

PROQUIP EQUIPMENT RENTAL
145 PLAISTOW ROAD
PLAISTOW, NEW HAMPSHIRE

STORMWATER MANAGEMENT ANALYSIS For Alteration of Terrain Permit Application

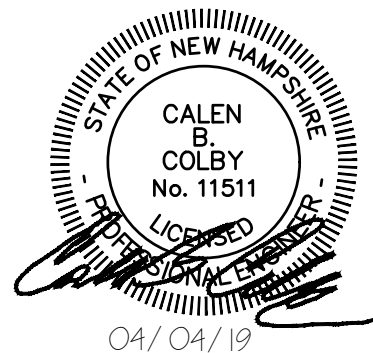
February 2019 – **REVISED April 2019**

Colby Co. Project Number: 109.061.003

Prepared For:

Milton Real Properties of Massachusetts, LLC
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Prepared By:



Sustainable
Structural
Mechanical
Fire Protection
Electrical
Civil
Controls
Architecture



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PROJECT DESCRIPTION

On behalf of Milton Real Properties of Massachusetts, Colby Company Engineering (CCE) has prepared a State of New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain Permit Application Stormwater Management Analysis Report and Plan for the proposed development of two properties to house a relocated Proquip Rental Facility from 22 Old Road to 145 Plaistow Road (also known as Route 125). The two properties are identified as Tax Map 30 Lots 72 & 73 and are located in the Commercial 1 Zone (C-1). The total combined area is approximately 19 acres and is the current location of Sanborn Candies. The property is partially developed (along Plaistow Road) with the remaining back portion of the lot undeveloped and wooded. The front of the property includes two existing closed drainage systems that are tributary to the NHDOT closed drainage system in Route 125. Seekamp Environmental has identified wetland areas in the back portion of the site that comprise nearly 50% of the property. Tim Ferwerda was retained to provide a High Intensity Soil Map for the entire development. The proposed development of the project will not impact any wetlands. See Plan Titlesheet for Site Location Map.

The proposed project will include the demolition of the existing building and will introduce a 12,000 SF rental and maintenance facility, 1,800 SF equipment wash building and approximately 9 acres of equipment display and storage areas. Additionally, a 2,000 gallon above ground storage tank containing diesel fuel will be located behind the equipment wash building and three (3) 275-gallon tanks will be located inside the maintenance building each containing; hydraulic fluid, motor oil, and waste motor oil.

It is anticipated that two driveways will be constructed; a full access onto Main Street (Route 121A) and a right-in/right-out onto Plaistow Road (Route 125). These driveways are bituminous paved access roads varying in width; the full access onto Main Street is 30 feet wide and the right in is 24 feet wide and right out is 20 feet wide. The two driveways offer a reduction in curb cuts from 3 to 2. A traffic assessment has been initiated by Vanasse and Associates to acquire a NHDOT Driveway Permit.

Stormwater treatment for the site will be collected through a closed drainage system; the front (west) of the site will drain to a Stormtech Chamber System and provide a reduction in flow to the NHDOT closed drainage system. The proposed drainage system at the back (east) of the site will outlet to a Stormtech Chamber System to the south of the site. A Stormtech Chamber System will be created to provide storage and pre-treatment of collected flows. Discharge from the stormwater system will be discharged to an unnamed tributary to the Little River. The proposed improvements will not impact any wetlands. The proposed driveway, parking, and building is 355,101 square feet (8.15 acres) of impervious area on site and result in a total site disturbance of 488,048 square feet (11.20 acres). The existing condition has 34,635 square feet (0.80 acres) of impervious area. Pre-development stormwater conditions are contained with 4 subcatchments; post development stormwater conditions are contained with 13 subcatchments. The pre-development subcatchments flow to two closed drainage systems in Route 125 or sheet flows to the north toward the existing retail tire store or southeasterly towards the wetland and existing stream, an unnamed tributary to the Little River.

Wastewater will be disposed of in a subsurface septic system and water will be supplied by a private well.

This NHDES Stormwater Management Analysis Report and Plan has been developed based on the requirements of the New Hampshire Stormwater Manual (NHSWM), Volumes I & II dated December 2008. The Report and Plan provide a detailed analysis of the stormwater management system to be implemented for the development project to confirm that the planned development will not create potential degradation of water quality and to mitigate any increase in peak stormwater runoff to locations downstream of the development site. Project plans are included separately.

STUDY METHODOLOGY

In this study, the Soil Conservation Services Urban Hydrology for Small watersheds, Technical Release 20 (also known as SCS-TR20) was utilized to model the surface water drainage patterns for the pre- and post-development drainage conditions. HydroCAD Stormwater Modeling System Software (Version 10.00) was used for the SCS TR20 calculations. The SCS TR-55 method was used to estimate the Time of Concentration (Tc). This method involves estimating the length of sheet flow, shallow concentrated flow and channel flow that occurs within each subcatchment. Each Tc Path and corresponding length and slope is identified in the pre- and post-development drainage area plan. From this information, the time of concentration is determined for each watershed. Modeling was conducted using the 2, 10, 25, and 50-year storm events. Rainfall data was generated through the Northeast Regional Climate Center; a copy of the data can be found in Appendix C. The HydroCAD results for the pre-development and post-development drainage areas can be found in Appendix A and B respectively.

The curve numbers (CN) utilized in this analysis relate to the ground cover that was observed or proposed on the site. The following curve numbers were used.

Description	Hyd D
Woods, Good, Hyd Grp A	30
Woods, Good, Hyd Grp B	55
Woods, Good, Hyd Grp C	70
Woods, Good, Hyd Grp D	77
Grass, Good, Hyd Grp B	61
Pavement, Hyd Grp A	98
Pavement, Hyd Grp B	98
Brush, Good, Hyd Grp A	30
Brush, Good, Hyd Grp B	48

PRE-DEVELOPMENT CONDITIONS

The following are soil types found on this site.

26B	-Windsor Series, 3-8% slopes	-Hydrologic Group A
26C	-Windsor Series, 8-15% slopes	-Hydrologic Group A
26D	-Windsor Series, 15-25% slopes	-Hydrologic Group A
34B	-Wareham Series, 3-8% slopes	-Hydrologic Group C
42B	-Canton Series, 3-8% slopes	-Hydrologic Group A
42C	-Canton Series, 8-15% slopes	-Hydrologic Group A
42D	-Canton Series, 15-25% slopes	-Hydrologic Group A
115B	-Scarboro Series, 0-3% slopes	-Hydrologic Group D
313B	-Deerfield Series, 3-8% slopes	-Hydrologic Group B
313C	-Deerfield Series, 8-15% slopes	-Hydrologic Group B
313E	-Deerfield Series, over 25% slopes	-Hydrologic Group B
915B	-Deerfield Variant Series, 3-8% slopes	-Hydrologic Group B
350dB	-Udipsamments wet substratum, 3-8% slopes	-Hydrologic Group B
350dC	-Udipsamments wet substratum, 8-15% slopes	-Hydrologic Group B
350eB	-Udipsamments wet substratum, 3-8% slopes	-Hydrologic Group B

Under pre-development conditions the site is modeled as four drainage areas with four Study Points (See Appendix A for Pre-Development Drainage Area Plan).

Pre-Development Drainage Area 1/Area 2

This area encompasses 1.87 acres and consists of the existing Sanborn's Candies store, existing paved driveway and parking, existing dwelling, garage, pool, shed, grassed area, and wooded area at the corner of Route 125 (Plaistow Road) and Route 121-A (Main Street). Stormwater is collected through existing catch basins at Route 125 to the west of the road. The existing catch basins on site are currently filled with mud and therefore unusable in the existing condition.

Pre-Development Drainage Area 3

This area encompasses 1.56 acres and consists of a portion of the existing paved driveway, grassed area and primarily wooded area located off of Route 125 (Plaistow Road). Stormwater is collected through existing catch basins at Route 125 and continues through a separate system than that denoted in Drainage Area 1 and runs along Route 125 North.

Pre-Development Drainage Area 4

This area encompasses 0.82 acres and consists of wooded area to the north of the property. Stormwater drains off the property to the north of the site.

Pre-Development Drainage Area 5

This area encompasses 14.83 acres and consists of wetlands and wooded area to the southeast of the property. Stormwater drains to the wetlands onsite and ultimately towards the unnamed tributary to the Little River.

The Table below summarizes the Pre-Development flow that is discharged from this site during the 2, 10, and 25-year storm events. Refer to detailed calculations in Appendix A.

Summary of Pre-Development Discharges

ANALYSIS POINT	HYDROCAD NODE	Q ₂	Q ₁₀	Q ₂₅	Q ₅₀
1/2	SP-1	1.5	3.7	5.7	7.7
3	SP-2	0.03	0.5	1.4	2.4
4	SP-3	0	0.1	0.3	0.7
5	SP-4	0	0.6	2.7	5.8
TOTAL		1.53	4.9	10.1	16.6

POST DEVELOPMENT CONDITIONS

In order to sufficiently model the driveway, equipment display and storage areas and building areas it is necessary to break the post development drainage areas into thirteen (13) subcatchments. The HydroCAD Calculations prove that the pond will store the additional runoff so that there is no increase in peak flows off the site. Refer to Post Development and Pre vs. Post Development Summary tables above. Please refer to Appendix B for detailed HydroCAD Calculations.

Stormtech Chambers are being utilized to control the increase in runoff. The SC-740 Chamber System is 1.3 feet above the Seasonal High Water Table (SHWT) and therefore is required to pre-treat stormwater runoff. An Isolator Run has been added with access via drainage manhole at either end. The SC-4500 Chamber System is 3 feet above SHWT and does not require pretreatment.

Post Development Drainage Area 1

This area encompasses 0.08 acres and consists of a portion of the proposed driveway. Stormwater sheet flows to the roadside gutter to catch basin (CB-1), through a proposed closed drainage system and Stormtech Chambers before ultimately connecting to the existing drainage system in Route 125.

Post Development Drainage Area 2

This area encompasses 0.22 acres and consists of portions of the parking area and driveway. Stormwater sheet flows to the roadside gutter to a catch basin (CB-2), through a proposed closed drainage system and Stormtech Chambers before ultimately connecting to the existing drainage system in Route 125.

Post Development Drainage Area 3

This area encompasses 0.40 acres and consists of grassed and paved areas. Stormwater is collected into a catch basin (CB-3) and drains through an 18" pipe to Stormtech Chambers before ultimately connecting to the existing drainage system along Route 125.

Post Development Drainage Area 4

This area encompasses 0.64 acres and consists of grassed and paved areas. Stormwater is collected into a catch basin (CB-4) and drains through an 18” pipe to Stormtech Chambers before ultimately connecting to the existing drainage system along Route 125.

Post Development Drainage Area 5

This area encompasses 0.94 acres and consists of portion of the proposed building and paved area. Stormwater sheet flows along the roadside gutter and along the paved area to a catch basin (CB-5), through an 18” pipe to the Stormtech Chambers before ultimately connecting to the existing drainage system along Route 125.

Post Development Drainage Area 6

This area encompasses 0.28 acres and consists of a portion of the proposed driveway and parking areas. Stormwater sheet flows along the roadside gutter and along the paved area to a catch basin (CB-6), through a 15” pipe, and ultimately to the Stormtech Chamber System to the south of the property before discharging to an unnamed tributary to the Little River.

Post Development Drainage Area 7

This area encompasses 0.84 acres and consists of paved areas. Stormwater sheet flows to a catch basin (CB-7), through a 24” pipe, and ultimately to the Stormtech Chamber System to the south of the property before discharging to an unnamed tributary to the Little River.

Post Development Drainage Area 8

This area encompasses 1.43 acres and consists of paved areas. Stormwater sheet flows to a catch basin (CB-8), through a 24” pipe, and ultimately to the Stormtech Chamber System to the south of the property before discharging to an unnamed tributary to the Little River.

Post Development Drainage Area 9

This area encompasses 0.85 acres and consists of paved areas. Stormwater sheet flows to a catch basin (CB-9), through a 15” pipe, and ultimately to the Stormtech Chamber System to the south of the property before discharging to an unnamed tributary to the Little River.

Post Development Drainage Area 10

This area encompasses 2.33 acres and consists of a portion of proposed gravel, trees, and brush areas. Stormwater is collected in a catch basin (CB-10), through a proposed 24” pipe, and ultimately to the Stormtech Chamber System to the south of the property before discharging to an unnamed tributary to the Little River.

Post Development Drainage Area 11

This area encompasses 0.34 acres and consists of brush area. Stormwater sheet flows off the property to the north as it does in the existing condition.

Post Development Drainage Area 12

This area encompasses 9.70 acres and consists of wooded and brush area. Stormwater drains to the wetlands onsite and ultimately towards the unnamed tributary to the Little River.

Post Development Drainage Area 13

This area encompasses 1.65 acres and consists of gravel area, wooded and brush area. Stormwater is collected in a catch basin (CB-11), through a proposed 24" pipe, and ultimately to the Stormtech Chamber System to the south of the property before discharging to an unnamed tributary to the Little River.

Please note that in the post development condition no runoff is being directed toward Study Point #2, therefore all runoff to that node is zero.

Summary of Post Development Discharges

ANALYSIS POINT	HYDROCAD NODE	Q ₂	Q ₁₀	Q ₂₅	Q ₅₀
1	SP-1	0.7	1.2	3.8	7.1
2	SP-2	0.0	0.0	0.0	0.0
3	SP-3	0.0	0.1	0.3	0.5
4	SP-4	0.0	0.6	2.7	5.7
TOTAL		0.7	1.9	6.8	13.3

The following table compares the total pre-development flows to the post development discharge for the 2, 10, 25 and 50-year storm events.

By examination of the Table below all post development discharge rates are or less than the pre-development rates or are insignificant increase in rates.

Comparison of Pre- and Post-Development Discharges

Analysis Point	HydroCAD Node	Discharges (cfs)			
		Q ₂	Q ₁₀	Q ₂₅	Q ₅₀
Pre-Development	SP-1	1.5	3.7	5.7	7.7
	SP-2	0.0	0.5	1.4	2.4
	SP-3	0.0	0.1	0.3	0.7
	SP-4	0.0	0.6	2.7	5.8
Post Development	SP-1	0.7	1.2	3.8	7.1
	SP-2	0.0	0.0	0.0	0.0
	SP-3	0.0	0.1	0.3	0.5
	SP-4	0.0	0.6	2.7	5.7
Difference	SP-1	-0.8	-2.5	-1.9	-0.6
	SP-2	0.0	-0.5	-1.4	-2.4
	SP-3	0.0	0.0	0.0	-0.2
	SP-4	0.0	0.0	0.0	-0.1
	TOTAL	-0.8	-3.0	-3.3	-3.3

MAINTENANCE

Proquip Rental will be responsible to maintain the detention pond. This report contains the recommended operation and maintenance criteria to ensure that the pond and culverts are properly maintained.

Paved Areas: All paved areas should be free from sediment. Sweeping of pavement should occur annually in the early spring (after snow melt) or as needed.

Stormtech Chambers: Inspection ponds and drainage manholes should be visually inspected twice per year to ensure that no sediment has accumulated along the bottom of the chambers. If sediment is discovered it should be removed and disposed of properly.

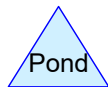
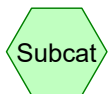
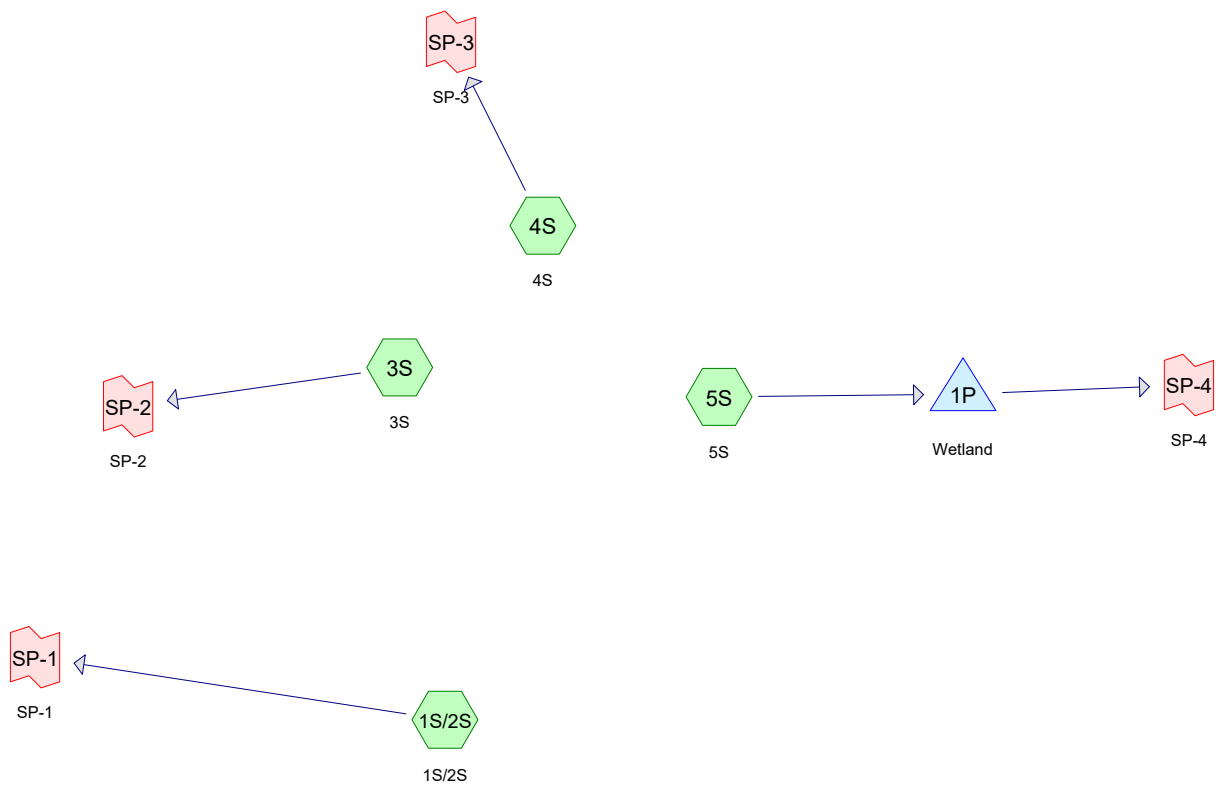
Catch Basins: Sediment removal from the sump and any floating debris and products is imperative for the continuity of the effectiveness of the structure. The sump needs cleaning when sediments are visible at the bottom of the outlet pipe. Water quality inlets should be inspected three to four times annually for the first year and subsequently decreased as a result of the inspections.

Pipes: Inspect in Spring and late fall and after heavy rains. Repair any erosion damage at the culvert's inlet and outlet, remove any obstruction to flow, and remove accumulated sediments and debris at inlets and outlets.

Outlet Structure: Outlet structures should be inspected periodically to ensure structure is not blocked by debris. Inspections should be conducted monthly during wet weather conditions (March to November) within the first year of construction and decreased to once in the Fall and once in the Spring thereafter. Structures should be easily accessible for inspection and the removal of debris blockage during storm conditions.

CONCLUSION

The proposed development results in the construction of 355,101 square feet (8.15 acres) of new impervious area on site and result in a total site disturbance of 433,570 square feet (9.95 acres) on the 19-acre site. The proposed drainage system passes the 2-yr, 10-yr, 25yr, and 50-yr storm events without significant ponding. Additionally, a field of Stormtech Chambers will ensure that there is no increase in peak flows to the NHDOT Drainage System and an additional Stormtech Chamber System ensures no increase in peak flows to the unnamed tributary to the Little River. Therefore, the construction of the project does not increase peak flows or create erosion problems to downstream property owners.



Routing Diagram for PLAISTOW-PRE

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.034	61	Pasture/grassland/range, Good, HSG B (1S/2S, 3S, 4S)
0.795	98	Paved parking, HSG B (1S/2S, 3S)
4.316	30	Woods, Good, HSG A (1S/2S, 3S, 4S, 5S)
8.938	55	Woods, Good, HSG B (1S/2S, 3S, 4S, 5S)
1.848	70	Woods, Good, HSG C (5S)
2.156	77	Woods, Good, HSG D (5S)
19.087	55	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.316	HSG A	1S/2S, 3S, 4S, 5S
10.767	HSG B	1S/2S, 3S, 4S, 5S
1.848	HSG C	5S
2.156	HSG D	5S
0.000	Other	
19.087		TOTAL AREA

PLAISTOW-PRE

Type III 24-hr 2yr Rainfall=3.13"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S/2S: 1S/2S

Runoff Area=81,626 sf 39.07% Impervious Runoff Depth=0.89"
Flow Length=324' Tc=10.8 min CN=72 Runoff=1.51 cfs 0.138 af

Subcatchment 3S: 3S

Runoff Area=68,012 sf 4.03% Impervious Runoff Depth=0.11"
Flow Length=384' Tc=12.2 min CN=50 Runoff=0.03 cfs 0.015 af

Subcatchment 4S: 4S

Runoff Area=35,628 sf 0.00% Impervious Runoff Depth=0.03"
Flow Length=315' Tc=16.7 min CN=44 Runoff=0.00 cfs 0.002 af

Subcatchment 5S: 5S

Runoff Area=646,170 sf 0.00% Impervious Runoff Depth=0.23"
Flow Length=1,384' Tc=118.8 min CN=55 Runoff=0.54 cfs 0.285 af

Pond 1P: Wetland

Peak Elev=102.61' Storage=12,415 cf Inflow=0.54 cfs 0.285 af
Outflow=0.00 cfs 0.000 af

Link SP-1: SP-1

Inflow=1.51 cfs 0.138 af
Primary=1.51 cfs 0.138 af

Link SP-2: SP-2

Inflow=0.03 cfs 0.015 af
Primary=0.03 cfs 0.015 af

Link SP-3: SP-3

Inflow=0.00 cfs 0.002 af
Primary=0.00 cfs 0.002 af

Link SP-4: SP-4

Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 19.087 ac Runoff Volume = 0.440 af Average Runoff Depth = 0.28"
95.83% Pervious = 18.292 ac 4.17% Impervious = 0.795 ac

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Type III 24-hr 2yr Rainfall=3.13"

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Summary for Subcatchment 1S/2S: 1S/2S

Runoff = 1.51 cfs @ 12.16 hrs, Volume= 0.138 af, Depth= 0.89"

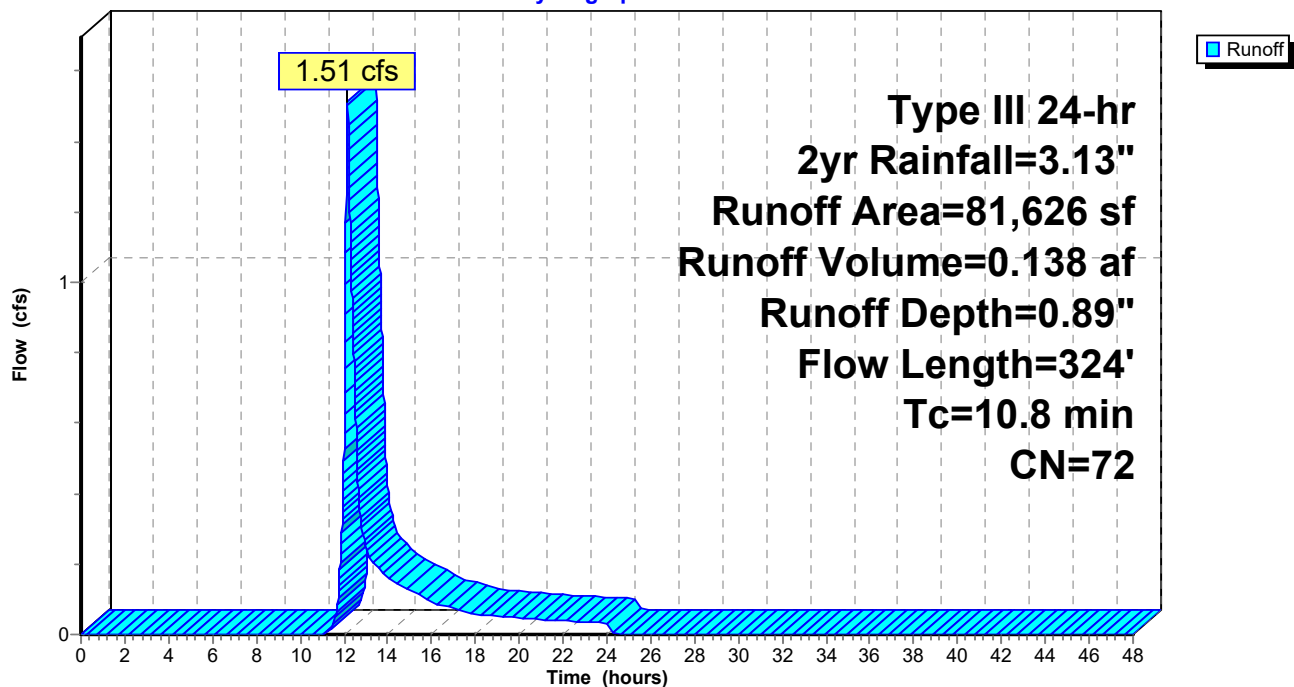
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
31,877	61	Pasture/grassland/range, Good, HSG B
13,617	98	Paved parking, HSG B
8,284	30	Woods, Good, HSG A
9,572	55	Woods, Good, HSG B
18,276	98	Paved parking, HSG B
81,626	72	Weighted Average
49,733		60.93% Pervious Area
31,893		39.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	125	0.0320	0.21		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
1.0	199	0.0270	3.34		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
10.8	324	Total			

Subcatchment 1S/2S: 1S/2S

Hydrograph



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Type III 24-hr 2yr Rainfall=3.13"

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Summary for Subcatchment 3S: 3S

Runoff = 0.03 cfs @ 13.68 hrs, Volume= 0.015 af, Depth= 0.11"

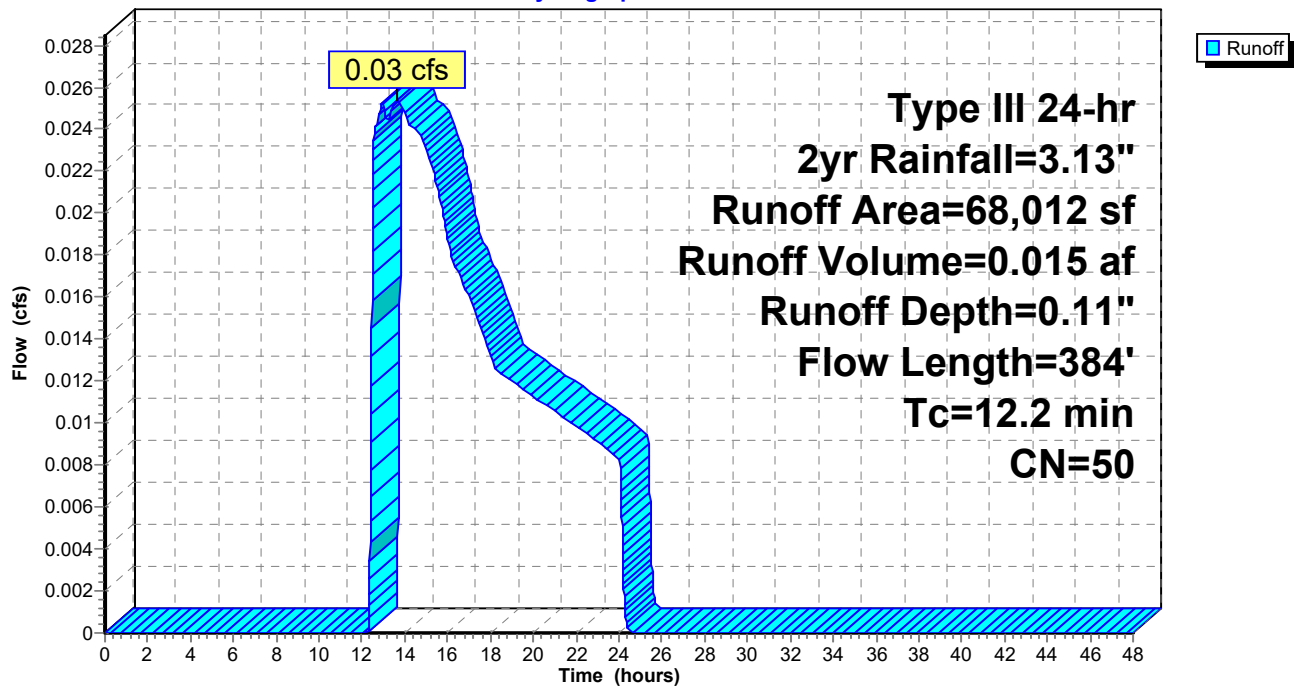
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
19,826	30	Woods, Good, HSG A
10,200	61	Pasture/grassland/range, Good, HSG B
35,244	55	Woods, Good, HSG B
2,742	98	Paved parking, HSG B
68,012	50	Weighted Average
65,270		95.97% Pervious Area
2,742		4.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	44	0.0932	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
9.4	340	0.0074	0.60		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
12.2	384	Total			

Subcatchment 3S: 3S

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Type III 24-hr 2yr Rainfall=3.13"

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Summary for Subcatchment 4S: 4S

Runoff = 0.00 cfs @ 17.09 hrs, Volume= 0.002 af, Depth= 0.03"

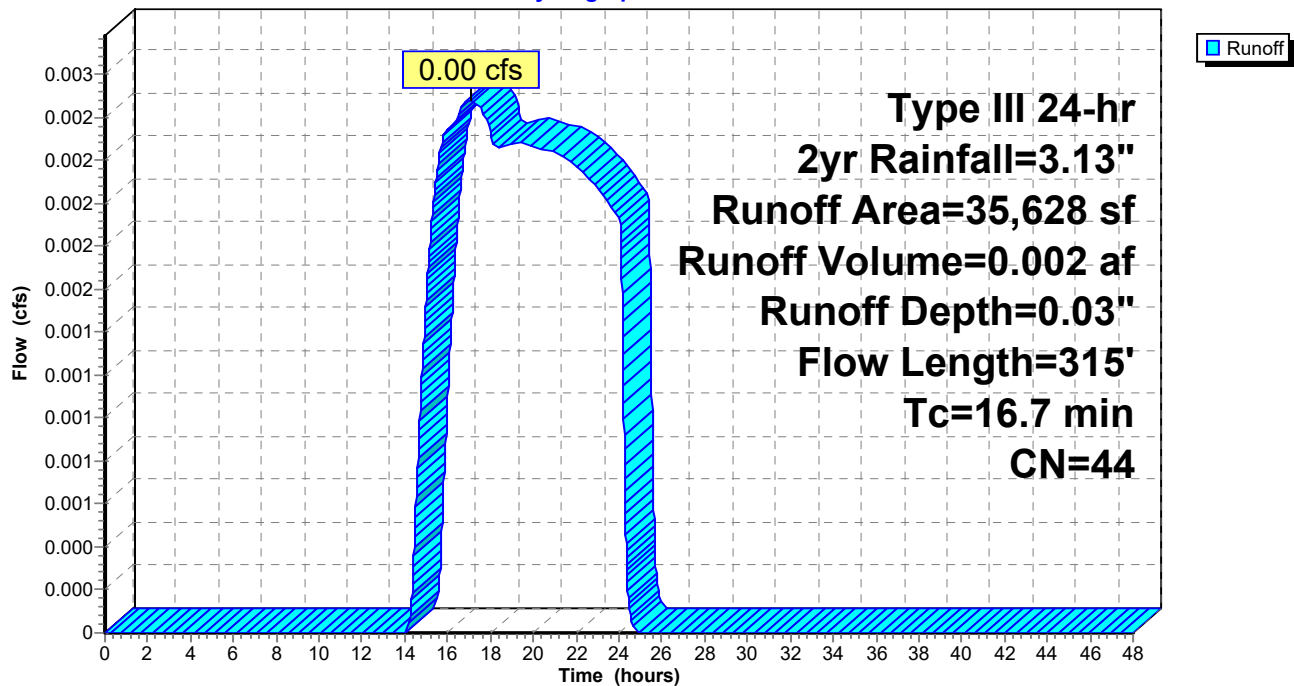
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
16,667	30	Woods, Good, HSG A
2,964	61	Pasture/grassland/range, Good, HSG B
15,997	55	Woods, Good, HSG B
35,628	44	Weighted Average
35,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0130	0.14		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.13"
4.9	215	0.0107	0.72		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
16.7	315	Total			

Subcatchment 4S: 4S

Hydrograph



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Type III 24-hr 2yr Rainfall=3.13"

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Summary for Subcatchment 5S: 5S

Runoff = 0.54 cfs @ 14.38 hrs, Volume= 0.285 af, Depth= 0.23"

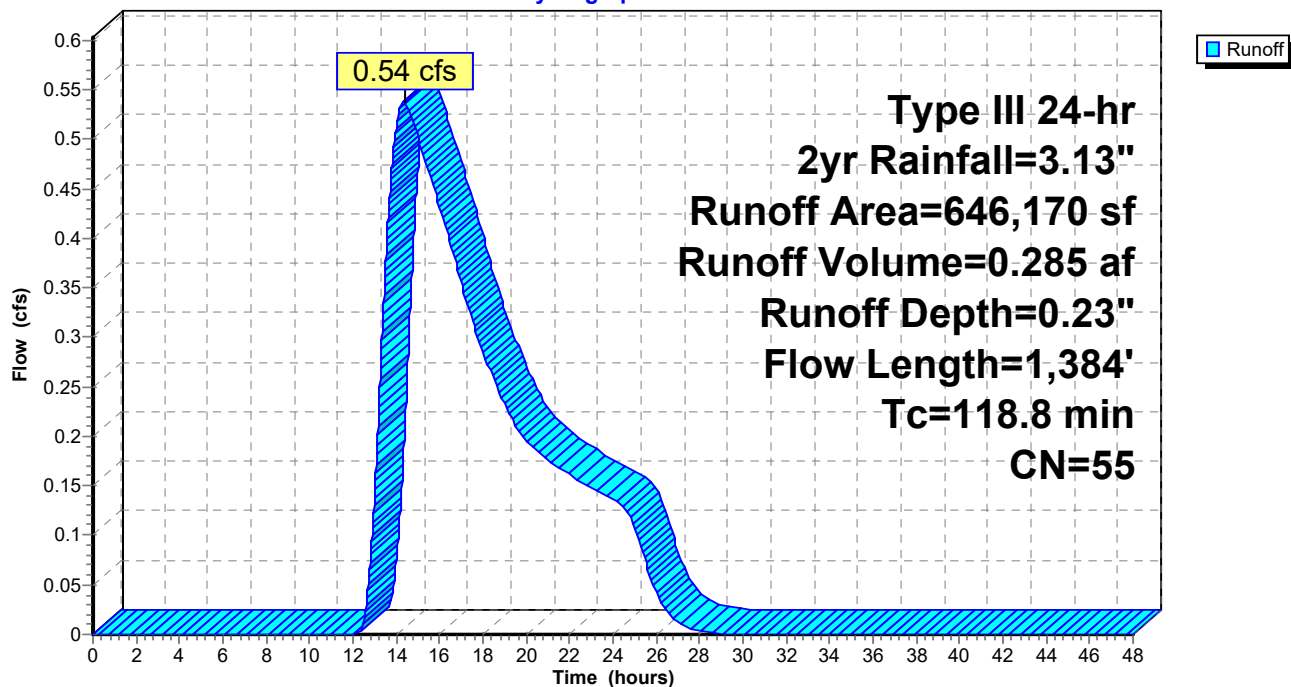
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
143,212	30	Woods, Good, HSG A
328,540	55	Woods, Good, HSG B
80,519	70	Woods, Good, HSG C
93,899	77	Woods, Good, HSG D
646,170	55	Weighted Average
646,170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.9	200	0.0700	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.13"
78.9	1,184	0.0100	0.25		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
118.8	1,384	Total			

Subcatchment 5S: 5S

Hydrograph



PLAISTOW-PRE

Type III 24-hr 2yr Rainfall=3.13"

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Summary for Pond 1P: Wetland

Inflow Area = 14.834 ac, 0.00% Impervious, Inflow Depth = 0.23" for 2yr event
 Inflow = 0.54 cfs @ 14.38 hrs, Volume= 0.285 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 102.61' @ 30.63 hrs Surf.Area= 37,923 sf Storage= 12,415 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	94,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

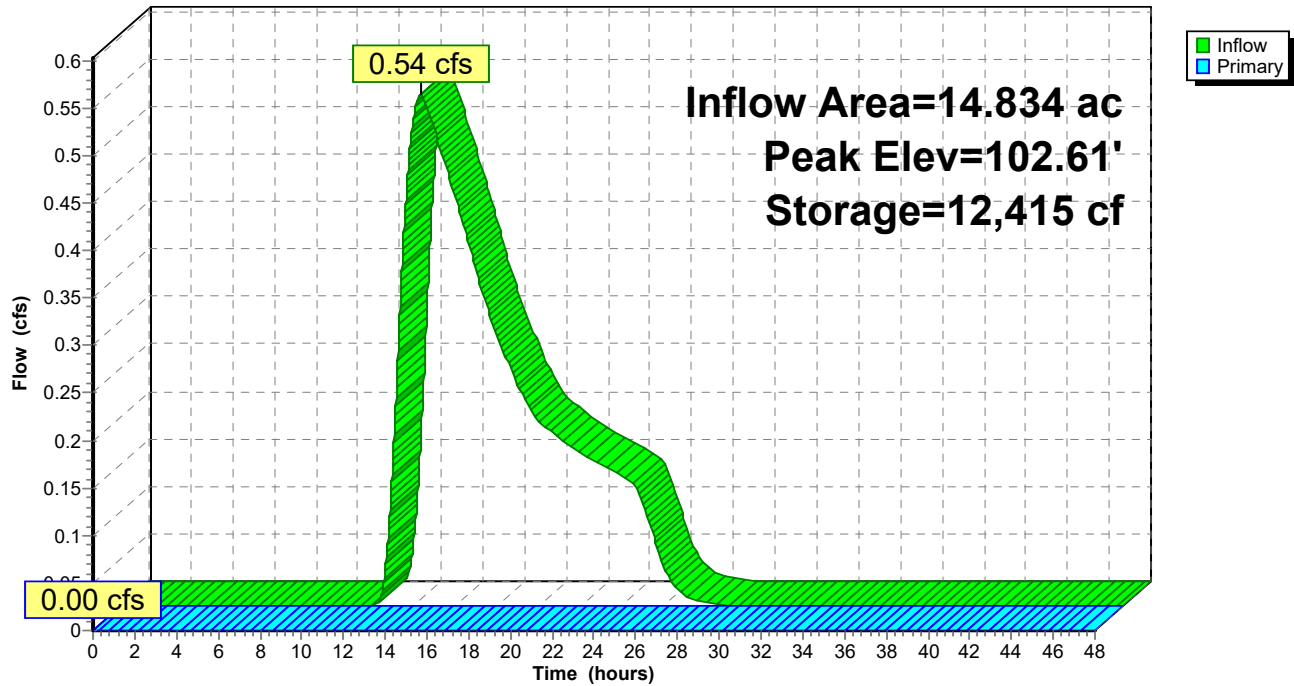
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	100	0	0
102.50	34,300	8,600	8,600
103.50	68,600	51,450	60,050
104.00	68,600	34,300	94,350

Device	Routing	Invert	Outlet Devices
#1	Primary	103.00'	15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Wetland

Hydrograph



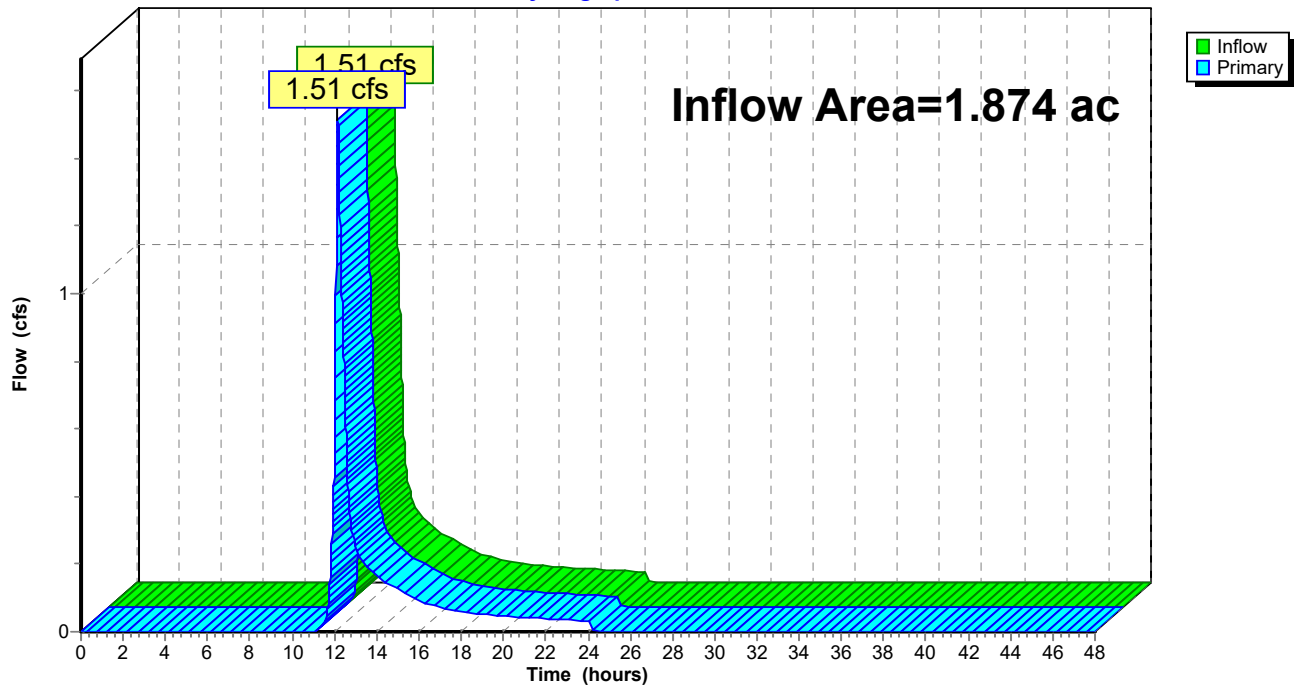
Summary for Link SP-1: SP-1

Inflow Area = 1.874 ac, 39.07% Impervious, Inflow Depth = 0.89" for 2yr event
 Inflow = 1.51 cfs @ 12.16 hrs, Volume= 0.138 af
 Primary = 1.51 cfs @ 12.16 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-1: SP-1

Hydrograph



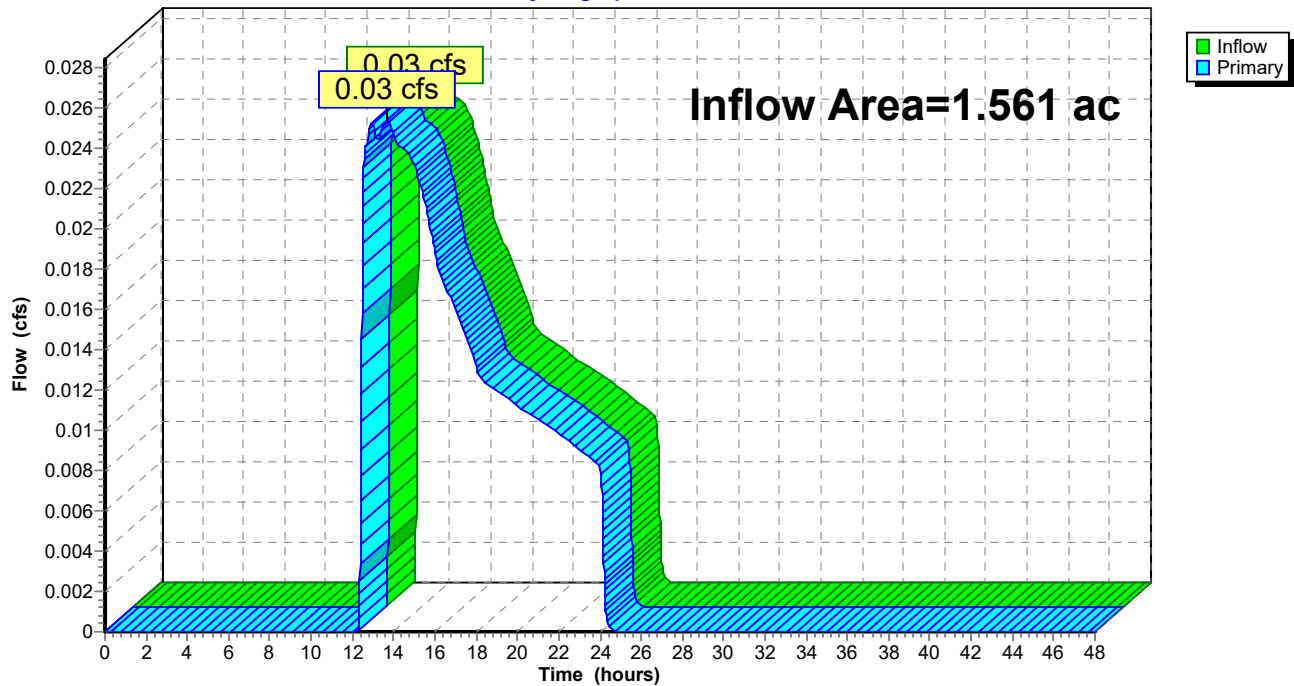
Summary for Link SP-2: SP-2

Inflow Area = 1.561 ac, 4.03% Impervious, Inflow Depth = 0.11" for 2yr event
Inflow = 0.03 cfs @ 13.68 hrs, Volume= 0.015 af
Primary = 0.03 cfs @ 13.68 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-2: SP-2

Hydrograph



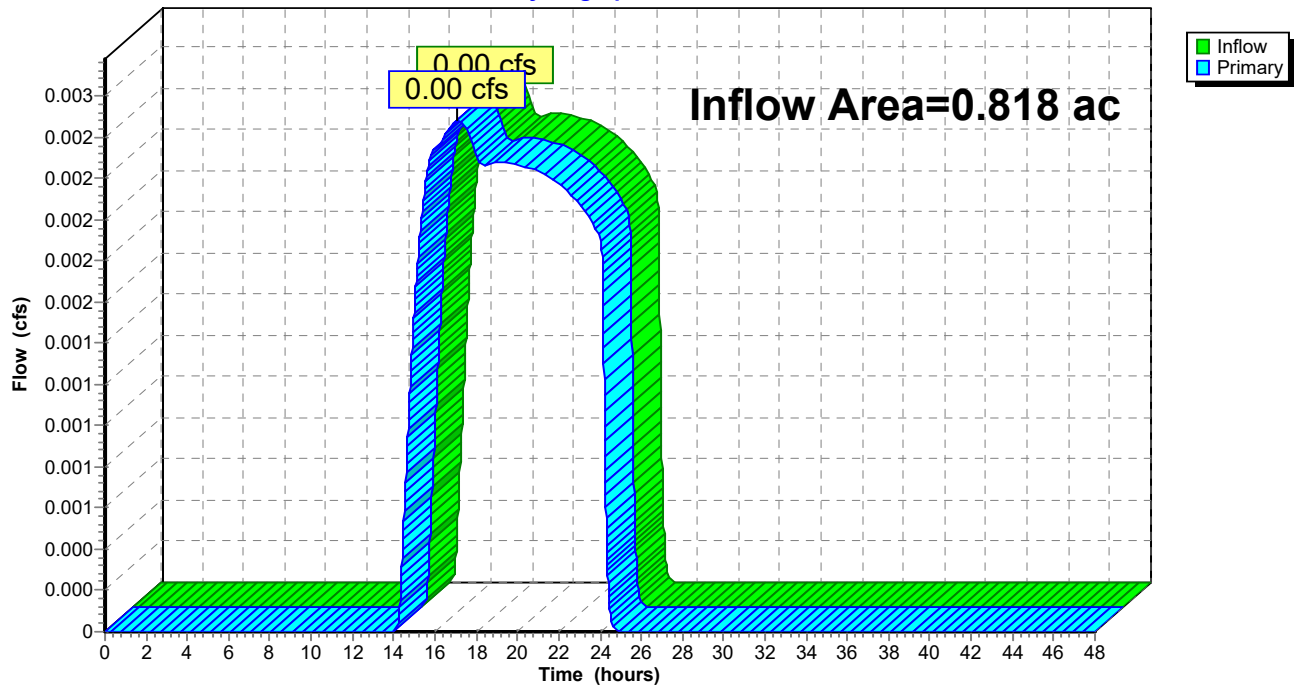
Summary for Link SP-3: SP-3

Inflow Area = 0.818 ac, 0.00% Impervious, Inflow Depth = 0.03" for 2yr event
Inflow = 0.00 cfs @ 17.09 hrs, Volume= 0.002 af
Primary = 0.00 cfs @ 17.09 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-3: SP-3

Hydrograph



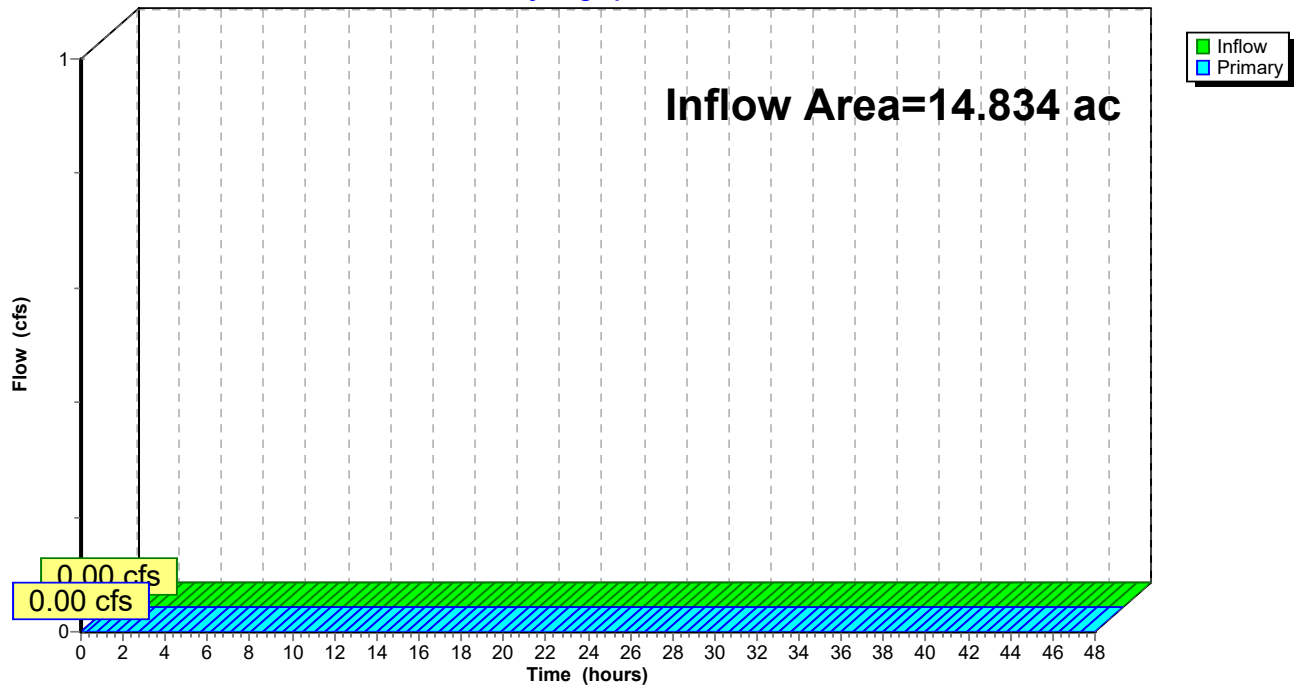
Summary for Link SP-4: SP-4

Inflow Area = 14.834 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-4: SP-4

Hydrograph



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Type III 24-hr 10yr Rainfall=4.78"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S/2S: 1S/2S

Runoff Area=81,626 sf 39.07% Impervious Runoff Depth=2.03"
Flow Length=324' Tc=10.8 min CN=72 Runoff=3.74 cfs 0.317 af

Subcatchment 3S: 3S

Runoff Area=68,012 sf 4.03% Impervious Runoff Depth=0.60"
Flow Length=384' Tc=12.2 min CN=50 Runoff=0.52 cfs 0.079 af

Subcatchment 4S: 4S

Runoff Area=35,628 sf 0.00% Impervious Runoff Depth=0.33"
Flow Length=315' Tc=16.7 min CN=44 Runoff=0.09 cfs 0.023 af

Subcatchment 5S: 5S

Runoff Area=646,170 sf 0.00% Impervious Runoff Depth=0.87"
Flow Length=1,384' Tc=118.8 min CN=55 Runoff=3.01 cfs 1.079 af

Pond 1P: Wetland

Peak Elev=103.06' Storage=33,334 cf Inflow=3.01 cfs 1.079 af
Outflow=0.63 cfs 0.389 af

Link SP-1: SP-1

Inflow=3.74 cfs 0.317 af
Primary=3.74 cfs 0.317 af

Link SP-2: SP-2

Inflow=0.52 cfs 0.079 af
Primary=0.52 cfs 0.079 af

Link SP-3: SP-3

Inflow=0.09 cfs 0.023 af
Primary=0.09 cfs 0.023 af

Link SP-4: SP-4

Inflow=0.63 cfs 0.389 af
Primary=0.63 cfs 0.389 af

Total Runoff Area = 19.087 ac Runoff Volume = 1.497 af Average Runoff Depth = 0.94"
95.83% Pervious = 18.292 ac 4.17% Impervious = 0.795 ac

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Type III 24-hr 10yr Rainfall=4.78"

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Summary for Subcatchment 1S/2S: 1S/2S

Runoff = 3.74 cfs @ 12.16 hrs, Volume= 0.317 af, Depth= 2.03"

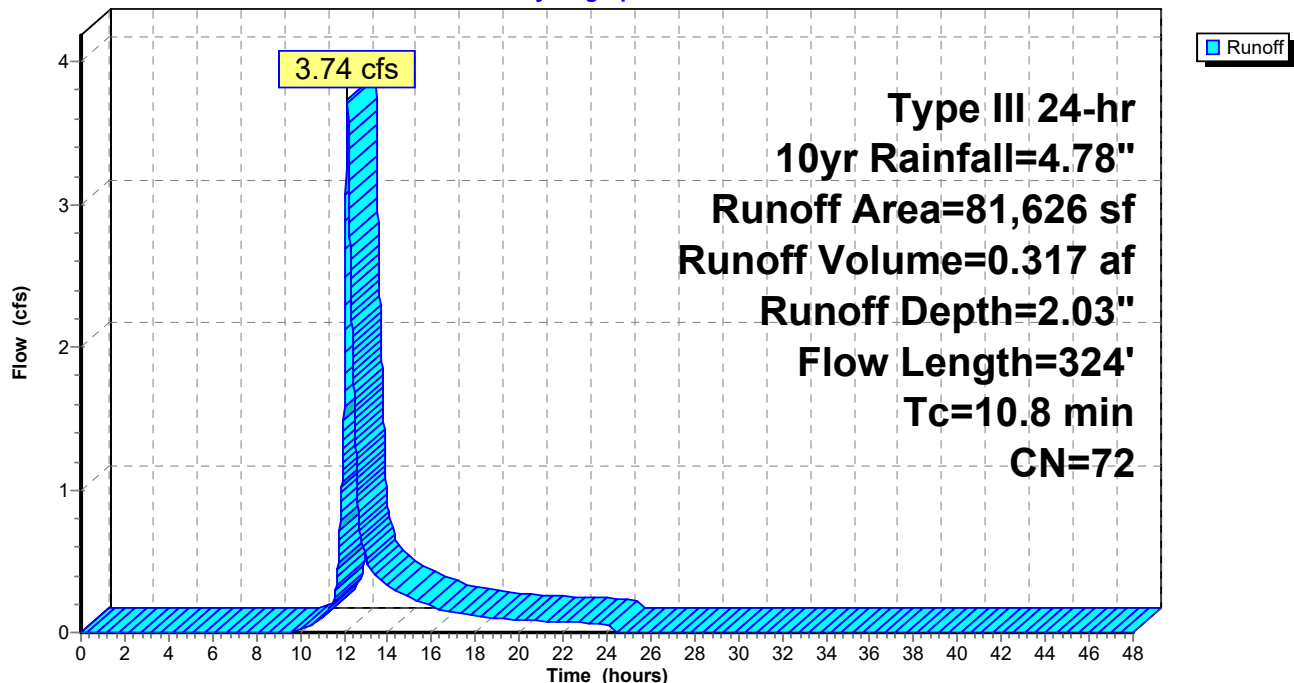
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
31,877	61	Pasture/grassland/range, Good, HSG B
13,617	98	Paved parking, HSG B
8,284	30	Woods, Good, HSG A
9,572	55	Woods, Good, HSG B
18,276	98	Paved parking, HSG B
81,626	72	Weighted Average
49,733		60.93% Pervious Area
31,893		39.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	125	0.0320	0.21		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
1.0	199	0.0270	3.34		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
10.8	324	Total			

Subcatchment 1S/2S: 1S/2S

Hydrograph



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Summary for Subcatchment 3S: 3S

Runoff = 0.52 cfs @ 12.26 hrs, Volume= 0.079 af, Depth= 0.60"

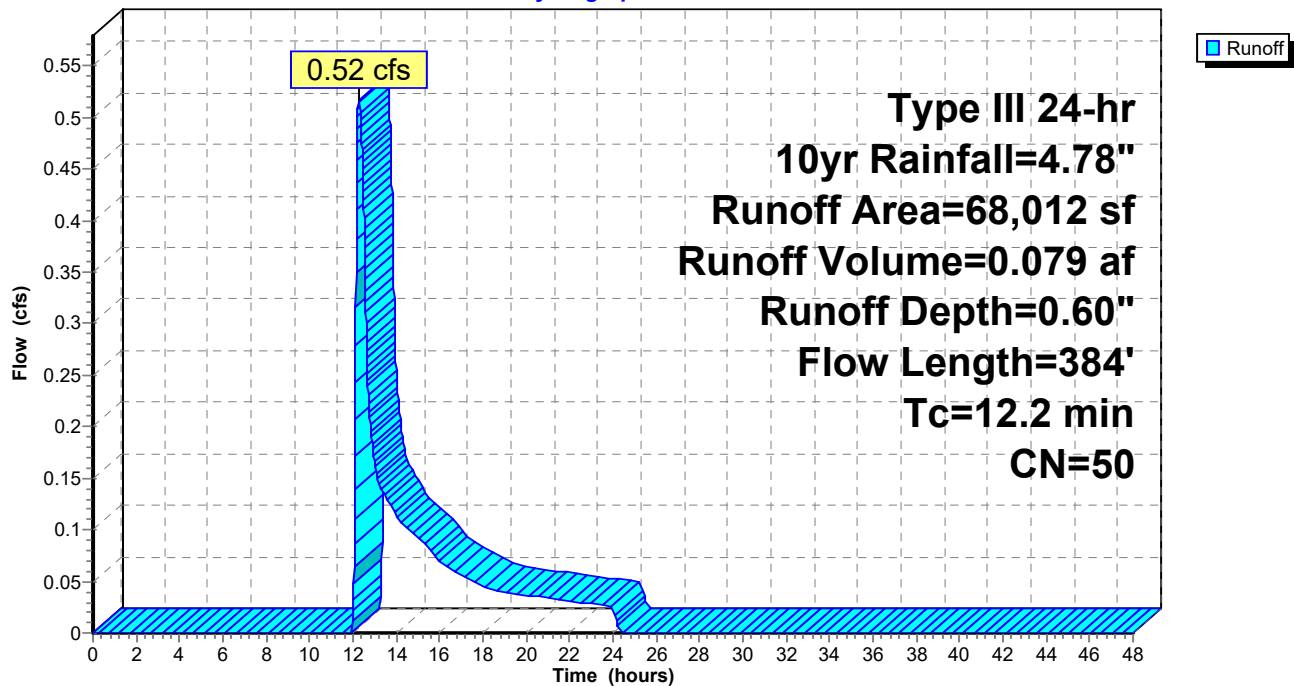
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
19,826	30	Woods, Good, HSG A
10,200	61	Pasture/grassland/range, Good, HSG B
35,244	55	Woods, Good, HSG B
2,742	98	Paved parking, HSG B
68,012	50	Weighted Average
65,270		95.97% Pervious Area
2,742		4.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	44	0.0932	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
9.4	340	0.0074	0.60		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
12.2	384	Total			

Subcatchment 3S: 3S

Hydrograph



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Type III 24-hr 10yr Rainfall=4.78"

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Summary for Subcatchment 4S: 4S

Runoff = 0.09 cfs @ 12.52 hrs, Volume= 0.023 af, Depth= 0.33"

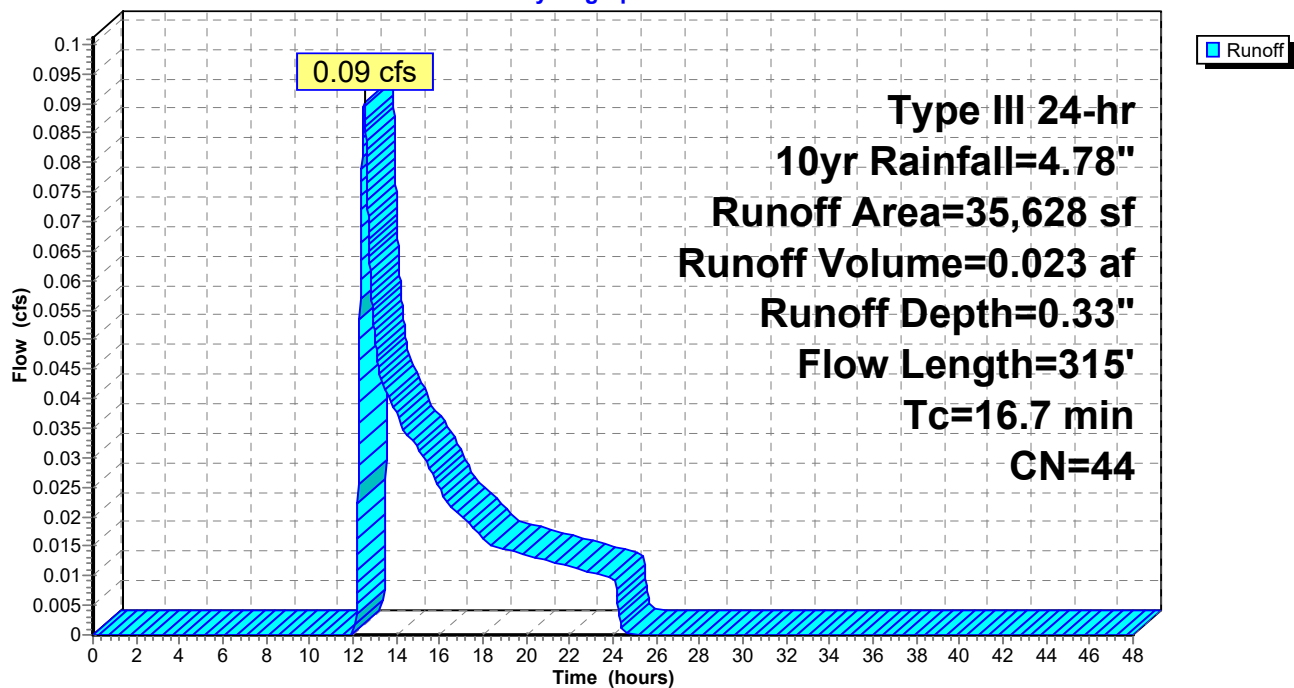
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
16,667	30	Woods, Good, HSG A
2,964	61	Pasture/grassland/range, Good, HSG B
15,997	55	Woods, Good, HSG B
35,628	44	Weighted Average
35,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0130	0.14		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
4.9	215	0.0107	0.72		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
16.7	315	Total			

Subcatchment 4S: 4S

Hydrograph



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Type III 24-hr 10yr Rainfall=4.78"

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Summary for Subcatchment 5S: 5S

Runoff = 3.01 cfs @ 13.86 hrs, Volume= 1.079 af, Depth= 0.87"

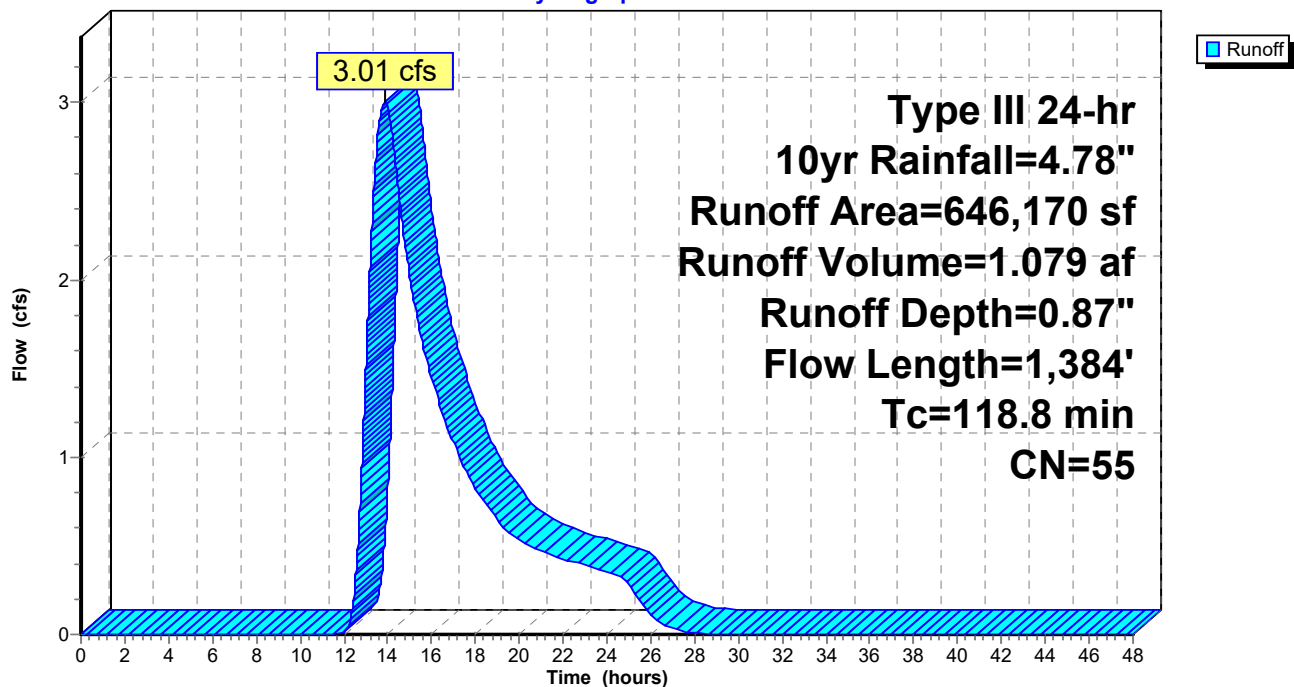
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
143,212	30	Woods, Good, HSG A
328,540	55	Woods, Good, HSG B
80,519	70	Woods, Good, HSG C
93,899	77	Woods, Good, HSG D
646,170	55	Weighted Average
646,170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.9	200	0.0700	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.13"
78.9	1,184	0.0100	0.25		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
118.8	1,384	Total			

Subcatchment 5S: 5S

Hydrograph



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Type III 24-hr 10yr Rainfall=4.78"

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Summary for Pond 1P: Wetland

Inflow Area = 14.834 ac, 0.00% Impervious, Inflow Depth = 0.87" for 10yr event
 Inflow = 3.01 cfs @ 13.86 hrs, Volume= 1.079 af
 Outflow = 0.63 cfs @ 19.07 hrs, Volume= 0.389 af, Atten= 79%, Lag= 312.7 min
 Primary = 0.63 cfs @ 19.07 hrs, Volume= 0.389 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.06' @ 19.07 hrs Surf.Area= 53,603 sf Storage= 33,334 cf

Plug-Flow detention time= 502.7 min calculated for 0.389 af (36% of inflow)
 Center-of-Mass det. time= 326.4 min (1,328.0 - 1,001.7)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	94,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

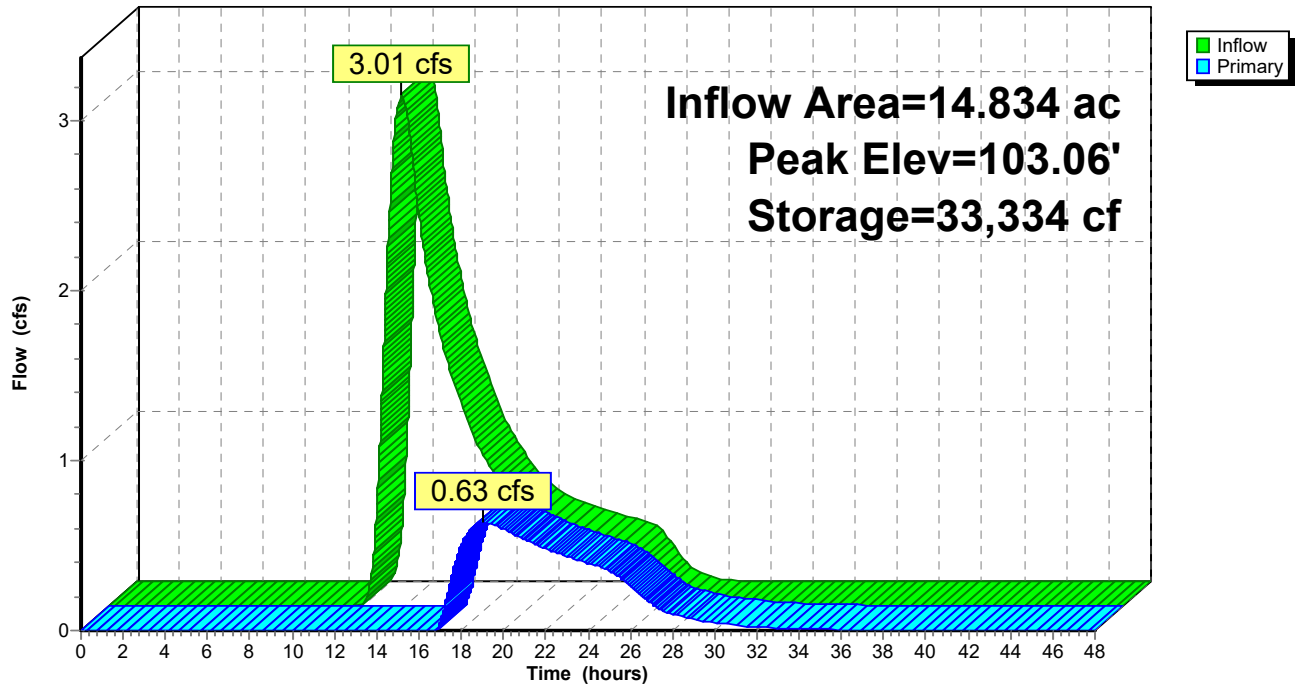
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	100	0	0
102.50	34,300	8,600	8,600
103.50	68,600	51,450	60,050
104.00	68,600	34,300	94,350

Device	Routing	Invert	Outlet Devices
#1	Primary	103.00'	15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.63 cfs @ 19.07 hrs HW=103.06' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0.63 cfs @ 0.67 fps)

Pond 1P: Wetland

Hydrograph



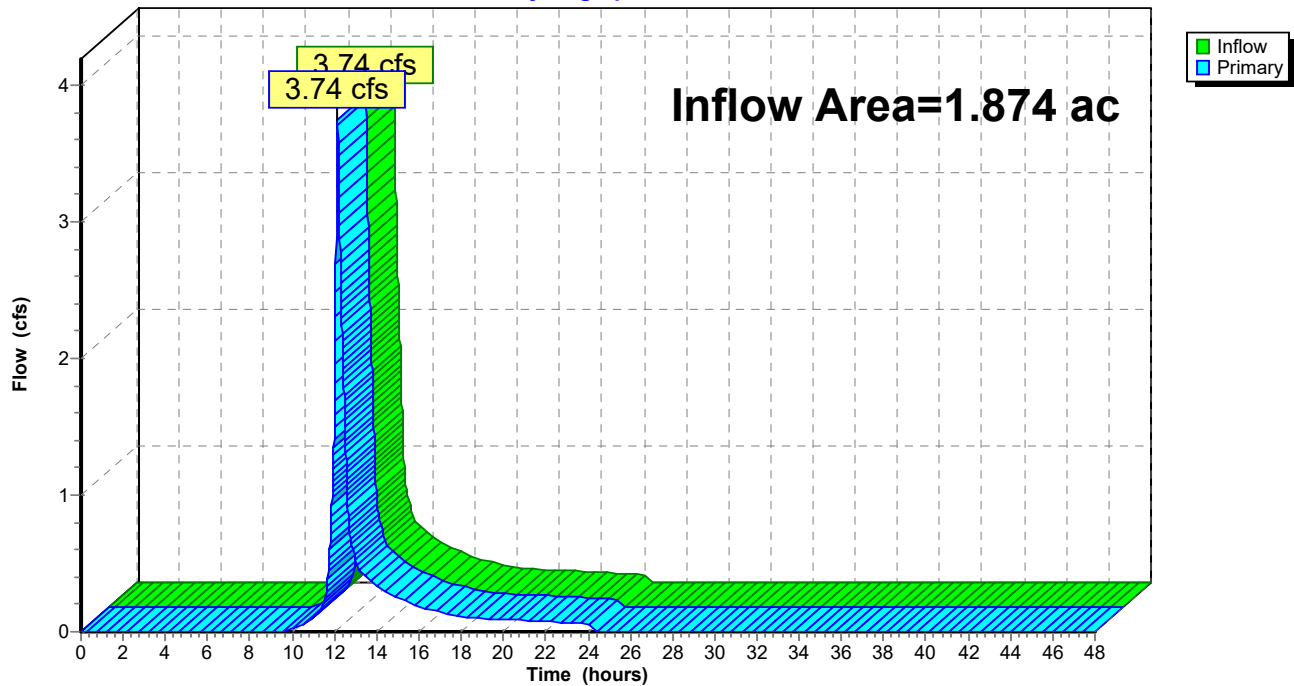
Summary for Link SP-1: SP-1

Inflow Area = 1.874 ac, 39.07% Impervious, Inflow Depth = 2.03" for 10yr event
 Inflow = 3.74 cfs @ 12.16 hrs, Volume= 0.317 af
 Primary = 3.74 cfs @ 12.16 hrs, Volume= 0.317 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-1: SP-1

Hydrograph



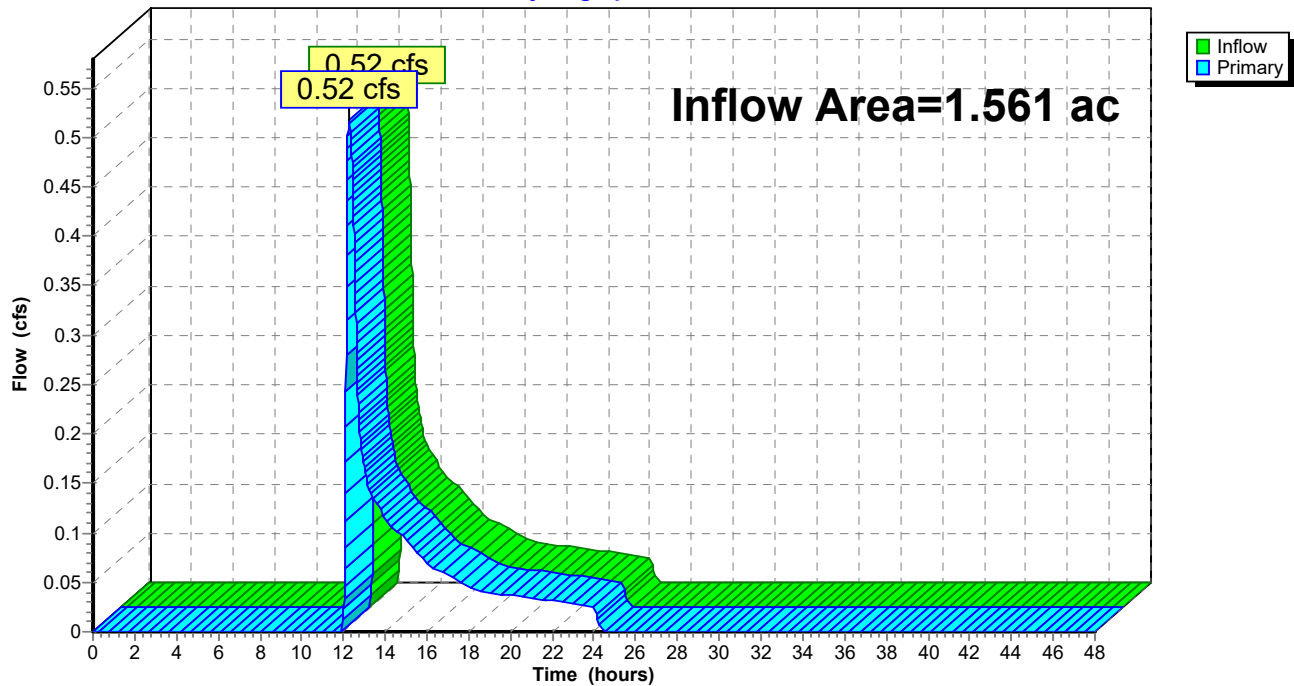
Summary for Link SP-2: SP-2

Inflow Area = 1.561 ac, 4.03% Impervious, Inflow Depth = 0.60" for 10yr event
Inflow = 0.52 cfs @ 12.26 hrs, Volume= 0.079 af
Primary = 0.52 cfs @ 12.26 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-2: SP-2

Hydrograph



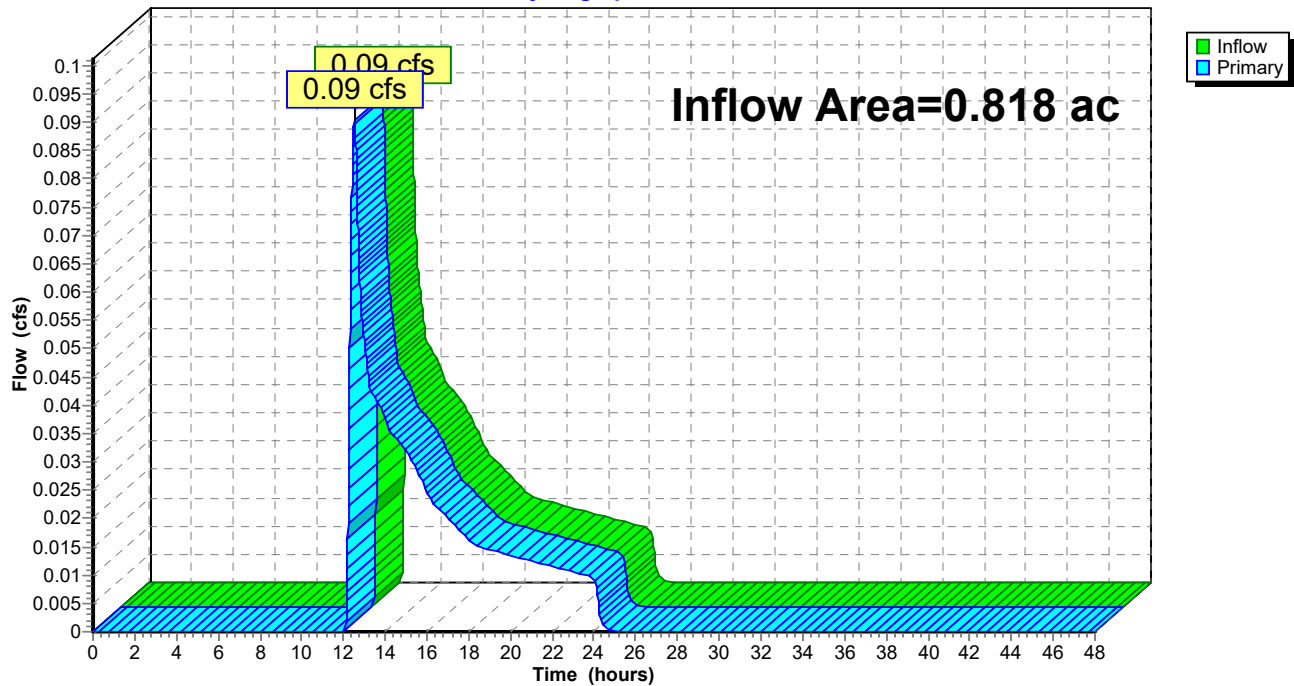
Summary for Link SP-3: SP-3

Inflow Area = 0.818 ac, 0.00% Impervious, Inflow Depth = 0.33" for 10yr event
Inflow = 0.09 cfs @ 12.52 hrs, Volume= 0.023 af
Primary = 0.09 cfs @ 12.52 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-3: SP-3

Hydrograph



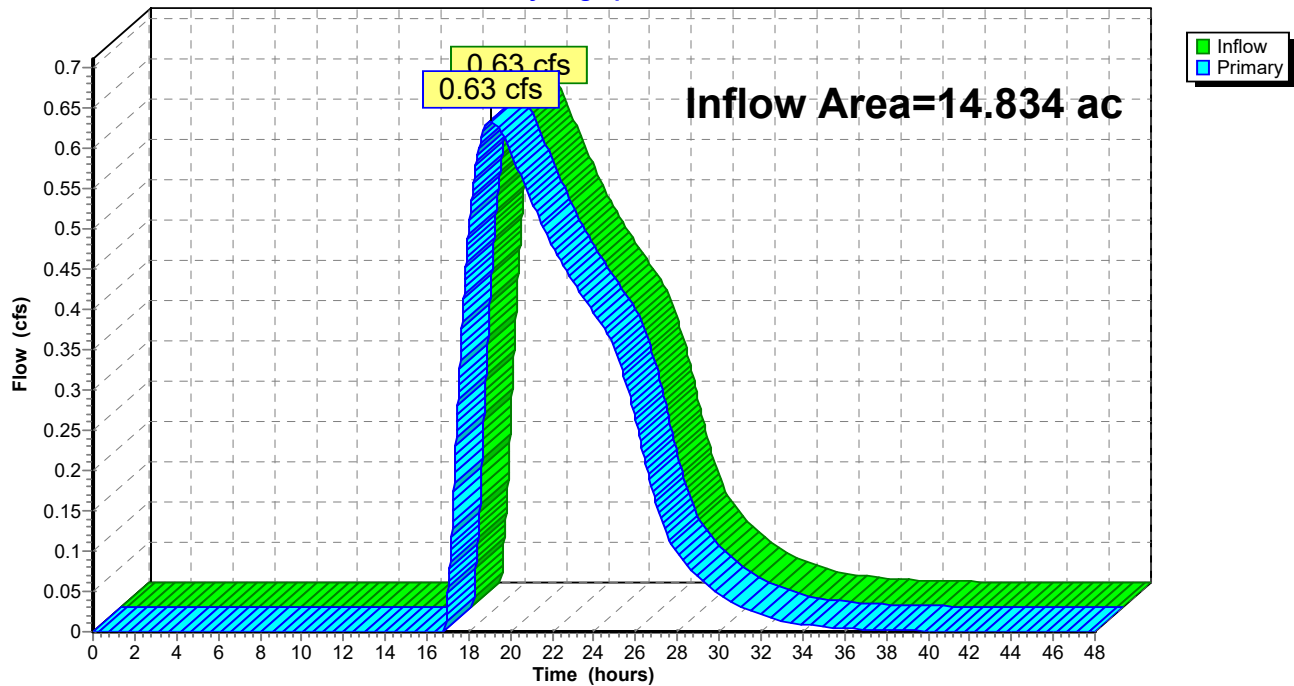
Summary for Link SP-4: SP-4

Inflow Area = 14.834 ac, 0.00% Impervious, Inflow Depth = 0.31" for 10yr event
Inflow = 0.63 cfs @ 19.07 hrs, Volume= 0.389 af
Primary = 0.63 cfs @ 19.07 hrs, Volume= 0.389 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-4: SP-4

Hydrograph



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Type III 24-hr 25yr Rainfall=6.09"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S/2S: 1S/2S

Runoff Area=81,626 sf 39.07% Impervious Runoff Depth=3.07"
Flow Length=324' Tc=10.8 min CN=72 Runoff=5.73 cfs 0.479 af

Subcatchment 3S: 3S

Runoff Area=68,012 sf 4.03% Impervious Runoff Depth=1.19"
Flow Length=384' Tc=12.2 min CN=50 Runoff=1.39 cfs 0.154 af

Subcatchment 4S: 4S

Runoff Area=35,628 sf 0.00% Impervious Runoff Depth=0.77"
Flow Length=315' Tc=16.7 min CN=44 Runoff=0.32 cfs 0.053 af

Subcatchment 5S: 5S

Runoff Area=646,170 sf 0.00% Impervious Runoff Depth=1.57"
Flow Length=1,384' Tc=118.8 min CN=55 Runoff=6.03 cfs 1.941 af

Pond 1P: Wetland

Peak Elev=103.17' Storage=39,066 cf Inflow=6.03 cfs 1.941 af
Outflow=2.73 cfs 1.251 af

Link SP-1: SP-1

Inflow=5.73 cfs 0.479 af
Primary=5.73 cfs 0.479 af

Link SP-2: SP-2

Inflow=1.39 cfs 0.154 af
Primary=1.39 cfs 0.154 af

Link SP-3: SP-3

Inflow=0.32 cfs 0.053 af
Primary=0.32 cfs 0.053 af

Link SP-4: SP-4

Inflow=2.73 cfs 1.251 af
Primary=2.73 cfs 1.251 af

Total Runoff Area = 19.087 ac Runoff Volume = 2.627 af Average Runoff Depth = 1.65"
95.83% Pervious = 18.292 ac 4.17% Impervious = 0.795 ac

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Type III 24-hr 25yr Rainfall=6.09"

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Summary for Subcatchment 1S/2S: 1S/2S

Runoff = 5.73 cfs @ 12.15 hrs, Volume= 0.479 af, Depth= 3.07"

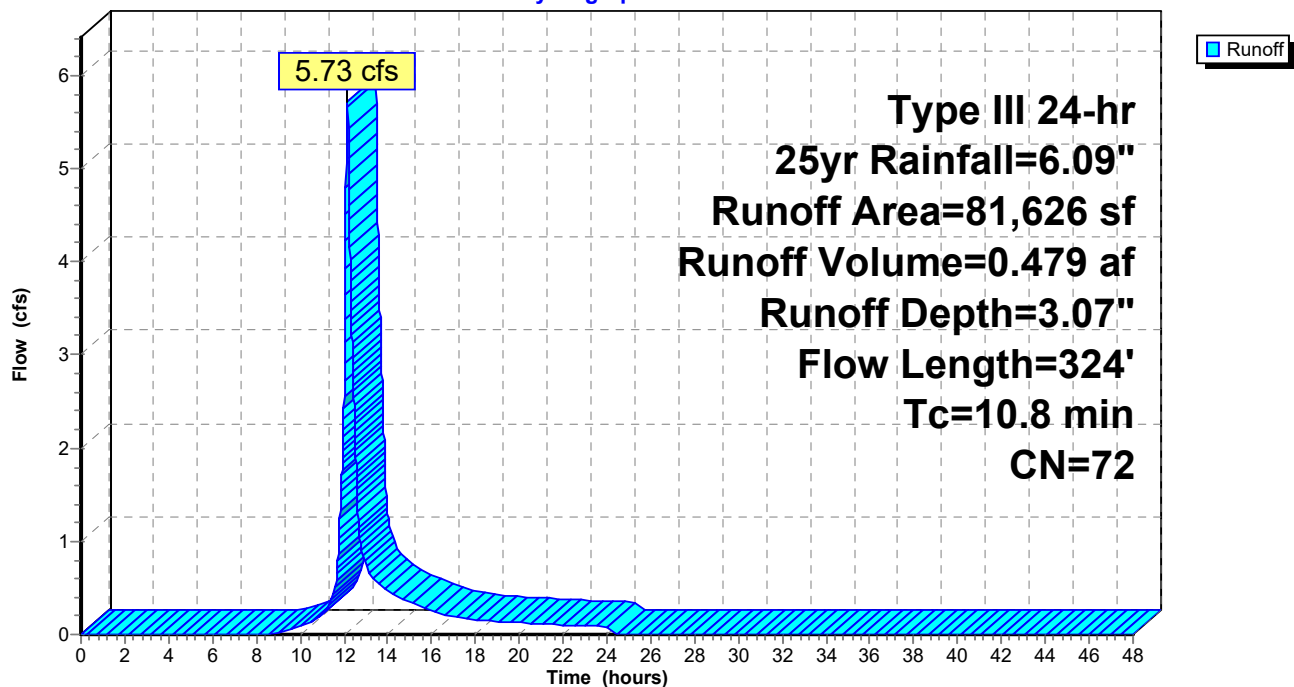
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
31,877	61	Pasture/grassland/range, Good, HSG B
13,617	98	Paved parking, HSG B
8,284	30	Woods, Good, HSG A
9,572	55	Woods, Good, HSG B
18,276	98	Paved parking, HSG B
81,626	72	Weighted Average
49,733		60.93% Pervious Area
31,893		39.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	125	0.0320	0.21		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
1.0	199	0.0270	3.34		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
10.8	324	Total			

Subcatchment 1S/2S: 1S/2S

Hydrograph



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Type III 24-hr 25yr Rainfall=6.09"

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Summary for Subcatchment 3S: 3S

Runoff = 1.39 cfs @ 12.20 hrs, Volume= 0.154 af, Depth= 1.19"

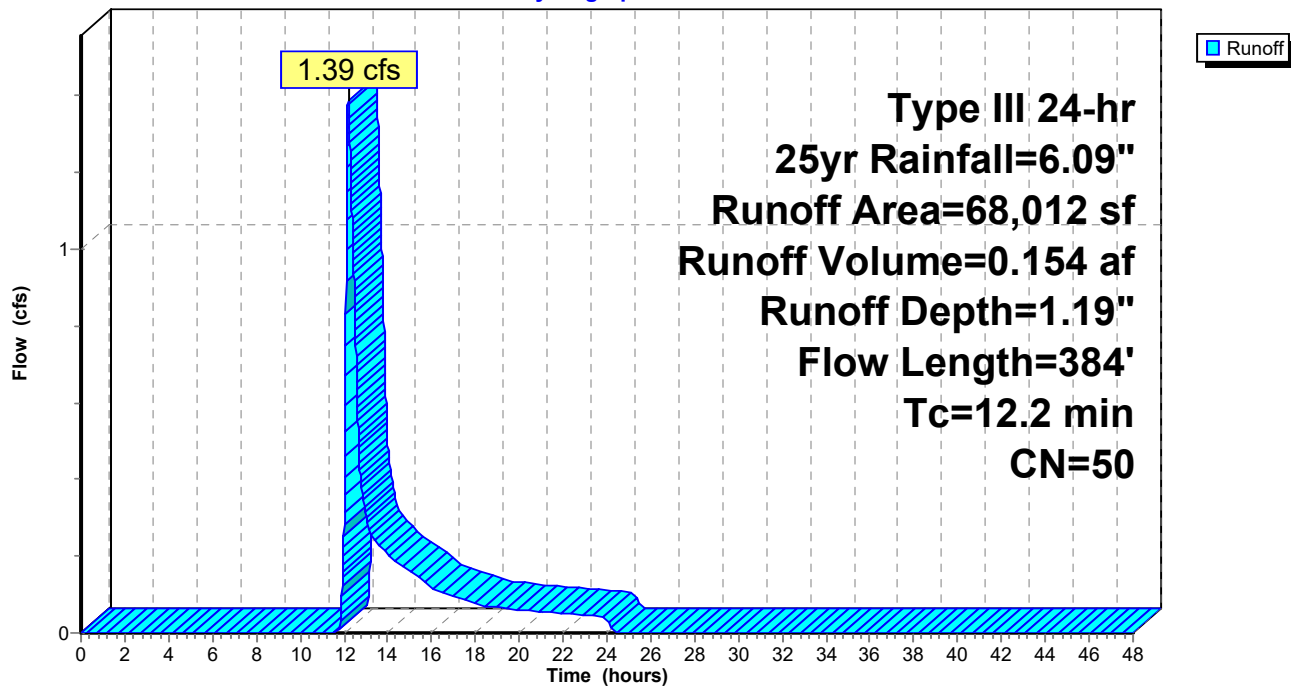
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
19,826	30	Woods, Good, HSG A
10,200	61	Pasture/grassland/range, Good, HSG B
35,244	55	Woods, Good, HSG B
2,742	98	Paved parking, HSG B
68,012	50	Weighted Average
65,270		95.97% Pervious Area
2,742		4.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	44	0.0932	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.13"
9.4	340	0.0074	0.60		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
12.2	384	Total			

Subcatchment 3S: 3S

Hydrograph



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Type III 24-hr 25yr Rainfall=6.09"

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Summary for Subcatchment 4S: 4S

Runoff = 0.32 cfs @ 12.37 hrs, Volume= 0.053 af, Depth= 0.77"

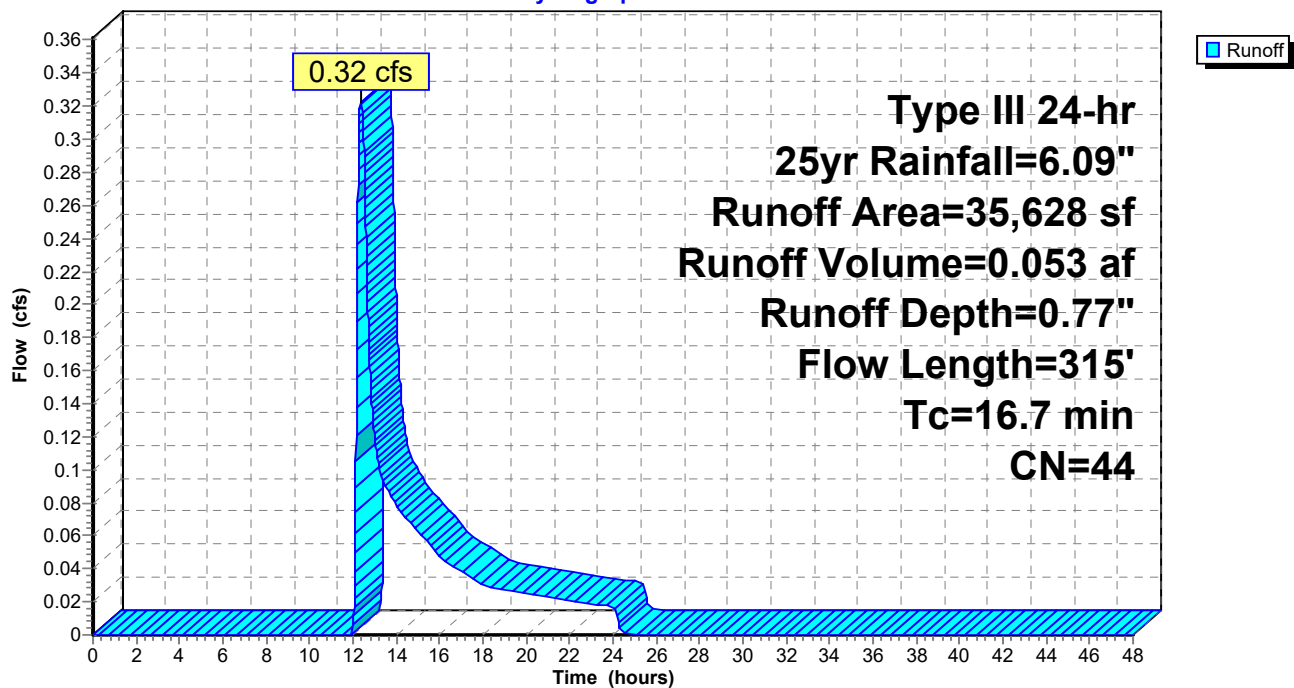
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
16,667	30	Woods, Good, HSG A
2,964	61	Pasture/grassland/range, Good, HSG B
15,997	55	Woods, Good, HSG B
35,628	44	Weighted Average
35,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0130	0.14		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
4.9	215	0.0107	0.72		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
16.7	315	Total			

Subcatchment 4S: 4S

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Type III 24-hr 25yr Rainfall=6.09"

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Summary for Subcatchment 5S: 5S

Runoff = 6.03 cfs @ 13.73 hrs, Volume= 1.941 af, Depth= 1.57"

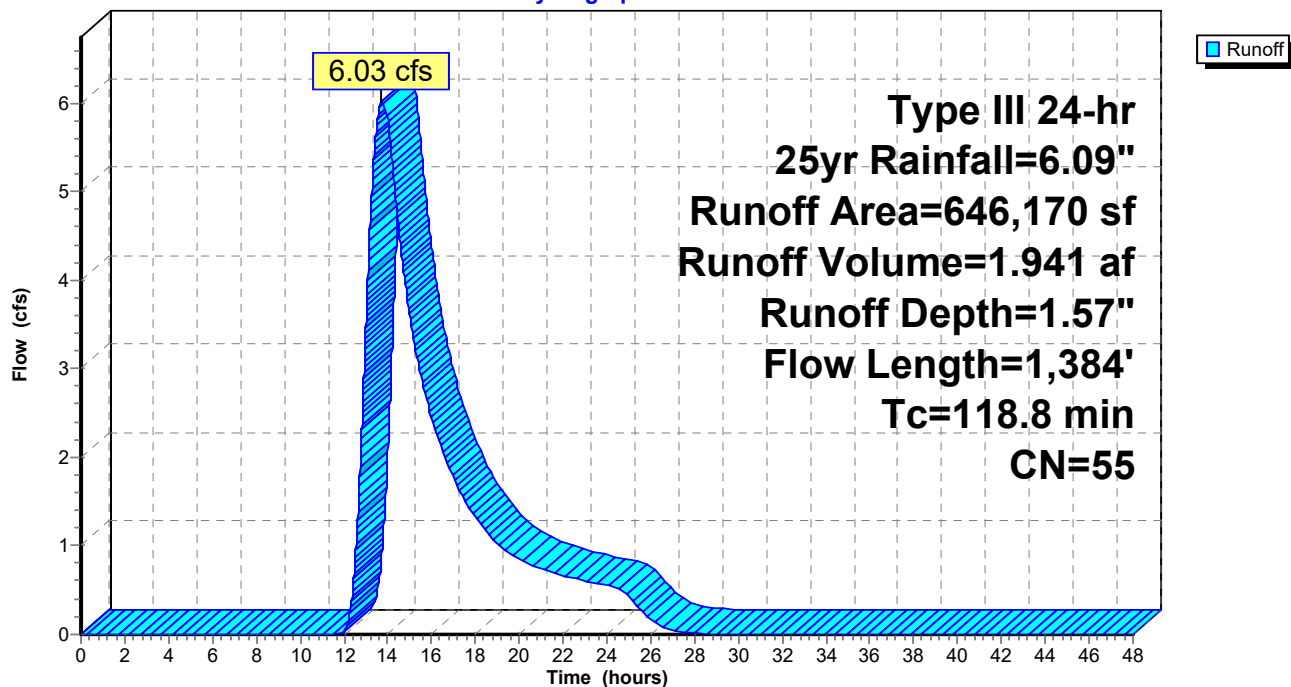
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
143,212	30	Woods, Good, HSG A
328,540	55	Woods, Good, HSG B
80,519	70	Woods, Good, HSG C
93,899	77	Woods, Good, HSG D
646,170	55	Weighted Average
646,170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.9	200	0.0700	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.13"
78.9	1,184	0.0100	0.25		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
118.8	1,384	Total			

Subcatchment 5S: 5S

Hydrograph



PLAISTOW-PRE

Type III 24-hr 25yr Rainfall=6.09"

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Summary for Pond 1P: Wetland

Inflow Area = 14.834 ac, 0.00% Impervious, Inflow Depth = 1.57" for 25yr event
 Inflow = 6.03 cfs @ 13.73 hrs, Volume= 1.941 af
 Outflow = 2.73 cfs @ 15.69 hrs, Volume= 1.251 af, Atten= 55%, Lag= 117.7 min
 Primary = 2.73 cfs @ 15.69 hrs, Volume= 1.251 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.17' @ 15.69 hrs Surf.Area= 57,153 sf Storage= 39,066 cf

Plug-Flow detention time= 284.3 min calculated for 1.251 af (64% of inflow)
 Center-of-Mass det. time= 163.0 min (1,143.6 - 980.6)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	94,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

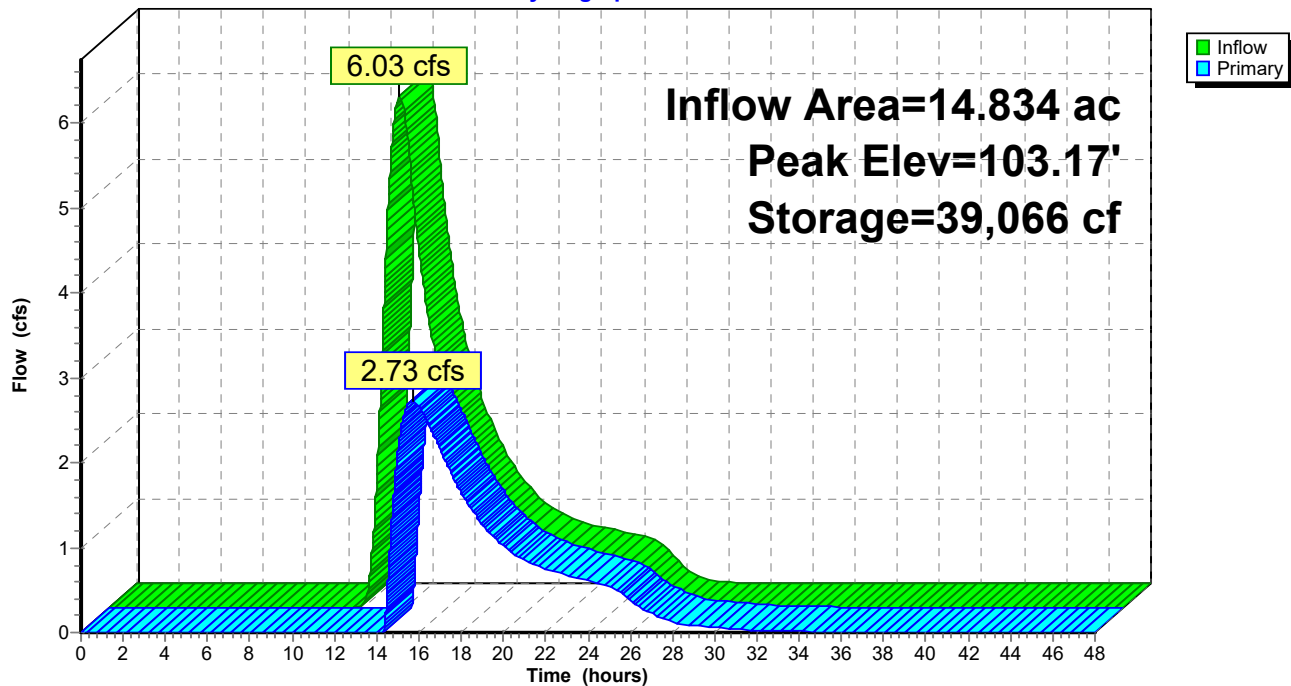
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	100	0	0
102.50	34,300	8,600	8,600
103.50	68,600	51,450	60,050
104.00	68,600	34,300	94,350

Device	Routing	Invert	Outlet Devices
#1	Primary	103.00'	15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.73 cfs @ 15.69 hrs HW=103.17' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 2.73 cfs @ 1.09 fps)

Pond 1P: Wetland

Hydrograph



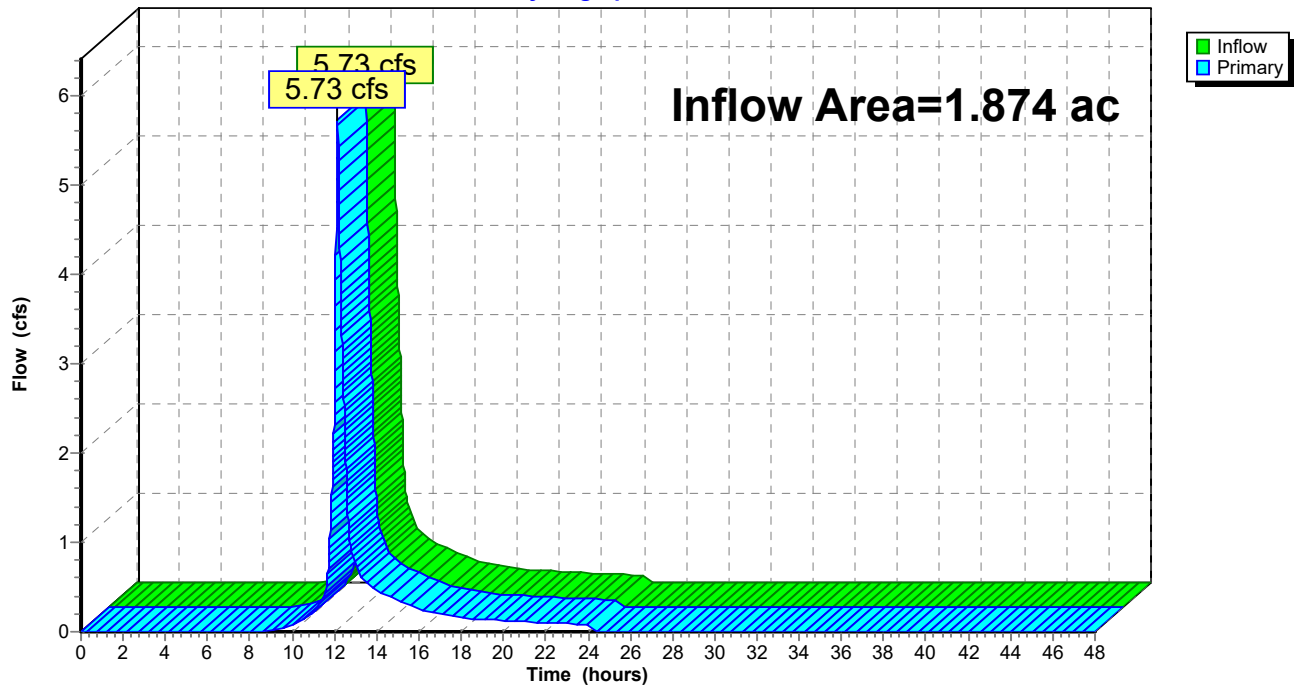
Summary for Link SP-1: SP-1

Inflow Area = 1.874 ac, 39.07% Impervious, Inflow Depth = 3.07" for 25yr event
Inflow = 5.73 cfs @ 12.15 hrs, Volume= 0.479 af
Primary = 5.73 cfs @ 12.15 hrs, Volume= 0.479 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-1: SP-1

Hydrograph



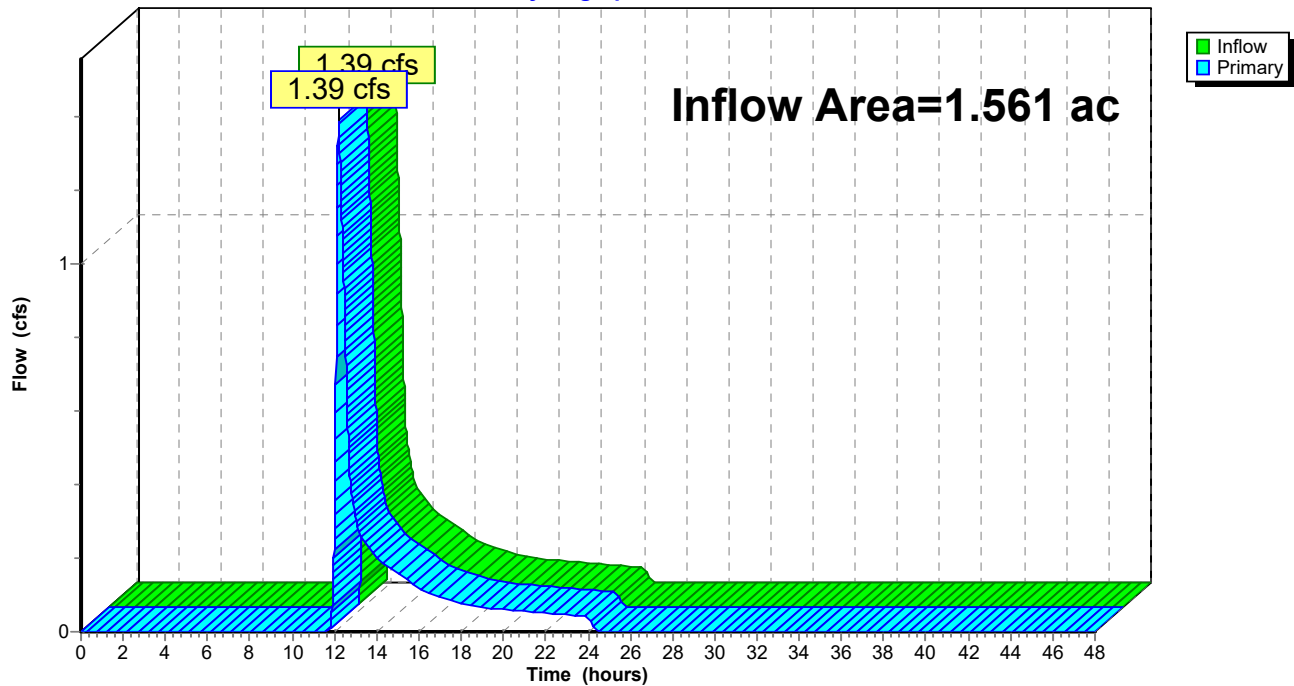
Summary for Link SP-2: SP-2

Inflow Area = 1.561 ac, 4.03% Impervious, Inflow Depth = 1.19" for 25yr event
Inflow = 1.39 cfs @ 12.20 hrs, Volume= 0.154 af
Primary = 1.39 cfs @ 12.20 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-2: SP-2

Hydrograph



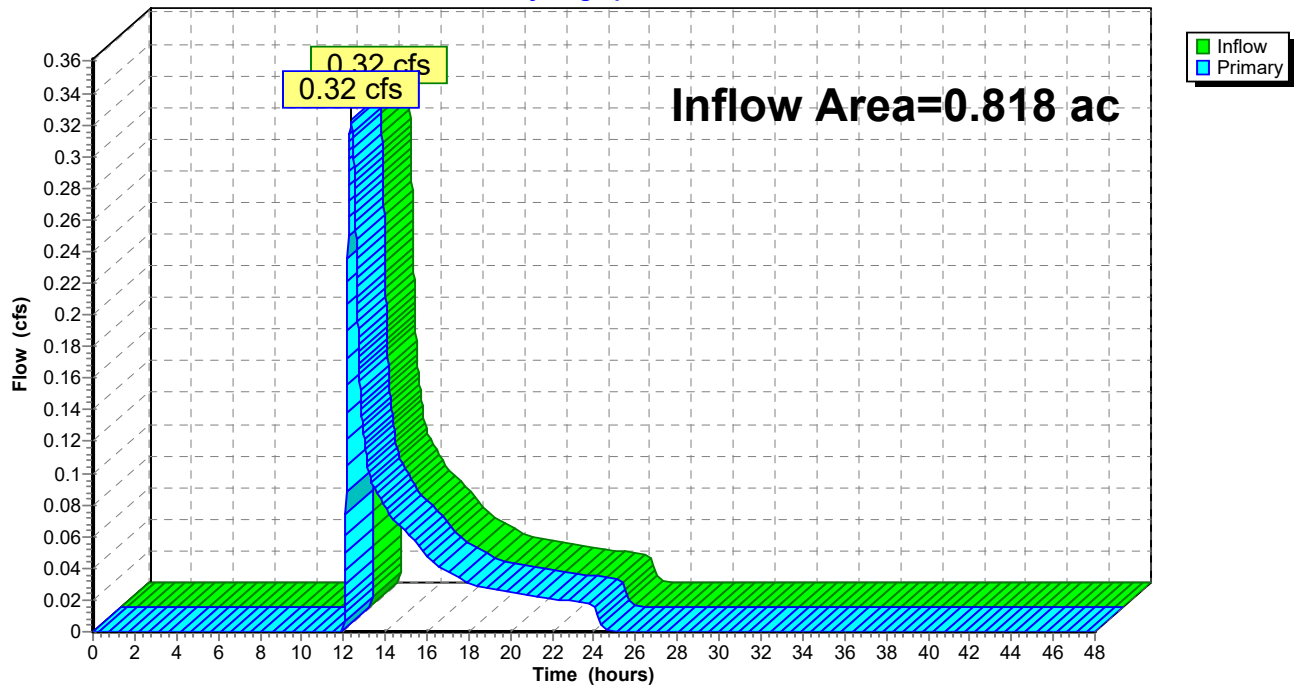
Summary for Link SP-3: SP-3

Inflow Area = 0.818 ac, 0.00% Impervious, Inflow Depth = 0.77" for 25yr event
Inflow = 0.32 cfs @ 12.37 hrs, Volume= 0.053 af
Primary = 0.32 cfs @ 12.37 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-3: SP-3

Hydrograph



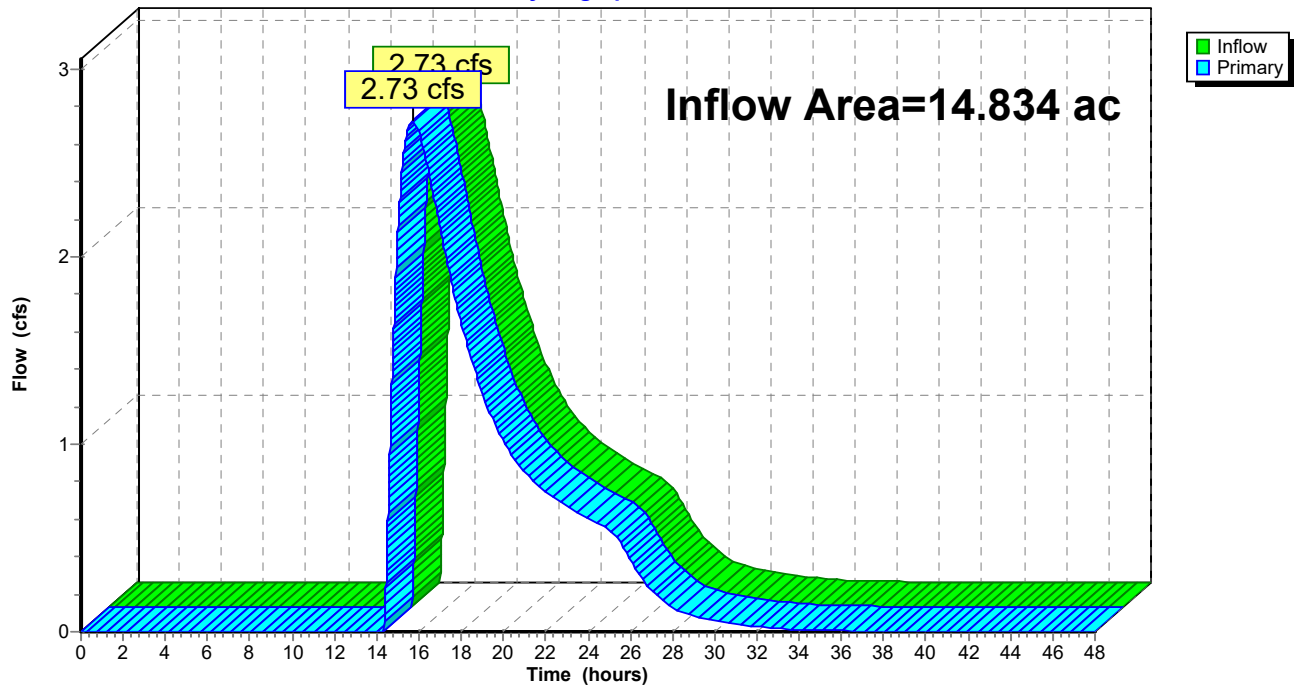
Summary for Link SP-4: SP-4

Inflow Area = 14.834 ac, 0.00% Impervious, Inflow Depth = 1.01" for 25yr event
 Inflow = 2.73 cfs @ 15.69 hrs, Volume= 1.251 af
 Primary = 2.73 cfs @ 15.69 hrs, Volume= 1.251 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-4: SP-4

Hydrograph



PLAISTOW-PRE

Type III 24-hr 50yr Rainfall=7.33"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S/2S: 1S/2S

Runoff Area=81,626 sf 39.07% Impervious Runoff Depth=4.11"
Flow Length=324' Tc=10.8 min CN=72 Runoff=7.70 cfs 0.642 af

Subcatchment 3S: 3S

Runoff Area=68,012 sf 4.03% Impervious Runoff Depth=1.85"
Flow Length=384' Tc=12.2 min CN=50 Runoff=2.43 cfs 0.241 af

Subcatchment 4S: 4S

Runoff Area=35,628 sf 0.00% Impervious Runoff Depth=1.31"
Flow Length=315' Tc=16.7 min CN=44 Runoff=0.68 cfs 0.089 af

Subcatchment 5S: 5S

Runoff Area=646,170 sf 0.00% Impervious Runoff Depth=2.34"
Flow Length=1,384' Tc=118.8 min CN=55 Runoff=9.46 cfs 2.888 af

Pond 1P: Wetland

Peak Elev=103.27' Storage=45,462 cf Inflow=9.46 cfs 2.888 af
Outflow=5.80 cfs 2.199 af

Link SP-1: SP-1

Inflow=7.70 cfs 0.642 af
Primary=7.70 cfs 0.642 af

Link SP-2: SP-2

Inflow=2.43 cfs 0.241 af
Primary=2.43 cfs 0.241 af

Link SP-3: SP-3

Inflow=0.68 cfs 0.089 af
Primary=0.68 cfs 0.089 af

Link SP-4: SP-4

Inflow=5.80 cfs 2.199 af
Primary=5.80 cfs 2.199 af

Total Runoff Area = 19.087 ac Runoff Volume = 3.860 af Average Runoff Depth = 2.43"
95.83% Pervious = 18.292 ac 4.17% Impervious = 0.795 ac

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Type III 24-hr 50yr Rainfall=7.33"

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Summary for Subcatchment 1S/2S: 1S/2S

Runoff = 7.70 cfs @ 12.15 hrs, Volume= 0.642 af, Depth= 4.11"

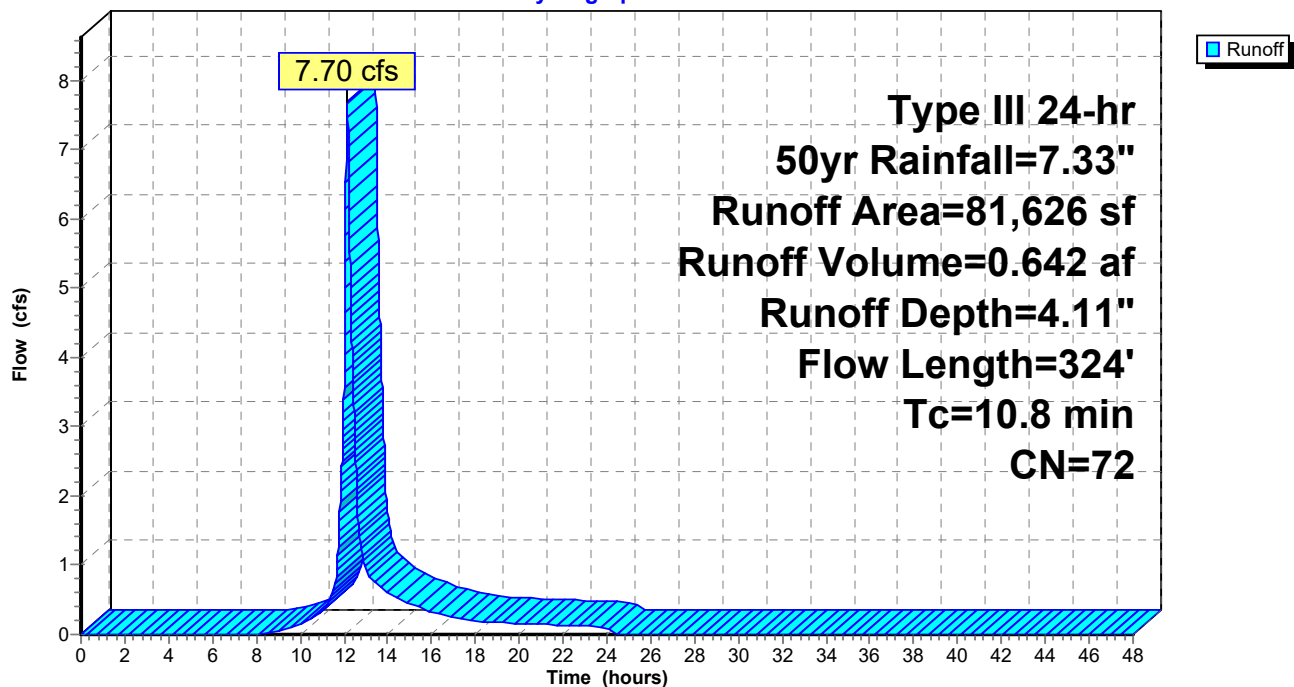
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
31,877	61	Pasture/grassland/range, Good, HSG B
13,617	98	Paved parking, HSG B
8,284	30	Woods, Good, HSG A
9,572	55	Woods, Good, HSG B
18,276	98	Paved parking, HSG B
81,626	72	Weighted Average
49,733		60.93% Pervious Area
31,893		39.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	125	0.0320	0.21		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
1.0	199	0.0270	3.34		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
10.8	324	Total			

Subcatchment 1S/2S: 1S/2S

Hydrograph



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Type III 24-hr 50yr Rainfall=7.33"

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Summary for Subcatchment 3S: 3S

Runoff = 2.43 cfs @ 12.19 hrs, Volume= 0.241 af, Depth= 1.85"

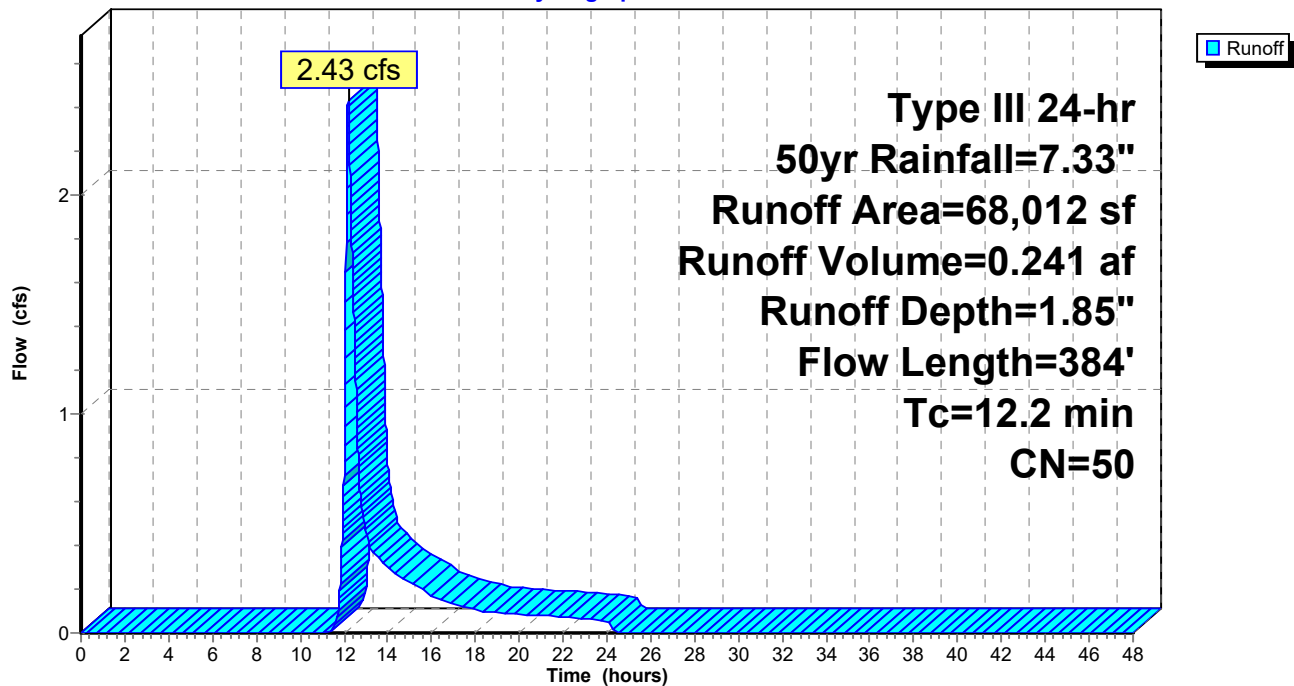
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
19,826	30	Woods, Good, HSG A
10,200	61	Pasture/grassland/range, Good, HSG B
35,244	55	Woods, Good, HSG B
2,742	98	Paved parking, HSG B
68,012	50	Weighted Average
65,270		95.97% Pervious Area
2,742		4.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	44	0.0932	0.26		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
9.4	340	0.0074	0.60		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
12.2	384	Total			

Subcatchment 3S: 3S

Hydrograph



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Type III 24-hr 50yr Rainfall=7.33"

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Summary for Subcatchment 4S: 4S

Runoff = 0.68 cfs @ 12.29 hrs, Volume= 0.089 af, Depth= 1.31"

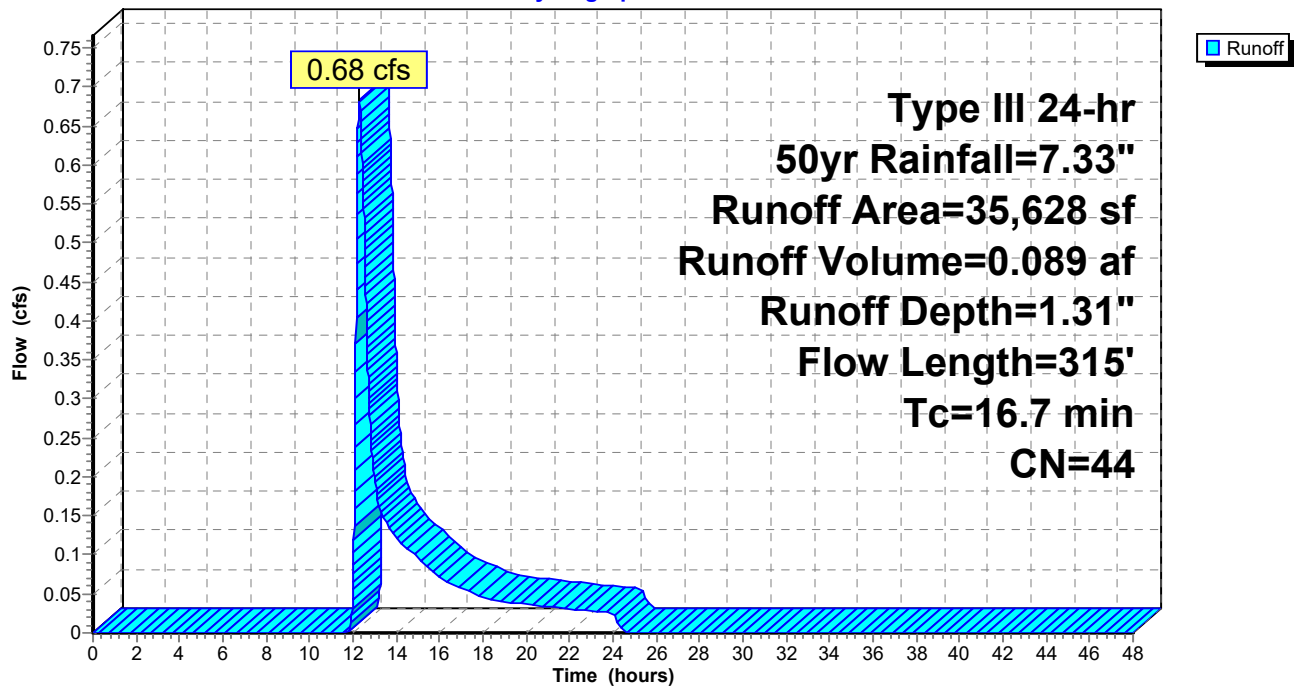
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
16,667	30	Woods, Good, HSG A
2,964	61	Pasture/grassland/range, Good, HSG B
15,997	55	Woods, Good, HSG B
35,628	44	Weighted Average
35,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0130	0.14		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.13"
4.9	215	0.0107	0.72		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
16.7	315	Total			

Subcatchment 4S: 4S

Hydrograph



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Type III 24-hr 50yr Rainfall=7.33"

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Summary for Subcatchment 5S: 5S

Runoff = 9.46 cfs @ 13.72 hrs, Volume= 2.888 af, Depth= 2.34"

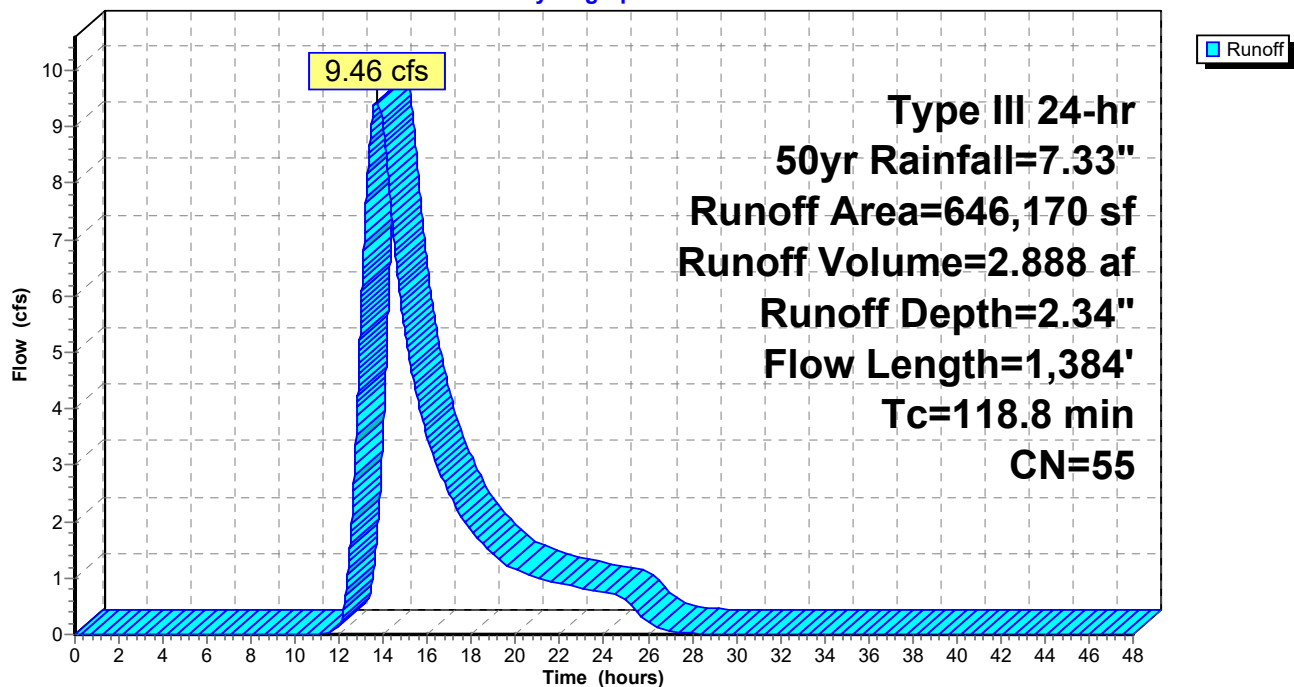
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
143,212	30	Woods, Good, HSG A
328,540	55	Woods, Good, HSG B
80,519	70	Woods, Good, HSG C
93,899	77	Woods, Good, HSG D
646,170	55	Weighted Average
646,170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.9	200	0.0700	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.13"
78.9	1,184	0.0100	0.25		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
118.8	1,384	Total			

Subcatchment 5S: 5S

Hydrograph



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Type III 24-hr 50yr Rainfall=7.33"

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Summary for Pond 1P: Wetland

Inflow Area = 14.834 ac, 0.00% Impervious, Inflow Depth = 2.34" for 50yr event
 Inflow = 9.46 cfs @ 13.72 hrs, Volume= 2.888 af
 Outflow = 5.80 cfs @ 14.82 hrs, Volume= 2.199 af, Atten= 39%, Lag= 65.9 min
 Primary = 5.80 cfs @ 14.82 hrs, Volume= 2.199 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.27' @ 14.82 hrs Surf.Area= 60,870 sf Storage= 45,462 cf

Plug-Flow detention time= 207.5 min calculated for 2.199 af (76% of inflow)
 Center-of-Mass det. time= 114.1 min (1,081.8 - 967.7)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	94,350 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

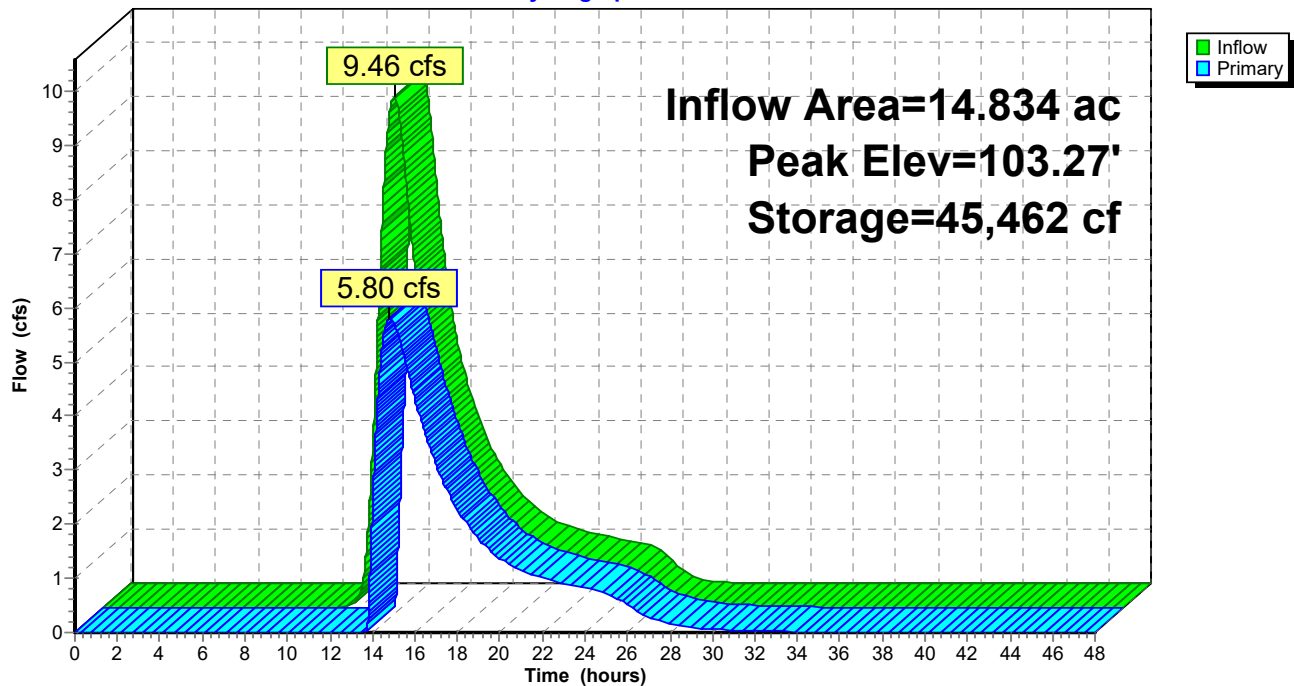
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	100	0	0
102.50	34,300	8,600	8,600
103.50	68,600	51,450	60,050
104.00	68,600	34,300	94,350

Device	Routing	Invert	Outlet Devices
#1	Primary	103.00'	15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.80 cfs @ 14.82 hrs HW=103.27' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 5.80 cfs @ 1.41 fps)

Pond 1P: Wetland

Hydrograph



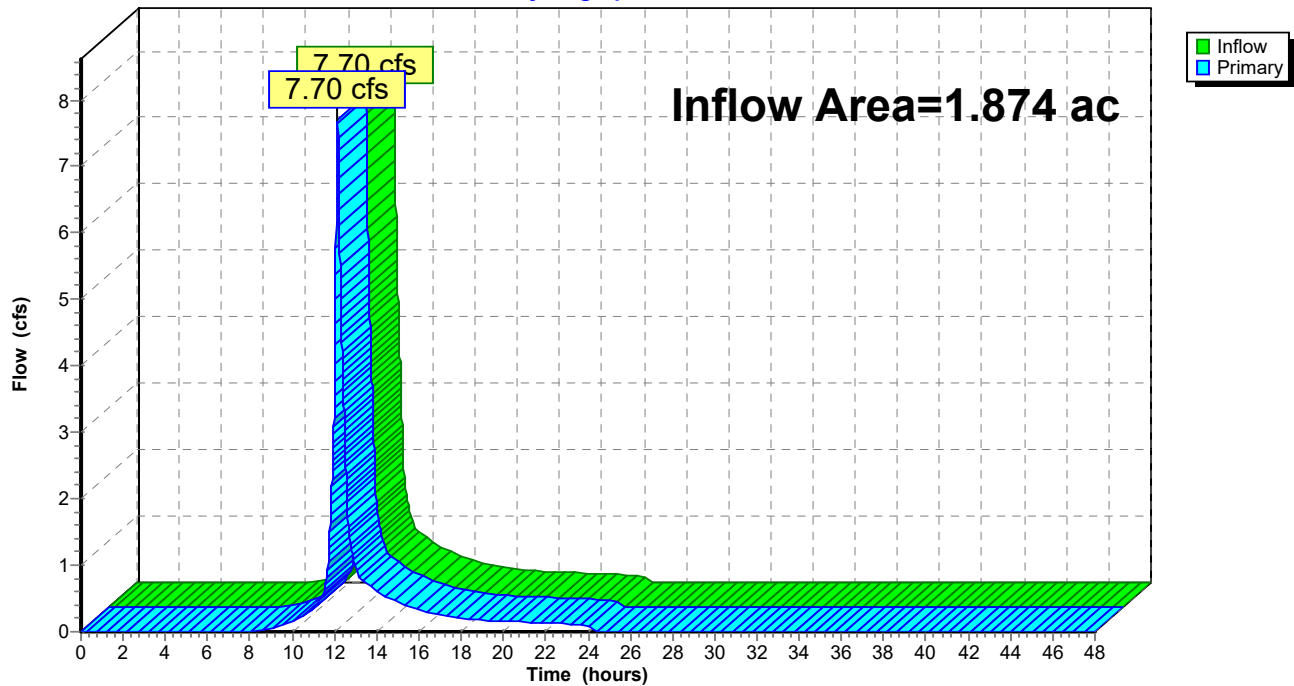
Summary for Link SP-1: SP-1

Inflow Area = 1.874 ac, 39.07% Impervious, Inflow Depth = 4.11" for 50yr event
 Inflow = 7.70 cfs @ 12.15 hrs, Volume= 0.642 af
 Primary = 7.70 cfs @ 12.15 hrs, Volume= 0.642 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-1: SP-1

Hydrograph



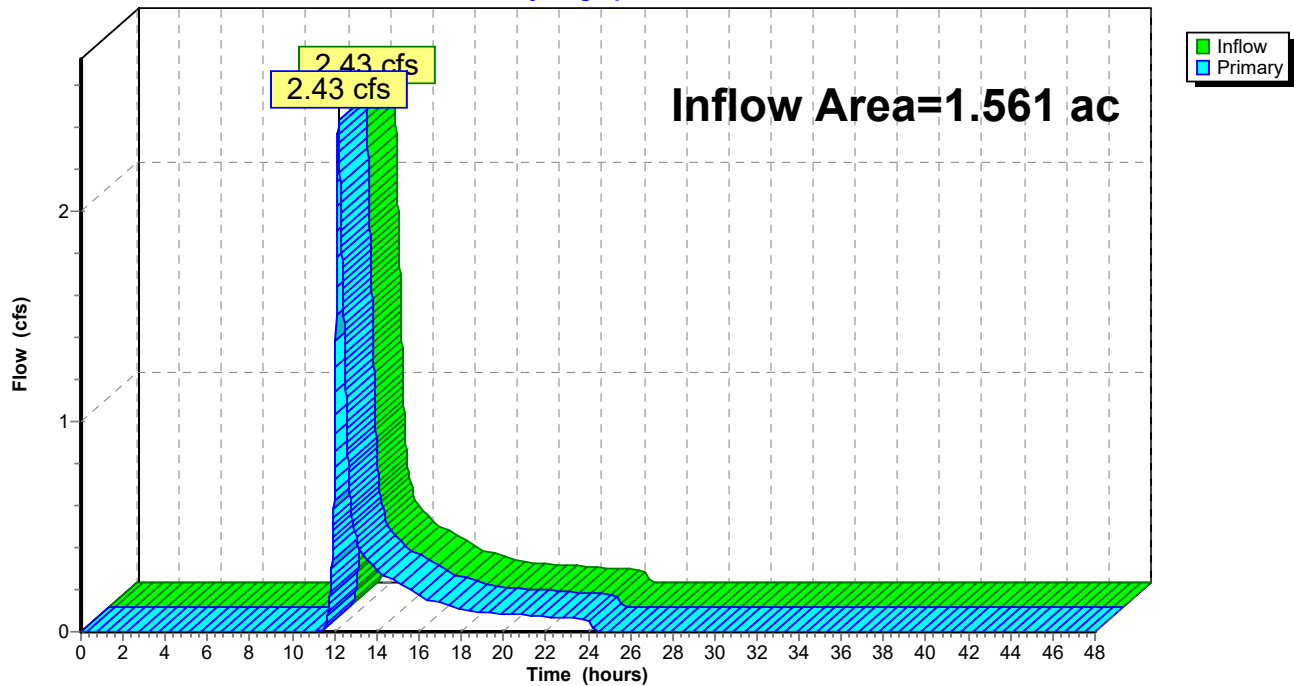
Summary for Link SP-2: SP-2

Inflow Area = 1.561 ac, 4.03% Impervious, Inflow Depth = 1.85" for 50yr event
Inflow = 2.43 cfs @ 12.19 hrs, Volume= 0.241 af
Primary = 2.43 cfs @ 12.19 hrs, Volume= 0.241 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-2: SP-2

Hydrograph



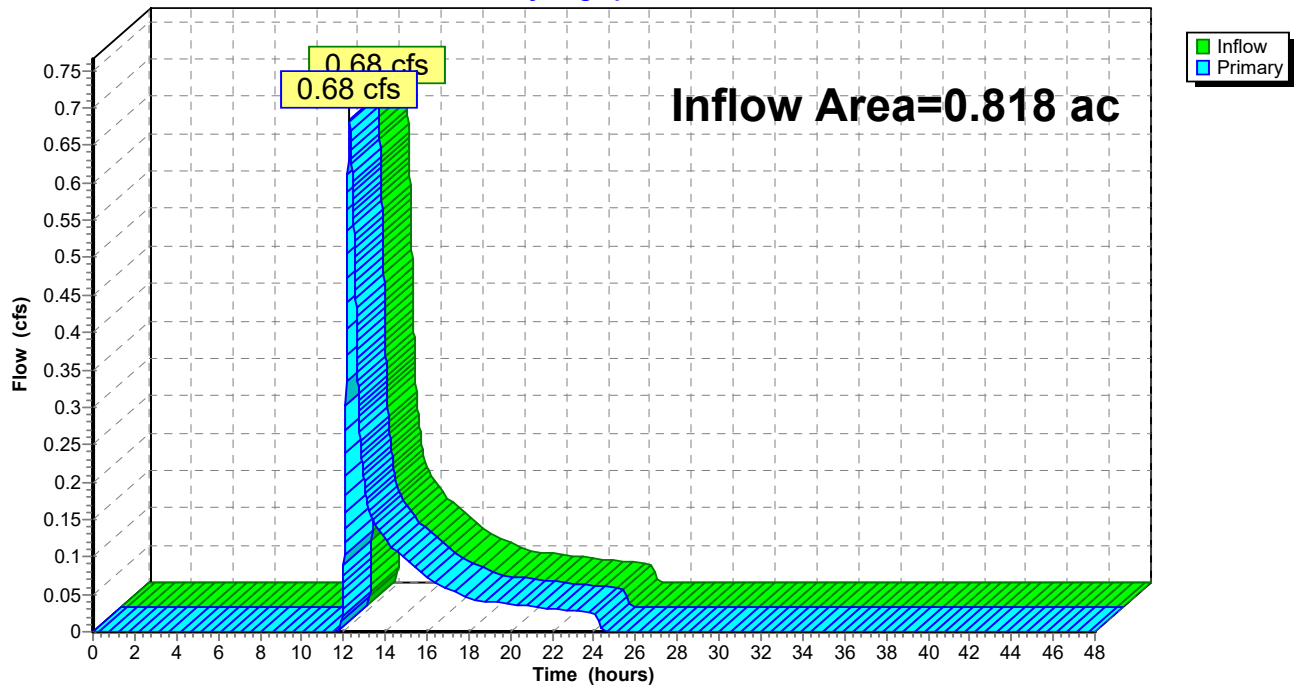
Summary for Link SP-3: SP-3

Inflow Area = 0.818 ac, 0.00% Impervious, Inflow Depth = 1.31" for 50yr event
Inflow = 0.68 cfs @ 12.29 hrs, Volume= 0.089 af
Primary = 0.68 cfs @ 12.29 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-3: SP-3

Hydrograph



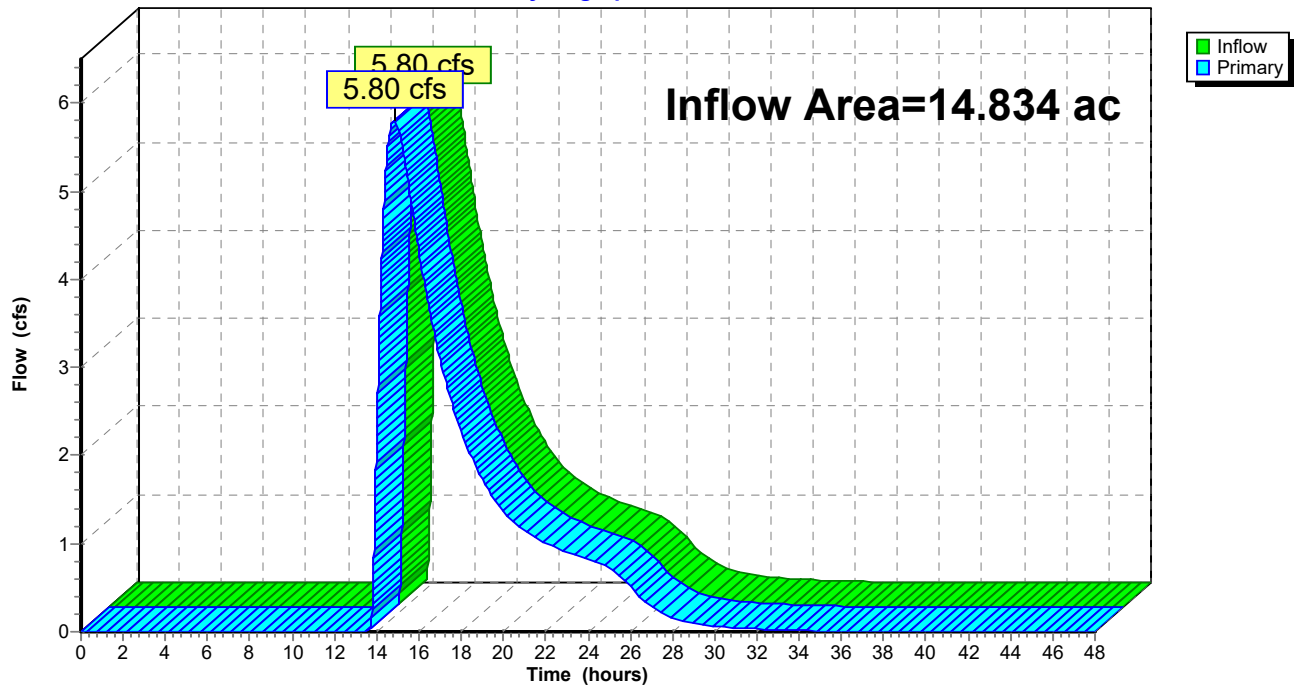
Summary for Link SP-4: SP-4

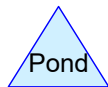
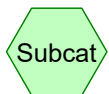
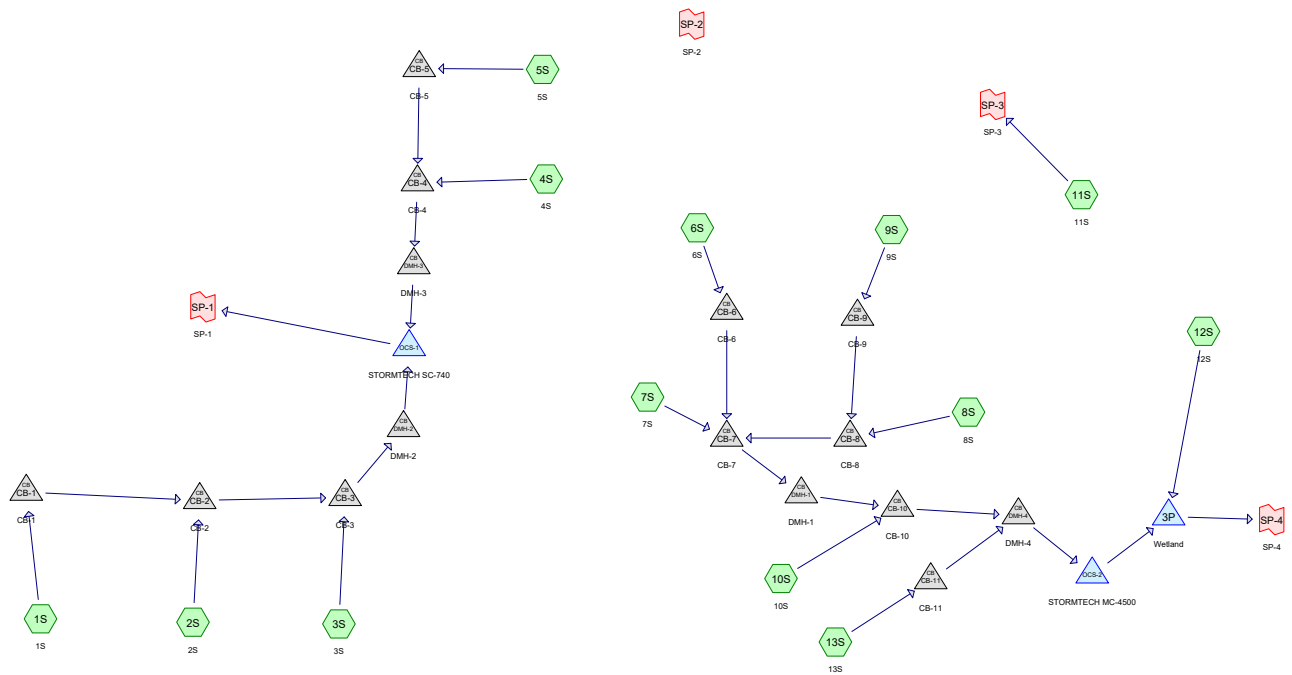
Inflow Area = 14.834 ac, 0.00% Impervious, Inflow Depth = 1.78" for 50yr event
Inflow = 5.80 cfs @ 14.82 hrs, Volume= 2.199 af
Primary = 5.80 cfs @ 14.82 hrs, Volume= 2.199 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-4: SP-4

Hydrograph





Routing Diagram for PLAISTOW-POSTrev 3-19-19
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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.147	61	>75% Grass cover, Good, HSG B (3S, 4S)
0.010	30	Brush, Good, HSG A (11S)
1.644	48	Brush, Good, HSG B (10S, 11S, 12S, 13S)
2.129	98	Paved parking, HSG A (9S, 10S, 13S)
6.023	98	Paved parking, HSG B (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 13S)
0.194	30	Woods, Good, HSG A (10S, 13S)
5.933	55	Woods, Good, HSG B (10S, 12S, 13S)
1.478	70	Woods, Good, HSG C (12S)
2.133	77	Woods, Good, HSG D (12S)
19.692	76	TOTAL AREA

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.334	HSG A	9S, 10S, 11S, 13S
13.747	HSG B	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S
1.478	HSG C	12S
2.133	HSG D	12S
0.000	Other	
19.692		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.147	0.000	0.000	0.000	0.147	>75% Grass cover, Good	3S, 4S
0.010	1.644	0.000	0.000	0.000	1.654	Brush, Good	10S, 11S, 12S, 13S
2.129	6.023	0.000	0.000	0.000	8.152	Paved parking	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 13S
0.194	5.933	1.478	2.133	0.000	9.738	Woods, Good	10S, 12S, 13S
2.334	13.747	1.478	2.133	0.000	19.692	TOTAL AREA	

Summary for Subcatchment 1S: 1S

Runoff = 0.28 cfs @ 12.02 hrs, Volume= 0.018 af, Depth= 2.90"

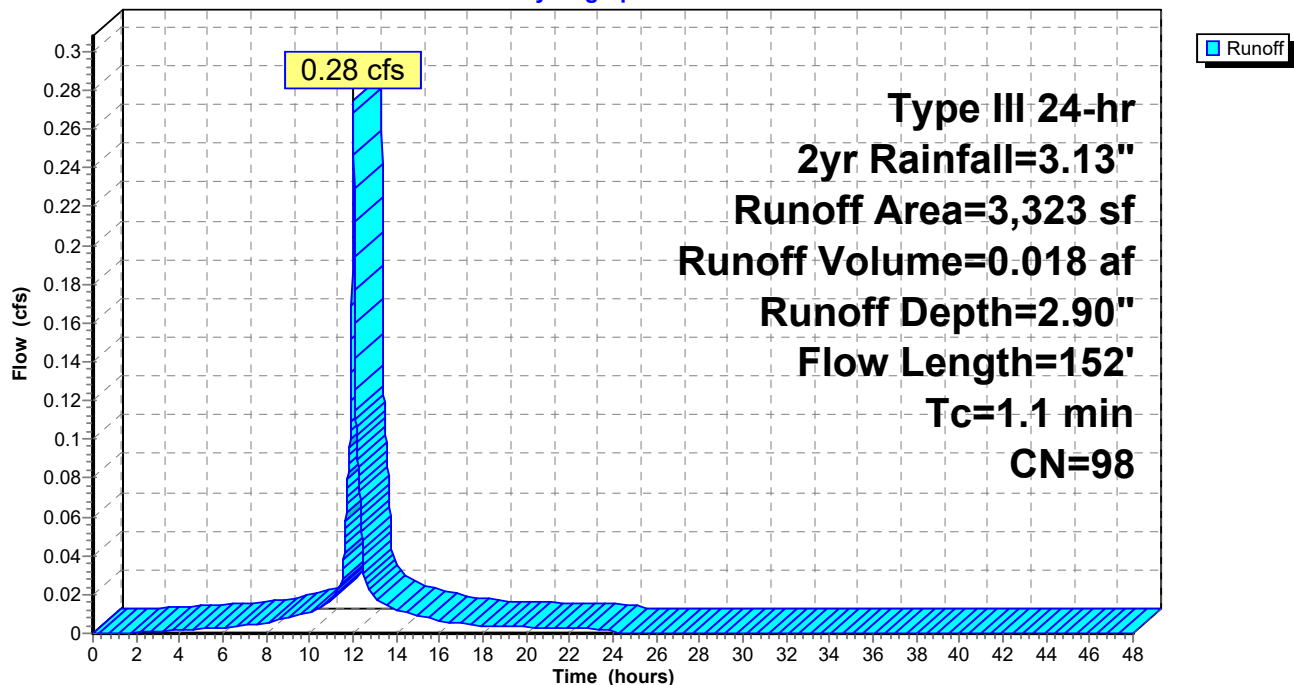
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
3,323	98	Paved parking, HSG B
3,323		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	25	0.0100	0.78		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.13"
0.6	127	0.0320	3.63		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
1.1	152	Total			

Subcatchment 1S: 1S

Hydrograph



Summary for Subcatchment 2S: 2S

Runoff = 0.77 cfs @ 12.02 hrs, Volume= 0.052 af, Depth= 2.90"

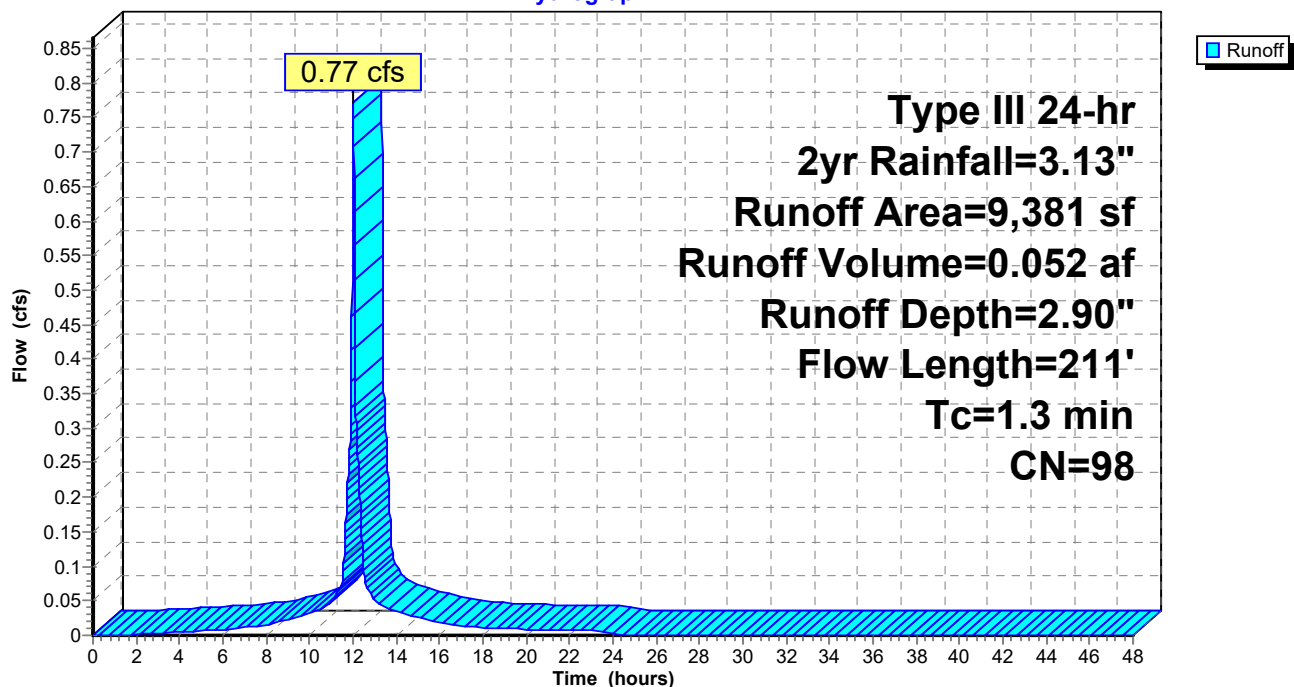
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
9,381	98	Paved parking, HSG B
9,381		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.03		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.9	186	0.0320	3.63		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.3	211	Total			

Subcatchment 2S: 2S

Hydrograph



Summary for Subcatchment 3S: 3S

Runoff = 1.23 cfs @ 12.01 hrs, Volume= 0.074 af, Depth= 2.19"

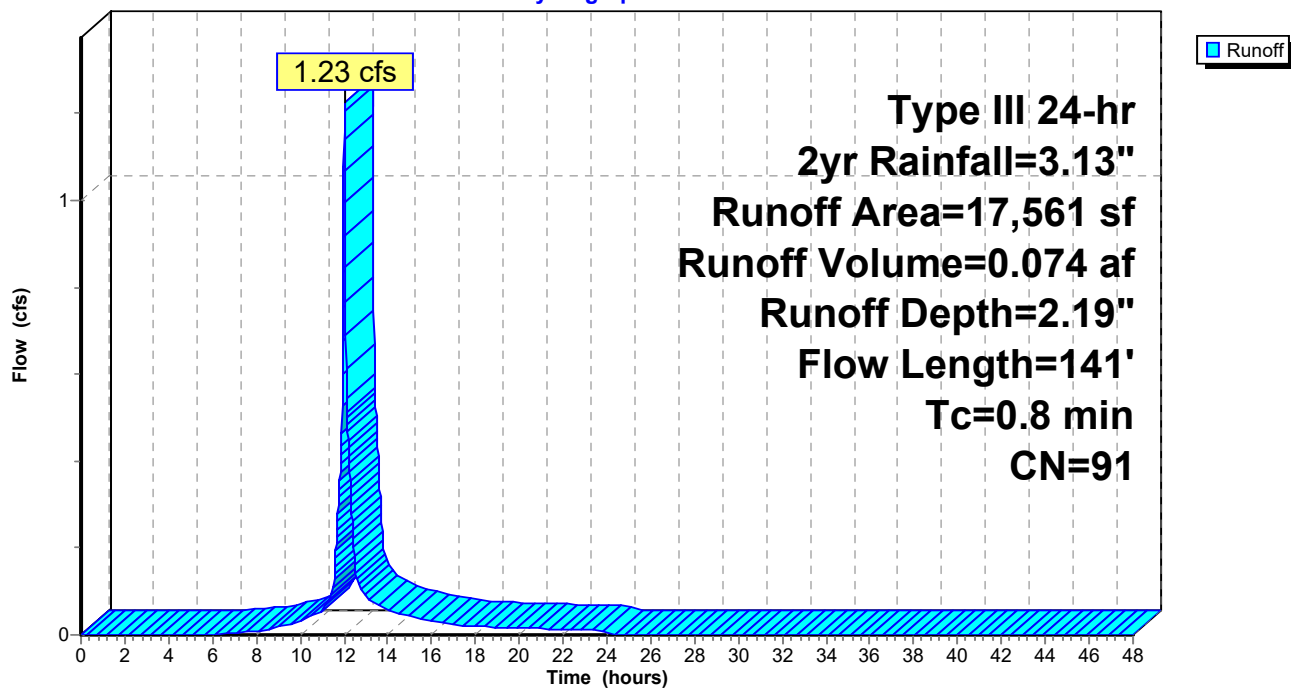
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
3,187	61	>75% Grass cover, Good, HSG B
14,374	98	Paved parking, HSG B
17,561	91	Weighted Average
3,187		18.15% Pervious Area
14,374		81.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	31	0.0500	1.55		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.5	110	0.0300	3.52		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
0.8	141	Total			

Subcatchment 3S: 3S

Hydrograph



Summary for Subcatchment 4S: 4S

Runoff = 2.11 cfs @ 12.02 hrs, Volume= 0.132 af, Depth= 2.48"

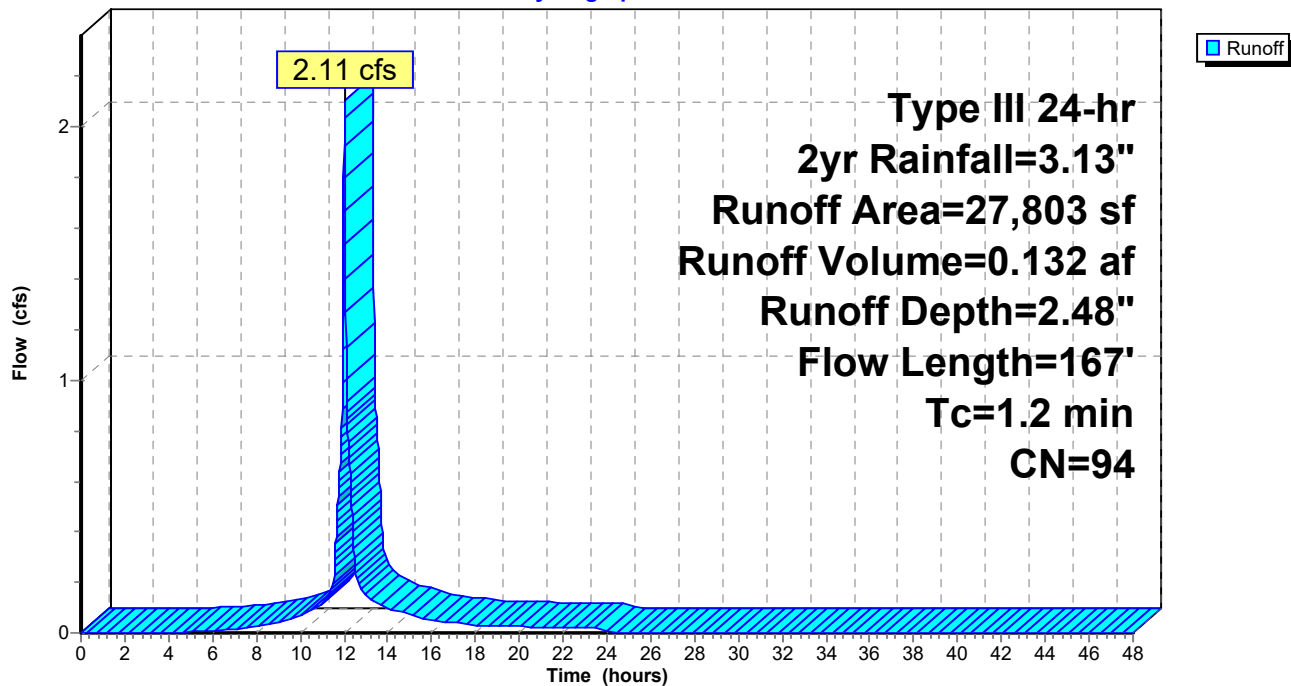
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
24,575	98	Paved parking, HSG B
3,228	61	>75% Grass cover, Good, HSG B
27,803	94	Weighted Average
3,228		11.61% Pervious Area
24,575		88.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	53	0.0400	1.58		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.6	114	0.0250	3.21		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.2	167	Total			

Subcatchment 4S: 4S

Hydrograph



Summary for Subcatchment 5S: 5S

Runoff = 3.37 cfs @ 12.02 hrs, Volume= 0.227 af, Depth= 2.90"

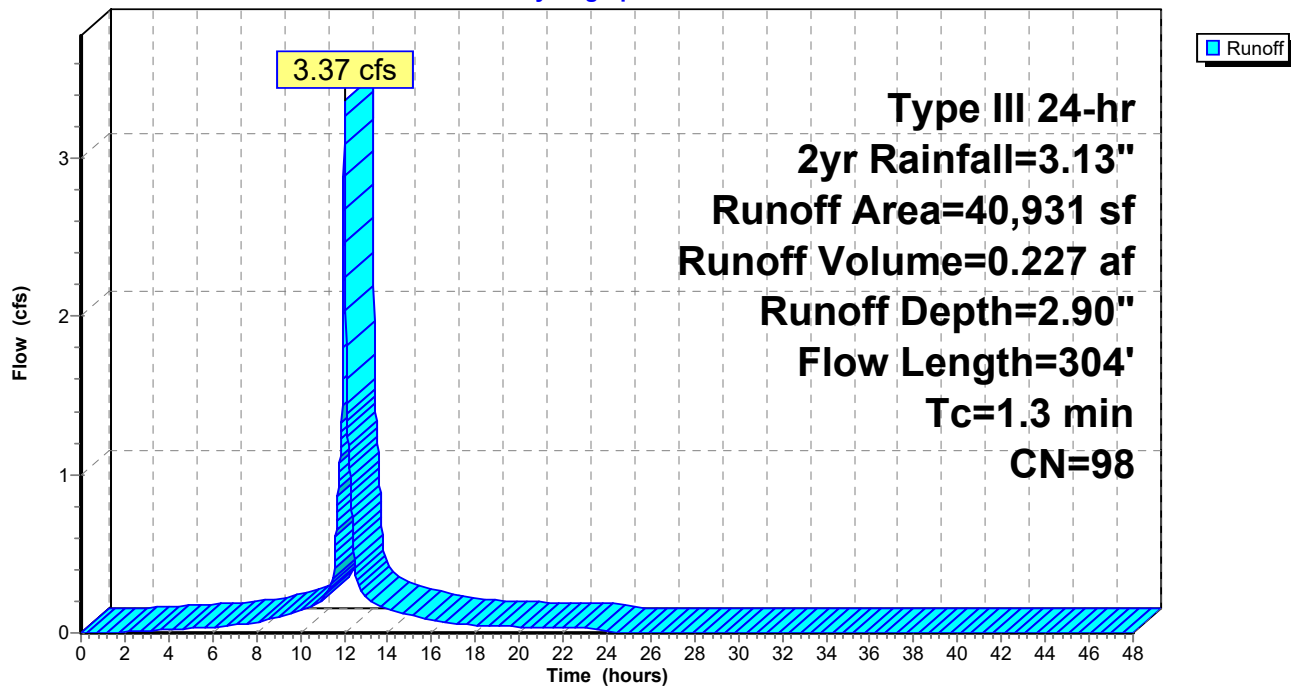
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
40,931	98	Paved parking, HSG B
40,931		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	35	0.1660	8.27		Shallow Concentrated Flow, A-B Paved Kv= 20.3 fps
0.9	154	0.0200	2.87		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
0.3	115	0.0200	6.79	23.76	Channel Flow, C-D Area= 3.5 sf Perim= 14.5' r= 0.24' n= 0.012 Steel, smooth
1.3	304	Total			

Subcatchment 5S: 5S

Hydrograph



Summary for Subcatchment 6S: 6S

Runoff = 0.98 cfs @ 12.02 hrs, Volume= 0.067 af, Depth= 2.90"

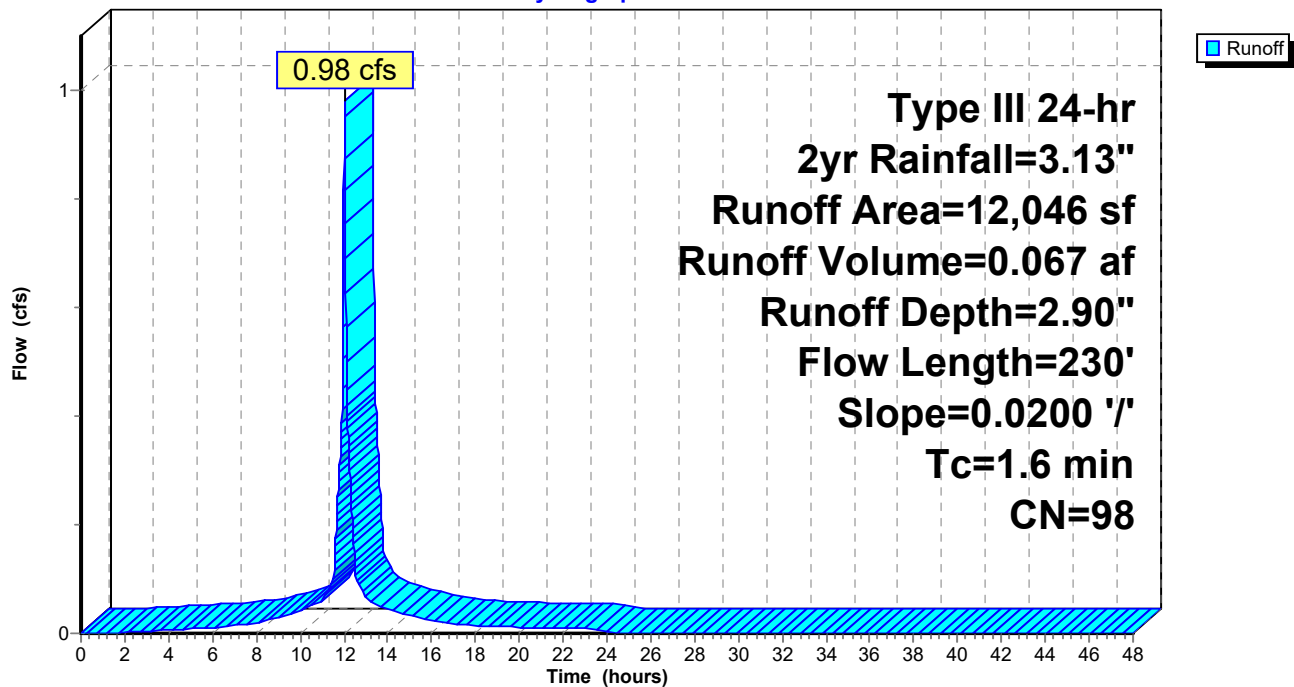
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
12,046	98	Paved parking, HSG B
12,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.03		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.2	205	0.0200	2.87		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.6	230	Total			

Subcatchment 6S: 6S

Hydrograph



Summary for Subcatchment 7S: 7S

Runoff = 2.99 cfs @ 12.02 hrs, Volume= 0.204 af, Depth= 2.90"

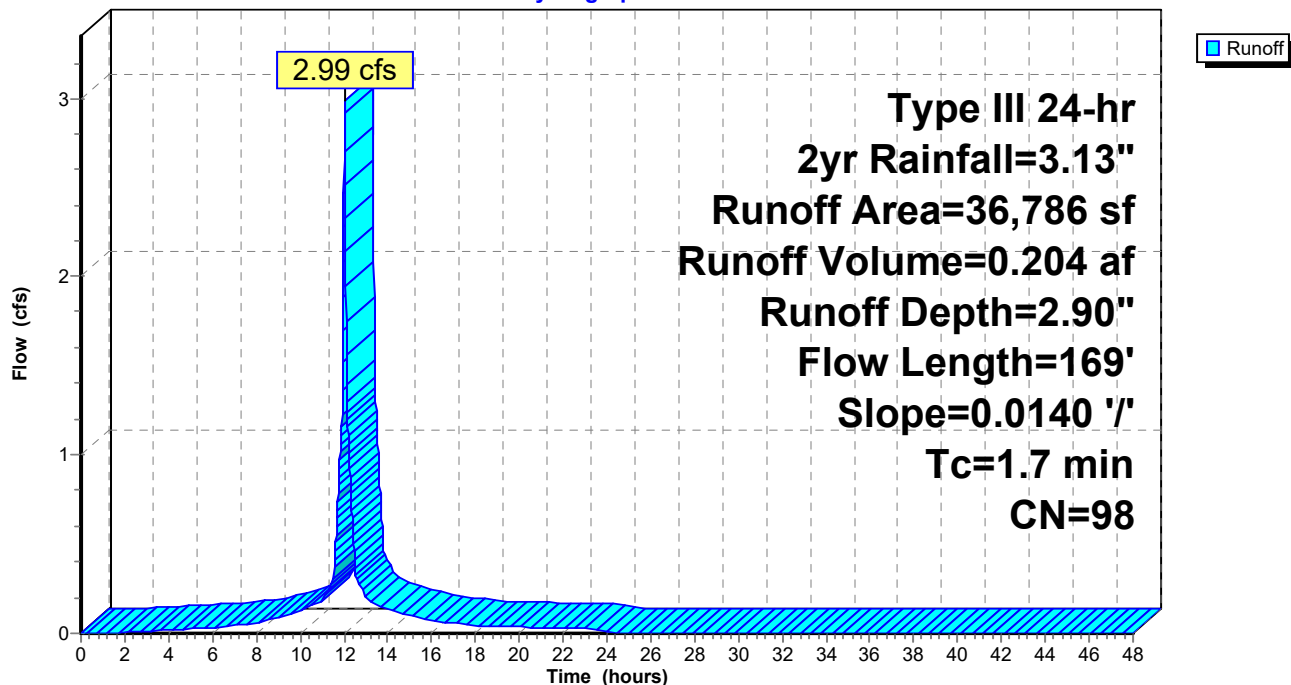
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
36,786	98	Paved parking, HSG B
36,786		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	53	0.0140	1.04		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.8	116	0.0140	2.40		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.7	169	Total			

Subcatchment 7S: 7S

Hydrograph



Summary for Subcatchment 8S: 8S

Runoff = 4.94 cfs @ 12.03 hrs, Volume= 0.344 af, Depth= 2.90"

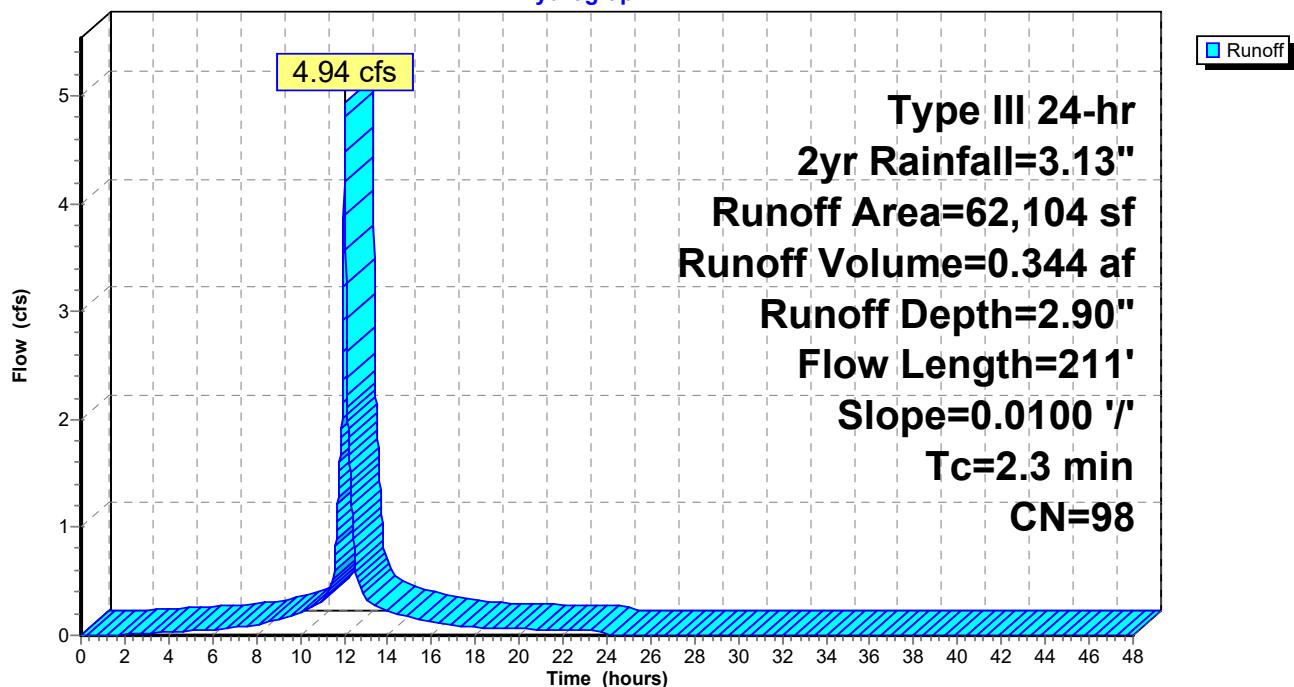
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
62,104	98	Paved parking, HSG B
62,104		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	59	0.0100	0.93		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.2	152	0.0100	2.03		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
2.3	211	Total			

Subcatchment 8S: 8S

Hydrograph



Summary for Subcatchment 9S: 9S

Runoff = 2.91 cfs @ 12.04 hrs, Volume= 0.206 af, Depth= 2.90"

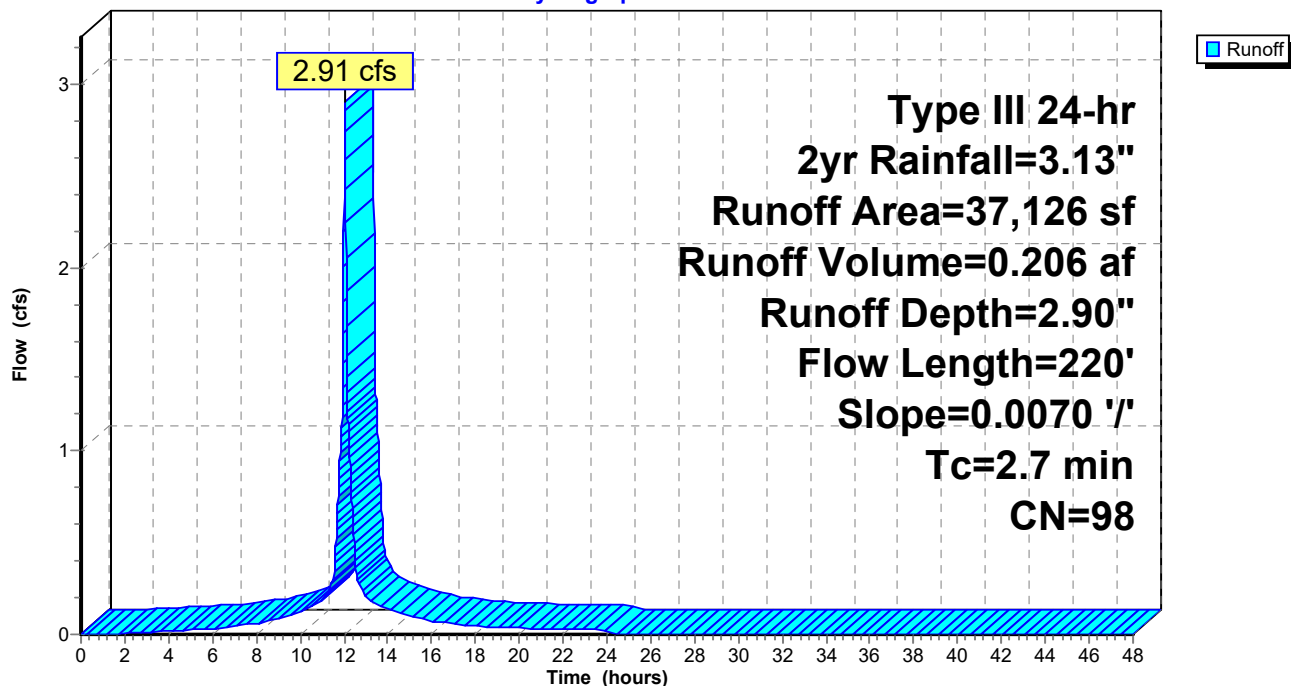
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
14,243	98	Paved parking, HSG A
22,883	98	Paved parking, HSG B
37,126	98	Weighted Average
37,126		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	40	0.0070	0.74		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.8	180	0.0070	1.70		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
2.7	220	Total			

Subcatchment 9S: 9S

Hydrograph



Summary for Subcatchment 10S: 10S

Runoff = 4.23 cfs @ 12.14 hrs, Volume= 0.344 af, Depth= 1.77"

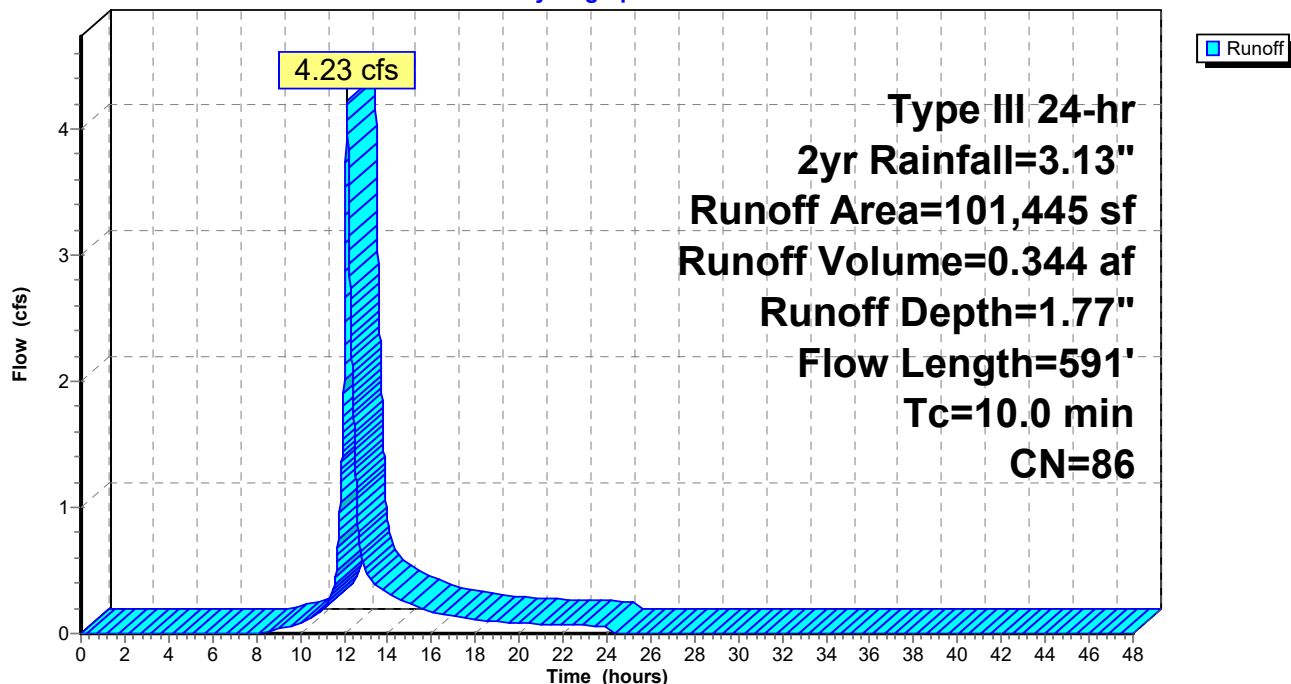
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
2,517	30	Woods, Good, HSG A
49,449	98	Paved parking, HSG A
4,033	55	Woods, Good, HSG B
28,301	98	Paved parking, HSG B
17,145	48	Brush, Good, HSG B
101,445	86	Weighted Average
23,695		23.36% Pervious Area
77,750		76.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	23	0.0500	0.18		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
0.5	68	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
7.4	500	0.0260	1.13		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
10.0	591	Total			

Subcatchment 10S: 10S

Hydrograph



Summary for Subcatchment 11S: 11S

Runoff = 0.00 cfs @ 14.97 hrs, Volume= 0.002 af, Depth= 0.06"

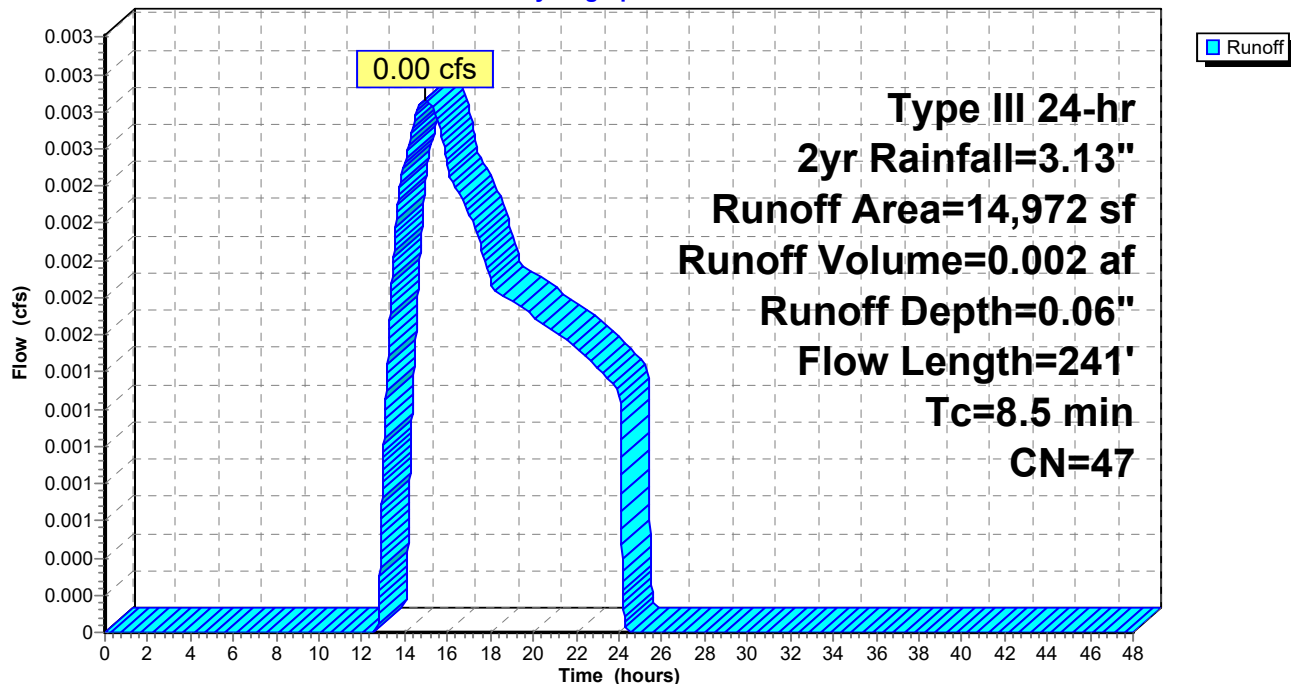
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
14,527	48	Brush, Good, HSG B
445	30	Brush, Good, HSG A
14,972	47	Weighted Average
14,972		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	18	0.3330	0.41		Sheet Flow, A-B
					Range n= 0.130 P2= 3.13"
7.8	223	0.0090	0.47		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
8.5	241	Total			

Subcatchment 11S: 11S

Hydrograph



Summary for Subcatchment 12S: 12S

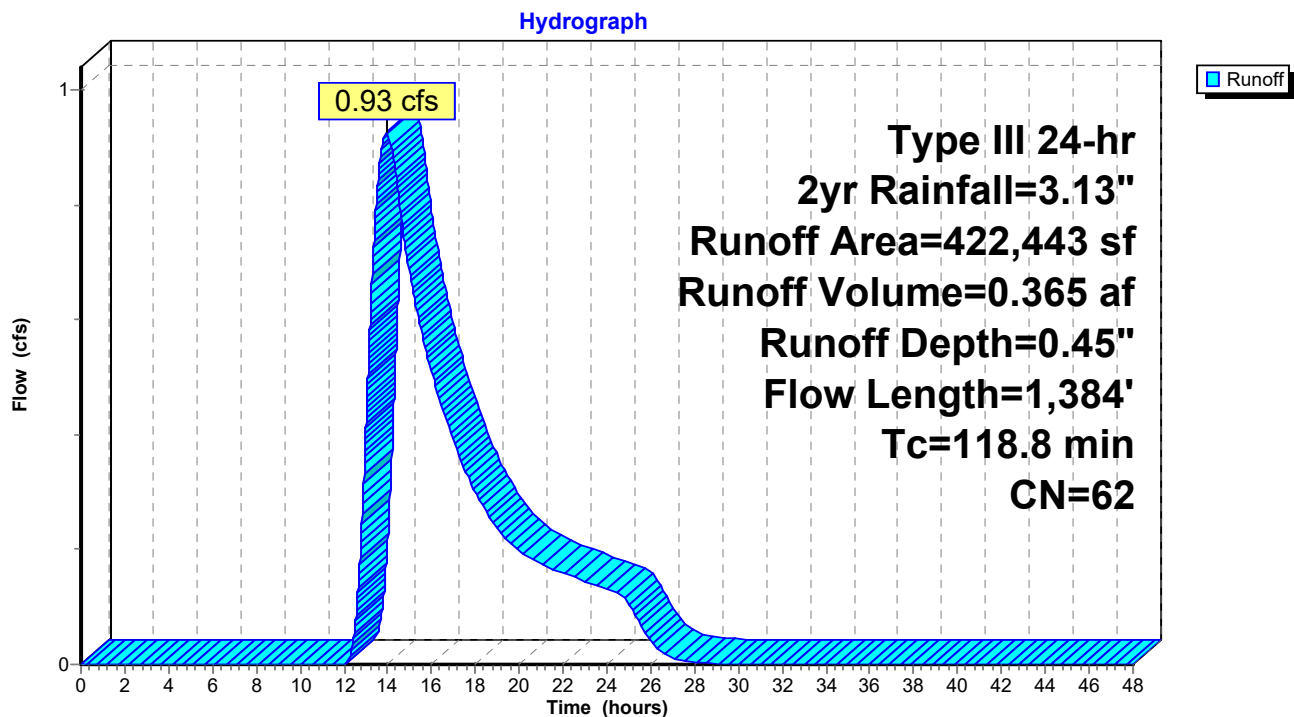
Runoff = 0.93 cfs @ 13.99 hrs, Volume= 0.365 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
17,430	48	Brush, Good, HSG B
247,720	55	Woods, Good, HSG B
64,382	70	Woods, Good, HSG C
92,911	77	Woods, Good, HSG D
422,443	62	Weighted Average
422,443		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.9	200	0.0700	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.13"
78.9	1,184	0.0100	0.25		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
118.8	1,384	Total			

Subcatchment 12S: 12S



Summary for Subcatchment 13S: 13S

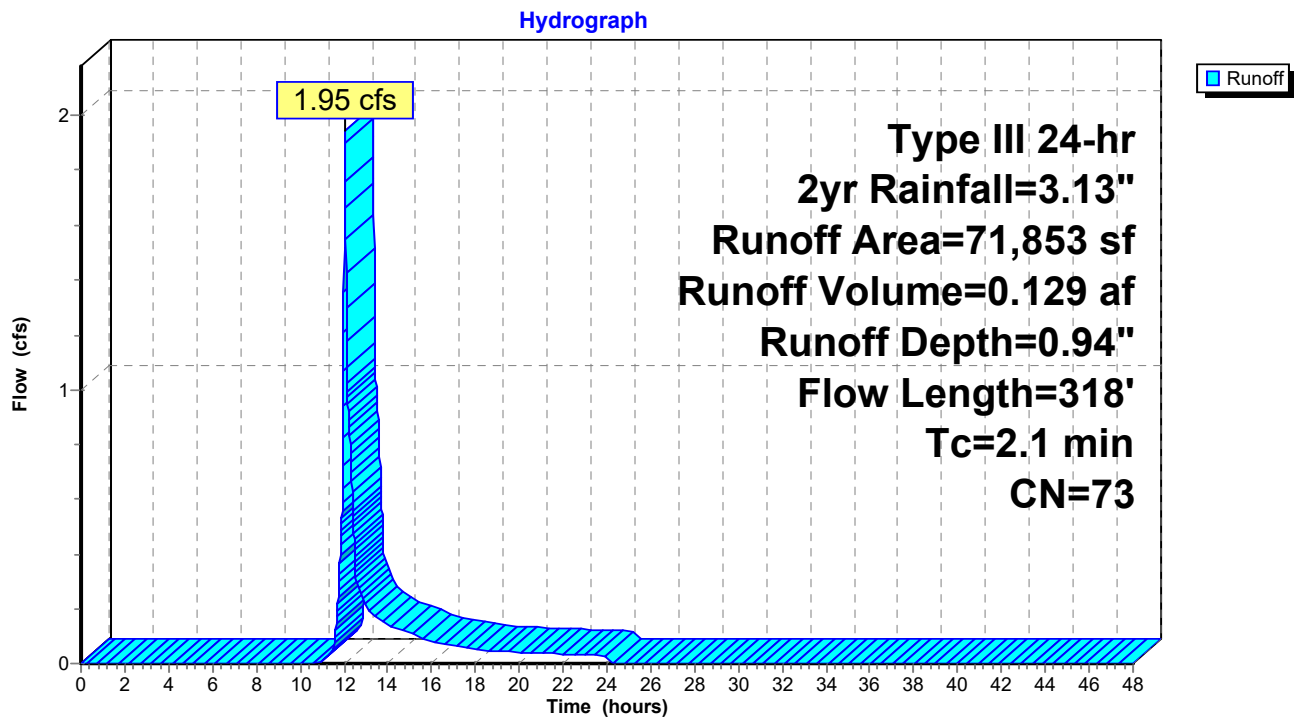
Runoff = 1.95 cfs @ 12.04 hrs, Volume= 0.129 af, Depth= 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2yr Rainfall=3.13"

Area (sf)	CN	Description
29,040	98	Paved parking, HSG A
7,665	98	Paved parking, HSG B
5,954	30	Woods, Good, HSG A
6,687	55	Woods, Good, HSG B
22,507	48	Brush, Good, HSG B
71,853	73	Weighted Average
35,148		48.92% Pervious Area
36,705		51.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	99	0.0200	1.36		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.13"
0.8	162	0.0250	3.21		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
0.1	57	0.0530	6.74	47.20	Channel Flow, C-D Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.040 Earth, cobble bottom, clean sides
2.1	318	Total			

Subcatchment 13S: 13S



Summary for Pond 3P: Wetland

Inflow Area = 17.075 ac, 35.29% Impervious, Inflow Depth = 0.26" for 2yr event
 Inflow = 0.93 cfs @ 13.99 hrs, Volume= 0.373 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 102.61' @ 30.63 hrs Surf.Area= 38,015 sf Storage= 16,241 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

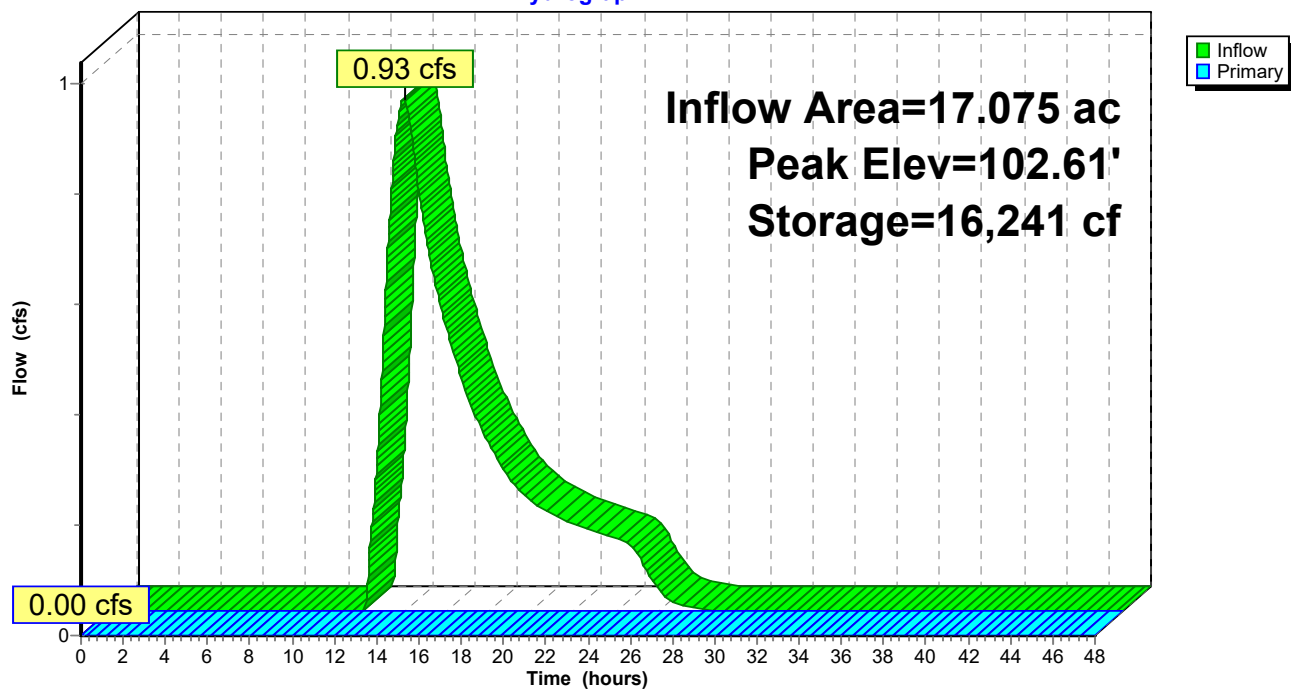
Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	104,029 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	15,000	0	0
102.50	34,300	12,325	12,325
103.50	68,600	51,450	63,775
104.00	92,415	40,254	104,029

Device	Routing	Invert	Outlet Devices
#1	Primary	103.00'	15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Wetland

Hydrograph



Summary for Pond CB-1: CB-1

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 2.90" for 2yr event
 Inflow = 0.28 cfs @ 12.02 hrs, Volume= 0.018 af
 Outflow = 0.28 cfs @ 12.02 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.28 cfs @ 12.02 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.22' @ 12.02 hrs

Flood Elev= 114.50'

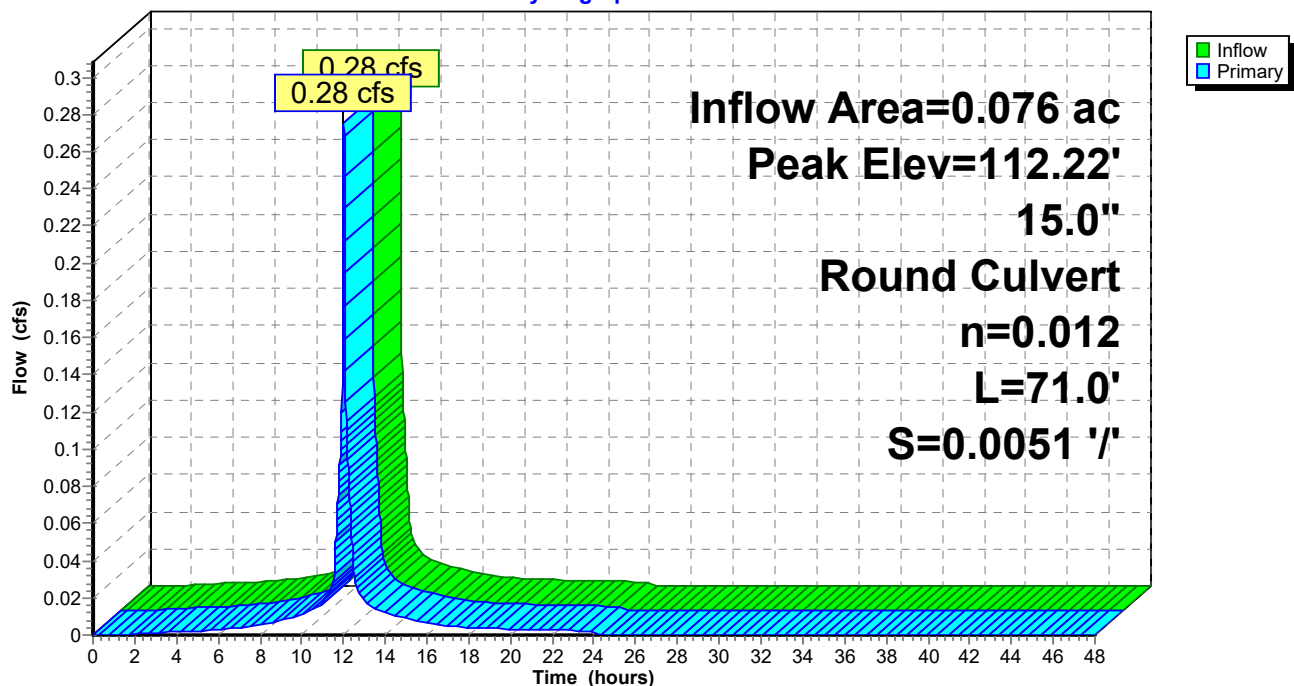
Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	15.0" Round Culvert L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 111.59' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.27 cfs @ 12.02 hrs HW=112.22' (Free Discharge)

1=Culvert (Barrel Controls 0.27 cfs @ 2.10 fps)

Pond CB-1: CB-1

Hydrograph



Summary for Pond CB-10: CB-10

Inflow Area = 5.728 ac, 90.50% Impervious, Inflow Depth = 2.44" for 2yr event
 Inflow = 14.29 cfs @ 12.04 hrs, Volume= 1.165 af
 Outflow = 14.29 cfs @ 12.04 hrs, Volume= 1.165 af, Atten= 0%, Lag= 0.0 min
 Primary = 14.29 cfs @ 12.04 hrs, Volume= 1.165 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

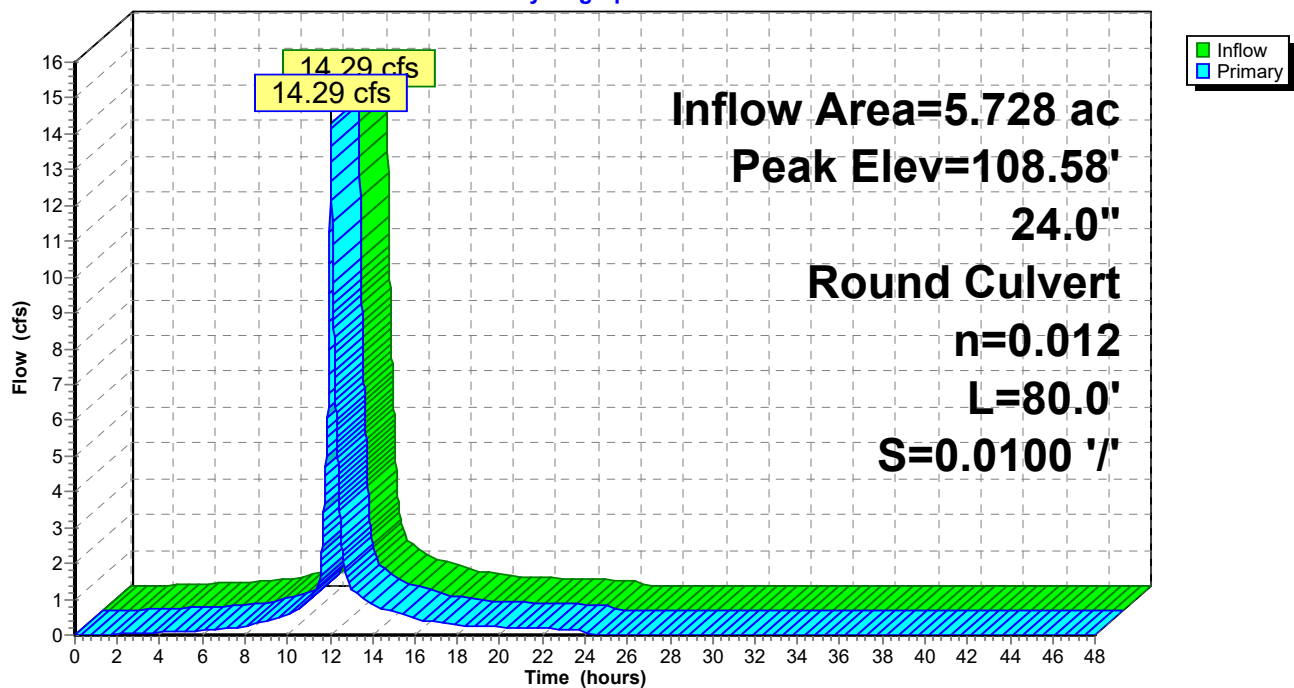
Peak Elev= 108.58' @ 12.04 hrs

Flood Elev= 110.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	106.70'	24.0" Round Culvert L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.70' / 105.90' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=14.26 cfs @ 12.04 hrs HW=108.57' (Free Discharge)

↑1=Culvert (Inlet Controls 14.26 cfs @ 4.66 fps)

Pond CB-10: CB-10**Hydrograph**

Summary for Pond CB-11: CB-11

Inflow Area = 1.650 ac, 51.08% Impervious, Inflow Depth = 0.94" for 2yr event
 Inflow = 1.95 cfs @ 12.04 hrs, Volume= 0.129 af
 Outflow = 1.95 cfs @ 12.04 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.95 cfs @ 12.04 hrs, Volume= 0.129 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 107.38' @ 12.04 hrs

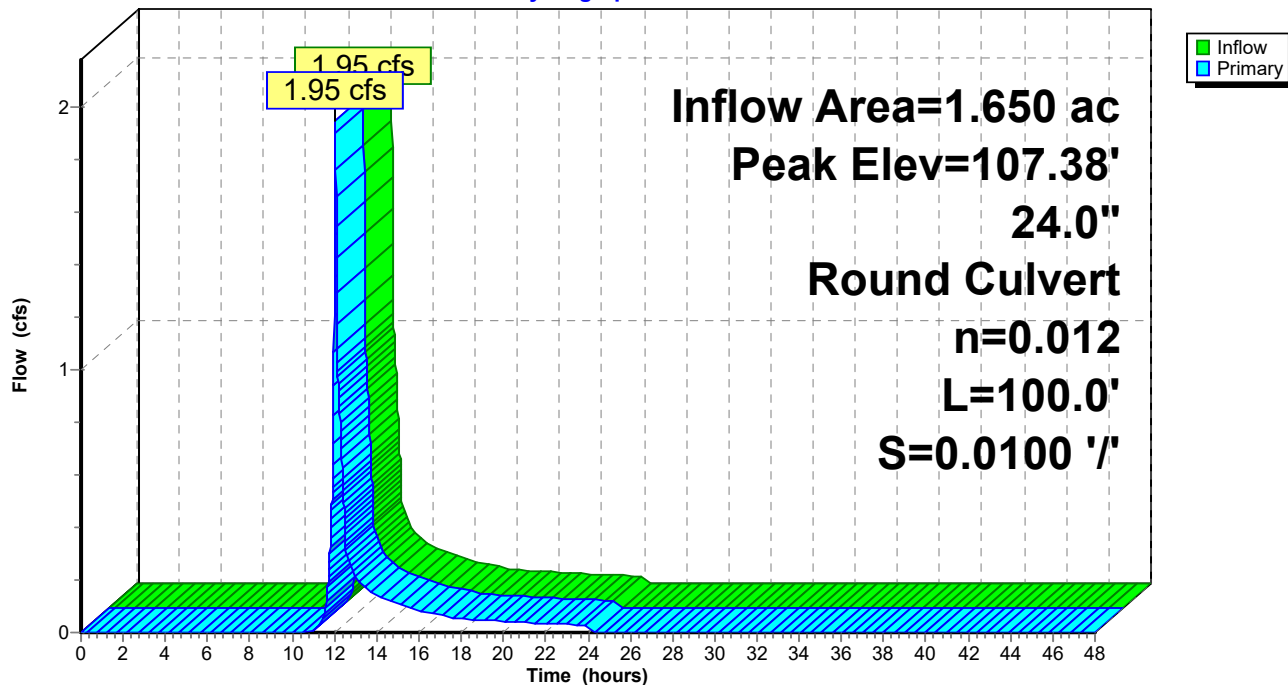
Device	Routing	Invert	Outlet Devices
#1	Primary	106.80'	24.0" Round Culvert L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.80' / 105.80' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=1.94 cfs @ 12.04 hrs HW=107.38' (Free Discharge)

↑1=Culvert (Inlet Controls 1.94 cfs @ 2.59 fps)

Pond CB-11: CB-11

Hydrograph



Summary for Pond CB-2: CB-2

Inflow Area = 0.292 ac, 100.00% Impervious, Inflow Depth = 2.90" for 2yr event
 Inflow = 1.05 cfs @ 12.02 hrs, Volume= 0.070 af
 Outflow = 1.05 cfs @ 12.02 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.05 cfs @ 12.02 hrs, Volume= 0.070 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.05' @ 12.02 hrs

Flood Elev= 114.50'

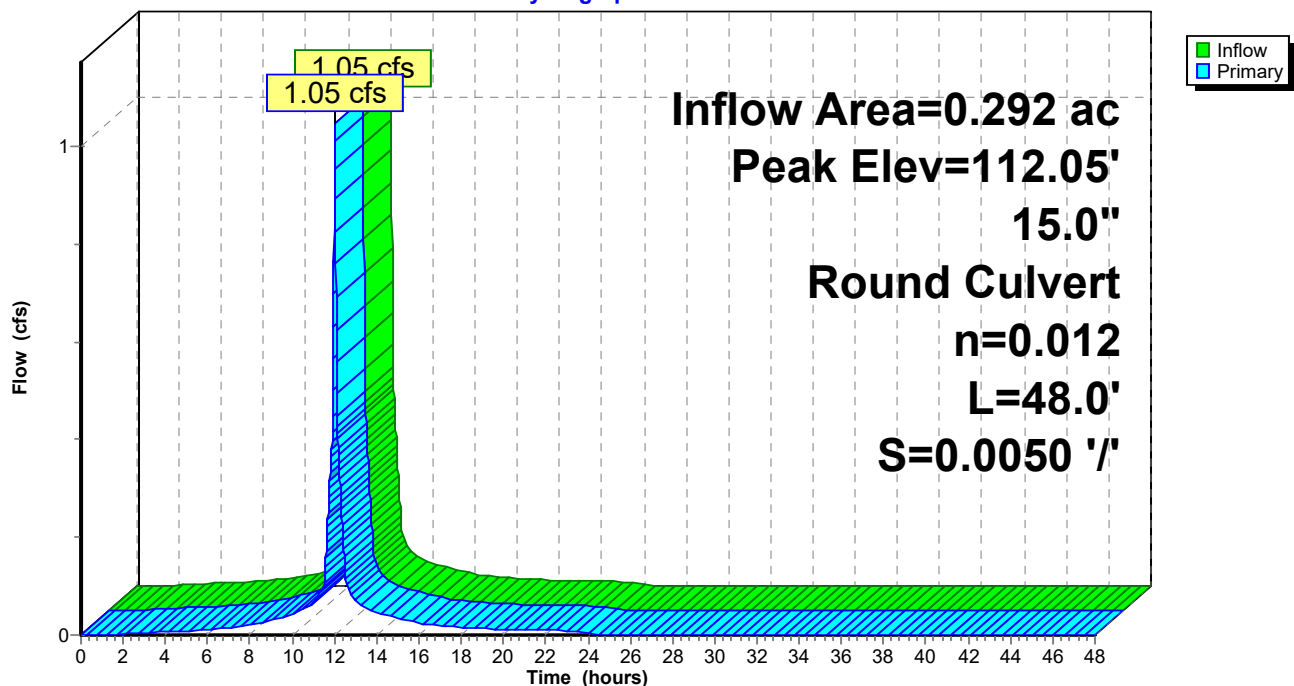
Device	Routing	Invert	Outlet Devices
#1	Primary	111.49'	15.0" Round Culvert L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.49' / 111.25' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.04 cfs @ 12.02 hrs HW=112.05' (Free Discharge)

1=Culvert (Barrel Controls 1.04 cfs @ 2.90 fps)

Pond CB-2: CB-2

Hydrograph



Summary for Pond CB-3: CB-3

Inflow Area = 0.695 ac, 89.47% Impervious, Inflow Depth = 2.49" for 2yr event
 Inflow = 2.27 cfs @ 12.01 hrs, Volume= 0.144 af
 Outflow = 2.27 cfs @ 12.01 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.27 cfs @ 12.01 hrs, Volume= 0.144 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 111.99' @ 12.01 hrs

Flood Elev= 113.80'

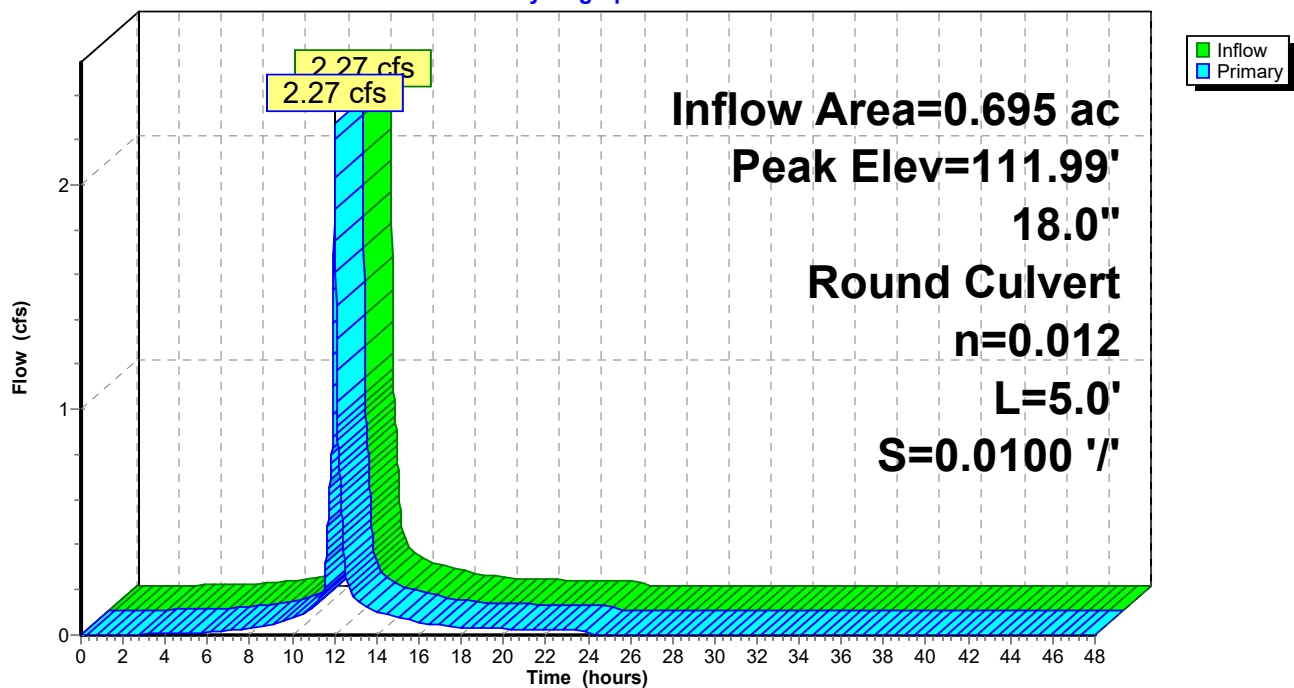
Device	Routing	Invert	Outlet Devices
#1	Primary	111.15'	18.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.15' / 111.10' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.25 cfs @ 12.01 hrs HW=111.98' (Free Discharge)

1=Culvert (Barrel Controls 2.25 cfs @ 3.23 fps)

Pond CB-3: CB-3

Hydrograph



Summary for Pond CB-4: CB-4

Inflow Area = 1.578 ac, 95.30% Impervious, Inflow Depth = 2.73" for 2yr event
 Inflow = 5.48 cfs @ 12.02 hrs, Volume= 0.359 af
 Outflow = 5.48 cfs @ 12.02 hrs, Volume= 0.359 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.48 cfs @ 12.02 hrs, Volume= 0.359 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 113.12' @ 12.02 hrs

Flood Elev= 115.50'

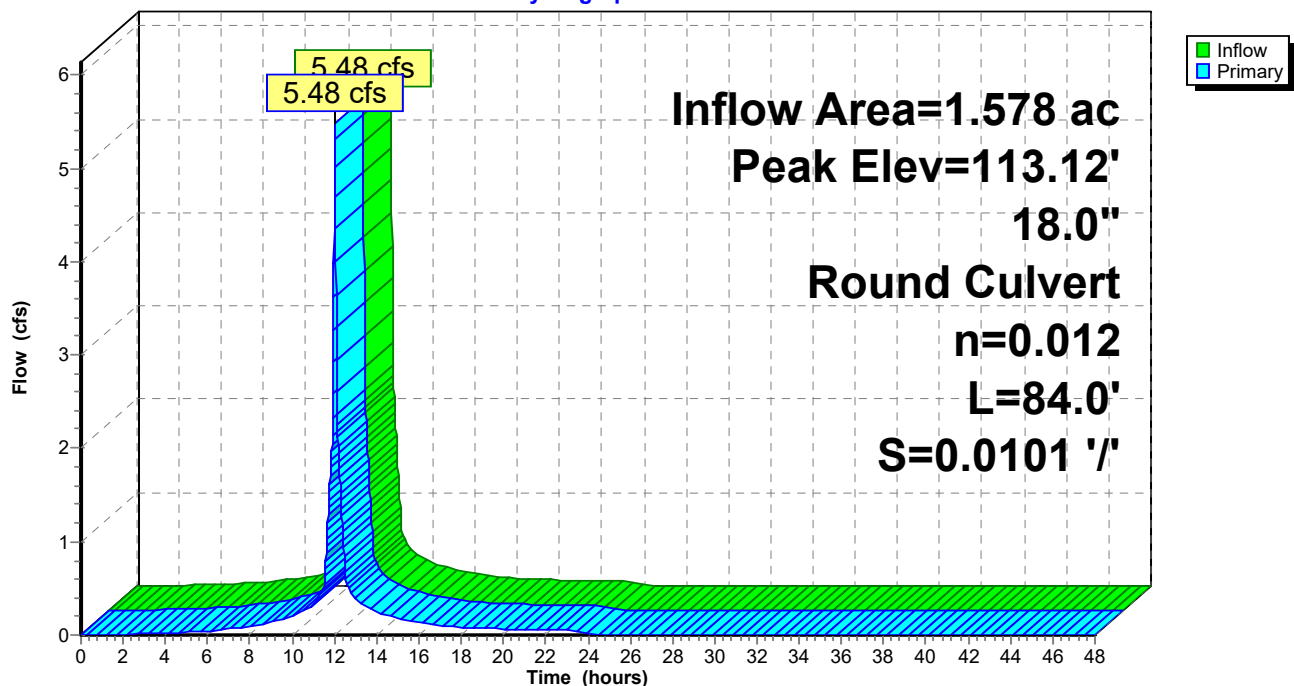
Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	18.0" Round Culvert L= 84.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 111.10' S= 0.0101 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.47 cfs @ 12.02 hrs HW=113.12' (Free Discharge)

1=Culvert (Inlet Controls 5.47 cfs @ 3.69 fps)

Pond CB-4: CB-4

Hydrograph



Summary for Pond CB-5: CB-5

Inflow Area = 0.940 ac, 100.00% Impervious, Inflow Depth = 2.90" for 2yr event
 Inflow = 3.37 cfs @ 12.02 hrs, Volume= 0.227 af
 Outflow = 3.37 cfs @ 12.02 hrs, Volume= 0.227 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.37 cfs @ 12.02 hrs, Volume= 0.227 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 114.17' @ 12.02 hrs

Flood Elev= 117.10'

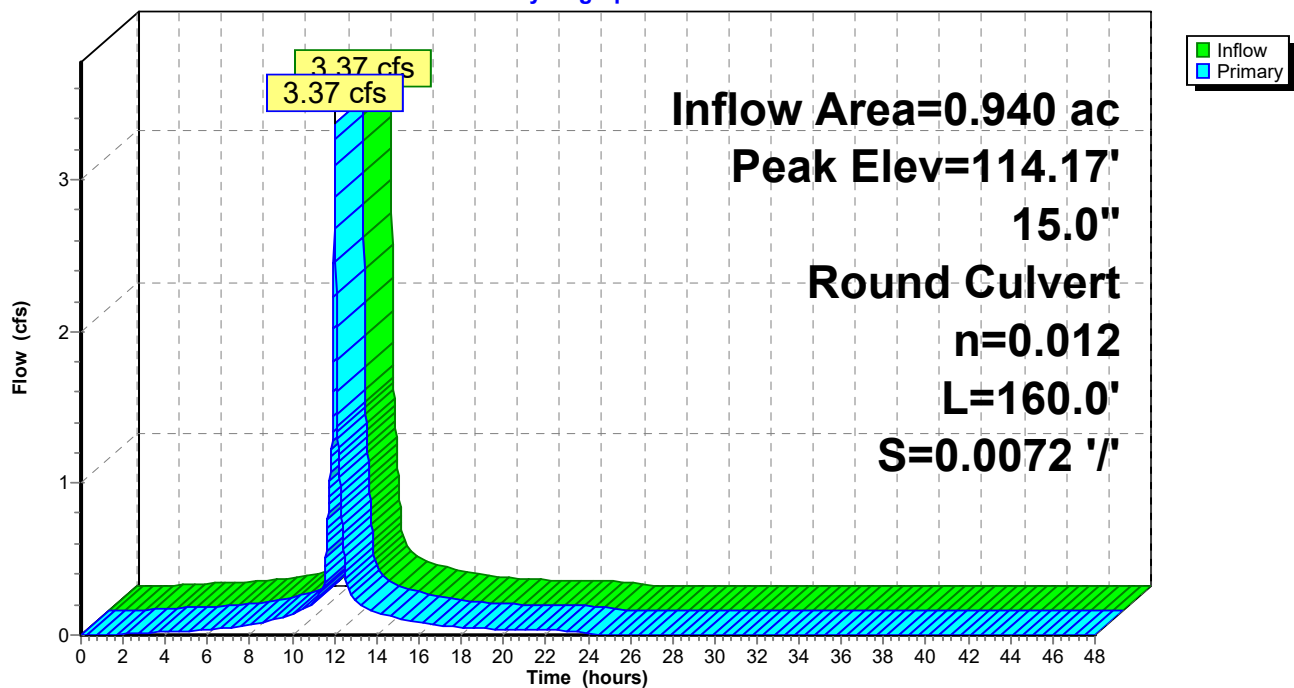
Device	Routing	Invert	Outlet Devices
#1	Primary	113.20'	15.0" Round Culvert L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 113.20' / 112.05' S= 0.0072 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.37 cfs @ 12.02 hrs HW=114.17' (Free Discharge)

1=Culvert (Barrel Controls 3.37 cfs @ 4.55 fps)

Pond CB-5: CB-5

Hydrograph



Summary for Pond CB-6: CB-6

Inflow Area = 0.277 ac, 100.00% Impervious, Inflow Depth = 2.90" for 2yr event
 Inflow = 0.98 cfs @ 12.02 hrs, Volume= 0.067 af
 Outflow = 0.98 cfs @ 12.02 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.98 cfs @ 12.02 hrs, Volume= 0.067 af

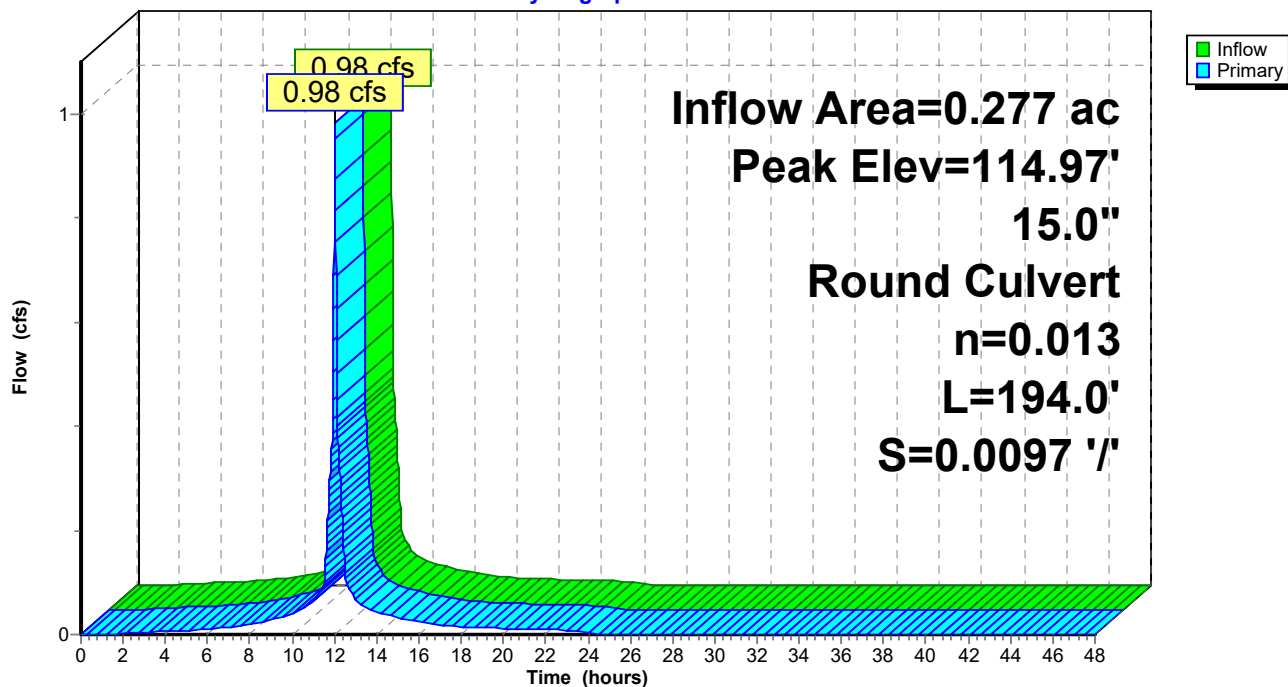
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 114.97' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.50'	15.0" Round Culvert L= 194.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.61' S= 0.0097 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.98 cfs @ 12.02 hrs HW=114.97' (Free Discharge)

↑1=Culvert (Inlet Controls 0.98 cfs @ 2.33 fps)

Pond CB-6: CB-6**Hydrograph**

Summary for Pond CB-7: CB-7

Inflow Area = 3.399 ac, 100.00% Impervious, Inflow Depth = 2.90" for 2yr event
 Inflow = 11.76 cfs @ 12.03 hrs, Volume= 0.821 af
 Outflow = 11.76 cfs @ 12.03 hrs, Volume= 0.821 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.76 cfs @ 12.03 hrs, Volume= 0.821 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 114.40' @ 12.03 hrs

Flood Elev= 118.10'

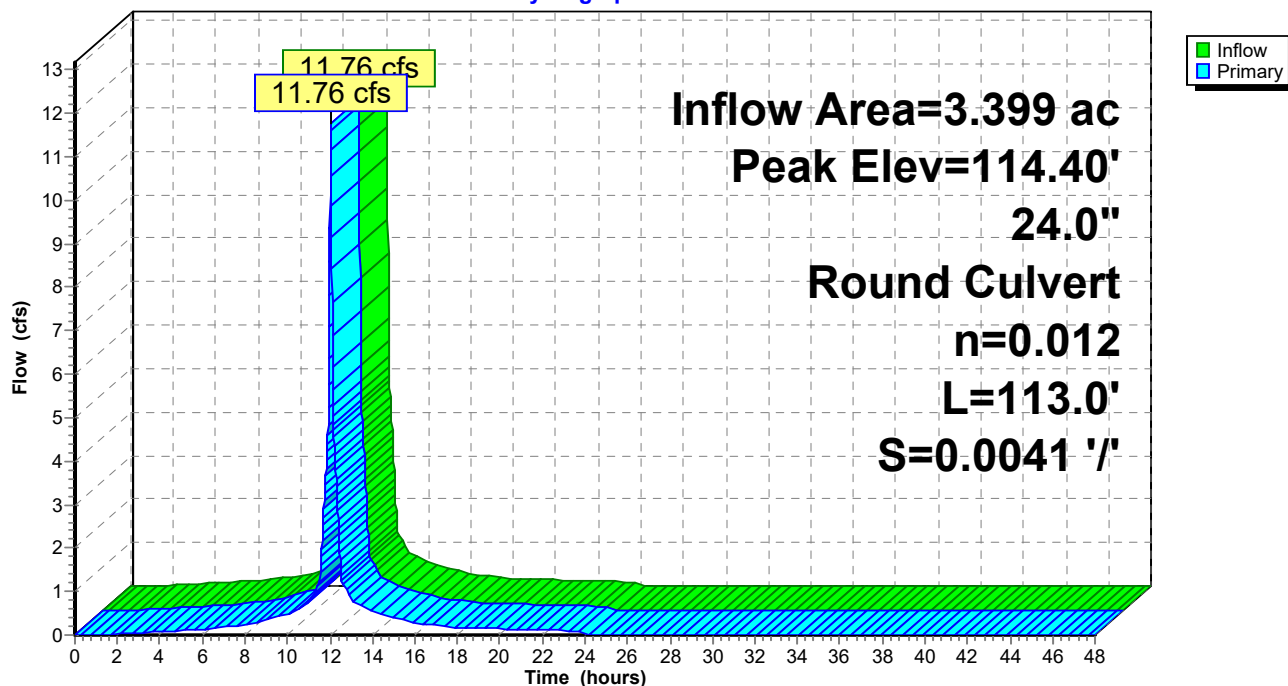
Device	Routing	Invert	Outlet Devices
#1	Primary	112.51'	24.0" Round Culvert L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 112.51' / 112.05' S= 0.0041 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=11.74 cfs @ 12.03 hrs HW=114.40' (Free Discharge)

1=Culvert (Barrel Controls 11.74 cfs @ 4.94 fps)

Pond CB-7: CB-7

Hydrograph



Summary for Pond CB-8: CB-8

Inflow Area = 2.278 ac, 100.00% Impervious, Inflow Depth = 2.90" for 2yr event
 Inflow = 7.85 cfs @ 12.03 hrs, Volume= 0.550 af
 Outflow = 7.85 cfs @ 12.03 hrs, Volume= 0.550 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.85 cfs @ 12.03 hrs, Volume= 0.550 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.35' @ 12.03 hrs

Flood Elev= 118.10'

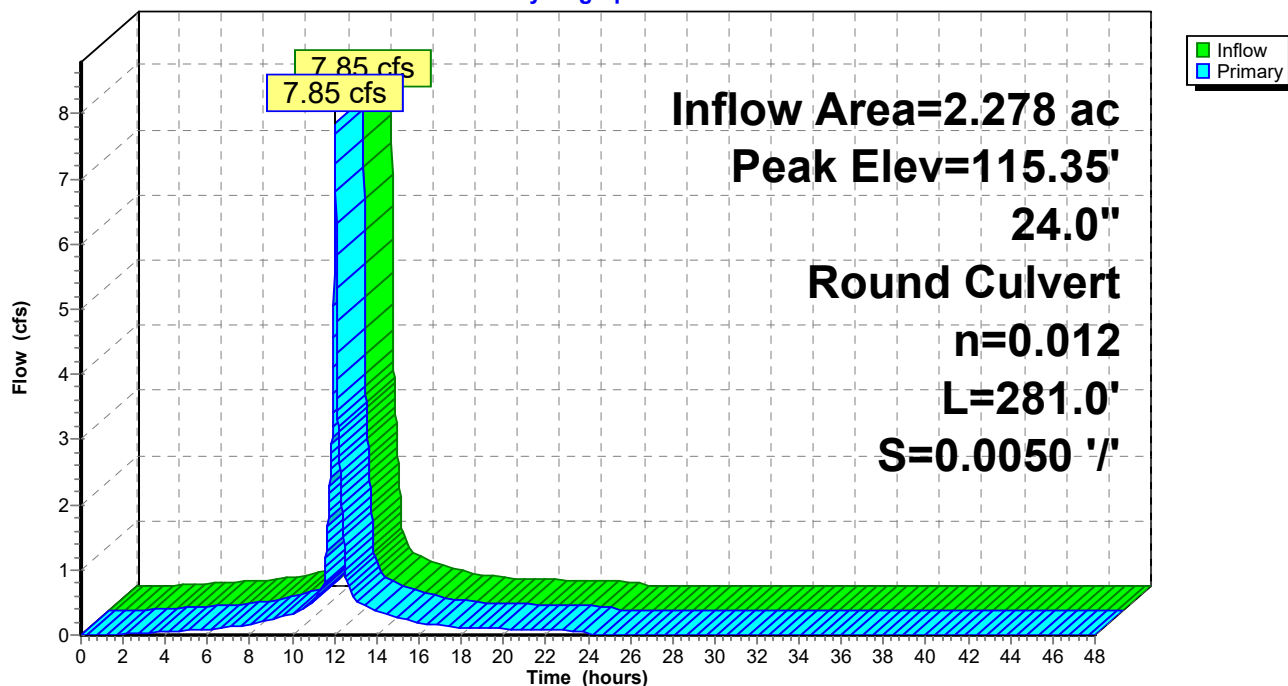
Device	Routing	Invert	Outlet Devices
#1	Primary	114.02'	24.0" Round Culvert L= 281.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.02' / 112.61' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=7.81 cfs @ 12.03 hrs HW=115.35' (Free Discharge)

1=Culvert (Barrel Controls 7.81 cfs @ 5.00 fps)

Pond CB-8: CB-8

Hydrograph



Summary for Pond CB-9: CB-9

Inflow Area = 0.852 ac, 100.00% Impervious, Inflow Depth = 2.90" for 2yr event
 Inflow = 2.91 cfs @ 12.04 hrs, Volume= 0.206 af
 Outflow = 2.91 cfs @ 12.04 hrs, Volume= 0.206 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.91 cfs @ 12.04 hrs, Volume= 0.206 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.82' @ 12.04 hrs

Flood Elev= 118.10'

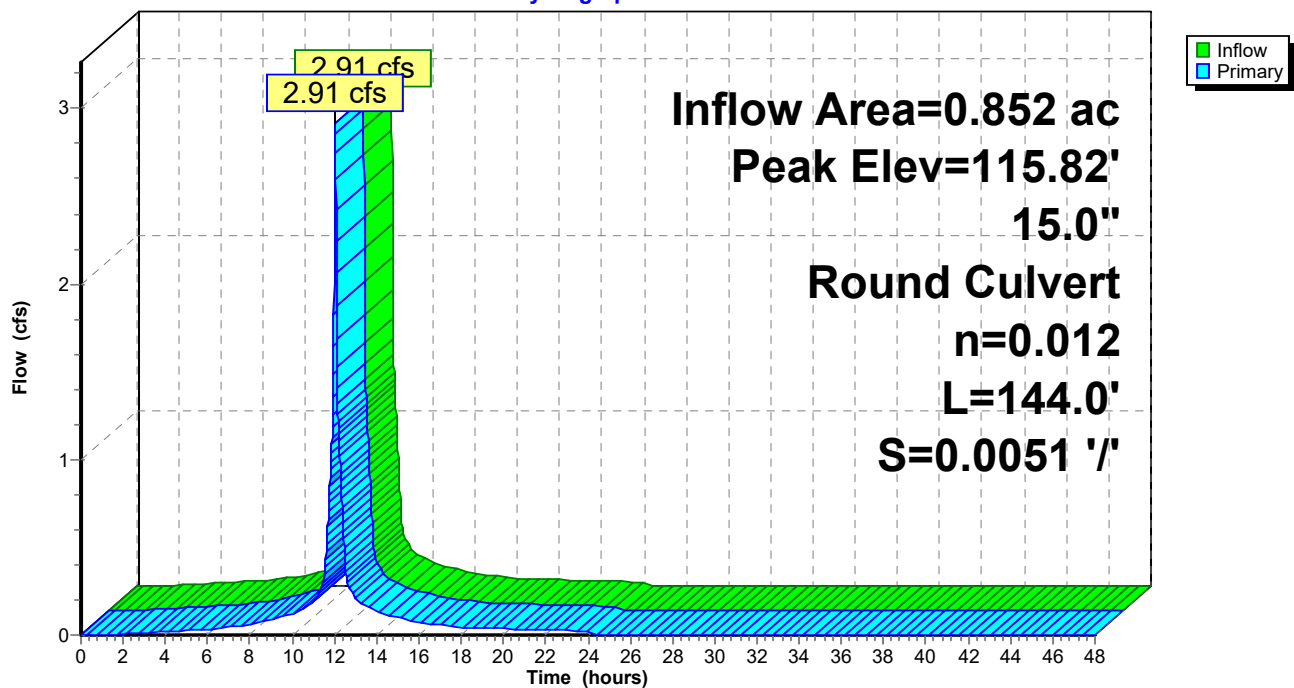
Device	Routing	Invert	Outlet Devices
#1	Primary	114.85'	15.0" Round Culvert L= 144.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.85' / 114.12' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.91 cfs @ 12.04 hrs HW=115.82' (Free Discharge)

1=Culvert (Barrel Controls 2.91 cfs @ 3.93 fps)

Pond CB-9: CB-9

Hydrograph



Summary for Pond DMH-1: DMH-1

Inflow Area = 3.399 ac, 100.00% Impervious, Inflow Depth = 2.90" for 2yr event
 Inflow = 11.76 cfs @ 12.03 hrs, Volume= 0.821 af
 Outflow = 11.76 cfs @ 12.03 hrs, Volume= 0.821 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.76 cfs @ 12.03 hrs, Volume= 0.821 af

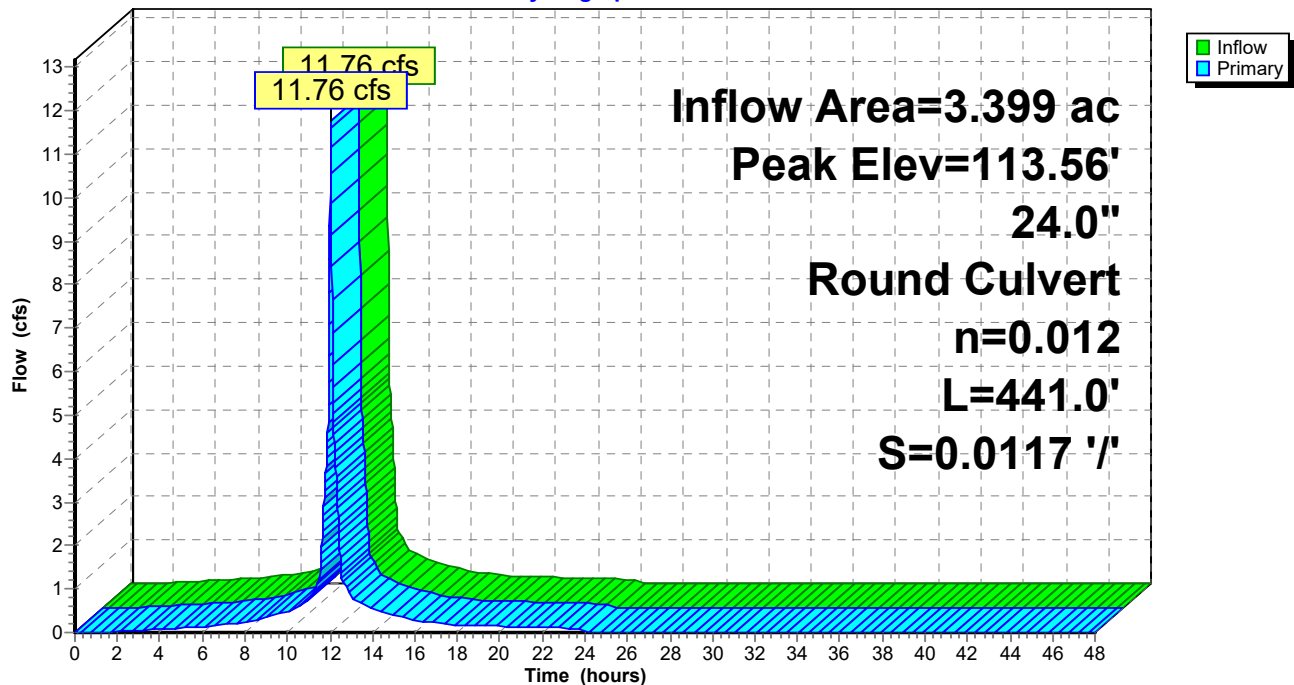
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.56' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	24.0" Round Culvert L= 441.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 106.80' S= 0.0117 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=11.74 cfs @ 12.03 hrs HW=113.56' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 11.74 cfs @ 4.32 fps)

Pond DMH-1: DMH-1

Hydrograph



Summary for Pond DMH-2: DMH-2

Inflow Area = 0.695 ac, 89.47% Impervious, Inflow Depth = 2.49" for 2yr event
 Inflow = 2.27 cfs @ 12.01 hrs, Volume= 0.144 af
 Outflow = 2.27 cfs @ 12.01 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.27 cfs @ 12.01 hrs, Volume= 0.144 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 111.88' @ 12.01 hrs

Flood Elev= 115.70'

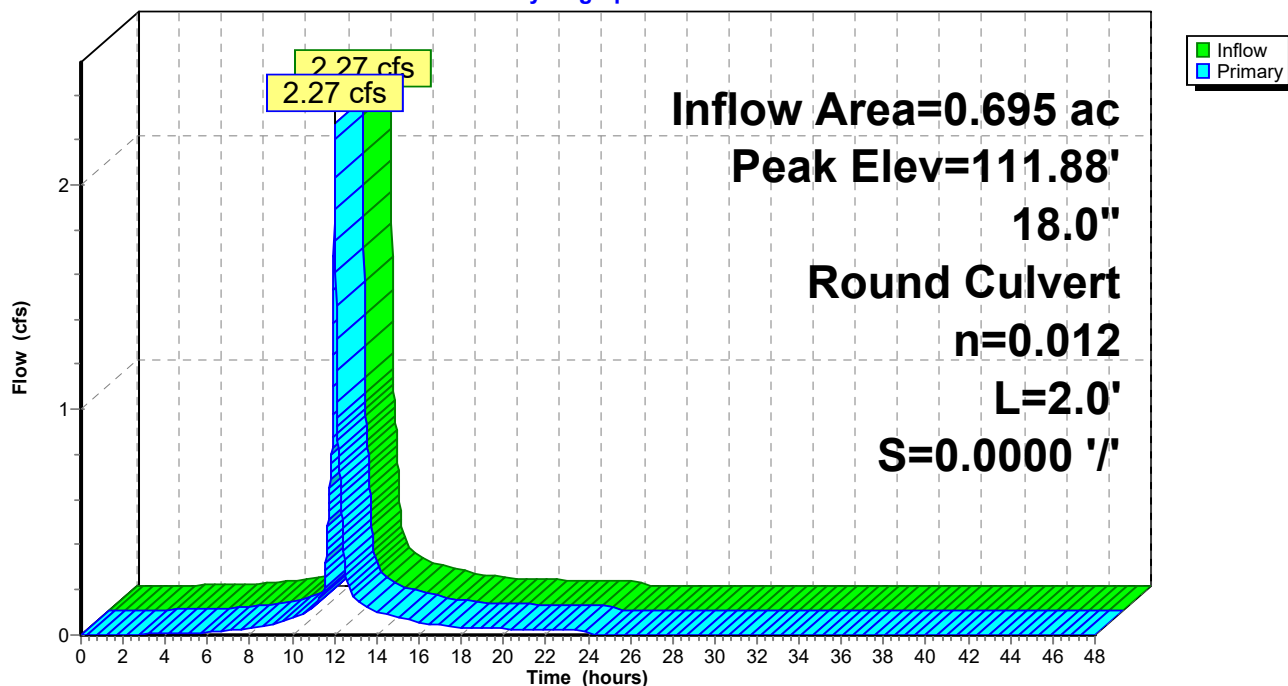
Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 111.00' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.25 cfs @ 12.01 hrs HW=111.87' (Free Discharge)

1=Culvert (Barrel Controls 2.25 cfs @ 3.03 fps)

Pond DMH-2: DMH-2

Hydrograph



Summary for Pond DMH-3: DMH-3

Inflow Area = 1.578 ac, 95.30% Impervious, Inflow Depth = 2.73" for 2yr event
 Inflow = 5.48 cfs @ 12.02 hrs, Volume= 0.359 af
 Outflow = 5.48 cfs @ 12.02 hrs, Volume= 0.359 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.48 cfs @ 12.02 hrs, Volume= 0.359 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

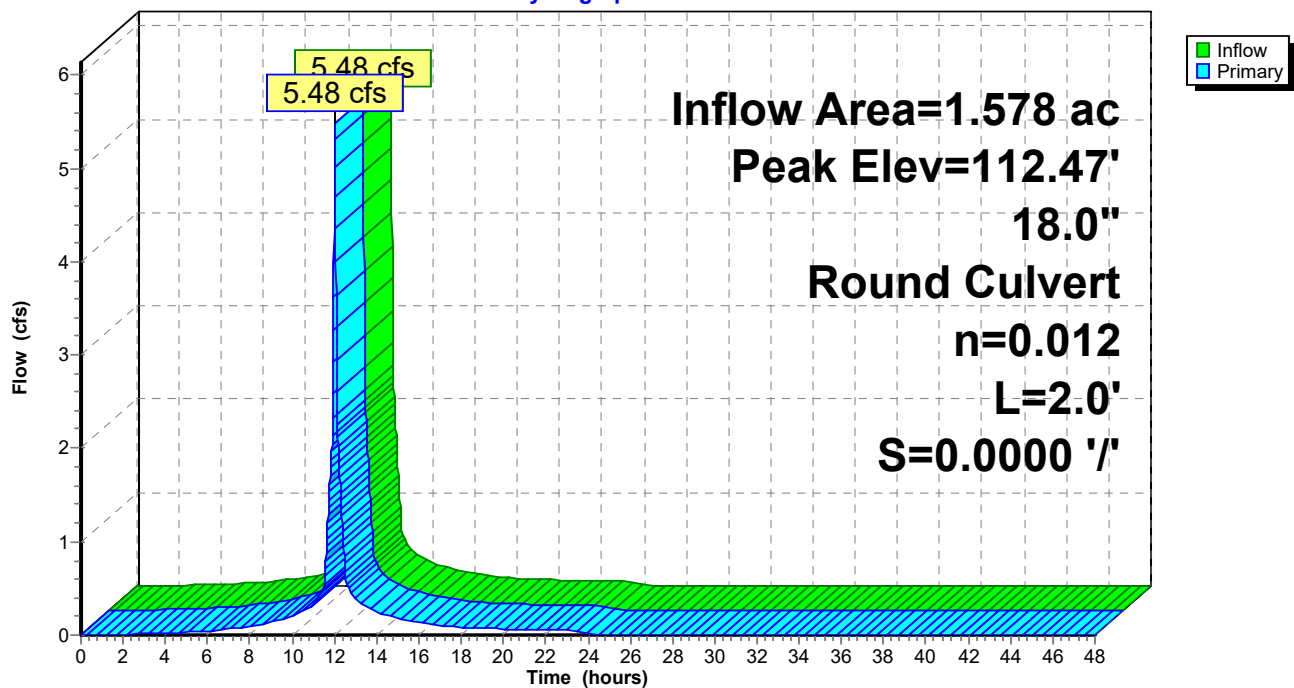
Peak Elev= 112.47' @ 12.02 hrs

Flood Elev= 115.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 111.00' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.47 cfs @ 12.02 hrs HW=112.47' (Free Discharge)

1=Culvert (Barrel Controls 5.47 cfs @ 3.94 fps)

Pond DMH-3: DMH-3**Hydrograph**

Summary for Pond DMH-4: DMH-4

Inflow Area = 7.377 ac, 81.69% Impervious, Inflow Depth = 2.11" for 2yr event
 Inflow = 16.23 cfs @ 12.04 hrs, Volume= 1.294 af
 Outflow = 16.23 cfs @ 12.04 hrs, Volume= 1.294 af, Atten= 0%, Lag= 0.0 min
 Primary = 16.23 cfs @ 12.04 hrs, Volume= 1.294 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 107.55' @ 12.04 hrs

Flood Elev= 112.20'

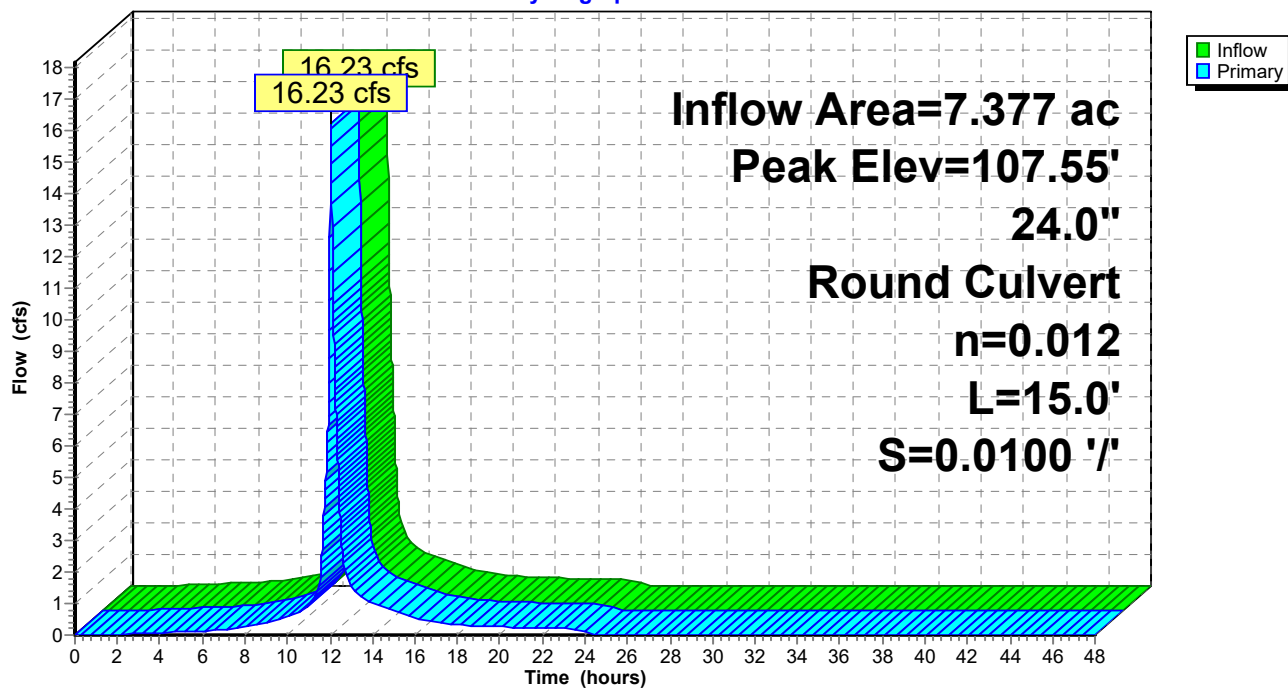
Device	Routing	Invert	Outlet Devices
#1	Primary	105.15'	24.0" Round Culvert L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 105.15' / 105.00' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=16.20 cfs @ 12.04 hrs HW=107.55' (Free Discharge)

↑1=Culvert (Barrel Controls 16.20 cfs @ 5.45 fps)

Pond DMH-4: DMH-4

Hydrograph



Summary for Pond OCS-1: STORMTECH SC-740

Inflow Area = 2.273 ac, 93.52% Impervious, Inflow Depth = 2.65" for 2yr event
 Inflow = 7.74 cfs @ 12.02 hrs, Volume= 0.503 af
 Outflow = 1.52 cfs @ 12.40 hrs, Volume= 0.503 af, Atten= 80%, Lag= 23.0 min
 Discarded = 0.78 cfs @ 11.56 hrs, Volume= 0.425 af
 Primary = 0.74 cfs @ 12.40 hrs, Volume= 0.078 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 112.11' @ 12.40 hrs Surf.Area= 0 sf Storage= 5,930 cf
 Flood Elev= 115.50' Surf.Area= 0 sf Storage= 14,778 cf

Plug-Flow detention time= 29.9 min calculated for 0.503 af (100% of inflow)
 Center-of-Mass det. time= 29.9 min (797.2 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	14,778 cf	Custom Stage Data Listed below

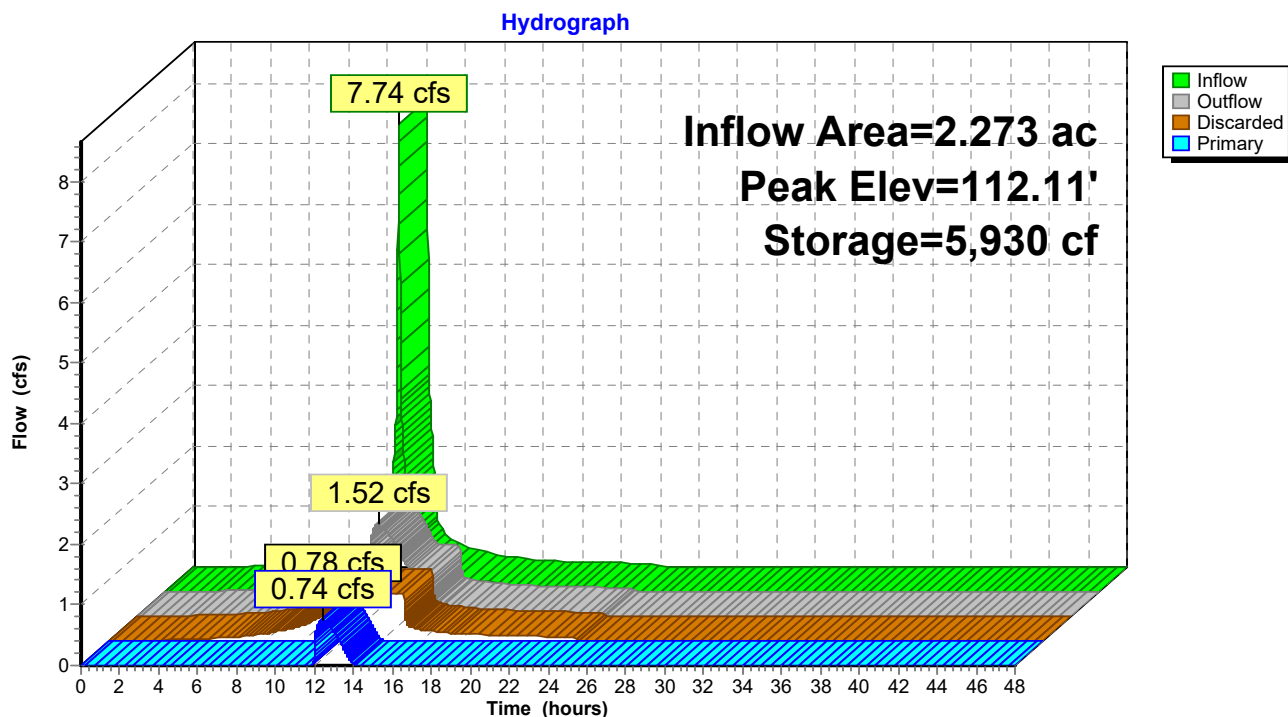
Elevation (feet)	Cum.Store (cubic-feet)
110.50	0
114.50	14,778

Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.47' S= 0.0482 ' S= 0.0482 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	113.50'	13.0" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Discarded	110.50'	0.78 cfs Exfiltration when above 110.50'
#4	Device 1	111.00'	5.5" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.78 cfs @ 11.56 hrs HW=110.55' (Free Discharge)
 ↳ **3=Exfiltration** (Exfiltration Controls 0.78 cfs)

Primary OutFlow Max=0.74 cfs @ 12.40 hrs HW=112.11' (Free Discharge)
 ↳ **1=Culvert** (Passes 0.74 cfs of 4.99 cfs potential flow)
 ↳ **2=Orifice/Grate** (Controls 0.00 cfs)
 ↳ **4=Orifice/Grate** (Orifice Controls 0.74 cfs @ 4.51 fps)

Pond OCS-1: STORMTECH SC-740



Summary for Pond OCS-2: STORMTECH MC-4500

Inflow Area = 7.377 ac, 81.69% Impervious, Inflow Depth = 2.11" for 2yr event
 Inflow = 16.23 cfs @ 12.04 hrs, Volume= 1.294 af
 Outflow = 2.72 cfs @ 12.56 hrs, Volume= 1.294 af, Atten= 83%, Lag= 31.3 min
 Discarded = 2.61 cfs @ 11.70 hrs, Volume= 1.286 af
 Primary = 0.11 cfs @ 12.56 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 105.36' @ 12.56 hrs Surf.Area= 0 sf Storage= 15,885 cf

Plug-Flow detention time= 38.4 min calculated for 1.294 af (100% of inflow)
 Center-of-Mass det. time= 38.4 min (822.3 - 783.9)

Volume	Invert	Avail.Storage	Storage Description
#1	104.00'	81,951 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
104.00	0
111.00	81,951

Device	Routing	Invert	Outlet Devices
#1	Primary	105.00'	12.0" Round Culvert L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 105.00' / 103.90' S= 0.0097 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	105.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	108.00'	3.5" Vert. Orifice/Grate C= 0.600
#4	Discarded	104.00'	2.61 cfs Exfiltration when above 104.00'

Discarded OutFlow Max=2.61 cfs @ 11.70 hrs HW=104.07' (Free Discharge)

↑**4=Exfiltration** (Exfiltration Controls 2.61 cfs)

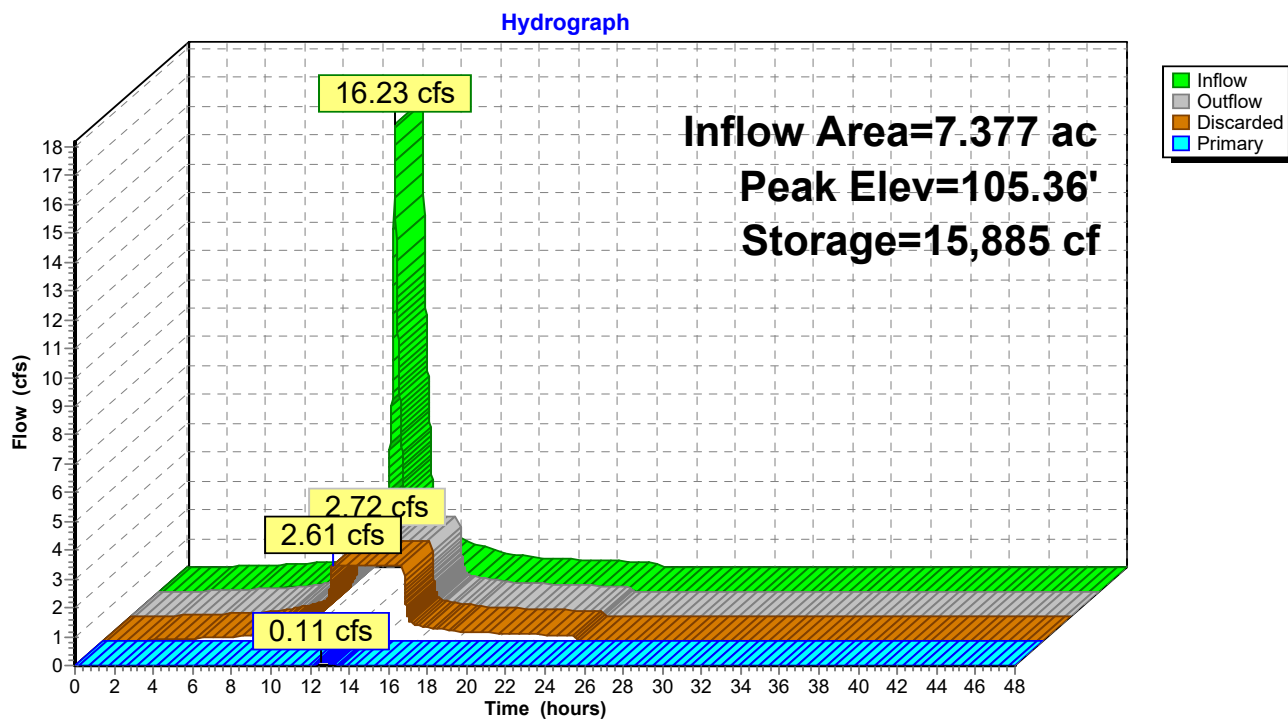
Primary OutFlow Max=0.11 cfs @ 12.56 hrs HW=105.36' (Free Discharge)

↑**1=Culvert** (Passes 0.11 cfs of 0.51 cfs potential flow)

↑**2=Orifice/Grate** (Orifice Controls 0.11 cfs @ 2.32 fps)

↑**3=Orifice/Grate** (Controls 0.00 cfs)

Pond OCS-2: STORMTECH MC-4500



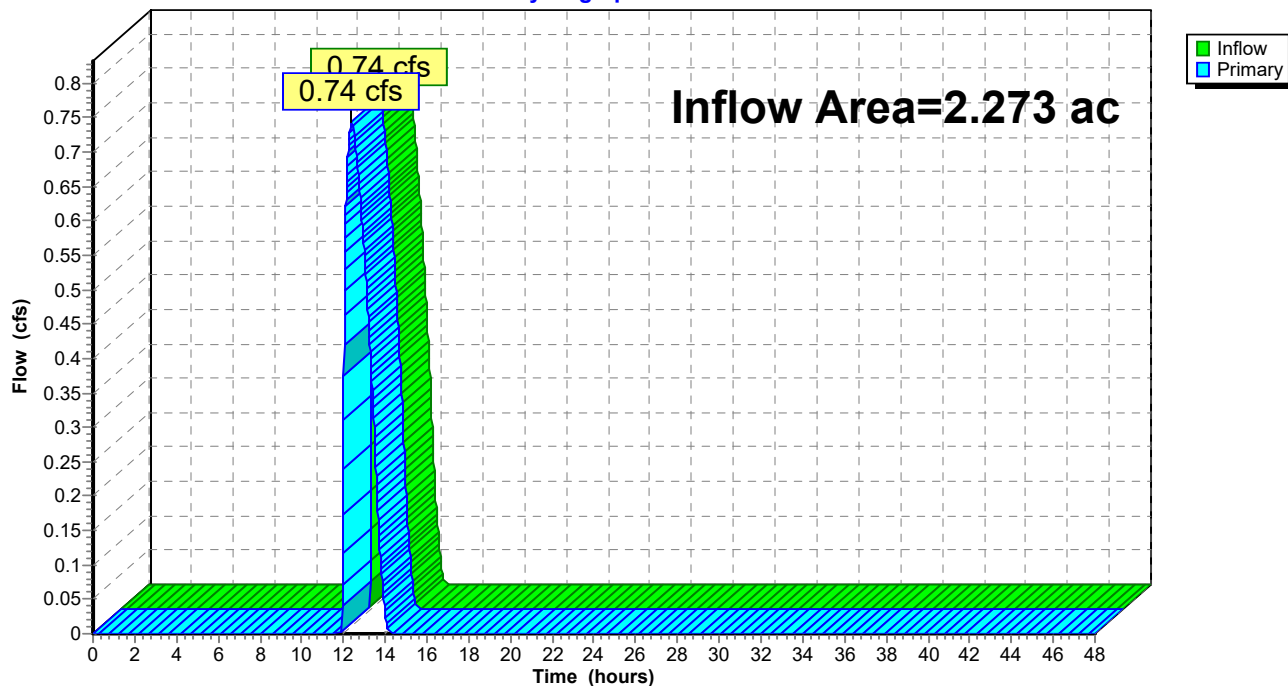
Summary for Link SP-1: SP-1

Inflow Area = 2.273 ac, 93.52% Impervious, Inflow Depth = 0.41" for 2yr event
 Inflow = 0.74 cfs @ 12.40 hrs, Volume= 0.078 af
 Primary = 0.74 cfs @ 12.40 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-1: SP-1

Hydrograph

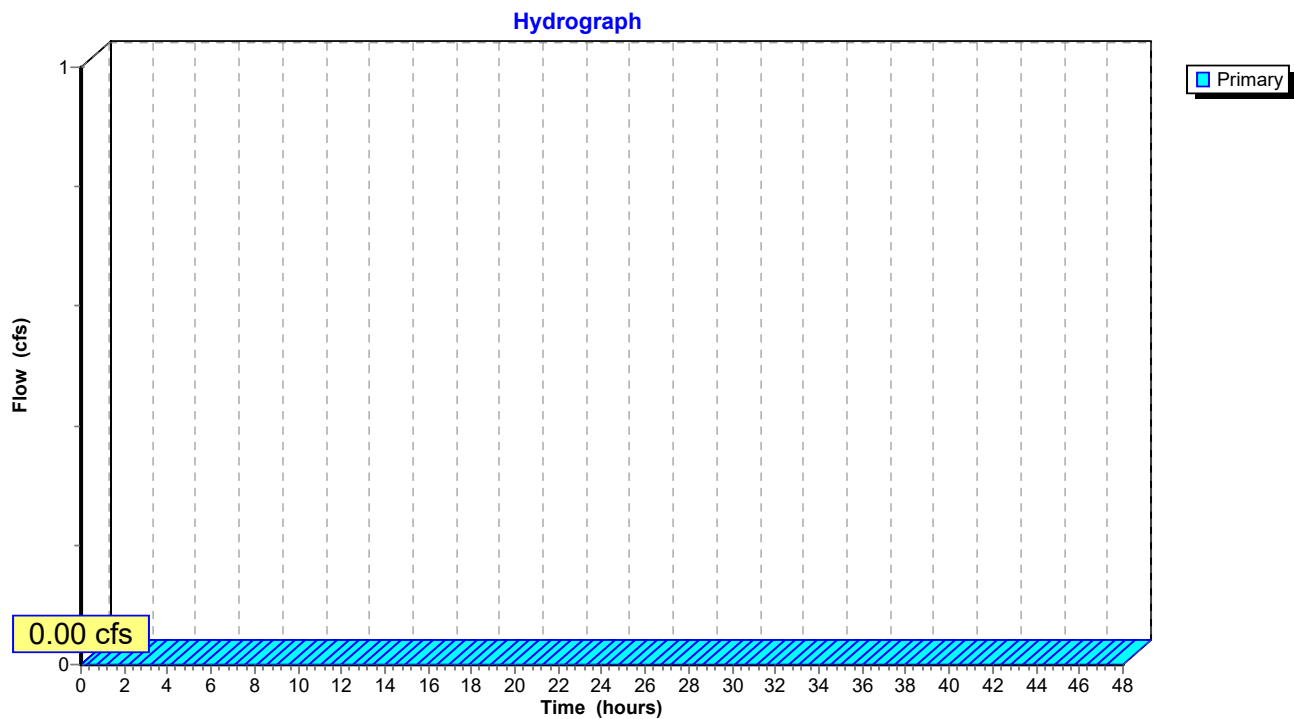


Summary for Link SP-2: SP-2

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-2: SP-2



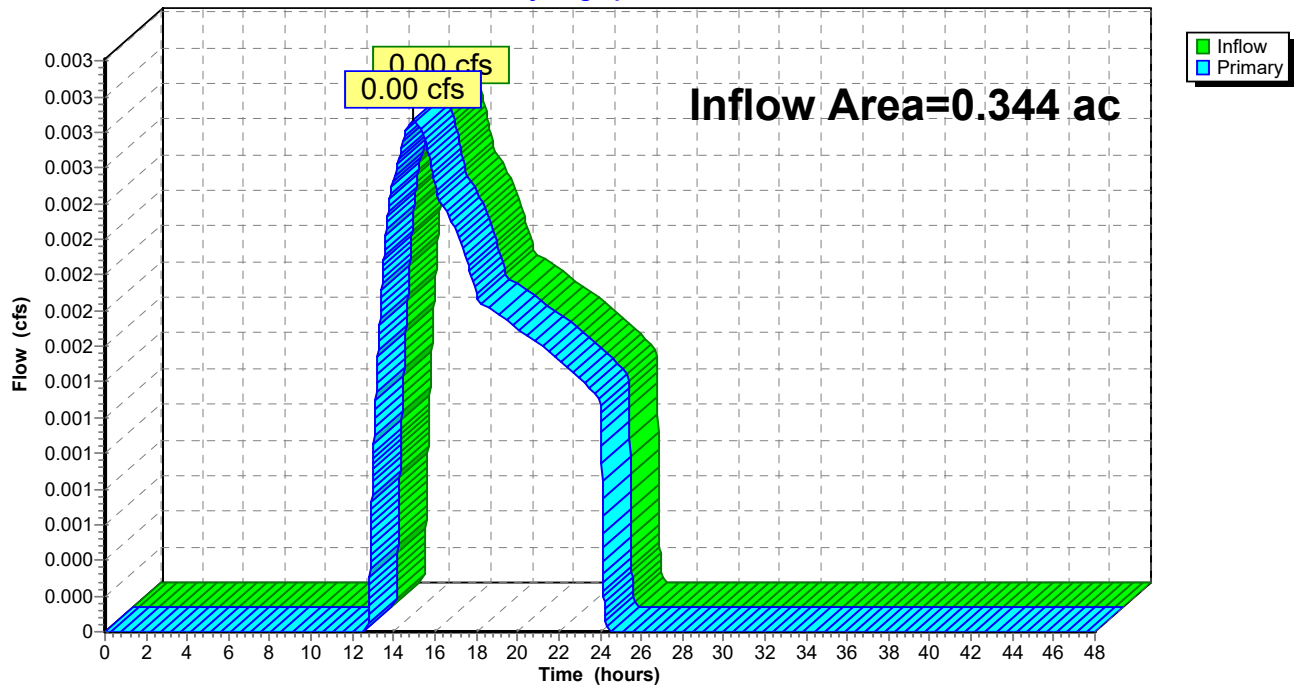
Summary for Link SP-3: SP-3

Inflow Area = 0.344 ac, 0.00% Impervious, Inflow Depth = 0.06" for 2yr event
 Inflow = 0.00 cfs @ 14.97 hrs, Volume= 0.002 af
 Primary = 0.00 cfs @ 14.97 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-3: SP-3

Hydrograph



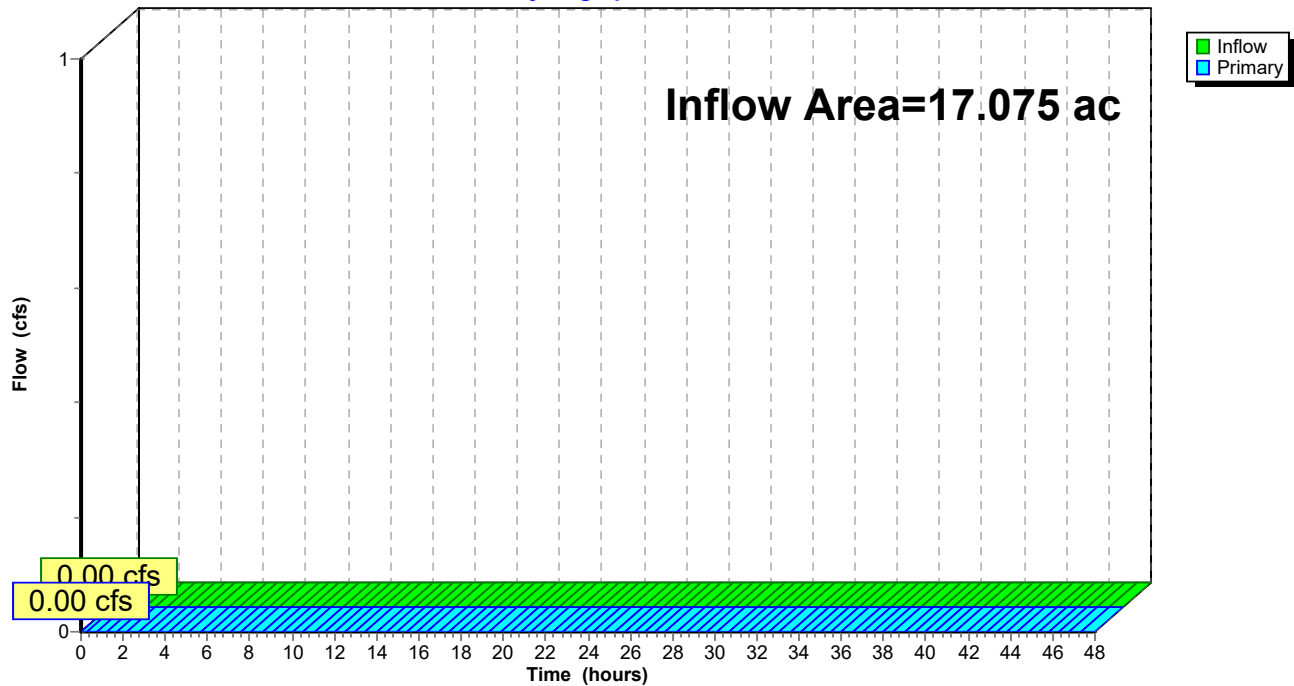
Summary for Link SP-4: SP-4

Inflow Area = 17.075 ac, 35.29% Impervious, Inflow Depth = 0.00" for 2yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-4: SP-4

Hydrograph



Summary for Subcatchment 1S: 1S

Runoff = 0.42 cfs @ 12.02 hrs, Volume= 0.029 af, Depth= 4.54"

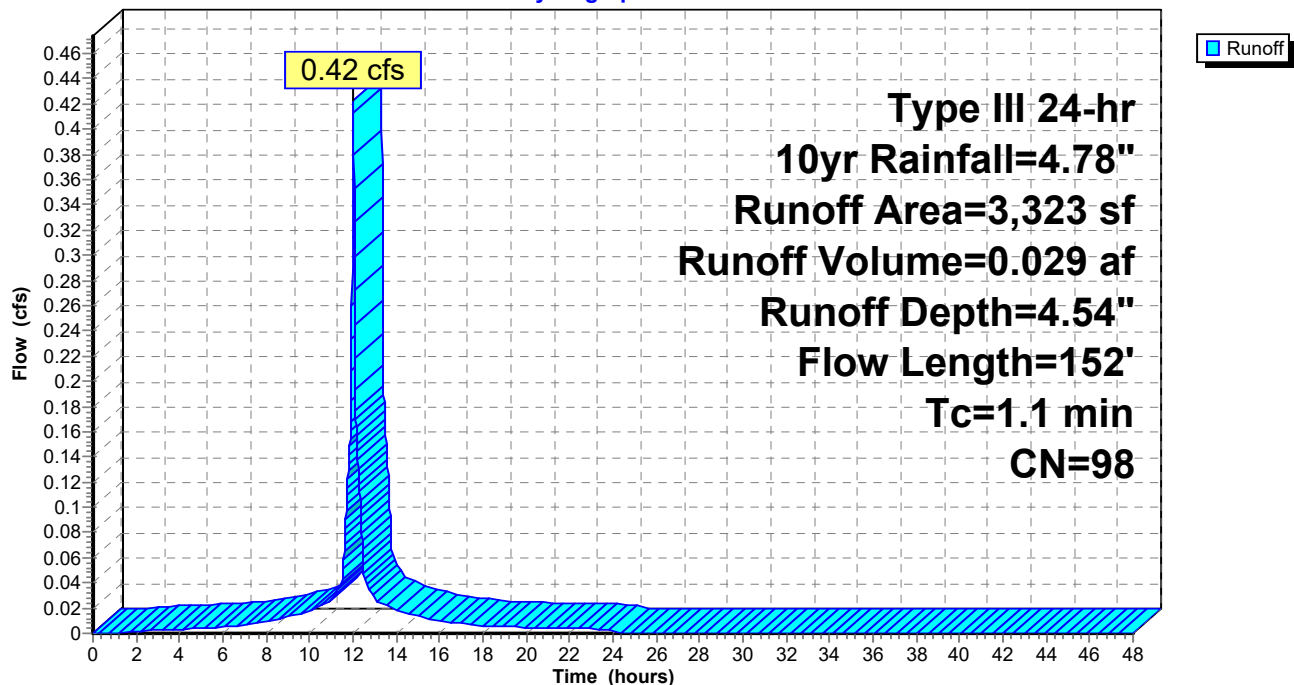
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
3,323	98	Paved parking, HSG B
3,323		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	25	0.0100	0.78		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.6	127	0.0320	3.63		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.1	152	Total			

Subcatchment 1S: 1S

Hydrograph



Summary for Subcatchment 2S: 2S

Runoff = 1.19 cfs @ 12.02 hrs, Volume= 0.082 af, Depth= 4.54"

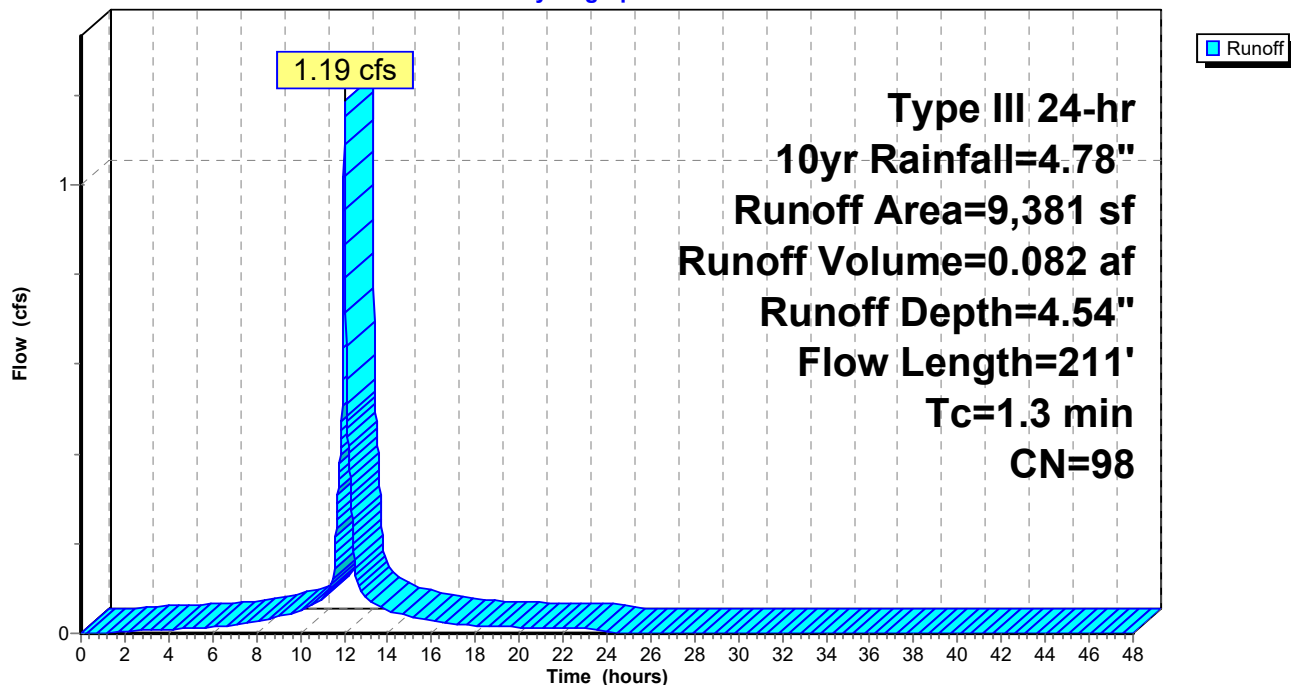
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
9,381	98	Paved parking, HSG B
9,381		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.03		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.9	186	0.0320	3.63		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.3	211	Total			

Subcatchment 2S: 2S

Hydrograph



Summary for Subcatchment 3S: 3S

Runoff = 2.06 cfs @ 12.01 hrs, Volume= 0.127 af, Depth= 3.77"

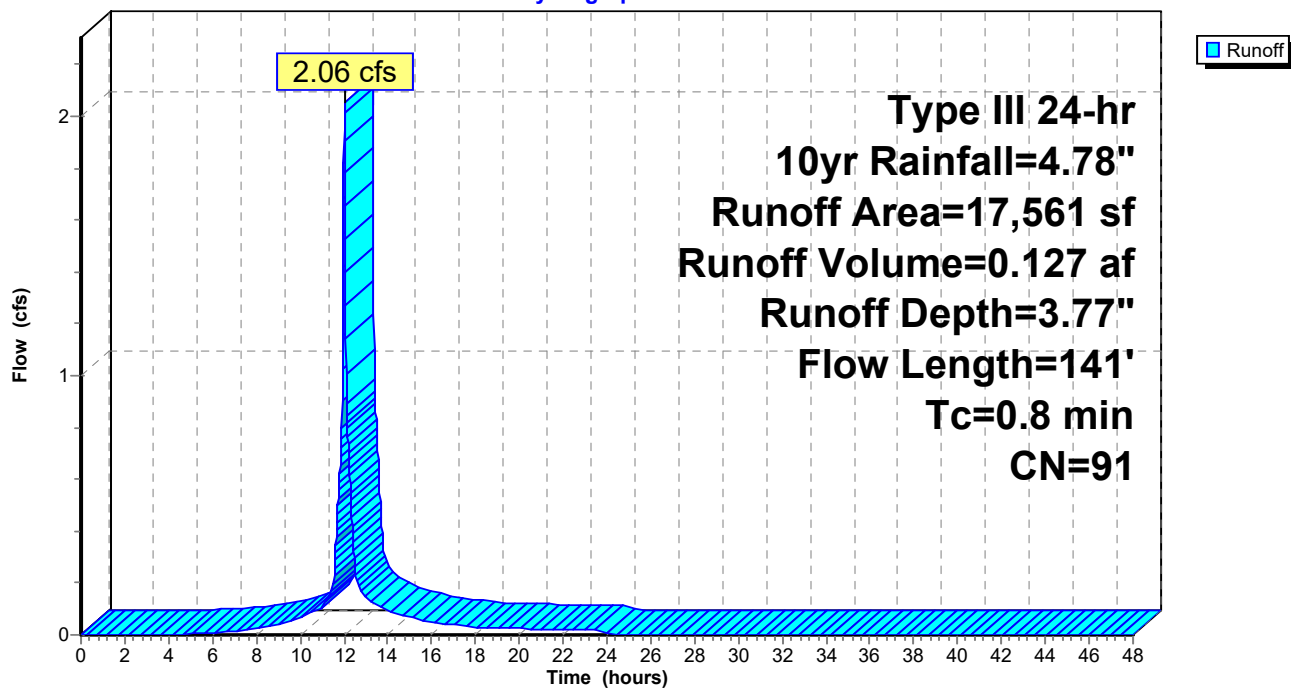
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
3,187	61	>75% Grass cover, Good, HSG B
14,374	98	Paved parking, HSG B
17,561	91	Weighted Average
3,187		18.15% Pervious Area
14,374		81.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	31	0.0500	1.55		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.5	110	0.0300	3.52		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
0.8	141	Total			

Subcatchment 3S: 3S

Hydrograph



Summary for Subcatchment 4S: 4S

Runoff = 3.38 cfs @ 12.02 hrs, Volume= 0.218 af, Depth= 4.09"

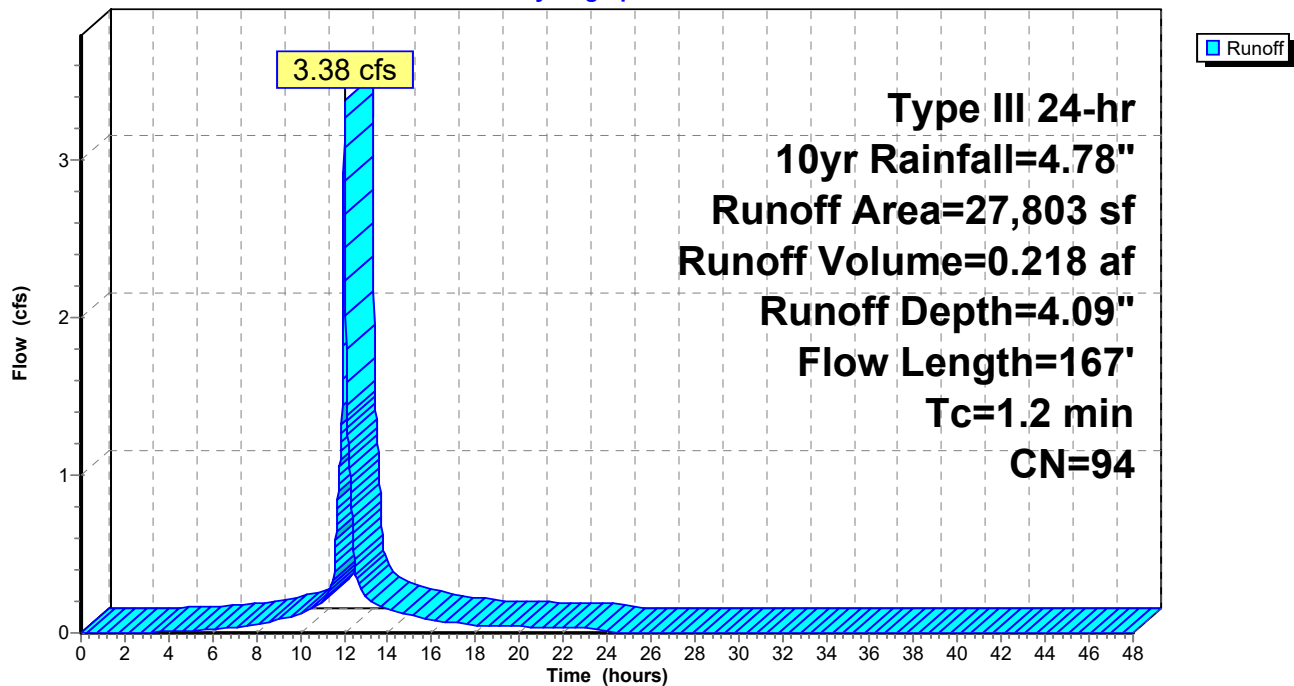
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
24,575	98	Paved parking, HSG B
3,228	61	>75% Grass cover, Good, HSG B
27,803	94	Weighted Average
3,228		11.61% Pervious Area
24,575		88.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	53	0.0400	1.58		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.6	114	0.0250	3.21		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.2	167	Total			

Subcatchment 4S: 4S

Hydrograph



Summary for Subcatchment 5S: 5S

Runoff = 5.19 cfs @ 12.02 hrs, Volume= 0.356 af, Depth= 4.54"

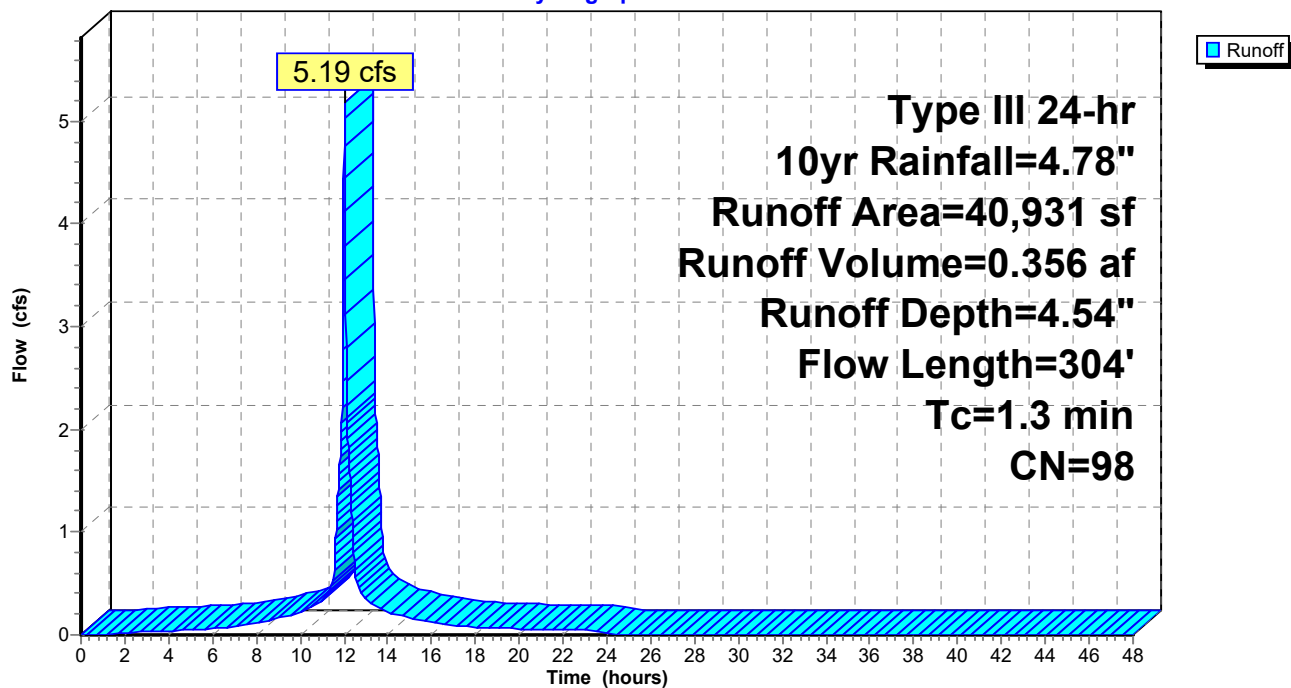
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
40,931	98	Paved parking, HSG B
40,931		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	35	0.1660	8.27		Shallow Concentrated Flow, A-B Paved Kv= 20.3 fps
0.9	154	0.0200	2.87		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
0.3	115	0.0200	6.79	23.76	Channel Flow, C-D Area= 3.5 sf Perim= 14.5' r= 0.24' n= 0.012 Steel, smooth
1.3	304	Total			

Subcatchment 5S: 5S

Hydrograph



Summary for Subcatchment 6S: 6S

Runoff = 1.51 cfs @ 12.02 hrs, Volume= 0.105 af, Depth= 4.54"

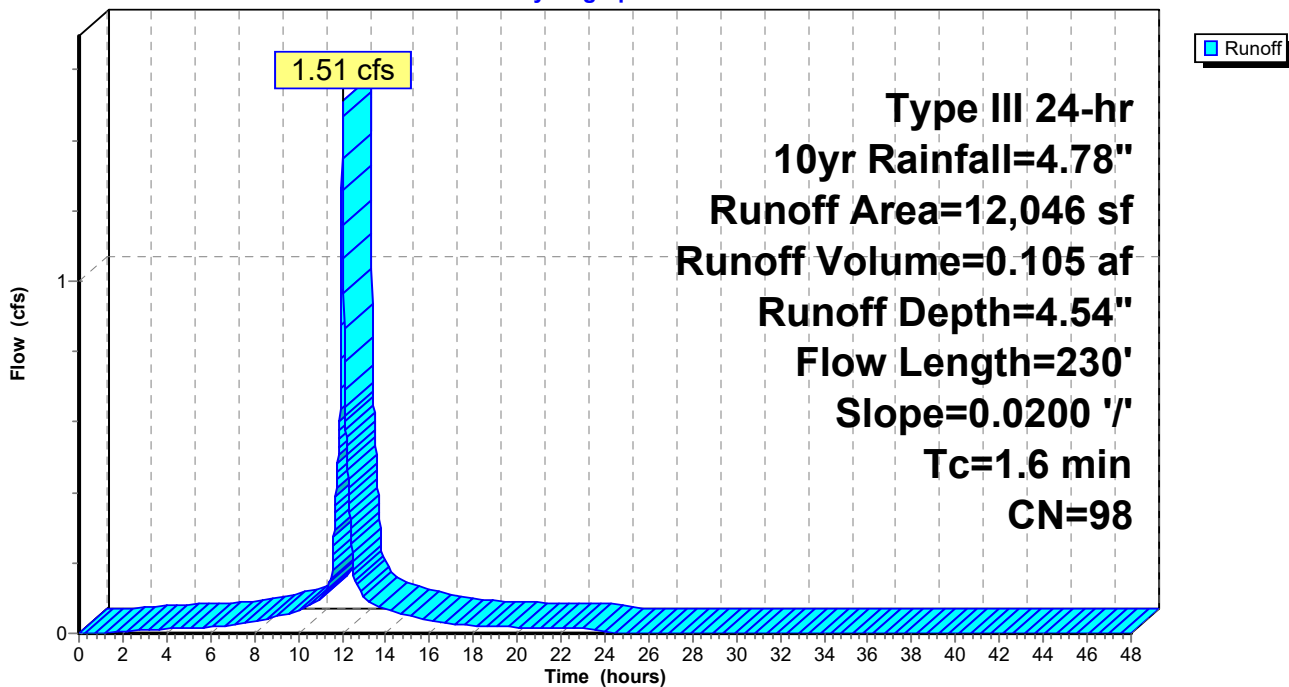
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
12,046	98	Paved parking, HSG B
12,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.03		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.2	205	0.0200	2.87		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.6	230	Total			

Subcatchment 6S: 6S

Hydrograph



Summary for Subcatchment 7S: 7S

Runoff = 4.60 cfs @ 12.02 hrs, Volume= 0.320 af, Depth= 4.54"

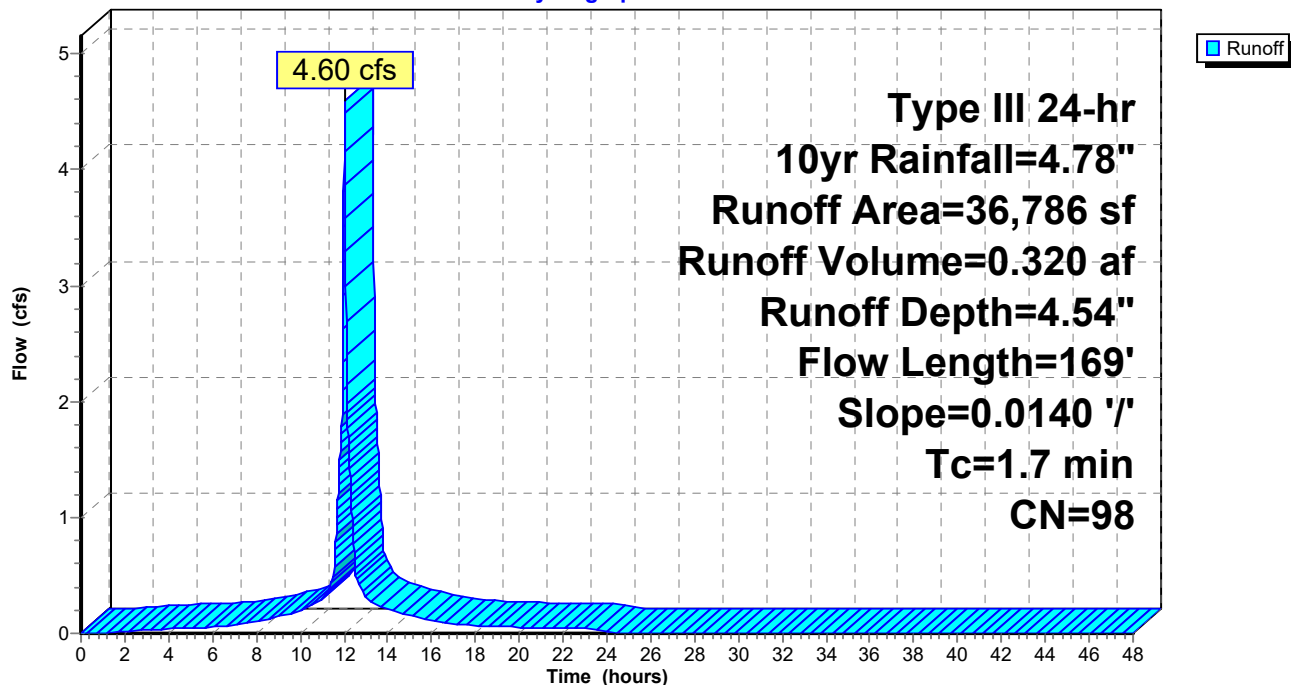
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
36,786	98	Paved parking, HSG B
36,786		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	53	0.0140	1.04		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.8	116	0.0140	2.40		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.7	169	Total			

Subcatchment 7S: 7S

Hydrograph



Summary for Subcatchment 8S: 8S

Runoff = 7.61 cfs @ 12.03 hrs, Volume= 0.540 af, Depth= 4.54"

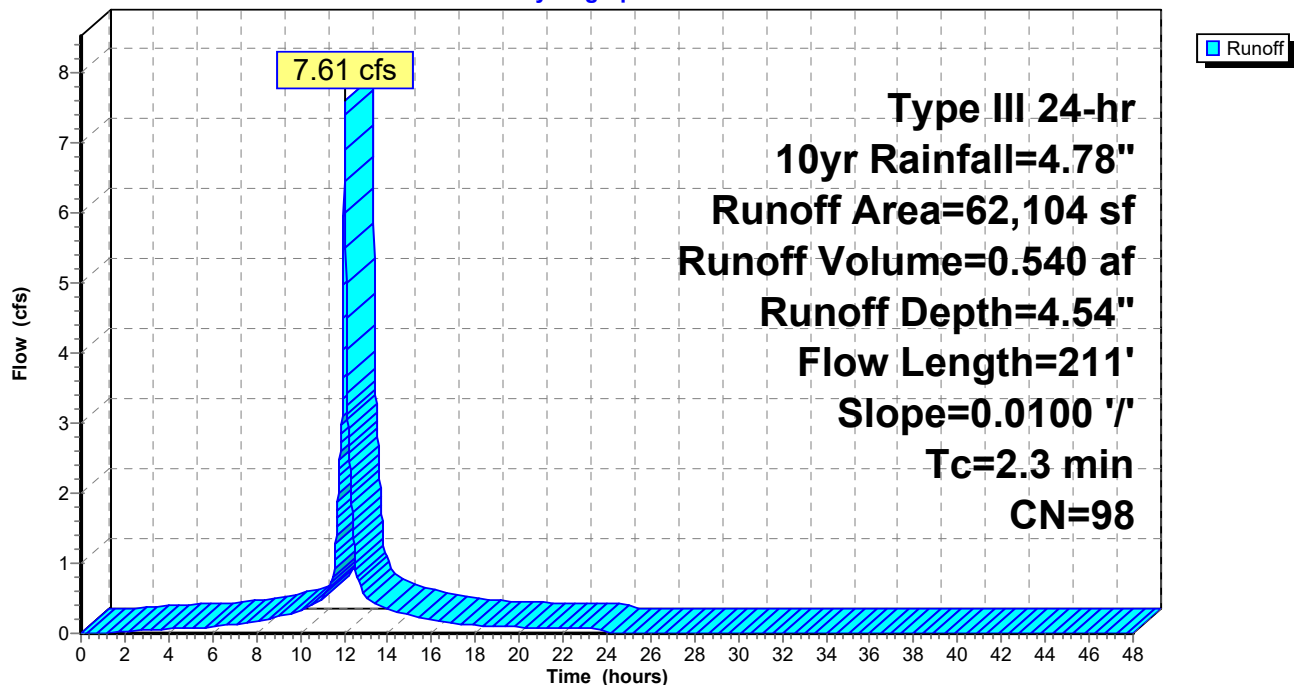
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
62,104	98	Paved parking, HSG B
62,104		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	59	0.0100	0.93		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.2	152	0.0100	2.03		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
2.3	211	Total			

Subcatchment 8S: 8S

Hydrograph



Summary for Subcatchment 9S: 9S

Runoff = 4.48 cfs @ 12.04 hrs, Volume= 0.323 af, Depth= 4.54"

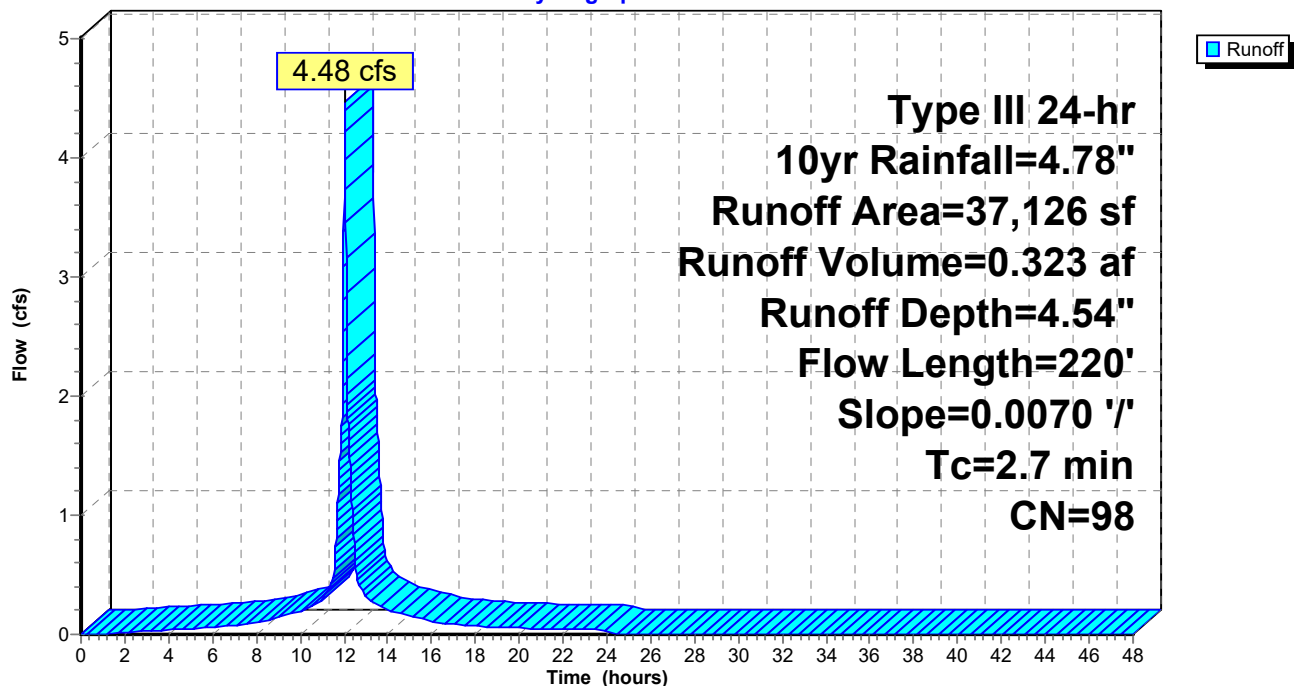
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
14,243	98	Paved parking, HSG A
22,883	98	Paved parking, HSG B
37,126	98	Weighted Average
37,126		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	40	0.0070	0.74		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.8	180	0.0070	1.70		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
2.7	220	Total			

Subcatchment 9S: 9S

Hydrograph



Summary for Subcatchment 10S: 10S

Runoff = 7.70 cfs @ 12.14 hrs, Volume= 0.633 af, Depth= 3.26"

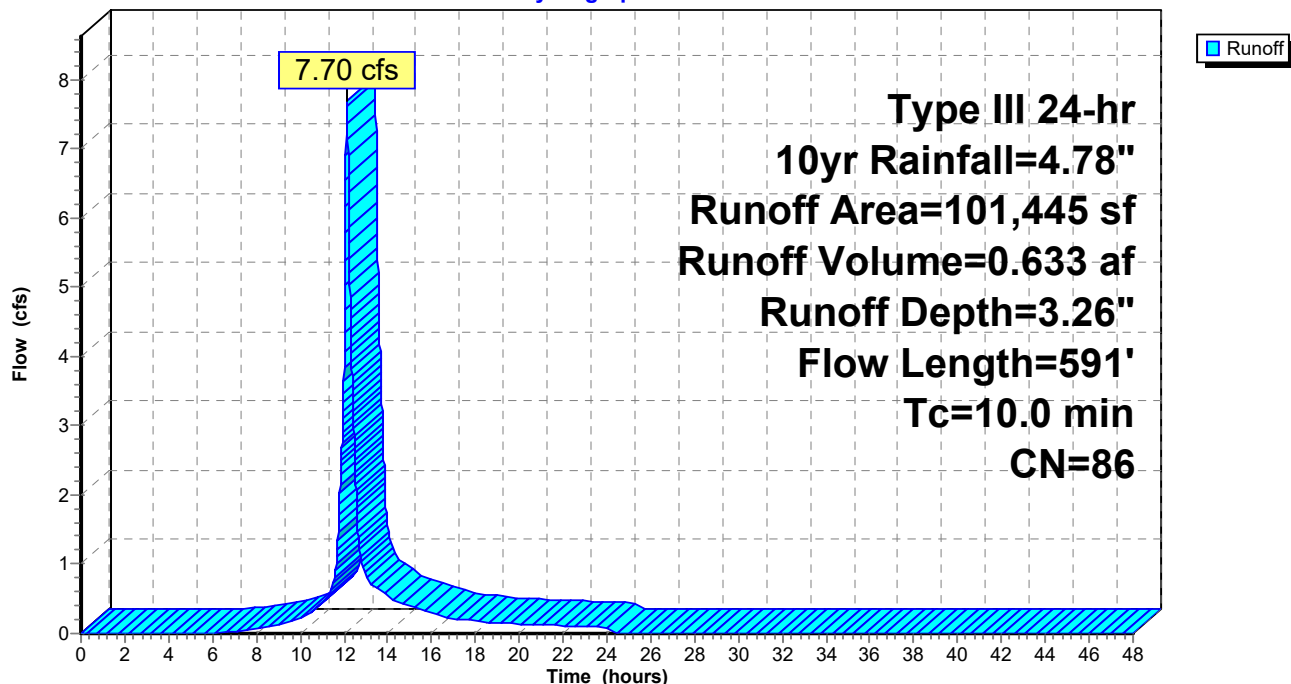
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
2,517	30	Woods, Good, HSG A
49,449	98	Paved parking, HSG A
4,033	55	Woods, Good, HSG B
28,301	98	Paved parking, HSG B
17,145	48	Brush, Good, HSG B
101,445	86	Weighted Average
23,695		23.36% Pervious Area
77,750		76.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	23	0.0500	0.18		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
0.5	68	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
7.4	500	0.0260	1.13		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
10.0	591	Total			

Subcatchment 10S: 10S

Hydrograph



Summary for Subcatchment 11S: 11S

Runoff = 0.07 cfs @ 12.32 hrs, Volume= 0.013 af, Depth= 0.46"

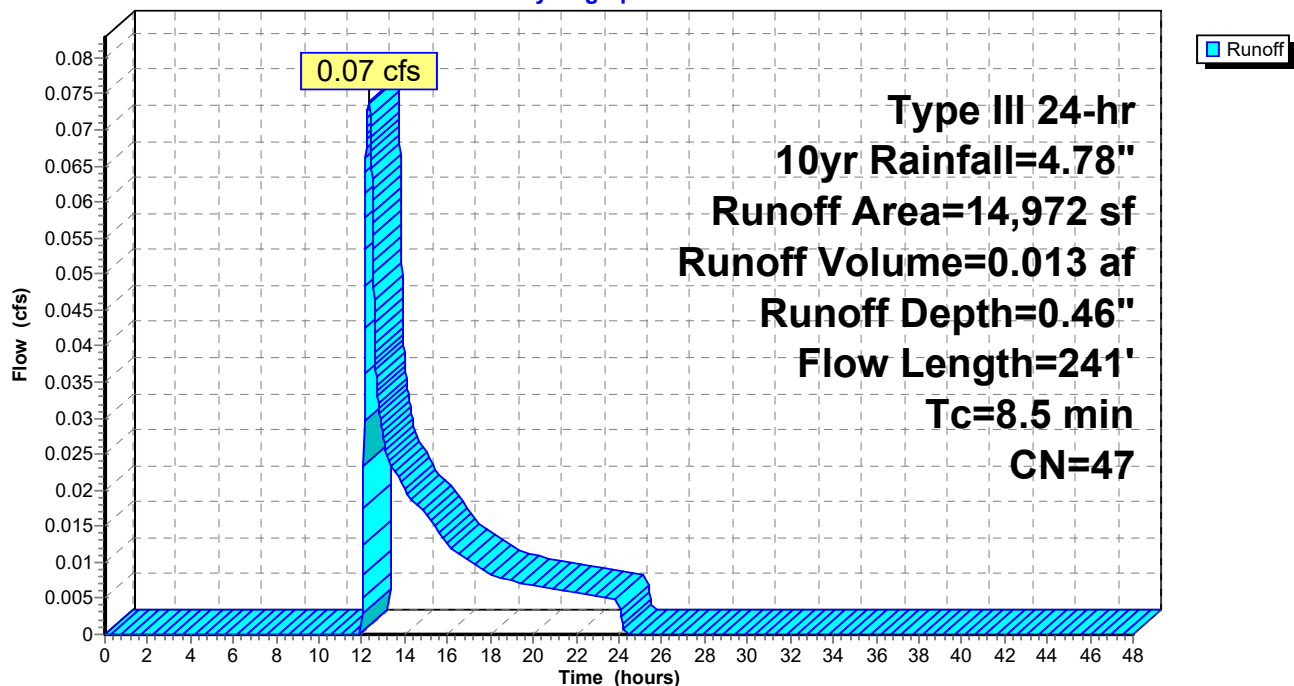
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
14,527	48	Brush, Good, HSG B
445	30	Brush, Good, HSG A
14,972	47	Weighted Average
14,972		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	18	0.3330	0.41		Sheet Flow, A-B
					Range n= 0.130 P2= 3.13"
7.8	223	0.0090	0.47		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
8.5	241	Total			

Subcatchment 11S: 11S

Hydrograph



Summary for Subcatchment 12S: 12S

Runoff = 3.33 cfs @ 13.73 hrs, Volume= 1.054 af, Depth= 1.30"

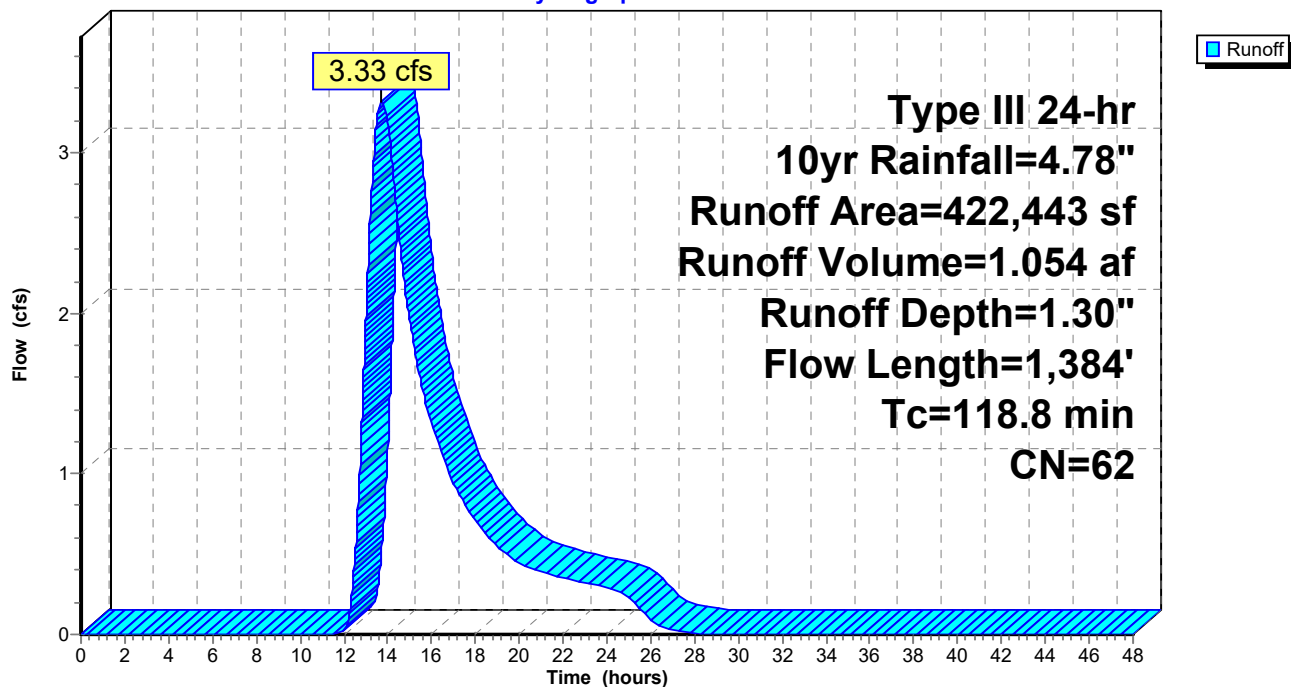
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
17,430	48	Brush, Good, HSG B
247,720	55	Woods, Good, HSG B
64,382	70	Woods, Good, HSG C
92,911	77	Woods, Good, HSG D
422,443	62	Weighted Average
422,443		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.9	200	0.0700	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.13"
78.9	1,184	0.0100	0.25		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
118.8	1,384	Total			

Subcatchment 12S: 12S

Hydrograph



Summary for Subcatchment 13S: 13S

Runoff = 4.66 cfs @ 12.03 hrs, Volume= 0.290 af, Depth= 2.11"

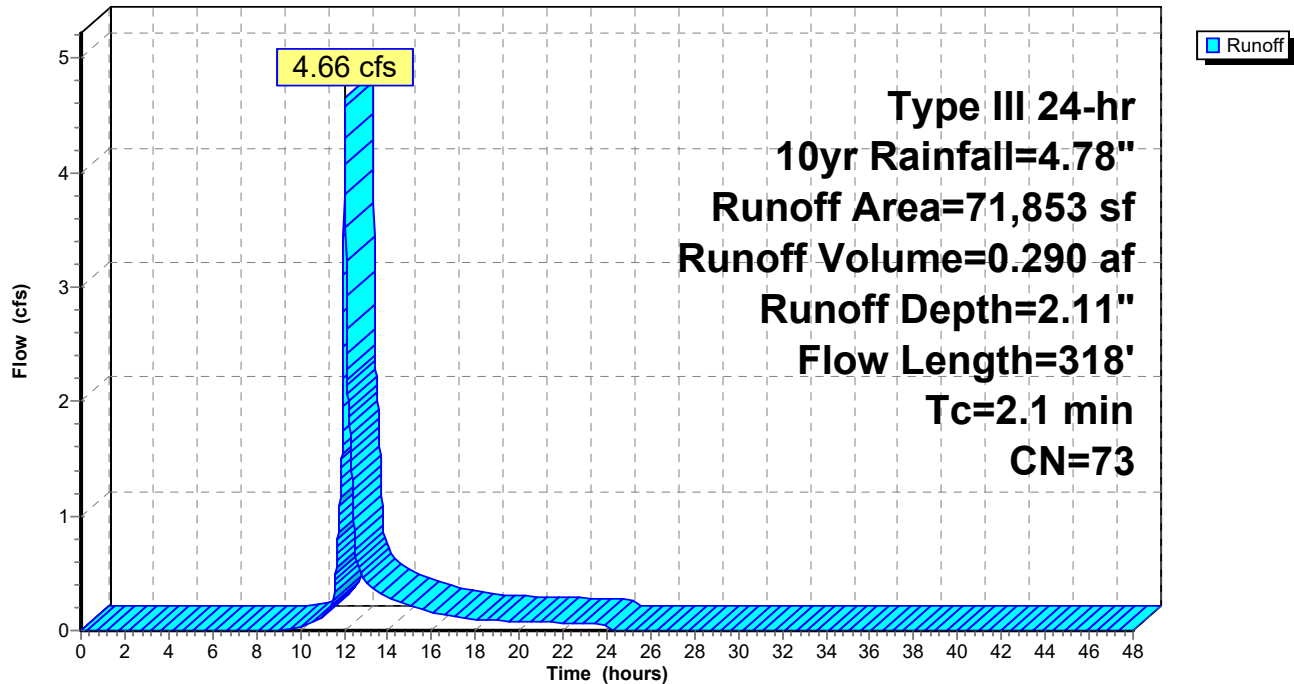
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10yr Rainfall=4.78"

Area (sf)	CN	Description
29,040	98	Paved parking, HSG A
7,665	98	Paved parking, HSG B
5,954	30	Woods, Good, HSG A
6,687	55	Woods, Good, HSG B
22,507	48	Brush, Good, HSG B
71,853	73	Weighted Average
35,148		48.92% Pervious Area
36,705		51.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	99	0.0200	1.36		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.13"
0.8	162	0.0250	3.21		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
0.1	57	0.0530	6.74	47.20	Channel Flow, C-D Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.040 Earth, cobble bottom, clean sides
2.1	318	Total			

Subcatchment 13S: 13S

Hydrograph



Summary for Pond 3P: Wetland

Inflow Area = 17.075 ac, 35.29% Impervious, Inflow Depth = 0.81" for 10yr event
 Inflow = 3.62 cfs @ 13.73 hrs, Volume= 1.148 af
 Outflow = 0.63 cfs @ 18.45 hrs, Volume= 0.373 af, Atten= 83%, Lag= 283.6 min
 Primary = 0.63 cfs @ 18.45 hrs, Volume= 0.373 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.06' @ 18.45 hrs Surf.Area= 53,583 sf Storage= 37,028 cf

Plug-Flow detention time= 496.3 min calculated for 0.373 af (32% of inflow)
 Center-of-Mass det. time= 333.3 min (1,299.7 - 966.4)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	104,029 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

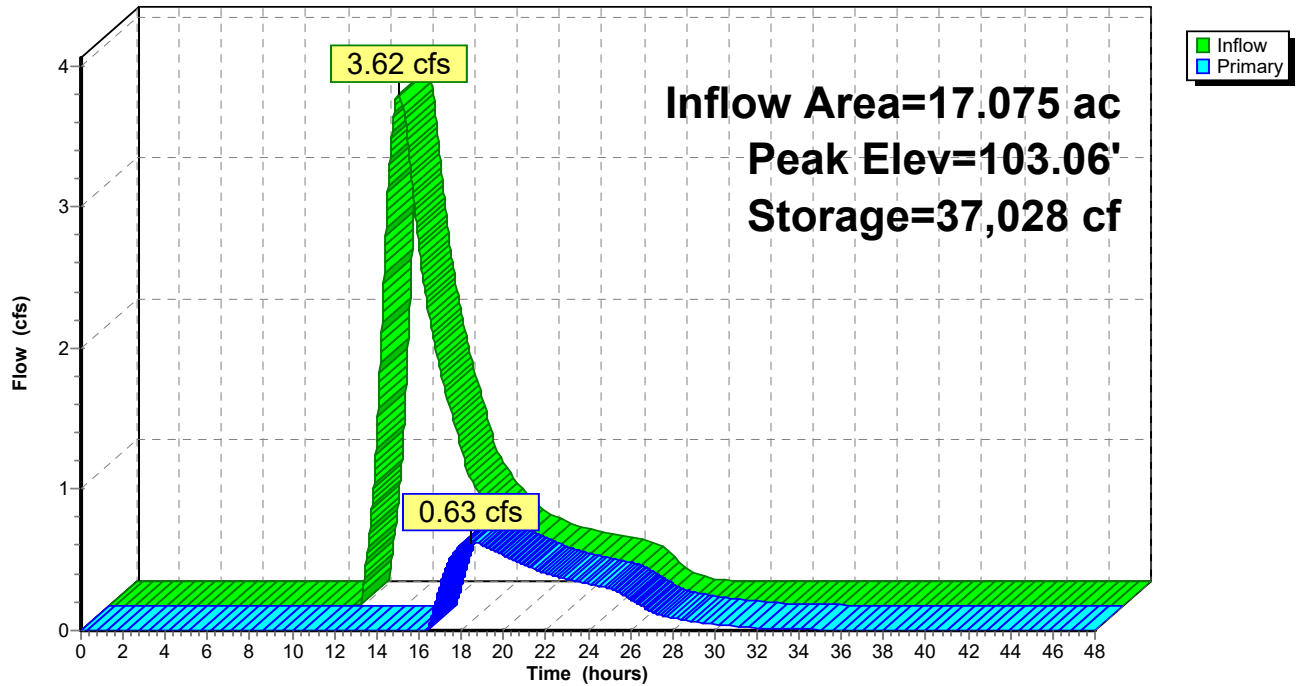
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	15,000	0	0
102.50	34,300	12,325	12,325
103.50	68,600	51,450	63,775
104.00	92,415	40,254	104,029

Device	Routing	Invert	Outlet Devices
#1	Primary	103.00'	15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.62 cfs @ 18.45 hrs HW=103.06' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0.62 cfs @ 0.67 fps)

Pond 3P: Wetland

Hydrograph



Summary for Pond CB-1: CB-1

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 4.54" for 10yr event
 Inflow = 0.42 cfs @ 12.02 hrs, Volume= 0.029 af
 Outflow = 0.42 cfs @ 12.02 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.42 cfs @ 12.02 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

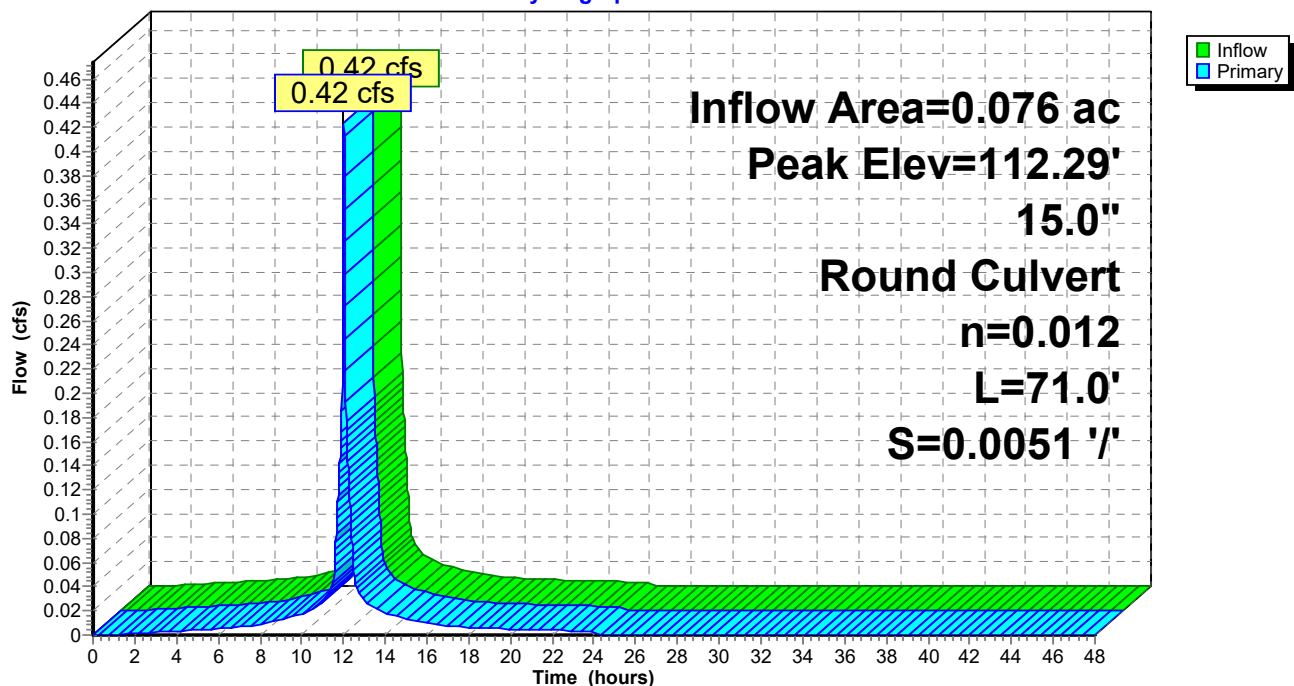
Peak Elev= 112.29' @ 12.02 hrs

Flood Elev= 114.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	15.0" Round Culvert L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 111.59' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.42 cfs @ 12.02 hrs HW=112.29' (Free Discharge)

↑1=Culvert (Barrel Controls 0.42 cfs @ 2.36 fps)

Pond CB-1: CB-1**Hydrograph**

Summary for Pond CB-10: CB-10

Inflow Area = 5.728 ac, 90.50% Impervious, Inflow Depth = 4.02" for 10yr event
 Inflow = 22.88 cfs @ 12.04 hrs, Volume= 1.920 af
 Outflow = 22.88 cfs @ 12.04 hrs, Volume= 1.920 af, Atten= 0%, Lag= 0.0 min
 Primary = 22.88 cfs @ 12.04 hrs, Volume= 1.920 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 109.99' @ 12.04 hrs

Flood Elev= 110.30'

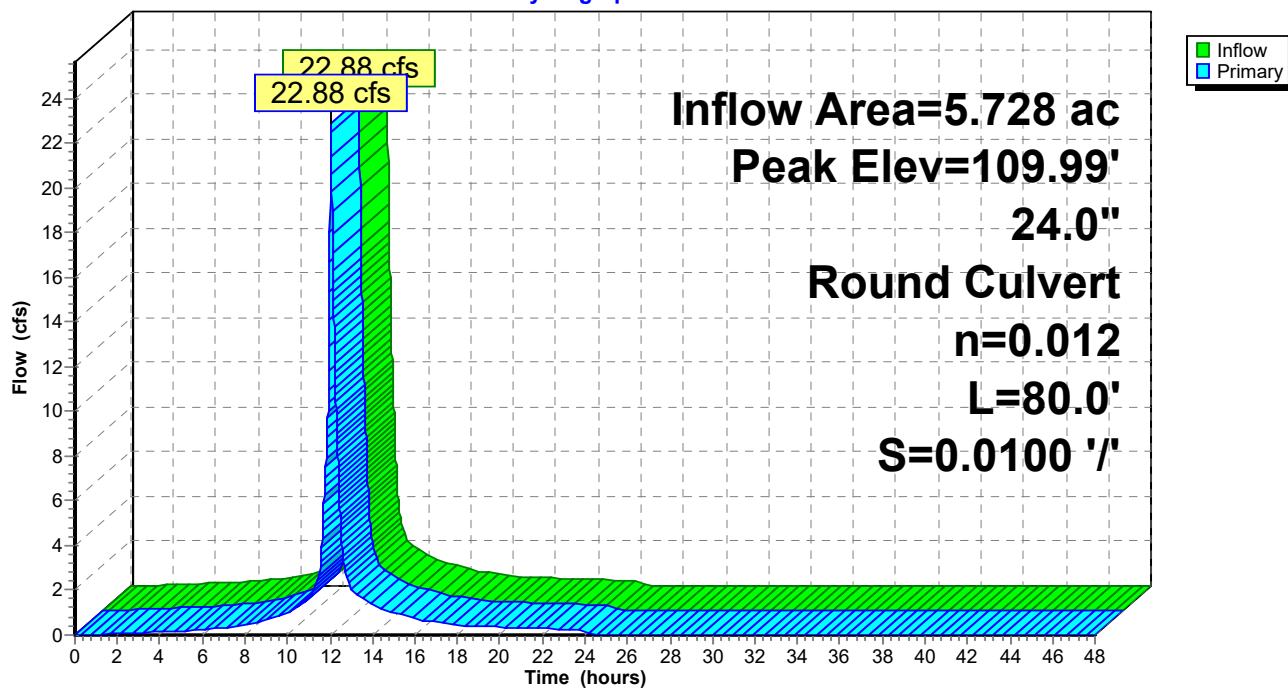
Device	Routing	Invert	Outlet Devices
#1	Primary	106.70'	24.0" Round Culvert L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.70' / 105.90' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=22.84 cfs @ 12.04 hrs HW=109.98' (Free Discharge)

↑1=Culvert (Inlet Controls 22.84 cfs @ 7.27 fps)

Pond CB-10: CB-10

Hydrograph



Summary for Pond CB-11: CB-11

Inflow Area = 1.650 ac, 51.08% Impervious, Inflow Depth = 2.11" for 10yr event
 Inflow = 4.66 cfs @ 12.03 hrs, Volume= 0.290 af
 Outflow = 4.66 cfs @ 12.03 hrs, Volume= 0.290 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.66 cfs @ 12.03 hrs, Volume= 0.290 af

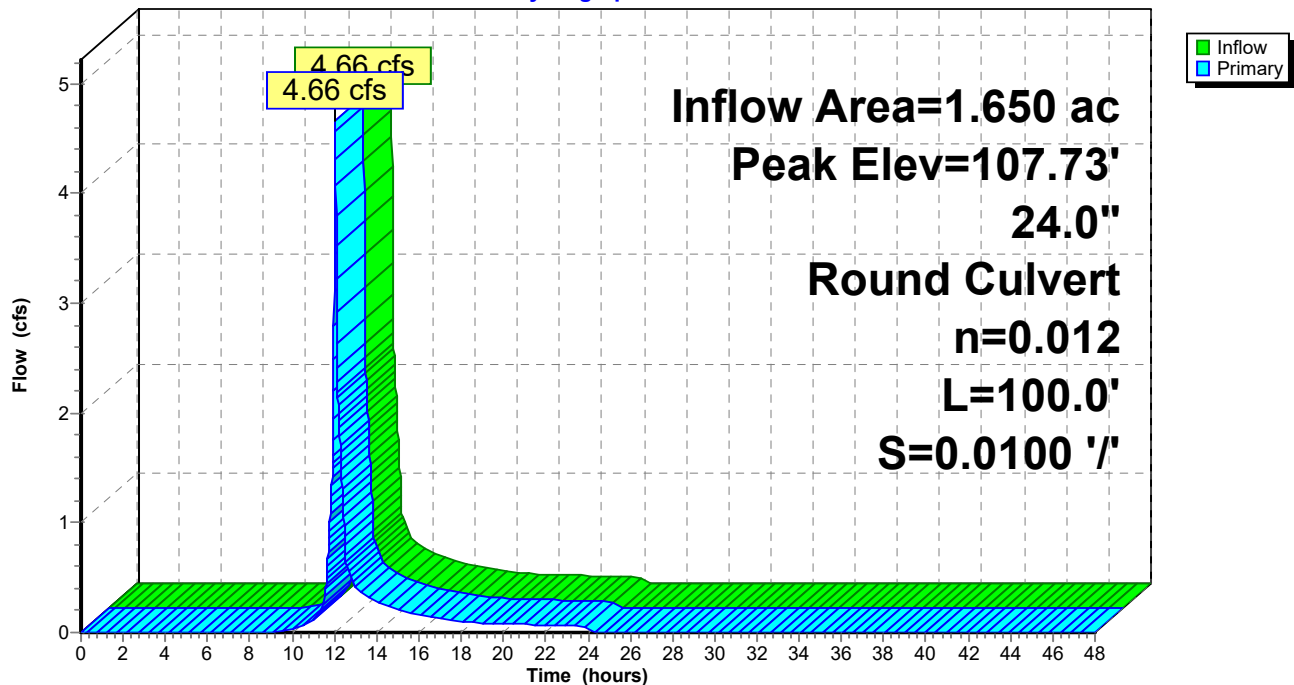
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 107.73' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	106.80'	24.0" Round Culvert L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.80' / 105.80' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=4.64 cfs @ 12.03 hrs HW=107.72' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 4.64 cfs @ 3.27 fps)

Pond CB-11: CB-11

Hydrograph



Summary for Pond CB-2: CB-2

Inflow Area = 0.292 ac, 100.00% Impervious, Inflow Depth = 4.54" for 10yr event
 Inflow = 1.61 cfs @ 12.02 hrs, Volume= 0.110 af
 Outflow = 1.61 cfs @ 12.02 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.61 cfs @ 12.02 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.20' @ 12.02 hrs

Flood Elev= 114.50'

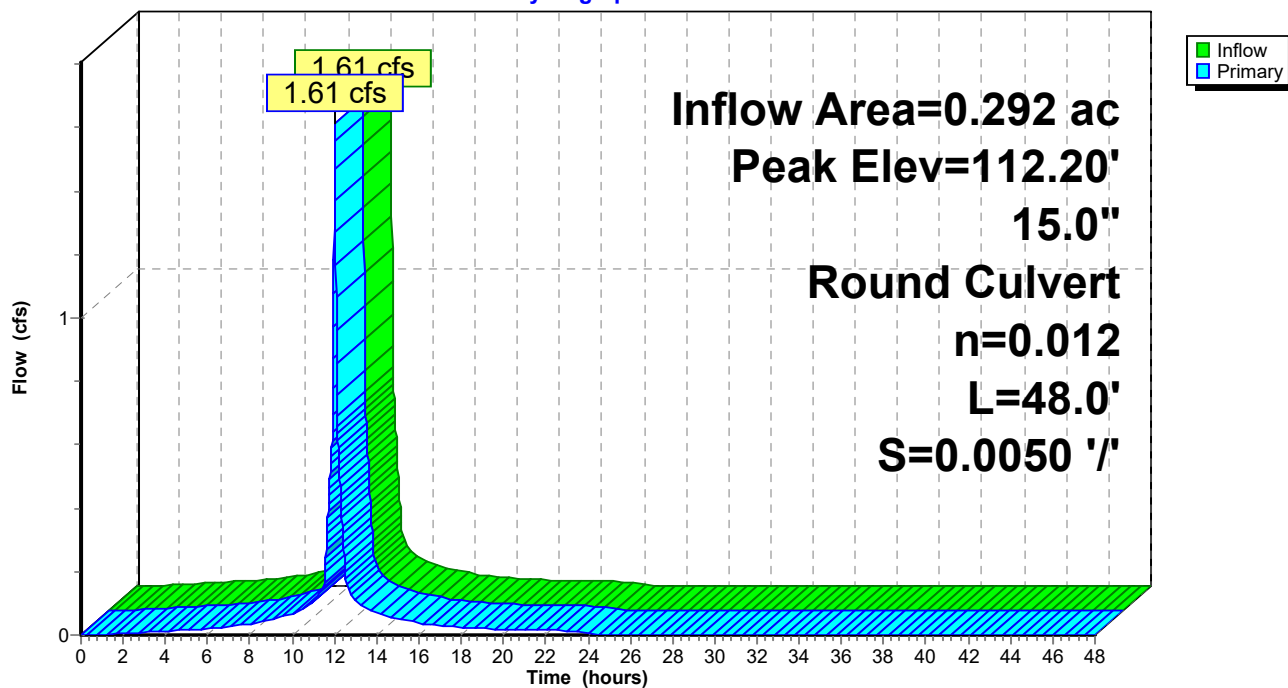
Device	Routing	Invert	Outlet Devices
#1	Primary	111.49'	15.0" Round Culvert L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.49' / 111.25' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.61 cfs @ 12.02 hrs HW=112.20' (Free Discharge)

1=Culvert (Barrel Controls 1.61 cfs @ 3.22 fps)

Pond CB-2: CB-2

Hydrograph



Summary for Pond CB-3: CB-3

Inflow Area = 0.695 ac, 89.47% Impervious, Inflow Depth = 4.09" for 10yr event
 Inflow = 3.66 cfs @ 12.01 hrs, Volume= 0.237 af
 Outflow = 3.66 cfs @ 12.01 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.66 cfs @ 12.01 hrs, Volume= 0.237 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.25' @ 12.01 hrs

Flood Elev= 113.80'

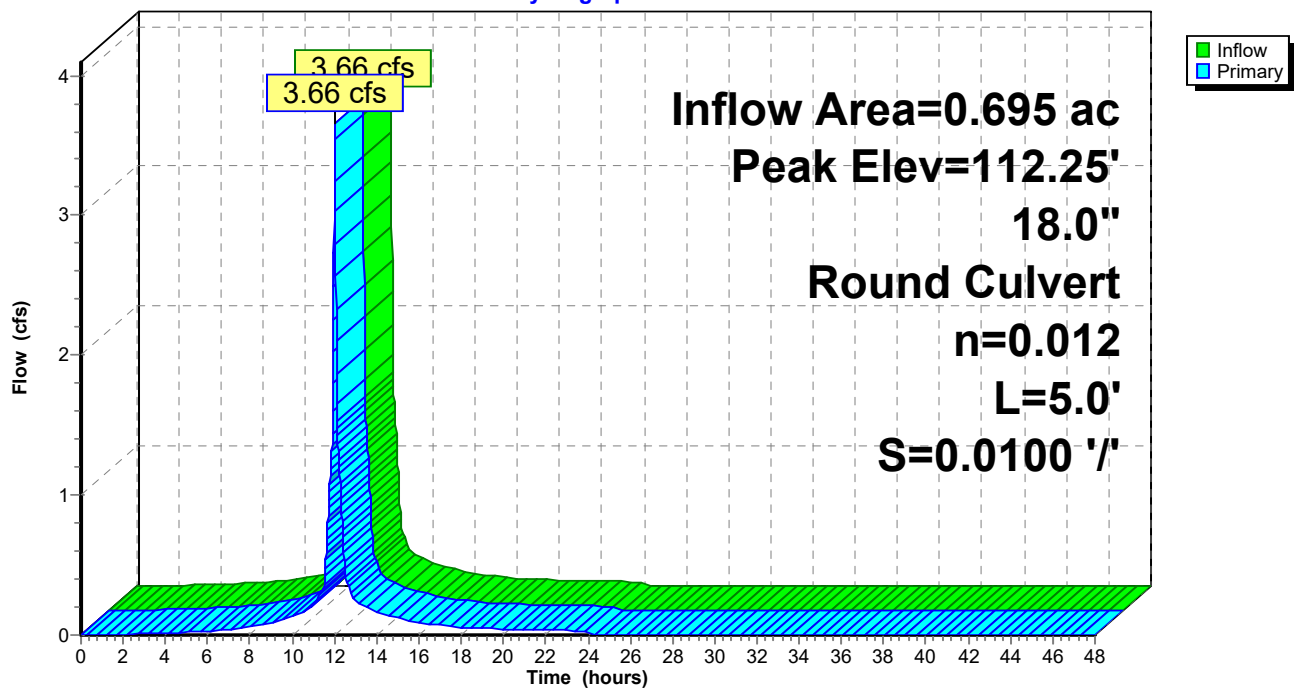
Device	Routing	Invert	Outlet Devices
#1	Primary	111.15'	18.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.15' / 111.10' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.63 cfs @ 12.01 hrs HW=112.25' (Free Discharge)

1=Culvert (Barrel Controls 3.63 cfs @ 3.65 fps)

Pond CB-3: CB-3

Hydrograph



Summary for Pond CB-4: CB-4

Inflow Area = 1.578 ac, 95.30% Impervious, Inflow Depth = 4.36" for 10yr event
 Inflow = 8.57 cfs @ 12.02 hrs, Volume= 0.573 af
 Outflow = 8.57 cfs @ 12.02 hrs, Volume= 0.573 af, Atten= 0%, Lag= 0.0 min
 Primary = 8.57 cfs @ 12.02 hrs, Volume= 0.573 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 113.71' @ 12.02 hrs

Flood Elev= 115.50'

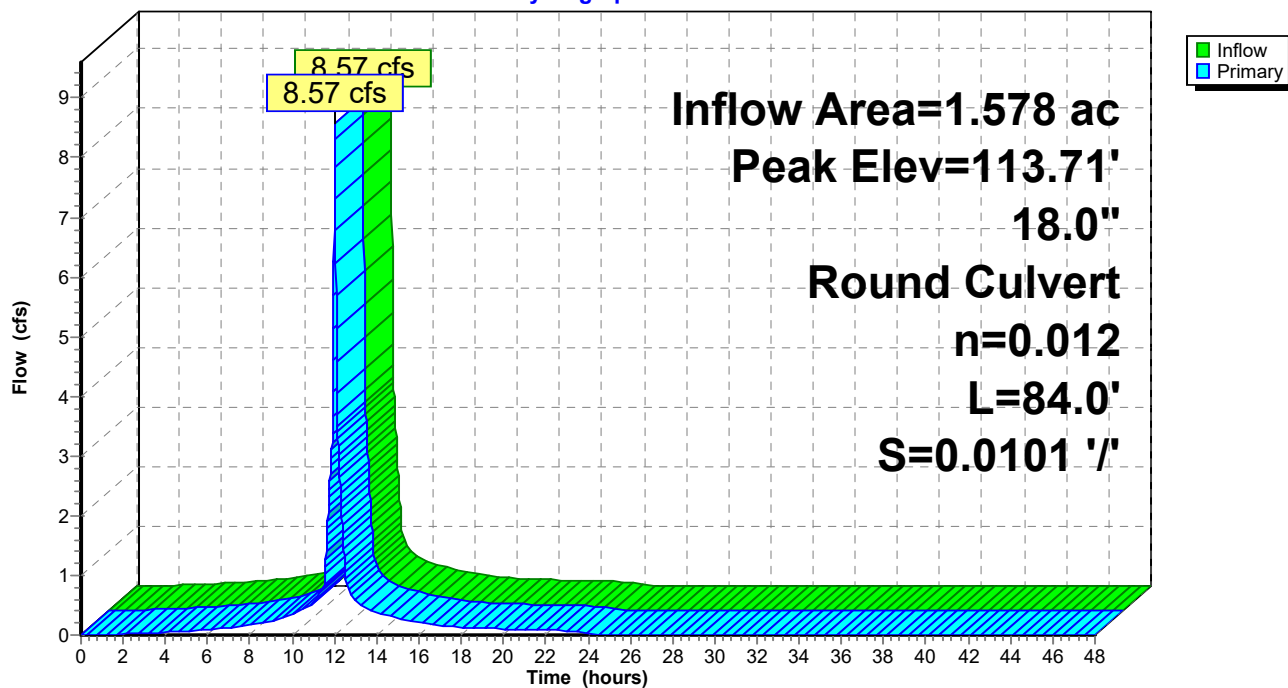
Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	18.0" Round Culvert L= 84.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 111.10' S= 0.0101 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=8.55 cfs @ 12.02 hrs HW=113.71' (Free Discharge)

↑**1=Culvert** (Inlet Controls 8.55 cfs @ 4.84 fps)

Pond CB-4: CB-4

Hydrograph



Summary for Pond CB-5: CB-5

Inflow Area = 0.940 ac, 100.00% Impervious, Inflow Depth = 4.54" for 10yr event
 Inflow = 5.19 cfs @ 12.02 hrs, Volume= 0.356 af
 Outflow = 5.19 cfs @ 12.02 hrs, Volume= 0.356 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.19 cfs @ 12.02 hrs, Volume= 0.356 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 114.60' @ 12.02 hrs

Flood Elev= 117.10'

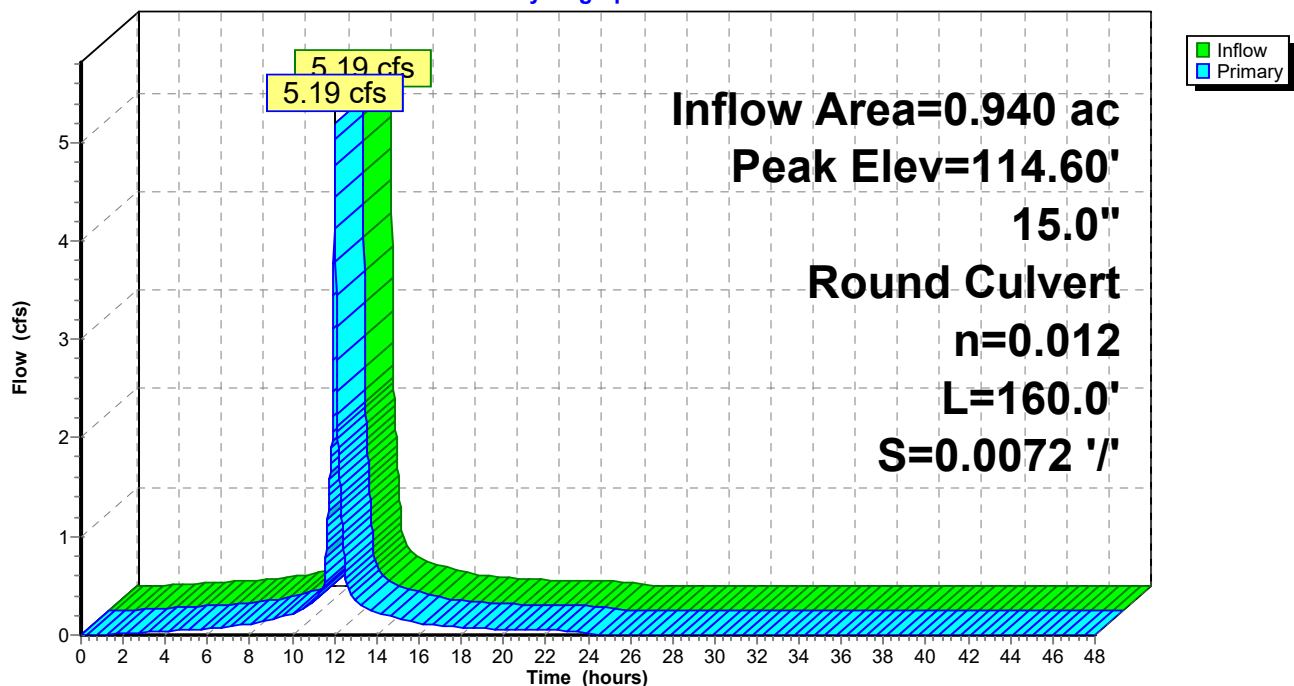
Device	Routing	Invert	Outlet Devices
#1	Primary	113.20'	15.0" Round Culvert L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 113.20' / 112.05' S= 0.0072 ' /' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=5.18 cfs @ 12.02 hrs HW=114.59' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 5.18 cfs @ 4.22 fps)

Pond CB-5: CB-5

Hydrograph



Summary for Pond CB-6: CB-6

Inflow Area = 0.277 ac, 100.00% Impervious, Inflow Depth = 4.54" for 10yr event
 Inflow = 1.51 cfs @ 12.02 hrs, Volume= 0.105 af
 Outflow = 1.51 cfs @ 12.02 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.51 cfs @ 12.02 hrs, Volume= 0.105 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.09' @ 12.02 hrs

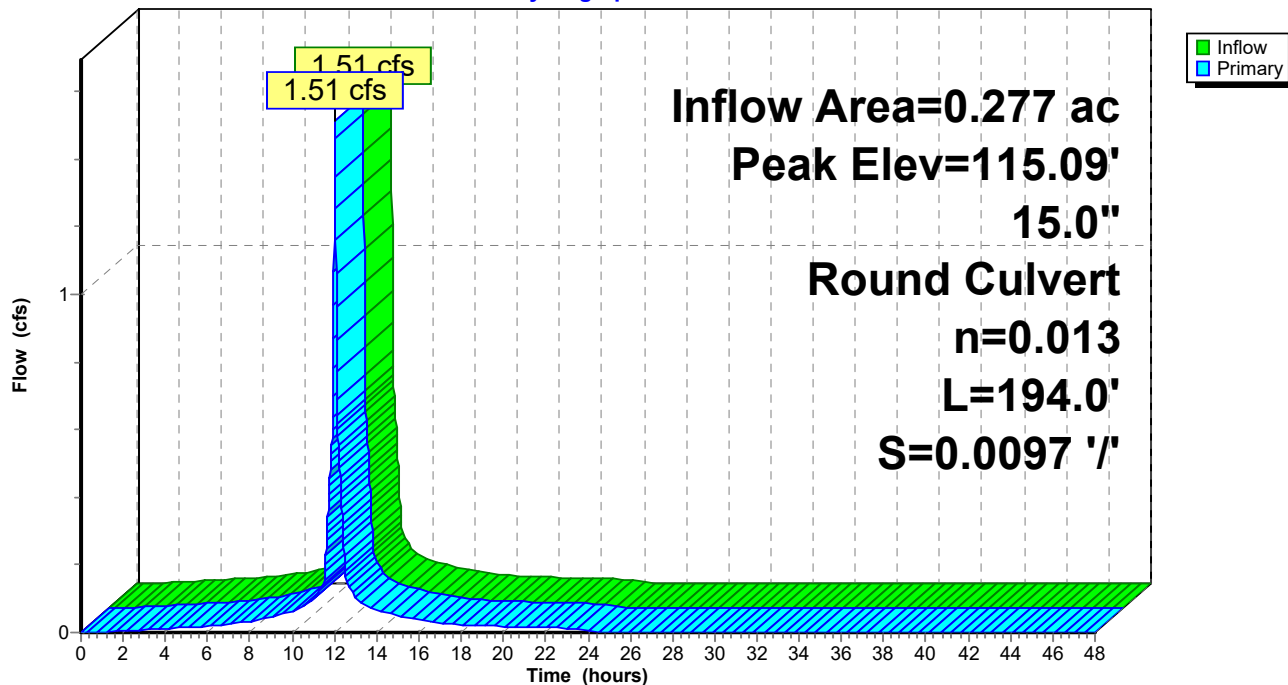
Device	Routing	Invert	Outlet Devices
#1	Primary	114.50'	15.0" Round Culvert L= 194.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.61' S= 0.0097 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.50 cfs @ 12.02 hrs HW=115.09' (Free Discharge)

↑1=Culvert (Inlet Controls 1.50 cfs @ 2.62 fps)

Pond CB-6: CB-6

Hydrograph



Summary for Pond CB-7: CB-7

Inflow Area = 3.399 ac, 100.00% Impervious, Inflow Depth = 4.54" for 10yr event
 Inflow = 18.10 cfs @ 12.03 hrs, Volume= 1.287 af
 Outflow = 18.10 cfs @ 12.03 hrs, Volume= 1.287 af, Atten= 0%, Lag= 0.0 min
 Primary = 18.10 cfs @ 12.03 hrs, Volume= 1.287 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.44' @ 12.03 hrs

Flood Elev= 118.10'

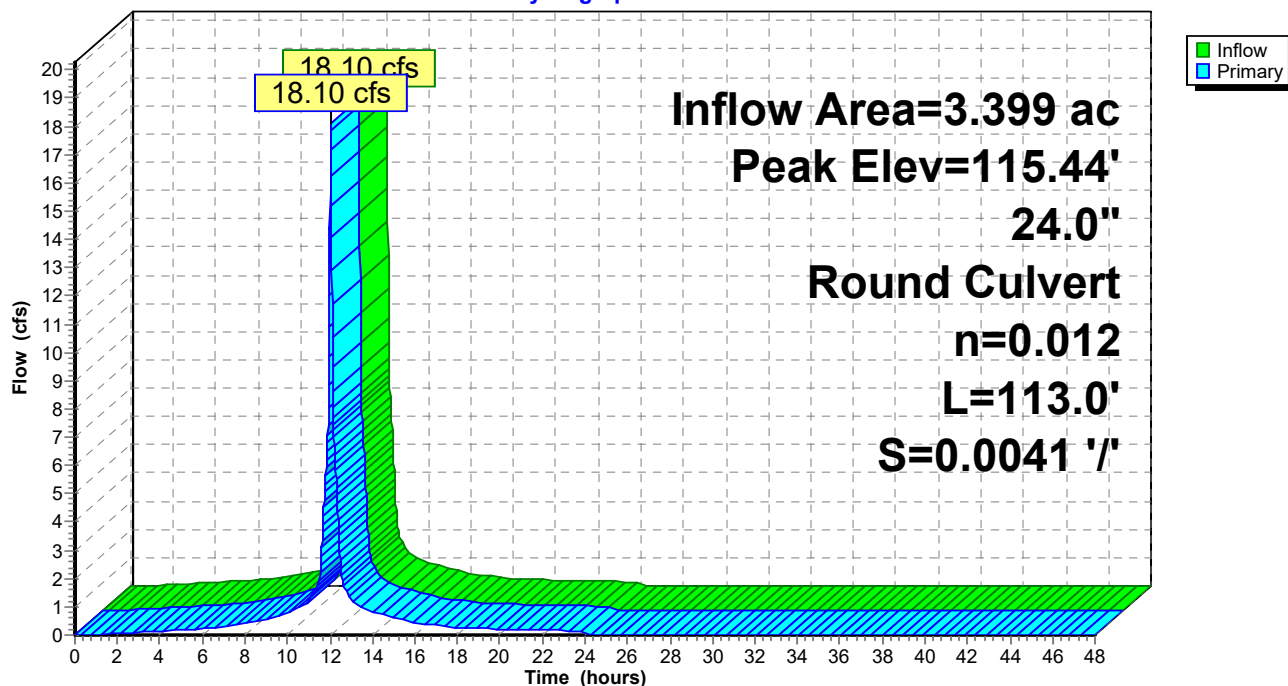
Device	Routing	Invert	Outlet Devices
#1	Primary	112.51'	24.0" Round Culvert L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 112.51' / 112.05' S= 0.0041 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=18.07 cfs @ 12.03 hrs HW=115.44' (Free Discharge)

1=Culvert (Barrel Controls 18.07 cfs @ 5.75 fps)

Pond CB-7: CB-7

Hydrograph



Summary for Pond CB-8: CB-8

Inflow Area = 2.278 ac, 100.00% Impervious, Inflow Depth = 4.54" for 10yr event
 Inflow = 12.08 cfs @ 12.03 hrs, Volume= 0.863 af
 Outflow = 12.08 cfs @ 12.03 hrs, Volume= 0.863 af, Atten= 0%, Lag= 0.0 min
 Primary = 12.08 cfs @ 12.03 hrs, Volume= 0.863 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.78' @ 12.03 hrs

Flood Elev= 118.10'

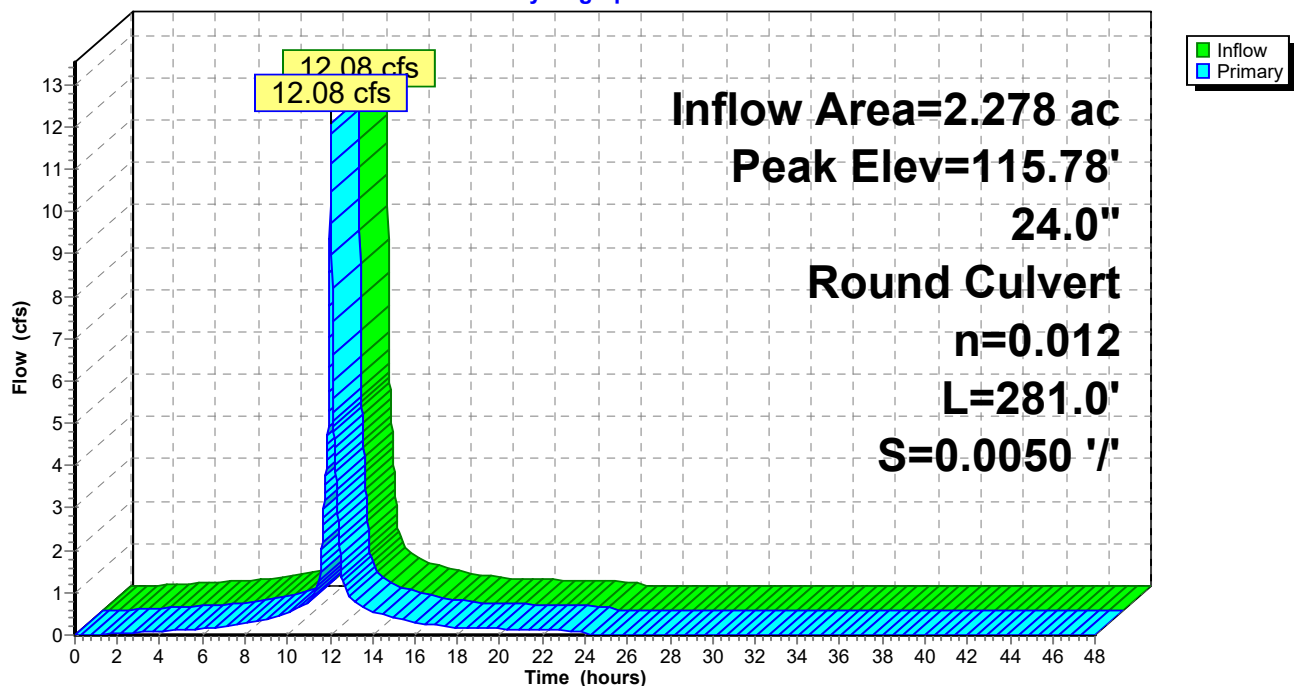
Device	Routing	Invert	Outlet Devices
#1	Primary	114.02'	24.0" Round Culvert L= 281.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.02' / 112.61' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=12.03 cfs @ 12.03 hrs HW=115.77' (Free Discharge)

1=Culvert (Barrel Controls 12.03 cfs @ 5.49 fps)

Pond CB-8: CB-8

Hydrograph



Summary for Pond CB-9: CB-9

Inflow Area = 0.852 ac, 100.00% Impervious, Inflow Depth = 4.54" for 10yr event
 Inflow = 4.48 cfs @ 12.04 hrs, Volume= 0.323 af
 Outflow = 4.48 cfs @ 12.04 hrs, Volume= 0.323 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.48 cfs @ 12.04 hrs, Volume= 0.323 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 116.17' @ 12.04 hrs

Flood Elev= 118.10'

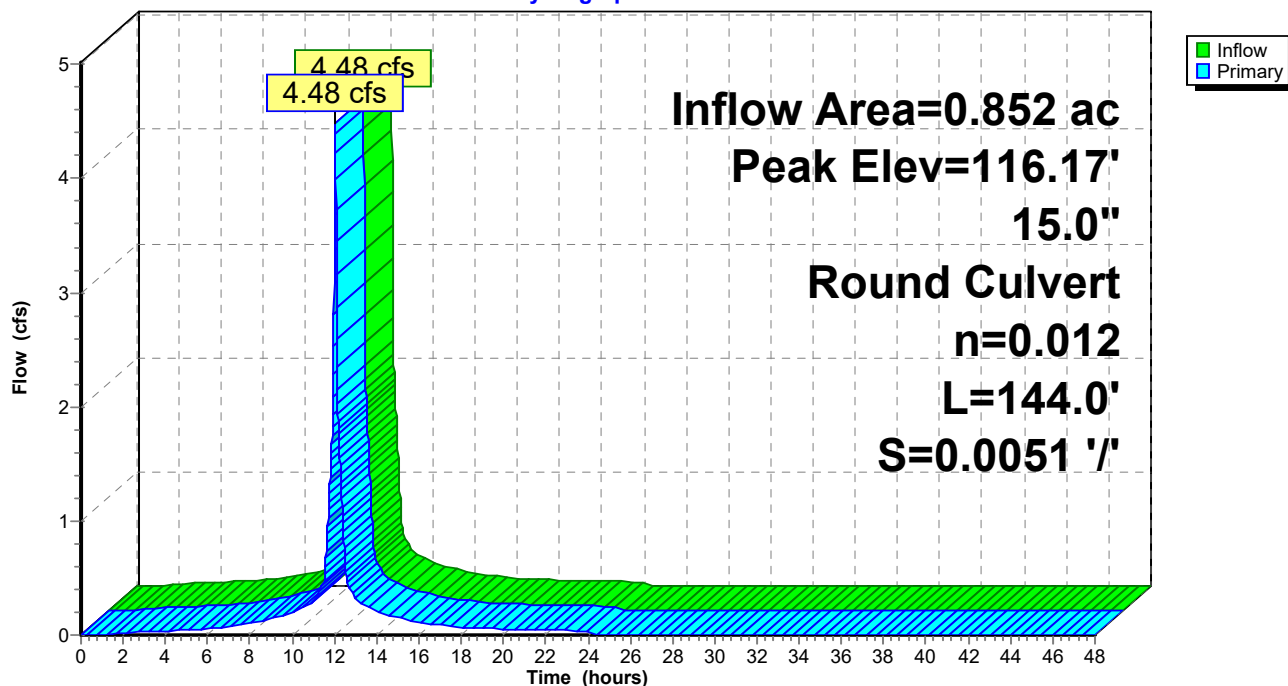
Device	Routing	Invert	Outlet Devices
#1	Primary	114.85'	15.0" Round Culvert L= 144.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.85' / 114.12' S= 0.0051 ' / ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=4.47 cfs @ 12.04 hrs HW=116.17' (Free Discharge)

1=Culvert (Barrel Controls 4.47 cfs @ 4.29 fps)

Pond CB-9: CB-9

Hydrograph



Summary for Pond DMH-1: DMH-1

Inflow Area = 3.399 ac, 100.00% Impervious, Inflow Depth = 4.54" for 10yr event
 Inflow = 18.10 cfs @ 12.03 hrs, Volume= 1.287 af
 Outflow = 18.10 cfs @ 12.03 hrs, Volume= 1.287 af, Atten= 0%, Lag= 0.0 min
 Primary = 18.10 cfs @ 12.03 hrs, Volume= 1.287 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 114.38' @ 12.03 hrs

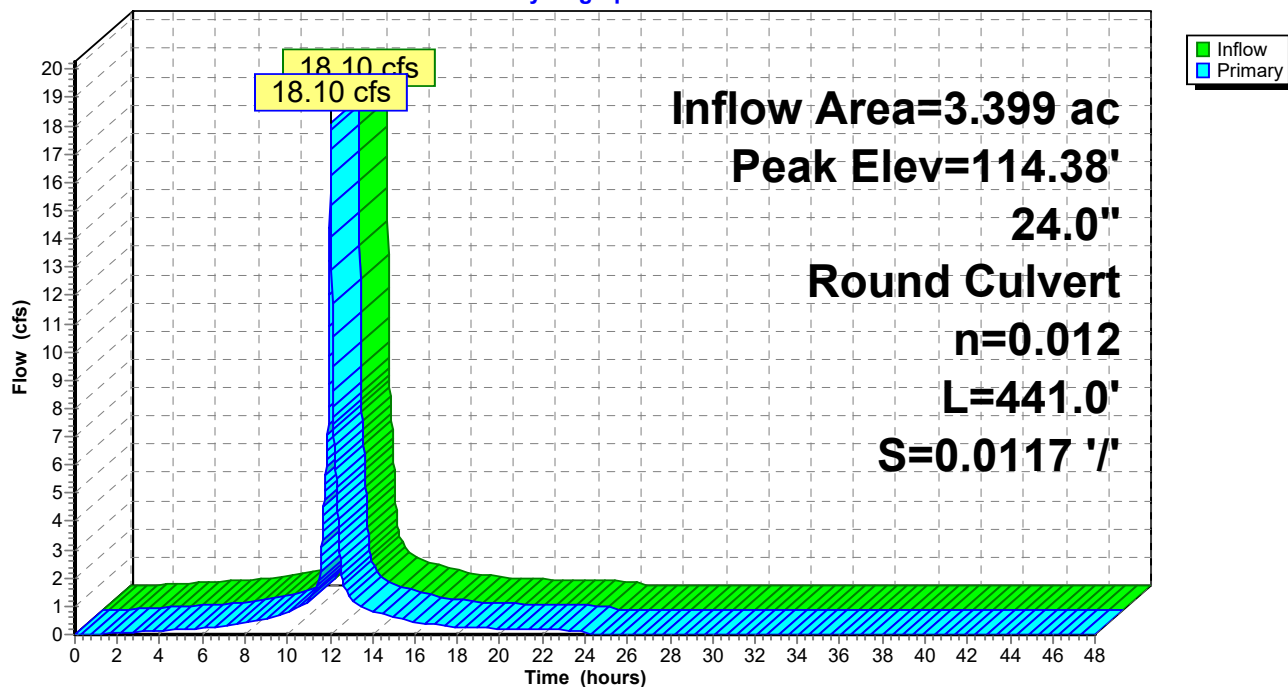
Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	24.0" Round Culvert L= 441.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 106.80' S= 0.0117 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=18.07 cfs @ 12.03 hrs HW=114.38' (Free Discharge)

↑**1=Culvert** (Inlet Controls 18.07 cfs @ 5.75 fps)

Pond DMH-1: DMH-1

Hydrograph



Summary for Pond DMH-2: DMH-2

Inflow Area = 0.695 ac, 89.47% Impervious, Inflow Depth = 4.09" for 10yr event
 Inflow = 3.66 cfs @ 12.01 hrs, Volume= 0.237 af
 Outflow = 3.66 cfs @ 12.01 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.66 cfs @ 12.01 hrs, Volume= 0.237 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.15' @ 12.01 hrs

Flood Elev= 115.70'

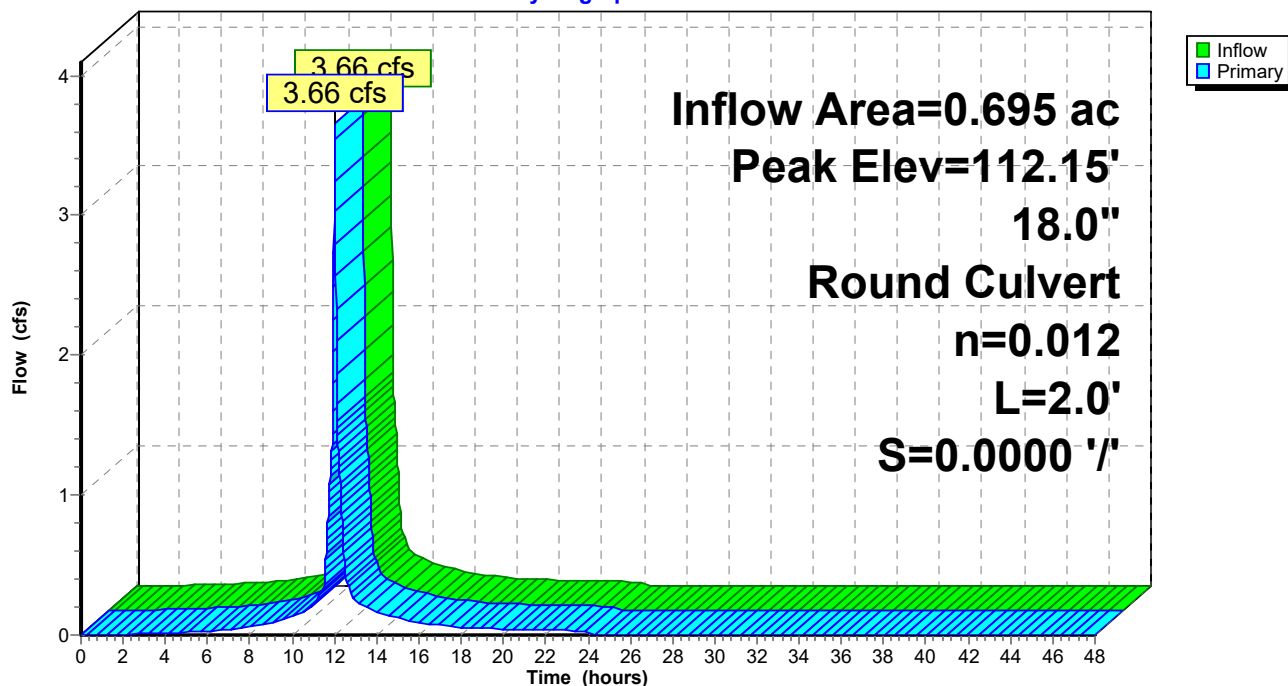
Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 111.00' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.63 cfs @ 12.01 hrs HW=112.14' (Free Discharge)

1=Culvert (Barrel Controls 3.63 cfs @ 3.47 fps)

Pond DMH-2: DMH-2

Hydrograph



Summary for Pond DMH-3: DMH-3

Inflow Area = 1.578 ac, 95.30% Impervious, Inflow Depth = 4.36" for 10yr event
 Inflow = 8.57 cfs @ 12.02 hrs, Volume= 0.573 af
 Outflow = 8.57 cfs @ 12.02 hrs, Volume= 0.573 af, Atten= 0%, Lag= 0.0 min
 Primary = 8.57 cfs @ 12.02 hrs, Volume= 0.573 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 113.06' @ 12.02 hrs

Flood Elev= 115.70'

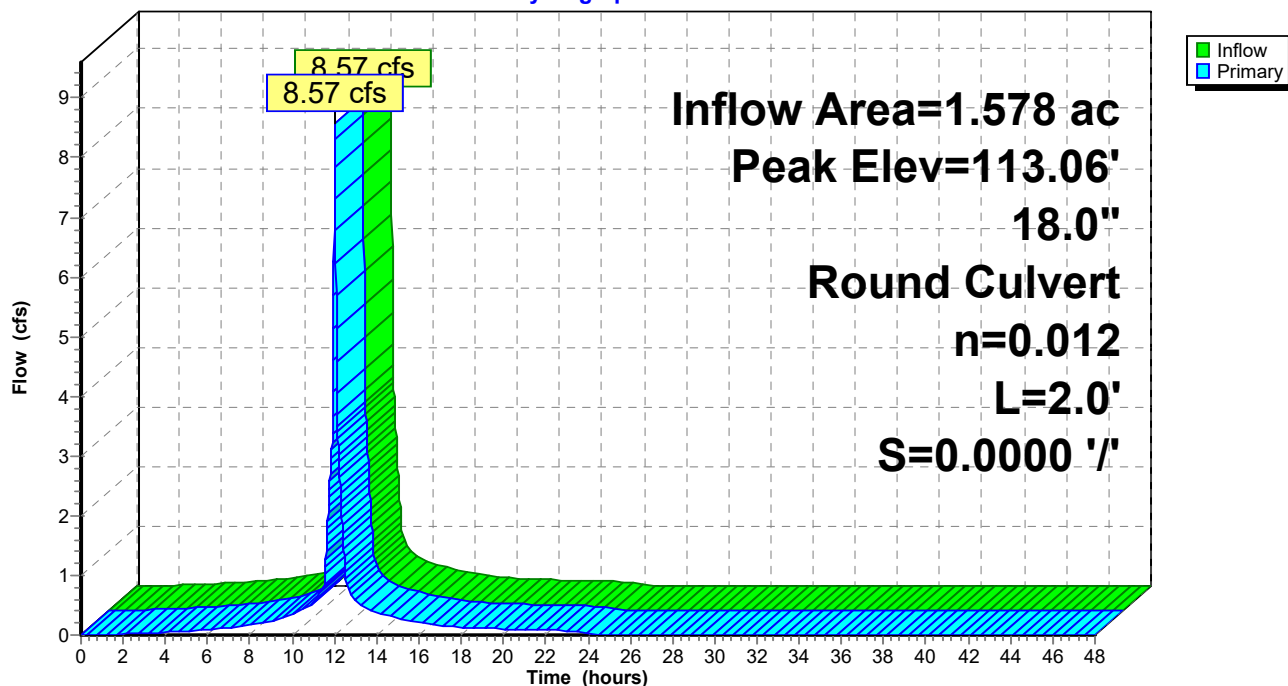
Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 111.00' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=8.55 cfs @ 12.02 hrs HW=113.06' (Free Discharge)

1=Culvert (Barrel Controls 8.55 cfs @ 4.84 fps)

Pond DMH-3: DMH-3

Hydrograph



Summary for Pond DMH-4: DMH-4

Inflow Area = 7.377 ac, 81.69% Impervious, Inflow Depth = 3.59" for 10yr event
 Inflow = 27.53 cfs @ 12.04 hrs, Volume= 2.210 af
 Outflow = 27.53 cfs @ 12.04 hrs, Volume= 2.210 af, Atten= 0%, Lag= 0.0 min
 Primary = 27.53 cfs @ 12.04 hrs, Volume= 2.210 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 109.46' @ 12.04 hrs

Flood Elev= 112.20'

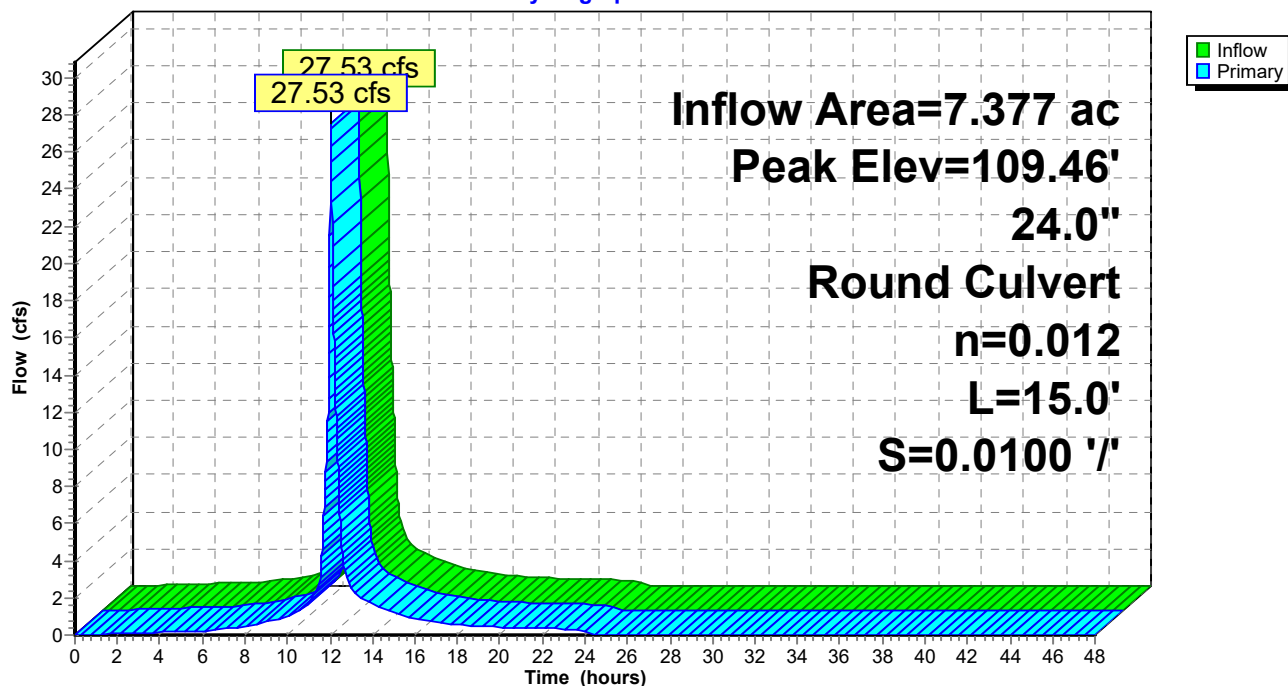
Device	Routing	Invert	Outlet Devices
#1	Primary	105.15'	24.0" Round Culvert L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 105.15' / 105.00' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=27.47 cfs @ 12.04 hrs HW=109.45' (Free Discharge)

↑1=Culvert (Inlet Controls 27.47 cfs @ 8.74 fps)

Pond DMH-4: DMH-4

Hydrograph



Summary for Pond OCS-1: STORMTECH SC-740

Inflow Area = 2.273 ac, 93.52% Impervious, Inflow Depth = 4.28" for 10yr event
 Inflow = 12.21 cfs @ 12.02 hrs, Volume= 0.810 af
 Outflow = 1.96 cfs @ 12.45 hrs, Volume= 0.810 af, Atten= 84%, Lag= 25.7 min
 Discarded = 0.78 cfs @ 11.14 hrs, Volume= 0.598 af
 Primary = 1.18 cfs @ 12.45 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.43' @ 12.45 hrs Surf.Area= 0 sf Storage= 10,830 cf
 Flood Elev= 115.50' Surf.Area= 0 sf Storage= 14,778 cf

Plug-Flow detention time= 43.5 min calculated for 0.810 af (100% of inflow)
 Center-of-Mass det. time= 43.5 min (800.9 - 757.5)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	14,778 cf	Custom Stage Data Listed below

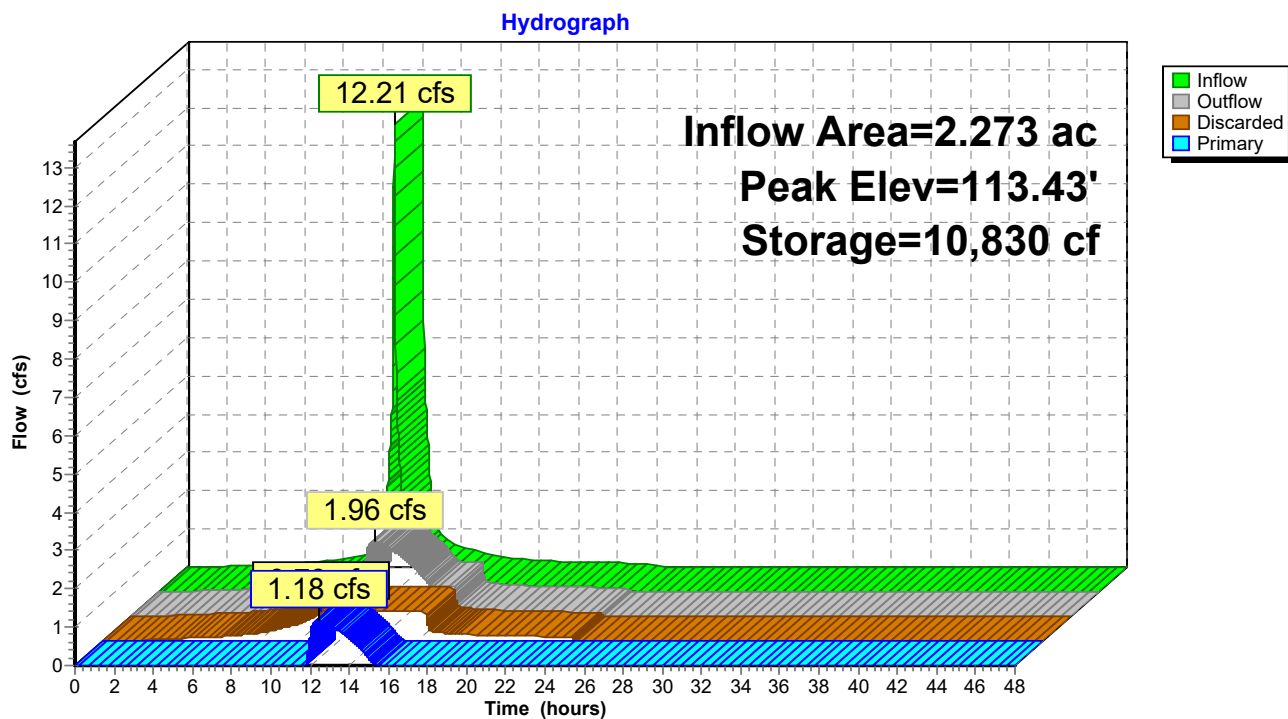
Elevation (feet)	Cum.Store (cubic-feet)
110.50	0
114.50	14,778

Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.47' S= 0.0482 ' S= 0.0482 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	113.50'	13.0" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Discarded	110.50'	0.78 cfs Exfiltration when above 110.50'
#4	Device 1	111.00'	5.5" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.78 cfs @ 11.14 hrs HW=110.55' (Free Discharge)
 ↳ **3=Exfiltration** (Exfiltration Controls 0.78 cfs)

Primary OutFlow Max=1.18 cfs @ 12.45 hrs HW=113.43' (Free Discharge)
 ↳ **1=Culvert** (Passes 1.18 cfs of 11.03 cfs potential flow)
 ↳ **2=Orifice/Grate** (Controls 0.00 cfs)
 ↳ **4=Orifice/Grate** (Orifice Controls 1.18 cfs @ 7.15 fps)

Pond OCS-1: STORMTECH SC-740



Summary for Pond OCS-2: STORMTECH MC-4500

Inflow Area = 7.377 ac, 81.69% Impervious, Inflow Depth = 3.59" for 10yr event
 Inflow = 27.53 cfs @ 12.04 hrs, Volume= 2.210 af
 Outflow = 2.92 cfs @ 12.86 hrs, Volume= 2.210 af, Atten= 89%, Lag= 49.5 min
 Discarded = 2.61 cfs @ 11.50 hrs, Volume= 2.116 af
 Primary = 0.31 cfs @ 12.86 hrs, Volume= 0.094 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 106.89' @ 12.86 hrs Surf.Area= 0 sf Storage= 33,778 cf

Plug-Flow detention time= 88.0 min calculated for 2.210 af (100% of inflow)
 Center-of-Mass det. time= 87.9 min (863.9 - 776.0)

Volume	Invert	Avail.Storage	Storage Description
#1	104.00'	81,951 cf	Custom Stage Data Listed below

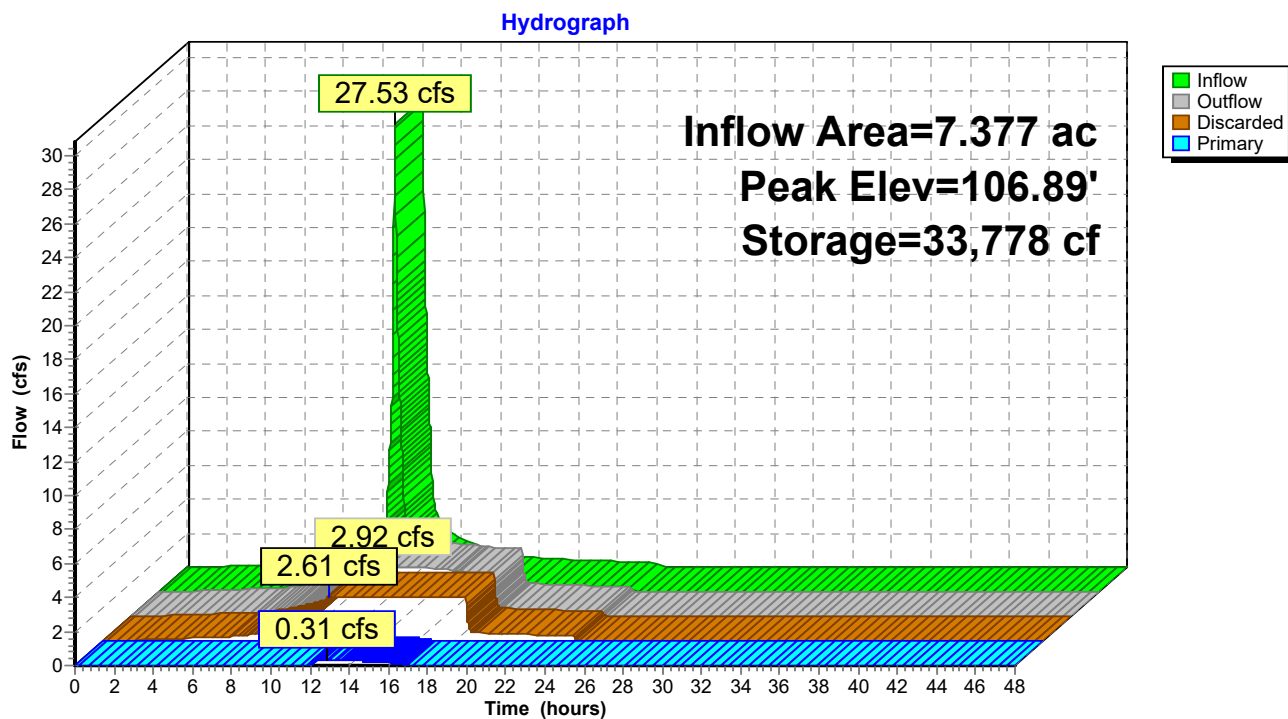
Elevation (feet)	Cum.Store (cubic-feet)
104.00	0
111.00	81,951

Device	Routing	Invert	Outlet Devices
#1	Primary	105.00'	12.0" Round Culvert L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 105.00' / 103.90' S= 0.0097 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	105.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	108.00'	3.5" Vert. Orifice/Grate C= 0.600
#4	Discarded	104.00'	2.61 cfs Exfiltration when above 104.00'

Discarded OutFlow Max=2.61 cfs @ 11.50 hrs HW=104.07' (Free Discharge)
 ↳ **4=Exfiltration** (Exfiltration Controls 2.61 cfs)

Primary OutFlow Max=0.31 cfs @ 12.86 hrs HW=106.89' (Free Discharge)
 ↳ **1=Culvert** (Passes 0.31 cfs of 4.18 cfs potential flow)
 ↳ ↳ **2=Orifice/Grate** (Orifice Controls 0.31 cfs @ 6.39 fps)
 ↳ ↳ ↳ **3=Orifice/Grate** (Controls 0.00 cfs)

Pond OCS-2: STORMTECH MC-4500



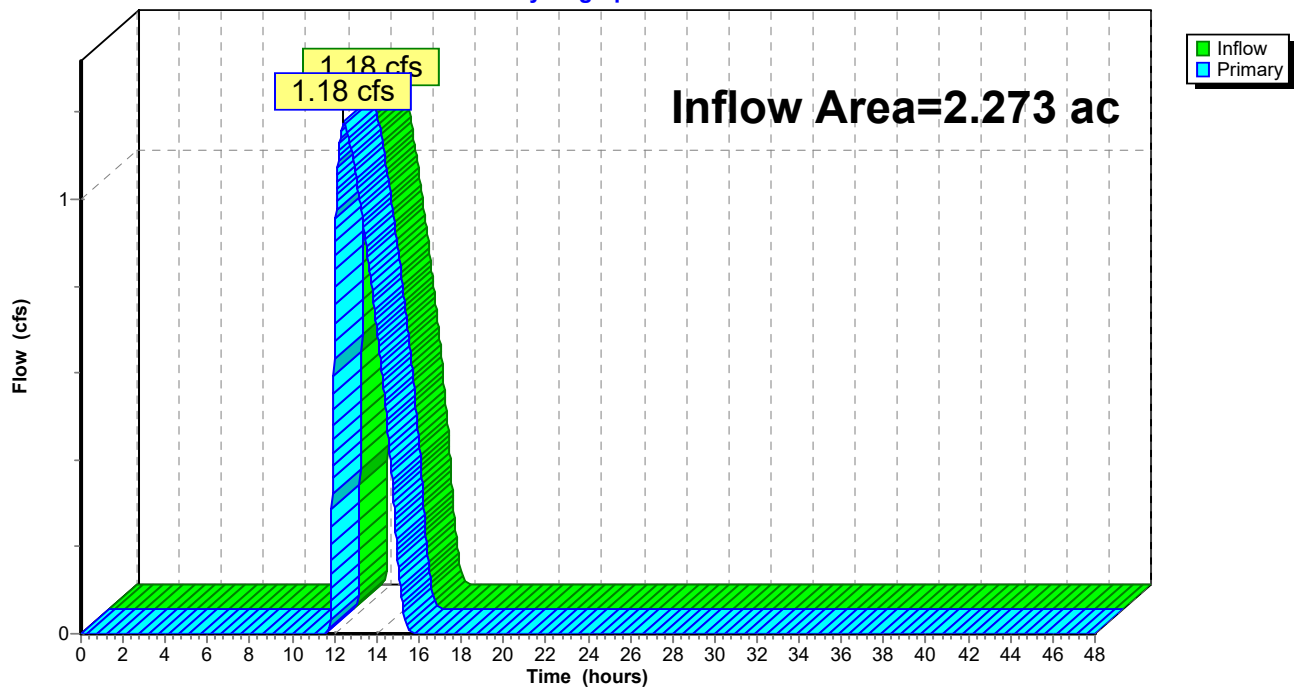
Summary for Link SP-1: SP-1

Inflow Area = 2.273 ac, 93.52% Impervious, Inflow Depth = 1.12" for 10yr event
 Inflow = 1.18 cfs @ 12.45 hrs, Volume= 0.212 af
 Primary = 1.18 cfs @ 12.45 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-1: SP-1

Hydrograph

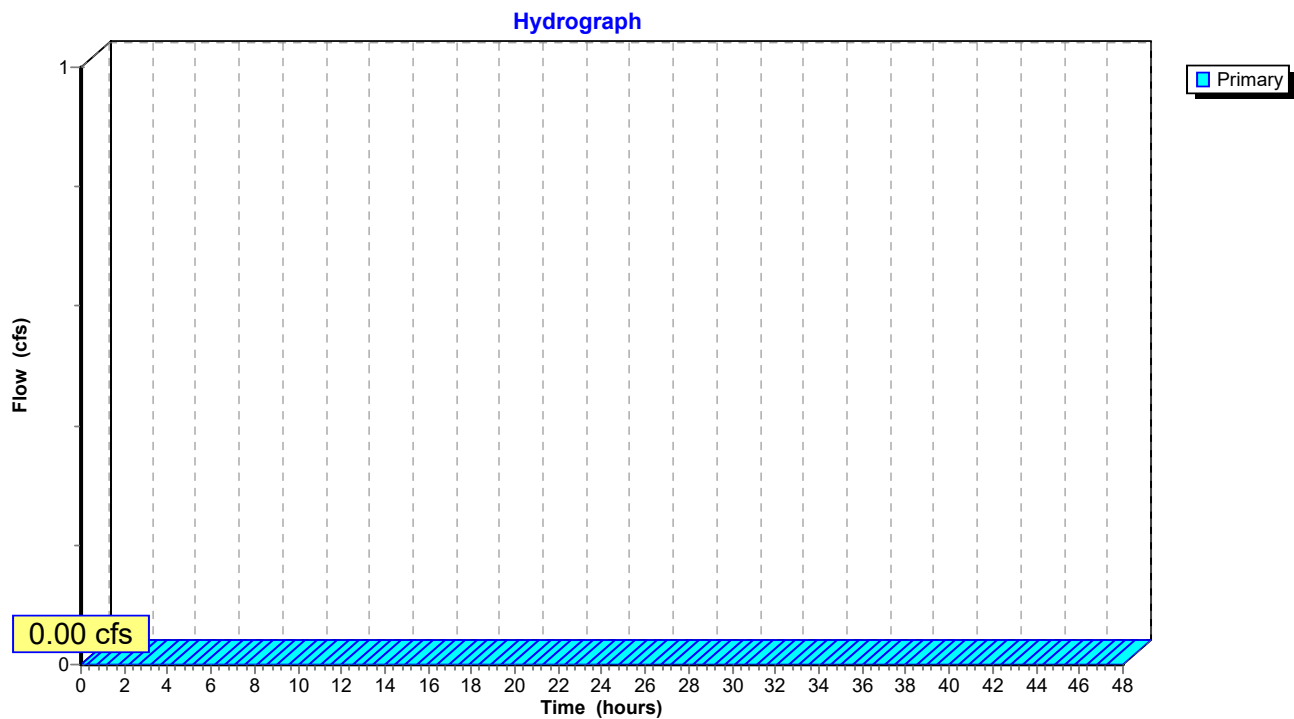


Summary for Link SP-2: SP-2

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-2: SP-2



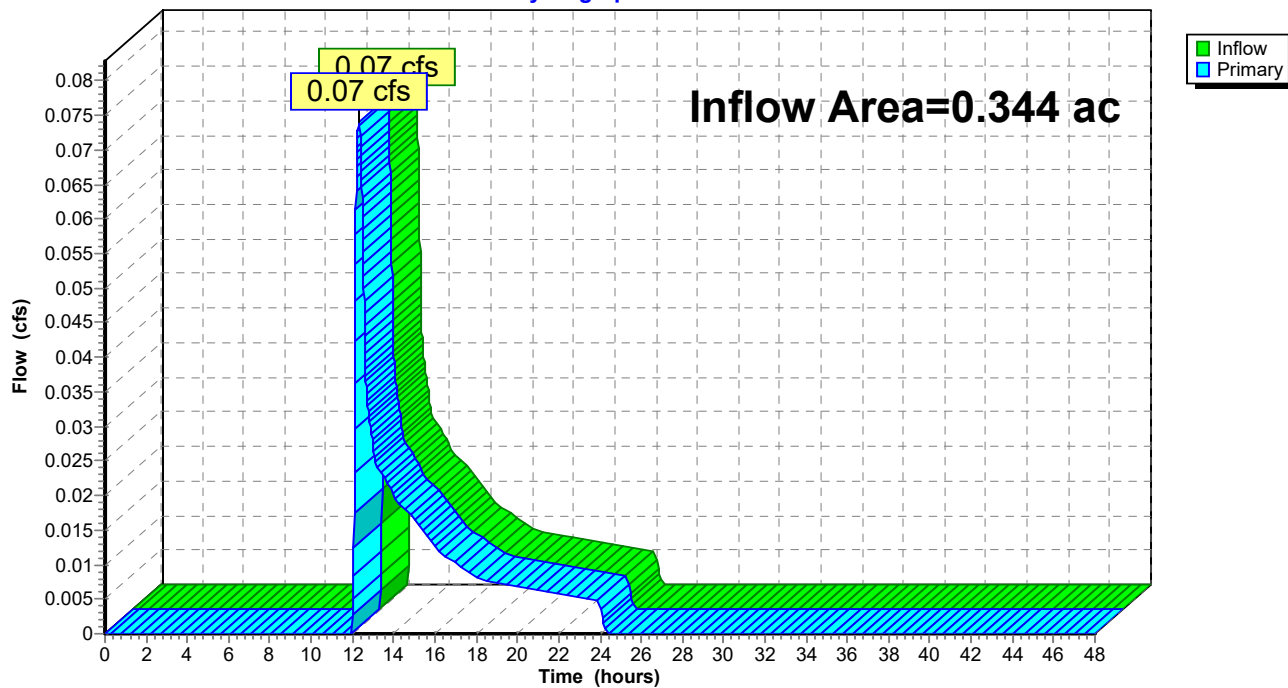
Summary for Link SP-3: SP-3

Inflow Area = 0.344 ac, 0.00% Impervious, Inflow Depth = 0.46" for 10yr event
 Inflow = 0.07 cfs @ 12.32 hrs, Volume= 0.013 af
 Primary = 0.07 cfs @ 12.32 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-3: SP-3

Hydrograph



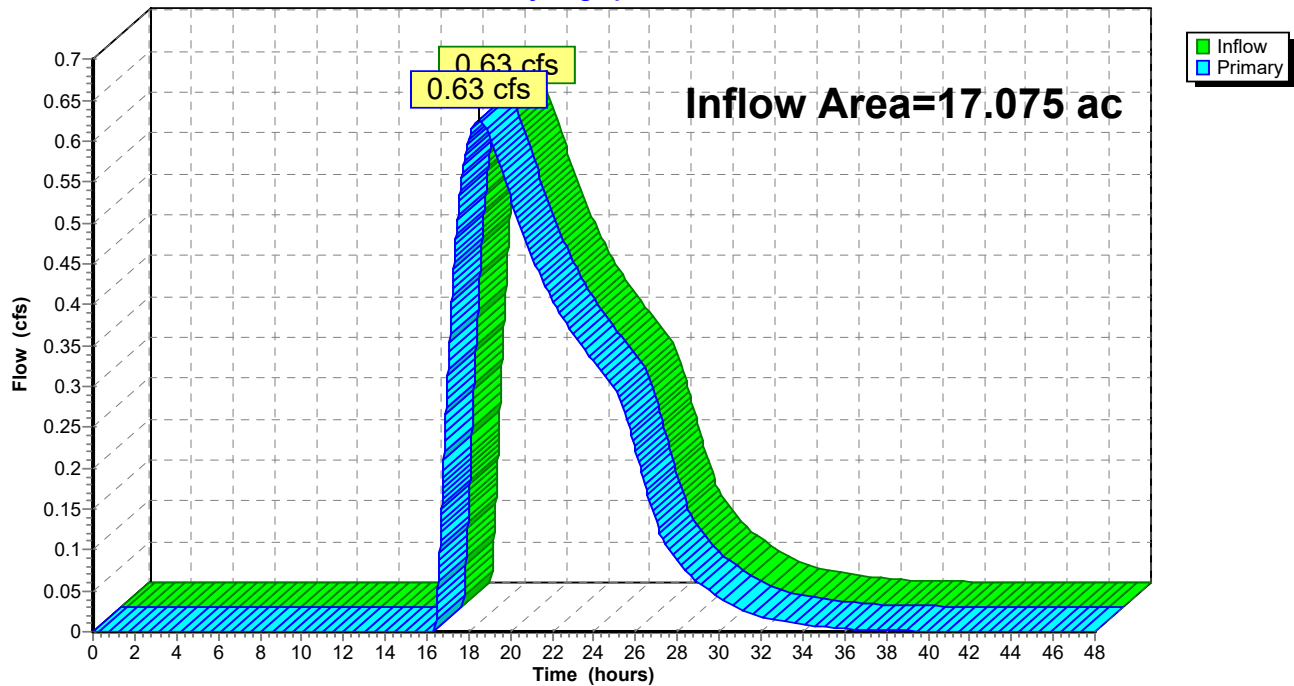
Summary for Link SP-4: SP-4

Inflow Area = 17.075 ac, 35.29% Impervious, Inflow Depth = 0.26" for 10yr event
 Inflow = 0.63 cfs @ 18.45 hrs, Volume= 0.373 af
 Primary = 0.63 cfs @ 18.45 hrs, Volume= 0.373 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-4: SP-4

Hydrograph



Summary for Subcatchment 1S: 1S

Runoff = 0.54 cfs @ 12.02 hrs, Volume= 0.037 af, Depth= 5.85"

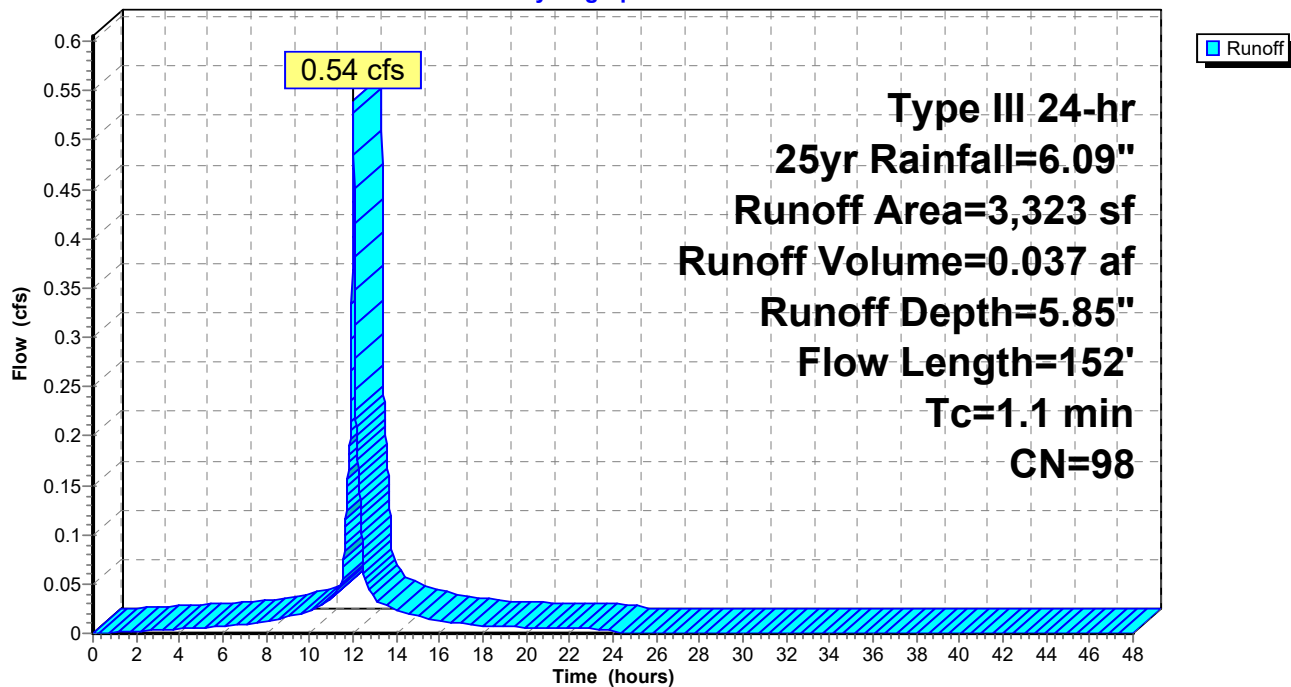
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
3,323	98	Paved parking, HSG B
3,323		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	25	0.0100	0.78		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.6	127	0.0320	3.63		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.1	152	Total			

Subcatchment 1S: 1S

Hydrograph



Summary for Subcatchment 2S: 2S

Runoff = 1.52 cfs @ 12.02 hrs, Volume= 0.105 af, Depth= 5.85"

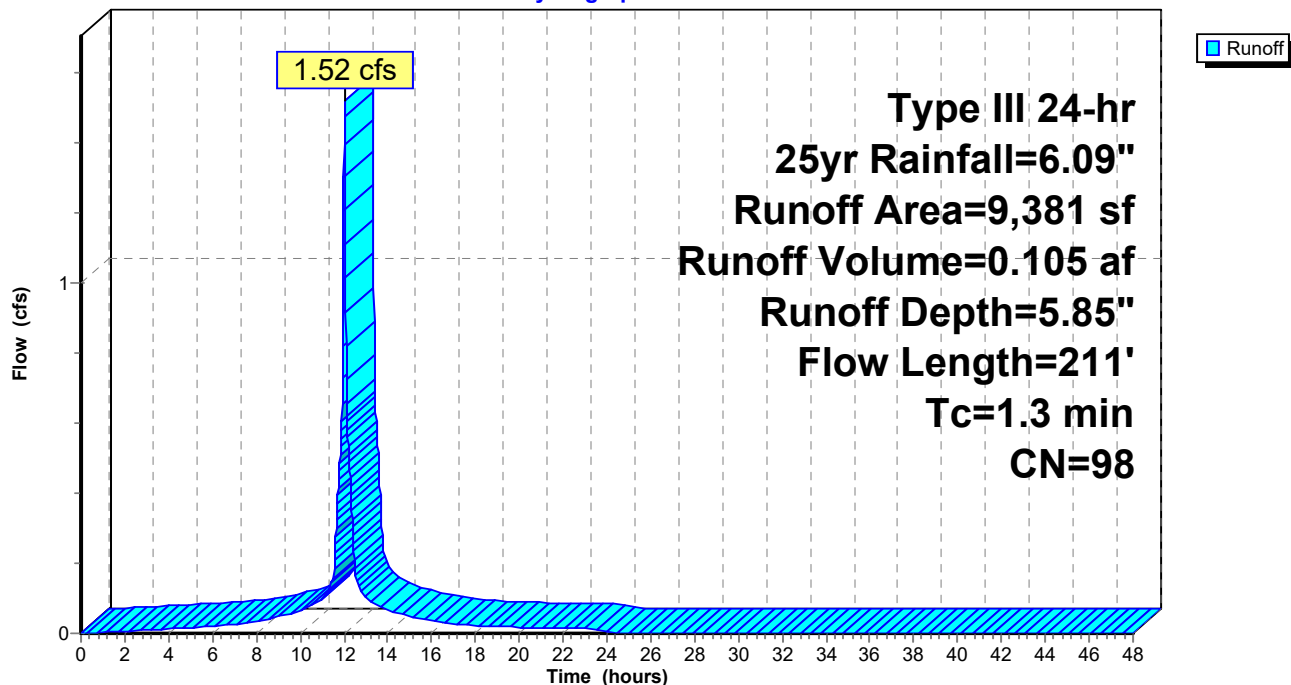
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
9,381	98	Paved parking, HSG B
9,381		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.03		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.9	186	0.0320	3.63		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.3	211	Total			

Subcatchment 2S: 2S

Hydrograph



Summary for Subcatchment 3S: 3S

Runoff = 2.71 cfs @ 12.01 hrs, Volume= 0.170 af, Depth= 5.05"

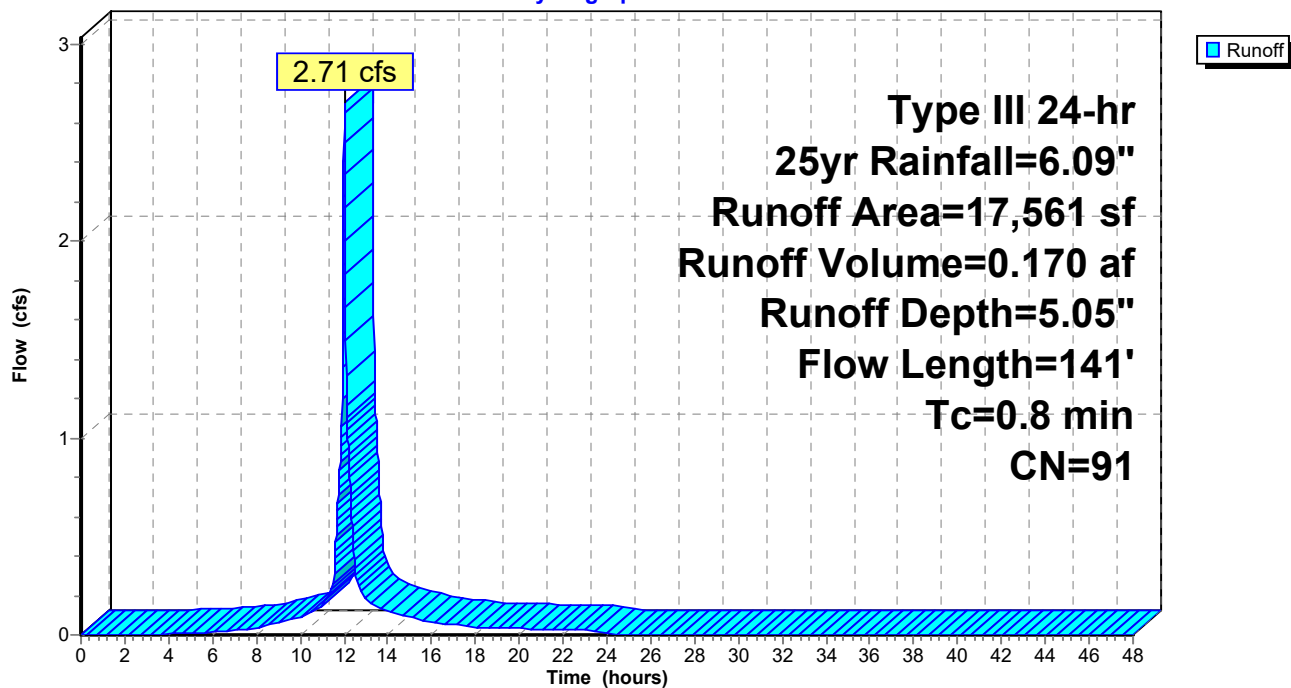
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
3,187	61	>75% Grass cover, Good, HSG B
14,374	98	Paved parking, HSG B
17,561	91	Weighted Average
3,187		18.15% Pervious Area
14,374		81.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	31	0.0500	1.55		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.5	110	0.0300	3.52		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
0.8	141	Total			

Subcatchment 3S: 3S

Hydrograph



Summary for Subcatchment 4S: 4S

Runoff = 4.38 cfs @ 12.02 hrs, Volume= 0.286 af, Depth= 5.39"

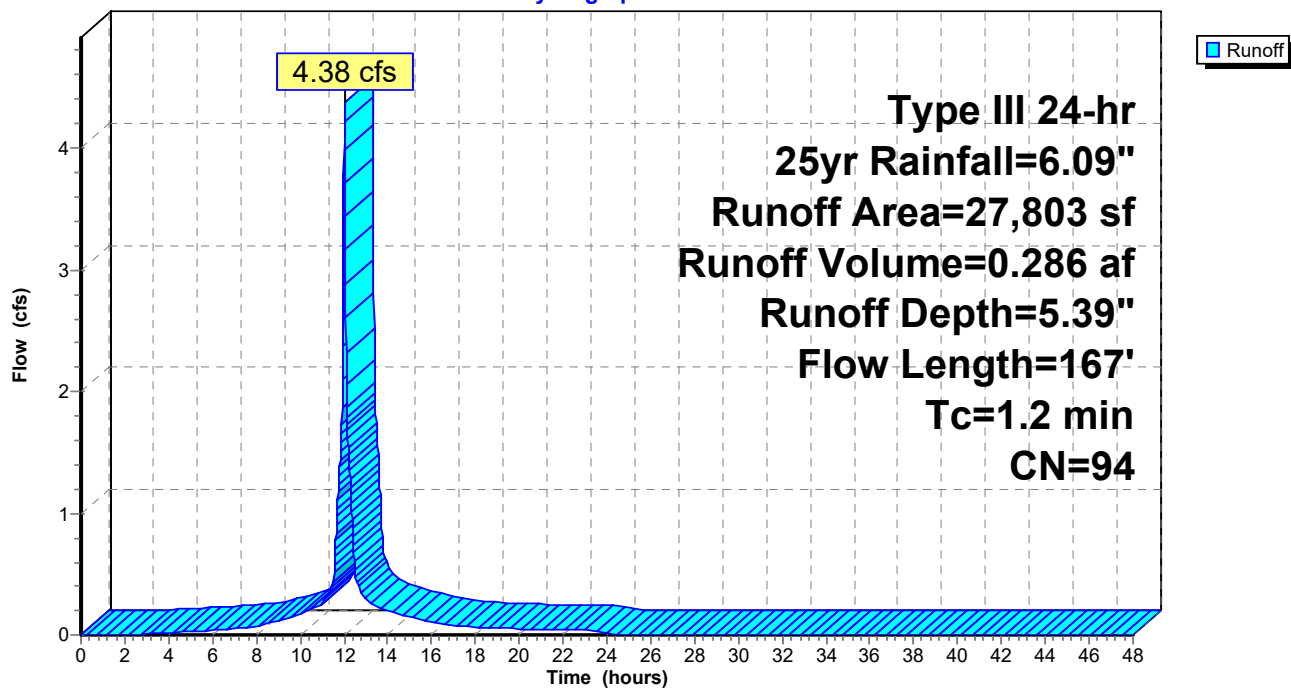
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
24,575	98	Paved parking, HSG B
3,228	61	>75% Grass cover, Good, HSG B
27,803	94	Weighted Average
3,228		11.61% Pervious Area
24,575		88.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	53	0.0400	1.58		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.6	114	0.0250	3.21		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.2	167	Total			

Subcatchment 4S: 4S

Hydrograph



Summary for Subcatchment 5S: 5S

Runoff = 6.63 cfs @ 12.02 hrs, Volume= 0.458 af, Depth= 5.85"

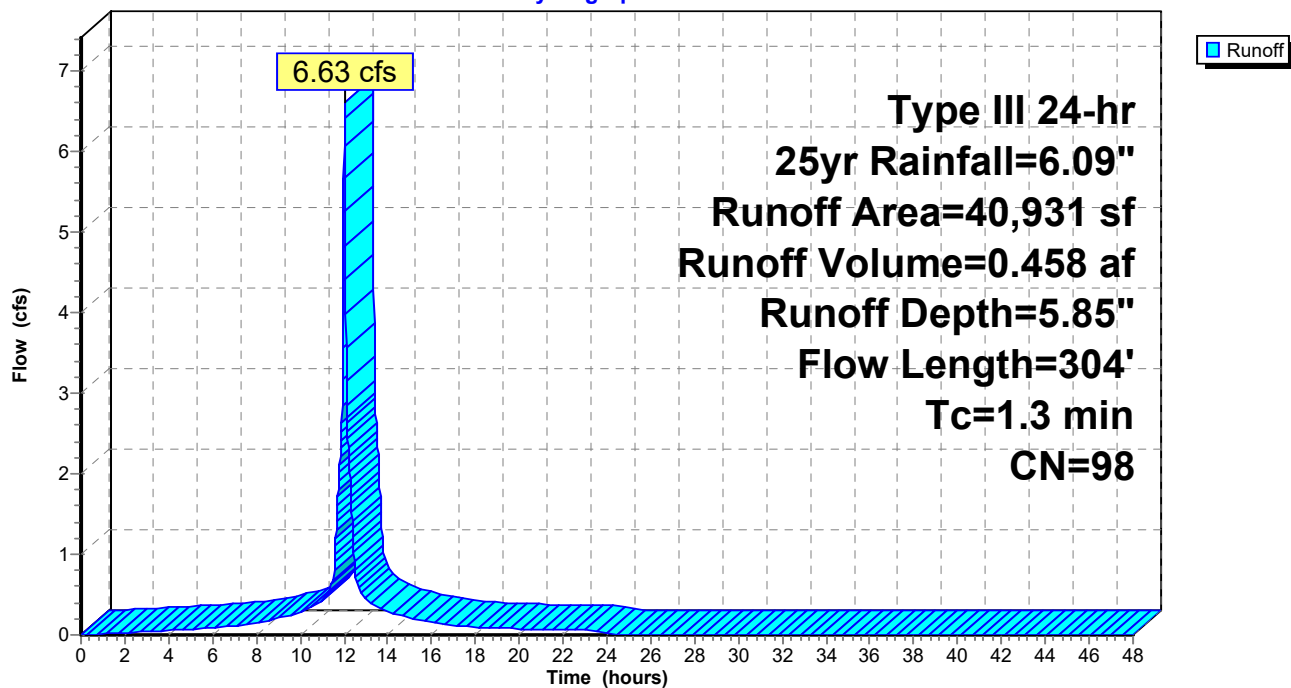
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
40,931	98	Paved parking, HSG B
40,931		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	35	0.1660	8.27		Shallow Concentrated Flow, A-B Paved Kv= 20.3 fps
0.9	154	0.0200	2.87		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
0.3	115	0.0200	6.79	23.76	Channel Flow, C-D Area= 3.5 sf Perim= 14.5' r= 0.24' n= 0.012 Steel, smooth
1.3	304	Total			

Subcatchment 5S: 5S

Hydrograph



Summary for Subcatchment 6S: 6S

Runoff = 1.93 cfs @ 12.02 hrs, Volume= 0.135 af, Depth= 5.85"

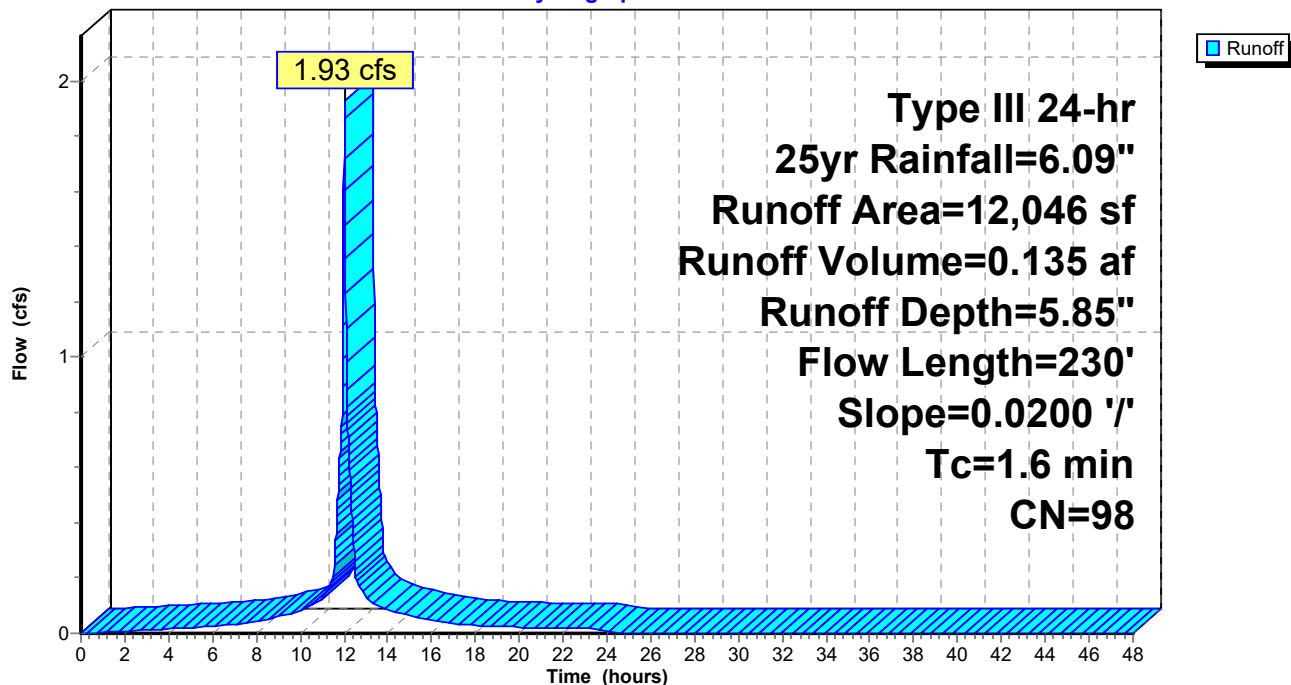
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
12,046	98	Paved parking, HSG B
12,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.03		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.2	205	0.0200	2.87		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.6	230	Total			

Subcatchment 6S: 6S

Hydrograph



Summary for Subcatchment 7S: 7S

Runoff = 5.88 cfs @ 12.02 hrs, Volume= 0.412 af, Depth= 5.85"

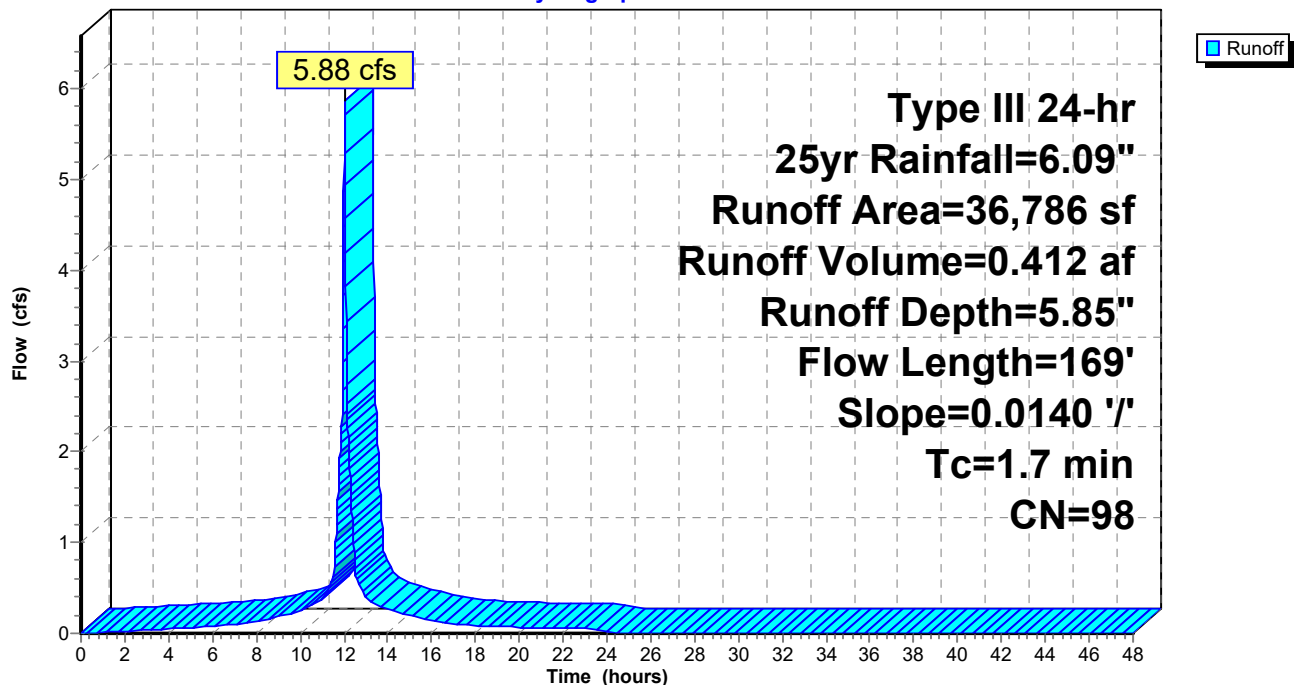
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
36,786	98	Paved parking, HSG B
36,786		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	53	0.0140	1.04		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.8	116	0.0140	2.40		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.7	169	Total			

Subcatchment 7S: 7S

Hydrograph



Summary for Subcatchment 8S: 8S

Runoff = 9.72 cfs @ 12.03 hrs, Volume= 0.695 af, Depth= 5.85"

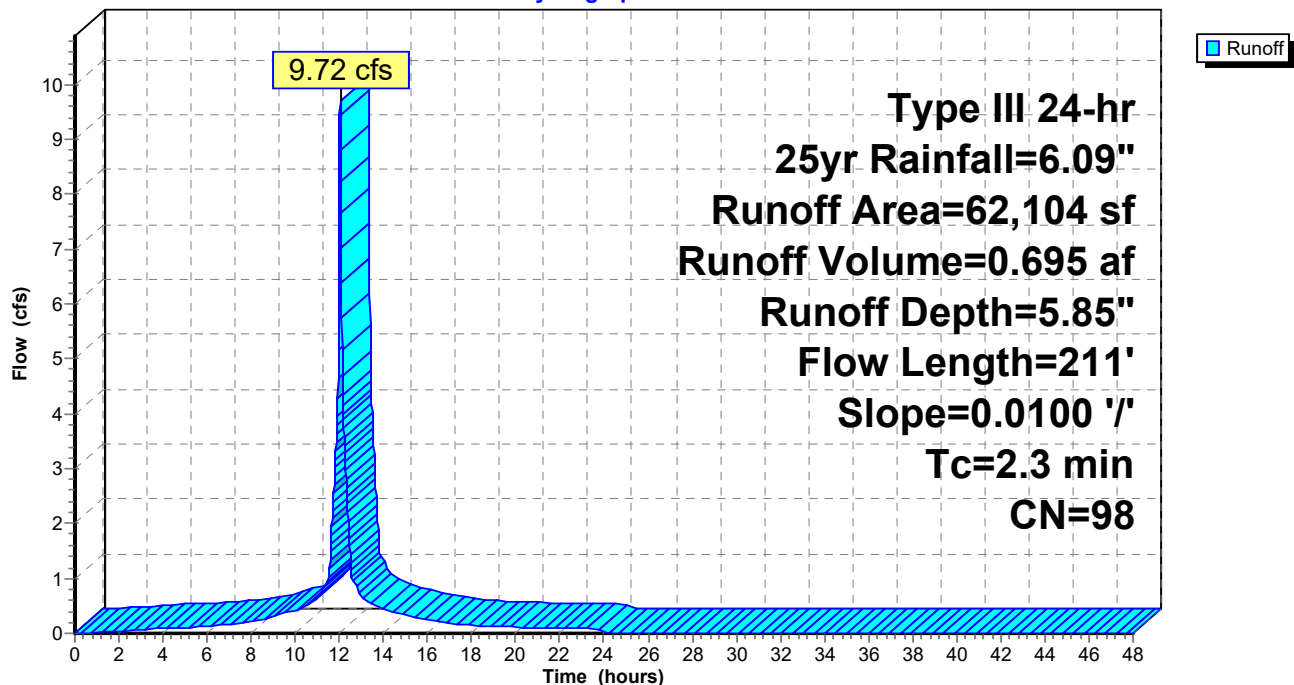
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
62,104	98	Paved parking, HSG B
62,104		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	59	0.0100	0.93		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.2	152	0.0100	2.03		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
2.3	211	Total			

Subcatchment 8S: 8S

Hydrograph



Summary for Subcatchment 9S: 9S

Runoff = 5.72 cfs @ 12.04 hrs, Volume= 0.416 af, Depth= 5.85"

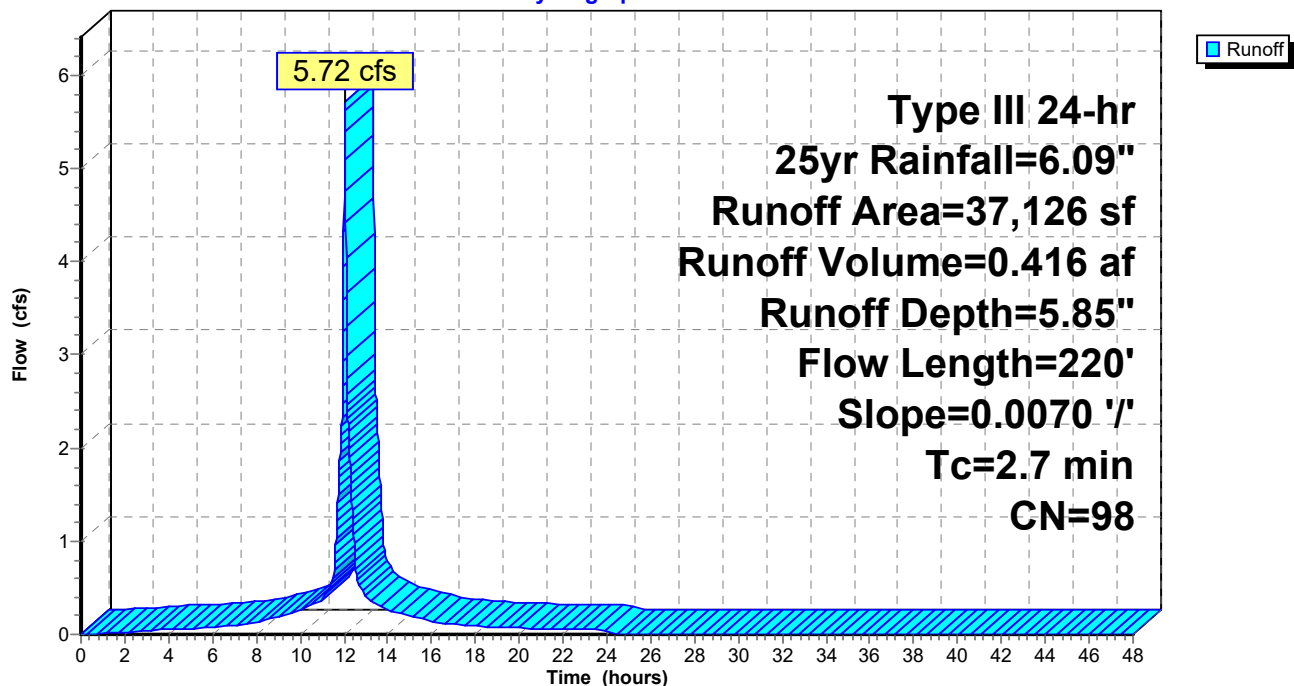
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
14,243	98	Paved parking, HSG A
22,883	98	Paved parking, HSG B
37,126	98	Weighted Average
37,126		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	40	0.0070	0.74		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.8	180	0.0070	1.70		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
2.7	220	Total			

Subcatchment 9S: 9S

Hydrograph



Summary for Subcatchment 10S: 10S

Runoff = 10.49 cfs @ 12.14 hrs, Volume= 0.872 af, Depth= 4.50"

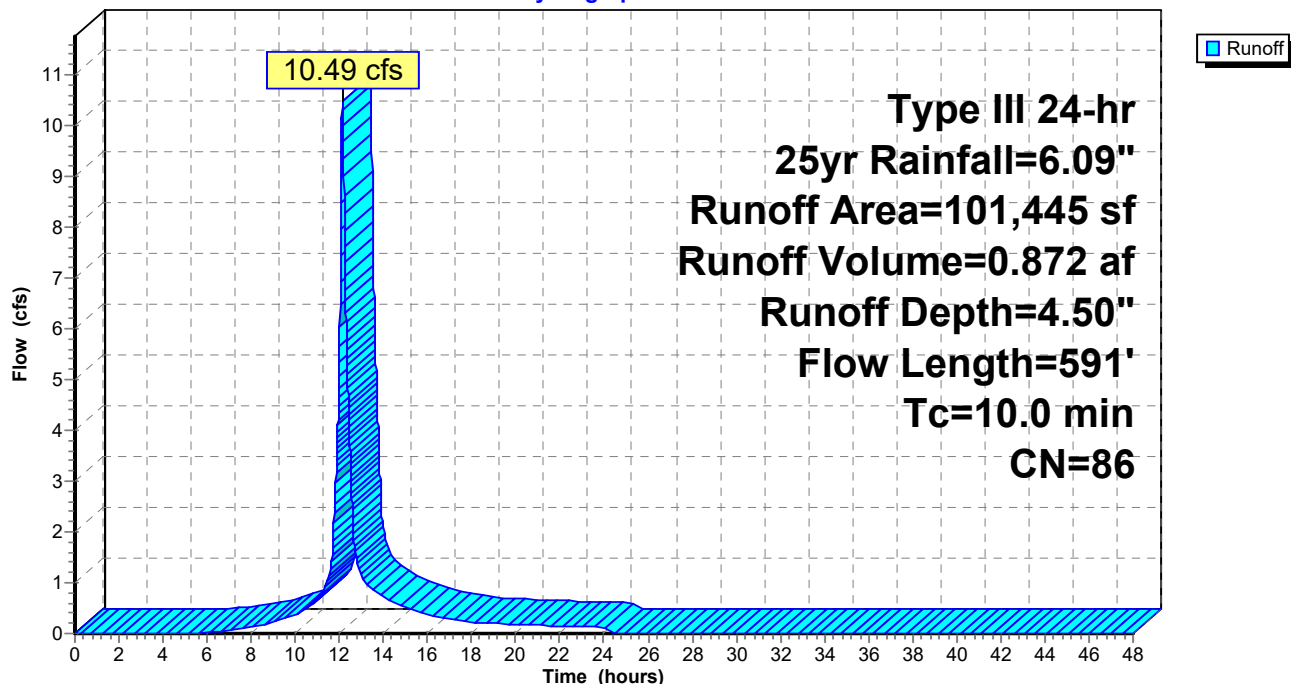
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
2,517	30	Woods, Good, HSG A
49,449	98	Paved parking, HSG A
4,033	55	Woods, Good, HSG B
28,301	98	Paved parking, HSG B
17,145	48	Brush, Good, HSG B
101,445	86	Weighted Average
23,695		23.36% Pervious Area
77,750		76.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	23	0.0500	0.18		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
0.5	68	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
7.4	500	0.0260	1.13		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
10.0	591	Total			

Subcatchment 10S: 10S

Hydrograph



Summary for Subcatchment 11S: 11S

Runoff = 0.25 cfs @ 12.15 hrs, Volume= 0.028 af, Depth= 0.97"

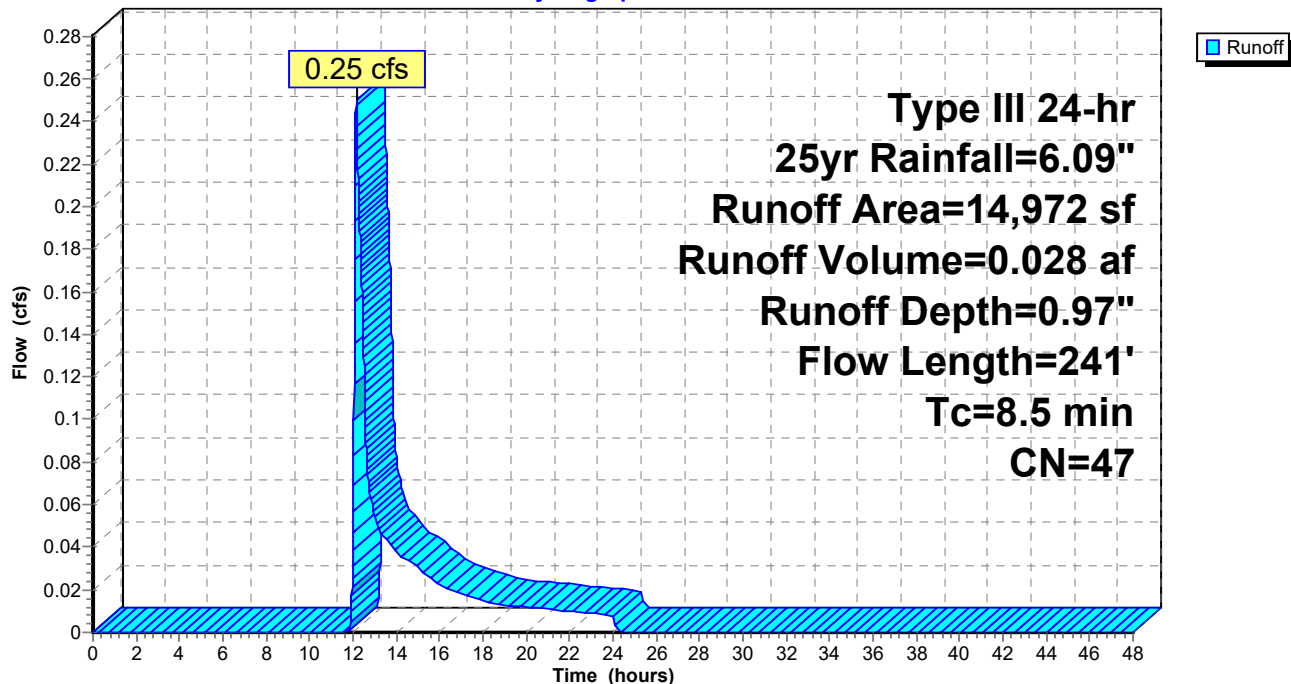
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
14,527	48	Brush, Good, HSG B
445	30	Brush, Good, HSG A
14,972	47	Weighted Average
14,972		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	18	0.3330	0.41		Sheet Flow, A-B
					Range n= 0.130 P2= 3.13"
7.8	223	0.0090	0.47		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
8.5	241	Total			

Subcatchment 11S: 11S

Hydrograph



Summary for Subcatchment 12S: 12S

Runoff = 5.83 cfs @ 13.60 hrs, Volume= 1.739 af, Depth= 2.15"

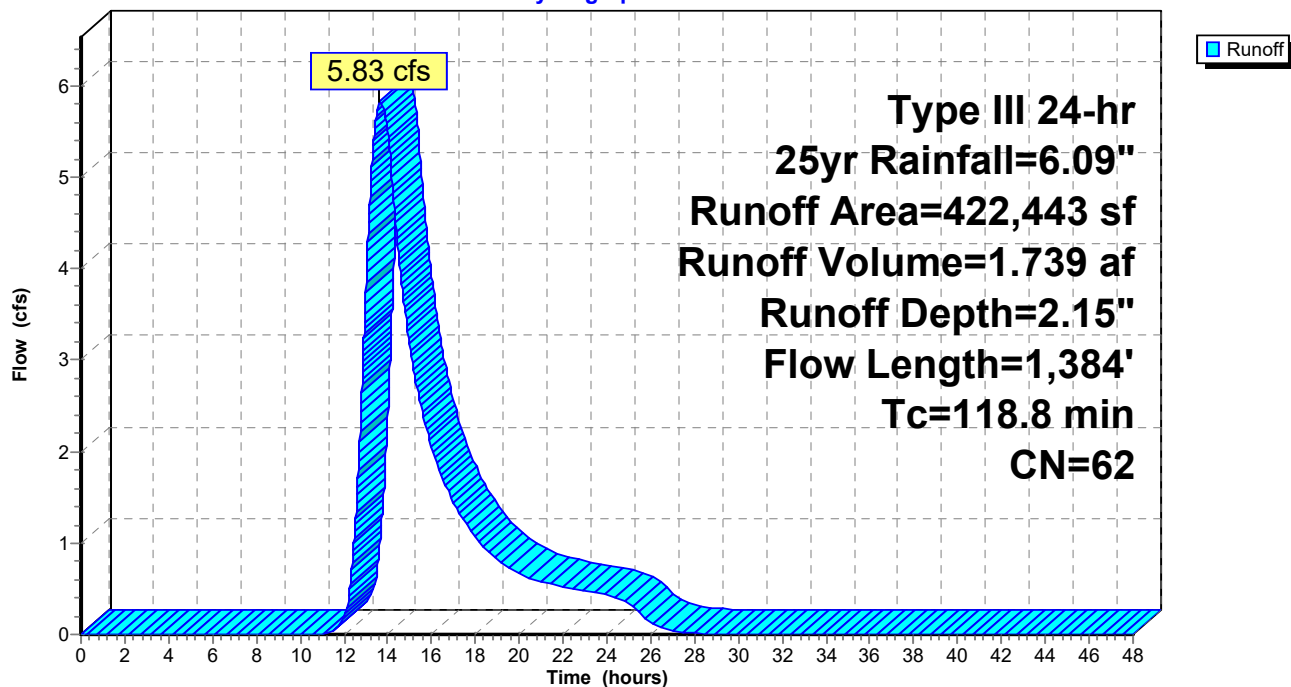
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
17,430	48	Brush, Good, HSG B
247,720	55	Woods, Good, HSG B
64,382	70	Woods, Good, HSG C
92,911	77	Woods, Good, HSG D
422,443	62	Weighted Average
422,443		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.9	200	0.0700	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.13"
78.9	1,184	0.0100	0.25		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
118.8	1,384	Total			

Subcatchment 12S: 12S

Hydrograph



Summary for Subcatchment 13S: 13S

Runoff = 7.05 cfs @ 12.03 hrs, Volume= 0.435 af, Depth= 3.16"

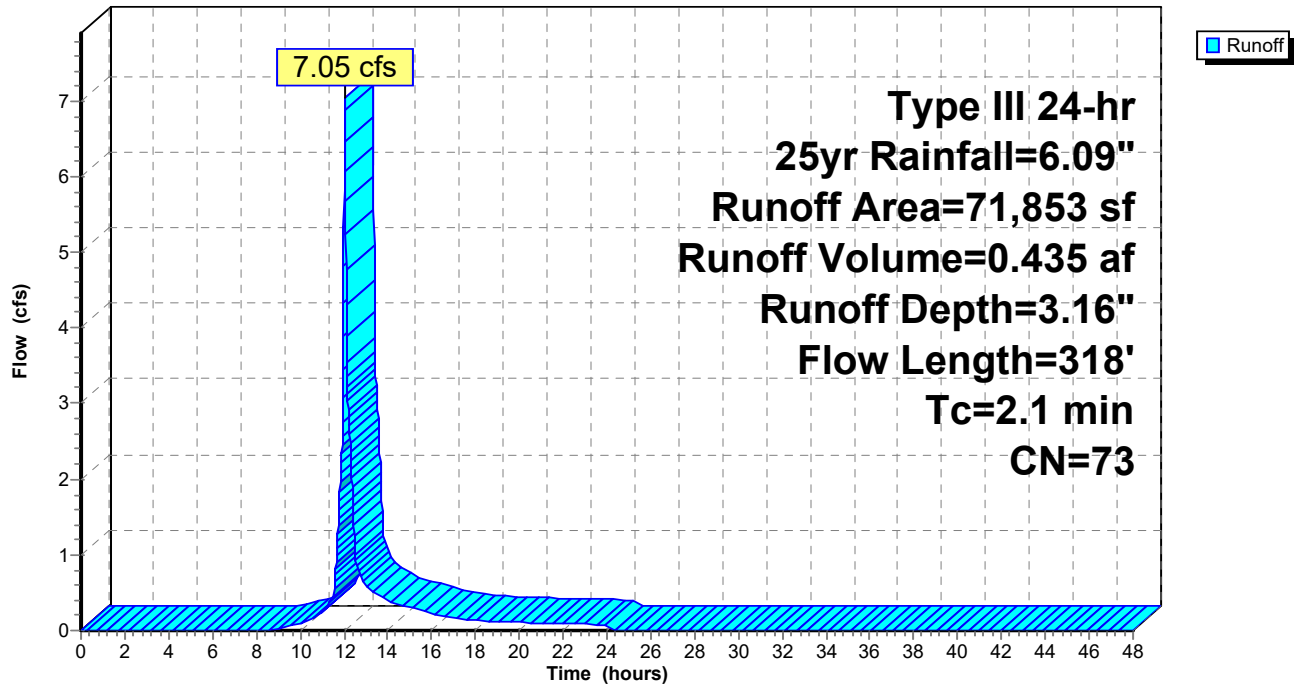
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25yr Rainfall=6.09"

Area (sf)	CN	Description
29,040	98	Paved parking, HSG A
7,665	98	Paved parking, HSG B
5,954	30	Woods, Good, HSG A
6,687	55	Woods, Good, HSG B
22,507	48	Brush, Good, HSG B
71,853	73	Weighted Average
35,148		48.92% Pervious Area
36,705		51.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	99	0.0200	1.36		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.13"
0.8	162	0.0250	3.21		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
0.1	57	0.0530	6.74	47.20	Channel Flow, C-D Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.040 Earth, cobble bottom, clean sides
2.1	318	Total			

Subcatchment 13S: 13S

Hydrograph



Summary for Pond 3P: Wetland

Inflow Area = 17.075 ac, 35.29% Impervious, Inflow Depth = 1.37" for 25yr event
 Inflow = 6.33 cfs @ 13.60 hrs, Volume= 1.947 af
 Outflow = 2.73 cfs @ 15.63 hrs, Volume= 1.171 af, Atten= 57%, Lag= 121.9 min
 Primary = 2.73 cfs @ 15.63 hrs, Volume= 1.171 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.17' @ 15.63 hrs Surf.Area= 57,156 sf Storage= 42,796 cf

Plug-Flow detention time= 288.9 min calculated for 1.171 af (60% of inflow)
 Center-of-Mass det. time= 169.6 min (1,124.7 - 955.1)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	104,029 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

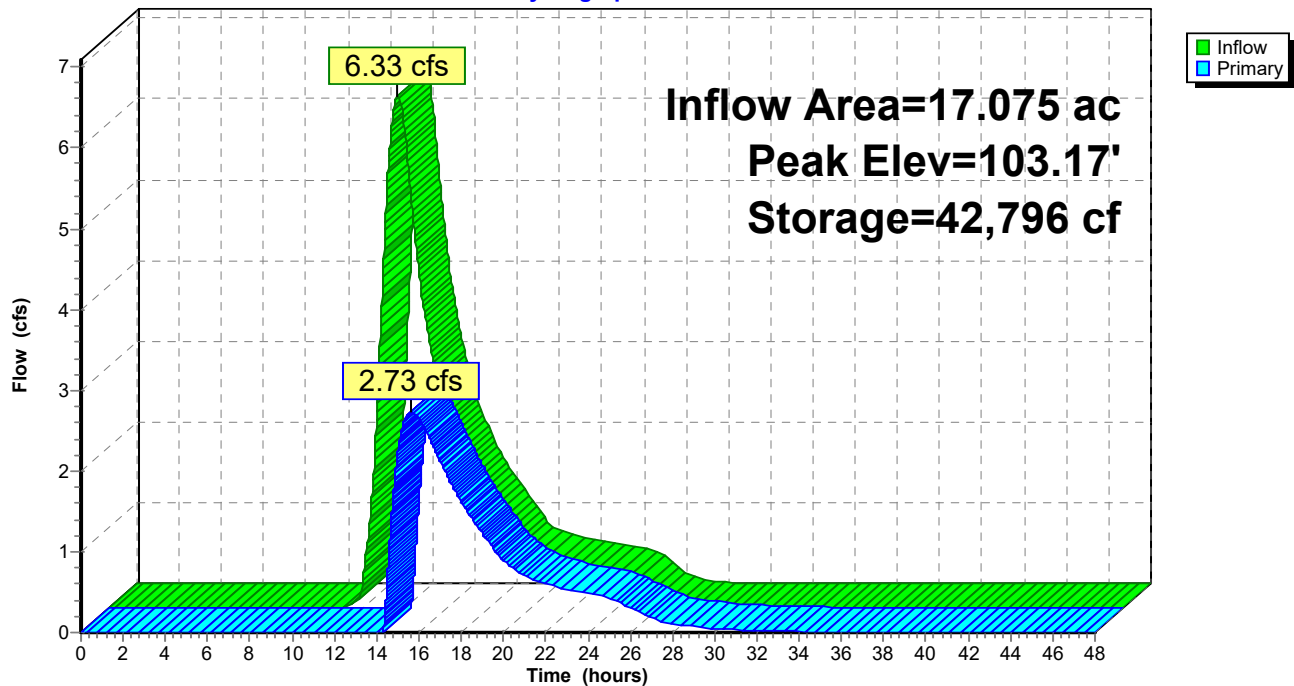
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	15,000	0	0
102.50	34,300	12,325	12,325
103.50	68,600	51,450	63,775
104.00	92,415	40,254	104,029

Device	Routing	Invert	Outlet Devices
#1	Primary	103.00'	15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.73 cfs @ 15.63 hrs HW=103.17' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 2.73 cfs @ 1.09 fps)

Pond 3P: Wetland

Hydrograph



Summary for Pond CB-1: CB-1

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 5.85" for 25yr event
 Inflow = 0.54 cfs @ 12.02 hrs, Volume= 0.037 af
 Outflow = 0.54 cfs @ 12.02 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.54 cfs @ 12.02 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.34' @ 12.02 hrs

Flood Elev= 114.50'

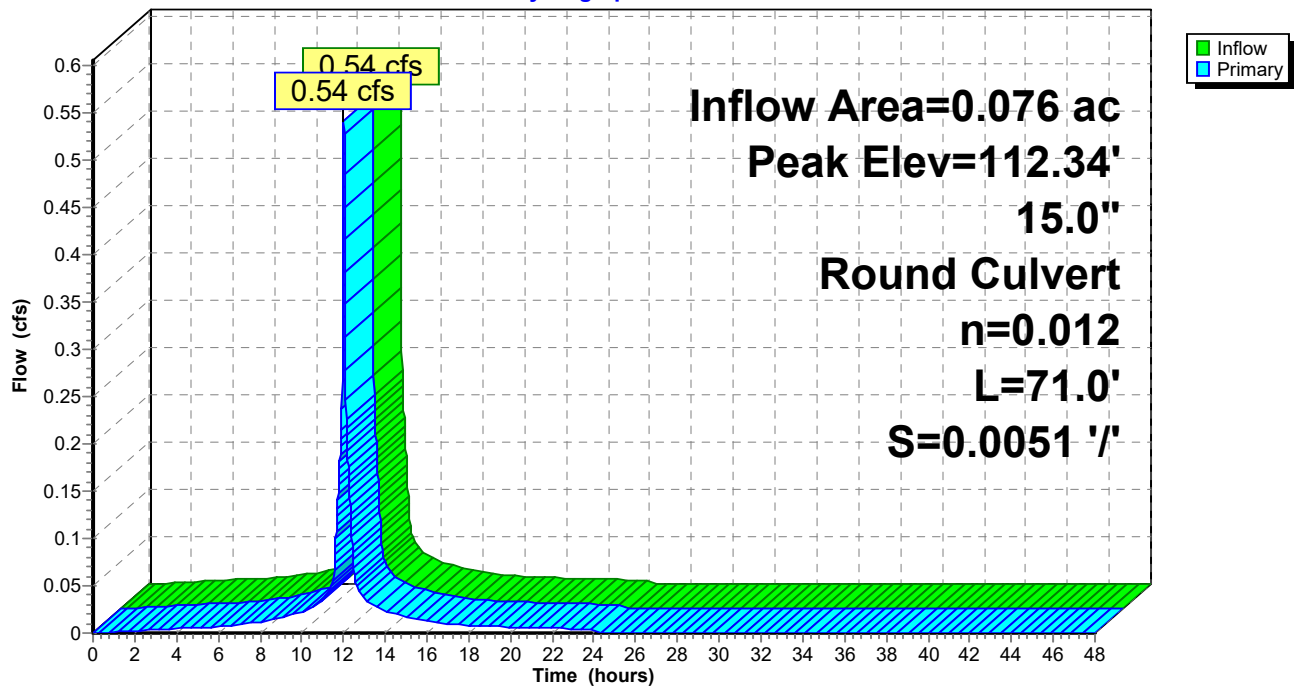
Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	15.0" Round Culvert L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 111.59' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.54 cfs @ 12.02 hrs HW=112.33' (Free Discharge)

1=Culvert (Barrel Controls 0.54 cfs @ 2.51 fps)

Pond CB-1: CB-1

Hydrograph



Summary for Pond CB-10: CB-10

Inflow Area = 5.728 ac, 90.50% Impervious, Inflow Depth = 5.30" for 25yr event
 Inflow = 29.73 cfs @ 12.04 hrs, Volume= 2.530 af
 Outflow = 29.73 cfs @ 12.04 hrs, Volume= 2.530 af, Atten= 0%, Lag= 0.0 min
 Primary = 29.73 cfs @ 12.04 hrs, Volume= 2.530 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

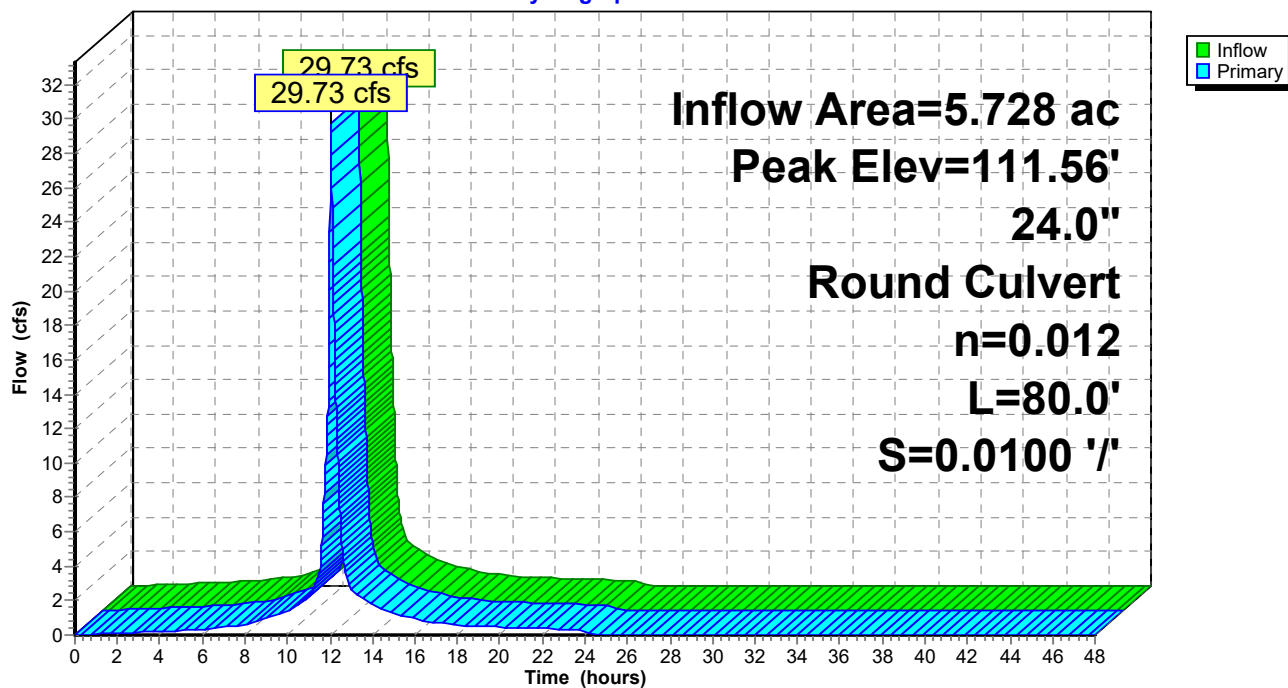
Peak Elev= 111.56' @ 12.04 hrs

Flood Elev= 110.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	106.70'	24.0" Round Culvert L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.70' / 105.90' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=29.69 cfs @ 12.04 hrs HW=111.55' (Free Discharge)

↑1=Culvert (Inlet Controls 29.69 cfs @ 9.45 fps)

Pond CB-10: CB-10**Hydrograph**

Summary for Pond CB-11: CB-11

Inflow Area = 1.650 ac, 51.08% Impervious, Inflow Depth = 3.16" for 25yr event
 Inflow = 7.05 cfs @ 12.03 hrs, Volume= 0.435 af
 Outflow = 7.05 cfs @ 12.03 hrs, Volume= 0.435 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.05 cfs @ 12.03 hrs, Volume= 0.435 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 107.97' @ 12.03 hrs

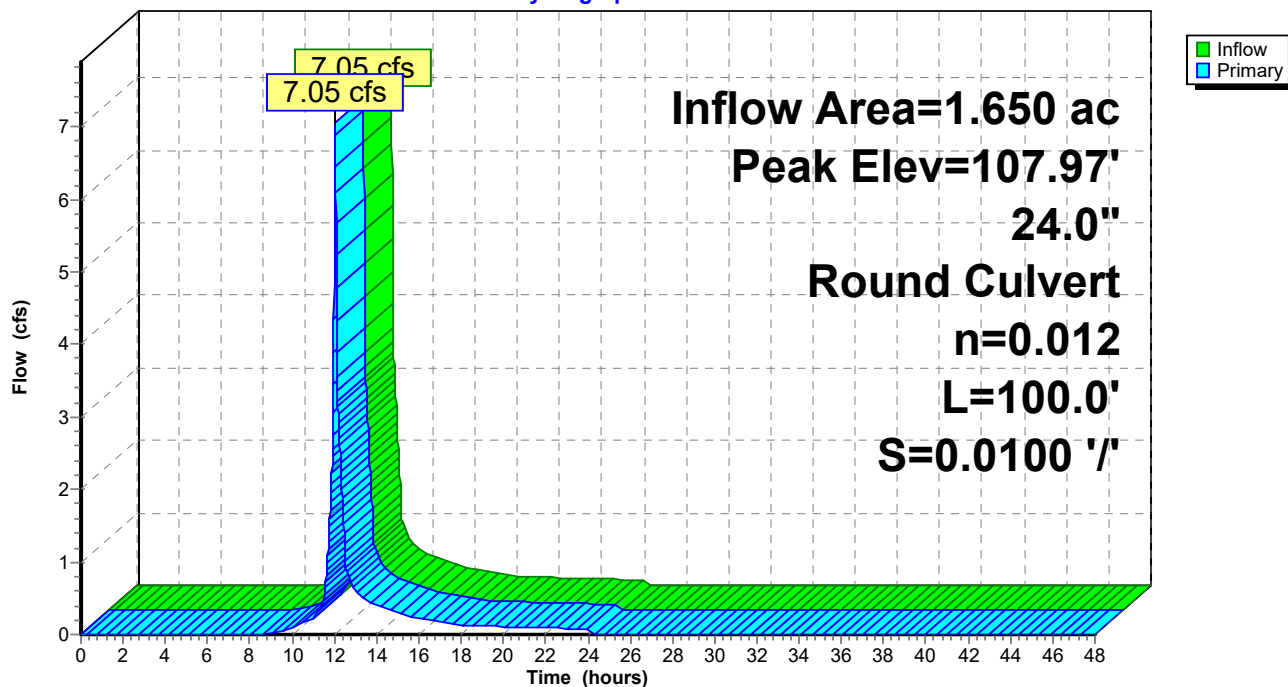
Device	Routing	Invert	Outlet Devices
#1	Primary	106.80'	24.0" Round Culvert L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.80' / 105.80' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=7.02 cfs @ 12.03 hrs HW=107.97' (Free Discharge)

↑**1=Culvert** (Inlet Controls 7.02 cfs @ 3.68 fps)

Pond CB-11: CB-11

Hydrograph



Summary for Pond CB-2: CB-2

Inflow Area = 0.292 ac, 100.00% Impervious, Inflow Depth = 5.85" for 25yr event
 Inflow = 2.06 cfs @ 12.02 hrs, Volume= 0.142 af
 Outflow = 2.06 cfs @ 12.02 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.06 cfs @ 12.02 hrs, Volume= 0.142 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.31' @ 12.02 hrs

Flood Elev= 114.50'

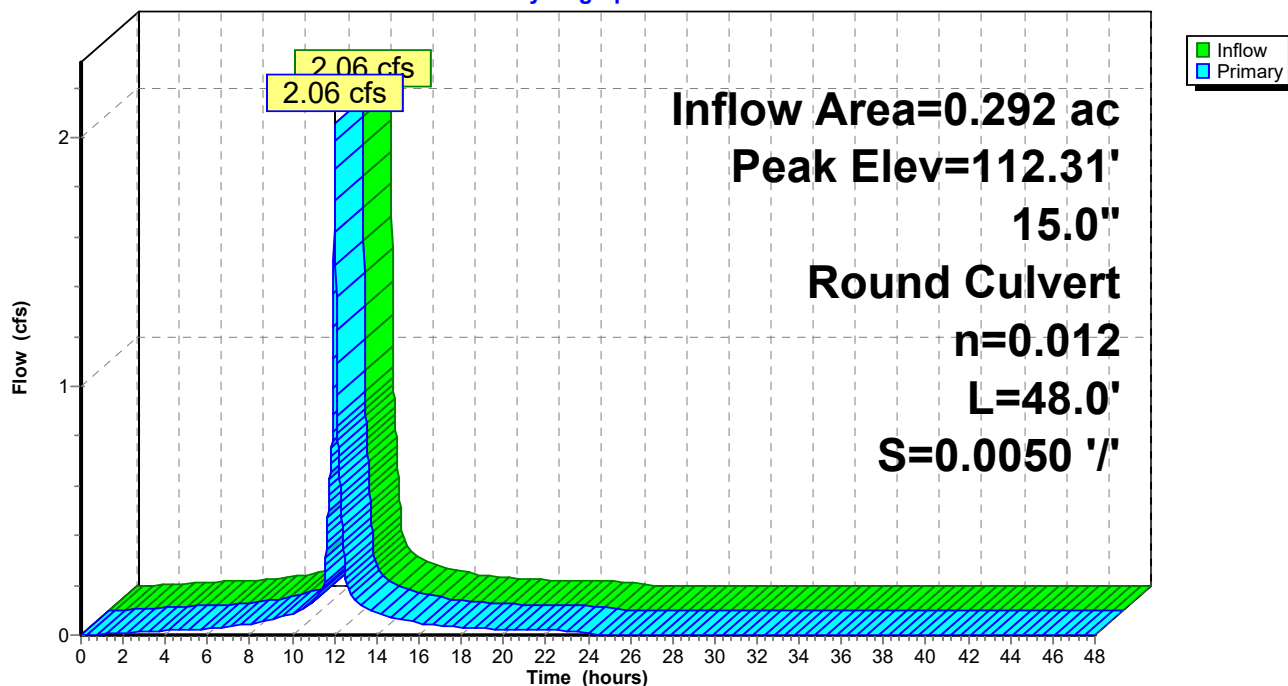
Device	Routing	Invert	Outlet Devices
#1	Primary	111.49'	15.0" Round Culvert L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.49' / 111.25' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.05 cfs @ 12.02 hrs HW=112.31' (Free Discharge)

1=Culvert (Barrel Controls 2.05 cfs @ 3.41 fps)

Pond CB-2: CB-2

Hydrograph



Summary for Pond CB-3: CB-3

Inflow Area = 0.695 ac, 89.47% Impervious, Inflow Depth = 5.38" for 25yr event
 Inflow = 4.75 cfs @ 12.01 hrs, Volume= 0.312 af
 Outflow = 4.75 cfs @ 12.01 hrs, Volume= 0.312 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.75 cfs @ 12.01 hrs, Volume= 0.312 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.45' @ 12.01 hrs

Flood Elev= 113.80'

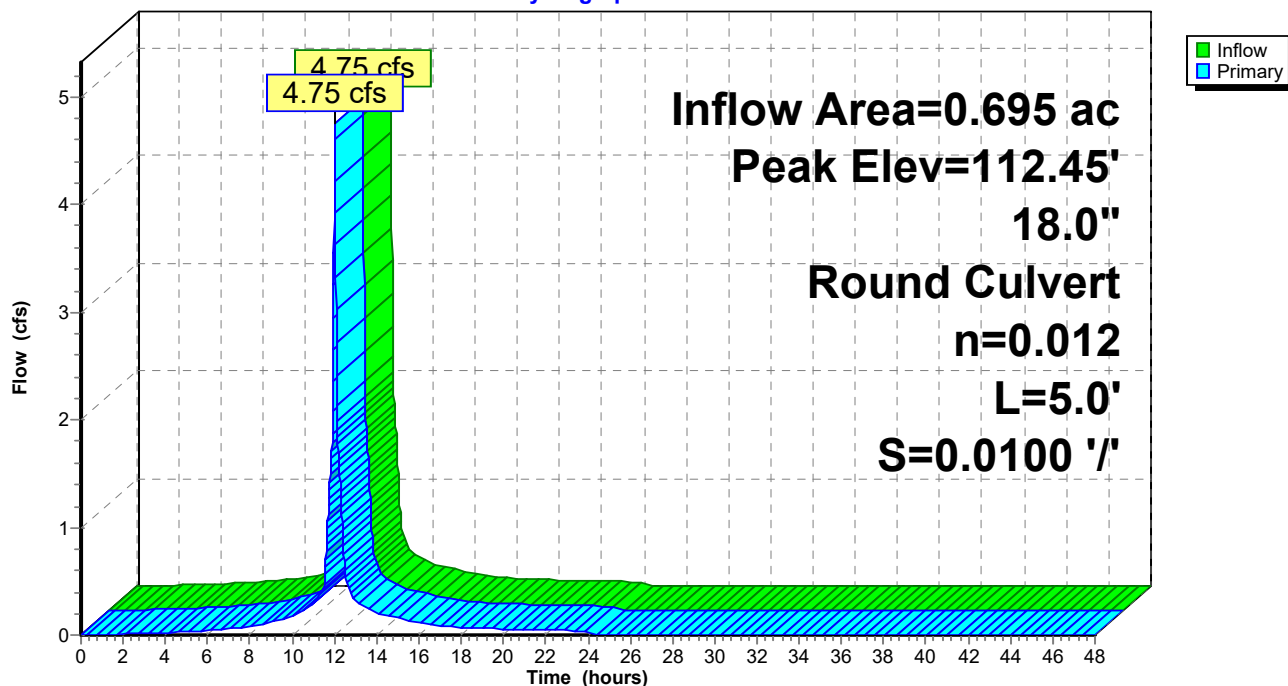
Device	Routing	Invert	Outlet Devices
#1	Primary	111.15'	18.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.15' / 111.10' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.72 cfs @ 12.01 hrs HW=112.44' (Free Discharge)

1=Culvert (Barrel Controls 4.72 cfs @ 3.92 fps)

Pond CB-3: CB-3

Hydrograph



Summary for Pond CB-4: CB-4

Inflow Area = 1.578 ac, 95.30% Impervious, Inflow Depth = 5.66" for 25yr event
 Inflow = 11.01 cfs @ 12.02 hrs, Volume= 0.745 af
 Outflow = 11.01 cfs @ 12.02 hrs, Volume= 0.745 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.01 cfs @ 12.02 hrs, Volume= 0.745 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

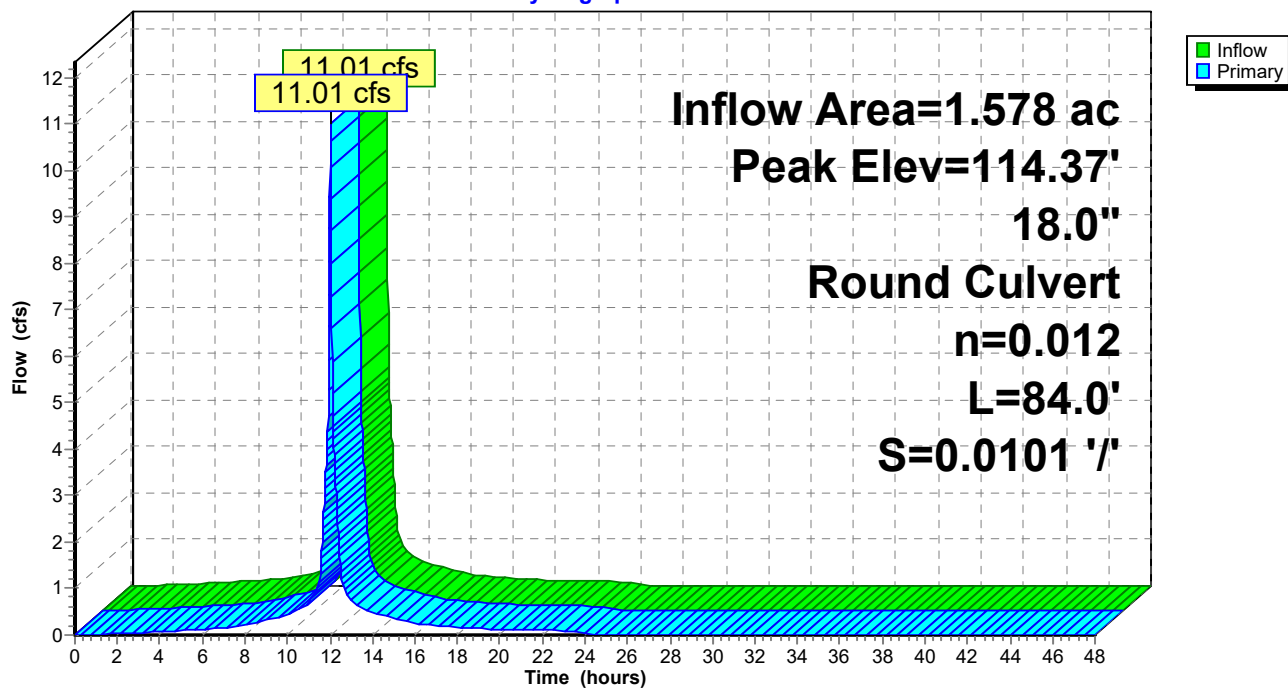
Peak Elev= 114.37' @ 12.02 hrs

Flood Elev= 115.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	18.0" Round Culvert L= 84.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 111.10' S= 0.0101 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=10.98 cfs @ 12.02 hrs HW=114.36' (Free Discharge)

↑**1=Culvert** (Inlet Controls 10.98 cfs @ 6.21 fps)

Pond CB-4: CB-4**Hydrograph**

Summary for Pond CB-5: CB-5

Inflow Area = 0.940 ac, 100.00% Impervious, Inflow Depth = 5.85" for 25yr event
 Inflow = 6.63 cfs @ 12.02 hrs, Volume= 0.458 af
 Outflow = 6.63 cfs @ 12.02 hrs, Volume= 0.458 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.63 cfs @ 12.02 hrs, Volume= 0.458 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.42' @ 12.02 hrs

Flood Elev= 117.10'

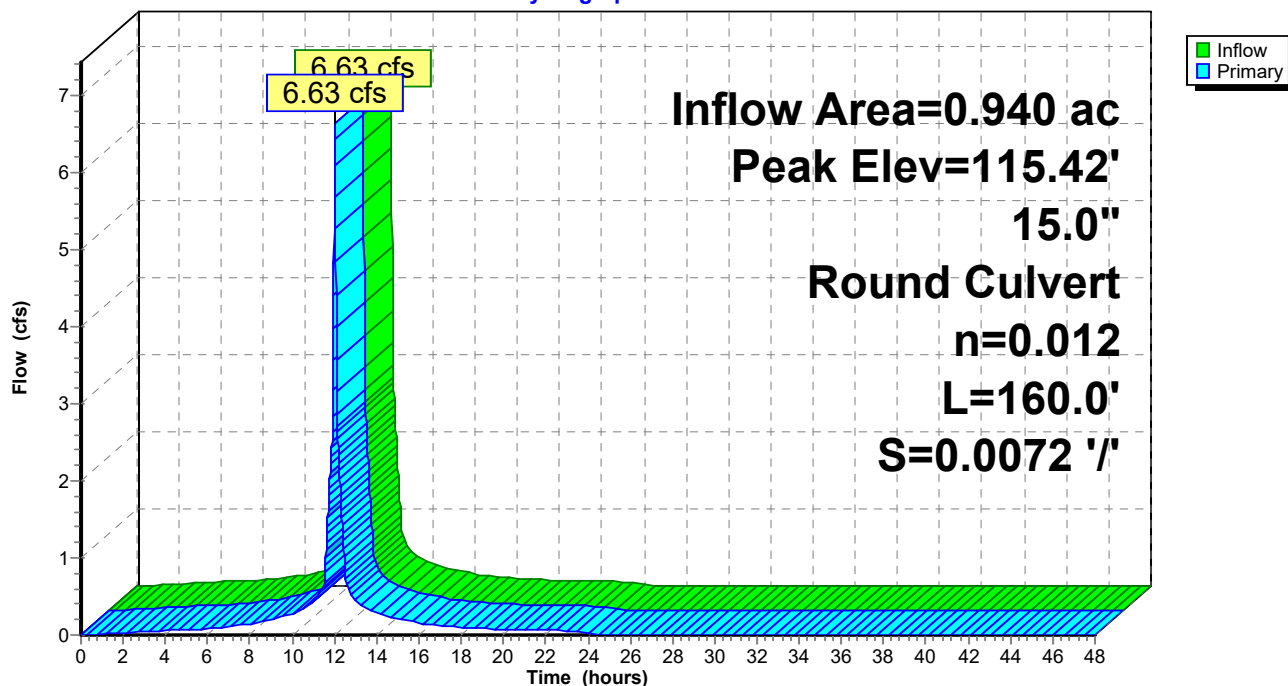
Device	Routing	Invert	Outlet Devices
#1	Primary	113.20'	15.0" Round Culvert L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 113.20' / 112.05' S= 0.0072 ' / ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=6.61 cfs @ 12.02 hrs HW=115.41' (Free Discharge)

1=Culvert (Barrel Controls 6.61 cfs @ 5.39 fps)

Pond CB-5: CB-5

Hydrograph



Summary for Pond CB-6: CB-6

Inflow Area = 0.277 ac, 100.00% Impervious, Inflow Depth = 5.85" for 25yr event
 Inflow = 1.93 cfs @ 12.02 hrs, Volume= 0.135 af
 Outflow = 1.93 cfs @ 12.02 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.93 cfs @ 12.02 hrs, Volume= 0.135 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.18' @ 12.02 hrs

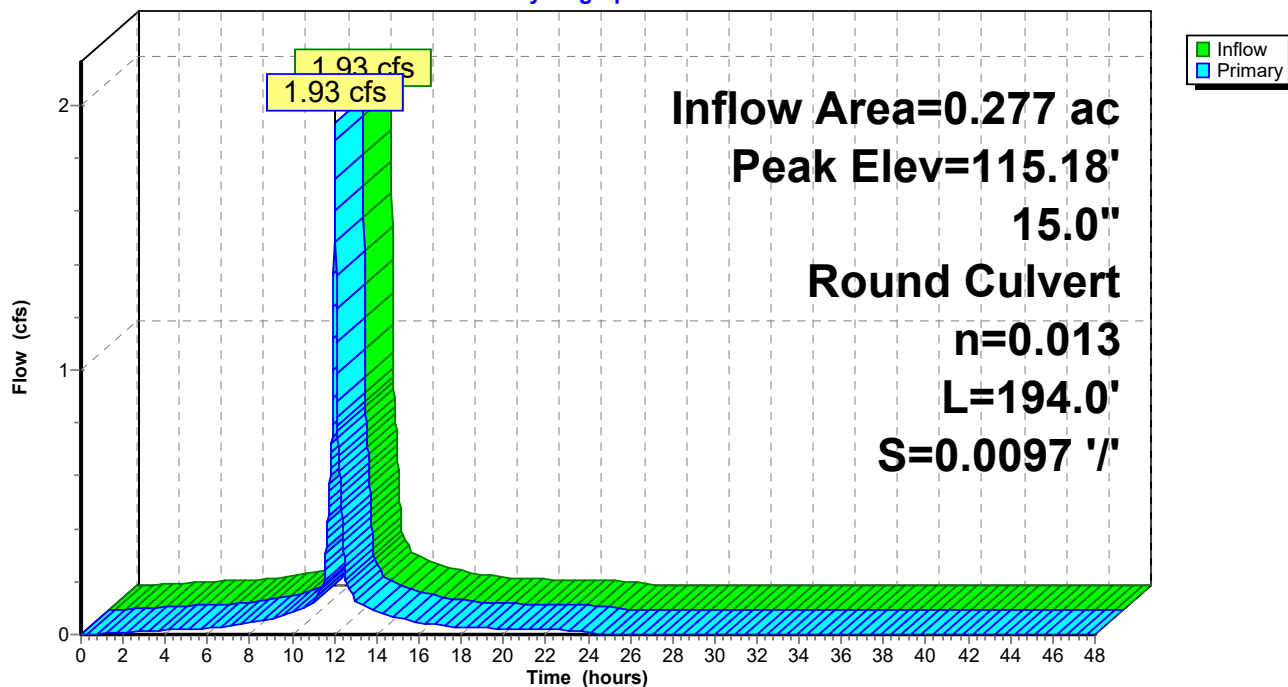
Device	Routing	Invert	Outlet Devices
#1	Primary	114.50'	15.0" Round Culvert L= 194.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.61' S= 0.0097 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.92 cfs @ 12.02 hrs HW=115.18' (Free Discharge)

↑1=Culvert (Inlet Controls 1.92 cfs @ 2.81 fps)

Pond CB-6: CB-6

Hydrograph



Summary for Pond CB-7: CB-7

Inflow Area = 3.399 ac, 100.00% Impervious, Inflow Depth = 5.85" for 25yr event
 Inflow = 23.11 cfs @ 12.03 hrs, Volume= 1.658 af
 Outflow = 23.11 cfs @ 12.03 hrs, Volume= 1.658 af, Atten= 0%, Lag= 0.0 min
 Primary = 23.11 cfs @ 12.03 hrs, Volume= 1.658 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

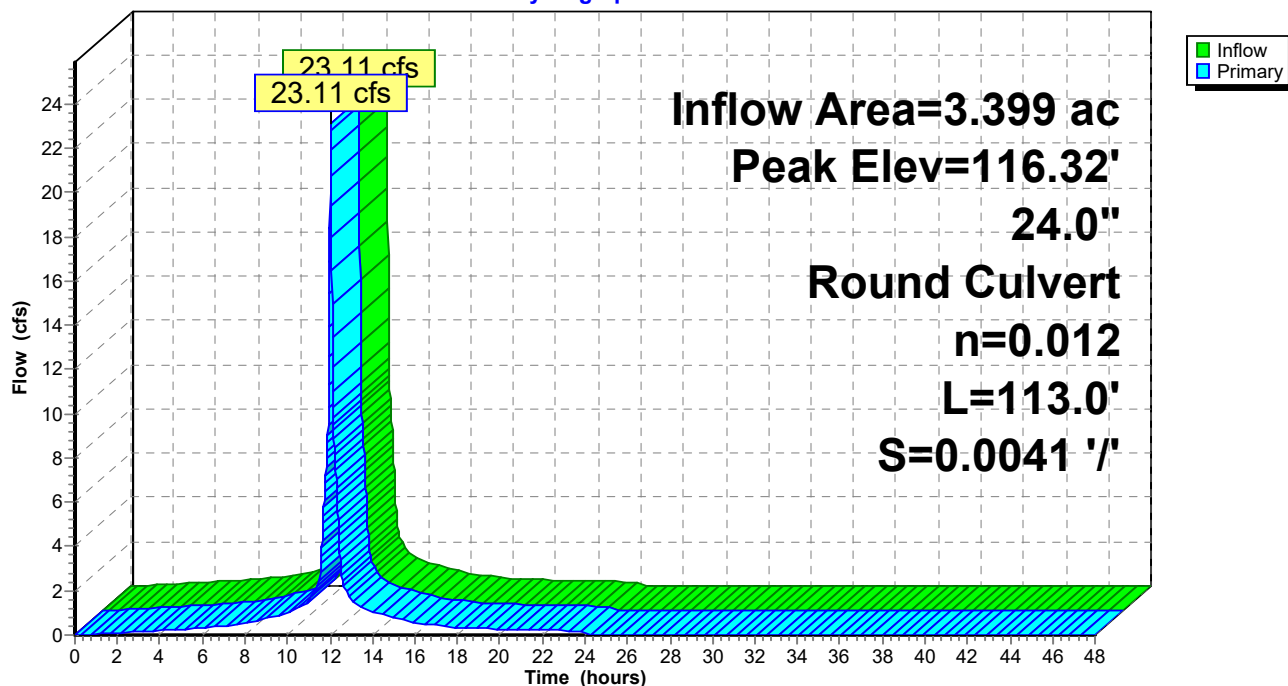
Peak Elev= 116.32' @ 12.03 hrs

Flood Elev= 118.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.51'	24.0" Round Culvert L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 112.51' / 112.05' S= 0.0041 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=23.08 cfs @ 12.03 hrs HW=116.31' (Free Discharge)

↑**1=Culvert** (Barrel Controls 23.08 cfs @ 7.35 fps)

Pond CB-7: CB-7**Hydrograph**

Summary for Pond CB-8: CB-8

Inflow Area = 2.278 ac, 100.00% Impervious, Inflow Depth = 5.85" for 25yr event
 Inflow = 15.42 cfs @ 12.03 hrs, Volume= 1.111 af
 Outflow = 15.42 cfs @ 12.03 hrs, Volume= 1.111 af, Atten= 0%, Lag= 0.0 min
 Primary = 15.42 cfs @ 12.03 hrs, Volume= 1.111 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

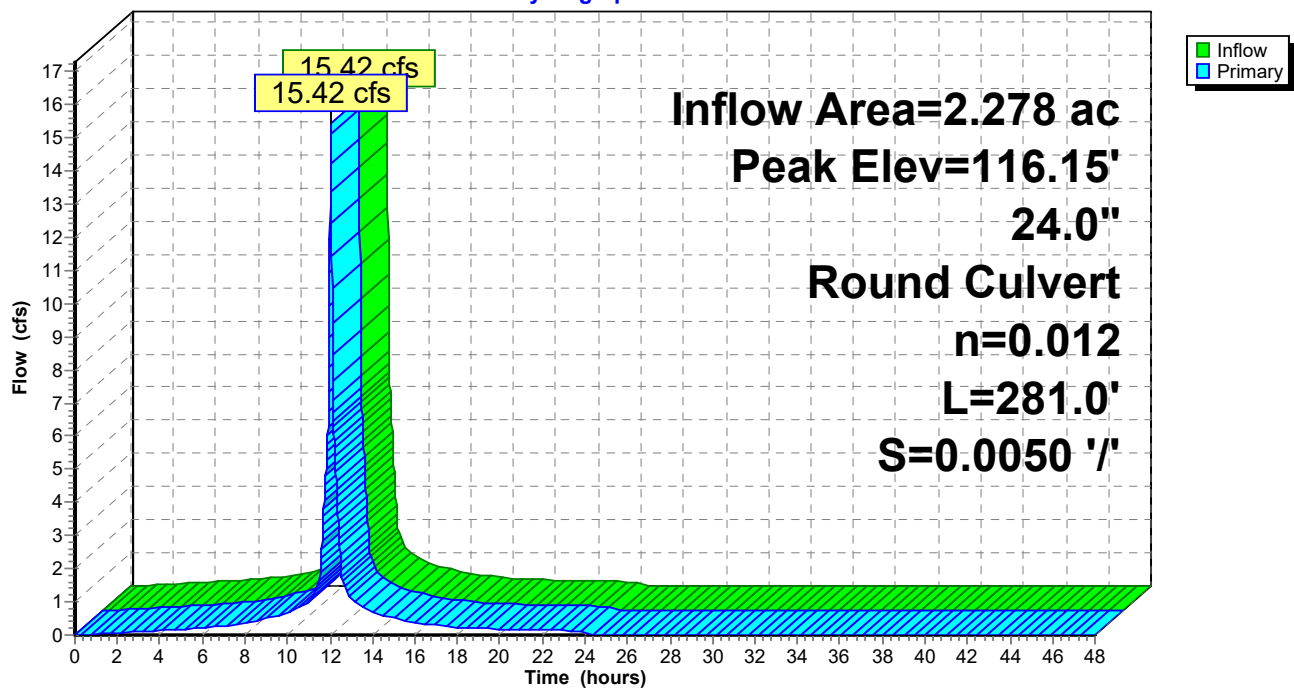
Peak Elev= 116.15' @ 12.03 hrs

Flood Elev= 118.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	114.02'	24.0" Round Culvert L= 281.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.02' / 112.61' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=15.36 cfs @ 12.03 hrs HW=116.14' (Free Discharge)

1=Culvert (Barrel Controls 15.36 cfs @ 5.74 fps)

Pond CB-8: CB-8**Hydrograph**

Summary for Pond CB-9: CB-9

Inflow Area = 0.852 ac, 100.00% Impervious, Inflow Depth = 5.85" for 25yr event
 Inflow = 5.72 cfs @ 12.04 hrs, Volume= 0.416 af
 Outflow = 5.72 cfs @ 12.04 hrs, Volume= 0.416 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.72 cfs @ 12.04 hrs, Volume= 0.416 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 116.84' @ 12.04 hrs

Flood Elev= 118.10'

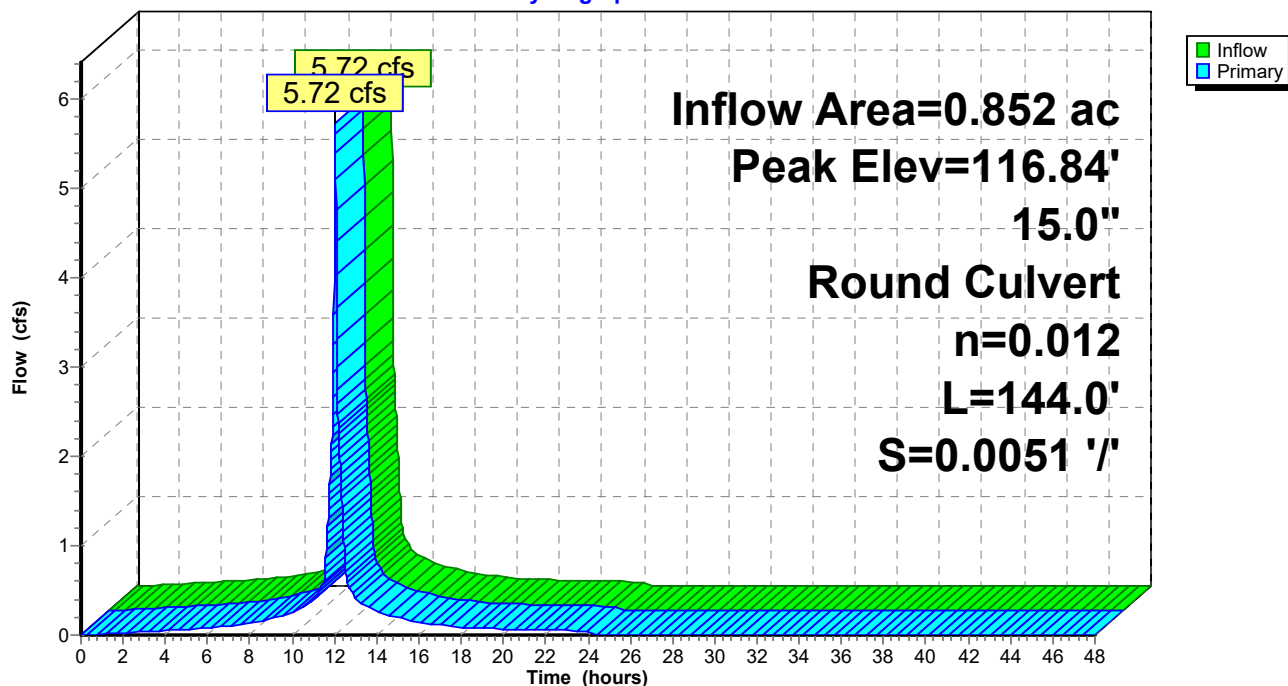
Device	Routing	Invert	Outlet Devices
#1	Primary	114.85'	15.0" Round Culvert L= 144.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.85' / 114.12' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=5.71 cfs @ 12.04 hrs HW=116.84' (Free Discharge)

1=Culvert (Barrel Controls 5.71 cfs @ 4.66 fps)

Pond CB-9: CB-9

Hydrograph



Summary for Pond DMH-1: DMH-1

Inflow Area = 3.399 ac, 100.00% Impervious, Inflow Depth = 5.85" for 25yr event
 Inflow = 23.11 cfs @ 12.03 hrs, Volume= 1.658 af
 Outflow = 23.11 cfs @ 12.03 hrs, Volume= 1.658 af, Atten= 0%, Lag= 0.0 min
 Primary = 23.11 cfs @ 12.03 hrs, Volume= 1.658 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.28' @ 12.03 hrs

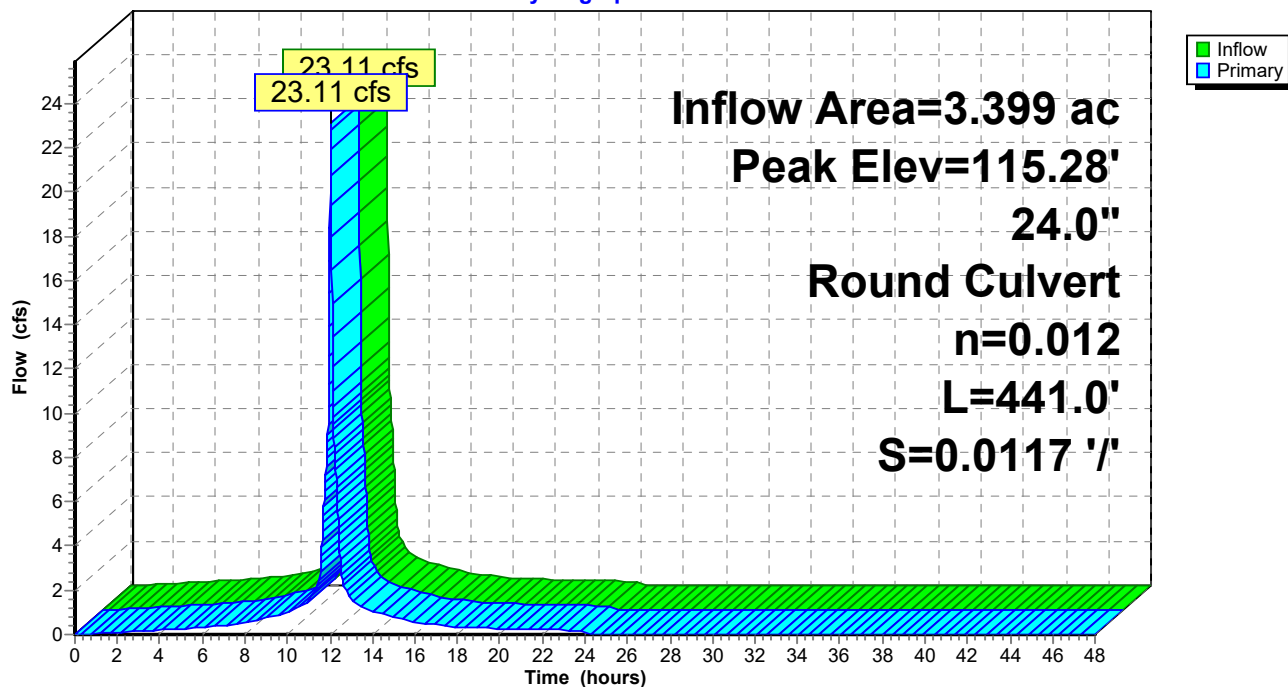
Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	24.0" Round Culvert L= 441.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 106.80' S= 0.0117 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=23.08 cfs @ 12.03 hrs HW=115.28' (Free Discharge)

↑1=Culvert (Inlet Controls 23.08 cfs @ 7.35 fps)

Pond DMH-1: DMH-1

Hydrograph



Summary for Pond DMH-2: DMH-2

Inflow Area = 0.695 ac, 89.47% Impervious, Inflow Depth = 5.38" for 25yr event
 Inflow = 4.75 cfs @ 12.01 hrs, Volume= 0.312 af
 Outflow = 4.75 cfs @ 12.01 hrs, Volume= 0.312 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.75 cfs @ 12.01 hrs, Volume= 0.312 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.34' @ 12.01 hrs

Flood Elev= 115.70'

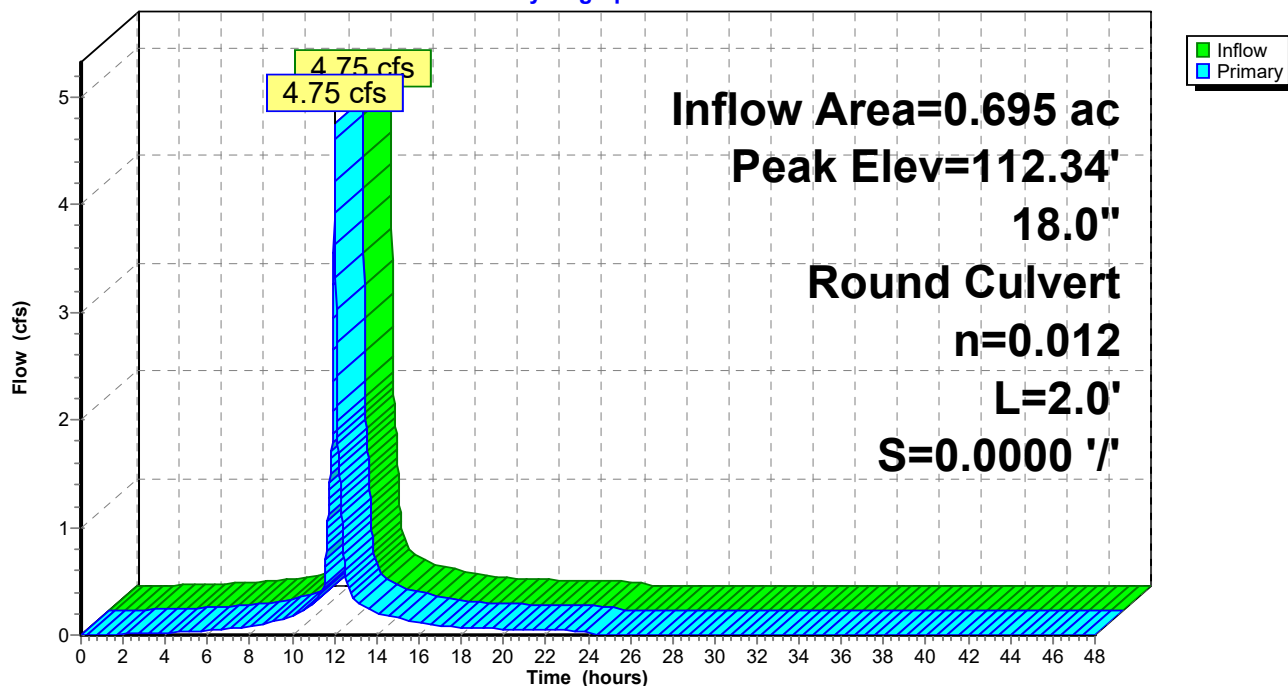
Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 111.00' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.72 cfs @ 12.01 hrs HW=112.34' (Free Discharge)

1=Culvert (Barrel Controls 4.72 cfs @ 3.76 fps)

Pond DMH-2: DMH-2

Hydrograph



Summary for Pond DMH-3: DMH-3

Inflow Area = 1.578 ac, 95.30% Impervious, Inflow Depth = 5.66" for 25yr event
 Inflow = 11.01 cfs @ 12.02 hrs, Volume= 0.745 af
 Outflow = 11.01 cfs @ 12.02 hrs, Volume= 0.745 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.01 cfs @ 12.02 hrs, Volume= 0.745 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 113.43' @ 12.02 hrs

Flood Elev= 115.70'

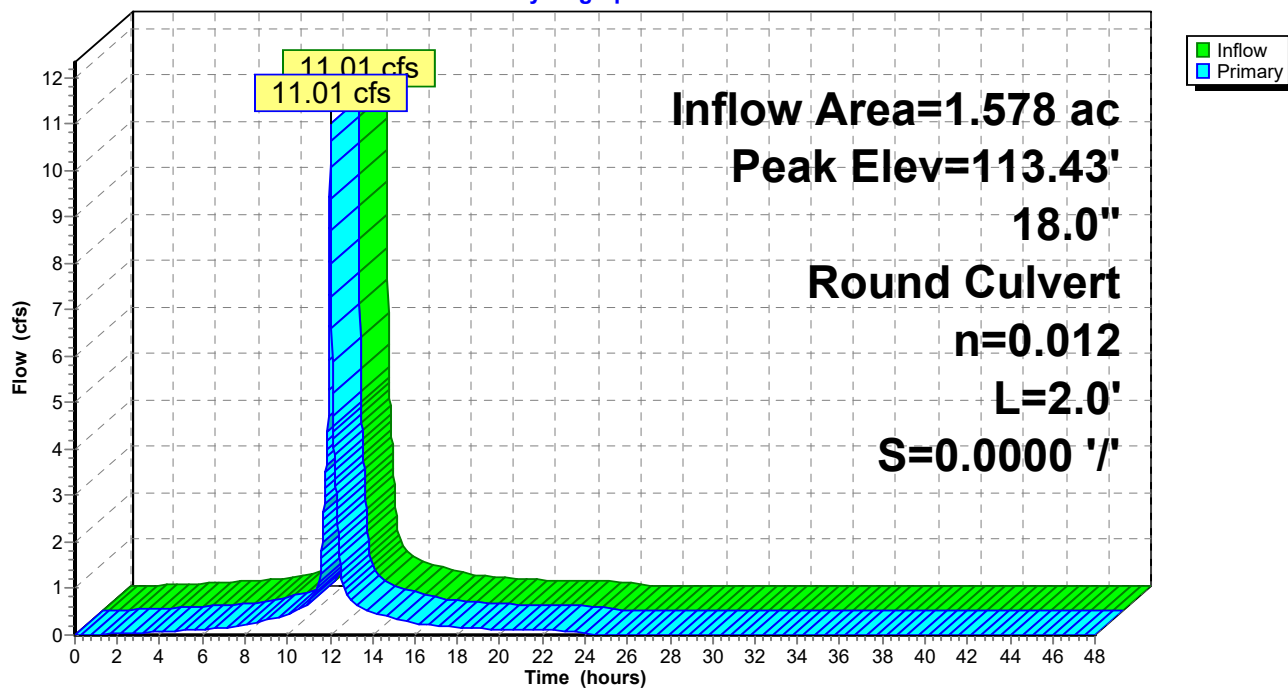
Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 111.00' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=11.01 cfs @ 12.02 hrs HW=113.42' (Free Discharge)

↑1=Culvert (Inlet Controls 11.01 cfs @ 6.23 fps)

Pond DMH-3: DMH-3

Hydrograph



Summary for Pond DMH-4: DMH-4

Inflow Area = 7.377 ac, 81.69% Impervious, Inflow Depth = 4.82" for 25yr event
 Inflow = 36.75 cfs @ 12.04 hrs, Volume= 2.965 af
 Outflow = 36.75 cfs @ 12.04 hrs, Volume= 2.965 af, Atten= 0%, Lag= 0.0 min
 Primary = 36.75 cfs @ 12.04 hrs, Volume= 2.965 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.05' @ 12.04 hrs

Flood Elev= 112.20'

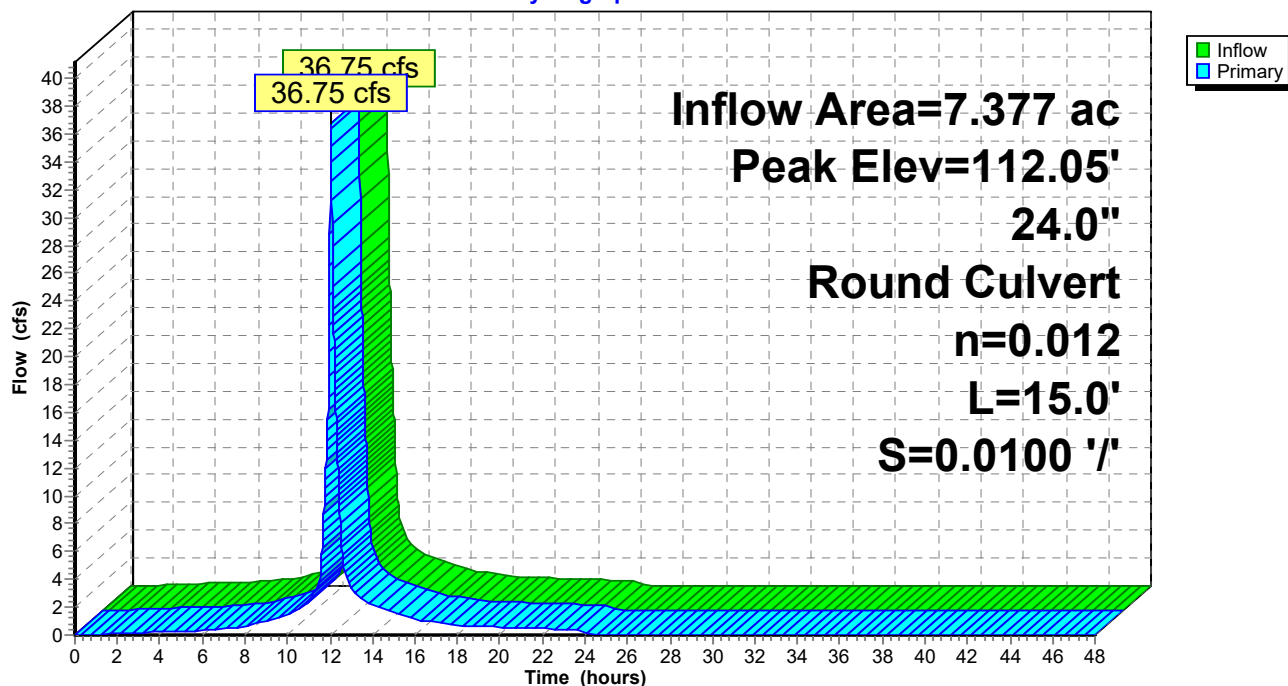
Device	Routing	Invert	Outlet Devices
#1	Primary	105.15'	24.0" Round Culvert L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 105.15' / 105.00' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=36.68 cfs @ 12.04 hrs HW=112.03' (Free Discharge)

↑**1=Culvert** (Inlet Controls 36.68 cfs @ 11.67 fps)

Pond DMH-4: DMH-4

Hydrograph



Summary for Pond OCS-1: STORMTECH SC-740

Inflow Area = 2.273 ac, 93.52% Impervious, Inflow Depth = 5.58" for 25yr event
 Inflow = 15.73 cfs @ 12.02 hrs, Volume= 1.056 af
 Outflow = 4.56 cfs @ 12.28 hrs, Volume= 1.056 af, Atten= 71%, Lag= 15.6 min
 Discarded = 0.78 cfs @ 10.59 hrs, Volume= 0.702 af
 Primary = 3.78 cfs @ 12.28 hrs, Volume= 0.354 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.06' @ 12.28 hrs Surf.Area= 0 sf Storage= 13,147 cf
 Flood Elev= 115.50' Surf.Area= 0 sf Storage= 14,778 cf

Plug-Flow detention time= 44.2 min calculated for 1.056 af (100% of inflow)
 Center-of-Mass det. time= 44.2 min (796.7 - 752.5)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	14,778 cf	Custom Stage Data Listed below

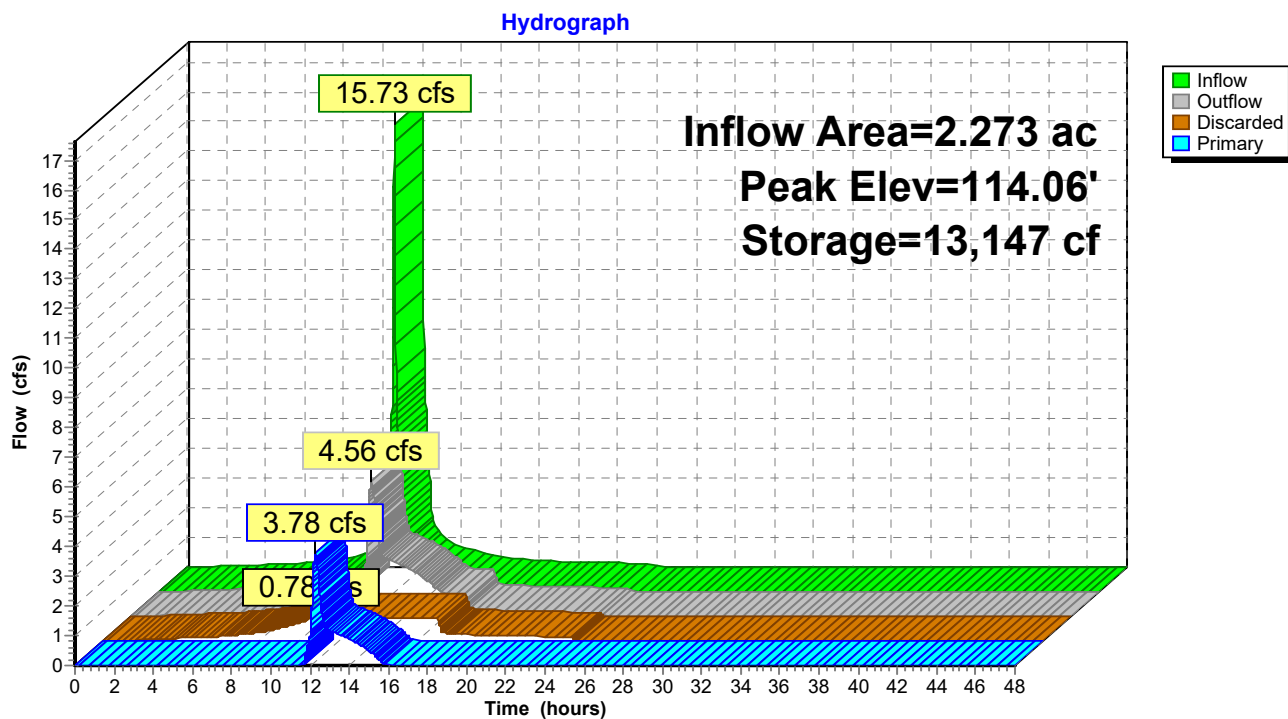
Elevation (feet)	Cum.Store (cubic-feet)
110.50	0
114.50	14,778

Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.47' S= 0.0482 ' S= 0.0482 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	113.50'	13.0" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Discarded	110.50'	0.78 cfs Exfiltration when above 110.50'
#4	Device 1	111.00'	5.5" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.78 cfs @ 10.59 hrs HW=110.55' (Free Discharge)
 ↳ **3=Exfiltration** (Exfiltration Controls 0.78 cfs)

Primary OutFlow Max=3.77 cfs @ 12.28 hrs HW=114.06' (Free Discharge)
 ↳ **1=Culvert** (Passes 3.77 cfs of 12.93 cfs potential flow)
 ↳ ↳ **2=Orifice/Grate** (Orifice Controls 2.44 cfs @ 2.54 fps)
 ↳ ↳ ↳ **4=Orifice/Grate** (Orifice Controls 1.34 cfs @ 8.10 fps)

Pond OCS-1: STORMTECH SC-740



Summary for Pond OCS-2: STORMTECH MC-4500

Inflow Area = 7.377 ac, 81.69% Impervious, Inflow Depth = 4.82" for 25yr event
 Inflow = 36.75 cfs @ 12.04 hrs, Volume= 2.965 af
 Outflow = 3.15 cfs @ 13.06 hrs, Volume= 2.965 af, Atten= 91%, Lag= 61.3 min
 Discarded = 2.61 cfs @ 11.19 hrs, Volume= 2.758 af
 Primary = 0.54 cfs @ 13.06 hrs, Volume= 0.207 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 108.28' @ 13.06 hrs Surf.Area= 0 sf Storage= 50,129 cf

Plug-Flow detention time= 133.8 min calculated for 2.964 af (100% of inflow)
 Center-of-Mass det. time= 133.8 min (905.2 - 771.4)

Volume	Invert	Avail.Storage	Storage Description
#1	104.00'	81,951 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
104.00	0
111.00	81,951

Device	Routing	Invert	Outlet Devices
#1	Primary	105.00'	12.0" Round Culvert L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 105.00' / 103.90' S= 0.0097 ' S= 0.0097 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	105.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	108.00'	3.5" Vert. Orifice/Grate C= 0.600
#4	Discarded	104.00'	2.61 cfs Exfiltration when above 104.00'

Discarded OutFlow Max=2.61 cfs @ 11.19 hrs HW=104.07' (Free Discharge)

↑**4=Exfiltration** (Exfiltration Controls 2.61 cfs)

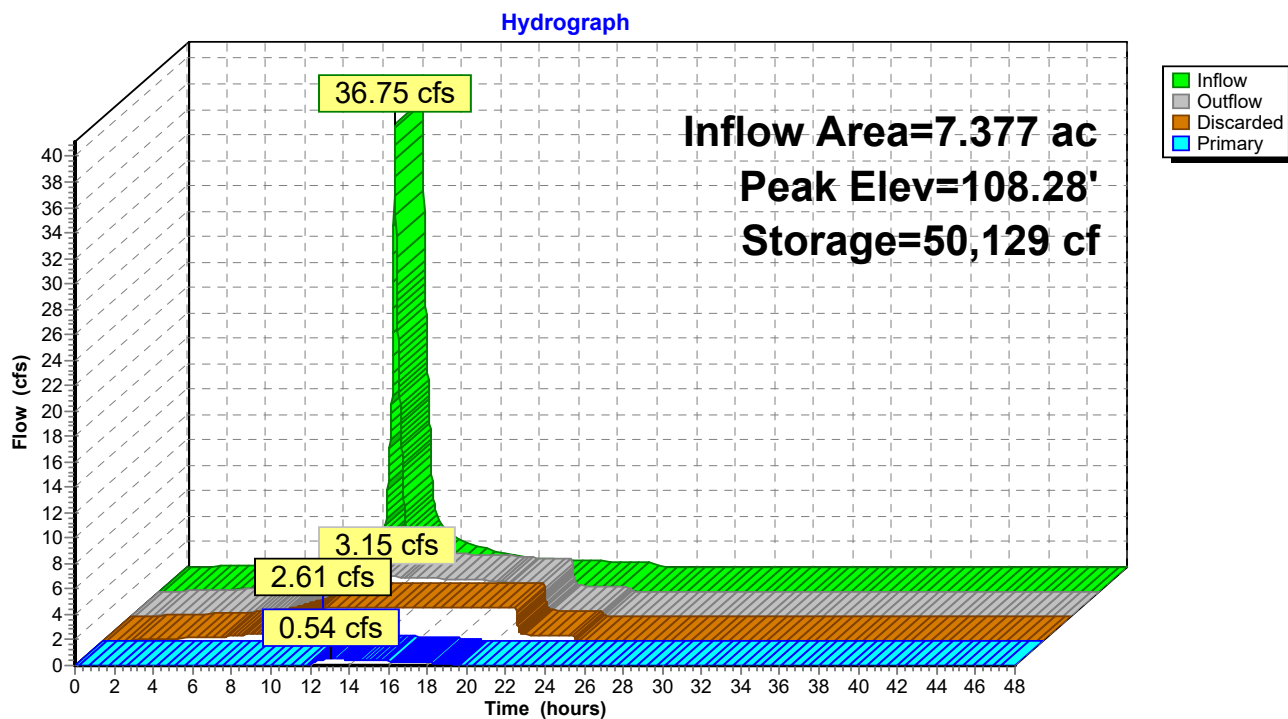
Primary OutFlow Max=0.54 cfs @ 13.06 hrs HW=108.28' (Free Discharge)

↑**1=Culvert** (Passes 0.54 cfs of 5.45 cfs potential flow)

↑**2=Orifice/Grate** (Orifice Controls 0.42 cfs @ 8.55 fps)

↑**3=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.81 fps)

Pond OCS-2: STORMTECH MC-4500



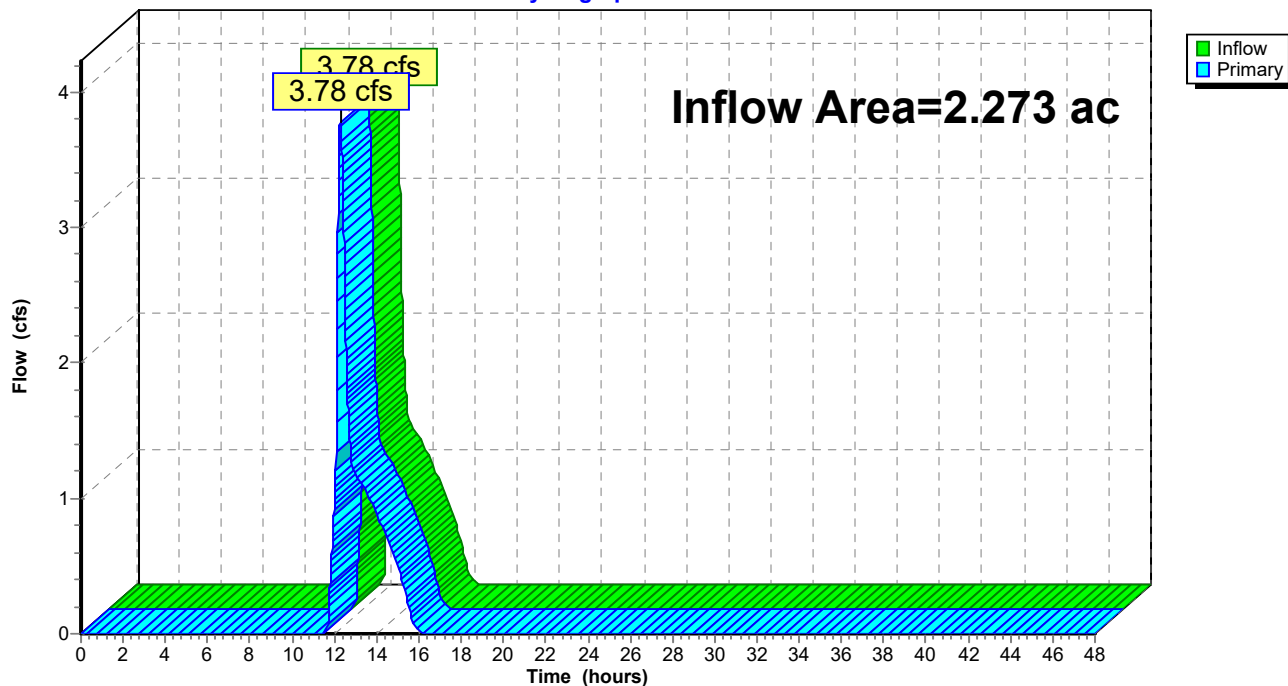
Summary for Link SP-1: SP-1

Inflow Area = 2.273 ac, 93.52% Impervious, Inflow Depth = 1.87" for 25yr event
 Inflow = 3.78 cfs @ 12.28 hrs, Volume= 0.354 af
 Primary = 3.78 cfs @ 12.28 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-1: SP-1

Hydrograph

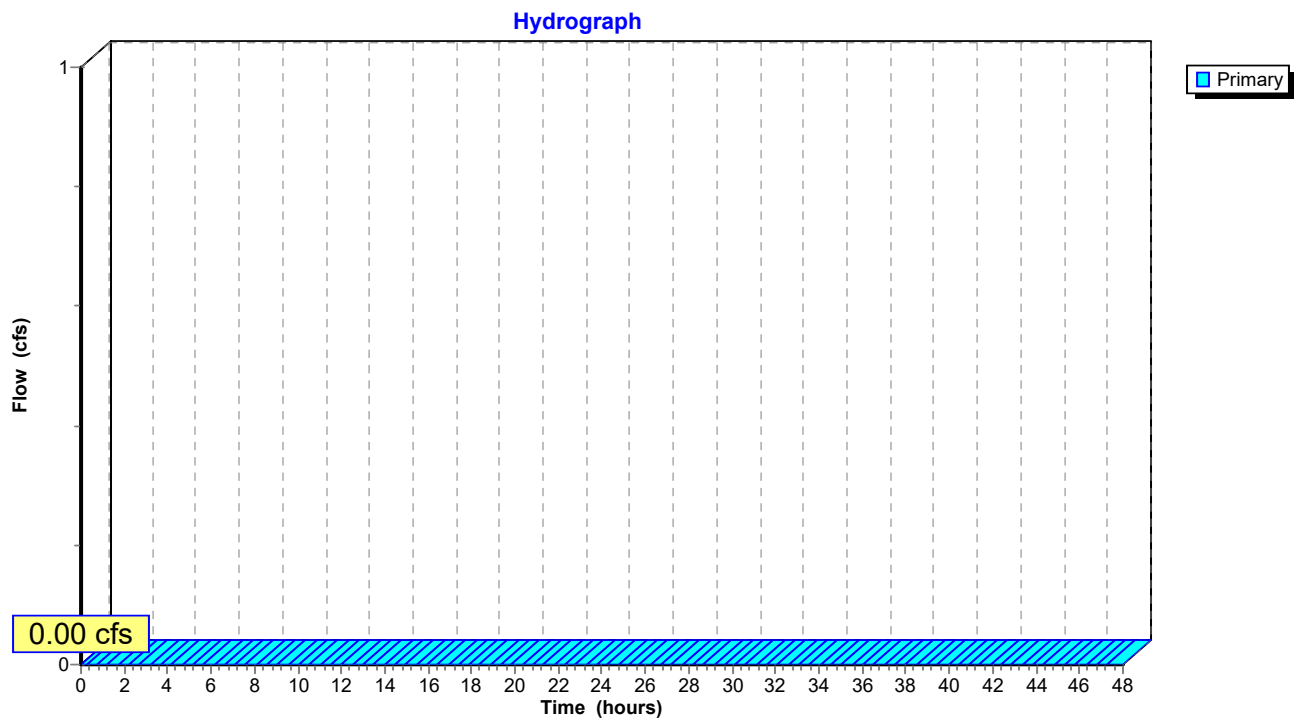


Summary for Link SP-2: SP-2

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-2: SP-2



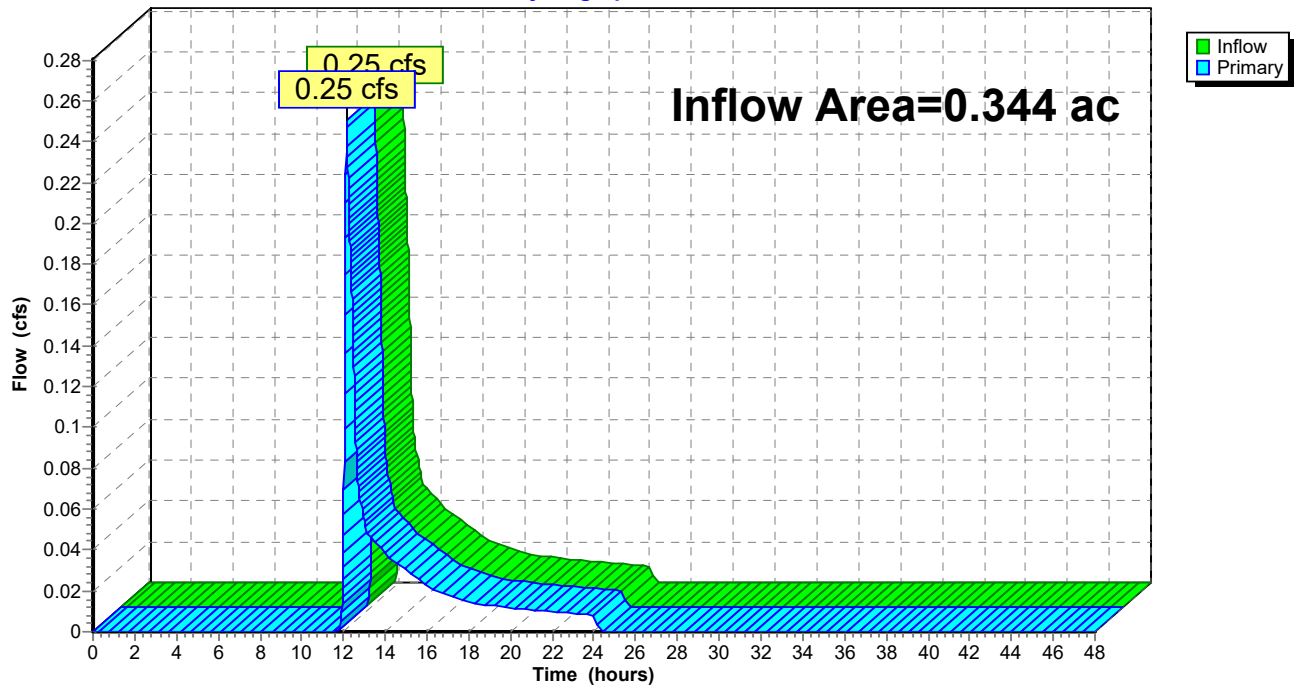
Summary for Link SP-3: SP-3

Inflow Area = 0.344 ac, 0.00% Impervious, Inflow Depth = 0.97" for 25yr event
 Inflow = 0.25 cfs @ 12.15 hrs, Volume= 0.028 af
 Primary = 0.25 cfs @ 12.15 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-3: SP-3

Hydrograph



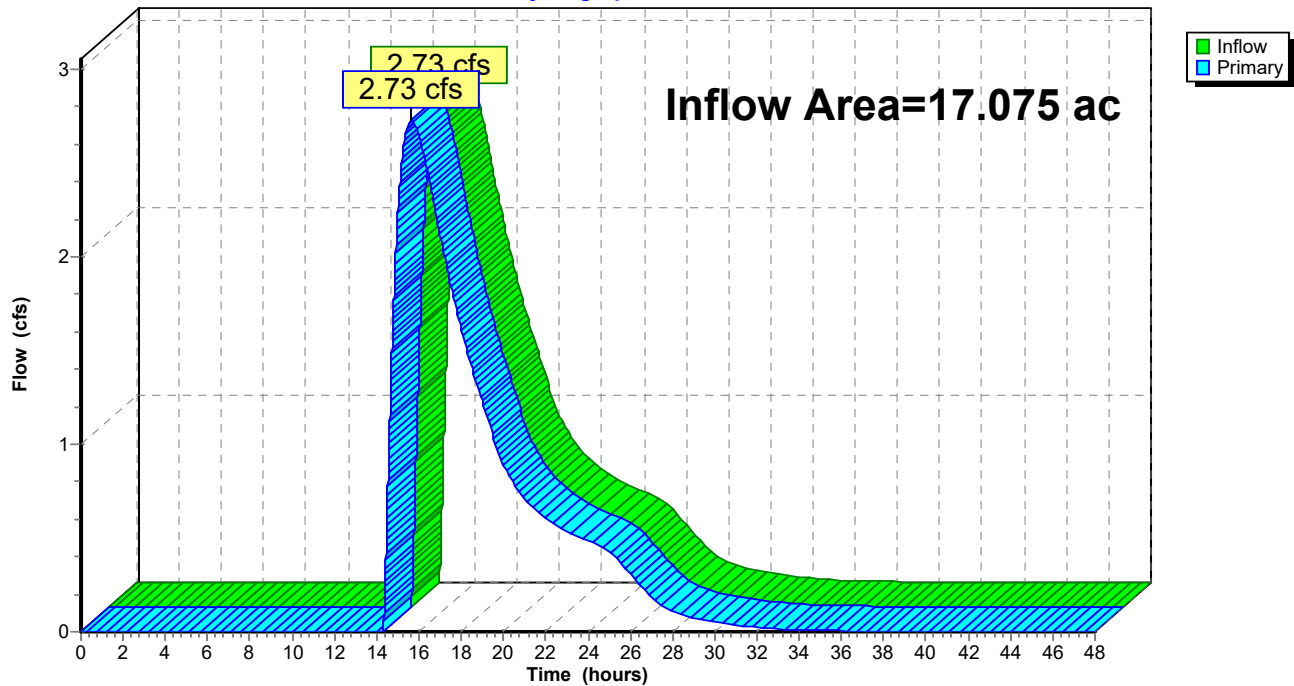
Summary for Link SP-4: SP-4

Inflow Area = 17.075 ac, 35.29% Impervious, Inflow Depth = 0.82" for 25yr event
 Inflow = 2.73 cfs @ 15.63 hrs, Volume= 1.171 af
 Primary = 2.73 cfs @ 15.63 hrs, Volume= 1.171 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-4: SP-4

Hydrograph



Summary for Subcatchment 1S: 1S

Runoff = 0.65 cfs @ 12.02 hrs, Volume= 0.045 af, Depth= 7.09"

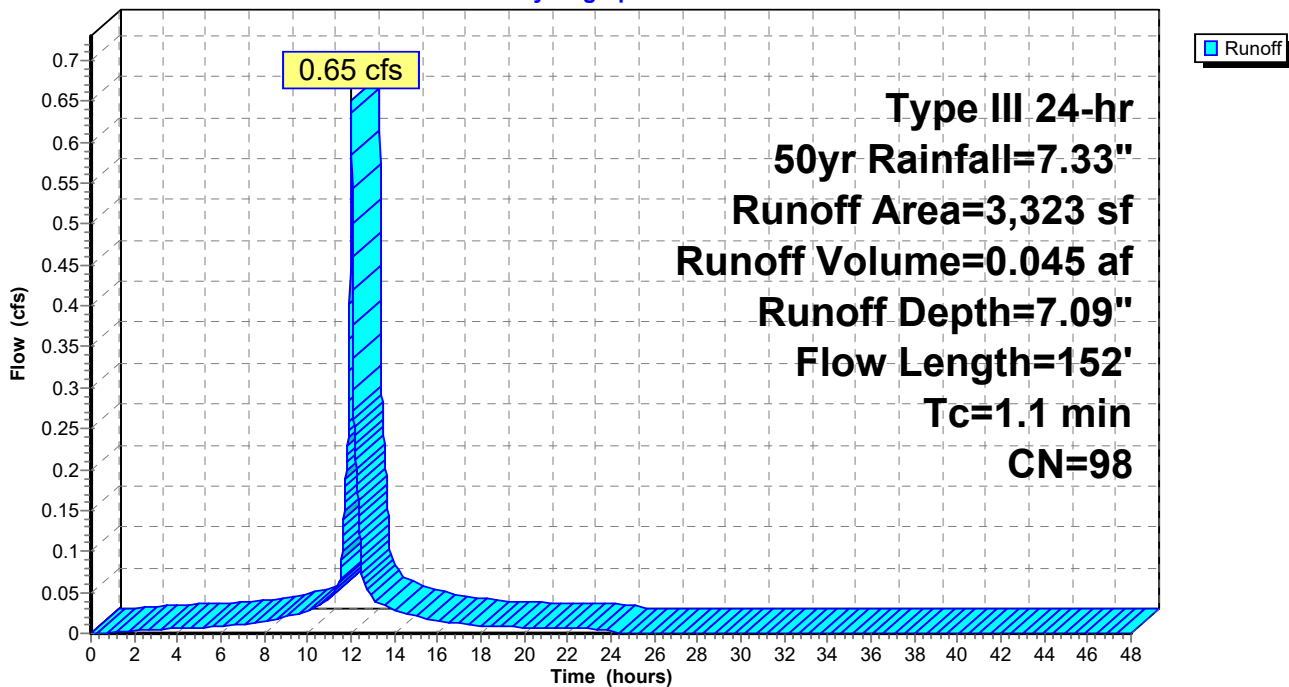
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
3,323	98	Paved parking, HSG B
3,323		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	25	0.0100	0.78		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.6	127	0.0320	3.63		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.1	152	Total			

Subcatchment 1S: 1S

Hydrograph



Summary for Subcatchment 2S: 2S

Runoff = 1.83 cfs @ 12.02 hrs, Volume= 0.127 af, Depth= 7.09"

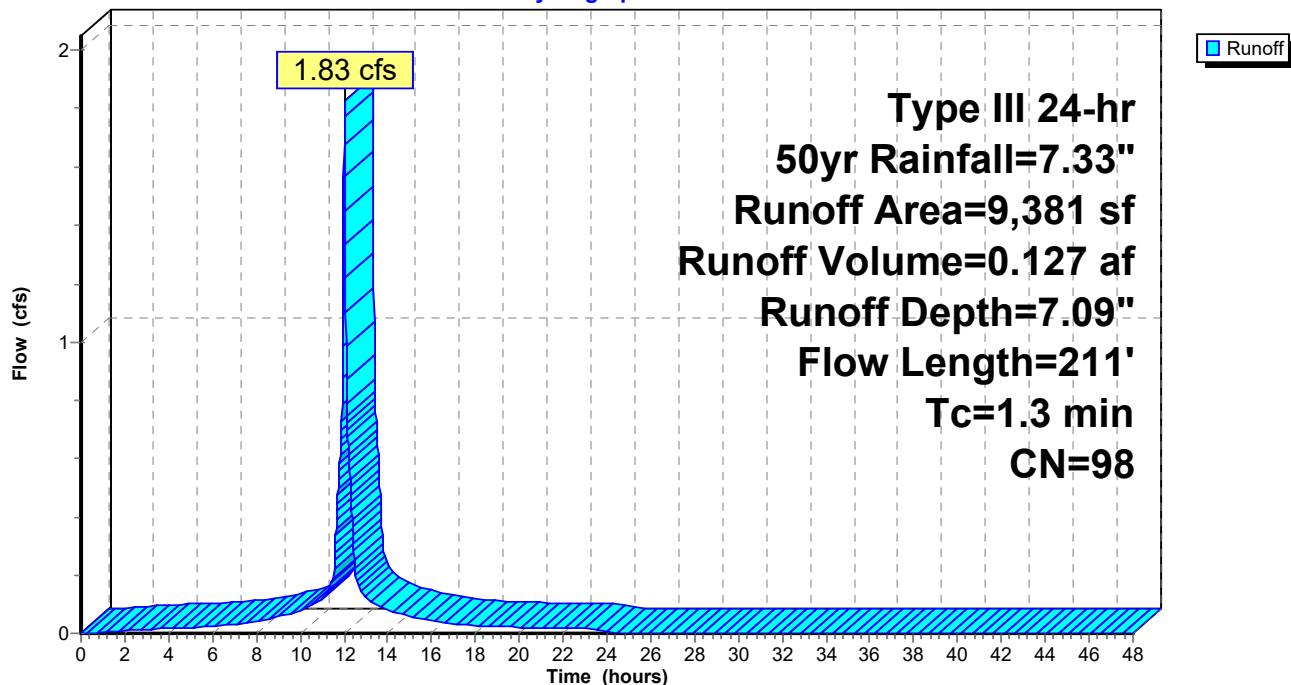
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
9,381	98	Paved parking, HSG B
9,381		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.03		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.9	186	0.0320	3.63		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.3	211	Total			

Subcatchment 2S: 2S

Hydrograph



Summary for Subcatchment 3S: 3S

Runoff = 3.32 cfs @ 12.01 hrs, Volume= 0.210 af, Depth= 6.26"

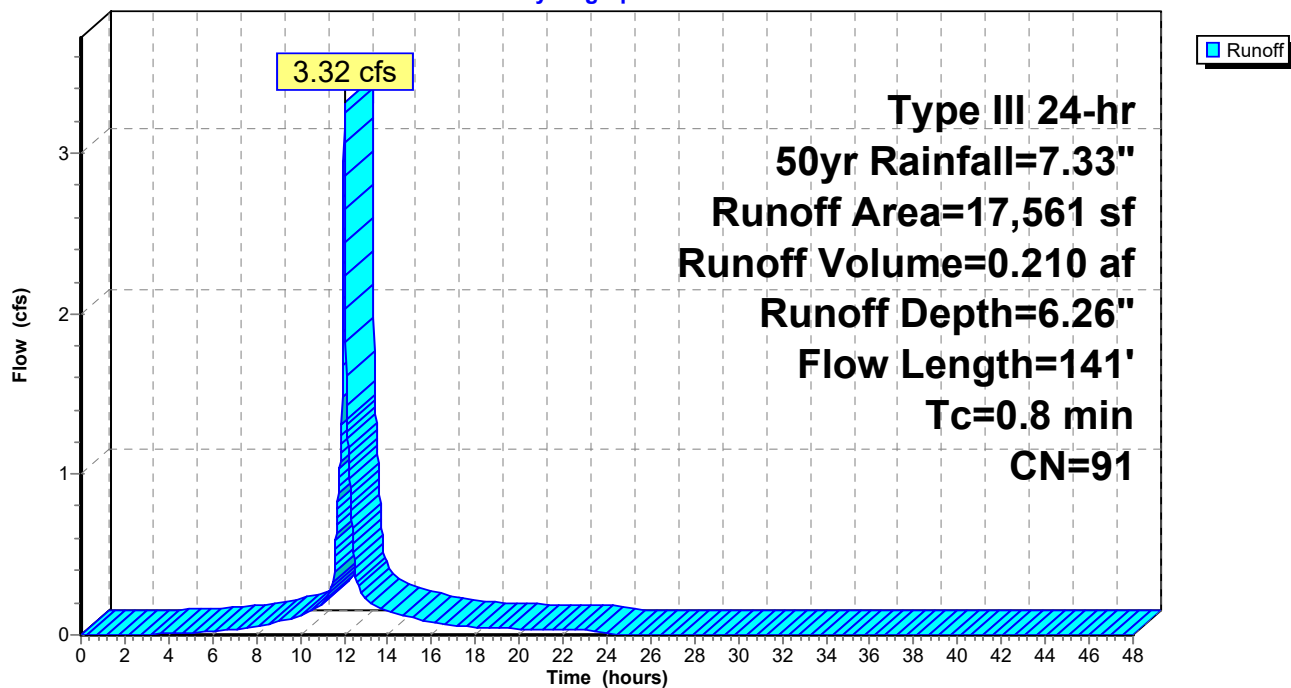
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
3,187	61	>75% Grass cover, Good, HSG B
14,374	98	Paved parking, HSG B
17,561	91	Weighted Average
3,187		18.15% Pervious Area
14,374		81.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	31	0.0500	1.55		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.5	110	0.0300	3.52		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
0.8	141	Total			

Subcatchment 3S: 3S

Hydrograph



Summary for Subcatchment 4S: 4S

Runoff = 5.33 cfs @ 12.02 hrs, Volume= 0.352 af, Depth= 6.62"

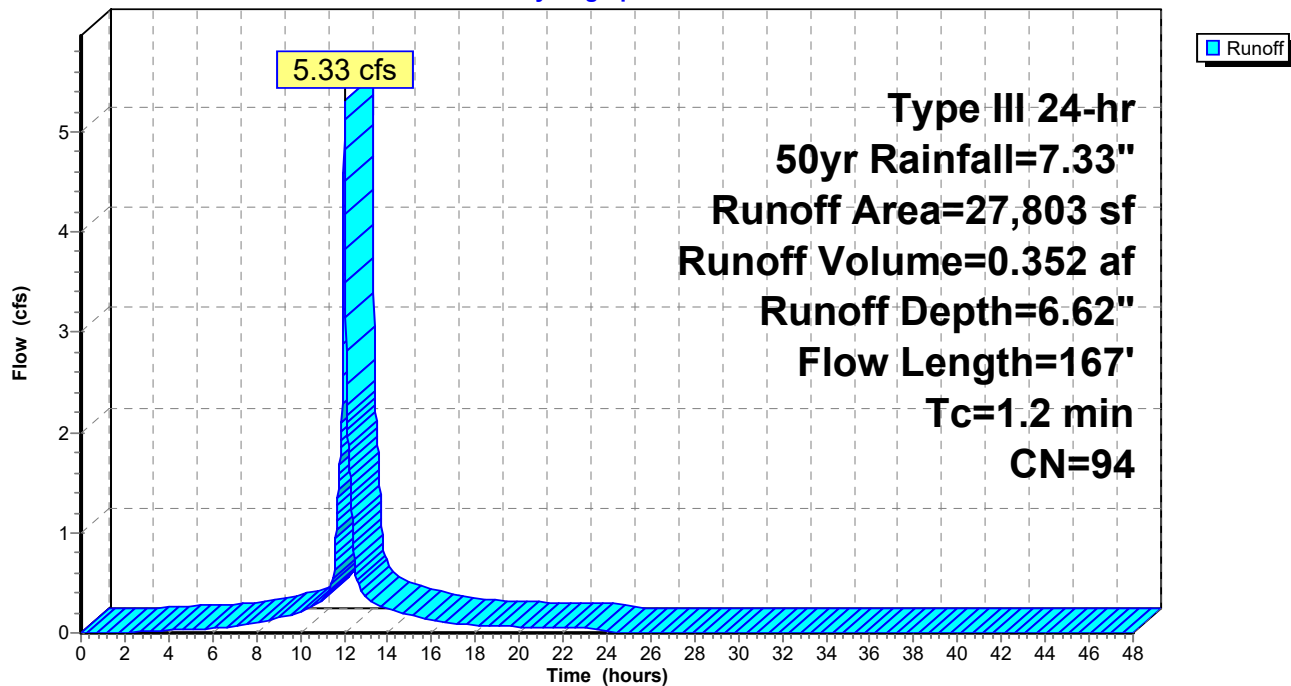
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
24,575	98	Paved parking, HSG B
3,228	61	>75% Grass cover, Good, HSG B
27,803	94	Weighted Average
3,228		11.61% Pervious Area
24,575		88.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	53	0.0400	1.58		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.6	114	0.0250	3.21		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.2	167	Total			

Subcatchment 4S: 4S

Hydrograph



Summary for Subcatchment 5S: 5S

Runoff = 7.98 cfs @ 12.02 hrs, Volume= 0.555 af, Depth= 7.09"

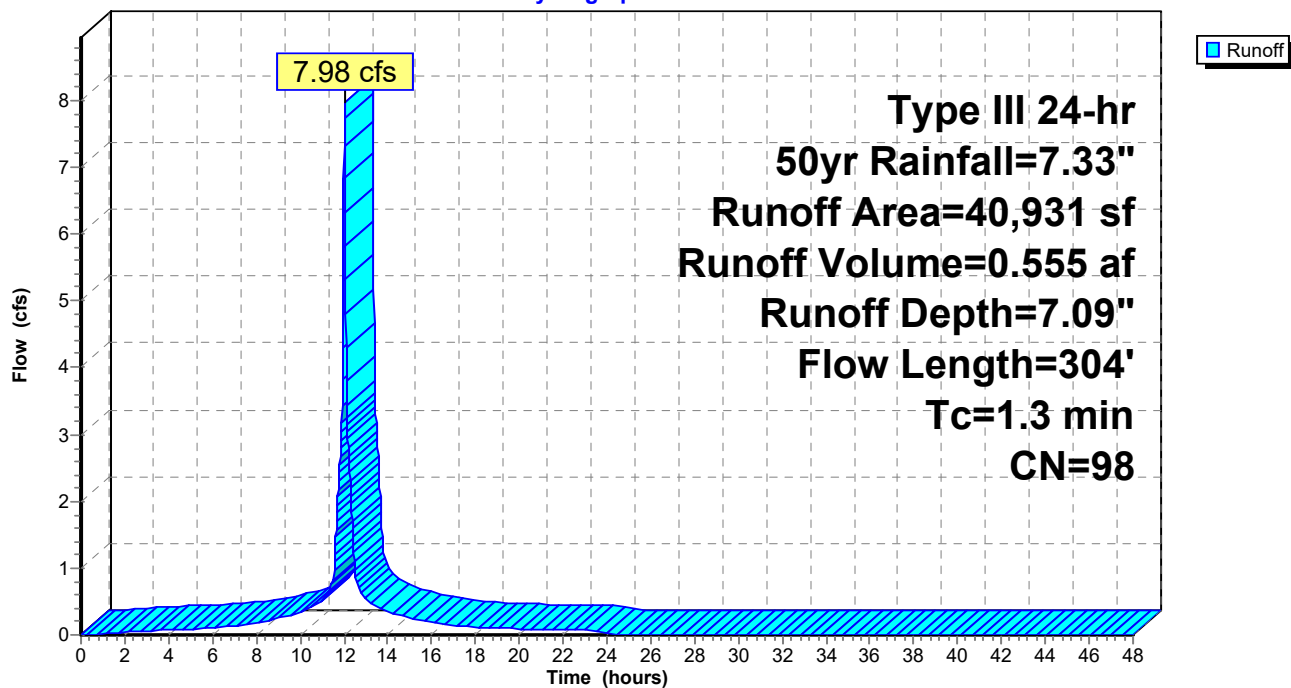
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
40,931	98	Paved parking, HSG B
40,931		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	35	0.1660	8.27		Shallow Concentrated Flow, A-B Paved Kv= 20.3 fps
0.9	154	0.0200	2.87		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
0.3	115	0.0200	6.79	23.76	Channel Flow, C-D Area= 3.5 sf Perim= 14.5' r= 0.24' n= 0.012 Steel, smooth
1.3	304	Total			

Subcatchment 5S: 5S

Hydrograph



Summary for Subcatchment 6S: 6S

Runoff = 2.33 cfs @ 12.02 hrs, Volume= 0.163 af, Depth= 7.09"

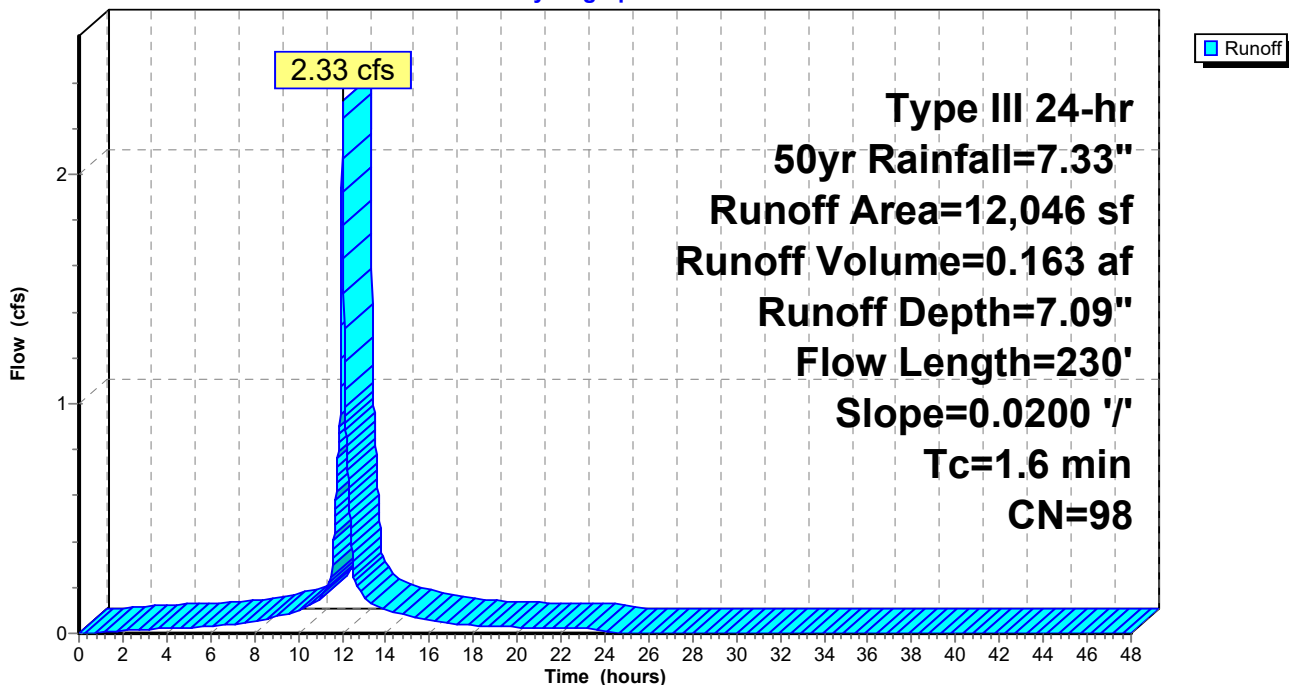
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
12,046	98	Paved parking, HSG B
12,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.03		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.2	205	0.0200	2.87		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.6	230	Total			

Subcatchment 6S: 6S

Hydrograph



Summary for Subcatchment 7S: 7S

Runoff = 7.08 cfs @ 12.02 hrs, Volume= 0.499 af, Depth= 7.09"

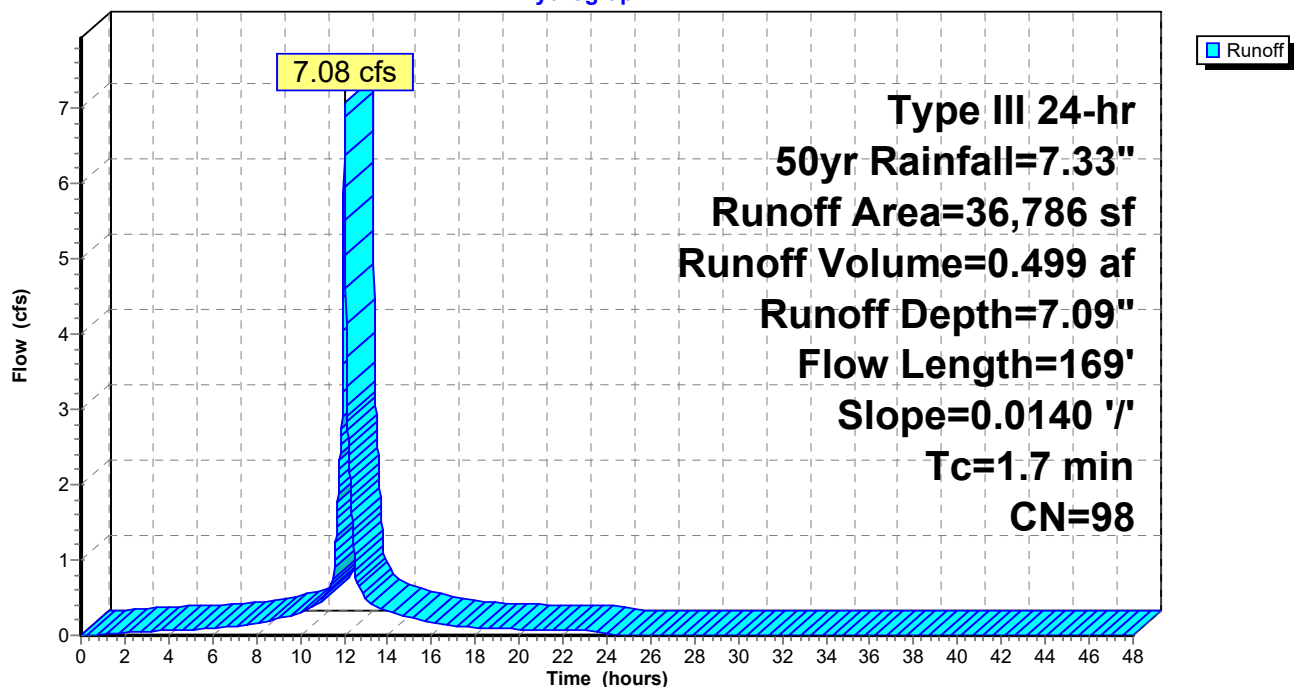
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
36,786	98	Paved parking, HSG B
36,786		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	53	0.0140	1.04		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
0.8	116	0.0140	2.40		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
1.7	169	Total			

Subcatchment 7S: 7S

Hydrograph



Summary for Subcatchment 8S: 8S

Runoff = 11.71 cfs @ 12.03 hrs, Volume= 0.842 af, Depth= 7.09"

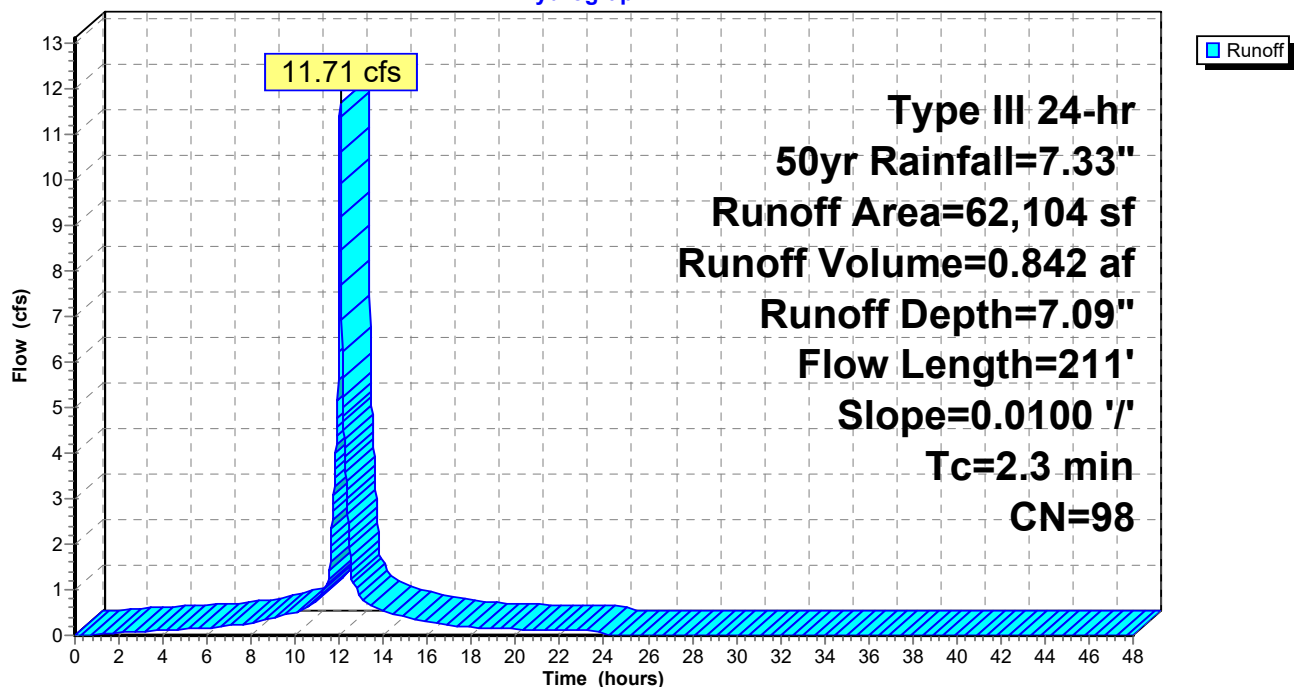
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
62,104	98	Paved parking, HSG B
62,104		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	59	0.0100	0.93		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.13"
1.2	152	0.0100	2.03		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
2.3	211	Total			

Subcatchment 8S: 8S

Hydrograph



Summary for Subcatchment 9S: 9S

Runoff = 6.90 cfs @ 12.04 hrs, Volume= 0.504 af, Depth= 7.09"

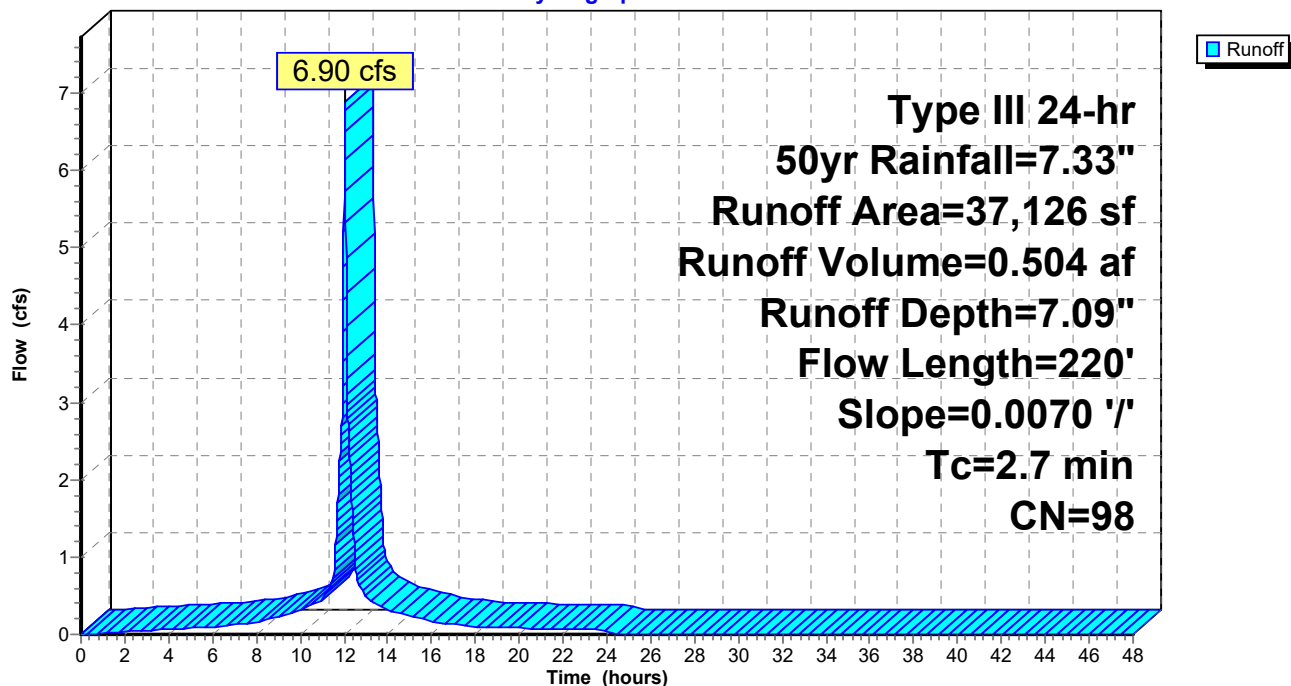
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
14,243	98	Paved parking, HSG A
22,883	98	Paved parking, HSG B
37,126	98	Weighted Average
37,126		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	40	0.0070	0.74		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.13"
1.8	180	0.0070	1.70		Shallow Concentrated Flow, B-C
					Paved Kv= 20.3 fps
2.7	220	Total			

Subcatchment 9S: 9S

Hydrograph



Summary for Subcatchment 10S: 10S

Runoff = 13.11 cfs @ 12.14 hrs, Volume= 1.103 af, Depth= 5.68"

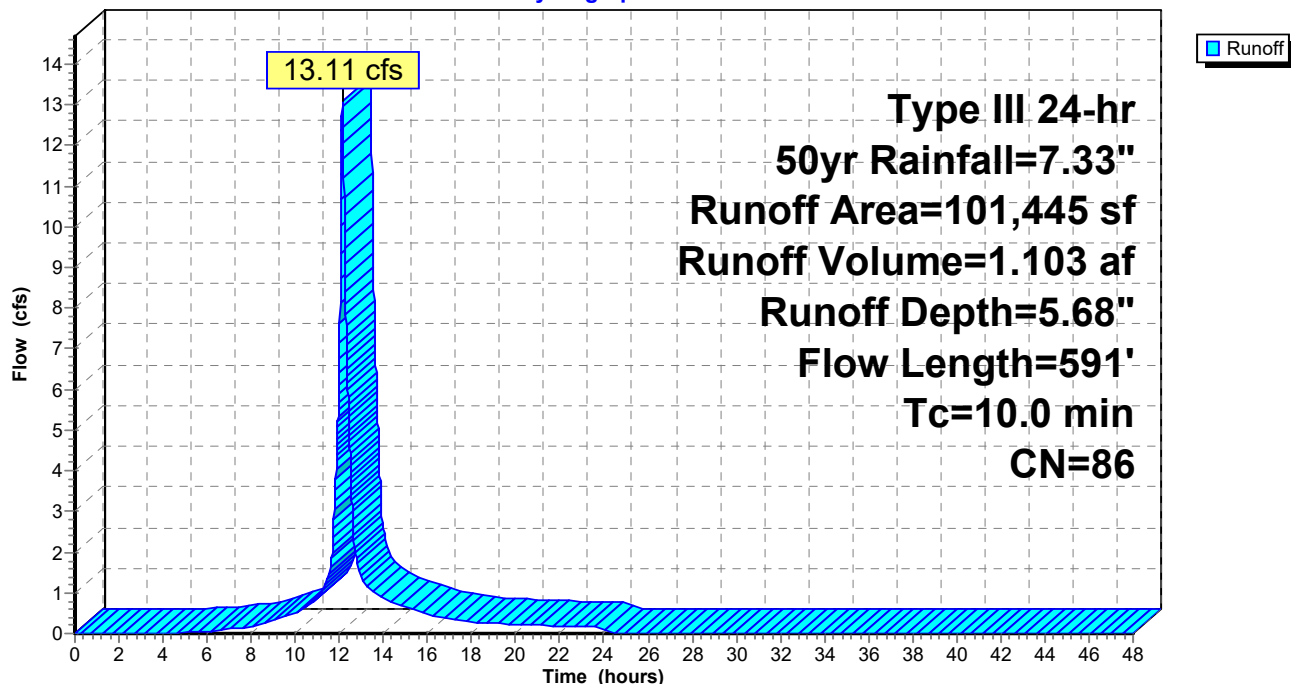
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
2,517	30	Woods, Good, HSG A
49,449	98	Paved parking, HSG A
4,033	55	Woods, Good, HSG B
28,301	98	Paved parking, HSG B
17,145	48	Brush, Good, HSG B
101,445	86	Weighted Average
23,695		23.36% Pervious Area
77,750		76.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	23	0.0500	0.18		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.13"
0.5	68	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
7.4	500	0.0260	1.13		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
10.0	591	Total			

Subcatchment 10S: 10S

Hydrograph



Summary for Subcatchment 11S: 11S

Runoff = 0.48 cfs @ 12.14 hrs, Volume= 0.045 af, Depth= 1.57"

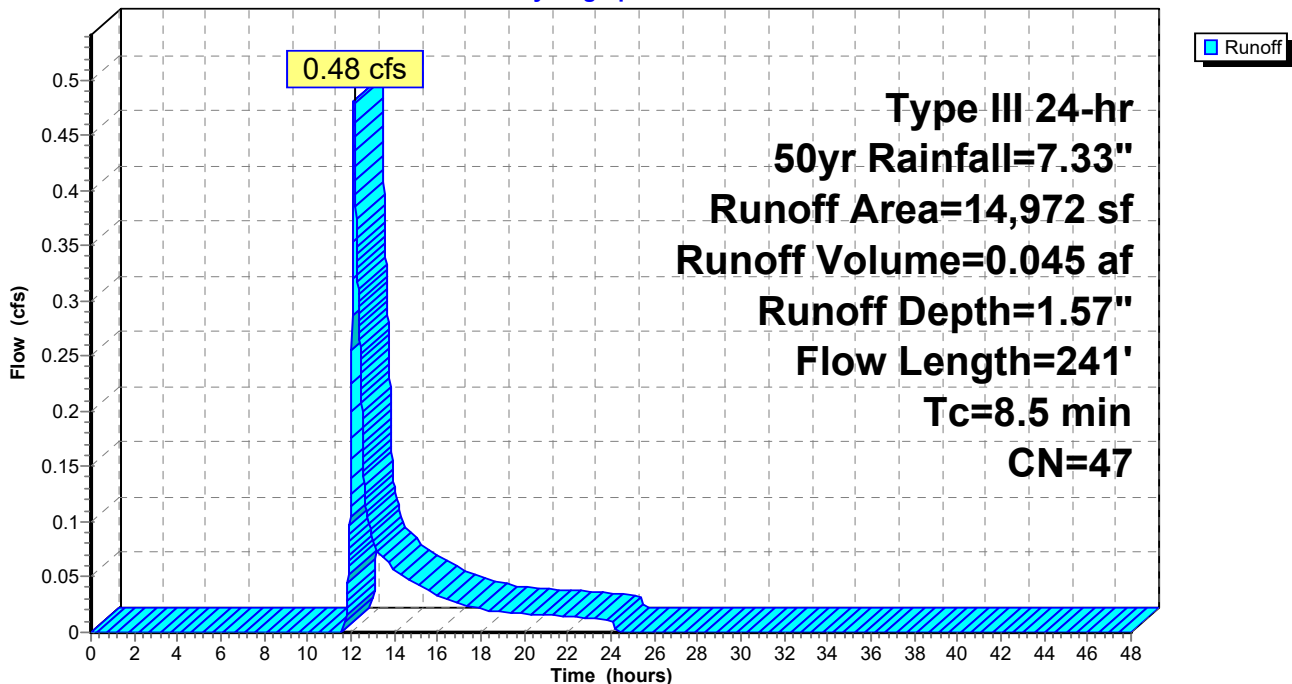
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
14,527	48	Brush, Good, HSG B
445	30	Brush, Good, HSG A
14,972	47	Weighted Average
14,972		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	18	0.3330	0.41		Sheet Flow, A-B
					Range n= 0.130 P2= 3.13"
7.8	223	0.0090	0.47		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
8.5	241	Total			

Subcatchment 11S: 11S

Hydrograph



Summary for Subcatchment 12S: 12S

Runoff = 8.49 cfs @ 13.60 hrs, Volume= 2.462 af, Depth= 3.05"

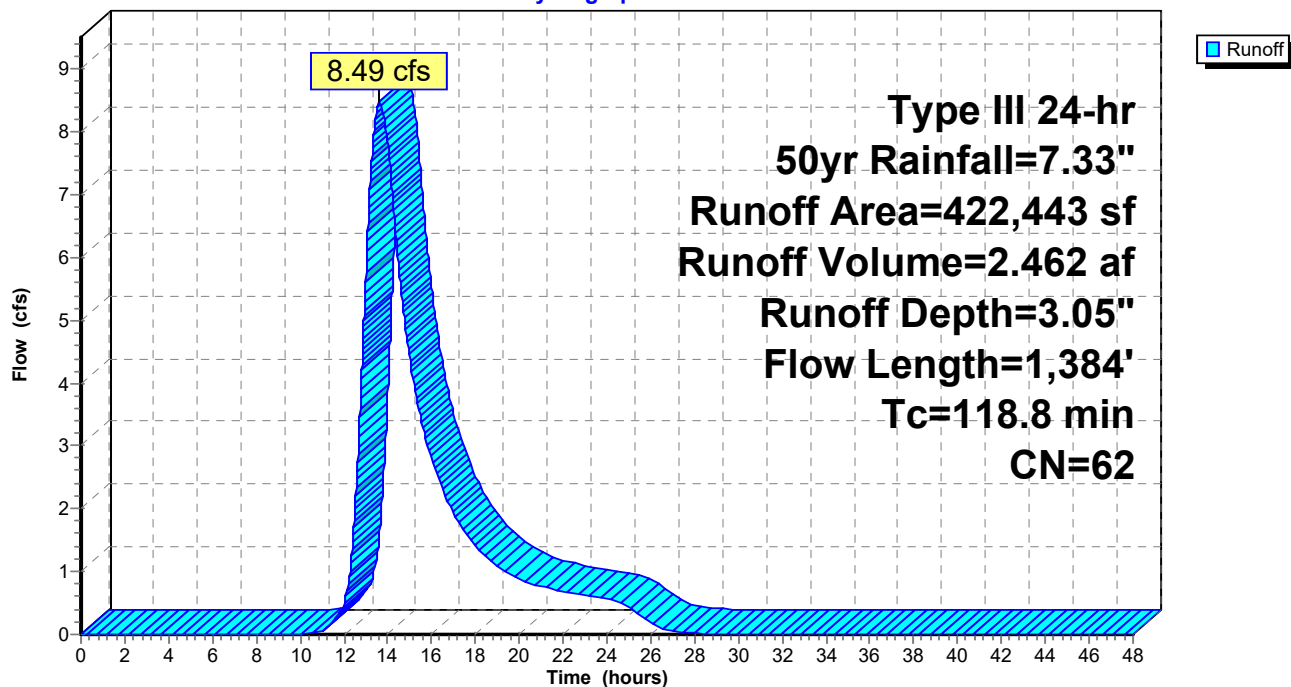
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
17,430	48	Brush, Good, HSG B
247,720	55	Woods, Good, HSG B
64,382	70	Woods, Good, HSG C
92,911	77	Woods, Good, HSG D
422,443	62	Weighted Average
422,443		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.9	200	0.0700	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.13"
78.9	1,184	0.0100	0.25		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
118.8	1,384	Total			

Subcatchment 12S: 12S

Hydrograph



Summary for Subcatchment 13S: 13S

Runoff = 9.41 cfs @ 12.03 hrs, Volume= 0.580 af, Depth= 4.22"

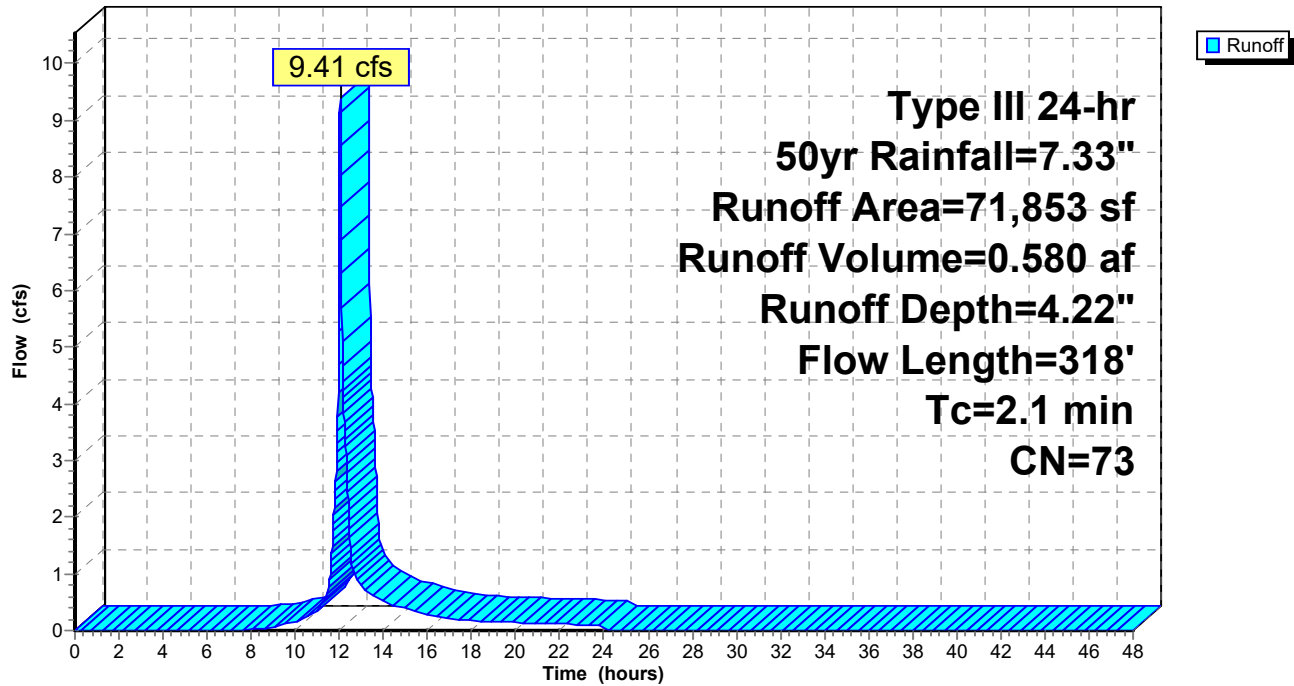
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 50yr Rainfall=7.33"

Area (sf)	CN	Description
29,040	98	Paved parking, HSG A
7,665	98	Paved parking, HSG B
5,954	30	Woods, Good, HSG A
6,687	55	Woods, Good, HSG B
22,507	48	Brush, Good, HSG B
71,853	73	Weighted Average
35,148		48.92% Pervious Area
36,705		51.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	99	0.0200	1.36		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.13"
0.8	162	0.0250	3.21		Shallow Concentrated Flow, B-C Paved Kv= 20.3 fps
0.1	57	0.0530	6.74	47.20	Channel Flow, C-D Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.040 Earth, cobble bottom, clean sides
2.1	318	Total			

Subcatchment 13S: 13S

Hydrograph



Summary for Pond 3P: Wetland

Inflow Area = 17.075 ac, 35.29% Impervious, Inflow Depth = 2.02" for 50yr event
 Inflow = 9.39 cfs @ 13.60 hrs, Volume= 2.878 af
 Outflow = 5.73 cfs @ 14.80 hrs, Volume= 2.103 af, Atten= 39%, Lag= 71.7 min
 Primary = 5.73 cfs @ 14.80 hrs, Volume= 2.103 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.27' @ 14.80 hrs Surf.Area= 60,789 sf Storage= 49,042 cf

Plug-Flow detention time= 212.7 min calculated for 2.102 af (73% of inflow)
 Center-of-Mass det. time= 119.2 min (1,066.9 - 947.7)

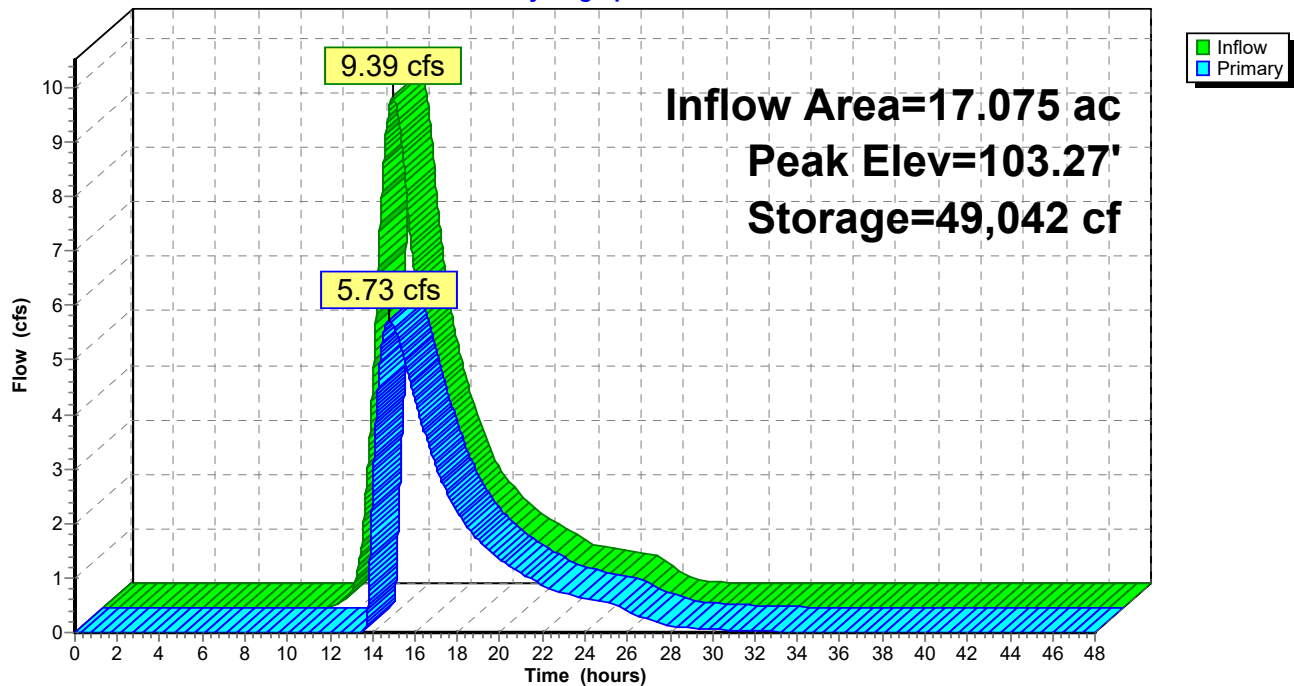
Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	104,029 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	15,000	0	0
102.50	34,300	12,325	12,325
103.50	68,600	51,450	63,775
104.00	92,415	40,254	104,029

Device	Routing	Invert	Outlet Devices
#1	Primary	103.00'	15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.73 cfs @ 14.80 hrs HW=103.27' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 5.73 cfs @ 1.40 fps)

Pond 3P: Wetland

Hydrograph



Summary for Pond CB-1: CB-1

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 7.09" for 50yr event
 Inflow = 0.65 cfs @ 12.02 hrs, Volume= 0.045 af
 Outflow = 0.65 cfs @ 12.02 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.65 cfs @ 12.02 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

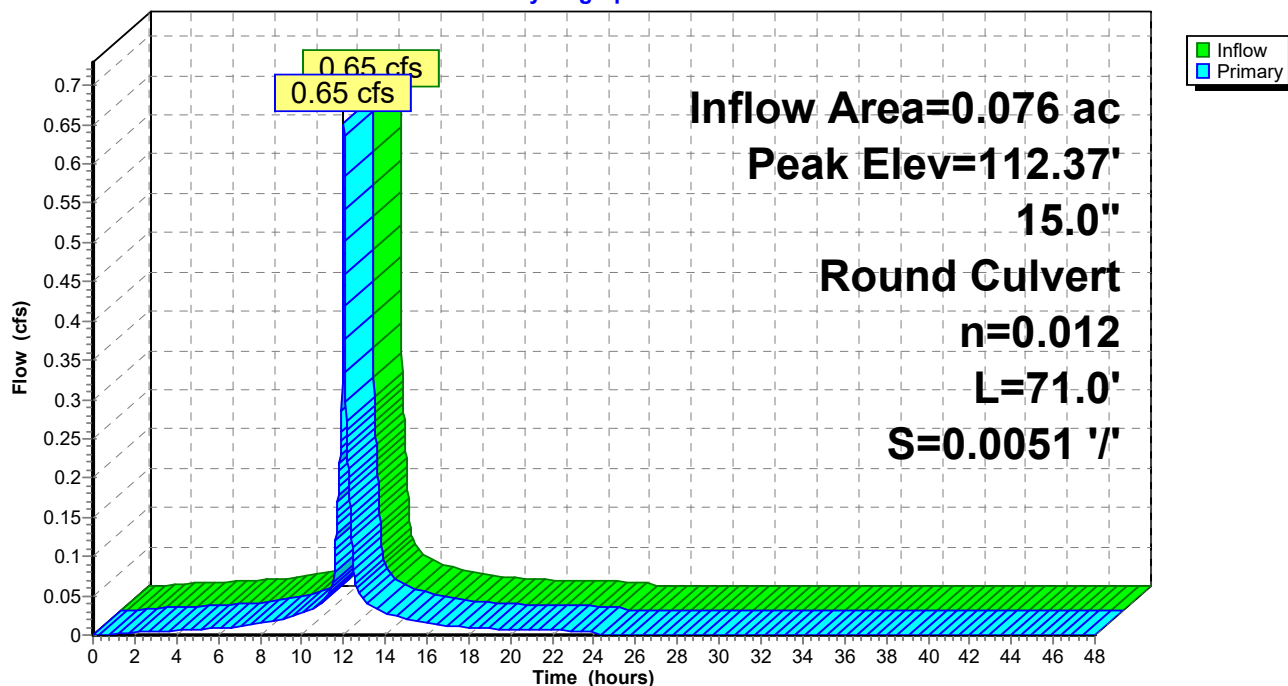
Peak Elev= 112.37' @ 12.02 hrs

Flood Elev= 114.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	15.0" Round Culvert L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 111.59' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.65 cfs @ 12.02 hrs HW=112.37' (Free Discharge)

1=Culvert (Barrel Controls 0.65 cfs @ 2.64 fps)

Pond CB-1: CB-1**Hydrograph**

Summary for Pond CB-10: CB-10

Inflow Area = 5.728 ac, 90.50% Impervious, Inflow Depth = 6.52" for 50yr event
 Inflow = 36.21 cfs @ 12.04 hrs, Volume= 3.111 af
 Outflow = 36.21 cfs @ 12.04 hrs, Volume= 3.111 af, Atten= 0%, Lag= 0.0 min
 Primary = 36.21 cfs @ 12.04 hrs, Volume= 3.111 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 113.43' @ 12.04 hrs

Flood Elev= 110.30'

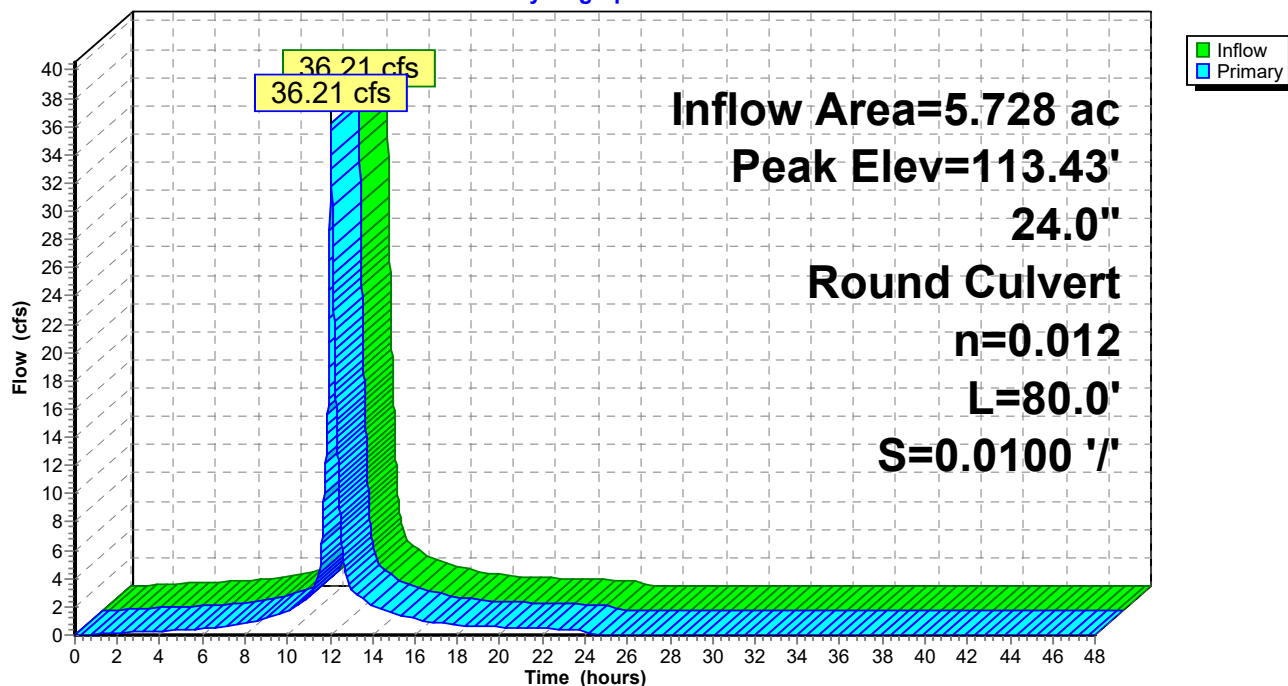
Device	Routing	Invert	Outlet Devices
#1	Primary	106.70'	24.0" Round Culvert L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.70' / 105.90' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=36.16 cfs @ 12.04 hrs HW=113.42' (Free Discharge)

↑**1=Culvert** (Inlet Controls 36.16 cfs @ 11.51 fps)

Pond CB-10: CB-10

Hydrograph



Summary for Pond CB-11: CB-11

Inflow Area = 1.650 ac, 51.08% Impervious, Inflow Depth = 4.22" for 50yr event
 Inflow = 9.41 cfs @ 12.03 hrs, Volume= 0.580 af
 Outflow = 9.41 cfs @ 12.03 hrs, Volume= 0.580 af, Atten= 0%, Lag= 0.0 min
 Primary = 9.41 cfs @ 12.03 hrs, Volume= 0.580 af

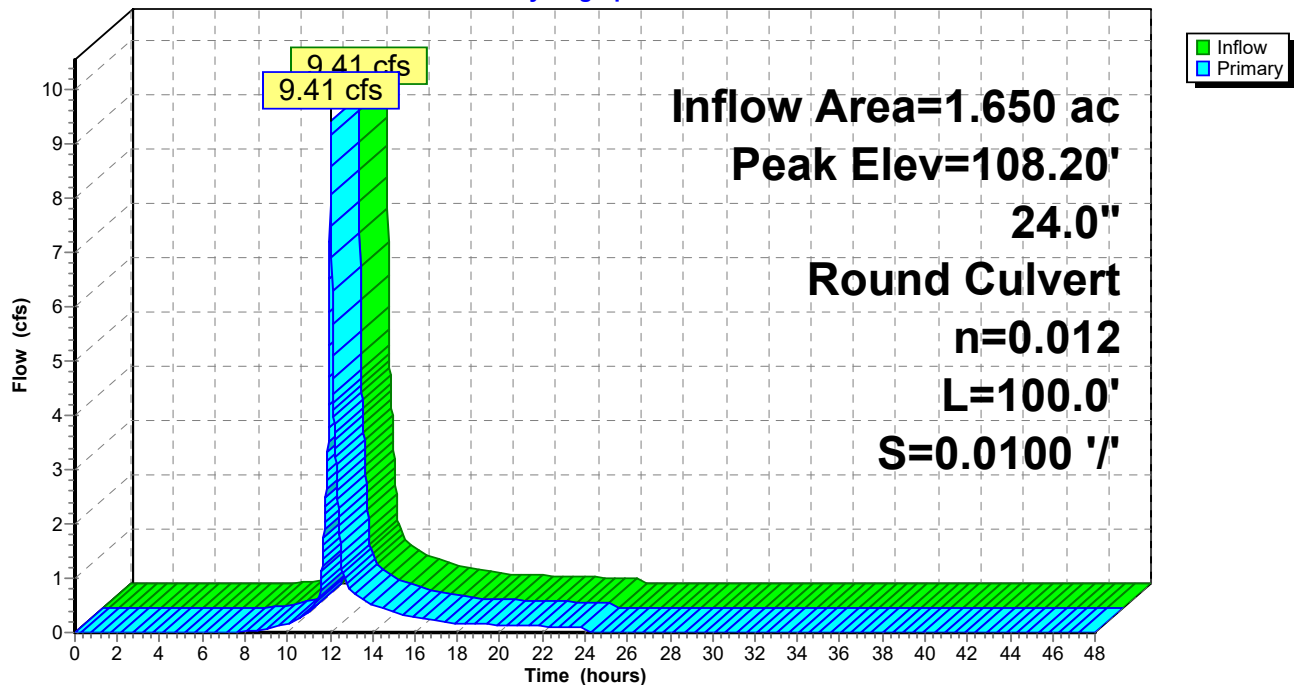
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 108.20' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	106.80'	24.0" Round Culvert L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.80' / 105.80' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=9.37 cfs @ 12.03 hrs HW=108.19' (Free Discharge)
 1=Culvert (Inlet Controls 9.37 cfs @ 4.02 fps)

Pond CB-11: CB-11

Hydrograph



Summary for Pond CB-2: CB-2

Inflow Area = 0.292 ac, 100.00% Impervious, Inflow Depth = 7.09" for 50yr event
 Inflow = 2.48 cfs @ 12.02 hrs, Volume= 0.172 af
 Outflow = 2.48 cfs @ 12.02 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.48 cfs @ 12.02 hrs, Volume= 0.172 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.41' @ 12.02 hrs

Flood Elev= 114.50'

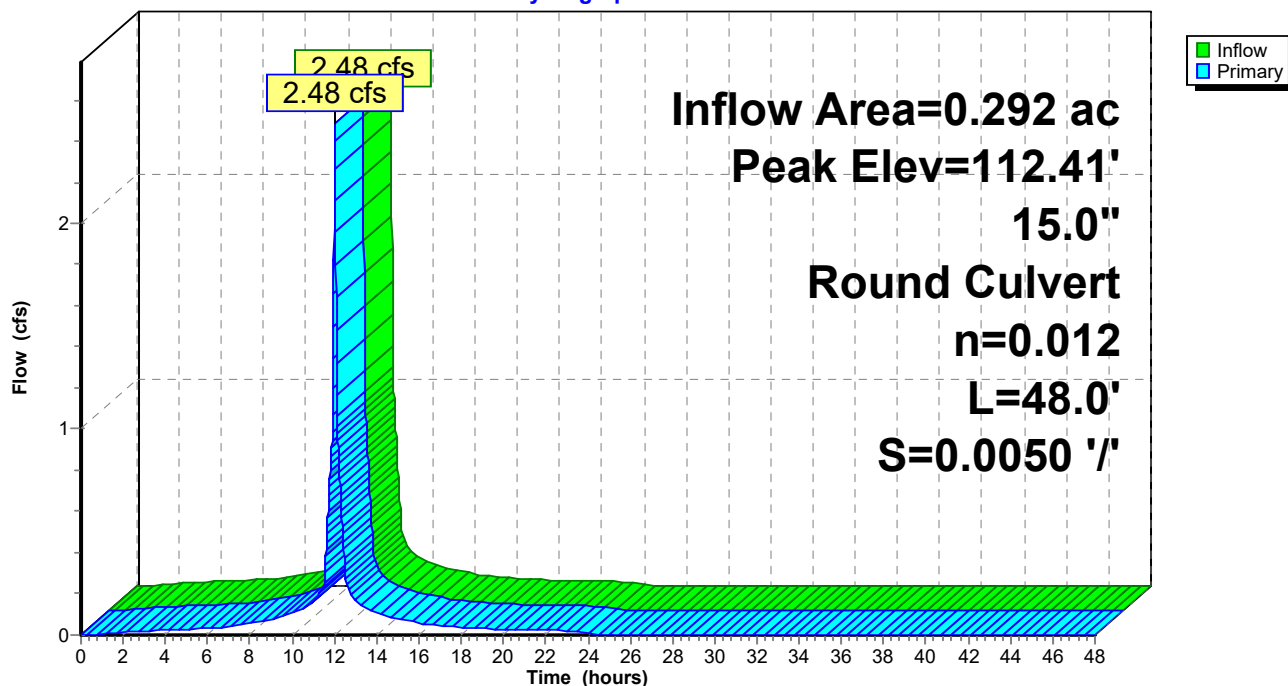
Device	Routing	Invert	Outlet Devices
#1	Primary	111.49'	15.0" Round Culvert L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.49' / 111.25' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.47 cfs @ 12.02 hrs HW=112.41' (Free Discharge)

1=Culvert (Barrel Controls 2.47 cfs @ 3.56 fps)

Pond CB-2: CB-2

Hydrograph



Summary for Pond CB-3: CB-3

Inflow Area = 0.695 ac, 89.47% Impervious, Inflow Depth = 6.61" for 50yr event
 Inflow = 5.78 cfs @ 12.01 hrs, Volume= 0.383 af
 Outflow = 5.78 cfs @ 12.01 hrs, Volume= 0.383 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.78 cfs @ 12.01 hrs, Volume= 0.383 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.62' @ 12.01 hrs

Flood Elev= 113.80'

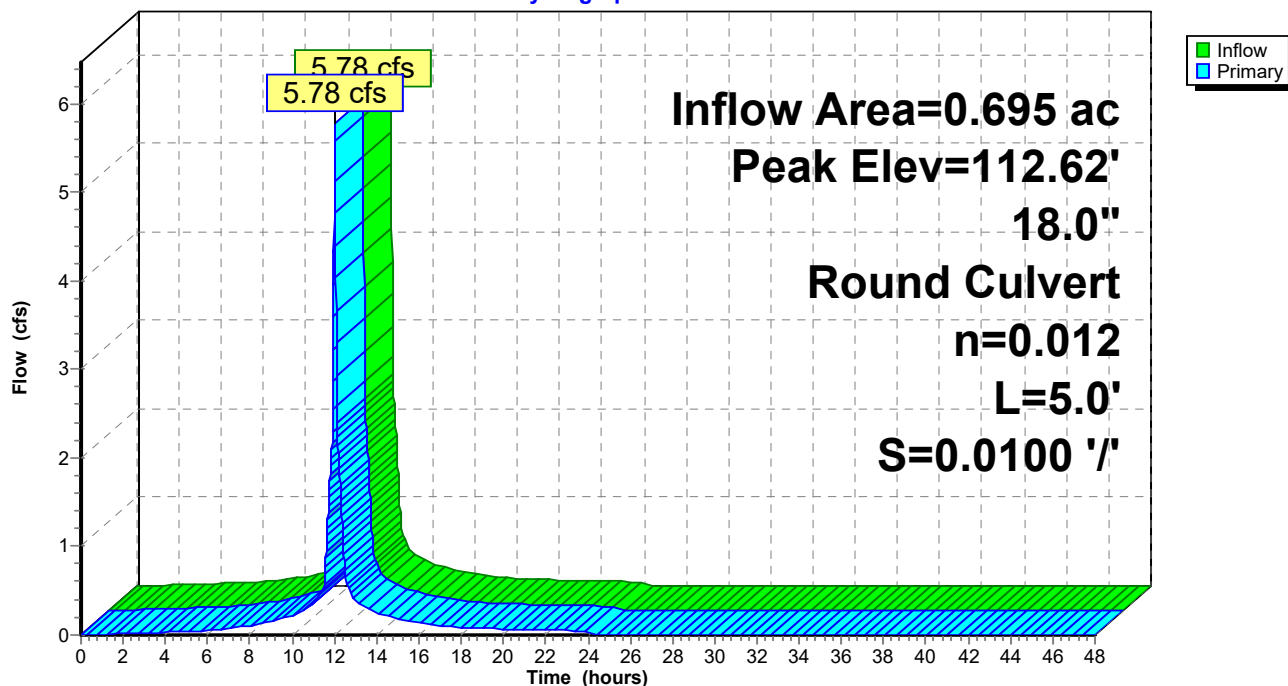
Device	Routing	Invert	Outlet Devices
#1	Primary	111.15'	18.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.15' / 111.10' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.74 cfs @ 12.01 hrs HW=112.61' (Free Discharge)

1=Culvert (Barrel Controls 5.74 cfs @ 4.14 fps)

Pond CB-3: CB-3

Hydrograph



Summary for Pond CB-4: CB-4

Inflow Area = 1.578 ac, 95.30% Impervious, Inflow Depth = 6.90" for 50yr event
 Inflow = 13.31 cfs @ 12.02 hrs, Volume= 0.907 af
 Outflow = 13.31 cfs @ 12.02 hrs, Volume= 0.907 af, Atten= 0%, Lag= 0.0 min
 Primary = 13.31 cfs @ 12.02 hrs, Volume= 0.907 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.15' @ 12.02 hrs

Flood Elev= 115.50'

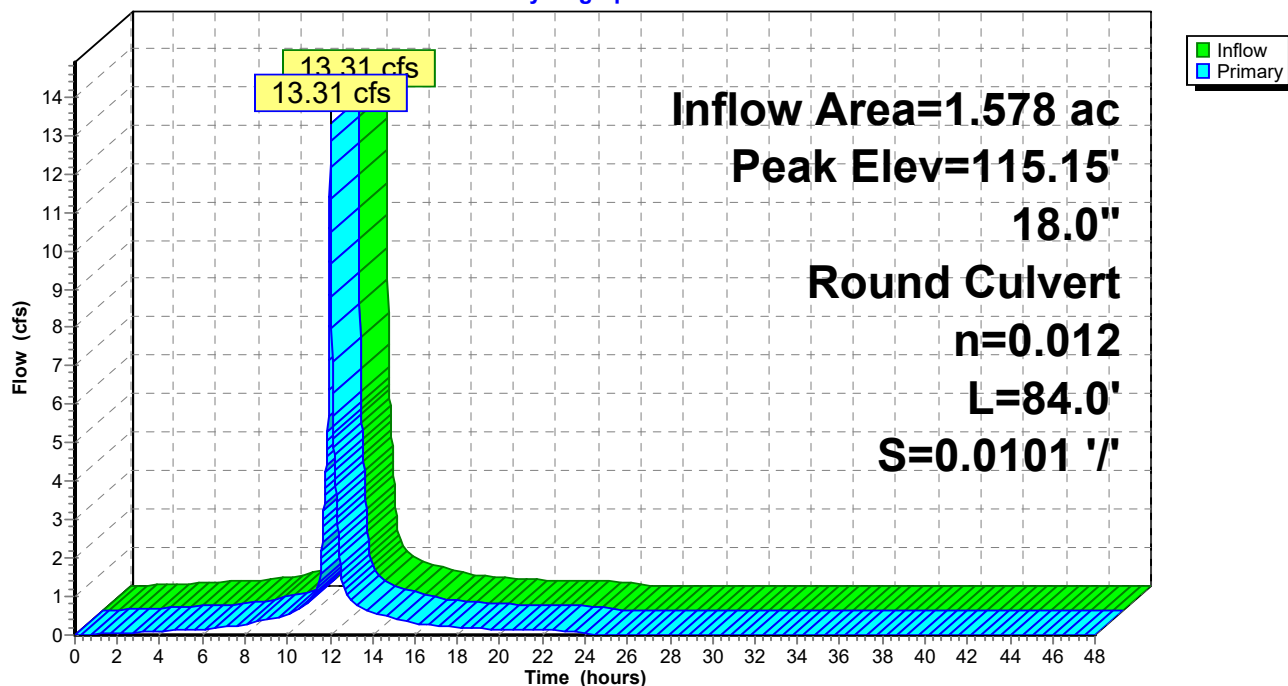
Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	18.0" Round Culvert L= 84.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 111.10' S= 0.0101 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=13.27 cfs @ 12.02 hrs HW=115.13' (Free Discharge)

↑1=Culvert (Inlet Controls 13.27 cfs @ 7.51 fps)

Pond CB-4: CB-4

Hydrograph



Summary for Pond CB-5: CB-5

Inflow Area = 0.940 ac, 100.00% Impervious, Inflow Depth = 7.09" for 50yr event
 Inflow = 7.98 cfs @ 12.02 hrs, Volume= 0.555 af
 Outflow = 7.98 cfs @ 12.02 hrs, Volume= 0.555 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.98 cfs @ 12.02 hrs, Volume= 0.555 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 116.38' @ 12.02 hrs

Flood Elev= 117.10'

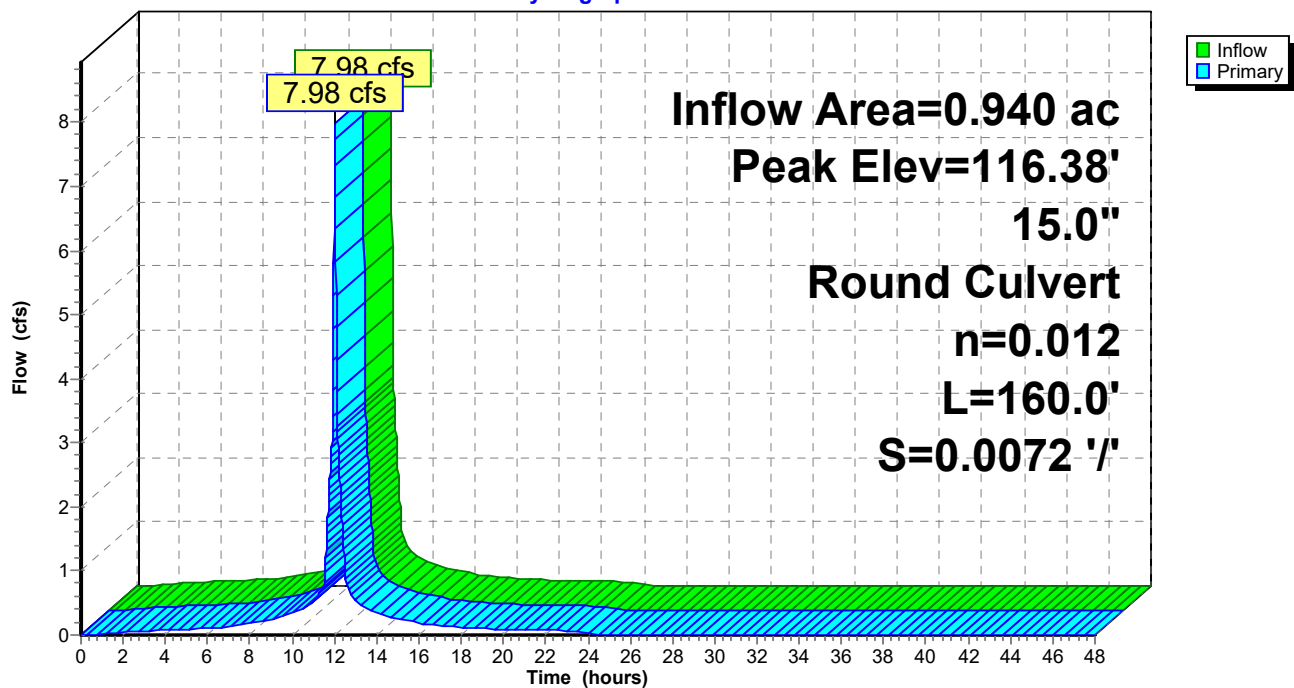
Device	Routing	Invert	Outlet Devices
#1	Primary	113.20'	15.0" Round Culvert L= 160.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 113.20' / 112.05' S= 0.0072 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=7.97 cfs @ 12.02 hrs HW=116.36' (Free Discharge)

1=Culvert (Barrel Controls 7.97 cfs @ 6.49 fps)

Pond CB-5: CB-5

Hydrograph



Summary for Pond CB-6: CB-6

Inflow Area = 0.277 ac, 100.00% Impervious, Inflow Depth = 7.09" for 50yr event
 Inflow = 2.33 cfs @ 12.02 hrs, Volume= 0.163 af
 Outflow = 2.33 cfs @ 12.02 hrs, Volume= 0.163 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.33 cfs @ 12.02 hrs, Volume= 0.163 af

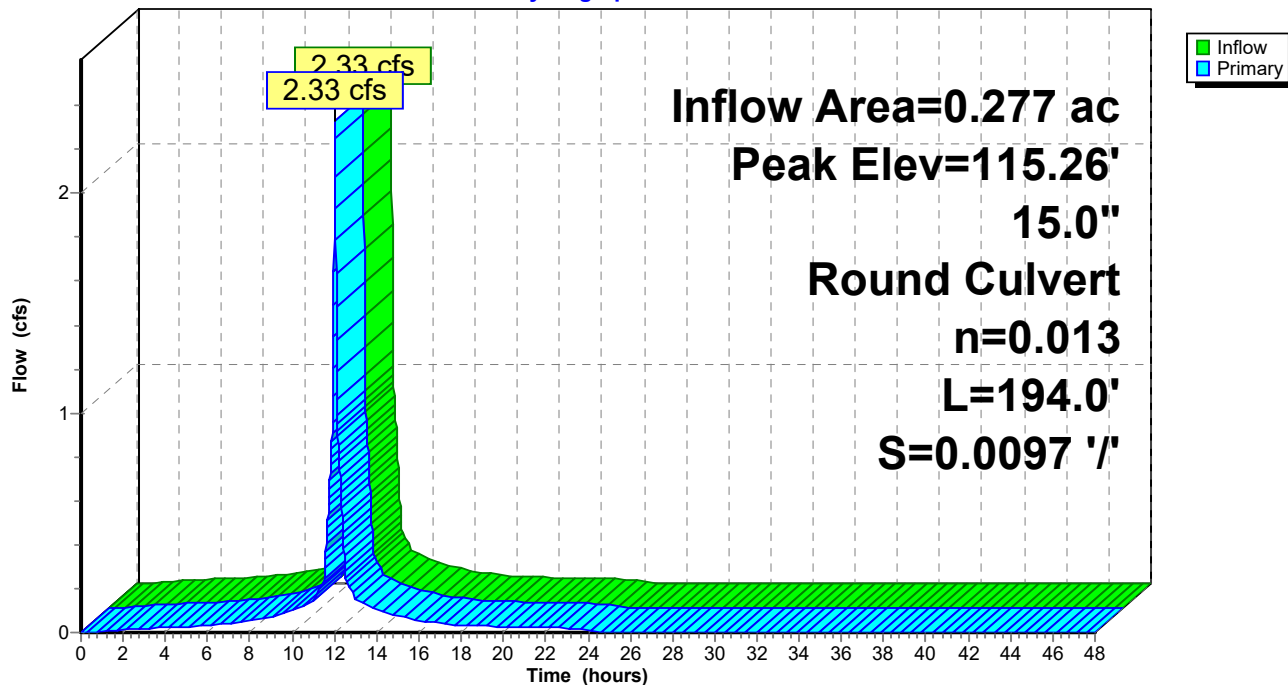
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.26' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	114.50'	15.0" Round Culvert L= 194.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.50' / 112.61' S= 0.0097 ' /' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.32 cfs @ 12.02 hrs HW=115.26' (Free Discharge)

↑**1=Culvert** (Inlet Controls 2.32 cfs @ 2.97 fps)

Pond CB-6: CB-6**Hydrograph**

Summary for Pond CB-7: CB-7

Inflow Area = 3.399 ac, 100.00% Impervious, Inflow Depth = 7.09" for 50yr event
 Inflow = 27.85 cfs @ 12.03 hrs, Volume= 2.008 af
 Outflow = 27.85 cfs @ 12.03 hrs, Volume= 2.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 27.85 cfs @ 12.03 hrs, Volume= 2.008 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 117.35' @ 12.03 hrs

Flood Elev= 118.10'

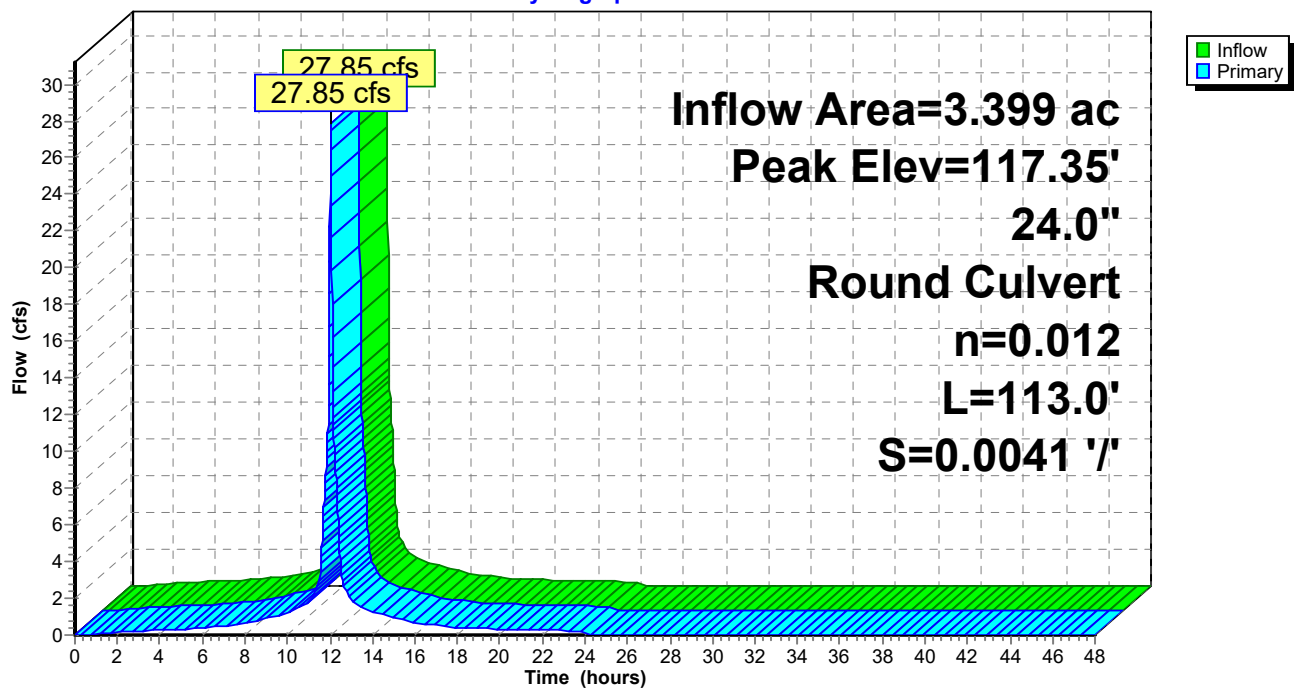
Device	Routing	Invert	Outlet Devices
#1	Primary	112.51'	24.0" Round Culvert L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 112.51' / 112.05' S= 0.0041 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=27.81 cfs @ 12.03 hrs HW=117.34' (Free Discharge)

1=Culvert (Barrel Controls 27.81 cfs @ 8.85 fps)

Pond CB-7: CB-7

Hydrograph



Summary for Pond CB-8: CB-8

Inflow Area = 2.278 ac, 100.00% Impervious, Inflow Depth = 7.09" for 50yr event
 Inflow = 18.59 cfs @ 12.03 hrs, Volume= 1.346 af
 Outflow = 18.59 cfs @ 12.03 hrs, Volume= 1.346 af, Atten= 0%, Lag= 0.0 min
 Primary = 18.59 cfs @ 12.03 hrs, Volume= 1.346 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

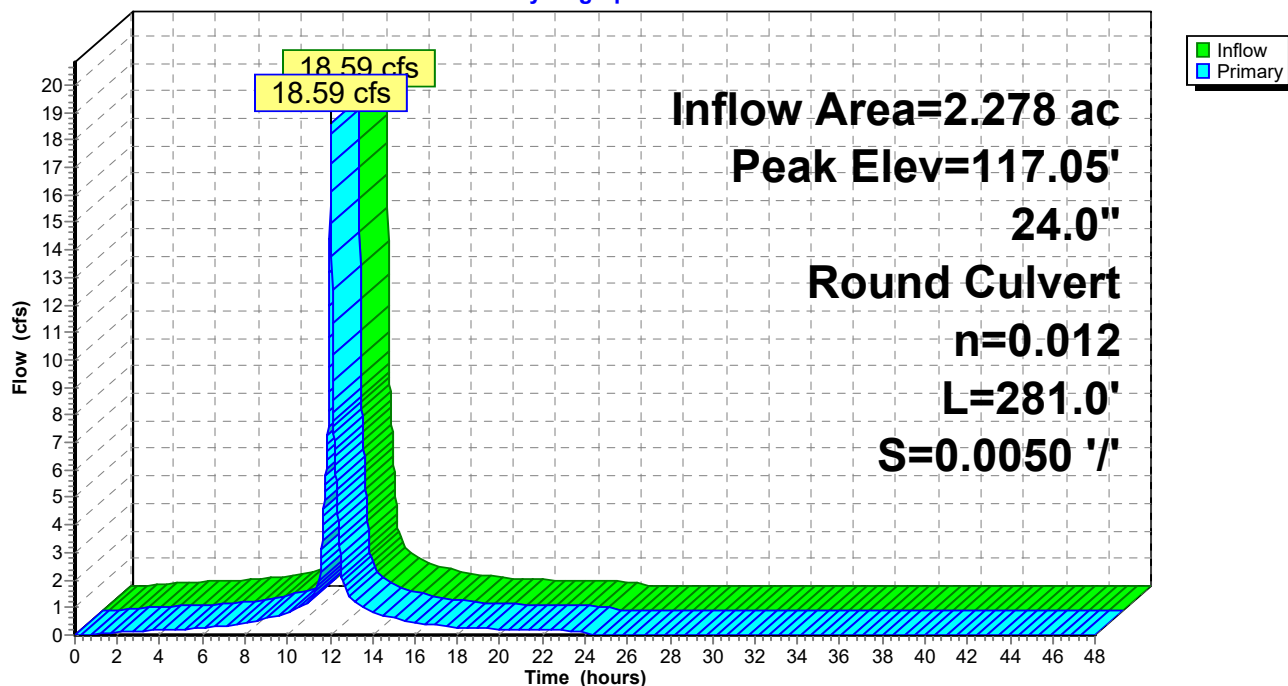
Peak Elev= 117.05' @ 12.03 hrs

Flood Elev= 118.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	114.02'	24.0" Round Culvert L= 281.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.02' / 112.61' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=18.51 cfs @ 12.03 hrs HW=117.03' (Free Discharge)

↑1=Culvert (Barrel Controls 18.51 cfs @ 5.89 fps)

Pond CB-8: CB-8**Hydrograph**

Summary for Pond CB-9: CB-9

Inflow Area = 0.852 ac, 100.00% Impervious, Inflow Depth = 7.09" for 50yr event
 Inflow = 6.90 cfs @ 12.04 hrs, Volume= 0.504 af
 Outflow = 6.90 cfs @ 12.04 hrs, Volume= 0.504 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.90 cfs @ 12.04 hrs, Volume= 0.504 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 117.51' @ 12.04 hrs

Flood Elev= 118.10'

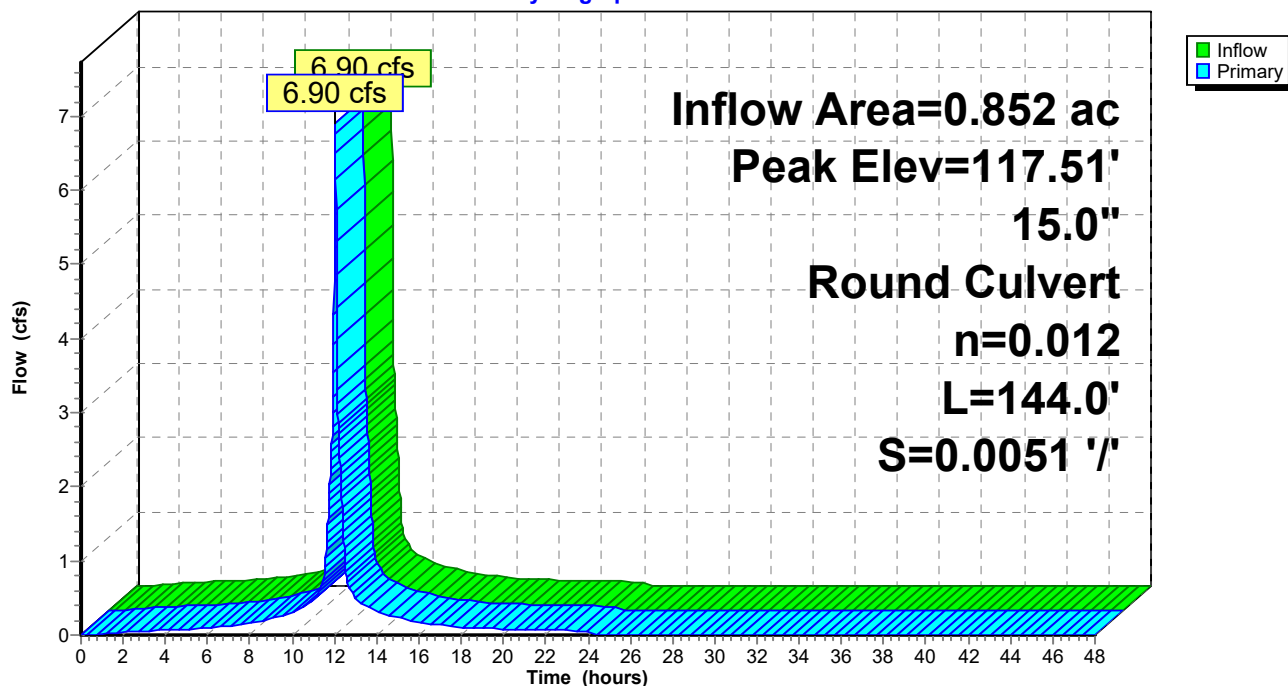
Device	Routing	Invert	Outlet Devices
#1	Primary	114.85'	15.0" Round Culvert L= 144.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.85' / 114.12' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=6.89 cfs @ 12.04 hrs HW=117.50' (Free Discharge)

1=Culvert (Barrel Controls 6.89 cfs @ 5.61 fps)

Pond CB-9: CB-9

Hydrograph



Summary for Pond DMH-1: DMH-1

Inflow Area = 3.399 ac, 100.00% Impervious, Inflow Depth = 7.09" for 50yr event
 Inflow = 27.85 cfs @ 12.03 hrs, Volume= 2.008 af
 Outflow = 27.85 cfs @ 12.03 hrs, Volume= 2.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 27.85 cfs @ 12.03 hrs, Volume= 2.008 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 116.35' @ 12.03 hrs

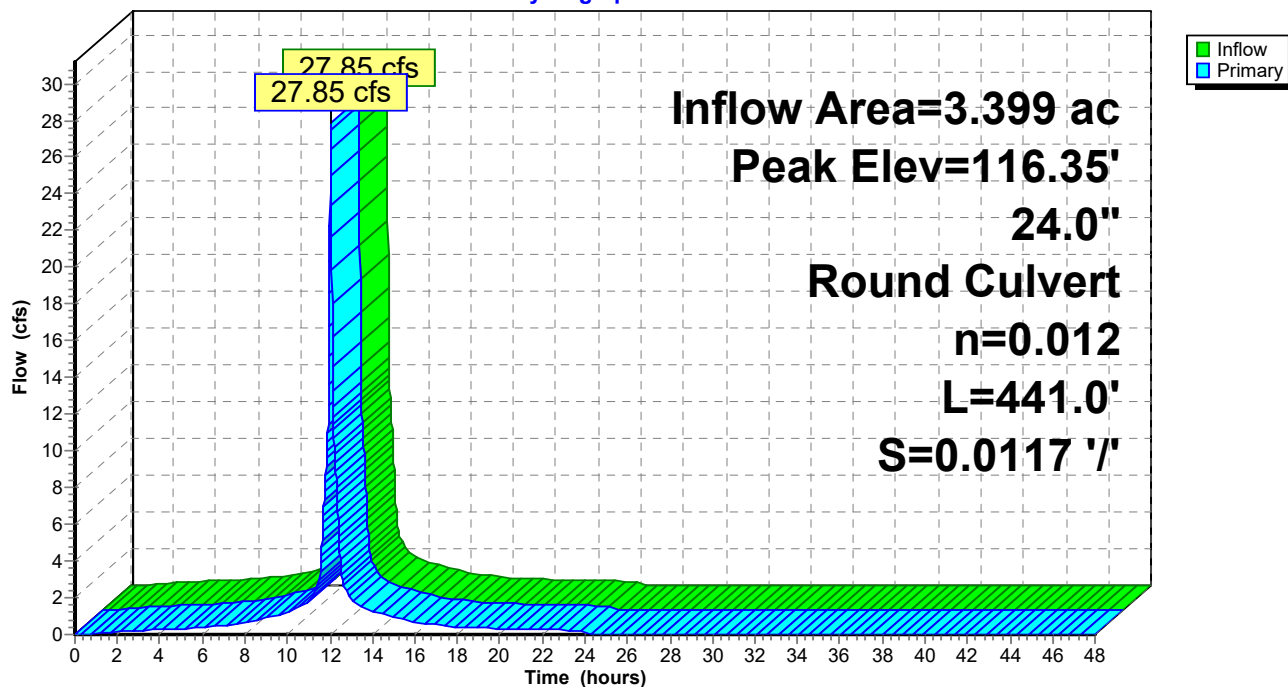
Device	Routing	Invert	Outlet Devices
#1	Primary	111.95'	24.0" Round Culvert L= 441.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.95' / 106.80' S= 0.0117 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=27.84 cfs @ 12.03 hrs HW=116.34' (Free Discharge)

↑**1=Culvert** (Barrel Controls 27.84 cfs @ 8.86 fps)

Pond DMH-1: DMH-1

Hydrograph



Summary for Pond DMH-2: DMH-2

Inflow Area = 0.695 ac, 89.47% Impervious, Inflow Depth = 6.61" for 50yr event
 Inflow = 5.78 cfs @ 12.01 hrs, Volume= 0.383 af
 Outflow = 5.78 cfs @ 12.01 hrs, Volume= 0.383 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.78 cfs @ 12.01 hrs, Volume= 0.383 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 112.52' @ 12.01 hrs

Flood Elev= 115.70'

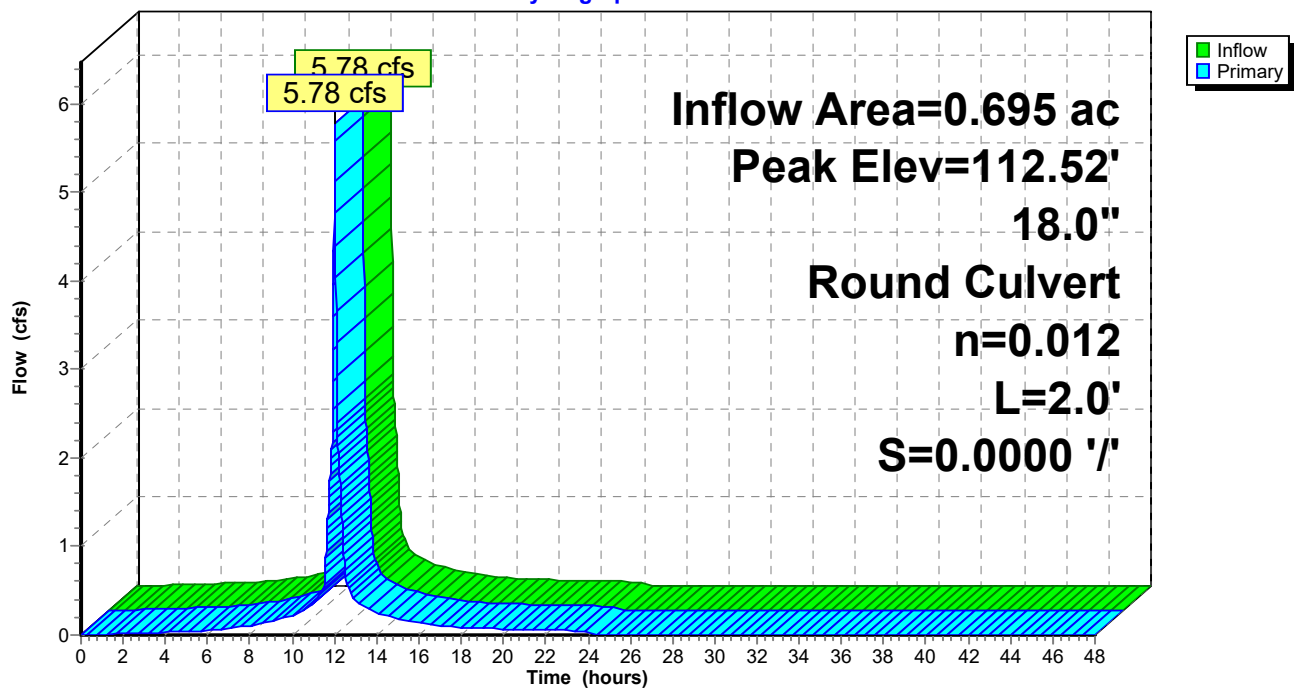
Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 111.00' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.74 cfs @ 12.01 hrs HW=112.51' (Free Discharge)

1=Culvert (Barrel Controls 5.74 cfs @ 4.00 fps)

Pond DMH-2: DMH-2

Hydrograph



Summary for Pond DMH-3: DMH-3

Inflow Area = 1.578 ac, 95.30% Impervious, Inflow Depth = 6.90" for 50yr event
 Inflow = 13.31 cfs @ 12.02 hrs, Volume= 0.907 af
 Outflow = 13.31 cfs @ 12.02 hrs, Volume= 0.907 af, Atten= 0%, Lag= 0.0 min
 Primary = 13.31 cfs @ 12.02 hrs, Volume= 0.907 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 114.20' @ 12.02 hrs

Flood Elev= 115.70'

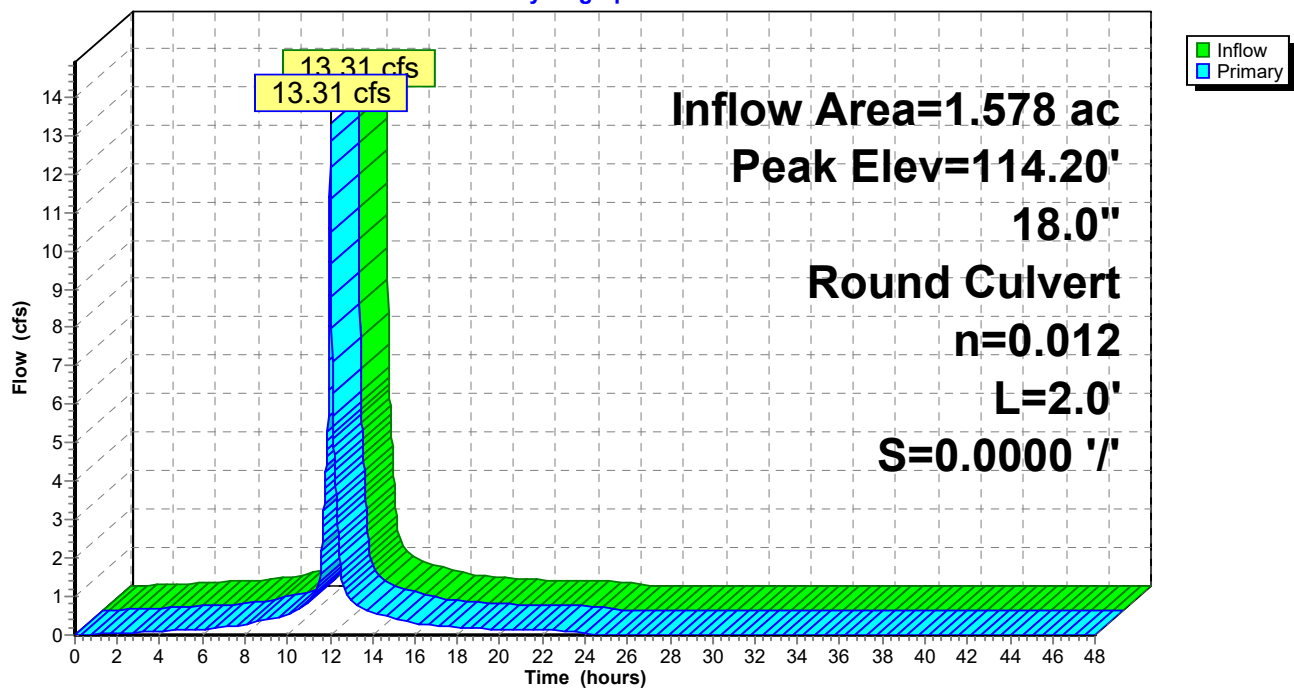
Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 111.00' S= 0.0000 '/ Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=13.27 cfs @ 12.02 hrs HW=114.18' (Free Discharge)

↑1=Culvert (Inlet Controls 13.27 cfs @ 7.51 fps)

Pond DMH-3: DMH-3

Hydrograph



Summary for Pond DMH-4: DMH-4

Inflow Area = 7.377 ac, 81.69% Impervious, Inflow Depth = 6.00" for 50yr event
 Inflow = 45.57 cfs @ 12.04 hrs, Volume= 3.692 af
 Outflow = 45.57 cfs @ 12.04 hrs, Volume= 3.692 af, Atten= 0%, Lag= 0.0 min
 Primary = 45.57 cfs @ 12.04 hrs, Volume= 3.692 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 115.23' @ 12.04 hrs

Flood Elev= 112.20'

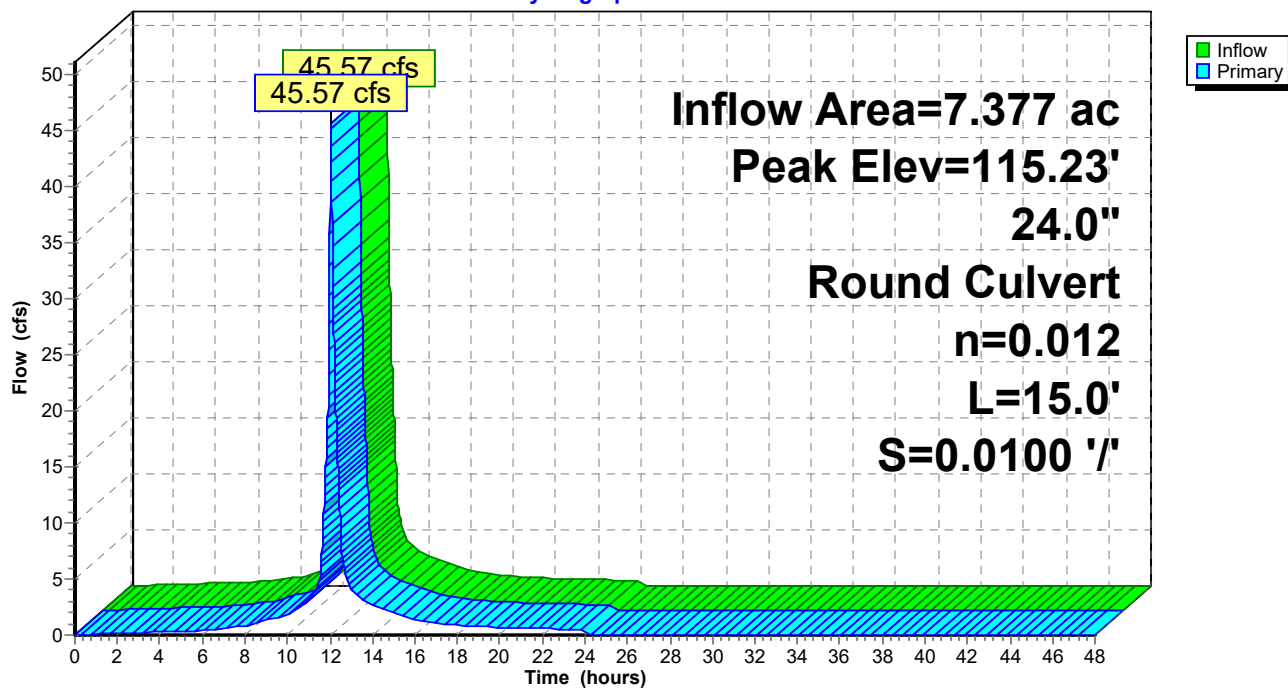
Device	Routing	Invert	Outlet Devices
#1	Primary	105.15'	24.0" Round Culvert L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 105.15' / 105.00' S= 0.0100 '/ Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=45.48 cfs @ 12.04 hrs HW=115.19' (Free Discharge)

↑1=Culvert (Inlet Controls 45.48 cfs @ 14.48 fps)

Pond DMH-4: DMH-4

Hydrograph



Summary for Pond OCS-1: STORMTECH SC-740

Inflow Area = 2.273 ac, 93.52% Impervious, Inflow Depth = 6.81" for 50yr event
 Inflow = 19.06 cfs @ 12.02 hrs, Volume= 1.290 af
 Outflow = 7.85 cfs @ 12.13 hrs, Volume= 1.290 af, Atten= 59%, Lag= 6.6 min
 Discarded = 0.78 cfs @ 10.14 hrs, Volume= 0.785 af
 Primary = 7.07 cfs @ 12.13 hrs, Volume= 0.505 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.45' @ 12.13 hrs Surf.Area= 0 sf Storage= 14,575 cf
 Flood Elev= 115.50' Surf.Area= 0 sf Storage= 14,778 cf

Plug-Flow detention time= 42.2 min calculated for 1.290 af (100% of inflow)
 Center-of-Mass det. time= 42.2 min (791.2 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	14,778 cf	Custom Stage Data Listed below

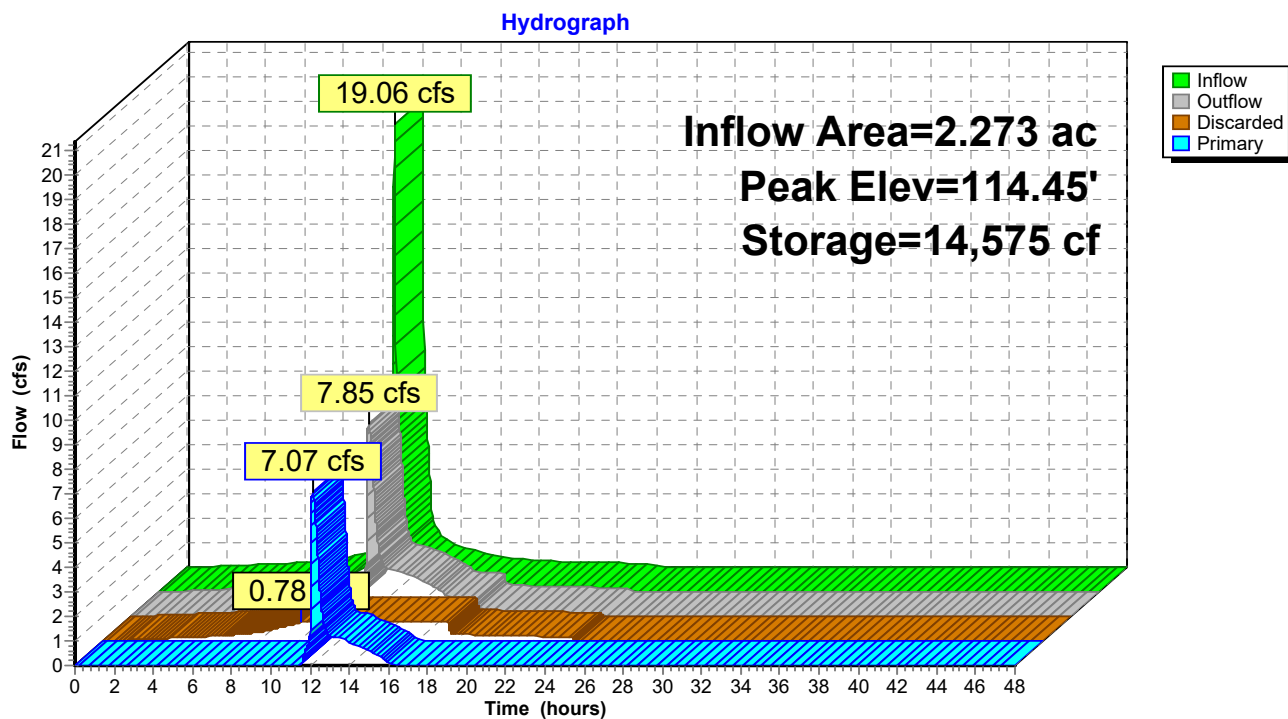
Elevation (feet)	Cum.Store (cubic-feet)
110.50	0
114.50	14,778

Device	Routing	Invert	Outlet Devices
#1	Primary	111.00'	18.0" Round Culvert L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 111.00' / 110.47' S= 0.0482 ' S= 0.0482 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	113.50'	13.0" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Discarded	110.50'	0.78 cfs Exfiltration when above 110.50'
#4	Device 1	111.00'	5.5" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.78 cfs @ 10.14 hrs HW=110.55' (Free Discharge)
 ↳ **3=Exfiltration** (Exfiltration Controls 0.78 cfs)

Primary OutFlow Max=7.07 cfs @ 12.13 hrs HW=114.44' (Free Discharge)
 ↳ **1=Culvert** (Passes 7.07 cfs of 13.97 cfs potential flow)
 ↳ ↳ **2=Orifice/Grate** (Orifice Controls 5.65 cfs @ 3.31 fps)
 ↳ ↳ ↳ **4=Orifice/Grate** (Orifice Controls 1.42 cfs @ 8.63 fps)

Pond OCS-1: STORMTECH SC-740



Summary for Pond OCS-2: STORMTECH MC-4500

Inflow Area = 7.377 ac, 81.69% Impervious, Inflow Depth = 6.00" for 50yr event
 Inflow = 45.57 cfs @ 12.04 hrs, Volume= 3.692 af
 Outflow = 3.51 cfs @ 13.27 hrs, Volume= 3.692 af, Atten= 92%, Lag= 73.8 min
 Discarded = 2.61 cfs @ 10.77 hrs, Volume= 3.276 af
 Primary = 0.90 cfs @ 13.27 hrs, Volume= 0.416 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 109.66' @ 13.27 hrs Surf.Area= 0 sf Storage= 66,219 cf

Plug-Flow detention time= 169.6 min calculated for 3.692 af (100% of inflow)
 Center-of-Mass det. time= 169.6 min (937.5 - 768.0)

Volume	Invert	Avail.Storage	Storage Description
#1	104.00'	81,951 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
104.00	0
111.00	81,951

Device	Routing	Invert	Outlet Devices
#1	Primary	105.00'	12.0" Round Culvert L= 113.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 105.00' / 103.90' S= 0.0097 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	105.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	108.00'	3.5" Vert. Orifice/Grate C= 0.600
#4	Discarded	104.00'	2.61 cfs Exfiltration when above 104.00'

Discarded OutFlow Max=2.61 cfs @ 10.77 hrs HW=104.07' (Free Discharge)

↑ **4=Exfiltration** (Exfiltration Controls 2.61 cfs)

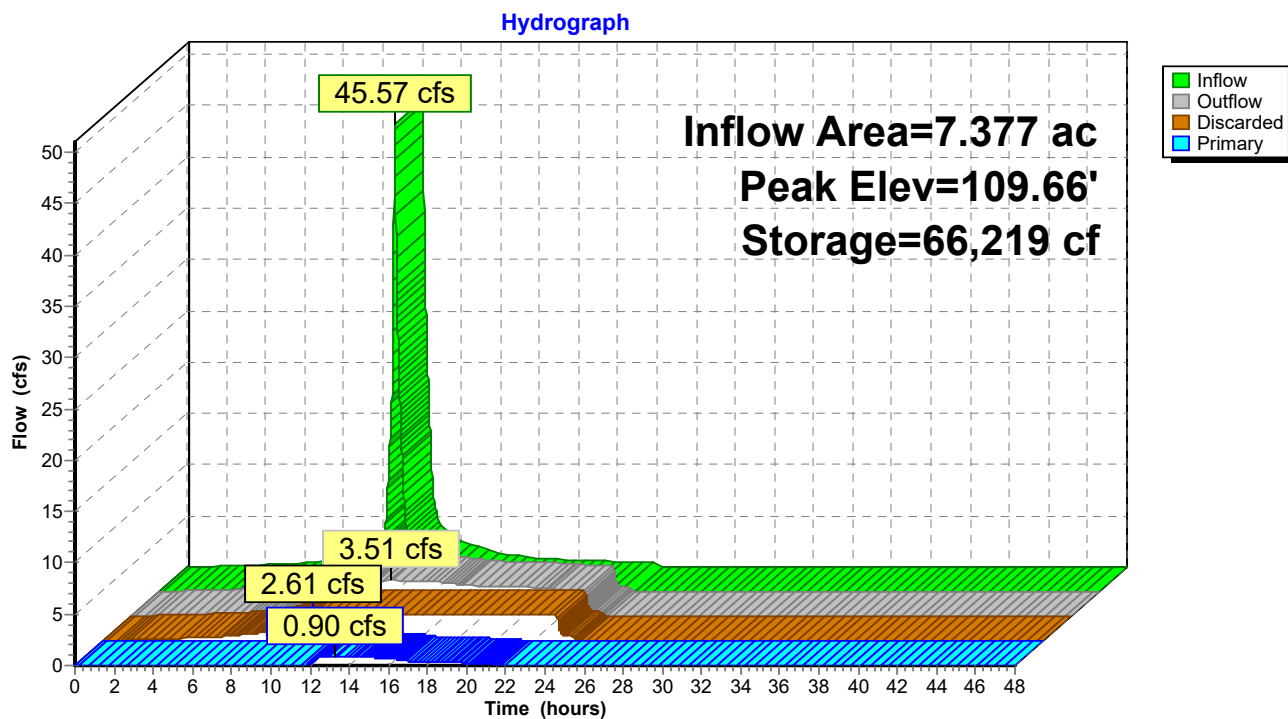
Primary OutFlow Max=0.90 cfs @ 13.27 hrs HW=109.66' (Free Discharge)

↑ **1=Culvert** (Passes 0.90 cfs of 6.46 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 0.50 cfs @ 10.25 fps)

↑ **3=Orifice/Grate** (Orifice Controls 0.40 cfs @ 5.92 fps)

Pond OCS-2: STORMTECH MC-4500



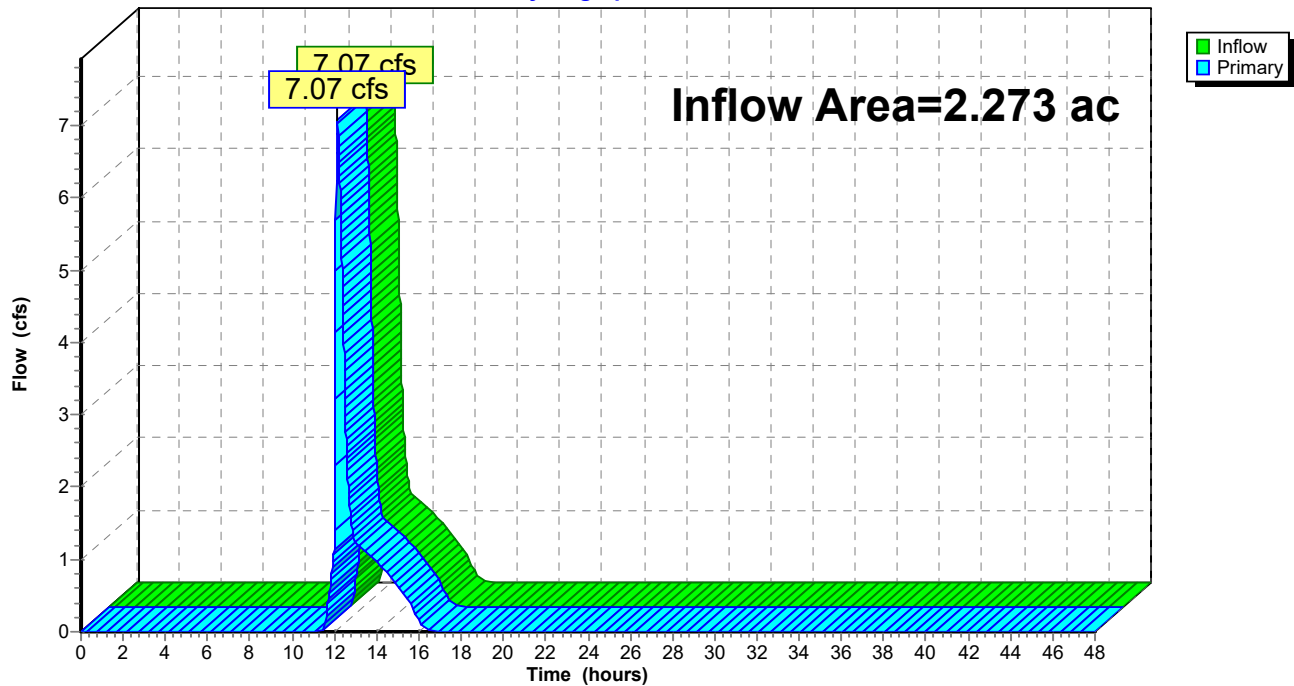
Summary for Link SP-1: SP-1

Inflow Area = 2.273 ac, 93.52% Impervious, Inflow Depth = 2.67" for 50yr event
Inflow = 7.07 cfs @ 12.13 hrs, Volume= 0.505 af
Primary = 7.07 cfs @ 12.13 hrs, Volume= 0.505 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-1: SP-1

Hydrograph

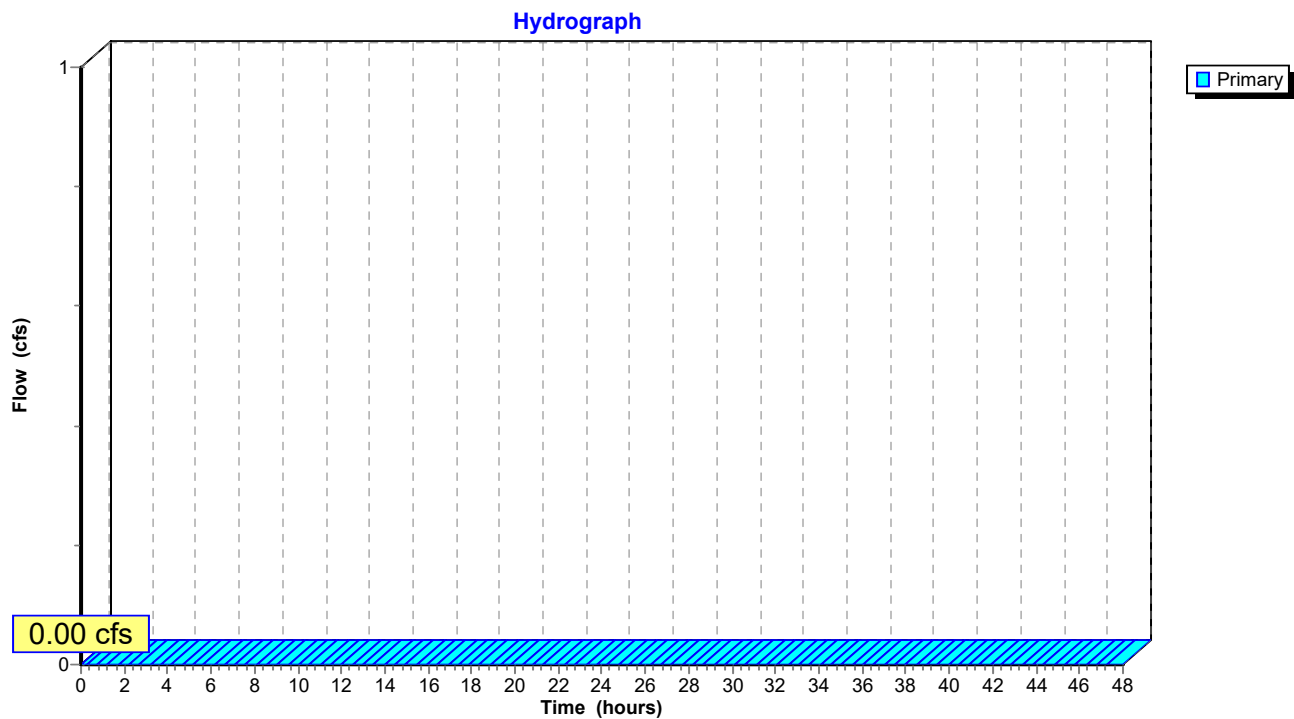


Summary for Link SP-2: SP-2

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-2: SP-2



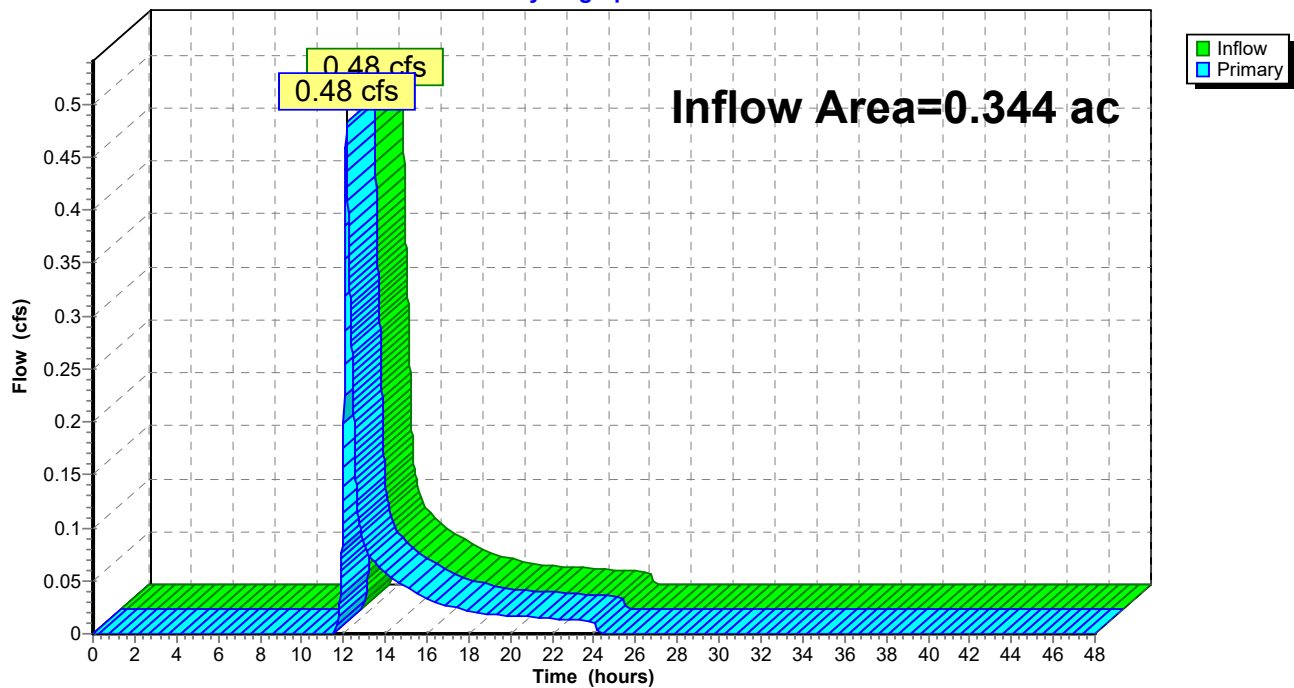
Summary for Link SP-3: SP-3

Inflow Area = 0.344 ac, 0.00% Impervious, Inflow Depth = 1.57" for 50yr event
Inflow = 0.48 cfs @ 12.14 hrs, Volume= 0.045 af
Primary = 0.48 cfs @ 12.14 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-3: SP-3

Hydrograph



Summary for Link SP-4: SP-4

Inflow Area = 17.075 ac, 35.29% Impervious, Inflow Depth = 1.48" for 50yr event
 Inflow = 5.73 cfs @ 14.80 hrs, Volume= 2.103 af
 Primary = 5.73 cfs @ 14.80 hrs, Volume= 2.103 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link SP-4: SP-4

Hydrograph

