STORMWATER MANAGEMENT REPORT

O'FALLON PUBLIC WORKS FACILITY

Site Address:
1101 E Terra Lane
O'Fallon, MO 63366

Property Owner:
City of O'Fallon
100 N Main Street
O'Fallon, MO 63366

Prepared By:

PREMIER
DESIGN GROUP
100 MIDLAND PARK DRIVE, WENTZVILLE, MO 63385
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Steve Marion P.E.
Submittal Date: 9/15/2023

Contents

Introduction

Premier Design Group has been contracted to prepare construction documents for the project referred to as the O'Fallon Public Works Facility which is located northwest of the intersection of TR Hughes Blvd. and E Terra Lane. The project is being phased to accommodate the overall grading as part of the first phase. The entrances, roadways heading north into the site and associated storm sewers and grading will be constructed as part of the first phase. The second phase will consist of site improvements for the buildings, facilities, and utilities.

The proposed improvements that are depicted on the Stormwater Management Plans provide the design for the proposed development. The development will increase the impervious area of the site therefore changing the characteristics of the stormwater runoff. The information supplied in this report will provide evidence that the Post Developed Stormwater Runoff has been mitigated appropriately with Best Management Practices proposed for this development. The design intent of the plans is to provide a pad ready site for the buildings. Therefore, the stormwater facilities have been designed to accommodate the improvements that are part of the second phase of the project.

Project Narrative

The property size is ±23.65 acres. The project area will be approximately half of the property's size. There is one stormwater management facility which will consist of a forebay and basin. This project will discharge to an unnamed tributary of Belleau Creek. As discussed with the City of O'Fallon prior to preparing plans, the downstream 30" CMP pipe is not sized to accommodate a 100-year event without accounting for the upstream properties' detention basins. Therefore, the routing for the development has changed to mitigate runoff to the adjoining property to the east by routing the runoff north. Ultimately, the routing change does not impact the characteristics of Belleau Creek as both discharge points lead to the existing creek. Since we are discharging to an intermittent stream, USACE approval is required. Documentation for this project was sent to USACE.

Site Area Calculations

Property Size	23.65 Acres
<u>Pre-Development Condition</u>	
0.00 Acres of Impervious Area	CN=74
23.65 Acres of Pervious Area	CN=74
"CN" Value Weighted Average	CN=74
<u>Post-Development Condition</u>	
9.20 Acres of Impervious Area	CN=98
14.45 Acres of Pervious Area	CN=74
"CN" Value Weighted Average	CN=83

Existing Condition Analysis

The property is a mostly wooded lot with an elevation differential of approximately 40 feet. The property is adjoining other industrial or commercial type uses except in the northwest corner where an existing residential subdivision is located.

Proposed Development Analysis

The proposed development will change the existing stormwater flows due to the increase in impervious areas. Impervious areas bypassing the property has been mitigated to the maximum extent practical. The proposed runoff conditions are referenced in the Differential Runoff Table. The table was derived from the HydroCAD analysis. The proposed project will increase the impervious surface however it will reduce the runoff for the overall disturbed area. The project does have offsite areas that will discharge onto the project limits, therefore the differential calculations have included the pre-developed and post-developed condition of the offsite areas that drain onto the subject property.

Differential Runoff Table

	Storm Event (24 Hour Period)	Existing Conditions	Post Developed Condition (c.f.s.)	Required Stormwater Detention (c.f.s.) (Column D - B)	Post Developed Routing (c.f.s.)	Bypass Areas (c.f.s.)	Final Routing (c.f.s.)	Differential Runoff (c.f.s.) (Column G - B)	% of Improvement	HW ELEV BASIN
1	**WQv**	0.22	14.08	13.86	0.81	1.20	1.65	1.43	N/A	497.51
2	**2 Year**	29.26	67.52	38.26	10.35	17.36	27.67	-1.59	94.57%	500.66
3	**15 Year**	75.21	132.16	56.95	20.19	41.46	61.69	-13.52	82.02%	502.19
4	**25 Year**	89.96	152.32	62.36	24.94	49.15	74.19	-15.77	82.47%	502.53
5	**100 Year**	132.76	209.90	77.14	35.87	71.37	107.22	-25.54	80.76%	503.42
6	**100 Year LFB**	132.76	209.90	77.14	35.74	71.37	107.09	-25.67	N/A	503.47

Water Quality Volume Required

Project Name: O'Fallon Public Works Facility

COMPUTATIONS FOR WQ_V

Drainage Area	Impervious Area	Percent Impervious
12.90 Ac.	9.20 Ac.	71.3 %

The following computational procedure follows the methodology detailed in Appendix D.10 of the Maryland Stormwater Design Manual.

1. Determine R_V (Volumetric Runoff Coefficient)

$Q_a=(P)(R_v)$

Where:

P=Water quality storm event depth= 1.14 "

$R_v=0.05 + (0.009)(\%\text{impervious area})$

$R_v= 0.05 +(0.009) (71.3)$

$R_v= 0.69$

2. Determine WQ_V (Water Quality Volume)

P = 1.14 " (Rainfall)

$$WQ_V = \frac{(P) (R_V) (\quad Ac.)}{12 "}$$

$$WQ_V = \frac{(1.14 ") (0.69) (12.90 Ac.)}{12 "} = 0.8479 \text{ Ac. Ft.} = 36{,}933.4 \text{ Cu. Ft.}$$

WQ_V Required = 36,933 Cu. Ft.

Water Quality Volume Provided

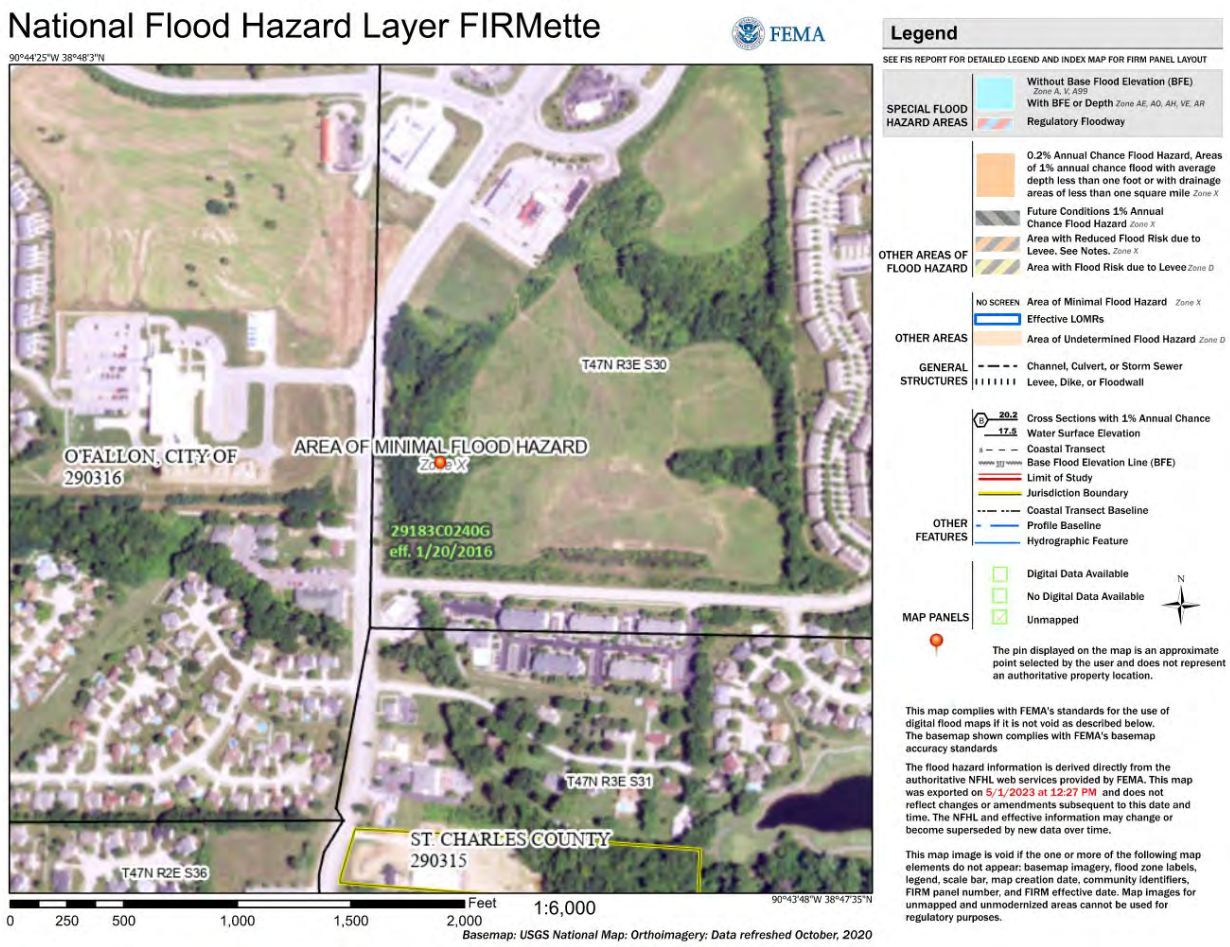
Water Quality Volume Provided per the 1 year 24-hour storm event is as follows:
Forebay Volume = 16,864 cu. Ft. x 40% = 6,745 cu. Ft.
1 Year 24 Hour Storm = 33,910 cu. Ft.
Total Volume Provided = 40,655 cu. Ft.

Forebay Sizing Calculations

Forebay Sizing Calculations						PDG Project Number		2001120		
Step 1 - Determine Impervious Area to Forebay										
Impervious Area		=	561,924.0	sq. ft.						
Step 2 - Calculate the runoff depth produced with 0.10" of runoff per impervious acre.										
=	0.1"/acre	x	1 acre/ 43,560	sq. ft.	x	561,924.0	sq. ft.			
		=	1.290	in.						
Step 3 - Calculate the total volume of runoff produced.										
=	1.290	x	1 foot/12 inches		x	561,924.0	sq. ft.			
Minimum Forebay Volume		=	6,644.8	cu. ft.						
Forebay Volume Proposed		=	16,864.0	cu. ft.						

FEMA Classification

This property is classified as Zone "X" area of minimal flood hazard.



Soils Classification

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 1:24,000.

Warning: Soil Map may not be valid at this scale.

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: St. Charles County, Missouri
Survey Area Data: Version 23, Sep 7, 2022

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

Date(s) aerial images were photographed: Jul 22, 2022—Aug 25, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
50009	Keswick silt loam, 9 to 14 percent slopes, eroded	D	4.7	7.9%
60124	Harvester-Urban land complex, 2 to 9 percent slopes	C	50.3	85.2%
60234	Weller silt loam, 2 to 5 percent slopes	D	2.0	3.5%
60260	Weller silt loam, 5 to 9 percent slopes	D	2.0	3.4%
Totals for Area of Interest			**59.0**	**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 Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

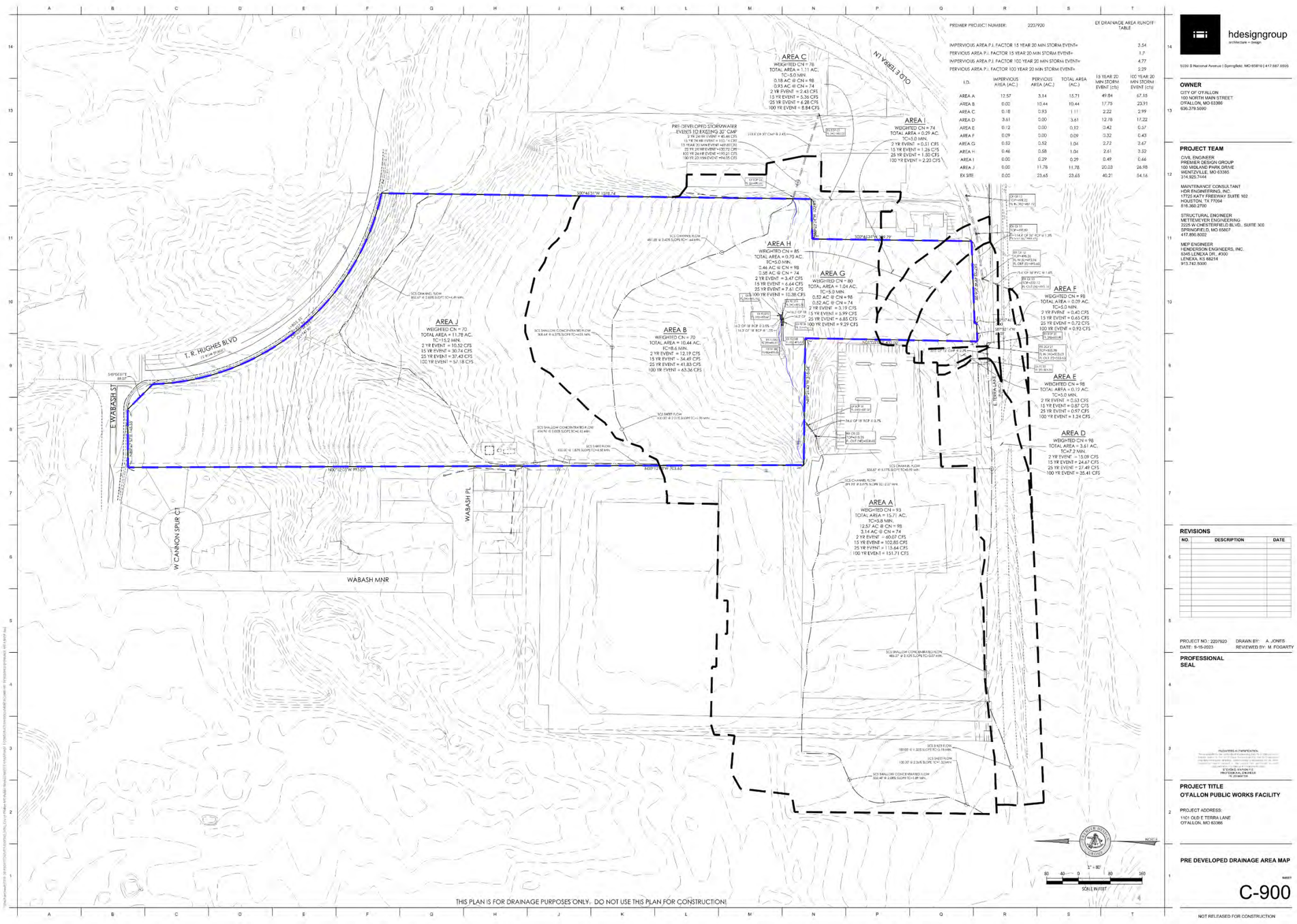
Methodology

The methodology used for the project is Hydro CAD 10.2-3c for determination of SCS TR-55 hydrographs. The hydraulics for the project will be determined using Autodesk Civil 3D 2024 Storm Sewer Analysis. To determine the Storm Intensity and Frequency for the overall project pre-development condition and post development condition the SCS method was used to accommodate the detention basin design.

Conclusions and Recommendations

Impacts to downstream sewers and streams have been mitigated to the maximum extent practical. However, this project is proposing one large above ground detention basin with water quality features via an infiltration basin with a forebay. To mitigate downstream flooding, the project has rerouted the runoff north to help accommodate the adjoining western property owner.

Appendix A Pre Developed Drainage Area Map



PREMIER PROJECT NUMBER: 2207920

EX DRAINAGE AREA RUNOFF TABLE

IMPERVIOUS AREA P.I. FACTOR 15 YEAR 20 MIN STORM EVENT=					3.54
PERVIOUS AREA P.I. FACTOR 15 YEAR 20 MIN STORM EVENT=					1.7
IMPERVIOUS AREA P.I. FACTOR 100 YEAR 20 MIN STORM EVENT=					4.77
PERVIOUS AREA P.I. FACTOR 100 YEAR 20 MIN STORM EVENT=					2.29
I.D.	IMPERVIOUS AREA (AC.)	PERVIOUS AREA (AC.)	TOTAL AREA (AC.)	15 YEAR 20 MIN STORM EVENT (cfs)	100 YEAR 20 MIN STORM EVENT (cfs)
AREA A	12.57	3.14	15.71	49.84	67.15
AREA B	0.00	10.44	10.44	17.75	23.91
AREA C	0.18	0.93	1.11	2.22	2.99
AREA D	3.61	0.00	3.61	12.18	17.22
AREA E	0.12	0.00	0.12	0.42	0.57
AREA F	0.09	0.00	0.09	0.32	0.43
AREA G	0.52	0.52	1.04	2.72	3.67
AREA H	0.46	0.58	1.04	2.61	3.52
AREA I	0.00	0.29	0.29	0.49	0.66
AREA J	0.00	11.78	11.78	20.03	26.98
EX SITE	0.00	23.65	23.65	40.21	54.16

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REVISIONS

NO.	DESCRIPTION	DATE

PROJECT NO.: 2207920 DRAWN BY: A. JONES
DATE: 9-15-2023 REVIEWED BY: M. FOGARTY

PROFESSIONAL SEAL

ENGINEERS AFFIRMATION

STEVEN D. WATKINS
PROFESSIONAL ENGINEER

PROJECT TITLE
O'FALLON PUBLIC WORKS FACILITY

PROJECT ADDRESS:
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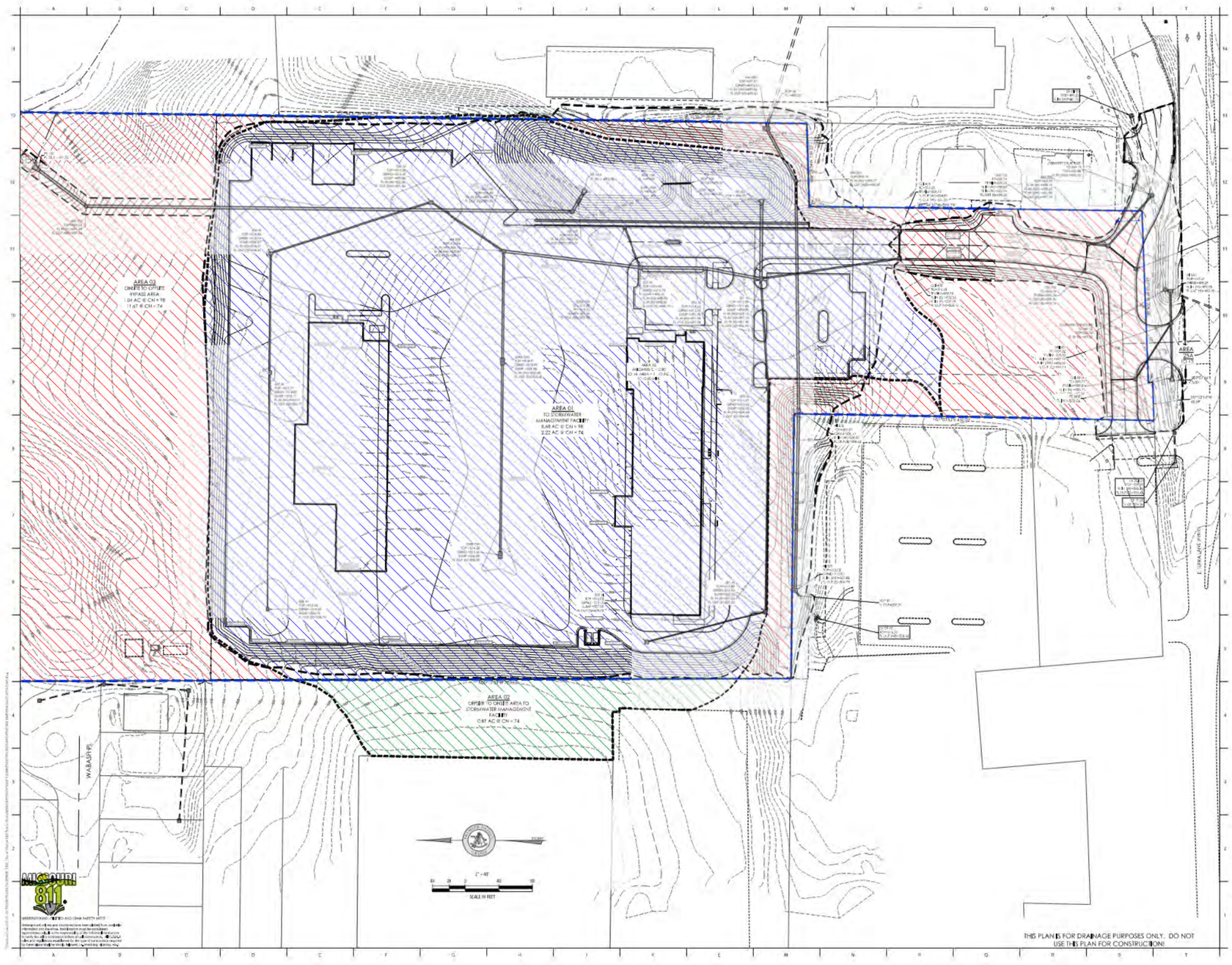
PRE DEVELOPED DRAINAGE AREA MAP

SHEET
C-900

NOT RELEASED FOR CONSTRUCTION

Appendix B Post Developed BMP Drainage Area Map



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REVISIONS

NO.	DESCRIPTION	DATE

PROJECT NO.: 2207020 DRAWN BY: A. JONES
DATE: 9-15-2023 REVIEWED BY: M. FOGARTY

PROFESSIONAL SEAL

PROJECT TITLE
O'FALLON PUBLIC WORKS FACILITY

PROJECT ADDRESS:
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BMP DRAINAGE AREA MAP

C-902

NOT RELEASED FOR CONSTRUCTION

Appendix C Existing Conditions Hydrograph Report

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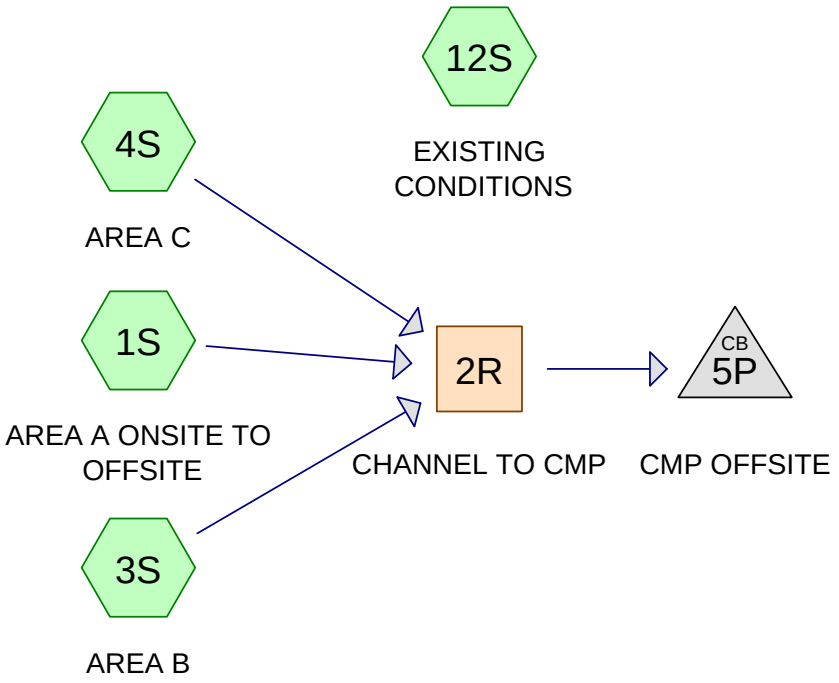
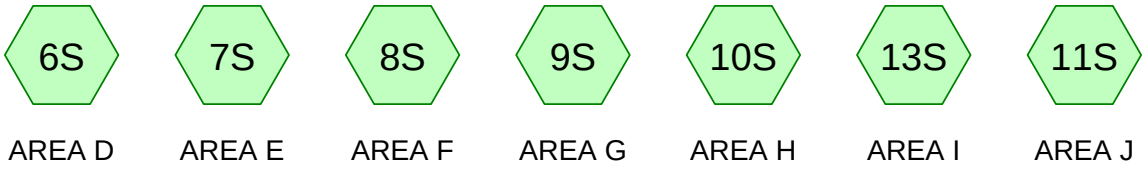




Subcat Reach Pond Link

Routing Diagram for 2023-08-30 EX CONDITIONS VER_0
Prepared by Premier Design Group, Printed 9/12/2023

Summary for Subcatchment 1S: AREA A ONSITE TO OFFSITE

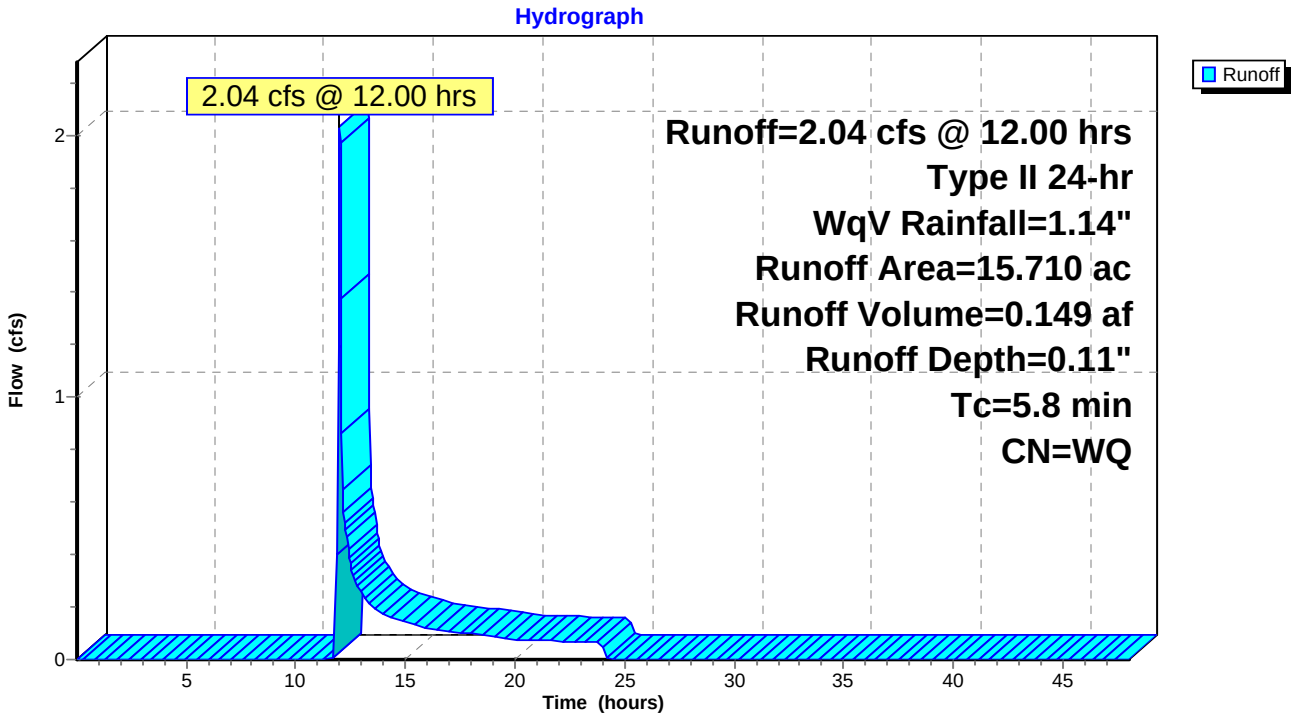
Runoff = 2.04 cfs @ 12.00 hrs, Volume= 0.149 af, Depth= 0.11"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

	Area (ac)	CN	Description
*	12.570	80	Paved parking, HSG C
	3.140	74	>75% Grass cover, Good, HSG C
	15.710		Weighted Average
	15.710	79	100.00% Pervious Area

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

Subcatchment 1S: AREA A ONSITE TO OFFSITE



Summary for Subcatchment 3S: AREA B

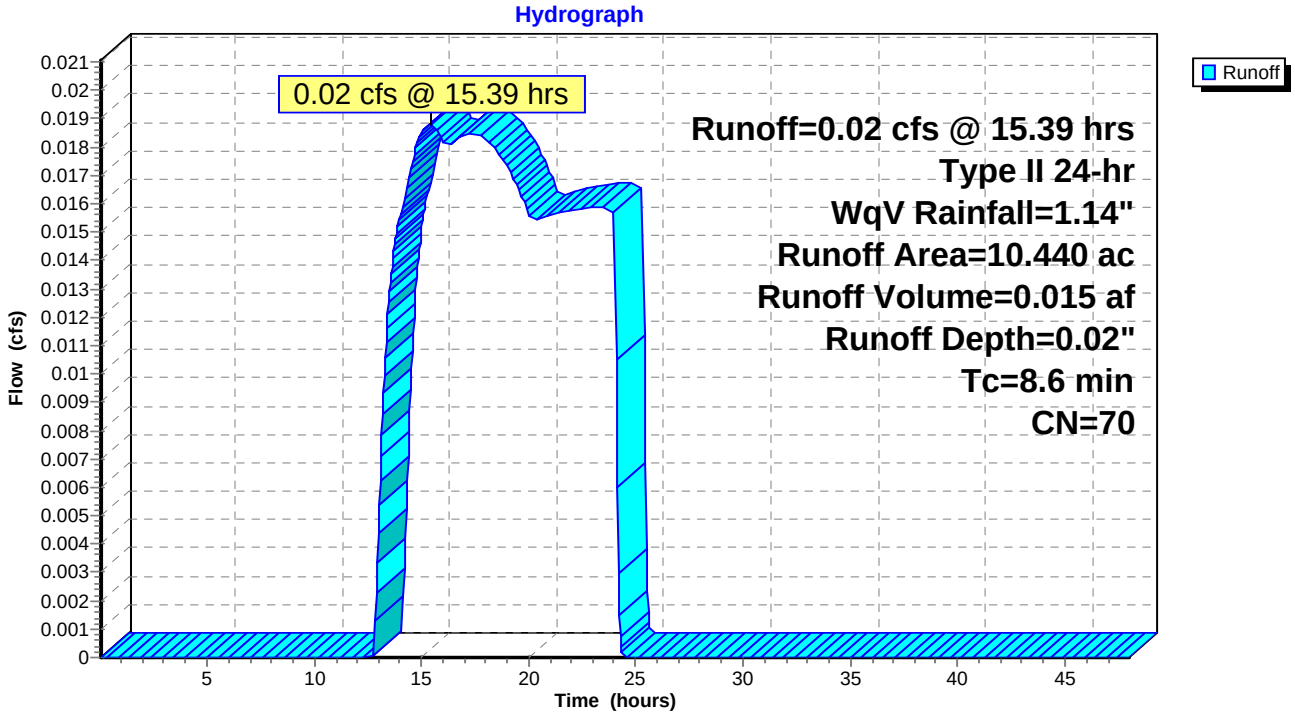
Runoff = 0.02 cfs @ 15.39 hrs, Volume= 0.015 af, Depth= 0.02"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
10.440	70	Woods, Good, HSG C
10.440	70	100.00% Pervious Area

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

Subcatchment 3S: AREA B



Summary for Subcatchment 4S: AREA C

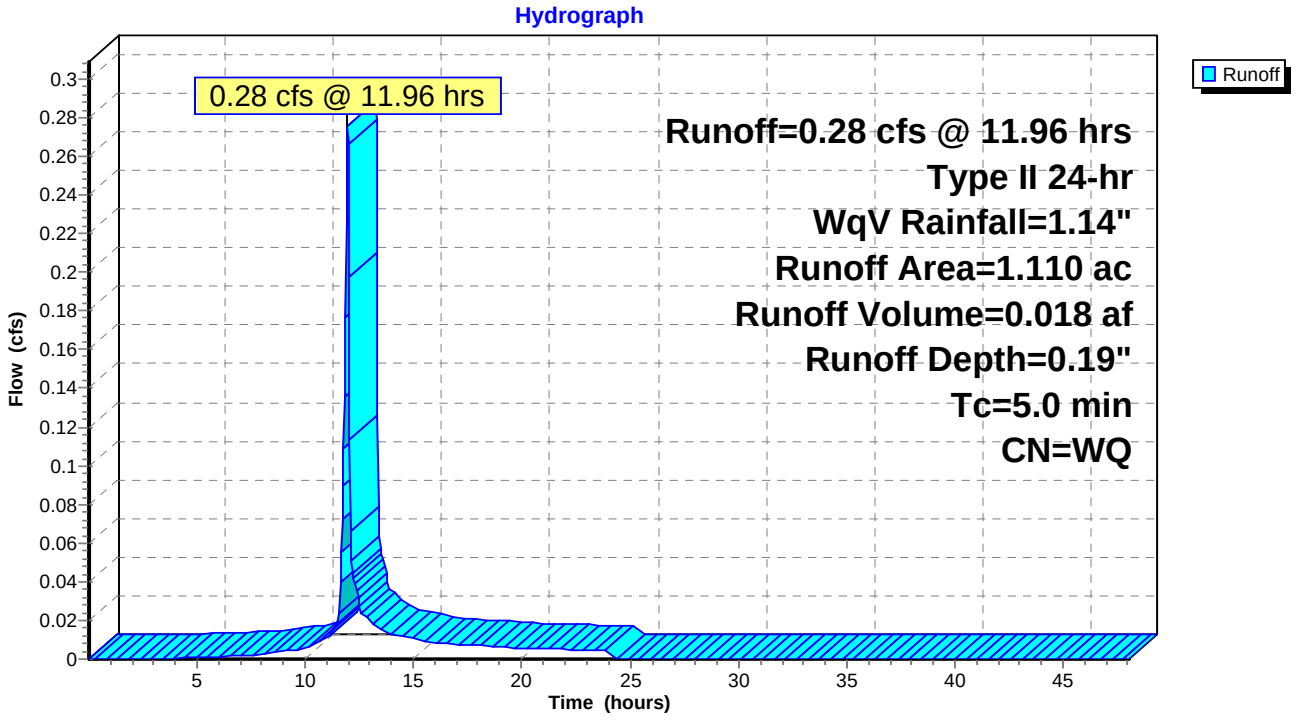
Runoff = 0.28 cfs @ 11.96 hrs, Volume= 0.018 af, Depth= 0.19"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
0.180	98	Paved parking, HSG C
0.930	74	>75% Grass cover, Good, HSG C
1.110		Weighted Average
0.930	74	83.78% Pervious Area
0.180	98	16.22% Impervious Area

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

Subcatchment 4S: AREA C



Summary for Subcatchment 6S: AREA D

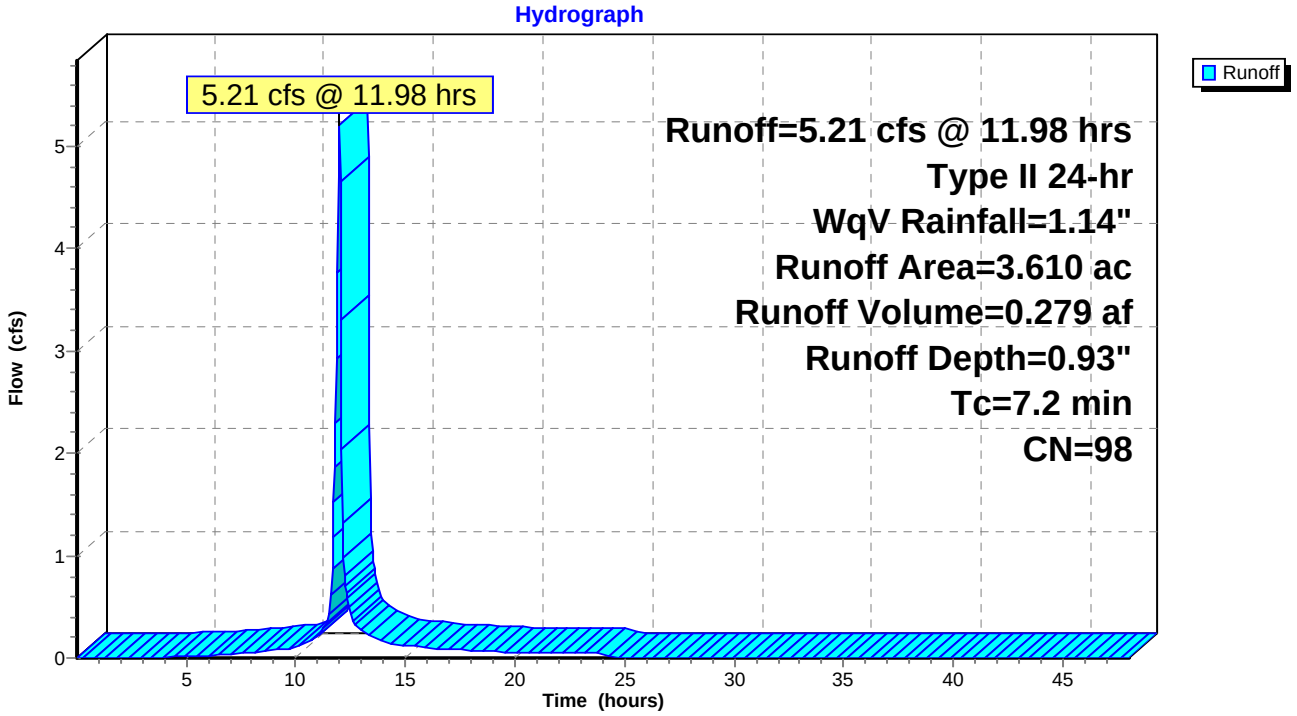
Runoff = 5.21 cfs @ 11.98 hrs, Volume= 0.279 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
3.610	98	Paved parking, HSG C
3.610	98	100.00% Impervious Area

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

Subcatchment 6S: AREA D



Summary for Subcatchment 7S: AREA E

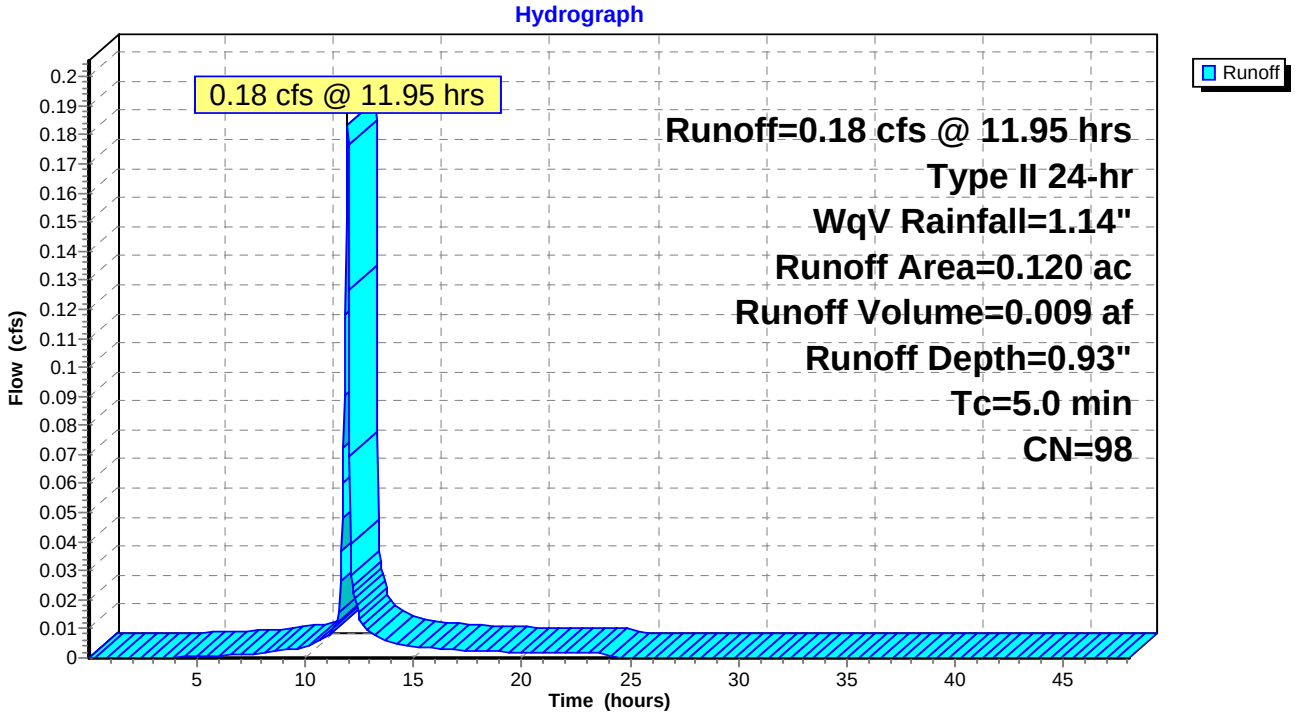
Runoff = 0.18 cfs @ 11.95 hrs, Volume= 0.009 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

	Area (ac)	CN	Description
*	0.120	98	Woods, Good, HSG C
	0.120	98	100.00% Impervious Area

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

Subcatchment 7S: AREA E



Summary for Subcatchment 8S: AREA F

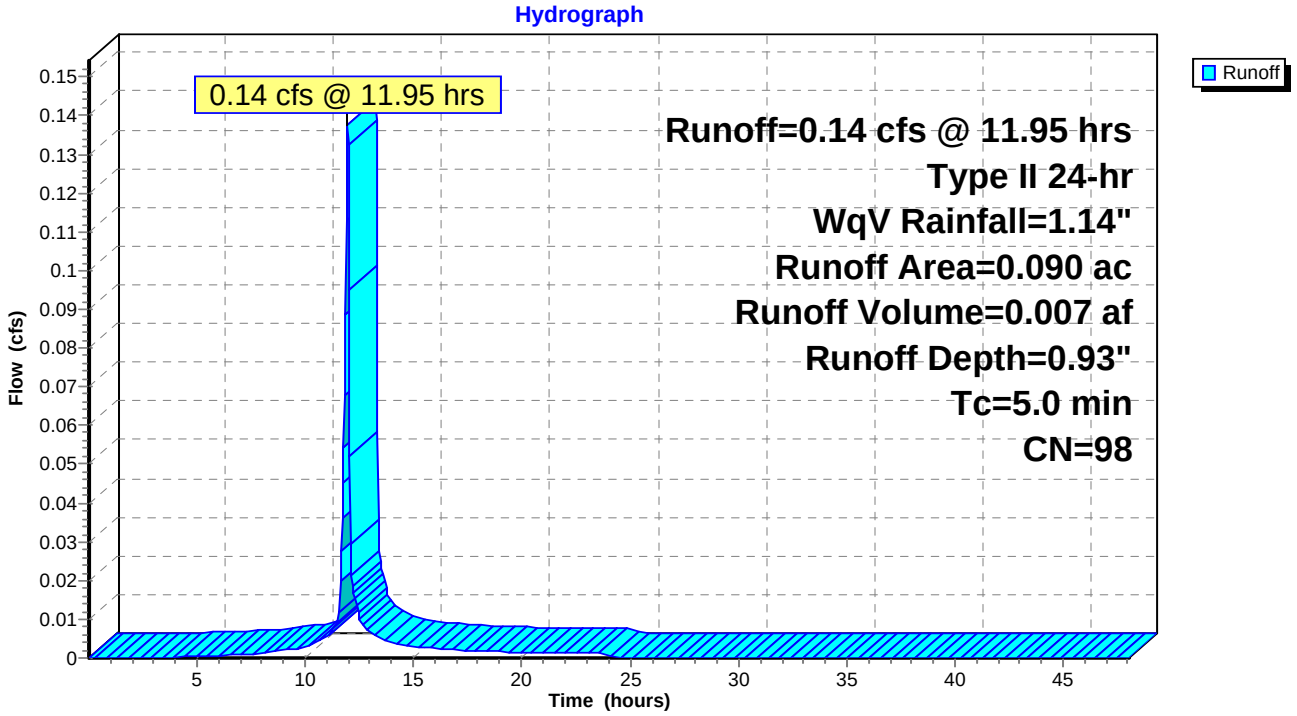
Runoff = 0.14 cfs @ 11.95 hrs, Volume= 0.007 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
0.090	98	Paved parking, HSG C
0.090	98	100.00% Impervious Area

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

Subcatchment 8S: AREA F



Summary for Subcatchment 9S: AREA G

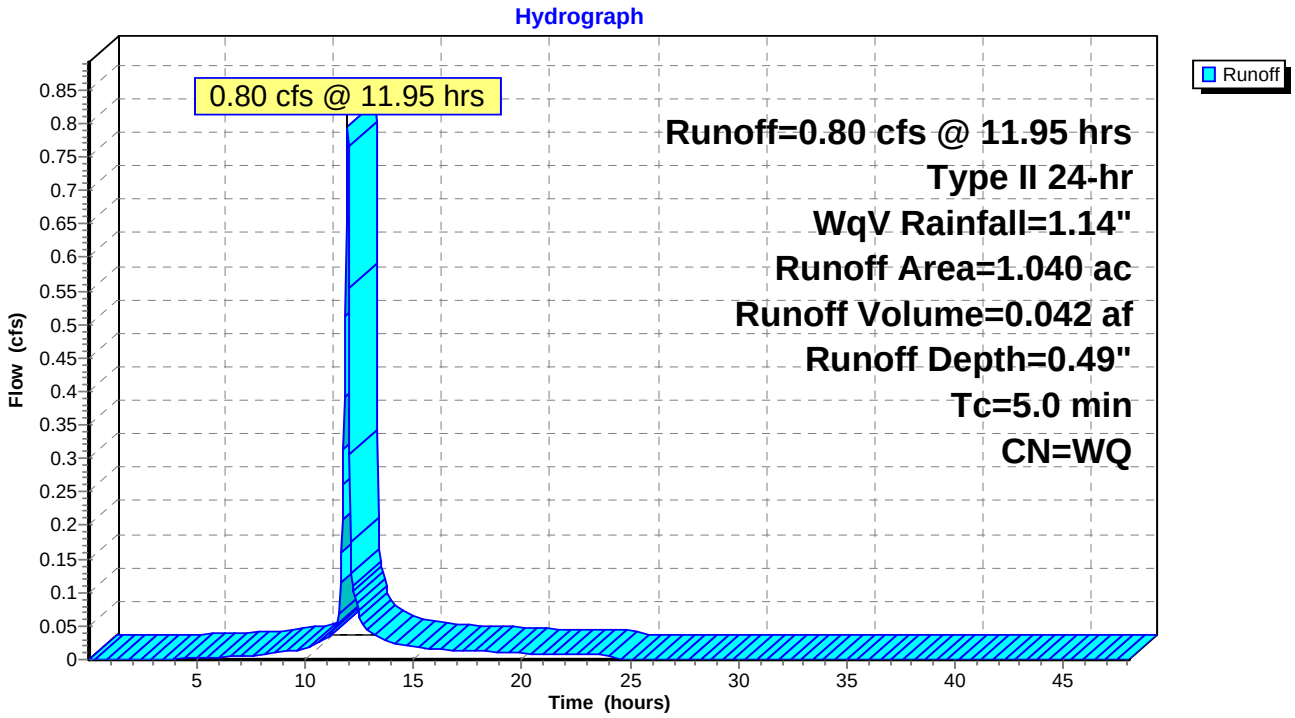
Runoff = 0.80 cfs @ 11.95 hrs, Volume= 0.042 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.520	74	50.00% Pervious Area
0.520	98	50.00% Impervious Area

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

Subcatchment 9S: AREA G



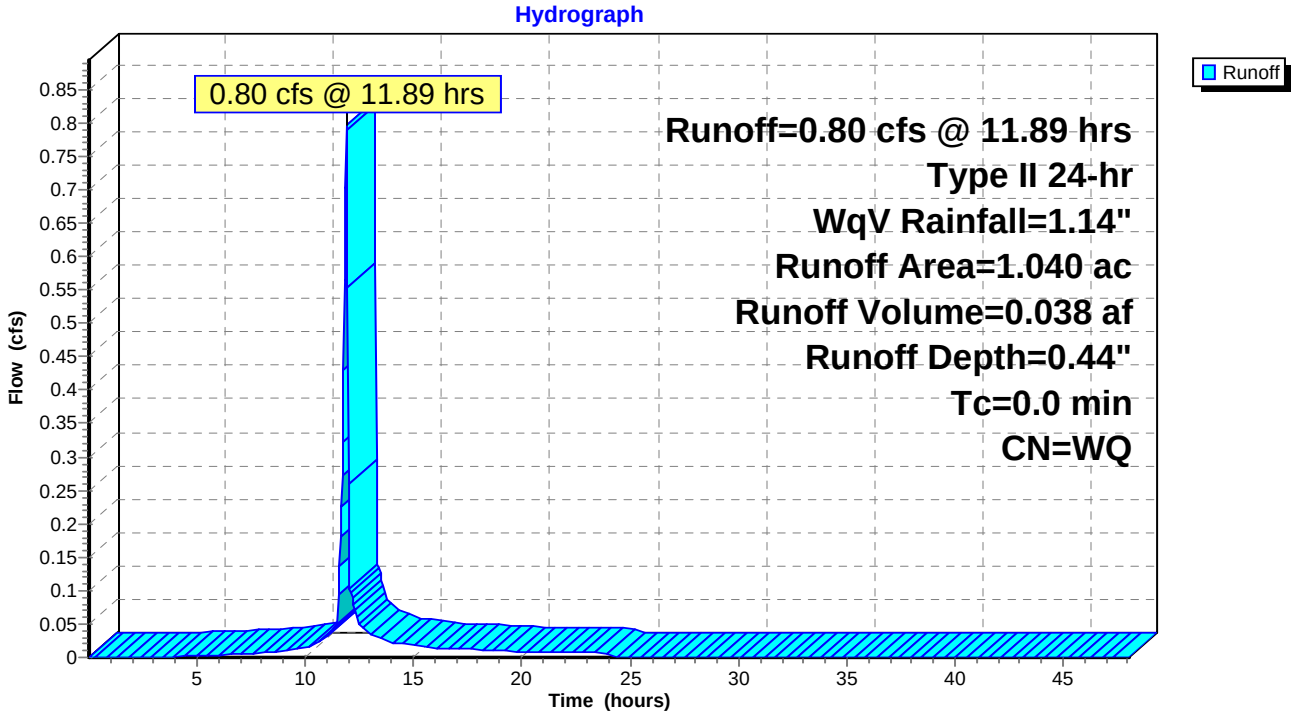
Summary for Subcatchment 10S: AREA H

Runoff = 0.80 cfs @ 11.89 hrs, Volume= 0.038 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
0.460	98	Paved parking, HSG C
0.580	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.580	74	55.77% Pervious Area
0.460	98	44.23% Impervious Area

Subcatchment 10S: AREA H



Summary for Subcatchment 11S: AREA J

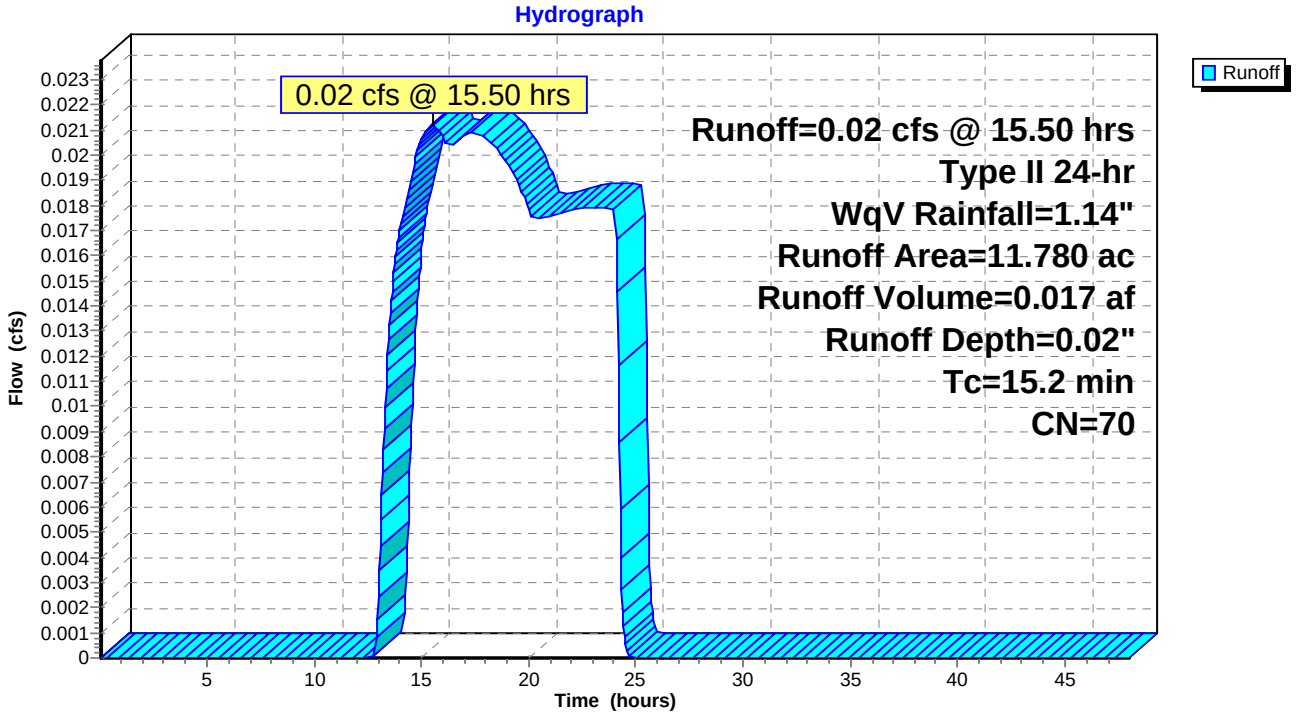
Runoff = 0.02 cfs @ 15.50 hrs, Volume= 0.017 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
11.780	70	Woods, Good, HSG C
11.780	70	100.00% Pervious Area

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

Subcatchment 11S: AREA J



Summary for Subcatchment 12S: EXISTING CONDITIONS

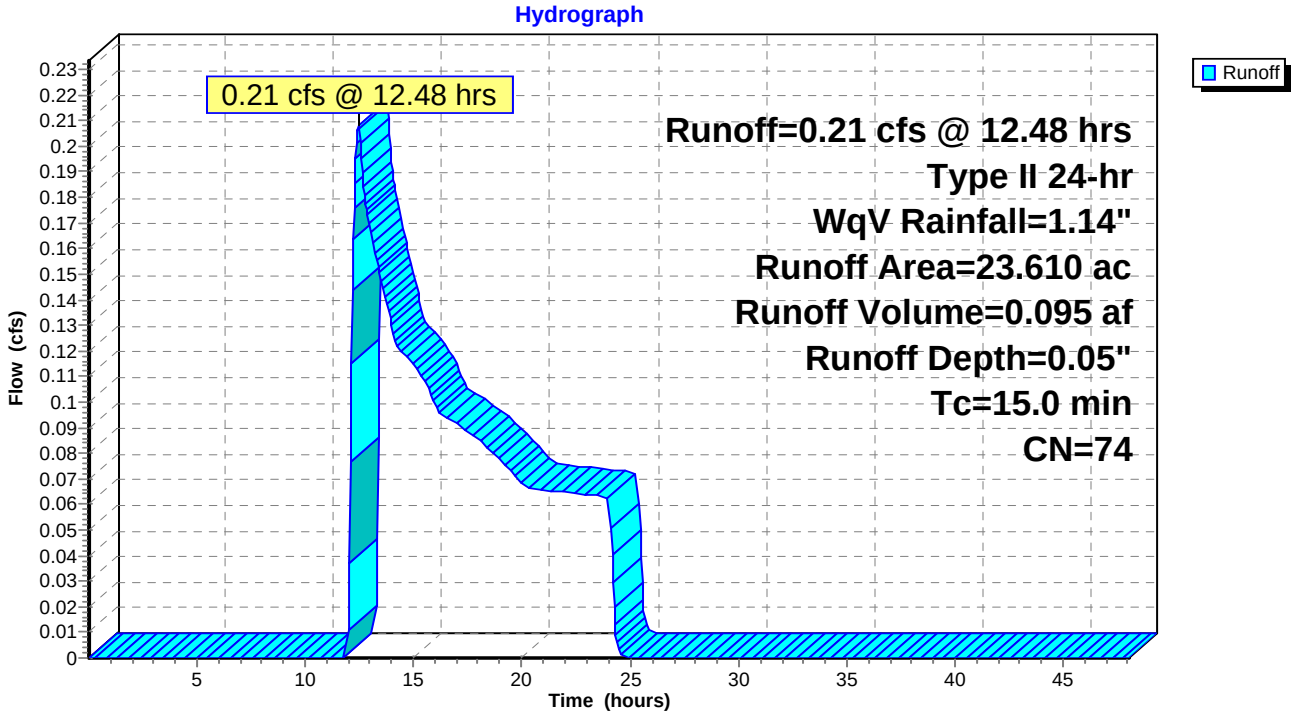
Runoff = 0.21 cfs @ 12.48 hrs, Volume= 0.095 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
23.610	74	>75% Grass cover, Good, HSG C
23.610	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS



Summary for Subcatchment 13S: AREA I

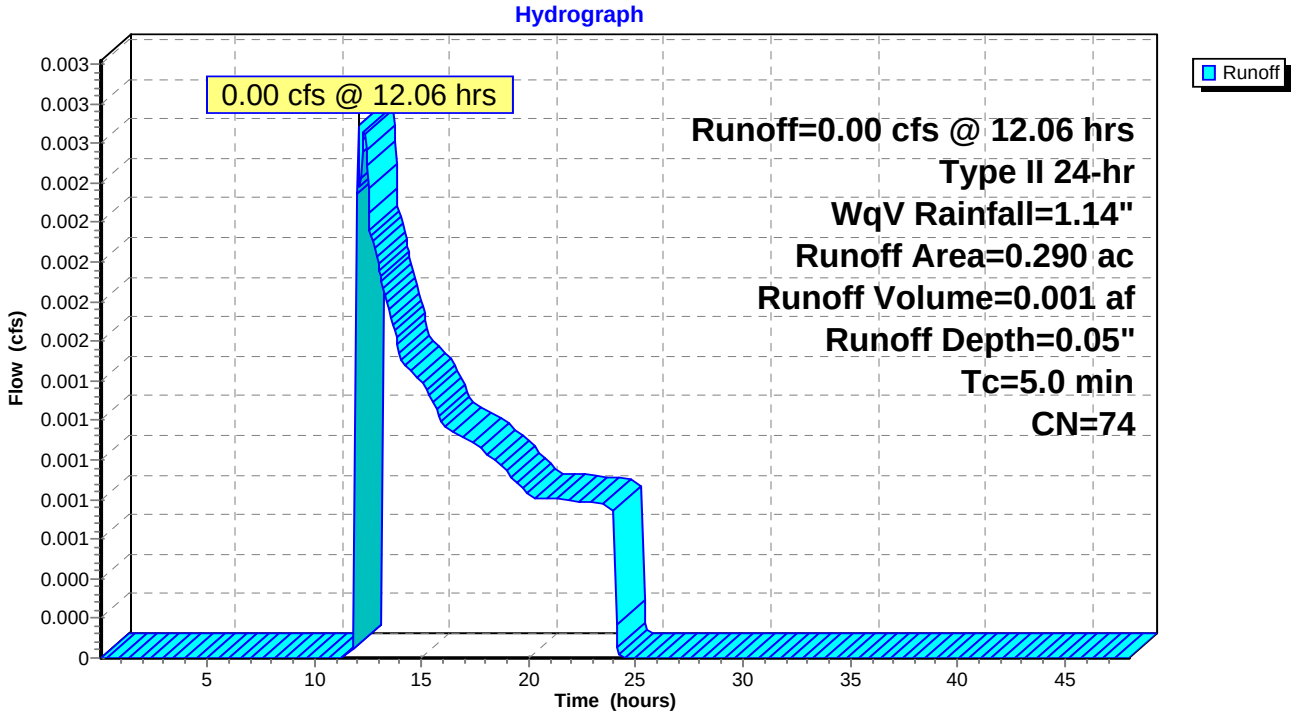
Runoff = 0.00 cfs @ 12.06 hrs, Volume= 0.001 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

	Area (ac)	CN	Description
*	0.290	74	Woods, Good, HSG C
	0.290	74	100.00% Pervious Area

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

Subcatchment 13S: AREA I



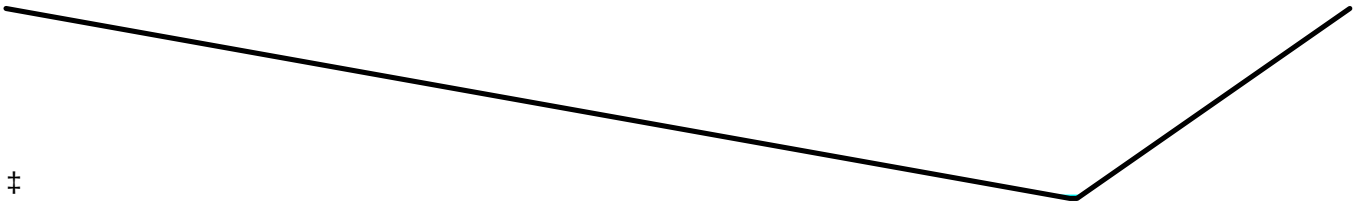
Summary for Reach 2R: CHANNEL TO CMP

Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 0.08" for WqV event
Inflow = 2.29 cfs @ 12.00 hrs, Volume= 0.182 af
Outflow = 1.64 cfs @ 12.06 hrs, Volume= 0.182 af, Atten= 28%, Lag= 3.6 min
Routed to Pond 5P : CMP OFFSITE

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Max. Velocity= 2.22 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 7.9 min

Peak Storage= 529 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.26' , Surface Width= 4.76'
Bank-Full Depth= 12.67' Flow Area= 1,192.6 sf, Capacity= 31,454.30 cfs

1.00' x 12.67' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 11.7 3.0 '/' Top Width= 187.25'
Length= 718.1' Slope= 0.0333 '/'
Inlet Invert= 514.13', Outlet Invert= 490.22'



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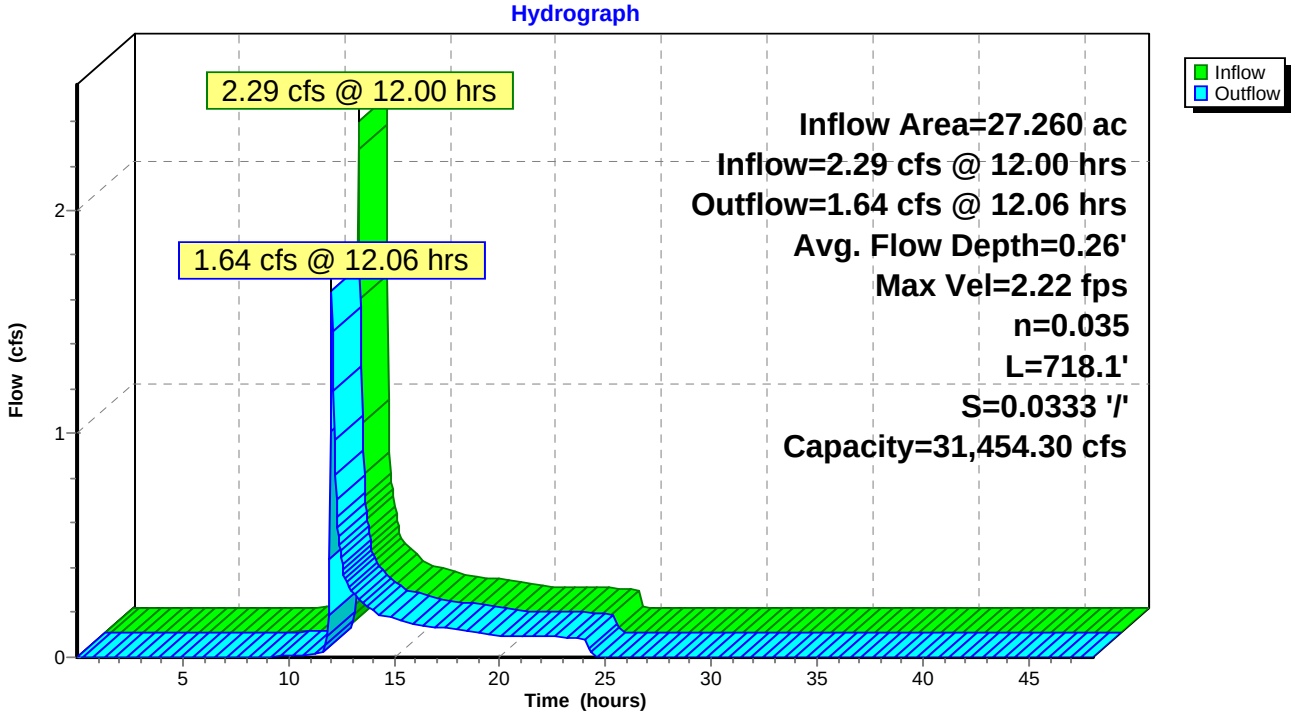
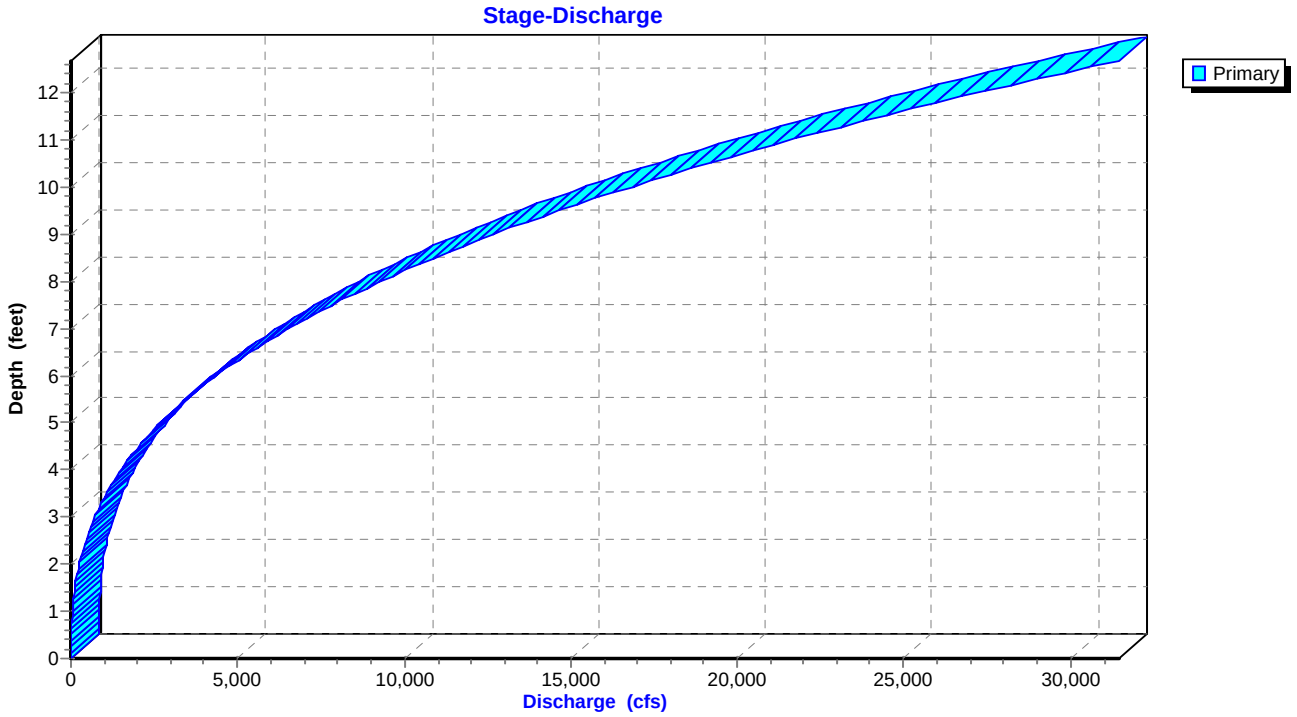
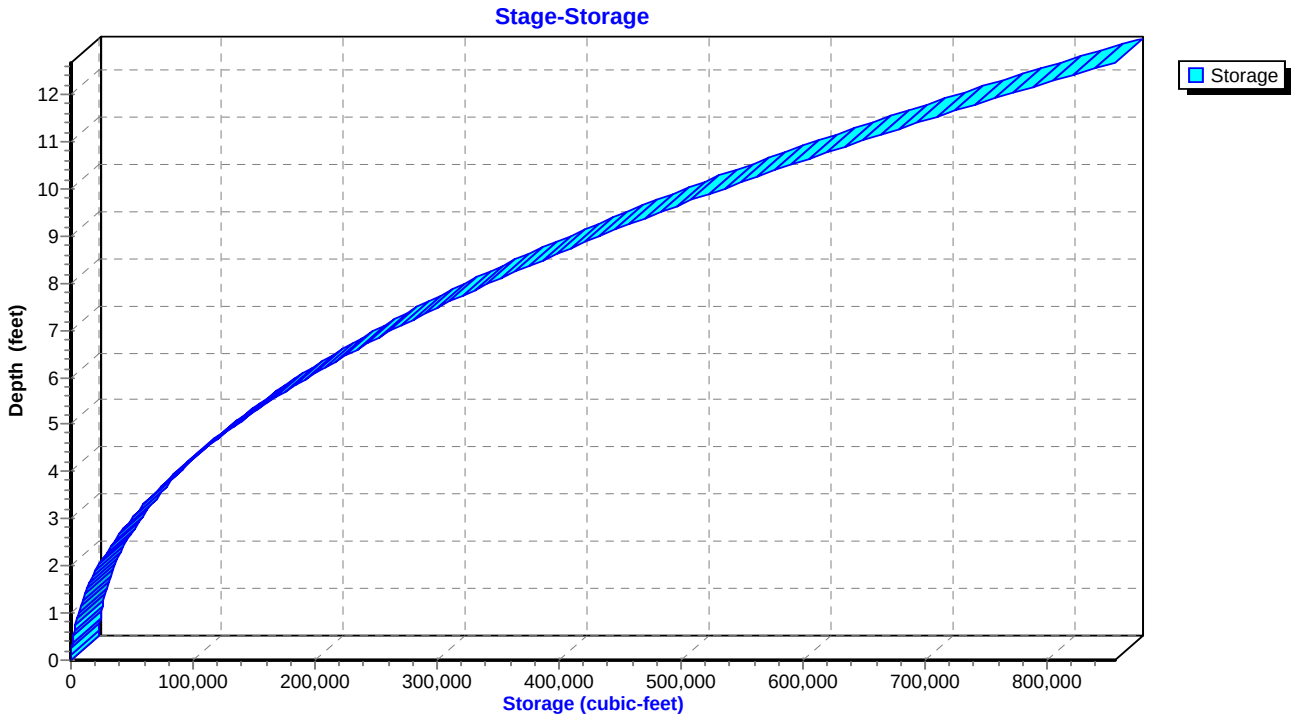
Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Summary for Pond 5P: CMP OFFSITE

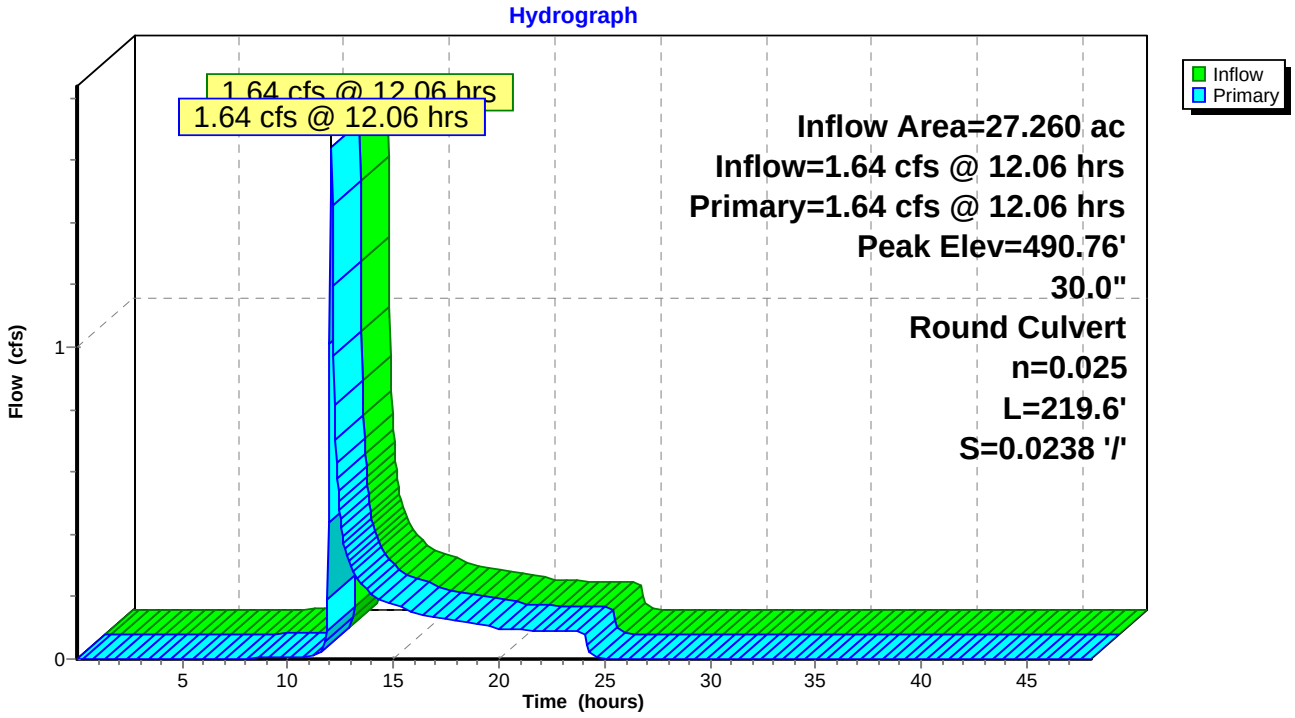
Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 0.08" for WqV event
Inflow = 1.64 cfs @ 12.06 hrs, Volume= 0.182 af
Outflow = 1.64 cfs @ 12.06 hrs, Volume= 0.182 af, Atten= 0%, Lag= 0.0 min
Primary = 1.64 cfs @ 12.06 hrs, Volume= 0.182 af

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 490.76' @ 12.06 hrs
Flood Elev= 499.00'

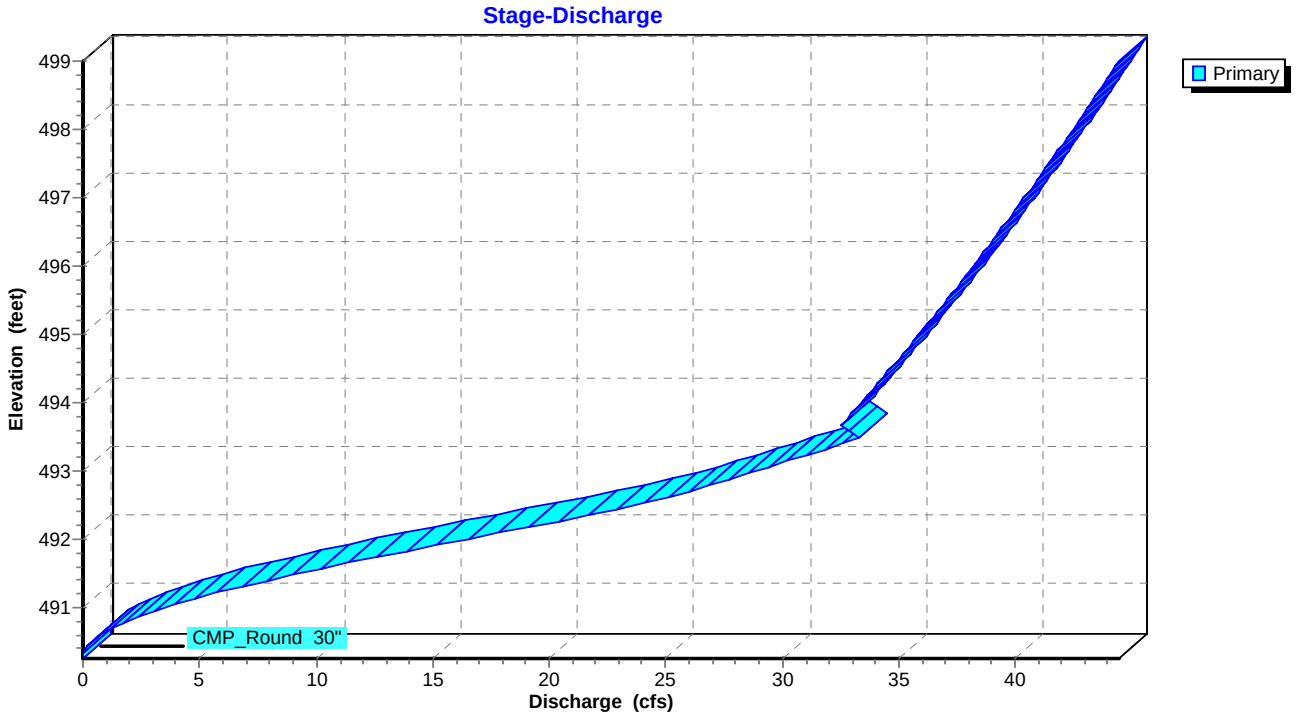
Device	Routing	Invert	Outlet Devices
#1	Primary	490.25'	**30.0" Round CMP_Round 30"** L= 219.6' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 490.25' / 485.02' S= 0.0238 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=1.63 cfs @ 12.06 hrs HW=490.76' (Free Discharge)
└**1=CMP_Round 30"** (Barrel Controls 1.63 cfs @ 3.45 fps)

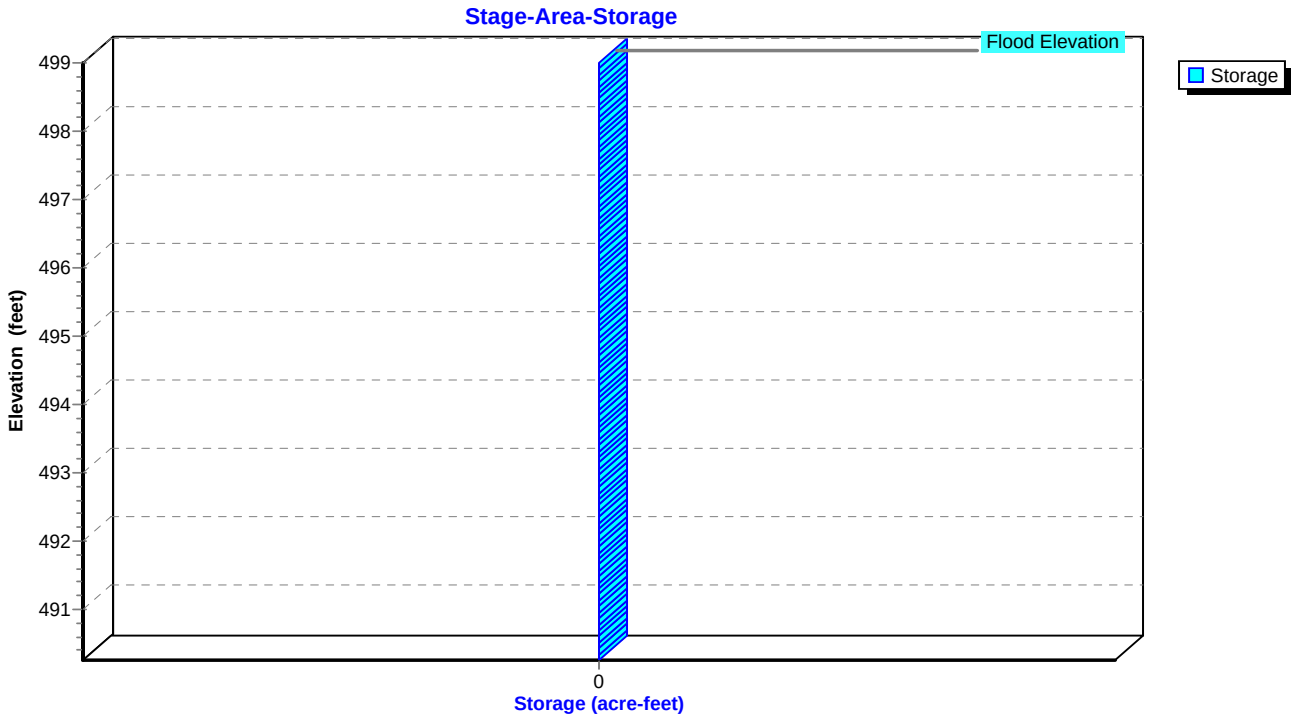
Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Summary for Subcatchment 1S: AREA A ONSITE TO OFFSITE

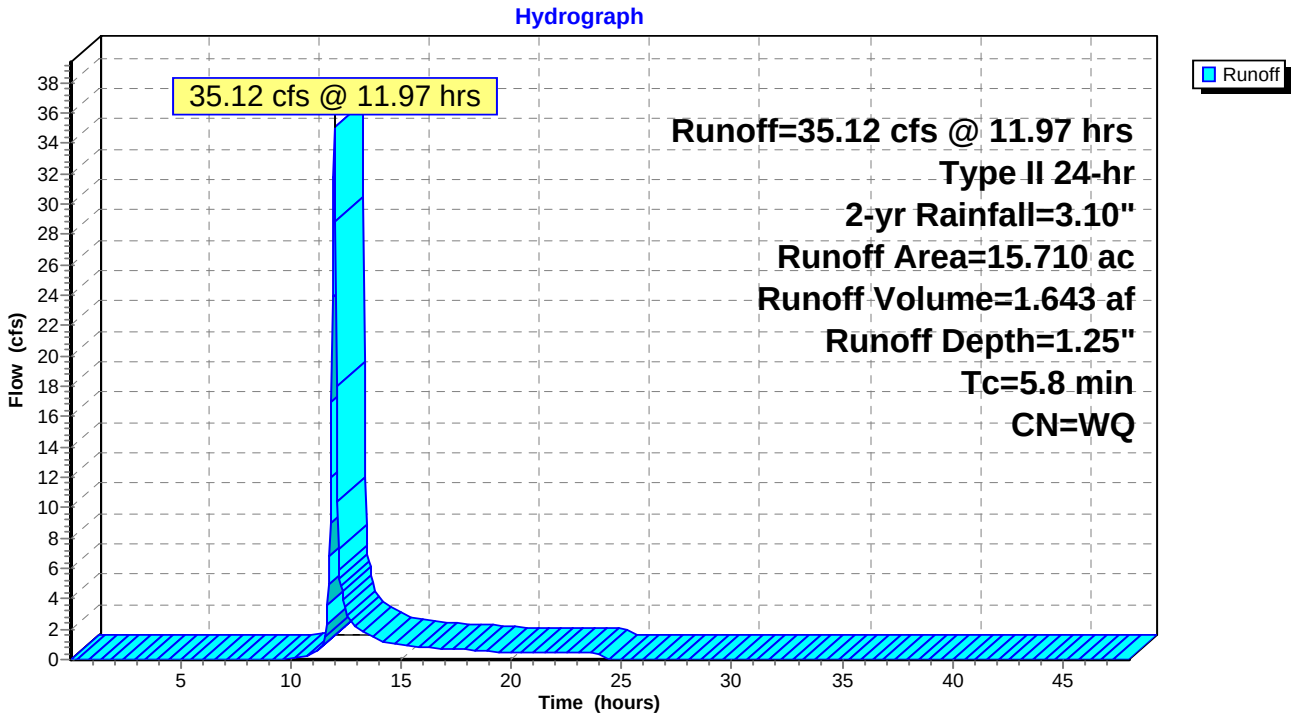
Runoff = 35.12 cfs @ 11.97 hrs, Volume= 1.643 af, Depth= 1.25"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

	Area (ac)	CN	Description
*	12.570	80	Paved parking, HSG C
	3.140	74	>75% Grass cover, Good, HSG C
	15.710		Weighted Average
	15.710	79	100.00% Pervious Area

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

Subcatchment 1S: AREA A ONSITE TO OFFSITE



Summary for Subcatchment 3S: AREA B

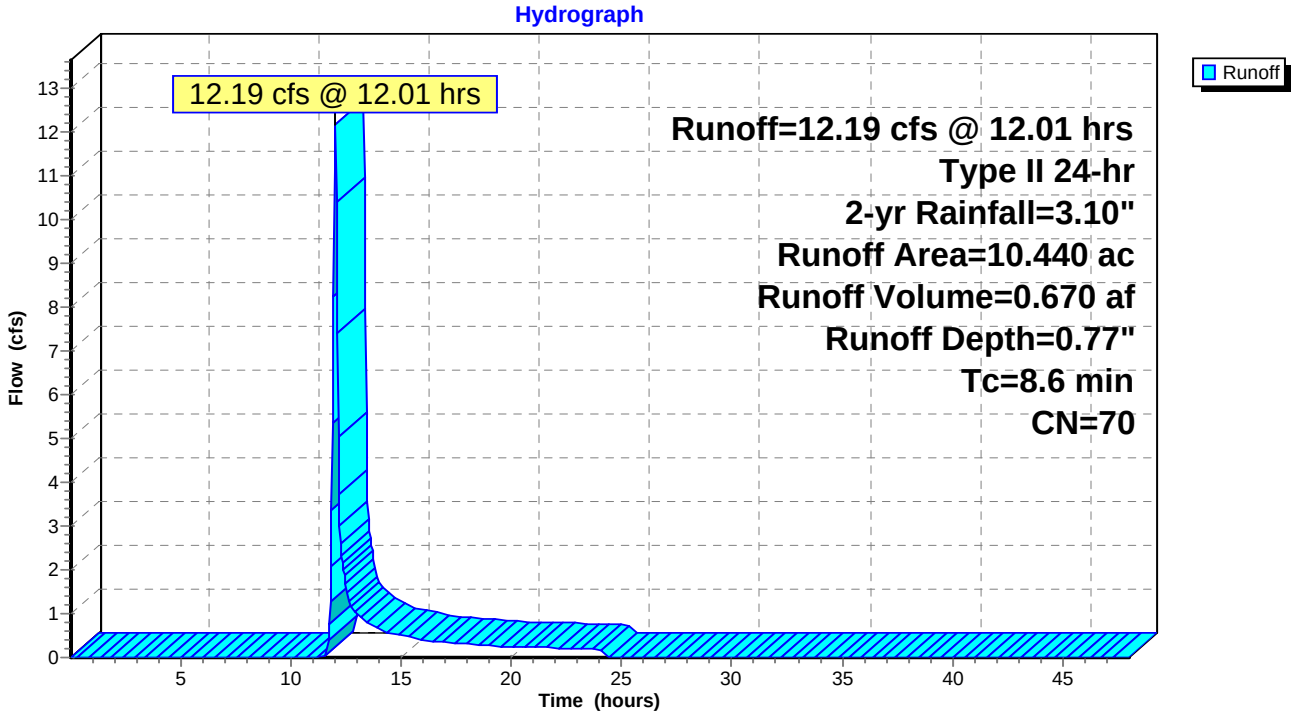
Runoff = 12.19 cfs @ 12.01 hrs, Volume= 0.670 af, Depth= 0.77"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
10.440	70	Woods, Good, HSG C
10.440	70	100.00% Pervious Area

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

Subcatchment 3S: AREA B



Summary for Subcatchment 4S: AREA C

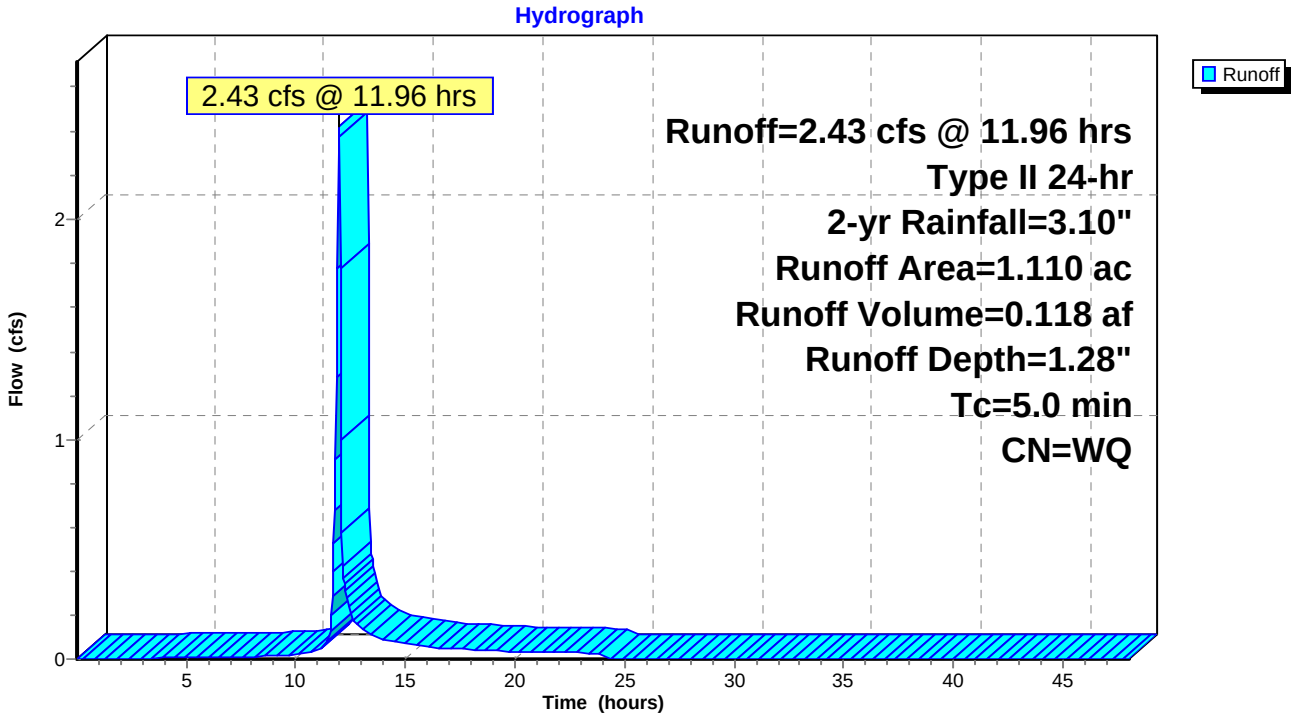
Runoff = 2.43 cfs @ 11.96 hrs, Volume= 0.118 af, Depth= 1.28"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.180	98	Paved parking, HSG C
0.930	74	>75% Grass cover, Good, HSG C
1.110		Weighted Average
0.930	74	83.78% Pervious Area
0.180	98	16.22% Impervious Area

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

Subcatchment 4S: AREA C



Summary for Subcatchment 6S: AREA D

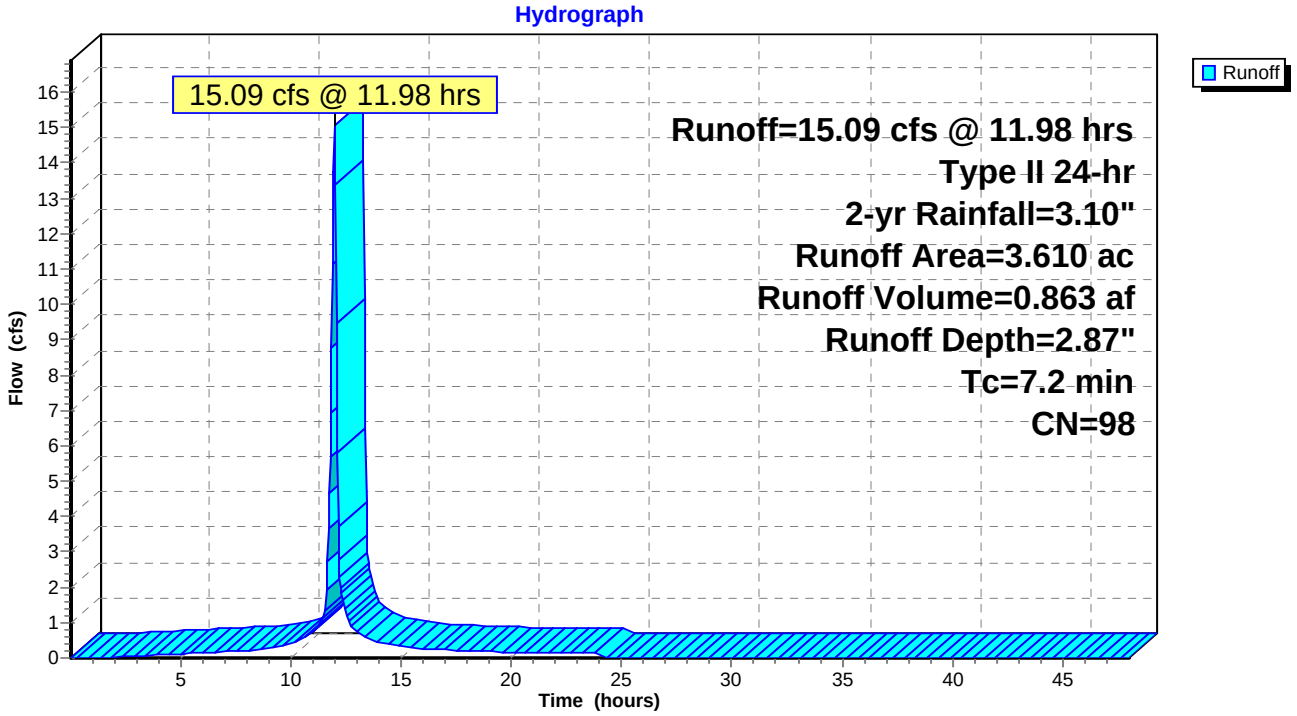
Runoff = 15.09 cfs @ 11.98 hrs, Volume= 0.863 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
3.610	98	Paved parking, HSG C
3.610	98	100.00% Impervious Area

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

Subcatchment 6S: AREA D



Summary for Subcatchment 7S: AREA E

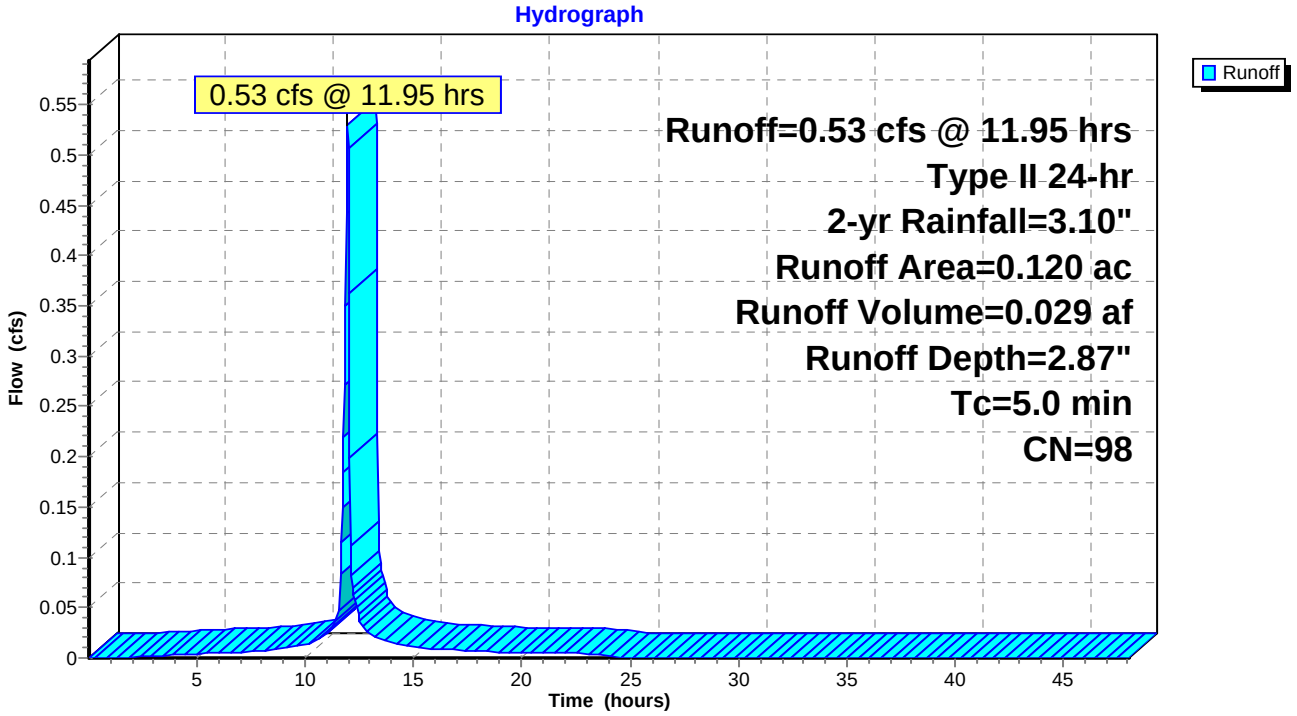
Runoff = 0.53 cfs @ 11.95 hrs, Volume= 0.029 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

	Area (ac)	CN	Description
*	0.120	98	Woods, Good, HSG C
	0.120	98	100.00% Impervious Area

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

Subcatchment 7S: AREA E



Summary for Subcatchment 8S: AREA F

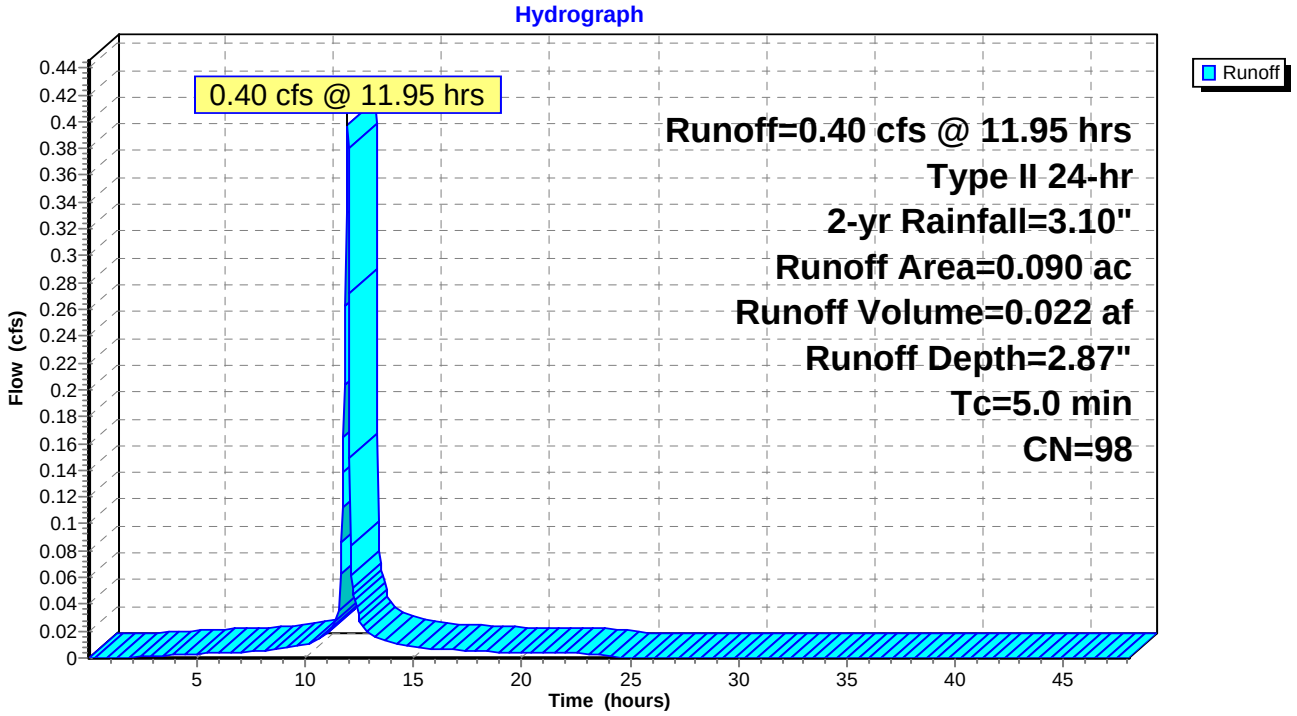
Runoff = 0.40 cfs @ 11.95 hrs, Volume= 0.022 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.090	98	Paved parking, HSG C
0.090	98	100.00% Impervious Area

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

Subcatchment 8S: AREA F



Summary for Subcatchment 9S: AREA G

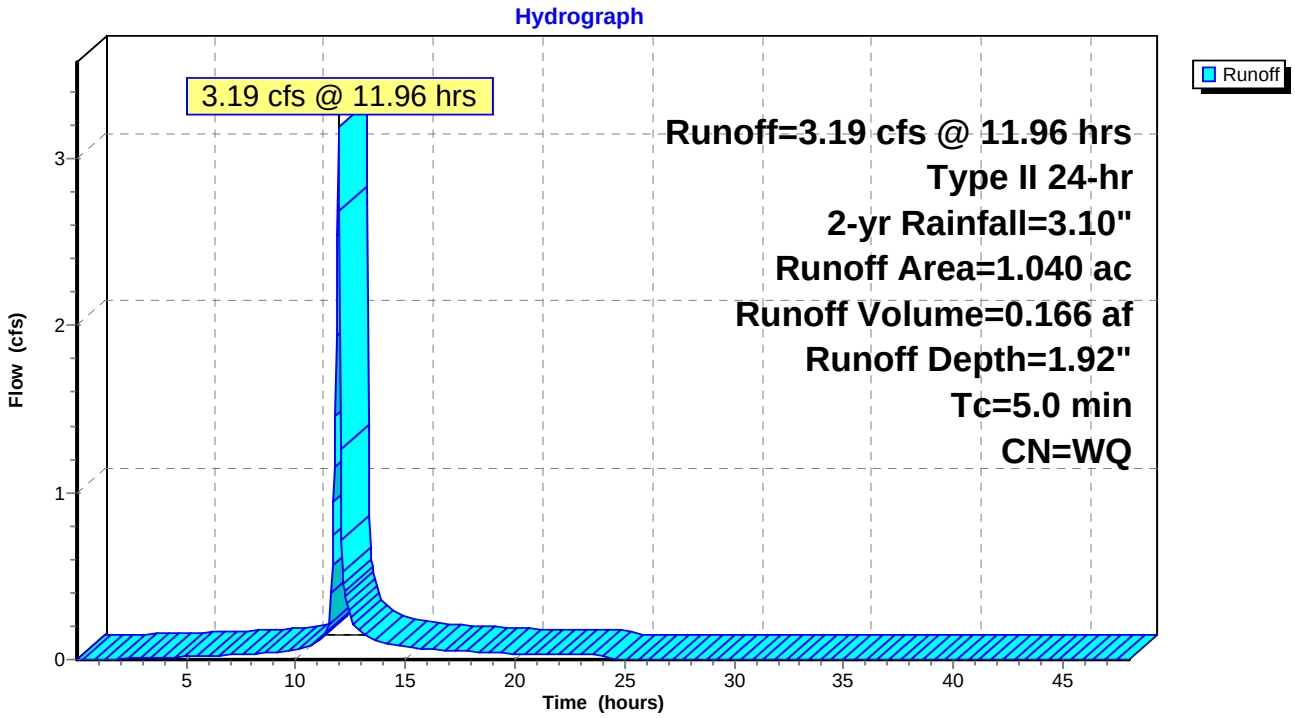
Runoff = 3.19 cfs @ 11.96 hrs, Volume= 0.166 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.520	74	50.00% Pervious Area
0.520	98	50.00% Impervious Area

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

Subcatchment 9S: AREA G



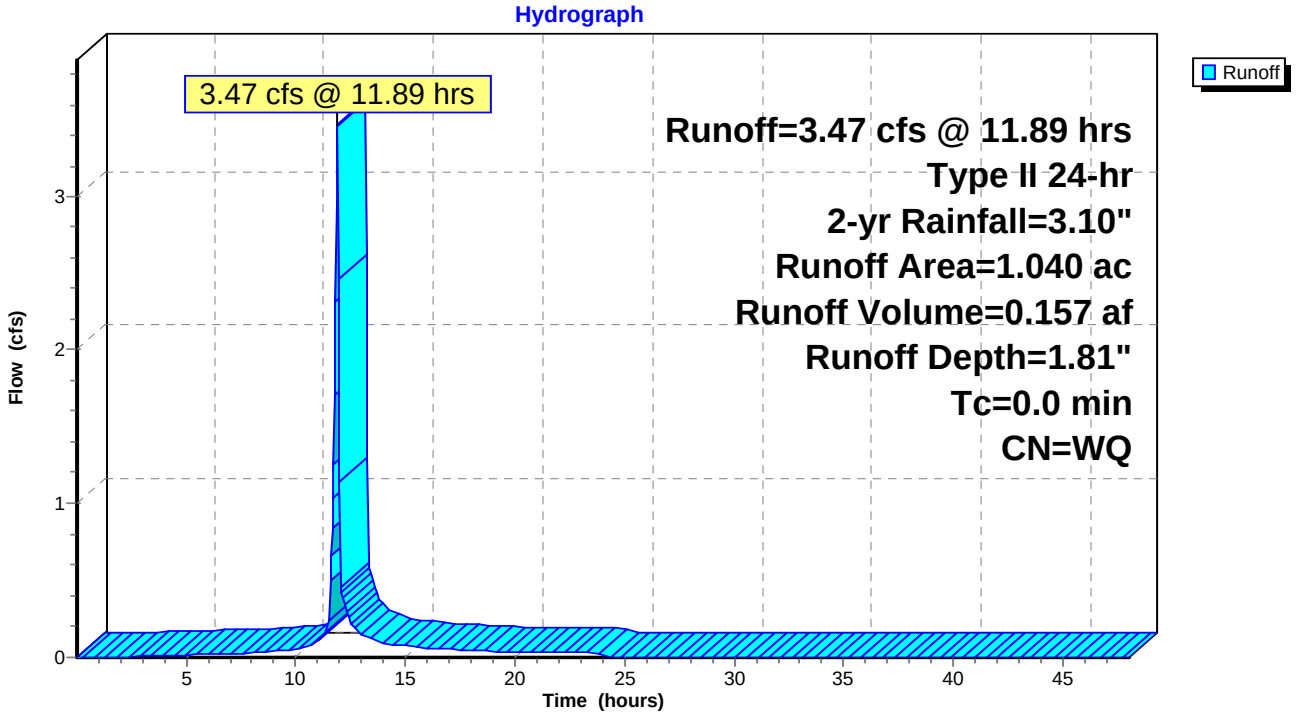
Summary for Subcatchment 10S: AREA H

Runoff = 3.47 cfs @ 11.89 hrs, Volume= 0.157 af, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.460	98	Paved parking, HSG C
0.580	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.580	74	55.77% Pervious Area
0.460	98	44.23% Impervious Area

Subcatchment 10S: AREA H



Summary for Subcatchment 11S: AREA J

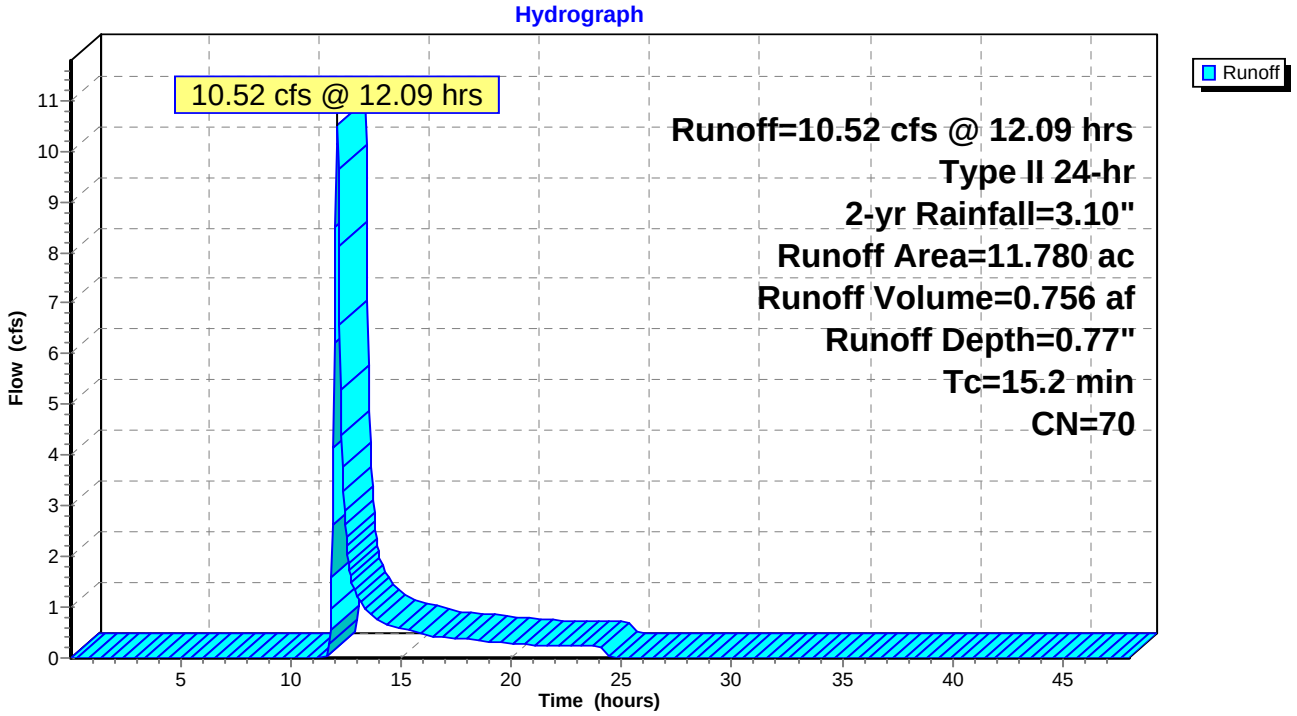
Runoff = 10.52 cfs @ 12.09 hrs, Volume= 0.756 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
11.780	70	Woods, Good, HSG C
11.780	70	100.00% Pervious Area

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

Subcatchment 11S: AREA J



Summary for Subcatchment 12S: EXISTING CONDITIONS

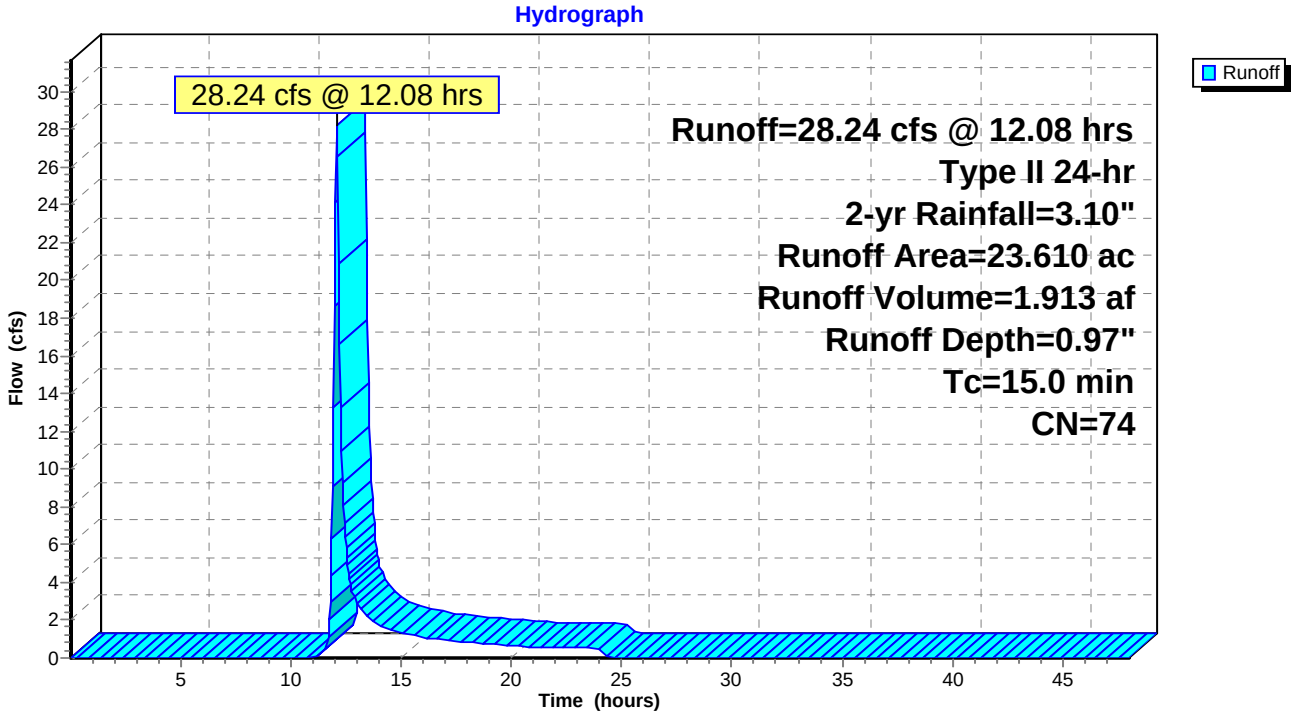
Runoff = 28.24 cfs @ 12.08 hrs, Volume= 1.913 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
23.610	74	>75% Grass cover, Good, HSG C
23.610	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS



Summary for Subcatchment 13S: AREA I

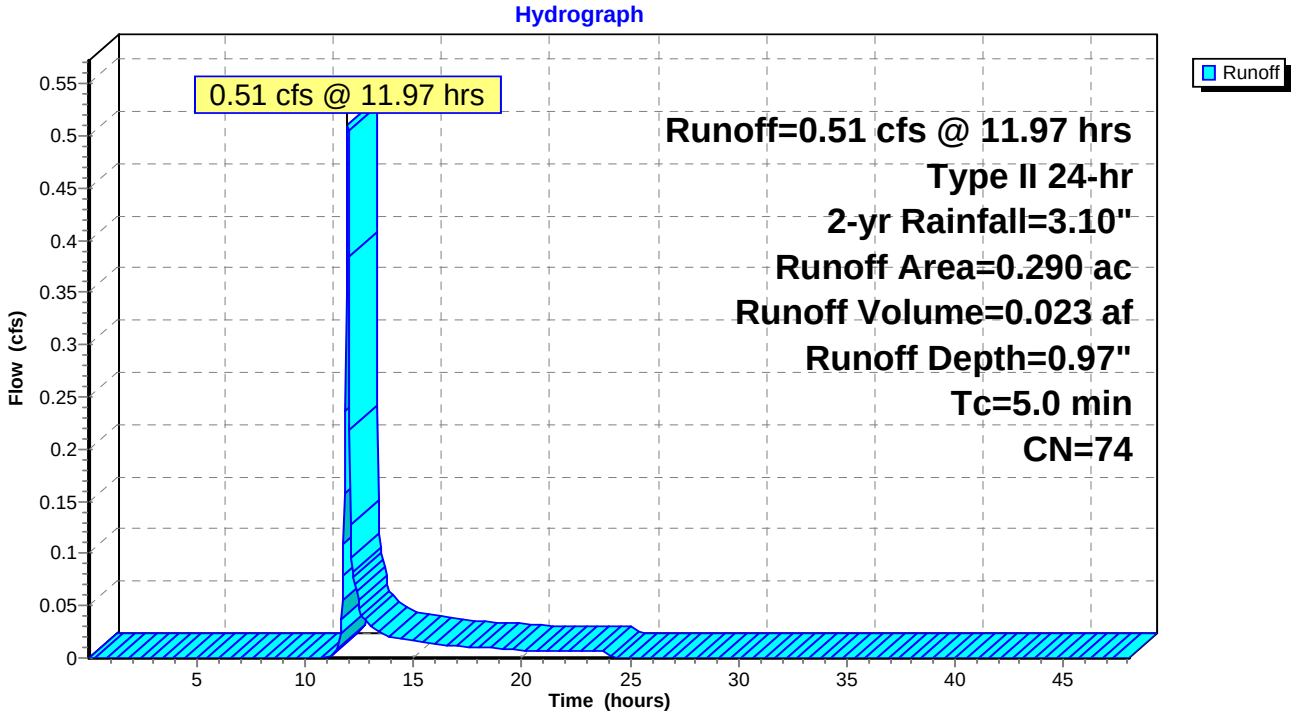
Runoff = 0.51 cfs @ 11.97 hrs, Volume= 0.023 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

	Area (ac)	CN	Description
*	0.290	74	Woods, Good, HSG C
	0.290	74	100.00% Pervious Area

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

Subcatchment 13S: AREA I



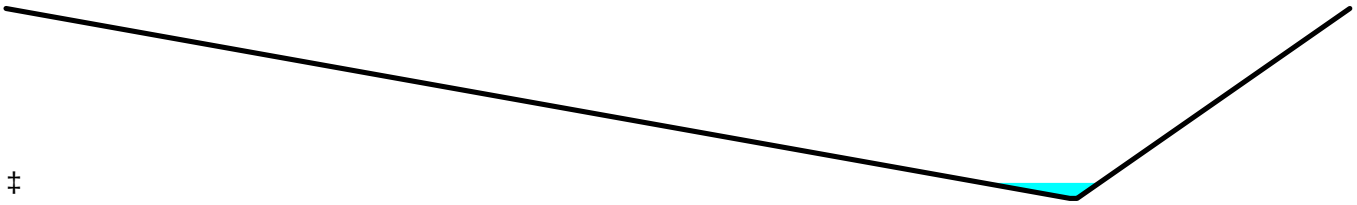
Summary for Reach 2R: CHANNEL TO CMP

Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 1.07" for 2-yr event
Inflow = 48.55 cfs @ 11.98 hrs, Volume= 2.432 af
Outflow = 45.48 cfs @ 12.01 hrs, Volume= 2.432 af, Atten= 6%, Lag= 1.7 min
Routed to Pond 5P : CMP OFFSITE

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Max. Velocity= 5.14 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 1.87 fps, Avg. Travel Time= 6.4 min

Peak Storage= 6,350 cf @ 12.01 hrs
Average Depth at Peak Storage= 1.03' , Surface Width= 16.15'
Bank-Full Depth= 12.67' Flow Area= 1,192.6 sf, Capacity= 31,454.30 cfs

1.00' x 12.67' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 11.7 3.0 '/' Top Width= 187.25'
Length= 718.1' Slope= 0.0333 '/'
Inlet Invert= 514.13', Outlet Invert= 490.22'



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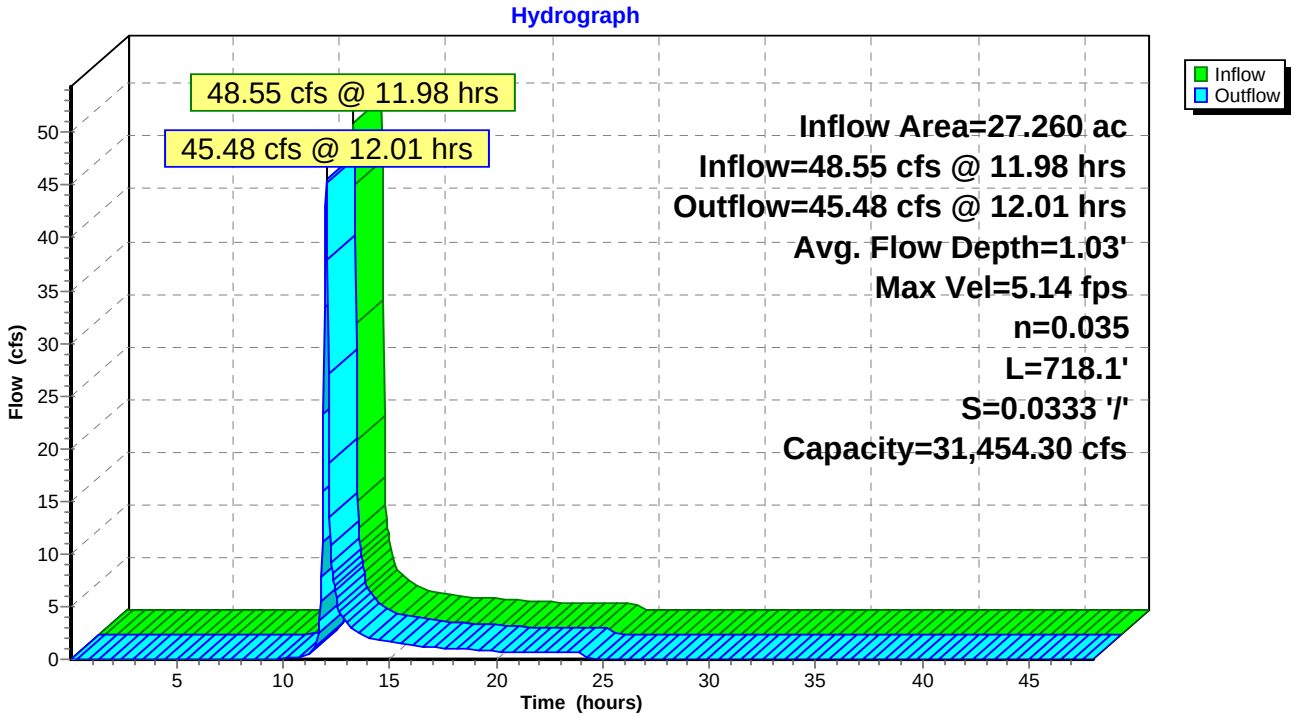
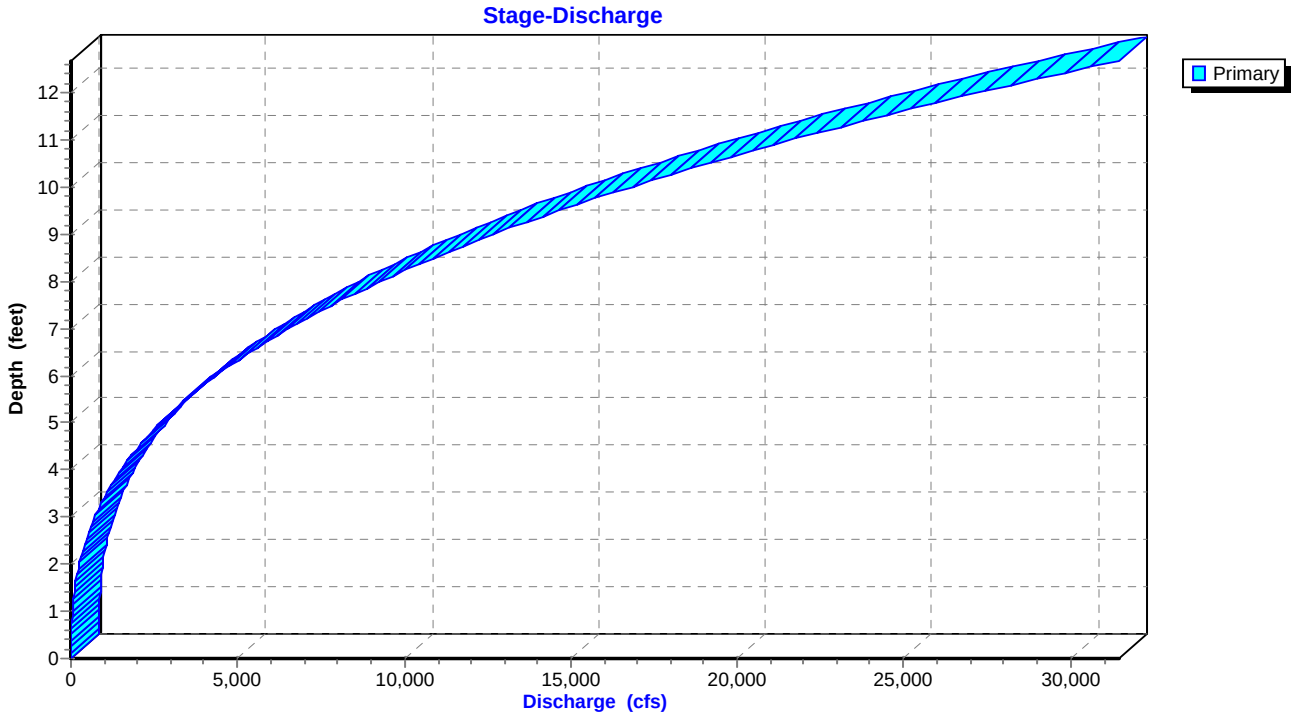
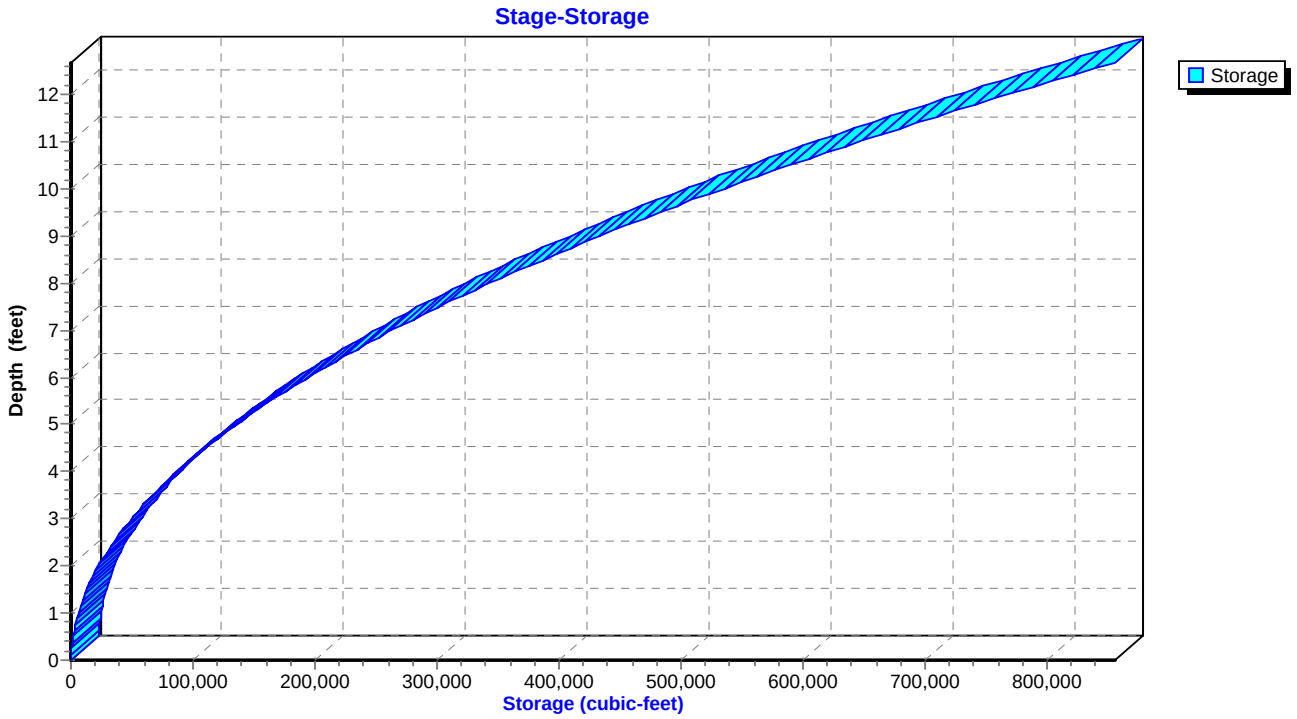
Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Summary for Pond 5P: CMP OFFSITE

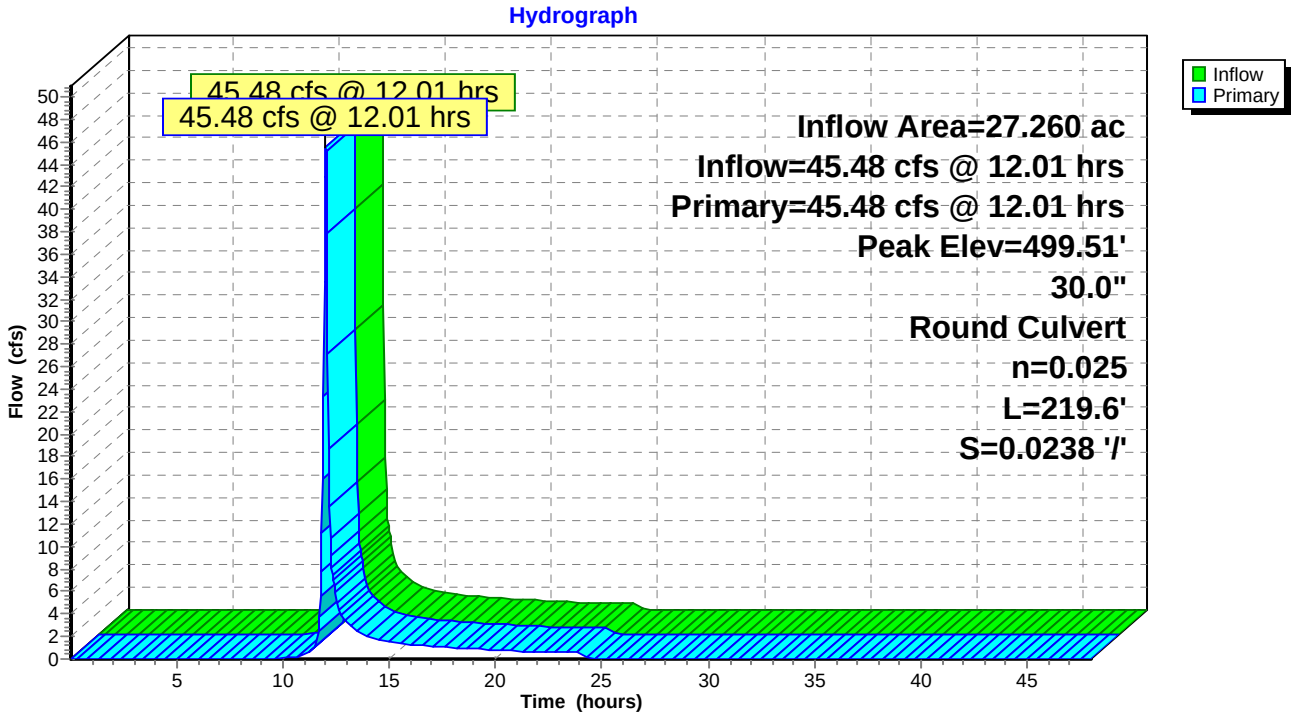
Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 1.07" for 2-yr event
Inflow = 45.48 cfs @ 12.01 hrs, Volume= 2.432 af
Outflow = 45.48 cfs @ 12.01 hrs, Volume= 2.432 af, Atten= 0%, Lag= 0.0 min
Primary = 45.48 cfs @ 12.01 hrs, Volume= 2.432 af

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 499.51' @ 12.01 hrs
Flood Elev= 499.00'

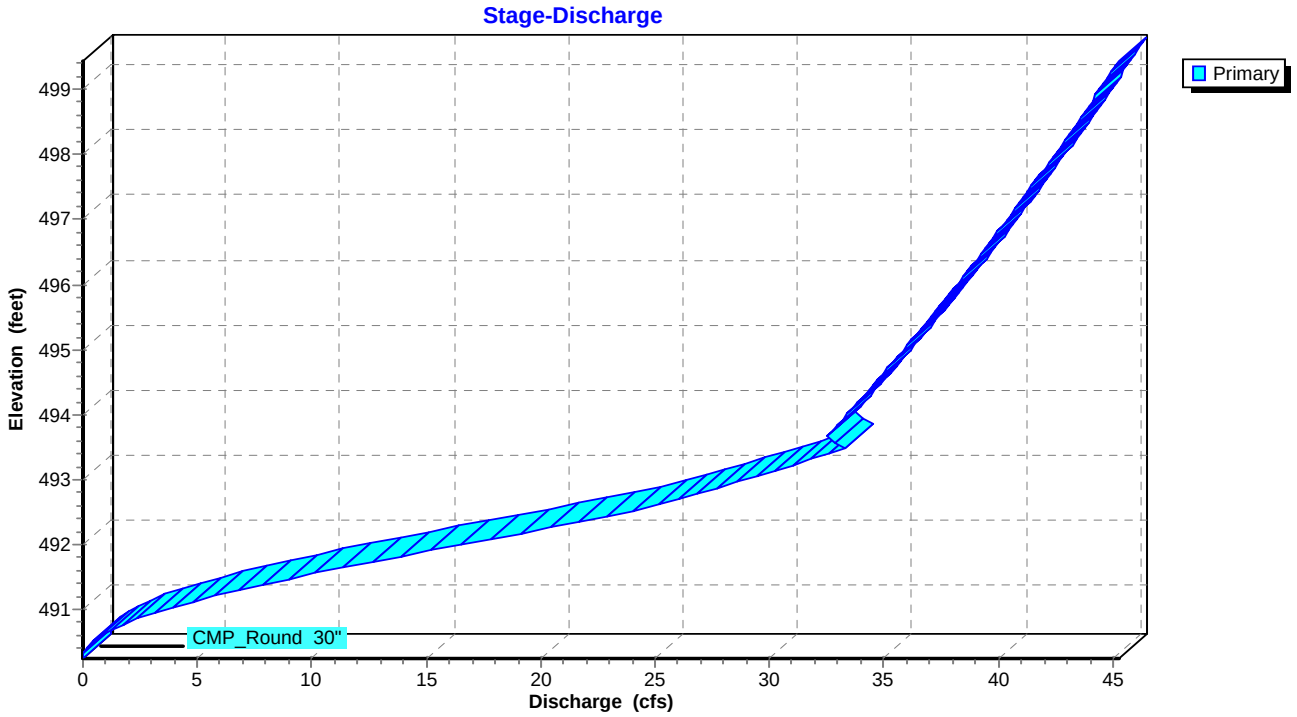
Device	Routing	Invert	Outlet Devices
#1	Primary	490.25'	**30.0" Round CMP_Round 30"** L= 219.6' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 490.25' / 485.02' S= 0.0238 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=44.57 cfs @ 12.01 hrs HW=499.06' (Free Discharge)
└**1=CMP_Round 30"** (Barrel Controls 44.57 cfs @ 9.08 fps)

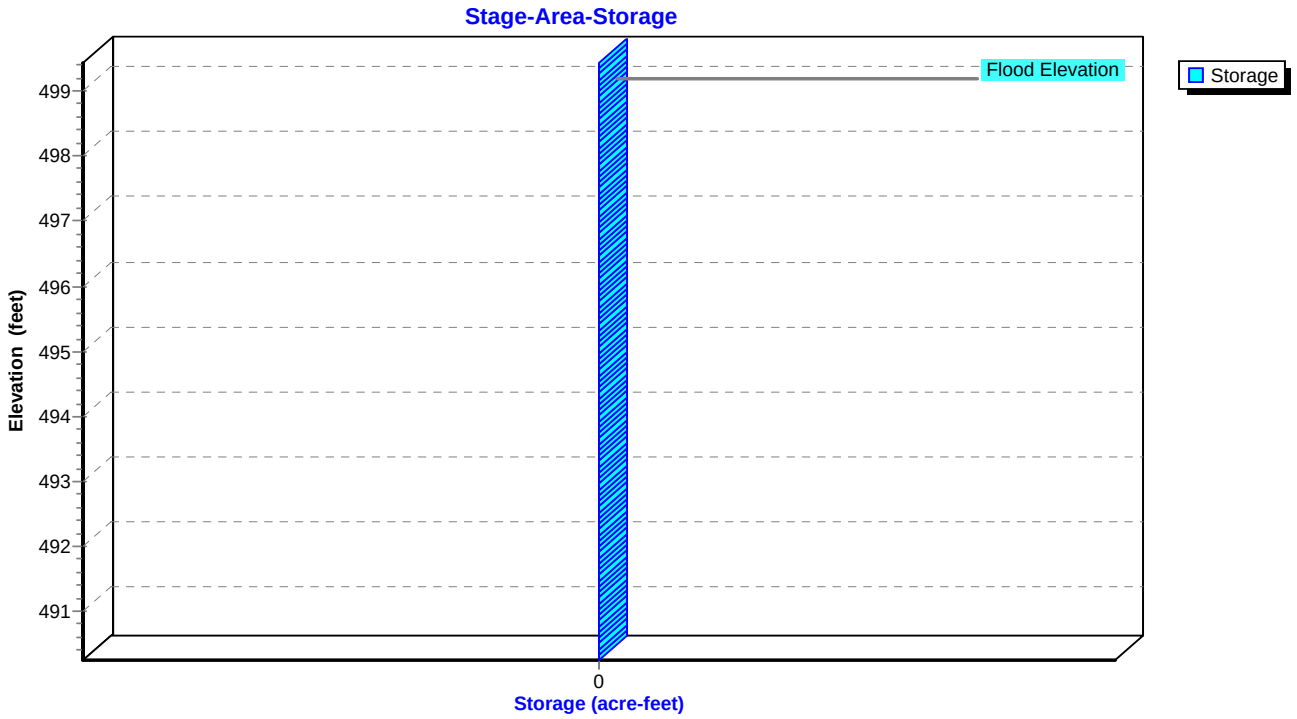
Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Summary for Subcatchment 1S: AREA A ONSITE TO OFFSITE

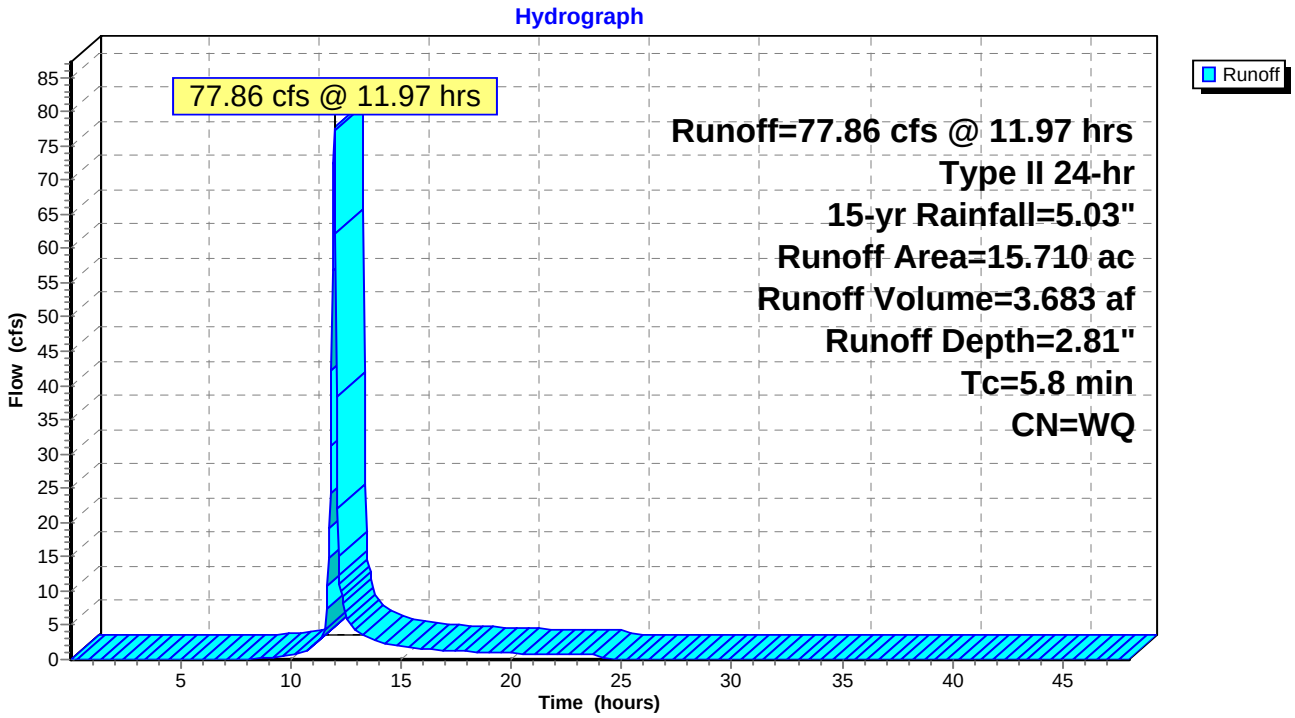
Runoff = 77.86 cfs @ 11.97 hrs, Volume= 3.683 af, Depth= 2.81"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	12.570	80	Paved parking, HSG C
	3.140	74	>75% Grass cover, Good, HSG C
	15.710		Weighted Average
	15.710	79	100.00% Pervious Area

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

Subcatchment 1S: AREA A ONSITE TO OFFSITE



Summary for Subcatchment 3S: AREA B

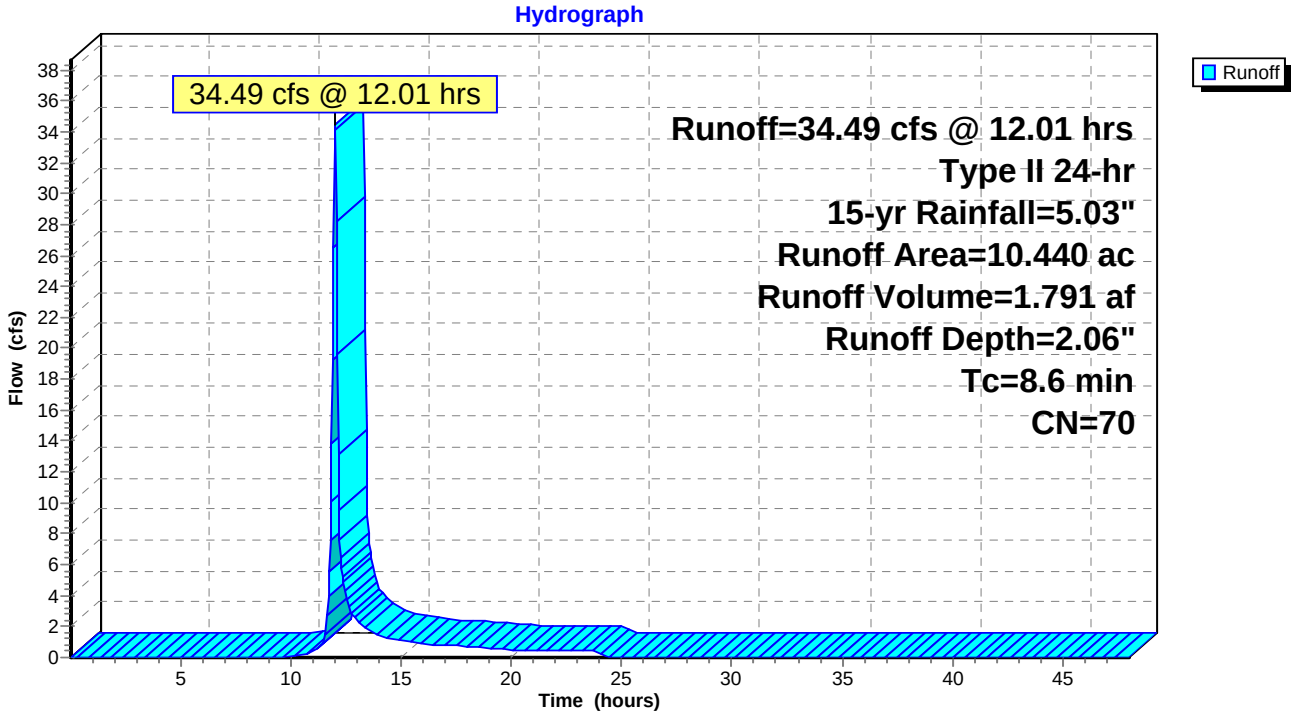
Runoff = 34.49 cfs @ 12.01 hrs, Volume= 1.791 af, Depth= 2.06"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
10.440	70	Woods, Good, HSG C
10.440	70	100.00% Pervious Area

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

Subcatchment 3S: AREA B



Summary for Subcatchment 4S: AREA C

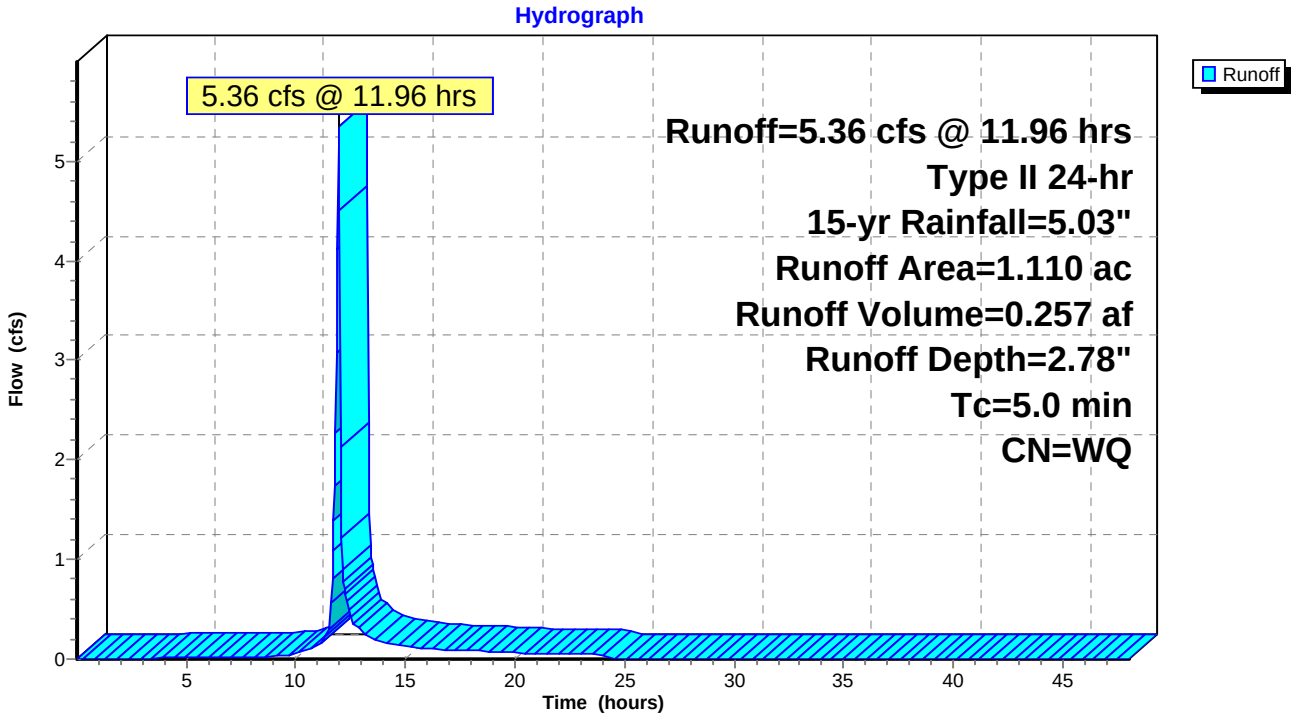
Runoff = 5.36 cfs @ 11.96 hrs, Volume= 0.257 af, Depth= 2.78"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
0.180	98	Paved parking, HSG C
0.930	74	>75% Grass cover, Good, HSG C
1.110		Weighted Average
0.930	74	83.78% Pervious Area
0.180	98	16.22% Impervious Area

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

Subcatchment 4S: AREA C



Summary for Subcatchment 6S: AREA D

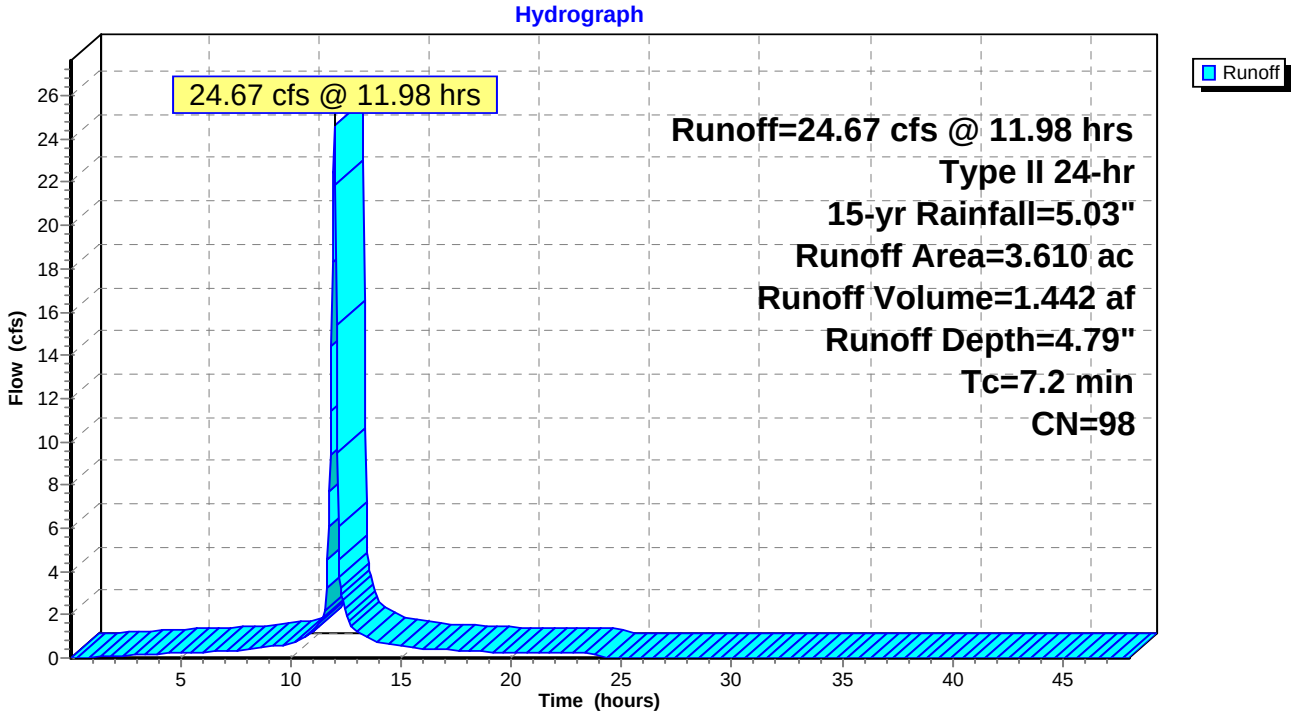
Runoff = 24.67 cfs @ 11.98 hrs, Volume= 1.442 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
3.610	98	Paved parking, HSG C
3.610	98	100.00% Impervious Area

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

Subcatchment 6S: AREA D



Summary for Subcatchment 7S: AREA E

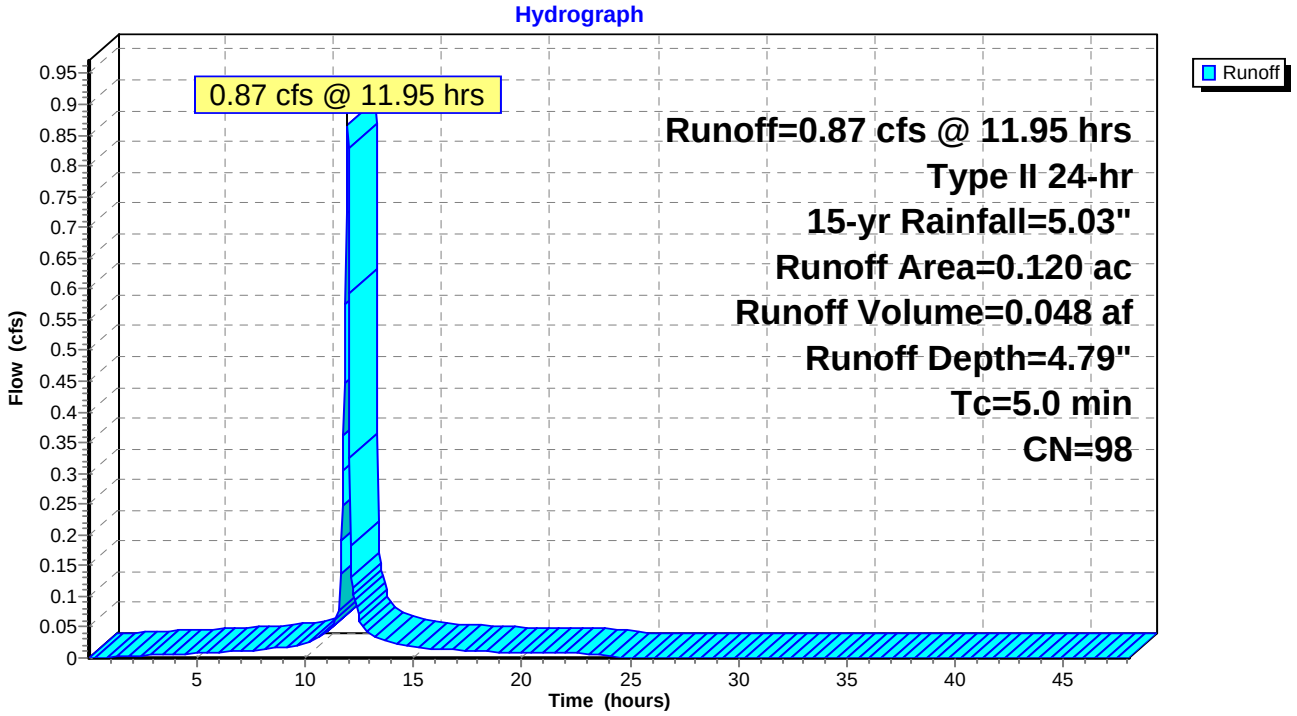
Runoff = 0.87 cfs @ 11.95 hrs, Volume= 0.048 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	0.120	98	Woods, Good, HSG C
	0.120	98	100.00% Impervious Area

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

Subcatchment 7S: AREA E



Summary for Subcatchment 8S: AREA F

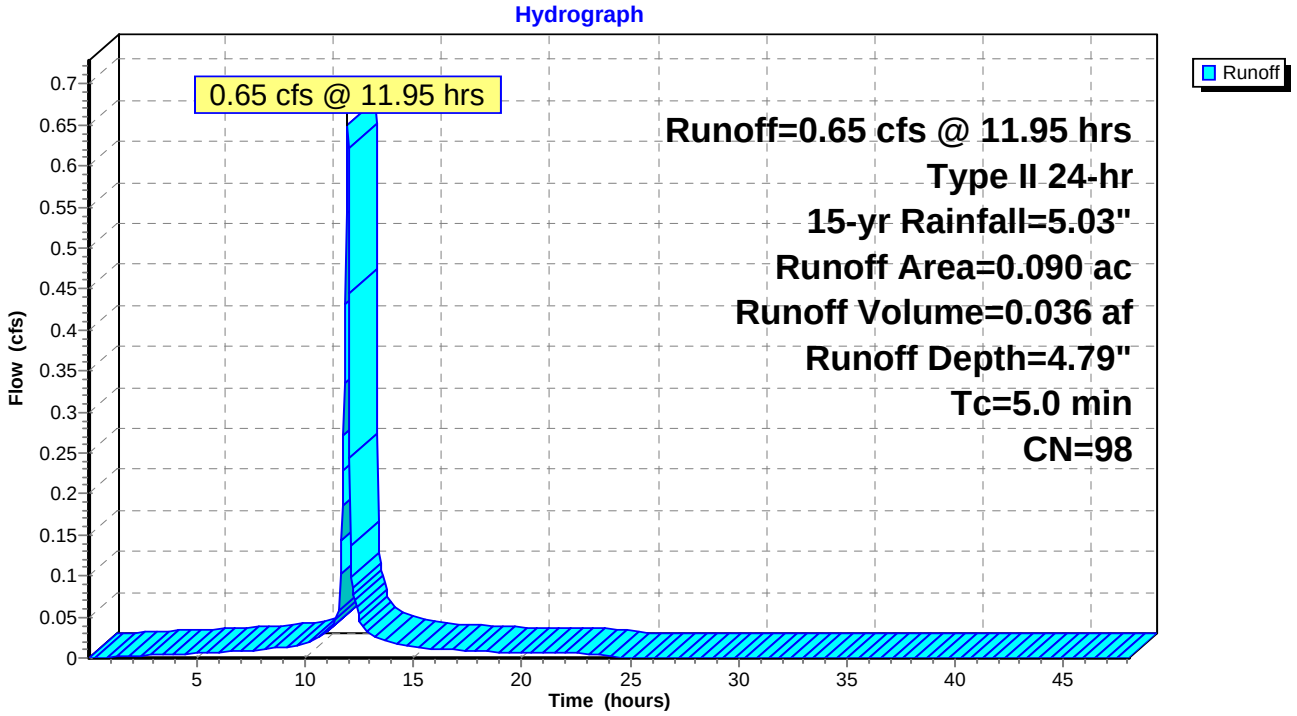
Runoff = 0.65 cfs @ 11.95 hrs, Volume= 0.036 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
0.090	98	Paved parking, HSG C
0.090	98	100.00% Impervious Area

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

Subcatchment 8S: AREA F



Summary for Subcatchment 9S: AREA G

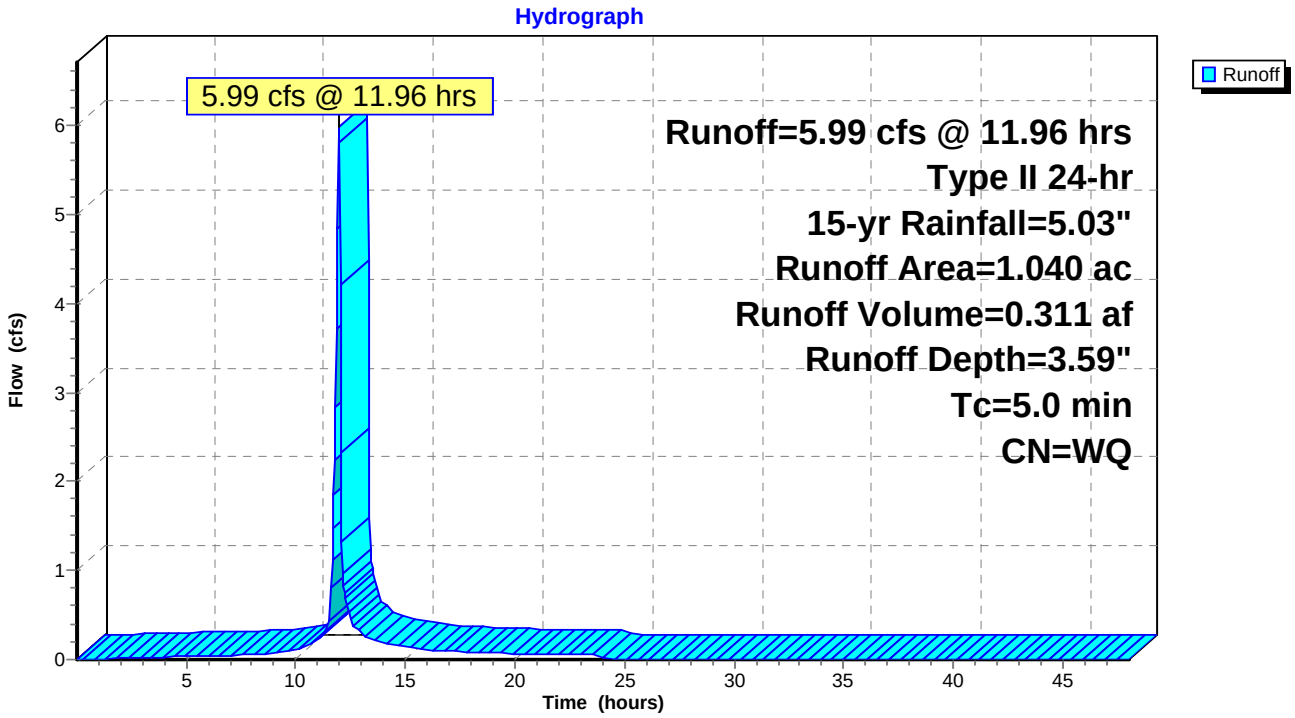
Runoff = 5.99 cfs @ 11.96 hrs, Volume= 0.311 af, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.520	74	50.00% Pervious Area
0.520	98	50.00% Impervious Area

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

Subcatchment 9S: AREA G



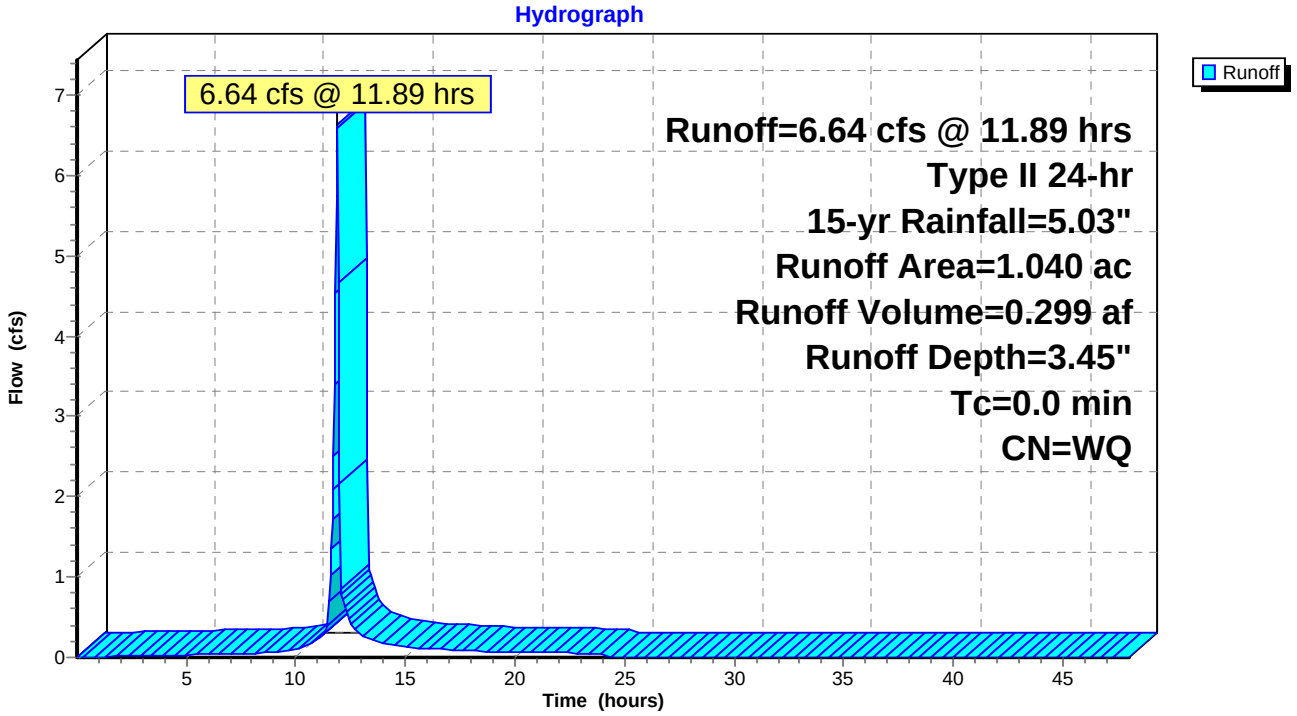
Summary for Subcatchment 10S: AREA H

Runoff = 6.64 cfs @ 11.89 hrs, Volume= 0.299 af, Depth= 3.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
0.460	98	Paved parking, HSG C
0.580	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.580	74	55.77% Pervious Area
0.460	98	44.23% Impervious Area

Subcatchment 10S: AREA H



Summary for Subcatchment 11S: AREA J

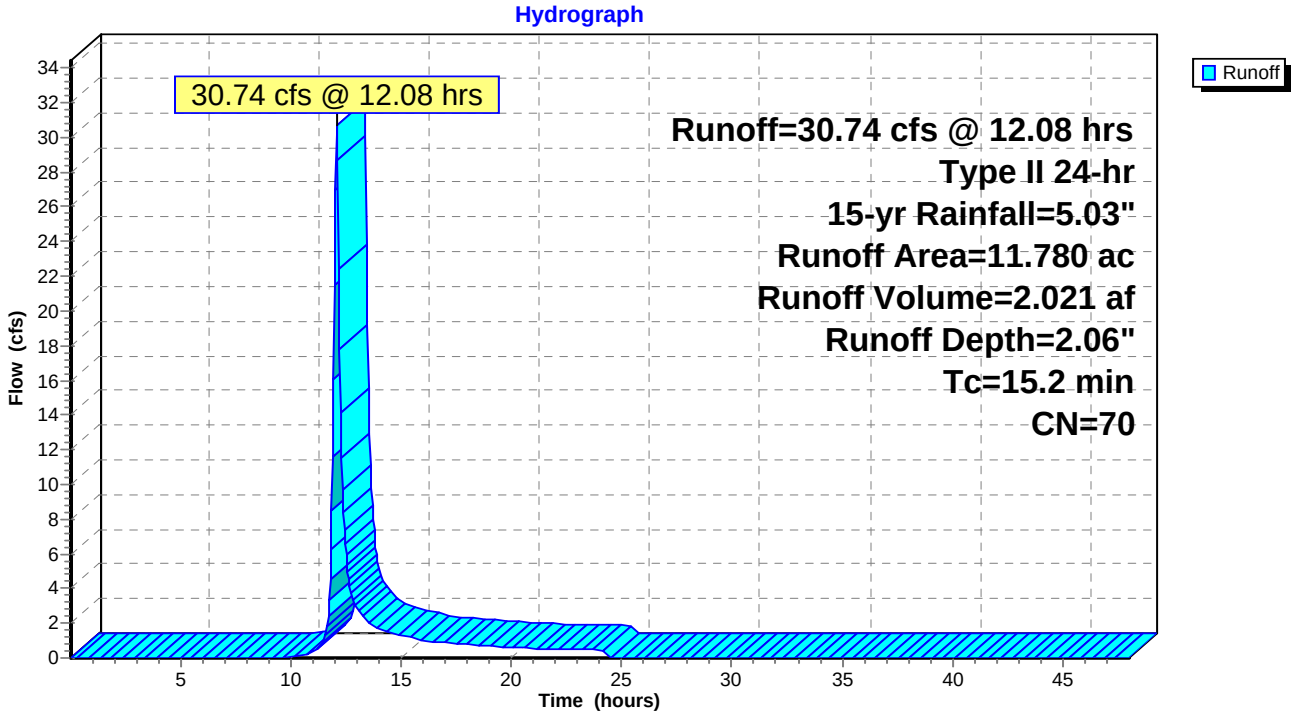
Runoff = 30.74 cfs @ 12.08 hrs, Volume= 2.021 af, Depth= 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
11.780	70	Woods, Good, HSG C
11.780	70	100.00% Pervious Area

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

Subcatchment 11S: AREA J



Summary for Subcatchment 12S: EXISTING CONDITIONS

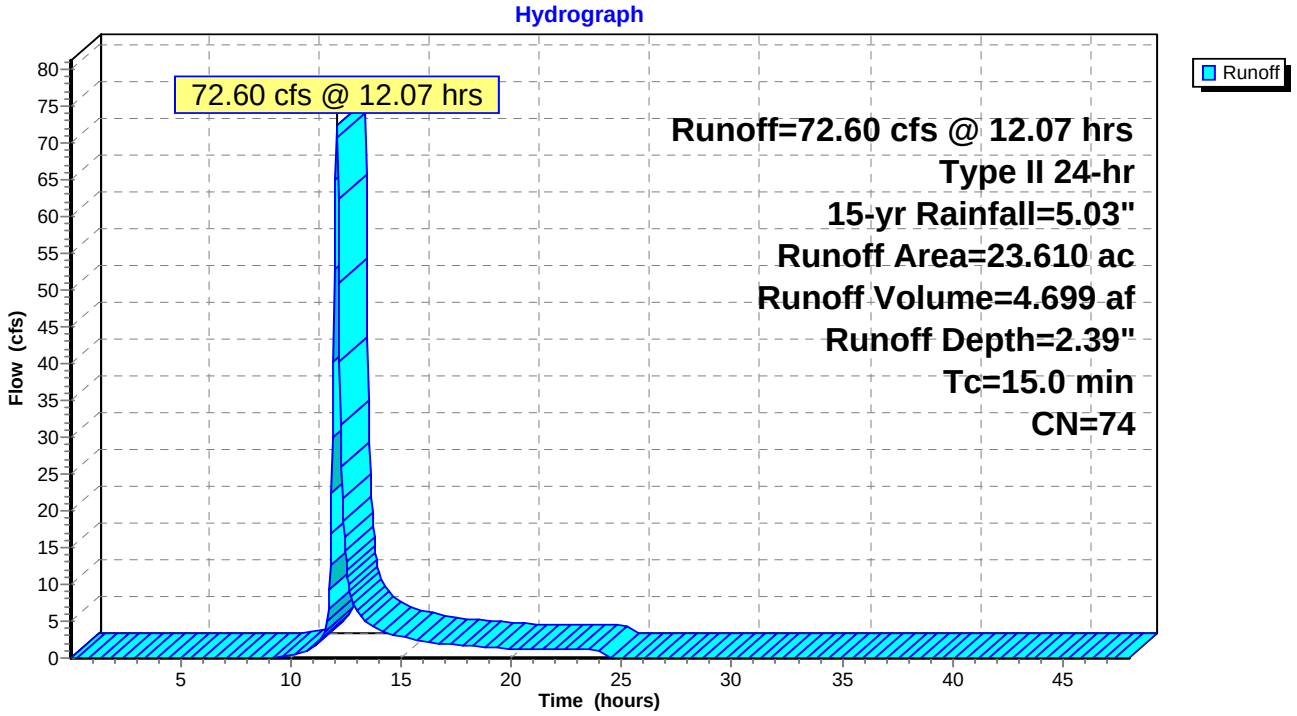
Runoff = 72.60 cfs @ 12.07 hrs, Volume= 4.699 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
23.610	74	>75% Grass cover, Good, HSG C
23.610	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS



Summary for Subcatchment 13S: AREA I

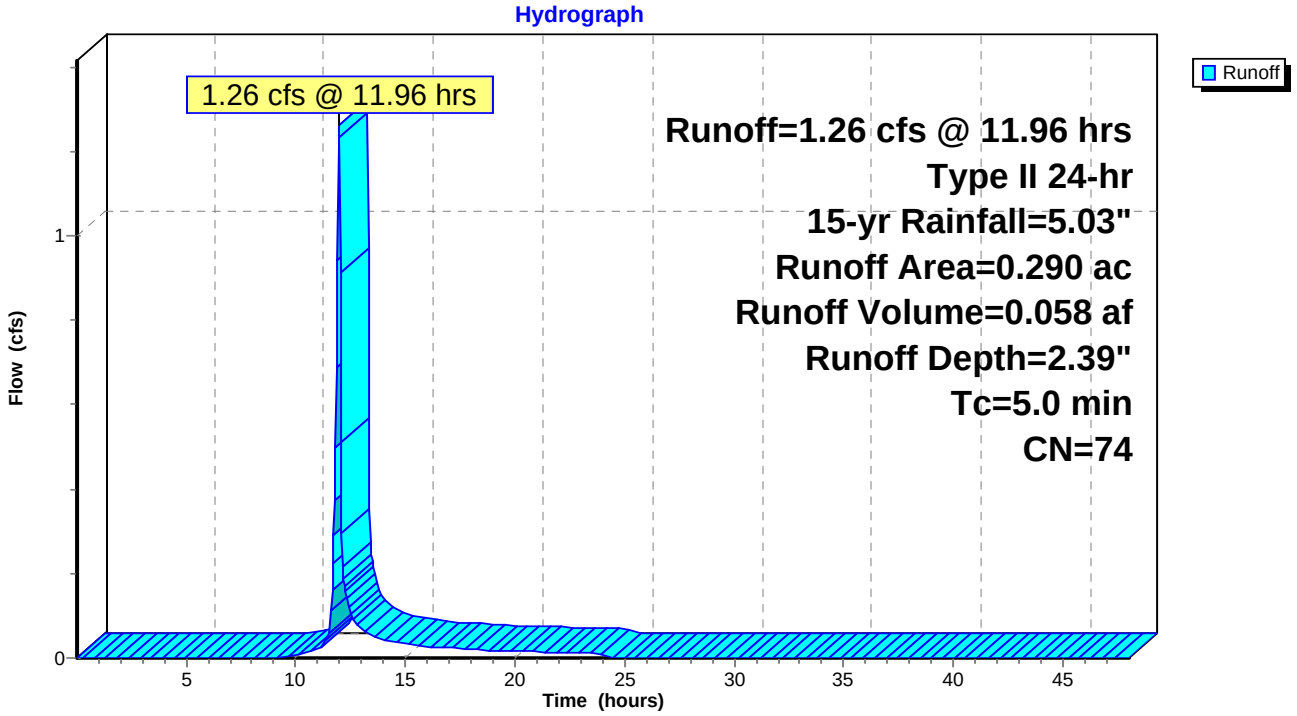
Runoff = 1.26 cfs @ 11.96 hrs, Volume= 0.058 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

	Area (ac)	CN	Description
*	0.290	74	Woods, Good, HSG C
	0.290	74	100.00% Pervious Area

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

Subcatchment 13S: AREA I



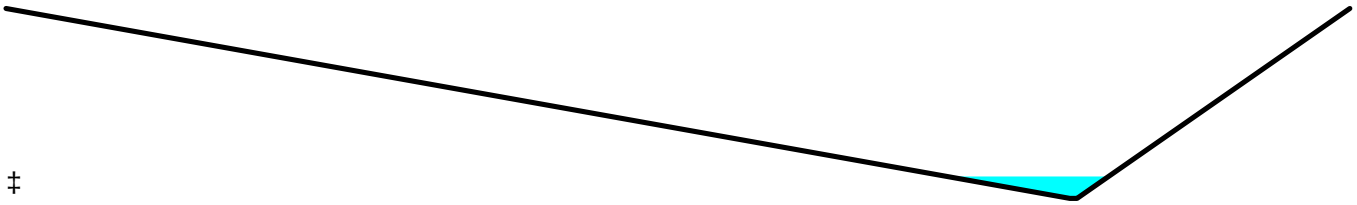
Summary for Reach 2R: CHANNEL TO CMP

Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 2.52" for 15-yr event
Inflow = 115.49 cfs @ 11.98 hrs, Volume= 5.731 af
Outflow = 110.14 cfs @ 12.00 hrs, Volume= 5.731 af, Atten= 5%, Lag= 1.4 min
Routed to Pond 5P : CMP OFFSITE

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Max. Velocity= 6.39 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 2.13 fps, Avg. Travel Time= 5.6 min

Peak Storage= 12,321 cf @ 12.00 hrs
Average Depth at Peak Storage= 1.46' , Surface Width= 22.47'
Bank-Full Depth= 12.67' Flow Area= 1,192.6 sf, Capacity= 31,454.30 cfs

1.00' x 12.67' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 11.7 3.0 '/' Top Width= 187.25'
Length= 718.1' Slope= 0.0333 '/'
Inlet Invert= 514.13', Outlet Invert= 490.22'



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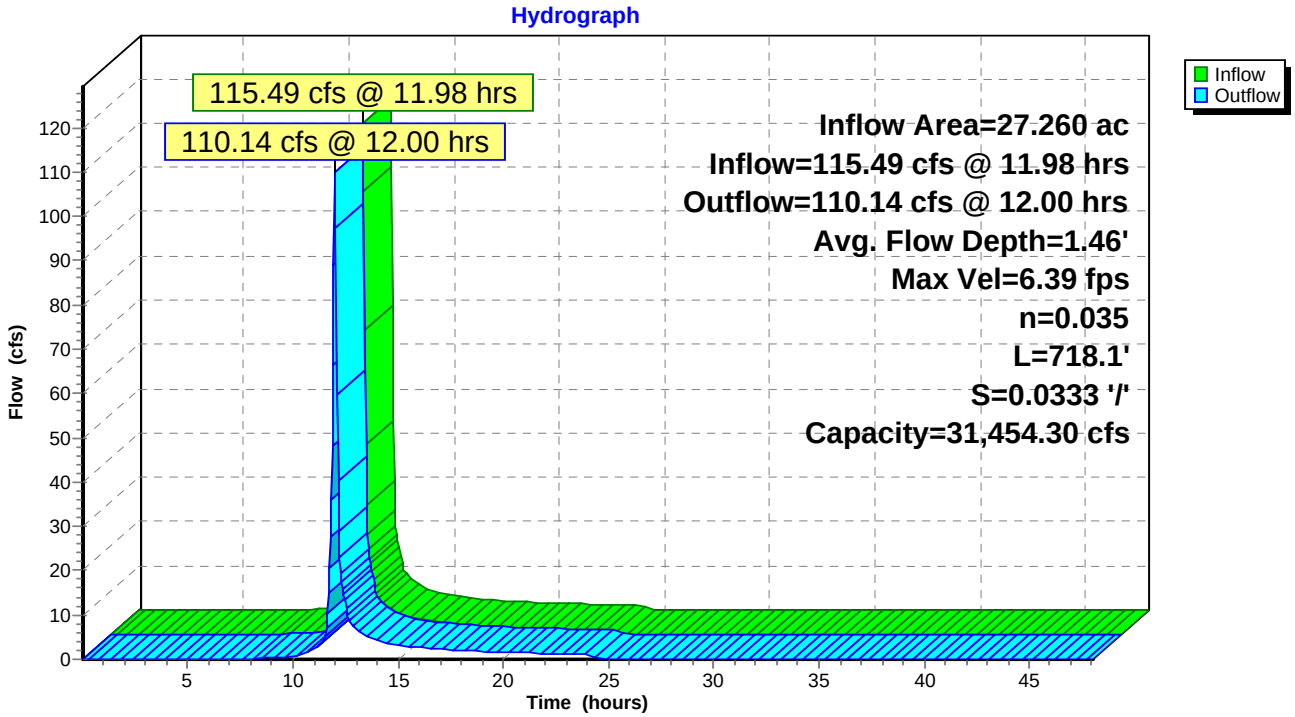
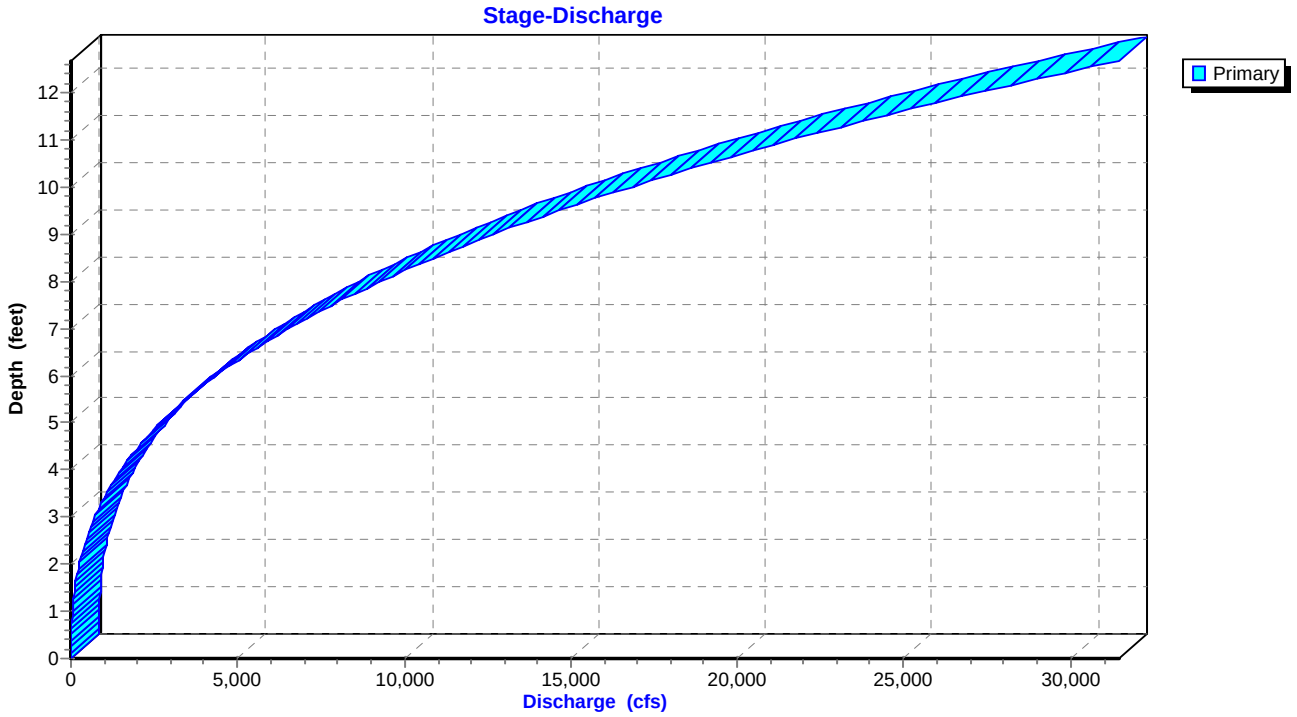
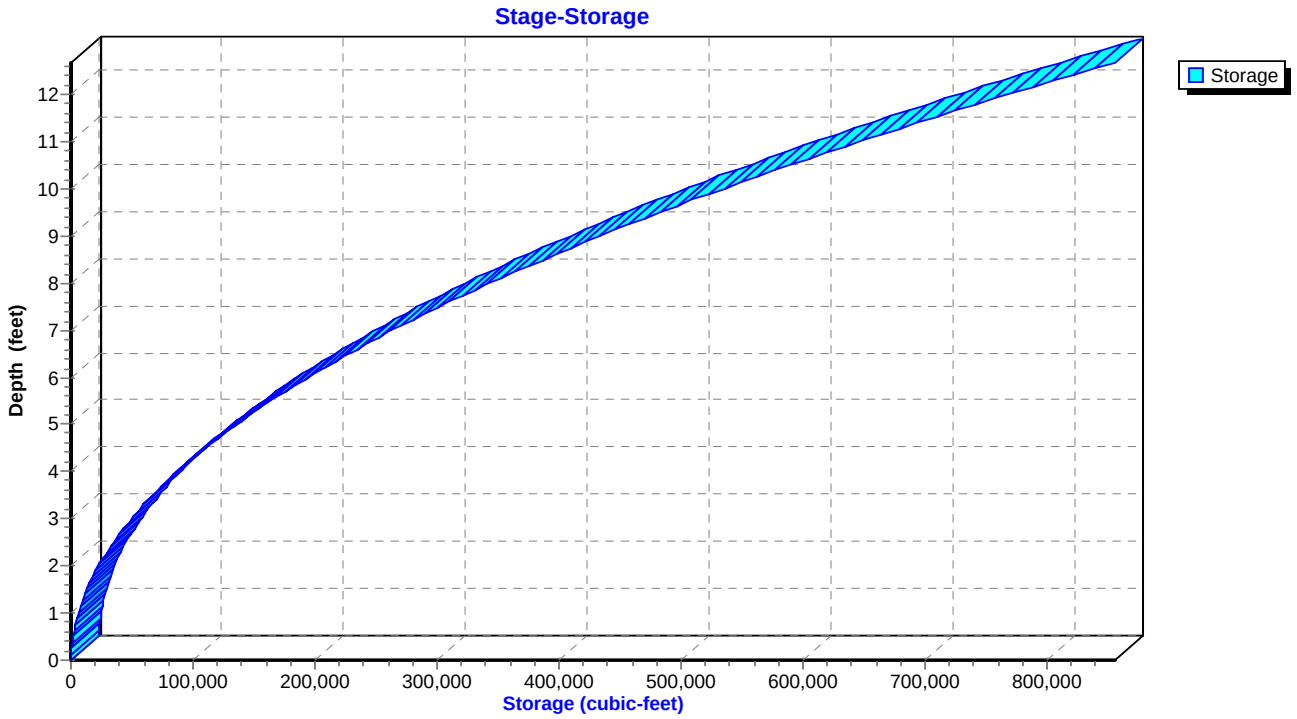
Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Summary for Pond 5P: CMP OFFSITE

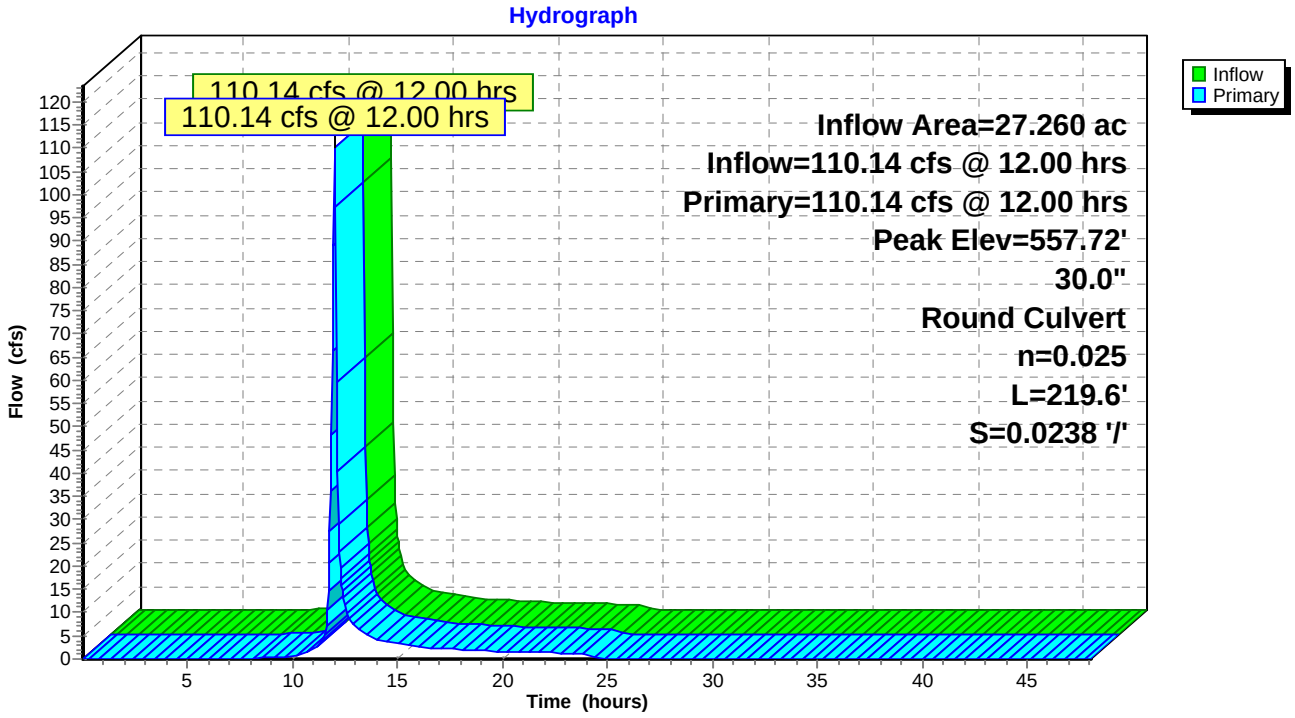
Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 2.52" for 15-yr event
Inflow = 110.14 cfs @ 12.00 hrs, Volume= 5.731 af
Outflow = 110.14 cfs @ 12.00 hrs, Volume= 5.731 af, Atten= 0%, Lag= 0.0 min
Primary = 110.14 cfs @ 12.00 hrs, Volume= 5.731 af

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 557.72' @ 12.00 hrs
Flood Elev= 499.00'

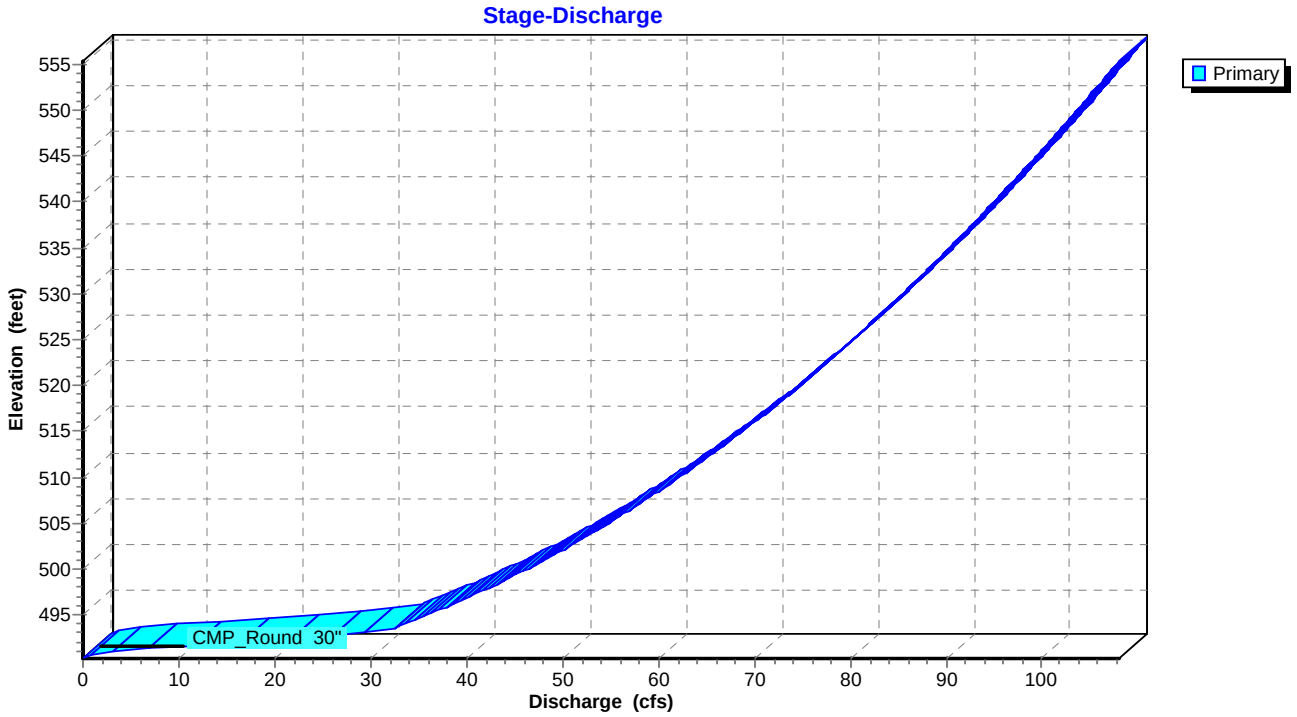
Device	Routing	Invert	Outlet Devices
#1	Primary	490.25'	**30.0" Round CMP_Round 30"** L= 219.6' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 490.25' / 485.02' S= 0.0238 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=107.78 cfs @ 12.00 hrs HW=555.02' (Free Discharge)
1=CMP_Round 30" (Barrel Controls 107.78 cfs @ 21.96 fps)

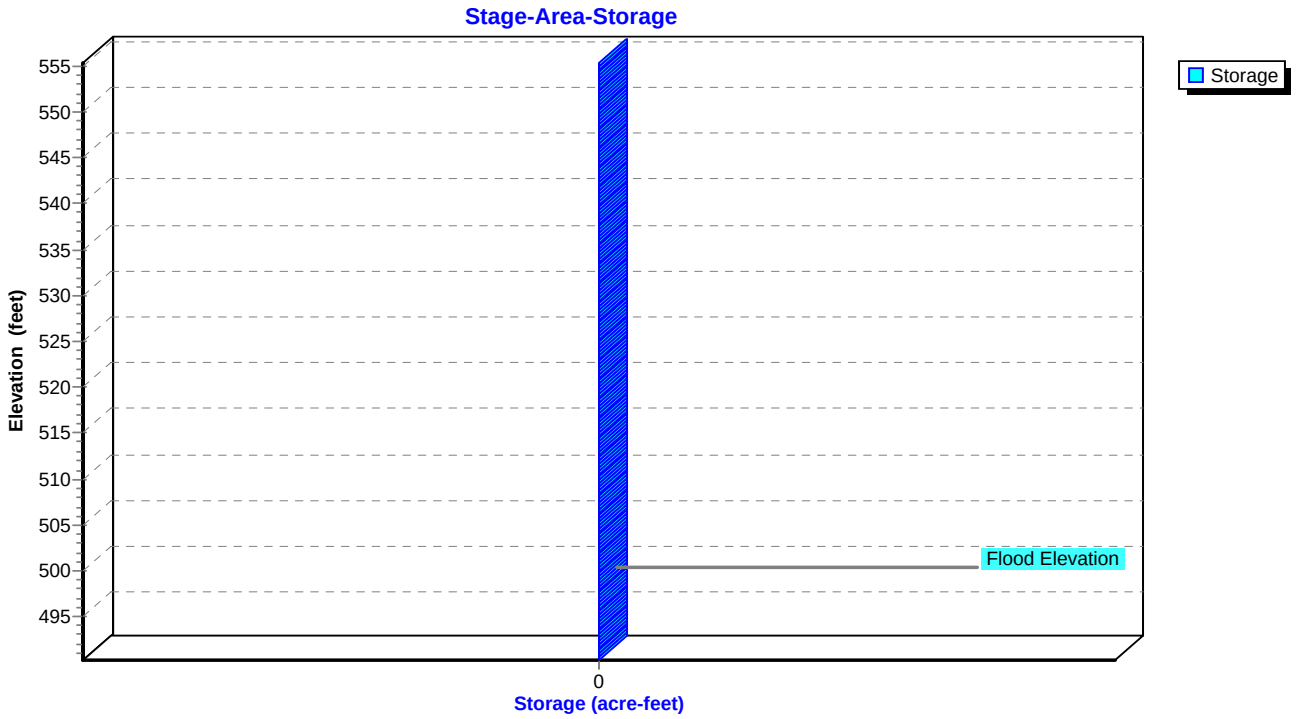
Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Summary for Subcatchment 1S: AREA A ONSITE TO OFFSITE

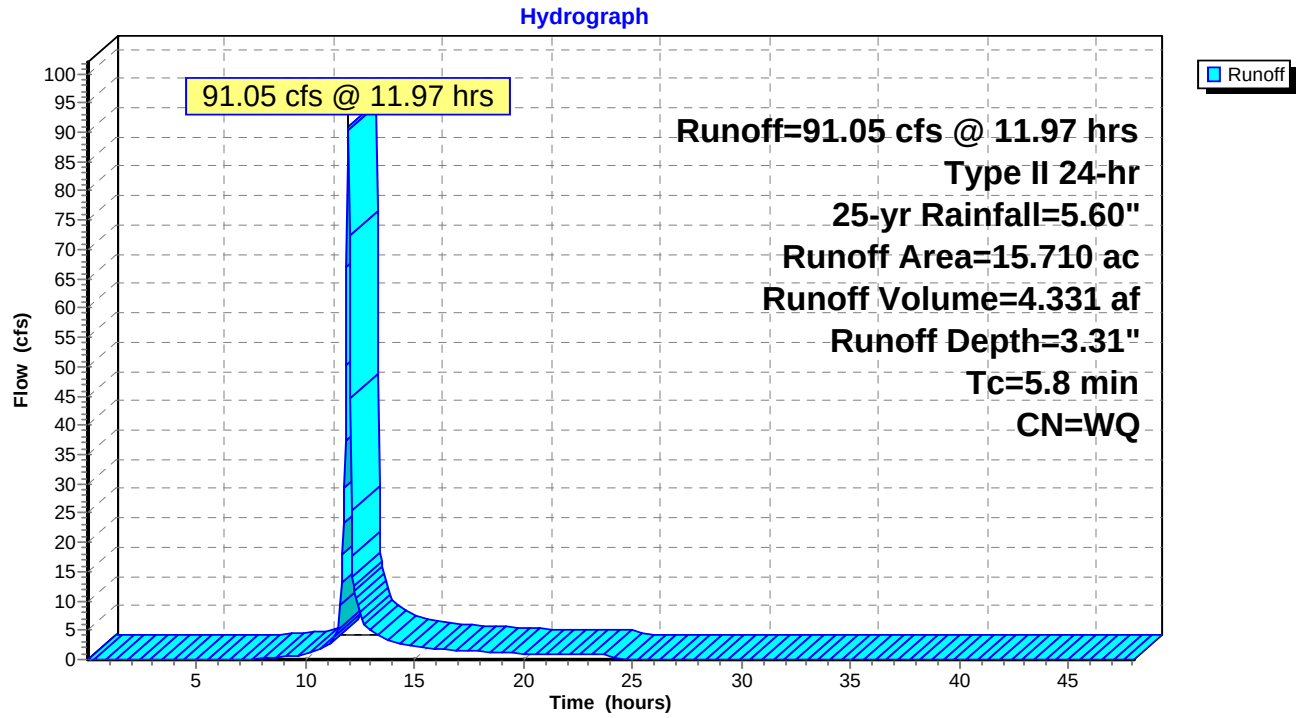
Runoff = 91.05 cfs @ 11.97 hrs, Volume= 4.331 af, Depth= 3.31"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

	Area (ac)	CN	Description
*	12.570	80	Paved parking, HSG C
	3.140	74	>75% Grass cover, Good, HSG C
	15.710		Weighted Average
	15.710	79	100.00% Pervious Area

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

Subcatchment 1S: AREA A ONSITE TO OFFSITE



Summary for Subcatchment 3S: AREA B

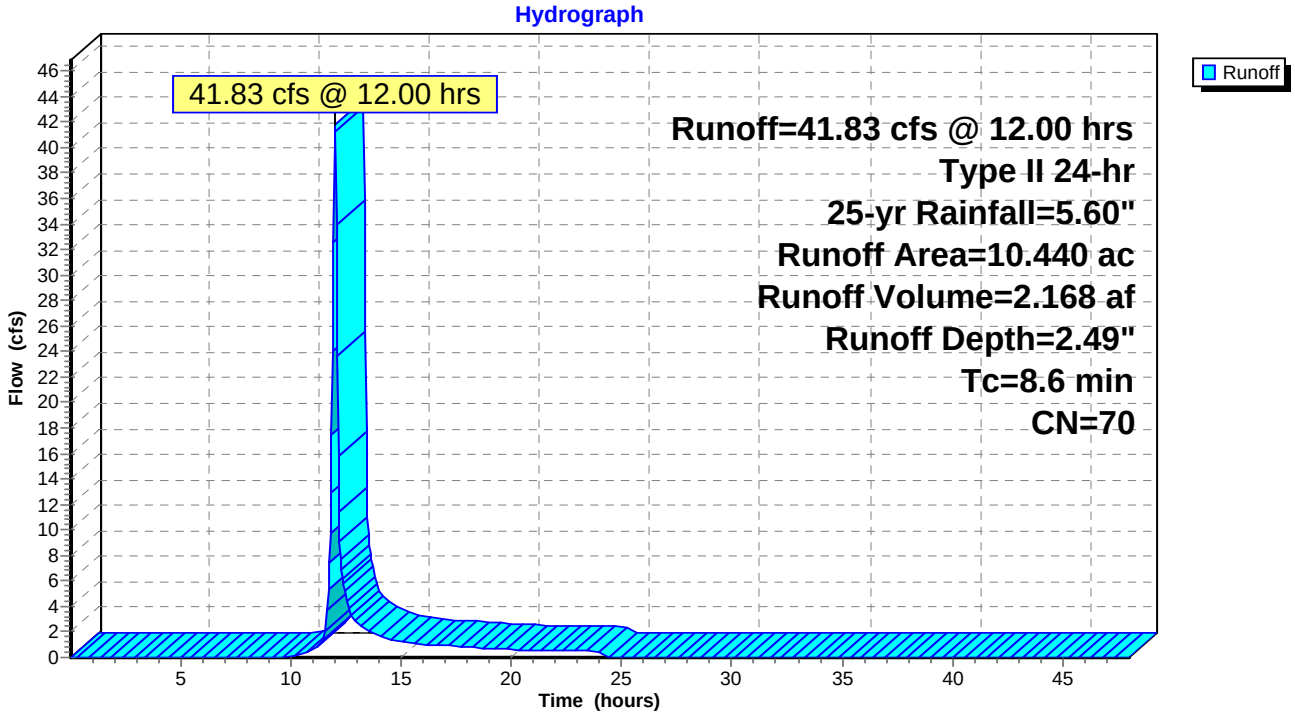
Runoff = 41.83 cfs @ 12.00 hrs, Volume= 2.168 af, Depth= 2.49"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
10.440	70	Woods, Good, HSG C
10.440	70	100.00% Pervious Area

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

Subcatchment 3S: AREA B



Summary for Subcatchment 4S: AREA C

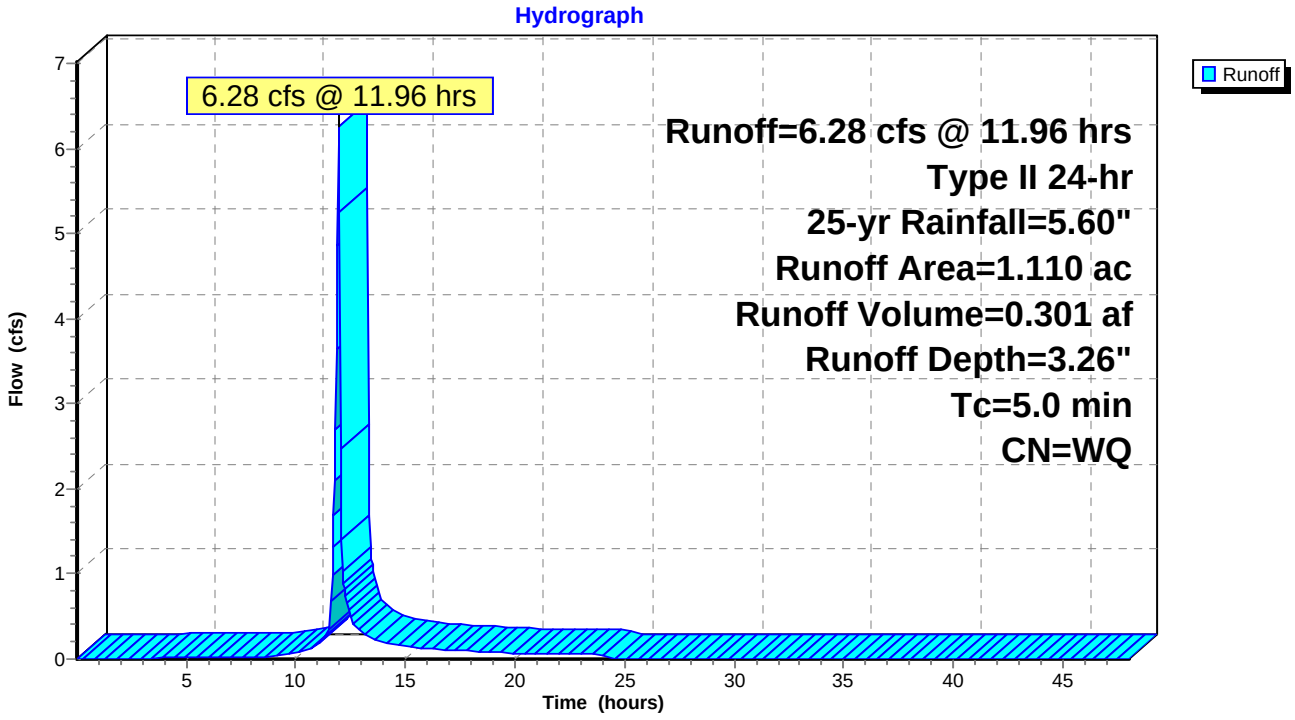
Runoff = 6.28 cfs @ 11.96 hrs, Volume= 0.301 af, Depth= 3.26"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
0.180	98	Paved parking, HSG C
0.930	74	>75% Grass cover, Good, HSG C
1.110		Weighted Average
0.930	74	83.78% Pervious Area
0.180	98	16.22% Impervious Area

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

Subcatchment 4S: AREA C



Summary for Subcatchment 6S: AREA D

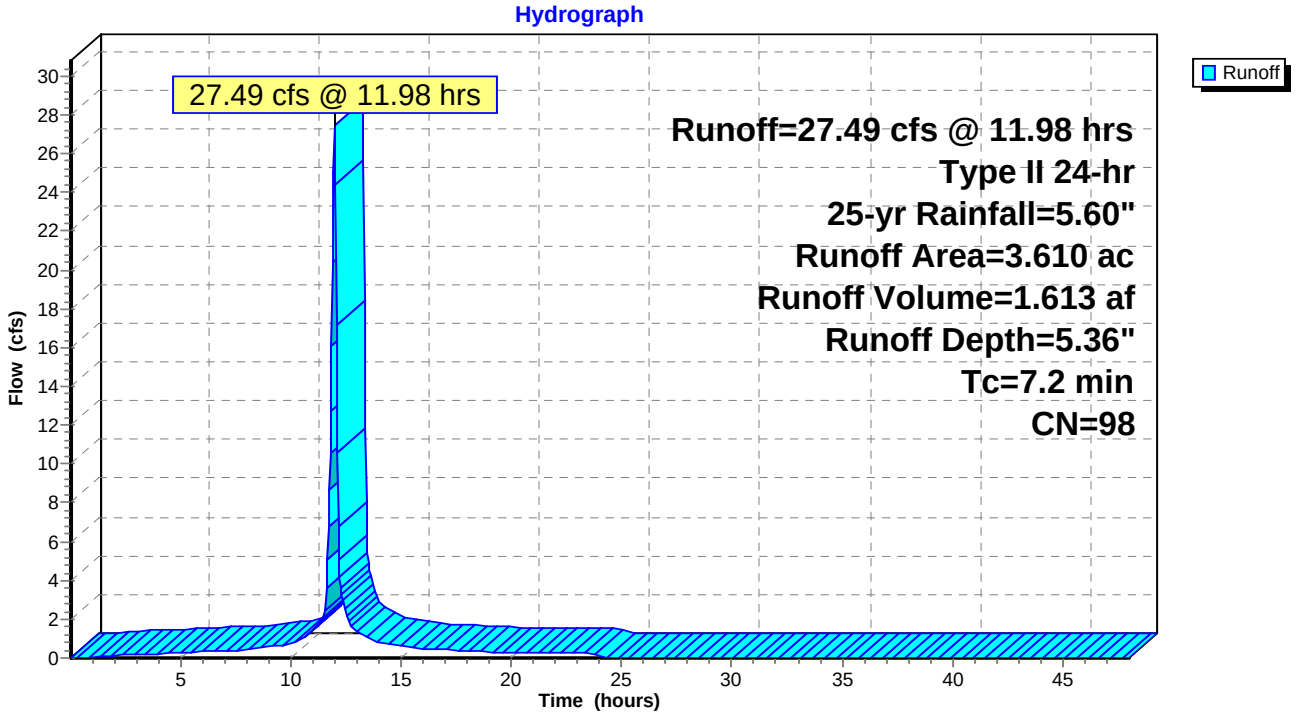
Runoff = 27.49 cfs @ 11.98 hrs, Volume= 1.613 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
3.610	98	Paved parking, HSG C
3.610	98	100.00% Impervious Area

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

Subcatchment 6S: AREA D



Summary for Subcatchment 7S: AREA E

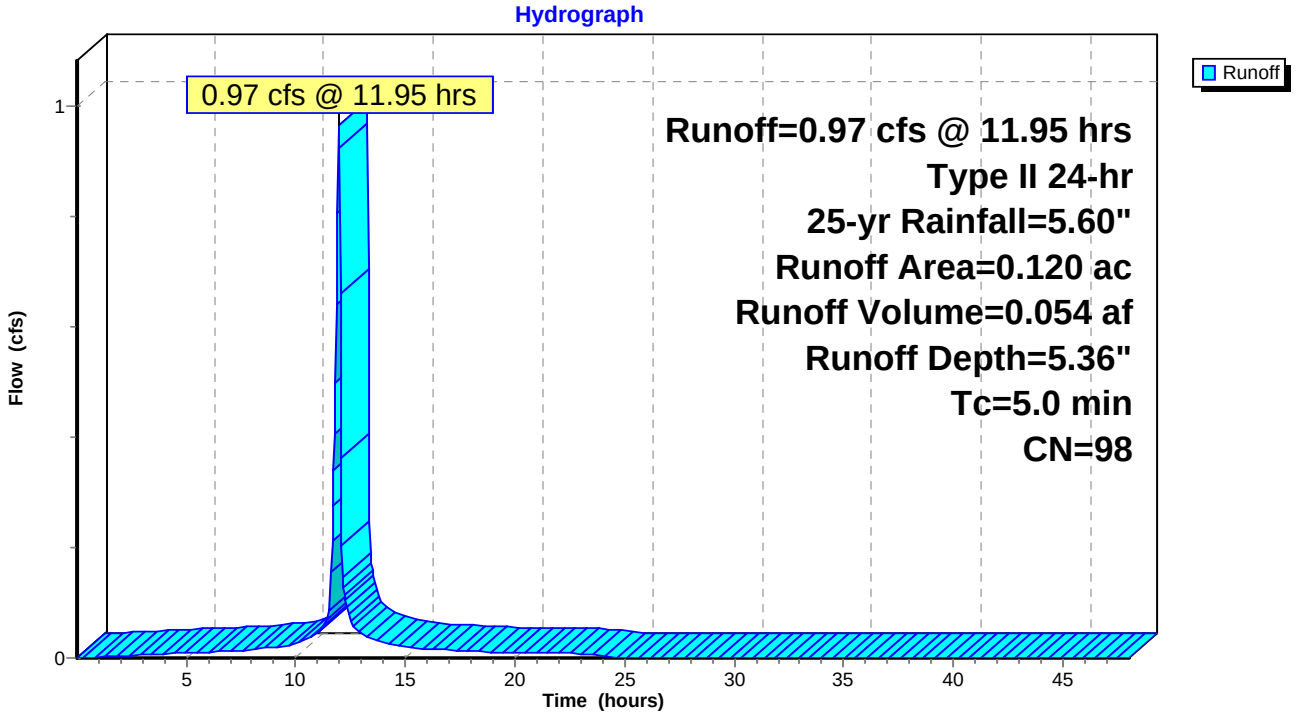
Runoff = 0.97 cfs @ 11.95 hrs, Volume= 0.054 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

	Area (ac)	CN	Description
*	0.120	98	Woods, Good, HSG C
	0.120	98	100.00% Impervious Area

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

Subcatchment 7S: AREA E



Summary for Subcatchment 8S: AREA F

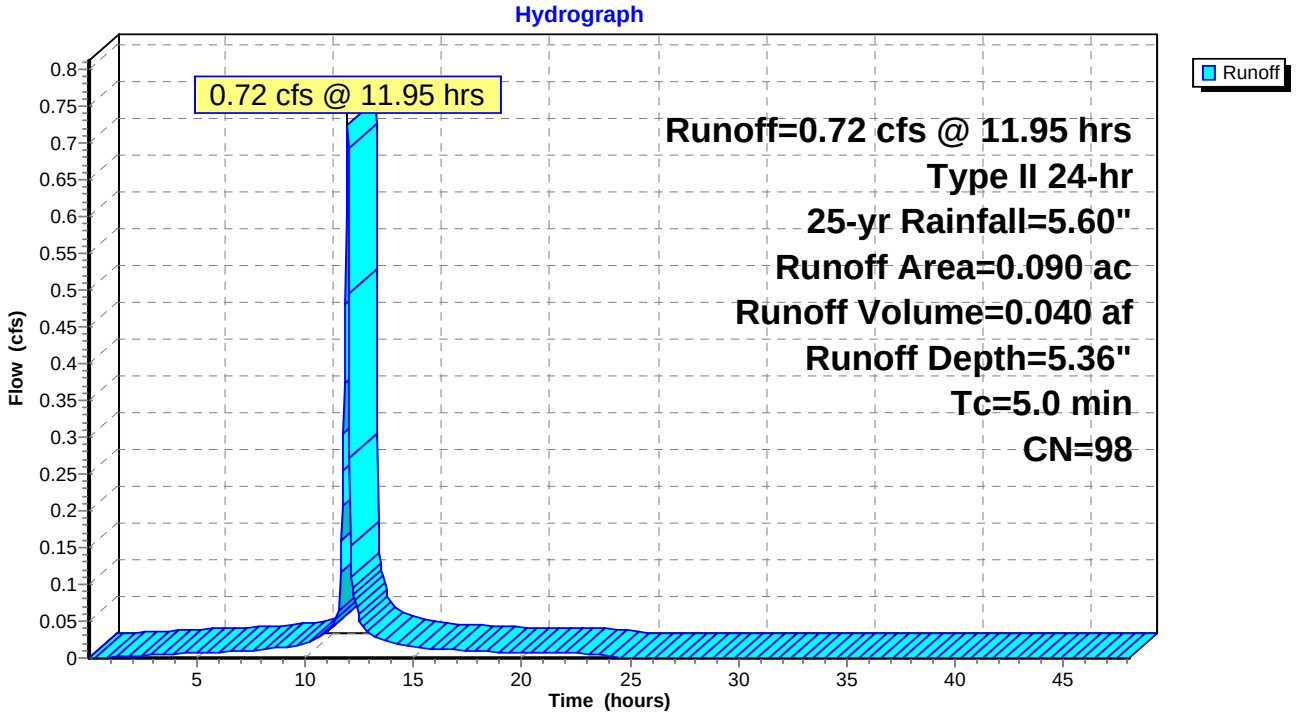
Runoff = 0.72 cfs @ 11.95 hrs, Volume= 0.040 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
0.090	98	Paved parking, HSG C
0.090	98	100.00% Impervious Area

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

Subcatchment 8S: AREA F



Summary for Subcatchment 9S: AREA G

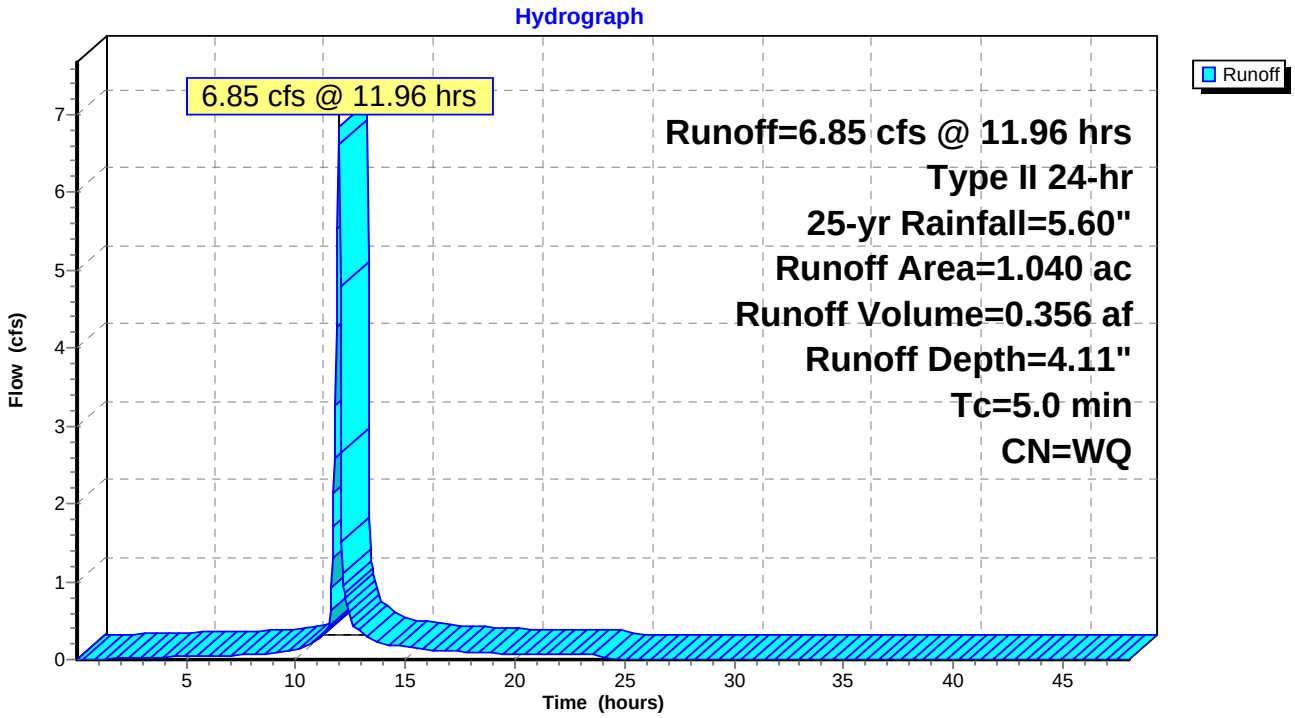
Runoff = 6.85 cfs @ 11.96 hrs, Volume= 0.356 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.520	74	50.00% Pervious Area
0.520	98	50.00% Impervious Area

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

Subcatchment 9S: AREA G



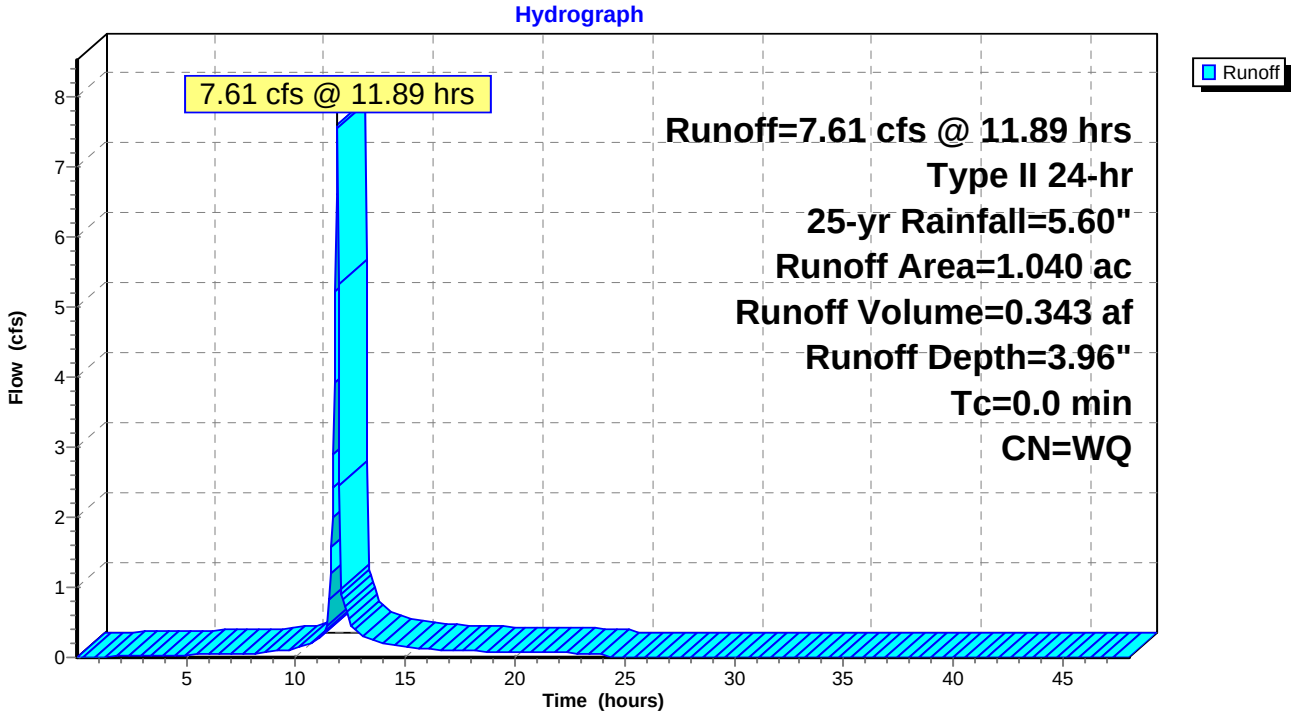
Summary for Subcatchment 10S: AREA H

Runoff = 7.61 cfs @ 11.89 hrs, Volume= 0.343 af, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
0.460	98	Paved parking, HSG C
0.580	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.580	74	55.77% Pervious Area
0.460	98	44.23% Impervious Area

Subcatchment 10S: AREA H



Summary for Subcatchment 11S: AREA J

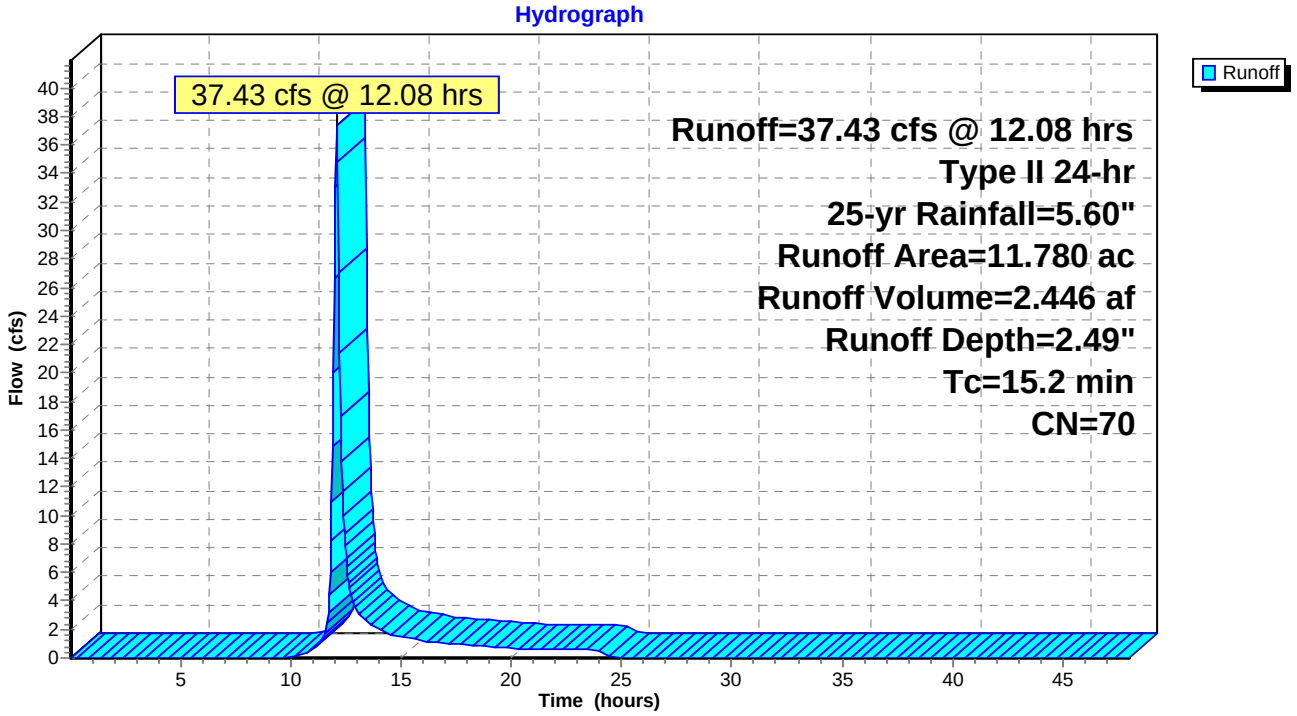
Runoff = 37.43 cfs @ 12.08 hrs, Volume= 2.446 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
11.780	70	Woods, Good, HSG C
11.780	70	100.00% Pervious Area

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

Subcatchment 11S: AREA J



Summary for Subcatchment 12S: EXISTING CONDITIONS

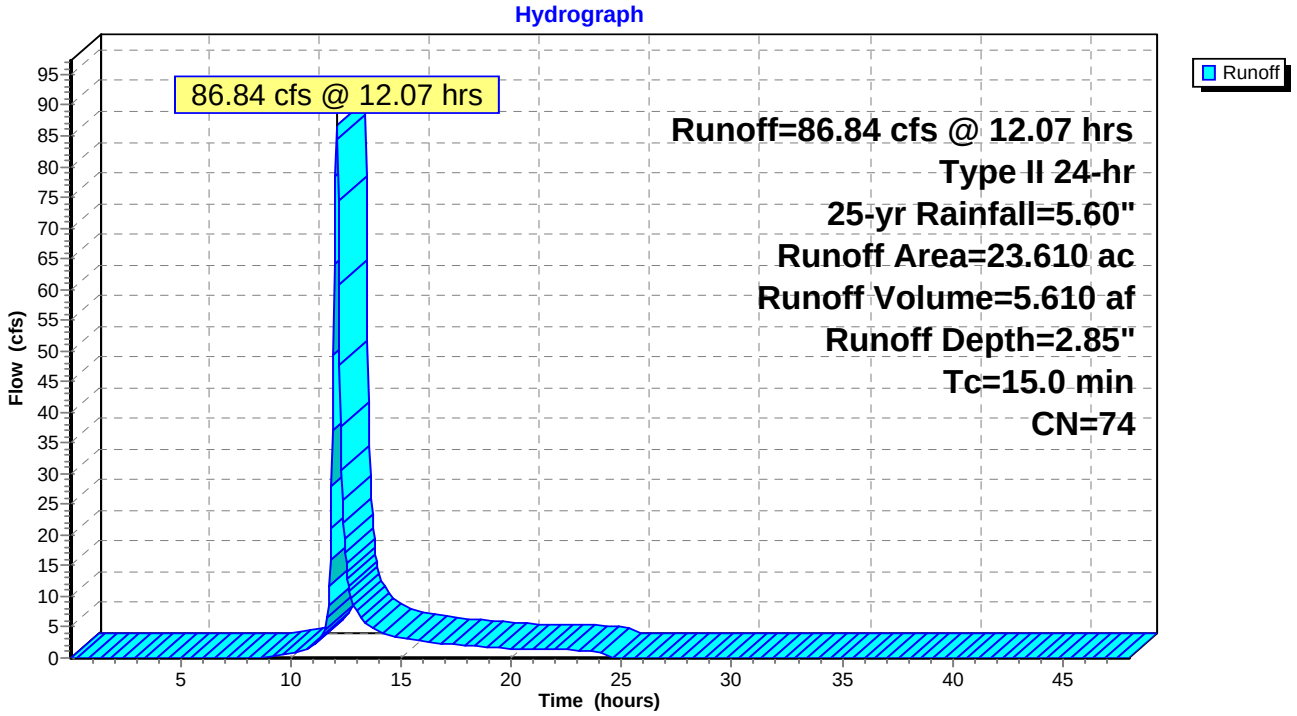
Runoff = 86.84 cfs @ 12.07 hrs, Volume= 5.610 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
23.610	74	>75% Grass cover, Good, HSG C
23.610	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS



Summary for Subcatchment 13S: AREA I

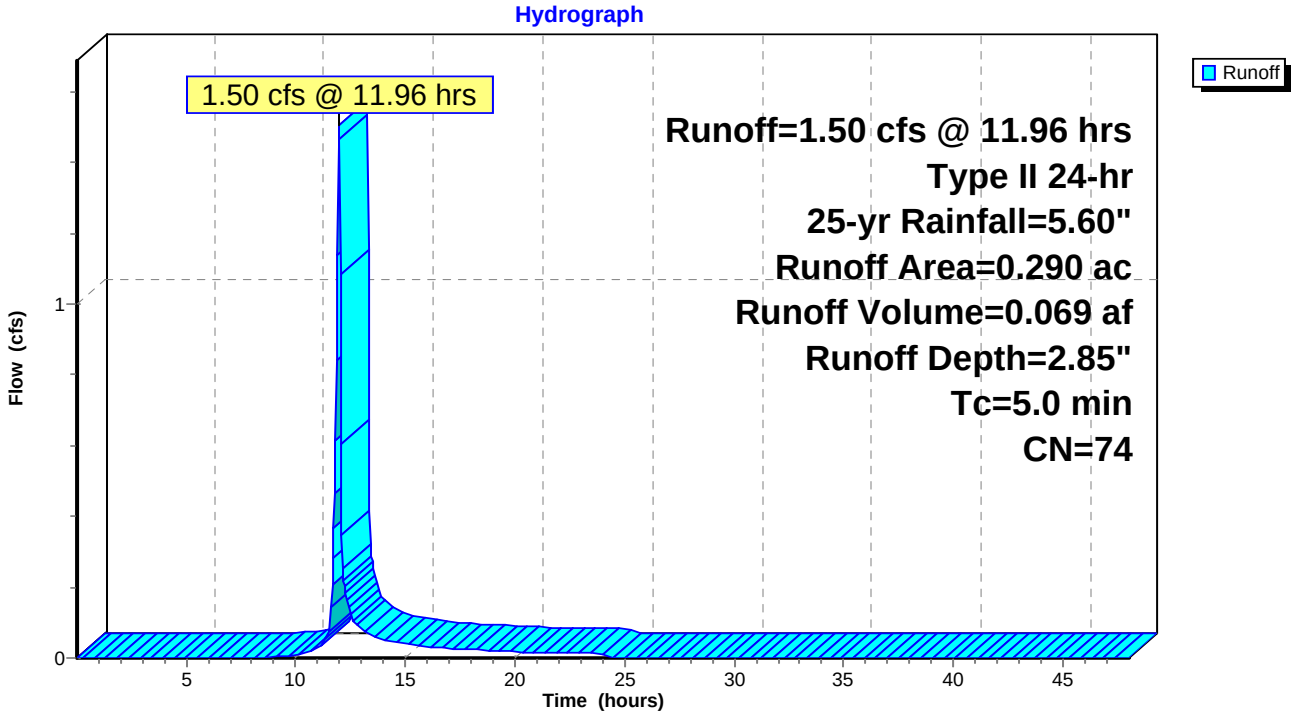
Runoff = 1.50 cfs @ 11.96 hrs, Volume= 0.069 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

	Area (ac)	CN	Description
*	0.290	74	Woods, Good, HSG C
	0.290	74	100.00% Pervious Area

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

Subcatchment 13S: AREA I



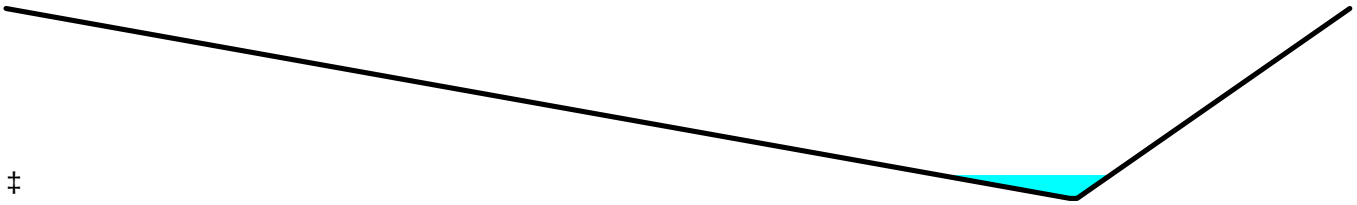
Summary for Reach 2R: CHANNEL TO CMP

Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 2.99" for 25-yr event
Inflow = 136.61 cfs @ 11.98 hrs, Volume= 6.800 af
Outflow = 130.72 cfs @ 12.00 hrs, Volume= 6.800 af, Atten= 4%, Lag= 1.3 min
Routed to Pond 5P : CMP OFFSITE

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Max. Velocity= 6.67 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 2.20 fps, Avg. Travel Time= 5.5 min

Peak Storage= 14,015 cf @ 12.00 hrs
Average Depth at Peak Storage= 1.56' , Surface Width= 23.97'
Bank-Full Depth= 12.67' Flow Area= 1,192.6 sf, Capacity= 31,454.30 cfs

1.00' x 12.67' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 11.7 3.0 '/' Top Width= 187.25'
Length= 718.1' Slope= 0.0333 '/'
Inlet Invert= 514.13', Outlet Invert= 490.22'



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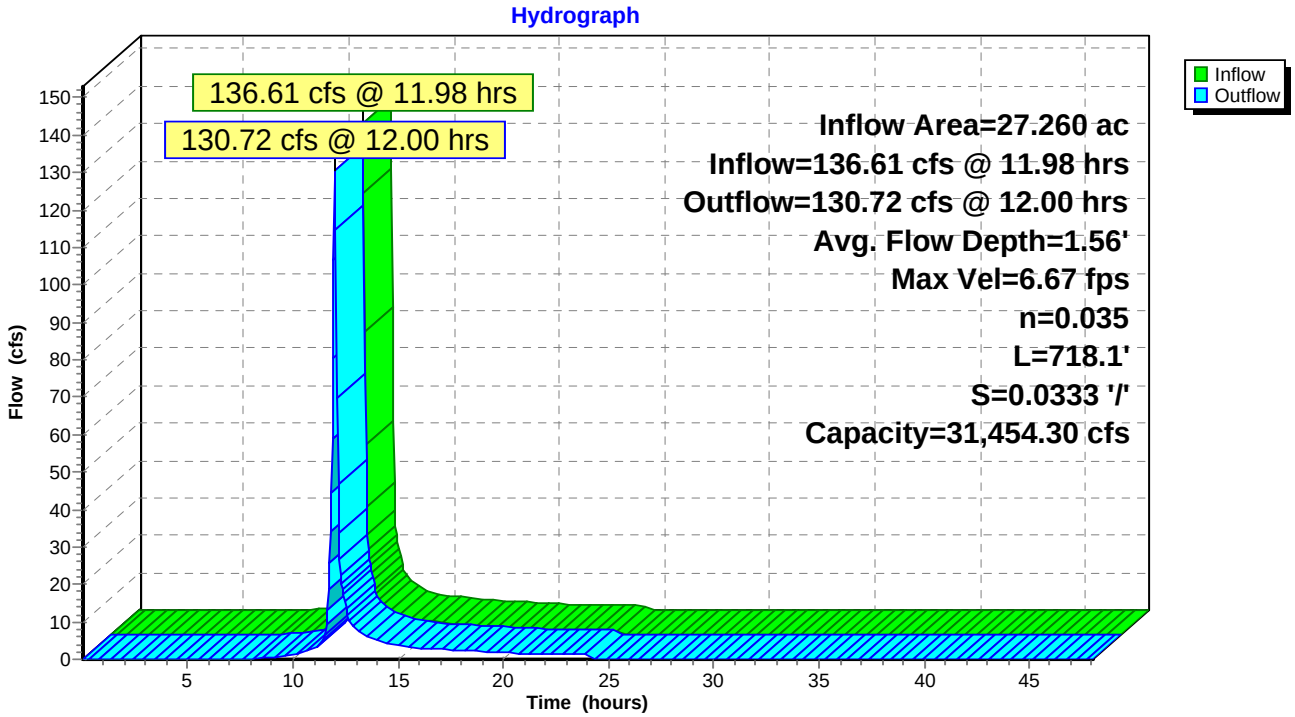
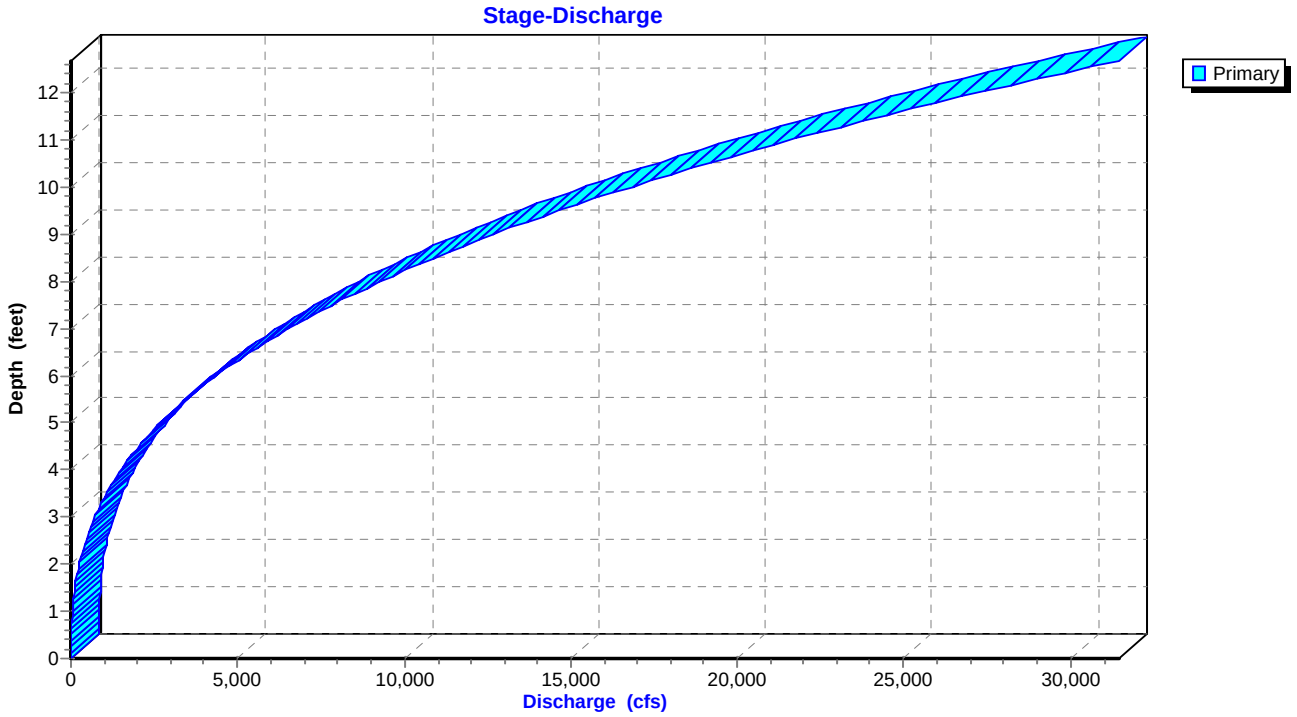
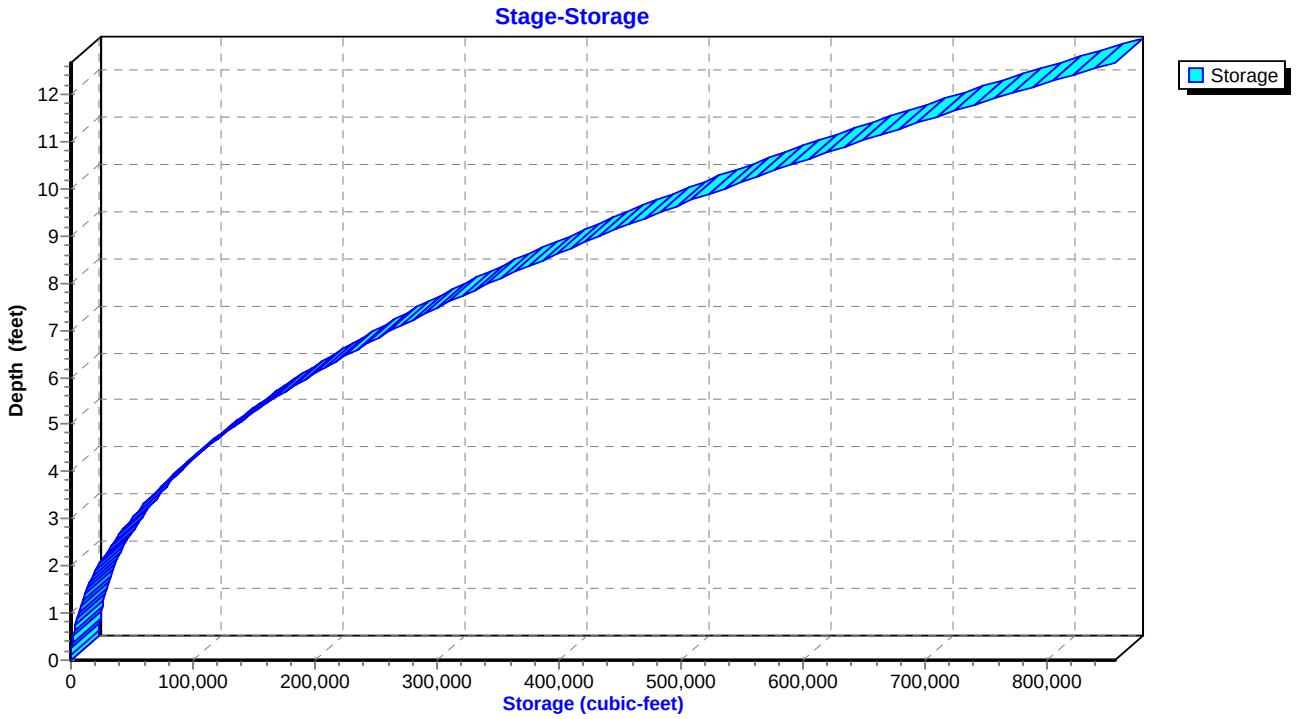
Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Summary for Pond 5P: CMP OFFSITE

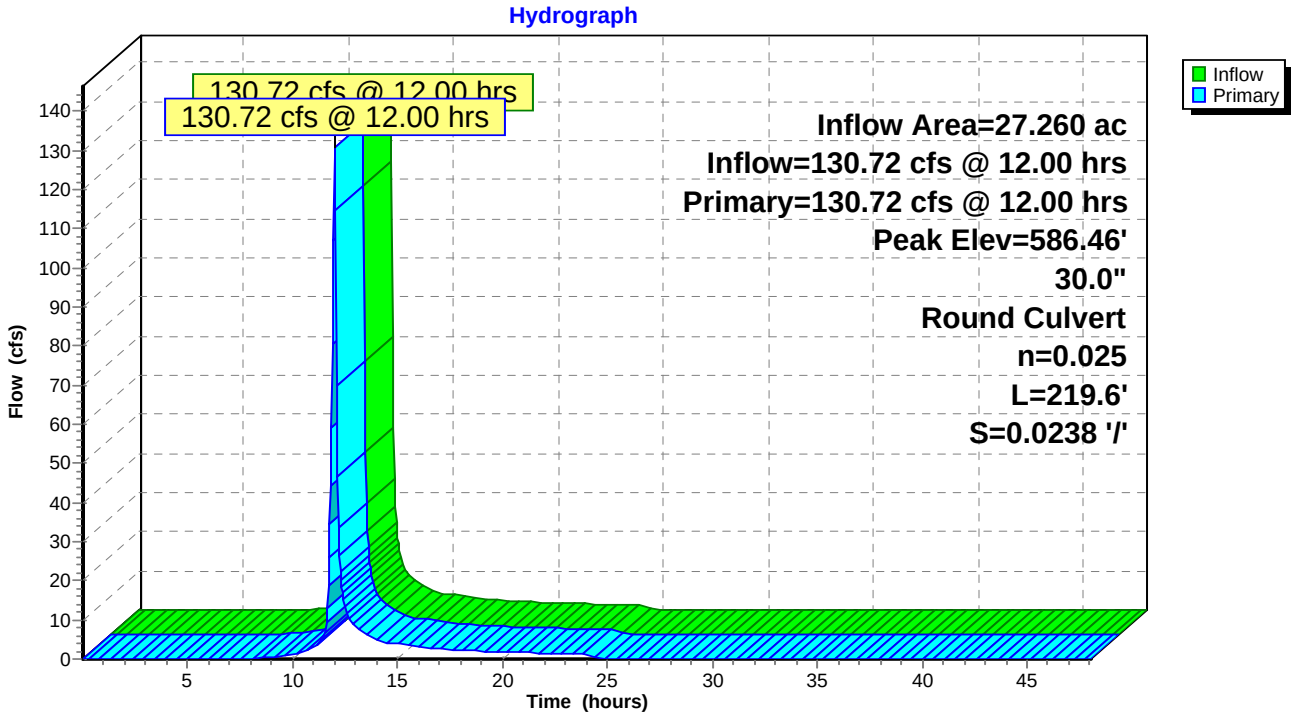
Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 2.99" for 25-yr event
Inflow = 130.72 cfs @ 12.00 hrs, Volume= 6.800 af
Outflow = 130.72 cfs @ 12.00 hrs, Volume= 6.800 af, Atten= 0%, Lag= 0.0 min
Primary = 130.72 cfs @ 12.00 hrs, Volume= 6.800 af

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 586.46' @ 12.00 hrs
Flood Elev= 499.00'

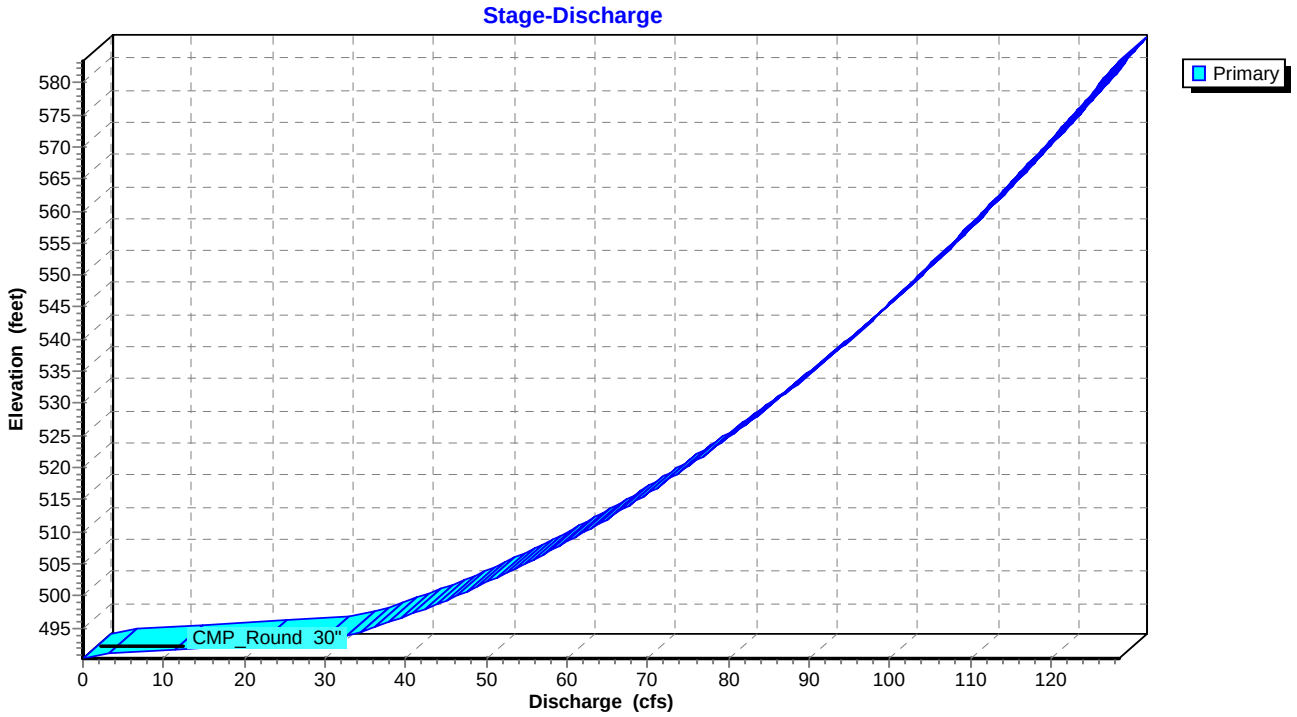
Device	Routing	Invert	Outlet Devices
#1	Primary	490.25'	**30.0" Round CMP_Round 30"** L= 219.6' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 490.25' / 485.02' S= 0.0238 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=127.93 cfs @ 12.00 hrs HW=582.62' (Free Discharge)
└**1=CMP_Round 30"** (Barrel Controls 127.93 cfs @ 26.06 fps)

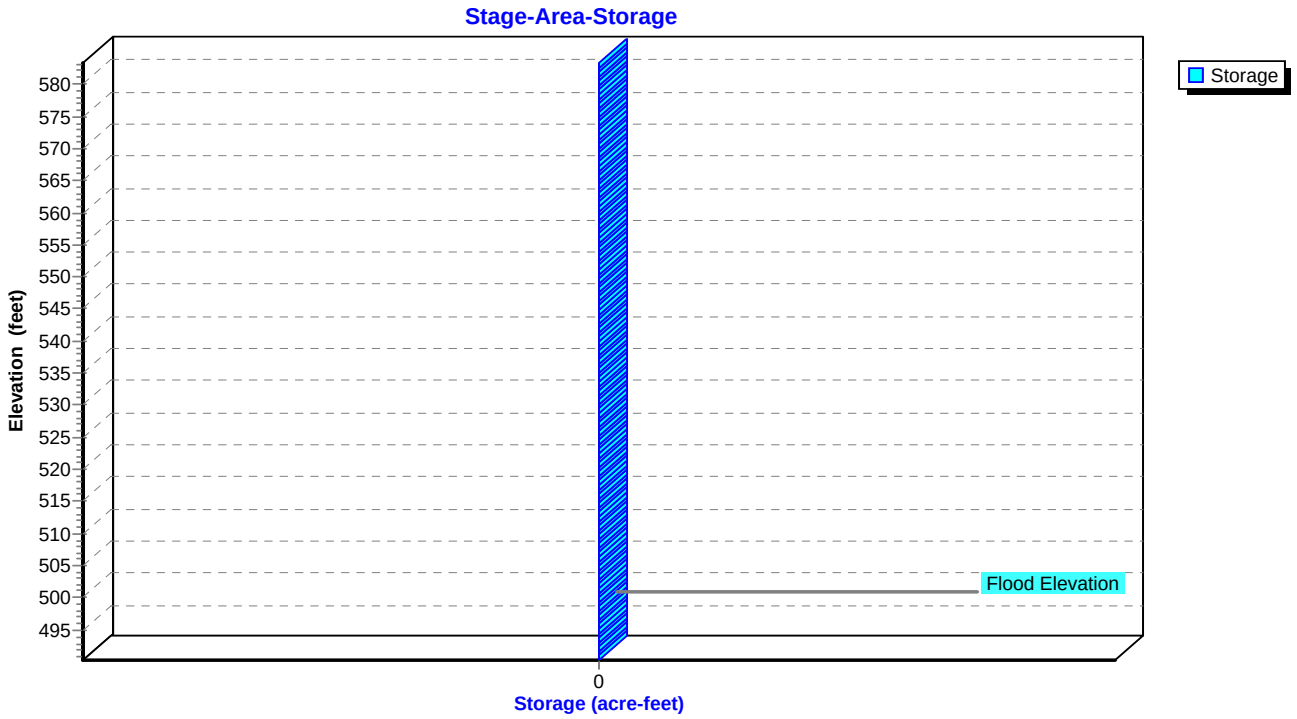
Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Summary for Subcatchment 1S: AREA A ONSITE TO OFFSITE

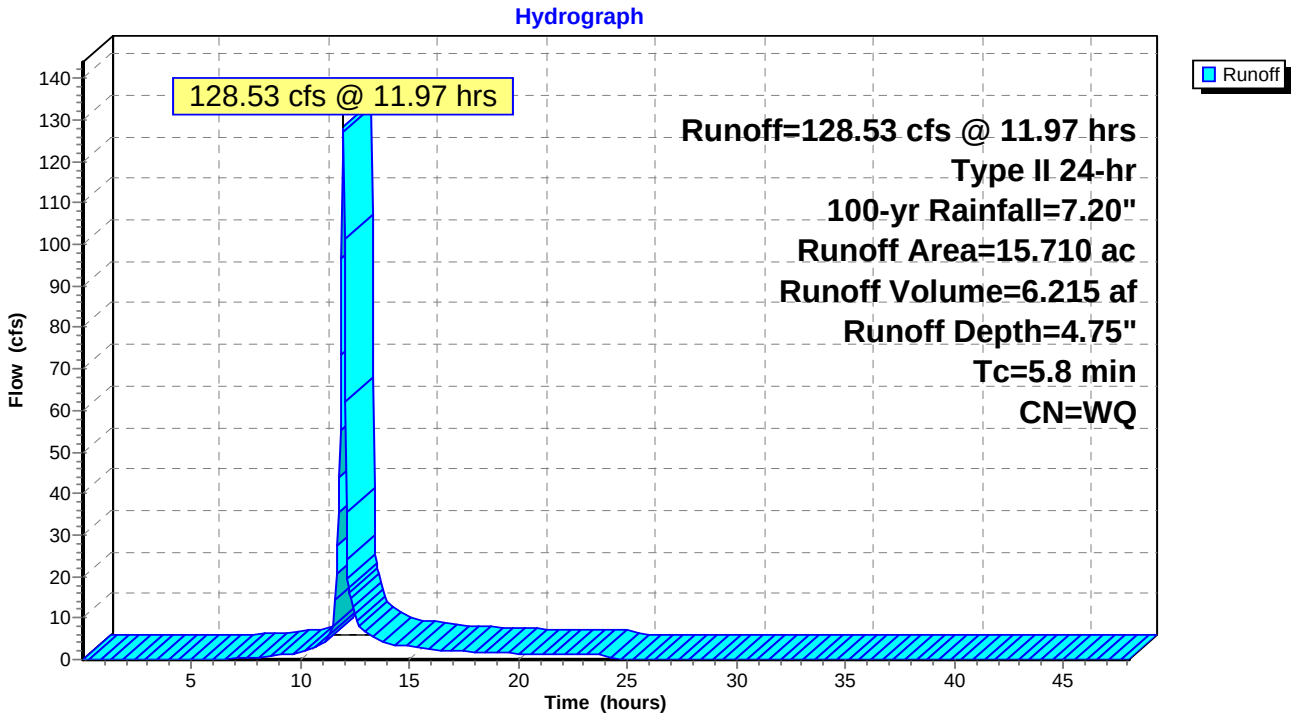
Runoff = 128.53 cfs @ 11.97 hrs, Volume= 6.215 af, Depth= 4.75"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

	Area (ac)	CN	Description
*	12.570	80	Paved parking, HSG C
	3.140	74	>75% Grass cover, Good, HSG C
	15.710		Weighted Average
	15.710	79	100.00% Pervious Area

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

Subcatchment 1S: AREA A ONSITE TO OFFSITE



Summary for Subcatchment 3S: AREA B

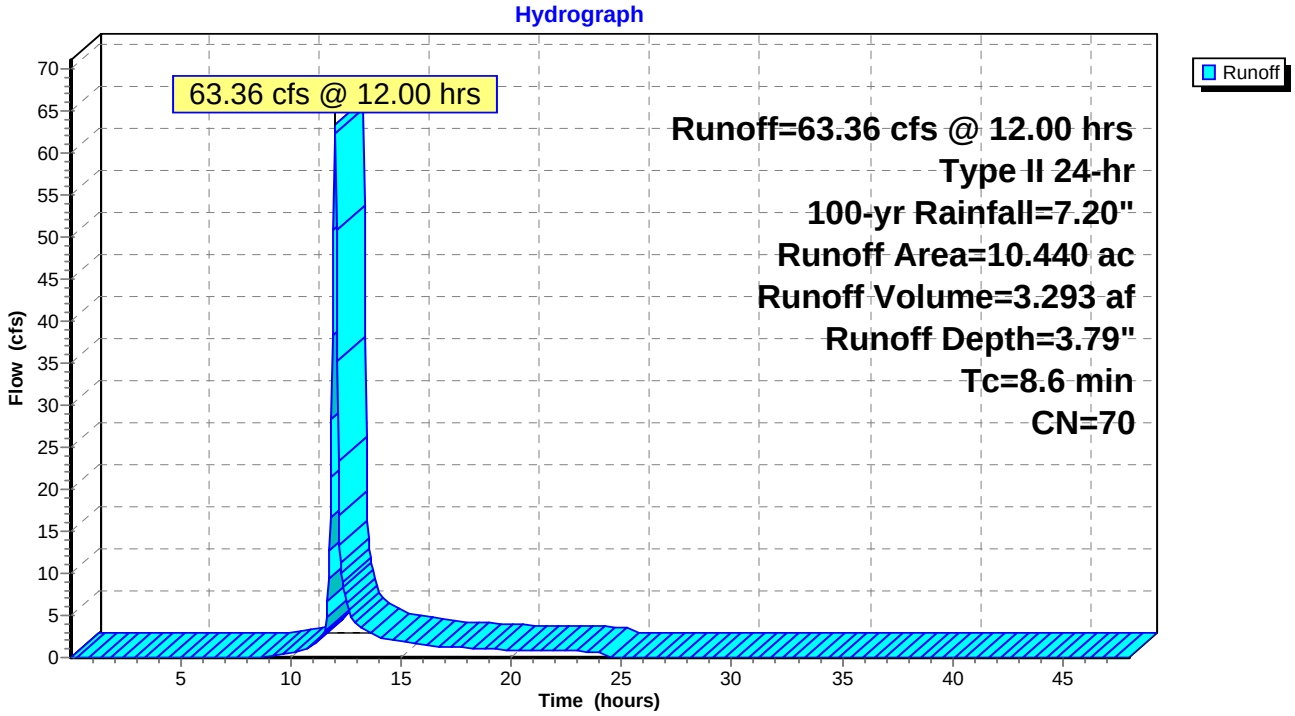
Runoff = 63.36 cfs @ 12.00 hrs, Volume= 3.293 af, Depth= 3.79"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
10.440	70	Woods, Good, HSG C
10.440	70	100.00% Pervious Area

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

Subcatchment 3S: AREA B



Summary for Subcatchment 4S: AREA C

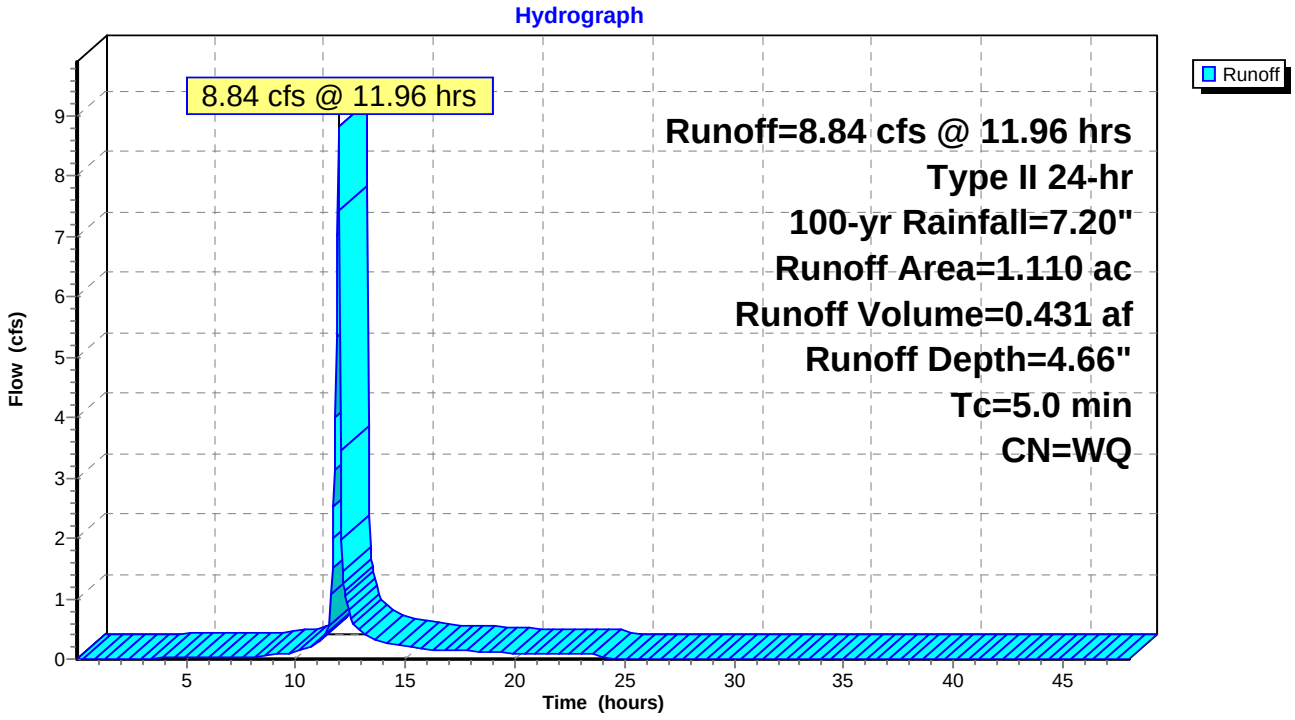
Runoff = 8.84 cfs @ 11.96 hrs, Volume= 0.431 af, Depth= 4.66"
Routed to Reach 2R : CHANNEL TO CMP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
0.180	98	Paved parking, HSG C
0.930	74	>75% Grass cover, Good, HSG C
1.110		Weighted Average
0.930	74	83.78% Pervious Area
0.180	98	16.22% Impervious Area

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

Subcatchment 4S: AREA C



Summary for Subcatchment 6S: AREA D

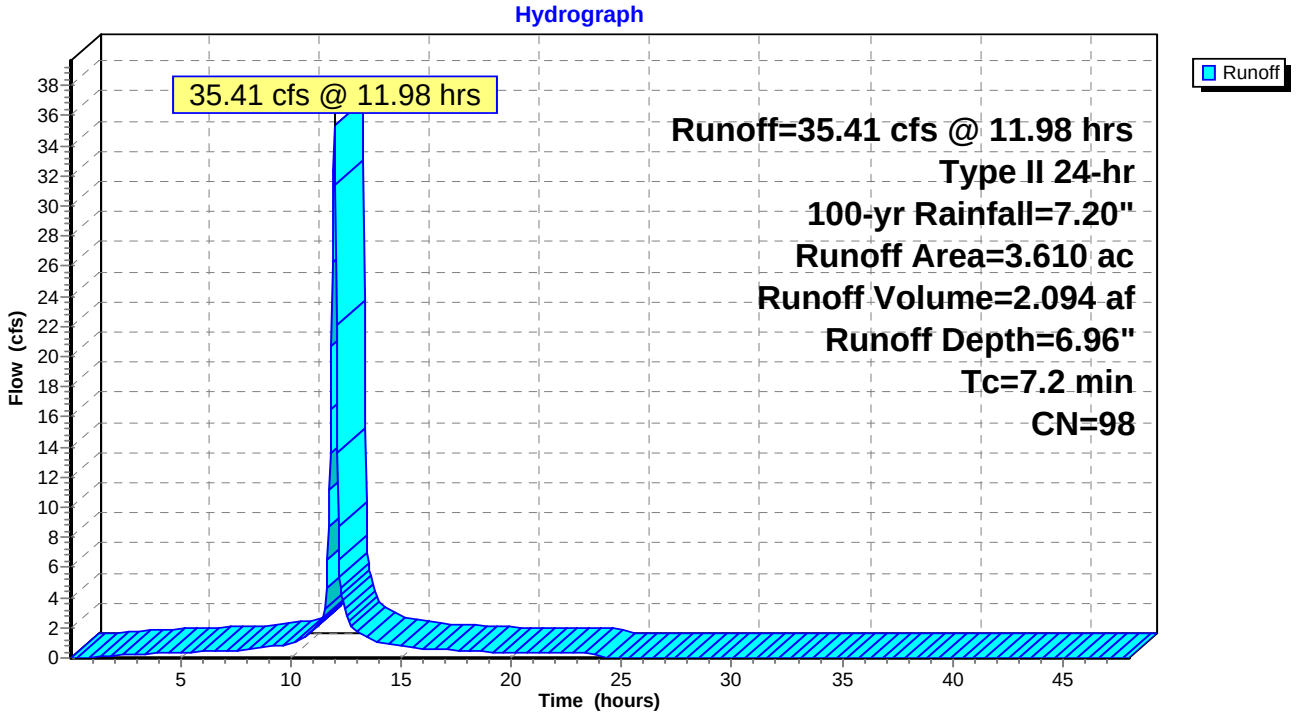
Runoff = 35.41 cfs @ 11.98 hrs, Volume= 2.094 af, Depth= 6.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
3.610	98	Paved parking, HSG C
3.610	98	100.00% Impervious Area

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

Subcatchment 6S: AREA D



Summary for Subcatchment 7S: AREA E

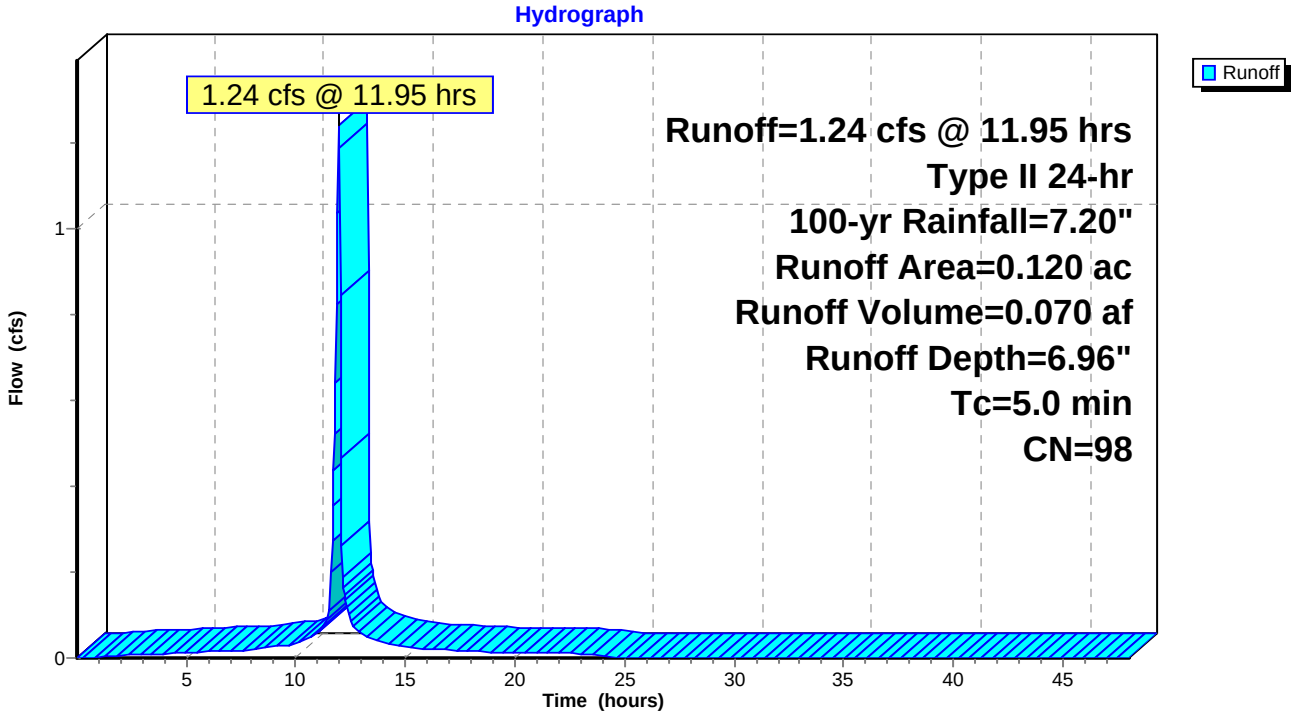
Runoff = 1.24 cfs @ 11.95 hrs, Volume= 0.070 af, Depth= 6.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

	Area (ac)	CN	Description
*	0.120	98	Woods, Good, HSG C
	0.120	98	100.00% Impervious Area

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

Subcatchment 7S: AREA E



Summary for Subcatchment 8S: AREA F

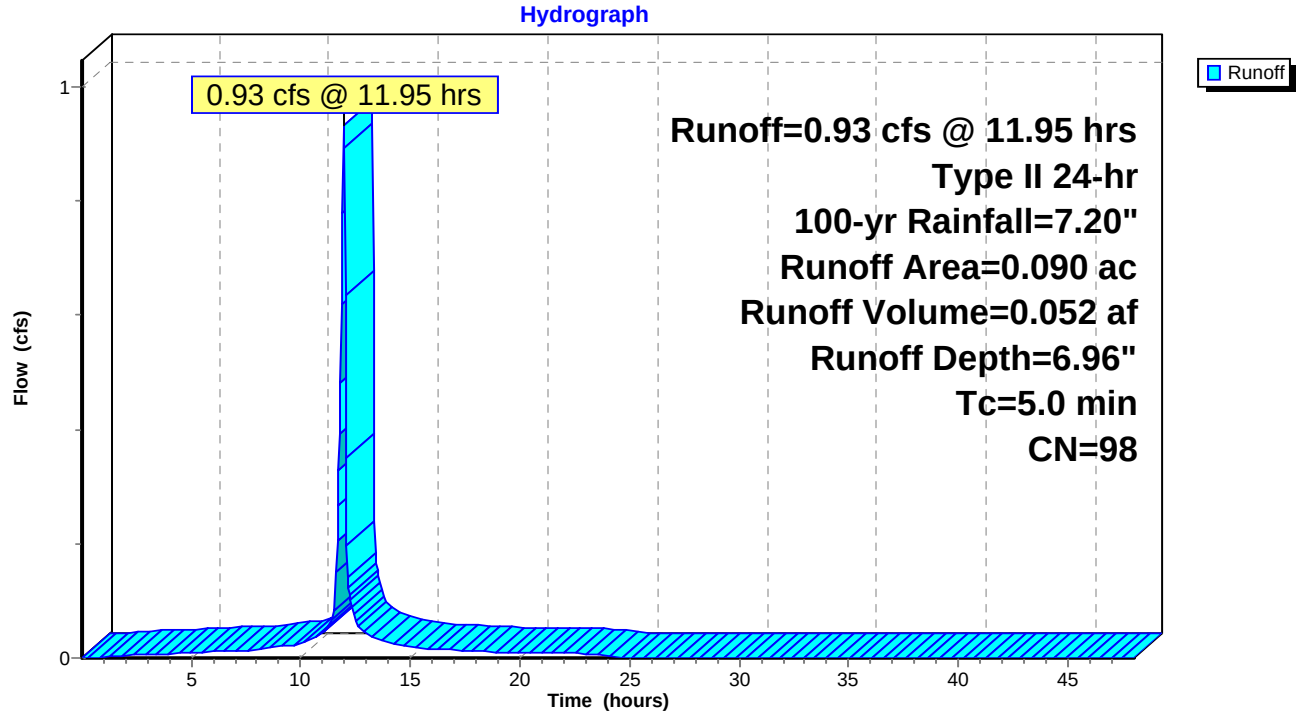
Runoff = 0.93 cfs @ 11.95 hrs, Volume= 0.052 af, Depth= 6.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
0.090	98	Paved parking, HSG C
0.090	98	100.00% Impervious Area

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

Subcatchment 8S: AREA F



Summary for Subcatchment 9S: AREA G

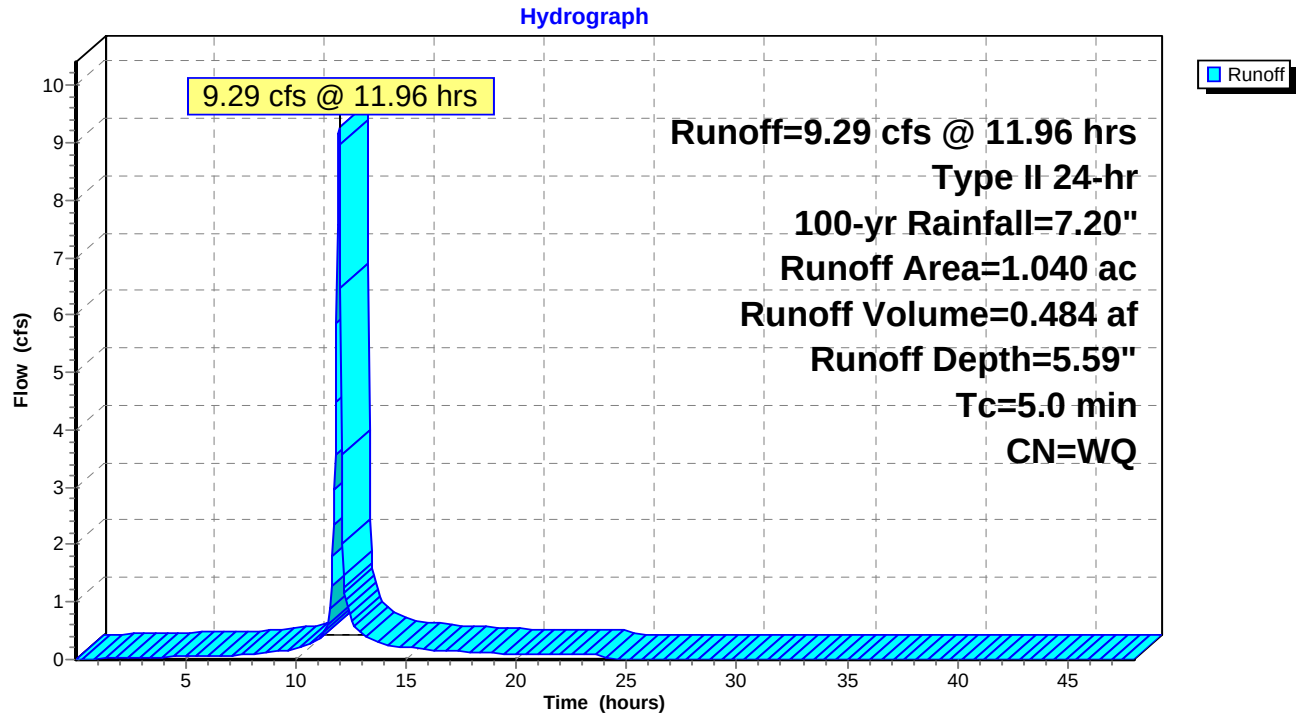
Runoff = 9.29 cfs @ 11.96 hrs, Volume= 0.484 af, Depth= 5.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
0.520	98	Paved parking, HSG C
0.520	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.520	74	50.00% Pervious Area
0.520	98	50.00% Impervious Area

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

Subcatchment 9S: AREA G



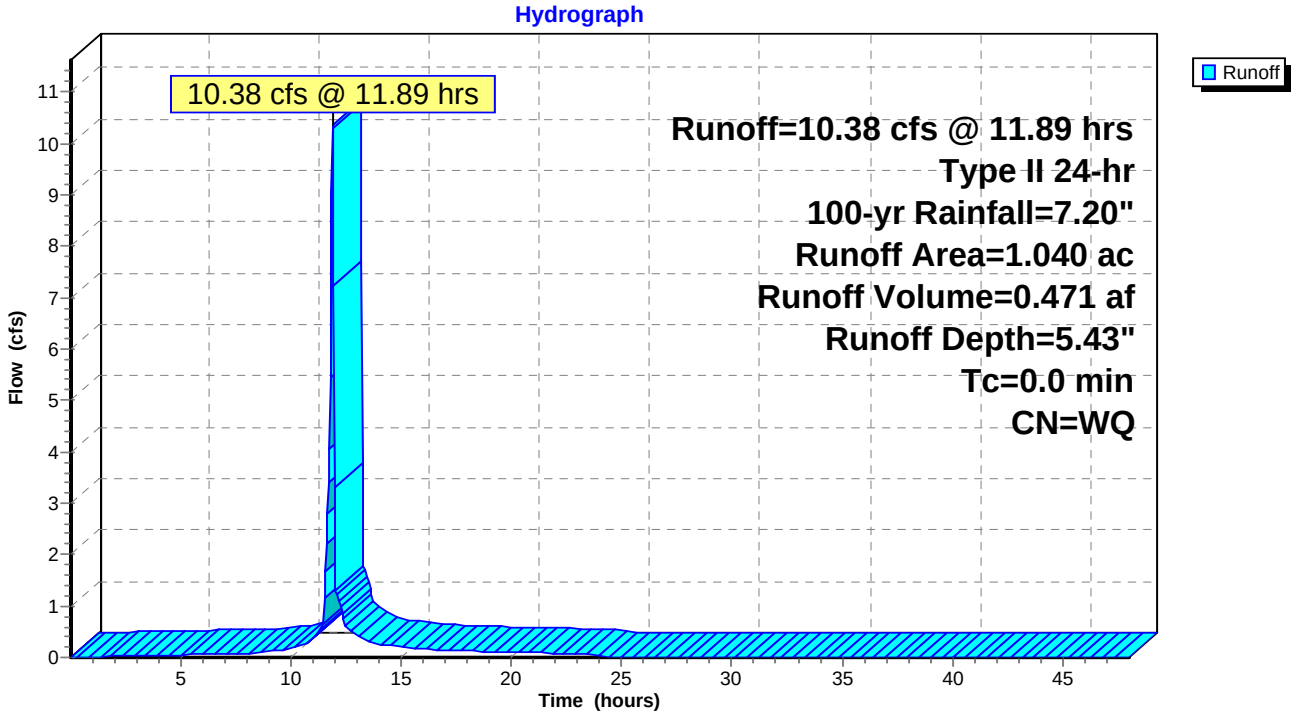
Summary for Subcatchment 10S: AREA H

Runoff = 10.38 cfs @ 11.89 hrs, Volume= 0.471 af, Depth= 5.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
0.460	98	Paved parking, HSG C
0.580	74	>75% Grass cover, Good, HSG C
1.040		Weighted Average
0.580	74	55.77% Pervious Area
0.460	98	44.23% Impervious Area

Subcatchment 10S: AREA H



Summary for Subcatchment 11S: AREA J

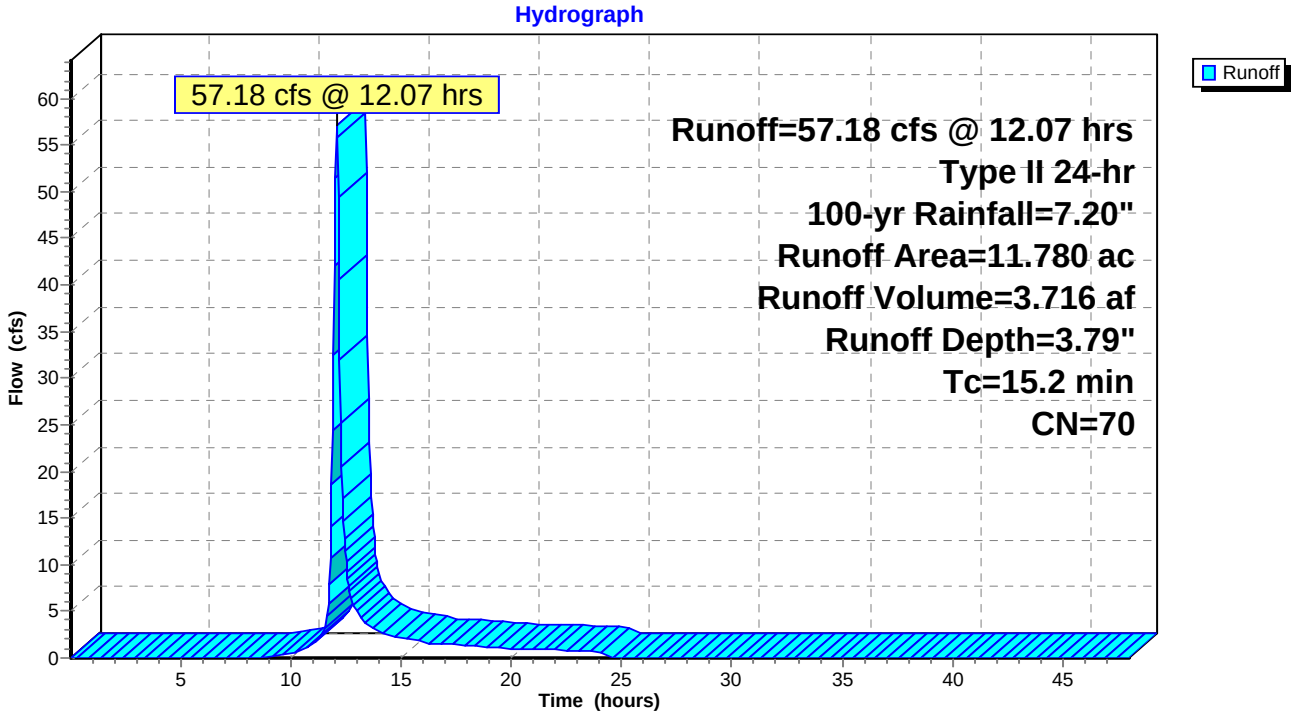
Runoff = 57.18 cfs @ 12.07 hrs, Volume= 3.716 af, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
11.780	70	Woods, Good, HSG C
11.780	70	100.00% Pervious Area

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

Subcatchment 11S: AREA J



Summary for Subcatchment 12S: EXISTING CONDITIONS

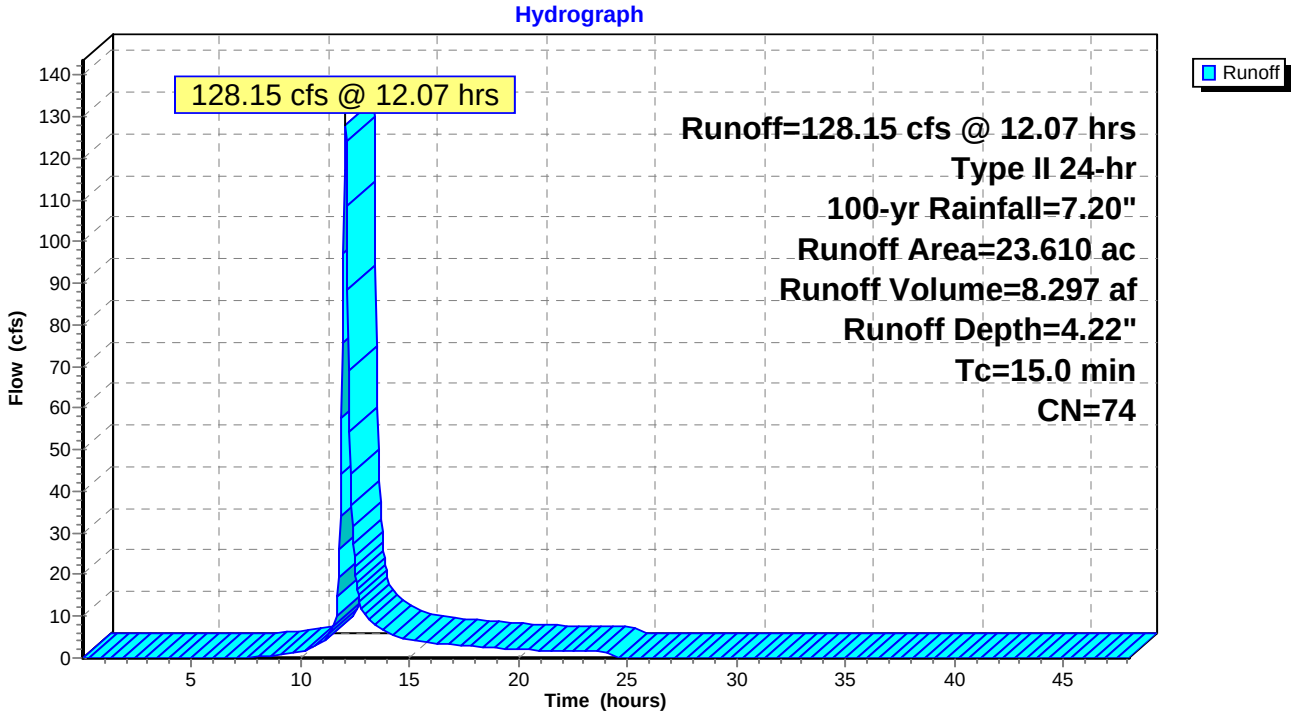
Runoff = 128.15 cfs @ 12.07 hrs, Volume= 8.297 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
23.610	74	>75% Grass cover, Good, HSG C
23.610	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS



Summary for Subcatchment 13S: AREA I

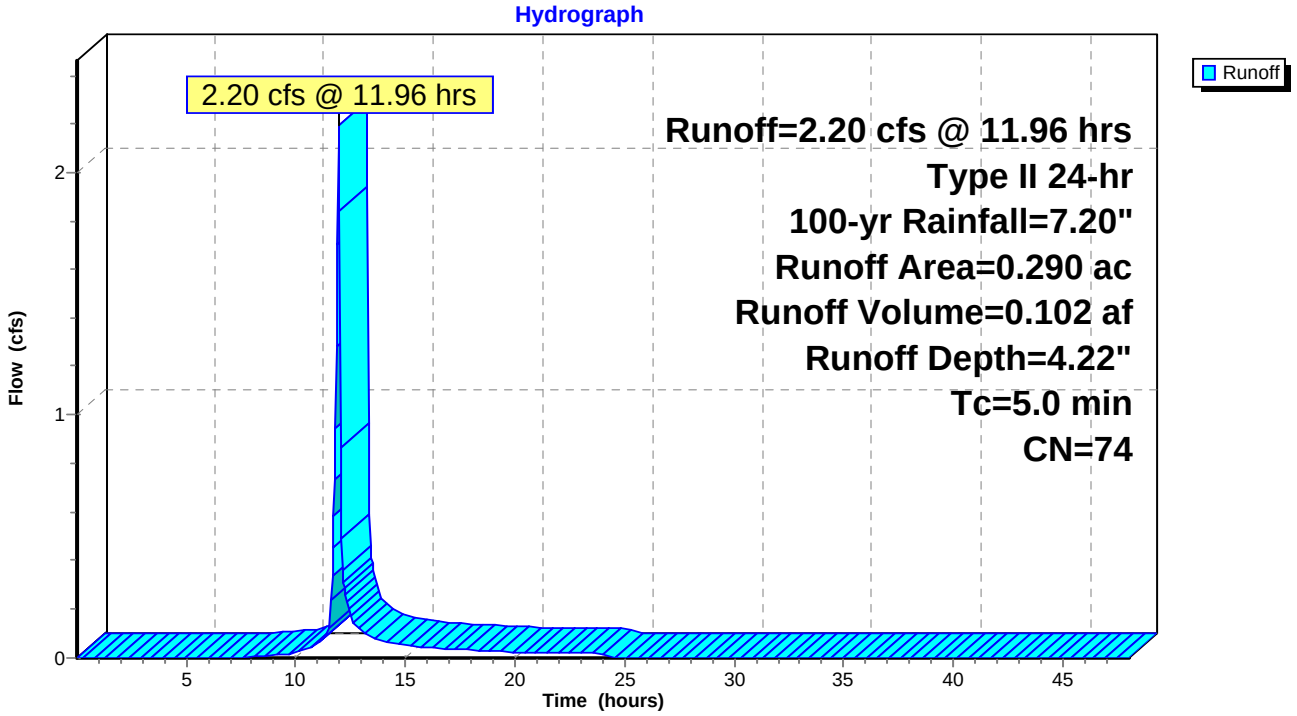
Runoff = 2.20 cfs @ 11.96 hrs, Volume= 0.102 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

	Area (ac)	CN	Description
*	0.290	74	Woods, Good, HSG C
	0.290	74	100.00% Pervious Area

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

Subcatchment 13S: AREA I



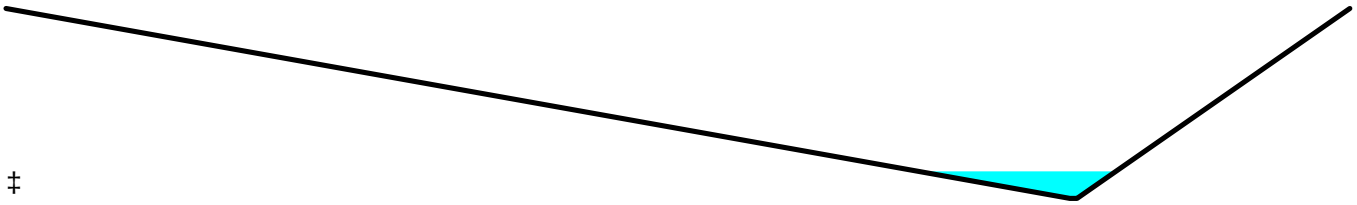
Summary for Reach 2R: CHANNEL TO CMP

Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 4.38" for 100-yr event
Inflow = 197.41 cfs @ 11.98 hrs, Volume= 9.939 af
Outflow = 190.21 cfs @ 11.99 hrs, Volume= 9.939 af, Atten= 4%, Lag= 1.2 min
Routed to Pond 5P : CMP OFFSITE

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Max. Velocity= 7.34 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.37 fps, Avg. Travel Time= 5.0 min

Peak Storage= 18,570 cf @ 11.99 hrs
Average Depth at Peak Storage= 1.81' , Surface Width= 27.59'
Bank-Full Depth= 12.67' Flow Area= 1,192.6 sf, Capacity= 31,454.30 cfs

1.00' x 12.67' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 11.7 3.0 '/' Top Width= 187.25'
Length= 718.1' Slope= 0.0333 '/'
Inlet Invert= 514.13', Outlet Invert= 490.22'



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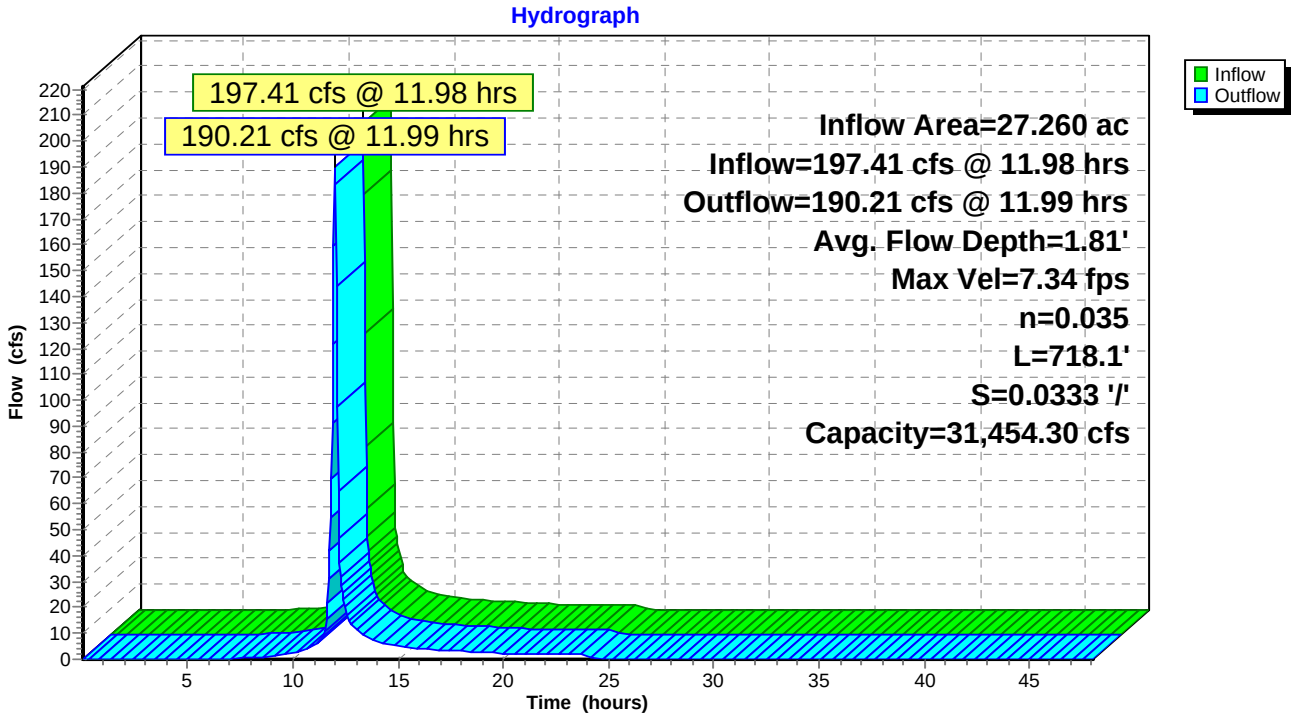
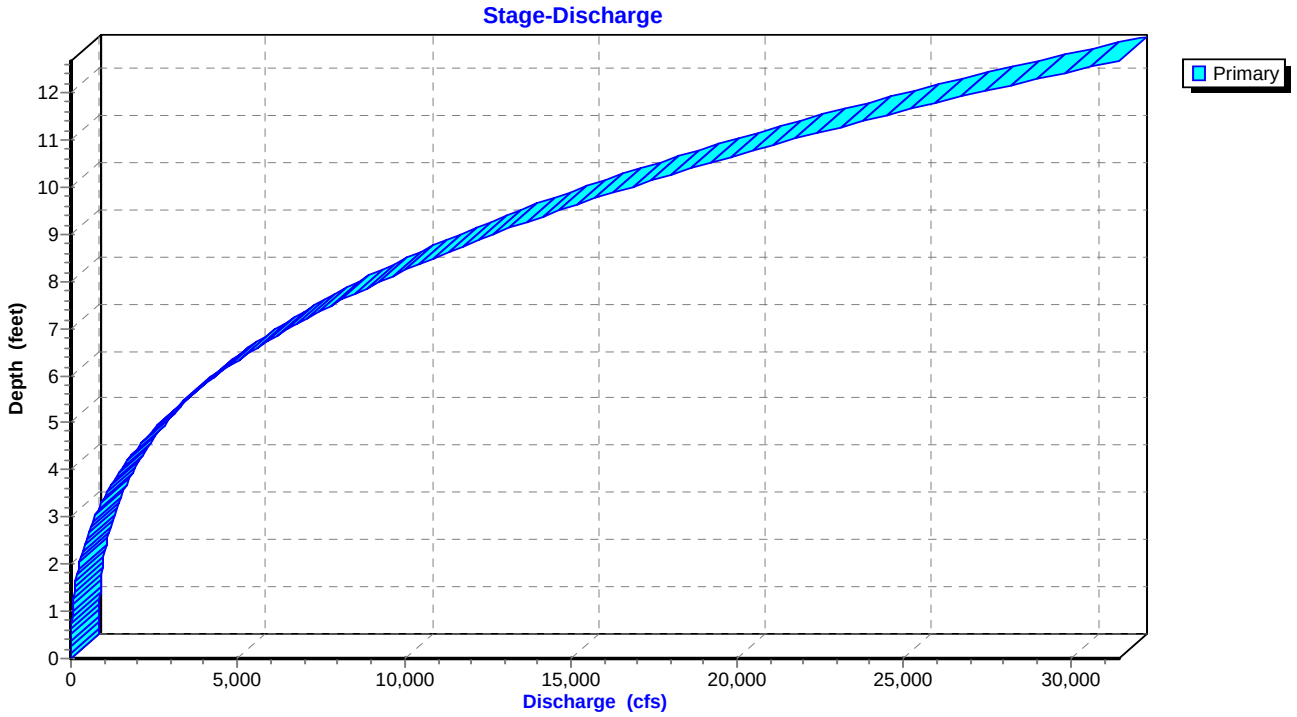
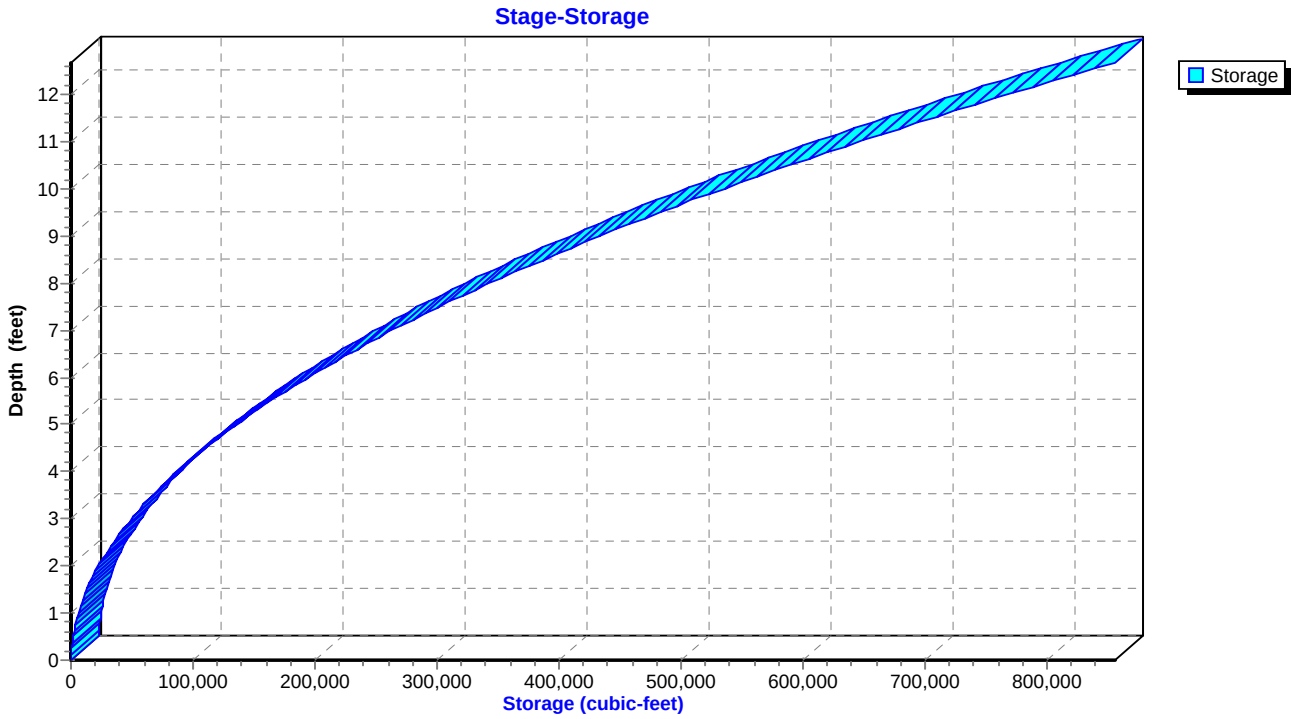
Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Reach 2R: CHANNEL TO CMP



Summary for Pond 5P: CMP OFFSITE

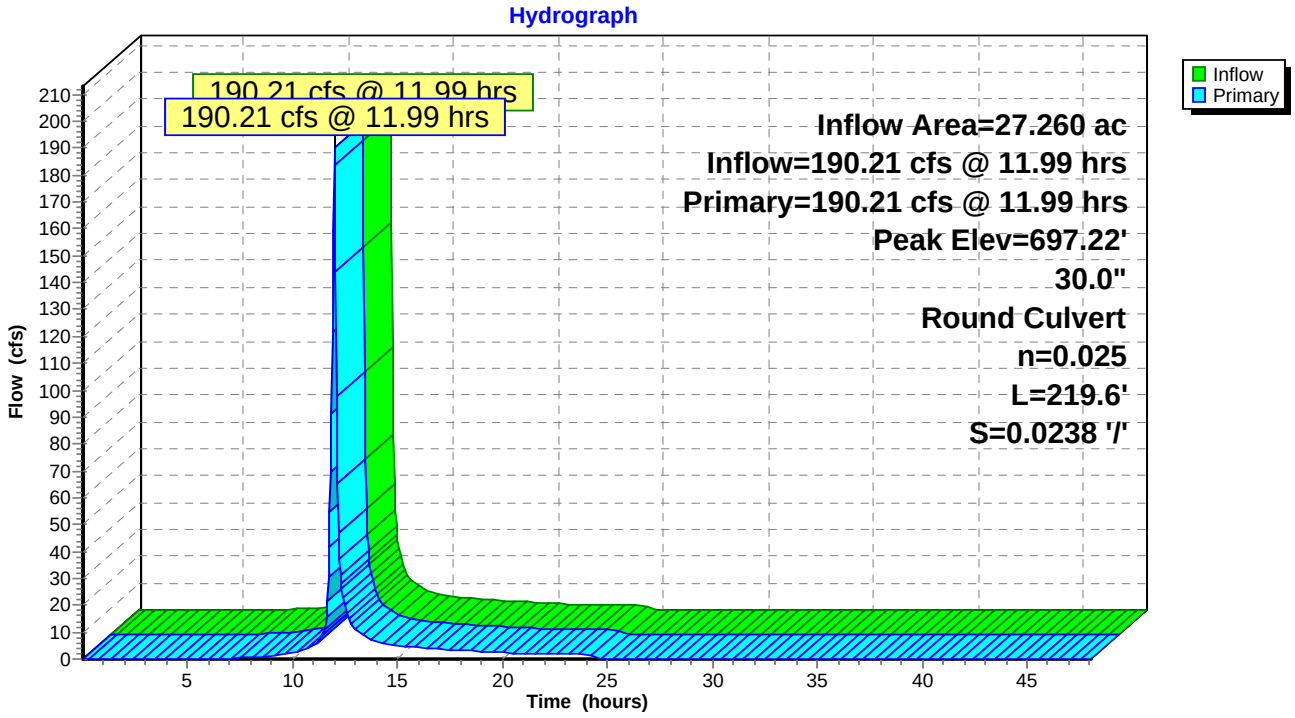
Inflow Area = 27.260 ac, 0.66% Impervious, Inflow Depth = 4.38" for 100-yr event
Inflow = 190.21 cfs @ 11.99 hrs, Volume= 9.939 af
Outflow = 190.21 cfs @ 11.99 hrs, Volume= 9.939 af, Atten= 0%, Lag= 0.0 min
Primary = 190.21 cfs @ 11.99 hrs, Volume= 9.939 af

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 697.22' @ 11.99 hrs
Flood Elev= 499.00'

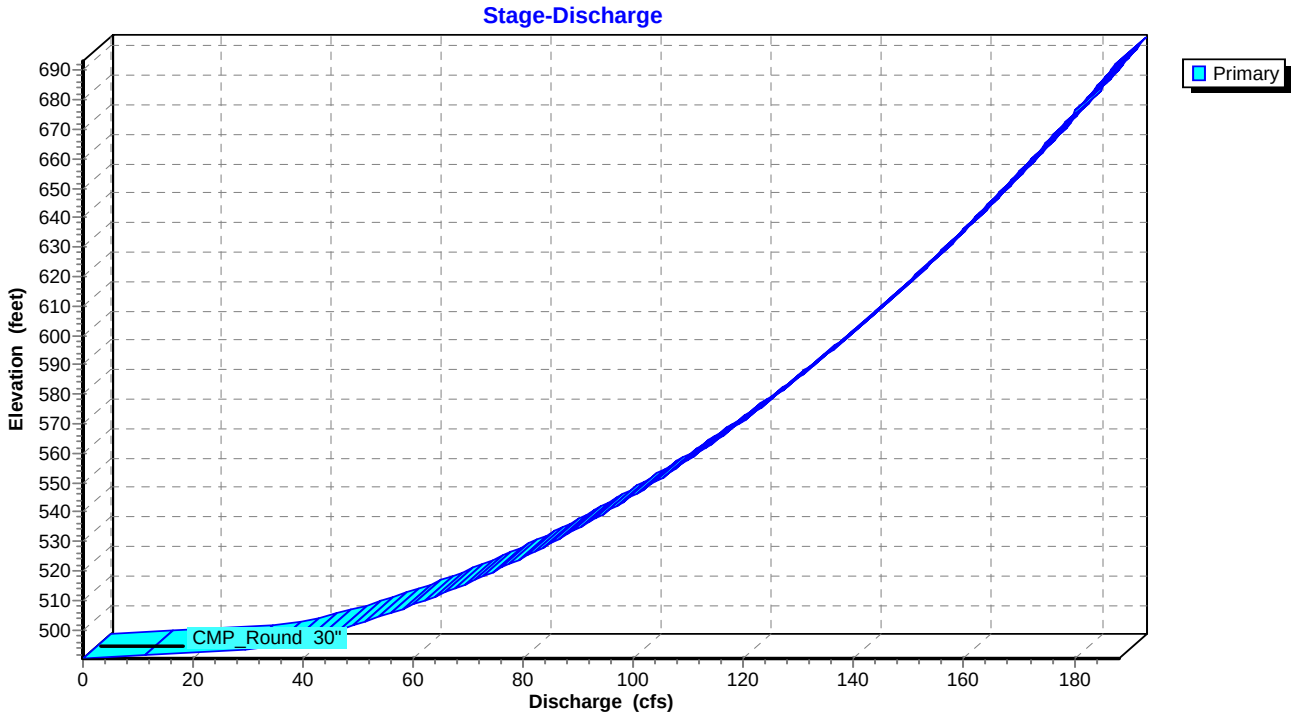
Device	Routing	Invert	Outlet Devices
#1	Primary	490.25'	**30.0" Round CMP_Round 30"** L= 219.6' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 490.25' / 485.02' S= 0.0238 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=186.38 cfs @ 11.99 hrs HW=689.37' (Free Discharge)
└**1=CMP_Round 30"** (Barrel Controls 186.38 cfs @ 37.97 fps)

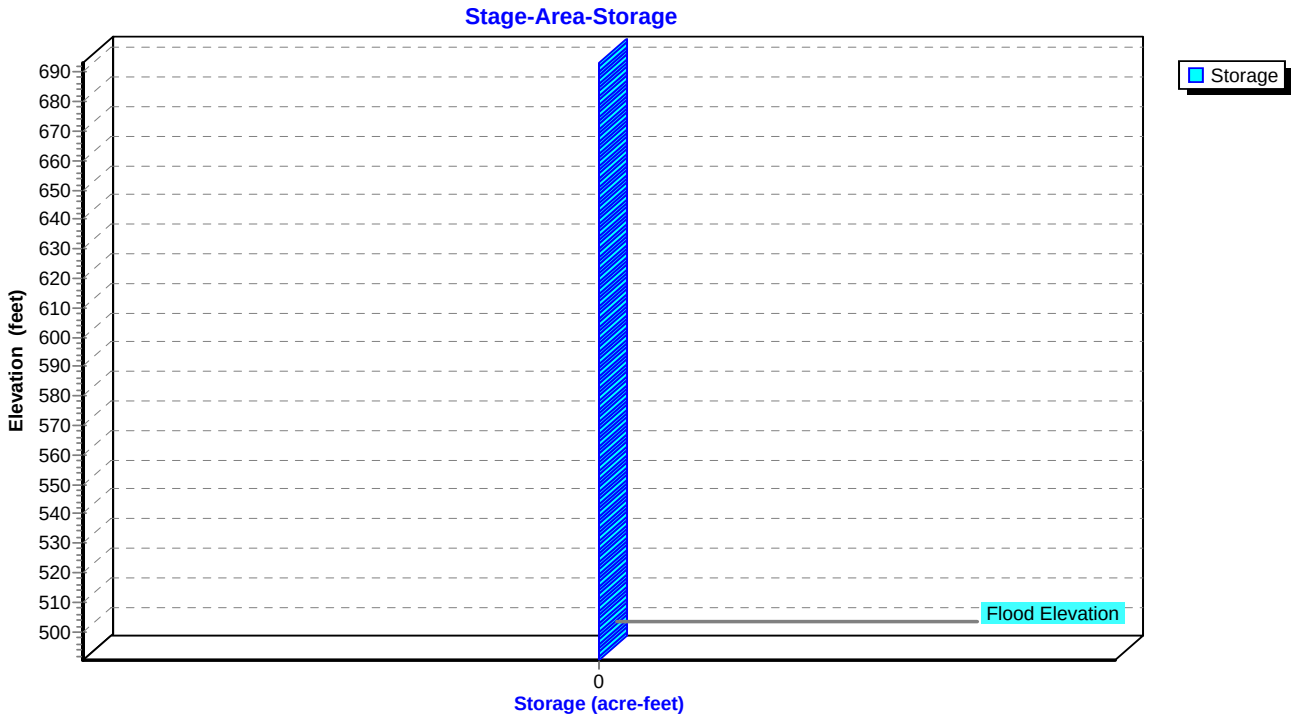
Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Pond 5P: CMP OFFSITE



Appendix D Proposed Conditions Hydrograph Report

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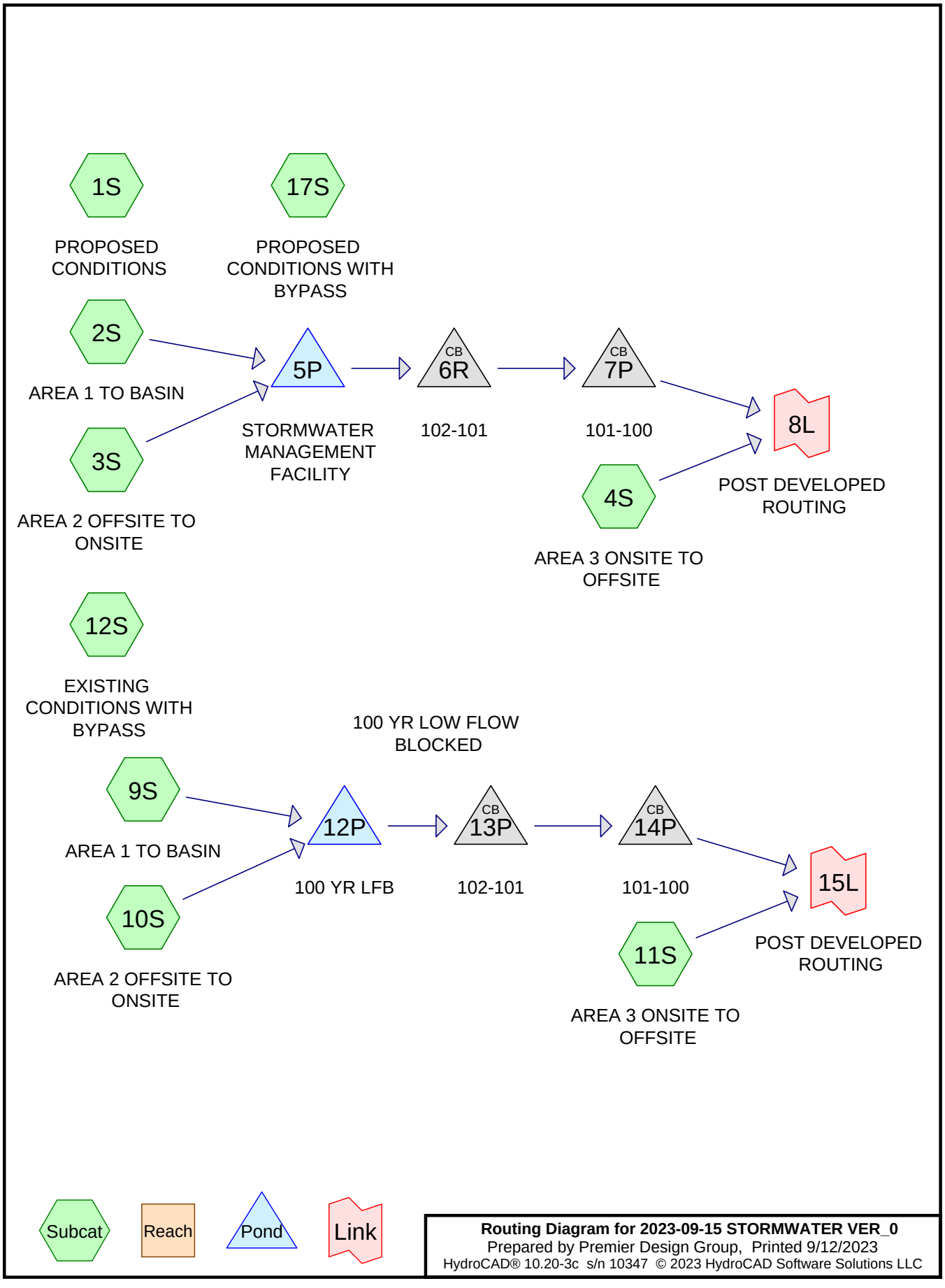


Routing Diagram for 2023-09-15 STORMWATER VER_0
Prepared by Premier Design Group, Printed 9/12/2023

Summary for Subcatchment 1S: PROPOSED CONDITIONS

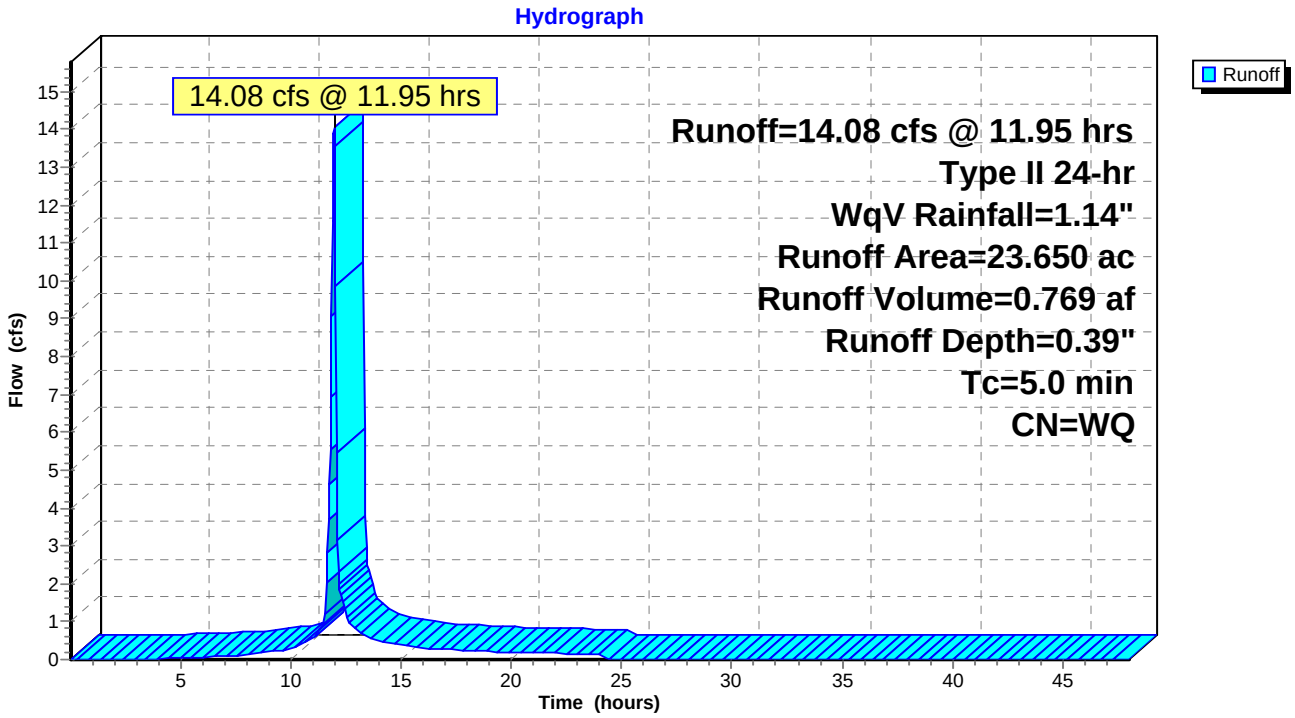
Runoff = 14.08 cfs @ 11.95 hrs, Volume= 0.769 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
23.650		Weighted Average
14.450	74	61.10% Pervious Area
9.200	98	38.90% Impervious Area

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

Subcatchment 1S: PROPOSED CONDITIONS



Summary for Subcatchment 2S: AREA 1 TO BASIN

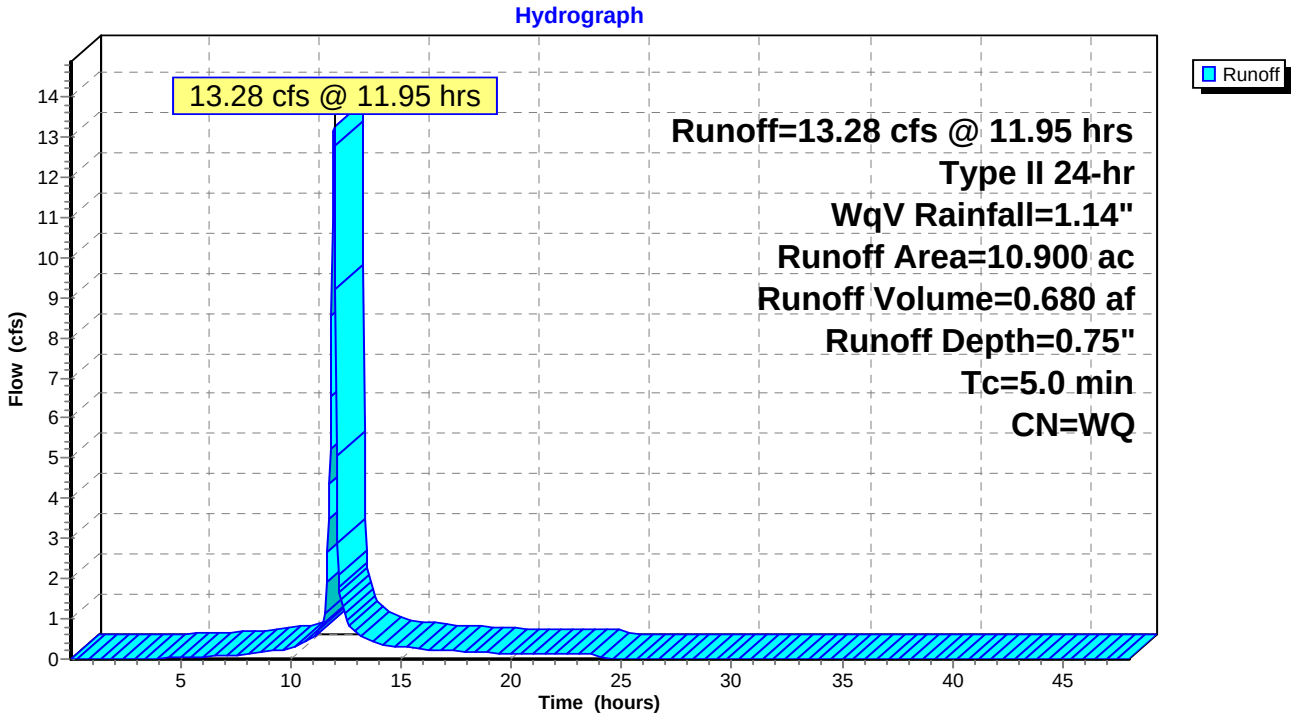
Runoff = 13.28 cfs @ 11.95 hrs, Volume= 0.680 af, Depth= 0.75"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 2S: AREA 1 TO BASIN



Summary for Subcatchment 3S: AREA 2 OFFSITE TO ONSITE

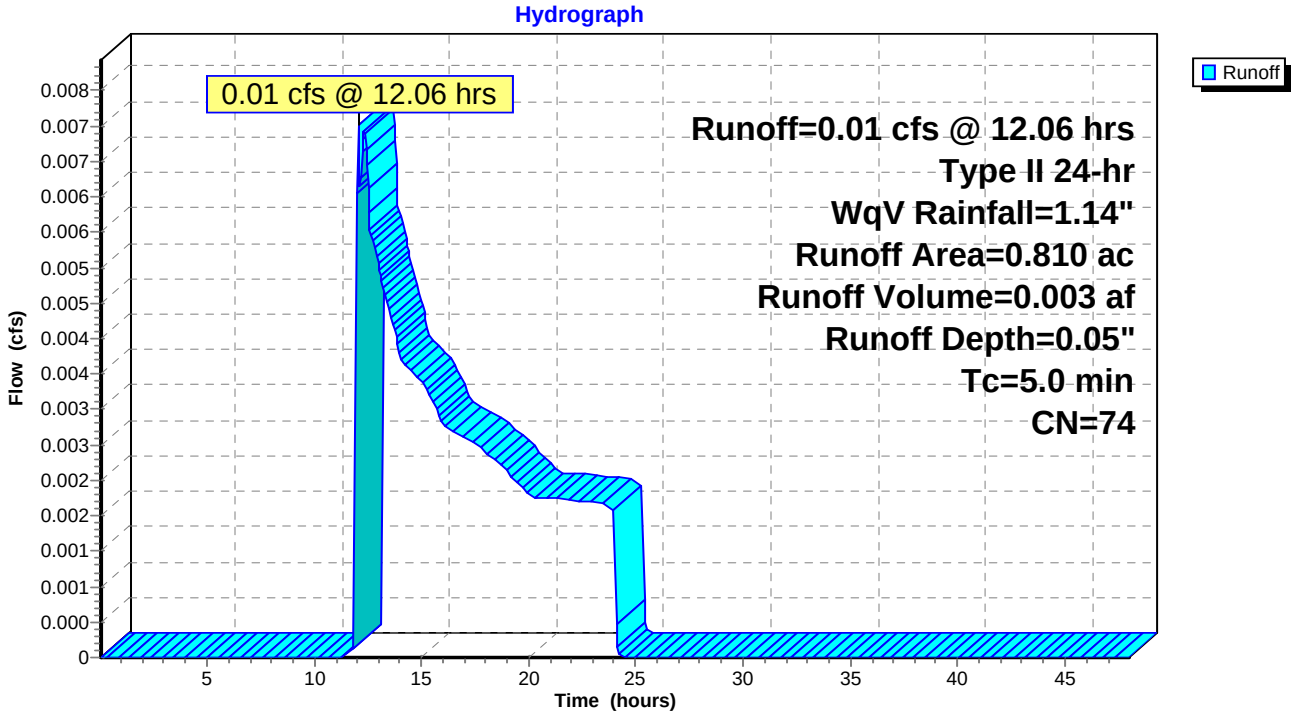
Runoff = 0.01 cfs @ 12.06 hrs, Volume= 0.003 af, Depth= 0.05"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 3S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 4S: AREA 3 ONSITE TO OFFSITE

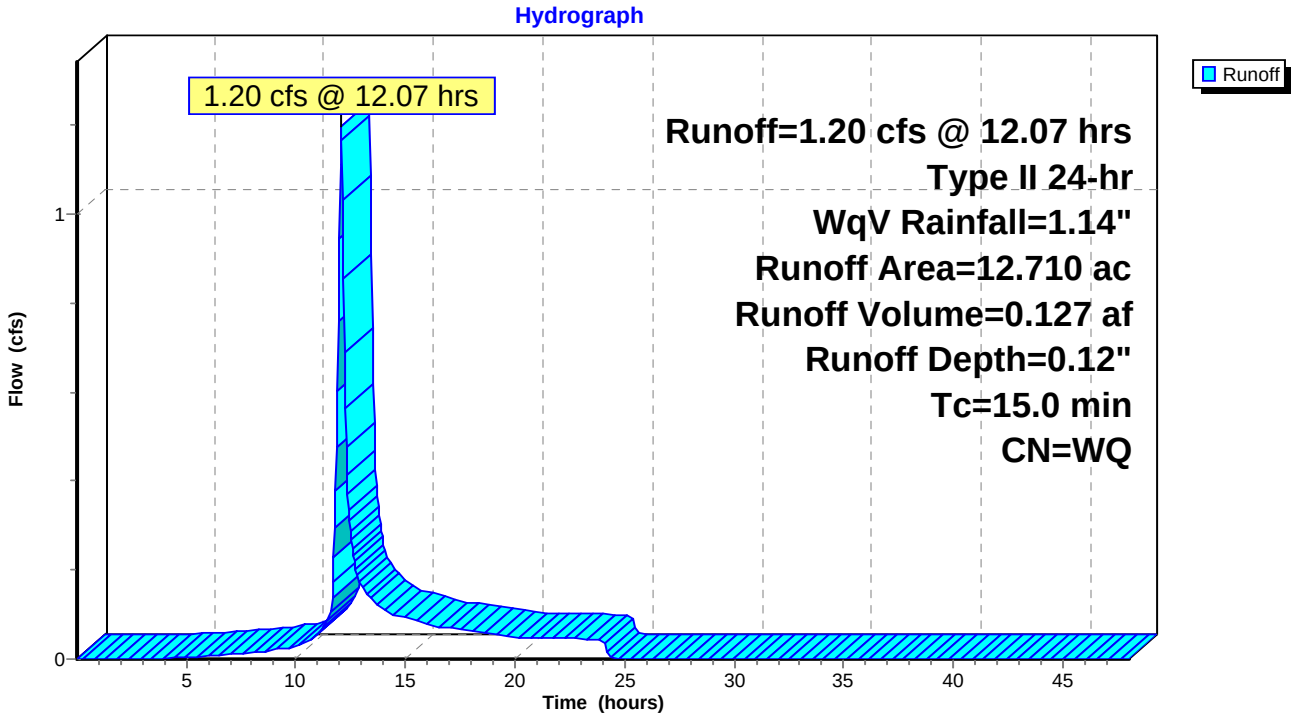
Runoff = 1.20 cfs @ 12.07 hrs, Volume= 0.127 af, Depth= 0.12"
Routed to Link 8L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 4S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 9S: AREA 1 TO BASIN

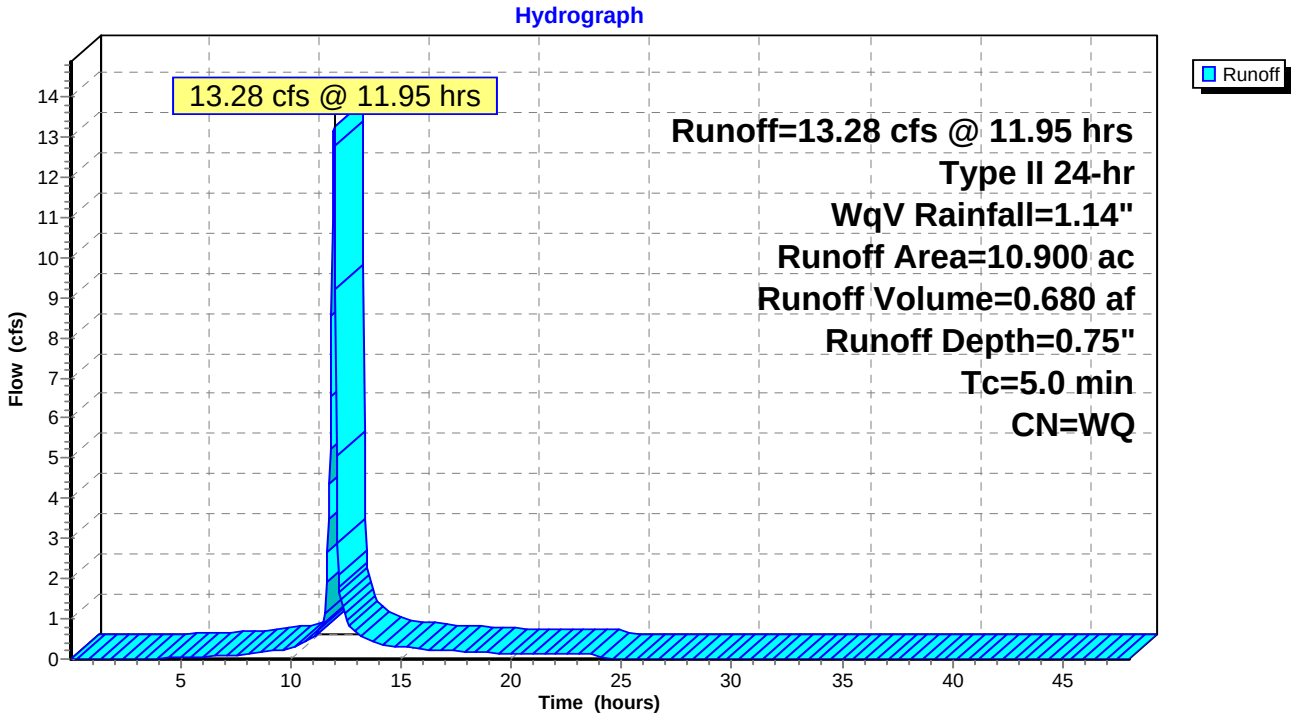
Runoff = 13.28 cfs @ 11.95 hrs, Volume= 0.680 af, Depth= 0.75"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 9S: AREA 1 TO BASIN



Summary for Subcatchment 10S: AREA 2 OFFSITE TO ONSITE

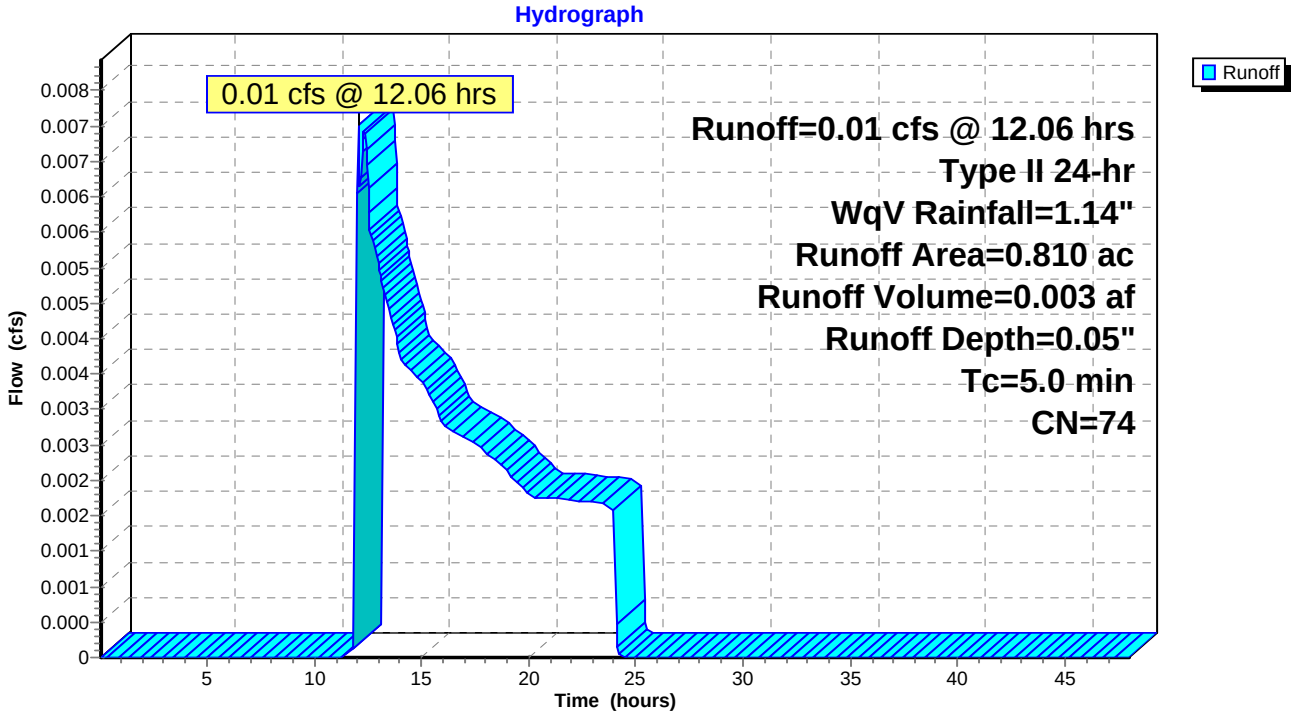
Runoff = 0.01 cfs @ 12.06 hrs, Volume= 0.003 af, Depth= 0.05"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 10S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 11S: AREA 3 ONSITE TO OFFSITE

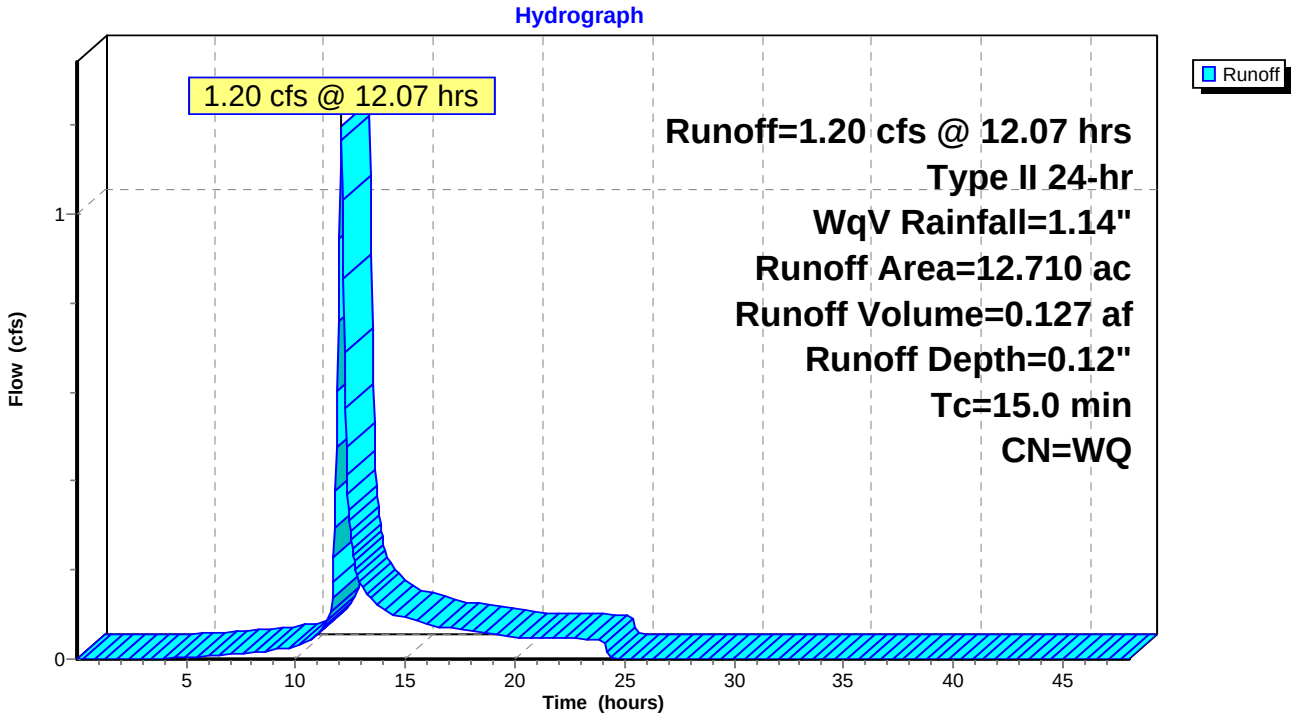
Runoff = 1.20 cfs @ 12.07 hrs, Volume= 0.127 af, Depth= 0.12"
Routed to Link 15L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 11S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS

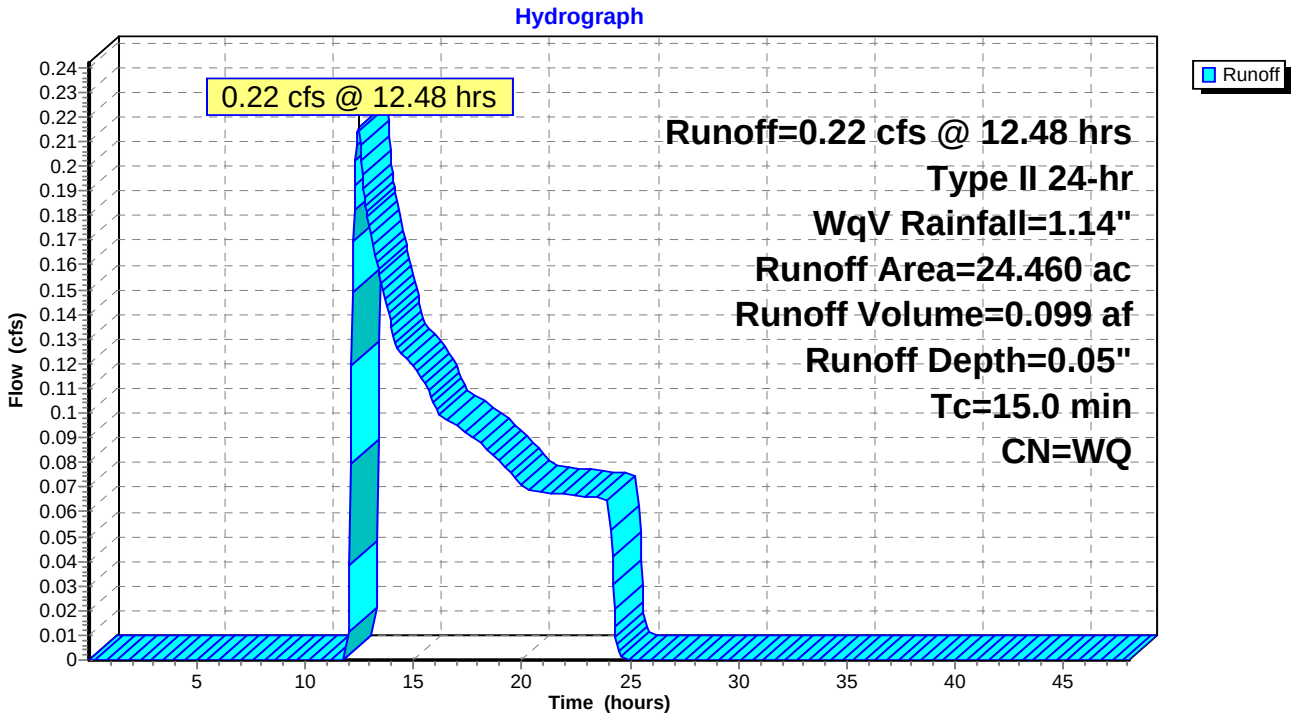
Runoff = 0.22 cfs @ 12.48 hrs, Volume= 0.099 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
23.650	74	>75% Grass cover, Good, HSG C
0.810	74	>75% Grass cover, Good, HSG C
24.460		Weighted Average
24.460	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS



Summary for Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS

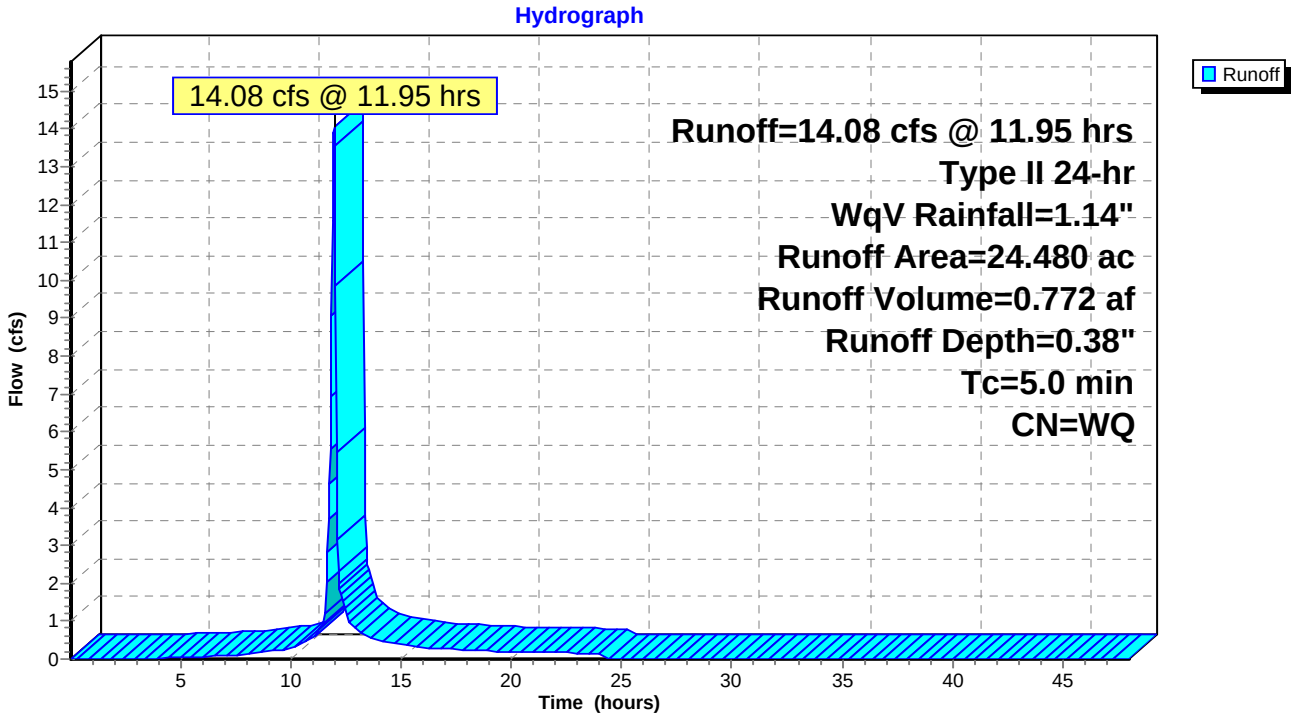
Runoff = 14.08 cfs @ 11.95 hrs, Volume= 0.772 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr WqV Rainfall=1.14"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
0.830	74	>75% Grass cover, Good, HSG C
24.480		Weighted Average
15.280	74	62.42% Pervious Area
9.200	98	37.58% Impervious Area

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

Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS



Summary for Pond 5P: STORMWATER MANAGEMENT FACILITY

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 0.70" for WqV event
Inflow = 13.28 cfs @ 11.95 hrs, Volume= 0.683 af
Outflow = 0.81 cfs @ 12.67 hrs, Volume= 0.683 af, Atten= 94%, Lag= 43.2 min
Primary = 0.81 cfs @ 12.67 hrs, Volume= 0.683 af
Routed to Pond 6R : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 497.51' @ 12.67 hrs Surf.Area= 6,760 sf Storage= 14,943 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 309.7 min (1,093.1 - 783.5)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

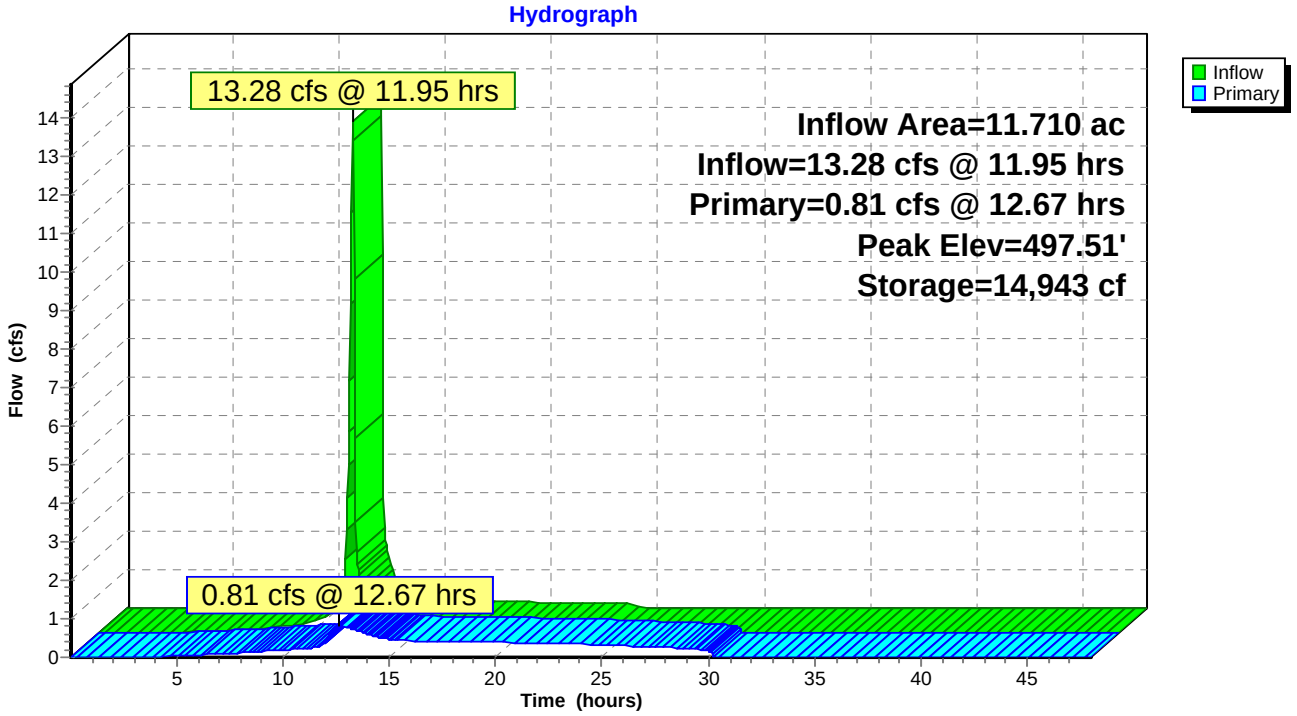
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	493.74'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

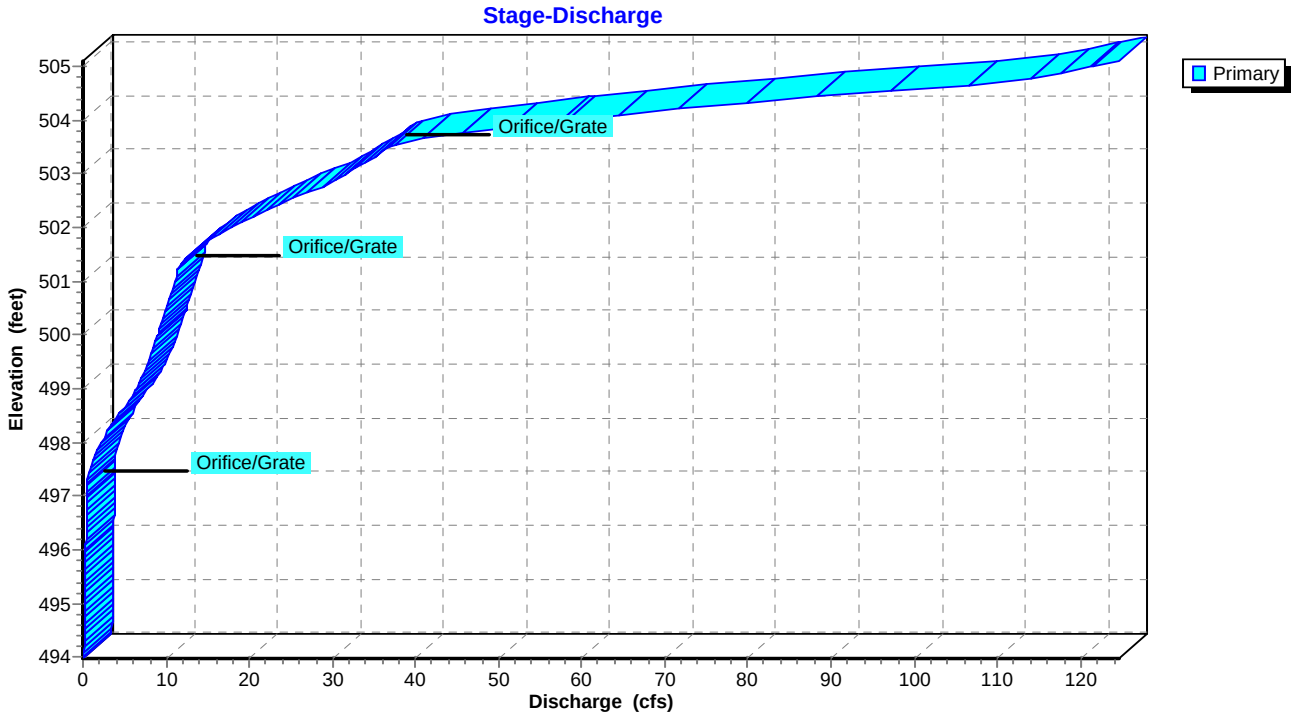
#3	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.81 cfs @ 12.67 hrs HW=497.51' TW=493.91' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 0.81 cfs of 48.40 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.45 cfs @ 9.14 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.36 cfs @ 1.64 fps)
  ├─**4=Orifice/Grate** (Controls 0.00 cfs)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

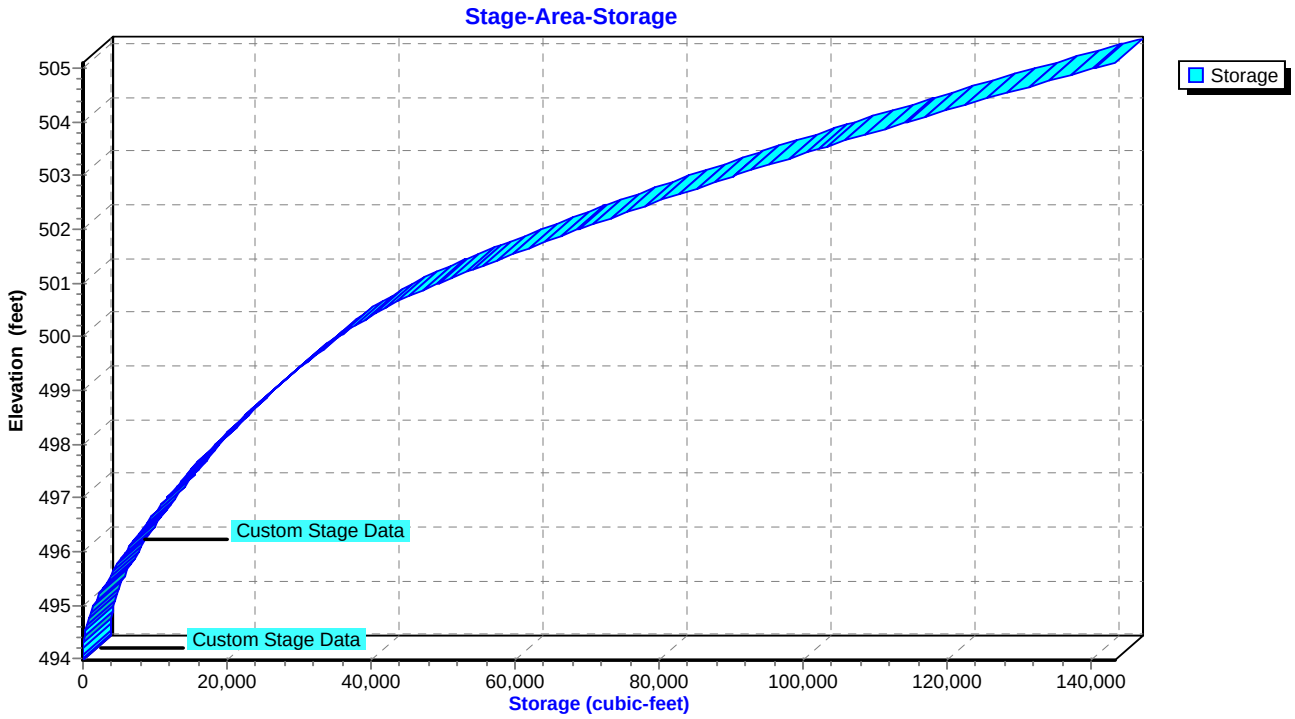
Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Summary for Pond 6R: 102-101

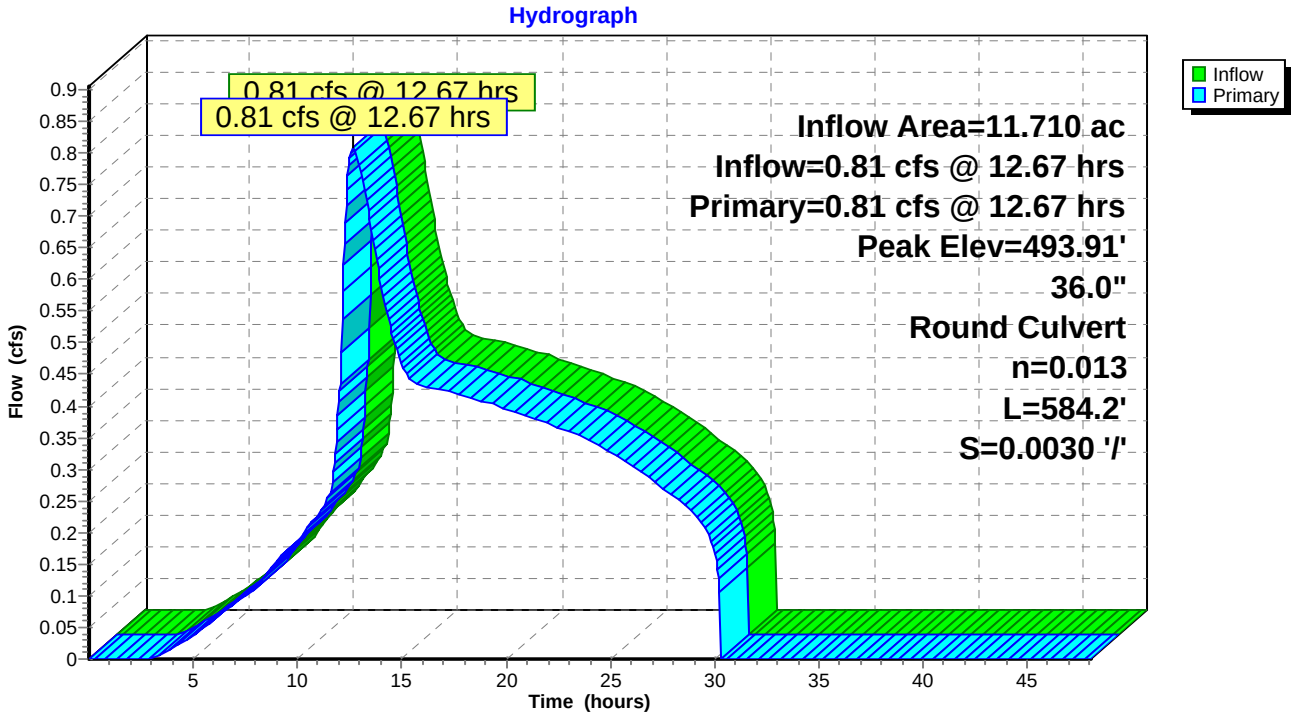
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 0.70" for WqV event
Inflow = 0.81 cfs @ 12.67 hrs, Volume= 0.683 af
Outflow = 0.81 cfs @ 12.67 hrs, Volume= 0.683 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.67 hrs, Volume= 0.683 af
Routed to Pond 7P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 493.91' @ 12.67 hrs

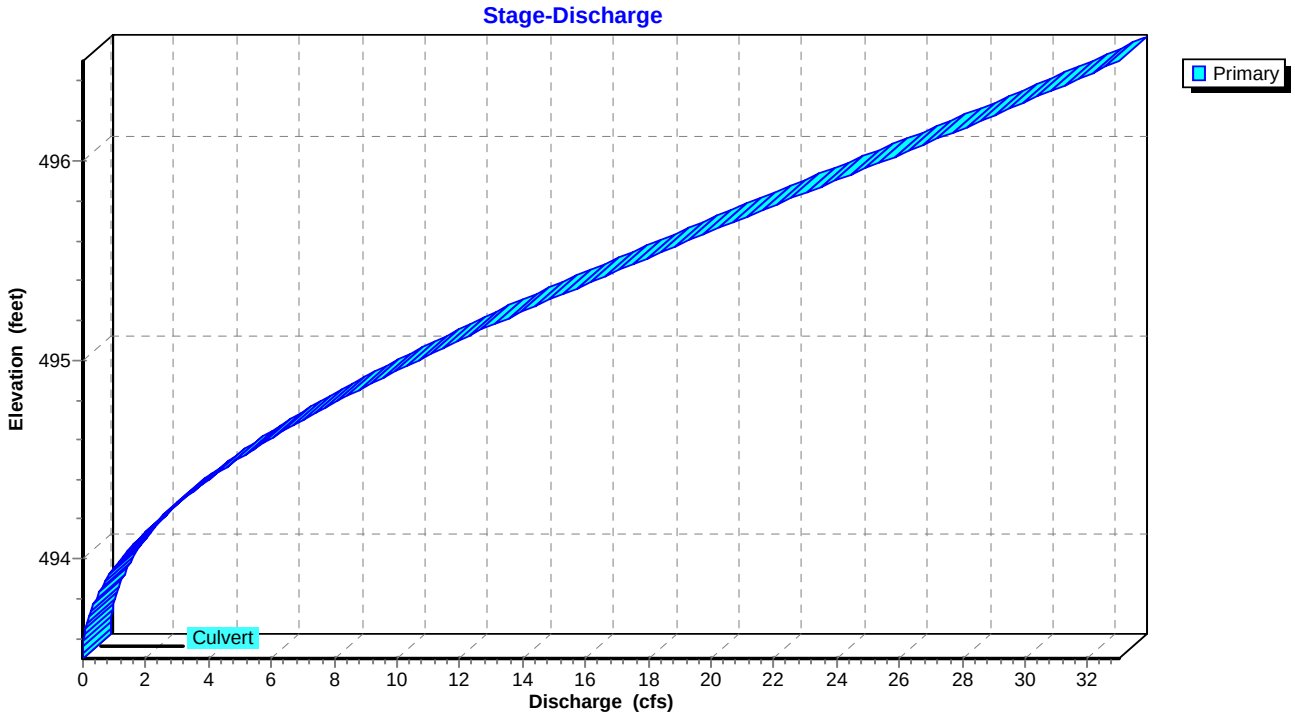
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=0.81 cfs @ 12.67 hrs HW=493.91' TW=491.94' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.81 cfs @ 2.11 fps)

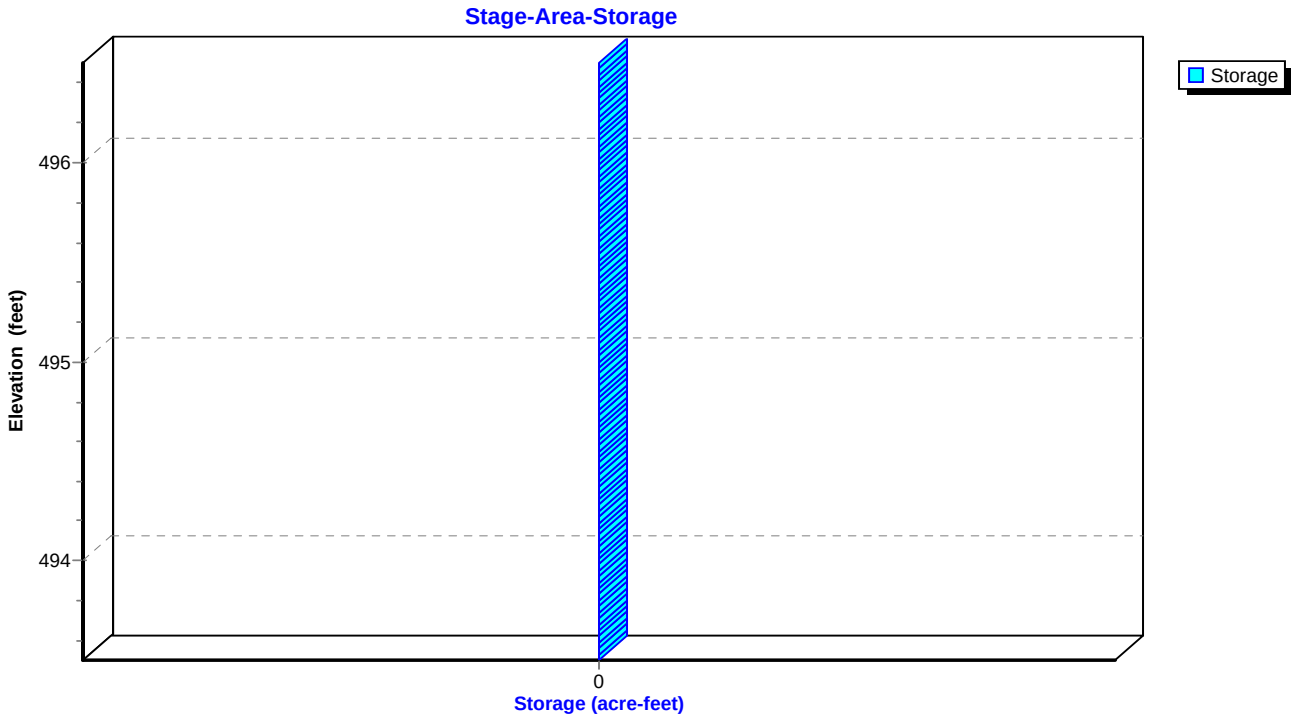
Pond 6R: 102-101



Pond 6R: 102-101



Pond 6R: 102-101



Summary for Pond 7P: 101-100

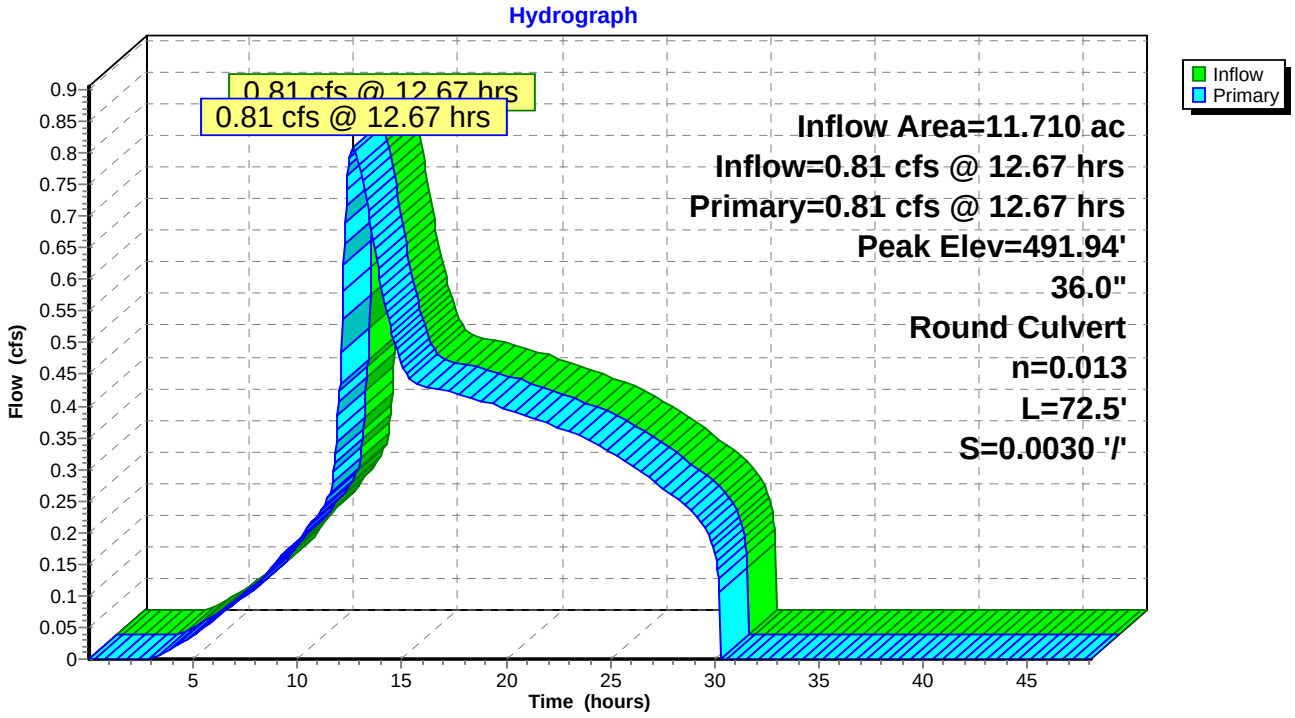
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 0.70" for WqV event
Inflow = 0.81 cfs @ 12.67 hrs, Volume= 0.683 af
Outflow = 0.81 cfs @ 12.67 hrs, Volume= 0.683 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.67 hrs, Volume= 0.683 af
Routed to Link 8L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 491.94' @ 12.67 hrs

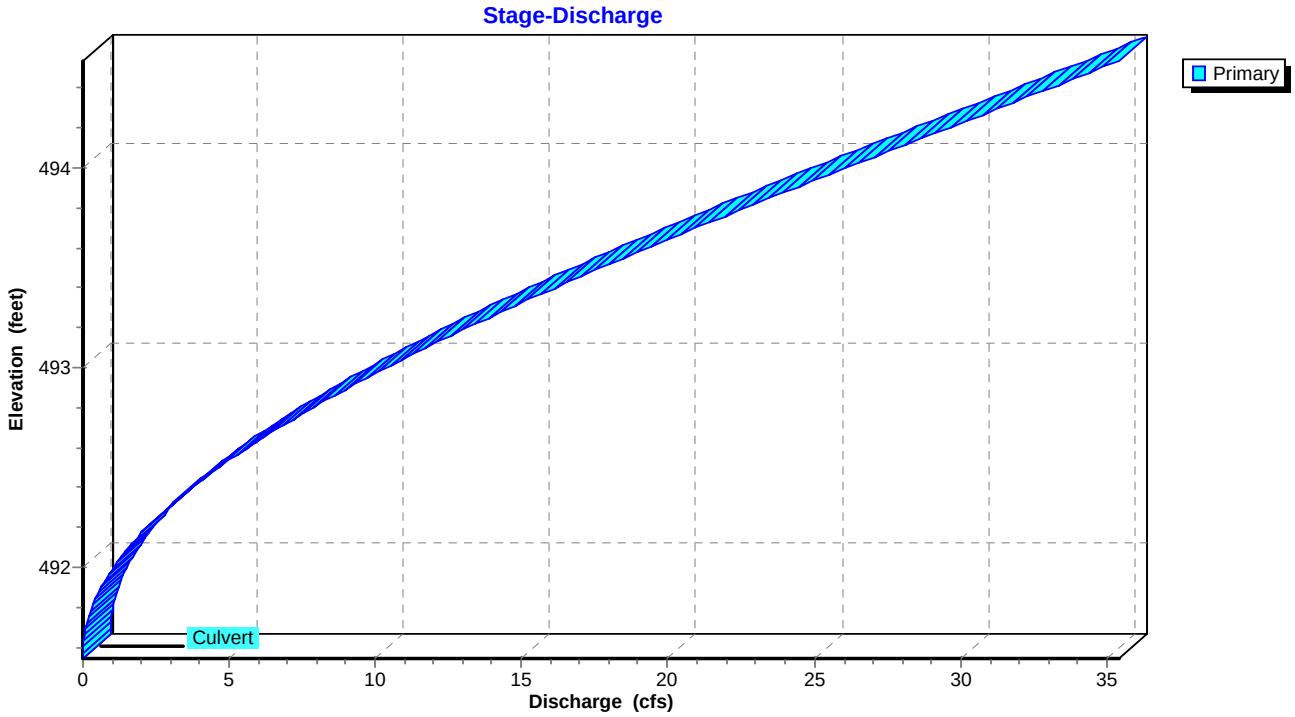
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=0.81 cfs @ 12.67 hrs HW=491.94' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.81 cfs @ 2.16 fps)

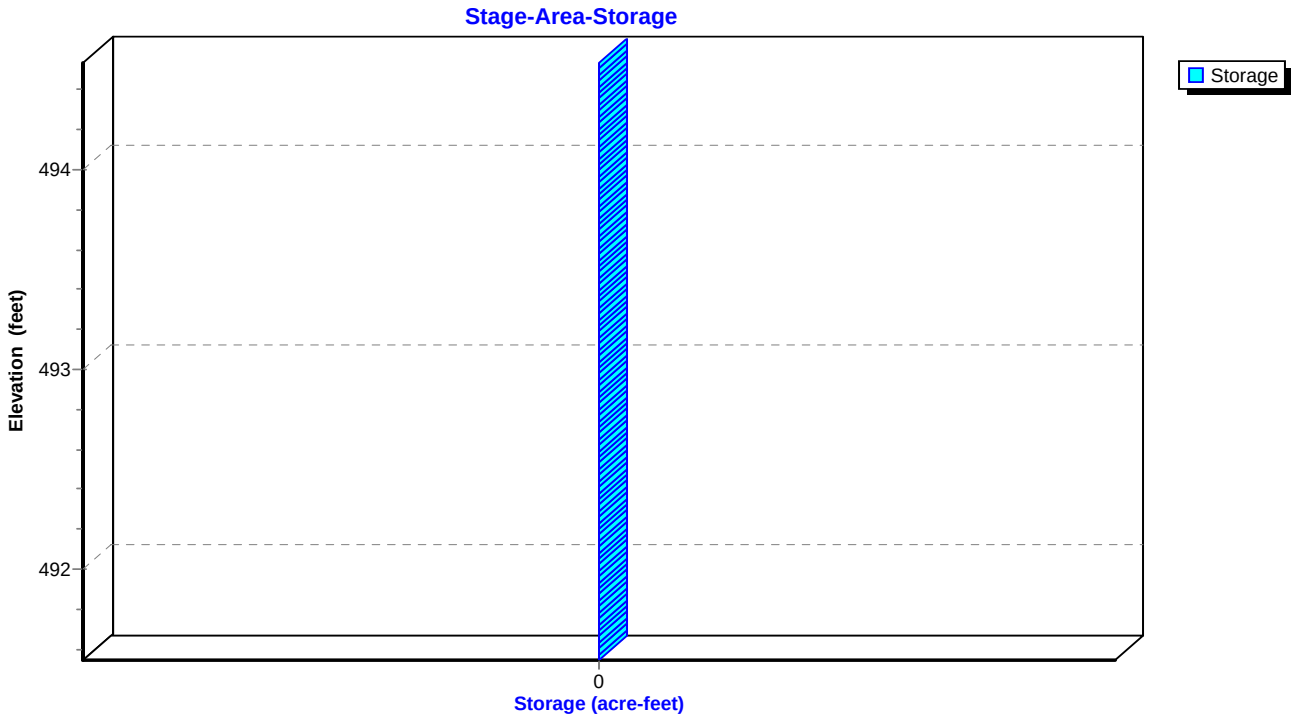
Pond 7P: 101-100



Pond 7P: 101-100



Pond 7P: 101-100



Summary for Pond 12P: 100 YR LFB

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 0.70" for WqV event
Inflow = 13.28 cfs @ 11.95 hrs, Volume= 0.683 af
Outflow = 1.37 cfs @ 12.34 hrs, Volume= 0.379 af, Atten= 90%, Lag= 23.2 min
Primary = 1.37 cfs @ 12.34 hrs, Volume= 0.379 af
Routed to Pond 13P : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 497.89' @ 12.34 hrs Surf.Area= 7,208 sf Storage= 17,584 cf

Plug-Flow detention time= 289.5 min calculated for 0.379 af (55% of inflow)
Center-of-Mass det. time= 178.9 min (962.4 - 783.5)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

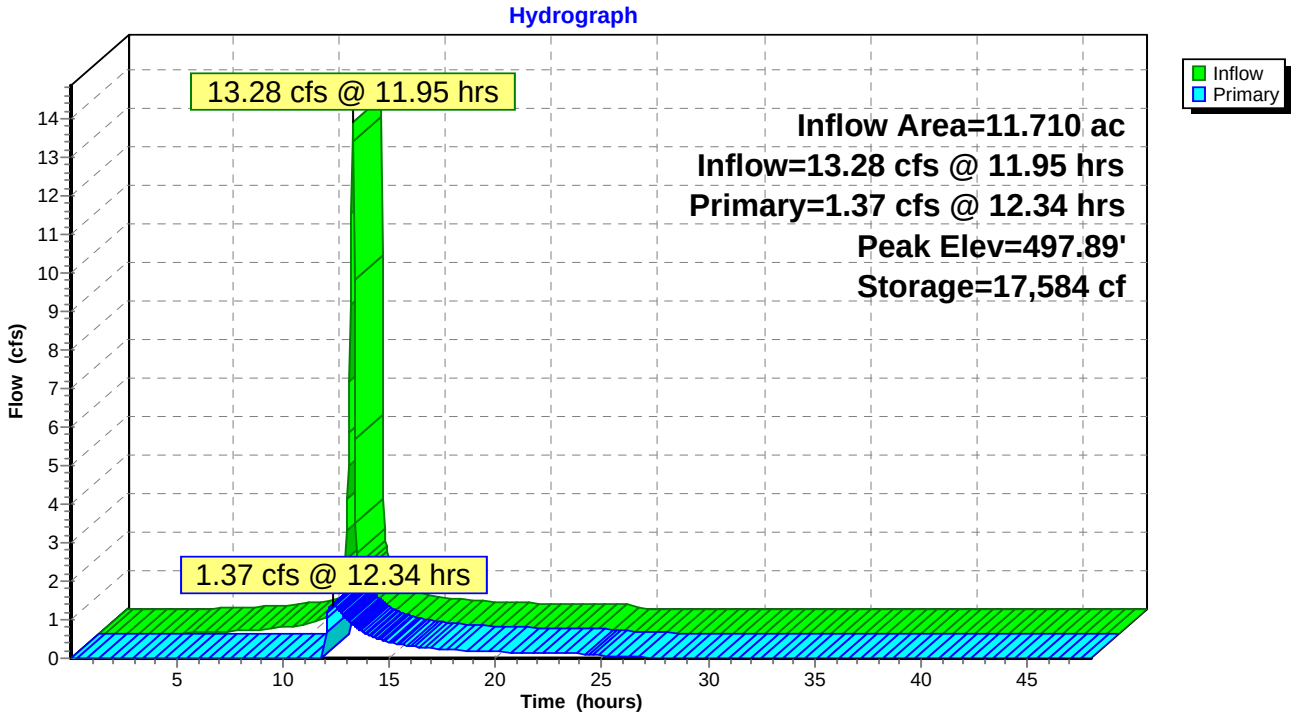
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600

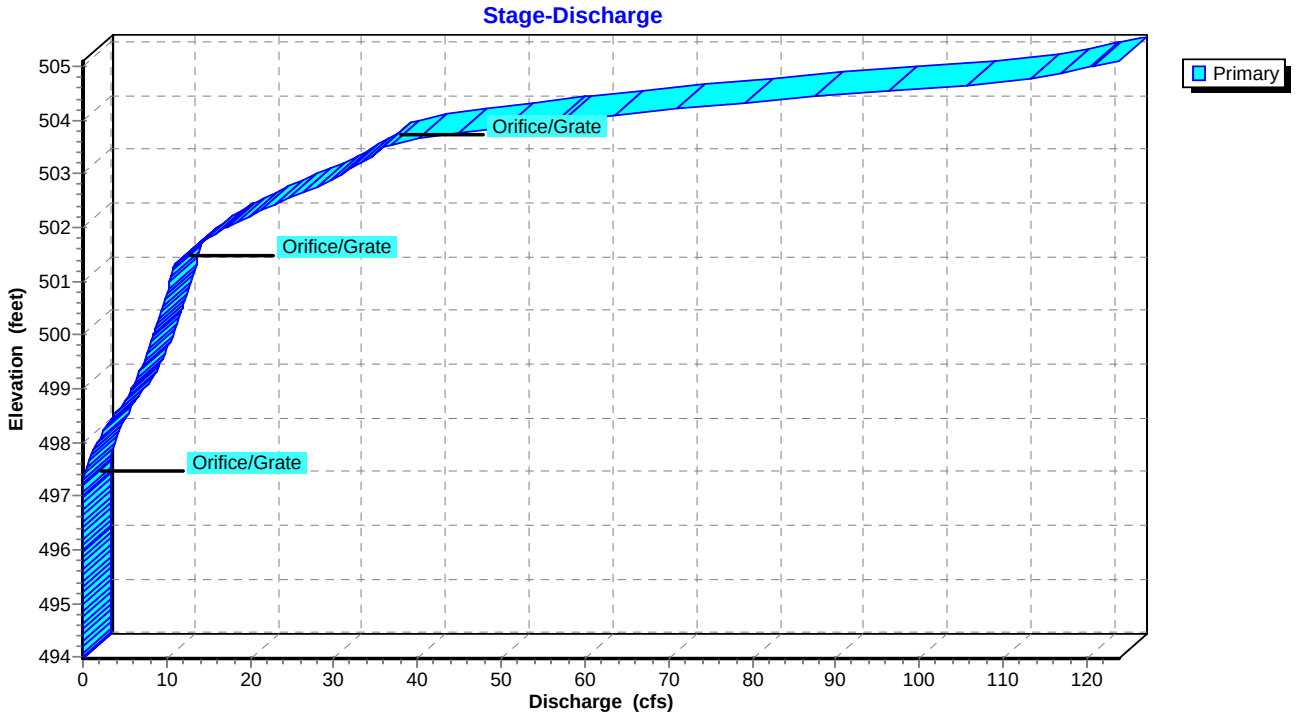
			Limited to weir flow at low heads
#3	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=1.37 cfs @ 12.34 hrs HW=497.89' TW=494.03' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 1.37 cfs of 54.11 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.37 cfs @ 2.57 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

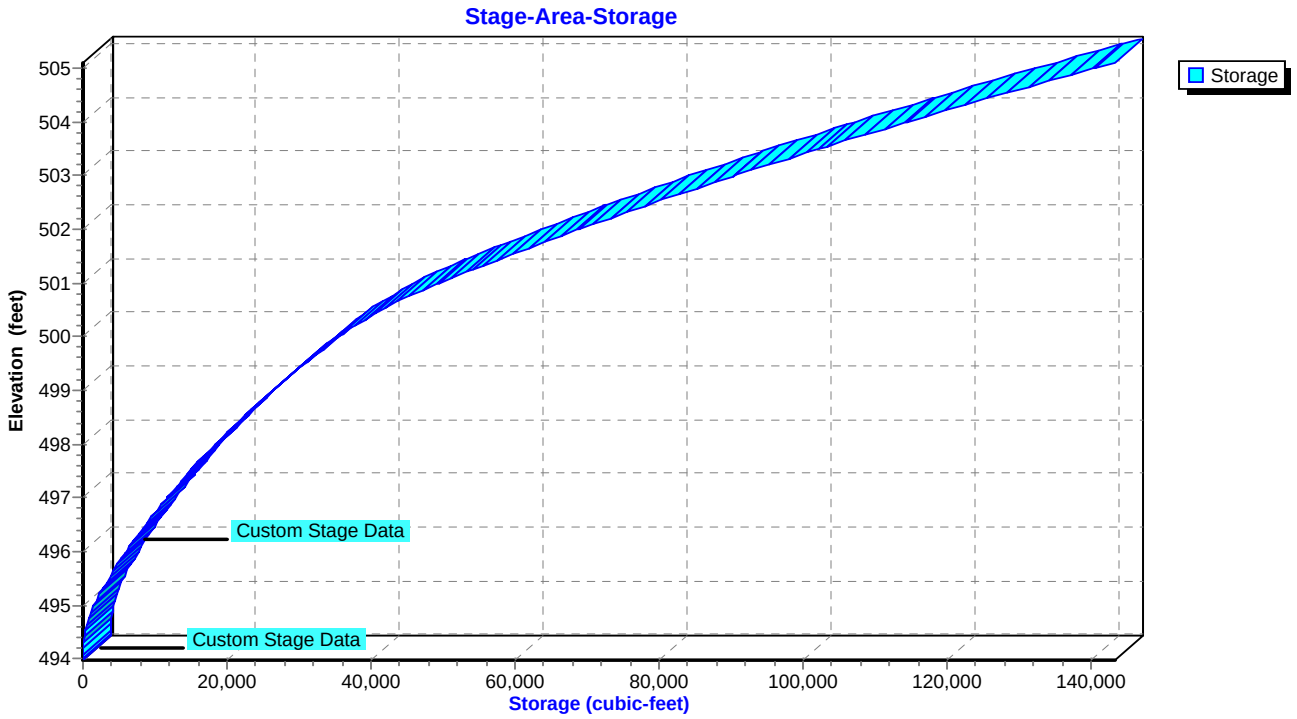
Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Summary for Pond 13P: 102-101

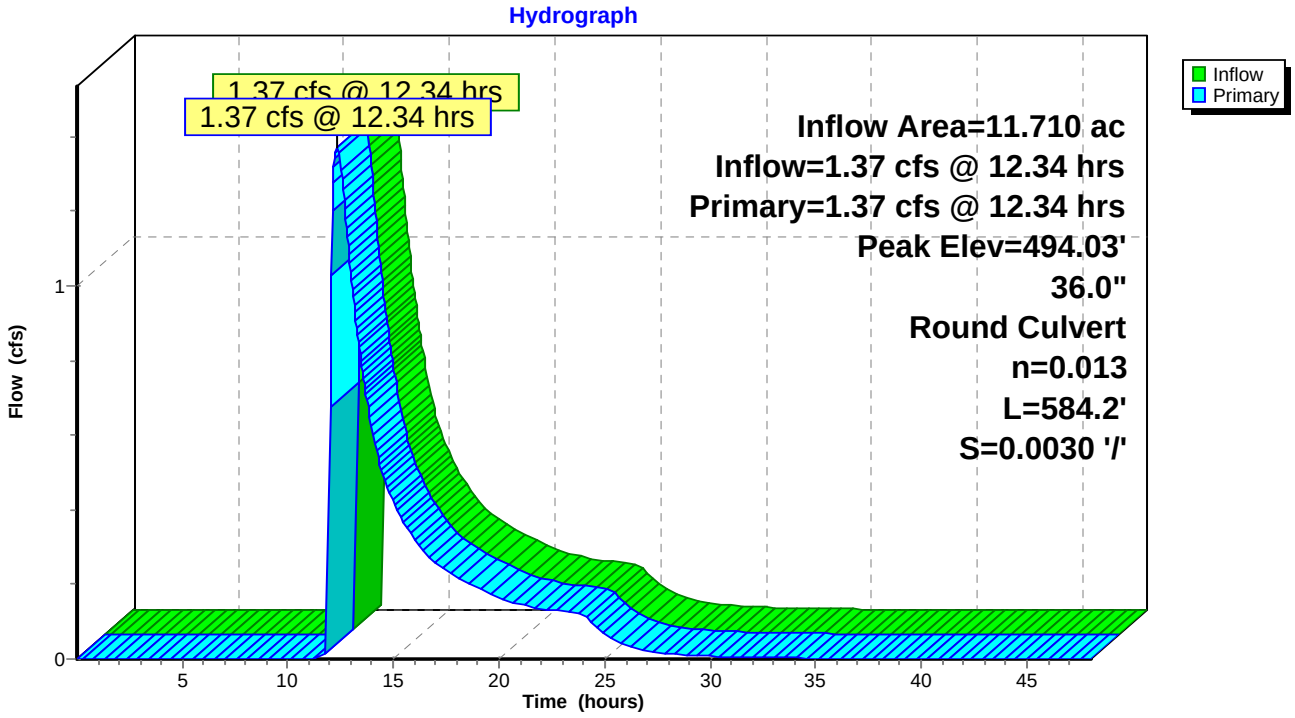
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth > 0.39" for WqV event
Inflow = 1.37 cfs @ 12.34 hrs, Volume= 0.379 af
Outflow = 1.37 cfs @ 12.34 hrs, Volume= 0.379 af, Atten= 0%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.34 hrs, Volume= 0.379 af
Routed to Pond 14P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 494.03' @ 12.34 hrs

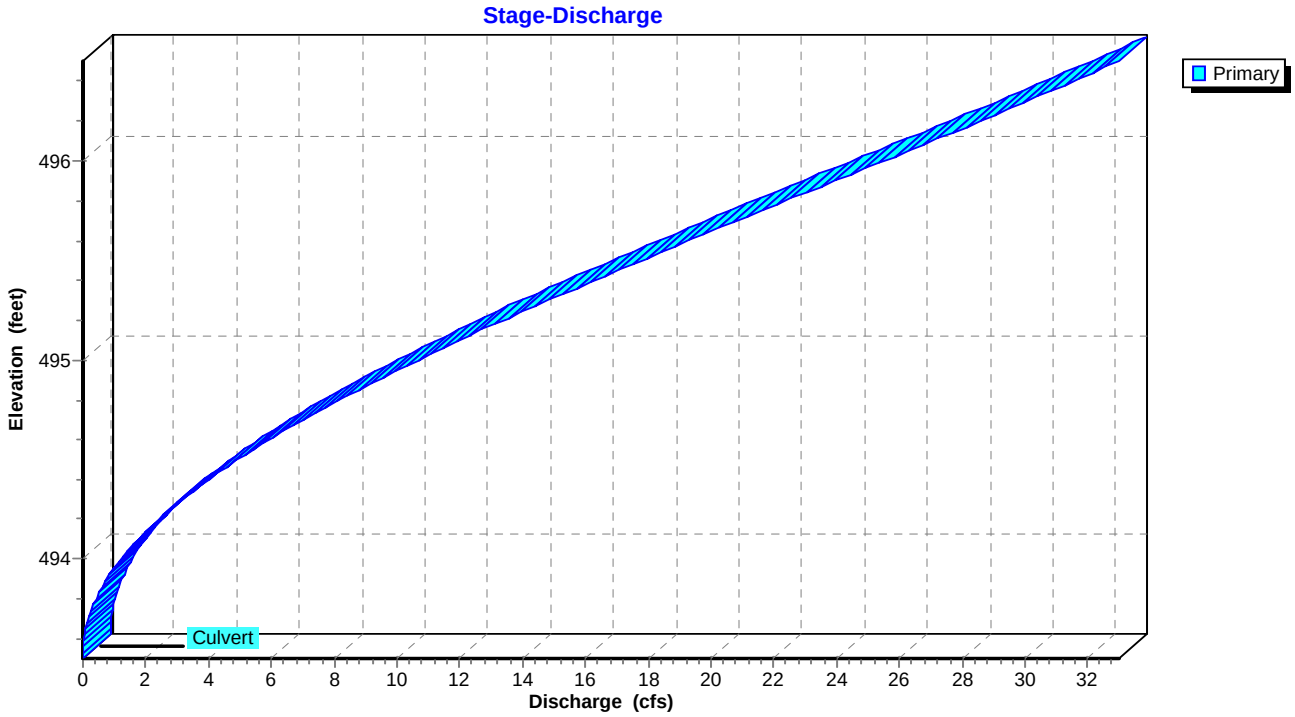
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=1.37 cfs @ 12.34 hrs HW=494.03' TW=492.06' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 1.37 cfs @ 2.47 fps)

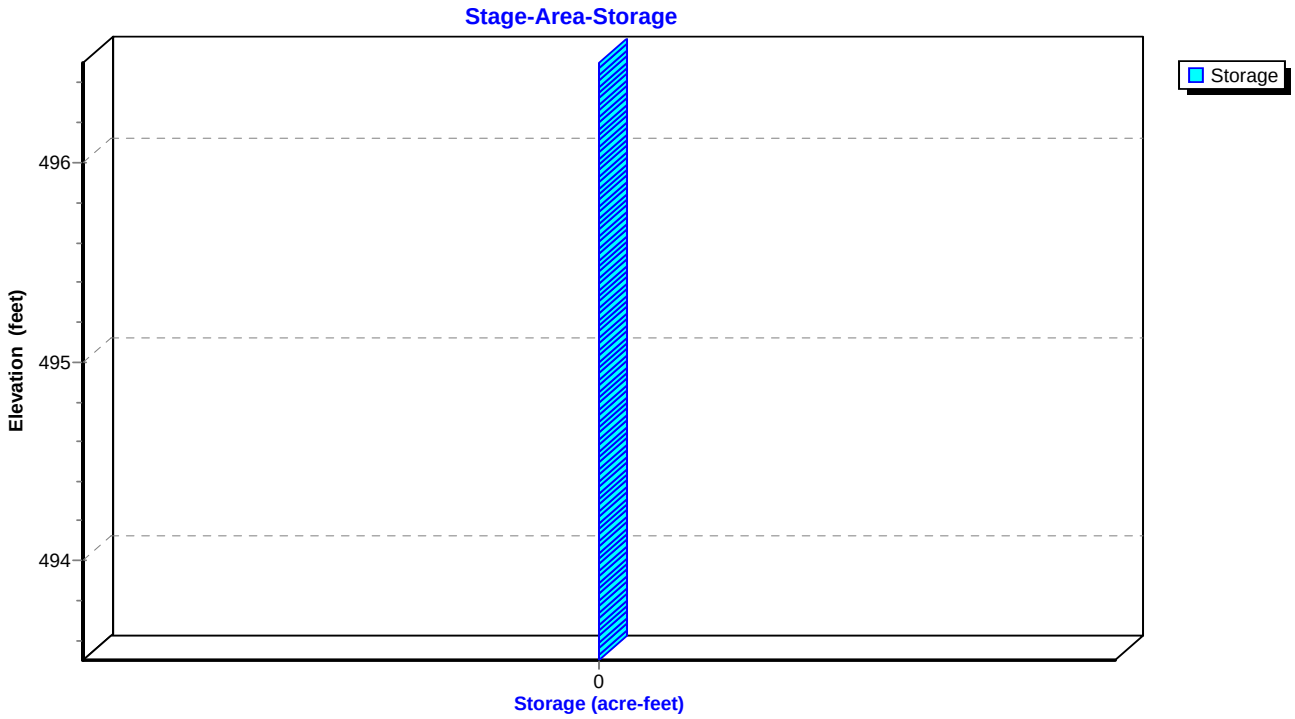
Pond 13P: 102-101



Pond 13P: 102-101



Pond 13P: 102-101



Summary for Pond 14P: 101-100

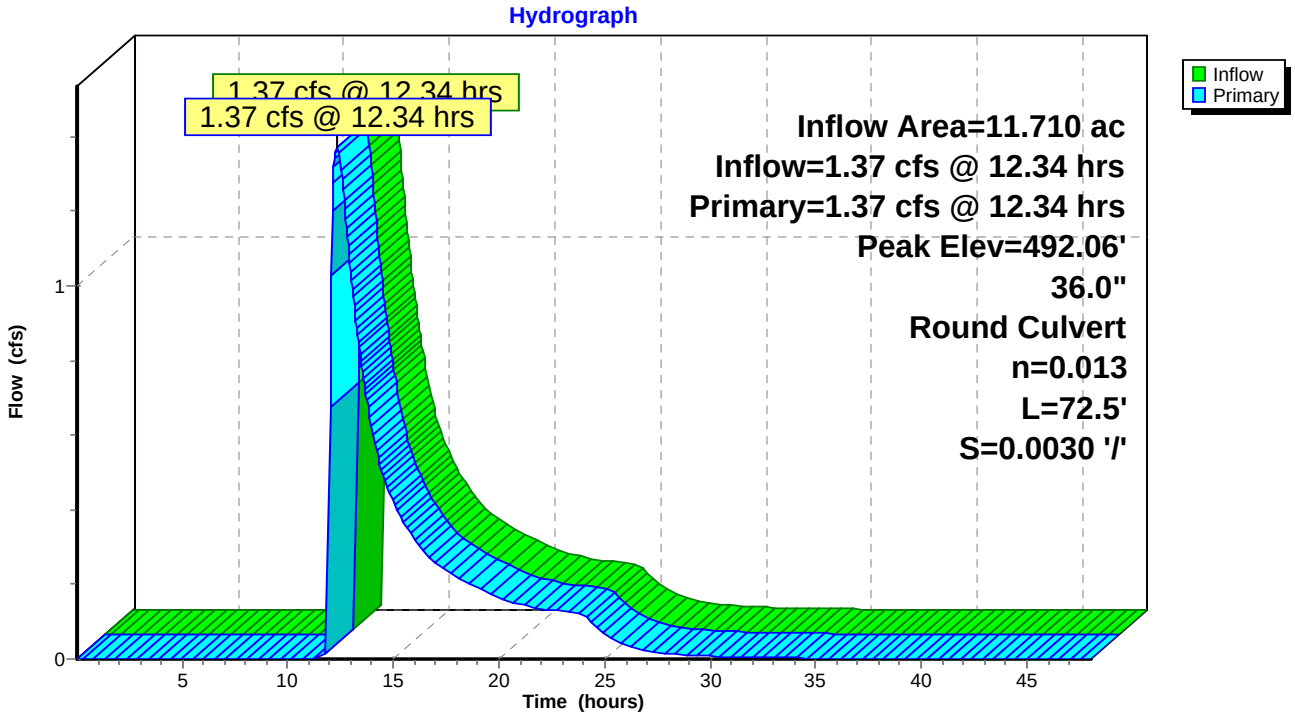
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth > 0.39" for WqV event
Inflow = 1.37 cfs @ 12.34 hrs, Volume= 0.379 af
Outflow = 1.37 cfs @ 12.34 hrs, Volume= 0.379 af, Atten= 0%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.34 hrs, Volume= 0.379 af
Routed to Link 15L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 492.06' @ 12.34 hrs

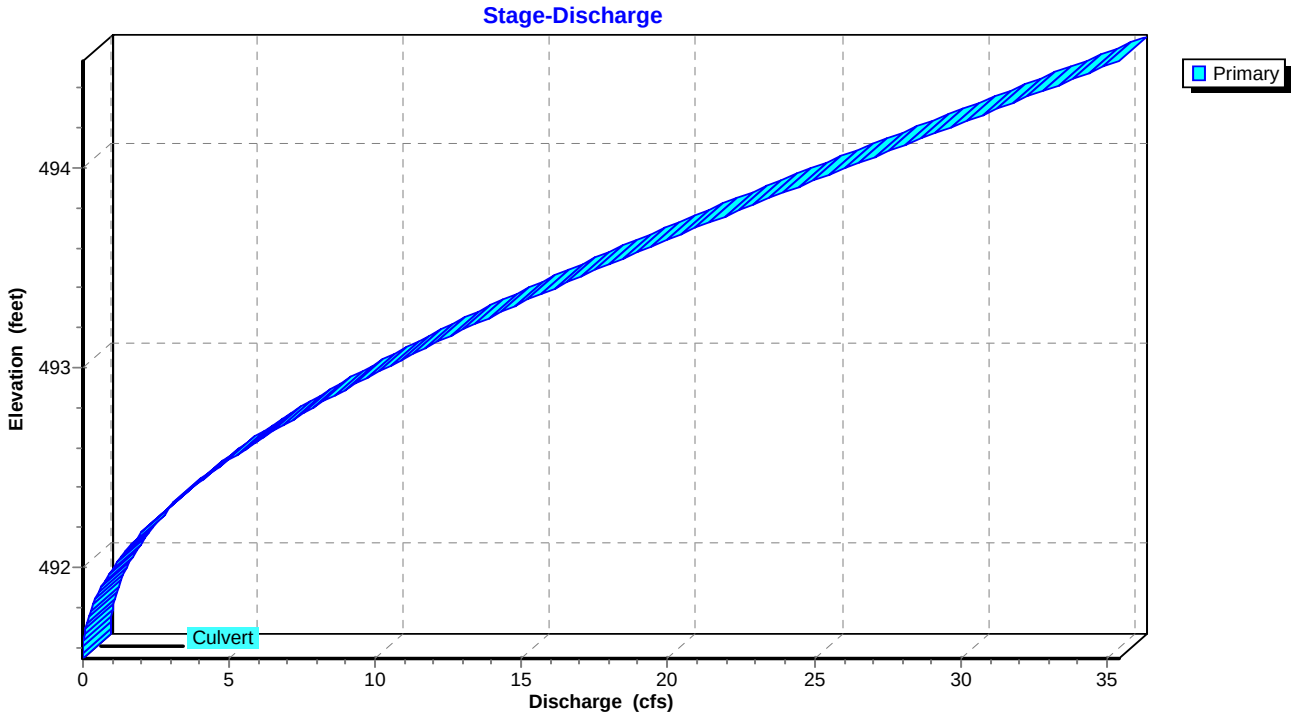
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=1.37 cfs @ 12.34 hrs HW=492.06' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 1.37 cfs @ 2.53 fps)

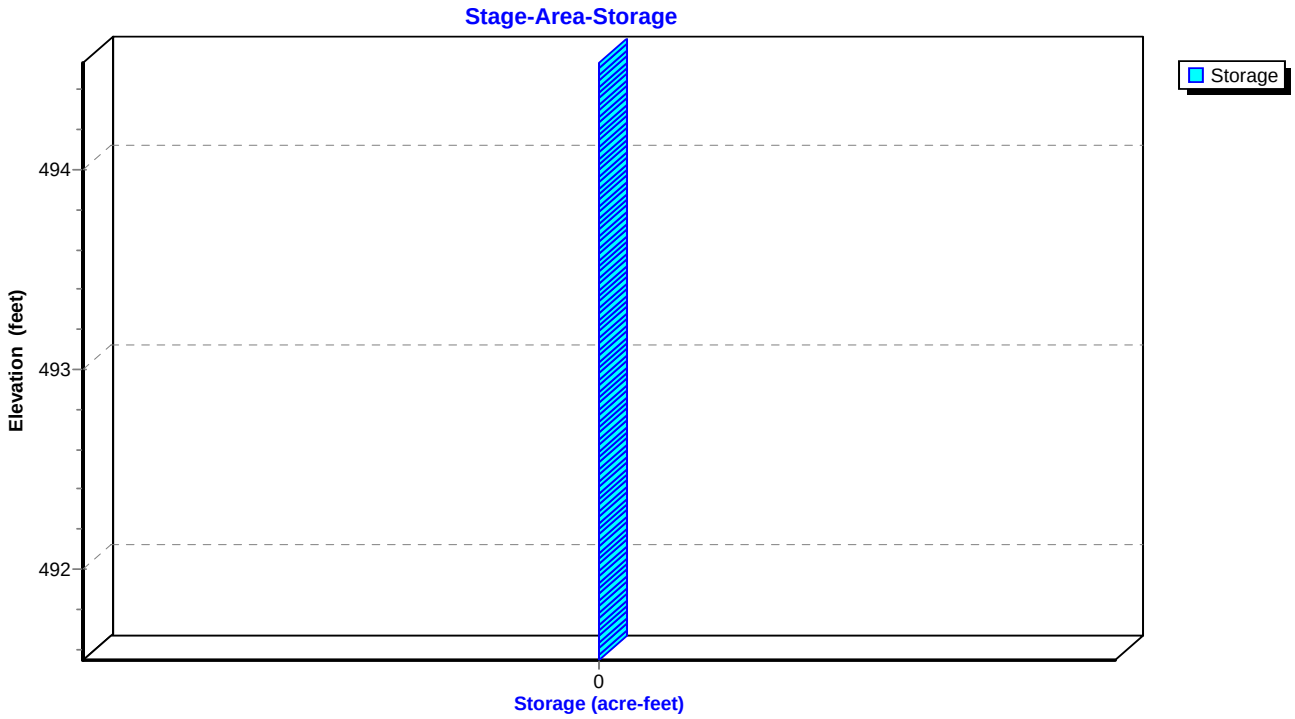
Pond 14P: 101-100



Pond 14P: 101-100



Pond 14P: 101-100

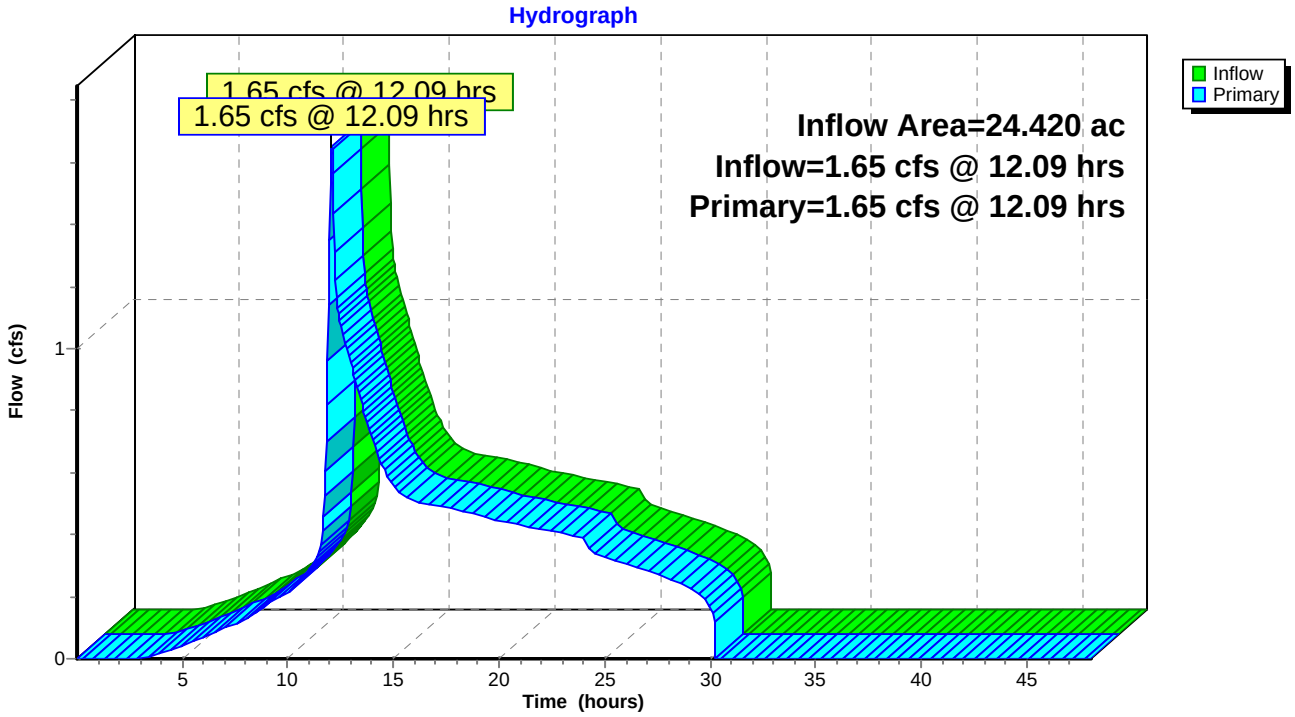


Summary for Link 8L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 0.40" for WqV event
Inflow = 1.65 cfs @ 12.09 hrs, Volume= 0.810 af
Primary = 1.65 cfs @ 12.09 hrs, Volume= 0.810 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 8L: POST DEVELOPED ROUTING

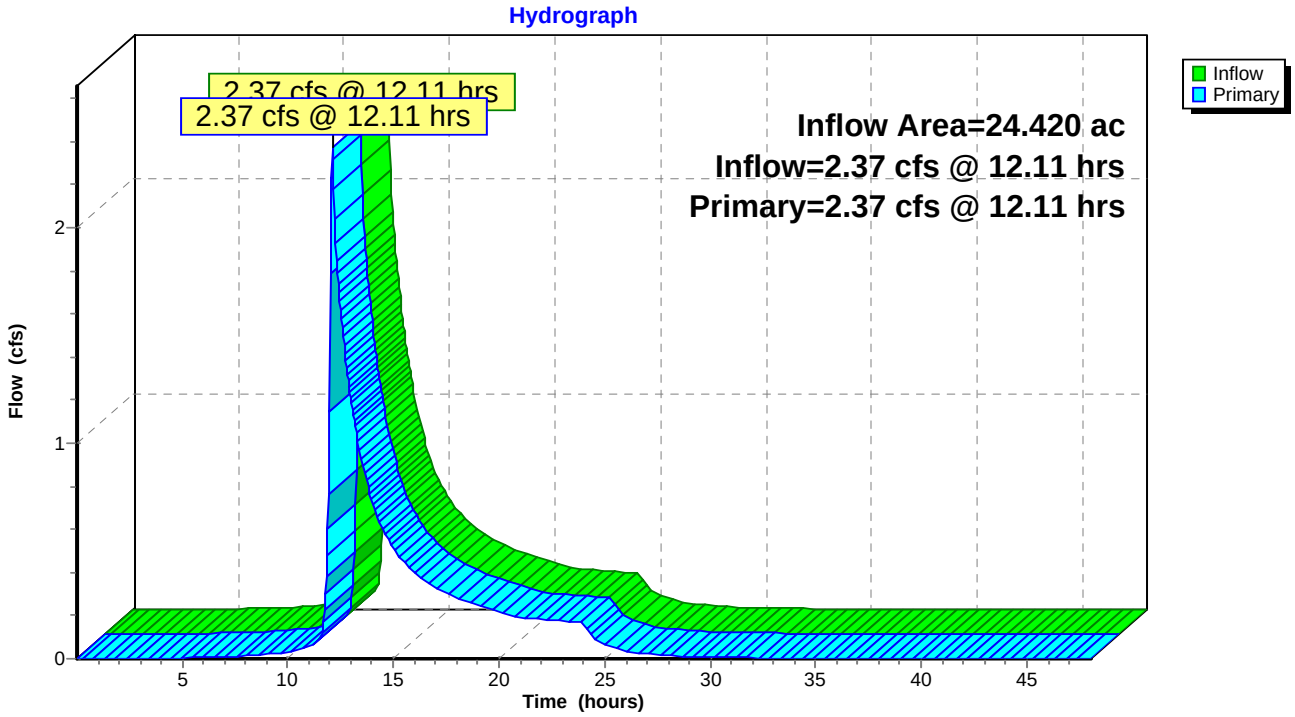


Summary for Link 15L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth > 0.25" for WqV event
Inflow = 2.37 cfs @ 12.11 hrs, Volume= 0.507 af
Primary = 2.37 cfs @ 12.11 hrs, Volume= 0.507 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 15L: POST DEVELOPED ROUTING



Summary for Subcatchment 1S: PROPOSED CONDITIONS

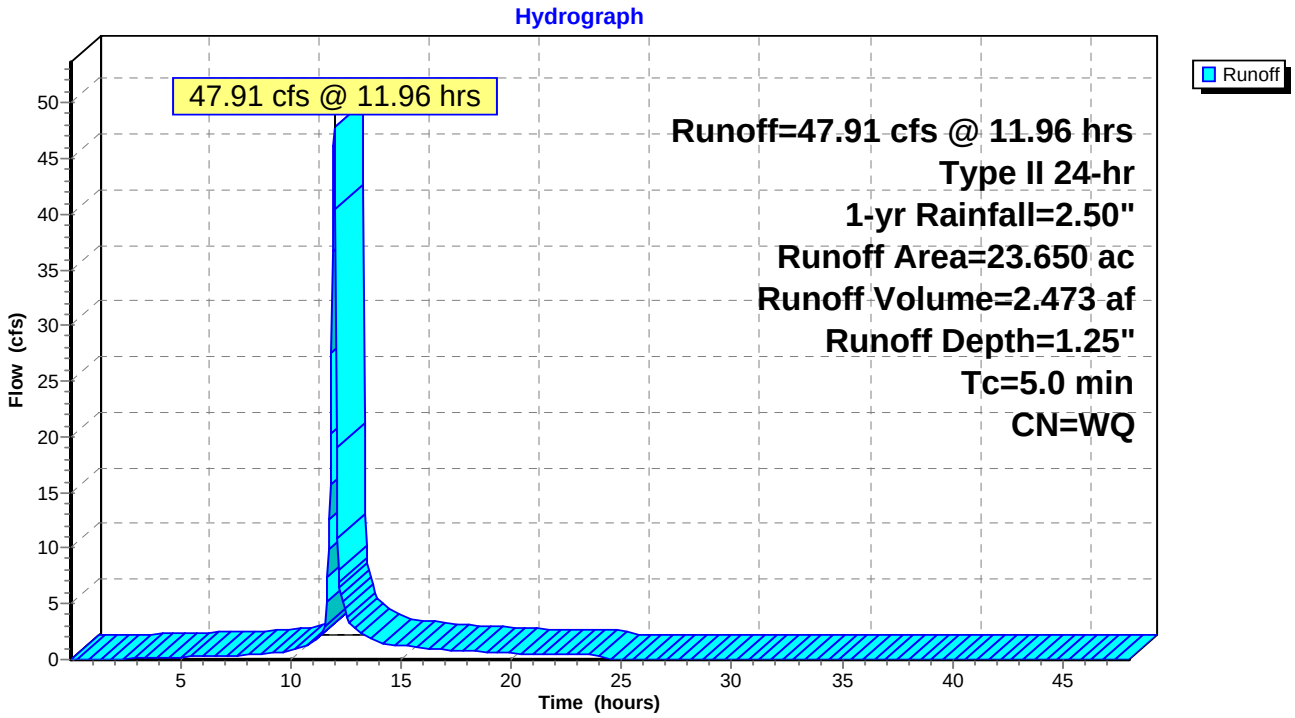
Runoff = 47.91 cfs @ 11.96 hrs, Volume= 2.473 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
23.650		Weighted Average
14.450	74	61.10% Pervious Area
9.200	98	38.90% Impervious Area

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

Subcatchment 1S: PROPOSED CONDITIONS



Summary for Subcatchment 2S: AREA 1 TO BASIN

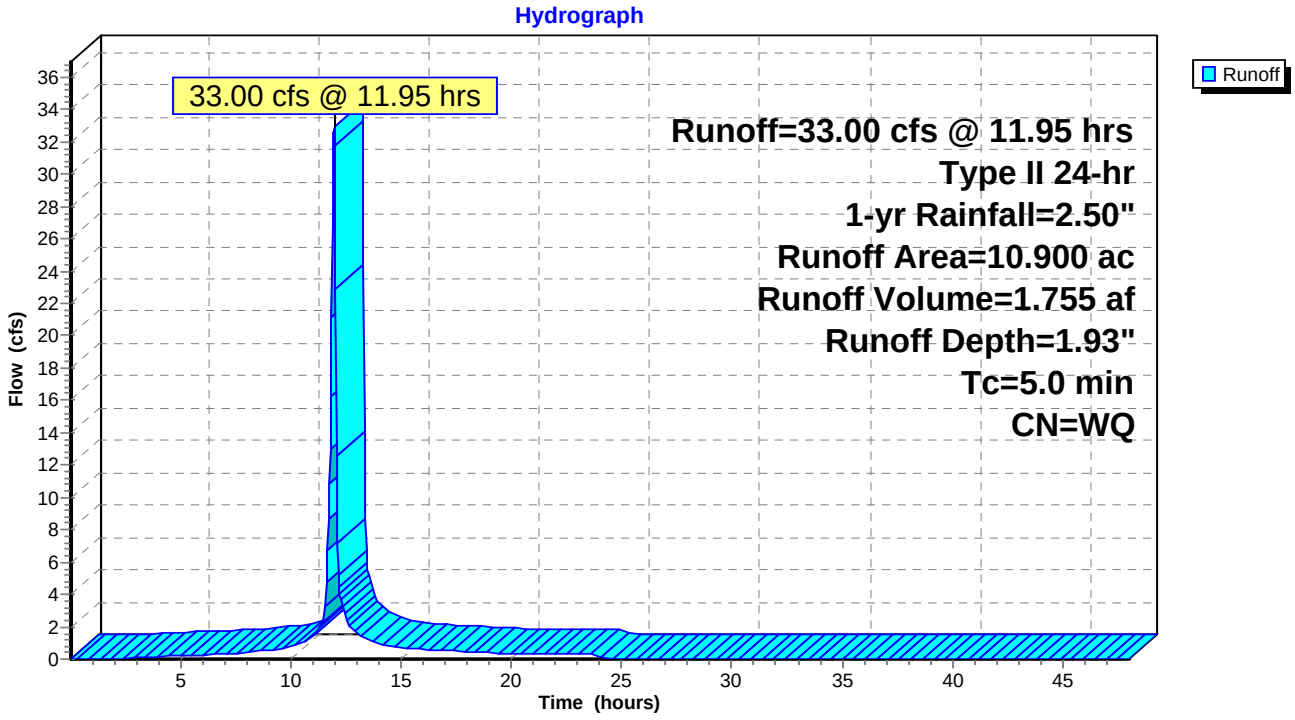
Runoff = 33.00 cfs @ 11.95 hrs, Volume= 1.755 af, Depth= 1.93"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 2S: AREA 1 TO BASIN



Summary for Subcatchment 3S: AREA 2 OFFSITE TO ONSITE

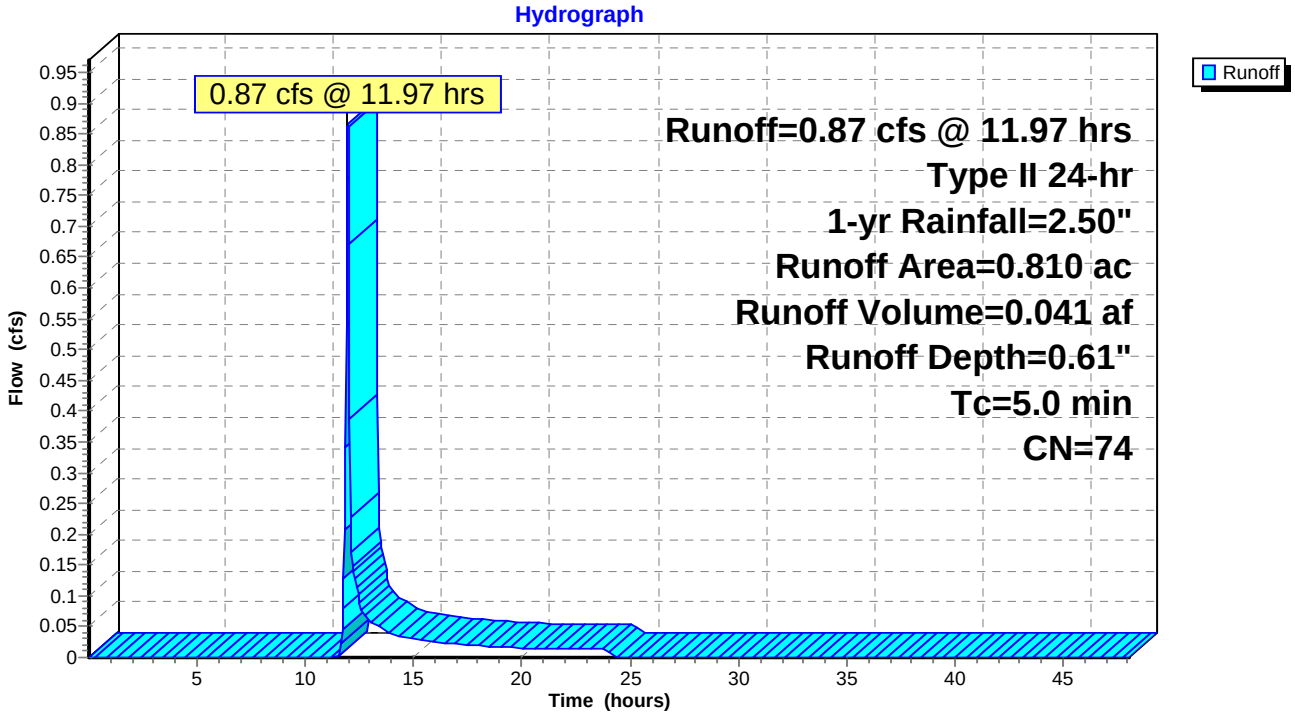
Runoff = 0.87 cfs @ 11.97 hrs, Volume= 0.041 af, Depth= 0.61"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 3S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 4S: AREA 3 ONSITE TO OFFSITE

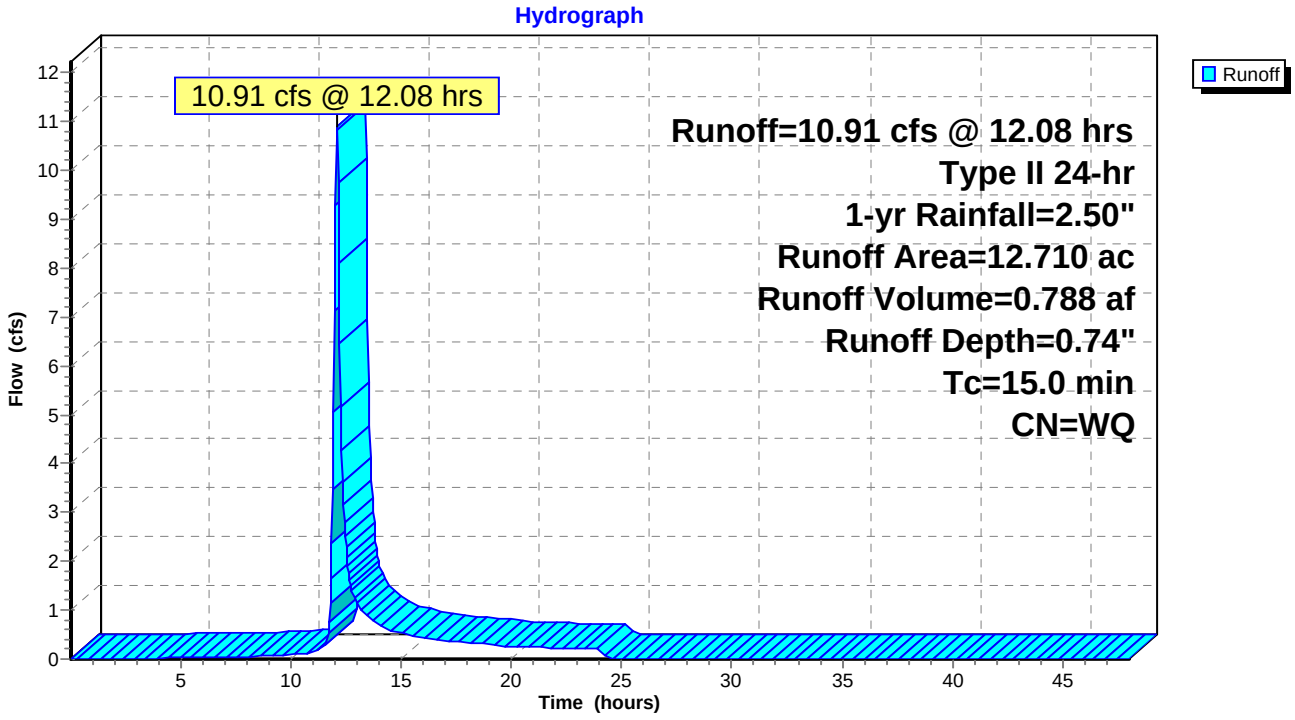
Runoff = 10.91 cfs @ 12.08 hrs, Volume= 0.788 af, Depth= 0.74"
Routed to Link 8L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 4S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 9S: AREA 1 TO BASIN

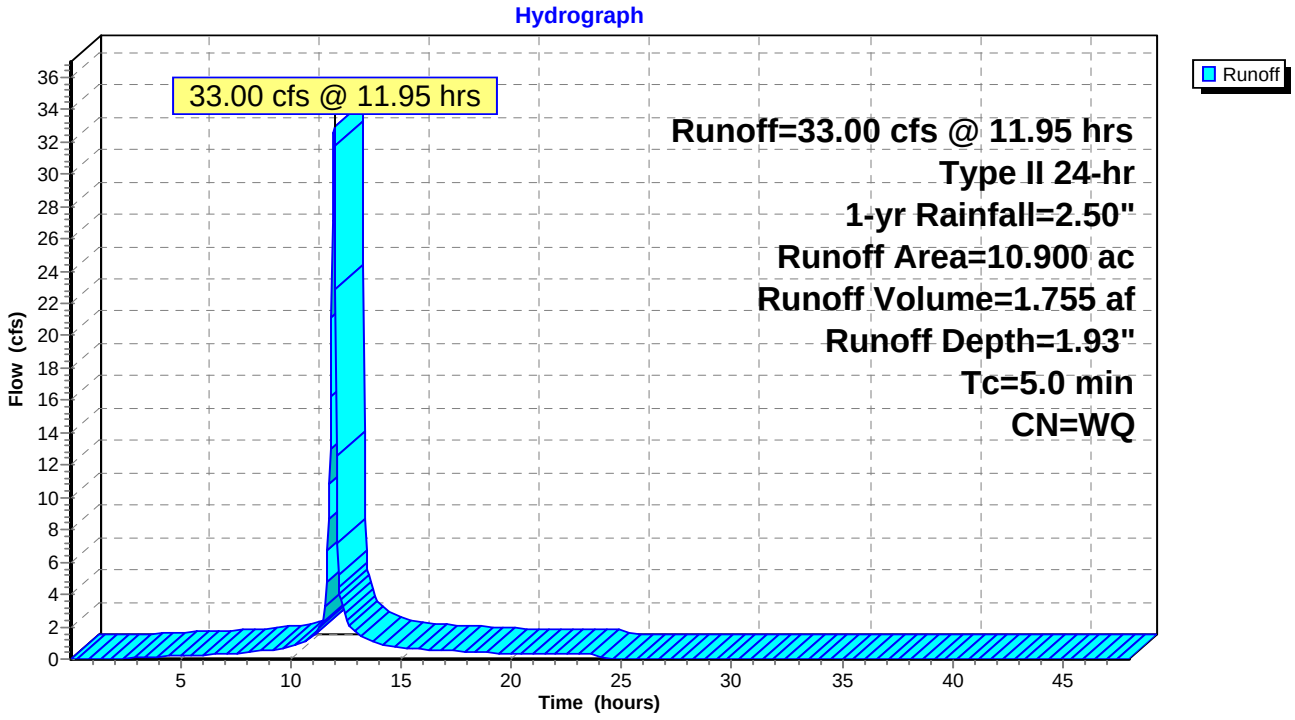
Runoff = 33.00 cfs @ 11.95 hrs, Volume= 1.755 af, Depth= 1.93"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 9S: AREA 1 TO BASIN



Summary for Subcatchment 10S: AREA 2 OFFSITE TO ONSITE

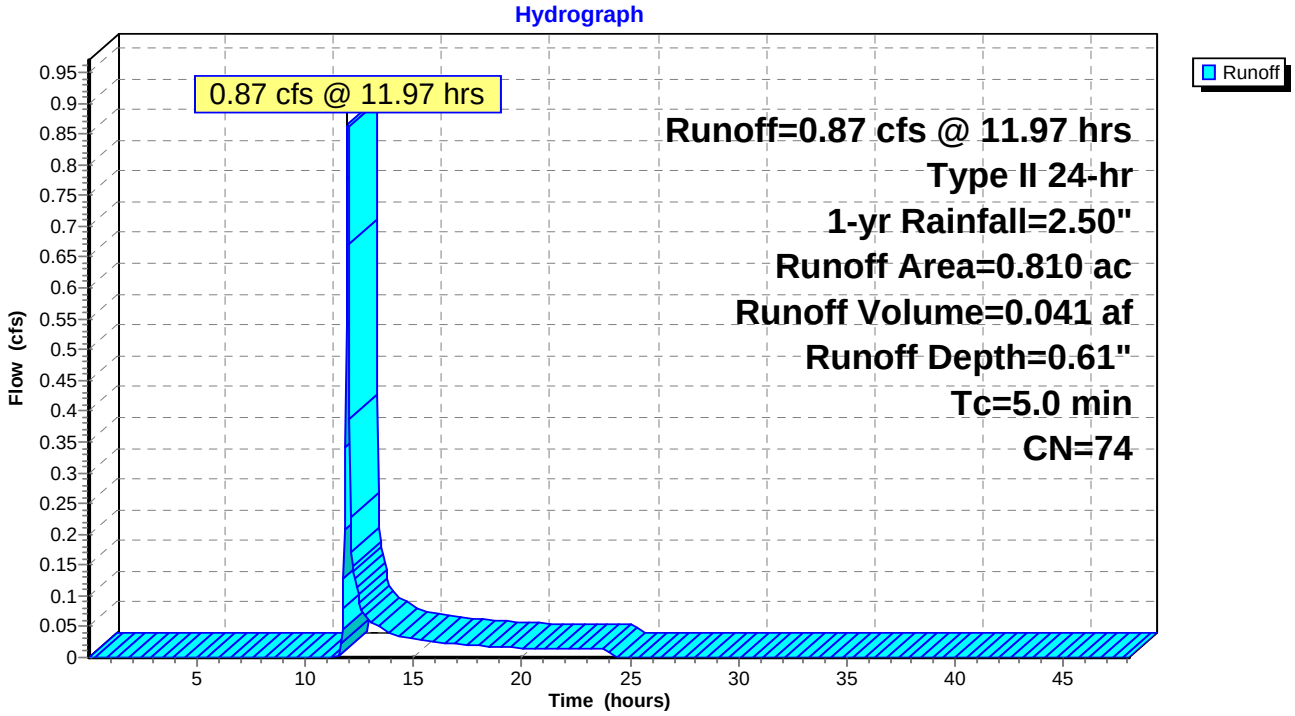
Runoff = 0.87 cfs @ 11.97 hrs, Volume= 0.041 af, Depth= 0.61"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 10S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 11S: AREA 3 ONSITE TO OFFSITE

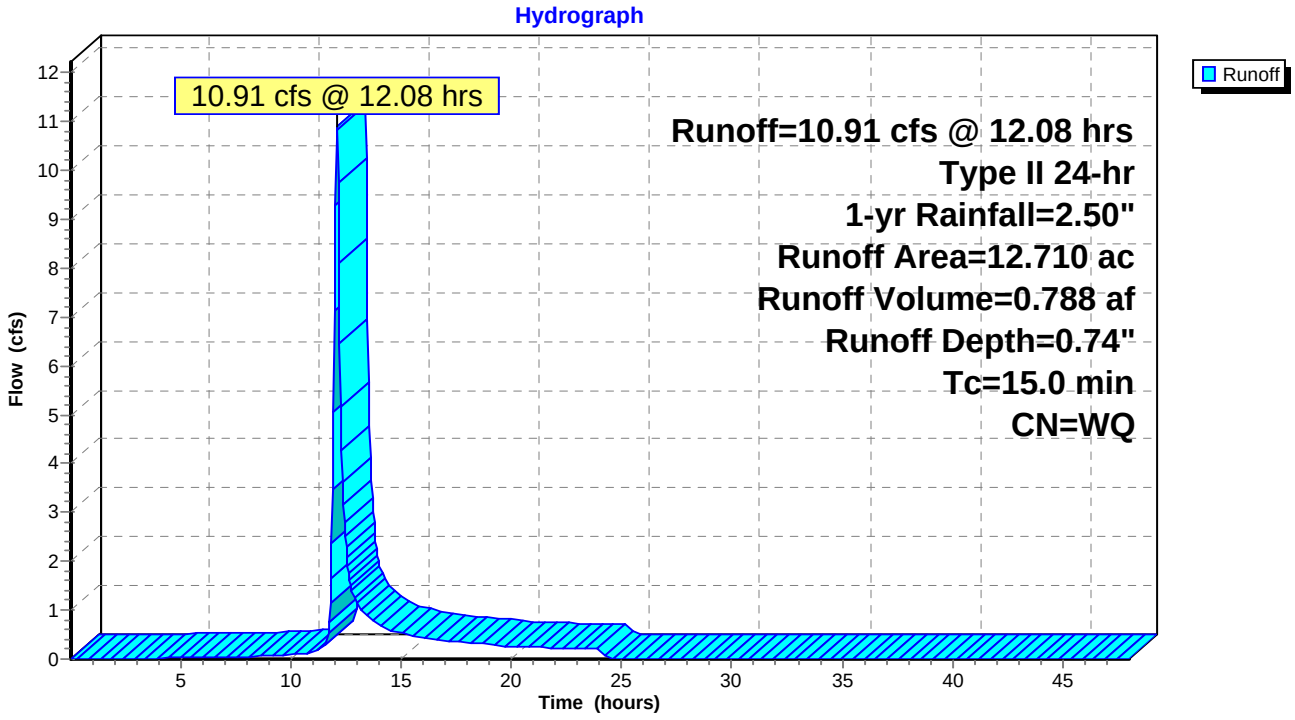
Runoff = 10.91 cfs @ 12.08 hrs, Volume= 0.788 af, Depth= 0.74"
Routed to Link 15L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 11S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS

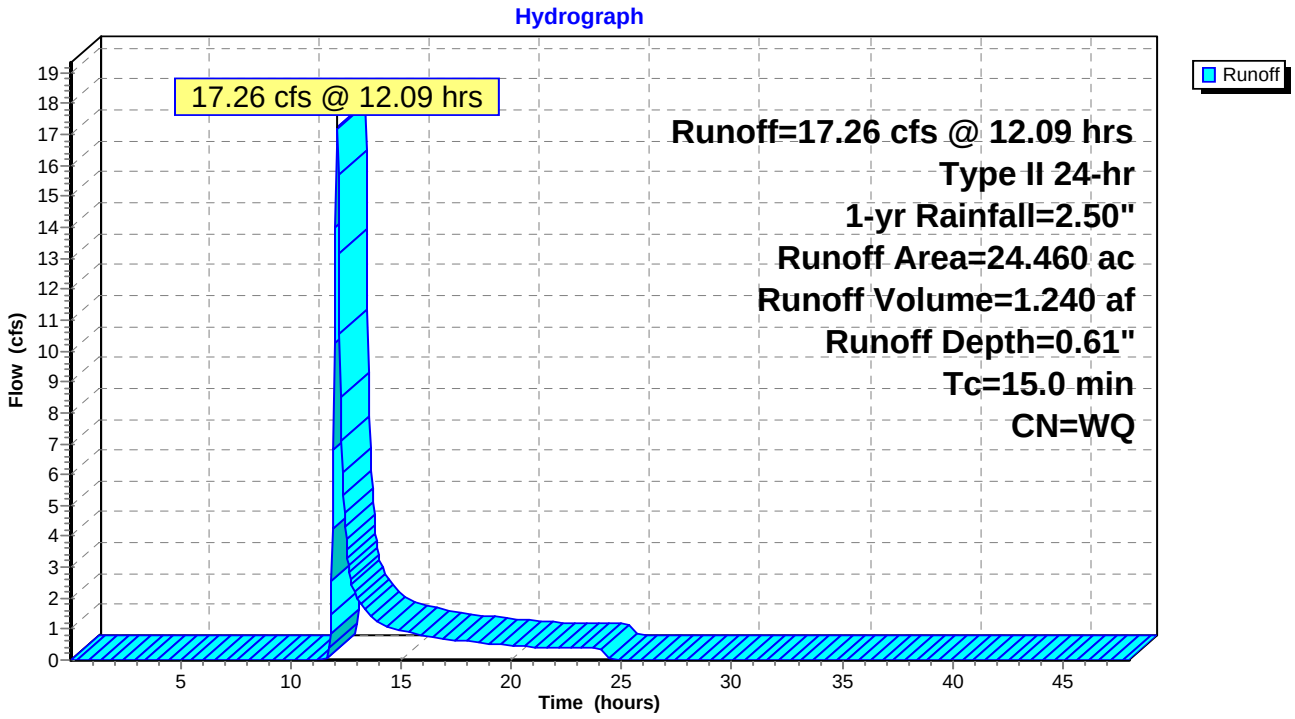
Runoff = 17.26 cfs @ 12.09 hrs, Volume= 1.240 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
23.650	74	>75% Grass cover, Good, HSG C
0.810	74	>75% Grass cover, Good, HSG C
24.460		Weighted Average
24.460	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS



Summary for Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS

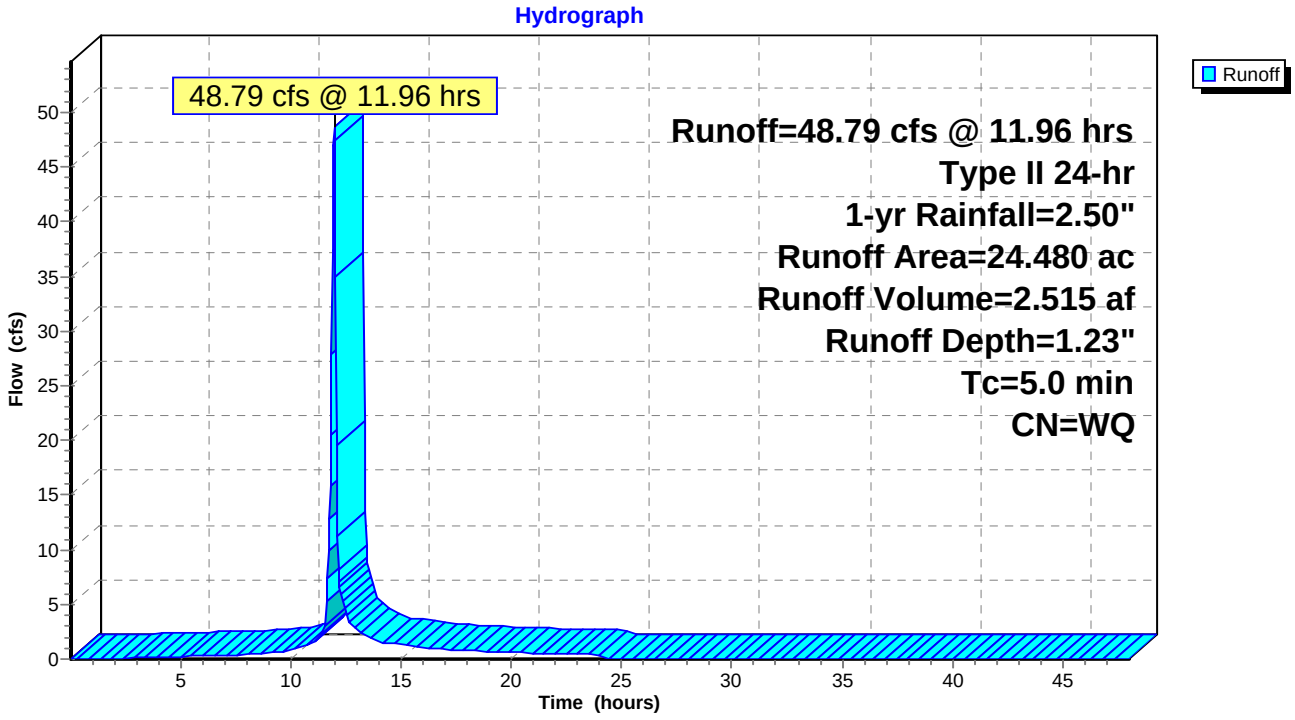
Runoff = 48.79 cfs @ 11.96 hrs, Volume= 2.515 af, Depth= 1.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 1-yr Rainfall=2.50"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
0.830	74	>75% Grass cover, Good, HSG C
24.480		Weighted Average
15.280	74	62.42% Pervious Area
9.200	98	37.58% Impervious Area

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

Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS



Summary for Pond 5P: STORMWATER MANAGEMENT FACILITY

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 1.84" for 1-yr event
Inflow = 33.83 cfs @ 11.96 hrs, Volume= 1.796 af
Outflow = 8.62 cfs @ 12.10 hrs, Volume= 1.796 af, Atten= 75%, Lag= 8.4 min
Primary = 8.62 cfs @ 12.10 hrs, Volume= 1.796 af
Routed to Pond 6R : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 499.84' @ 12.10 hrs Surf.Area= 9,622 sf Storage= 33,910 cf

Plug-Flow detention time= 198.4 min calculated for 1.795 af (100% of inflow)
Center-of-Mass det. time= 198.8 min (966.1 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

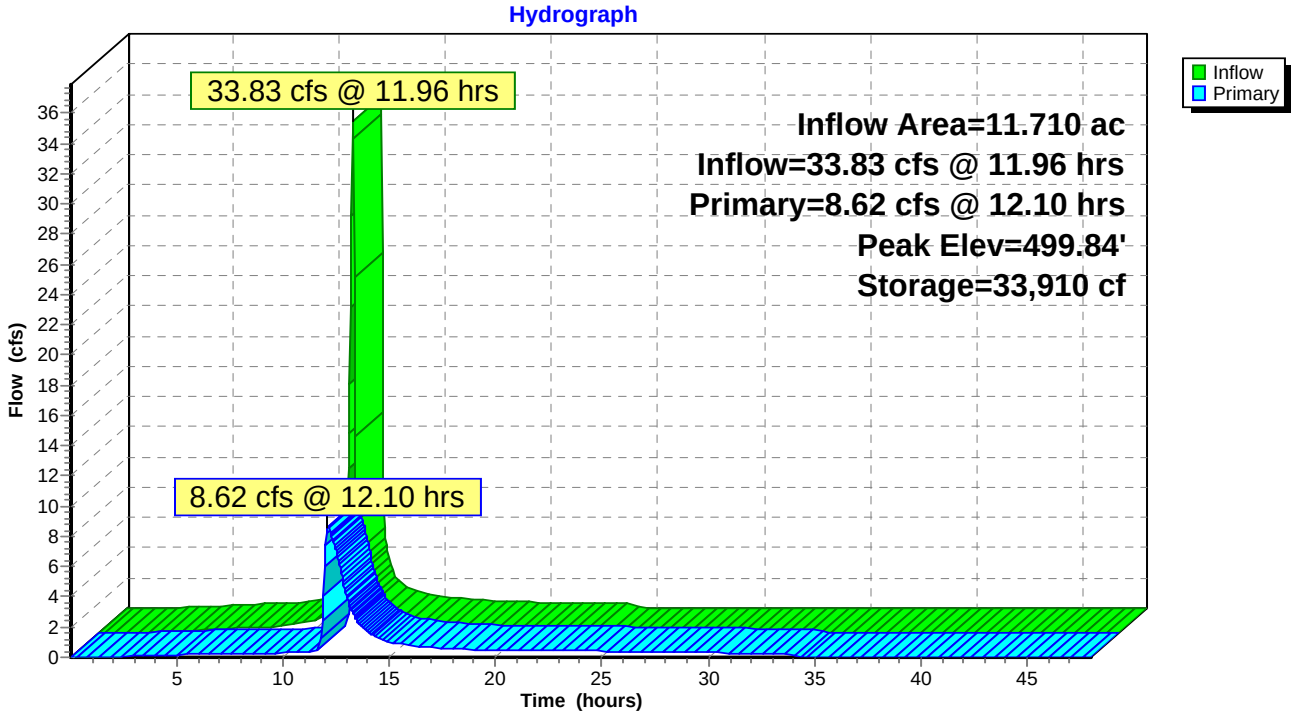
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	493.74'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

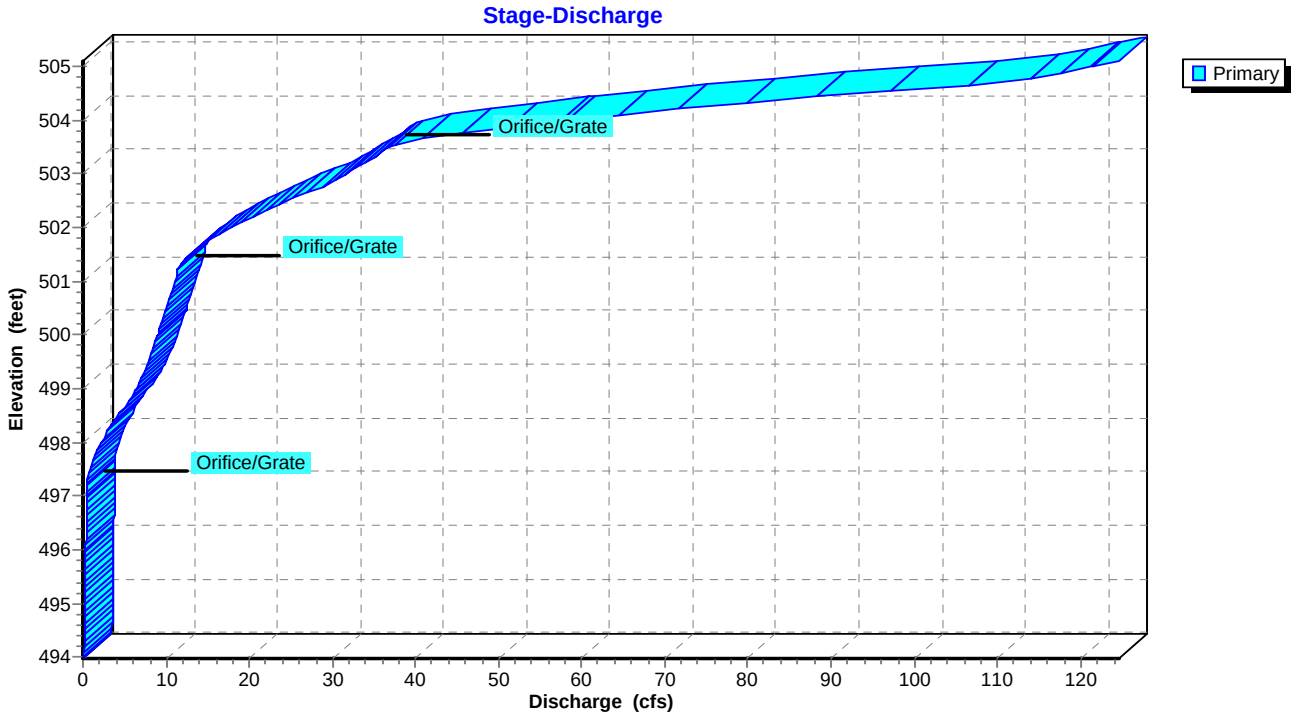
#3	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=8.62 cfs @ 12.10 hrs HW=499.83' TW=494.85' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 8.62 cfs of 87.76 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.53 cfs @ 10.74 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 8.09 cfs @ 6.47 fps)
  ├─**4=Orifice/Grate** (Controls 0.00 cfs)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

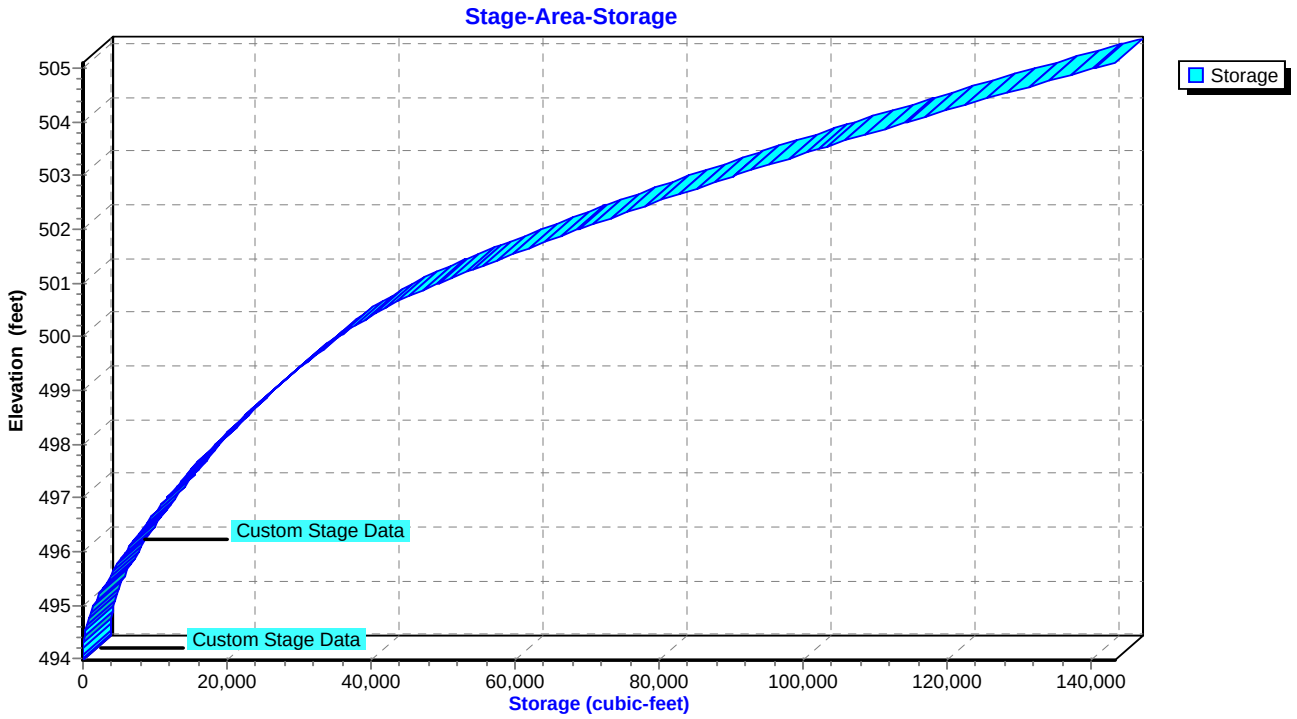
Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Summary for Pond 6R: 102-101

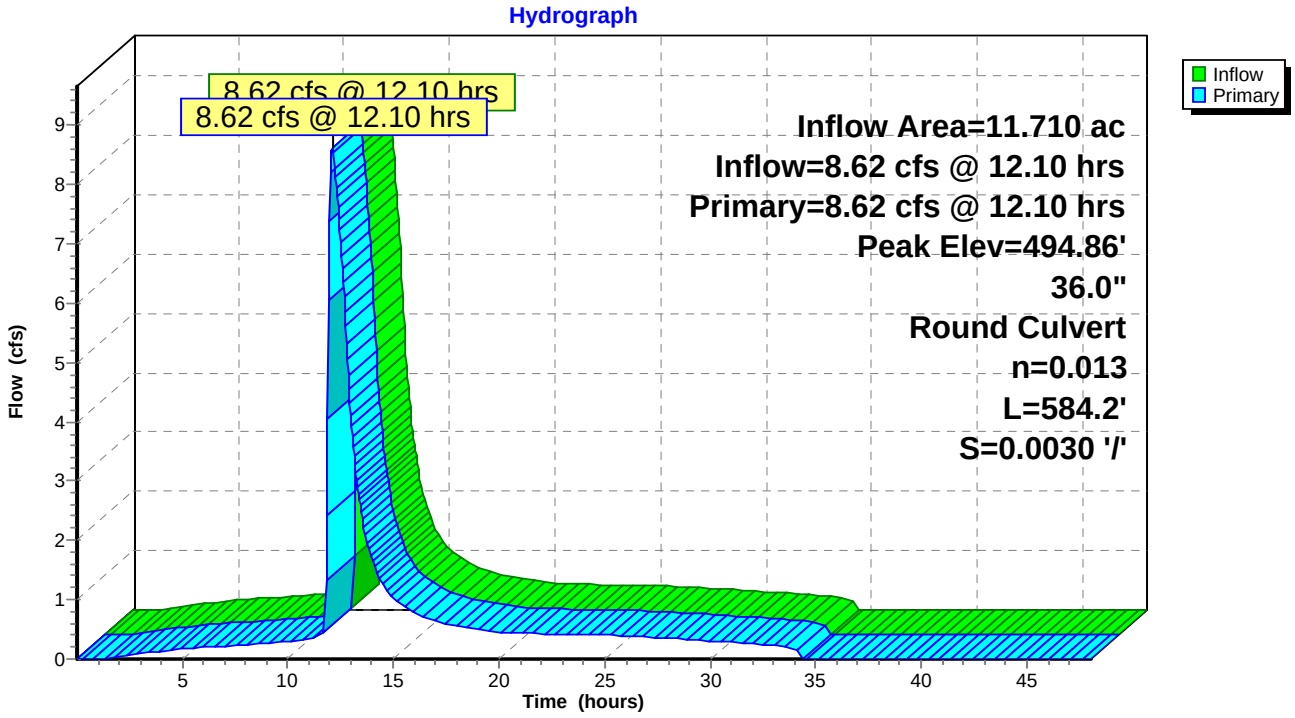
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 1.84" for 1-yr event
Inflow = 8.62 cfs @ 12.10 hrs, Volume= 1.796 af
Outflow = 8.62 cfs @ 12.10 hrs, Volume= 1.796 af, Atten= 0%, Lag= 0.0 min
Primary = 8.62 cfs @ 12.10 hrs, Volume= 1.796 af
Routed to Pond 7P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 494.86' @ 12.10 hrs

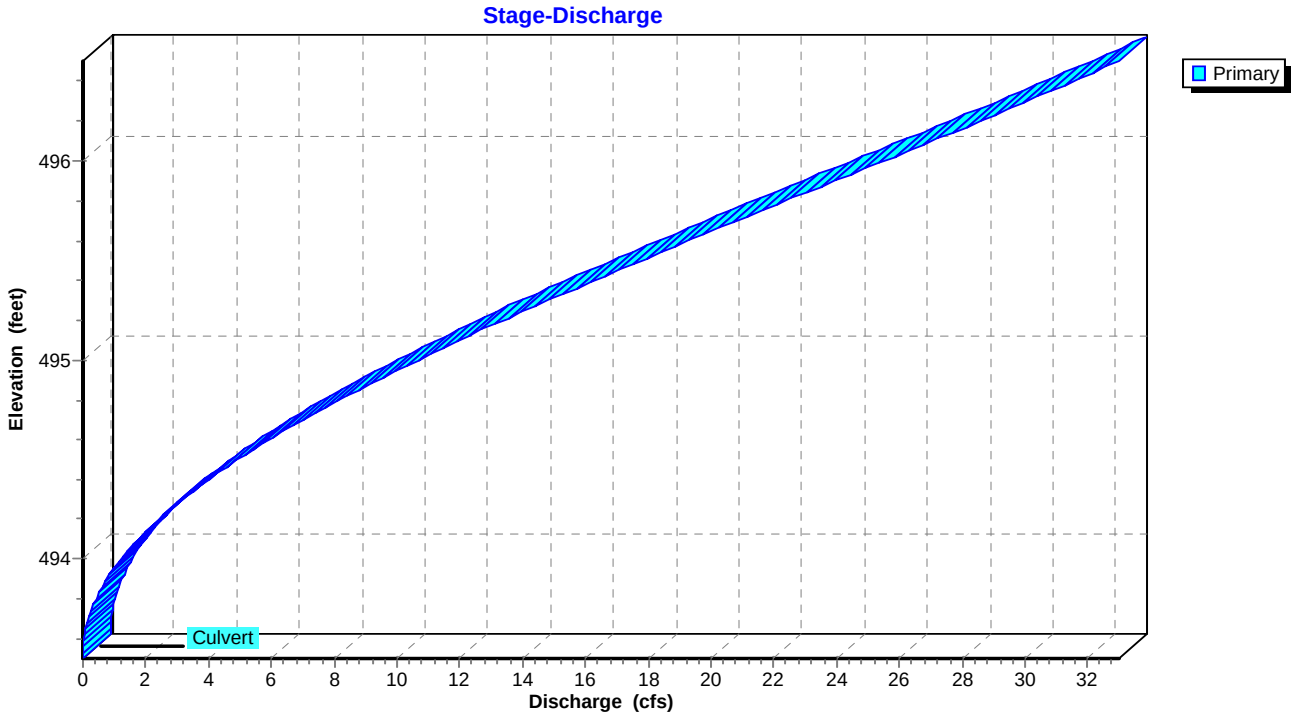
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=8.62 cfs @ 12.10 hrs HW=494.85' TW=492.86' (Dynamic Tailwater)
1=Culvert (Outlet Controls 8.62 cfs @ 4.09 fps)

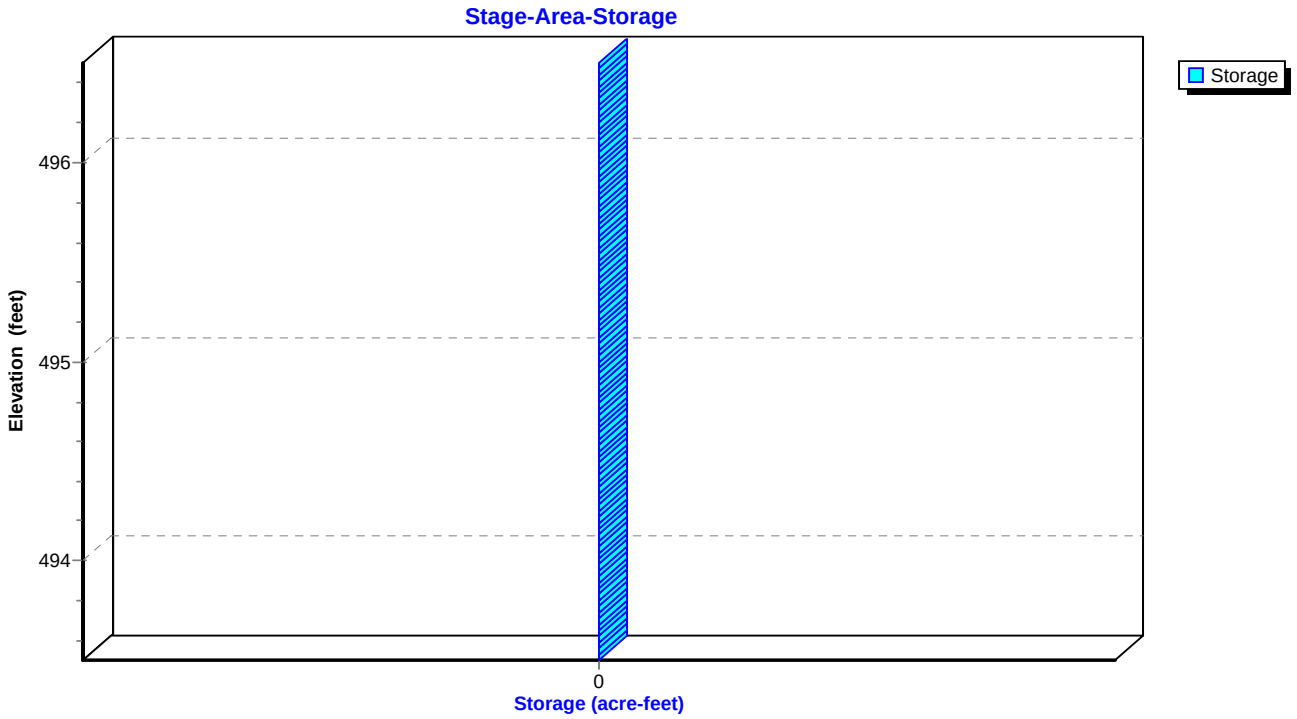
Pond 6R: 102-101



Pond 6R: 102-101



Pond 6R: 102-101



Summary for Pond 7P: 101-100

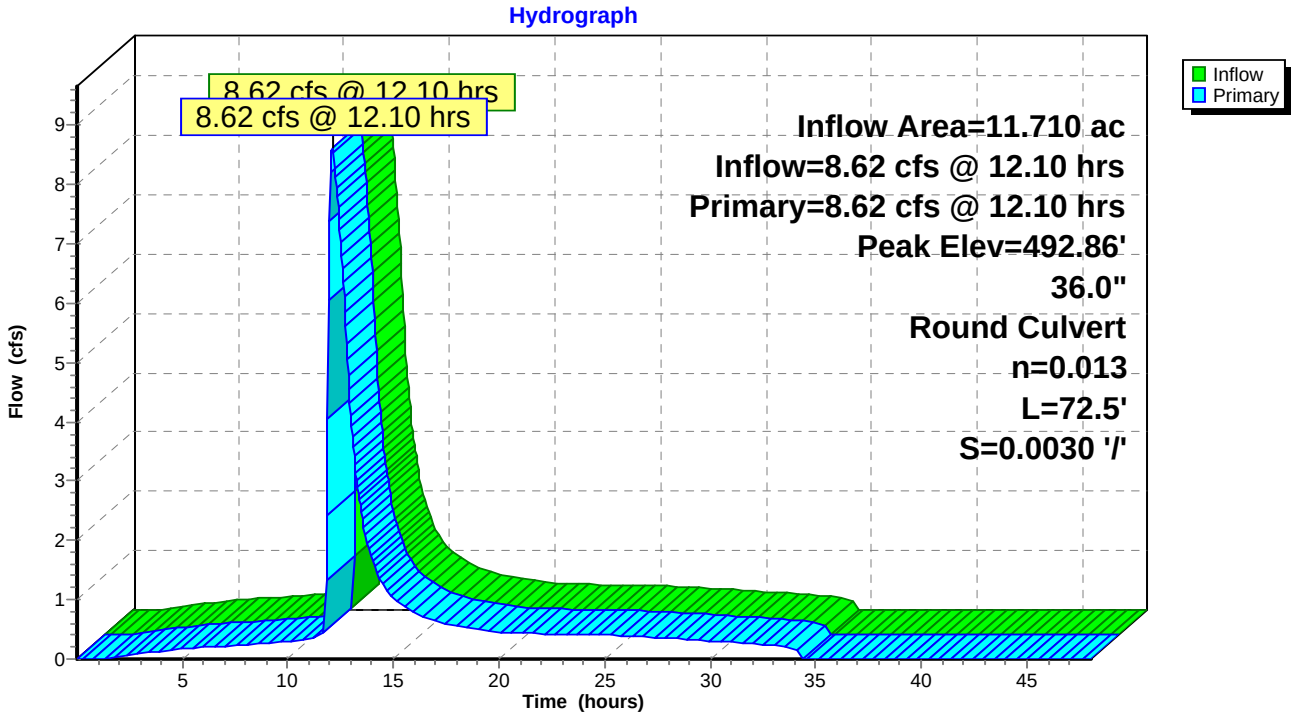
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 1.84" for 1-yr event
Inflow = 8.62 cfs @ 12.10 hrs, Volume= 1.796 af
Outflow = 8.62 cfs @ 12.10 hrs, Volume= 1.796 af, Atten= 0%, Lag= 0.0 min
Primary = 8.62 cfs @ 12.10 hrs, Volume= 1.796 af
Routed to Link 8L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 492.86' @ 12.10 hrs

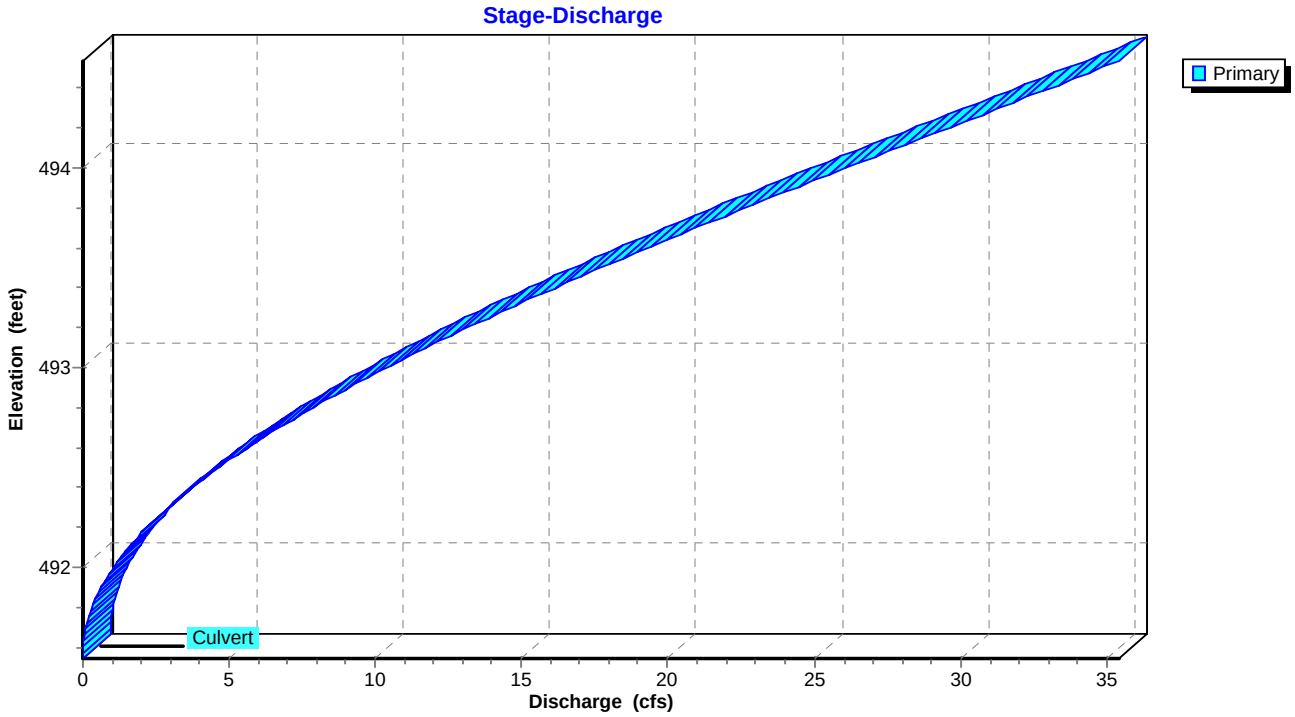
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=8.62 cfs @ 12.10 hrs HW=492.86' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 8.62 cfs @ 4.23 fps)

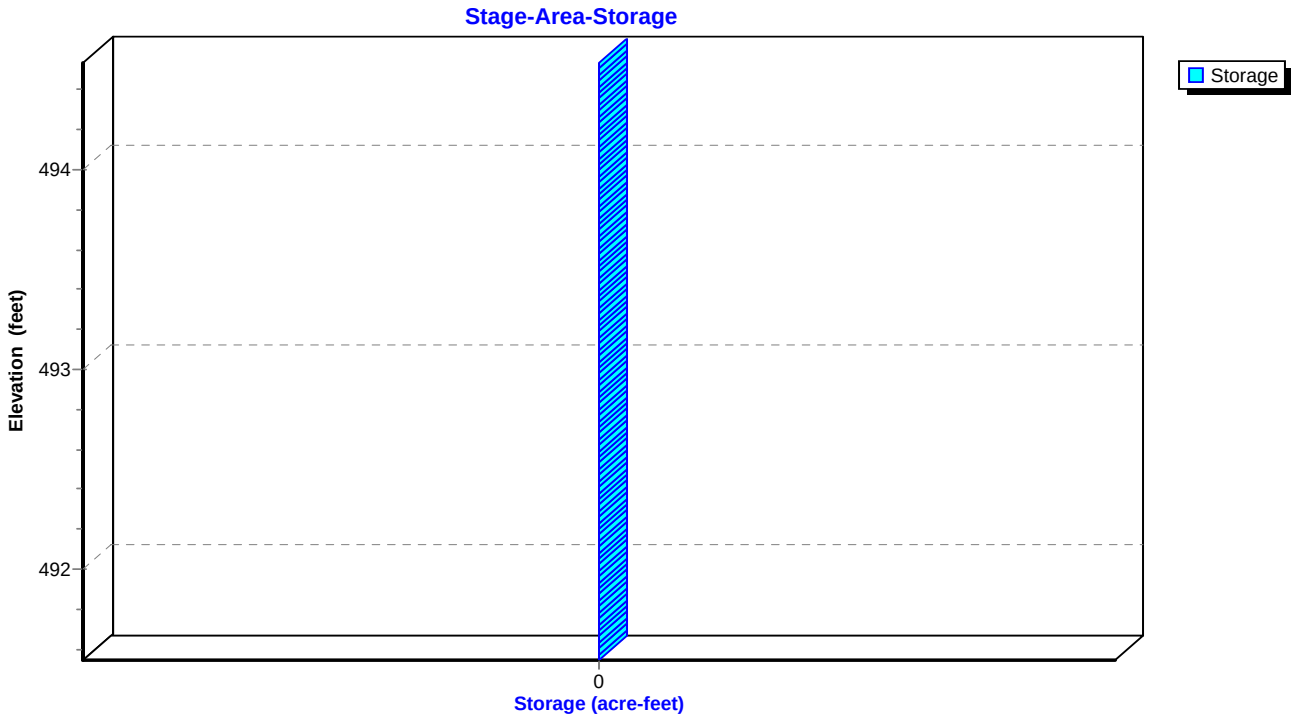
Pond 7P: 101-100



Pond 7P: 101-100



Pond 7P: 101-100



Summary for Pond 12P: 100 YR LFB

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 1.84" for 1-yr event
Inflow = 33.83 cfs @ 11.96 hrs, Volume= 1.796 af
Outflow = 9.02 cfs @ 12.09 hrs, Volume= 1.493 af, Atten= 73%, Lag= 8.2 min
Primary = 9.02 cfs @ 12.09 hrs, Volume= 1.493 af
Routed to Pond 13P : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 500.27' @ 12.09 hrs Surf.Area= 11,867 sf Storage= 38,408 cf

Plug-Flow detention time= 179.0 min calculated for 1.493 af (83% of inflow)
Center-of-Mass det. time= 104.0 min (871.3 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

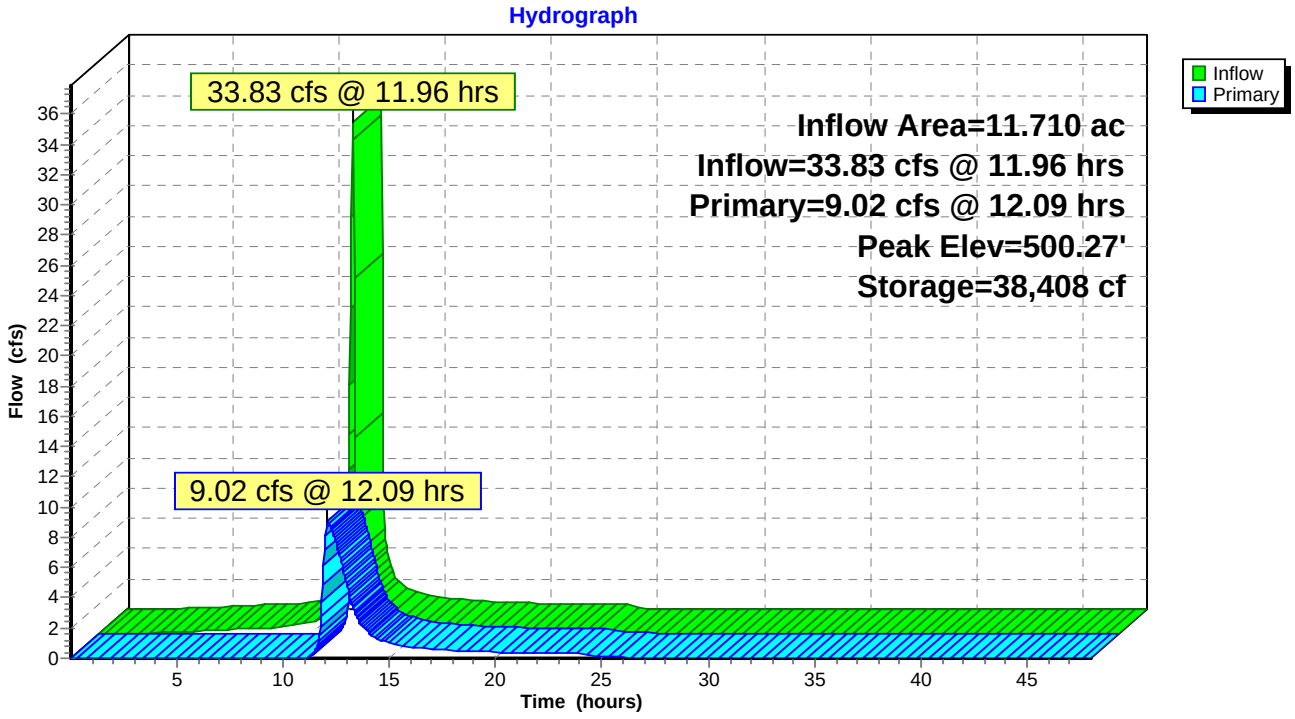
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600

			Limited to weir flow at low heads
#3	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

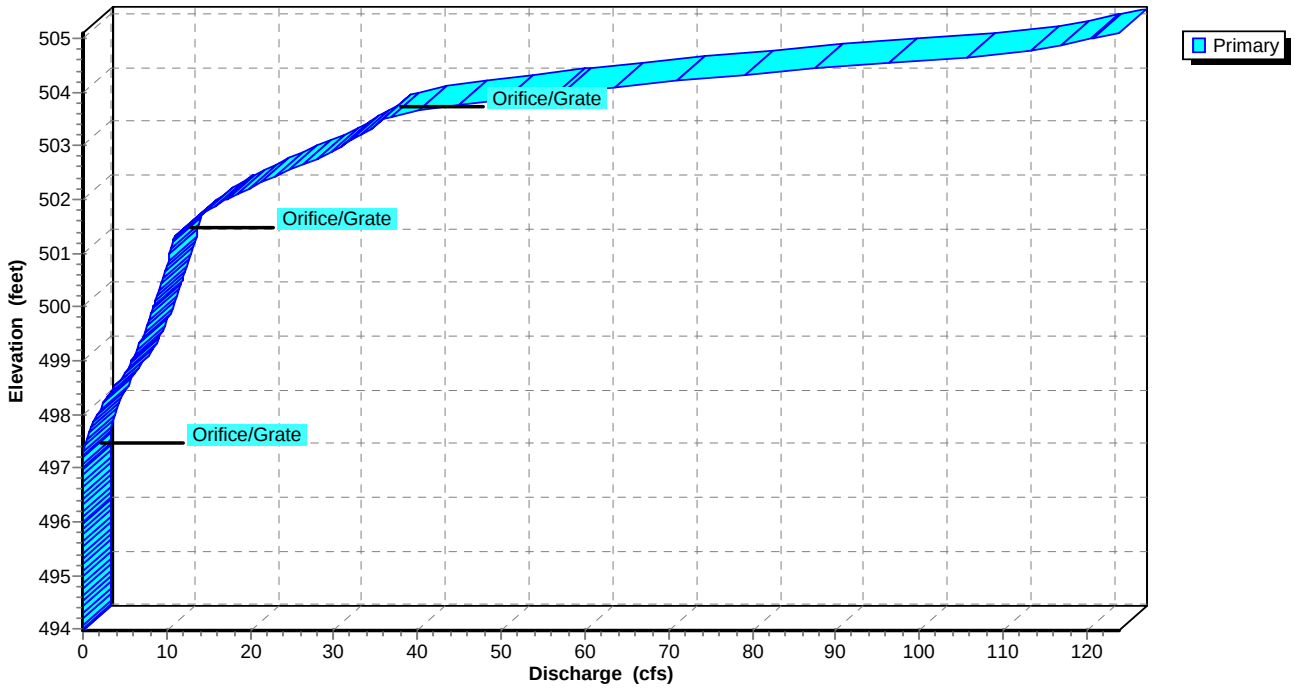
Primary OutFlow Max=9.01 cfs @ 12.09 hrs HW=500.26' TW=494.89' (Dynamic Tailwater)
- **1=RCP_Round 36"** (Passes 9.01 cfs of 93.60 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 9.01 cfs @ 7.21 fps)
  - **3=Orifice/Grate** (Controls 0.00 cfs)
  - **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 12P: 100 YR LFB



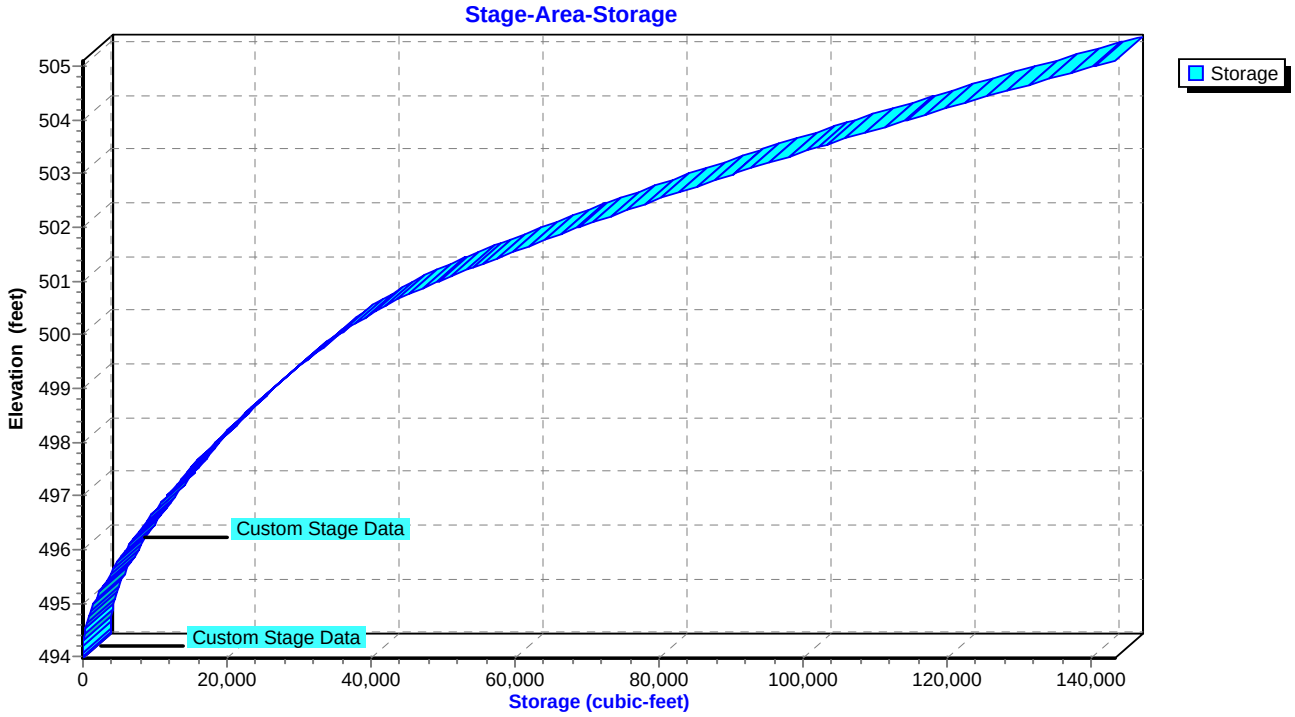
Pond 12P: 100 YR LFB

Stage-Discharge



Pond 12P: 100 YR LFB

Stage-Area-Storage



Summary for Pond 13P: 102-101

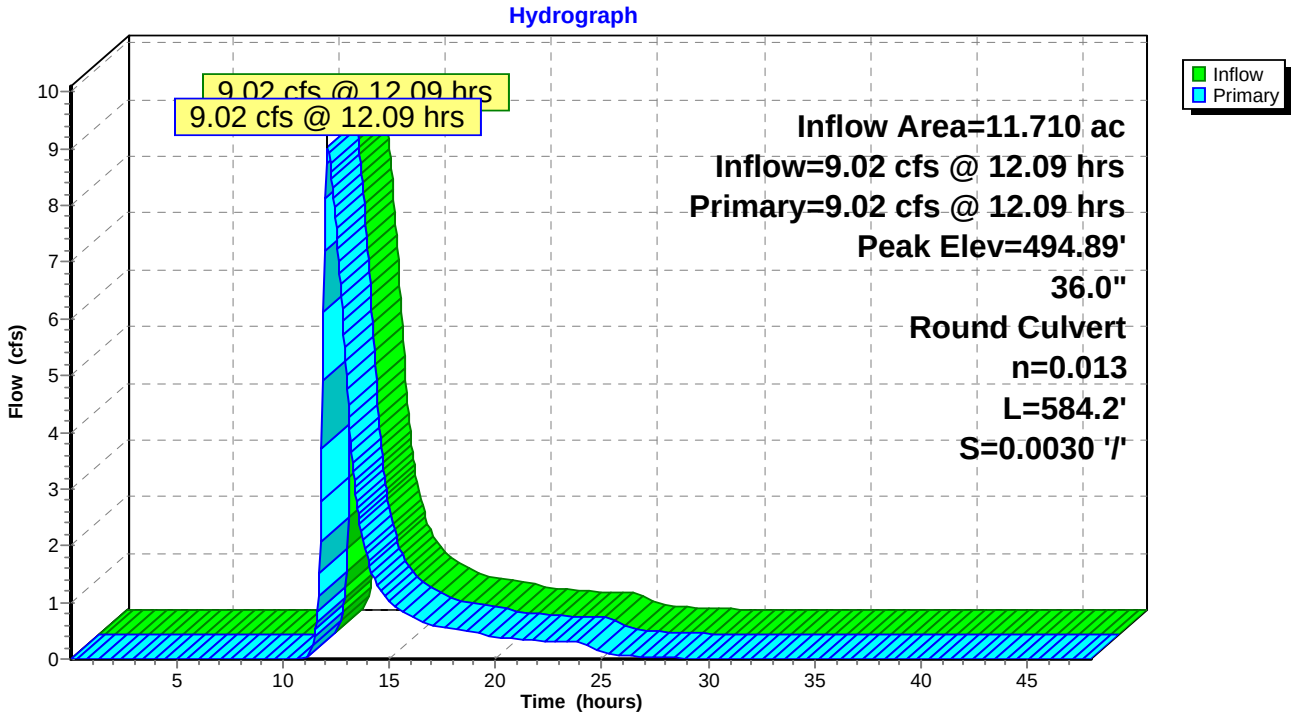
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 1.53" for 1-yr event
Inflow = 9.02 cfs @ 12.09 hrs, Volume= 1.493 af
Outflow = 9.02 cfs @ 12.09 hrs, Volume= 1.493 af, Atten= 0%, Lag= 0.0 min
Primary = 9.02 cfs @ 12.09 hrs, Volume= 1.493 af
Routed to Pond 14P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 494.89' @ 12.09 hrs

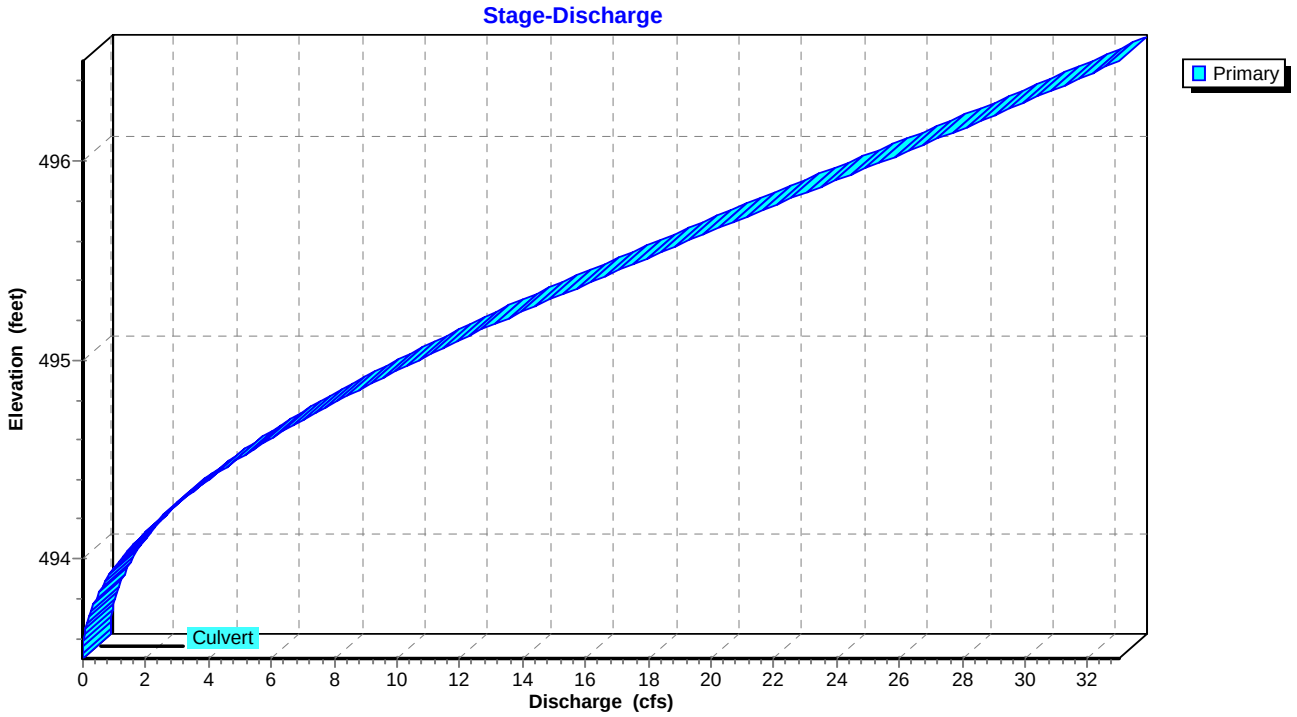
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=9.01 cfs @ 12.09 hrs HW=494.89' TW=492.89' (Dynamic Tailwater)
1=Culvert (Outlet Controls 9.01 cfs @ 4.13 fps)

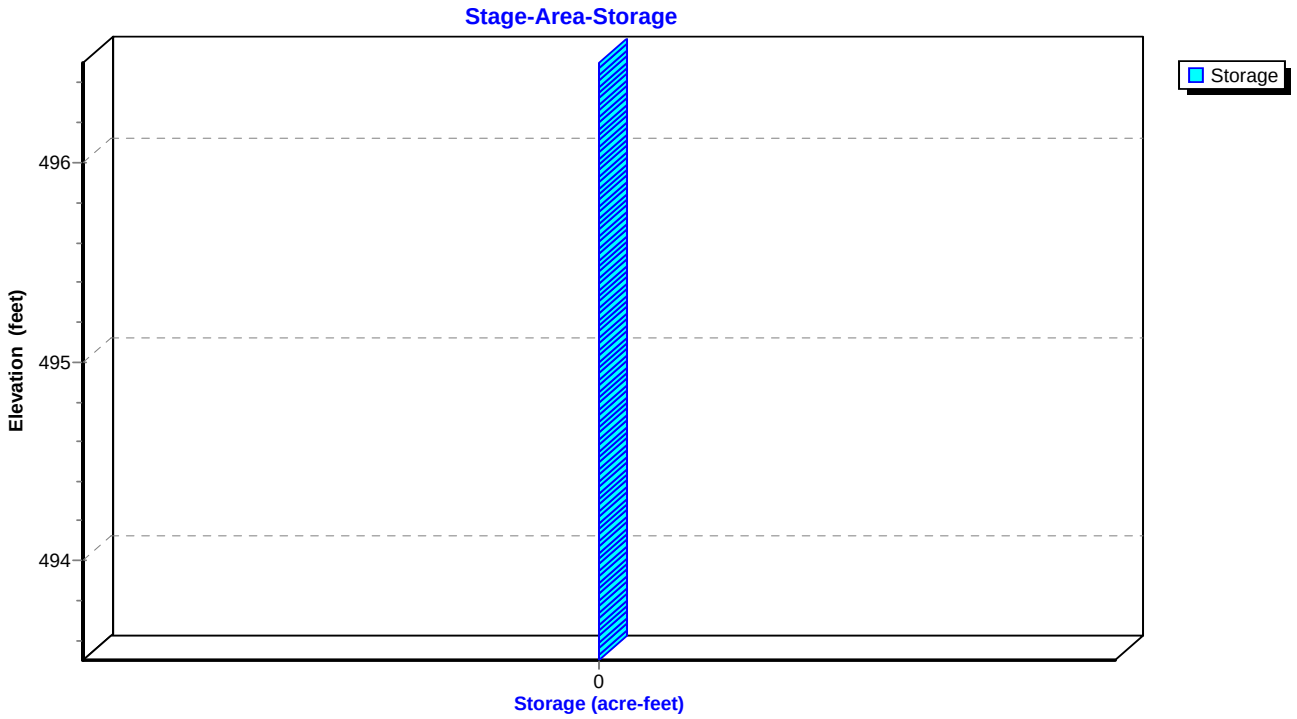
Pond 13P: 102-101



Pond 13P: 102-101



Pond 13P: 102-101



Summary for Pond 14P: 101-100

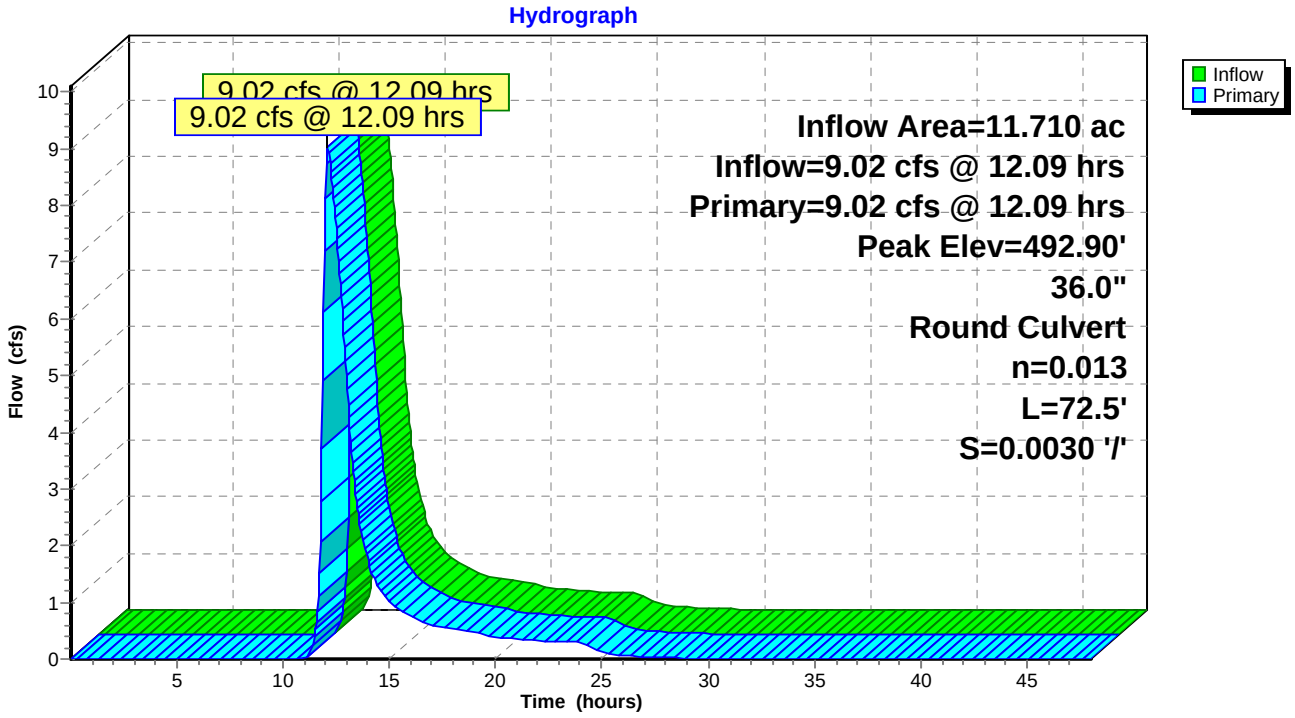
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 1.53" for 1-yr event
Inflow = 9.02 cfs @ 12.09 hrs, Volume= 1.493 af
Outflow = 9.02 cfs @ 12.09 hrs, Volume= 1.493 af, Atten= 0%, Lag= 0.0 min
Primary = 9.02 cfs @ 12.09 hrs, Volume= 1.493 af
Routed to Link 15L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 492.90' @ 12.09 hrs

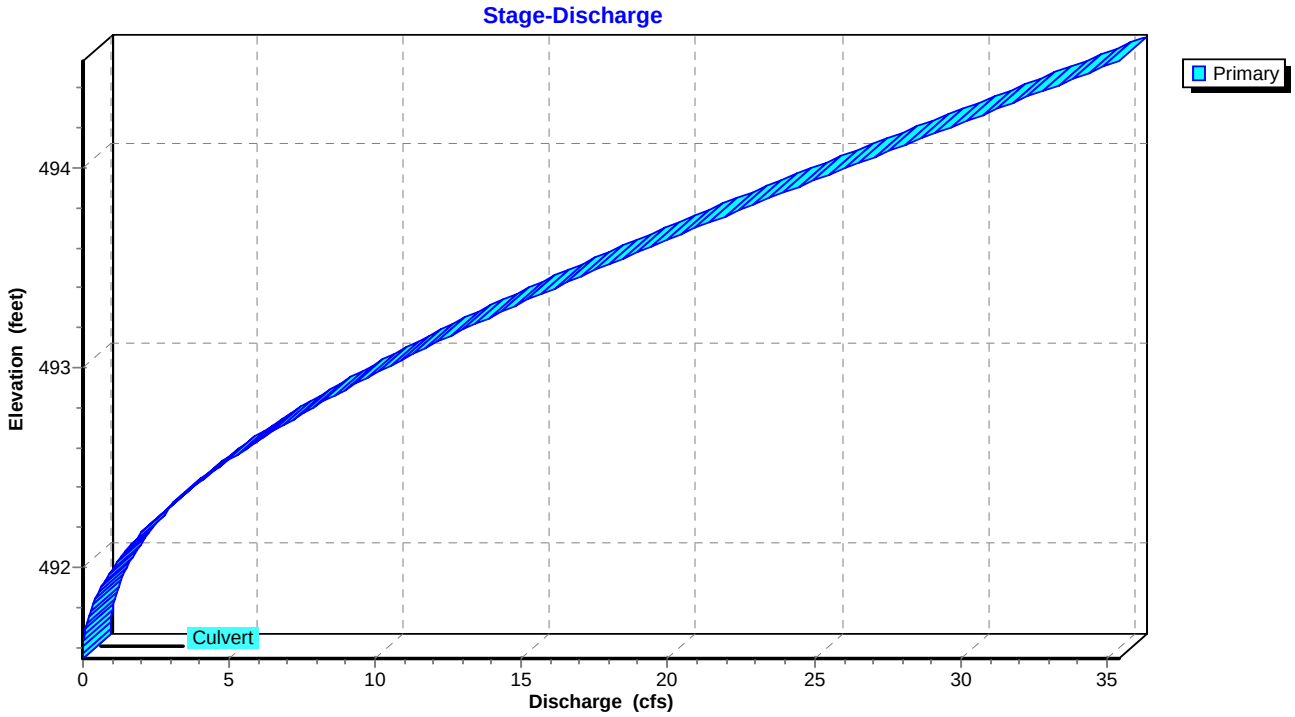
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=9.01 cfs @ 12.09 hrs HW=492.89' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 9.01 cfs @ 4.28 fps)

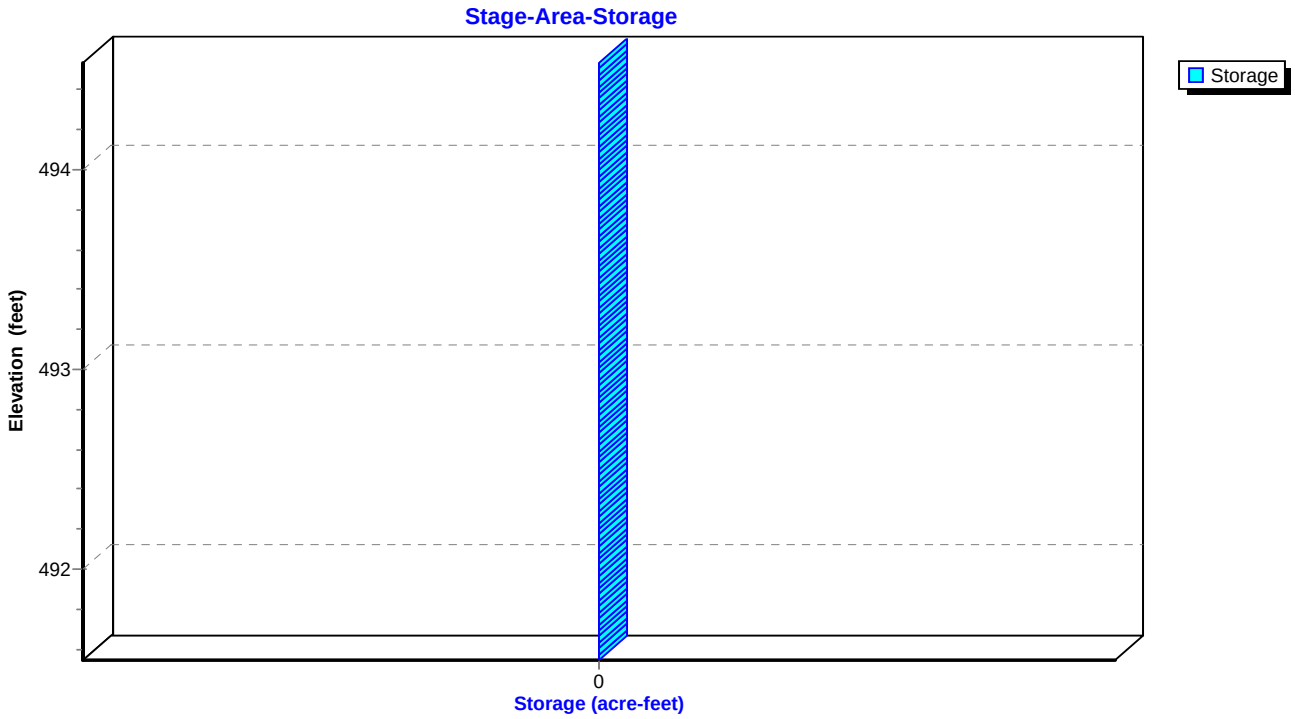
Pond 14P: 101-100



Pond 14P: 101-100



Pond 14P: 101-100

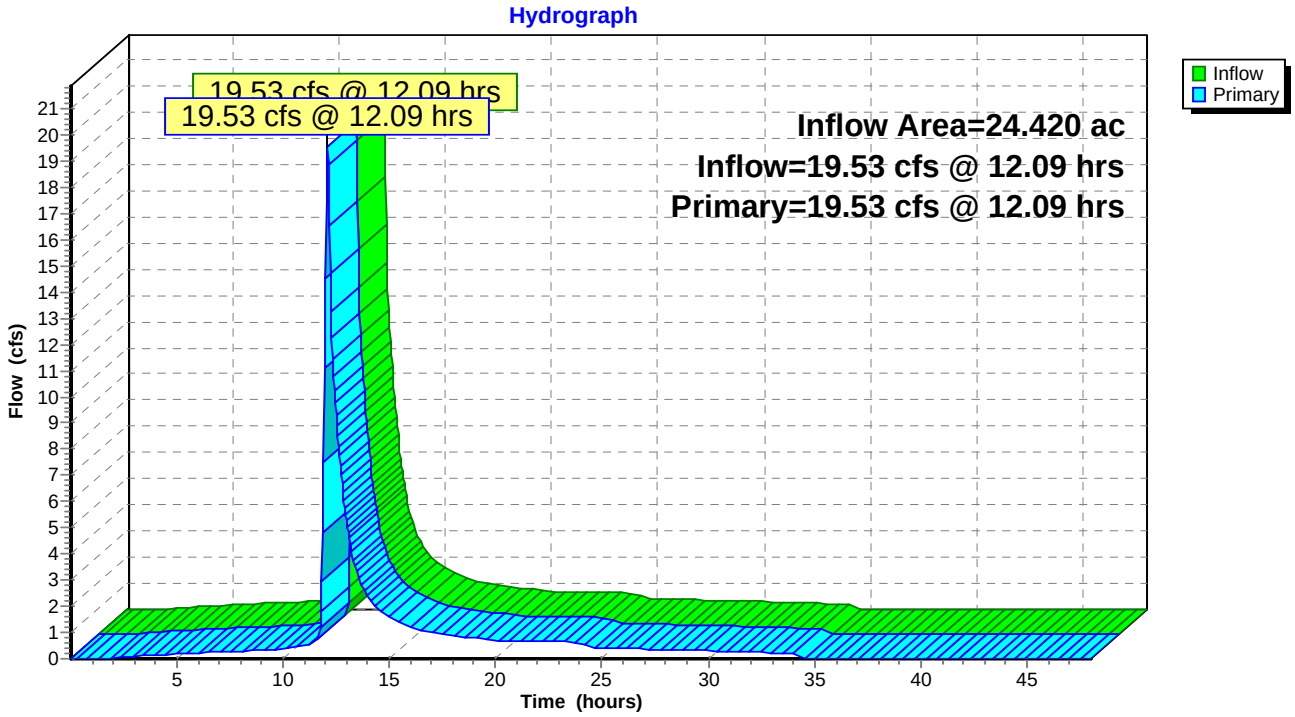


Summary for Link 8L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 1.27" for 1-yr event
Inflow = 19.53 cfs @ 12.09 hrs, Volume= 2.585 af
Primary = 19.53 cfs @ 12.09 hrs, Volume= 2.585 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 8L: POST DEVELOPED ROUTING

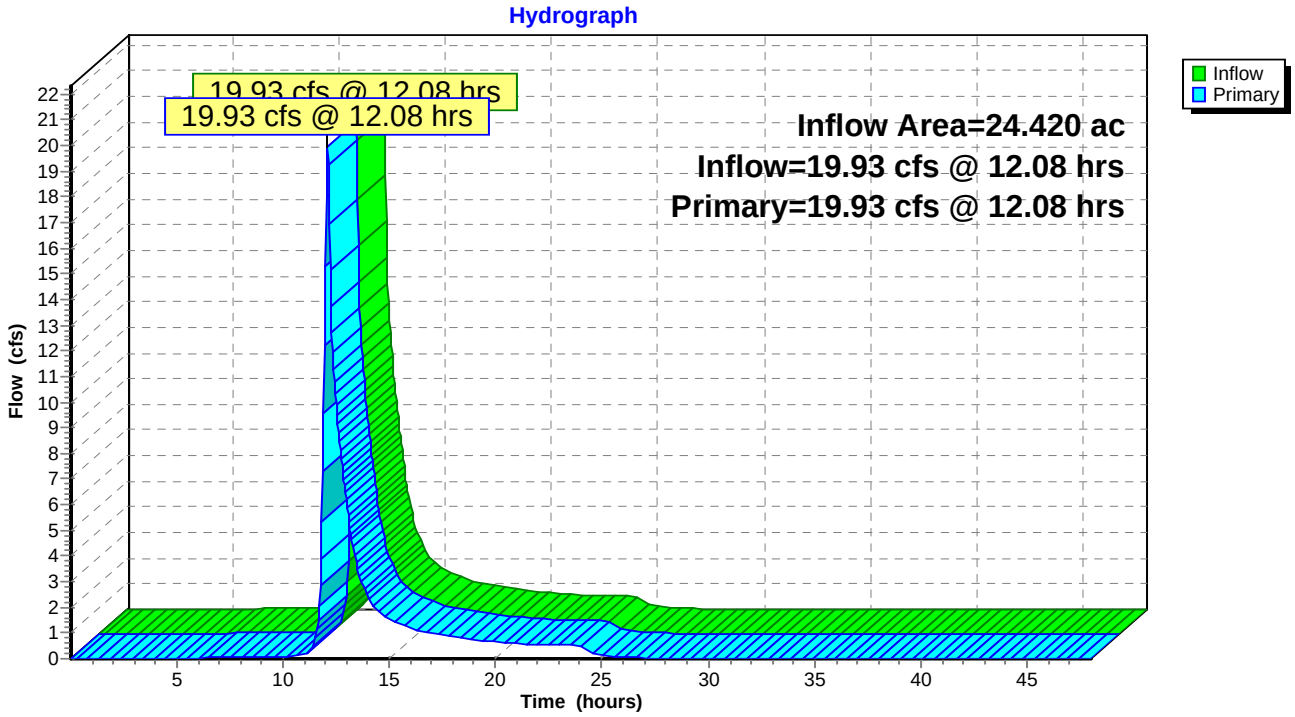


Summary for Link 15L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 1.12" for 1-yr event
Inflow = 19.93 cfs @ 12.08 hrs, Volume= 2.281 af
Primary = 19.93 cfs @ 12.08 hrs, Volume= 2.281 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 15L: POST DEVELOPED ROUTING



Summary for Subcatchment 1S: PROPOSED CONDITIONS

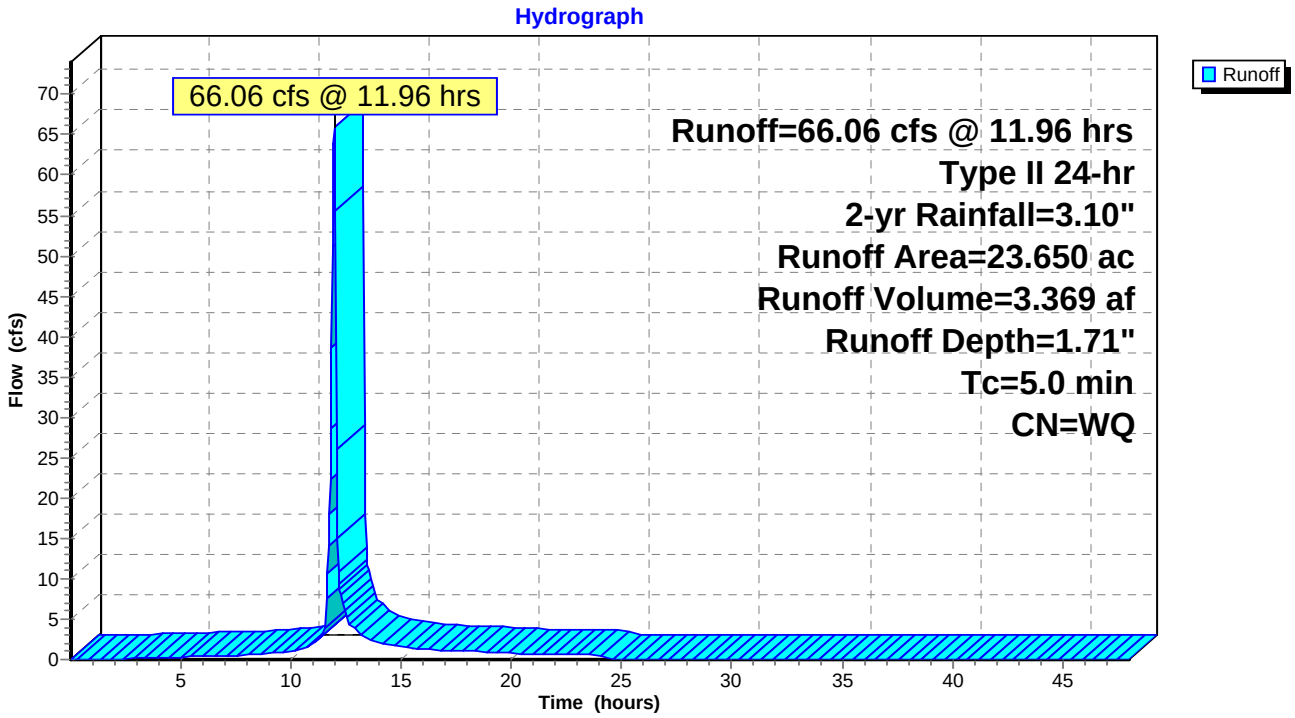
Runoff = 66.06 cfs @ 11.96 hrs, Volume= 3.369 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
23.650		Weighted Average
14.450	74	61.10% Pervious Area
9.200	98	38.90% Impervious Area

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

Subcatchment 1S: PROPOSED CONDITIONS



Summary for Subcatchment 2S: AREA 1 TO BASIN

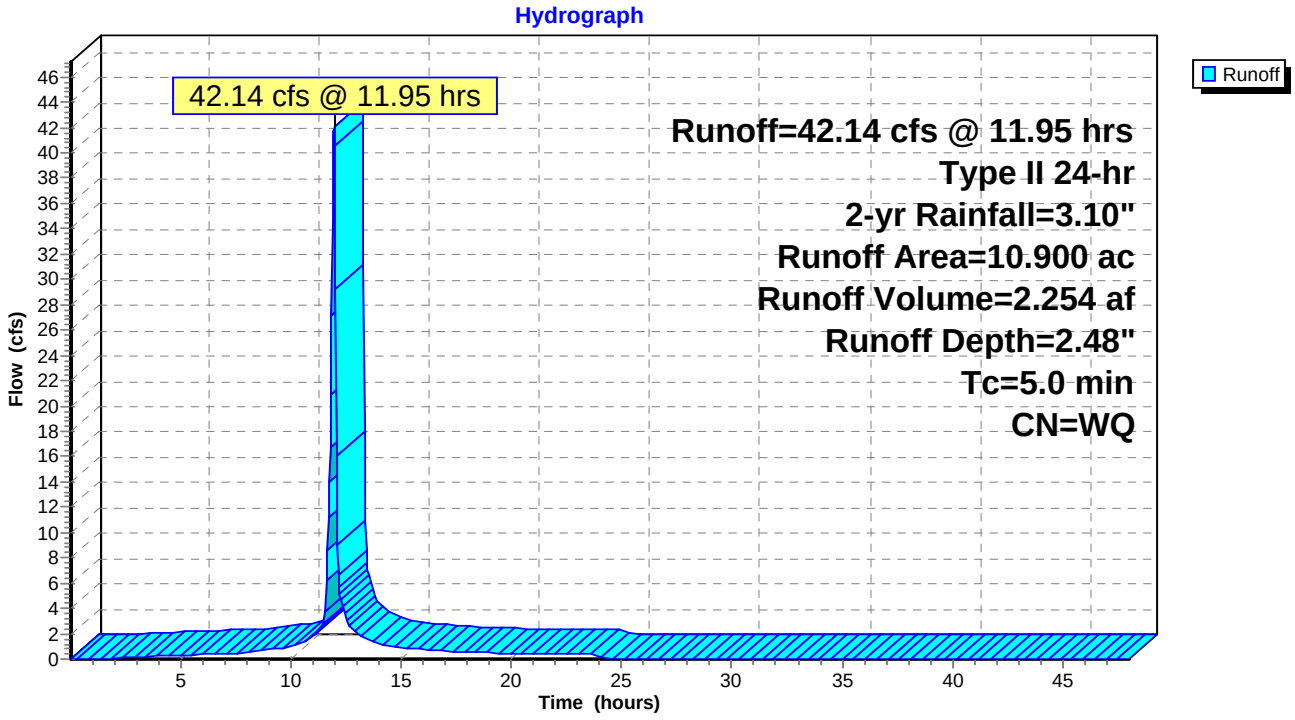
Runoff = 42.14 cfs @ 11.95 hrs, Volume= 2.254 af, Depth= 2.48"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 2S: AREA 1 TO BASIN



Summary for Subcatchment 3S: AREA 2 OFFSITE TO ONSITE

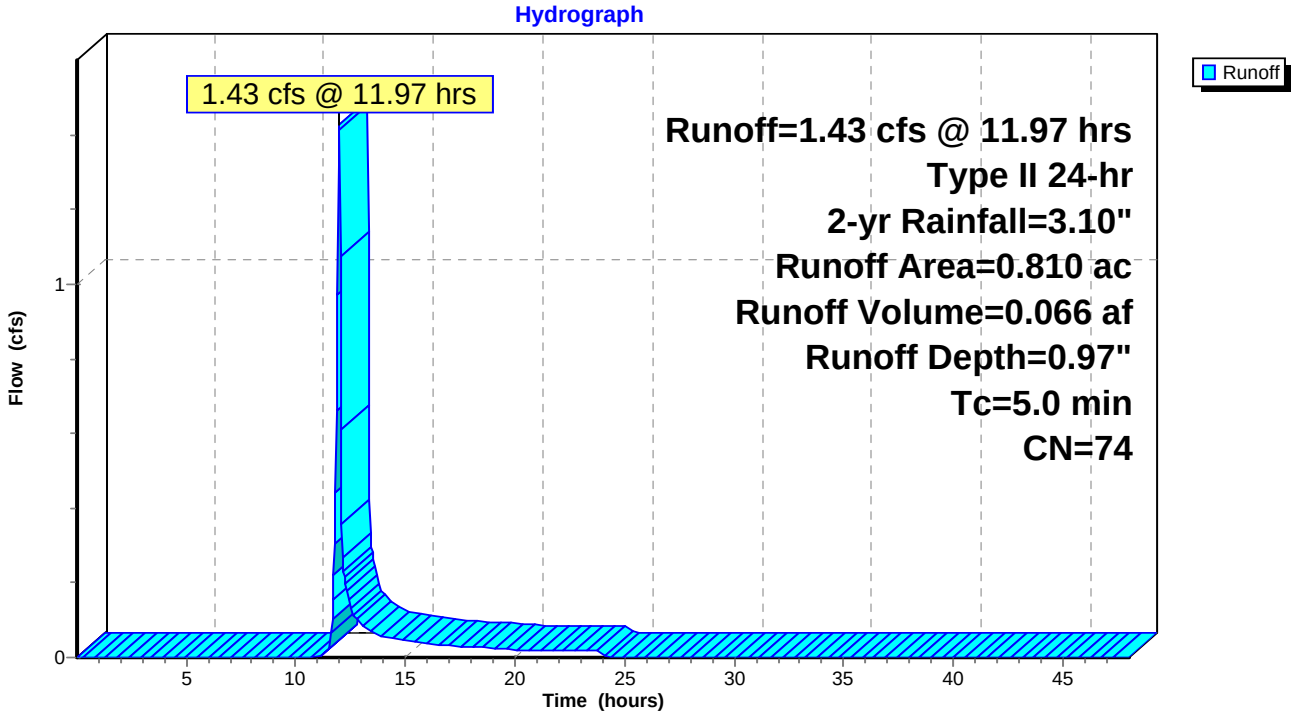
Runoff = 1.43 cfs @ 11.97 hrs, Volume= 0.066 af, Depth= 0.97"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 3S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 4S: AREA 3 ONSITE TO OFFSITE

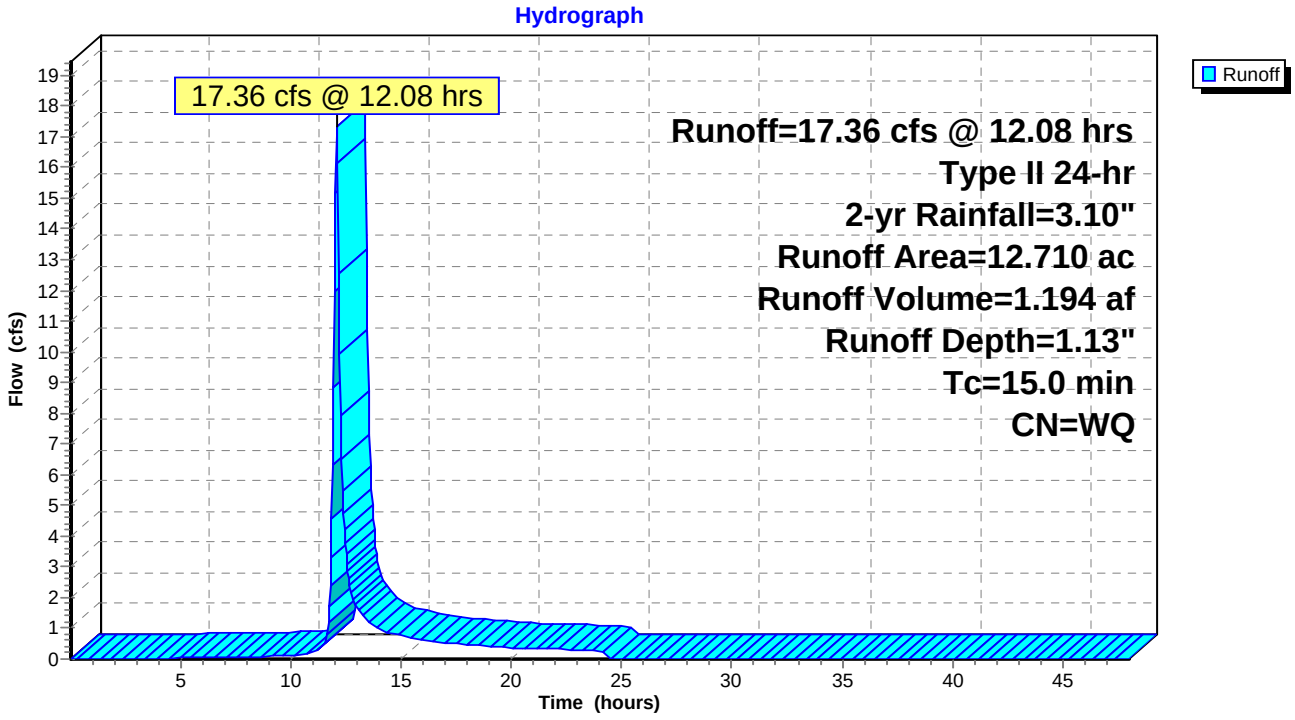
Runoff = 17.36 cfs @ 12.08 hrs, Volume= 1.194 af, Depth= 1.13"
Routed to Link 8L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 4S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 9S: AREA 1 TO BASIN

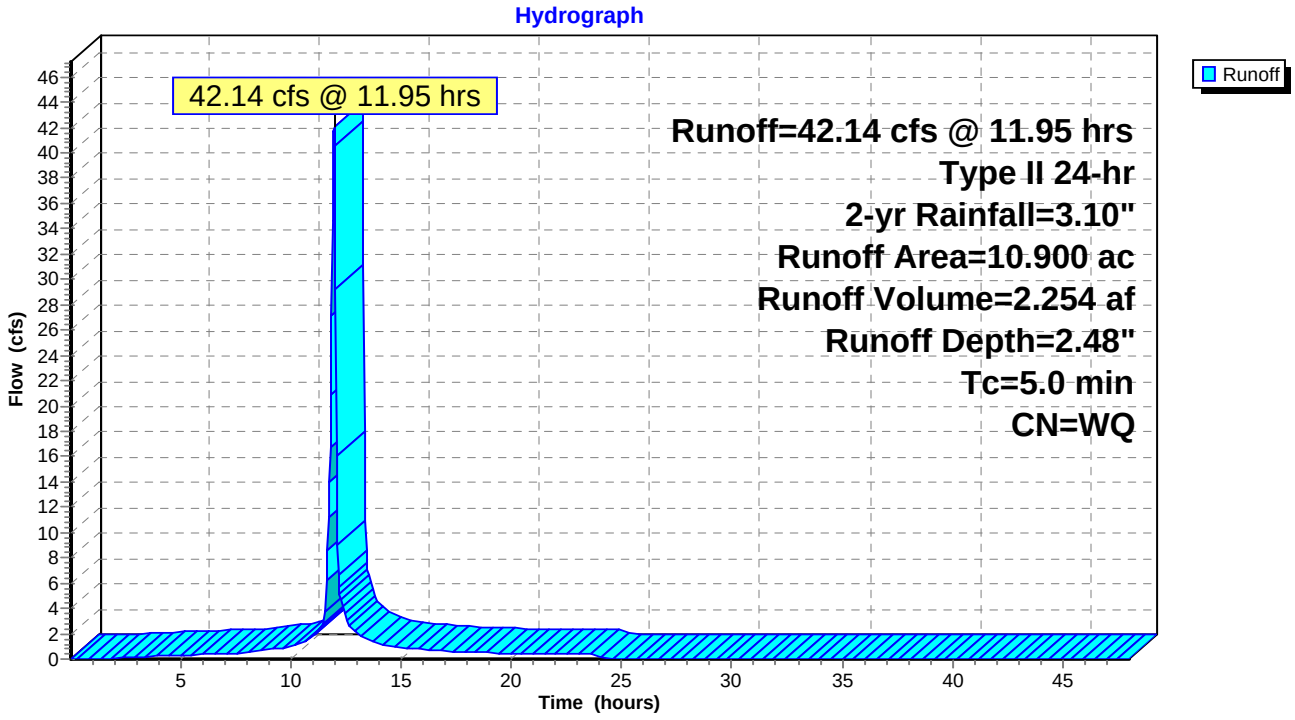
Runoff = 42.14 cfs @ 11.95 hrs, Volume= 2.254 af, Depth= 2.48"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 9S: AREA 1 TO BASIN



Summary for Subcatchment 10S: AREA 2 OFFSITE TO ONSITE

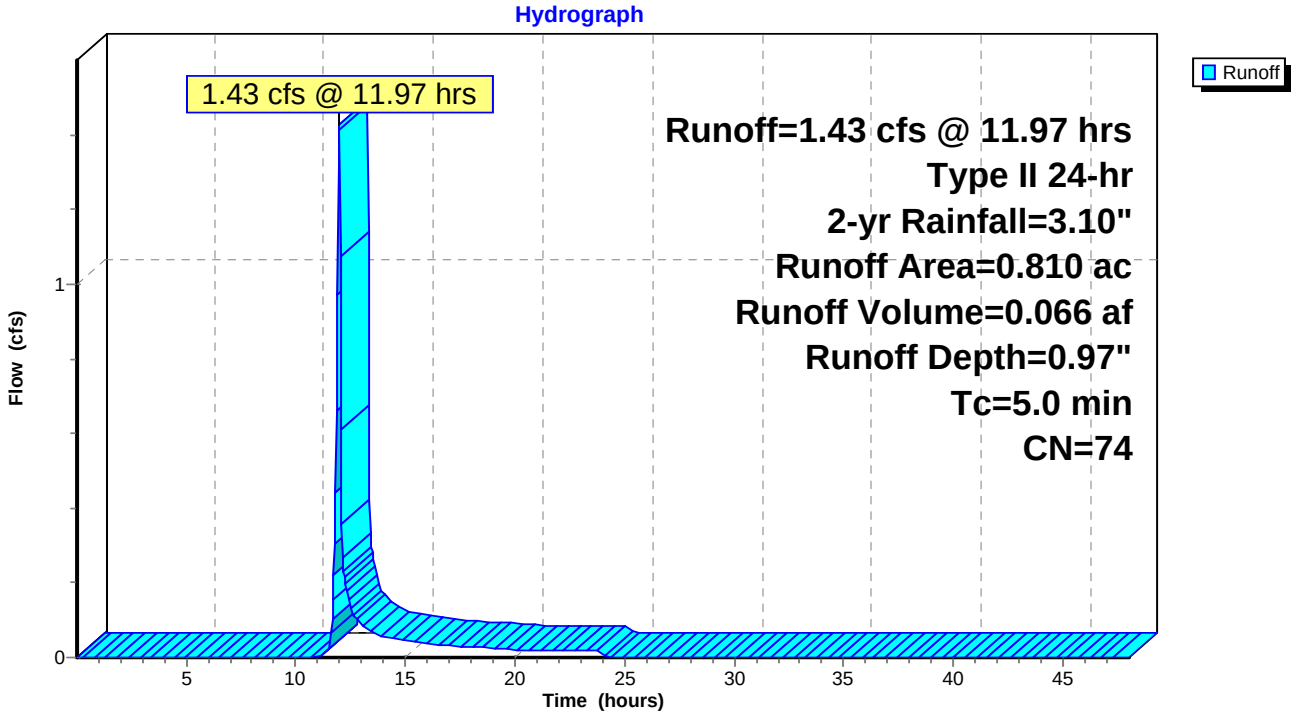
Runoff = 1.43 cfs @ 11.97 hrs, Volume= 0.066 af, Depth= 0.97"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 10S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 11S: AREA 3 ONSITE TO OFFSITE

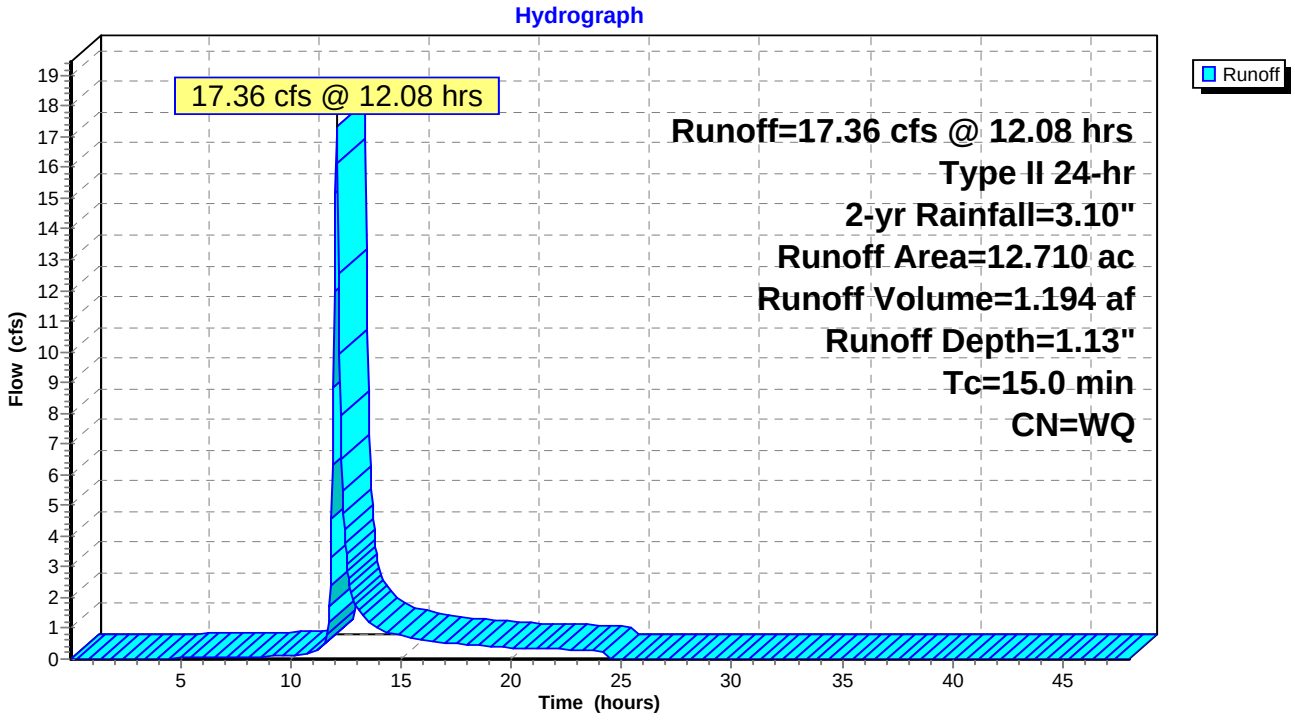
Runoff = 17.36 cfs @ 12.08 hrs, Volume= 1.194 af, Depth= 1.13"
Routed to Link 15L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 11S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS

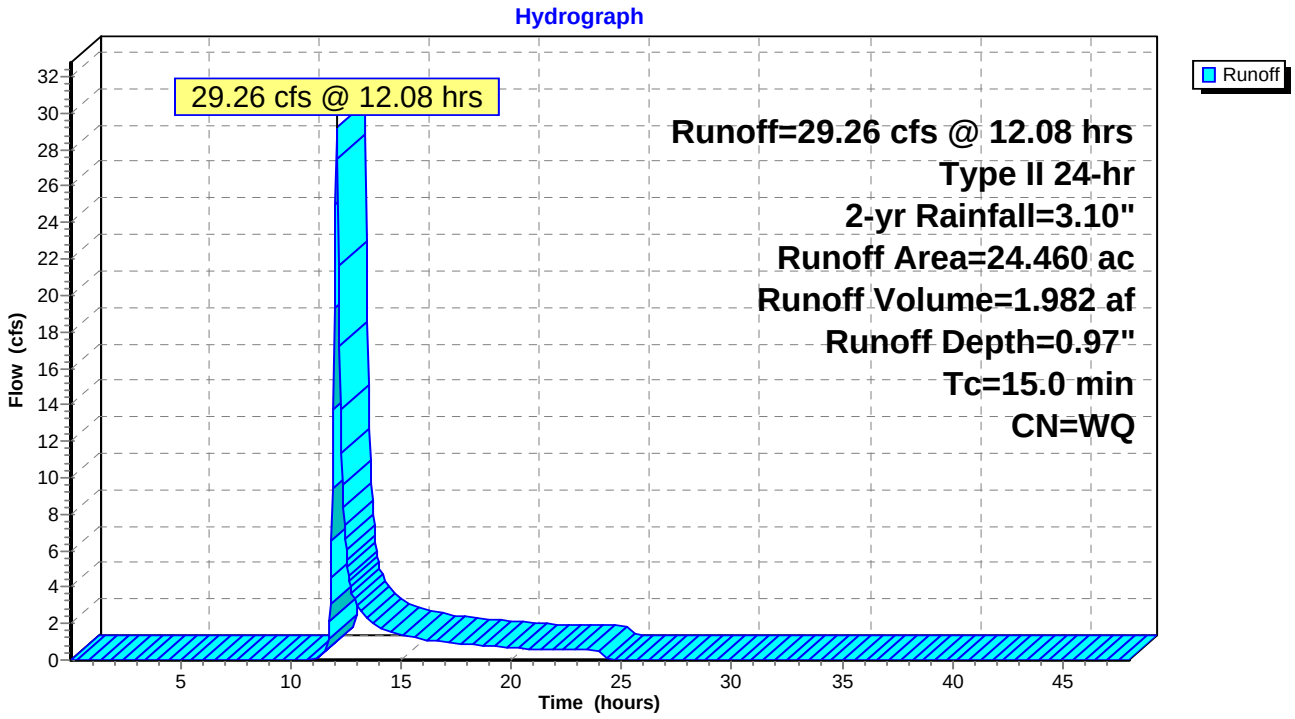
Runoff = 29.26 cfs @ 12.08 hrs, Volume= 1.982 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
23.650	74	>75% Grass cover, Good, HSG C
0.810	74	>75% Grass cover, Good, HSG C
24.460		Weighted Average
24.460	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS



Summary for Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS

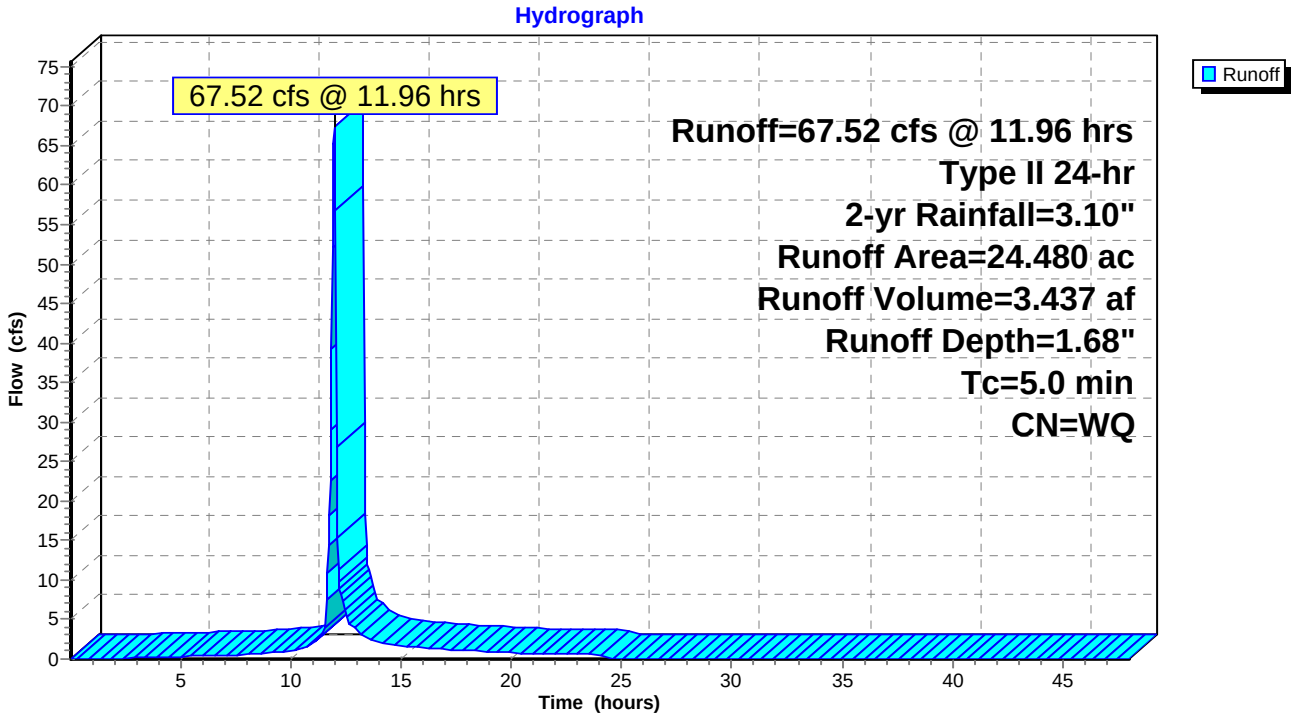
Runoff = 67.52 cfs @ 11.96 hrs, Volume= 3.437 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
0.830	74	>75% Grass cover, Good, HSG C
24.480		Weighted Average
15.280	74	62.42% Pervious Area
9.200	98	37.58% Impervious Area

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

Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS



Summary for Pond 5P: STORMWATER MANAGEMENT FACILITY

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 2.38" for 2-yr event
Inflow = 43.53 cfs @ 11.96 hrs, Volume= 2.320 af
Outflow = 10.35 cfs @ 12.10 hrs, Volume= 2.320 af, Atten= 76%, Lag= 8.8 min
Primary = 10.35 cfs @ 12.10 hrs, Volume= 2.320 af
Routed to Pond 6R : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 500.66' @ 12.10 hrs Surf.Area= 15,203 sf Storage= 43,722 cf

Plug-Flow detention time= 177.5 min calculated for 2.318 af (100% of inflow)
Center-of-Mass det. time= 177.9 min (941.5 - 763.6)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

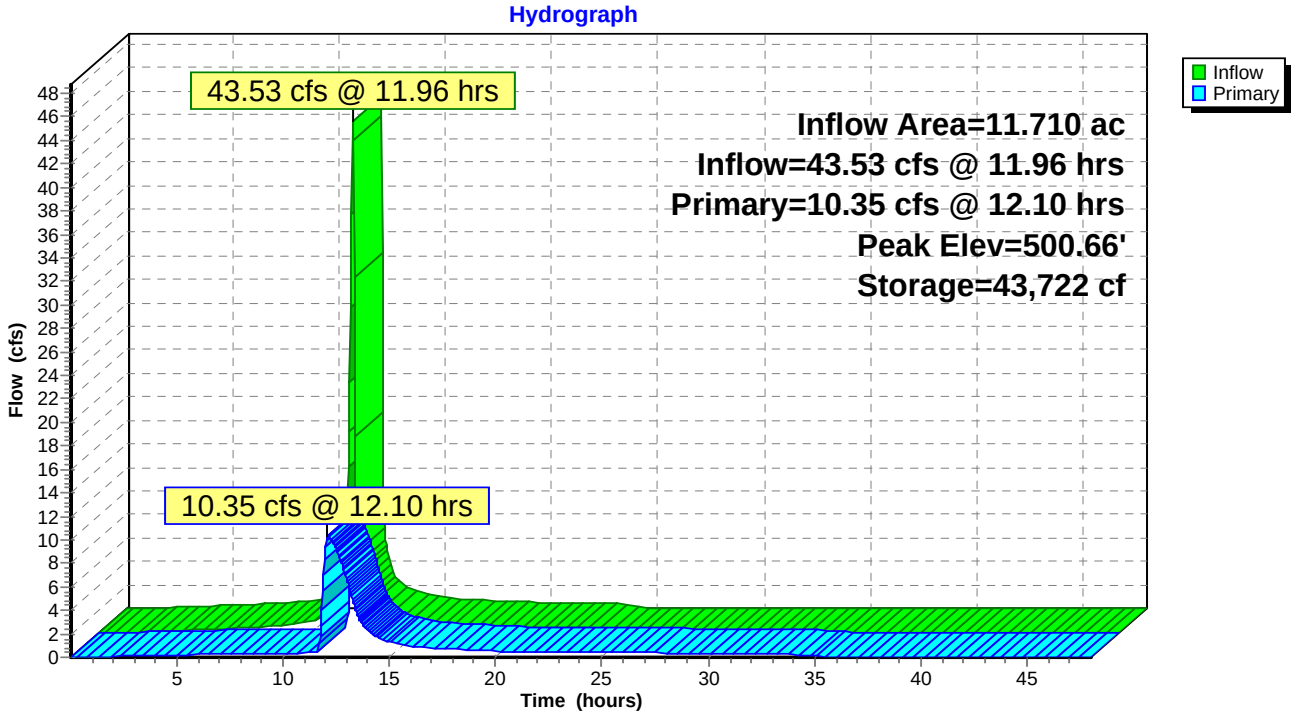
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	493.74'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

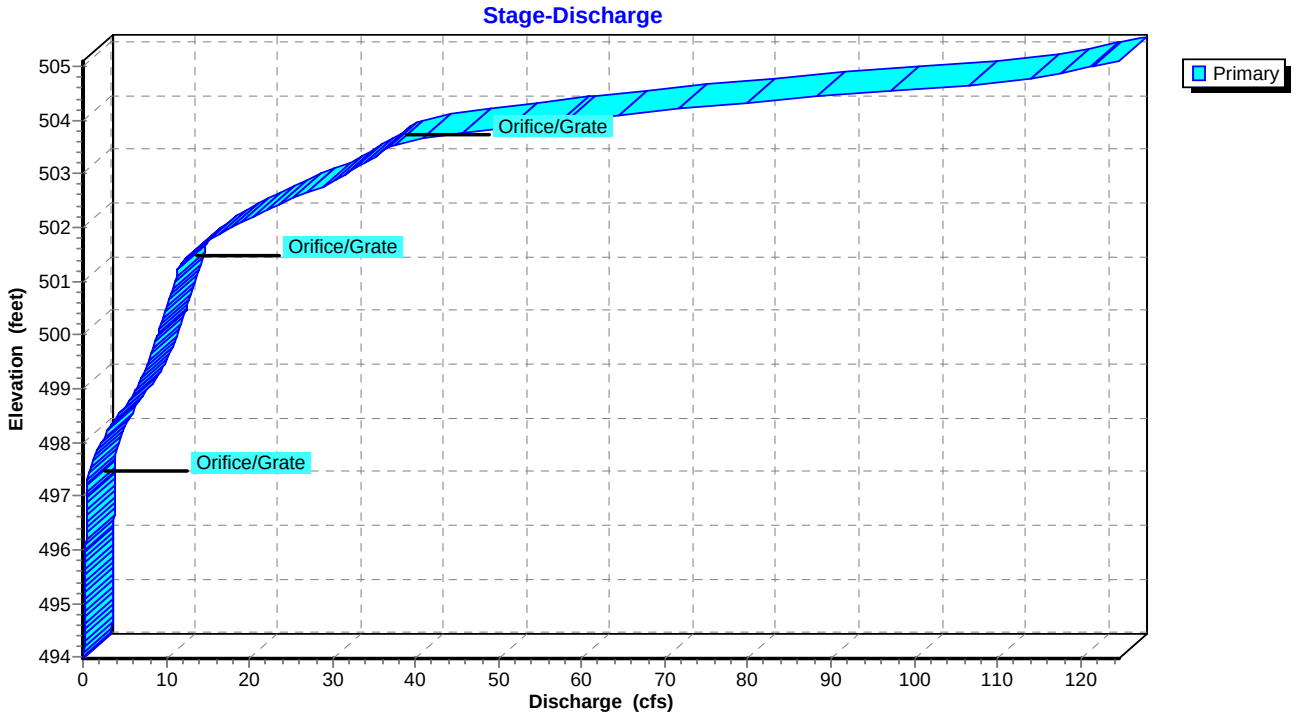
#3	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.34 cfs @ 12.10 hrs HW=500.66' TW=495.00' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 10.34 cfs of 98.66 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.56 cfs @ 11.45 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 9.78 cfs @ 7.83 fps)
  ├─**4=Orifice/Grate** (Controls 0.00 cfs)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

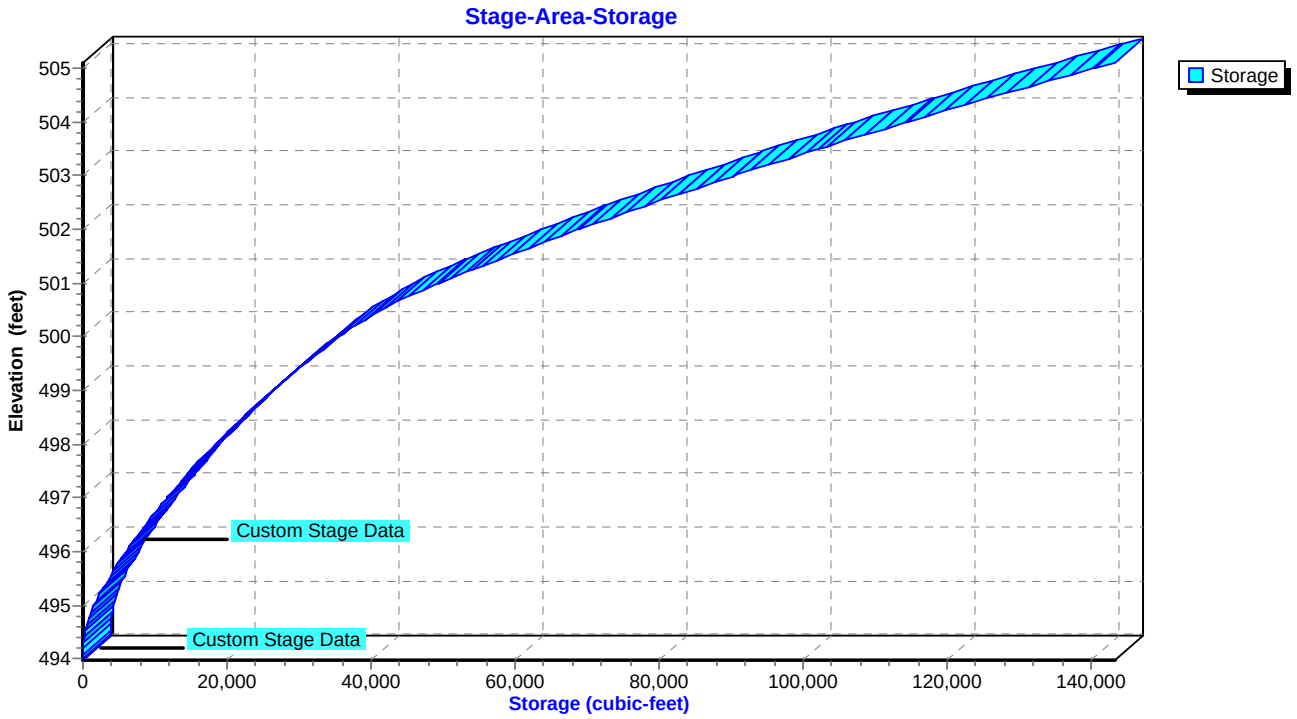
Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Summary for Pond 6R: 102-101

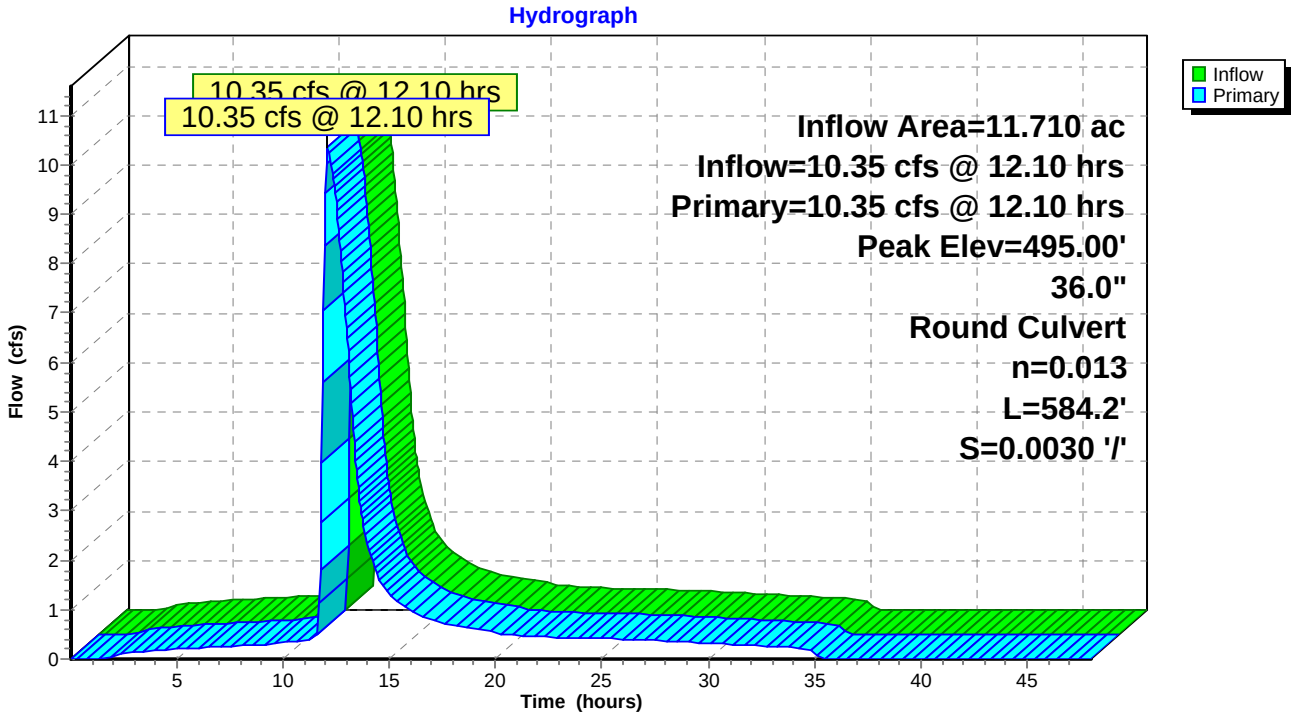
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 2.38" for 2-yr event
Inflow = 10.35 cfs @ 12.10 hrs, Volume= 2.320 af
Outflow = 10.35 cfs @ 12.10 hrs, Volume= 2.320 af, Atten= 0%, Lag= 0.0 min
Primary = 10.35 cfs @ 12.10 hrs, Volume= 2.320 af
Routed to Pond 7P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 495.00' @ 12.10 hrs

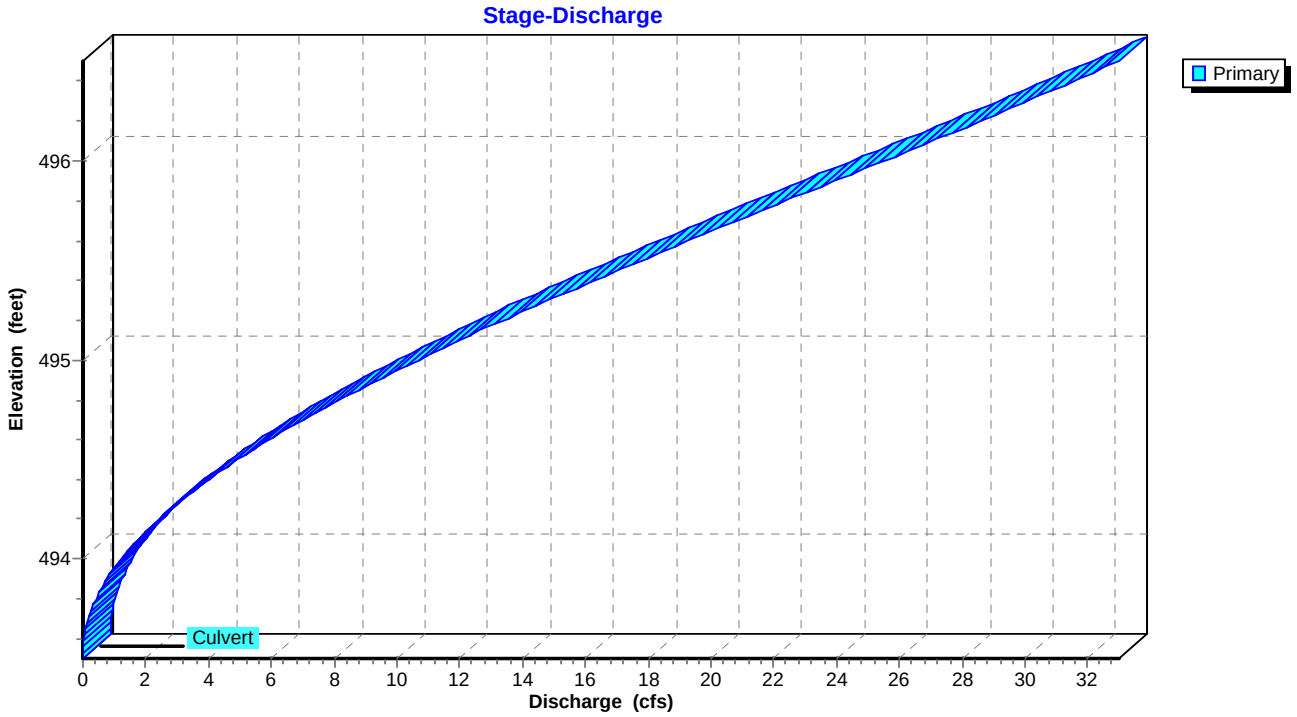
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=10.34 cfs @ 12.10 hrs HW=495.00' TW=493.00' (Dynamic Tailwater)
1=Culvert (Outlet Controls 10.34 cfs @ 4.27 fps)

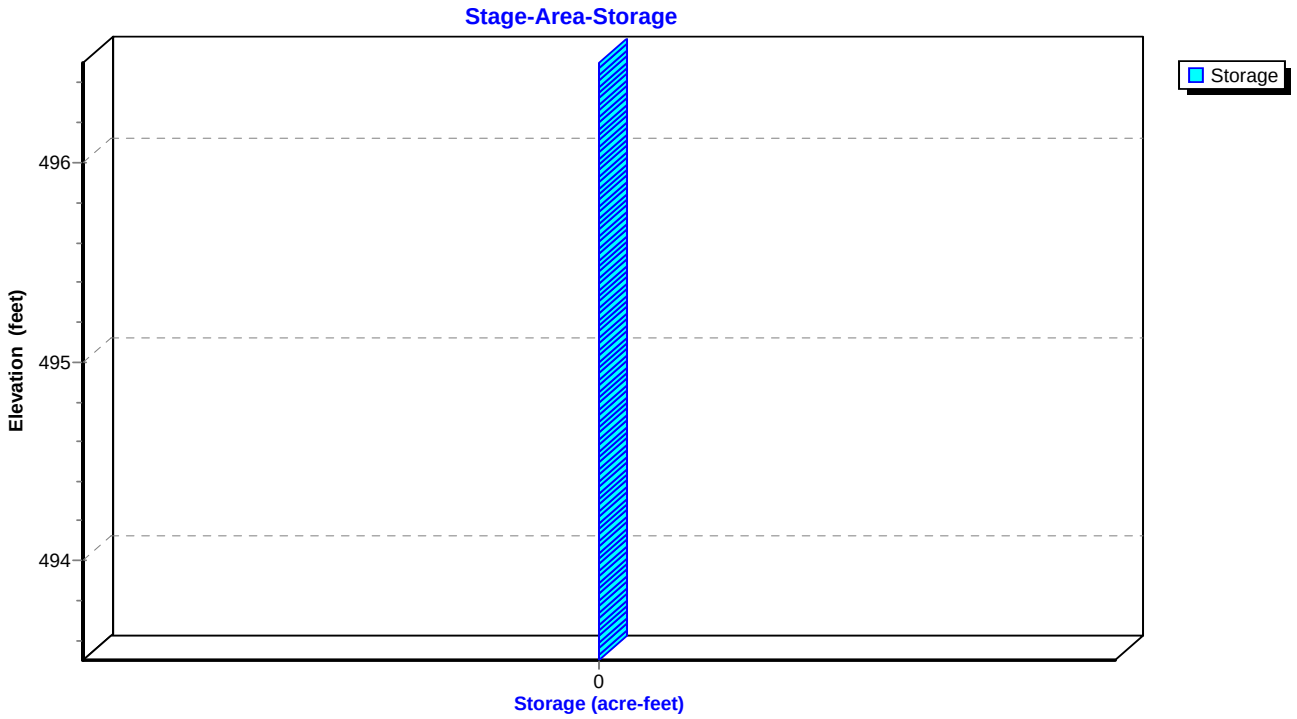
Pond 6R: 102-101



Pond 6R: 102-101



Pond 6R: 102-101



Summary for Pond 7P: 101-100

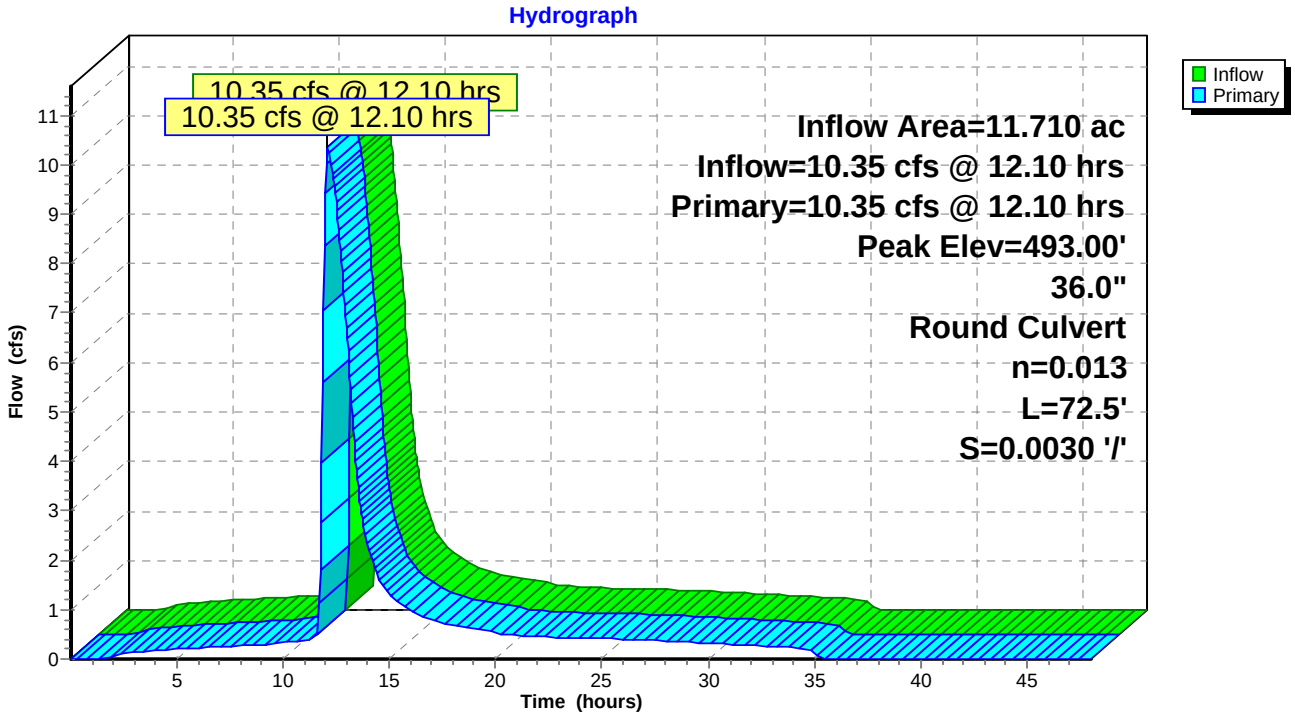
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 2.38" for 2-yr event
Inflow = 10.35 cfs @ 12.10 hrs, Volume= 2.320 af
Outflow = 10.35 cfs @ 12.10 hrs, Volume= 2.320 af, Atten= 0%, Lag= 0.0 min
Primary = 10.35 cfs @ 12.10 hrs, Volume= 2.320 af
Routed to Link 8L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 493.00' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

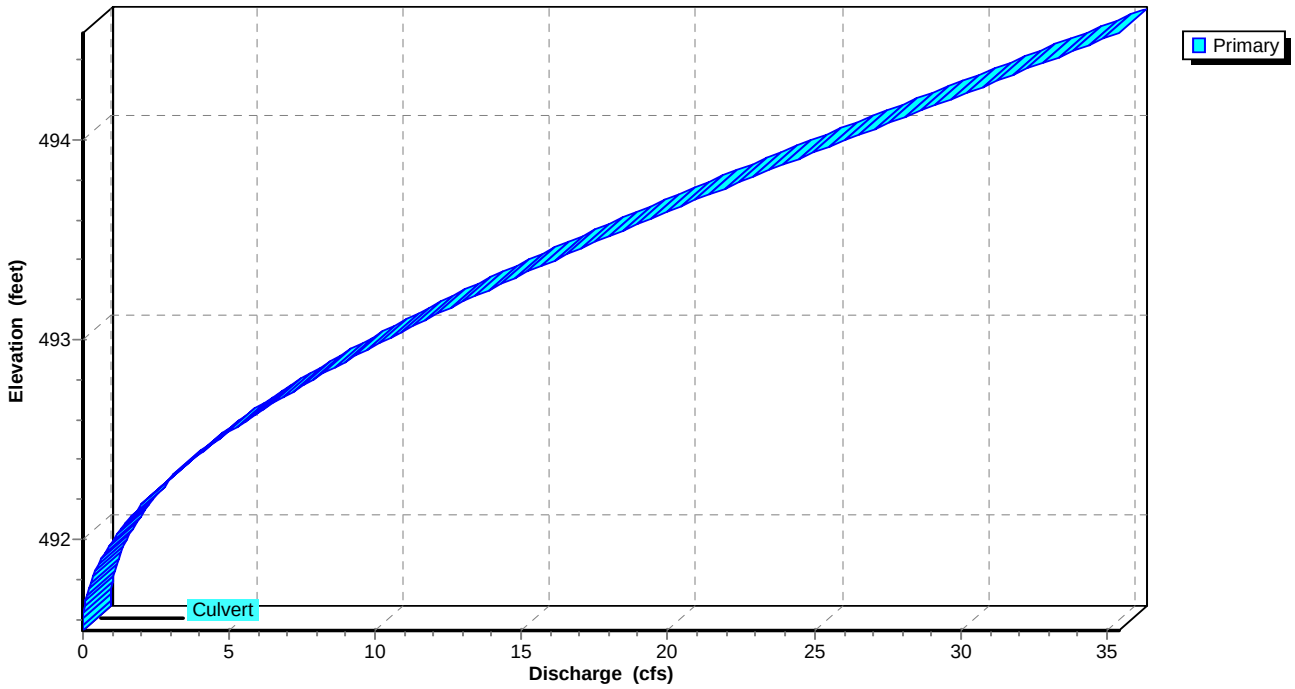
Primary OutFlow Max=10.34 cfs @ 12.10 hrs HW=493.00' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 10.34 cfs @ 4.44 fps)

Pond 7P: 101-100



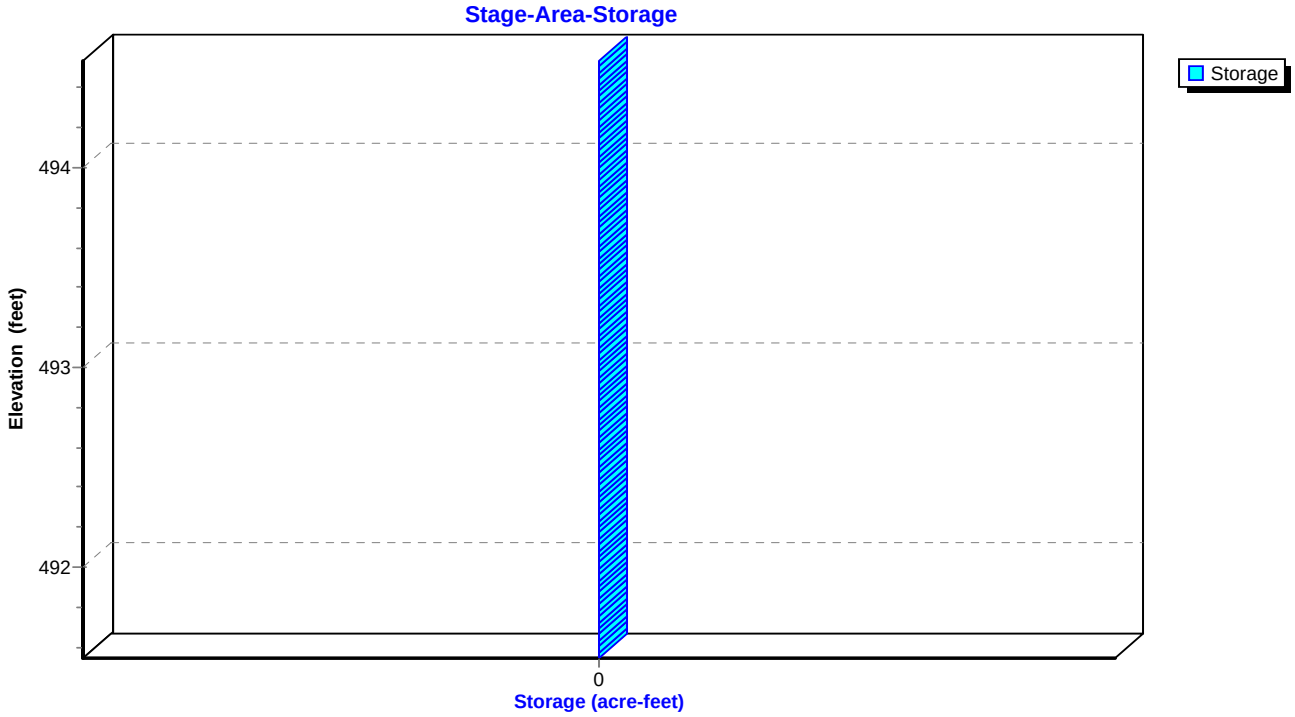
Pond 7P: 101-100

Stage-Discharge



Pond 7P: 101-100

Stage-Area-Storage



Summary for Pond 12P: 100 YR LFB

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 2.38" for 2-yr event
Inflow = 43.53 cfs @ 11.96 hrs, Volume= 2.320 af
Outflow = 10.20 cfs @ 12.10 hrs, Volume= 2.016 af, Atten= 77%, Lag= 8.9 min
Primary = 10.20 cfs @ 12.10 hrs, Volume= 2.016 af
Routed to Pond 13P : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 500.89' @ 12.10 hrs Surf.Area= 17,330 sf Storage= 47,438 cf

Plug-Flow detention time= 162.6 min calculated for 2.016 af (87% of inflow)
Center-of-Mass det. time= 98.7 min (862.4 - 763.6)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

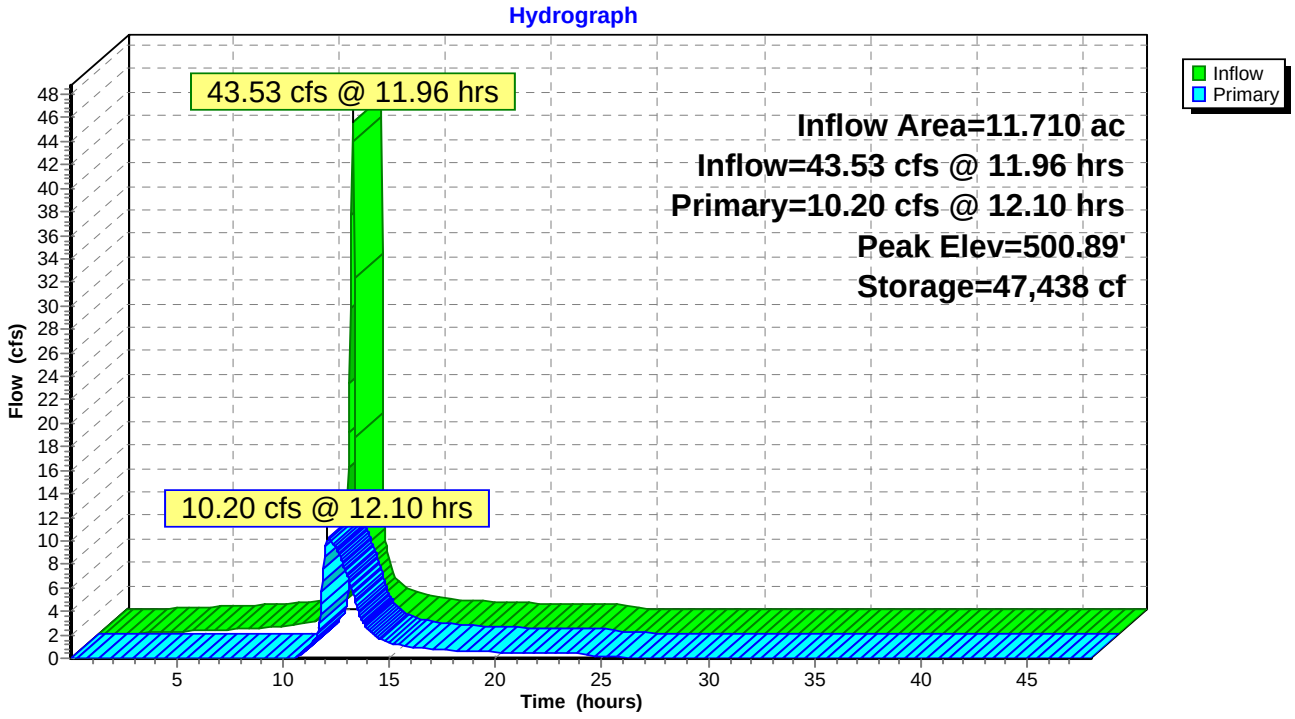
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600

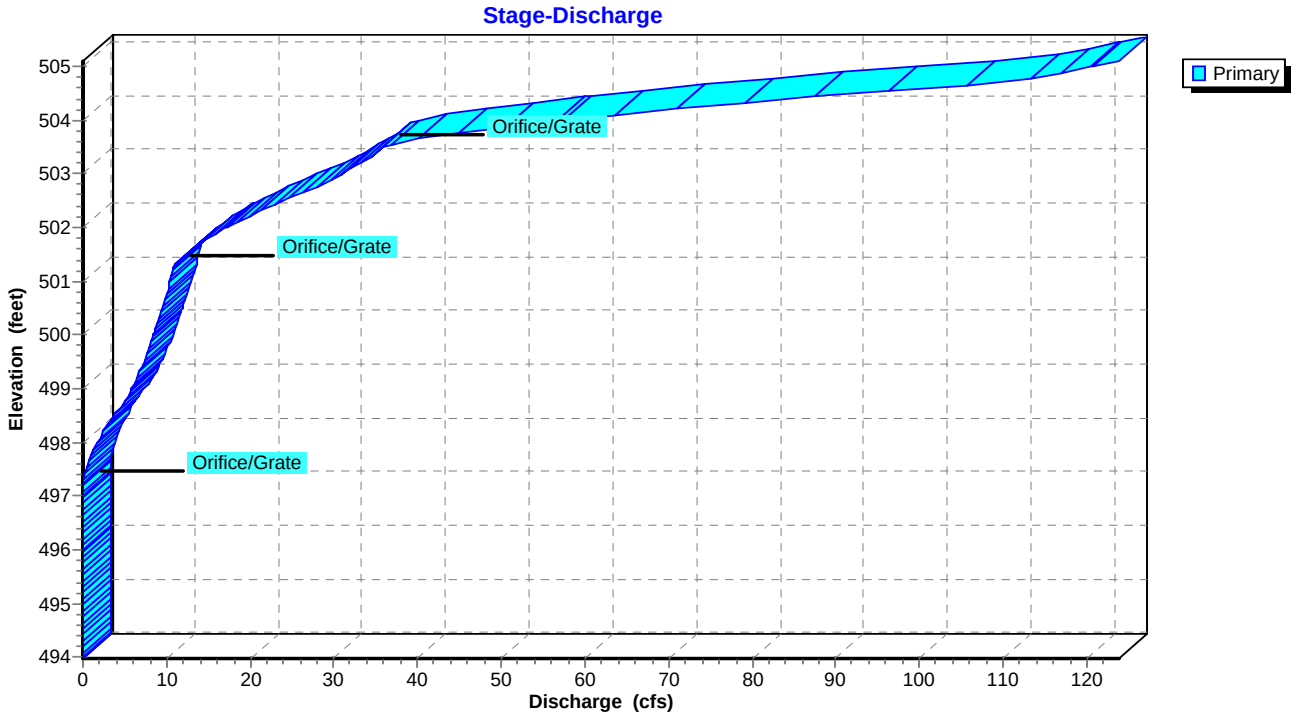
			Limited to weir flow at low heads
#3	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=10.20 cfs @ 12.10 hrs HW=500.89' TW=494.99' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 10.20 cfs of 101.11 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 10.20 cfs @ 8.16 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

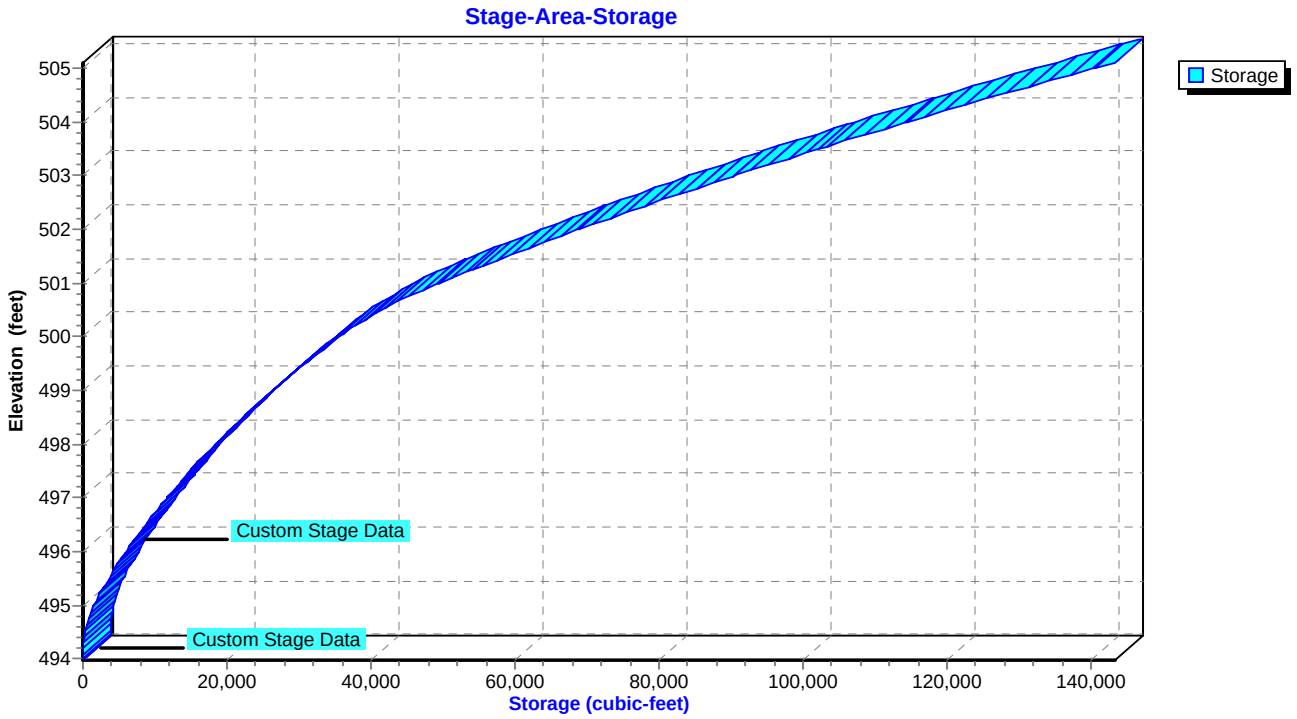
Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Summary for Pond 13P: 102-101

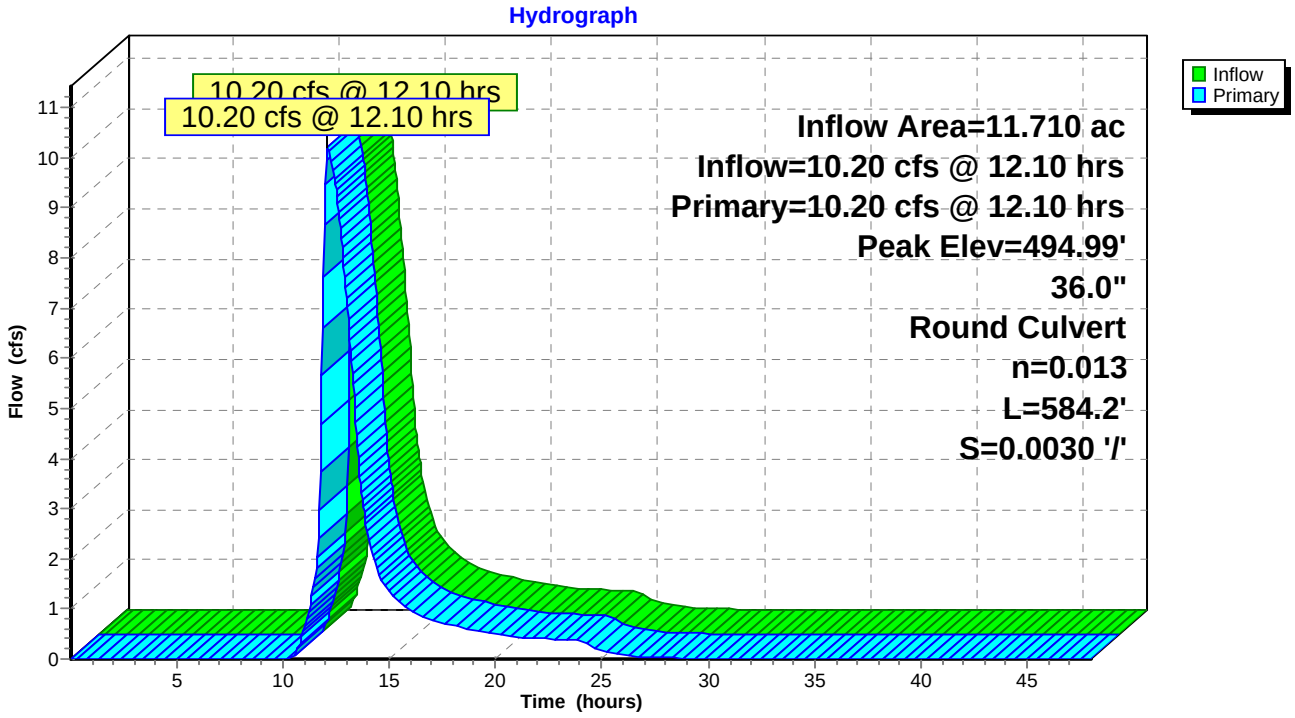
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 2.07" for 2-yr event
Inflow = 10.20 cfs @ 12.10 hrs, Volume= 2.016 af
Outflow = 10.20 cfs @ 12.10 hrs, Volume= 2.016 af, Atten= 0%, Lag= 0.0 min
Primary = 10.20 cfs @ 12.10 hrs, Volume= 2.016 af
Routed to Pond 14P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 494.99' @ 12.10 hrs

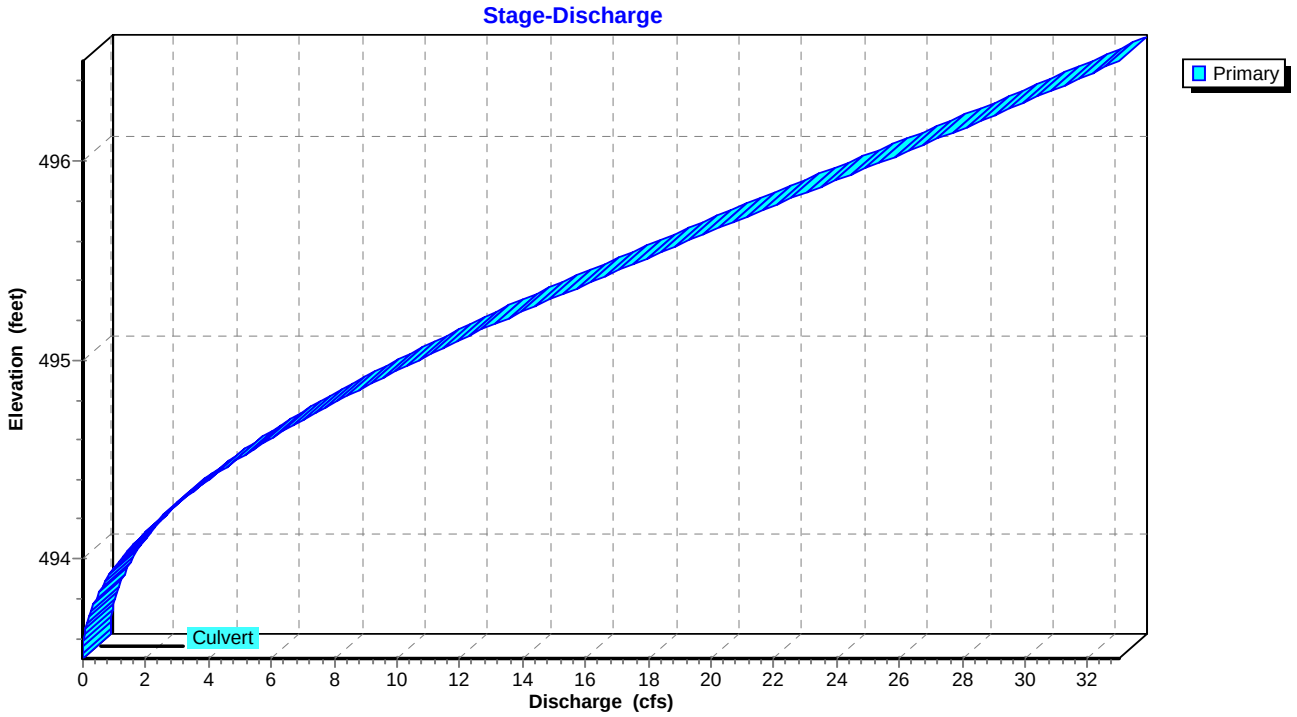
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=10.20 cfs @ 12.10 hrs HW=494.99' TW=492.99' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 10.20 cfs @ 4.26 fps)

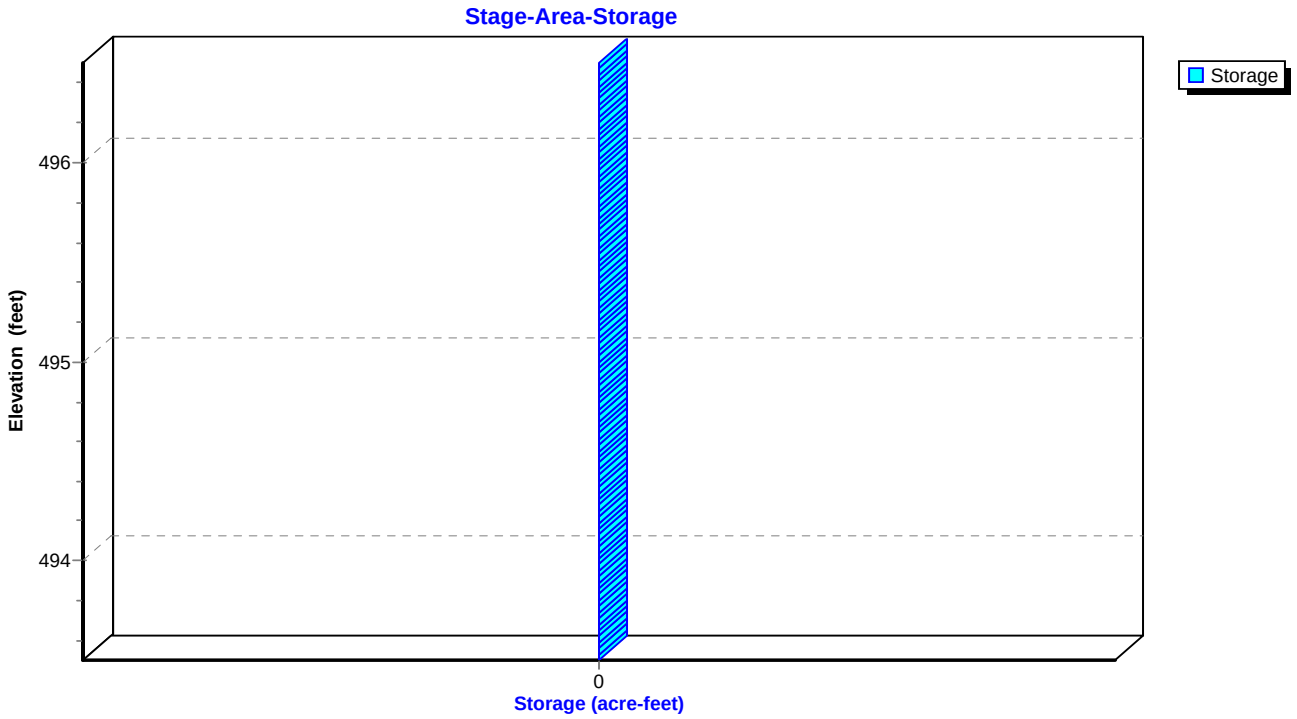
Pond 13P: 102-101



Pond 13P: 102-101



Pond 13P: 102-101



Summary for Pond 14P: 101-100

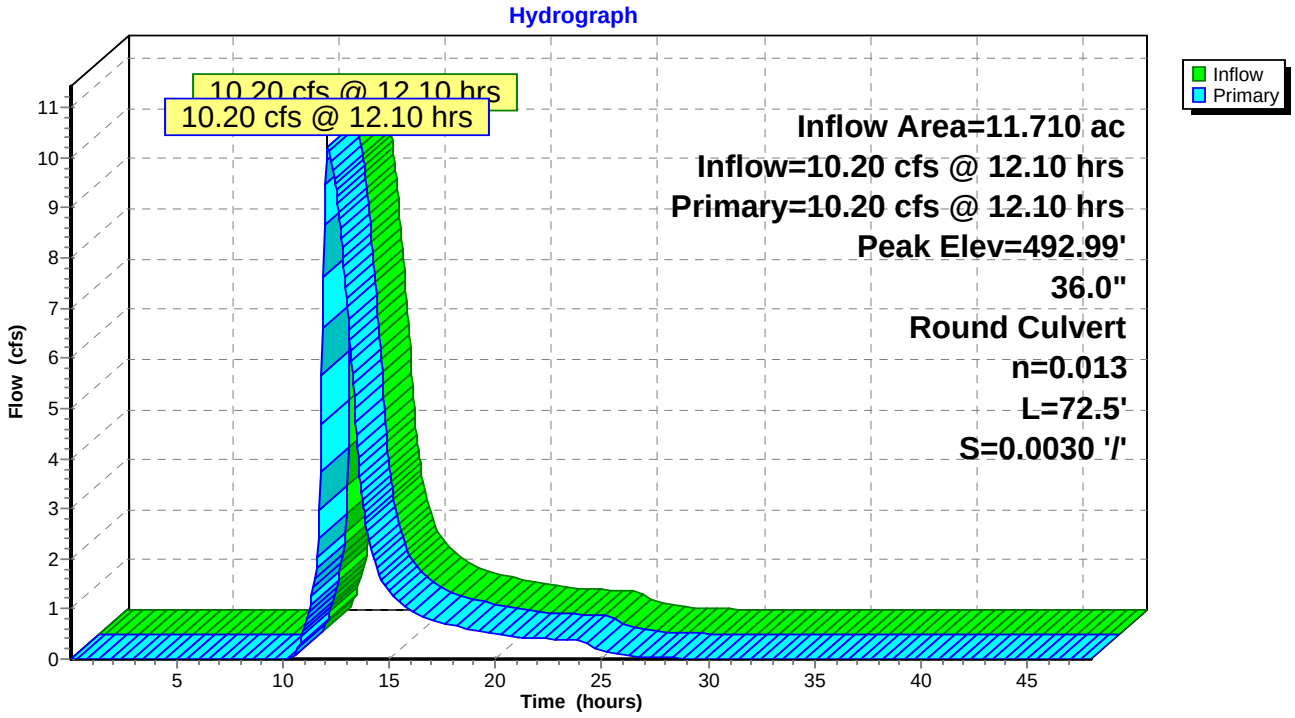
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 2.07" for 2-yr event
Inflow = 10.20 cfs @ 12.10 hrs, Volume= 2.016 af
Outflow = 10.20 cfs @ 12.10 hrs, Volume= 2.016 af, Atten= 0%, Lag= 0.0 min
Primary = 10.20 cfs @ 12.10 hrs, Volume= 2.016 af
Routed to Link 15L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 492.99' @ 12.10 hrs

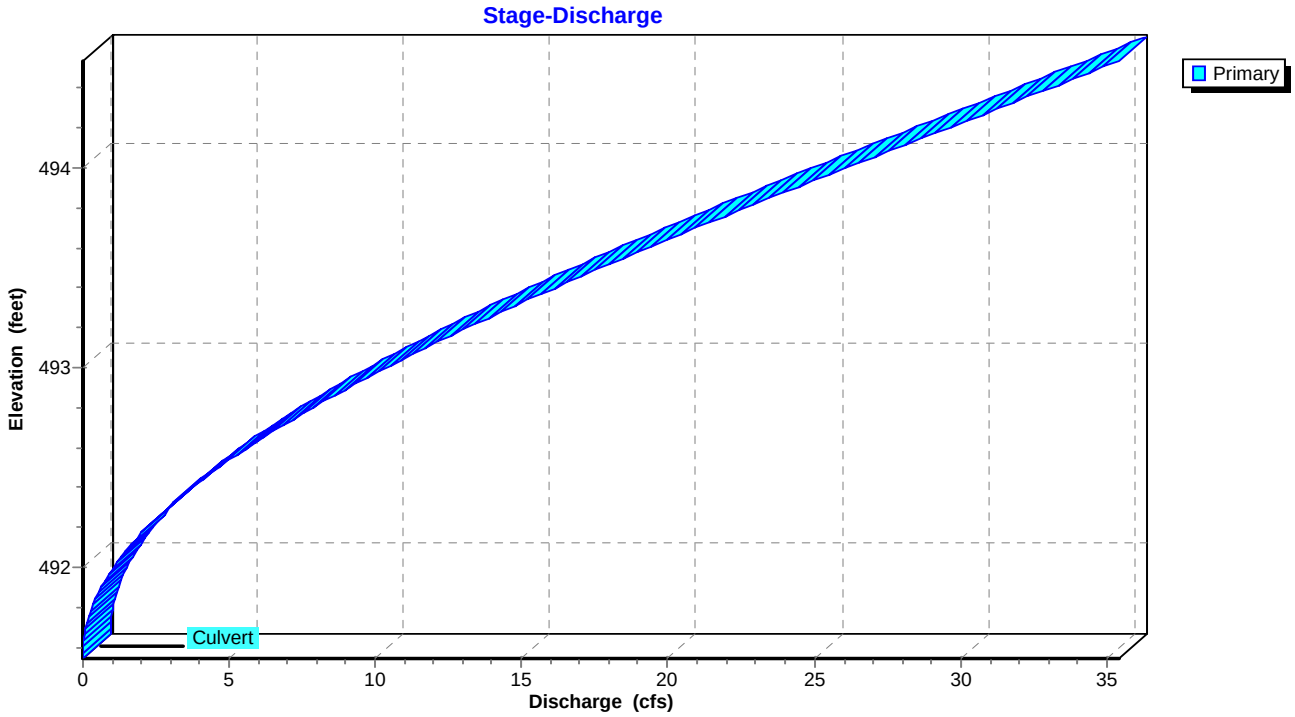
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=10.20 cfs @ 12.10 hrs HW=492.99' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 10.20 cfs @ 4.42 fps)

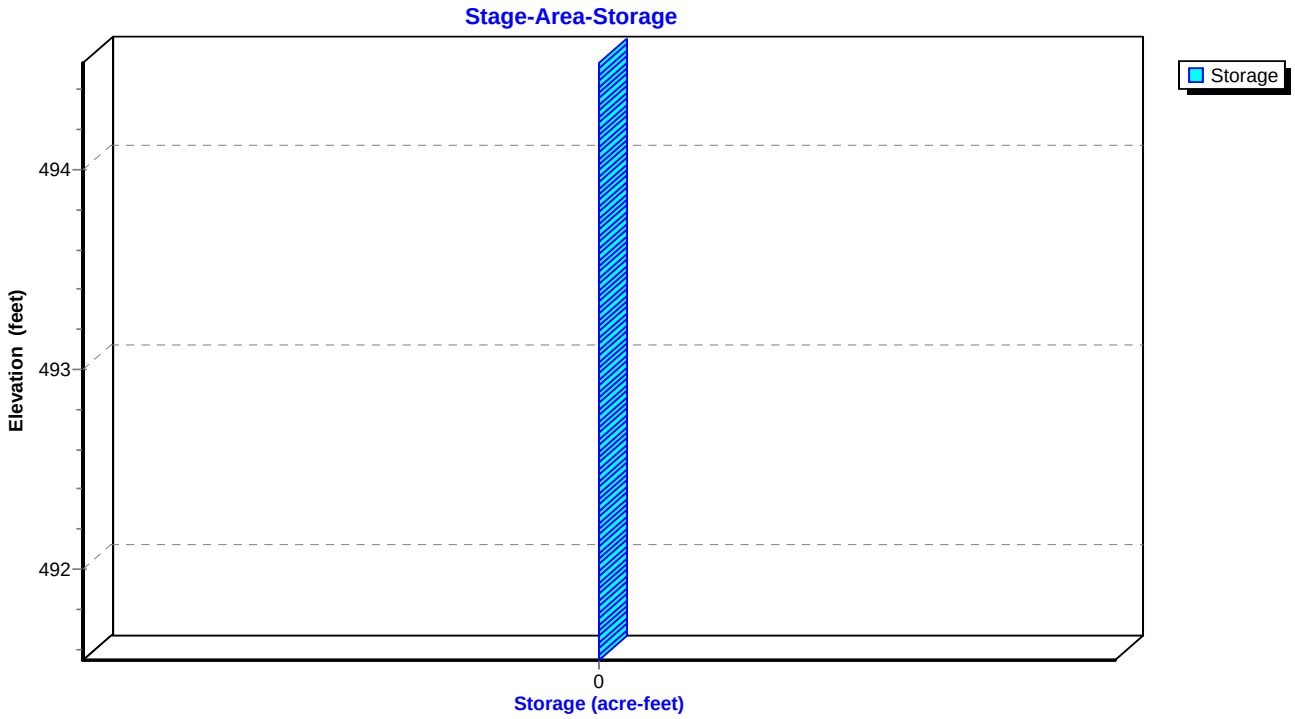
Pond 14P: 101-100



Pond 14P: 101-100



Pond 14P: 101-100

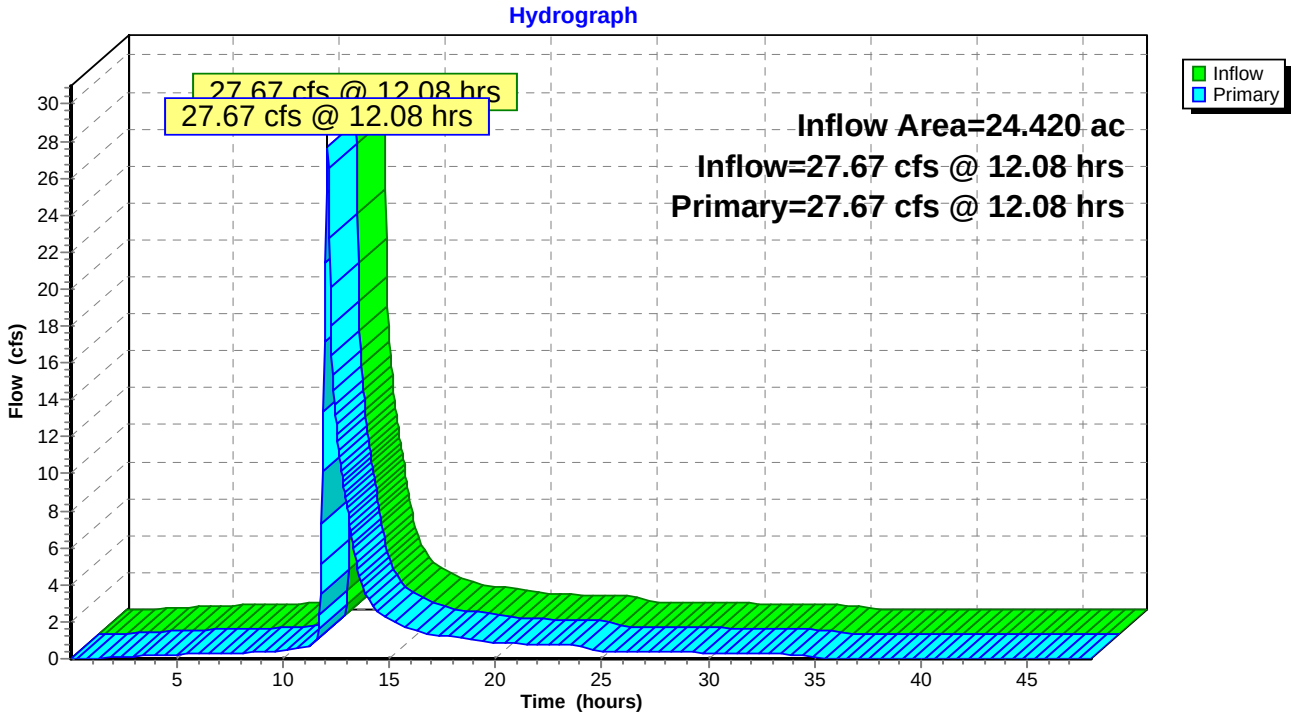


Summary for Link 8L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 1.73" for 2-yr event
Inflow = 27.67 cfs @ 12.08 hrs, Volume= 3.514 af
Primary = 27.67 cfs @ 12.08 hrs, Volume= 3.514 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 8L: POST DEVELOPED ROUTING

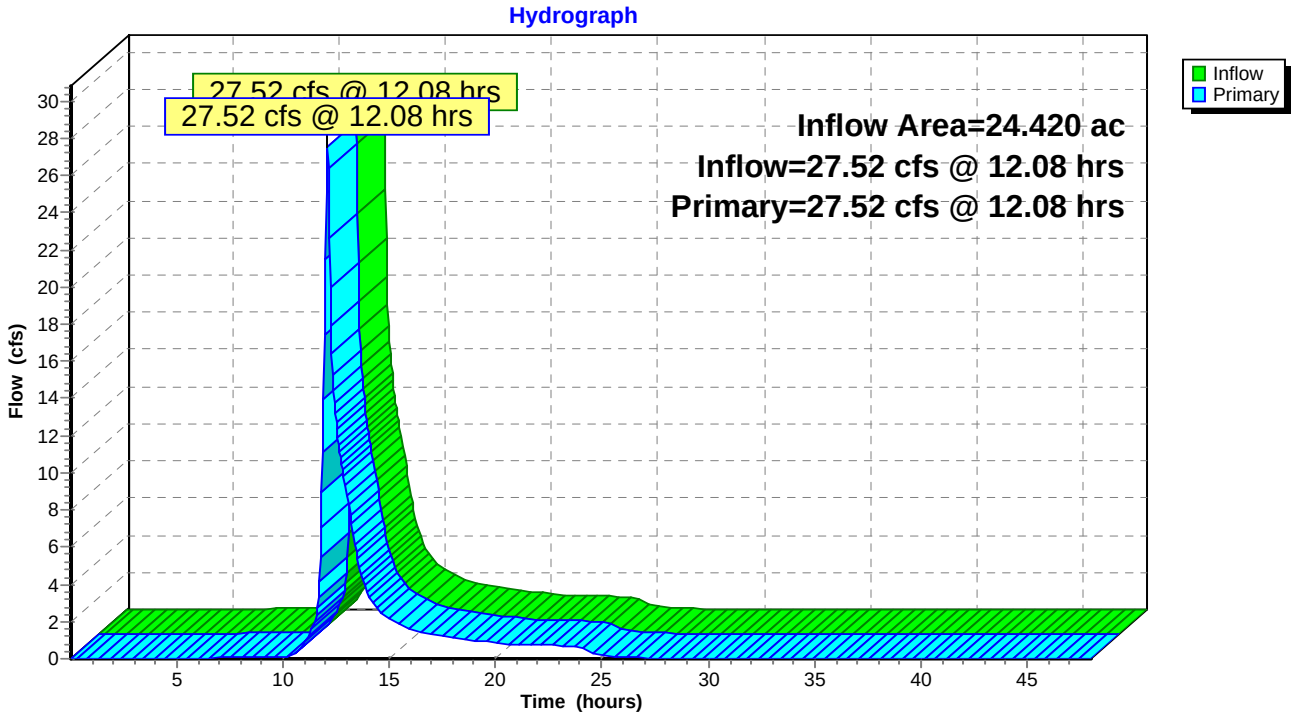


Summary for Link 15L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 1.58" for 2-yr event
Inflow = 27.52 cfs @ 12.08 hrs, Volume= 3.210 af
Primary = 27.52 cfs @ 12.08 hrs, Volume= 3.210 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 15L: POST DEVELOPED ROUTING



Summary for Subcatchment 1S: PROPOSED CONDITIONS

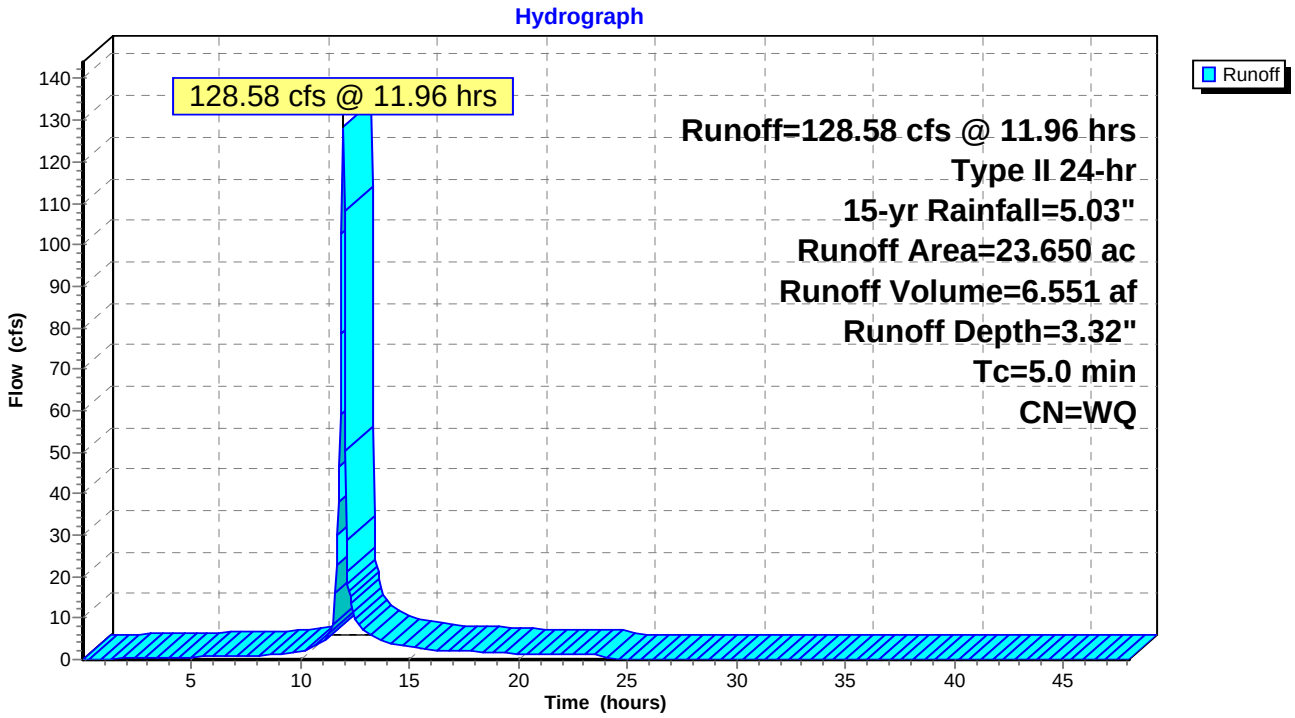
Runoff = 128.58 cfs @ 11.96 hrs, Volume= 6.551 af, Depth= 3.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
23.650		Weighted Average
14.450	74	61.10% Pervious Area
9.200	98	38.90% Impervious Area

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

Subcatchment 1S: PROPOSED CONDITIONS



Summary for Subcatchment 2S: AREA 1 TO BASIN

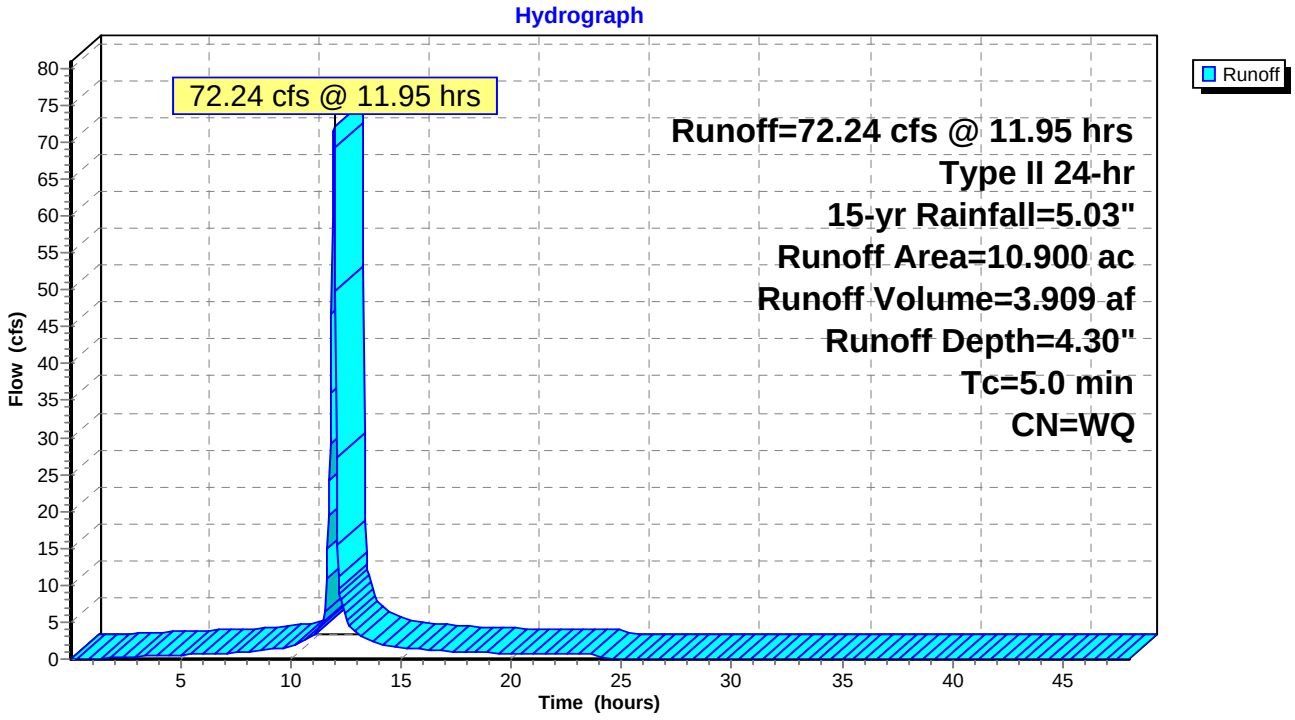
Runoff = 72.24 cfs @ 11.95 hrs, Volume= 3.909 af, Depth= 4.30"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 2S: AREA 1 TO BASIN



Summary for Subcatchment 3S: AREA 2 OFFSITE TO ONSITE

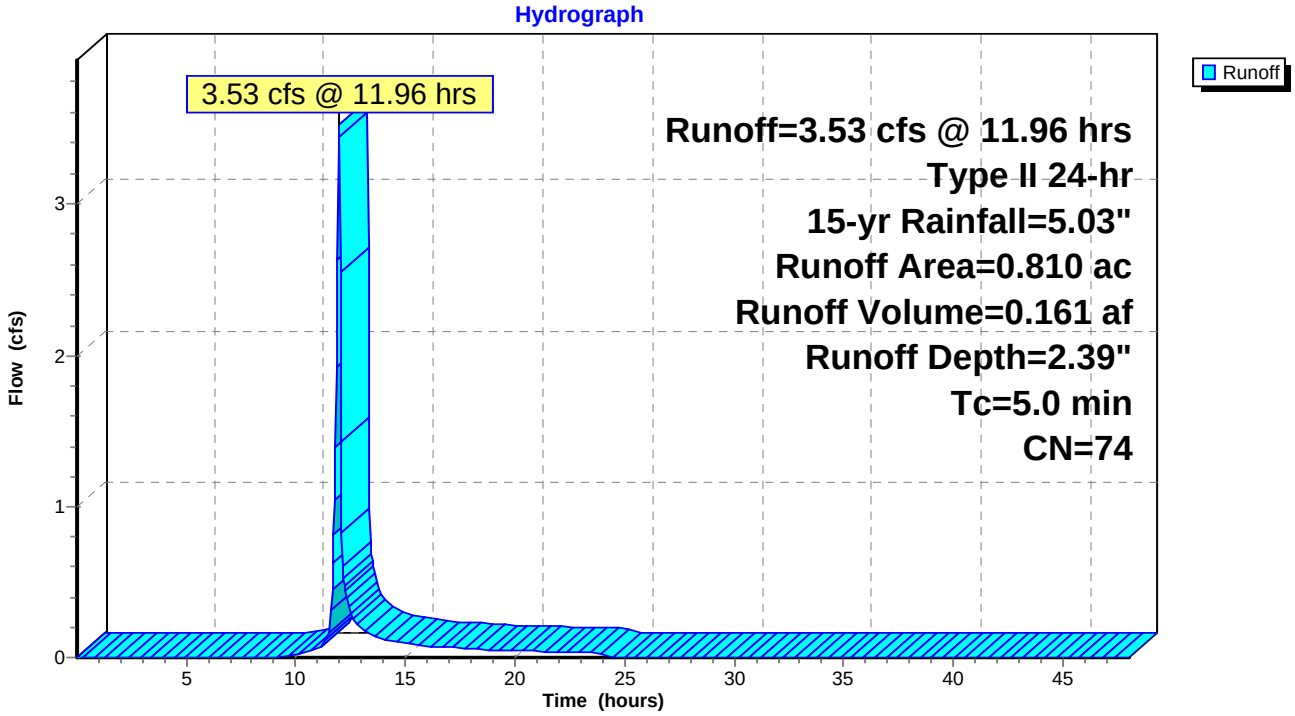
Runoff = 3.53 cfs @ 11.96 hrs, Volume= 0.161 af, Depth= 2.39"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 3S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 4S: AREA 3 ONSITE TO OFFSITE

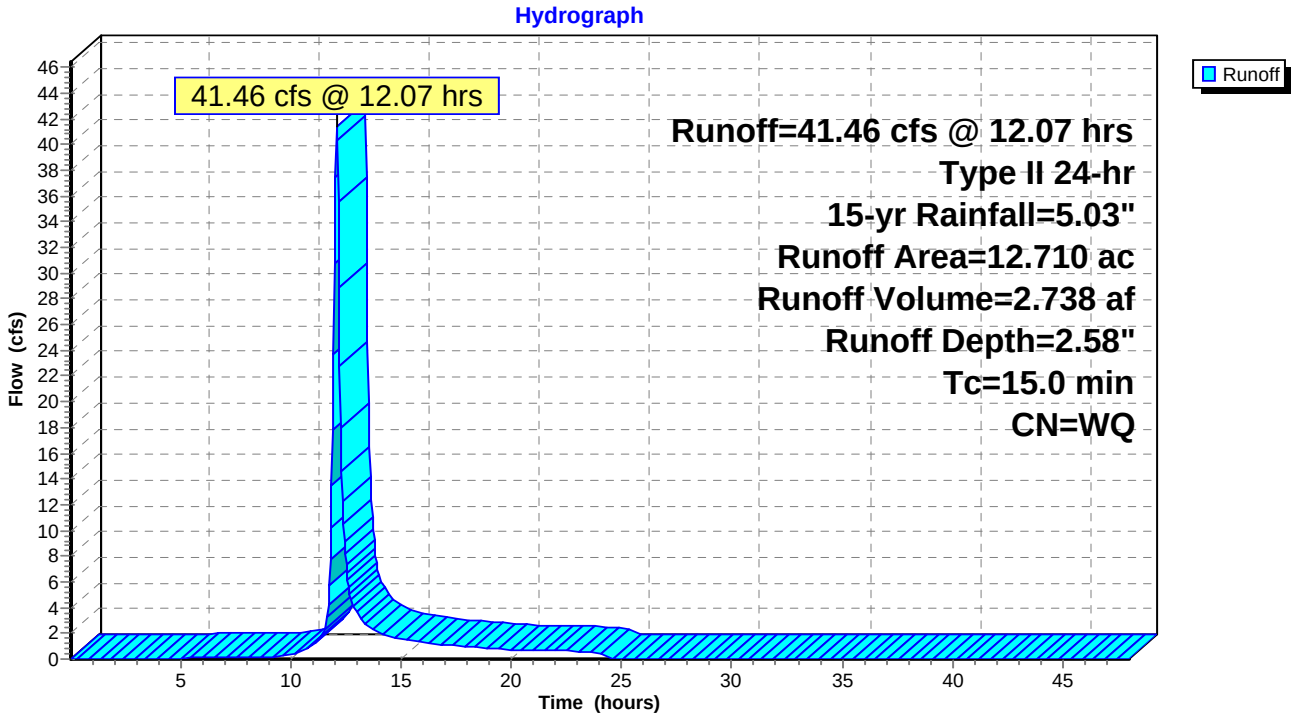
Runoff = 41.46 cfs @ 12.07 hrs, Volume= 2.738 af, Depth= 2.58"
Routed to Link 8L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 4S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 9S: AREA 1 TO BASIN

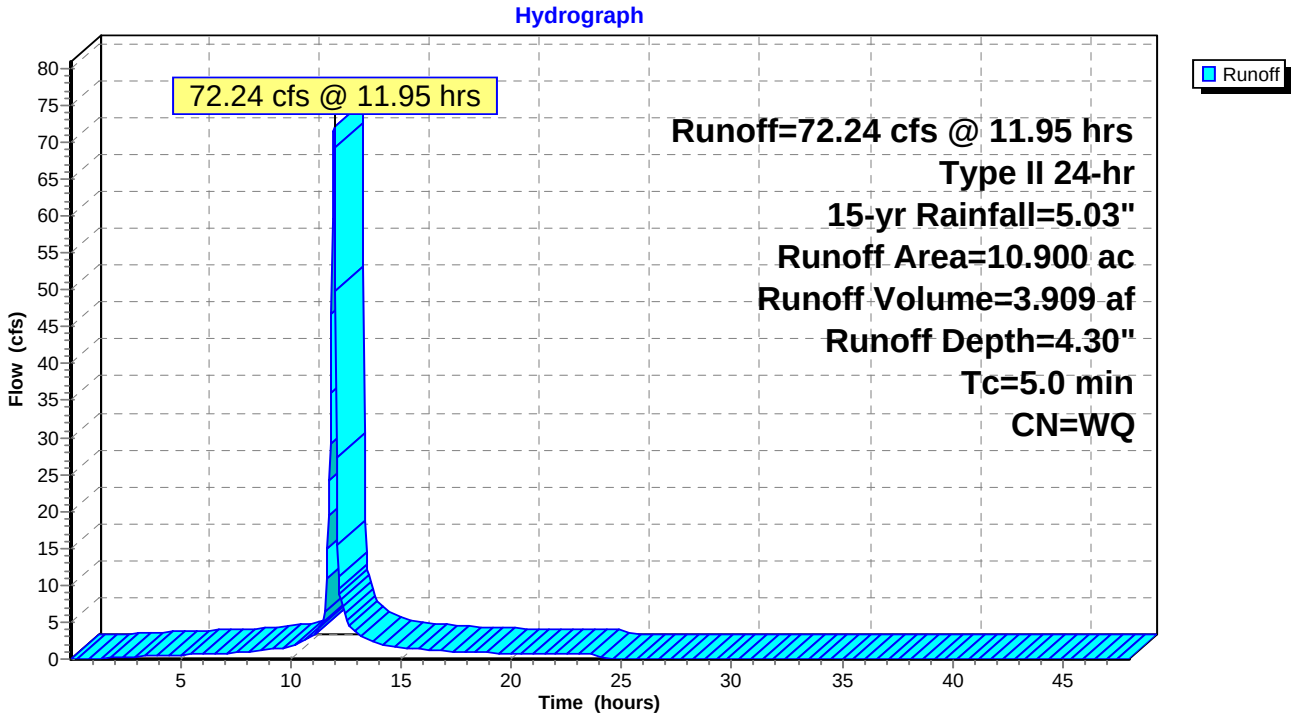
Runoff = 72.24 cfs @ 11.95 hrs, Volume= 3.909 af, Depth= 4.30"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 9S: AREA 1 TO BASIN



Summary for Subcatchment 10S: AREA 2 OFFSITE TO ONSITE

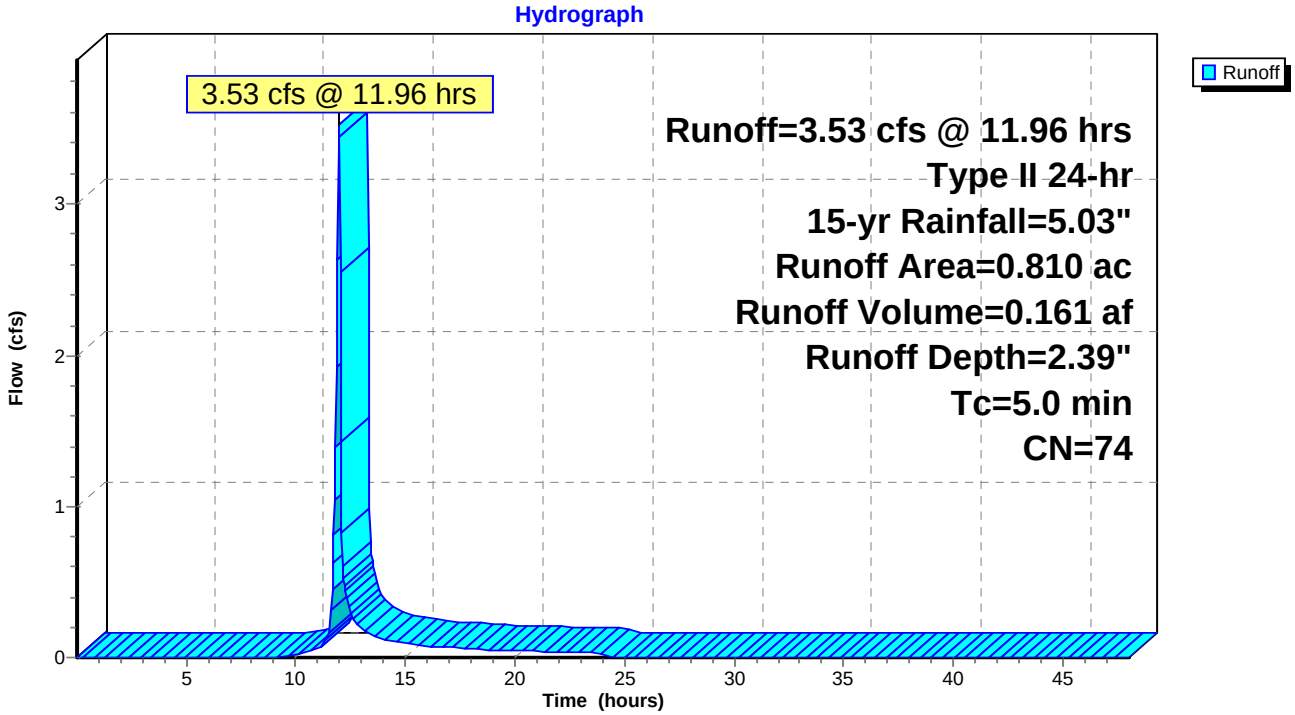
Runoff = 3.53 cfs @ 11.96 hrs, Volume= 0.161 af, Depth= 2.39"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 10S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 11S: AREA 3 ONSITE TO OFFSITE

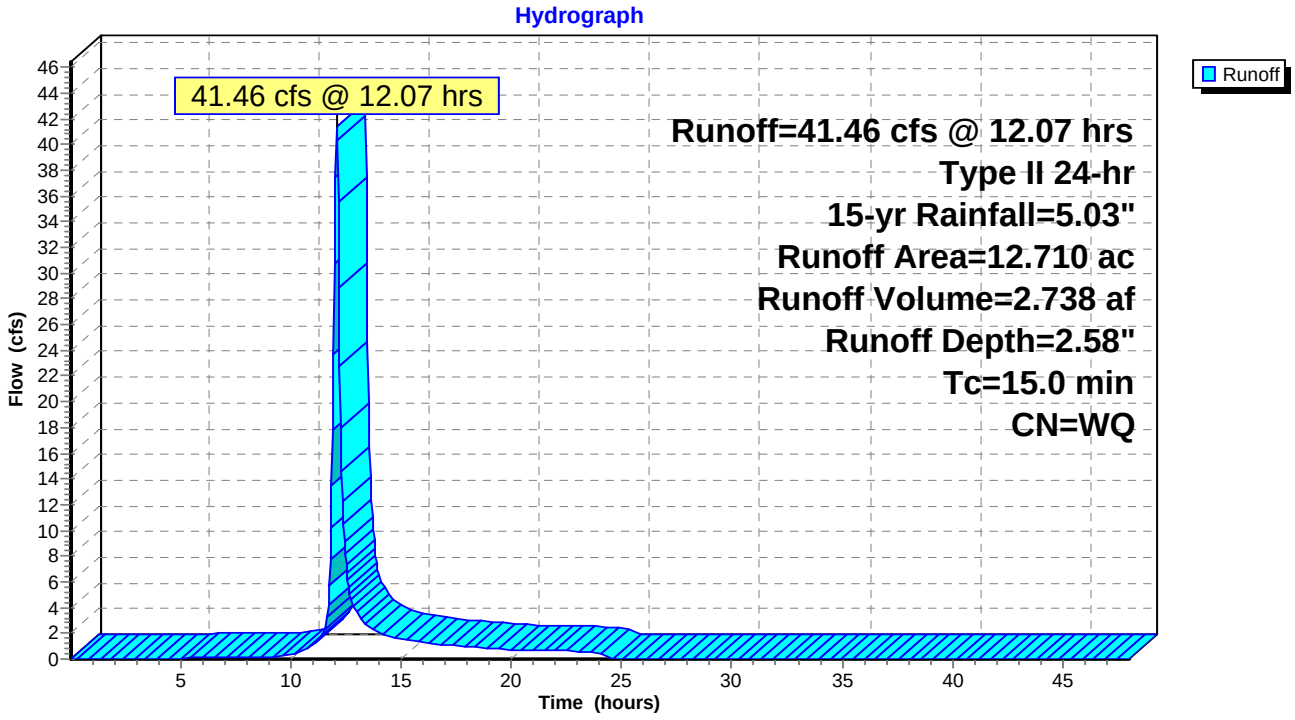
Runoff = 41.46 cfs @ 12.07 hrs, Volume= 2.738 af, Depth= 2.58"
Routed to Link 15L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 11S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS

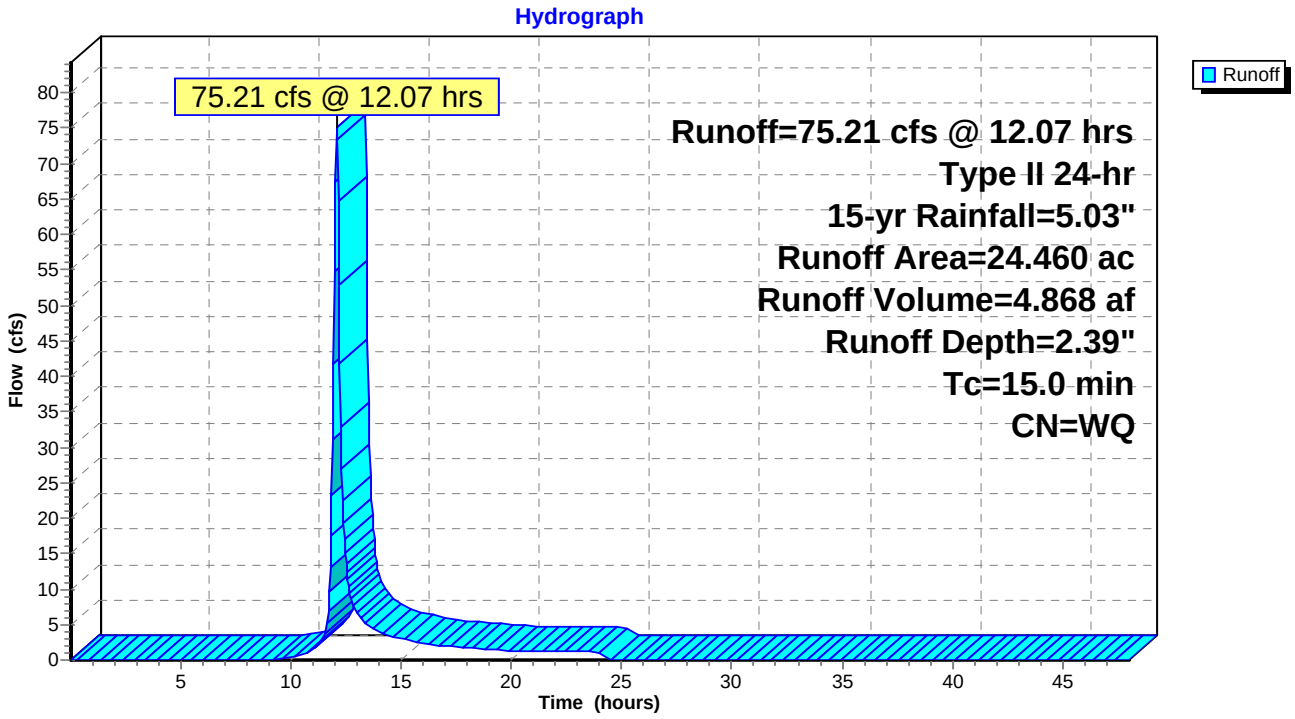
Runoff = 75.21 cfs @ 12.07 hrs, Volume= 4.868 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
23.650	74	>75% Grass cover, Good, HSG C
0.810	74	>75% Grass cover, Good, HSG C
24.460		Weighted Average
24.460	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS



Summary for Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS

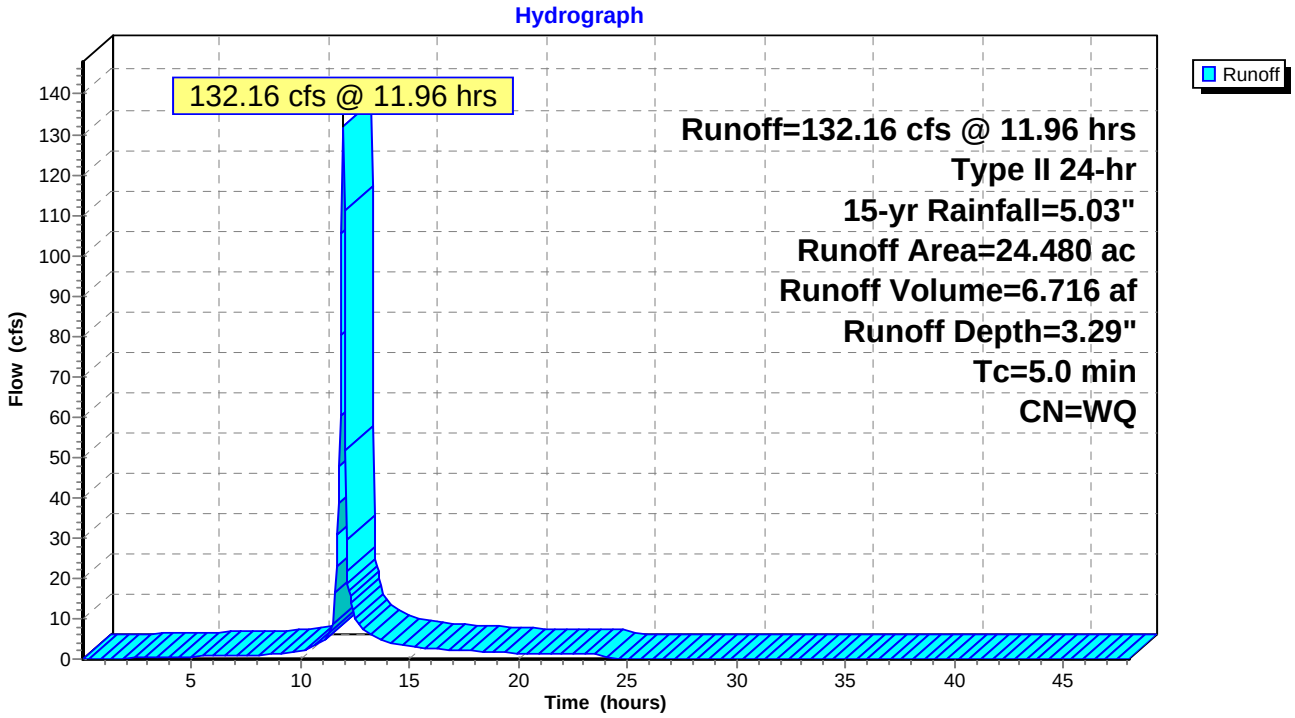
Runoff = 132.16 cfs @ 11.96 hrs, Volume= 6.716 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 15-yr Rainfall=5.03"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
0.830	74	>75% Grass cover, Good, HSG C
24.480		Weighted Average
15.280	74	62.42% Pervious Area
9.200	98	37.58% Impervious Area

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

Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS



Summary for Pond 5P: STORMWATER MANAGEMENT FACILITY

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.17" for 15-yr event
Inflow = 75.71 cfs @ 11.95 hrs, Volume= 4.070 af
Outflow = 20.19 cfs @ 12.09 hrs, Volume= 4.070 af, Atten= 73%, Lag= 8.2 min
Primary = 20.19 cfs @ 12.09 hrs, Volume= 4.070 af
Routed to Pond 6R : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 502.19' @ 12.09 hrs Surf.Area= 20,941 sf Storage= 72,780 cf

Plug-Flow detention time= 137.8 min calculated for 4.067 af (100% of inflow)
Center-of-Mass det. time= 138.3 min (894.5 - 756.2)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

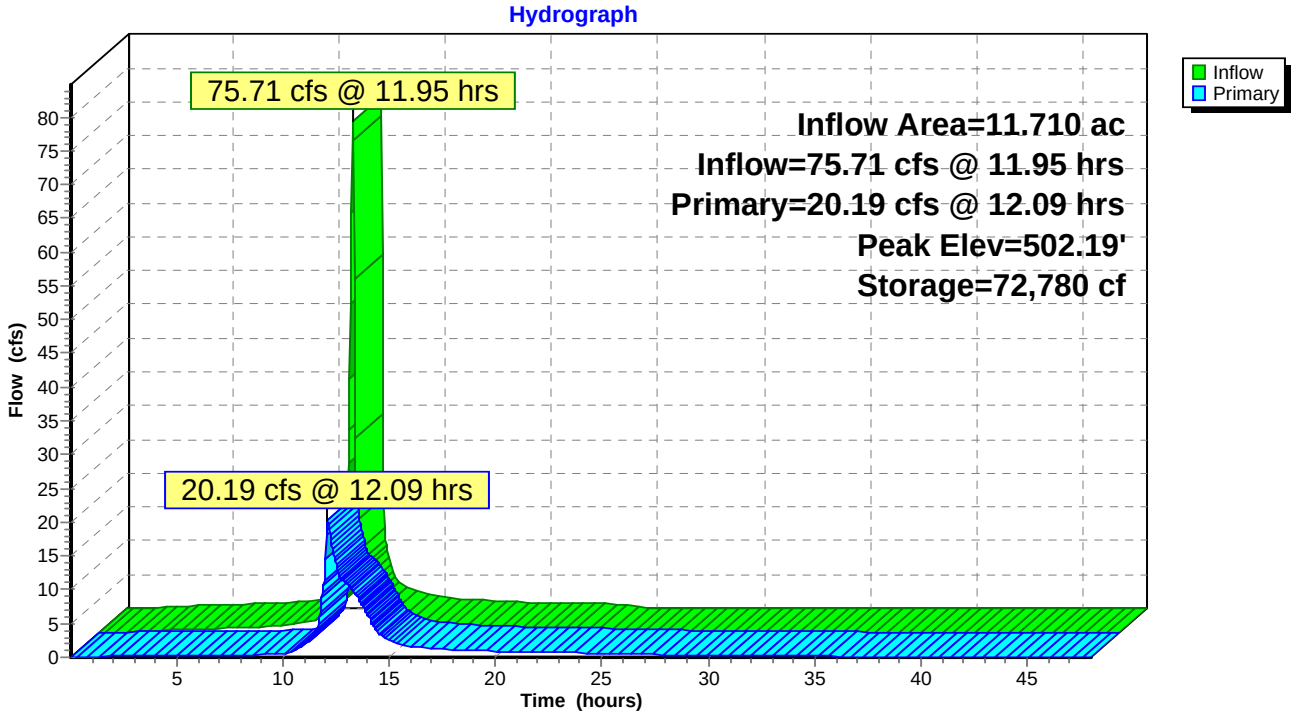
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	493.74'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

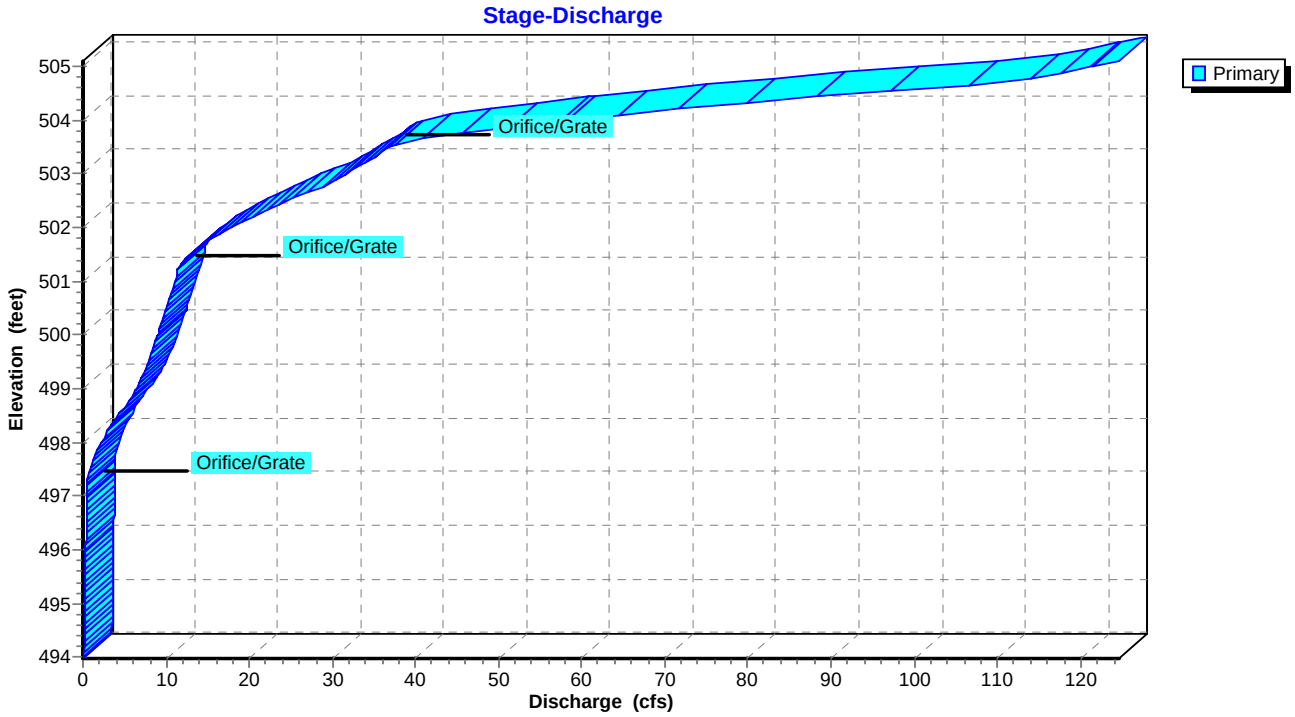
#3	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=20.13 cfs @ 12.09 hrs HW=502.18' TW=495.73' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 20.13 cfs of 108.10 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.60 cfs @ 12.23 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 12.29 cfs @ 9.83 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 7.24 cfs @ 3.10 fps)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

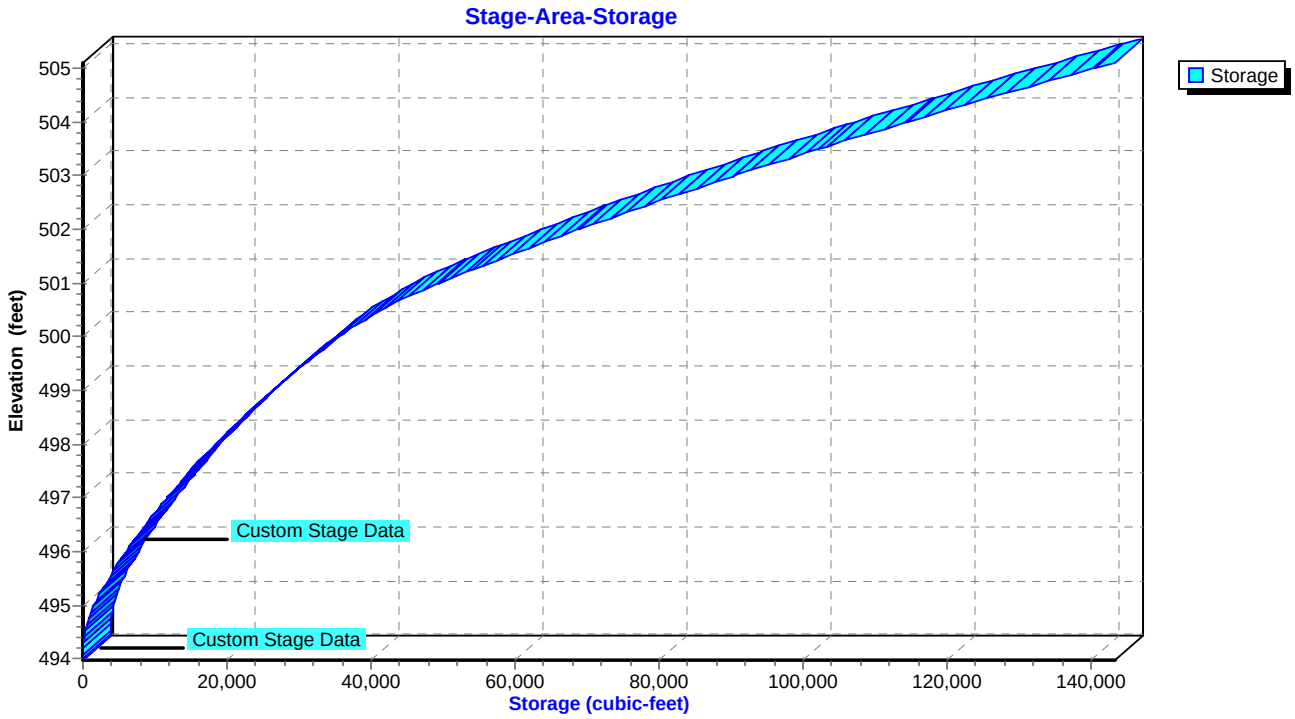
Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Summary for Pond 6R: 102-101

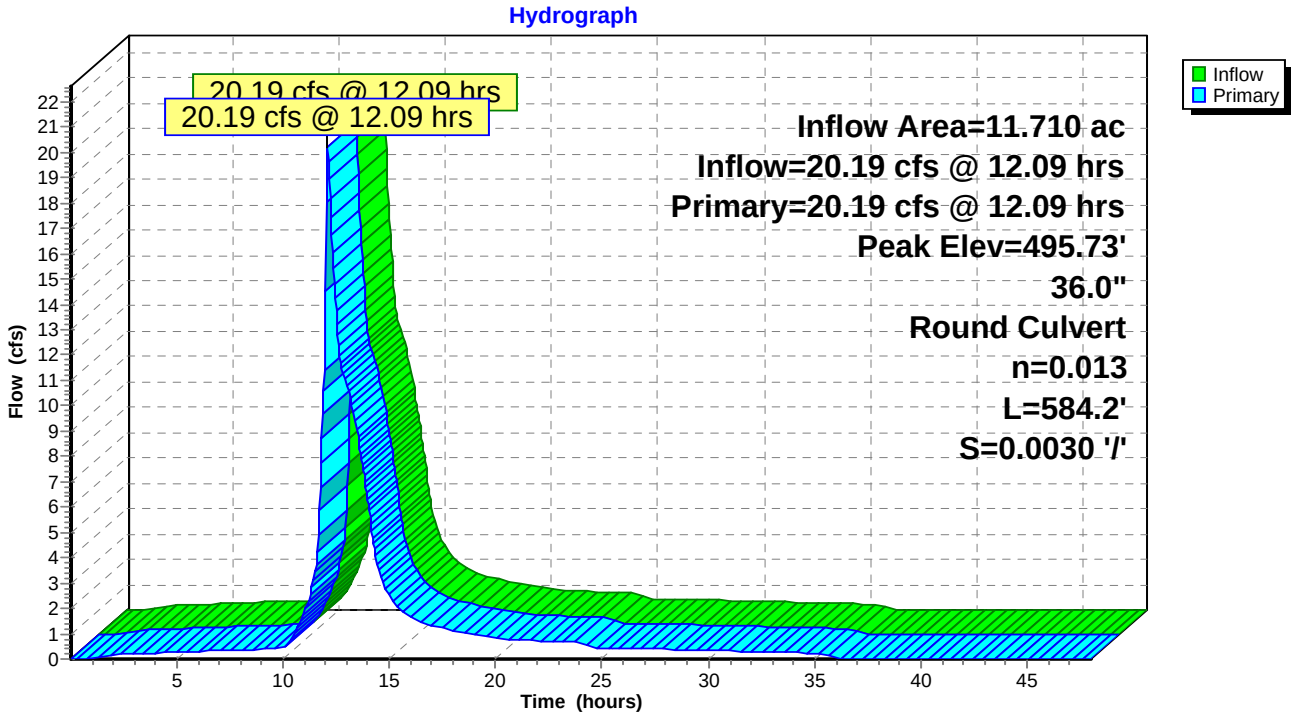
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.17" for 15-yr event
Inflow = 20.19 cfs @ 12.09 hrs, Volume= 4.070 af
Outflow = 20.19 cfs @ 12.09 hrs, Volume= 4.070 af, Atten= 0%, Lag= 0.0 min
Primary = 20.19 cfs @ 12.09 hrs, Volume= 4.070 af
Routed to Pond 7P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 495.73' @ 12.09 hrs

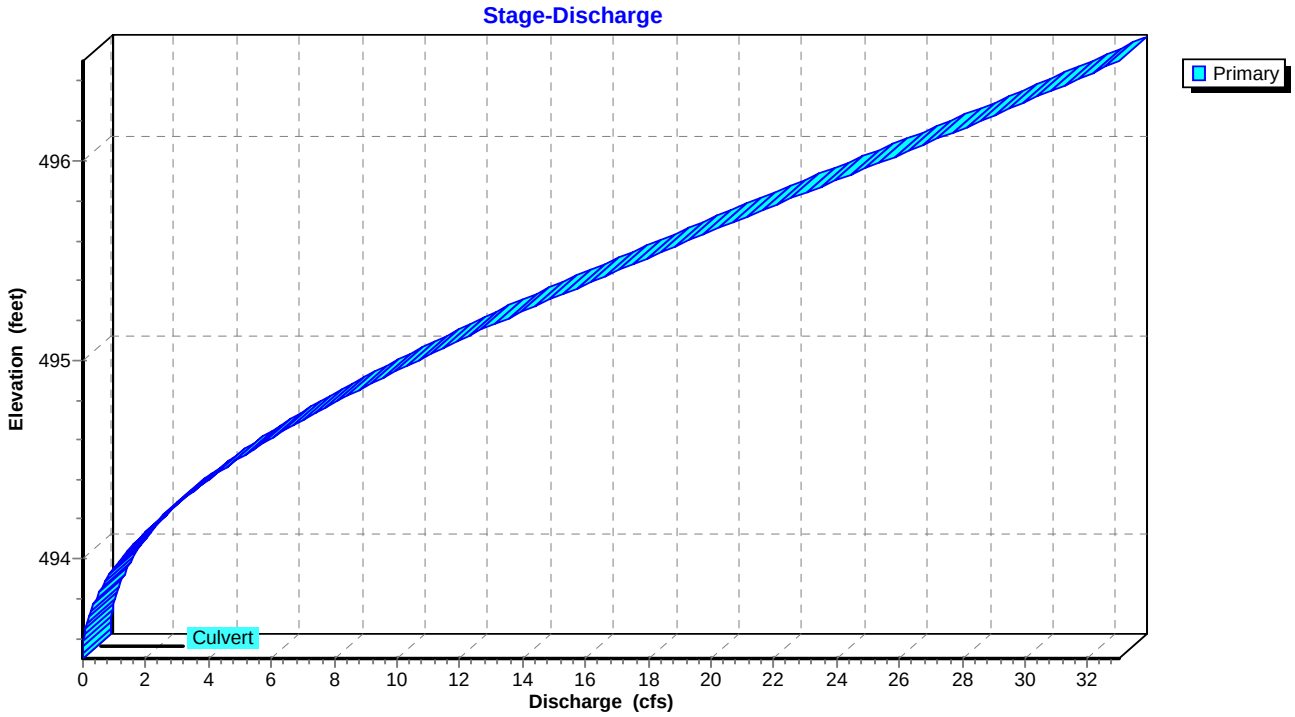
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=20.13 cfs @ 12.09 hrs HW=495.73' TW=493.65' (Dynamic Tailwater)
1=Culvert (Outlet Controls 20.13 cfs @ 4.98 fps)

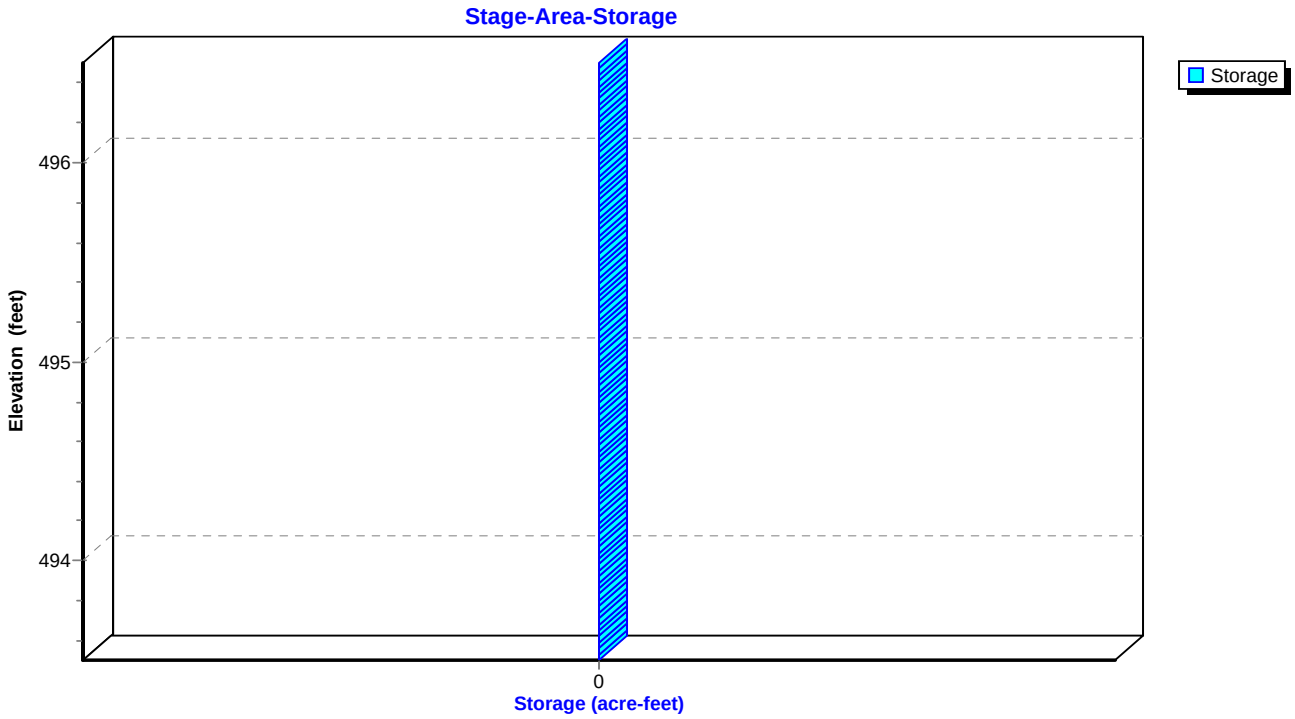
Pond 6R: 102-101



Pond 6R: 102-101



Pond 6R: 102-101



Summary for Pond 7P: 101-100

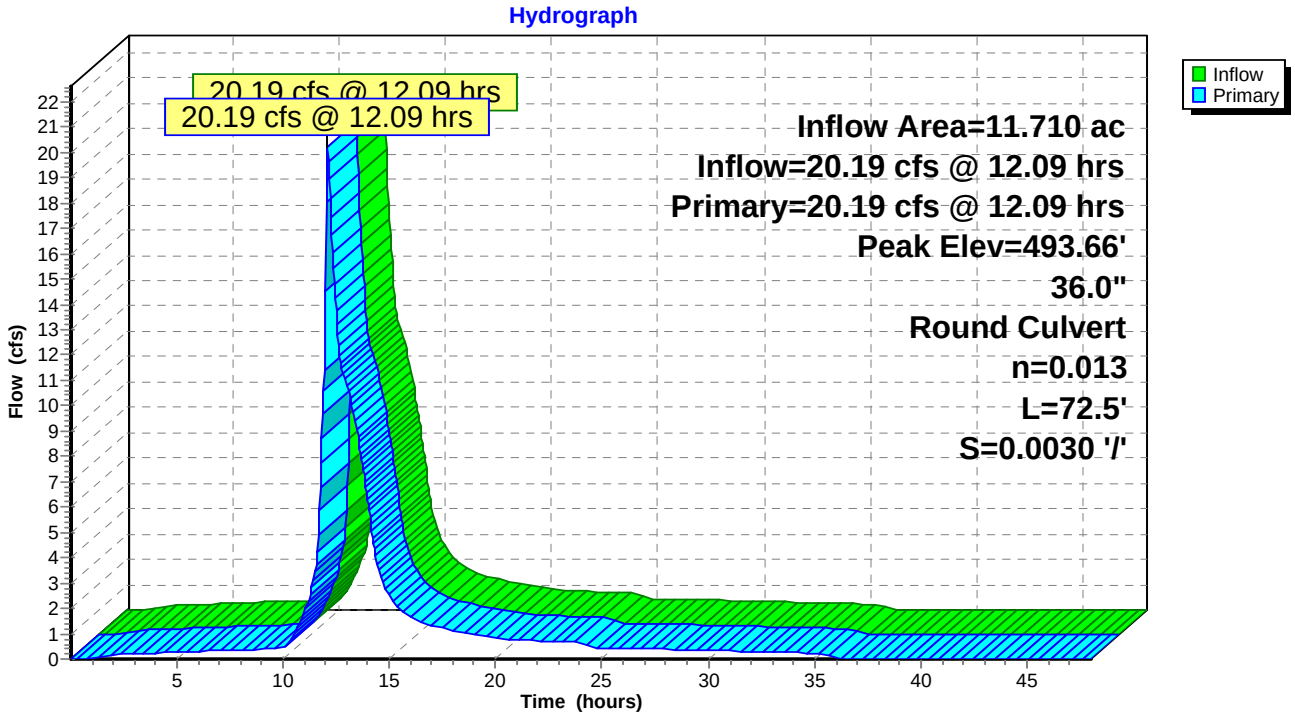
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.17" for 15-yr event
Inflow = 20.19 cfs @ 12.09 hrs, Volume= 4.070 af
Outflow = 20.19 cfs @ 12.09 hrs, Volume= 4.070 af, Atten= 0%, Lag= 0.0 min
Primary = 20.19 cfs @ 12.09 hrs, Volume= 4.070 af
Routed to Link 8L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 493.66' @ 12.09 hrs

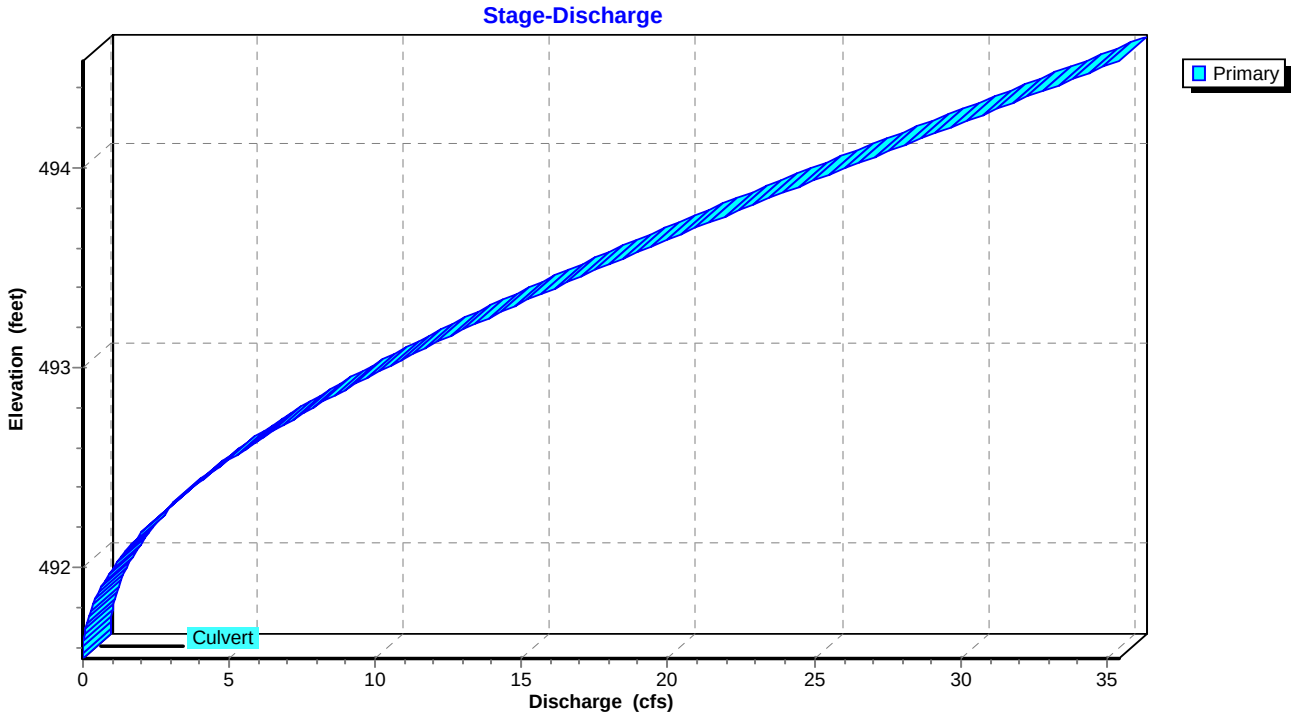
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=20.13 cfs @ 12.09 hrs HW=493.65' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 20.13 cfs @ 5.32 fps)

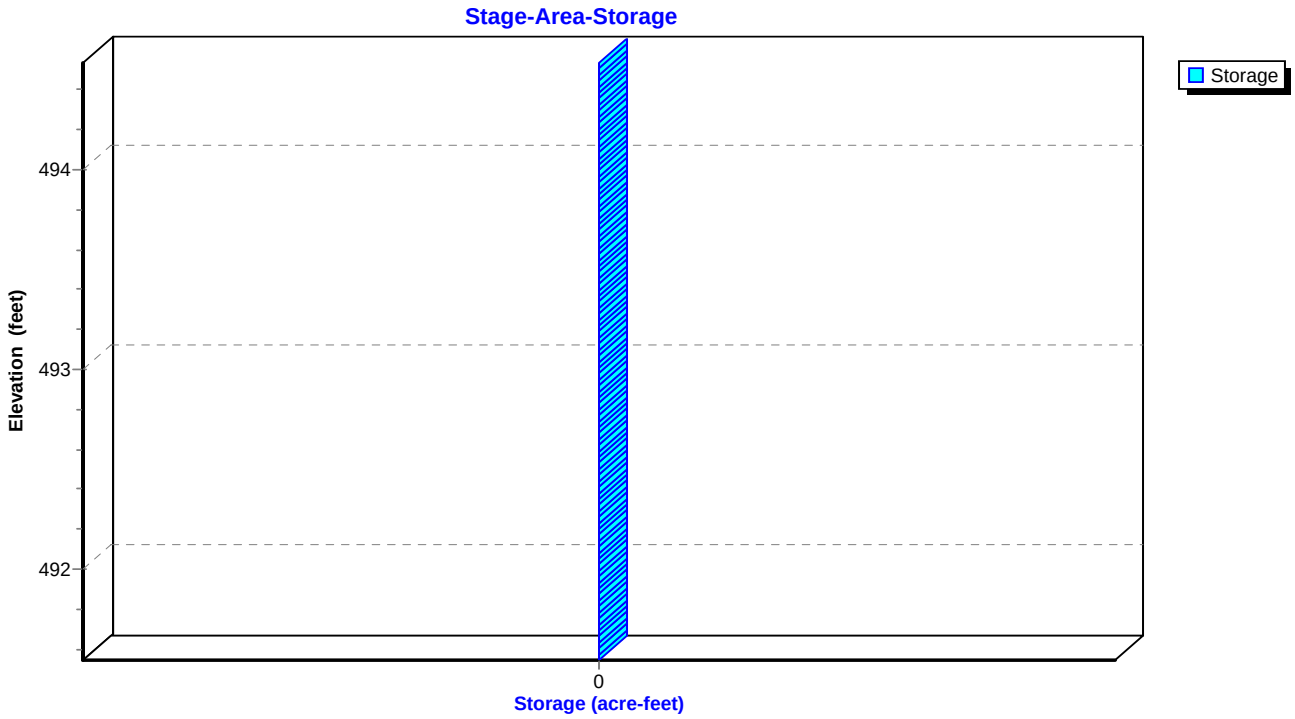
Pond 7P: 101-100



Pond 7P: 101-100



Pond 7P: 101-100



Summary for Pond 12P: 100 YR LFB

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.17" for 15-yr event
Inflow = 75.71 cfs @ 11.95 hrs, Volume= 4.070 af
Outflow = 20.42 cfs @ 12.09 hrs, Volume= 3.766 af, Atten= 73%, Lag= 8.2 min
Primary = 20.42 cfs @ 12.09 hrs, Volume= 3.766 af
Routed to Pond 13P : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 502.25' @ 12.09 hrs Surf.Area= 21,075 sf Storage= 74,090 cf

Plug-Flow detention time= 129.4 min calculated for 3.766 af (93% of inflow)
Center-of-Mass det. time= 87.1 min (843.4 - 756.2)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

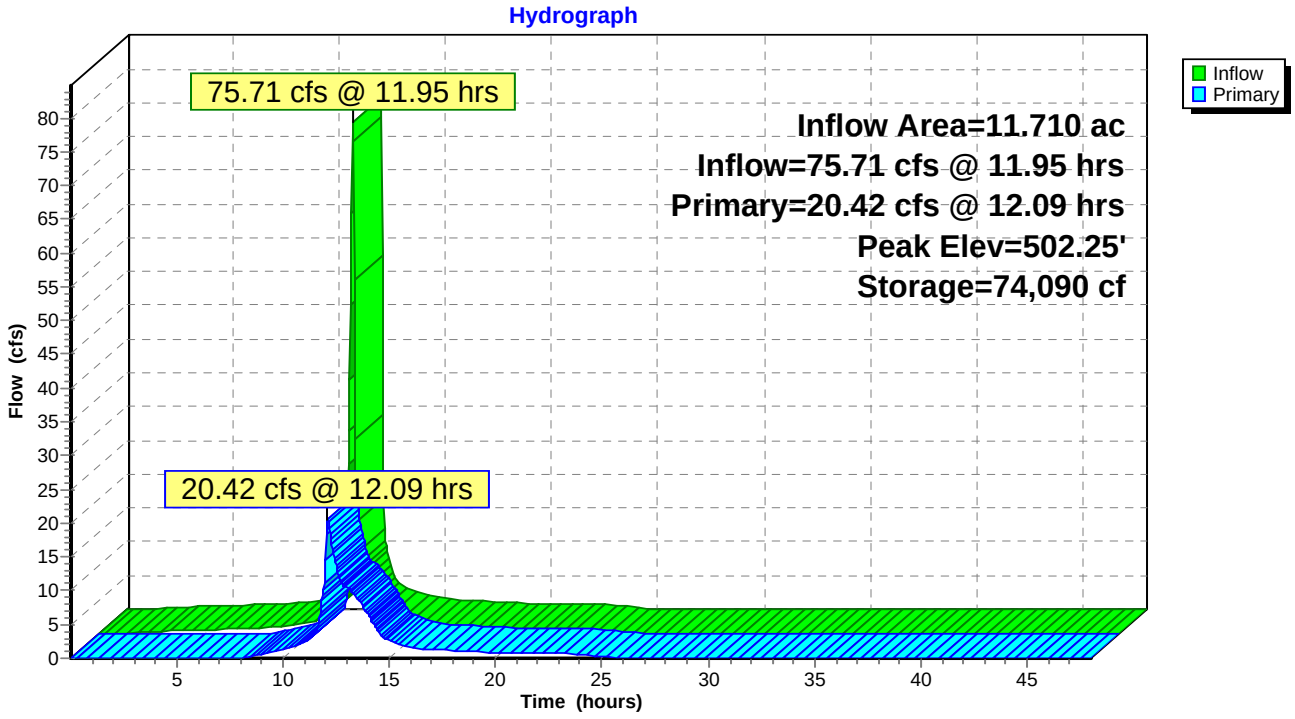
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600

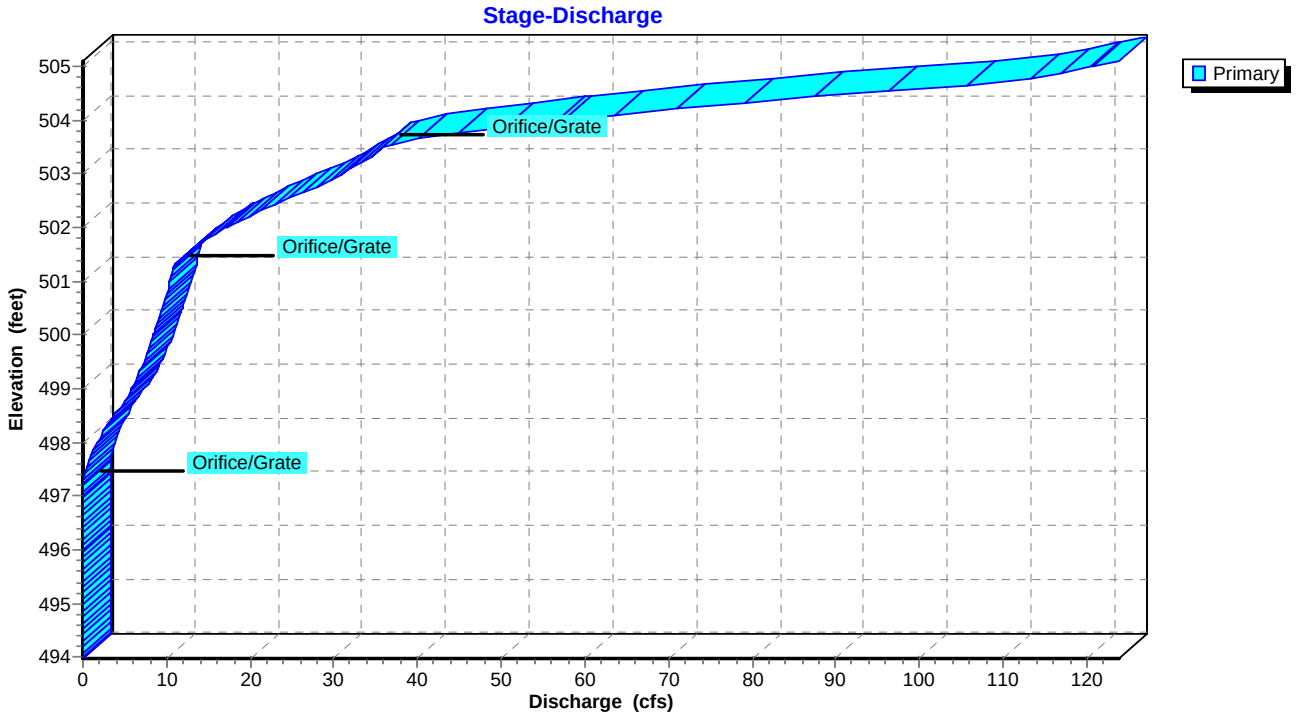
			Limited to weir flow at low heads
#3	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=20.35 cfs @ 12.09 hrs HW=502.25' TW=495.74' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 20.35 cfs of 108.49 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 12.38 cfs @ 9.91 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 7.97 cfs @ 3.20 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

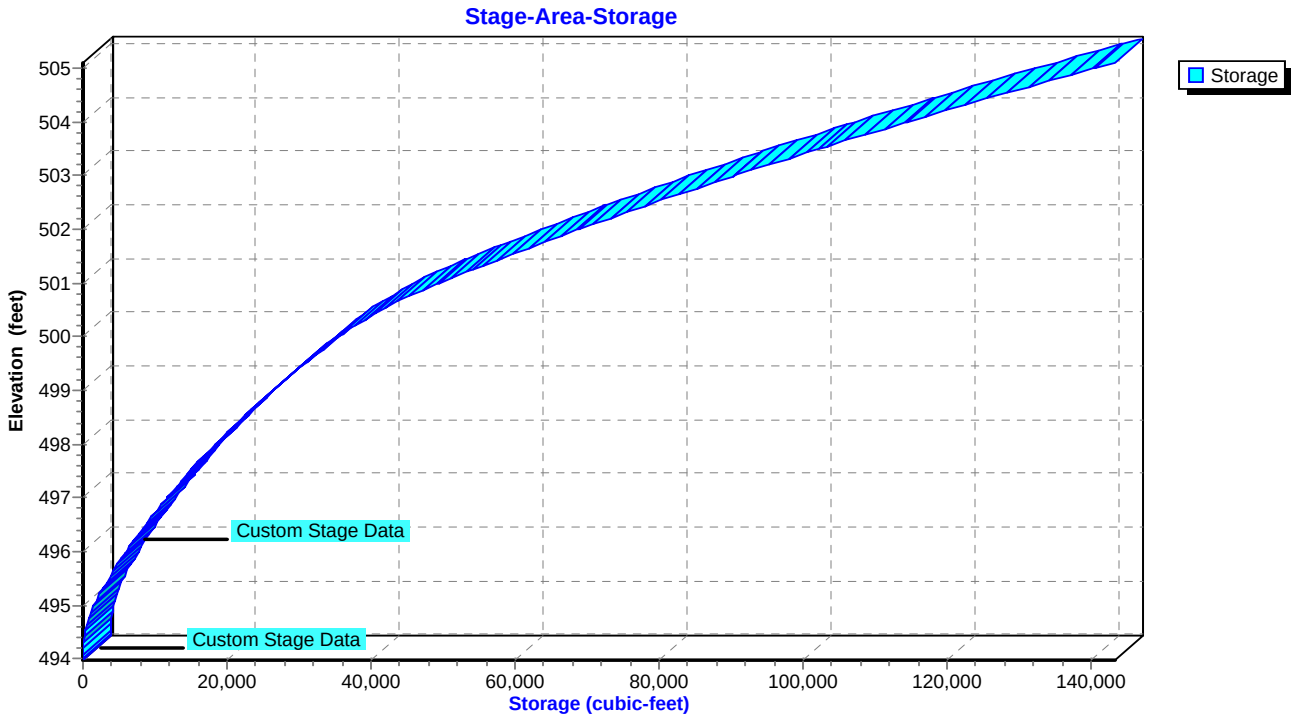
Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Summary for Pond 13P: 102-101

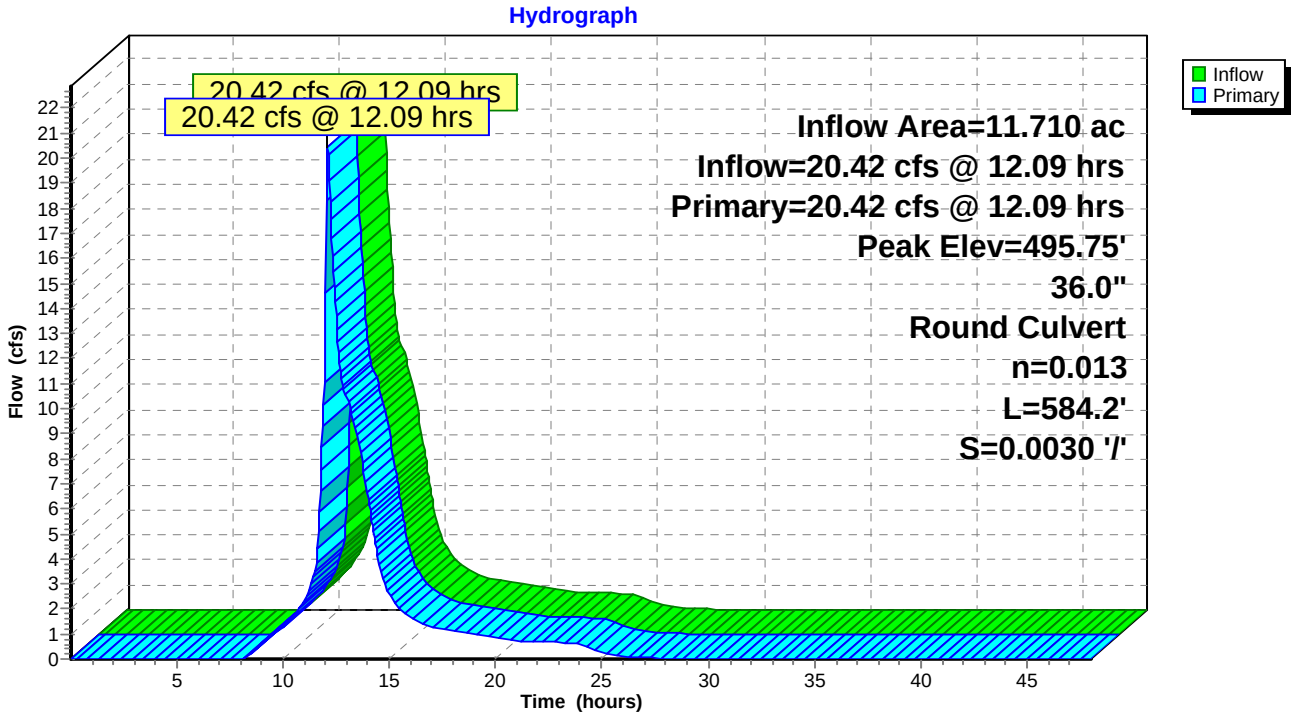
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 3.86" for 15-yr event
Inflow = 20.42 cfs @ 12.09 hrs, Volume= 3.766 af
Outflow = 20.42 cfs @ 12.09 hrs, Volume= 3.766 af, Atten= 0%, Lag= 0.0 min
Primary = 20.42 cfs @ 12.09 hrs, Volume= 3.766 af
Routed to Pond 14P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 495.75' @ 12.09 hrs

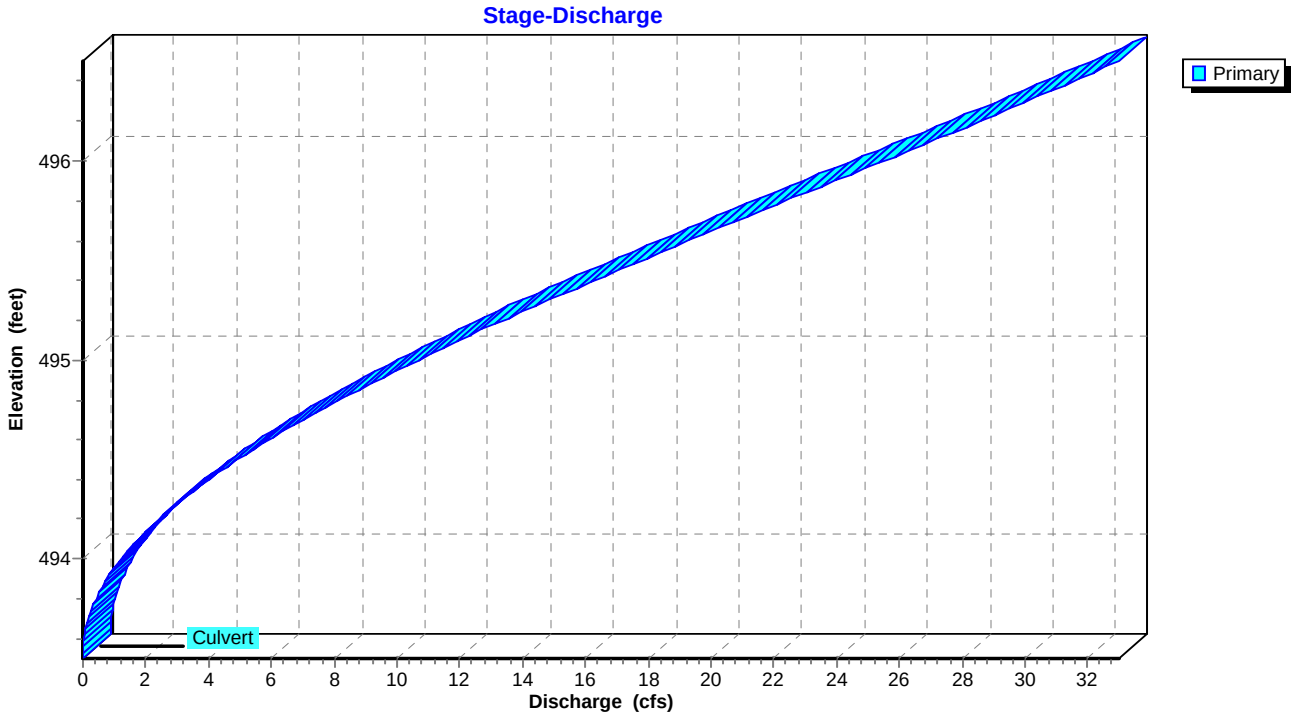
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=20.35 cfs @ 12.09 hrs HW=495.74' TW=493.67' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 20.35 cfs @ 4.99 fps)

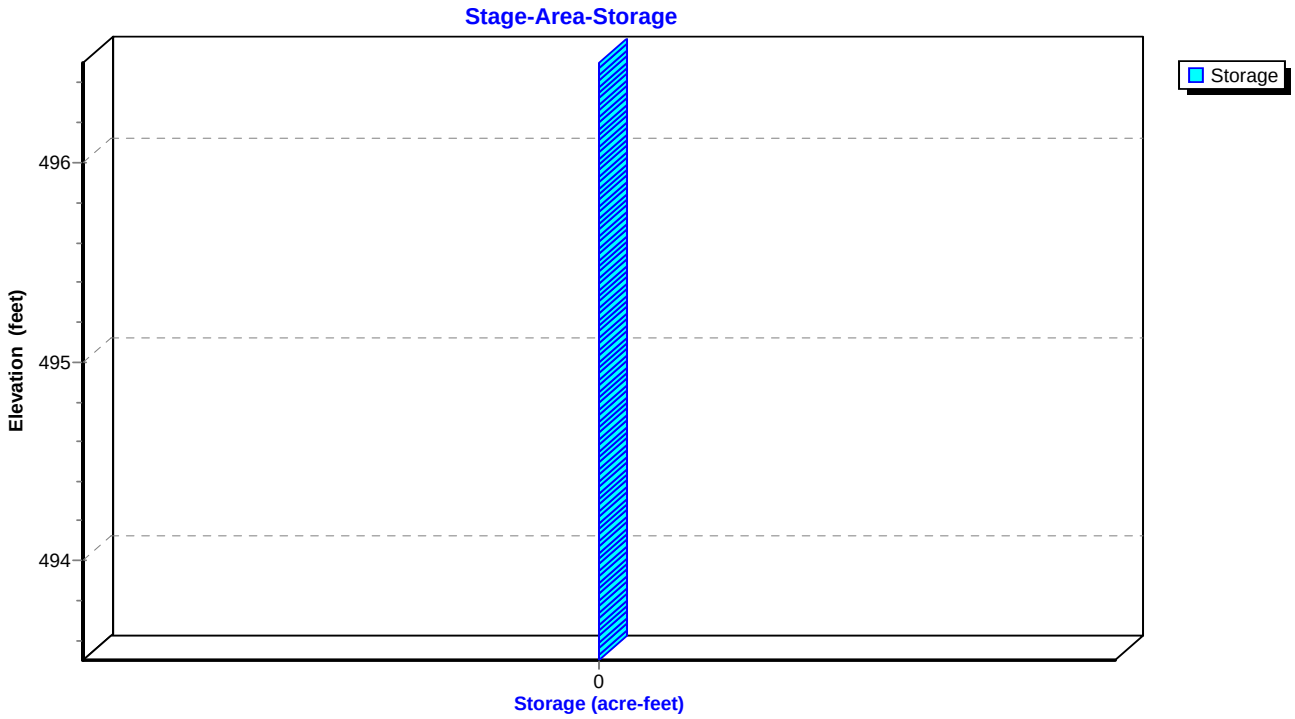
Pond 13P: 102-101



Pond 13P: 102-101



Pond 13P: 102-101



Summary for Pond 14P: 101-100

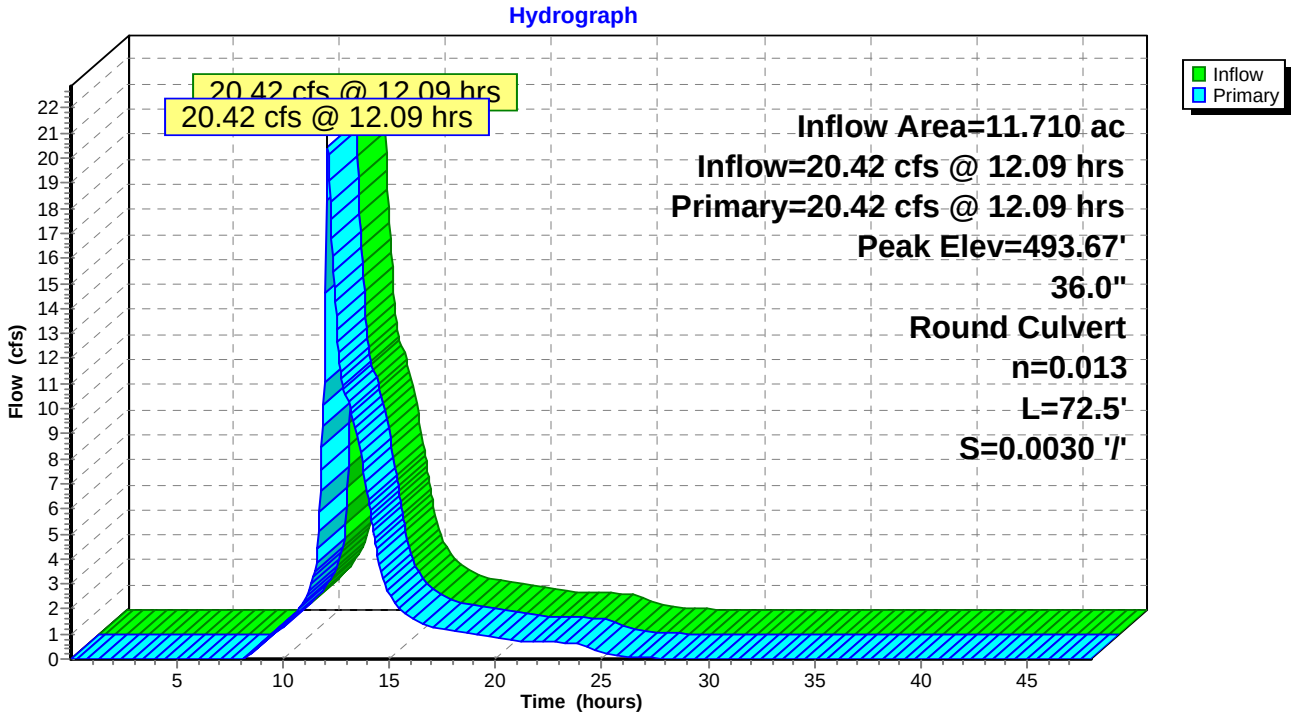
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 3.86" for 15-yr event
Inflow = 20.42 cfs @ 12.09 hrs, Volume= 3.766 af
Outflow = 20.42 cfs @ 12.09 hrs, Volume= 3.766 af, Atten= 0%, Lag= 0.0 min
Primary = 20.42 cfs @ 12.09 hrs, Volume= 3.766 af
Routed to Link 15L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 493.67' @ 12.09 hrs

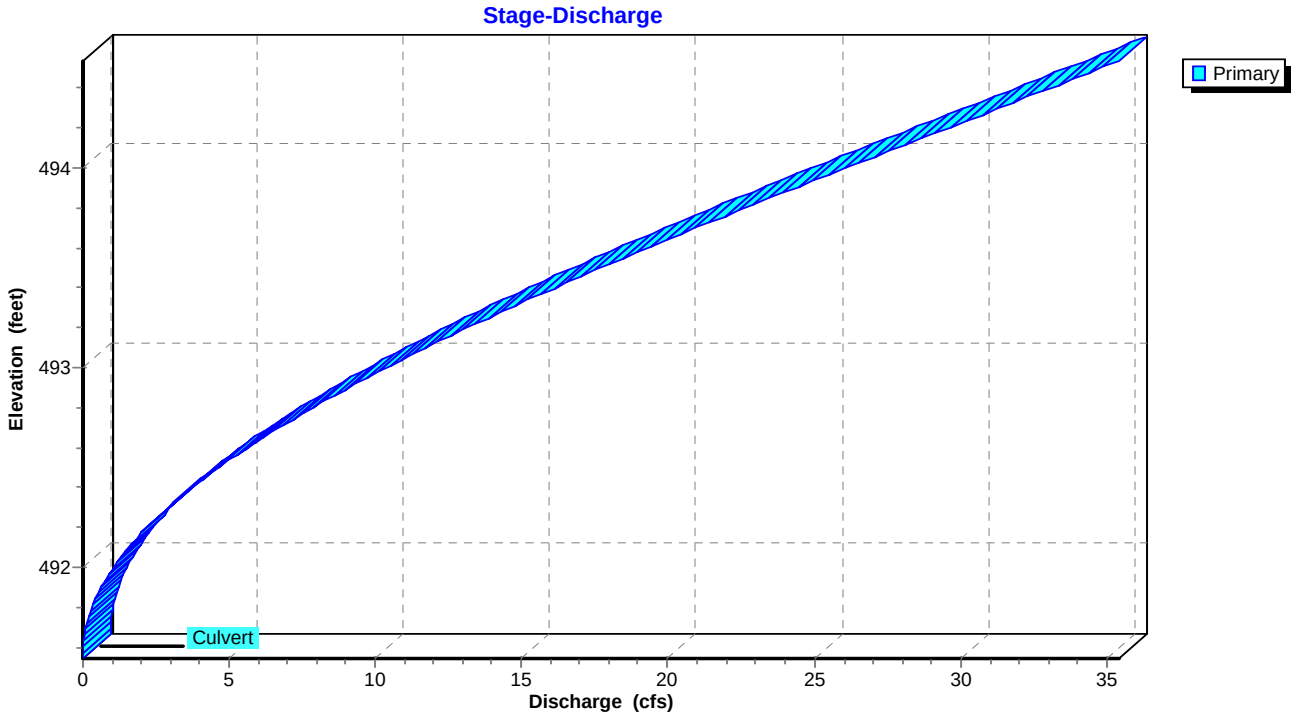
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=20.35 cfs @ 12.09 hrs HW=493.67' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 20.35 cfs @ 5.33 fps)

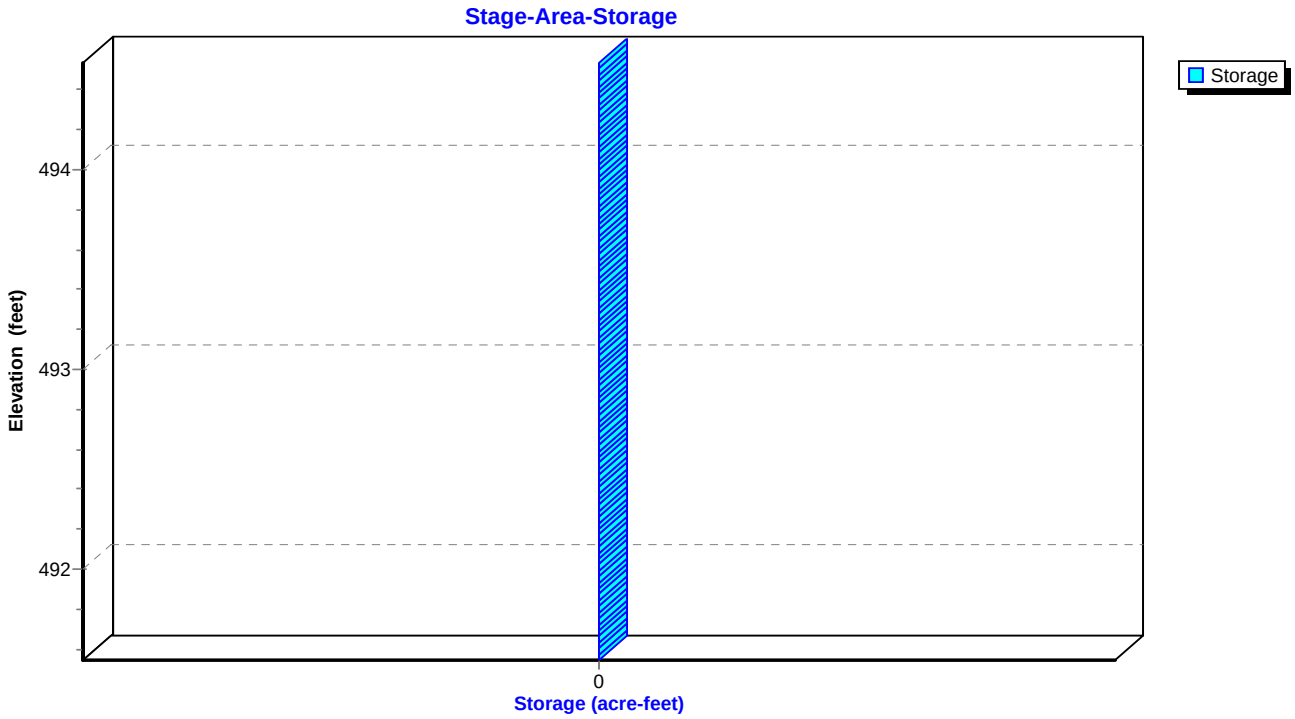
Pond 14P: 101-100



Pond 14P: 101-100



Pond 14P: 101-100

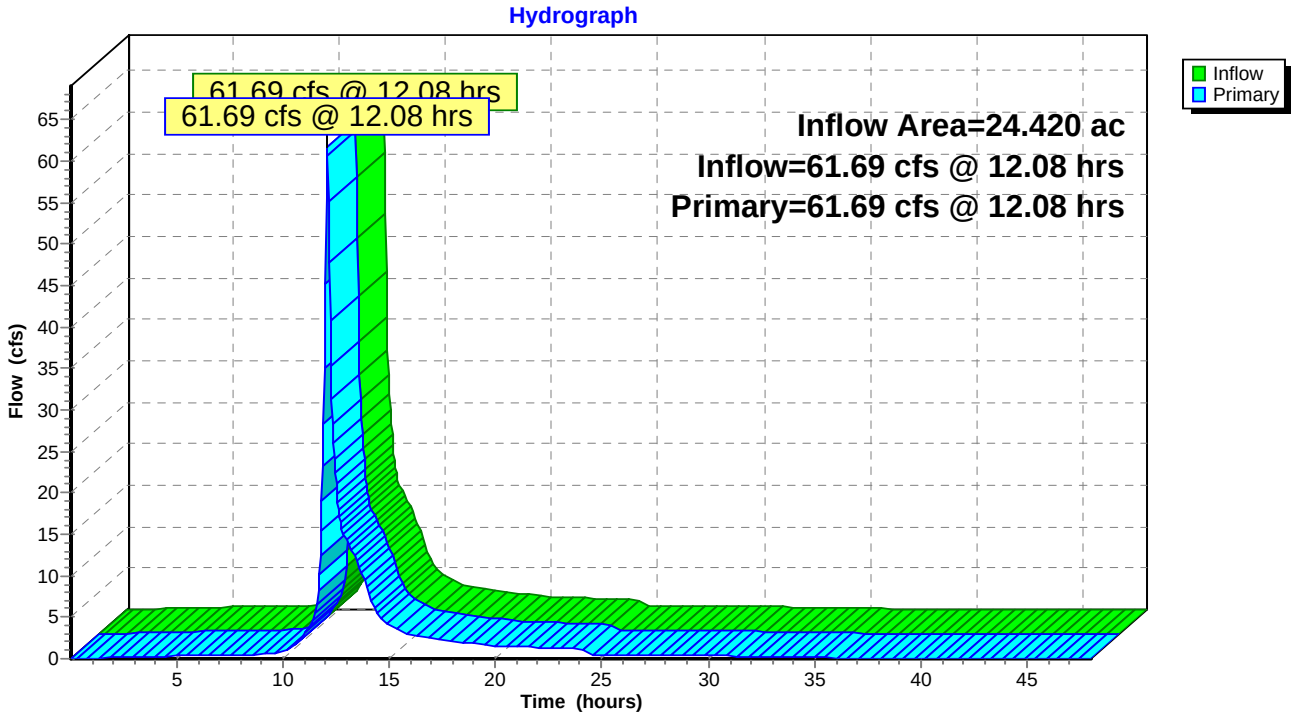


Summary for Link 8L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 3.35" for 15-yr event
Inflow = 61.69 cfs @ 12.08 hrs, Volume= 6.808 af
Primary = 61.69 cfs @ 12.08 hrs, Volume= 6.808 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 8L: POST DEVELOPED ROUTING

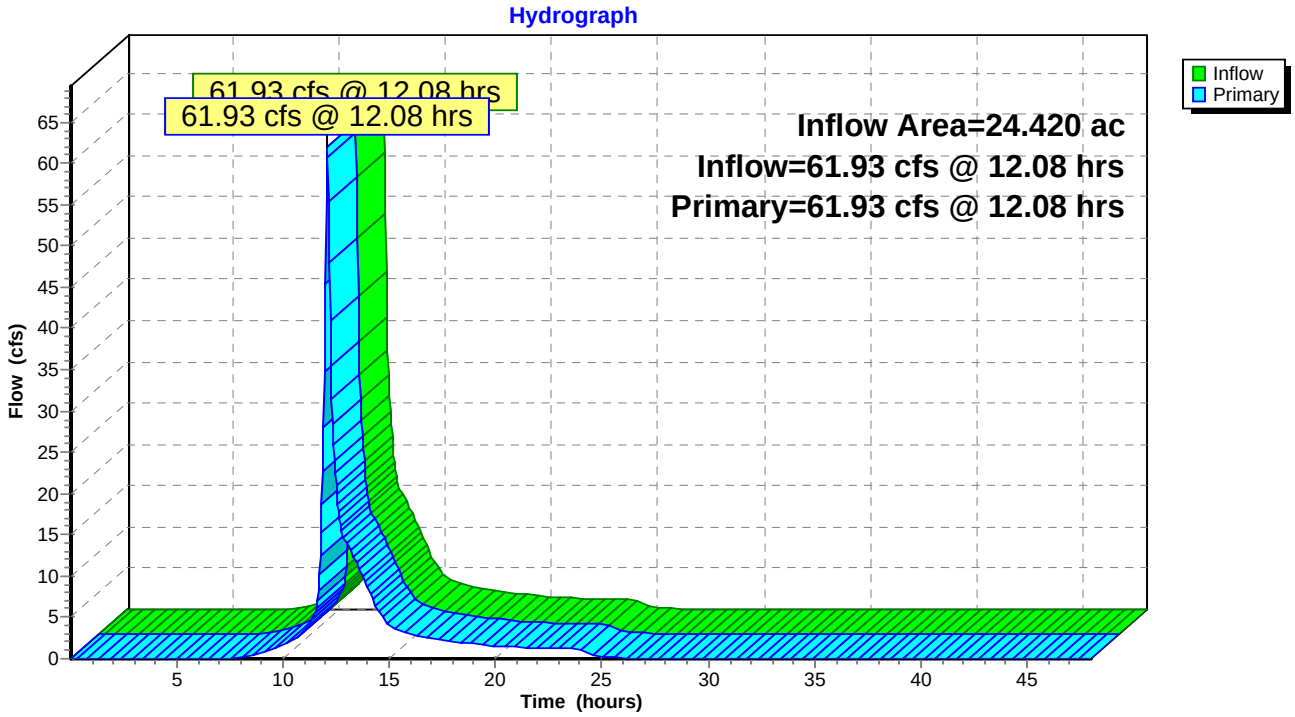


Summary for Link 15L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 3.20" for 15-yr event
Inflow = 61.93 cfs @ 12.08 hrs, Volume= 6.504 af
Primary = 61.93 cfs @ 12.08 hrs, Volume= 6.504 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 15L: POST DEVELOPED ROUTING



Summary for Subcatchment 1S: PROPOSED CONDITIONS

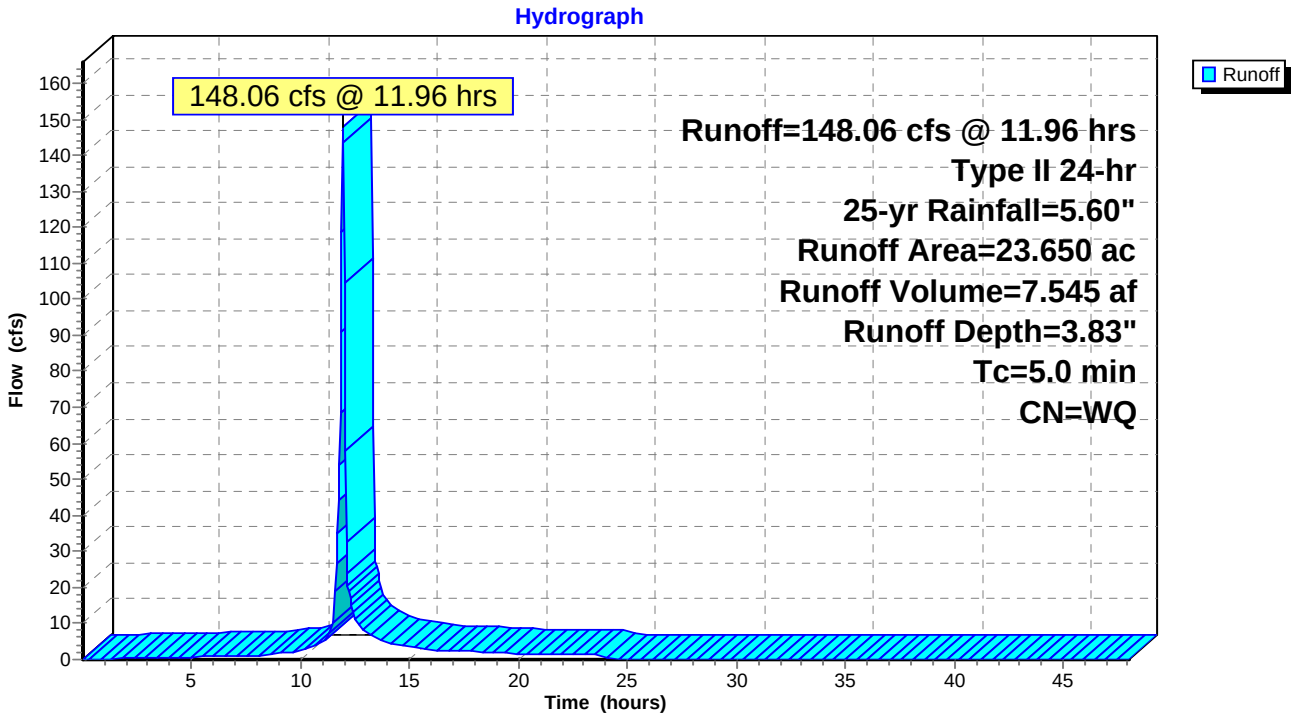
Runoff = 148.06 cfs @ 11.96 hrs, Volume= 7.545 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
23.650		Weighted Average
14.450	74	61.10% Pervious Area
9.200	98	38.90% Impervious Area

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

Subcatchment 1S: PROPOSED CONDITIONS



Summary for Subcatchment 2S: AREA 1 TO BASIN

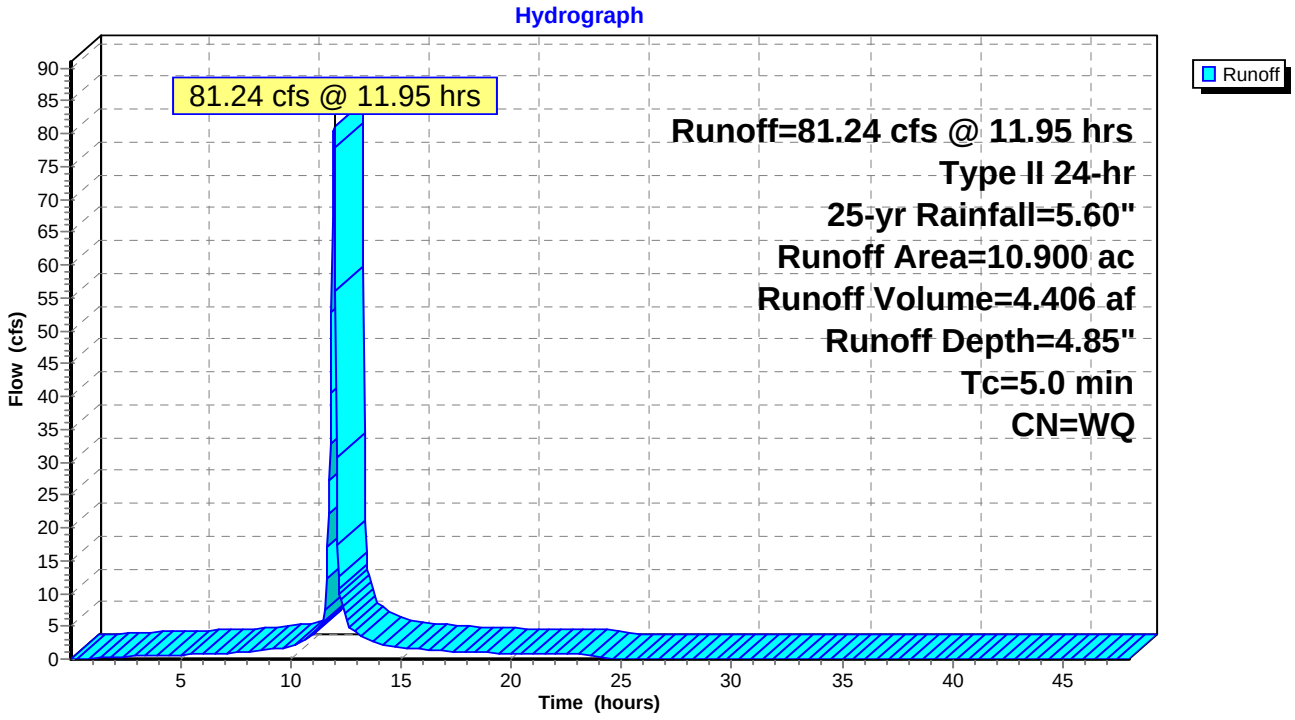
Runoff = 81.24 cfs @ 11.95 hrs, Volume= 4.406 af, Depth= 4.85"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 2S: AREA 1 TO BASIN



Summary for Subcatchment 3S: AREA 2 OFFSITE TO ONSITE

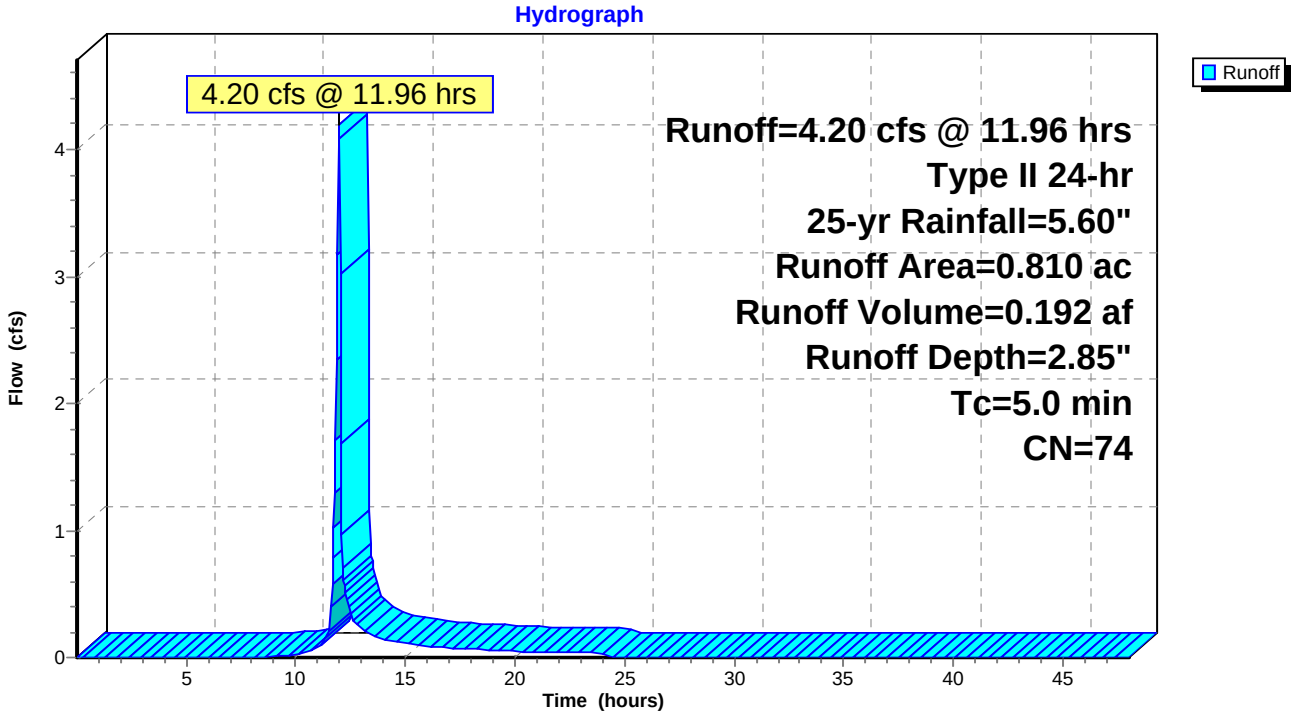
Runoff = 4.20 cfs @ 11.96 hrs, Volume= 0.192 af, Depth= 2.85"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 3S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 4S: AREA 3 ONSITE TO OFFSITE

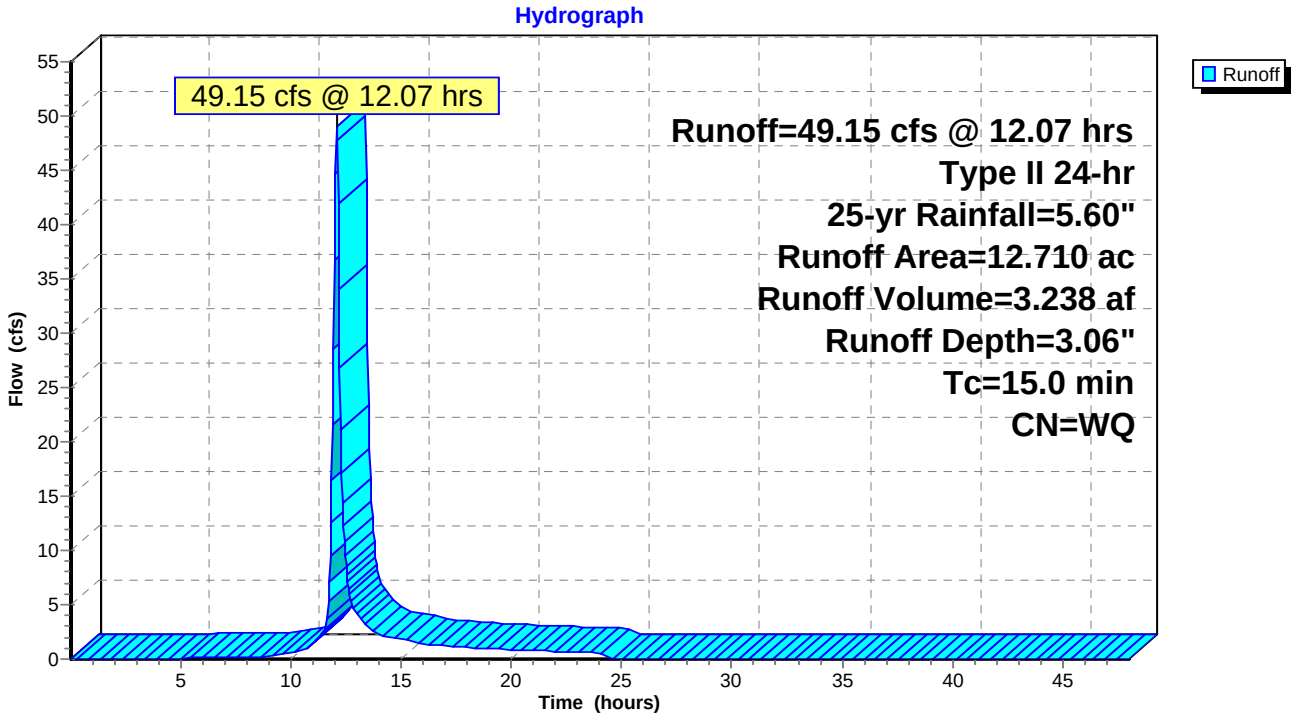
Runoff = 49.15 cfs @ 12.07 hrs, Volume= 3.238 af, Depth= 3.06"
Routed to Link 8L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 4S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 9S: AREA 1 TO BASIN

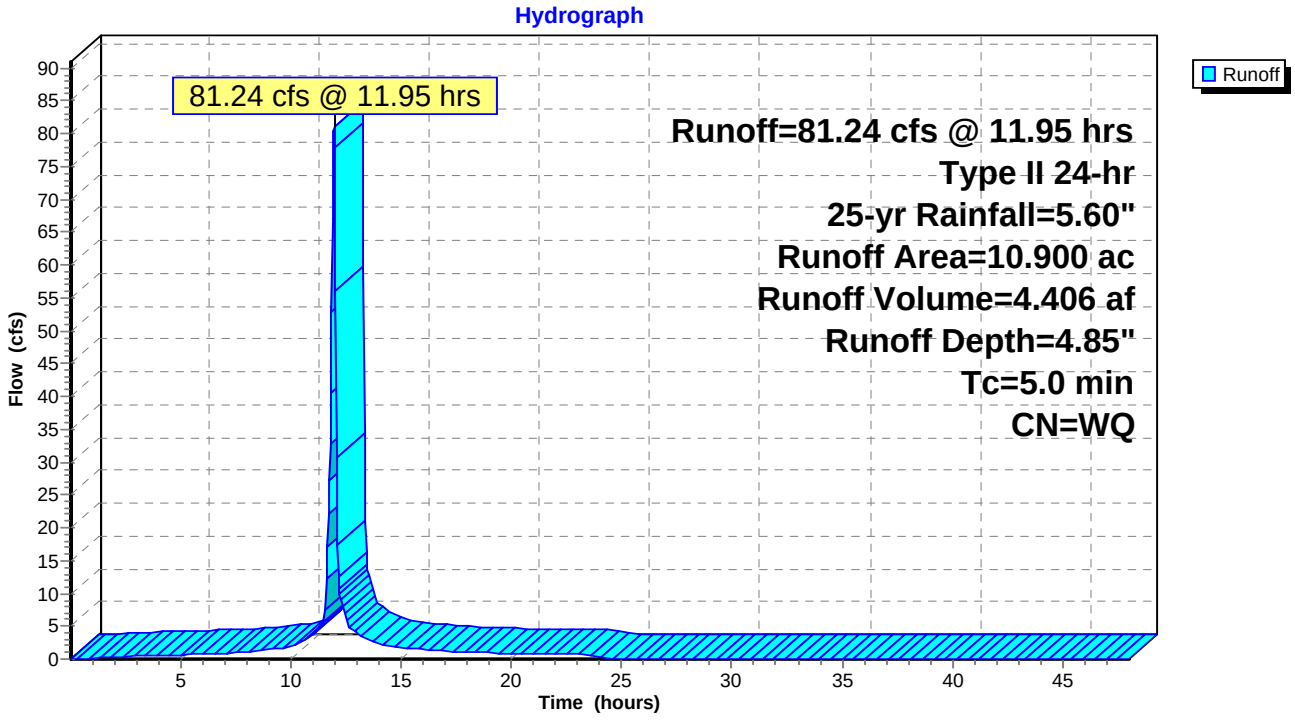
Runoff = 81.24 cfs @ 11.95 hrs, Volume= 4.406 af, Depth= 4.85"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 9S: AREA 1 TO BASIN



Summary for Subcatchment 10S: AREA 2 OFFSITE TO ONSITE

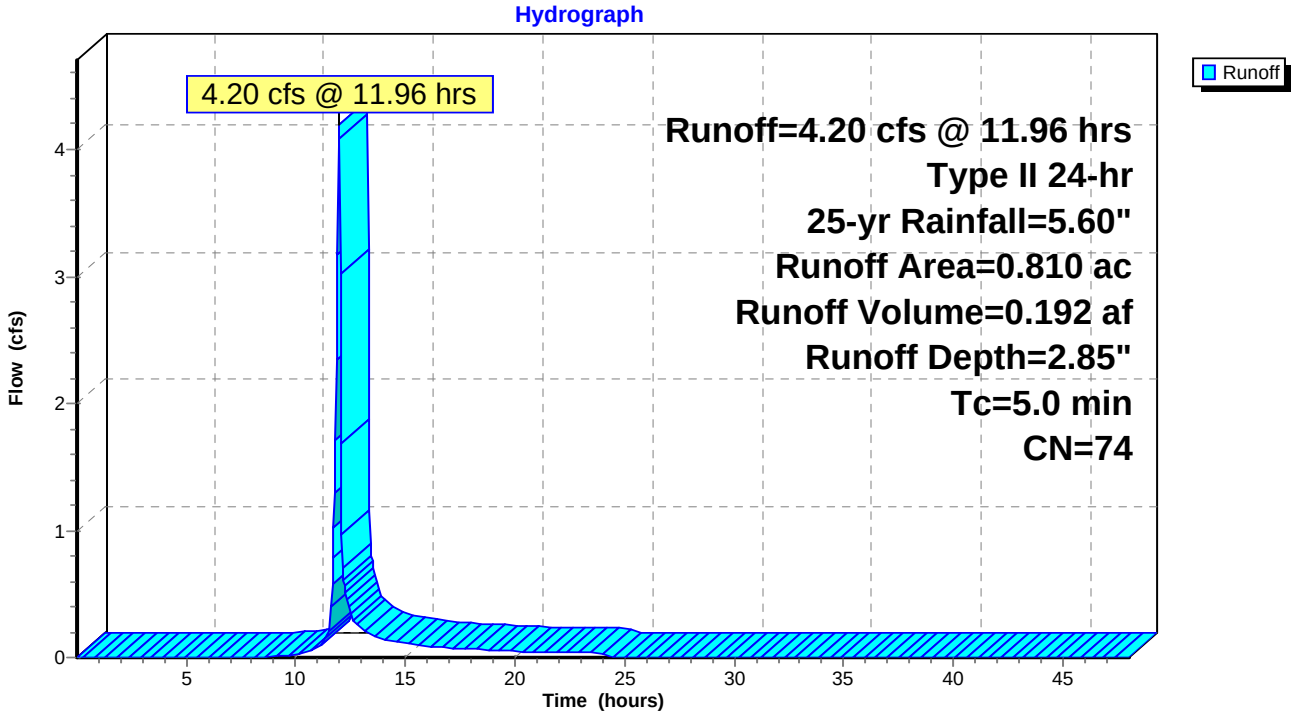
Runoff = 4.20 cfs @ 11.96 hrs, Volume= 0.192 af, Depth= 2.85"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 10S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 11S: AREA 3 ONSITE TO OFFSITE

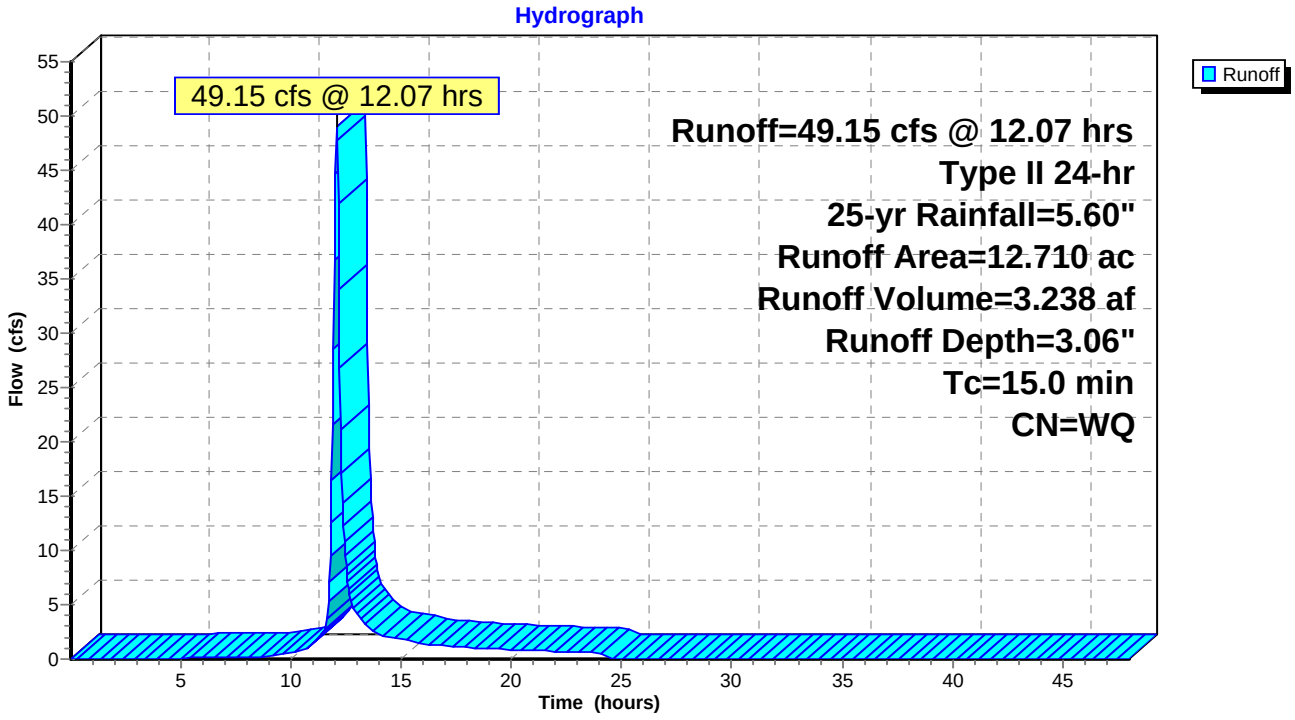
Runoff = 49.15 cfs @ 12.07 hrs, Volume= 3.238 af, Depth= 3.06"
Routed to Link 15L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 11S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS

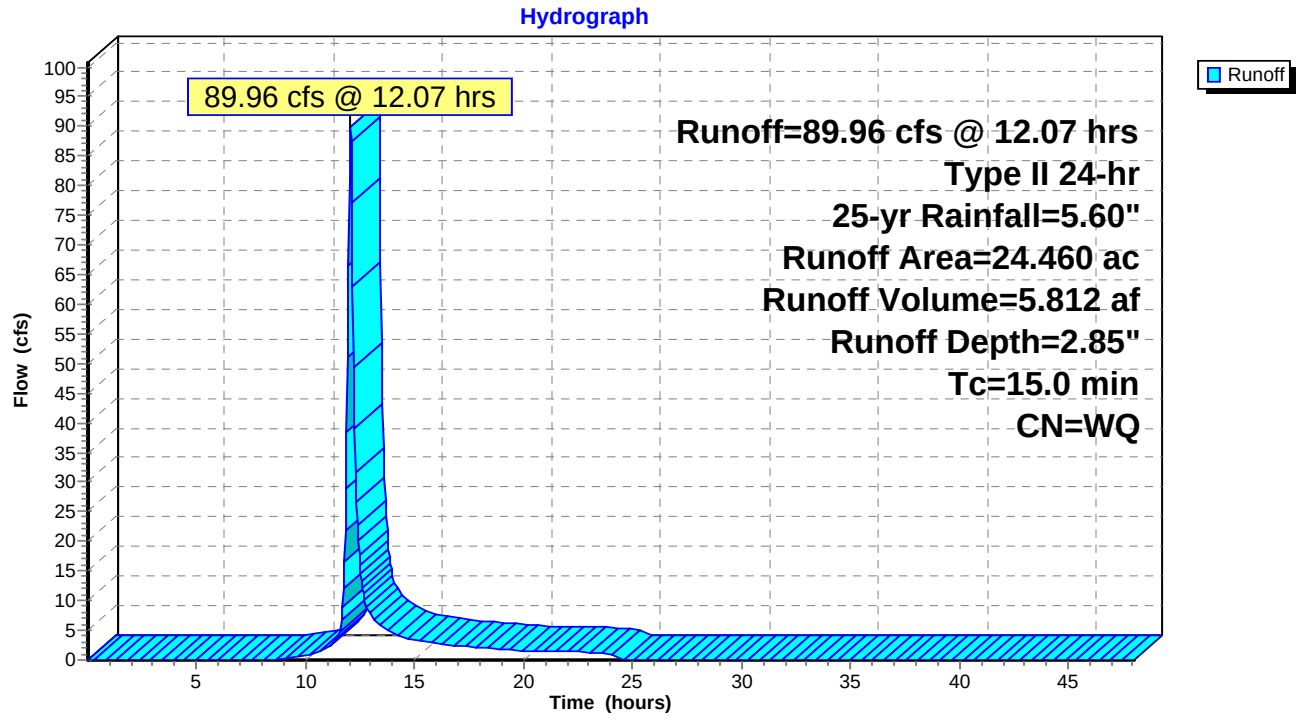
Runoff = 89.96 cfs @ 12.07 hrs, Volume= 5.812 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
23.650	74	>75% Grass cover, Good, HSG C
0.810	74	>75% Grass cover, Good, HSG C
24.460		Weighted Average
24.460	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS



Summary for Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS

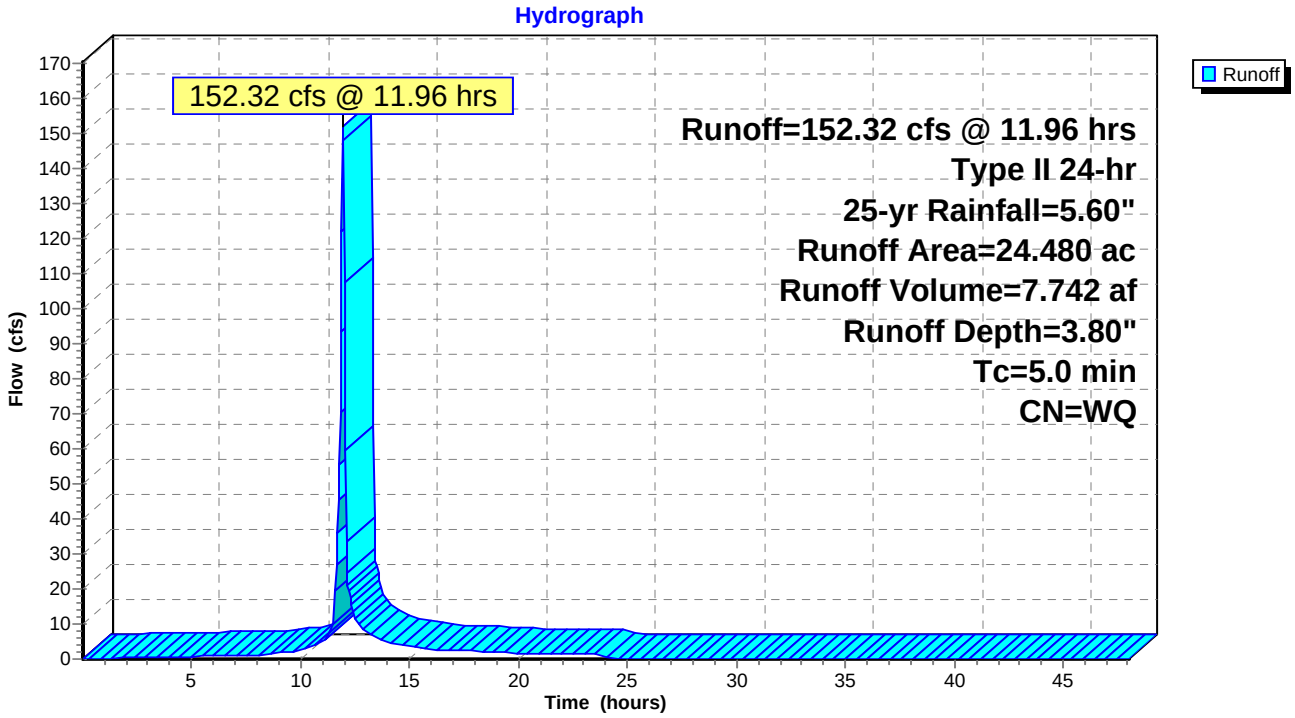
Runoff = 152.32 cfs @ 11.96 hrs, Volume= 7.742 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 25-yr Rainfall=5.60"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
0.830	74	>75% Grass cover, Good, HSG C
24.480		Weighted Average
15.280	74	62.42% Pervious Area
9.200	98	37.58% Impervious Area

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

Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS



Summary for Pond 5P: STORMWATER MANAGEMENT FACILITY

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.71" for 25-yr event
Inflow = 85.38 cfs @ 11.95 hrs, Volume= 4.599 af
Outflow = 24.94 cfs @ 12.08 hrs, Volume= 4.599 af, Atten= 71%, Lag= 7.7 min
Primary = 24.94 cfs @ 12.08 hrs, Volume= 4.599 af
Routed to Pond 6R : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 502.53' @ 12.08 hrs Surf.Area= 21,669 sf Storage= 79,961 cf

Plug-Flow detention time= 129.6 min calculated for 4.595 af (100% of inflow)
Center-of-Mass det. time= 130.1 min (884.8 - 754.7)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

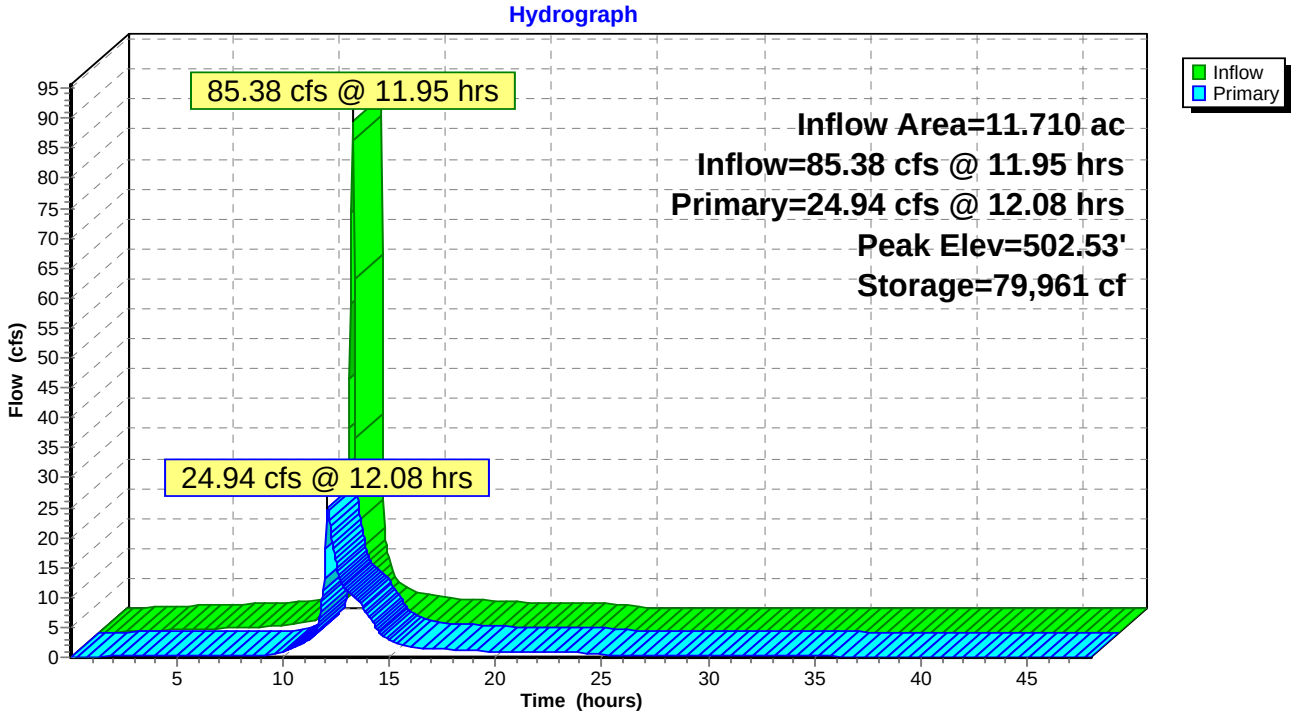
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	493.74'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

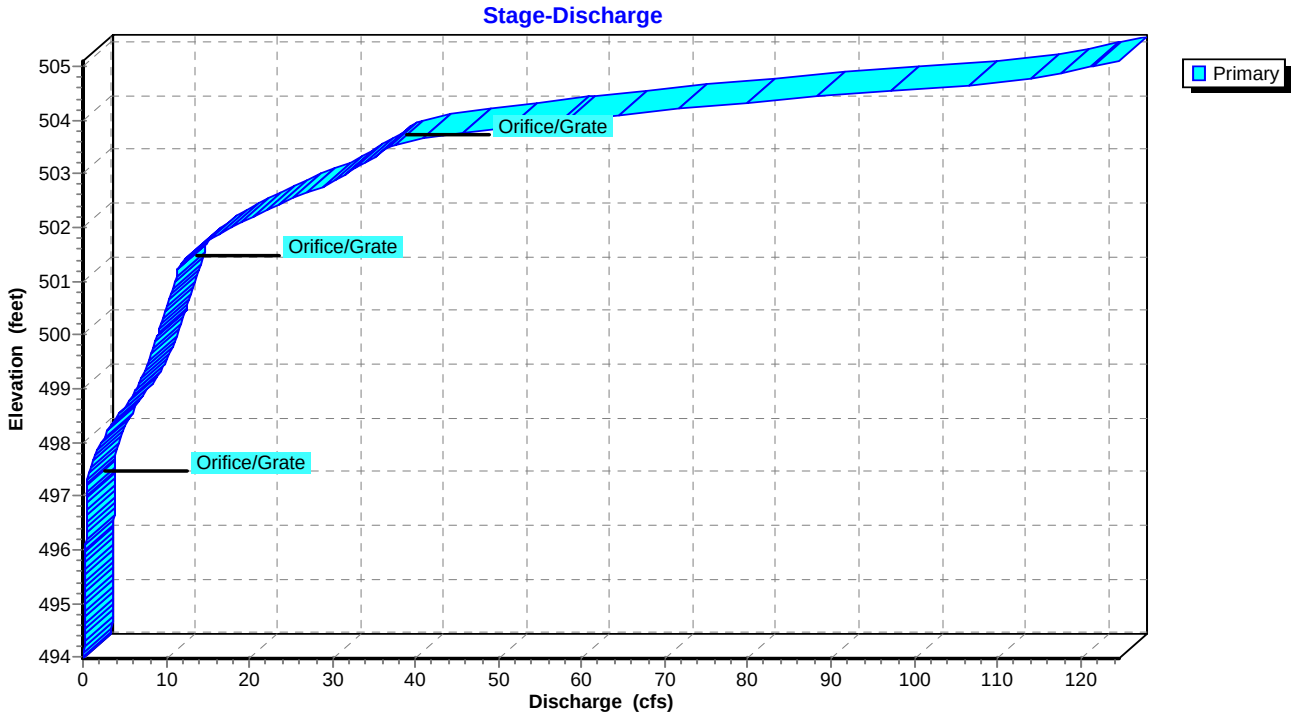
#3	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=24.83 cfs @ 12.08 hrs HW=502.52' TW=496.06' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 24.83 cfs of 108.15 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.60 cfs @ 12.24 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 12.78 cfs @ 10.22 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 11.45 cfs @ 3.61 fps)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

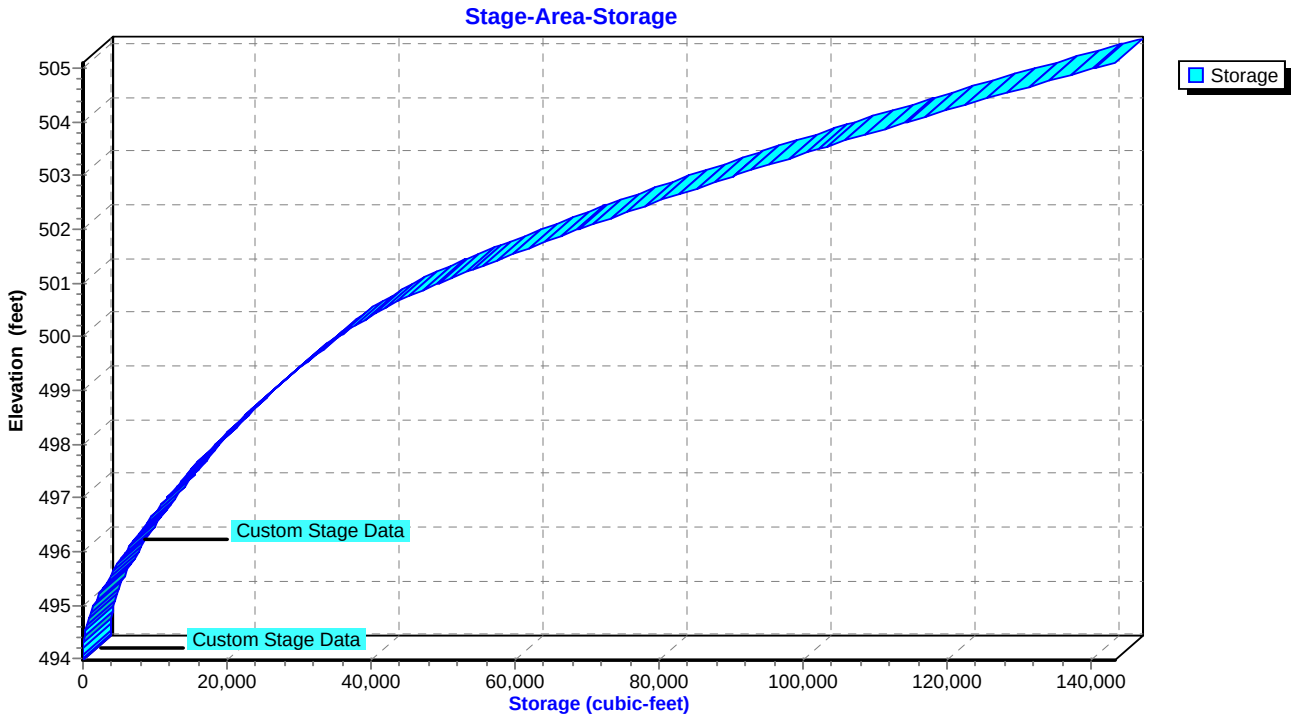
Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Summary for Pond 6R: 102-101

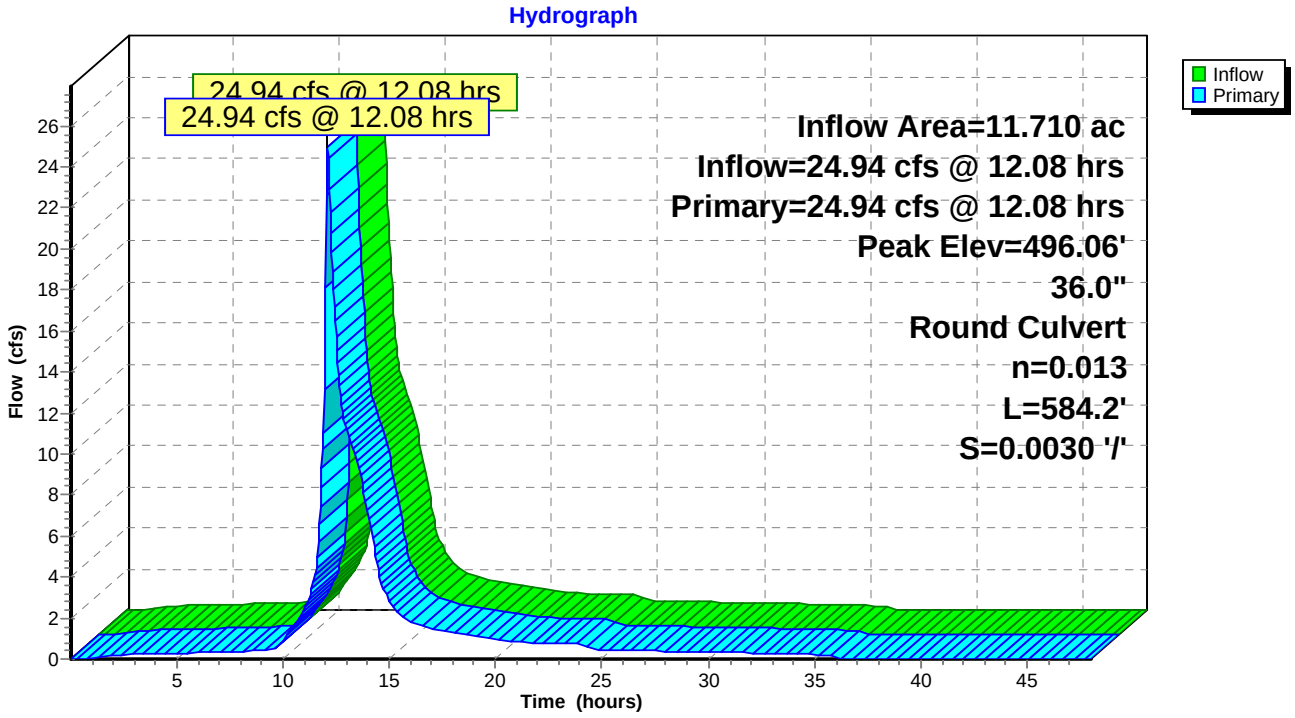
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.71" for 25-yr event
Inflow = 24.94 cfs @ 12.08 hrs, Volume= 4.599 af
Outflow = 24.94 cfs @ 12.08 hrs, Volume= 4.599 af, Atten= 0%, Lag= 0.0 min
Primary = 24.94 cfs @ 12.08 hrs, Volume= 4.599 af
Routed to Pond 7P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 496.06' @ 12.08 hrs

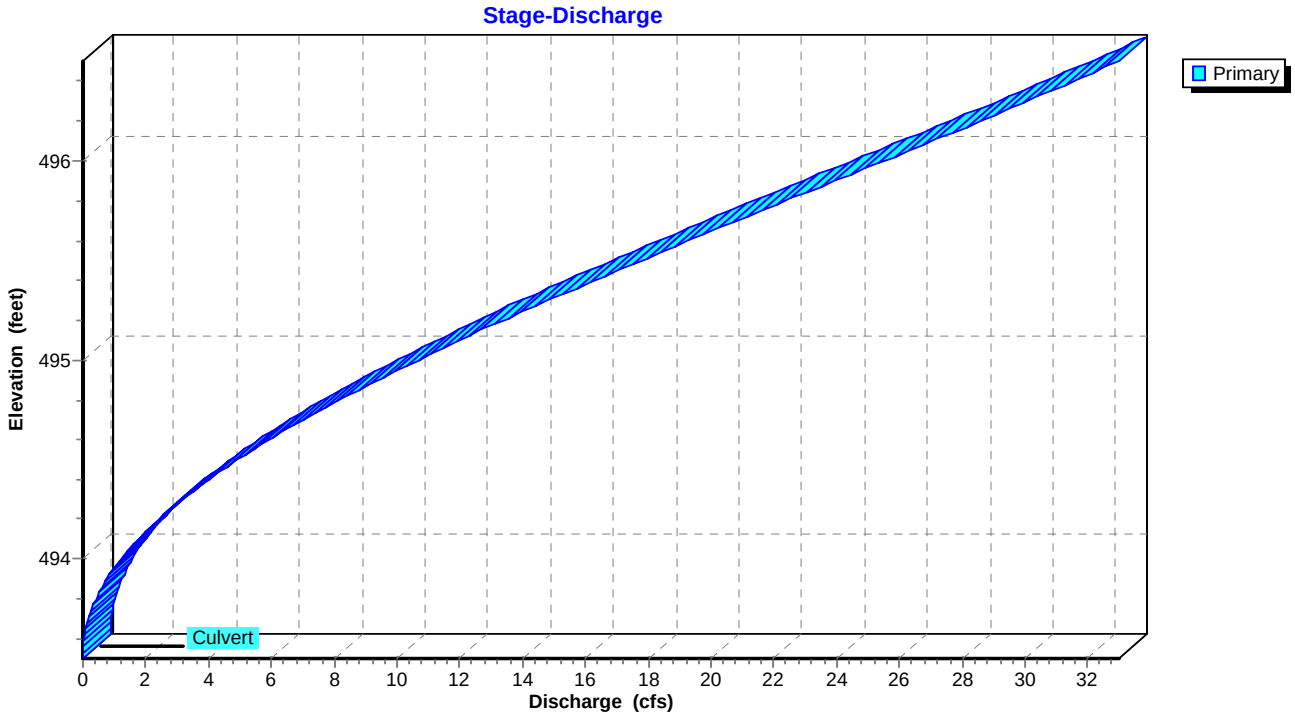
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=24.83 cfs @ 12.08 hrs HW=496.06' TW=493.93' (Dynamic Tailwater)
1=Culvert (Outlet Controls 24.83 cfs @ 5.21 fps)

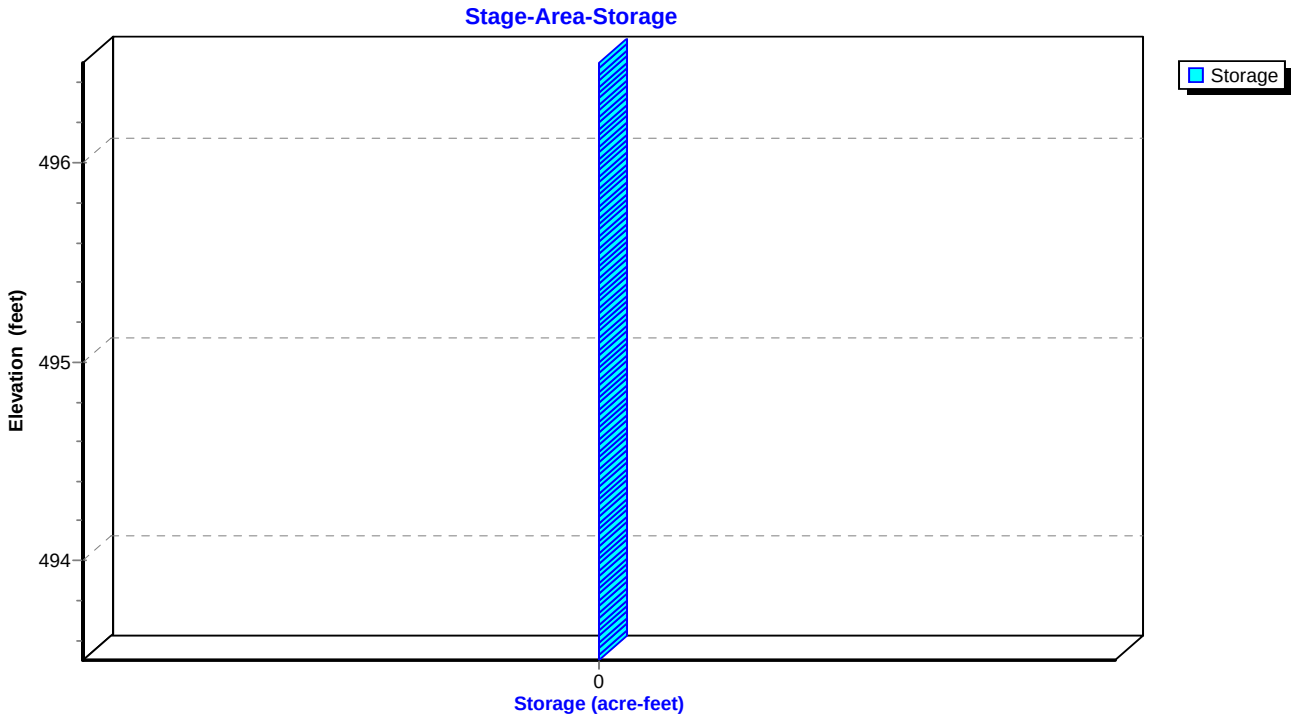
Pond 6R: 102-101



Pond 6R: 102-101



Pond 6R: 102-101



Summary for Pond 7P: 101-100

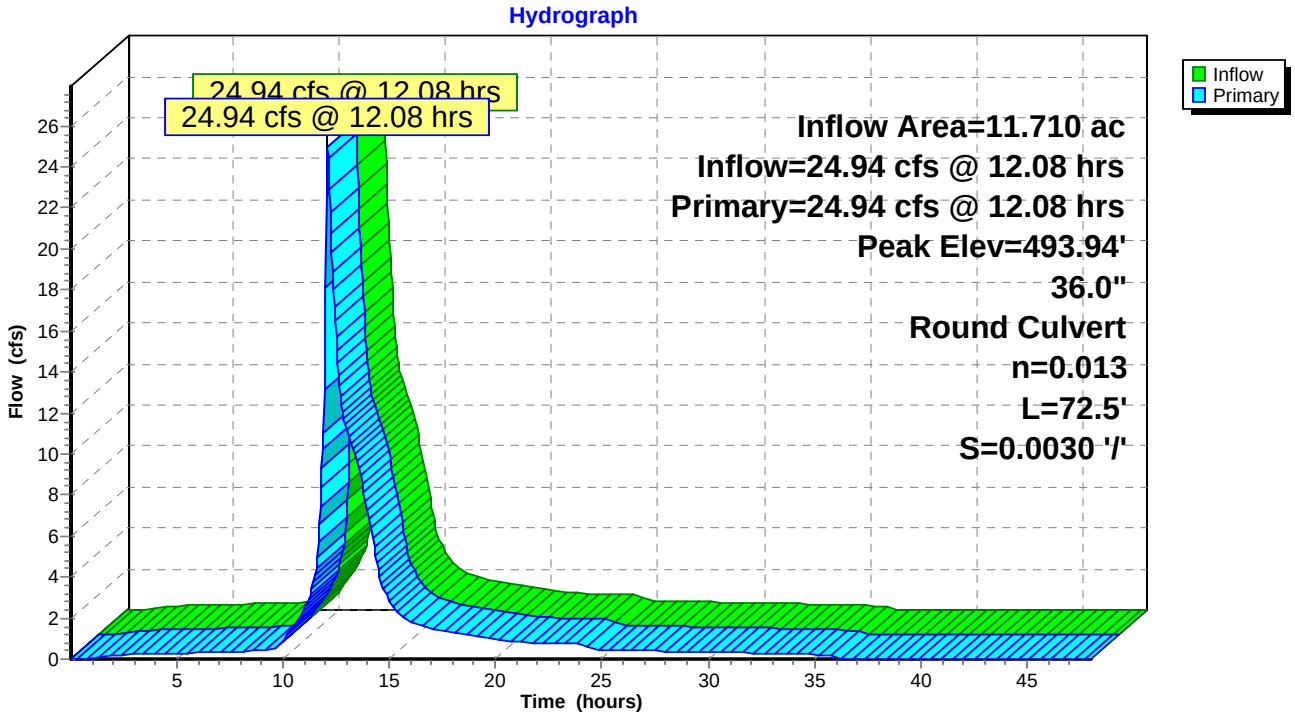
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.71" for 25-yr event
Inflow = 24.94 cfs @ 12.08 hrs, Volume= 4.599 af
Outflow = 24.94 cfs @ 12.08 hrs, Volume= 4.599 af, Atten= 0%, Lag= 0.0 min
Primary = 24.94 cfs @ 12.08 hrs, Volume= 4.599 af
Routed to Link 8L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 493.94' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

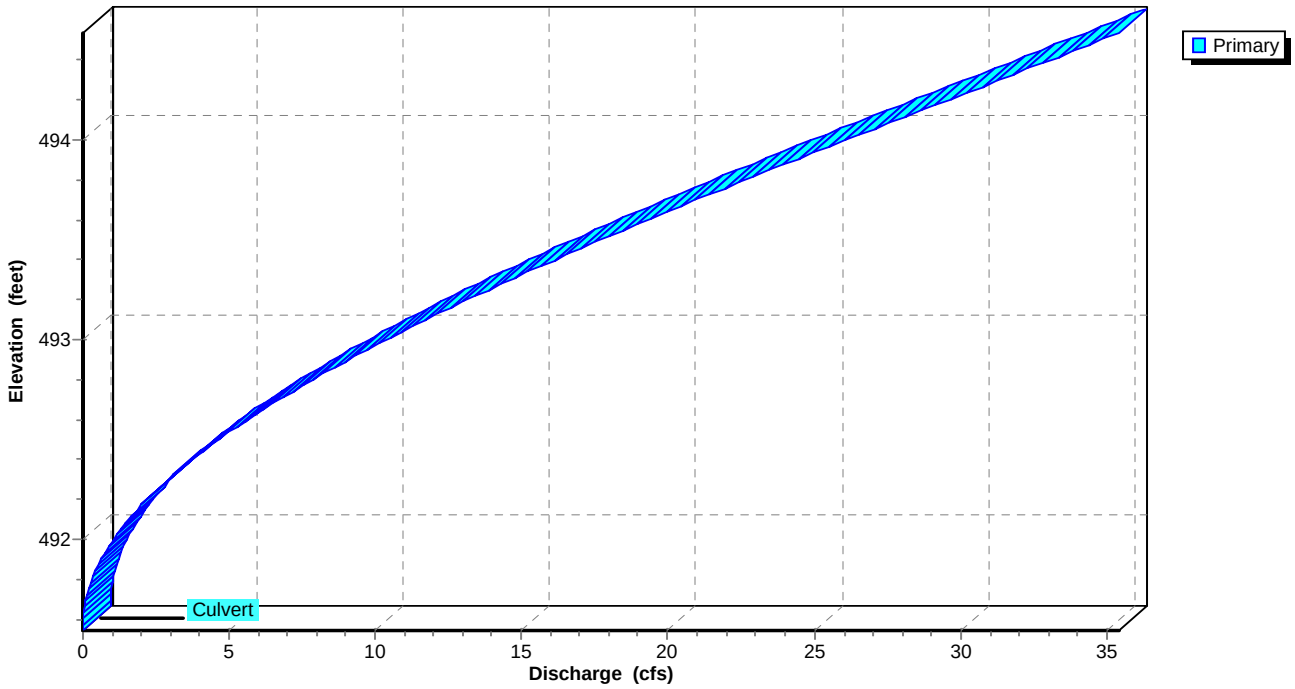
Primary OutFlow Max=24.83 cfs @ 12.08 hrs HW=493.93' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 24.83 cfs @ 5.63 fps)

Pond 7P: 101-100



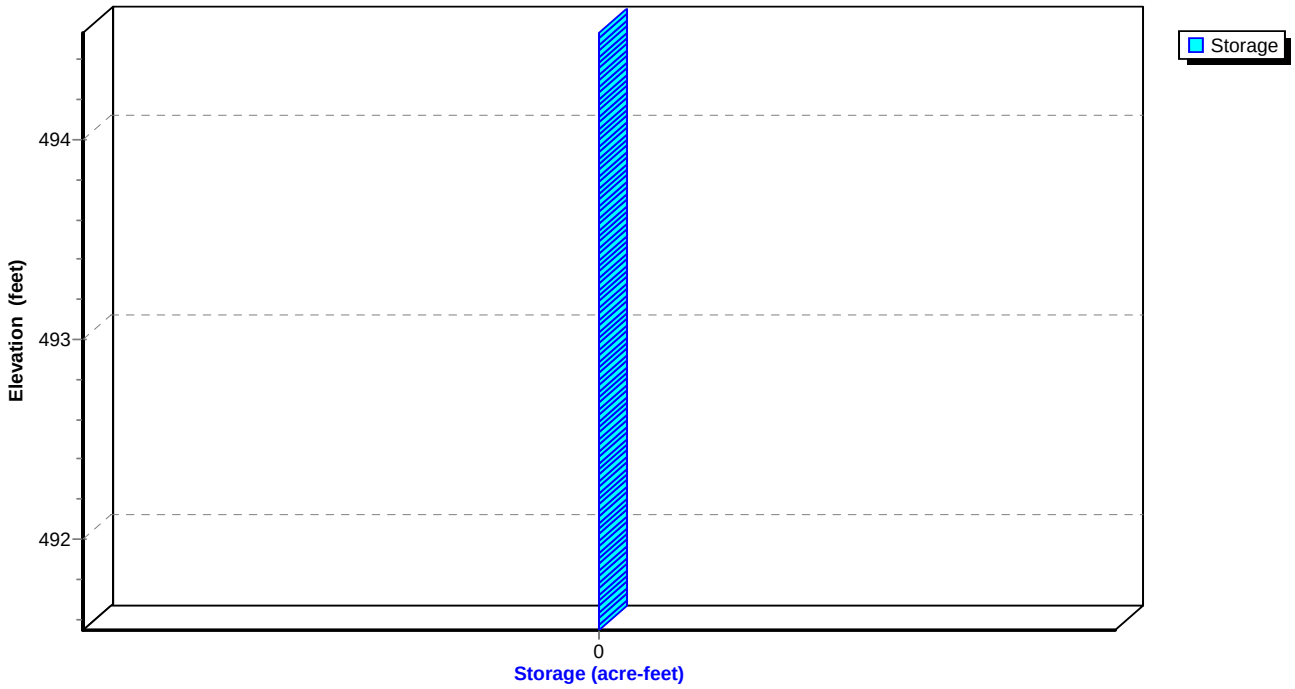
Pond 7P: 101-100

Stage-Discharge



Pond 7P: 101-100

Stage-Area-Storage



Summary for Pond 12P: 100 YR LFB

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.71" for 25-yr event
Inflow = 85.38 cfs @ 11.95 hrs, Volume= 4.599 af
Outflow = 25.17 cfs @ 12.08 hrs, Volume= 4.295 af, Atten= 71%, Lag= 7.6 min
Primary = 25.17 cfs @ 12.08 hrs, Volume= 4.295 af
Routed to Pond 13P : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 502.58' @ 12.08 hrs Surf.Area= 21,788 sf Storage= 81,144 cf

Plug-Flow detention time= 121.8 min calculated for 4.295 af (93% of inflow)
Center-of-Mass det. time= 83.4 min (838.2 - 754.7)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

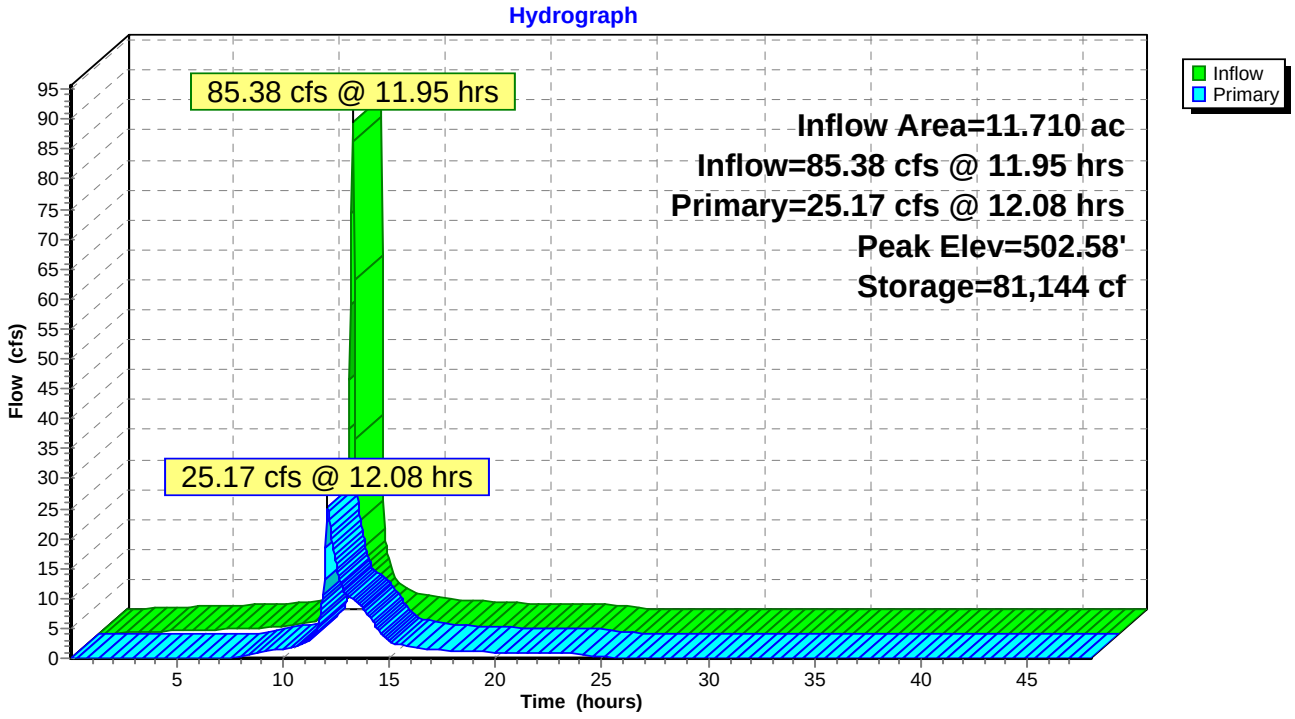
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600

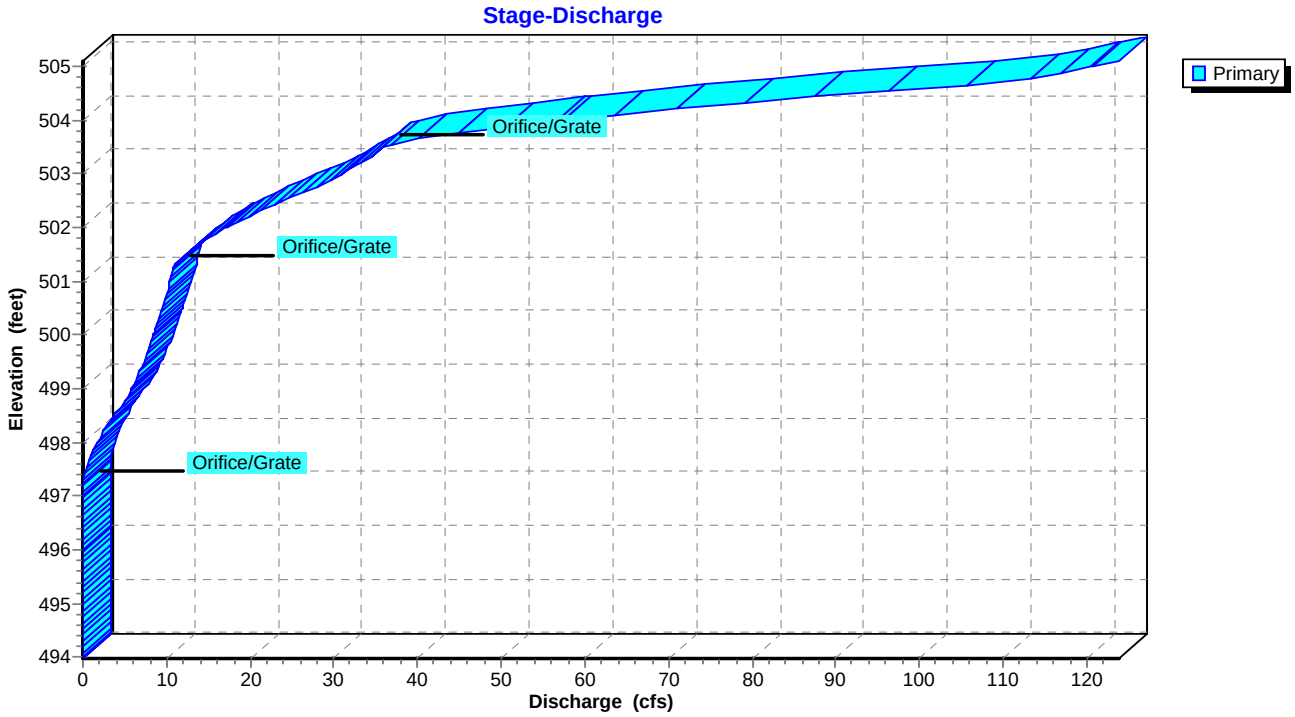
			Limited to weir flow at low heads
#3	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=25.05 cfs @ 12.08 hrs HW=502.57' TW=496.07' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 25.05 cfs of 108.47 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 12.85 cfs @ 10.28 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 12.20 cfs @ 3.69 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

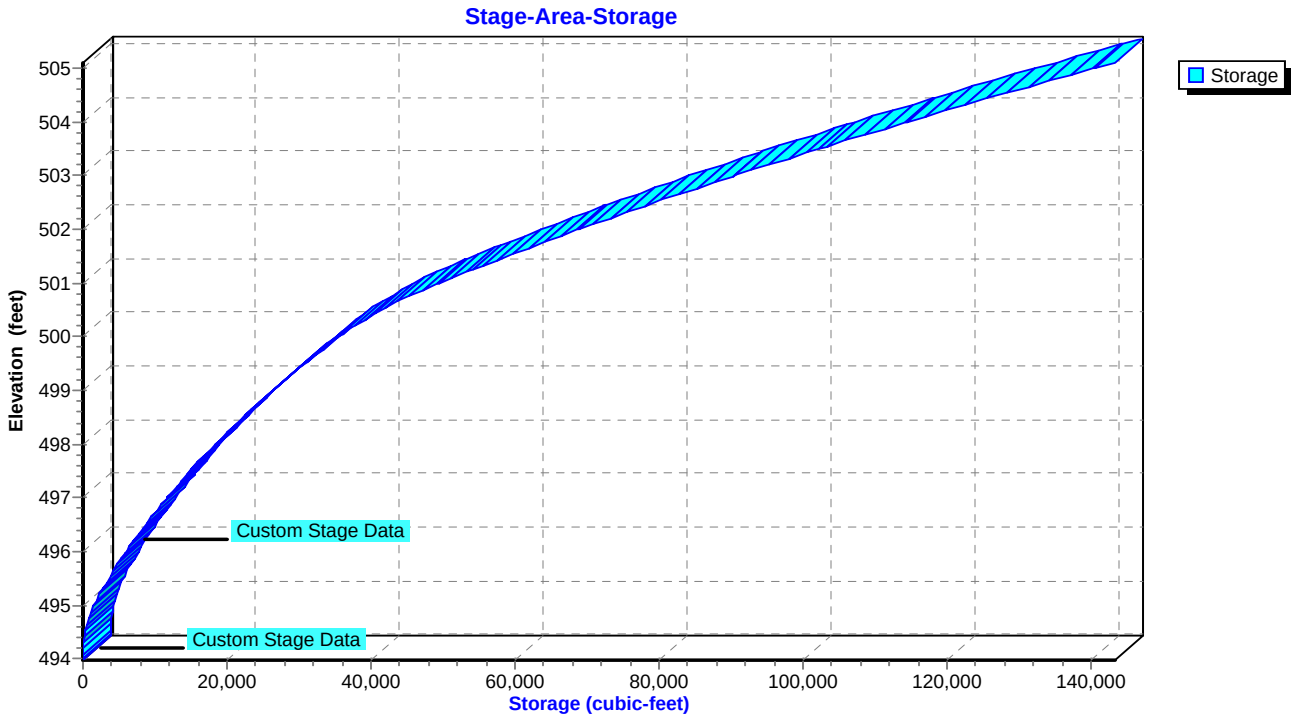
Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Summary for Pond 13P: 102-101

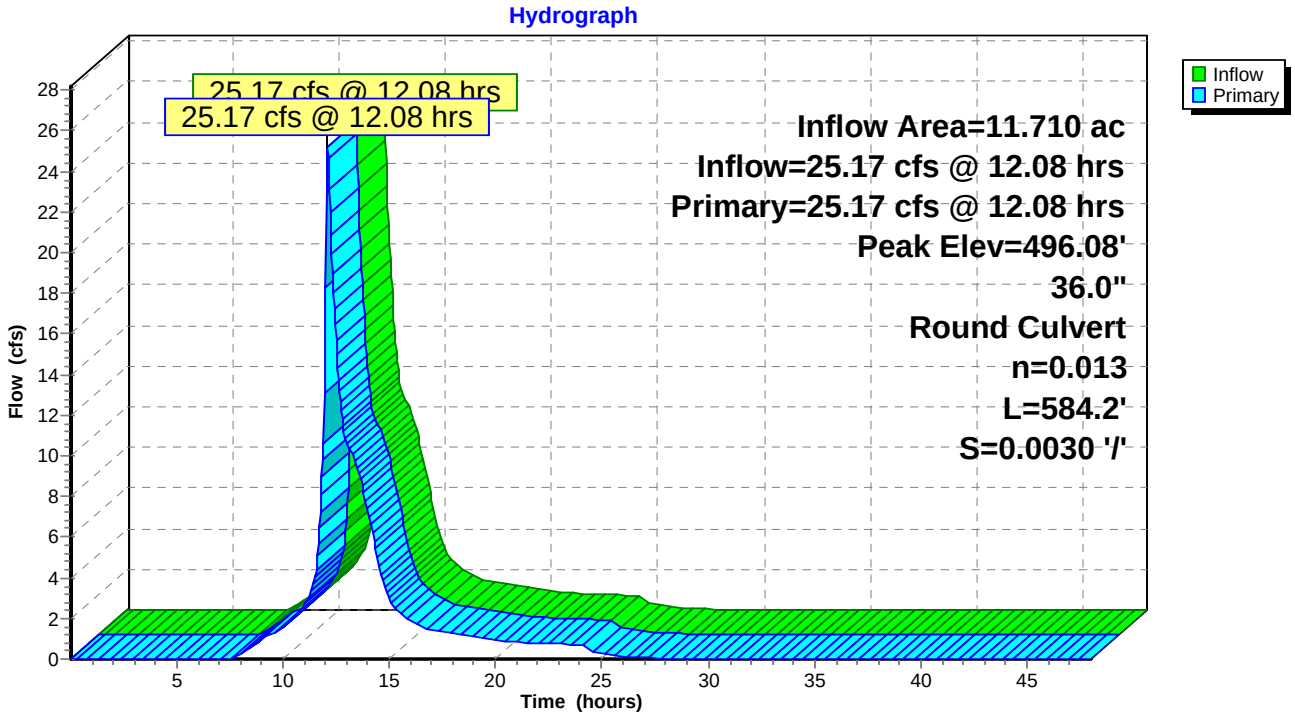
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.40" for 25-yr event
Inflow = 25.17 cfs @ 12.08 hrs, Volume= 4.295 af
Outflow = 25.17 cfs @ 12.08 hrs, Volume= 4.295 af, Atten= 0%, Lag= 0.0 min
Primary = 25.17 cfs @ 12.08 hrs, Volume= 4.295 af
Routed to Pond 14P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 496.08' @ 12.08 hrs

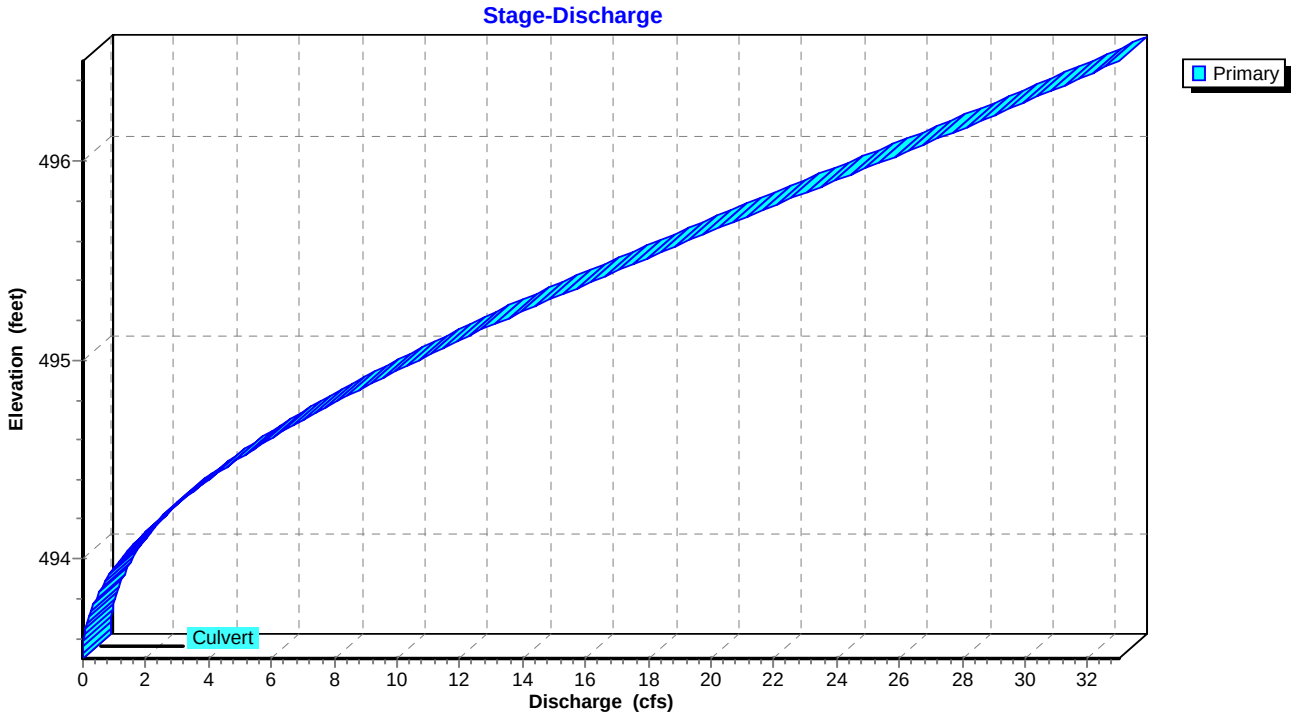
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=25.05 cfs @ 12.08 hrs HW=496.07' TW=493.94' (Dynamic Tailwater)
1=Culvert (Outlet Controls 25.05 cfs @ 5.22 fps)

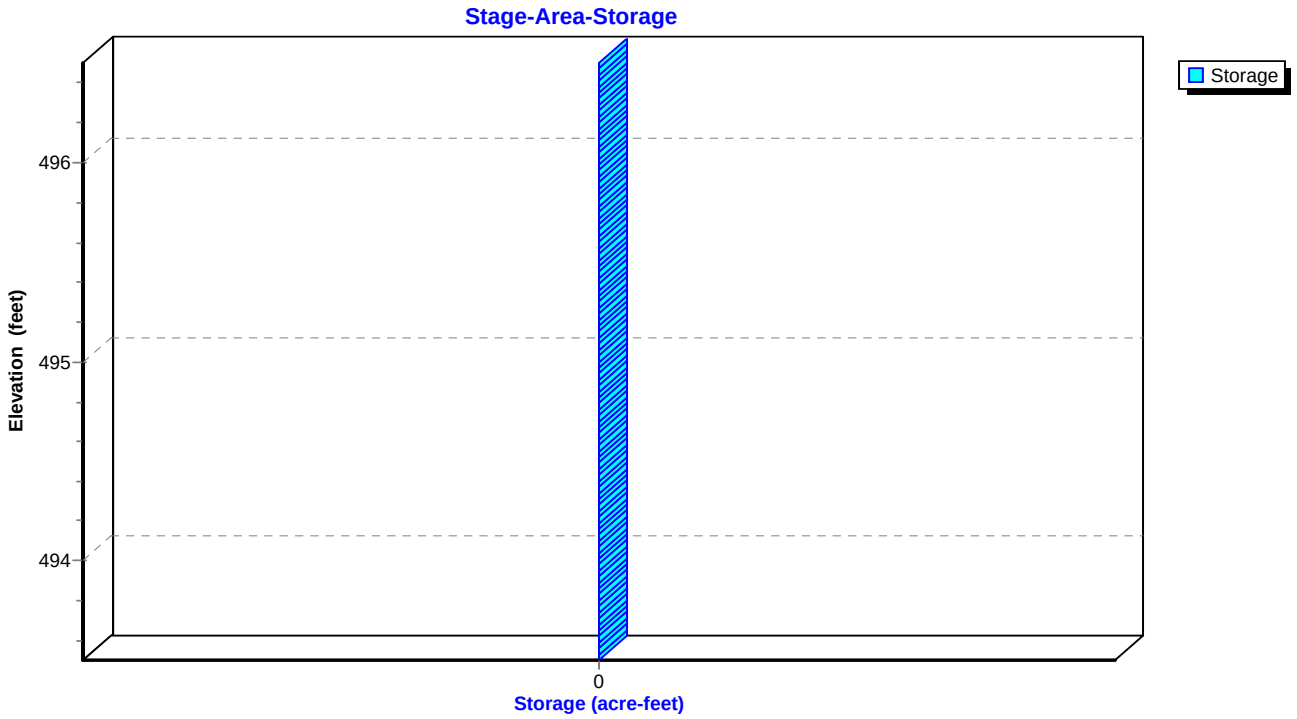
Pond 13P: 102-101



Pond 13P: 102-101



Pond 13P: 102-101



Summary for Pond 14P: 101-100

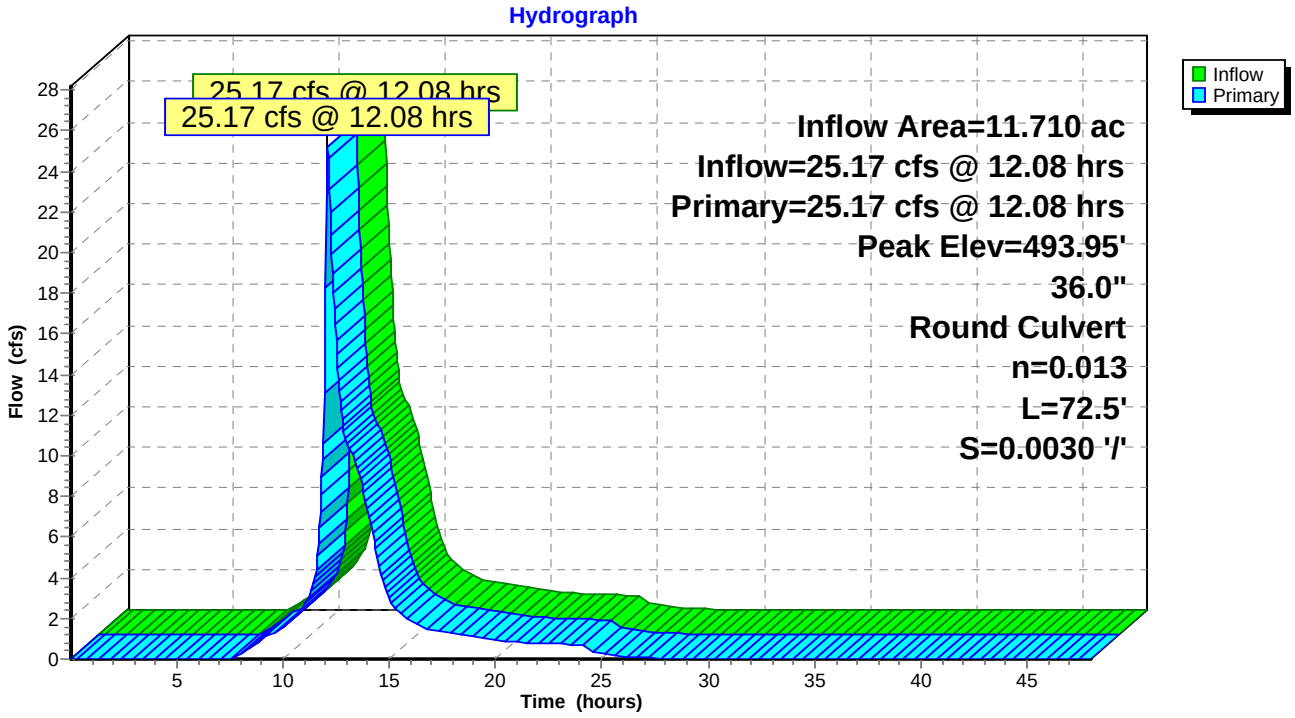
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 4.40" for 25-yr event
Inflow = 25.17 cfs @ 12.08 hrs, Volume= 4.295 af
Outflow = 25.17 cfs @ 12.08 hrs, Volume= 4.295 af, Atten= 0%, Lag= 0.0 min
Primary = 25.17 cfs @ 12.08 hrs, Volume= 4.295 af
Routed to Link 15L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 493.95' @ 12.08 hrs

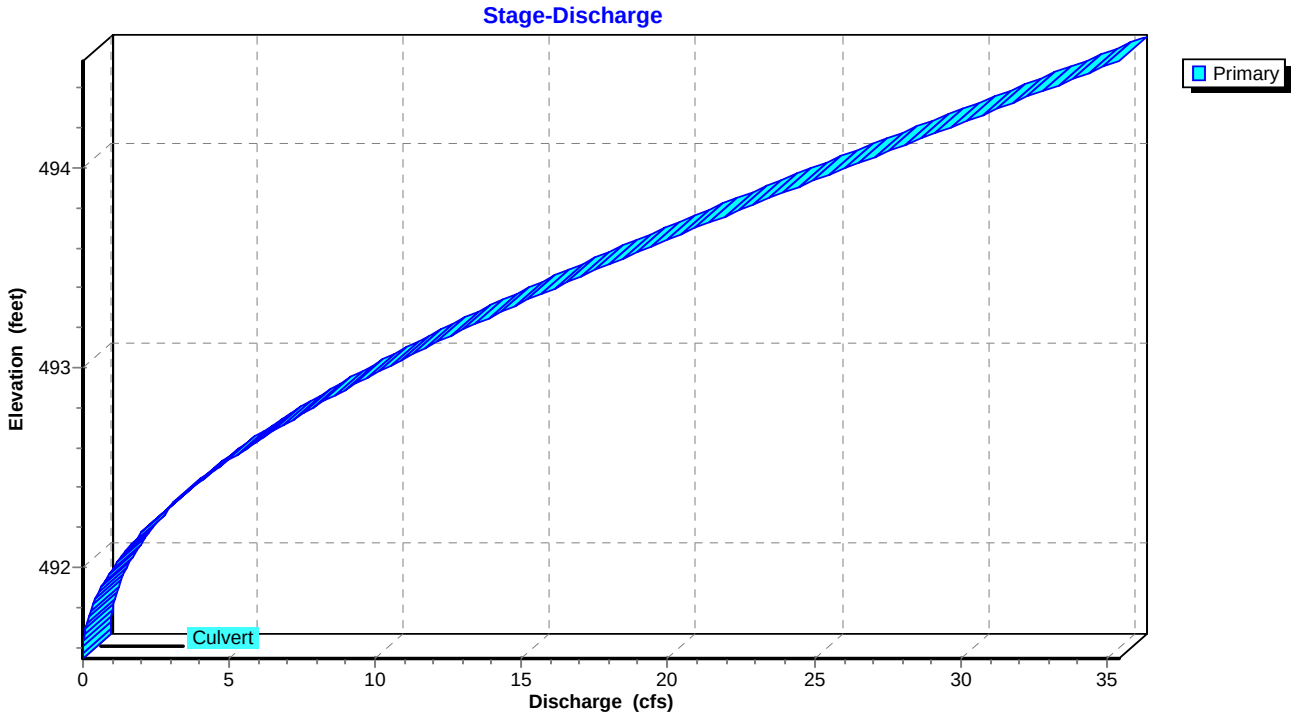
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=25.05 cfs @ 12.08 hrs HW=493.94' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 25.05 cfs @ 5.65 fps)

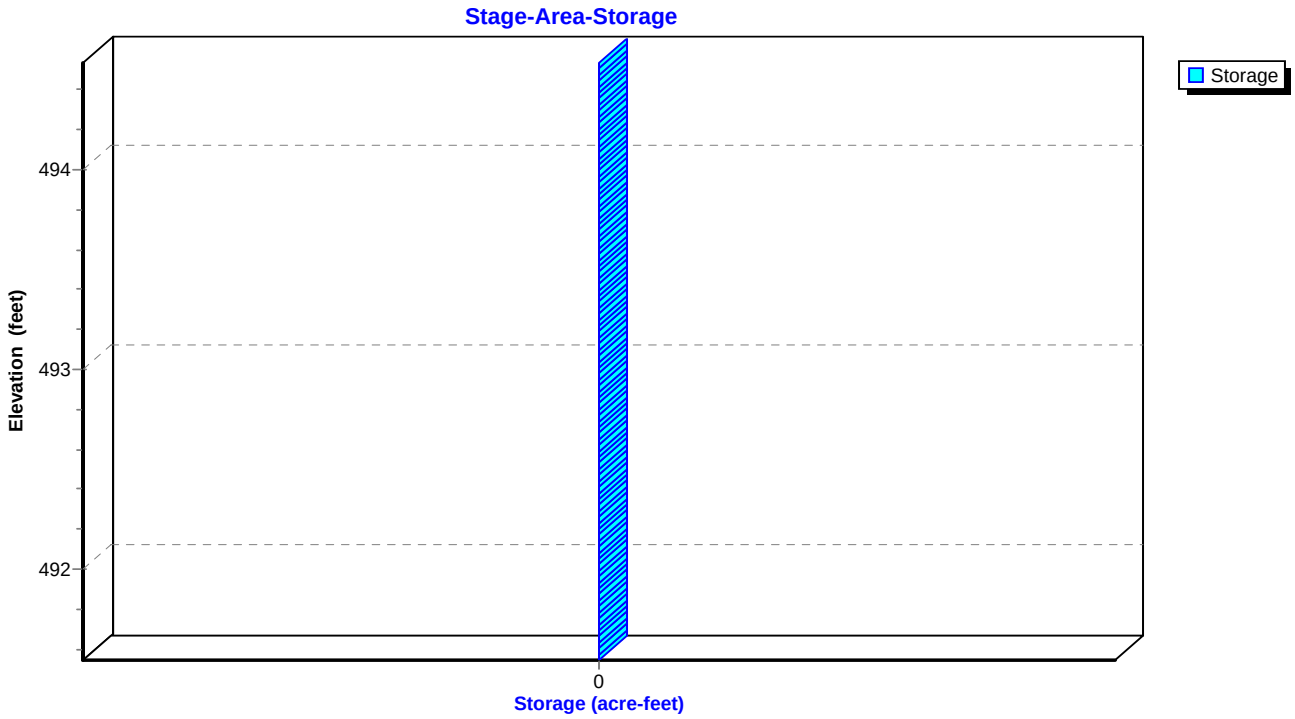
Pond 14P: 101-100



Pond 14P: 101-100



Pond 14P: 101-100

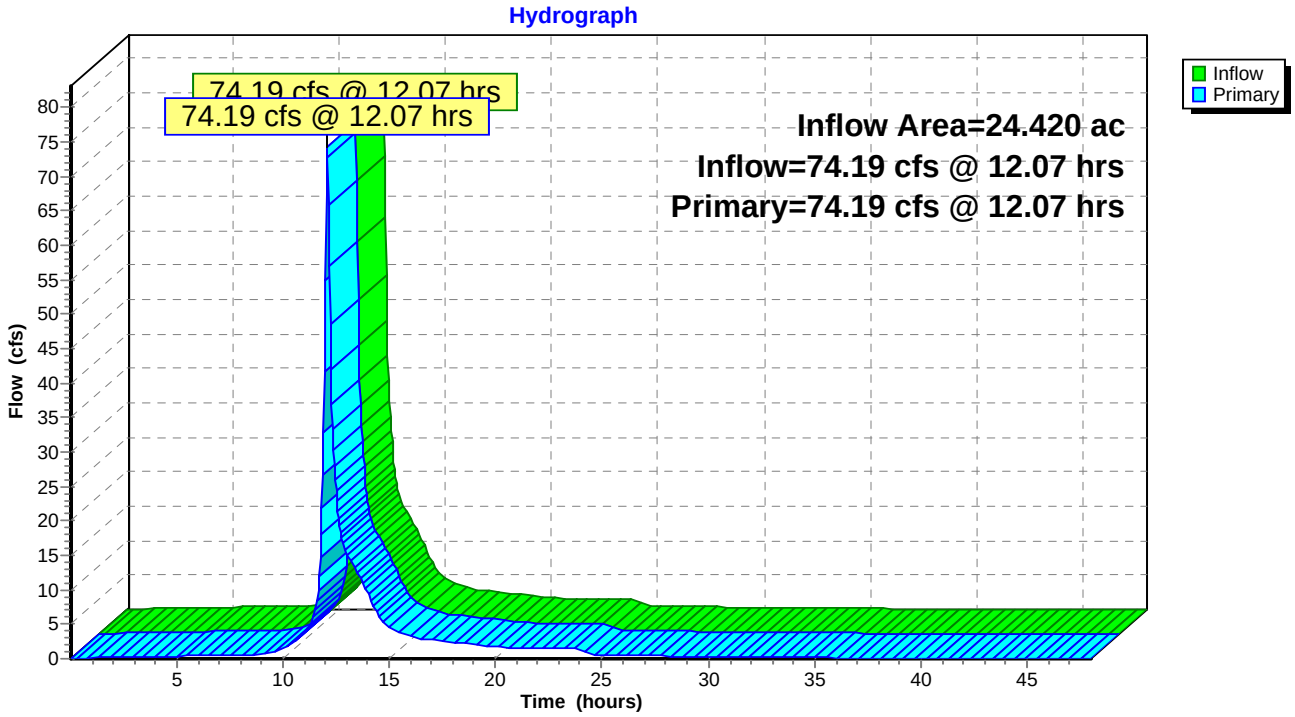


Summary for Link 8L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 3.85" for 25-yr event
Inflow = 74.19 cfs @ 12.07 hrs, Volume= 7.837 af
Primary = 74.19 cfs @ 12.07 hrs, Volume= 7.837 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 8L: POST DEVELOPED ROUTING

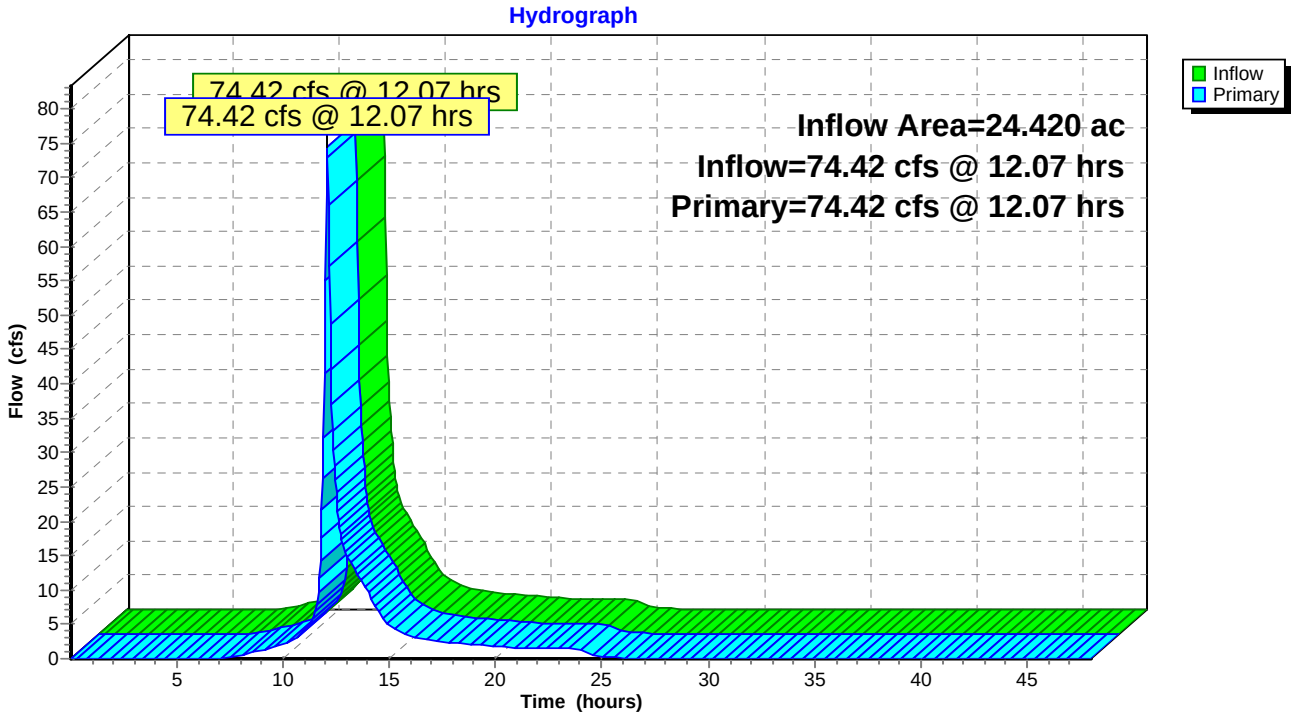


Summary for Link 15L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 3.70" for 25-yr event
Inflow = 74.42 cfs @ 12.07 hrs, Volume= 7.533 af
Primary = 74.42 cfs @ 12.07 hrs, Volume= 7.533 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 15L: POST DEVELOPED ROUTING



Summary for Subcatchment 1S: PROPOSED CONDITIONS

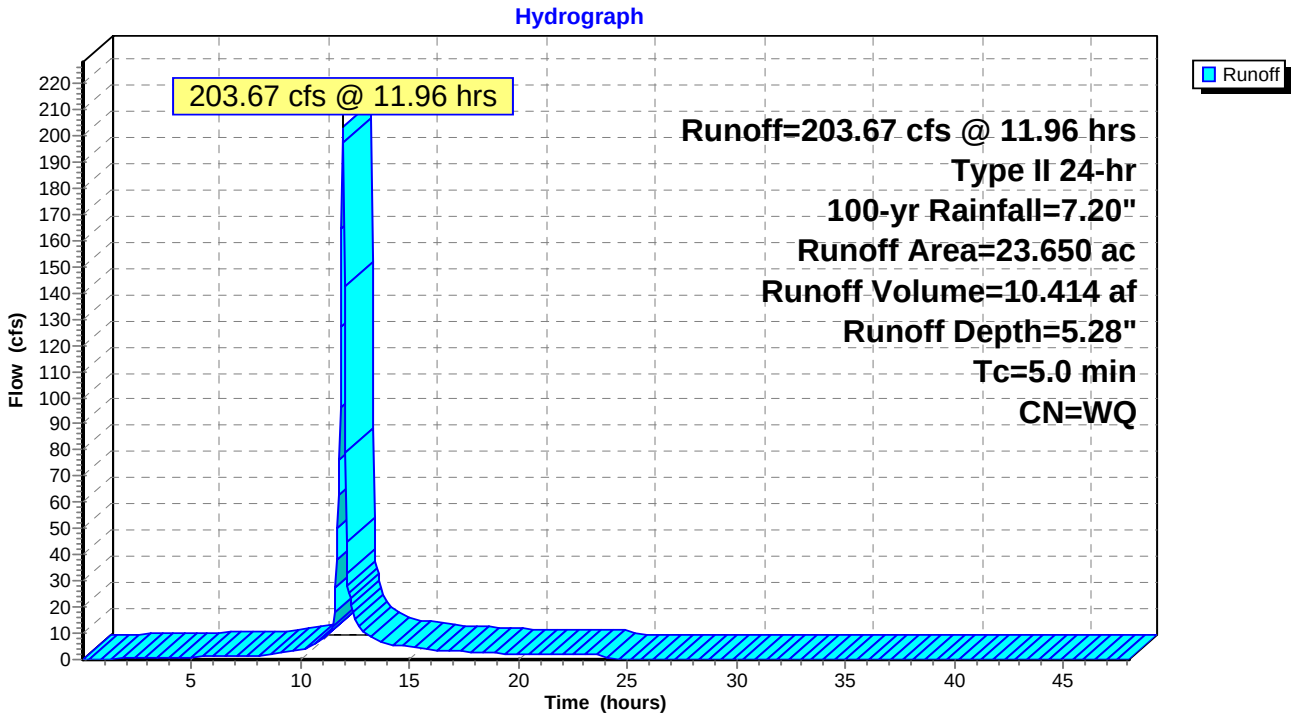
Runoff = 203.67 cfs @ 11.96 hrs, Volume= 10.414 af, Depth= 5.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
23.650		Weighted Average
14.450	74	61.10% Pervious Area
9.200	98	38.90% Impervious Area

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

Subcatchment 1S: PROPOSED CONDITIONS



Summary for Subcatchment 2S: AREA 1 TO BASIN

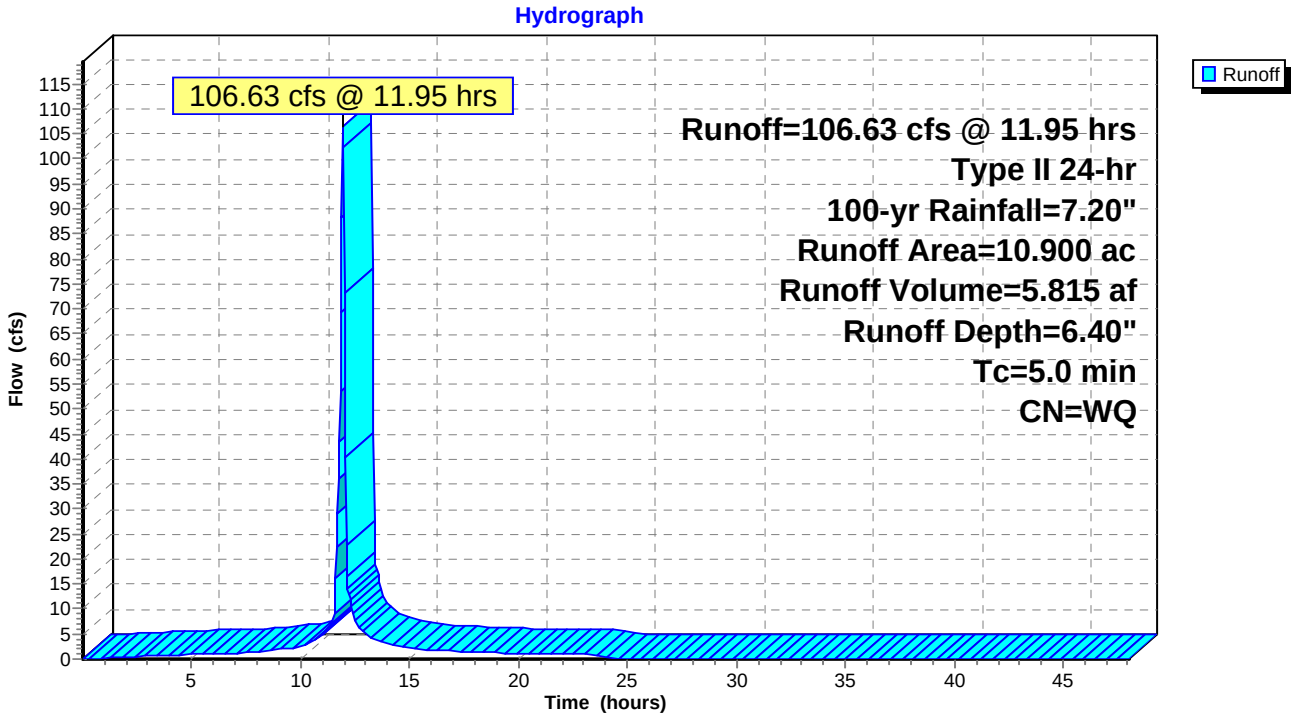
Runoff = 106.63 cfs @ 11.95 hrs, Volume= 5.815 af, Depth= 6.40"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 2S: AREA 1 TO BASIN



Summary for Subcatchment 3S: AREA 2 OFFSITE TO ONSITE

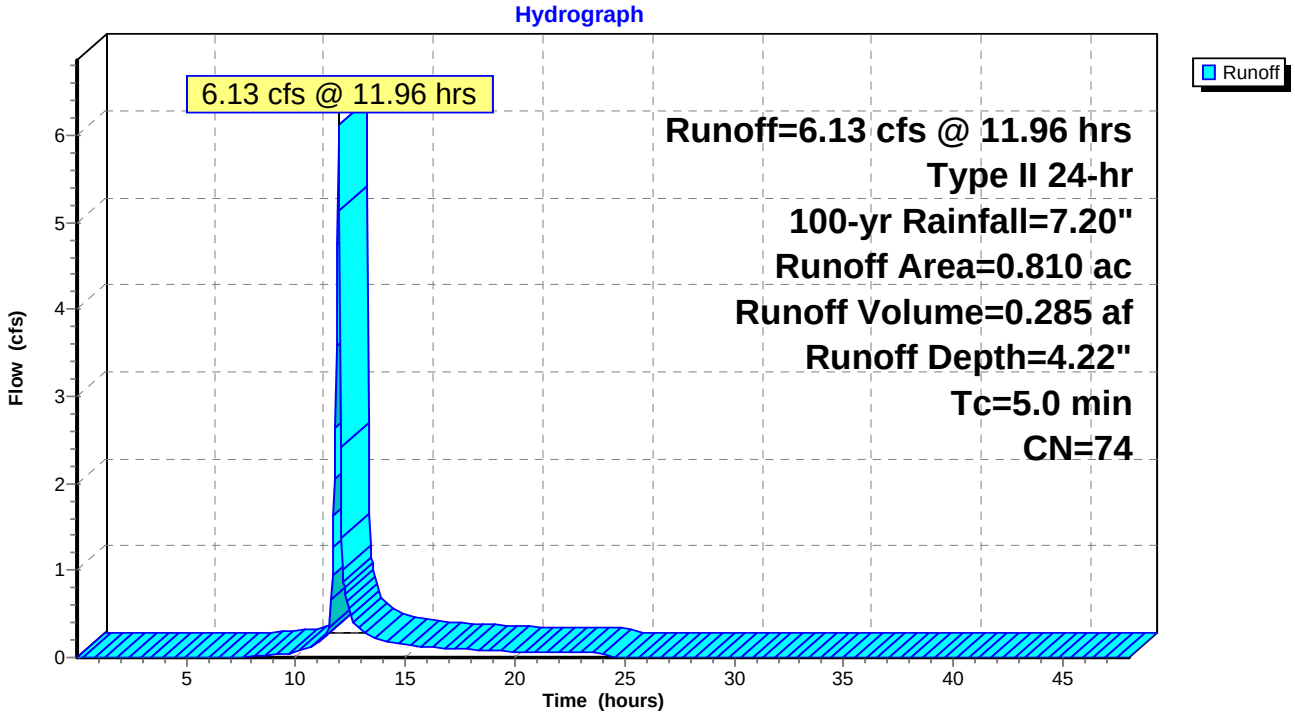
Runoff = 6.13 cfs @ 11.96 hrs, Volume= 0.285 af, Depth= 4.22"
Routed to Pond 5P : STORMWATER MANAGEMENT FACILITY

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 3S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 4S: AREA 3 ONSITE TO OFFSITE

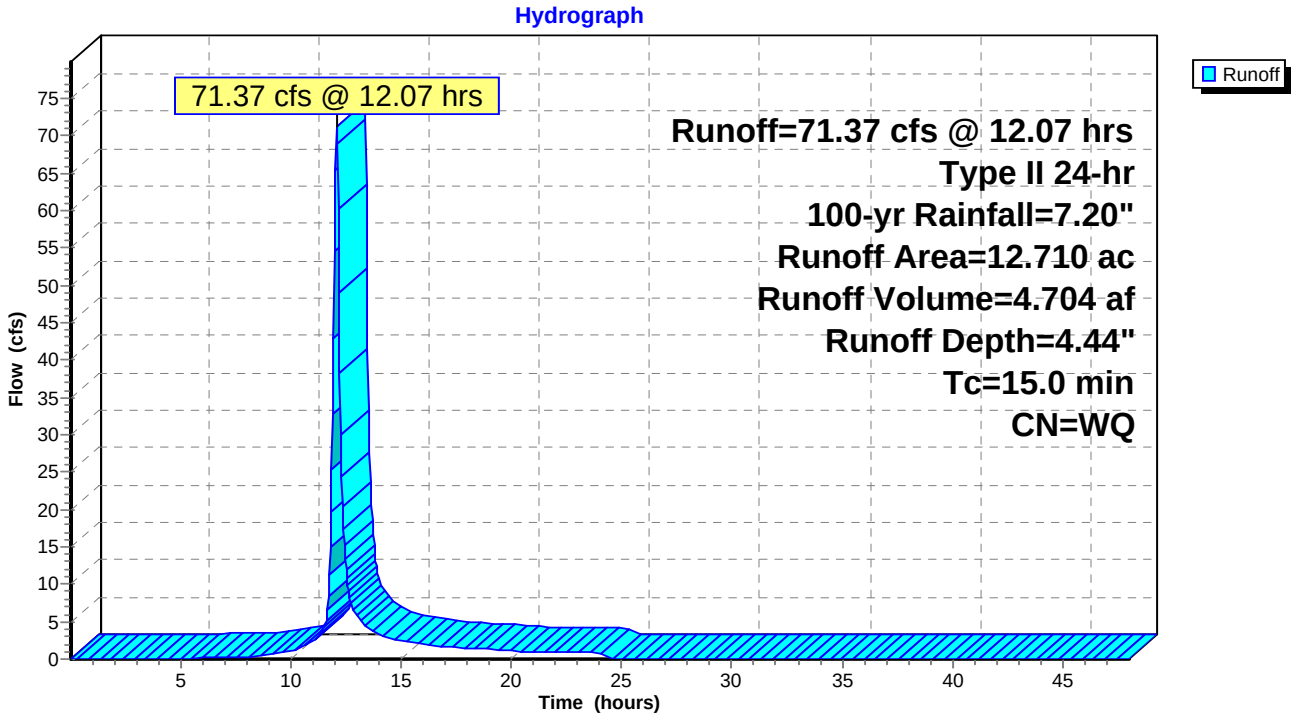
Runoff = 71.37 cfs @ 12.07 hrs, Volume= 4.704 af, Depth= 4.44"
Routed to Link 8L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 4S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 9S: AREA 1 TO BASIN

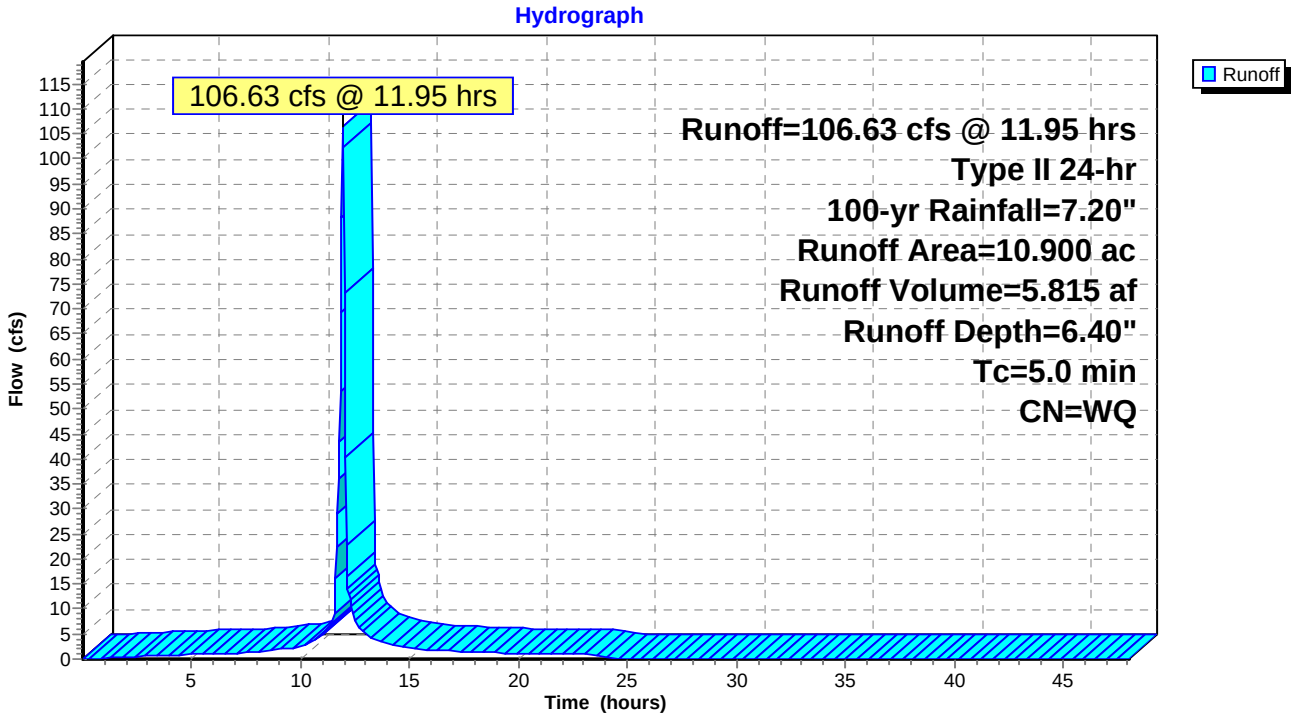
Runoff = 106.63 cfs @ 11.95 hrs, Volume= 5.815 af, Depth= 6.40"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
8.680	98	Paved parking, HSG D
2.220	74	>75% Grass cover, Good, HSG C
10.900		Weighted Average
2.220	74	20.37% Pervious Area
8.680	98	79.63% Impervious Area

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

Subcatchment 9S: AREA 1 TO BASIN



Summary for Subcatchment 10S: AREA 2 OFFSITE TO ONSITE

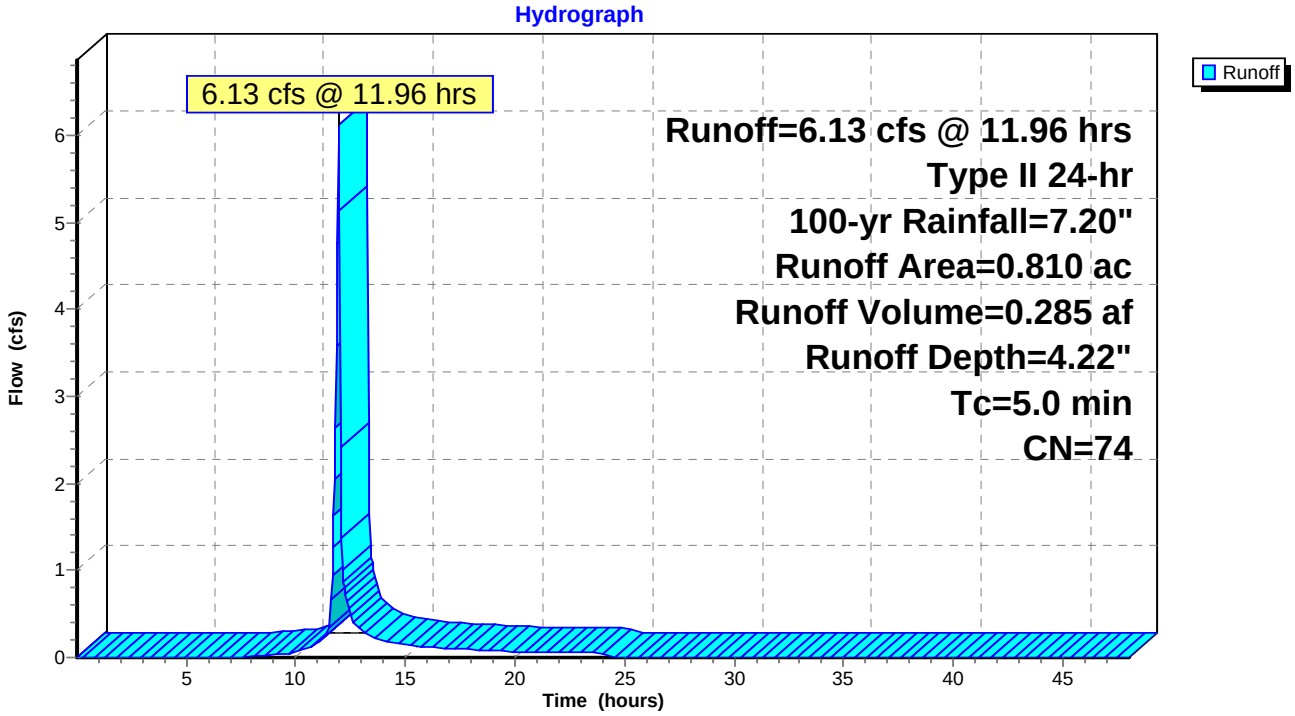
Runoff = 6.13 cfs @ 11.96 hrs, Volume= 0.285 af, Depth= 4.22"
Routed to Pond 12P : 100 YR LFB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
0.810	74	>75% Grass cover, Good, HSG C
0.810	74	100.00% Pervious Area

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

Subcatchment 10S: AREA 2 OFFSITE TO ONSITE



Summary for Subcatchment 11S: AREA 3 ONSITE TO OFFSITE

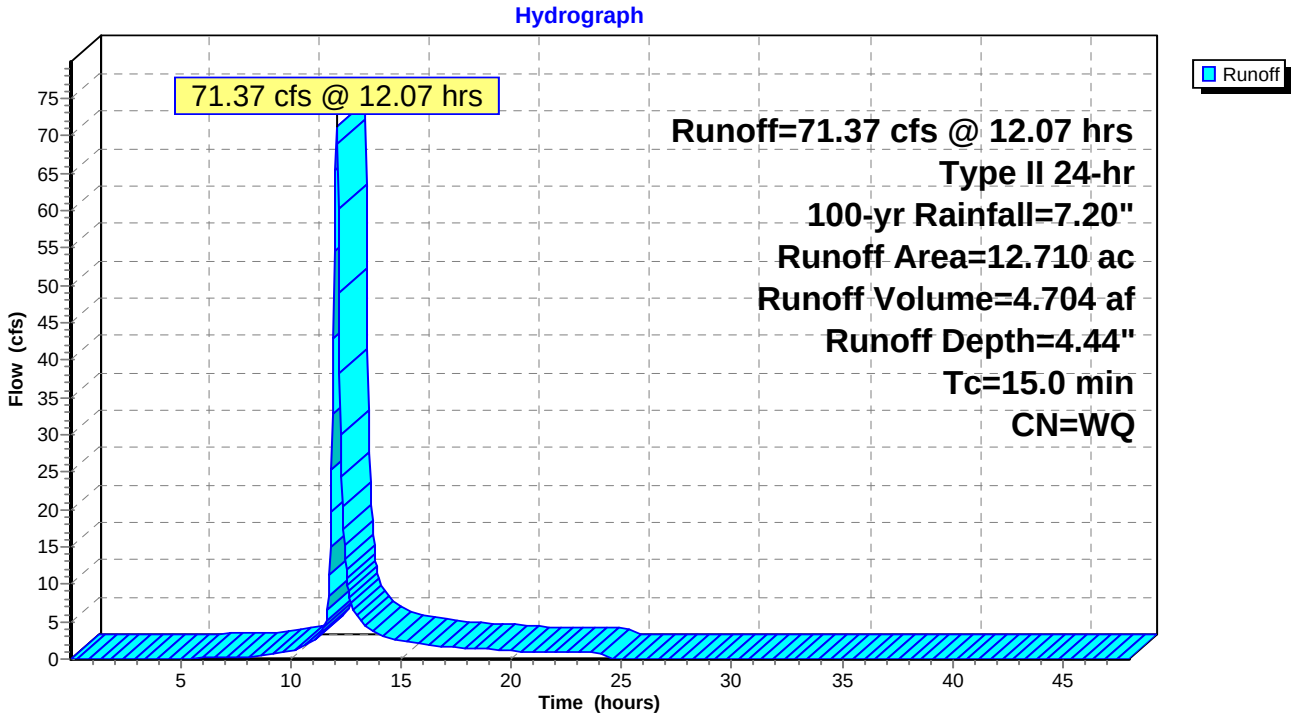
Runoff = 71.37 cfs @ 12.07 hrs, Volume= 4.704 af, Depth= 4.44"
Routed to Link 15L : POST DEVELOPED ROUTING

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG C
11.670	74	>75% Grass cover, Good, HSG C
12.710		Weighted Average
11.670	74	91.82% Pervious Area
1.040	98	8.18% Impervious Area

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

Subcatchment 11S: AREA 3 ONSITE TO OFFSITE



Summary for Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS

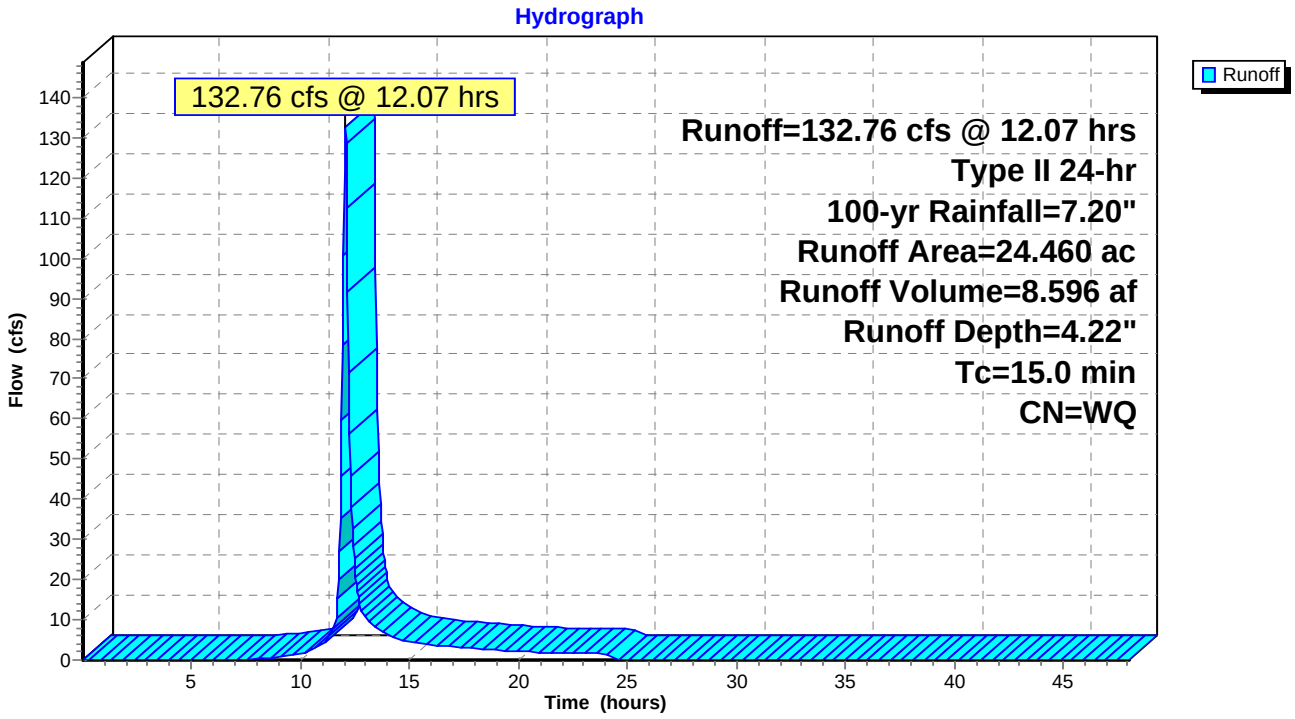
Runoff = 132.76 cfs @ 12.07 hrs, Volume= 8.596 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
23.650	74	>75% Grass cover, Good, HSG C
0.810	74	>75% Grass cover, Good, HSG C
24.460		Weighted Average
24.460	74	100.00% Pervious Area

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

Subcatchment 12S: EXISTING CONDITIONS WITH BYPASS



Summary for Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS

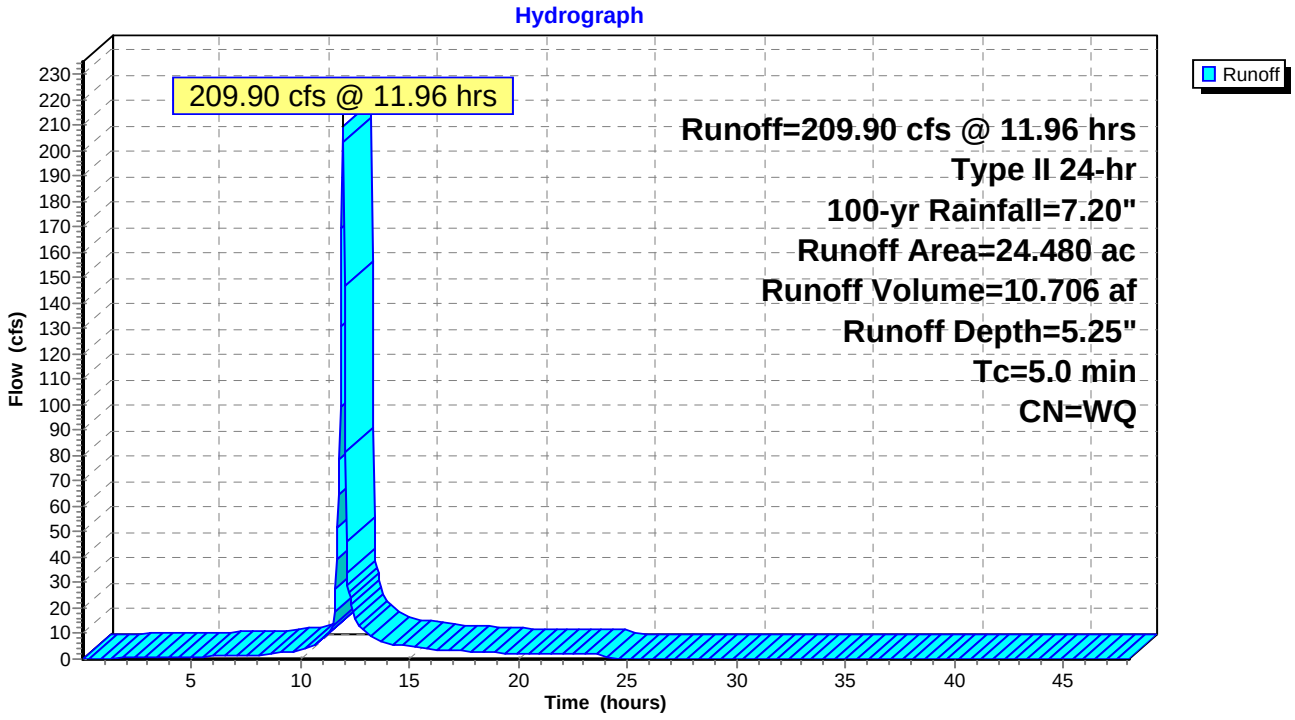
Runoff = 209.90 cfs @ 11.96 hrs, Volume= 10.706 af, Depth= 5.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs
Type II 24-hr 100-yr Rainfall=7.20"

Area (ac)	CN	Description
9.200	98	Paved parking, HSG C
14.450	74	>75% Grass cover, Good, HSG C
0.830	74	>75% Grass cover, Good, HSG C
24.480		Weighted Average
15.280	74	62.42% Pervious Area
9.200	98	37.58% Impervious Area

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

Subcatchment 17S: PROPOSED CONDITIONS WITH BYPASS



Summary for Pond 5P: STORMWATER MANAGEMENT FACILITY

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 6.25" for 100-yr event
Inflow = 112.69 cfs @ 11.95 hrs, Volume= 6.100 af
Outflow = 35.87 cfs @ 12.08 hrs, Volume= 6.100 af, Atten= 68%, Lag= 7.4 min
Primary = 35.87 cfs @ 12.08 hrs, Volume= 6.100 af
Routed to Pond 6R : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 503.42' @ 12.08 hrs Surf.Area= 23,645 sf Storage= 100,260 cf

Plug-Flow detention time= 112.2 min calculated for 6.095 af (100% of inflow)
Center-of-Mass det. time= 112.7 min (864.0 - 751.3)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

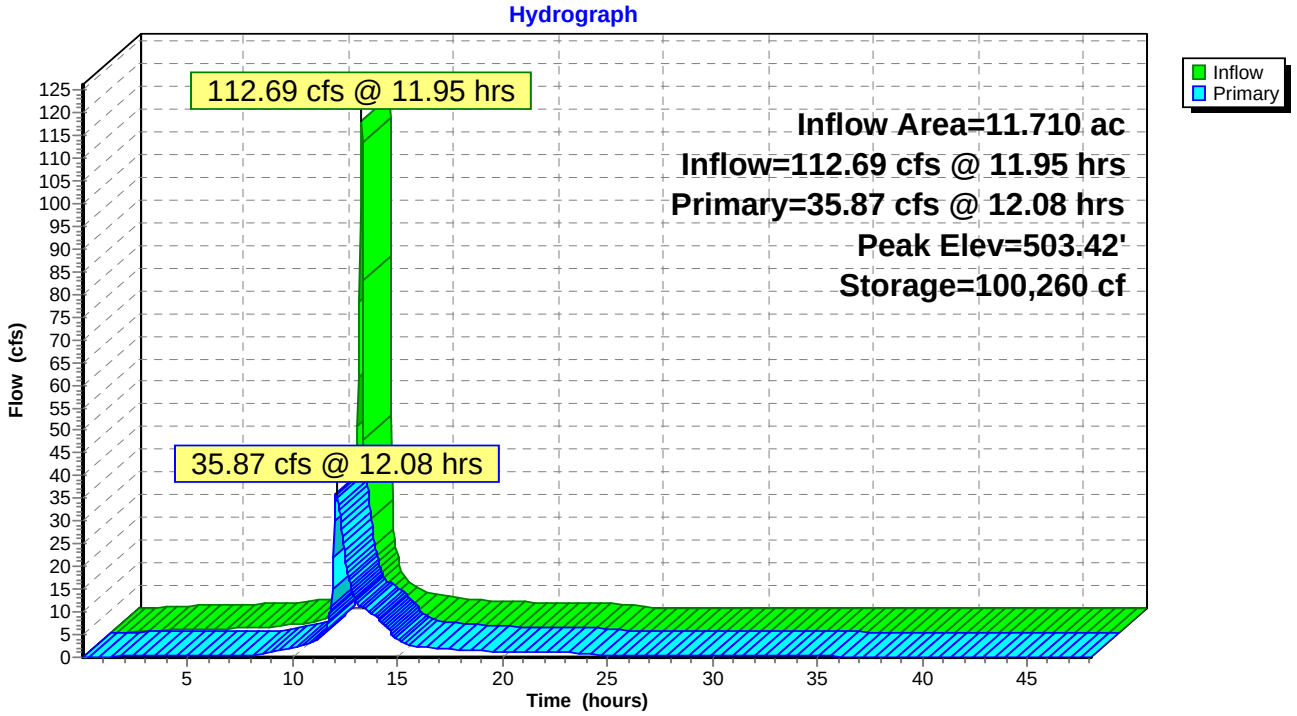
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	493.74'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

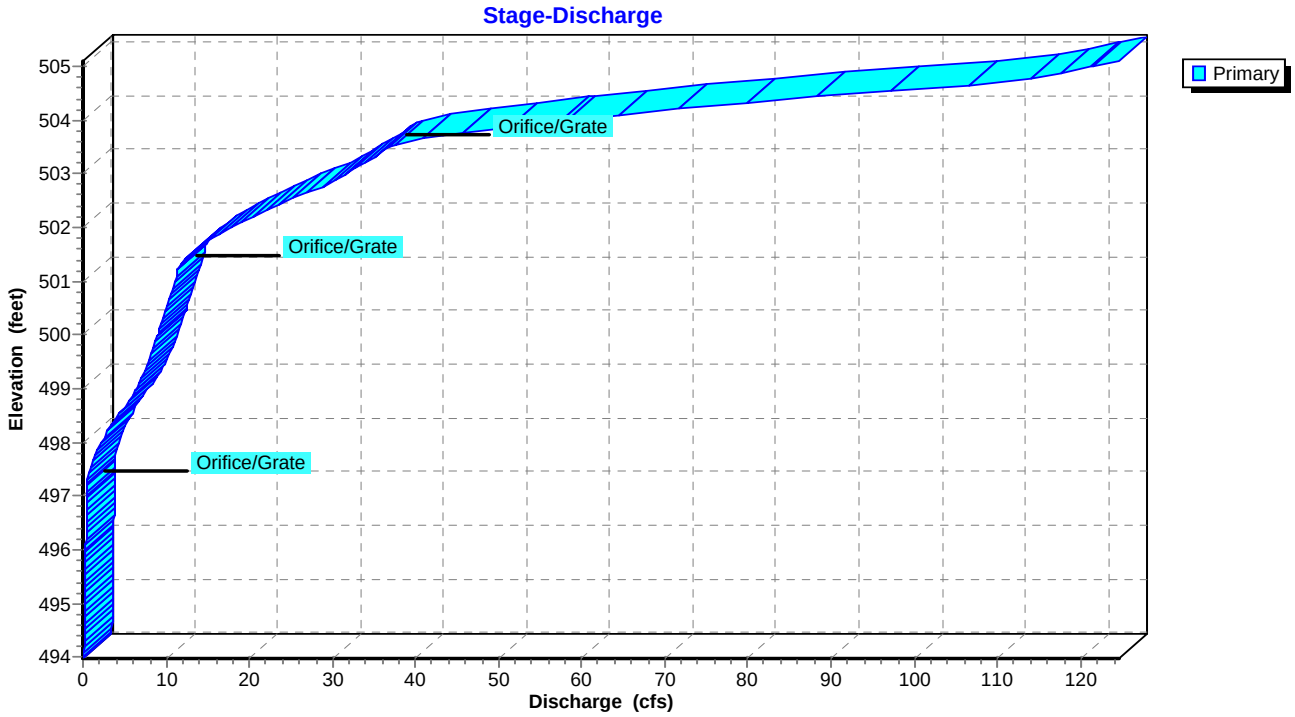
#3	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=35.68 cfs @ 12.08 hrs HW=503.40' TW=496.88' (Dynamic Tailwater)
└─**1=RCP_Round 36"** (Passes 35.68 cfs of 108.64 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.60 cfs @ 12.30 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 13.98 cfs @ 11.18 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 21.10 cfs @ 5.63 fps)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

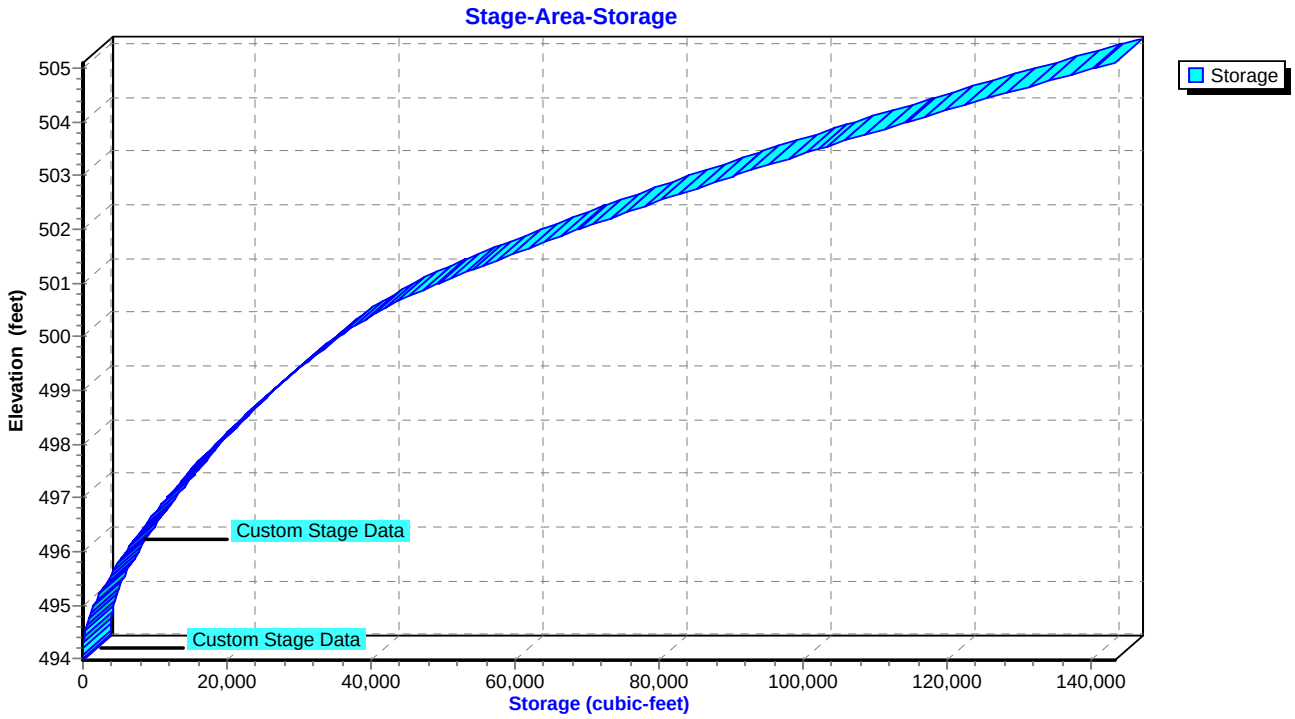
Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Pond 5P: STORMWATER MANAGEMENT FACILITY



Summary for Pond 6R: 102-101

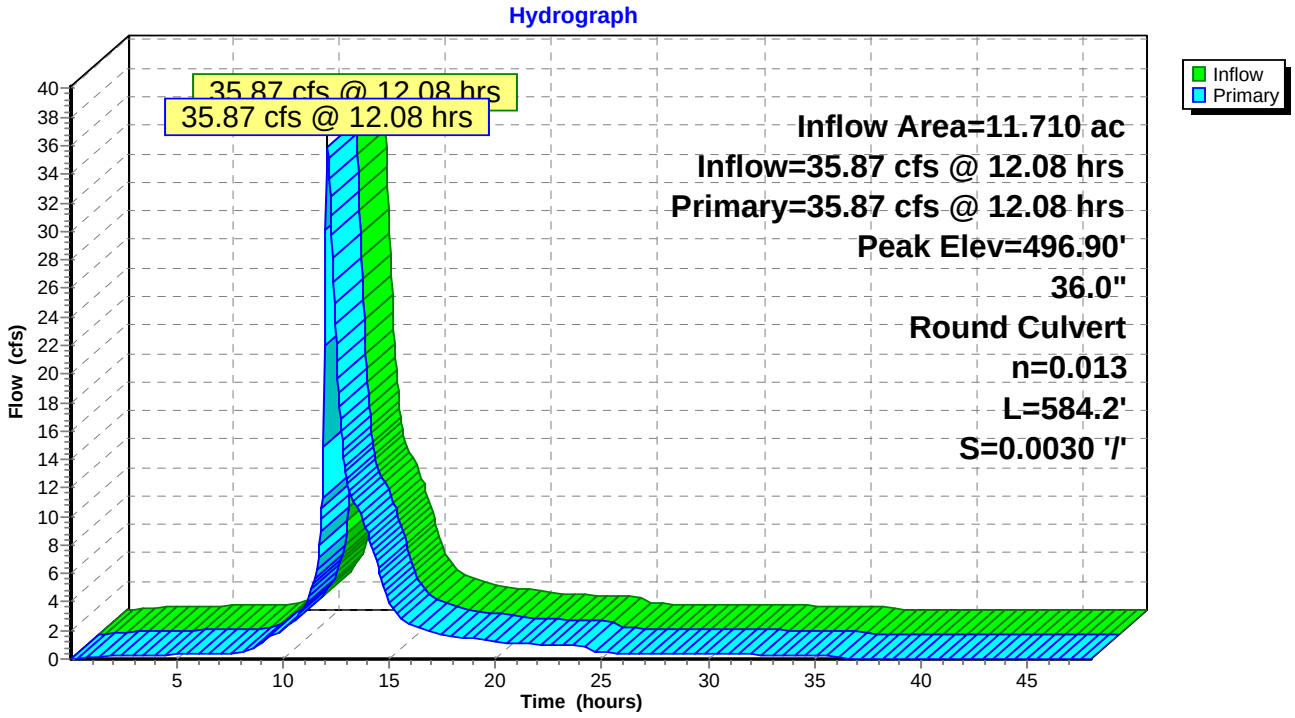
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 6.25" for 100-yr event
Inflow = 35.87 cfs @ 12.08 hrs, Volume= 6.100 af
Outflow = 35.87 cfs @ 12.08 hrs, Volume= 6.100 af, Atten= 0%, Lag= 0.0 min
Primary = 35.87 cfs @ 12.08 hrs, Volume= 6.100 af
Routed to Pond 7P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 496.90' @ 12.08 hrs

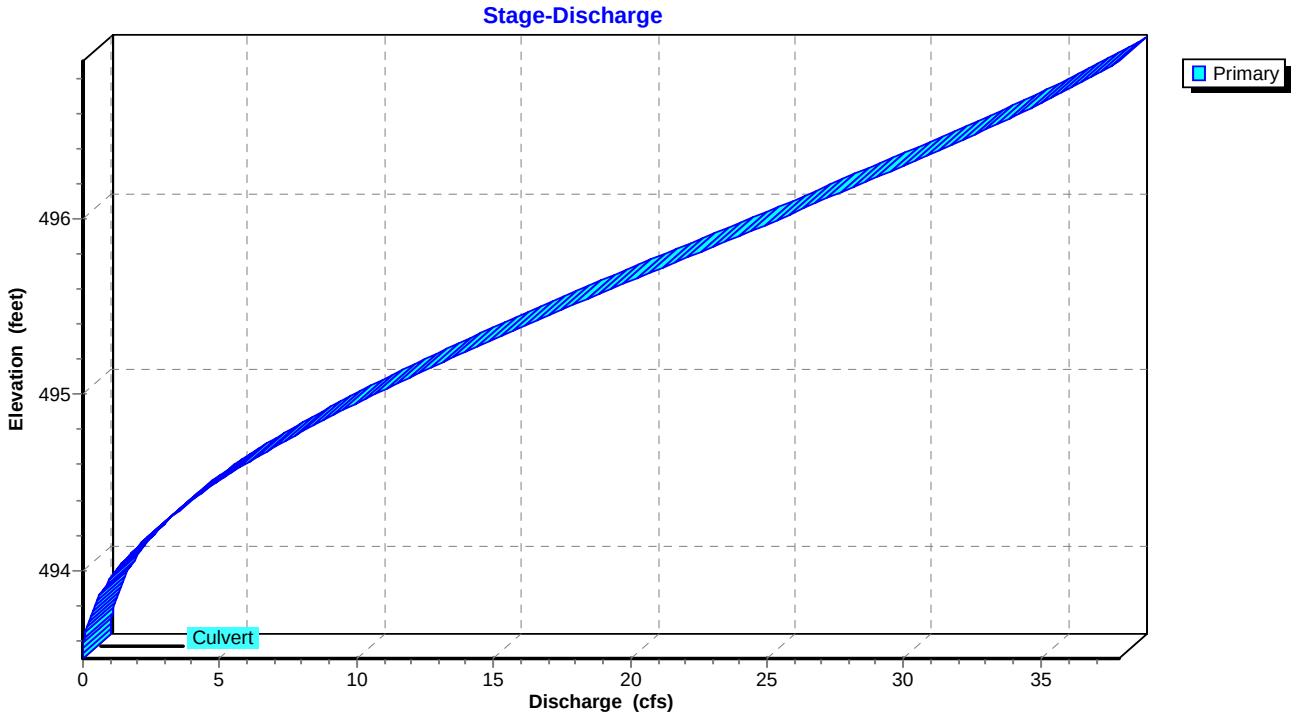
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=35.68 cfs @ 12.08 hrs HW=496.88' TW=494.55' (Dynamic Tailwater)
1=Culvert (Outlet Controls 35.68 cfs @ 5.60 fps)

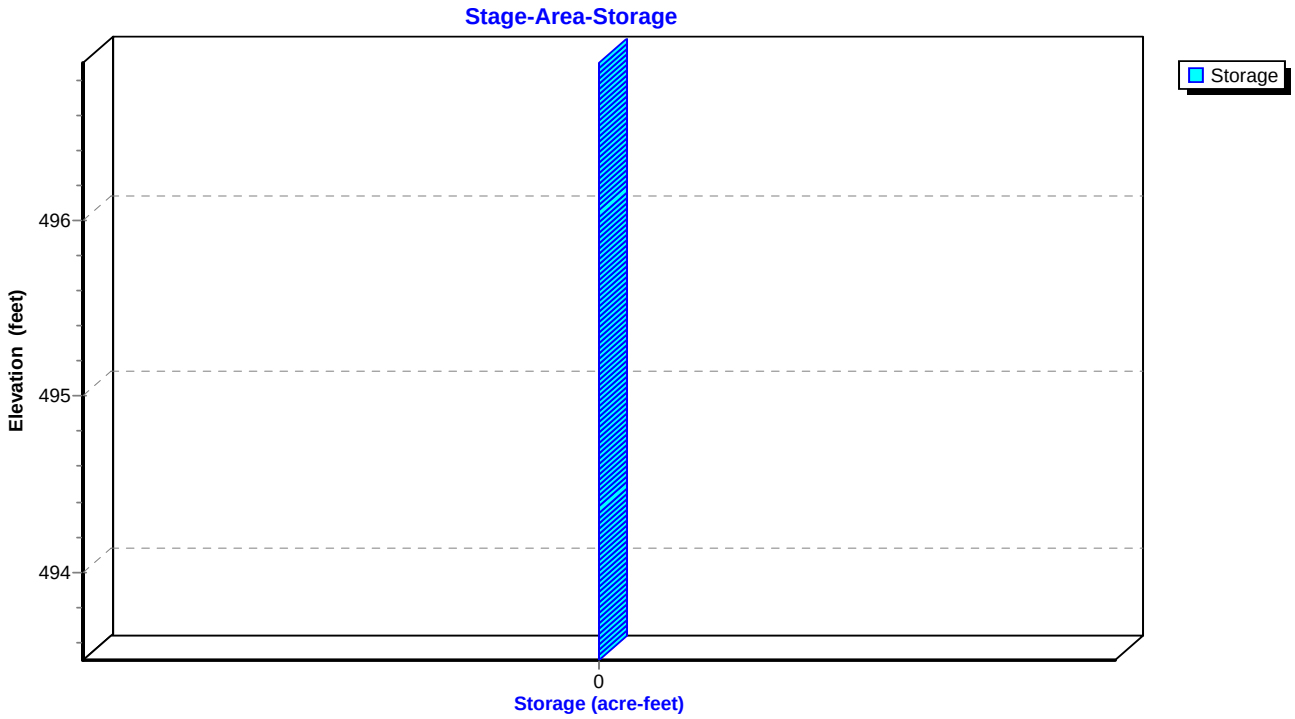
Pond 6R: 102-101



Pond 6R: 102-101



Pond 6R: 102-101



Summary for Pond 7P: 101-100

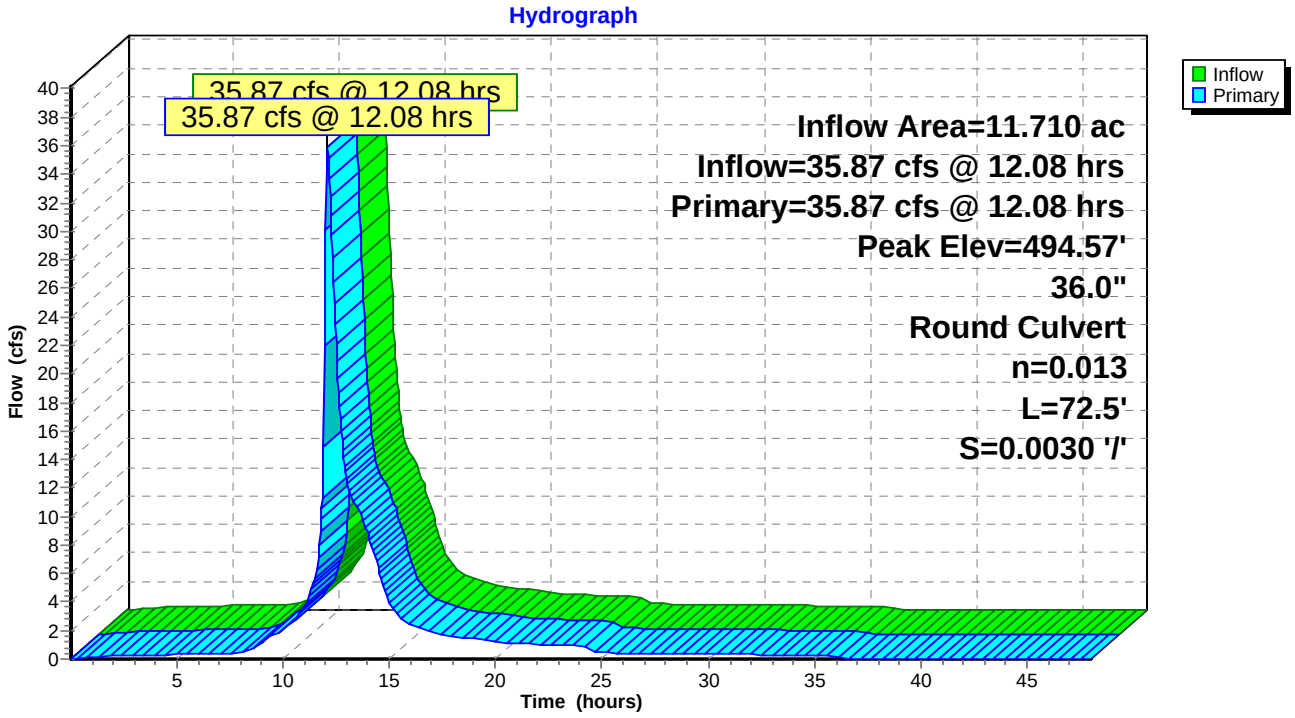
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 6.25" for 100-yr event
Inflow = 35.87 cfs @ 12.08 hrs, Volume= 6.100 af
Outflow = 35.87 cfs @ 12.08 hrs, Volume= 6.100 af, Atten= 0%, Lag= 0.0 min
Primary = 35.87 cfs @ 12.08 hrs, Volume= 6.100 af
Routed to Link 8L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 494.57' @ 12.08 hrs

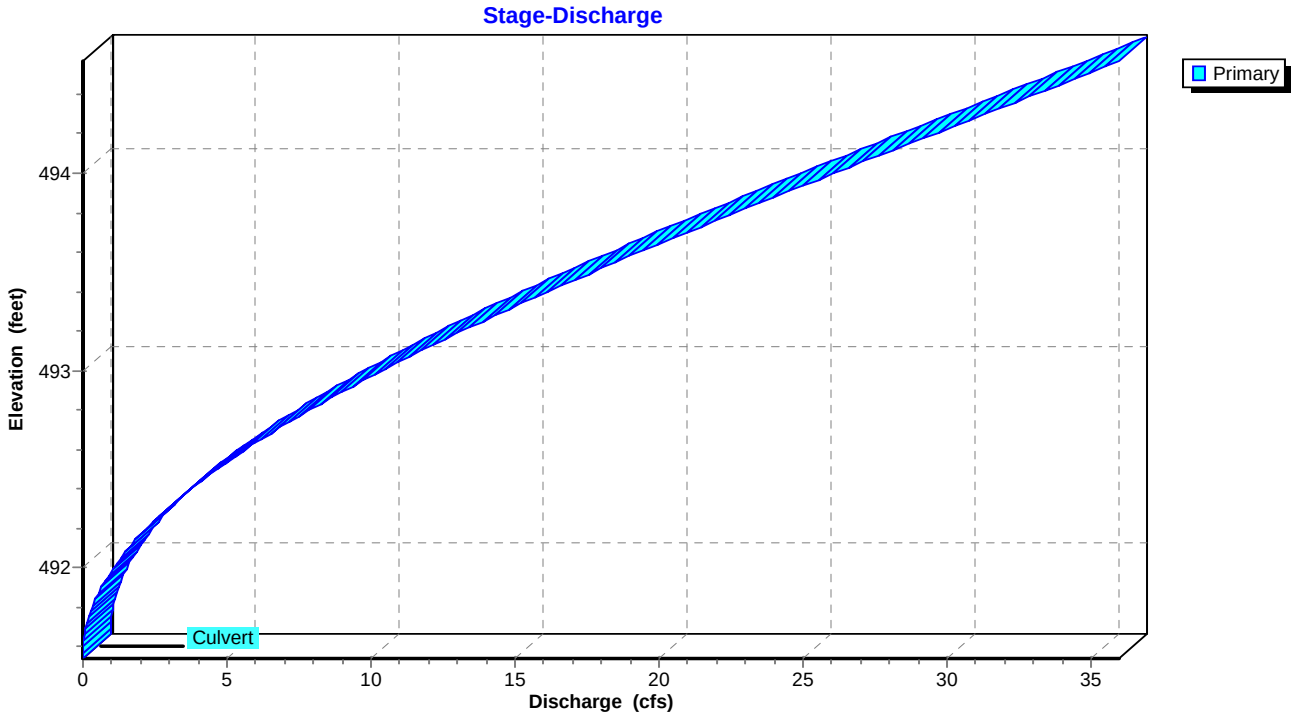
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=35.68 cfs @ 12.08 hrs HW=494.55' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 35.68 cfs @ 6.24 fps)

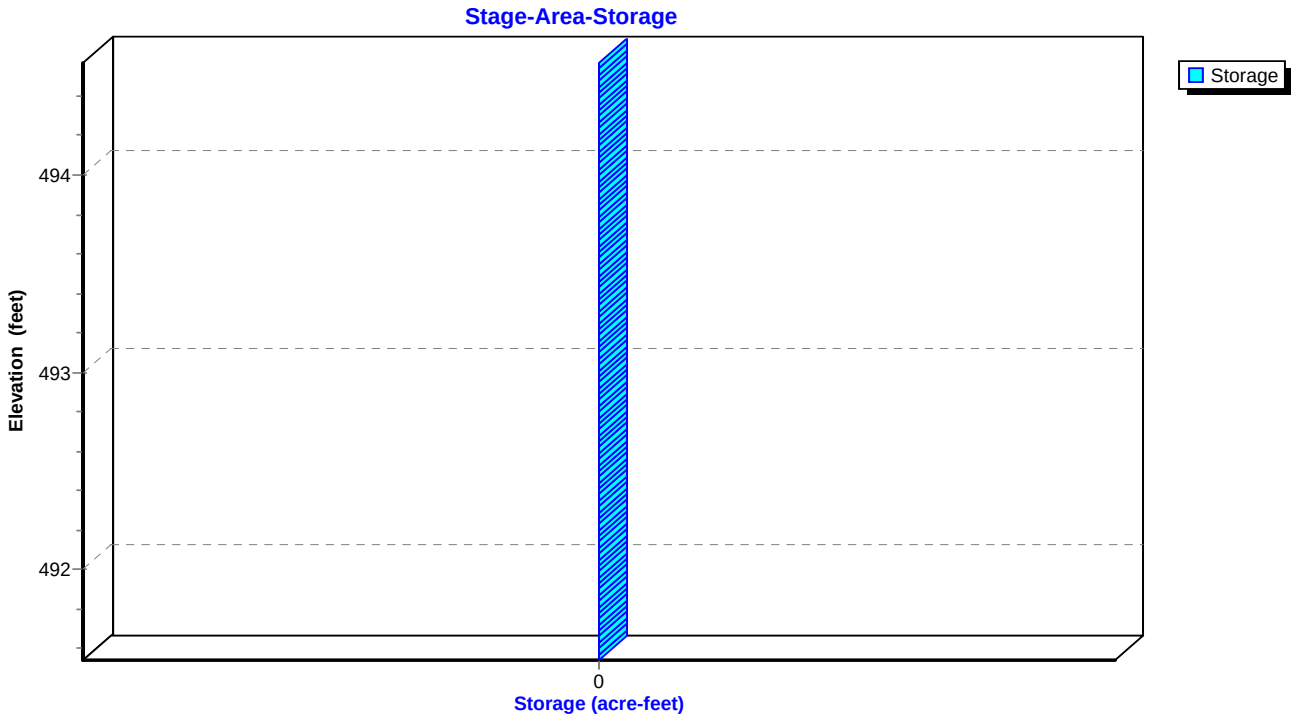
Pond 7P: 101-100



Pond 7P: 101-100



Pond 7P: 101-100



Summary for Pond 12P: 100 YR LFB

Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 6.25" for 100-yr event
Inflow = 112.69 cfs @ 11.95 hrs, Volume= 6.100 af
Outflow = 35.74 cfs @ 12.08 hrs, Volume= 5.796 af, Atten= 68%, Lag= 7.4 min
Primary = 35.74 cfs @ 12.08 hrs, Volume= 5.796 af
Routed to Pond 13P : 102-101

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 503.47' @ 12.08 hrs Surf.Area= 23,762 sf Storage= 101,496 cf

Plug-Flow detention time= 105.5 min calculated for 5.796 af (95% of inflow)
Center-of-Mass det. time= 75.0 min (826.3 - 751.3)

Volume	Invert	Avail.Storage	Storage Description
#1	493.98'	126,372 cf	**Custom Stage Data (Irregular)**Listed below (Recalc) 143,236 cf Overall - 16,864 cf Embedded = 126,372 cf
#2	496.00'	16,864 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) Inside #1
		143,236 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
493.98	1	3.0	0	0	1
494.00	48	33.6	0	0	90
495.00	3,996	327.2	1,494	1,494	8,522
496.00	5,068	359.9	4,521	6,016	10,342
497.00	6,176	378.7	5,613	11,629	11,507
498.00	7,340	397.6	6,750	18,378	12,738
499.00	8,561	416.4	7,943	26,321	14,022
500.00	9,838	435.3	9,192	35,513	15,372
501.00	18,410	698.2	13,902	49,415	39,092
502.00	20,540	717.4	19,465	68,880	41,368
503.00	22,716	736.1	21,619	90,499	43,650
504.00	24,953	754.9	23,826	114,325	46,002
505.00	27,259	776.2	26,098	140,422	48,708
505.10	29,015	792.3	2,813	143,236	50,719

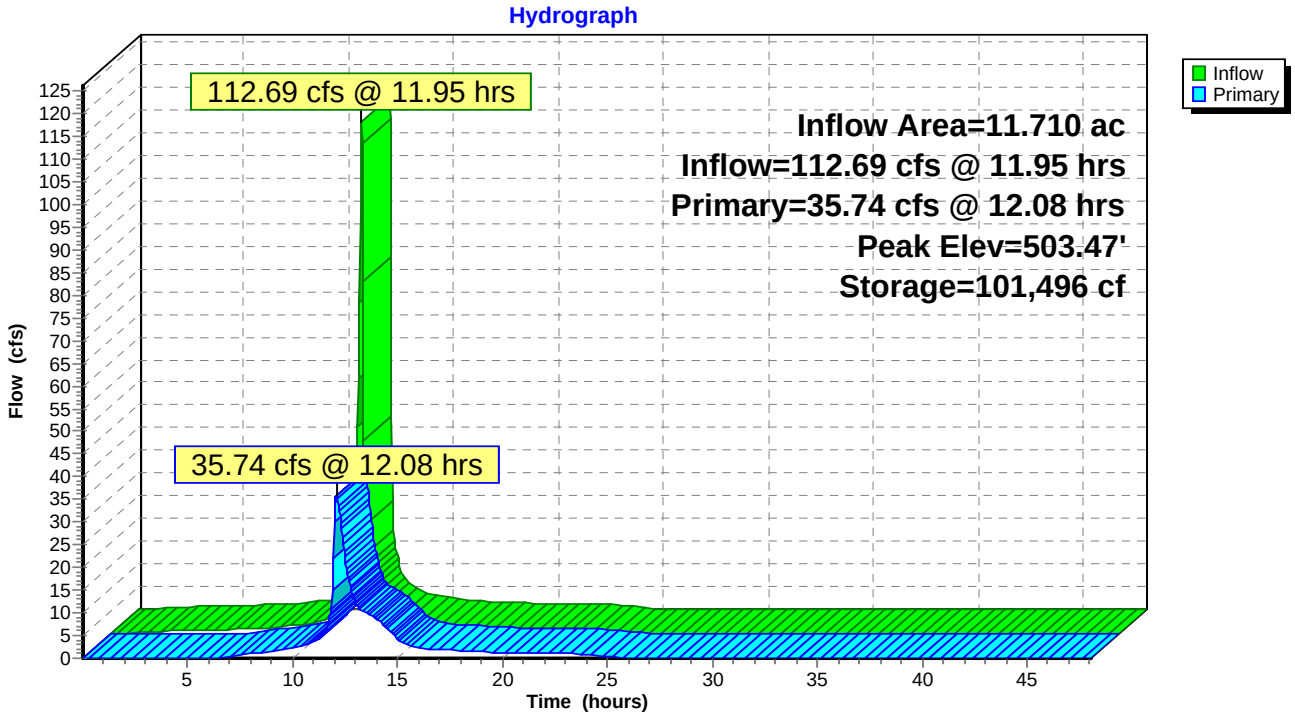
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
496.00	2,559	0	0
497.00	3,294	2,927	2,927
498.00	4,085	3,690	6,616
499.00	4,933	4,509	11,125
500.00	5,838	5,386	16,511
500.06	5,933	353	16,864

Device	Routing	Invert	Outlet Devices
#1	Primary	493.74'	**36.0" Round RCP_Round 36"** L= 15.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 493.74' / 493.70' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	497.25'	**10.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600

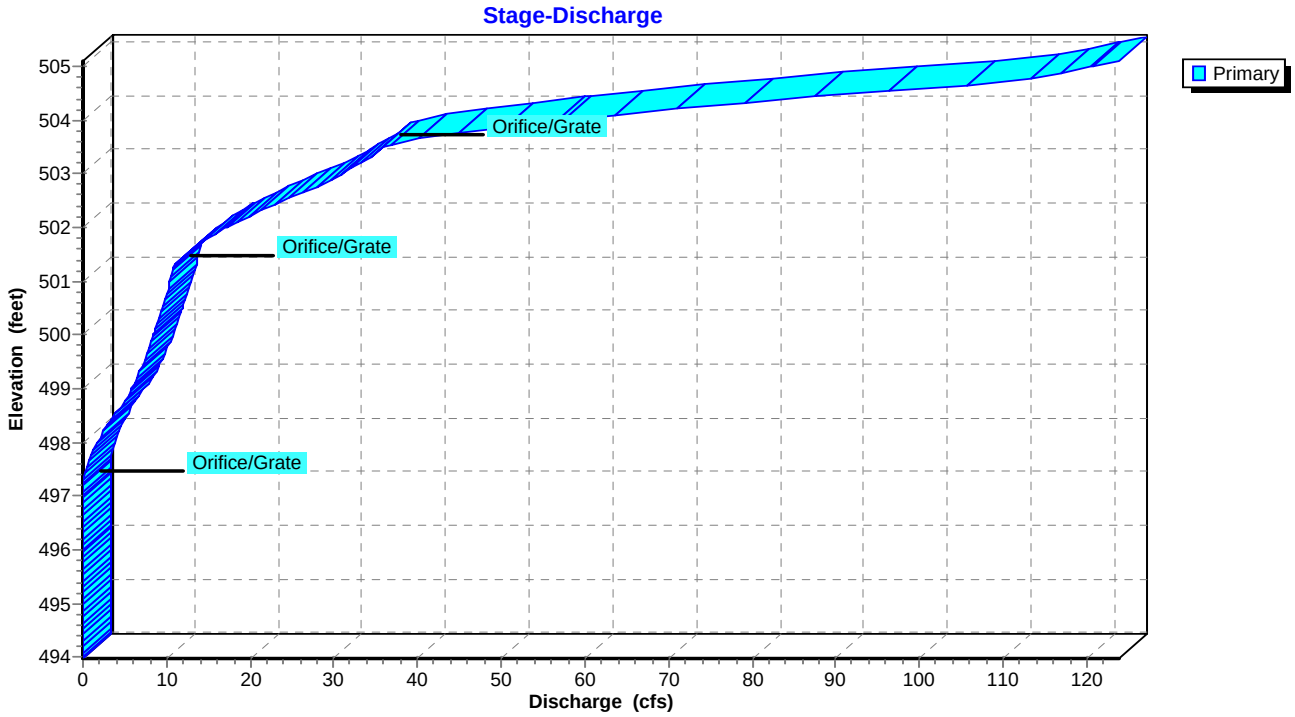
			Limited to weir flow at low heads
#3	Device 1	501.25'	**30.0" W x 18.0" H Vert. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads
#4	Device 1	503.50'	**30.0" x 60.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=35.55 cfs @ 12.08 hrs HW=503.45' TW=496.87' (Dynamic Tailwater)
1=RCP_Round 36" (Passes 35.55 cfs of 109.17 cfs potential flow)
2=Orifice/Grate (Orifice Controls 14.04 cfs @ 11.23 fps)
3=Orifice/Grate (Orifice Controls 21.51 cfs @ 5.74 fps)
4=Orifice/Grate (Controls 0.00 cfs)

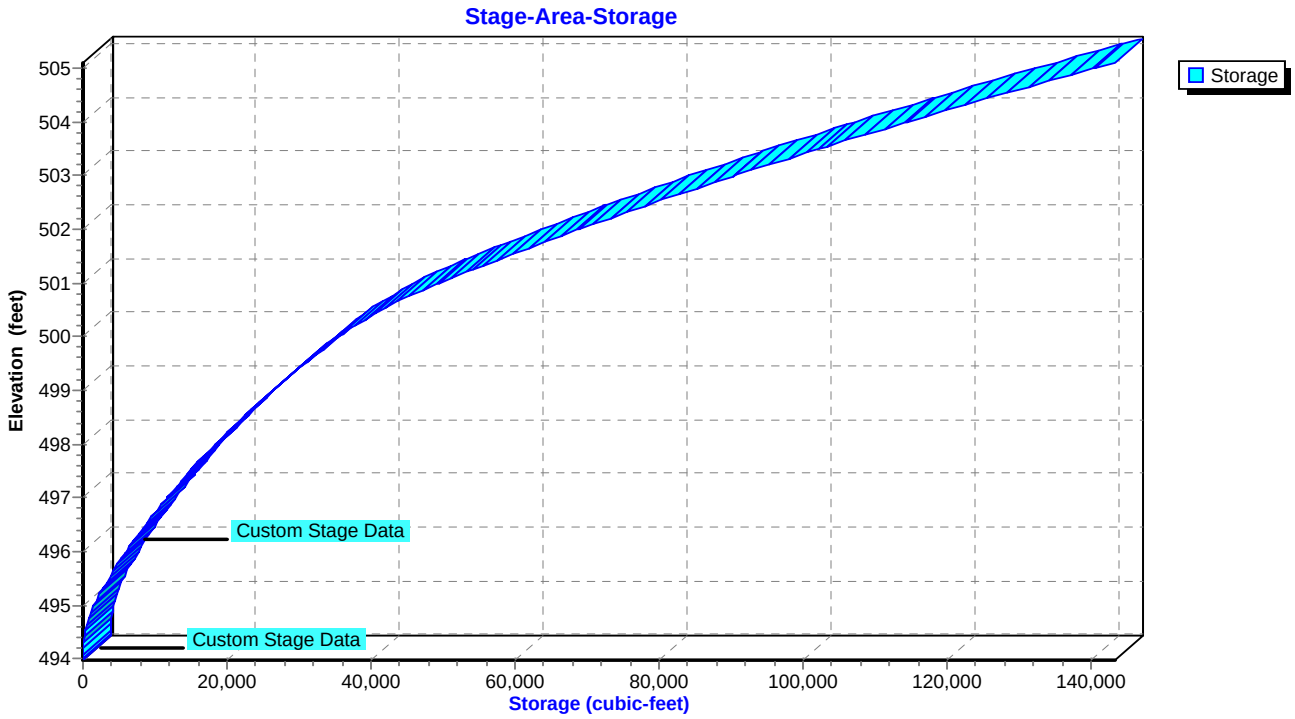
Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Pond 12P: 100 YR LFB



Summary for Pond 13P: 102-101

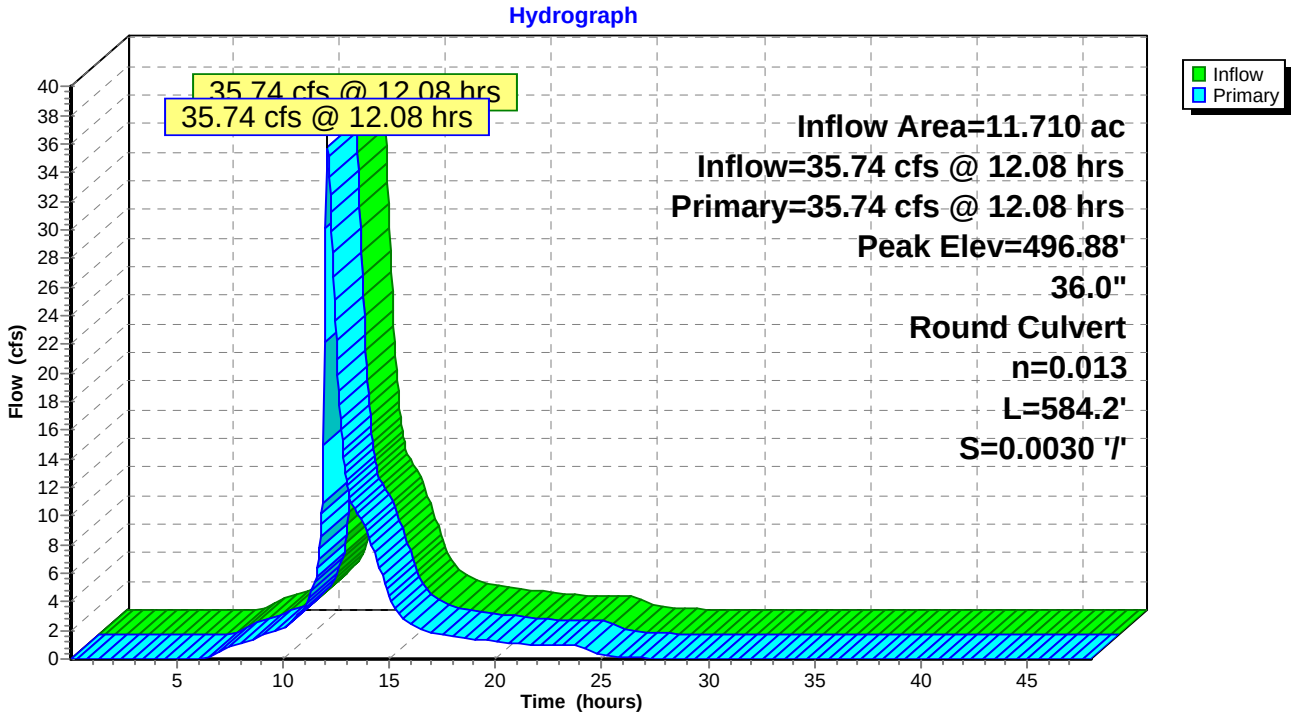
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 5.94" for 100-yr event
Inflow = 35.74 cfs @ 12.08 hrs, Volume= 5.796 af
Outflow = 35.74 cfs @ 12.08 hrs, Volume= 5.796 af, Atten= 0%, Lag= 0.0 min
Primary = 35.74 cfs @ 12.08 hrs, Volume= 5.796 af
Routed to Pond 14P : 101-100

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 496.88' @ 12.08 hrs

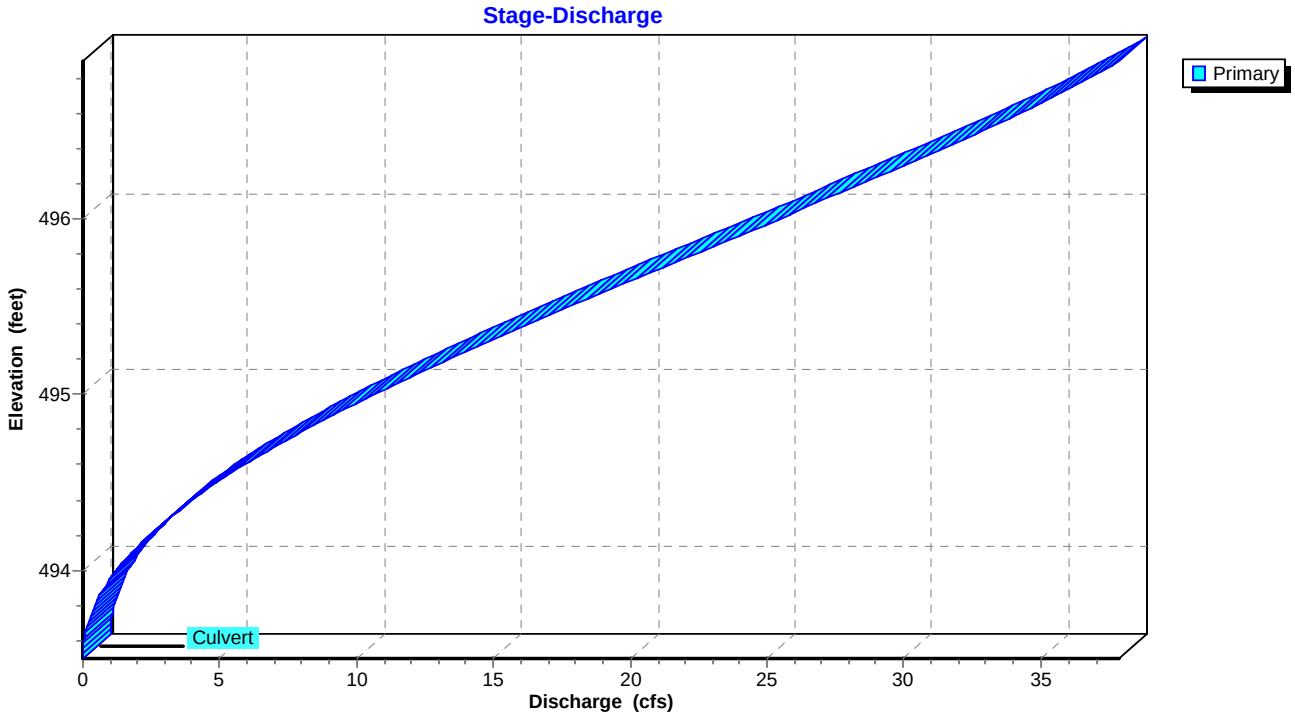
Device	Routing	Invert	Outlet Devices
#1	Primary	493.50'	**36.0" Round Culvert** L= 584.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 493.50' / 491.74' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=35.55 cfs @ 12.08 hrs HW=496.87' TW=494.55' (Dynamic Tailwater)
1=Culvert (Outlet Controls 35.55 cfs @ 5.60 fps)

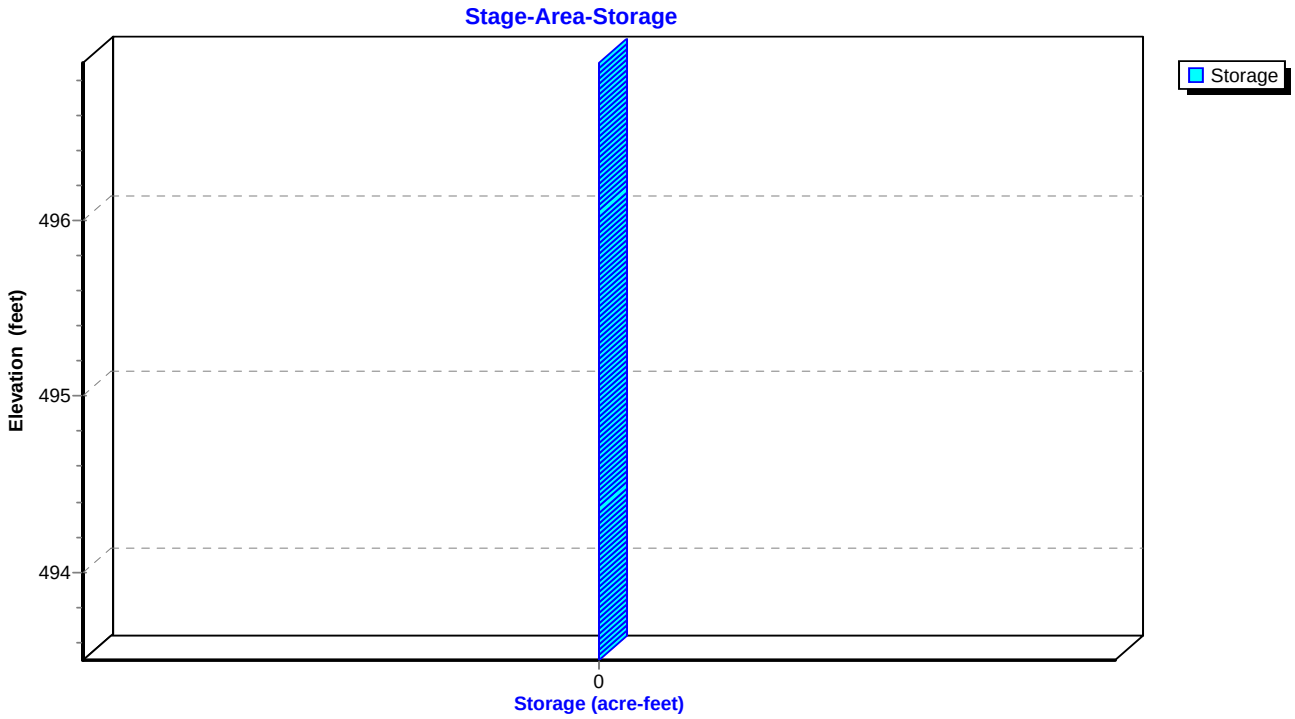
Pond 13P: 102-101



Pond 13P: 102-101



Pond 13P: 102-101



Summary for Pond 14P: 101-100

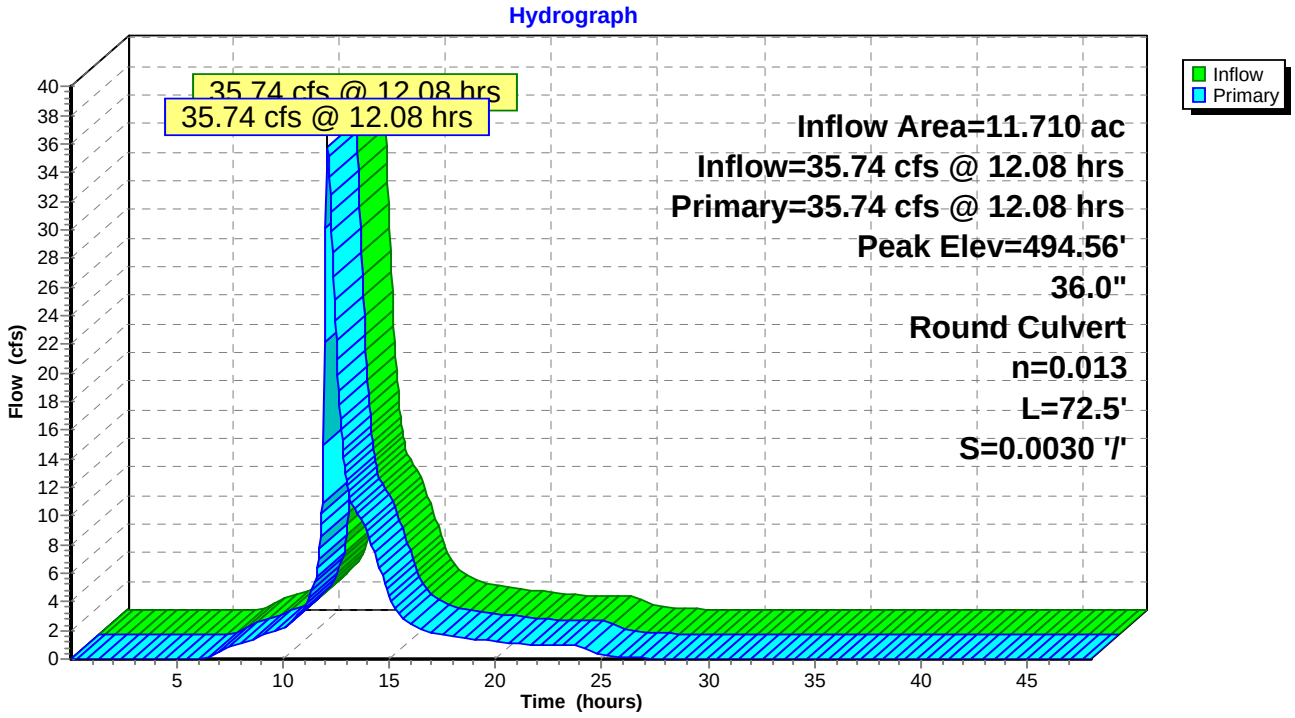
Inflow Area = 11.710 ac, 74.12% Impervious, Inflow Depth = 5.94" for 100-yr event
Inflow = 35.74 cfs @ 12.08 hrs, Volume= 5.796 af
Outflow = 35.74 cfs @ 12.08 hrs, Volume= 5.796 af, Atten= 0%, Lag= 0.0 min
Primary = 35.74 cfs @ 12.08 hrs, Volume= 5.796 af
Routed to Link 15L : POST DEVELOPED ROUTING

Routing by Dyn-Stor-Ind method, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs / 2
Peak Elev= 494.56' @ 12.08 hrs

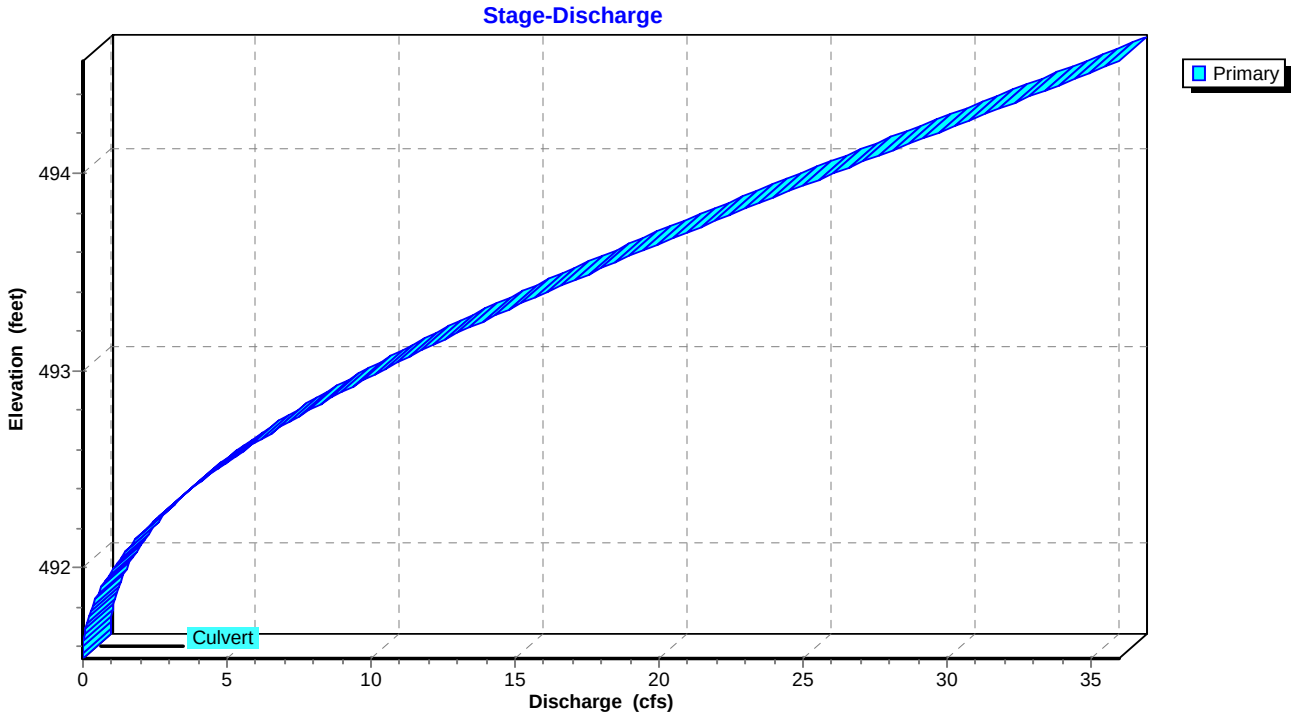
Device	Routing	Invert	Outlet Devices
#1	Primary	491.54'	**36.0" Round Culvert** L= 72.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 491.54' / 491.32' S= 0.0030 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf

Primary OutFlow Max=35.55 cfs @ 12.08 hrs HW=494.55' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 35.55 cfs @ 6.24 fps)

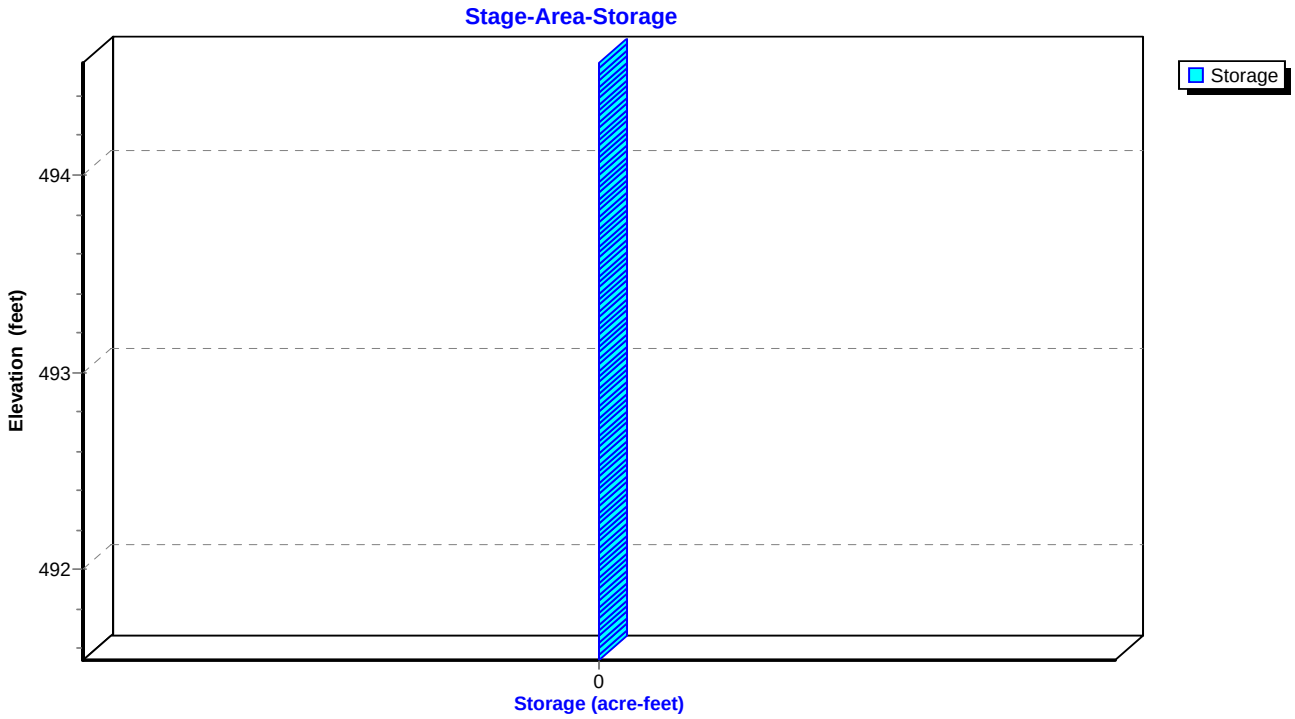
Pond 14P: 101-100



Pond 14P: 101-100



Pond 14P: 101-100

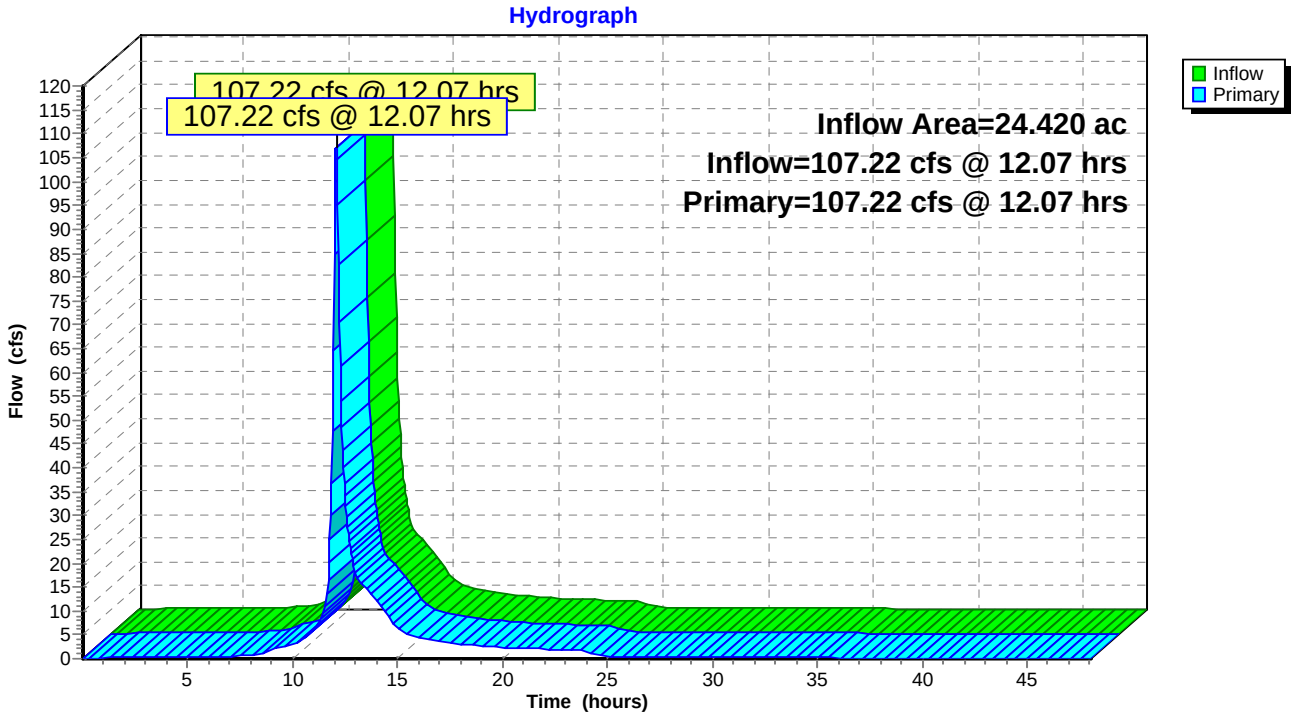


Summary for Link 8L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 5.31" for 100-yr event
Inflow = 107.22 cfs @ 12.07 hrs, Volume= 10.804 af
Primary = 107.22 cfs @ 12.07 hrs, Volume= 10.804 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 8L: POST DEVELOPED ROUTING



Summary for Link 15L: POST DEVELOPED ROUTING

Inflow Area = 24.420 ac, 39.80% Impervious, Inflow Depth = 5.16" for 100-yr event
Inflow = 107.09 cfs @ 12.07 hrs, Volume= 10.500 af
Primary = 107.09 cfs @ 12.07 hrs, Volume= 10.500 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.02-48.02 hrs, dt= 0.04 hrs

Link 15L: POST DEVELOPED ROUTING