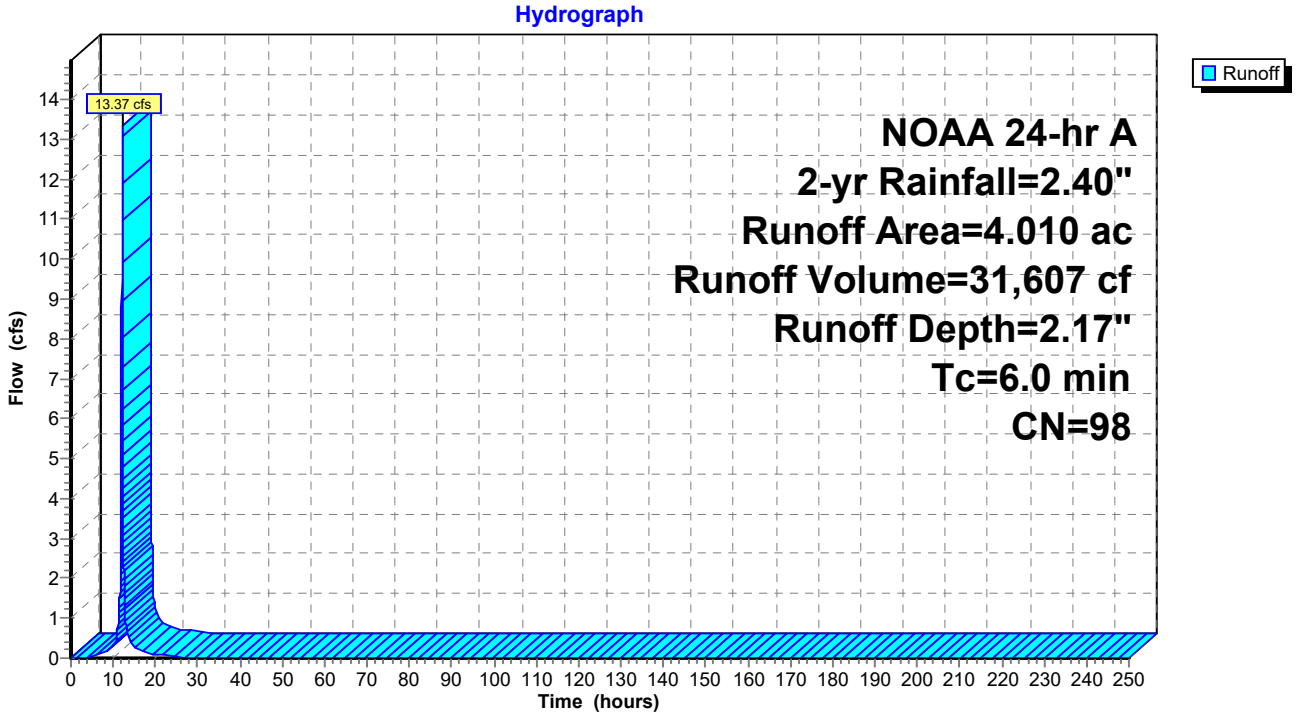
Runoff = 13.37 cfs @ 12.13 hrs, Volume= 31,607 cf, Depth= 2.17"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
4.010	98	Paved parking, HSG C
4.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)



Summary for Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)

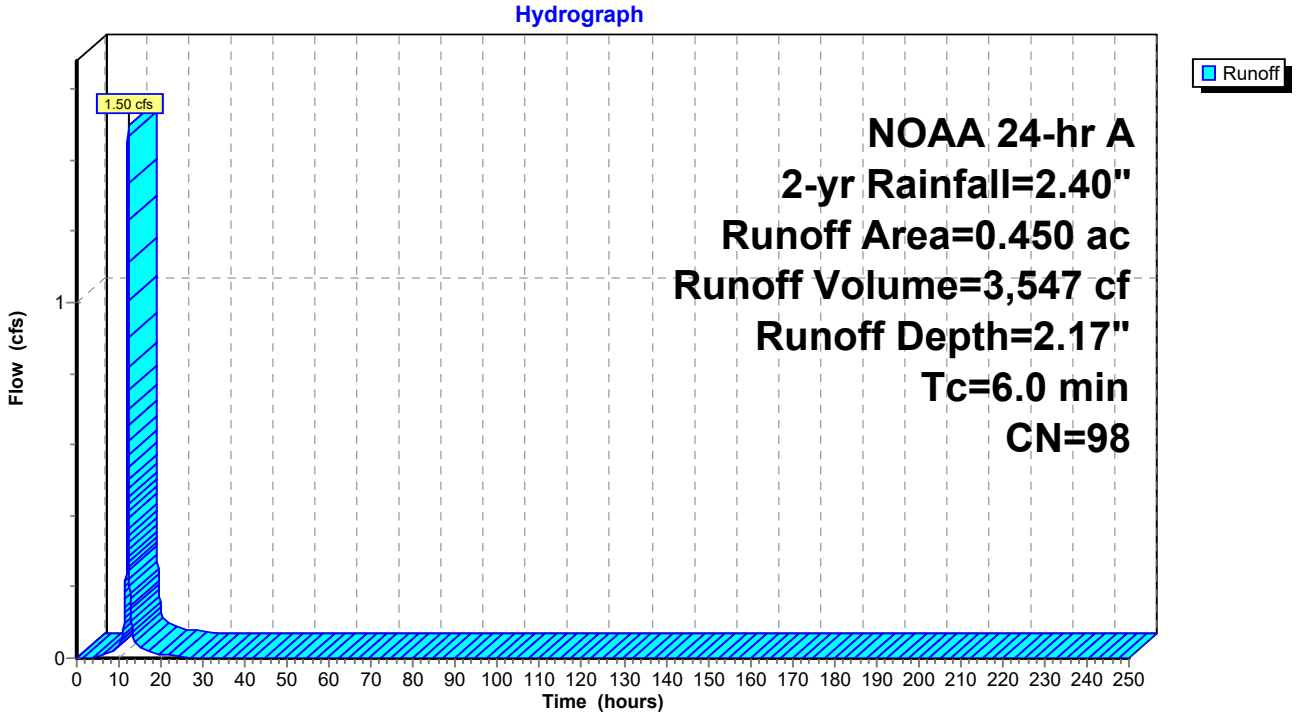
Runoff = 1.50 cfs @ 12.13 hrs, Volume= 3,547 cf, Depth= 2.17"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.450	98	Paved parking, HSG C
0.450		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)



Summary for Pond 24P: Underground Detention System 3B (North)

Inflow Area = 194,278 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 14.86 cfs @ 12.13 hrs, Volume= 35,154 cf
Outflow = 1.15 cfs @ 12.91 hrs, Volume= 35,138 cf, Atten= 92%, Lag= 46.9 min
Primary = 1.15 cfs @ 12.91 hrs, Volume= 35,138 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 859.03' @ 12.91 hrs Storage= 20,289 cf

Plug-Flow detention time= 240.0 min calculated for 35,136 cf (100% of inflow)
Center-of-Mass det. time= 240.2 min (998.7 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	855.75'	37,071 cf	**Storm Trap - 6'-0" Single Trap Stage Data** Listed below

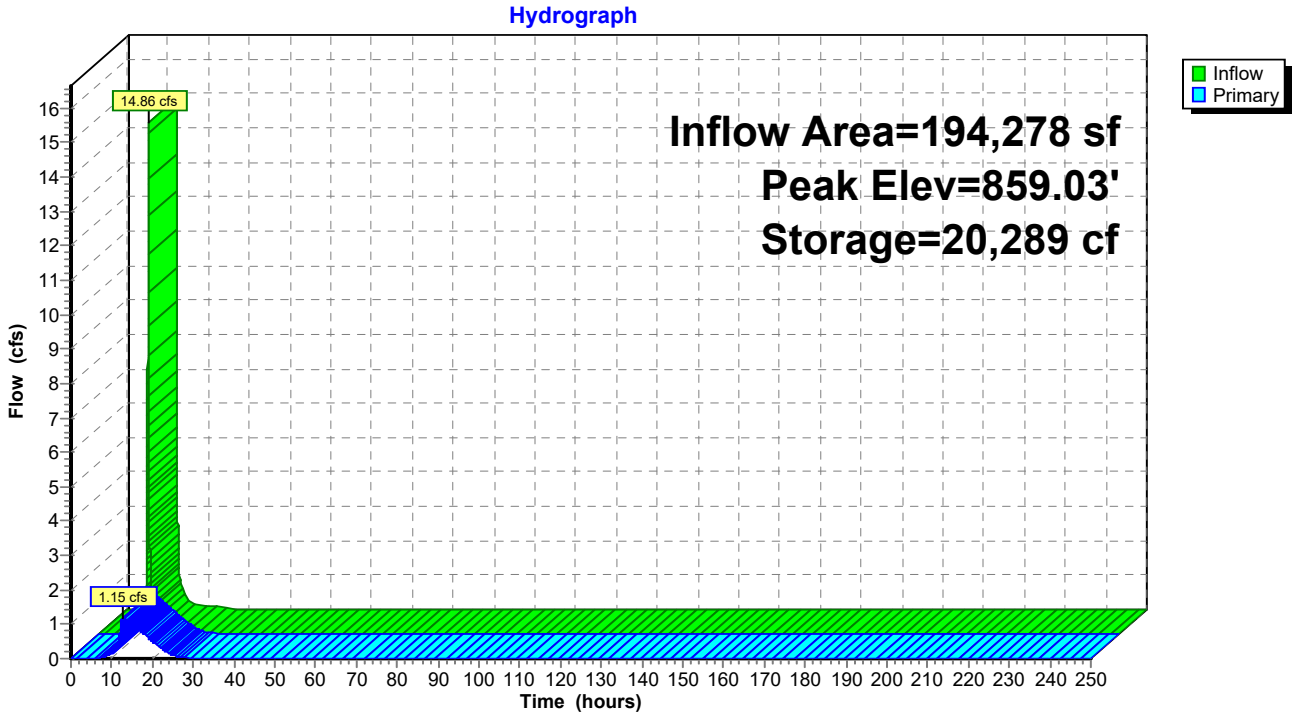
Elevation (feet)	Cum.Store (cubic-feet)
855.75	0
856.00	1,544
856.25	3,089
856.50	4,634
856.75	6,179
857.00	7,723
857.25	9,268
857.50	10,813
857.75	12,357
858.00	13,902
858.25	15,446
858.50	16,991
858.75	18,535
859.00	20,080
859.25	21,625
859.50	23,170
859.75	24,714
860.00	26,259
860.25	27,804
860.50	29,348
860.75	30,893
861.00	32,437
861.25	33,982
861.50	35,527
861.75	37,071

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**24.0" Round Culvert** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.85' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2	Device 1	855.75'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	859.60'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	861.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.15 cfs @ 12.91 hrs HW=859.03' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.15 cfs of 23.25 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.15 cfs @ 8.44 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Underground Detention System 3B (North)



Summary for Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)

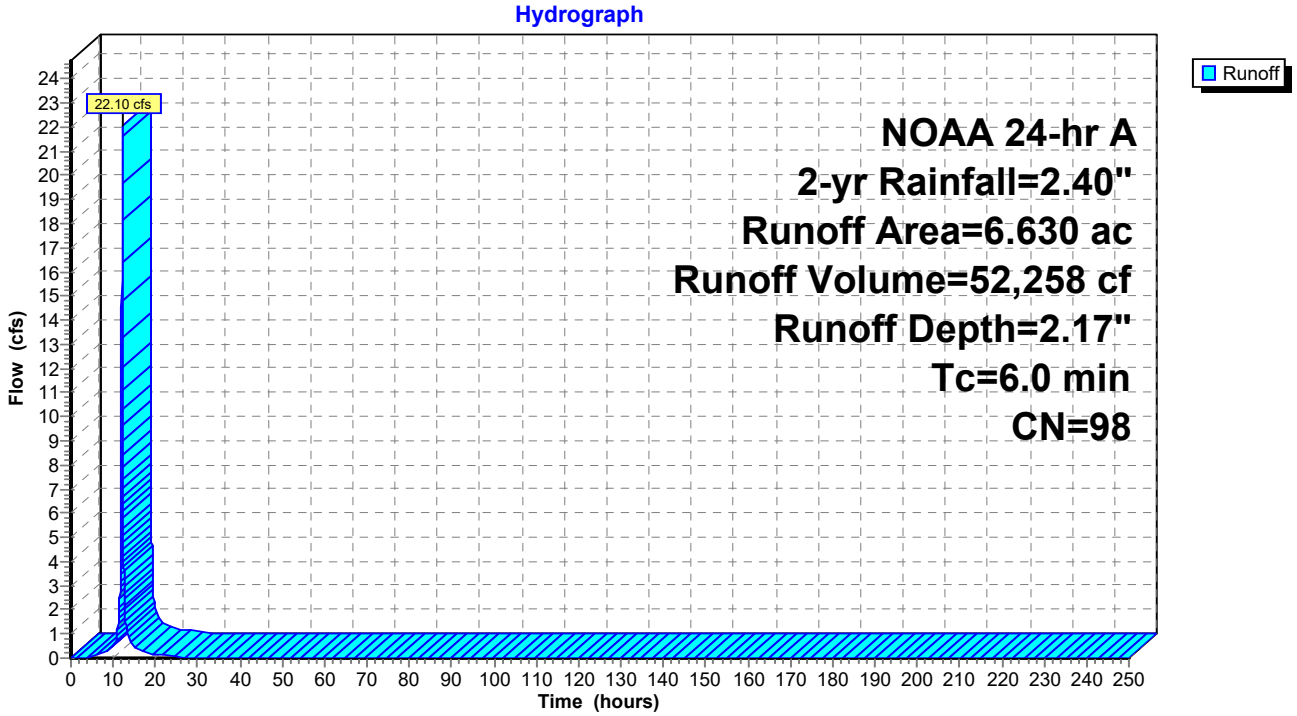
Runoff = 22.10 cfs @ 12.13 hrs, Volume= 52,258 cf, Depth= 2.17"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
6.630	98	Paved parking, HSG C
6.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)



Summary for Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)

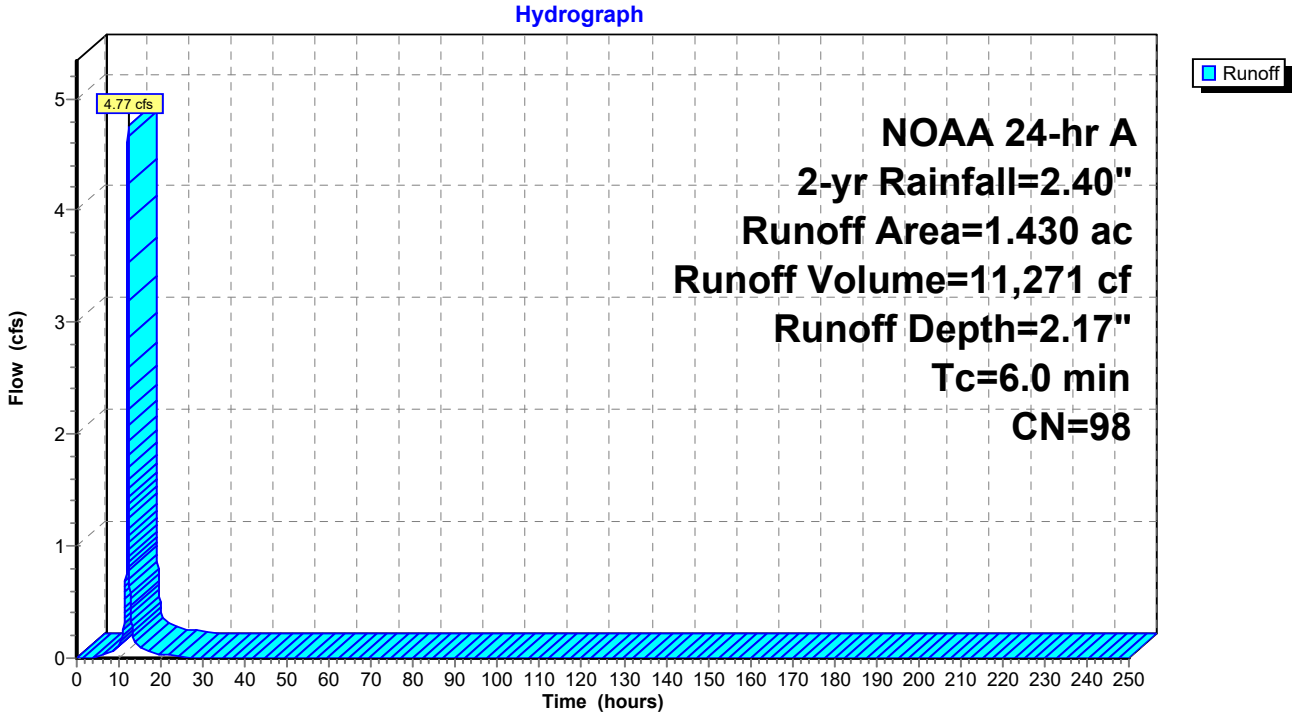
Runoff = 4.77 cfs @ 12.13 hrs, Volume= 11,271 cf, Depth= 2.17"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
1.430	98	Paved parking, HSG C
1.430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)



Summary for Pond 27: Underground Detention System 3A (South)

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 26.86 cfs @ 12.13 hrs, Volume= 63,529 cf
Outflow = 15.28 cfs @ 12.21 hrs, Volume= 56,890 cf, Atten= 43%, Lag= 4.6 min
Primary = 15.28 cfs @ 12.21 hrs, Volume= 56,890 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 858.63' @ 12.21 hrs Storage= 24,072 cf

Plug-Flow detention time= 116.0 min calculated for 56,890 cf (90% of inflow)
Center-of-Mass det. time= 71.3 min (829.8 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	855.00'	39,792 cf	**Storm Trap - 6'-0" Double Trap Stage Data** Listed below

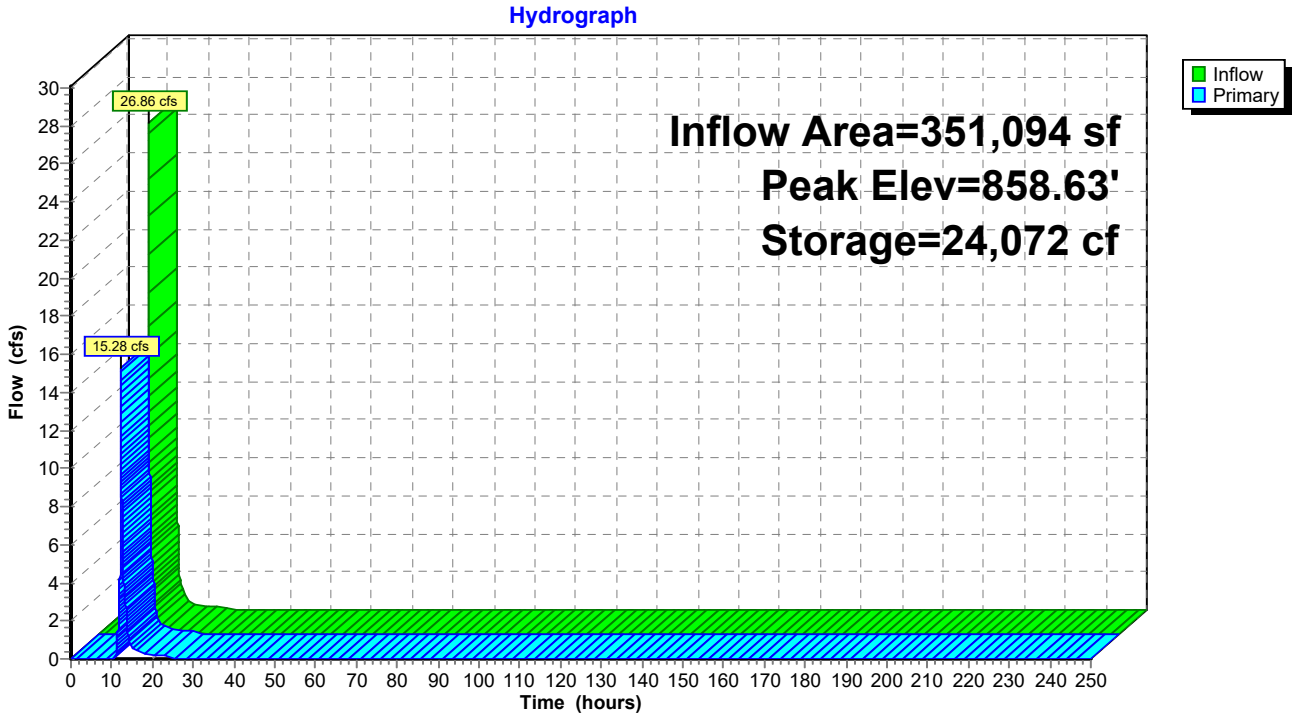
Elevation (feet)	Cum.Store (cubic-feet)
855.00	0
855.25	1,658
855.50	3,316
855.75	4,974
856.00	6,632
856.25	8,290
856.50	9,948
856.75	11,066
857.00	13,264
857.25	14,922
857.50	16,580
857.75	18,238
858.00	19,896
858.25	21,554
858.50	23,212
858.75	24,870
859.00	26,528
859.25	28,186
859.50	29,844
859.75	31,502
860.00	33,160
860.25	34,818
860.50	36,476
860.75	38,134
861.00	39,792

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**30.0" Round SCM Outfall 300A** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.86' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

#2	Device 1	856.00'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	857.20'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	858.20'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=15.27 cfs @ 12.21 hrs HW=858.63' TW=0.00' (Dynamic Tailwater)
- **1=SCM Outfall 300A** (Passes 15.27 cfs of 31.95 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 6.39 cfs @ 7.23 fps)
  - **3=Orifice/Grate** (Orifice Controls 4.37 cfs @ 4.94 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 4.51 cfs @ 2.14 fps)

Pond 27: Underground Detention System 3A (South)

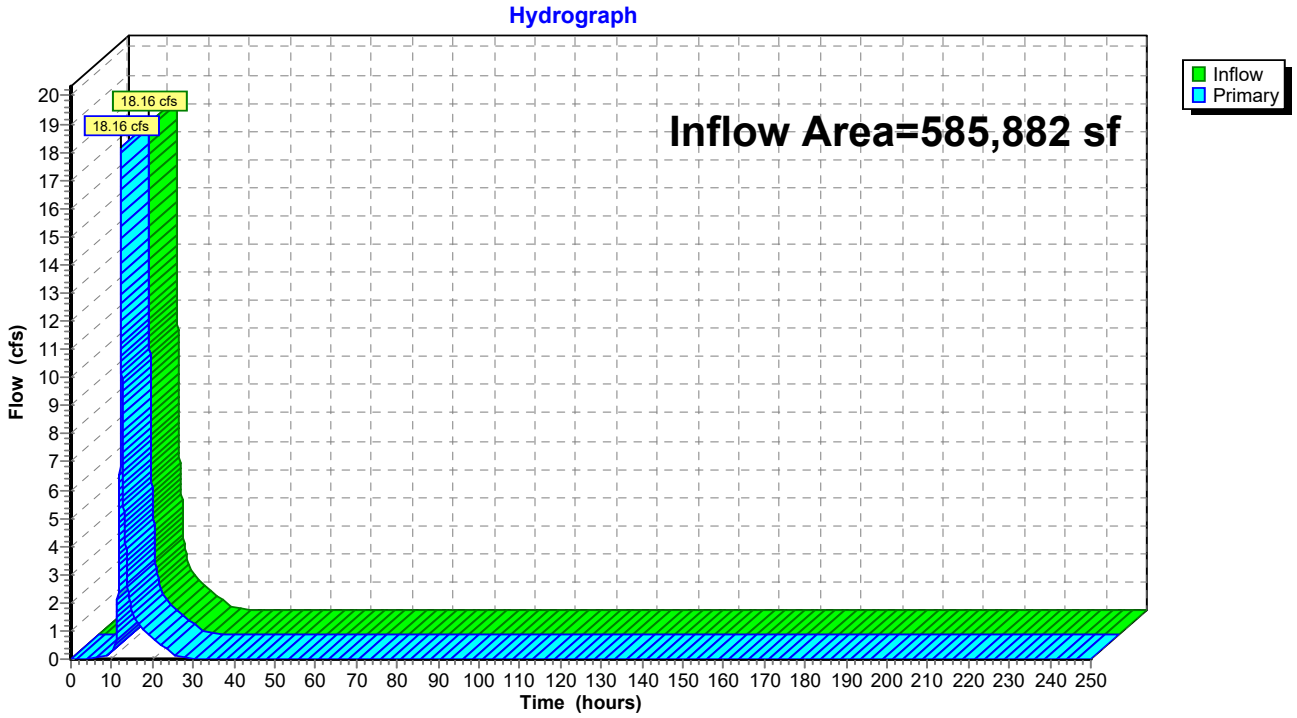


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 585,882 sf,100.00% Impervious, Inflow Depth = 2.04" for 2-yr event
Inflow = 18.16 cfs @ 12.20 hrs, Volume= 99,358 cf
Primary = 18.16 cfs @ 12.20 hrs, Volume= 99,358 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)

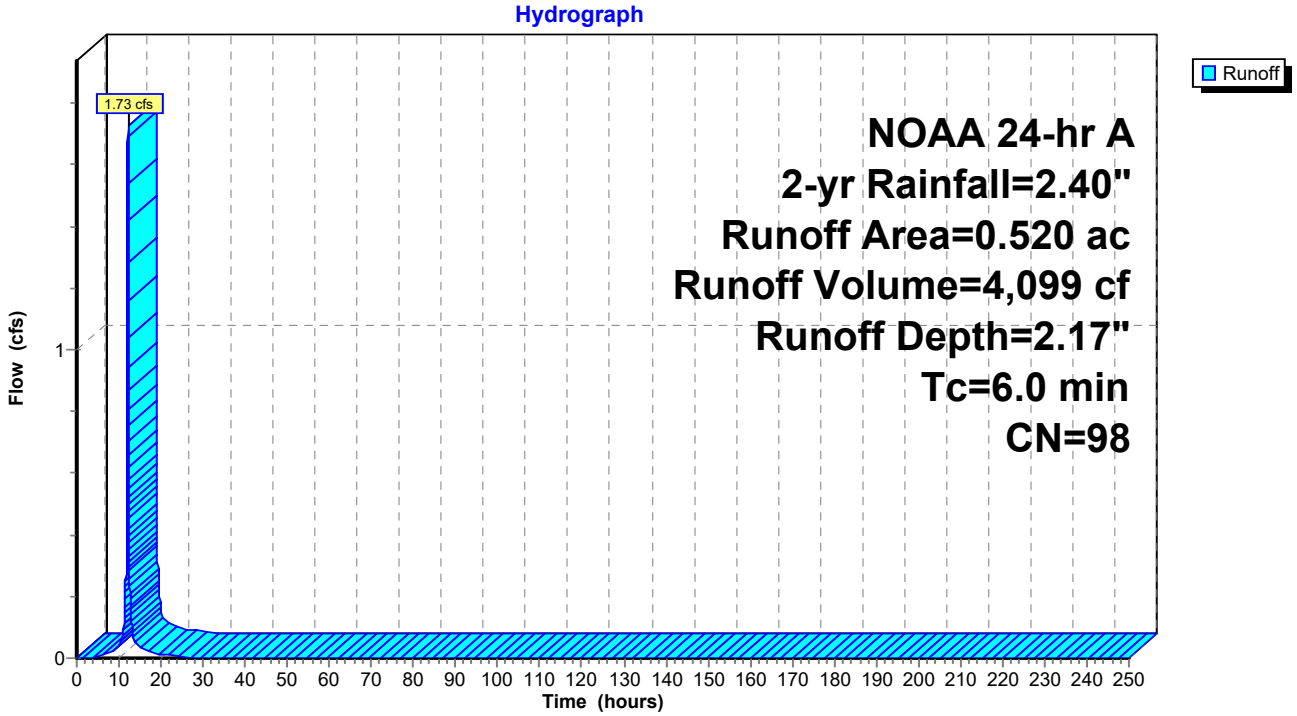
Runoff = 1.73 cfs @ 12.13 hrs, Volume= 4,099 cf, Depth= 2.17"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)



Summary for Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

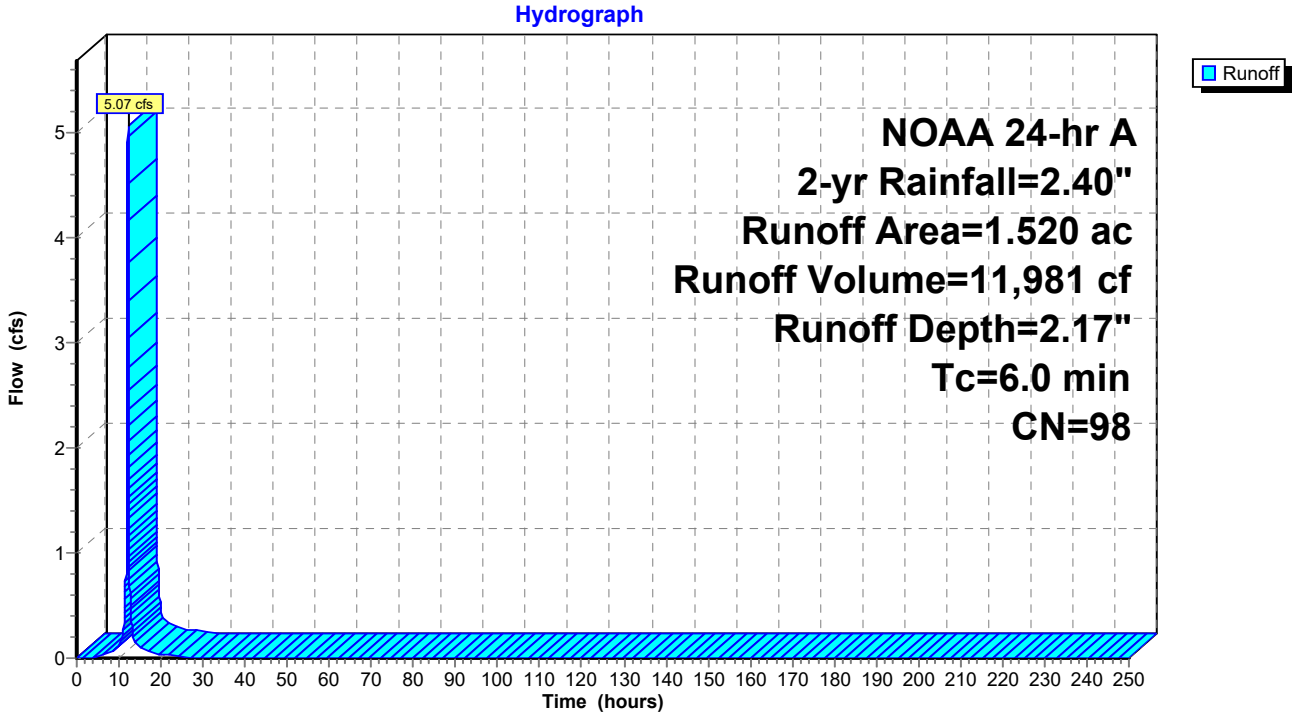
Runoff = 5.07 cfs @ 12.13 hrs, Volume= 11,981 cf, Depth= 2.17"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 2-yr Rainfall=2.40"

Area (ac)	CN	Description
1.520	98	Paved parking, HSG C
1.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

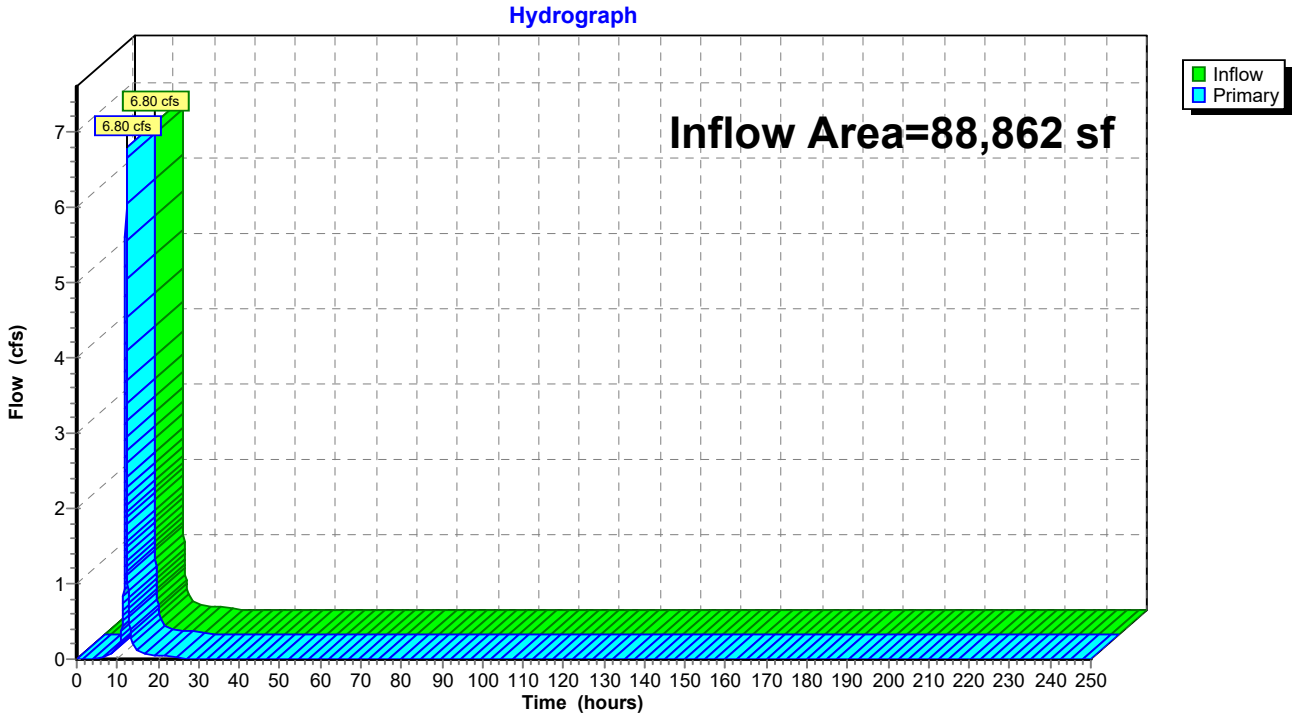


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 88,862 sf,100.00% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 6.80 cfs @ 12.13 hrs, Volume= 16,079 cf
Primary = 6.80 cfs @ 12.13 hrs, Volume= 16,079 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

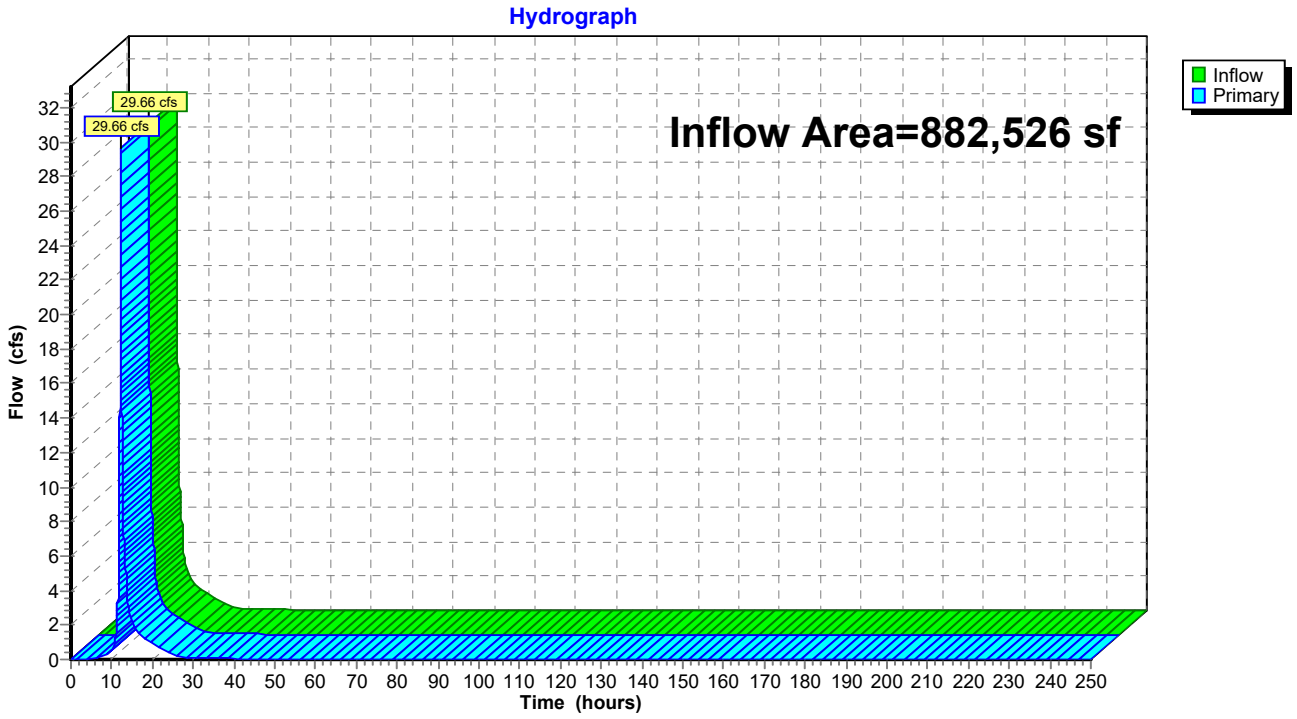


Summary for Link 33: POA 001

Inflow Area = 882,526 sf,100.00% Impervious, Inflow Depth = 2.08" for 2-yr event
Inflow = 29.66 cfs @ 12.16 hrs, Volume= 153,020 cf
Primary = 29.66 cfs @ 12.16 hrs, Volume= 153,020 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Within LOD)

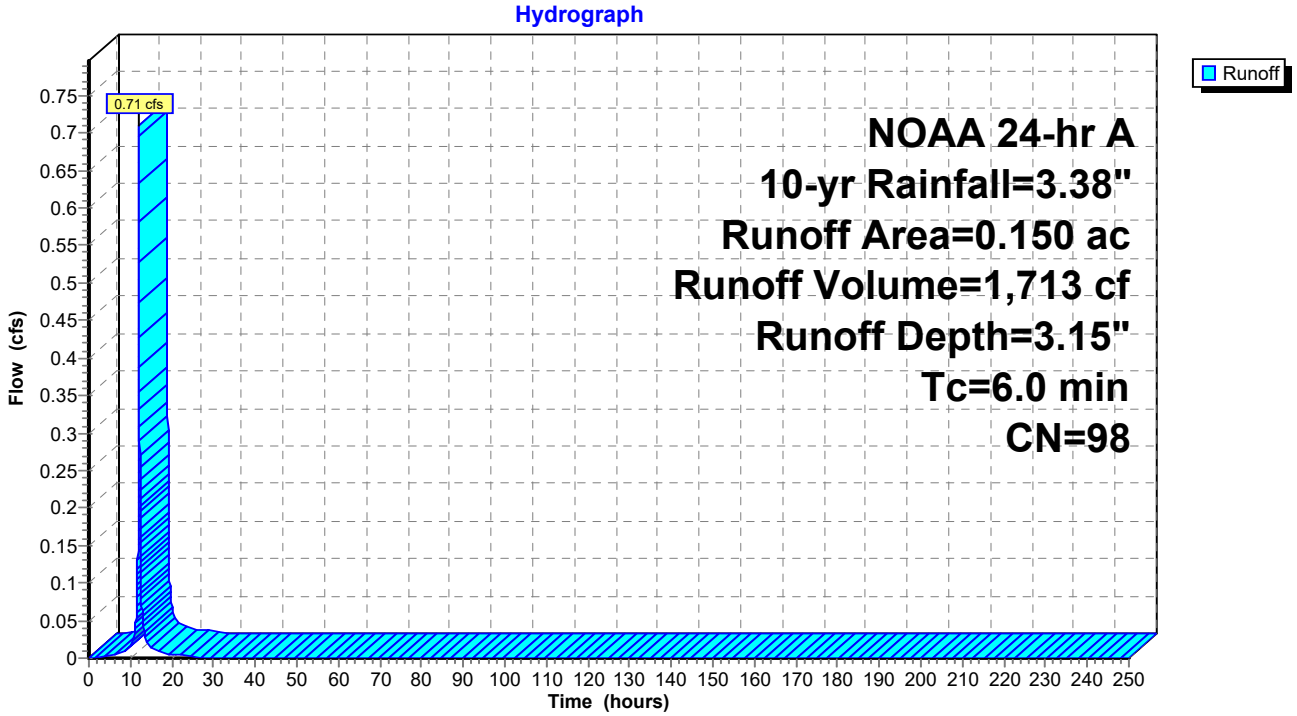
Runoff = 0.71 cfs @ 12.13 hrs, Volume= 1,713 cf, Depth= 3.15"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Within LOD)



Summary for Subcatchment 11: Post-Development DA-1 (Outside LOD)

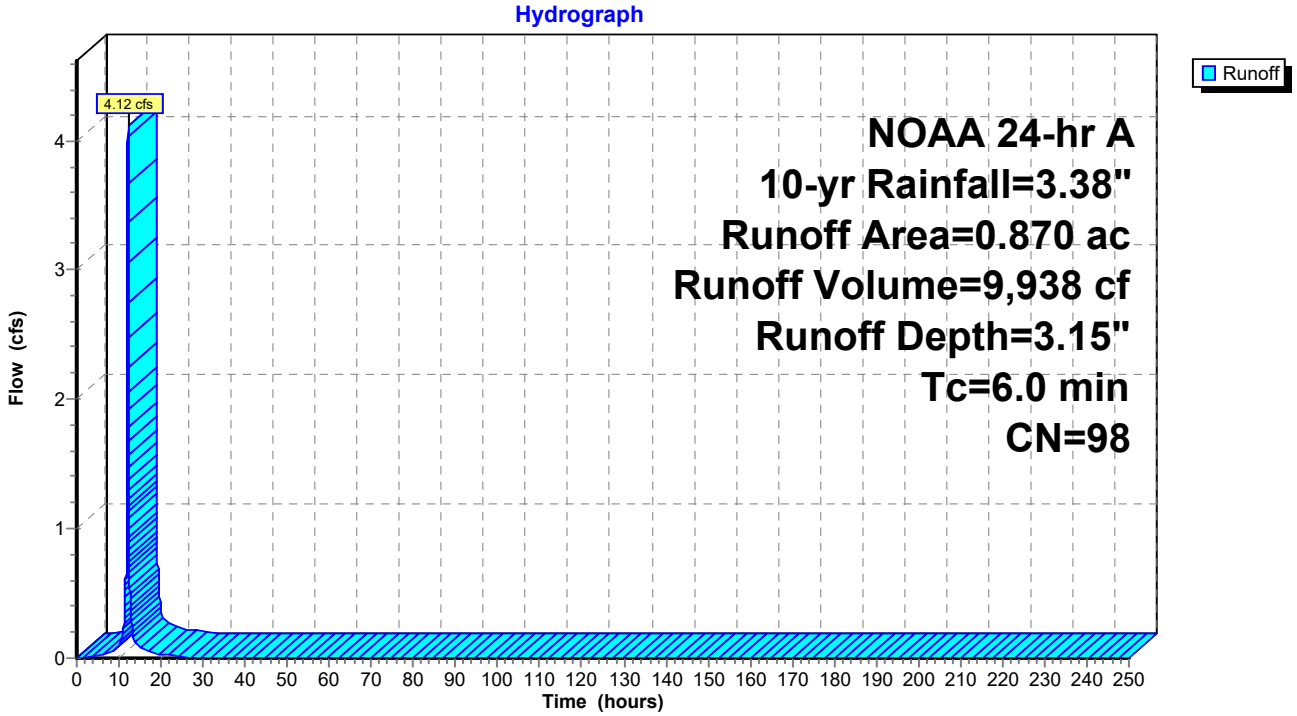
Runoff = 4.12 cfs @ 12.13 hrs, Volume= 9,938 cf, Depth= 3.15"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.870	98	Paved parking, HSG C
0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 11: Post-Development DA-1 (Outside LOD)

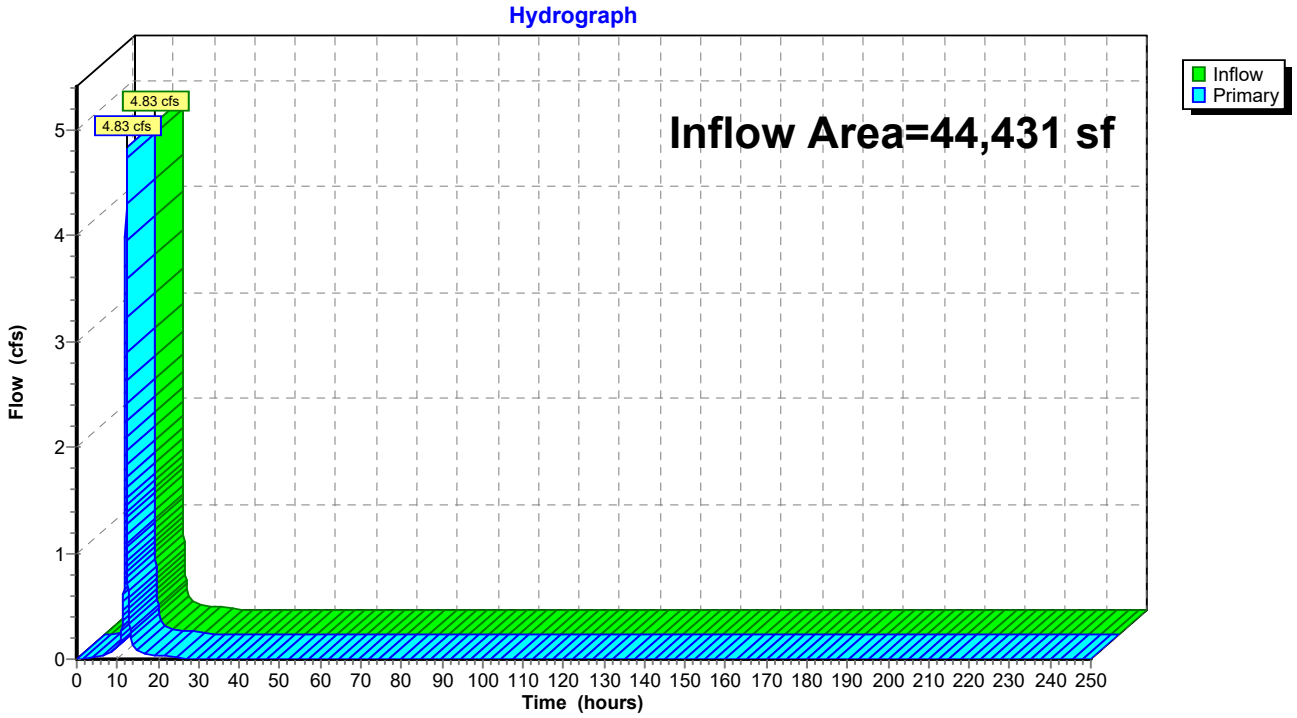


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 44,431 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 4.83 cfs @ 12.13 hrs, Volume= 11,652 cf
Primary = 4.83 cfs @ 12.13 hrs, Volume= 11,652 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

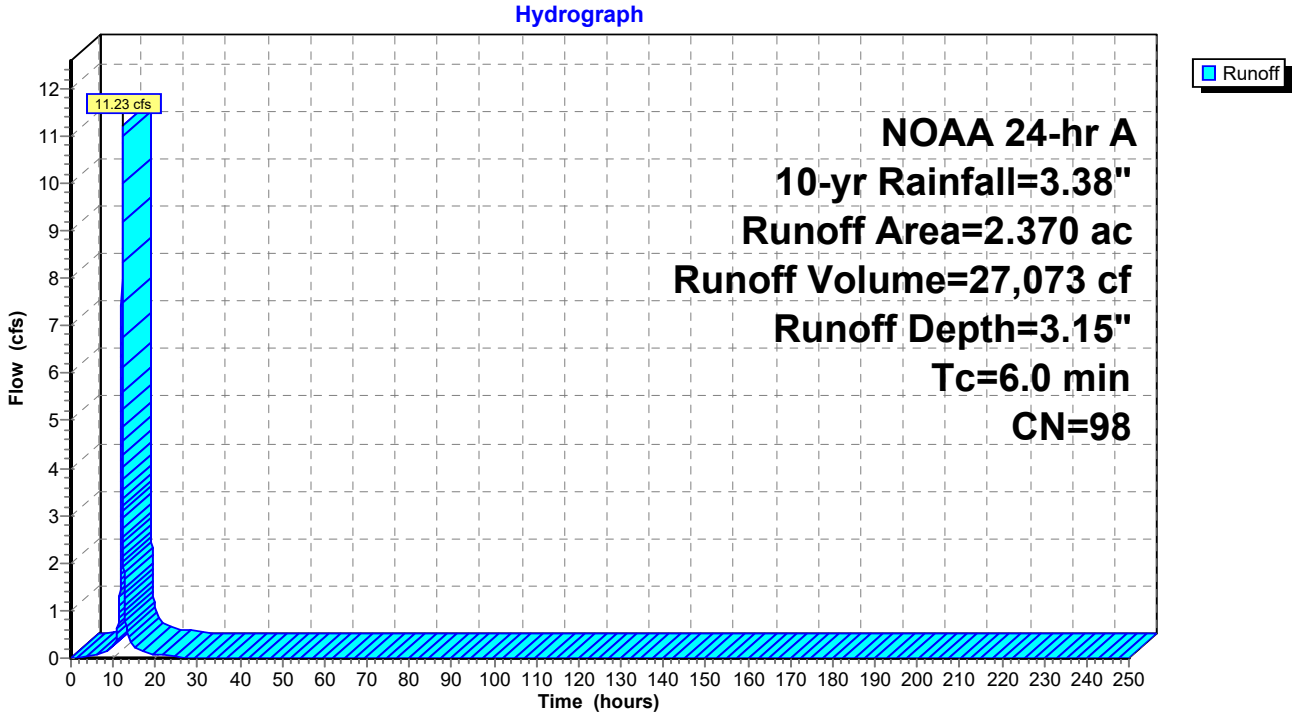
Runoff = 11.23 cfs @ 12.13 hrs, Volume= 27,073 cf, Depth= 3.15"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
2.370	98	Paved parking, HSG C
2.370		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)

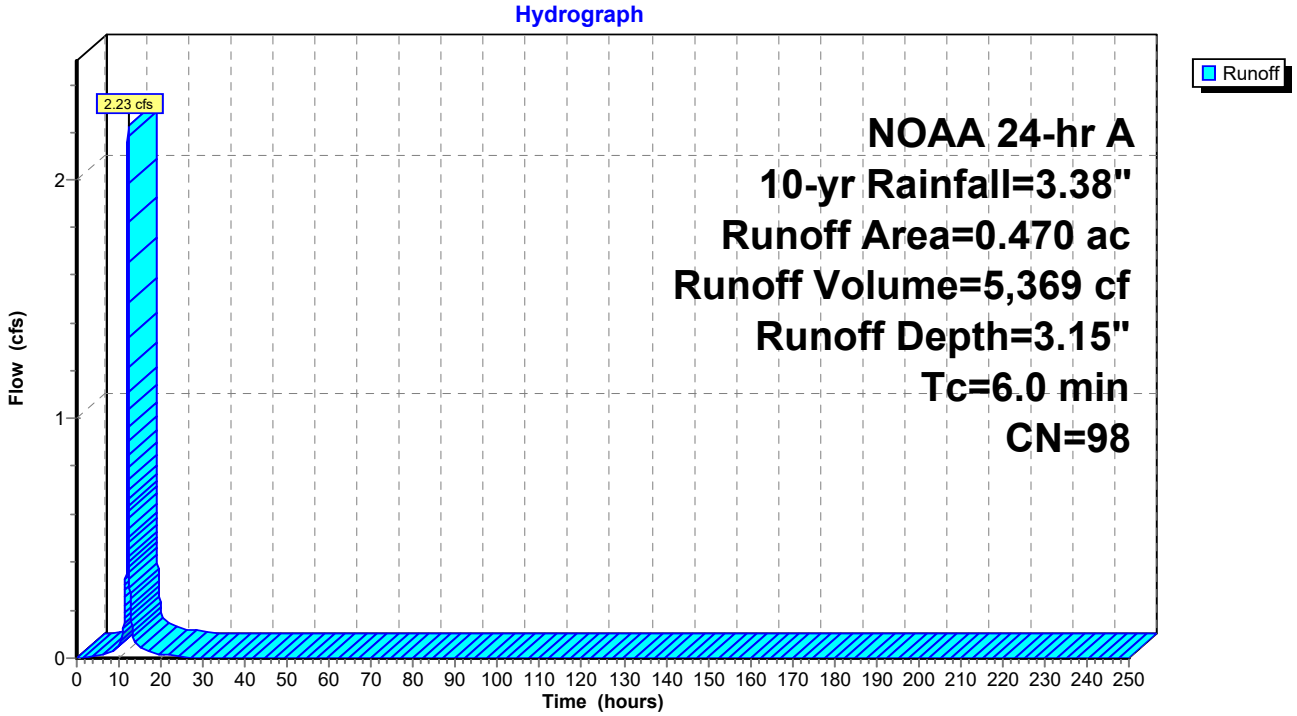
Runoff = 2.23 cfs @ 12.13 hrs, Volume= 5,369 cf, Depth= 3.15"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG C
0.470		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)



Summary for Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)

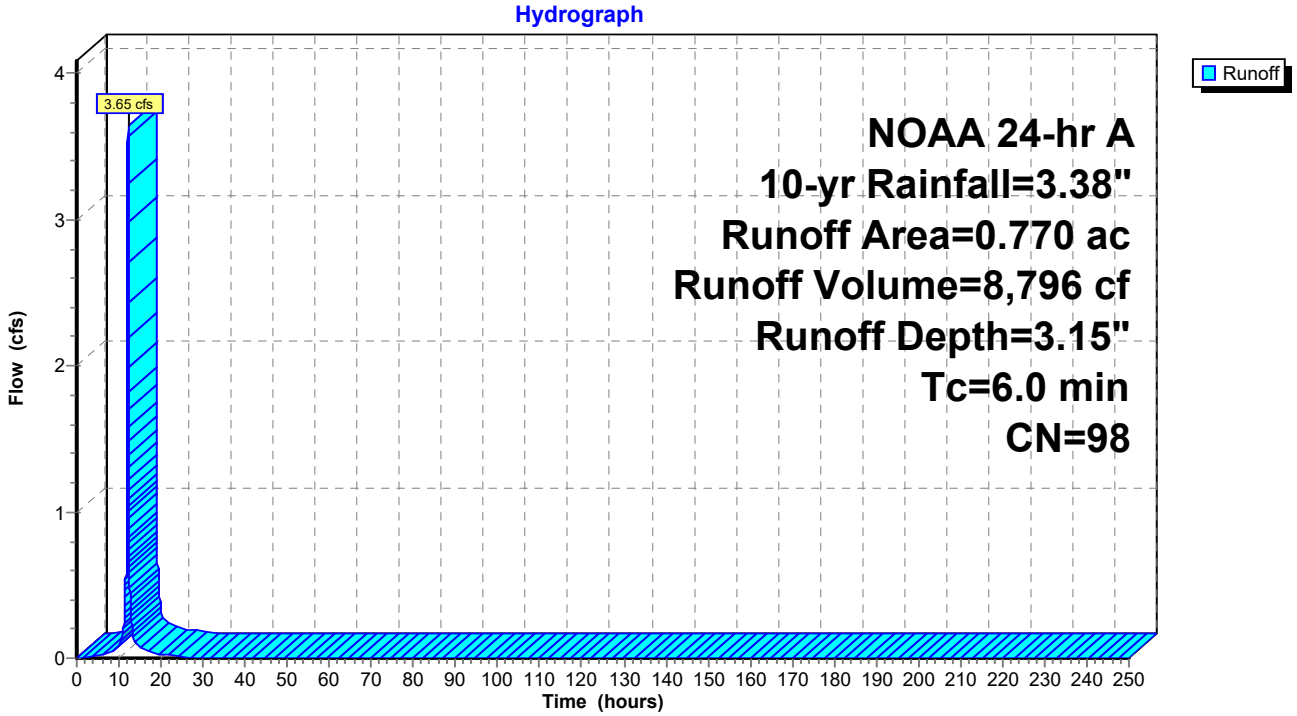
Runoff = 3.65 cfs @ 12.13 hrs, Volume= 8,796 cf, Depth= 3.15"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.770	98	Paved parking, HSG C
0.770		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 11.89 cfs @ 12.13 hrs, Volume= 28,672 cf
Outflow = 11.89 cfs @ 12.13 hrs, Volume= 28,672 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.34 cfs @ 12.13 hrs, Volume= 28,583 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 0.56 cfs @ 12.13 hrs, Volume= 89 cf
Routed to Link 20 : Post-Development Discharge Point 2

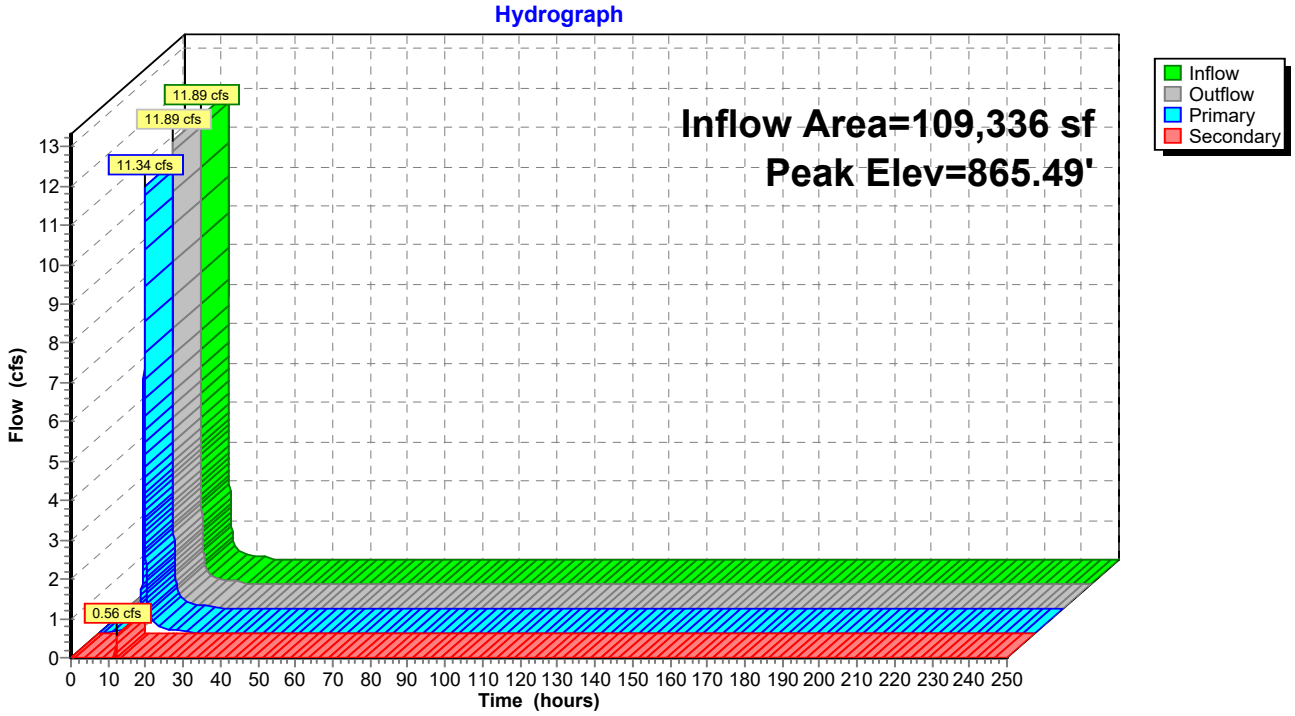
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.49' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=11.24 cfs @ 12.13 hrs HW=865.49' TW=865.11' (Dynamic Tailwater)
└**1=Culvert to MRC** (Outlet Controls 11.24 cfs @ 3.67 fps)

Secondary OutFlow Max=0.55 cfs @ 12.13 hrs HW=865.49' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Passes 0.55 cfs of 5.26 cfs potential flow)
└**3=Diversion Weir** (Weir Controls 0.55 cfs @ 1.00 fps)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

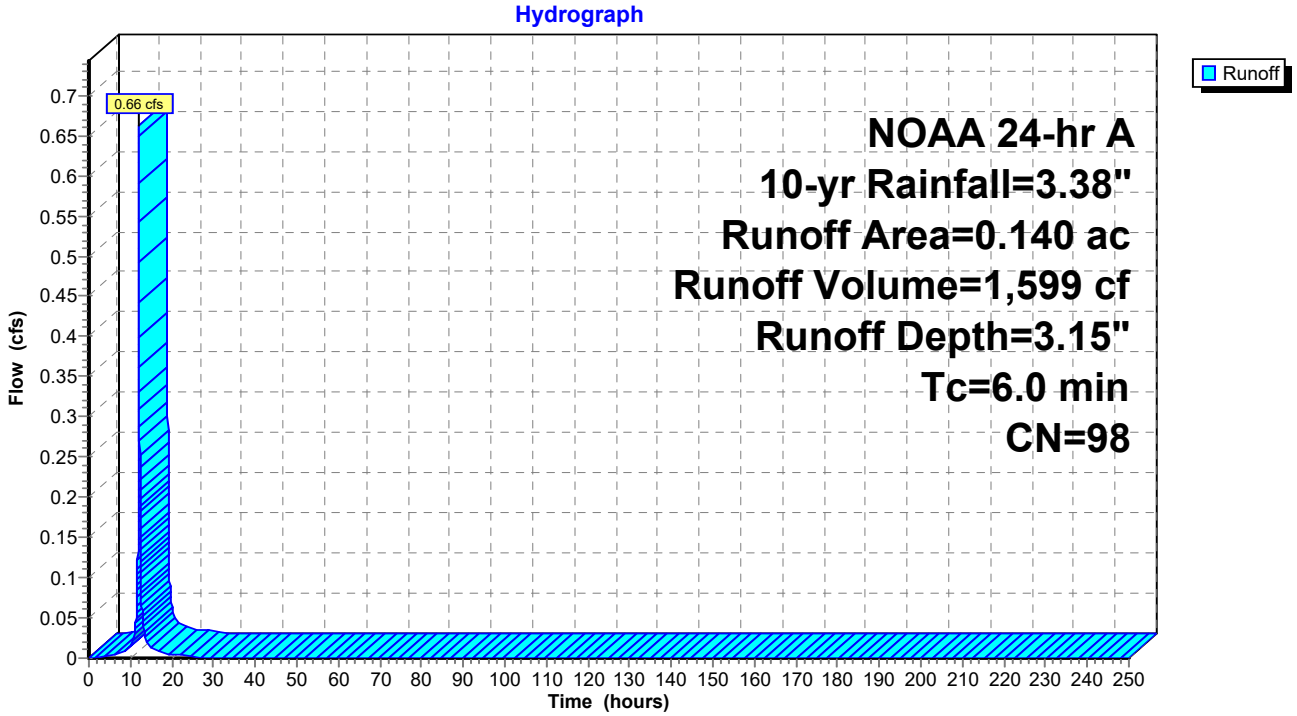
Runoff = 0.66 cfs @ 12.13 hrs, Volume= 1,599 cf, Depth= 3.15"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 3.14" for 10-yr event
Inflow = 11.34 cfs @ 12.13 hrs, Volume= 28,583 cf
Outflow = 11.34 cfs @ 12.13 hrs, Volume= 28,583 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.67 cfs @ 12.13 hrs, Volume= 14,292 cf
Routed to Pond 18 : MRC Cell 2A
Secondary = 5.67 cfs @ 12.13 hrs, Volume= 14,292 cf
Routed to Pond 19 : MRC Cell 2B

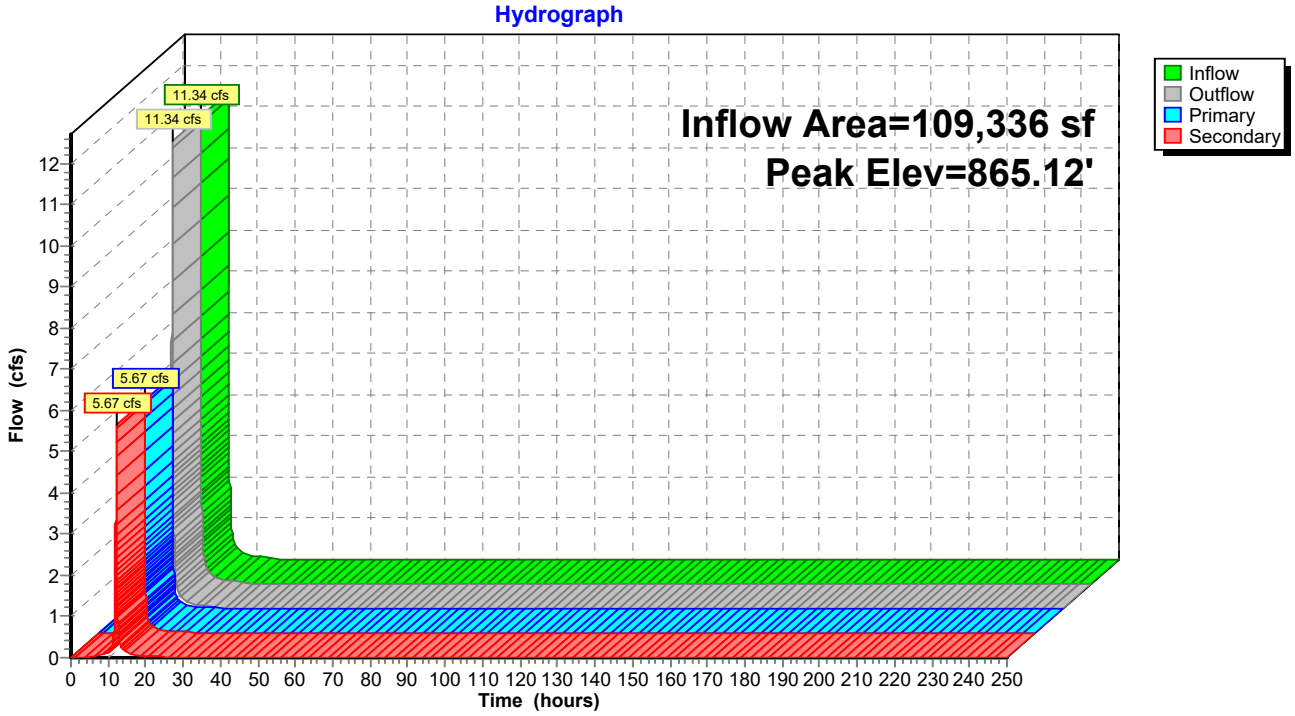
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.12' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.66 cfs @ 12.13 hrs HW=865.11' TW=863.21' (Dynamic Tailwater)
↑—**1=Culvert to MRC Cell 2A** (Barrel Controls 5.66 cfs @ 3.94 fps)

Secondary OutFlow Max=5.66 cfs @ 12.13 hrs HW=865.11' TW=863.21' (Dynamic Tailwater)
↑—**2=Culvert to MRC Cell 2B** (Barrel Controls 5.66 cfs @ 3.94 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18: MRC Cell 2A

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 1.57" for 10-yr event
Inflow = 5.67 cfs @ 12.13 hrs, Volume= 14,292 cf
Outflow = 2.86 cfs @ 12.23 hrs, Volume= 14,284 cf, Atten= 50%, Lag= 6.0 min
Primary = 2.86 cfs @ 12.23 hrs, Volume= 14,284 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.54' @ 12.23 hrs Storage= 7,091 cf

Plug-Flow detention time= 1,055.7 min calculated for 14,284 cf (100% of inflow)
Center-of-Mass det. time= 1,055.4 min (1,807.8 - 752.4)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

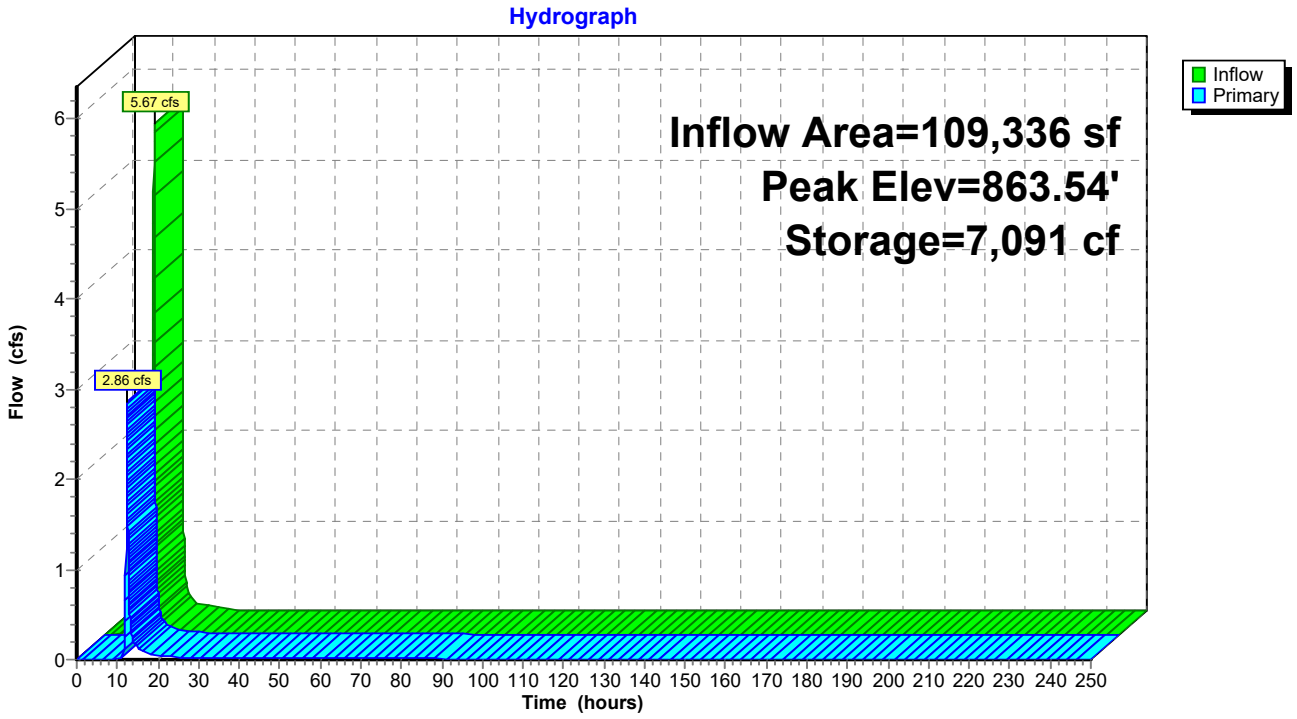
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=2.86 cfs @ 12.23 hrs HW=863.54' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 2.86 cfs of 12.54 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.02 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 2.83 cfs @ 4.05 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18: MRC Cell 2A



Summary for Pond 19: MRC Cell 2B

Inflow = 5.67 cfs @ 12.13 hrs, Volume= 14,292 cf
Outflow = 2.86 cfs @ 12.23 hrs, Volume= 14,284 cf, Atten= 50%, Lag= 6.0 min
Primary = 2.86 cfs @ 12.23 hrs, Volume= 14,284 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.54' @ 12.23 hrs Storage= 7,091 cf

Plug-Flow detention time= 1,055.7 min calculated for 14,284 cf (100% of inflow)
Center-of-Mass det. time= 1,055.4 min (1,807.8 - 752.4)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

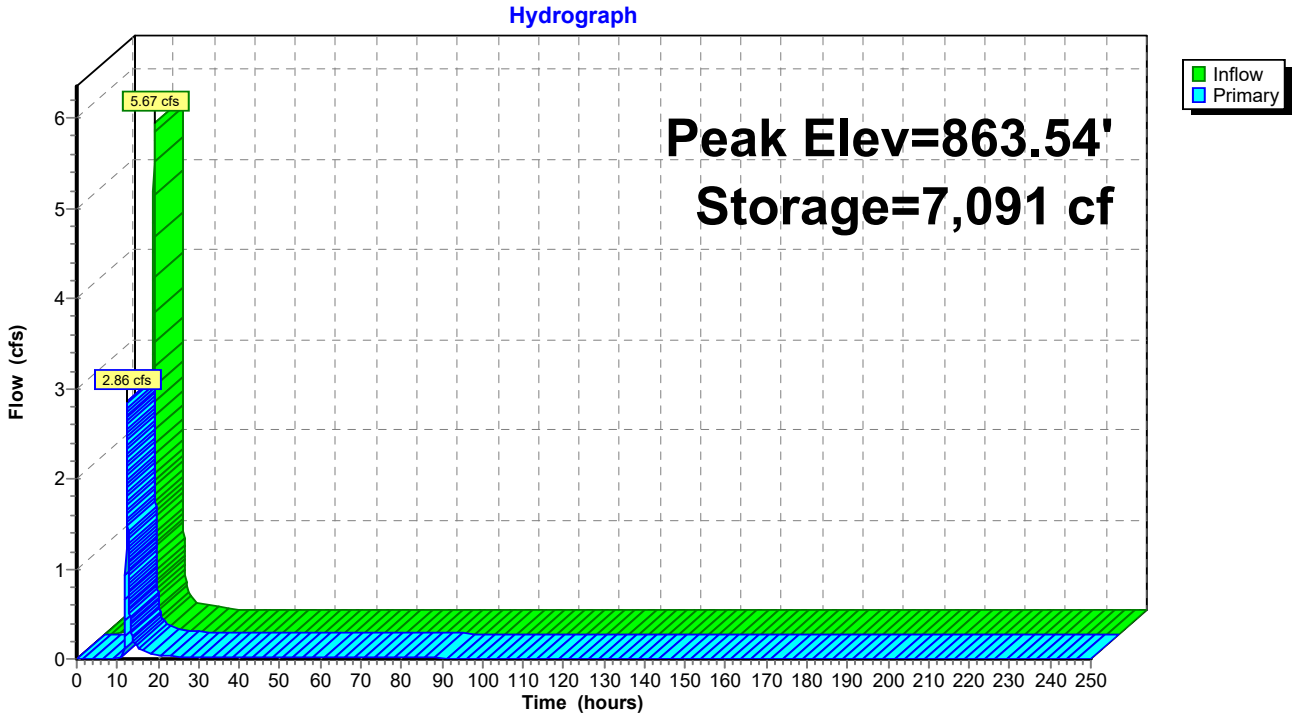
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=2.86 cfs @ 12.23 hrs HW=863.54' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 2.86 cfs of 12.54 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.02 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 2.83 cfs @ 4.05 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19: MRC Cell 2B

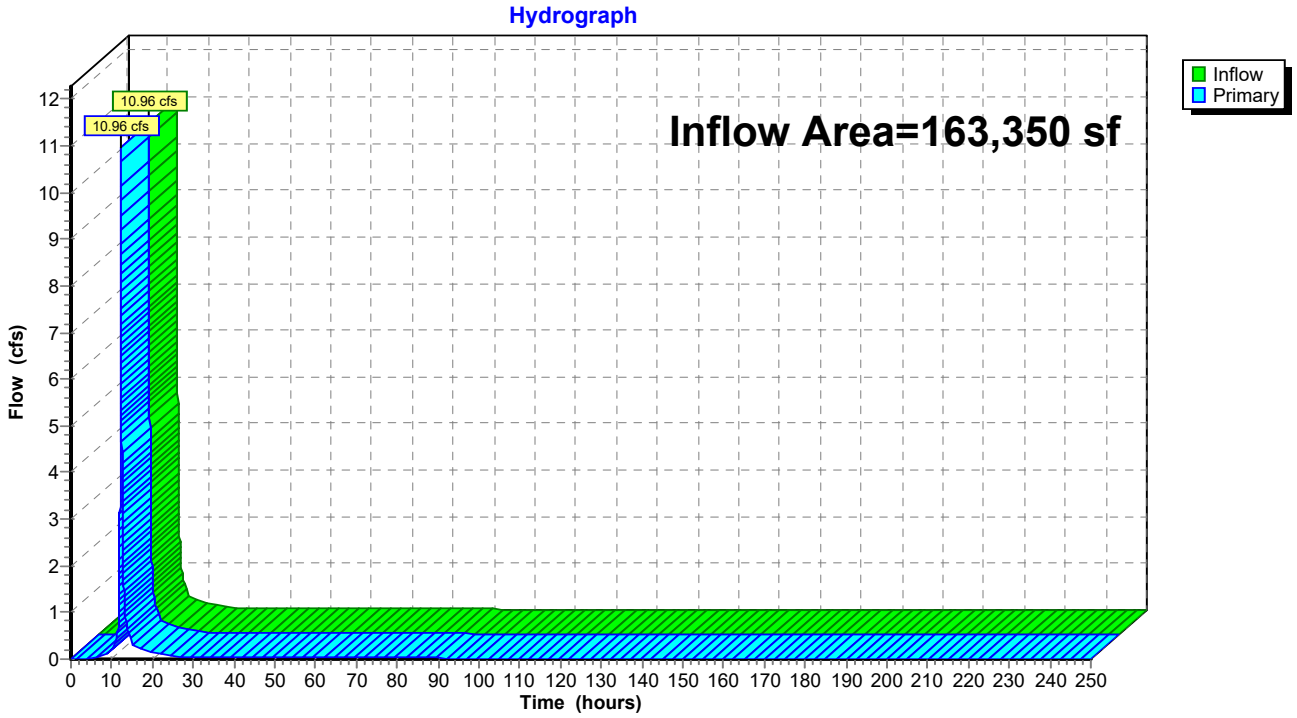


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 163,350 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 10.96 cfs @ 12.14 hrs, Volume= 42,822 cf
Primary = 10.96 cfs @ 12.14 hrs, Volume= 42,822 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)

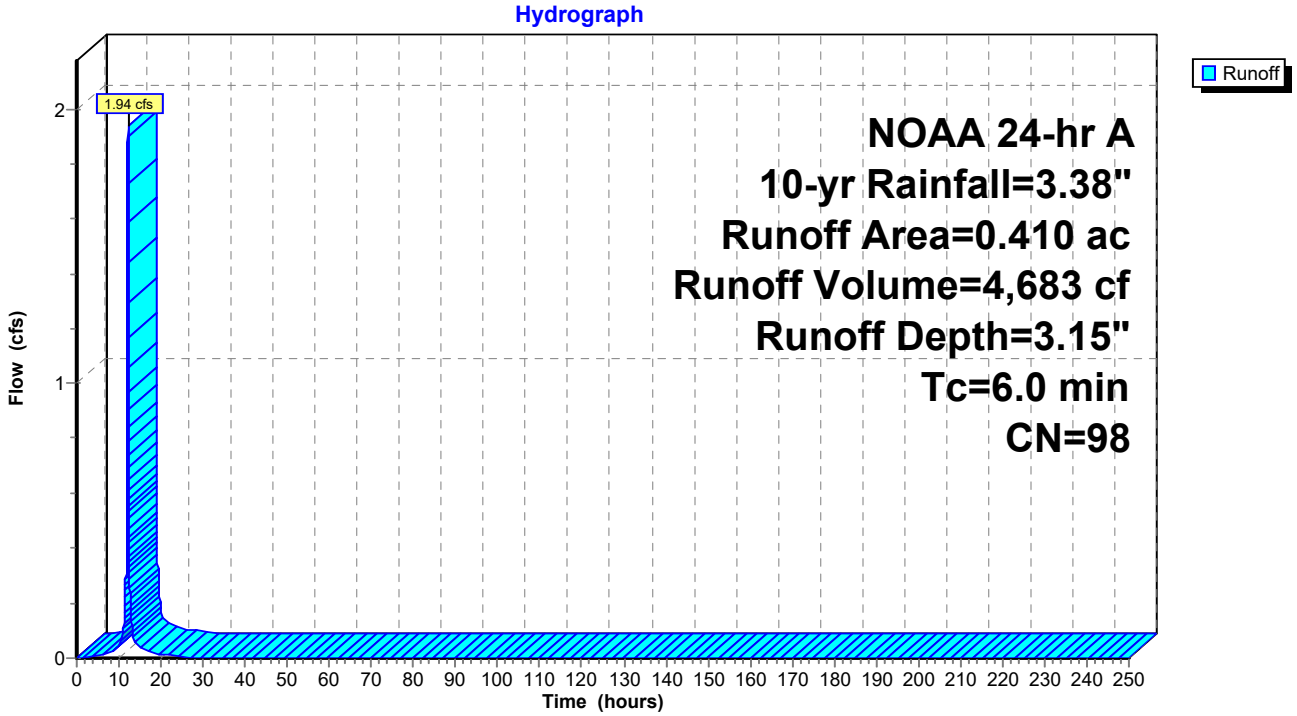
Runoff = 1.94 cfs @ 12.13 hrs, Volume= 4,683 cf, Depth= 3.15"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG C
0.410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)



Summary for Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)

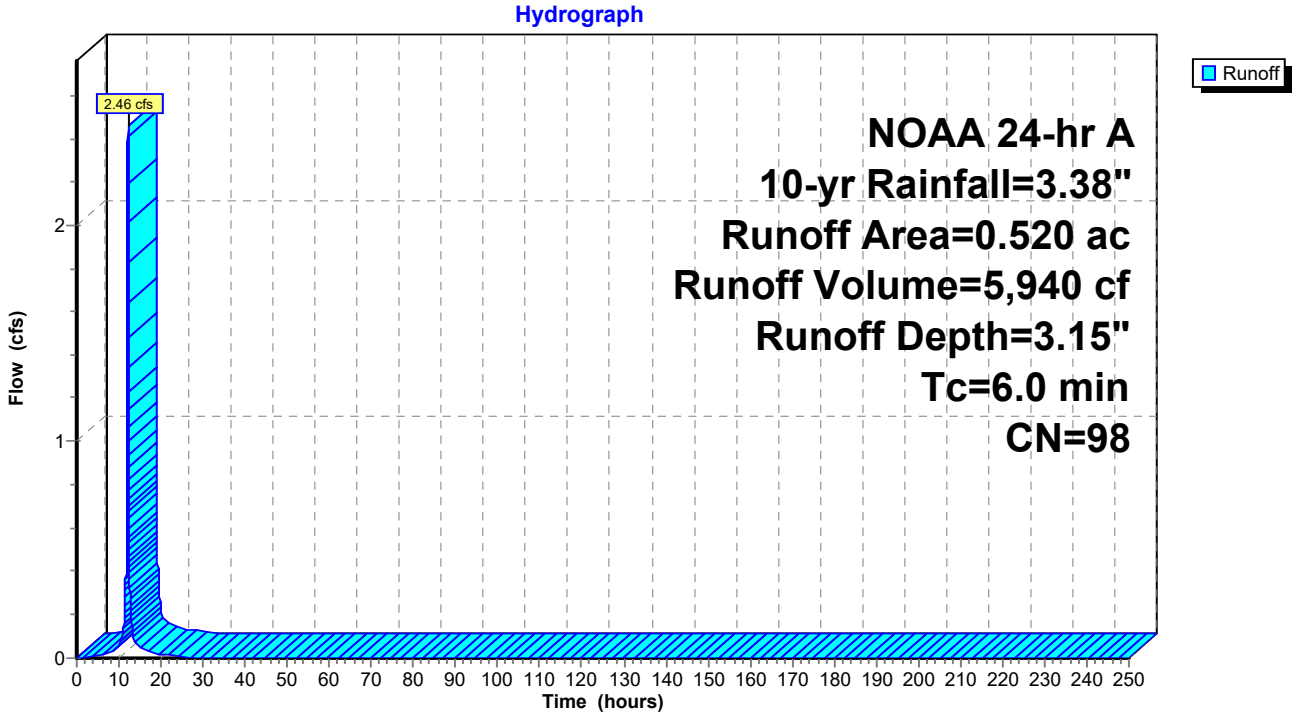
Runoff = 2.46 cfs @ 12.13 hrs, Volume= 5,940 cf, Depth= 3.15"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)



Summary for Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)

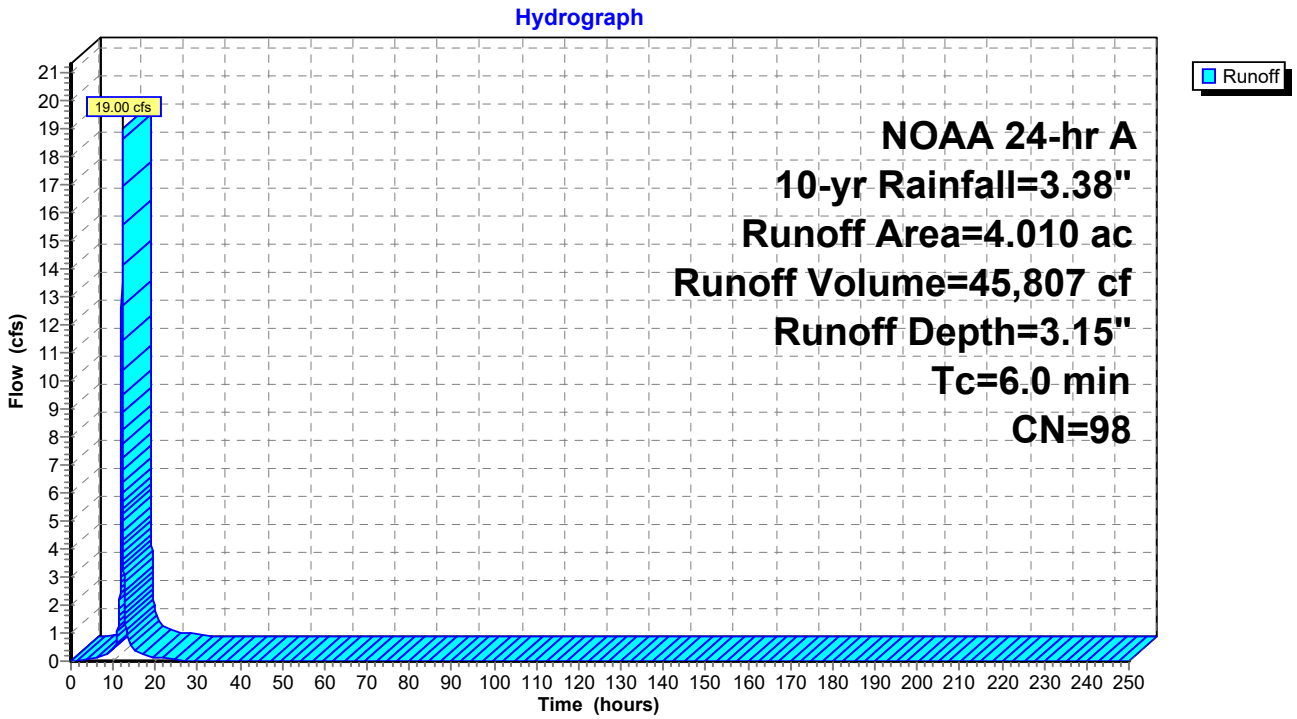
Runoff = 19.00 cfs @ 12.13 hrs, Volume= 45,807 cf, Depth= 3.15"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
4.010	98	Paved parking, HSG C
4.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)



Summary for Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)

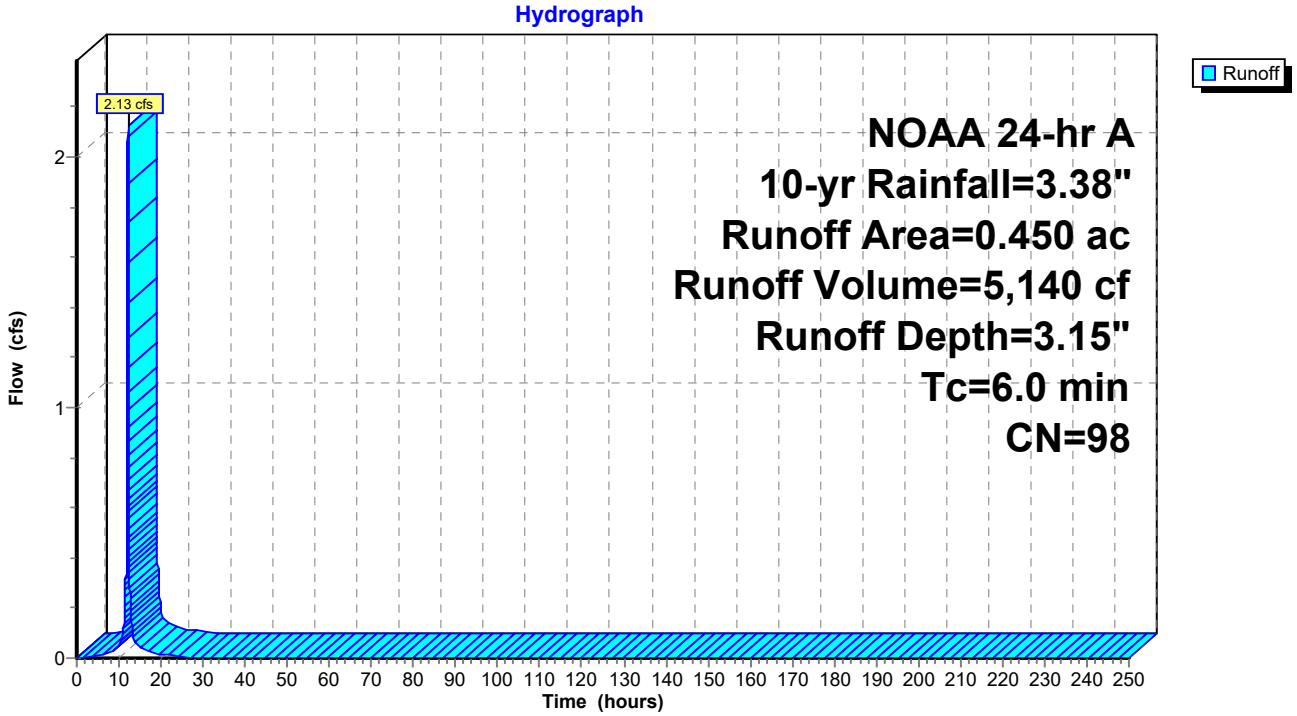
Runoff = 2.13 cfs @ 12.13 hrs, Volume= 5,140 cf, Depth= 3.15"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.450	98	Paved parking, HSG C
0.450		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)



Summary for Pond 24P: Underground Detention System 3B (North)

Inflow Area = 194,278 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 21.14 cfs @ 12.13 hrs, Volume= 50,947 cf
Outflow = 3.27 cfs @ 12.55 hrs, Volume= 50,931 cf, Atten= 85%, Lag= 25.3 min
Primary = 3.27 cfs @ 12.55 hrs, Volume= 50,931 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 860.18' @ 12.55 hrs Storage= 27,397 cf

Plug-Flow detention time= 231.6 min calculated for 50,931 cf (100% of inflow)
Center-of-Mass det. time= 231.4 min (983.7 - 752.3)

Volume	Invert	Avail.Storage	Storage Description
#1	855.75'	37,071 cf	**Storm Trap - 6'-0" Single Trap Stage Data** Listed below

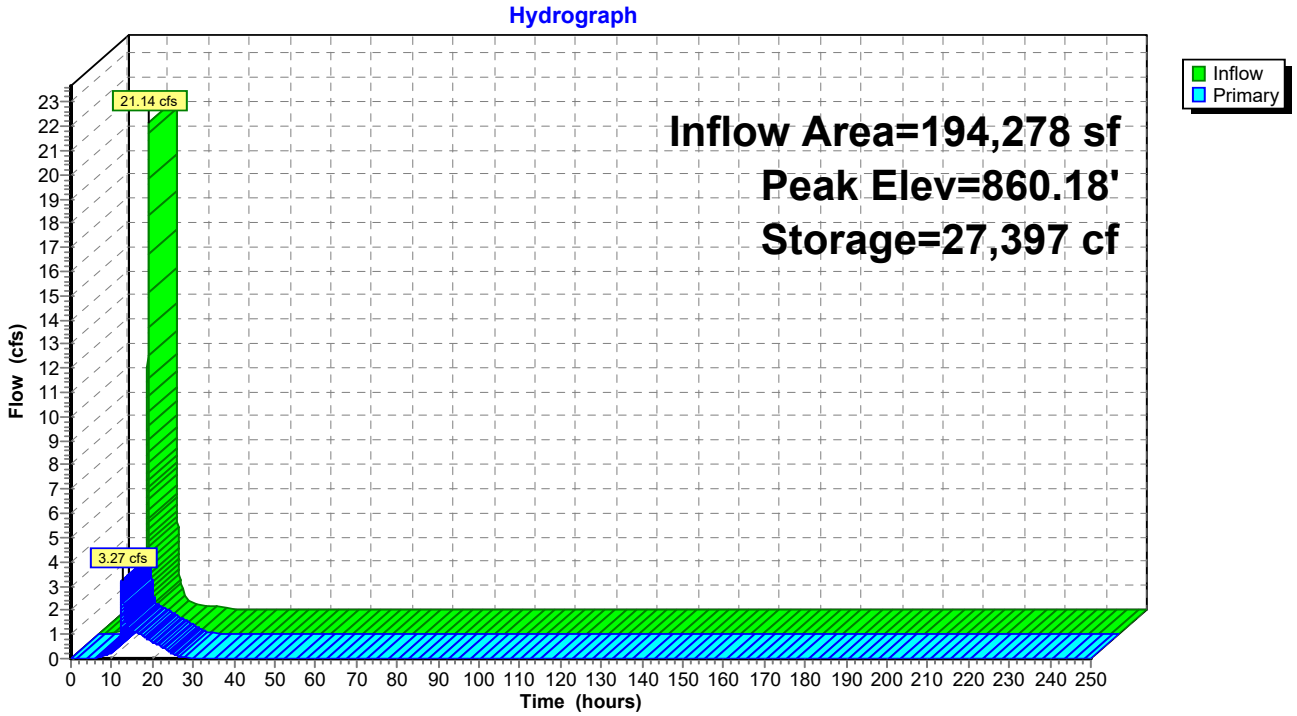
Elevation (feet)	Cum.Store (cubic-feet)
855.75	0
856.00	1,544
856.25	3,089
856.50	4,634
856.75	6,179
857.00	7,723
857.25	9,268
857.50	10,813
857.75	12,357
858.00	13,902
858.25	15,446
858.50	16,991
858.75	18,535
859.00	20,080
859.25	21,625
859.50	23,170
859.75	24,714
860.00	26,259
860.25	27,804
860.50	29,348
860.75	30,893
861.00	32,437
861.25	33,982
861.50	35,527
861.75	37,071

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**24.0" Round Culvert** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.85' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2	Device 1	855.75'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	859.60'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	861.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.27 cfs @ 12.55 hrs HW=860.18' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 3.27 cfs of 27.30 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 1.35 cfs @ 9.90 fps)
  - **3=Orifice/Grate** (Orifice Controls 1.92 cfs @ 2.60 fps)
  - **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Underground Detention System 3B (North)



Summary for Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)

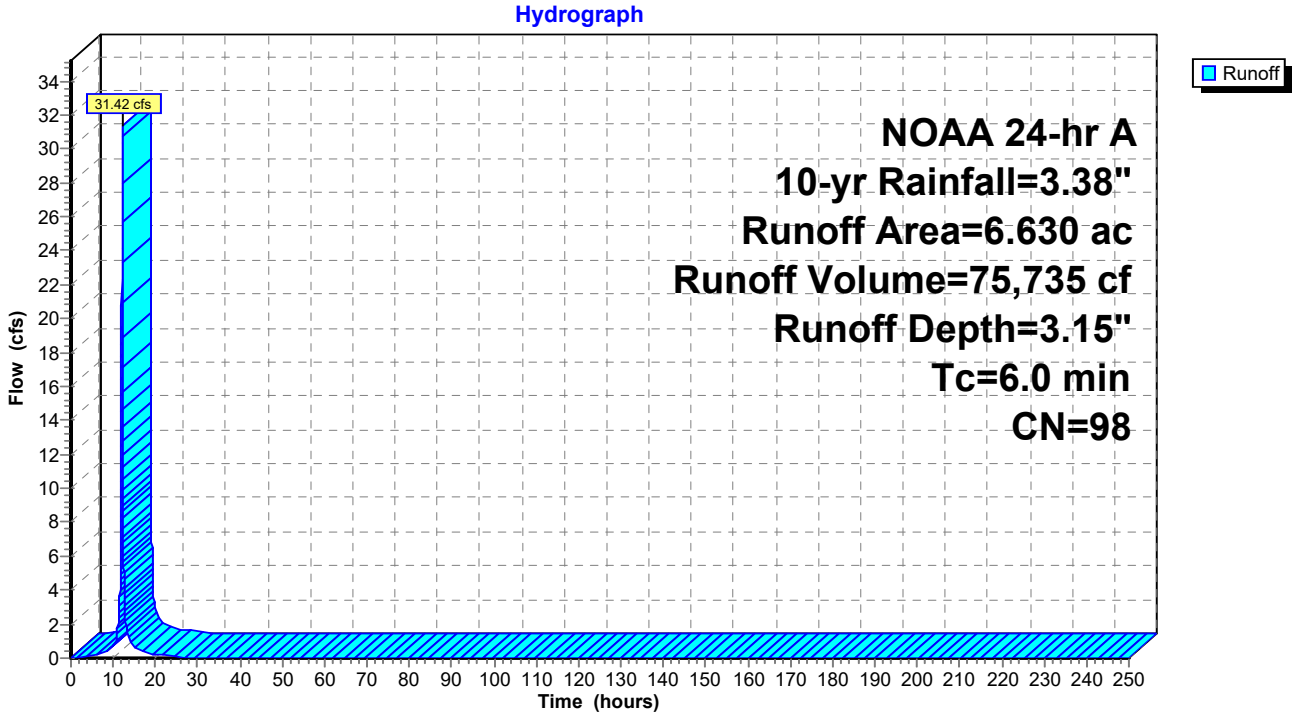
Runoff = 31.42 cfs @ 12.13 hrs, Volume= 75,735 cf, Depth= 3.15"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
6.630	98	Paved parking, HSG C
6.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)



Summary for Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)

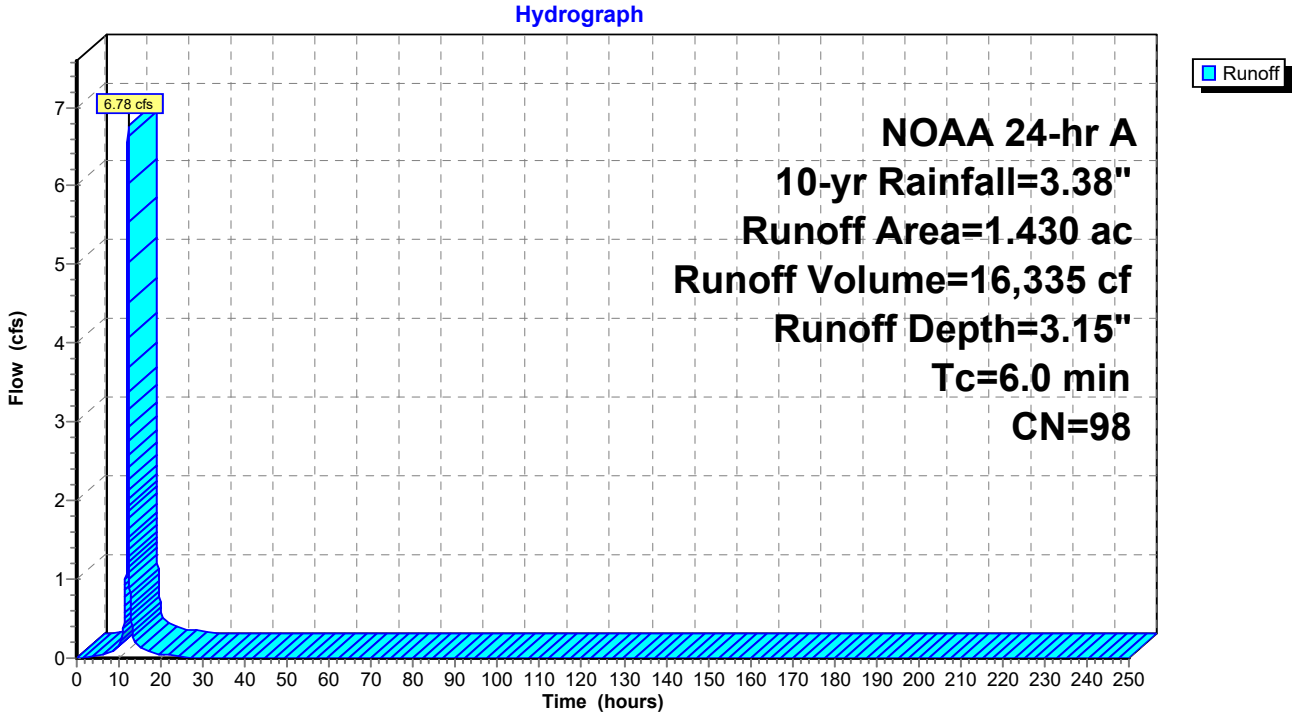
Runoff = 6.78 cfs @ 12.13 hrs, Volume= 16,335 cf, Depth= 3.15"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
1.430	98	Paved parking, HSG C
1.430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)



Summary for Pond 27: Underground Detention System 3A (South)

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 38.20 cfs @ 12.13 hrs, Volume= 92,070 cf
Outflow = 28.59 cfs @ 12.18 hrs, Volume= 85,431 cf, Atten= 25%, Lag= 3.0 min
Primary = 28.59 cfs @ 12.18 hrs, Volume= 85,431 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 859.21' @ 12.18 hrs Storage= 27,937 cf

Plug-Flow detention time= 96.5 min calculated for 85,431 cf (93% of inflow)
Center-of-Mass det. time= 61.0 min (813.3 - 752.3)

Volume	Invert	Avail.Storage	Storage Description
#1	855.00'	39,792 cf	**Storm Trap - 6'-0" Double Trap Stage Data** Listed below

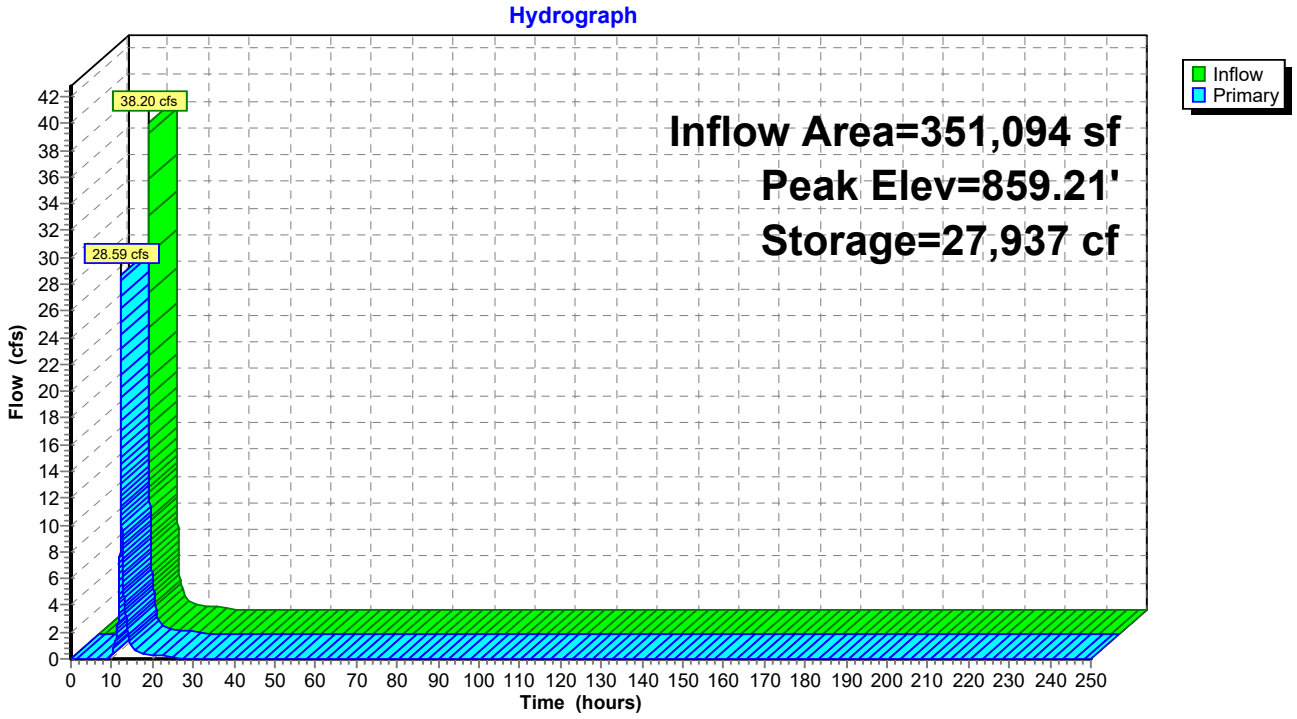
Elevation (feet)	Cum.Store (cubic-feet)
855.00	0
855.25	1,658
855.50	3,316
855.75	4,974
856.00	6,632
856.25	8,290
856.50	9,948
856.75	11,066
857.00	13,264
857.25	14,922
857.50	16,580
857.75	18,238
858.00	19,896
858.25	21,554
858.50	23,212
858.75	24,870
859.00	26,528
859.25	28,186
859.50	29,844
859.75	31,502
860.00	33,160
860.25	34,818
860.50	36,476
860.75	38,134
861.00	39,792

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**30.0" Round SCM Outfall 300A** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.86' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

#2	Device 1	856.00'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	857.20'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	858.20'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=28.58 cfs @ 12.18 hrs HW=859.21' TW=0.00' (Dynamic Tailwater)
- **1=SCM Outfall 300A** (Passes 28.58 cfs of 35.89 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 7.17 cfs @ 8.11 fps)
  - **3=Orifice/Grate** (Orifice Controls 5.44 cfs @ 6.16 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 15.98 cfs @ 3.29 fps)

Pond 27: Underground Detention System 3A (South)

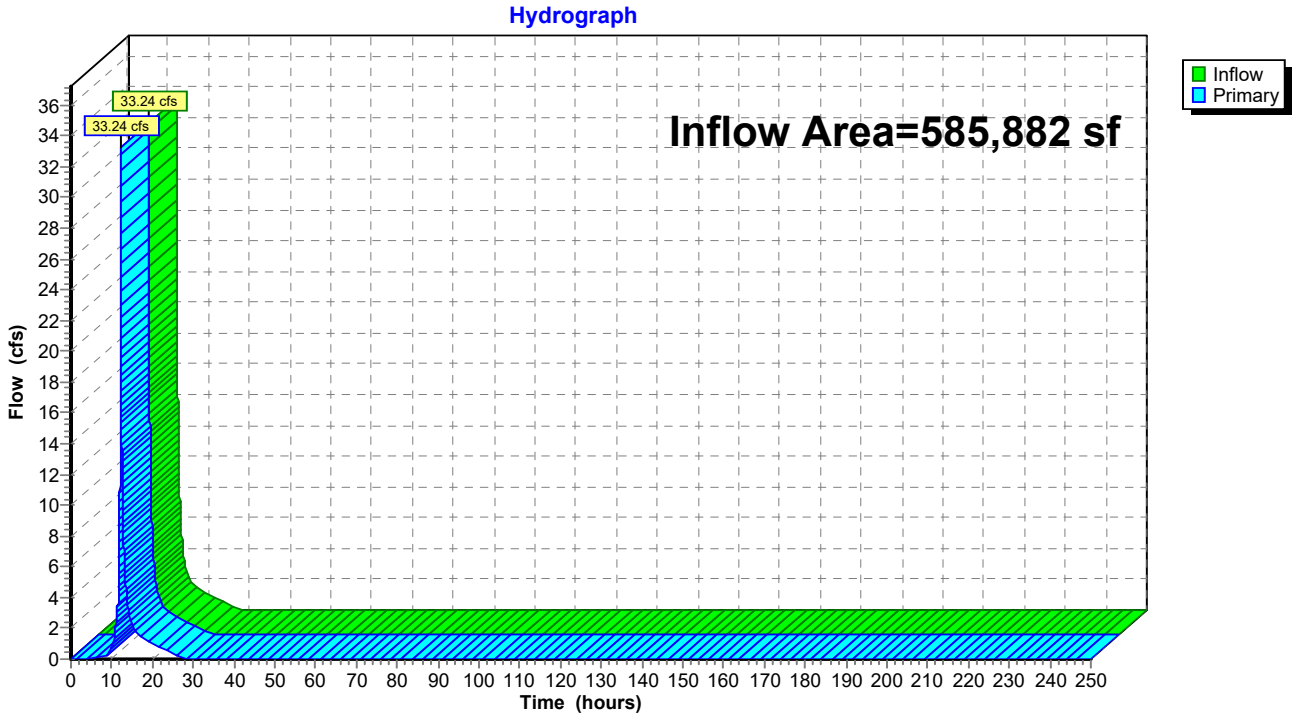


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 585,882 sf,100.00% Impervious, Inflow Depth = 3.01" for 10-yr event
Inflow = 33.24 cfs @ 12.17 hrs, Volume= 146,986 cf
Primary = 33.24 cfs @ 12.17 hrs, Volume= 146,986 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)

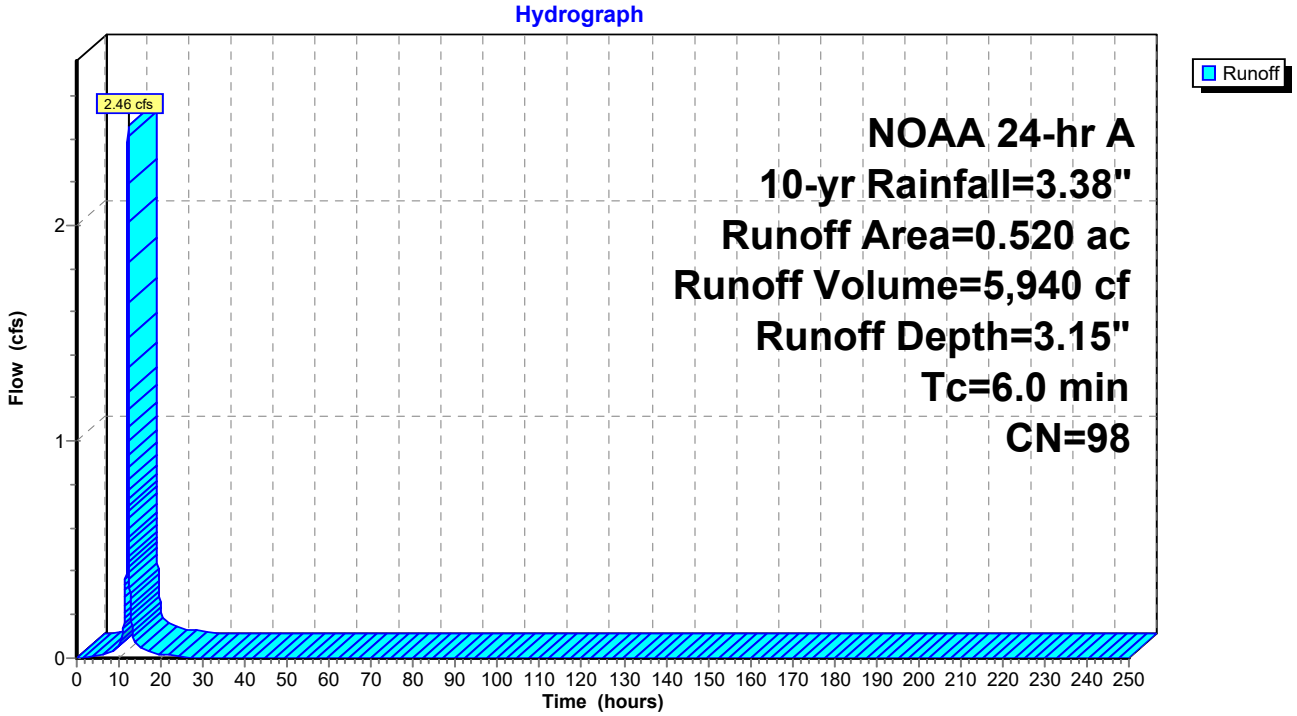
Runoff = 2.46 cfs @ 12.13 hrs, Volume= 5,940 cf, Depth= 3.15"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)



Summary for Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

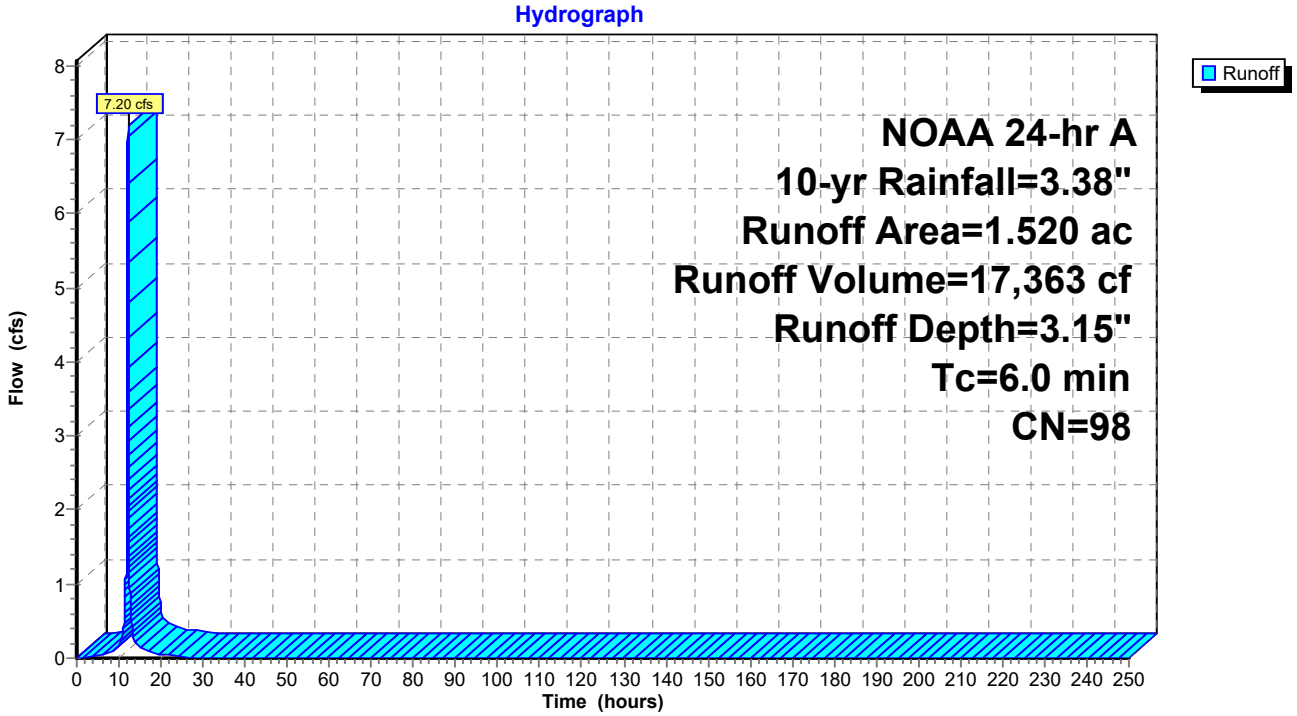
Runoff = 7.20 cfs @ 12.13 hrs, Volume= 17,363 cf, Depth= 3.15"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 10-yr Rainfall=3.38"

Area (ac)	CN	Description
1.520	98	Paved parking, HSG C
1.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

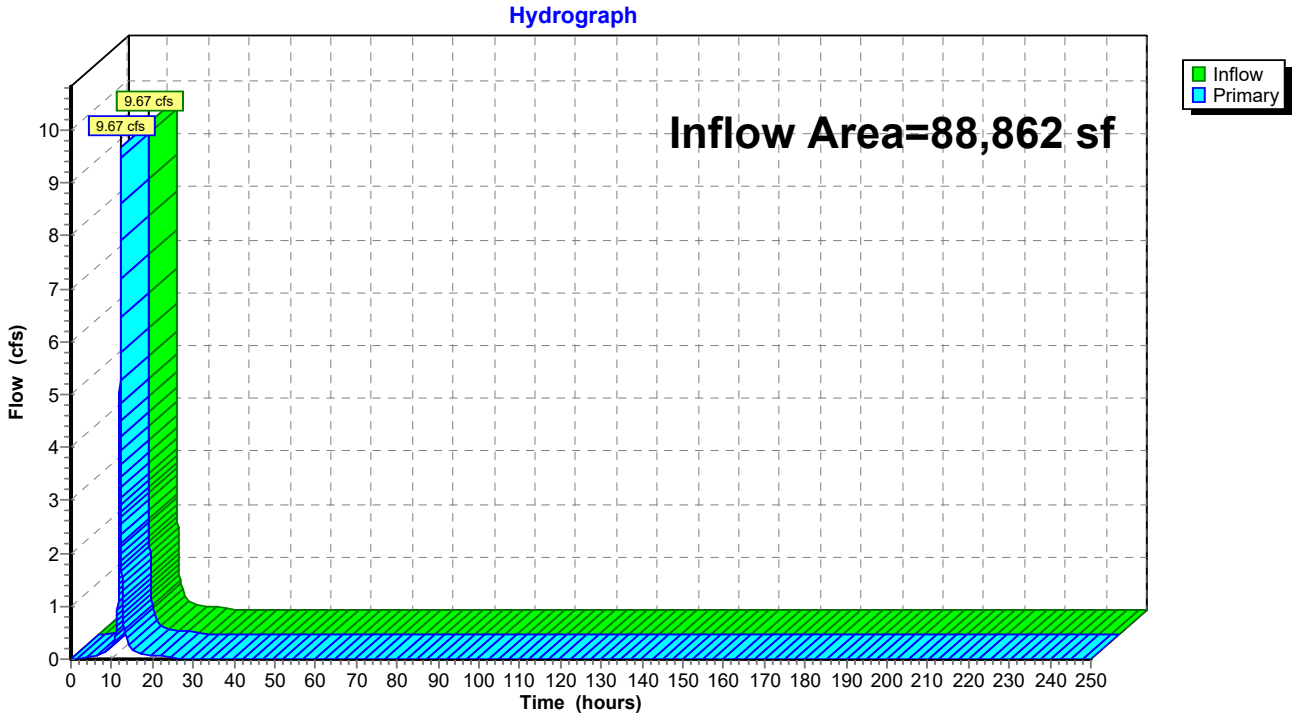


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 88,862 sf,100.00% Impervious, Inflow Depth = 3.15" for 10-yr event
Inflow = 9.67 cfs @ 12.13 hrs, Volume= 23,303 cf
Primary = 9.67 cfs @ 12.13 hrs, Volume= 23,303 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

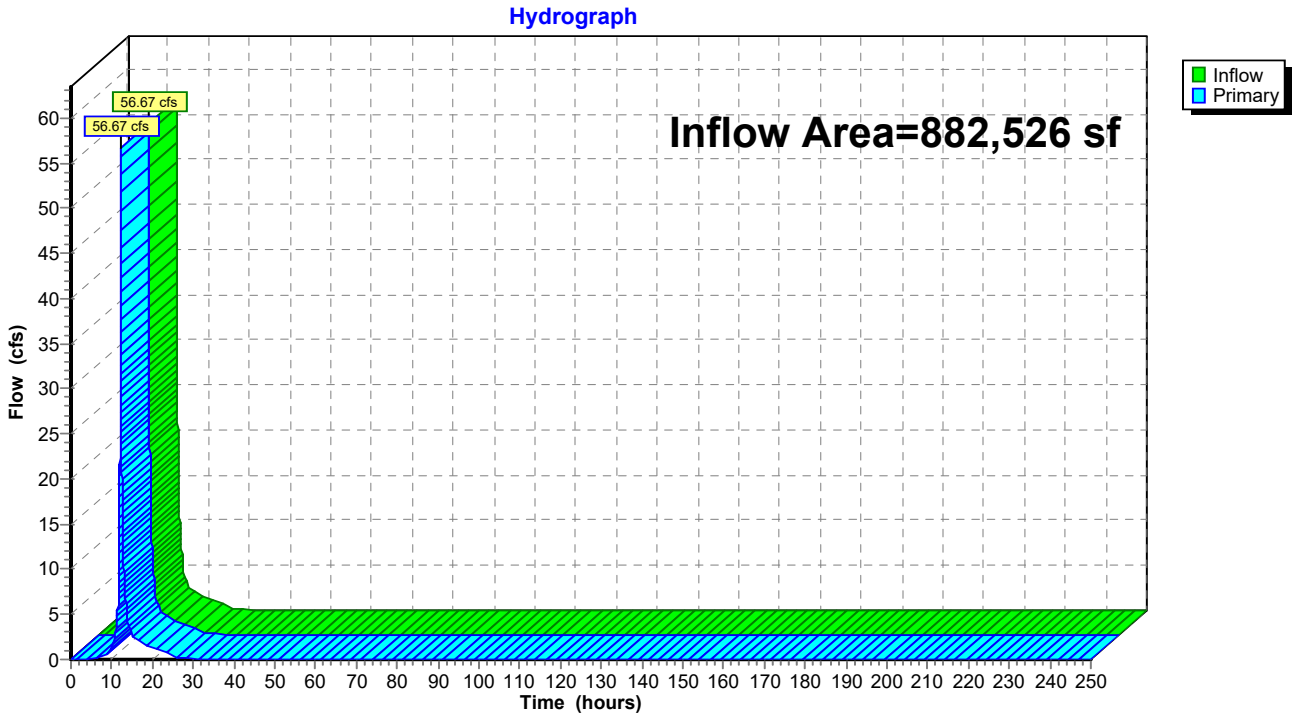


Summary for Link 33: POA 001

Inflow Area = 882,526 sf,100.00% Impervious, Inflow Depth = 3.06" for 10-yr event
Inflow = 56.67 cfs @ 12.15 hrs, Volume= 224,763 cf
Primary = 56.67 cfs @ 12.15 hrs, Volume= 224,763 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Within LOD)

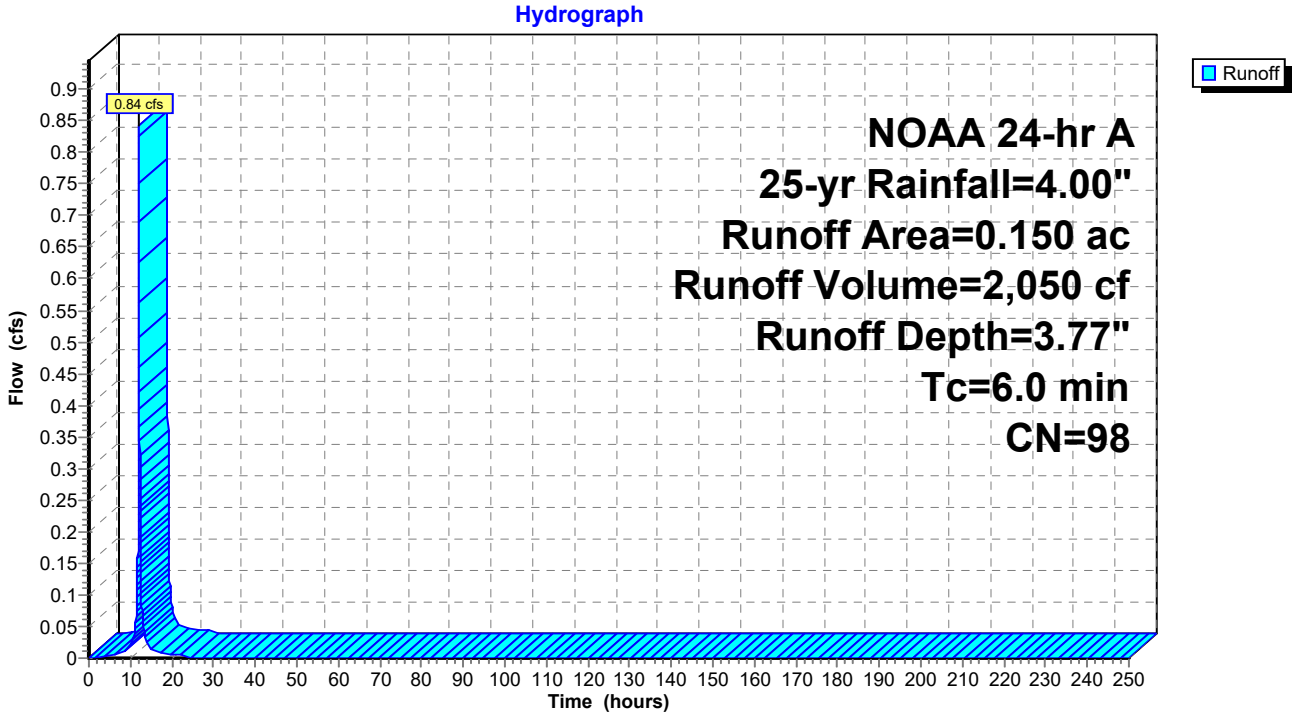
Runoff = 0.84 cfs @ 12.13 hrs, Volume= 2,050 cf, Depth= 3.77"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Within LOD)



Summary for Subcatchment 11: Post-Development DA-1 (Outside LOD)

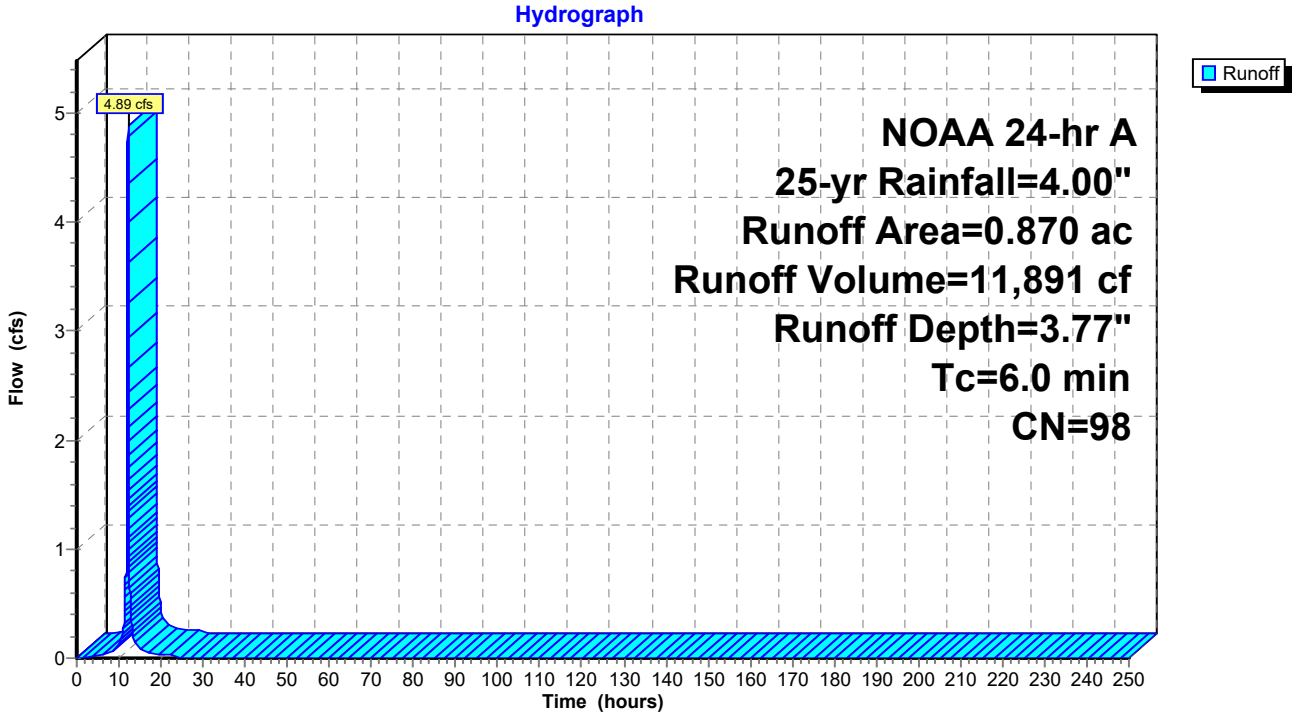
Runoff = 4.89 cfs @ 12.13 hrs, Volume= 11,891 cf, Depth= 3.77"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.870	98	Paved parking, HSG C
0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 11: Post-Development DA-1 (Outside LOD)

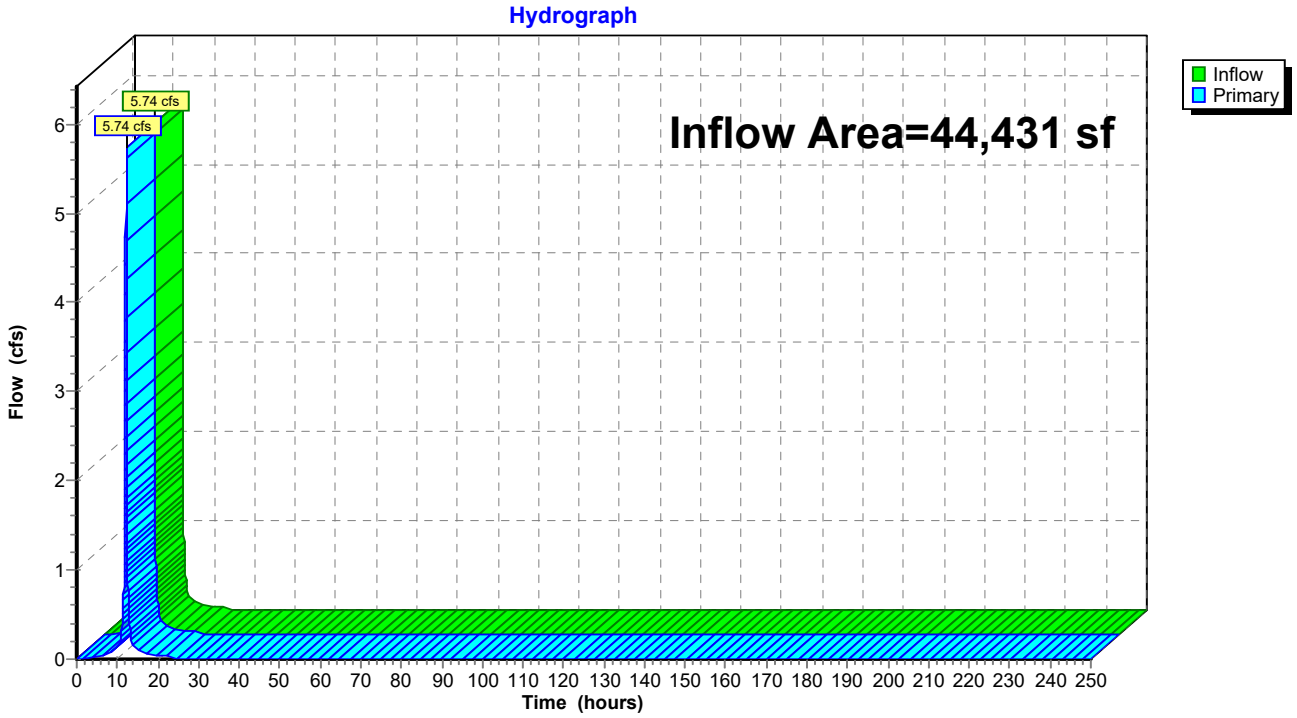


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 44,431 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 5.74 cfs @ 12.13 hrs, Volume= 13,941 cf
Primary = 5.74 cfs @ 12.13 hrs, Volume= 13,941 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

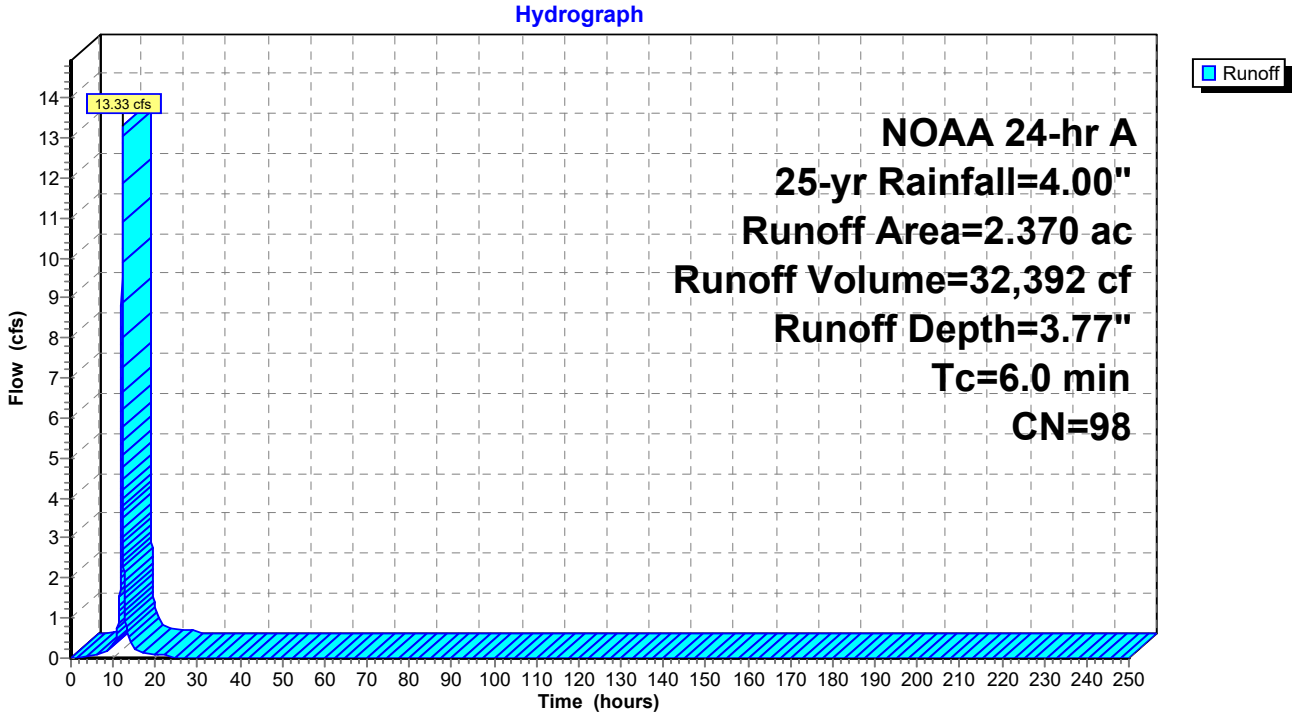
Runoff = 13.33 cfs @ 12.13 hrs, Volume= 32,392 cf, Depth= 3.77"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
2.370	98	Paved parking, HSG C
2.370		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)

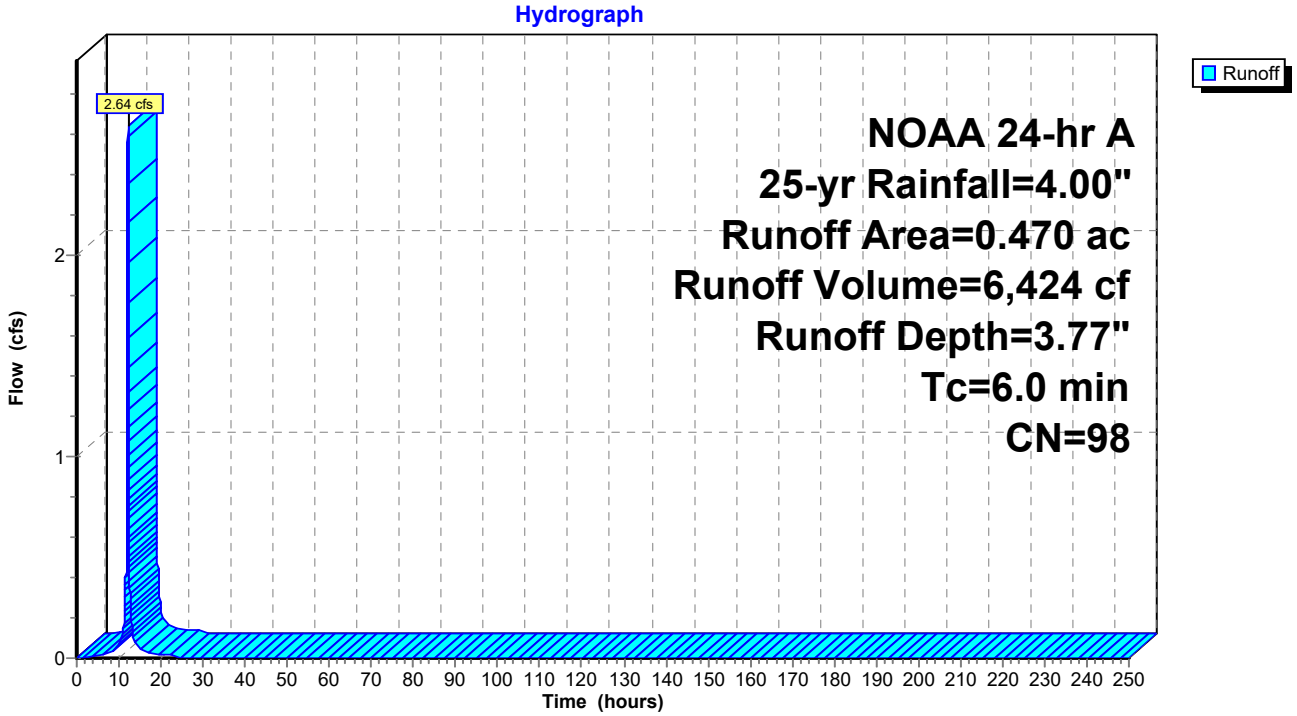
Runoff = 2.64 cfs @ 12.13 hrs, Volume= 6,424 cf, Depth= 3.77"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG C
0.470		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)



Summary for Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)

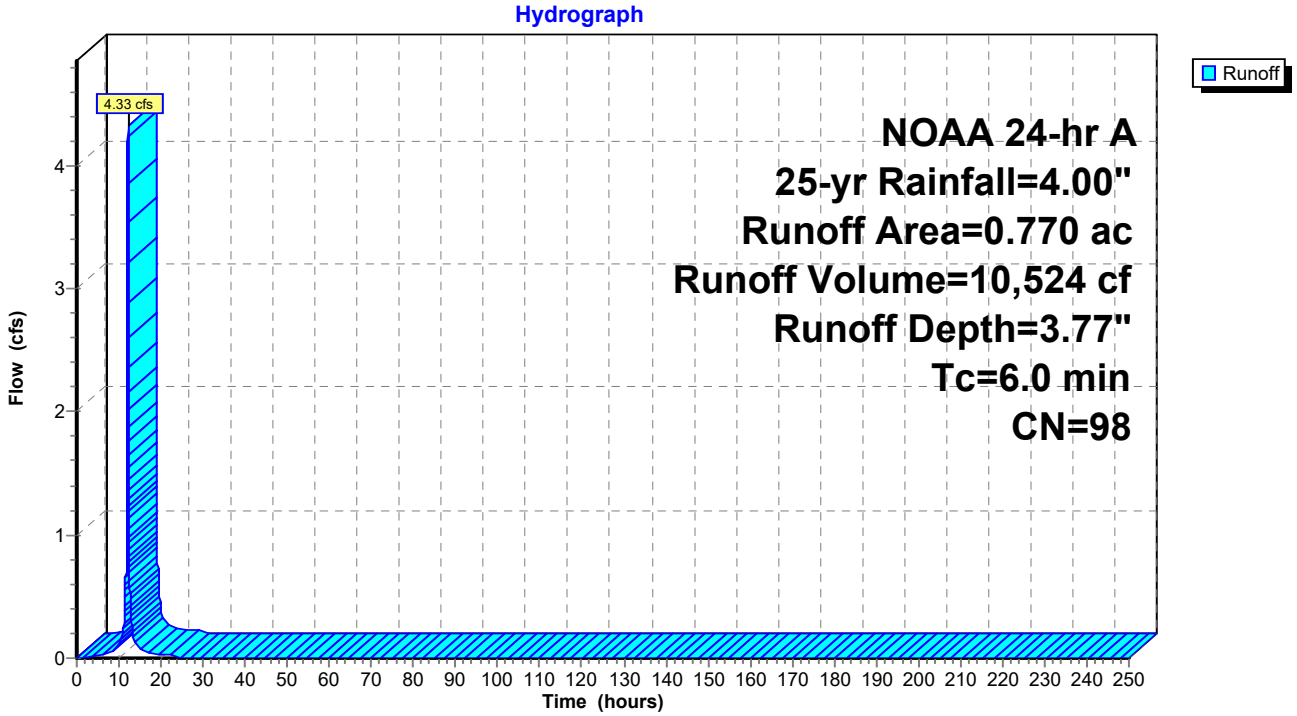
Runoff = 4.33 cfs @ 12.13 hrs, Volume= 10,524 cf, Depth= 3.77"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.770	98	Paved parking, HSG C
0.770		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 14.12 cfs @ 12.13 hrs, Volume= 34,305 cf
Outflow = 14.12 cfs @ 12.13 hrs, Volume= 34,305 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.38 cfs @ 12.13 hrs, Volume= 33,881 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 1.75 cfs @ 12.13 hrs, Volume= 424 cf
Routed to Link 20 : Post-Development Discharge Point 2

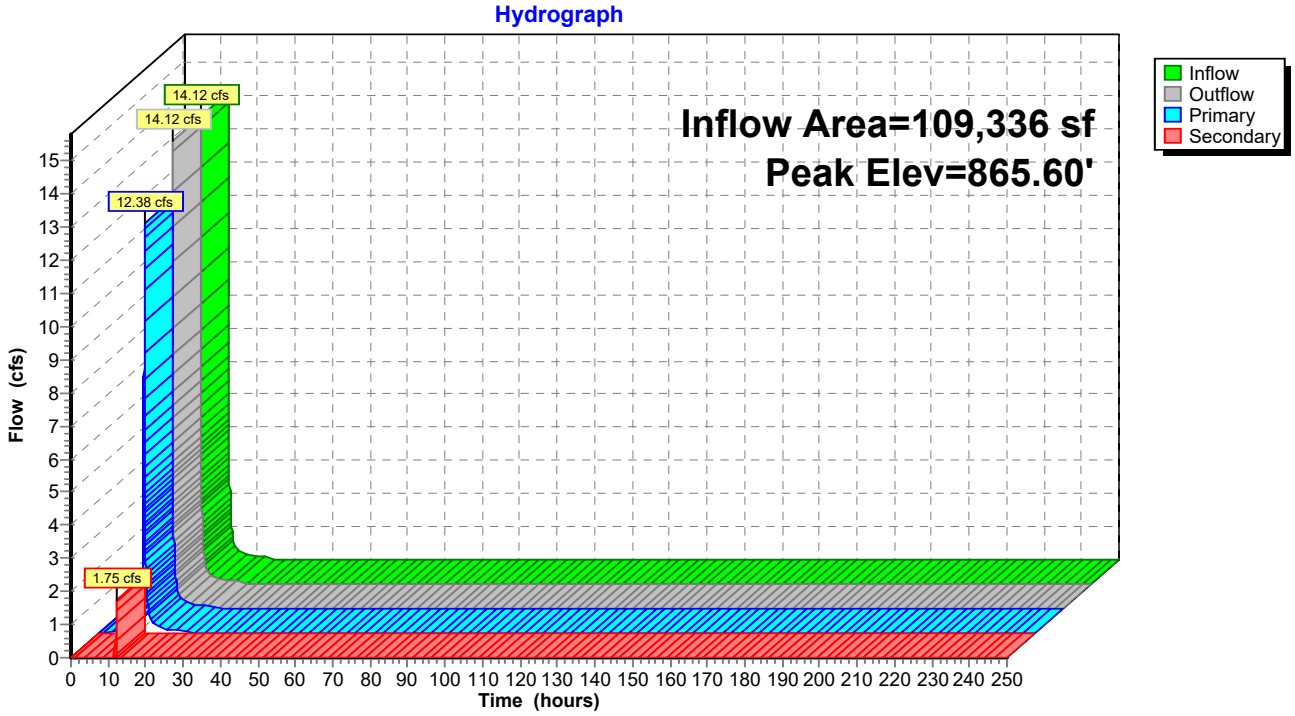
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.60' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=12.28 cfs @ 12.13 hrs HW=865.60' TW=865.21' (Dynamic Tailwater)
└**1=Culvert to MRC** (Outlet Controls 12.28 cfs @ 3.72 fps)

Secondary OutFlow Max=1.74 cfs @ 12.13 hrs HW=865.60' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Passes 1.74 cfs of 5.54 cfs potential flow)
└**3=Diversion Weir** (Weir Controls 1.74 cfs @ 1.46 fps)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

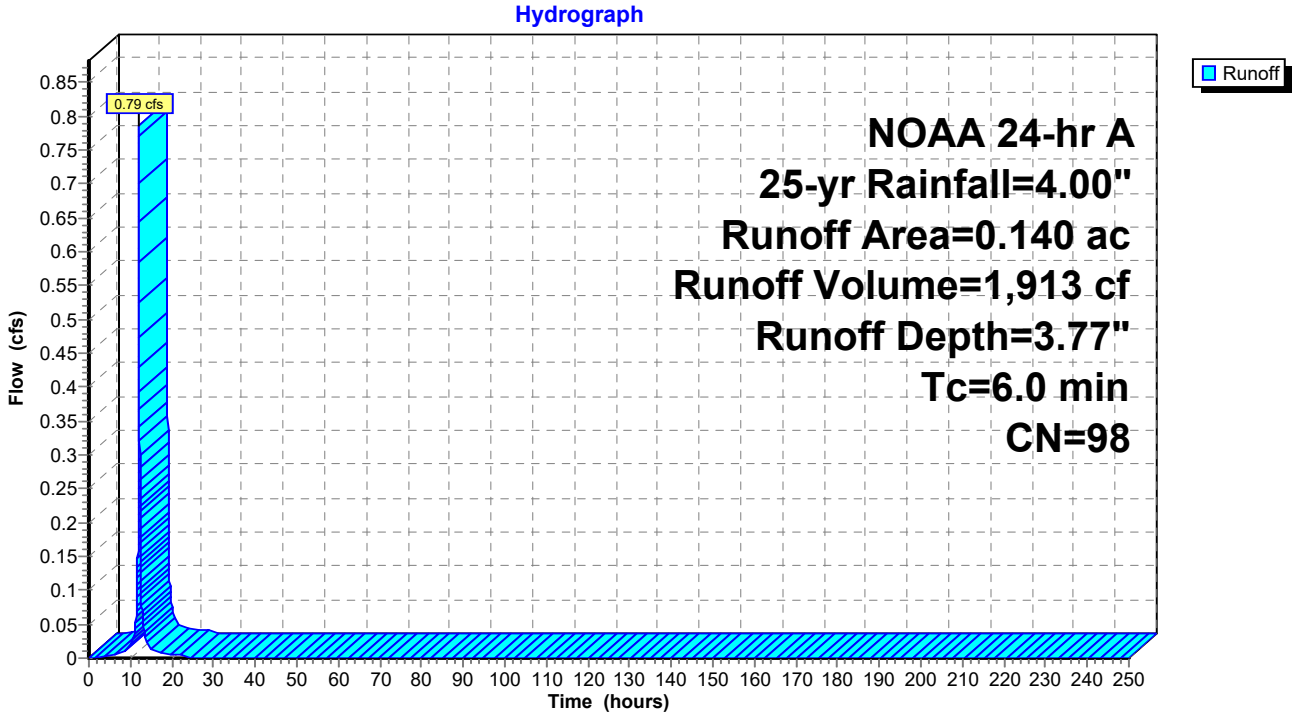
Runoff = 0.79 cfs @ 12.13 hrs, Volume= 1,913 cf, Depth= 3.77"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 3.72" for 25-yr event
Inflow = 12.38 cfs @ 12.13 hrs, Volume= 33,881 cf
Outflow = 12.38 cfs @ 12.13 hrs, Volume= 33,881 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.19 cfs @ 12.13 hrs, Volume= 16,940 cf
Routed to Pond 18 : MRC Cell 2A
Secondary = 6.19 cfs @ 12.13 hrs, Volume= 16,940 cf
Routed to Pond 19 : MRC Cell 2B

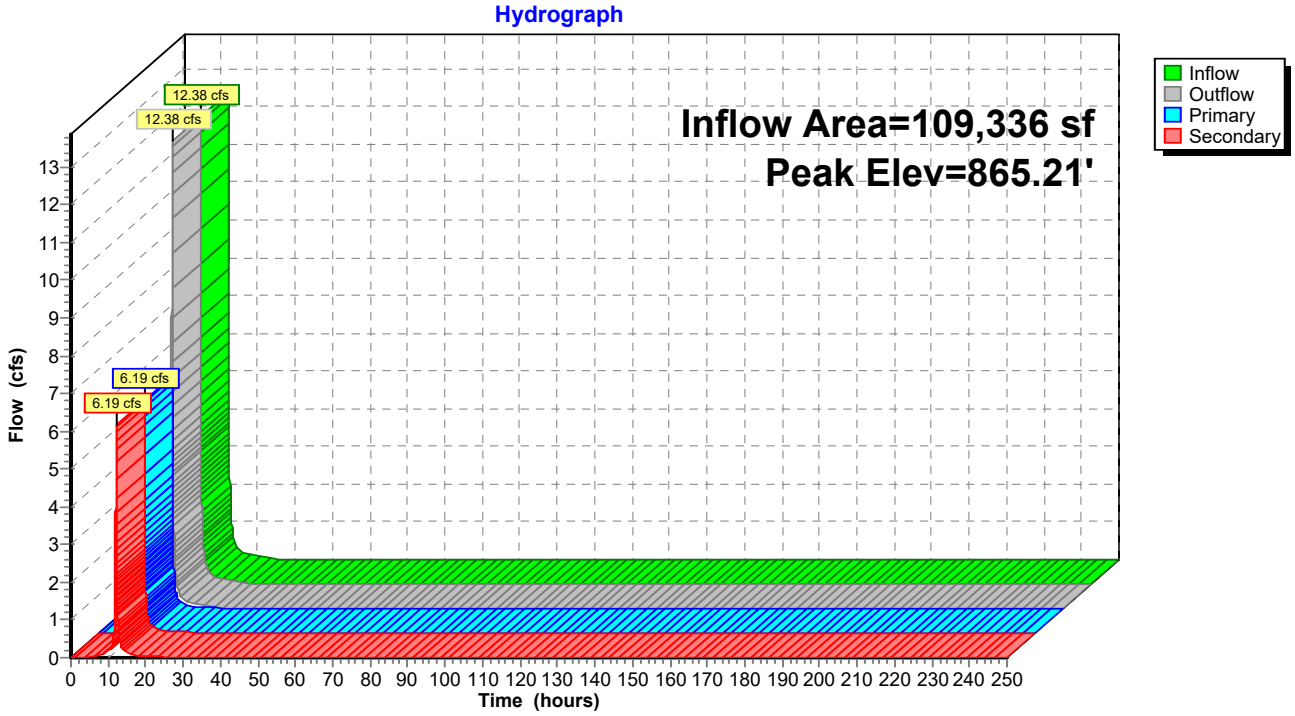
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.21' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.18 cfs @ 12.13 hrs HW=865.21' TW=863.56' (Dynamic Tailwater)
↑—**1=Culvert to MRC Cell 2A** (Barrel Controls 6.18 cfs @ 4.05 fps)

Secondary OutFlow Max=6.18 cfs @ 12.13 hrs HW=865.21' TW=863.56' (Dynamic Tailwater)
↑—**2=Culvert to MRC Cell 2B** (Barrel Controls 6.18 cfs @ 4.05 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18: MRC Cell 2A

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 1.86" for 25-yr event
Inflow = 6.19 cfs @ 12.13 hrs, Volume= 16,940 cf
Outflow = 3.48 cfs @ 12.22 hrs, Volume= 16,933 cf, Atten= 44%, Lag= 5.8 min
Primary = 3.48 cfs @ 12.22 hrs, Volume= 16,933 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.88' @ 12.22 hrs Storage= 7,777 cf

Plug-Flow detention time= 902.3 min calculated for 16,933 cf (100% of inflow)
Center-of-Mass det. time= 902.4 min (1,652.3 - 749.8)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

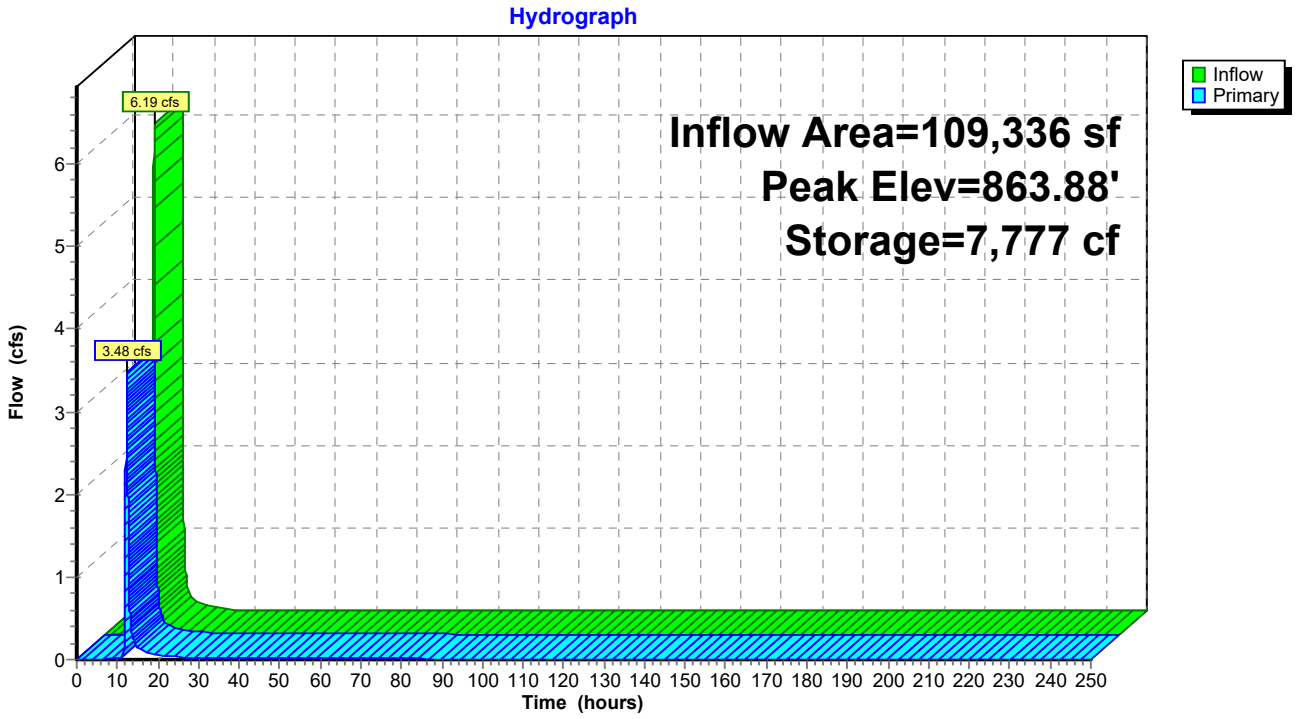
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=3.48 cfs @ 12.22 hrs HW=863.88' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 3.48 cfs of 13.29 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.45 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.44 cfs @ 4.93 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 18: MRC Cell 2A



Summary for Pond 19: MRC Cell 2B

Inflow = 6.19 cfs @ 12.13 hrs, Volume= 16,940 cf
Outflow = 3.48 cfs @ 12.22 hrs, Volume= 16,933 cf, Atten= 44%, Lag= 5.8 min
Primary = 3.48 cfs @ 12.22 hrs, Volume= 16,933 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 863.88' @ 12.22 hrs Storage= 7,777 cf

Plug-Flow detention time= 902.3 min calculated for 16,933 cf (100% of inflow)
Center-of-Mass det. time= 902.4 min (1,652.3 - 749.8)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

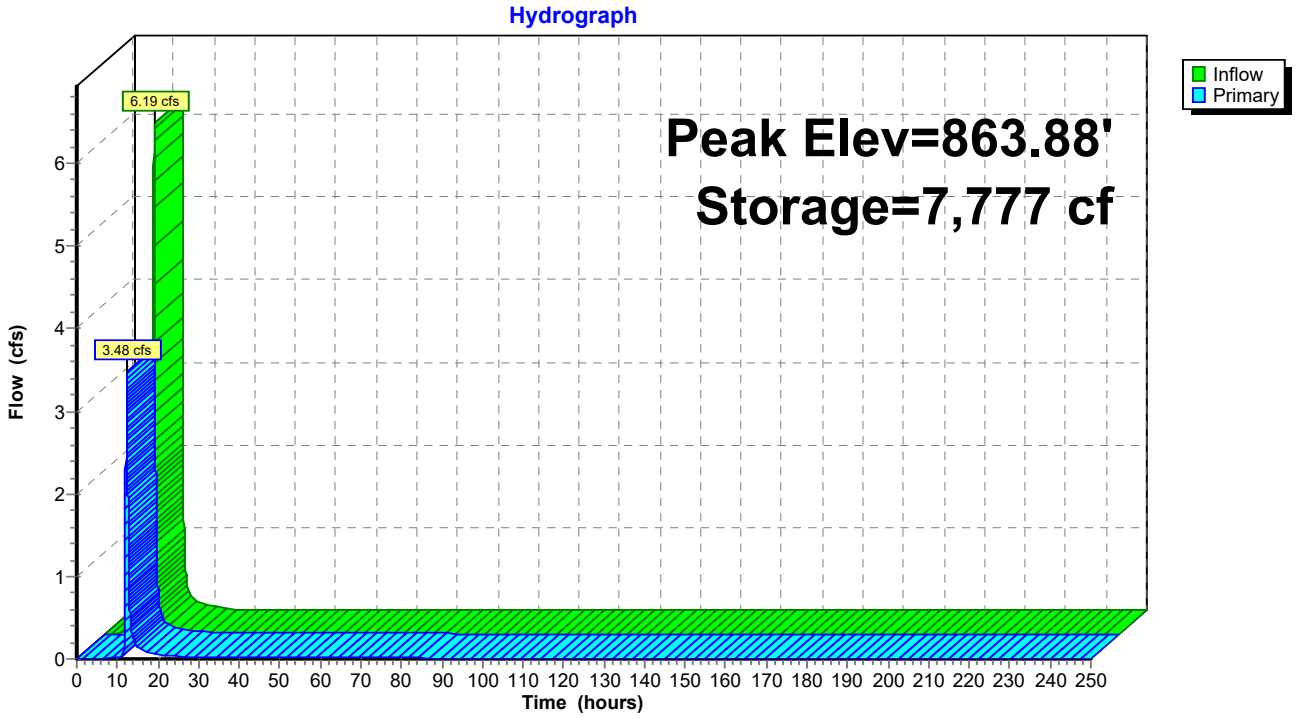
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=3.48 cfs @ 12.22 hrs HW=863.88' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 3.48 cfs of 13.29 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.45 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.44 cfs @ 4.93 fps)
  └─**4=Weir** (Controls 0.00 cfs)

Pond 19: MRC Cell 2B

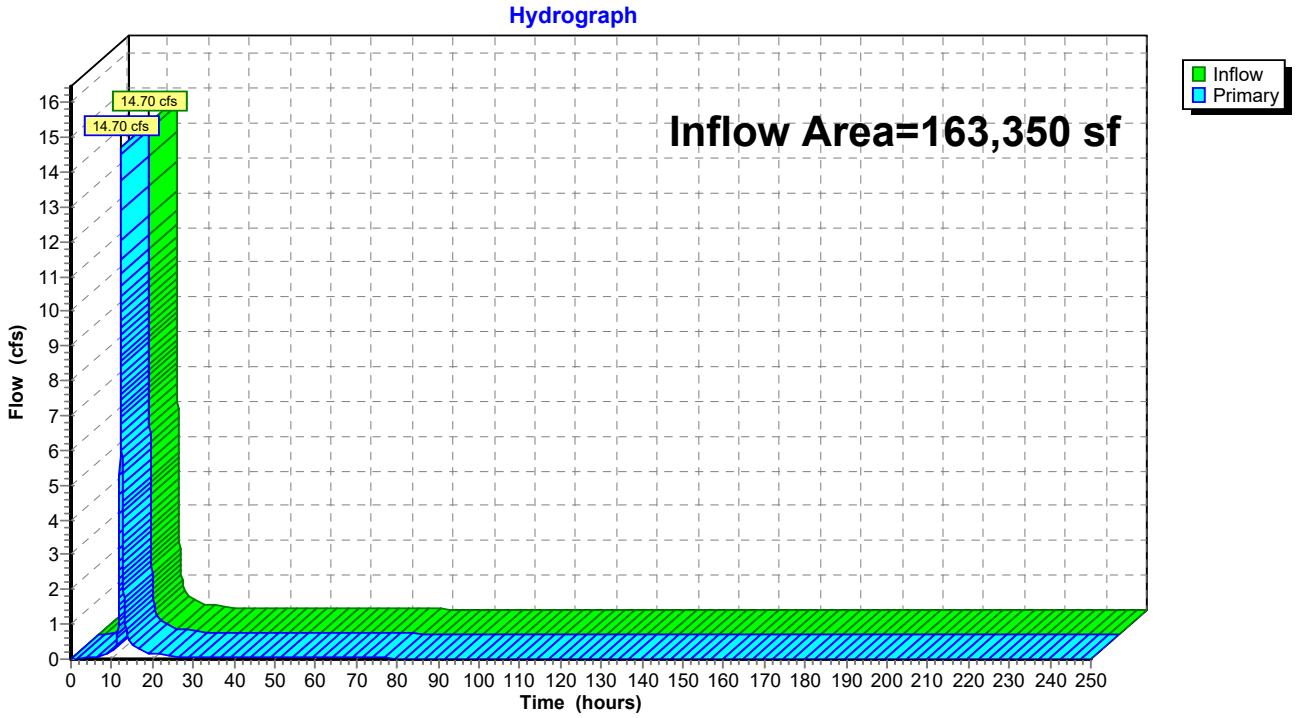


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 163,350 sf,100.00% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 14.70 cfs @ 12.14 hrs, Volume= 51,238 cf
Primary = 14.70 cfs @ 12.14 hrs, Volume= 51,238 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)

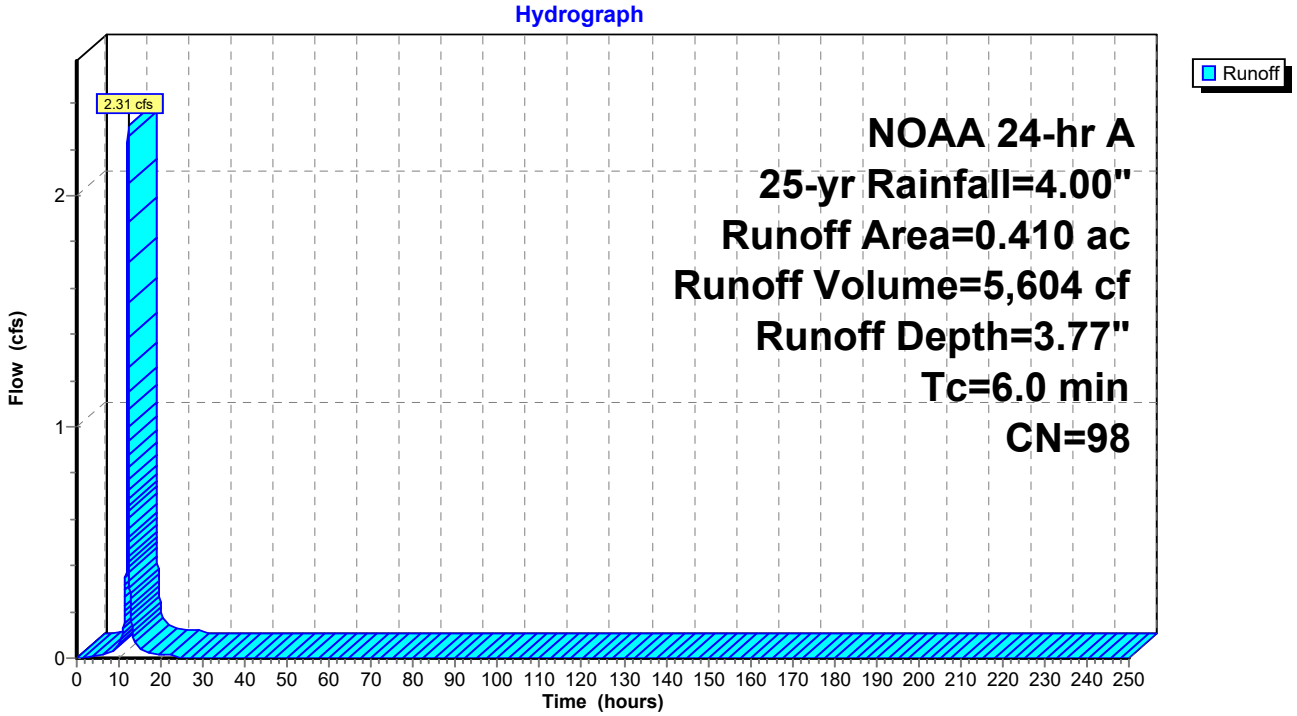
Runoff = 2.31 cfs @ 12.13 hrs, Volume= 5,604 cf, Depth= 3.77"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG C
0.410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)



Summary for Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)

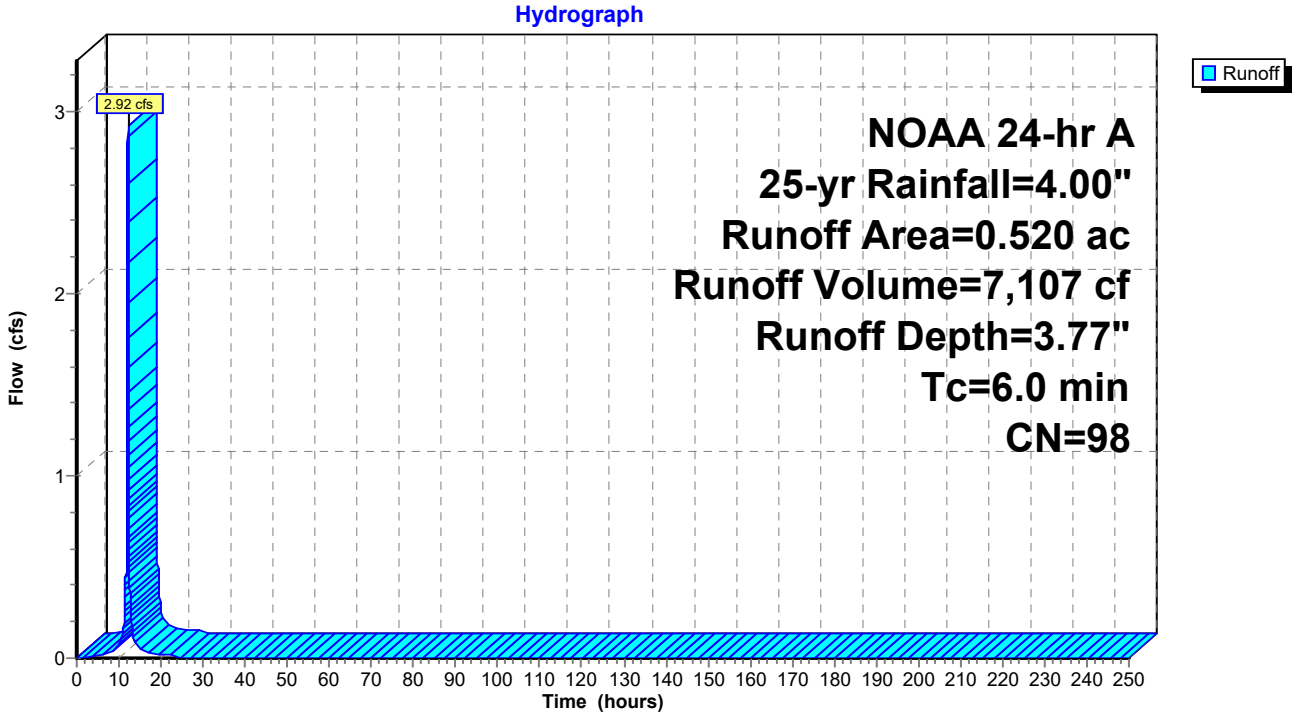
Runoff = 2.92 cfs @ 12.13 hrs, Volume= 7,107 cf, Depth= 3.77"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)



Summary for Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)

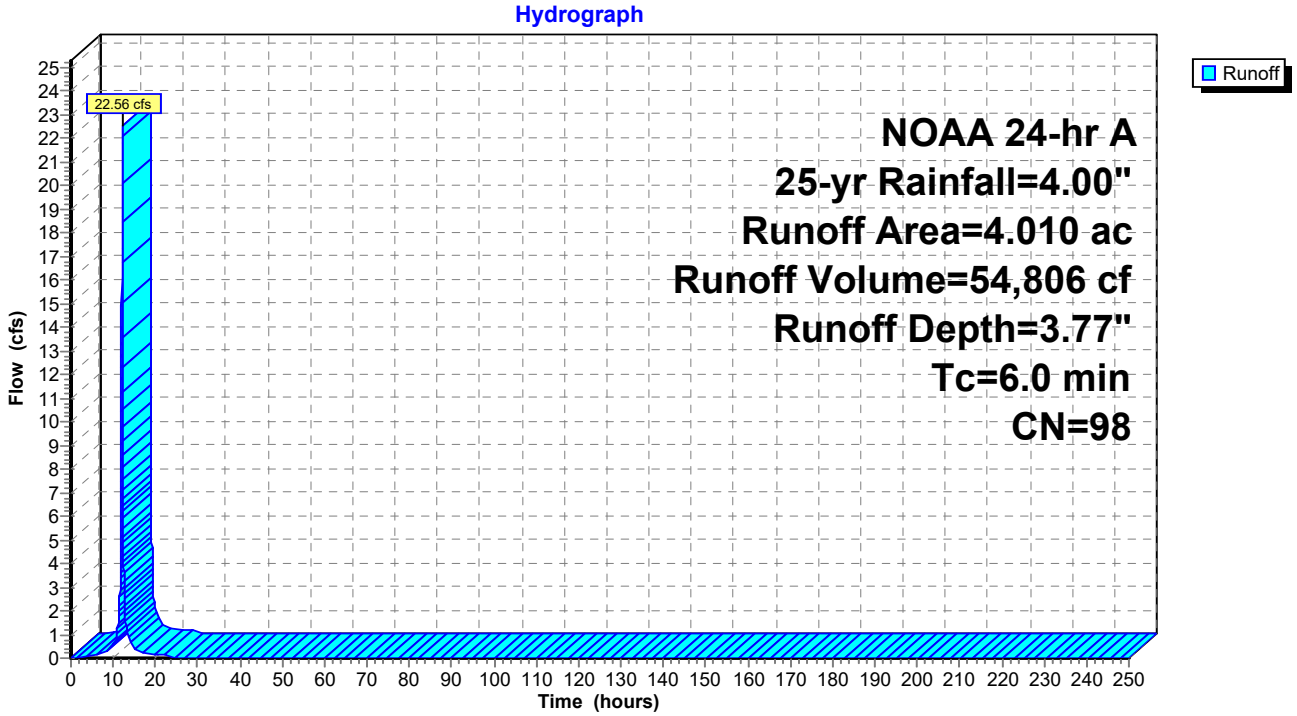
Runoff = 22.56 cfs @ 12.13 hrs, Volume= 54,806 cf, Depth= 3.77"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
4.010	98	Paved parking, HSG C
4.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)



Summary for Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)

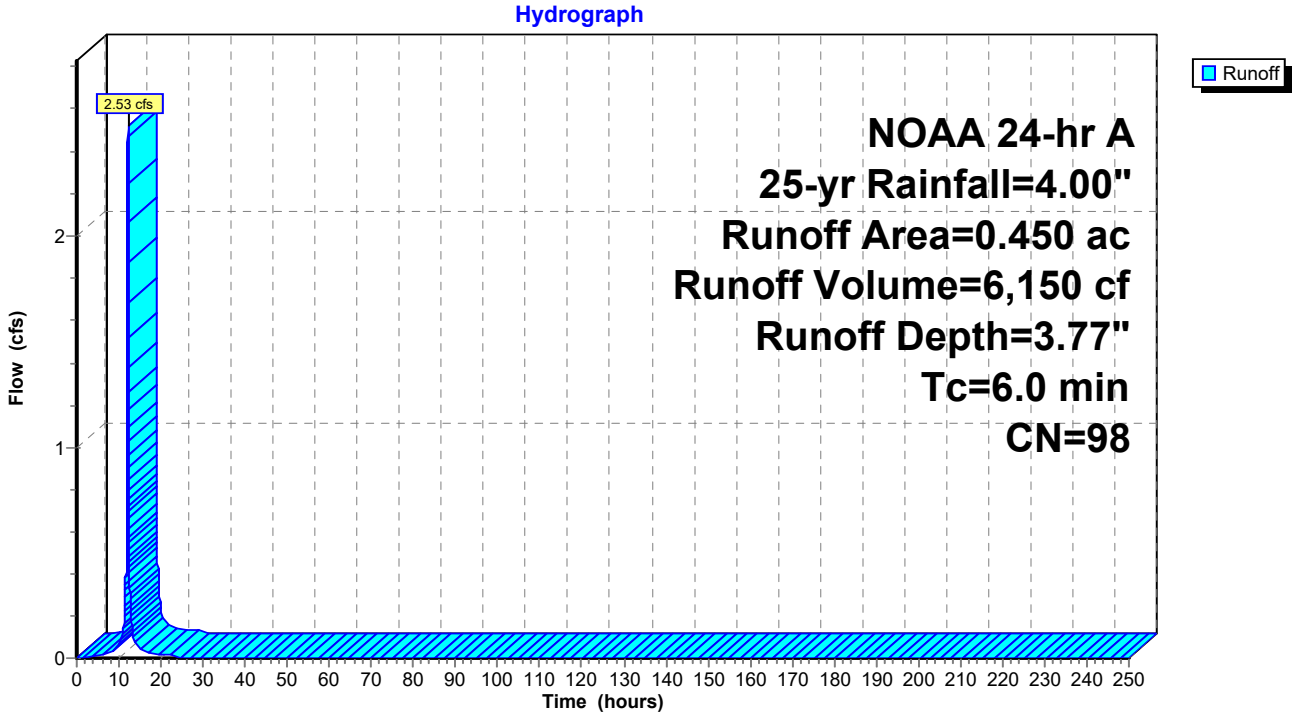
Runoff = 2.53 cfs @ 12.13 hrs, Volume= 6,150 cf, Depth= 3.77"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.450	98	Paved parking, HSG C
0.450		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)



Summary for Pond 24P: Underground Detention System 3B (North)

Inflow Area = 194,278 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 25.09 cfs @ 12.13 hrs, Volume= 60,956 cf
Outflow = 5.12 cfs @ 12.39 hrs, Volume= 60,940 cf, Atten= 80%, Lag= 16.0 min
Primary = 5.12 cfs @ 12.39 hrs, Volume= 60,940 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 860.73' @ 12.39 hrs Storage= 30,740 cf

Plug-Flow detention time= 210.2 min calculated for 60,940 cf (100% of inflow)
Center-of-Mass det. time= 210.0 min (959.6 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	855.75'	37,071 cf	**Storm Trap - 6'-0" Single Trap Stage Data** Listed below

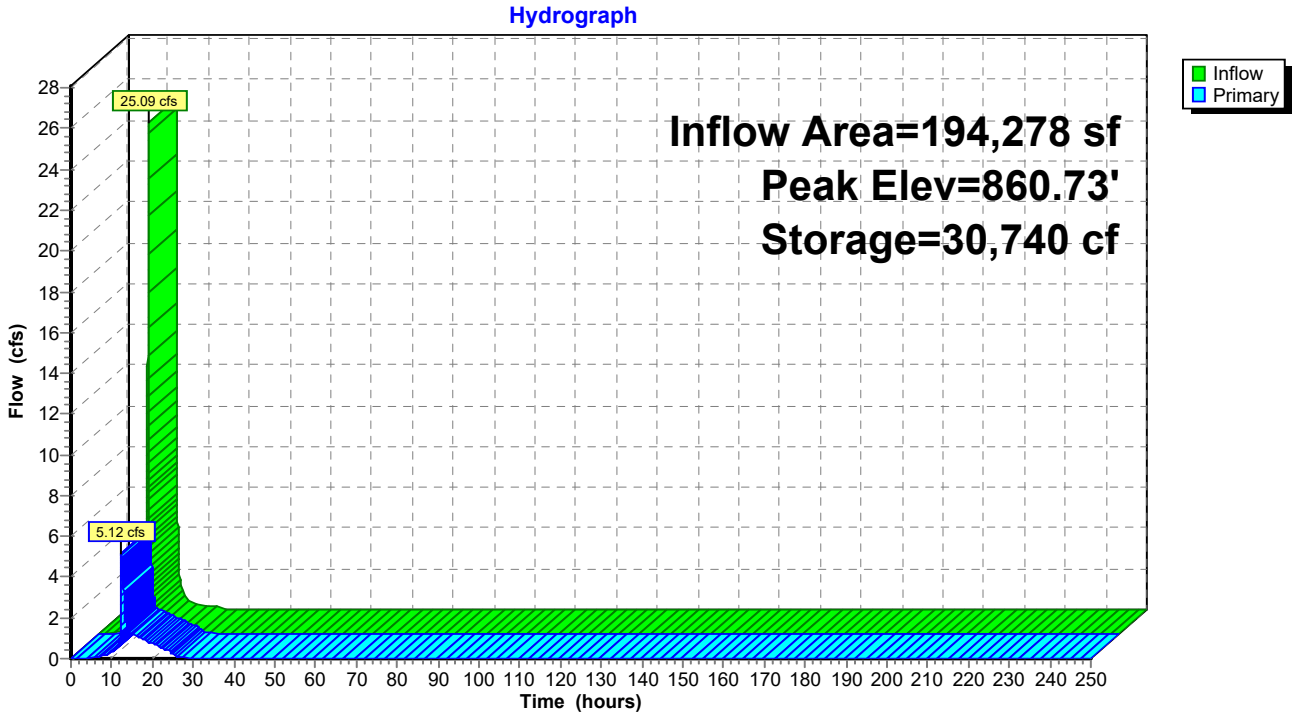
Elevation (feet)	Cum.Store (cubic-feet)
855.75	0
856.00	1,544
856.25	3,089
856.50	4,634
856.75	6,179
857.00	7,723
857.25	9,268
857.50	10,813
857.75	12,357
858.00	13,902
858.25	15,446
858.50	16,991
858.75	18,535
859.00	20,080
859.25	21,625
859.50	23,170
859.75	24,714
860.00	26,259
860.25	27,804
860.50	29,348
860.75	30,893
861.00	32,437
861.25	33,982
861.50	35,527
861.75	37,071

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**24.0" Round Culvert** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.85' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2	Device 1	855.75'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	859.60'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	861.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=5.12 cfs @ 12.39 hrs HW=860.73' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 5.12 cfs of 29.01 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 1.43 cfs @ 10.51 fps)
  - **3=Orifice/Grate** (Orifice Controls 3.68 cfs @ 4.17 fps)
  - **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Underground Detention System 3B (North)



Summary for Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)

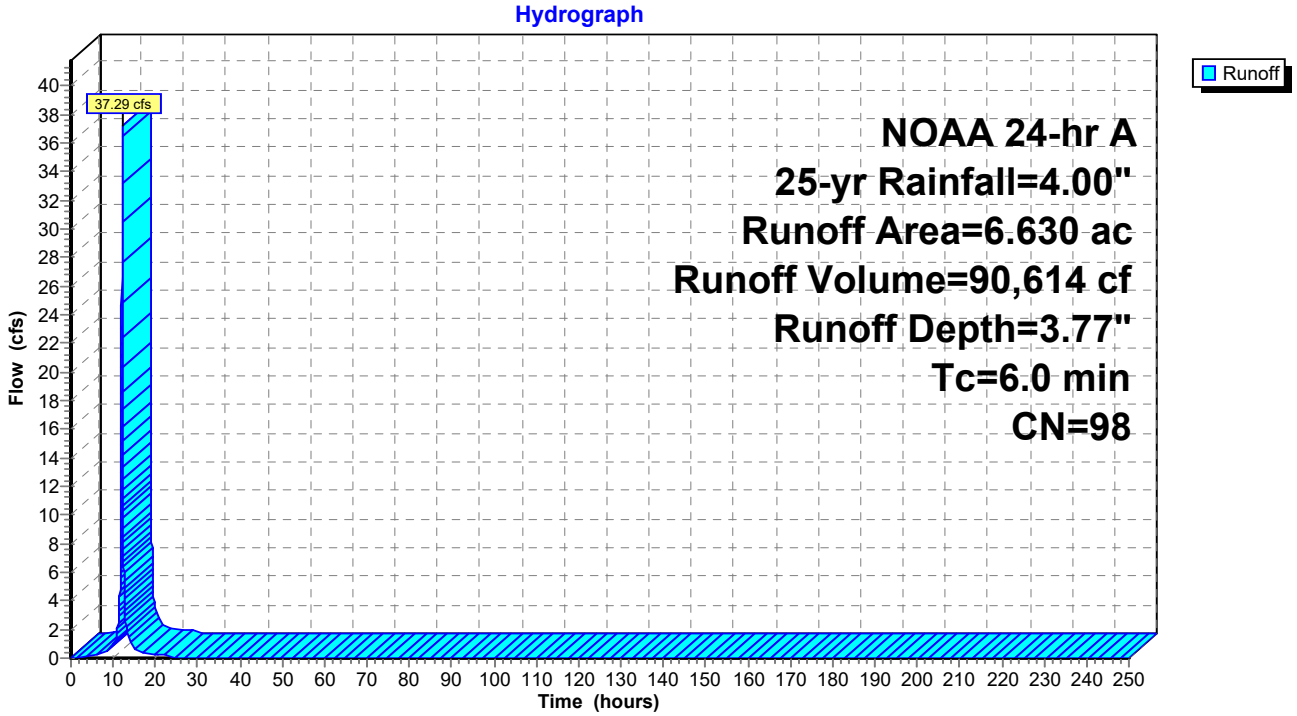
Runoff = 37.29 cfs @ 12.13 hrs, Volume= 90,614 cf, Depth= 3.77"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
6.630	98	Paved parking, HSG C
6.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)



Summary for Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)

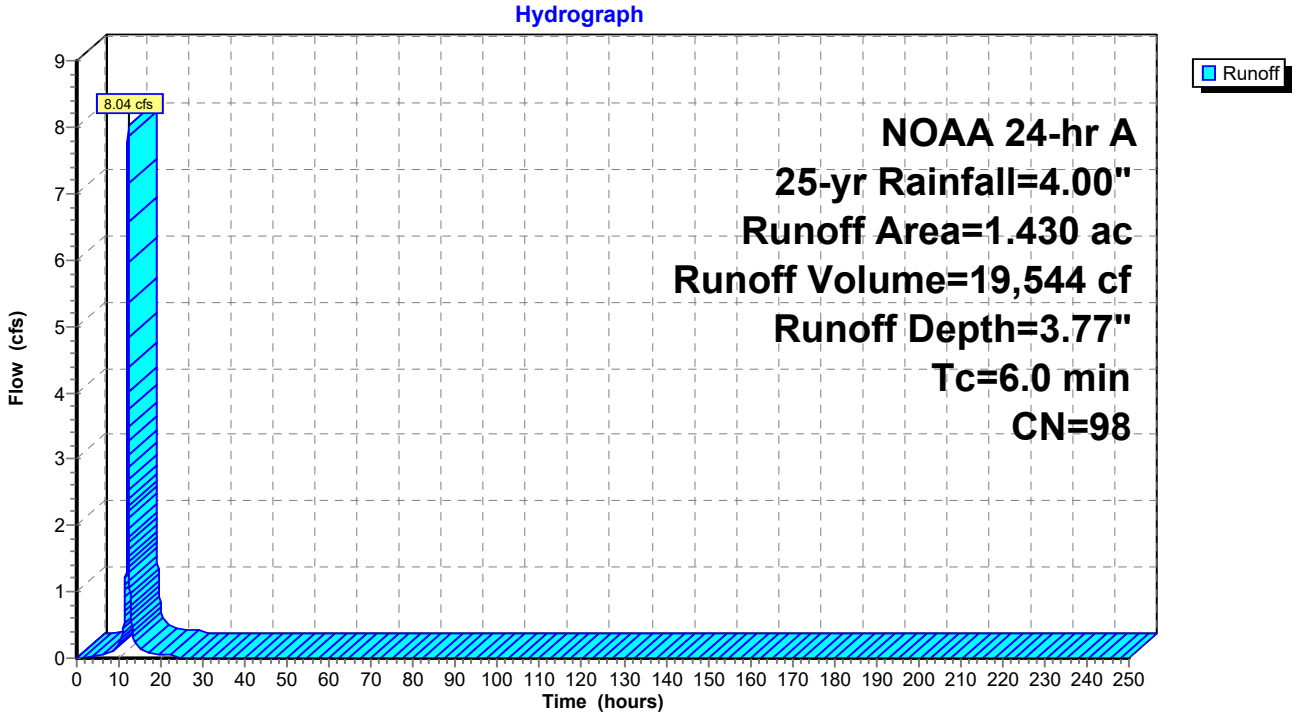
Runoff = 8.04 cfs @ 12.13 hrs, Volume= 19,544 cf, Depth= 3.77"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
1.430	98	Paved parking, HSG C
1.430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)



Summary for Pond 27: Underground Detention System 3A (South)

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 45.34 cfs @ 12.13 hrs, Volume= 110,159 cf
Outflow = 36.19 cfs @ 12.17 hrs, Volume= 103,520 cf, Atten= 20%, Lag= 2.6 min
Primary = 36.19 cfs @ 12.17 hrs, Volume= 103,520 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 859.49' @ 12.17 hrs Storage= 29,796 cf

Plug-Flow detention time= 87.3 min calculated for 103,516 cf (94% of inflow)
Center-of-Mass det. time= 56.4 min (806.0 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	855.00'	39,792 cf	**Storm Trap - 6'-0" Double Trap Stage Data** Listed below

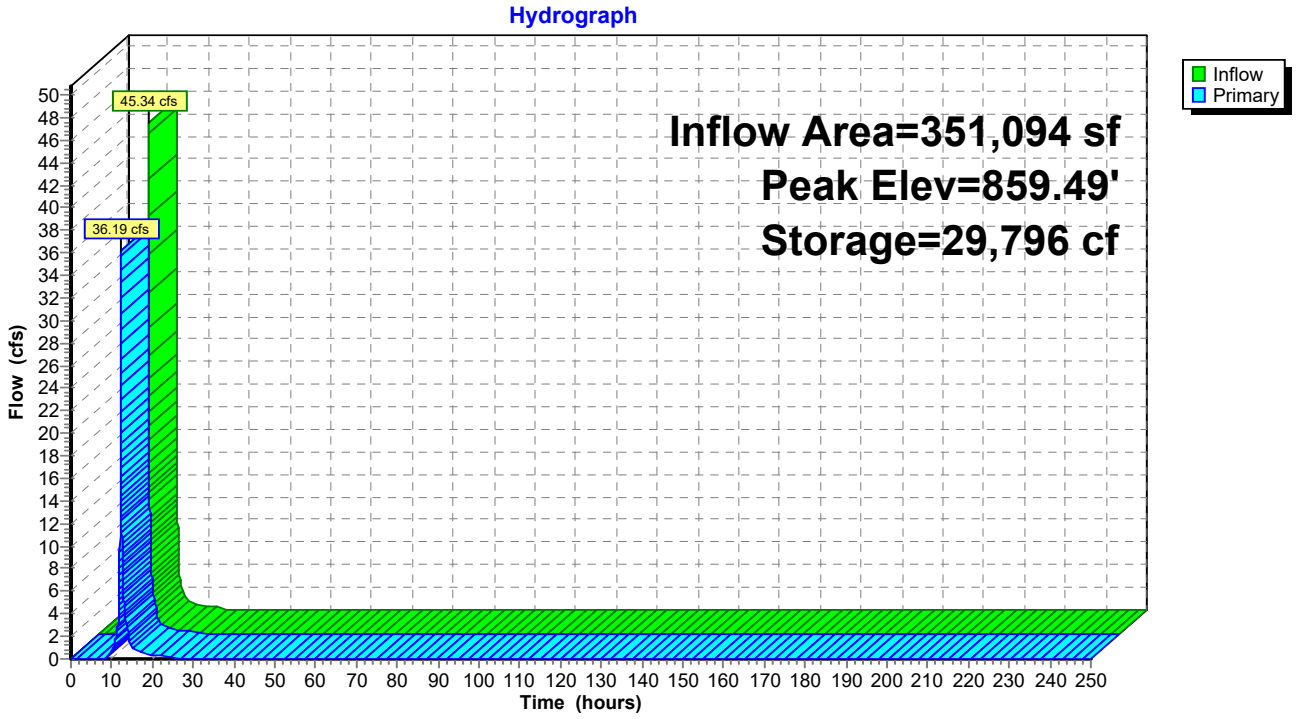
Elevation (feet)	Cum.Store (cubic-feet)
855.00	0
855.25	1,658
855.50	3,316
855.75	4,974
856.00	6,632
856.25	8,290
856.50	9,948
856.75	11,066
857.00	13,264
857.25	14,922
857.50	16,580
857.75	18,238
858.00	19,896
858.25	21,554
858.50	23,212
858.75	24,870
859.00	26,528
859.25	28,186
859.50	29,844
859.75	31,502
860.00	33,160
860.25	34,818
860.50	36,476
860.75	38,134
861.00	39,792

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**30.0" Round SCM Outfall 300A** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.86' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

#2	Device 1	856.00'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	857.20'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	858.20'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=36.14 cfs @ 12.17 hrs HW=859.49' TW=0.00' (Dynamic Tailwater)
- **1=SCM Outfall 300A** (Passes 36.14 cfs of 37.54 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 7.51 cfs @ 8.50 fps)
  - **3=Orifice/Grate** (Orifice Controls 5.89 cfs @ 6.66 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 22.74 cfs @ 3.72 fps)

Pond 27: Underground Detention System 3A (South)

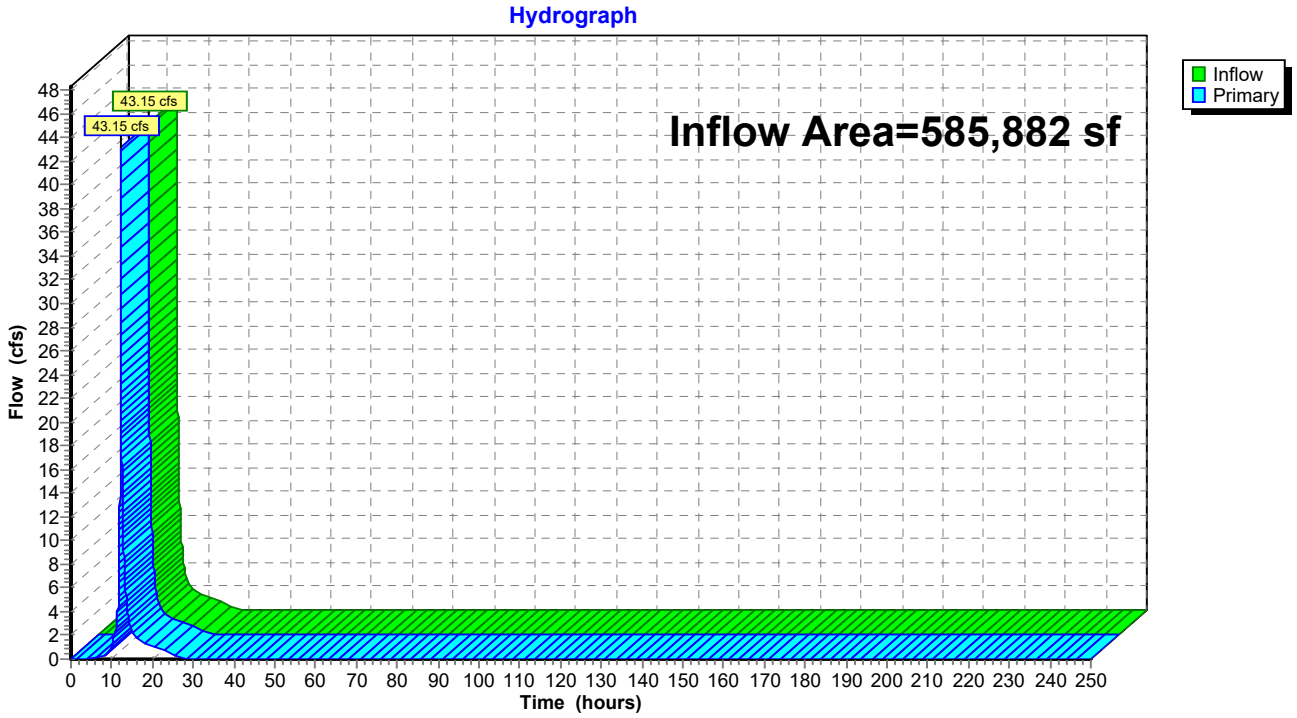


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 585,882 sf,100.00% Impervious, Inflow Depth = 3.63" for 25-yr event
Inflow = 43.15 cfs @ 12.17 hrs, Volume= 177,171 cf
Primary = 43.15 cfs @ 12.17 hrs, Volume= 177,171 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)

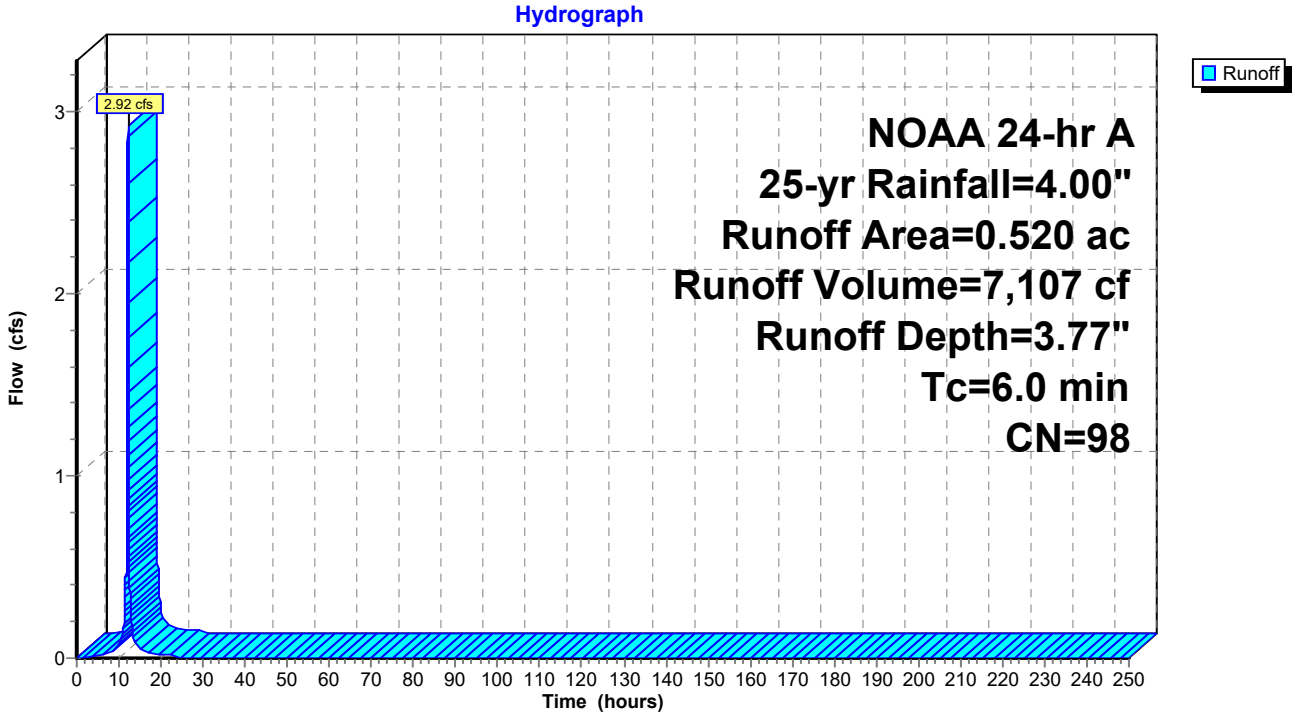
Runoff = 2.92 cfs @ 12.13 hrs, Volume= 7,107 cf, Depth= 3.77"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)



Summary for Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

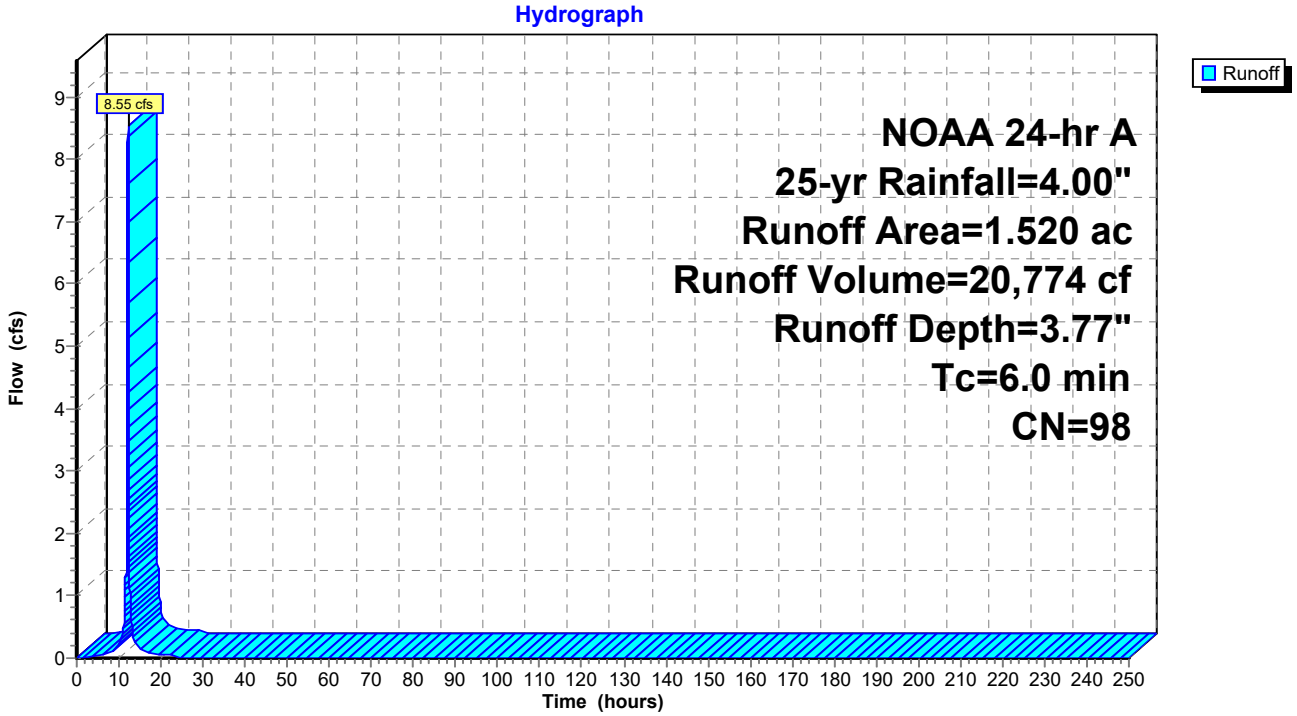
Runoff = 8.55 cfs @ 12.13 hrs, Volume= 20,774 cf, Depth= 3.77"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 25-yr Rainfall=4.00"

Area (ac)	CN	Description
1.520	98	Paved parking, HSG C
1.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

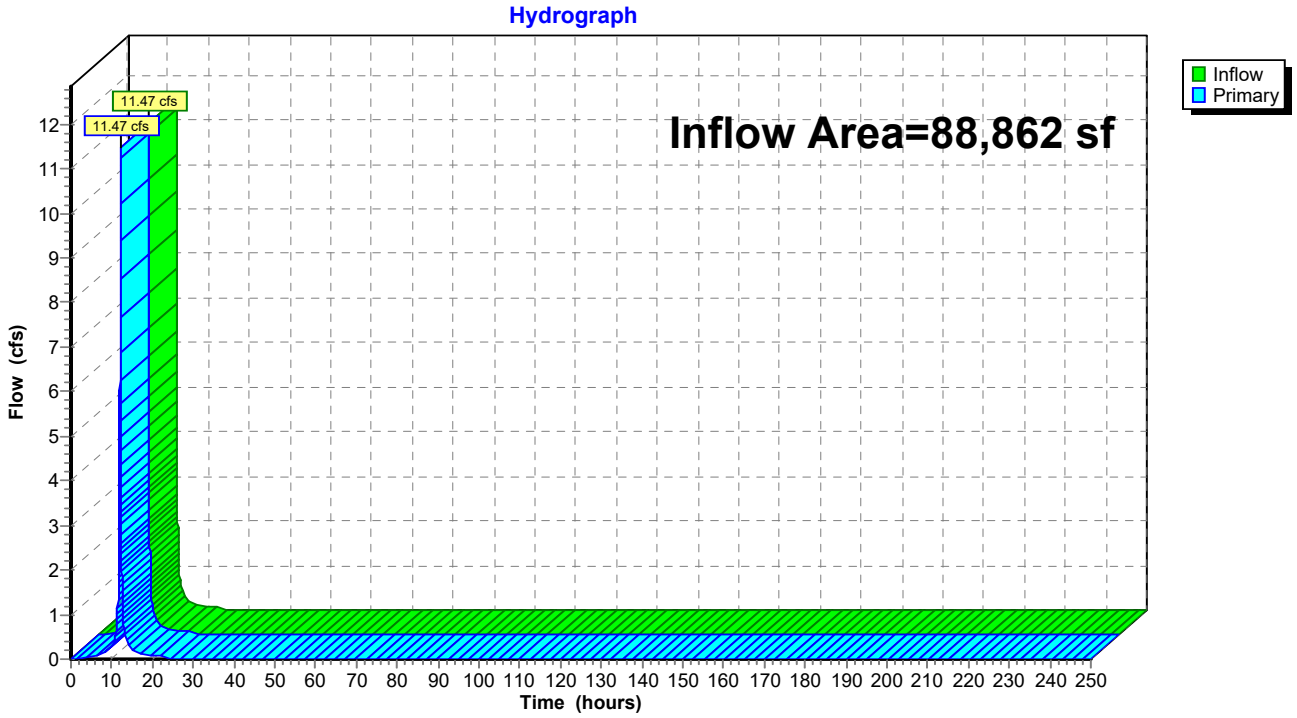


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 88,862 sf,100.00% Impervious, Inflow Depth = 3.77" for 25-yr event
Inflow = 11.47 cfs @ 12.13 hrs, Volume= 27,881 cf
Primary = 11.47 cfs @ 12.13 hrs, Volume= 27,881 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

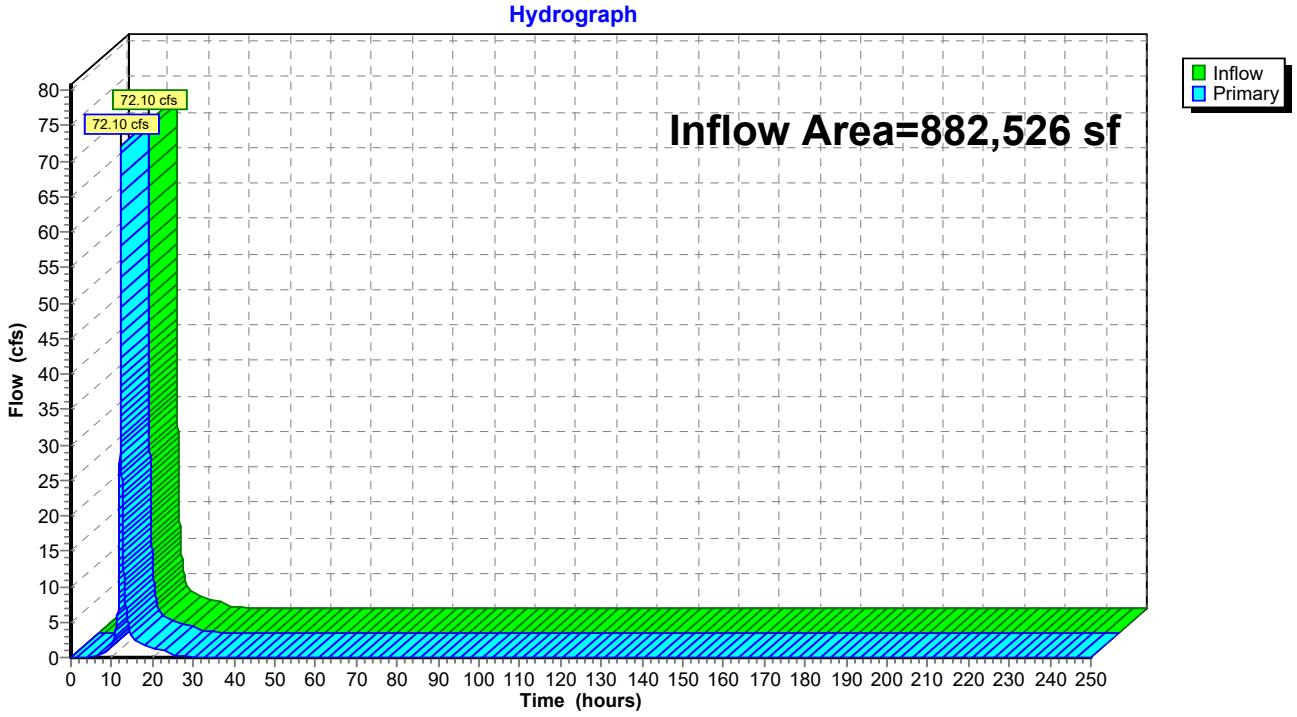


Summary for Link 33: POA 001

Inflow Area = 882,526 sf,100.00% Impervious, Inflow Depth = 3.67" for 25-yr event
Inflow = 72.10 cfs @ 12.15 hrs, Volume= 270,231 cf
Primary = 72.10 cfs @ 12.15 hrs, Volume= 270,231 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Within LOD)

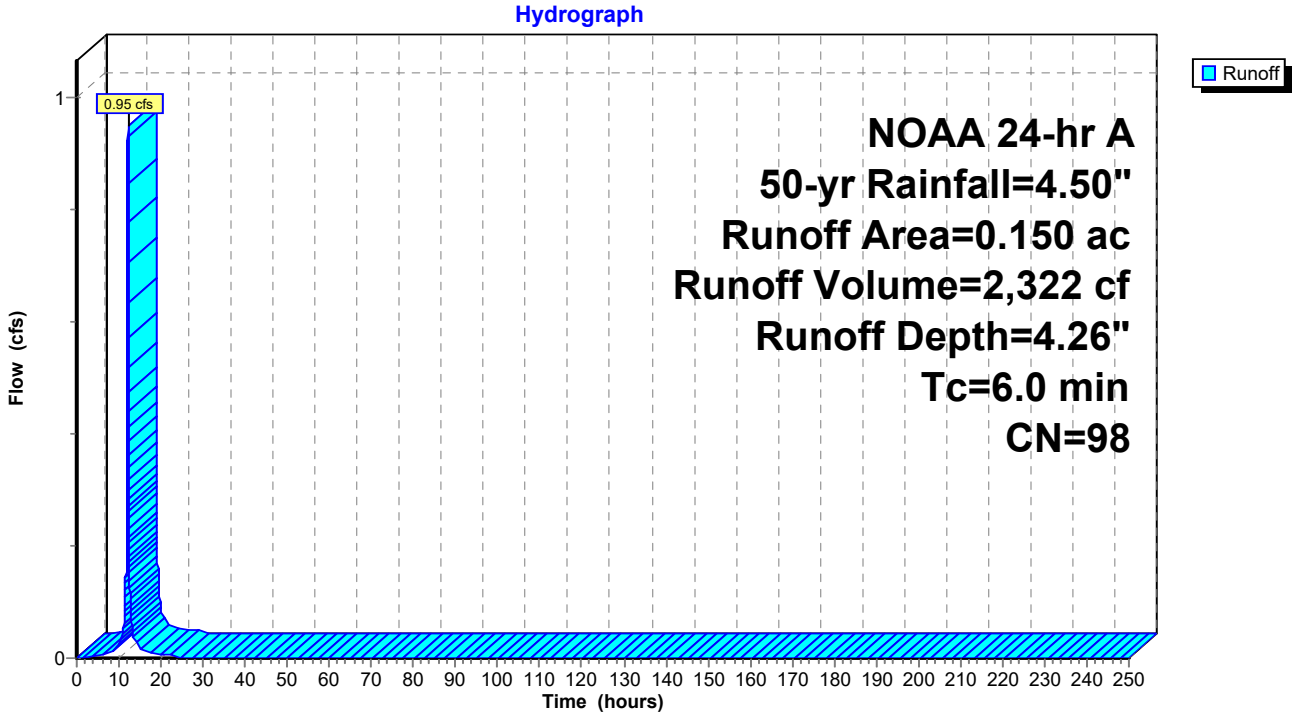
Runoff = 0.95 cfs @ 12.13 hrs, Volume= 2,322 cf, Depth= 4.26"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Within LOD)



Summary for Subcatchment 11: Post-Development DA-1 (Outside LOD)

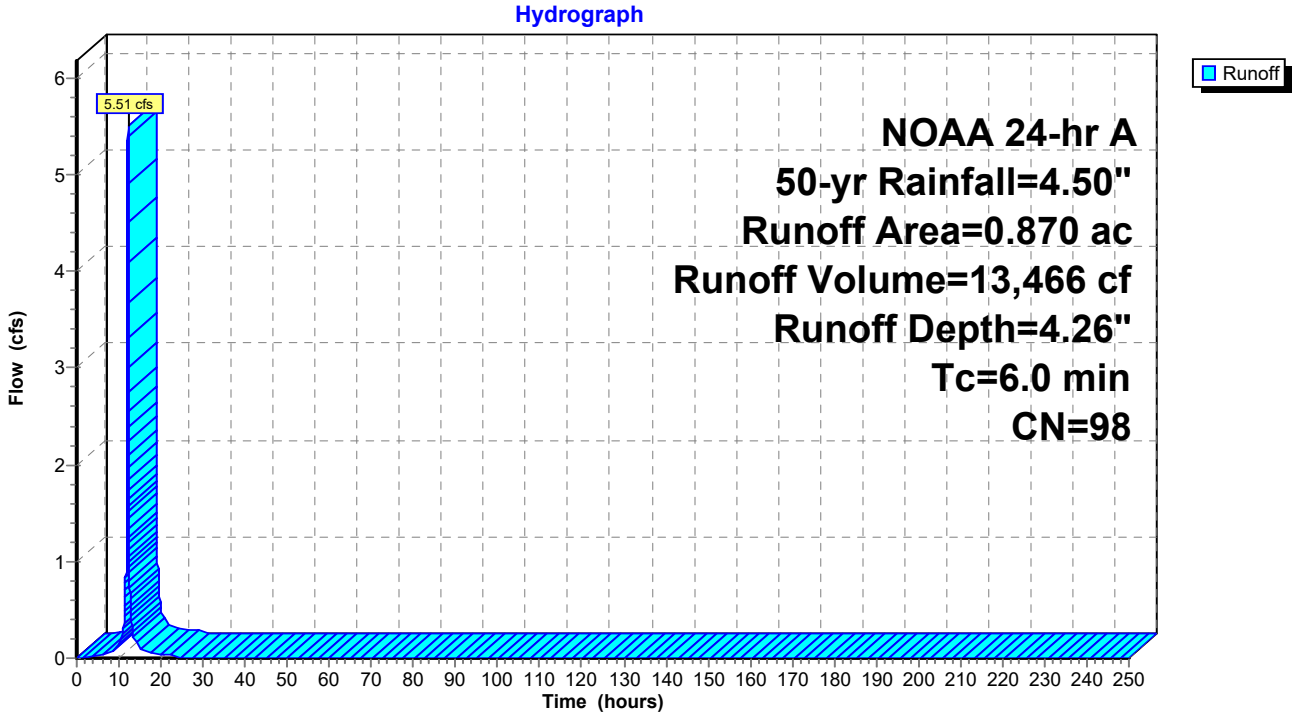
Runoff = 5.51 cfs @ 12.13 hrs, Volume= 13,466 cf, Depth= 4.26"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.870	98	Paved parking, HSG C
0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 11: Post-Development DA-1 (Outside LOD)

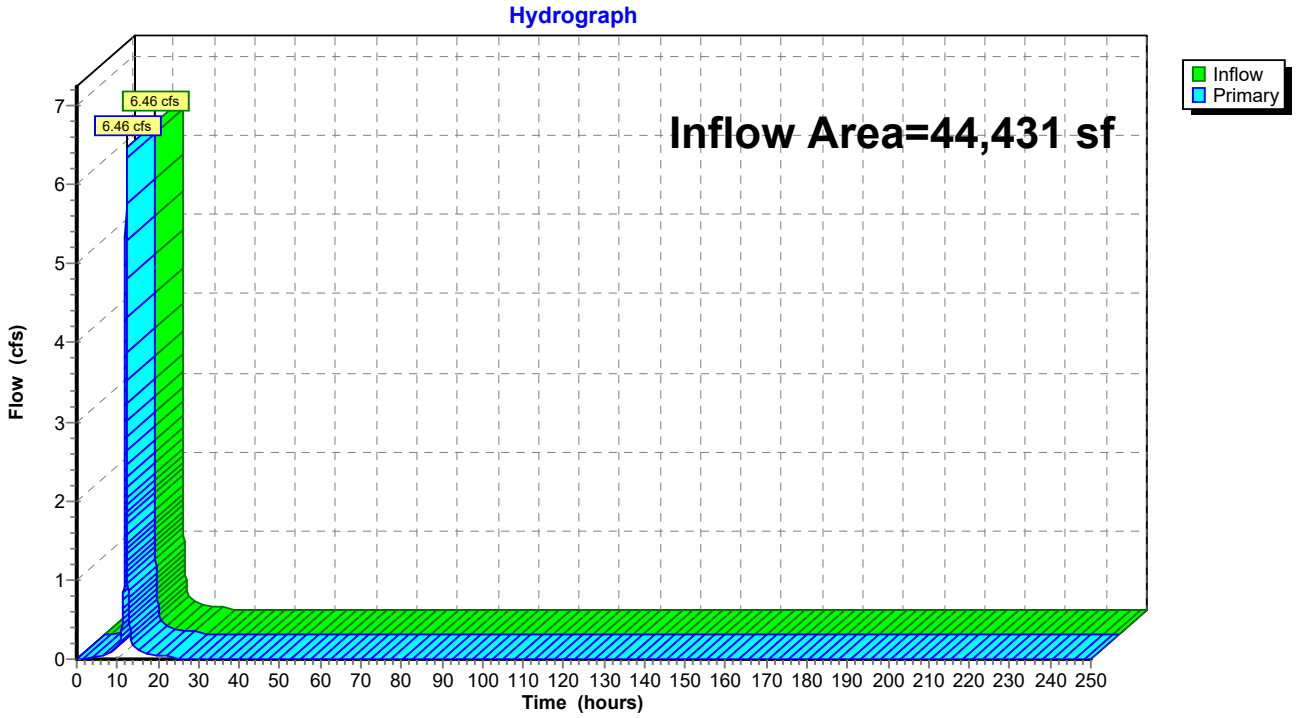


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 44,431 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 6.46 cfs @ 12.13 hrs, Volume= 15,788 cf
Primary = 6.46 cfs @ 12.13 hrs, Volume= 15,788 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

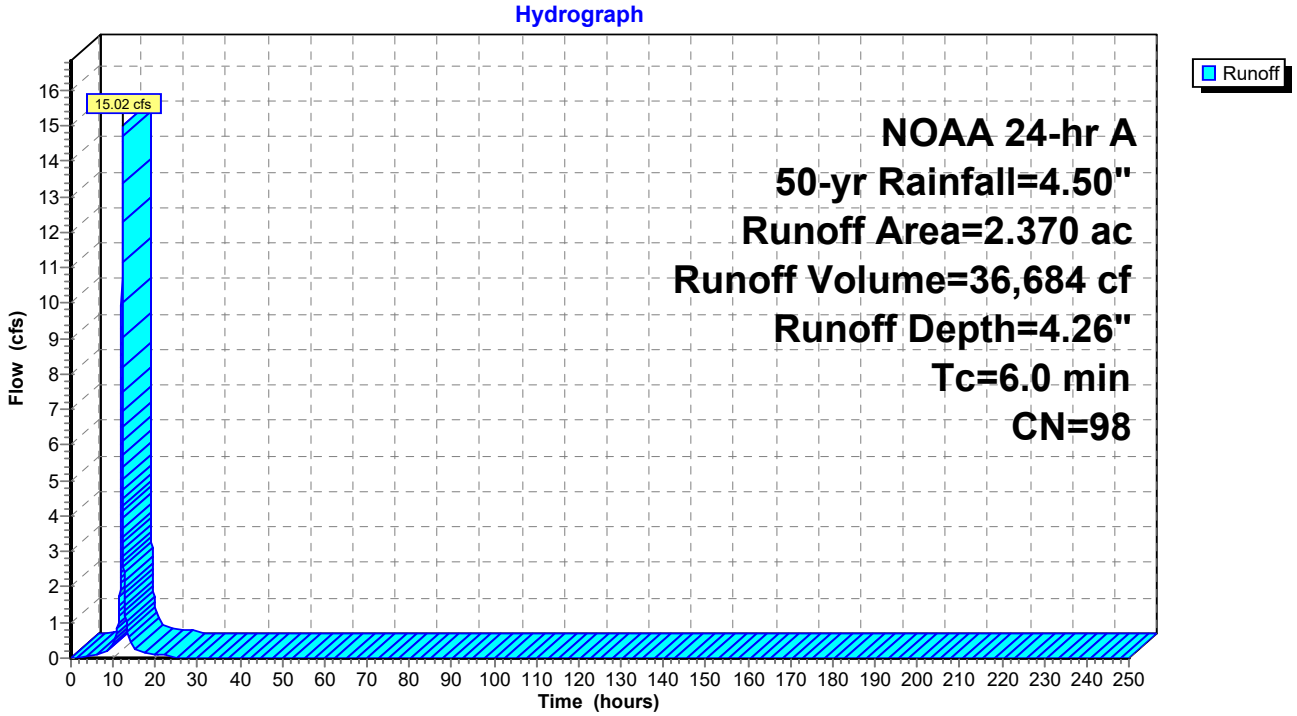
Runoff = 15.02 cfs @ 12.13 hrs, Volume= 36,684 cf, Depth= 4.26"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
2.370	98	Paved parking, HSG C
2.370		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)

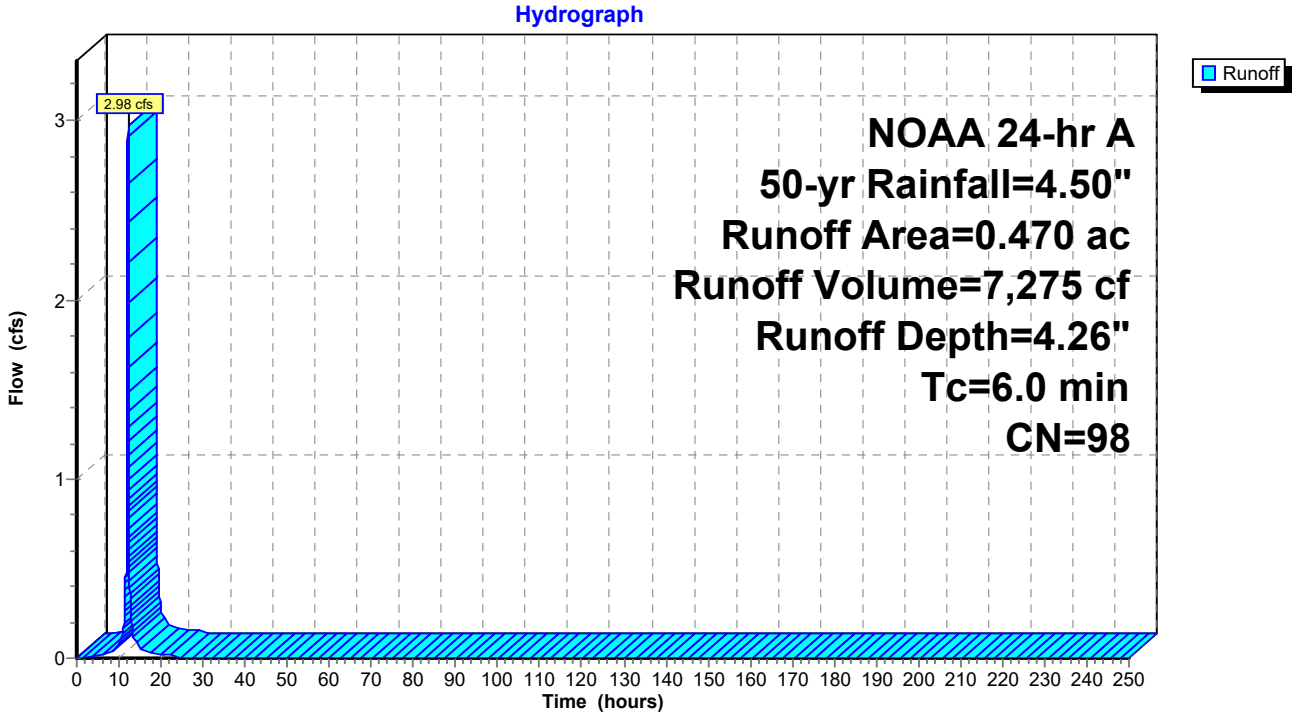
Runoff = 2.98 cfs @ 12.13 hrs, Volume= 7,275 cf, Depth= 4.26"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG C
0.470		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)



Summary for Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)

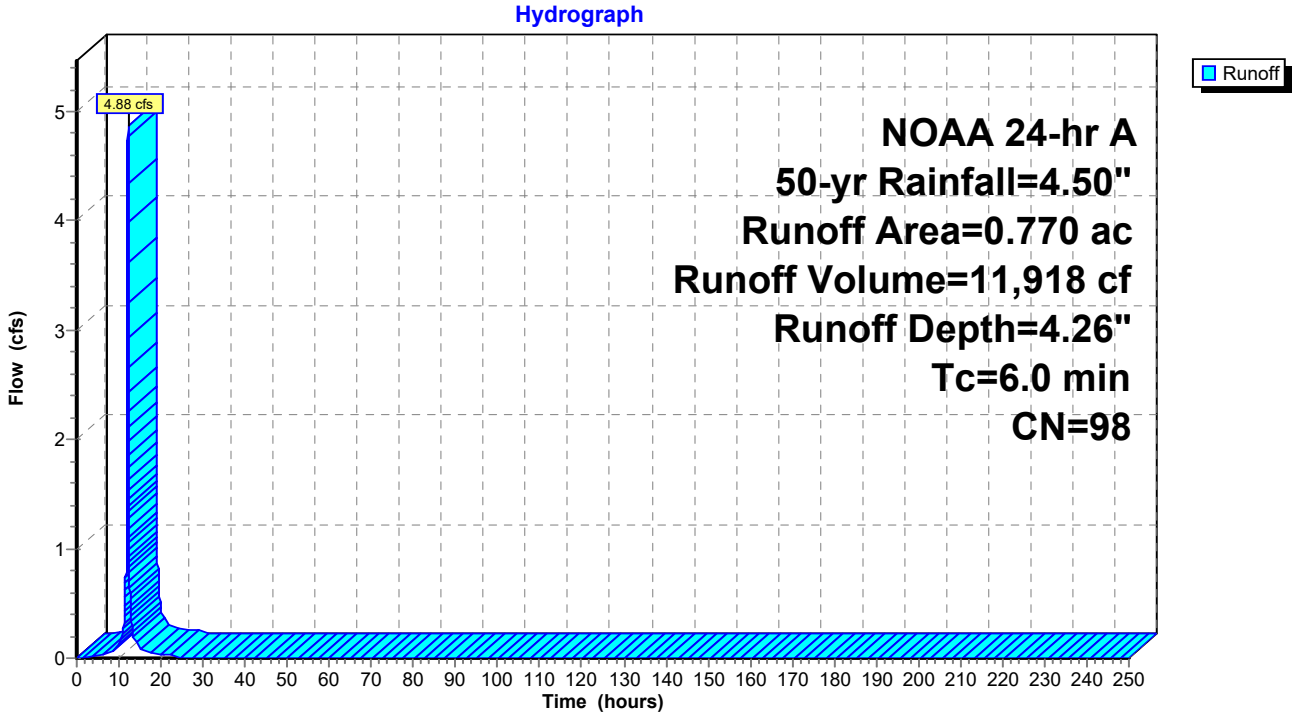
Runoff = 4.88 cfs @ 12.13 hrs, Volume= 11,918 cf, Depth= 4.26"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.770	98	Paved parking, HSG C
0.770		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 15.91 cfs @ 12.13 hrs, Volume= 38,851 cf
Outflow = 15.91 cfs @ 12.13 hrs, Volume= 38,851 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.11 cfs @ 12.13 hrs, Volume= 38,036 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 2.82 cfs @ 12.13 hrs, Volume= 815 cf
Routed to Link 20 : Post-Development Discharge Point 2

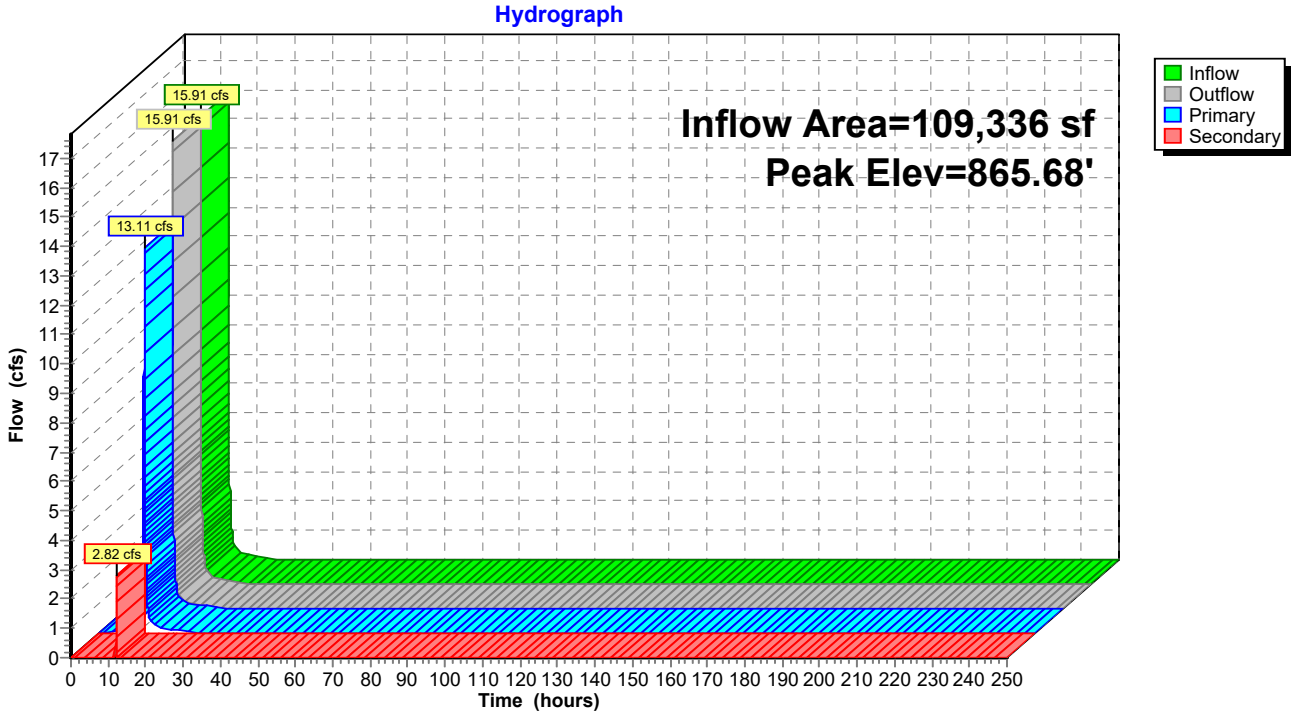
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.68' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=13.00 cfs @ 12.13 hrs HW=865.67' TW=865.28' (Dynamic Tailwater)
└**1=Culvert to MRC** (Outlet Controls 13.00 cfs @ 3.74 fps)

Secondary OutFlow Max=2.81 cfs @ 12.13 hrs HW=865.68' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Passes 2.81 cfs of 5.74 cfs potential flow)
└**3=Diversion Weir** (Weir Controls 2.81 cfs @ 1.72 fps)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

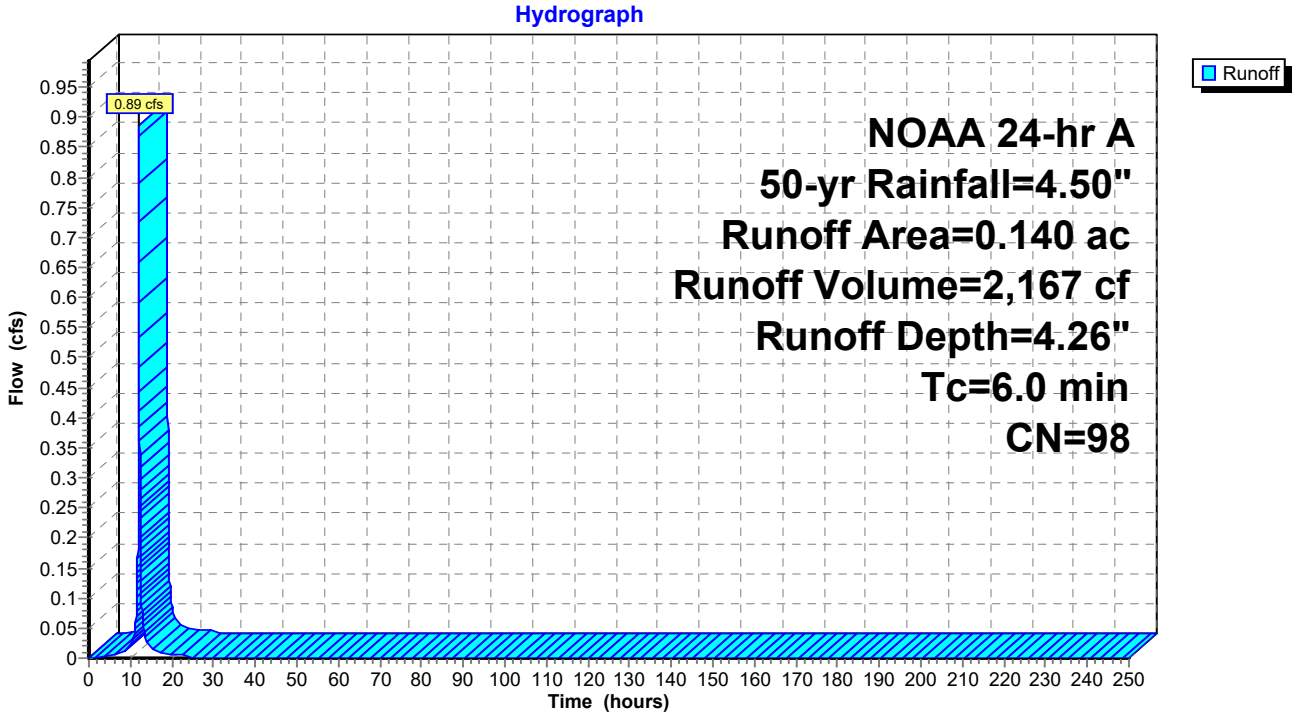
Runoff = 0.89 cfs @ 12.13 hrs, Volume= 2,167 cf, Depth= 4.26"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 4.17" for 50-yr event
Inflow = 13.11 cfs @ 12.13 hrs, Volume= 38,036 cf
Outflow = 13.11 cfs @ 12.13 hrs, Volume= 38,036 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.55 cfs @ 12.13 hrs, Volume= 19,018 cf
Routed to Pond 18 : MRC Cell 2A
Secondary = 6.55 cfs @ 12.13 hrs, Volume= 19,018 cf
Routed to Pond 19 : MRC Cell 2B

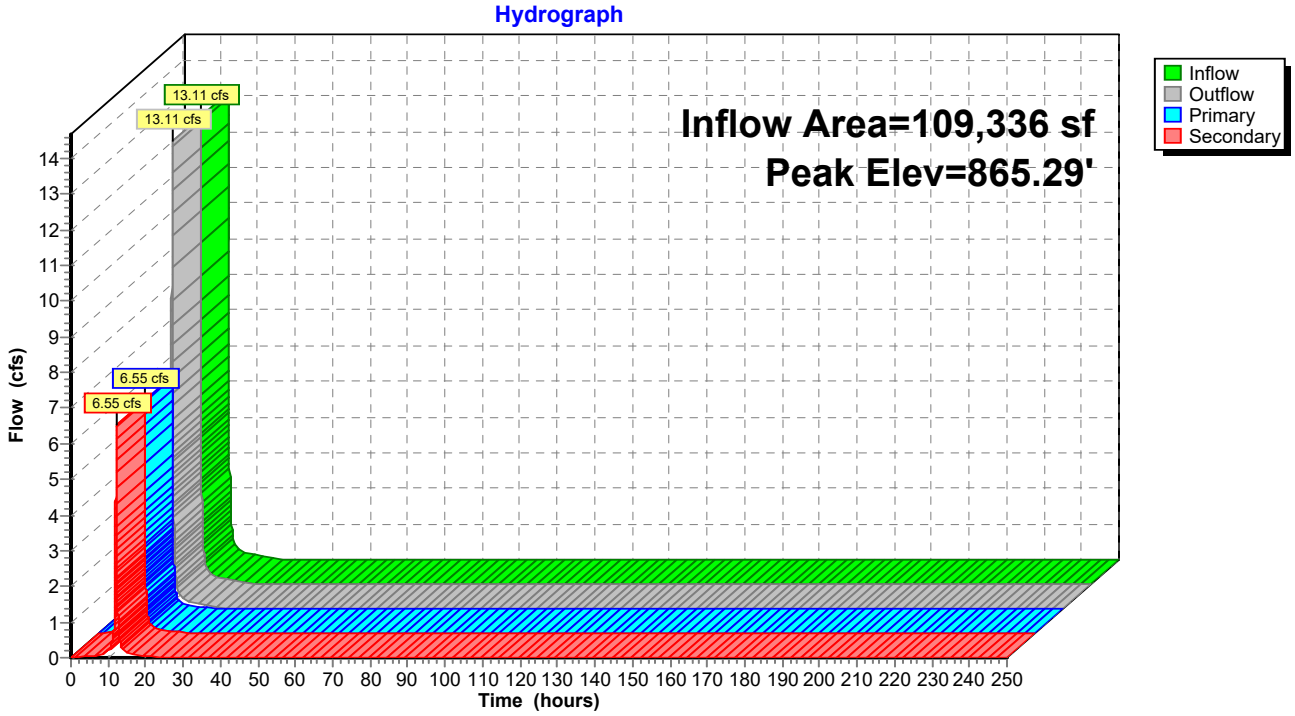
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.29' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.54 cfs @ 12.13 hrs HW=865.28' TW=863.78' (Dynamic Tailwater)
↑**1=Culvert to MRC Cell 2A** (Barrel Controls 6.54 cfs @ 4.12 fps)

Secondary OutFlow Max=6.54 cfs @ 12.13 hrs HW=865.28' TW=863.78' (Dynamic Tailwater)
↑**2=Culvert to MRC Cell 2B** (Barrel Controls 6.54 cfs @ 4.12 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18: MRC Cell 2A

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 2.09" for 50-yr event
Inflow = 6.55 cfs @ 12.13 hrs, Volume= 19,018 cf
Outflow = 4.08 cfs @ 12.22 hrs, Volume= 19,011 cf, Atten= 38%, Lag= 5.5 min
Primary = 4.08 cfs @ 12.22 hrs, Volume= 19,011 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.09' @ 12.22 hrs Storage= 8,197 cf

Plug-Flow detention time= 812.1 min calculated for 19,011 cf (100% of inflow)
Center-of-Mass det. time= 811.8 min (1,560.0 - 748.2)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

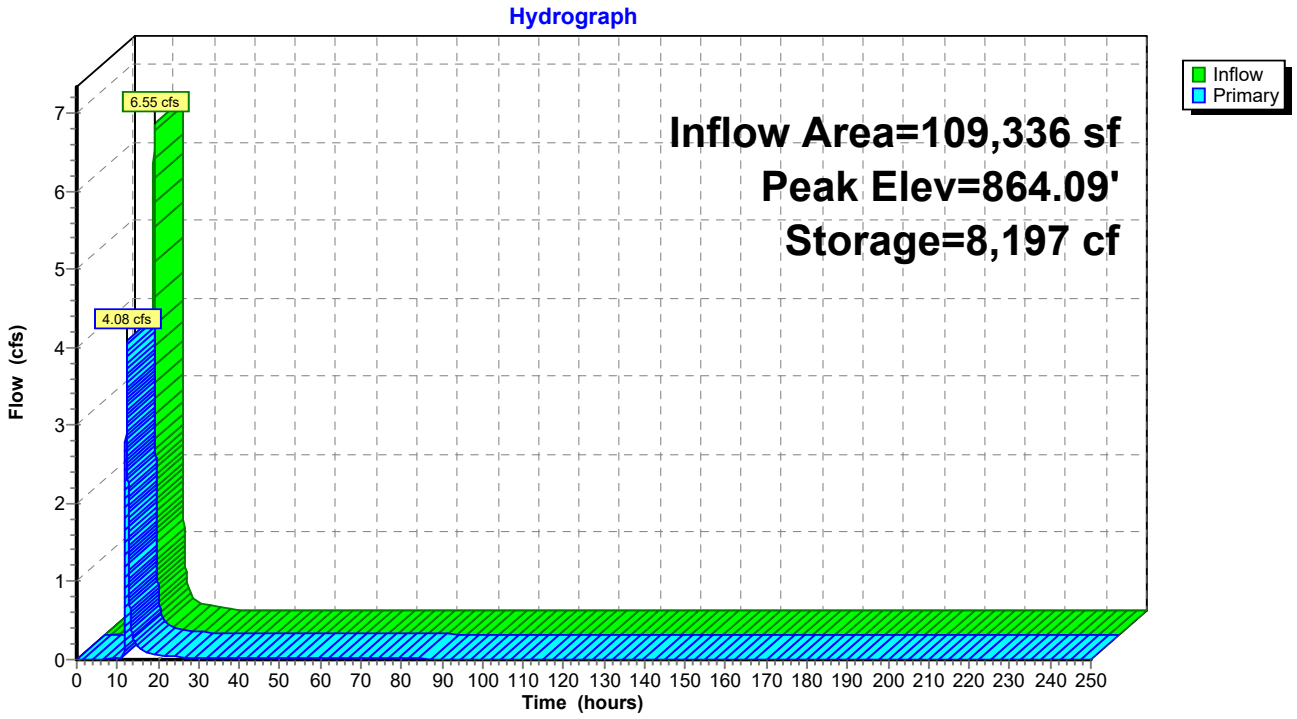
Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads

#4	Device 1	864.00'	**3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=4.08 cfs @ 12.22 hrs HW=864.09' TW=0.00' (Dynamic Tailwater)
- **1=MRC Outfall 200A** (Passes 4.08 cfs of 13.73 cfs potential flow)
  - **2=Underdrain** (Orifice Controls 0.03 cfs @ 9.70 fps)
  - **3=Orifice Row #1** (Orifice Controls 3.77 cfs @ 5.40 fps)
  - **4=Weir** (Weir Controls 0.27 cfs @ 0.99 fps)

Pond 18: MRC Cell 2A



Summary for Pond 19: MRC Cell 2B

Inflow = 6.55 cfs @ 12.13 hrs, Volume= 19,018 cf
Outflow = 4.08 cfs @ 12.22 hrs, Volume= 19,011 cf, Atten= 38%, Lag= 5.5 min
Primary = 4.08 cfs @ 12.22 hrs, Volume= 19,011 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.09' @ 12.22 hrs Storage= 8,197 cf

Plug-Flow detention time= 812.1 min calculated for 19,011 cf (100% of inflow)
Center-of-Mass det. time= 811.8 min (1,560.0 - 748.2)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

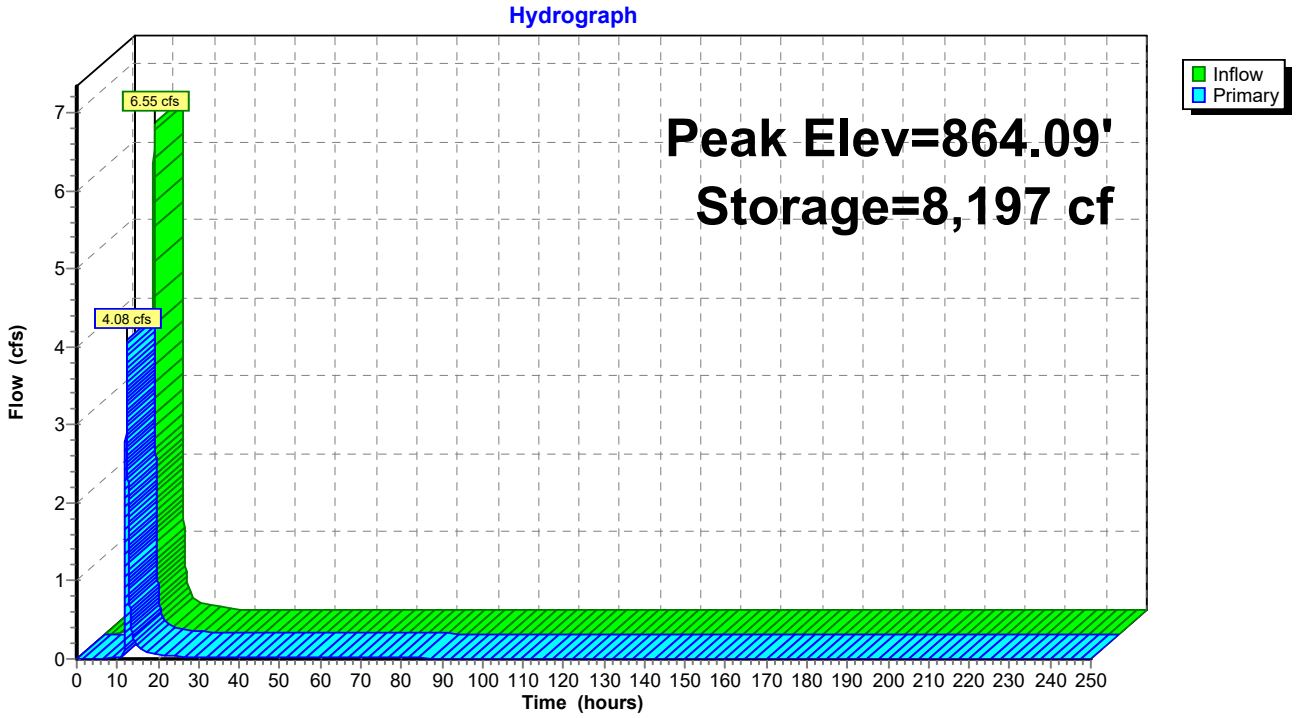
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=4.08 cfs @ 12.22 hrs HW=864.09' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 4.08 cfs of 13.73 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.70 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.77 cfs @ 5.40 fps)
  └─**4=Weir** (Weir Controls 0.27 cfs @ 0.99 fps)

Pond 19: MRC Cell 2B

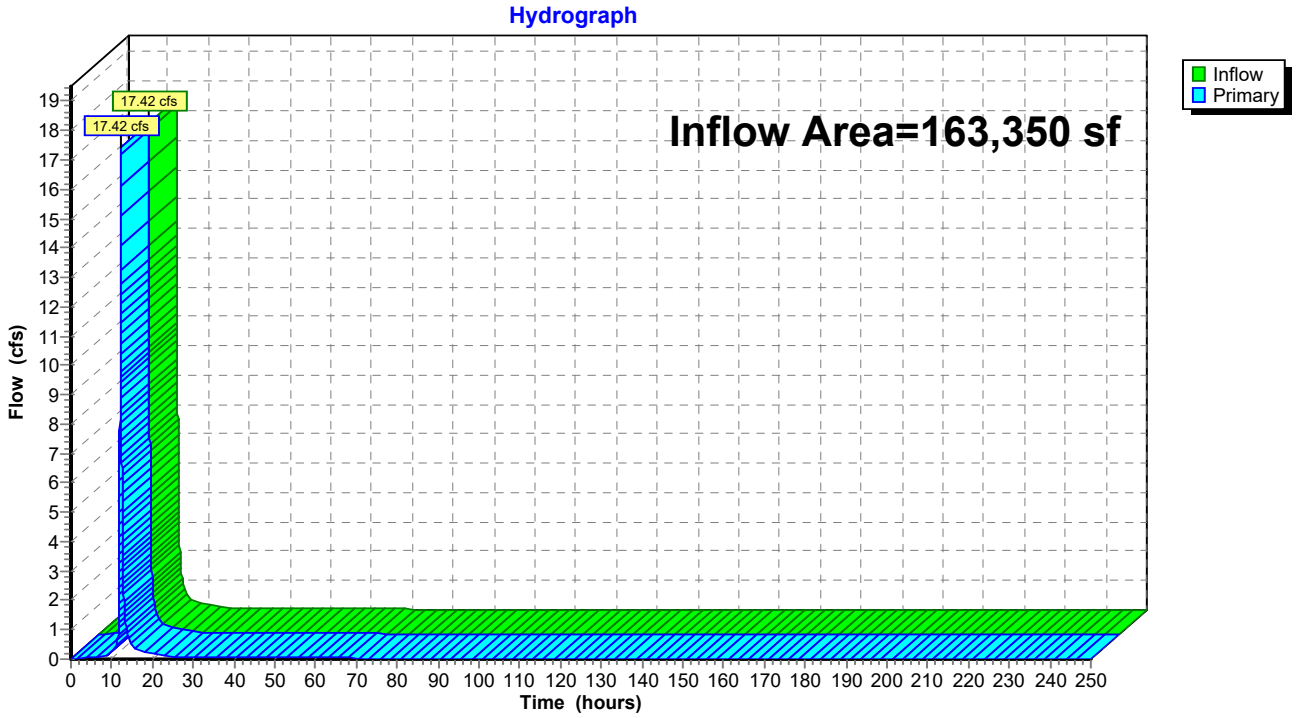


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 163,350 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 17.42 cfs @ 12.14 hrs, Volume= 58,030 cf
Primary = 17.42 cfs @ 12.14 hrs, Volume= 58,030 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)

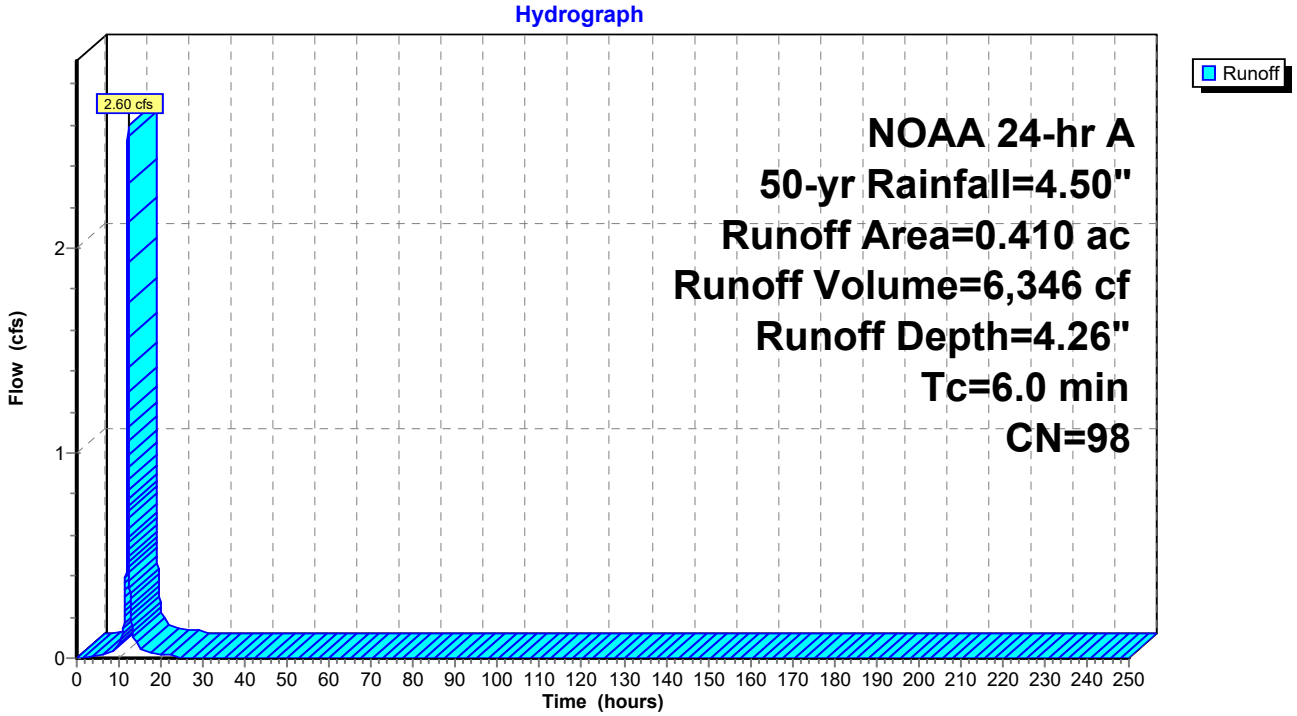
Runoff = 2.60 cfs @ 12.13 hrs, Volume= 6,346 cf, Depth= 4.26"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG C
0.410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)



Summary for Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)

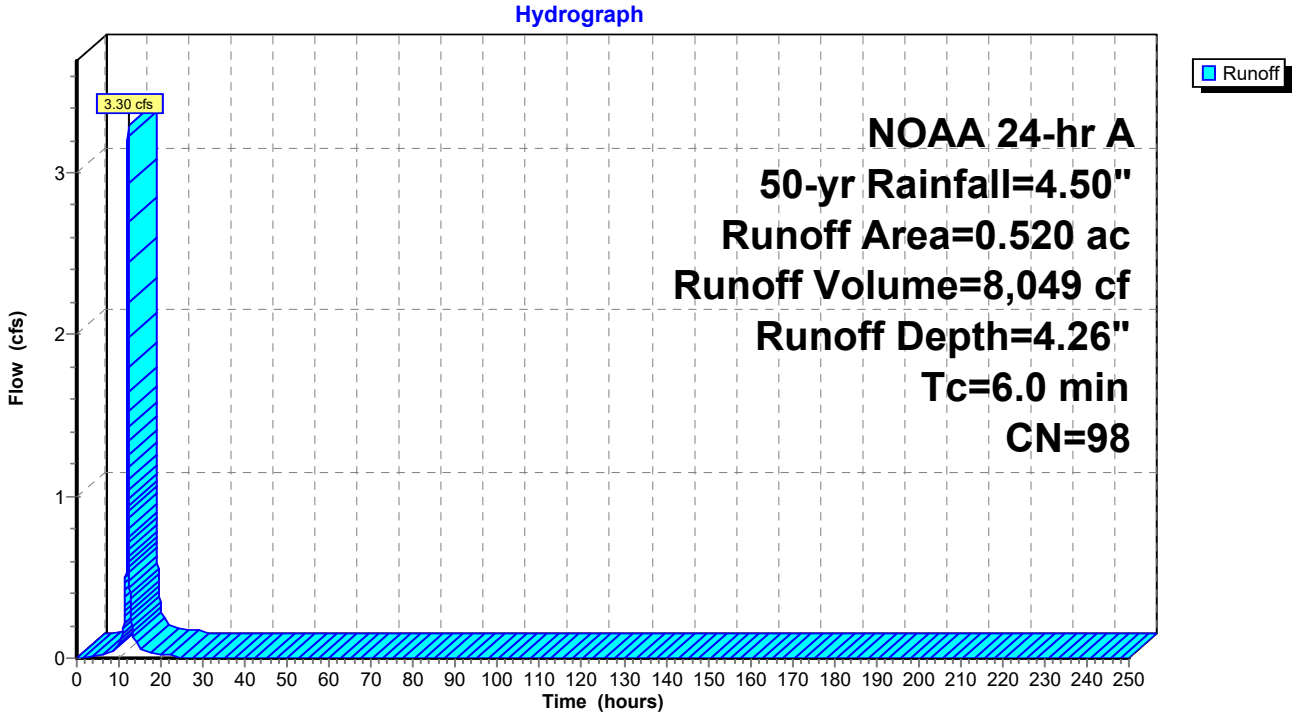
Runoff = 3.30 cfs @ 12.13 hrs, Volume= 8,049 cf, Depth= 4.26"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)



Summary for Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)

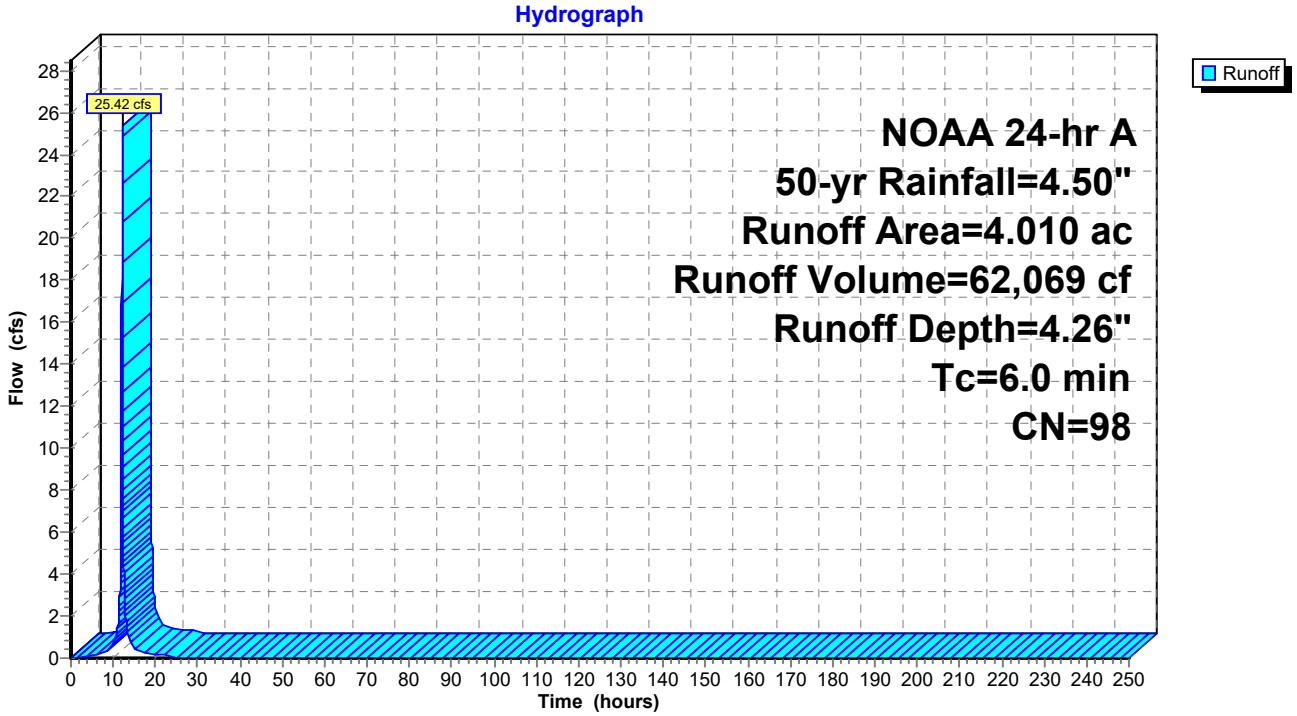
Runoff = 25.42 cfs @ 12.13 hrs, Volume= 62,069 cf, Depth= 4.26"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
4.010	98	Paved parking, HSG C
4.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)



Summary for Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)

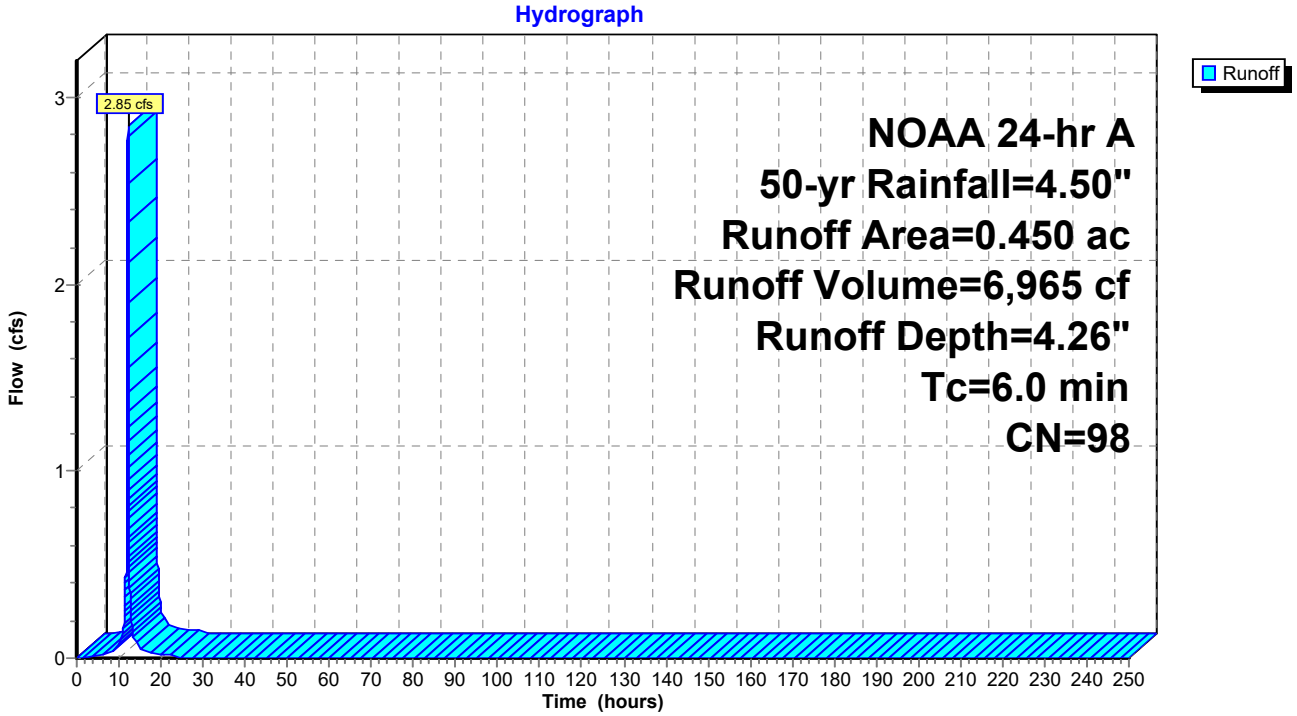
Runoff = 2.85 cfs @ 12.13 hrs, Volume= 6,965 cf, Depth= 4.26"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.450	98	Paved parking, HSG C
0.450		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)



Summary for Pond 24P: Underground Detention System 3B (North)

Inflow Area = 194,278 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 28.27 cfs @ 12.13 hrs, Volume= 69,034 cf
Outflow = 7.27 cfs @ 12.34 hrs, Volume= 69,018 cf, Atten= 74%, Lag= 12.7 min
Primary = 7.27 cfs @ 12.34 hrs, Volume= 69,018 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 861.19' @ 12.34 hrs Storage= 33,614 cf

Plug-Flow detention time= 196.6 min calculated for 69,015 cf (100% of inflow)
Center-of-Mass det. time= 197.0 min (944.7 - 747.8)

Volume	Invert	Avail.Storage	Storage Description
#1	855.75'	37,071 cf	**Storm Trap - 6'-0" Single Trap Stage Data** Listed below

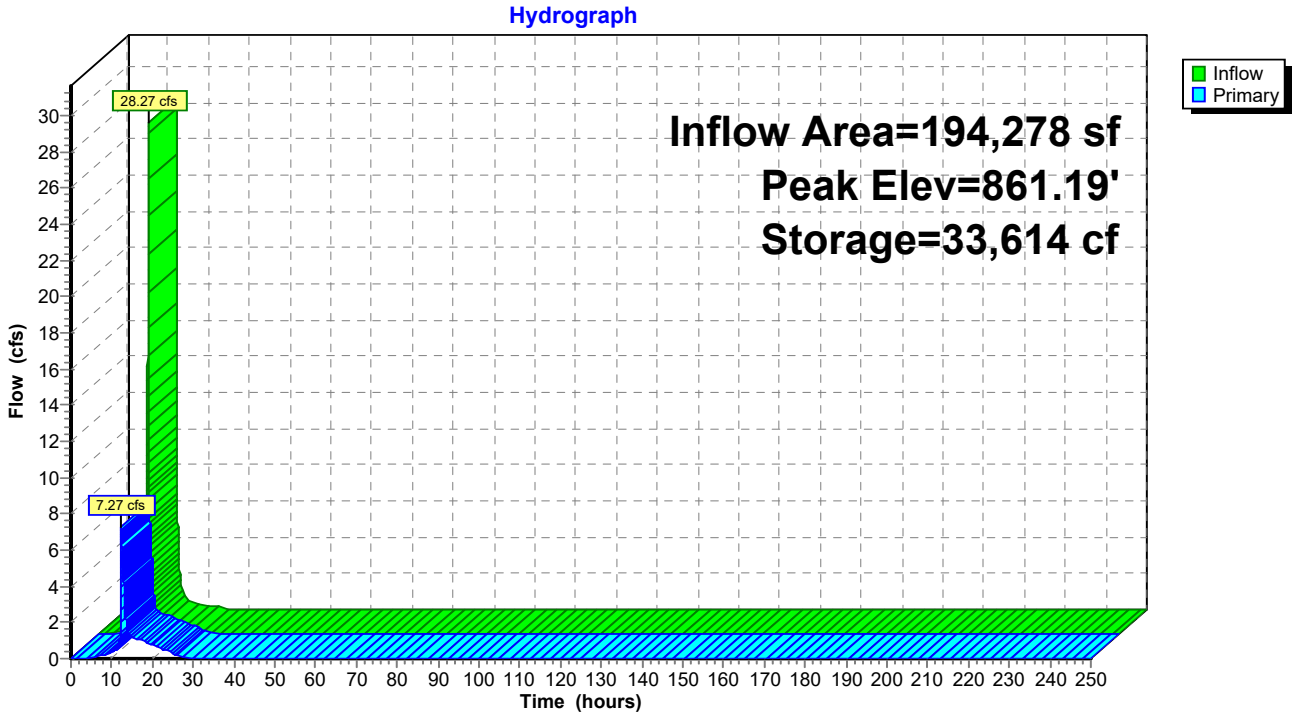
Elevation (feet)	Cum.Store (cubic-feet)
855.75	0
856.00	1,544
856.25	3,089
856.50	4,634
856.75	6,179
857.00	7,723
857.25	9,268
857.50	10,813
857.75	12,357
858.00	13,902
858.25	15,446
858.50	16,991
858.75	18,535
859.00	20,080
859.25	21,625
859.50	23,170
859.75	24,714
860.00	26,259
860.25	27,804
860.50	29,348
860.75	30,893
861.00	32,437
861.25	33,982
861.50	35,527
861.75	37,071

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**24.0" Round Culvert** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.85' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2	Device 1	855.75'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	859.60'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	861.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=7.27 cfs @ 12.34 hrs HW=861.19' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 7.27 cfs of 30.41 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 1.50 cfs @ 11.01 fps)
  - **3=Orifice/Grate** (Orifice Controls 4.69 cfs @ 5.31 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 1.08 cfs @ 1.43 fps)

Pond 24P: Underground Detention System 3B (North)



Summary for Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)

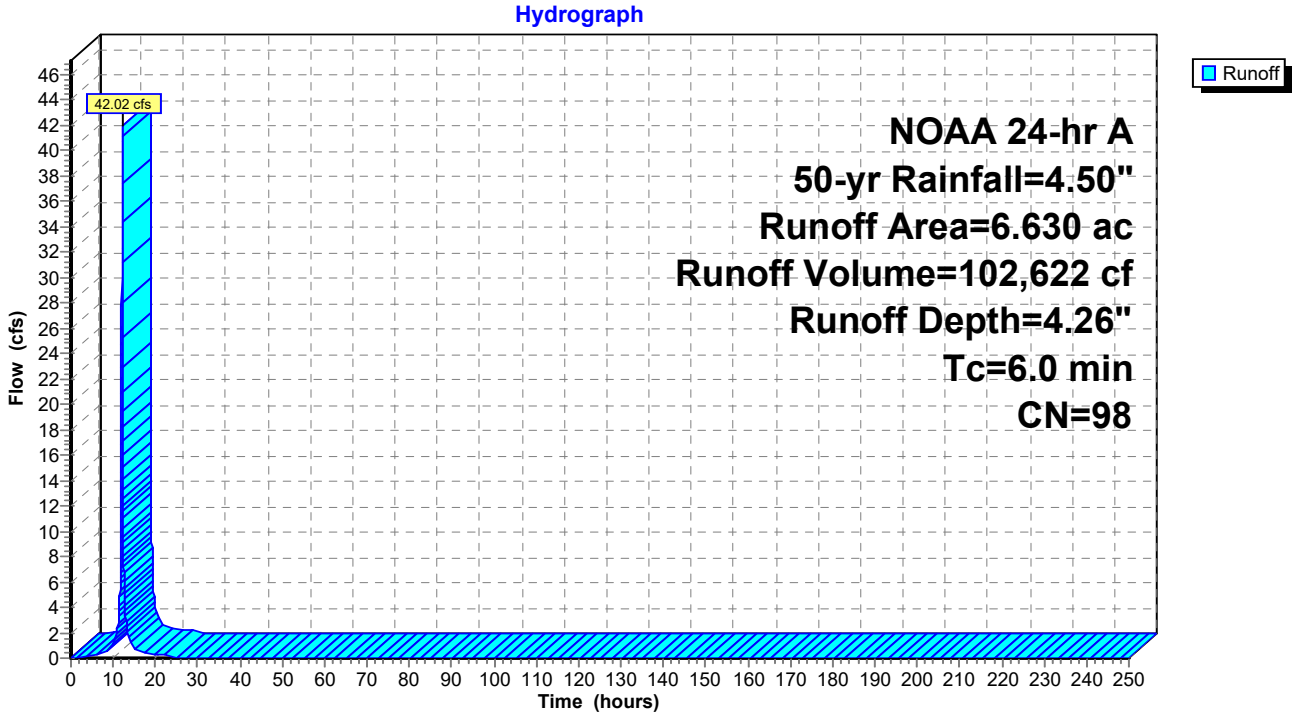
Runoff = 42.02 cfs @ 12.13 hrs, Volume= 102,622 cf, Depth= 4.26"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
6.630	98	Paved parking, HSG C
6.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)



Summary for Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)

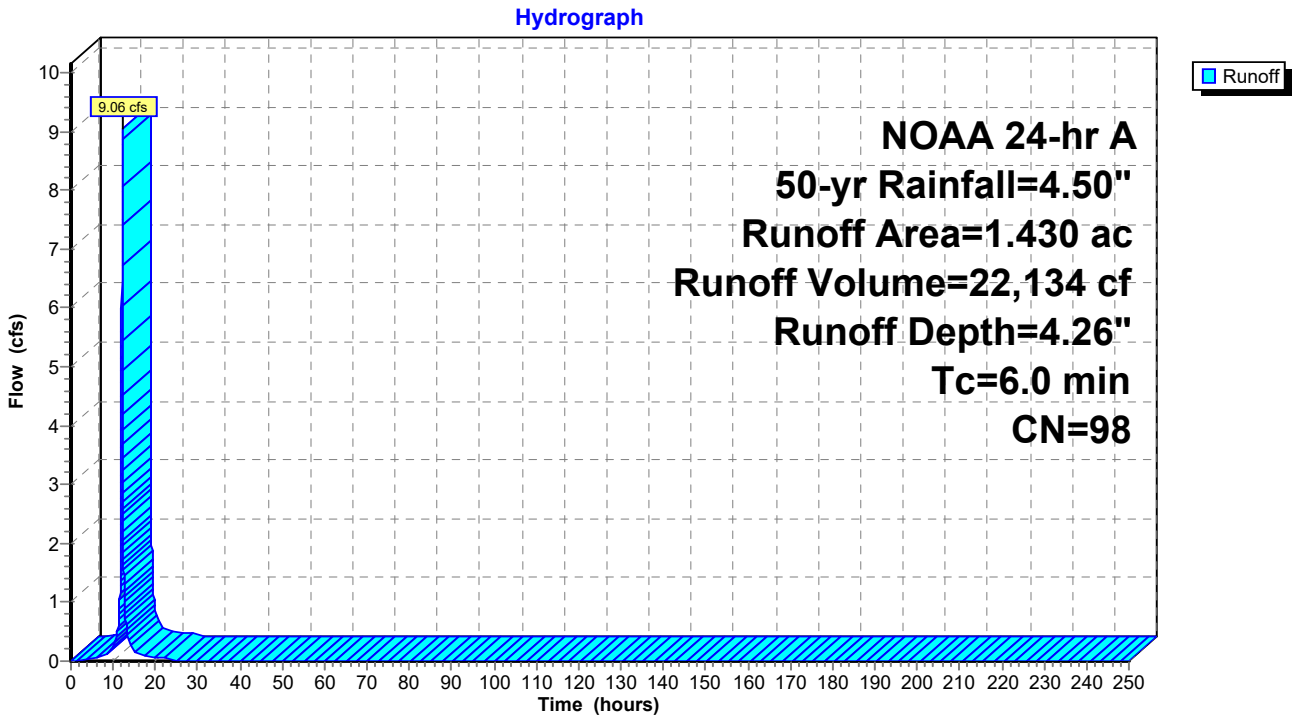
Runoff = 9.06 cfs @ 12.13 hrs, Volume= 22,134 cf, Depth= 4.26"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
1.430	98	Paved parking, HSG C
1.430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)



Summary for Pond 27: Underground Detention System 3A (South)

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 51.09 cfs @ 12.13 hrs, Volume= 124,756 cf
Outflow = 38.96 cfs @ 12.18 hrs, Volume= 118,117 cf, Atten= 24%, Lag= 2.9 min
Primary = 38.96 cfs @ 12.18 hrs, Volume= 118,117 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 859.74' @ 12.18 hrs Storage= 31,436 cf

Plug-Flow detention time= 82.1 min calculated for 118,117 cf (95% of inflow)
Center-of-Mass det. time= 53.4 min (801.2 - 747.8)

Volume	Invert	Avail.Storage	Storage Description
#1	855.00'	39,792 cf	**Storm Trap - 6'-0" Double Trap Stage Data** Listed below

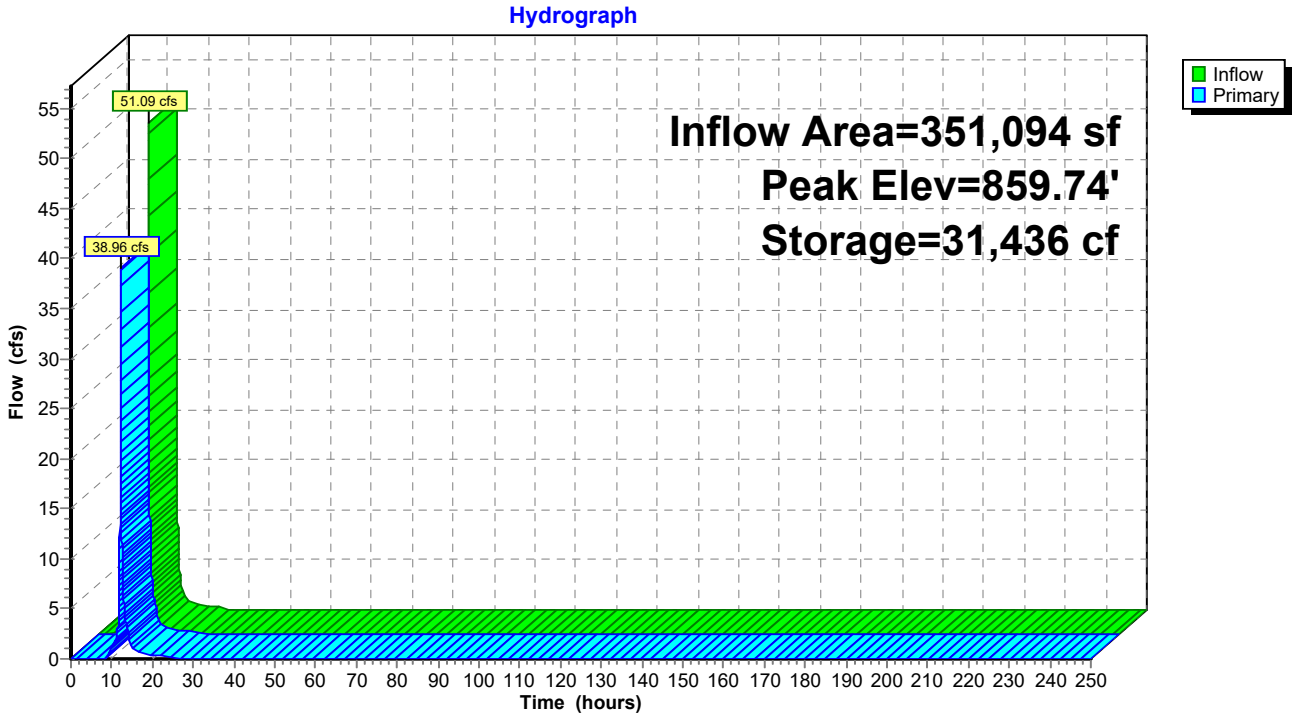
Elevation (feet)	Cum.Store (cubic-feet)
855.00	0
855.25	1,658
855.50	3,316
855.75	4,974
856.00	6,632
856.25	8,290
856.50	9,948
856.75	11,066
857.00	13,264
857.25	14,922
857.50	16,580
857.75	18,238
858.00	19,896
858.25	21,554
858.50	23,212
858.75	24,870
859.00	26,528
859.25	28,186
859.50	29,844
859.75	31,502
860.00	33,160
860.25	34,818
860.50	36,476
860.75	38,134
861.00	39,792

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**30.0" Round SCM Outfall 300A** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.86' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

#2	Device 1	856.00'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	857.20'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	858.20'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=38.95 cfs @ 12.18 hrs HW=859.74' TW=0.00' (Dynamic Tailwater)
↑**1=SCM Outfall 300A** (Inlet Controls 38.95 cfs @ 7.93 fps)
↑**2=Orifice/Grate** (Passes < 7.80 cfs potential flow)
3=Orifice/Grate (Passes < 6.26 cfs potential flow)
4=Sharp-Crested Rectangular Weir (Passes < 29.27 cfs potential flow)

Pond 27: Underground Detention System 3A (South)

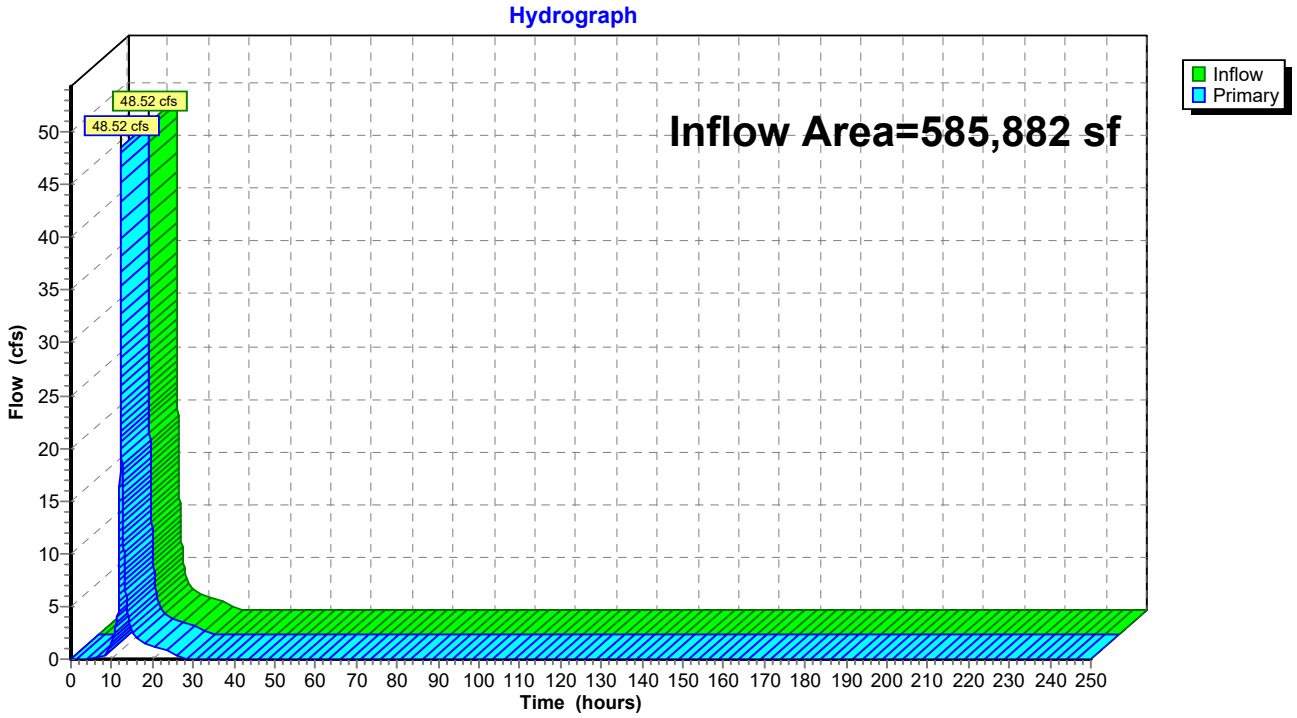


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 585,882 sf,100.00% Impervious, Inflow Depth = 4.13" for 50-yr event
Inflow = 48.52 cfs @ 12.17 hrs, Volume= 201,530 cf
Primary = 48.52 cfs @ 12.17 hrs, Volume= 201,530 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)

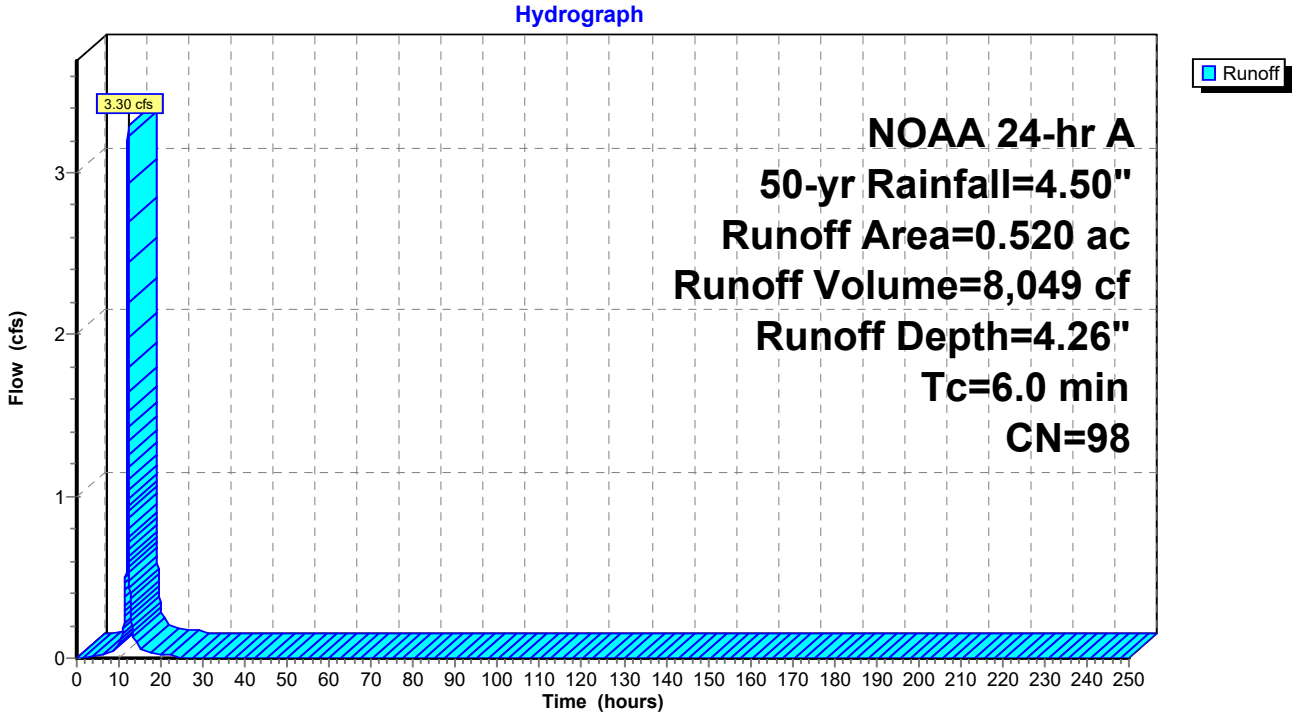
Runoff = 3.30 cfs @ 12.13 hrs, Volume= 8,049 cf, Depth= 4.26"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)



Summary for Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

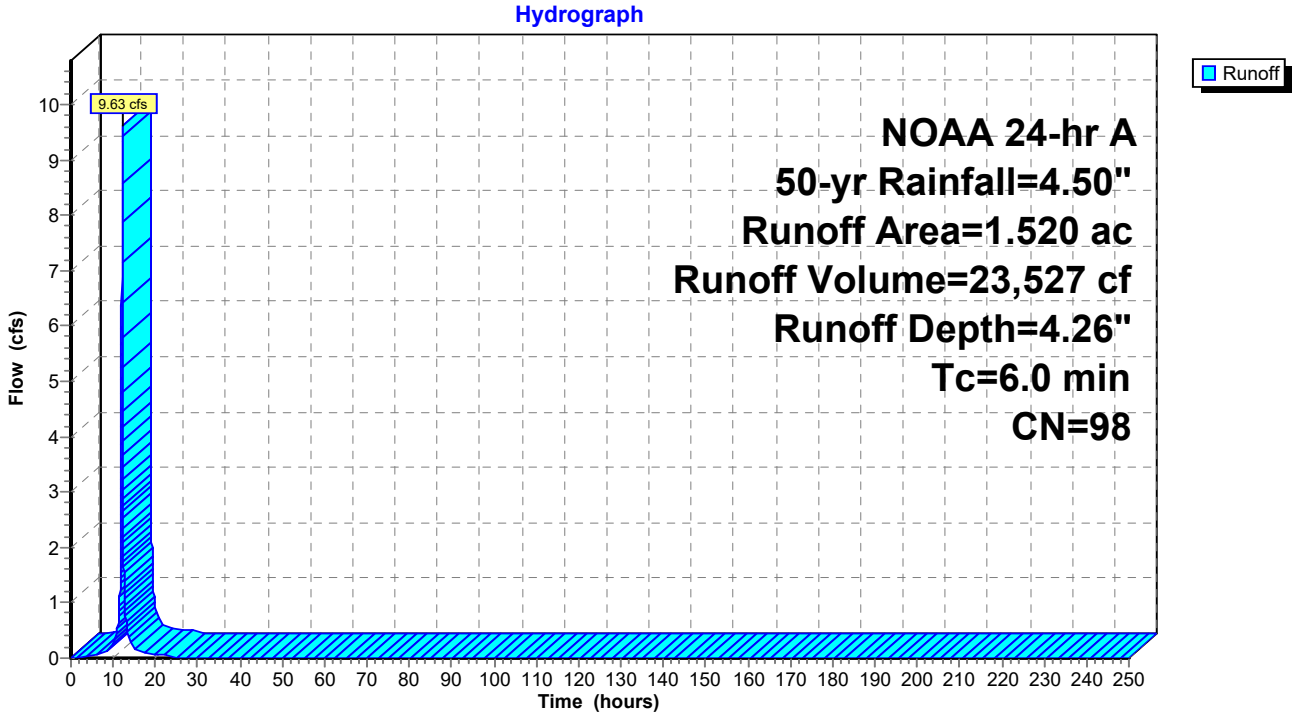
Runoff = 9.63 cfs @ 12.13 hrs, Volume= 23,527 cf, Depth= 4.26"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 50-yr Rainfall=4.50"

Area (ac)	CN	Description
1.520	98	Paved parking, HSG C
1.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

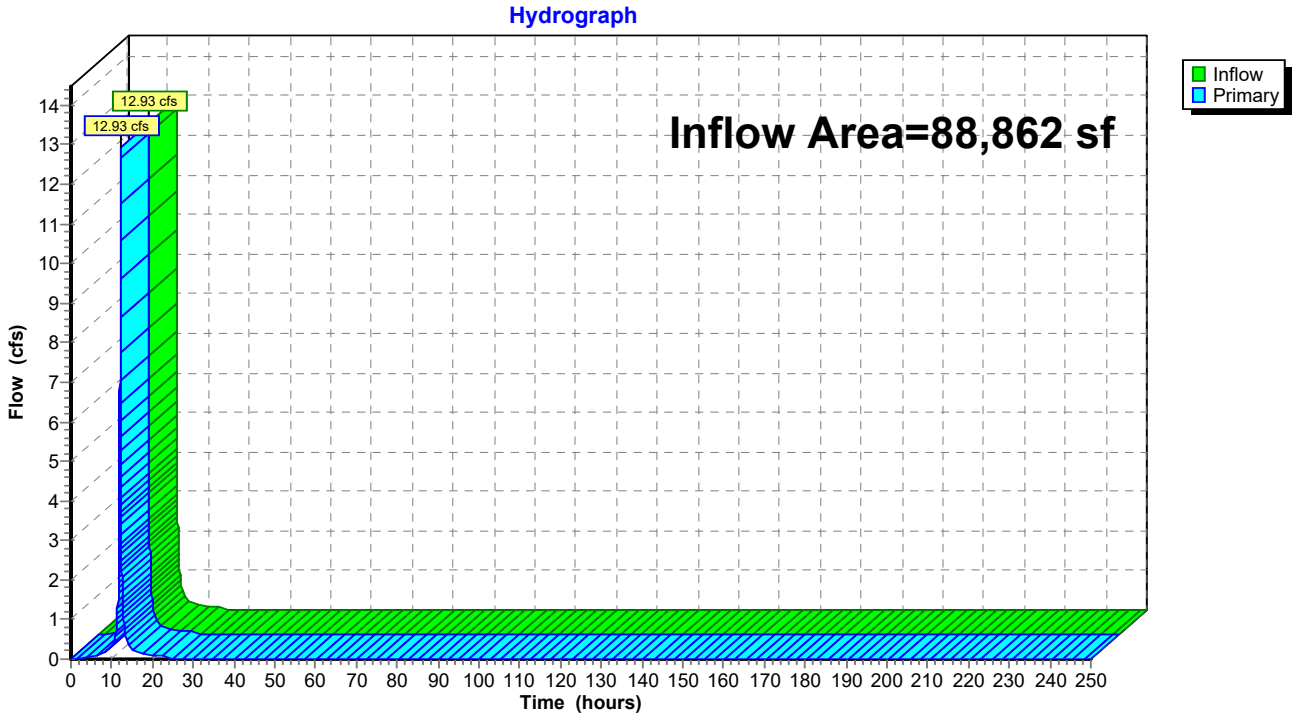


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 88,862 sf,100.00% Impervious, Inflow Depth = 4.26" for 50-yr event
Inflow = 12.93 cfs @ 12.13 hrs, Volume= 31,576 cf
Primary = 12.93 cfs @ 12.13 hrs, Volume= 31,576 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

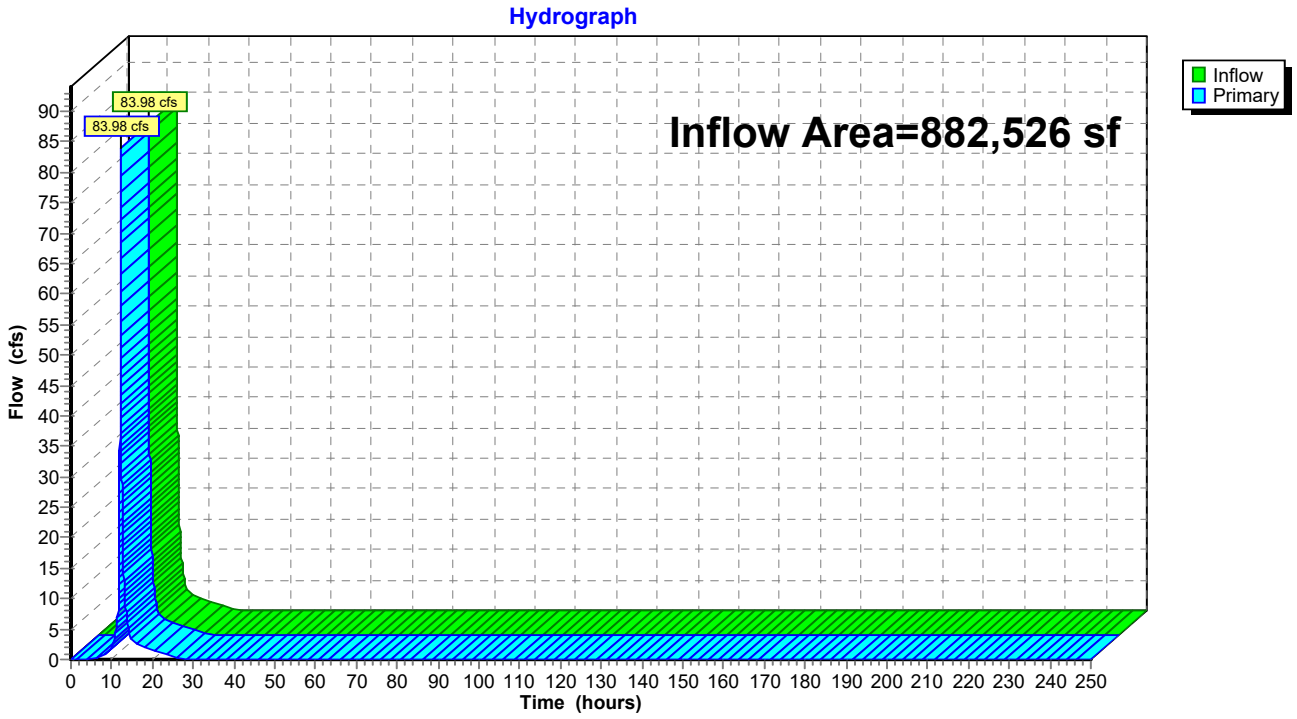


Summary for Link 33: POA 001

Inflow Area = 882,526 sf,100.00% Impervious, Inflow Depth = 4.17" for 50-yr event
Inflow = 83.98 cfs @ 12.14 hrs, Volume= 306,924 cf
Primary = 83.98 cfs @ 12.14 hrs, Volume= 306,924 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: POA 001



Summary for Subcatchment 2S: Post-Development DA-1 (Within LOD)

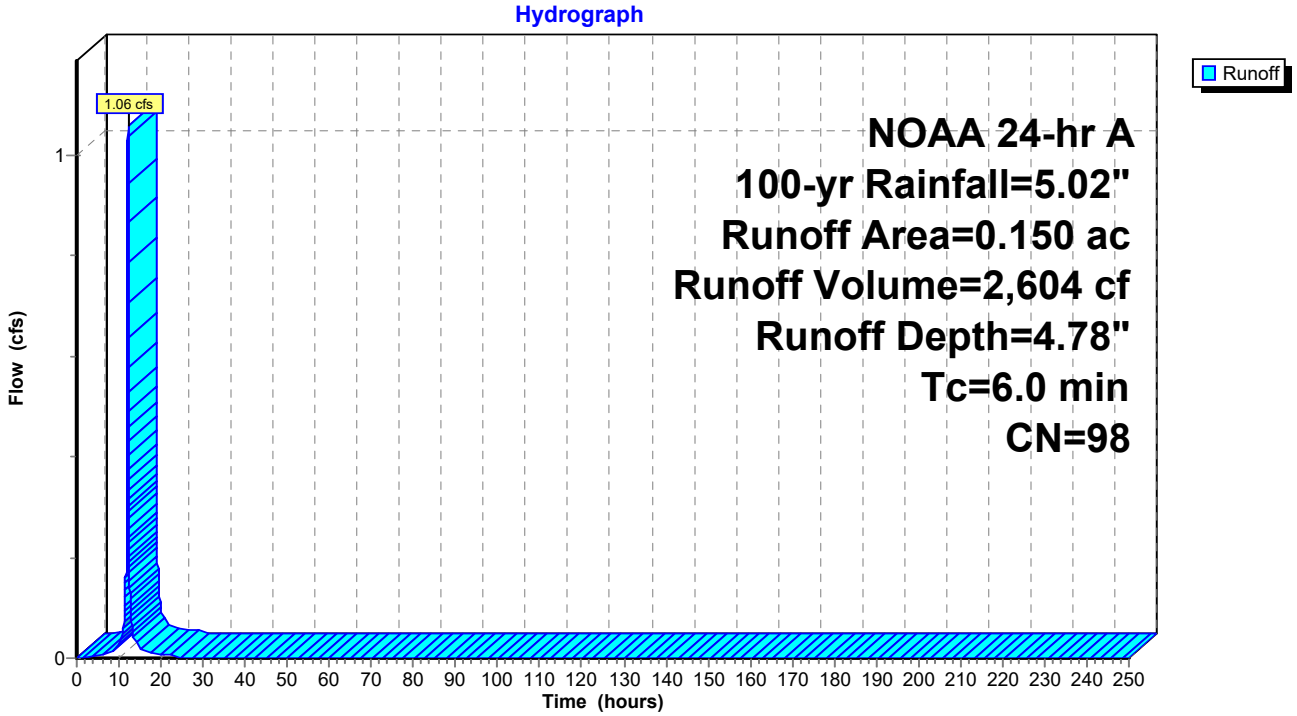
Runoff = 1.06 cfs @ 12.13 hrs, Volume= 2,604 cf, Depth= 4.78"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG C
0.150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 2S: Post-Development DA-1 (Within LOD)



Summary for Subcatchment 11: Post-Development DA-1 (Outside LOD)

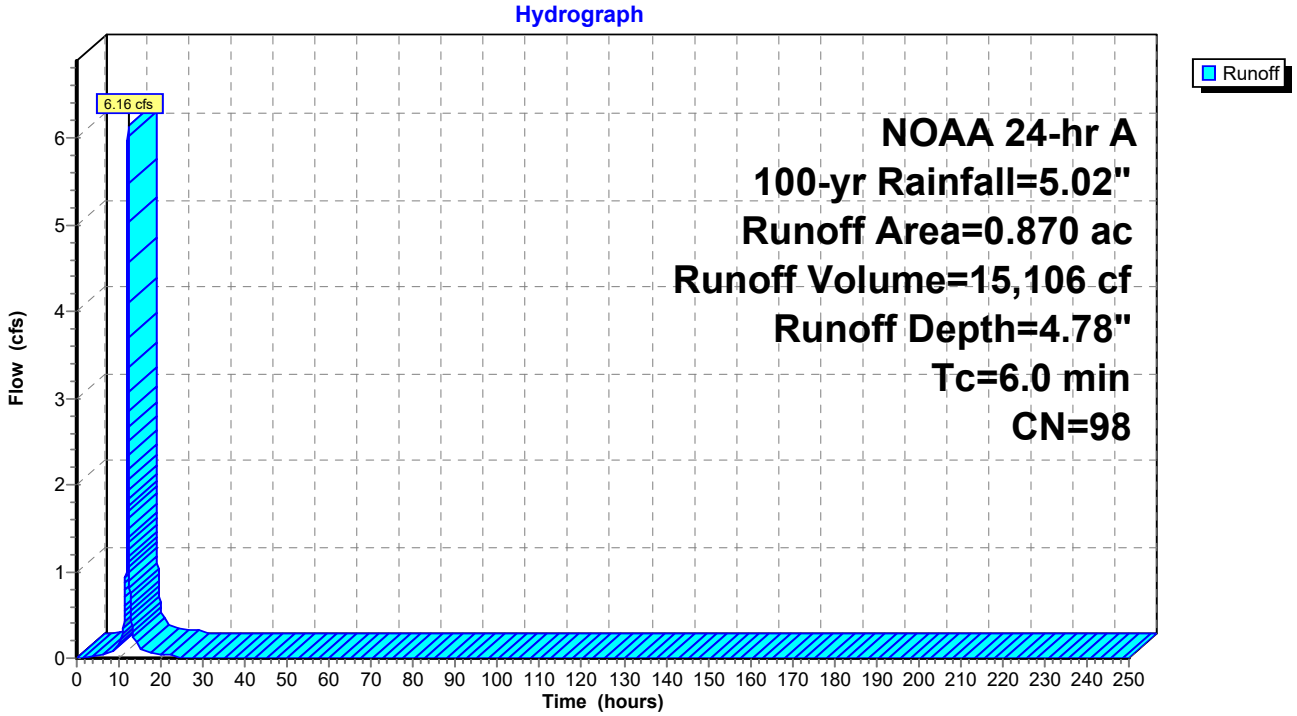
Runoff = 6.16 cfs @ 12.13 hrs, Volume= 15,106 cf, Depth= 4.78"
Routed to Link 12 : Post-Development Discharge Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.870	98	Paved parking, HSG C
0.870		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 11: Post-Development DA-1 (Outside LOD)

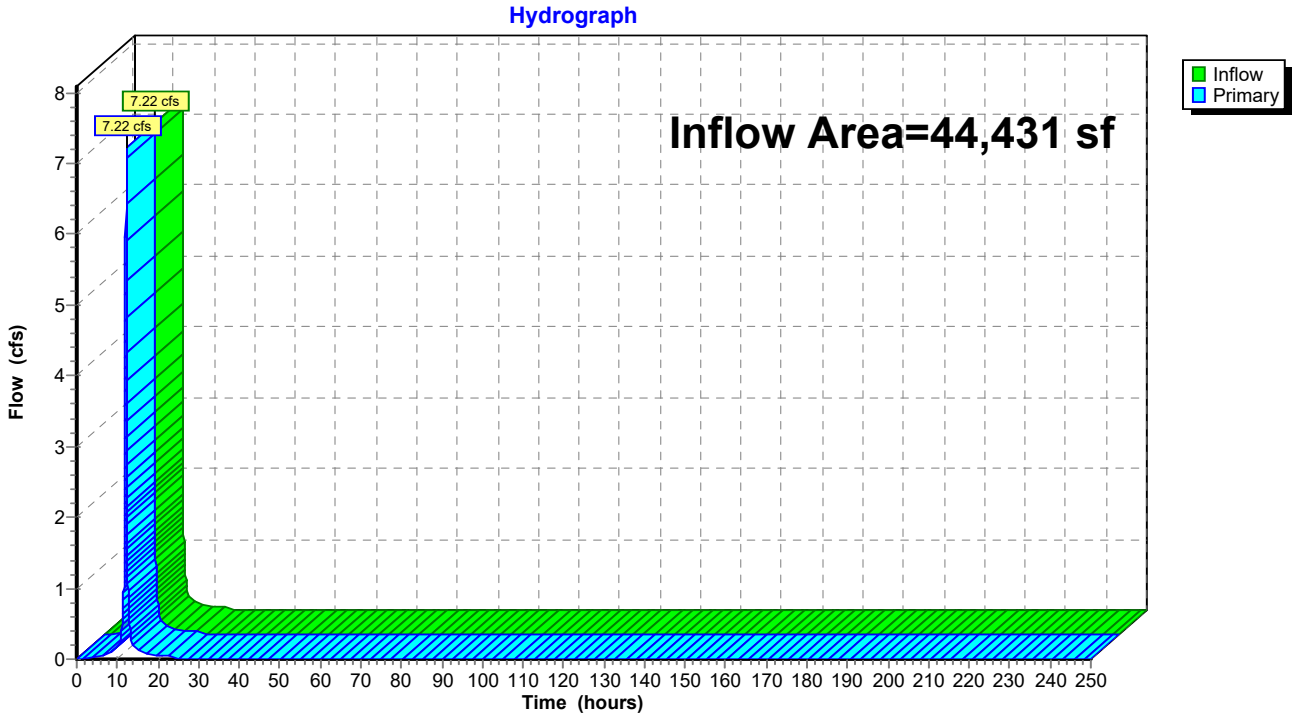


Summary for Link 12: Post-Development Discharge Point 1

Inflow Area = 44,431 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 7.22 cfs @ 12.13 hrs, Volume= 17,710 cf
Primary = 7.22 cfs @ 12.13 hrs, Volume= 17,710 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 12: Post-Development Discharge Point 1



Summary for Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)

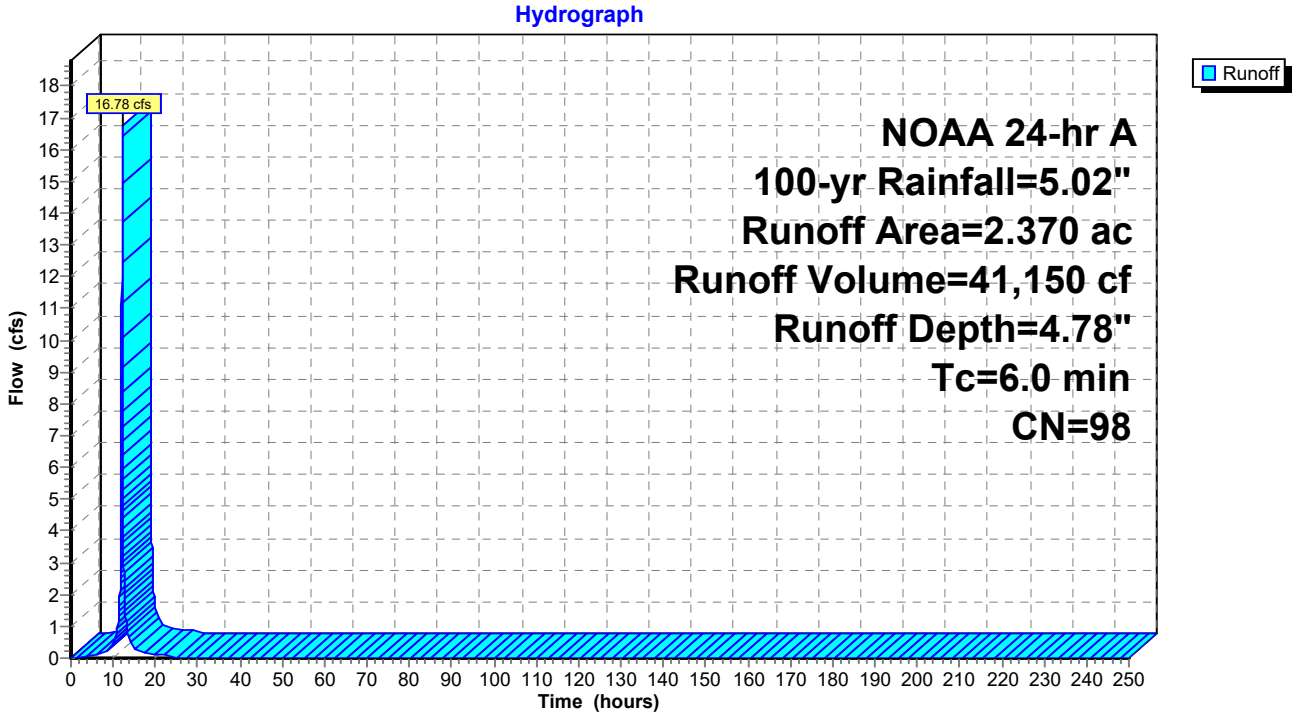
Runoff = 16.78 cfs @ 12.13 hrs, Volume= 41,150 cf, Depth= 4.78"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
2.370	98	Paved parking, HSG C
2.370		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 13: Post-Development DA-2 (Detained - Within LOD)



Summary for Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)

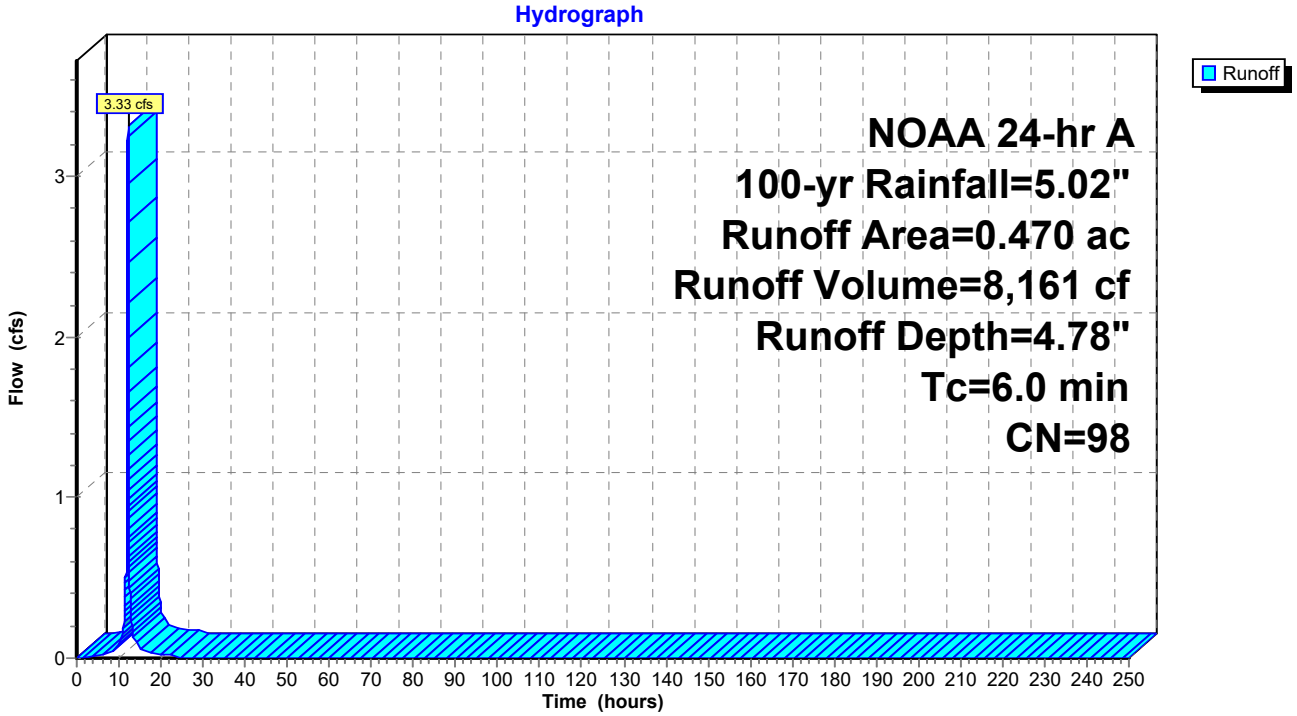
Runoff = 3.33 cfs @ 12.13 hrs, Volume= 8,161 cf, Depth= 4.78"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.470	98	Paved parking, HSG C
0.470		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 14: Post-Development DA-2 (Undetained - Within LOD)



Summary for Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)

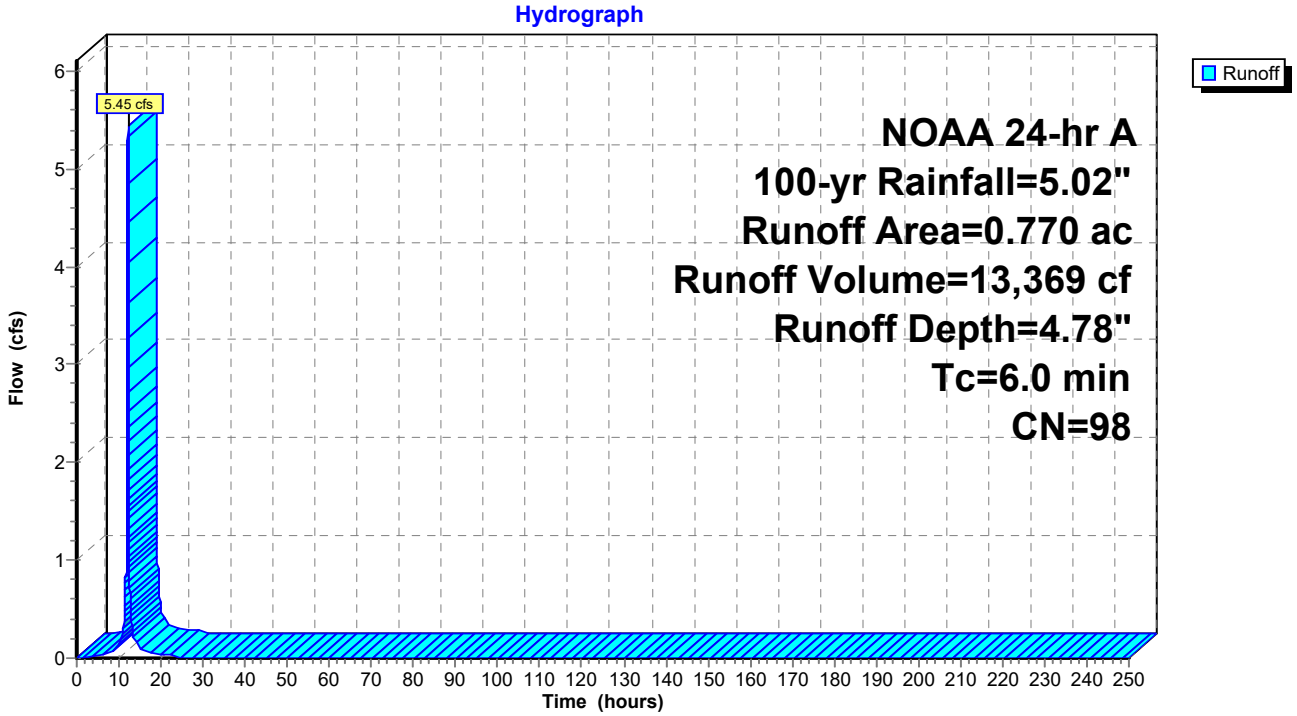
Runoff = 5.45 cfs @ 12.13 hrs, Volume= 13,369 cf, Depth= 4.78"
Routed to Link 20 : Post-Development Discharge Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.770	98	Paved parking, HSG C
0.770		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 15: Post-Development DA-2 (Undetained - Outside LOD)



Summary for Pond 16: Diversion Structure 2

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 17.77 cfs @ 12.13 hrs, Volume= 43,581 cf
Outflow = 17.77 cfs @ 12.13 hrs, Volume= 43,581 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.78 cfs @ 12.13 hrs, Volume= 42,268 cf
Routed to Pond 17 : Diversion Structure to MRC Cells
Secondary = 4.00 cfs @ 12.13 hrs, Volume= 1,312 cf
Routed to Link 20 : Post-Development Discharge Point 2

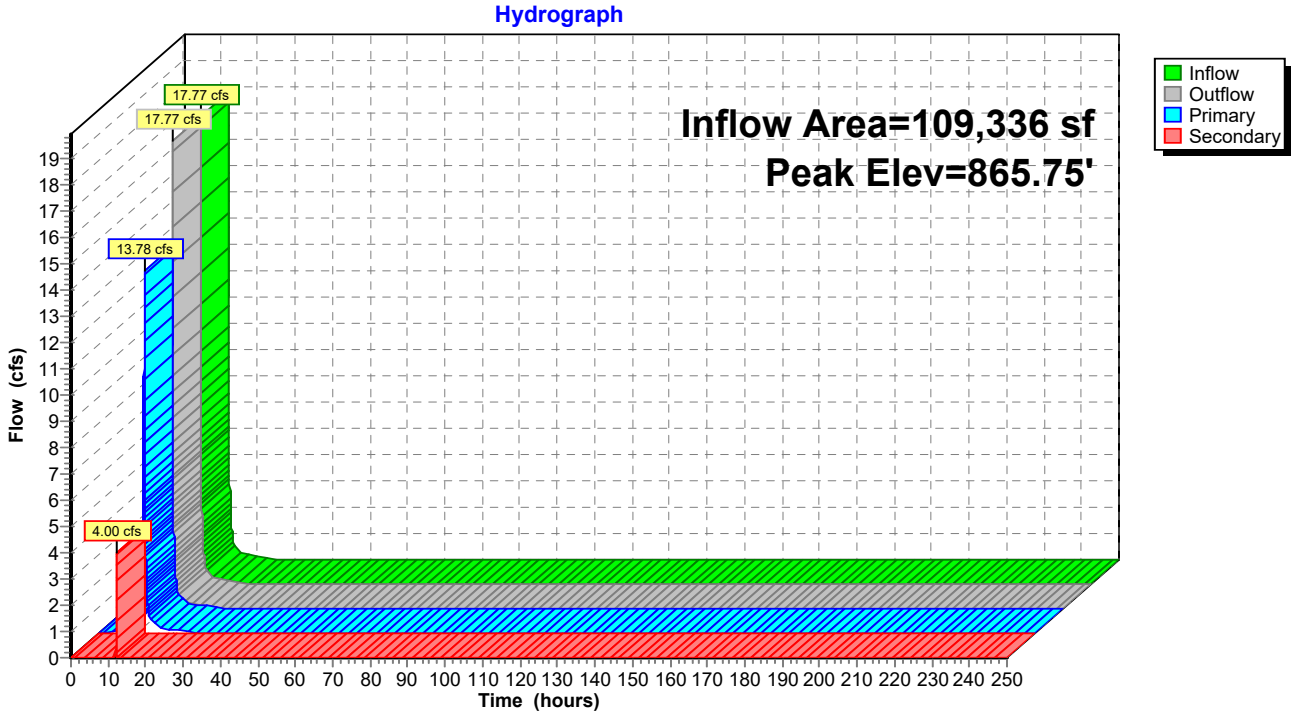
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.75' @ 12.13 hrs
Flood Elev= 866.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.70'	**36.0" Round Culvert to MRC** L= 14.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.63' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Secondary	863.70'	**15.0" Round > 2YR Storm Overflow** L= 82.7' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.70' / 863.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#3	Device 2	865.40'	**6.0' long Diversion Weir** 2 End Contraction(s)

Primary OutFlow Max=13.67 cfs @ 12.13 hrs HW=865.75' TW=865.35' (Dynamic Tailwater)
└**1=Culvert to MRC** (Inlet Controls 13.67 cfs @ 2.66 fps)

Secondary OutFlow Max=3.99 cfs @ 12.13 hrs HW=865.75' TW=0.00' (Dynamic Tailwater)
└**2=> 2YR Storm Overflow** (Passes 3.99 cfs of 5.92 cfs potential flow)
└**3=Diversion Weir** (Weir Controls 3.99 cfs @ 1.93 fps)

Pond 16: Diversion Structure 2



Summary for Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)

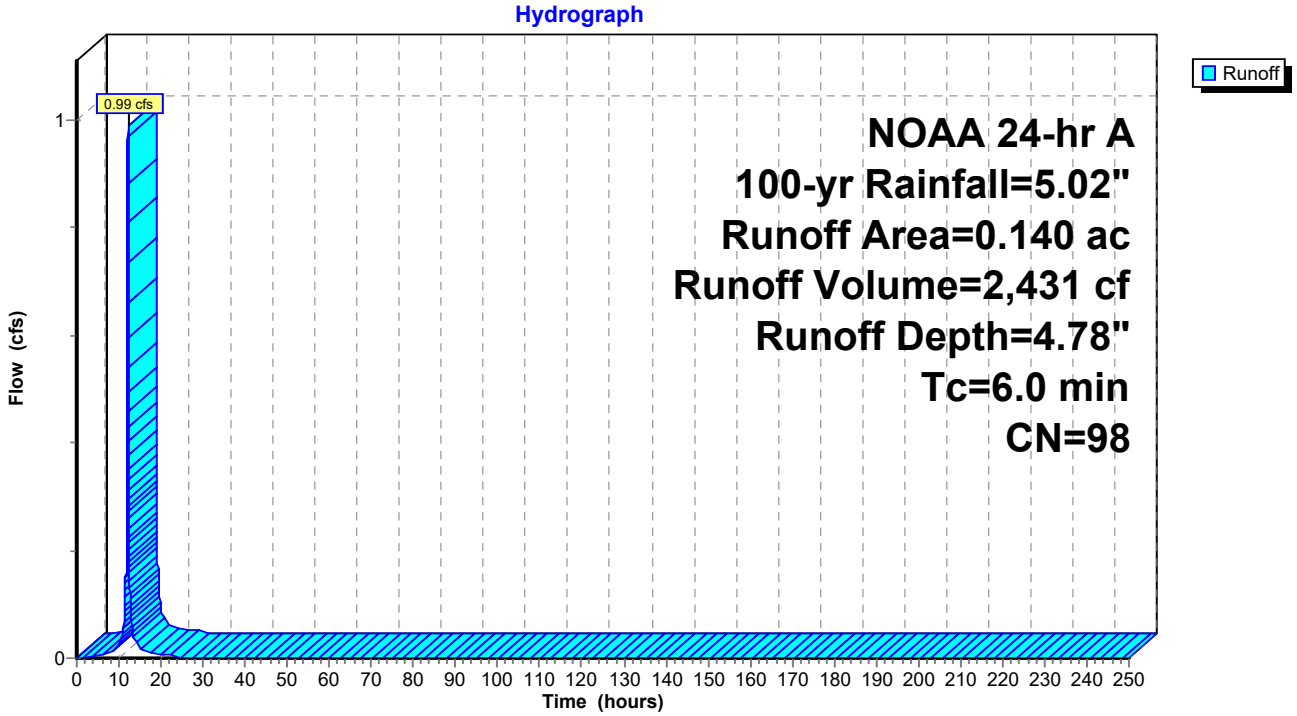
Runoff = 0.99 cfs @ 12.13 hrs, Volume= 2,431 cf, Depth= 4.78"
Routed to Pond 16 : Diversion Structure 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG C
0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 16S: Post-Development DA-2 (Detained - Outside LOD)



Summary for Pond 17: Diversion Structure to MRC Cells

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 4.64" for 100-yr event
Inflow = 13.78 cfs @ 12.13 hrs, Volume= 42,268 cf
Outflow = 13.78 cfs @ 12.13 hrs, Volume= 42,268 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.89 cfs @ 12.13 hrs, Volume= 21,134 cf
Routed to Pond 18 : MRC Cell 2A
Secondary = 6.89 cfs @ 12.13 hrs, Volume= 21,134 cf
Routed to Pond 19 : MRC Cell 2B

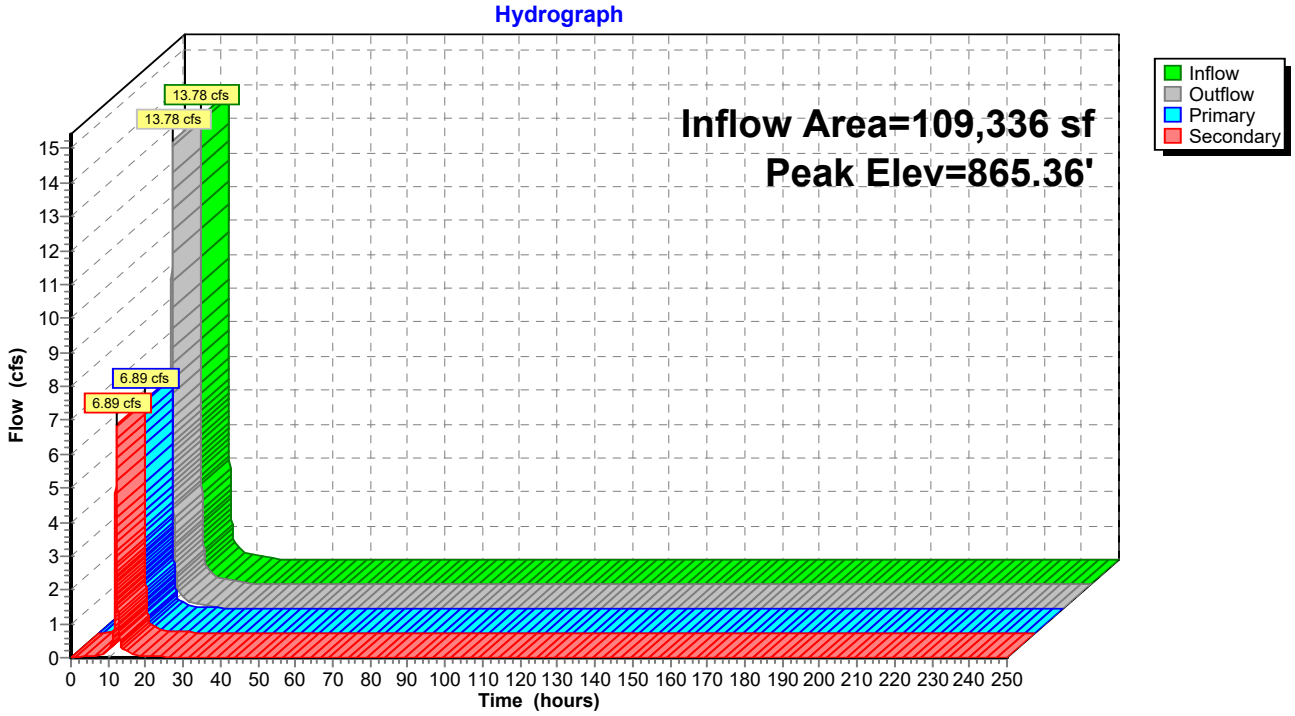
Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 865.36' @ 12.13 hrs
Flood Elev= 866.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	863.60'	**18.0" Round Culvert to MRC Cell 2A** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	863.60'	**18.0" Round Culvert to MRC Cell 2B** L= 16.5' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 863.60' / 863.52' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.88 cfs @ 12.13 hrs HW=865.35' TW=863.96' (Dynamic Tailwater)
↑—**1=Culvert to MRC Cell 2A** (Barrel Controls 6.88 cfs @ 4.19 fps)

Secondary OutFlow Max=6.88 cfs @ 12.13 hrs HW=865.35' TW=863.96' (Dynamic Tailwater)
↑—**2=Culvert to MRC Cell 2B** (Barrel Controls 6.88 cfs @ 4.19 fps)

Pond 17: Diversion Structure to MRC Cells



Summary for Pond 18: MRC Cell 2A

Inflow Area = 109,336 sf,100.00% Impervious, Inflow Depth = 2.32" for 100-yr event
Inflow = 6.89 cfs @ 12.13 hrs, Volume= 21,134 cf
Outflow = 4.96 cfs @ 12.21 hrs, Volume= 21,127 cf, Atten= 28%, Lag= 4.9 min
Primary = 4.96 cfs @ 12.21 hrs, Volume= 21,127 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.22' @ 12.21 hrs Storage= 8,444 cf

Plug-Flow detention time= 737.6 min calculated for 21,127 cf (100% of inflow)
Center-of-Mass det. time= 737.3 min (1,484.1 - 746.8)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

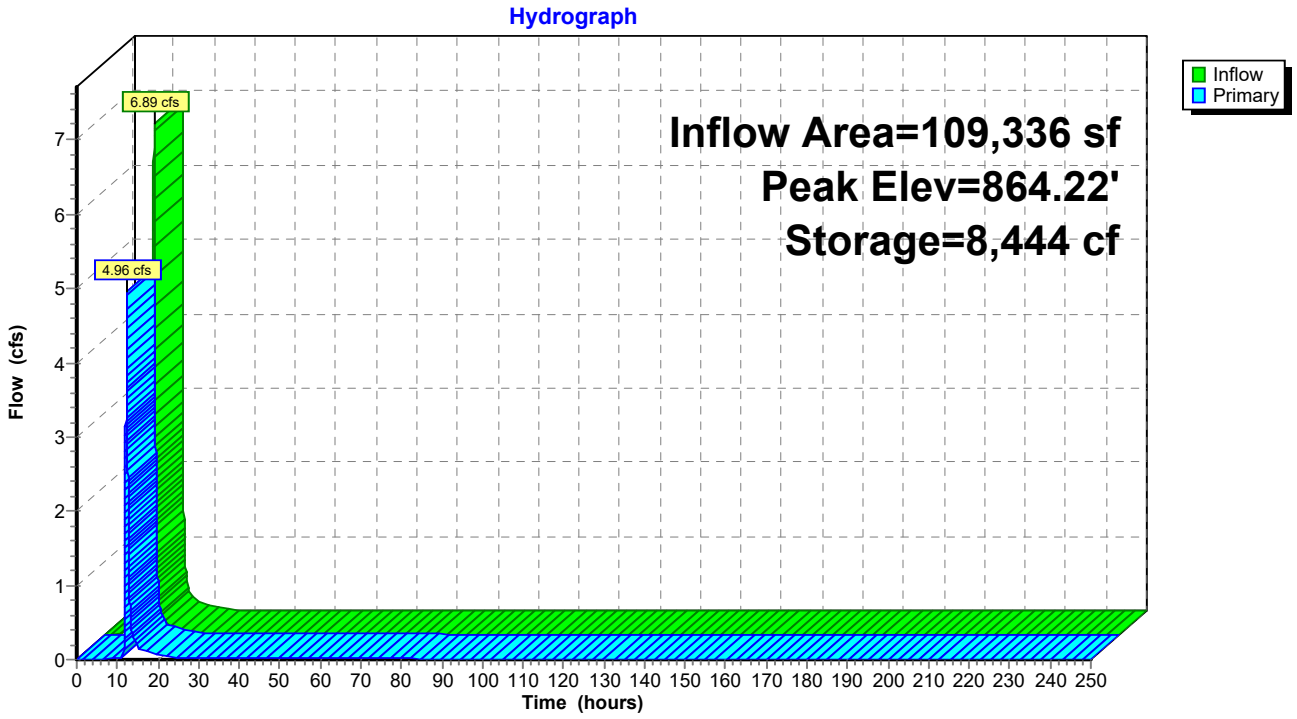
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,012
864.25	8,511
864.50	9,012
864.75	9,512
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200A** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600

Limited to weir flow at low heads
#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=4.96 cfs @ 12.21 hrs HW=864.22' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200A** (Passes 4.96 cfs of 13.98 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.85 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.95 cfs @ 5.66 fps)
  └─**4=Weir** (Weir Controls 0.97 cfs @ 1.52 fps)

Pond 18: MRC Cell 2A



Summary for Pond 19: MRC Cell 2B

Inflow = 6.89 cfs @ 12.13 hrs, Volume= 21,134 cf
Outflow = 4.96 cfs @ 12.21 hrs, Volume= 21,127 cf, Atten= 28%, Lag= 4.9 min
Primary = 4.96 cfs @ 12.21 hrs, Volume= 21,127 cf
Routed to Link 20 : Post-Development Discharge Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 864.22' @ 12.21 hrs Storage= 8,444 cf

Plug-Flow detention time= 737.1 min calculated for 21,126 cf (100% of inflow)
Center-of-Mass det. time= 737.3 min (1,484.1 - 746.8)

Volume	Invert	Avail.Storage	Storage Description
#1	860.00'	11,015 cf	**Storm Trap - 5'-6" Single Trap Stage Data** Listed below

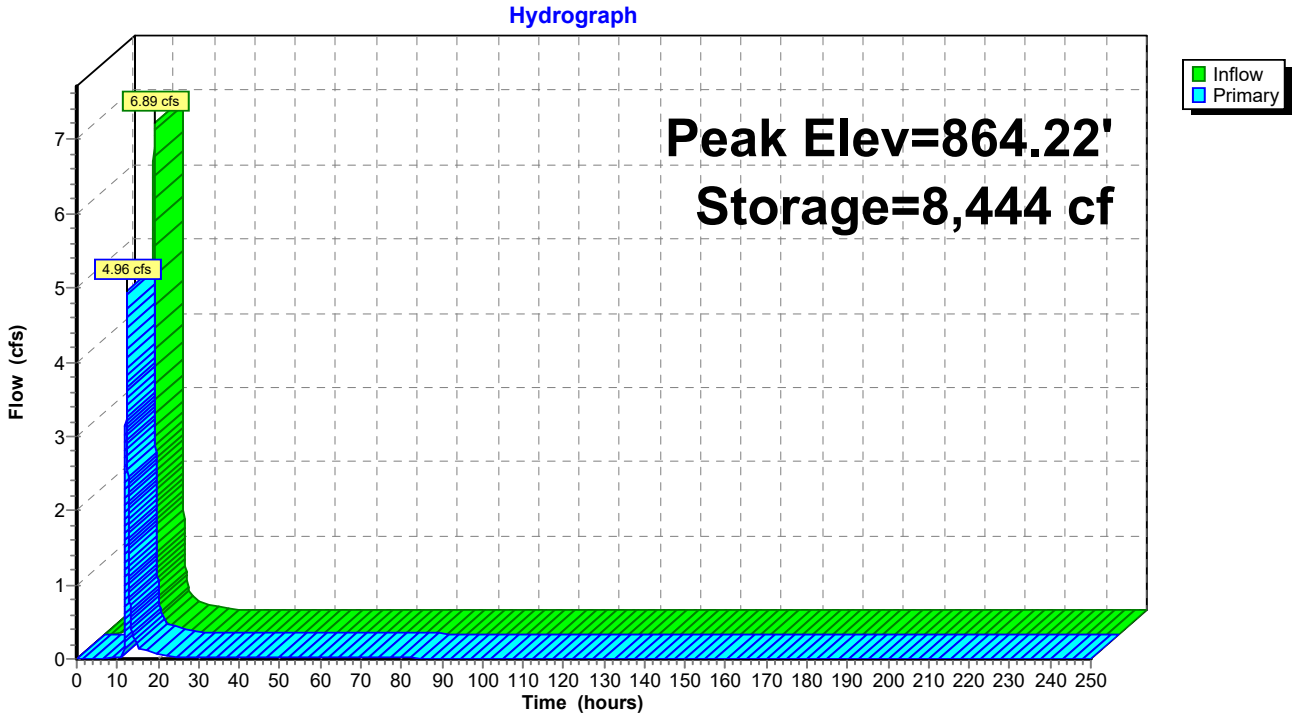
Elevation (feet)	Cum.Store (cubic-feet)
860.00	0
860.25	500
860.50	1,001
860.75	1,502
861.00	2,003
861.25	2,503
861.50	3,004
861.75	3,505
862.00	4,005
862.25	4,506
862.50	5,007
862.75	5,507
863.00	6,008
863.25	6,509
863.50	7,009
863.75	7,510
864.00	8,011
864.25	8,511
864.50	9,012
864.75	9,513
865.00	10,013
865.25	10,514
865.50	11,015

Device	Routing	Invert	Outlet Devices
#1	Primary	860.00'	**18.0" Round MRC Outfall 200B** L= 23.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 860.00' / 859.88' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	860.00'	**0.8" Vert. Underdrain** C= 0.600 Limited to weir flow at low heads
#3	Device 1	862.50'	**8.0" Vert. Orifice Row #1 X 2.00** C= 0.600 Limited to weir flow at low heads

#4 Device 1 864.00' **3.0' long Weir** 2 End Contraction(s)

Primary OutFlow Max=4.96 cfs @ 12.21 hrs HW=864.22' TW=0.00' (Dynamic Tailwater)
└─**1=MRC Outfall 200B** (Passes 4.96 cfs of 13.98 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 9.85 fps)
  ├─**3=Orifice Row #1** (Orifice Controls 3.95 cfs @ 5.66 fps)
  └─**4=Weir** (Weir Controls 0.97 cfs @ 1.52 fps)

Pond 19: MRC Cell 2B

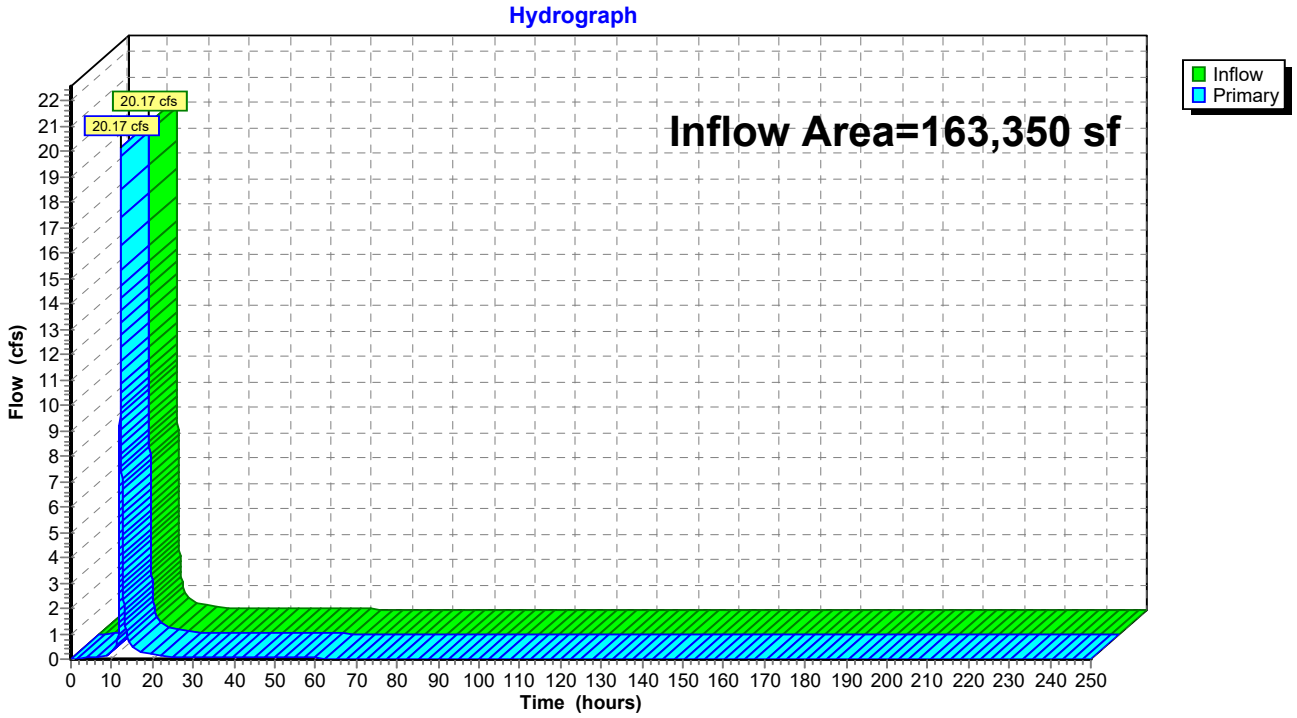


Summary for Link 20: Post-Development Discharge Point 2

Inflow Area = 163,350 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 20.17 cfs @ 12.14 hrs, Volume= 65,096 cf
Primary = 20.17 cfs @ 12.14 hrs, Volume= 65,096 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 20: Post-Development Discharge Point 2



Summary for Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)

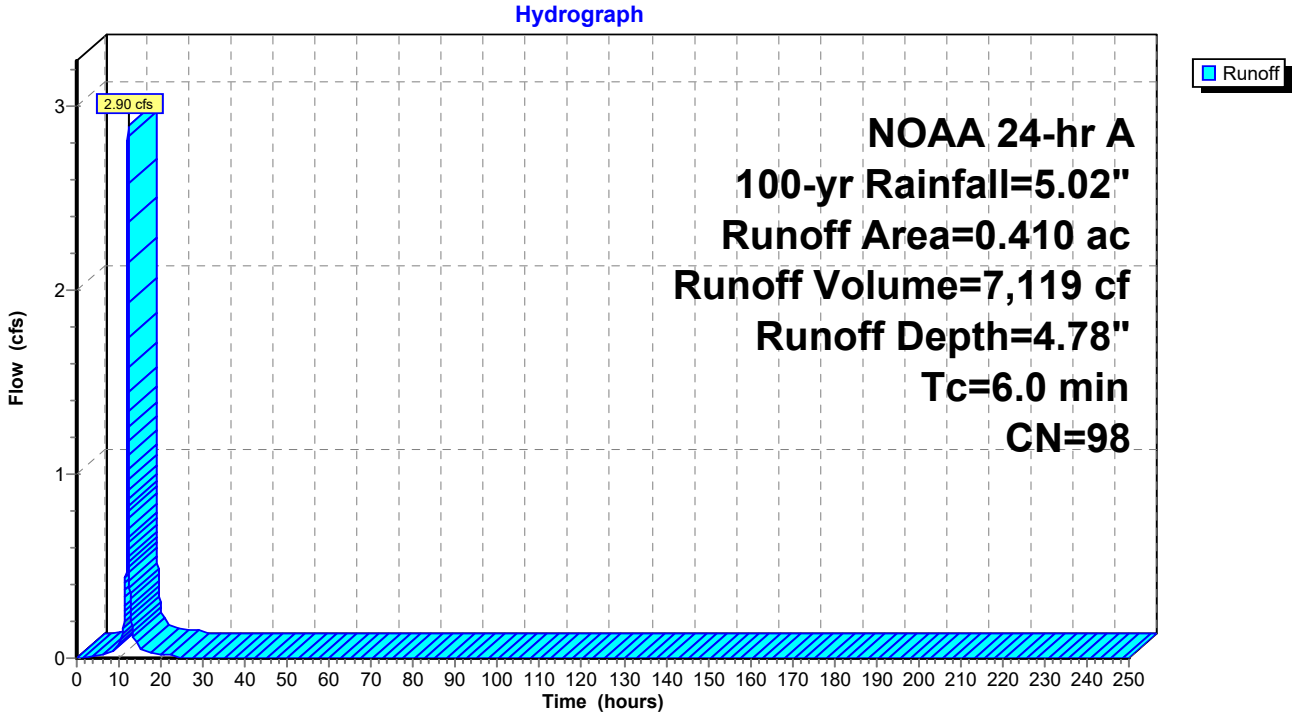
Runoff = 2.90 cfs @ 12.13 hrs, Volume= 7,119 cf, Depth= 4.78"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG C
0.410		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 21: Post-Development DA-3 (Undetained - Outside LOD)



Summary for Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)

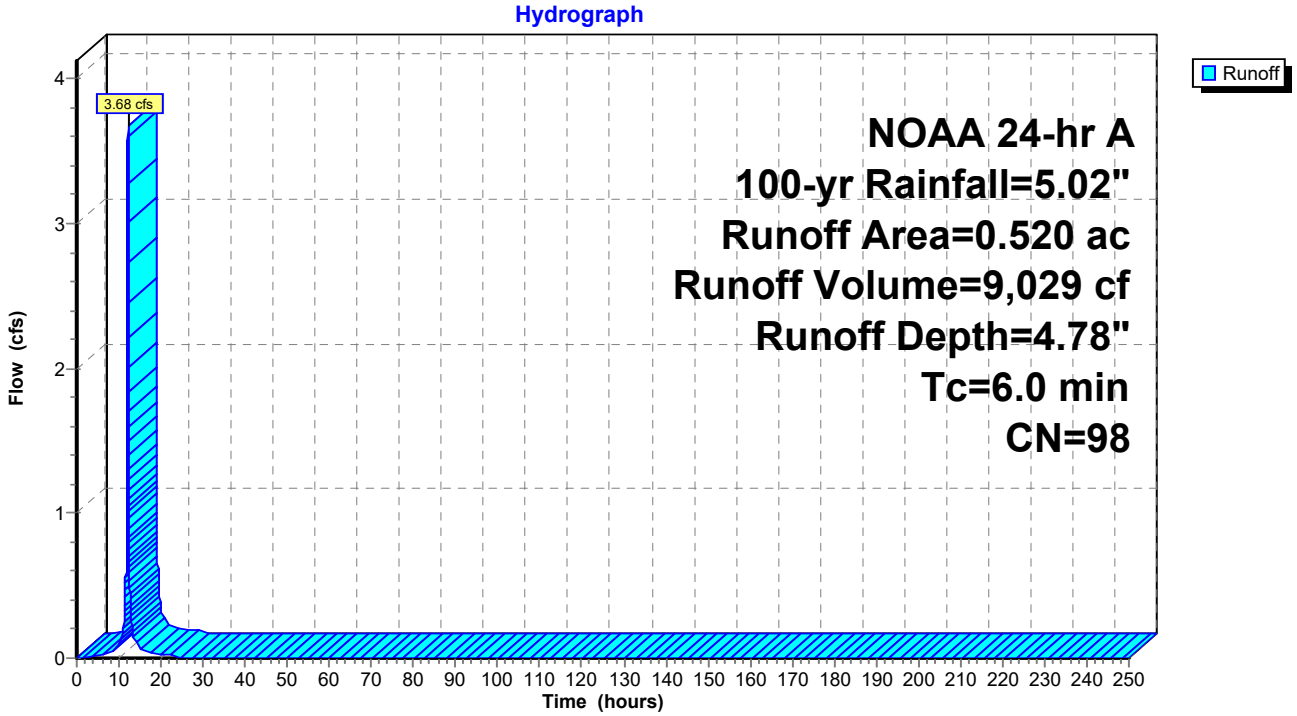
Runoff = 3.68 cfs @ 12.13 hrs, Volume= 9,029 cf, Depth= 4.78"
Routed to Link 29 : Post-Development Discharge Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 22: Post-Development DA-3 (Undetained - Within LOD)



Summary for Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)

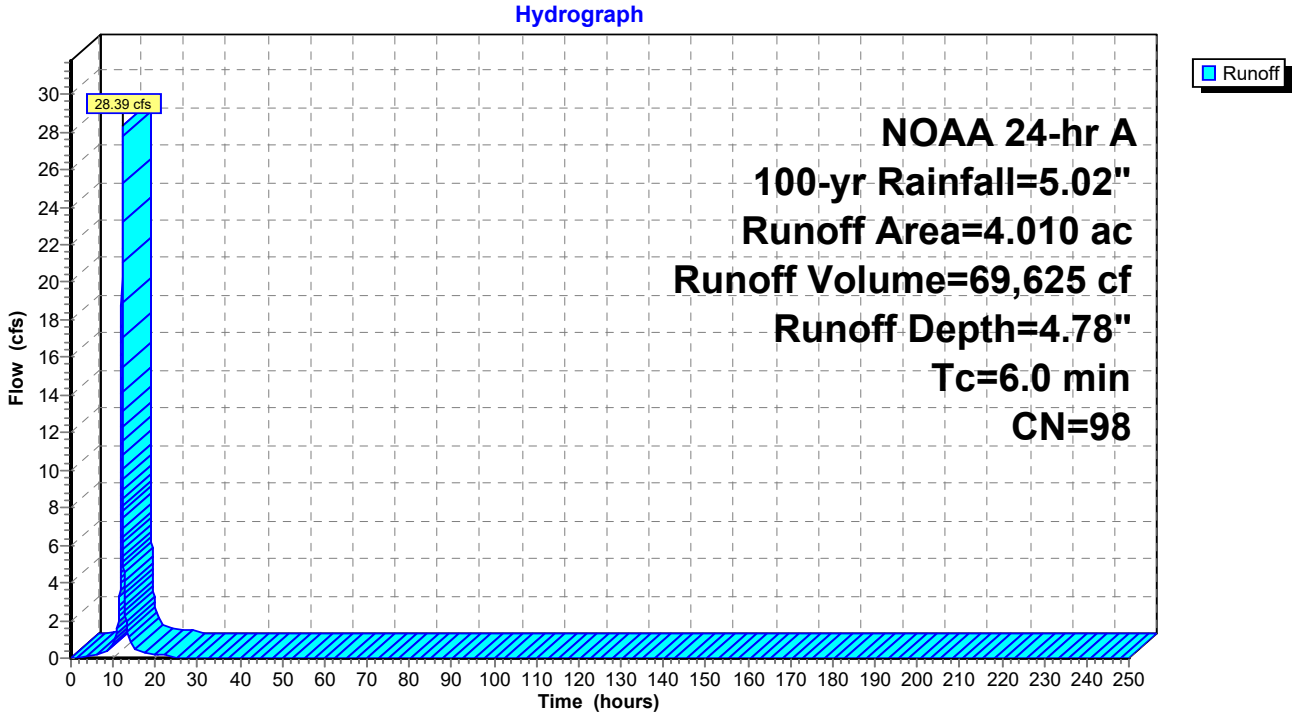
Runoff = 28.39 cfs @ 12.13 hrs, Volume= 69,625 cf, Depth= 4.78"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
4.010	98	Paved parking, HSG C
4.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 23: Post-Development DA-3B (Detained - Within LOD) (North)



Summary for Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)

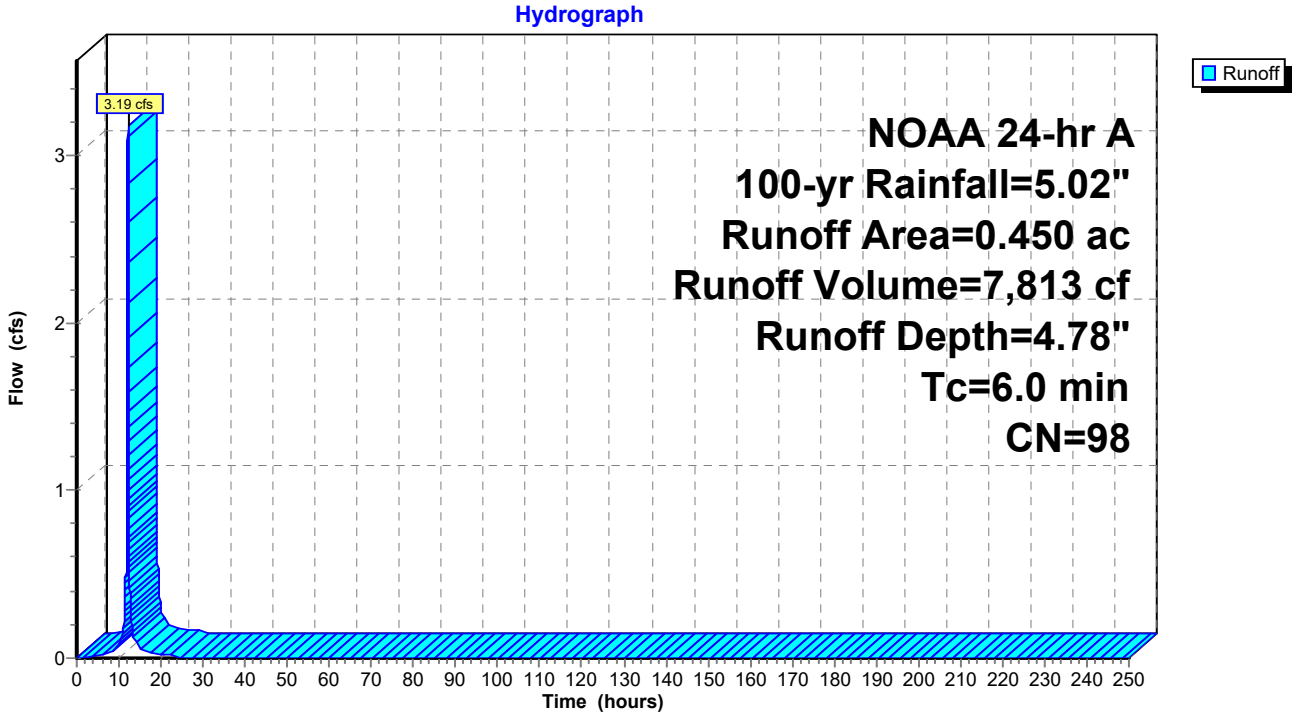
Runoff = 3.19 cfs @ 12.13 hrs, Volume= 7,813 cf, Depth= 4.78"
Routed to Pond 24P : Underground Detention System 3B (North)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.450	98	Paved parking, HSG C
0.450		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 24: Post-Development DA-3B (Detained - Outside LOD) (North)



Summary for Pond 24P: Underground Detention System 3B (North)

Inflow Area = 194,278 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 31.57 cfs @ 12.13 hrs, Volume= 77,438 cf
Outflow = 11.62 cfs @ 12.27 hrs, Volume= 77,422 cf, Atten= 63%, Lag= 8.2 min
Primary = 11.62 cfs @ 12.27 hrs, Volume= 77,422 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 861.52' @ 12.27 hrs Storage= 35,653 cf

Plug-Flow detention time= 184.9 min calculated for 77,422 cf (100% of inflow)
Center-of-Mass det. time= 184.7 min (930.9 - 746.2)

Volume	Invert	Avail.Storage	Storage Description
#1	855.75'	37,071 cf	**Storm Trap - 6'-0" Single Trap Stage Data** Listed below

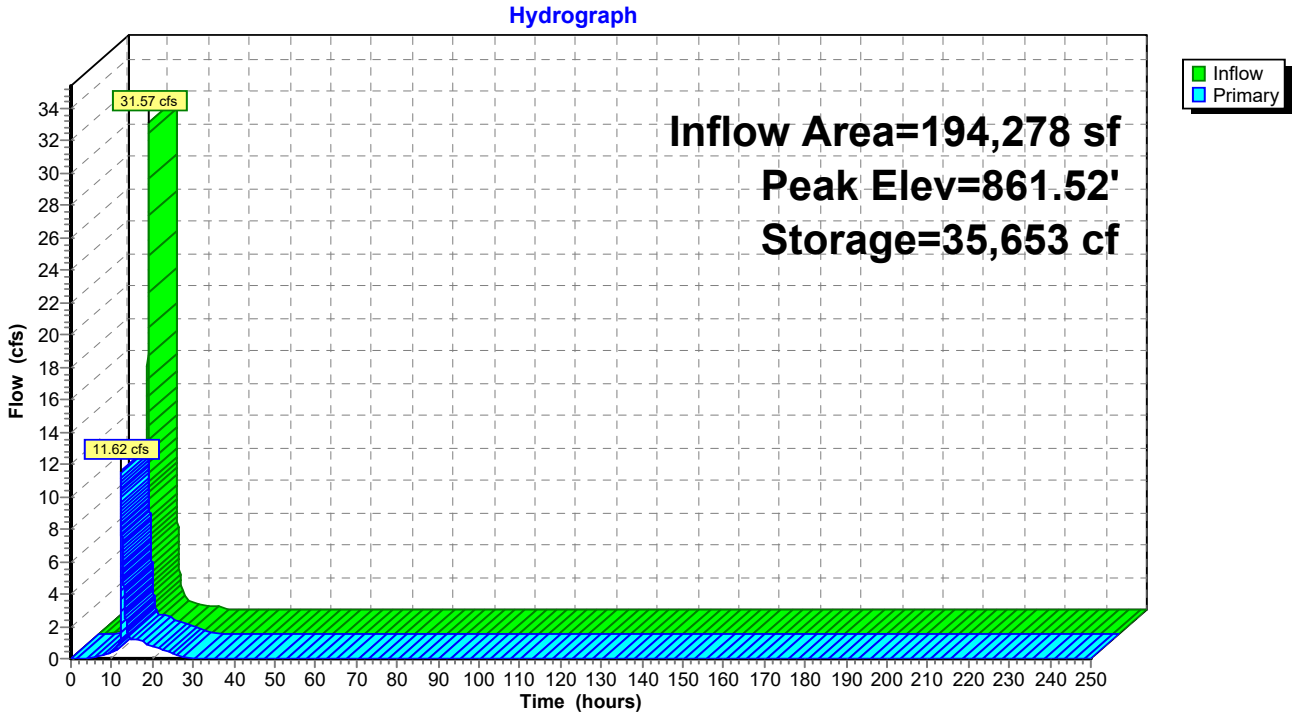
Elevation (feet)	Cum.Store (cubic-feet)
855.75	0
856.00	1,544
856.25	3,089
856.50	4,634
856.75	6,179
857.00	7,723
857.25	9,268
857.50	10,813
857.75	12,357
858.00	13,902
858.25	15,446
858.50	16,991
858.75	18,535
859.00	20,080
859.25	21,625
859.50	23,170
859.75	24,714
860.00	26,259
860.25	27,804
860.50	29,348
860.75	30,893
861.00	32,437
861.25	33,982
861.50	35,527
861.75	37,071

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**24.0" Round Culvert** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.85' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

#2	Device 1	855.75'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	859.60'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	861.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=11.61 cfs @ 12.27 hrs HW=861.52' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 11.61 cfs of 31.36 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 1.55 cfs @ 11.36 fps)
  - **3=Orifice/Grate** (Orifice Controls 5.29 cfs @ 5.98 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 4.77 cfs @ 2.36 fps)

Pond 24P: Underground Detention System 3B (North)



Summary for Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)

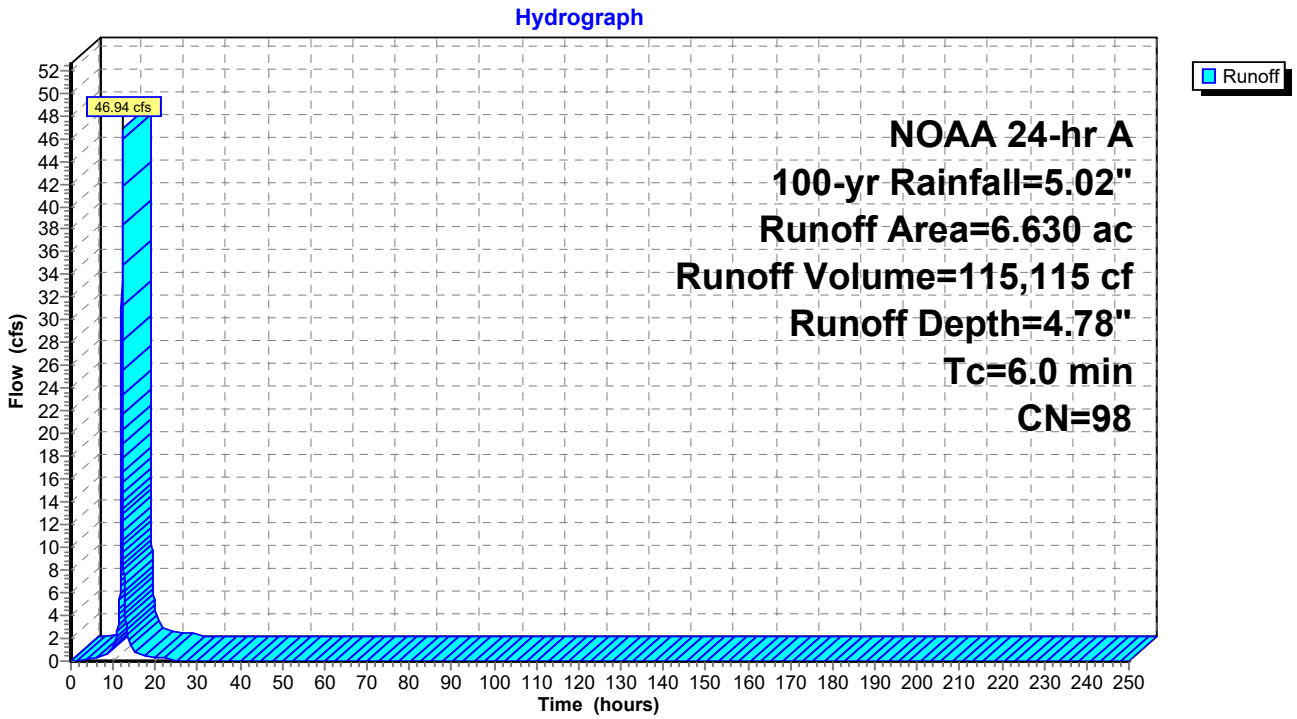
Runoff = 46.94 cfs @ 12.13 hrs, Volume= 115,115 cf, Depth= 4.78"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
6.630	98	Paved parking, HSG C
6.630		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 25: Post-Development DA-3A (Detained - Within LOD) (South)



Summary for Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)

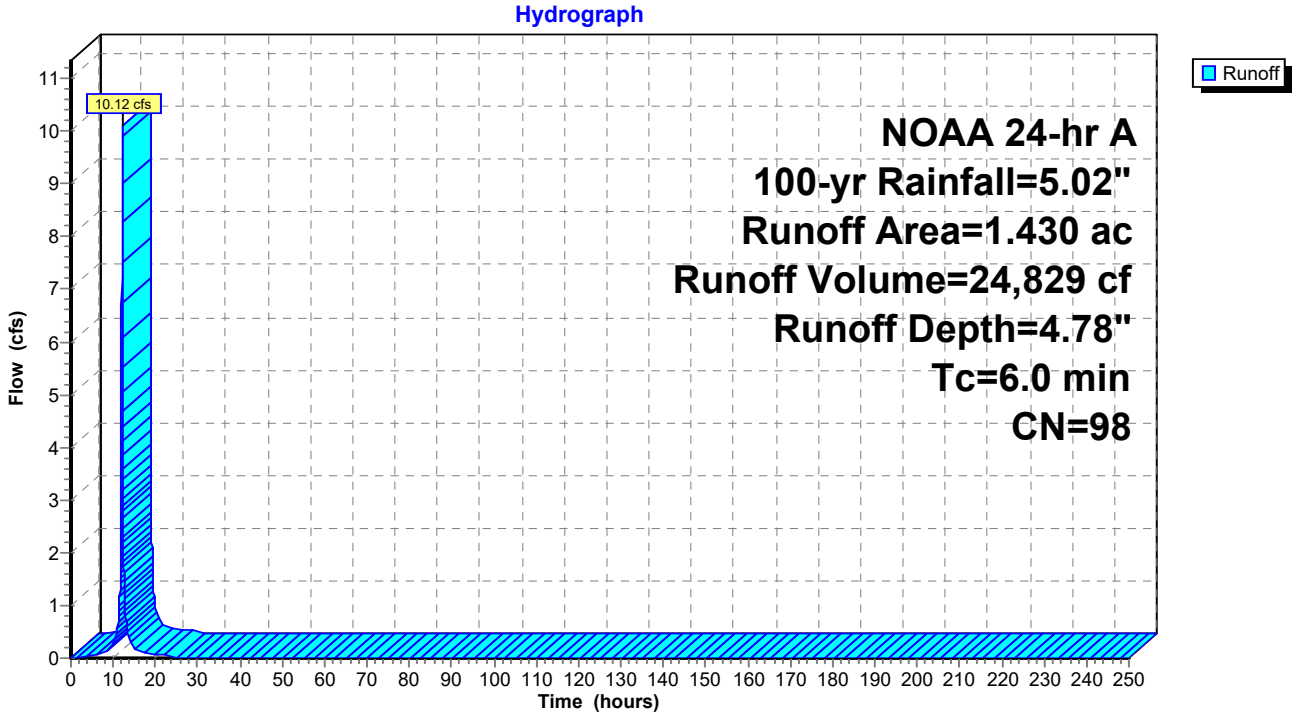
Runoff = 10.12 cfs @ 12.13 hrs, Volume= 24,829 cf, Depth= 4.78"
Routed to Pond 27 : Underground Detention System 3A (South)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
1.430	98	Paved parking, HSG C
1.430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 26: Post-Development DA-3A (Detained - Outside LOD) (South)



Summary for Pond 27: Underground Detention System 3A (South)

Inflow Area = 351,094 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 57.06 cfs @ 12.13 hrs, Volume= 139,944 cf
Outflow = 40.74 cfs @ 12.18 hrs, Volume= 133,305 cf, Atten= 29%, Lag= 3.3 min
Primary = 40.74 cfs @ 12.18 hrs, Volume= 133,305 cf
Routed to Link 29 : Post-Development Discharge Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
Peak Elev= 860.07' @ 12.18 hrs Storage= 33,598 cf

Plug-Flow detention time= 76.6 min calculated for 133,300 cf (95% of inflow)
Center-of-Mass det. time= 50.7 min (796.9 - 746.2)

Volume	Invert	Avail.Storage	Storage Description
#1	855.00'	39,792 cf	**Storm Trap - 6'-0" Double Trap Stage Data** Listed below

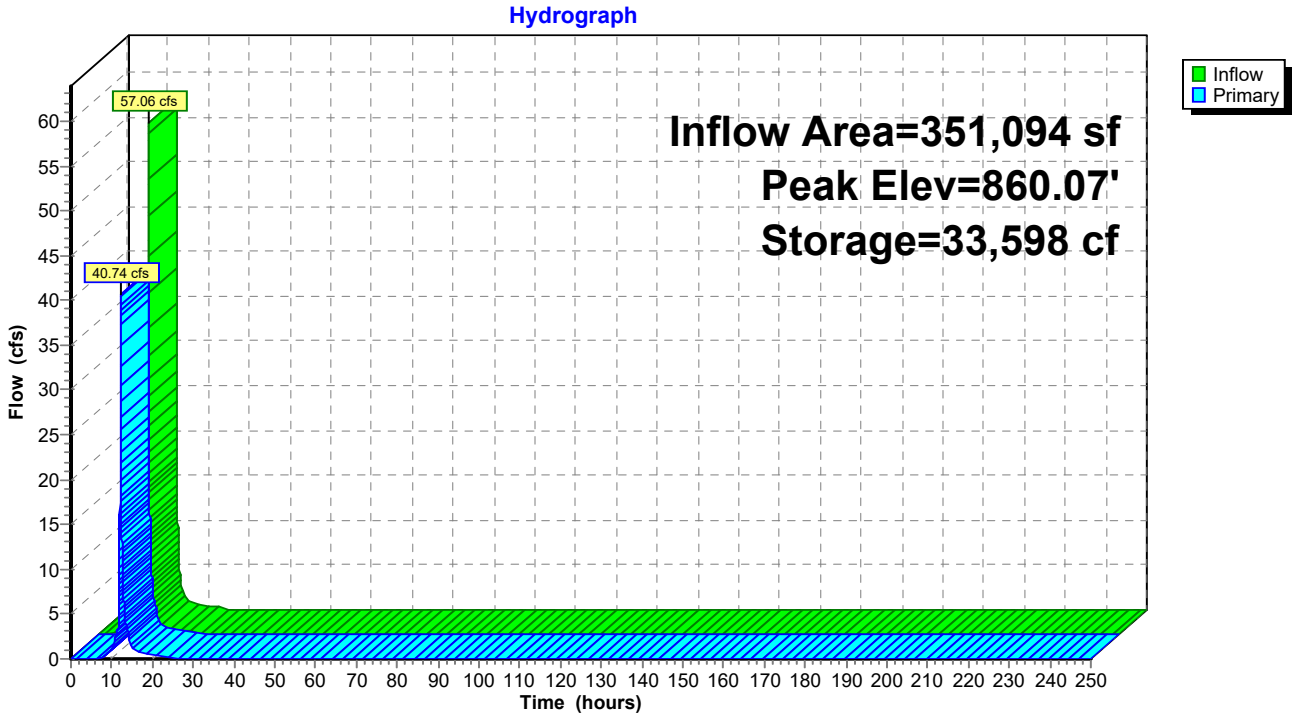
Elevation (feet)	Cum.Store (cubic-feet)
855.00	0
855.25	1,658
855.50	3,316
855.75	4,974
856.00	6,632
856.25	8,290
856.50	9,948
856.75	11,066
857.00	13,264
857.25	14,922
857.50	16,580
857.75	18,238
858.00	19,896
858.25	21,554
858.50	23,212
858.75	24,870
859.00	26,528
859.25	28,186
859.50	29,844
859.75	31,502
860.00	33,160
860.25	34,818
860.50	36,476
860.75	38,134
861.00	39,792

Device	Routing	Invert	Outlet Devices
#1	Primary	855.00'	**30.0" Round SCM Outfall 300A** L= 29.0' Box, 0° wingwalls, square crown edge, Ke= 0.700 Inlet / Outlet Invert= 855.00' / 854.86' S= 0.0048 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf

#2	Device 1	856.00'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	857.20'	**9.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	858.20'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=40.72 cfs @ 12.18 hrs HW=860.06' TW=0.00' (Dynamic Tailwater)
- **1=SCM Outfall 300A** (Inlet Controls 40.72 cfs @ 8.30 fps)
  - **2=Orifice/Grate** (Passes < 8.17 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 6.71 cfs potential flow)
  - **4=Sharp-Crested Rectangular Weir** (Passes < 38.49 cfs potential flow)

Pond 27: Underground Detention System 3A (South)

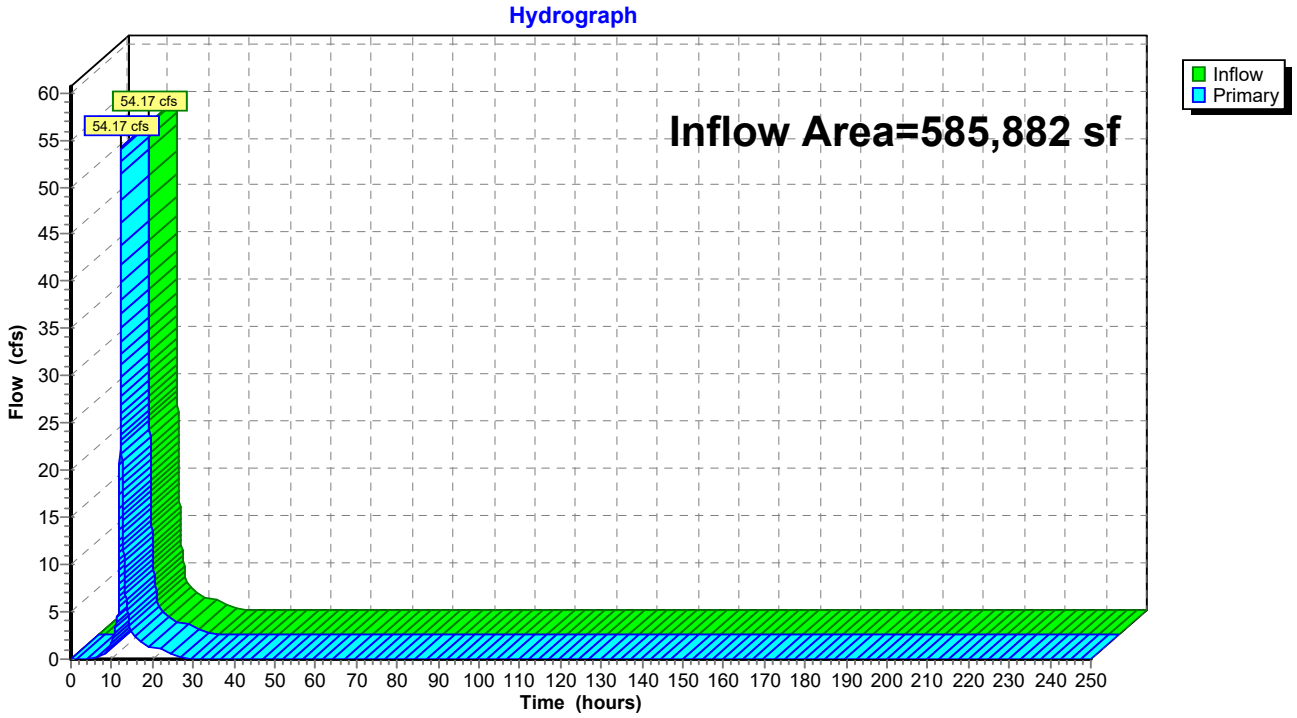


Summary for Link 29: Post-Development Discharge Point 3

Inflow Area = 585,882 sf,100.00% Impervious, Inflow Depth = 4.65" for 100-yr event
Inflow = 54.17 cfs @ 12.21 hrs, Volume= 226,875 cf
Primary = 54.17 cfs @ 12.21 hrs, Volume= 226,875 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 29: Post-Development Discharge Point 3



Summary for Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)

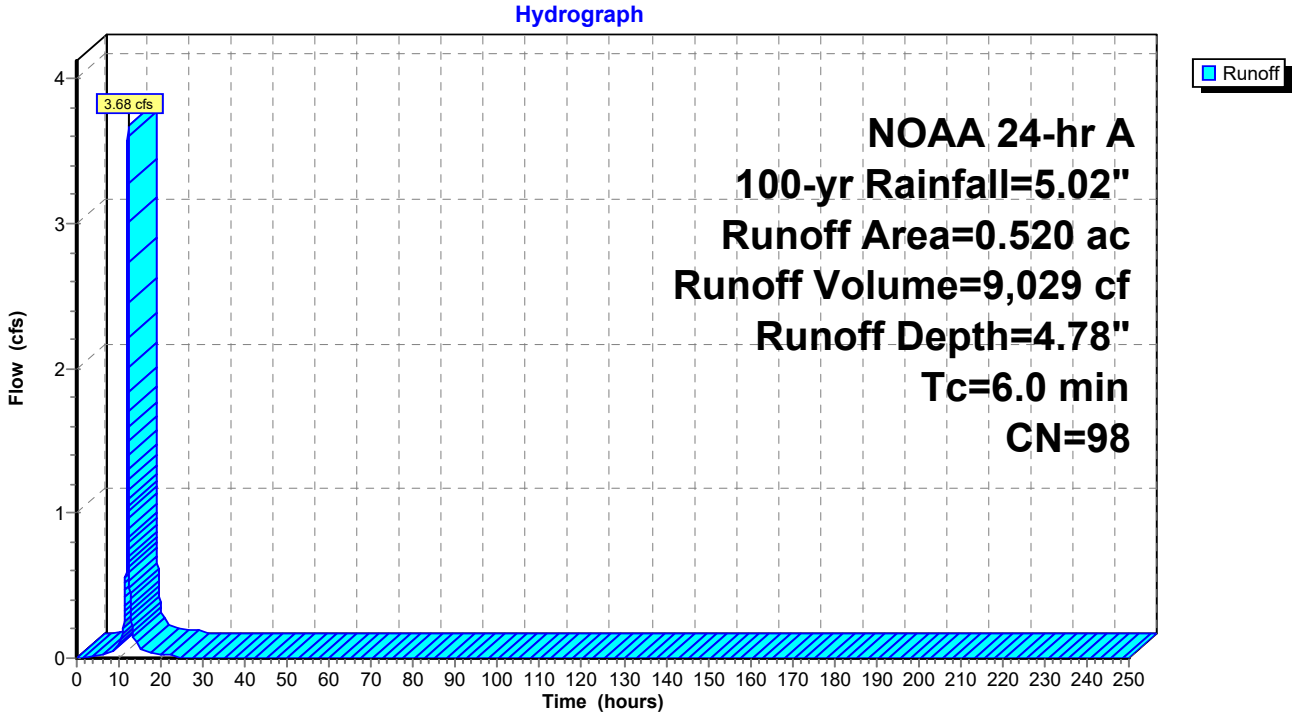
Runoff = 3.68 cfs @ 12.13 hrs, Volume= 9,029 cf, Depth= 4.78"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 30: Post-Development DA-4 (Undetained - Within LOD)



Summary for Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

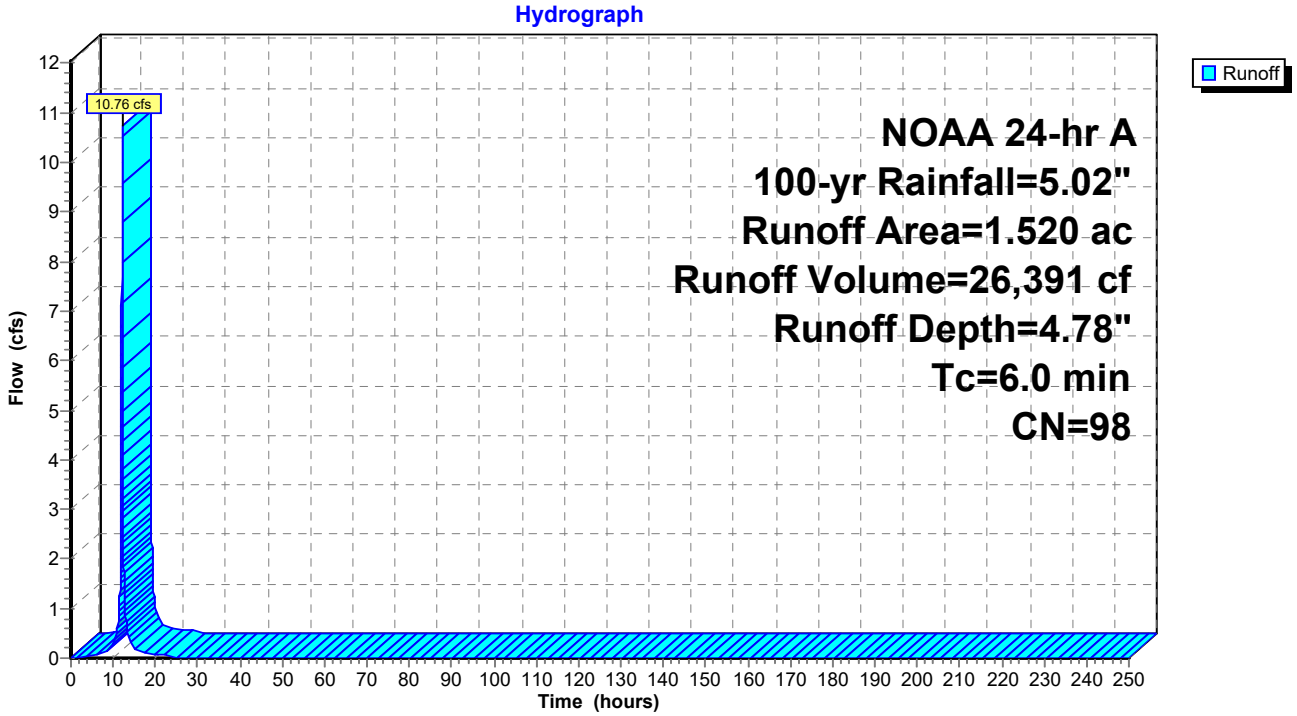
Runoff = 10.76 cfs @ 12.13 hrs, Volume= 26,391 cf, Depth= 4.78"
Routed to Link 32 : Post-Development Discharge Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs
NOAA 24-hr A 100-yr Rainfall=5.02"

Area (ac)	CN	Description
1.520	98	Paved parking, HSG C
1.520		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Assumed 6 min. TC**

Subcatchment 31: Post-Development DA-4 (Undetained - Outside LOD)

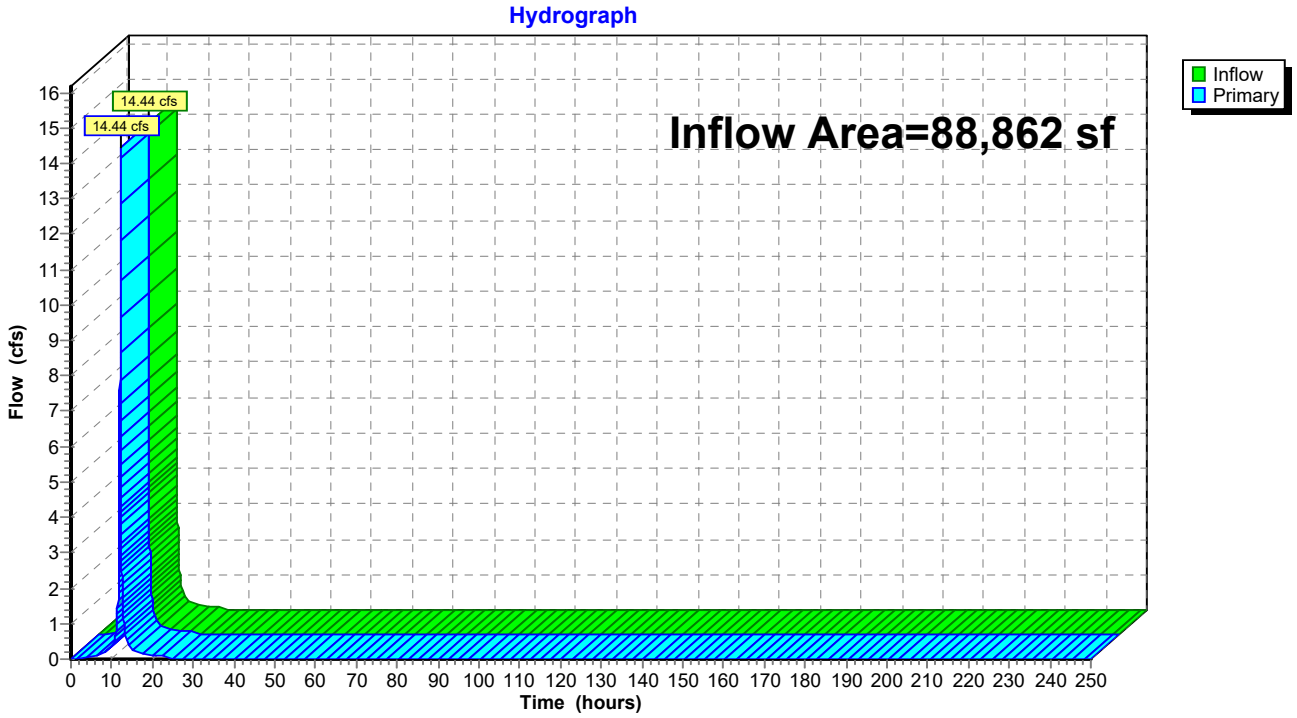


Summary for Link 32: Post-Development Discharge Point 4

Inflow Area = 88,862 sf,100.00% Impervious, Inflow Depth = 4.78" for 100-yr event
Inflow = 14.44 cfs @ 12.13 hrs, Volume= 35,420 cf
Primary = 14.44 cfs @ 12.13 hrs, Volume= 35,420 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 33 : POA 001

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 32: Post-Development Discharge Point 4

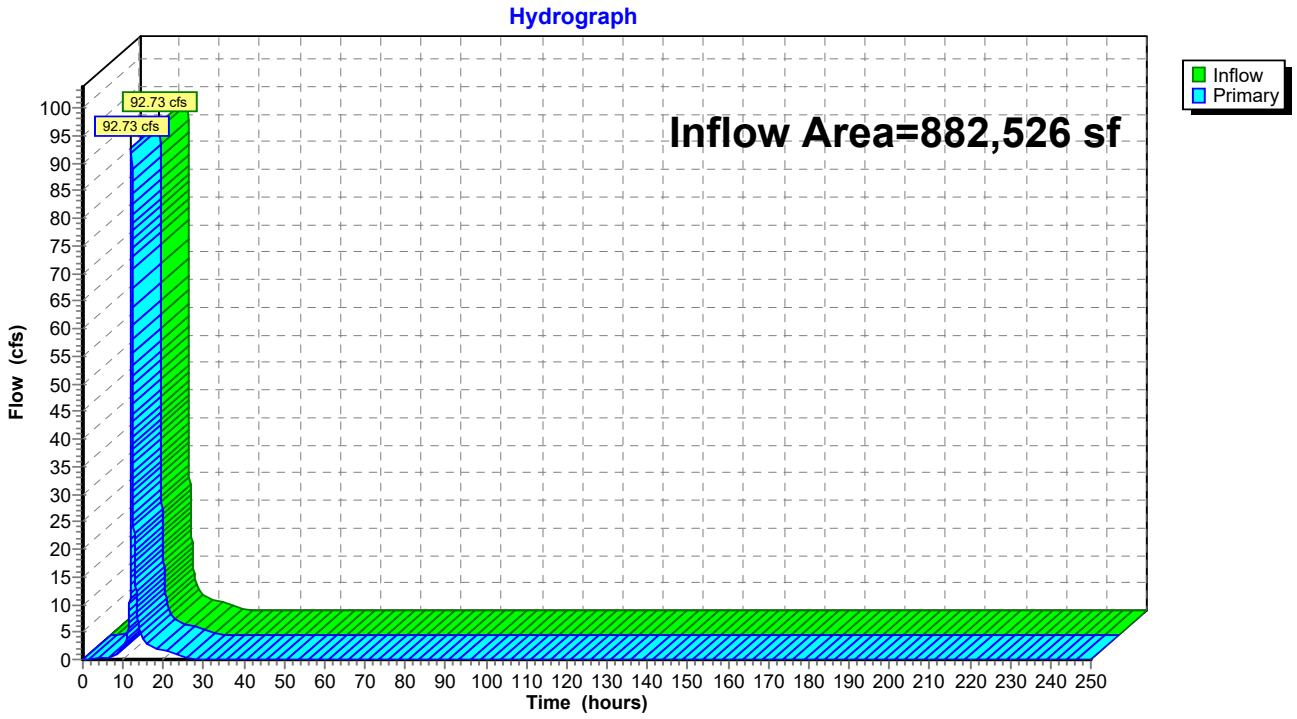


Summary for Link 33: POA 001

Inflow Area = 882,526 sf,100.00% Impervious, Inflow Depth = 4.69" for 100-yr event
Inflow = 92.73 cfs @ 12.14 hrs, Volume= 345,101 cf
Primary = 92.73 cfs @ 12.14 hrs, Volume= 345,101 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-250.00 hrs, dt= 0.01 hrs

Link 33: POA 001



8 – MRC INFORMATION

SUMMARY SHEET – PHASE 1

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Revised 7/2026

Managed Release Concept (MRC) Spreadsheet

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

SCM ID: **No. 2** Type: **MRC Storage Systems**

2-year/24-hour Precipitation Depth: **2.40** in Incremental SCM Drainage Area: **2.21** ac

Will flow from the drainage area be split into multiple MRC SCMs (cells) in parallel? ☑ Yes ☐ No

Enter the number of cells and their surface area: No: **2** Surface area of cells: **2,087** SF

Is this SCM in series? ☐ Yes ☑ No

This SCM discharges: **Off-Site**

Will at least 10% of runoff from the 1.2-Inch/2-Hour Storm be managed using PCSM Objective A SCMs?

☐ Yes ☑ No

Maximum storm event routed to the MRC SCM: **2-Year/24-Hour Storm**

☑ ***Drainage Area Characterization***

☐ ***Exempt from §§ 102.8(g)(2)(ii) & (iii)***

Pre-Construction Drainage Area Rows: **4** ☑ ***Calculate runoff automatically***

Pre-Construction Drainage Area Cover Type	HSG	Area (ac)	Off-Site	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Impervious Areas: Industrial	C	0.740	☐	2,648	5,833
Impervious as Meadow	C	0.190	☐	23	305
Impervious Areas: Industrial	C	1.110	☐	3,971	8,749
Impervious Areas: Industrial	C	0.170	☑	608	1,340
		2.210			
			Totals (CF):	**7,250**	**16,227**

Post-Construction Drainage Area Rows: **2** ☐ ***Receives direct precipitation only***

Post-Construction Drainage Area Cover Type	HSG	Area (ac)	Off-Site	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Impervious Areas: Industrial	C	2.040	☐	7,299	16,079
Impervious Areas: Industrial	C	0.170	☑	608	1,340
		2.210			
			Totals (CF):	**7,907**	**17,419**
			Volume Planned to be Routed to SCM (CF):		
			Total Volume from Off-Site Sources (CF):	**608**	**1,340**
			Equivalent Impervious Area (ac):	**2.21**	

☑ ***Design Standards***

MRC Storage Systems Variation: **Upstream MTD Pretreatment**

Parameter	Standard per Cell	Design Value
Bypass/Overflow Volume @ 1.2-Inch/2-Hour Storm	0	0
MRC SCM Drainage Area (Equivalent Impervious, maximum)	2	1.1
Storage Unit - Freeboard (inches) (minimum)	6	17
Storage Unit - Pre-Construction 1-Year/24-Hour Peak Rate (cfs)		2.83 ← 50% of Pre-Development DA-2 (Equivalent Area) Flow
Storage Unit - Post-Construction 2-Year/24-Hour Peak Rate (cfs) ***(see Note 1)***	2.83	0.58 ← Outflow from 1 MRC Cell
Storage Unit - Controlled Release Rate for 1.2-Inch/2-Hour Storm (cfs) ***(see Note 2)***	0.03	
Storage Unit - Underdrain Outflow Rate for 1.2-Inch/2-Hour Storm (cfs).	≤ Controlled Release Rate	0.02
Storage Unit - Drawdown Time for Storm Event Routed to MRC SCM (hrs) (maximum)	168	110
Storage Unit - Separation Distance Between MRC SCM Bottom and SHWT (in)	12	0
Storage Unit - IWS Depth (ft) (minimum)	1.0	1.0
Storage Unit - IWS Area (SF)		2,087
Storage Unit - A Synthetic Liner Will Be Installed		TRUE
Reason for Liner: **Unknown depth to SHWT**		
Storage Unit - Diameter of Managed Release Orifice (in)		0.8
Storage Unit - Pretreatment for Additional Flows	TRUE OR N/A	TRUE
Upstream MTD - NJDEP/TAPE Certified to Remove ≥ 50% TSS at 2-Year/24-Hour Storm Flow (or Non-Proprietary Sand Filter)	TRUE	TRUE

Note 1: The standard is either 1) ≤ the pre-construction 1-Year/24-Hour Peak Rate OR 2) 0.15 cfs, if the 1-Year/24-Hour Peak Rate is < 0.15 cfs.

Note 2: The standard is calculated based on the MRC release rate for the 1.2-Inch/2-Hour storm of 0.02 cfs/acre equivalent impervious x equivalent impervious in the drainage area (of each cell).

☑ ***Volume Management Credit***

Volume Management Credit (CF): **16,079**

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website.

PA-Licensed Professional Engineer Responsible for Design: **Rachel McCune**

Professional Engineer Company: **Civil & Environmental Consultants,** License No.: **PE092879**

353-024 Sharon Substation_PH 1
Prepared by CEC Inc
HydroCAD® 10.20-6a s/n 01006 © 2024 HydroCAD Software Solutions LLC

Hydrograph for Pond 18P: MRC Cell 2A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	860.00	0.00
5.00	0.01	52	860.03	0.00
10.00	**0.08**	**569**	**860.28**	**0.01**
15.00	**0.07**	**5,185**	**862.59**	**0.08**
20.00	0.03	5,054	862.52	0.03
25.00	0.00	4,882	862.44	0.03
30.00	0.00	4,424	862.21	0.02
35.00	0.00	3,989	861.99	0.02
40.00	0.00	3,577	861.79	0.02
45.00	0.00	3,188	861.59	0.02
50.00	0.00	2,822	861.41	0.02
55.00	0.00	2,478	861.24	0.02
60.00	0.00	2,158	861.08	0.02
65.00	0.00	1,860	860.93	0.02
70.00	0.00	1,585	860.79	0.01
75.00	0.00	1,333	860.67	0.01
80.00	0.00	1,104	860.55	0.01
85.00	0.00	898	860.45	0.01
90.00	0.00	714	860.36	0.01
95.00	0.00	554	860.28	0.01
100.00	0.00	416	860.21	0.01
105.00	0.00	301	860.15	0.01
110.00	0.00	209	860.10	0.00
115.00	0.00	140	860.07	0.00
120.00	0.00	93	860.05	0.00
125.00	0.00	67	860.03	0.00
130.00	0.00	51	860.03	0.00
135.00	0.00	41	860.02	0.00
140.00	0.00	35	860.02	0.00
145.00	0.00	30	860.01	0.00
150.00	0.00	26	860.01	0.00
155.00	0.00	23	860.01	0.00
160.00	0.00	21	860.01	0.00
165.00	0.00	19	860.01	0.00
170.00	0.00	17	860.01	0.00
175.00	0.00	16	860.01	0.00
180.00	0.00	14	860.01	0.00
185.00	0.00	13	860.01	0.00
190.00	0.00	13	860.01	0.00
195.00	0.00	12	860.01	0.00
200.00	0.00	11	860.01	0.00
205.00	0.00	11	860.01	0.00
210.00	0.00	10	860.01	0.00
215.00	0.00	10	860.00	0.00
220.00	0.00	9	860.00	0.00
225.00	0.00	9	860.00	0.00
230.00	0.00	8	860.00	0.00
235.00	0.00	8	860.00	0.00
240.00	0.00	8	860.00	0.00
245.00	0.00	7	860.00	0.00
250.00	0.00	7	860.00	0.00

Drawdown ends at 110.0 hours

Hydrograph for Pond 19P: MRC Cell 2B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	860.00	0.00
5.00	0.01	52	860.03	0.00
10.00	**0.08**	**569**	**860.28**	**0.01**
15.00	**0.07**	**5,185**	**862.59**	**0.08**
20.00	0.03	5,054	862.52	0.03
25.00	0.00	4,882	862.44	0.03
30.00	0.00	4,424	862.21	0.02
35.00	0.00	3,989	861.99	0.02
40.00	0.00	3,577	861.79	0.02
45.00	0.00	3,188	861.59	0.02
50.00	0.00	2,822	861.41	0.02
55.00	0.00	2,478	861.24	0.02
60.00	0.00	2,158	861.08	0.02
65.00	0.00	1,860	860.93	0.02
70.00	0.00	1,585	860.79	0.01
75.00	0.00	1,333	860.67	0.01
80.00	0.00	1,104	860.55	0.01
85.00	0.00	898	860.45	0.01
90.00	0.00	714	860.36	0.01
95.00	0.00	554	860.28	0.01
100.00	0.00	416	860.21	0.01
105.00	0.00	301	860.15	0.01
110.00	0.00	209	860.10	0.00
115.00	0.00	140	860.07	0.00
120.00	0.00	93	860.05	0.00
125.00	0.00	67	860.03	0.00
130.00	0.00	51	860.03	0.00
135.00	0.00	41	860.02	0.00
140.00	0.00	35	860.02	0.00
145.00	0.00	30	860.01	0.00
150.00	0.00	26	860.01	0.00
155.00	0.00	23	860.01	0.00
160.00	0.00	21	860.01	0.00
165.00	0.00	19	860.01	0.00
170.00	0.00	17	860.01	0.00
175.00	0.00	16	860.01	0.00
180.00	0.00	14	860.01	0.00
185.00	0.00	13	860.01	0.00
190.00	0.00	13	860.01	0.00
195.00	0.00	12	860.01	0.00
200.00	0.00	11	860.01	0.00
205.00	0.00	11	860.01	0.00
210.00	0.00	10	860.01	0.00
215.00	0.00	10	860.00	0.00
220.00	0.00	9	860.00	0.00
225.00	0.00	9	860.00	0.00
230.00	0.00	8	860.00	0.00
235.00	0.00	8	860.00	0.00
240.00	0.00	8	860.00	0.00
245.00	0.00	7	860.00	0.00
250.00	0.00	7	860.00	0.00

Drawdown ends at 110.0 hours

SUMMARY SHEET – PHASE 2 & 3

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Revised 7/2026

Managed Release Concept (MRC) Spreadsheet

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

SCM ID: **No. 2** Type: **MRC Storage Systems**

2-year/24-hour Precipitation Depth: **2.40** in Incremental SCM Drainage Area: **2.51** ac

Will flow from the drainage area be split into multiple MRC SCMs (cells) in parallel? ☑ Yes ☐ No

Enter the number of cells and their surface area: No: **2** Surface area of cells: **2,087** SF

Is this SCM in series? ☐ Yes ☑ No

This SCM discharges: **Off-Site**

Will at least 10% of runoff from the 1.2-Inch/2-Hour Storm be managed using PCSM Objective A SCMs?

☐ Yes ☑ No

Maximum storm event routed to the MRC SCM: **2-Year/24-Hour Storm**

☑ ***Drainage Area Characterization***

☐ ***Exempt from §§ 102.8(g)(2)(ii) & (iii)***

Pre-Construction Drainage Area Rows: **4** ☑ ***Calculate runoff automatically***

Pre-Construction Drainage Area Cover Type	HSG	Area (ac)	Off-Site	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Impervious Areas: Industrial	C	1.900	☐	6,798	14,976
Impervious as Meadow	C	0.470	☐	56	754
Impervious Areas: Industrial	C	0.040	☐	143	315
Impervious Areas: Industrial	C	0.100	☑	358	788
		2.510			
			Totals (CF):	**7,355**	**16,834**

Post-Construction Drainage Area Rows: **3** ☐ ***Receives direct precipitation only***

Post-Construction Drainage Area Cover Type	HSG	Area (ac)	Off-Site	Runoff, 1.2-Inch (CF)	Runoff, 2-Year (CF)
Impervious Areas: Industrial	C	2.370	☐	8,480	18,680
Impervious Areas: Industrial	C	0.040	☐	143	315
Impervious Areas: Industrial	C	0.100	☑	358	788
		2.510			
			Totals (CF):	**8,981**	**19,784**
			Volume Planned to be Routed to SCM (CF):		
			Total Volume from Off-Site Sources (CF):	**358**	**788**
			Equivalent Impervious Area (ac):	**2.51**	

☑ ***Design Standards***

MRC Storage Systems Variation: **Upstream MTD Pretreatment**

Parameter	Standard per Cell	Design Value
Bypass/Overflow Volume @ 1.2-Inch/2-Hour Storm	0	0
MRC SCM Drainage Area (Equivalent Impervious, maximum)	2	1.3
Storage Unit - Freeboard (inches) (minimum)	6	15
Storage Unit - Pre-Construction 1-Year/24-Hour Peak Rate (cfs)		2.90 ← 50% of Pre-Development DA-2 (Equivalent Area) Flow
Storage Unit - Post-Construction 2-Year/24-Hour Peak Rate (cfs) ***(see Note 1)***	2.90	1.04 ← Outflow from 1 MRC Cell
Storage Unit - Controlled Release Rate for 1.2-Inch/2-Hour Storm (cfs) ***(see Note 2)***	0.03	
Storage Unit - Underdrain Outflow Rate for 1.2-Inch/2-Hour Storm (cfs).	≤ Controlled Release Rate	0.02
Storage Unit - Drawdown Time for Storm Event Routed to MRC SCM (hrs) (maximum)	168	110
Storage Unit - Separation Distance Between MRC SCM Bottom and SHWT (in)	12	0
Storage Unit - IWS Depth (ft) (minimum)	1.0	1.0
Storage Unit - IWS Area (SF)		2,087
Storage Unit - A Synthetic Liner Will Be Installed		TRUE
Reason for Liner: **Unknown depth to SHWT**		
Storage Unit - Diameter of Managed Release Orifice (in)		0.8
Storage Unit - Pretreatment for Additional Flows	TRUE OR N/A	TRUE
Upstream MTD - NJDEP/TAPE Certified to Remove ≥ 50% TSS at 2-Year/24-Hour Storm Flow (or Non-Proprietary Sand Filter)	TRUE	TRUE

Note 1: The standard is either 1) ≤ the pre-construction 1-Year/24-Hour Peak Rate OR 2) 0.15 cfs, if the 1-Year/24-Hour Peak Rate is < 0.15 cfs.

Note 2: The standard is calculated based on the MRC release rate for the 1.2-Inch/2-Hour storm of 0.02 cfs/acre equivalent impervious x equivalent impervious in the drainage area (of each cell).

☑ ***Volume Management Credit***

Volume Management Credit (CF): **18,996**

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website.

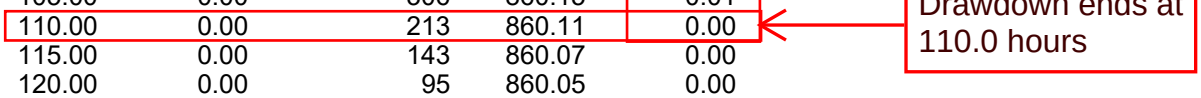
PA-Licensed Professional Engineer Responsible for Design: **Rachel McCune**

Professional Engineer Company: **Civil & Environmental Consultants,** License No.: **PE092879**

353-024 Sharon Substation
Prepared by CEC Inc
HydroCAD® 10.20-6a s/n 01006 © 2024 HydroCAD Software Solutions LLC

Hydrograph for Pond 18: MRC Cell 2A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	860.00	0.00
5.00	0.01	56	860.03	0.00
10.00	**0.09**	**622**	**860.31**	**0.01**
15.00	**0.07**	**5,195**	**862.59**	**0.09**
20.00	0.03	5,064	862.53	0.03
25.00	0.00	4,906	862.45	0.03
30.00	0.00	4,447	862.22	0.02
35.00	0.00	4,011	862.00	0.02
40.00	0.00	3,598	861.80	0.02
45.00	0.00	3,207	861.60	0.02
50.00	0.00	2,840	861.42	0.02
55.00	0.00	2,495	861.25	0.02
60.00	0.00	2,174	861.09	0.02
65.00	0.00	1,875	860.94	0.02
70.00	0.00	1,599	860.80	0.01
75.00	0.00	1,346	860.67	0.01
80.00	0.00	1,115	860.56	0.01
85.00	0.00	908	860.45	0.01
90.00	0.00	723	860.36	0.01
95.00	0.00	561	860.28	0.01
100.00	0.00	422	860.21	0.01
105.00	0.00	306	860.15	0.01
110.00	0.00	213	860.11	0.00
115.00	0.00	143	860.07	0.00
120.00	0.00	95	860.05	0.00
125.00	0.00	68	860.03	0.00
130.00	0.00	52	860.03	0.00
135.00	0.00	42	860.02	0.00
140.00	0.00	35	860.02	0.00
145.00	0.00	30	860.01	0.00
150.00	0.00	26	860.01	0.00
155.00	0.00	23	860.01	0.00
160.00	0.00	21	860.01	0.00
165.00	0.00	19	860.01	0.00
170.00	0.00	17	860.01	0.00
175.00	0.00	16	860.01	0.00
180.00	0.00	15	860.01	0.00
185.00	0.00	14	860.01	0.00
190.00	0.00	13	860.01	0.00
195.00	0.00	12	860.01	0.00
200.00	0.00	11	860.01	0.00
205.00	0.00	11	860.01	0.00
210.00	0.00	10	860.01	0.00
215.00	0.00	10	860.00	0.00
220.00	0.00	9	860.00	0.00
225.00	0.00	9	860.00	0.00
230.00	0.00	8	860.00	0.00
235.00	0.00	8	860.00	0.00
240.00	0.00	8	860.00	0.00
245.00	0.00	7	860.00	0.00
250.00	0.00	7	860.00	0.00

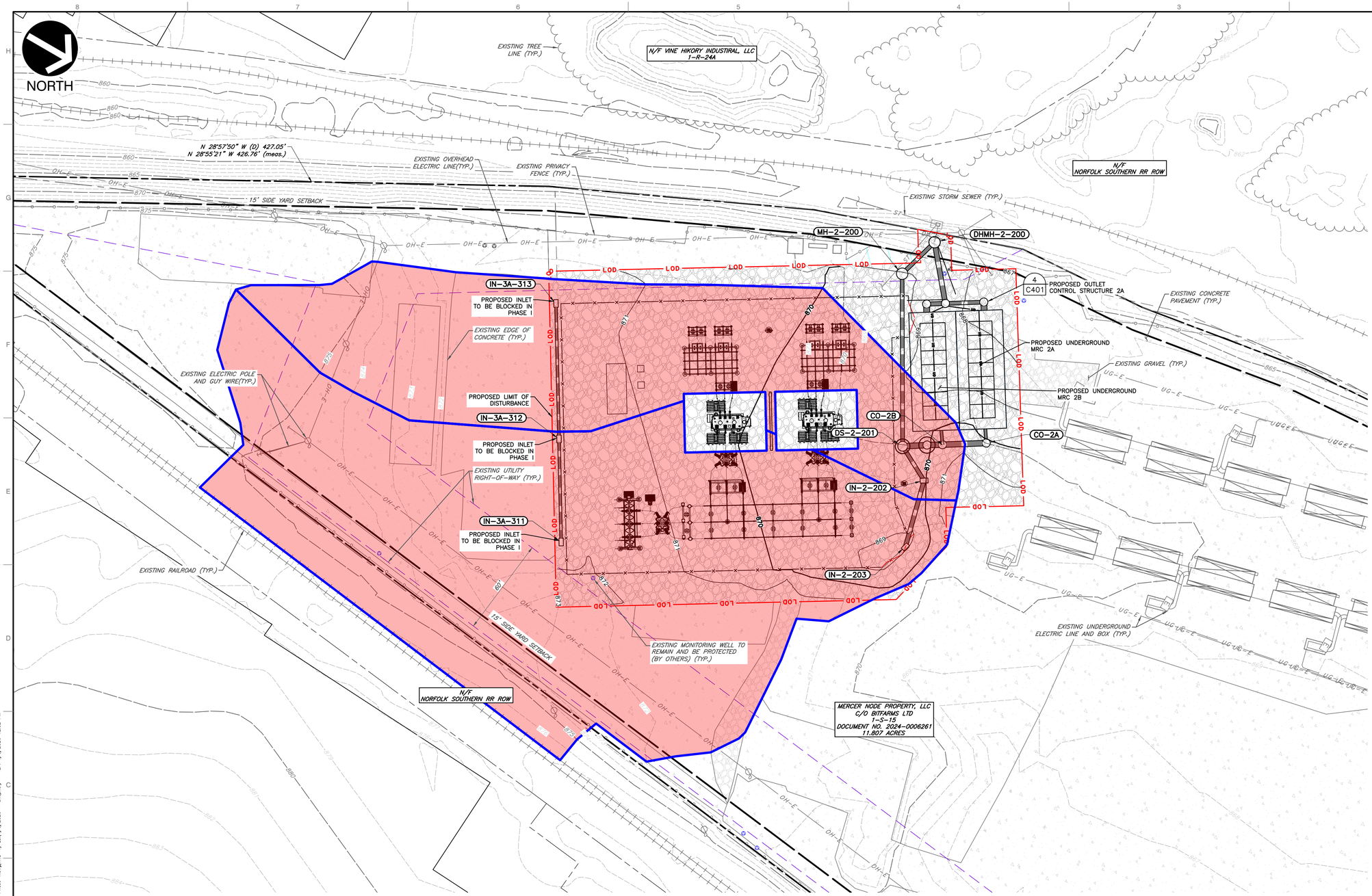


Hydrograph for Pond 19: MRC Cell 2B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	860.00	0.00
5.00	0.01	56	860.03	0.00
10.00	**0.09**	**622**	**860.31**	**0.01**
15.00	**0.07**	**5,195**	**862.59**	**0.09**
20.00	0.03	5,064	862.53	0.03
25.00	0.00	4,906	862.45	0.03
30.00	0.00	4,447	862.22	0.02
35.00	0.00	4,011	862.00	0.02
40.00	0.00	3,598	861.80	0.02
45.00	0.00	3,207	861.60	0.02
50.00	0.00	2,840	861.42	0.02
55.00	0.00	2,495	861.25	0.02
60.00	0.00	2,174	861.09	0.02
65.00	0.00	1,875	860.94	0.02
70.00	0.00	1,599	860.80	0.01
75.00	0.00	1,346	860.67	0.01
80.00	0.00	1,115	860.56	0.01
85.00	0.00	908	860.45	0.01
90.00	0.00	723	860.36	0.01
95.00	0.00	561	860.28	0.01
100.00	0.00	422	860.21	0.01
105.00	0.00	306	860.15	0.01
110.00	0.00	213	860.11	0.00
115.00	0.00	143	860.07	0.00
120.00	0.00	95	860.05	0.00
125.00	0.00	68	860.03	0.00
130.00	0.00	52	860.03	0.00
135.00	0.00	42	860.02	0.00
140.00	0.00	35	860.02	0.00
145.00	0.00	30	860.01	0.00
150.00	0.00	26	860.01	0.00
155.00	0.00	23	860.01	0.00
160.00	0.00	21	860.01	0.00
165.00	0.00	19	860.01	0.00
170.00	0.00	17	860.01	0.00
175.00	0.00	16	860.01	0.00
180.00	0.00	15	860.01	0.00
185.00	0.00	14	860.01	0.00
190.00	0.00	13	860.01	0.00
195.00	0.00	12	860.01	0.00
200.00	0.00	11	860.01	0.00
205.00	0.00	11	860.01	0.00
210.00	0.00	10	860.01	0.00
215.00	0.00	10	860.00	0.00
220.00	0.00	9	860.00	0.00
225.00	0.00	9	860.00	0.00
230.00	0.00	8	860.00	0.00
235.00	0.00	8	860.00	0.00
240.00	0.00	8	860.00	0.00
245.00	0.00	7	860.00	0.00
250.00	0.00	7	860.00	0.00

Drawdown ends at 110.0 hours

9A – INLET DRAINAGE AREA MAP – PHASE 1



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING TAX PARCEL LINE
- EXISTING UTILITY RIGHT-OF-WAY
- EXISTING SETBACK
- EXISTING RIGHT-OF-WAY
- EXISTING RAILROAD
- EXISTING TREE LINE AND TREE
- EXISTING SECURITY FENCE LINE
- EXISTING PRIVACY FENCE LINE
- EXISTING ASPHALT PAVEMENT
- EXISTING GRAVEL
- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING GRAVEL (DIGITIZED FROM AERIAL)
- EXISTING CONCRETE PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING STRUCTURE
- EXISTING GUIDE RAIL
- EXISTING SIGN
- STREAM AND WETLAND DELINEATION BOUNDARY
- EXISTING STREAM
- EXISTING WETLAND (PEM)
- EXISTING WETLAND (PUB)
- EXISTING STORM SEWER
- EXISTING STORM INLET/DRAIN AND MANHOLE
- EXISTING WATER LINE
- EXISTING GAS LINE AND BOX
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING GUY WIRE AND UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING UNDERGROUND ELECTRIC LINE AND BOX
- EXISTING SANITARY MANHOLE
- EXISTING MANHOLE
- EXISTING VAULT
- EXISTING AC UNIT
- EXISTING STREAM
- EXISTING FEMA FLOODWAY
- EXISTING MONITORING WELL TO REMAIN
- EXISTING MONITORING WELL TO REMAIN (BY OTHERS)
- LIMIT OF DISTURBANCE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED ASPHALT PAVEMENT
- PROPOSED GRAVEL AREA
- PROPOSED CONCRETE AREA
- PROPOSED BUILDING
- PROPOSED STORMWATER MANAGEMENT FACILITY
- PROPOSED SECURITY FENCE
- PROPOSED GUIDE RAIL
- PROPOSED STORM INLET AND MANHOLE
- PROPOSED STORM SEWER
- PROPOSED INLET DRAINAGE AREA
- IMPERVIOUS AREA

REFERENCES

1. EXISTING SITE FEATURES AND UTILITIES ARE BASED ON A COMBINATION OF SURVEY PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) DATED 07-14-2025 THROUGH 10-22-2025 AND ALTA SURVEY COMPLETED 10-30-2025 BY CEC.
2. PLAN NORTH IS BASED ON PENNSYLVANIA STATE PLAN NAD83-2011, NORTH ZONE, AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
3. VERTICAL DATUM IS BASED ON NAVD88 (GEOID 18), AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
4. STREAM AND WETLAND DELINEATION PERFORMED BY CEC ON 07-11-2025.
5. PROPERTY IS LOCATED IN FLOOD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS DEPICTED ON FLOOD INSURANCE RATE MAP 42085C0307D, EFFECTIVE DATE 06-09-2014, MERCER COUNTY COUNTY, PENNSYLVANIA. THIS STATEMENT DOES NOT GUARANTEE THAT THE SUBJECT PROPERTY WILL OR WILL NOT FLOOD.
6. EXISTING CONTOURS ARE DERIVED FROM PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) 2 AND 10 CONTOURS DATED 2006-2008.
7. SUBSTATION LAYOUT PROVIDED BY ASPLUNDH ENGINEERING SERVICES ON 02-4-2026.
8. CLARK STREET IS A PADOT STREET PER MERCER COUNTY 10 MAP PREPARED BY THE PADOT DATED 2024
9. AERIAL PHOTOGRAPHY PROVIDED BY GOOGLE EARTH, ACCESS THROUGH FROM PLEX EARTH ON 01/28/2026. DATE OF PHOTOGRAPHY 10-02-2024.
10. APPROXIMATE GROUND WATER MONITORING WELL LOCATIONS ARE BASED ON THE DIGITIZATION OF AN EXHIBIT ISSUED BY ENVIRON 04/30/2014, AND FIELD SURVEY BY CEC IF ABOVE GROUND EVIDENCE WAS OBSERVED AND SHOULD NOT BE CONSIDERED ACCURATE.

REVISION RECORD

NO	DATE	DESCRIPTION

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF PA WILL BE PROVIDED BY CONSOLA ASSOCIATES, LLC.

Civil & Environmental Consultants, Inc.
700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 · 800.365.2324
www.cecinc.com

MERCER NODE, LLC
MERCER NODE DEVELOPMENT
200 CLARK STREET
CITY OF SHARON
MERCER COUNTY, PA

INLET DRAINAGE AREA MAP
PHASE 1

DATE:	APRIL 2026
DRAWN BY:	VMF
DWG SCALE:	1" = 30'
CHECKED BY:	BJH
PROJECT NO:	353-024
APPROVED BY:	MEA

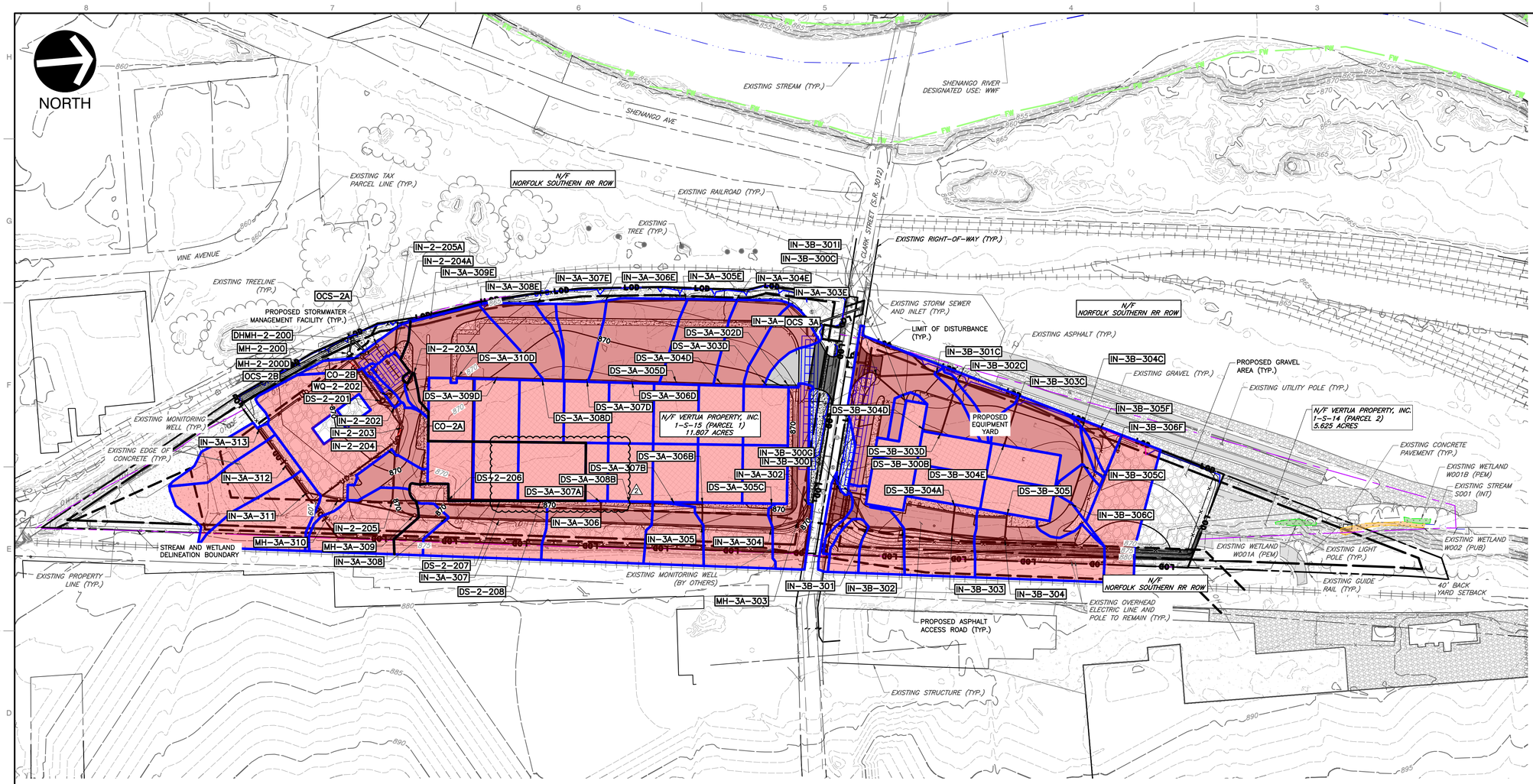
DRAWING NO.:

HYD-4

SHEET 7 OF 16

\\ cecinc.com\global\Projects\350s-001\353-024\1-CAD\dwg\CIVIL\353024-CIVIL-HYD-Inlets-Phase 1.dwg[HYD-4] LS:1/4/9/2026 - shapner) - LP: 4/9/2026 12:52 PM

9B – INLET DRAINAGE AREA MAP – PHASE 2 & 3



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING TAX PARCEL LINE
- EXISTING UTILITY RIGHT-OF-WAY
- EXISTING SETBACK
- EXISTING RIGHT-OF-WAY
- EXISTING RAILROAD
- EXISTING TREE LINE AND TREE
- EXISTING SECURITY FENCE LINE
- EXISTING PRIVACY FENCE LINE
- EXISTING ASPHALT PAVEMENT
- EXISTING GRAVEL
- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING GRAVEL (DIGITIZED FROM AERIAL)
- EXISTING CONCRETE PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING STRUCTURE
- EXISTING GUIDE RAIL
- EXISTING SIGN
- STREAM AND WETLAND DELINEATION BOUNDARY
- EXISTING STREAM
- EXISTING WETLAND (PEM)
- EXISTING WETLAND (PUB)
- EXISTING STORM SEWER
- EXISTING STORM INLET/DRAIN AND MANHOLE
- EXISTING WATER LINE
- EXISTING GAS LINE AND BOX
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING GUY WIRE AND UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING UNDERGROUND ELECTRIC LINE AND BOX
- EXISTING SANITARY MANHOLE
- EXISTING MANHOLE
- EXISTING VAULT
- EXISTING AC UNIT
- EXISTING STREAM
- EXISTING FEMA FLOODWAY
- EXISTING MONITORING WELL TO REMAIN
- EXISTING MONITORING WELL TO REMAIN (BY OTHERS)
- LIMIT OF DISTURBANCE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED ASPHALT PAVEMENT
- PROPOSED GRAVEL AREA
- PROPOSED CONCRETE AREA
- PROPOSED BUILDING
- PROPOSED STORMWATER MANAGEMENT FACILITY
- PROPOSED SECURITY FENCE
- PROPOSED GUIDE RAIL
- **PROPOSED STORM INLET AND MANHOLE**
- PROPOSED STORM SEWER
- **PROPOSED INLET DRAINAGE AREA**
- IMPERVIOUS AREA

REFERENCES

1. EXISTING SITE FEATURES AND UTILITIES ARE BASED ON A COMBINATION OF SURVEY PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) DATED 07-14-2025 THROUGH 10-22-2025 AND ALTA SURVEY COMPLETED 10-30-2025 BY CEC.
2. PLAN NORTH IS BASED ON PENNSYLVANIA STATE PLAN NAD83-2011, NORTH ZONE, AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
3. VERTICAL DATUM IS BASED ON NAVD88 (GEOID 18), AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
4. STREAM AND WETLAND DELINEATION PERFORMED BY CEC ON 07-11-2025.
5. PROPERTY IS LOCATED IN FLOOD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS DEPICTED ON FLOOD INSURANCE RATE MAP 42085C0307D, EFFECTIVE DATE 06-09-2014, MERCER COUNTY COUNTY, PENNSYLVANIA. THIS STATEMENT DOES NOT GUARANTEE THAT THE SUBJECT PROPERTY WILL OR WILL NOT FLOOD.
6. EXISTING CONTOURS ARE DERIVED FROM PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) 2 AND 10 CONTOURS DATED 2006-2008.
7. SUBSTATION LAYOUT PROVIDED BY ASPLUNDH ENGINEERING SERVICES ON 02-4-2026.
8. CLARK STREET IS A PADOT STREET PER MERCER COUNTY 10 MAP PREPARED BY THE PADOT DATED 2024
9. AERIAL PHOTOGRAPHY PROVIDED BY GOOGLE EARTH, ACCESS THROUGH FROM PLEX EARTH ON 01/28/2026. DATE OF PHOTOGRAPHY 10-02-2024.
10. APPROXIMATE GROUND WATER MONITORING WELL LOCATIONS ARE BASED ON THE DIGITIZATION OF AN EXHIBIT ISSUED BY ENVIRON 04/30/2014, AND FIELD SURVEY BY CEC IF ABOVE GROUND EVIDENCE WAS OBSERVED AND SHOULD NOT BE CONSIDERED ACCURATE.

SCALE IN FEET
0 100 200

REVISION RECORD

NO	DATE	DESCRIPTION
1	09/05/2026	RESPONSE TO INCOMPLETENESS LETTER DATED 09/04/2026.
2	09/11/2026	RESPONSE TO TECHNICAL DEFICIENCY LETTER DATED 09/11/2026.

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF PA WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.

700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 · 800.365.2324
www.cecinc.com

Civil & Environmental Consultants, Inc.

MERCER NODE PROPERTY, LLC
MERCER NODE DEVELOPMENT
200-201 CLARK STREET
CITY OF SHARON
MERCER COUNTY, PA

INLET DRAINAGE AREA MAP

DATE:	APRIL 2026
DRAWN BY:	VMF
CHECKED BY:	BJH
DWG SCALE:	1" = 100'
PROJECT NO:	353-024
APPROVED BY:	RIM

DRAWING NO.:
HYD-4

\\cecinc.com\global\Projects\350-399\353-024_CADD\Dwg\Civil\353024-CIV02-PDSP-HYD Map-Inlet.dwg(HYD-4) LS(8/12/2026 - eteberg) - LP: 8/12/2026 1:54 PM

10A – STORM SEWER CALCULATIONS – PHASE 1

Civil & Environmental Consultants, Inc.

Pipe Flow Rational Calculations

PROJECT NAME: Mercer Node Development
PROJECT NUMBER: 353-024
LOCATION: City of Sharon, Mercer County, PA
PREPARED BY: BJH **DATE:** 4/6/2026
CHECKED BY: MDH **DATE:** 4/6/2026

CHANNEL/SWALE/BERM OR CHANNEL/SWALE/BERM SECTION	DRAINAGE AREA (AC)	TC (MIN)[1]	DESIGN STORM	INTENSITY (IN/HR)	RUNOFF COEFFICIENT	DIRECT FLOW, Q=CiA (CFS)	INDIRECT FLOW (CFS)	TOTAL FLOW (CFS)	NOTES
Pipe P-2-203	1.46	5.0	10-Year	6.26	0.95	8.68	0.0	8.7	
Pipe P-2-202	0.74	5.0	10-Year	6.26	0.95	4.40	8.7	13.1	*Conveys flow from Pipe P-2-203*

[1] *Time of Concentration calculated via HydroCAD. A minimum Tc of 5.0 minutes is assumed for the Rational Method.*

Storm Sewer Tabulation

Station		Len	Drng 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 (ac)	Total (ac)	(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	24.773	0.00	0.00	0.00	0.00	0.00	0.0	0.3	0.0	13.08	17.05	4.70	24	0.48	863.70	863.82	865.40	865.44	869.12	869.21	P-2-202
2	1	42.227	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	8.68	17.28	2.80	24	0.50	863.82	864.03	865.86	865.90	869.21	868.24	P-2-203

Project File: 353024-Storm Sewers_DA-2-Phase 1.stm

Number of lines: 2

Run Date: 4/6/2026

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

10B – STORM SEWER CALCULATIONS – PHASE 2 & 3

Civil & Environmental Consultants, Inc.

Pipe Flow Rational Calculations

PROJECT NAME: Mercer Node Development
PROJECT NUMBER: 353-024
LOCATION: City of Sharon, Mercer County, PA
PREPARED BY: MDH & EAH **DATE:** 4/2/2026 & 8/4/2026
CHECKED BY: BJH & RIM **DATE:** 4/4/2026 & 8/12/2026

CHANNEL/SWALE/BERM OR CHANNEL/SWALE/BERM SECTION	DRAINAGE AREA (AC)	TC (MIN)[1]	DESIGN STORM	INTENSITY (IN/HR)	RUNOFF COEFFICIENT	DIRECT FLOW, Q=CiA (CFS)	INDIRECT FLOW (CFS)	TOTAL FLOW (CFS)	NOTES
Pipe P-3A-313	0.18	5.0	10-Year	6.26	0.95	1.1	0.0	1.1	
Pipe P-3A-312	0.41	5.0	10-Year	6.26	0.95	2.44	1.1	3.5	*Conveys flow from Pipe P-3A-313*
Pipe P-3A-311	0.42	5.0	10-Year	6.26	0.95	2.50	3.5	6.0	*Conveys flow from Pipe P-3A-312*
Pipe P-3A-310	0.00	5.0	10-Year	6.26	0.00	0.00	6.0	6.0	*Conveys flow from Pipe P-3A-311*
Pipe P-3A-309	0.00	5.0	10-Year	6.26	0.00	0.00	6.0	6.0	*Conveys flow from Pipe P-3A-310*
Pipe P-3A-308	0.11	5.0	10-Year	6.26	0.95	0.65	6.0	6.7	*Conveys flow from Pipe P-3A-309*
Pipe P-3A-307	0.54	5.0	10-Year	6.26	0.95	3.21	6.7	9.9	*Conveys flow from Pipe P-3A-308*
Pipe P-3A-307A	0.20	5.0	10-Year	6.26	0.95	1.19	0.0	1.2	
Pipe P-3A-306	0.48	5.0	10-Year	6.26	0.95	2.85	11.1	13.9	*Conveys flow from Pipe P-3A-307A and Pipe P-3A-307*
Pipe P-3A-308B	0.20	5.0	10-Year	6.26	0.95	1.19	0.0	1.2	
Pipe P-3A-307B	0.20	5.0	10-Year	6.26	0.95	1.19	1.2	2.4	*Conveys flow from Pipe P-3A-308B*
Pipe P-3A-306B	0.20	5.0	10-Year	6.26	0.95	1.19	2.4	3.6	*Conveys flow from Pipe P-3A-307B*
Pipe P-3A-305	0.25	5.0	10-Year	6.26	0.95	1.49	17.5	19.0	*Conveys flow from Pipe P-3A-306 and Pipe P-3A-306B*
Pipe P-3A-305C	0.20	5.0	10-Year	6.26	0.95	1.19	0.0	1.2	
Pipe P-3A-304	0.35	5.0	10-Year	6.26	0.95	2.08	20.2	22.2	*Conveys flow from Pipe P-3A-305C and Pipe P-3A-305*
Pipe P-3A-303	0.00	5.0	10-Year	6.26	0.00	0.00	22.2	22.2	*Conveys flow from Pipe P-3A-304*
Pipe P-3A-302	0.38	5.0	10-Year	6.26	0.95	2.26	22.2	24.5	*Conveys flow from Pipe P-3A-303*
Pipe P-3A-310D	0.22	5.0	10-Year	6.26	0.95	1.31	0.0	1.3	
Pipe P-3A-309D	0.22	5.0	10-Year	6.26	0.95	1.31	1.3	2.6	*Conveys flow from Pipe P-3A-310D*
Pipe P-3A-308D	0.21	5.0	10-Year	6.26	0.95	1.25	2.6	3.9	*Conveys flow from Pipe P-3A-309D*
Pipe P-3A-307D	0.21	5.0	10-Year	6.26	0.95	1.25	3.9	5.1	*Conveys flow from Pipe P-3A-308D*
Pipe P-3A-306D	0.21	5.0	10-Year	6.26	0.95	1.25	5.1	6.4	*Conveys flow from Pipe P-3A-307D*
Pipe P-3A-305D	0.21	5.0	10-Year	6.26	0.95	1.25	6.4	7.6	*Conveys flow from Pipe P-3A-306D*
Pipe P-3A-304D	0.20	5.0	10-Year	6.26	0.95	1.19	7.6	8.8	*Conveys flow from Pipe P-3A-305D*
Pipe P-3A-303D	0.20	5.0	10-Year	6.26	0.95	1.19	8.8	10.0	*Conveys flow from Pipe P-3A-304D*
Pipe P-3A-302D	0.00	5.0	10-Year	6.26	0.00	0.00	10.0	10.0	*Conveys flow from Pipe P-3A-303D*
Pipe P-3A-309E	0.57	5.0	10-Year	6.26	0.95	3.39	0.0	3.4	
Pipe P-3A-308E	0.26	5.0	10-Year	6.26	0.95	1.55	3.4	4.9	*Conveys flow from Pipe P-3A-309E*
Pipe P-3A-307E	0.03	5.0	10-Year	6.26	0.95	0.18	4.9	5.1	*Conveys flow from Pipe P-3A-308E*
Pipe P-3A-306E	0.22	5.0	10-Year	6.26	0.95	1.31	5.1	6.4	*Conveys flow from Pipe P-3A-307E*
Pipe P-3A-305E	0.48	5.0	10-Year	6.26	0.95	2.85	6.4	9.3	*Conveys flow from Pipe P-3A-306E*
Pipe P-3A-304E	0.34	5.0	10-Year	6.26	0.95	2.02	9.3	11.3	*Conveys flow from Pipe P-3A-305E*
Pipe P-3A-303E	0.26	5.0	10-Year	6.26	0.95	1.55	11.3	12.8	*Conveys flow from Pipe P-3A-304E*
Pipe P-3A-302E	0.20	5.0	10-Year	6.26	0.95	1.19	12.8	14.0	*Conveys flow from Pipe P-3A-303E*
Pipe P-2-208	0.30	5.0	10-Year	6.26	0.95	1.78	0.0	1.8	
Pipe P-2-207	0.20	5.0	10-Year	6.26	0.95	1.19	1.8	3.0	*Conveys flow from Pipe P-2-208*
Pipe P-2-206	0.18	5.0	10-Year	6.26	0.95	1.07	3.0	4.0	*Conveys flow from Pipe P-2-207*

[1] *Time of Concentration calculated via HydroCAD. A minimum Tc of 5.0 minutes is assumed for the Rational Method.*

Pipe P-2-205	0.39	5.0	10-Year	6.26	0.95	2.32	4.0	6.4	*Conveys flow from Pipe P-2-206*
Pipe P-2-204	0.16	5.0	10-Year	6.26	0.95	0.95	6.4	7.3	*Conveys flow from Pipe P-2-205*
Pipe P-2-203	1.00	5.0	10-Year	6.26	0.95	5.95	7.3	13.3	*Conveys flow from Pipe P-2-204*
Pipe P-2-205A	0.13	5.0	10-Year	6.26	0.95	0.77	0.0	0.8	
Pipe P-2-204A	0.08	5.0	10-Year	6.26	0.95	0.48	0.8	1.2	*Conveys flow from Pipe P-2-205A*
Pipe P-2-203A	0.03	5.0	10-Year	6.26	0.95	0.18	1.2	1.4	*Conveys flow from Pipe P-2-204A*
Pipe P-2-202	0.03	5.0	10-Year	6.26	0.95	0.18	14.7	14.9	*Conveys flow from Pipe P-2-203A and Pipe P-2-203*
Pipe P-3B-305	0.18	5.0	10-Year	6.26	0.95	1.07	0.0	1.1	
Pipe P-3B-304	0.55	5.0	10-Year	6.26	0.95	3.27	1.1	4.3	Conveys flow from Pipe P-3B-305
Pipe P-3B-304A	0.18	5.0	10-Year	6.26	0.95	1.07	0.0	1.1	
Pipe P-3B-303	0.42	5.0	10-Year	6.26	0.95	2.50	5.4	7.9	*Conveys flow from Pipe P-3B-304 and Pipe P-3B-304A*
Pipe P-3B-302	0.27	5.0	10-Year	6.26	0.95	1.61	7.9	9.5	*Conveys flow from Pipe P-3B-303*
Pipe P-3B-301	0.11	5.0	10-Year	6.26	0.95	0.65	9.5	10.2	*Conveys flow from Pipe P-3B-302*
Pipe P-3B-301B	0.15	5.0	10-Year	6.26	0.95	0.89	0.0	0.9	
Pipe P-3B-300	0.27	5.0	10-Year	6.26	0.95	1.61	11.1	12.7	*Conveys flow from Pipe P-3B-301B and Pipe P-3B-301*
Pipe P-3B-306C	0.10	5.0	10-Year	6.26	0.95	0.59	0.0	0.6	
Pipe P-3B-305C	0.10	5.0	10-Year	6.26	0.95	0.59	0.6	1.2	*Conveys flow from Pipe P-3B-306C*
Pipe P-3B-306F	0.47	5.0	10-Year	6.26	0.95	2.80	0.0	2.8	
Pipe P-3B-305F	0.08	5.0	10-Year	6.26	0.95	0.48	2.8	3.3	*Conveys flow from Pipe P-3B-306F*
Pipe P-3B-304C	0.03	5.0	10-Year	6.26	0.95	0.18	4.5	4.6	*Conveys flow from Pipe P-3B-305F and Pipe P-3B-305C*
Pipe P-3B-304E	0.18	5.0	10-Year	6.26	0.95	1.07	0.0	1.1	
Pipe P-3B-303C	0.34	5.0	10-Year	6.26	0.95	2.02	5.7	7.7	*Conveys flow from Pipe P-3B-304E and Pipe P-3B-304C*
Pipe P-3B-304D	0.13	5.0	10-Year	6.26	0.95	0.77	0.0	0.8	
Pipe P-3B-303D	0.18	5.0	10-Year	6.26	0.95	1.07	0.8	1.8	*Conveys flow from Pipe P-3B-304D*
Pipe P-3B-302C	0.13	5.0	10-Year	6.26	0.95	0.77	9.6	10.3	*Conveys flow from Pipe P-3B-303C and Pipe P-3B-303D*
Pipe P-3B-301C	0.07	5.0	10-Year	6.26	0.95	0.42	10.3	10.8	*Conveys flow from Pipe P-3B-302C*
Pipe P-3B-301I	0.05	5.0	10-Year	6.26	0.95	0.30	0.0	0.3	
Pipe P-3B-300C	0.67	5.0	10-Year	6.26	0.95	3.98	11.1	15.0	*Conveys flow from Pipe P-3B-301I and Pipe P-3B-301C*
Pipe P-3B-300G	0.09	5.0	10-Year	6.26	0.95	0.54	0.0	0.5	

[1] *Time of Concentration calculated via HydroCAD. A minimum Tc of 5.0 minutes is assumed for the Rational Method.*

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	P-2-202	14.87	24	Cir	24.773	863.70	863.82	0.484	865.09	865.28	0.85	866.12	End	Curb-
2	P-2-203	13.26	24	Cir	42.227	863.82	864.03	0.497	866.12*	866.25*	0.26	866.50	1	Curb-
3	P-2-204	7.31	18	Cir	51.288	864.03	864.29	0.507	866.50*	866.72*	0.13	866.85	2	Curb-
4	P-2-205	6.36	18	Cir	83.103	864.29	864.71	0.505	866.85*	867.11*	0.30	867.41	3	Curb-
5	P-2-206	4.04	15	Cir	100.712	864.71	865.21	0.496	867.41*	867.75*	0.03	867.77	4	None
6	P-2-207	2.97	15	Cir	95.460	865.21	865.69	0.503	867.77*	867.95*	0.01	867.96	5	None
7	P-2-208	1.78	15	Cir	73.892	865.69	866.06	0.501	867.96*	868.01*	0.03	868.04	6	None
8	P-2-203A	1.43	15	Cir	65.541	861.71	862.04	0.503	866.12*	866.15*	0.03	866.18	1	Curb-
9	P-2-204A	1.25	15	Cir	50.826	862.04	862.29	0.492	866.18*	866.20*	0.02	866.22	8	Curb-
10	P-2-205A	0.77	15	Cir	45.569	862.29	862.52	0.505	866.22*	866.22*	0.01	866.23	9	Curb-

Project File: 353024-Storm Sewers_DA-2.stm | Number of lines: 10 | Run Date: 8/4/2026

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown).

PREPARED BY: EAH 8/12/2026
CHECKED BY: RIM 8/12/2026

Storm Sewer Tabulation

Station		Len	Drng 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 (ac)	Total (ac)	(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	62.474	0.00	0.00	0.00	0.00	0.00	0.0	3.7	0.0	24.53	106.8	5.98	30	5.78	855.00	858.61	859.23	860.30	0.00	864.76	P-3A-302
2	1	36.052	0.00	0.00	0.00	0.00	0.00	0.0	3.7	0.0	22.27	31.39	6.51	30	0.50	858.61	858.79	860.30	860.39	864.76	865.22	P-3A-303
3	2	49.879	0.00	0.00	0.00	0.00	0.00	0.0	3.5	0.0	22.27	31.45	6.69	30	0.50	858.79	859.04	860.39	860.64	865.22	866.04	P-3A-304
4	3	126.712	0.00	0.00	0.00	0.00	0.00	0.0	3.2	0.0	19.00	31.33	6.00	30	0.50	859.04	859.67	860.64	861.15	866.04	866.93	P-3A-305
5	4	185.607	0.00	0.00	0.00	0.00	0.00	0.0	2.7	0.0	13.94	17.34	5.91	24	0.50	859.67	860.60	861.15	861.94	866.93	866.11	P-3A-306
6	5	185.031	0.00	0.00	0.00	0.00	0.00	0.0	2.0	0.0	9.90	17.37	4.93	24	0.50	860.60	861.53	861.94	862.65	866.11	867.14	P-3A-307
7	6	96.078	0.00	0.00	0.00	0.00	0.00	0.0	1.7	0.0	6.69	8.04	4.96	18	0.50	861.53	862.01	862.65	863.03	867.14	869.44	P-3A-308
8	7	59.336	0.00	0.00	0.00	0.00	0.00	0.0	1.5	0.0	6.04	8.09	4.24	18	0.51	862.01	862.31	863.24	863.35	869.44	870.60	P-3A-309
9	8	141.627	0.00	0.00	0.00	0.00	0.00	0.0	1.0	0.0	6.04	8.80	5.53	15	1.58	862.31	864.55	863.41	865.54	870.60	872.05	P-3A-310
10	9	58.924	0.00	0.00	0.00	0.00	0.00	0.0	0.9	0.0	6.04	8.74	5.78	15	1.56	864.55	865.47	865.54	866.46	872.05	871.38	P-3A-311
11	10	63.226	0.00	0.00	0.00	0.00	0.00	0.0	0.6	0.0	3.54	5.63	3.96	15	0.65	865.47	865.88	866.46	866.64	871.38	871.32	P-3A-312
12	11	83.086	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.10	4.91	2.26	15	0.49	865.88	866.29	866.64	866.70	871.32	871.28	P-3A-313
13	4	39.757	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	3.57	10.05	3.73	15	2.06	859.67	860.49	861.15	861.25	866.93	862.76	P-3A-306B
14	13	50.680	0.00	0.00	0.00	0.00	0.00	0.0	0.5	0.0	2.38	4.91	3.49	15	0.49	860.49	860.74	861.25	861.36	862.76	863.02	P-3A-307B
15	14	82.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.19	4.95	2.58	15	0.50	860.74	861.15	861.36	861.58	863.02	863.42	P-3A-308B
16	5	36.210	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.19	10.33	1.72	15	2.18	860.60	861.39	861.94	861.91	866.11	863.66	P-3A-307A
17	3	42.175	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.19	24.06	2.08	15	11.83	859.04	864.03	860.64	864.46	866.04	866.30	P-3A-305C
18	End	23.039	0.00	0.00	0.00	0.00	0.00	0.0	2.4	0.0	10.00	95.77	4.32	24	15.28	855.00	858.52	859.23	859.65	0.00	867.35	P-3A-302D
19	18	40.498	0.00	0.00	0.00	0.00	0.00	0.0	2.3	0.0	10.00	17.22	5.46	24	0.49	858.52	858.72	859.65	859.85	867.35	867.56	P-3A-303D
20	19	82.007	0.00	0.00	0.00	0.00	0.00	0.0	2.0	0.0	8.81	17.33	5.02	24	0.50	858.72	859.13	859.85	860.19	867.56	867.96	P-3A-304D
21	20	82.007	0.00	0.00	0.00	0.00	0.00	0.0	1.8	0.0	7.62	8.04	5.18	18	0.50	859.13	859.54	860.29	860.70	867.96	868.37	P-3A-305D
22	21	82.007	0.00	0.00	0.00	0.00	0.00	0.0	1.5	0.0	6.37	8.04	4.54	18	0.50	859.54	859.95	860.77	860.97	868.37	865.61	P-3A-306D

Project File: 353024-Storm Sewers_DA-3A.stm | Number of lines: 34 | Run Date: 4/6/2026

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng 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 (ac)	Total (ac)	(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)	
23	22	82.015	0.00	0.00	0.00	0.00	0.00	0.0	1.2	0.0	5.12	8.04	4.28	18	0.50	859.95	860.36	861.03	861.23	865.61	866.78	P-3A-307D
24	23	82.007	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	3.87	4.95	4.40	15	0.50	860.36	860.77	861.23	861.59	866.78	865.47	P-3A-308D
25	24	82.007	0.00	0.00	0.00	0.00	0.00	0.0	0.5	0.0	2.62	4.95	3.49	15	0.50	860.77	861.18	861.63	861.83	865.47	865.01	P-3A-309D
26	25	71.857	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.31	4.95	2.66	15	0.50	861.18	861.54	861.83	861.99	865.01	863.81	P-3A-310D
27	End	27.664	0.00	0.00	0.00	0.00	0.00	0.0	3.3	0.0	14.04	73.66	4.62	24	9.04	855.00	857.50	859.23	859.27	0.00	866.48	P-3A-302E
28	27	44.830	0.00	0.00	0.00	0.00	0.00	0.0	3.1	0.0	12.85	17.16	4.09	24	0.49	857.50	857.72	859.66	859.79	866.48	866.90	P-3A-303E
29	28	97.212	0.00	0.00	0.00	0.00	0.00	0.0	2.7	0.0	11.30	17.40	3.60	24	0.50	857.72	858.21	860.05	860.21	866.90	867.37	P-3A-304E
30	29	90.840	0.00	0.00	0.00	0.00	0.00	0.0	2.2	0.0	9.28	17.24	3.07	24	0.50	858.21	858.66	860.31	860.41	867.37	867.59	P-3A-305E
31	30	147.294	0.00	0.00	0.00	0.00	0.00	0.0	1.5	0.0	6.43	8.06	3.64	18	0.50	858.66	859.40	860.49	860.96	867.59	868.02	P-3A-306E
32	31	124.586	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	5.12	8.03	3.07	18	0.50	859.40	860.02	861.07	861.28	868.02	868.31	P-3A-307E
33	32	102.379	0.00	0.00	0.00	0.00	0.00	0.0	0.4	0.0	4.94	8.03	3.86	18	0.50	860.02	860.53	861.36	861.38	868.31	866.80	P-3A-308E
34	33	94.882	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	3.39	4.92	4.12	15	0.50	860.53	861.00	861.38	861.75	866.80	865.58	P-3A-309E

Project File: 353024-Storm Sewers_DA-3A.stm

Number of lines: 34

Run Date: 4/6/2026

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng 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 (ac)	Total (ac)	(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	62.474	0.00	0.00	0.00	0.00	0.00	0.0	3.7	0.0	24.53	106.8	5.98	30	5.78	855.00	858.61	859.23	860.30	0.00	864.76	P-3A-302
2	1	36.052	0.00	0.00	0.00	0.00	0.00	0.0	3.7	0.0	22.27	31.39	6.51	30	0.50	858.61	858.79	860.30	860.39	864.76	865.22	P-3A-303
3	2	49.879	0.00	0.00	0.00	0.00	0.00	0.0	3.5	0.0	22.27	31.45	6.69	30	0.50	858.79	859.04	860.39	860.64	865.22	866.04	P-3A-304
4	3	126.712	0.00	0.00	0.00	0.00	0.00	0.0	3.2	0.0	19.00	31.33	6.00	30	0.50	859.04	859.67	860.64	861.15	866.04	866.93	P-3A-305
5	4	185.607	0.00	0.00	0.00	0.00	0.00	0.0	2.7	0.0	13.94	17.34	5.91	24	0.50	859.67	860.60	861.15	861.94	866.93	866.11	P-3A-306
6	5	185.031	0.00	0.00	0.00	0.00	0.00	0.0	2.0	0.0	9.90	17.37	4.93	24	0.50	860.60	861.53	861.94	862.65	866.11	867.14	P-3A-307
7	6	96.078	0.00	0.00	0.00	0.00	0.00	0.0	1.7	0.0	6.69	8.04	4.96	18	0.50	861.53	862.01	862.65	863.03	867.14	869.44	P-3A-308
8	7	59.336	0.00	0.00	0.00	0.00	0.00	0.0	1.5	0.0	6.04	8.09	4.24	18	0.51	862.01	862.31	863.24	863.35	869.44	870.60	P-3A-309
9	8	141.627	0.00	0.00	0.00	0.00	0.00	0.0	1.0	0.0	6.04	8.80	5.53	15	1.58	862.31	864.55	863.41	865.54	870.60	872.05	P-3A-310
10	9	58.924	0.00	0.00	0.00	0.00	0.00	0.0	0.9	0.0	6.04	8.74	5.78	15	1.56	864.55	865.47	865.54	866.46	872.05	871.38	P-3A-311
11	10	63.226	0.00	0.00	0.00	0.00	0.00	0.0	0.6	0.0	3.54	5.63	3.96	15	0.65	865.47	865.88	866.46	866.64	871.38	871.32	P-3A-312
12	11	83.086	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.10	4.91	2.26	15	0.49	865.88	866.29	866.64	866.70	871.32	871.28	P-3A-313
13	4	39.757	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	3.57	10.05	3.73	15	2.06	859.67	860.49	861.15	861.25	866.93	862.76	P-3A-306B
14	13	50.680	0.00	0.00	0.00	0.00	0.00	0.0	0.5	0.0	2.38	4.91	3.49	15	0.49	860.49	860.74	861.25	861.36	862.76	863.02	P-3A-307B
15	14	82.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.19	4.95	2.58	15	0.50	860.74	861.15	861.36	861.58	863.02	863.42	P-3A-308B
16	5	36.210	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.19	10.33	1.72	15	2.18	860.60	861.39	861.94	861.91	866.11	863.66	P-3A-307A
17	3	42.175	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.19	24.06	2.08	15	11.83	859.04	864.03	860.64	864.46	866.04	866.30	P-3A-305C
18	End	23.039	0.00	0.00	0.00	0.00	0.00	0.0	2.4	0.0	10.00	95.77	4.32	24	15.28	855.00	858.52	859.23	859.65	0.00	867.35	P-3A-302D
19	18	40.498	0.00	0.00	0.00	0.00	0.00	0.0	2.3	0.0	10.00	17.22	5.46	24	0.49	858.52	858.72	859.65	859.85	867.35	867.56	P-3A-303D
20	19	82.007	0.00	0.00	0.00	0.00	0.00	0.0	2.0	0.0	8.81	17.33	5.02	24	0.50	858.72	859.13	859.85	860.19	867.56	867.96	P-3A-304D
21	20	82.007	0.00	0.00	0.00	0.00	0.00	0.0	1.8	0.0	7.62	8.04	5.18	18	0.50	859.13	859.54	860.29	860.70	867.96	868.37	P-3A-305D
22	21	82.007	0.00	0.00	0.00	0.00	0.00	0.0	1.5	0.0	6.37	8.04	4.54	18	0.50	859.54	859.95	860.77	860.97	868.37	865.61	P-3A-306D

Project File: 353024-Storm Sewers_DA-3A.stm | Number of lines: 34 | Run Date: 4/6/2026

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng 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 (ac)	Total (ac)	(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)	
23	22	82.015	0.00	0.00	0.00	0.00	0.00	0.0	1.2	0.0	5.12	8.04	4.28	18	0.50	859.95	860.36	861.03	861.23	865.61	866.78	P-3A-307D
24	23	82.007	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	3.87	4.95	4.40	15	0.50	860.36	860.77	861.23	861.59	866.78	865.47	P-3A-308D
25	24	82.007	0.00	0.00	0.00	0.00	0.00	0.0	0.5	0.0	2.62	4.95	3.49	15	0.50	860.77	861.18	861.63	861.83	865.47	865.01	P-3A-309D
26	25	71.857	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.31	4.95	2.66	15	0.50	861.18	861.54	861.83	861.99	865.01	863.81	P-3A-310D
27	End	27.664	0.00	0.00	0.00	0.00	0.00	0.0	3.3	0.0	14.04	73.66	4.62	24	9.04	855.00	857.50	859.23	859.27	0.00	866.48	P-3A-302E
28	27	44.830	0.00	0.00	0.00	0.00	0.00	0.0	3.1	0.0	12.85	17.16	4.09	24	0.49	857.50	857.72	859.66	859.79	866.48	866.90	P-3A-303E
29	28	97.212	0.00	0.00	0.00	0.00	0.00	0.0	2.7	0.0	11.30	17.40	3.60	24	0.50	857.72	858.21	860.05	860.21	866.90	867.37	P-3A-304E
30	29	90.840	0.00	0.00	0.00	0.00	0.00	0.0	2.2	0.0	9.28	17.24	3.07	24	0.50	858.21	858.66	860.31	860.41	867.37	867.59	P-3A-305E
31	30	147.294	0.00	0.00	0.00	0.00	0.00	0.0	1.5	0.0	6.43	8.06	3.64	18	0.50	858.66	859.40	860.49	860.96	867.59	868.02	P-3A-306E
32	31	124.586	0.00	0.00	0.00	0.00	0.00	0.0	0.8	0.0	5.12	8.03	3.07	18	0.50	859.40	860.02	861.07	861.28	868.02	868.31	P-3A-307E
33	32	102.379	0.00	0.00	0.00	0.00	0.00	0.0	0.4	0.0	4.94	8.03	3.86	18	0.50	860.02	860.53	861.36	861.38	868.31	866.80	P-3A-308E
34	33	94.882	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	3.39	4.92	4.12	15	0.50	860.53	861.00	861.38	861.75	866.80	865.58	P-3A-309E

Project File: 353024-Storm Sewers_DA-3A.stm

Number of lines: 34

Run Date: 4/6/2026

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

APPENDIX A – SOILS INFORMATION

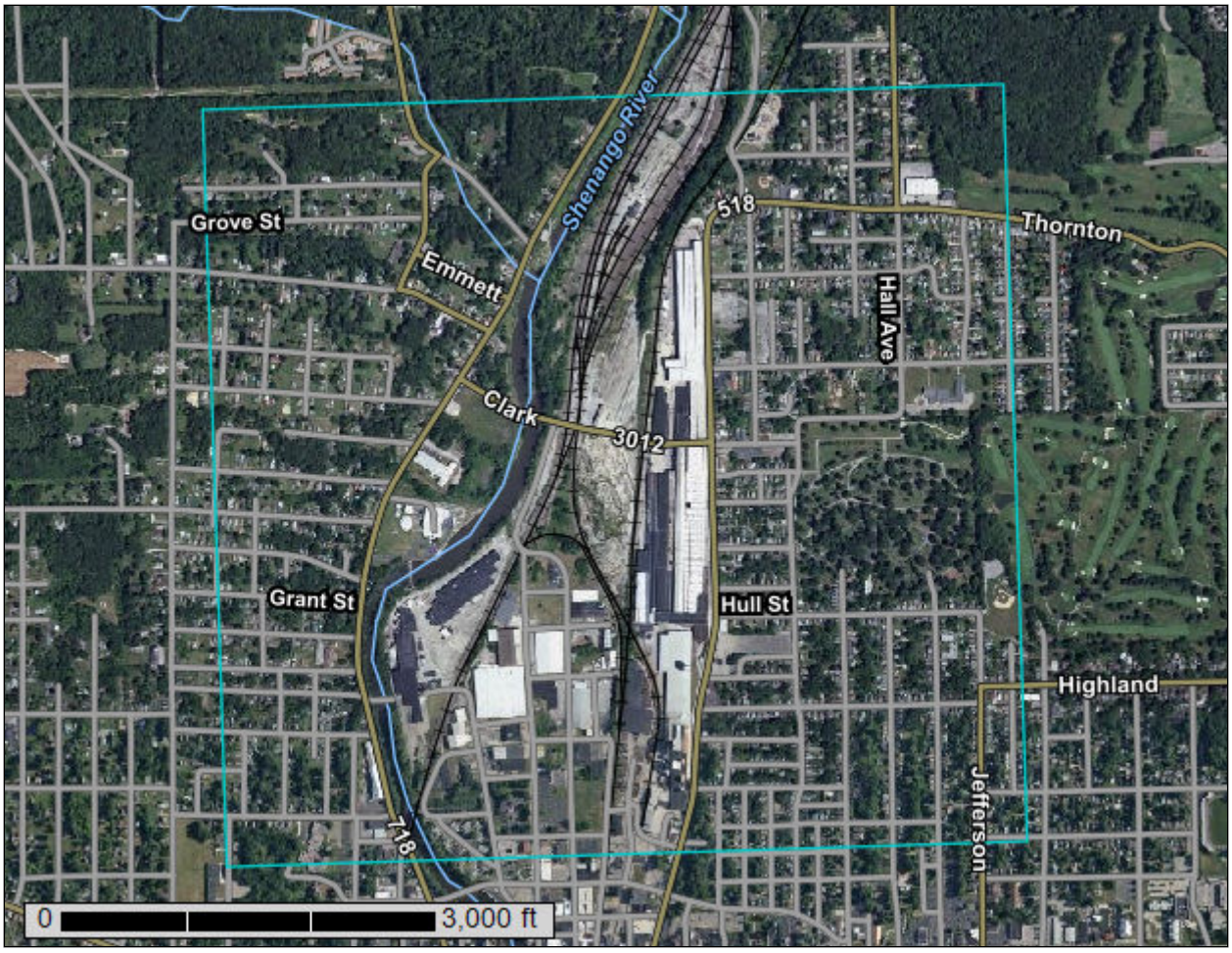
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Mercer County, Pennsylvania



February 24, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Mercer County, Pennsylvania.....14
CdC2—Canfield silt loam, 8 to 15 percent slopes.....14
CdD2—Canfield silt loam, 15 to 25 percent slopes.....15
ClB2—Chenango gravelly loam, 3 to 8 percent slopes, moderately eroded.....16
CoD2—Chenango silt loam, 15 to 25 percent slopes, moderately eroded.....18
Ho—Holly silt loam.....19
LrE—Lordstown silt loam, 25 to 45 percent slopes, extremely stony.....20
LzC2—Loudonville loam, 6 to 12 percent slopes, moderately eroded.....22
RaA—Ravenna silt loam, 0 to 3 percent slopes.....23
RaB2—Ravenna silt loam, 3 to 8 percent slopes.....24
RaC2—Ravenna silt loam, 8 to 15 percent slopes.....26
RoB2—Red Hook silt loam, 3 to 8 percent slopes, moderately eroded.....27
UaC—Udorthents, loamy, 0 to 15 percent slopes.....29
Ur—Urban land.....30
W—Water.....31
Wa—Wayland silt loam, coarse variant.....31
Soil Information for All Uses.....34
Suitabilities and Limitations for Use.....34
Land Classifications.....34
Hydric Rating by Map Unit.....34
Soil Properties and Qualities.....39
Soil Qualities and Features.....39
Hydrologic Soil Group.....39
References.....44

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



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
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Mercer County, Pennsylvania
Survey Area Data: Version 23, Sep 3, 2025

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

Date(s) aerial images were photographed: Jul 4, 2020—Aug 10, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CdC2	Canfield silt loam, 8 to 15 percent slopes	14.3	1.6%
CdD2	Canfield silt loam, 15 to 25 percent slopes	5.2	0.6%
ClB2	Chenango gravelly loam, 3 to 8 percent slopes, moderately eroded	12.2	1.4%
CoD2	Chenango silt loam, 15 to 25 percent slopes, moderately eroded	7.3	0.8%
Ho	Holly silt loam	4.5	0.5%
LrE	Lordstown silt loam, 25 to 45 percent slopes, extremely stony	4.6	0.5%
LzC2	Loudonville loam, 6 to 12 percent slopes, moderately eroded	1.1	0.1%
RaA	Ravenna silt loam, 0 to 3 percent slopes	11.1	1.2%
RaB2	Ravenna silt loam, 3 to 8 percent slopes	352.1	39.2%
RaC2	Ravenna silt loam, 8 to 15 percent slopes	169.1	18.8%
RoB2	Red Hook silt loam, 3 to 8 percent slopes, moderately eroded	15.4	1.7%
UaC	Udorthents, loamy, 0 to 15 percent slopes	72.2	8.0%
Ur	Urban land	181.2	20.2%
W	Water	25.6	2.8%
Wa	Wayland silt loam, coarse variant	23.5	2.6%
Totals for Area of Interest		**899.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the

landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present

or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Mercer County, Pennsylvania

CdC2—Canfield silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2v044
Landscape: Uplands
Elevation: 590 to 1,970 feet
Mean annual precipitation: 33 to 52 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Canfield and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canfield

Setting

Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Till

Typical profile

Ap - 0 to 6 inches: silt loam
BE - 6 to 9 inches: silt loam
Bt1 - 9 to 15 inches: silt loam
2Bt2 - 15 to 21 inches: loam
2Bt3 - 21 to 26 inches: loam
2Btx1 - 26 to 38 inches: loam
2Btx2 - 38 to 45 inches: loam
2C1 - 45 to 62 inches: loam
2C2 - 62 to 80 inches: loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 15 to 30 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 10 to 21 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C/D
Ecological site: F139XY004OH - Moist Acidic Slopes
Hydric soil rating: No

Minor Components

Ravenna
Percent of map unit: 10 percent
Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

CdD2—Canfield silt loam, 15 to 25 percent slopes

Map Unit Setting
National map unit symbol: 2v04f
Landscape: Uplands
Elevation: 590 to 1,970 feet
Mean annual precipitation: 33 to 52 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition
Canfield and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canfield

Setting
Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Till

Typical profile
Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: silt loam
E - 4 to 6 inches: silt loam
BE - 6 to 9 inches: silt loam
Bt1 - 9 to 15 inches: silt loam
2Bt2 - 15 to 21 inches: loam

2Bt3 - 21 to 26 inches: loam
2Btx1 - 26 to 38 inches: loam
2Btx2 - 38 to 45 inches: loam
2C1 - 45 to 62 inches: loam
2C2 - 62 to 80 inches: loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 15 to 30 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 10 to 21 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C/D
Ecological site: F139XY004OH - Moist Acidic Slopes
Hydric soil rating: No

Minor Components

Loudonville

Percent of map unit: 10 percent
Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

ClB2—Chenango gravelly loam, 3 to 8 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 9y7p
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Chenango and similar soils: 95 percent

Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Gravelly outwash

Typical profile

Ap - 0 to 10 inches: gravelly loam
Bw - 10 to 29 inches: gravelly loam
C - 29 to 53 inches: very gravelly loamy coarse sand
2C - 53 to 62 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Ecological site: F139XY005OH - Dry Acidic Drift Plains
Hydric soil rating: No

Minor Components

Braceville

Percent of map unit: 4 percent
Landform: Outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Red hook

Percent of map unit: 1 percent
Landform: Outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

CoD2—Chenango silt loam, 15 to 25 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 9y7y
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Chenango and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly outwash

Typical profile

Ap - 0 to 10 inches: silt loam
Bw - 10 to 29 inches: gravelly silt loam
C - 29 to 53 inches: very gravelly loamy coarse sand
2C - 53 to 62 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F139XY004OH - Moist Acidic Slopes
Hydric soil rating: No

Minor Components

Braceville

Percent of map unit: 4 percent
Landform: Outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Red hook

Percent of map unit: 1 percent
Landform: Outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ho—Holly silt loam

Map Unit Setting

National map unit symbol: 1r3mv
Elevation: 800 to 1,000 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Holly and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Holly

Setting

Landform: Depressions on flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Recent loamy alluvium

Typical profile

Ap - 0 to 10 inches: silt loam
Bg - 10 to 30 inches: silt loam
BC - 30 to 60 inches: loam
C - 60 to 80 inches: stratified gravelly sand to silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F139XY009OH - Wet Floodplain
Hydric soil rating: Yes

Minor Components

Lobdell

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

LrE—Lordstown silt loam, 25 to 45 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 9y88
Elevation: 750 to 1,800 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lordstown and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lordstown

Setting

Landform: Till plains
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till over residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 5 inches: silt loam
Bw - 5 to 22 inches: channery silt loam
C - 22 to 38 inches: very channery loam
R - 38 to 41 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 45 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F139XY007OH - Shallow Acidic Slopes
Hydric soil rating: No

Minor Components

Arnot

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Canfield

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

LzC2—Loudonville loam, 6 to 12 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 1r3n6
Elevation: 900 to 1,200 feet
Mean annual precipitation: 30 to 44 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 130 to 167 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Loudonville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Loudonville

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Outwash

Typical profile

Ap - 0 to 11 inches: loam
Bt - 11 to 34 inches: channery loam
R - 34 to 40 inches: unweathered bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 30 to 42 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F139XY007OH - Shallow Acidic Slopes
Hydric soil rating: No

Minor Components

Slightly eroded areas
Percent of map unit: 5 percent

Silt loam surface layer
Percent of map unit: 5 percent

Moderately well drained soils
Percent of map unit: 5 percent

RaA—Ravenna silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 2v04p
Landscape: Uplands
Elevation: 590 to 1,970 feet
Mean annual precipitation: 33 to 52 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Ravenna and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ravenna

Setting
Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Till

Typical profile
Ap - 0 to 8 inches: silt loam
BE - 8 to 12 inches: silt loam
Bt - 12 to 22 inches: silt loam
Btx - 22 to 48 inches: loam
BC - 48 to 53 inches: loam
C - 53 to 74 inches: loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 14 to 30 inches to fragipan
Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 7 to 11 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F139XY004OH - Moist Acidic Slopes
Hydric soil rating: No

Minor Components

Frenchtown

Percent of map unit: 6 percent
Landscape: Till plains
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Canfield

Percent of map unit: 4 percent
Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

RaB2—Ravenna silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2v04s
Landscape: Uplands
Elevation: 590 to 1,970 feet
Mean annual precipitation: 33 to 52 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Ravenna and similar soils: 90 percent

Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ravenna

Setting

Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Till

Typical profile

Ap - 0 to 8 inches: silt loam
BE - 8 to 12 inches: silt loam
Bt - 12 to 22 inches: silt loam
Btx - 22 to 48 inches: loam
BC - 48 to 53 inches: loam
C - 53 to 74 inches: loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 14 to 30 inches to fragipan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 7 to 11 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F139XY004OH - Moist Acidic Slopes
Hydric soil rating: No

Minor Components

Frenchtown

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Canfield

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Till plains

Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

RaC2—Ravenna silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2v04t
Landscape: Uplands
Elevation: 590 to 1,970 feet
Mean annual precipitation: 33 to 52 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Ravenna and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ravenna

Setting

Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Till

Typical profile

Ap - 0 to 8 inches: silt loam
BE - 8 to 12 inches: silt loam
Bt - 12 to 22 inches: silt loam
Btx - 22 to 48 inches: loam
BC - 48 to 53 inches: loam
C - 53 to 74 inches: loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 14 to 30 inches to fragipan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 7 to 11 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: F139XY004OH - Moist Acidic Slopes
Hydric soil rating: No

Minor Components

Canfield

Percent of map unit: 6 percent
Landscape: Uplands
Landform: Till plains
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Frenchtown

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

RoB2—Red Hook silt loam, 3 to 8 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 9y8p
Elevation: 590 to 1,970 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Red hook and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Red Hook

Setting

Landform: Outwash terraces

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy outwash

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 31 inches: loam
C - 31 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F139XY002OH - Moist Calcareous Drift Flats
Hydric soil rating: No

Minor Components

Halsey

Percent of map unit: 5 percent
Landform: Depressions on outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

Chenango

Percent of map unit: 5 percent
Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

UaC—Udorthents, loamy, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2rg7y
Elevation: 770 to 1,500 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 100 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, loamy, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Loamy

Setting

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Anthropogenic Feature: Cuts (road, railroad, etc.), fills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Disturbed regolith derived from loamy till.

Typical profile

A - 0 to 3 inches: very gravelly silt loam
C1 - 3 to 30 inches: very gravelly silt loam
C2 - 30 to 65 inches: extremely gravelly silt loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 1.28 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F139XY005OH - Dry Acidic Drift Plains
Hydric soil rating: No

Minor Components

Urban land

Percent of map unit: 10 percent
Anthropogenic features: Urban land
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mill

Percent of map unit: 5 percent
Landform: End moraines, Ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Dip, flat
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Ur—Urban land

Map Unit Setting

National map unit symbol: 2rg7w
Elevation: 800 to 1,500 feet
Mean annual precipitation: 36 to 49 inches
Mean annual air temperature: 41 to 58 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Anthropogenic Feature: Urban land
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Udorthents

Percent of map unit: 10 percent
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope
Anthropogenic features: Cuts (road, railroad, etc.), fills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 9y8w
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 214 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Parent material: Rivers streams ponds

Properties and qualities

Frequency of ponding: Frequent

Wa—Wayland silt loam, coarse variant

Map Unit Setting

National map unit symbol: 9y8x
Elevation: 200 to 1,500 feet
Mean annual precipitation: 30 to 46 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 187 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Wayland, coarse variant, and similar soils: 50 percent
Wayland, coarse variant, swpd, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wayland, Coarse Variant

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Recent alluvium

Typical profile

Ap - 0 to 4 inches: silt loam
Bg - 4 to 18 inches: silt loam
C - 18 to 60 inches: stratified gravelly fine sandy loam to silt loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F139XY009OH - Wet Floodplain
Hydric soil rating: Yes

Description of Wayland, Coarse Variant, Swpd

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Recent alluvium

Typical profile

Ap - 0 to 4 inches: silt loam
Bg - 4 to 18 inches: silt loam
C - 18 to 60 inches: stratified gravelly fine sandy loam to silt loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 2 to 8 inches

Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F139XY008OH - Moist Floodplain
Hydric soil rating: No

Minor Components

Papakating

Percent of map unit: 10 percent
Landform: Depressions on flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Red hook, flooded

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Chenango, flooded

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

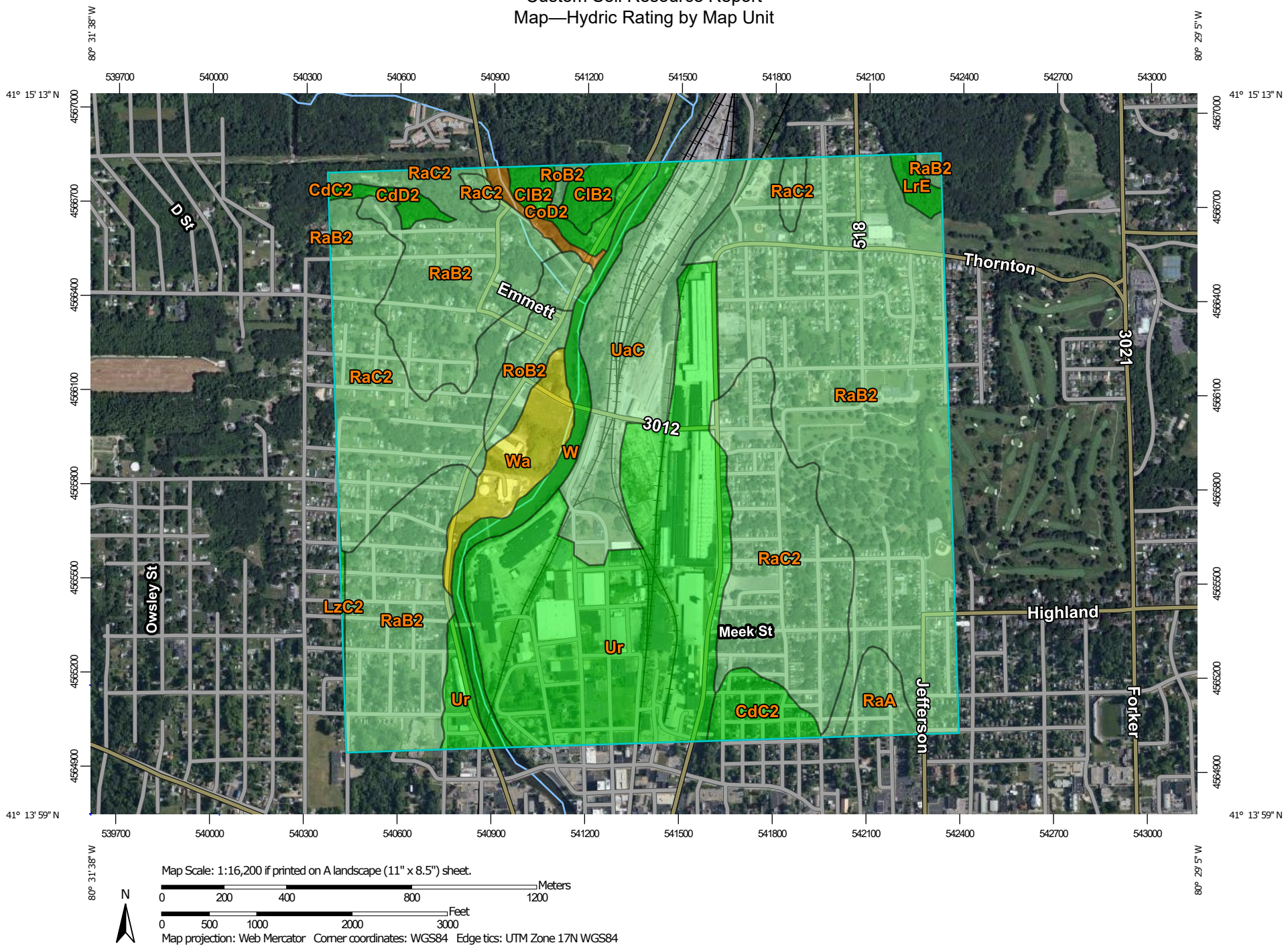
Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Map—Hydric Rating by Map Unit



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Mercer County, Pennsylvania
Survey Area Data: Version 23, Sep 3, 2025

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

Date(s) aerial images were photographed: Jul 4, 2020—Aug 10, 2020

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

Table—Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CdC2	Canfield silt loam, 8 to 15 percent slopes	0	14.3	1.6%
CdD2	Canfield silt loam, 15 to 25 percent slopes	0	5.2	0.6%
ClB2	Chenango gravelly loam, 3 to 8 percent slopes, moderately eroded	0	12.2	1.4%
CoD2	Chenango silt loam, 15 to 25 percent slopes, moderately eroded	0	7.3	0.8%
Ho	Holly silt loam	90	4.5	0.5%
LrE	Lordstown silt loam, 25 to 45 percent slopes, extremely stony	0	4.6	0.5%
LzC2	Loudonville loam, 6 to 12 percent slopes, moderately eroded	0	1.1	0.1%
RaA	Ravenna silt loam, 0 to 3 percent slopes	6	11.1	1.2%
RaB2	Ravenna silt loam, 3 to 8 percent slopes	5	352.1	39.2%
RaC2	Ravenna silt loam, 8 to 15 percent slopes	4	169.1	18.8%
RoB2	Red Hook silt loam, 3 to 8 percent slopes, moderately eroded	5	15.4	1.7%
UaC	Udorthents, loamy, 0 to 15 percent slopes	5	72.2	8.0%
Ur	Urban land	0	181.2	20.2%
W	Water	0	25.6	2.8%
Wa	Wayland silt loam, coarse variant	60	23.5	2.6%
Totals for Area of Interest			**899.4**	**100.0%**

Rating Options—Hydric Rating by Map Unit

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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

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

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

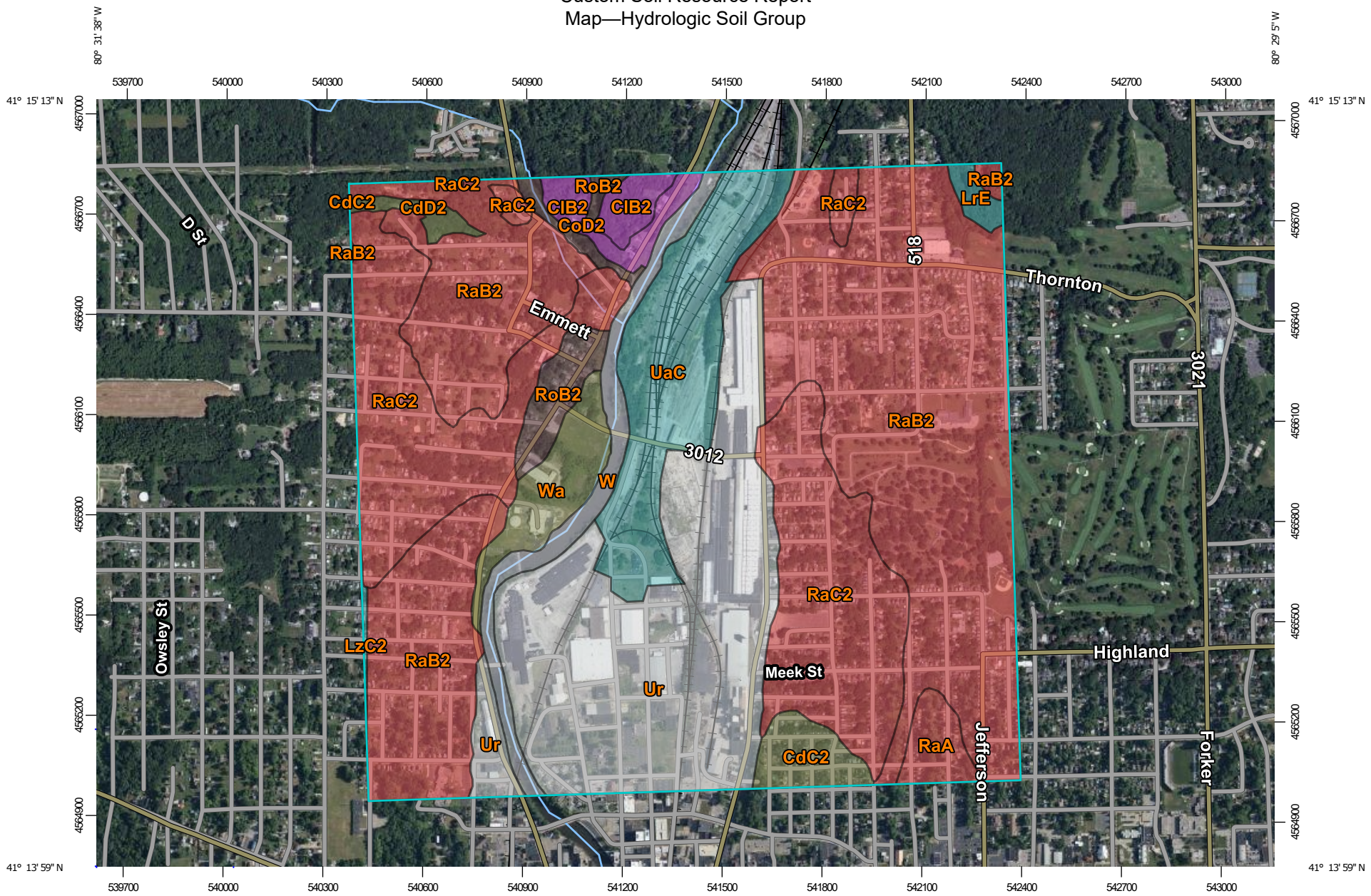
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at

or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

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


80° 31' 38" W
80° 29' 5" W
41° 15' 13" N
41° 13' 59" N
539700
540000
540300
540600
540900
541200
541500
541800
542100
542400
542700
543000
4567000
4566700
4566400
4566100
4565800
4565500
4565200
4564900
RaC2
RoB2
CdC2
CdD2
RaC2
CIB2
CIB2
CoD2
RaB2
LrE
RaC2
D St
RaB2
RaB2
Emmett
618
Thornton
UaC
3021
RaC2
RoB2
RaB2
3012
Wa
W
RaC2
Owsley St
LzC2
RaB2
Highland
Meek St
Ur
Ur
CdC2
RaA
Jefferson
Forker
Map Scale: 1:16,200 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 200 400 800 1200
Feet
0 500 1000 2000 3000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Mercer County, Pennsylvania
Survey Area Data: Version 23, Sep 3, 2025

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

Date(s) aerial images were photographed: Jul 4, 2020—Aug 10, 2020

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

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CdC2	Canfield silt loam, 8 to 15 percent slopes	C/D	14.3	1.6%
CdD2	Canfield silt loam, 15 to 25 percent slopes	C/D	5.2	0.6%
ClB2	Chenango gravelly loam, 3 to 8 percent slopes, moderately eroded	A	12.2	1.4%
CoD2	Chenango silt loam, 15 to 25 percent slopes, moderately eroded	A	7.3	0.8%
Ho	Holly silt loam	B/D	4.5	0.5%
LrE	Lordstown silt loam, 25 to 45 percent slopes, extremely stony	C	4.6	0.5%
LzC2	Loudonville loam, 6 to 12 percent slopes, moderately eroded	C	1.1	0.1%
RaA	Ravenna silt loam, 0 to 3 percent slopes	D	11.1	1.2%
RaB2	Ravenna silt loam, 3 to 8 percent slopes	D	352.1	39.2%
RaC2	Ravenna silt loam, 8 to 15 percent slopes	D	169.1	18.8%
RoB2	Red Hook silt loam, 3 to 8 percent slopes, moderately eroded	B/D	15.4	1.7%
UaC	Udorthents, loamy, 0 to 15 percent slopes	C	72.2	8.0%
Ur	Urban land		181.2	20.2%
W	Water		25.6	2.8%
Wa	Wayland silt loam, coarse variant	C/D	23.5	2.6%
Totals for Area of Interest			**899.4**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX B – SCM FEASIBILITY EVALUATION

Stormwater Management Stormwater Control Measure (SCM) Feasibility Memo for Mercer Node Development

April 2026

Introduction

The purpose of this memo is to present the findings of an evaluation completed to determine the feasibility of implementing stormwater control measures to satisfy the stormwater requirements as outlined in PA Code §102.8. This assessment considered site-specific characteristics, including topography, soil conditions, hydrology, proposed infrastructure, and infiltration. Infiltration is not permitted at this site due to contamination concerns. It has been identified that concentrations of Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds SVOCs, Petroleum Contaminated Soil (PCSs), dioxins, metals, sulfate, and nitrate are in the groundwater at levels exceeding PADEP groundwater media specific concentrations (MSCs) and/or water quality standards (SWQS). It has also been identified that the presence of nonaqueous phase liquids (NAPL) and a low pH plume (collectively, the groundwater plumes). The groundwater plumes are located within the limits of the City of Sharon groundwater ordinance, which restricts potable, non-potable, and industrial use of groundwater. Due to these contaminations, infiltration is prohibited on the site. During the evaluation, several potential stormwater control measures (SCMs) were reviewed and feasibility was assessed, and due to constraints related to site conditions, constructability, or other site limitations. The following sections outline the analysis of each potential SCM and the findings associated with their potential implementation for this site based on the Pennsylvania Stormwater Best Management Practices Manual dated 2006.

Stormwater Management Control Options

Protected Natural Stormwater Features

Natural Stormwater Features are limited on this site. Two Palustrine Emergent (PEM) wetlands, one Palustrine Unconsolidated Bottom (PUB) wetland, and one intermittent (INT) stream are located at the northern end of the property. These features are located outside of the limit of disturbance and therefore have no impact to them.

Section 6.4 Infiltration SCMs

The pre-development site characteristics found contaminants in the groundwater and soil of this site as described in this memo. Therefore, infiltration SCMs were ruled out on this site. This includes the following SCMs:

- 6.4.1 Pervious Pavement with Infiltration Bed
- 6.4.2 Infiltration Basin

- 6.4.3 Subsurface Infiltration Bed
- 6.4.4 Infiltration Trench
- 6.4.5 Rain Garden/Biorention
- 6.4.6 Dry Well / Seepage Pit
- 6.4.7 Constructed Filter
- 6.4.8 Vegetated Swale
- 6.4.9 Vegetated Filter Strip
- 6.4.10 Infiltration Berm & Retentive Grading

Section 6.5.1 Vegetated Roof

Vegetated roof systems were evaluated and ruled out due to the need for additional facility equipment to be housed on the roofing system and the ways in which implementation of these roof systems would leave insufficient remaining space for additional infrastructure.

Section 6.5.2 Capture and Use

The capture and use SCM was evaluated and ruled out due to insufficient demand for grey water for toilet flushing or irrigation. There is no plan for plantings on this site due to the impervious cap per the COA, therefore regular irrigation is not needed.

Section 6.6.3 Dry Extended Detention Basin

Per the PADEP PCSM Manual (2006), the SCM listed is a low source of volume control. Regarding evapotranspiration credits, due to the site constraints, there is insufficient elevation change and footprint for a PCSM SCM that would provide evapotranspiration credits to meet the required net change in volume to manage. There is no plan for plantings on this site due to the impervious cap per the COA, therefore regular irrigation is not needed.

Section 6.6.4 Water Quality Filters & Hydrodynamic Devices

Per the PADEP PCSM Manual (2006), Water Quality (WQ) Filters are not a source of volume control. Therefore, a WQ Filter will not meet the required net change in volume to manage.

Section 6.7.1 Riparian Buffer Restoration

This site is not located within a riparian buffer. There is no existing vegetation on the site and the closest stream is approximately 400 feet from the limit of disturbance, therefore riparian buffer restoration was not applicable at this site.

Section 6.7.2 Landscape Restoration

The site did not include any existing vegetation. In addition, plantings are prohibited due to the impervious cap per the COA.

Section 6.7.3 Soil Amendment & Restoration

The existing site does not include vegetation. The site was previously covered by gravel or concrete. The proposed site is to maintain existing condition in that it is covered by impervious materials. Soil amendments and the revegetation of existing surfaces do not apply on this site.

Section 6.7.4 Floodplain Restoration

Per the BMP manual floodplain restoration can only be evaluated as a SCM when there is a documented need for restoration or demonstration of impairment. There is not a documented need for restoration or demonstration of impairment that would indicate implementation of this SCM. The development is minimizing impacts to the surrounding ecological features.

Section 6.8.1 Level Spreader

Per the PADEP PCSM Manual (2006), Level Spreaders are a low-volume control source. Therefore, level spreaders are not an applicable PCSM SCM for this project. Level spreaders were not evaluated as the discharge points from the SCMs all connect to existing storm sewer systems.

Section 6.8.2 Special Detention Areas – Parking Lot, Rooftop

The proposed underground detention systems on the project site are designed to function as a Special Detention Area. Two of the underground detention systems are only applicable to rate control due to not infiltrating on this site. One of the underground detention systems is split into two MRC Cells to manage the volume on site. The detention systems shall include impermeable liners to mitigate water seepage and avoid contaminated runoff.

Selected Stormwater Management Controls

Non-structural SCMs

There are no non-structural SCMs on this site as plantings are prohibited per the COA.

SCM – 2A – Managed Release Concept 2A & 2B

SCMs 2A & 2B were used to manage the volume on site. The SCM was broken into two MRC cells in order to meet volume requirements. The MRCs includes one feet of gravel media for the internal water storage (IWS). One foot of IWS is required per the PADEP MRC instructions dated September 10, 2025. The system will be lined with an impermeable liner to avoid contaminated run-off.

SCM – 3A – Underground Detention Systems 3A & 3B

SCMS 3A & 3B were used to manage the rate on site. These systems will be lined with an impermeable liner to mitigate contaminated run-off.

APPENDIX C – OFF SITE FLOW PATH EXHIBIT

NORTH

EXISTING TREELINE (TYP.)
EXISTING TAX PARCEL LINE (TYP.)
VINE AVENUE
SHENANGO AVE
EXISTING STREAM (TYP.)
SHENANGO RIVER DESIGNATED USE: WWF
OFF SITE FLOW PATH TO SHENANGO RIVER THROUGH EXISTING STORM SEWER SYSTEM (TYP.)
N/F NORFOLK SOUTHERN RR ROW
EXISTING RAILROAD (TYP.)
EXISTING TREE (TYP.)
EXISTING PROPERTY LINE (TYP.)
CLARK STREET (S.R. 3012)
EXISTING RIGHT-OF-WAY (TYP.)
PROPOSED GUIDE RAIL (TYP.)
PROPOSED APPROXIMATE EXTENTS OF 195 LF 4.5-FT HIGH RETAINING WALL (DESIGNED BY OTHERS)
MANAGE RELEASE CONCEPT NO. 2B
DISCHARGE POINT 002 EXISTING STORMWATER VAULT LAT: N 41.241972 LON: W 80.507015
MANAGE RELEASE CONCEPT NO. 2A
SCM NO. 3A
DISCHARGE POINT 003 EXISTING STORM INLET LAT: N 41.244543 LON: W 80.506980
EXISTING STORM SEWER AND INLET (TYP.)
LIMIT OF DISTURBANCE (TYP.)
EXISTING ASPHALT (TYP.)
EXISTING GRAVEL (TYP.)
PROPOSED GRAVEL AREA (TYP.)
EXISTING UTILITY POLE (TYP.)
N/F VERTUA PROPERTY, INC. 1-5-14 (PARCEL 2) 5.625 ACRES
EXISTING PRIVACY FENCE (TYP.)
EXISTING MONITORING WELL (TYP.)
EXISTING EDGE OF CONCRETE (TYP.)
N/F VERTUA PROPERTY, INC. 1-5-15 (PARCEL 1) 11.807 ACRES
PROPOSED EQUIPMENT YARD
EXISTING CONCRETE PAVEMENT (TYP.)
EXISTING WETLAND W001B (PEM)
EXISTING STREAM S001 (INT)
SCM NO. 3B
EXISTING UTILITY RIGHT-OF-WAY (TYP.)
EXISTING ELECTRIC POLE AND GUY WIRE (TYP.)
PROPOSED INLET (TYP.)
STREAM AND WETLAND DELINEATION BOUNDARY
PROPOSED ASPHALT ACCESS ROAD (TYP.)
EXISTING WETLAND W001A (PEM)
EXISTING LIGHT POLE (TYP.)
EXISTING WETLAND W002 (PUB)
PROPOSED SECURITY FENCE (TYP.)
PROPOSED MANHOLE (TYP.)
EXISTING MONITORING WELL (BY OTHERS)
PROPOSED STORM PIPE (TYP.)
N/F NORFOLK SOUTHERN RR ROW
EXISTING GUIDE RAIL (TYP.)
40' BACK YARD SETBACK
EXISTING GAS LINE AND BOX (TYP.)
EXISTING SIGN (TYP.)
EXISTING OVERHEAD ELECTRIC LINE AND POLE TO REMAIN (TYP.)
EXISTING STRUCTURE (TYP.)

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING TAX PARCEL LINE
- EXISTING UTILITY RIGHT-OF-WAY
- EXISTING SETBACK
- EXISTING RIGHT-OF-WAY
- EXISTING RAILROAD
- EXISTING TREE LINE AND TREE
- EXISTING SECURITY FENCE LINE
- EXISTING PRIVACY FENCE LINE
- EXISTING ASPHALT PAVEMENT
- EXISTING GRAVEL
- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING GRAVEL (DIGITIZED FROM AERIAL)
- EXISTING CONCRETE PAVEMENT (DIGITIZED FROM AERIAL)
- EXISTING STRUCTURE
- EXISTING GUIDE RAIL
- EXISTING SIGN
- STREAM AND WETLAND DELINEATION BOUNDARY
- EXISTING STREAM
- EXISTING WETLAND (PEM)
- EXISTING WETLAND (PUB)
- EXISTING STORM SEWER
- EXISTING STORM INLET/DRAIN AND MANHOLE
- EXISTING WATER LINE
- EXISTING GAS LINE AND BOX
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING GUY WIRE AND UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING UNDERGROUND ELECTRIC LINE AND BOX
- EXISTING SANITARY MANHOLE
- EXISTING MANHOLE
- EXISTING VAULT
- EXISTING AC UNIT
- EXISTING STREAM
- EXISTING FEMA FLOODWAY
- EXISTING MONITORING WELL TO REMAIN
- EXISTING MONITORING WELL TO REMAIN (BY OTHERS)
- LIMIT OF DISTURBANCE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED ASPHALT PAVEMENT
- PROPOSED GRAVEL AREA
- PROPOSED CONCRETE AREA
- PROPOSED BUILDING
- PROPOSED STORM INLET AND MANHOLE
- PROPOSED STORM SEWER
- OFF SITE FLOW PATH

REFERENCES

1. EXISTING SITE FEATURES AND UTILITIES ARE BASED ON A COMBINATION OF SURVEY PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. (CEC) DATED 07-14-2025 THROUGH 10-22-2025 AND ALTA SURVEY COMPLETED 10-30-2025 BY CEC.
2. PLAN NORTH IS BASED ON PENNSYLVANIA STATE PLAN NAD83-2011, NORTH ZONE, AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
3. VERTICAL DATUM IS BASED ON NAVD88 (GEOID 18), AS DETERMINED BY CEC USING SURVEY GRADE GPS MEASUREMENTS AND OPUS POST-PROCESSING.
4. STREAM AND WETLAND DELINEATION PERFORMED BY CEC ON 07-11-2025.
5. PROPERTY IS LOCATED IN FLOOD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS DEPICTED ON FLOOD INSURANCE RATE MAP 42085C0307D, EFFECTIVE DATE 06-09-2014, MERCER COUNTY COUNTY, PENNSYLVANIA. THIS STATEMENT DOES NOT GUARANTEE THAT THE SUBJECT PROPERTY WILL OR WILL NOT FLOOD.
6. EXISTING CONTOURS ARE DERIVED FROM PENNSYLVANIA SPATIAL DATA ACCESS (PASDA) 2 AND 10 CONTOURS DATED 2006-2008.
7. SUBSTATION LAYOUT PROVIDED BY ASPLUNDH ENGINEERING SERVICES ON 02-4-2026.
8. CLARK STREET IS A PADOT STREET PER MERCER COUNTY 10 MAP PREPARED BY THE PADOT DATED 2024
9. AERIAL PHOTOGRAPHY PROVIDED BY GOOGLE EARTH, ACCESS THROUGH FROM PLEX EARTH ON 01/28/2026. DATE OF PHOTOGRAPHY 10-02-2024.
10. APPROXIMATE GROUND WATER MONITORING WELL LOCATIONS ARE BASED ON THE DIGITIZATION OF AN EXHIBIT ISSUED BY ENVIRON 04/30/2014, AND FIELD SURVEY BY CEC IF ABOVE GROUND EVIDENCE WAS OBSERVED AND SHOULD NOT BE CONSIDERED ACCURATE.

SCALE IN FEET
0 100 200

REVISION RECORD		
NO	DATE	DESCRIPTION

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF PA WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC.

700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 · 800.365.2324
www.cecinc.com

Civil & Environmental Consultants, Inc.

MERCER NODE, LLC
MERCER NODE DEVELOPMENT
200-201 CLARK STREET
CITY OF SHARON
MERCER COUNTY, PA

OFF SITE FLOW PATH EXHIBIT

DATE:	APRIL 2026
DWG SCALE:	1" = 100'
PROJECT NO:	353-024
APPROVED BY:	DRAFT
DRAWN BY:	JBH
CHECKED BY:	DRAFT

DRAWING NO.: **1**

P:\350-001\353-024\-CAD\Dwg\Exhibits\353024-CV02-C400-Erosion Potential Analysis.dwg[1 (24)(5/2026 - bhayes) - LP: 4/6/2026 2:52 PM