ENGINEERING REPORT:

ROADWAY DESIGN, DRAINAGE CALCULATIONS AND STORMWATER MANAGEMENT PLAN

For:

PLANNED UNIT TOWNHOUSE DEVELOPMENT
TO BE KNOWN AS
WOODMERE AT BRUSH HILL

Located:

865 BRUSH HILL ROAD
(ASSESSORS MAP B 12, LOTS 8A, 8B & 2B)
MILTON, MASSACHUSETTS 02186

Submitted to:

TOWN OF MILTON

Prepared For:

NORTHLAND RESIDENTIAL CORPORATION
20 MALL ROAD, SUITE 220
BURLINGTON, MASSACHUSETTS 01803

MAY 13, 2015
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McKenzie Engineering Group, Inc.
150 Longwater Drive, Suite 101, Norwell, Massachusetts 02061
P: (781) 792-3900 F: (781) 792-0333
www.mckeng.com info@mckeng.com

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Planned Unit Townhouse Development

to be known as

Woodmere at Brush Hill

865 Brush Hill Road, Milton, MA

(Assessor's Map B12, Lots 8A, 8B & 2B)

Project Summary

The project proponent, Northland Residential Corporation (NRC), proposes to redevelop an approximate 8.36 acre parcel of land located at 865 Brush Hill Road in Milton, Massachusetts. The proposed Planned Unit Townhouse Development (PUTD) consists of thirty-six (36) residential units comprised of thirty-four (34) townhouse units and two (2) mansion units. The development will involve the construction of fourteen (14) residential buildings, the renovation of the "Dupee House", an existing 2 1/2 story historic mansion-style building, approximately 1,500 linear feet of bituminous roadway, landscaping, stormwater management facilities, utility systems and associated infrastructure.

The parcel has frontage on Brush Hill Road to the southeast and is shown on the Milton Assessor's Maps as Lots 8A, 8B and 2B on Assessor's Map B12. The site is located within the Residence A Zoning District and is bordered by developed residential zoned property to the southwest (Cushing Road), developed residential property to the northeast (Dana Avenue), developed residential property to the northwest (Boston Housing Authority) and Brush Hill Road to the southeast. (Refer to Figure 1- USGS Locus Map for the location of the parcel.)

This report contains a description of the roadway design and calculations of stormwater runoff for the pre- and post-development conditions and includes the sizing of the proposed drainage system and stormwater best management practices (BMPs) in accordance with the Planned Unit Townhouse Development provisions, Section III, L of the Town of Milton Zoning By-Law, the Rules and Regulations of the Planning Board, and the Stormwater Management By-Law. The proposed and existing site conditions are illustrated on the project *site plans* entitled "Planned Townhouse Unit Development, Woodmere At Brush Hill, 865 Brush Hill Road, Milton, Massachusetts" dated May 13, 2015 and as revised.

Roadway Design & Requested Waivers

The project will have a main entrance off of Brush Hill Road in approximately the same location as the existing driveway. The entrance road (Road A) will be widened by approximately 5 feet from 17 feet to 22 feet to accommodate large vehicles such as fire trucks. The main loop road (Road B) and a dead-end road (Road C) will provide circulation throughout the site and is proposed to be 20 feet in traveled width curbed with 1 foot wide Cape Cod berm. A sidewalk/gravel walking path network is proposed

from the Brush Hill entrance through the site and linking to Cushing Road. The project roadways will be constructed in compliance with the requirements of the Town of Milton's Rules and Regulations of the Planning Board Governing the Subdivision of Land and Laying out of Ways with the following requested waivers:

Section	Requirement	Proposed Waiver Request
Section 6.0 Design Standards:		
6.1.1. Design Speeds:	Design speed for streets shall be 30 MPH	Minimum design speed = 20 MPH
6.1.7. Curves:	Min. centerline radii = 150 ft.	Min. centerline radii = 65 ft (Road B)
6.1.12. Dead Ends:	Max. dead end = 500 ft. Shall terminate in a 50 ft radius	Max. dead end = 1,041 ft. 22 ft wide hammerhead turnaround
Section 7.0 Required Improvements		
7.4.1.	Roadway Cross Section Appendix A	Proposed Cross Section
7.4.3.4.	5" crown (3.57% slope)	2.4" crown (2.0% slope)
7.4.3.7.	6" asphalt pavement	4" asphalt pavement
7.4.4.2.	Vertical granite curb on both sides of roadway	12" wide cape cod berm on Roads B and C
7.4.5.1.	Sidewalk on both sides of roadway	One sidewalk, location varies
7.4.5.2.	Sidewalk cross slope= 3/8" per foot	Sidewalk cross slope= 1/4" per foot
7.4.6.1.	Street tree planting space/size	Street trees vary in size (8'-12' height & 3-3.5" caliper)
7.4.6.1.	4'-6" grass strip between curb and sidewalk	4'-0" grass strip between curb and sidewalk
7.4.6.2.	8" loam and seed	6" loam and seed
7.5.2.	Water mains to be 14 ft off street line on opposite side of street from drainage	Varies as shown on plans
7.5.4.	Gate valves every 500' along water mains	Gate valves provided at intersection and tie-ins only
Section 8.0 Storm Drainage		
8.2.	Pipe material - vitrified clay, concrete, corrugated metal	Pipe material - high density polyethylene (HPDE)

	Min. pipe cover = 3 ft.	Min. pipe cover = 1.5 ft.
Section 10.0 Utilities		
10.4.	Street lighting shall have a height of 15 ft. or more as approved by the Board	Street lighting shall have a height of 10 ft.

Water and Sewer Service

The project will require a connection to the municipal water system for water and fire services. Currently, there is an existing 8" water main within Brush Hill Road at the site's frontage. The project will loop a proposed 8" water main from a connection within Brush Hill Road through the site to a connection to the existing 8" water main within Cushing Road. The looped water main should ensure that adequate flows and pressures will be maintained by adding redundancy to the system.

The project will also require a connection to the municipal sewer system for sanitary services. Currently there is an existing 8" sewer main within Brush Hill Road at the site's frontage. The wastewater generated from the project will be collected and conveyed by a proposed 8" gravity sewer system to the existing sewer collection system within Brush Hill Road. The proposed sewer main connection to the existing sewer system will be provided with a new sewer manhole within Brush Hill Road.

Stormwater Design & Analysis

Pre-Development Condition

The site presently is comprised of an existing mansion-style building, containing approximately 6,155 s.f. previously used as a rectory, surrounding landscaped grounds, accessory garage, access drive and remaining wooded areas. The site's topography consists of gentle to moderate slopes ranging from approximately 0 to 20 percent with the majority of the stormwater runoff flowing towards the low lying areas on the site along its Brush Hill Road frontage.

The entire site is located within a Zone X, as shown on the current FEMA Flood Insurance Rate Map Panel No. 25021C 0201E with an effective date of July 17, 2012. (Refer to Figure 2 – FEMA Flood Map.)

Soils information was obtained from the Natural Resources Conservation Service (NRCS) Survey of Plymouth County, Massachusetts. The soils on the site are classified as Hinckley, sandy loam, 8-15 percent slopes (245C, Hydrologic Soil Group (HSG) A); Merrimac, fine sandy loam, 0 to 3 percent slopes (254A, HSG A); Merrimac, fine sandy loam, 3 to 8 percent slopes (254B, HSG A); and Merrimac, urban land, 3 to 8 percent slopes (626B, HSG A). (Refer to Figure 3 – NRCS Soils Map for a delineation of the boundaries of the soil with respect to the subject parcel. Refer to Appendix D for supporting soil testing data and results.)

The existing watershed analyzed in this report is comprised of approximately 17.4 acres consisting of the subject parcel and offsite tributary areas. The watershed consists of four (4) subcatchments. (Refer to the Pre-Development Watershed Plan WS-1 in Appendix A for a delineation of drainage subareas for the pre-development design condition. Refer to Appendix A for computer results, soil characteristics, cover descriptions and times of concentrations for all subareas.)

Post-Development Condition

Watershed areas were analyzed in the post-development condition stormwater analysis to design low impact stormwater management facilities to mitigate impacts resulting from developing the property. The objective in designing the proposed drainage facilities for the project was to maintain existing drainage patterns to the extent practicable and to ensure that the post-development rates of runoff are equal to or less than pre-development rates.

Refer to Post-Development Watershed Plan WS-2 in Appendix B for a delineation of the post-development drainage subareas. The design points for the post-development design conditions correspond to those analyzed for the pre-development design condition. All BMPs shall be supported by a comprehensive Best Management Practices (BMP) Operation and Maintenance Plan.

Stormwater Detention and Infiltration Facilities

The natural depression areas, proposed stormwater infiltration basin, and subsurface infiltration chambers were designed to attenuate peak flows generated by all storm events to ensure that post-development peak flows are less than pre-development flows at the design points and allow for recharge to groundwater. The proposed facilities were analyzed using the SCS TR-20 computer based program, HydroCAD for the 2, 10, 25, and 100-year Type III storm events. (Refer to Appendix B for the Stage Storage Curves and the HydroCAD computer results for the storage characteristics of the detention and infiltration facilities.)

Stormwater Best Management Practices (BMP's)

The stormwater management system was designed to be in full compliance with the DEP Stormwater Management Policy. A treatment stream consisting of a combination of deep-sump catch basins with hooded outlets, infiltration basin or subsurface infiltration chambers with pretreatment proprietary units will be employed in the design of drainage facilities for the project to achieve the required removal of 80% total suspended solids. The proposed treatment streams will renovate the stormwater by promoting the settlement of sediments and pollutants before runoff is released into down gradient areas or groundwater. (Refer to the TSS Removal Worksheets in Appendix C for TSS removal rates.)

Sustainable Design Elements

The proposed stormwater management system incorporates natural depression areas and infiltration systems to attenuate peak flows generated by all storm events to ensure that post-development peak flows are less than pre-development flows at the design points and allow for recharge to groundwater. These "low impact" stormwater management techniques will reduce the site's dependence on proprietary subsurface stormwater systems. The natural depression areas and infiltration basin will utilize vegetation, enhanced soil media and other "natural" site features to renovate and mitigate stormwater runoff from impervious surfaces.

Erosion and Siltation Control

Silt sock will be placed at the limit of work as the site's erosion control barrier prior to the commencement of any construction activity. The integrity of the erosion control barriers will be maintained by periodic inspection and replacement as necessary. The erosion control barrier will remain in place until the first course of pavement has been placed and all side slopes have been loamed and seeded and vegetation has been established. Riprap outlet protection for all pipe outlets is proposed to ensure that minimal velocities will be realized before flows are discharged into wetland areas. (Refer to the Erosion Control Details, Construction Detail Plan and Best Management Practices Operation and Maintenance Plans for proposed erosion control measures to be employed for the project.)

Compliance with Stormwater Management Standards

Standard 1 – No New Untreated Discharges

The site development is designed so that new stormwater conveyances do not discharge untreated pavement runoff into, or cause erosion to, down gradient areas. (Refer to Appendix C for stormwater discharge velocity and ground surface erosion resistance calculations for the proposed discharge points.)

Standard 2 – Peak Rate Attenuation

In the pre-development and post-development stormwater analysis, the watershed area analyzed was approximately 17.2 acres consisting of the subject parcel to be developed and offsite tributary areas. Refer to Pre-Development Watershed Delineation Plan (WS-1) for a delineation of drainage subareas for the pre-development design condition and refer to Post-Development Watershed Delineation Plan (WS-2) for a delineation of drainage subareas for the post-development design condition. The SCS technical release 20 (TR-20) based program, HydroCAD was employed to develop pre and post-development peak flows.

All closed drainage structures were designed employing the Rational Method and the Mass DOT Design Manual and Milton Subdivision Regulations to accommodate peak flows generated by a minimum of a 100-year storm event. The stormwater facilities were designed to accommodate peak flows generated by a 100-year storm event. (Refer to Appendix C for the roadway closed drainage system design and all associated

reference data.)

Design point locations are illustrated on the Watershed Delineation Plans within Appendix A and B.

The peak rates of runoff are as follows:

Pre-Development vs. Post-Development Peak Rates of Runoff

Design Point	2 Year Storm (3.20 Inches)		10 Year Storm (4.70 Inches)		25 Year Storm (5.50 Inches)		100 Year Storm (6.70 Inches)	
	Exist. (CFS)	**Prop. (CFS)**	**Exist. (CFS)**	**Prop. (CFS)**	**Exist. (CFS)**	**Prop. (CFS)**	**Exist. (CFS)**	**Prop. (CFS)**
Design Point 1 (SE - Natural Depression)	*0.00*	0.00	*0.00*	0.00	*0.00*	0.00	*0.00*	0.00
Design Point 2 (SW - Natural Depression)	*0.00*	0.00	*0.00*	0.00	*0.00*	0.00	*0.00*	0.00
Design Point 3 (NW - Natural Depression)	*0.00*	0.00	*0.00*	0.00	*0.00*	0.09 Toward DP1	*0.00*	0.41 Toward DP1
Design Point 4 (North - Natural Depression)	*0.00*	0.00	*0.00*	0.00	*0.00*	0.00	*0.00*	0.00

A comparison of the pre-development and post-development peak rates of runoff demonstrates that the proposed development will control all stormwater runoff on site. In existing conditions, design point 3 discharges towards design point 4 and is contained with the natural depression. In proposed conditions, a portion of the design point 3 catchment area is redirected towards the proposed subsurface chamber system while the remaining portion of the catchment area is still directed towards design point 4. The central natural depression was utilized as part of the infiltration basin within the project site. The southeastern natural depression (DP1 SE Natural Depression) was replaced with a proposed subsurface infiltration chamber system (DP1).

Pre-Development vs. Post-Development Peak Flood Elevations

Design Point	2 Year Storm (3.40 Inches)		10 Year Storm (4.70 Inches)		25 Year Storm (5.60 Inches)		100 Year Storm (7.00 Inches)	
	Exist. (FT)	**Prop. (FT)**	**Exist. (FT)**	**Prop. (FT)**	**Exist. (FT)**	**Prop. (FT)**	**Exist. (FT)**	**Prop. (FT)**
P1b (Central-Natural Depression)	*102.35*	101.99	*102.76*	102.79	*102.96*	*103.16*	*103.20*	103.67
Design Point 2 (SW - Natural Depression)	*101.10*	101.33	*102.07*	102.34	*102.51*	*102.80*	*103.11*	103.43
Design Point 3	*104.33*	104.30	*104.87*	104.81	*105.16*	*105.02*	*105.57*	105.22

(NW - Natural Depression)								
Design Point 4 (North-Natural Depression)	*103.88*	103.83	*104.22*	104.20	*104.39*	*104.40*	*104.62*	104.67

The central infiltration/natural basin (P1b) discharge is directed towards the subsurface infiltration chamber system and contained on site. As well, the southwestern natural depression (DP 2) has a moderate increase in ponding elevation but is contained on site. Natural depressions - DP 3 and DP 4 straddle the northwestern and north property lines respectively. These natural depressions were analyzed to meet the existing conditions with negligible ponding impacts and therefore do not impact flooding on adjacent properties. Both natural depressions have outlet relief via proposed 12" pipe outlets directing flow towards the site's proposed stormwater management system. The subsurface infiltration system along the rear property line (P3a-Trench Drain) will contain up the 25-year storm event within the system, with only minimal surface flow towards DP4 natural depression in the 100-year storm event.

Standard 3 – Groundwater Recharge

Runoff will be infiltrated by natural depressions, an infiltration basin and subsurface infiltration chambers, which will the meet the Stormwater Guidelines for infiltration:

- Infiltration structures will be a minimum of two feet above seasonal high groundwater.
- Utilize the "Simple Dynamic" method for sizing the storage volume, which takes into account the fact that stormwater is exfiltrating from the infiltration facilities at the same time that the system is filling.
- Hydraulic conductivity are based on test pits and values developed from Rawls, Brakensiek and Saxton, 1982, Estimation of Soil Water Properties, *Transcations of the American Society of Agricultural Engineers*, vol.25, no. 5.
- The infiltration component of the subsurface chamber systems (DP 1) and infiltration basin (P1b) are required to attenuate larger storm events and therefore a four foot separation to seasonal high groundwater is provided.
- Refer to Appendix C for infiltration and drawdown calculations and Appendix D for soil testing data.

Groundwater Recharge Volume

Infiltration BMP	**Soil Type**	**Target Depth Factor (F) (in)**	**Total Impervious Area (ac)**	**Required Recharge Volume (cf)[1]**	**Provided Recharge Volume (cf)[2]**
	A	0.60	3.329	7,251	
P1b (nat. dep./					11,043

infiltration basin)				
DP1 (subsurface chambers)				14,417
P3b (subsurface chambers)				651
DP2 (natural depression)				3,057
DP3 (natural depression)				2,055
P3a (subsurface chambers)				5,691
DP4 (natural depression)				3,926
P1c (natural depression)				518
			7,251	**41,358**

[Simple dynamic method]

1. Required Recharge Volume = Target Depth Factor x Impervious Area / (d+Kt) (Refer to supplemental calculations in Appendix C)
2. Provided Recharge Volume = Volume Provided from Bottom of Basin to lowest outlet invert.

Standard 4 – Water Quality

The Long-Term Pollution Prevention Plan has been incorporated into the Post-Development Operation and Maintenance Plan. The total required water quality treatment volume was calculated to be 5,020 cubic feet. The one-inch rule has been applied to the water quality volume calculations since the project site soil conditions are considered to have rapid infiltration rates, greater than 2.4 inches per hour. Pretreatment BMPs are provided to obtain 44% TSS removal prior to infiltration treatment facilities. Refer to Appendix C for supporting calculations. The water quality treatment volume is provided within the stormwater management facilities as follows:

Water Quality Treatment Volume

Stormwater Facility	Required WQ Volume (cf)	Proposed WQ Volume (cf)	
P1b	1,311	11,043	Natural/Infiltration Basin
DP1	3,310	14,417	Subsurface Infiltration
P3b	399	651	Subsurface Infiltration
DP2 (roof & offsite)	0	0	Natural Depression
DP3 (roof & offsite)	0	0	Natural Depression
P3a (offsite)	0	0	Subsurface Infiltration
DP4 (roof & offsite)	0	0	Natural Depression

P1c (roof)	0	0	Natural Depression
	5,020	**26,111**	

Standard 5 – Land Use with Higher Potential Pollutant Loads (LUHPPL)

The proposed project does not include land uses with higher potential pollutant loads. Not Applicable.

Standard 6 – Critical Areas

The proposed project is not located within a critical area. Not Applicable.

Standard 7 - Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

The proposed project will not be considered a redevelopment project. Not Applicable.

Standard 8 – Construction Period Pollution Prevention and Erosion and Sedimentation Control

The project will require a NPDES Construction General Permit but the Stormwater Pollution Prevention Plan (SWPPP) has not been submitted. The SWPPP will be submitted prior to any proposed construction. A Construction Phase BMP Operation and Maintenance Plan has been provided as a basis for the SWPPP.

Standard 9 – Operation and Maintenance Plan

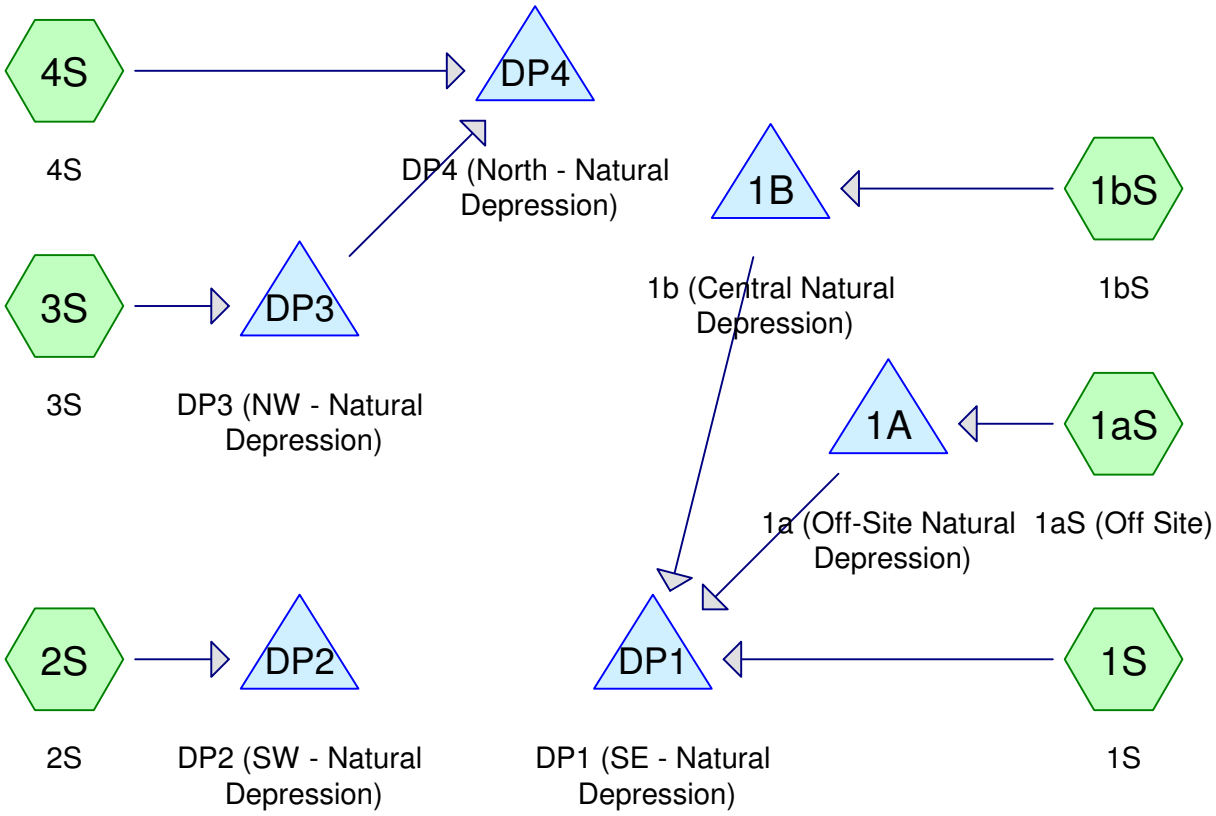
The Post Construction Operation and Maintenance Plan and Long-Term Pollution Prevention Plan are provided in Appendix D.

Standard 10 – Prohibition of Illicit Discharges

No illicit discharges are anticipated on site. Measures to prevent illicit discharges are included in the Long-Term Pollution Prevention Plan. An Illicit Discharge Compliance Statement will be provided prior to construction.

A P P E N D I X A

Pre-Development Design Condition



Subcat Reach Pond Link

Routing Diagram for Pre-Dev06.25.15

Prepared by McKenzie Engineering Group, Inc., Printed 6/30/2015

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.949	39	>75% Grass cover, Good, HSG A (1aS, 1S, 2S, 3S, 4S)
0.627	61	>75% Grass cover, Good, HSG B (1bS, 1S, 3S, 4S)
0.085	74	>75% Grass cover, Good, HSG C (1S)
0.151	85	Gravel roads, HSG B (1bS, 4S)
0.255	98	Paved parking, HSG B (1bS, 1S)
0.909	98	Roofs, HSG A (1aS, 1S, 2S, 3S, 4S)
0.312	98	Roofs, HSG B (3S, 4S)
3.778	30	Woods, Good, HSG A (1aS, 1S, 2S, 3S, 4S)
7.177	55	Woods, Good, HSG B (1bS, 1S, 2S, 3S, 4S)
17.241	**50**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
8.636	HSG A	1aS, 1S, 2S, 3S, 4S
8.521	HSG B	1bS, 1S, 2S, 3S, 4S
0.085	HSG C	1S
0.000	HSG D	
0.000	Other	
17.241		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
3.949	0.627	0.085	0.000	0.000	4.660	>75% Grass cover, Good	1aS, 1bS, 1S, 2S, 3S, 4S
0.000	0.151	0.000	0.000	0.000	0.151	Gravel roads	1bS, 4S
0.000	0.255	0.000	0.000	0.000	0.255	Paved parking	1bS, 1S
0.909	0.312	0.000	0.000	0.000	1.221	Roofs	1aS, 1S, 2S, 3S, 4S
3.778	7.177	0.000	0.000	0.000	10.955	Woods, Good	1aS, 1bS, 1S, 2S, 3S, 4S
8.636	**8.521**	**0.085**	**0.000**	**0.000**	**17.241**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1aS: 1aS (Off Site) Runoff Area=24,558 sf 9.81% Impervious Runoff Depth=0.00"
Flow Length=174' Tc=14.2 min CN=40 Runoff=0.00 cfs 0.000 af

Subcatchment 1bS: 1bS Runoff Area=64,083 sf 10.26% Impervious Runoff Depth=0.44"
Flow Length=221' Tc=20.1 min CN=61 Runoff=0.34 cfs 0.054 af

Subcatchment 1S: 1S Runoff Area=174,734 sf 5.65% Impervious Runoff Depth=0.22"
Flow Length=583' Tc=18.0 min CN=54 Runoff=0.29 cfs 0.075 af

Subcatchment 2S: 2S Runoff Area=101,102 sf 5.13% Impervious Runoff Depth=0.09"
Flow Length=402' Tc=14.1 min CN=48 Runoff=0.03 cfs 0.017 af

Subcatchment 3S: 3S Runoff Area=278,077 sf 8.71% Impervious Runoff Depth=0.06"
Flow Length=702' Tc=34.0 min CN=46 Runoff=0.05 cfs 0.031 af

Subcatchment 4S: 4S Runoff Area=108,485 sf 14.74% Impervious Runoff Depth=0.20"
Flow Length=170' Tc=11.8 min CN=53 Runoff=0.16 cfs 0.041 af

Pond 1A: 1a (Off-Site Natural Depression) Peak Elev=105.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 1B: 1b (Central Natural Depression) Peak Elev=102.35' Storage=433 cf Inflow=0.34 cfs 0.054 af
Discarded=0.14 cfs 0.054 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.054 af

Pond DP1: DP1 (SE - Natural Depression) Peak Elev=99.56' Storage=610 cf Inflow=0.29 cfs 0.075 af
Outflow=0.11 cfs 0.075 af

Pond DP2: DP2 (SW - Natural Depression) Peak Elev=101.10' Storage=117 cf Inflow=0.03 cfs 0.017 af
Discarded=0.02 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.017 af

Pond DP3: DP3 (NW - Natural Depression) Peak Elev=104.33' Storage=77 cf Inflow=0.05 cfs 0.031 af
Discarded=0.04 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.031 af

Pond DP4: DP4 (North - Natural Depression) Peak Elev=103.88' Storage=132 cf Inflow=0.16 cfs 0.041 af
Discarded=0.07 cfs 0.041 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.041 af

Total Runoff Area = 17.241 ac Runoff Volume = 0.218 af Average Runoff Depth = 0.15"
91.44% Pervious = 15.766 ac 8.56% Impervious = 1.476 ac

Summary for Subcatchment 1aS: 1aS (Off Site)

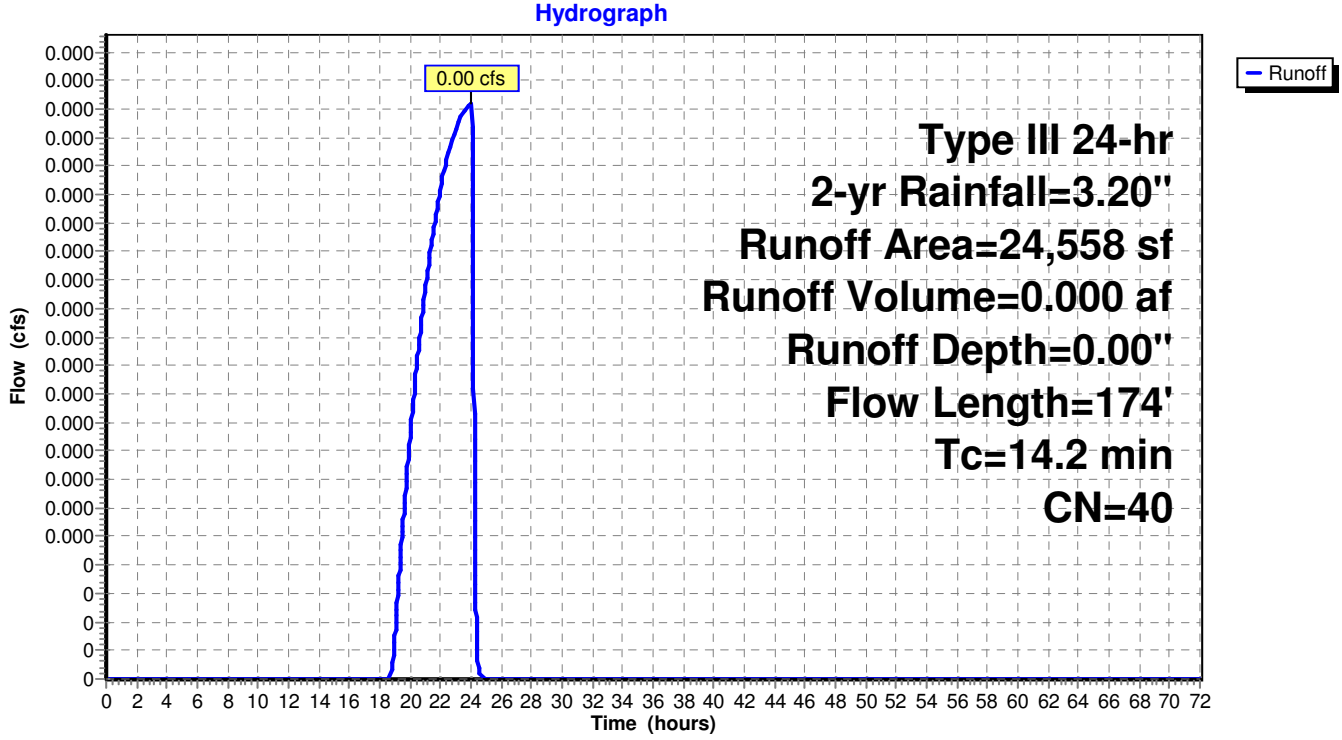
Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
2,408	98	Roofs, HSG A
8,090	39	>75% Grass cover, Good, HSG A
14,060	30	Woods, Good, HSG A
24,558	40	Weighted Average
22,150		90.19% Pervious Area
2,408		9.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	74	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	174	Total			

Subcatchment 1aS: 1aS (Off Site)



Summary for Subcatchment 1bS: 1bS

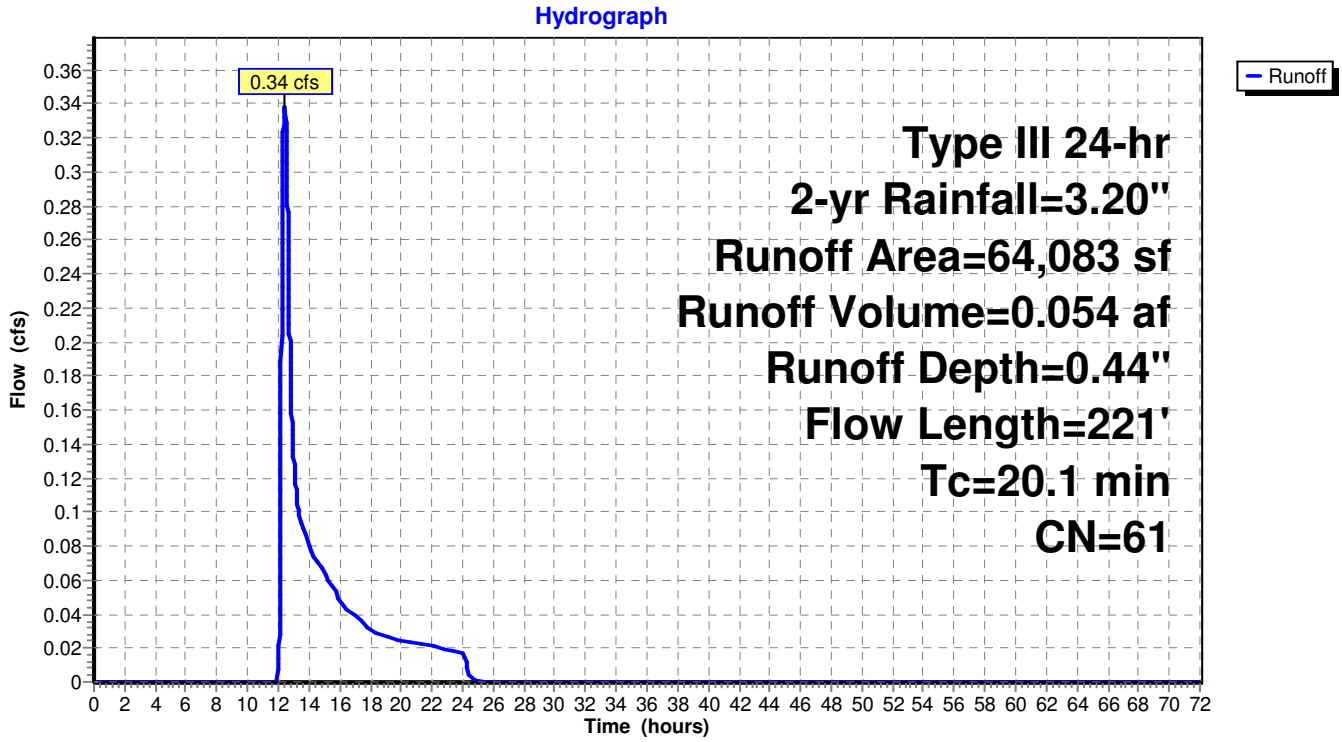
Runoff = 0.34 cfs @ 12.40 hrs, Volume= 0.054 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
*	6,573	98	Paved parking, HSG B
	2,228	85	Gravel roads, HSG B
	4,988	61	>75% Grass cover, Good, HSG B
	50,294	55	Woods, Good, HSG B
	64,083	61	Weighted Average
	57,510		89.74% Pervious Area
	6,573		10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	171	0.0230	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.1	221	Total			

Subcatchment 1bS: 1bS



Summary for Subcatchment 1S: 1S

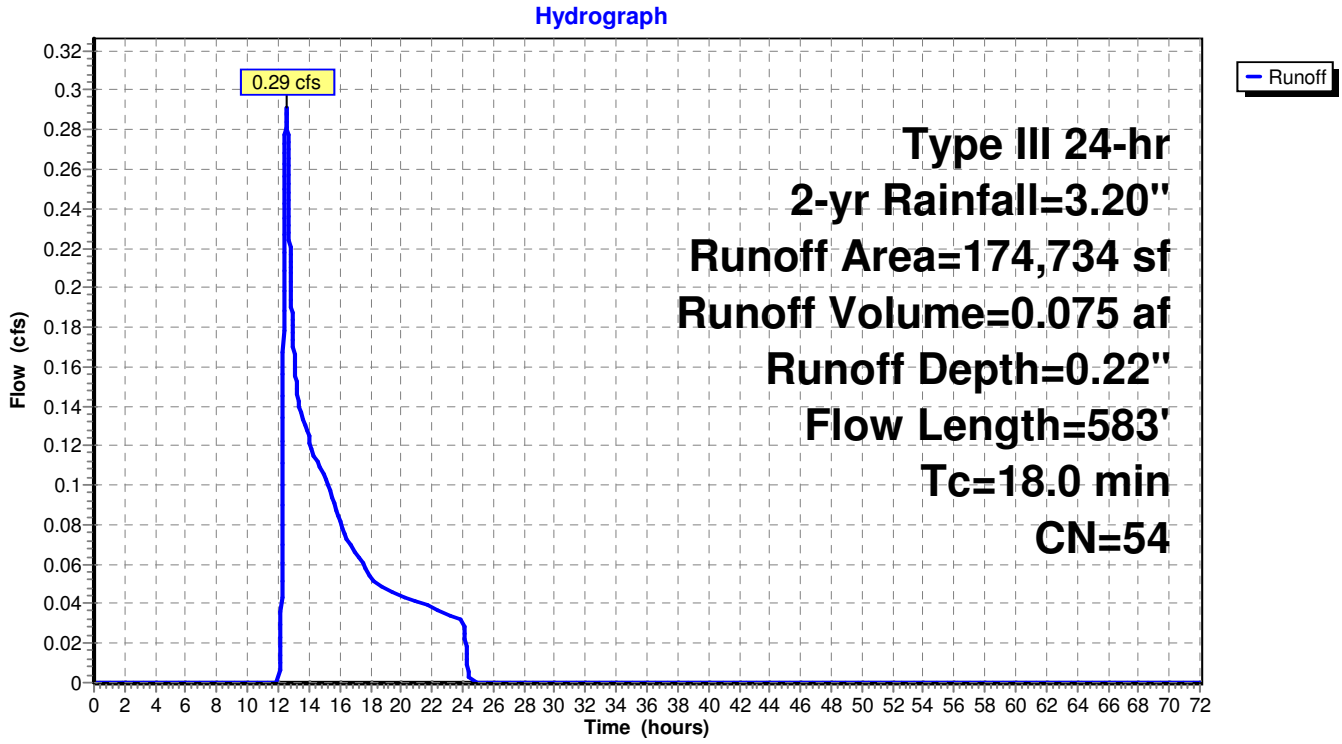
Runoff = 0.29 cfs @ 12.54 hrs, Volume= 0.075 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
*	4,524	98	Paved parking, HSG B
	5,354	98	Roofs, HSG A
	6,609	61	>75% Grass cover, Good, HSG B
	20,800	39	>75% Grass cover, Good, HSG A
	3,691	74	>75% Grass cover, Good, HSG C
	115,919	55	Woods, Good, HSG B
	17,837	30	Woods, Good, HSG A
	174,734	54	Weighted Average
	164,856		94.35% Pervious Area
	9,878		5.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	426	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	583	Total			

Subcatchment 1S: 1S



Summary for Subcatchment 2S: 2S

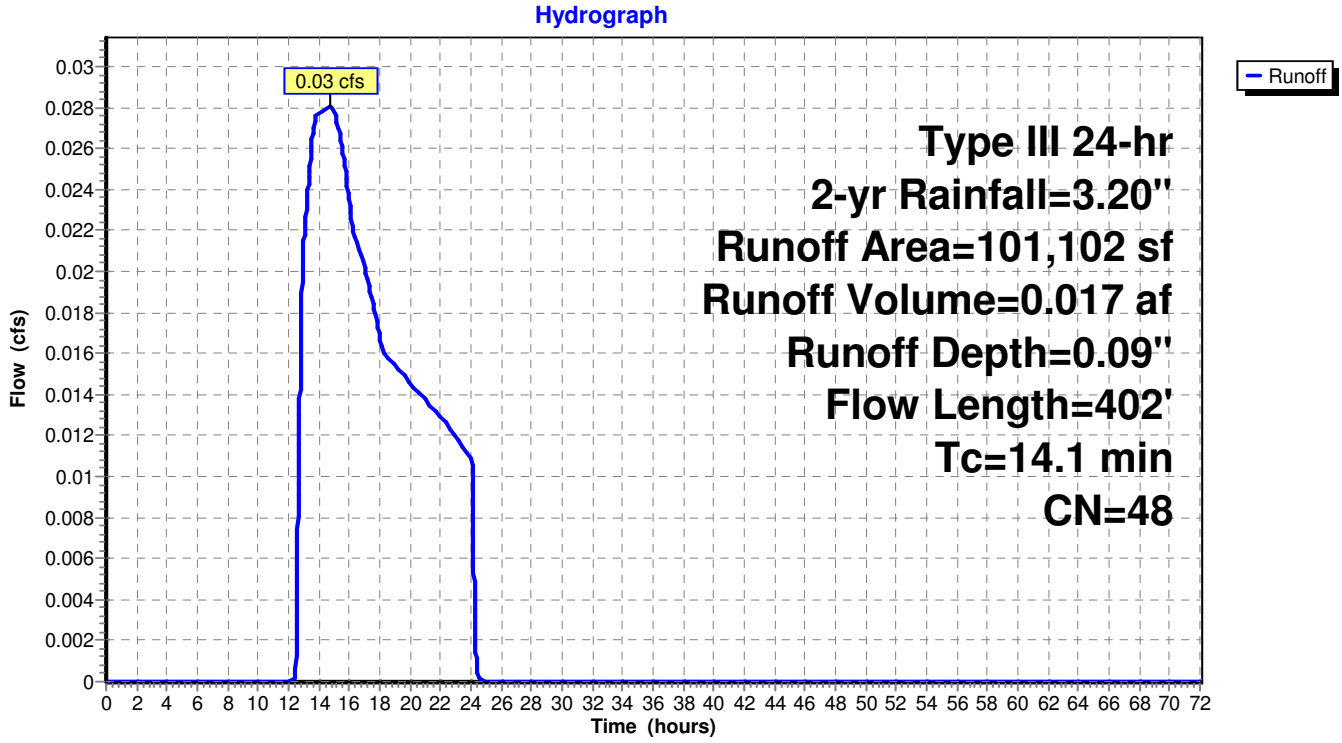
Runoff = 0.03 cfs @ 14.68 hrs, Volume= 0.017 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
5,188	98	Roofs, HSG A
30,371	39	>75% Grass cover, Good, HSG A
18,390	30	Woods, Good, HSG A
47,153	55	Woods, Good, HSG B
101,102	48	Weighted Average
95,914		94.87% Pervious Area
5,188		5.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0250	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.3	194	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	158	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.1	402	Total			

Subcatchment 2S: 2S



Summary for Subcatchment 3S: 3S

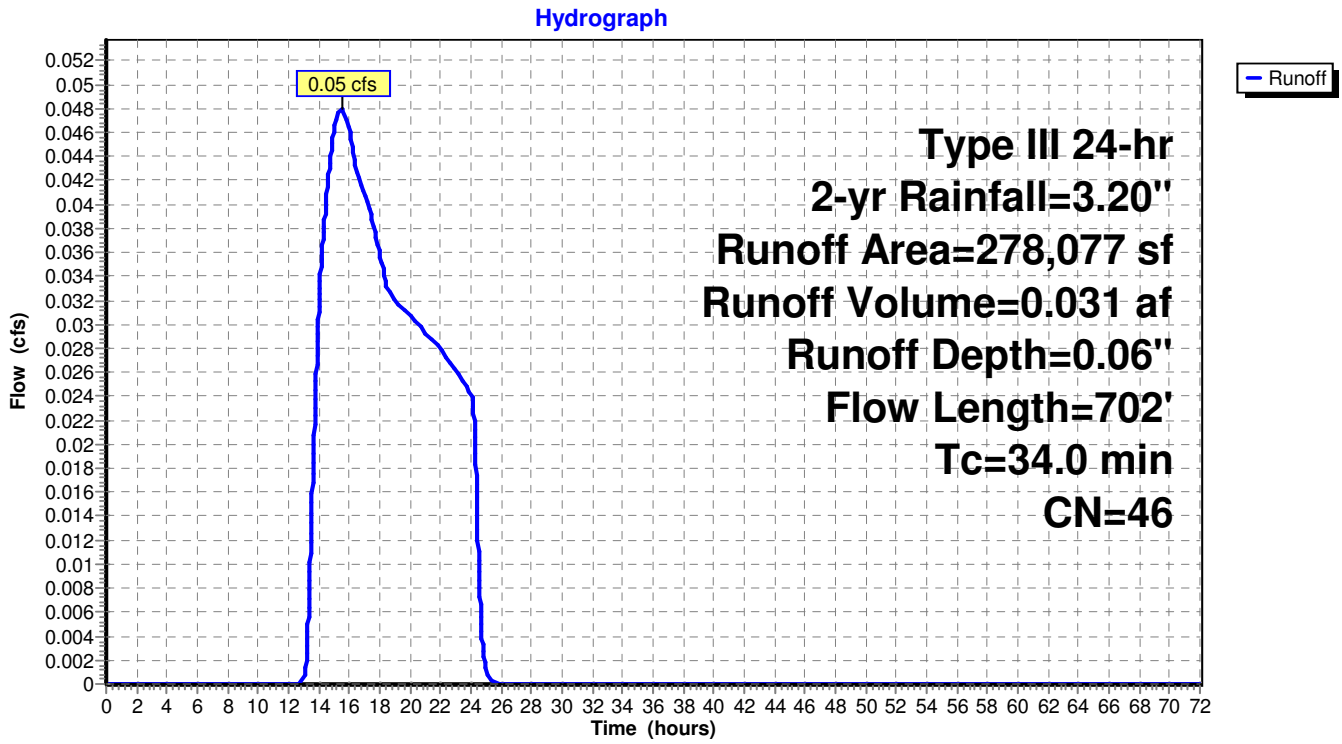
Runoff = 0.05 cfs @ 15.53 hrs, Volume= 0.031 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
	12,946	98	Roofs, HSG A
	44,703	39	>75% Grass cover, Good, HSG A
	7,763	98	Roofs, HSG A
	21,261	39	>75% Grass cover, Good, HSG A
*	3,521	98	Roofs, HSG B
	9,219	61	>75% Grass cover, Good, HSG B
	76,312	55	Woods, Good, HSG B
	102,352	30	Woods, Good, HSG A
	278,077	46	Weighted Average
	253,847		91.29% Pervious Area
	24,230		8.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
21.7	652	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	702	Total			

Subcatchment 3S: 3S



Summary for Subcatchment 4S: 4S

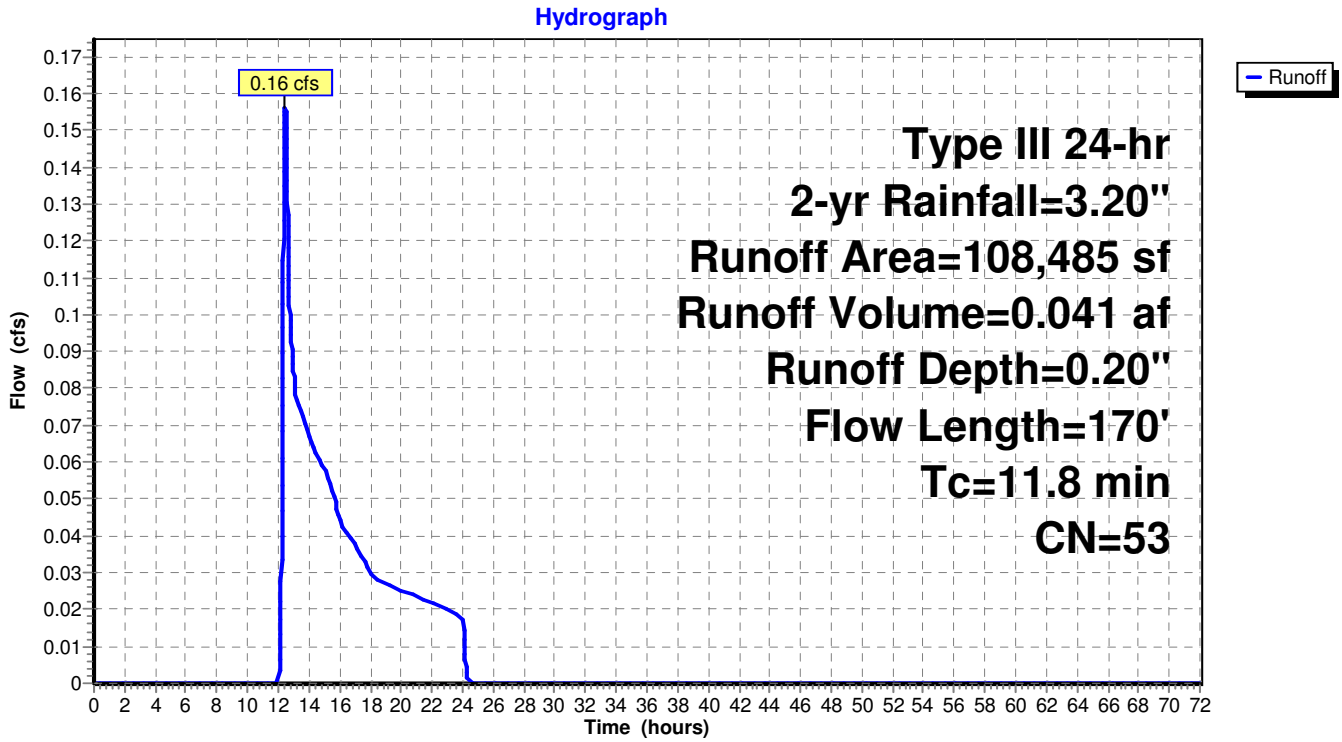
Runoff = 0.16 cfs @ 12.47 hrs, Volume= 0.041 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
	5,936	98	Roofs, HSG A
	46,782	39	>75% Grass cover, Good, HSG A
	11,938	30	Woods, Good, HSG A
*	10,060	98	Roofs, HSG B
	6,475	61	>75% Grass cover, Good, HSG B
	4,345	85	Gravel roads, HSG B
	22,949	55	Woods, Good, HSG B
	108,485	53	Weighted Average
	92,489		85.26% Pervious Area
	15,996		14.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.6	120	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.8	170	Total			

Subcatchment 4S: 4S



Summary for Pond 1A: 1a (Off-Site Natural Depression)

Inflow Area = 0.564 ac, 9.81% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.00' @ 0.00 hrs Surf.Area= 1,231 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,329.5 - 1,329.5)

Volume	Invert	Avail.Storage	Storage Description
#1	105.00'	1,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

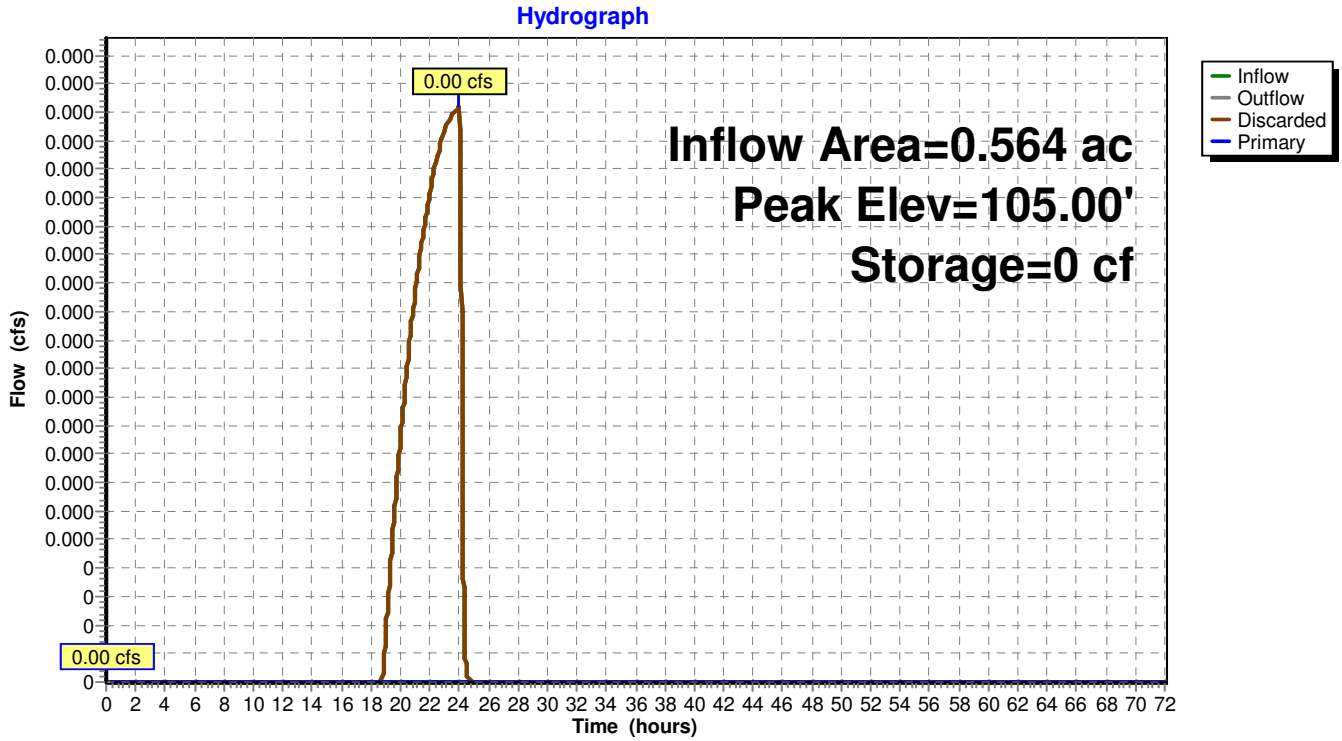
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
105.00	1,231	0	0
105.50	3,587	1,205	1,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	105.22'	**20.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.00 cfs @ 24.00 hrs HW=105.00' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.00 cfs of 0.07 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=105.00' TW=98.74' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A: 1a (Off-Site Natural Depression)



Summary for Pond 1B: 1b (Central Natural Depression)

Inflow Area = 1.471 ac, 10.26% Impervious, Inflow Depth = 0.44" for 2-yr event
Inflow = 0.34 cfs @ 12.40 hrs, Volume= 0.054 af
Outflow = 0.14 cfs @ 12.99 hrs, Volume= 0.054 af, Atten= 60%, Lag= 35.3 min
Discarded = 0.14 cfs @ 12.99 hrs, Volume= 0.054 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.35' @ 12.99 hrs Surf.Area= 2,367 sf Storage= 433 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 31.9 min (959.7 - 927.8)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	8,485 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

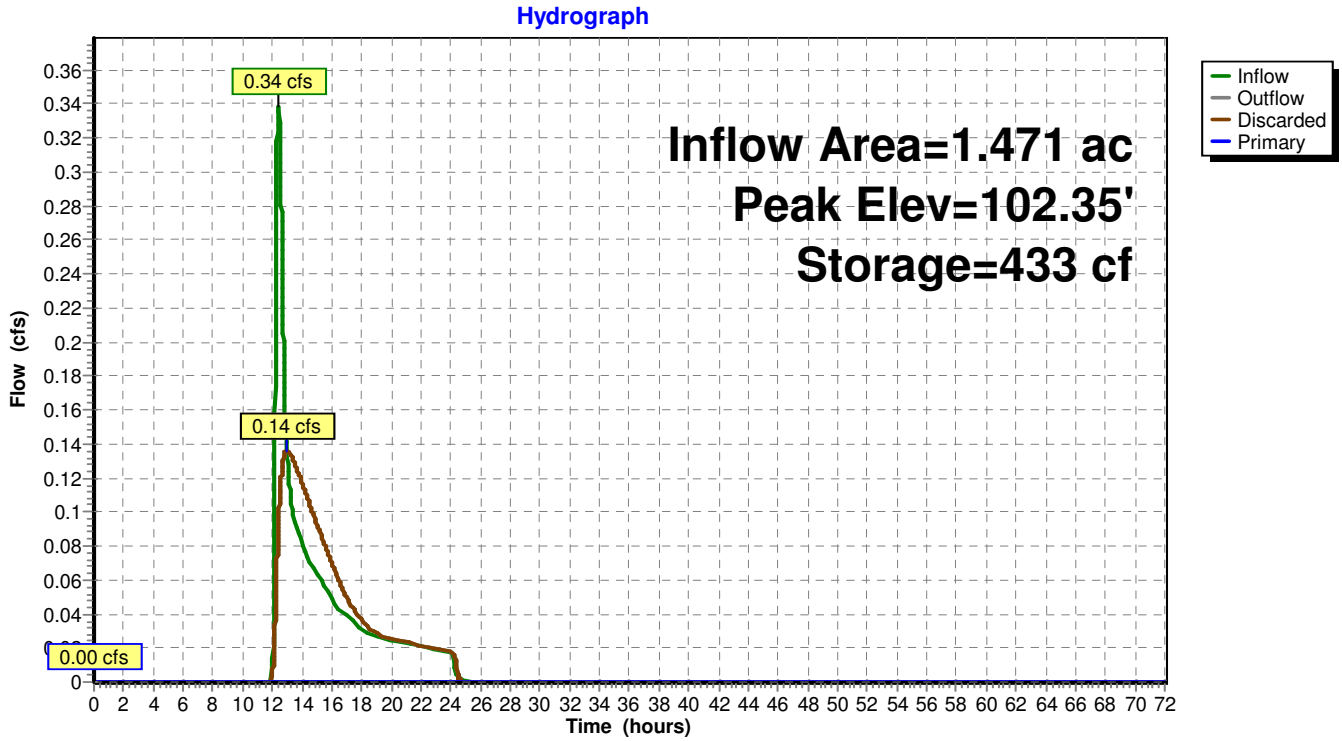
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	134	0	0
103.00	6,577	3,356	3,356
103.50	13,940	5,129	8,485

Device	Routing	Invert	Outlet Devices
#1	Discarded	102.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	103.39'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.14 cfs @ 12.99 hrs HW=102.35' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' TW=98.74' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B: 1b (Central Natural Depression)



Summary for Pond DP1: DP1 (SE - Natural Depression)

Inflow Area = 6.046 ac, 7.16% Impervious, Inflow Depth = 0.15" for 2-yr event
Inflow = 0.29 cfs @ 12.54 hrs, Volume= 0.075 af
Outflow = 0.11 cfs @ 14.83 hrs, Volume= 0.075 af, Atten= 63%, Lag= 137.3 min
Discarded = 0.11 cfs @ 14.83 hrs, Volume= 0.075 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 99.56' @ 14.83 hrs Surf.Area= 1,801 sf Storage= 610 cf

Plug-Flow detention time= 75.5 min calculated for 0.075 af (100% of inflow)
Center-of-Mass det. time= 75.5 min (1,050.9 - 975.4)

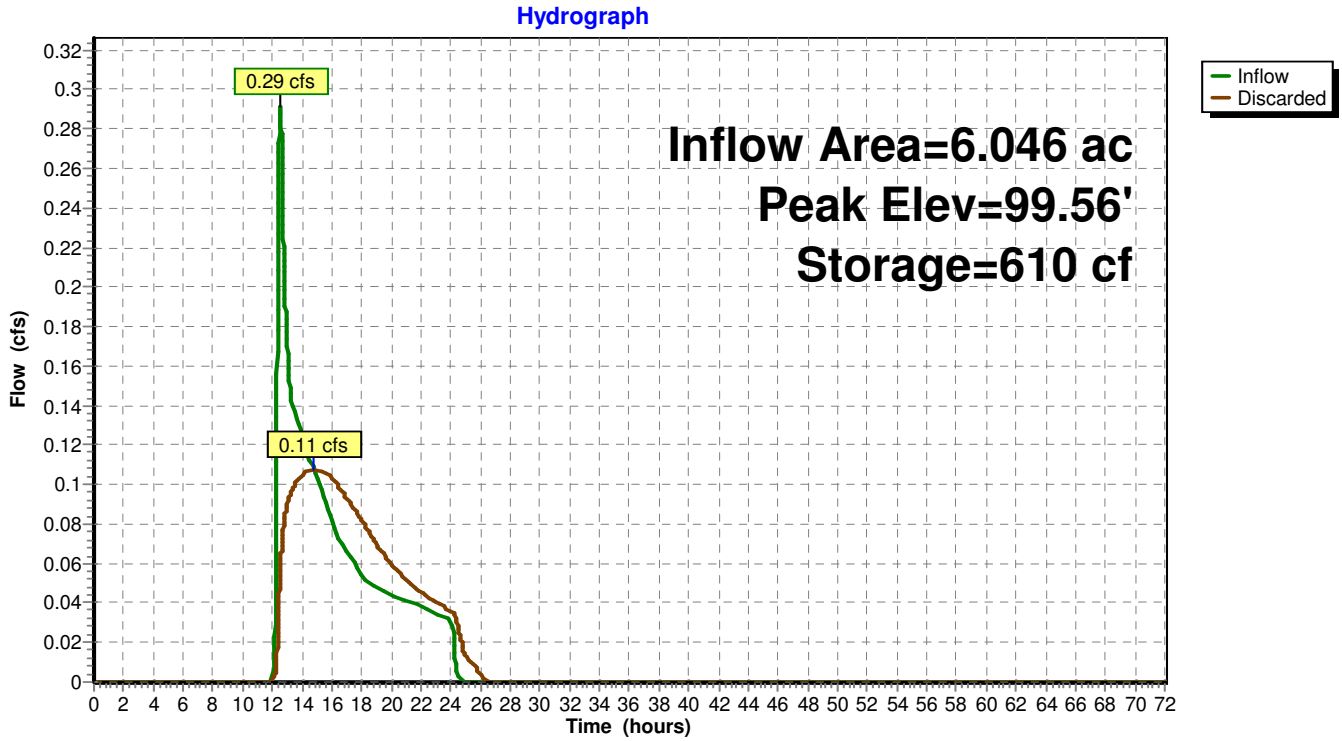
Volume	Invert	Avail.Storage	Storage Description
#1	98.74'	73,208 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.74	50	0	0
99.00	247	39	39
100.00	3,035	1,641	1,680
101.00	17,736	10,386	12,065
102.00	30,108	23,922	35,987
103.00	44,334	37,221	73,208

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.74'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 94.40'

Discarded OutFlow Max=0.11 cfs @ 14.83 hrs HW=99.56' (Free Discharge)
↑**1=Exfiltration** (Controls 0.11 cfs)

Pond DP1: DP1 (SE - Natural Depression)



Summary for Pond DP2: DP2 (SW - Natural Depression)

Inflow Area = 2.321 ac, 5.13% Impervious, Inflow Depth = 0.09" for 2-yr event
Inflow = 0.03 cfs @ 14.68 hrs, Volume= 0.017 af
Outflow = 0.02 cfs @ 15.96 hrs, Volume= 0.017 af, Atten= 16%, Lag= 77.1 min
Discarded = 0.02 cfs @ 15.96 hrs, Volume= 0.017 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 101.10' @ 15.96 hrs Surf.Area= 401 sf Storage= 117 cf

Plug-Flow detention time= 79.7 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 79.7 min (1,128.8 - 1,049.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.46'	9,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

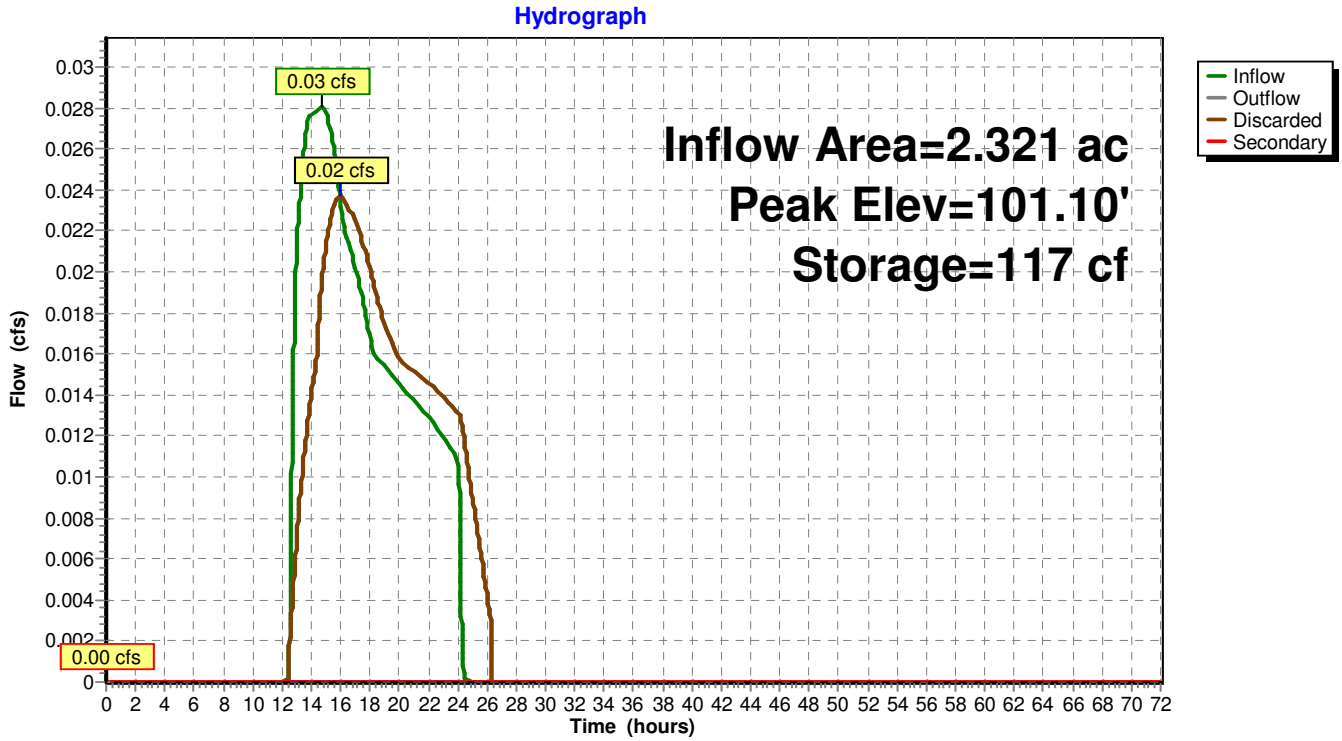
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.46	50	0	0
101.00	261	84	84
102.00	1,671	966	1,050
103.00	4,177	2,924	3,974
104.00	7,398	5,788	9,761

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.46'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Secondary	103.50'	**13.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.02 cfs @ 15.96 hrs HW=101.10' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.46' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP2: DP2 (SW - Natural Depression)



Summary for Pond DP3: DP3 (NW - Natural Depression)

Inflow Area = 6.384 ac, 8.71% Impervious, Inflow Depth = 0.06" for 2-yr event
Inflow = 0.05 cfs @ 15.53 hrs, Volume= 0.031 af
Outflow = 0.04 cfs @ 17.43 hrs, Volume= 0.031 af, Atten= 19%, Lag= 114.5 min
Discarded = 0.04 cfs @ 17.43 hrs, Volume= 0.031 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.33' @ 17.43 hrs Surf.Area= 3,174 sf Storage= 77 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 15.1 min (1,123.3 - 1,108.2)

Volume	Invert	Avail.Storage	Storage Description
#1	104.30'	66,553 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

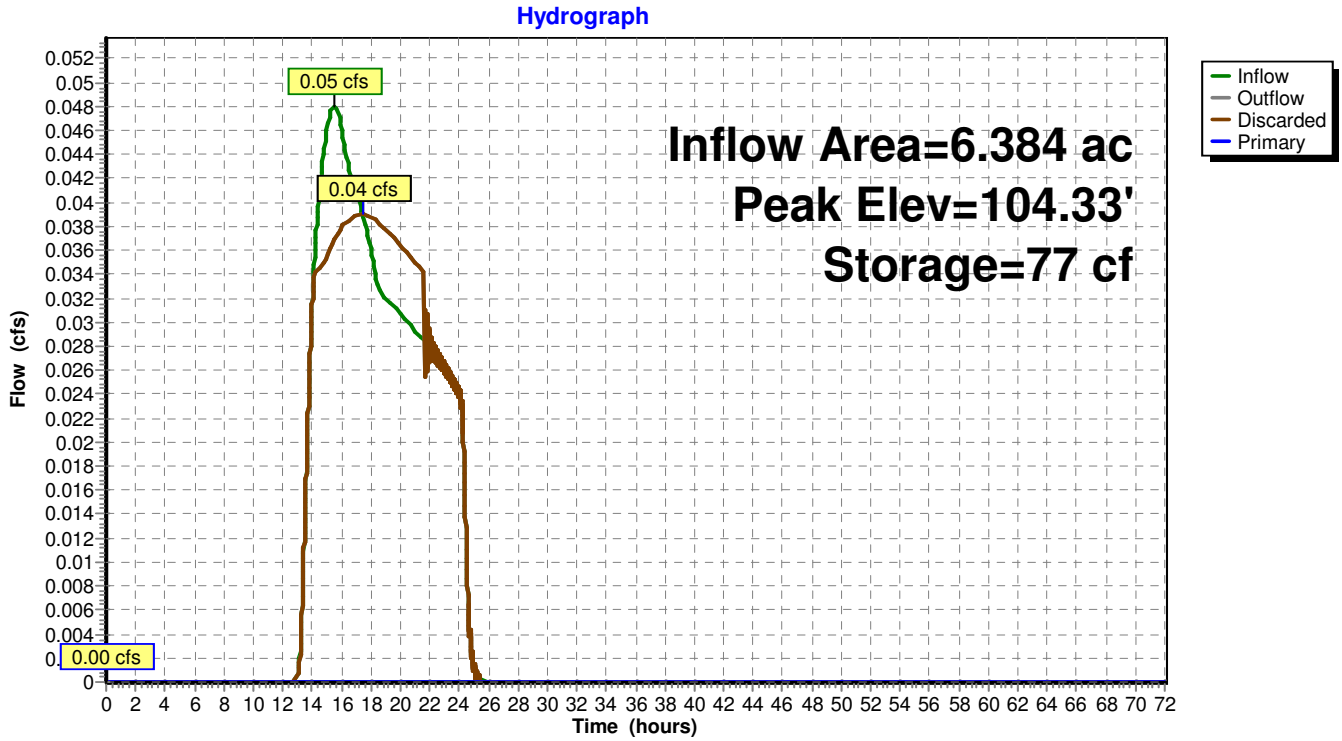
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.30	2,831	0	0
105.00	12,175	5,252	5,252
106.00	28,206	20,191	25,443
107.00	54,015	41,111	66,553

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.30'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	106.58'	**10.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.04 cfs @ 17.43 hrs HW=104.33' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.30' TW=103.83' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP3: DP3 (NW - Natural Depression)



Summary for Pond DP4: DP4 (North - Natural Depression)

Inflow Area = 8.874 ac, 10.41% Impervious, Inflow Depth = 0.06" for 2-yr event
Inflow = 0.16 cfs @ 12.47 hrs, Volume= 0.041 af
Outflow = 0.07 cfs @ 13.47 hrs, Volume= 0.041 af, Atten= 53%, Lag= 59.8 min
Discarded = 0.07 cfs @ 13.47 hrs, Volume= 0.041 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.88' @ 13.47 hrs Surf.Area= 3,007 sf Storage= 132 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 12.7 min (992.1 - 979.4)

Volume	Invert	Avail.Storage	Storage Description
#1	103.83'	23,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

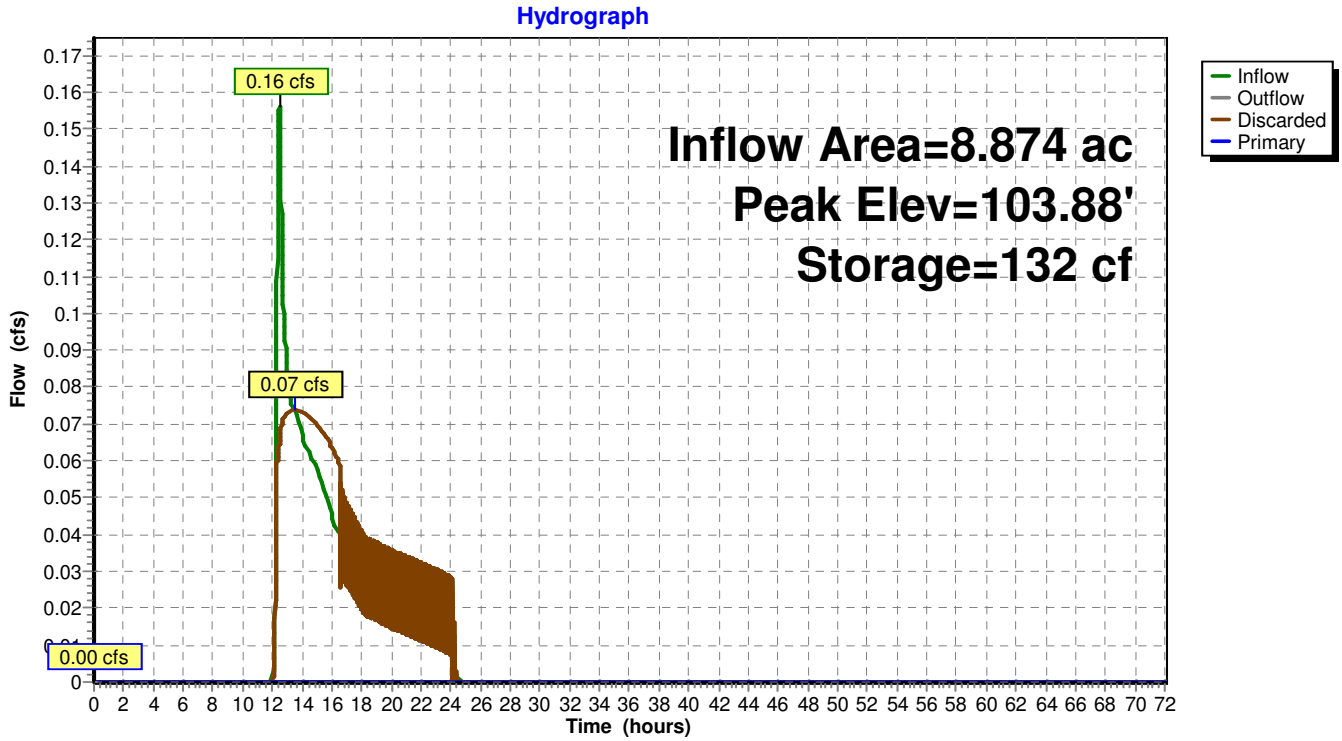
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.83	2,495	0	0
104.00	4,313	579	579
105.00	20,285	12,299	12,878
105.50	23,818	11,026	23,903

Device	Routing	Invert	Outlet Devices
#1	Discarded	103.83'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 102.80'
#2	Primary	105.07'	**20.0' long x 50.0' 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

Discarded OutFlow Max=0.07 cfs @ 13.47 hrs HW=103.88' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=103.83' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP4: DP4 (North - Natural Depression)



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1aS: 1aS (Off Site) Runoff Area=24,558 sf 9.81% Impervious Runoff Depth=0.17"
Flow Length=174' Tc=14.2 min CN=40 Runoff=0.01 cfs 0.008 af

Subcatchment 1bS: 1bS Runoff Area=64,083 sf 10.26% Impervious Runoff Depth=1.19"
Flow Length=221' Tc=20.1 min CN=61 Runoff=1.22 cfs 0.146 af

Subcatchment 1S: 1S Runoff Area=174,734 sf 5.65% Impervious Runoff Depth=0.78"
Flow Length=583' Tc=18.0 min CN=54 Runoff=1.87 cfs 0.261 af

Subcatchment 2S: 2S Runoff Area=101,102 sf 5.13% Impervious Runoff Depth=0.48"
Flow Length=402' Tc=14.1 min CN=48 Runoff=0.51 cfs 0.093 af

Subcatchment 3S: 3S Runoff Area=278,077 sf 8.71% Impervious Runoff Depth=0.39"
Flow Length=702' Tc=34.0 min CN=46 Runoff=0.75 cfs 0.209 af

Subcatchment 4S: 4S Runoff Area=108,485 sf 14.74% Impervious Runoff Depth=0.73"
Flow Length=170' Tc=11.8 min CN=53 Runoff=1.18 cfs 0.151 af

Pond 1A: 1a (Off-Site Natural Depression) Peak Elev=105.00' Storage=0 cf Inflow=0.01 cfs 0.008 af
Discarded=0.01 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Pond 1B: 1b (Central Natural Depression) Peak Elev=102.76' Storage=1,972 cf Inflow=1.22 cfs 0.146 af
Discarded=0.30 cfs 0.146 af Primary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.146 af

Pond DP1: DP1 (SE - Natural Depression) Peak Elev=100.30' Storage=3,277 cf Inflow=1.87 cfs 0.261 af
Outflow=0.45 cfs 0.261 af

Pond DP2: DP2 (SW - Natural Depression) Peak Elev=102.07' Storage=1,179 cf Inflow=0.51 cfs 0.093 af
Discarded=0.12 cfs 0.093 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.093 af

Pond DP3: DP3 (NW - Natural Depression) Peak Elev=104.87' Storage=3,769 cf Inflow=0.75 cfs 0.209 af
Discarded=0.16 cfs 0.209 af Primary=0.00 cfs 0.000 af Outflow=0.16 cfs 0.209 af

Pond DP4: DP4 (North - Natural Depression) Peak Elev=104.22' Storage=1,909 cf Inflow=1.18 cfs 0.151 af
Discarded=0.22 cfs 0.151 af Primary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.151 af

Total Runoff Area = 17.241 ac Runoff Volume = 0.867 af Average Runoff Depth = 0.60"
91.44% Pervious = 15.766 ac 8.56% Impervious = 1.476 ac

Summary for Subcatchment 1aS: 1aS (Off Site)

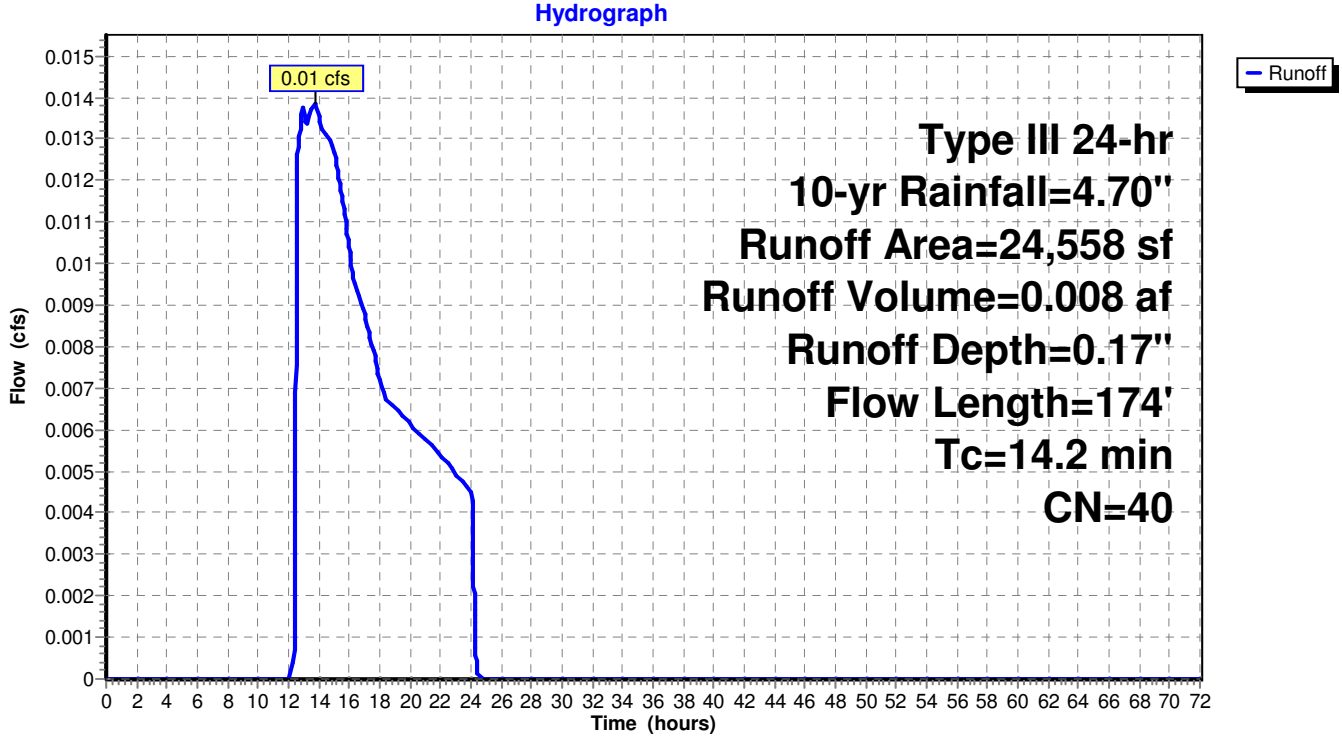
Runoff = 0.01 cfs @ 13.71 hrs, Volume= 0.008 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
2,408	98	Roofs, HSG A
8,090	39	>75% Grass cover, Good, HSG A
14,060	30	Woods, Good, HSG A
24,558	40	Weighted Average
22,150		90.19% Pervious Area
2,408		9.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	74	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	174	Total			

Subcatchment 1aS: 1aS (Off Site)



Summary for Subcatchment 1bS: 1bS

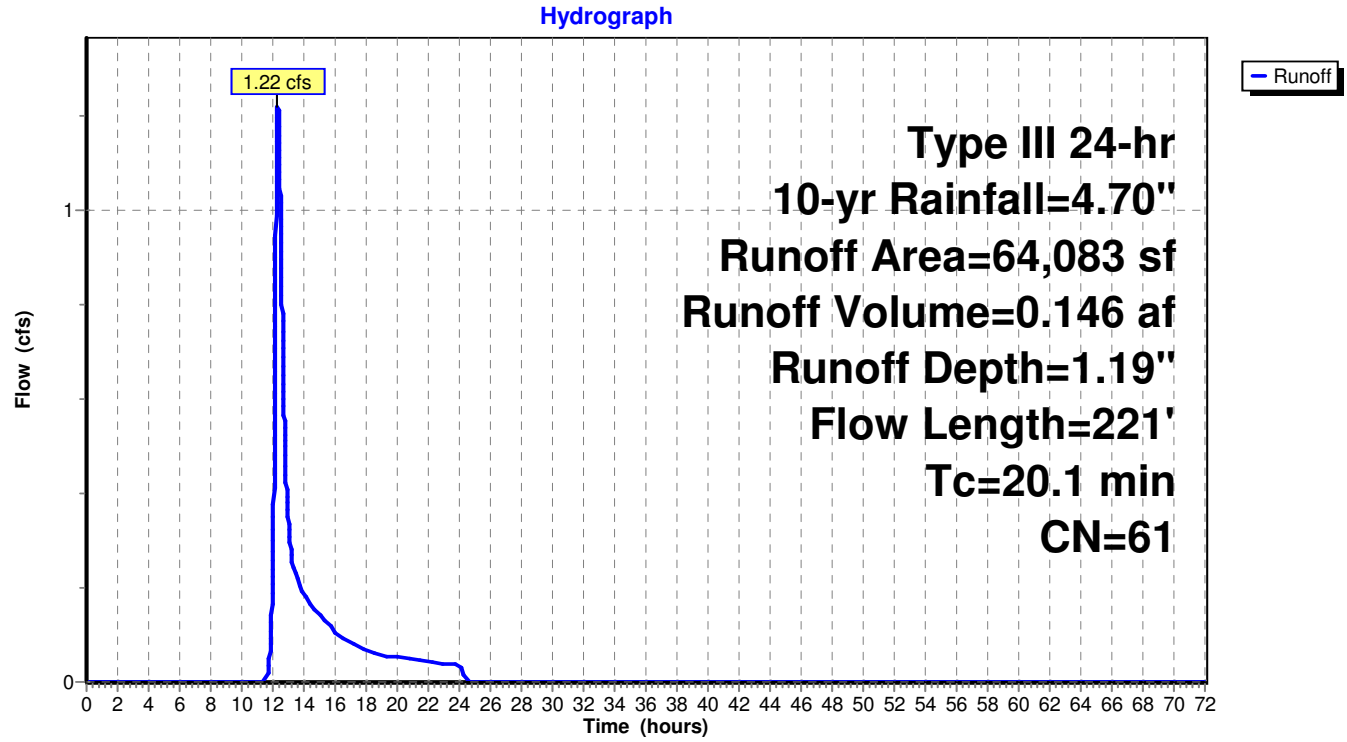
Runoff = 1.22 cfs @ 12.31 hrs, Volume= 0.146 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

	Area (sf)	CN	Description
*	6,573	98	Paved parking, HSG B
	2,228	85	Gravel roads, HSG B
	4,988	61	>75% Grass cover, Good, HSG B
	50,294	55	Woods, Good, HSG B
	64,083	61	Weighted Average
	57,510		89.74% Pervious Area
	6,573		10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	171	0.0230	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.1	221	Total			

Subcatchment 1bS: 1bS



Summary for Subcatchment 1S: 1S

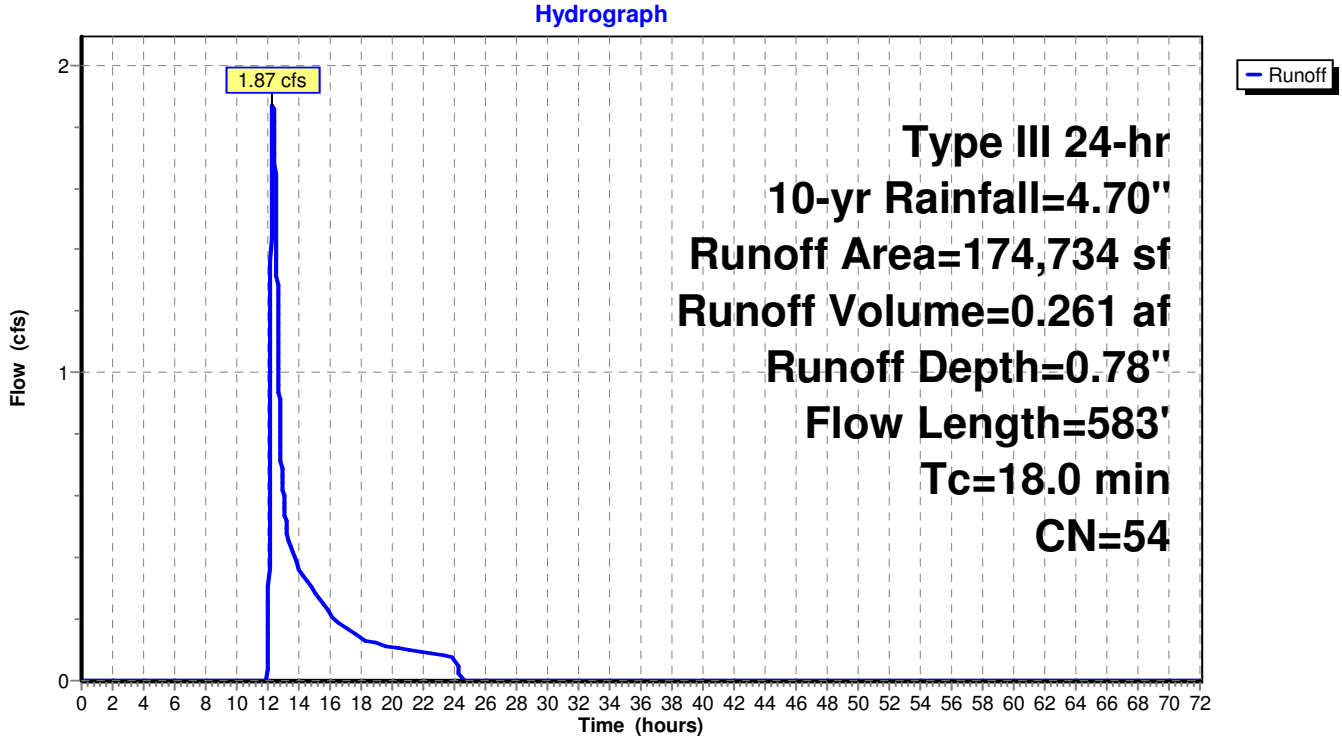
Runoff = 1.87 cfs @ 12.32 hrs, Volume= 0.261 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

	Area (sf)	CN	Description
*	4,524	98	Paved parking, HSG B
	5,354	98	Roofs, HSG A
	6,609	61	>75% Grass cover, Good, HSG B
	20,800	39	>75% Grass cover, Good, HSG A
	3,691	74	>75% Grass cover, Good, HSG C
	115,919	55	Woods, Good, HSG B
	17,837	30	Woods, Good, HSG A
	174,734	54	Weighted Average
	164,856		94.35% Pervious Area
	9,878		5.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	426	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	583	Total			

Subcatchment 1S: 1S



Summary for Subcatchment 2S: 2S

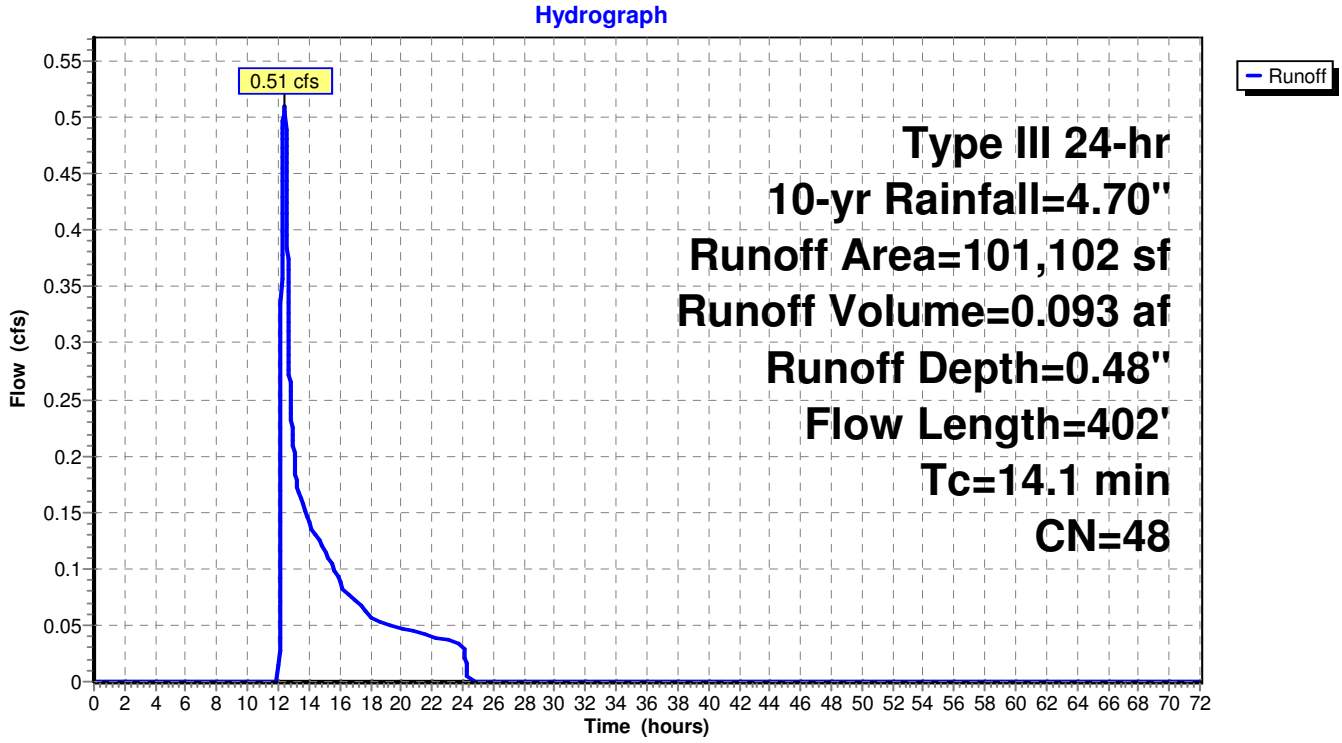
Runoff = 0.51 cfs @ 12.39 hrs, Volume= 0.093 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
5,188	98	Roofs, HSG A
30,371	39	>75% Grass cover, Good, HSG A
18,390	30	Woods, Good, HSG A
47,153	55	Woods, Good, HSG B
101,102	48	Weighted Average
95,914		94.87% Pervious Area
5,188		5.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0250	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.3	194	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	158	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.1	402	Total			

Subcatchment 2S: 2S



Summary for Subcatchment 3S: 3S

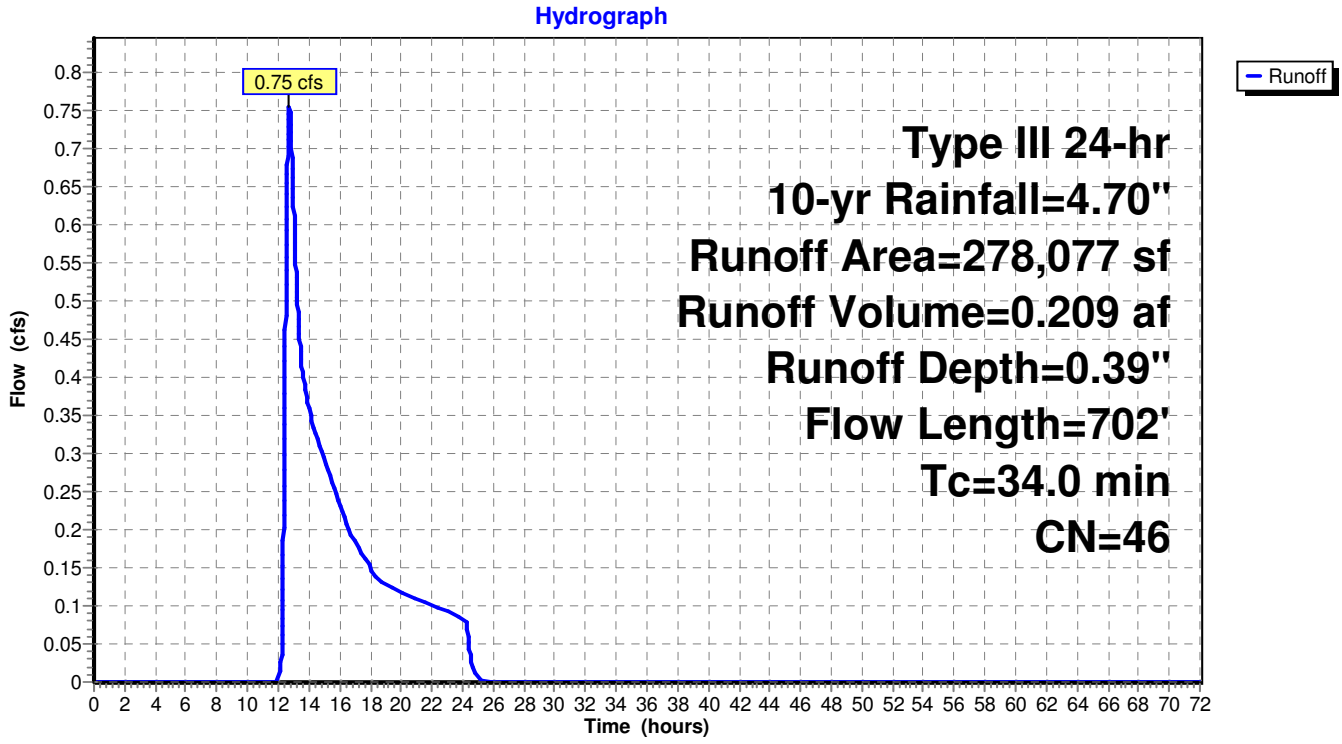
Runoff = 0.75 cfs @ 12.73 hrs, Volume= 0.209 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

	Area (sf)	CN	Description
	12,946	98	Roofs, HSG A
	44,703	39	>75% Grass cover, Good, HSG A
	7,763	98	Roofs, HSG A
	21,261	39	>75% Grass cover, Good, HSG A
*	3,521	98	Roofs, HSG B
	9,219	61	>75% Grass cover, Good, HSG B
	76,312	55	Woods, Good, HSG B
	102,352	30	Woods, Good, HSG A
	278,077	46	Weighted Average
	253,847		91.29% Pervious Area
	24,230		8.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
21.7	652	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	702	Total			

Subcatchment 3S: 3S



Summary for Subcatchment 4S: 4S

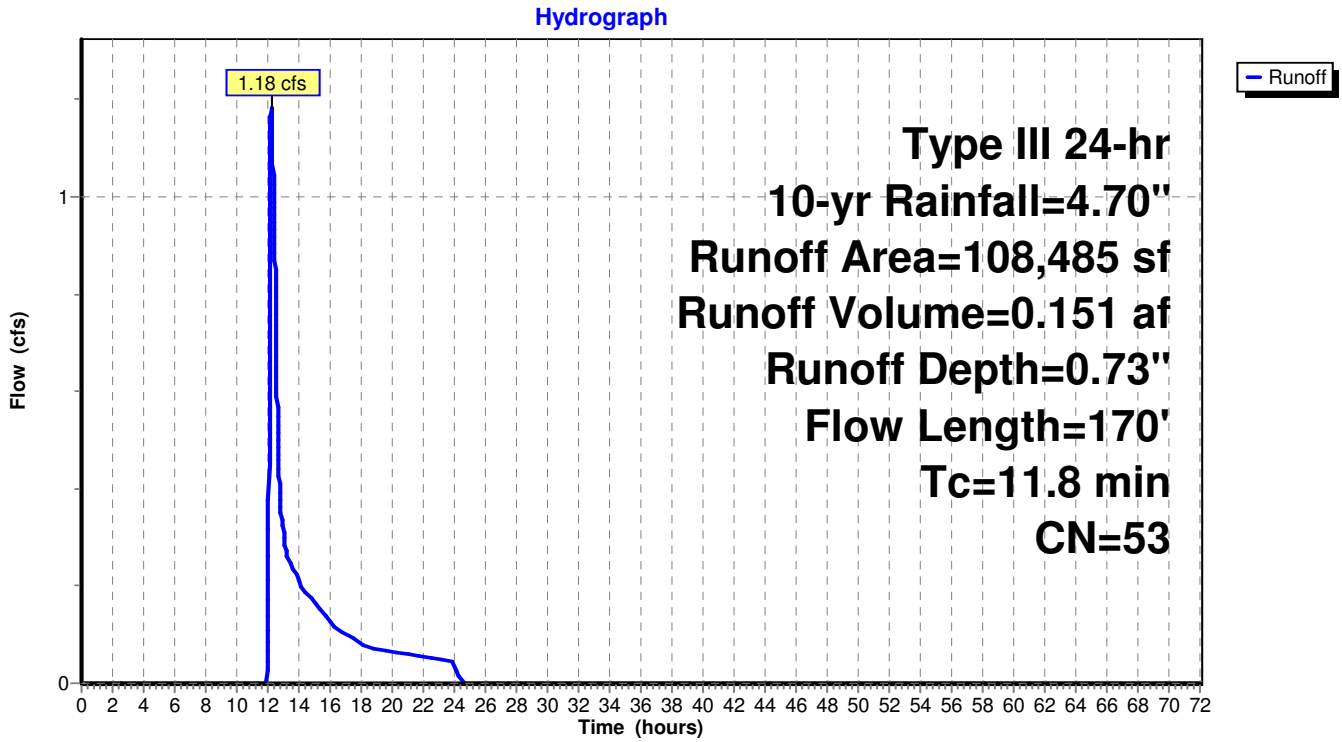
Runoff = 1.18 cfs @ 12.21 hrs, Volume= 0.151 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

	Area (sf)	CN	Description
	5,936	98	Roofs, HSG A
	46,782	39	>75% Grass cover, Good, HSG A
	11,938	30	Woods, Good, HSG A
*	10,060	98	Roofs, HSG B
	6,475	61	>75% Grass cover, Good, HSG B
	4,345	85	Gravel roads, HSG B
	22,949	55	Woods, Good, HSG B
	108,485	53	Weighted Average
	92,489		85.26% Pervious Area
	15,996		14.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.6	120	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.8	170	Total			

Subcatchment 4S: 4S



Summary for Pond 1A: 1a (Off-Site Natural Depression)

Inflow Area = 0.564 ac, 9.81% Impervious, Inflow Depth = 0.17" for 10-yr event
Inflow = 0.01 cfs @ 13.71 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 13.71 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.01 cfs @ 13.71 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.00' @ 0.00 hrs Surf.Area= 1,231 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,025.2 - 1,025.2)

Volume	Invert	Avail.Storage	Storage Description
#1	105.00'	1,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

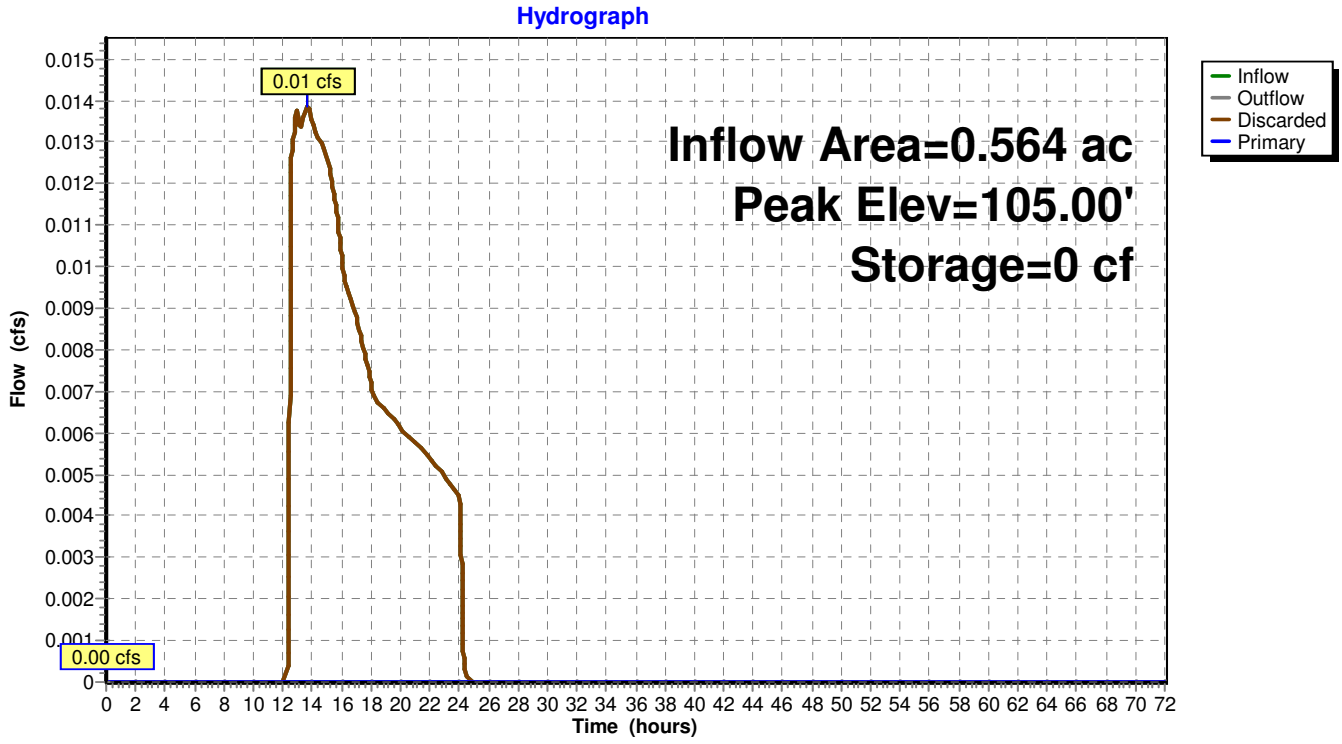
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
105.00	1,231	0	0
105.50	3,587	1,205	1,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	105.22'	**20.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.00 cfs @ 13.71 hrs HW=105.00' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.00 cfs of 0.07 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=105.00' TW=98.74' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A: 1a (Off-Site Natural Depression)



Summary for Pond 1B: 1b (Central Natural Depression)

Inflow Area = 1.471 ac, 10.26% Impervious, Inflow Depth = 1.19" for 10-yr event
Inflow = 1.22 cfs @ 12.31 hrs, Volume= 0.146 af
Outflow = 0.30 cfs @ 13.09 hrs, Volume= 0.146 af, Atten= 76%, Lag= 47.0 min
Discarded = 0.30 cfs @ 13.09 hrs, Volume= 0.146 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.76' @ 13.09 hrs Surf.Area= 5,042 sf Storage= 1,972 cf

Plug-Flow detention time= 75.1 min calculated for 0.146 af (100% of inflow)
Center-of-Mass det. time= 75.1 min (965.1 - 890.0)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	8,485 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

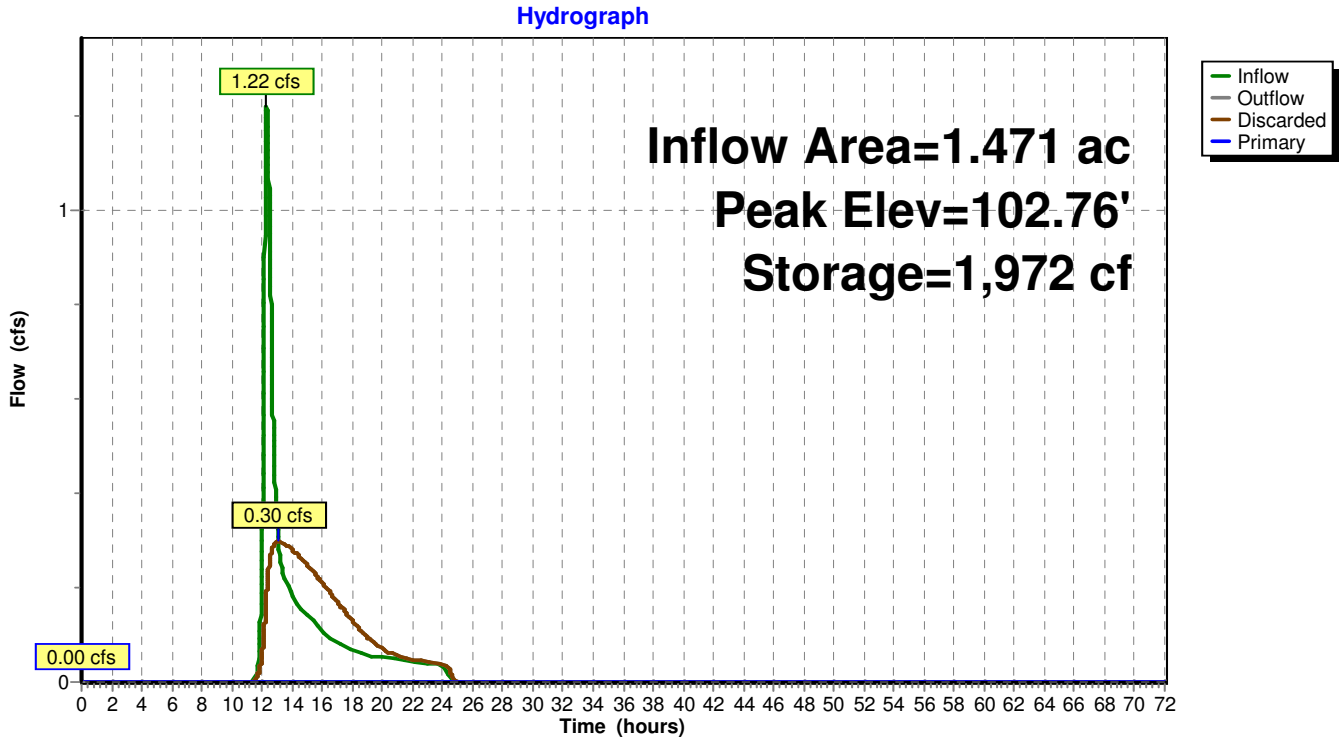
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	134	0	0
103.00	6,577	3,356	3,356
103.50	13,940	5,129	8,485

Device	Routing	Invert	Outlet Devices
#1	Discarded	102.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	103.39'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.30 cfs @ 13.09 hrs HW=102.76' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.30 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' TW=98.74' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B: 1b (Central Natural Depression)



Summary for Pond DP1: DP1 (SE - Natural Depression)

Inflow Area = 6.046 ac, 7.16% Impervious, Inflow Depth = 0.52" for 10-yr event
Inflow = 1.87 cfs @ 12.32 hrs, Volume= 0.261 af
Outflow = 0.45 cfs @ 13.34 hrs, Volume= 0.261 af, Atten= 76%, Lag= 61.0 min
Discarded = 0.45 cfs @ 13.34 hrs, Volume= 0.261 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 100.30' @ 13.34 hrs Surf.Area= 7,494 sf Storage= 3,277 cf

Plug-Flow detention time= 119.9 min calculated for 0.261 af (100% of inflow)
Center-of-Mass det. time= 119.9 min (1,034.2 - 914.3)

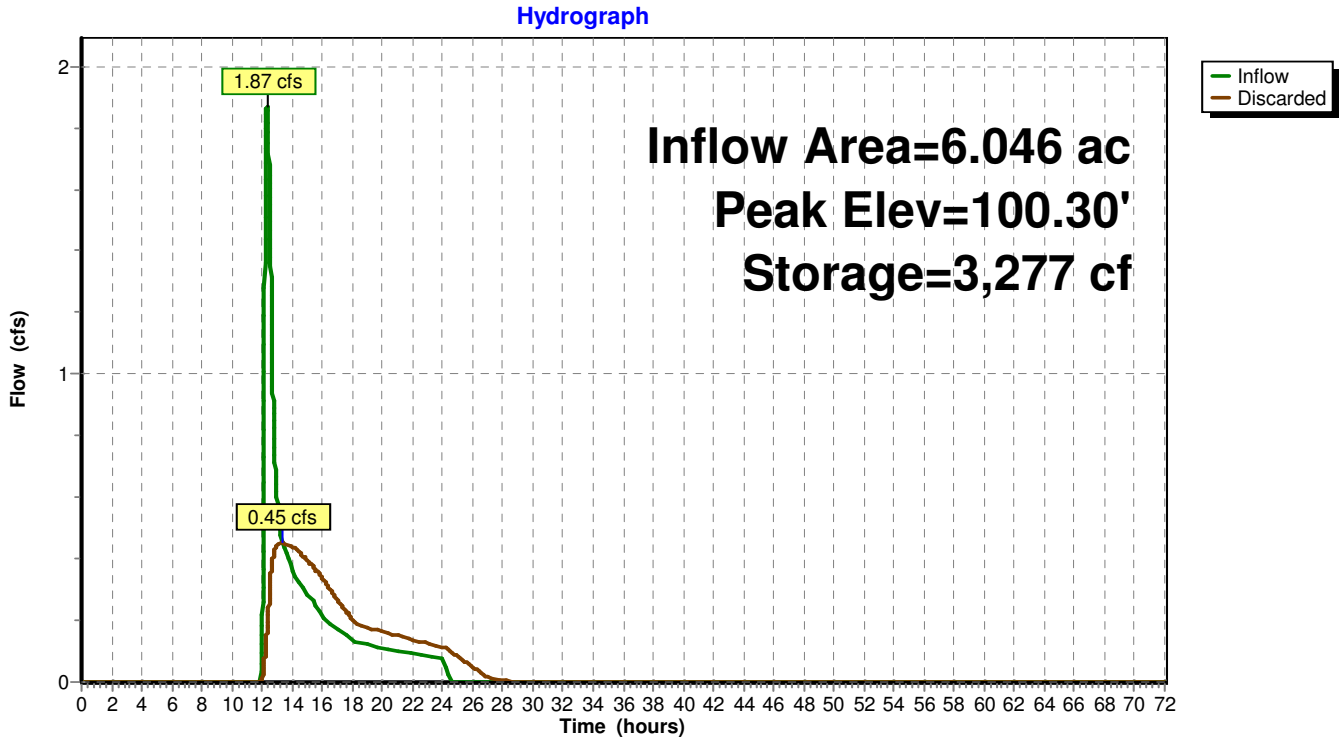
Volume	Invert	Avail.Storage	Storage Description
#1	98.74'	73,208 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.74	50	0	0
99.00	247	39	39
100.00	3,035	1,641	1,680
101.00	17,736	10,386	12,065
102.00	30,108	23,922	35,987
103.00	44,334	37,221	73,208

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.74'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 94.40'

Discarded OutFlow Max=0.45 cfs @ 13.34 hrs HW=100.30' (Free Discharge)
↑**1=Exfiltration** (Controls 0.45 cfs)

Pond DP1: DP1 (SE - Natural Depression)



Summary for Pond DP2: DP2 (SW - Natural Depression)

Inflow Area = 2.321 ac, 5.13% Impervious, Inflow Depth = 0.48" for 10-yr event
Inflow = 0.51 cfs @ 12.39 hrs, Volume= 0.093 af
Outflow = 0.12 cfs @ 15.04 hrs, Volume= 0.093 af, Atten= 77%, Lag= 158.5 min
Discarded = 0.12 cfs @ 15.04 hrs, Volume= 0.093 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.07' @ 15.04 hrs Surf.Area= 1,855 sf Storage= 1,179 cf

Plug-Flow detention time= 144.8 min calculated for 0.093 af (100% of inflow)
Center-of-Mass det. time= 144.8 min (1,088.2 - 943.4)

Volume	Invert	Avail.Storage	Storage Description
#1	100.46'	9,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

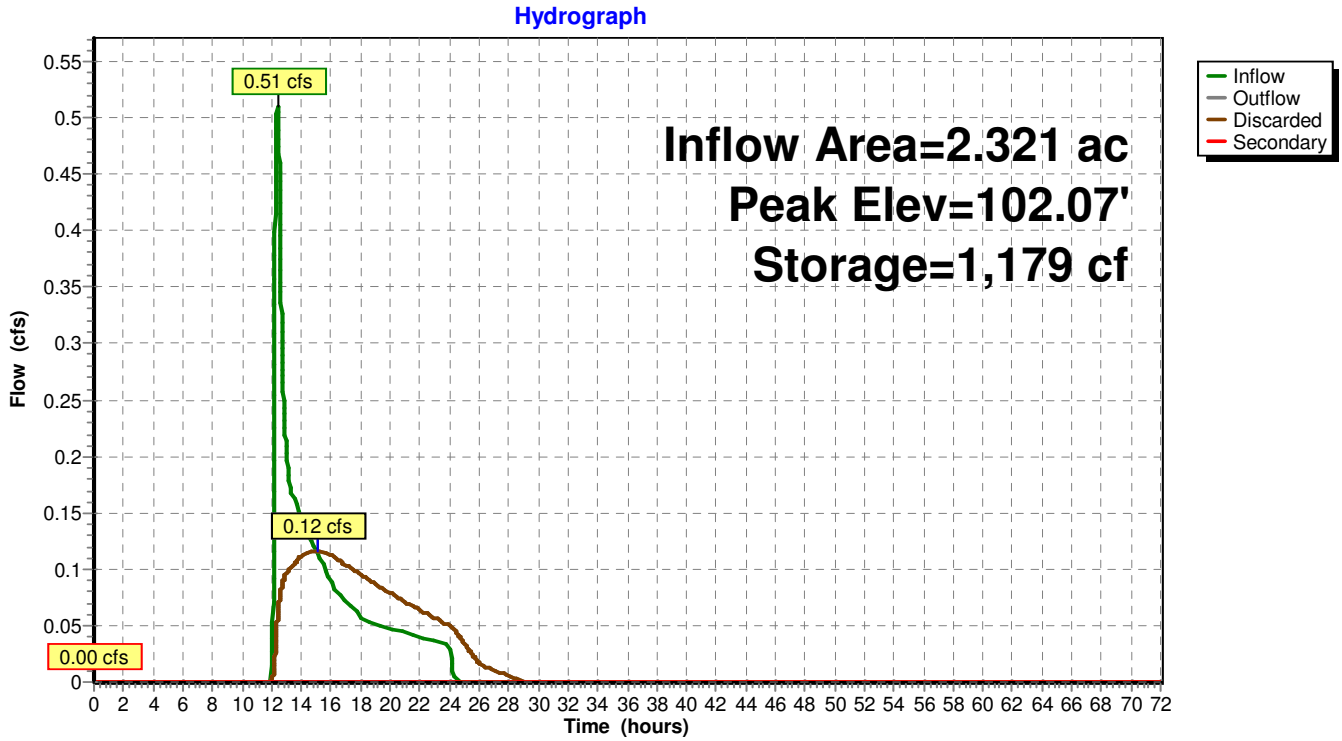
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.46	50	0	0
101.00	261	84	84
102.00	1,671	966	1,050
103.00	4,177	2,924	3,974
104.00	7,398	5,788	9,761

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.46'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Secondary	103.50'	**13.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.12 cfs @ 15.04 hrs HW=102.07' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.12 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.46' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP2: DP2 (SW - Natural Depression)



Summary for Pond DP3: DP3 (NW - Natural Depression)

Inflow Area = 6.384 ac, 8.71% Impervious, Inflow Depth = 0.39" for 10-yr event
Inflow = 0.75 cfs @ 12.73 hrs, Volume= 0.209 af
Outflow = 0.16 cfs @ 17.65 hrs, Volume= 0.209 af, Atten= 78%, Lag= 295.1 min
Discarded = 0.16 cfs @ 17.65 hrs, Volume= 0.209 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.87' @ 17.65 hrs Surf.Area= 10,423 sf Storage= 3,769 cf

Plug-Flow detention time= 317.0 min calculated for 0.209 af (100% of inflow)
Center-of-Mass det. time= 317.0 min (1,293.6 - 976.5)

Volume	Invert	Avail.Storage	Storage Description
#1	104.30'	66,553 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

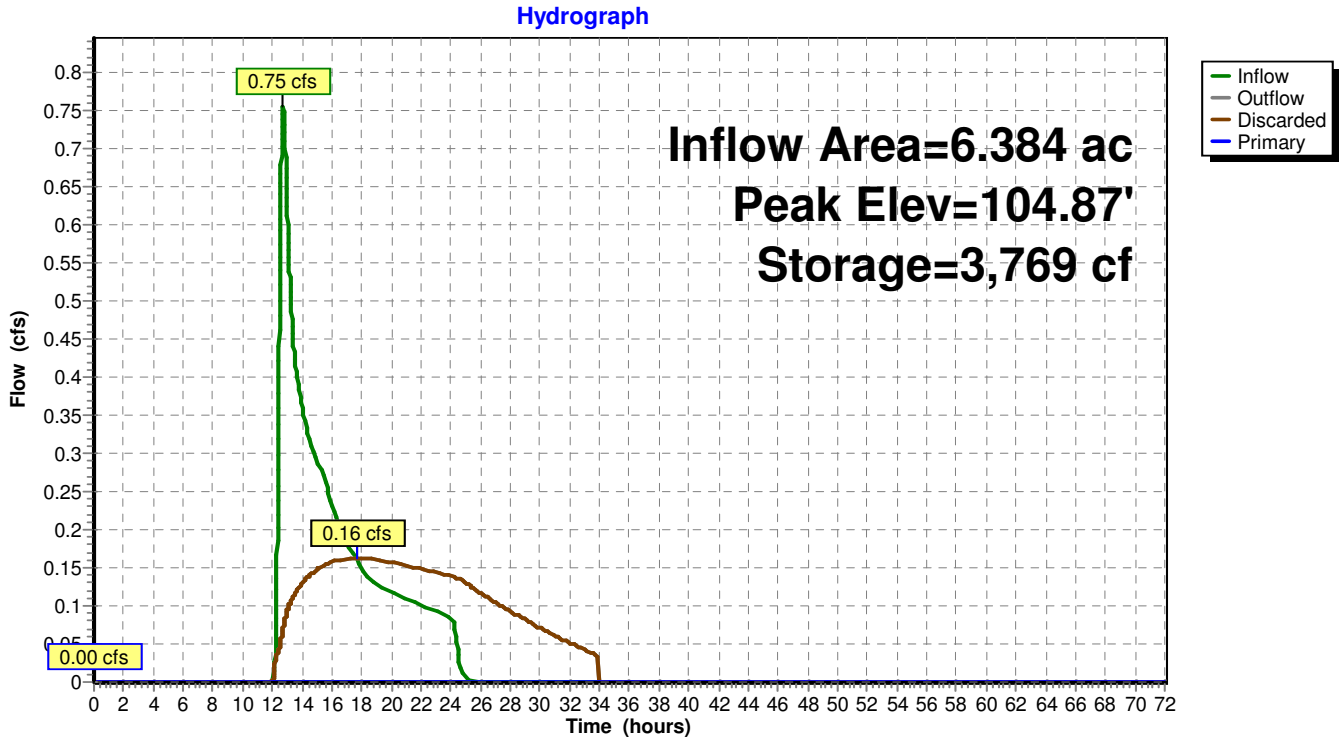
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.30	2,831	0	0
105.00	12,175	5,252	5,252
106.00	28,206	20,191	25,443
107.00	54,015	41,111	66,553

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.30'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	106.58'	**10.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.16 cfs @ 17.65 hrs HW=104.87' (Free Discharge)
1=Exfiltration (Controls 0.16 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.30' TW=103.83' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DP3: DP3 (NW - Natural Depression)



Summary for Pond DP4: DP4 (North - Natural Depression)

Inflow Area = 8.874 ac, 10.41% Impervious, Inflow Depth = 0.20" for 10-yr event
Inflow = 1.18 cfs @ 12.21 hrs, Volume= 0.151 af
Outflow = 0.22 cfs @ 13.79 hrs, Volume= 0.151 af, Atten= 81%, Lag= 94.9 min
Discarded = 0.22 cfs @ 13.79 hrs, Volume= 0.151 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.22' @ 13.79 hrs Surf.Area= 7,817 sf Storage= 1,909 cf

Plug-Flow detention time= 107.8 min calculated for 0.151 af (100% of inflow)
Center-of-Mass det. time= 107.8 min (1,020.9 - 913.1)

Volume	Invert	Avail.Storage	Storage Description
#1	103.83'	23,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

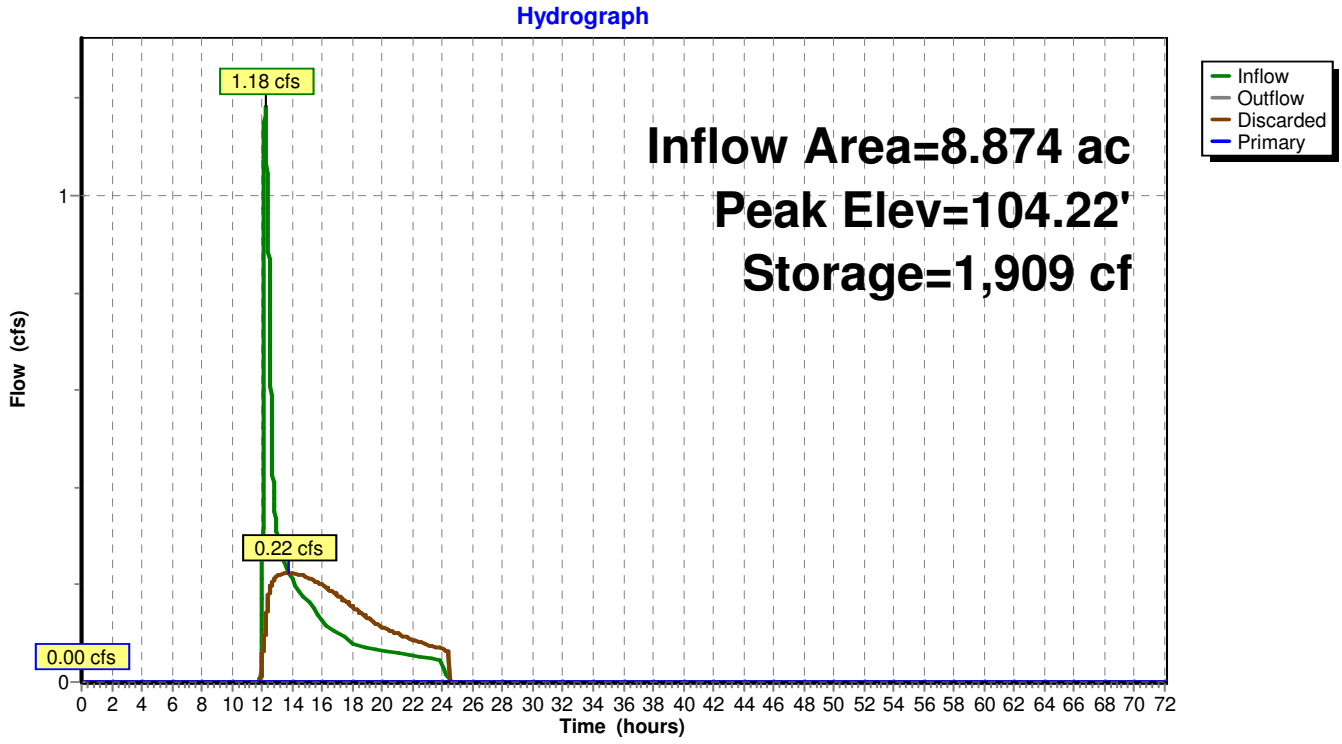
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.83	2,495	0	0
104.00	4,313	579	579
105.00	20,285	12,299	12,878
105.50	23,818	11,026	23,903

Device	Routing	Invert	Outlet Devices
#1	Discarded	103.83'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 102.80'
#2	Primary	105.07'	**20.0' long x 50.0' 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

Discarded OutFlow Max=0.22 cfs @ 13.79 hrs HW=104.22' (Free Discharge)
1=Exfiltration (Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=103.83' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DP4: DP4 (North - Natural Depression)



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1aS: 1aS (Off Site) Runoff Area=24,558 sf 9.81% Impervious Runoff Depth=0.36"
Flow Length=174' Tc=14.2 min CN=40 Runoff=0.06 cfs 0.017 af

Subcatchment 1bS: 1bS Runoff Area=64,083 sf 10.26% Impervious Runoff Depth=1.68"
Flow Length=221' Tc=20.1 min CN=61 Runoff=1.81 cfs 0.206 af

Subcatchment 1S: 1S Runoff Area=174,734 sf 5.65% Impervious Runoff Depth=1.17"
Flow Length=583' Tc=18.0 min CN=54 Runoff=3.19 cfs 0.391 af

Subcatchment 2S: 2S Runoff Area=101,102 sf 5.13% Impervious Runoff Depth=0.78"
Flow Length=402' Tc=14.1 min CN=48 Runoff=1.06 cfs 0.152 af

Subcatchment 3S: 3S Runoff Area=278,077 sf 8.71% Impervious Runoff Depth=0.67"
Flow Length=702' Tc=34.0 min CN=46 Runoff=1.68 cfs 0.355 af

Subcatchment 4S: 4S Runoff Area=108,485 sf 14.74% Impervious Runoff Depth=1.10"
Flow Length=170' Tc=11.8 min CN=53 Runoff=2.12 cfs 0.229 af

Pond 1A: 1a (Off-Site Natural Depression) Peak Elev=105.00' Storage=0 cf Inflow=0.06 cfs 0.017 af
Discarded=0.06 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.017 af

Pond 1B: 1b (Central Natural Depression) Peak Elev=102.96' Storage=3,123 cf Inflow=1.81 cfs 0.206 af
Discarded=0.38 cfs 0.206 af Primary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.206 af

Pond DP1: DP1 (SE - Natural Depression) Peak Elev=100.55' Storage=5,532 cf Inflow=3.19 cfs 0.391 af
Outflow=0.67 cfs 0.391 af

Pond DP2: DP2 (SW - Natural Depression) Peak Elev=102.51' Storage=2,215 cf Inflow=1.06 cfs 0.152 af
Discarded=0.19 cfs 0.152 af Secondary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.152 af

Pond DP3: DP3 (NW - Natural Depression) Peak Elev=105.16' Storage=7,427 cf Inflow=1.68 cfs 0.355 af
Discarded=0.25 cfs 0.355 af Primary=0.00 cfs 0.000 af Outflow=0.25 cfs 0.355 af

Pond DP4: DP4 (North - Natural Depression) Peak Elev=104.39' Storage=3,434 cf Inflow=2.12 cfs 0.229 af
Discarded=0.32 cfs 0.229 af Primary=0.00 cfs 0.000 af Outflow=0.32 cfs 0.229 af

Total Runoff Area = 17.241 ac Runoff Volume = 1.349 af Average Runoff Depth = 0.94"
91.44% Pervious = 15.766 ac 8.56% Impervious = 1.476 ac

Summary for Subcatchment 1aS: 1aS (Off Site)

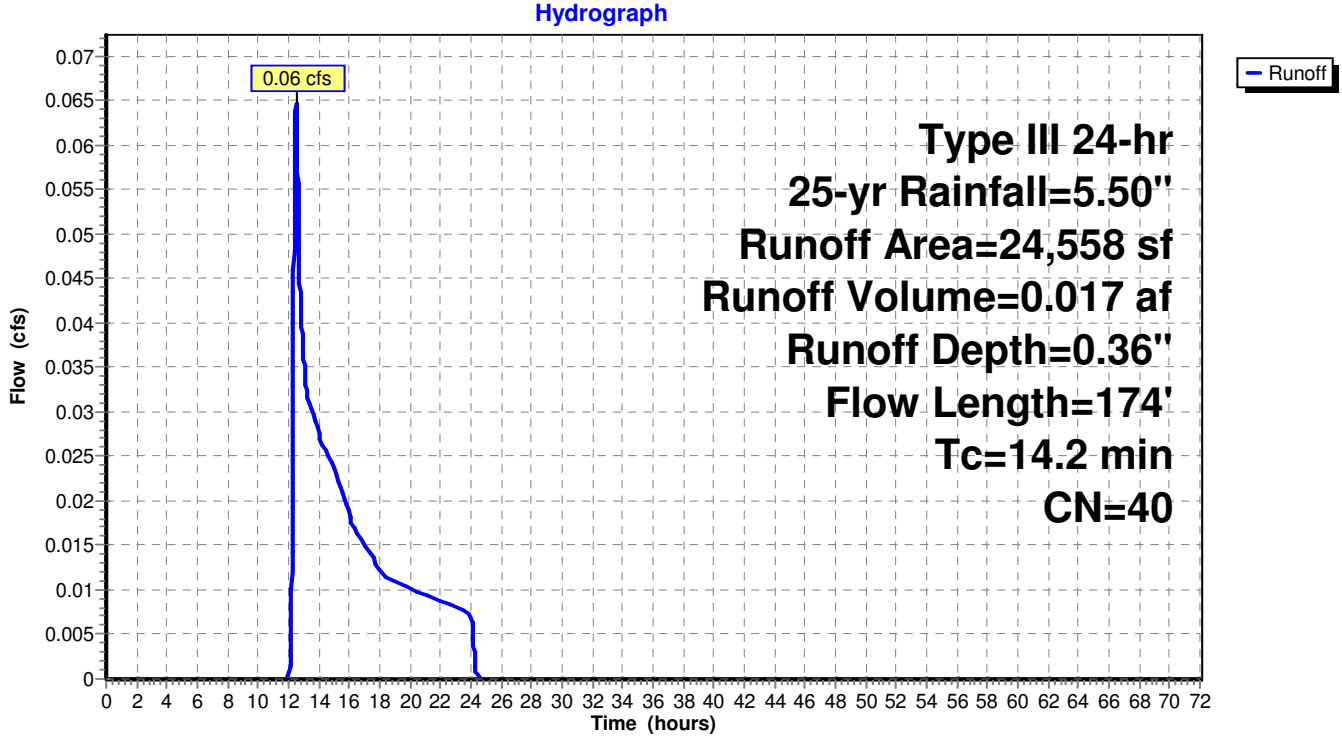
Runoff = 0.06 cfs @ 12.50 hrs, Volume= 0.017 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
2,408	98	Roofs, HSG A
8,090	39	>75% Grass cover, Good, HSG A
14,060	30	Woods, Good, HSG A
24,558	40	Weighted Average
22,150		90.19% Pervious Area
2,408		9.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	74	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	174	Total			

Subcatchment 1aS: 1aS (Off Site)



Summary for Subcatchment 1bS: 1bS

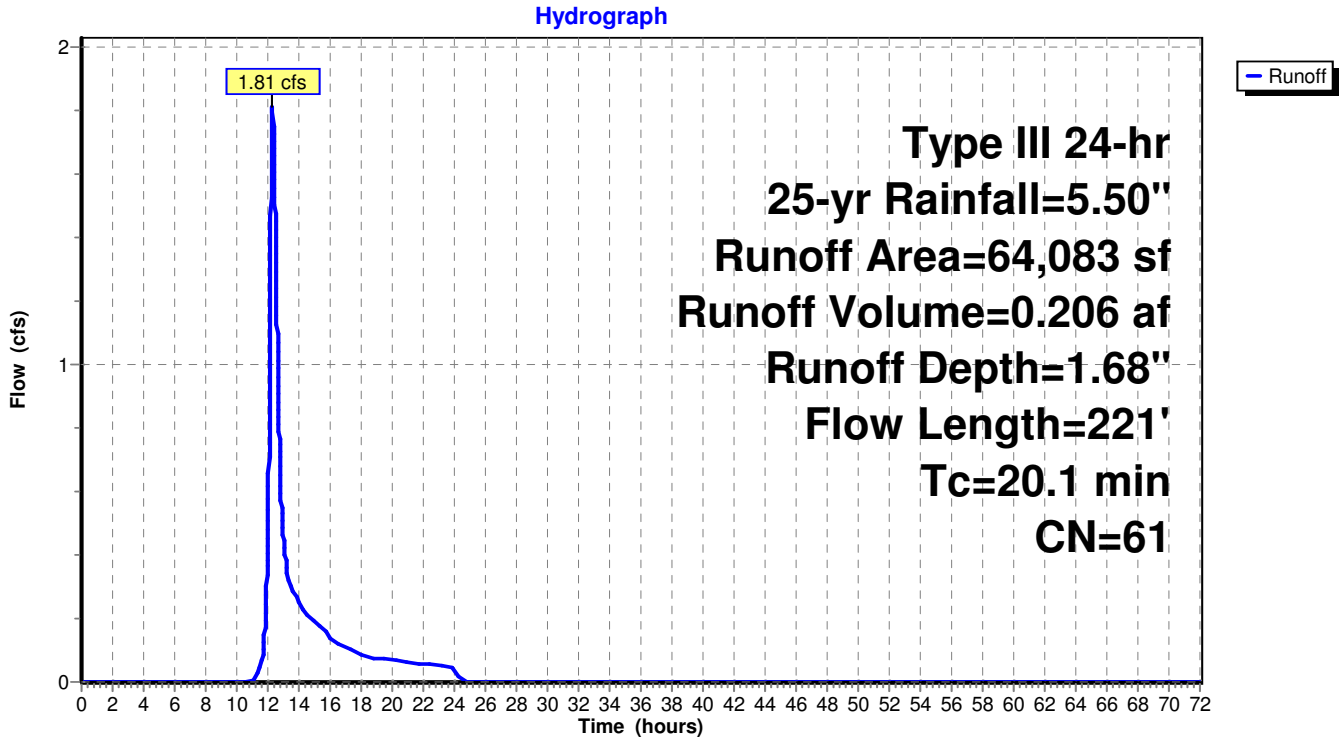
Runoff = 1.81 cfs @ 12.31 hrs, Volume= 0.206 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

	Area (sf)	CN	Description
*	6,573	98	Paved parking, HSG B
	2,228	85	Gravel roads, HSG B
	4,988	61	>75% Grass cover, Good, HSG B
	50,294	55	Woods, Good, HSG B
	64,083	61	Weighted Average
	57,510		89.74% Pervious Area
	6,573		10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	171	0.0230	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.1	221	Total			

Subcatchment 1bS: 1bS



Summary for Subcatchment 1S: 1S

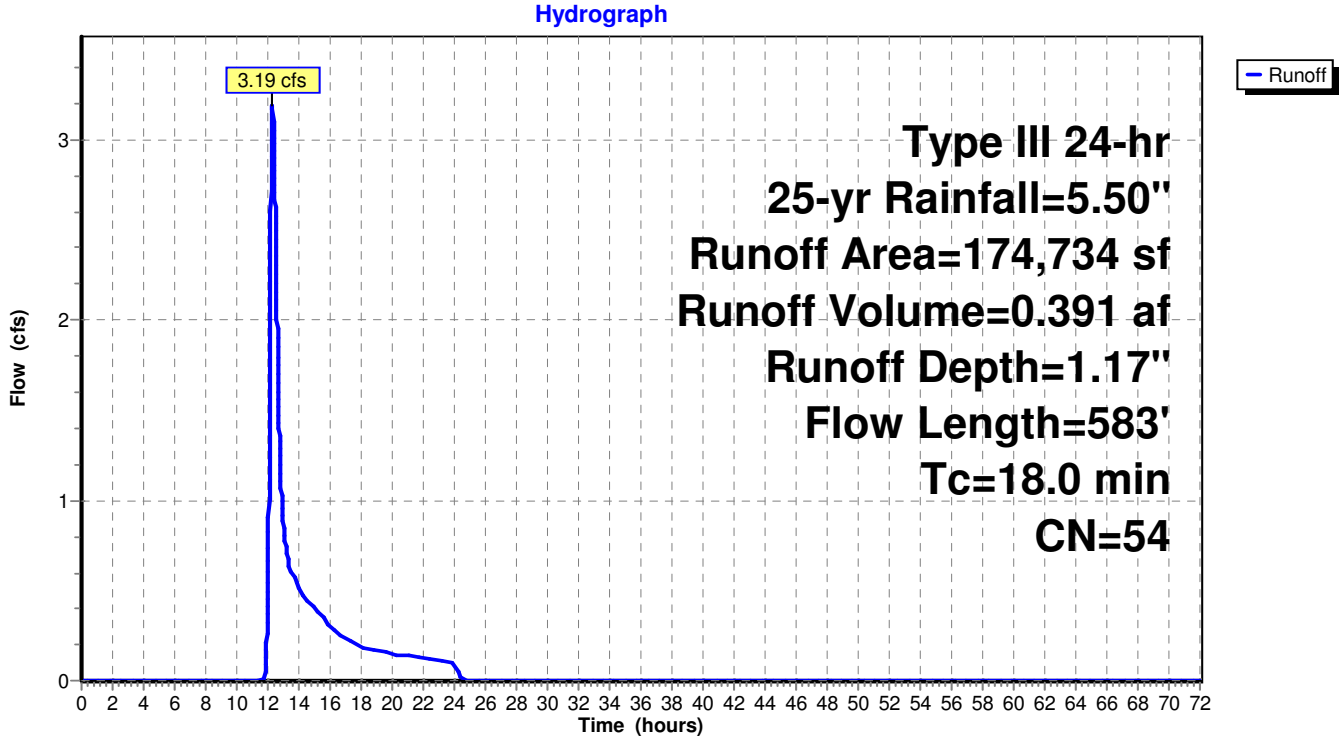
Runoff = 3.19 cfs @ 12.30 hrs, Volume= 0.391 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

	Area (sf)	CN	Description
*	4,524	98	Paved parking, HSG B
	5,354	98	Roofs, HSG A
	6,609	61	>75% Grass cover, Good, HSG B
	20,800	39	>75% Grass cover, Good, HSG A
	3,691	74	>75% Grass cover, Good, HSG C
	115,919	55	Woods, Good, HSG B
	17,837	30	Woods, Good, HSG A
	174,734	54	Weighted Average
	164,856		94.35% Pervious Area
	9,878		5.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	426	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	583	Total			

Subcatchment 1S: 1S



Summary for Subcatchment 2S: 2S

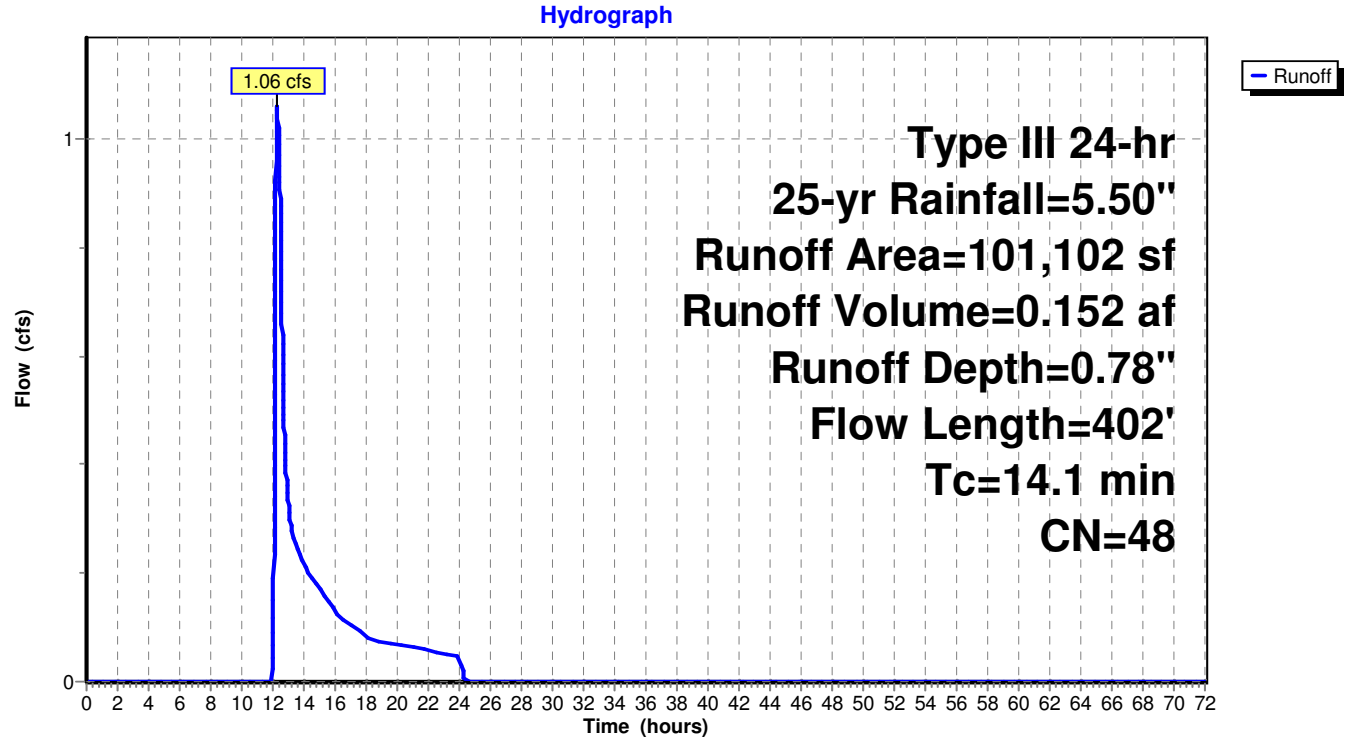
Runoff = 1.06 cfs @ 12.27 hrs, Volume= 0.152 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
5,188	98	Roofs, HSG A
30,371	39	>75% Grass cover, Good, HSG A
18,390	30	Woods, Good, HSG A
47,153	55	Woods, Good, HSG B
101,102	48	Weighted Average
95,914		94.87% Pervious Area
5,188		5.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0250	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.3	194	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	158	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.1	402	Total			

Subcatchment 2S: 2S



Summary for Subcatchment 3S: 3S

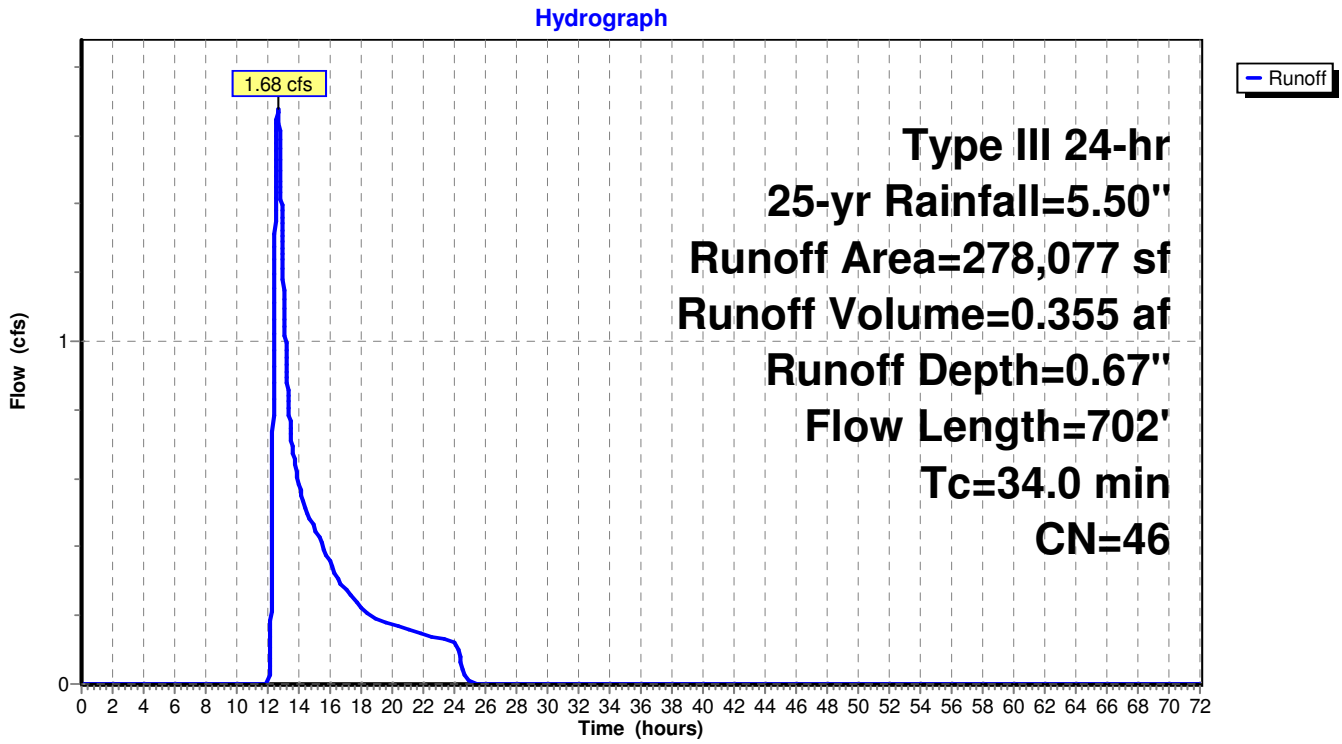
Runoff = 1.68 cfs @ 12.65 hrs, Volume= 0.355 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

	Area (sf)	CN	Description
	12,946	98	Roofs, HSG A
	44,703	39	>75% Grass cover, Good, HSG A
	7,763	98	Roofs, HSG A
	21,261	39	>75% Grass cover, Good, HSG A
*	3,521	98	Roofs, HSG B
	9,219	61	>75% Grass cover, Good, HSG B
	76,312	55	Woods, Good, HSG B
	102,352	30	Woods, Good, HSG A
	278,077	46	Weighted Average
	253,847		91.29% Pervious Area
	24,230		8.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
21.7	652	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	702	Total			

Subcatchment 3S: 3S



Summary for Subcatchment 4S: 4S

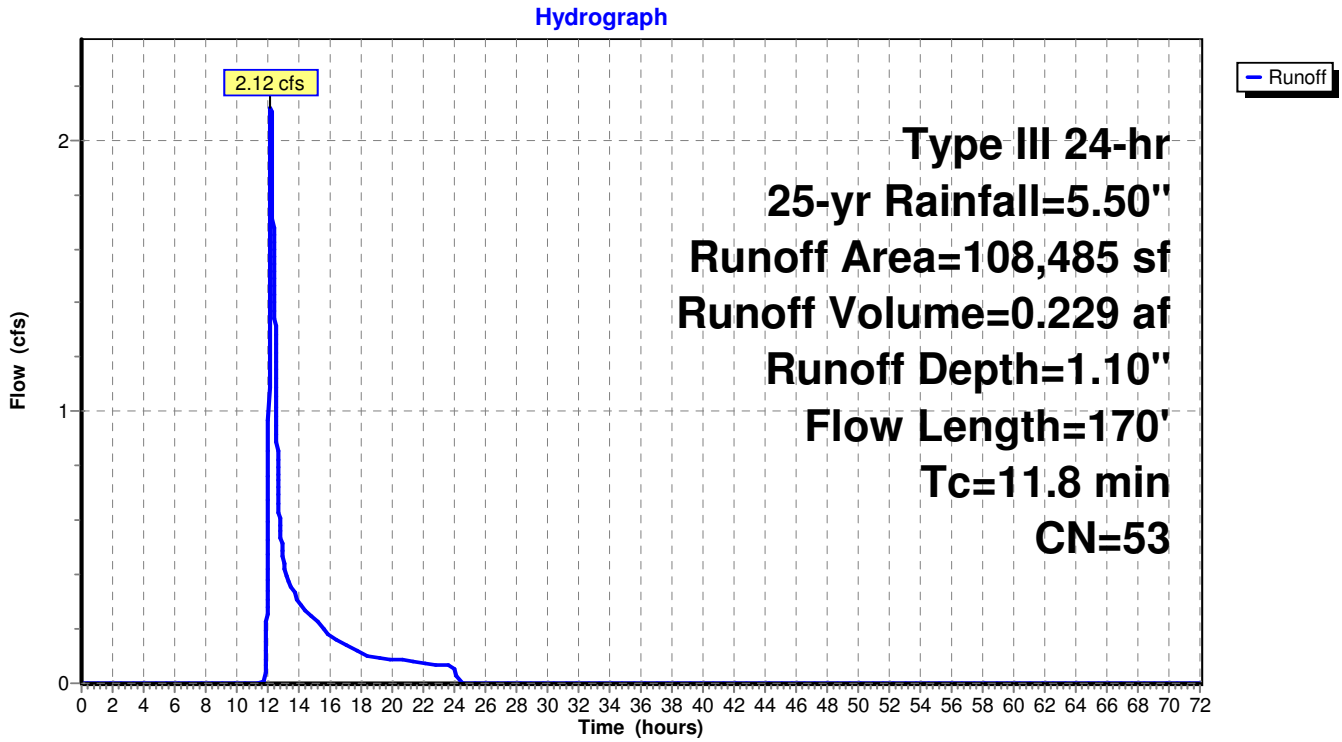
Runoff = 2.12 cfs @ 12.19 hrs, Volume= 0.229 af, Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

	Area (sf)	CN	Description
	5,936	98	Roofs, HSG A
	46,782	39	>75% Grass cover, Good, HSG A
	11,938	30	Woods, Good, HSG A
*	10,060	98	Roofs, HSG B
	6,475	61	>75% Grass cover, Good, HSG B
	4,345	85	Gravel roads, HSG B
	22,949	55	Woods, Good, HSG B
	108,485	53	Weighted Average
	92,489		85.26% Pervious Area
	15,996		14.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.6	120	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.8	170	Total			

Subcatchment 4S: 4S



Summary for Pond 1A: 1a (Off-Site Natural Depression)

Inflow Area = 0.564 ac, 9.81% Impervious, Inflow Depth = 0.36" for 25-yr event
Inflow = 0.06 cfs @ 12.50 hrs, Volume= 0.017 af
Outflow = 0.06 cfs @ 12.50 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.06 cfs @ 12.50 hrs, Volume= 0.017 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.00' @ 12.50 hrs Surf.Area= 1,231 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (977.6 - 977.6)

Volume	Invert	Avail.Storage	Storage Description
#1	105.00'	1,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

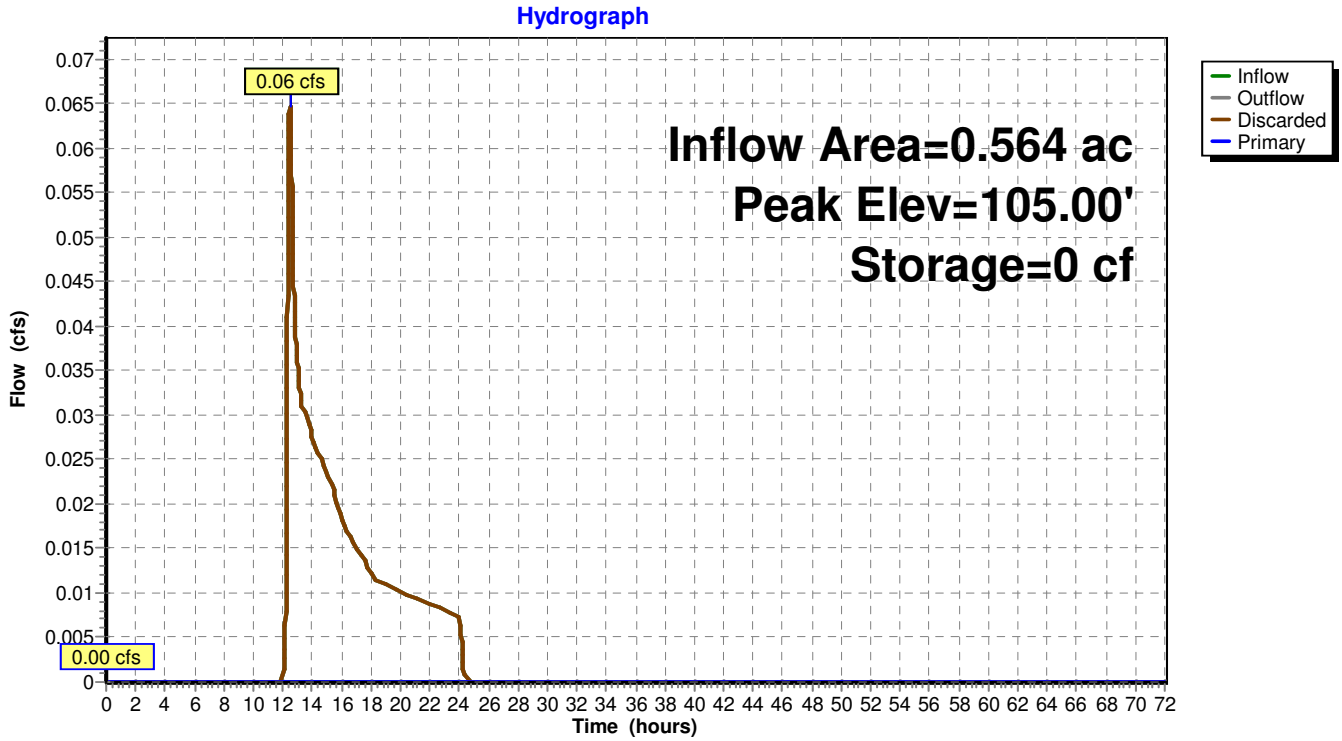
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
105.00	1,231	0	0
105.50	3,587	1,205	1,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	105.22'	**20.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 12.50 hrs HW=105.00' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=105.00' TW=98.74' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A: 1a (Off-Site Natural Depression)



Summary for Pond 1B: 1b (Central Natural Depression)

Inflow Area = 1.471 ac, 10.26% Impervious, Inflow Depth = 1.68" for 25-yr event
Inflow = 1.81 cfs @ 12.31 hrs, Volume= 0.206 af
Outflow = 0.38 cfs @ 13.15 hrs, Volume= 0.206 af, Atten= 79%, Lag= 50.5 min
Discarded = 0.38 cfs @ 13.15 hrs, Volume= 0.206 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.96' @ 13.15 hrs Surf.Area= 6,346 sf Storage= 3,123 cf

Plug-Flow detention time= 96.2 min calculated for 0.206 af (100% of inflow)
Center-of-Mass det. time= 96.2 min (975.0 - 878.8)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	8,485 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

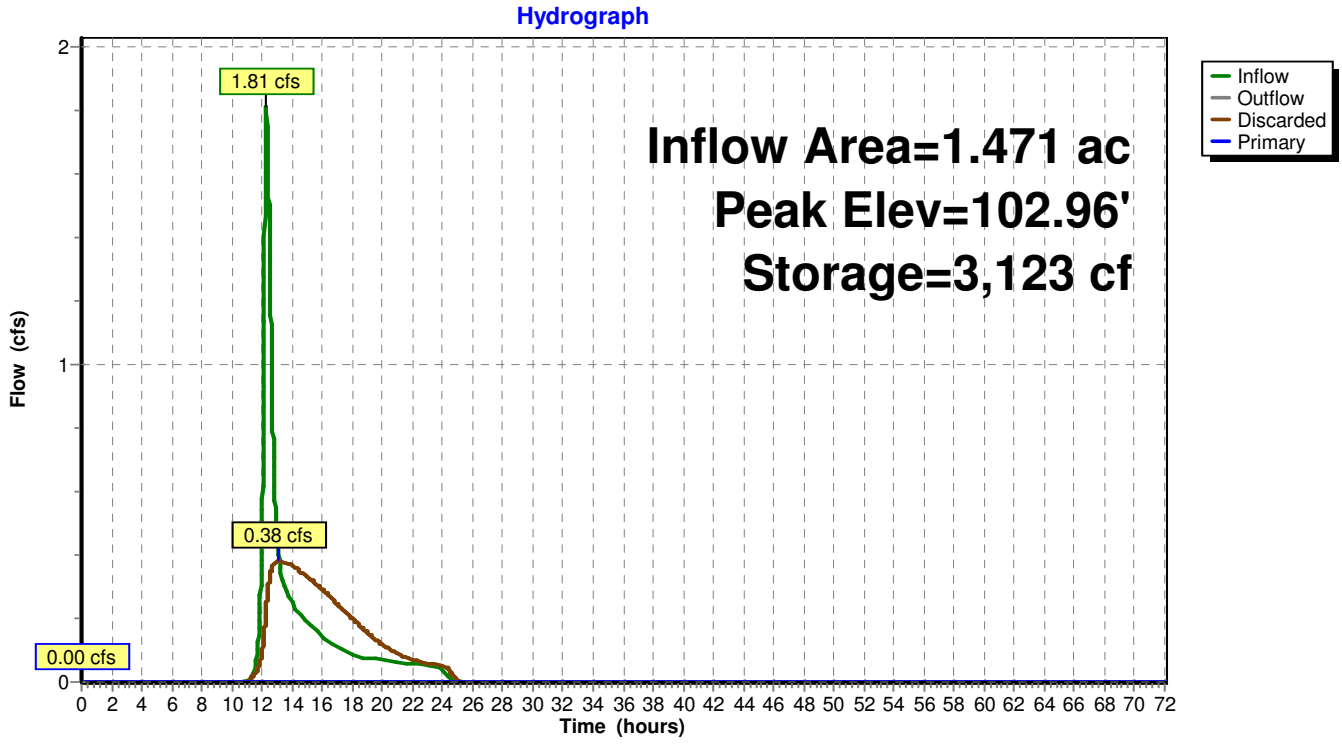
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	134	0	0
103.00	6,577	3,356	3,356
103.50	13,940	5,129	8,485

Device	Routing	Invert	Outlet Devices
#1	Discarded	102.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	103.39'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.38 cfs @ 13.15 hrs HW=102.96' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.38 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' TW=98.74' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B: 1b (Central Natural Depression)



Summary for Pond DP1: DP1 (SE - Natural Depression)

Inflow Area = 6.046 ac, 7.16% Impervious, Inflow Depth = 0.78" for 25-yr event
Inflow = 3.19 cfs @ 12.30 hrs, Volume= 0.391 af
Outflow = 0.67 cfs @ 13.27 hrs, Volume= 0.391 af, Atten= 79%, Lag= 58.3 min
Discarded = 0.67 cfs @ 13.27 hrs, Volume= 0.391 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 100.55' @ 13.27 hrs Surf.Area= 11,067 sf Storage= 5,532 cf

Plug-Flow detention time= 127.0 min calculated for 0.391 af (100% of inflow)
Center-of-Mass det. time= 127.0 min (1,025.7 - 898.7)

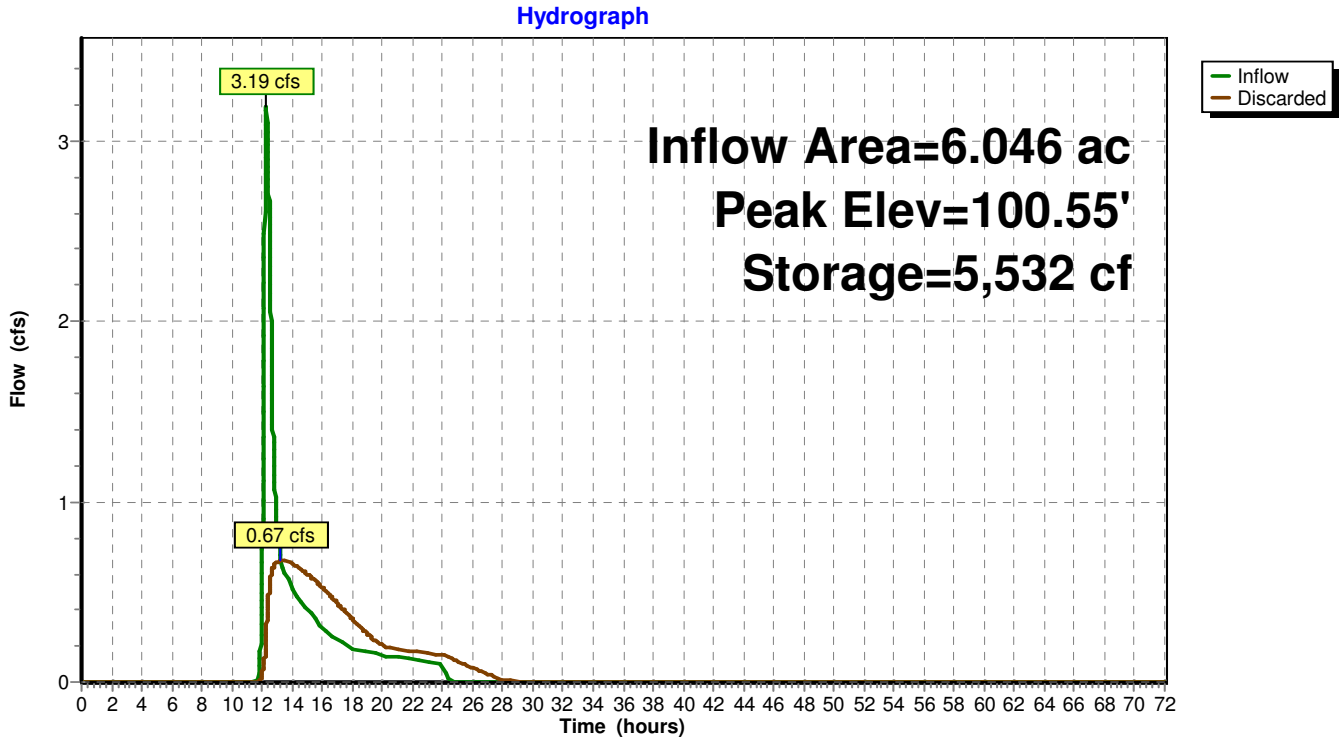
Volume	Invert	Avail.Storage	Storage Description
#1	98.74'	73,208 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.74	50	0	0
99.00	247	39	39
100.00	3,035	1,641	1,680
101.00	17,736	10,386	12,065
102.00	30,108	23,922	35,987
103.00	44,334	37,221	73,208

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.74'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 94.40'

Discarded OutFlow Max=0.67 cfs @ 13.27 hrs HW=100.55' (Free Discharge)
↑**1=Exfiltration** (Controls 0.67 cfs)

Pond DP1: DP1 (SE - Natural Depression)



Summary for Pond DP2: DP2 (SW - Natural Depression)

Inflow Area = 2.321 ac, 5.13% Impervious, Inflow Depth = 0.78" for 25-yr event
Inflow = 1.06 cfs @ 12.27 hrs, Volume= 0.152 af
Outflow = 0.19 cfs @ 14.66 hrs, Volume= 0.152 af, Atten= 82%, Lag= 143.6 min
Discarded = 0.19 cfs @ 14.66 hrs, Volume= 0.152 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.51' @ 14.66 hrs Surf.Area= 2,938 sf Storage= 2,215 cf

Plug-Flow detention time= 172.5 min calculated for 0.152 af (100% of inflow)
Center-of-Mass det. time= 172.5 min (1,093.0 - 920.5)

Volume	Invert	Avail.Storage	Storage Description
#1	100.46'	9,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

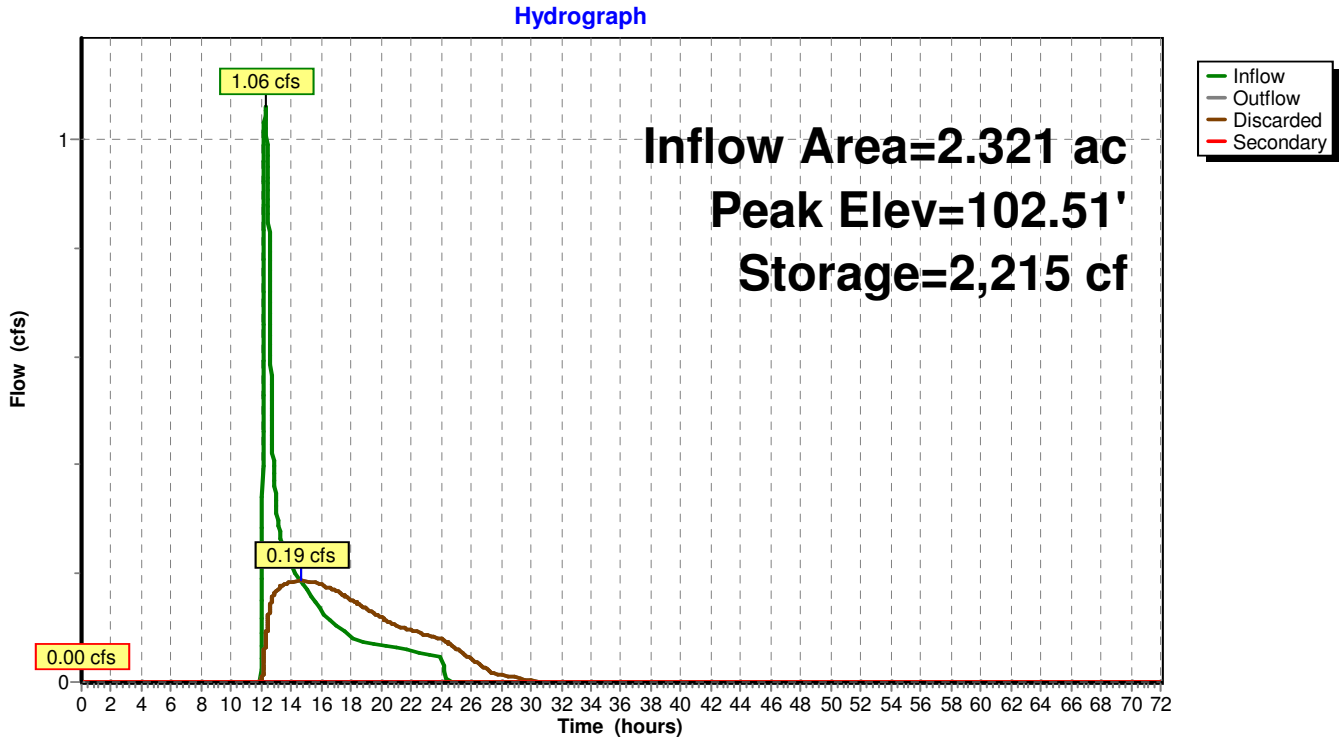
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.46	50	0	0
101.00	261	84	84
102.00	1,671	966	1,050
103.00	4,177	2,924	3,974
104.00	7,398	5,788	9,761

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.46'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Secondary	103.50'	**13.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.19 cfs @ 14.66 hrs HW=102.51' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.19 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.46' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP2: DP2 (SW - Natural Depression)



Summary for Pond DP3: DP3 (NW - Natural Depression)

Inflow Area = 6.384 ac, 8.71% Impervious, Inflow Depth = 0.67" for 25-yr event
Inflow = 1.68 cfs @ 12.65 hrs, Volume= 0.355 af
Outflow = 0.25 cfs @ 17.57 hrs, Volume= 0.355 af, Atten= 85%, Lag= 294.9 min
Discarded = 0.25 cfs @ 17.57 hrs, Volume= 0.355 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.16' @ 17.57 hrs Surf.Area= 14,763 sf Storage= 7,427 cf

Plug-Flow detention time= 416.3 min calculated for 0.355 af (100% of inflow)
Center-of-Mass det. time= 416.4 min (1,366.1 - 949.8)

Volume	Invert	Avail.Storage	Storage Description
#1	104.30'	66,553 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

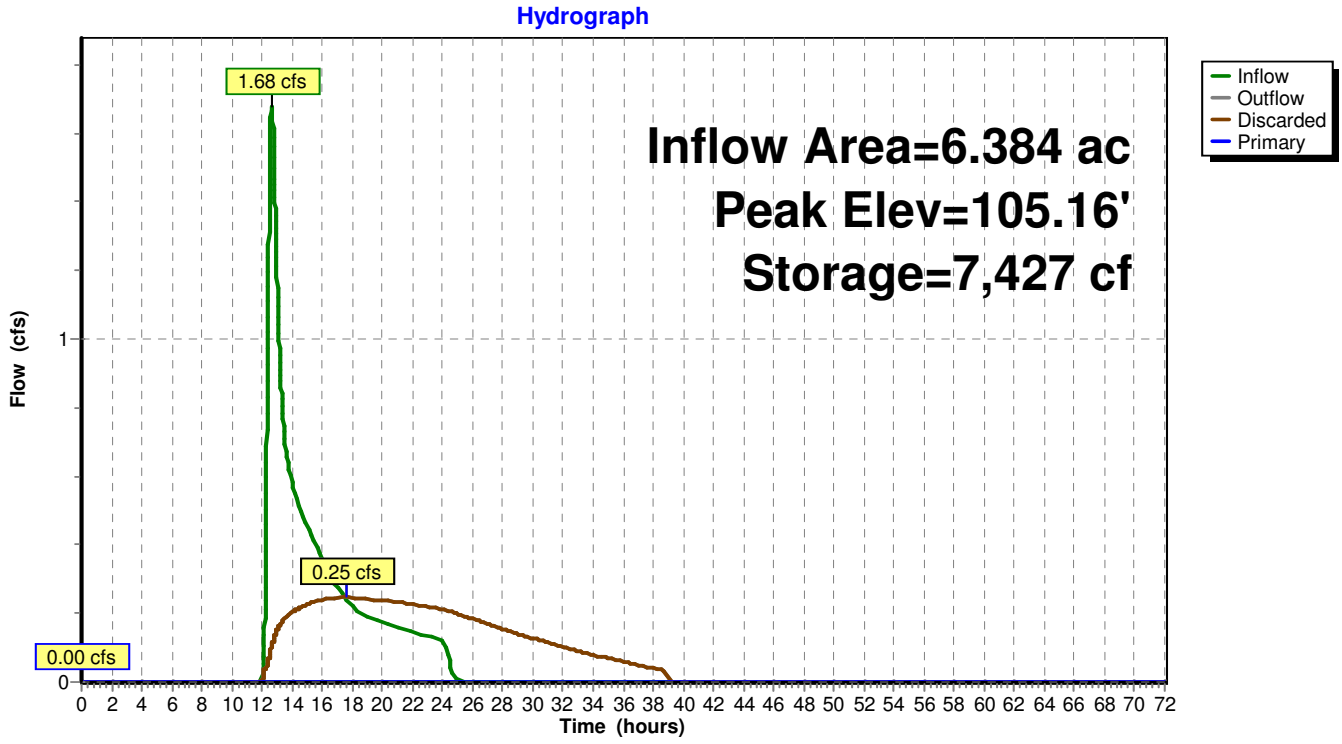
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.30	2,831	0	0
105.00	12,175	5,252	5,252
106.00	28,206	20,191	25,443
107.00	54,015	41,111	66,553

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.30'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	106.58'	**10.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.25 cfs @ 17.57 hrs HW=105.16' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.25 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.30' TW=103.83' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP3: DP3 (NW - Natural Depression)



Summary for Pond DP4: DP4 (North - Natural Depression)

Inflow Area = 8.874 ac, 10.41% Impervious, Inflow Depth = 0.31" for 25-yr event
Inflow = 2.12 cfs @ 12.19 hrs, Volume= 0.229 af
Outflow = 0.32 cfs @ 13.83 hrs, Volume= 0.229 af, Atten= 85%, Lag= 98.5 min
Discarded = 0.32 cfs @ 13.83 hrs, Volume= 0.229 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.39' @ 13.83 hrs Surf.Area= 10,480 sf Storage= 3,434 cf

Plug-Flow detention time= 142.5 min calculated for 0.229 af (100% of inflow)
Center-of-Mass det. time= 142.6 min (1,039.2 - 896.6)

Volume	Invert	Avail.Storage	Storage Description
#1	103.83'	23,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

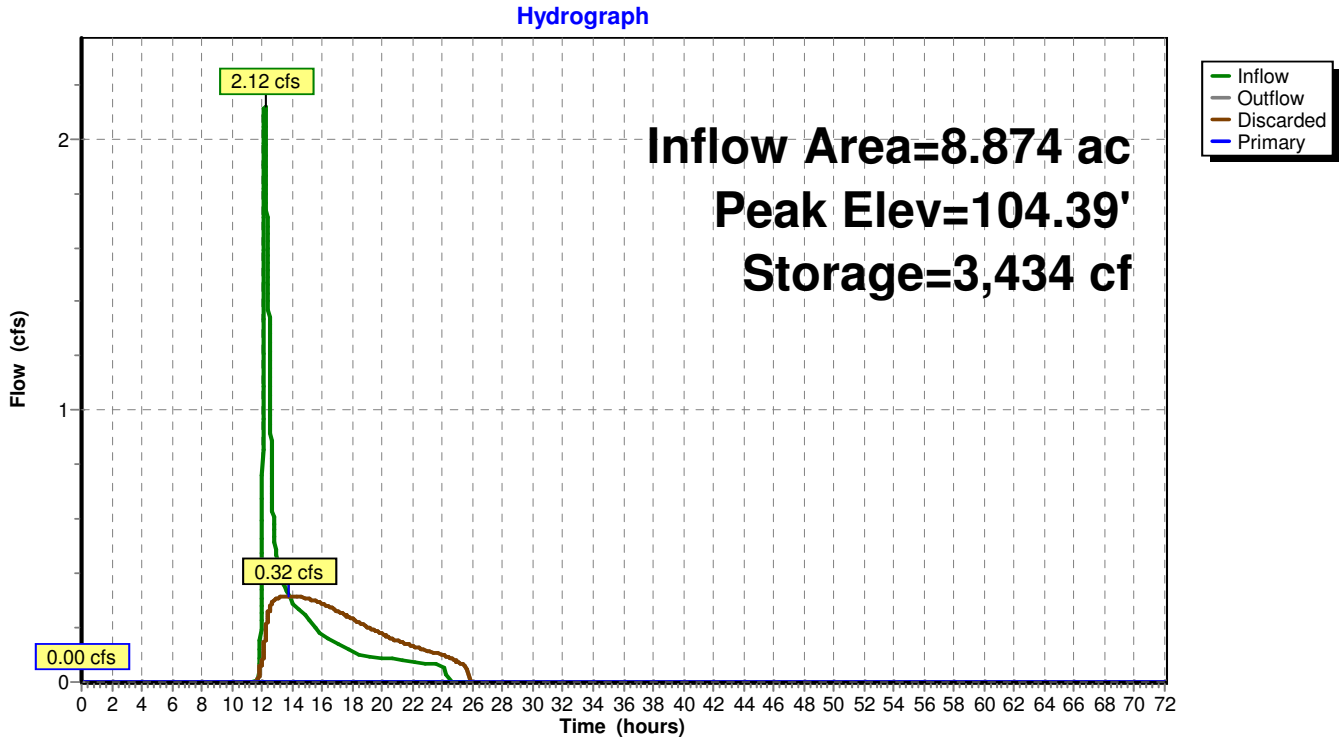
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.83	2,495	0	0
104.00	4,313	579	579
105.00	20,285	12,299	12,878
105.50	23,818	11,026	23,903

Device	Routing	Invert	Outlet Devices
#1	Discarded	103.83'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 102.80'
#2	Primary	105.07'	**20.0' long x 50.0' 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

Discarded OutFlow Max=0.32 cfs @ 13.83 hrs HW=104.39' (Free Discharge)
1=Exfiltration (Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=103.83' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DP4: DP4 (North - Natural Depression)



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1aS: 1aS (Off Site) Runoff Area=24,558 sf 9.81% Impervious Runoff Depth=0.73"
Flow Length=174' Tc=14.2 min CN=40 Runoff=0.20 cfs 0.034 af

Subcatchment 1bS: 1bS Runoff Area=64,083 sf 10.26% Impervious Runoff Depth=2.49"
Flow Length=221' Tc=20.1 min CN=61 Runoff=2.78 cfs 0.305 af

Subcatchment 1S: 1S Runoff Area=174,734 sf 5.65% Impervious Runoff Depth=1.85"
Flow Length=583' Tc=18.0 min CN=54 Runoff=5.52 cfs 0.617 af

Subcatchment 2S: 2S Runoff Area=101,102 sf 5.13% Impervious Runoff Depth=1.34"
Flow Length=402' Tc=14.1 min CN=48 Runoff=2.24 cfs 0.259 af

Subcatchment 3S: 3S Runoff Area=278,077 sf 8.71% Impervious Runoff Depth=1.18"
Flow Length=702' Tc=34.0 min CN=46 Runoff=3.64 cfs 0.626 af

Subcatchment 4S: 4S Runoff Area=108,485 sf 14.74% Impervious Runoff Depth=1.76"
Flow Length=170' Tc=11.8 min CN=53 Runoff=3.78 cfs 0.365 af

Pond 1A: 1a (Off-Site Natural Depression) Peak Elev=105.11' Storage=159 cf Inflow=0.20 cfs 0.034 af
Discarded=0.10 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.034 af

Pond 1B: 1b (Central Natural Depression) Peak Elev=103.20' Storage=5,000 cf Inflow=2.78 cfs 0.305 af
Discarded=0.58 cfs 0.305 af Primary=0.00 cfs 0.000 af Outflow=0.58 cfs 0.305 af

Pond DP1: DP1 (SE - Natural Depression) Peak Elev=100.88' Storage=9,970 cf Inflow=5.52 cfs 0.617 af
Outflow=0.99 cfs 0.617 af

Pond DP2: DP2 (SW - Natural Depression) Peak Elev=103.11' Storage=4,438 cf Inflow=2.24 cfs 0.259 af
Discarded=0.30 cfs 0.259 af Secondary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.259 af

Pond DP3: DP3 (NW - Natural Depression) Peak Elev=105.57' Storage=14,745 cf Inflow=3.64 cfs 0.626 af
Discarded=0.38 cfs 0.626 af Primary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.626 af

Pond DP4: DP4 (North - Natural Depression) Peak Elev=104.62' Storage=6,351 cf Inflow=3.78 cfs 0.365 af
Discarded=0.46 cfs 0.365 af Primary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.365 af

Total Runoff Area = 17.241 ac Runoff Volume = 2.207 af Average Runoff Depth = 1.54"
91.44% Pervious = 15.766 ac 8.56% Impervious = 1.476 ac

Summary for Subcatchment 1aS: 1aS (Off Site)

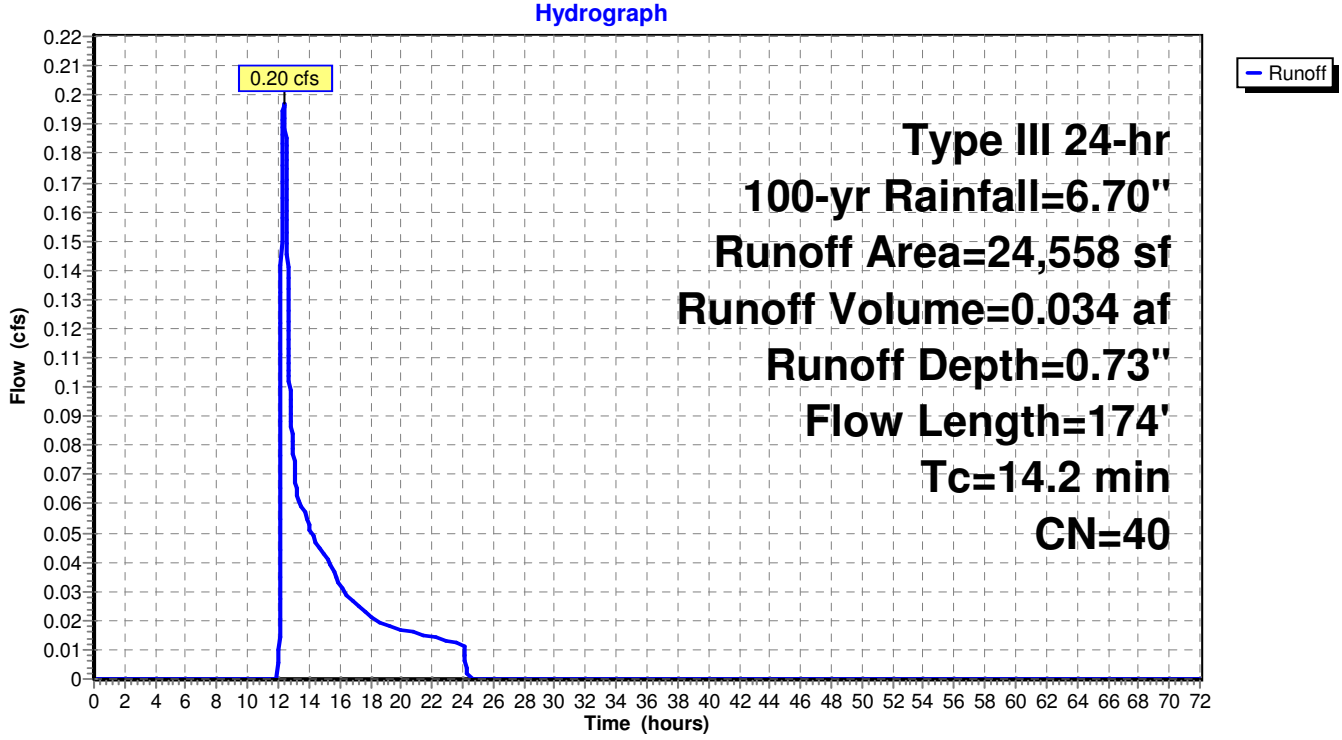
Runoff = 0.20 cfs @ 12.38 hrs, Volume= 0.034 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
2,408	98	Roofs, HSG A
8,090	39	>75% Grass cover, Good, HSG A
14,060	30	Woods, Good, HSG A
24,558	40	Weighted Average
22,150		90.19% Pervious Area
2,408		9.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	74	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	174	Total			

Subcatchment 1aS: 1aS (Off Site)



Summary for Subcatchment 1bS: 1bS

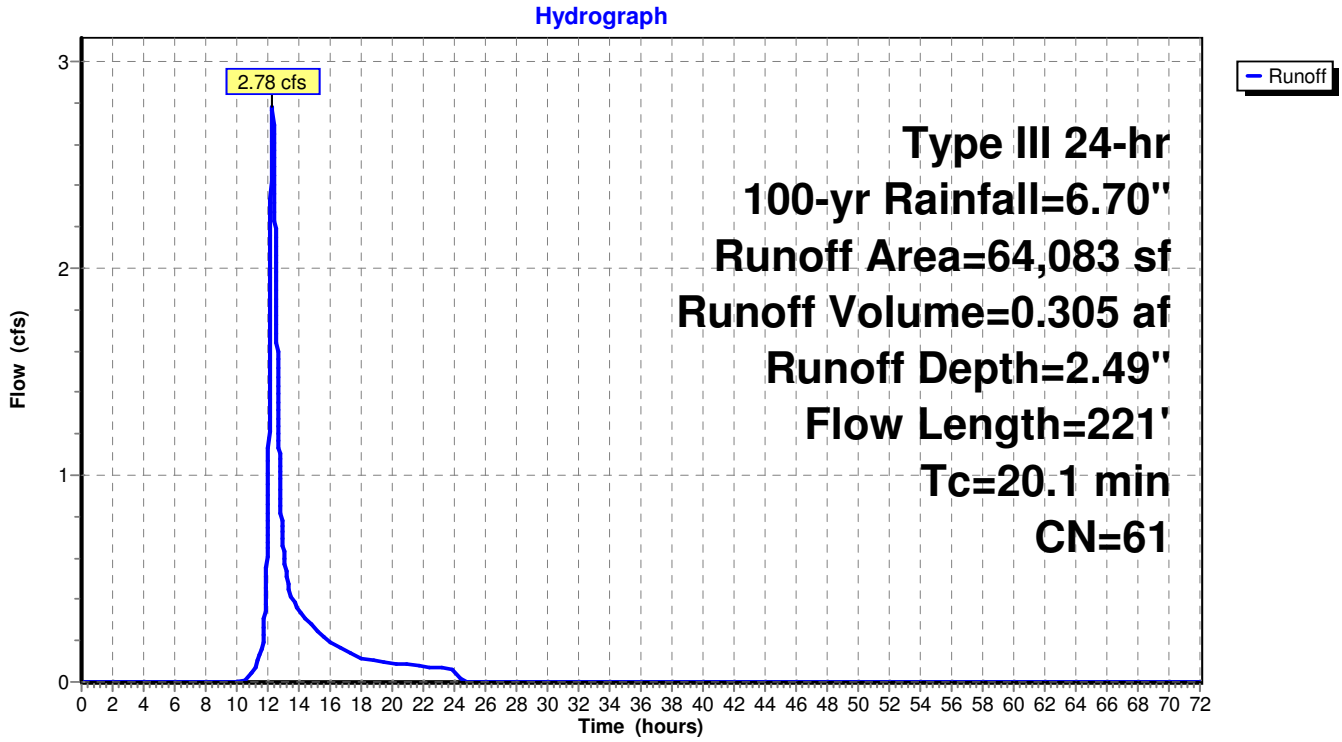
Runoff = 2.78 cfs @ 12.30 hrs, Volume= 0.305 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

	Area (sf)	CN	Description
*	6,573	98	Paved parking, HSG B
	2,228	85	Gravel roads, HSG B
	4,988	61	>75% Grass cover, Good, HSG B
	50,294	55	Woods, Good, HSG B
	64,083	61	Weighted Average
	57,510		89.74% Pervious Area
	6,573		10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	171	0.0230	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.1	221	Total			

Subcatchment 1bS: 1bS



Summary for Subcatchment 1S: 1S

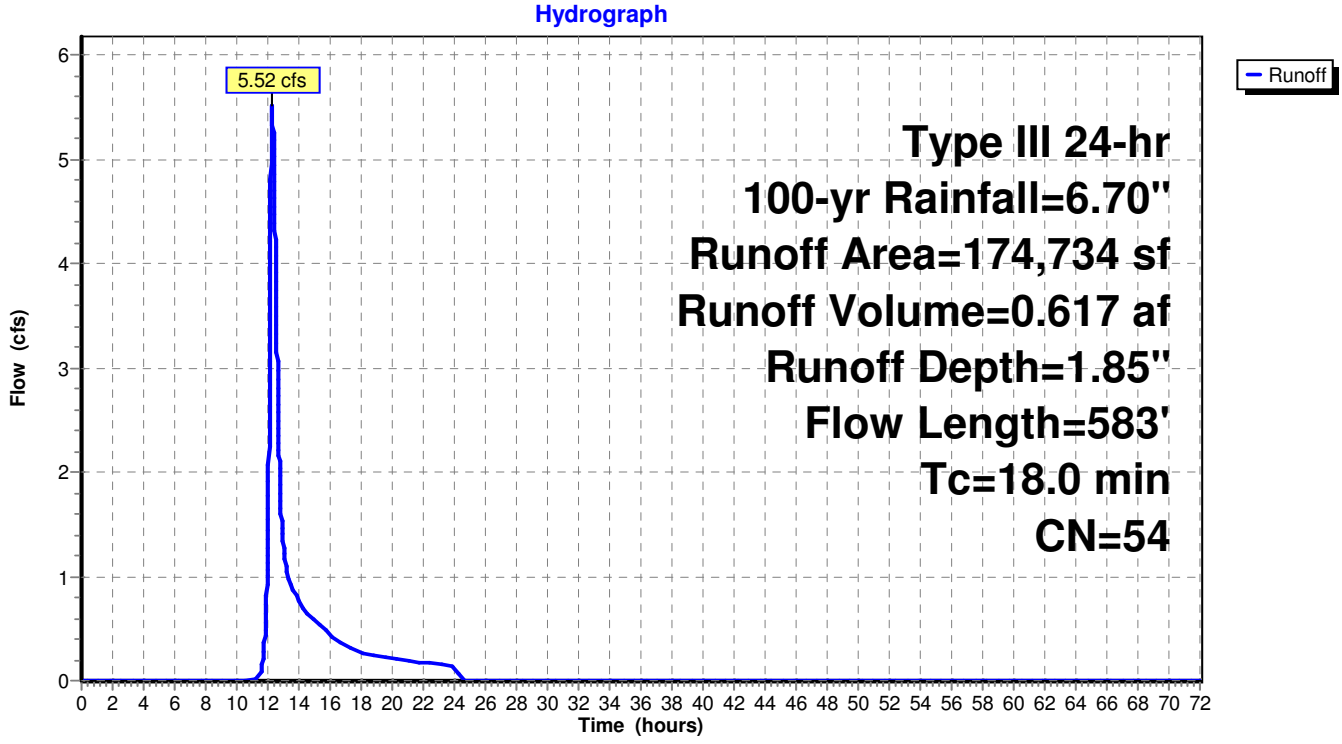
Runoff = 5.52 cfs @ 12.27 hrs, Volume= 0.617 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

	Area (sf)	CN	Description
*	4,524	98	Paved parking, HSG B
	5,354	98	Roofs, HSG A
	6,609	61	>75% Grass cover, Good, HSG B
	20,800	39	>75% Grass cover, Good, HSG A
	3,691	74	>75% Grass cover, Good, HSG C
	115,919	55	Woods, Good, HSG B
	17,837	30	Woods, Good, HSG A
	174,734	54	Weighted Average
	164,856		94.35% Pervious Area
	9,878		5.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	426	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	583	Total			

Subcatchment 1S: 1S



Summary for Subcatchment 2S: 2S

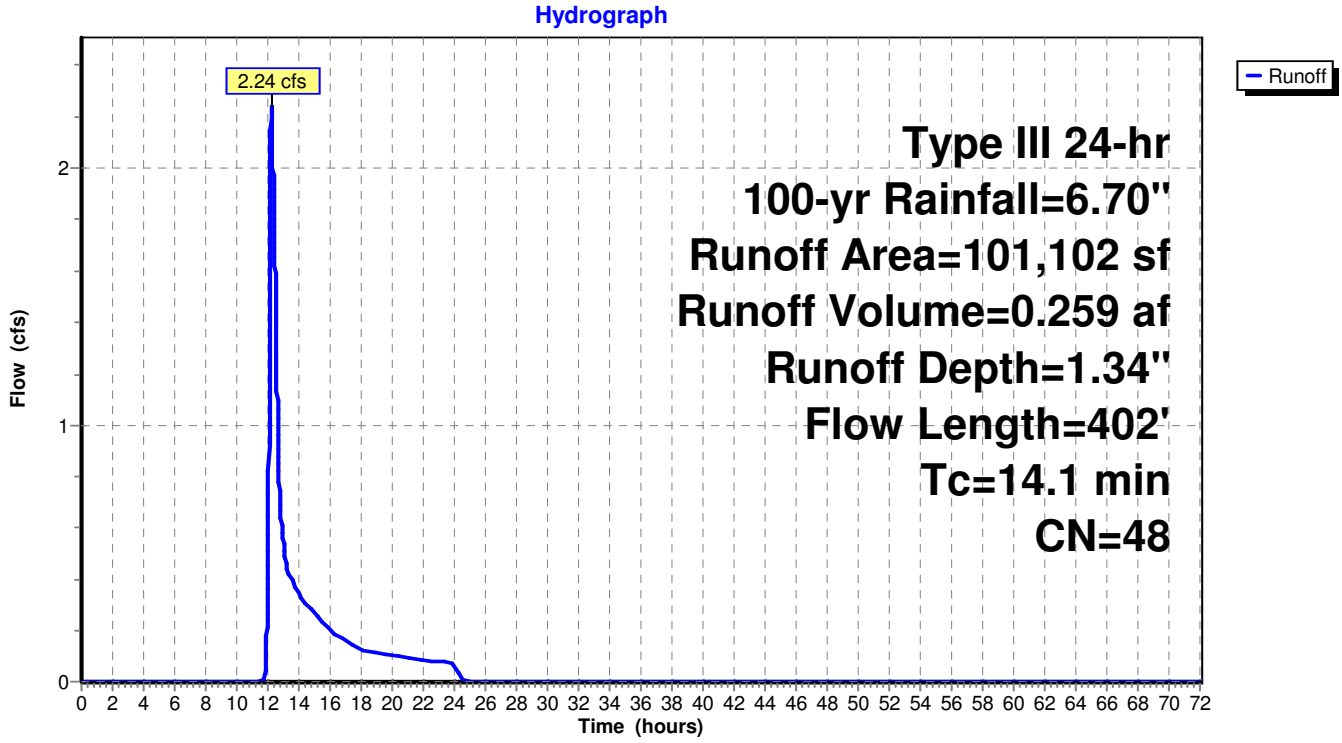
Runoff = 2.24 cfs @ 12.23 hrs, Volume= 0.259 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
5,188	98	Roofs, HSG A
30,371	39	>75% Grass cover, Good, HSG A
18,390	30	Woods, Good, HSG A
47,153	55	Woods, Good, HSG B
101,102	48	Weighted Average
95,914		94.87% Pervious Area
5,188		5.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0250	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.3	194	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	158	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.1	402	Total			

Subcatchment 2S: 2S



Summary for Subcatchment 3S: 3S

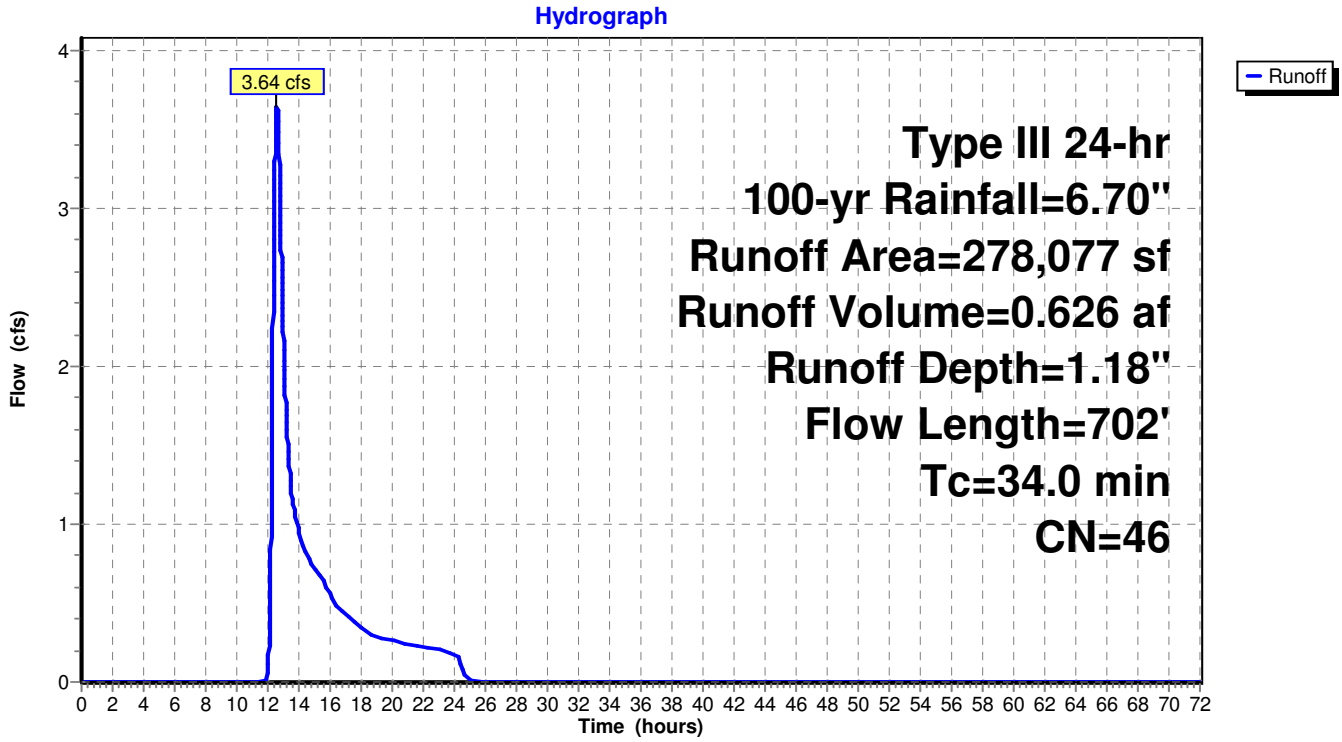
Runoff = 3.64 cfs @ 12.58 hrs, Volume= 0.626 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

	Area (sf)	CN	Description
	12,946	98	Roofs, HSG A
	44,703	39	>75% Grass cover, Good, HSG A
	7,763	98	Roofs, HSG A
	21,261	39	>75% Grass cover, Good, HSG A
*	3,521	98	Roofs, HSG B
	9,219	61	>75% Grass cover, Good, HSG B
	76,312	55	Woods, Good, HSG B
	102,352	30	Woods, Good, HSG A
	278,077	46	Weighted Average
	253,847		91.29% Pervious Area
	24,230		8.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
21.7	652	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	702	Total			

Subcatchment 3S: 3S



Summary for Subcatchment 4S: 4S

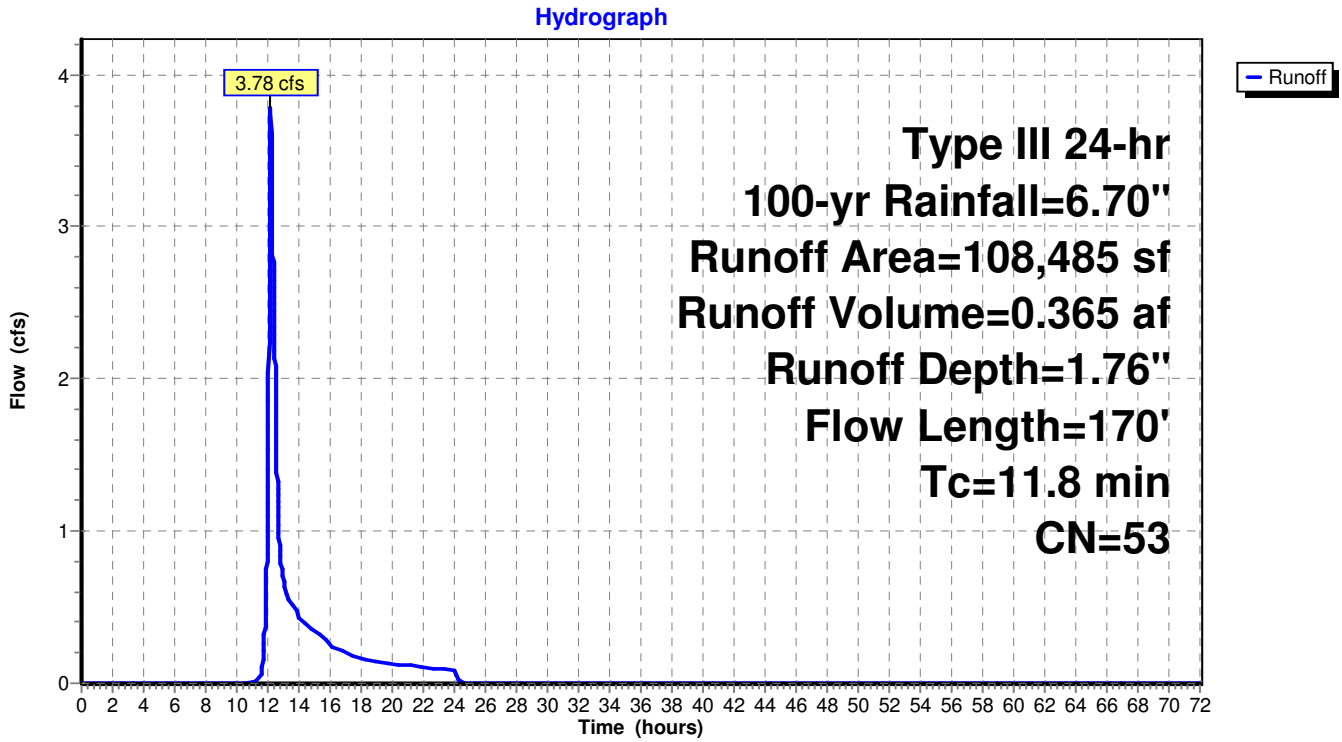
Runoff = 3.78 cfs @ 12.18 hrs, Volume= 0.365 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

	Area (sf)	CN	Description
	5,936	98	Roofs, HSG A
	46,782	39	>75% Grass cover, Good, HSG A
	11,938	30	Woods, Good, HSG A
*	10,060	98	Roofs, HSG B
	6,475	61	>75% Grass cover, Good, HSG B
	4,345	85	Gravel roads, HSG B
	22,949	55	Woods, Good, HSG B
	108,485	53	Weighted Average
	92,489		85.26% Pervious Area
	15,996		14.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.6	120	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.8	170	Total			

Subcatchment 4S: 4S



Summary for Pond 1A: 1a (Off-Site Natural Depression)

Inflow Area = 0.564 ac, 9.81% Impervious, Inflow Depth = 0.73" for 100-yr event
Inflow = 0.20 cfs @ 12.38 hrs, Volume= 0.034 af
Outflow = 0.10 cfs @ 12.76 hrs, Volume= 0.034 af, Atten= 50%, Lag= 22.9 min
Discarded = 0.10 cfs @ 12.76 hrs, Volume= 0.034 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.11' @ 12.76 hrs Surf.Area= 1,736 sf Storage= 159 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 8.4 min (947.1 - 938.7)

Volume	Invert	Avail.Storage	Storage Description
#1	105.00'	1,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

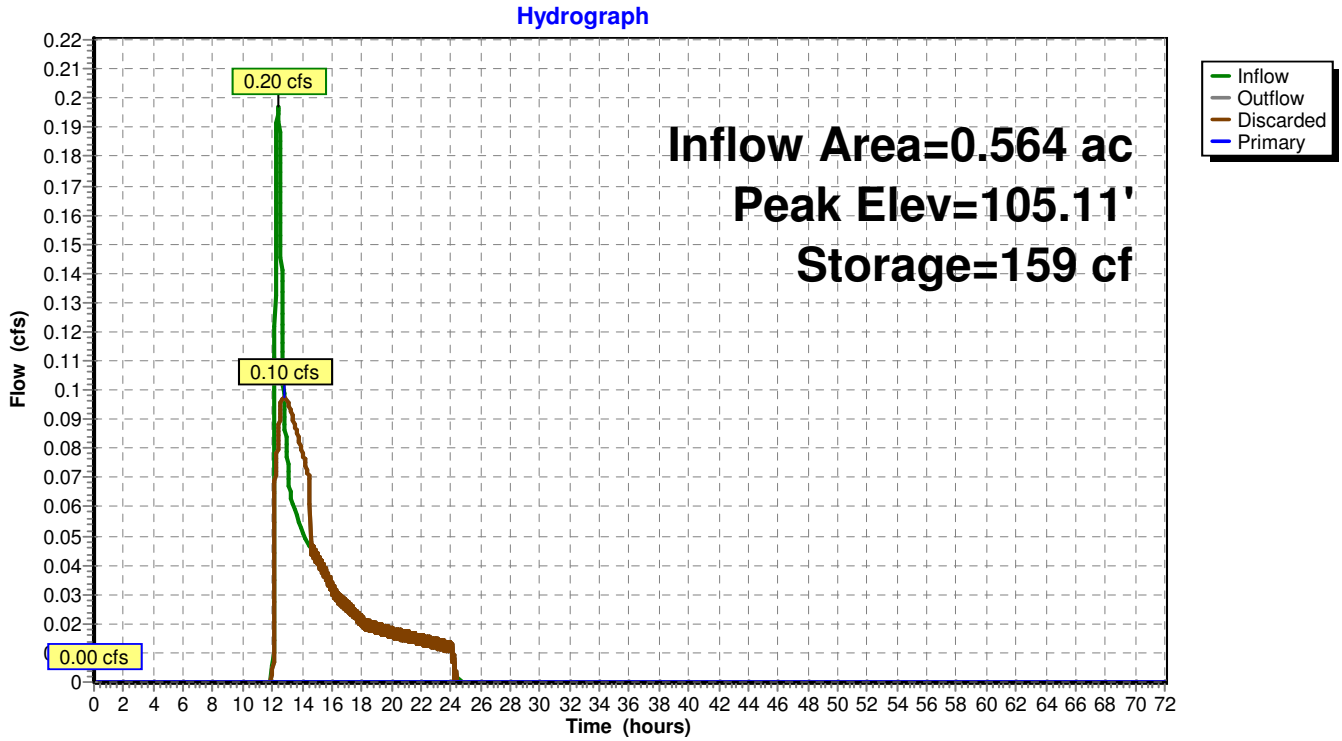
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
105.00	1,231	0	0
105.50	3,587	1,205	1,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	105.22'	**20.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.10 cfs @ 12.76 hrs HW=105.11' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=105.00' TW=98.74' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A: 1a (Off-Site Natural Depression)



Summary for Pond 1B: 1b (Central Natural Depression)

Inflow Area = 1.471 ac, 10.26% Impervious, Inflow Depth = 2.49" for 100-yr event
Inflow = 2.78 cfs @ 12.30 hrs, Volume= 0.305 af
Outflow = 0.58 cfs @ 13.09 hrs, Volume= 0.305 af, Atten= 79%, Lag= 47.6 min
Discarded = 0.58 cfs @ 13.09 hrs, Volume= 0.305 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.20' @ 13.09 hrs Surf.Area= 9,576 sf Storage= 5,000 cf

Plug-Flow detention time= 114.3 min calculated for 0.305 af (100% of inflow)
Center-of-Mass det. time= 114.3 min (981.0 - 866.7)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	8,485 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

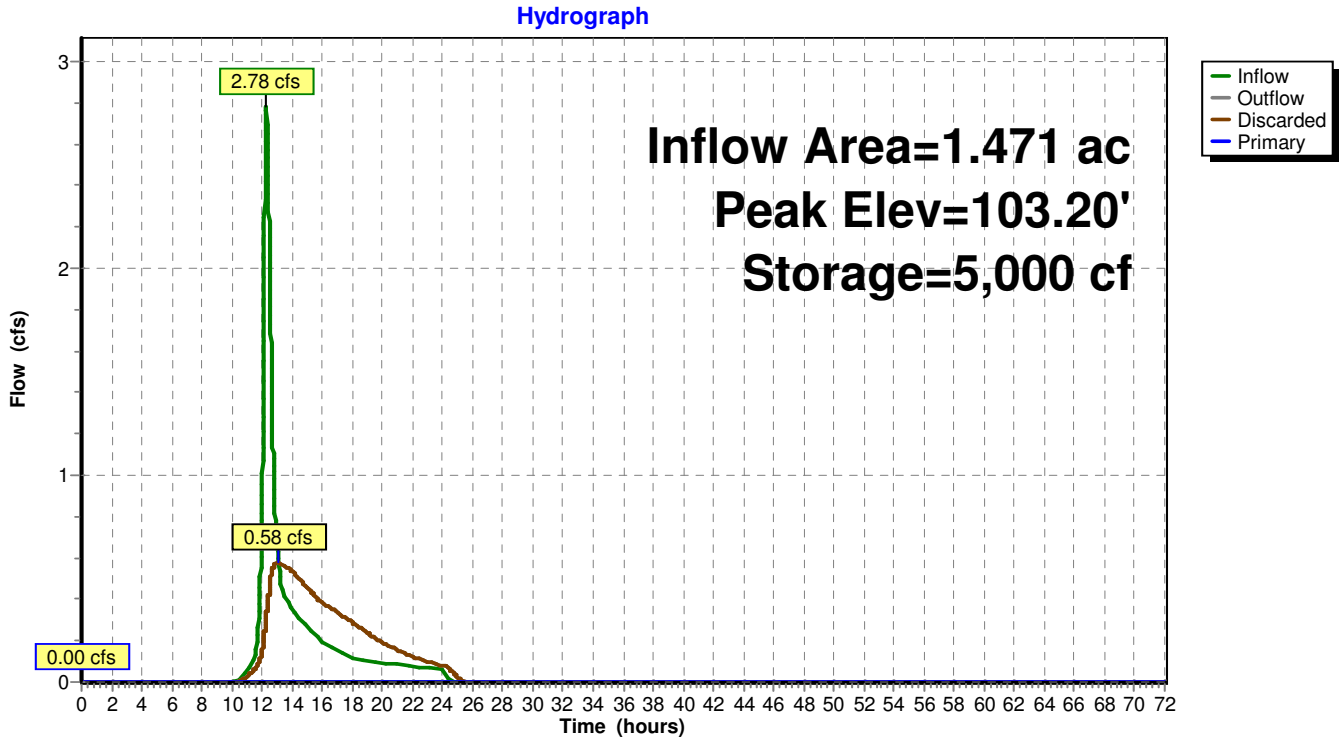
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	134	0	0
103.00	6,577	3,356	3,356
103.50	13,940	5,129	8,485

Device	Routing	Invert	Outlet Devices
#1	Discarded	102.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	103.39'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.58 cfs @ 13.09 hrs HW=103.20' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.58 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' TW=98.74' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B: 1b (Central Natural Depression)



Summary for Pond DP1: DP1 (SE - Natural Depression)

Inflow Area = 6.046 ac, 7.16% Impervious, Inflow Depth = 1.23" for 100-yr event
Inflow = 5.52 cfs @ 12.27 hrs, Volume= 0.617 af
Outflow = 0.99 cfs @ 13.30 hrs, Volume= 0.617 af, Atten= 82%, Lag= 61.7 min
Discarded = 0.99 cfs @ 13.30 hrs, Volume= 0.617 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 100.88' @ 13.30 hrs Surf.Area= 15,905 sf Storage= 9,970 cf

Plug-Flow detention time= 143.7 min calculated for 0.617 af (100% of inflow)
Center-of-Mass det. time= 143.7 min (1,026.7 - 883.0)

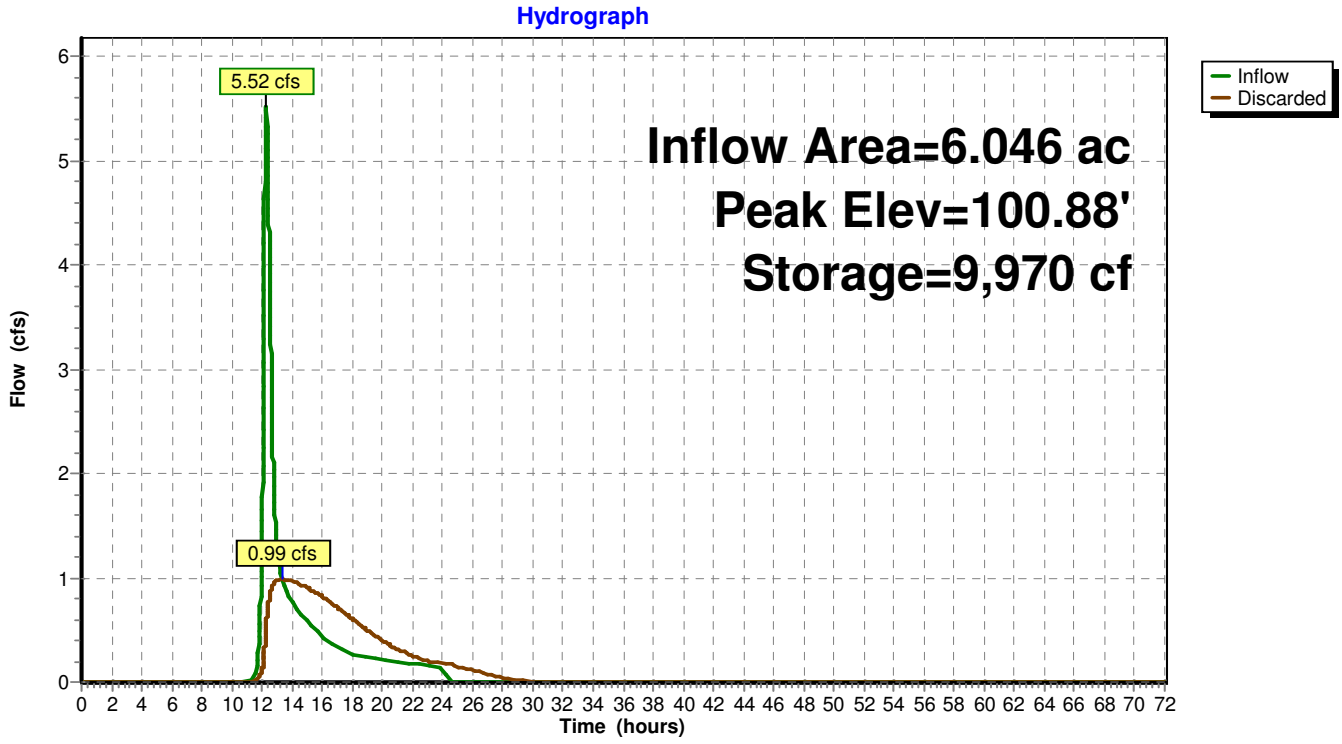
Volume	Invert	Avail.Storage	Storage Description
#1	98.74'	73,208 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.74	50	0	0
99.00	247	39	39
100.00	3,035	1,641	1,680
101.00	17,736	10,386	12,065
102.00	30,108	23,922	35,987
103.00	44,334	37,221	73,208

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.74'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 94.40'

Discarded OutFlow Max=0.99 cfs @ 13.30 hrs HW=100.88' (Free Discharge)
↑**1=Exfiltration** (Controls 0.99 cfs)

Pond DP1: DP1 (SE - Natural Depression)



Summary for Pond DP2: DP2 (SW - Natural Depression)

Inflow Area = 2.321 ac, 5.13% Impervious, Inflow Depth = 1.34" for 100-yr event
Inflow = 2.24 cfs @ 12.23 hrs, Volume= 0.259 af
Outflow = 0.30 cfs @ 14.56 hrs, Volume= 0.259 af, Atten= 87%, Lag= 139.8 min
Discarded = 0.30 cfs @ 14.56 hrs, Volume= 0.259 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.11' @ 14.56 hrs Surf.Area= 4,521 sf Storage= 4,438 cf

Plug-Flow detention time= 213.9 min calculated for 0.259 af (100% of inflow)
Center-of-Mass det. time= 213.9 min (1,113.0 - 899.0)

Volume	Invert	Avail.Storage	Storage Description
#1	100.46'	9,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

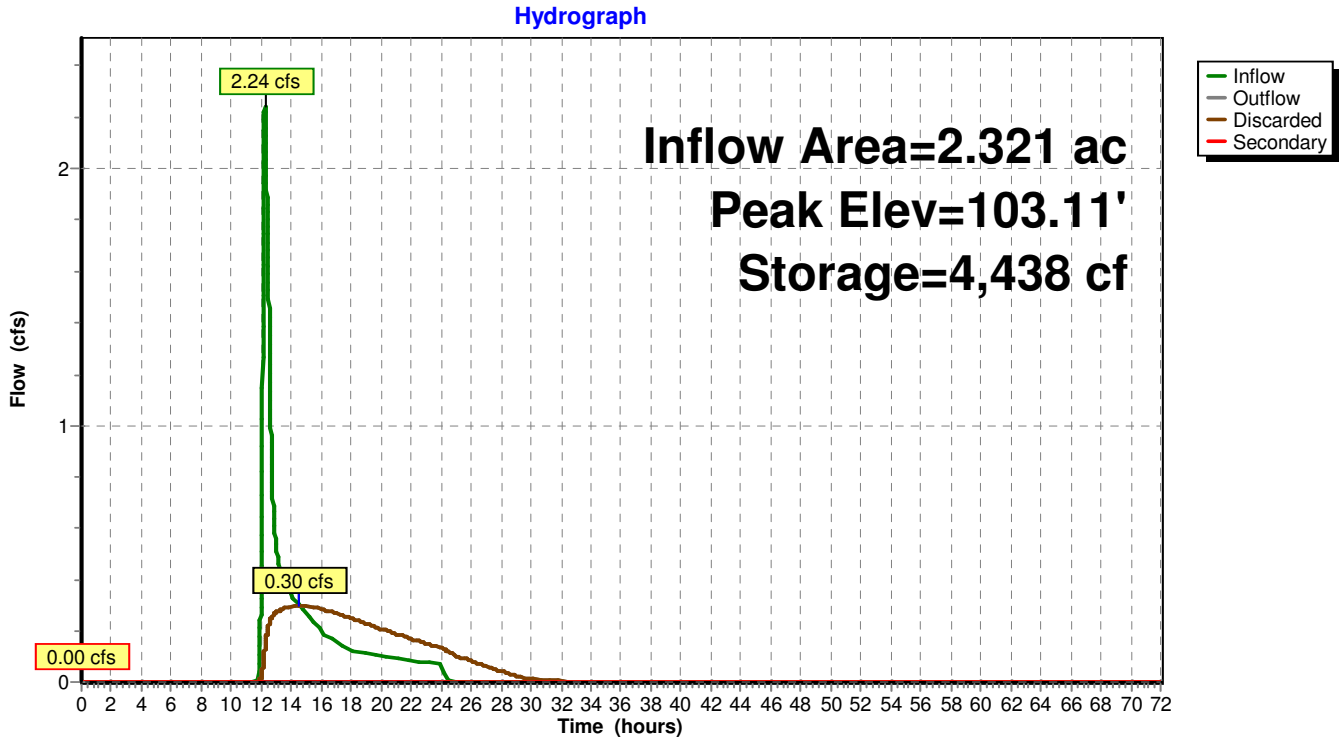
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.46	50	0	0
101.00	261	84	84
102.00	1,671	966	1,050
103.00	4,177	2,924	3,974
104.00	7,398	5,788	9,761

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.46'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Secondary	103.50'	**13.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.30 cfs @ 14.56 hrs HW=103.11' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.30 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.46' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP2: DP2 (SW - Natural Depression)



Summary for Pond DP3: DP3 (NW - Natural Depression)

Inflow Area = 6.384 ac, 8.71% Impervious, Inflow Depth = 1.18" for 100-yr event
Inflow = 3.64 cfs @ 12.58 hrs, Volume= 0.626 af
Outflow = 0.38 cfs @ 17.55 hrs, Volume= 0.626 af, Atten= 89%, Lag= 297.9 min
Discarded = 0.38 cfs @ 17.55 hrs, Volume= 0.626 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.57' @ 17.55 hrs Surf.Area= 21,274 sf Storage= 14,745 cf

Plug-Flow detention time= 531.5 min calculated for 0.626 af (100% of inflow)
Center-of-Mass det. time= 531.6 min (1,457.0 - 925.5)

Volume	Invert	Avail.Storage	Storage Description
#1	104.30'	66,553 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

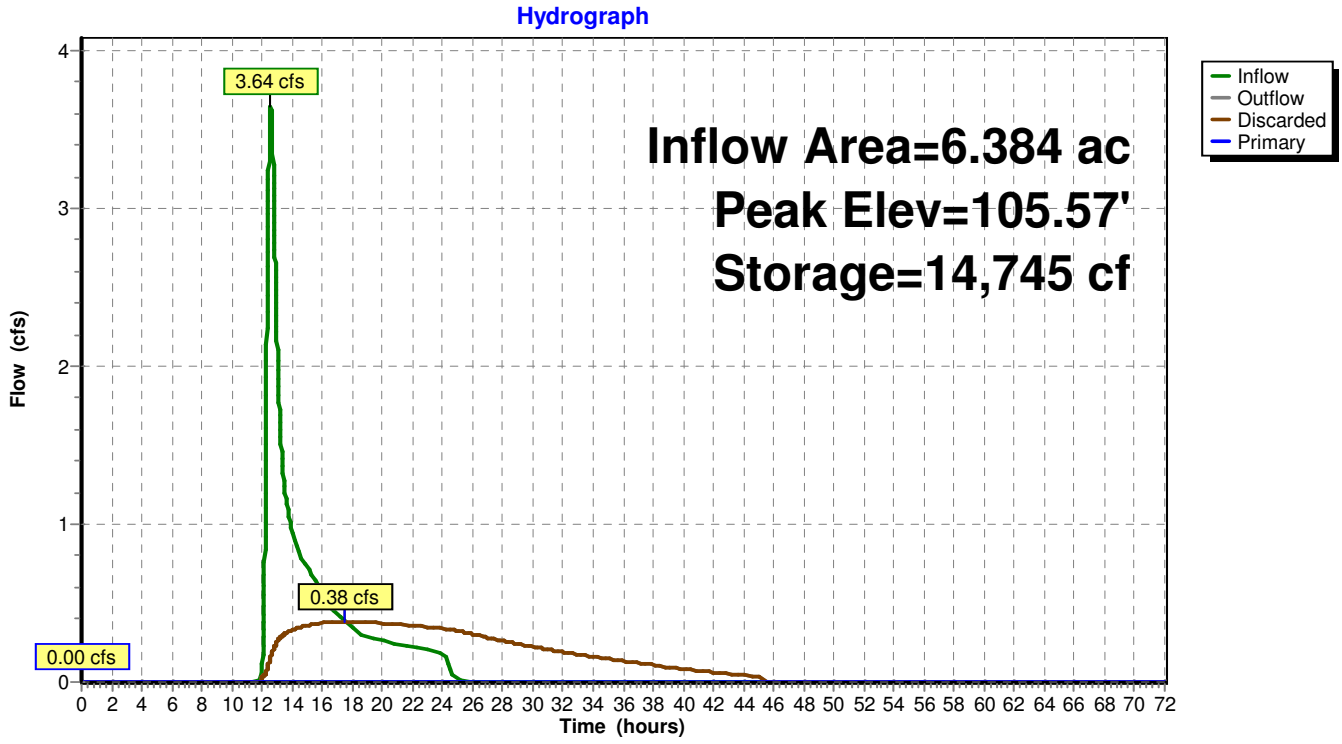
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.30	2,831	0	0
105.00	12,175	5,252	5,252
106.00	28,206	20,191	25,443
107.00	54,015	41,111	66,553

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.30'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	106.58'	**10.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.38 cfs @ 17.55 hrs HW=105.57' (Free Discharge)
1=Exfiltration (Controls 0.38 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.30' TW=103.83' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DP3: DP3 (NW - Natural Depression)



Summary for Pond DP4: DP4 (North - Natural Depression)

Inflow Area = 8.874 ac, 10.41% Impervious, Inflow Depth = 0.49" for 100-yr event
Inflow = 3.78 cfs @ 12.18 hrs, Volume= 0.365 af
Outflow = 0.46 cfs @ 13.91 hrs, Volume= 0.365 af, Atten= 88%, Lag= 103.6 min
Discarded = 0.46 cfs @ 13.91 hrs, Volume= 0.365 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.62' @ 13.91 hrs Surf.Area= 14,248 sf Storage= 6,351 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 185.1 min (1,065.3 - 880.2)

Volume	Invert	Avail.Storage	Storage Description
#1	103.83'	23,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

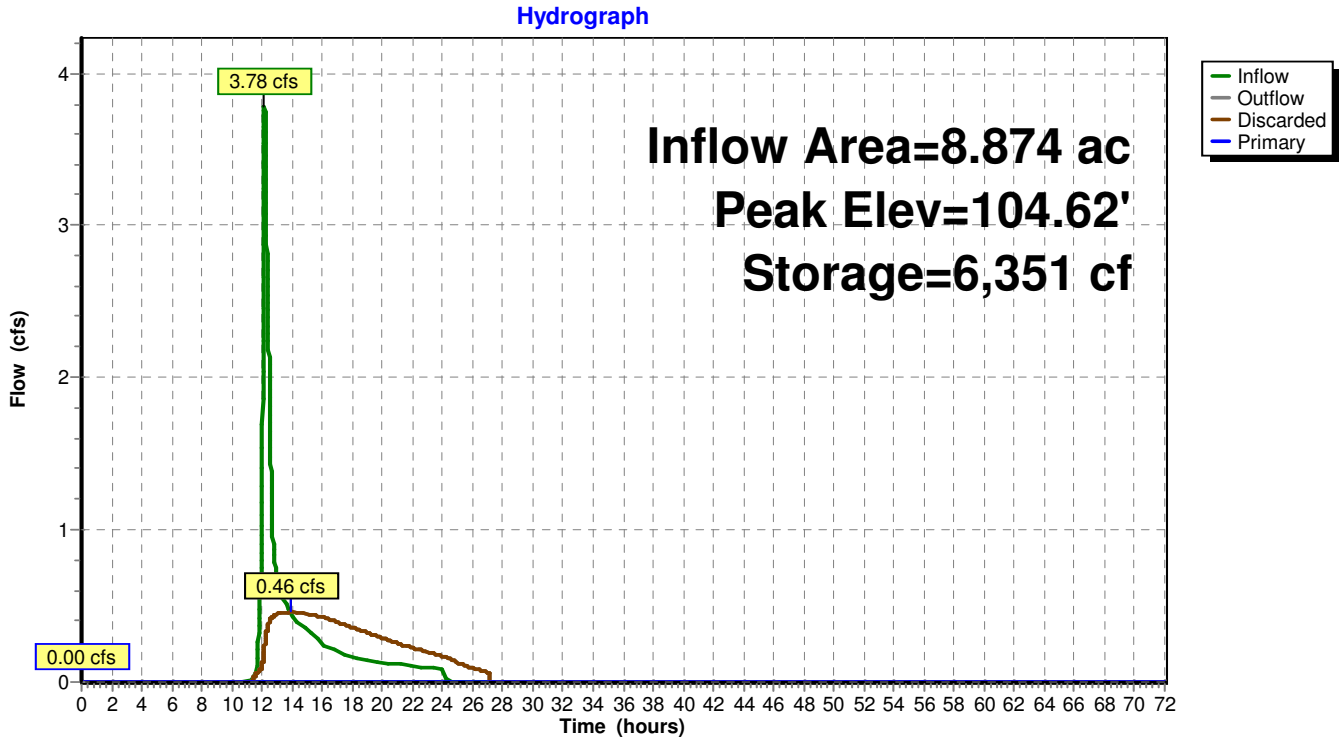
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.83	2,495	0	0
104.00	4,313	579	579
105.00	20,285	12,299	12,878
105.50	23,818	11,026	23,903

Device	Routing	Invert	Outlet Devices
#1	Discarded	103.83'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 102.80'
#2	Primary	105.07'	**20.0' long x 50.0' 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

Discarded OutFlow Max=0.46 cfs @ 13.91 hrs HW=104.62' (Free Discharge)
1=Exfiltration (Controls 0.46 cfs)

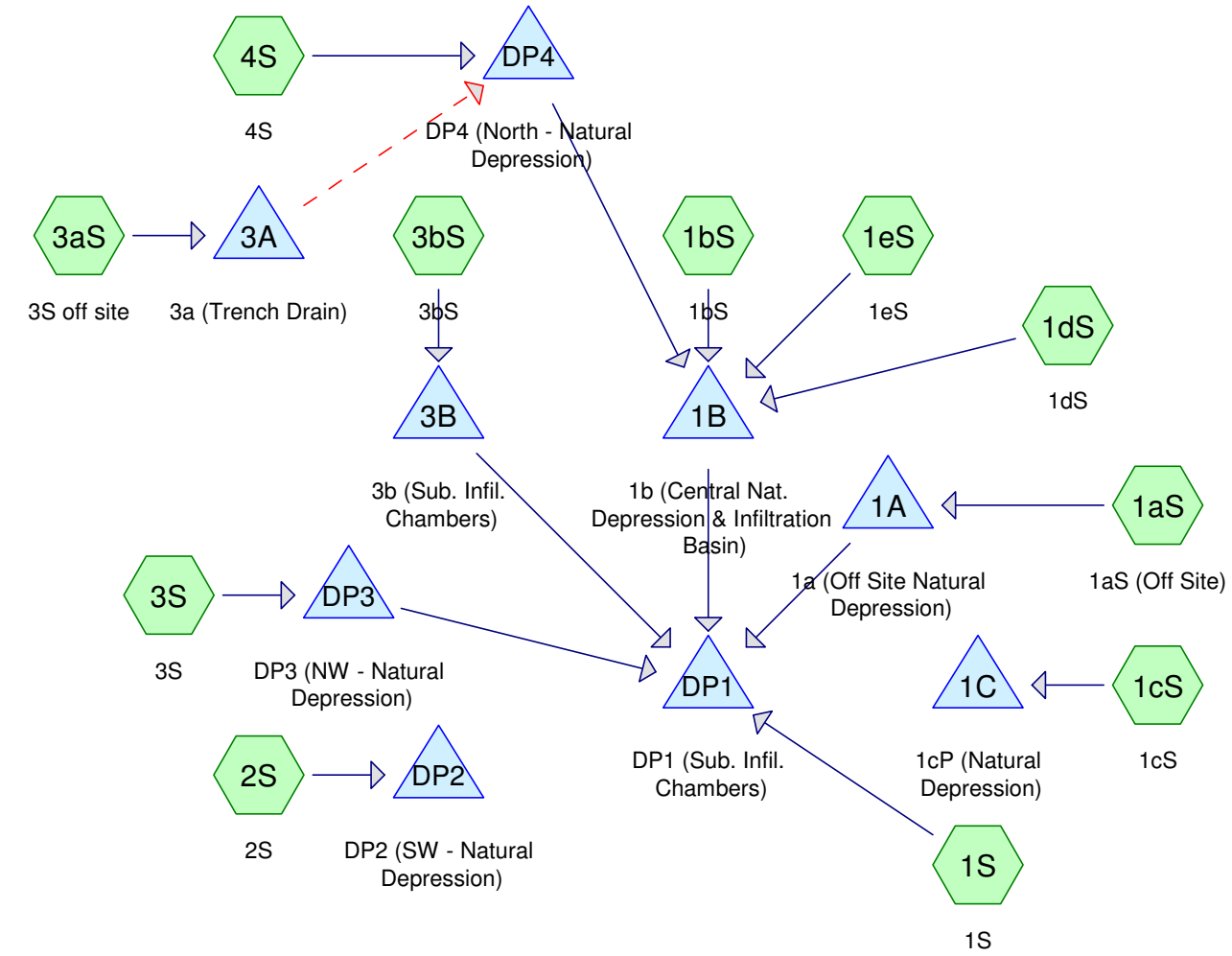
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=103.83' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DP4: DP4 (North - Natural Depression)



A P P E N D I X B

Post-Development Design Condition



Subcat Reach Pond Link

Routing Diagram for Post-Dev06.25.15

Prepared by McKenzie Engineering Group, Inc., Printed 6/30/2015

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.775	39	>75% Grass cover, Good, HSG A (1aS, 1dS, 2S, 3aS, 3S, 4S)
3.439	61	>75% Grass cover, Good, HSG B (1bS, 1cS, 1dS, 1eS, 1S, 2S, 3aS, 3bS, 3S, 4S)
0.085	74	>75% Grass cover, Good, HSG C (1dS)
0.019	85	Gravel roads, HSG B (1bS)
1.383	98	Paved parking, HSG B (1eS, 1S, 3bS)
0.909	98	Roofs, HSG A (1aS, 1dS, 2S, 3aS, 3S, 4S)
1.932	98	Roofs, HSG B (1bS, 1cS, 1dS, 1eS, 1S, 2S, 3bS, 3S, 4S)
4.157	30	Woods, Good, HSG A (1aS, 1cS, 1dS, 2S, 3aS, 3S, 4S)
1.542	55	Woods, Good, HSG B (1bS, 1cS, 1dS, 1S, 2S, 3aS, 3S, 4S)
17.241	**57**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
8.841	HSG A	1aS, 1cS, 1dS, 2S, 3aS, 3S, 4S
8.315	HSG B	1bS, 1cS, 1dS, 1eS, 1S, 2S, 3aS, 3bS, 3S, 4S
0.085	HSG C	1dS
0.000	HSG D	
0.000	Other	
17.241		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
3.775	3.439	0.085	0.000	0.000	7.299	>75% Grass cover, Good	1aS, 1bS, 1cS, 1dS, 1eS, 1S, 2S, 3aS, 3bS, 3S, 4S
0.000	0.019	0.000	0.000	0.000	0.019	Gravel roads	1bS
0.000	1.383	0.000	0.000	0.000	1.383	Paved parking	1eS, 1S, 3bS
0.909	1.932	0.000	0.000	0.000	2.841	Roofs	1aS, 1bS, 1cS, 1dS, 1eS, 1S, 2S, 3aS, 3bS, 3S, 4S
4.157	1.542	0.000	0.000	0.000	5.699	Woods, Good	1aS, 1bS, 1cS, 1dS, 1S, 2S, 3aS, 3S, 4S
8.841	**8.315**	**0.085**	**0.000**	**0.000**	**17.241**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1B	101.96	101.67	29.0	0.0100	0.013	12.0	0.0	0.0
2	3B	106.30	105.28	34.0	0.0300	0.013	12.0	0.0	0.0
3	DP3	104.85	104.24	122.0	0.0050	0.013	12.0	0.0	0.0
4	DP4	104.45	104.10	86.0	0.0041	0.013	12.0	0.0	0.0

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1aS: 1aS (Off Site) Runoff Area=24,558 sf 9.81% Impervious Runoff Depth=0.00"
Flow Length=174' Tc=14.2 min CN=40 Runoff=0.00 cfs 0.000 af

Subcatchment 1bS: 1bS Runoff Area=40,744 sf 19.15% Impervious Runoff Depth=0.73"
Tc=10.0 min CN=68 Runoff=0.60 cfs 0.057 af

Subcatchment 1cS: 1cS Runoff Area=23,675 sf 12.27% Impervious Runoff Depth=0.41"
Tc=5.0 min CN=60 Runoff=0.16 cfs 0.018 af

Subcatchment 1dS: 1dS Runoff Area=80,131 sf 16.36% Impervious Runoff Depth=0.22"
Flow Length=583' Tc=18.0 min CN=54 Runoff=0.13 cfs 0.034 af

Subcatchment 1eS: 1eS Runoff Area=38,668 sf 76.01% Impervious Runoff Depth=2.08"
Tc=5.0 min CN=89 Runoff=2.23 cfs 0.154 af

Subcatchment 1S: 1S Runoff Area=104,111 sf 64.15% Impervious Runoff Depth=1.76"
Tc=8.0 min CN=85 Runoff=4.60 cfs 0.350 af

Subcatchment 2S: 2S Runoff Area=93,156 sf 14.02% Impervious Runoff Depth=0.17"
Flow Length=402' Tc=14.1 min CN=52 Runoff=0.10 cfs 0.031 af

Subcatchment 3aS: 3S off site Runoff Area=138,732 sf 11.36% Impervious Runoff Depth=0.01"
Flow Length=702' Tc=34.0 min CN=42 Runoff=0.01 cfs 0.004 af

Subcatchment 3bS: 3bS Runoff Area=12,198 sf 78.82% Impervious Runoff Depth=2.17"
Tc=5.0 min CN=90 Runoff=0.73 cfs 0.051 af

Subcatchment 3S: 3S Runoff Area=98,908 sf 12.03% Impervious Runoff Depth=0.07"
Tc=10.0 min CN=47 Runoff=0.02 cfs 0.014 af

Subcatchment 4S: 4S Runoff Area=96,150 sf 11.71% Impervious Runoff Depth=0.13"
Flow Length=170' Tc=11.8 min CN=50 Runoff=0.05 cfs 0.024 af

Pond 1A: 1a (Off Site Natural Depression) Peak Elev=105.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 1B: 1b (Central Nat. Depression & Peak Elev=101.99' Storage=3,730 cf Inflow=2.65 cfs 0.245 af
Discarded=0.31 cfs 0.245 af Primary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.245 af

Pond 1C: 1cP (Natural Depression) Peak Elev=101.20' Storage=132 cf Inflow=0.16 cfs 0.018 af
Outflow=0.05 cfs 0.018 af

Pond 3A: 3a (Trench Drain) Peak Elev=104.50' Storage=0 cf Inflow=0.01 cfs 0.004 af
Discarded=0.01 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.004 af

Pond 3B: 3b (Sub. Infil. Chambers) Peak Elev=106.47' Storage=803 cf Inflow=0.73 cfs 0.051 af
Discarded=0.05 cfs 0.043 af Primary=0.12 cfs 0.007 af Outflow=0.17 cfs 0.051 af

Pond DP1: DP1 (Sub. Infil. Chambers) Peak Elev=100.69' Storage=2,570 cf Inflow=4.60 cfs 0.357 af
Outflow=1.61 cfs 0.357 af

Pond DP2: DP2 (SW - Natural Depression) Peak Elev=101.33' Storage=244 cf Inflow=0.10 cfs 0.031 af
Discarded=0.04 cfs 0.031 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.031 af

Pond DP3: DP3 (NW - Natural Depression) Peak Elev=104.30' Storage=0 cf Inflow=0.02 cfs 0.014 af
Discarded=0.02 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.014 af

Pond DP4: DP4 (North - Natural Depression) Peak Elev=103.83' Storage=0 cf Inflow=0.05 cfs 0.024 af
Discarded=0.05 cfs 0.024 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.024 af

Total Runoff Area = 17.241 ac Runoff Volume = 0.737 af Average Runoff Depth = 0.51"
75.50% Pervious = 13.018 ac 24.50% Impervious = 4.224 ac

Summary for Subcatchment 1aS: 1aS (Off Site)

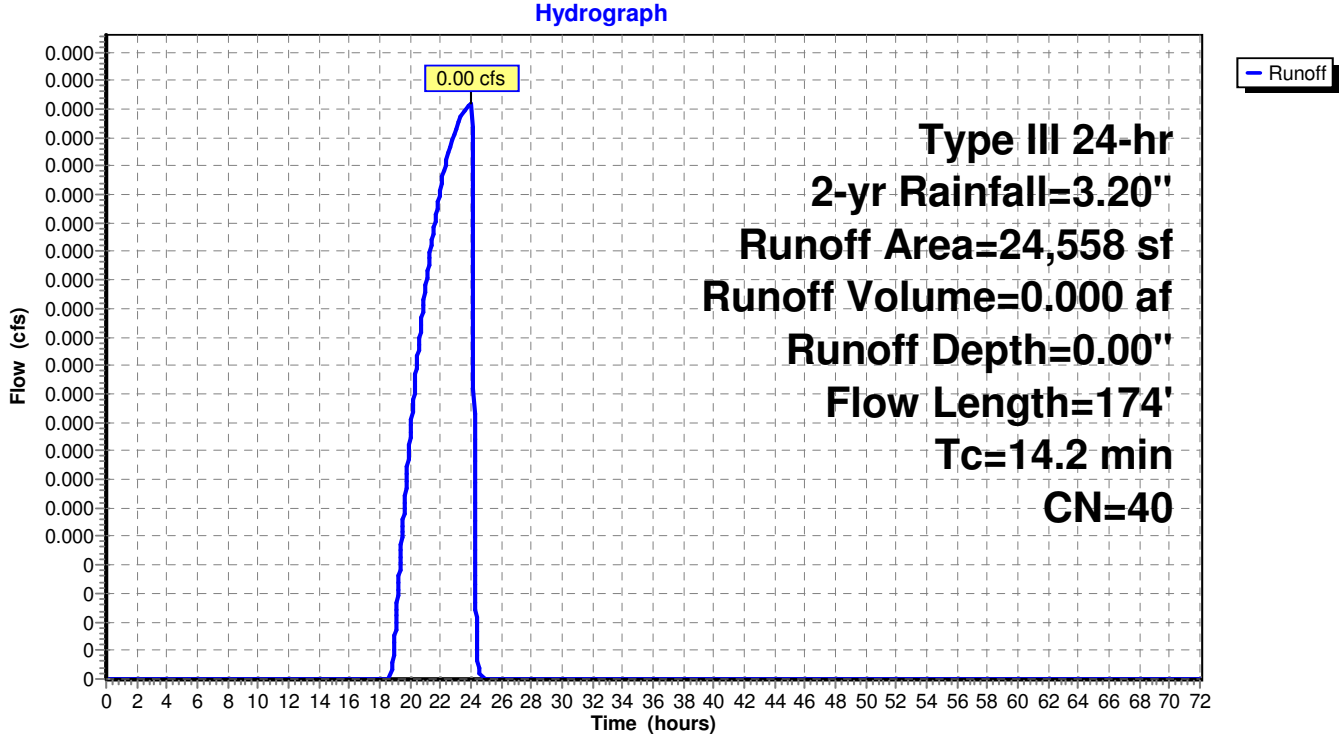
Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
2,408	98	Roofs, HSG A
8,090	39	>75% Grass cover, Good, HSG A
14,060	30	Woods, Good, HSG A
24,558	40	Weighted Average
22,150		90.19% Pervious Area
2,408		9.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	74	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	174	Total			

Subcatchment 1aS: 1aS (Off Site)



Summary for Subcatchment 1bS: 1bS

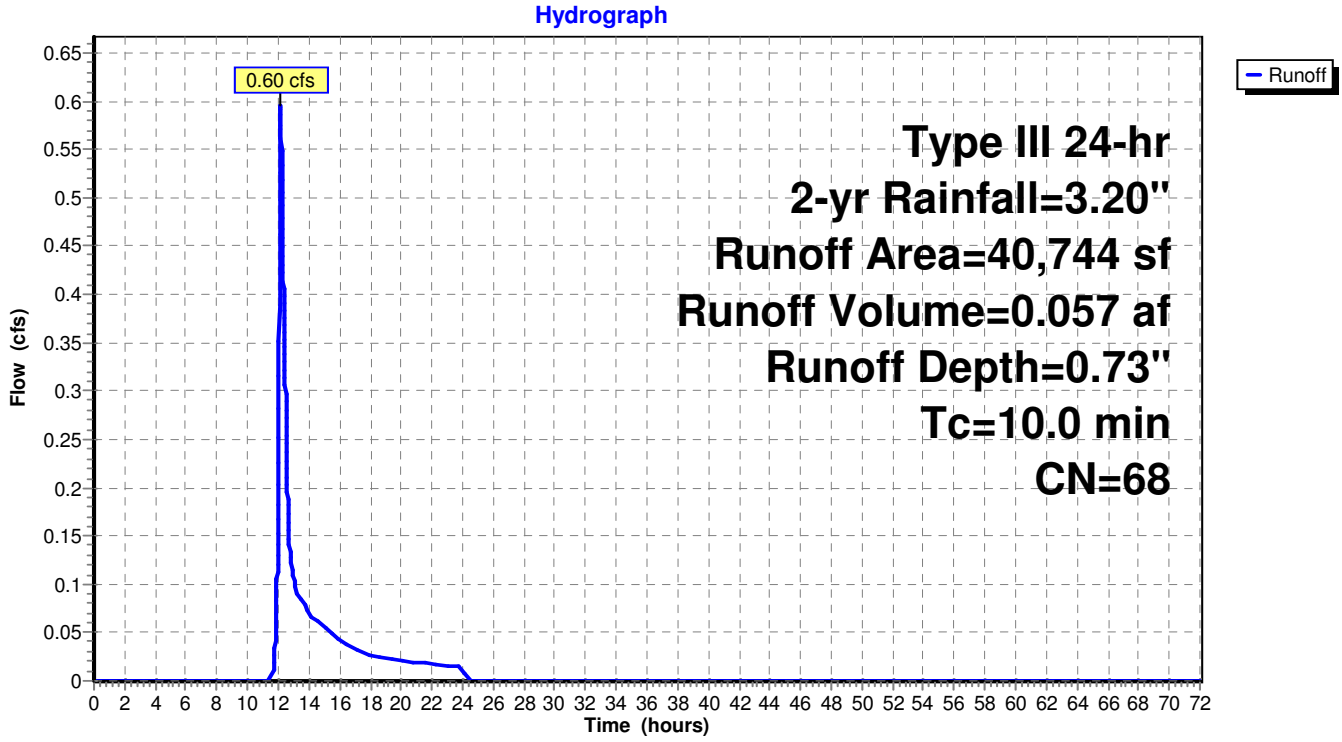
Runoff = 0.60 cfs @ 12.16 hrs, Volume= 0.057 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
833	85	Gravel roads, HSG B
7,801	98	Roofs, HSG B
28,513	61	>75% Grass cover, Good, HSG B
3,597	55	Woods, Good, HSG B
40,744	68	Weighted Average
32,943		80.85% Pervious Area
7,801		19.15% Impervious Area

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

Subcatchment 1bS: 1bS



Summary for Subcatchment 1cS: 1cS

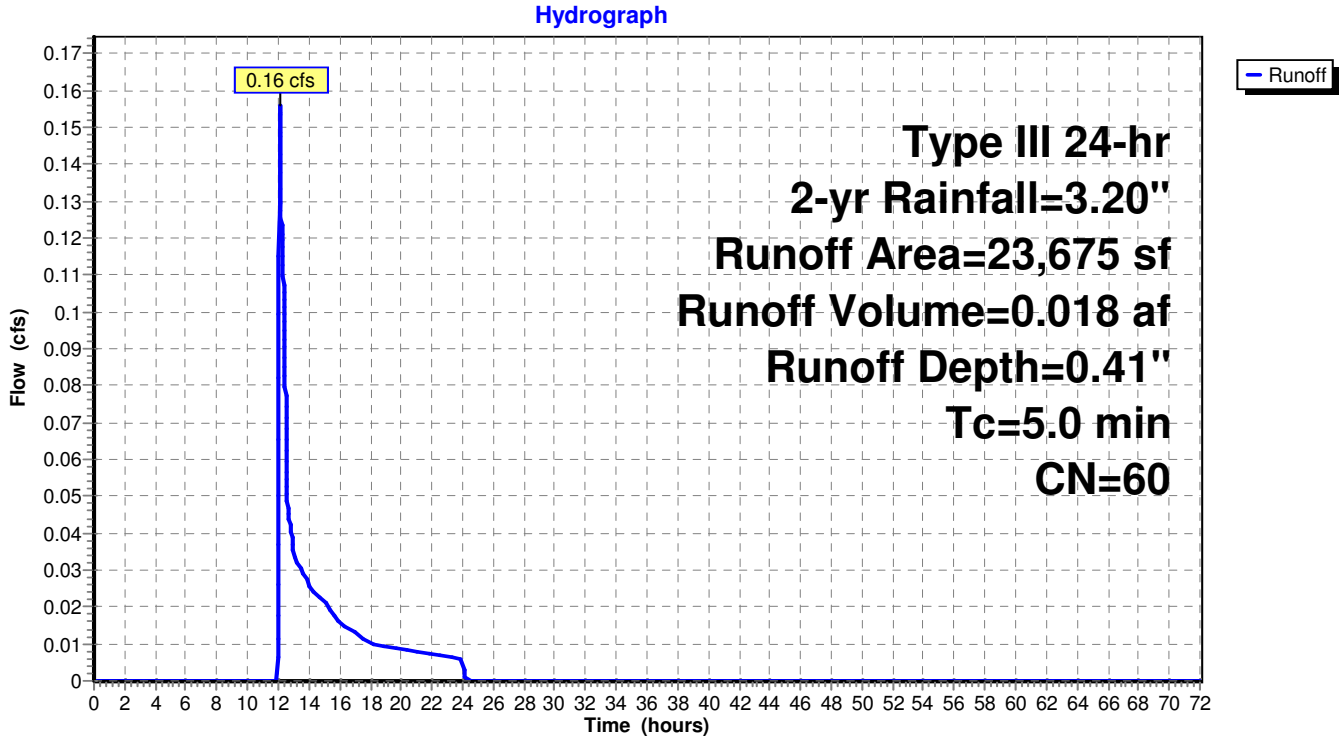
Runoff = 0.16 cfs @ 12.11 hrs, Volume= 0.018 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
	8,470	55	Woods, Good, HSG B
	2,899	30	Woods, Good, HSG A
*	2,905	98	Roofs, HSG B
	9,401	61	>75% Grass cover, Good, HSG B
	23,675	60	Weighted Average
	20,770		87.73% Pervious Area
	2,905		12.27% Impervious Area

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

Subcatchment 1cS: 1cS



Summary for Subcatchment 1dS: 1dS

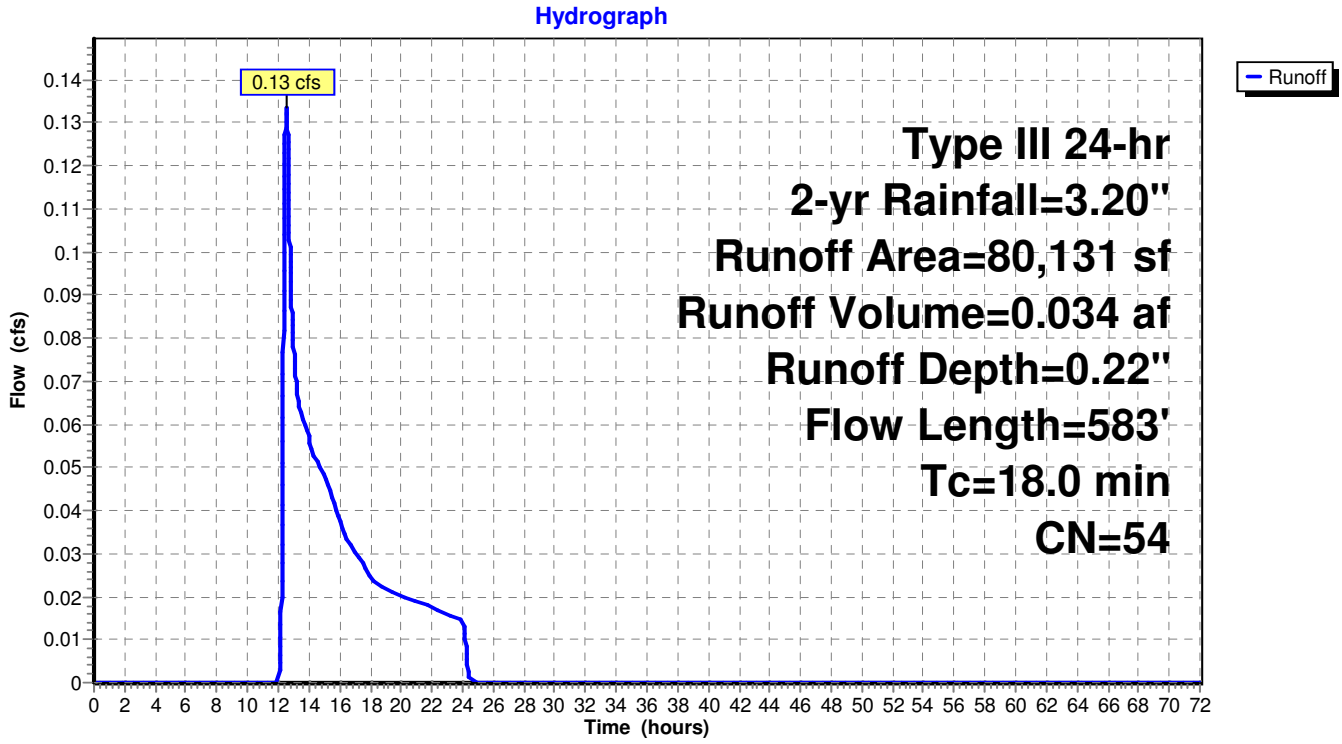
Runoff = 0.13 cfs @ 12.54 hrs, Volume= 0.034 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
	5,354	98	Roofs, HSG A
	20,800	39	>75% Grass cover, Good, HSG A
	3,691	74	>75% Grass cover, Good, HSG C
	17,837	30	Woods, Good, HSG A
*	7,757	98	Roofs, HSG B
	13,831	61	>75% Grass cover, Good, HSG B
	10,861	55	Woods, Good, HSG B
	80,131	54	Weighted Average
	67,020		83.64% Pervious Area
	13,111		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	426	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	583	Total			

Subcatchment 1dS: 1dS



Summary for Subcatchment 1eS: 1eS

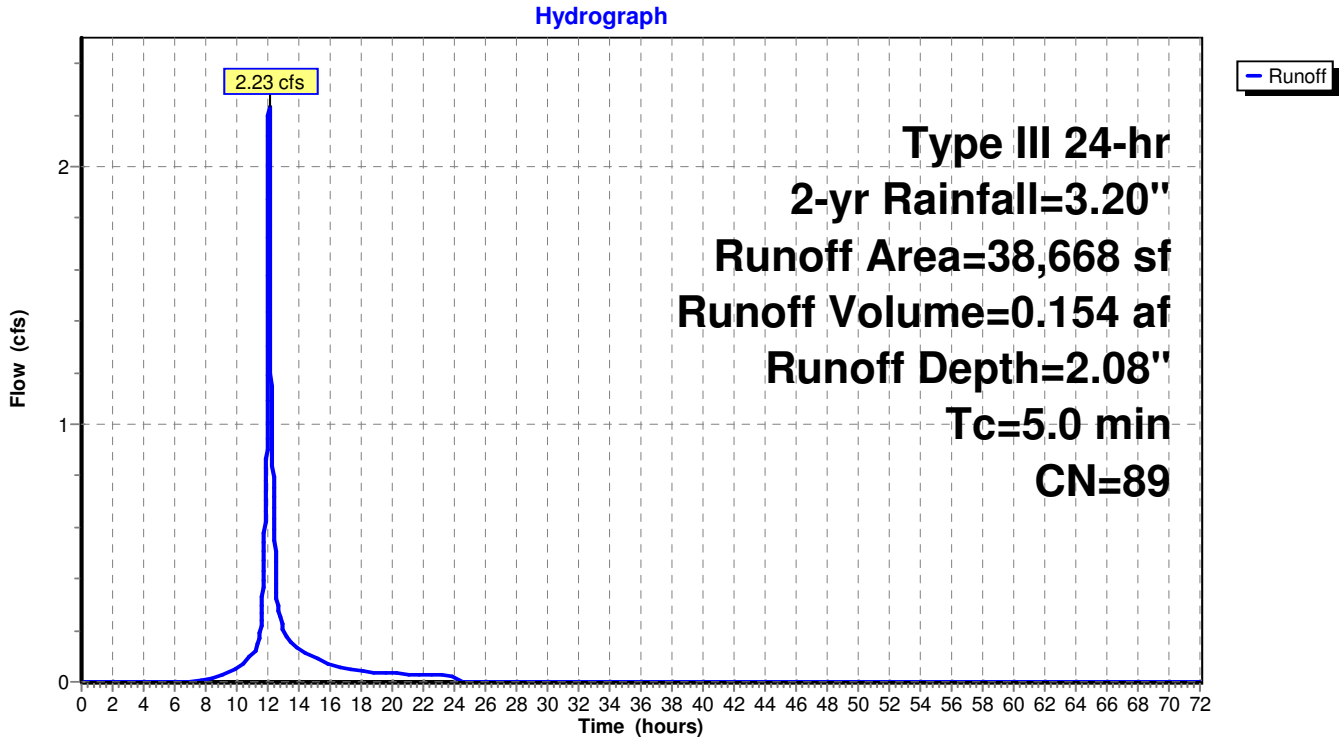
Runoff = 2.23 cfs @ 12.07 hrs, Volume= 0.154 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
15,724	98	Paved parking, HSG B
13,666	98	Roofs, HSG B
9,278	61	>75% Grass cover, Good, HSG B
38,668	89	Weighted Average
9,278		23.99% Pervious Area
29,390		76.01% Impervious Area

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

Subcatchment 1eS: 1eS



Summary for Subcatchment 1S: 1S

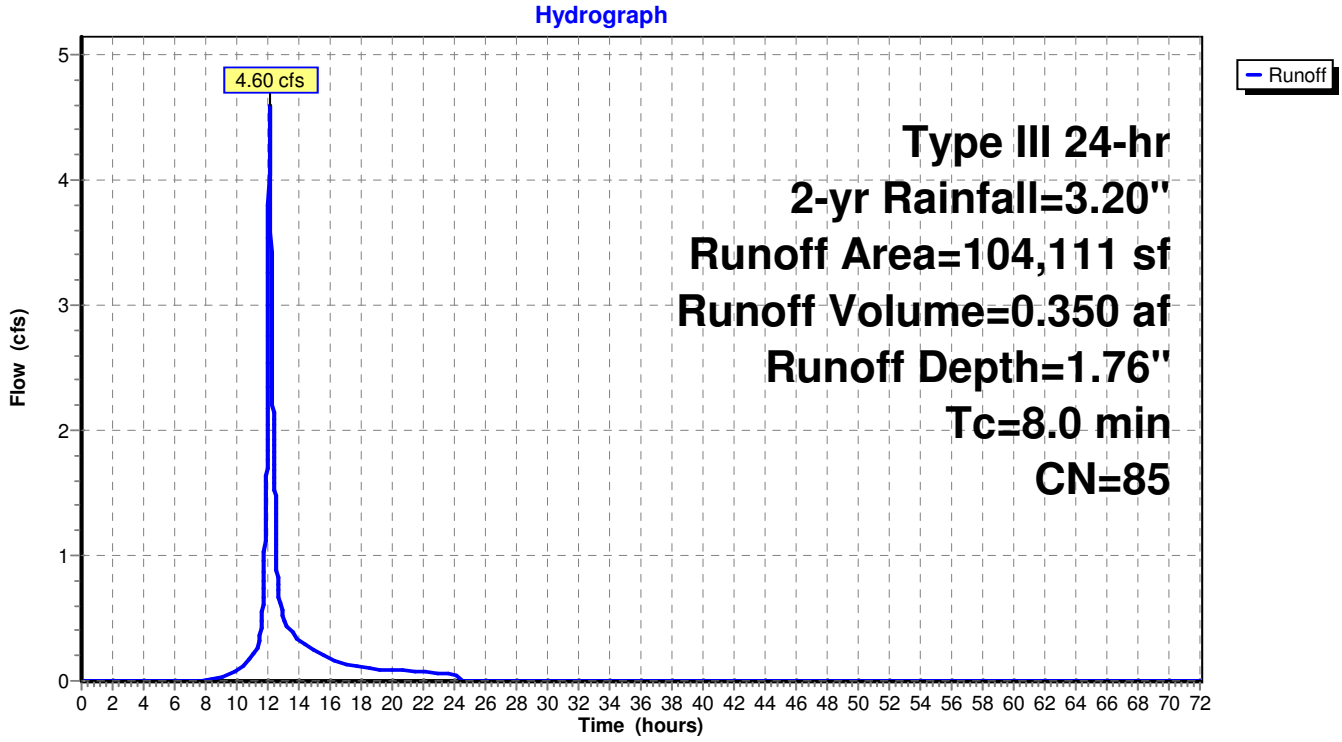
Runoff = 4.60 cfs @ 12.12 hrs, Volume= 0.350 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
*	39,719	98	Paved parking, HSG B
*	27,065	98	Roofs, HSG B
	35,819	61	>75% Grass cover, Good, HSG B
	1,508	55	Woods, Good, HSG B
	104,111	85	Weighted Average
	37,327		35.85% Pervious Area
	66,784		64.15% Impervious Area

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

Subcatchment 1S: 1S



Summary for Subcatchment 2S: 2S

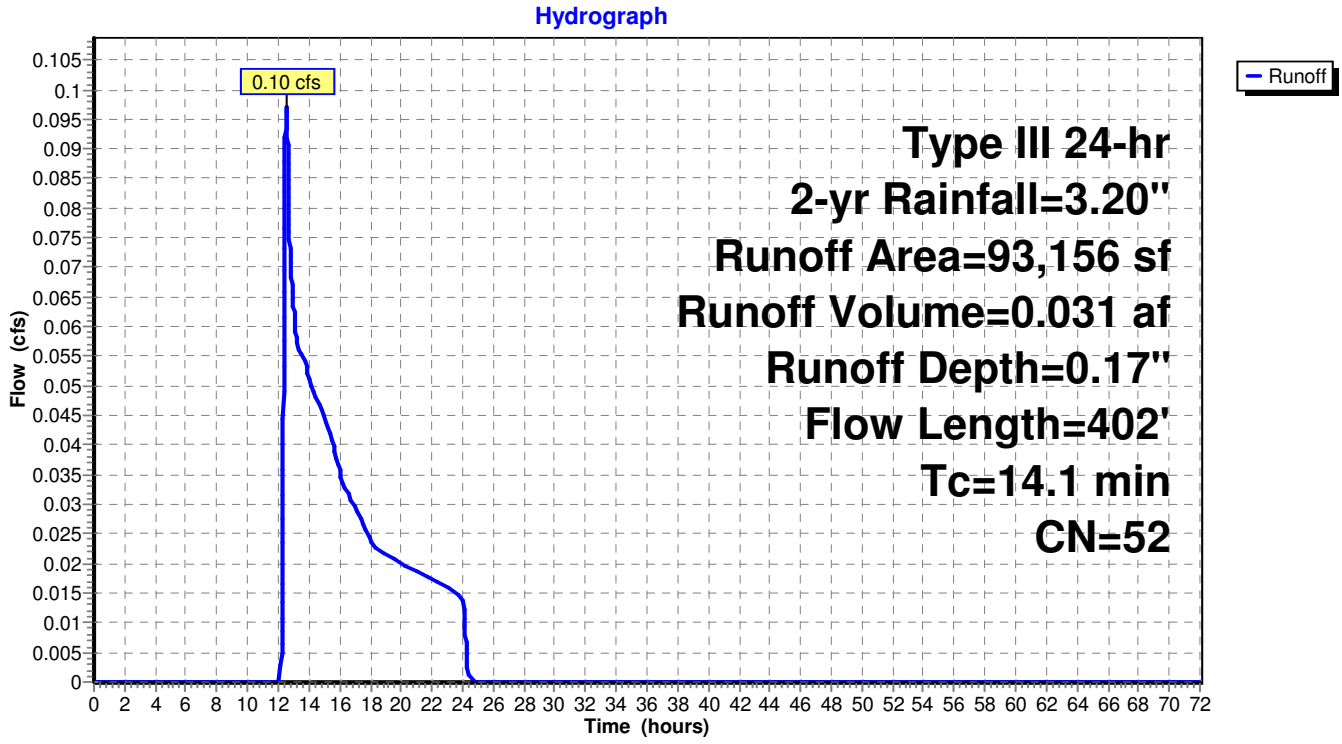
Runoff = 0.10 cfs @ 12.53 hrs, Volume= 0.031 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
5,188	98	Roofs, HSG A
30,371	39	>75% Grass cover, Good, HSG A
18,390	30	Woods, Good, HSG A
18,947	55	Woods, Good, HSG B
12,390	61	>75% Grass cover, Good, HSG B
7,870	98	Roofs, HSG B
93,156	52	Weighted Average
80,098		85.98% Pervious Area
13,058		14.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0250	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.3	194	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	158	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.1	402	Total			

Subcatchment 2S: 2S



Summary for Subcatchment 3aS: 3S off site

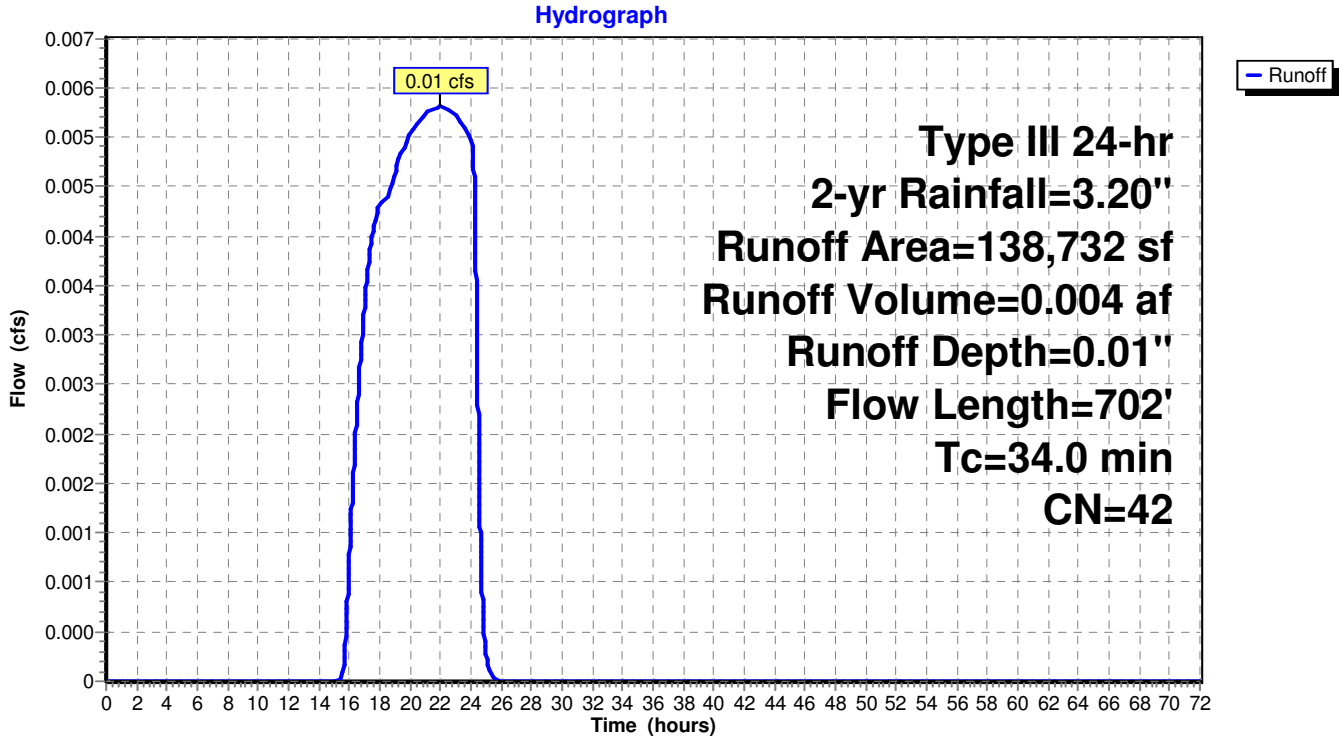
Runoff = 0.01 cfs @ 21.95 hrs, Volume= 0.004 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
7,998	98	Roofs, HSG A
13,323	39	>75% Grass cover, Good, HSG A
7,763	98	Roofs, HSG A
21,261	39	>75% Grass cover, Good, HSG A
76,682	30	Woods, Good, HSG A
4,144	55	Woods, Good, HSG B
7,561	61	>75% Grass cover, Good, HSG B
138,732	42	Weighted Average
122,971		88.64% Pervious Area
15,761		11.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
21.7	652	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	702	Total			

Subcatchment 3aS: 3S off site



Summary for Subcatchment 3bS: 3bS

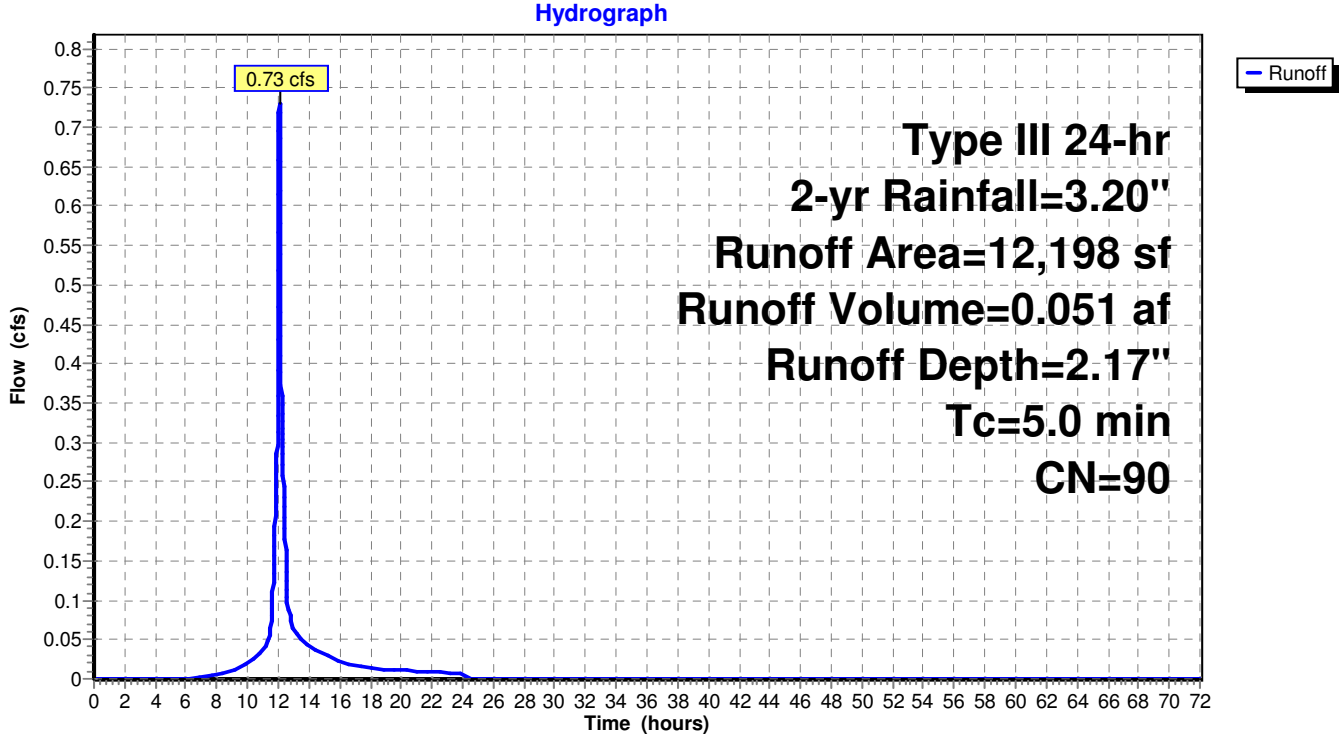
Runoff = 0.73 cfs @ 12.07 hrs, Volume= 0.051 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
4,827	98	Roofs, HSG B
4,787	98	Paved parking, HSG B
2,584	61	>75% Grass cover, Good, HSG B
12,198	90	Weighted Average
2,584		21.18% Pervious Area
9,614		78.82% Impervious Area

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

Subcatchment 3bS: 3bS



Summary for Subcatchment 3S: 3S

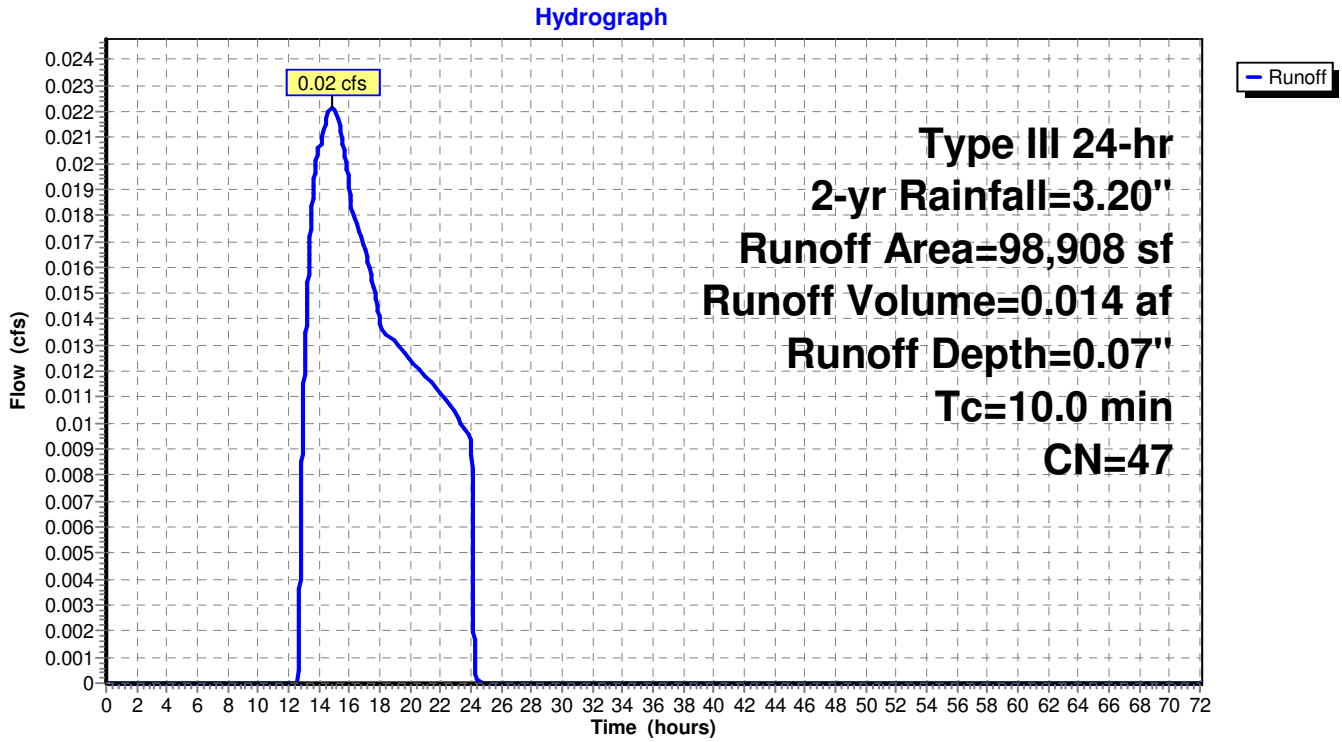
Runoff = 0.02 cfs @ 14.88 hrs, Volume= 0.014 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
4,948	98	Roofs, HSG A
23,819	39	>75% Grass cover, Good, HSG A
6,947	98	Roofs, HSG B
14,369	61	>75% Grass cover, Good, HSG B
39,277	30	Woods, Good, HSG A
9,548	55	Woods, Good, HSG B
98,908	47	Weighted Average
87,013		87.97% Pervious Area
11,895		12.03% Impervious Area

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

Subcatchment 3S: 3S



Summary for Subcatchment 4S: 4S

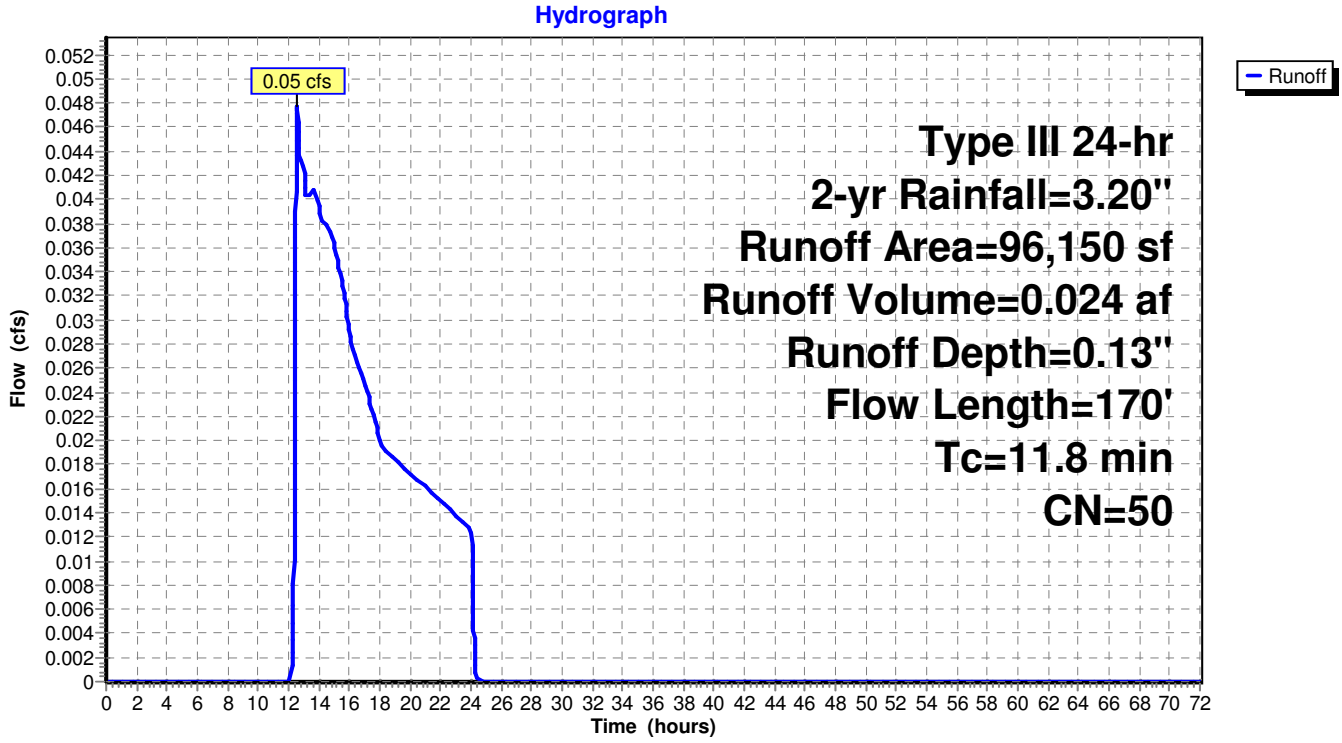
Runoff = 0.05 cfs @ 12.57 hrs, Volume= 0.024 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
5,936	98	Roofs, HSG A
46,782	39	>75% Grass cover, Good, HSG A
11,938	30	Woods, Good, HSG A
5,319	98	Roofs, HSG B
16,063	61	>75% Grass cover, Good, HSG B
10,112	55	Woods, Good, HSG B
96,150	50	Weighted Average
84,895		88.29% Pervious Area
11,255		11.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.6	120	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.8	170	Total			

Subcatchment 4S: 4S



Summary for Pond 1A: 1a (Off Site Natural Depression)

Inflow Area = 0.564 ac, 9.81% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.00' @ 0.00 hrs Surf.Area= 1,231 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,329.5 - 1,329.5)

Volume	Invert	Avail.Storage	Storage Description
#1	105.00'	1,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

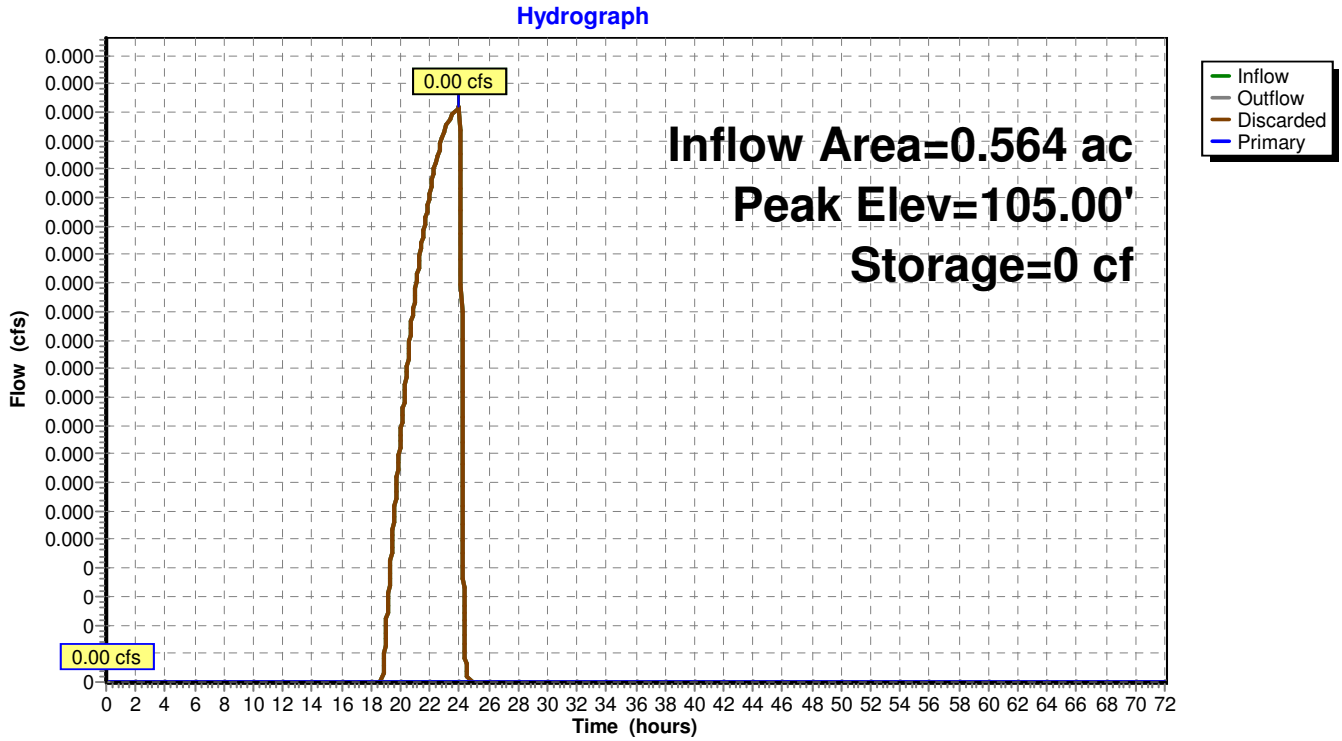
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
105.00	1,231	0	0
105.50	3,587	1,205	1,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	105.22'	**20.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.00 cfs @ 24.00 hrs HW=105.00' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.00 cfs of 0.07 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=105.00' TW=100.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A: 1a (Off Site Natural Depression)



Summary for Pond 1B: 1b (Central Nat. Depression & Infiltration Basin)

Inflow Area = 5.870 ac, 24.07% Impervious, Inflow Depth = 0.50" for 2-yr event
Inflow = 2.65 cfs @ 12.08 hrs, Volume= 0.245 af
Outflow = 0.31 cfs @ 13.45 hrs, Volume= 0.245 af, Atten= 88%, Lag= 82.1 min
Discarded = 0.31 cfs @ 13.45 hrs, Volume= 0.245 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 101.99' @ 13.45 hrs Surf.Area= 4,801 sf Storage= 3,730 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 126.3 min (977.4 - 851.1)

Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	33,502 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

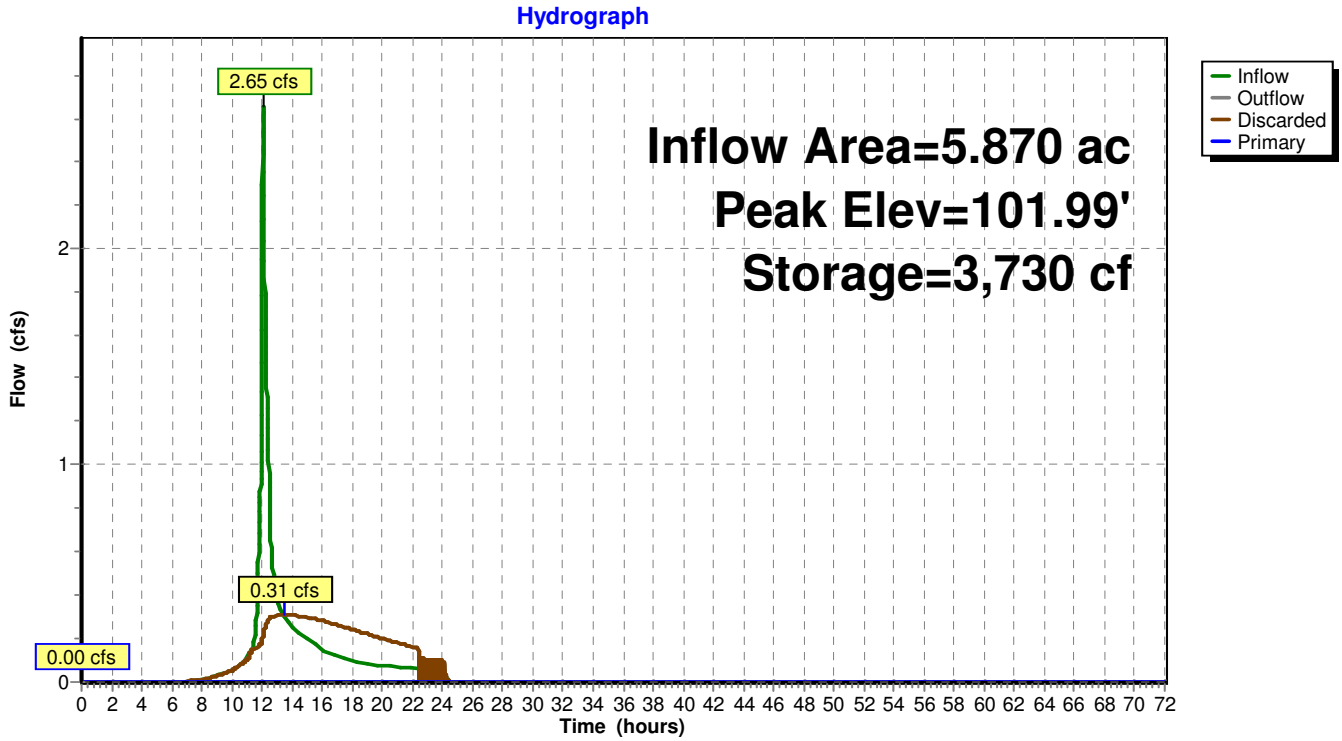
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	2,755	0	0
102.00	4,827	3,791	3,791
103.00	9,677	7,252	11,043
104.00	11,211	10,444	21,487
105.00	12,819	12,015	33,502

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	101.96'	**12.0" Round Culvert** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.96' / 101.67' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	103.00'	**0.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 2.0' Crest Height

Discarded OutFlow Max=0.31 cfs @ 13.45 hrs HW=101.99' (Free Discharge)
└**1=Exfiltration** (Controls 0.31 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=101.00' TW=100.00' (Dynamic Tailwater)
└**2=Culvert** (Controls 0.00 cfs)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B: 1b (Central Nat. Depression & Infiltration Basin)



Summary for Pond 1C: 1cP (Natural Depression)

Inflow Area = 0.544 ac, 12.27% Impervious, Inflow Depth = 0.41" for 2-yr event
Inflow = 0.16 cfs @ 12.11 hrs, Volume= 0.018 af
Outflow = 0.05 cfs @ 12.66 hrs, Volume= 0.018 af, Atten= 71%, Lag= 32.6 min
Discarded = 0.05 cfs @ 12.66 hrs, Volume= 0.018 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 101.20' @ 12.66 hrs Surf.Area= 797 sf Storage= 132 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 20.0 min (939.4 - 919.4)

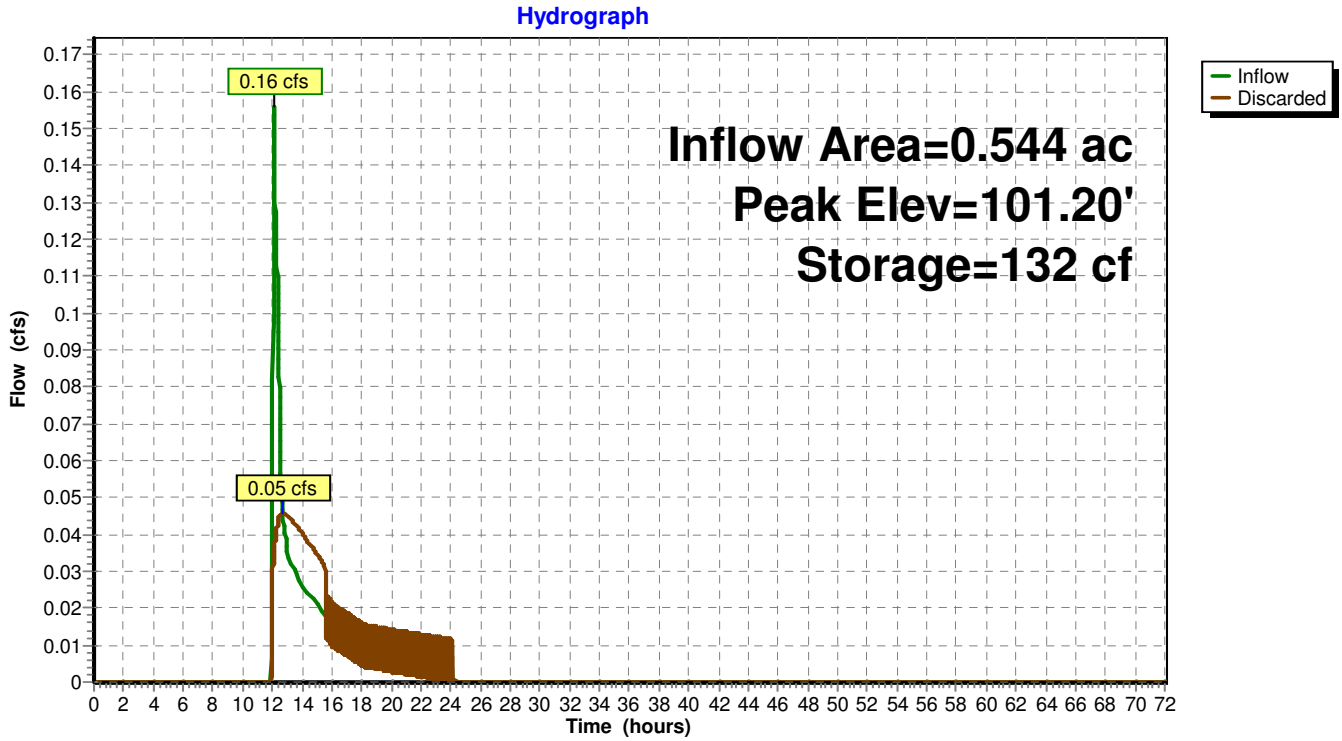
Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	13,188 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	550	0	0
102.00	1,807	1,179	1,179
103.00	3,213	2,510	3,689
104.00	4,741	3,977	7,666
105.00	6,304	5,523	13,188

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'

Discarded OutFlow Max=0.05 cfs @ 12.66 hrs HW=101.20' (Free Discharge)
1=Exfiltration (Controls 0.05 cfs)

Pond 1C: 1cP (Natural Depression)



Summary for Pond 3A: 3a (Trench Drain)

Inflow Area = 3.185 ac, 11.36% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.01 cfs @ 21.95 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 21.95 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.01 cfs @ 21.95 hrs, Volume= 0.004 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.50' @ 0.00 hrs Surf.Area= 1,474 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,237.0 - 1,237.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	104.50'	1,080 cf	**8.17'W x 180.44'L x 2.33'H Field A** 3,438 cf Overall - 739 cf Embedded = 2,699 cf x 40.0% Voids
#2A	105.00'	739 cf	**ADS_StormTech SC-310** x 50 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 2 rows
#3	106.33'	38 cf	**4.00'D x 1.50'H Vertical Cone/Cylinder** x 2
#4	107.83'	1,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,856 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.83	4,883	0	0
108.00	6,878	1,000	1,000

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Secondary	107.90'	**5.0' long x 50.0' 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

Discarded OutFlow Max=0.00 cfs @ 21.95 hrs HW=104.50' (Free Discharge)
1=Exfiltration (Passes 0.00 cfs of 0.03 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.50' TW=103.83' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3A: 3a (Trench Drain) - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 (ADS StormTech® SC-310)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 2.07 sf x 2 rows

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

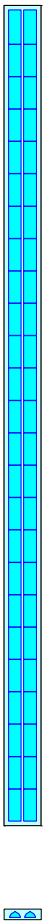
25 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 178.44' Row Length +12.0" End Stone x 2 = 180.44' Base Length
2 Rows x 34.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.17' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

50 Chambers x 14.7 cf +0.44' Row Adjustment x 2.07 sf x 2 Rows = 738.9 cf Chamber Storage

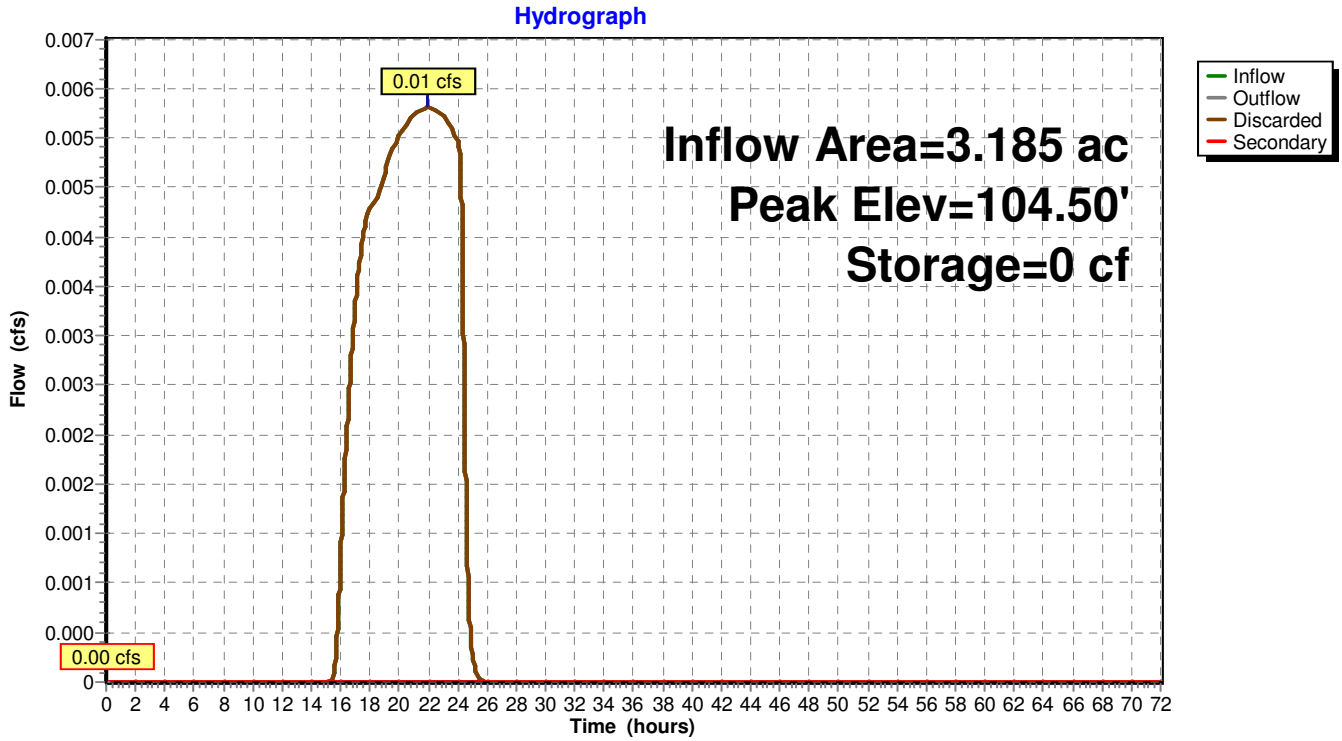
3,438.4 cf Field - 738.9 cf Chambers = 2,699.4 cf Stone x 40.0% Voids = 1,079.8 cf Stone Storage

Chamber Storage + Stone Storage = 1,818.7 cf = 0.042 af
Overall Storage Efficiency = 52.9%

50 Chambers
127.3 cy Field
100.0 cy Stone



Pond 3A: 3a (Trench Drain)



Summary for Pond 3B: 3b (Sub. Infil. Chambers)

Inflow Area = 0.280 ac, 78.82% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 0.73 cfs @ 12.07 hrs, Volume= 0.051 af
Outflow = 0.17 cfs @ 12.47 hrs, Volume= 0.051 af, Atten= 77%, Lag= 23.7 min
Discarded = 0.05 cfs @ 12.47 hrs, Volume= 0.043 af
Primary = 0.12 cfs @ 12.47 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 106.47' @ 12.47 hrs Surf.Area= 1,441 sf Storage= 803 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 117.4 min (923.4 - 806.0)

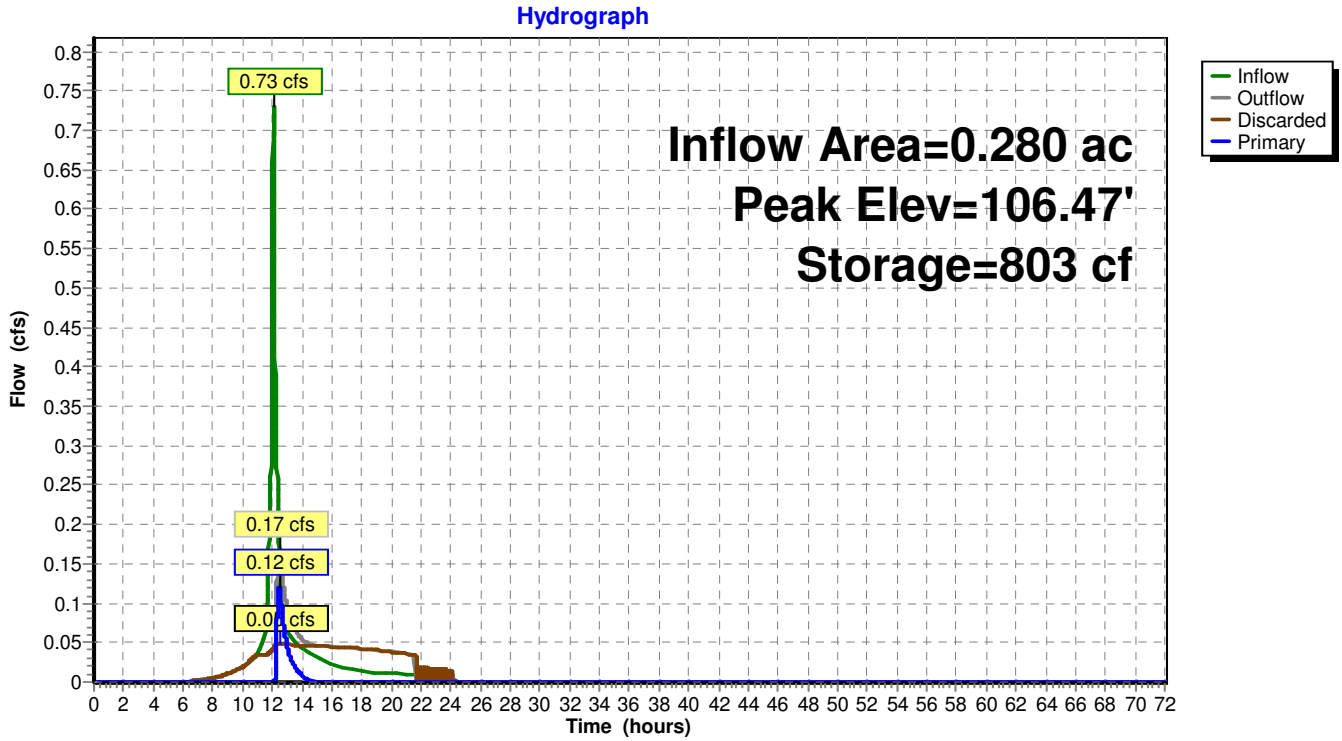
Volume	Invert	Avail.Storage	Storage Description
#1	105.50'	1,022 cf	**21.50'W x 67.00'L x 2.33'H Prismatoid** 3,356 cf Overall - 802 cf Embedded = 2,555 cf x 40.0% Voids
#2	106.00'	802 cf	**StormTech SC-310** x 54 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,823 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	106.30'	**12.0" Round Culvert** L= 34.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.30' / 105.28' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.05 cfs @ 12.47 hrs HW=106.47' (Free Discharge)
1=Exfiltration (Controls 0.05 cfs)

Primary OutFlow Max=0.12 cfs @ 12.47 hrs HW=106.47' TW=100.69' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.12 cfs @ 1.39 fps)

Pond 3B: 3b (Sub. Infil. Chambers)



Summary for Pond DP1: DP1 (Sub. Infil. Chambers)

Inflow Area = 11.374 ac, 30.73% Impervious, Inflow Depth = 0.38" for 2-yr event
Inflow = 4.60 cfs @ 12.12 hrs, Volume= 0.357 af
Outflow = 1.61 cfs @ 12.47 hrs, Volume= 0.357 af, Atten= 65%, Lag= 21.1 min
Discarded = 1.61 cfs @ 12.47 hrs, Volume= 0.357 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 100.69' @ 12.47 hrs Surf.Area= 7,191 sf Storage= 2,570 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 8.1 min (834.9 - 826.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	5,335 cf	**49.00'W x 123.48'L x 3.50'H Field A** 21,177 cf Overall - 7,838 cf Embedded = 13,339 cf x 40.0% Voids
#2A	100.50'	7,838 cf	**ADS_StormTech SC-740** x 170 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 10 rows
#3B	100.00'	1,039 cf	**25.25'W x 45.16'L x 3.50'H Field B** 3,991 cf Overall - 1,392 cf Embedded = 2,599 cf x 40.0% Voids
#4B	100.50'	1,392 cf	**ADS_StormTech SC-740** x 30 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		15,605 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'

Discarded OutFlow Max=1.61 cfs @ 12.47 hrs HW=100.69' (Free Discharge)
↑**1=Exfiltration** (Controls 1.61 cfs)

Pond DP1: DP1 (Sub. Infil. Chambers) - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.45 sf x 10 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

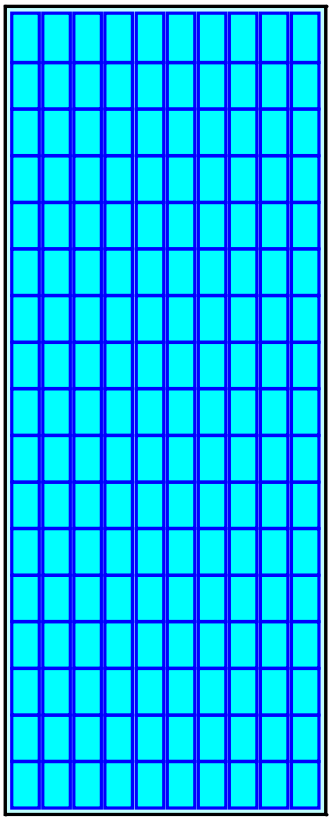
17 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 121.48' Row Length +12.0" End Stone x 2 = 123.48' Base Length
10 Rows x 51.0" Wide + 6.0" Spacing x 9 + 12.0" Side Stone x 2 = 49.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

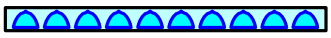
170 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 10 Rows = 7,838.2 cf Chamber Storage

21,176.8 cf Field - 7,838.2 cf Chambers = 13,338.6 cf Stone x 40.0% Voids = 5,335.5 cf Stone Storage

Chamber Storage + Stone Storage = 13,173.6 cf = 0.302 af
Overall Storage Efficiency = 62.2%

170 Chambers
784.3 cy Field
494.0 cy Stone





Pond DP1: DP1 (Sub. Infil. Chambers) - Chamber Wizard Field B

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.45 sf x 5 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

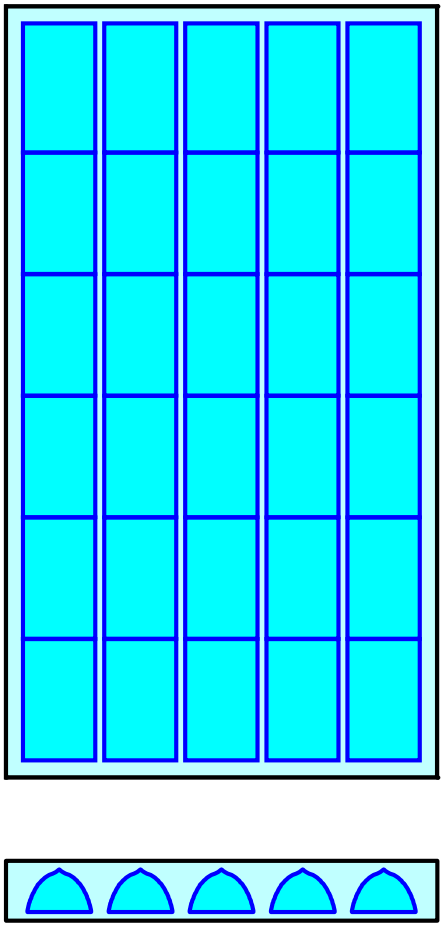
6 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 43.16' Row Length +12.0" End Stone x 2 = 45.16' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

30 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 5 Rows = 1,392.4 cf Chamber Storage

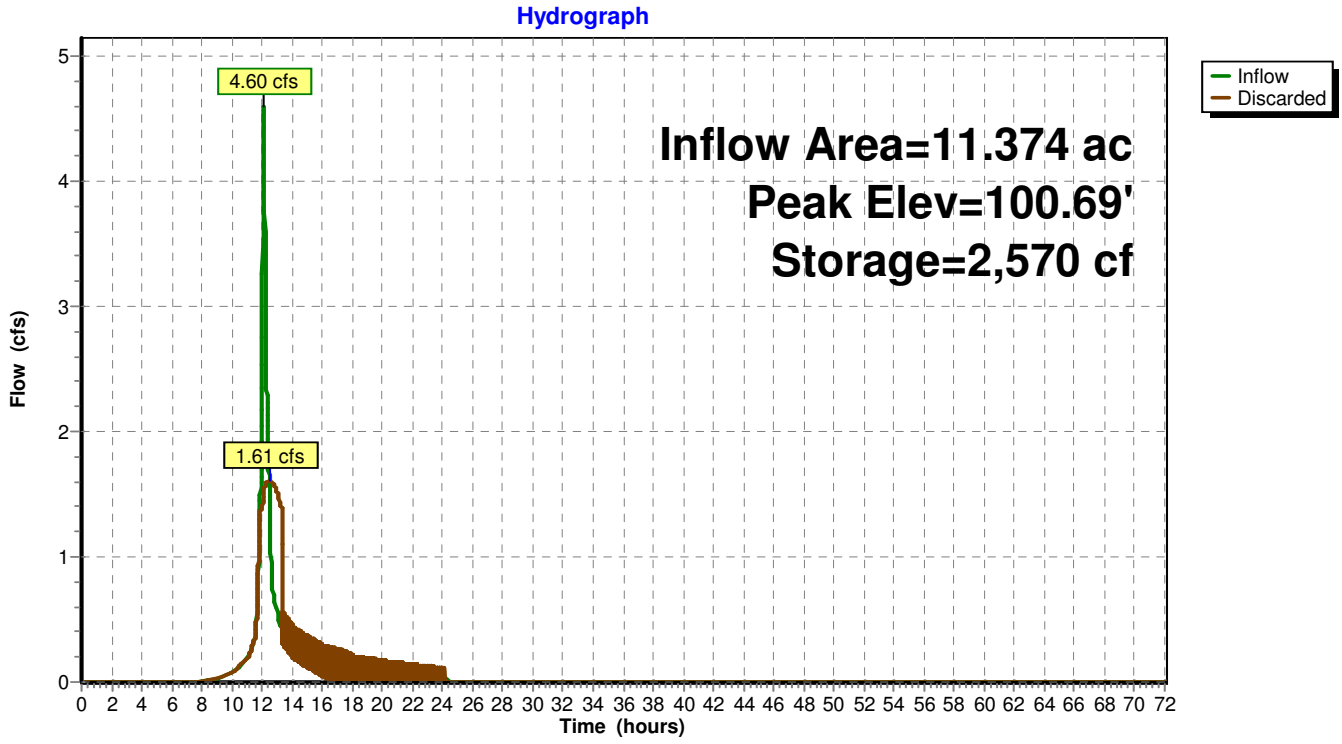
3,991.0 cf Field - 1,392.4 cf Chambers = 2,598.6 cf Stone x 40.0% Voids = 1,039.4 cf Stone Storage

Chamber Storage + Stone Storage = 2,431.8 cf = 0.056 af
Overall Storage Efficiency = 60.9%

30 Chambers
147.8 cy Field
96.2 cy Stone



Pond DP1: DP1 (Sub. Infil. Chambers)



Summary for Pond DP2: DP2 (SW - Natural Depression)

Inflow Area = 2.139 ac, 14.02% Impervious, Inflow Depth = 0.17" for 2-yr event
Inflow = 0.10 cfs @ 12.53 hrs, Volume= 0.031 af
Outflow = 0.04 cfs @ 15.27 hrs, Volume= 0.031 af, Atten= 56%, Lag= 164.1 min
Discarded = 0.04 cfs @ 15.27 hrs, Volume= 0.031 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 101.33' @ 15.27 hrs Surf.Area= 721 sf Storage= 244 cf

Plug-Flow detention time= 86.2 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 86.2 min (1,078.5 - 992.3)

Volume	Invert	Avail.Storage	Storage Description
#1	100.46'	8,665 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

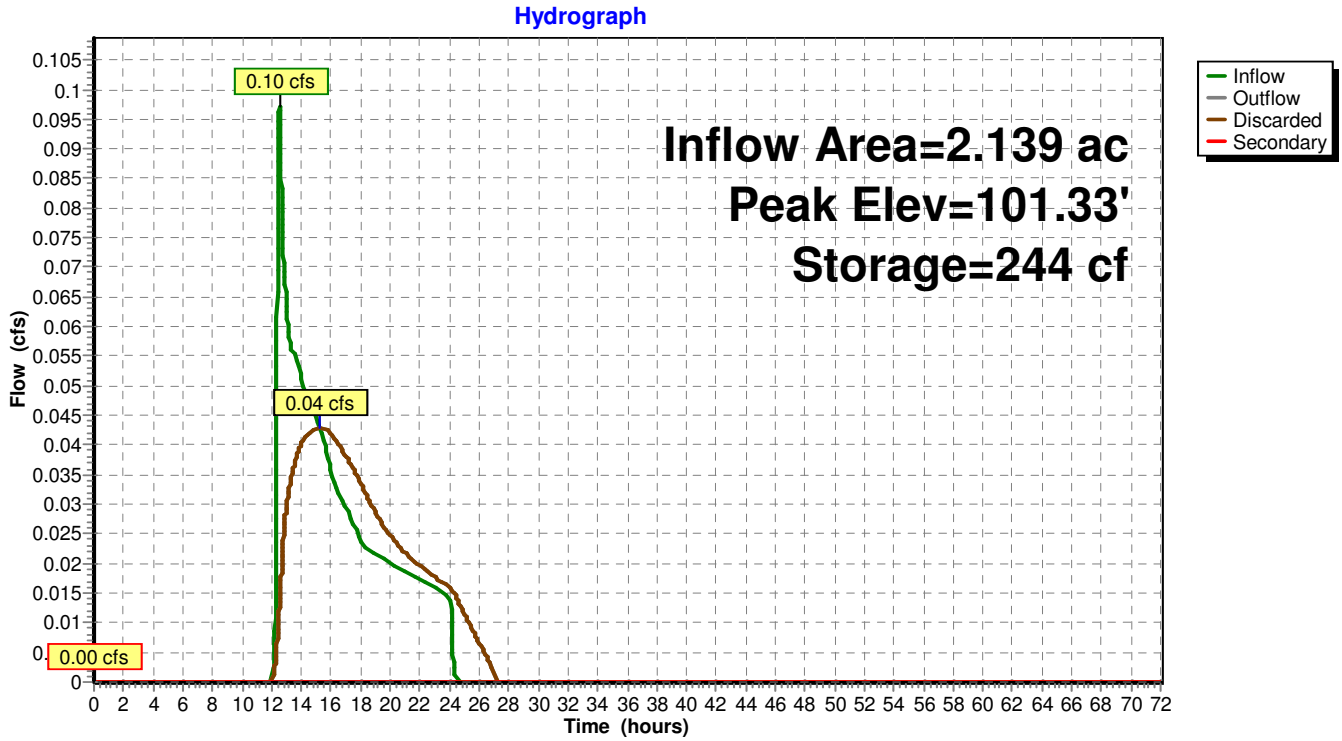
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.46	50	0	0
101.00	261	84	84
102.00	1,671	966	1,050
103.00	3,750	2,711	3,760
103.50	4,945	2,174	5,934
104.00	5,980	2,731	8,665

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.46'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Secondary	103.50'	**13.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.04 cfs @ 15.27 hrs HW=101.33' (Free Discharge)
1=Exfiltration (Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.46' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DP2: DP2 (SW - Natural Depression)



Summary for Pond DP3: DP3 (NW - Natural Depression)

Inflow Area = 2.271 ac, 12.03% Impervious, Inflow Depth = 0.07" for 2-yr event
Inflow = 0.02 cfs @ 14.88 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 14.88 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.02 cfs @ 14.88 hrs, Volume= 0.014 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.30' @ 14.88 hrs Surf.Area= 2,653 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,064.3 - 1,064.3)

Volume	Invert	Avail.Storage	Storage Description
#1	104.30'	6,303 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

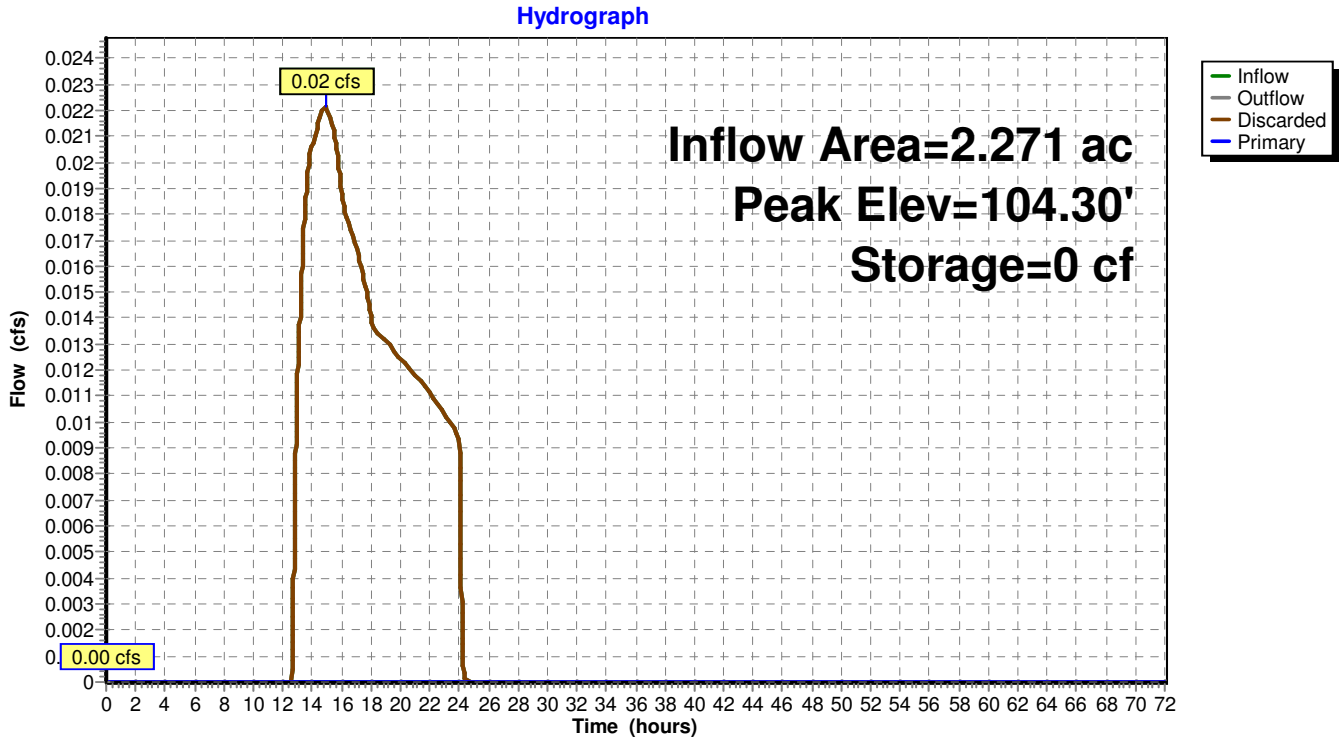
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.30	2,653	0	0
105.00	3,806	2,261	2,261
105.50	5,835	2,410	4,671
105.75	7,220	1,632	6,303

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.30'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	104.85'	**12.0" Round Culvert** L= 122.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.85' / 104.24' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.03 cfs @ 14.88 hrs HW=104.30' (Free Discharge)
1=Exfiltration (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.30' TW=100.00' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Pond DP3: DP3 (NW - Natural Depression)



Summary for Pond DP4: DP4 (North - Natural Depression)

Inflow Area = 2.207 ac, 11.71% Impervious, Inflow Depth = 0.13" for 2-yr event
Inflow = 0.05 cfs @ 12.57 hrs, Volume= 0.024 af
Outflow = 0.05 cfs @ 12.58 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.4 min
Discarded = 0.05 cfs @ 12.58 hrs, Volume= 0.024 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.83' @ 12.58 hrs Surf.Area= 2,056 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,015.4 - 1,015.3)

Volume	Invert	Avail.Storage	Storage Description
#1	103.83'	15,451 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

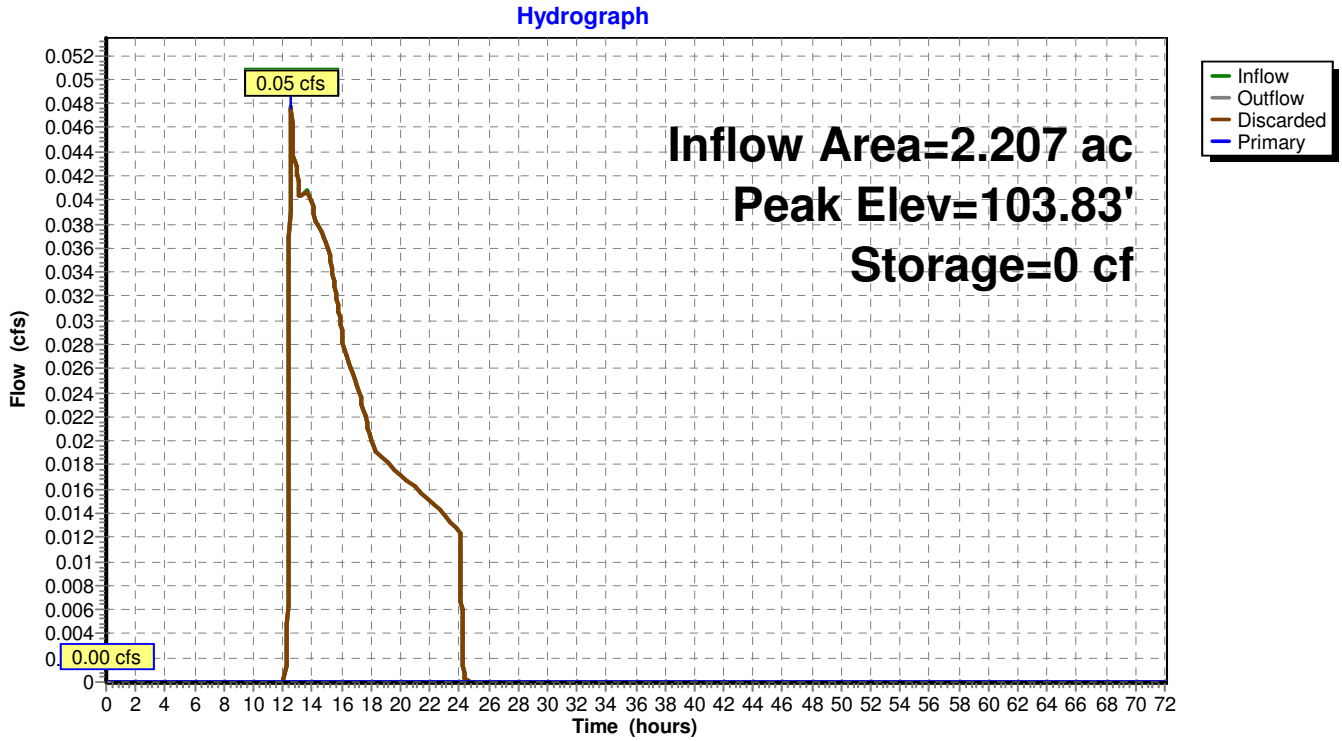
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.83	2,056	0	0
104.00	3,071	436	436
105.00	13,033	8,052	8,488
105.50	14,818	6,963	15,451

Device	Routing	Invert	Outlet Devices
#1	Discarded	103.83'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 102.80'
#2	Primary	104.45'	**12.0" Round Culvert** L= 86.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.45' / 104.10' S= 0.0041 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.05 cfs @ 12.58 hrs HW=103.83' (Free Discharge)
1=Exfiltration (Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=103.83' TW=101.00' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Pond DP4: DP4 (North - Natural Depression)



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1aS: 1aS (Off Site) Runoff Area=24,558 sf 9.81% Impervious Runoff Depth=0.17"
Flow Length=174' Tc=14.2 min CN=40 Runoff=0.01 cfs 0.008 af

Subcatchment 1bS: 1bS Runoff Area=40,744 sf 19.15% Impervious Runoff Depth=1.67"
Tc=10.0 min CN=68 Runoff=1.53 cfs 0.130 af

Subcatchment 1cS: 1cS Runoff Area=23,675 sf 12.27% Impervious Runoff Depth=1.13"
Tc=5.0 min CN=60 Runoff=0.65 cfs 0.051 af

Subcatchment 1dS: 1dS Runoff Area=80,131 sf 16.36% Impervious Runoff Depth=0.78"
Flow Length=583' Tc=18.0 min CN=54 Runoff=0.86 cfs 0.120 af

Subcatchment 1eS: 1eS Runoff Area=38,668 sf 76.01% Impervious Runoff Depth=3.49"
Tc=5.0 min CN=89 Runoff=3.66 cfs 0.258 af

Subcatchment 1S: 1S Runoff Area=104,111 sf 64.15% Impervious Runoff Depth=3.09"
Tc=8.0 min CN=85 Runoff=8.03 cfs 0.616 af

Subcatchment 2S: 2S Runoff Area=93,156 sf 14.02% Impervious Runoff Depth=0.67"
Flow Length=402' Tc=14.1 min CN=52 Runoff=0.84 cfs 0.120 af

Subcatchment 3aS: 3S off site Runoff Area=138,732 sf 11.36% Impervious Runoff Depth=0.24"
Flow Length=702' Tc=34.0 min CN=42 Runoff=0.14 cfs 0.063 af

Subcatchment 3bS: 3bS Runoff Area=12,198 sf 78.82% Impervious Runoff Depth=3.59"
Tc=5.0 min CN=90 Runoff=1.18 cfs 0.084 af

Subcatchment 3S: 3S Runoff Area=98,908 sf 12.03% Impervious Runoff Depth=0.44"
Tc=10.0 min CN=47 Runoff=0.44 cfs 0.082 af

Subcatchment 4S: 4S Runoff Area=96,150 sf 11.71% Impervious Runoff Depth=0.57"
Flow Length=170' Tc=11.8 min CN=50 Runoff=0.68 cfs 0.106 af

Pond 1A: 1a (Off Site Natural Depression) Peak Elev=105.00' Storage=0 cf Inflow=0.01 cfs 0.008 af
Discarded=0.01 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Pond 1B: 1b (Central Nat. Depression & Peak Elev=102.79' Storage=9,129 cf Inflow=5.08 cfs 0.507 af
Discarded=0.58 cfs 0.507 af Primary=0.00 cfs 0.000 af Outflow=0.58 cfs 0.507 af

Pond 1C: 1cP (Natural Depression) Peak Elev=101.72' Storage=716 cf Inflow=0.65 cfs 0.051 af
Outflow=0.09 cfs 0.051 af

Pond 3A: 3a (Trench Drain) Peak Elev=105.43' Storage=754 cf Inflow=0.14 cfs 0.063 af
Discarded=0.06 cfs 0.063 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.063 af

Pond 3B: 3b (Sub. Infil. Chambers) Peak Elev=106.69' Storage=1,030 cf Inflow=1.18 cfs 0.084 af
Discarded=0.05 cfs 0.054 af Primary=0.60 cfs 0.030 af Outflow=0.65 cfs 0.084 af

Pond DP1: DP1 (Sub. Infil. Chambers) Peak Elev=101.55' Storage=7,571 cf Inflow=8.50 cfs 0.645 af
Outflow=1.91 cfs 0.646 af

Pond DP2: DP2 (SW - Natural Depression) Peak Elev=102.34' Storage=1,729 cf Inflow=0.84 cfs 0.120 af
Discarded=0.15 cfs 0.120 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.120 af

Pond DP3: DP3 (NW - Natural Depression) Peak Elev=104.81' Storage=1,570 cf Inflow=0.44 cfs 0.082 af
Discarded=0.06 cfs 0.082 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.082 af

Pond DP4: DP4 (North - Natural Depression) Peak Elev=104.20' Storage=1,253 cf Inflow=0.68 cfs 0.106 af
Discarded=0.15 cfs 0.106 af Primary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.106 af

Total Runoff Area = 17.241 ac Runoff Volume = 1.638 af Average Runoff Depth = 1.14"
75.50% Pervious = 13.018 ac 24.50% Impervious = 4.224 ac

Summary for Subcatchment 1aS: 1aS (Off Site)

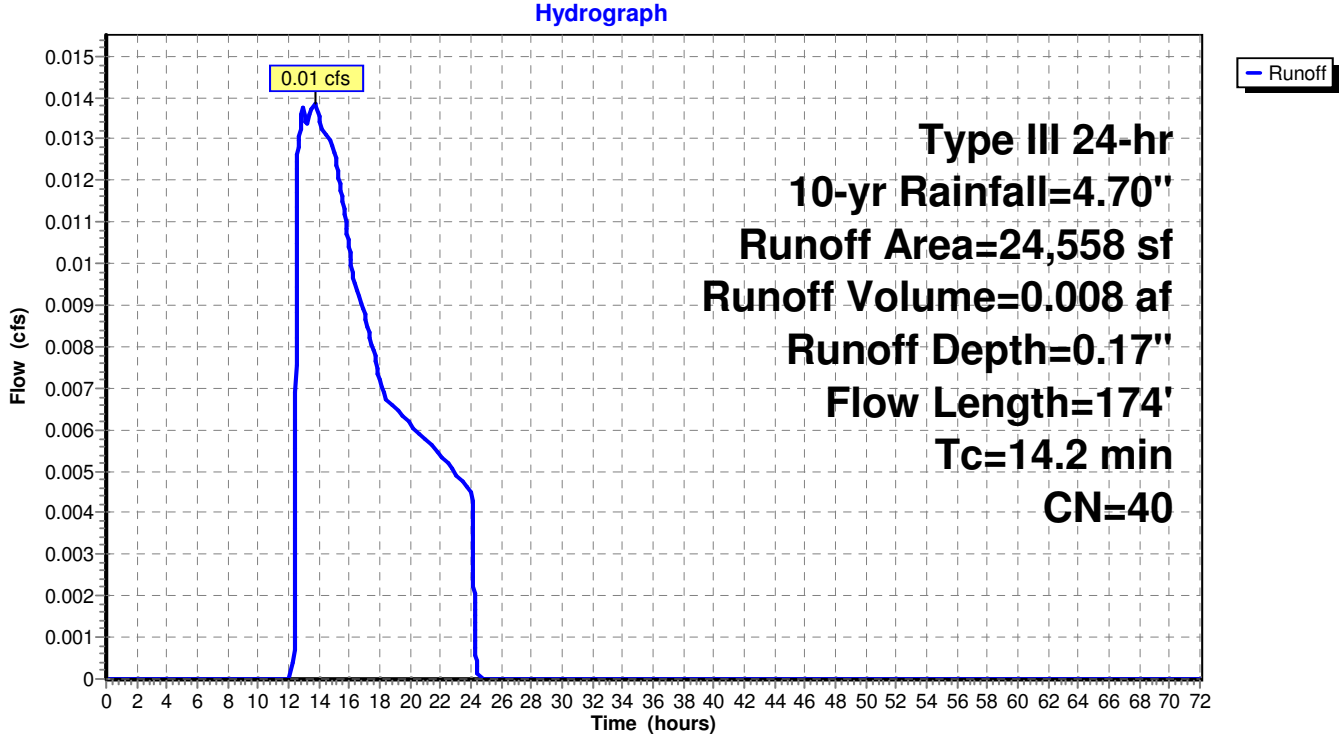
Runoff = 0.01 cfs @ 13.71 hrs, Volume= 0.008 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
2,408	98	Roofs, HSG A
8,090	39	>75% Grass cover, Good, HSG A
14,060	30	Woods, Good, HSG A
24,558	40	Weighted Average
22,150		90.19% Pervious Area
2,408		9.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	74	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	174	Total			

Subcatchment 1aS: 1aS (Off Site)



Summary for Subcatchment 1bS: 1bS

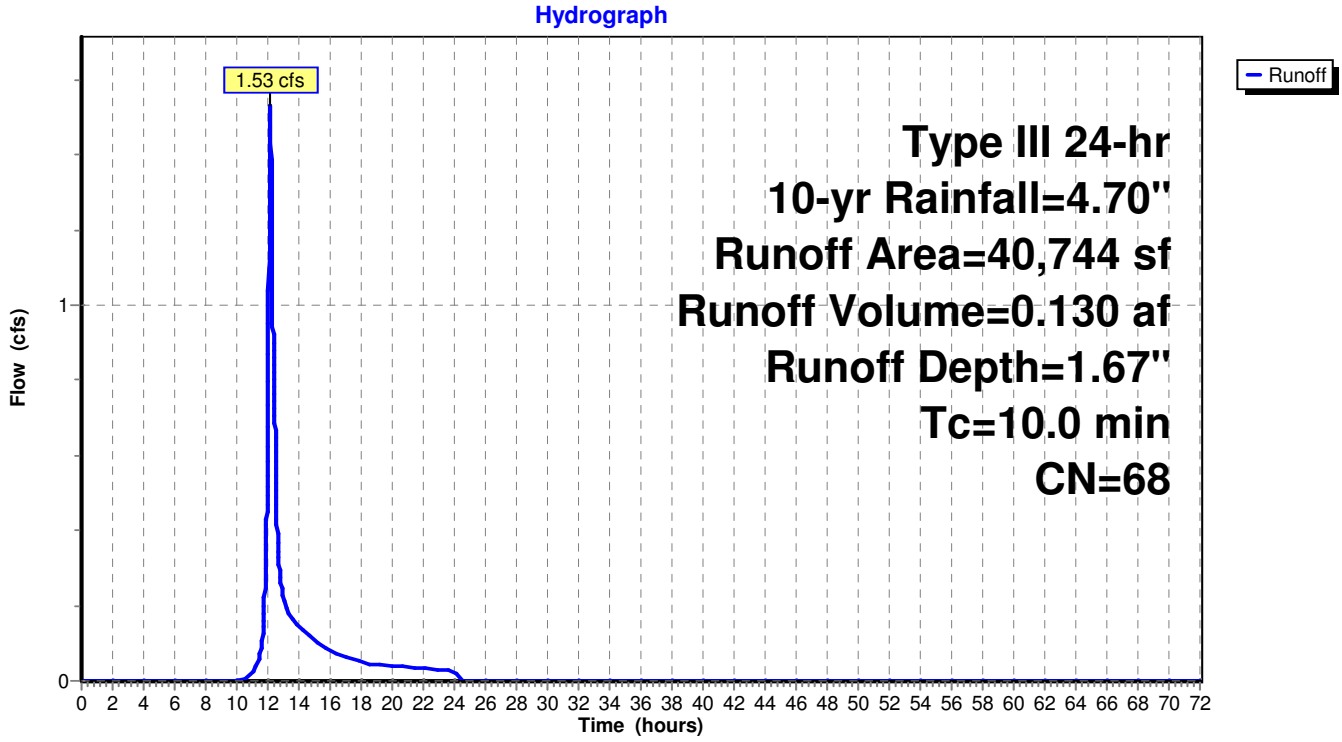
Runoff = 1.53 cfs @ 12.15 hrs, Volume= 0.130 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
833	85	Gravel roads, HSG B
7,801	98	Roofs, HSG B
28,513	61	>75% Grass cover, Good, HSG B
3,597	55	Woods, Good, HSG B
40,744	68	Weighted Average
32,943		80.85% Pervious Area
7,801		19.15% Impervious Area

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

Subcatchment 1bS: 1bS



Summary for Subcatchment 1cS: 1cS

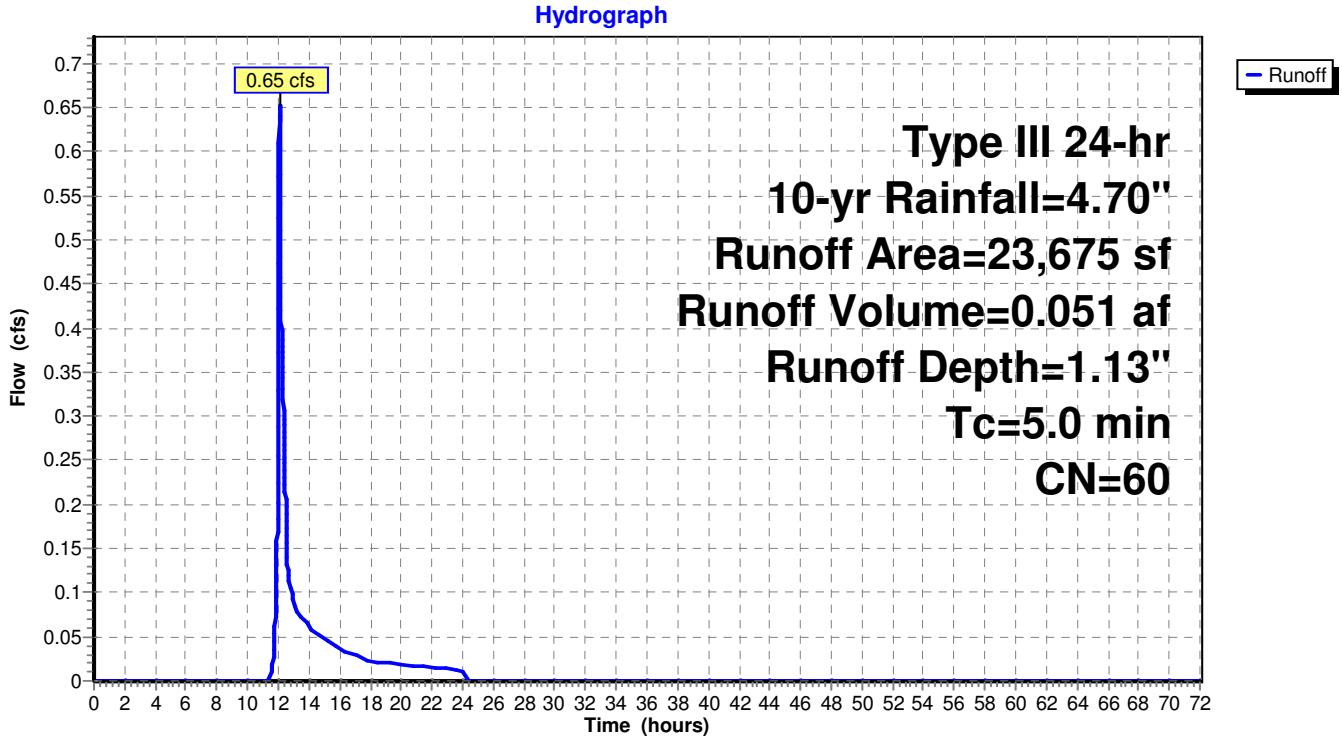
Runoff = 0.65 cfs @ 12.09 hrs, Volume= 0.051 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

	Area (sf)	CN	Description
	8,470	55	Woods, Good, HSG B
	2,899	30	Woods, Good, HSG A
*	2,905	98	Roofs, HSG B
	9,401	61	>75% Grass cover, Good, HSG B
	23,675	60	Weighted Average
	20,770		87.73% Pervious Area
	2,905		12.27% Impervious Area

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

Subcatchment 1cS: 1cS



Summary for Subcatchment 1dS: 1dS

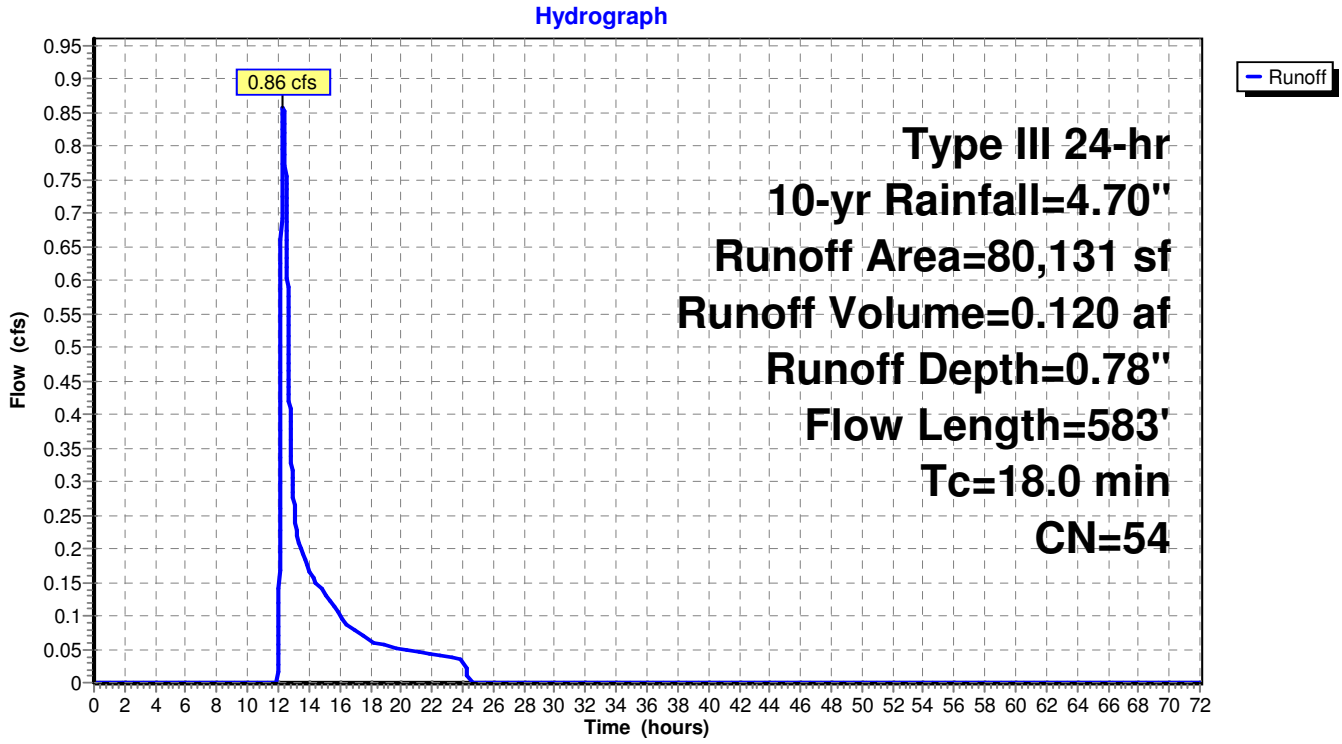
Runoff = 0.86 cfs @ 12.32 hrs, Volume= 0.120 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

	Area (sf)	CN	Description
	5,354	98	Roofs, HSG A
	20,800	39	>75% Grass cover, Good, HSG A
	3,691	74	>75% Grass cover, Good, HSG C
	17,837	30	Woods, Good, HSG A
*	7,757	98	Roofs, HSG B
	13,831	61	>75% Grass cover, Good, HSG B
	10,861	55	Woods, Good, HSG B
	80,131	54	Weighted Average
	67,020		83.64% Pervious Area
	13,111		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	426	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	583	Total			

Subcatchment 1dS: 1dS



Summary for Subcatchment 1eS: 1eS

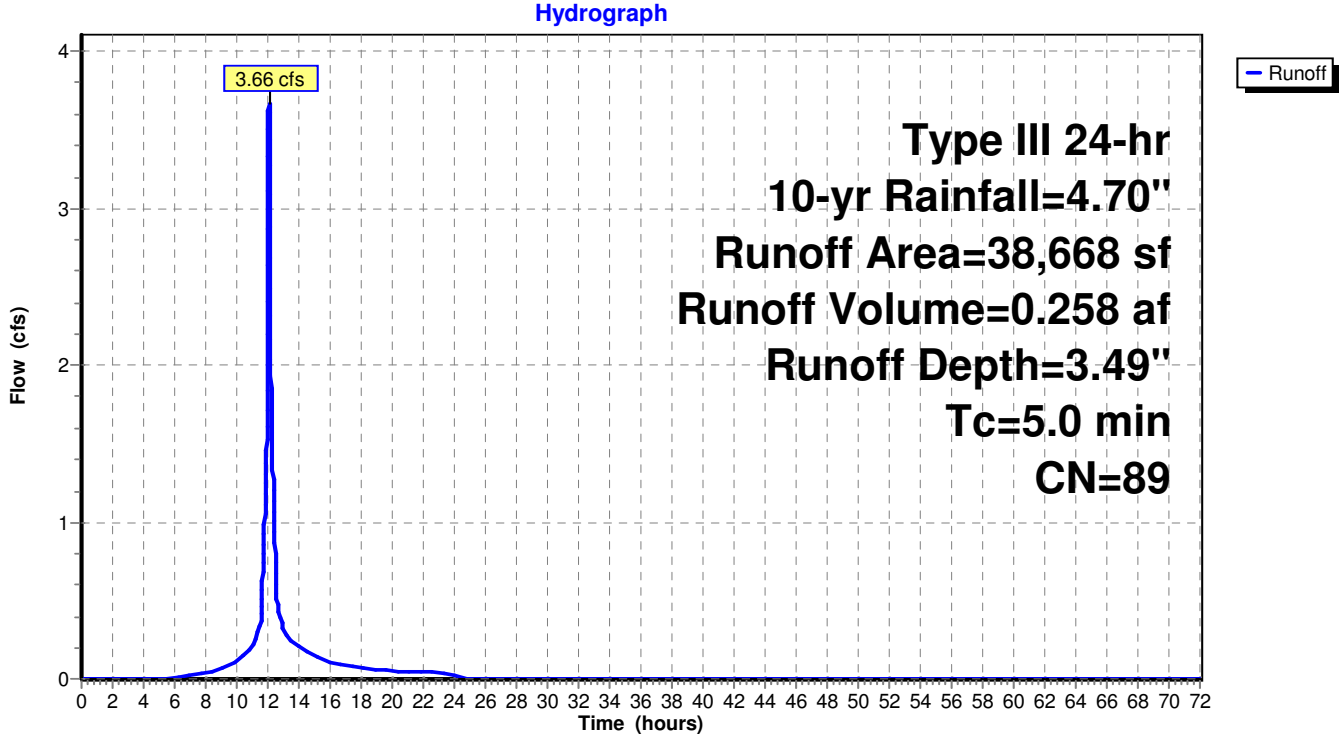
Runoff = 3.66 cfs @ 12.07 hrs, Volume= 0.258 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
15,724	98	Paved parking, HSG B
13,666	98	Roofs, HSG B
9,278	61	>75% Grass cover, Good, HSG B
38,668	89	Weighted Average
9,278		23.99% Pervious Area
29,390		76.01% Impervious Area

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

Subcatchment 1eS: 1eS



Summary for Subcatchment 1S: 1S

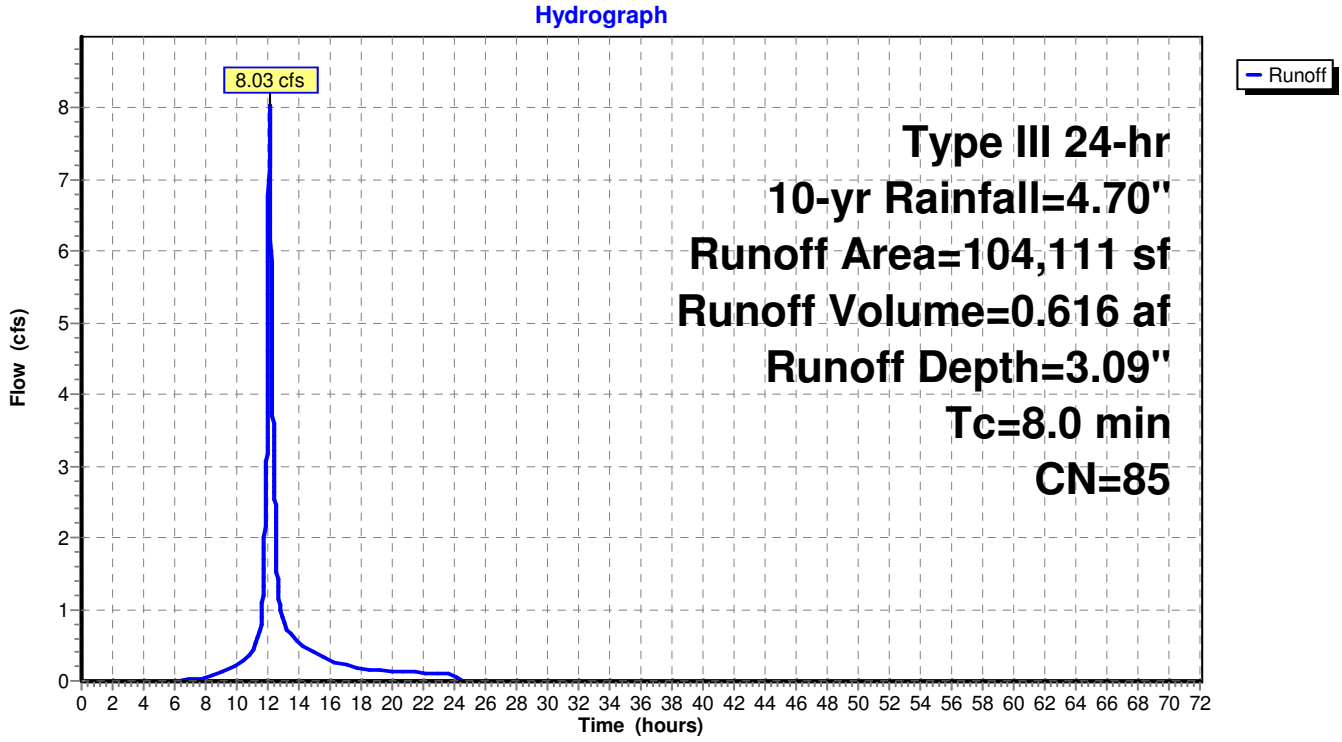
Runoff = 8.03 cfs @ 12.11 hrs, Volume= 0.616 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

	Area (sf)	CN	Description
*	39,719	98	Paved parking, HSG B
*	27,065	98	Roofs, HSG B
	35,819	61	>75% Grass cover, Good, HSG B
	1,508	55	Woods, Good, HSG B
	104,111	85	Weighted Average
	37,327		35.85% Pervious Area
	66,784		64.15% Impervious Area

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

Subcatchment 1S: 1S



Summary for Subcatchment 2S: 2S

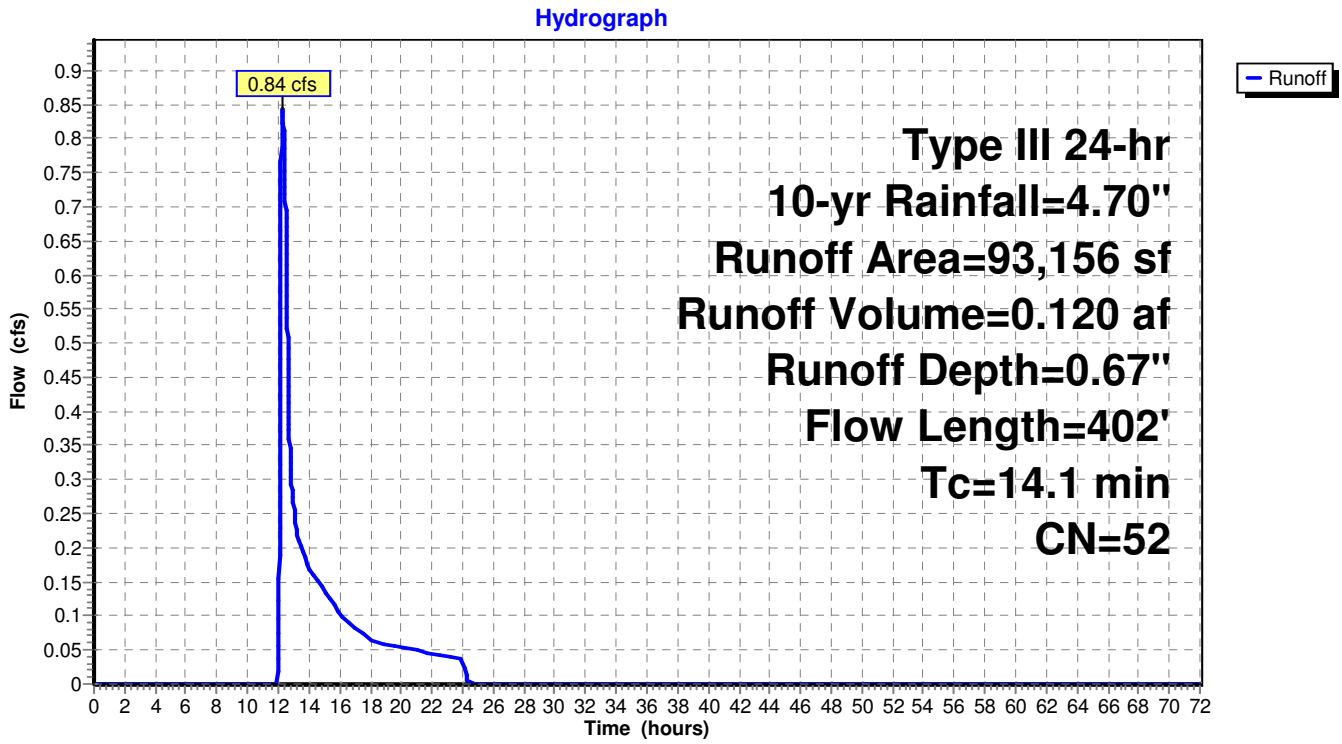
Runoff = 0.84 cfs @ 12.27 hrs, Volume= 0.120 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
5,188	98	Roofs, HSG A
30,371	39	>75% Grass cover, Good, HSG A
18,390	30	Woods, Good, HSG A
18,947	55	Woods, Good, HSG B
12,390	61	>75% Grass cover, Good, HSG B
7,870	98	Roofs, HSG B
93,156	52	Weighted Average
80,098		85.98% Pervious Area
13,058		14.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0250	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.3	194	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	158	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.1	402	Total			

Subcatchment 2S: 2S



Summary for Subcatchment 3aS: 3S off site

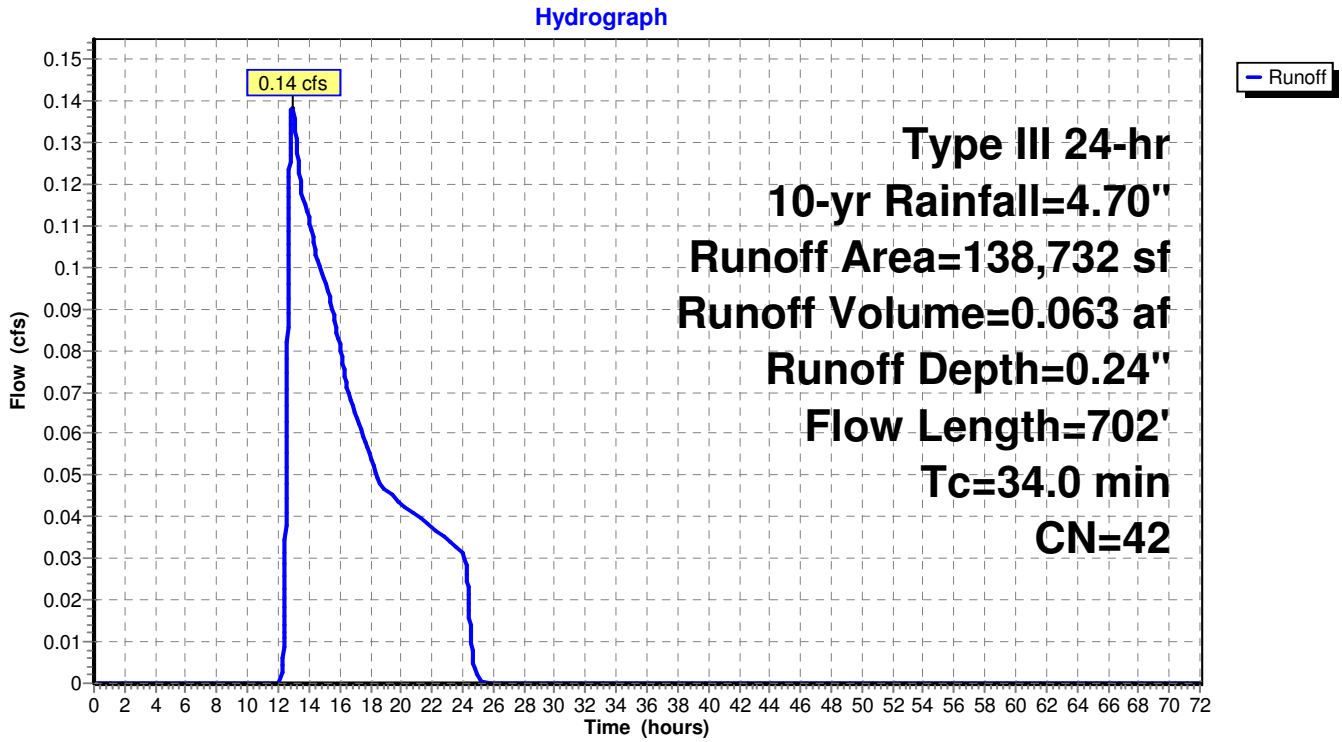
Runoff = 0.14 cfs @ 12.92 hrs, Volume= 0.063 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
7,998	98	Roofs, HSG A
13,323	39	>75% Grass cover, Good, HSG A
7,763	98	Roofs, HSG A
21,261	39	>75% Grass cover, Good, HSG A
76,682	30	Woods, Good, HSG A
4,144	55	Woods, Good, HSG B
7,561	61	>75% Grass cover, Good, HSG B
138,732	42	Weighted Average
122,971		88.64% Pervious Area
15,761		11.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
21.7	652	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	702	Total			

Subcatchment 3aS: 3S off site



Summary for Subcatchment 3bS: 3bS

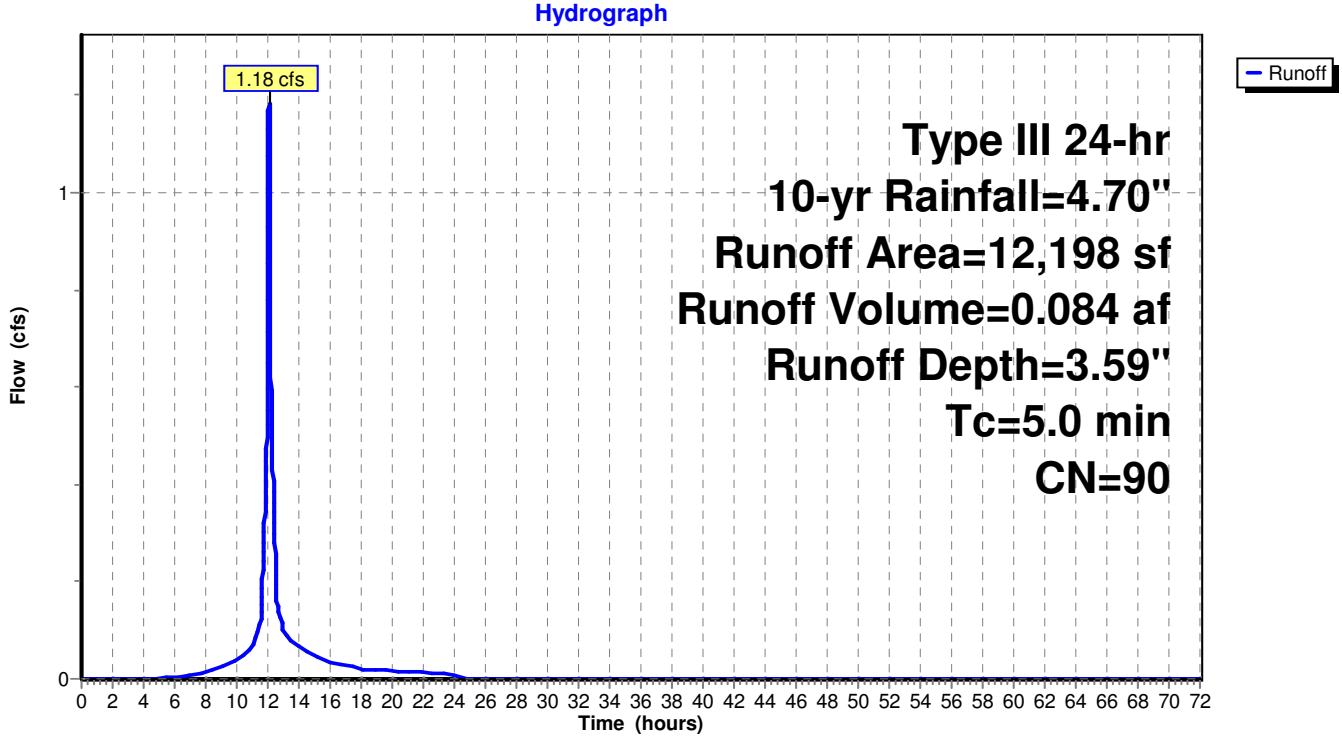
Runoff = 1.18 cfs @ 12.07 hrs, Volume= 0.084 af, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
4,827	98	Roofs, HSG B
4,787	98	Paved parking, HSG B
2,584	61	>75% Grass cover, Good, HSG B
12,198	90	Weighted Average
2,584		21.18% Pervious Area
9,614		78.82% Impervious Area

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

Subcatchment 3bS: 3bS



Summary for Subcatchment 3S: 3S

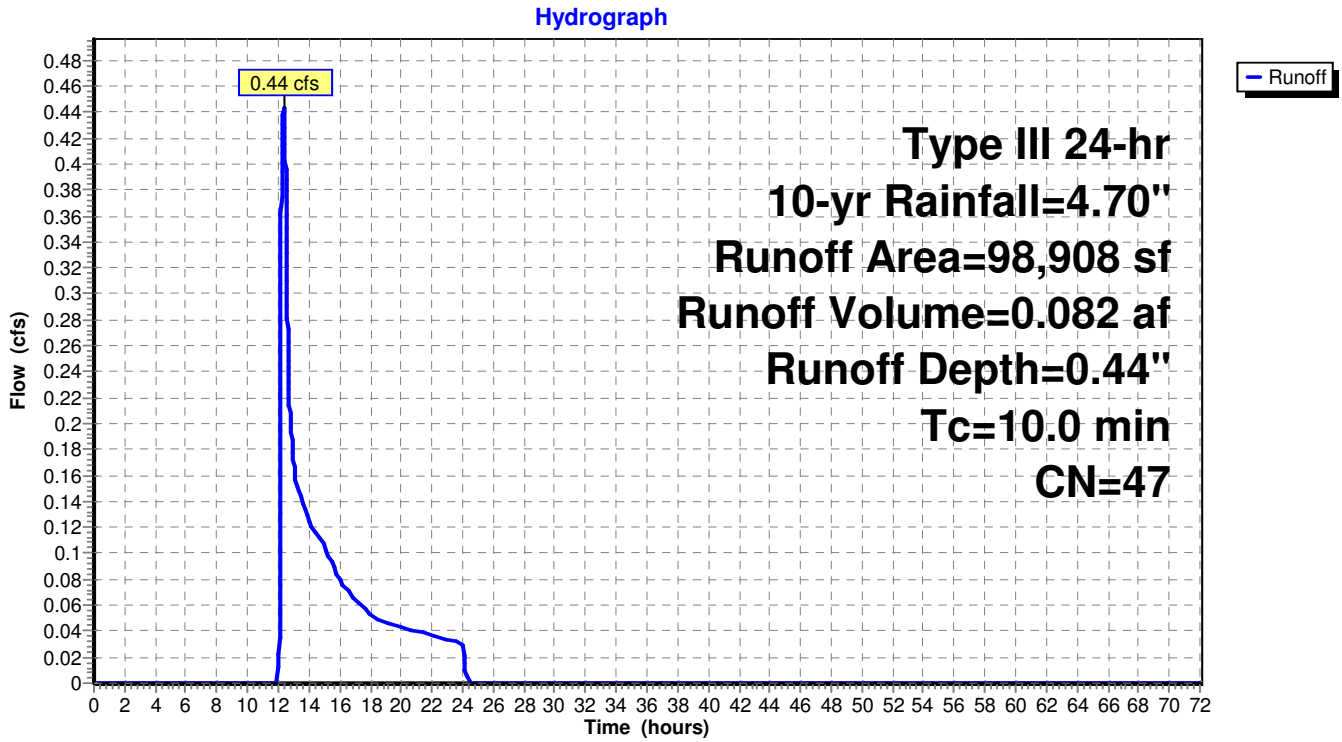
Runoff = 0.44 cfs @ 12.36 hrs, Volume= 0.082 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
4,948	98	Roofs, HSG A
23,819	39	>75% Grass cover, Good, HSG A
6,947	98	Roofs, HSG B
14,369	61	>75% Grass cover, Good, HSG B
39,277	30	Woods, Good, HSG A
9,548	55	Woods, Good, HSG B
98,908	47	Weighted Average
87,013		87.97% Pervious Area
11,895		12.03% Impervious Area

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

Subcatchment 3S: 3S



Summary for Subcatchment 4S: 4S

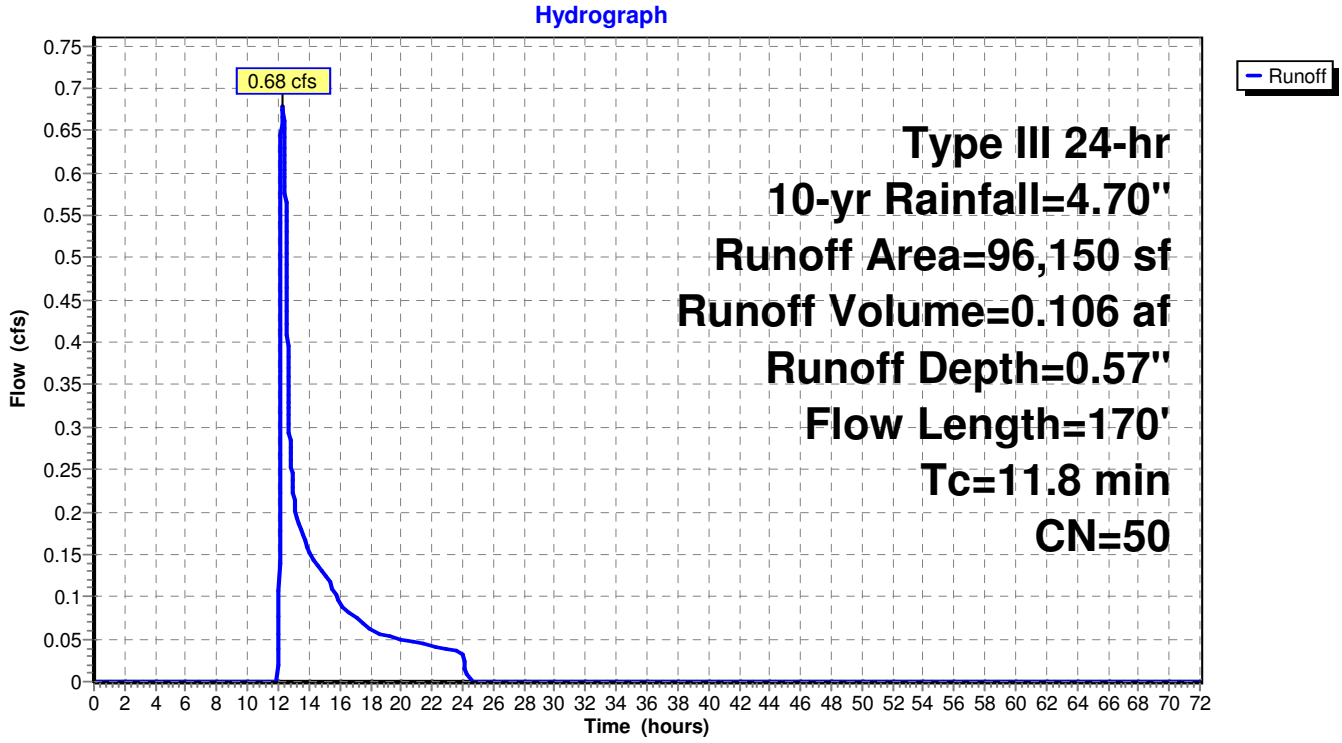
Runoff = 0.68 cfs @ 12.26 hrs, Volume= 0.106 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
5,936	98	Roofs, HSG A
46,782	39	>75% Grass cover, Good, HSG A
11,938	30	Woods, Good, HSG A
5,319	98	Roofs, HSG B
16,063	61	>75% Grass cover, Good, HSG B
10,112	55	Woods, Good, HSG B
96,150	50	Weighted Average
84,895		88.29% Pervious Area
11,255		11.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.6	120	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.8	170	Total			

Subcatchment 4S: 4S



Summary for Pond 1A: 1a (Off Site Natural Depression)

Inflow Area = 0.564 ac, 9.81% Impervious, Inflow Depth = 0.17" for 10-yr event
Inflow = 0.01 cfs @ 13.71 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 13.71 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.01 cfs @ 13.71 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.00' @ 0.00 hrs Surf.Area= 1,231 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,025.2 - 1,025.2)

Volume	Invert	Avail.Storage	Storage Description
#1	105.00'	1,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

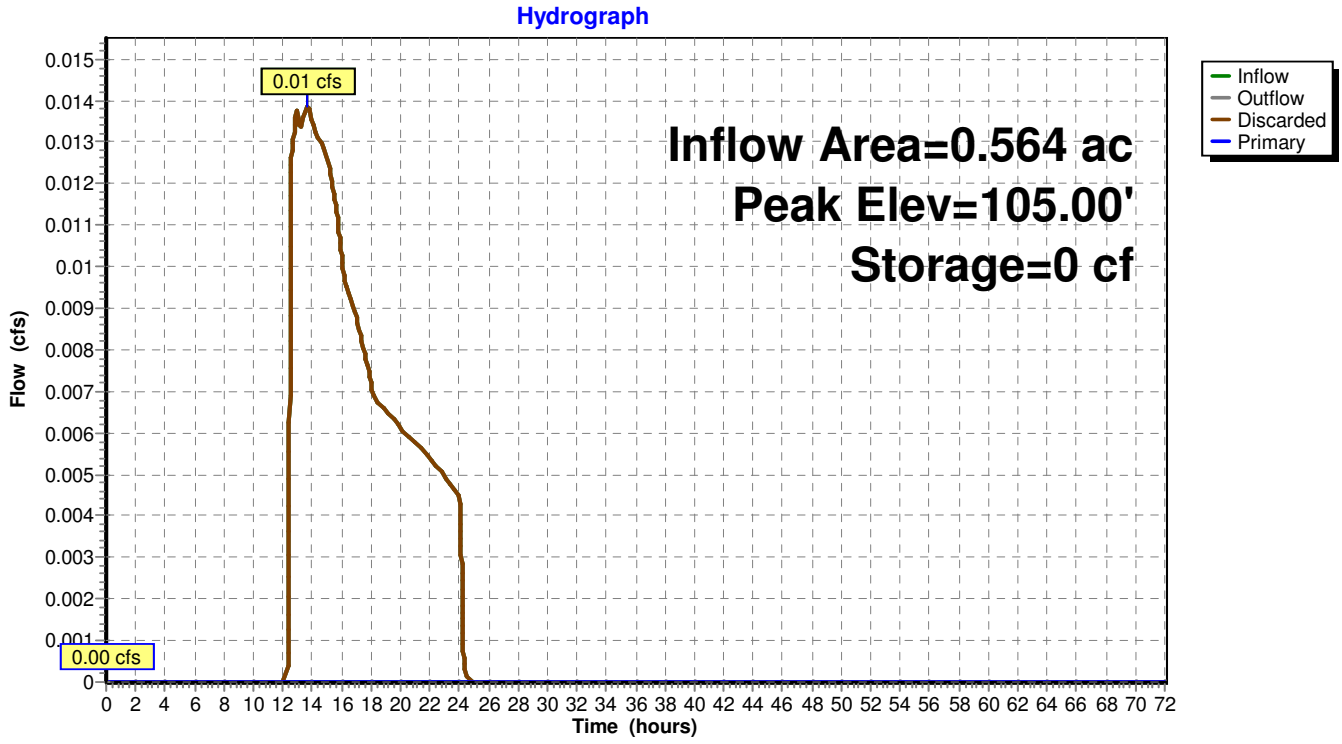
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
105.00	1,231	0	0
105.50	3,587	1,205	1,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	105.22'	**20.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.00 cfs @ 13.71 hrs HW=105.00' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.00 cfs of 0.07 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=105.00' TW=100.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A: 1a (Off Site Natural Depression)



Summary for Pond 1B: 1b (Central Nat. Depression & Infiltration Basin)

Inflow Area = 5.870 ac, 24.07% Impervious, Inflow Depth = 1.04" for 10-yr event
Inflow = 5.08 cfs @ 12.09 hrs, Volume= 0.507 af
Outflow = 0.58 cfs @ 13.67 hrs, Volume= 0.507 af, Atten= 89%, Lag= 94.9 min
Discarded = 0.58 cfs @ 13.67 hrs, Volume= 0.507 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.79' @ 13.67 hrs Surf.Area= 8,665 sf Storage= 9,129 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 198.6 min (1,038.7 - 840.1)

Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	33,502 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

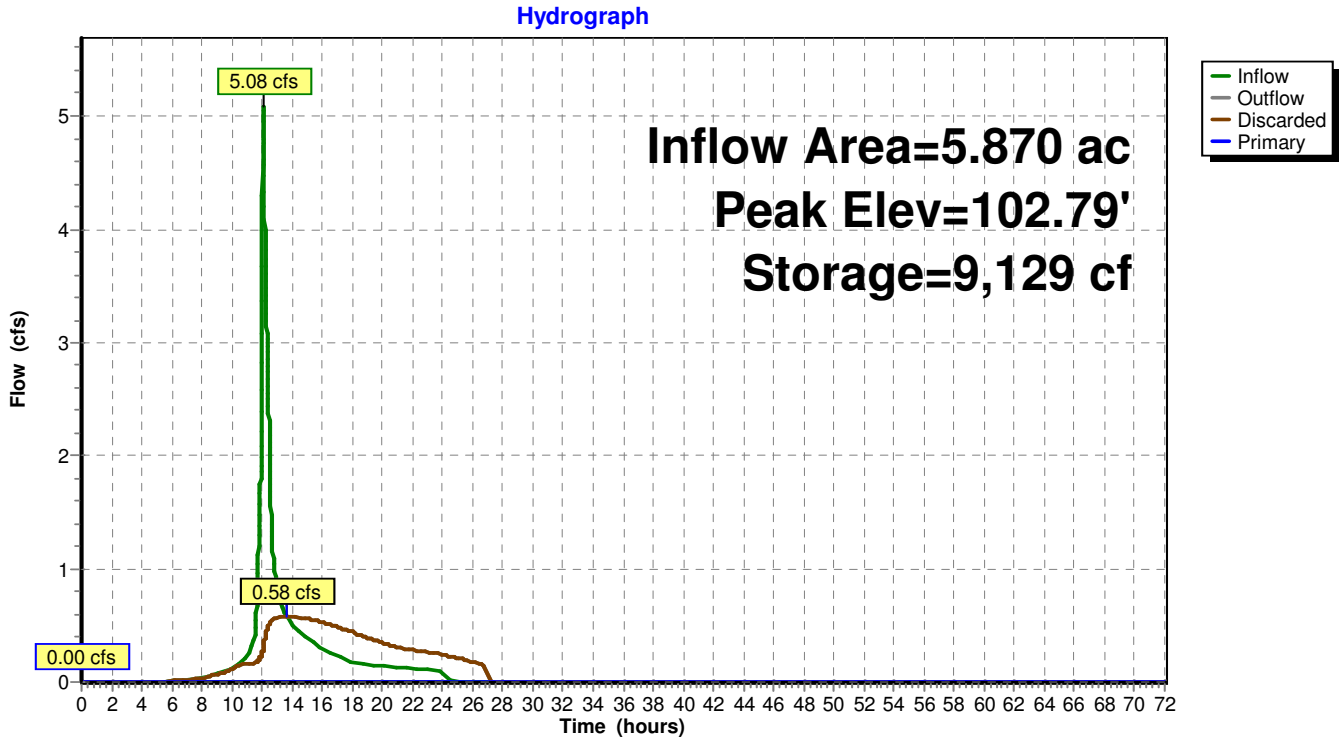
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	2,755	0	0
102.00	4,827	3,791	3,791
103.00	9,677	7,252	11,043
104.00	11,211	10,444	21,487
105.00	12,819	12,015	33,502

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	101.96'	**12.0" Round Culvert** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.96' / 101.67' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	103.00'	**0.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 2.0' Crest Height

Discarded OutFlow Max=0.58 cfs @ 13.67 hrs HW=102.79' (Free Discharge)
└**1=Exfiltration** (Controls 0.58 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=101.00' TW=100.00' (Dynamic Tailwater)
└**2=Culvert** (Controls 0.00 cfs)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B: 1b (Central Nat. Depression & Infiltration Basin)



Summary for Pond 1C: 1cP (Natural Depression)

Inflow Area = 0.544 ac, 12.27% Impervious, Inflow Depth = 1.13" for 10-yr event
Inflow = 0.65 cfs @ 12.09 hrs, Volume= 0.051 af
Outflow = 0.09 cfs @ 13.00 hrs, Volume= 0.051 af, Atten= 86%, Lag= 54.9 min
Discarded = 0.09 cfs @ 13.00 hrs, Volume= 0.051 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 101.72' @ 13.00 hrs Surf.Area= 1,450 sf Storage= 716 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 88.0 min (967.2 - 879.3)

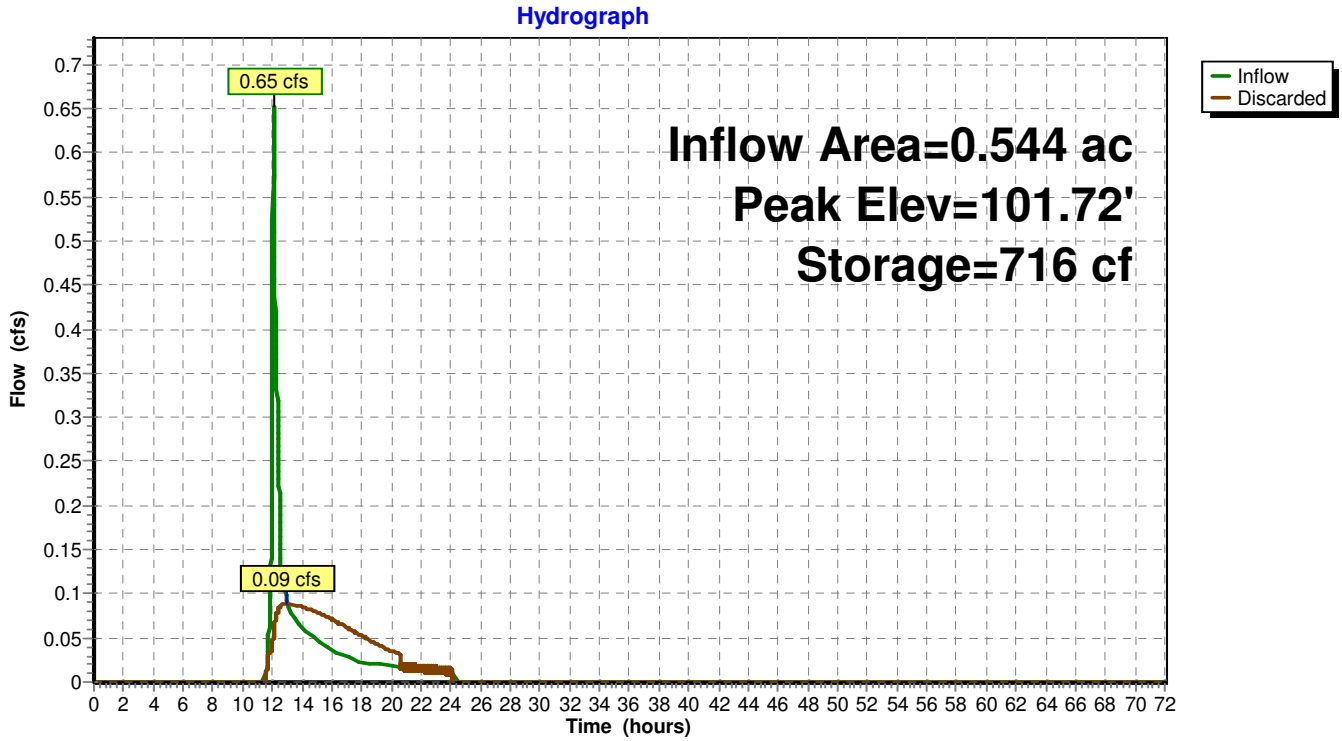
Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	13,188 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	550	0	0
102.00	1,807	1,179	1,179
103.00	3,213	2,510	3,689
104.00	4,741	3,977	7,666
105.00	6,304	5,523	13,188

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'

Discarded OutFlow Max=0.09 cfs @ 13.00 hrs HW=101.72' (Free Discharge)
↑**1=Exfiltration** (Controls 0.09 cfs)

Pond 1C: 1cP (Natural Depression)



Summary for Pond 3A: 3a (Trench Drain)

Inflow Area = 3.185 ac, 11.36% Impervious, Inflow Depth = 0.24" for 10-yr event
Inflow = 0.14 cfs @ 12.92 hrs, Volume= 0.063 af
Outflow = 0.06 cfs @ 17.51 hrs, Volume= 0.063 af, Atten= 57%, Lag= 275.6 min
Discarded = 0.06 cfs @ 17.51 hrs, Volume= 0.063 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.43' @ 17.51 hrs Surf.Area= 1,474 sf Storage= 754 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 157.3 min (1,173.4 - 1,016.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	104.50'	1,080 cf	**8.17'W x 180.44'L x 2.33'H Field A** 3,438 cf Overall - 739 cf Embedded = 2,699 cf x 40.0% Voids
#2A	105.00'	739 cf	**ADS_StormTech SC-310** x 50 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 2 rows
#3	106.33'	38 cf	**4.00'D x 1.50'H Vertical Cone/Cylinder** x 2
#4	107.83'	1,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,856 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.83	4,883	0	0
108.00	6,878	1,000	1,000

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Secondary	107.90'	**5.0' long x 50.0' 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

Discarded OutFlow Max=0.06 cfs @ 17.51 hrs HW=105.43' (Free Discharge)
1=Exfiltration (Controls 0.06 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.50' TW=103.83' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3A: 3a (Trench Drain) - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 (ADS StormTech® SC-310)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 2.07 sf x 2 rows

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

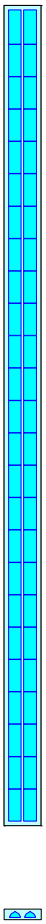
25 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 178.44' Row Length +12.0" End Stone x 2 = 180.44' Base Length
2 Rows x 34.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.17' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

50 Chambers x 14.7 cf +0.44' Row Adjustment x 2.07 sf x 2 Rows = 738.9 cf Chamber Storage

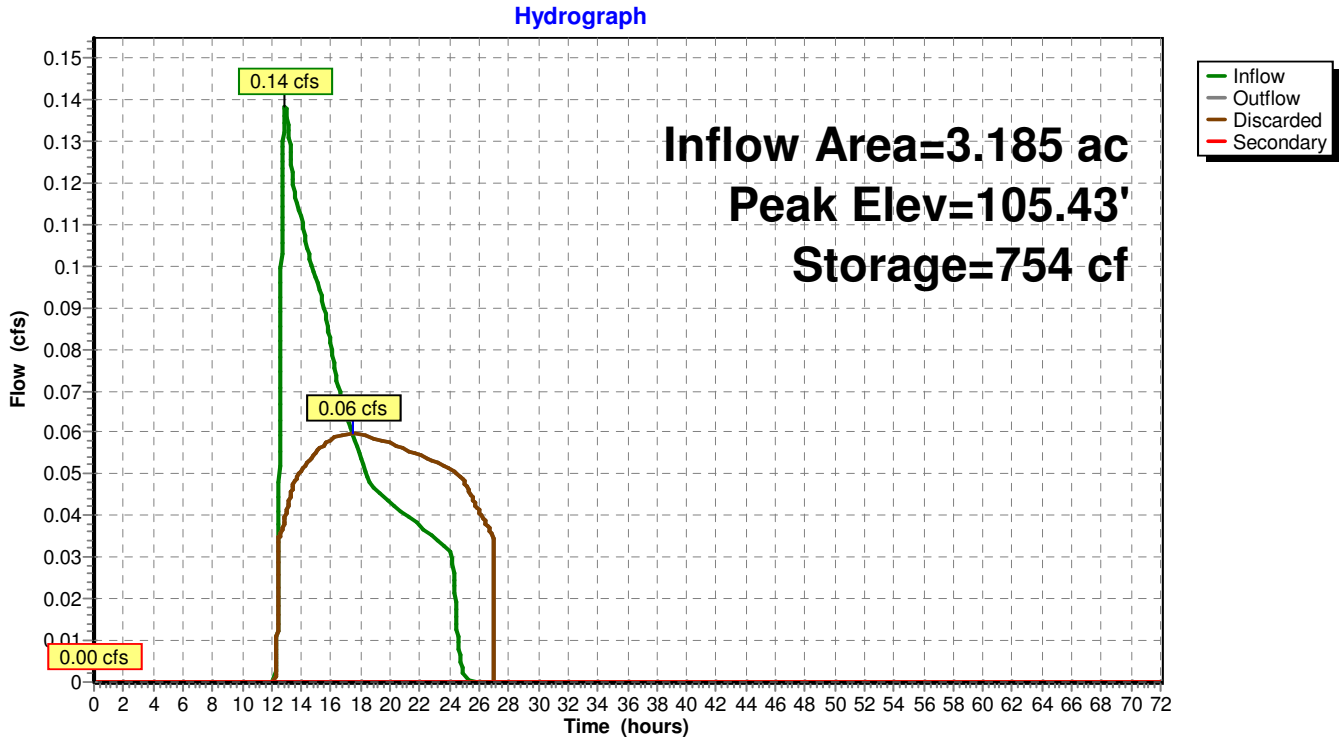
3,438.4 cf Field - 738.9 cf Chambers = 2,699.4 cf Stone x 40.0% Voids = 1,079.8 cf Stone Storage

Chamber Storage + Stone Storage = 1,818.7 cf = 0.042 af
Overall Storage Efficiency = 52.9%

50 Chambers
127.3 cy Field
100.0 cy Stone



Pond 3A: 3a (Trench Drain)



Summary for Pond 3B: 3b (Sub. Infil. Chambers)

Inflow Area = 0.280 ac, 78.82% Impervious, Inflow Depth = 3.59" for 10-yr event
Inflow = 1.18 cfs @ 12.07 hrs, Volume= 0.084 af
Outflow = 0.65 cfs @ 12.18 hrs, Volume= 0.084 af, Atten= 45%, Lag= 6.5 min
Discarded = 0.05 cfs @ 12.18 hrs, Volume= 0.054 af
Primary = 0.60 cfs @ 12.18 hrs, Volume= 0.030 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 106.69' @ 12.18 hrs Surf.Area= 1,441 sf Storage= 1,030 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 95.9 min (887.8 - 791.9)

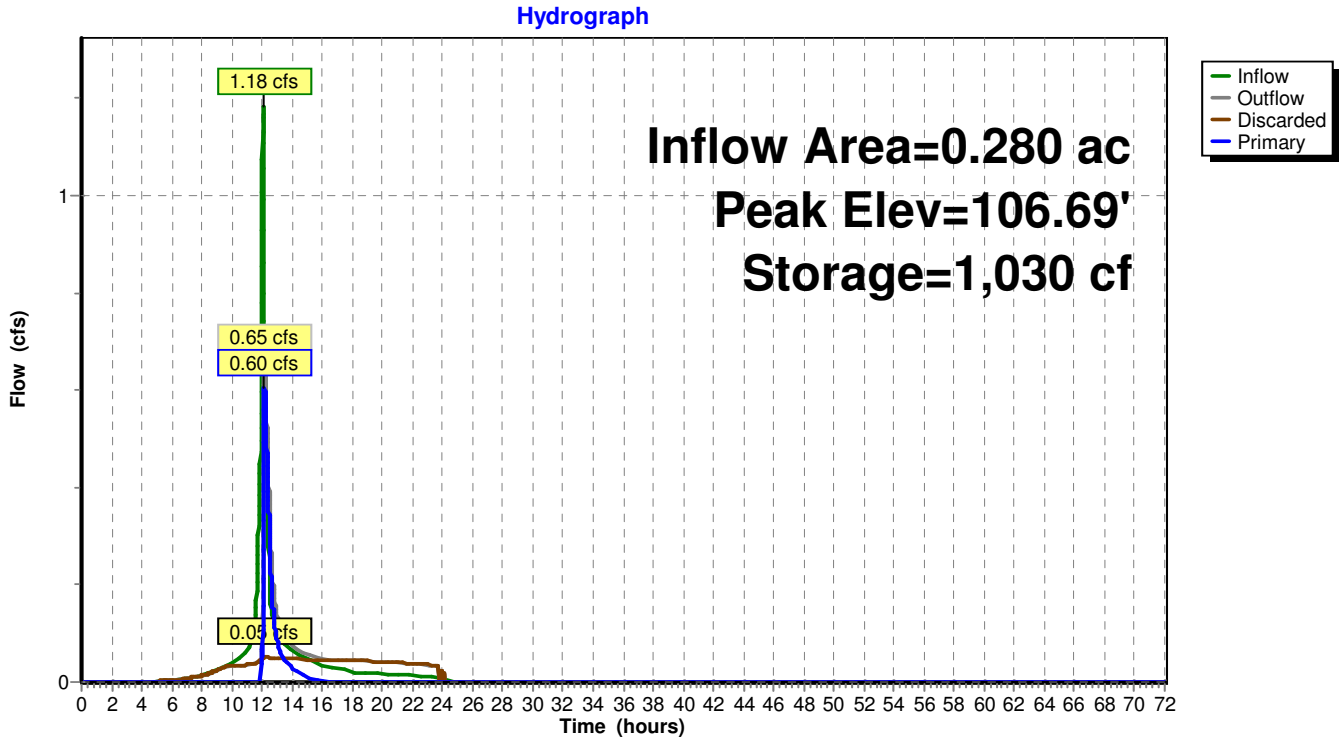
Volume	Invert	Avail.Storage	Storage Description
#1	105.50'	1,022 cf	**21.50'W x 67.00'L x 2.33'H Prismatoid** 3,356 cf Overall - 802 cf Embedded = 2,555 cf x 40.0% Voids
#2	106.00'	802 cf	**StormTech SC-310** x 54 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,823 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	106.30'	**12.0" Round Culvert** L= 34.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.30' / 105.28' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.05 cfs @ 12.18 hrs HW=106.69' (Free Discharge)
1=Exfiltration (Controls 0.05 cfs)

Primary OutFlow Max=0.60 cfs @ 12.18 hrs HW=106.69' TW=101.05' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.60 cfs @ 2.13 fps)

Pond 3B: 3b (Sub. Infil. Chambers)



Summary for Pond DP1: DP1 (Sub. Infil. Chambers)

Inflow Area = 11.374 ac, 30.73% Impervious, Inflow Depth = 0.68" for 10-yr event
Inflow = 8.50 cfs @ 12.12 hrs, Volume= 0.645 af
Outflow = 1.91 cfs @ 12.57 hrs, Volume= 0.646 af, Atten= 78%, Lag= 26.9 min
Discarded = 1.91 cfs @ 12.57 hrs, Volume= 0.646 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 101.55' @ 12.57 hrs Surf.Area= 7,191 sf Storage= 7,571 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 25.7 min (835.1 - 809.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	5,335 cf	**49.00'W x 123.48'L x 3.50'H Field A** 21,177 cf Overall - 7,838 cf Embedded = 13,339 cf x 40.0% Voids
#2A	100.50'	7,838 cf	**ADS_StormTech SC-740** x 170 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 10 rows
#3B	100.00'	1,039 cf	**25.25'W x 45.16'L x 3.50'H Field B** 3,991 cf Overall - 1,392 cf Embedded = 2,599 cf x 40.0% Voids
#4B	100.50'	1,392 cf	**ADS_StormTech SC-740** x 30 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		15,605 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'

Discarded OutFlow Max=1.91 cfs @ 12.57 hrs HW=101.55' (Free Discharge)
↑**1=Exfiltration** (Controls 1.91 cfs)

Pond DP1: DP1 (Sub. Infil. Chambers) - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.45 sf x 10 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

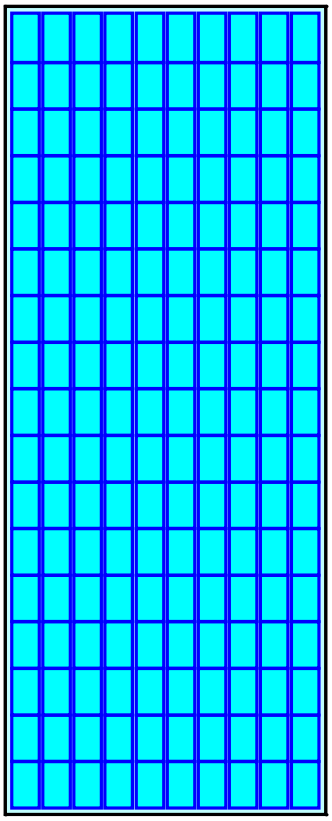
17 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 121.48' Row Length +12.0" End Stone x 2 = 123.48' Base Length
10 Rows x 51.0" Wide + 6.0" Spacing x 9 + 12.0" Side Stone x 2 = 49.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

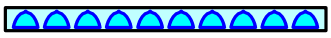
170 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 10 Rows = 7,838.2 cf Chamber Storage

21,176.8 cf Field - 7,838.2 cf Chambers = 13,338.6 cf Stone x 40.0% Voids = 5,335.5 cf Stone Storage

Chamber Storage + Stone Storage = 13,173.6 cf = 0.302 af
Overall Storage Efficiency = 62.2%

170 Chambers
784.3 cy Field
494.0 cy Stone





Pond DP1: DP1 (Sub. Infil. Chambers) - Chamber Wizard Field B

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.45 sf x 5 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

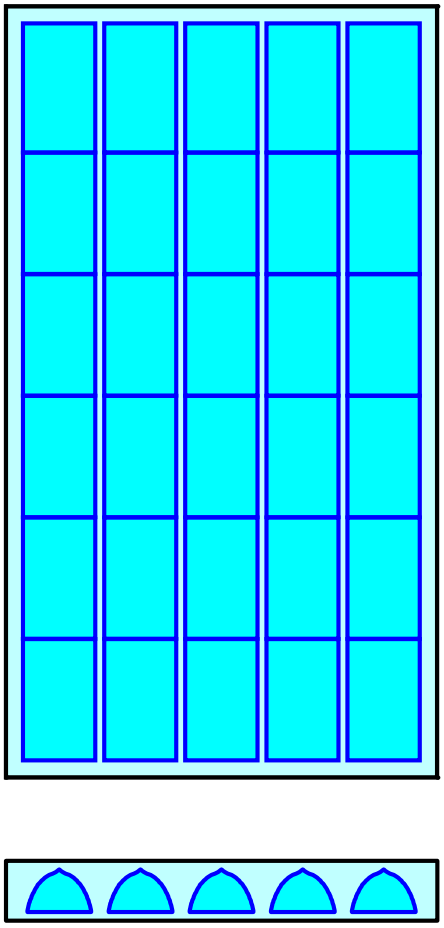
6 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 43.16' Row Length +12.0" End Stone x 2 = 45.16' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

30 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 5 Rows = 1,392.4 cf Chamber Storage

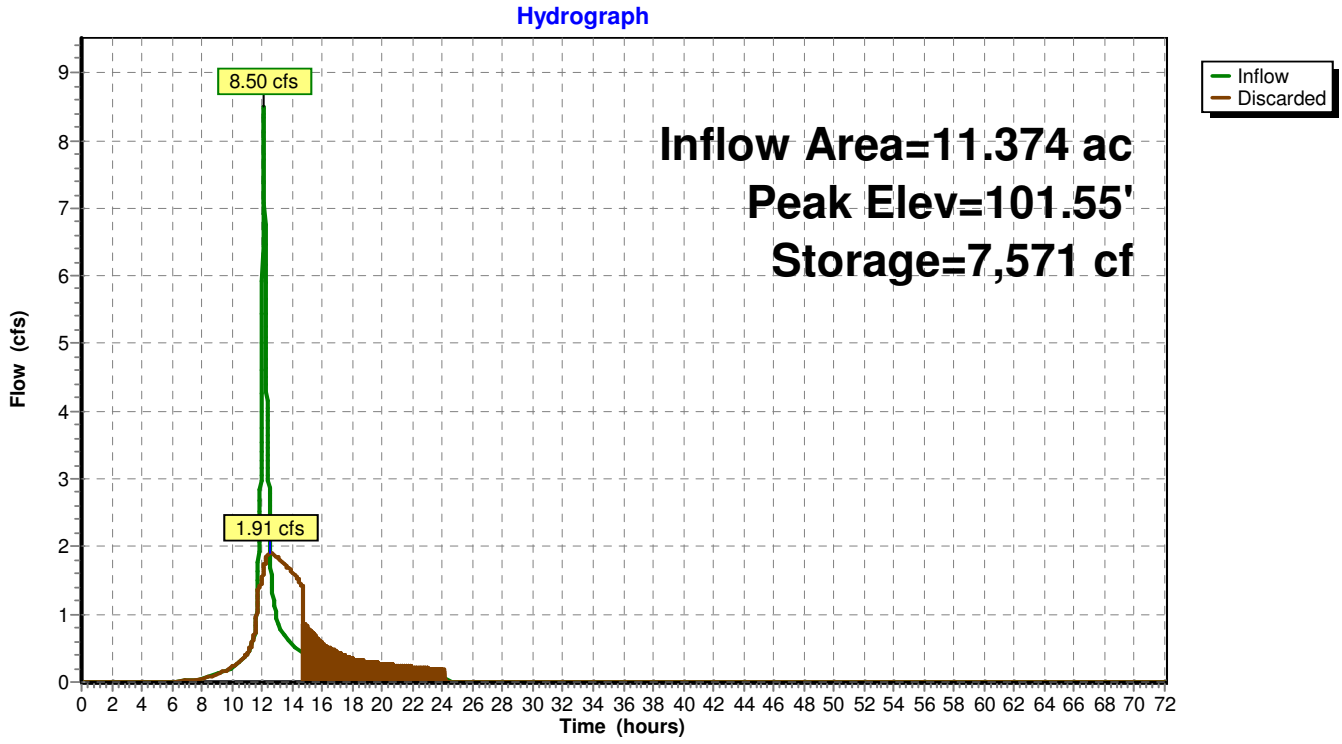
3,991.0 cf Field - 1,392.4 cf Chambers = 2,598.6 cf Stone x 40.0% Voids = 1,039.4 cf Stone Storage

Chamber Storage + Stone Storage = 2,431.8 cf = 0.056 af
Overall Storage Efficiency = 60.9%

30 Chambers
147.8 cy Field
96.2 cy Stone



Pond DP1: DP1 (Sub. Infil. Chambers)



Summary for Pond DP2: DP2 (SW - Natural Depression)

Inflow Area = 2.139 ac, 14.02% Impervious, Inflow Depth = 0.67" for 10-yr event
Inflow = 0.84 cfs @ 12.27 hrs, Volume= 0.120 af
Outflow = 0.15 cfs @ 14.57 hrs, Volume= 0.120 af, Atten= 82%, Lag= 137.9 min
Discarded = 0.15 cfs @ 14.57 hrs, Volume= 0.120 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.34' @ 14.57 hrs Surf.Area= 2,369 sf Storage= 1,729 cf

Plug-Flow detention time= 163.7 min calculated for 0.120 af (100% of inflow)
Center-of-Mass det. time= 163.7 min (1,083.8 - 920.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.46'	8,665 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

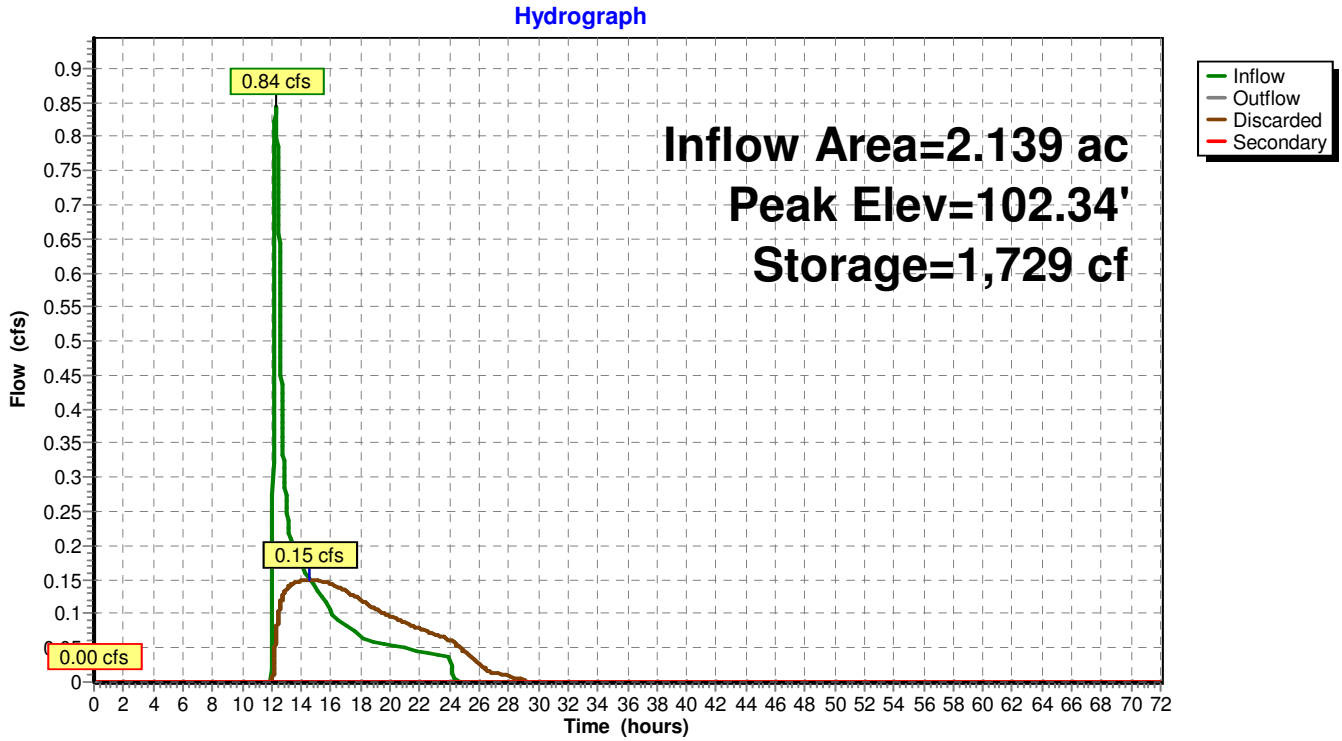
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.46	50	0	0
101.00	261	84	84
102.00	1,671	966	1,050
103.00	3,750	2,711	3,760
103.50	4,945	2,174	5,934
104.00	5,980	2,731	8,665

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.46'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Secondary	103.50'	**13.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.15 cfs @ 14.57 hrs HW=102.34' (Free Discharge)
1=Exfiltration (Controls 0.15 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.46' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DP2: DP2 (SW - Natural Depression)



Summary for Pond DP3: DP3 (NW - Natural Depression)

Inflow Area = 2.271 ac, 12.03% Impervious, Inflow Depth = 0.44" for 10-yr event
Inflow = 0.44 cfs @ 12.36 hrs, Volume= 0.082 af
Outflow = 0.06 cfs @ 17.50 hrs, Volume= 0.082 af, Atten= 87%, Lag= 308.9 min
Discarded = 0.06 cfs @ 17.50 hrs, Volume= 0.082 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.81' @ 17.50 hrs Surf.Area= 3,495 sf Storage= 1,570 cf

Plug-Flow detention time= 341.1 min calculated for 0.082 af (100% of inflow)
Center-of-Mass det. time= 341.2 min (1,287.8 - 946.6)

Volume	Invert	Avail.Storage	Storage Description
#1	104.30'	6,303 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

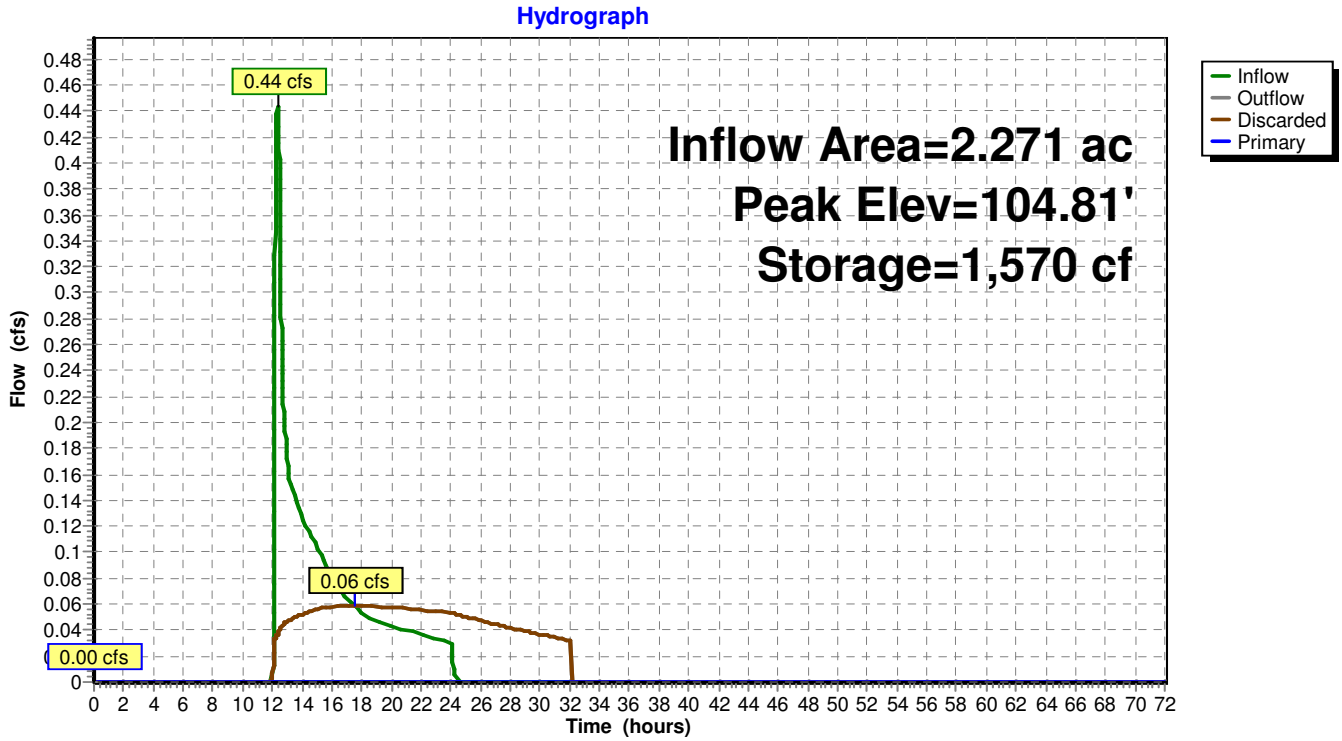
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.30	2,653	0	0
105.00	3,806	2,261	2,261
105.50	5,835	2,410	4,671
105.75	7,220	1,632	6,303

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.30'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	104.85'	**12.0" Round Culvert** L= 122.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.85' / 104.24' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 17.50 hrs HW=104.81' (Free Discharge)
1=Exfiltration (Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.30' TW=100.00' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Pond DP3: DP3 (NW - Natural Depression)



Summary for Pond DP4: DP4 (North - Natural Depression)

Inflow Area = 2.207 ac, 11.71% Impervious, Inflow Depth = 0.57" for 10-yr event
Inflow = 0.68 cfs @ 12.26 hrs, Volume= 0.106 af
Outflow = 0.15 cfs @ 14.18 hrs, Volume= 0.106 af, Atten= 78%, Lag= 115.0 min
Discarded = 0.15 cfs @ 14.18 hrs, Volume= 0.106 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.20' @ 14.18 hrs Surf.Area= 5,070 sf Storage= 1,253 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 109.5 min (1,038.2 - 928.7)

Volume	Invert	Avail.Storage	Storage Description
#1	103.83'	15,451 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

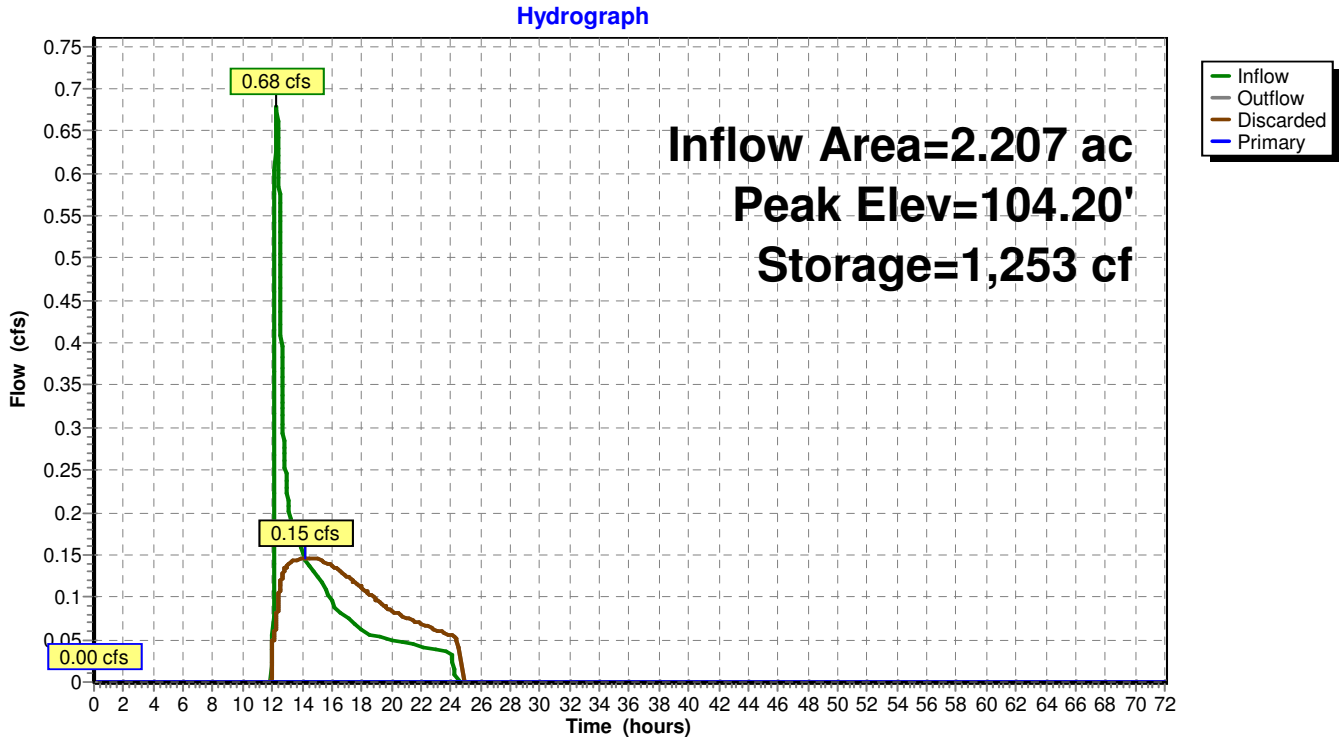
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.83	2,056	0	0
104.00	3,071	436	436
105.00	13,033	8,052	8,488
105.50	14,818	6,963	15,451

Device	Routing	Invert	Outlet Devices
#1	Discarded	103.83'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 102.80'
#2	Primary	104.45'	**12.0" Round Culvert** L= 86.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.45' / 104.10' S= 0.0041 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.15 cfs @ 14.18 hrs HW=104.20' (Free Discharge)
1=Exfiltration (Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=103.83' TW=101.00' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Pond DP4: DP4 (North - Natural Depression)



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1aS: 1aS (Off Site) Runoff Area=24,558 sf 9.81% Impervious Runoff Depth=0.36"
Flow Length=174' Tc=14.2 min CN=40 Runoff=0.06 cfs 0.017 af

Subcatchment 1bS: 1bS Runoff Area=40,744 sf 19.15% Impervious Runoff Depth=2.24"
Tc=10.0 min CN=68 Runoff=2.10 cfs 0.175 af

Subcatchment 1cS: 1cS Runoff Area=23,675 sf 12.27% Impervious Runoff Depth=1.60"
Tc=5.0 min CN=60 Runoff=0.98 cfs 0.073 af

Subcatchment 1dS: 1dS Runoff Area=80,131 sf 16.36% Impervious Runoff Depth=1.17"
Flow Length=583' Tc=18.0 min CN=54 Runoff=1.46 cfs 0.179 af

Subcatchment 1eS: 1eS Runoff Area=38,668 sf 76.01% Impervious Runoff Depth=4.25"
Tc=5.0 min CN=89 Runoff=4.43 cfs 0.315 af

Subcatchment 1S: 1S Runoff Area=104,111 sf 64.15% Impervious Runoff Depth=3.83"
Tc=8.0 min CN=85 Runoff=9.88 cfs 0.763 af

Subcatchment 2S: 2S Runoff Area=93,156 sf 14.02% Impervious Runoff Depth=1.04"
Flow Length=402' Tc=14.1 min CN=52 Runoff=1.55 cfs 0.185 af

Subcatchment 3aS: 3S off site Runoff Area=138,732 sf 11.36% Impervious Runoff Depth=0.45"
Flow Length=702' Tc=34.0 min CN=42 Runoff=0.43 cfs 0.120 af

Subcatchment 3bS: 3bS Runoff Area=12,198 sf 78.82% Impervious Runoff Depth=4.36"
Tc=5.0 min CN=90 Runoff=1.42 cfs 0.102 af

Subcatchment 3S: 3S Runoff Area=98,908 sf 12.03% Impervious Runoff Depth=0.73"
Tc=10.0 min CN=47 Runoff=0.99 cfs 0.137 af

Subcatchment 4S: 4S Runoff Area=96,150 sf 11.71% Impervious Runoff Depth=0.91"
Flow Length=170' Tc=11.8 min CN=50 Runoff=1.38 cfs 0.167 af

Pond 1A: 1a (Off Site Natural Depression) Peak Elev=105.00' Storage=0 cf Inflow=0.06 cfs 0.017 af
Discarded=0.06 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.017 af

Pond 1B: 1b (Central Nat. Depression & Peak Elev=103.16' Storage=12,607 cf Inflow=6.68 cfs 0.669 af
Discarded=0.68 cfs 0.652 af Primary=0.10 cfs 0.017 af Outflow=0.78 cfs 0.669 af

Pond 1C: 1cP (Natural Depression) Peak Elev=101.99' Storage=1,152 cf Inflow=0.98 cfs 0.073 af
Outflow=0.11 cfs 0.073 af

Pond 3A: 3a (Trench Drain) Peak Elev=107.83' Storage=1,856 cf Inflow=0.43 cfs 0.120 af
Discarded=0.17 cfs 0.120 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.120 af

Pond 3B: 3b (Sub. Infil. Chambers) Peak Elev=106.80' Storage=1,136 cf Inflow=1.42 cfs 0.102 af
Discarded=0.05 cfs 0.059 af Primary=0.95 cfs 0.043 af Outflow=1.00 cfs 0.102 af

Pond DP1: DP1 (Sub. Infil. Chambers) Peak Elev=102.10' Storage=10,495 cf Inflow=10.78 cfs 0.855 af
Outflow=2.10 cfs 0.855 af

Pond DP2: DP2 (SW - Natural Depression) Peak Elev=102.80' Storage=3,049 cf Inflow=1.55 cfs 0.185 af
Discarded=0.22 cfs 0.185 af Secondary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.185 af

Pond DP3: DP3 (NW - Natural Depression) Peak Elev=105.02' Storage=2,355 cf Inflow=0.99 cfs 0.137 af
Discarded=0.07 cfs 0.105 af Primary=0.09 cfs 0.032 af Outflow=0.16 cfs 0.137 af

Pond DP4: DP4 (North - Natural Depression) Peak Elev=104.40' Storage=2,429 cf Inflow=1.38 cfs 0.167 af
Discarded=0.22 cfs 0.167 af Primary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.167 af

Total Runoff Area = 17.241 ac Runoff Volume = 2.232 af Average Runoff Depth = 1.55"
75.50% Pervious = 13.018 ac 24.50% Impervious = 4.224 ac

Summary for Subcatchment 1aS: 1aS (Off Site)

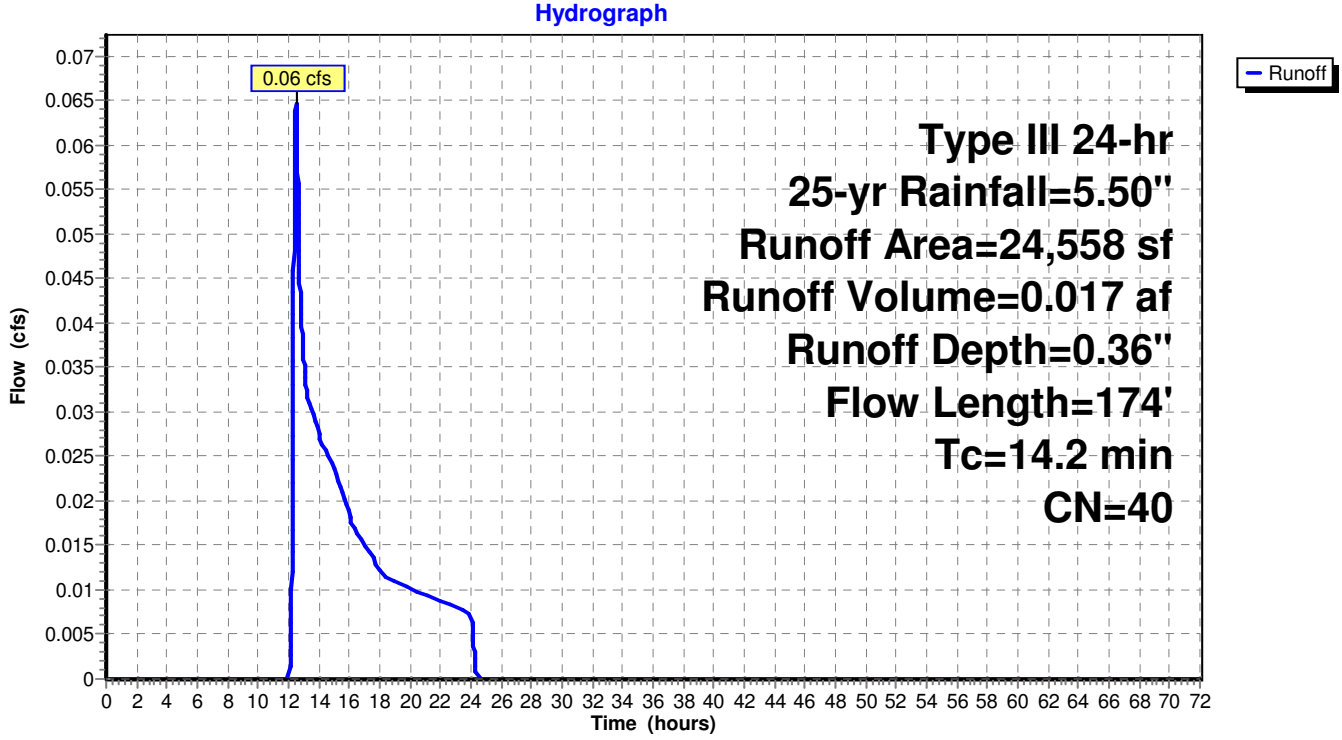
Runoff = 0.06 cfs @ 12.50 hrs, Volume= 0.017 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
2,408	98	Roofs, HSG A
8,090	39	>75% Grass cover, Good, HSG A
14,060	30	Woods, Good, HSG A
24,558	40	Weighted Average
22,150		90.19% Pervious Area
2,408		9.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	74	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	174	Total			

Subcatchment 1aS: 1aS (Off Site)



Summary for Subcatchment 1bS: 1bS

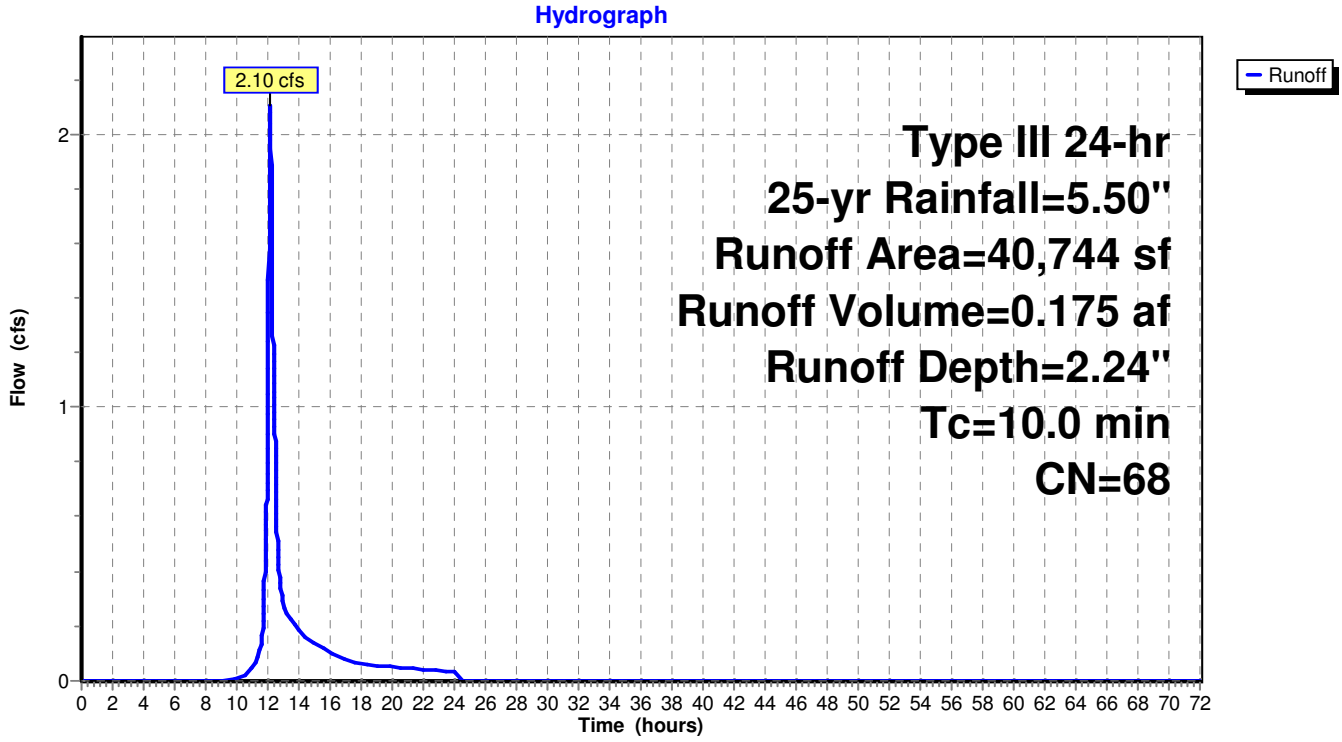
Runoff = 2.10 cfs @ 12.15 hrs, Volume= 0.175 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
833	85	Gravel roads, HSG B
7,801	98	Roofs, HSG B
28,513	61	>75% Grass cover, Good, HSG B
3,597	55	Woods, Good, HSG B
40,744	68	Weighted Average
32,943		80.85% Pervious Area
7,801		19.15% Impervious Area

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

Subcatchment 1bS: 1bS



Summary for Subcatchment 1cS: 1cS

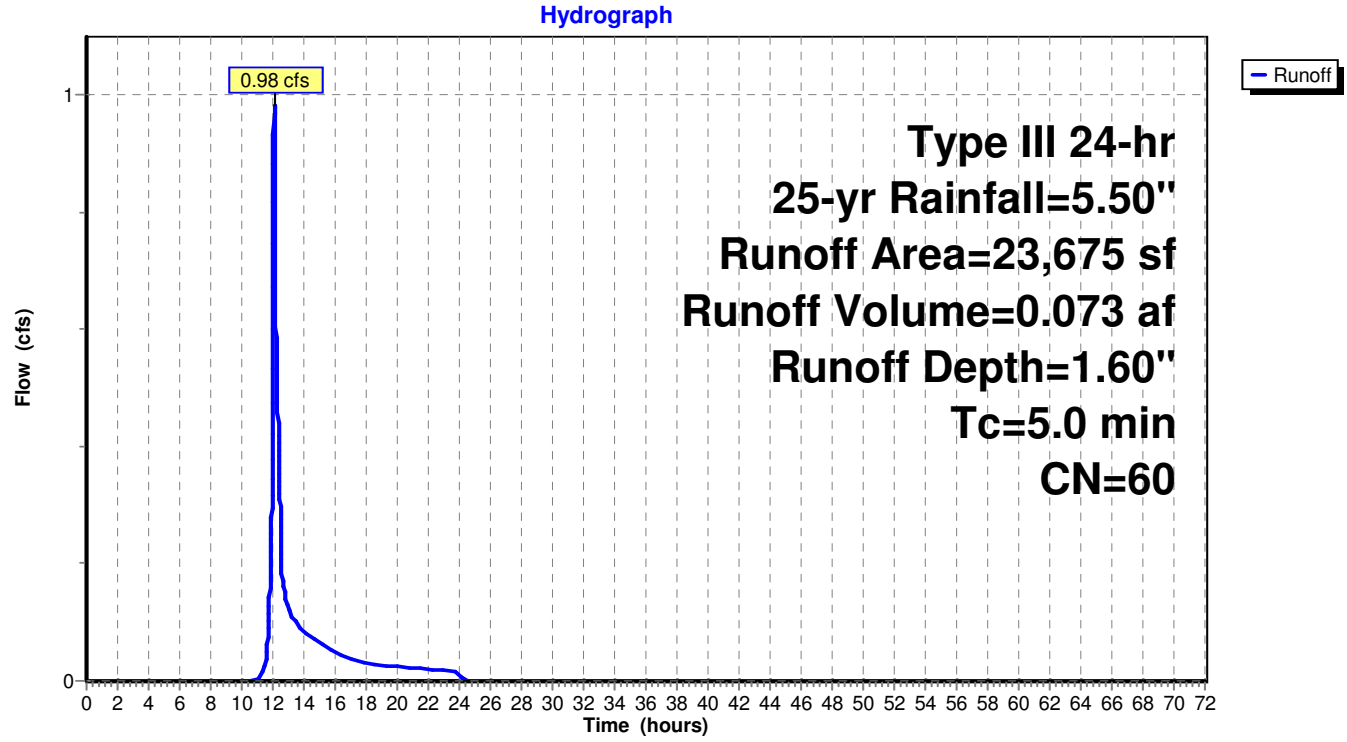
Runoff = 0.98 cfs @ 12.08 hrs, Volume= 0.073 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

	Area (sf)	CN	Description
	8,470	55	Woods, Good, HSG B
	2,899	30	Woods, Good, HSG A
*	2,905	98	Roofs, HSG B
	9,401	61	>75% Grass cover, Good, HSG B
	23,675	60	Weighted Average
	20,770		87.73% Pervious Area
	2,905		12.27% Impervious Area

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

Subcatchment 1cS: 1cS



Summary for Subcatchment 1dS: 1dS

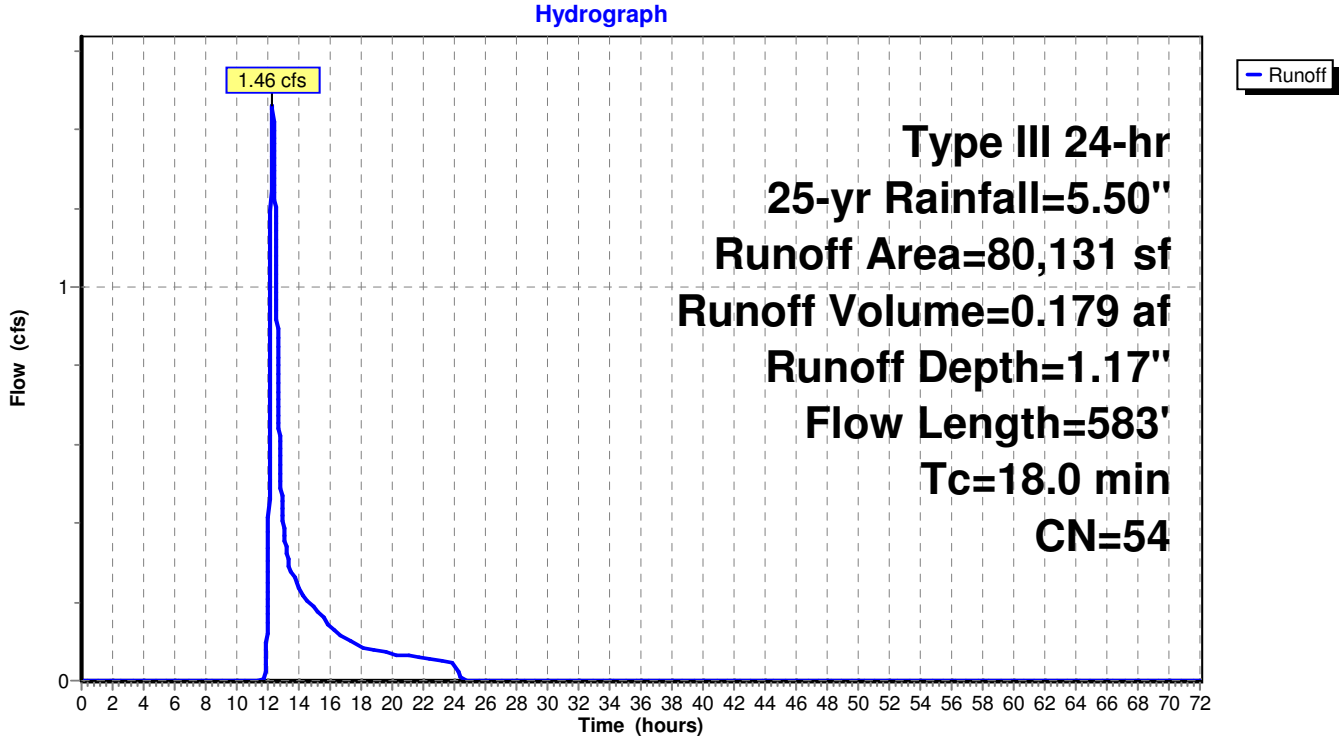
Runoff = 1.46 cfs @ 12.30 hrs, Volume= 0.179 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

	Area (sf)	CN	Description
	5,354	98	Roofs, HSG A
	20,800	39	>75% Grass cover, Good, HSG A
	3,691	74	>75% Grass cover, Good, HSG C
	17,837	30	Woods, Good, HSG A
*	7,757	98	Roofs, HSG B
	13,831	61	>75% Grass cover, Good, HSG B
	10,861	55	Woods, Good, HSG B
	80,131	54	Weighted Average
	67,020		83.64% Pervious Area
	13,111		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	426	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	583	Total			

Subcatchment 1dS: 1dS



Summary for Subcatchment 1eS: 1eS

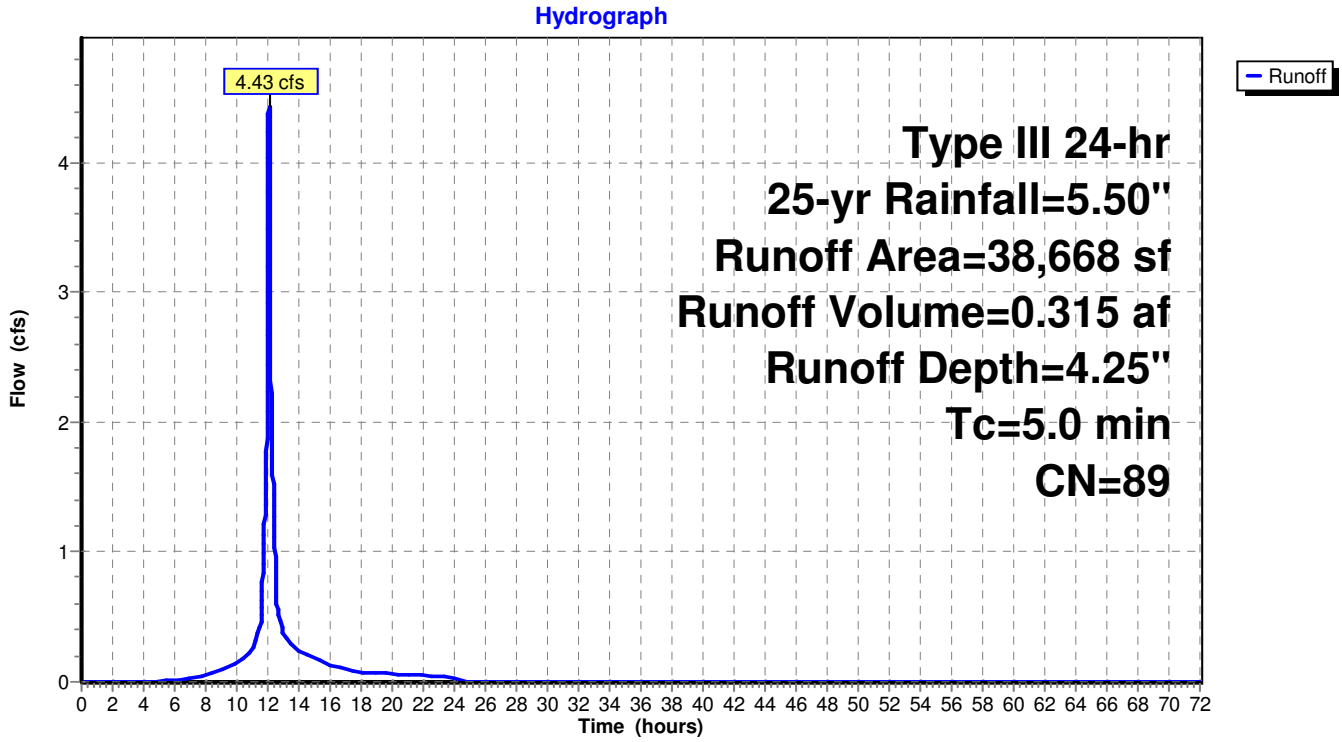
Runoff = 4.43 cfs @ 12.07 hrs, Volume= 0.315 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
15,724	98	Paved parking, HSG B
13,666	98	Roofs, HSG B
9,278	61	>75% Grass cover, Good, HSG B
38,668	89	Weighted Average
9,278		23.99% Pervious Area
29,390		76.01% Impervious Area

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

Subcatchment 1eS: 1eS



Summary for Subcatchment 1S: 1S

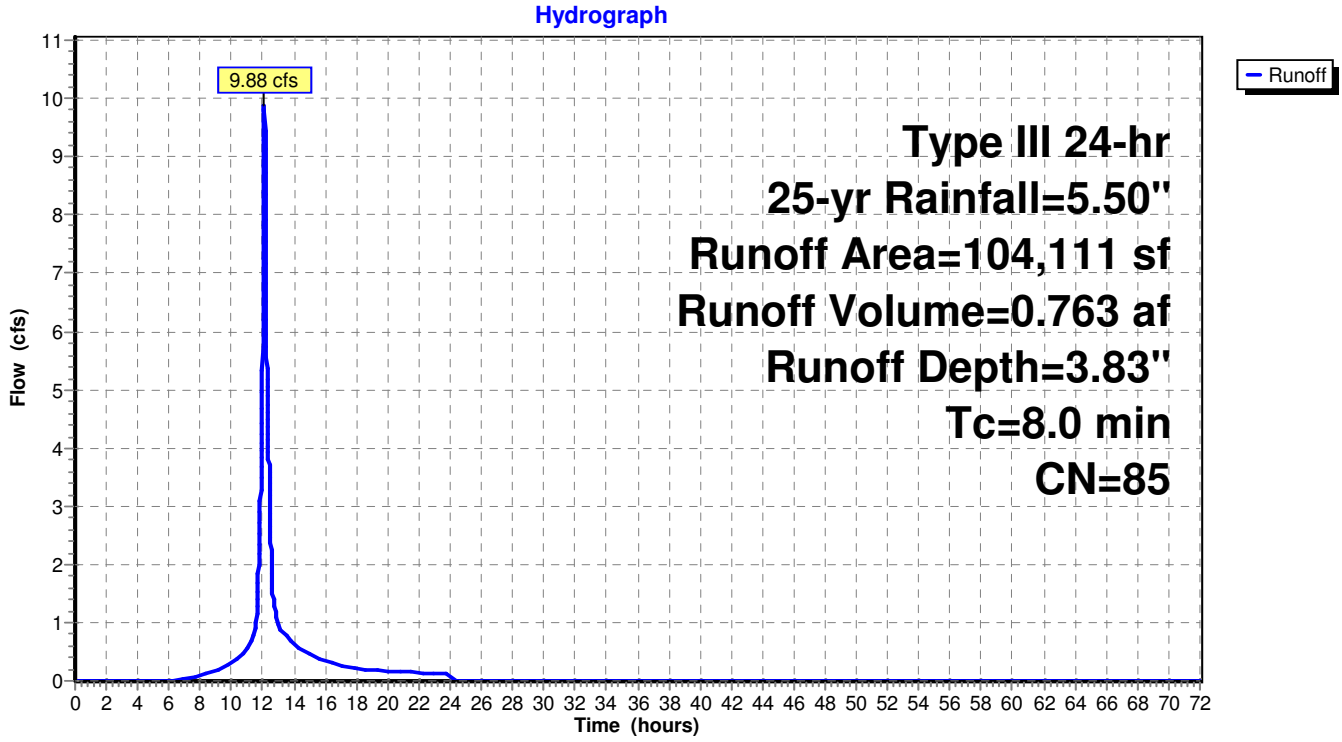
Runoff = 9.88 cfs @ 12.11 hrs, Volume= 0.763 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

	Area (sf)	CN	Description
*	39,719	98	Paved parking, HSG B
*	27,065	98	Roofs, HSG B
	35,819	61	>75% Grass cover, Good, HSG B
	1,508	55	Woods, Good, HSG B
	104,111	85	Weighted Average
	37,327		35.85% Pervious Area
	66,784		64.15% Impervious Area

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

Subcatchment 1S: 1S



Summary for Subcatchment 2S: 2S

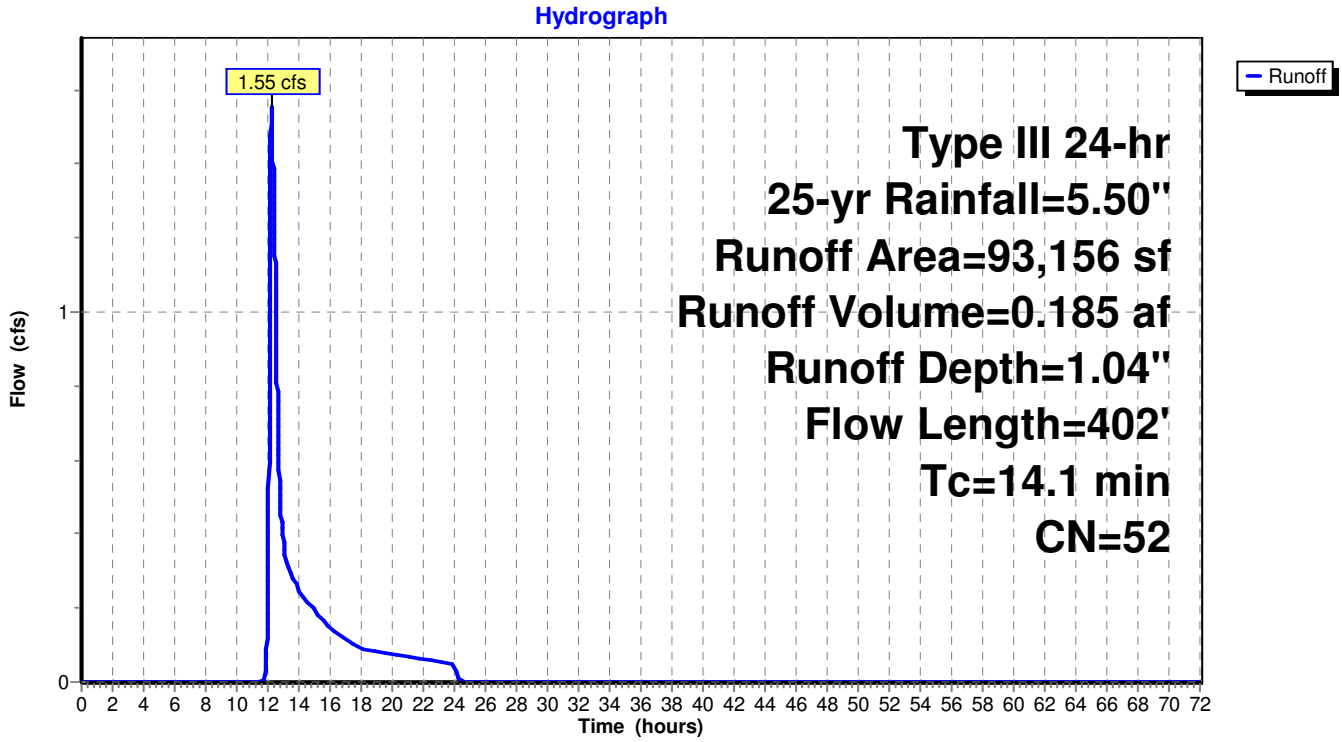
Runoff = 1.55 cfs @ 12.24 hrs, Volume= 0.185 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
5,188	98	Roofs, HSG A
30,371	39	>75% Grass cover, Good, HSG A
18,390	30	Woods, Good, HSG A
18,947	55	Woods, Good, HSG B
12,390	61	>75% Grass cover, Good, HSG B
7,870	98	Roofs, HSG B
93,156	52	Weighted Average
80,098		85.98% Pervious Area
13,058		14.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0250	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.3	194	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	158	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.1	402	Total			

Subcatchment 2S: 2S



Summary for Subcatchment 3aS: 3S off site

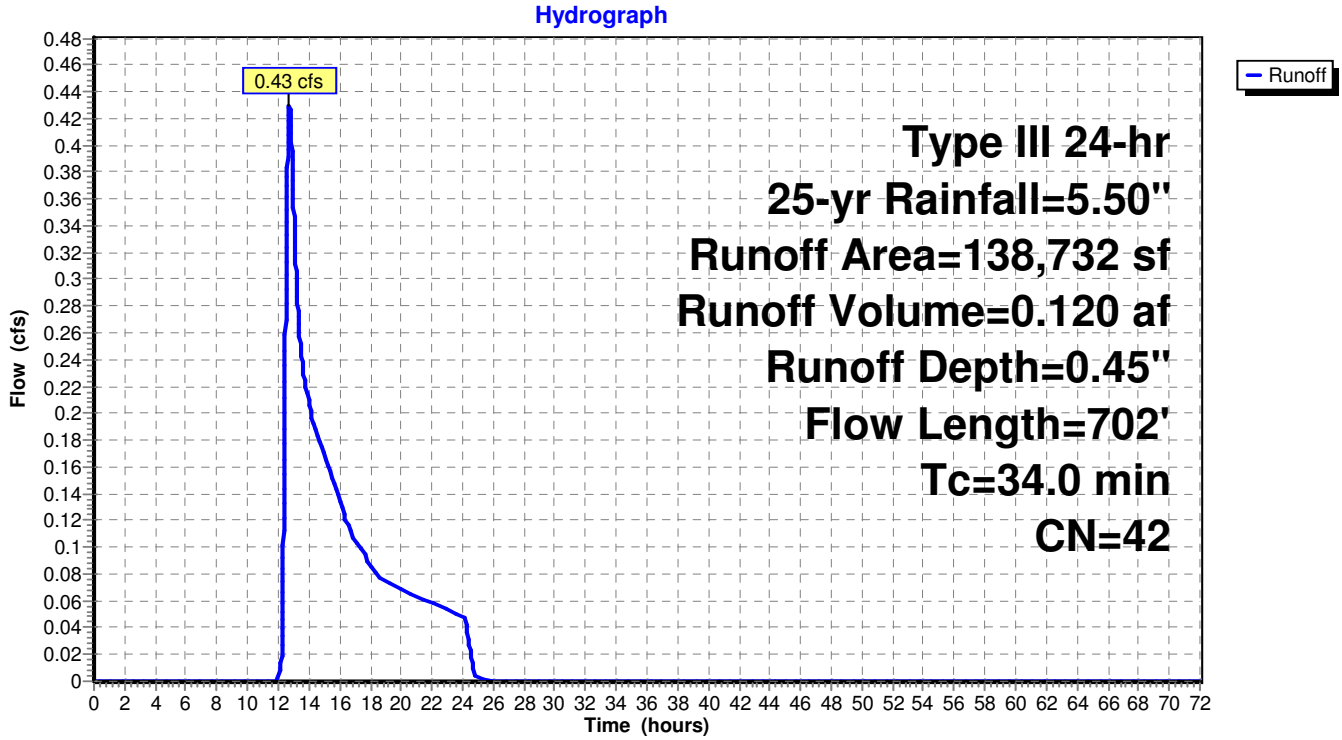
Runoff = 0.43 cfs @ 12.73 hrs, Volume= 0.120 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
7,998	98	Roofs, HSG A
13,323	39	>75% Grass cover, Good, HSG A
7,763	98	Roofs, HSG A
21,261	39	>75% Grass cover, Good, HSG A
76,682	30	Woods, Good, HSG A
4,144	55	Woods, Good, HSG B
7,561	61	>75% Grass cover, Good, HSG B
138,732	42	Weighted Average
122,971		88.64% Pervious Area
15,761		11.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
21.7	652	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	702	Total			

Subcatchment 3aS: 3S off site



Summary for Subcatchment 3bS: 3bS

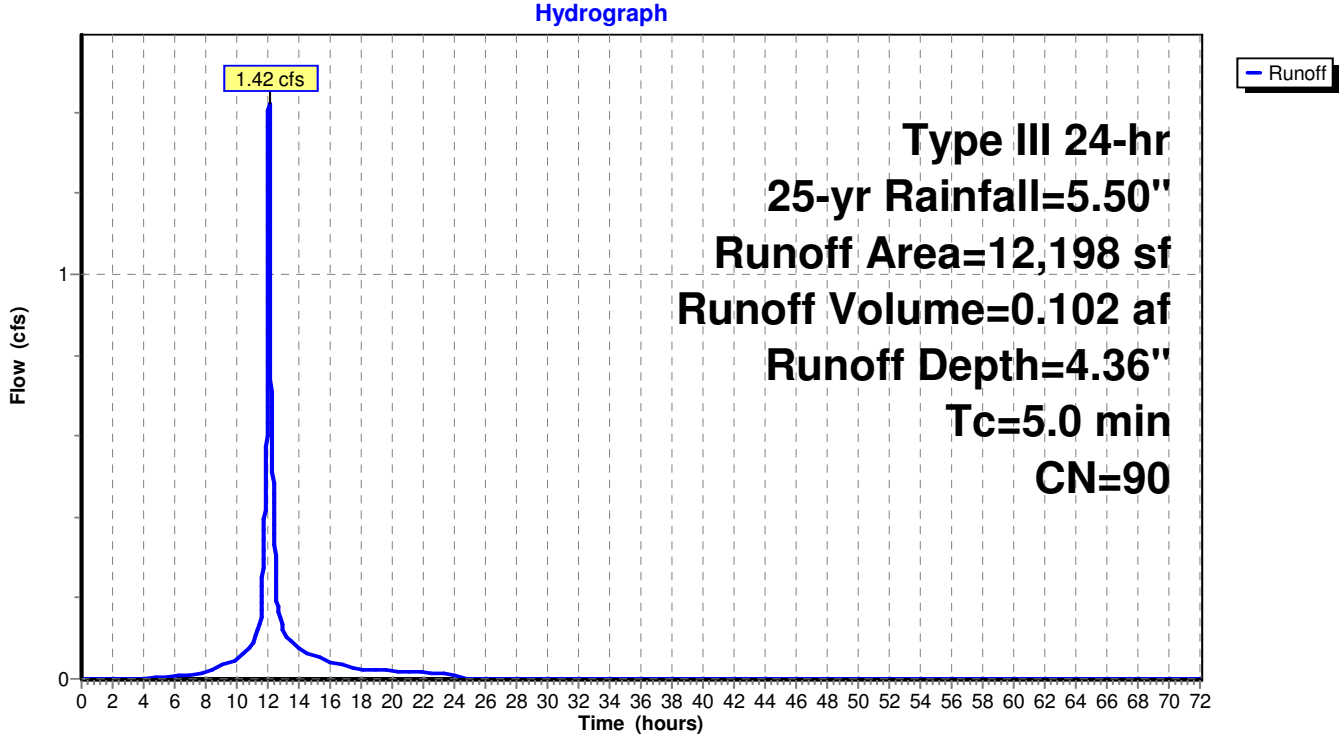
Runoff = 1.42 cfs @ 12.07 hrs, Volume= 0.102 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
4,827	98	Roofs, HSG B
4,787	98	Paved parking, HSG B
2,584	61	>75% Grass cover, Good, HSG B
12,198	90	Weighted Average
2,584		21.18% Pervious Area
9,614		78.82% Impervious Area

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

Subcatchment 3bS: 3bS



Summary for Subcatchment 3S: 3S

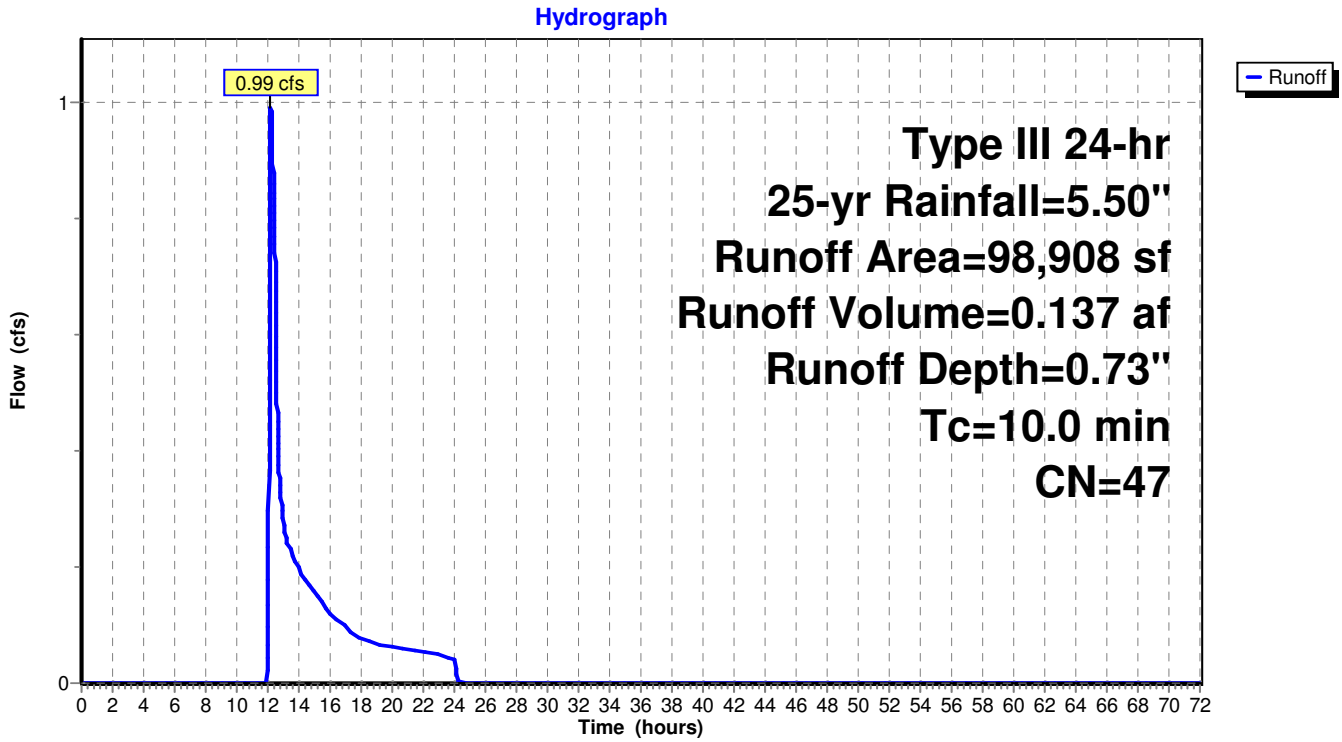
Runoff = 0.99 cfs @ 12.19 hrs, Volume= 0.137 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
4,948	98	Roofs, HSG A
23,819	39	>75% Grass cover, Good, HSG A
6,947	98	Roofs, HSG B
14,369	61	>75% Grass cover, Good, HSG B
39,277	30	Woods, Good, HSG A
9,548	55	Woods, Good, HSG B
98,908	47	Weighted Average
87,013		87.97% Pervious Area
11,895		12.03% Impervious Area

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

Subcatchment 3S: 3S



Summary for Subcatchment 4S: 4S

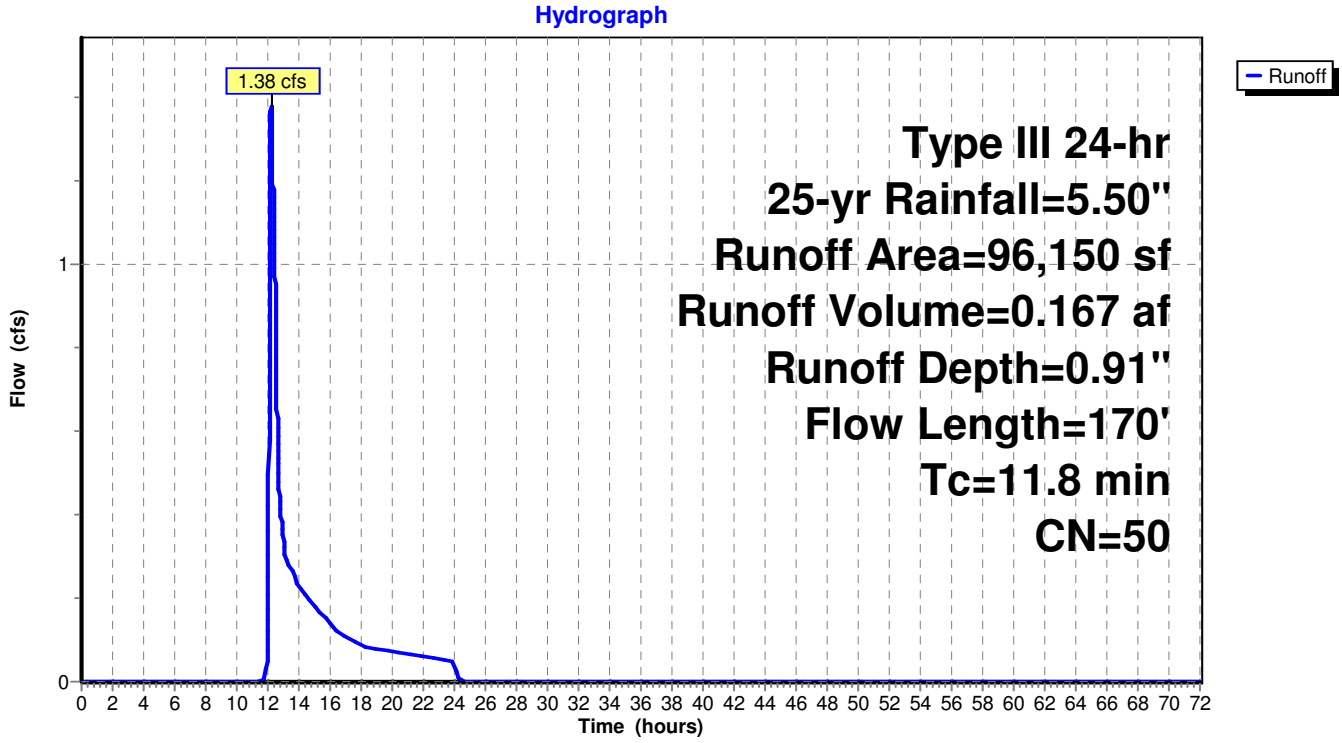
Runoff = 1.38 cfs @ 12.21 hrs, Volume= 0.167 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.50"

Area (sf)	CN	Description
5,936	98	Roofs, HSG A
46,782	39	>75% Grass cover, Good, HSG A
11,938	30	Woods, Good, HSG A
5,319	98	Roofs, HSG B
16,063	61	>75% Grass cover, Good, HSG B
10,112	55	Woods, Good, HSG B
96,150	50	Weighted Average
84,895		88.29% Pervious Area
11,255		11.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.6	120	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.8	170	Total			

Subcatchment 4S: 4S



Summary for Pond 1A: 1a (Off Site Natural Depression)

Inflow Area = 0.564 ac, 9.81% Impervious, Inflow Depth = 0.36" for 25-yr event
Inflow = 0.06 cfs @ 12.50 hrs, Volume= 0.017 af
Outflow = 0.06 cfs @ 12.50 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.06 cfs @ 12.50 hrs, Volume= 0.017 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.00' @ 12.50 hrs Surf.Area= 1,231 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (977.6 - 977.6)

Volume	Invert	Avail.Storage	Storage Description
#1	105.00'	1,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

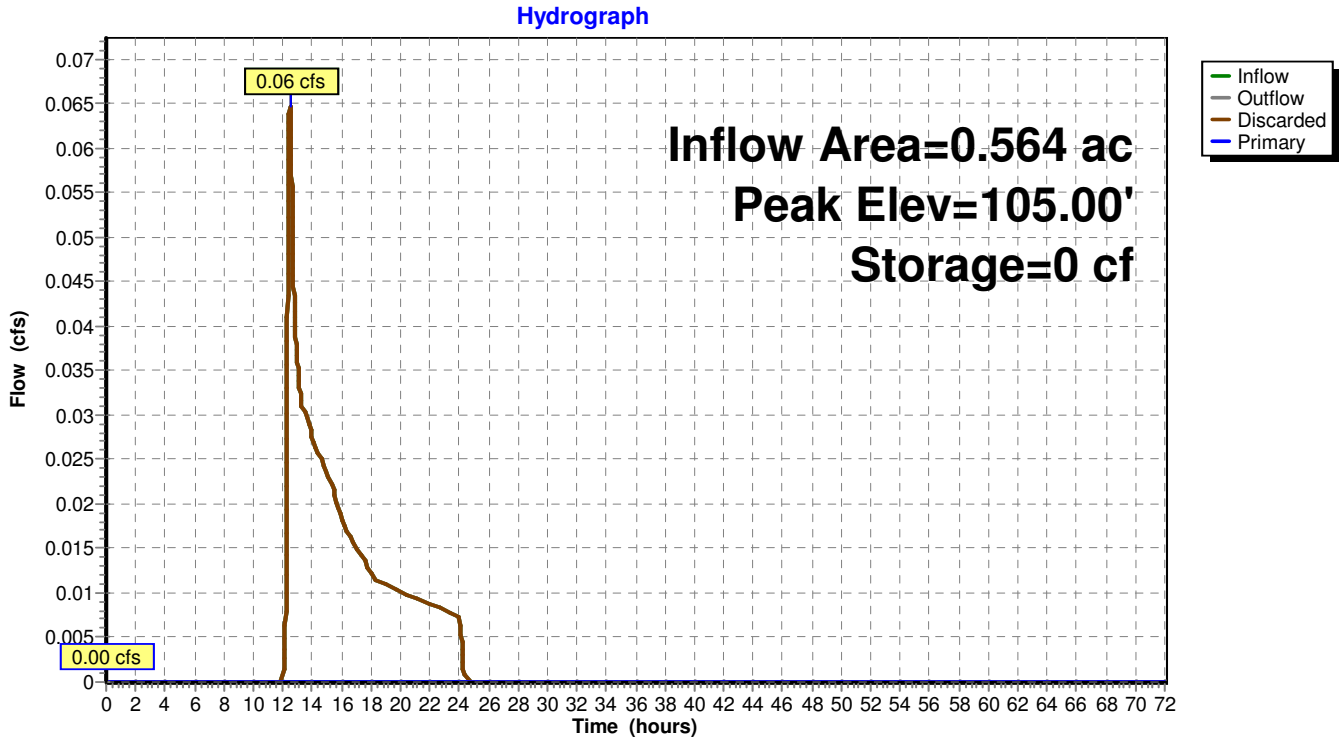
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
105.00	1,231	0	0
105.50	3,587	1,205	1,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	105.22'	**20.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.07 cfs @ 12.50 hrs HW=105.00' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=105.00' TW=100.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A: 1a (Off Site Natural Depression)



Summary for Pond 1B: 1b (Central Nat. Depression & Infiltration Basin)

Inflow Area = 5.870 ac, 24.07% Impervious, Inflow Depth = 1.37" for 25-yr event
Inflow = 6.68 cfs @ 12.09 hrs, Volume= 0.669 af
Outflow = 0.78 cfs @ 13.55 hrs, Volume= 0.669 af, Atten= 88%, Lag= 87.1 min
Discarded = 0.68 cfs @ 13.55 hrs, Volume= 0.652 af
Primary = 0.10 cfs @ 13.55 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.16' @ 13.55 hrs Surf.Area= 9,922 sf Storage= 12,607 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 221.6 min (1,056.8 - 835.3)

Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	33,502 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

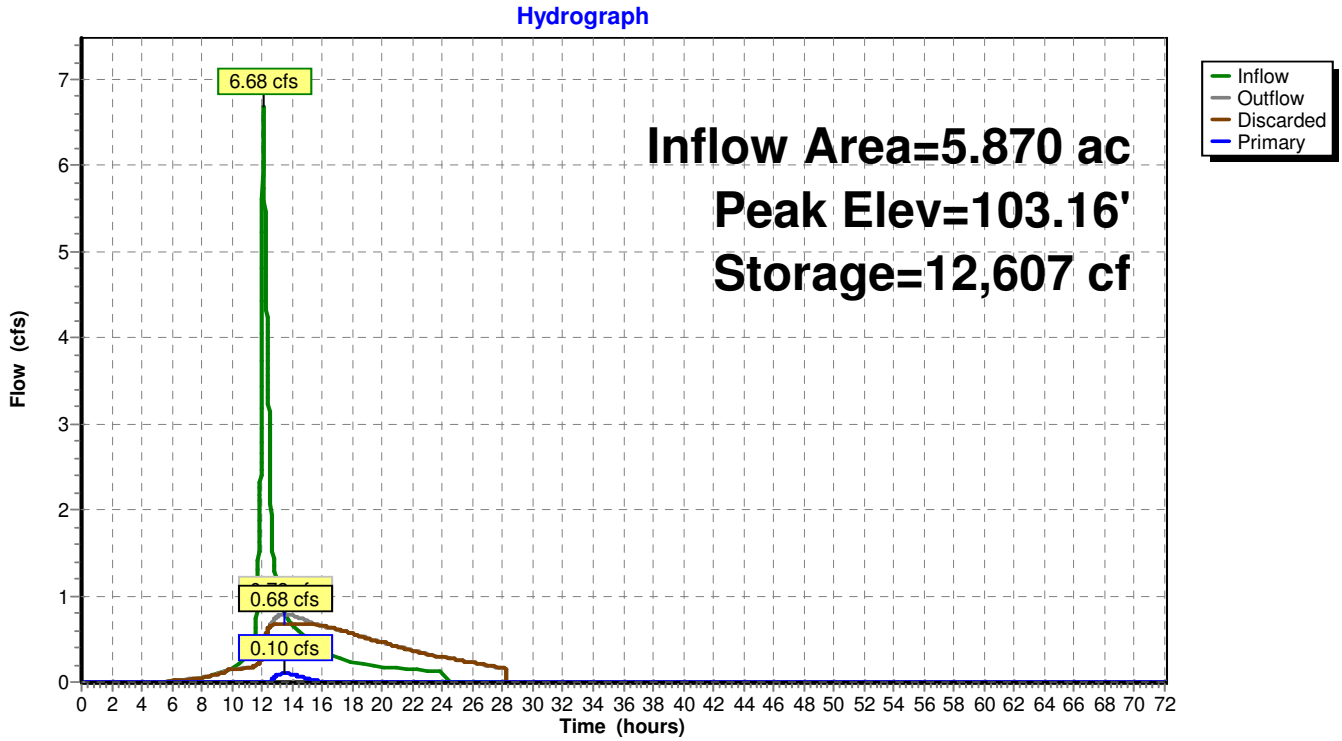
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	2,755	0	0
102.00	4,827	3,791	3,791
103.00	9,677	7,252	11,043
104.00	11,211	10,444	21,487
105.00	12,819	12,015	33,502

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	101.96'	**12.0" Round Culvert** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.96' / 101.67' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	103.00'	**0.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 2.0' Crest Height

Discarded OutFlow Max=0.68 cfs @ 13.55 hrs HW=103.16' (Free Discharge)
└**1=Exfiltration** (Controls 0.68 cfs)

Primary OutFlow Max=0.10 cfs @ 13.55 hrs HW=103.16' TW=101.58' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.10 cfs of 3.08 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.10 cfs @ 1.32 fps)

Pond 1B: 1b (Central Nat. Depression & Infiltration Basin)



Summary for Pond 1C: 1cP (Natural Depression)

Inflow Area = 0.544 ac, 12.27% Impervious, Inflow Depth = 1.60" for 25-yr event
Inflow = 0.98 cfs @ 12.08 hrs, Volume= 0.073 af
Outflow = 0.11 cfs @ 13.08 hrs, Volume= 0.073 af, Atten= 89%, Lag= 59.8 min
Discarded = 0.11 cfs @ 13.08 hrs, Volume= 0.073 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 101.99' @ 13.08 hrs Surf.Area= 1,789 sf Storage= 1,152 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 119.9 min (987.5 - 867.7)

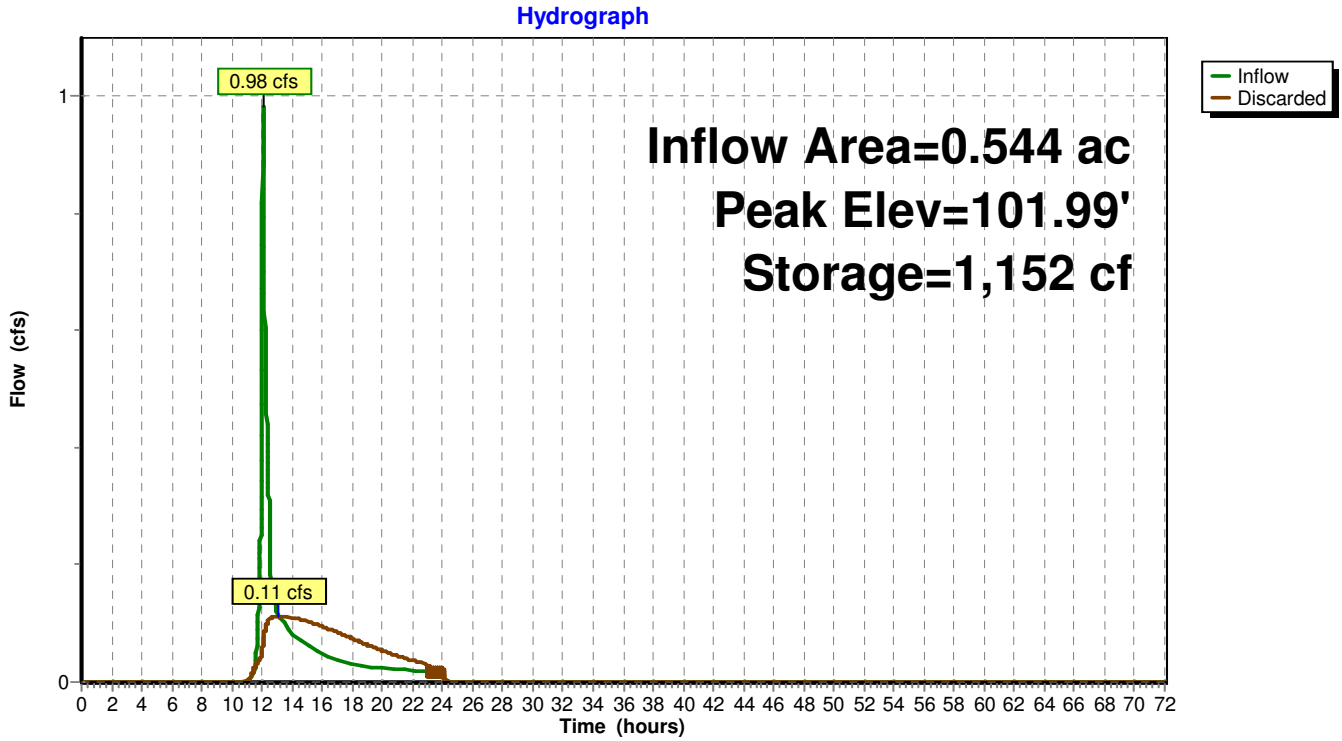
Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	13,188 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	550	0	0
102.00	1,807	1,179	1,179
103.00	3,213	2,510	3,689
104.00	4,741	3,977	7,666
105.00	6,304	5,523	13,188

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'

Discarded OutFlow Max=0.11 cfs @ 13.08 hrs HW=101.99' (Free Discharge)
1=Exfiltration (Controls 0.11 cfs)

Pond 1C: 1cP (Natural Depression)



Summary for Pond 3A: 3a (Trench Drain)

Inflow Area = 3.185 ac, 11.36% Impervious, Inflow Depth = 0.45" for 25-yr event
Inflow = 0.43 cfs @ 12.73 hrs, Volume= 0.120 af
Outflow = 0.17 cfs @ 15.50 hrs, Volume= 0.120 af, Atten= 60%, Lag= 166.1 min
Discarded = 0.17 cfs @ 15.50 hrs, Volume= 0.120 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 107.83' @ 15.50 hrs Surf.Area= 1,499 sf Storage= 1,856 cf

Plug-Flow detention time= 255.4 min calculated for 0.120 af (100% of inflow)
Center-of-Mass det. time= 255.5 min (1,233.1 - 977.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	104.50'	1,080 cf	**8.17'W x 180.44'L x 2.33'H Field A** 3,438 cf Overall - 739 cf Embedded = 2,699 cf x 40.0% Voids
#2A	105.00'	739 cf	**ADS_StormTech SC-310** x 50 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 2 rows
#3	106.33'	38 cf	**4.00'D x 1.50'H Vertical Cone/Cylinder** x 2
#4	107.83'	1,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,856 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.83	4,883	0	0
108.00	6,878	1,000	1,000

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Secondary	107.90'	**5.0' long x 50.0' 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

Discarded OutFlow Max=0.12 cfs @ 15.50 hrs HW=107.83' (Free Discharge)
1=Exfiltration (Controls 0.12 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=104.50' TW=103.83' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3A: 3a (Trench Drain) - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 (ADS StormTech® SC-310)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 2.07 sf x 2 rows

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

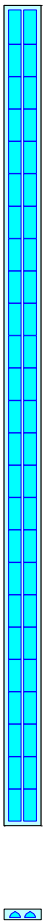
25 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 178.44' Row Length +12.0" End Stone x 2 = 180.44' Base Length
2 Rows x 34.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.17' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

50 Chambers x 14.7 cf +0.44' Row Adjustment x 2.07 sf x 2 Rows = 738.9 cf Chamber Storage

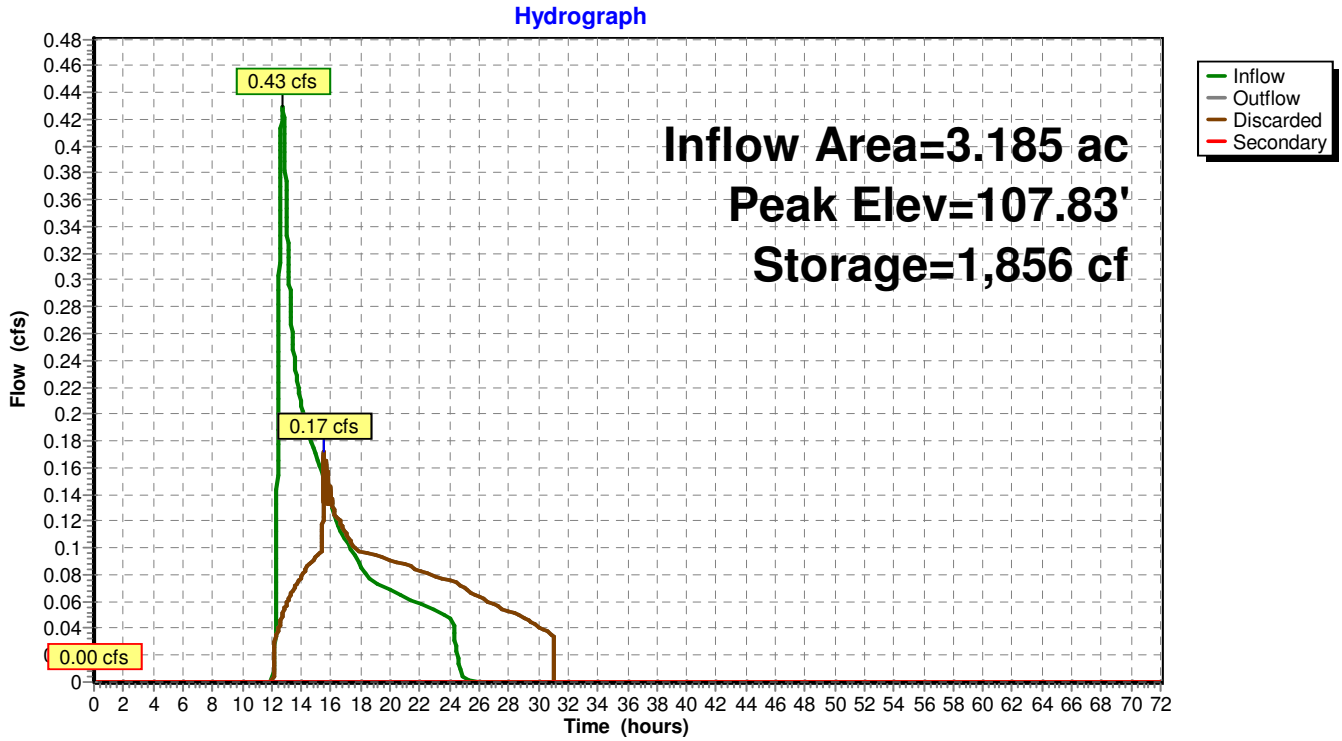
3,438.4 cf Field - 738.9 cf Chambers = 2,699.4 cf Stone x 40.0% Voids = 1,079.8 cf Stone Storage

Chamber Storage + Stone Storage = 1,818.7 cf = 0.042 af
Overall Storage Efficiency = 52.9%

50 Chambers
127.3 cy Field
100.0 cy Stone



Pond 3A: 3a (Trench Drain)



Summary for Pond 3B: 3b (Sub. Infil. Chambers)

Inflow Area = 0.280 ac, 78.82% Impervious, Inflow Depth = 4.36" for 25-yr event
Inflow = 1.42 cfs @ 12.07 hrs, Volume= 0.102 af
Outflow = 1.00 cfs @ 12.14 hrs, Volume= 0.102 af, Atten= 29%, Lag= 4.4 min
Discarded = 0.05 cfs @ 12.14 hrs, Volume= 0.059 af
Primary = 0.95 cfs @ 12.14 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 106.80' @ 12.14 hrs Surf.Area= 1,441 sf Storage= 1,136 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 89.3 min (875.9 - 786.6)

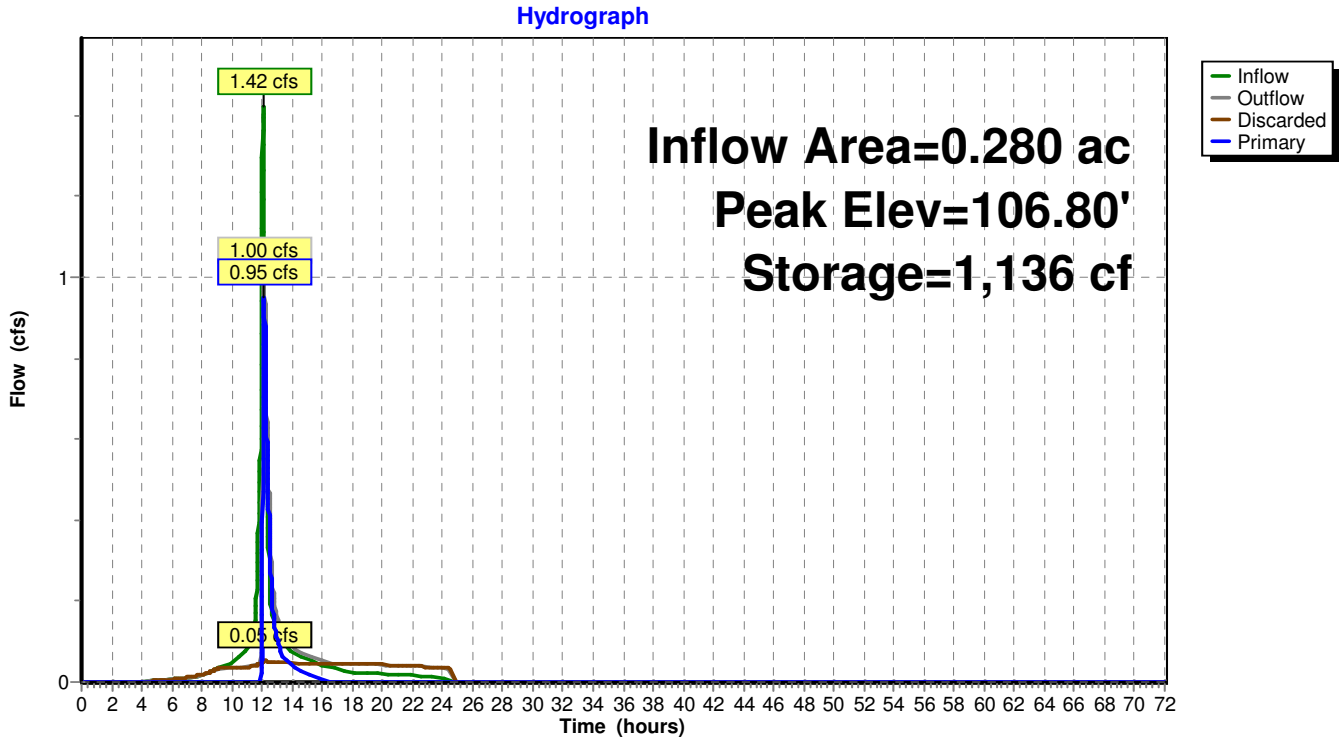
Volume	Invert	Avail.Storage	Storage Description
#1	105.50'	1,022 cf	**21.50'W x 67.00'L x 2.33'H Prismatoid** 3,356 cf Overall - 802 cf Embedded = 2,555 cf x 40.0% Voids
#2	106.00'	802 cf	**StormTech SC-310** x 54 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,823 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	106.30'	**12.0" Round Culvert** L= 34.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.30' / 105.28' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.05 cfs @ 12.14 hrs HW=106.80' (Free Discharge)
1=Exfiltration (Controls 0.05 cfs)

Primary OutFlow Max=0.95 cfs @ 12.14 hrs HW=106.80' TW=101.21' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.95 cfs @ 2.41 fps)

Pond 3B: 3b (Sub. Infil. Chambers)



Summary for Pond DP1: DP1 (Sub. Infil. Chambers)

Inflow Area = 11.374 ac, 30.73% Impervious, Inflow Depth = 0.90" for 25-yr event
Inflow = 10.78 cfs @ 12.11 hrs, Volume= 0.855 af
Outflow = 2.10 cfs @ 12.59 hrs, Volume= 0.855 af, Atten= 81%, Lag= 28.5 min
Discarded = 2.10 cfs @ 12.59 hrs, Volume= 0.855 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.10' @ 12.59 hrs Surf.Area= 7,191 sf Storage= 10,495 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 35.8 min (845.8 - 810.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	5,335 cf	**49.00'W x 123.48'L x 3.50'H Field A** 21,177 cf Overall - 7,838 cf Embedded = 13,339 cf x 40.0% Voids
#2A	100.50'	7,838 cf	**ADS_StormTech SC-740** x 170 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 10 rows
#3B	100.00'	1,039 cf	**25.25'W x 45.16'L x 3.50'H Field B** 3,991 cf Overall - 1,392 cf Embedded = 2,599 cf x 40.0% Voids
#4B	100.50'	1,392 cf	**ADS_StormTech SC-740** x 30 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		15,605 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'

Discarded OutFlow Max=2.10 cfs @ 12.59 hrs HW=102.10' (Free Discharge)
↑—**1=Exfiltration** (Controls 2.10 cfs)

Pond DP1: DP1 (Sub. Infil. Chambers) - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.45 sf x 10 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

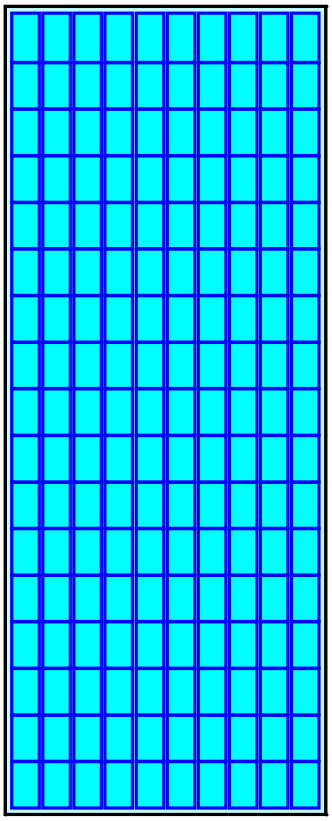
17 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 121.48' Row Length +12.0" End Stone x 2 = 123.48' Base Length
10 Rows x 51.0" Wide + 6.0" Spacing x 9 + 12.0" Side Stone x 2 = 49.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

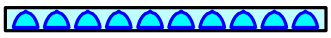
170 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 10 Rows = 7,838.2 cf Chamber Storage

21,176.8 cf Field - 7,838.2 cf Chambers = 13,338.6 cf Stone x 40.0% Voids = 5,335.5 cf Stone Storage

Chamber Storage + Stone Storage = 13,173.6 cf = 0.302 af
Overall Storage Efficiency = 62.2%

170 Chambers
784.3 cy Field
494.0 cy Stone





Pond DP1: DP1 (Sub. Infil. Chambers) - Chamber Wizard Field B

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.45 sf x 5 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

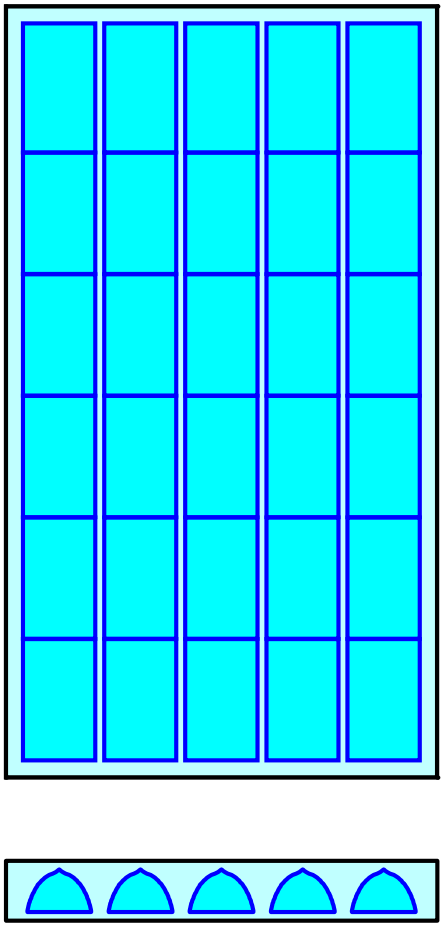
6 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 43.16' Row Length +12.0" End Stone x 2 = 45.16' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

30 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 5 Rows = 1,392.4 cf Chamber Storage

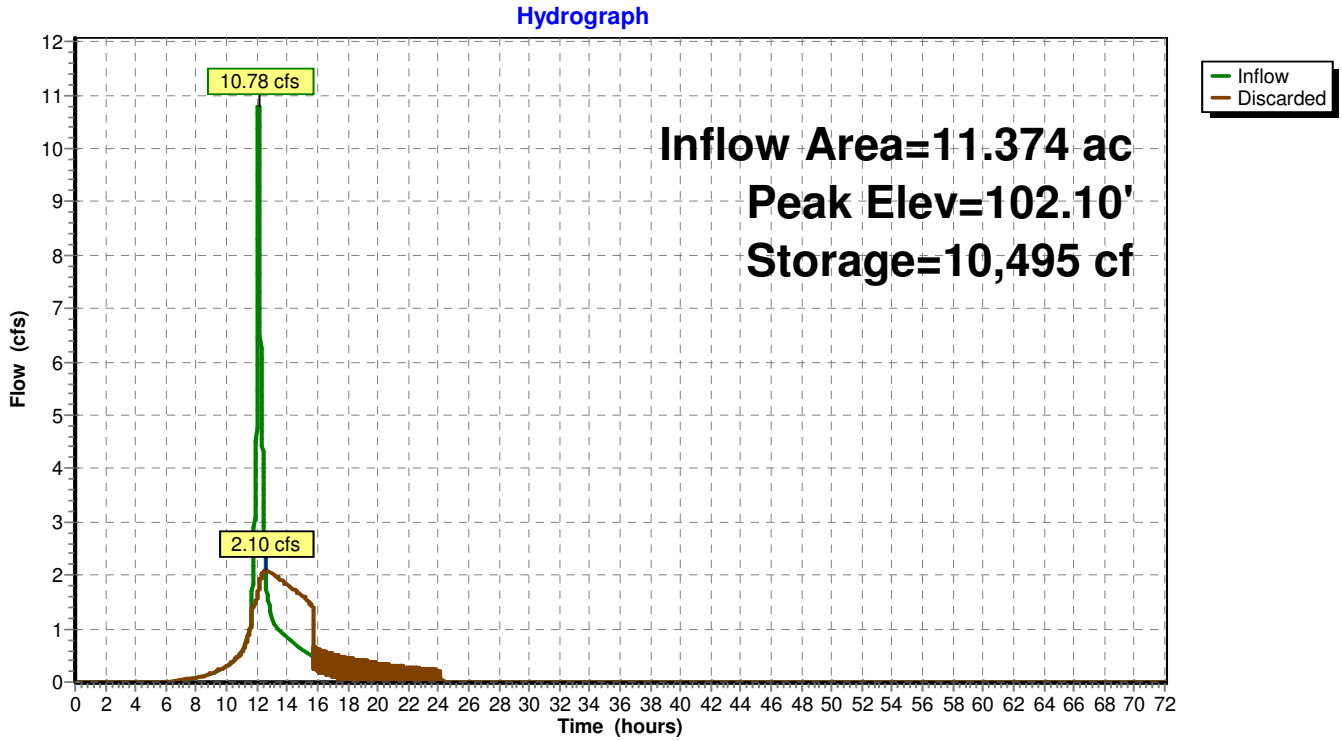
3,991.0 cf Field - 1,392.4 cf Chambers = 2,598.6 cf Stone x 40.0% Voids = 1,039.4 cf Stone Storage

Chamber Storage + Stone Storage = 2,431.8 cf = 0.056 af
Overall Storage Efficiency = 60.9%

30 Chambers
147.8 cy Field
96.2 cy Stone



Pond DP1: DP1 (Sub. Infil. Chambers)



Summary for Pond DP2: DP2 (SW - Natural Depression)

Inflow Area = 2.139 ac, 14.02% Impervious, Inflow Depth = 1.04" for 25-yr event
Inflow = 1.55 cfs @ 12.24 hrs, Volume= 0.185 af
Outflow = 0.22 cfs @ 14.51 hrs, Volume= 0.185 af, Atten= 86%, Lag= 136.6 min
Discarded = 0.22 cfs @ 14.51 hrs, Volume= 0.185 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.80' @ 14.51 hrs Surf.Area= 3,332 sf Storage= 3,049 cf

Plug-Flow detention time= 198.2 min calculated for 0.185 af (100% of inflow)
Center-of-Mass det. time= 198.2 min (1,100.8 - 902.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.46'	8,665 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

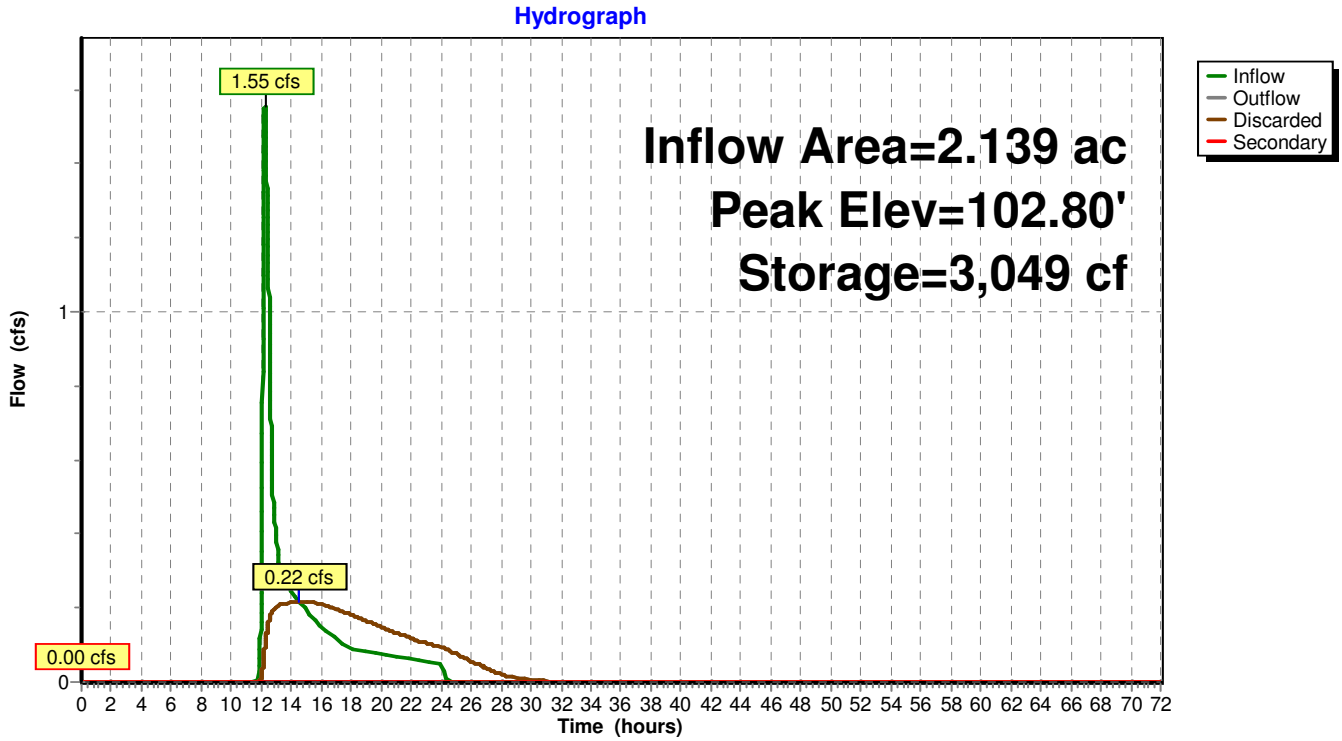
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.46	50	0	0
101.00	261	84	84
102.00	1,671	966	1,050
103.00	3,750	2,711	3,760
103.50	4,945	2,174	5,934
104.00	5,980	2,731	8,665

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.46'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Secondary	103.50'	**13.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.22 cfs @ 14.51 hrs HW=102.80' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.22 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.46' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP2: DP2 (SW - Natural Depression)



Summary for Pond DP3: DP3 (NW - Natural Depression)

Inflow Area = 2.271 ac, 12.03% Impervious, Inflow Depth = 0.73" for 25-yr event
Inflow = 0.99 cfs @ 12.19 hrs, Volume= 0.137 af
Outflow = 0.16 cfs @ 14.87 hrs, Volume= 0.137 af, Atten= 84%, Lag= 160.7 min
Discarded = 0.07 cfs @ 14.87 hrs, Volume= 0.105 af
Primary = 0.09 cfs @ 14.87 hrs, Volume= 0.032 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.02' @ 14.87 hrs Surf.Area= 3,905 sf Storage= 2,355 cf

Plug-Flow detention time= 323.1 min calculated for 0.137 af (100% of inflow)
Center-of-Mass det. time= 323.2 min (1,245.1 - 921.9)

Volume	Invert	Avail.Storage	Storage Description
#1	104.30'	6,303 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

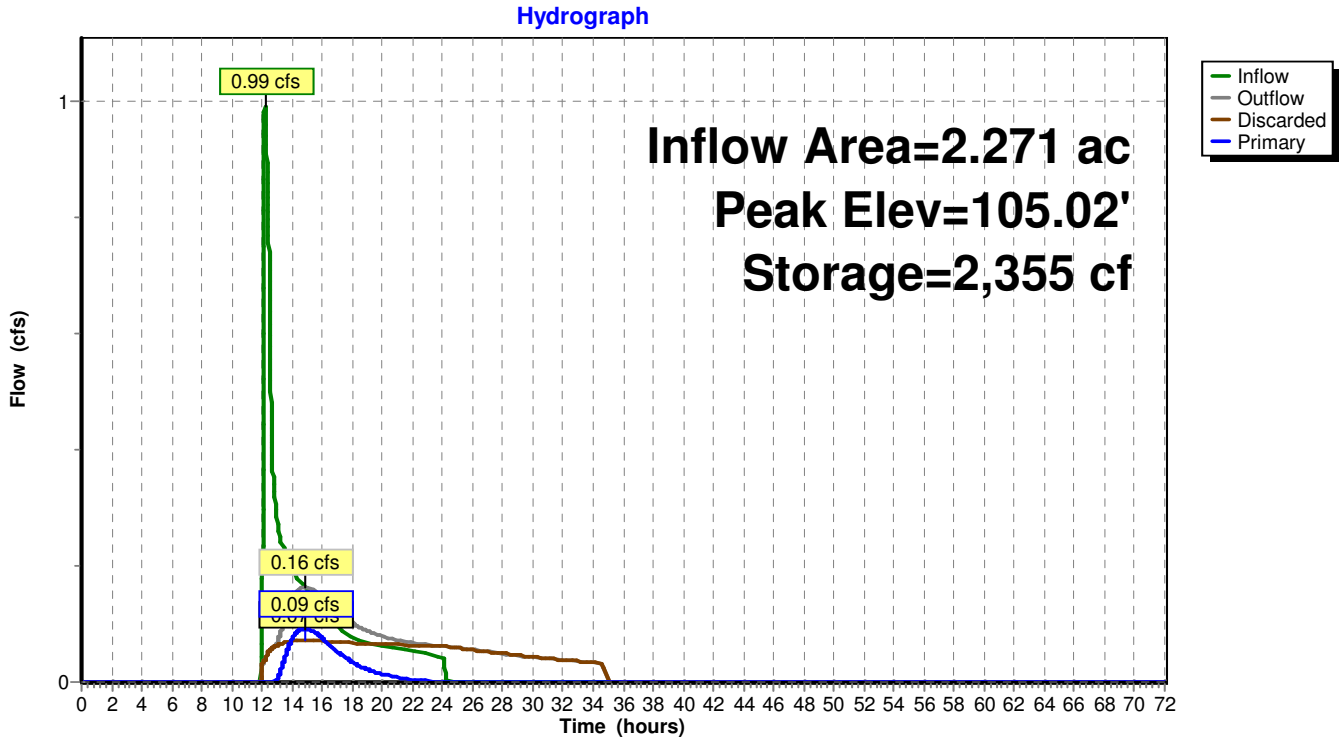
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.30	2,653	0	0
105.00	3,806	2,261	2,261
105.50	5,835	2,410	4,671
105.75	7,220	1,632	6,303

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.30'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	104.85'	**12.0" Round Culvert** L= 122.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.85' / 104.24' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.07 cfs @ 14.87 hrs HW=105.02' (Free Discharge)
1=Exfiltration (Controls 0.07 cfs)

Primary OutFlow Max=0.09 cfs @ 14.87 hrs HW=105.02' TW=100.77' (Dynamic Tailwater)
2=Culvert (Barrel Controls 0.09 cfs @ 1.51 fps)

Pond DP3: DP3 (NW - Natural Depression)



Summary for Pond DP4: DP4 (North - Natural Depression)

Inflow Area = 2.207 ac, 11.71% Impervious, Inflow Depth = 0.91" for 25-yr event
Inflow = 1.38 cfs @ 12.21 hrs, Volume= 0.167 af
Outflow = 0.22 cfs @ 14.18 hrs, Volume= 0.167 af, Atten= 84%, Lag= 118.2 min
Discarded = 0.22 cfs @ 14.18 hrs, Volume= 0.167 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.40' @ 14.18 hrs Surf.Area= 7,010 sf Storage= 2,429 cf

Plug-Flow detention time= 150.6 min calculated for 0.167 af (100% of inflow)
Center-of-Mass det. time= 150.6 min (1,059.4 - 908.9)

Volume	Invert	Avail.Storage	Storage Description
#1	103.83'	15,451 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

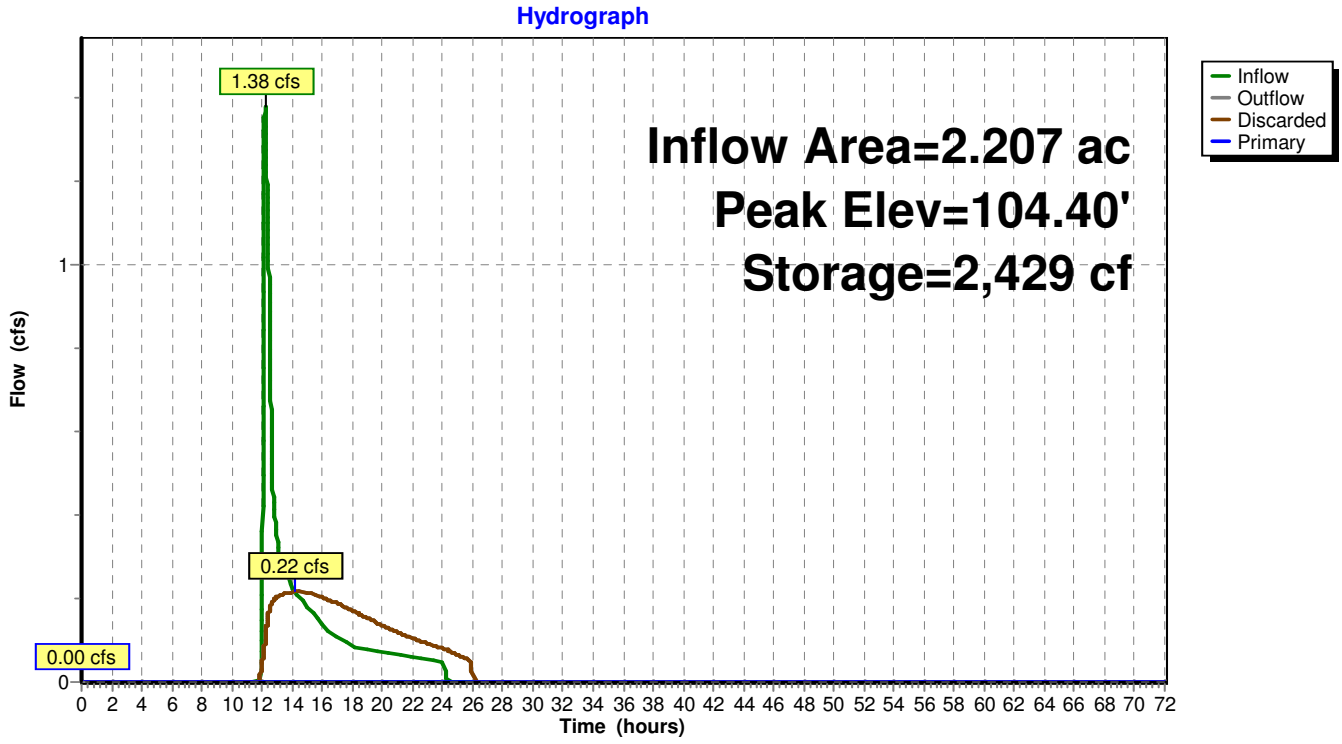
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.83	2,056	0	0
104.00	3,071	436	436
105.00	13,033	8,052	8,488
105.50	14,818	6,963	15,451

Device	Routing	Invert	Outlet Devices
#1	Discarded	103.83'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 102.80'
#2	Primary	104.45'	**12.0" Round Culvert** L= 86.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.45' / 104.10' S= 0.0041 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.22 cfs @ 14.18 hrs HW=104.40' (Free Discharge)
1=Exfiltration (Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=103.83' TW=101.00' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Pond DP4: DP4 (North - Natural Depression)



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1aS: 1aS (Off Site) Runoff Area=24,558 sf 9.81% Impervious Runoff Depth=0.73"
Flow Length=174' Tc=14.2 min CN=40 Runoff=0.20 cfs 0.034 af

Subcatchment 1bS: 1bS Runoff Area=40,744 sf 19.15% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=68 Runoff=3.02 cfs 0.247 af

Subcatchment 1cS: 1cS Runoff Area=23,675 sf 12.27% Impervious Runoff Depth=2.39"
Tc=5.0 min CN=60 Runoff=1.53 cfs 0.108 af

Subcatchment 1dS: 1dS Runoff Area=80,131 sf 16.36% Impervious Runoff Depth=1.85"
Flow Length=583' Tc=18.0 min CN=54 Runoff=2.53 cfs 0.283 af

Subcatchment 1eS: 1eS Runoff Area=38,668 sf 76.01% Impervious Runoff Depth=5.42"
Tc=5.0 min CN=89 Runoff=5.56 cfs 0.401 af

Subcatchment 1S: 1S Runoff Area=104,111 sf 64.15% Impervious Runoff Depth=4.97"
Tc=8.0 min CN=85 Runoff=12.67 cfs 0.989 af

Subcatchment 2S: 2S Runoff Area=93,156 sf 14.02% Impervious Runoff Depth=1.67"
Flow Length=402' Tc=14.1 min CN=52 Runoff=2.84 cfs 0.298 af

Subcatchment 3aS: 3S off site Runoff Area=138,732 sf 11.36% Impervious Runoff Depth=0.87"
Flow Length=702' Tc=34.0 min CN=42 Runoff=1.15 cfs 0.232 af

Subcatchment 3bS: 3bS Runoff Area=12,198 sf 78.82% Impervious Runoff Depth=5.53"
Tc=5.0 min CN=90 Runoff=1.78 cfs 0.129 af

Subcatchment 3S: 3S Runoff Area=98,908 sf 12.03% Impervious Runoff Depth=1.26"
Tc=10.0 min CN=47 Runoff=2.25 cfs 0.238 af

Subcatchment 4S: 4S Runoff Area=96,150 sf 11.71% Impervious Runoff Depth=1.50"
Flow Length=170' Tc=11.8 min CN=50 Runoff=2.70 cfs 0.276 af

Pond 1A: 1a (Off Site Natural Depression) Peak Elev=105.11' Storage=159 cf Inflow=0.20 cfs 0.034 af
Discarded=0.10 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.034 af

Pond 1B: 1b (Central Nat. Depression & Peak Elev=103.67' Storage=17,918 cf Inflow=9.25 cfs 0.965 af
Discarded=0.78 cfs 0.797 af Primary=0.64 cfs 0.168 af Outflow=1.42 cfs 0.966 af

Pond 1C: 1cP (Natural Depression) Peak Elev=102.36' Storage=1,920 cf Inflow=1.53 cfs 0.108 af
Outflow=0.15 cfs 0.108 af

Pond 3A: 3a (Trench Drain) Peak Elev=107.96' Storage=2,574 cf Inflow=1.15 cfs 0.232 af
Discarded=0.28 cfs 0.210 af Secondary=0.18 cfs 0.022 af Outflow=0.47 cfs 0.232 af

Pond 3B: 3b (Sub. Infil. Chambers) Peak Elev=106.92' Storage=1,246 cf Inflow=1.78 cfs 0.129 af
Discarded=0.06 cfs 0.065 af Primary=1.38 cfs 0.064 af Outflow=1.44 cfs 0.129 af

Pond DP1: DP1 (Sub. Infil. Chambers) Peak Elev=103.49' Storage=15,588 cf Inflow=14.04 cfs 1.341 af
Outflow=2.58 cfs 1.341 af

Pond DP2: DP2 (SW - Natural Depression) Peak Elev=103.43' Storage=5,603 cf Inflow=2.84 cfs 0.298 af
Discarded=0.32 cfs 0.298 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 0.298 af

Pond DP3: DP3 (NW - Natural Depression) Peak Elev=105.22' Storage=3,197 cf Inflow=2.25 cfs 0.238 af
Discarded=0.09 cfs 0.118 af Primary=0.41 cfs 0.120 af Outflow=0.50 cfs 0.238 af

Pond DP4: DP4 (North - Natural Depression) Peak Elev=104.67' Storage=4,778 cf Inflow=2.70 cfs 0.298 af
Discarded=0.32 cfs 0.263 af Primary=0.14 cfs 0.035 af Outflow=0.46 cfs 0.298 af

Total Runoff Area = 17.241 ac Runoff Volume = 3.236 af Average Runoff Depth = 2.25"
75.50% Pervious = 13.018 ac 24.50% Impervious = 4.224 ac

Summary for Subcatchment 1aS: 1aS (Off Site)

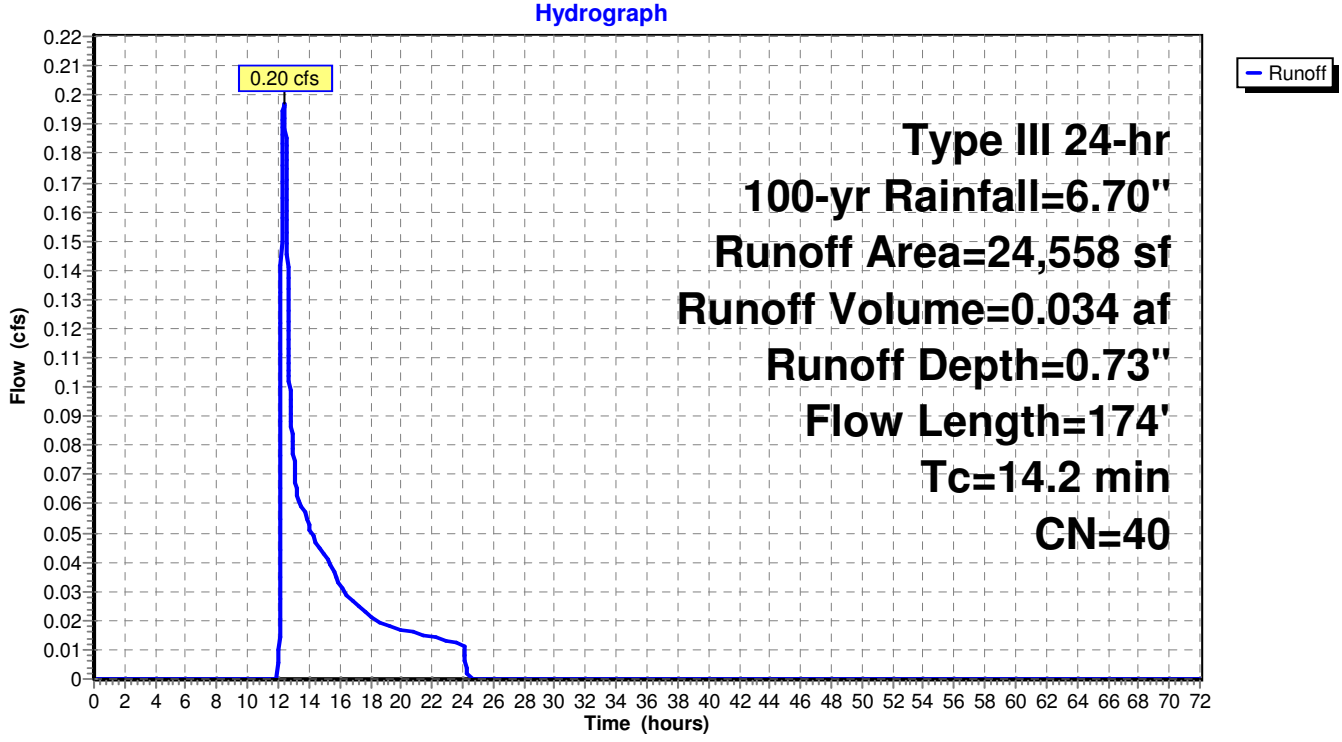
Runoff = 0.20 cfs @ 12.38 hrs, Volume= 0.034 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
2,408	98	Roofs, HSG A
8,090	39	>75% Grass cover, Good, HSG A
14,060	30	Woods, Good, HSG A
24,558	40	Weighted Average
22,150		90.19% Pervious Area
2,408		9.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	74	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	174	Total			

Subcatchment 1aS: 1aS (Off Site)



Summary for Subcatchment 1bS: 1bS

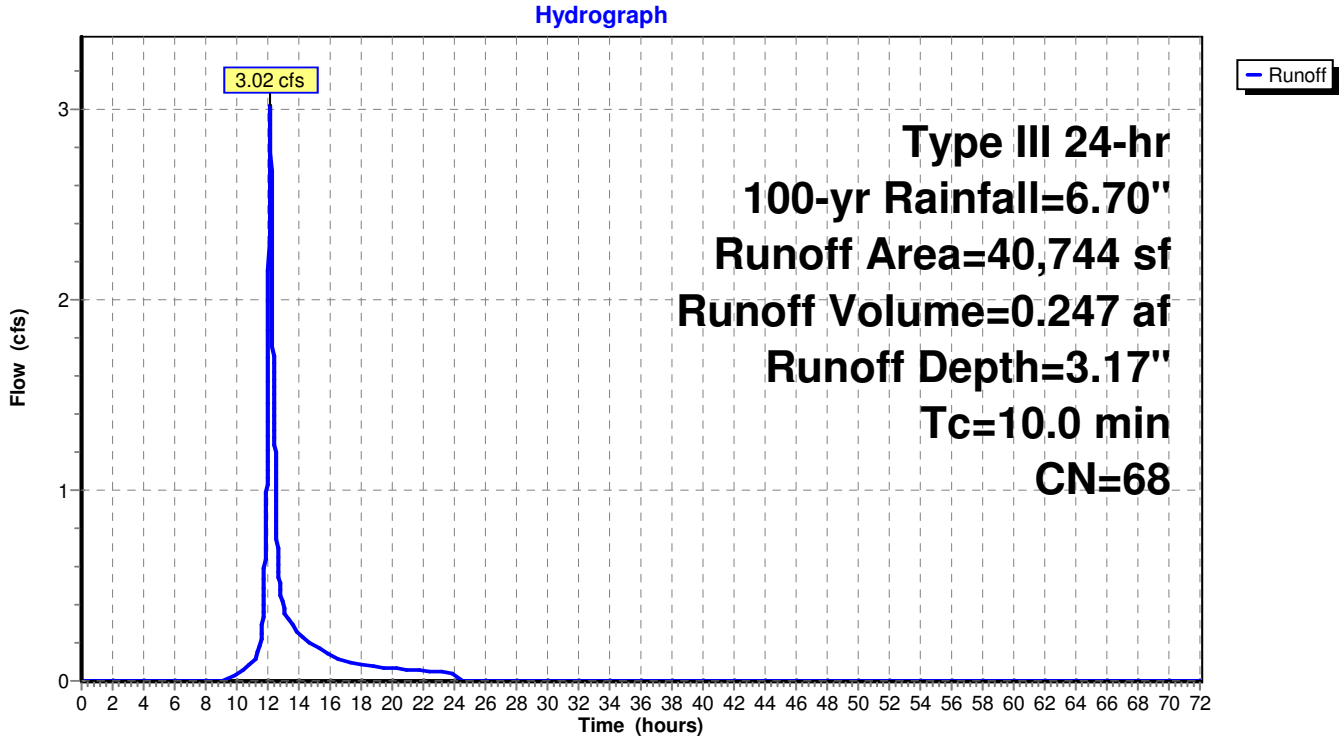
Runoff = 3.02 cfs @ 12.14 hrs, Volume= 0.247 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
833	85	Gravel roads, HSG B
7,801	98	Roofs, HSG B
28,513	61	>75% Grass cover, Good, HSG B
3,597	55	Woods, Good, HSG B
40,744	68	Weighted Average
32,943		80.85% Pervious Area
7,801		19.15% Impervious Area

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

Subcatchment 1bS: 1bS



Summary for Subcatchment 1cS: 1cS

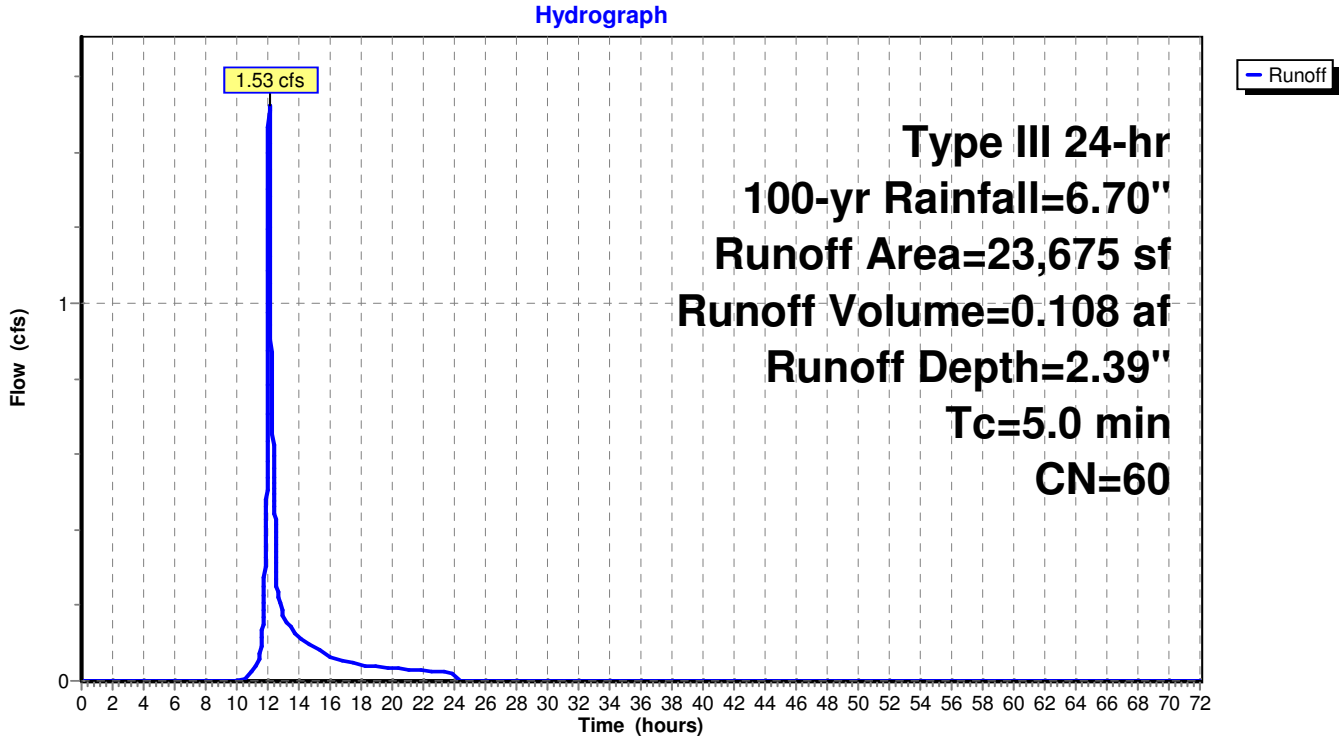
Runoff = 1.53 cfs @ 12.08 hrs, Volume= 0.108 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

	Area (sf)	CN	Description
	8,470	55	Woods, Good, HSG B
	2,899	30	Woods, Good, HSG A
*	2,905	98	Roofs, HSG B
	9,401	61	>75% Grass cover, Good, HSG B
	23,675	60	Weighted Average
	20,770		87.73% Pervious Area
	2,905		12.27% Impervious Area

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

Subcatchment 1cS: 1cS



Summary for Subcatchment 1dS: 1dS

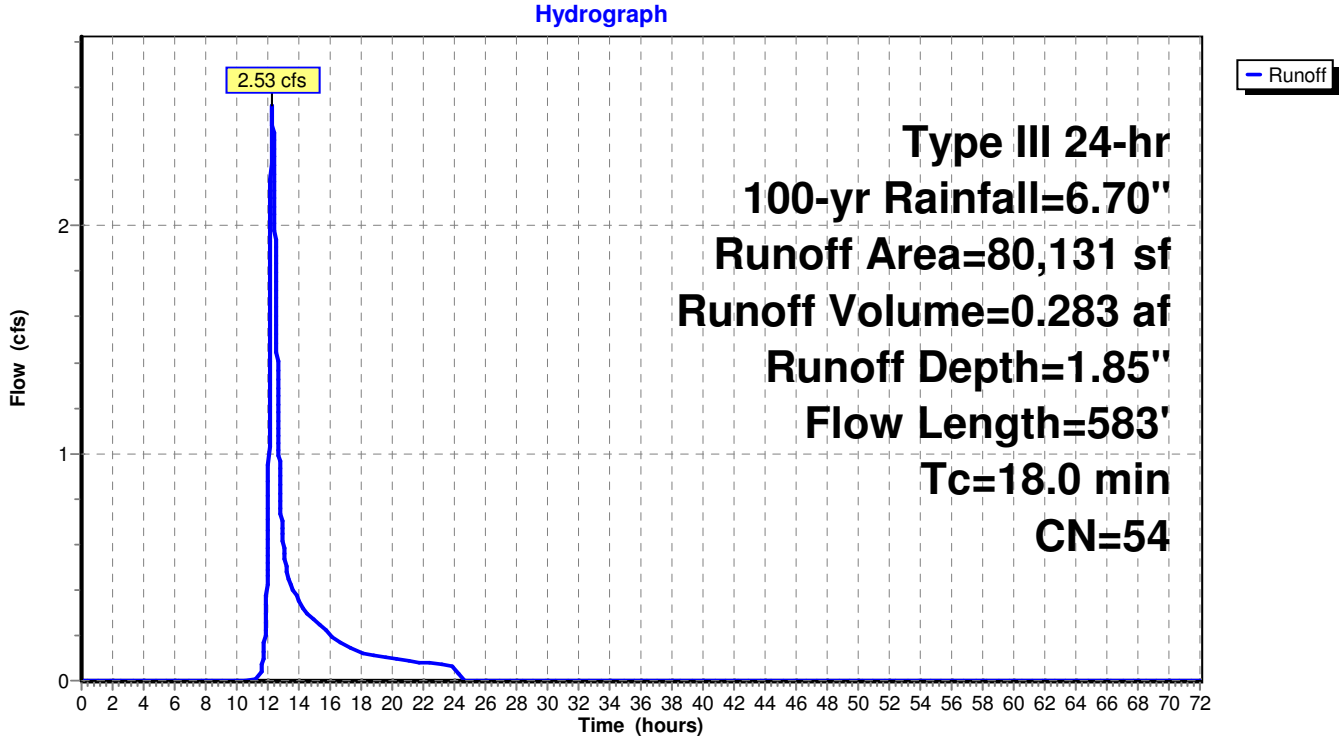
Runoff = 2.53 cfs @ 12.27 hrs, Volume= 0.283 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

	Area (sf)	CN	Description
	5,354	98	Roofs, HSG A
	20,800	39	>75% Grass cover, Good, HSG A
	3,691	74	>75% Grass cover, Good, HSG C
	17,837	30	Woods, Good, HSG A
*	7,757	98	Roofs, HSG B
	13,831	61	>75% Grass cover, Good, HSG B
	10,861	55	Woods, Good, HSG B
	80,131	54	Weighted Average
	67,020		83.64% Pervious Area
	13,111		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	426	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	583	Total			

Subcatchment 1dS: 1dS



Summary for Subcatchment 1eS: 1eS

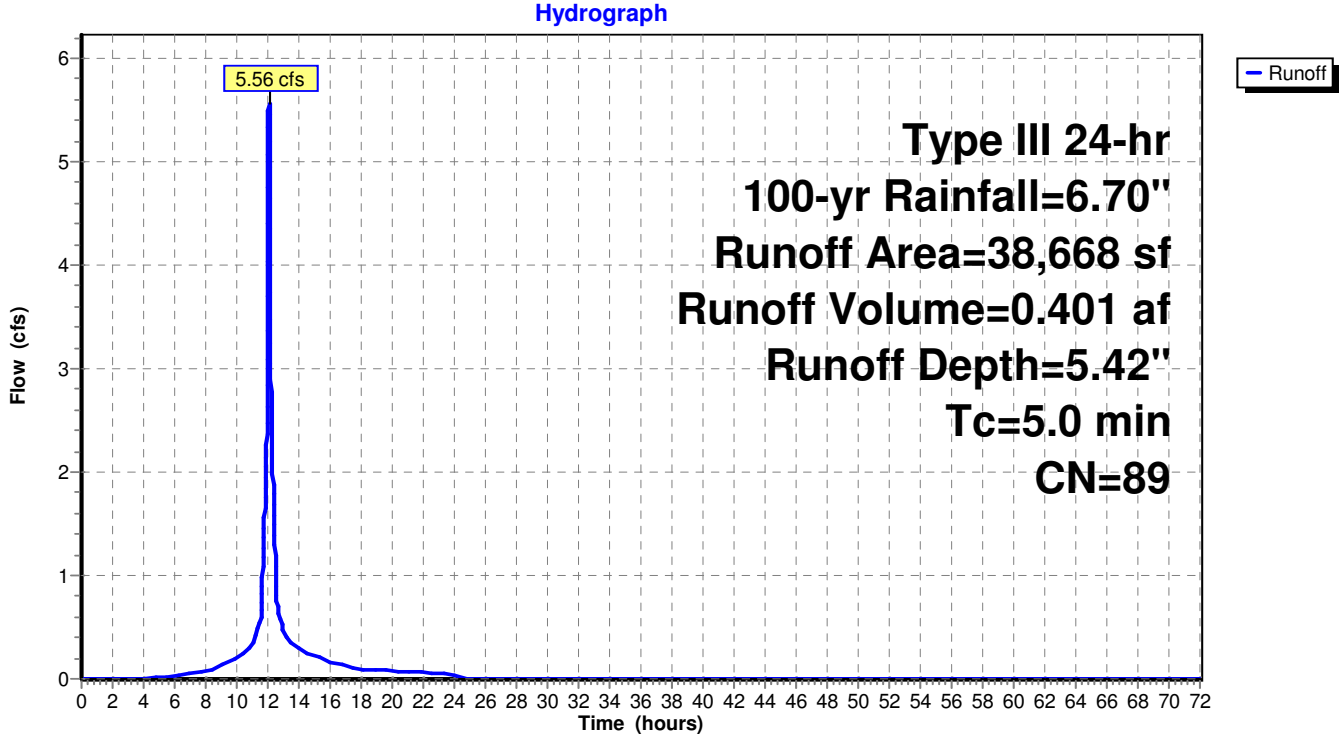
Runoff = 5.56 cfs @ 12.07 hrs, Volume= 0.401 af, Depth= 5.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
15,724	98	Paved parking, HSG B
13,666	98	Roofs, HSG B
9,278	61	>75% Grass cover, Good, HSG B
38,668	89	Weighted Average
9,278		23.99% Pervious Area
29,390		76.01% Impervious Area

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

Subcatchment 1eS: 1eS



Summary for Subcatchment 1S: 1S

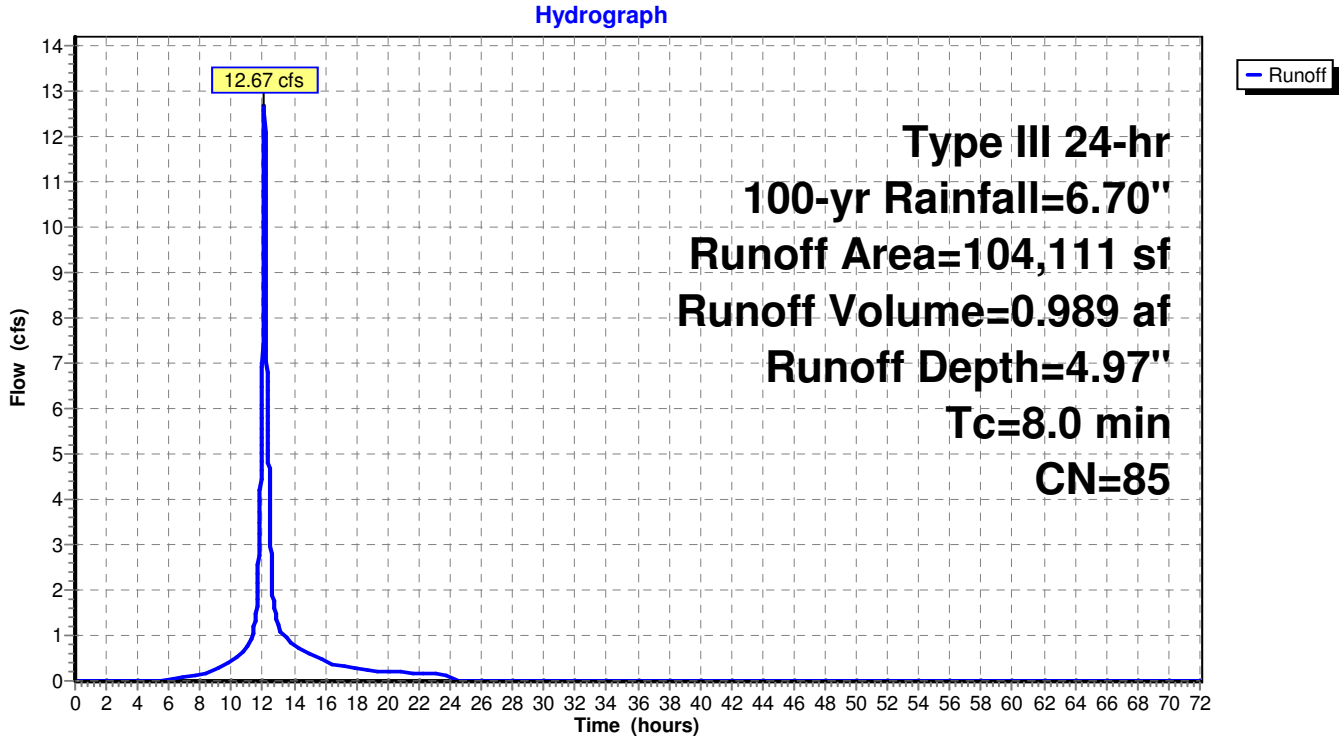
Runoff = 12.67 cfs @ 12.11 hrs, Volume= 0.989 af, Depth= 4.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

	Area (sf)	CN	Description
*	39,719	98	Paved parking, HSG B
*	27,065	98	Roofs, HSG B
	35,819	61	>75% Grass cover, Good, HSG B
	1,508	55	Woods, Good, HSG B
	104,111	85	Weighted Average
	37,327		35.85% Pervious Area
	66,784		64.15% Impervious Area

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

Subcatchment 1S: 1S



Summary for Subcatchment 2S: 2S

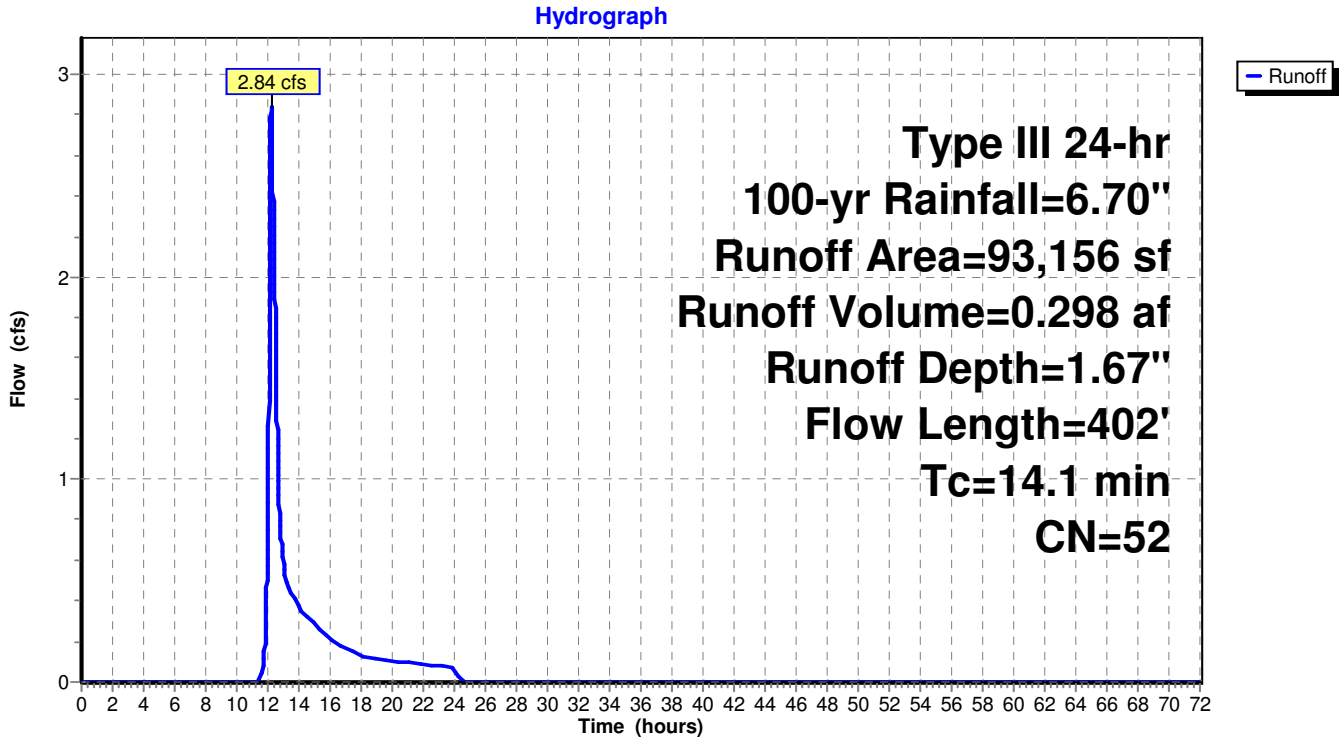
Runoff = 2.84 cfs @ 12.22 hrs, Volume= 0.298 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
5,188	98	Roofs, HSG A
30,371	39	>75% Grass cover, Good, HSG A
18,390	30	Woods, Good, HSG A
18,947	55	Woods, Good, HSG B
12,390	61	>75% Grass cover, Good, HSG B
7,870	98	Roofs, HSG B
93,156	52	Weighted Average
80,098		85.98% Pervious Area
13,058		14.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0250	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.3	194	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.3	158	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.1	402	Total			

Subcatchment 2S: 2S



Summary for Subcatchment 3aS: 3S off site

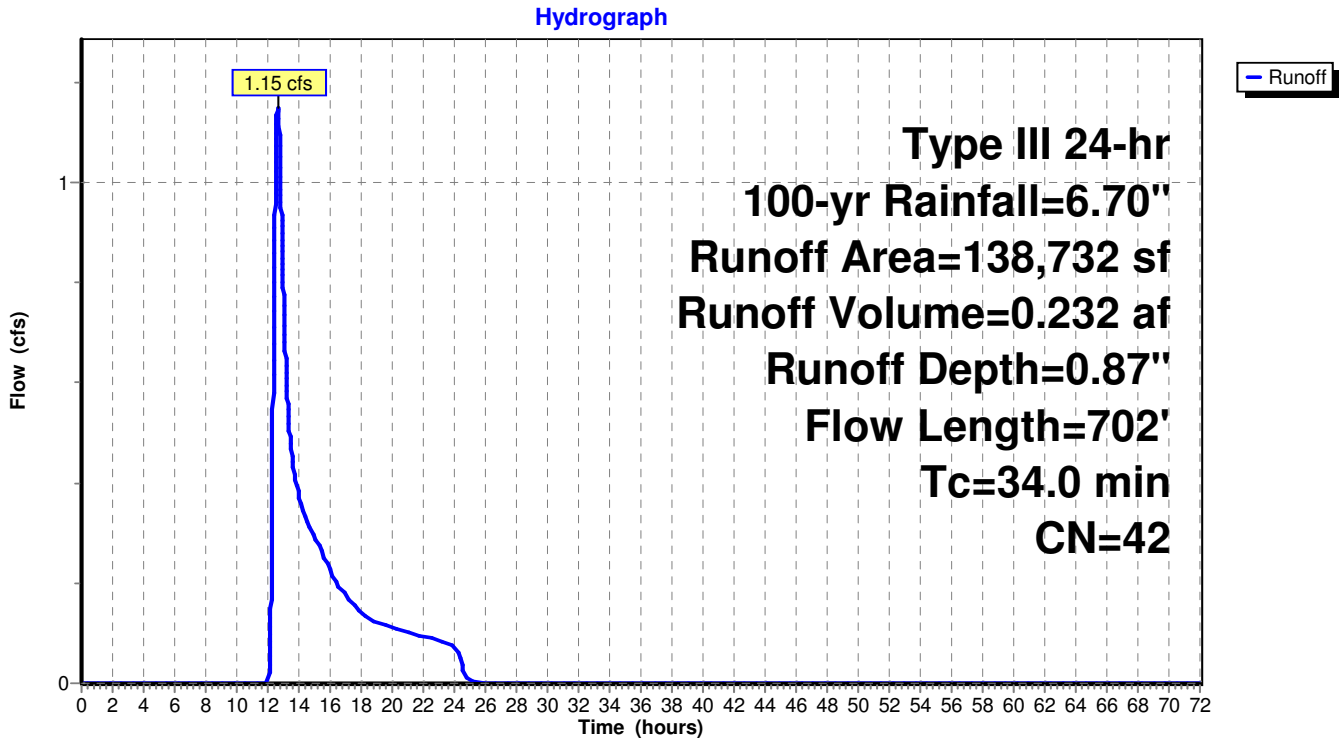
Runoff = 1.15 cfs @ 12.65 hrs, Volume= 0.232 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
7,998	98	Roofs, HSG A
13,323	39	>75% Grass cover, Good, HSG A
7,763	98	Roofs, HSG A
21,261	39	>75% Grass cover, Good, HSG A
76,682	30	Woods, Good, HSG A
4,144	55	Woods, Good, HSG B
7,561	61	>75% Grass cover, Good, HSG B
138,732	42	Weighted Average
122,971		88.64% Pervious Area
15,761		11.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
21.7	652	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
34.0	702	Total			

Subcatchment 3aS: 3S off site



Summary for Subcatchment 3bS: 3bS

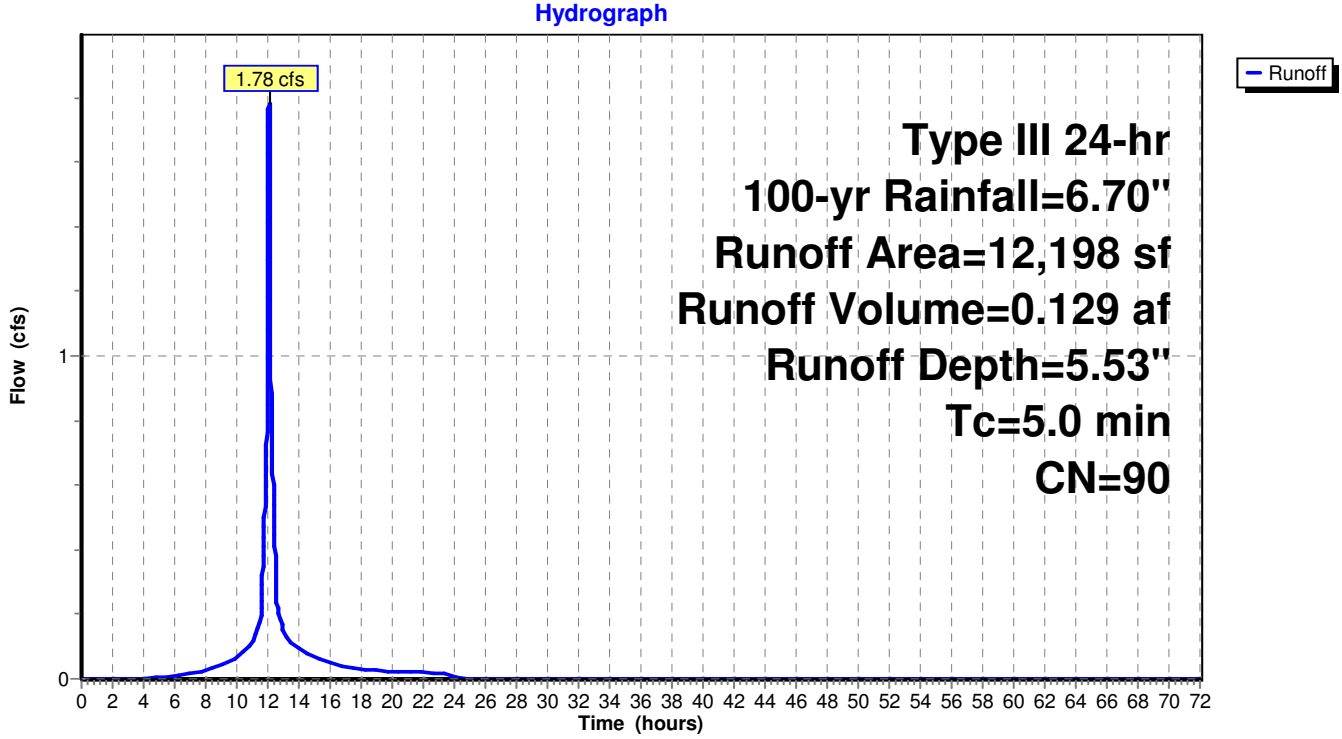
Runoff = 1.78 cfs @ 12.07 hrs, Volume= 0.129 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
4,827	98	Roofs, HSG B
4,787	98	Paved parking, HSG B
2,584	61	>75% Grass cover, Good, HSG B
12,198	90	Weighted Average
2,584		21.18% Pervious Area
9,614		78.82% Impervious Area

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

Subcatchment 3bS: 3bS



Summary for Subcatchment 3S: 3S

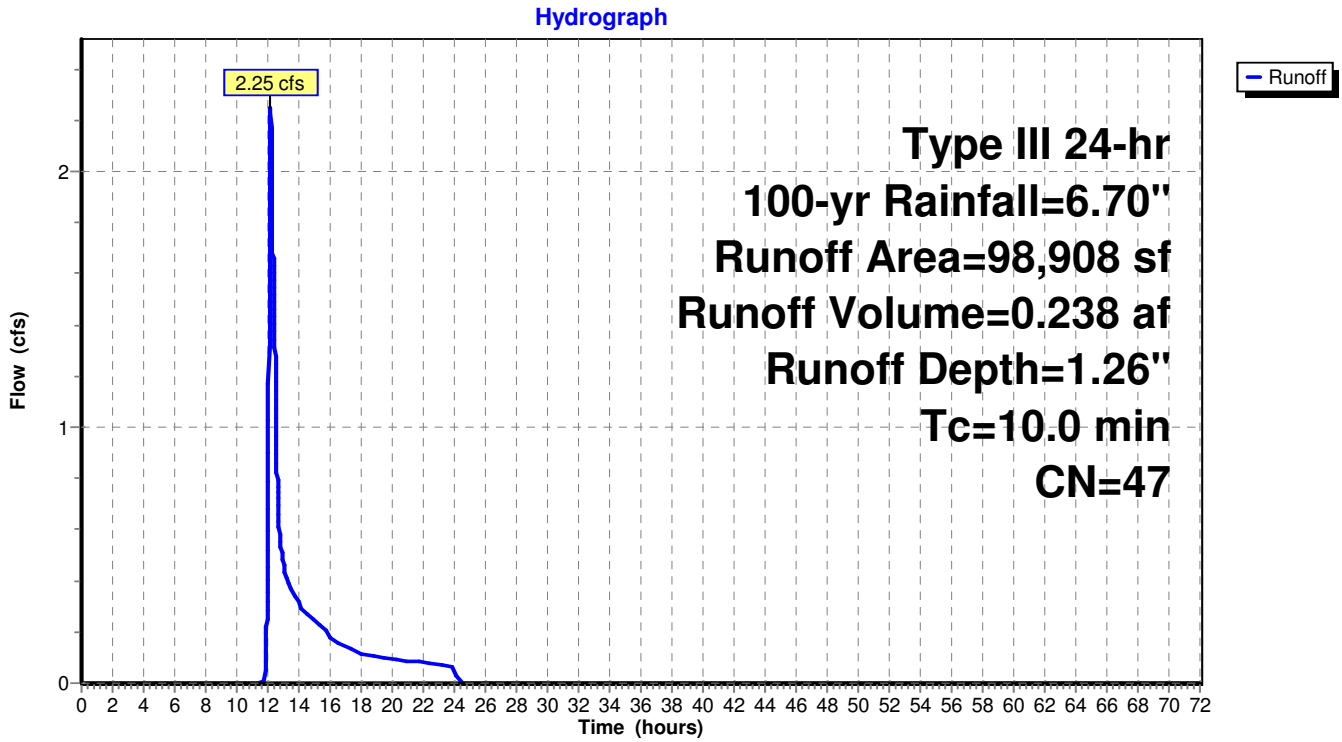
Runoff = 2.25 cfs @ 12.17 hrs, Volume= 0.238 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
4,948	98	Roofs, HSG A
23,819	39	>75% Grass cover, Good, HSG A
6,947	98	Roofs, HSG B
14,369	61	>75% Grass cover, Good, HSG B
39,277	30	Woods, Good, HSG A
9,548	55	Woods, Good, HSG B
98,908	47	Weighted Average
87,013		87.97% Pervious Area
11,895		12.03% Impervious Area

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

Subcatchment 3S: 3S



Summary for Subcatchment 4S: 4S

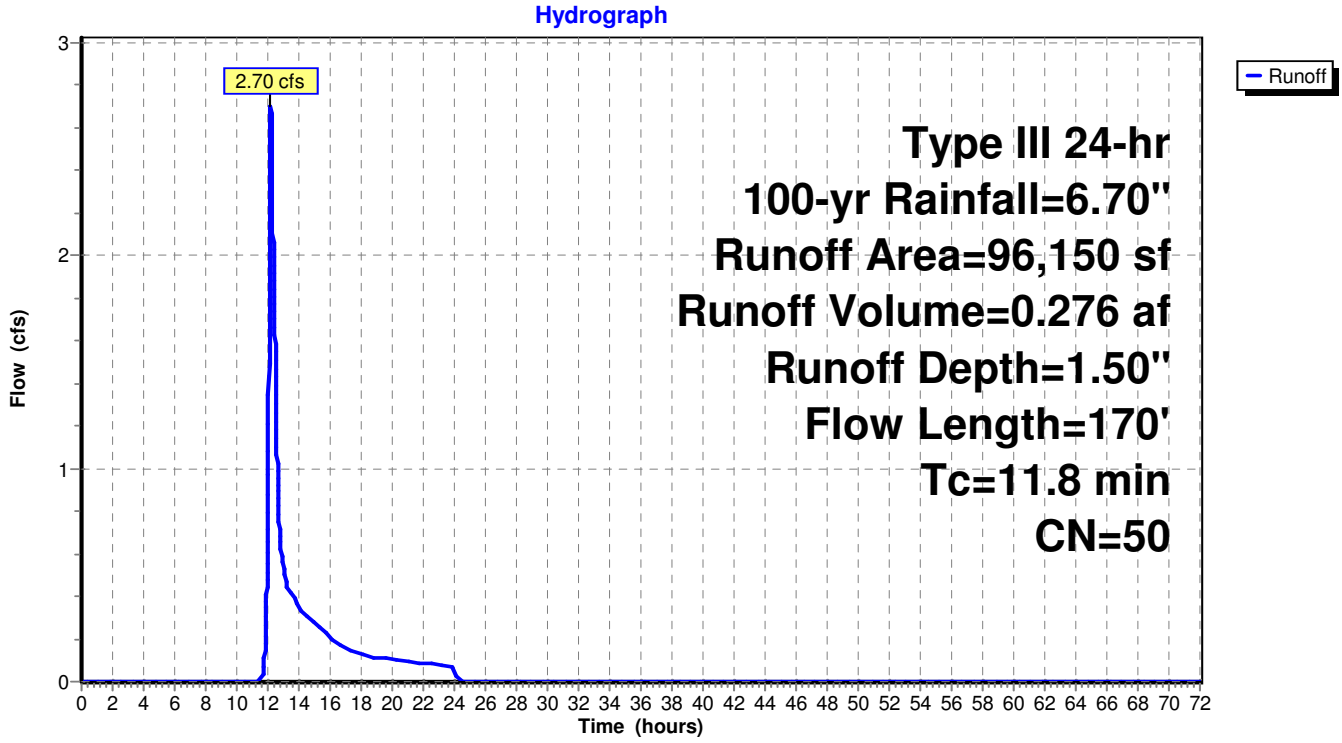
Runoff = 2.70 cfs @ 12.18 hrs, Volume= 0.276 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=6.70"

Area (sf)	CN	Description
5,936	98	Roofs, HSG A
46,782	39	>75% Grass cover, Good, HSG A
11,938	30	Woods, Good, HSG A
5,319	98	Roofs, HSG B
16,063	61	>75% Grass cover, Good, HSG B
10,112	55	Woods, Good, HSG B
96,150	50	Weighted Average
84,895		88.29% Pervious Area
11,255		11.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
3.6	120	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.8	170	Total			

Subcatchment 4S: 4S



Summary for Pond 1A: 1a (Off Site Natural Depression)

Inflow Area = 0.564 ac, 9.81% Impervious, Inflow Depth = 0.73" for 100-yr event
Inflow = 0.20 cfs @ 12.38 hrs, Volume= 0.034 af
Outflow = 0.10 cfs @ 12.76 hrs, Volume= 0.034 af, Atten= 50%, Lag= 22.9 min
Discarded = 0.10 cfs @ 12.76 hrs, Volume= 0.034 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.11' @ 12.76 hrs Surf.Area= 1,736 sf Storage= 159 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 8.4 min (947.1 - 938.7)

Volume	Invert	Avail.Storage	Storage Description
#1	105.00'	1,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

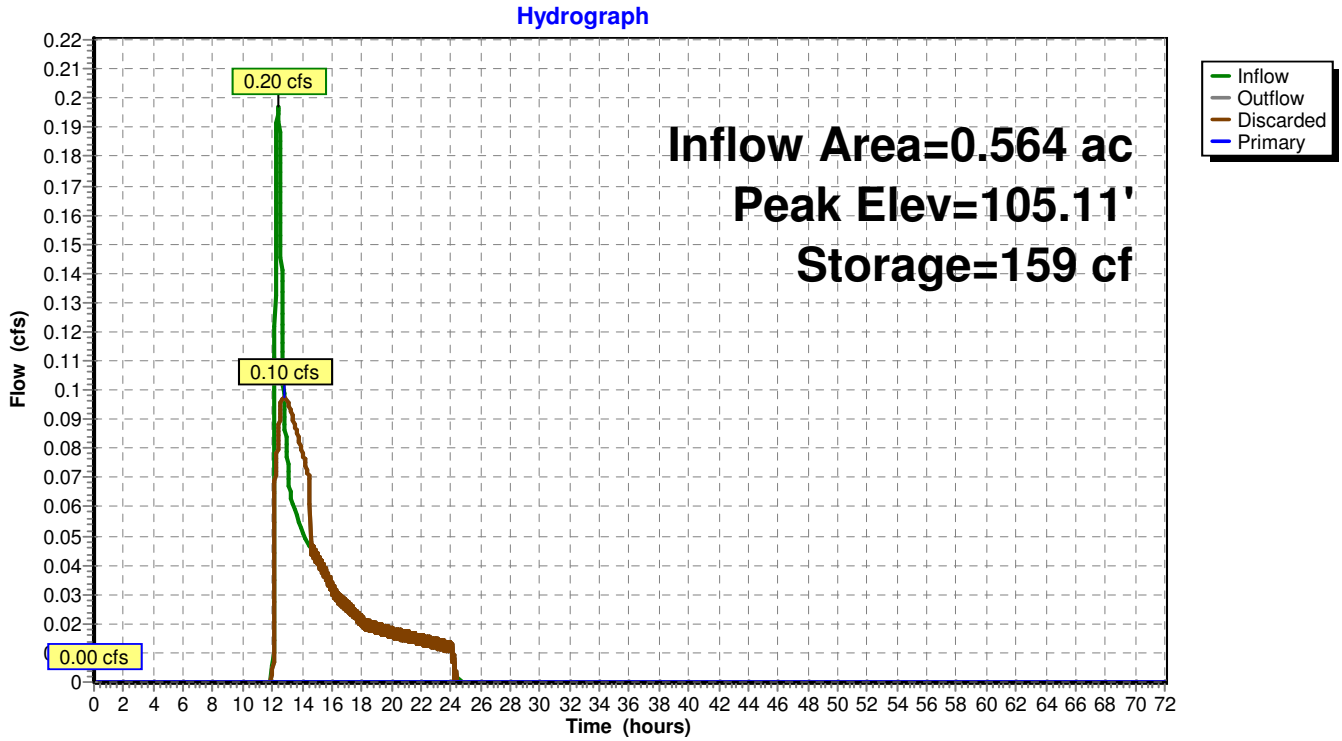
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
105.00	1,231	0	0
105.50	3,587	1,205	1,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	105.22'	**20.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.10 cfs @ 12.76 hrs HW=105.11' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=105.00' TW=100.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A: 1a (Off Site Natural Depression)



Summary for Pond 1B: 1b (Central Nat. Depression & Infiltration Basin)

Inflow Area = 5.870 ac, 24.07% Impervious, Inflow Depth = 1.97" for 100-yr event
Inflow = 9.25 cfs @ 12.10 hrs, Volume= 0.965 af
Outflow = 1.42 cfs @ 13.62 hrs, Volume= 0.966 af, Atten= 85%, Lag= 91.0 min
Discarded = 0.78 cfs @ 13.15 hrs, Volume= 0.797 af
Primary = 0.64 cfs @ 13.64 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.67' @ 13.15 hrs Surf.Area= 10,712 sf Storage= 17,918 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 215.7 min (1,046.5 - 830.8)

Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	33,502 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

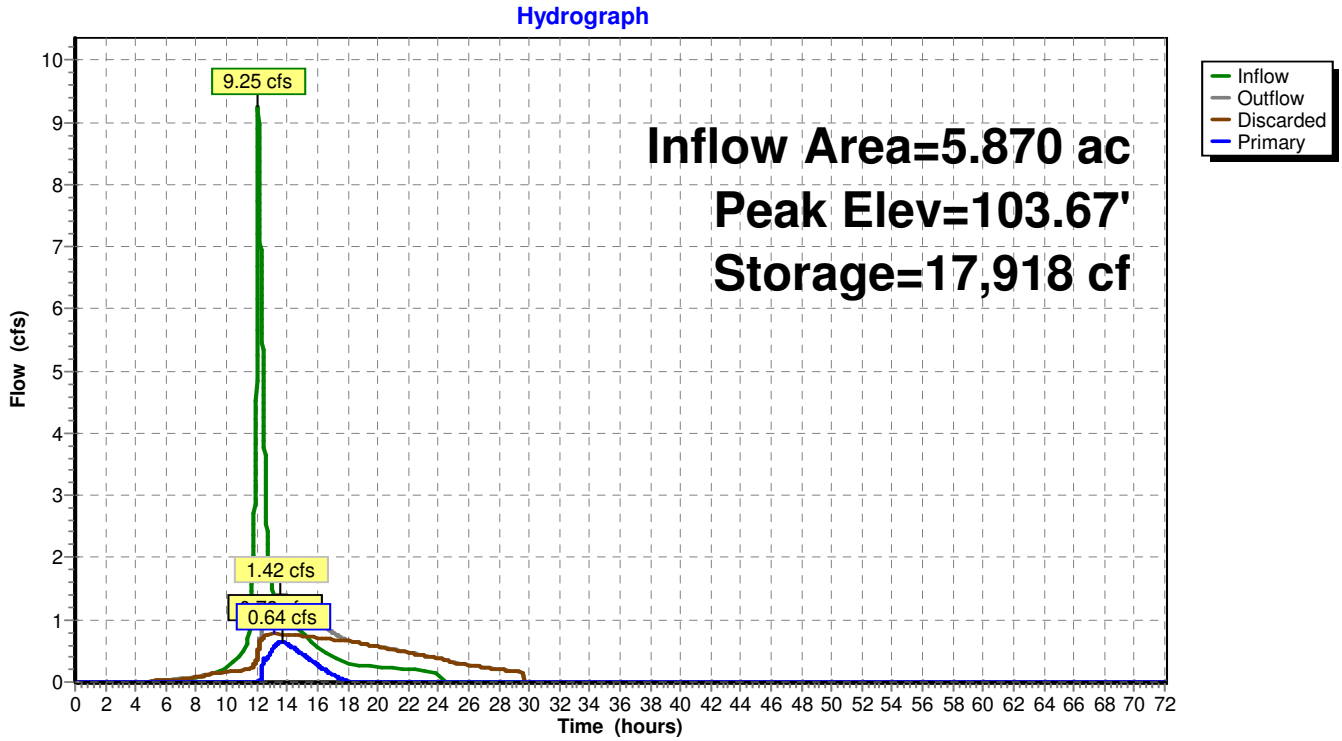
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	2,755	0	0
102.00	4,827	3,791	3,791
103.00	9,677	7,252	11,043
104.00	11,211	10,444	21,487
105.00	12,819	12,015	33,502

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Primary	101.96'	**12.0" Round Culvert** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.96' / 101.67' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	103.00'	**0.5' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 2.0' Crest Height

Discarded OutFlow Max=0.78 cfs @ 13.15 hrs HW=103.67' (Free Discharge)
└**1=Exfiltration** (Controls 0.78 cfs)

Primary OutFlow Max=0.65 cfs @ 13.64 hrs HW=103.65' TW=103.13' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.65 cfs of 2.72 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.65 cfs @ 2.69 fps)

Pond 1B: 1b (Central Nat. Depression & Infiltration Basin)



Summary for Pond 1C: 1cP (Natural Depression)

Inflow Area = 0.544 ac, 12.27% Impervious, Inflow Depth = 2.39" for 100-yr event
Inflow = 1.53 cfs @ 12.08 hrs, Volume= 0.108 af
Outflow = 0.15 cfs @ 13.27 hrs, Volume= 0.108 af, Atten= 90%, Lag= 71.2 min
Discarded = 0.15 cfs @ 13.27 hrs, Volume= 0.108 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 102.36' @ 13.27 hrs Surf.Area= 2,313 sf Storage= 1,920 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 159.3 min (1,014.4 - 855.1)

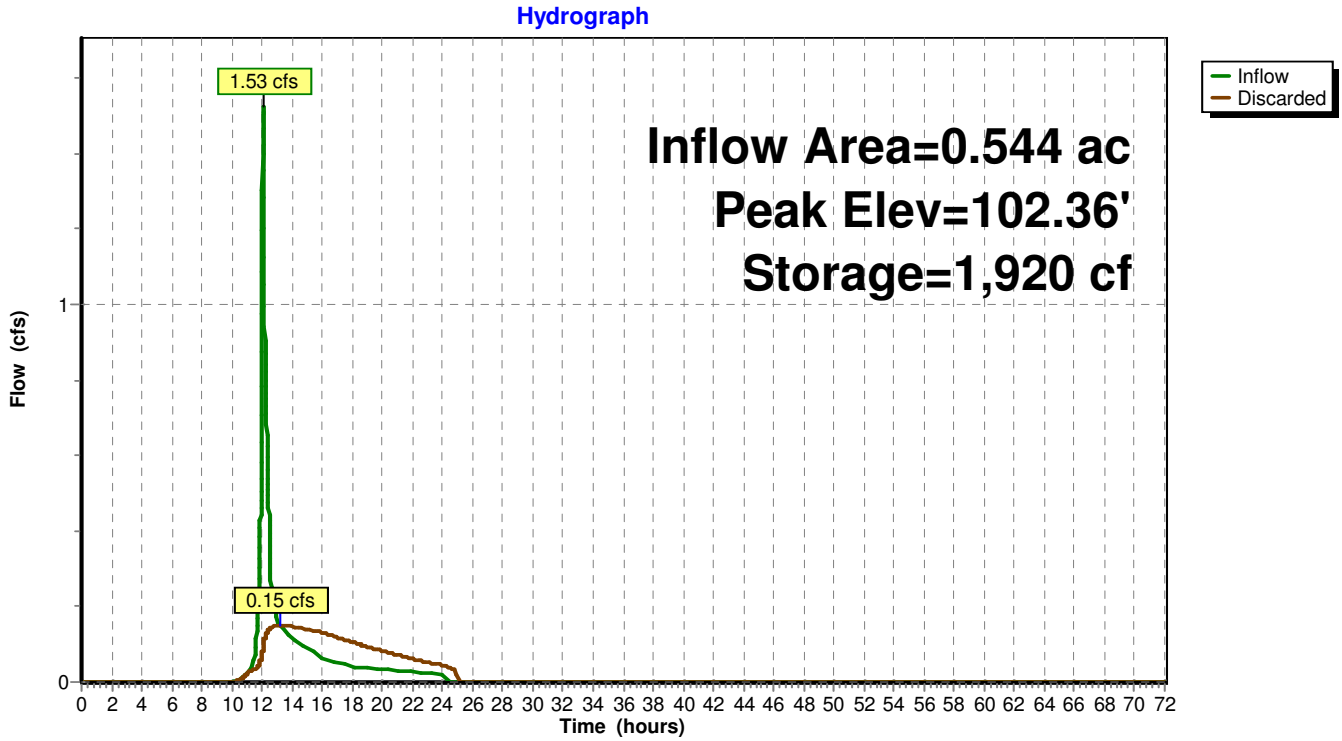
Volume	Invert	Avail.Storage	Storage Description
#1	101.00'	13,188 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.00	550	0	0
102.00	1,807	1,179	1,179
103.00	3,213	2,510	3,689
104.00	4,741	3,977	7,666
105.00	6,304	5,523	13,188

Device	Routing	Invert	Outlet Devices
#1	Discarded	101.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'

Discarded OutFlow Max=0.15 cfs @ 13.27 hrs HW=102.36' (Free Discharge)
↑**1=Exfiltration** (Controls 0.15 cfs)

Pond 1C: 1cP (Natural Depression)



Summary for Pond 3A: 3a (Trench Drain)

Inflow Area = 3.185 ac, 11.36% Impervious, Inflow Depth = 0.87" for 100-yr event
Inflow = 1.15 cfs @ 12.65 hrs, Volume= 0.232 af
Outflow = 0.47 cfs @ 13.51 hrs, Volume= 0.232 af, Atten= 59%, Lag= 51.4 min
Discarded = 0.28 cfs @ 13.51 hrs, Volume= 0.210 af
Secondary = 0.18 cfs @ 13.51 hrs, Volume= 0.022 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 107.96' @ 13.51 hrs Surf.Area= 7,876 sf Storage= 2,574 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 177.8 min (1,122.6 - 944.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	104.50'	1,080 cf	**8.17'W x 180.44'L x 2.33'H Field A** 3,438 cf Overall - 739 cf Embedded = 2,699 cf x 40.0% Voids
#2A	105.00'	739 cf	**ADS_StormTech SC-310** x 50 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 2 rows
#3	106.33'	38 cf	**4.00'D x 1.50'H Vertical Cone/Cylinder** x 2
#4	107.83'	1,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		2,856 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.83	4,883	0	0
108.00	6,878	1,000	1,000

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Secondary	107.90'	**5.0' long x 50.0' 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

Discarded OutFlow Max=0.28 cfs @ 13.51 hrs HW=107.96' (Free Discharge)
1=Exfiltration (Controls 0.28 cfs)

Secondary OutFlow Max=0.18 cfs @ 13.51 hrs HW=107.96' TW=104.66' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.18 cfs @ 0.64 fps)

Pond 3A: 3a (Trench Drain) - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 (ADS StormTech® SC-310)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 2.07 sf x 2 rows

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

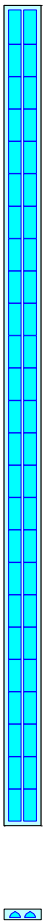
25 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 178.44' Row Length +12.0" End Stone x 2 = 180.44' Base Length
2 Rows x 34.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.17' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

50 Chambers x 14.7 cf +0.44' Row Adjustment x 2.07 sf x 2 Rows = 738.9 cf Chamber Storage

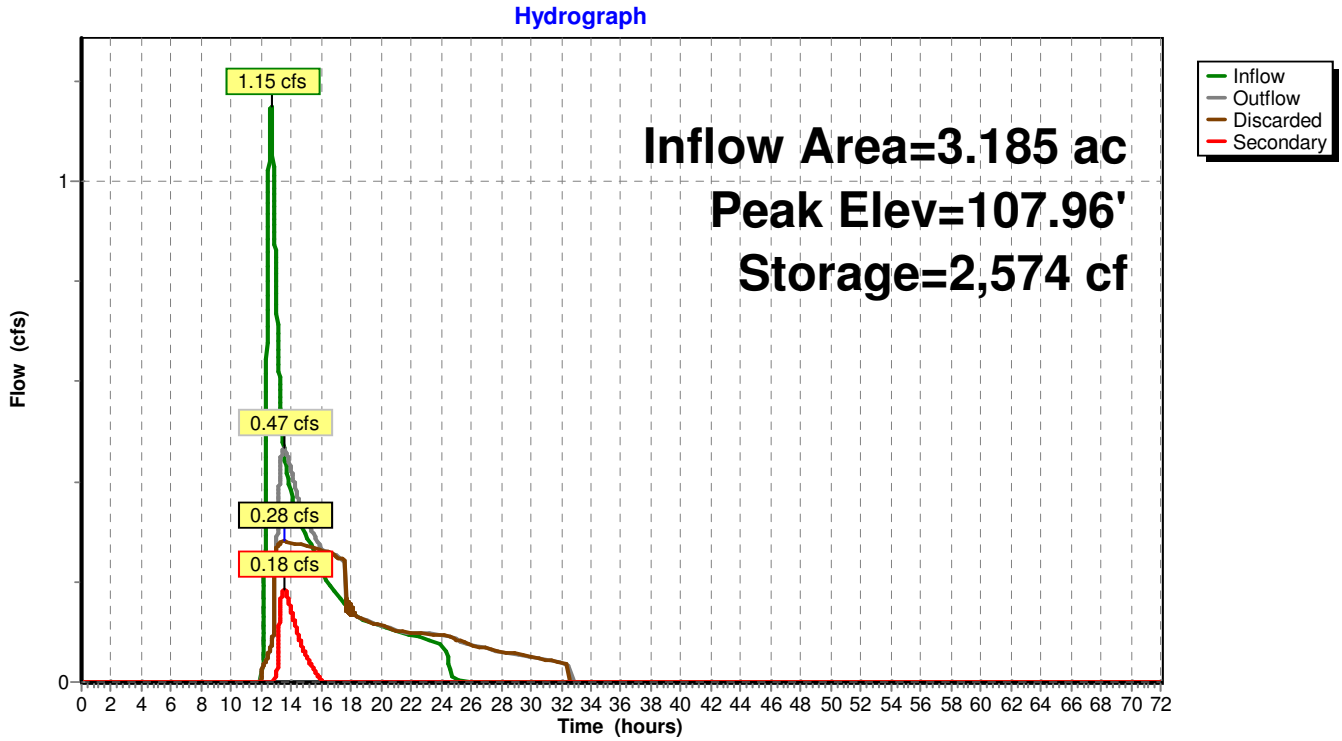
3,438.4 cf Field - 738.9 cf Chambers = 2,699.4 cf Stone x 40.0% Voids = 1,079.8 cf Stone Storage

Chamber Storage + Stone Storage = 1,818.7 cf = 0.042 af
Overall Storage Efficiency = 52.9%

50 Chambers
127.3 cy Field
100.0 cy Stone



Pond 3A: 3a (Trench Drain)



Summary for Pond 3B: 3b (Sub. Infil. Chambers)

Inflow Area = 0.280 ac, 78.82% Impervious, Inflow Depth = 5.53" for 100-yr event
Inflow = 1.78 cfs @ 12.07 hrs, Volume= 0.129 af
Outflow = 1.44 cfs @ 12.13 hrs, Volume= 0.129 af, Atten= 19%, Lag= 3.3 min
Discarded = 0.06 cfs @ 12.13 hrs, Volume= 0.065 af
Primary = 1.38 cfs @ 12.13 hrs, Volume= 0.064 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 106.92' @ 12.13 hrs Surf.Area= 1,441 sf Storage= 1,246 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 82.2 min (862.5 - 780.3)

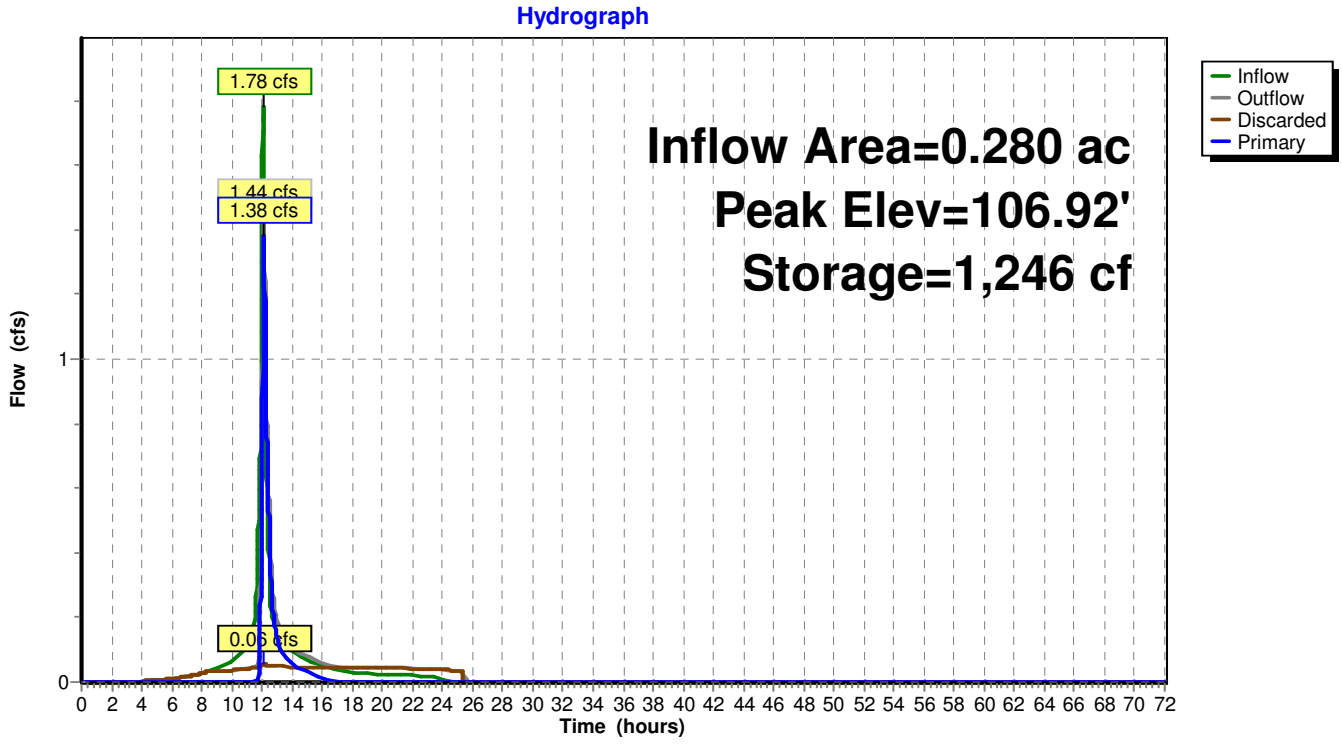
Volume	Invert	Avail.Storage	Storage Description
#1	105.50'	1,022 cf	**21.50'W x 67.00'L x 2.33'H Prismatoid** 3,356 cf Overall - 802 cf Embedded = 2,555 cf x 40.0% Voids
#2	106.00'	802 cf	**StormTech SC-310** x 54 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,823 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	105.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	106.30'	**12.0" Round Culvert** L= 34.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 106.30' / 105.28' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 12.13 hrs HW=106.92' (Free Discharge)
1=Exfiltration (Controls 0.06 cfs)

Primary OutFlow Max=1.38 cfs @ 12.13 hrs HW=106.92' TW=101.55' (Dynamic Tailwater)
2=Culvert (Inlet Controls 1.38 cfs @ 2.69 fps)

Pond 3B: 3b (Sub. Infil. Chambers)



Summary for Pond DP1: DP1 (Sub. Infil. Chambers)

Inflow Area = 11.374 ac, 30.73% Impervious, Inflow Depth = 1.42" for 100-yr event
Inflow = 14.04 cfs @ 12.11 hrs, Volume= 1.341 af
Outflow = 2.58 cfs @ 12.78 hrs, Volume= 1.341 af, Atten= 82%, Lag= 40.1 min
Discarded = 2.58 cfs @ 12.78 hrs, Volume= 1.341 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.49' @ 12.78 hrs Surf.Area= 7,191 sf Storage= 15,588 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 59.3 min (875.2 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	5,335 cf	**49.00'W x 123.48'L x 3.50'H Field A** 21,177 cf Overall - 7,838 cf Embedded = 13,339 cf x 40.0% Voids
#2A	100.50'	7,838 cf	**ADS_StormTech SC-740** x 170 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 10 rows
#3B	100.00'	1,039 cf	**25.25'W x 45.16'L x 3.50'H Field B** 3,991 cf Overall - 1,392 cf Embedded = 2,599 cf x 40.0% Voids
#4B	100.50'	1,392 cf	**ADS_StormTech SC-740** x 30 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
		15,605 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'

Discarded OutFlow Max=2.58 cfs @ 12.78 hrs HW=103.49' (Free Discharge)
↑—**1=Exfiltration** (Controls 2.58 cfs)

Pond DP1: DP1 (Sub. Infil. Chambers) - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.45 sf x 10 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

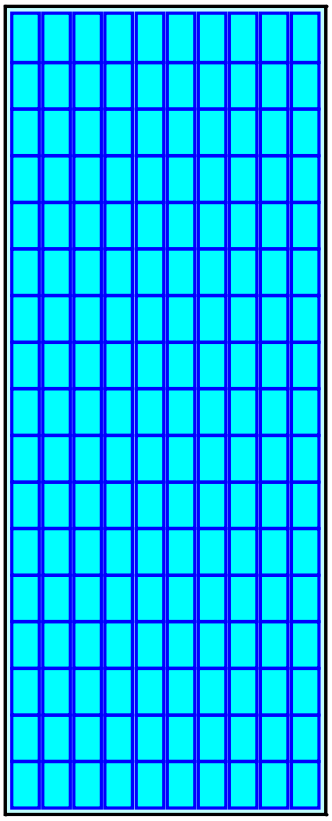
17 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 121.48' Row Length +12.0" End Stone x 2 = 123.48' Base Length
10 Rows x 51.0" Wide + 6.0" Spacing x 9 + 12.0" Side Stone x 2 = 49.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

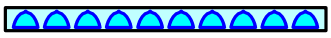
170 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 10 Rows = 7,838.2 cf Chamber Storage

21,176.8 cf Field - 7,838.2 cf Chambers = 13,338.6 cf Stone x 40.0% Voids = 5,335.5 cf Stone Storage

Chamber Storage + Stone Storage = 13,173.6 cf = 0.302 af
Overall Storage Efficiency = 62.2%

170 Chambers
784.3 cy Field
494.0 cy Stone





Pond DP1: DP1 (Sub. Infil. Chambers) - Chamber Wizard Field B

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.45 sf x 5 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

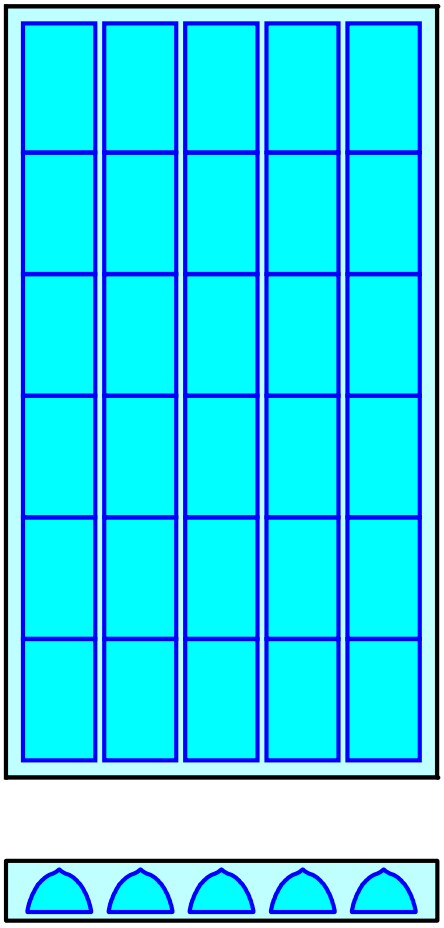
6 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 43.16' Row Length +12.0" End Stone x 2 = 45.16' Base Length
5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 25.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

30 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 5 Rows = 1,392.4 cf Chamber Storage

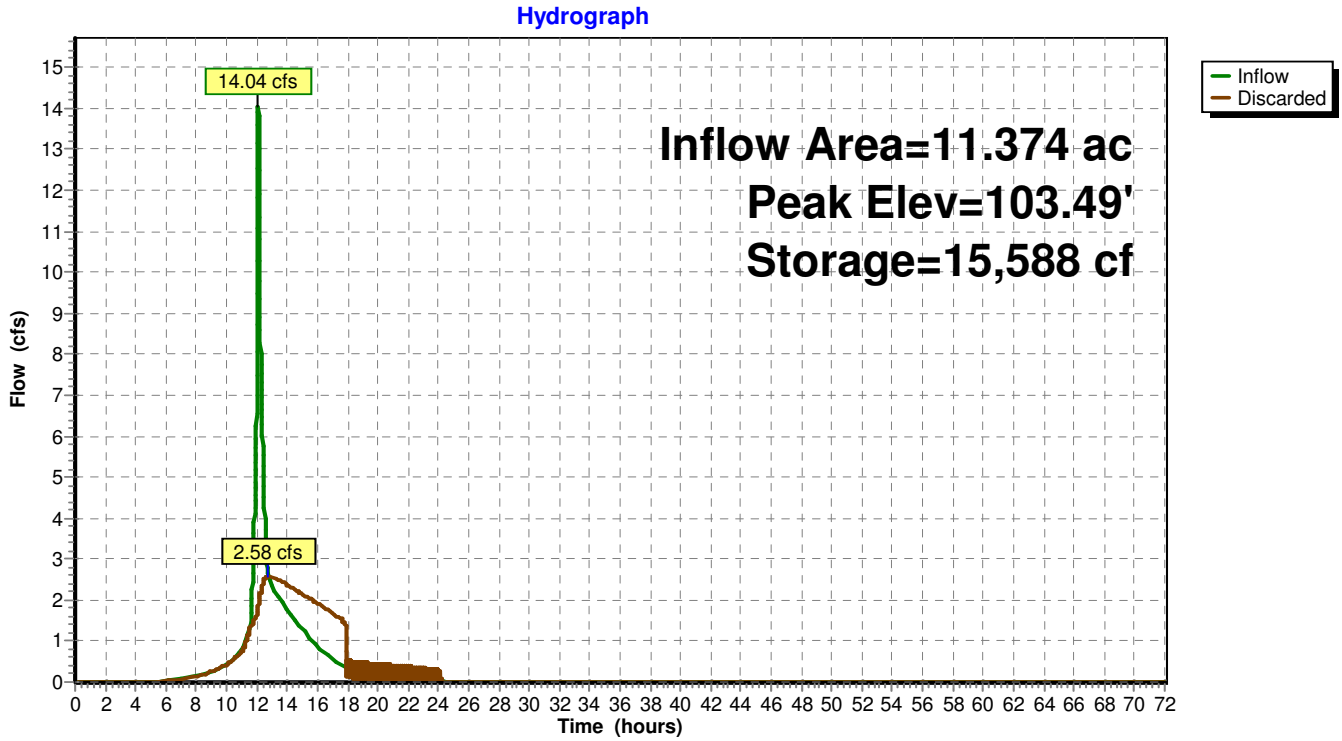
3,991.0 cf Field - 1,392.4 cf Chambers = 2,598.6 cf Stone x 40.0% Voids = 1,039.4 cf Stone Storage

Chamber Storage + Stone Storage = 2,431.8 cf = 0.056 af
Overall Storage Efficiency = 60.9%

30 Chambers
147.8 cy Field
96.2 cy Stone



Pond DP1: DP1 (Sub. Infil. Chambers)



Summary for Pond DP2: DP2 (SW - Natural Depression)

Inflow Area = 2.139 ac, 14.02% Impervious, Inflow Depth = 1.67" for 100-yr event
Inflow = 2.84 cfs @ 12.22 hrs, Volume= 0.298 af
Outflow = 0.32 cfs @ 14.53 hrs, Volume= 0.298 af, Atten= 89%, Lag= 138.8 min
Discarded = 0.32 cfs @ 14.53 hrs, Volume= 0.298 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 103.43' @ 14.53 hrs Surf.Area= 4,782 sf Storage= 5,603 cf

Plug-Flow detention time= 244.5 min calculated for 0.298 af (100% of inflow)
Center-of-Mass det. time= 244.6 min (1,130.0 - 885.4)

Volume	Invert	Avail.Storage	Storage Description
#1	100.46'	8,665 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

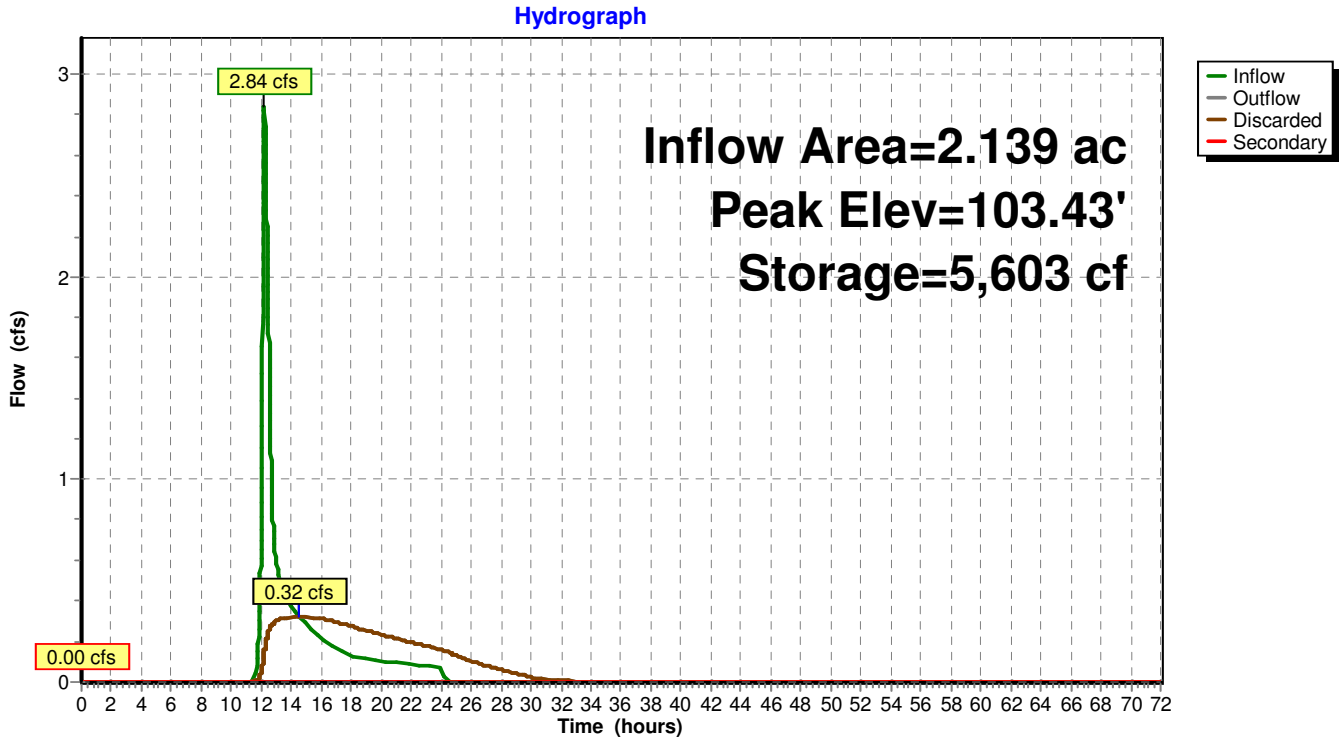
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.46	50	0	0
101.00	261	84	84
102.00	1,671	966	1,050
103.00	3,750	2,711	3,760
103.50	4,945	2,174	5,934
104.00	5,980	2,731	8,665

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.46'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 96.00'
#2	Secondary	103.50'	**13.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.32 cfs @ 14.53 hrs HW=103.43' (Free Discharge)
1=Exfiltration (Controls 0.32 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.46' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DP2: DP2 (SW - Natural Depression)



Summary for Pond DP3: DP3 (NW - Natural Depression)

Inflow Area = 2.271 ac, 12.03% Impervious, Inflow Depth = 1.26" for 100-yr event
Inflow = 2.25 cfs @ 12.17 hrs, Volume= 0.238 af
Outflow = 0.50 cfs @ 12.91 hrs, Volume= 0.238 af, Atten= 78%, Lag= 44.7 min
Discarded = 0.09 cfs @ 12.91 hrs, Volume= 0.118 af
Primary = 0.41 cfs @ 12.91 hrs, Volume= 0.120 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.22' @ 12.91 hrs Surf.Area= 4,700 sf Storage= 3,197 cf

Plug-Flow detention time= 222.9 min calculated for 0.238 af (100% of inflow)
Center-of-Mass det. time= 223.0 min (1,122.1 - 899.1)

Volume	Invert	Avail.Storage	Storage Description
#1	104.30'	6,303 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

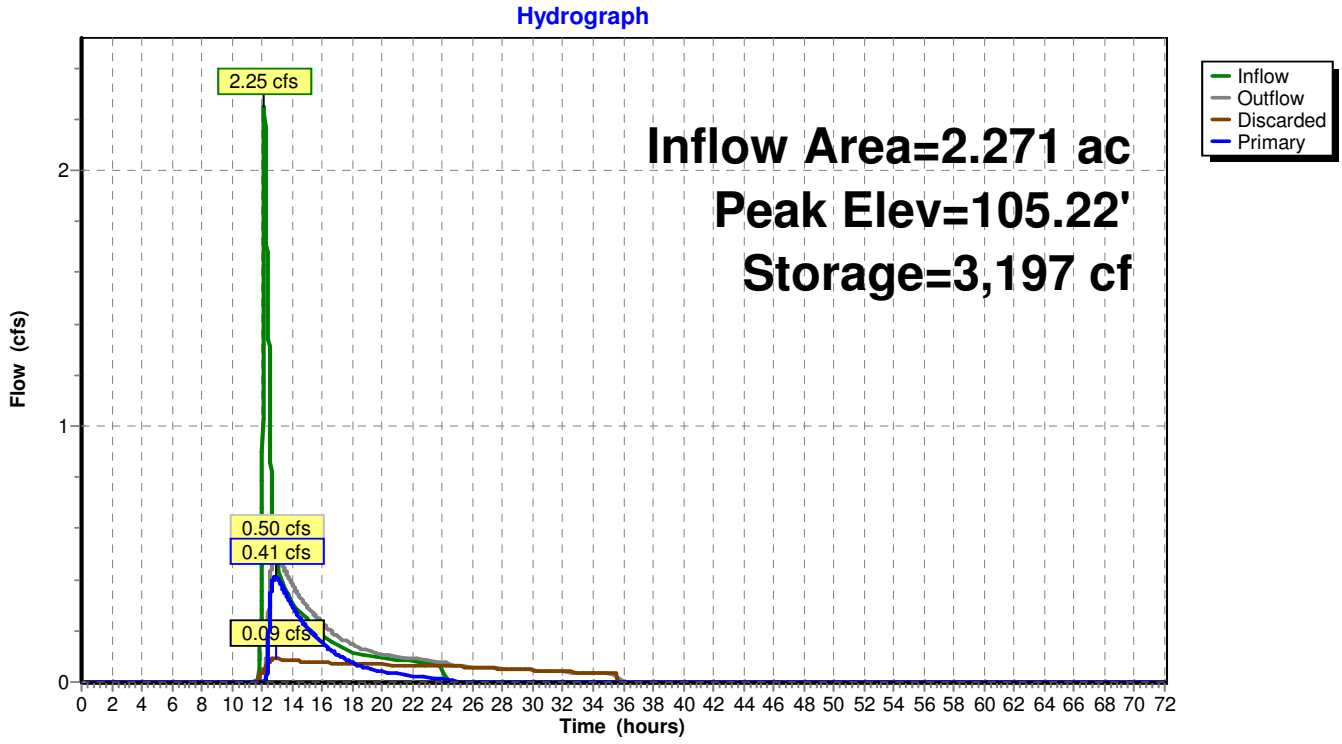
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.30	2,653	0	0
105.00	3,806	2,261	2,261
105.50	5,835	2,410	4,671
105.75	7,220	1,632	6,303

Device	Routing	Invert	Outlet Devices
#1	Discarded	104.30'	**0.520 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 103.20'
#2	Primary	104.85'	**12.0" Round Culvert** L= 122.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.85' / 104.24' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.09 cfs @ 12.91 hrs HW=105.22' (Free Discharge)
1=Exfiltration (Controls 0.09 cfs)

Primary OutFlow Max=0.41 cfs @ 12.91 hrs HW=105.22' TW=103.48' (Dynamic Tailwater)
2=Culvert (Barrel Controls 0.41 cfs @ 2.32 fps)

Pond DP3: DP3 (NW - Natural Depression)



Summary for Pond DP4: DP4 (North - Natural Depression)

Inflow Area = 2.207 ac, 11.71% Impervious, Inflow Depth = 1.62" for 100-yr event
Inflow = 2.70 cfs @ 12.18 hrs, Volume= 0.298 af
Outflow = 0.46 cfs @ 14.12 hrs, Volume= 0.298 af, Atten= 83%, Lag= 116.0 min
Discarded = 0.32 cfs @ 14.12 hrs, Volume= 0.263 af
Primary = 0.14 cfs @ 14.12 hrs, Volume= 0.035 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 104.67' @ 14.12 hrs Surf.Area= 9,795 sf Storage= 4,778 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 172.7 min (1,059.0 - 886.3)

Volume	Invert	Avail.Storage	Storage Description
#1	103.83'	15,451 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
103.83	2,056	0	0
104.00	3,071	436	436
105.00	13,033	8,052	8,488
105.50	14,818	6,963	15,451

Device	Routing	Invert	Outlet Devices
#1	Discarded	103.83'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 102.80'
#2	Primary	104.45'	**12.0" Round Culvert** L= 86.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 104.45' / 104.10' S= 0.0041 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.32 cfs @ 14.12 hrs HW=104.67' (Free Discharge)
1=Exfiltration (Controls 0.32 cfs)

Primary OutFlow Max=0.14 cfs @ 14.12 hrs HW=104.67' TW=103.60' (Dynamic Tailwater)
2=Culvert (Barrel Controls 0.14 cfs @ 1.60 fps)

Pond DP4: DP4 (North - Natural Depression)