STORMWATER MANAGEMENT PLAN WITH STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
ADDENDUM #1

WIND COLEBROOK SOUTH

COLEBROOK, CONNECTICUT

Prepared for:

BNE Energy Inc.
Producer of green clean energy

BNE Energy
17 Flagg Hill Road
Colebrook, CT 06021

by:

CIVIL 1
Civil Engineers

CIVIL 1
43 Sherman Hill Road
Suite D-101
Woodbury, CT 06798

DECEMBER 2019

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APPENDICES

Contact Information / Responsible Parties:

Permitted:
BNE Energy
17 Flagg Hill Road
Colebrook, CT 06021
(800) 450-0503

Contractor Co-Permittee:
To be determined

Contractor Operator(s):
To be determined

Stormwater Manager and SWPPP Contact(s):
BNE Energy
17 Flagg Hill Road
Colebrook, CT 06021
(800) 450-0503

This SWPPP was prepared by:
Curt Jones, P.E.
Civil 1
43 Sherman Hill Road
Suite D-101
Woodbury, CT 06798

Section 1.0

PROJECT INTRODUCTION

1.1 SITE SUMMARY

1.1.1 Existing Conditions & Project History

In 2012, the project was brought before the Connecticut Siting Council (CSC) for the approval of three GE 1.6 MW wind turbines on the property at 29 Flagg Hill Road. At that time, the property consisted of approximately 80 acres and was undeveloped. The property is located along the Norfolk town line and approximately 600 feet from the Winsted/Winchester town line. The property is located in the R-2 residential zone and abutted by the undeveloped land owned by the Nature Conservancy to the west, land owned by the Gun Club to the north and residential properties to the east and south.

Upon the approval from the CSC, two of the wind turbines and approximately 2,500 linear feet of access road from Flagg Hill Road were constructed. The wind turbines are currently operating as designed. The storm drainage and stormwater detention areas for the two wind turbines are also complete, stabilized, and functioning properly. One of the existing stormwater detention/water quality basins is located near Flagg Hill Road at the entrance of the access drive. The other existing stormwater detention/water quality basin is located just to the south of Turbine #1. The discharge points from the site are consistent with the approval.

Currently, the property owner has an option to purchase additional land immediately to the south of the current property. This will add approximately 37.2 acres of property and allow for the relocation of proposed Turbine #3 to minimize wetland and environmental impacts.

1.1.2 Project Description

The developer plans to install the third wind turbine at a revised location based upon the acquisition of approximately 37.2 acres of property to the south of the currently developed site.

The location of Turbine #3 previously approved by the CSC is in the northwest corner of the property. To access this location, there was approximately 4,250 square feet of activity within the wetland boundary proposed and approved. With the additional property acquired to the south, the access drive to Turbine #3 will be relocated to an area requiring approximately 2,320 square feet of activity within the wetland boundary. This is a significant reduction in the footprint of the disturbance within the wetlands from the previously approved location. The new turbine location is approximately 1,027’ from the nearest residence and the access road has been designed in accordance with the same concepts and recommendations as the previously approved layout by the CSC. Additionally, the previous crossing location was approximately 500’ from the closest vernal pool on the site and within the 750’ protective envelope suggested for vernal pools. The new location is approximately 930’ (430’ further) away from the on-site vernal pools and entirely outside of the 750’ protective boundary. The revised location for Turbine #3 minimizes environmental and wetland impacts and provides a more suitable location for the placement of the turbine as it relates to efficiency and production.

In addition to the turbine itself, the project will include construction of a temporary equipment lay-down area, crane assembly area, stormwater management features, and approximately 2,650 linear feet of access drive. Following completion of the project, all temporary structures will be removed and the site returned to pre-construction conditions.

Section 2.0

CONSTRUCTION ACTIVITIES

2.0 CONSTRUCTION ACTIVITIES

2.2 CONSTRUCTION SITE ESTIMATES

The following are estimates of the additional construction site as it pertains to the installation of Turbine #3 and the construction of the additional access drive:

Area to be disturbed: 8.45 ac.
Total Project area: 117.15 acres (80.0 acres on the original property + 37.15 acres acquired)
Total Estimated Cut: 13,780 CY
Total Estimated Fill: 13,200 CY*
*See Sheet C600 of plan set for materials
Percentage impervious area before construction: 2.36%
Runoff coefficient before construction: 61.7
Percentage impervious area after construction: 3.47 %
Runoff coefficient after construction: 62.2
Summary of peak flows: See 2.3.3
Summary of groundwater recharge: 0.026 AC-FT

2.3 PROPOSED STORMWATER MANAGEMENT PRACTICES

2.3.3 Pre- and Post-Development Stormwater Flows (Turbine #3 Drainage Area)

	Area (Acres)	Runoff Curve Number (CN)
Existing Drainage Area 3 -	11.65	68
Proposed Drainage Area 3 -	11.65	70
Existing Drainage Area 6 -	9.02	55
Proposed Drainage Area 6 -	9.30	58
Existing Drainage Area 7 -	6.40	55
Proposed Drainage Area 7 -	6.13	57

	Storm Interval (DL-3)				
	2yr.	10yr.	25yr.	50yr.	100yr
Existing Flow (cfs)	4.79	12.44	20.33	27.41	36.03
Proposed Flow (cfs)	3.93	10.76	16.97	22.60	34.46

Storm Interval (DL-6)

	2yr.	10yr.	25yr.	50yr.	100yr
Existing Flow (cfs)	0.58	4.19	8.45	13.00	18.94
Proposed Flow (cfs)	0.55	2.80	5.56	9.07	15.86

Storm Interval (DL-7)

	2yr.	10yr.	25yr.	50yr.	100yr
Existing Flow (cfs)	0.42	3.08	6.23	9.56	13.93
Proposed Flow (cfs)	0.38	2.38	4.89	7.87	12.16

Section 6.0

SWPPP APPENDICES

6.0 SWPPP APPENDICES

Attach the following documentation to the SWPPP in the following appendices.

Appendix B – Certifications

- Preparer
- Permittee or Co-Permittee
- Operator
- Inspector

Appendix D – Maps and Drawings

- Site Plans for Turbine #3 Construction (under separate cover)
- Drainage Area Map
- Hydrologic Soil Group Data

Appendix K – Supporting Calculations

- Existing Drainage Flows
- Proposed Drainage Flows
- Water Quality Calculations
- Swale & Pipe Capacity Calculations
- Outlet Protection Calculations
- Temporary Sizing Trap Calculations

APPENDIX B
CERTIFICATIONS

PREPARER'S CERTIFICATION

Project:	Wind Colebrook South
Project Location:	29 Flagg Hill Road Colebrook, Connecticut
Permittee:	BNE Energy
	17 Flagg Hill Road Colebrook, CT 06021 (800) 450-0503
Contractor:	To Be Determined
Preparer:	Curt Jones, PE
	Civil 1 43 Sherman Hill Road Suite D-101 Woodbury, CT 06798
Phone:	704-358-8240
Fax:	704-358-8342

Certification Statement:
I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and in my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements.

Name:	Curt Jones, PE
Company:	Civil 1
Title:	Civil Engineer
Signature:	
Date:	

CONTRACTOR / CO-PERMITTEE CERTIFICATION

Project:	Wind Colebrook South
Project Location:	29 Flagg Hill Road Colebrook, Connecticut
Contractor:	
Address:	
Phone:	
Fax:	

Certification Statement:
I certify by my signature below that I participated in a pre-construction conference with the individual who is responsible for the operational control of this Stormwater Pollution Prevention Plan (SWPPP). I accept the terms and conditions of this SWPPP as required by the general National Pollutant Discharge Elimination System issued to the Owner/Operator of the construction activity for which I have been contracted to perform construction related professional services. Further, by my signature below, I understand that I am becoming a Co-permittee with the Owner/Operator and other contractors that have become Co-permittees to the general NPDES permit issued to the Owner/Operator of the facility for which I have been contracted to perform professional construction services. As a Co-permittee, I understand that I, and my company, as the case may be, am legally accountable to the Connecticut Department Environmental Protection to ensure compliance with the terms and conditions of this SWPPP. I also understand that DEP enforcement actions may be taken against any specific Co-permittee or combination of Co-permittees if the terms and conditions of this SWPPP are not met. Therefore, having understood the above information, I am signing this certification and am receiving Co-permittee status to the aforementioned general NPDES permit.

Company Official's Signature:

Name: _____ Title: _____
(Please print) (Please print)

Signature: _____ Date: _____

CONTRACTOR / OPERATOR CERTIFICATION

Project:	Wind Colebrook South
Project Location:	29 Flagg Hill Road Colebrook, Connecticut
Contractor:	
Address:	
Phone:	
Fax:	

Certification Statement:
I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I certify that this permit registration is on complete and accurate forms as prescribed by the commissioner without alteration of the text. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Bureau of Materials Management & Compliance Assurance DEP-PED-GP-015 10 of 24 Connecticut General Statutes, and in accordance with any other applicable statute. I also certify under penalty of law that I have read and understand all conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), that all conditions for eligibility for authorization under the general permit are met, all terms and conditions of the general permit are being met for all discharges which have been initiated and are the subject of this registration, and that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly making false statements.

Corporate Official's Signature:

Name: _____ Title: _____
(Please print) (Please print)

Signature: _____ Date: _____

INSPECTOR CERTIFICATION

Project:	Wind Colebrook South
Project Location:	29 Flagg Hill Road Colebrook, Connecticut
Contractor:	
Address:	
Phone:	
Fax:	

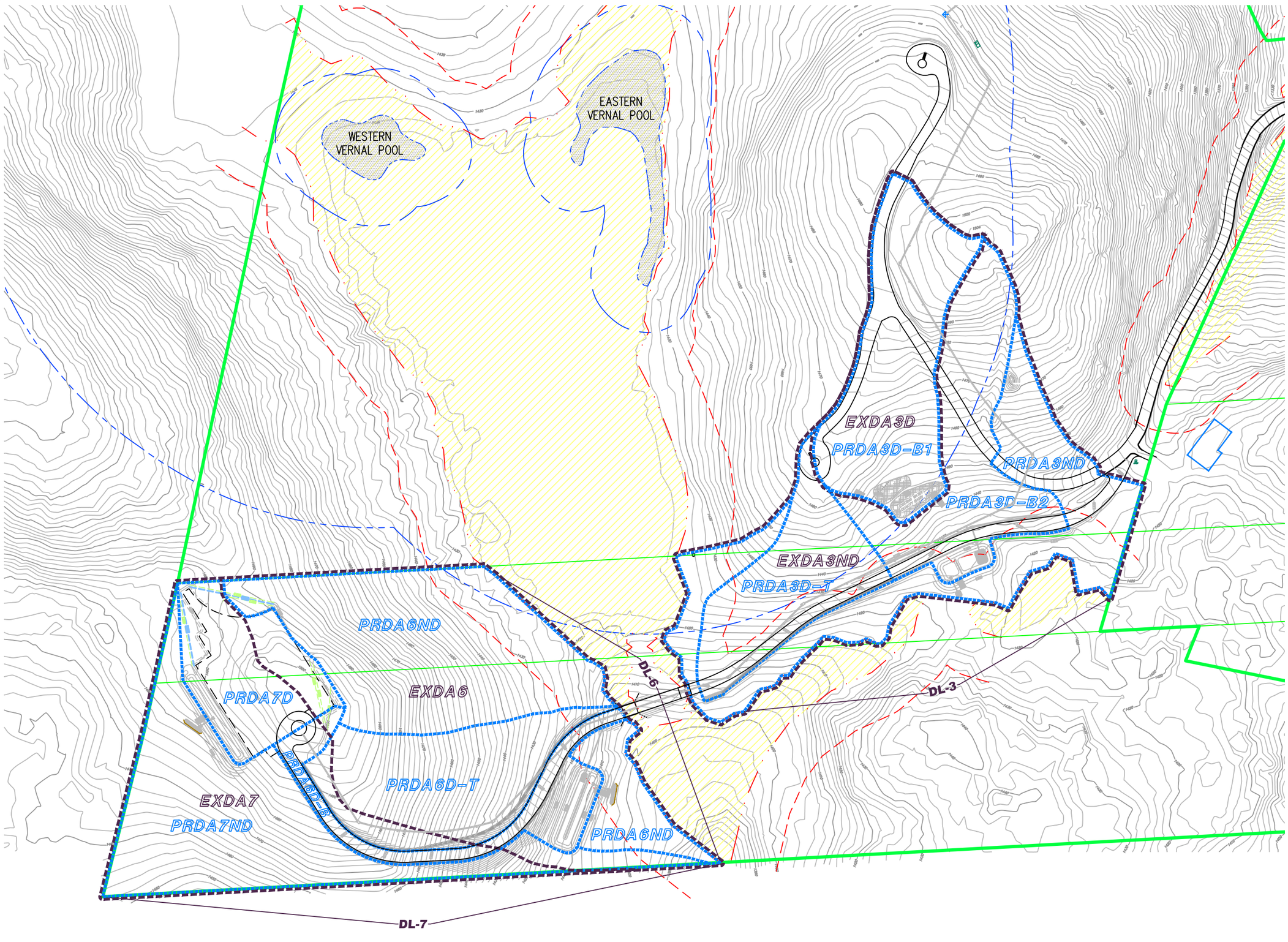
Certification Statement:
I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the site. I further certify, based on such review and in my professional judgment, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and the conditions for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities issued on October 1, 2002 (or as reissued or modified), and the controls required for such Plan are appropriate for the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements.

Inspector's Signature:

Name: _____ Title: _____
(Please print) (Please print)

Signature: _____ Date: _____

APPENDIX D
MAPS AND DRAWINGS



NO.	REVISION	DATE
1	ACCESS DRIVE REVISED	17 DEC 19

Previous Editions Obsolete

0 100 200

1 inch = 200 ft.

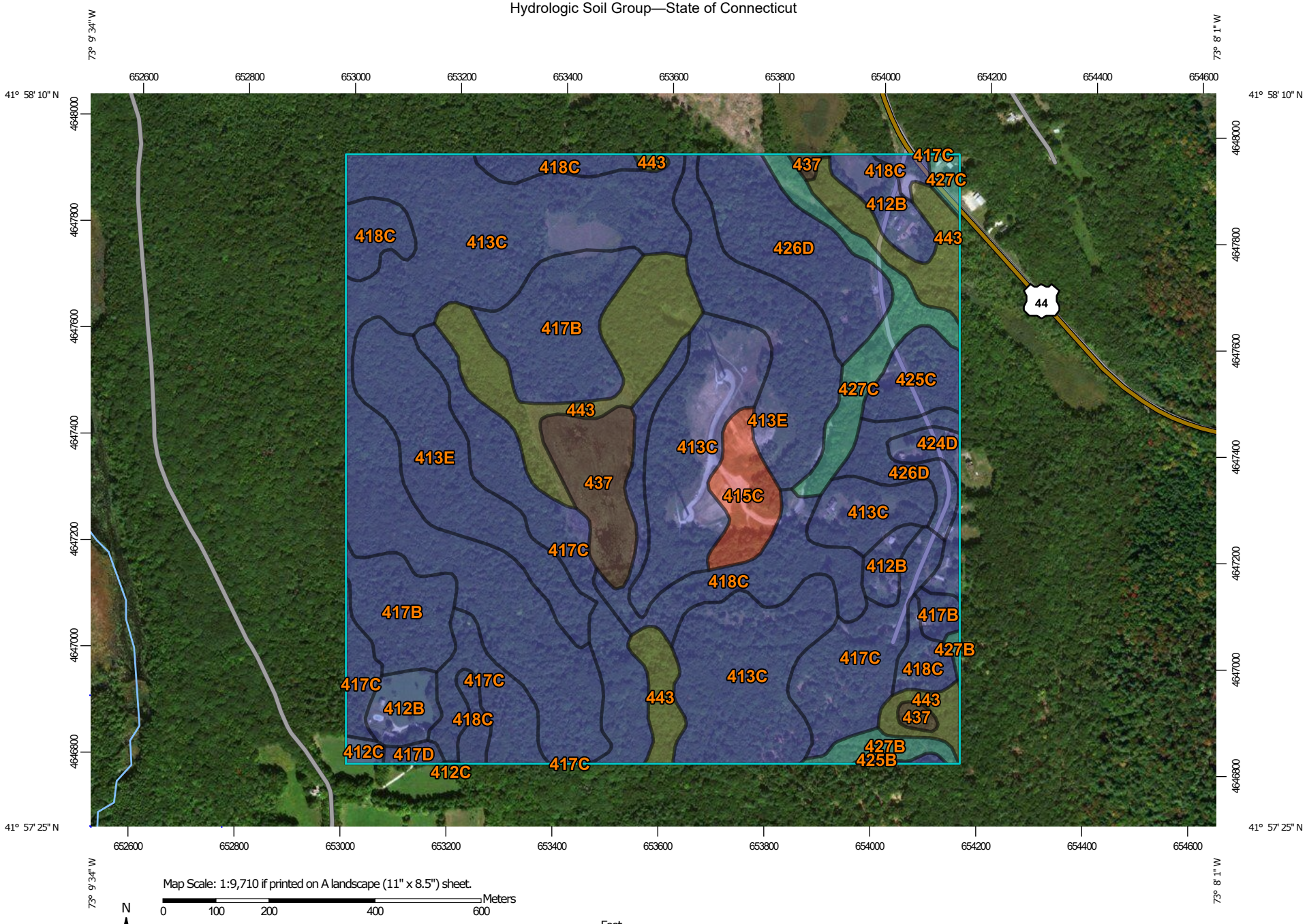
BNE ENERGY INC.
17 FLAGG HILL ROAD
COLEBROOK, CT 06021

DRAINAGE AREA MAP

WIND COLEBROOK SOUTH
FLAGG HILL ROAD
COLEBROOK CONNECTICUT

CIVIL 1
CORNERSTONE PROFESSIONAL PARK, SUITE D-101
43 SHERMAN HILL ROAD
WOODBURY (203) 266 - 0778 CONNECTICUT

DRAWN:	SC
APPROVED:	CJ
SCALE:	1" = 200'
DATE:	15 NOV 19
PROJ. NO.:	3092 ARCH D
CADD FILE NAME:	3092 ARCH D
DRAWING NO.:	DA


73° 9' 34" W
73° 8' 1" W
41° 58' 10" N
41° 57' 25" N
652600
652800
653000
653200
653400
653600
653800
654000
654200
654400
654600
4648000
4647800
4647600
4647400
4647200
4647000
4646800
418C
443
437
417C
418C
427C
412B
418C
413C
426D
443
44
417B
427C
425C
443
413E
413C
424D
413E
437
426D
415C
413C
417C
412B
418C
417B
417B
427B
417C
418C
417C
417C
413C
443
412B
418C
443
437
412C
417D
427B
412C
417C
425B
Map Scale: 1:9,710 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
100
200
400
600
Feet
0
450
900
1800
2700
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N 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 1:12,000.

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: State of Connecticut
Survey Area Data: Version 19, Sep 13, 2019

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

Date(s) aerial images were photographed: Jul 2, 2015—Oct 5, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
412B	Bice fine sandy loam, 3 to 8 percent slopes	B	11.0	3.3%
412C	Bice fine sandy loam, 8 to 15 percent slopes	B	0.8	0.3%
413C	Bice-Millsite complex, 3 to 15 percent slopes, very rocky	B	101.1	30.7%
413E	Bice-Millsite complex, 15 to 45 percent slopes, very rocky	B	35.8	10.9%
415C	Westminster-Millsite-Rock outcrop complex, 3 to 15 percent slopes	D	6.4	2.0%
417B	Bice fine sandy loam, 3 to 8 percent slopes, very stony	B	24.7	7.5%
417C	Bice fine sandy loam, 8 to 15 percent slopes, very stony	B	38.3	11.6%
417D	Bice fine sandy loam, 15 to 25 percent slopes, very stony	B	1.0	0.3%
418C	Schroon fine sandy loam, 2 to 15 percent slopes, very stony	B	26.9	8.2%
424D	Shelburne fine sandy loam, 15 to 25 percent slopes	B	3.5	1.1%
425B	Shelburne fine sandy loam, 3 to 8 percent slopes, very stony	B	0.5	0.1%
425C	Shelburne fine sandy loam, 8 to 15 percent slopes, very stony	B	5.7	1.7%
426D	Shelburne fine sandy loam, 15 to 35 percent slopes, extremely stony	B	20.3	6.2%
427B	Ashfield fine sandy loam, 2 to 8 percent slopes, very stony	C	3.0	0.9%
427C	Ashfield fine sandy loam, 8 to 15 percent slopes, very stony	C	10.8	3.3%
437	Wonsqueak muck, 0 to 2 percent slopes	B/D	10.4	3.2%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
443	Brayton-Loonmeadow complex, extremely stony	C/D	29.2	8.9%
Totals for Area of Interest			**329.5**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX K
SUPPORTING CALCULATIONS

EXTREME PRECIPITATION TABLE

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	Connecticut
Location	
Longitude	72.610 degrees West
Latitude	41.670 degrees North
Elevation	0 feet
Date/Time	Wed, 13 Nov 2019 08:56:51 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.47	0.58	0.77	0.96	1.20	**1yr**	0.83	1.09	1.38	1.71	2.13	2.64	2.96	**1yr**	2.34	2.84	3.30	3.95	4.57	**1yr**
2yr	0.37	0.57	0.70	0.93	1.17	1.46	**2yr**	1.01	1.36	1.69	2.10	2.60	3.22	3.57	**2yr**	2.85	3.43	3.95	4.72	5.36	**2yr**
5yr	0.43	0.67	0.84	1.13	1.44	1.83	**5yr**	1.25	1.67	2.11	2.63	3.25	4.01	4.50	**5yr**	3.55	4.33	5.02	5.92	6.70	**5yr**
10yr	0.48	0.76	0.96	1.30	1.69	2.16	**10yr**	1.46	1.94	2.51	3.13	3.86	4.74	5.37	**10yr**	4.19	5.16	6.02	7.02	7.94	**10yr**
25yr	0.57	0.90	1.15	1.58	2.09	2.69	**25yr**	1.81	2.37	3.13	3.91	4.83	5.91	6.78	**25yr**	5.23	6.52	7.67	8.81	9.94	**25yr**
50yr	0.63	1.02	1.30	1.83	2.46	3.20	**50yr**	2.13	2.77	3.74	4.66	5.74	6.99	8.10	**50yr**	6.19	7.79	9.22	10.46	11.79	**50yr**
100yr	0.73	1.17	1.51	2.14	2.90	3.79	**100yr**	2.51	3.23	4.43	5.54	6.81	8.27	9.68	**100yr**	7.32	9.30	11.09	12.43	13.99	**100yr**
200yr	0.82	1.34	1.73	2.48	3.42	4.50	**200yr**	2.96	3.78	5.27	6.59	8.08	9.79	11.56	**200yr**	8.67	11.12	13.34	14.77	16.60	**200yr**
500yr	0.98	1.61	2.10	3.05	4.27	5.64	**500yr**	3.68	4.65	6.63	8.28	10.15	12.25	14.65	**500yr**	10.84	14.09	17.04	18.58	20.85	**500yr**

Lower Confidence Limits

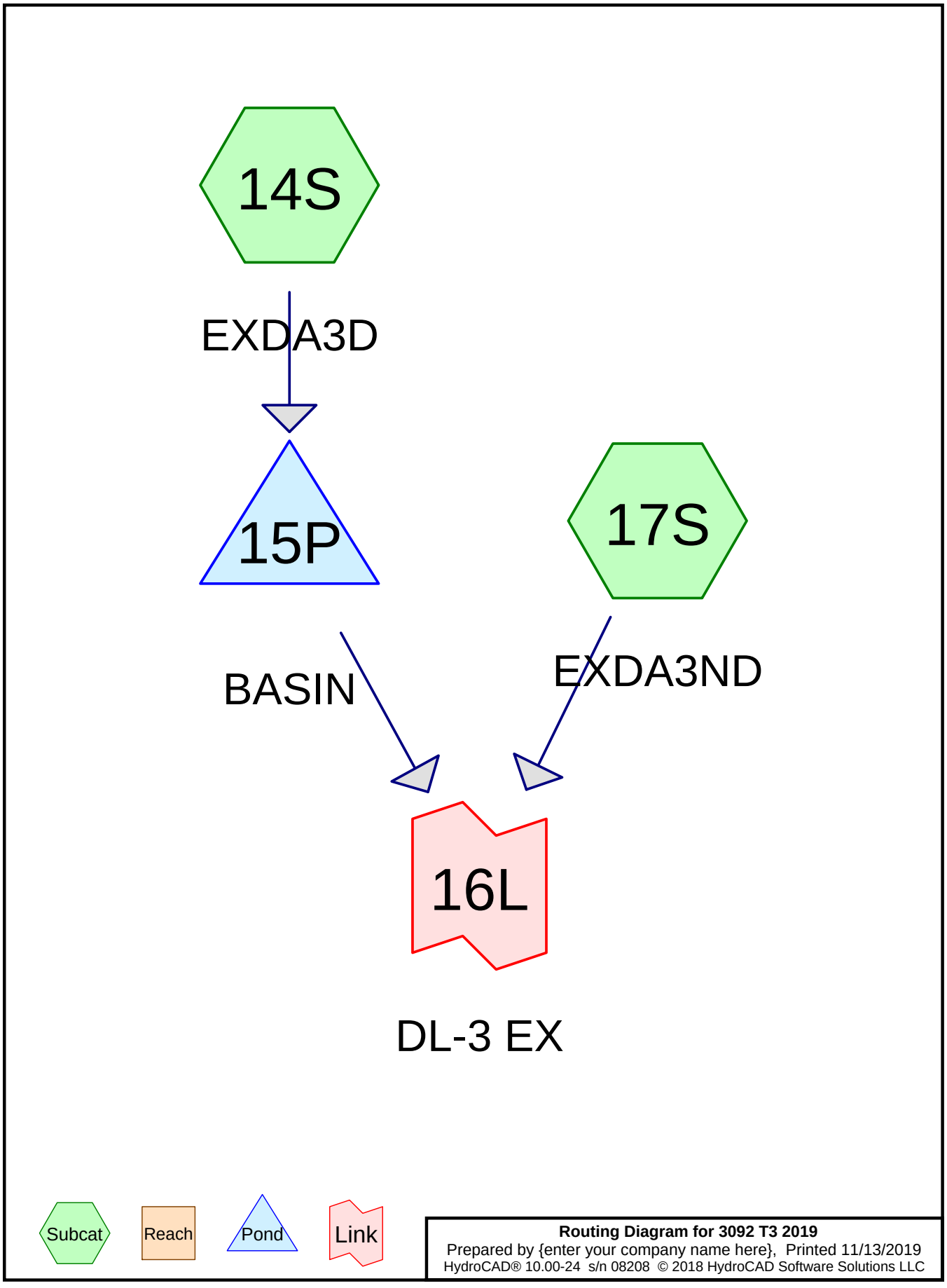
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.39	0.47	0.64	0.78	0.97	**1yr**	0.68	0.95	1.13	1.47	1.96	2.44	2.77	**1yr**	2.16	2.66	3.08	3.70	3.99	**1yr**
2yr	0.35	0.54	0.66	0.90	1.11	1.37	**2yr**	0.96	1.34	1.54	2.01	2.53	3.14	3.48	**2yr**	2.78	3.34	3.84	4.59	5.23	**2yr**
5yr	0.40	0.62	0.77	1.06	1.35	1.60	**5yr**	1.17	1.57	1.83	2.36	2.97	3.79	4.22	**5yr**	3.36	4.06	4.69	5.54	6.26	**5yr**
10yr	0.45	0.69	0.86	1.20	1.54	1.82	**10yr**	1.33	1.78	2.05	2.67	3.34	4.35	4.90	**10yr**	3.85	4.71	5.44	6.36	7.11	**10yr**
25yr	0.52	0.79	0.98	1.41	1.85	2.14	**25yr**	1.60	2.09	2.44	3.15	3.93	5.23	5.96	**25yr**	4.63	5.73	6.67	7.64	8.48	**25yr**
50yr	0.57	0.87	1.09	1.56	2.10	2.43	**50yr**	1.81	2.38	2.76	3.58	4.44	6.03	7.02	**50yr**	5.34	6.75	7.78	8.79	9.68	**50yr**
100yr	0.64	0.97	1.21	1.75	2.40	2.78	**100yr**	2.07	2.72	3.14	4.08	5.02	6.97	8.21	**100yr**	6.17	7.89	9.23	10.12	11.07	**100yr**
200yr	0.71	1.07	1.36	1.97	2.75	3.16	**200yr**	2.37	3.09	3.57	4.68	5.70	8.08	9.61	**200yr**	7.15	9.24	10.86	11.66	12.65	**200yr**
500yr	0.84	1.25	1.60	2.33	3.31	3.66	**500yr**	2.86	3.58	4.26	5.61	6.76	9.82	11.87	**500yr**	8.69	11.41	13.48	14.10	15.35	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.34	0.52	0.63	0.85	1.05	1.24	**1yr**	0.90	1.21	1.43	1.81	2.33	2.80	3.11	**1yr**	2.48	2.99	3.49	4.16	4.80	**1yr**
2yr	0.38	0.59	0.73	0.99	1.22	1.45	**2yr**	1.05	1.41	1.64	2.14	2.70	3.31	3.69	**2yr**	2.93	3.54	4.08	4.90	5.56	**2yr**
5yr	0.46	0.71	0.88	1.20	1.53	1.79	**5yr**	1.32	1.75	2.08	2.72	3.44	4.24	4.83	**5yr**	3.75	4.64	5.41	6.35	7.14	**5yr**
10yr	0.54	0.82	1.02	1.43	1.85	2.14	**10yr**	1.59	2.09	2.50	3.28	4.15	5.15	5.92	**10yr**	4.56	5.69	6.68	7.80	8.71	**10yr**
25yr	0.68	1.04	1.29	1.84	2.42	2.69	**25yr**	2.09	2.63	3.20	4.19	5.32	6.62	7.75	**25yr**	5.86	7.45	8.84	10.21	11.27	**25yr**
50yr	0.81	1.23	1.53	2.20	2.96	3.19	**50yr**	2.55	3.12	3.85	5.03	6.40	8.00	9.37	**50yr**	7.08	9.01	10.94	12.52	13.72	**50yr**
100yr	0.96	1.45	1.82	2.63	3.61	3.85	**100yr**	3.11	3.76	4.64	6.06	7.73	9.66	11.44	**100yr**	8.55	11.00	13.36	15.33	16.71	**100yr**
200yr	1.15	1.72	2.19	3.16	4.41	4.58	**200yr**	3.81	4.47	5.58	7.29	9.33	11.68	13.97	**200yr**	10.33	13.44	16.48	18.78	20.35	**200yr**
500yr	1.45	2.16	2.78	4.05	5.75	5.91	**500yr**	4.96	5.78	7.14	9.31	11.97	14.99	18.17	**500yr**	13.26	17.48	21.75	24.56	26.13	**500yr**

Powered by ACIS Northeast Regional Climate Center

EXISTING STORMWATER FLOWS



Routing Diagram for 3092 T3 2019

Prepared by {enter your company name here}, Printed 11/13/2019

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 804 CT Litchfield

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.542	96	Gravel surface, HSG B (14S, 17S)
0.289	96	Gravel surface, HSG D (14S, 17S)
1.283	58	Meadow, non-grazed, HSG B (14S, 17S)
1.486	78	Meadow, non-grazed, HSG D (14S, 17S)
4.498	55	Woods, Good, HSG B (14S, 17S)
3.557	77	Woods, Good, HSG D (14S, 17S)
11.654	**68**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.323	HSG B	14S, 17S
0.000	HSG C	
5.331	HSG D	14S, 17S
0.000	Other	
11.654		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.542	0.000	0.289	0.000	0.831	Gravel surface	14S, 17S
0.000	1.283	0.000	1.486	0.000	2.769	Meadow, non-grazed	14S, 17S
0.000	4.498	0.000	3.557	0.000	8.054	Woods, Good	14S, 17S
0.000	**6.323**	**0.000**	**5.331**	**0.000**	**11.654**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 14S: EXDA3D Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>0.92"
Tc=7.8 min CN=72 Runoff=3.19 cfs 0.241 af

Subcatchment 17S: EXDA3ND Runoff Area=371,170 sf 0.00% Impervious Runoff Depth>0.68"
Tc=18.0 min CN=67 Runoff=4.09 cfs 0.481 af

Pond 15P: BASIN Peak Elev=1,444.37' Storage=2,878 cf Inflow=3.19 cfs 0.241 af
Outflow=0.75 cfs 0.229 af

Link 16L: DL-3 EX Inflow=4.79 cfs 0.710 af
Primary=4.79 cfs 0.710 af

Total Runoff Area = 11.654 ac Runoff Volume = 0.721 af Average Runoff Depth = 0.74"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 14S: EXDA3D

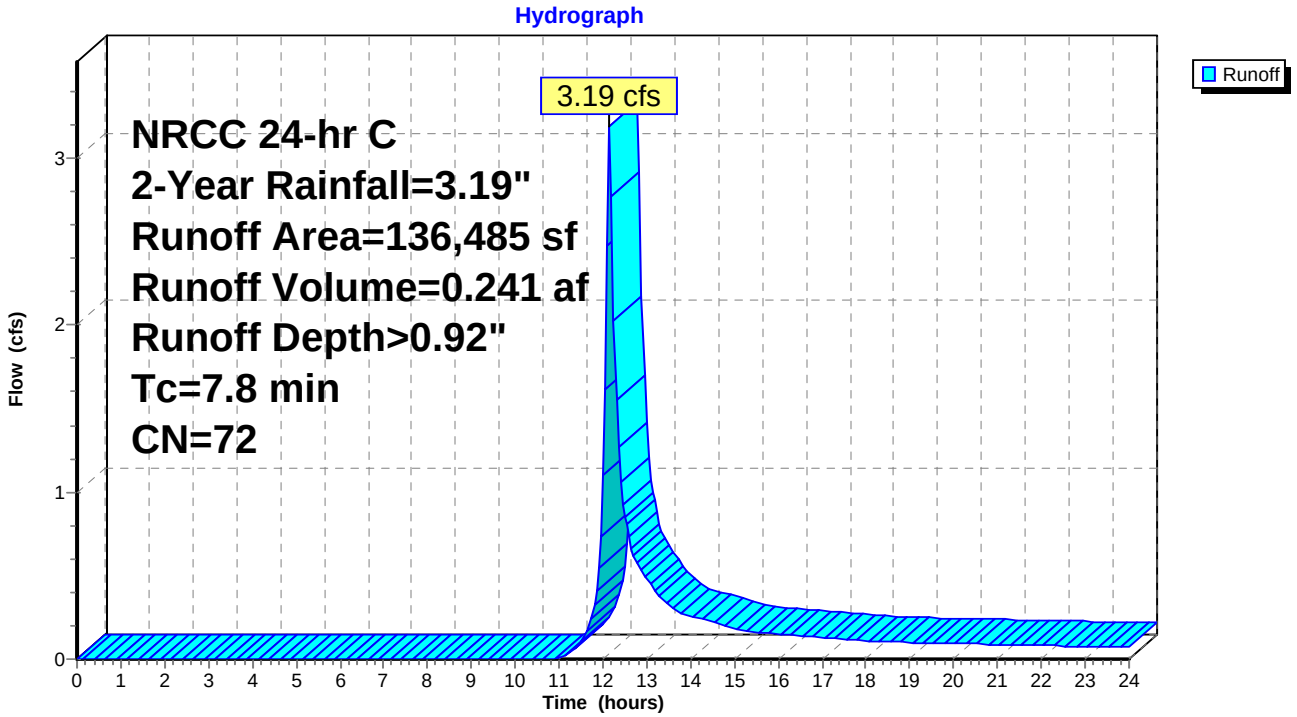
Runoff = 3.19 cfs @ 12.16 hrs, Volume= 0.241 af, Depth> 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 14S: EXDA3D



Summary for Subcatchment 17S: EXDA3ND

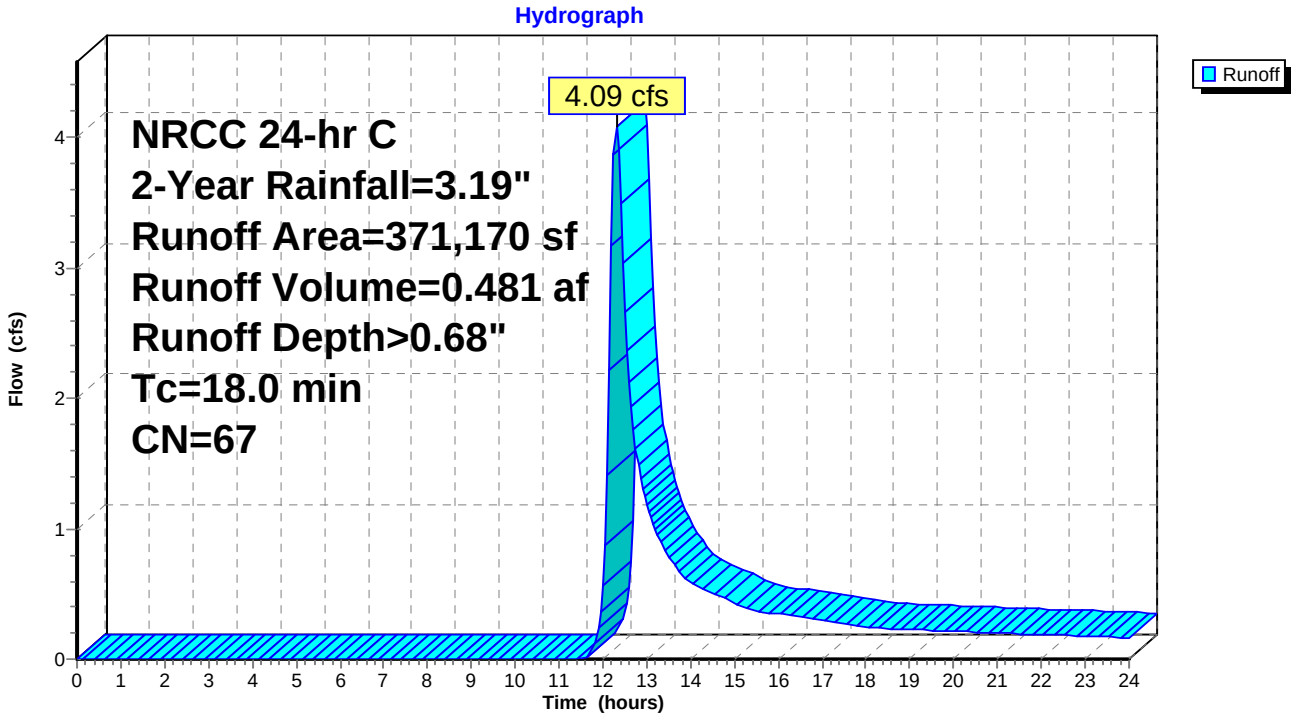
Runoff = 4.09 cfs @ 12.30 hrs, Volume= 0.481 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
181,385	55	Woods, Good, HSG B
112,670	77	Woods, Good, HSG D
11,465	58	Meadow, non-grazed, HSG B
51,600	78	Meadow, non-grazed, HSG D
4,510	96	Gravel surface, HSG B
9,540	96	Gravel surface, HSG D
371,170	67	Weighted Average
371,170		100.00% Pervious Area

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

Subcatchment 17S: EXDA3ND



Summary for Pond 15P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 0.92" for 2-Year event
Inflow = 3.19 cfs @ 12.16 hrs, Volume= 0.241 af
Outflow = 0.75 cfs @ 12.59 hrs, Volume= 0.229 af, Atten= 77%, Lag= 26.0 min
Primary = 0.75 cfs @ 12.59 hrs, Volume= 0.229 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,444.37' @ 12.59 hrs Surf.Area= 3,652 sf Storage= 2,878 cf

Plug-Flow detention time= 67.8 min calculated for 0.229 af (95% of inflow)
Center-of-Mass det. time= 43.5 min (926.5 - 883.0)

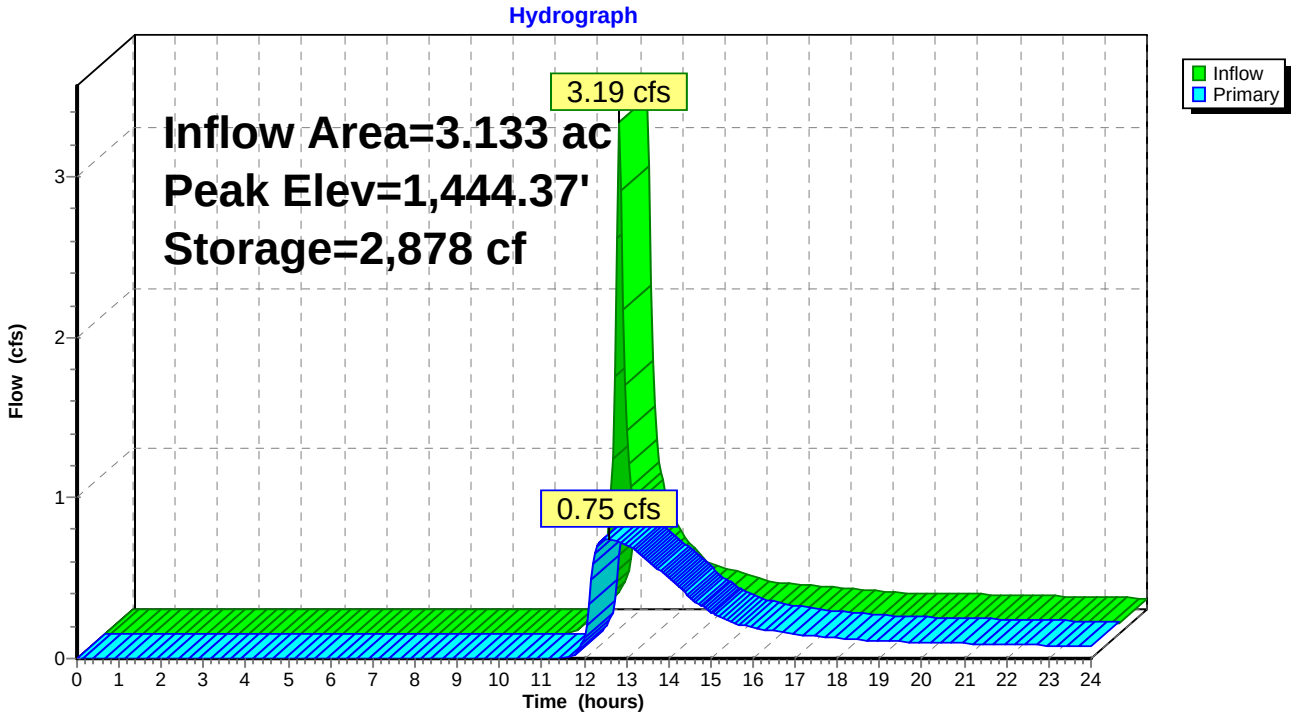
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	18,508 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	2,942	0	0
1,445.50	4,570	7,512	7,512
1,447.50	6,426	10,996	18,508

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.75 cfs @ 12.59 hrs HW=1,444.37' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 0.75 cfs @ 3.80 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 15P: BASIN

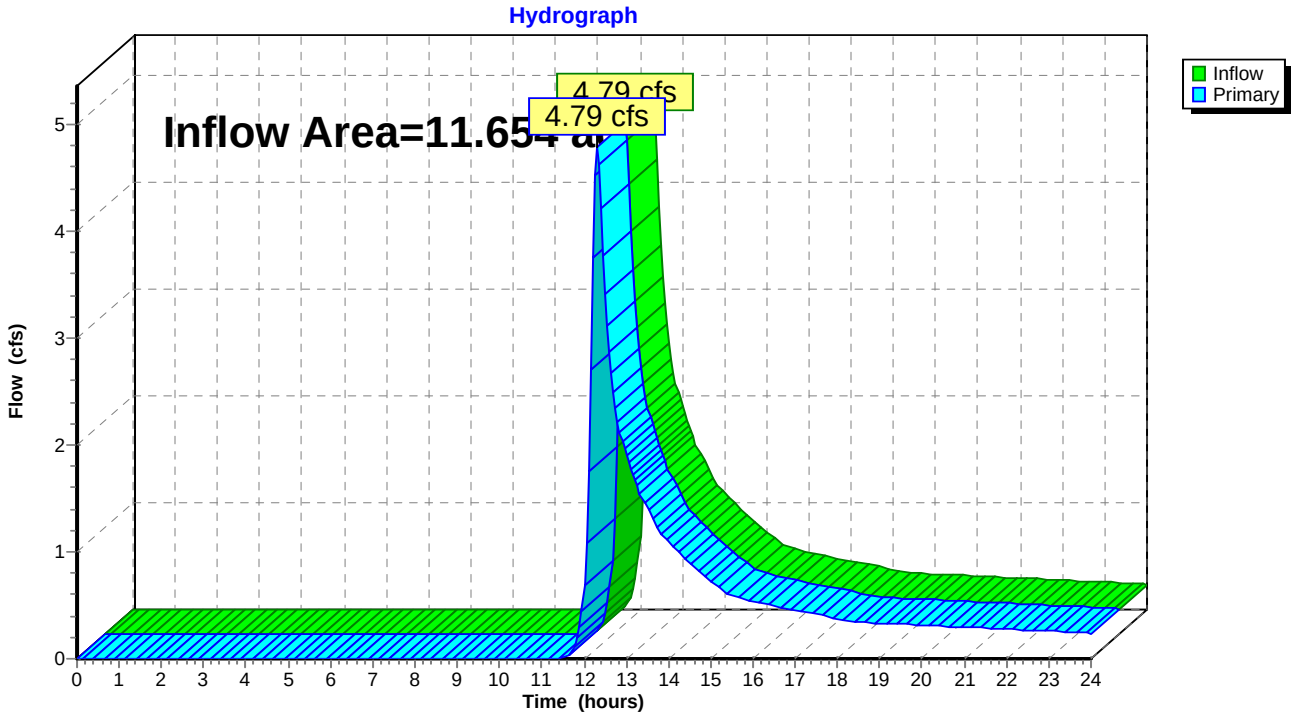


Summary for Link 16L: DL-3 EX

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 0.73" for 2-Year event
Inflow = 4.79 cfs @ 12.31 hrs, Volume= 0.710 af
Primary = 4.79 cfs @ 12.31 hrs, Volume= 0.710 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 16L: DL-3 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 14S: EXDA3D Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>1.98"
Tc=7.8 min CN=72 Runoff=7.18 cfs 0.517 af

Subcatchment 17S: EXDA3ND Runoff Area=371,170 sf 0.00% Impervious Runoff Depth>1.60"
Tc=18.0 min CN=67 Runoff=11.01 cfs 1.137 af

Pond 15P: BASIN Peak Elev=1,445.40' Storage=7,058 cf Inflow=7.18 cfs 0.517 af
Outflow=1.73 cfs 0.502 af

Link 16L: DL-3 EX Inflow=12.44 cfs 1.639 af
Primary=12.44 cfs 1.639 af

Total Runoff Area = 11.654 ac Runoff Volume = 1.654 af Average Runoff Depth = 1.70"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 14S: EXDA3D

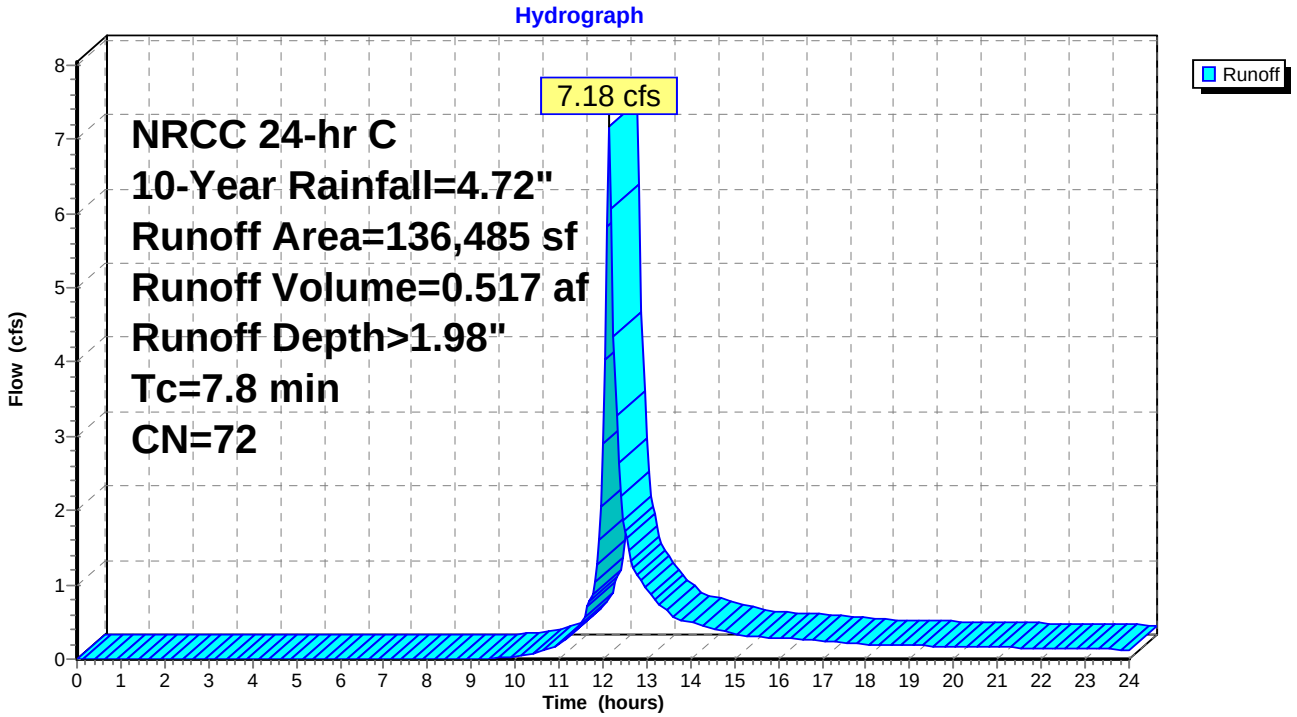
Runoff = 7.18 cfs @ 12.15 hrs, Volume= 0.517 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 14S: EXDA3D



Summary for Subcatchment 17S: EXDA3ND

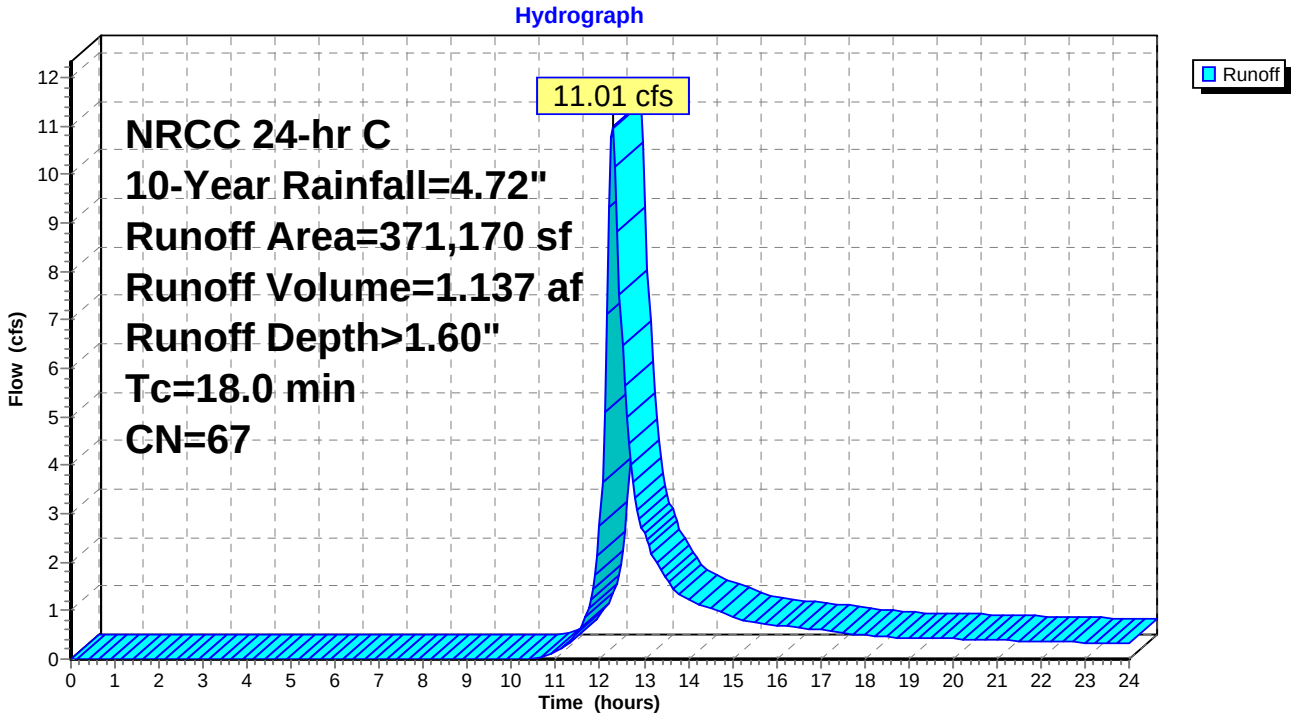
Runoff = 11.01 cfs @ 12.28 hrs, Volume= 1.137 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
181,385	55	Woods, Good, HSG B
112,670	77	Woods, Good, HSG D
11,465	58	Meadow, non-grazed, HSG B
51,600	78	Meadow, non-grazed, HSG D
4,510	96	Gravel surface, HSG B
9,540	96	Gravel surface, HSG D
371,170	67	Weighted Average
371,170		100.00% Pervious Area

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

Subcatchment 17S: EXDA3ND



Summary for Pond 15P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 1.98" for 10-Year event
Inflow = 7.18 cfs @ 12.15 hrs, Volume= 0.517 af
Outflow = 1.73 cfs @ 12.50 hrs, Volume= 0.502 af, Atten= 76%, Lag= 21.0 min
Primary = 1.73 cfs @ 12.50 hrs, Volume= 0.502 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,445.40' @ 12.50 hrs Surf.Area= 4,488 sf Storage= 7,058 cf

Plug-Flow detention time= 70.3 min calculated for 0.502 af (97% of inflow)
Center-of-Mass det. time= 53.8 min (911.3 - 857.5)

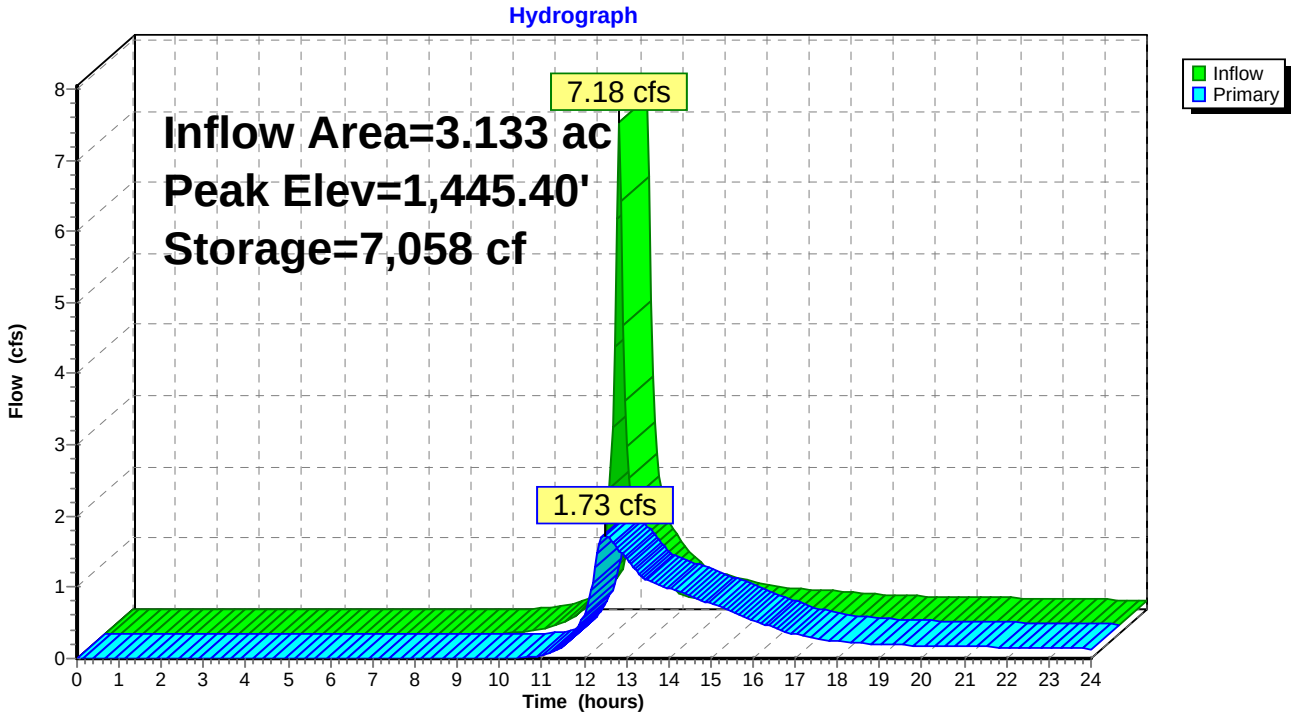
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	18,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	2,942	0	0
1,445.50	4,570	7,512	7,512
1,447.50	6,426	10,996	18,508

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.73 cfs @ 12.50 hrs HW=1,445.40' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.21 cfs @ 6.18 fps)
└**2=Orifice/Grate** (Orifice Controls 0.51 cfs @ 2.15 fps)

Pond 15P: BASIN

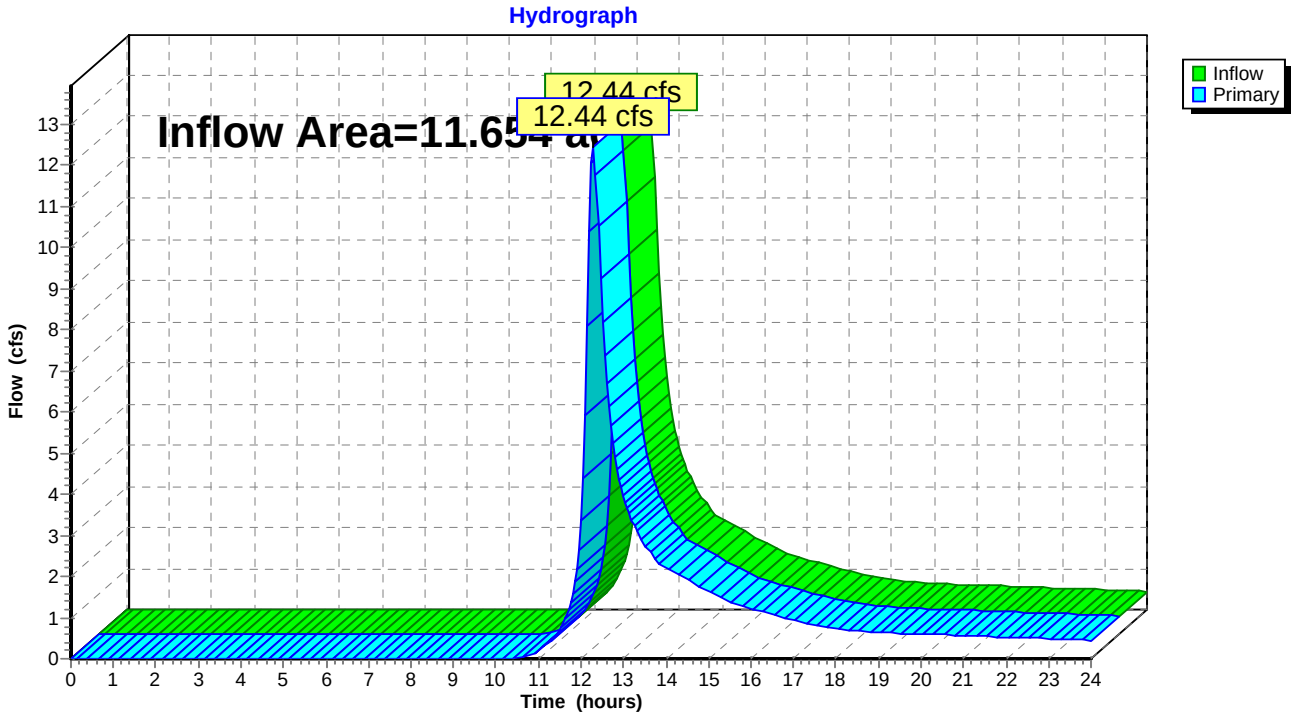


Summary for Link 16L: DL-3 EX

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 1.69" for 10-Year event
Inflow = 12.44 cfs @ 12.29 hrs, Volume= 1.639 af
Primary = 12.44 cfs @ 12.29 hrs, Volume= 1.639 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 16L: DL-3 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 14S: EXDA3D Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>2.92"
Tc=7.8 min CN=72 Runoff=10.66 cfs 0.763 af

Subcatchment 17S: EXDA3ND Runoff Area=371,170 sf 0.00% Impervious Runoff Depth>2.46"
Tc=18.0 min CN=67 Runoff=17.33 cfs 1.745 af

Pond 15P: BASIN Peak Elev=1,446.03' Storage=10,053 cf Inflow=10.66 cfs 0.763 af
Outflow=3.15 cfs 0.745 af

Link 16L: DL-3 EX Inflow=20.33 cfs 2.490 af
Primary=20.33 cfs 2.490 af

Total Runoff Area = 11.654 ac Runoff Volume = 2.508 af Average Runoff Depth = 2.58"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 14S: EXDA3D

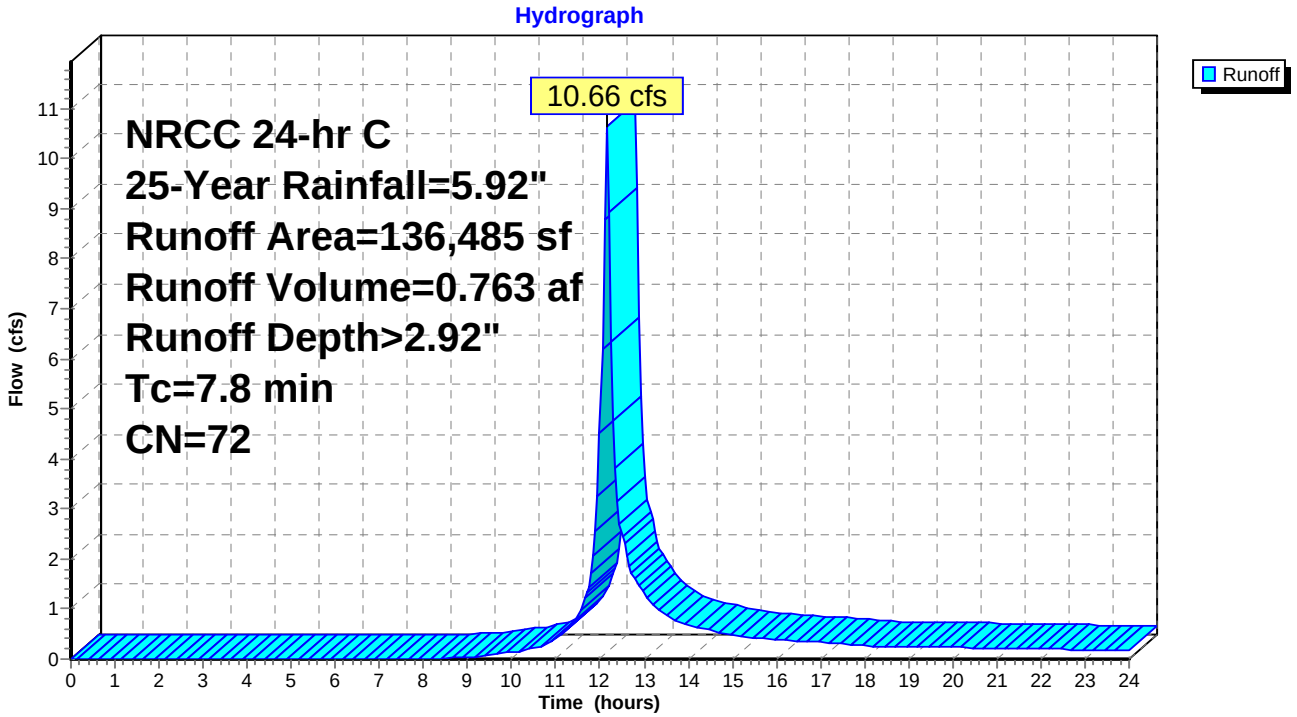
Runoff = 10.66 cfs @ 12.15 hrs, Volume= 0.763 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 14S: EXDA3D



Summary for Subcatchment 17S: EXDA3ND

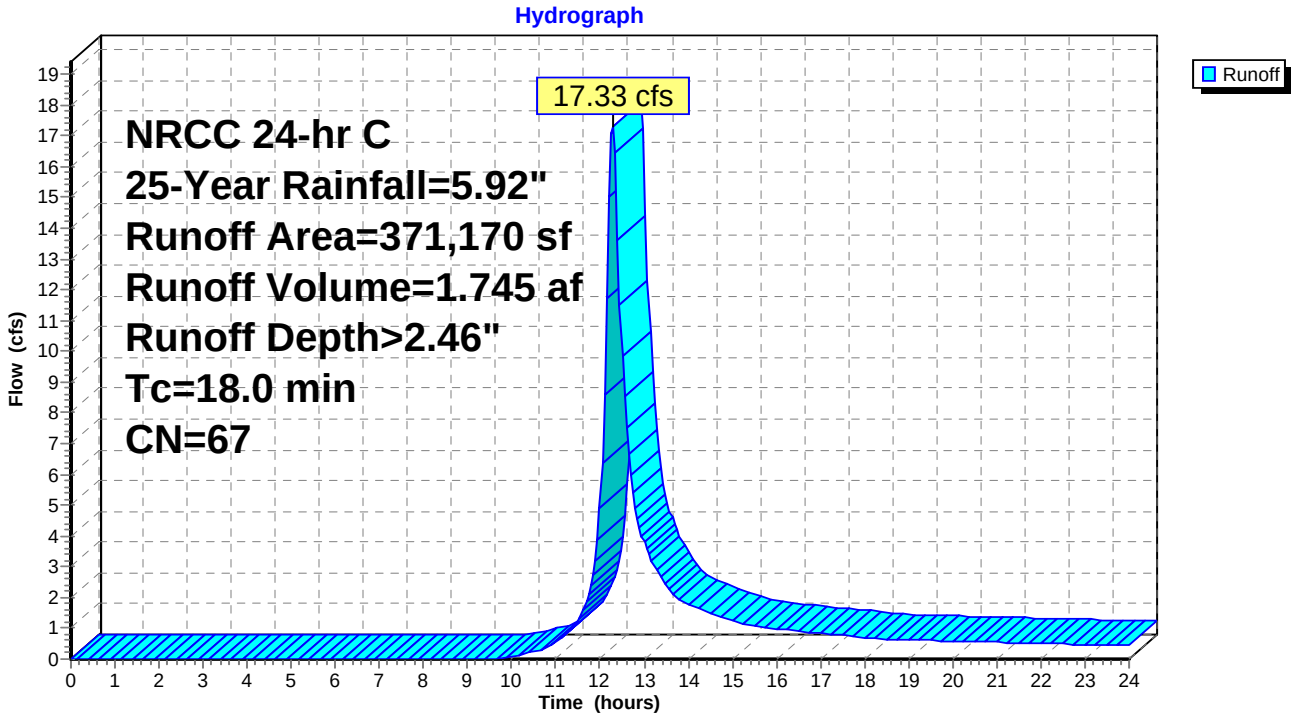
Runoff = 17.33 cfs @ 12.28 hrs, Volume= 1.745 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
181,385	55	Woods, Good, HSG B
112,670	77	Woods, Good, HSG D
11,465	58	Meadow, non-grazed, HSG B
51,600	78	Meadow, non-grazed, HSG D
4,510	96	Gravel surface, HSG B
9,540	96	Gravel surface, HSG D
371,170	67	Weighted Average
371,170		100.00% Pervious Area

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

Subcatchment 17S: EXDA3ND



Summary for Pond 15P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 2.92" for 25-Year event
Inflow = 10.66 cfs @ 12.15 hrs, Volume= 0.763 af
Outflow = 3.15 cfs @ 12.40 hrs, Volume= 0.745 af, Atten= 70%, Lag= 15.2 min
Primary = 3.15 cfs @ 12.40 hrs, Volume= 0.745 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,446.03' @ 12.40 hrs Surf.Area= 5,060 sf Storage= 10,053 cf

Plug-Flow detention time= 64.1 min calculated for 0.743 af (97% of inflow)
Center-of-Mass det. time= 50.5 min (895.6 - 845.1)

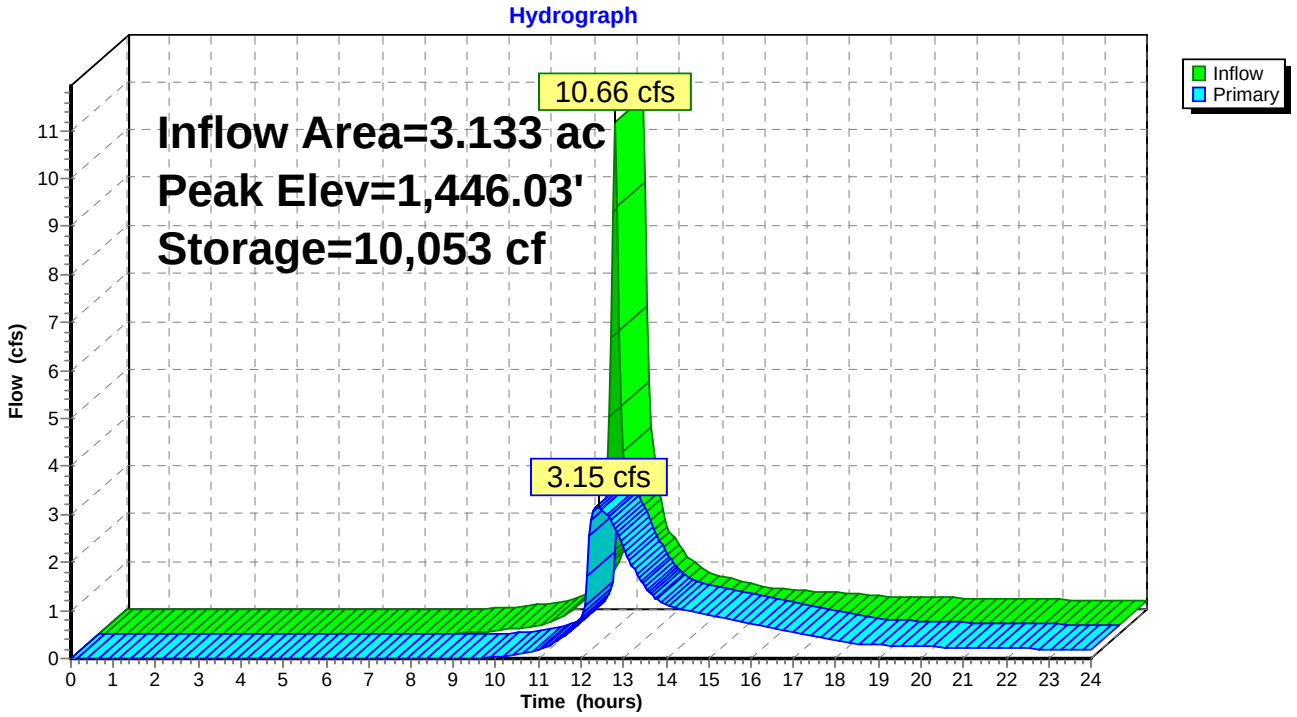
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	18,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	2,942	0	0
1,445.50	4,570	7,512	7,512
1,447.50	6,426	10,996	18,508

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.14 cfs @ 12.40 hrs HW=1,446.03' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.43 cfs @ 7.27 fps)
└**2=Orifice/Grate** (Orifice Controls 1.72 cfs @ 3.89 fps)

Pond 15P: BASIN

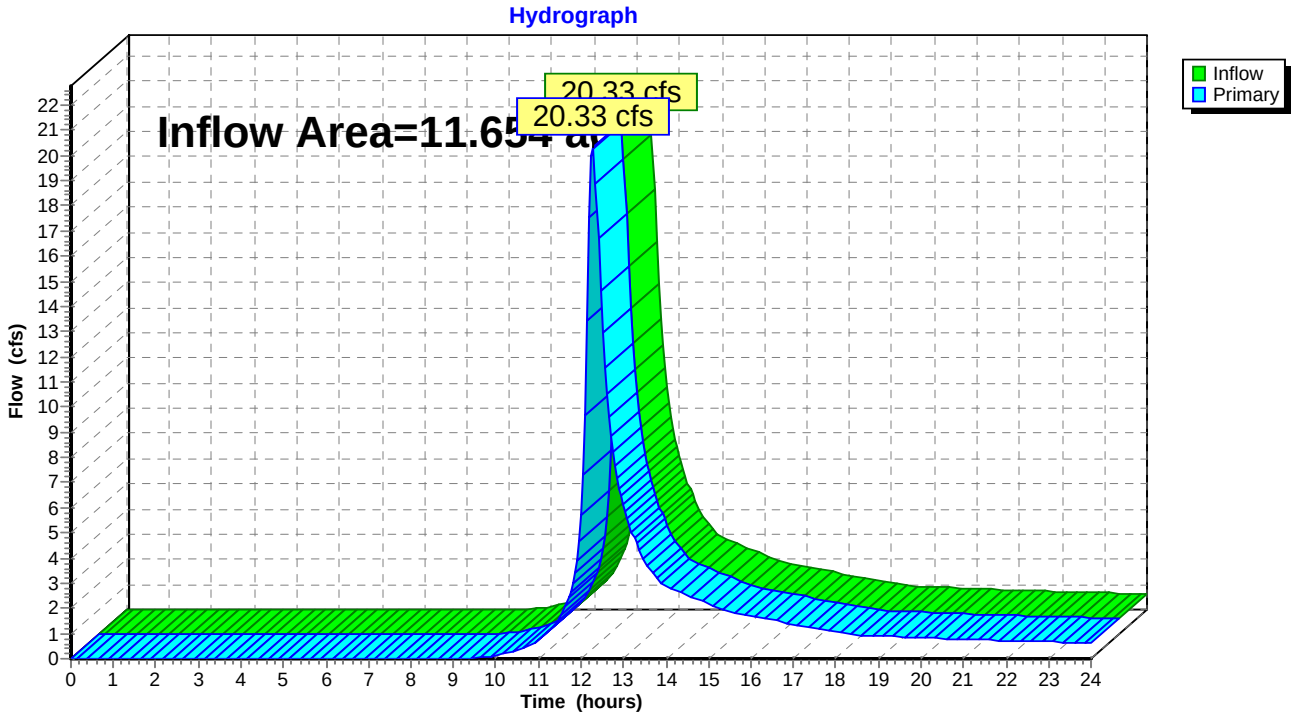


Summary for Link 16L: DL-3 EX

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 2.56" for 25-Year event
Inflow = 20.33 cfs @ 12.28 hrs, Volume= 2.490 af
Primary = 20.33 cfs @ 12.28 hrs, Volume= 2.490 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 16L: DL-3 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 14S: EXDA3D Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>3.84"
Tc=7.8 min CN=72 Runoff=13.97 cfs 1.003 af

Subcatchment 17S: EXDA3ND Runoff Area=371,170 sf 0.00% Impervious Runoff Depth>3.31"
Tc=18.0 min CN=67 Runoff=23.62 cfs 2.348 af

Pond 15P: BASIN Peak Elev=1,446.65' Storage=13,371 cf Inflow=13.97 cfs 1.003 af
Outflow=4.01 cfs 0.982 af

Link 16L: DL-3 EX Inflow=27.41 cfs 3.330 af
Primary=27.41 cfs 3.330 af

Total Runoff Area = 11.654 ac Runoff Volume = 3.351 af Average Runoff Depth = 3.45"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 14S: EXDA3D

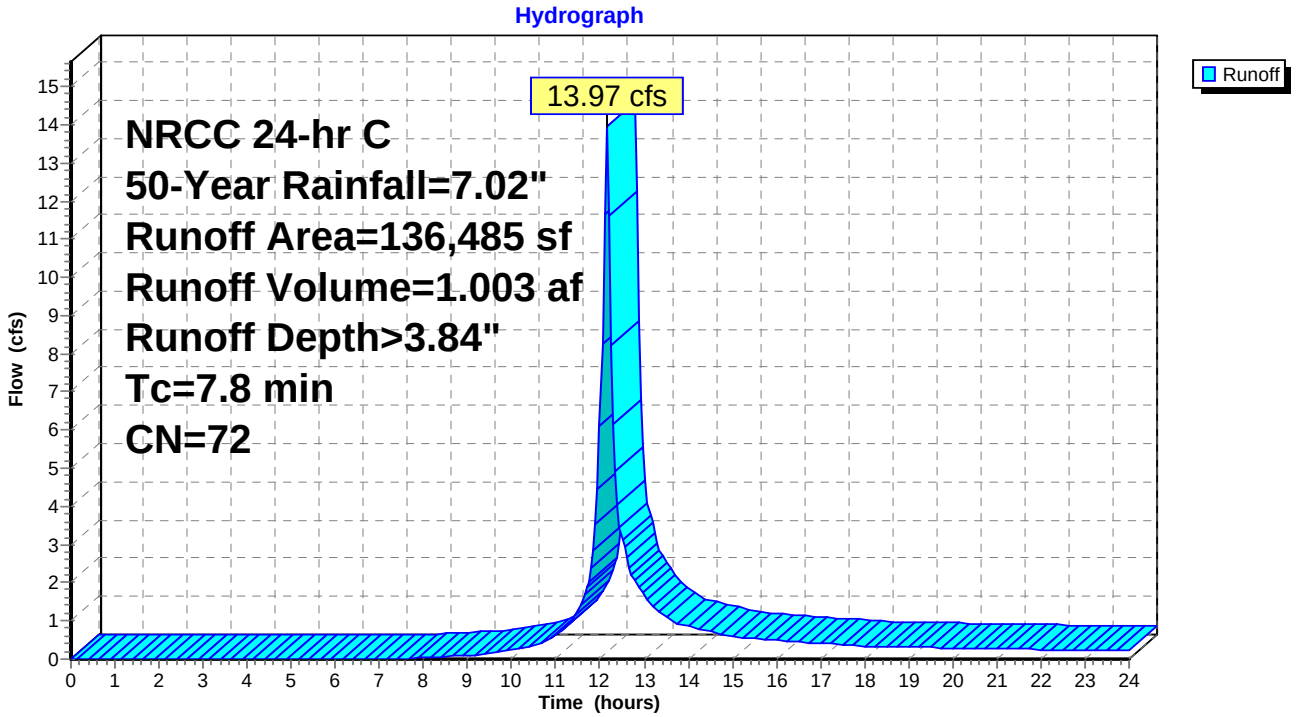
Runoff = 13.97 cfs @ 12.15 hrs, Volume= 1.003 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 14S: EXDA3D



Summary for Subcatchment 17S: EXDA3ND

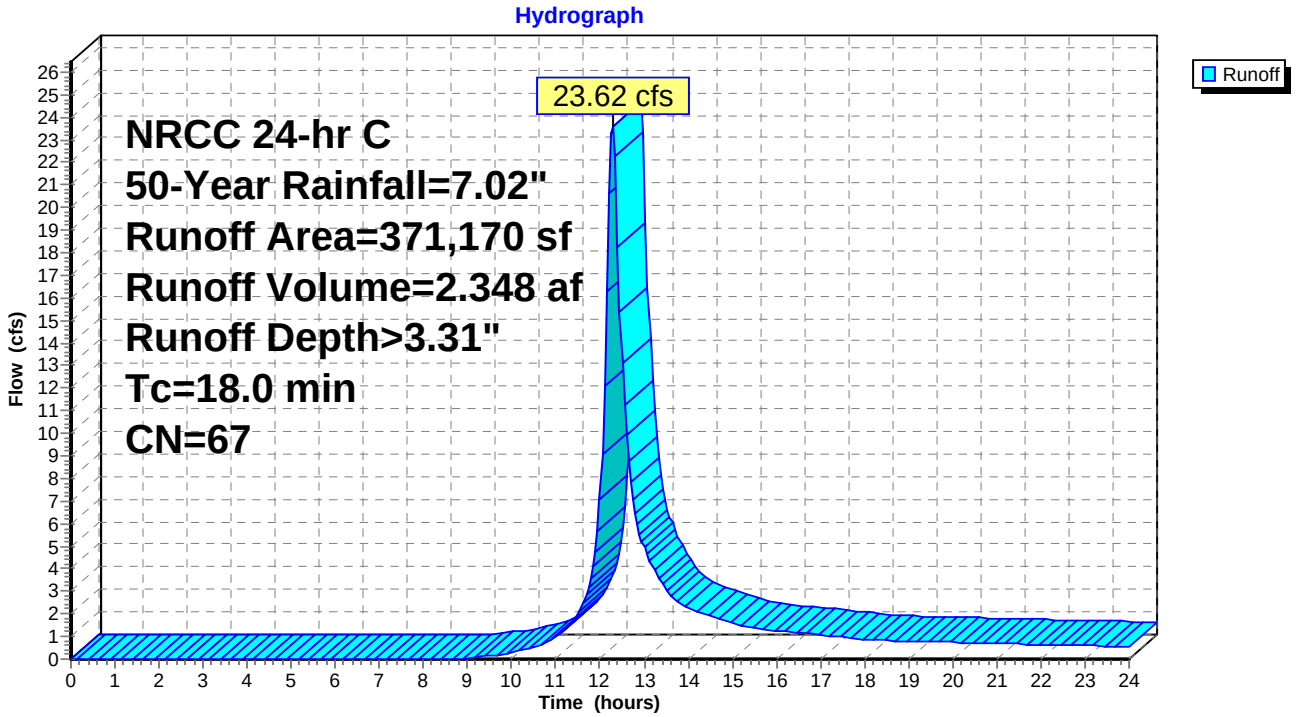
Runoff = 23.62 cfs @ 12.27 hrs, Volume= 2.348 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
181,385	55	Woods, Good, HSG B
112,670	77	Woods, Good, HSG D
11,465	58	Meadow, non-grazed, HSG B
51,600	78	Meadow, non-grazed, HSG D
4,510	96	Gravel surface, HSG B
9,540	96	Gravel surface, HSG D
371,170	67	Weighted Average
371,170		100.00% Pervious Area

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

Subcatchment 17S: EXDA3ND



Summary for Pond 15P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 3.84" for 50-Year event
Inflow = 13.97 cfs @ 12.15 hrs, Volume= 1.003 af
Outflow = 4.01 cfs @ 12.41 hrs, Volume= 0.982 af, Atten= 71%, Lag= 15.4 min
Primary = 4.01 cfs @ 12.41 hrs, Volume= 0.982 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,446.65' @ 12.41 hrs Surf.Area= 5,636 sf Storage= 13,371 cf

Plug-Flow detention time= 62.1 min calculated for 0.982 af (98% of inflow)
Center-of-Mass det. time= 50.1 min (886.6 - 836.5)

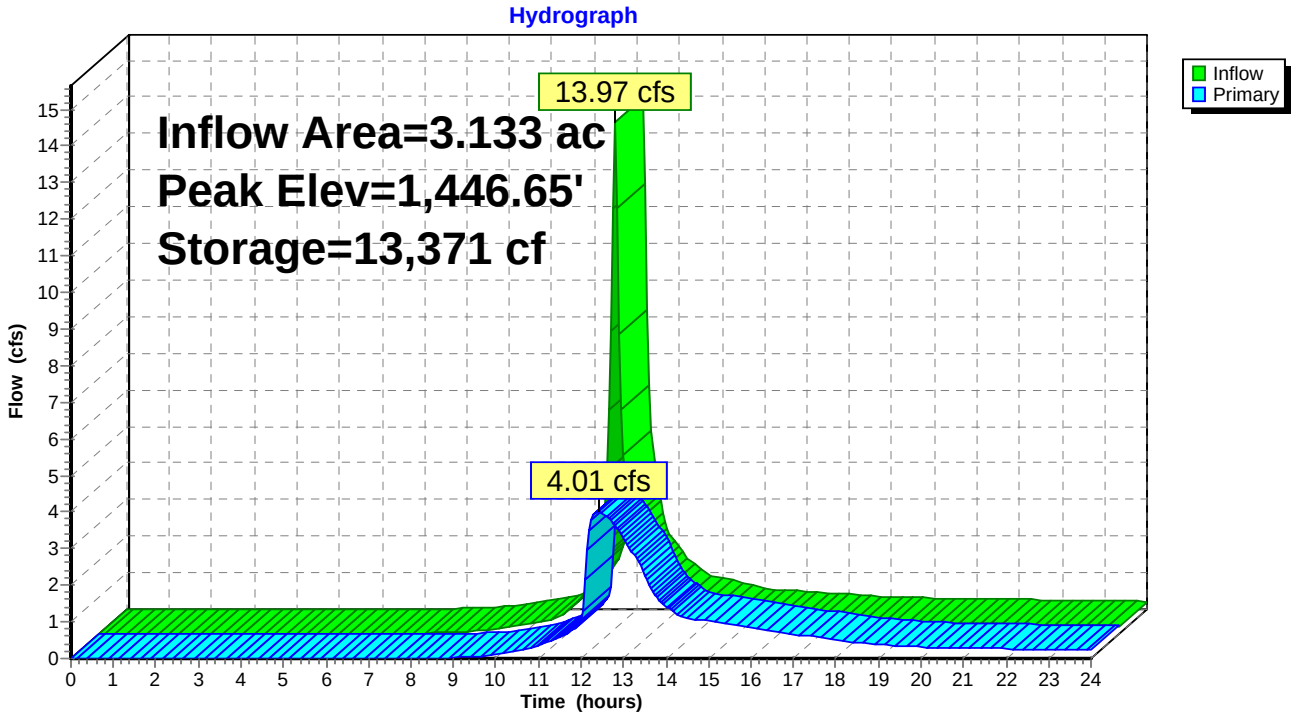
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	18,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	2,942	0	0
1,445.50	4,570	7,512	7,512
1,447.50	6,426	10,996	18,508

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.01 cfs @ 12.41 hrs HW=1,446.65' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.61 cfs @ 8.20 fps)
└**2=Orifice/Grate** (Orifice Controls 2.40 cfs @ 5.43 fps)

Pond 15P: BASIN

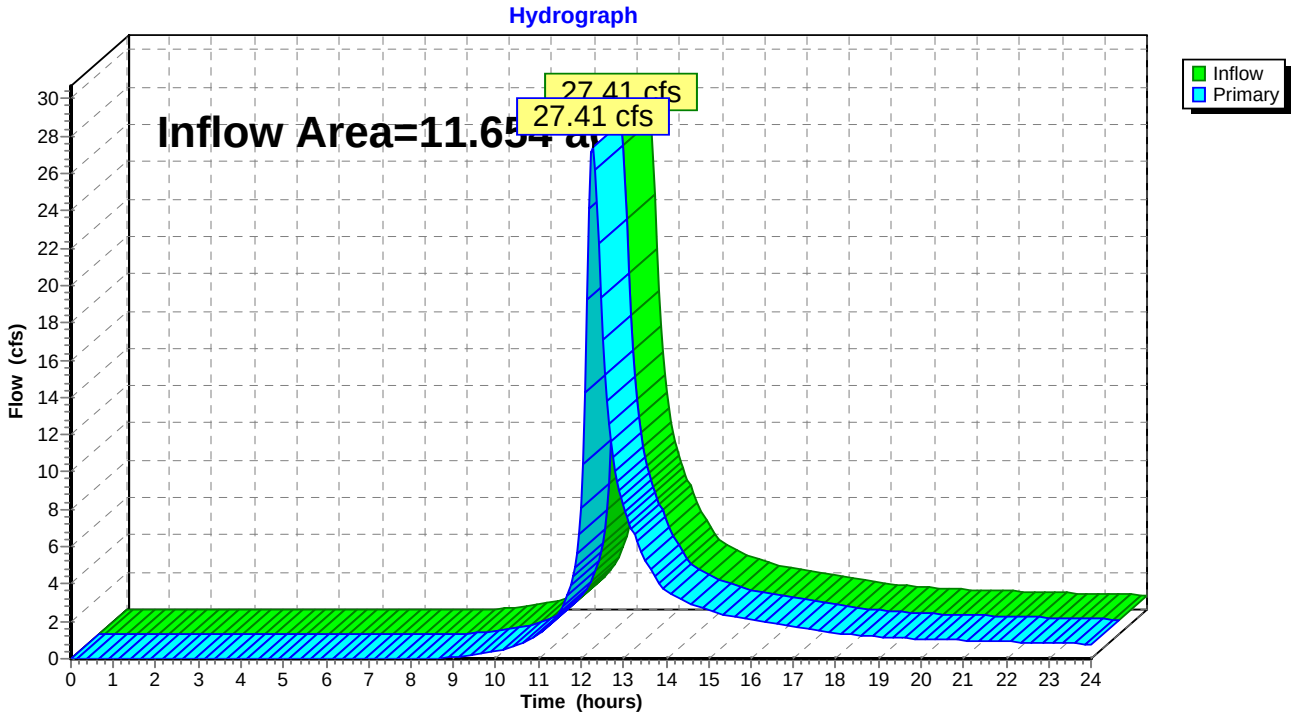


Summary for Link 16L: DL-3 EX

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 3.43" for 50-Year event
Inflow = 27.41 cfs @ 12.28 hrs, Volume= 3.330 af
Primary = 27.41 cfs @ 12.28 hrs, Volume= 3.330 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 16L: DL-3 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 14S: EXDA3D Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>4.98"
Tc=7.8 min CN=72 Runoff=18.02 cfs 1.300 af

Subcatchment 17S: EXDA3ND Runoff Area=371,170 sf 0.00% Impervious Runoff Depth>4.38"
Tc=18.0 min CN=67 Runoff=31.37 cfs 3.108 af

Pond 15P: BASIN Peak Elev=1,447.38' Storage=17,758 cf Inflow=18.02 cfs 1.300 af
Outflow=4.82 cfs 1.276 af

Link 16L: DL-3 EX Inflow=36.03 cfs 4.384 af
Primary=36.03 cfs 4.384 af

Total Runoff Area = 11.654 ac Runoff Volume = 4.407 af Average Runoff Depth = 4.54"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 14S: EXDA3D

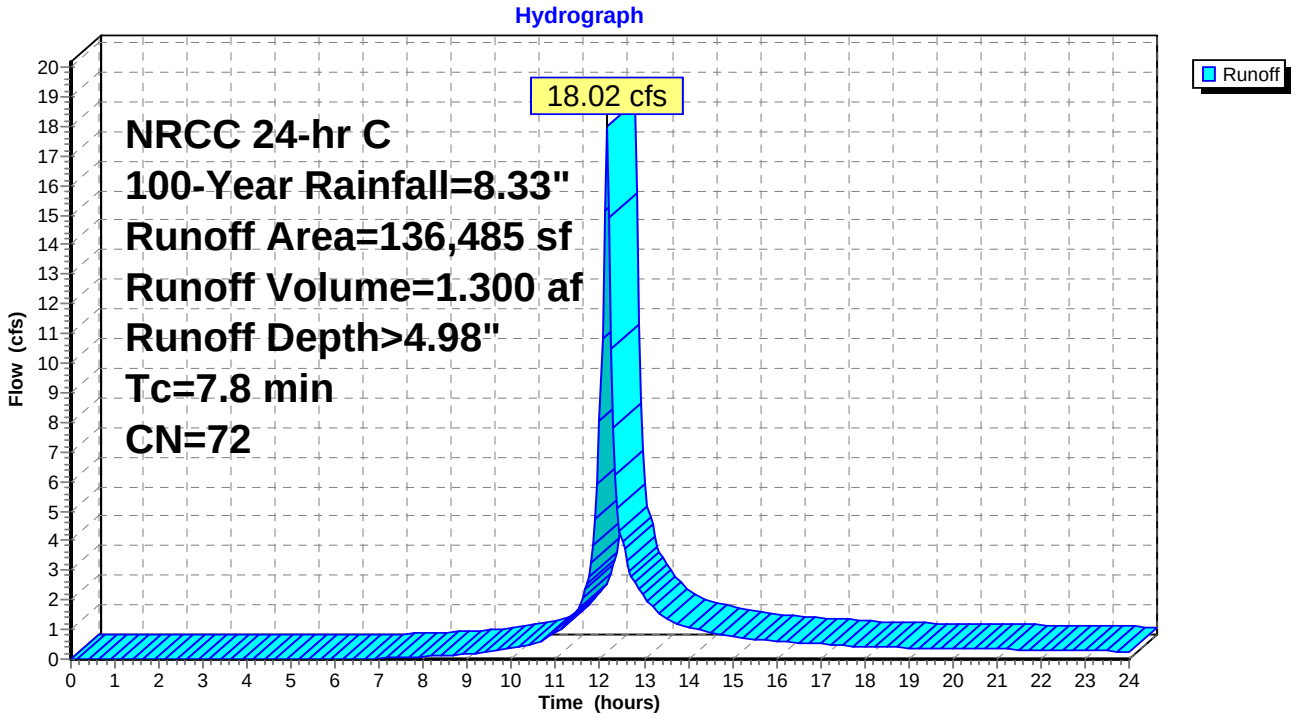
Runoff = 18.02 cfs @ 12.15 hrs, Volume= 1.300 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 14S: EXDA3D



Summary for Subcatchment 17S: EXDA3ND

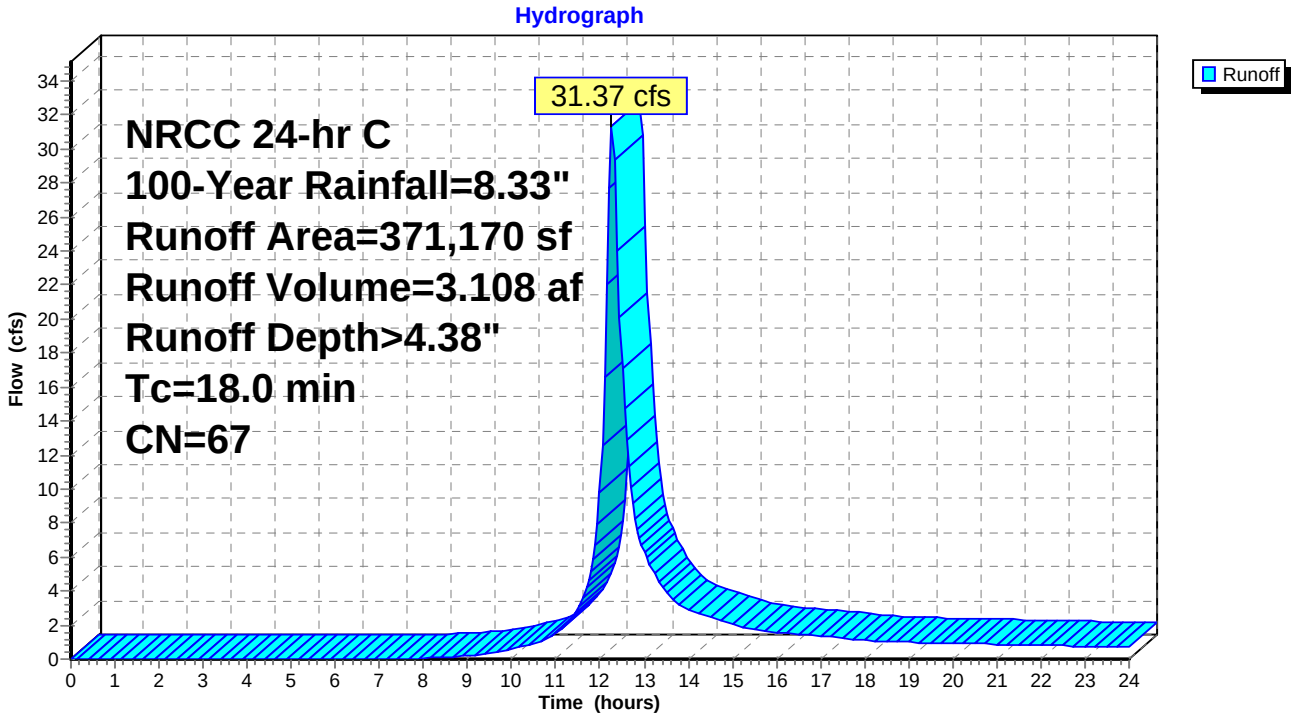
Runoff = 31.37 cfs @ 12.27 hrs, Volume= 3.108 af, Depth> 4.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
181,385	55	Woods, Good, HSG B
112,670	77	Woods, Good, HSG D
11,465	58	Meadow, non-grazed, HSG B
51,600	78	Meadow, non-grazed, HSG D
4,510	96	Gravel surface, HSG B
9,540	96	Gravel surface, HSG D
371,170	67	Weighted Average
371,170		100.00% Pervious Area

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

Subcatchment 17S: EXDA3ND



Summary for Pond 15P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 4.98" for 100-Year event
Inflow = 18.02 cfs @ 12.15 hrs, Volume= 1.300 af
Outflow = 4.82 cfs @ 12.42 hrs, Volume= 1.276 af, Atten= 73%, Lag= 16.3 min
Primary = 4.82 cfs @ 12.42 hrs, Volume= 1.276 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,447.38' @ 12.42 hrs Surf.Area= 6,317 sf Storage= 17,758 cf

Plug-Flow detention time= 62.1 min calculated for 1.273 af (98% of inflow)
Center-of-Mass det. time= 51.4 min (879.7 - 828.3)

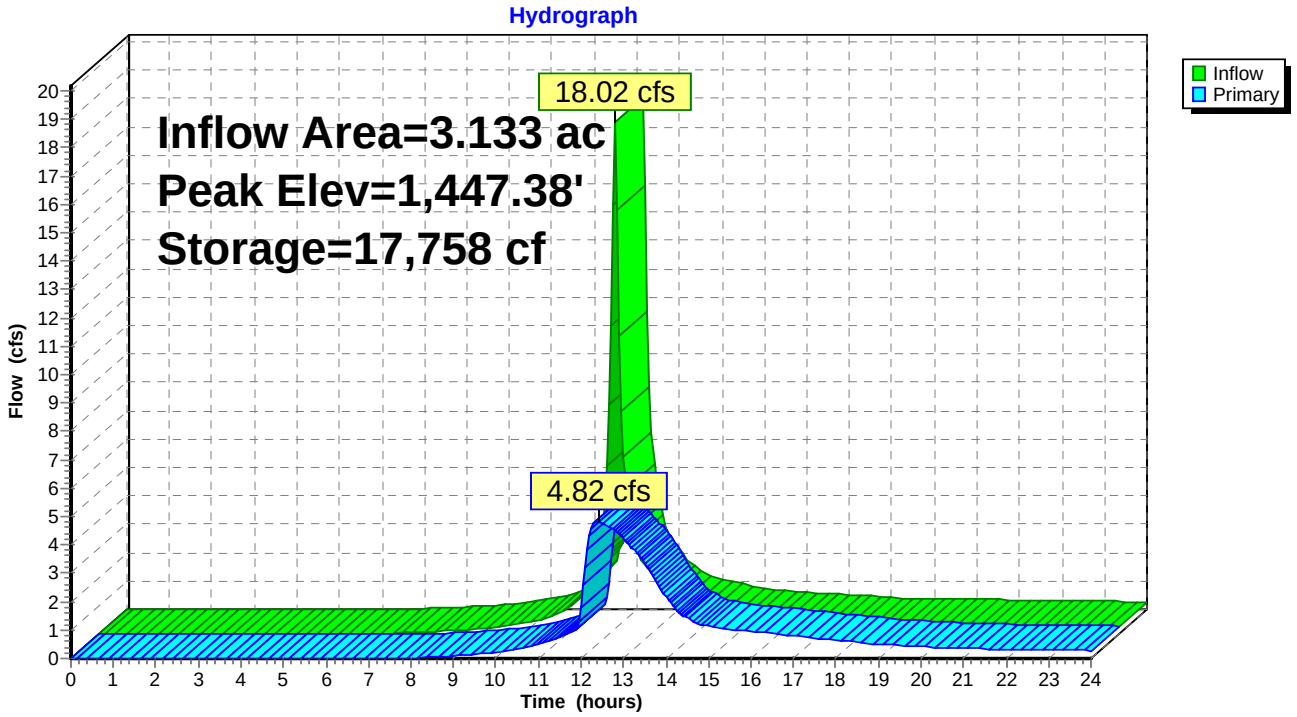
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	18,508 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	2,942	0	0
1,445.50	4,570	7,512	7,512
1,447.50	6,426	10,996	18,508

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.81 cfs @ 12.42 hrs HW=1,447.38' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.80 cfs @ 9.17 fps)
└**2=Orifice/Grate** (Orifice Controls 3.01 cfs @ 6.82 fps)

Pond 15P: BASIN

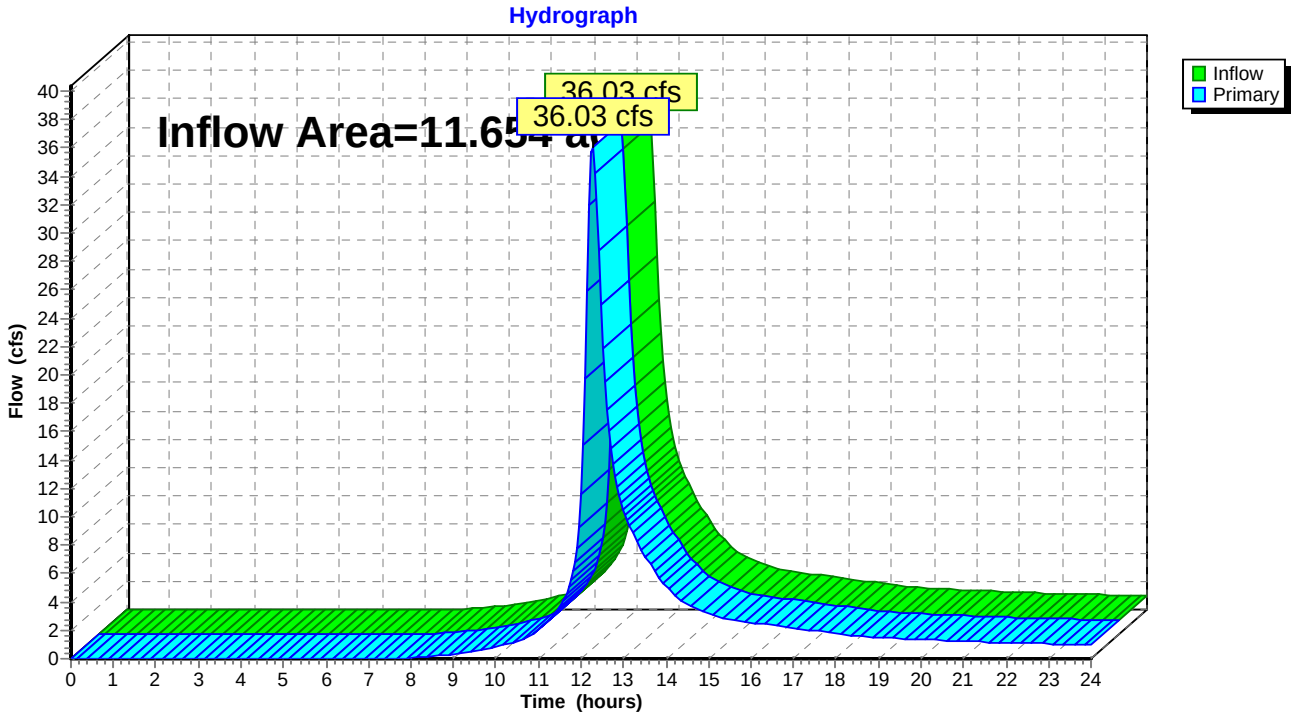


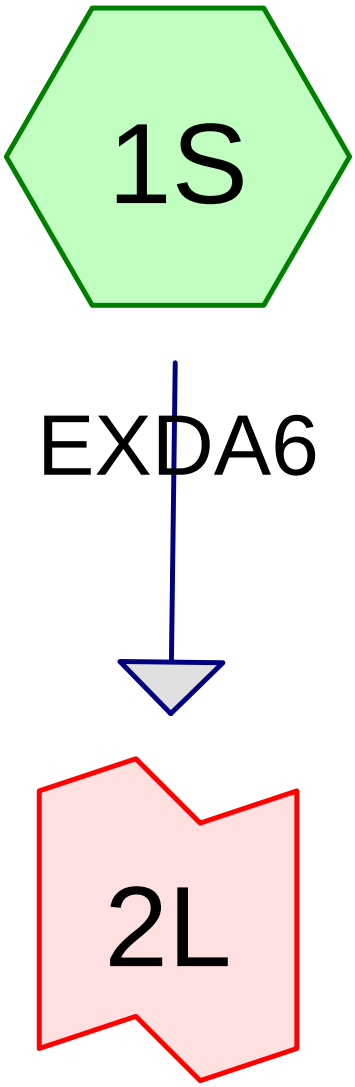
Summary for Link 16L: DL-3 EX

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 4.51" for 100-Year event
Inflow = 36.03 cfs @ 12.27 hrs, Volume= 4.384 af
Primary = 36.03 cfs @ 12.27 hrs, Volume= 4.384 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 16L: DL-3 EX





Subcat Reach Pond Link

Routing Diagram for 3092 T3 2019
Prepared by {enter your company name here}, Printed 11/13/2019

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 804 CT Litchfield

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
9.020	55	Woods, Good, HSG B (1S)
9.020	**55**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
9.020	HSG B	1S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
9.020		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	9.020	0.000	0.000	0.000	9.020	Woods, Good	1S
0.000	**9.020**	**0.000**	**0.000**	**0.000**	**9.020**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EXDA6 Runoff Area=392,909 sf 0.00% Impervious Runoff Depth>0.24"
Flow Length=653' Tc=24.4 min CN=55 Runoff=0.58 cfs 0.184 af

Link 2L: DL-6 EX Inflow=0.58 cfs 0.184 af
Primary=0.58 cfs 0.184 af

Total Runoff Area = 9.020 ac Runoff Volume = 0.184 af Average Runoff Depth = 0.24"
100.00% Pervious = 9.020 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: EXDA6

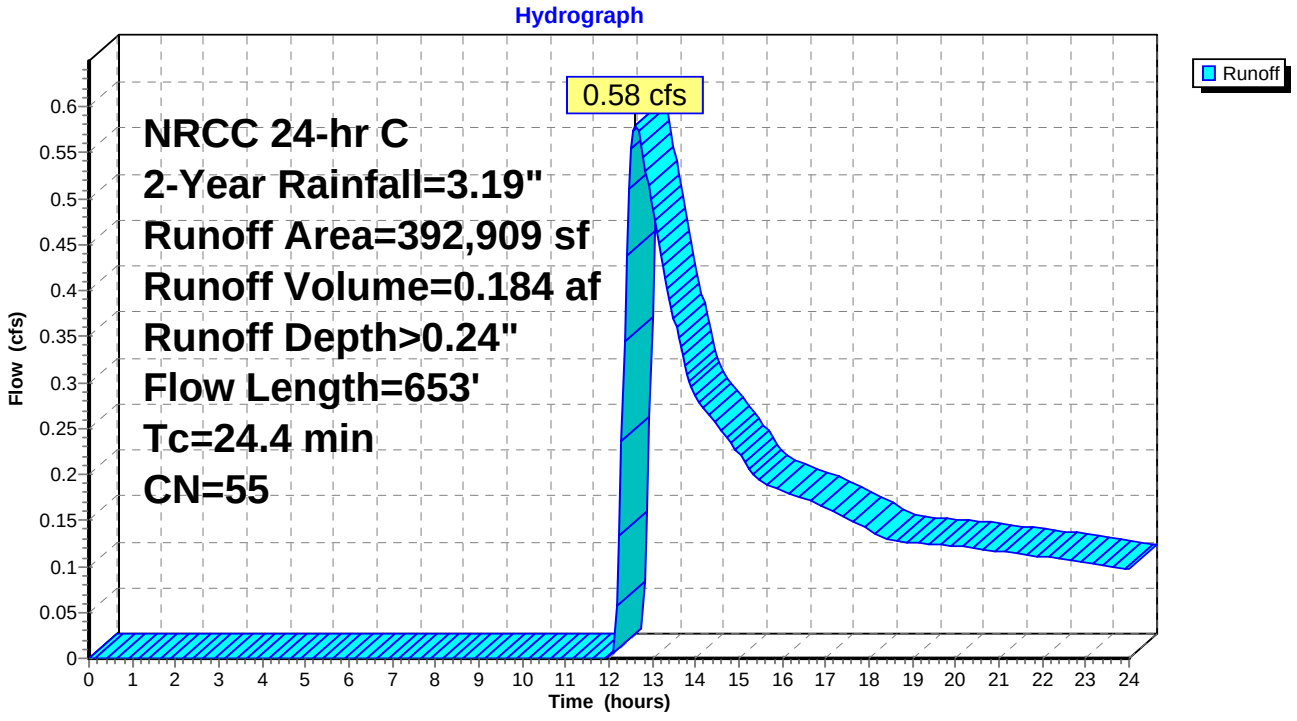
Runoff = 0.58 cfs @ 12.61 hrs, Volume= 0.184 af, Depth> 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
392,909	55	Woods, Good, HSG B
392,909		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 1S: EXDA6

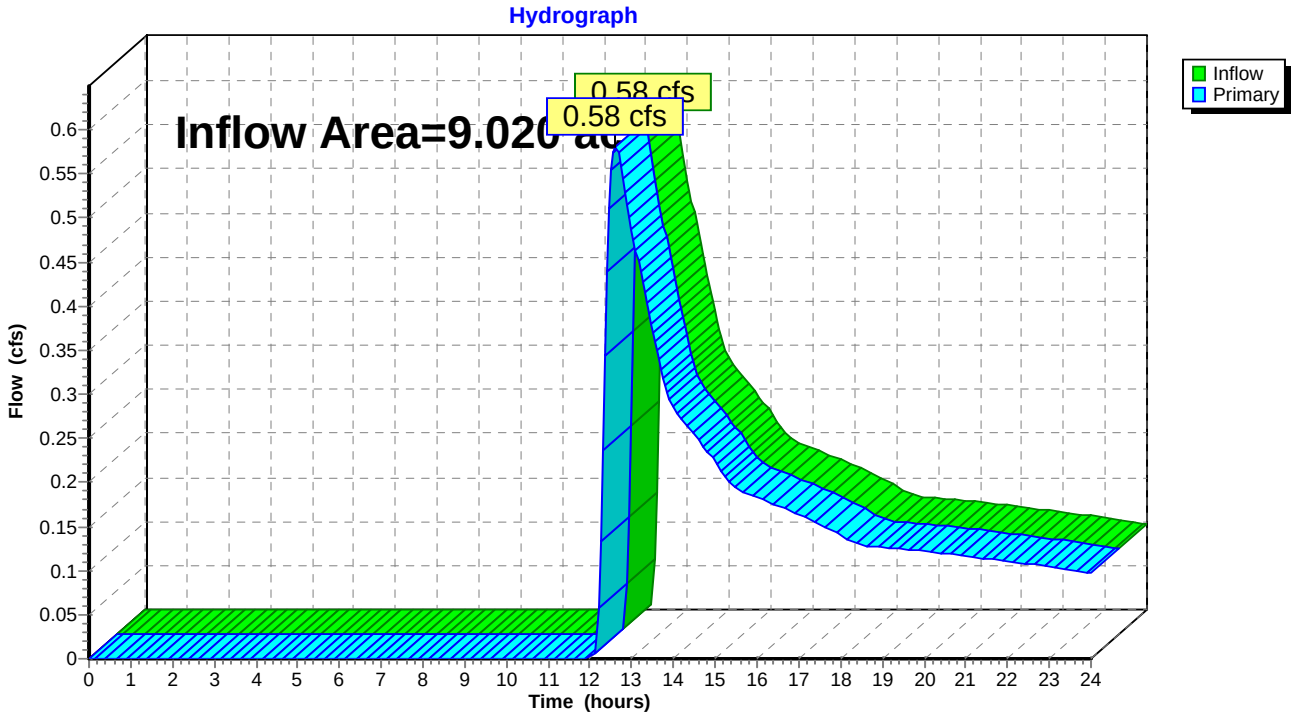


Summary for Link 2L: DL-6 EX

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 0.24" for 2-Year event
Inflow = 0.58 cfs @ 12.61 hrs, Volume= 0.184 af
Primary = 0.58 cfs @ 12.61 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: DL-6 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EXDA6 Runoff Area=392,909 sf 0.00% Impervious Runoff Depth>0.84"
Flow Length=653' Tc=24.4 min CN=55 Runoff=4.19 cfs 0.628 af

Link 2L: DL-6 EX Inflow=4.19 cfs 0.628 af
Primary=4.19 cfs 0.628 af

Total Runoff Area = 9.020 ac Runoff Volume = 0.628 af Average Runoff Depth = 0.84"
100.00% Pervious = 9.020 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: EXDA6

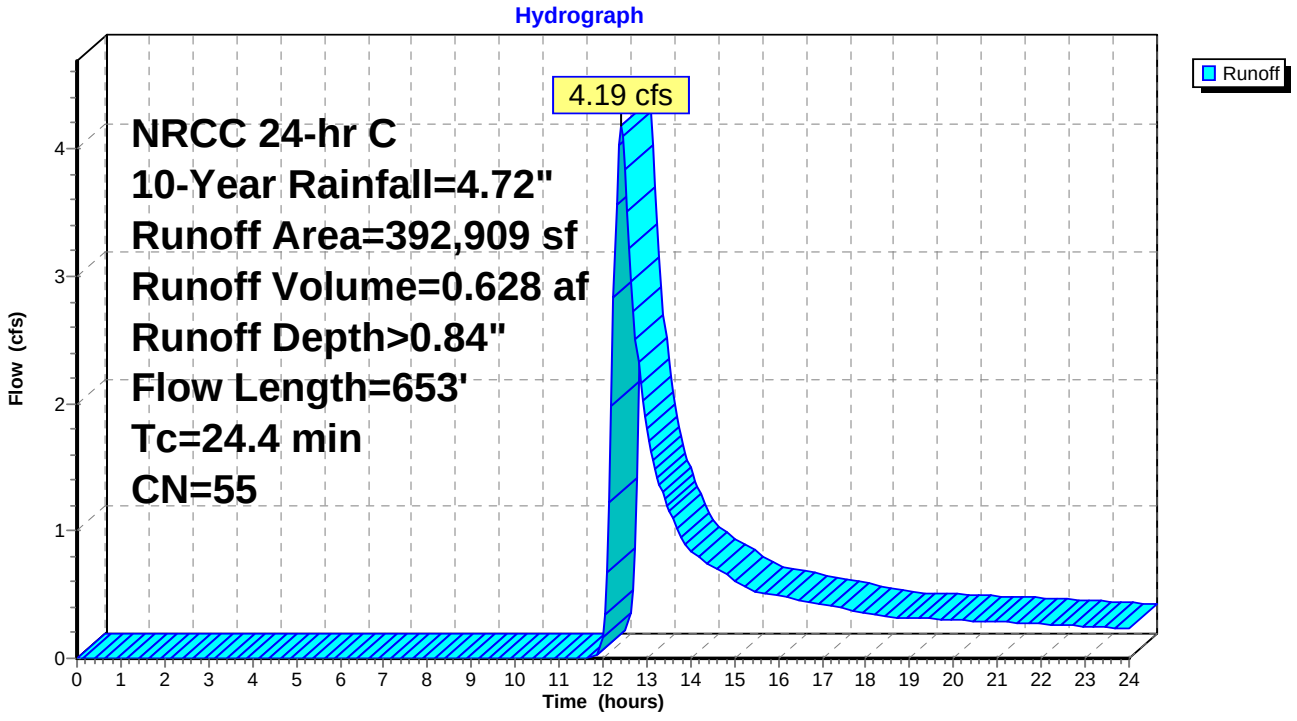
Runoff = 4.19 cfs @ 12.41 hrs, Volume= 0.628 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
392,909	55	Woods, Good, HSG B
392,909		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 1S: EXDA6

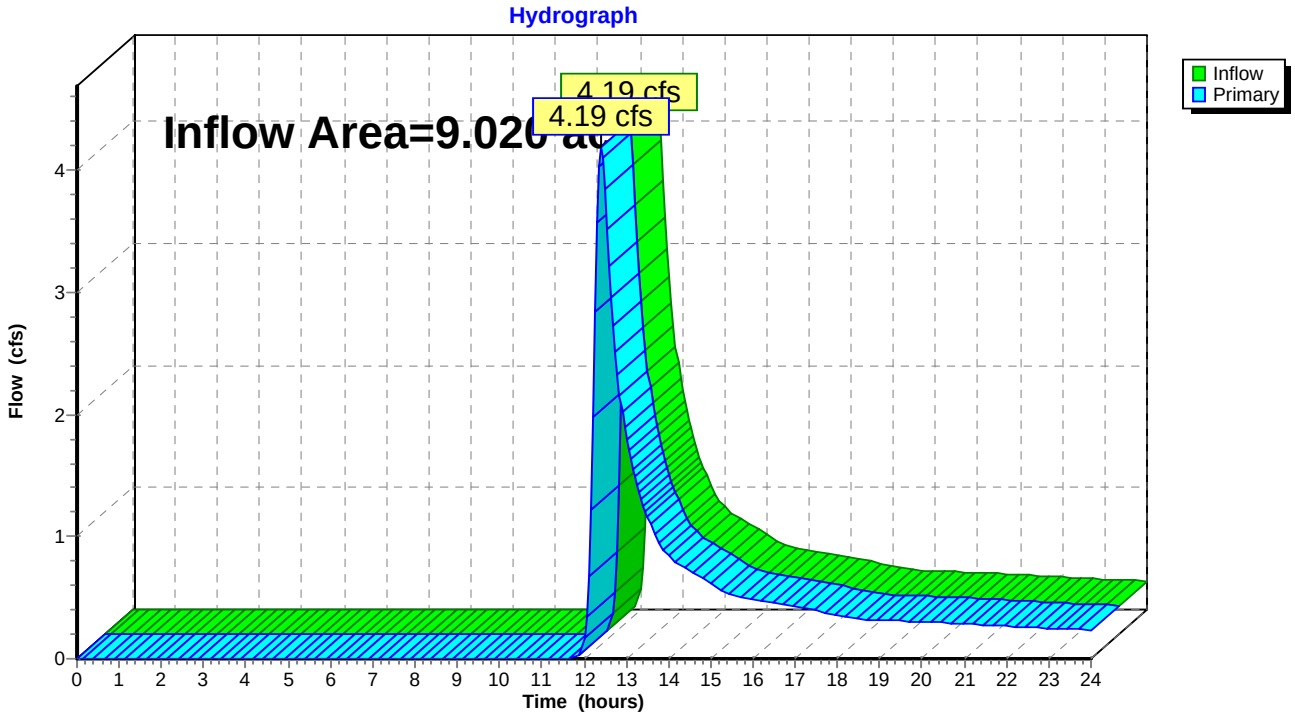


Summary for Link 2L: DL-6 EX

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 0.84" for 10-Year event
Inflow = 4.19 cfs @ 12.41 hrs, Volume= 0.628 af
Primary = 4.19 cfs @ 12.41 hrs, Volume= 0.628 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: DL-6 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EXDA6 Runoff Area=392,909 sf 0.00% Impervious Runoff Depth>1.46"
Flow Length=653' Tc=24.4 min CN=55 Runoff=8.45 cfs 1.096 af

Link 2L: DL-6 EX Inflow=8.45 cfs 1.096 af
Primary=8.45 cfs 1.096 af

Total Runoff Area = 9.020 ac Runoff Volume = 1.096 af Average Runoff Depth = 1.46"
100.00% Pervious = 9.020 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: EXDA6

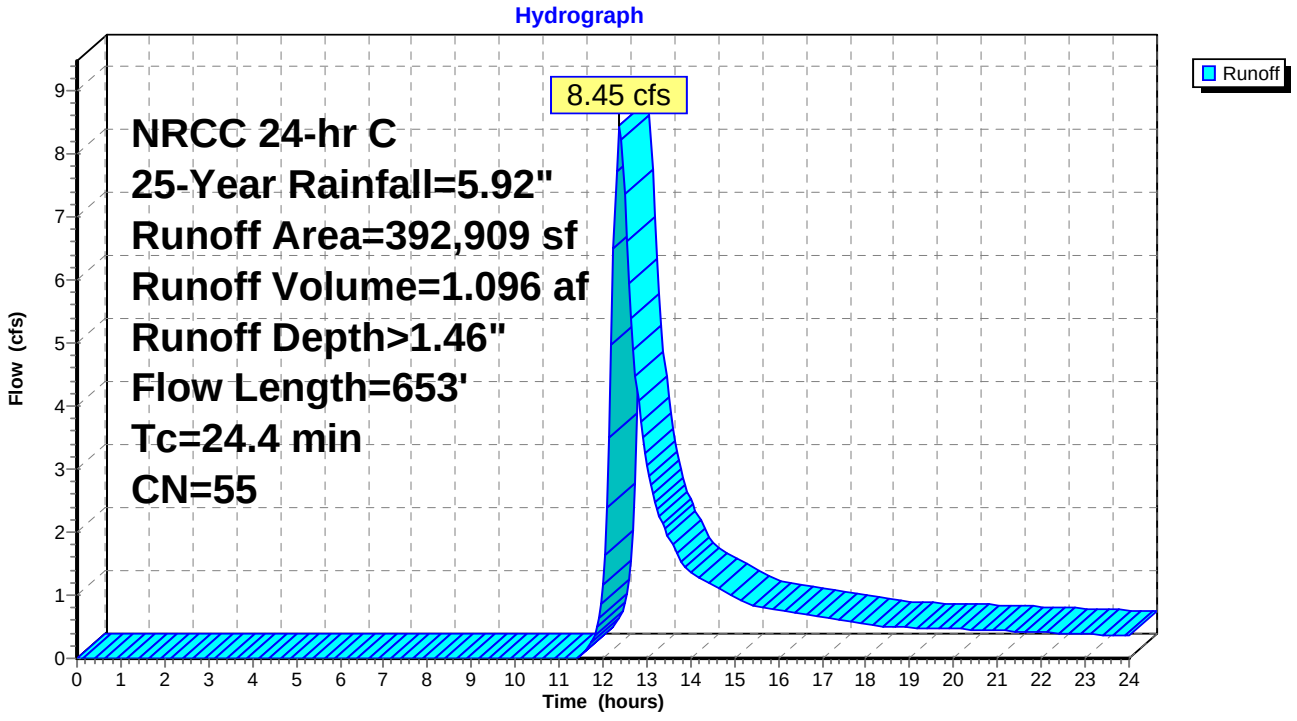
Runoff = 8.45 cfs @ 12.38 hrs, Volume= 1.096 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
392,909	55	Woods, Good, HSG B
392,909		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 1S: EXDA6

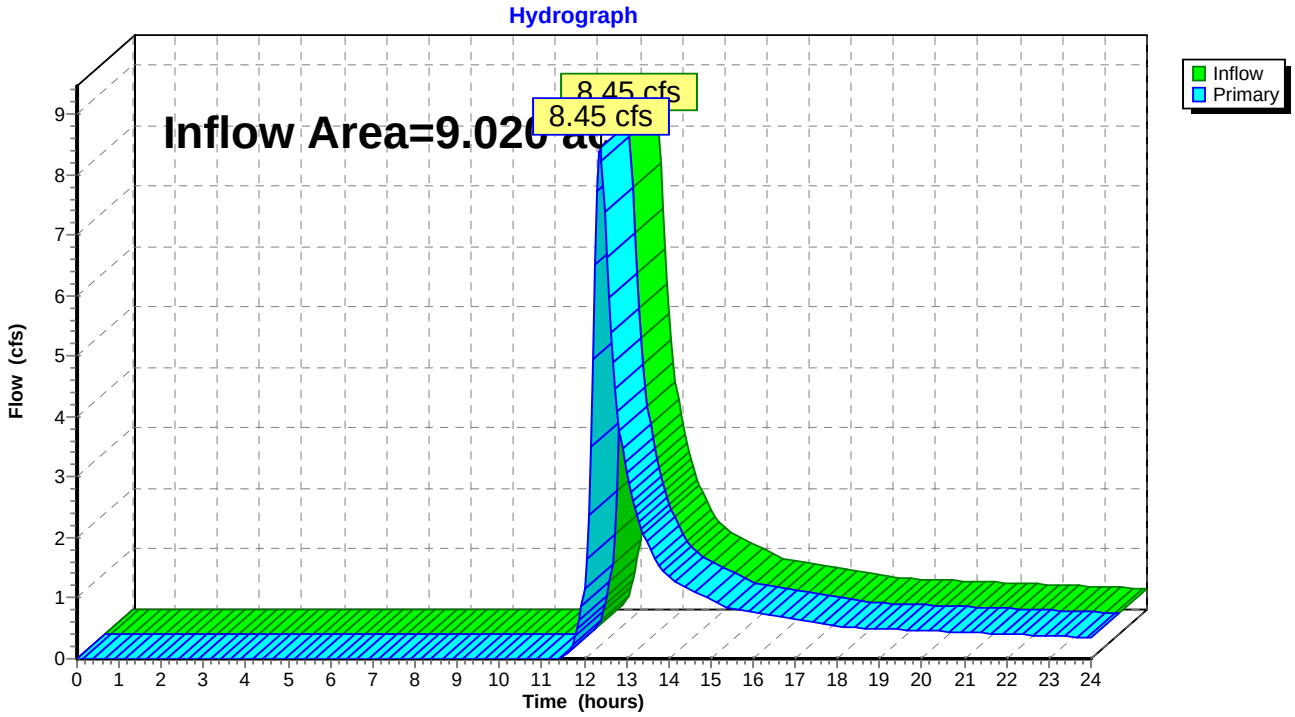


Summary for Link 2L: DL-6 EX

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 1.46" for 25-Year event
Inflow = 8.45 cfs @ 12.38 hrs, Volume= 1.096 af
Primary = 8.45 cfs @ 12.38 hrs, Volume= 1.096 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: DL-6 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EXDA6 Runoff Area=392,909 sf 0.00% Impervious Runoff Depth>2.12"
Flow Length=653' Tc=24.4 min CN=55 Runoff=13.00 cfs 1.593 af

Link 2L: DL-6 EX Inflow=13.00 cfs 1.593 af
Primary=13.00 cfs 1.593 af

Total Runoff Area = 9.020 ac Runoff Volume = 1.593 af Average Runoff Depth = 2.12"
100.00% Pervious = 9.020 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: EXDA6

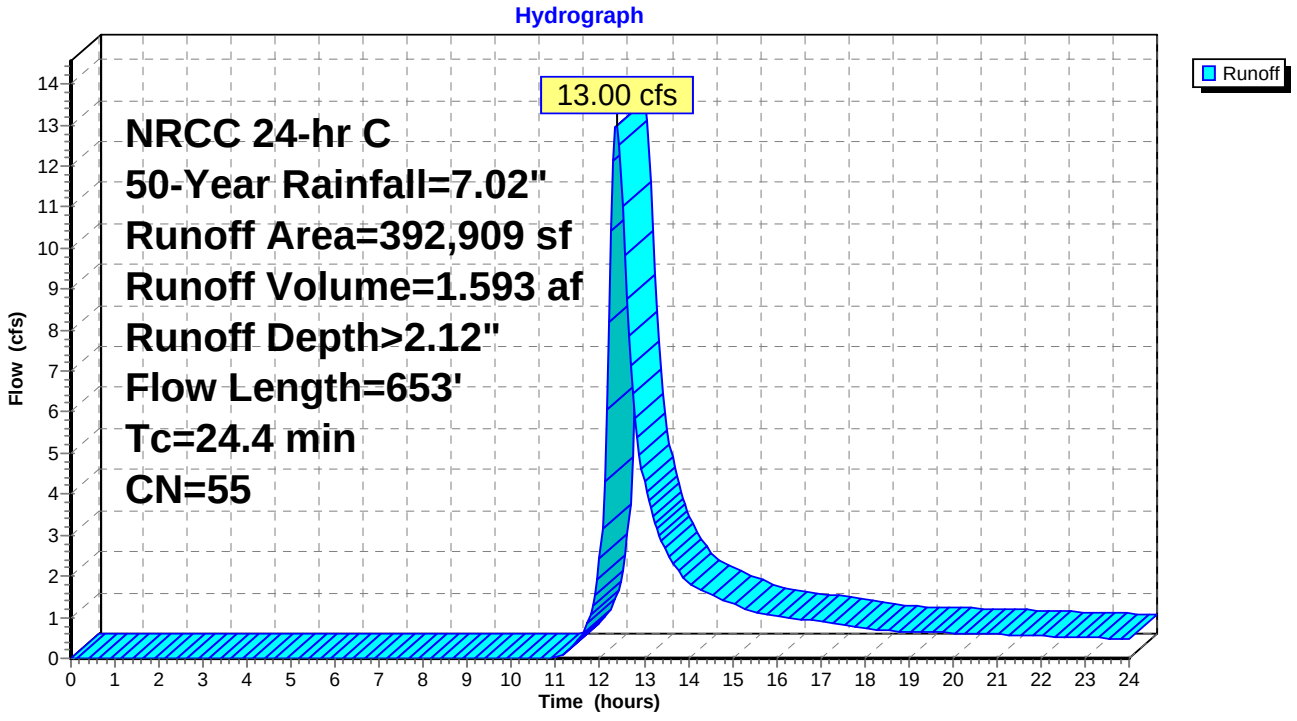
Runoff = 13.00 cfs @ 12.37 hrs, Volume= 1.593 af, Depth> 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
392,909	55	Woods, Good, HSG B
392,909		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 1S: EXDA6

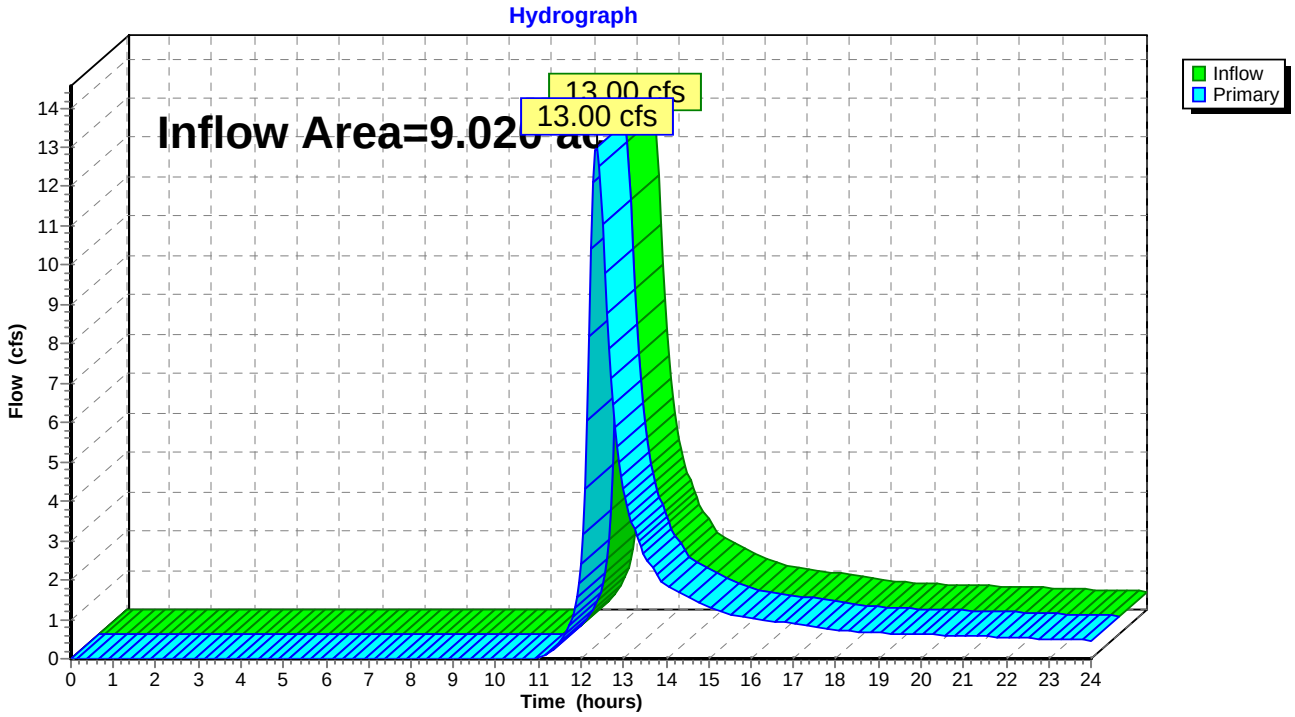


Summary for Link 2L: DL-6 EX

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 2.12" for 50-Year event
Inflow = 13.00 cfs @ 12.37 hrs, Volume= 1.593 af
Primary = 13.00 cfs @ 12.37 hrs, Volume= 1.593 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: DL-6 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EXDA6 Runoff Area=392,909 sf 0.00% Impervious Runoff Depth>2.99"
Flow Length=653' Tc=24.4 min CN=55 Runoff=18.94 cfs 2.247 af

Link 2L: DL-6 EX Inflow=18.94 cfs 2.247 af
Primary=18.94 cfs 2.247 af

Total Runoff Area = 9.020 ac Runoff Volume = 2.247 af Average Runoff Depth = 2.99"
100.00% Pervious = 9.020 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: EXDA6

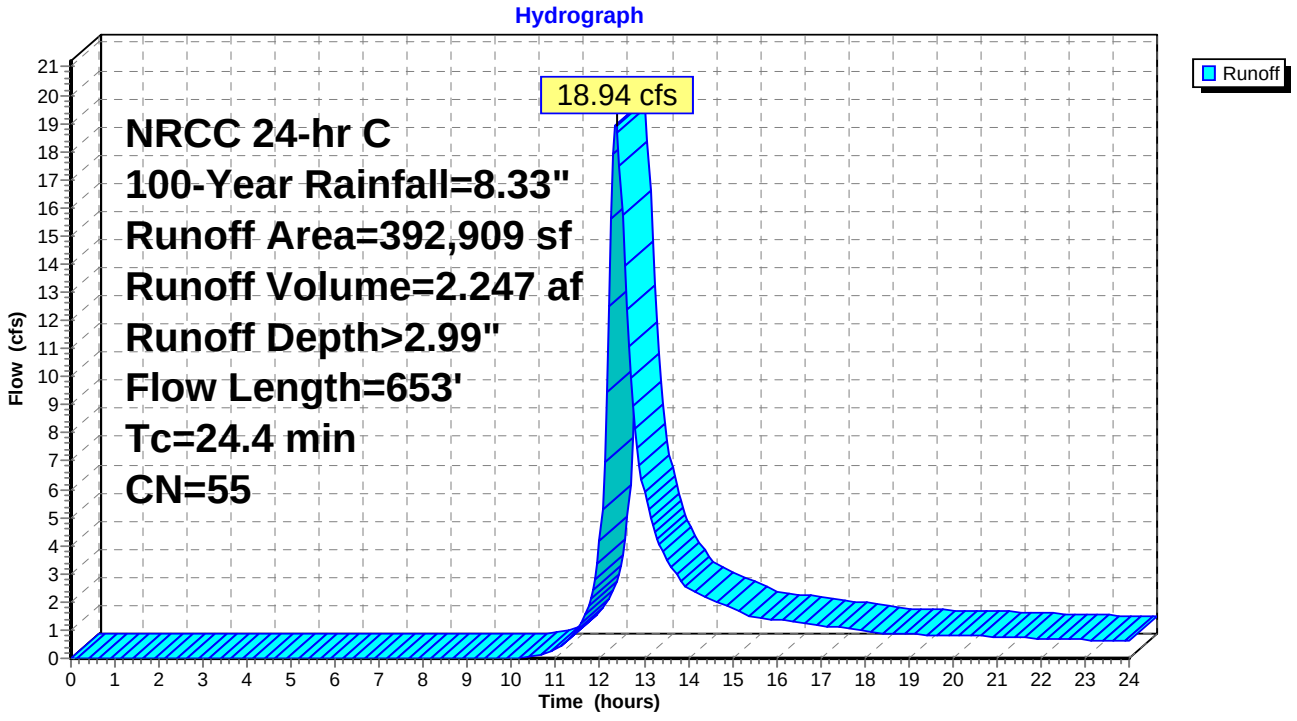
Runoff = 18.94 cfs @ 12.36 hrs, Volume= 2.247 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
392,909	55	Woods, Good, HSG B
392,909		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 1S: EXDA6

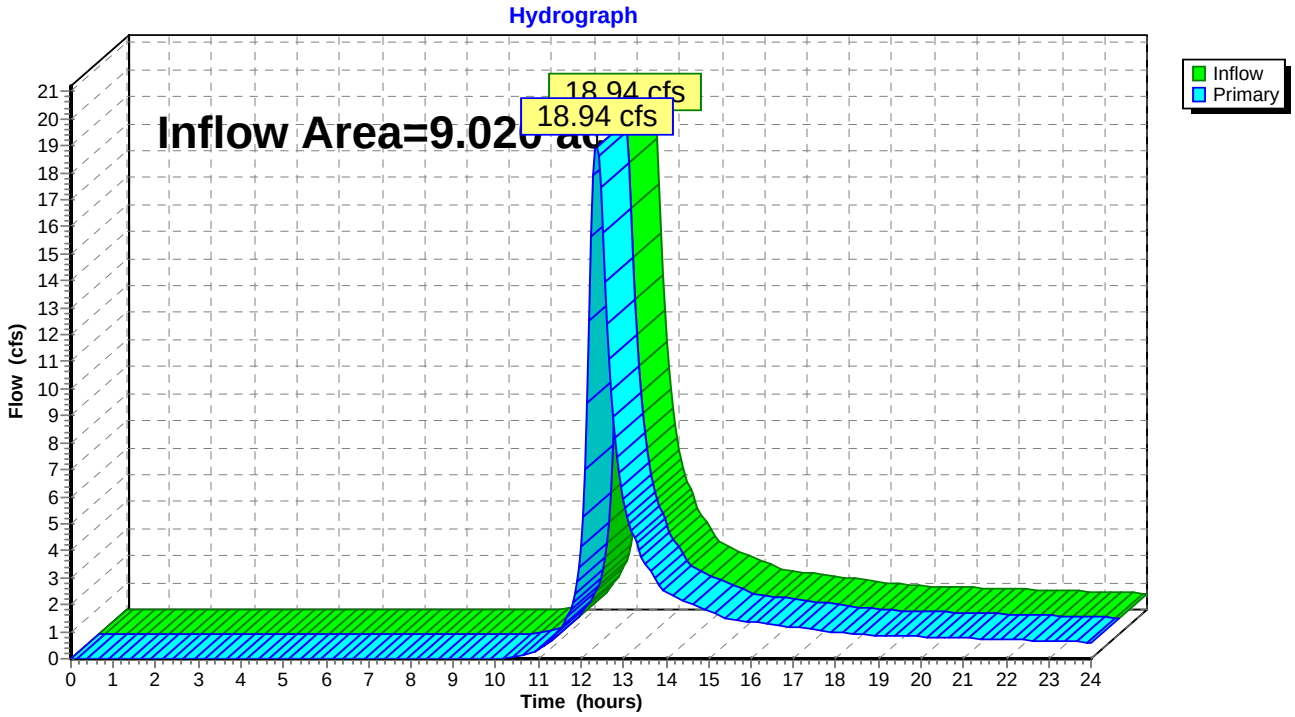


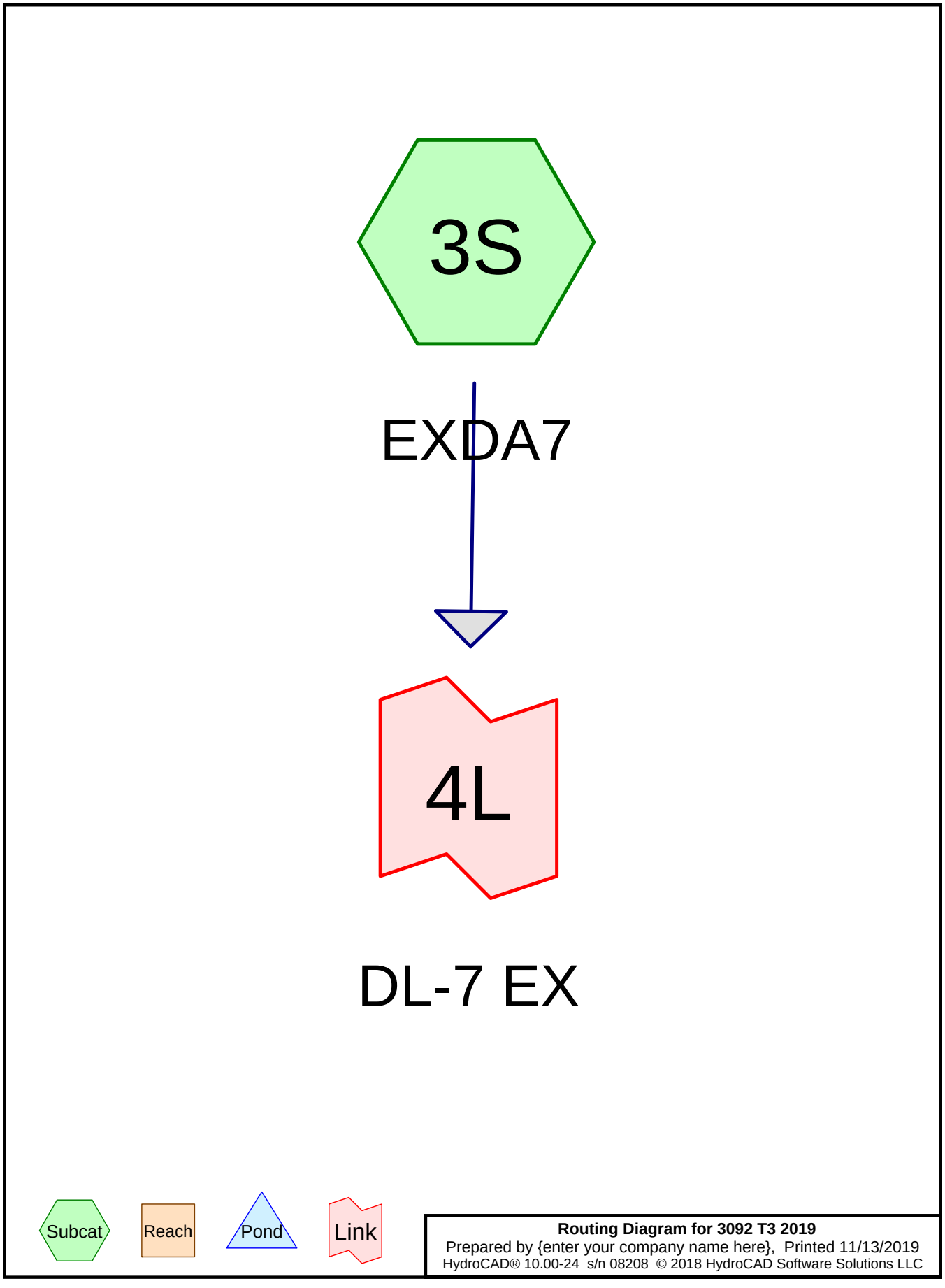
Summary for Link 2L: DL-6 EX

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 2.99" for 100-Year event
Inflow = 18.94 cfs @ 12.36 hrs, Volume= 2.247 af
Primary = 18.94 cfs @ 12.36 hrs, Volume= 2.247 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: DL-6 EX





Routing Diagram for 3092 T3 2019
Prepared by {enter your company name here}, Printed 11/13/2019

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 804 CT Litchfield

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.402	55	Woods, Good, HSG B (3S)
6.402	**55**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.402	HSG B	3S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
6.402		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	6.402	0.000	0.000	0.000	6.402	Woods, Good	3S
0.000	**6.402**	**0.000**	**0.000**	**0.000**	**6.402**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: EXDA7 Runoff Area=278,866 sf 0.00% Impervious Runoff Depth>0.24"
Flow Length=366' Tc=22.8 min CN=55 Runoff=0.42 cfs 0.130 af

Link 4L: DL-7 EX Inflow=0.42 cfs 0.130 af
Primary=0.42 cfs 0.130 af

Total Runoff Area = 6.402 ac Runoff Volume = 0.130 af Average Runoff Depth = 0.24"
100.00% Pervious = 6.402 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: EXDA7

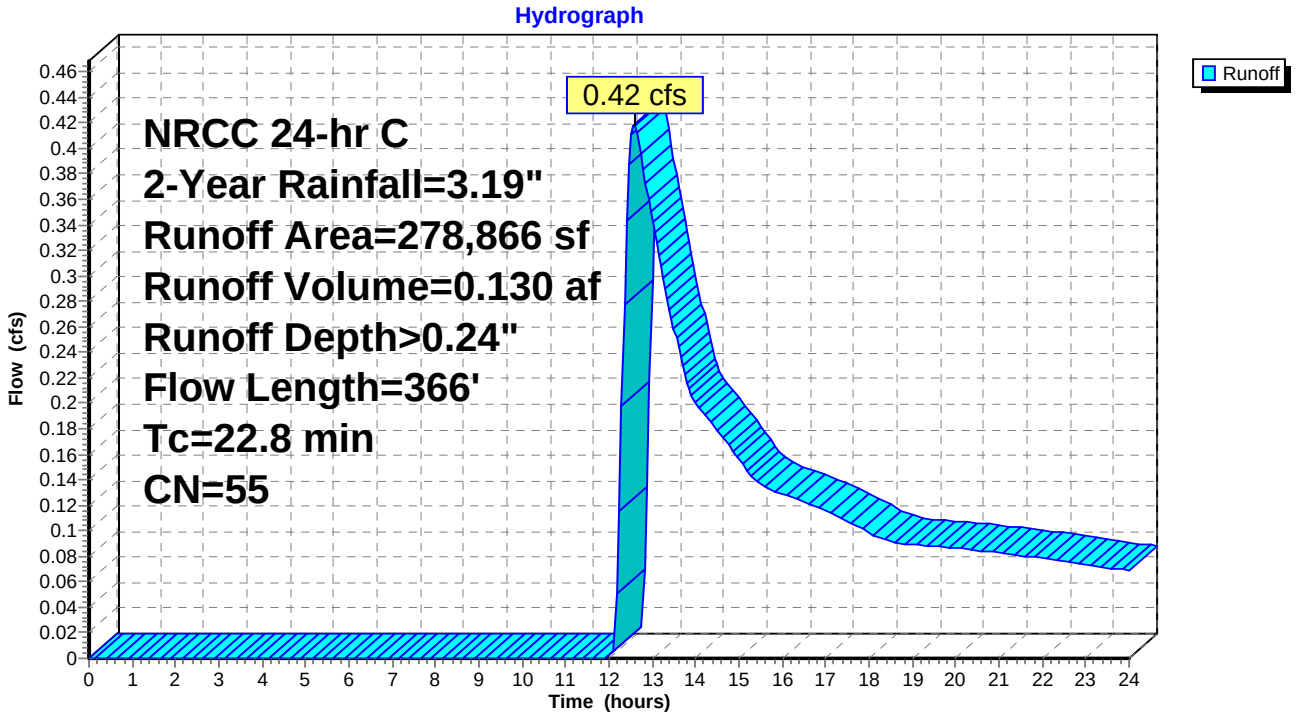
Runoff = 0.42 cfs @ 12.58 hrs, Volume= 0.130 af, Depth> 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
278,866	55	Woods, Good, HSG B
278,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 3S: EXDA7

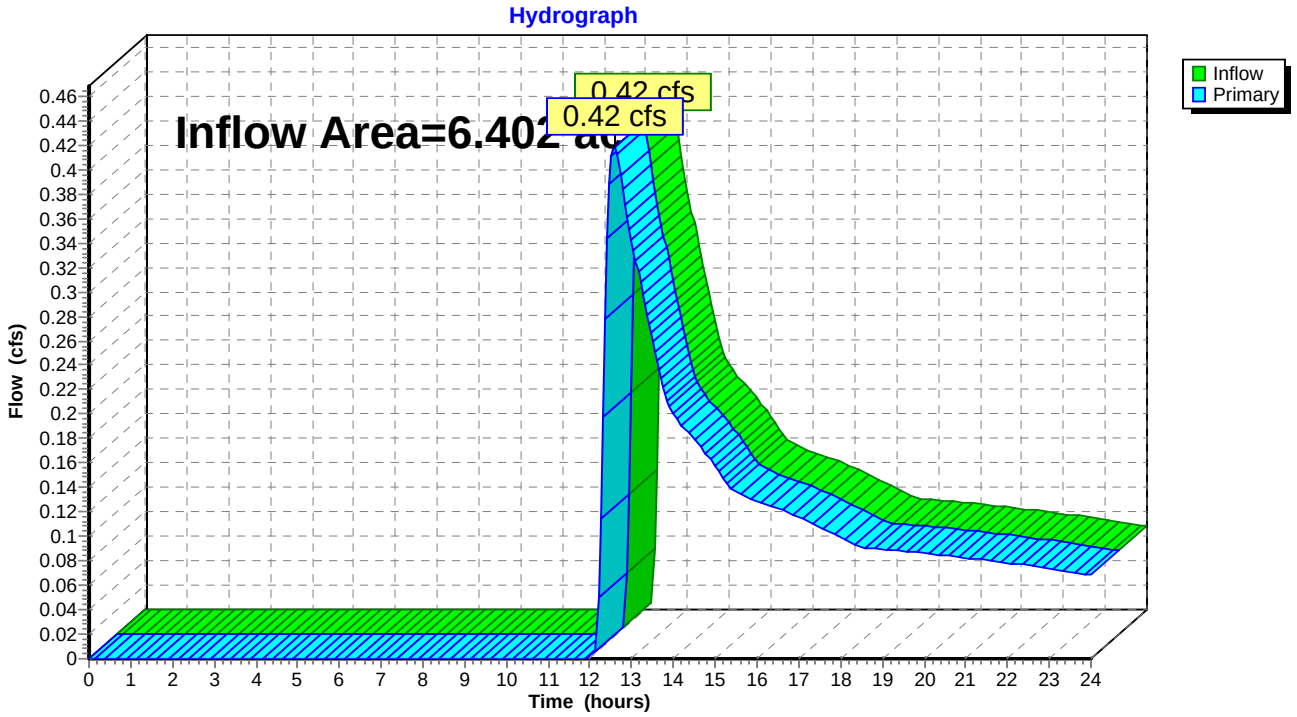


Summary for Link 4L: DL-7 EX

Inflow Area = 6.402 ac, 0.00% Impervious, Inflow Depth > 0.24" for 2-Year event
Inflow = 0.42 cfs @ 12.58 hrs, Volume= 0.130 af
Primary = 0.42 cfs @ 12.58 hrs, Volume= 0.130 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: DL-7 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: EXDA7 Runoff Area=278,866 sf 0.00% Impervious Runoff Depth>0.84"
Flow Length=366' Tc=22.8 min CN=55 Runoff=3.08 cfs 0.446 af

Link 4L: DL-7 EX Inflow=3.08 cfs 0.446 af
Primary=3.08 cfs 0.446 af

Total Runoff Area = 6.402 ac Runoff Volume = 0.446 af Average Runoff Depth = 0.84"
100.00% Pervious = 6.402 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: EXDA7

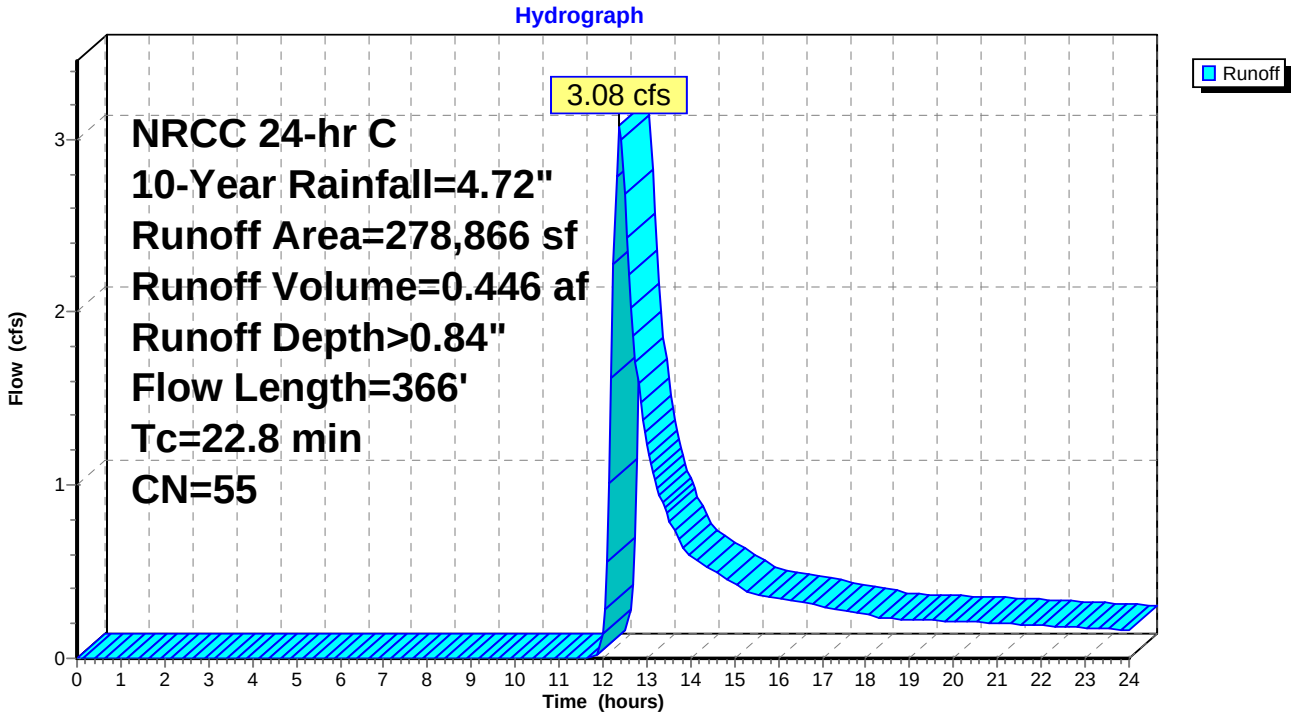
Runoff = 3.08 cfs @ 12.38 hrs, Volume= 0.446 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
278,866	55	Woods, Good, HSG B
278,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 3S: EXDA7

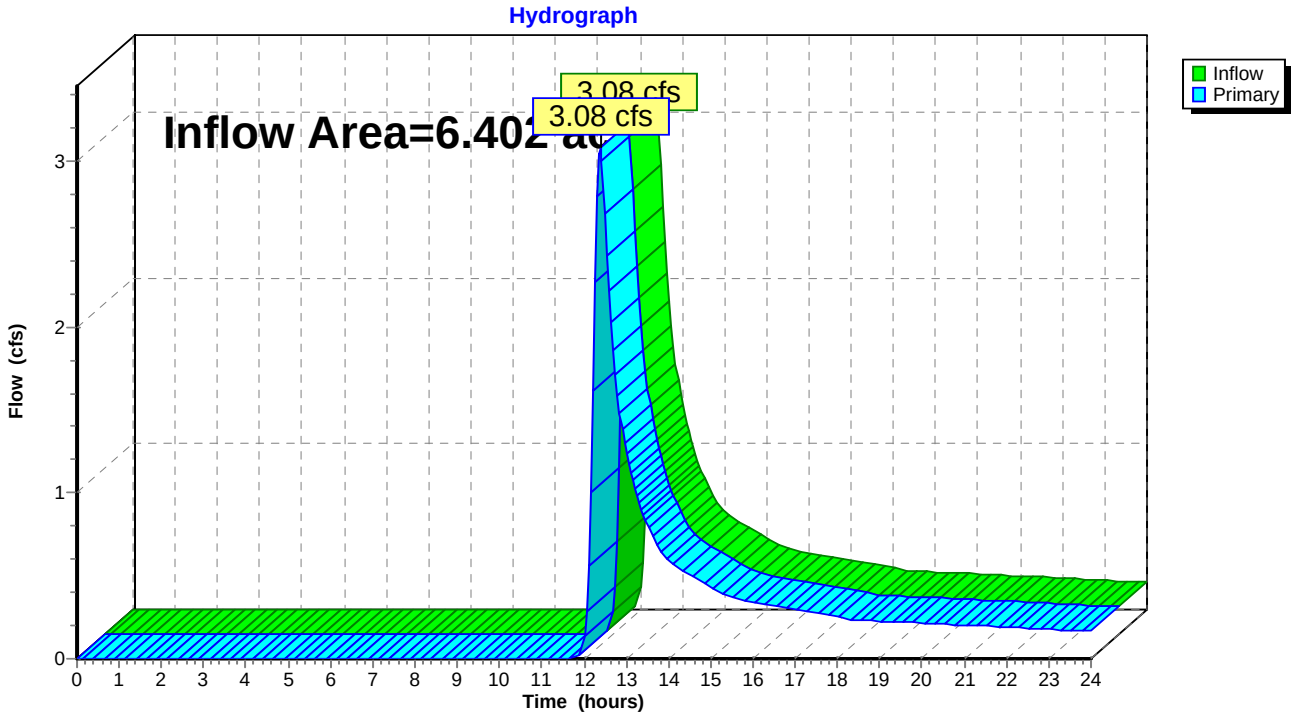


Summary for Link 4L: DL-7 EX

Inflow Area = 6.402 ac, 0.00% Impervious, Inflow Depth > 0.84" for 10-Year event
Inflow = 3.08 cfs @ 12.38 hrs, Volume= 0.446 af
Primary = 3.08 cfs @ 12.38 hrs, Volume= 0.446 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: DL-7 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: EXDA7 Runoff Area=278,866 sf 0.00% Impervious Runoff Depth>1.46"
Flow Length=366' Tc=22.8 min CN=55 Runoff=6.23 cfs 0.779 af

Link 4L: DL-7 EX Inflow=6.23 cfs 0.779 af
Primary=6.23 cfs 0.779 af

Total Runoff Area = 6.402 ac Runoff Volume = 0.779 af Average Runoff Depth = 1.46"
100.00% Pervious = 6.402 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: EXDA7

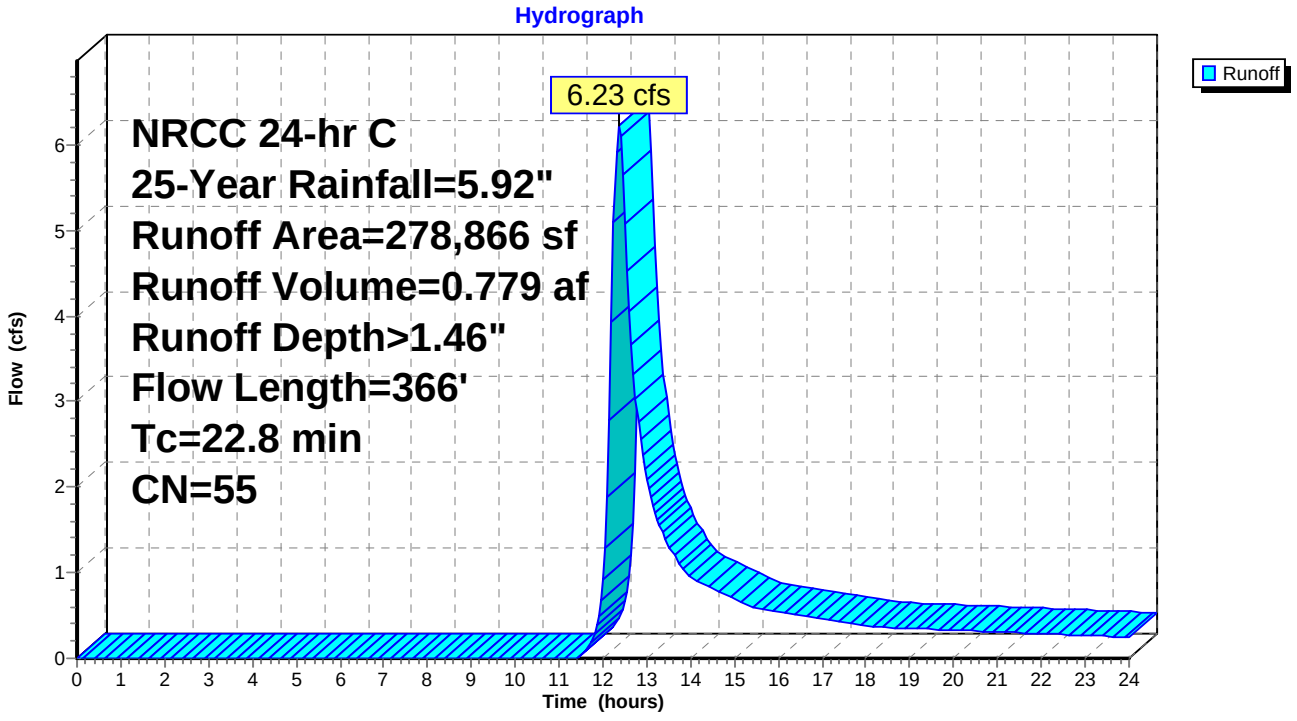
Runoff = 6.23 cfs @ 12.36 hrs, Volume= 0.779 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
278,866	55	Woods, Good, HSG B
278,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 3S: EXDA7

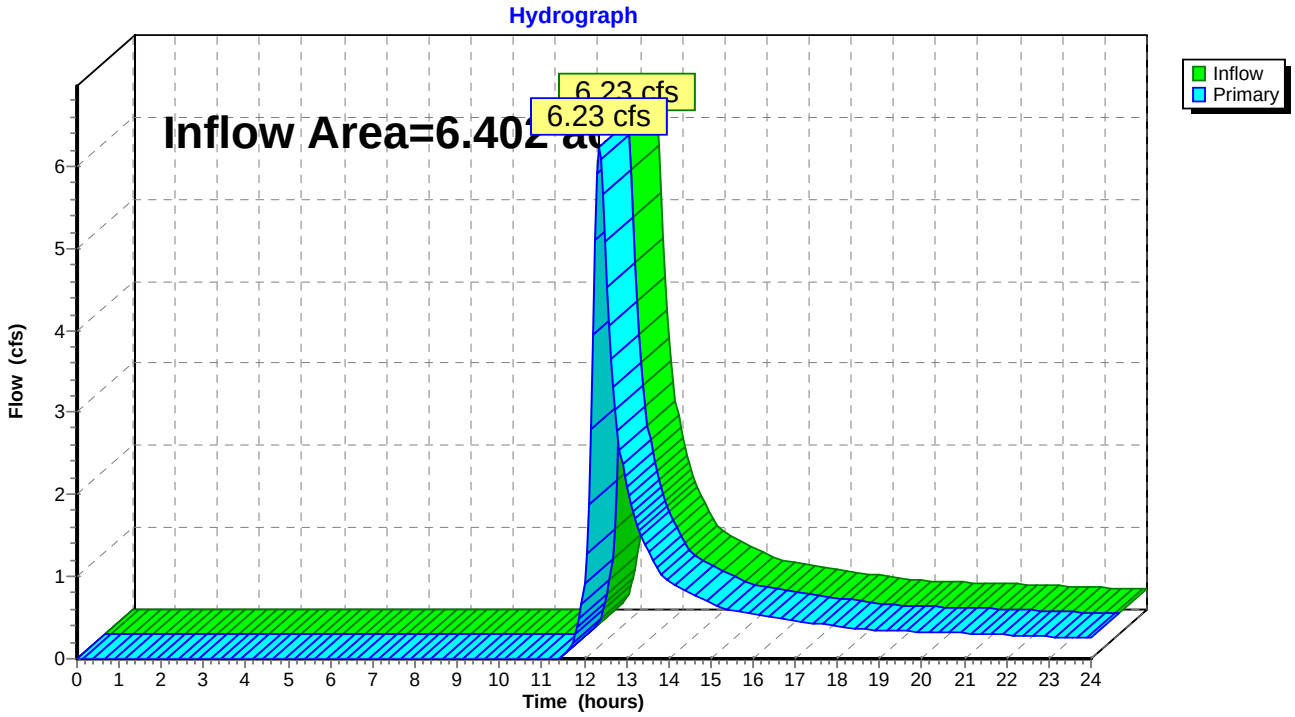


Summary for Link 4L: DL-7 EX

Inflow Area = 6.402 ac, 0.00% Impervious, Inflow Depth > 1.46" for 25-Year event
Inflow = 6.23 cfs @ 12.36 hrs, Volume= 0.779 af
Primary = 6.23 cfs @ 12.36 hrs, Volume= 0.779 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: DL-7 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: EXDA7 Runoff Area=278,866 sf 0.00% Impervious Runoff Depth>2.12"
Flow Length=366' Tc=22.8 min CN=55 Runoff=9.56 cfs 1.131 af

Link 4L: DL-7 EX Inflow=9.56 cfs 1.131 af
Primary=9.56 cfs 1.131 af

Total Runoff Area = 6.402 ac Runoff Volume = 1.131 af Average Runoff Depth = 2.12"
100.00% Pervious = 6.402 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: EXDA7

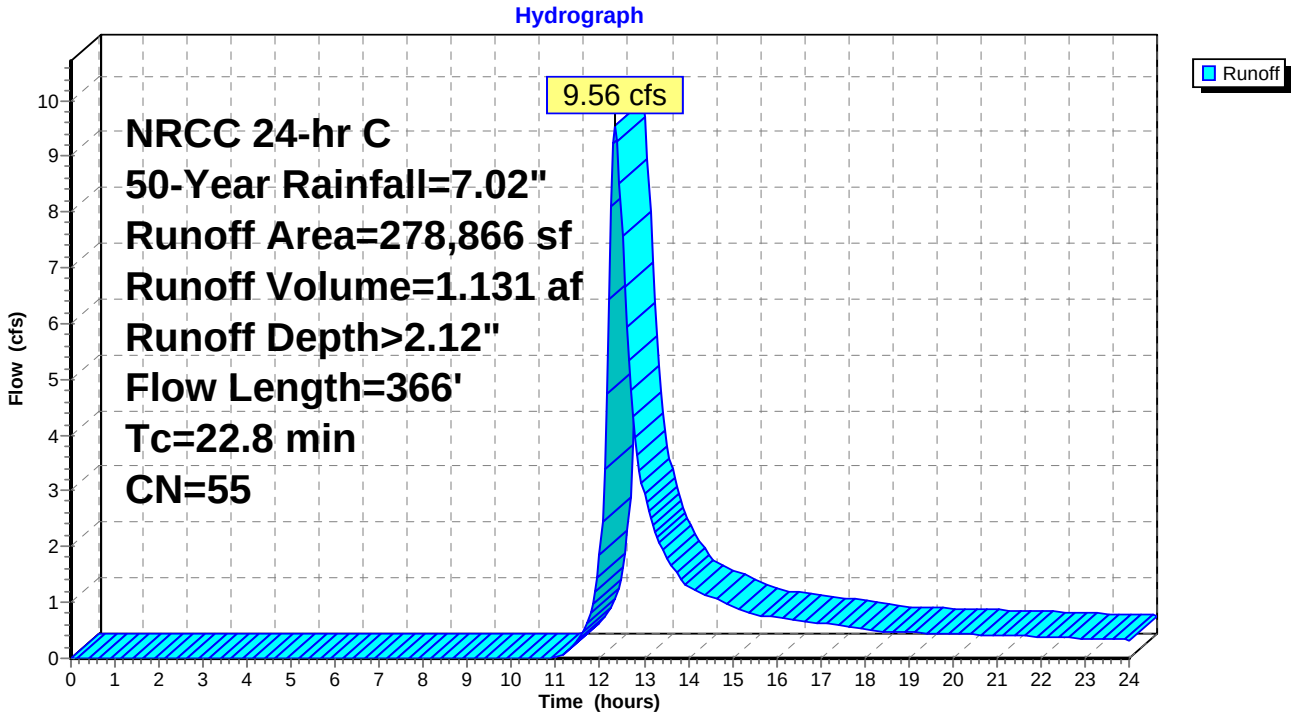
Runoff = 9.56 cfs @ 12.35 hrs, Volume= 1.131 af, Depth> 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
278,866	55	Woods, Good, HSG B
278,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 3S: EXDA7

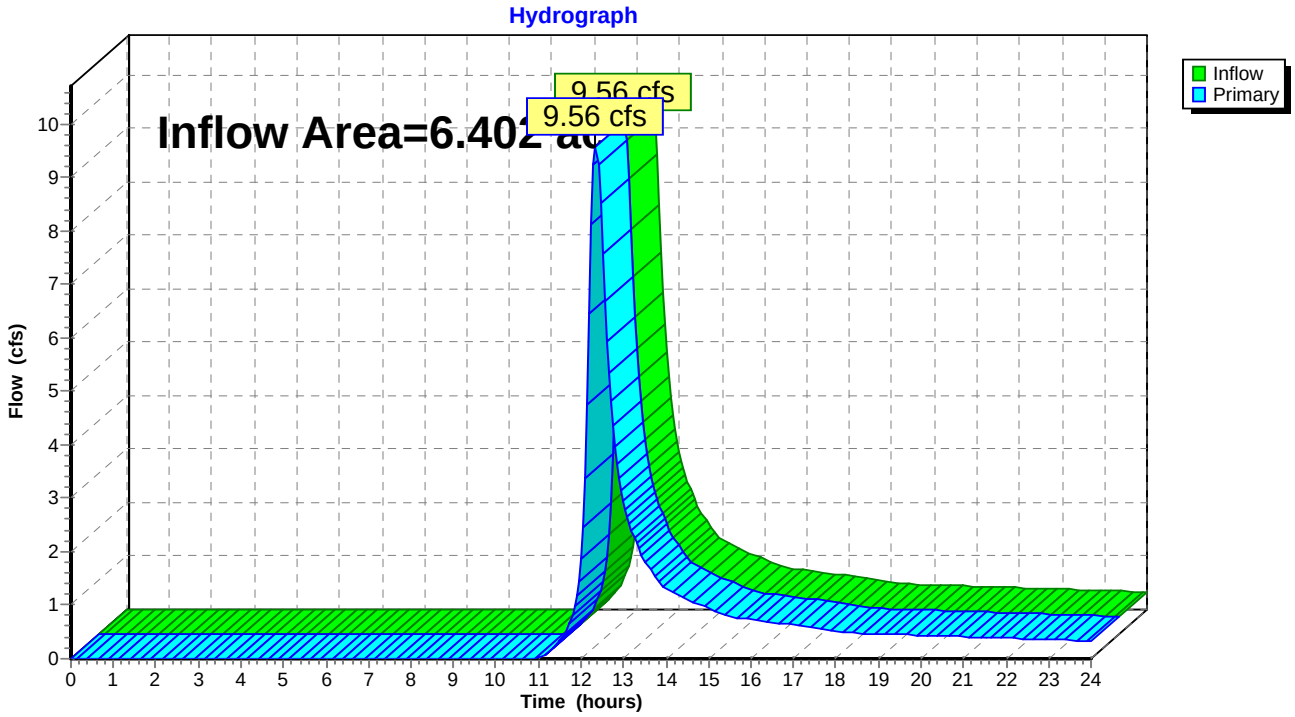


Summary for Link 4L: DL-7 EX

Inflow Area = 6.402 ac, 0.00% Impervious, Inflow Depth > 2.12" for 50-Year event
Inflow = 9.56 cfs @ 12.35 hrs, Volume= 1.131 af
Primary = 9.56 cfs @ 12.35 hrs, Volume= 1.131 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: DL-7 EX



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: EXDA7 Runoff Area=278,866 sf 0.00% Impervious Runoff Depth>2.99"
Flow Length=366' Tc=22.8 min CN=55 Runoff=13.93 cfs 1.595 af

Link 4L: DL-7 EX Inflow=13.93 cfs 1.595 af
Primary=13.93 cfs 1.595 af

Total Runoff Area = 6.402 ac Runoff Volume = 1.595 af Average Runoff Depth = 2.99"
100.00% Pervious = 6.402 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: EXDA7

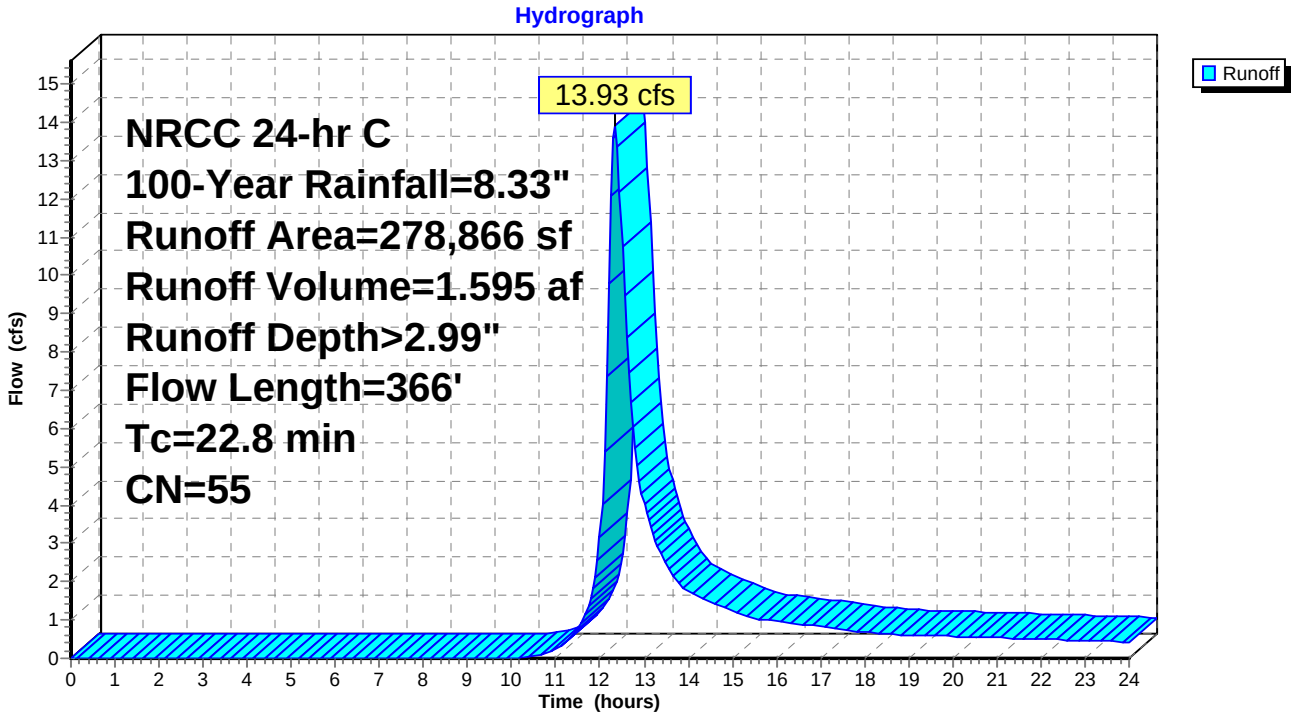
Runoff = 13.93 cfs @ 12.34 hrs, Volume= 1.595 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
278,866	55	Woods, Good, HSG B
278,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 3S: EXDA7

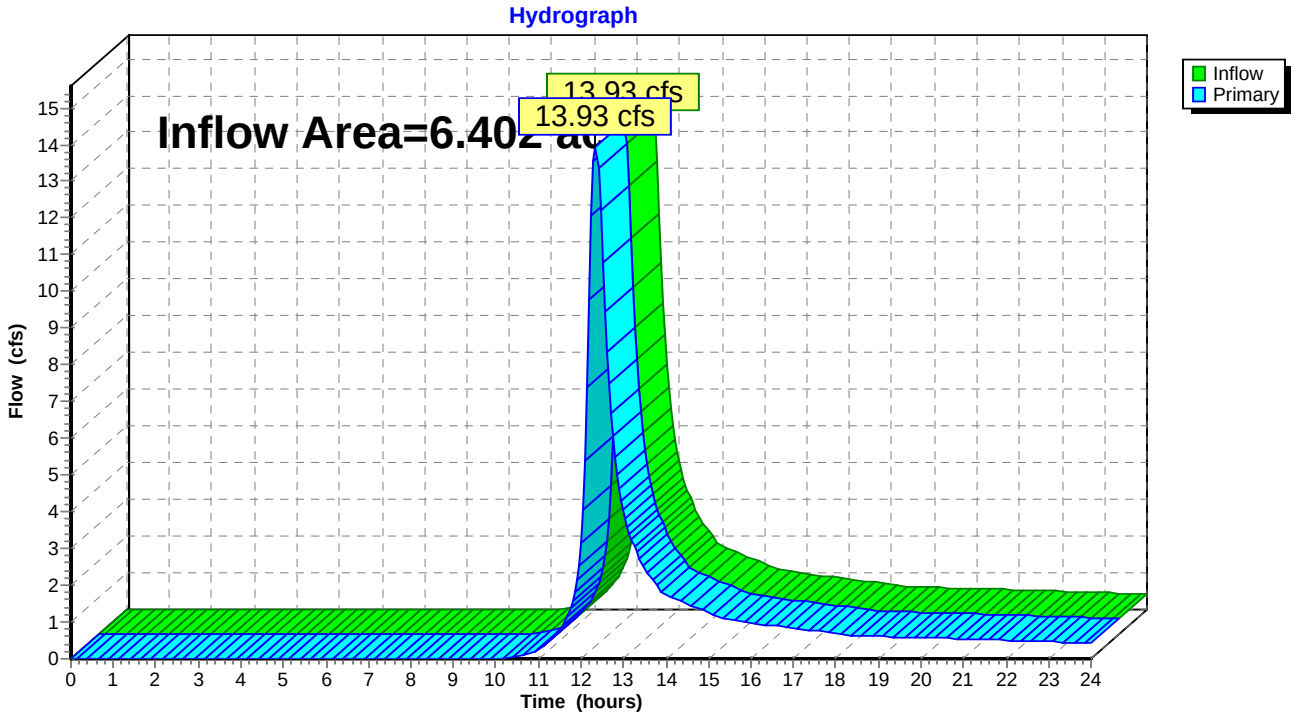


Summary for Link 4L: DL-7 EX

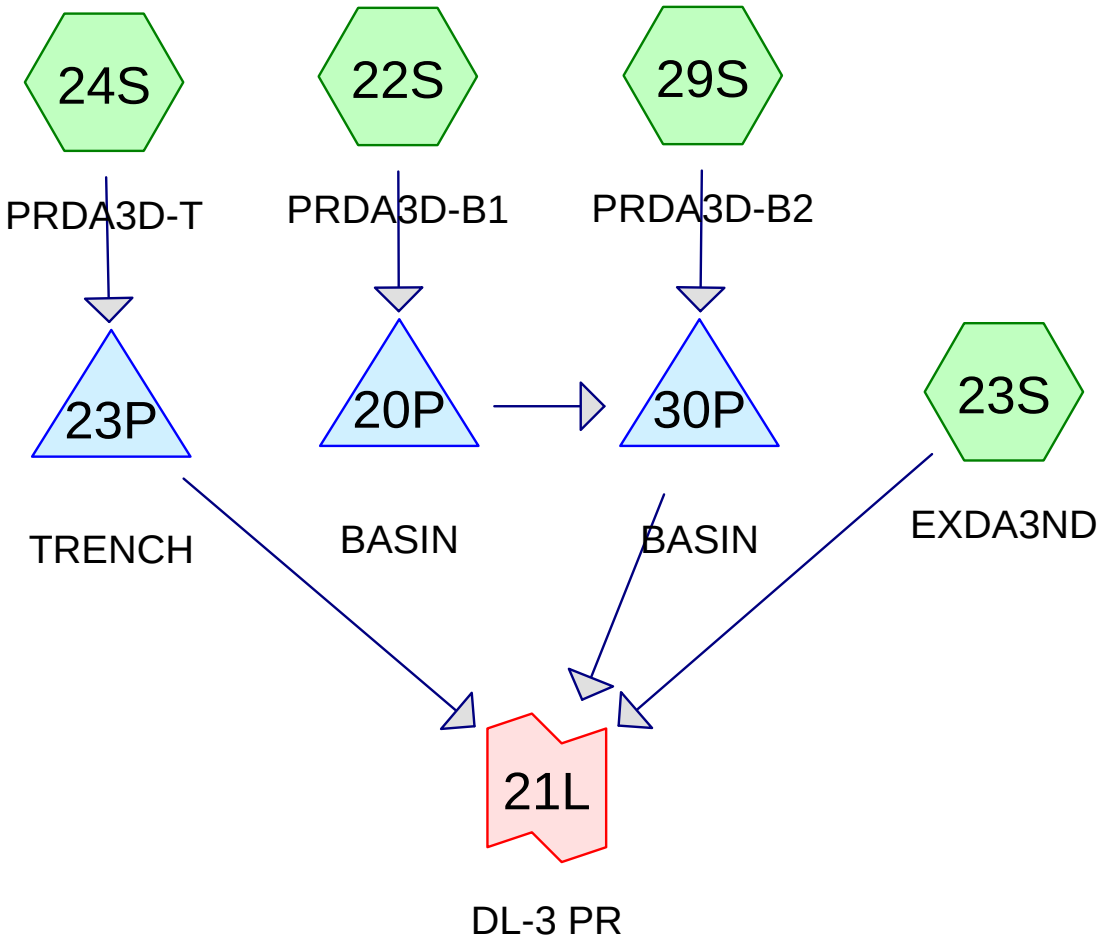
Inflow Area = 6.402 ac, 0.00% Impervious, Inflow Depth > 2.99" for 100-Year event
Inflow = 13.93 cfs @ 12.34 hrs, Volume= 1.595 af
Primary = 13.93 cfs @ 12.34 hrs, Volume= 1.595 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 4L: DL-7 EX



PROPOSED STORMWATER FLOWS



Subcat Reach Pond Link

Routing Diagram for 3092 T3 2019

Prepared by {enter your company name here}, Printed 11/13/2019

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 804 CT Litchfield

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.899	96	Gravel surface, HSG B (22S, 23S, 24S, 29S)
0.522	96	Gravel surface, HSG D (22S, 23S, 24S, 29S)
1.723	58	Meadow, non-grazed, HSG B (22S, 23S, 24S, 29S)
2.136	78	Meadow, non-grazed, HSG D (22S, 23S, 24S, 29S)
3.703	55	Woods, Good, HSG B (22S, 23S, 24S, 29S)
2.670	77	Woods, Good, HSG D (22S, 23S, 29S)
11.654	**70**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.326	HSG B	22S, 23S, 24S, 29S
0.000	HSG C	
5.328	HSG D	22S, 23S, 24S, 29S
0.000	Other	
11.654		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.899	0.000	0.522	0.000	1.422	Gravel surface	22S, 23S, 24S, 29S
0.000	1.723	0.000	2.136	0.000	3.860	Meadow, non-grazed	22S, 23S, 24S, 29S
0.000	3.703	0.000	2.670	0.000	6.372	Woods, Good	22S, 23S, 24S, 29S
0.000	**6.326**	**0.000**	**5.328**	**0.000**	**11.654**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 22S: PRDA3D-B1 Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>0.92"
Tc=7.8 min CN=72 Runoff=3.19 cfs 0.241 af

Subcatchment 23S: EXDA3ND Runoff Area=152,840 sf 0.00% Impervious Runoff Depth>0.63"
Tc=18.0 min CN=66 Runoff=1.53 cfs 0.185 af

Subcatchment 24S: PRDA3D-T Runoff Area=92,435 sf 0.00% Impervious Runoff Depth>0.48"
Tc=6.0 min CN=62 Runoff=0.93 cfs 0.084 af

Subcatchment 29S: PRDA3D-B2 Runoff Area=125,900 sf 0.00% Impervious Runoff Depth>1.26"
Tc=7.8 min CN=78 Runoff=4.21 cfs 0.304 af

Pond 20P: BASIN Peak Elev=1,444.15' Storage=3,267 cf Inflow=3.19 cfs 0.241 af
Outflow=0.60 cfs 0.223 af

Pond 23P: TRENCH Peak Elev=1,407.97' Storage=787 cf Inflow=0.93 cfs 0.084 af
Discarded=0.15 cfs 0.084 af Primary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.084 af

Pond 30P: BASIN Peak Elev=1,424.84' Storage=2,708 cf Inflow=4.53 cfs 0.527 af
Outflow=2.40 cfs 0.517 af

Link 21L: DL-3 PR Inflow=3.93 cfs 0.702 af
Primary=3.93 cfs 0.702 af

Total Runoff Area = 11.654 ac Runoff Volume = 0.814 af Average Runoff Depth = 0.84"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 22S: PRDA3D-B1

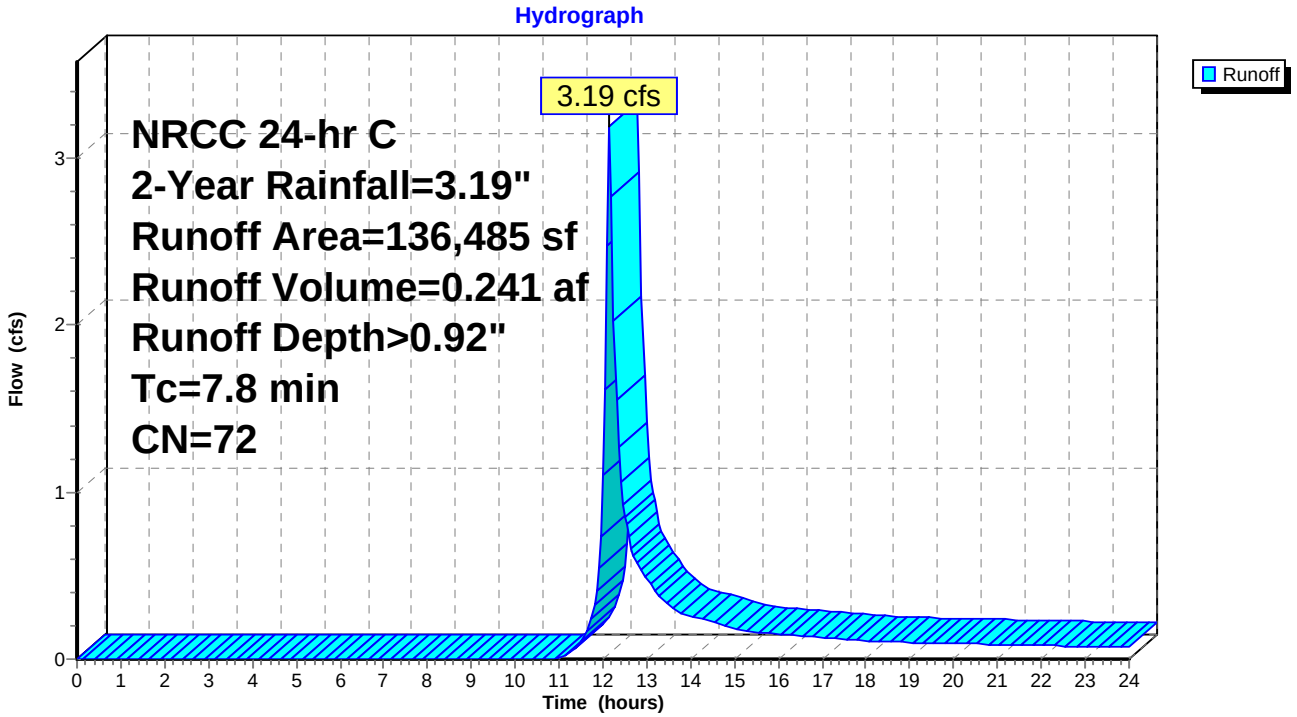
Runoff = 3.19 cfs @ 12.16 hrs, Volume= 0.241 af, Depth> 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 22S: PRDA3D-B1



Summary for Subcatchment 23S: EXDA3ND

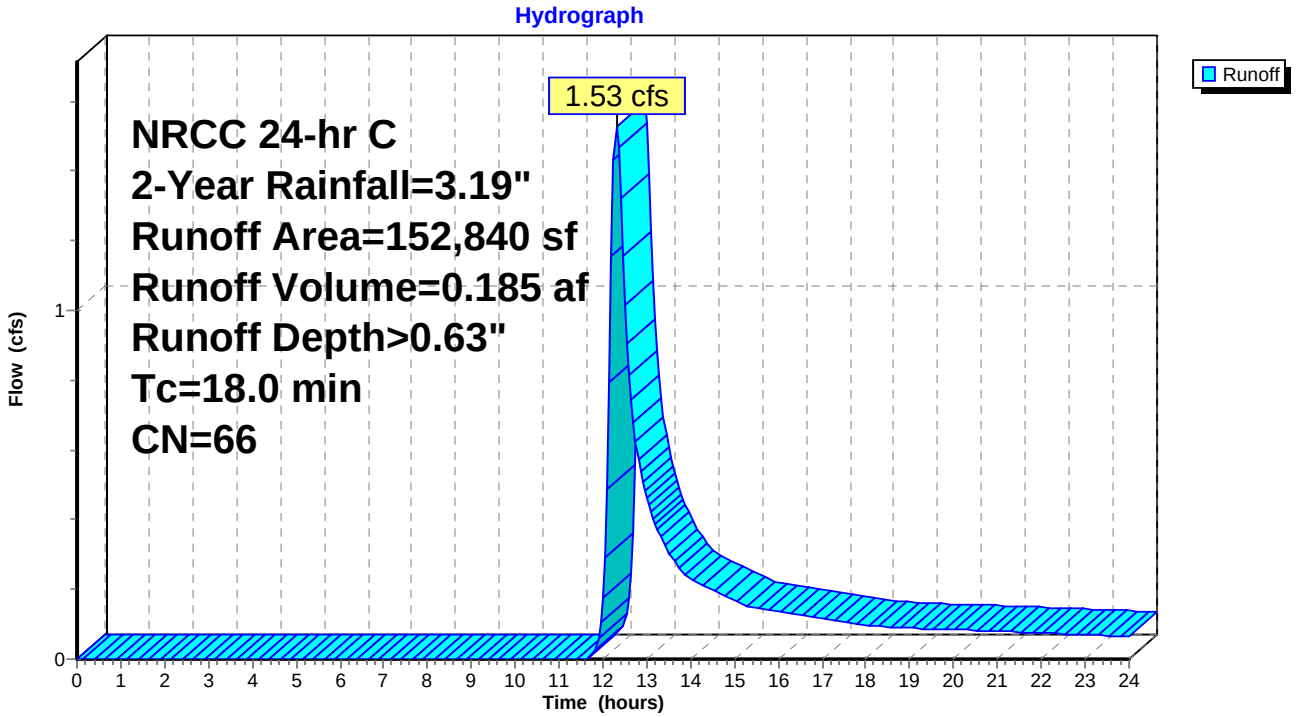
Runoff = 1.53 cfs @ 12.31 hrs, Volume= 0.185 af, Depth> 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
68,320	55	Woods, Good, HSG B
30,750	77	Woods, Good, HSG D
21,925	58	Meadow, non-grazed, HSG B
21,930	78	Meadow, non-grazed, HSG D
5,915	96	Gravel surface, HSG B
4,000	96	Gravel surface, HSG D
152,840	66	Weighted Average
152,840		100.00% Pervious Area

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

Subcatchment 23S: EXDA3ND



Summary for Subcatchment 24S: PRDA3D-T

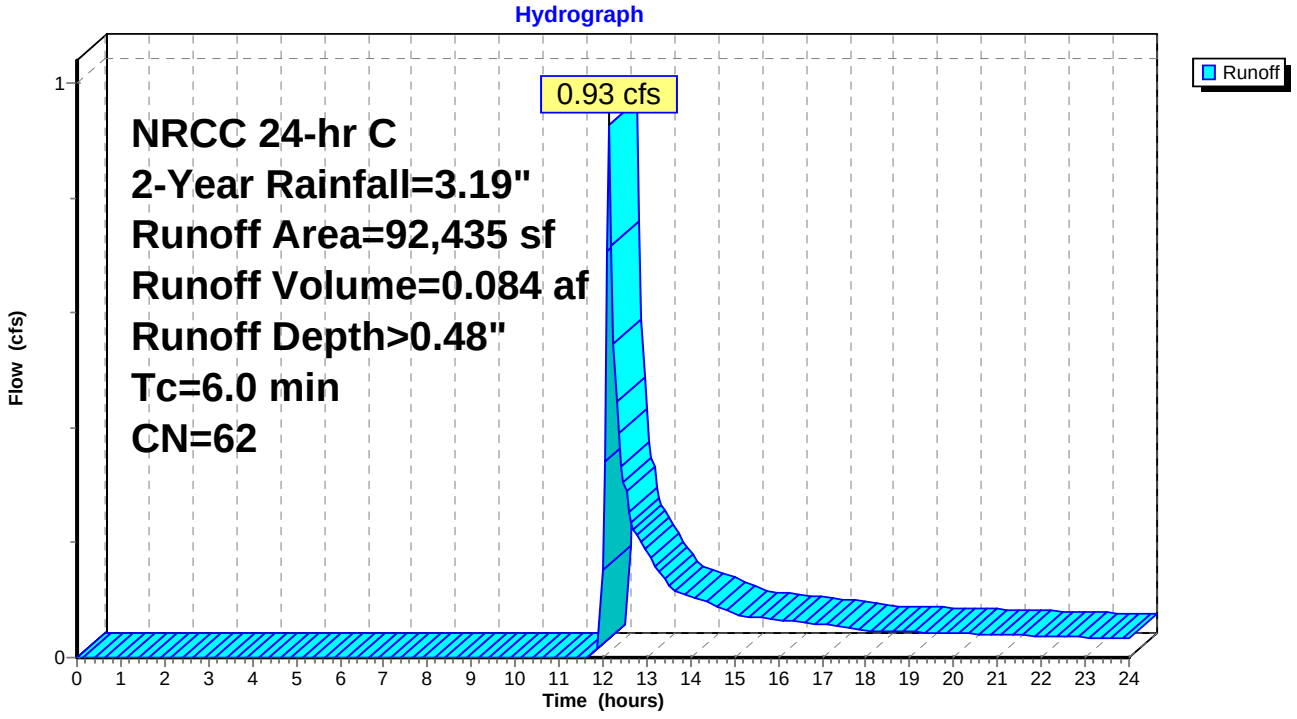
Runoff = 0.93 cfs @ 12.15 hrs, Volume= 0.084 af, Depth> 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
72,305	55	Woods, Good, HSG B
4,860	58	Meadow, non-grazed, HSG B
1,000	78	Meadow, non-grazed, HSG D
13,045	96	Gravel surface, HSG B
1,225	96	Gravel surface, HSG D
92,435	62	Weighted Average
92,435		100.00% Pervious Area

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

Subcatchment 24S: PRDA3D-T



Summary for Subcatchment 29S: PRDA3D-B2

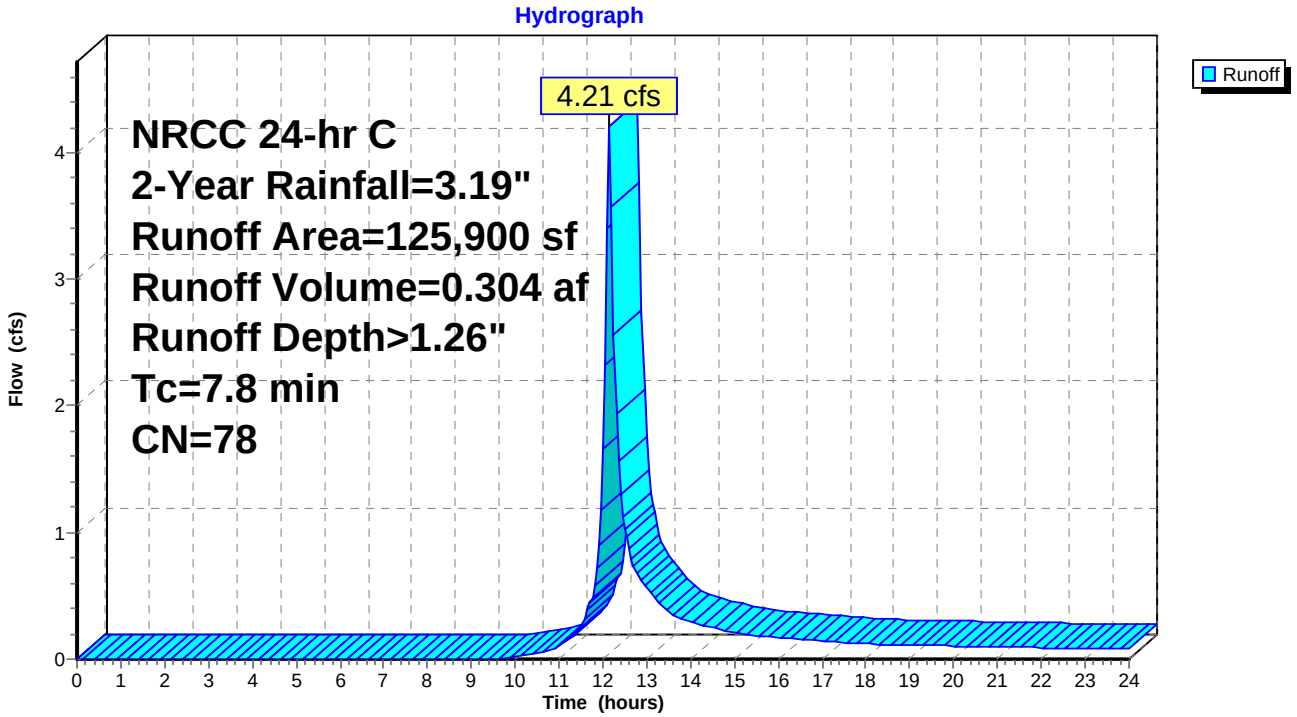
Runoff = 4.21 cfs @ 12.15 hrs, Volume= 0.304 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
6,140	55	Woods, Good, HSG B
43,280	77	Woods, Good, HSG D
3,875	58	Meadow, non-grazed, HSG B
57,000	78	Meadow, non-grazed, HSG D
1,110	96	Gravel surface, HSG B
14,495	96	Gravel surface, HSG D
125,900	78	Weighted Average
125,900		100.00% Pervious Area

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

Subcatchment 29S: PRDA3D-B2



Summary for Pond 20P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 0.92" for 2-Year event
Inflow = 3.19 cfs @ 12.16 hrs, Volume= 0.241 af
Outflow = 0.60 cfs @ 12.73 hrs, Volume= 0.223 af, Atten= 81%, Lag= 34.3 min
Primary = 0.60 cfs @ 12.73 hrs, Volume= 0.223 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,444.15' @ 12.73 hrs Surf.Area= 5,470 sf Storage= 3,267 cf

Plug-Flow detention time= 100.0 min calculated for 0.223 af (93% of inflow)
Center-of-Mass det. time= 62.5 min (945.4 - 883.0)

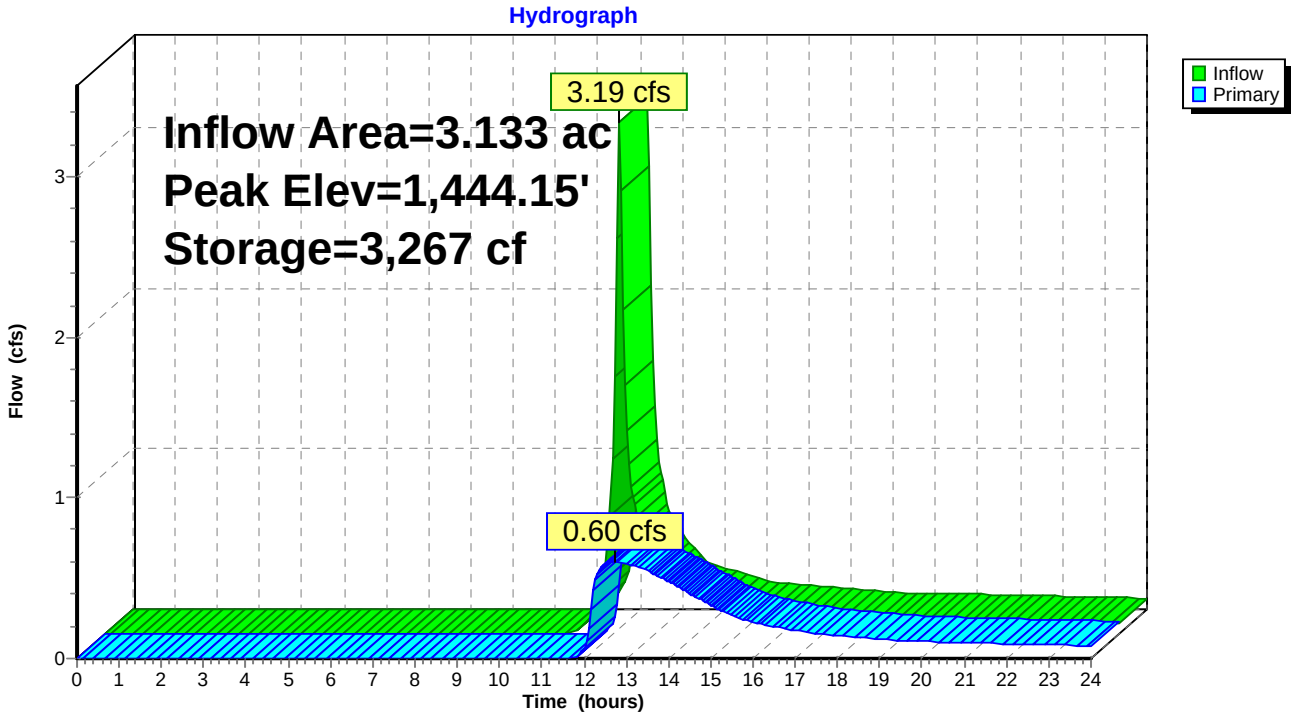
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	29,896 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	4,556	0	0
1,445.50	7,360	11,916	11,916
1,447.50	10,620	17,980	29,896

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.60 cfs @ 12.73 hrs HW=1,444.15' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.60 cfs @ 3.05 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 20P: BASIN



Summary for Pond 23P: TRENCH

Inflow Area = 2.122 ac, 0.00% Impervious, Inflow Depth > 0.48" for 2-Year event
Inflow = 0.93 cfs @ 12.15 hrs, Volume= 0.084 af
Outflow = 0.15 cfs @ 13.25 hrs, Volume= 0.084 af, Atten= 84%, Lag= 66.2 min
Discarded = 0.15 cfs @ 13.25 hrs, Volume= 0.084 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,407.97' @ 13.25 hrs Surf.Area= 1,000 sf Storage= 787 cf

Plug-Flow detention time= 39.5 min calculated for 0.084 af (100% of inflow)
Center-of-Mass det. time= 39.1 min (965.1 - 926.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,406.00'	800 cf	**2.00'W x 500.00'L x 2.00'H STONE TRENCH** 2,000 cf Overall x 40.0% Voids
#2	1,408.00'	1,313 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		2,113 cf	Total Available Storage

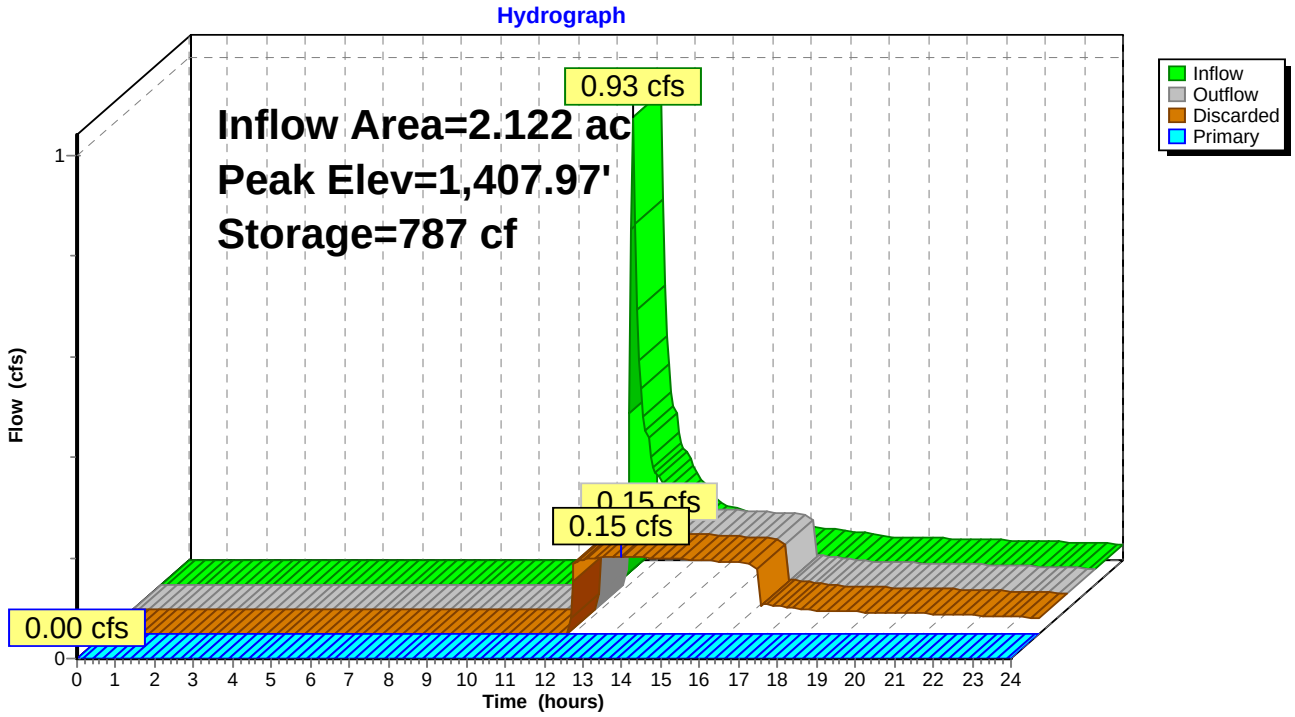
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,408.00	1,000	0	0
1,408.75	2,500	1,313	1,313

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,406.00'	**6.000 in/hr Exfiltration over Surface area below 1,408.00'** Conductivity to Groundwater Elevation = 1,386.00'
#2	Primary	1,408.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.15 cfs @ 13.25 hrs HW=1,407.97' (Free Discharge)
1=Exfiltration (Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,406.00' (Free Discharge)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 23P: TRENCH



Summary for Pond 30P: BASIN

Inflow Area = 6.024 ac, 0.00% Impervious, Inflow Depth > 1.05" for 2-Year event
Inflow = 4.53 cfs @ 12.16 hrs, Volume= 0.527 af
Outflow = 2.40 cfs @ 12.32 hrs, Volume= 0.517 af, Atten= 47%, Lag= 9.5 min
Primary = 2.40 cfs @ 12.32 hrs, Volume= 0.517 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,424.84' @ 12.32 hrs Surf.Area= 3,551 sf Storage= 2,708 cf

Plug-Flow detention time= 26.6 min calculated for 0.517 af (98% of inflow)
Center-of-Mass det. time= 16.3 min (913.4 - 897.1)

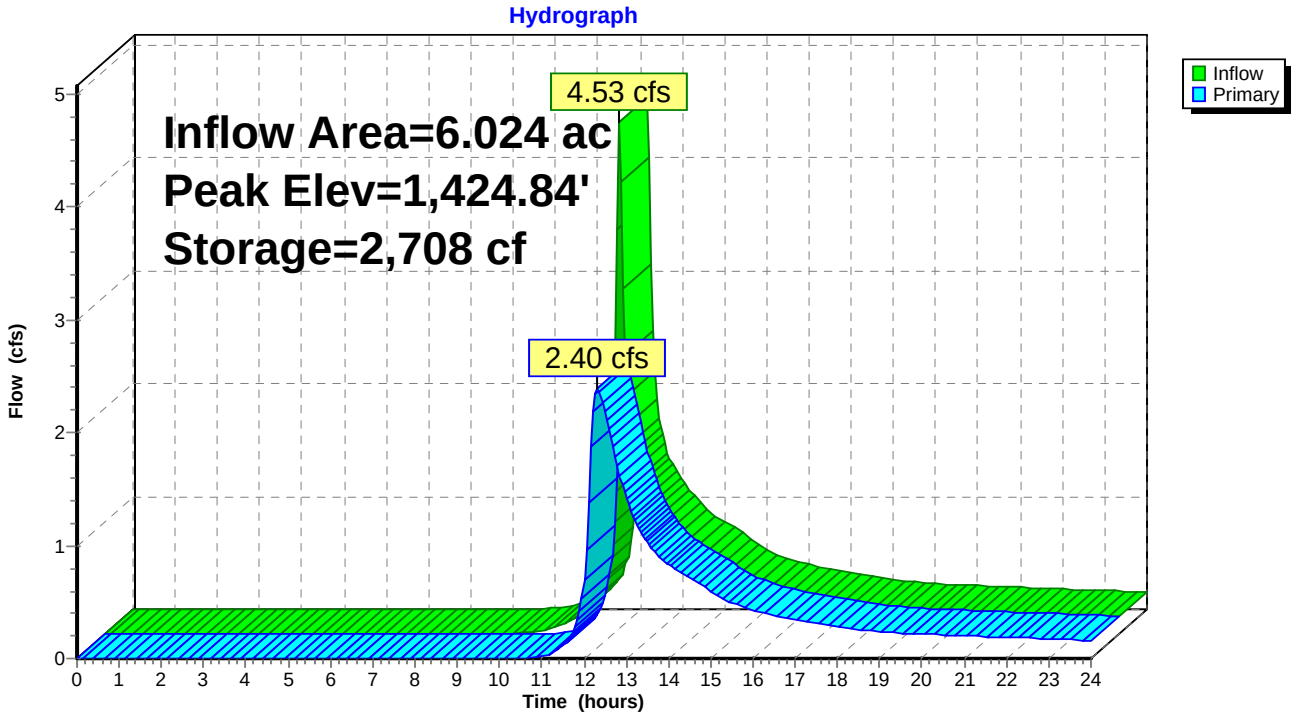
Volume	Invert	Avail.Storage	Storage Description
#1	1,424.00'	12,256 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,424.00	2,888	0	0
1,426.00	4,465	7,353	7,353
1,427.00	5,340	4,903	12,256

Device	Routing	Invert	Outlet Devices
#1	Primary	1,424.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600
#2	Primary	1,425.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,426.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.39 cfs @ 12.32 hrs HW=1,424.84' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 2.39 cfs @ 3.42 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 30P: BASIN

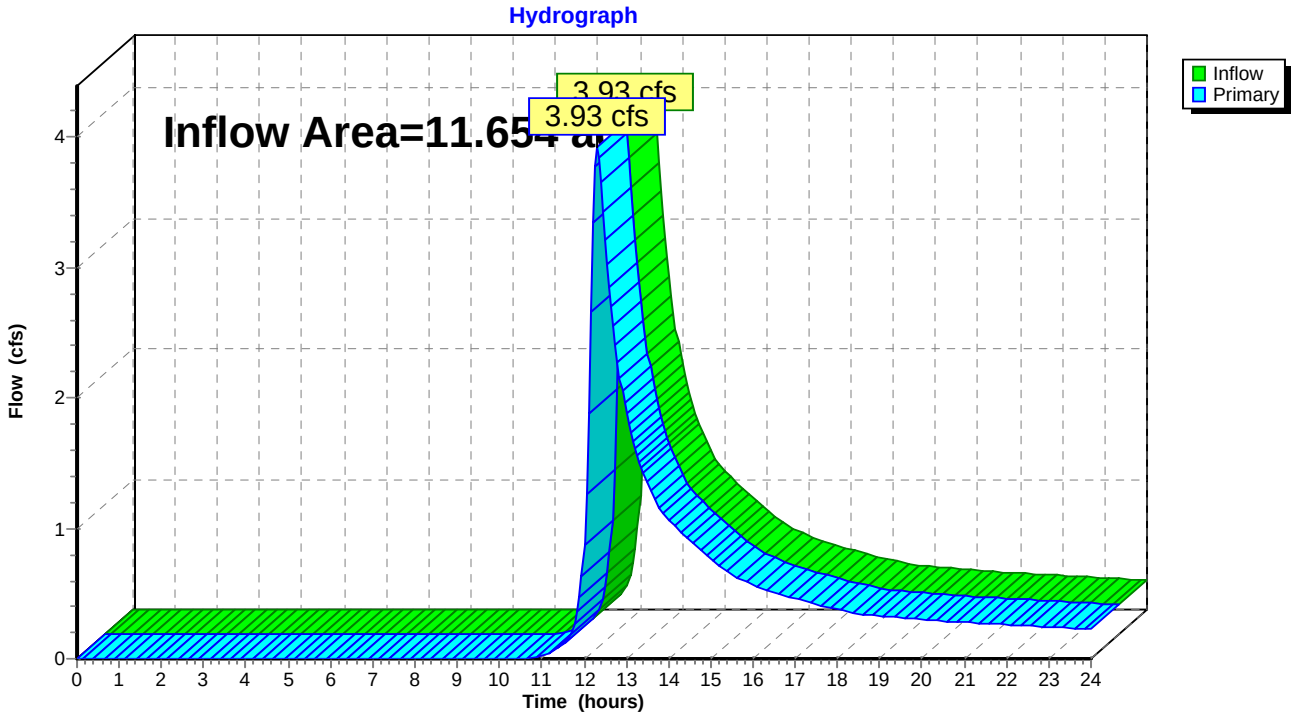


Summary for Link 21L: DL-3 PR

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 0.72" for 2-Year event
Inflow = 3.93 cfs @ 12.31 hrs, Volume= 0.702 af
Primary = 3.93 cfs @ 12.31 hrs, Volume= 0.702 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 21L: DL-3 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 22S: PRDA3D-B1 Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>1.98"
Tc=7.8 min CN=72 Runoff=7.18 cfs 0.517 af

Subcatchment 23S: EXDA3ND Runoff Area=152,840 sf 0.00% Impervious Runoff Depth>1.53"
Tc=18.0 min CN=66 Runoff=4.30 cfs 0.448 af

Subcatchment 24S: PRDA3D-T Runoff Area=92,435 sf 0.00% Impervious Runoff Depth>1.27"
Tc=6.0 min CN=62 Runoff=3.12 cfs 0.224 af

Subcatchment 29S: PRDA3D-B2 Runoff Area=125,900 sf 0.00% Impervious Runoff Depth>2.47"
Tc=7.8 min CN=78 Runoff=8.31 cfs 0.595 af

Pond 20P: BASIN Peak Elev=1,445.00' Storage=8,425 cf Inflow=7.18 cfs 0.517 af
Outflow=1.06 cfs 0.493 af

Pond 23P: TRENCH Peak Elev=1,408.28' Storage=1,157 cf Inflow=3.12 cfs 0.224 af
Discarded=0.30 cfs 0.163 af Primary=2.39 cfs 0.061 af Outflow=2.68 cfs 0.224 af

Pond 30P: BASIN Peak Elev=1,425.57' Storage=5,502 cf Inflow=9.09 cfs 1.088 af
Outflow=4.92 cfs 1.074 af

Link 21L: DL-3 PR Inflow=10.76 cfs 1.583 af
Primary=10.76 cfs 1.583 af

Total Runoff Area = 11.654 ac Runoff Volume = 1.784 af Average Runoff Depth = 1.84"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 22S: PRDA3D-B1

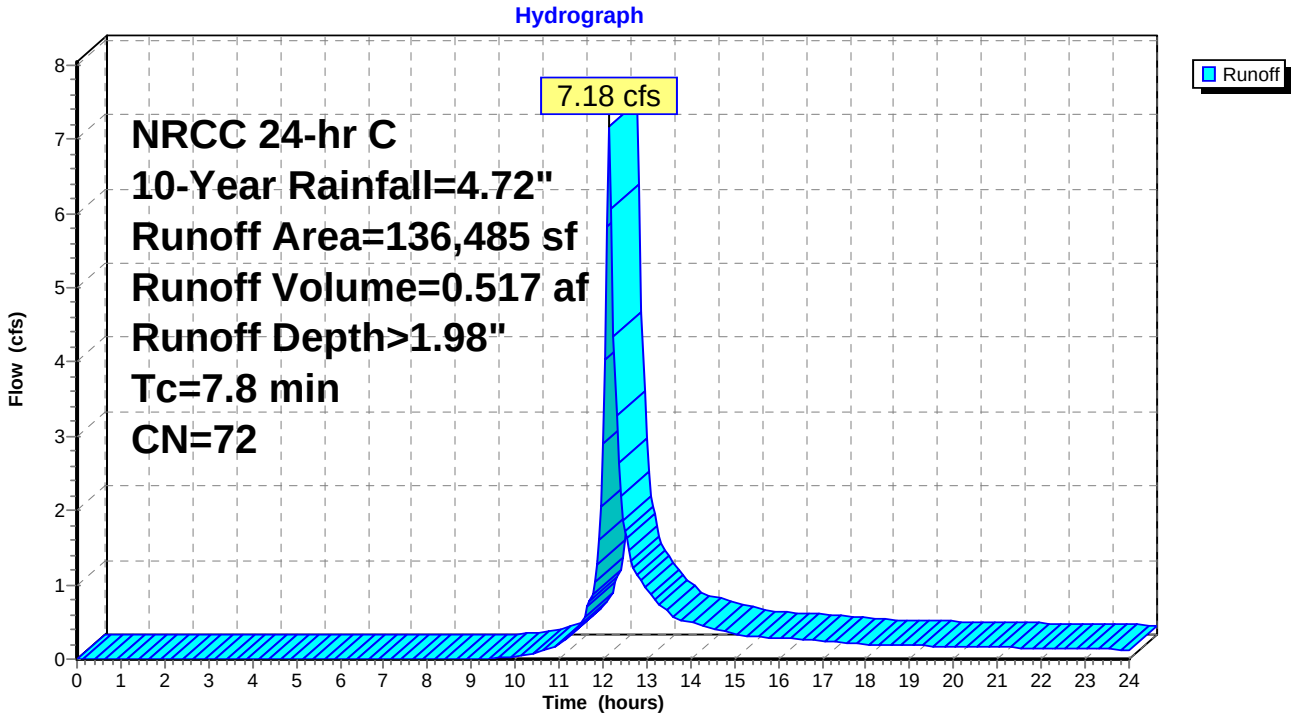
Runoff = 7.18 cfs @ 12.15 hrs, Volume= 0.517 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 22S: PRDA3D-B1



Summary for Subcatchment 23S: EXDA3ND

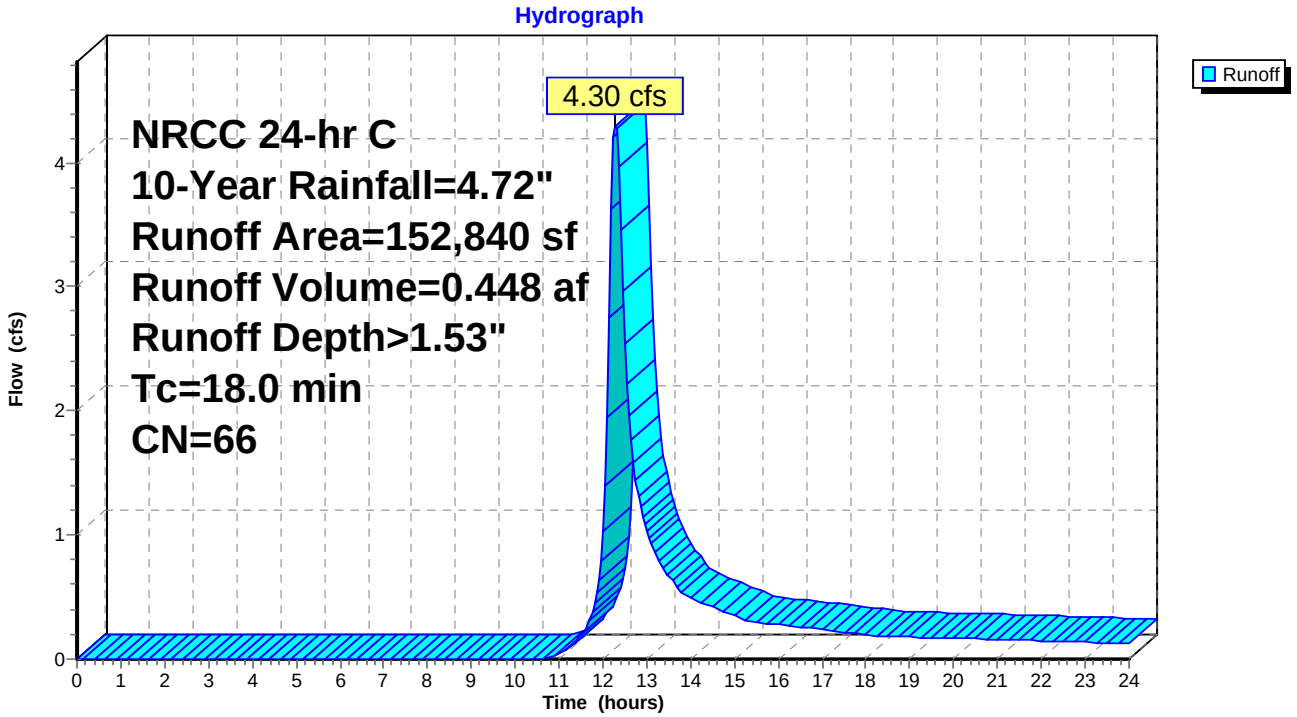
Runoff = 4.30 cfs @ 12.29 hrs, Volume= 0.448 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
68,320	55	Woods, Good, HSG B
30,750	77	Woods, Good, HSG D
21,925	58	Meadow, non-grazed, HSG B
21,930	78	Meadow, non-grazed, HSG D
5,915	96	Gravel surface, HSG B
4,000	96	Gravel surface, HSG D
152,840	66	Weighted Average
152,840		100.00% Pervious Area

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

Subcatchment 23S: EXDA3ND



Summary for Subcatchment 24S: PRDA3D-T

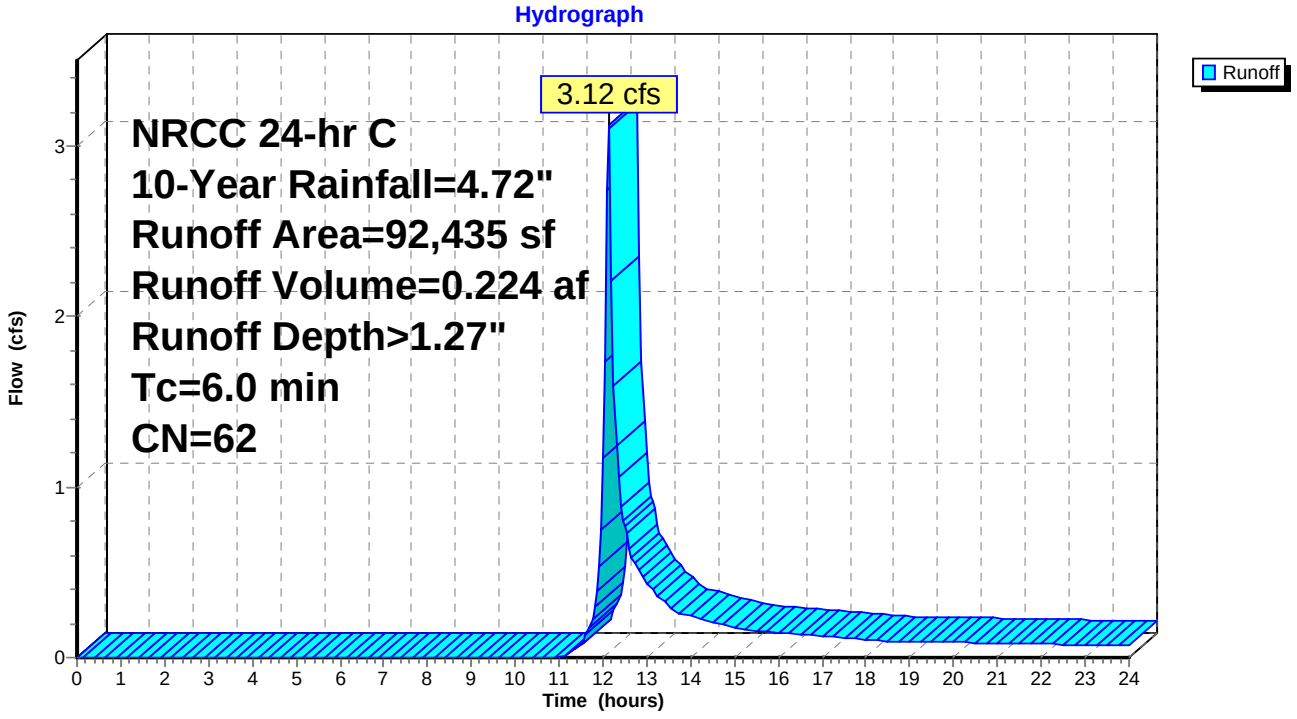
Runoff = 3.12 cfs @ 12.14 hrs, Volume= 0.224 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
72,305	55	Woods, Good, HSG B
4,860	58	Meadow, non-grazed, HSG B
1,000	78	Meadow, non-grazed, HSG D
13,045	96	Gravel surface, HSG B
1,225	96	Gravel surface, HSG D
92,435	62	Weighted Average
92,435		100.00% Pervious Area

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

Subcatchment 24S: PRDA3D-T



Summary for Subcatchment 29S: PRDA3D-B2

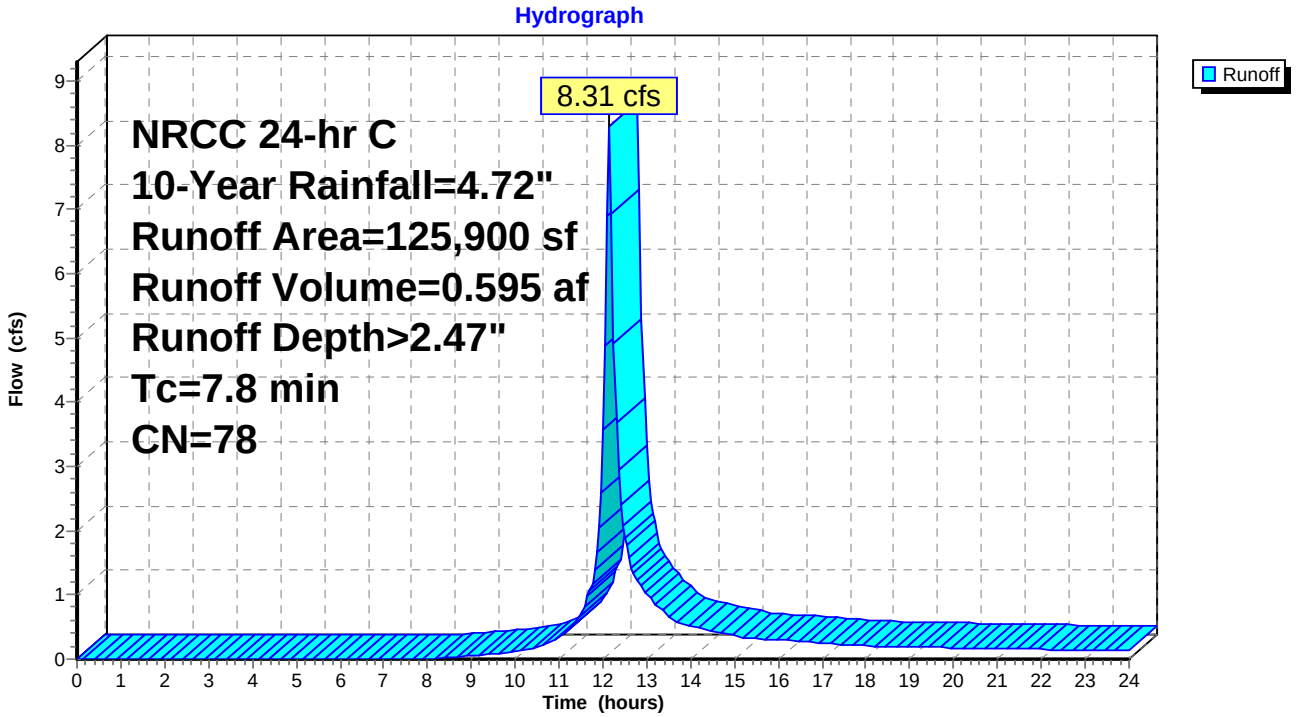
Runoff = 8.31 cfs @ 12.15 hrs, Volume= 0.595 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
6,140	55	Woods, Good, HSG B
43,280	77	Woods, Good, HSG D
3,875	58	Meadow, non-grazed, HSG B
57,000	78	Meadow, non-grazed, HSG D
1,110	96	Gravel surface, HSG B
14,495	96	Gravel surface, HSG D
125,900	78	Weighted Average
125,900		100.00% Pervious Area

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

Subcatchment 29S: PRDA3D-B2



Summary for Pond 20P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 1.98" for 10-Year event
Inflow = 7.18 cfs @ 12.15 hrs, Volume= 0.517 af
Outflow = 1.06 cfs @ 12.87 hrs, Volume= 0.493 af, Atten= 85%, Lag= 43.0 min
Primary = 1.06 cfs @ 12.87 hrs, Volume= 0.493 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,445.00' @ 12.87 hrs Surf.Area= 6,662 sf Storage= 8,425 cf

Plug-Flow detention time= 108.8 min calculated for 0.492 af (95% of inflow)
Center-of-Mass det. time= 83.3 min (940.8 - 857.5)

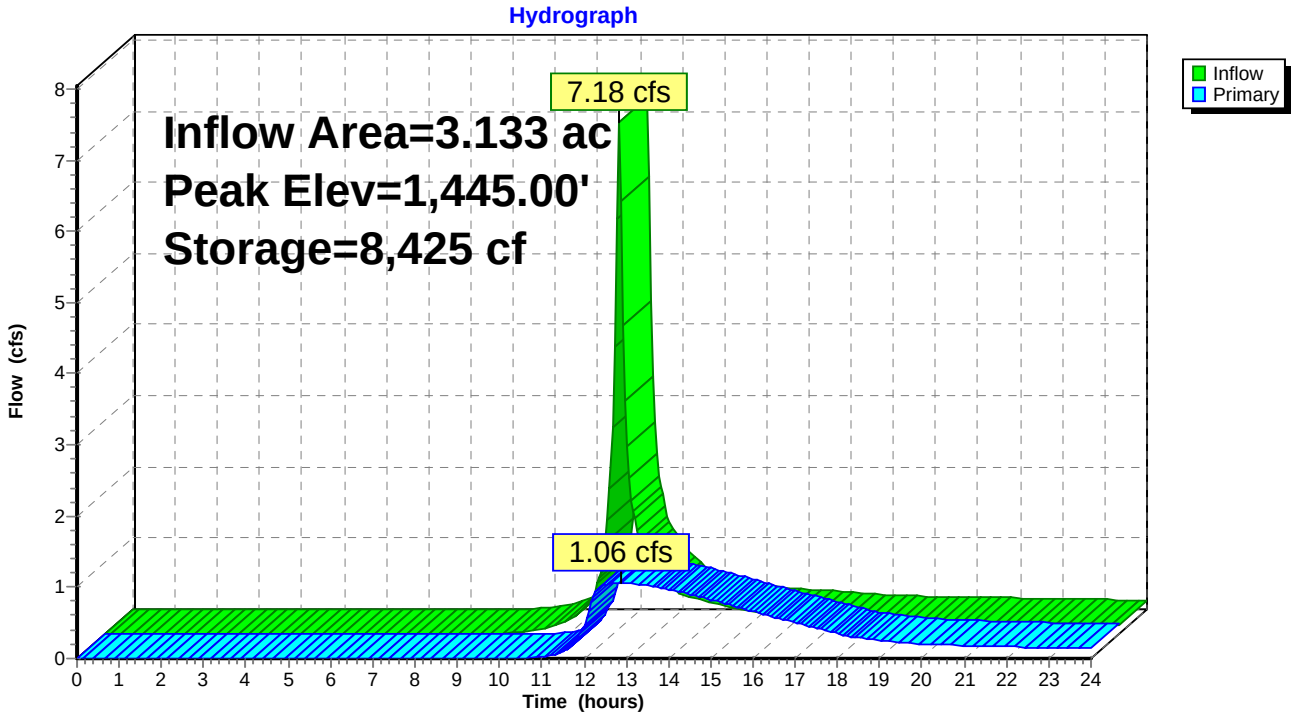
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	29,896 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	4,556	0	0
1,445.50	7,360	11,916	11,916
1,447.50	10,620	17,980	29,896

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.06 cfs @ 12.87 hrs HW=1,445.00' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.06 cfs @ 5.39 fps)
└**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.15 fps)

Pond 20P: BASIN



Summary for Pond 23P: TRENCH

Inflow Area = 2.122 ac, 0.00% Impervious, Inflow Depth > 1.27" for 10-Year event
Inflow = 3.12 cfs @ 12.14 hrs, Volume= 0.224 af
Outflow = 2.68 cfs @ 12.18 hrs, Volume= 0.224 af, Atten= 14%, Lag= 2.5 min
Discarded = 0.30 cfs @ 12.18 hrs, Volume= 0.163 af
Primary = 2.39 cfs @ 12.18 hrs, Volume= 0.061 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,408.28' @ 12.18 hrs Surf.Area= 2,559 sf Storage= 1,157 cf

Plug-Flow detention time= 35.4 min calculated for 0.223 af (100% of inflow)
Center-of-Mass det. time= 35.0 min (921.5 - 886.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,406.00'	800 cf	**2.00'W x 500.00'L x 2.00'H STONE TRENCH** 2,000 cf Overall x 40.0% Voids
#2	1,408.00'	1,313 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		2,113 cf	Total Available Storage

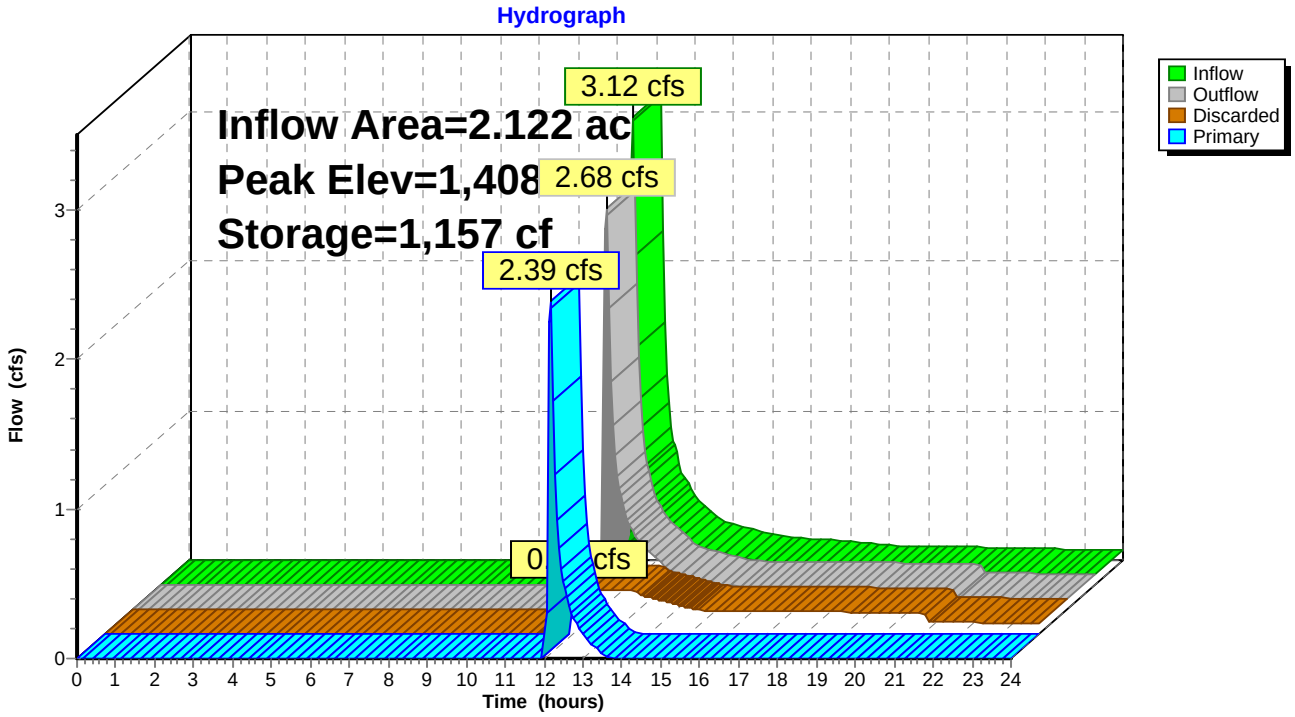
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,408.00	1,000	0	0
1,408.75	2,500	1,313	1,313

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,406.00'	**6.000 in/hr Exfiltration over Surface area below 1,408.00'** Conductivity to Groundwater Elevation = 1,386.00'
#2	Primary	1,408.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.30 cfs @ 12.18 hrs HW=1,408.27' (Free Discharge)
1=Exfiltration (Controls 0.30 cfs)

Primary OutFlow Max=2.30 cfs @ 12.18 hrs HW=1,408.27' (Free Discharge)
2=Sharp-Crested Rectangular Weir (Weir Controls 2.30 cfs @ 1.71 fps)

Pond 23P: TRENCH



Summary for Pond 30P: BASIN

Inflow Area = 6.024 ac, 0.00% Impervious, Inflow Depth > 2.17" for 10-Year event
Inflow = 9.09 cfs @ 12.15 hrs, Volume= 1.088 af
Outflow = 4.92 cfs @ 12.29 hrs, Volume= 1.074 af, Atten= 46%, Lag= 8.5 min
Primary = 4.92 cfs @ 12.29 hrs, Volume= 1.074 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,425.57' @ 12.29 hrs Surf.Area= 4,125 sf Storage= 5,502 cf

Plug-Flow detention time= 22.3 min calculated for 1.074 af (99% of inflow)
Center-of-Mass det. time= 15.5 min (901.3 - 885.8)

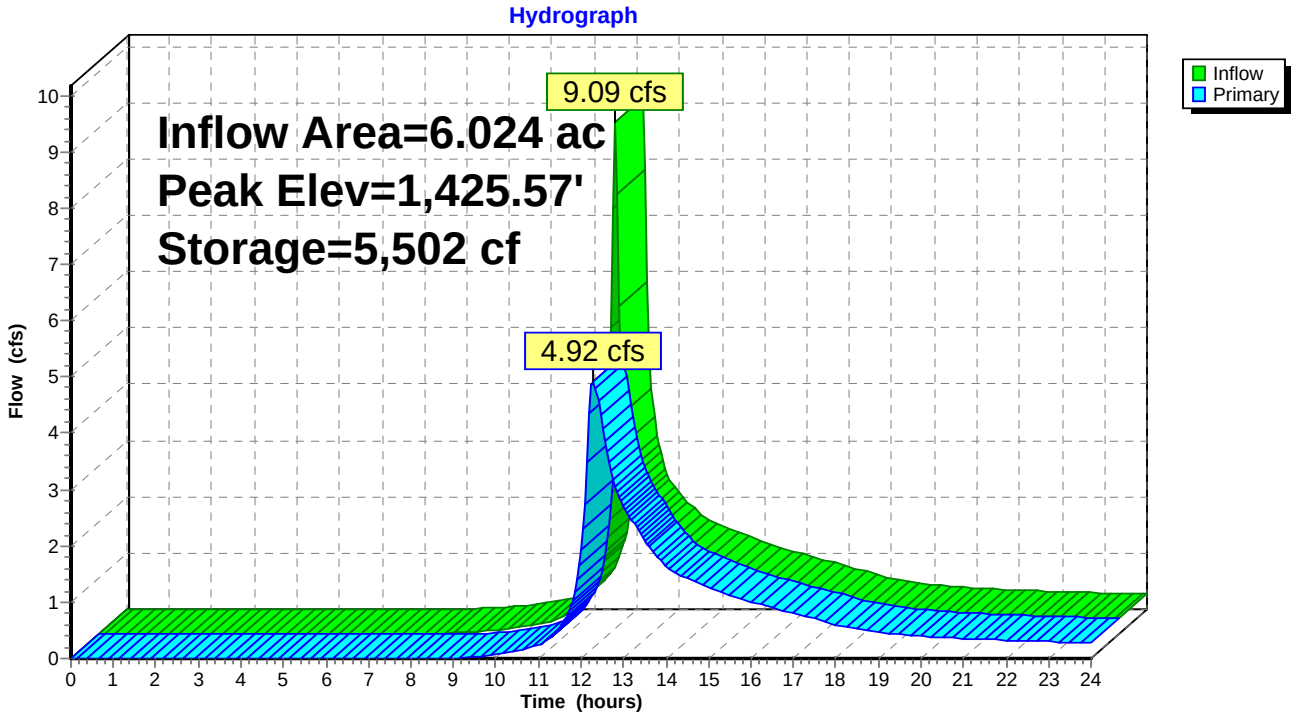
Volume	Invert	Avail.Storage	Storage Description
#1	1,424.00'	12,256 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,424.00	2,888	0	0
1,426.00	4,465	7,353	7,353
1,427.00	5,340	4,903	12,256

Device	Routing	Invert	Outlet Devices
#1	Primary	1,424.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600
#2	Primary	1,425.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,426.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.91 cfs @ 12.29 hrs HW=1,425.57' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 3.73 cfs @ 5.35 fps)
- **2=Orifice/Grate** (Orifice Controls 1.18 cfs @ 2.56 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 30P: BASIN

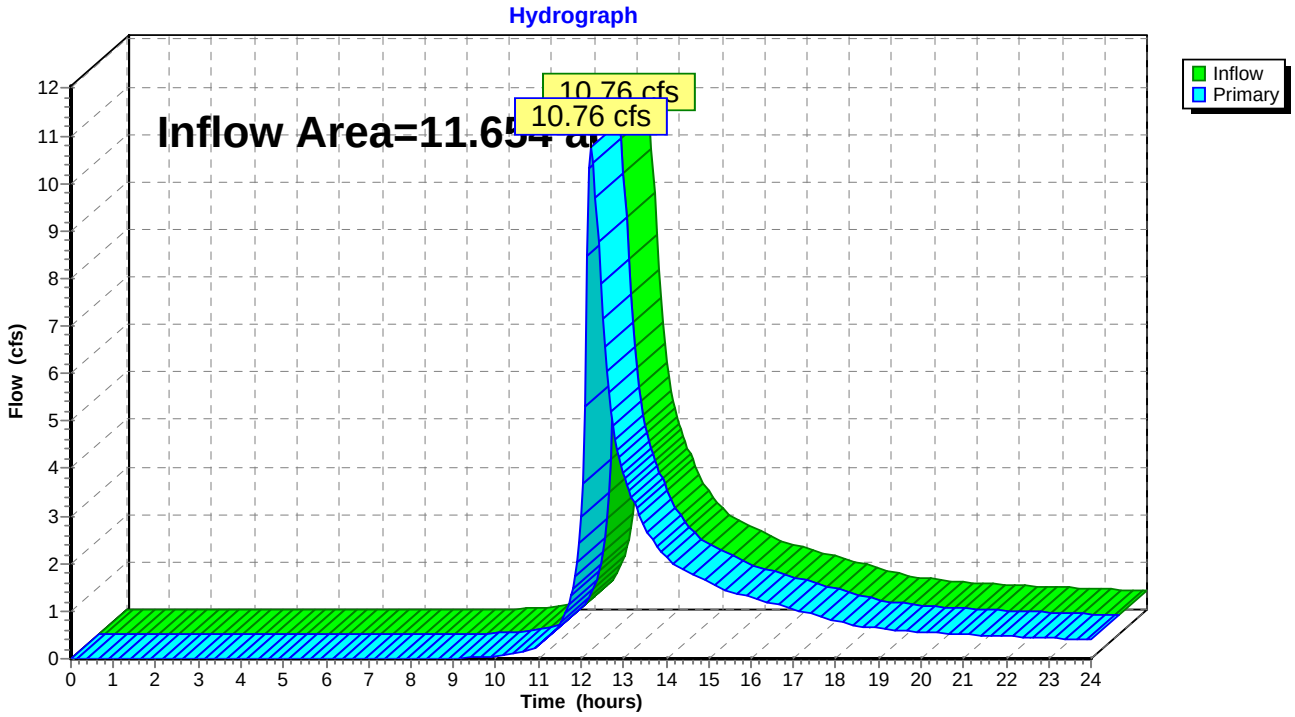


Summary for Link 21L: DL-3 PR

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 1.63" for 10-Year event
Inflow = 10.76 cfs @ 12.25 hrs, Volume= 1.583 af
Primary = 10.76 cfs @ 12.25 hrs, Volume= 1.583 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 21L: DL-3 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 22S: PRDA3D-B1 Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>2.92"
Tc=7.8 min CN=72 Runoff=10.66 cfs 0.763 af

Subcatchment 23S: EXDA3ND Runoff Area=152,840 sf 0.00% Impervious Runoff Depth>2.37"
Tc=18.0 min CN=66 Runoff=6.85 cfs 0.693 af

Subcatchment 24S: PRDA3D-T Runoff Area=92,435 sf 0.00% Impervious Runoff Depth>2.03"
Tc=6.0 min CN=62 Runoff=5.21 cfs 0.359 af

Subcatchment 29S: PRDA3D-B2 Runoff Area=125,900 sf 0.00% Impervious Runoff Depth>3.50"
Tc=7.8 min CN=78 Runoff=11.71 cfs 0.844 af

Pond 20P: BASIN Peak Elev=1,445.54' Storage=12,183 cf Inflow=10.66 cfs 0.763 af
Outflow=2.11 cfs 0.734 af

Pond 23P: TRENCH Peak Elev=1,408.43' Storage=1,410 cf Inflow=5.21 cfs 0.359 af
Discarded=0.30 cfs 0.209 af Primary=4.49 cfs 0.146 af Outflow=4.78 cfs 0.355 af

Pond 30P: BASIN Peak Elev=1,426.06' Storage=7,612 cf Inflow=12.72 cfs 1.578 af
Outflow=7.24 cfs 1.561 af

Link 21L: DL-3 PR Inflow=16.97 cfs 2.400 af
Primary=16.97 cfs 2.400 af

Total Runoff Area = 11.654 ac Runoff Volume = 2.659 af Average Runoff Depth = 2.74"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 22S: PRDA3D-B1

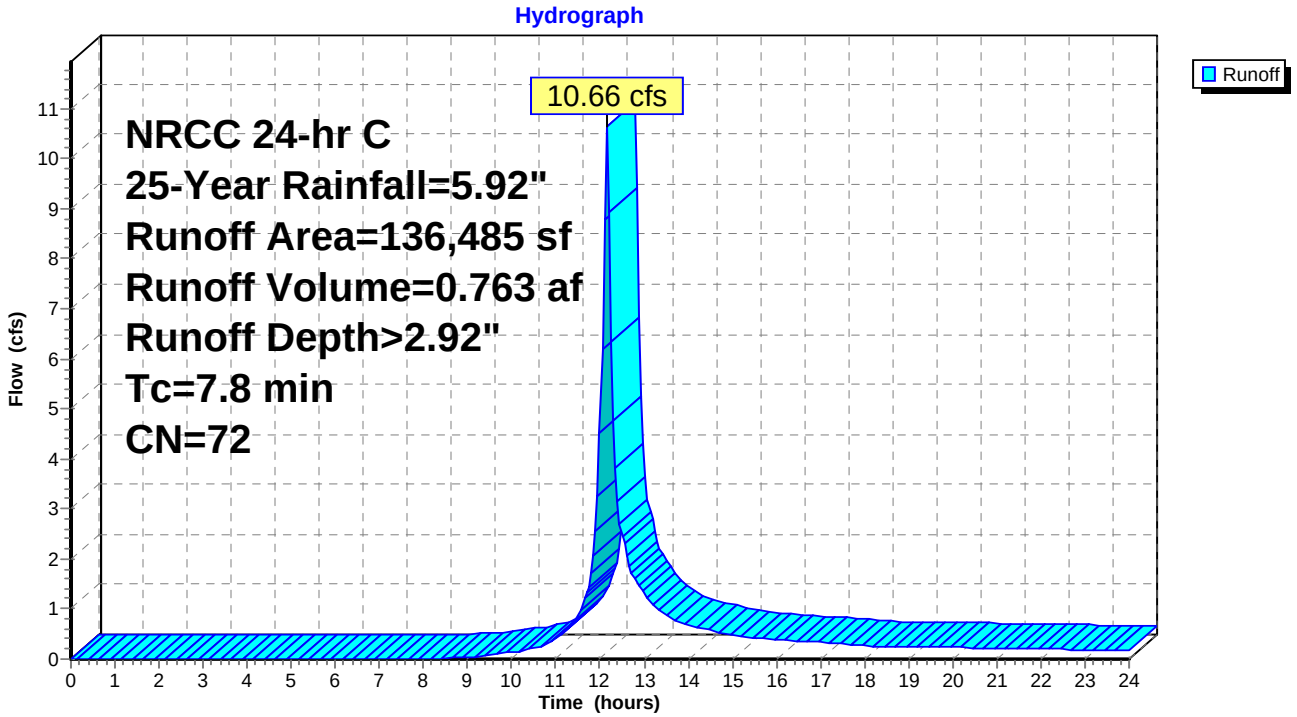
Runoff = 10.66 cfs @ 12.15 hrs, Volume= 0.763 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 22S: PRDA3D-B1



Summary for Subcatchment 23S: EXDA3ND

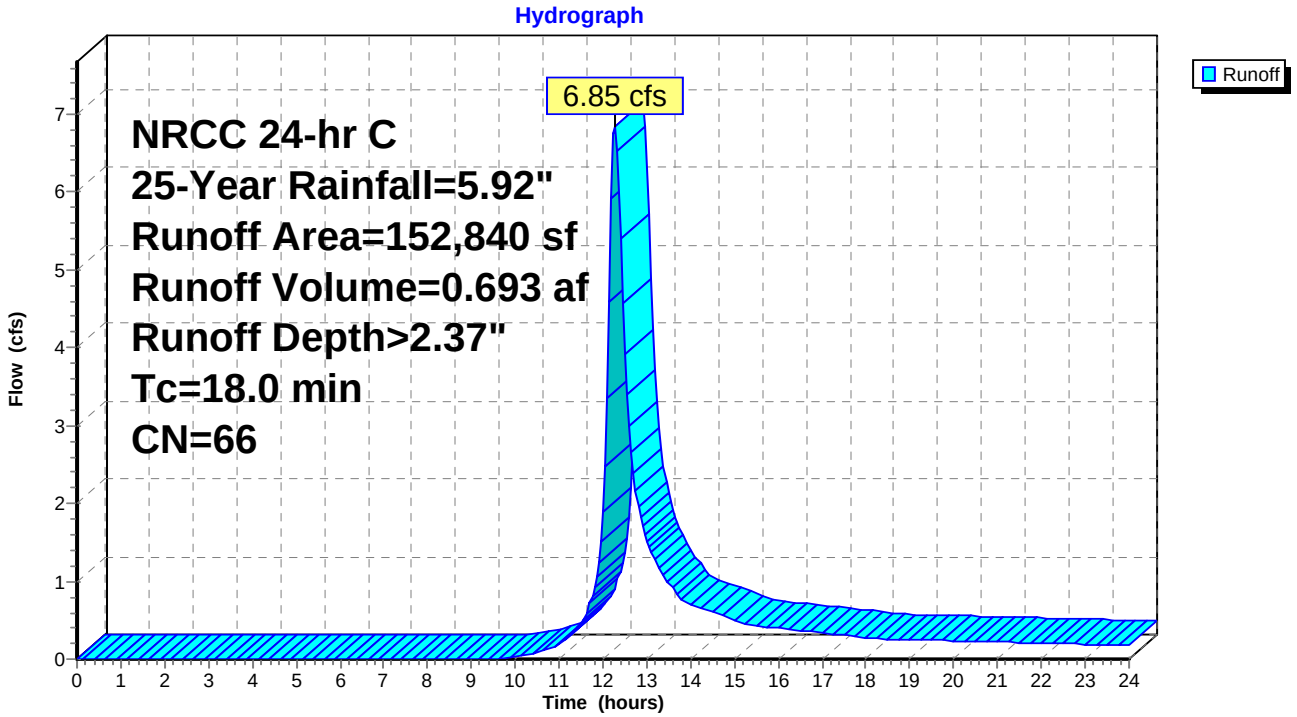
Runoff = 6.85 cfs @ 12.28 hrs, Volume= 0.693 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
68,320	55	Woods, Good, HSG B
30,750	77	Woods, Good, HSG D
21,925	58	Meadow, non-grazed, HSG B
21,930	78	Meadow, non-grazed, HSG D
5,915	96	Gravel surface, HSG B
4,000	96	Gravel surface, HSG D
152,840	66	Weighted Average
152,840		100.00% Pervious Area

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

Subcatchment 23S: EXDA3ND



Summary for Subcatchment 24S: PRDA3D-T

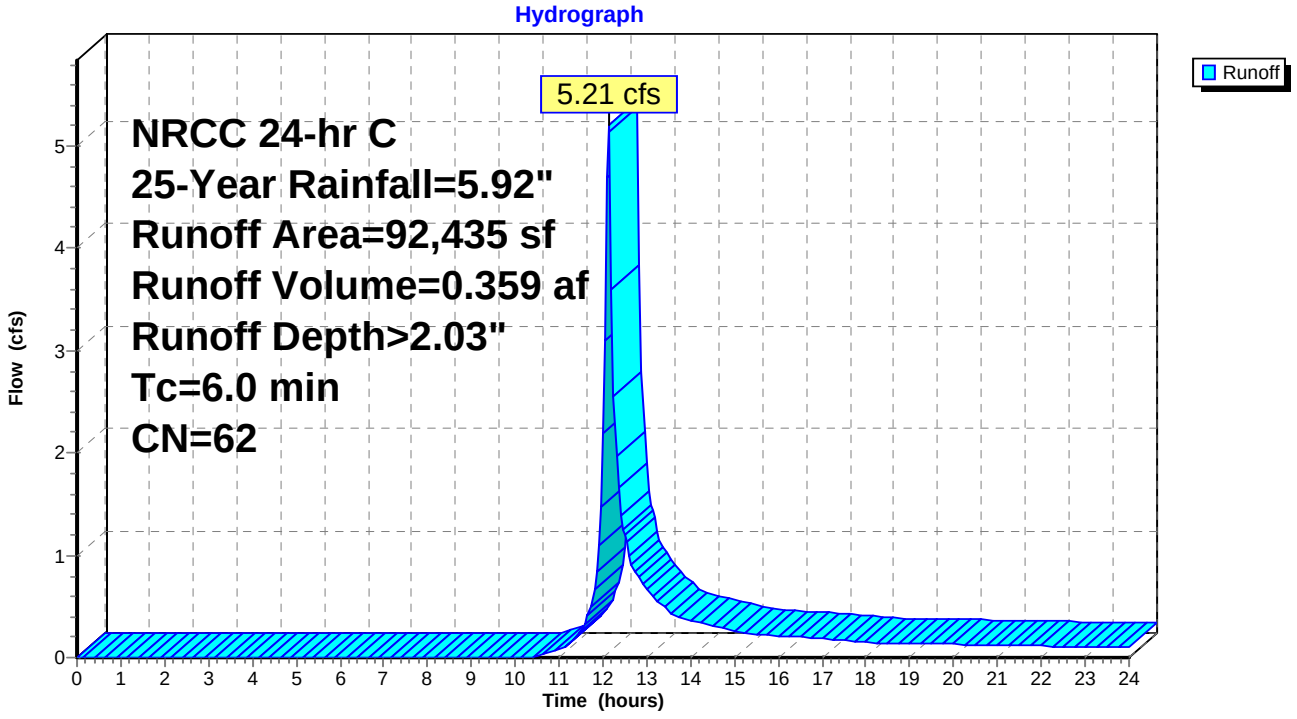
Runoff = 5.21 cfs @ 12.14 hrs, Volume= 0.359 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
72,305	55	Woods, Good, HSG B
4,860	58	Meadow, non-grazed, HSG B
1,000	78	Meadow, non-grazed, HSG D
13,045	96	Gravel surface, HSG B
1,225	96	Gravel surface, HSG D
92,435	62	Weighted Average
92,435		100.00% Pervious Area

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

Subcatchment 24S: PRDA3D-T



Summary for Subcatchment 29S: PRDA3D-B2

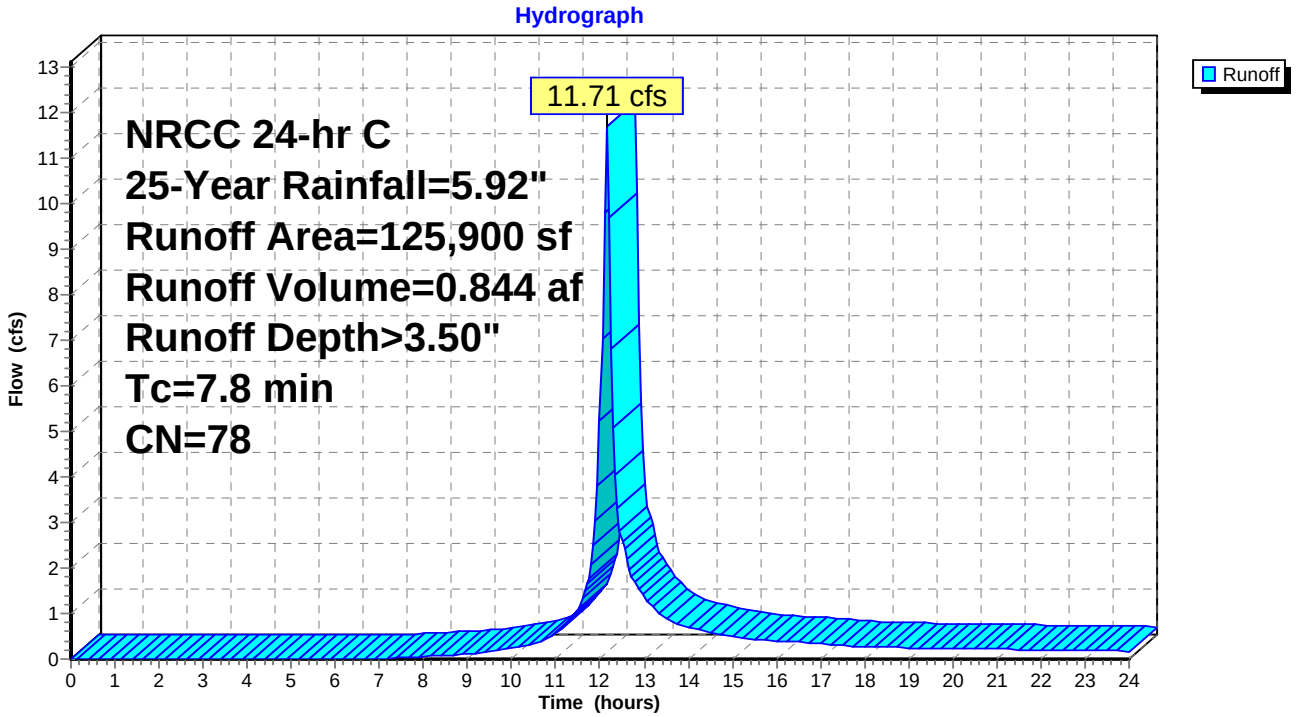
Runoff = 11.71 cfs @ 12.15 hrs, Volume= 0.844 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
6,140	55	Woods, Good, HSG B
43,280	77	Woods, Good, HSG D
3,875	58	Meadow, non-grazed, HSG B
57,000	78	Meadow, non-grazed, HSG D
1,110	96	Gravel surface, HSG B
14,495	96	Gravel surface, HSG D
125,900	78	Weighted Average
125,900		100.00% Pervious Area

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

Subcatchment 29S: PRDA3D-B2



Summary for Pond 20P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 2.92" for 25-Year event
Inflow = 10.66 cfs @ 12.15 hrs, Volume= 0.763 af
Outflow = 2.11 cfs @ 12.59 hrs, Volume= 0.734 af, Atten= 80%, Lag= 26.6 min
Primary = 2.11 cfs @ 12.59 hrs, Volume= 0.734 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,445.54' @ 12.59 hrs Surf.Area= 7,419 sf Storage= 12,183 cf

Plug-Flow detention time= 106.4 min calculated for 0.734 af (96% of inflow)
Center-of-Mass det. time= 85.2 min (930.3 - 845.1)

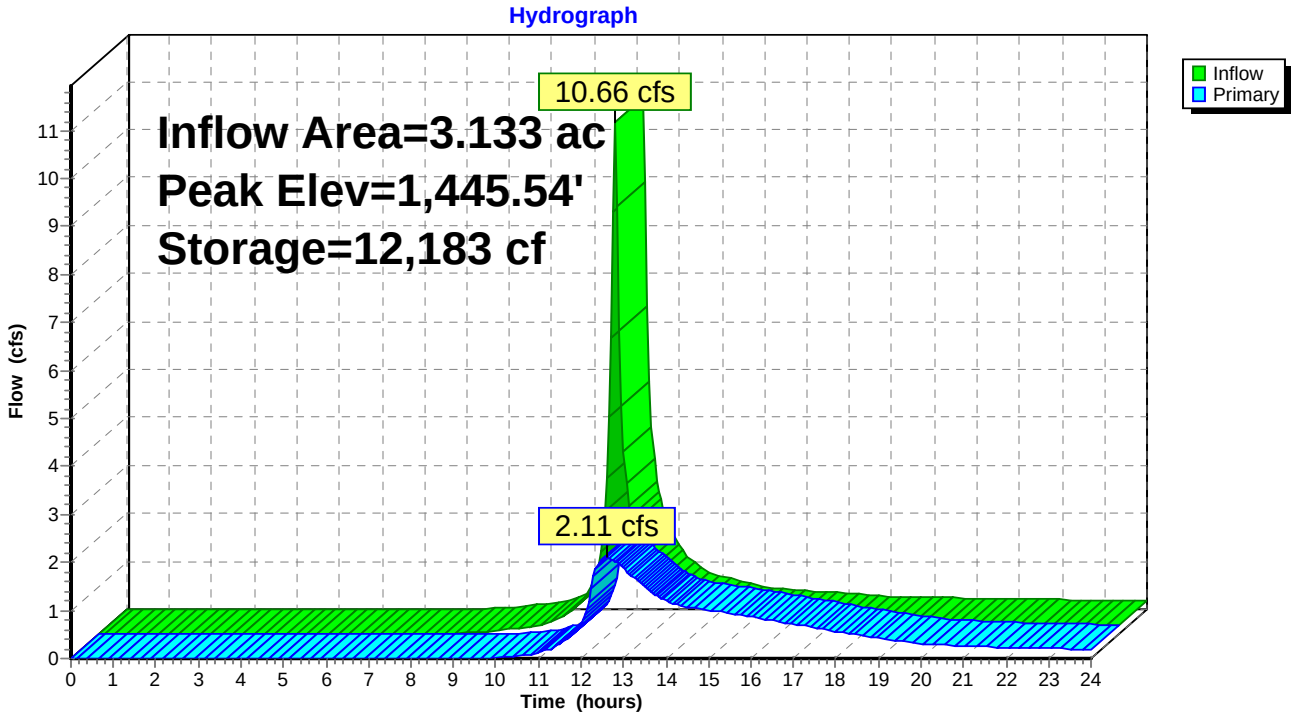
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	29,896 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	4,556	0	0
1,445.50	7,360	11,916	11,916
1,447.50	10,620	17,980	29,896

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.11 cfs @ 12.59 hrs HW=1,445.54' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.26 cfs @ 6.43 fps)
└**2=Orifice/Grate** (Orifice Controls 0.84 cfs @ 2.49 fps)

Pond 20P: BASIN



Summary for Pond 23P: TRENCH

Inflow Area = 2.122 ac, 0.00% Impervious, Inflow Depth > 2.03" for 25-Year event
Inflow = 5.21 cfs @ 12.14 hrs, Volume= 0.359 af
Outflow = 4.78 cfs @ 12.16 hrs, Volume= 0.355 af, Atten= 8%, Lag= 1.6 min
Discarded = 0.30 cfs @ 12.16 hrs, Volume= 0.209 af
Primary = 4.49 cfs @ 12.16 hrs, Volume= 0.146 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,408.43' @ 12.16 hrs Surf.Area= 2,855 sf Storage= 1,410 cf

Plug-Flow detention time= 33.4 min calculated for 0.355 af (99% of inflow)
Center-of-Mass det. time= 26.6 min (896.8 - 870.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,406.00'	800 cf	**2.00'W x 500.00'L x 2.00'H STONE TRENCH** 2,000 cf Overall x 40.0% Voids
#2	1,408.00'	1,313 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		2,113 cf	Total Available Storage

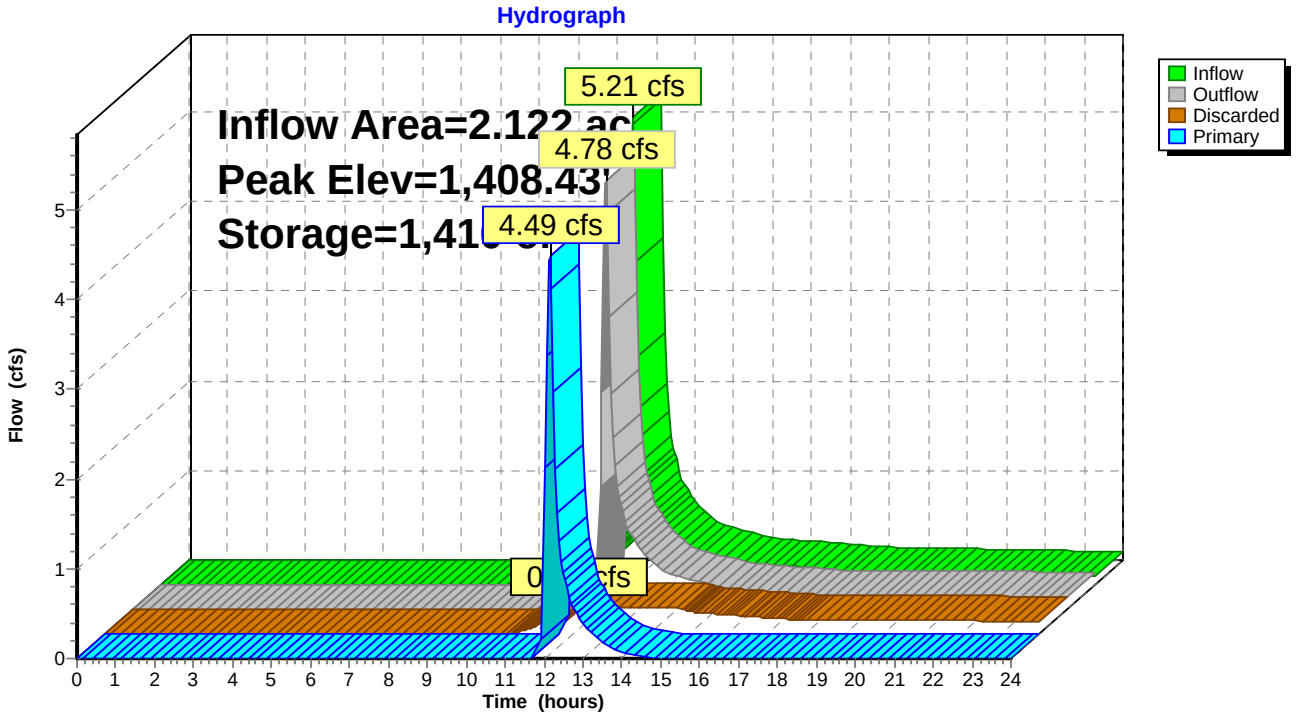
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,408.00	1,000	0	0
1,408.75	2,500	1,313	1,313

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,406.00'	**6.000 in/hr Exfiltration over Surface area below 1,408.00'** Conductivity to Groundwater Elevation = 1,386.00'
#2	Primary	1,408.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.30 cfs @ 12.16 hrs HW=1,408.42' (Free Discharge)
1=Exfiltration (Controls 0.30 cfs)

Primary OutFlow Max=4.35 cfs @ 12.16 hrs HW=1,408.42' (Free Discharge)
2=Sharp-Crested Rectangular Weir (Weir Controls 4.35 cfs @ 2.11 fps)

Pond 23P: TRENCH



Summary for Pond 30P: BASIN

Inflow Area = 6.024 ac, 0.00% Impervious, Inflow Depth > 3.14" for 25-Year event
Inflow = 12.72 cfs @ 12.15 hrs, Volume= 1.578 af
Outflow = 7.24 cfs @ 12.29 hrs, Volume= 1.561 af, Atten= 43%, Lag= 8.3 min
Primary = 7.24 cfs @ 12.29 hrs, Volume= 1.561 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,426.06' @ 12.29 hrs Surf.Area= 4,515 sf Storage= 7,612 cf

Plug-Flow detention time= 20.8 min calculated for 1.558 af (99% of inflow)
Center-of-Mass det. time= 15.2 min (891.5 - 876.3)

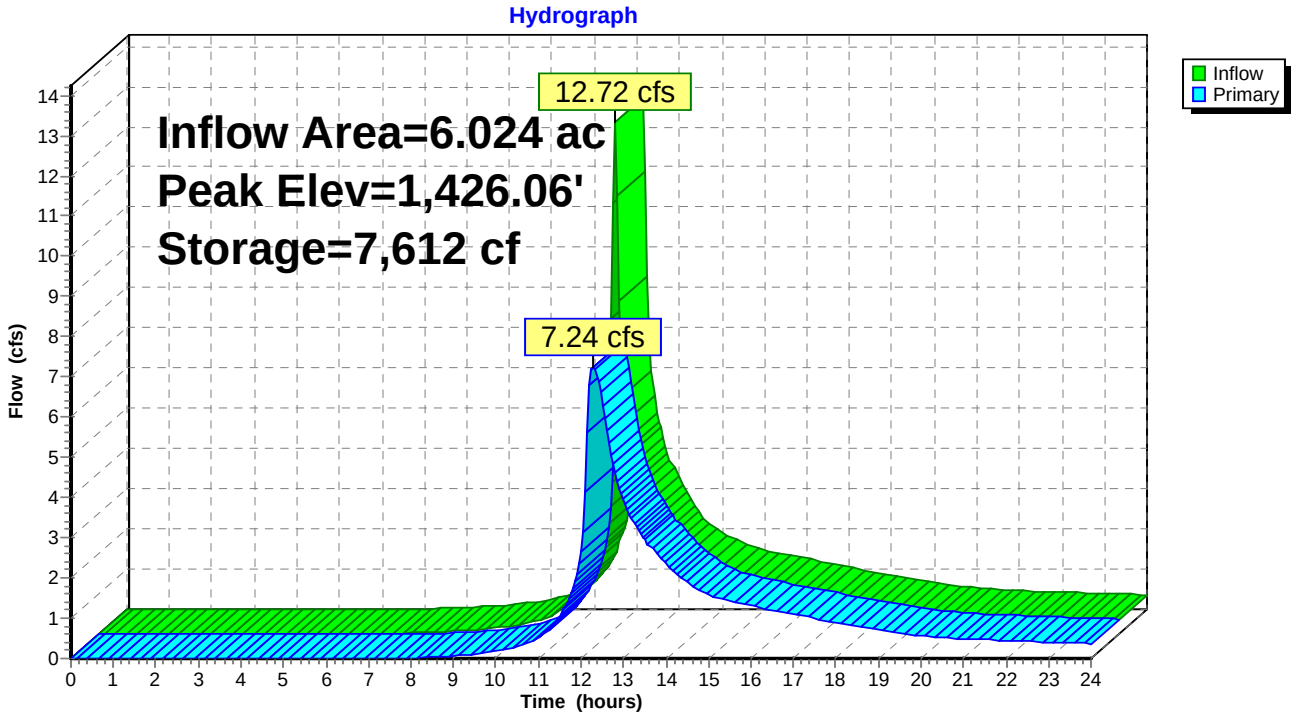
Volume	Invert	Avail.Storage	Storage Description
#1	1,424.00'	12,256 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,424.00	2,888	0	0
1,426.00	4,465	7,353	7,353
1,427.00	5,340	4,903	12,256

Device	Routing	Invert	Outlet Devices
#1	Primary	1,424.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600
#2	Primary	1,425.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,426.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.22 cfs @ 12.29 hrs HW=1,426.05' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 4.41 cfs @ 6.32 fps)
- **2=Orifice/Grate** (Orifice Controls 2.81 cfs @ 3.58 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 30P: BASIN

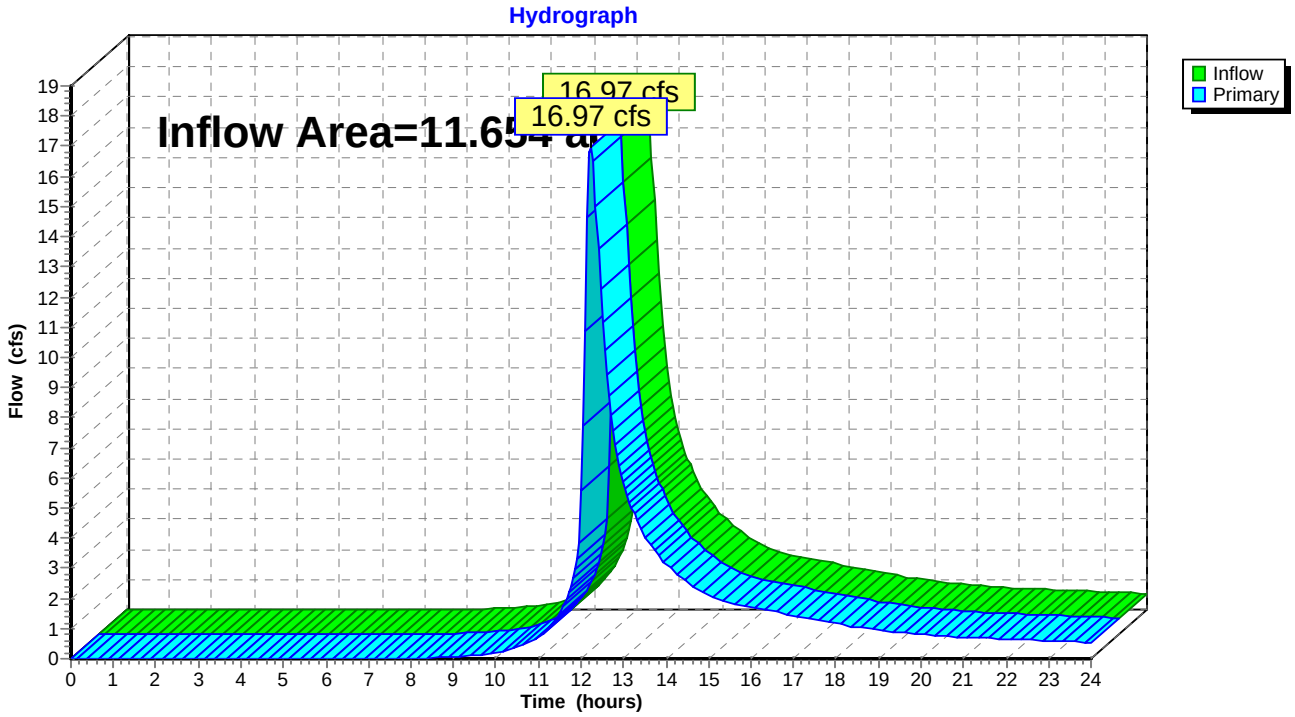


Summary for Link 21L: DL-3 PR

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 2.47" for 25-Year event
Inflow = 16.97 cfs @ 12.23 hrs, Volume= 2.400 af
Primary = 16.97 cfs @ 12.23 hrs, Volume= 2.400 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 21L: DL-3 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 22S: PRDA3D-B1 Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>3.84"
Tc=7.8 min CN=72 Runoff=13.97 cfs 1.003 af

Subcatchment 23S: EXDA3ND Runoff Area=152,840 sf 0.00% Impervious Runoff Depth>3.20"
Tc=18.0 min CN=66 Runoff=9.37 cfs 0.937 af

Subcatchment 24S: PRDA3D-T Runoff Area=92,435 sf 0.00% Impervious Runoff Depth>2.81"
Tc=6.0 min CN=62 Runoff=7.30 cfs 0.497 af

Subcatchment 29S: PRDA3D-B2 Runoff Area=125,900 sf 0.00% Impervious Runoff Depth>4.49"
Tc=7.8 min CN=78 Runoff=14.88 cfs 1.081 af

Pond 20P: BASIN Peak Elev=1,445.98' Storage=15,660 cf Inflow=13.97 cfs 1.003 af
Outflow=3.07 cfs 0.969 af

Pond 23P: TRENCH Peak Elev=1,408.54' Storage=1,642 cf Inflow=7.30 cfs 0.497 af
Discarded=0.30 cfs 0.238 af Primary=6.43 cfs 0.244 af Outflow=6.73 cfs 0.482 af

Pond 30P: BASIN Peak Elev=1,426.58' Storage=10,071 cf Inflow=16.45 cfs 2.050 af
Outflow=9.51 cfs 2.032 af

Link 21L: DL-3 PR Inflow=22.60 cfs 3.213 af
Primary=22.60 cfs 3.213 af

Total Runoff Area = 11.654 ac Runoff Volume = 3.517 af Average Runoff Depth = 3.62"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 22S: PRDA3D-B1

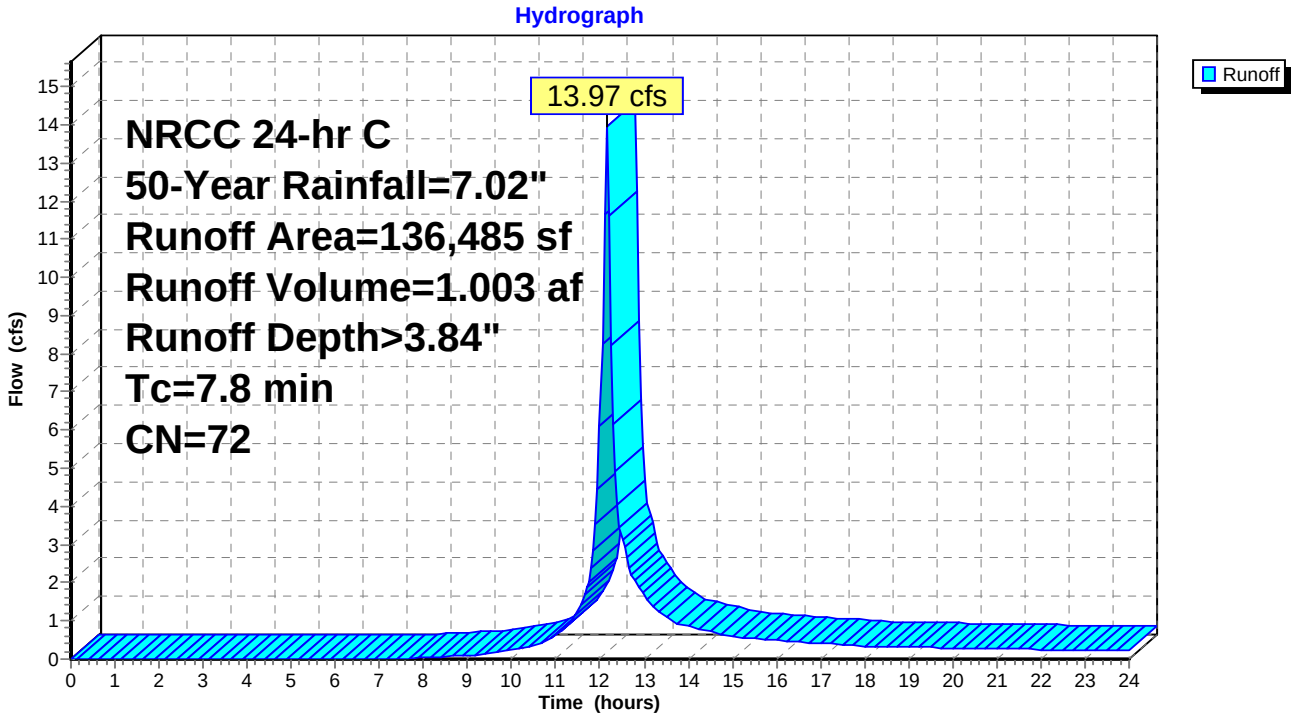
Runoff = 13.97 cfs @ 12.15 hrs, Volume= 1.003 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 22S: PRDA3D-B1



Summary for Subcatchment 23S: EXDA3ND

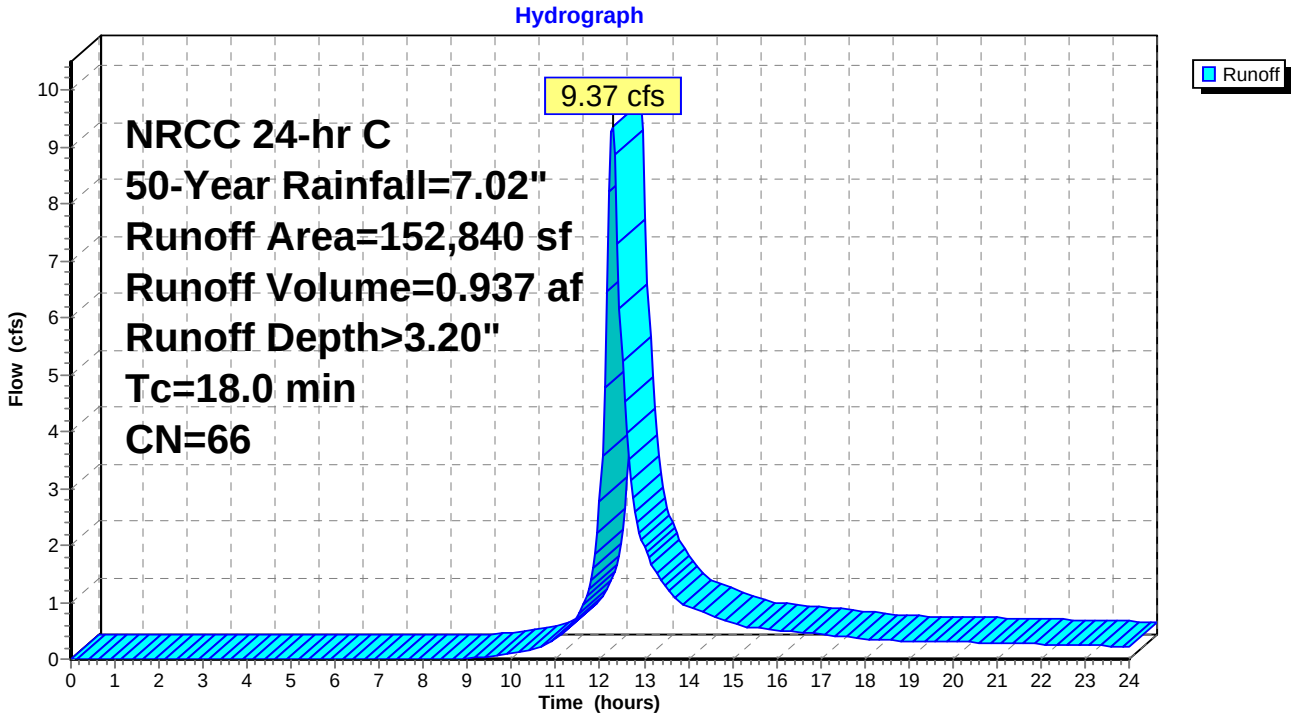
Runoff = 9.37 cfs @ 12.28 hrs, Volume= 0.937 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
68,320	55	Woods, Good, HSG B
30,750	77	Woods, Good, HSG D
21,925	58	Meadow, non-grazed, HSG B
21,930	78	Meadow, non-grazed, HSG D
5,915	96	Gravel surface, HSG B
4,000	96	Gravel surface, HSG D
152,840	66	Weighted Average
152,840		100.00% Pervious Area

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

Subcatchment 23S: EXDA3ND



Summary for Subcatchment 24S: PRDA3D-T

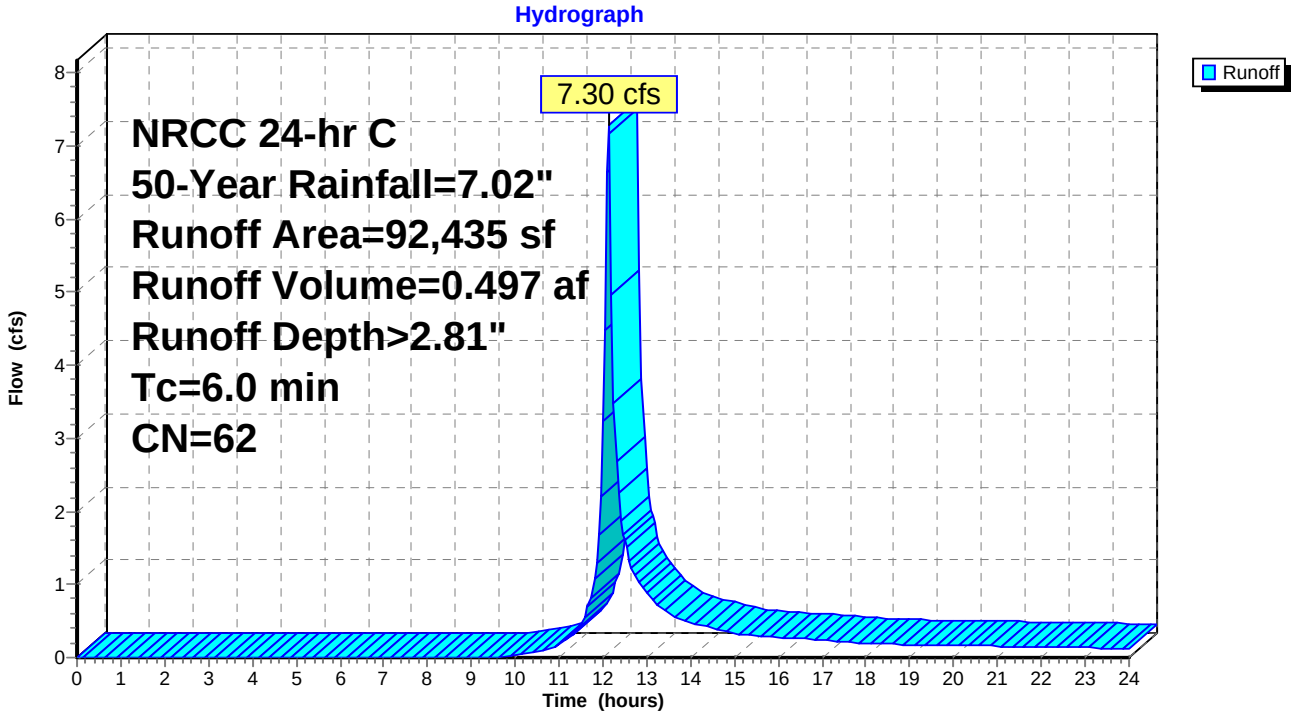
Runoff = 7.30 cfs @ 12.13 hrs, Volume= 0.497 af, Depth> 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
72,305	55	Woods, Good, HSG B
4,860	58	Meadow, non-grazed, HSG B
1,000	78	Meadow, non-grazed, HSG D
13,045	96	Gravel surface, HSG B
1,225	96	Gravel surface, HSG D
92,435	62	Weighted Average
92,435		100.00% Pervious Area

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

Subcatchment 24S: PRDA3D-T



Summary for Subcatchment 29S: PRDA3D-B2

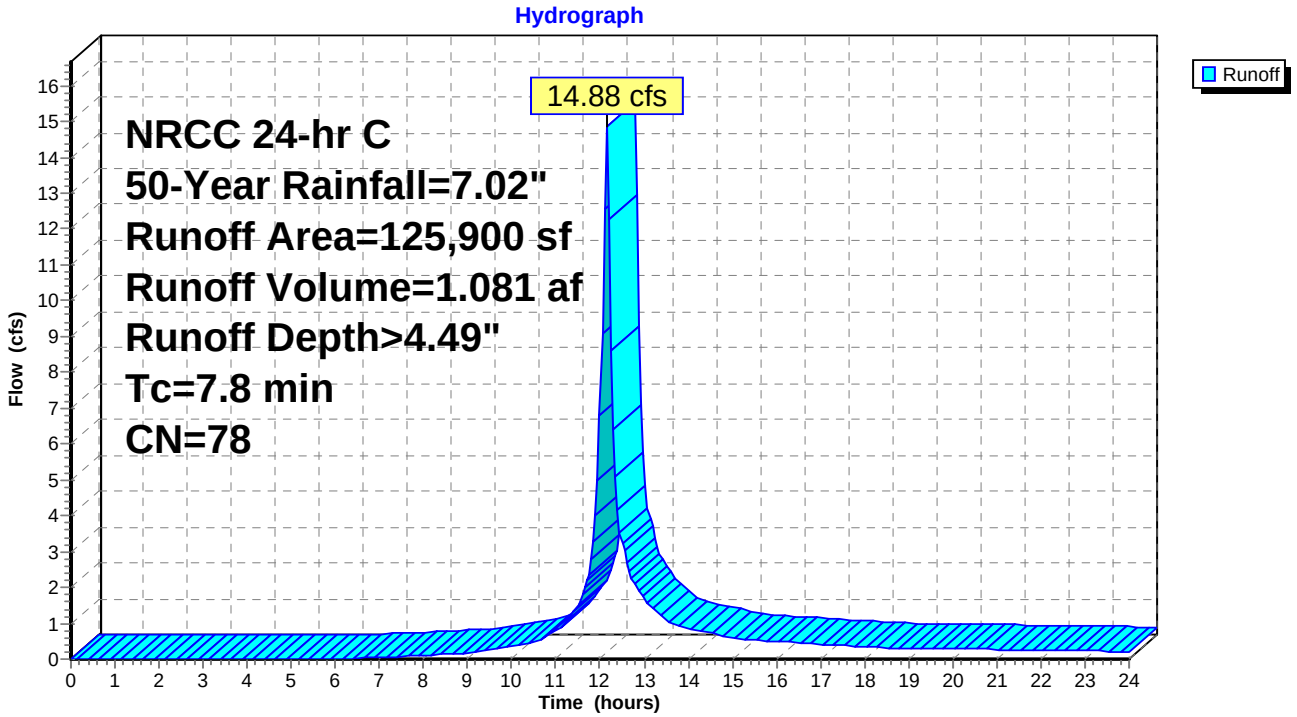
Runoff = 14.88 cfs @ 12.15 hrs, Volume= 1.081 af, Depth> 4.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
6,140	55	Woods, Good, HSG B
43,280	77	Woods, Good, HSG D
3,875	58	Meadow, non-grazed, HSG B
57,000	78	Meadow, non-grazed, HSG D
1,110	96	Gravel surface, HSG B
14,495	96	Gravel surface, HSG D
125,900	78	Weighted Average
125,900		100.00% Pervious Area

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

Subcatchment 29S: PRDA3D-B2



Summary for Pond 20P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 3.84" for 50-Year event
Inflow = 13.97 cfs @ 12.15 hrs, Volume= 1.003 af
Outflow = 3.07 cfs @ 12.52 hrs, Volume= 0.969 af, Atten= 78%, Lag= 22.1 min
Primary = 3.07 cfs @ 12.52 hrs, Volume= 0.969 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,445.98' @ 12.52 hrs Surf.Area= 8,147 sf Storage= 15,660 cf

Plug-Flow detention time= 100.2 min calculated for 0.969 af (97% of inflow)
Center-of-Mass det. time= 81.4 min (917.9 - 836.5)

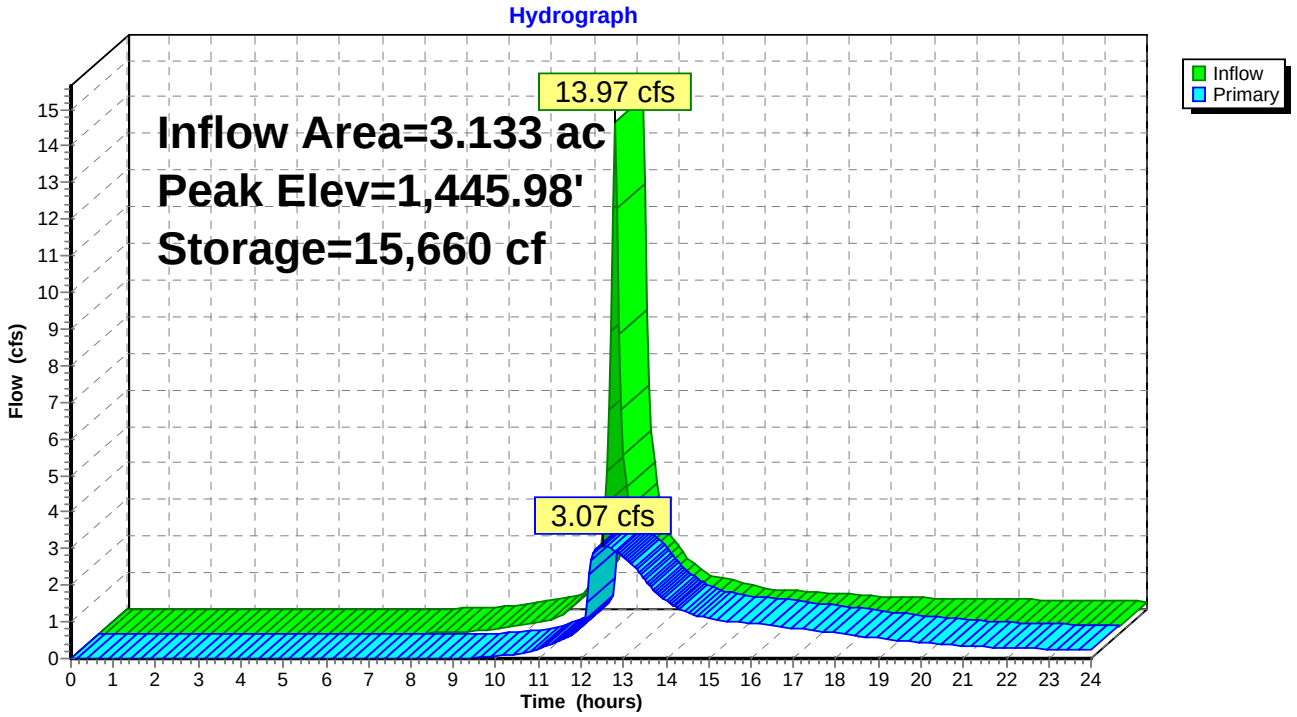
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	29,896 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	4,556	0	0
1,445.50	7,360	11,916	11,916
1,447.50	10,620	17,980	29,896

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.07 cfs @ 12.52 hrs HW=1,445.98' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 1.41 cfs @ 7.19 fps)
└**2=Orifice/Grate** (Orifice Controls 1.66 cfs @ 3.75 fps)

Pond 20P: BASIN



Summary for Pond 23P: TRENCH

Inflow Area = 2.122 ac, 0.00% Impervious, Inflow Depth > 2.81" for 50-Year event
Inflow = 7.30 cfs @ 12.13 hrs, Volume= 0.497 af
Outflow = 6.73 cfs @ 12.16 hrs, Volume= 0.482 af, Atten= 8%, Lag= 1.6 min
Discarded = 0.30 cfs @ 12.16 hrs, Volume= 0.238 af
Primary = 6.43 cfs @ 12.16 hrs, Volume= 0.244 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,408.54' @ 12.16 hrs Surf.Area= 3,090 sf Storage= 1,642 cf

Plug-Flow detention time= 28.2 min calculated for 0.482 af (97% of inflow)
Center-of-Mass det. time= 11.3 min (870.9 - 859.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,406.00'	800 cf	**2.00'W x 500.00'L x 2.00'H STONE TRENCH** 2,000 cf Overall x 40.0% Voids
#2	1,408.00'	1,313 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		2,113 cf	Total Available Storage

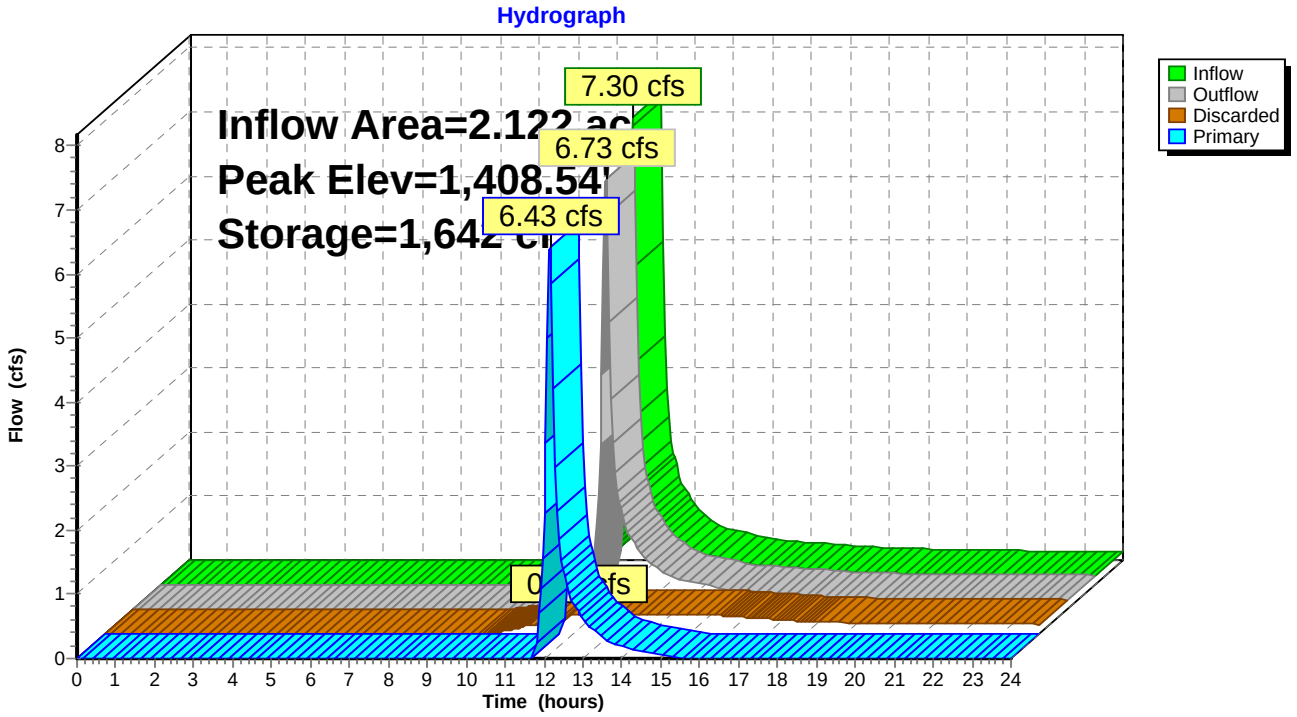
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,408.00	1,000	0	0
1,408.75	2,500	1,313	1,313

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,406.00'	**6.000 in/hr Exfiltration over Surface area below 1,408.00'** Conductivity to Groundwater Elevation = 1,386.00'
#2	Primary	1,408.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.30 cfs @ 12.16 hrs HW=1,408.53' (Free Discharge)
└**1=Exfiltration** (Controls 0.30 cfs)

Primary OutFlow Max=6.26 cfs @ 12.16 hrs HW=1,408.53' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 6.26 cfs @ 2.39 fps)

Pond 23P: TRENCH



Summary for Pond 30P: BASIN

Inflow Area = 6.024 ac, 0.00% Impervious, Inflow Depth > 4.08" for 50-Year event
Inflow = 16.45 cfs @ 12.15 hrs, Volume= 2.050 af
Outflow = 9.51 cfs @ 12.30 hrs, Volume= 2.032 af, Atten= 42%, Lag= 8.9 min
Primary = 9.51 cfs @ 12.30 hrs, Volume= 2.032 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,426.58' @ 12.30 hrs Surf.Area= 4,969 sf Storage= 10,071 cf

Plug-Flow detention time= 20.1 min calculated for 2.027 af (99% of inflow)
Center-of-Mass det. time= 15.1 min (882.2 - 867.1)

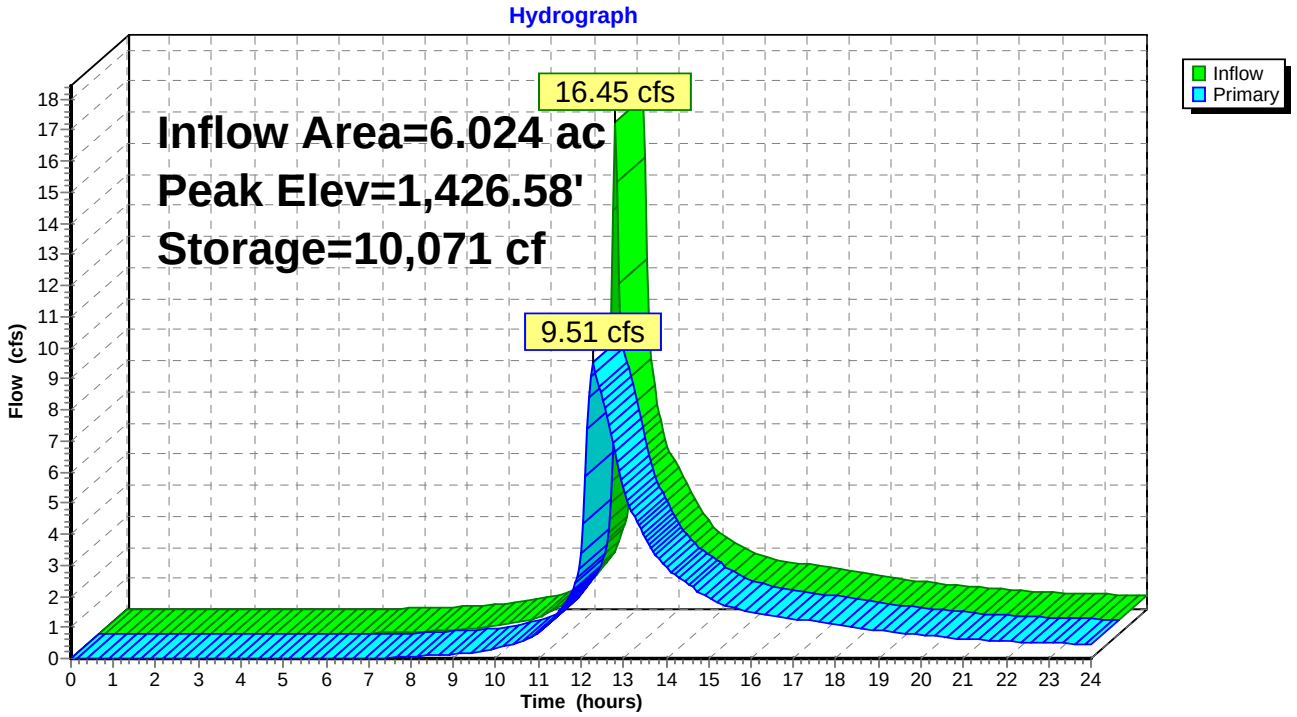
Volume	Invert	Avail.Storage	Storage Description
#1	1,424.00'	12,256 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,424.00	2,888	0	0
1,426.00	4,465	7,353	7,353
1,427.00	5,340	4,903	12,256

Device	Routing	Invert	Outlet Devices
#1	Primary	1,424.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600
#2	Primary	1,425.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,426.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=9.48 cfs @ 12.30 hrs HW=1,426.57' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 5.03 cfs @ 7.21 fps)
- **2=Orifice/Grate** (Orifice Controls 3.92 cfs @ 4.99 fps)
- **3=Orifice/Grate** (Weir Controls 0.53 cfs @ 0.89 fps)

Pond 30P: BASIN

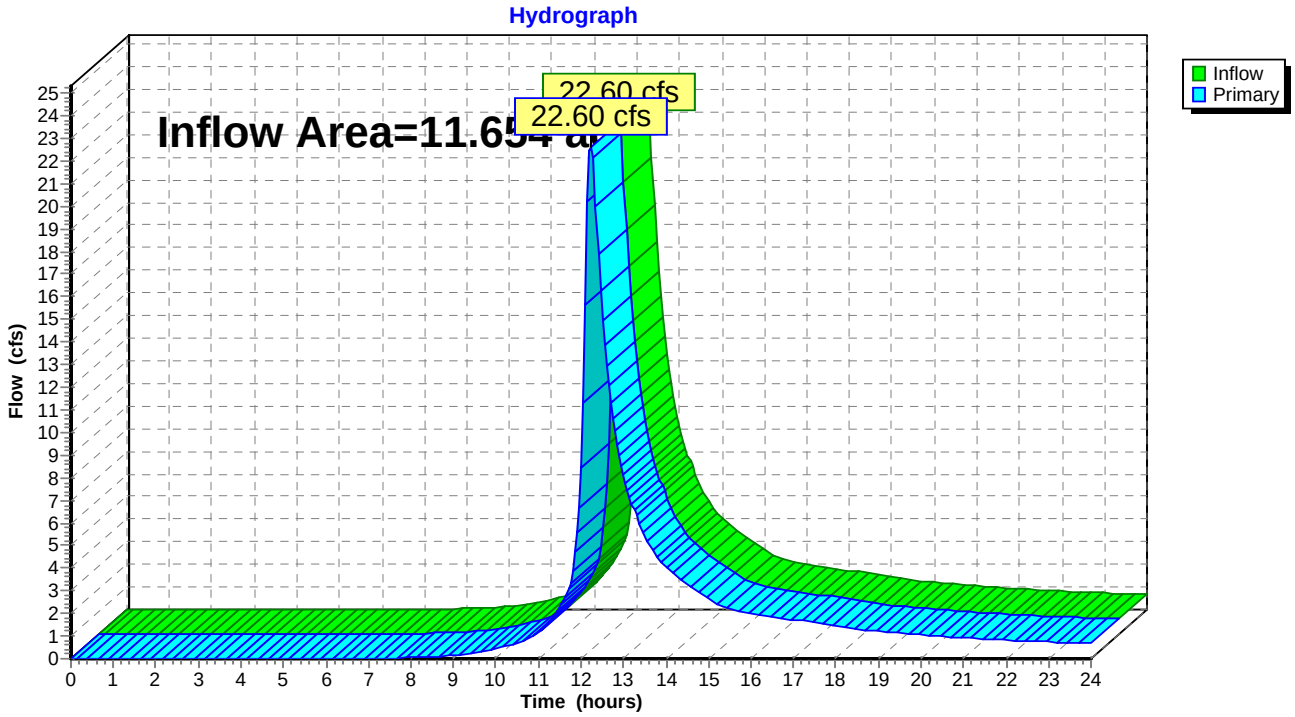


Summary for Link 21L: DL-3 PR

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 3.31" for 50-Year event
Inflow = 22.60 cfs @ 12.23 hrs, Volume= 3.213 af
Primary = 22.60 cfs @ 12.23 hrs, Volume= 3.213 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 21L: DL-3 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 22S: PRDA3D-B1 Runoff Area=136,485 sf 0.00% Impervious Runoff Depth>4.98"
Tc=7.8 min CN=72 Runoff=18.02 cfs 1.300 af

Subcatchment 23S: EXDA3ND Runoff Area=152,840 sf 0.00% Impervious Runoff Depth>4.26"
Tc=18.0 min CN=66 Runoff=12.57 cfs 1.246 af

Subcatchment 24S: PRDA3D-T Runoff Area=92,435 sf 0.00% Impervious Runoff Depth>3.81"
Tc=6.0 min CN=62 Runoff=9.93 cfs 0.674 af

Subcatchment 29S: PRDA3D-B2 Runoff Area=125,900 sf 0.00% Impervious Runoff Depth>5.69"
Tc=7.8 min CN=78 Runoff=18.68 cfs 1.370 af

Pond 20P: BASIN Peak Elev=1,446.55' Storage=20,508 cf Inflow=18.02 cfs 1.300 af
Outflow=3.88 cfs 1.261 af

Pond 23P: TRENCH Peak Elev=1,408.68' Storage=1,936 cf Inflow=9.93 cfs 0.674 af
Discarded=0.30 cfs 0.276 af Primary=8.87 cfs 0.380 af Outflow=9.17 cfs 0.655 af

Pond 30P: BASIN Peak Elev=1,426.88' Storage=11,613 cf Inflow=21.46 cfs 2.631 af
Outflow=15.89 cfs 2.611 af

Link 21L: DL-3 PR Inflow=34.46 cfs 4.236 af
Primary=34.46 cfs 4.236 af

Total Runoff Area = 11.654 ac Runoff Volume = 4.589 af Average Runoff Depth = 4.72"
100.00% Pervious = 11.654 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 22S: PRDA3D-B1

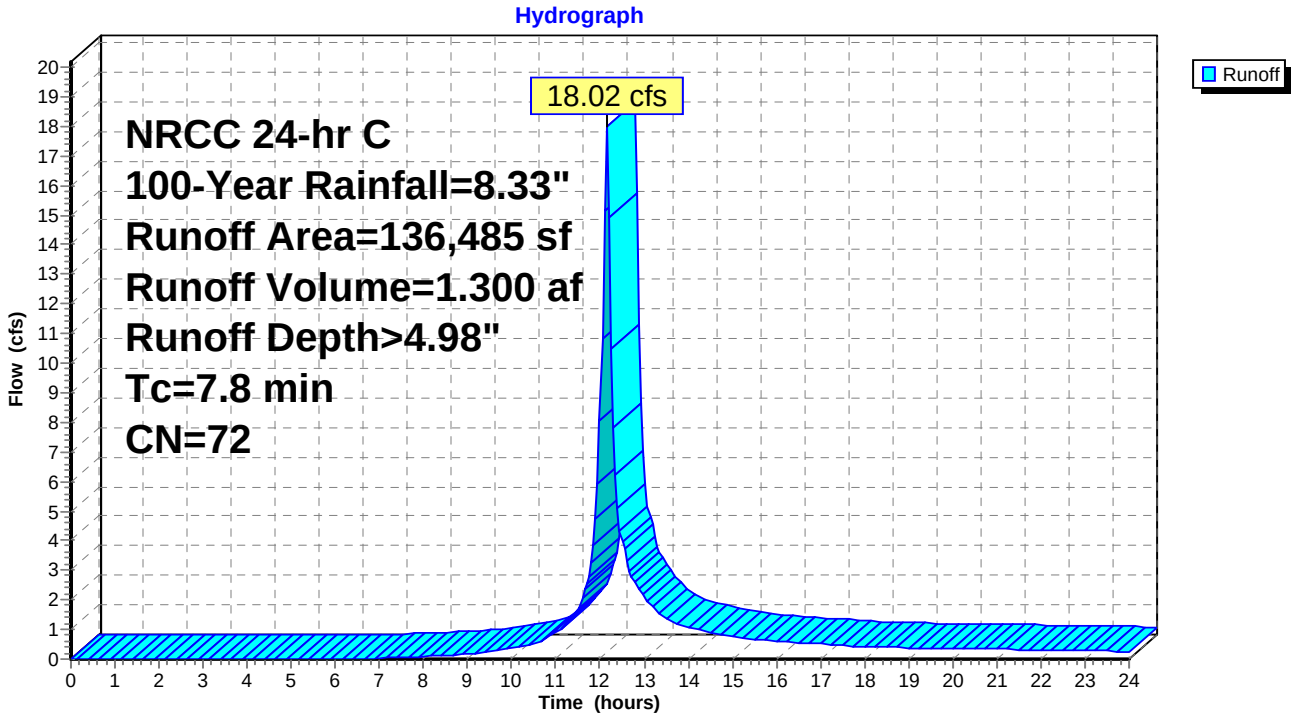
Runoff = 18.02 cfs @ 12.15 hrs, Volume= 1.300 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
14,535	55	Woods, Good, HSG B
42,255	77	Woods, Good, HSG D
44,415	58	Meadow, non-grazed, HSG B
13,130	78	Meadow, non-grazed, HSG D
19,110	96	Gravel surface, HSG B
3,040	96	Gravel surface, HSG D
136,485	72	Weighted Average
136,485		100.00% Pervious Area

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

Subcatchment 22S: PRDA3D-B1



Summary for Subcatchment 23S: EXDA3ND

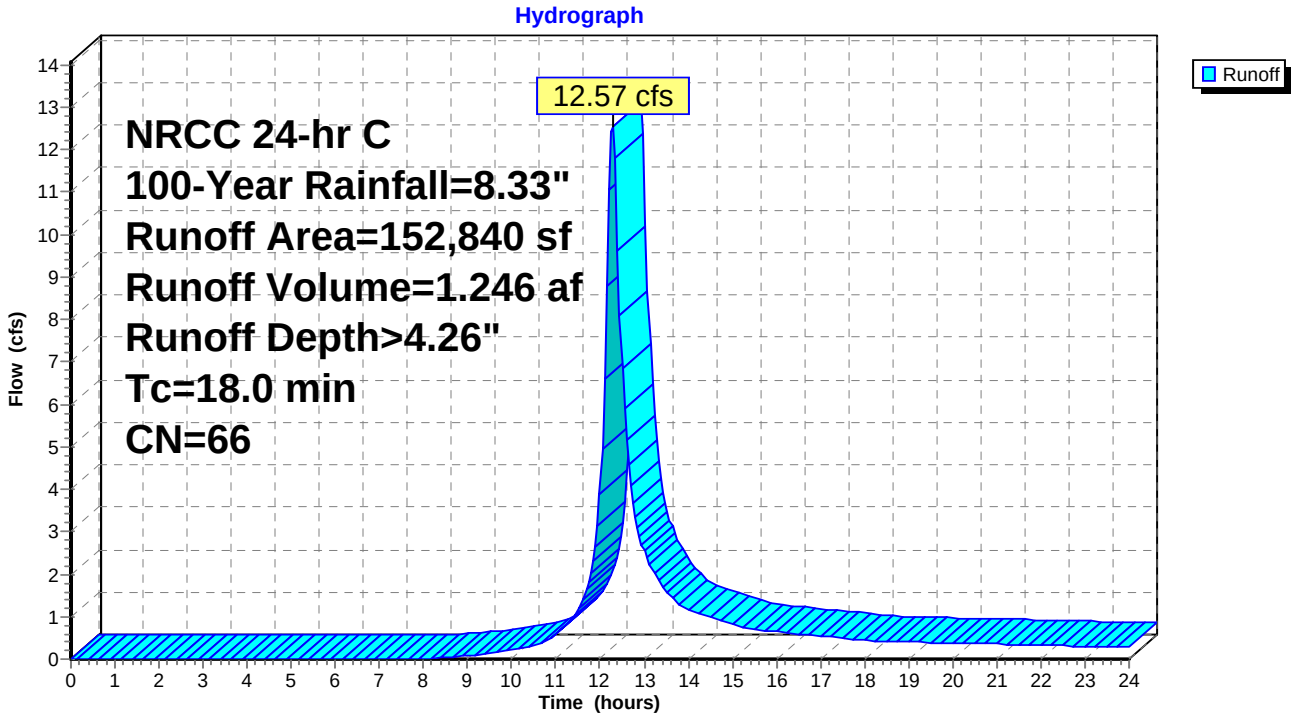
Runoff = 12.57 cfs @ 12.27 hrs, Volume= 1.246 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
68,320	55	Woods, Good, HSG B
30,750	77	Woods, Good, HSG D
21,925	58	Meadow, non-grazed, HSG B
21,930	78	Meadow, non-grazed, HSG D
5,915	96	Gravel surface, HSG B
4,000	96	Gravel surface, HSG D
152,840	66	Weighted Average
152,840		100.00% Pervious Area

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

Subcatchment 23S: EXDA3ND



Summary for Subcatchment 24S: PRDA3D-T

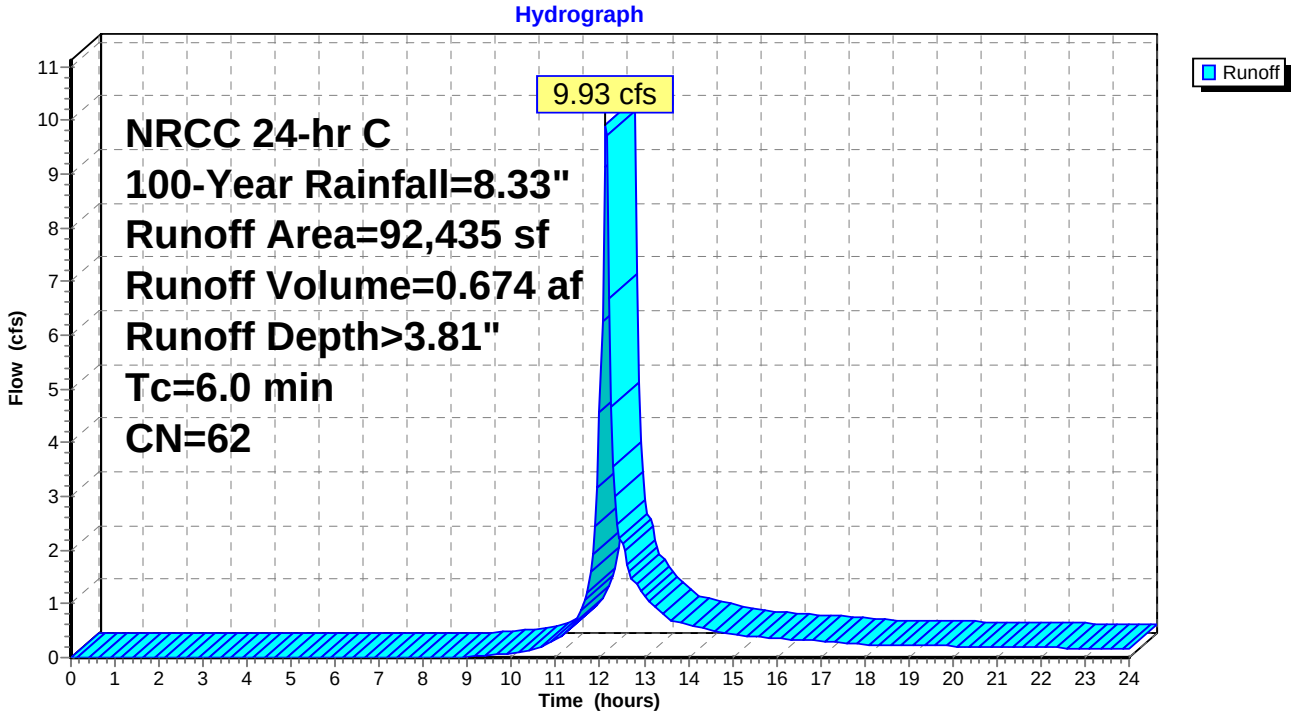
Runoff = 9.93 cfs @ 12.13 hrs, Volume= 0.674 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
72,305	55	Woods, Good, HSG B
4,860	58	Meadow, non-grazed, HSG B
1,000	78	Meadow, non-grazed, HSG D
13,045	96	Gravel surface, HSG B
1,225	96	Gravel surface, HSG D
92,435	62	Weighted Average
92,435		100.00% Pervious Area

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

Subcatchment 24S: PRDA3D-T



Summary for Subcatchment 29S: PRDA3D-B2

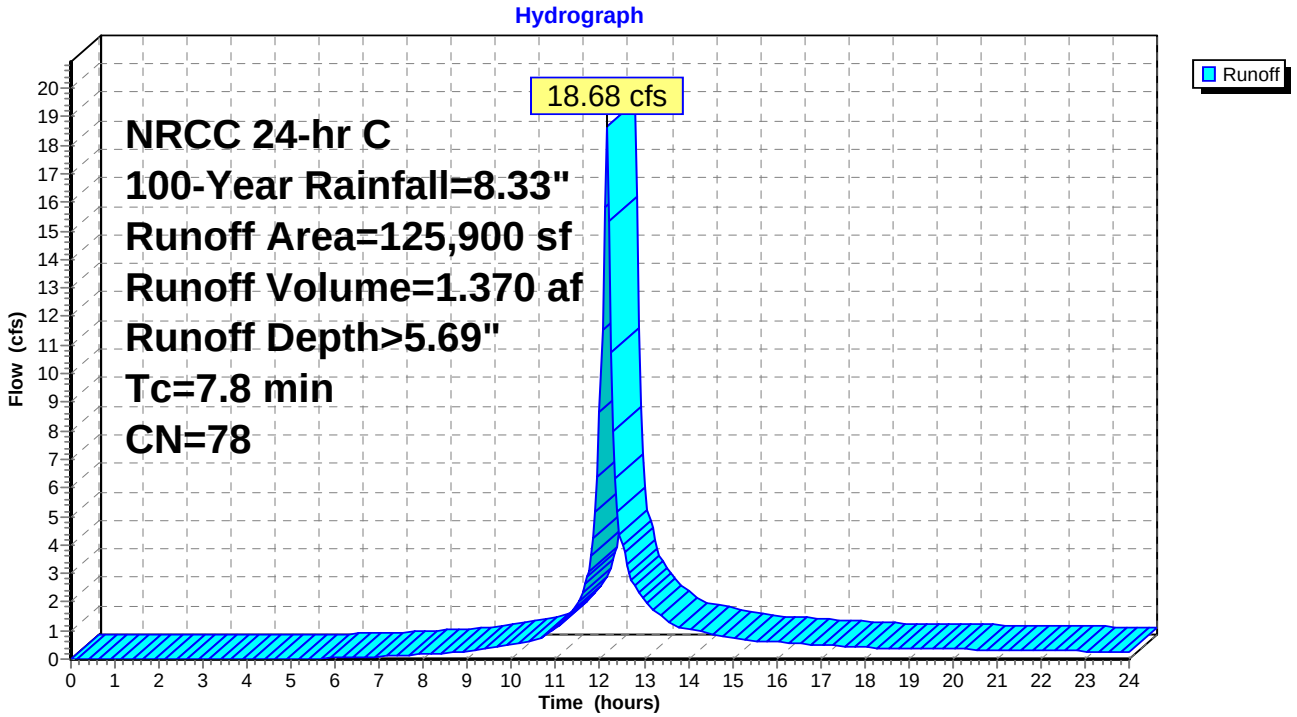
Runoff = 18.68 cfs @ 12.15 hrs, Volume= 1.370 af, Depth> 5.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
6,140	55	Woods, Good, HSG B
43,280	77	Woods, Good, HSG D
3,875	58	Meadow, non-grazed, HSG B
57,000	78	Meadow, non-grazed, HSG D
1,110	96	Gravel surface, HSG B
14,495	96	Gravel surface, HSG D
125,900	78	Weighted Average
125,900		100.00% Pervious Area

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

Subcatchment 29S: PRDA3D-B2



Summary for Pond 20P: BASIN

Inflow Area = 3.133 ac, 0.00% Impervious, Inflow Depth > 4.98" for 100-Year event
Inflow = 18.02 cfs @ 12.15 hrs, Volume= 1.300 af
Outflow = 3.88 cfs @ 12.52 hrs, Volume= 1.261 af, Atten= 78%, Lag= 22.1 min
Primary = 3.88 cfs @ 12.52 hrs, Volume= 1.261 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,446.55' @ 12.52 hrs Surf.Area= 9,065 sf Storage= 20,508 cf

Plug-Flow detention time= 97.6 min calculated for 1.259 af (97% of inflow)
Center-of-Mass det. time= 80.6 min (908.9 - 828.3)

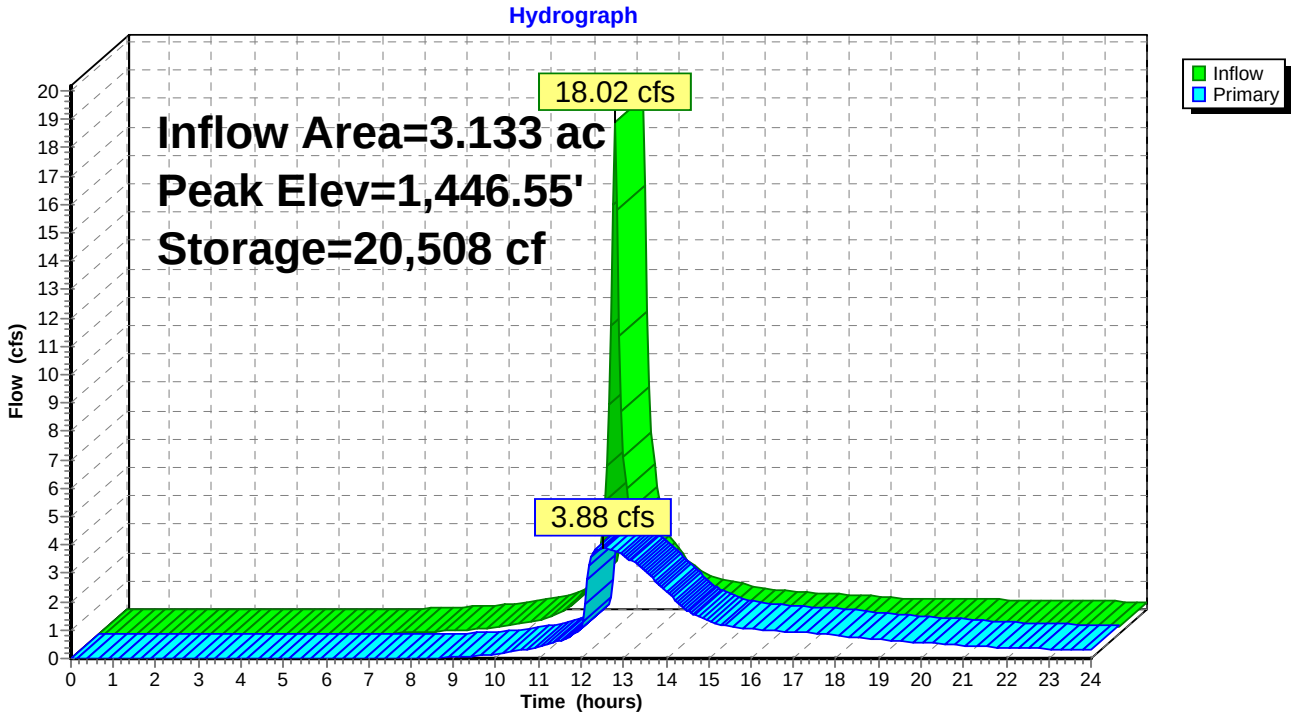
Volume	Invert	Avail.Storage	Storage Description
#1	1,443.50'	29,896 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,443.50	4,556	0	0
1,445.50	7,360	11,916	11,916
1,447.50	10,620	17,980	29,896

Device	Routing	Invert	Outlet Devices
#1	Primary	1,443.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,445.00'	**9.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.88 cfs @ 12.52 hrs HW=1,446.55' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 1.58 cfs @ 8.05 fps)
└─**2=Orifice/Grate** (Orifice Controls 2.30 cfs @ 5.21 fps)

Pond 20P: BASIN



Summary for Pond 23P: TRENCH

Inflow Area = 2.122 ac, 0.00% Impervious, Inflow Depth > 3.81" for 100-Year event
Inflow = 9.93 cfs @ 12.13 hrs, Volume= 0.674 af
Outflow = 9.17 cfs @ 12.16 hrs, Volume= 0.655 af, Atten= 8%, Lag= 1.6 min
Discarded = 0.30 cfs @ 12.16 hrs, Volume= 0.276 af
Primary = 8.87 cfs @ 12.16 hrs, Volume= 0.380 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,408.68' @ 12.16 hrs Surf.Area= 3,355 sf Storage= 1,936 cf

Plug-Flow detention time= 21.9 min calculated for 0.654 af (97% of inflow)
Center-of-Mass det. time= 6.7 min (856.6 - 849.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,406.00'	800 cf	**2.00'W x 500.00'L x 2.00'H STONE TRENCH** 2,000 cf Overall x 40.0% Voids
#2	1,408.00'	1,313 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		2,113 cf	Total Available Storage

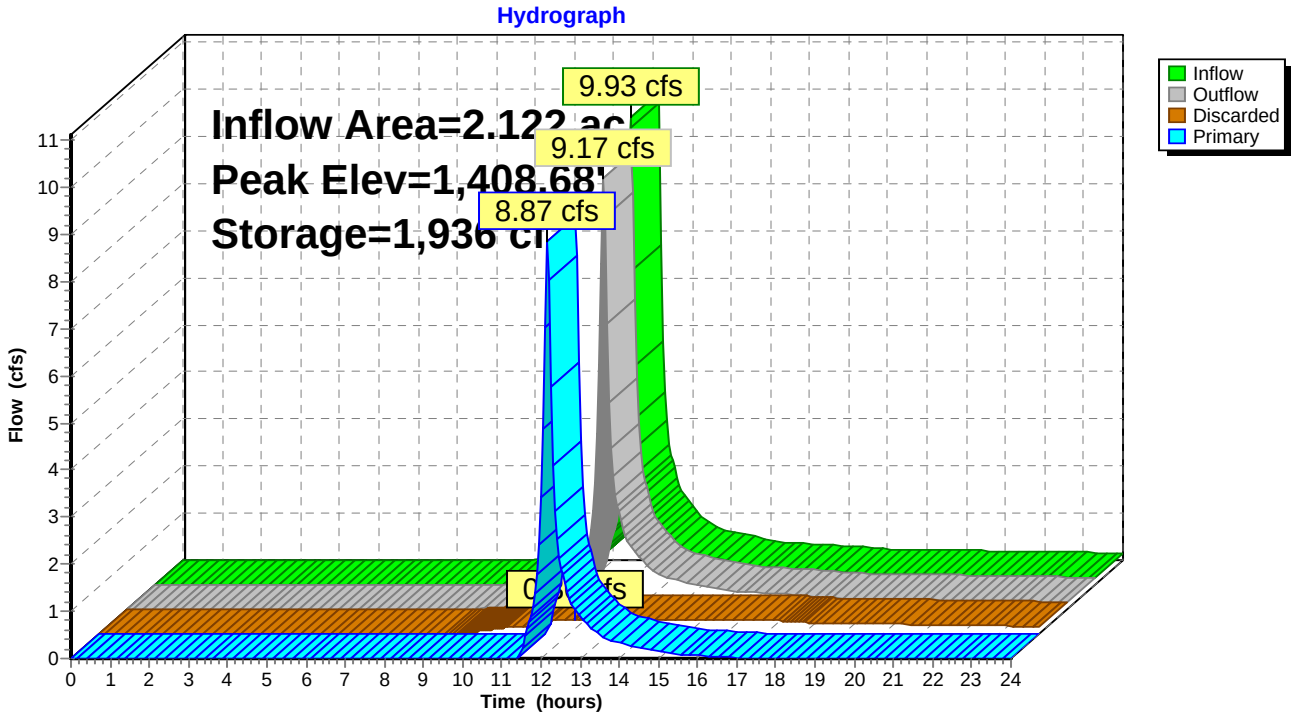
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,408.00	1,000	0	0
1,408.75	2,500	1,313	1,313

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,406.00'	**6.000 in/hr Exfiltration over Surface area below 1,408.00'** Conductivity to Groundwater Elevation = 1,386.00'
#2	Primary	1,408.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.30 cfs @ 12.16 hrs HW=1,408.67' (Free Discharge)
└**1=Exfiltration** (Controls 0.30 cfs)

Primary OutFlow Max=8.66 cfs @ 12.16 hrs HW=1,408.67' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 8.66 cfs @ 2.67 fps)

Pond 23P: TRENCH



Summary for Pond 30P: BASIN

Inflow Area = 6.024 ac, 0.00% Impervious, Inflow Depth > 5.24" for 100-Year event
Inflow = 21.46 cfs @ 12.15 hrs, Volume= 2.631 af
Outflow = 15.89 cfs @ 12.24 hrs, Volume= 2.611 af, Atten= 26%, Lag= 5.4 min
Primary = 15.89 cfs @ 12.24 hrs, Volume= 2.611 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,426.88' @ 12.24 hrs Surf.Area= 5,234 sf Storage= 11,613 cf

Plug-Flow detention time= 19.1 min calculated for 2.605 af (99% of inflow)
Center-of-Mass det. time= 14.7 min (874.2 - 859.5)

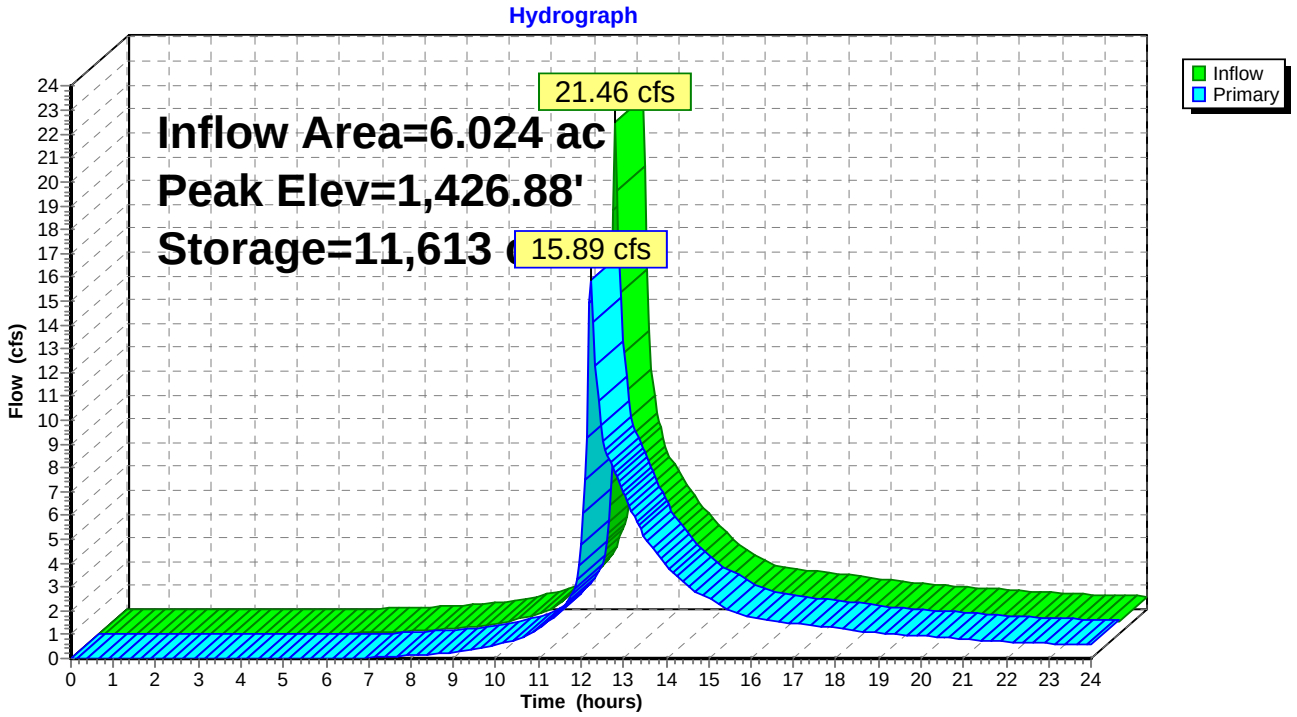
Volume	Invert	Avail.Storage	Storage Description
#1	1,424.00'	12,256 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,424.00	2,888	0	0
1,426.00	4,465	7,353	7,353
1,427.00	5,340	4,903	12,256

Device	Routing	Invert	Outlet Devices
#1	Primary	1,424.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600
#2	Primary	1,425.00'	**12.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,426.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=15.72 cfs @ 12.24 hrs HW=1,426.87' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 5.36 cfs @ 7.67 fps)
- **2=Orifice/Grate** (Orifice Controls 4.43 cfs @ 5.64 fps)
- **3=Orifice/Grate** (Weir Controls 5.93 cfs @ 1.99 fps)

Pond 30P: BASIN

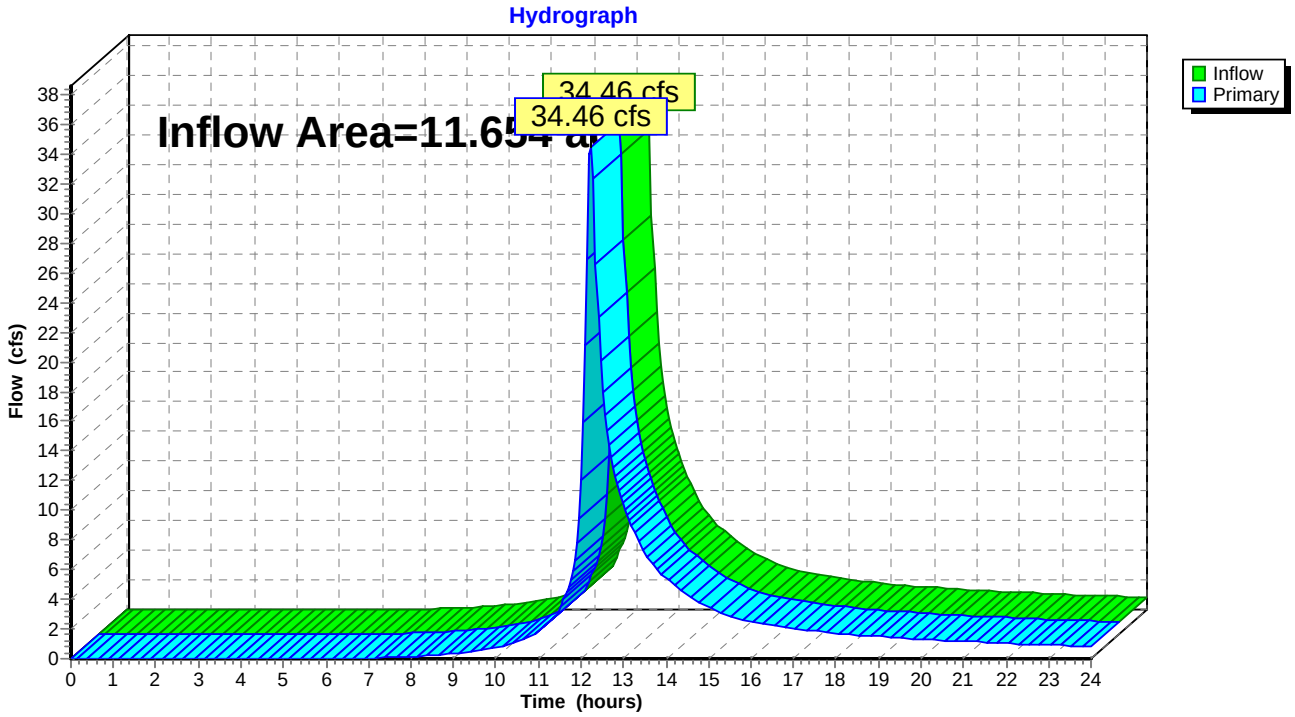


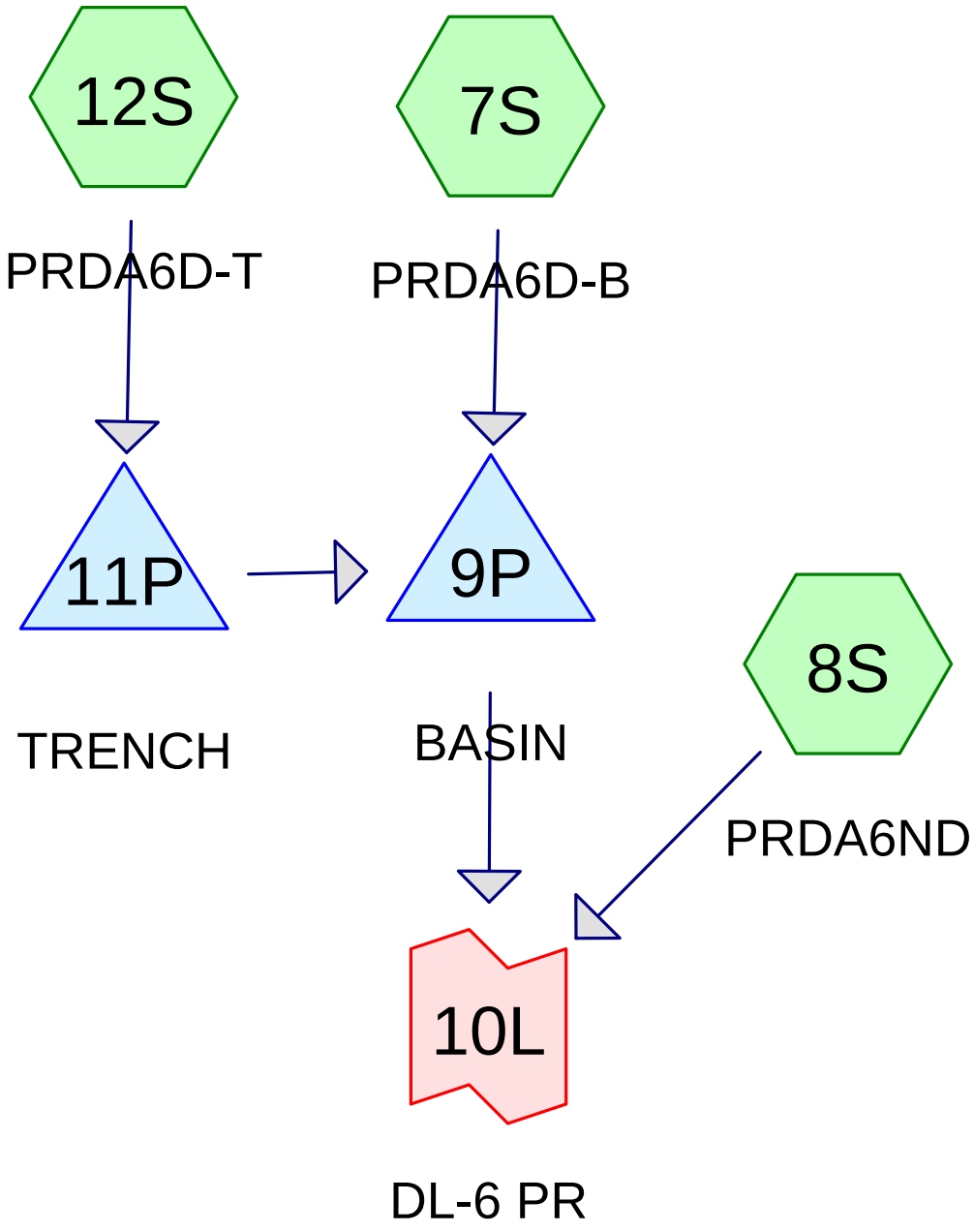
Summary for Link 21L: DL-3 PR

Inflow Area = 11.654 ac, 0.00% Impervious, Inflow Depth > 4.36" for 100-Year event
Inflow = 34.46 cfs @ 12.23 hrs, Volume= 4.236 af
Primary = 34.46 cfs @ 12.23 hrs, Volume= 4.236 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 21L: DL-3 PR





Subcat Reach Pond Link

Routing Diagram for 3092 T3 2019

Prepared by {enter your company name here}, Printed 11/13/2019

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 804 CT Litchfield

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.616	96	Gravel surface, HSG B (7S)
1.774	58	Meadow, non-grazed, HSG B (7S, 8S, 12S)
6.905	55	Woods, Good, HSG B (8S, 12S)
9.295	**58**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
9.295	HSG B	7S, 8S, 12S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
9.295		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.616	0.000	0.000	0.000	0.616	Gravel surface	7S
0.000	1.774	0.000	0.000	0.000	1.774	Meadow, non-grazed	7S, 8S, 12S
0.000	6.905	0.000	0.000	0.000	6.905	Woods, Good	8S, 12S
0.000	**9.295**	**0.000**	**0.000**	**0.000**	**9.295**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: PRDA6D-B Runoff Area=56,000 sf 0.00% Impervious Runoff Depth>1.14"
Tc=6.0 min CN=76 Runoff=1.78 cfs 0.122 af

Subcatchment 8S: PRDA6ND Runoff Area=230,220 sf 0.00% Impervious Runoff Depth>0.24"
Flow Length=653' Tc=24.4 min CN=55 Runoff=0.34 cfs 0.108 af

Subcatchment 12S: PRDA6D-T Runoff Area=118,690 sf 0.00% Impervious Runoff Depth>0.27"
Flow Length=492' Tc=23.4 min CN=56 Runoff=0.22 cfs 0.062 af

Pond 9P: BASIN Peak Elev=1,410.43' Storage=2,135 cf Inflow=1.78 cfs 0.122 af
Outflow=0.21 cfs 0.108 af

Pond 11P: TRENCH Peak Elev=1,411.03' Storage=0.000 af Inflow=0.22 cfs 0.062 af
Discarded=0.22 cfs 0.062 af Primary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.062 af

Link 10L: DL-6 PR Inflow=0.55 cfs 0.215 af
Primary=0.55 cfs 0.215 af

Total Runoff Area = 9.295 ac Runoff Volume = 0.292 af Average Runoff Depth = 0.38"
100.00% Pervious = 9.295 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 7S: PRDA6D-B

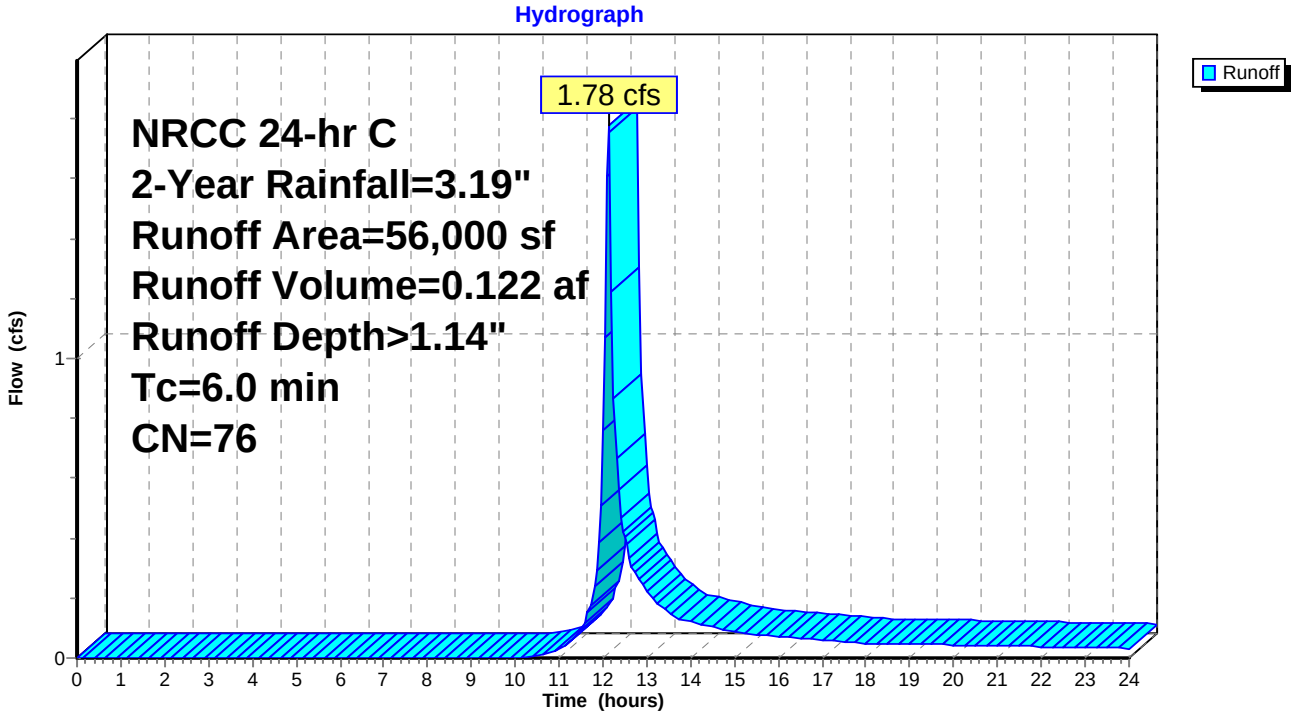
Runoff = 1.78 cfs @ 12.14 hrs, Volume= 0.122 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
29,170	58	Meadow, non-grazed, HSG B
26,830	96	Gravel surface, HSG B
56,000	76	Weighted Average
56,000		100.00% Pervious Area

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

Subcatchment 7S: PRDA6D-B



Summary for Subcatchment 8S: PRDA6ND

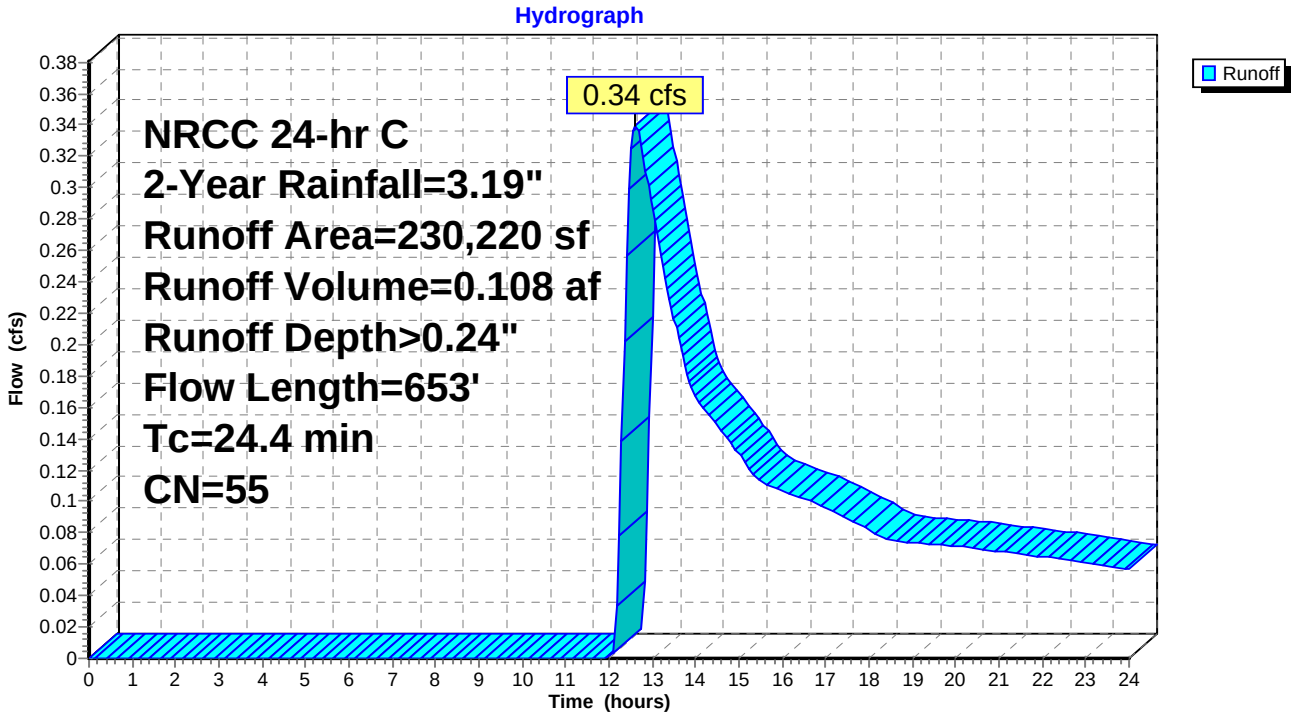
Runoff = 0.34 cfs @ 12.61 hrs, Volume= 0.108 af, Depth> 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
206,100	55	Woods, Good, HSG B
24,120	58	Meadow, non-grazed, HSG B
230,220	55	Weighted Average
230,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 8S: PRDA6ND



Summary for Subcatchment 12S: PRDA6D-T

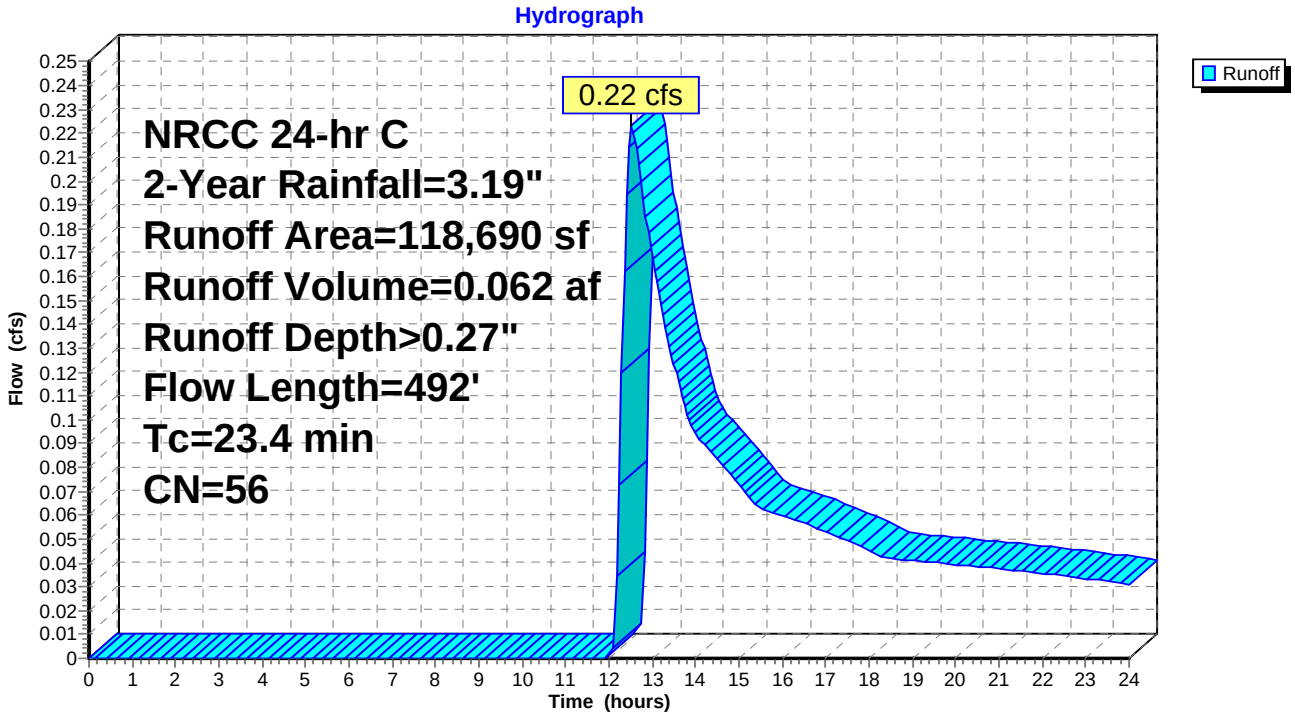
Runoff = 0.22 cfs @ 12.52 hrs, Volume= 0.062 af, Depth> 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
94,700	55	Woods, Good, HSG B
23,990	58	Meadow, non-grazed, HSG B
118,690	56	Weighted Average
118,690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	200	0.0700	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.7	292	0.1800	6.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.4	492	Total			

Subcatchment 12S: PRDA6D-T



Summary for Pond 9P: BASIN

Inflow Area = 4.010 ac, 0.00% Impervious, Inflow Depth > 0.37" for 2-Year event
Inflow = 1.78 cfs @ 12.14 hrs, Volume= 0.122 af
Outflow = 0.21 cfs @ 13.07 hrs, Volume= 0.108 af, Atten= 88%, Lag= 55.8 min
Primary = 0.21 cfs @ 13.07 hrs, Volume= 0.108 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,410.43' @ 13.07 hrs Surf.Area= 5,266 sf Storage= 2,135 cf

Plug-Flow detention time= 163.9 min calculated for 0.108 af (88% of inflow)
Center-of-Mass det. time= 105.6 min (972.9 - 867.3)

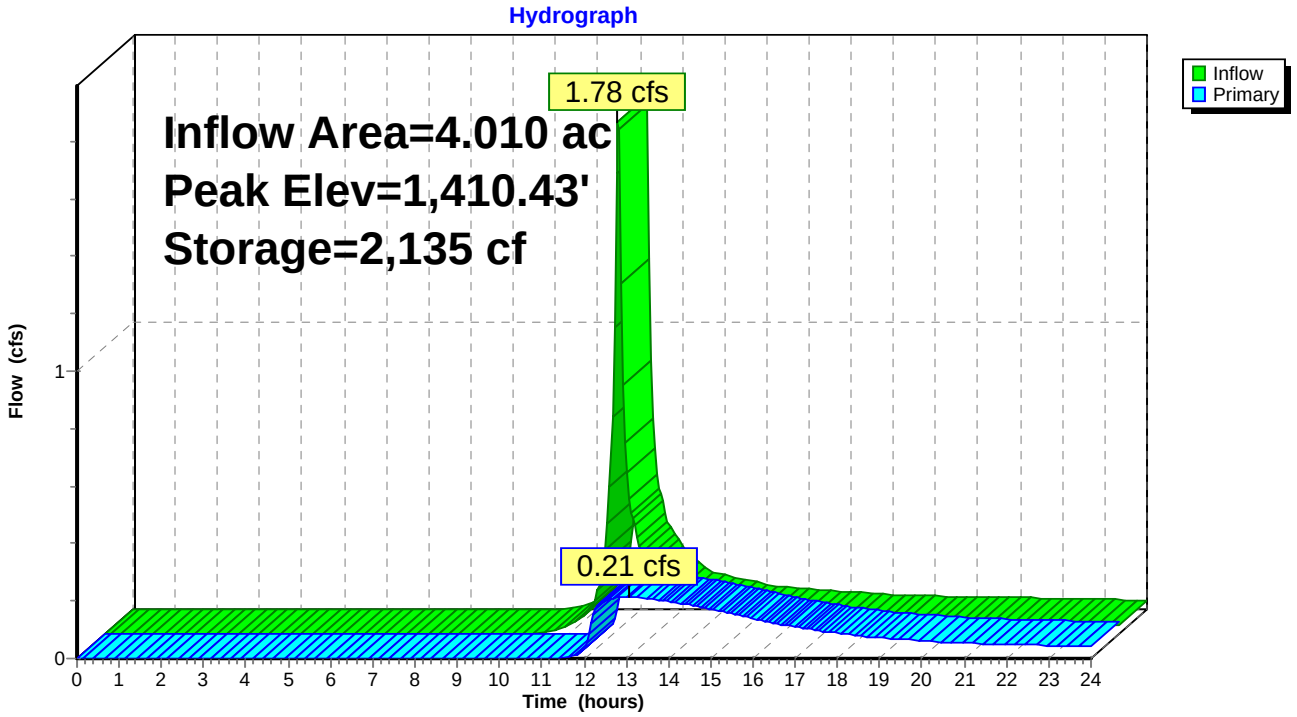
Volume	Invert	Avail.Storage	Storage Description
#1	1,410.00'	27,970 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,410.00	4,770	0	0
1,412.00	7,100	11,870	11,870
1,414.00	9,000	16,100	27,970

Device	Routing	Invert	Outlet Devices
#1	Primary	1,410.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,411.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,412.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 13.07 hrs HW=1,410.43' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.21 cfs @ 2.45 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 9P: BASIN



Summary for Pond 11P: TRENCH

Inflow Area = 2.725 ac, 0.00% Impervious, Inflow Depth > 0.27" for 2-Year event
Inflow = 0.22 cfs @ 12.52 hrs, Volume= 0.062 af
Outflow = 0.22 cfs @ 12.55 hrs, Volume= 0.062 af, Atten= 0%, Lag= 1.9 min
Discarded = 0.22 cfs @ 12.55 hrs, Volume= 0.062 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,411.03' @ 12.55 hrs Surf.Area= 0.037 ac Storage= 0.000 af

Plug-Flow detention time= 1.3 min calculated for 0.062 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (978.7 - 977.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,411.00'	0.030 af	**2.00'W x 810.00'L x 2.00'H STONE TRENCH** 0.074 af Overall x 40.0% Voids
#2	1,413.00'	0.049 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		0.079 af	Total Available Storage

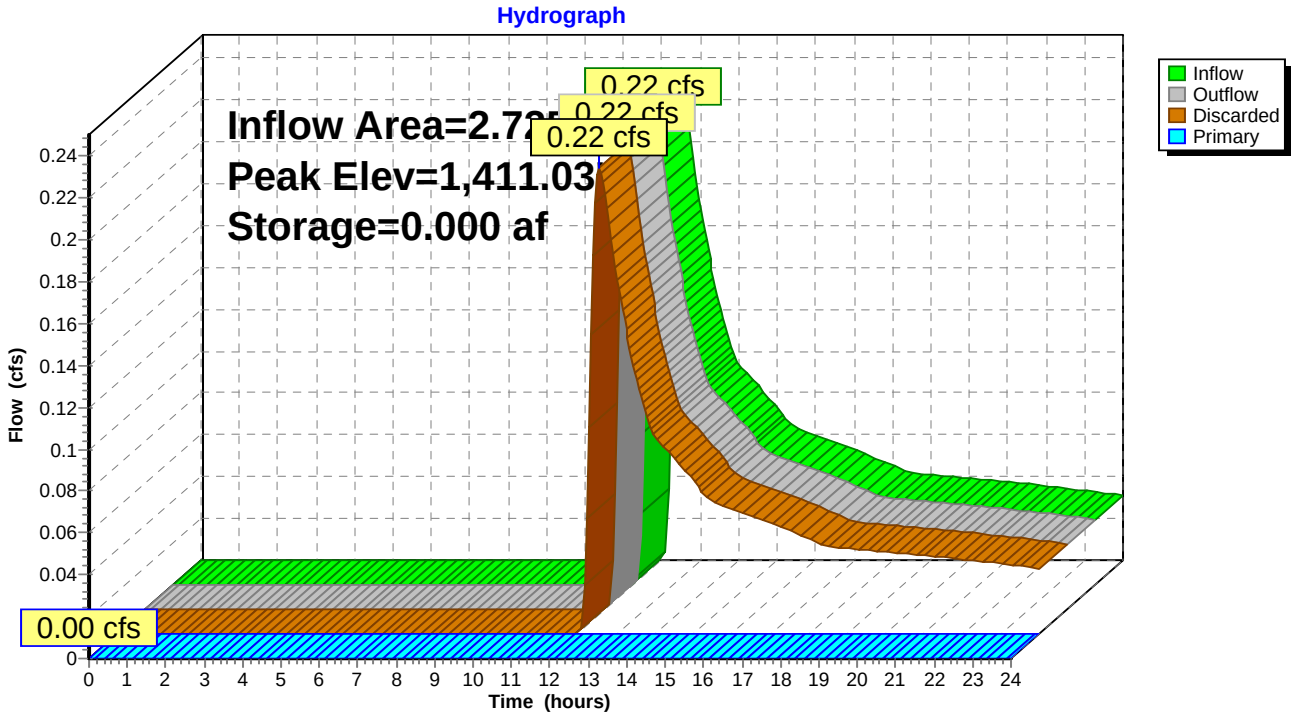
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,413.00	0.037	0.000	0.000
1,413.75	0.093	0.049	0.049

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,411.00'	**6.000 in/hr Exfiltration over Surface area below 1,413.00'** Conductivity to Groundwater Elevation = 1,391.00'
#2	Primary	1,413.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.23 cfs @ 12.55 hrs HW=1,411.03' (Free Discharge)
1=Exfiltration (Controls 0.23 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,411.00' (Free Discharge)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 11P: TRENCH

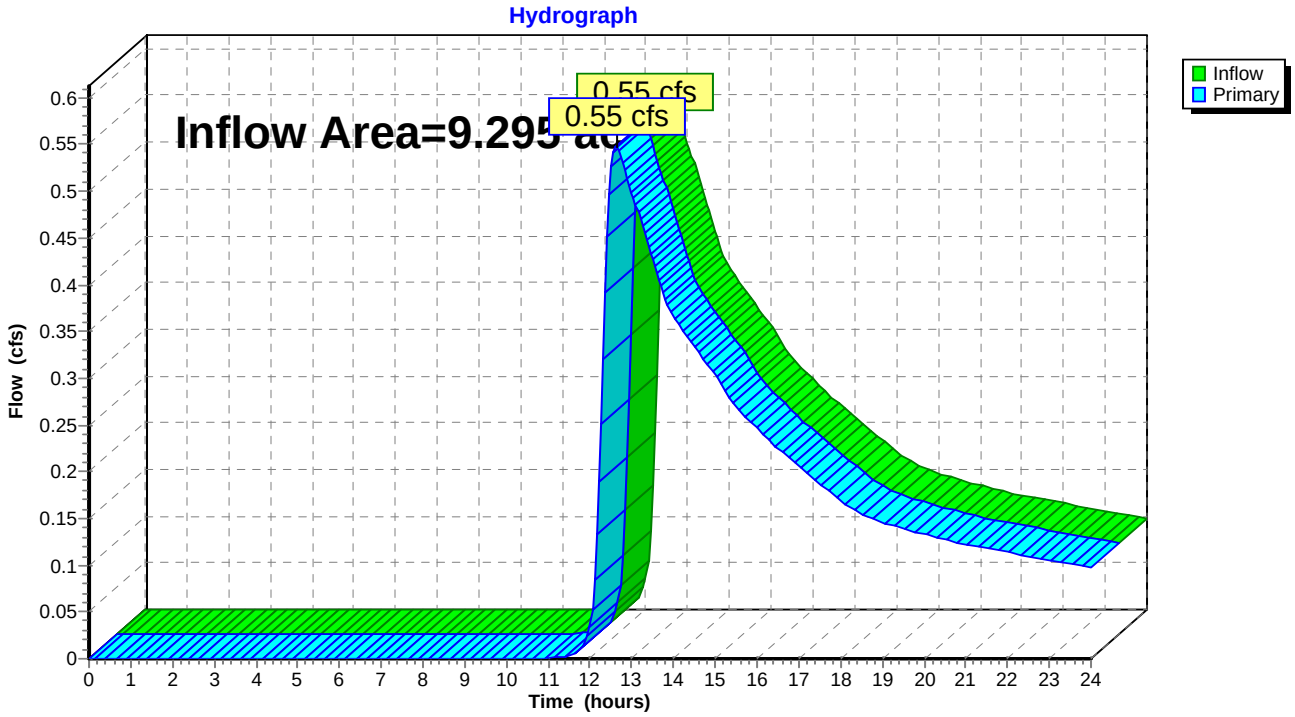


Summary for Link 10L: DL-6 PR

Inflow Area = 9.295 ac, 0.00% Impervious, Inflow Depth > 0.28" for 2-Year event
Inflow = 0.55 cfs @ 12.63 hrs, Volume= 0.215 af
Primary = 0.55 cfs @ 12.63 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 10L: DL-6 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: PRDA6D-B Runoff Area=56,000 sf 0.00% Impervious Runoff Depth>2.30"
Tc=6.0 min CN=76 Runoff=3.64 cfs 0.247 af

Subcatchment 8S: PRDA6ND Runoff Area=230,220 sf 0.00% Impervious Runoff Depth>0.84"
Flow Length=653' Tc=24.4 min CN=55 Runoff=2.46 cfs 0.368 af

Subcatchment 12S: PRDA6D-T Runoff Area=118,690 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=492' Tc=23.4 min CN=56 Runoff=1.43 cfs 0.203 af

Pond 9P: BASIN Peak Elev=1,411.01' Storage=5,409 cf Inflow=3.64 cfs 0.261 af
Outflow=0.39 cfs 0.239 af

Pond 11P: TRENCH Peak Elev=1,413.09' Storage=0.033 af Inflow=1.43 cfs 0.203 af
Discarded=0.47 cfs 0.188 af Primary=0.44 cfs 0.014 af Outflow=0.91 cfs 0.202 af

Link 10L: DL-6 PR Inflow=2.80 cfs 0.607 af
Primary=2.80 cfs 0.607 af

Total Runoff Area = 9.295 ac Runoff Volume = 0.817 af Average Runoff Depth = 1.05"
100.00% Pervious = 9.295 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 7S: PRDA6D-B

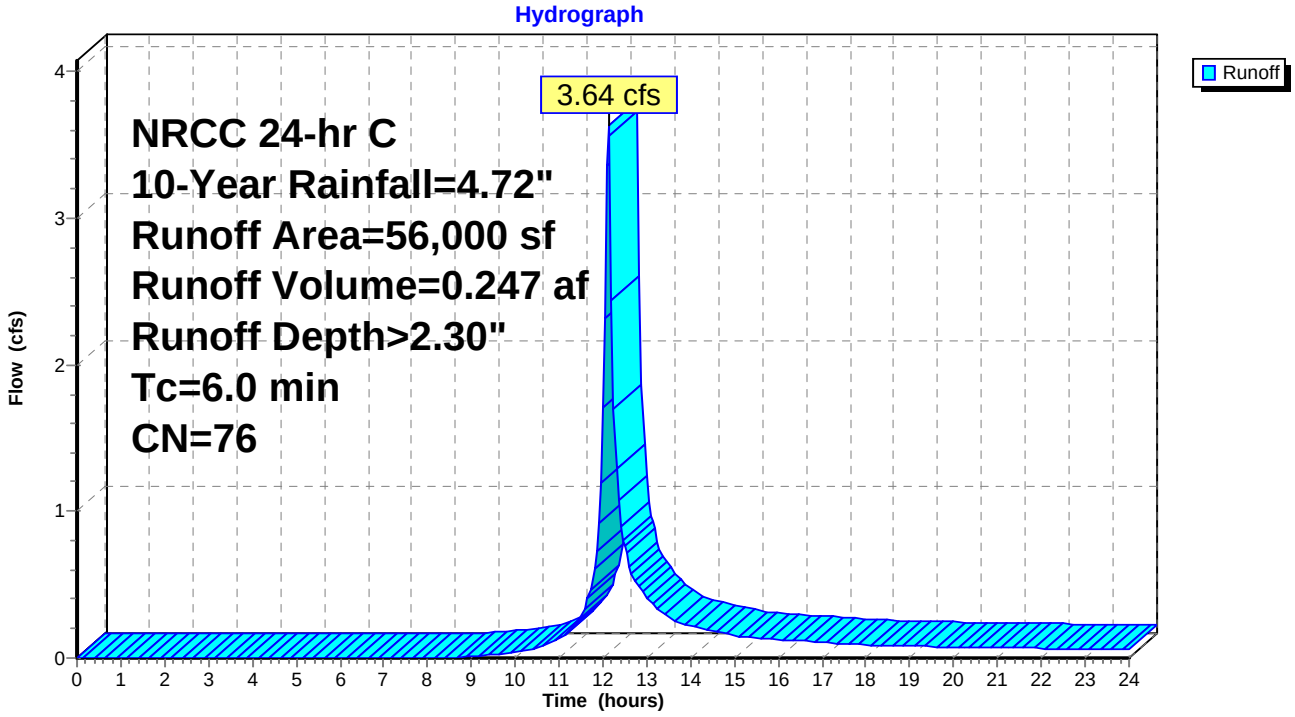
Runoff = 3.64 cfs @ 12.13 hrs, Volume= 0.247 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
29,170	58	Meadow, non-grazed, HSG B
26,830	96	Gravel surface, HSG B
56,000	76	Weighted Average
56,000		100.00% Pervious Area

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

Subcatchment 7S: PRDA6D-B



Summary for Subcatchment 8S: PRDA6ND

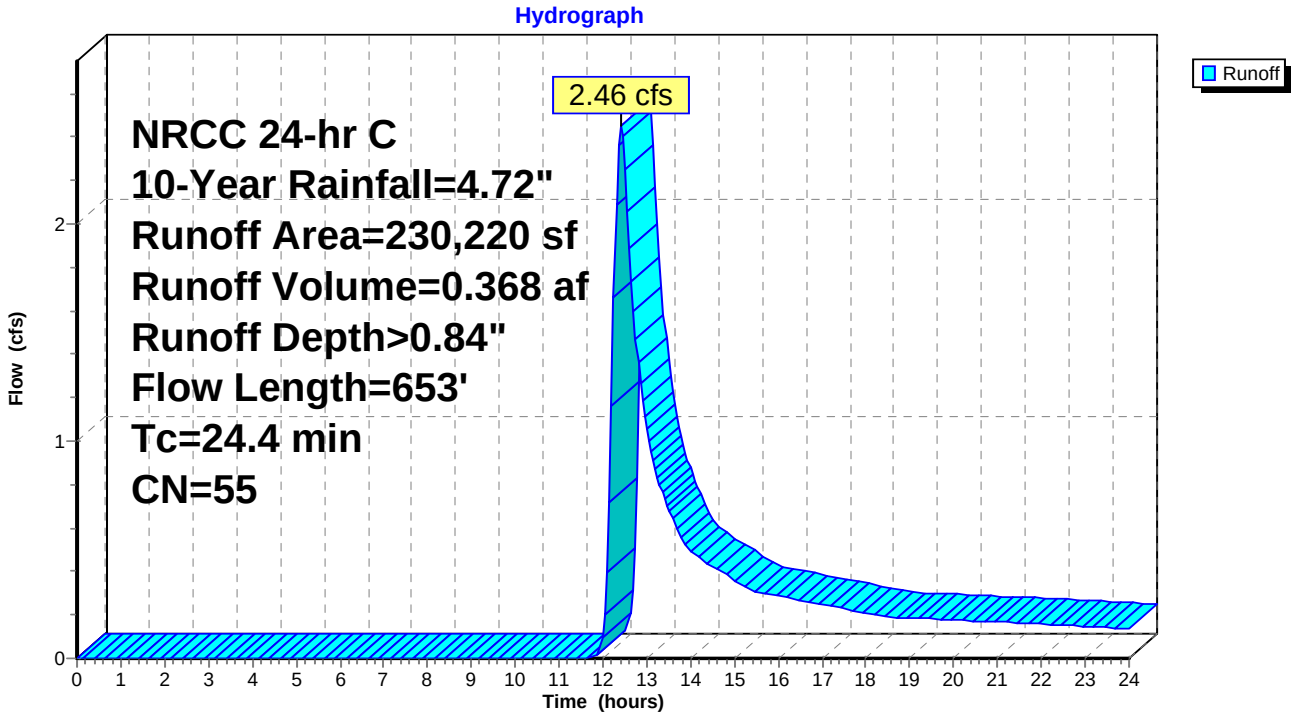
Runoff = 2.46 cfs @ 12.41 hrs, Volume= 0.368 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
206,100	55	Woods, Good, HSG B
24,120	58	Meadow, non-grazed, HSG B
230,220	55	Weighted Average
230,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 8S: PRDA6ND



Summary for Subcatchment 12S: PRDA6D-T

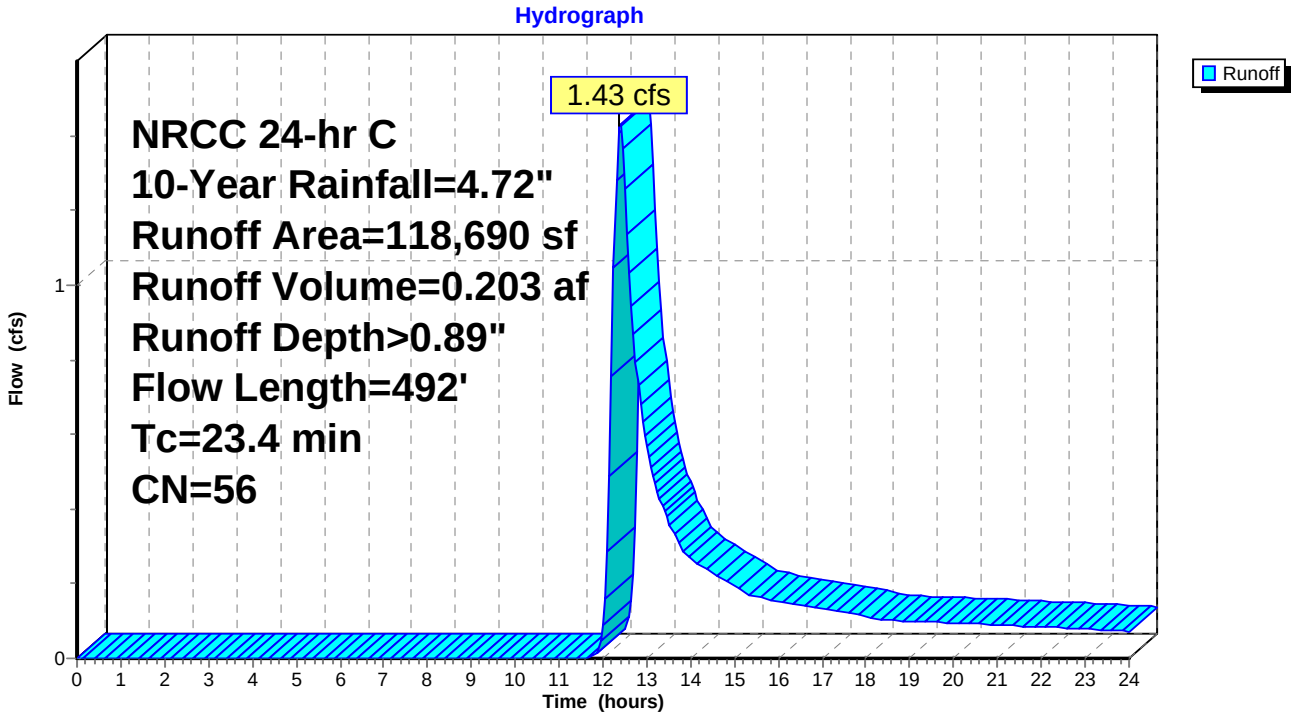
Runoff = 1.43 cfs @ 12.39 hrs, Volume= 0.203 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
94,700	55	Woods, Good, HSG B
23,990	58	Meadow, non-grazed, HSG B
118,690	56	Weighted Average
118,690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	200	0.0700	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.7	292	0.1800	6.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.4	492	Total			

Subcatchment 12S: PRDA6D-T



Summary for Pond 9P: BASIN

Inflow Area = 4.010 ac, 0.00% Impervious, Inflow Depth > 0.78" for 10-Year event
Inflow = 3.64 cfs @ 12.13 hrs, Volume= 0.261 af
Outflow = 0.39 cfs @ 13.22 hrs, Volume= 0.239 af, Atten= 89%, Lag= 65.5 min
Primary = 0.39 cfs @ 13.22 hrs, Volume= 0.239 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,411.01' @ 13.22 hrs Surf.Area= 5,946 sf Storage= 5,409 cf

Plug-Flow detention time= 187.9 min calculated for 0.239 af (92% of inflow)
Center-of-Mass det. time= 145.6 min (986.2 - 840.6)

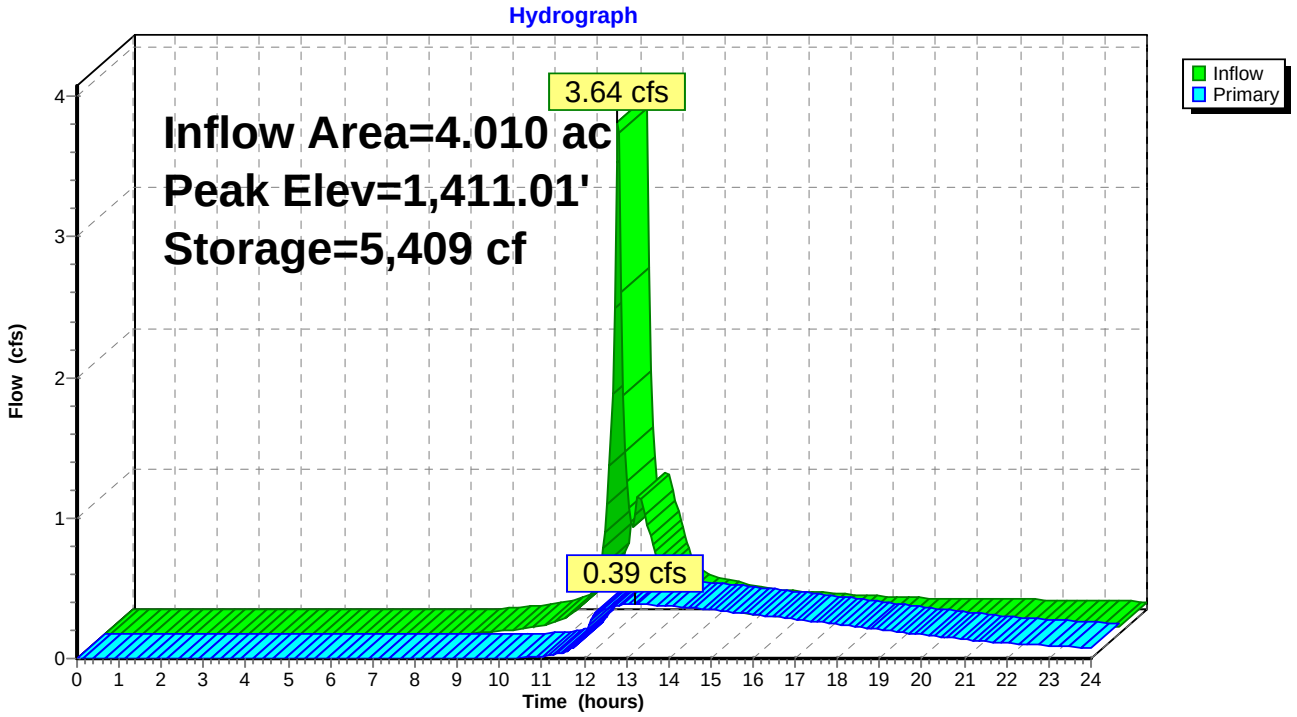
Volume	Invert	Avail.Storage	Storage Description
#1	1,410.00'	27,970 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,410.00	4,770	0	0
1,412.00	7,100	11,870	11,870
1,414.00	9,000	16,100	27,970

Device	Routing	Invert	Outlet Devices
#1	Primary	1,410.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,411.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,412.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.39 cfs @ 13.22 hrs HW=1,411.01' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.39 cfs @ 4.42 fps)
- **2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.33 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 9P: BASIN



Summary for Pond 11P: TRENCH

Inflow Area = 2.725 ac, 0.00% Impervious, Inflow Depth > 0.89" for 10-Year event
Inflow = 1.43 cfs @ 12.39 hrs, Volume= 0.203 af
Outflow = 0.91 cfs @ 12.68 hrs, Volume= 0.202 af, Atten= 36%, Lag= 17.4 min
Discarded = 0.47 cfs @ 12.68 hrs, Volume= 0.188 af
Primary = 0.44 cfs @ 12.68 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,413.09' @ 12.68 hrs Surf.Area= 0.081 ac Storage= 0.033 af

Plug-Flow detention time= 39.6 min calculated for 0.202 af (100% of inflow)
Center-of-Mass det. time= 39.2 min (960.4 - 921.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,411.00'	0.030 af	**2.00'W x 810.00'L x 2.00'H STONE TRENCH** 0.074 af Overall x 40.0% Voids
#2	1,413.00'	0.049 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		0.079 af	Total Available Storage

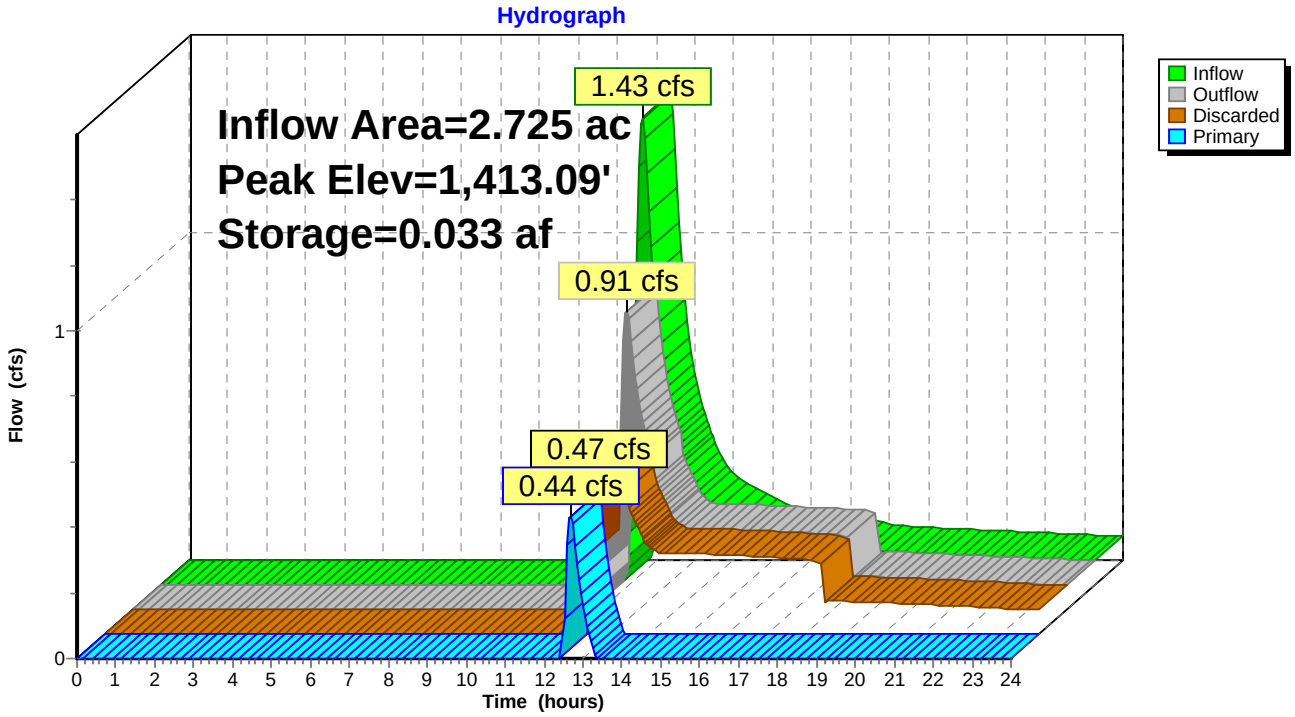
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,413.00	0.037	0.000	0.000
1,413.75	0.093	0.049	0.049

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,411.00'	**6.000 in/hr Exfiltration over Surface area below 1,413.00'** Conductivity to Groundwater Elevation = 1,391.00'
#2	Primary	1,413.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.47 cfs @ 12.68 hrs HW=1,413.09' (Free Discharge)
1=Exfiltration (Controls 0.47 cfs)

Primary OutFlow Max=0.43 cfs @ 12.68 hrs HW=1,413.09' (Free Discharge)
2=Sharp-Crested Rectangular Weir (Weir Controls 0.43 cfs @ 0.97 fps)

Pond 11P: TRENCH

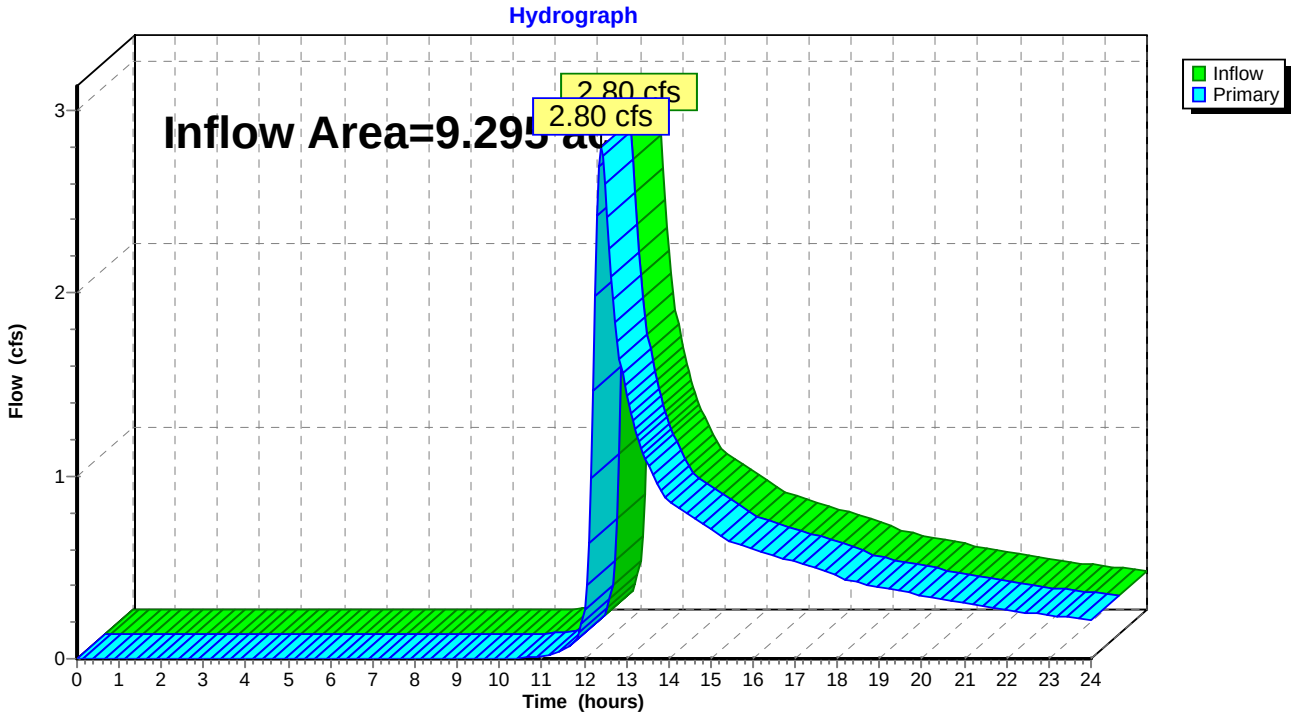


Summary for Link 10L: DL-6 PR

Inflow Area = 9.295 ac, 0.00% Impervious, Inflow Depth > 0.78" for 10-Year event
Inflow = 2.80 cfs @ 12.41 hrs, Volume= 0.607 af
Primary = 2.80 cfs @ 12.41 hrs, Volume= 0.607 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 10L: DL-6 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: PRDA6D-B Runoff Area=56,000 sf 0.00% Impervious Runoff Depth>3.31"
Tc=6.0 min CN=76 Runoff=5.20 cfs 0.354 af

Subcatchment 8S: PRDA6ND Runoff Area=230,220 sf 0.00% Impervious Runoff Depth>1.46"
Flow Length=653' Tc=24.4 min CN=55 Runoff=4.95 cfs 0.642 af

Subcatchment 12S: PRDA6D-T Runoff Area=118,690 sf 0.00% Impervious Runoff Depth>1.54"
Flow Length=492' Tc=23.4 min CN=56 Runoff=2.80 cfs 0.349 af

Pond 9P: BASIN Peak Elev=1,411.57' Storage=8,945 cf Inflow=5.20 cfs 0.443 af
Outflow=1.32 cfs 0.415 af

Pond 11P: TRENCH Peak Elev=1,413.25' Storage=0.042 af Inflow=2.80 cfs 0.349 af
Discarded=0.48 cfs 0.260 af Primary=2.06 cfs 0.089 af Outflow=2.54 cfs 0.349 af

Link 10L: DL-6 PR Inflow=5.56 cfs 1.057 af
Primary=5.56 cfs 1.057 af

Total Runoff Area = 9.295 ac Runoff Volume = 1.346 af Average Runoff Depth = 1.74"
100.00% Pervious = 9.295 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 7S: PRDA6D-B

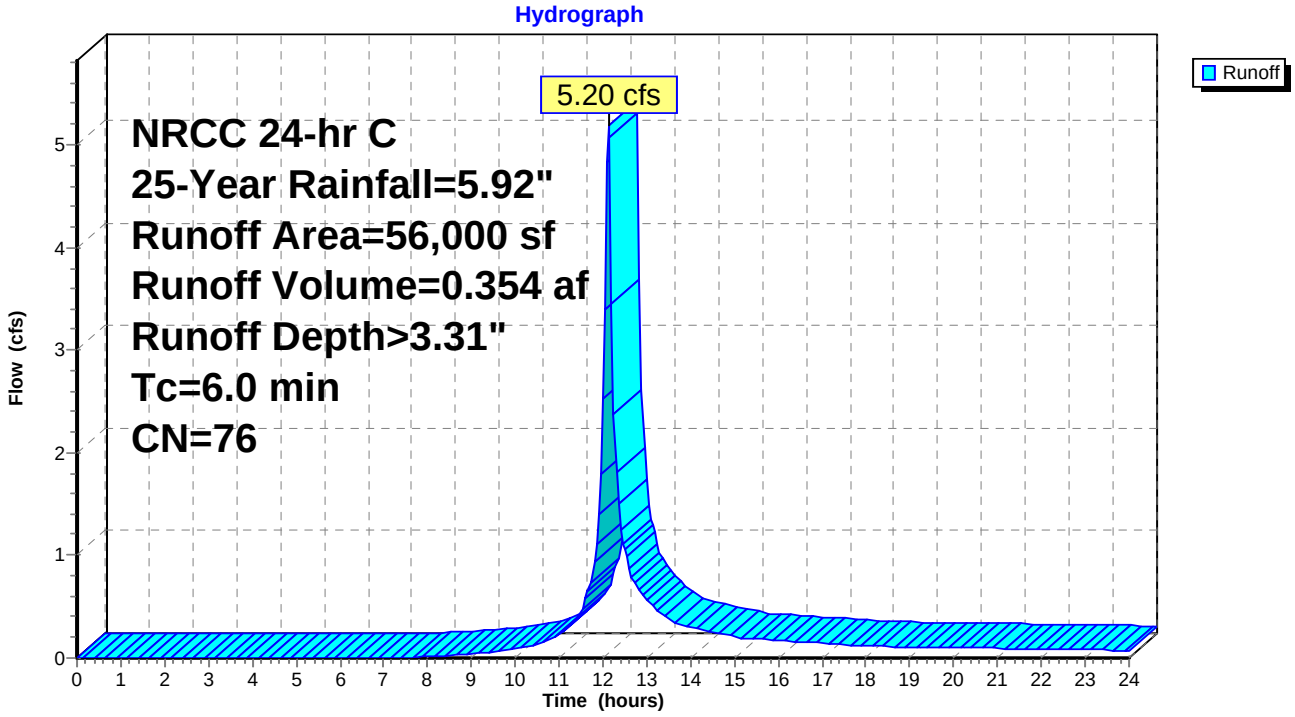
Runoff = 5.20 cfs @ 12.13 hrs, Volume= 0.354 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
29,170	58	Meadow, non-grazed, HSG B
26,830	96	Gravel surface, HSG B
56,000	76	Weighted Average
56,000		100.00% Pervious Area

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

Subcatchment 7S: PRDA6D-B



Summary for Subcatchment 8S: PRDA6ND

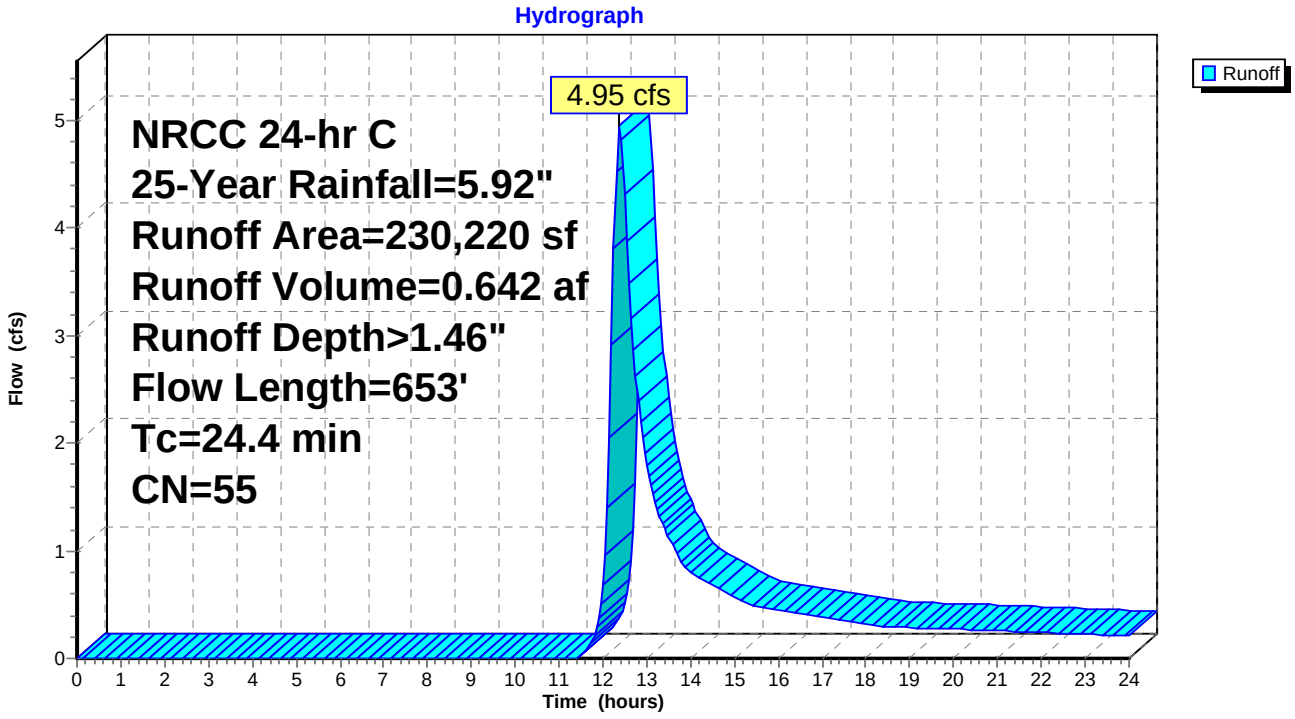
Runoff = 4.95 cfs @ 12.38 hrs, Volume= 0.642 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
206,100	55	Woods, Good, HSG B
24,120	58	Meadow, non-grazed, HSG B
230,220	55	Weighted Average
230,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 8S: PRDA6ND



Summary for Subcatchment 12S: PRDA6D-T

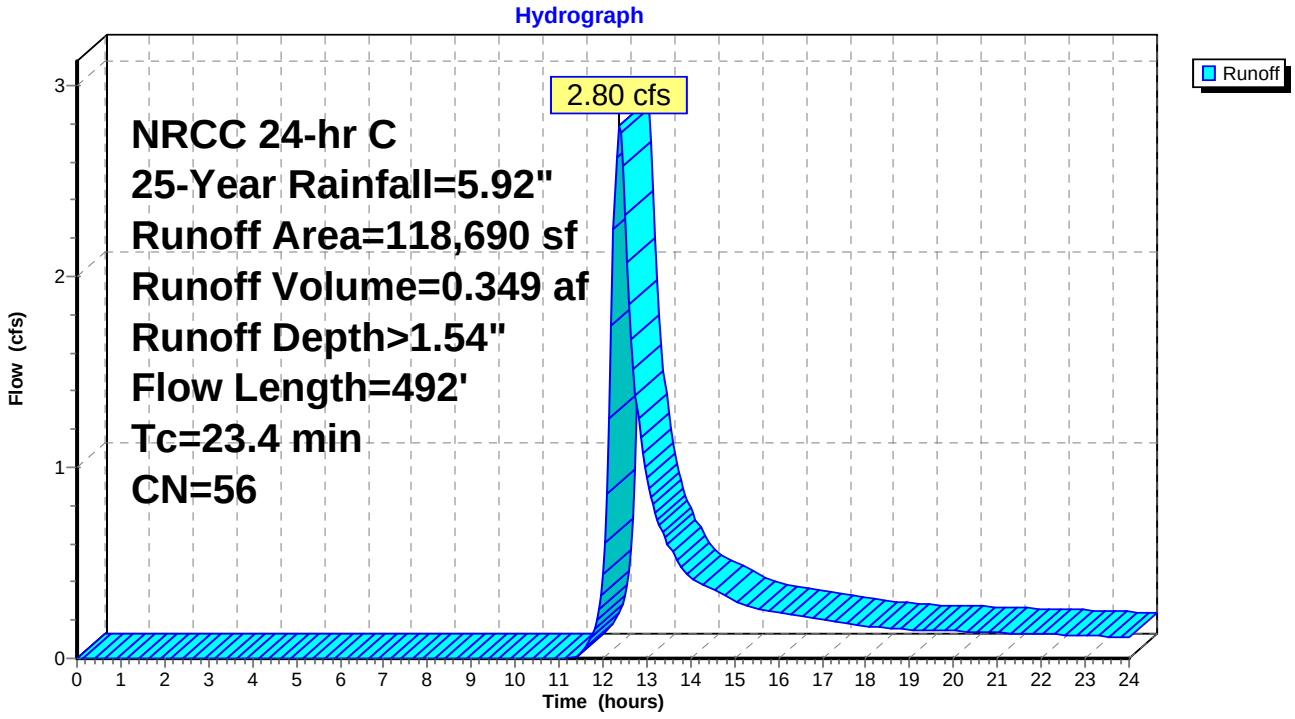
Runoff = 2.80 cfs @ 12.37 hrs, Volume= 0.349 af, Depth> 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
94,700	55	Woods, Good, HSG B
23,990	58	Meadow, non-grazed, HSG B
118,690	56	Weighted Average
118,690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	200	0.0700	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.7	292	0.1800	6.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.4	492	Total			

Subcatchment 12S: PRDA6D-T



Summary for Pond 9P: BASIN

Inflow Area = 4.010 ac, 0.00% Impervious, Inflow Depth > 1.33" for 25-Year event
Inflow = 5.20 cfs @ 12.13 hrs, Volume= 0.443 af
Outflow = 1.32 cfs @ 12.92 hrs, Volume= 0.415 af, Atten= 75%, Lag= 47.1 min
Primary = 1.32 cfs @ 12.92 hrs, Volume= 0.415 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,411.57' @ 12.92 hrs Surf.Area= 6,603 sf Storage= 8,945 cf

Plug-Flow detention time= 164.1 min calculated for 0.415 af (94% of inflow)
Center-of-Mass det. time= 130.3 min (949.7 - 819.3)

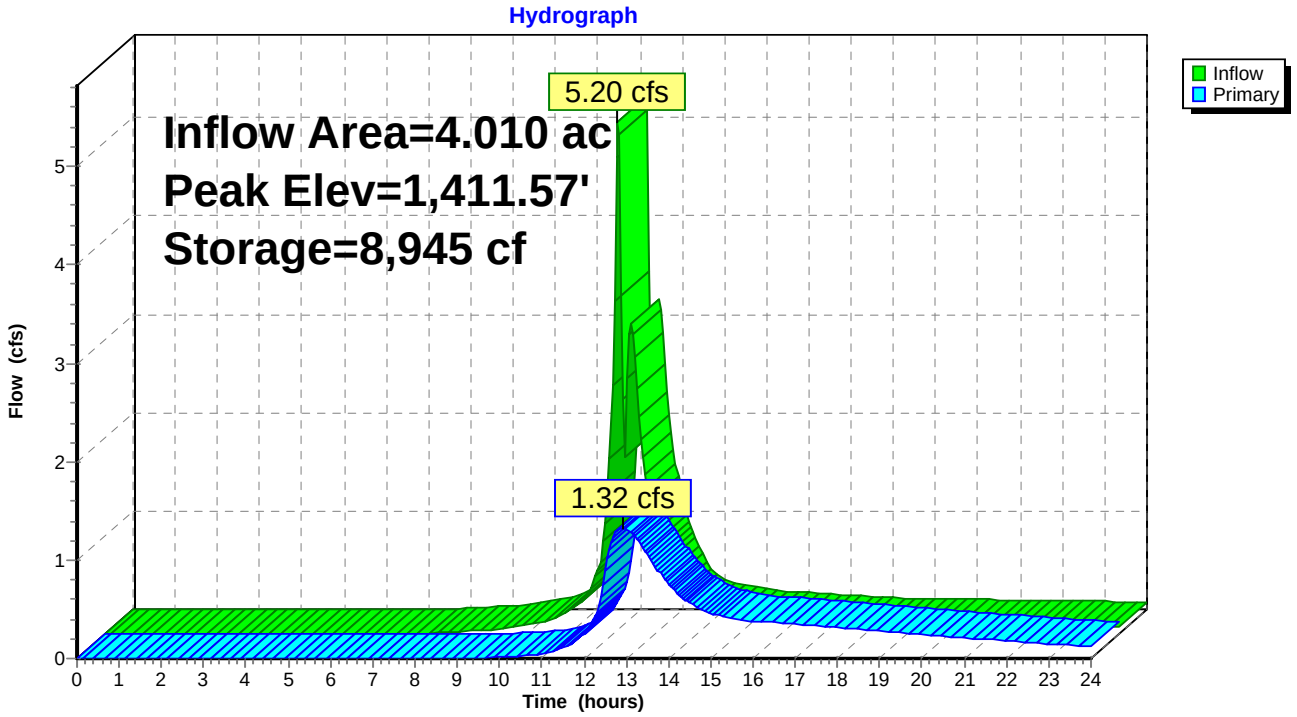
Volume	Invert	Avail.Storage	Storage Description
#1	1,410.00'	27,970 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,410.00	4,770	0	0
1,412.00	7,100	11,870	11,870
1,414.00	9,000	16,100	27,970

Device	Routing	Invert	Outlet Devices
#1	Primary	1,410.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,411.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,412.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.32 cfs @ 12.92 hrs HW=1,411.57' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.50 cfs @ 5.71 fps)
- **2=Orifice/Grate** (Orifice Controls 0.82 cfs @ 2.58 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 9P: BASIN



Summary for Pond 11P: TRENCH

Inflow Area = 2.725 ac, 0.00% Impervious, Inflow Depth > 1.54" for 25-Year event
Inflow = 2.80 cfs @ 12.37 hrs, Volume= 0.349 af
Outflow = 2.54 cfs @ 12.47 hrs, Volume= 0.349 af, Atten= 9%, Lag= 6.1 min
Discarded = 0.48 cfs @ 12.47 hrs, Volume= 0.260 af
Primary = 2.06 cfs @ 12.47 hrs, Volume= 0.089 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,413.25' @ 12.47 hrs Surf.Area= 0.093 ac Storage= 0.042 af

Plug-Flow detention time= 36.6 min calculated for 0.348 af (100% of inflow)
Center-of-Mass det. time= 36.2 min (936.9 - 900.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,411.00'	0.030 af	**2.00'W x 810.00'L x 2.00'H STONE TRENCH** 0.074 af Overall x 40.0% Voids
#2	1,413.00'	0.049 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		0.079 af	Total Available Storage

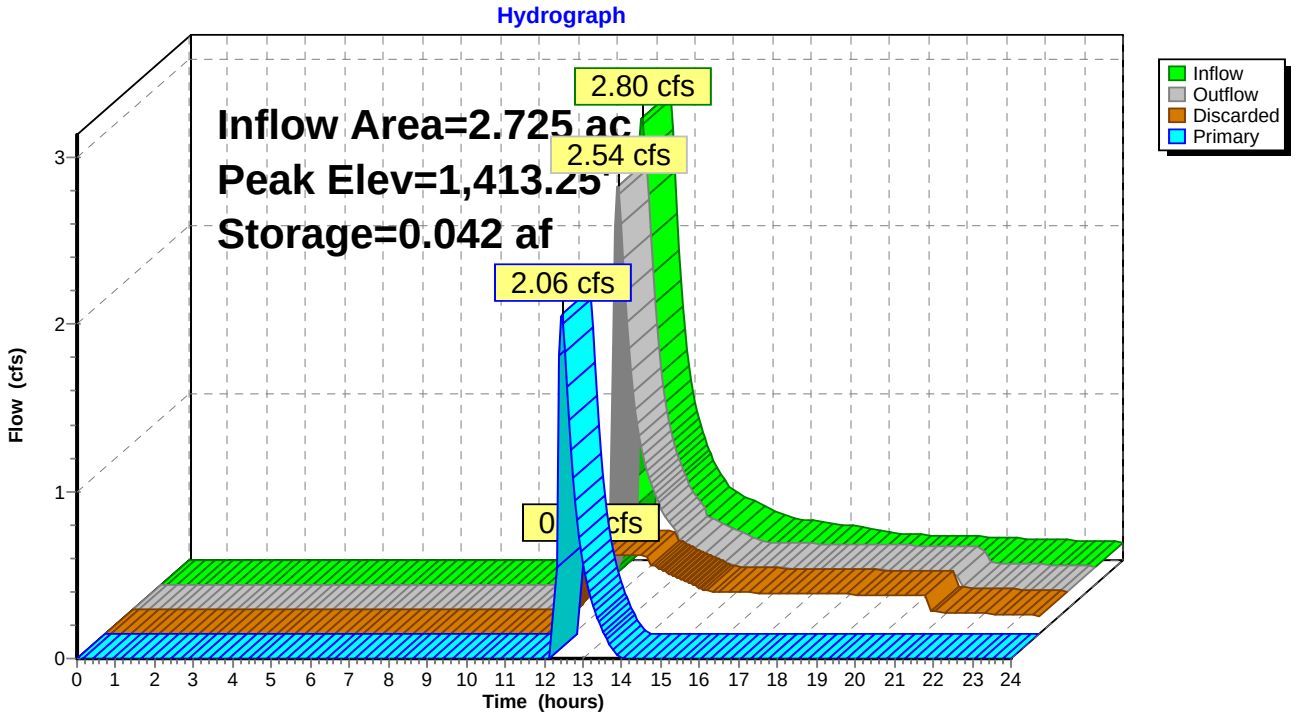
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,413.00	0.037	0.000	0.000
1,413.75	0.093	0.049	0.049

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,411.00'	**6.000 in/hr Exfiltration over Surface area below 1,413.00'** Conductivity to Groundwater Elevation = 1,391.00'
#2	Primary	1,413.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.48 cfs @ 12.47 hrs HW=1,413.25' (Free Discharge)
1=Exfiltration (Controls 0.48 cfs)

Primary OutFlow Max=2.03 cfs @ 12.47 hrs HW=1,413.25' (Free Discharge)
2=Sharp-Crested Rectangular Weir (Weir Controls 2.03 cfs @ 1.64 fps)

Pond 11P: TRENCH

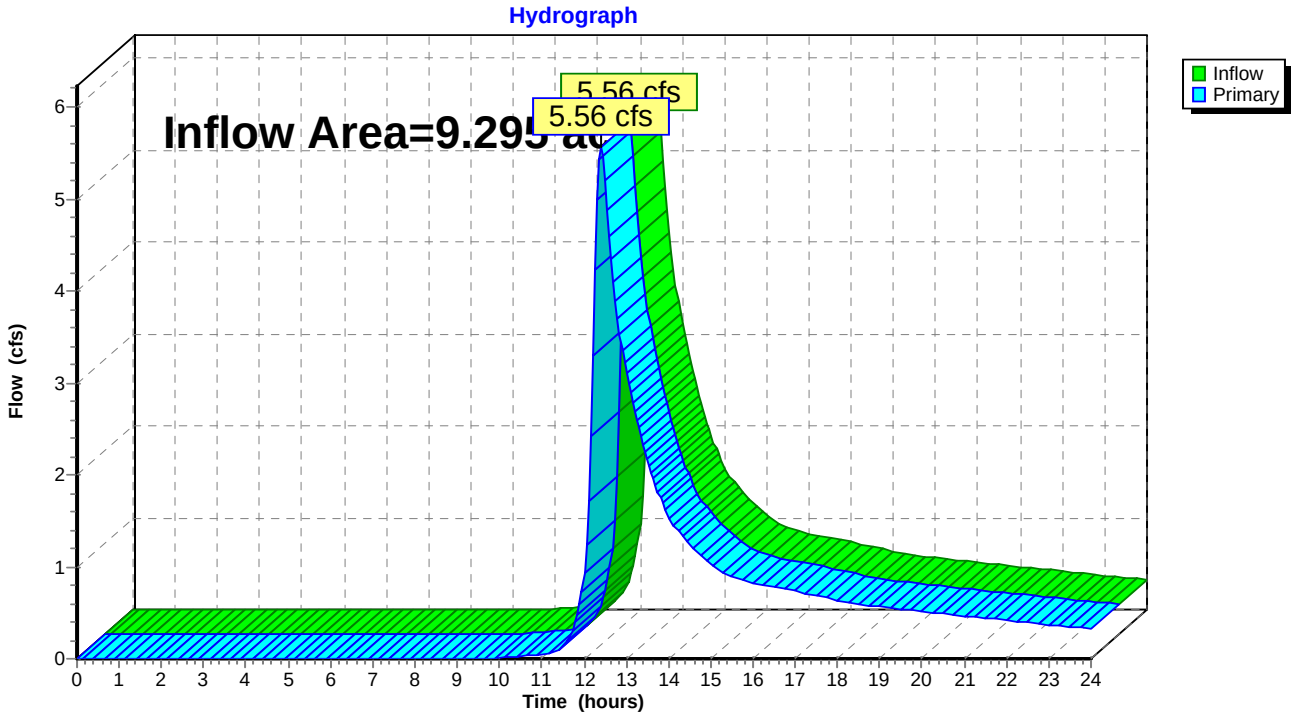


Summary for Link 10L: DL-6 PR

Inflow Area = 9.295 ac, 0.00% Impervious, Inflow Depth > 1.37" for 25-Year event
Inflow = 5.56 cfs @ 12.40 hrs, Volume= 1.057 af
Primary = 5.56 cfs @ 12.40 hrs, Volume= 1.057 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 10L: DL-6 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: PRDA6D-B Runoff Area=56,000 sf 0.00% Impervious Runoff Depth>4.27"
Tc=6.0 min CN=76 Runoff=6.67 cfs 0.457 af

Subcatchment 8S: PRDA6ND Runoff Area=230,220 sf 0.00% Impervious Runoff Depth>2.12"
Flow Length=653' Tc=24.4 min CN=55 Runoff=7.62 cfs 0.933 af

Subcatchment 12S: PRDA6D-T Runoff Area=118,690 sf 0.00% Impervious Runoff Depth>2.21"
Flow Length=492' Tc=23.4 min CN=56 Runoff=4.23 cfs 0.503 af

Pond 9P: BASIN Peak Elev=1,412.06' Storage=12,288 cf Inflow=6.67 cfs 0.641 af
Outflow=2.40 cfs 0.606 af

Pond 11P: TRENCH Peak Elev=1,413.37' Storage=0.048 af Inflow=4.23 cfs 0.503 af
Discarded=0.48 cfs 0.319 af Primary=3.56 cfs 0.183 af Outflow=4.04 cfs 0.502 af

Link 10L: DL-6 PR Inflow=9.07 cfs 1.539 af
Primary=9.07 cfs 1.539 af

Total Runoff Area = 9.295 ac Runoff Volume = 1.893 af Average Runoff Depth = 2.44"
100.00% Pervious = 9.295 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 7S: PRDA6D-B

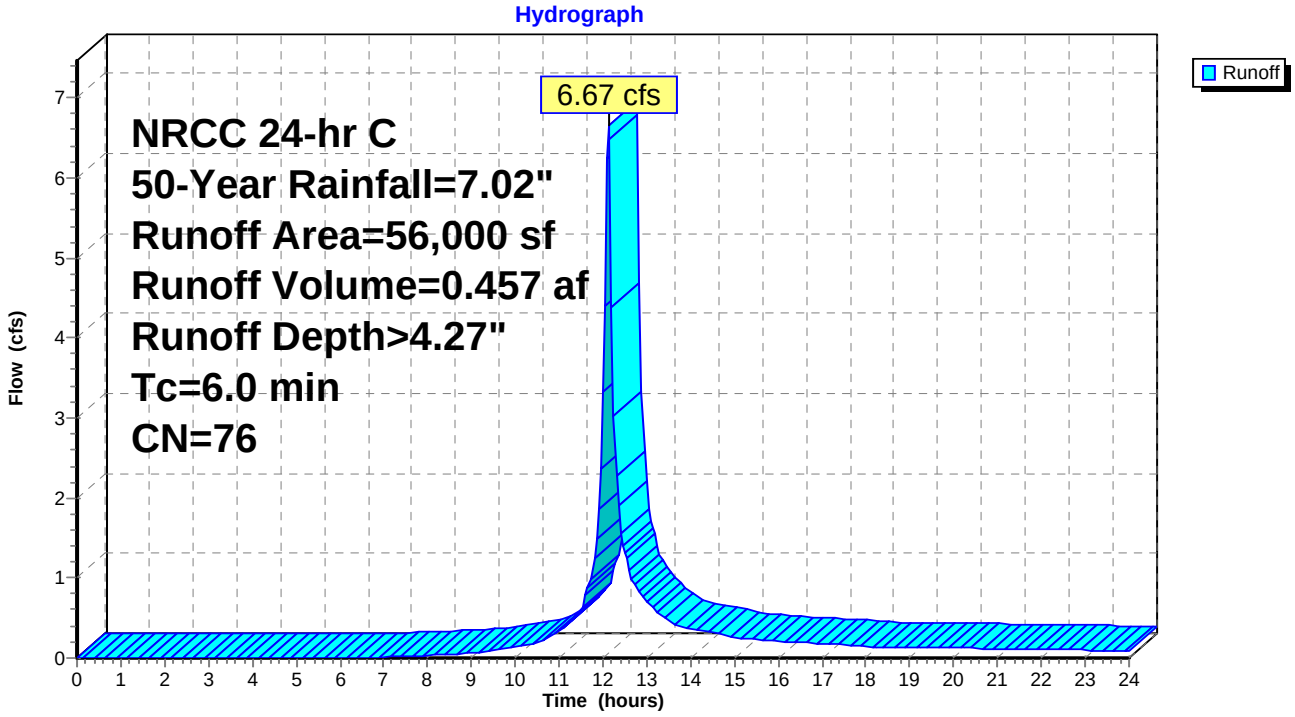
Runoff = 6.67 cfs @ 12.13 hrs, Volume= 0.457 af, Depth> 4.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
29,170	58	Meadow, non-grazed, HSG B
26,830	96	Gravel surface, HSG B
56,000	76	Weighted Average
56,000		100.00% Pervious Area

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

Subcatchment 7S: PRDA6D-B



Summary for Subcatchment 8S: PRDA6ND

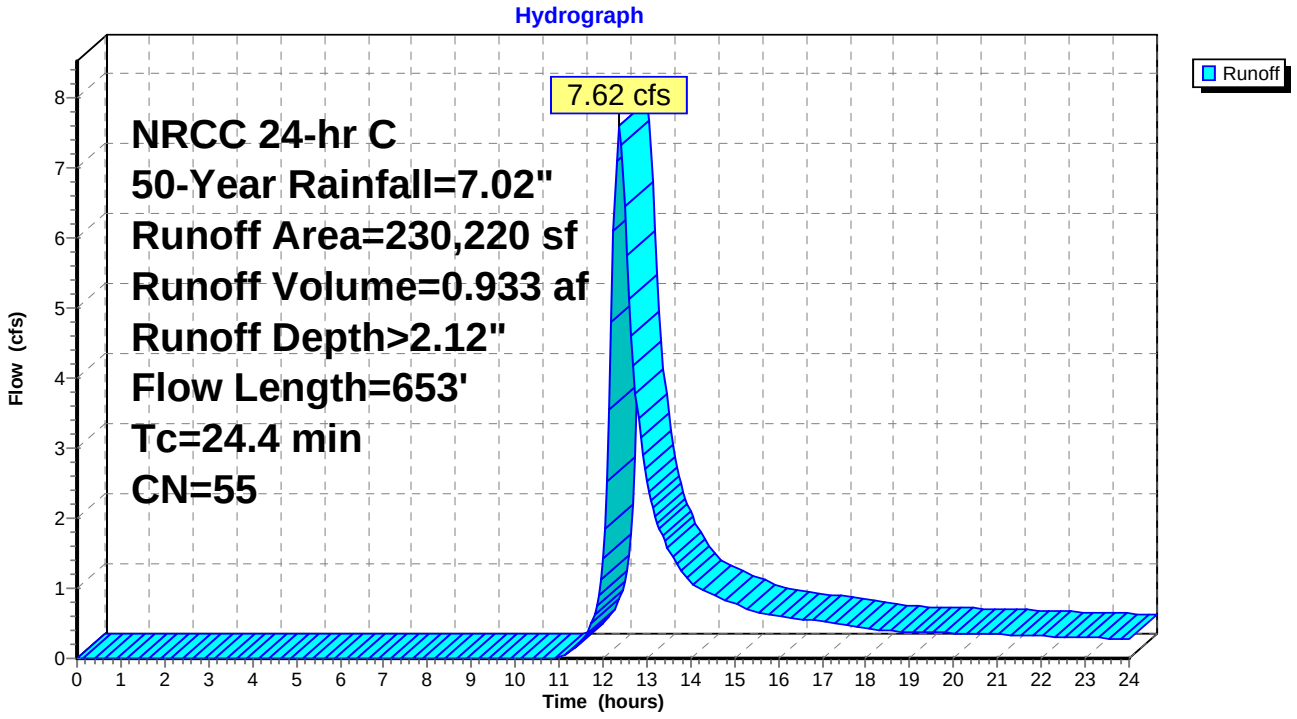
Runoff = 7.62 cfs @ 12.37 hrs, Volume= 0.933 af, Depth> 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
206,100	55	Woods, Good, HSG B
24,120	58	Meadow, non-grazed, HSG B
230,220	55	Weighted Average
230,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 8S: PRDA6ND



Summary for Subcatchment 12S: PRDA6D-T

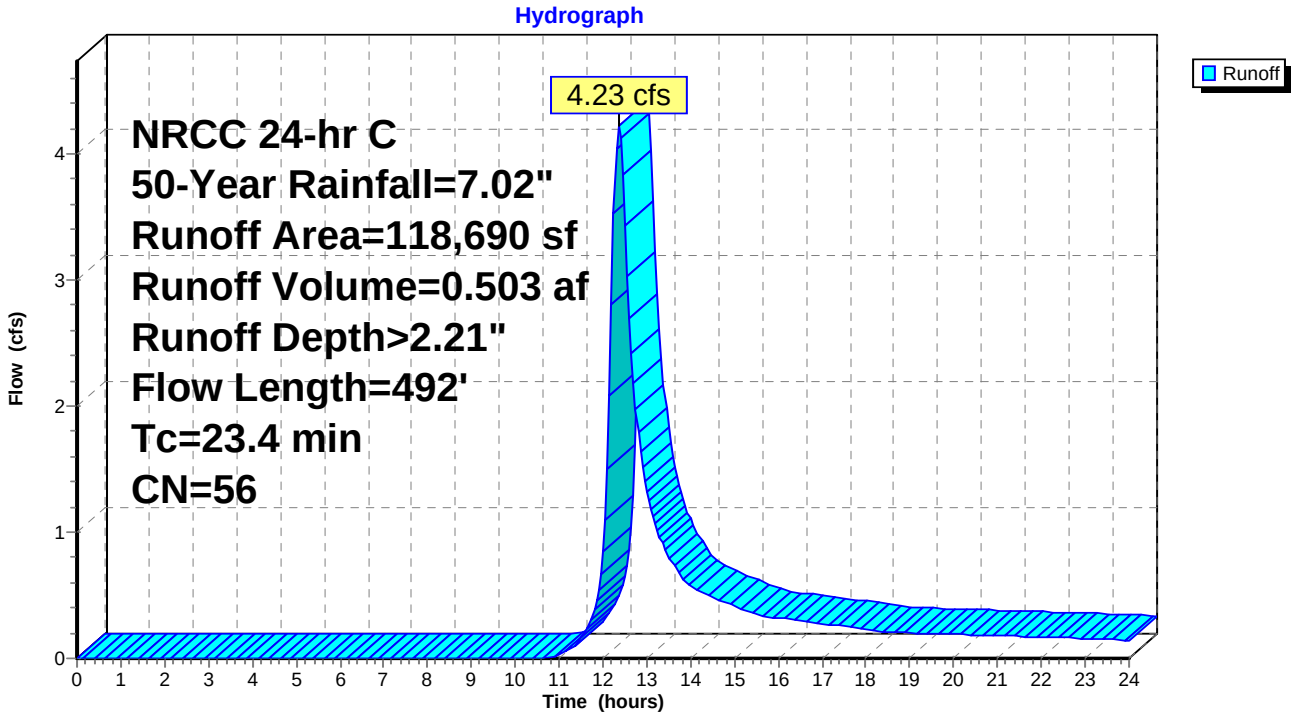
Runoff = 4.23 cfs @ 12.36 hrs, Volume= 0.503 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
94,700	55	Woods, Good, HSG B
23,990	58	Meadow, non-grazed, HSG B
118,690	56	Weighted Average
118,690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	200	0.0700	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.7	292	0.1800	6.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.4	492	Total			

Subcatchment 12S: PRDA6D-T



Summary for Pond 9P: BASIN

Inflow Area = 4.010 ac, 0.00% Impervious, Inflow Depth > 1.92" for 50-Year event
Inflow = 6.67 cfs @ 12.13 hrs, Volume= 0.641 af
Outflow = 2.40 cfs @ 12.81 hrs, Volume= 0.606 af, Atten= 64%, Lag= 40.5 min
Primary = 2.40 cfs @ 12.81 hrs, Volume= 0.606 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,412.06' @ 12.81 hrs Surf.Area= 7,156 sf Storage= 12,288 cf

Plug-Flow detention time= 140.0 min calculated for 0.604 af (94% of inflow)
Center-of-Mass det. time= 110.8 min (918.7 - 807.9)

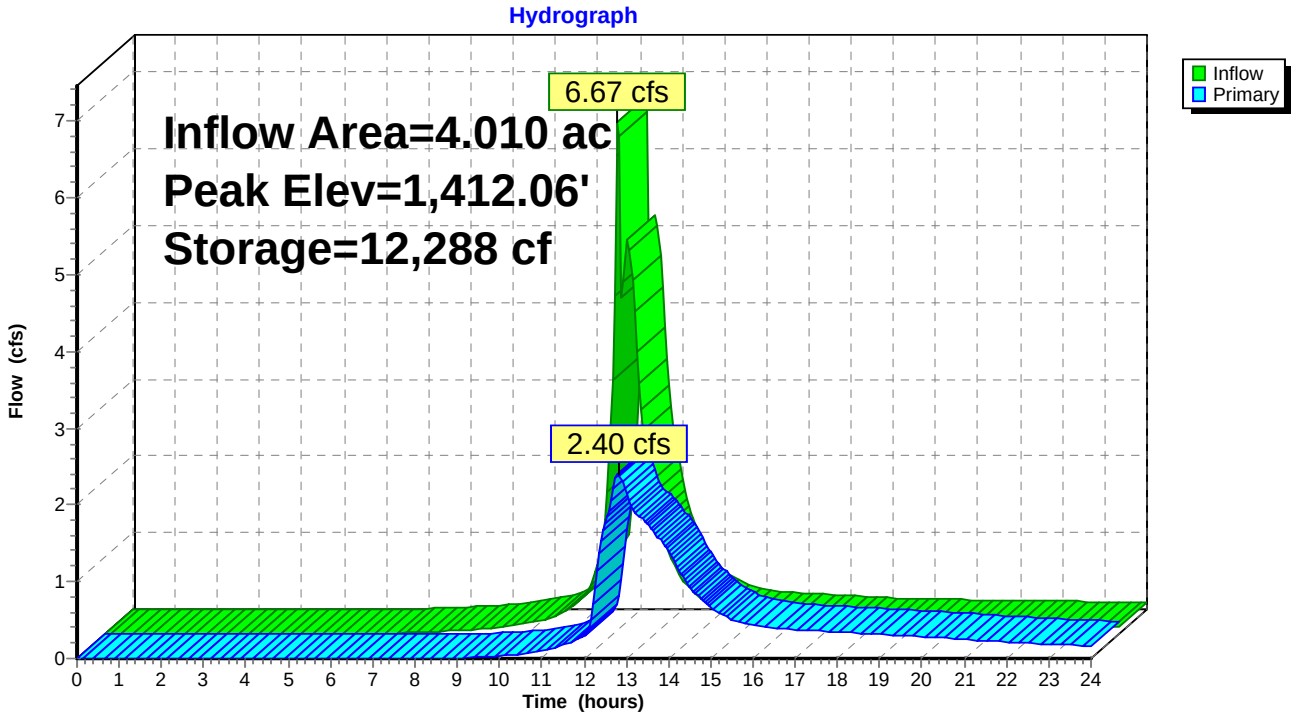
Volume	Invert	Avail.Storage	Storage Description
#1	1,410.00'	27,970 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,410.00	4,770	0	0
1,412.00	7,100	11,870	11,870
1,414.00	9,000	16,100	27,970

Device	Routing	Invert	Outlet Devices
#1	Primary	1,410.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,411.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,412.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.38 cfs @ 12.81 hrs HW=1,412.06' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 6.62 fps)
- **2=Orifice/Grate** (Orifice Controls 1.43 cfs @ 4.10 fps)
- **3=Orifice/Grate** (Weir Controls 0.37 cfs @ 0.79 fps)

Pond 9P: BASIN



Summary for Pond 11P: TRENCH

Inflow Area = 2.725 ac, 0.00% Impervious, Inflow Depth > 2.21" for 50-Year event
Inflow = 4.23 cfs @ 12.36 hrs, Volume= 0.503 af
Outflow = 4.04 cfs @ 12.42 hrs, Volume= 0.502 af, Atten= 4%, Lag= 3.8 min
Discarded = 0.48 cfs @ 12.42 hrs, Volume= 0.319 af
Primary = 3.56 cfs @ 12.42 hrs, Volume= 0.183 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,413.37' @ 12.42 hrs Surf.Area= 0.101 ac Storage= 0.048 af

Plug-Flow detention time= 34.8 min calculated for 0.502 af (100% of inflow)
Center-of-Mass det. time= 34.5 min (922.6 - 888.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,411.00'	0.030 af	**2.00'W x 810.00'L x 2.00'H STONE TRENCH** 0.074 af Overall x 40.0% Voids
#2	1,413.00'	0.049 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		0.079 af	Total Available Storage

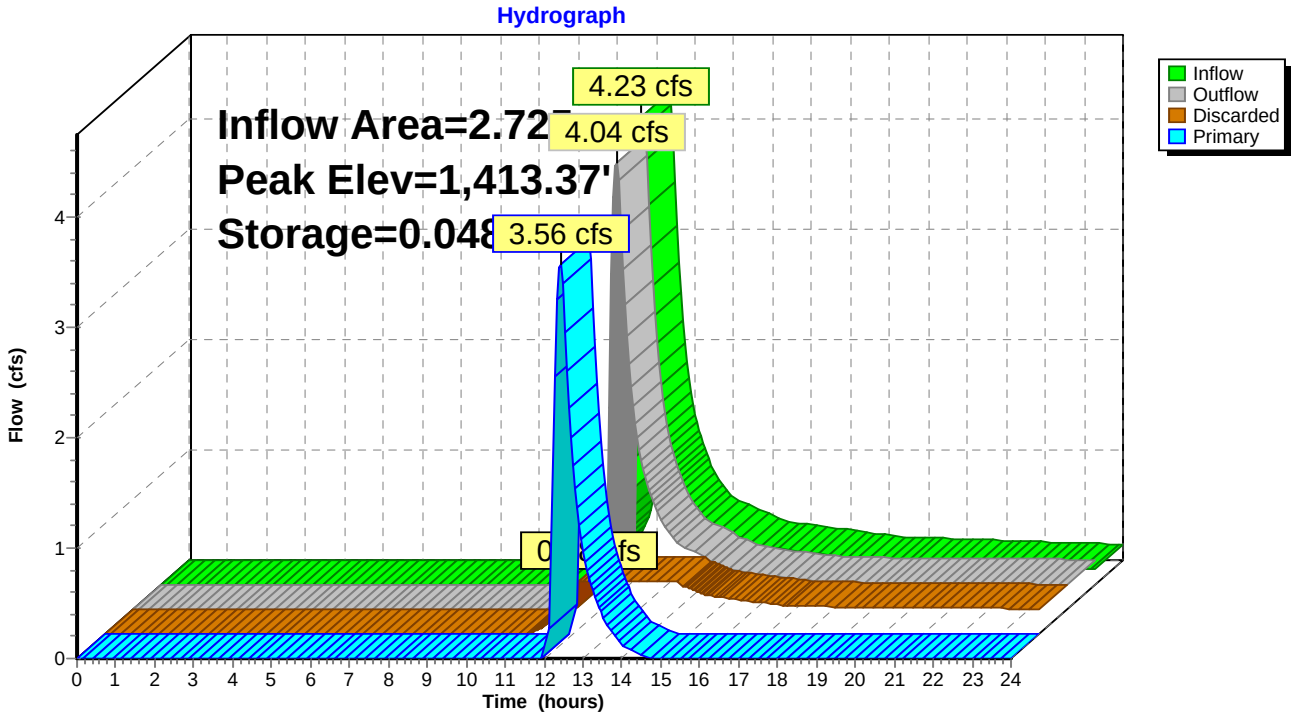
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,413.00	0.037	0.000	0.000
1,413.75	0.093	0.049	0.049

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,411.00'	**6.000 in/hr Exfiltration over Surface area below 1,413.00'** Conductivity to Groundwater Elevation = 1,391.00'
#2	Primary	1,413.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.48 cfs @ 12.42 hrs HW=1,413.36' (Free Discharge)
1=Exfiltration (Controls 0.48 cfs)

Primary OutFlow Max=3.52 cfs @ 12.42 hrs HW=1,413.36' (Free Discharge)
2=Sharp-Crested Rectangular Weir (Weir Controls 3.52 cfs @ 1.97 fps)

Pond 11P: TRENCH

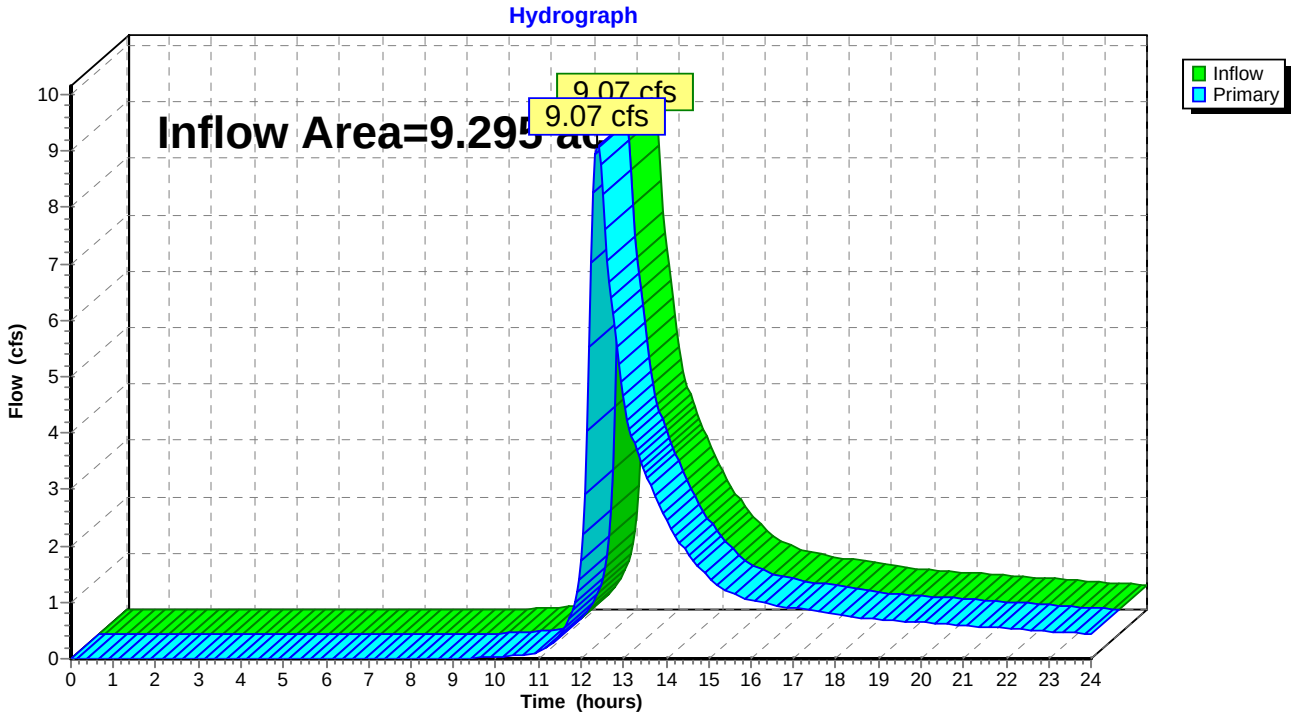


Summary for Link 10L: DL-6 PR

Inflow Area = 9.295 ac, 0.00% Impervious, Inflow Depth > 1.99" for 50-Year event
Inflow = 9.07 cfs @ 12.39 hrs, Volume= 1.539 af
Primary = 9.07 cfs @ 12.39 hrs, Volume= 1.539 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 10L: DL-6 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 7S: PRDA6D-B Runoff Area=56,000 sf 0.00% Impervious Runoff Depth>5.45"
Tc=6.0 min CN=76 Runoff=8.44 cfs 0.584 af

Subcatchment 8S: PRDA6ND Runoff Area=230,220 sf 0.00% Impervious Runoff Depth>2.99"
Flow Length=653' Tc=24.4 min CN=55 Runoff=11.10 cfs 1.316 af

Subcatchment 12S: PRDA6D-T Runoff Area=118,690 sf 0.00% Impervious Runoff Depth>3.10"
Flow Length=492' Tc=23.4 min CN=56 Runoff=6.10 cfs 0.705 af

Pond 9P: BASIN Peak Elev=1,412.28' Storage=13,909 cf Inflow=9.67 cfs 0.907 af
Outflow=6.16 cfs 0.863 af

Pond 11P: TRENCH Peak Elev=1,413.48' Storage=0.056 af Inflow=6.10 cfs 0.705 af
Discarded=0.48 cfs 0.361 af Primary=5.39 cfs 0.323 af Outflow=5.87 cfs 0.684 af

Link 10L: DL-6 PR Inflow=15.86 cfs 2.180 af
Primary=15.86 cfs 2.180 af

Total Runoff Area = 9.295 ac Runoff Volume = 2.605 af Average Runoff Depth = 3.36"
100.00% Pervious = 9.295 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 7S: PRDA6D-B

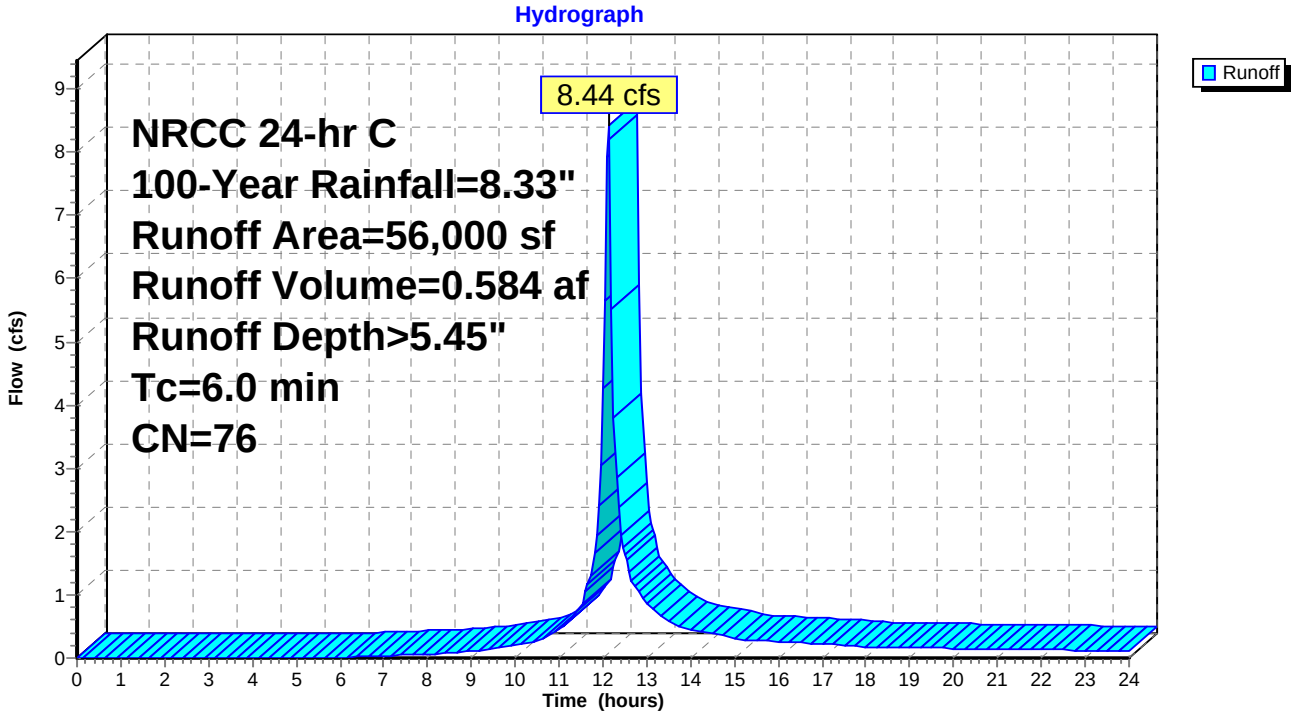
Runoff = 8.44 cfs @ 12.13 hrs, Volume= 0.584 af, Depth> 5.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
29,170	58	Meadow, non-grazed, HSG B
26,830	96	Gravel surface, HSG B
56,000	76	Weighted Average
56,000		100.00% Pervious Area

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

Subcatchment 7S: PRDA6D-B



Summary for Subcatchment 8S: PRDA6ND

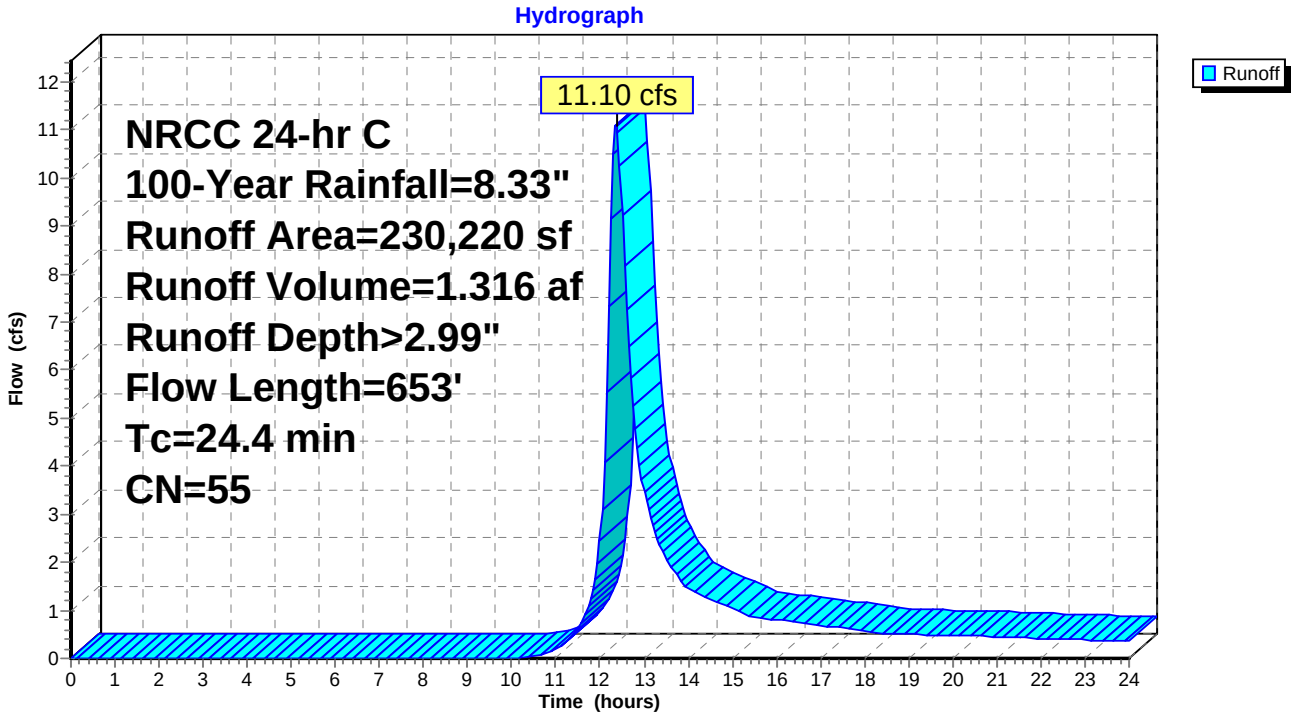
Runoff = 11.10 cfs @ 12.36 hrs, Volume= 1.316 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
206,100	55	Woods, Good, HSG B
24,120	58	Meadow, non-grazed, HSG B
230,220	55	Weighted Average
230,220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	250	0.1360	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.6	403	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.4	653	Total			

Subcatchment 8S: PRDA6ND



Summary for Subcatchment 12S: PRDA6D-T

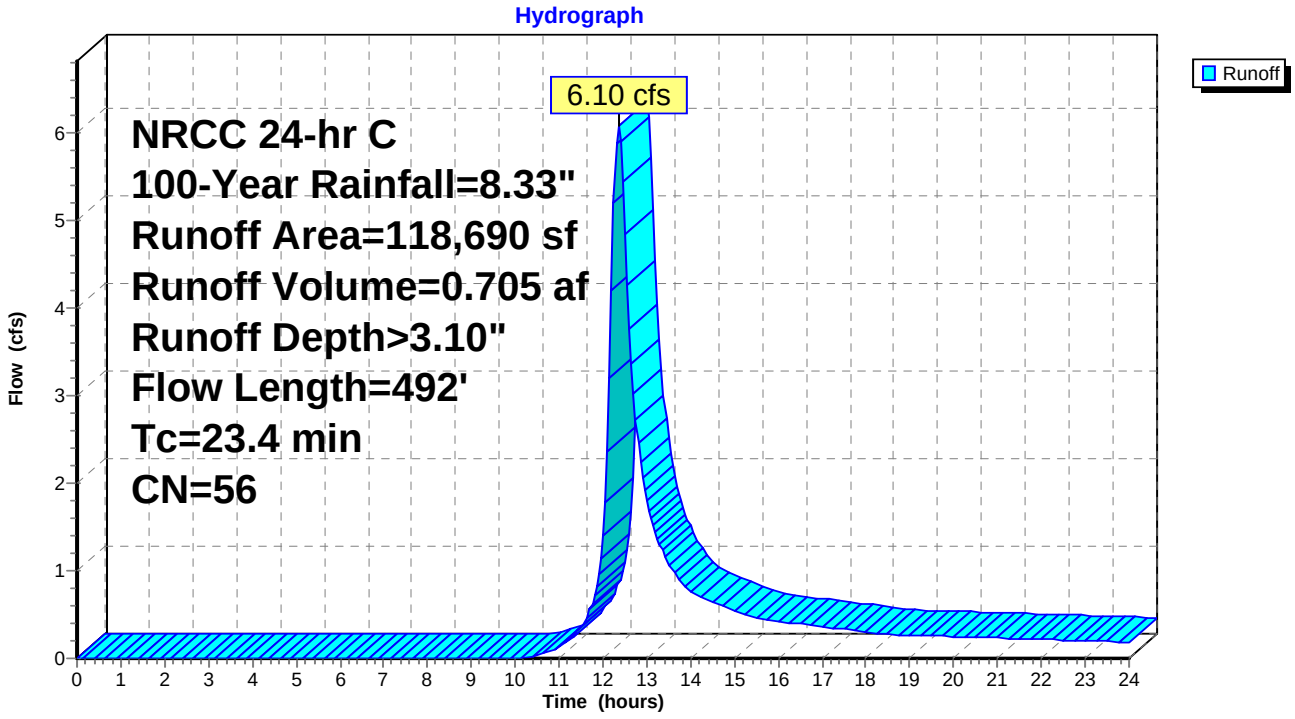
Runoff = 6.10 cfs @ 12.35 hrs, Volume= 0.705 af, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
94,700	55	Woods, Good, HSG B
23,990	58	Meadow, non-grazed, HSG B
118,690	56	Weighted Average
118,690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	200	0.0700	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.7	292	0.1800	6.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.4	492	Total			

Subcatchment 12S: PRDA6D-T



Summary for Pond 9P: BASIN

Inflow Area = 4.010 ac, 0.00% Impervious, Inflow Depth > 2.72" for 100-Year event
Inflow = 9.67 cfs @ 12.15 hrs, Volume= 0.907 af
Outflow = 6.16 cfs @ 12.53 hrs, Volume= 0.863 af, Atten= 36%, Lag= 23.2 min
Primary = 6.16 cfs @ 12.53 hrs, Volume= 0.863 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,412.28' @ 12.53 hrs Surf.Area= 7,368 sf Storage= 13,909 cf

Plug-Flow detention time= 112.8 min calculated for 0.863 af (95% of inflow)
Center-of-Mass det. time= 86.7 min (886.3 - 799.7)

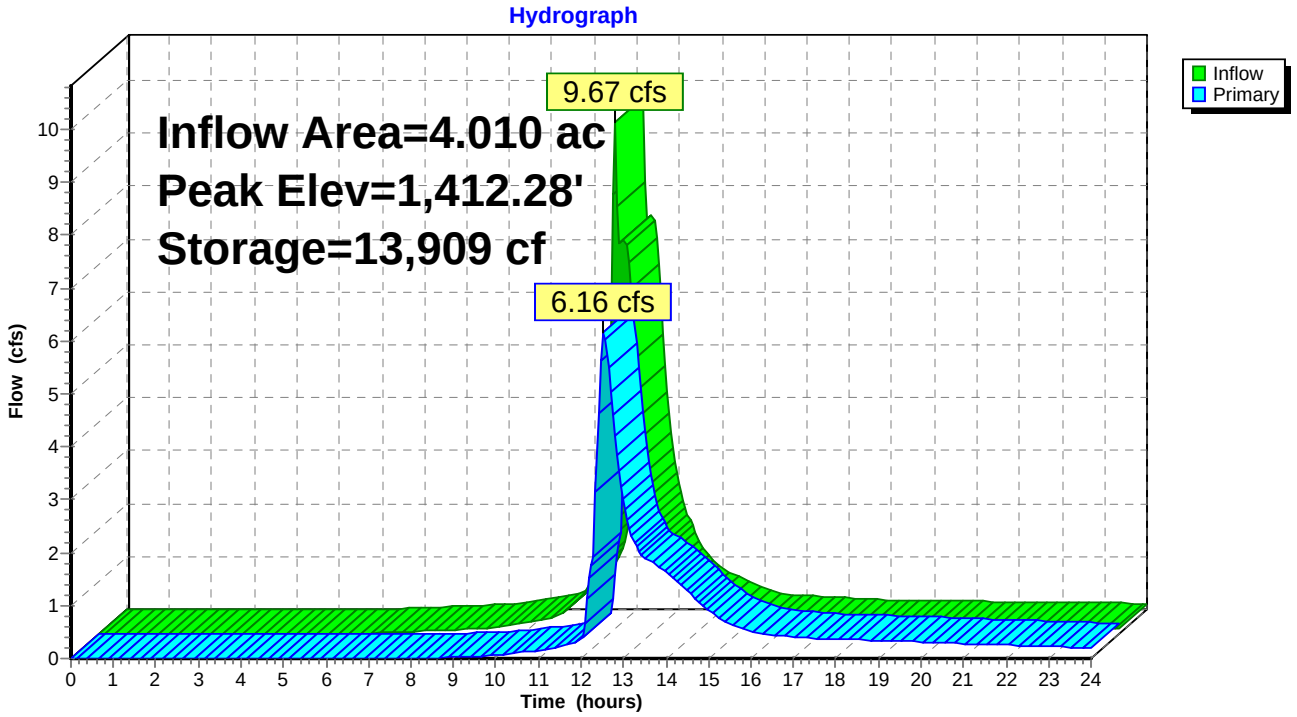
Volume	Invert	Avail.Storage	Storage Description
#1	1,410.00'	27,970 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,410.00	4,770	0	0
1,412.00	7,100	11,870	11,870
1,414.00	9,000	16,100	27,970

Device	Routing	Invert	Outlet Devices
#1	Primary	1,410.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,411.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,412.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.13 cfs @ 12.53 hrs HW=1,412.28' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.61 cfs @ 7.00 fps)
- **2=Orifice/Grate** (Orifice Controls 1.64 cfs @ 4.69 fps)
- **3=Orifice/Grate** (Weir Controls 3.88 cfs @ 1.73 fps)

Pond 9P: BASIN



Summary for Pond 11P: TRENCH

Inflow Area = 2.725 ac, 0.00% Impervious, Inflow Depth > 3.10" for 100-Year event
Inflow = 6.10 cfs @ 12.35 hrs, Volume= 0.705 af
Outflow = 5.87 cfs @ 12.41 hrs, Volume= 0.684 af, Atten= 4%, Lag= 3.4 min
Discarded = 0.48 cfs @ 12.41 hrs, Volume= 0.361 af
Primary = 5.39 cfs @ 12.41 hrs, Volume= 0.323 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,413.48' @ 12.41 hrs Surf.Area= 0.110 ac Storage= 0.056 af

Plug-Flow detention time= 31.3 min calculated for 0.683 af (97% of inflow)
Center-of-Mass det. time= 15.7 min (892.8 - 877.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,411.00'	0.030 af	**2.00'W x 810.00'L x 2.00'H STONE TRENCH** 0.074 af Overall x 40.0% Voids
#2	1,413.00'	0.049 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		0.079 af	Total Available Storage

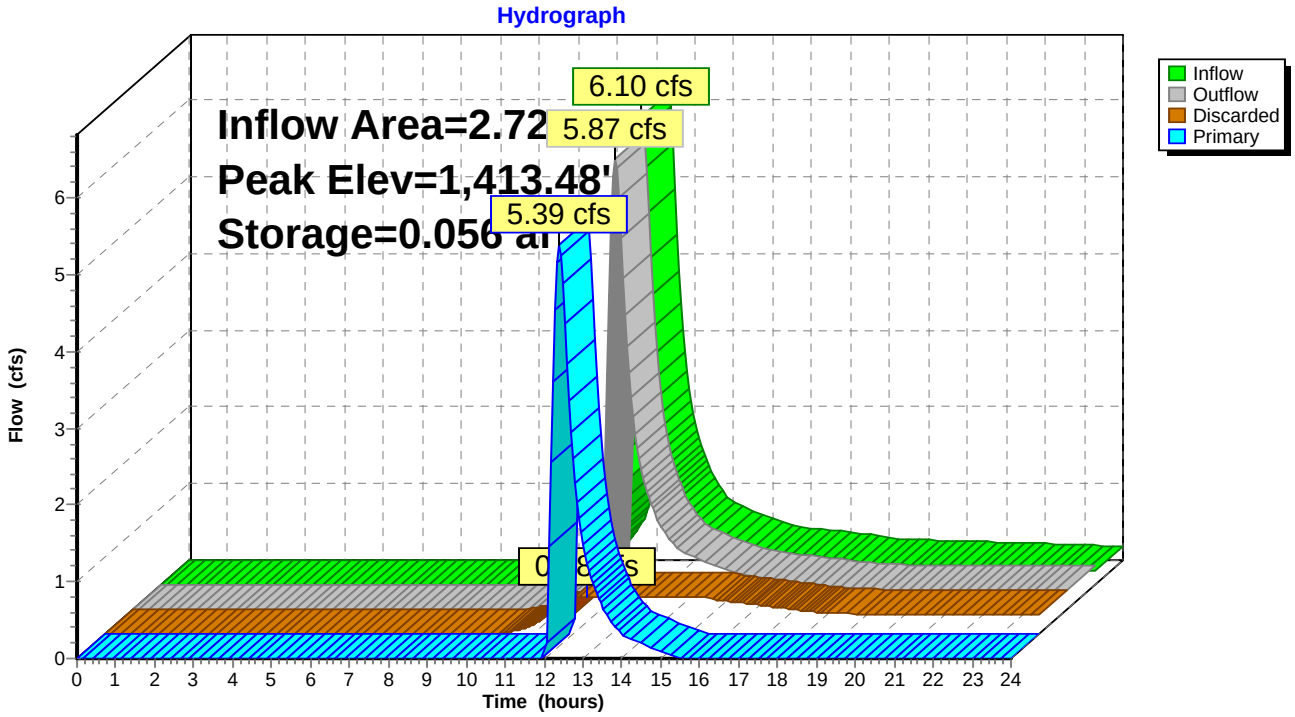
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
1,413.00	0.037	0.000	0.000
1,413.75	0.093	0.049	0.049

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,411.00'	**6.000 in/hr Exfiltration over Surface area below 1,413.00'** Conductivity to Groundwater Elevation = 1,391.00'
#2	Primary	1,413.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.48 cfs @ 12.41 hrs HW=1,413.48' (Free Discharge)
1=Exfiltration (Controls 0.48 cfs)

Primary OutFlow Max=5.37 cfs @ 12.41 hrs HW=1,413.48' (Free Discharge)
2=Sharp-Crested Rectangular Weir (Weir Controls 5.37 cfs @ 2.27 fps)

Pond 11P: TRENCH

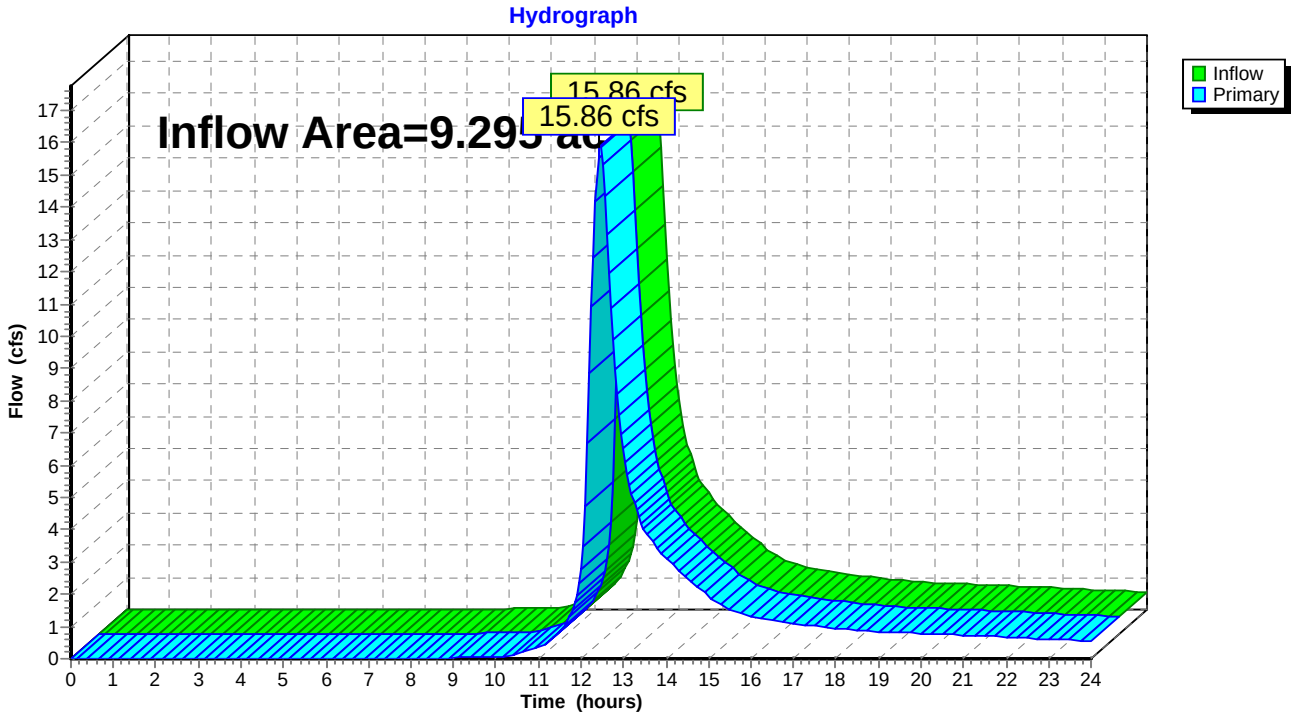


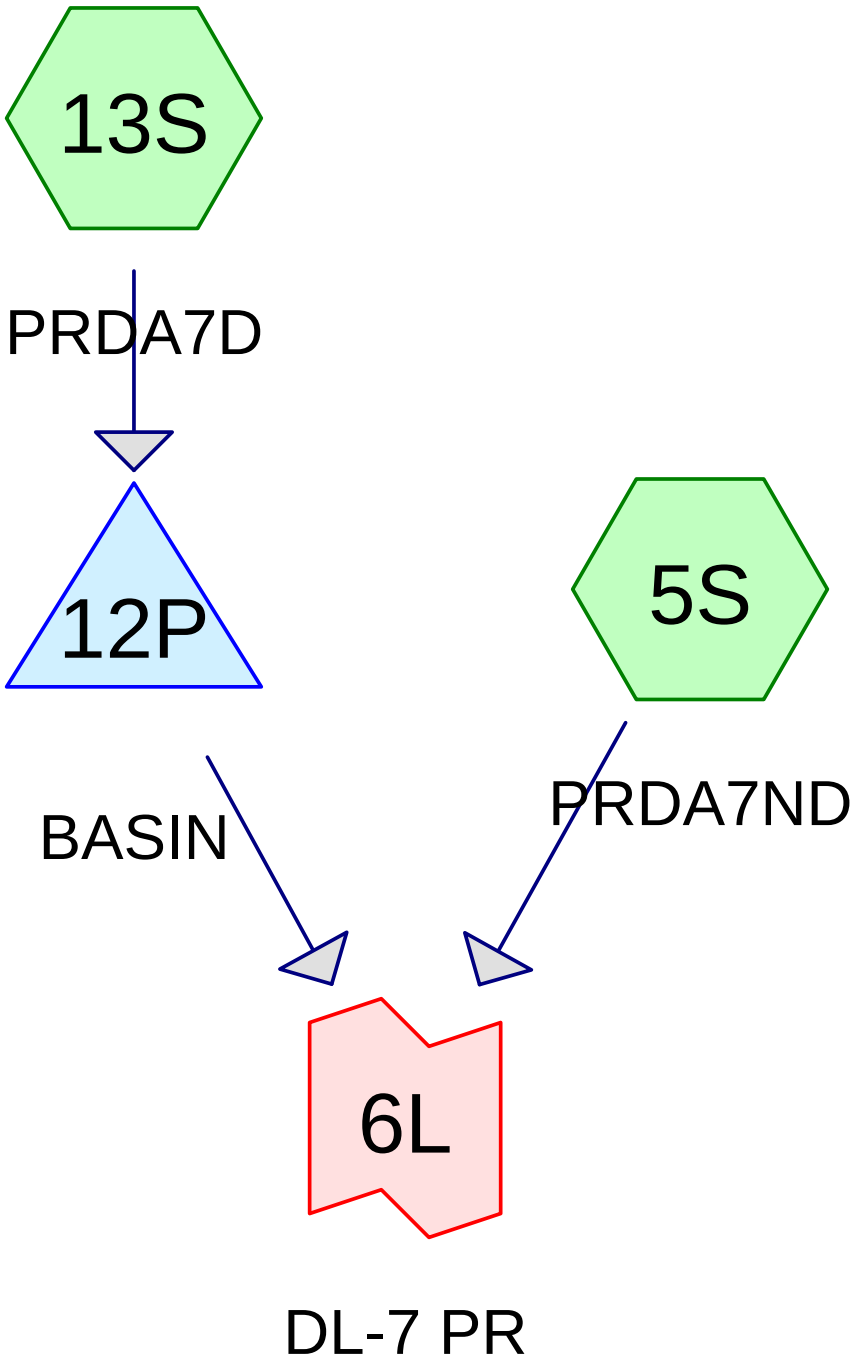
Summary for Link 10L: DL-6 PR

Inflow Area = 9.295 ac, 0.00% Impervious, Inflow Depth > 2.81" for 100-Year event
Inflow = 15.86 cfs @ 12.44 hrs, Volume= 2.180 af
Primary = 15.86 cfs @ 12.44 hrs, Volume= 2.180 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 10L: DL-6 PR





Subcat Reach Pond Link

Routing Diagram for 3092 T3 2019

Prepared by {enter your company name here}, Printed 11/13/2019

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 804 CT Litchfield

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.059	96	Gravel surface, HSG B (13S)
2.527	58	Meadow, non-grazed, HSG B (5S, 13S)
3.540	55	Woods, Good, HSG B (5S)
6.126	**57**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.126	HSG B	5S, 13S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
6.126		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.059	0.000	0.000	0.000	0.059	Gravel surface	13S
0.000	2.527	0.000	0.000	0.000	2.527	Meadow, non-grazed	5S, 13S
0.000	3.540	0.000	0.000	0.000	3.540	Woods, Good	5S
0.000	**6.126**	**0.000**	**0.000**	**0.000**	**6.126**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 5S: PRDA7ND Runoff Area=184,935 sf 0.00% Impervious Runoff Depth>0.24"
Flow Length=366' Tc=22.8 min CN=55 Runoff=0.28 cfs 0.086 af

Subcatchment 13S: PRDA7D Runoff Area=81,928 sf 0.00% Impervious Runoff Depth>0.37"
Tc=7.0 min CN=59 Runoff=0.48 cfs 0.058 af

Pond 12P: BASIN Peak Elev=1,484.25' Storage=498 cf Inflow=0.48 cfs 0.058 af
Outflow=0.12 cfs 0.053 af

Link 6L: DL-7 PR Inflow=0.38 cfs 0.140 af
Primary=0.38 cfs 0.140 af

Total Runoff Area = 6.126 ac Runoff Volume = 0.144 af Average Runoff Depth = 0.28"
100.00% Pervious = 6.126 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 5S: PRDA7ND

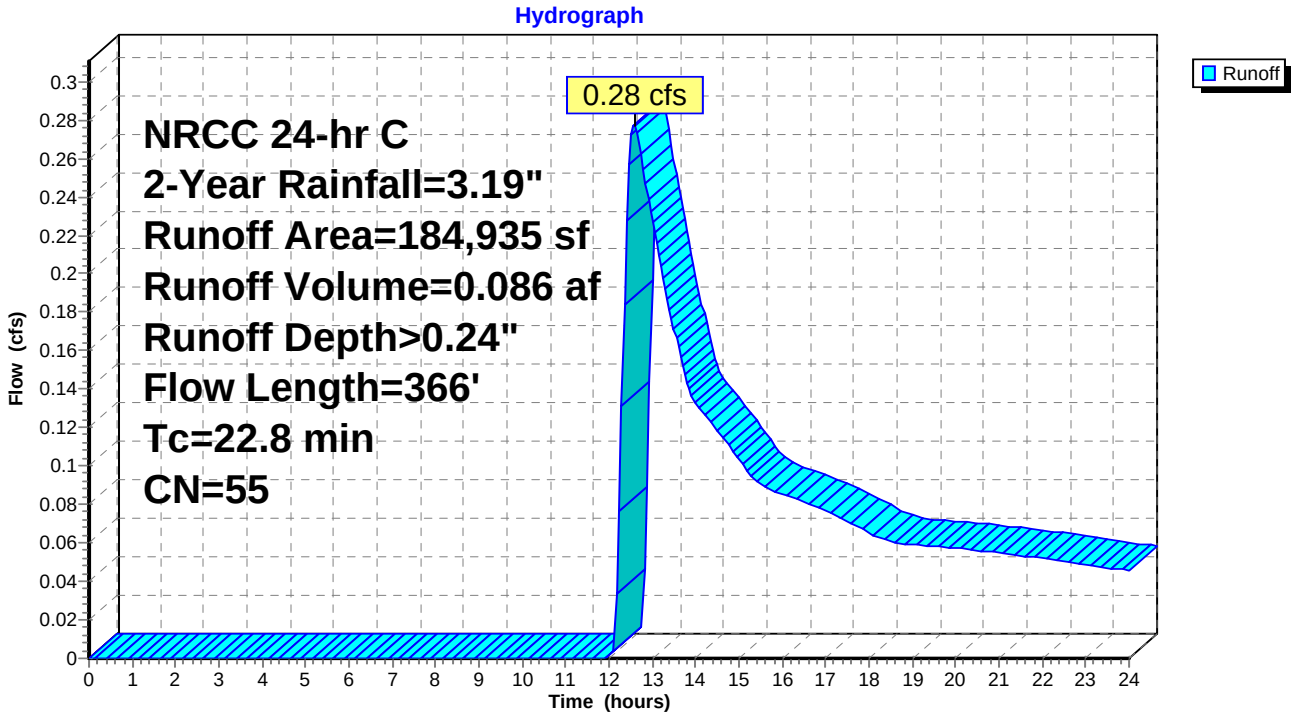
Runoff = 0.28 cfs @ 12.58 hrs, Volume= 0.086 af, Depth> 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
154,205	55	Woods, Good, HSG B
30,730	58	Meadow, non-grazed, HSG B
184,935	55	Weighted Average
184,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 5S: PRDA7ND



Summary for Subcatchment 13S: PRDA7D

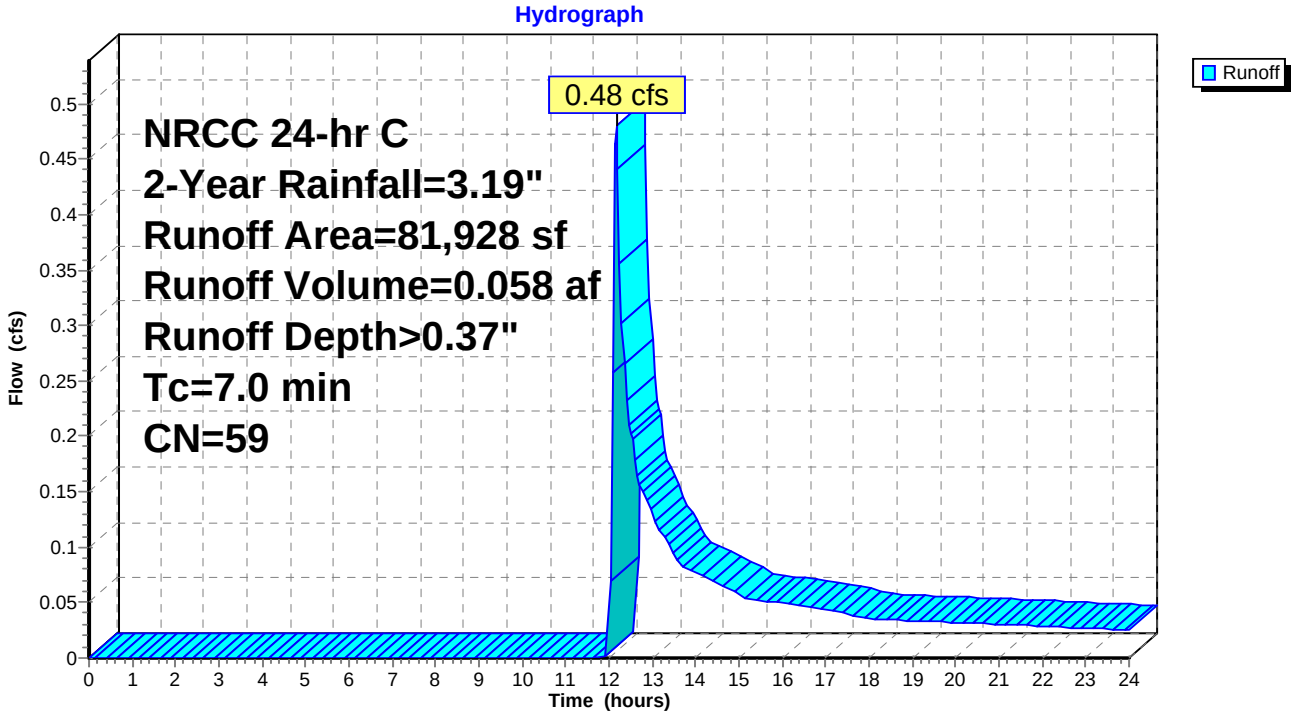
Runoff = 0.48 cfs @ 12.17 hrs, Volume= 0.058 af, Depth> 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.19"

Area (sf)	CN	Description
79,360	58	Meadow, non-grazed, HSG B
2,568	96	Gravel surface, HSG B
81,928	59	Weighted Average
81,928		100.00% Pervious Area

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

Subcatchment 13S: PRDA7D



Summary for Pond 12P: BASIN

Inflow Area = 1.881 ac, 0.00% Impervious, Inflow Depth > 0.37" for 2-Year event
Inflow = 0.48 cfs @ 12.17 hrs, Volume= 0.058 af
Outflow = 0.12 cfs @ 13.09 hrs, Volume= 0.053 af, Atten= 74%, Lag= 55.1 min
Primary = 0.12 cfs @ 13.09 hrs, Volume= 0.053 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,484.25' @ 13.09 hrs Surf.Area= 2,122 sf Storage= 498 cf

Plug-Flow detention time= 83.7 min calculated for 0.053 af (92% of inflow)
Center-of-Mass det. time= 46.7 min (991.6 - 944.9)

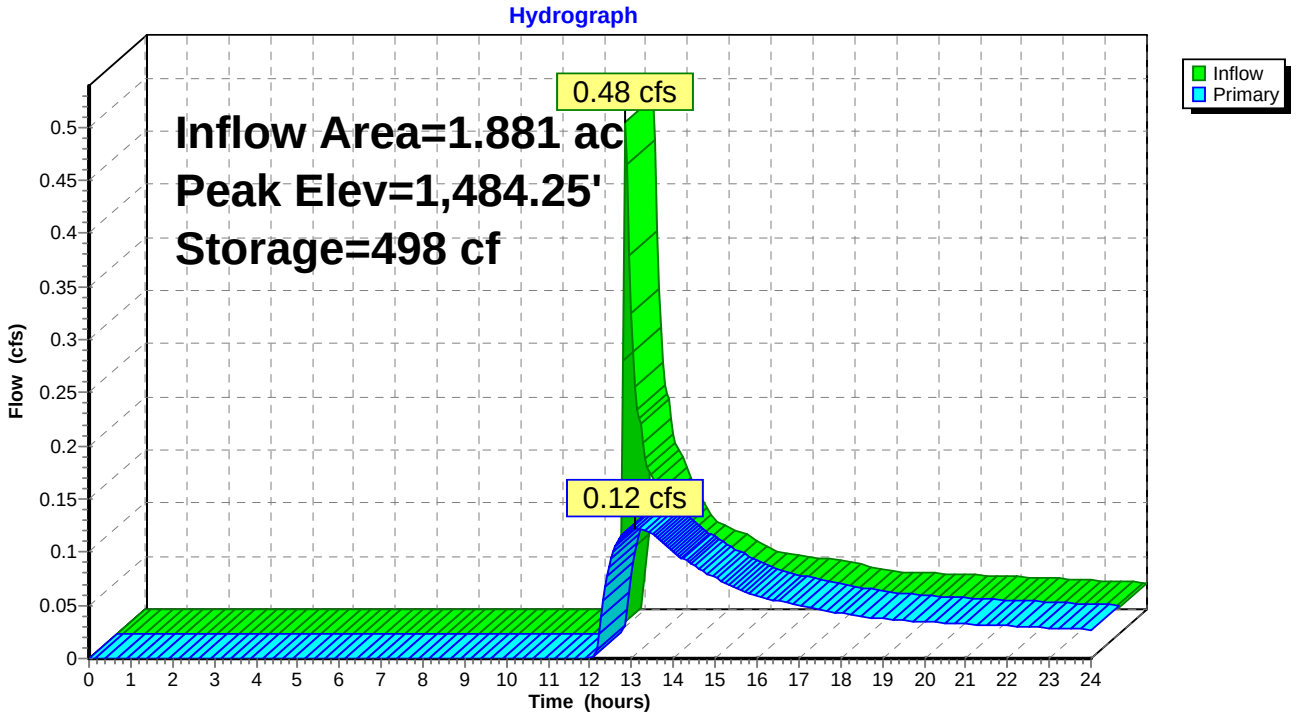
Volume	Invert	Avail.Storage	Storage Description
#1	1,484.00'	14,316 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,484.00	1,792	0	0
1,486.00	4,382	6,174	6,174
1,487.50	6,474	8,142	14,316

Device	Routing	Invert	Outlet Devices
#1	Primary	1,484.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,485.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,486.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.12 cfs @ 13.09 hrs HW=1,484.25' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.72 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 12P: BASIN

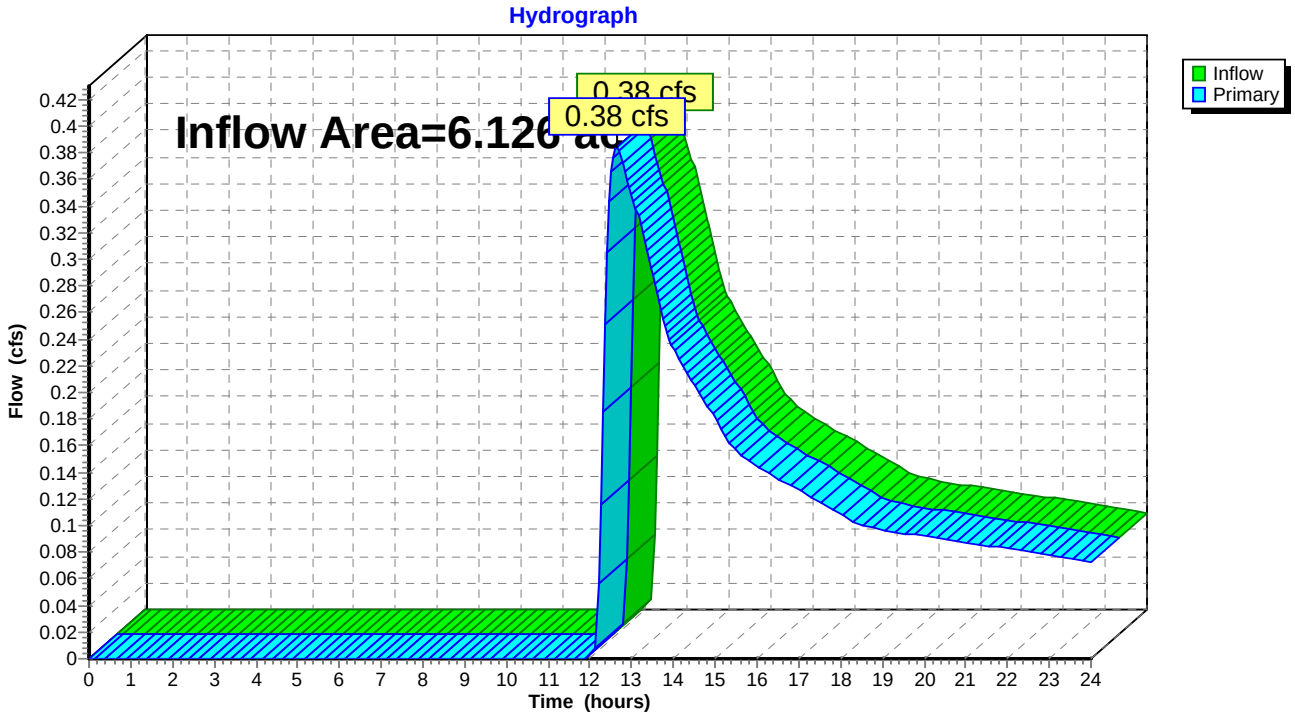


Summary for Link 6L: DL-7 PR

Inflow Area = 6.126 ac, 0.00% Impervious, Inflow Depth > 0.27" for 2-Year event
Inflow = 0.38 cfs @ 12.65 hrs, Volume= 0.140 af
Primary = 0.38 cfs @ 12.65 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: DL-7 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 5S: PRDA7ND Runoff Area=184,935 sf 0.00% Impervious Runoff Depth>0.84"
Flow Length=366' Tc=22.8 min CN=55 Runoff=2.04 cfs 0.296 af

Subcatchment 13S: PRDA7D Runoff Area=81,928 sf 0.00% Impervious Runoff Depth>1.08"
Tc=7.0 min CN=59 Runoff=2.18 cfs 0.169 af

Pond 12P: BASIN Peak Elev=1,484.89' Storage=2,115 cf Inflow=2.18 cfs 0.169 af
Outflow=0.36 cfs 0.162 af

Link 6L: DL-7 PR Inflow=2.38 cfs 0.457 af
Primary=2.38 cfs 0.457 af

Total Runoff Area = 6.126 ac Runoff Volume = 0.464 af Average Runoff Depth = 0.91"
100.00% Pervious = 6.126 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 5S: PRDA7ND

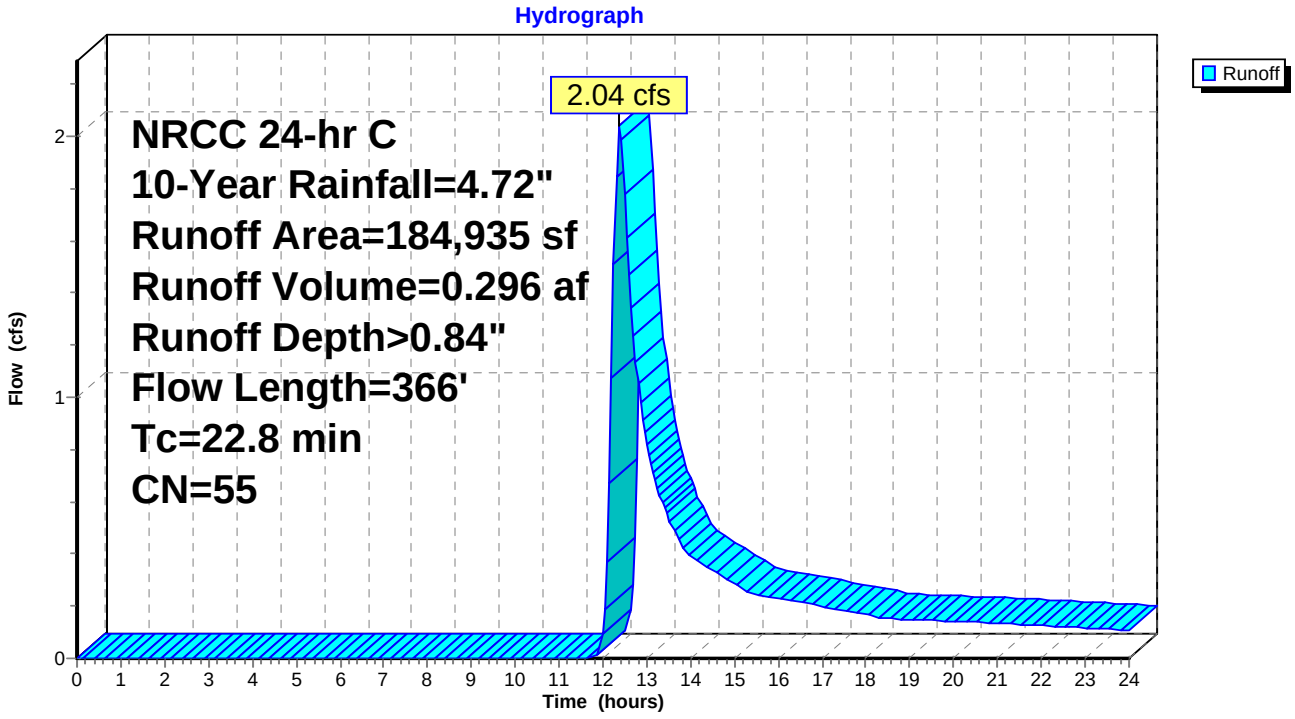
Runoff = 2.04 cfs @ 12.38 hrs, Volume= 0.296 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
154,205	55	Woods, Good, HSG B
30,730	58	Meadow, non-grazed, HSG B
184,935	55	Weighted Average
184,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 5S: PRDA7ND



Summary for Subcatchment 13S: PRDA7D

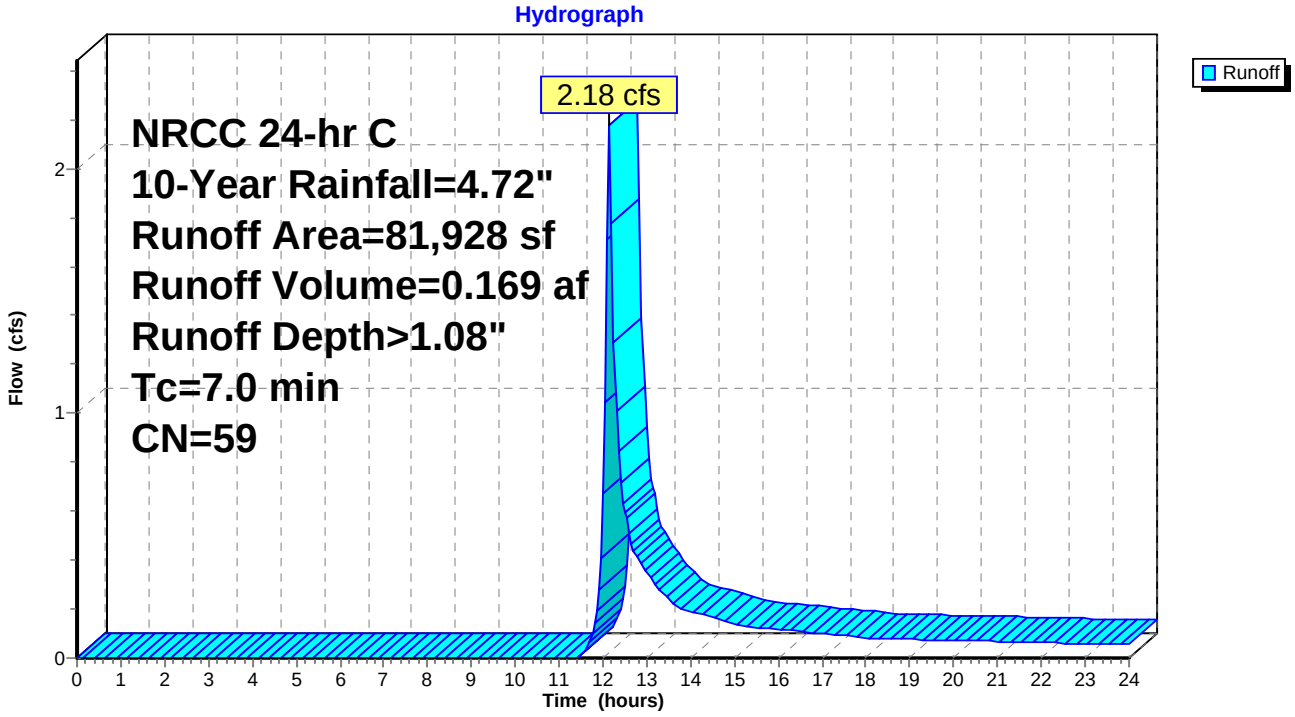
Runoff = 2.18 cfs @ 12.15 hrs, Volume= 0.169 af, Depth> 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.72"

Area (sf)	CN	Description
79,360	58	Meadow, non-grazed, HSG B
2,568	96	Gravel surface, HSG B
81,928	59	Weighted Average
81,928		100.00% Pervious Area

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

Subcatchment 13S: PRDA7D



Summary for Pond 12P: BASIN

Inflow Area = 1.881 ac, 0.00% Impervious, Inflow Depth > 1.08" for 10-Year event
Inflow = 2.18 cfs @ 12.15 hrs, Volume= 0.169 af
Outflow = 0.36 cfs @ 12.98 hrs, Volume= 0.162 af, Atten= 84%, Lag= 49.4 min
Primary = 0.36 cfs @ 12.98 hrs, Volume= 0.162 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,484.89' @ 12.98 hrs Surf.Area= 2,948 sf Storage= 2,115 cf

Plug-Flow detention time= 80.4 min calculated for 0.162 af (96% of inflow)
Center-of-Mass det. time= 58.6 min (956.5 - 897.9)

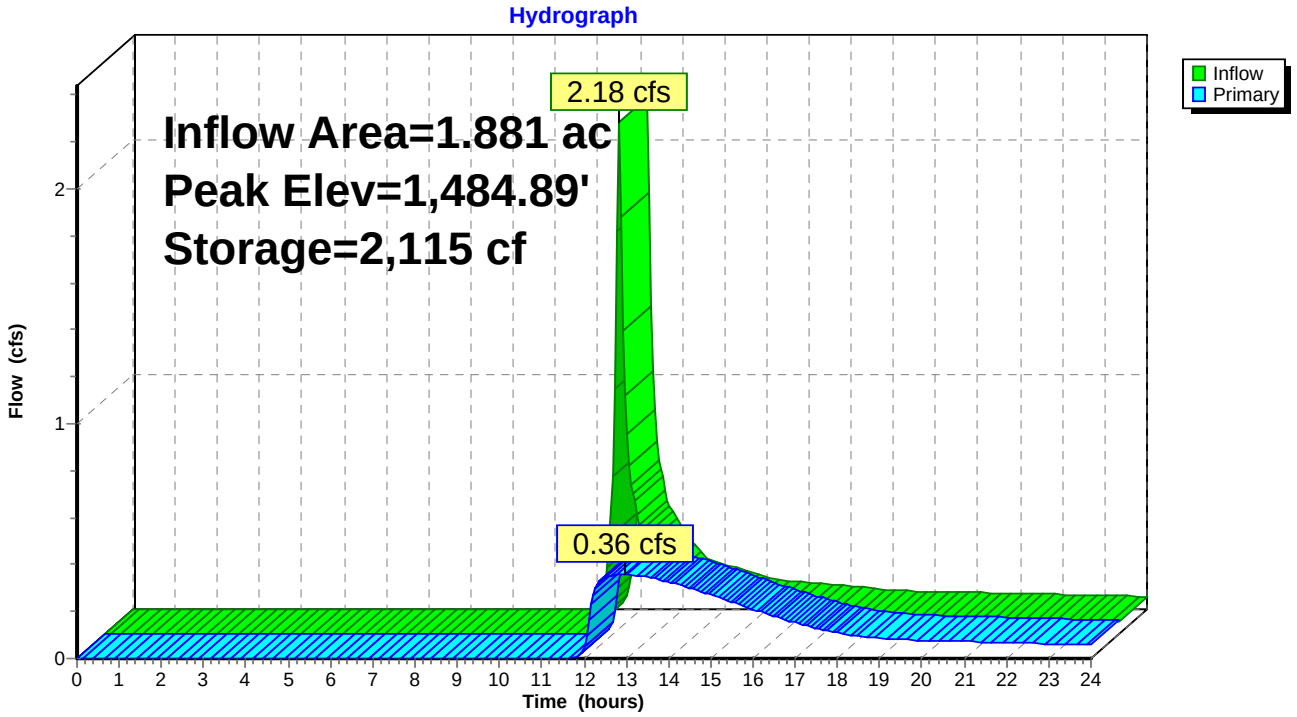
Volume	Invert	Avail.Storage	Storage Description
#1	1,484.00'	14,316 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,484.00	1,792	0	0
1,486.00	4,382	6,174	6,174
1,487.50	6,474	8,142	14,316

Device	Routing	Invert	Outlet Devices
#1	Primary	1,484.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,485.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,486.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.98 hrs HW=1,484.89' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.36 cfs @ 4.10 fps)
- **2=Orifice/Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 12P: BASIN

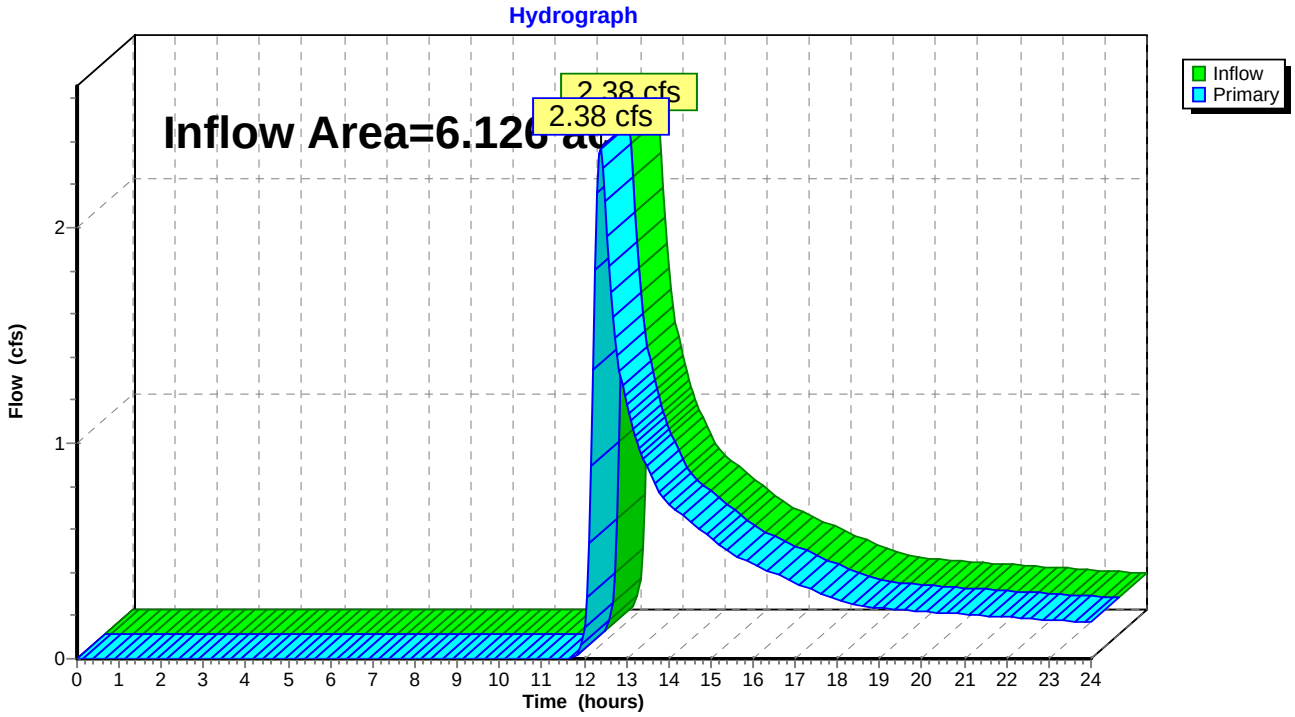


Summary for Link 6L: DL-7 PR

Inflow Area = 6.126 ac, 0.00% Impervious, Inflow Depth > 0.90" for 10-Year event
Inflow = 2.38 cfs @ 12.39 hrs, Volume= 0.457 af
Primary = 2.38 cfs @ 12.39 hrs, Volume= 0.457 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: DL-7 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 5S: PRDA7ND Runoff Area=184,935 sf 0.00% Impervious Runoff Depth>1.46"
Flow Length=366' Tc=22.8 min CN=55 Runoff=4.13 cfs 0.516 af

Subcatchment 13S: PRDA7D Runoff Area=81,928 sf 0.00% Impervious Runoff Depth>1.78"
Tc=7.0 min CN=59 Runoff=3.86 cfs 0.280 af

Pond 12P: BASIN Peak Elev=1,485.36' Storage=3,627 cf Inflow=3.86 cfs 0.280 af
Outflow=0.85 cfs 0.271 af

Link 6L: DL-7 PR Inflow=4.89 cfs 0.787 af
Primary=4.89 cfs 0.787 af

Total Runoff Area = 6.126 ac Runoff Volume = 0.796 af Average Runoff Depth = 1.56"
100.00% Pervious = 6.126 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 5S: PRDA7ND

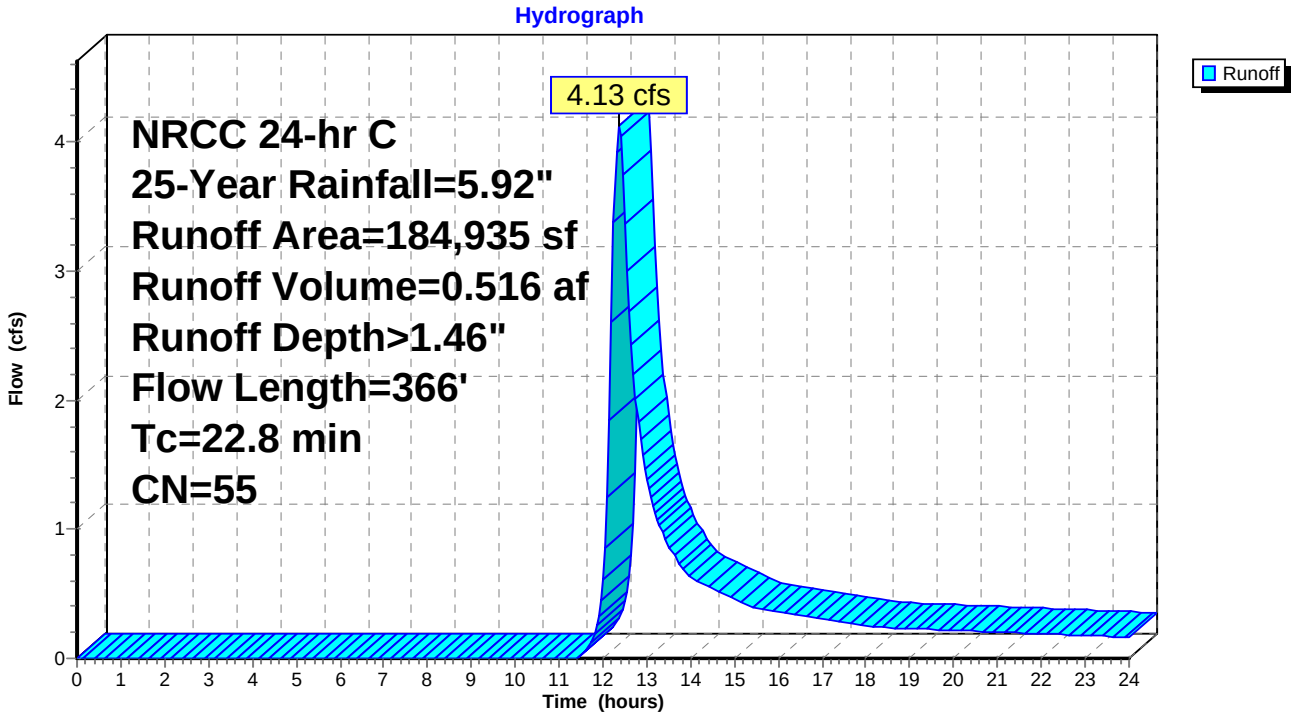
Runoff = 4.13 cfs @ 12.36 hrs, Volume= 0.516 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
154,205	55	Woods, Good, HSG B
30,730	58	Meadow, non-grazed, HSG B
184,935	55	Weighted Average
184,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 5S: PRDA7ND



Summary for Subcatchment 13S: PRDA7D

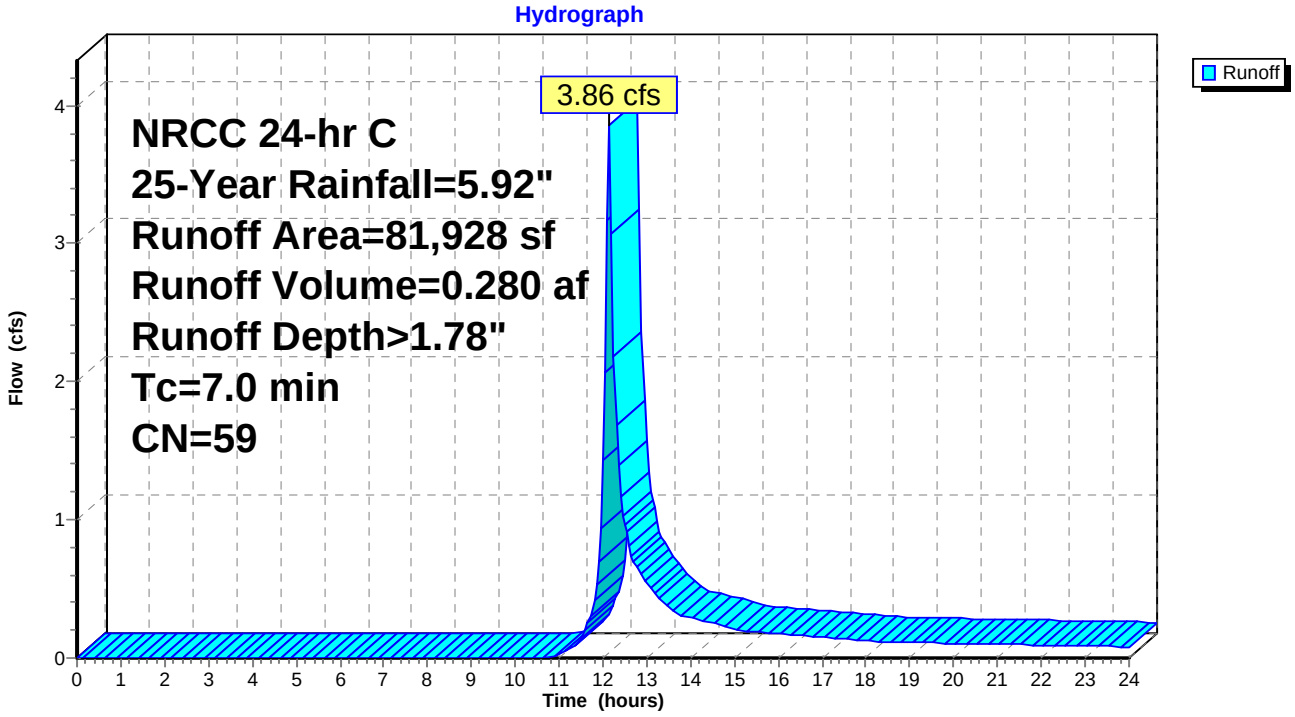
Runoff = 3.86 cfs @ 12.15 hrs, Volume= 0.280 af, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.92"

Area (sf)	CN	Description
79,360	58	Meadow, non-grazed, HSG B
2,568	96	Gravel surface, HSG B
81,928	59	Weighted Average
81,928		100.00% Pervious Area

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

Subcatchment 13S: PRDA7D



Summary for Pond 12P: BASIN

Inflow Area = 1.881 ac, 0.00% Impervious, Inflow Depth > 1.78" for 25-Year event
Inflow = 3.86 cfs @ 12.15 hrs, Volume= 0.280 af
Outflow = 0.85 cfs @ 12.59 hrs, Volume= 0.271 af, Atten= 78%, Lag= 26.3 min
Primary = 0.85 cfs @ 12.59 hrs, Volume= 0.271 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,485.36' @ 12.59 hrs Surf.Area= 3,550 sf Storage= 3,627 cf

Plug-Flow detention time= 81.7 min calculated for 0.271 af (97% of inflow)
Center-of-Mass det. time= 64.5 min (944.2 - 879.6)

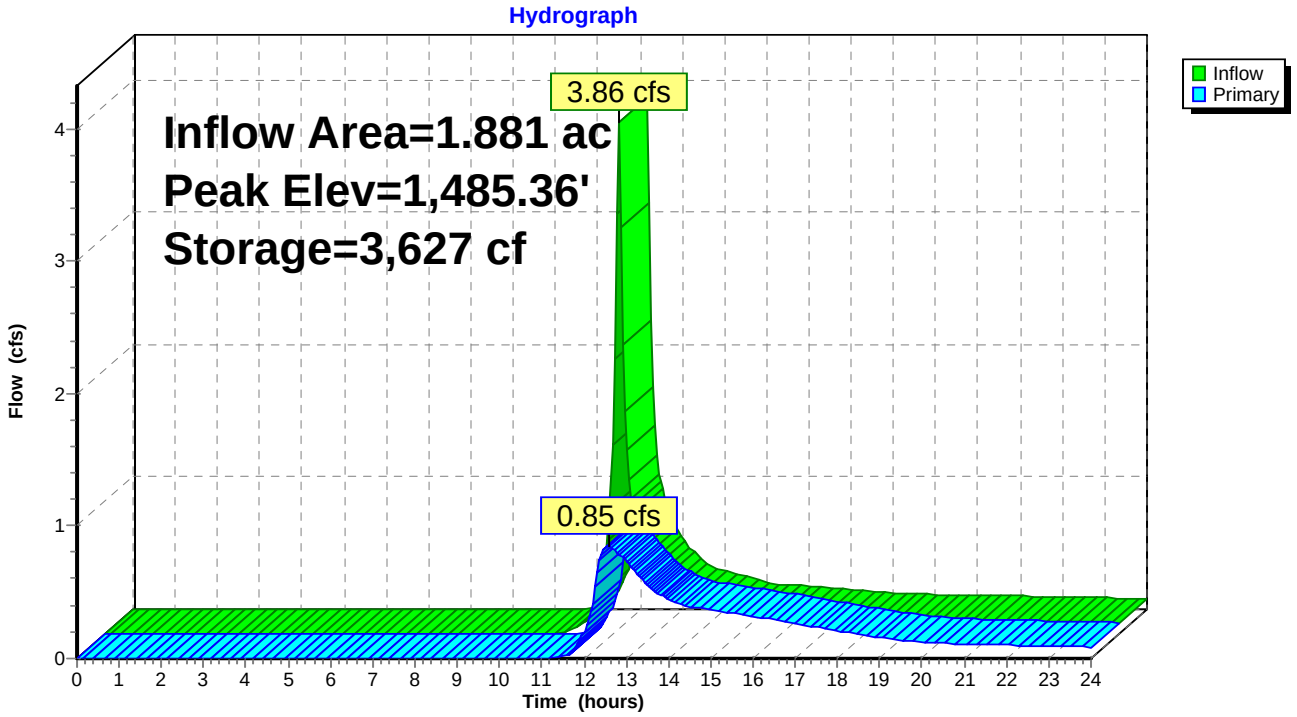
Volume	Invert	Avail.Storage	Storage Description
#1	1,484.00'	14,316 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,484.00	1,792	0	0
1,486.00	4,382	6,174	6,174
1,487.50	6,474	8,142	14,316

Device	Routing	Invert	Outlet Devices
#1	Primary	1,484.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,485.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,486.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.85 cfs @ 12.59 hrs HW=1,485.36' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.46 cfs @ 5.25 fps)
- **2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 2.04 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 12P: BASIN

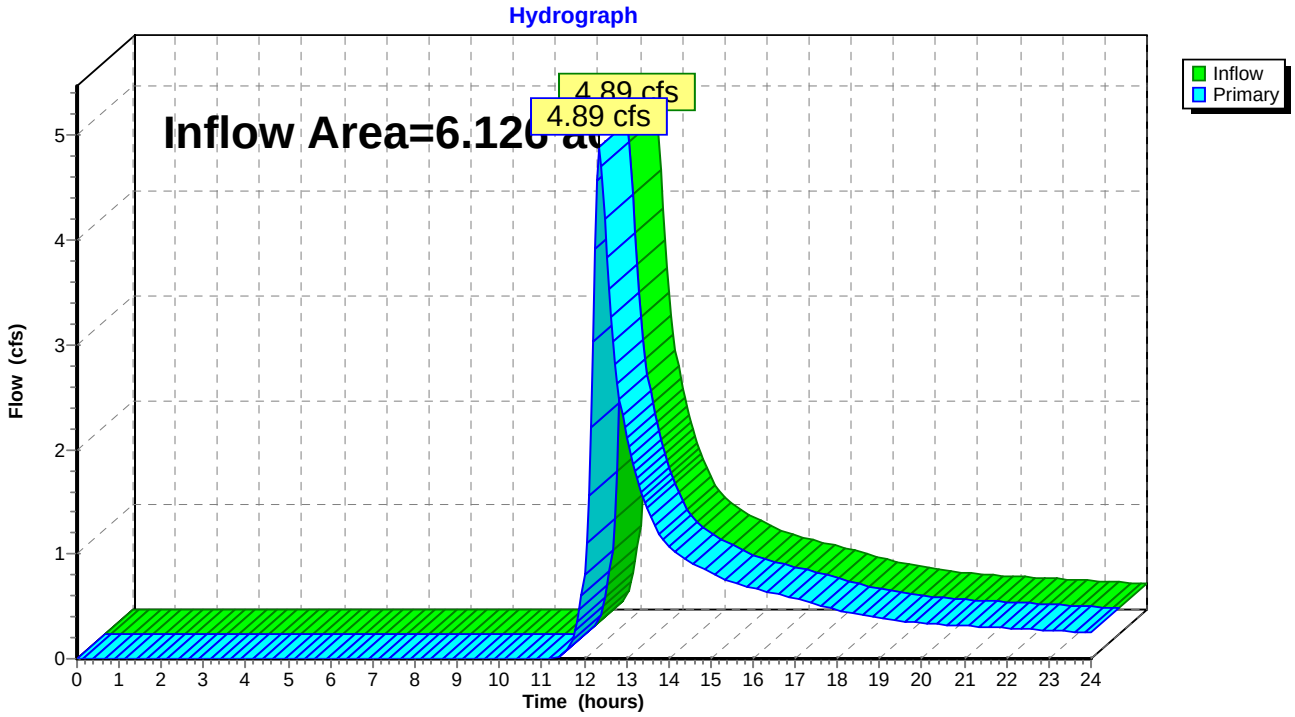


Summary for Link 6L: DL-7 PR

Inflow Area = 6.126 ac, 0.00% Impervious, Inflow Depth > 1.54" for 25-Year event
Inflow = 4.89 cfs @ 12.37 hrs, Volume= 0.787 af
Primary = 4.89 cfs @ 12.37 hrs, Volume= 0.787 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: DL-7 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 5S: PRDA7ND Runoff Area=184,935 sf 0.00% Impervious Runoff Depth>2.12"
Flow Length=366' Tc=22.8 min CN=55 Runoff=6.34 cfs 0.750 af

Subcatchment 13S: PRDA7D Runoff Area=81,928 sf 0.00% Impervious Runoff Depth>2.52"
Tc=7.0 min CN=59 Runoff=5.57 cfs 0.394 af

Pond 12P: BASIN Peak Elev=1,485.70' Storage=4,930 cf Inflow=5.57 cfs 0.394 af
Outflow=1.54 cfs 0.384 af

Link 6L: DL-7 PR Inflow=7.87 cfs 1.134 af
Primary=7.87 cfs 1.134 af

Total Runoff Area = 6.126 ac Runoff Volume = 1.144 af Average Runoff Depth = 2.24"
100.00% Pervious = 6.126 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 5S: PRDA7ND

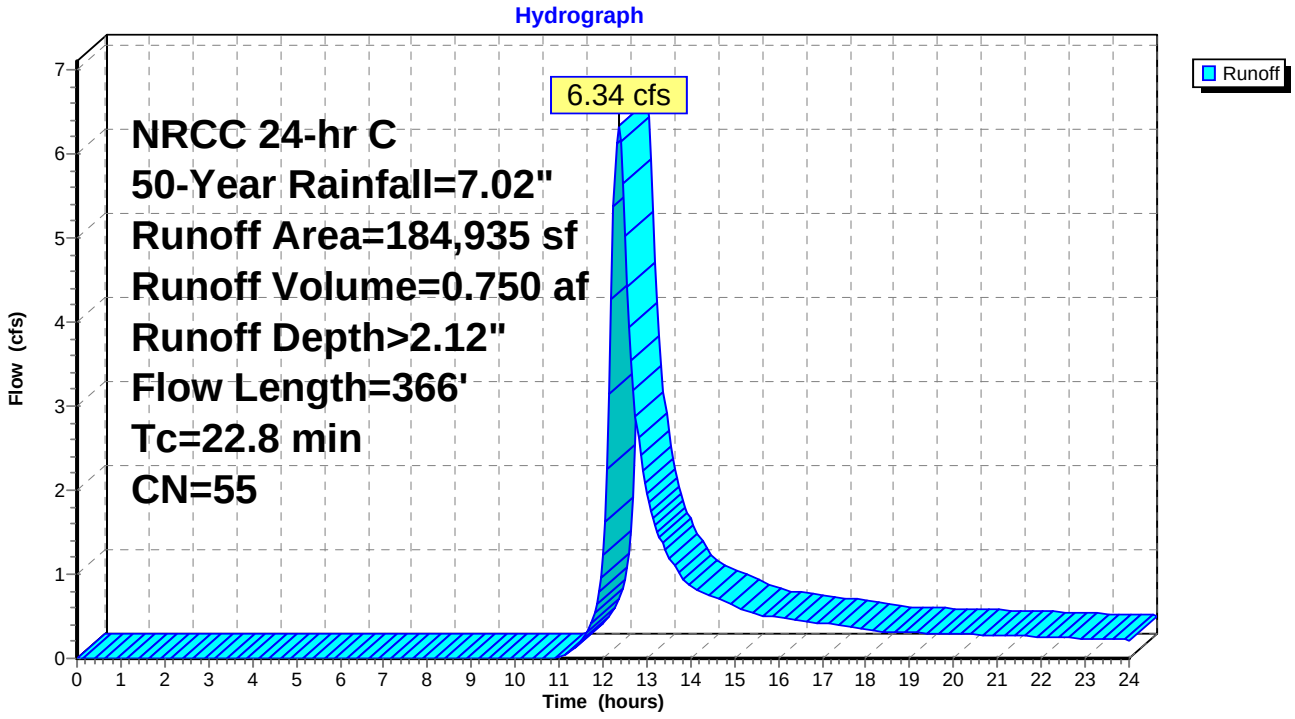
Runoff = 6.34 cfs @ 12.35 hrs, Volume= 0.750 af, Depth> 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
154,205	55	Woods, Good, HSG B
30,730	58	Meadow, non-grazed, HSG B
184,935	55	Weighted Average
184,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 5S: PRDA7ND



Summary for Subcatchment 13S: PRDA7D

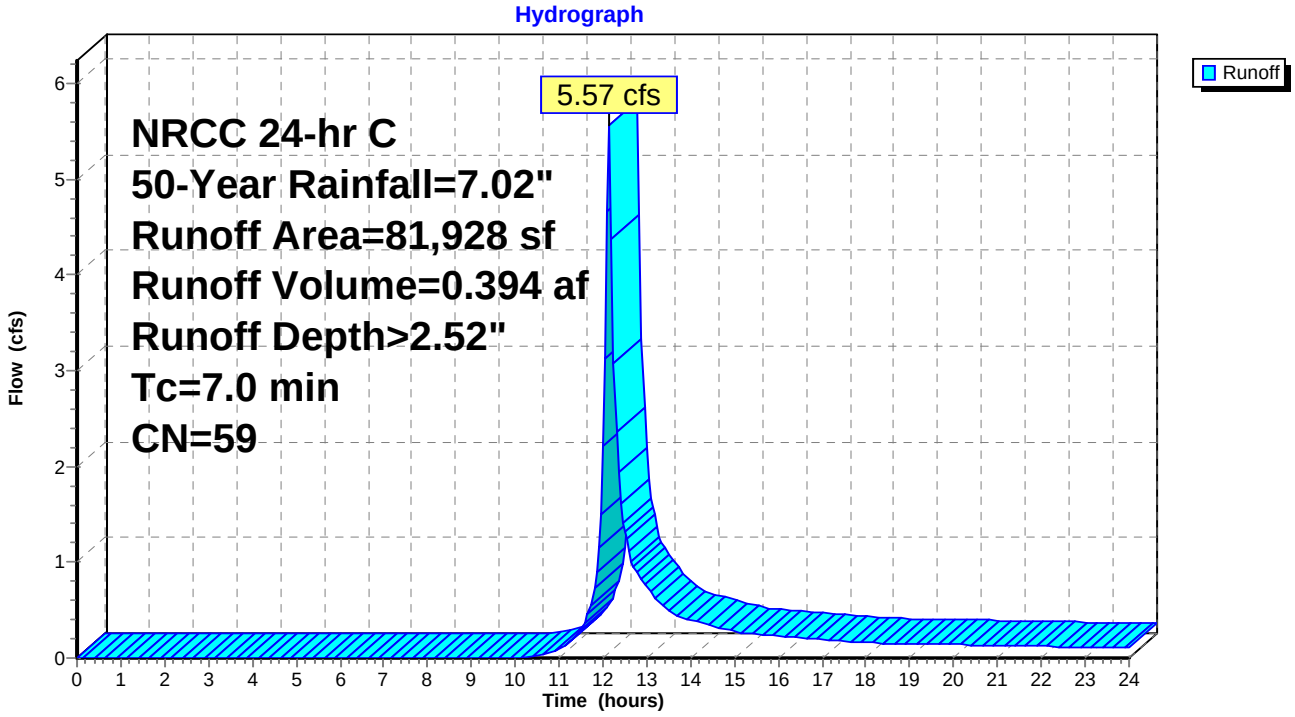
Runoff = 5.57 cfs @ 12.15 hrs, Volume= 0.394 af, Depth> 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 50-Year Rainfall=7.02"

Area (sf)	CN	Description
79,360	58	Meadow, non-grazed, HSG B
2,568	96	Gravel surface, HSG B
81,928	59	Weighted Average
81,928		100.00% Pervious Area

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

Subcatchment 13S: PRDA7D



Summary for Pond 12P: BASIN

Inflow Area = 1.881 ac, 0.00% Impervious, Inflow Depth > 2.52" for 50-Year event
Inflow = 5.57 cfs @ 12.15 hrs, Volume= 0.394 af
Outflow = 1.54 cfs @ 12.42 hrs, Volume= 0.384 af, Atten= 72%, Lag= 16.4 min
Primary = 1.54 cfs @ 12.42 hrs, Volume= 0.384 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,485.70' @ 12.42 hrs Surf.Area= 3,998 sf Storage= 4,930 cf

Plug-Flow detention time= 74.3 min calculated for 0.383 af (97% of inflow)
Center-of-Mass det. time= 59.4 min (927.5 - 868.0)

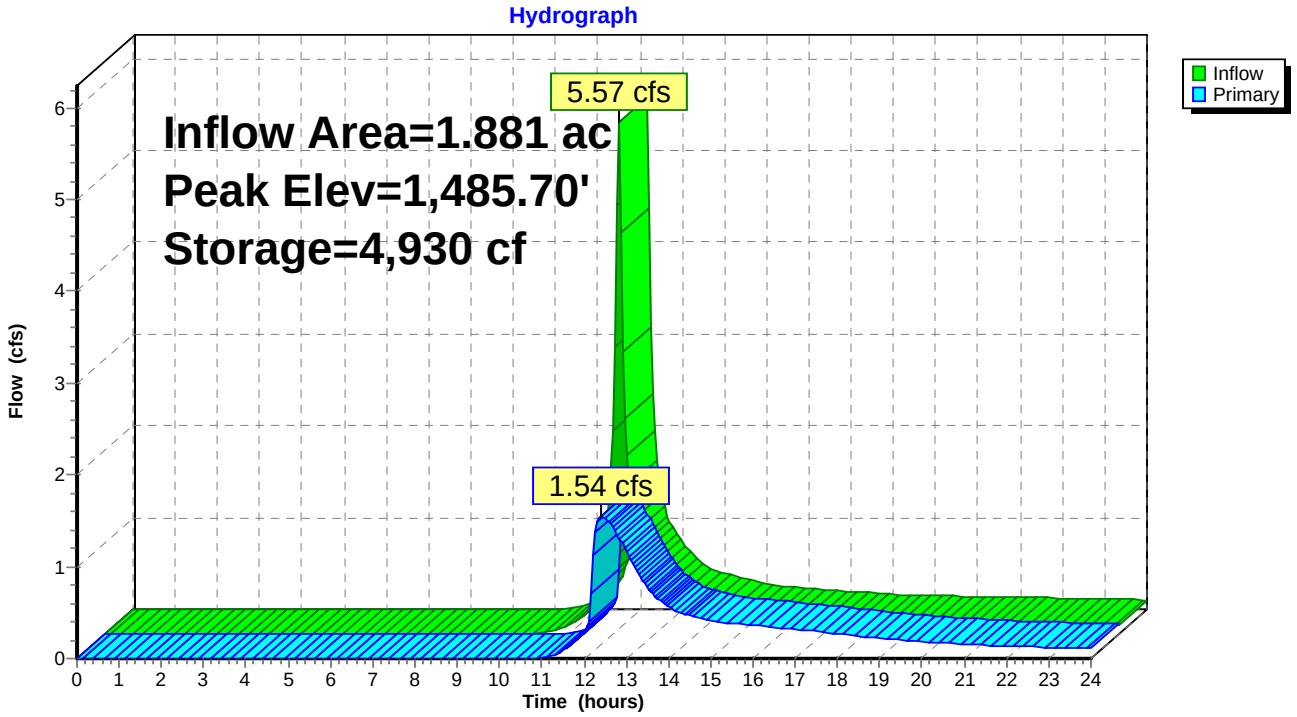
Volume	Invert	Avail.Storage	Storage Description
#1	1,484.00'	14,316 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,484.00	1,792	0	0
1,486.00	4,382	6,174	6,174
1,487.50	6,474	8,142	14,316

Device	Routing	Invert	Outlet Devices
#1	Primary	1,484.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,485.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,486.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.54 cfs @ 12.42 hrs HW=1,485.70' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.52 cfs @ 5.97 fps)
- **2=Orifice/Grate** (Orifice Controls 1.02 cfs @ 2.92 fps)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond 12P: BASIN

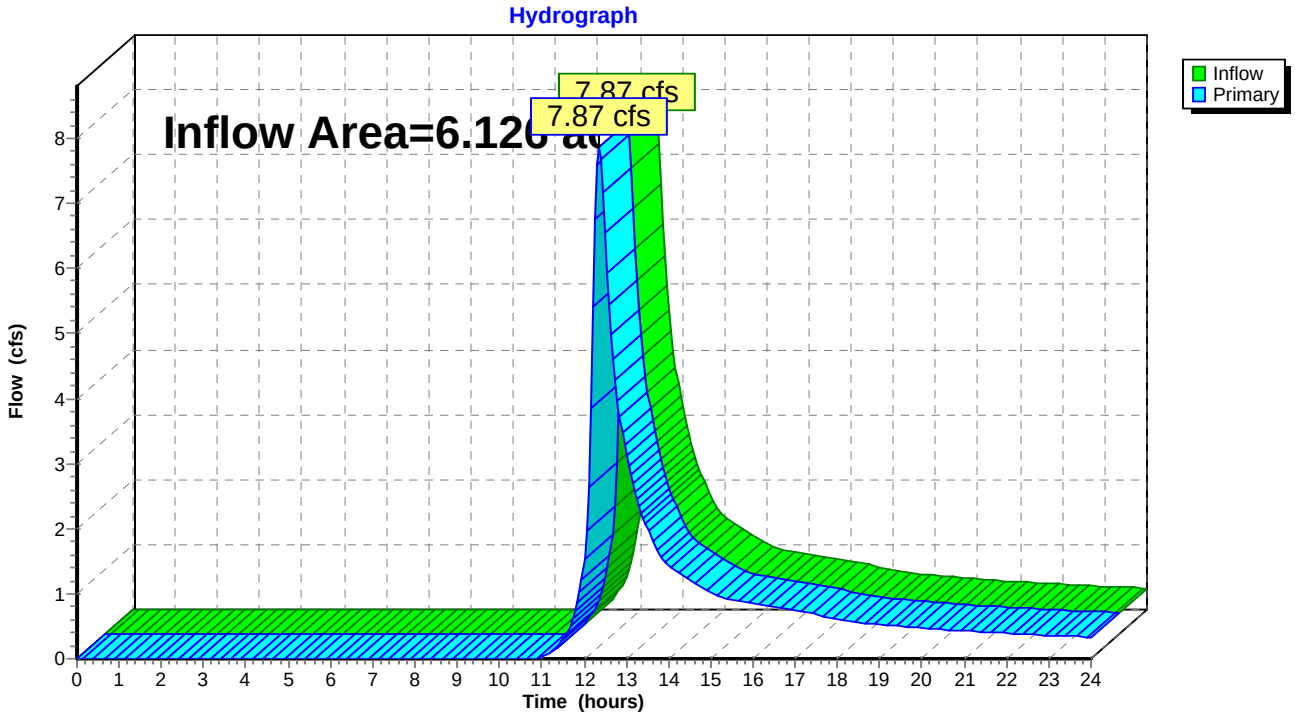


Summary for Link 6L: DL-7 PR

Inflow Area = 6.126 ac, 0.00% Impervious, Inflow Depth > 2.22" for 50-Year event
Inflow = 7.87 cfs @ 12.35 hrs, Volume= 1.134 af
Primary = 7.87 cfs @ 12.35 hrs, Volume= 1.134 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: DL-7 PR



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 5S: PRDA7ND Runoff Area=184,935 sf 0.00% Impervious Runoff Depth>2.99"
Flow Length=366' Tc=22.8 min CN=55 Runoff=9.24 cfs 1.058 af

Subcatchment 13S: PRDA7D Runoff Area=81,928 sf 0.00% Impervious Runoff Depth>3.46"
Tc=7.0 min CN=59 Runoff=7.76 cfs 0.543 af

Pond 12P: BASIN Peak Elev=1,486.10' Storage=6,636 cf Inflow=7.76 cfs 0.543 af
Outflow=2.93 cfs 0.529 af

Link 6L: DL-7 PR Inflow=12.16 cfs 1.587 af
Primary=12.16 cfs 1.587 af

Total Runoff Area = 6.126 ac Runoff Volume = 1.601 af Average Runoff Depth = 3.14"
100.00% Pervious = 6.126 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 5S: PRDA7ND

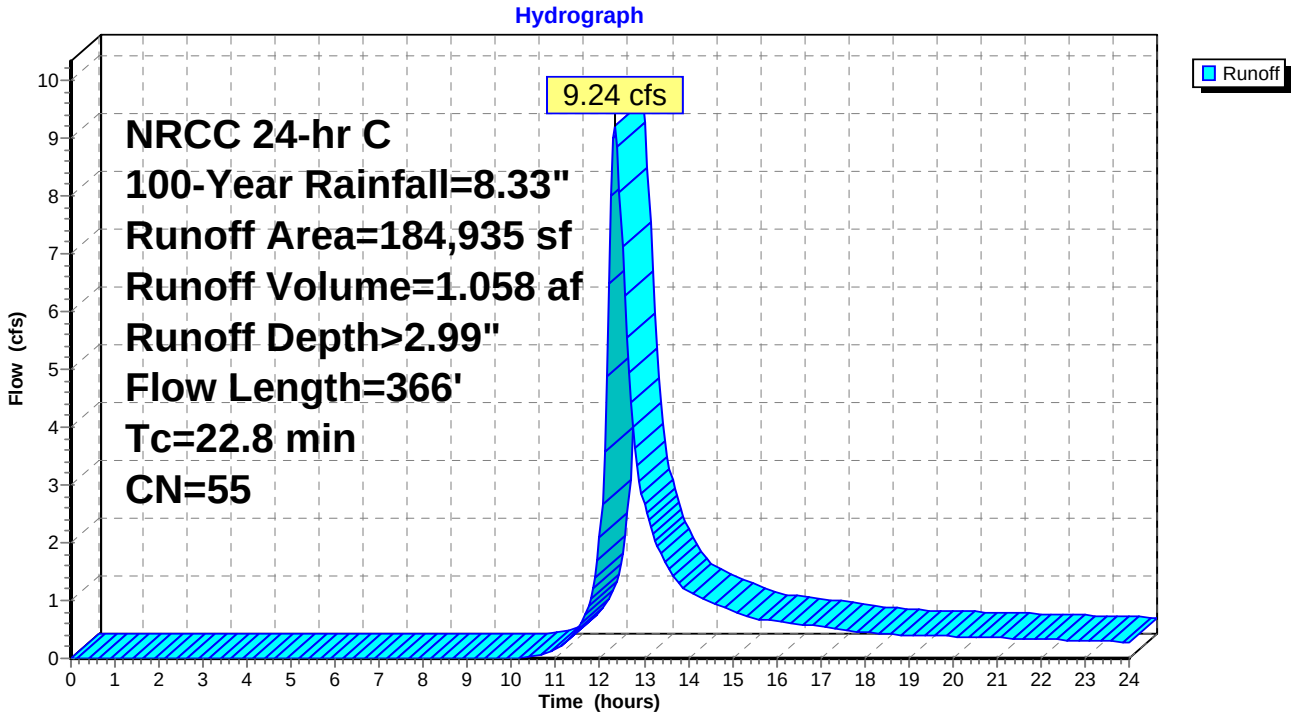
Runoff = 9.24 cfs @ 12.34 hrs, Volume= 1.058 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
154,205	55	Woods, Good, HSG B
30,730	58	Meadow, non-grazed, HSG B
184,935	55	Weighted Average
184,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	200	0.0800	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.3	166	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	366	Total			

Subcatchment 5S: PRDA7ND



Summary for Subcatchment 13S: PRDA7D

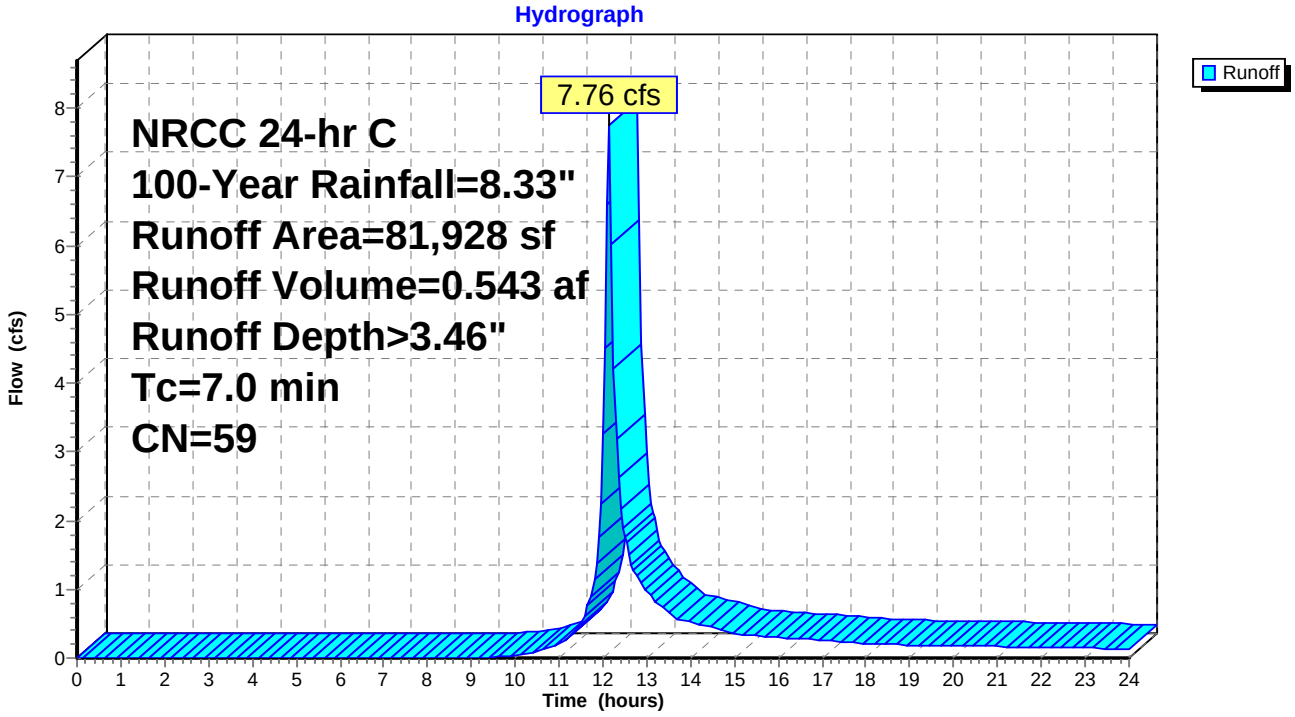
Runoff = 7.76 cfs @ 12.14 hrs, Volume= 0.543 af, Depth> 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.33"

Area (sf)	CN	Description
79,360	58	Meadow, non-grazed, HSG B
2,568	96	Gravel surface, HSG B
81,928	59	Weighted Average
81,928		100.00% Pervious Area

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

Subcatchment 13S: PRDA7D



Summary for Pond 12P: BASIN

Inflow Area = 1.881 ac, 0.00% Impervious, Inflow Depth > 3.46" for 100-Year event
Inflow = 7.76 cfs @ 12.14 hrs, Volume= 0.543 af
Outflow = 2.93 cfs @ 12.33 hrs, Volume= 0.529 af, Atten= 62%, Lag= 10.8 min
Primary = 2.93 cfs @ 12.33 hrs, Volume= 0.529 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1,486.10' @ 12.33 hrs Surf.Area= 4,527 sf Storage= 6,636 cf

Plug-Flow detention time= 69.3 min calculated for 0.529 af (98% of inflow)
Center-of-Mass det. time= 55.6 min (913.3 - 857.6)

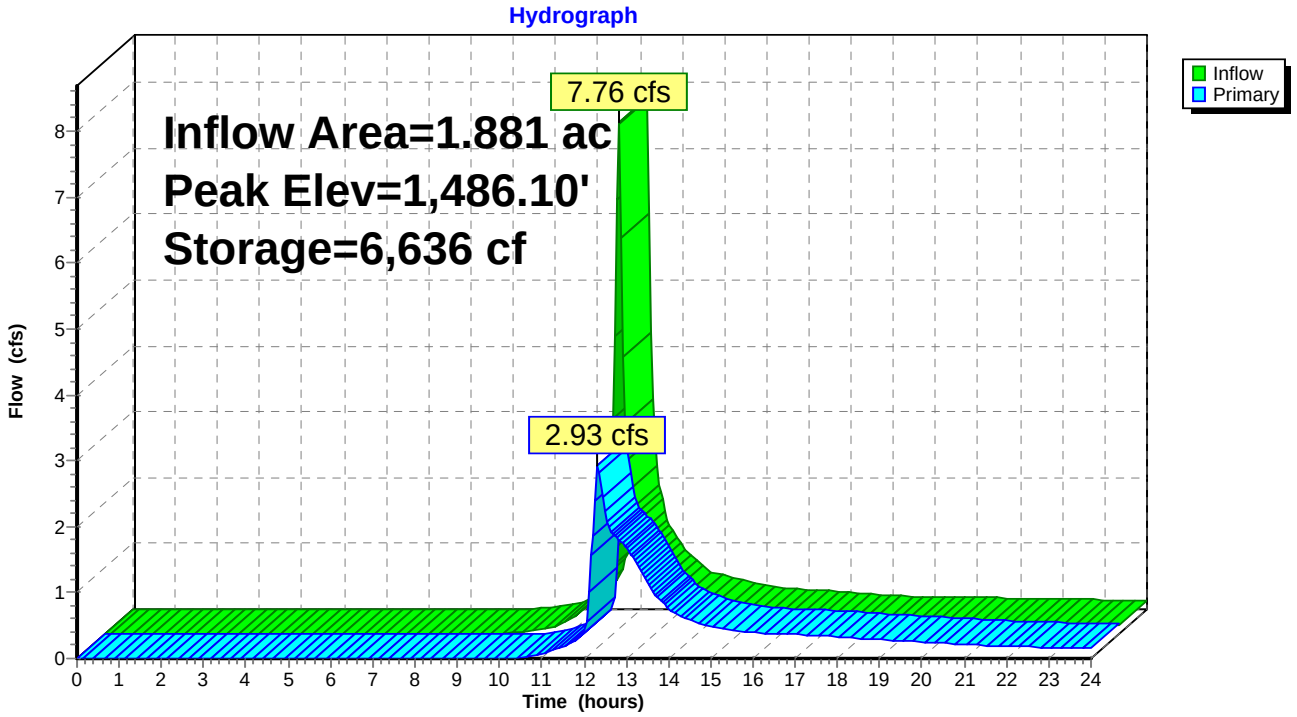
Volume	Invert	Avail.Storage	Storage Description
#1	1,484.00'	14,316 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,484.00	1,792	0	0
1,486.00	4,382	6,174	6,174
1,487.50	6,474	8,142	14,316

Device	Routing	Invert	Outlet Devices
#1	Primary	1,484.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	1,485.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	1,486.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.91 cfs @ 12.33 hrs HW=1,486.10' (Free Discharge)
- **1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 6.70 fps)
- **2=Orifice/Grate** (Orifice Controls 1.47 cfs @ 4.22 fps)
- **3=Orifice/Grate** (Weir Controls 0.85 cfs @ 1.04 fps)

Pond 12P: BASIN

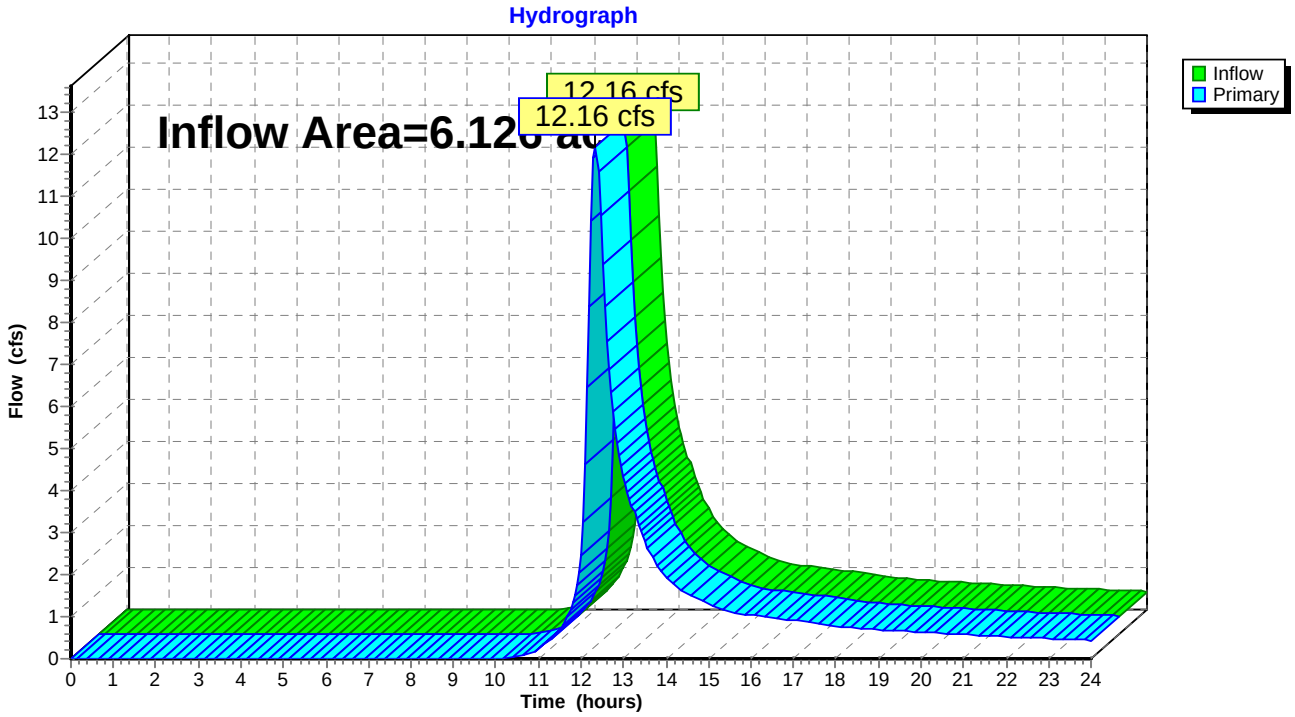


Summary for Link 6L: DL-7 PR

Inflow Area = 6.126 ac, 0.00% Impervious, Inflow Depth > 3.11" for 100-Year event
Inflow = 12.16 cfs @ 12.34 hrs, Volume= 1.587 af
Primary = 12.16 cfs @ 12.34 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 6L: DL-7 PR



WATER QUALITY VOLUME CALCULATIONS

CIVIL 1
Civil Engineers

WATER QUALITY VOLUME CALCULATIONS
WIND COLEBROOK SOUTH
(PER DEP 2004 STORMWATER QUALITY MANUAL)
11-13-19

For Stormwater Renovation Area "A" (PRDA-3D)

Water Quality Volume (WQV) = 1" x R x A/ 12

Where R = Volumetric Runoff Coefficient = 0.05 + 0.009 x I
I = Percent impervious cover
A = Area contributing to rain garden in acres

A = 2.89 acres
I = 0.36 ac = 12.5%
R = 0.05 + 0.009 x 12.5 = 0.16

WQV = 1" x 0.16 x 2.89/ 12 = .039 ac-ft = 1,679 CF
WQV Required = 1,679 CF

Volume provided in Stormwater Renovation Area "A"
Below Permeable Water Quality Berm Elevation = 2,680 CF

Excess Storage Provided = 2,680 – 1,679 = 1,001 CF

For Stormwater Renovation Area "B" (PRDA-6D)

Water Quality Volume (WQV) = 1" x R x A/ 12

Where R = Volumetric Runoff Coefficient = 0.05 + 0.009 x I
I = Percent impervious cover
A = Area contributing to rain garden in acres

A = 4.01 acres
I = 0.61 ac = 15.2%
R = 0.05 + 0.009 x 15.2 = 0.186

WQV = 1" x 0.186 x 4.01/ 12 = .06 ac-ft = 2,614 CF
WQV Required = 2,614 CF

Volume provided in Stormwater Renovation Area "B"
Below Permeable Water Quality Berm Elevation = 4,585 CF

Excess Storage Provided = 4,585 – 2,614 = 1,971 CF

SWALE & PIPE CAPACITY CALCULATIONS

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

RIPRAP SWALE ST 22+00 TO 13+30

Trapezoidal

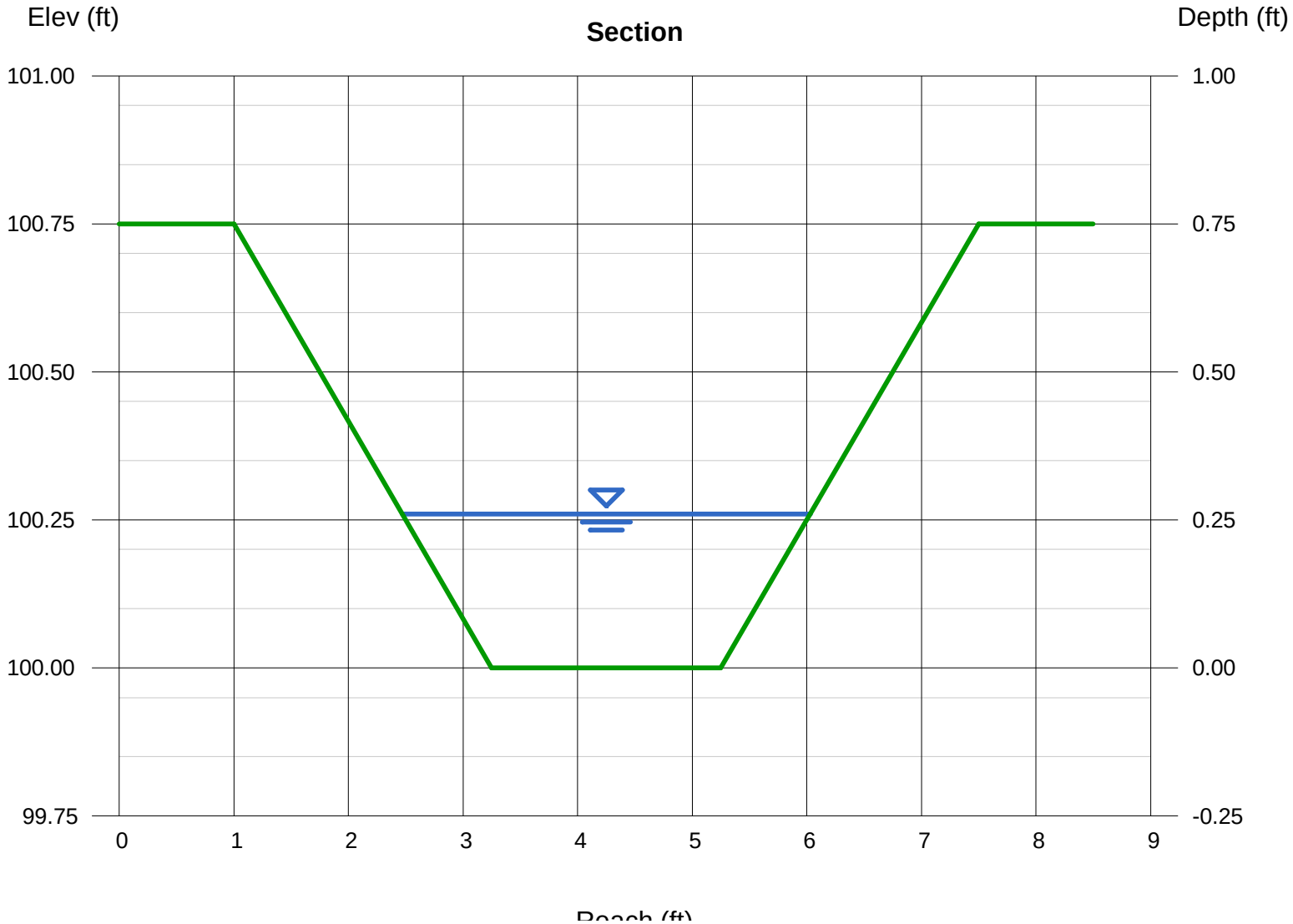
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 0.75
Invert Elev (ft)	= 100.00
Slope (%)	= 10.00
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.80

Highlighted

Depth (ft)	= 0.26
Q (cfs)	= 2.800
Area (sqft)	= 0.72
Velocity (ft/s)	= 3.87
Wetted Perim (ft)	= 3.64
Crit Depth, Yc (ft)	= 0.34
Top Width (ft)	= 3.56
EGL (ft)	= 0.49



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

RIPRAP SWALE ST 22+50 TO 13+30 DOWN-GRADIENT OF ROAD

Trapezoidal

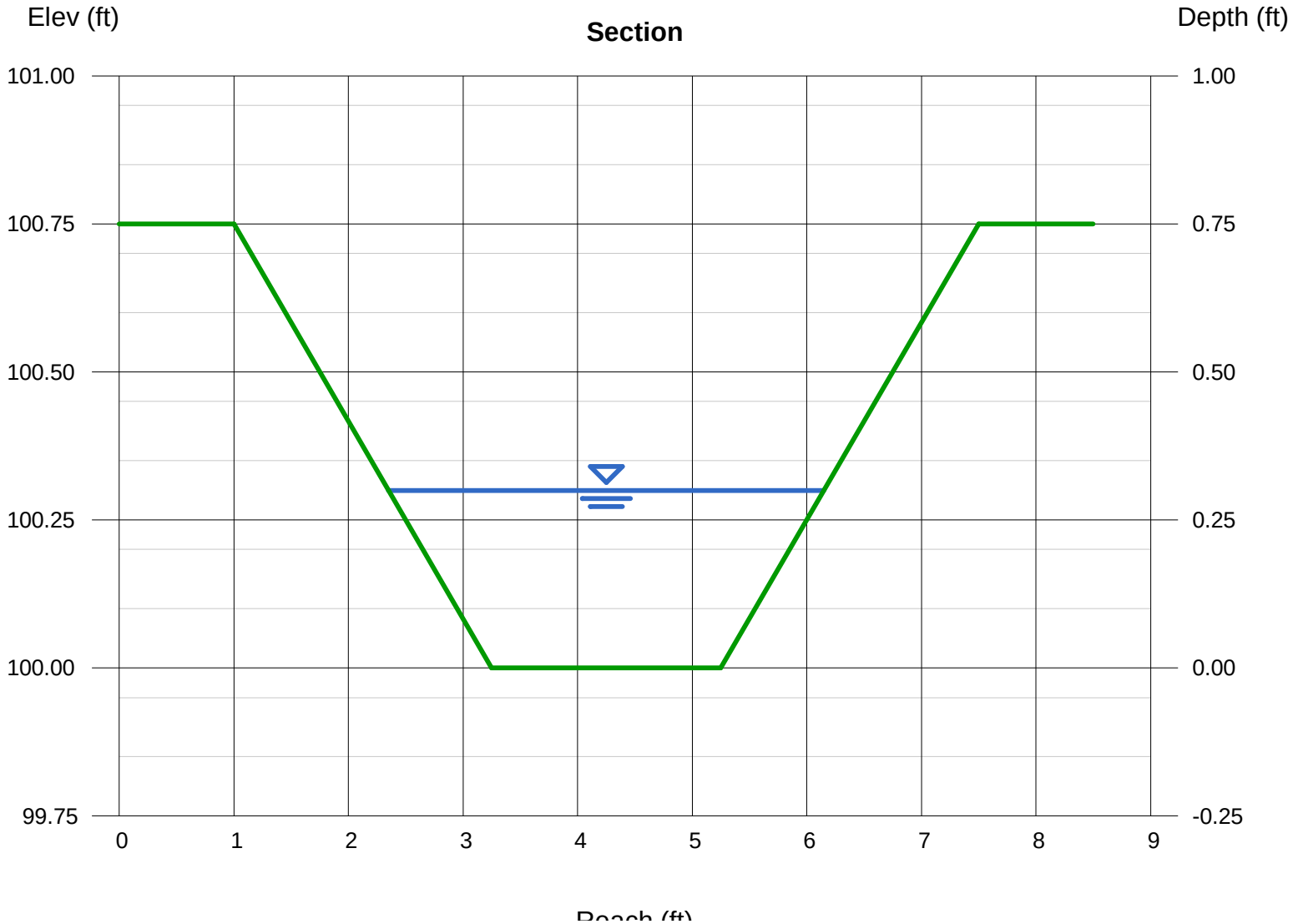
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 0.75
Invert Elev (ft)	= 100.00
Slope (%)	= 10.00
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 3.59

Highlighted

Depth (ft)	= 0.30
Q (cfs)	= 3.590
Area (sqft)	= 0.87
Velocity (ft/s)	= 4.13
Wetted Perim (ft)	= 3.90
Crit Depth, Yc (ft)	= 0.39
Top Width (ft)	= 3.80
EGL (ft)	= 0.56



Channel Report

CB 13+30 R TO 13+30L TO DETENTION BASIN B

Circular

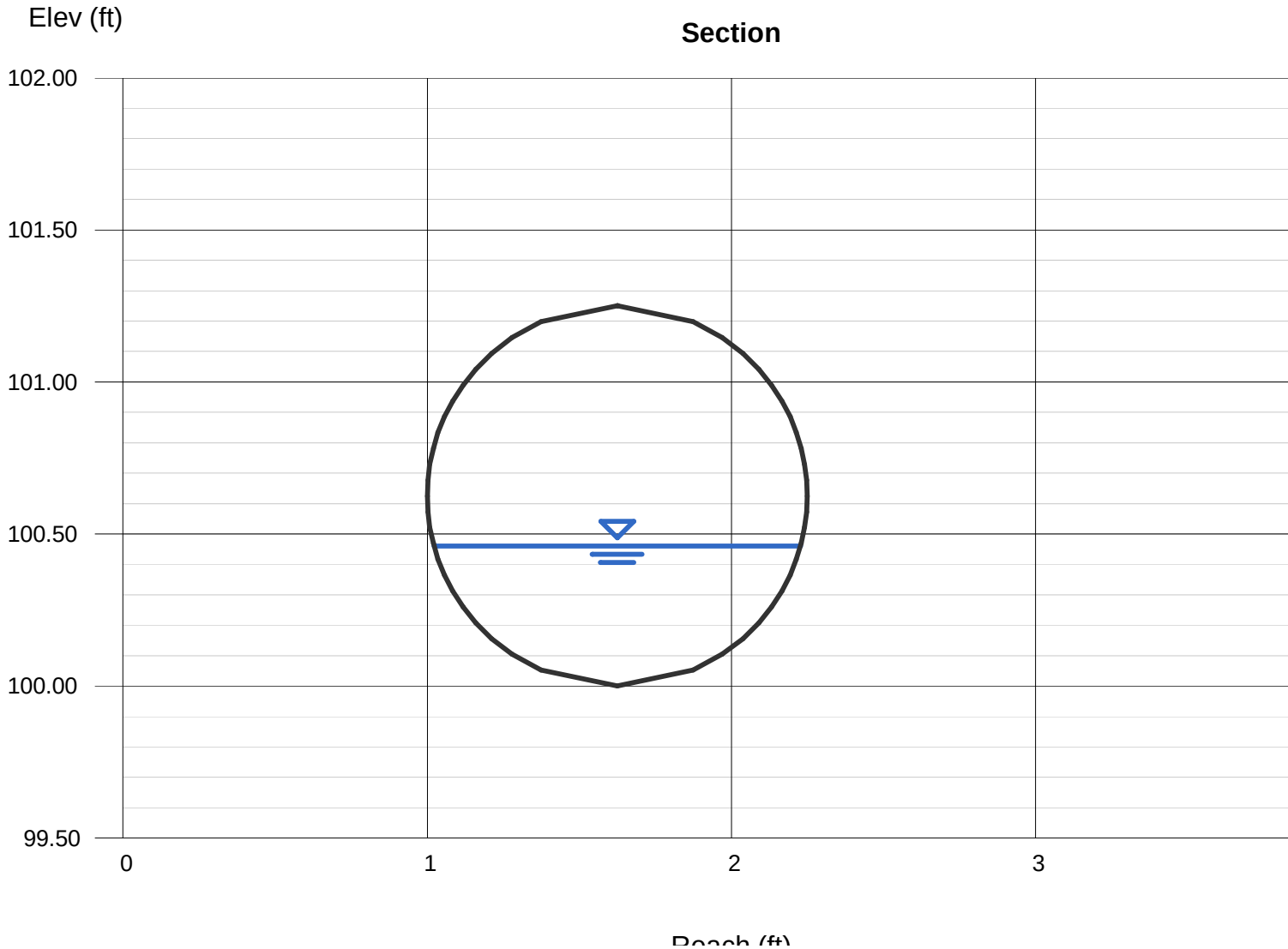
Diameter (ft)	= 1.25
Invert Elev (ft)	= 100.00
Slope (%)	= 2.00
N-Value	= 0.012

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.80

Highlighted

Depth (ft)	= 0.46
Q (cfs)	= 2.800
Area (sqft)	= 0.41
Velocity (ft/s)	= 6.82
Wetted Perim (ft)	= 1.63
Crit Depth, Yc (ft)	= 0.68
Top Width (ft)	= 1.21
EGL (ft)	= 1.18



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

DETENTION BASIN B OUTLET (100 YEAR FLOW FROM HYDROCAD)

Circular

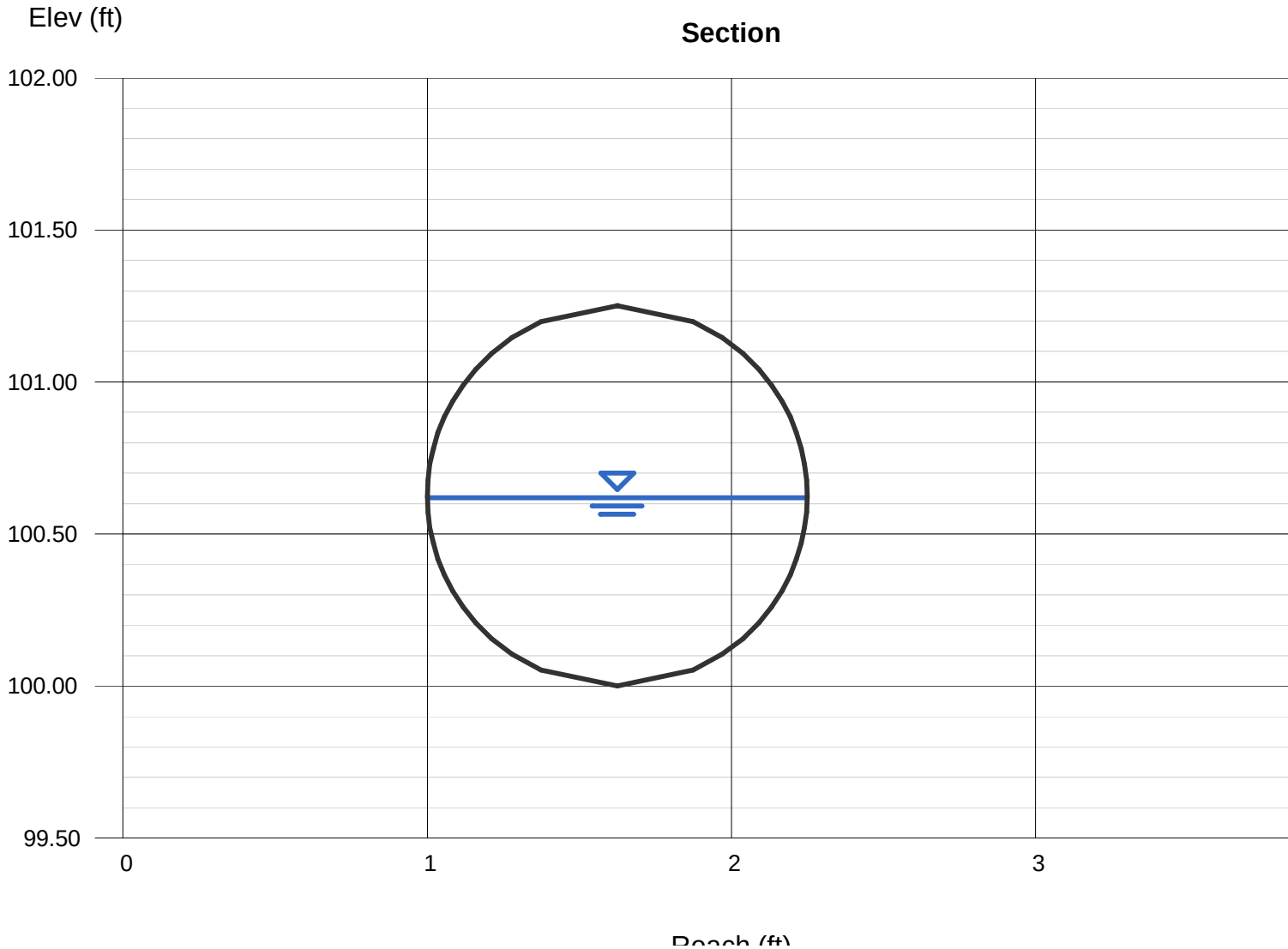
Diameter (ft)	= 1.25
Invert Elev (ft)	= 100.00
Slope (%)	= 3.33
N-Value	= 0.012

Calculations

Compute by:	Known Q
Known Q (cfs)	= 6.16

Highlighted

Depth (ft)	= 0.62
Q (cfs)	= 6.160
Area (sqft)	= 0.61
Velocity (ft/s)	= 10.11
Wetted Perim (ft)	= 1.96
Crit Depth, Yc (ft)	= 1.01
Top Width (ft)	= 1.25
EGL (ft)	= 2.21



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

GRASS SWALE UP-GRADIENT OF ROAD ST 2+25 TO 6+25 TO DET BASIN A

Trapezoidal

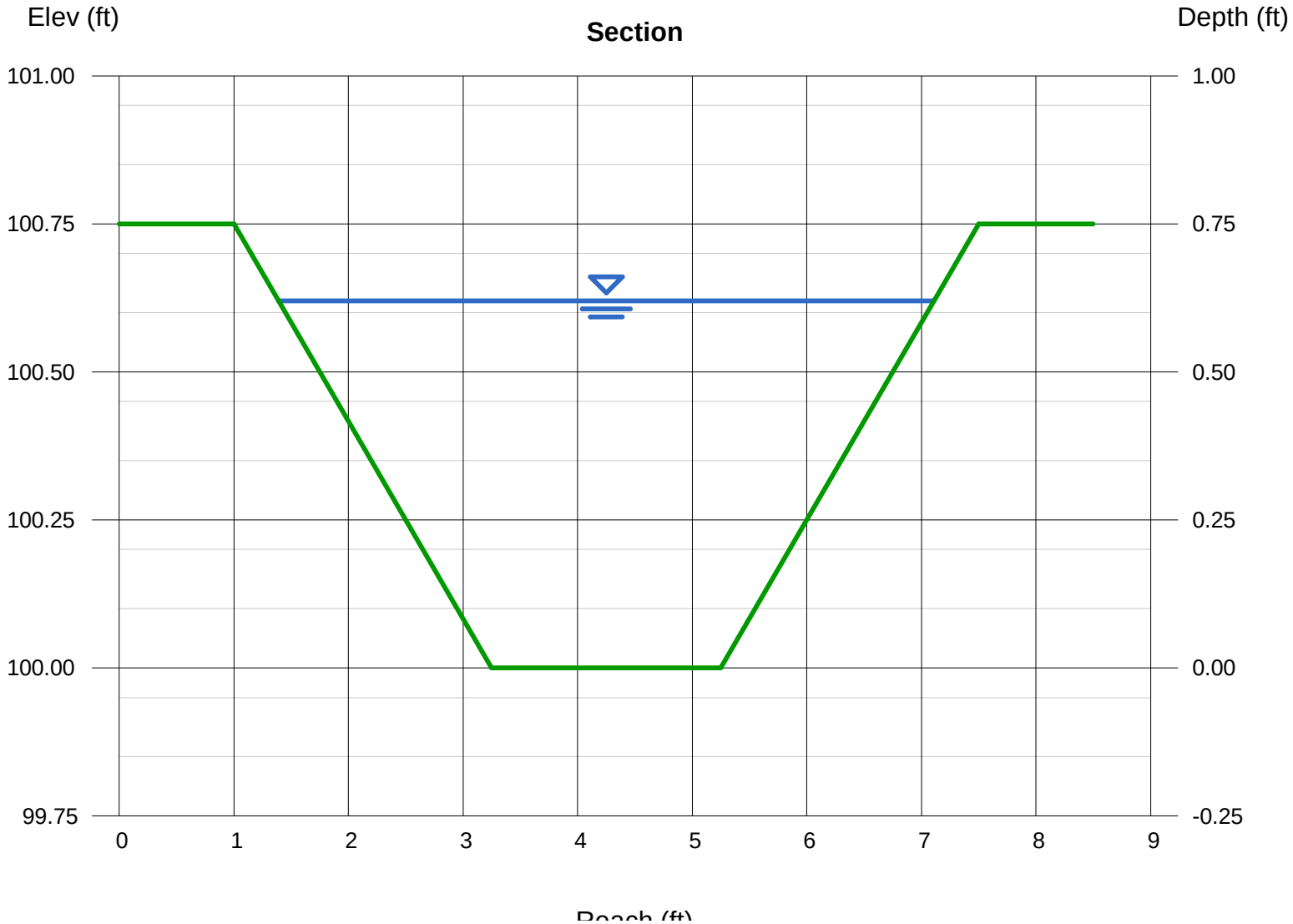
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 0.75
Invert Elev (ft)	= 100.00
Slope (%)	= 1.00
N-Value	= 0.020

Calculations

Compute by:	Known Q
Known Q (cfs)	= 9.71

Highlighted

Depth (ft)	= 0.62
Q (cfs)	= 9.710
Area (sqft)	= 2.39
Velocity (ft/s)	= 4.06
Wetted Perim (ft)	= 5.92
Crit Depth, Yc (ft)	= 0.66
Top Width (ft)	= 5.72
EGL (ft)	= 0.88



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

GRASS SWALE DOWN-GRADIENT OF ROAD ST 2+25 TO 6+25 TO DET BASIN A

Trapezoidal

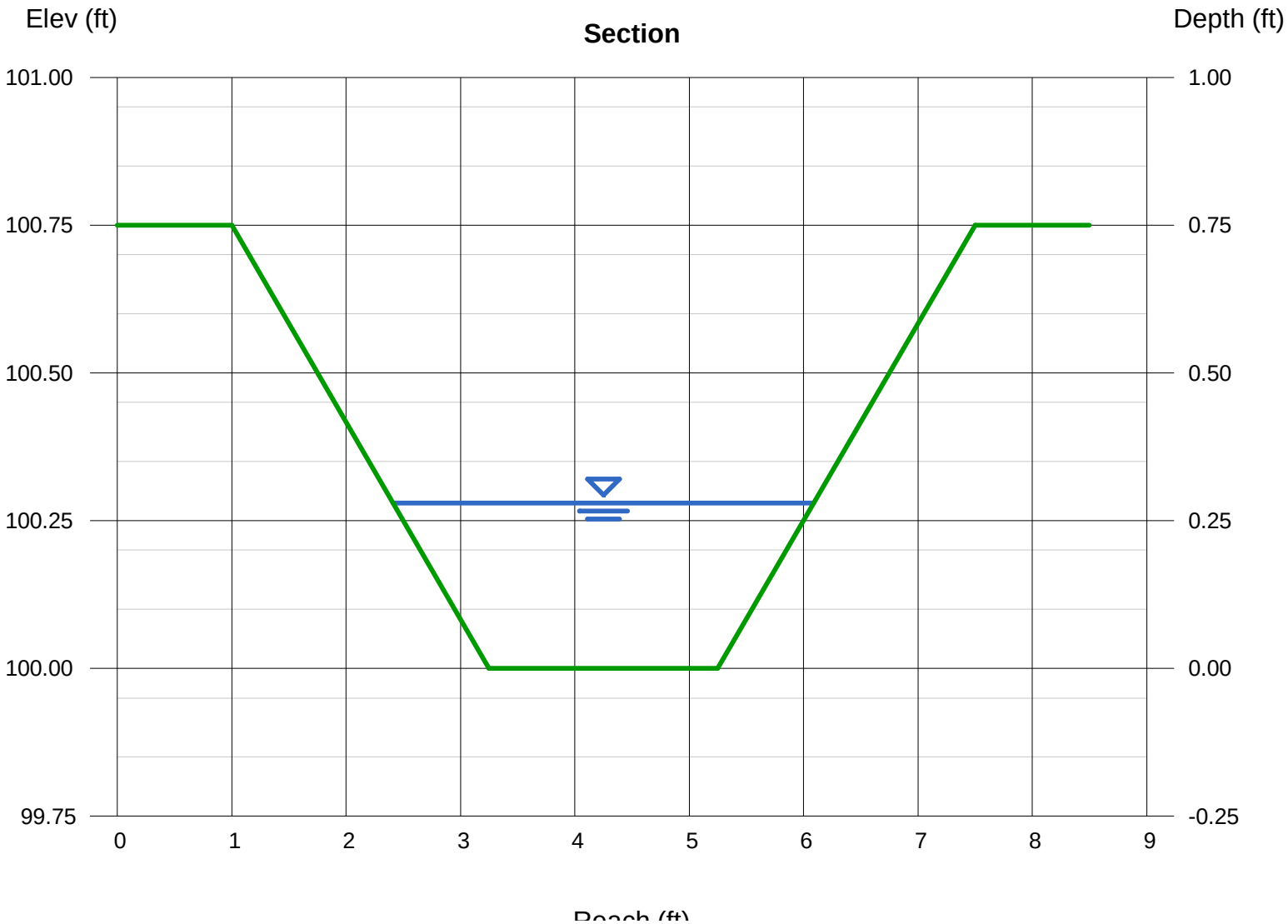
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 0.75
Invert Elev (ft)	= 100.00
Slope (%)	= 1.00
N-Value	= 0.020

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.99

Highlighted

Depth (ft)	= 0.28
Q (cfs)	= 1.990
Area (sqft)	= 0.80
Velocity (ft/s)	= 2.50
Wetted Perim (ft)	= 3.77
Crit Depth, Yc (ft)	= 0.28
Top Width (ft)	= 3.68
EGL (ft)	= 0.38



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

CB 14+25 R TO 14+25 L TO DETENTION BASIN A (Q=OVERLAND + EX. DET BASIN)

Circular

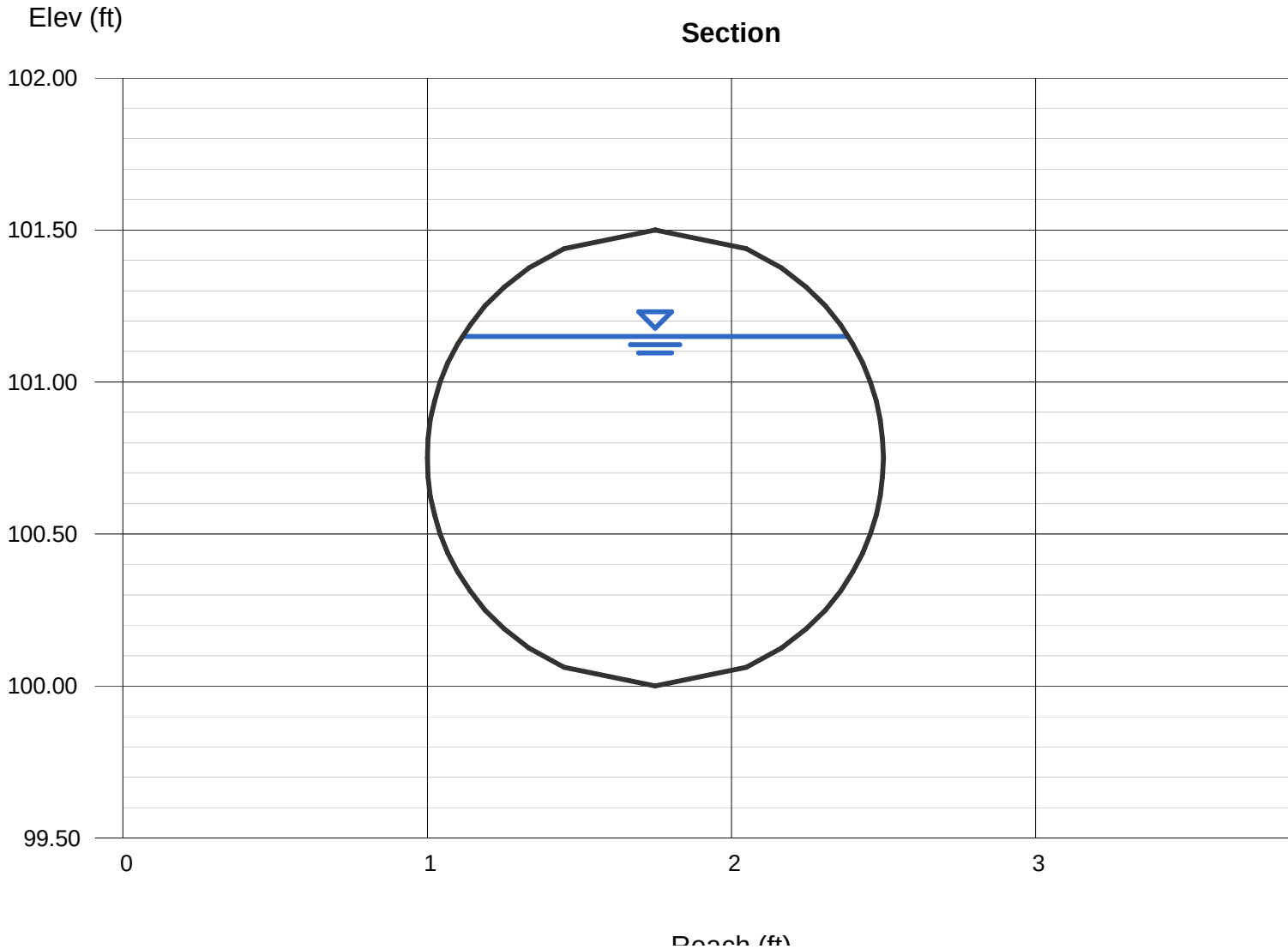
Diameter (ft)	= 1.50
Invert Elev (ft)	= 100.00
Slope (%)	= 1.70
N-Value	= 0.012

Calculations

Compute by:	Known Q
Known Q (cfs)	= 13.82

Highlighted

Depth (ft)	= 1.15
Q (cfs)	= 13.82
Area (sqft)	= 1.46
Velocity (ft/s)	= 9.50
Wetted Perim (ft)	= 3.20
Crit Depth, Yc (ft)	= 1.38
Top Width (ft)	= 1.27
EGL (ft)	= 2.55



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

DETENTION BASIN A OUTLET (100 YEAR FLOW)

Circular

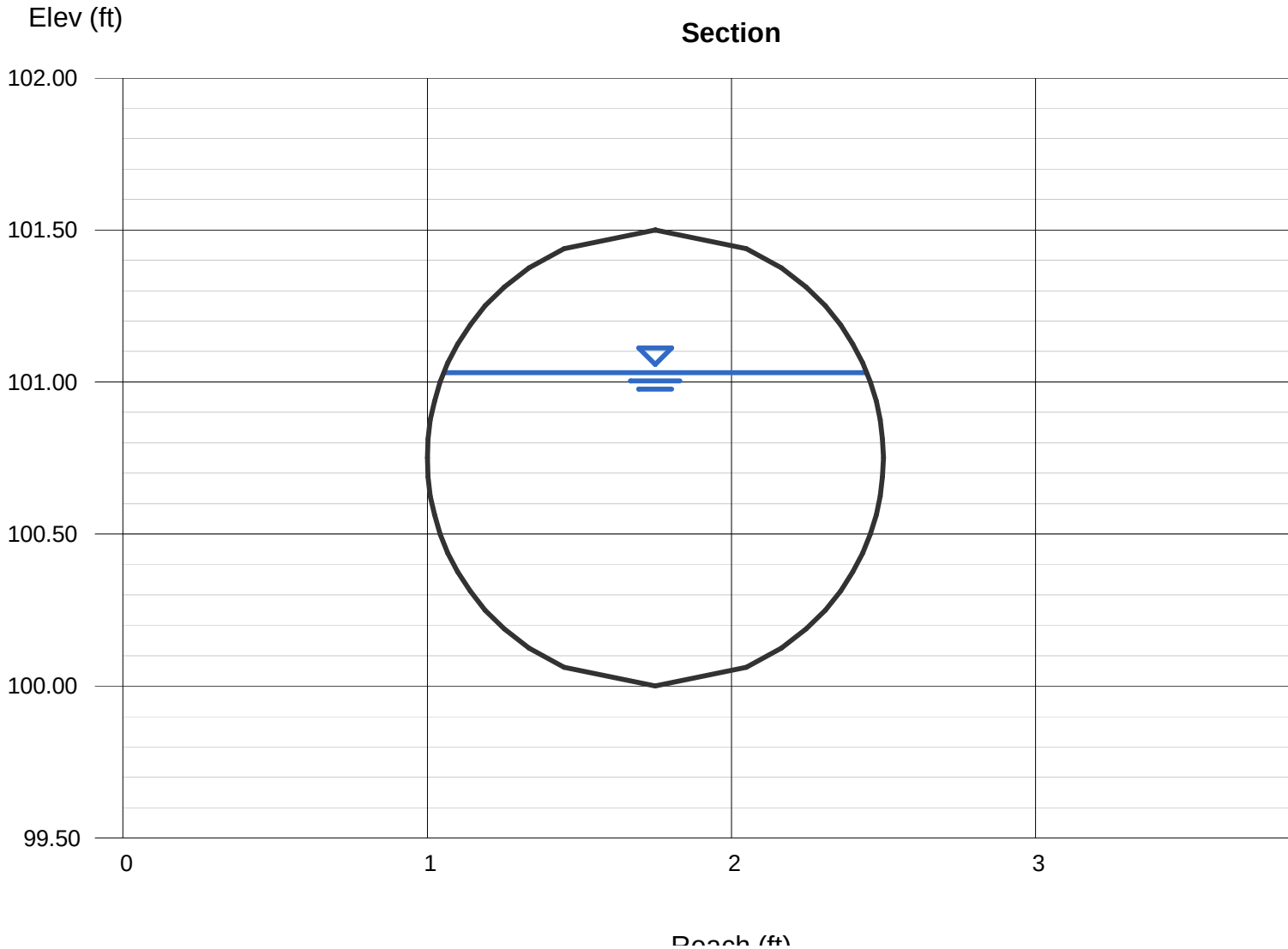
Diameter (ft)	= 1.50
Invert Elev (ft)	= 100.00
Slope (%)	= 3.00
N-Value	= 0.012

Calculations

Compute by:	Known Q
Known Q (cfs)	= 15.89

Highlighted

Depth (ft)	= 1.03
Q (cfs)	= 15.89
Area (sqft)	= 1.30
Velocity (ft/s)	= 12.27
Wetted Perim (ft)	= 2.93
Crit Depth, Yc (ft)	= 1.43
Top Width (ft)	= 1.39
EGL (ft)	= 3.37



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

RIPRAP SWALE ST 6+25L TO LEVEL SPREADER (PRDA 3D-T)

Trapezoidal

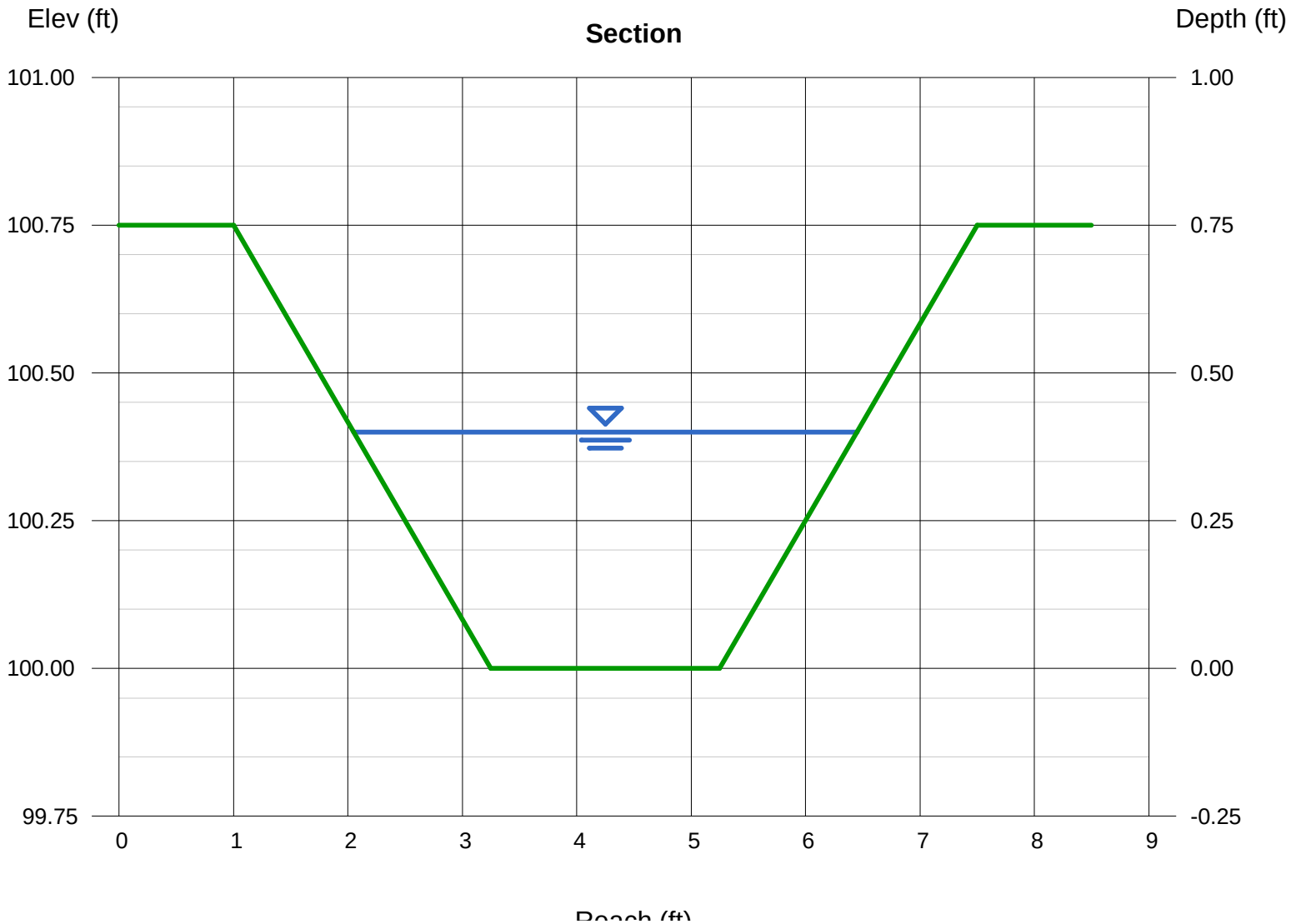
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 0.75
Invert Elev (ft)	= 100.00
Slope (%)	= 6.50
N-Value	= 0.040

Calculations

Compute by:	Known Q
Known Q (cfs)	= 5.21

Highlighted

Depth (ft)	= 0.40
Q (cfs)	= 5.210
Area (sqft)	= 1.28
Velocity (ft/s)	= 4.07
Wetted Perim (ft)	= 4.53
Crit Depth, Yc (ft)	= 0.47
Top Width (ft)	= 4.40
EGL (ft)	= 0.66



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

DETENTION BASIN C OUTLET (100 YEAR FLOW)

Circular

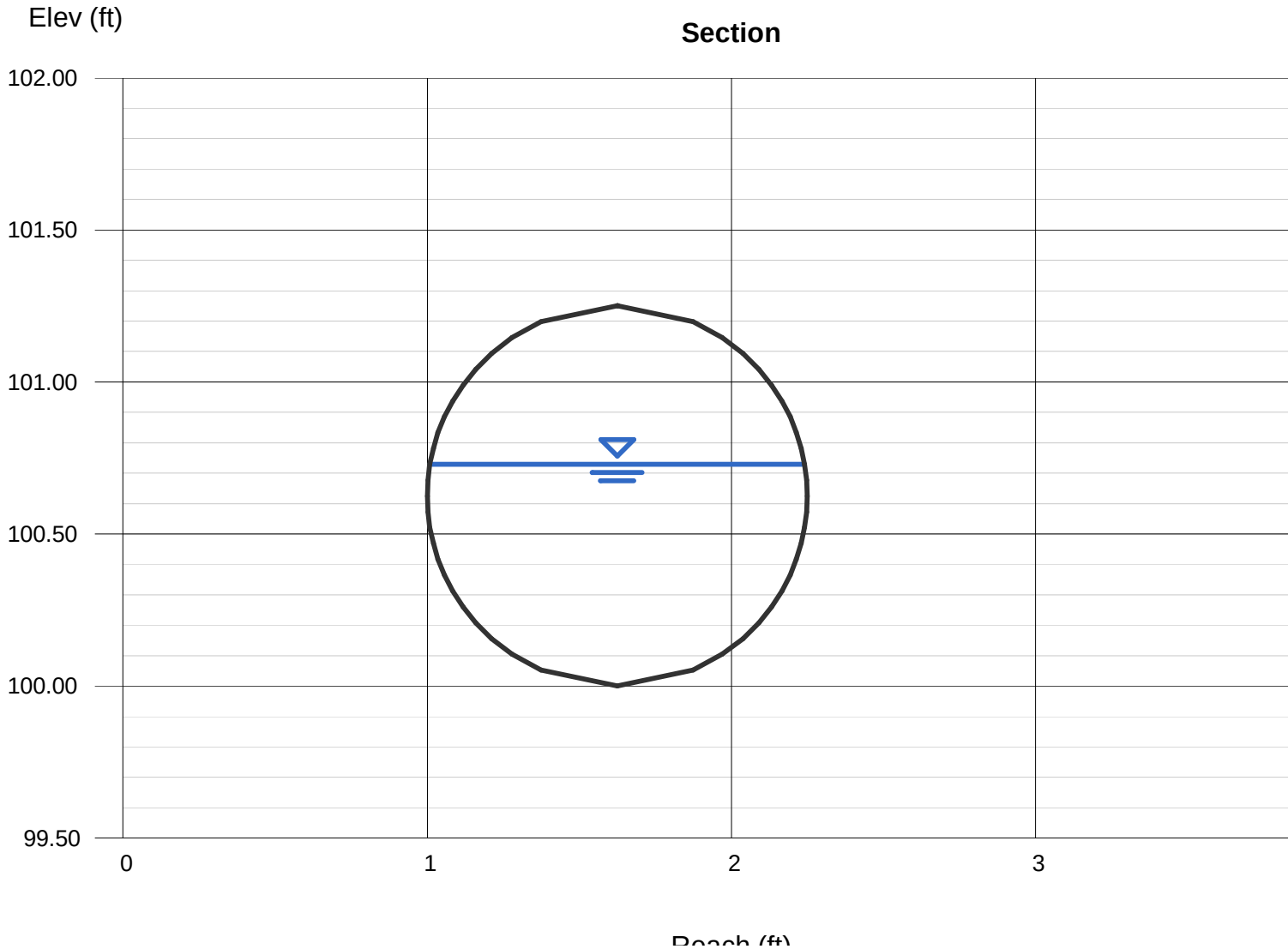
Diameter (ft)	= 1.25
Invert Elev (ft)	= 100.00
Slope (%)	= 3.00
N-Value	= 0.012

Calculations

Compute by:	Known Q
Known Q (cfs)	= 7.76

Highlighted

Depth (ft)	= 0.73
Q (cfs)	= 7.760
Area (sqft)	= 0.74
Velocity (ft/s)	= 10.42
Wetted Perim (ft)	= 2.17
Crit Depth, Yc (ft)	= 1.11
Top Width (ft)	= 1.23
EGL (ft)	= 2.42



OUTLET PROTECTION CALCULATIONS

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Wednesday, Nov 13 2019

DETENTION BASIN A OUTLET (100 YEAR FLOW)

Circular

Diameter (ft)	= 1.50
Invert Elev (ft)	= 100.00
Slope (%)	= 3.00
N-Value	= 0.012

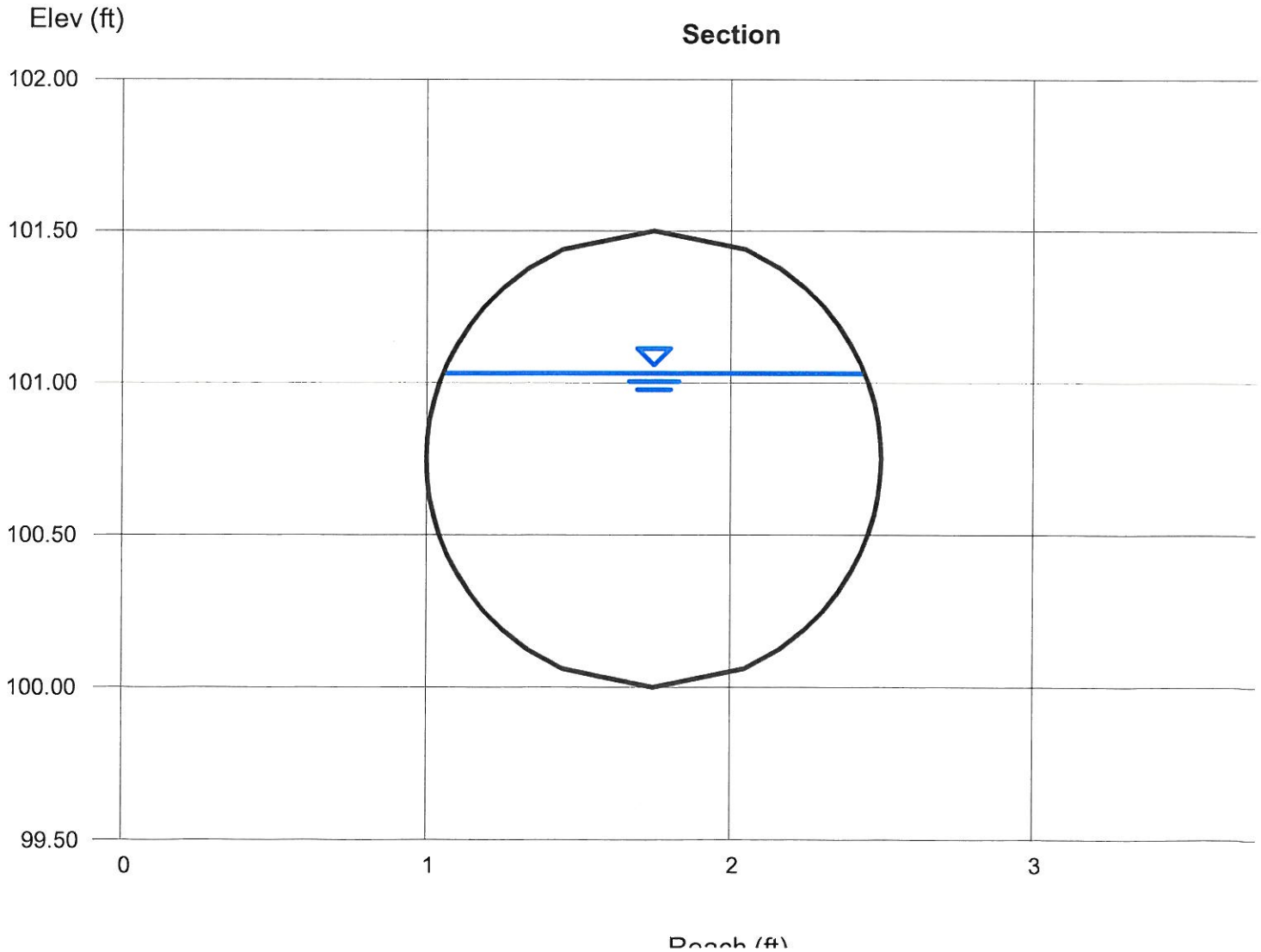
Calculations

Compute by:	Known Q
Known Q (cfs)	= 15.89

= Q_{100}

Highlighted

Depth (ft)	= 1.03
Q (cfs)	= 15.89
Area (sqft)	= 1.30
Velocity (ft/s)	= 12.27
Wetted Perim (ft)	= 2.93
Crit Depth, Yc (ft)	= 1.43
Top Width (ft)	= 1.39
EGL (ft)	= 3.37



Stormwater Area 'A' outlet

OUTLET PROTECTION
OUTLET VELOCITY > 14 feet/sec or Length of Apron exceeds limits shown on Tables 11-12.1 and 11-13.1

Preformed Scour Hole										
(See Figure 11-15)	PIPE DIAMETER OR SPAN (in)									
	12	15	18	24	30	36	42	48	54	60
Type 1										
B	5	6	8	10	13	15	18	20	23	25
C	6	8	9	12	15	18	21	24	27	30
d	Depends on riprap type(see Figure 11-15)									
$2S_p$	2.0	2.6	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
$3S_p$	3.0	3.9	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0
$F = 0.5\ S_p$	0.5	0.625	0.75	1	1.25	1.5	1.75	2	2.25	2.5
Type 2										
B	8	10	12	16	20	24	28	32	36	40
C	9	11	14	18	23	27	32	36	41	45
d	Depends on riprap size (see Figure 11-15)									
$2S_p$	2.0	2.6	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0
$3S_p$	3.0	3.9	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0
$F = S_p$	1.0	1.3	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0

Table 11-14.1 - Dimensions of Preformed Scour Hole (Feet)

Scour Hole for Det Basin A outlet

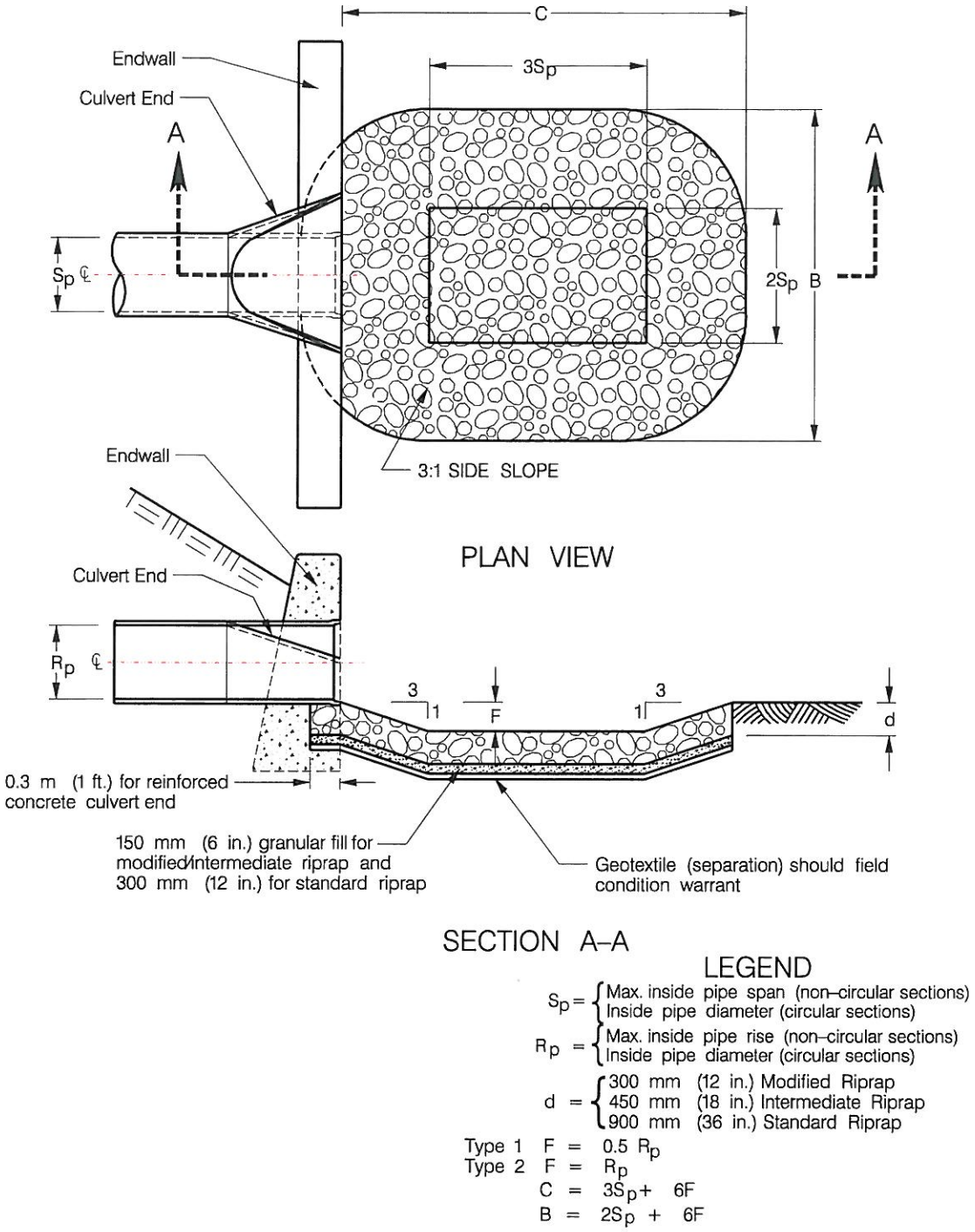


Figure 11-15 Preformed Scour Hole Type 1 and Type 2

TEMPORARY SEDIMENT TRAP SIZING CALCULATIONS

TEMPORARY SEDIMENT TRAP SIZING FOR
Wind Colebrook South, Colebrook, CT
(PER 2002 CT DEP E&S MANUAL)
11-13-19

V = Initial Storage Volume = 134 cubic yards per acre of drainage area
Half of Storage Volume will be wet and half dry: Vwet = Vdry = ½ V

TST 'A' VOLUME (PRDA 3D)

A = 2.89 acres
Vtotal = 134 cubic yards x 2.89 acres = 388 cubic yards
Vwet = Vdry = 194 cubic yards = 5,238 cubic feet
5,238 cubic feet Wet & Dry Volumes Required
Total Volume Required = 10.476 cubic feet

Vwet provided = pool volume & below= **6,144 cubic feet**
Vdry provided= above water surface elevation and below weir = **5,331 cubic feet**
Total Volume Provided = 11,475 cubic feet

TST 'B' VOLUME (PRDA 6D)

A = 4.01 acres
Vtotal = 134 cubic yards x 4.01 acres = 538 cubic yards
Vwet = Vdry = 269 cubic yards = 7,263 cubic feet
7,263 cubic feet Wet & Dry Volumes Required
Total Volume Required = 14,526 cubic feet

Vwet provided = pool volume & below= **8,449 cubic feet**
Vdry provided= above water surface elevation and below weir = **7,423 cubic feet**
Total Volume Provided = 15,872 cubic feet

TST 'C' VOLUME (PRDA 7D)

A = 1.88 acres
Vtotal = 134 cubic yards x 1.88 acres = 252 cubic yards
Vwet = Vdry = 126 cubic yards = 3,402 cubic feet
3,402 cubic feet Wet & Dry Volumes Required
Total Volume Required = 6,804 cubic feet

Vwet provided = pool volume & below= **4,131 cubic feet**
Vdry provided= above water surface elevation and below weir = **4,390 cubic feet**
Total Volume Provided = 8,521 cubic feet