

April 24, 2024

Project # RAM-2201

**STORMWATER MANAGEMENT REPORT
FOR
REYNOLDS ASSET MANAGEMENT**

**BLOCK 3801, LOTS 2 & 3
LAWRENCE TOWNSHIP, MERCER COUNTY, NEW JERSEY**

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I. INTRODUCTION

A. Project Description & Location

The proposed project outlined in this report involves the construction of a Mixed use Residential and Commercial complex, proposed internal roadways, associated passenger car parking, stormwater management measures and utility infrastructure. The stormwater management basin proposed in this application is sized to accommodate flows from the developed area during the 2, 10 and 100-year storms. The subject property is Block 3801, Lots 2 & 3; a 8.57-acre parcel fronting on Princeton Turnpike in Lawrence Township, Mercer County.

The project has been designed to collect stormwater runoff from within the project's limit of disturbance and convey the runoff via roof leaders, storm sewers and surface runoff to either a small scale bioretention basins that are sized to accommodate flows from the developed area during the 2, 10 and 100-year storms or porous pavement. The project has been designed to meet the state and local stormwater runoff quantity and stormwater runoff quality standards while complying with the green infrastructure rules. Detailed further below, the site's soil conditions are not conducive of groundwater recharge. The stormwater runoff design of conveyance, retention and discharge have been designed to meet the applicable soil erosion and sediment control standards to prevent erosion onsite and downstream of natural drainage patterns.

B. Existing Conditions

The project site fronts along Princeton Turnpike to the southeast and is surrounded by adjacent office complex's to the northwest. Generally speaking, the project slopes from north to south, ranging in elevation from a high of 77 ft along the northern property line to a low of 66 ft at the southeast corner. Soils onsite within the project area consist of Othello Silt Loams (OthA) which is categorized as Hydrologic Soil Group 'C/D'.

II. METHODOLOGY AND SOFTWARE

In accordance with the NJDEP rules regarding stormwater management, N.J.A.C. 7:8-1.6, the criteria to handle stormwater for major developments is to design acceptable systems that effectively manage the stormwater with respect to applicable regulations regarding water quality, runoff quantity and groundwater recharge. Each of these requirements was considered in a pre- vs. post-development runoff analysis, conducted in conjunction with an evaluation of site conditions, local ordinance, and proposed construction specifications. This was done to facilitate designing an appropriate stormwater management

system for the proposed site, based on sound engineering principles to maximize water quality and to reduce peak flows offsite per the current NJDEP stormwater regulations adopted July 17, 2023.

Green infrastructure refers to methods of stormwater management that reduce stormwater volume or flow by allowing the water to infiltrate, to be treated by vegetation or by soils; or to be stored for reuse. The use of green infrastructure encourages the idea that stormwater is a resource that can be reused, instead of being treated as a nuisance that needs to be removed quickly as possible. NJDEP green infrastructure requirements are in accordance with N.J.A.C. 7:8-5.3. The criteria of which relate to the BMPs identified in Table 5-1 or Table 5-2 at N.J.A.C. 7:8-5.2(f) and/or an alternative storm water management measure approved in accordance with N.J.A.C. 7:8-5.2(g). The BMPs selected for the project are to receive a maximum contributory drainage area when specified in section 7:8-5.3 of the N.J.A.C.

Accordingly, stormwater management analysis in this report consists of: (1) calculating runoff from the 2, 10 and 100-year storm events for the pre and post-development conditions of each drainage area; (2) comparing the results of the pre-developed and post-developed conditions to ensure that an appropriate stormwater management plan has been implemented; and (3) providing a conclusion of the results of the analysis. The analysis demonstrates that the stormwater runoff will not adversely affect the area as a result of the proposed development of the property. Runoff is analyzed as a total flow at the point of analysis.

The current and projected 2100-year rainfall flows for their respective existing pre- and post-development conditions were calculated using the USDA Natural Resources Conservation Service methodology, as described in Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55), dated June 1986. These modeling techniques are incorporated in the HydroCAD 10.00 software package, which was used to analyze the pre- and post-development flows. All undisturbed areas of the site have been assumed to be in good hydrologic condition, with good cover for the pre-development analysis. Any significant land features and structures that could reduce pre-construction stormwater runoff rates and volumes, including depressions and culverts have been accounted for in the pre-development analysis. The site is not located in the coastal plain region of the state, therefore the SCS TR-20 Hydrograph with NOAA 24-hr storm type, curve C for the 2-, 10-, 100-year storm events and the NJDEP 2-hr 1.25-inch water quality event.

The stormwater management bioretention basins were modeled under two different conditions. One model for the water quality storm event, includes “exfiltration” which represents the infiltration of runoff through the 18” thick basin bottom soil material (see plan detail and BMP for detail). This designed material was modeled with a conductivity of 8 inches/hour where a rate between 1 inch/hour and 20 inch/ hour is allowed. As shown in the model, that runoff is directed to the 6” underdrain and conveyed to their respective basin outlet control structures (see plan detail and BMP for underdrain depth detail). This model was used

to show that each basin empties with 72-hours after the peak storm event. The second model removes the possibility of the exfiltration and all runoff collected during the 2-, 10- and 100-year storm events is discharged via the orifices of their respective outlet control structures. As shown below, the runoff from water quality storm event is contained within less than 1' depth of water and the basins have the capacity to contain the 100-year storm event runoff volume without exfiltration.

The structural stormwater management measures have been designed to take into account the existing site conditions including slopes, depth to seasonally high water table, soil types and permeability. They have also been designed to be strong, durable and corrosion resistant so as to minimize maintenance, facilitate maintenance and repairs and ensure proper functioning within the context of their operational requirements.

III. PRE-DEVELOPMENT CONDITIONS

To determine the pre-development peak runoff rate from the site for 2, 10 and 100-year storms, the entire 8.57-acres project area was analyzed with two existing drainage areas. EA-1, which flows southwest toward the existing small detention basin on lot 6 contains 2.17 acres. EA-2, which flows southeast toward the existing detention basin on lot 2 and contains 6.40 acres. There are a series of drainage inlets that route to the existing basins to the south of and within the project area. These inlets and pipes will be generally maintained in the proposed condition, subject only to replacement as necessary. Runoff from the site will be routed to existing system within Princeton turnpike.

Time of concentration (TC) was calculated using the McCuen-Spiess method. Runoff for the pre-developed site was calculated using the HydroCAD 10.00 software package and is summarized in the table below:

Drainage Area	2-Year Storm (cfs)	10-Year Storm (cfs)	100-Year Storm (cfs)
EA-1	7.65	11.94	20.28
EA-2	7.47	11.44	26.64

Table 1: Pre-Development Flow Summary

Drainage Area	2-Year Storm (cfs)	10-Year Storm (cfs)	100-Year Storm (cfs)
EA-1	8.98	14.16	27.82
EA-2	8.76	13.16	52.29

Table 2: Pre-Development 2100-year Flow Summary

IV. POST-DEVELOPMENT STORMWATER MANAGEMENT SUMMARY

Generally, the project site has been designed to collect stormwater in a series of storm sewer inlets and roof leaders to be conveyed via storm sewer pipes and overland flow to one of several surface bioretention basin to meet stormwater runoff quality and/or quantity standards. The road runoff is collected into one of seven small scale bioretention basins with contributing drainage areas less than 2.50 acres. Conversely, yard area runoff is conveyed overland to yard inlets which combine to roof leaders which both lead to the storm sewers and is conveyed into a large-scale bioretention basin for stormwater runoff quantity standards.

A. **Small Scale Bioretention System - Water Quantity**

To meet water quantity requirements, runoff from 6.85 acres is collected via pervious / porous pavement and ultimately routed to one proposed stormwater management wet Basin at the front of the site. Runoff from 1.72 acres at the north / rear of the site is collected via pervious / porous pavement and various inlets which ultimately follows the existing drainage pattern of discharging into the lot 6 detention basin. Runoff will be collected via overland flow, building downspouts, roof leaders and a conventional piped stormwater collection system. Time of concentration (TC) was calculated using the McCuen-Spiess method in the post-development condition. The proposed motor vehicle surfaces are first conveyed to various areas of pervious/porous pavement, which are discussed further in a subsequent section. Those in the northern portion of the site are then conveyed into the lot 6 detention basin. Those in the southern portion are then conveyed to the proposed large-scale Bioretention basin. The pervious/porous pavement areas also provide a degree of water quantity control during smaller storm events. Building and lawn areas are considered “clean” and do not require pre-treatment; therefore, these areas are routed directly to the wet Basin.

The allowable peak runoff rates for the post-developed site were found by applying the required reductions to the pre-developed peak flows as summarized below.

Storm Event (yr)	Total Pre-Dev Runoff (cfs)	% Reduction	Site Allowable Runoff (cfs)	Post-Dev Runoff (cfs)
2	7.65	50%	3.83	3.23
10	11.94	75%	8.96	4.86
100	20.28	80%	16.22	10.69

Table 3: DA-1 Allowable Runoff Summary

Storm Event (yr)	Total Pre-Dev Runoff (cfs)	% Reduction	Site Allowable Runoff (cfs)	Post-Dev Runoff (cfs)
2	8.98	50%	4.49	3.72
10	14.16	75%	10.62	5.85
100	27.82	80%	22.26	16.40

Table 4: DA-1 Allowable 2100-year Runoff Summary

Storm Event (yr)	Total Pre-Dev Runoff (cfs)	% Reduction	Site Allowable Runoff (cfs)	Post-Dev Runoff (cfs)
2	7.47	50%	3.74	2.62
10	11.44	75%	8.58	7.15
100	26.64	80%	21.31	20.55

Table 5: DA-2 Allowable Runoff Summary

Storm Event (yr)	Total Pre-Dev Runoff (cfs)	% Reduction	Site Allowable Runoff (cfs)	Post-Dev Runoff (cfs)
2	8.76	50%	4.38	3.80
10	13.16	75%	9.87	9.80
100	52.29	80%	41.83	35.07

Table 6: DA-2 Allowable 2100-year Runoff Summary

In the analyzed storms the post-development runoff rates are less than the required reductions, thus meeting the requirements of the NJDEP Stormwater Management rules for stormwater quantity.

B. Large Scale Bioretention System - Water Quality

The proposed bioretention basin is in the southern portion of the site and accepts stormwater runoff from 6.85 acres of the proposed development, of which 5.22 acres is impervious. The geotechnical test pit logs indicate groundwater depths of 5-7 ft below grade within the vicinity of the Basin. Using the highest existing elevation of 66 ft, the permanent water surface elevation was accordingly set at 67 ft. This elevation will be controlled by one outlet structure that discharges to the existing pipe network within Princeton turnpike. The surface area of the basin will be approximately 0.63 acres, with sufficient depth to maintain a healthy environment as indicated in the NJBMP. Stormwater will be conveyed to this basin via overland flow and a conventional gravity storm sewer system. Stormwater flows from the basin will be attenuated by the outlet structure, with temporary storage provided above the normal bottom surface elevation of 67.00. Runoff discharging to the basin was analyzed with the HydroCAD 10.00 computer program utilizing

the proposed basin volume characteristics. A summary of peak inflows, outflows, storage volumes and basin elevations are outlined below:

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
WQ	10.73	0.00	17,770	67.90
2	14.52	2.52	29,895	68.49
10	25.07	6.57	40,305	68.97
100	41.42	18.58	56,423	69.68

Table 7: Large-scale Bioretention basin summary

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
2	17.55	3.61	33,003	68.63
10	29.45	8.30	45,951	69.22
100	56.12	30.32	65,391	70.07

Table 8: Large-scale Bioretention basin 2100-year summary

Flows from the basin are attenuated by one outlet structure. Outlet Structure 3 is set with the first outlet being 12”H x 26”W rectangular orifice set at elevation of 67.95. Next, there is a 48”L x 48”W top grate orifice set at 69.40. These devices control flows from the 2, 10 and 100-year storm events. The outflow from the outlet structure will discharge via a 24” pipe into the turnpike system. The emergency spillway is set at elevation 70.08 and an analysis is provided in Appendix C which demonstrates that with the orifices removed and the basin full, the 100-year storm is contained within the bioretention basin. If the water surface reaches this elevation, water will discharge into the roadway.

C. Bioretention basin - Water Quality

The NJDEP Stormwater Management rules require that stormwater management measures be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm by 80 percent of the anticipated load from the developed site. The new NJDEP rules allow for the use of a large-scale bioretention basin to address water quality. The project proposes various areas of porous pavement to address water quality, which are discussed in a subsequent section of this report. Therefore, although the project cannot address water quality solely through the use of the bioretention basin, its design essentially provides an additional amount of TSS removal. Small-scale Bioretention basins are proposed to control water quality and are outlined below:

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
WQ	0.14	0.00	107	71.56
2	0.39	0.02	541	71.79
10	0.74	0.08	902	71.97
100	1.43	0.36	1,599	72.28

Table 9: Small-scale Bioretention basin 1 summary

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
2	0.50	0.05	610	71.82
10	0.92	0.13	1,129	72.07
100	2.05	0.71	2,128	72.50

Table 10: Small-scale Bioretention basin 1 2100-year summary

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
WQ	1.44	0.00	1,697	70.81
2	2.06	0.37	3,487	71.79
10	3.28	3.26	3,755	71.91
100	5.64	5.64	3,914	71.98

Table 11: Small-scale Bioretention basin 2 summary

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
2	2.44	1.11	3,575	71.83
10	3.92	3.91	3,802	71.93
100	7.82	7.79	4,040	72.03

Table 12: Small-scale Bioretention basin 2 2100-year summary

D. Porous Pavement – Water Quality

Water quality requirements for the “motor vehicle surfaces” will be accomplished through the installation of several porous pavement systems. The NJBMP Manual specifies that the maximum ratio of additional inflow drainage area to surface area of the porous pavement system is 3:1. The porous pavement covers an area of 37,422 sq-ft and will receive an additional 108,068 sq-ft. of surface runoff, resulting in a ratio of 2.9:1 and thus satisfying the requirement. Porous pavement sections 1-3 are designed with a 3” porous pavement section with a 1” choker course and a 30” stone storage section beneath. Porous pavement sections 5-10 are designed with a 3” porous pavement section with a 1” choker course and a 48” stone storage section with four (4) 24” perforated pipes beneath. Each underdrain system tee into the adjacent inlet with a 2.5” orifice, 3” off the bottom of the stone section. Additionally, a 6” H x 8” W rock screen orifice is provided to control larger storm events. Inlets have been provided at typical surface low points to provide adequate drainage during larger storm events. Based on the HydroCAD model, the porous pavement & stone bed areas are adequately designed to collect and store up to and including the part of the 100-year storm. For any storm beyond the 25-year, the entire stone bed will fill up, and the remaining runoff will be collected in the adjoining surface inlets.

A summary for each porous pavement system is provided below, including surface area, drainage area, and depth of water quality storage.

Porous Section	Surface Area (sqft)	Drainage Area (sq ft)	Maximum Storage (cubic ft)	Depth of Storage (feet)
1	5,670	14,810	895	0.47
2	1,782	7,405	334	0.56
3	6,318	17,424	973	0.46
5	14,886	49,005	2,658	0.47
8	3,078	10,454	563	0.48
9	5,346	15,246	919	0.45
10	9,090	30,927	2,036	0.55

Table 9: Porous pavement summary during the water quality storm.

E. Bioretention System – Emergency Spillway

An emergency spillway and emergency overflow grate have been incorporated into the design of the bioretention basins in the event the outlets become clogged or storms larger than the 100-year storm event occur. Flow discharging over the spillway flow overland toward the existing wetlands with spillway’s

set 10 ft. wide and a top of berm elevation set at least one foot above the 100-yr peak water surface elevation flowing over the spillway with the basin full.

Basin	Spillway Length	Spillway Elevation	Spillway Water Surface Elevation	Berm Elevation	Discharge Velocity
1	25'	73.50	73.50	74.50	0.12 ft/sec
2	25'	73.50	73.67	74.50	2.18 ft/sec
3	50'	70.08	70.62	71.08	8.33 ft/sec

Table 10: Emergency Spillway Design

The velocities were calculated using a trapezoidal channel section, with 3:1 side slopes, the bottom width equal to the spillway length, and the bottom slope equal to the basin down slope. The spillways were assumed to be vegetated, in good condition, and were analyzed under a C vegetal retardance class, with silt loam soils. The spillways were analyzed using Erosion Control Materials Design Software, version 5.0, by North American Green, which has been developed to analyze channel erosion. The emergency spillways stability calculations, provided in the Appendix of this report, were calculated for the 100-year storm, with the basins filled to the spillways. Hydrograph routings for the 100-year storm down the spillway are provided in the Appendix.

F. Green Infrastructure

The green infrastructure requirements set forth in N.J.A.C. 7:8-5.3 are met by limiting the contributing drainage areas to the associated green infrastructure best management practice as listed in said section. Each small scale bioretention basin has a contributing drainage area of less than 2.5 acres (does not include basin area per definition of Contributory Drainage Area listed in N.J.A.C. 7:8-1.2) and meets the rules of this section as described in N.J.A.C. 7:8-5.3(b). The two small scale bioretention basins and two porous pavement sections are spread out throughout the site, are not clustered in one area and are close to the source of their respective runoff. Therefore, the project meets the intent and rules of the green infrastructure rule.

G. Ground Water Recharge

The NJDEP Stormwater rules, N.J.A.C. 7:8-5.4(a)2, require recharge of the increase in the post-development 2-year runoff volume or recharge 100% of the sites average annual groundwater recharge volume in the post-developed condition. Per the New Jersey Stormwater Best Management Practices Manual, Chapter 6, page 6-17, section 7, “The development site areas that extensive site soil testing determine to have permeability rates less than 0.2 inches per hour may be considered to belong to Hydrologic Soil Group D in the NJGRS program. For such areas, the user may use any HSG D soil in the

NJGRS soil series database to define such site areas in the NJGRS' Annual Recharge worksheet". As such, extensive soil pits were dug and percolation rates were tested on samples taken in March 2024. NJBMP Manual Chapter 12 provides a range permeability rates at differing depths in association with a given HSG. The geotechnical investigations performed Feb/March 2024 for the project determined that the site is not suitable for infiltration, revealing infiltration rates less than the required minimums, 0.2 in/hr. These rates are indicative of HSG D soils, where groundwater recharge is not occurring. Therefore, underdrains have been included in each basin. Since no location on site is suitable for groundwater recharge, this section does not apply.

H. Soil Erosion and Sediment Control

To minimize the effects of erosion, the proposed design and construction concepts and practices incorporate the standards for Soil Erosion and Sediment Control in New Jersey as provided by the New Jersey State Soil Conservation Committee. These erosion deterrents include but are not limited to the use of silt fence or other sediment barriers at downgrade slopes and inlet protection. In addition, dust control measures, stone tracking mats, and temporary and permanent vegetative cover will be utilized. Various riprap chutes or scour holes will be constructed at all stormwater outfalls. General notes and guidelines are provided on the Soil Erosion and Sediment Control Plans for the contractor to ensure against soil erosion on the site while construction is in progress.

The soil erosion and sediment control plans will be reviewed by the Mercer County Soil Conservation District, which also monitors site activities during construction. The Soil Conservation District will inspect the site and may also recommend additional erosion and sediment control measures as appropriate.

I. Storm Drainage System Discussion (Methodology)

The stormwater conduits on site were designed according to the following criteria:

1. The Rational Method was used to determine the design flows.
2. NJ Rainfall Intensity Curves
3. A minimum 25-year storm frequency was utilized to size all stormwater conduits.
4. All conduits are designed to convey the design storm by open channel flow.
5. Time of concentration (Tc) was calculated using the Mccuen-spiess method.
6. All proposed stormwater conduits are reinforced concrete pipe, Class III or higher with an "n" value of 0.013, or high density polyethylene pipe with an "n" value of 0.011.
7. A minimum of 16" of cover is provided for all Class III Stormwater conduits and 12" for Class IV or V.

V. CONCLUSION

The summaries provided for the stormwater management system demonstrate that the project design will address water quantity by storing the increases in the post-development runoff volumes and attenuating the outflows to below the pre-developed peak runoff rates in accordance with the required reductions. This design meets the new NJDEP Stormwater Management rules by achieving water quality through the use of porous pavement; the proposed bioretention basins provide additional uncredited TSS removal beyond that. Curb cuts, spillways and overland flow are utilized to the greatest extent practical.

The stormwater management system has been designed to meet the requirements of the “NJDEP Stormwater and Non-point Source Pollution – Best Management Practices Manual.” It is designed for minimum disturbance to the natural landscape. This stormwater management system meets the technical requirements as well as the overall intent of the new NJDEP regulations in an aesthetically pleasing and technically compliant manner.

APPENDIX A

PRE-DEVELOPMENT DRAINAGE ANALYSIS

Summary for Subcatchment I-1: EA-1 IMP

Runoff = 5.44 cfs @ 1.09 hrs, Volume= 0.153 af, Depth= 1.03"

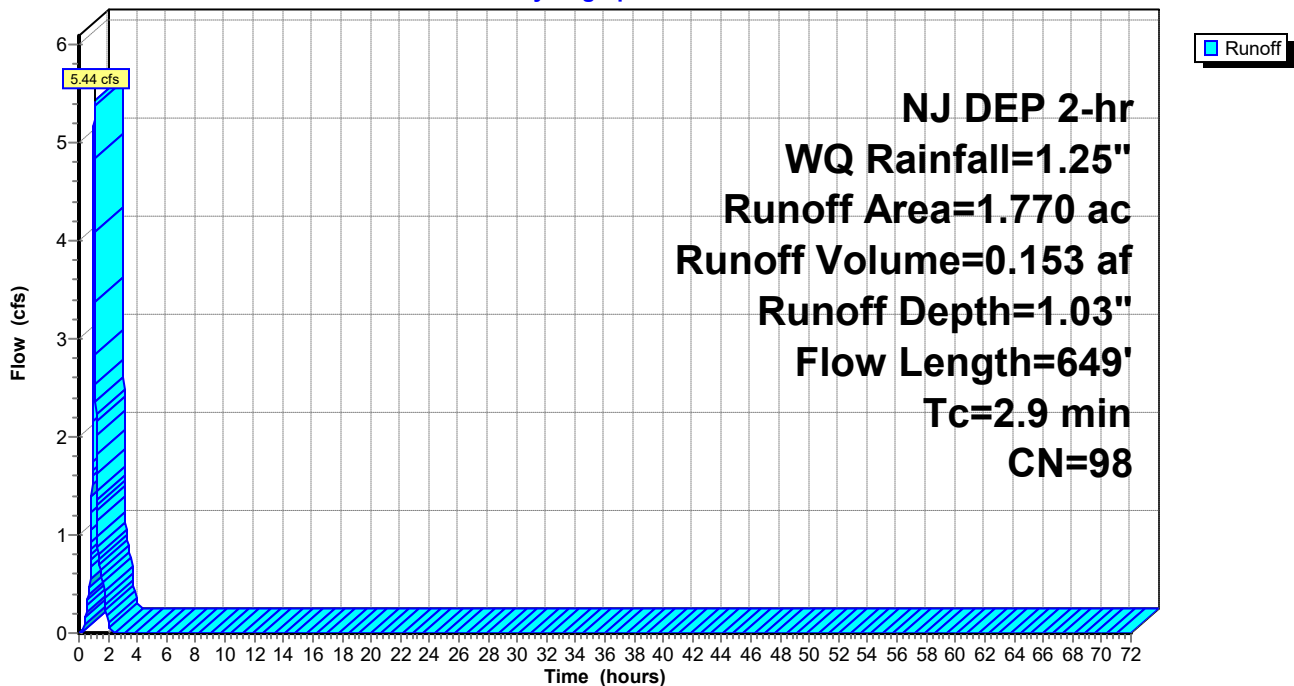
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
1.770	98	Paved parking, HSG D
1.770	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0220	1.47		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.8	549	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
2.9	649	Total			

Subcatchment I-1: EA-1 IMP

Hydrograph



Summary for Subcatchment P-1: EA-1 PER

Runoff = 0.25 cfs @ 1.10 hrs, Volume= 0.006 af, Depth= 0.17"

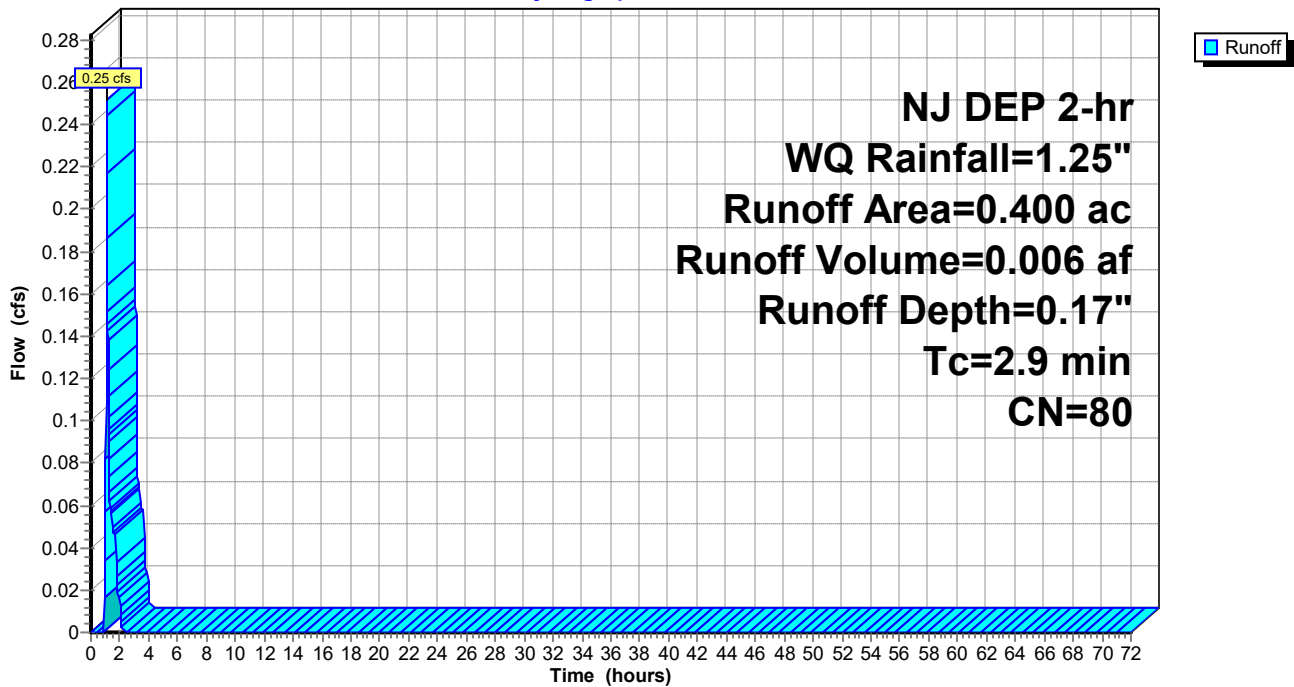
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.400	80	>75% Grass cover, Good, HSG D
0.400	80	100.00% Pervious Area

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

Subcatchment P-1: EA-1 PER

Hydrograph



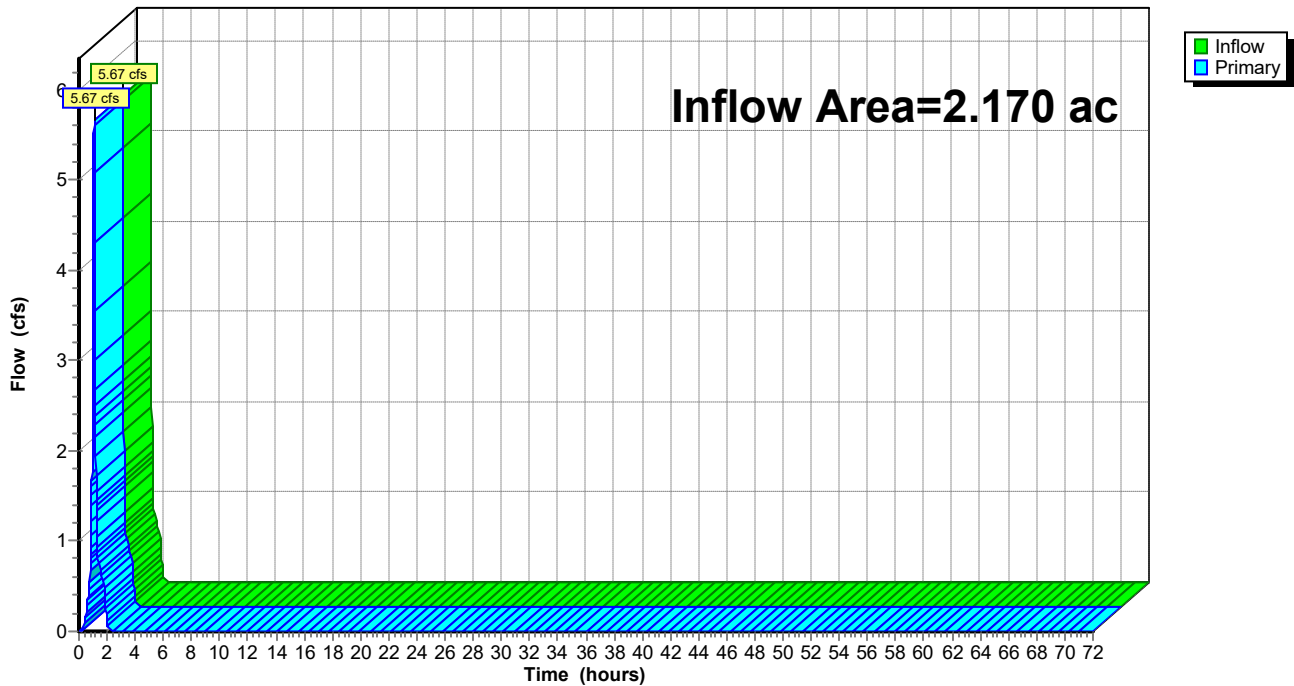
Summary for Pond EA-1: PRE - POI #1 (SW Basin)

Inflow Area = 2.170 ac, 81.57% Impervious, Inflow Depth = 0.88" for WQ event
Inflow = 5.67 cfs @ 1.09 hrs, Volume= 0.158 af
Primary = 5.67 cfs @ 1.09 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond EA-1: PRE - POI #1 (SW Basin)

Hydrograph



Summary for Subcatchment I-1: EA-1 IMP

Runoff = 6.77 cfs @ 12.10 hrs, Volume= 0.455 af, Depth= 3.09"

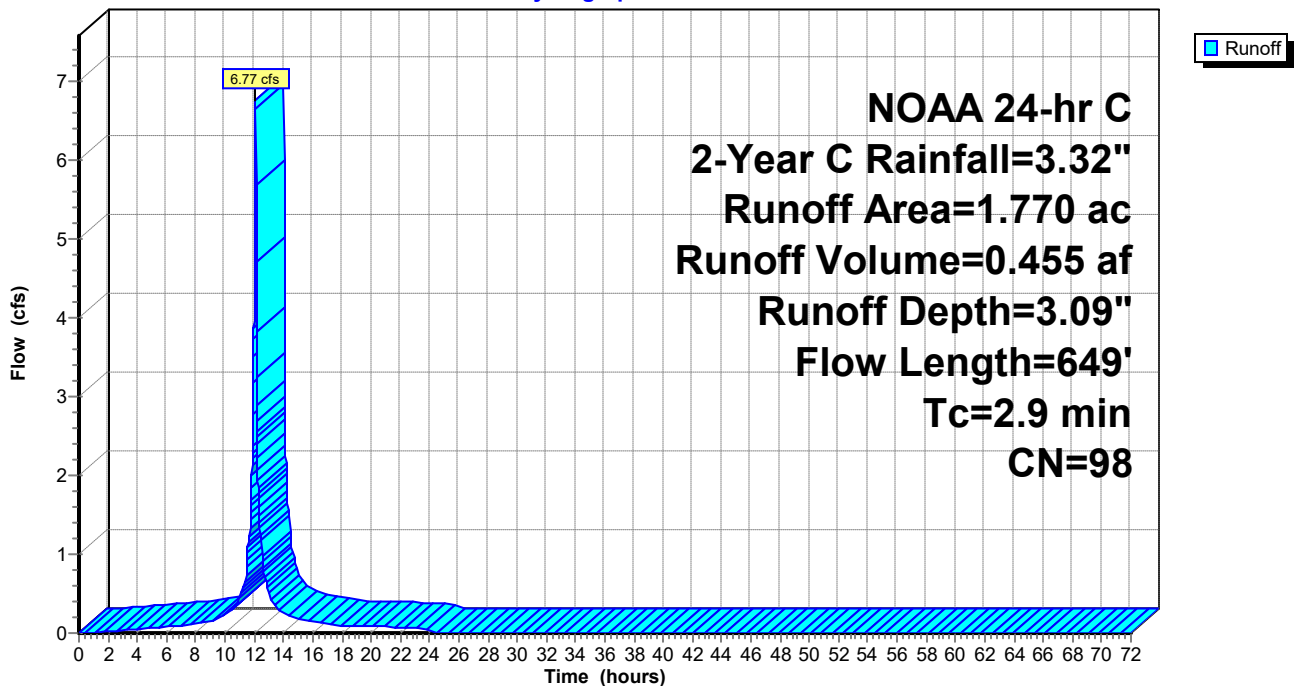
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
1.770	98	Paved parking, HSG D
1.770	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0220	1.47		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.8	549	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
2.9	649	Total			

Subcatchment I-1: EA-1 IMP

Hydrograph



Summary for Subcatchment P-1: EA-1 PER

Runoff = 0.89 cfs @ 12.11 hrs, Volume= 0.050 af, Depth= 1.49"

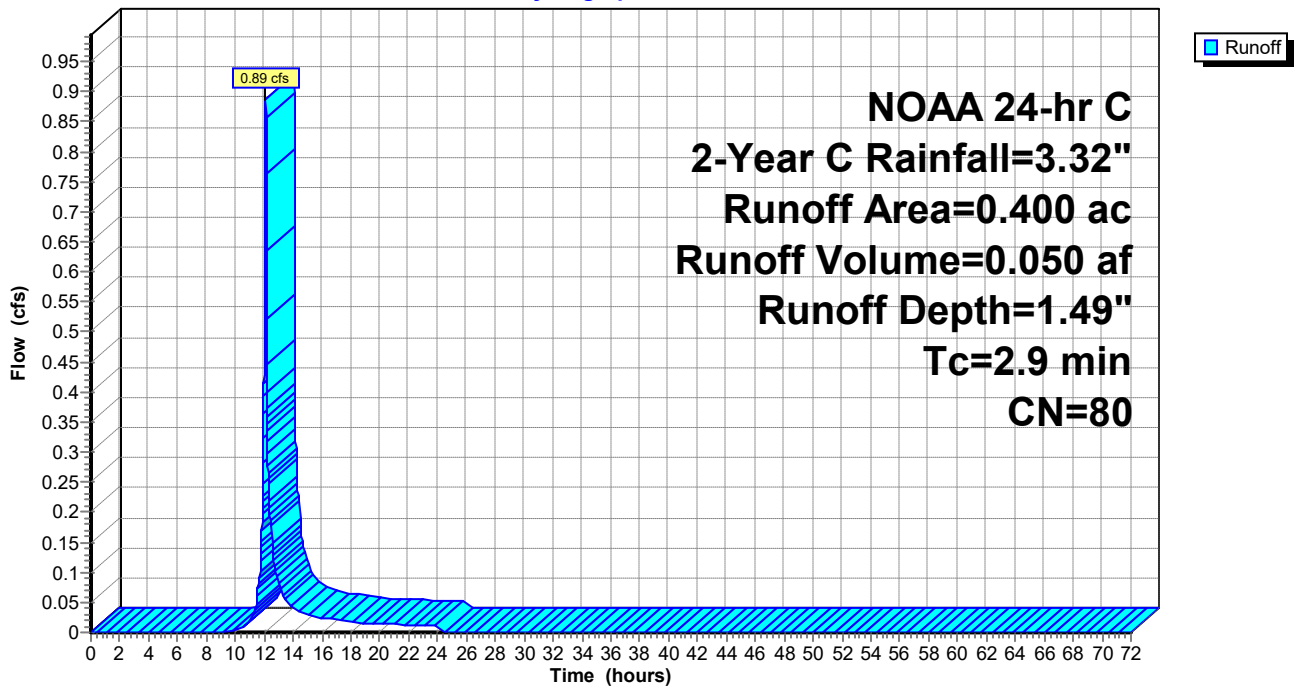
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.400	80	>75% Grass cover, Good, HSG D
0.400	80	100.00% Pervious Area

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

Subcatchment P-1: EA-1 PER

Hydrograph



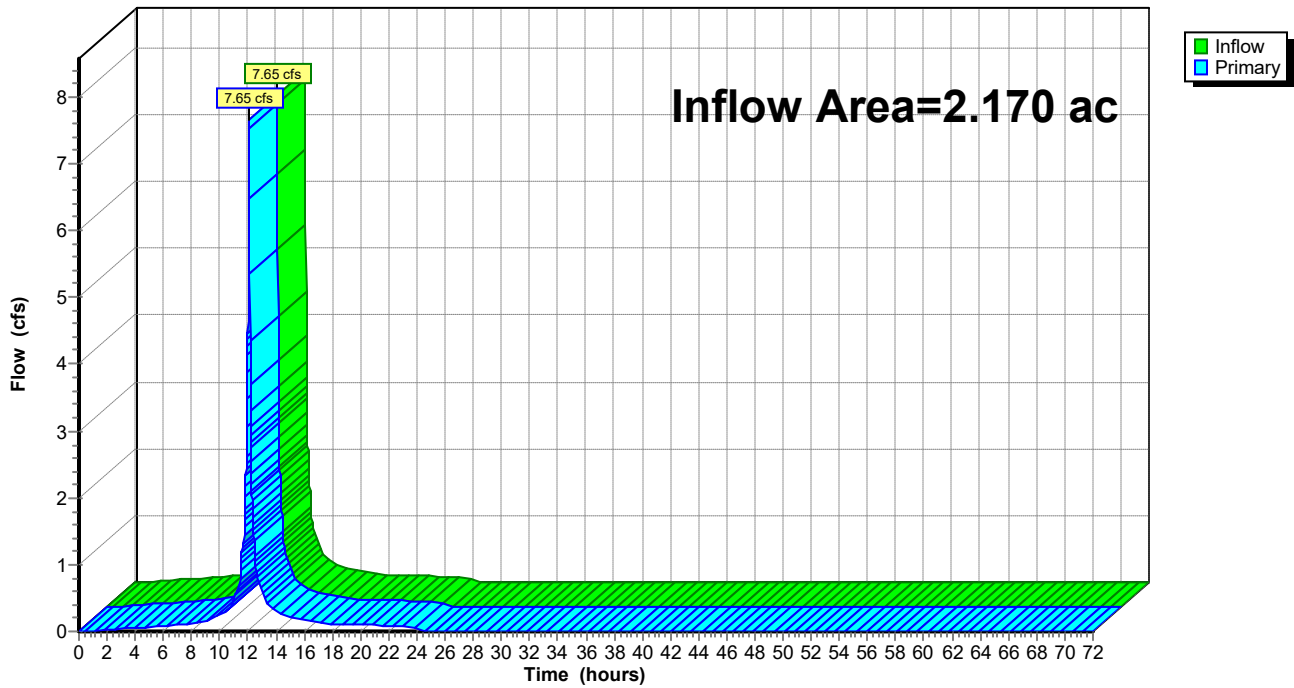
Summary for Pond EA-1: PRE - POI #1 (SW Basin)

Inflow Area = 2.170 ac, 81.57% Impervious, Inflow Depth = 2.79" for 2-Year C event
Inflow = 7.65 cfs @ 12.10 hrs, Volume= 0.505 af
Primary = 7.65 cfs @ 12.10 hrs, Volume= 0.505 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond EA-1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond EA-1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.04		0.04	55.00	0.00		0.00
4.00	0.05		0.05	56.00	0.00		0.00
5.00	0.06		0.06	57.00	0.00		0.00
6.00	0.07		0.07	58.00	0.00		0.00
7.00	0.10		0.10	59.00	0.00		0.00
8.00	0.12		0.12	60.00	0.00		0.00
9.00	0.15		0.15	61.00	0.00		0.00
10.00	0.24		0.24	62.00	0.00		0.00
11.00	0.47		0.47	63.00	0.00		0.00
12.00	4.48		4.48	64.00	0.00		0.00
13.00	0.62		0.62	65.00	0.00		0.00
14.00	0.31		0.31	66.00	0.00		0.00
15.00	0.20		0.20	67.00	0.00		0.00
16.00	0.17		0.17	68.00	0.00		0.00
17.00	0.14		0.14	69.00	0.00		0.00
18.00	0.11		0.11	70.00	0.00		0.00
19.00	0.11		0.11	71.00	0.00		0.00
20.00	0.10		0.10	72.00	0.00		0.00
21.00	0.09		0.09				
22.00	0.08		0.08				
23.00	0.08		0.08				
24.00	0.09		0.09				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment I-1: EA-1 IMP

Runoff = 7.85 cfs @ 12.10 hrs, Volume= 0.532 af, Depth= 3.61"

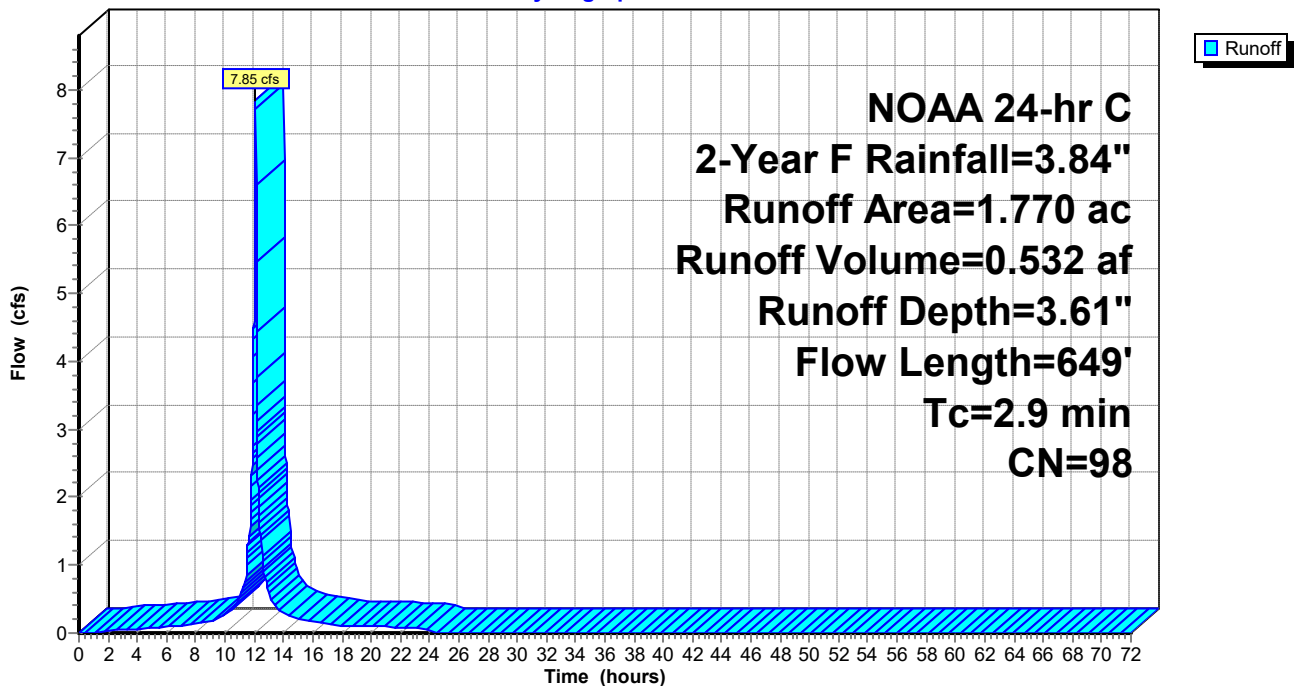
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
1.770	98	Paved parking, HSG D
1.770	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0220	1.47		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.8	549	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
2.9	649	Total			

Subcatchment I-1: EA-1 IMP

Hydrograph



Summary for Subcatchment P-1: EA-1 PER

Runoff = 1.13 cfs @ 12.11 hrs, Volume= 0.064 af, Depth= 1.91"

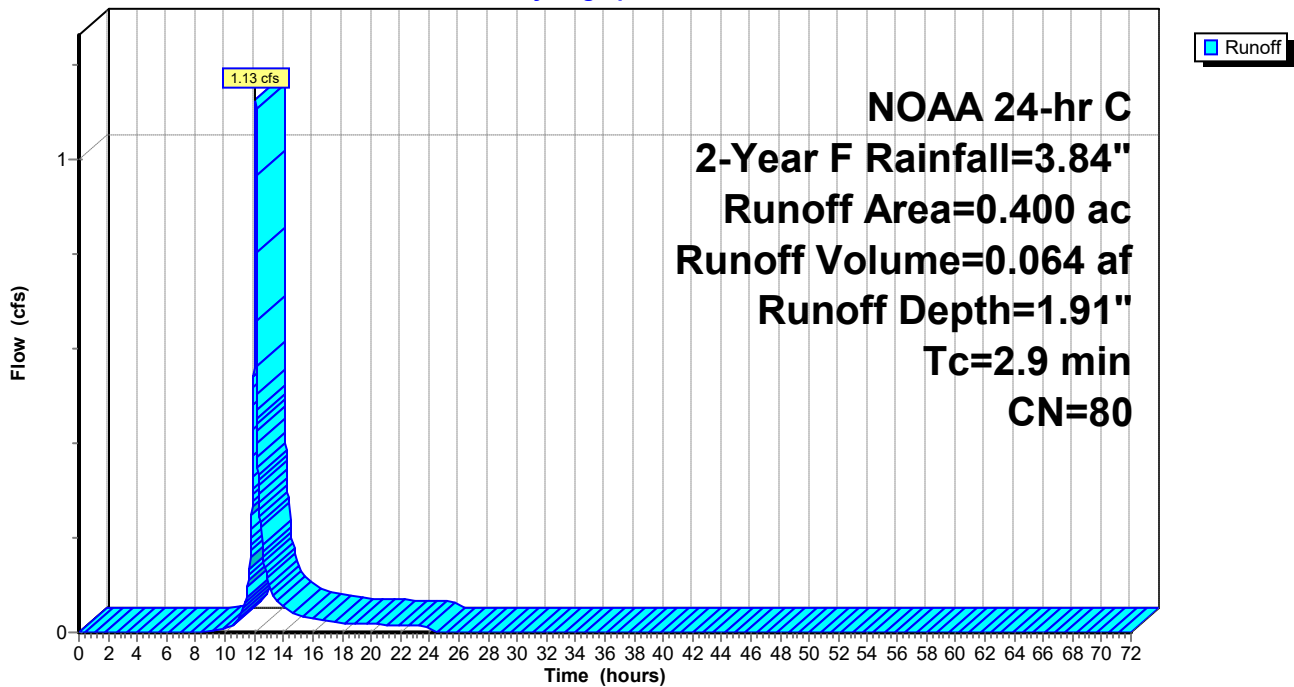
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.400	80	>75% Grass cover, Good, HSG D
0.400	80	100.00% Pervious Area

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

Subcatchment P-1: EA-1 PER

Hydrograph



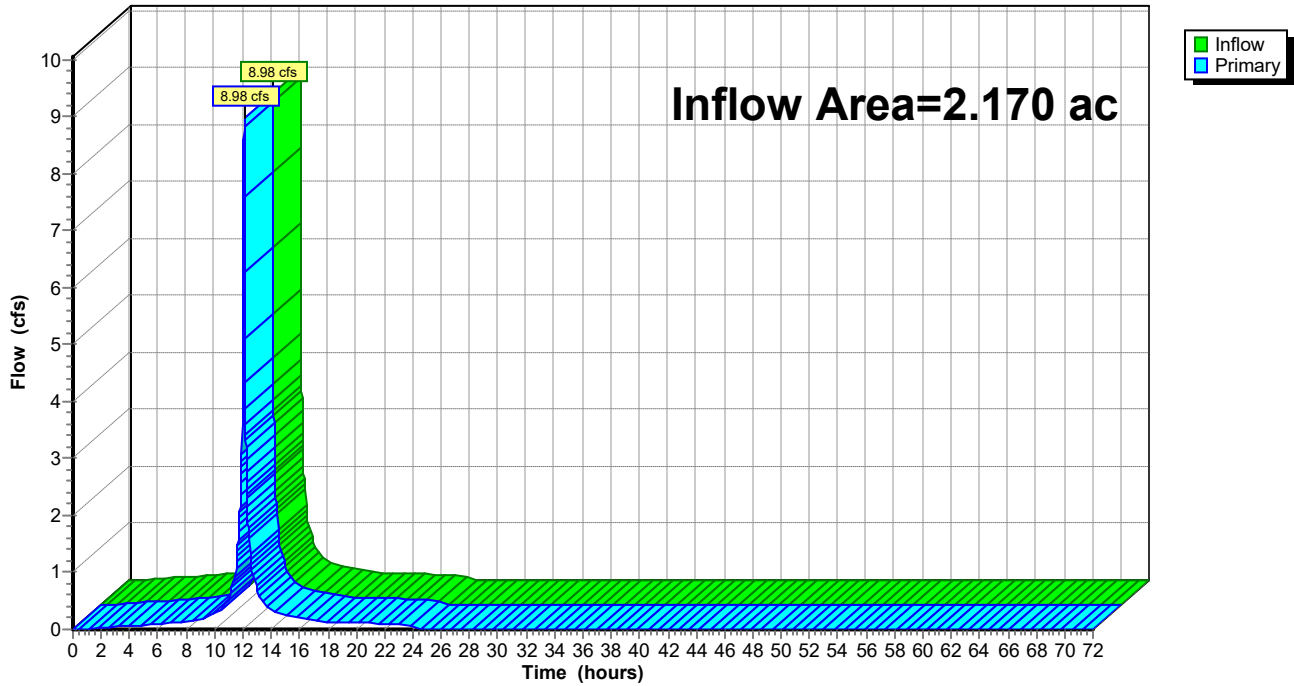
Summary for Pond EA-1: PRE - POI #1 (SW Basin)

Inflow Area = 2.170 ac, 81.57% Impervious, Inflow Depth = 3.29" for 2-Year F event
Inflow = 8.98 cfs @ 12.10 hrs, Volume= 0.595 af
Primary = 8.98 cfs @ 12.10 hrs, Volume= 0.595 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond EA-1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond EA-1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.03		0.03	54.00	0.00		0.00
3.00	0.05		0.05	55.00	0.00		0.00
4.00	0.06		0.06	56.00	0.00		0.00
5.00	0.08		0.08	57.00	0.00		0.00
6.00	0.09		0.09	58.00	0.00		0.00
7.00	0.12		0.12	59.00	0.00		0.00
8.00	0.15		0.15	60.00	0.00		0.00
9.00	0.18		0.18	61.00	0.00		0.00
10.00	0.29		0.29	62.00	0.00		0.00
11.00	0.55		0.55	63.00	0.00		0.00
12.00	5.27		5.27	64.00	0.00		0.00
13.00	0.72		0.72	65.00	0.00		0.00
14.00	0.36		0.36	66.00	0.00		0.00
15.00	0.24		0.24	67.00	0.00		0.00
16.00	0.20		0.20	68.00	0.00		0.00
17.00	0.17		0.17	69.00	0.00		0.00
18.00	0.13		0.13	70.00	0.00		0.00
19.00	0.12		0.12	71.00	0.00		0.00
20.00	0.11		0.11	72.00	0.00		0.00
21.00	0.11		0.11				
22.00	0.10		0.10				
23.00	0.09		0.09				
24.00	0.10		0.10				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment I-1: EA-1 IMP

Runoff = 10.26 cfs @ 12.10 hrs, Volume= 0.703 af, Depth= 4.76"

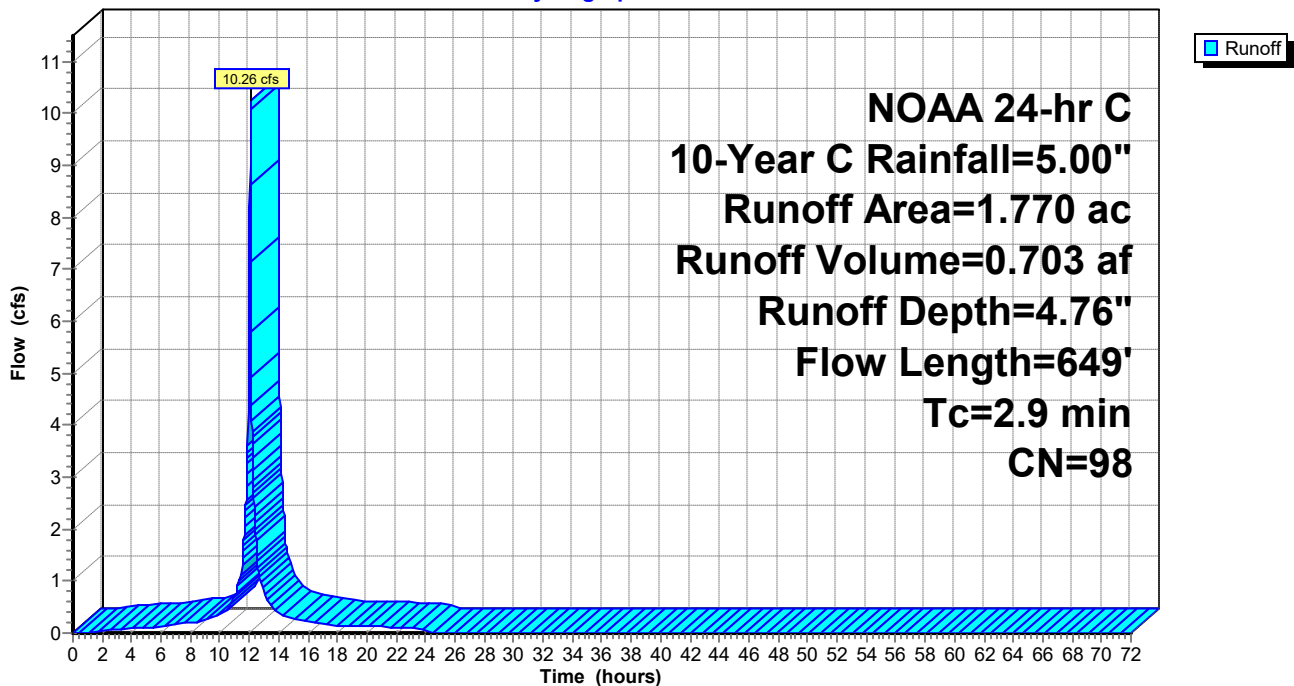
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
1.770	98	Paved parking, HSG D
1.770	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0220	1.47		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.8	549	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
2.9	649	Total			

Subcatchment I-1: EA-1 IMP

Hydrograph



Summary for Subcatchment P-1: EA-1 PER

Runoff = 1.69 cfs @ 12.11 hrs, Volume= 0.096 af, Depth= 2.89"

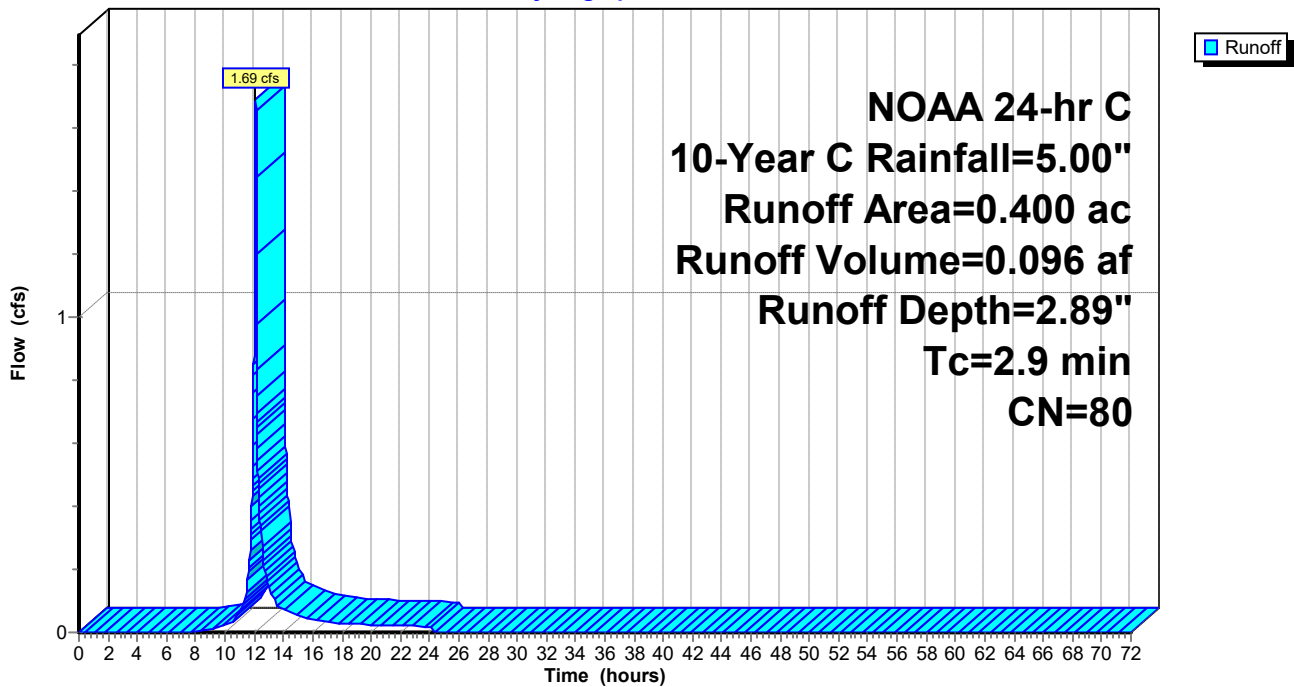
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.400	80	>75% Grass cover, Good, HSG D
0.400	80	100.00% Pervious Area

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

Subcatchment P-1: EA-1 PER

Hydrograph



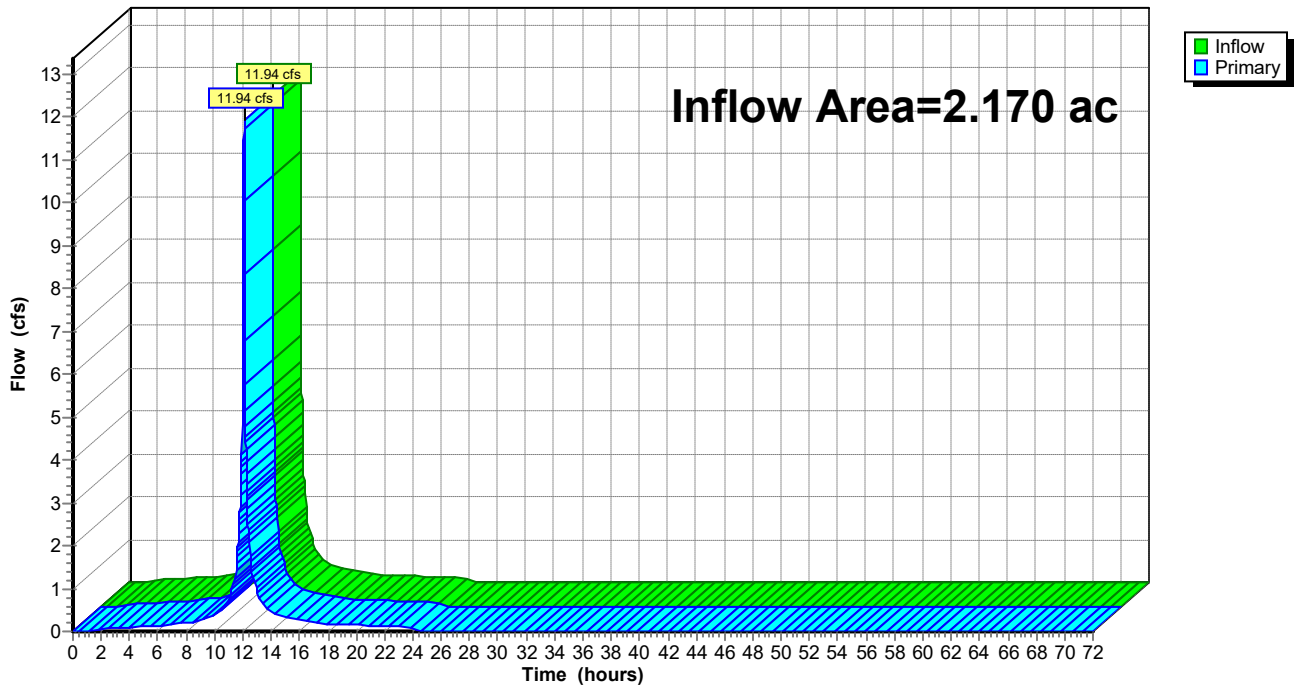
Summary for Pond EA-1: PRE - POI #1 (SW Basin)

Inflow Area = 2.170 ac, 81.57% Impervious, Inflow Depth = 4.42" for 10-Year C event
Inflow = 11.94 cfs @ 12.10 hrs, Volume= 0.799 af
Primary = 11.94 cfs @ 12.10 hrs, Volume= 0.799 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond EA-1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond EA-1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.05		0.05	54.00	0.00		0.00
3.00	0.07		0.07	55.00	0.00		0.00
4.00	0.09		0.09	56.00	0.00		0.00
5.00	0.11		0.11	57.00	0.00		0.00
6.00	0.12		0.12	58.00	0.00		0.00
7.00	0.16		0.16	59.00	0.00		0.00
8.00	0.20		0.20	60.00	0.00		0.00
9.00	0.25		0.25	61.00	0.00		0.00
10.00	0.39		0.39	62.00	0.00		0.00
11.00	0.75		0.75	63.00	0.00		0.00
12.00	7.04		7.04	64.00	0.00		0.00
13.00	0.95		0.95	65.00	0.00		0.00
14.00	0.47		0.47	66.00	0.00		0.00
15.00	0.31		0.31	67.00	0.00		0.00
16.00	0.26		0.26	68.00	0.00		0.00
17.00	0.22		0.22	69.00	0.00		0.00
18.00	0.18		0.18	70.00	0.00		0.00
19.00	0.16		0.16	71.00	0.00		0.00
20.00	0.15		0.15	72.00	0.00		0.00
21.00	0.14		0.14				
22.00	0.13		0.13				
23.00	0.12		0.12				
24.00	0.14		0.14				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment I-1: EA-1 IMP

Runoff = 12.06 cfs @ 12.10 hrs, Volume= 0.831 af, Depth= 5.63"

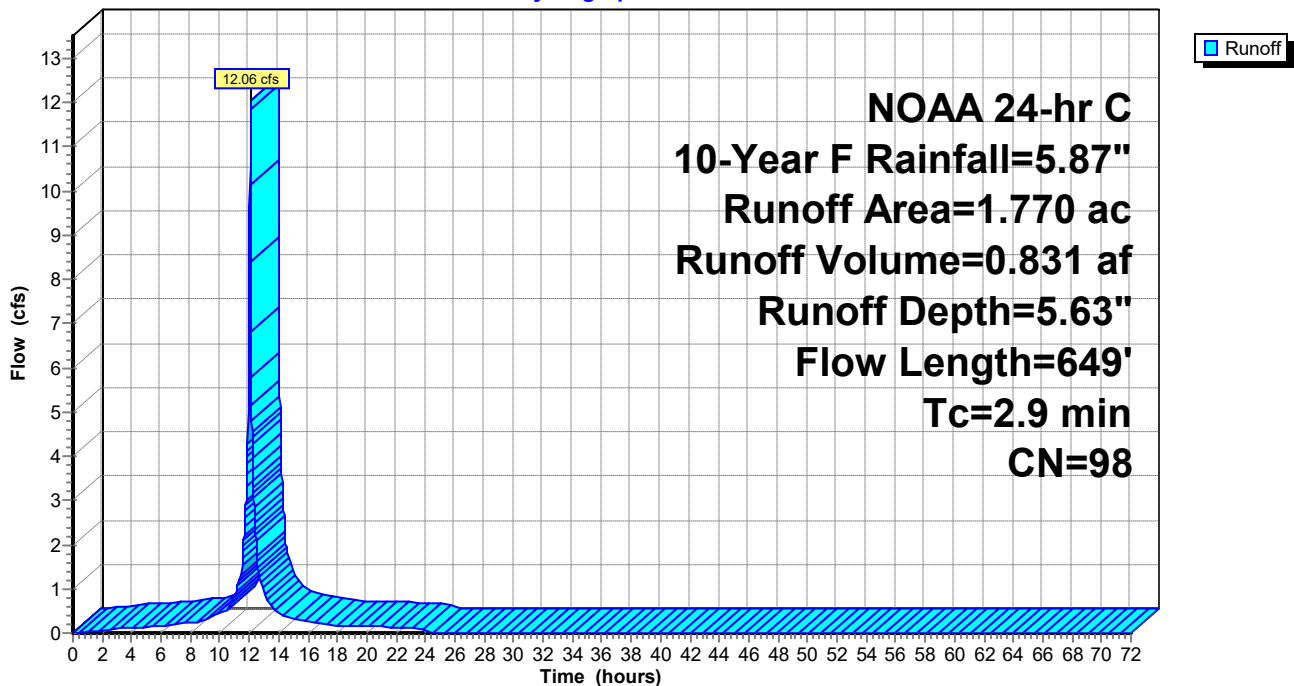
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
1.770	98	Paved parking, HSG D
1.770	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0220	1.47		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.8	549	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
2.9	649	Total			

Subcatchment I-1: EA-1 IMP

Hydrograph



Summary for Subcatchment P-1: EA-1 PER

Runoff = 2.11 cfs @ 12.11 hrs, Volume= 0.122 af, Depth= 3.66"

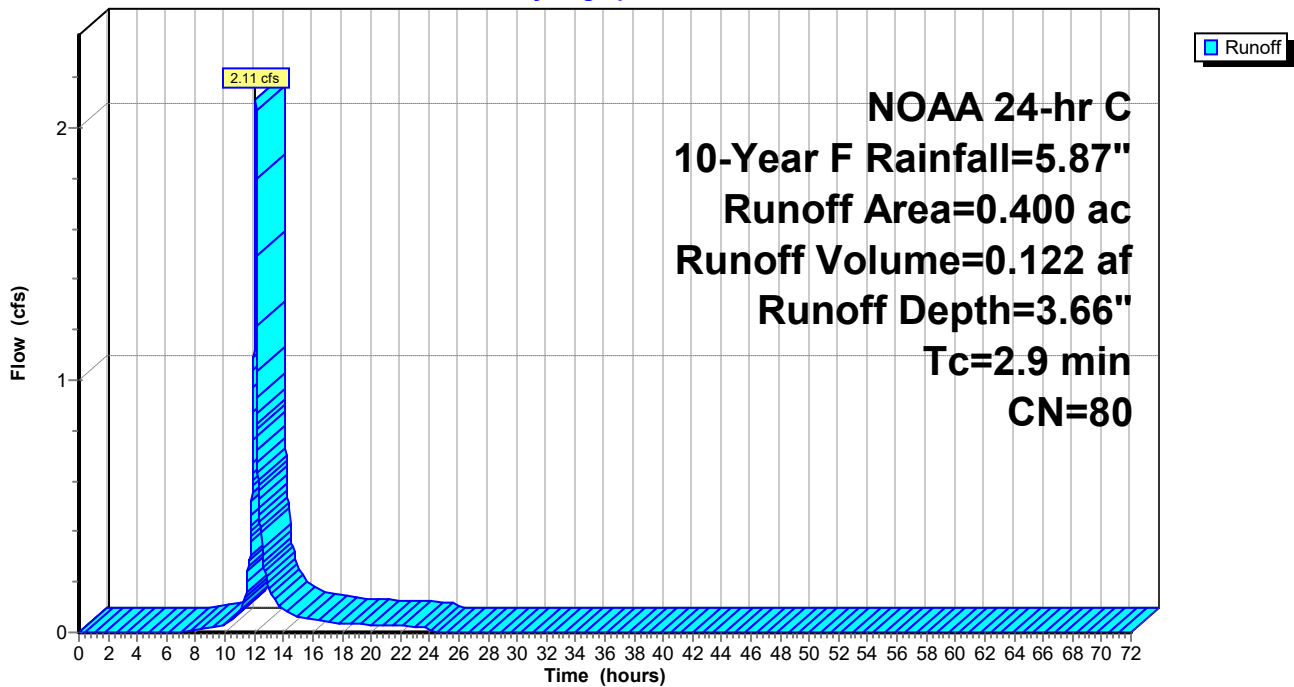
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.400	80	>75% Grass cover, Good, HSG D
0.400	80	100.00% Pervious Area

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

Subcatchment P-1: EA-1 PER

Hydrograph



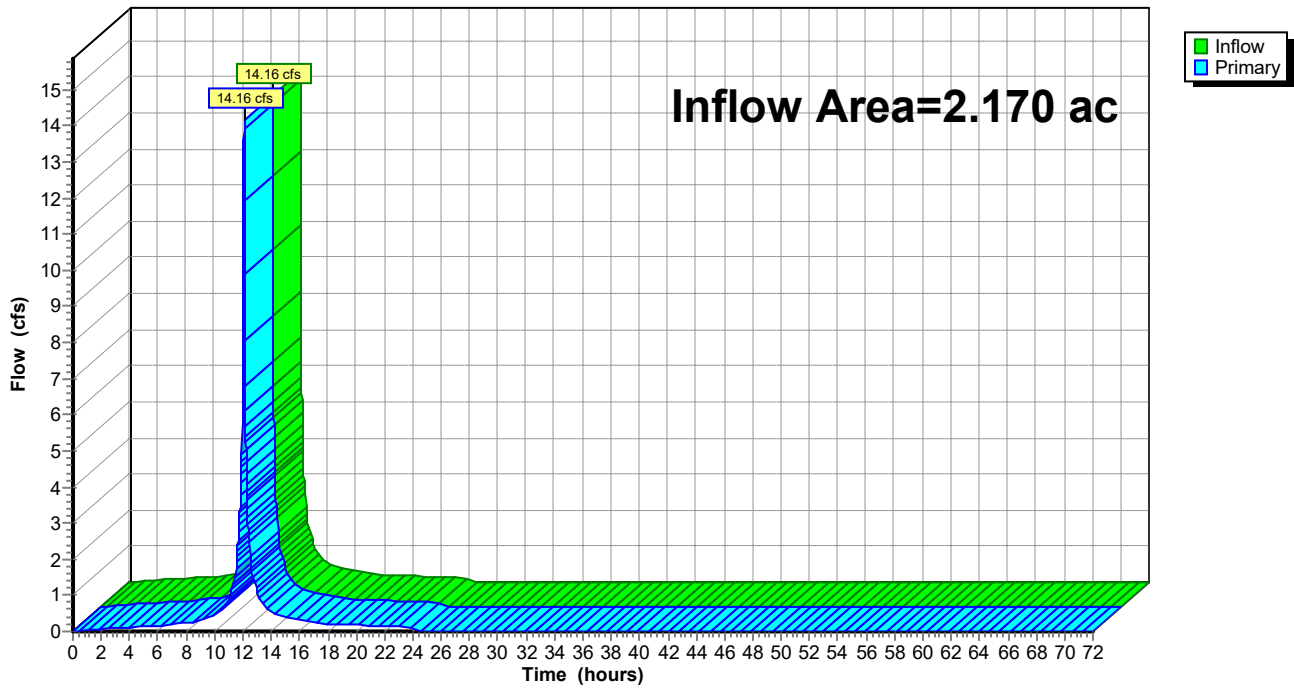
Summary for Pond EA-1: PRE - POI #1 (SW Basin)

Inflow Area = 2.170 ac, 81.57% Impervious, Inflow Depth = 5.27" for 10-Year F event
Inflow = 14.16 cfs @ 12.10 hrs, Volume= 0.953 af
Primary = 14.16 cfs @ 12.10 hrs, Volume= 0.953 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond EA-1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond EA-1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.07		0.07	54.00	0.00		0.00
3.00	0.09		0.09	55.00	0.00		0.00
4.00	0.12		0.12	56.00	0.00		0.00
5.00	0.13		0.13	57.00	0.00		0.00
6.00	0.15		0.15	58.00	0.00		0.00
7.00	0.20		0.20	59.00	0.00		0.00
8.00	0.25		0.25	60.00	0.00		0.00
9.00	0.30		0.30	61.00	0.00		0.00
10.00	0.47		0.47	62.00	0.00		0.00
11.00	0.90		0.90	63.00	0.00		0.00
12.00	8.37		8.37	64.00	0.00		0.00
13.00	1.13		1.13	65.00	0.00		0.00
14.00	0.56		0.56	66.00	0.00		0.00
15.00	0.37		0.37	67.00	0.00		0.00
16.00	0.31		0.31	68.00	0.00		0.00
17.00	0.26		0.26	69.00	0.00		0.00
18.00	0.21		0.21	70.00	0.00		0.00
19.00	0.19		0.19	71.00	0.00		0.00
20.00	0.18		0.18	72.00	0.00		0.00
21.00	0.17		0.17				
22.00	0.15		0.15				
23.00	0.14		0.14				
24.00	0.16		0.16				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment I-1: EA-1 IMP

Runoff = 12.66 cfs @ 12.10 hrs, Volume= 0.873 af, Depth= 5.92"

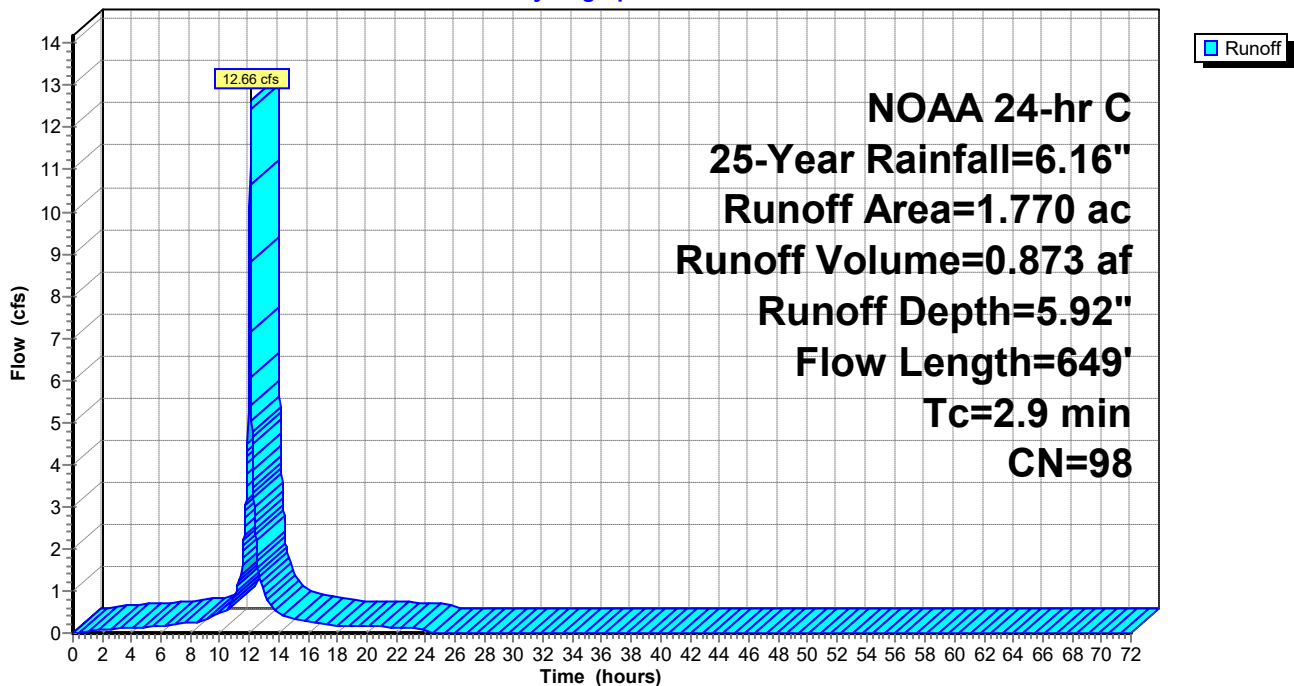
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
1.770	98	Paved parking, HSG D
1.770	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0220	1.47		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.8	549	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
2.9	649	Total			

Subcatchment I-1: EA-1 IMP

Hydrograph



Summary for Subcatchment P-1: EA-1 PER

Runoff = 2.26 cfs @ 12.11 hrs, Volume= 0.131 af, Depth= 3.93"

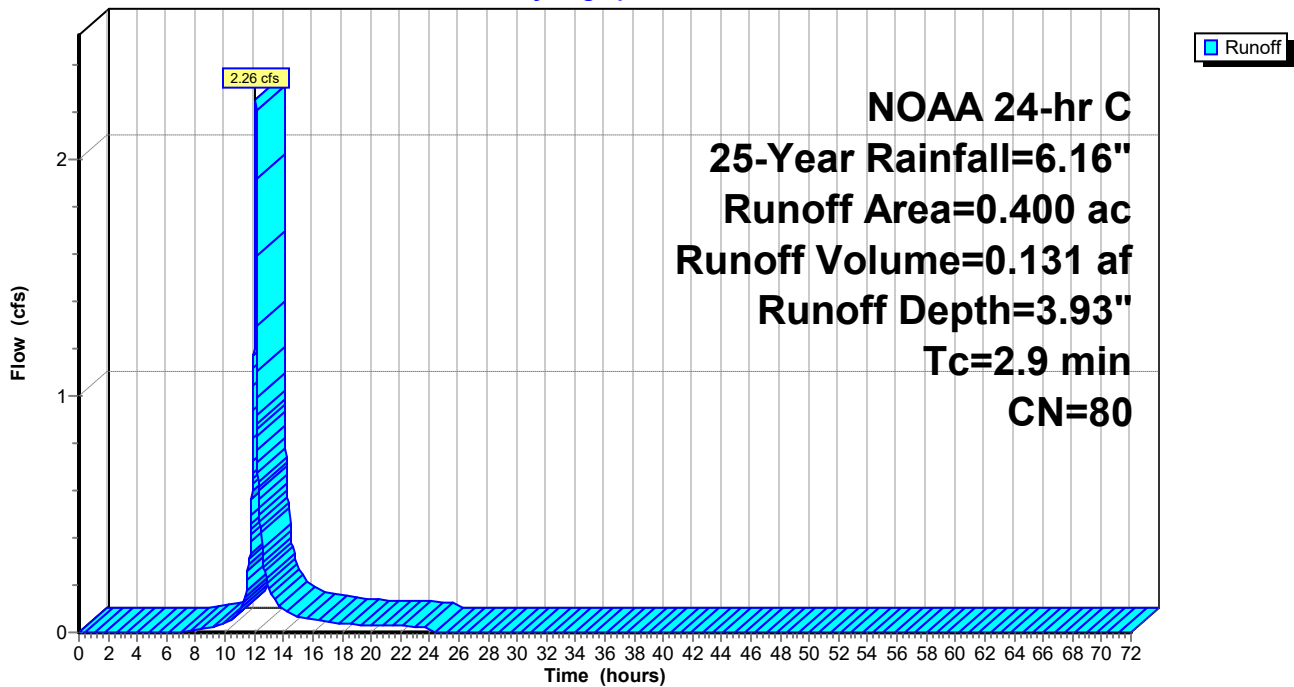
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.400	80	>75% Grass cover, Good, HSG D
0.400	80	100.00% Pervious Area

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

Subcatchment P-1: EA-1 PER

Hydrograph



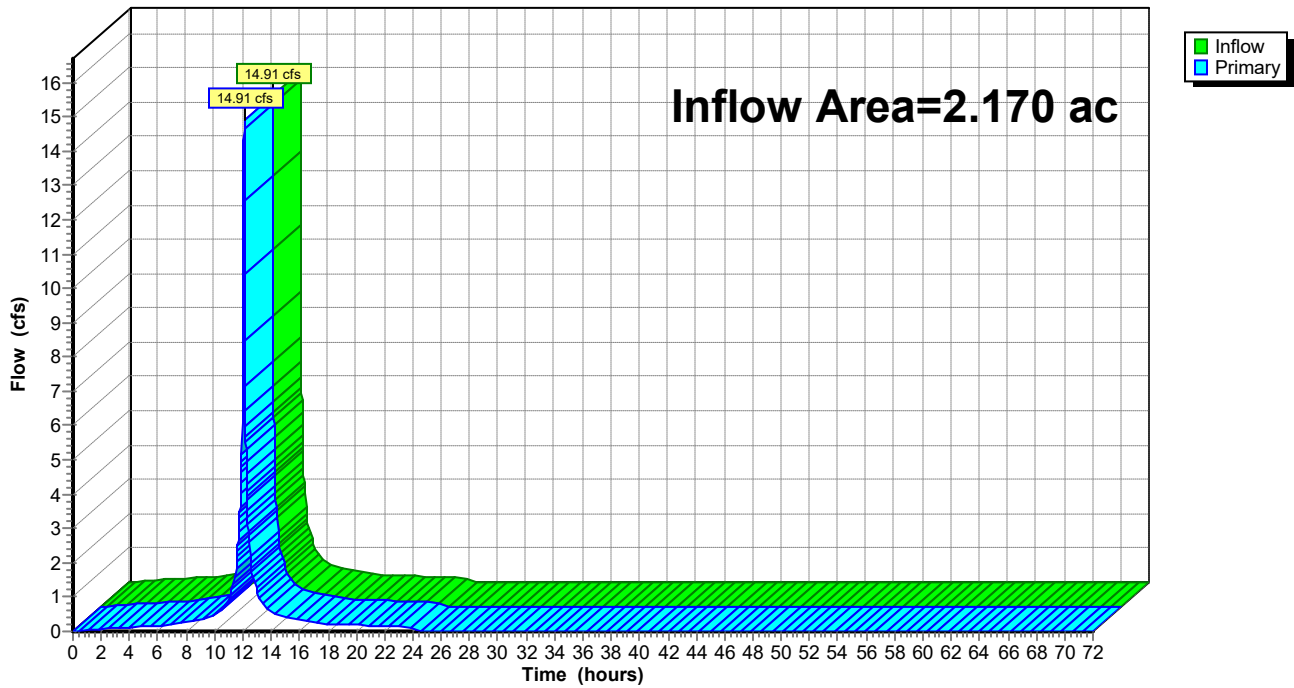
Summary for Pond EA-1: PRE - POI #1 (SW Basin)

Inflow Area = 2.170 ac, 81.57% Impervious, Inflow Depth = 5.55" for 25-Year event
Inflow = 14.91 cfs @ 12.10 hrs, Volume= 1.004 af
Primary = 14.91 cfs @ 12.10 hrs, Volume= 1.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond EA-1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond EA-1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.07		0.07	54.00	0.00		0.00
3.00	0.10		0.10	55.00	0.00		0.00
4.00	0.12		0.12	56.00	0.00		0.00
5.00	0.14		0.14	57.00	0.00		0.00
6.00	0.16		0.16	58.00	0.00		0.00
7.00	0.21		0.21	59.00	0.00		0.00
8.00	0.26		0.26	60.00	0.00		0.00
9.00	0.31		0.31	61.00	0.00		0.00
10.00	0.50		0.50	62.00	0.00		0.00
11.00	0.95		0.95	63.00	0.00		0.00
12.00	8.81		8.81	64.00	0.00		0.00
13.00	1.18		1.18	65.00	0.00		0.00
14.00	0.59		0.59	66.00	0.00		0.00
15.00	0.39		0.39	67.00	0.00		0.00
16.00	0.32		0.32	68.00	0.00		0.00
17.00	0.27		0.27	69.00	0.00		0.00
18.00	0.22		0.22	70.00	0.00		0.00
19.00	0.20		0.20	71.00	0.00		0.00
20.00	0.19		0.19	72.00	0.00		0.00
21.00	0.17		0.17				
22.00	0.16		0.16				
23.00	0.15		0.15				
24.00	0.17		0.17				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment I-1: EA-1 IMP

Runoff = 17.00 cfs @ 12.10 hrs, Volume= 1.183 af, Depth= 8.02"

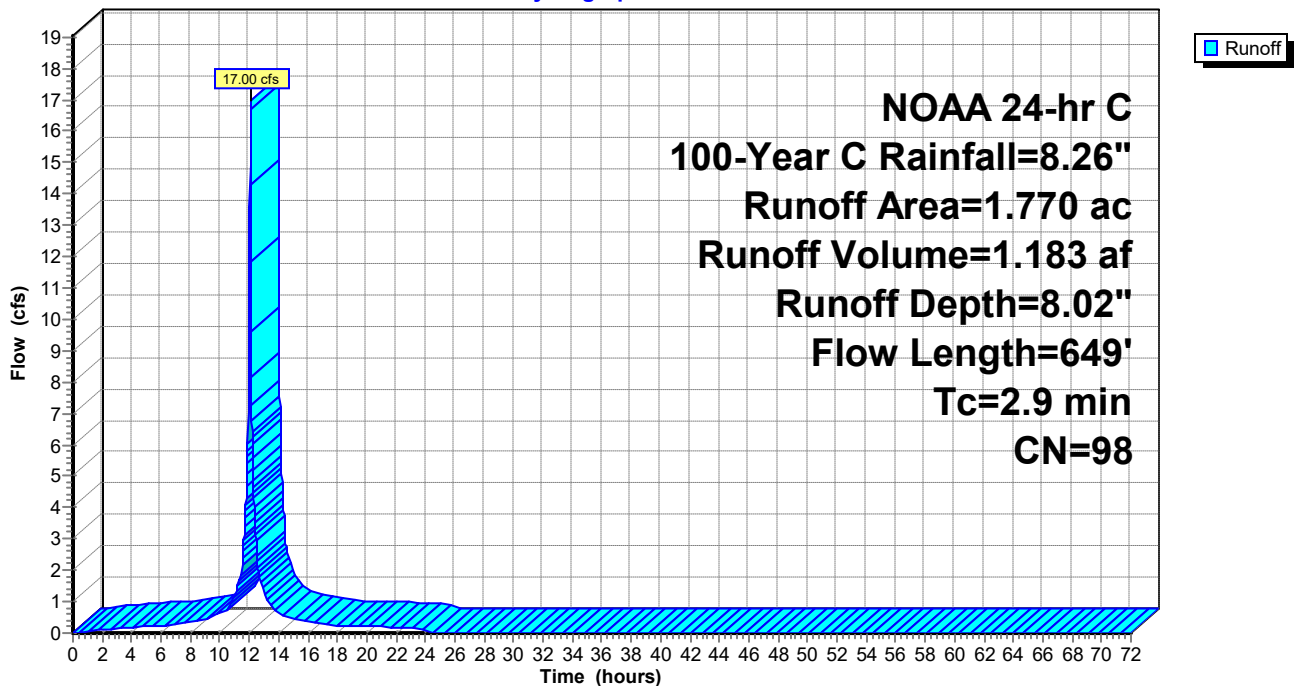
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
1.770	98	Paved parking, HSG D
1.770	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0220	1.47		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.8	549	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
2.9	649	Total			

Subcatchment I-1: EA-1 IMP

Hydrograph



Summary for Subcatchment P-1: EA-1 PER

Runoff = 3.29 cfs @ 12.11 hrs, Volume= 0.196 af, Depth= 5.87"

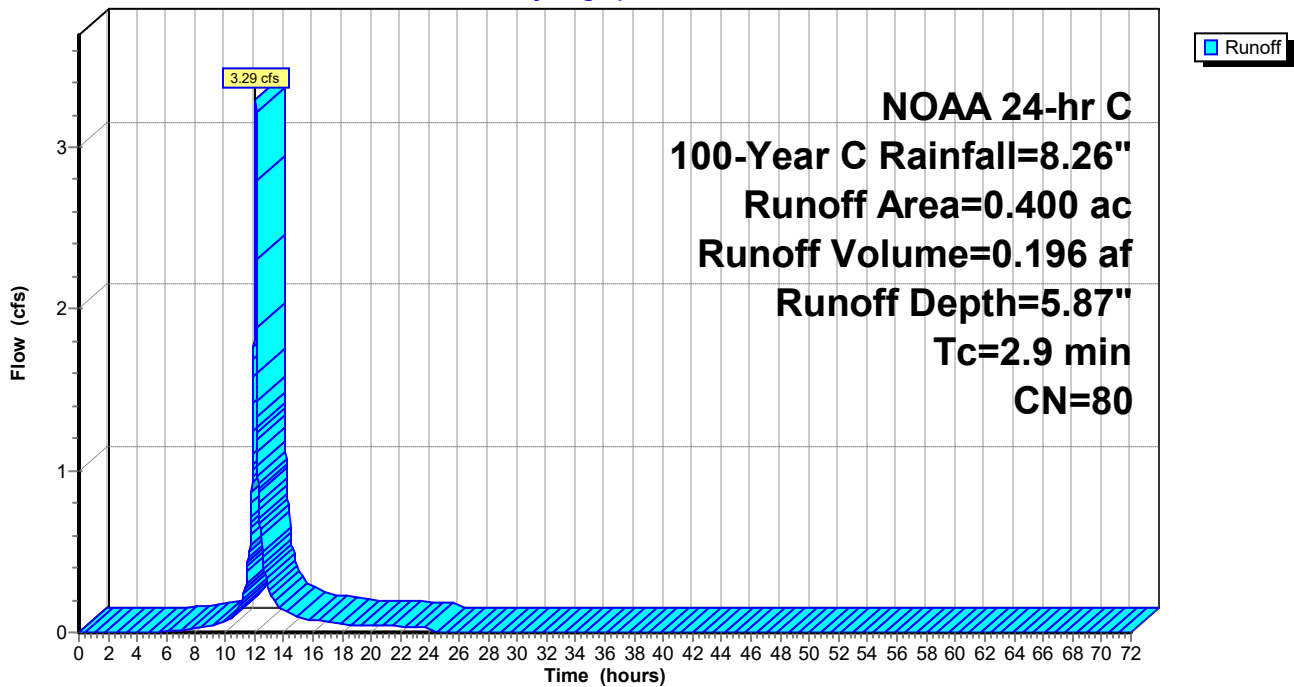
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.400	80	>75% Grass cover, Good, HSG D
0.400	80	100.00% Pervious Area

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

Subcatchment P-1: EA-1 PER

Hydrograph



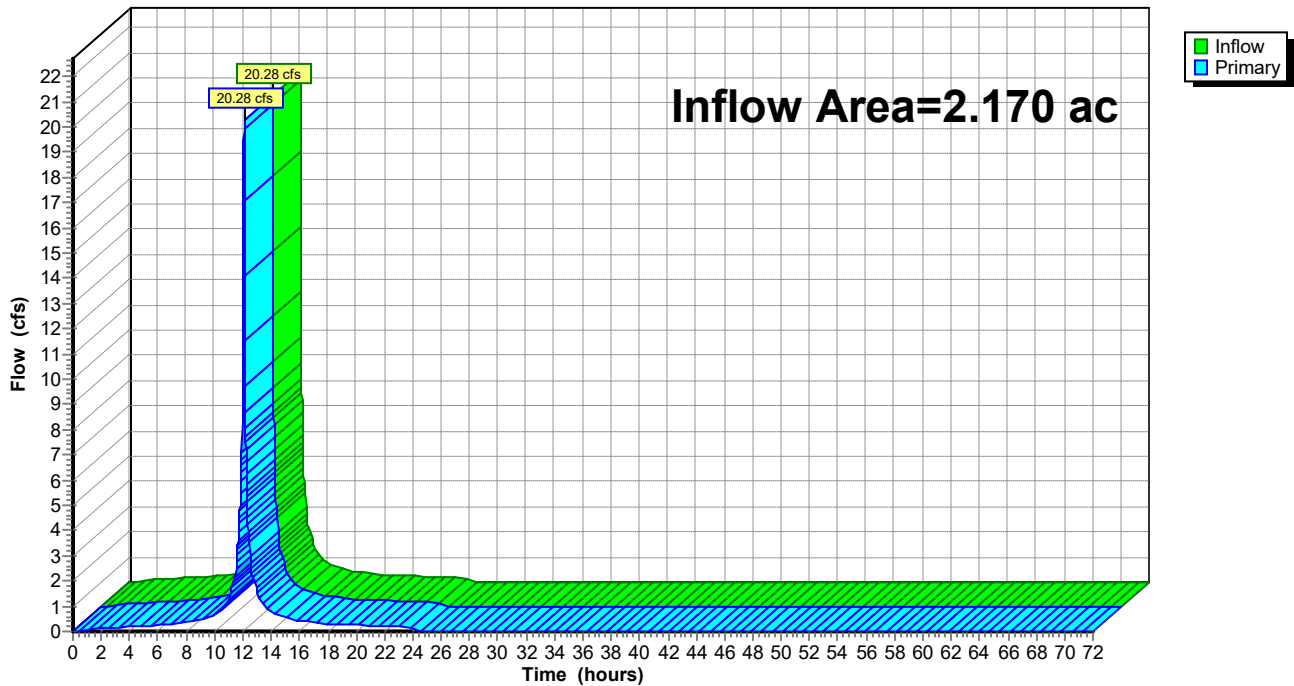
Summary for Pond EA-1: PRE - POI #1 (SW Basin)

Inflow Area = 2.170 ac, 81.57% Impervious, Inflow Depth = 7.62" for 100-Year C event
Inflow = 20.28 cfs @ 12.10 hrs, Volume= 1.379 af
Primary = 20.28 cfs @ 12.10 hrs, Volume= 1.379 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond EA-1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond EA-1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.05		0.05	53.00	0.00		0.00
2.00	0.12		0.12	54.00	0.00		0.00
3.00	0.15		0.15	55.00	0.00		0.00
4.00	0.18		0.18	56.00	0.00		0.00
5.00	0.20		0.20	57.00	0.00		0.00
6.00	0.23		0.23	58.00	0.00		0.00
7.00	0.30		0.30	59.00	0.00		0.00
8.00	0.37		0.37	60.00	0.00		0.00
9.00	0.44		0.44	61.00	0.00		0.00
10.00	0.69		0.69	62.00	0.00		0.00
11.00	1.31		1.31	63.00	0.00		0.00
12.00	12.03		12.03	64.00	0.00		0.00
13.00	1.60		1.60	65.00	0.00		0.00
14.00	0.79		0.79	66.00	0.00		0.00
15.00	0.53		0.53	67.00	0.00		0.00
16.00	0.44		0.44	68.00	0.00		0.00
17.00	0.37		0.37	69.00	0.00		0.00
18.00	0.29		0.29	70.00	0.00		0.00
19.00	0.27		0.27	71.00	0.00		0.00
20.00	0.25		0.25	72.00	0.00		0.00
21.00	0.24		0.24				
22.00	0.22		0.22				
23.00	0.20		0.20				
24.00	0.23		0.23				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment I-1: EA-1 IMP

Runoff = 23.09 cfs @ 12.10 hrs, Volume= 1.618 af, Depth=10.97"

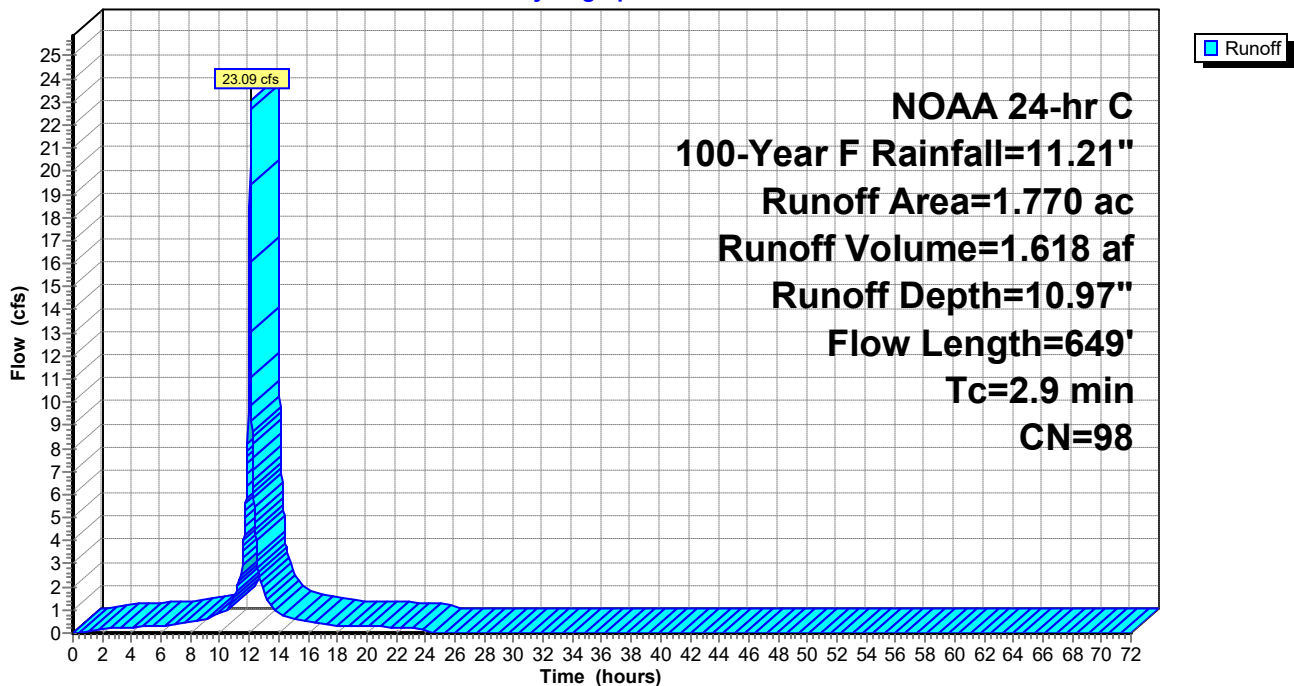
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
1.770	98	Paved parking, HSG D
1.770	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0220	1.47		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.8	549	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
2.9	649	Total			

Subcatchment I-1: EA-1 IMP

Hydrograph



Summary for Subcatchment P-1: EA-1 PER

Runoff = 4.75 cfs @ 12.11 hrs, Volume= 0.289 af, Depth= 8.68"

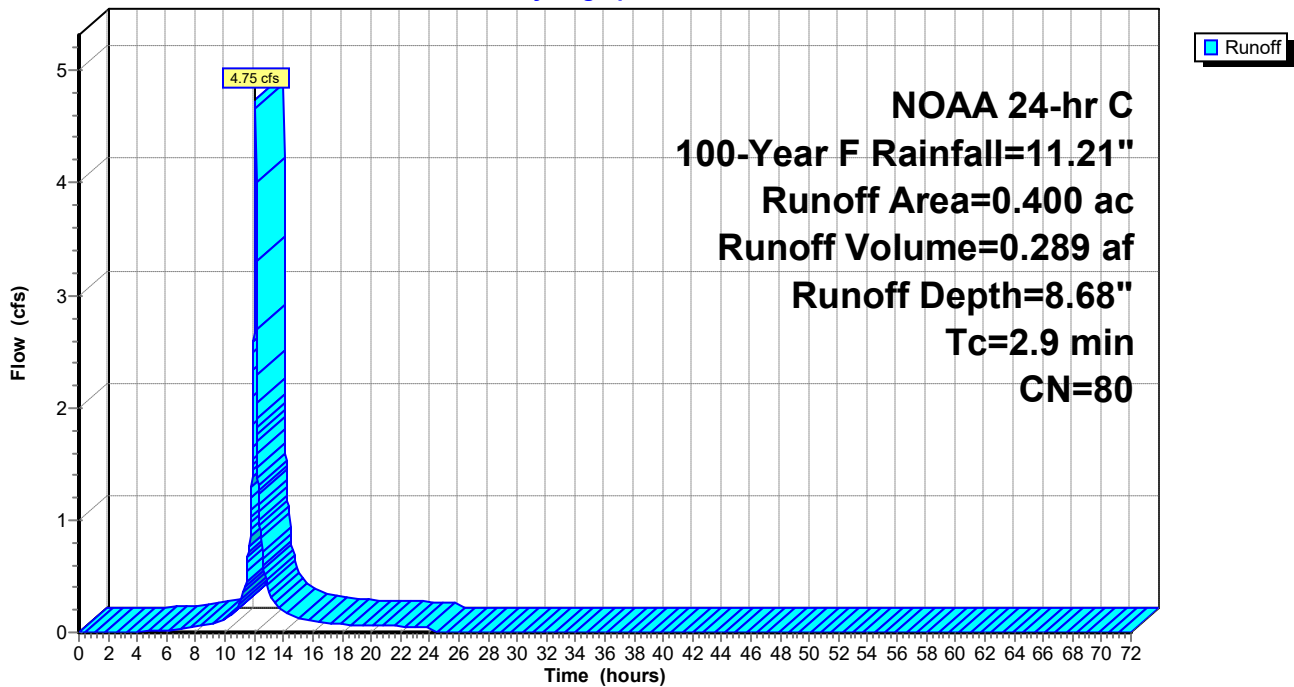
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.400	80	>75% Grass cover, Good, HSG D
0.400	80	100.00% Pervious Area

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

Subcatchment P-1: EA-1 PER

Hydrograph



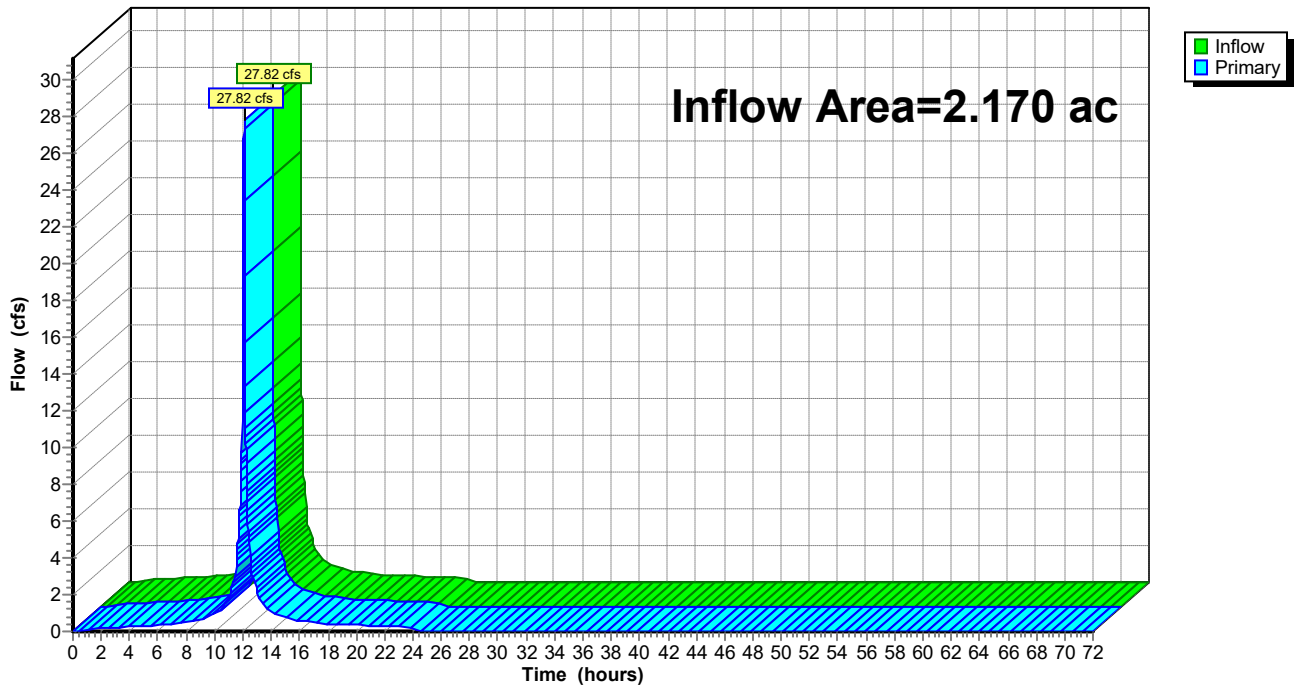
Summary for Pond EA-1: PRE - POI #1 (SW Basin)

Inflow Area = 2.170 ac, 81.57% Impervious, Inflow Depth = 10.55" for 100-Year F event
Inflow = 27.82 cfs @ 12.10 hrs, Volume= 1.907 af
Primary = 27.82 cfs @ 12.10 hrs, Volume= 1.907 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond EA-1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond EA-1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.10		0.10	53.00	0.00		0.00
2.00	0.18		0.18	54.00	0.00		0.00
3.00	0.23		0.23	55.00	0.00		0.00
4.00	0.26		0.26	56.00	0.00		0.00
5.00	0.30		0.30	57.00	0.00		0.00
6.00	0.33		0.33	58.00	0.00		0.00
7.00	0.42		0.42	59.00	0.00		0.00
8.00	0.52		0.52	60.00	0.00		0.00
9.00	0.62		0.62	61.00	0.00		0.00
10.00	0.97		0.97	62.00	0.00		0.00
11.00	1.83		1.83	63.00	0.00		0.00
12.00	16.55		16.55	64.00	0.00		0.00
13.00	2.19		2.19	65.00	0.00		0.00
14.00	1.08		1.08	66.00	0.00		0.00
15.00	0.72		0.72	67.00	0.00		0.00
16.00	0.59		0.59	68.00	0.00		0.00
17.00	0.50		0.50	69.00	0.00		0.00
18.00	0.40		0.40	70.00	0.00		0.00
19.00	0.37		0.37	71.00	0.00		0.00
20.00	0.35		0.35	72.00	0.00		0.00
21.00	0.32		0.32				
22.00	0.30		0.30				
23.00	0.28		0.28				
24.00	0.31		0.31				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1S: EA-2 IMP

Runoff = 9.56 cfs @ 1.10 hrs, Volume= 0.276 af, Depth= 1.03"

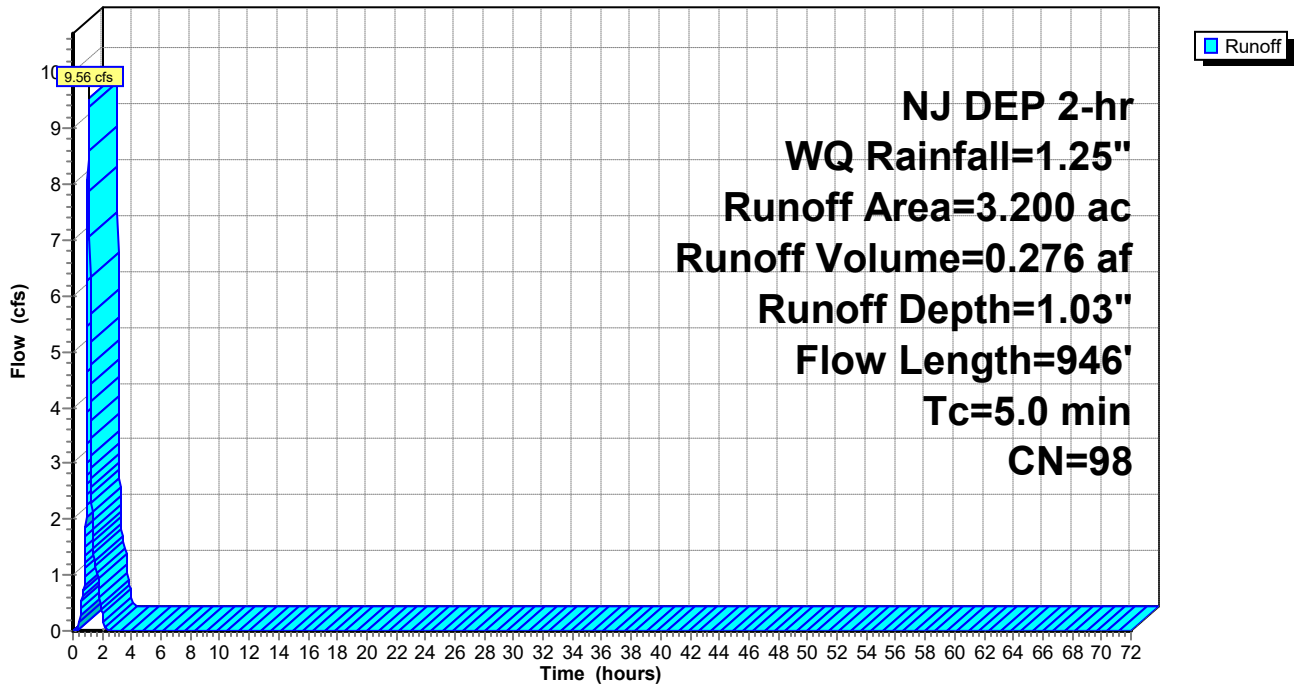
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
3.200	98	Paved parking, HSG D
3.200	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.4	233	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	613	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
5.0	946	Total			

Subcatchment 1S: EA-2 IMP

Hydrograph



Summary for Subcatchment 2S: EA-2 PER

Runoff = 1.69 cfs @ 1.13 hrs, Volume= 0.046 af, Depth= 0.17"

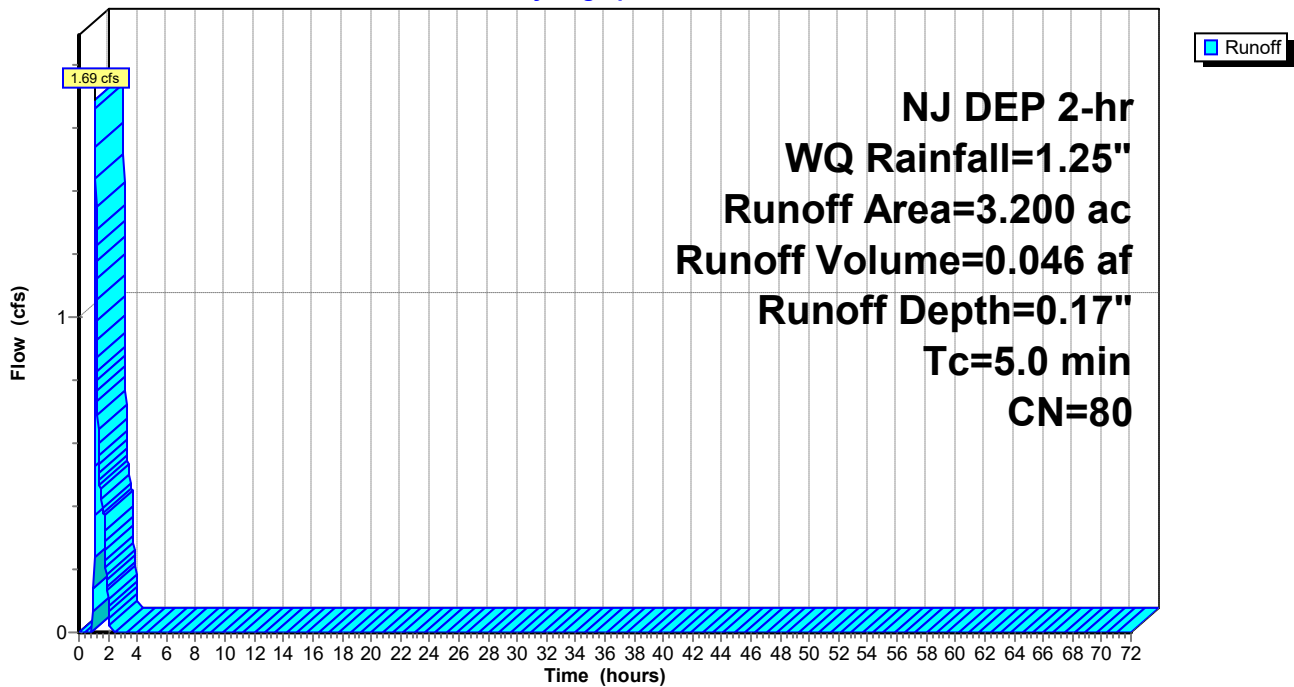
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
3.200	80	>75% Grass cover, Good, HSG D
3.200	80	100.00% Pervious Area

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

Subcatchment 2S: EA-2 PER

Hydrograph



Summary for Pond 3P: Existing Basin 1

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 0.60" for WQ event
 Inflow = 11.07 cfs @ 1.11 hrs, Volume= 0.322 af
 Outflow = 4.50 cfs @ 1.23 hrs, Volume= 0.322 af, Atten= 59%, Lag= 7.3 min
 Primary = 4.50 cfs @ 1.23 hrs, Volume= 0.322 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 66.74' @ 1.23 hrs Surf.Area= 10,979 sf Storage= 6,202 cf

Plug-Flow detention time= 27.4 min calculated for 0.322 af (100% of inflow)
 Center-of-Mass det. time= 27.8 min (98.9 - 71.1)

Volume	Invert	Avail.Storage	Storage Description
#1	65.50'	91,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.50	1,200	0	0
66.00	2,939	1,035	1,035
67.00	13,768	8,354	9,388
68.00	23,467	18,618	28,006
69.00	33,967	28,717	56,723
70.00	35,000	34,484	91,206

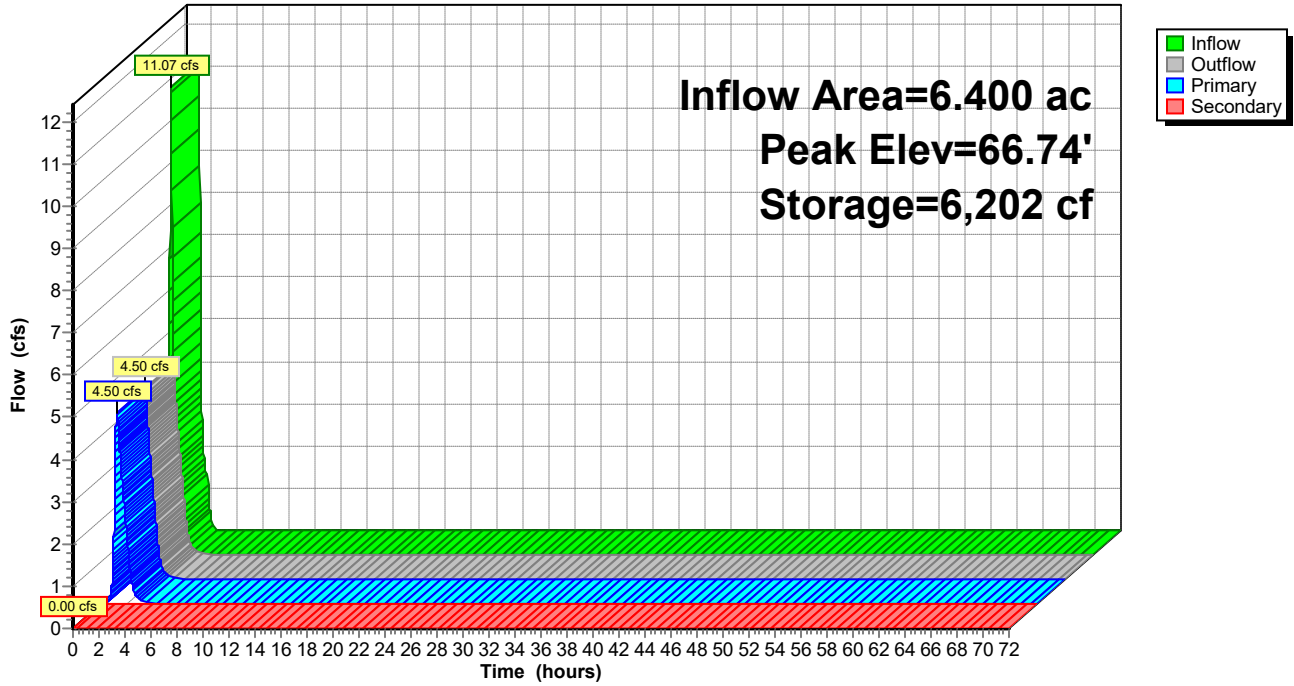
Device	Routing	Invert	Outlet Devices
#1	Primary	65.50'	24.0" Round Culvert L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.50' / 65.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	68.00'	25.0' long x 5.0' breadth Broad-Crested 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

Primary OutFlow Max=4.50 cfs @ 1.23 hrs HW=66.74' (Free Discharge)
 ↑1=Culvert (Barrel Controls 4.50 cfs @ 3.14 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Existing Basin 1

Hydrograph



Hydrograph for Pond 3P: Existing Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	65.50	0.00	0.00	0.00
2.00	0.45	2,029	66.24	1.56	1.56	0.00
4.00	0.00	170	65.62	0.02	0.02	0.00
6.00	0.00	88	65.57	0.01	0.01	0.00
8.00	0.00	61	65.55	0.00	0.00	0.00
10.00	0.00	49	65.54	0.00	0.00	0.00
12.00	0.00	40	65.53	0.00	0.00	0.00
14.00	0.00	32	65.52	0.00	0.00	0.00
16.00	0.00	26	65.52	0.00	0.00	0.00
18.00	0.00	21	65.52	0.00	0.00	0.00
20.00	0.00	17	65.51	0.00	0.00	0.00
22.00	0.00	13	65.51	0.00	0.00	0.00
24.00	0.00	11	65.51	0.00	0.00	0.00
26.00	0.00	9	65.51	0.00	0.00	0.00
28.00	0.00	7	65.51	0.00	0.00	0.00
30.00	0.00	6	65.50	0.00	0.00	0.00
32.00	0.00	5	65.50	0.00	0.00	0.00
34.00	0.00	4	65.50	0.00	0.00	0.00
36.00	0.00	3	65.50	0.00	0.00	0.00
38.00	0.00	2	65.50	0.00	0.00	0.00
40.00	0.00	2	65.50	0.00	0.00	0.00
42.00	0.00	2	65.50	0.00	0.00	0.00
44.00	0.00	1	65.50	0.00	0.00	0.00
46.00	0.00	1	65.50	0.00	0.00	0.00
48.00	0.00	1	65.50	0.00	0.00	0.00
50.00	0.00	1	65.50	0.00	0.00	0.00
52.00	0.00	1	65.50	0.00	0.00	0.00
54.00	0.00	0	65.50	0.00	0.00	0.00
56.00	0.00	0	65.50	0.00	0.00	0.00
58.00	0.00	0	65.50	0.00	0.00	0.00
60.00	0.00	0	65.50	0.00	0.00	0.00
62.00	0.00	0	65.50	0.00	0.00	0.00
64.00	0.00	0	65.50	0.00	0.00	0.00
66.00	0.00	0	65.50	0.00	0.00	0.00
68.00	0.00	0	65.50	0.00	0.00	0.00
70.00	0.00	0	65.50	0.00	0.00	0.00
72.00	0.00	0	65.50	0.00	0.00	0.00

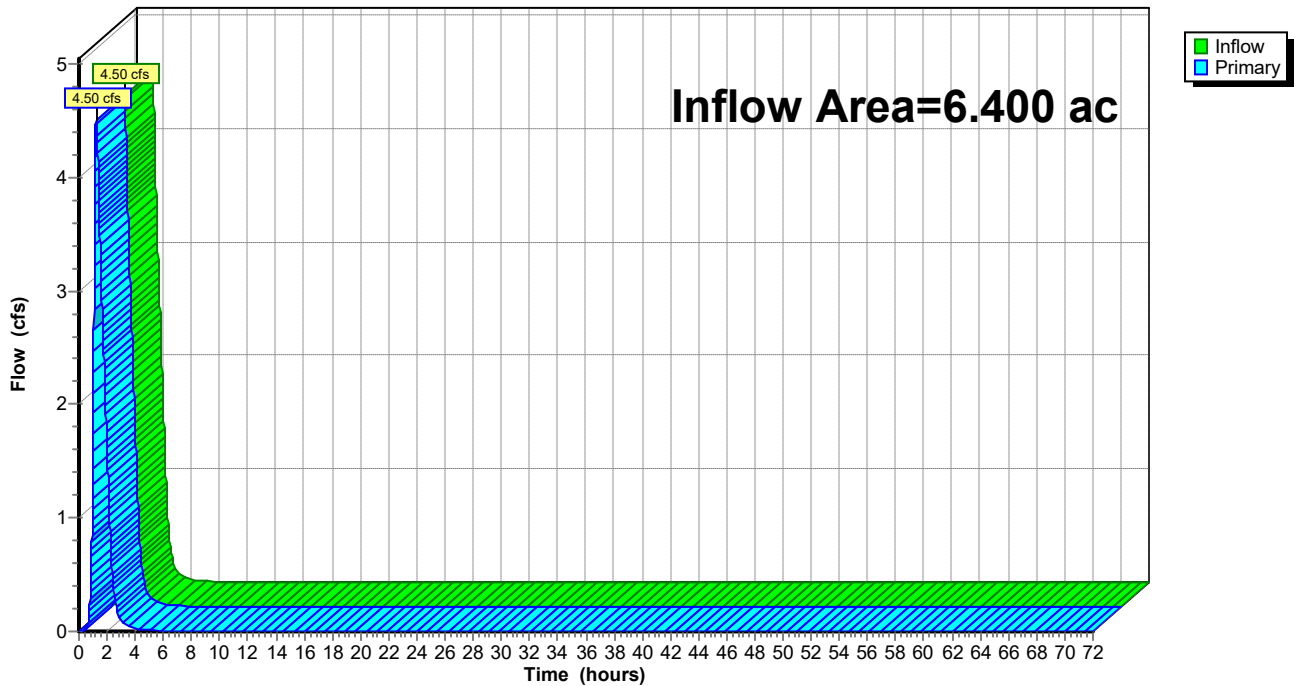
Summary for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 0.60" for WQ event
Inflow = 4.50 cfs @ 1.23 hrs, Volume= 0.322 af
Primary = 4.50 cfs @ 1.23 hrs, Volume= 0.322 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	1.58		1.58	53.00	0.00		0.00
2.00	1.56		1.56	54.00	0.00		0.00
3.00	0.10		0.10	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1S: EA-2 IMP

Runoff = 11.67 cfs @ 12.12 hrs, Volume= 0.823 af, Depth= 3.09"

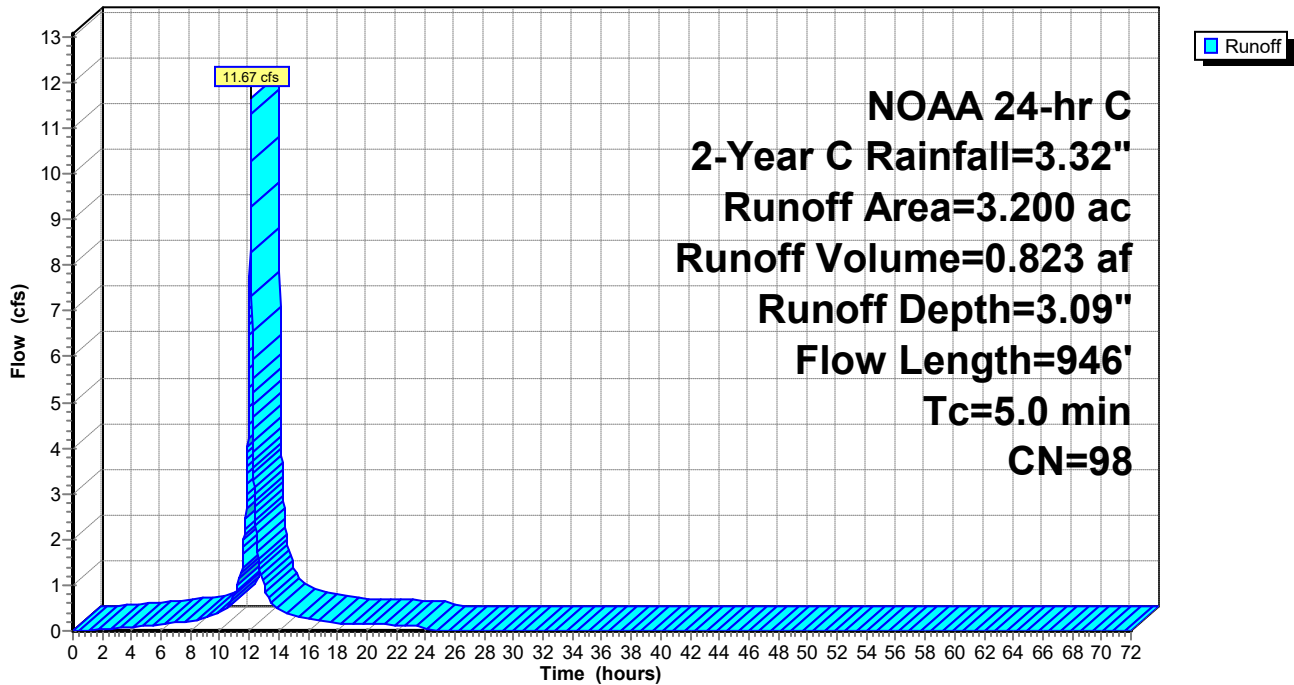
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
3.200	98	Paved parking, HSG D
3.200	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.4	233	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	613	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
5.0	946	Total			

Subcatchment 1S: EA-2 IMP

Hydrograph



Summary for Subcatchment 2S: EA-2 PER

Runoff = 6.62 cfs @ 12.13 hrs, Volume= 0.399 af, Depth= 1.49"

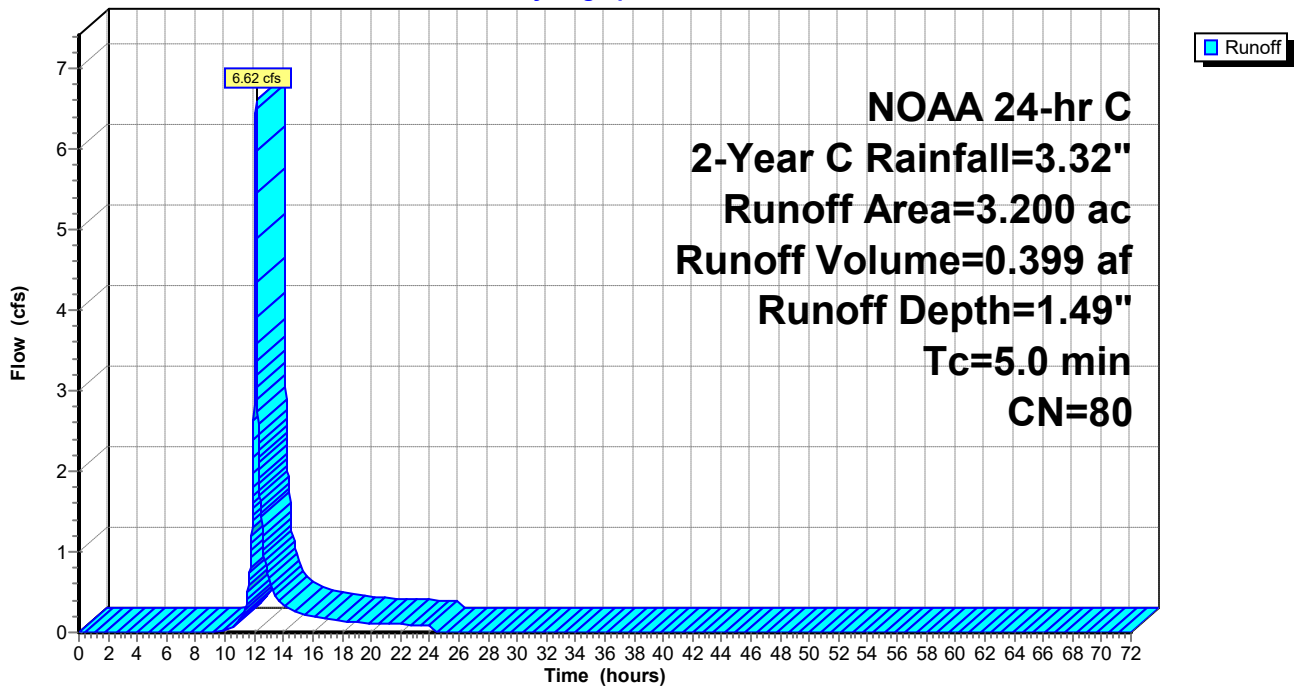
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
3.200	80	>75% Grass cover, Good, HSG D
3.200	80	100.00% Pervious Area

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

Subcatchment 2S: EA-2 PER

Hydrograph



Summary for Pond 3P: Existing Basin 1

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 2.29" for 2-Year C event
 Inflow = 18.27 cfs @ 12.12 hrs, Volume= 1.222 af
 Outflow = 7.47 cfs @ 12.24 hrs, Volume= 1.222 af, Atten= 59%, Lag= 7.2 min
 Primary = 7.47 cfs @ 12.24 hrs, Volume= 1.222 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.14' @ 12.24 hrs Surf.Area= 15,080 sf Storage= 11,339 cf

Plug-Flow detention time= 28.3 min calculated for 1.222 af (100% of inflow)
 Center-of-Mass det. time= 28.6 min (812.9 - 784.4)

Volume	Invert	Avail.Storage	Storage Description
#1	65.50'	91,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.50	1,200	0	0
66.00	2,939	1,035	1,035
67.00	13,768	8,354	9,388
68.00	23,467	18,618	28,006
69.00	33,967	28,717	56,723
70.00	35,000	34,484	91,206

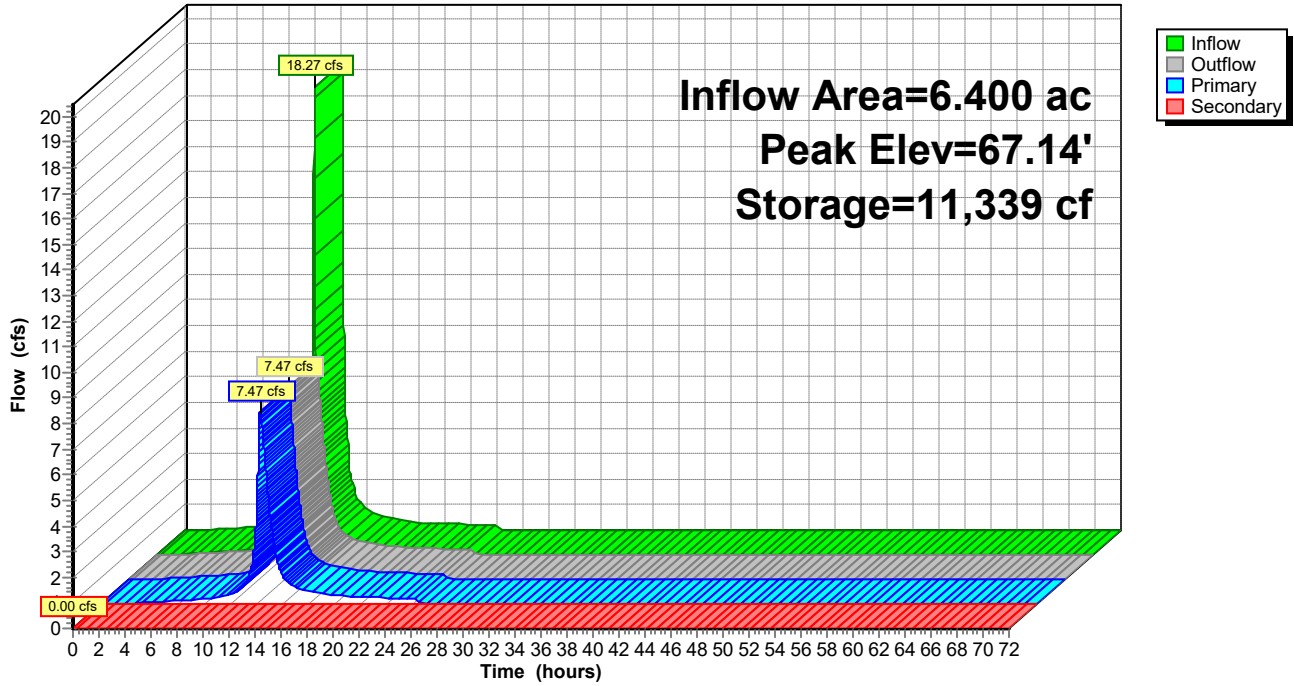
Device	Routing	Invert	Outlet Devices
#1	Primary	65.50'	24.0" Round Culvert L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.50' / 65.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	68.00'	25.0' long x 5.0' breadth Broad-Crested 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

Primary OutFlow Max=7.46 cfs @ 12.24 hrs HW=67.14' (Free Discharge)
 ↑1=Culvert (Barrel Controls 7.46 cfs @ 3.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Existing Basin 1

Hydrograph



Hydrograph for Pond 3P: Existing Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	65.50	0.00	0.00	0.00
2.00	0.03	47	65.54	0.00	0.00	0.00
4.00	0.09	288	65.69	0.07	0.07	0.00
6.00	0.13	387	65.74	0.12	0.12	0.00
8.00	0.22	508	65.80	0.20	0.20	0.00
10.00	0.46	739	65.89	0.39	0.39	0.00
12.00	9.87	5,127	66.64	3.81	3.81	0.00
14.00	0.82	1,478	66.12	1.10	1.10	0.00
16.00	0.46	835	65.93	0.48	0.48	0.00
18.00	0.31	674	65.87	0.33	0.33	0.00
20.00	0.27	601	65.84	0.28	0.28	0.00
22.00	0.23	555	65.82	0.24	0.24	0.00
24.00	0.23	510	65.80	0.21	0.21	0.00
26.00	0.00	133	65.60	0.01	0.01	0.00
28.00	0.00	78	65.56	0.00	0.00	0.00
30.00	0.00	57	65.54	0.00	0.00	0.00
32.00	0.00	46	65.54	0.00	0.00	0.00
34.00	0.00	37	65.53	0.00	0.00	0.00
36.00	0.00	30	65.52	0.00	0.00	0.00
38.00	0.00	24	65.52	0.00	0.00	0.00
40.00	0.00	19	65.52	0.00	0.00	0.00
42.00	0.00	16	65.51	0.00	0.00	0.00
44.00	0.00	13	65.51	0.00	0.00	0.00
46.00	0.00	10	65.51	0.00	0.00	0.00
48.00	0.00	8	65.51	0.00	0.00	0.00
50.00	0.00	7	65.51	0.00	0.00	0.00
52.00	0.00	5	65.50	0.00	0.00	0.00
54.00	0.00	4	65.50	0.00	0.00	0.00
56.00	0.00	3	65.50	0.00	0.00	0.00
58.00	0.00	3	65.50	0.00	0.00	0.00
60.00	0.00	2	65.50	0.00	0.00	0.00
62.00	0.00	2	65.50	0.00	0.00	0.00
64.00	0.00	1	65.50	0.00	0.00	0.00
66.00	0.00	1	65.50	0.00	0.00	0.00
68.00	0.00	1	65.50	0.00	0.00	0.00
70.00	0.00	1	65.50	0.00	0.00	0.00
72.00	0.00	1	65.50	0.00	0.00	0.00

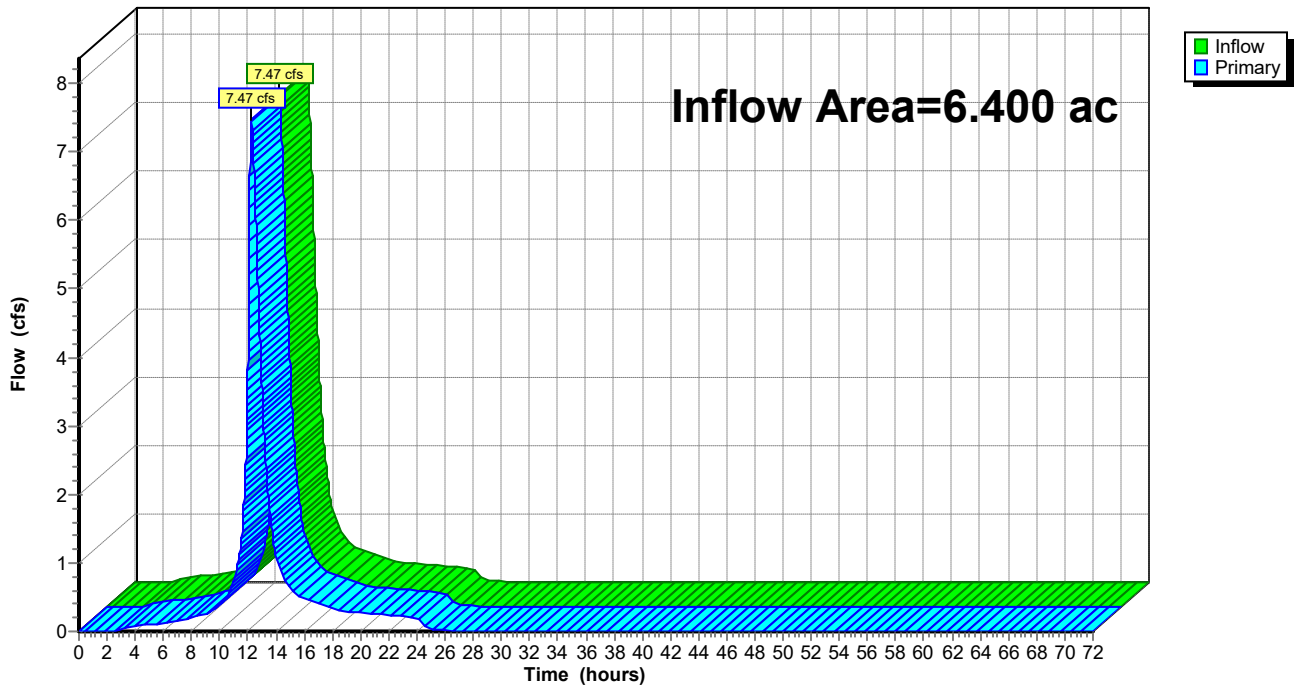
Summary for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 2.29" for 2-Year C event
Inflow = 7.47 cfs @ 12.24 hrs, Volume= 1.222 af
Primary = 7.47 cfs @ 12.24 hrs, Volume= 1.222 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.07		0.07	56.00	0.00		0.00
5.00	0.10		0.10	57.00	0.00		0.00
6.00	0.12		0.12	58.00	0.00		0.00
7.00	0.16		0.16	59.00	0.00		0.00
8.00	0.20		0.20	60.00	0.00		0.00
9.00	0.25		0.25	61.00	0.00		0.00
10.00	0.39		0.39	62.00	0.00		0.00
11.00	0.76		0.76	63.00	0.00		0.00
12.00	3.81		3.81	64.00	0.00		0.00
13.00	3.51		3.51	65.00	0.00		0.00
14.00	1.10		1.10	66.00	0.00		0.00
15.00	0.64		0.64	67.00	0.00		0.00
16.00	0.48		0.48	68.00	0.00		0.00
17.00	0.41		0.41	69.00	0.00		0.00
18.00	0.33		0.33	70.00	0.00		0.00
19.00	0.29		0.29	71.00	0.00		0.00
20.00	0.28		0.28	72.00	0.00		0.00
21.00	0.26		0.26				
22.00	0.24		0.24				
23.00	0.22		0.22				
24.00	0.21		0.21				
25.00	0.04		0.04				
26.00	0.01		0.01				
27.00	0.01		0.01				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1S: EA-2 IMP

Runoff = 13.53 cfs @ 12.12 hrs, Volume= 0.961 af, Depth= 3.61"

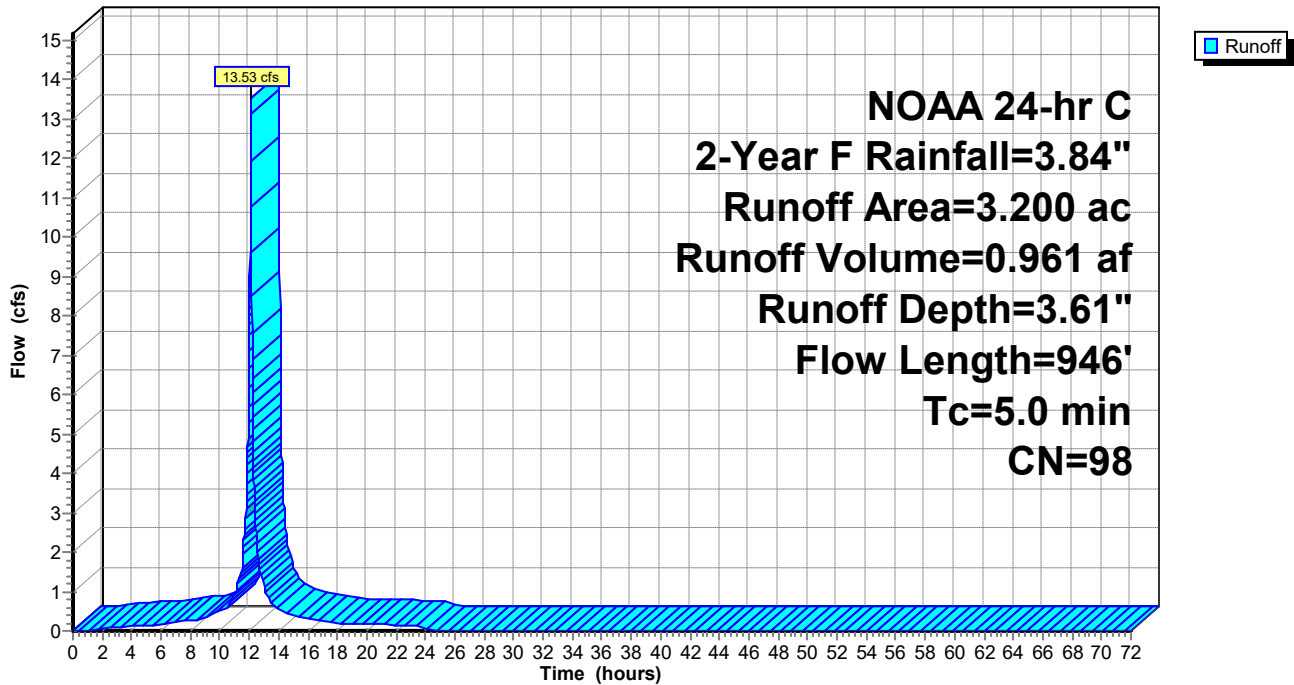
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
3.200	98	Paved parking, HSG D
3.200	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.4	233	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	613	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
5.0	946	Total			

Subcatchment 1S: EA-2 IMP

Hydrograph



Summary for Subcatchment 2S: EA-2 PER

Runoff = 8.45 cfs @ 12.13 hrs, Volume= 0.509 af, Depth= 1.91"

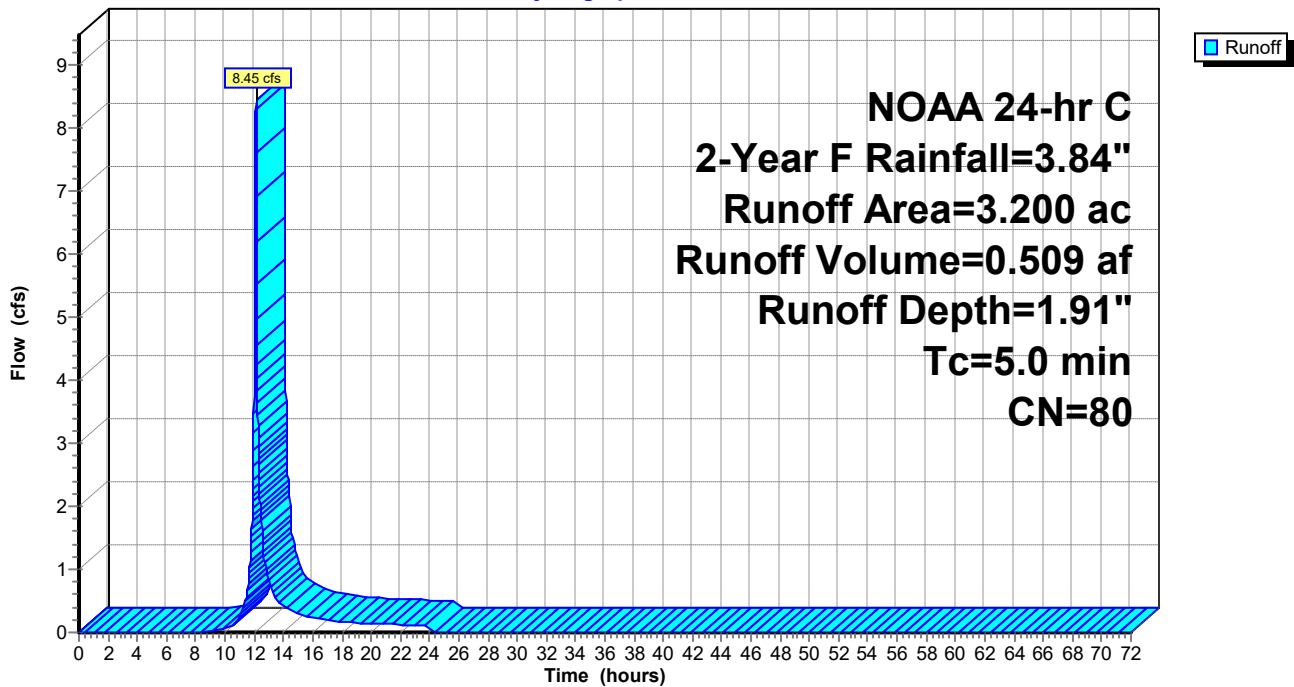
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
3.200	80	>75% Grass cover, Good, HSG D
3.200	80	100.00% Pervious Area

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

Subcatchment 2S: EA-2 PER

Hydrograph



Summary for Pond 3P: Existing Basin 1

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 2.76" for 2-Year F event
 Inflow = 21.96 cfs @ 12.12 hrs, Volume= 1.471 af
 Outflow = 8.76 cfs @ 12.25 hrs, Volume= 1.471 af, Atten= 60%, Lag= 7.4 min
 Primary = 8.76 cfs @ 12.25 hrs, Volume= 1.471 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.29' @ 12.25 hrs Surf.Area= 16,627 sf Storage= 13,868 cf

Plug-Flow detention time= 27.6 min calculated for 1.471 af (100% of inflow)
 Center-of-Mass det. time= 27.9 min (809.5 - 781.7)

Volume	Invert	Avail.Storage	Storage Description
#1	65.50'	91,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.50	1,200	0	0
66.00	2,939	1,035	1,035
67.00	13,768	8,354	9,388
68.00	23,467	18,618	28,006
69.00	33,967	28,717	56,723
70.00	35,000	34,484	91,206

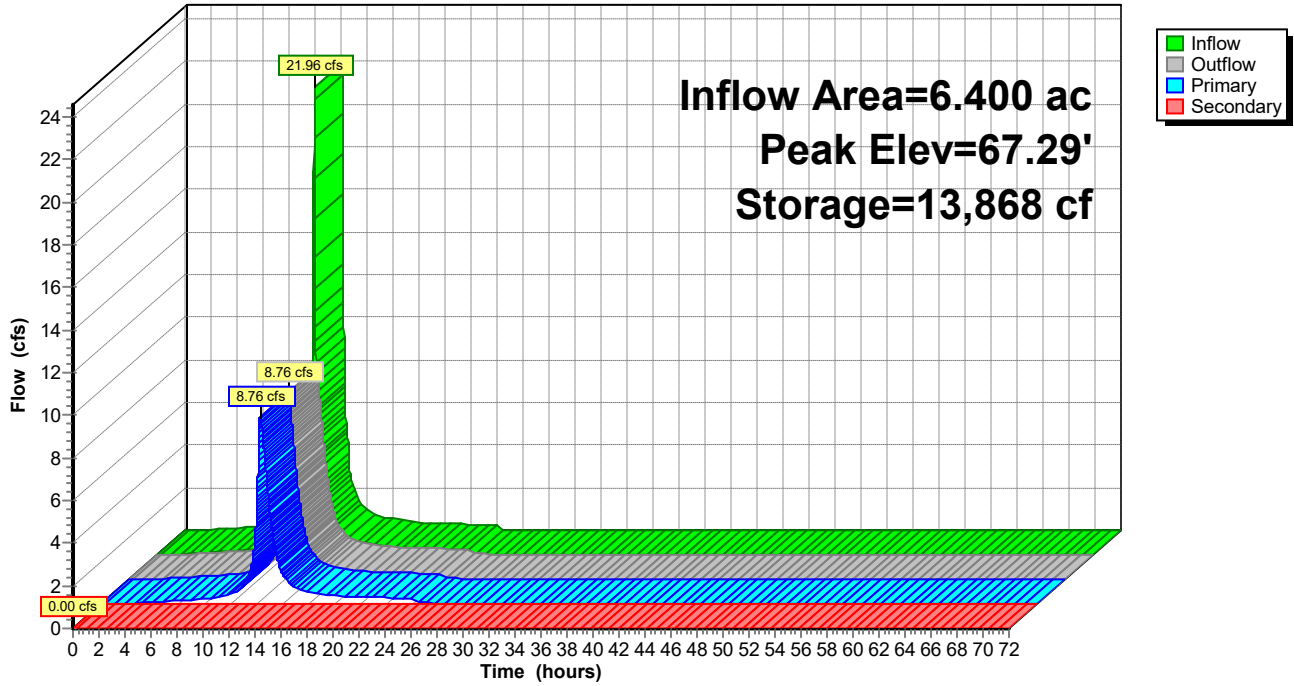
Device	Routing	Invert	Outlet Devices
#1	Primary	65.50'	24.0" Round Culvert L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.50' / 65.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	68.00'	25.0' long x 5.0' breadth Broad-Crested 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

Primary OutFlow Max=8.76 cfs @ 12.25 hrs HW=67.29' (Free Discharge)
 ↑1=Culvert (Barrel Controls 8.76 cfs @ 3.89 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Existing Basin 1

Hydrograph



Hydrograph for Pond 3P: Existing Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	65.50	0.00	0.00	0.00
2.00	0.05	81	65.56	0.00	0.00	0.00
4.00	0.11	338	65.71	0.09	0.09	0.00
6.00	0.16	432	65.76	0.15	0.15	0.00
8.00	0.26	563	65.82	0.24	0.24	0.00
10.00	0.57	850	65.93	0.49	0.49	0.00
12.00	11.94	6,257	66.75	4.54	4.54	0.00
14.00	0.98	1,763	66.18	1.34	1.34	0.00
16.00	0.54	927	65.96	0.57	0.57	0.00
18.00	0.37	743	65.89	0.40	0.40	0.00
20.00	0.32	662	65.86	0.32	0.32	0.00
22.00	0.27	609	65.84	0.28	0.28	0.00
24.00	0.28	560	65.82	0.24	0.24	0.00
26.00	0.00	136	65.60	0.01	0.01	0.00
28.00	0.00	79	65.56	0.00	0.00	0.00
30.00	0.00	58	65.55	0.00	0.00	0.00
32.00	0.00	46	65.54	0.00	0.00	0.00
34.00	0.00	37	65.53	0.00	0.00	0.00
36.00	0.00	30	65.52	0.00	0.00	0.00
38.00	0.00	24	65.52	0.00	0.00	0.00
40.00	0.00	20	65.52	0.00	0.00	0.00
42.00	0.00	16	65.51	0.00	0.00	0.00
44.00	0.00	13	65.51	0.00	0.00	0.00
46.00	0.00	10	65.51	0.00	0.00	0.00
48.00	0.00	8	65.51	0.00	0.00	0.00
50.00	0.00	7	65.51	0.00	0.00	0.00
52.00	0.00	5	65.50	0.00	0.00	0.00
54.00	0.00	4	65.50	0.00	0.00	0.00
56.00	0.00	3	65.50	0.00	0.00	0.00
58.00	0.00	3	65.50	0.00	0.00	0.00
60.00	0.00	2	65.50	0.00	0.00	0.00
62.00	0.00	2	65.50	0.00	0.00	0.00
64.00	0.00	1	65.50	0.00	0.00	0.00
66.00	0.00	1	65.50	0.00	0.00	0.00
68.00	0.00	1	65.50	0.00	0.00	0.00
70.00	0.00	1	65.50	0.00	0.00	0.00
72.00	0.00	1	65.50	0.00	0.00	0.00

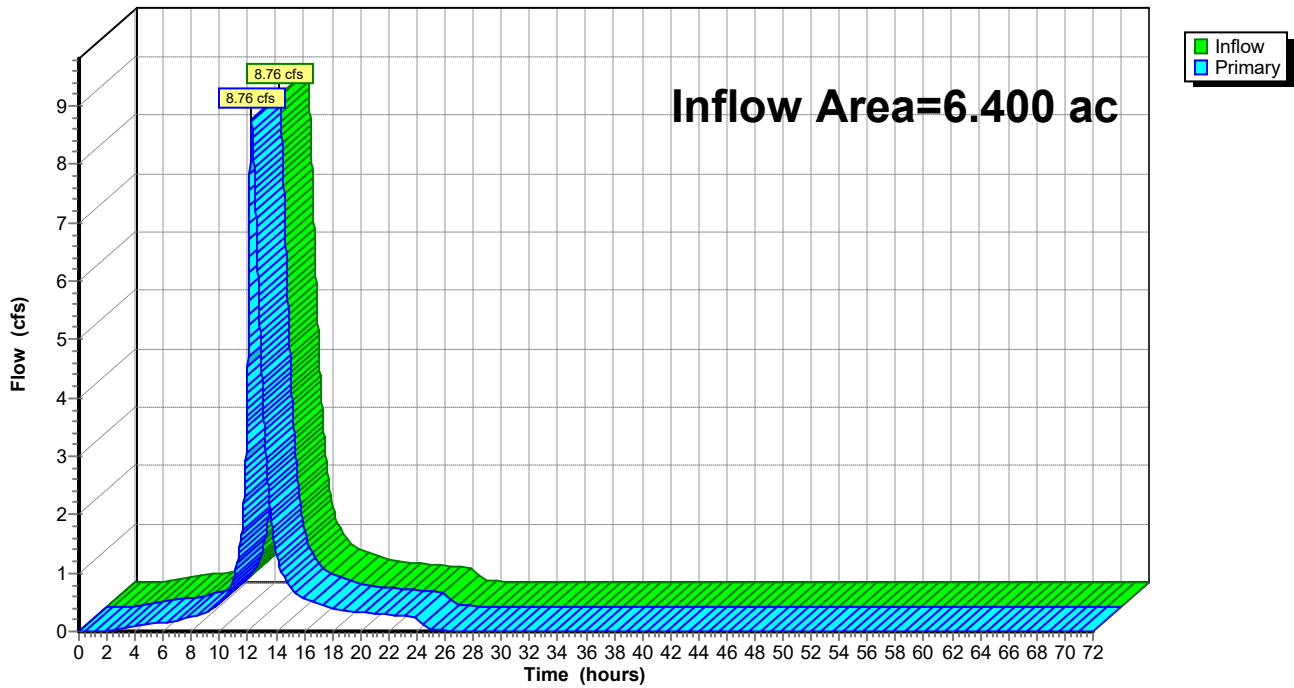
Summary for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 2.76" for 2-Year F event
Inflow = 8.76 cfs @ 12.25 hrs, Volume= 1.471 af
Primary = 8.76 cfs @ 12.25 hrs, Volume= 1.471 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.05		0.05	55.00	0.00		0.00
4.00	0.09		0.09	56.00	0.00		0.00
5.00	0.13		0.13	57.00	0.00		0.00
6.00	0.15		0.15	58.00	0.00		0.00
7.00	0.19		0.19	59.00	0.00		0.00
8.00	0.24		0.24	60.00	0.00		0.00
9.00	0.31		0.31	61.00	0.00		0.00
10.00	0.49		0.49	62.00	0.00		0.00
11.00	0.93		0.93	63.00	0.00		0.00
12.00	4.54		4.54	64.00	0.00		0.00
13.00	4.30		4.30	65.00	0.00		0.00
14.00	1.34		1.34	66.00	0.00		0.00
15.00	0.76		0.76	67.00	0.00		0.00
16.00	0.57		0.57	68.00	0.00		0.00
17.00	0.48		0.48	69.00	0.00		0.00
18.00	0.40		0.40	70.00	0.00		0.00
19.00	0.35		0.35	71.00	0.00		0.00
20.00	0.32		0.32	72.00	0.00		0.00
21.00	0.30		0.30				
22.00	0.28		0.28				
23.00	0.26		0.26				
24.00	0.24		0.24				
25.00	0.04		0.04				
26.00	0.01		0.01				
27.00	0.01		0.01				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1S: EA-2 IMP

Runoff = 17.68 cfs @ 12.12 hrs, Volume= 1.270 af, Depth= 4.76"

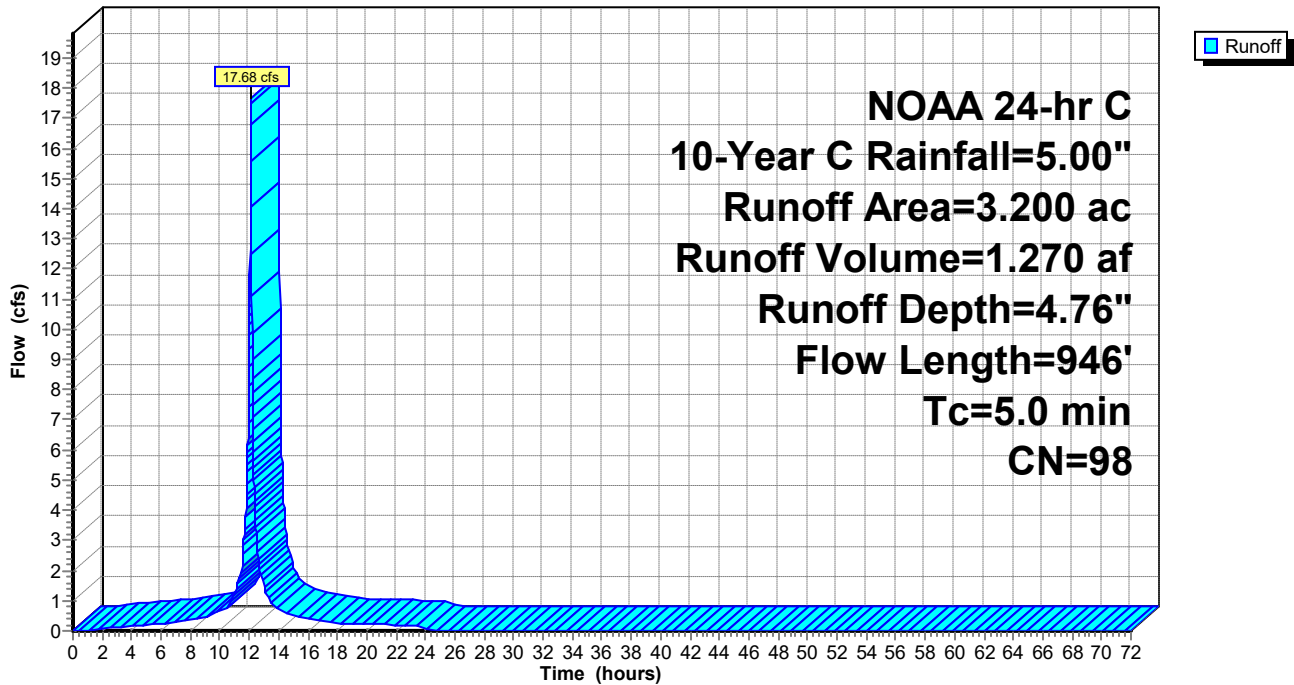
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
3.200	98	Paved parking, HSG D
3.200	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.4	233	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	613	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
5.0	946	Total			

Subcatchment 1S: EA-2 IMP

Hydrograph



Summary for Subcatchment 2S: EA-2 PER

Runoff = 12.65 cfs @ 12.12 hrs, Volume= 0.771 af, Depth= 2.89"

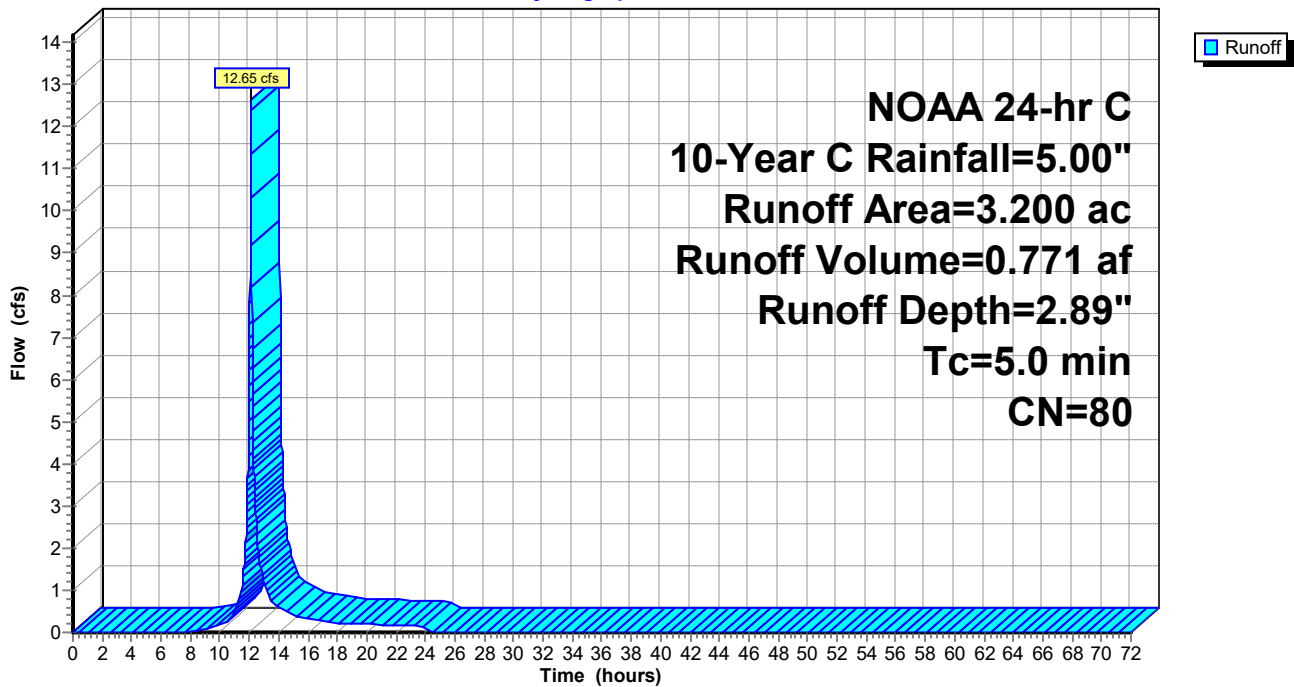
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
3.200	80	>75% Grass cover, Good, HSG D
3.200	80	100.00% Pervious Area

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

Subcatchment 2S: EA-2 PER

Hydrograph



Summary for Pond 3P: Existing Basin 1

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 3.83" for 10-Year C event
 Inflow = 30.33 cfs @ 12.12 hrs, Volume= 2.042 af
 Outflow = 11.44 cfs @ 12.25 hrs, Volume= 2.042 af, Atten= 62%, Lag= 8.0 min
 Primary = 11.44 cfs @ 12.25 hrs, Volume= 2.042 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.62' @ 12.25 hrs Surf.Area= 19,828 sf Storage= 19,885 cf

Plug-Flow detention time= 27.0 min calculated for 2.041 af (100% of inflow)
 Center-of-Mass det. time= 27.2 min (803.9 - 776.7)

Volume	Invert	Avail.Storage	Storage Description
#1	65.50'	91,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.50	1,200	0	0
66.00	2,939	1,035	1,035
67.00	13,768	8,354	9,388
68.00	23,467	18,618	28,006
69.00	33,967	28,717	56,723
70.00	35,000	34,484	91,206

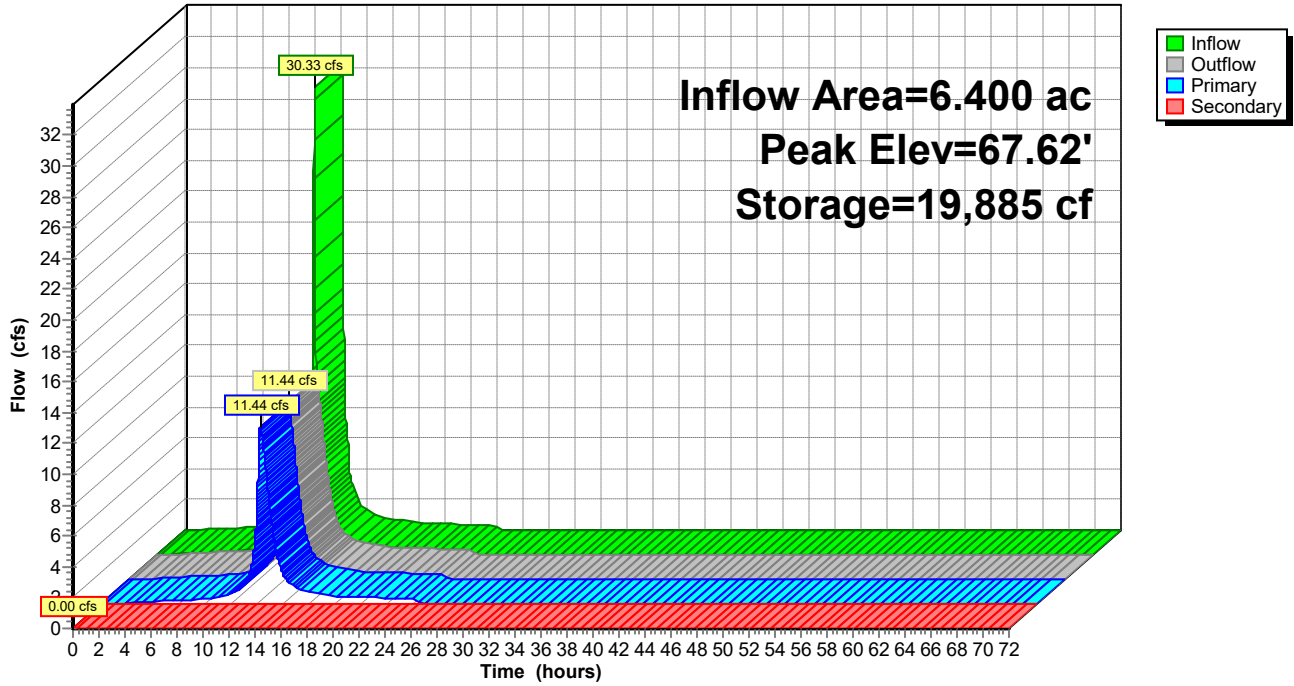
Device	Routing	Invert	Outlet Devices
#1	Primary	65.50'	24.0" Round Culvert L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.50' / 65.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	68.00'	25.0' long x 5.0' breadth Broad-Crested 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

Primary OutFlow Max=11.44 cfs @ 12.25 hrs HW=67.62' (Free Discharge)
 ↑1=Culvert (Barrel Controls 11.44 cfs @ 4.26 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Existing Basin 1

Hydrograph



Hydrograph for Pond 3P: Existing Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	65.50	0.00	0.00	0.00
2.00	0.08	173	65.62	0.02	0.02	0.00
4.00	0.17	432	65.76	0.15	0.15	0.00
6.00	0.22	522	65.80	0.21	0.21	0.00
8.00	0.39	693	65.87	0.35	0.35	0.00
10.00	0.84	1,096	66.02	0.74	0.74	0.00
12.00	16.69	8,949	66.97	6.15	6.15	0.00
14.00	1.32	2,503	66.32	1.94	1.94	0.00
16.00	0.73	1,128	66.03	0.77	0.77	0.00
18.00	0.50	888	65.95	0.53	0.53	0.00
20.00	0.43	788	65.91	0.44	0.44	0.00
22.00	0.37	723	65.89	0.38	0.38	0.00
24.00	0.37	663	65.86	0.33	0.33	0.00
26.00	0.00	142	65.60	0.02	0.02	0.00
28.00	0.00	81	65.56	0.00	0.00	0.00
30.00	0.00	58	65.55	0.00	0.00	0.00
32.00	0.00	47	65.54	0.00	0.00	0.00
34.00	0.00	38	65.53	0.00	0.00	0.00
36.00	0.00	30	65.52	0.00	0.00	0.00
38.00	0.00	25	65.52	0.00	0.00	0.00
40.00	0.00	20	65.52	0.00	0.00	0.00
42.00	0.00	16	65.51	0.00	0.00	0.00
44.00	0.00	13	65.51	0.00	0.00	0.00
46.00	0.00	10	65.51	0.00	0.00	0.00
48.00	0.00	8	65.51	0.00	0.00	0.00
50.00	0.00	7	65.51	0.00	0.00	0.00
52.00	0.00	5	65.50	0.00	0.00	0.00
54.00	0.00	4	65.50	0.00	0.00	0.00
56.00	0.00	4	65.50	0.00	0.00	0.00
58.00	0.00	3	65.50	0.00	0.00	0.00
60.00	0.00	2	65.50	0.00	0.00	0.00
62.00	0.00	2	65.50	0.00	0.00	0.00
64.00	0.00	1	65.50	0.00	0.00	0.00
66.00	0.00	1	65.50	0.00	0.00	0.00
68.00	0.00	1	65.50	0.00	0.00	0.00
70.00	0.00	1	65.50	0.00	0.00	0.00
72.00	0.00	1	65.50	0.00	0.00	0.00

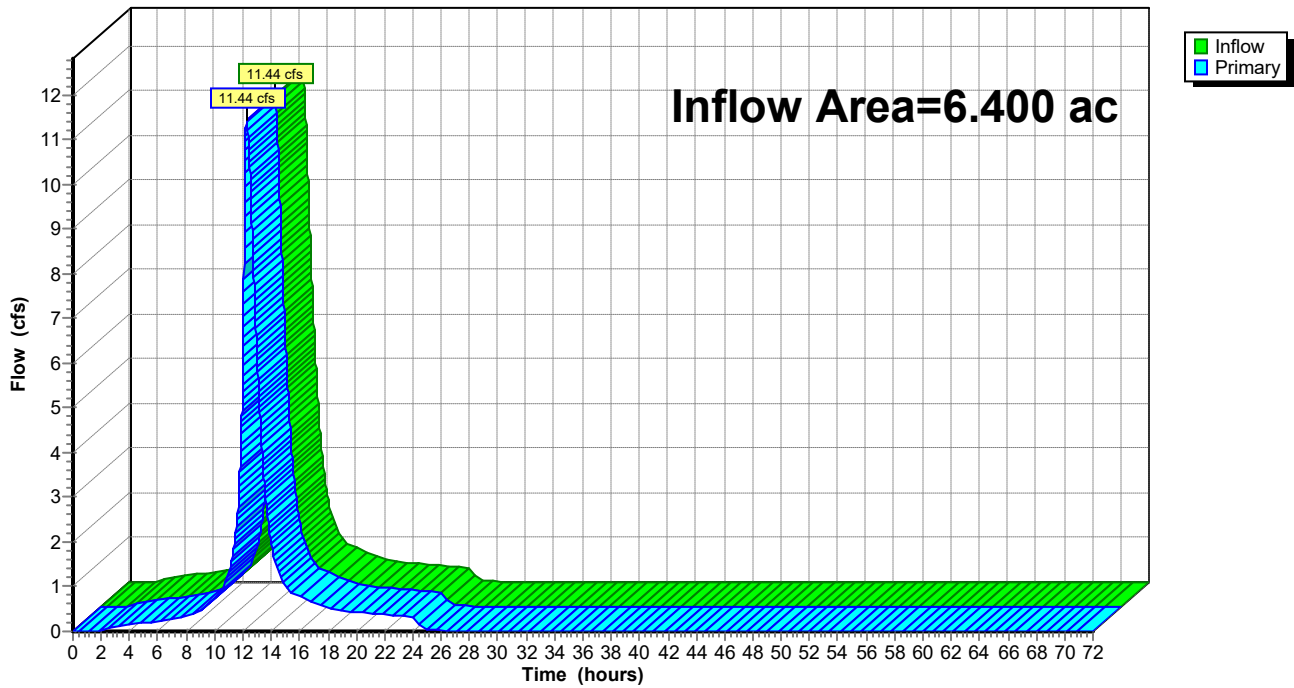
Summary for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 3.83" for 10-Year C event
Inflow = 11.44 cfs @ 12.25 hrs, Volume= 2.042 af
Primary = 11.44 cfs @ 12.25 hrs, Volume= 2.042 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.10		0.10	55.00	0.00		0.00
4.00	0.15		0.15	56.00	0.00		0.00
5.00	0.19		0.19	57.00	0.00		0.00
6.00	0.21		0.21	58.00	0.00		0.00
7.00	0.27		0.27	59.00	0.00		0.00
8.00	0.35		0.35	60.00	0.00		0.00
9.00	0.46		0.46	61.00	0.00		0.00
10.00	0.74		0.74	62.00	0.00		0.00
11.00	1.33		1.33	63.00	0.00		0.00
12.00	6.15		6.15	64.00	0.00		0.00
13.00	6.17		6.17	65.00	0.00		0.00
14.00	1.94		1.94	66.00	0.00		0.00
15.00	1.05		1.05	67.00	0.00		0.00
16.00	0.77		0.77	68.00	0.00		0.00
17.00	0.65		0.65	69.00	0.00		0.00
18.00	0.53		0.53	70.00	0.00		0.00
19.00	0.47		0.47	71.00	0.00		0.00
20.00	0.44		0.44	72.00	0.00		0.00
21.00	0.41		0.41				
22.00	0.38		0.38				
23.00	0.35		0.35				
24.00	0.33		0.33				
25.00	0.05		0.05				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1S: EA-2 IMP

Runoff = 20.79 cfs @ 12.12 hrs, Volume= 1.502 af, Depth= 5.63"

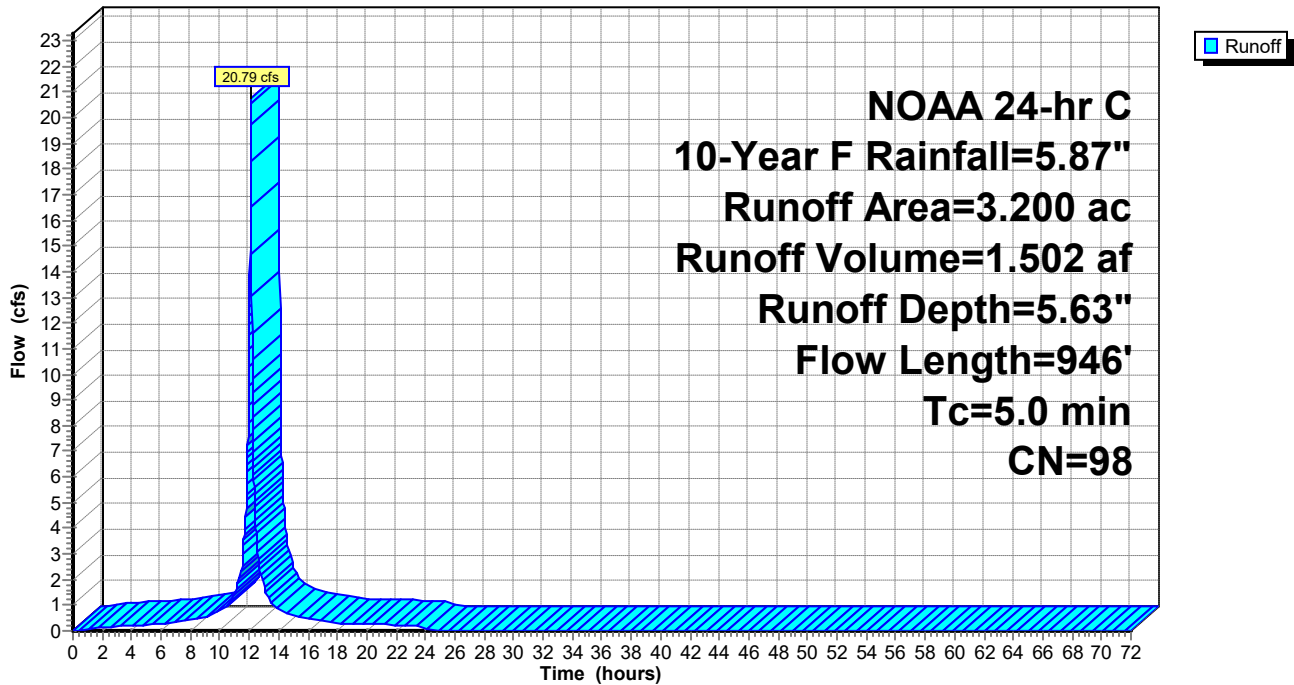
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
3.200	98	Paved parking, HSG D
3.200	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.4	233	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	613	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
5.0	946	Total			

Subcatchment 1S: EA-2 IMP

Hydrograph



Summary for Subcatchment 2S: EA-2 PER

Runoff = 15.89 cfs @ 12.12 hrs, Volume= 0.977 af, Depth= 3.66"

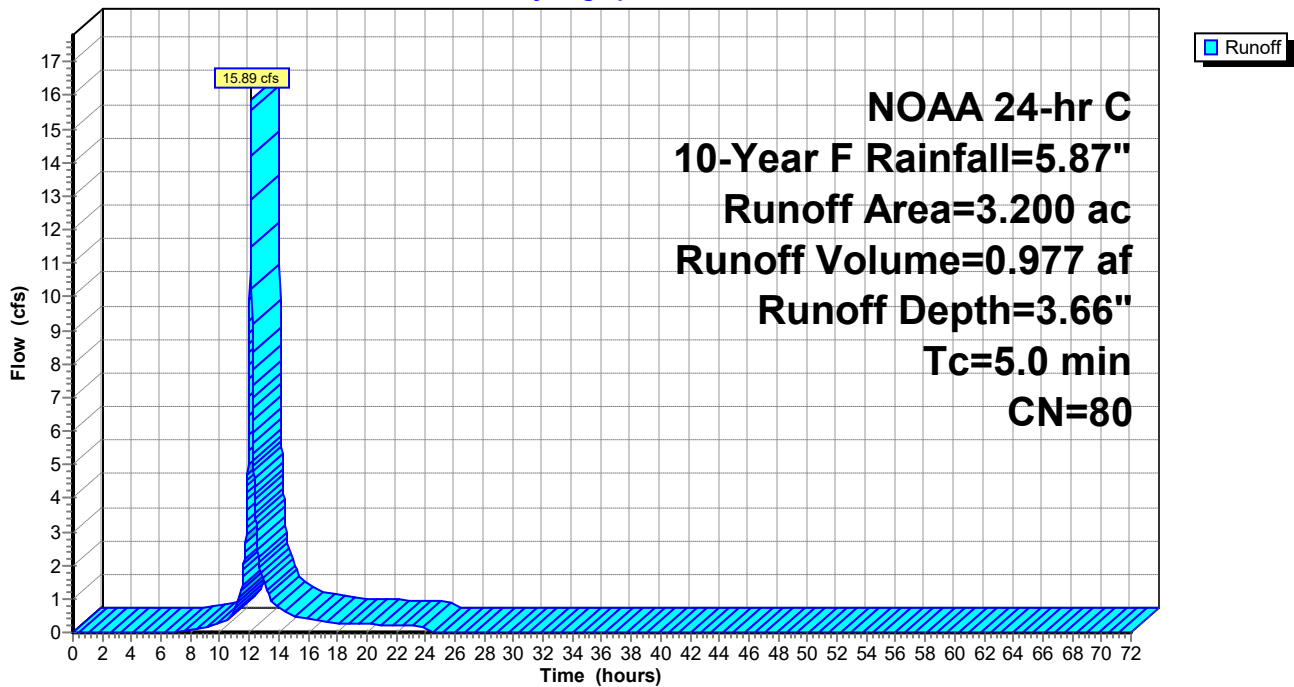
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
3.200	80	>75% Grass cover, Good, HSG D
3.200	80	100.00% Pervious Area

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

Subcatchment 2S: EA-2 PER

Hydrograph



Summary for Pond 3P: Existing Basin 1

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 4.65" for 10-Year F event
 Inflow = 36.67 cfs @ 12.12 hrs, Volume= 2.479 af
 Outflow = 13.16 cfs @ 12.26 hrs, Volume= 2.479 af, Atten= 64%, Lag= 8.5 min
 Primary = 13.16 cfs @ 12.26 hrs, Volume= 2.479 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.86' @ 12.26 hrs Surf.Area= 22,071 sf Storage= 24,728 cf

Plug-Flow detention time= 27.0 min calculated for 2.479 af (100% of inflow)
 Center-of-Mass det. time= 27.2 min (800.9 - 773.6)

Volume	Invert	Avail.Storage	Storage Description
#1	65.50'	91,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.50	1,200	0	0
66.00	2,939	1,035	1,035
67.00	13,768	8,354	9,388
68.00	23,467	18,618	28,006
69.00	33,967	28,717	56,723
70.00	35,000	34,484	91,206

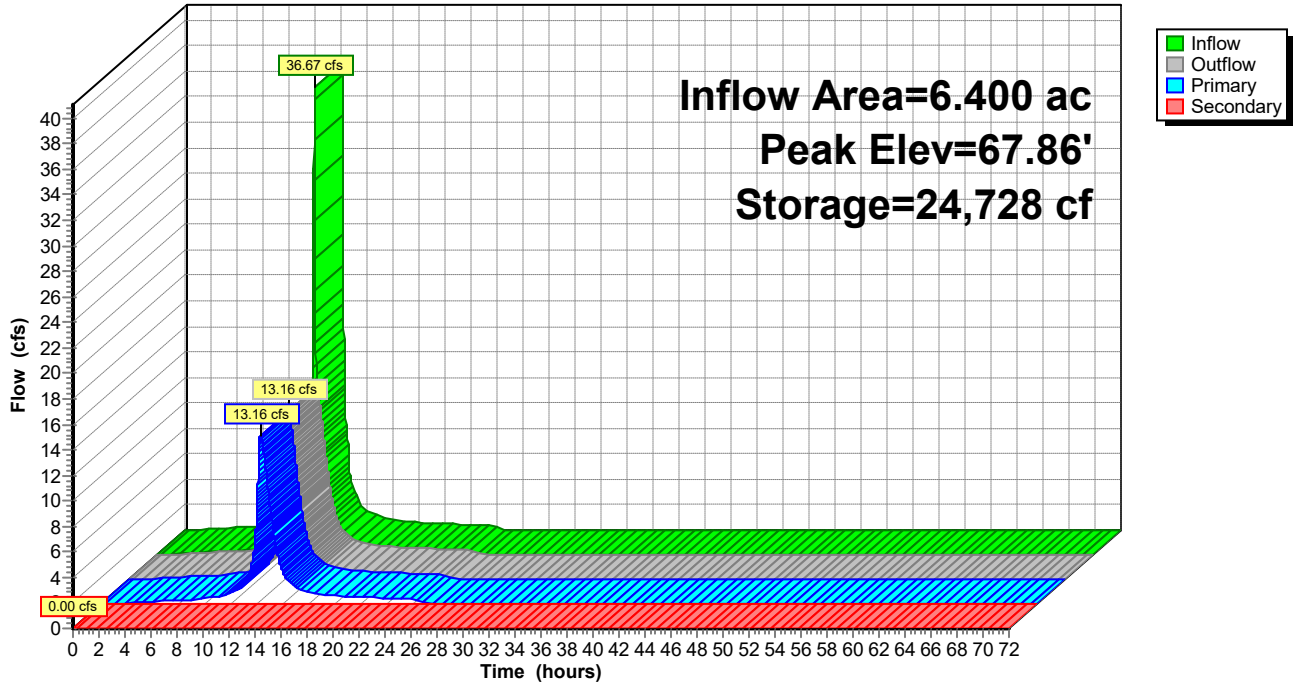
Device	Routing	Invert	Outlet Devices
#1	Primary	65.50'	24.0" Round Culvert L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.50' / 65.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	68.00'	25.0' long x 5.0' breadth Broad-Crested 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

Primary OutFlow Max=13.16 cfs @ 12.26 hrs HW=67.86' (Free Discharge)
 ↑1=Culvert (Barrel Controls 13.16 cfs @ 4.48 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Existing Basin 1

Hydrograph



Hydrograph for Pond 3P: Existing Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	65.50	0.00	0.00	0.00
2.00	0.12	244	65.66	0.05	0.05	0.00
4.00	0.21	494	65.79	0.19	0.19	0.00
6.00	0.27	584	65.83	0.26	0.26	0.00
8.00	0.49	805	65.92	0.45	0.45	0.00
10.00	1.05	1,289	66.08	0.92	0.92	0.00
12.00	20.31	11,088	67.12	7.33	7.33	0.00
14.00	1.58	3,164	66.41	2.44	2.44	0.00
16.00	0.87	1,289	66.08	0.92	0.92	0.00
18.00	0.59	990	65.98	0.63	0.63	0.00
20.00	0.51	877	65.94	0.52	0.52	0.00
22.00	0.44	803	65.92	0.45	0.45	0.00
24.00	0.44	734	65.89	0.39	0.39	0.00
26.00	0.00	145	65.60	0.02	0.02	0.00
28.00	0.00	82	65.56	0.00	0.00	0.00
30.00	0.00	59	65.55	0.00	0.00	0.00
32.00	0.00	47	65.54	0.00	0.00	0.00
34.00	0.00	38	65.53	0.00	0.00	0.00
36.00	0.00	31	65.52	0.00	0.00	0.00
38.00	0.00	25	65.52	0.00	0.00	0.00
40.00	0.00	20	65.52	0.00	0.00	0.00
42.00	0.00	16	65.51	0.00	0.00	0.00
44.00	0.00	13	65.51	0.00	0.00	0.00
46.00	0.00	10	65.51	0.00	0.00	0.00
48.00	0.00	8	65.51	0.00	0.00	0.00
50.00	0.00	7	65.51	0.00	0.00	0.00
52.00	0.00	5	65.50	0.00	0.00	0.00
54.00	0.00	4	65.50	0.00	0.00	0.00
56.00	0.00	4	65.50	0.00	0.00	0.00
58.00	0.00	3	65.50	0.00	0.00	0.00
60.00	0.00	2	65.50	0.00	0.00	0.00
62.00	0.00	2	65.50	0.00	0.00	0.00
64.00	0.00	1	65.50	0.00	0.00	0.00
66.00	0.00	1	65.50	0.00	0.00	0.00
68.00	0.00	1	65.50	0.00	0.00	0.00
70.00	0.00	1	65.50	0.00	0.00	0.00
72.00	0.00	1	65.50	0.00	0.00	0.00

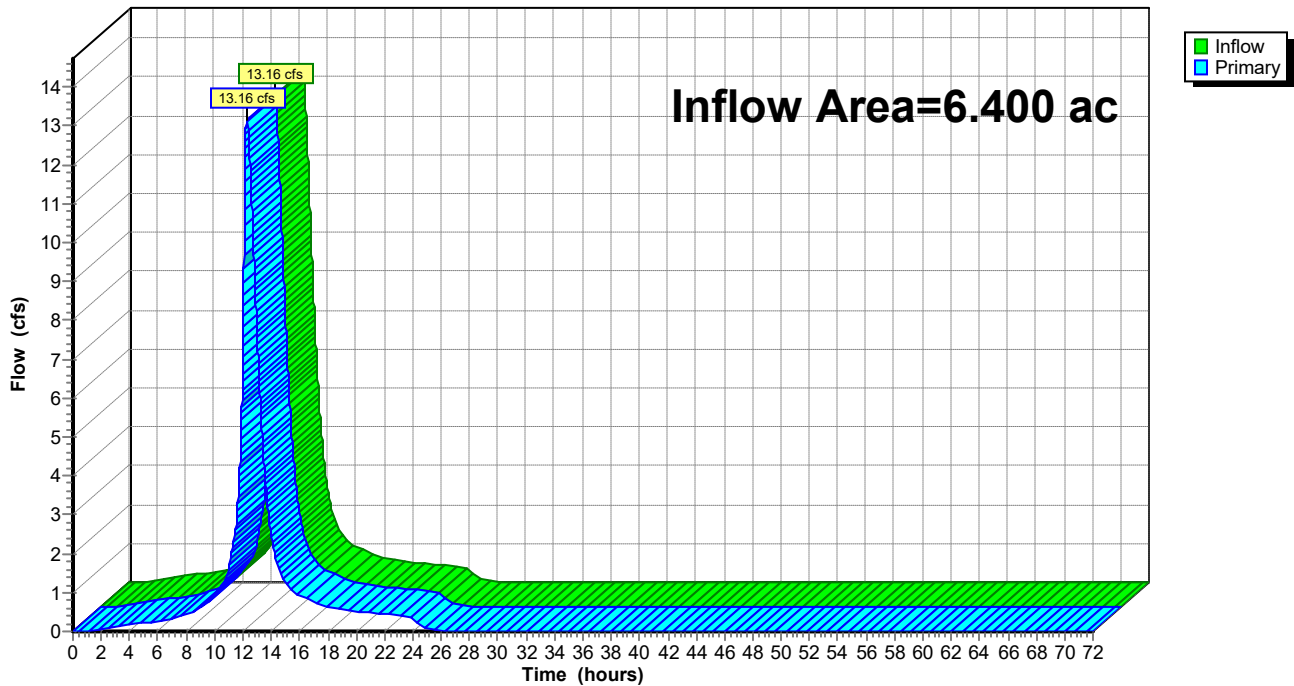
Summary for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 4.65" for 10-Year F event
Inflow = 13.16 cfs @ 12.26 hrs, Volume= 2.479 af
Primary = 13.16 cfs @ 12.26 hrs, Volume= 2.479 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.05		0.05	54.00	0.00		0.00
3.00	0.14		0.14	55.00	0.00		0.00
4.00	0.19		0.19	56.00	0.00		0.00
5.00	0.23		0.23	57.00	0.00		0.00
6.00	0.26		0.26	58.00	0.00		0.00
7.00	0.33		0.33	59.00	0.00		0.00
8.00	0.45		0.45	60.00	0.00		0.00
9.00	0.59		0.59	61.00	0.00		0.00
10.00	0.92		0.92	62.00	0.00		0.00
11.00	1.64		1.64	63.00	0.00		0.00
12.00	7.33		7.33	64.00	0.00		0.00
13.00	7.68		7.68	65.00	0.00		0.00
14.00	2.44		2.44	66.00	0.00		0.00
15.00	1.28		1.28	67.00	0.00		0.00
16.00	0.92		0.92	68.00	0.00		0.00
17.00	0.77		0.77	69.00	0.00		0.00
18.00	0.63		0.63	70.00	0.00		0.00
19.00	0.56		0.56	71.00	0.00		0.00
20.00	0.52		0.52	72.00	0.00		0.00
21.00	0.48		0.48				
22.00	0.45		0.45				
23.00	0.41		0.41				
24.00	0.39		0.39				
25.00	0.05		0.05				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1S: EA-2 IMP

Runoff = 21.82 cfs @ 12.12 hrs, Volume= 1.579 af, Depth= 5.92"

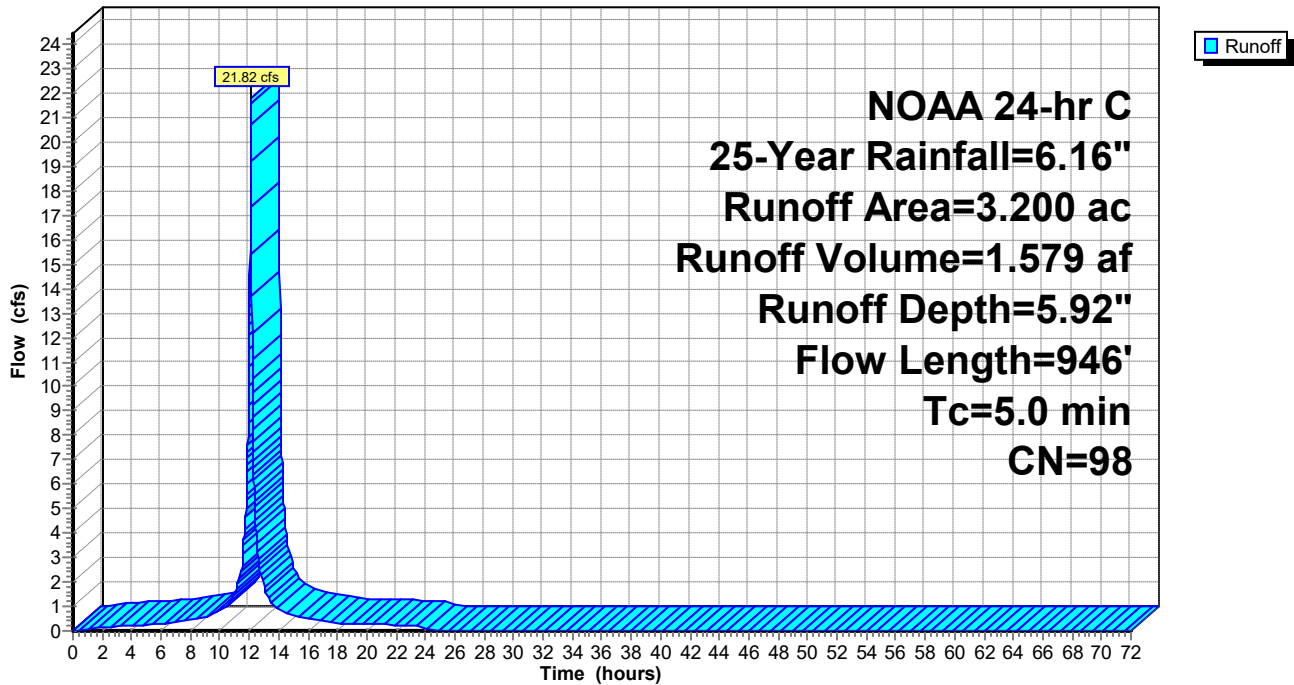
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
3.200	98	Paved parking, HSG D
3.200	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.4	233	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	613	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
5.0	946	Total			

Subcatchment 1S: EA-2 IMP

Hydrograph



Summary for Subcatchment 2S: EA-2 PER

Runoff = 16.97 cfs @ 12.12 hrs, Volume= 1.047 af, Depth= 3.93"

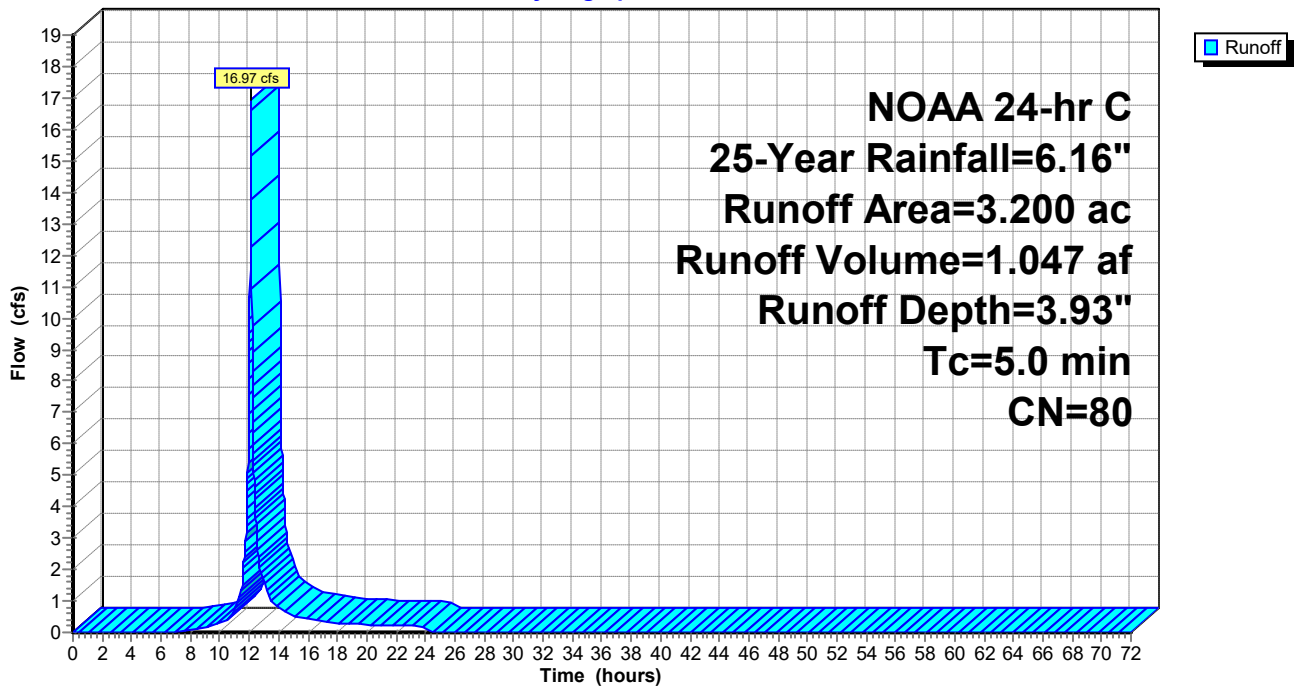
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
3.200	80	>75% Grass cover, Good, HSG D
3.200	80	100.00% Pervious Area

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

Subcatchment 2S: EA-2 PER

Hydrograph



Summary for Pond 3P: Existing Basin 1

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 4.92" for 25-Year event
 Inflow = 38.79 cfs @ 12.12 hrs, Volume= 2.626 af
 Outflow = 13.65 cfs @ 12.27 hrs, Volume= 2.626 af, Atten= 65%, Lag= 8.7 min
 Primary = 13.65 cfs @ 12.27 hrs, Volume= 2.626 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.93' @ 12.27 hrs Surf.Area= 22,799 sf Storage= 26,414 cf

Plug-Flow detention time= 27.4 min calculated for 2.626 af (100% of inflow)
 Center-of-Mass det. time= 27.3 min (800.0 - 772.7)

Volume	Invert	Avail.Storage	Storage Description
#1	65.50'	91,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.50	1,200	0	0
66.00	2,939	1,035	1,035
67.00	13,768	8,354	9,388
68.00	23,467	18,618	28,006
69.00	33,967	28,717	56,723
70.00	35,000	34,484	91,206

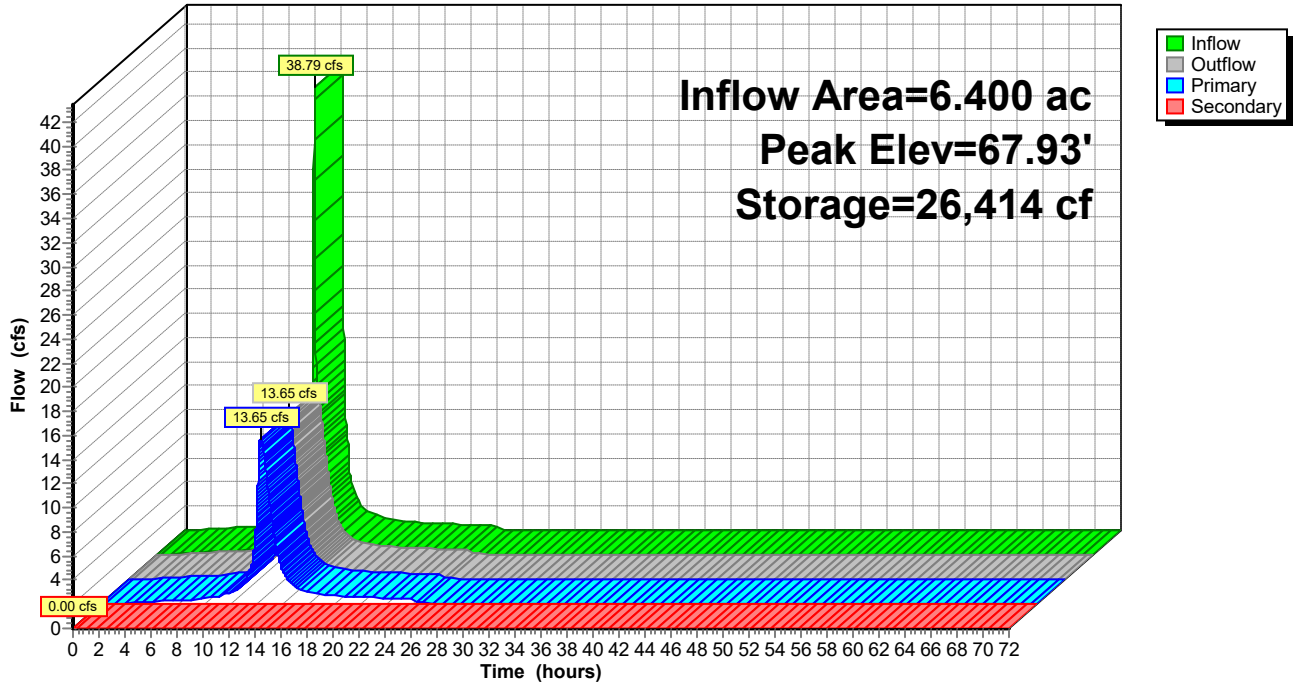
Device	Routing	Invert	Outlet Devices
#1	Primary	65.50'	24.0" Round Culvert L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.50' / 65.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	68.00'	25.0' long x 5.0' breadth Broad-Crested 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

Primary OutFlow Max=13.65 cfs @ 12.27 hrs HW=67.93' (Free Discharge)
 ↑1=Culvert (Barrel Controls 13.65 cfs @ 4.54 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.50' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Existing Basin 1

Hydrograph



Hydrograph for Pond 3P: Existing Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	65.50	0.00	0.00	0.00
2.00	0.13	267	65.68	0.06	0.06	0.00
4.00	0.22	513	65.80	0.21	0.21	0.00
6.00	0.29	604	65.84	0.28	0.28	0.00
8.00	0.53	842	65.93	0.49	0.49	0.00
10.00	1.12	1,356	66.09	0.99	0.99	0.00
12.00	21.53	11,820	67.17	7.72	7.72	0.00
14.00	1.67	3,409	66.44	2.62	2.62	0.00
16.00	0.92	1,345	66.09	0.98	0.98	0.00
18.00	0.62	1,024	66.00	0.67	0.67	0.00
20.00	0.54	906	65.95	0.55	0.55	0.00
22.00	0.46	828	65.93	0.47	0.47	0.00
24.00	0.46	757	65.90	0.41	0.41	0.00
26.00	0.00	146	65.60	0.02	0.02	0.00
28.00	0.00	82	65.56	0.01	0.01	0.00
30.00	0.00	59	65.55	0.00	0.00	0.00
32.00	0.00	47	65.54	0.00	0.00	0.00
34.00	0.00	38	65.53	0.00	0.00	0.00
36.00	0.00	31	65.52	0.00	0.00	0.00
38.00	0.00	25	65.52	0.00	0.00	0.00
40.00	0.00	20	65.52	0.00	0.00	0.00
42.00	0.00	16	65.51	0.00	0.00	0.00
44.00	0.00	13	65.51	0.00	0.00	0.00
46.00	0.00	10	65.51	0.00	0.00	0.00
48.00	0.00	8	65.51	0.00	0.00	0.00
50.00	0.00	7	65.51	0.00	0.00	0.00
52.00	0.00	5	65.50	0.00	0.00	0.00
54.00	0.00	4	65.50	0.00	0.00	0.00
56.00	0.00	4	65.50	0.00	0.00	0.00
58.00	0.00	3	65.50	0.00	0.00	0.00
60.00	0.00	2	65.50	0.00	0.00	0.00
62.00	0.00	2	65.50	0.00	0.00	0.00
64.00	0.00	1	65.50	0.00	0.00	0.00
66.00	0.00	1	65.50	0.00	0.00	0.00
68.00	0.00	1	65.50	0.00	0.00	0.00
70.00	0.00	1	65.50	0.00	0.00	0.00
72.00	0.00	1	65.50	0.00	0.00	0.00

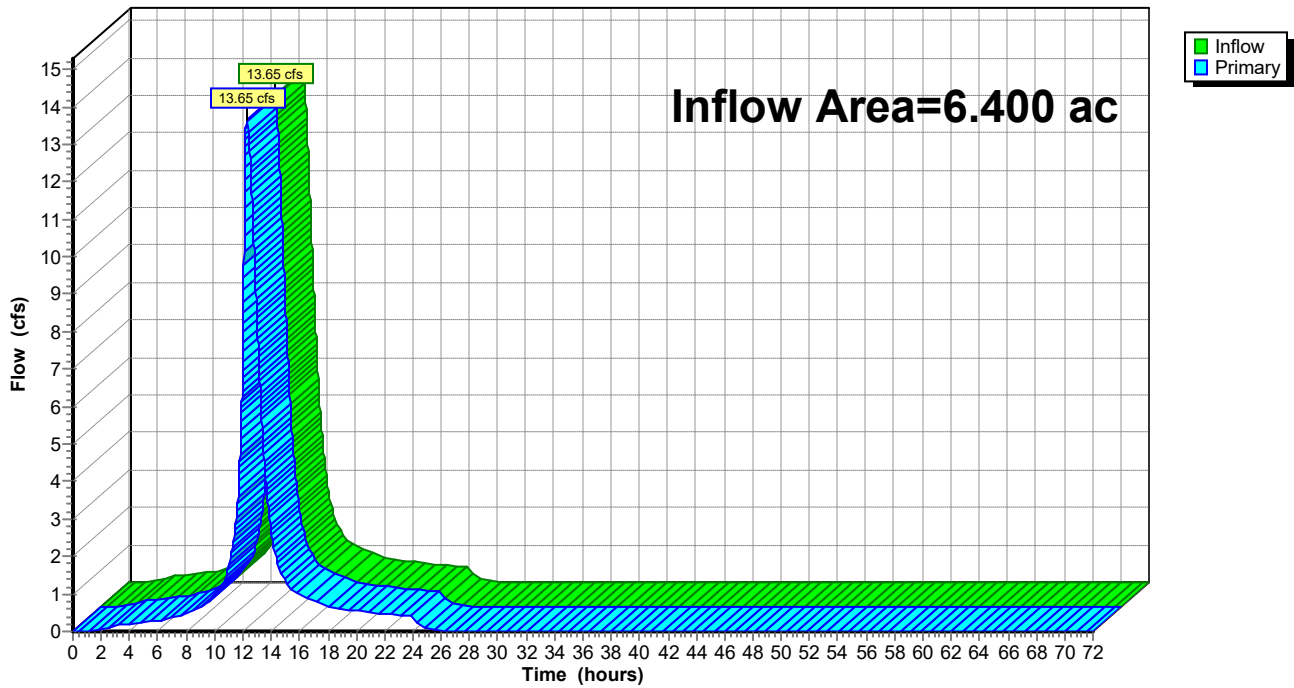
Summary for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 4.92" for 25-Year event
Inflow = 13.65 cfs @ 12.27 hrs, Volume= 2.626 af
Primary = 13.65 cfs @ 12.27 hrs, Volume= 2.626 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.06		0.06	54.00	0.00		0.00
3.00	0.15		0.15	55.00	0.00		0.00
4.00	0.21		0.21	56.00	0.00		0.00
5.00	0.25		0.25	57.00	0.00		0.00
6.00	0.28		0.28	58.00	0.00		0.00
7.00	0.36		0.36	59.00	0.00		0.00
8.00	0.49		0.49	60.00	0.00		0.00
9.00	0.63		0.63	61.00	0.00		0.00
10.00	0.99		0.99	62.00	0.00		0.00
11.00	1.74		1.74	63.00	0.00		0.00
12.00	7.72		7.72	64.00	0.00		0.00
13.00	8.21		8.21	65.00	0.00		0.00
14.00	2.62		2.62	66.00	0.00		0.00
15.00	1.35		1.35	67.00	0.00		0.00
16.00	0.98		0.98	68.00	0.00		0.00
17.00	0.82		0.82	69.00	0.00		0.00
18.00	0.67		0.67	70.00	0.00		0.00
19.00	0.59		0.59	71.00	0.00		0.00
20.00	0.55		0.55	72.00	0.00		0.00
21.00	0.51		0.51				
22.00	0.47		0.47				
23.00	0.44		0.44				
24.00	0.41		0.41				
25.00	0.05		0.05				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.01		0.01				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1S: EA-2 IMP

Runoff = 29.31 cfs @ 12.12 hrs, Volume= 2.139 af, Depth= 8.02"

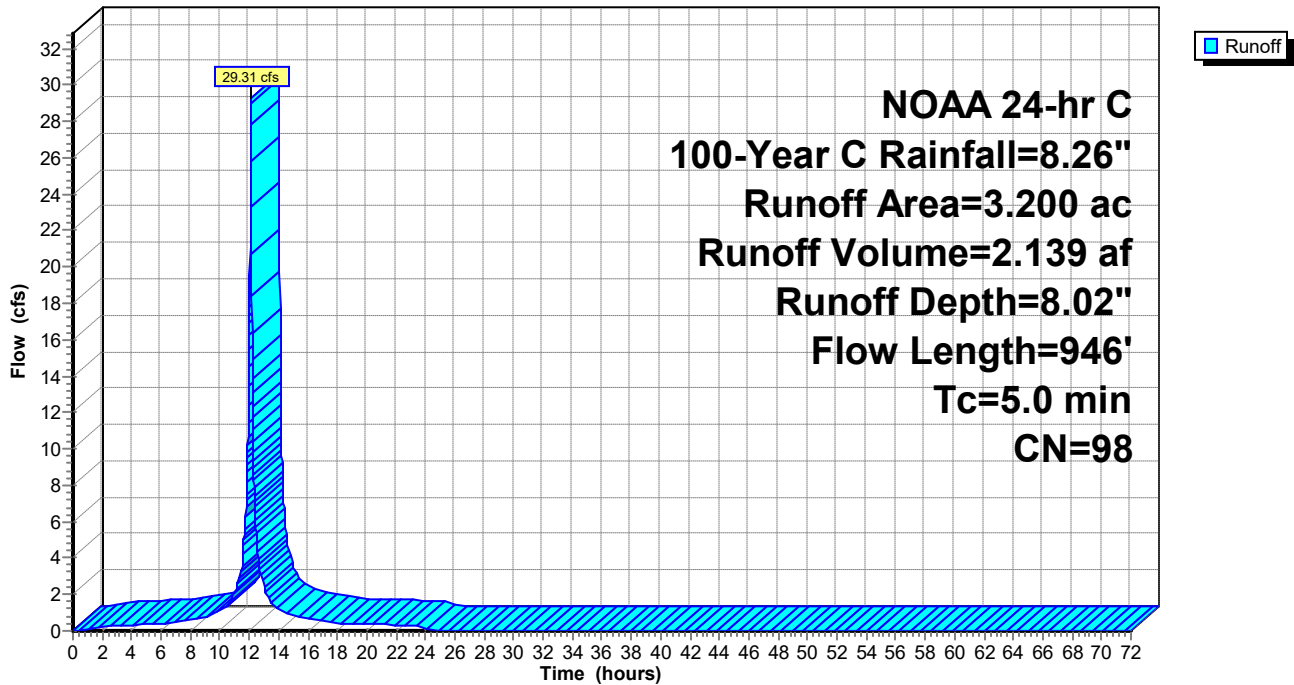
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
3.200	98	Paved parking, HSG D
3.200	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.4	233	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	613	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
5.0	946	Total			

Subcatchment 1S: EA-2 IMP

Hydrograph



Summary for Subcatchment 2S: EA-2 PER

Runoff = 24.86 cfs @ 12.12 hrs, Volume= 1.565 af, Depth= 5.87"

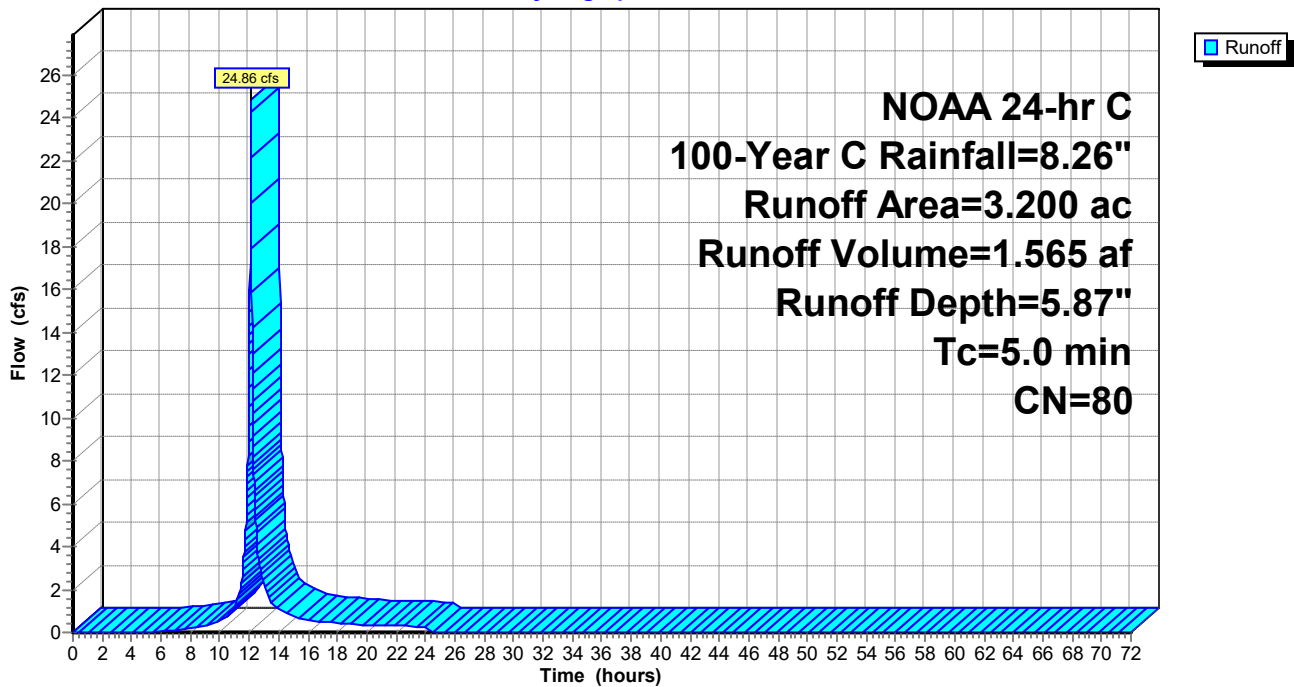
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
3.200	80	>75% Grass cover, Good, HSG D
3.200	80	100.00% Pervious Area

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

Subcatchment 2S: EA-2 PER

Hydrograph



Summary for Pond 3P: Existing Basin 1

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 6.94" for 100-Year C event
 Inflow = 54.16 cfs @ 12.12 hrs, Volume= 3.704 af
 Outflow = 26.64 cfs @ 12.21 hrs, Volume= 3.704 af, Atten= 51%, Lag= 5.1 min
 Primary = 16.06 cfs @ 12.21 hrs, Volume= 3.508 af
 Secondary = 10.58 cfs @ 12.21 hrs, Volume= 0.196 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.31' @ 12.21 hrs Surf.Area= 26,736 sf Storage= 35,821 cf

Plug-Flow detention time= 26.4 min calculated for 3.704 af (100% of inflow)
 Center-of-Mass det. time= 26.3 min (793.4 - 767.1)

Volume	Invert	Avail.Storage	Storage Description
#1	65.50'	91,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.50	1,200	0	0
66.00	2,939	1,035	1,035
67.00	13,768	8,354	9,388
68.00	23,467	18,618	28,006
69.00	33,967	28,717	56,723
70.00	35,000	34,484	91,206

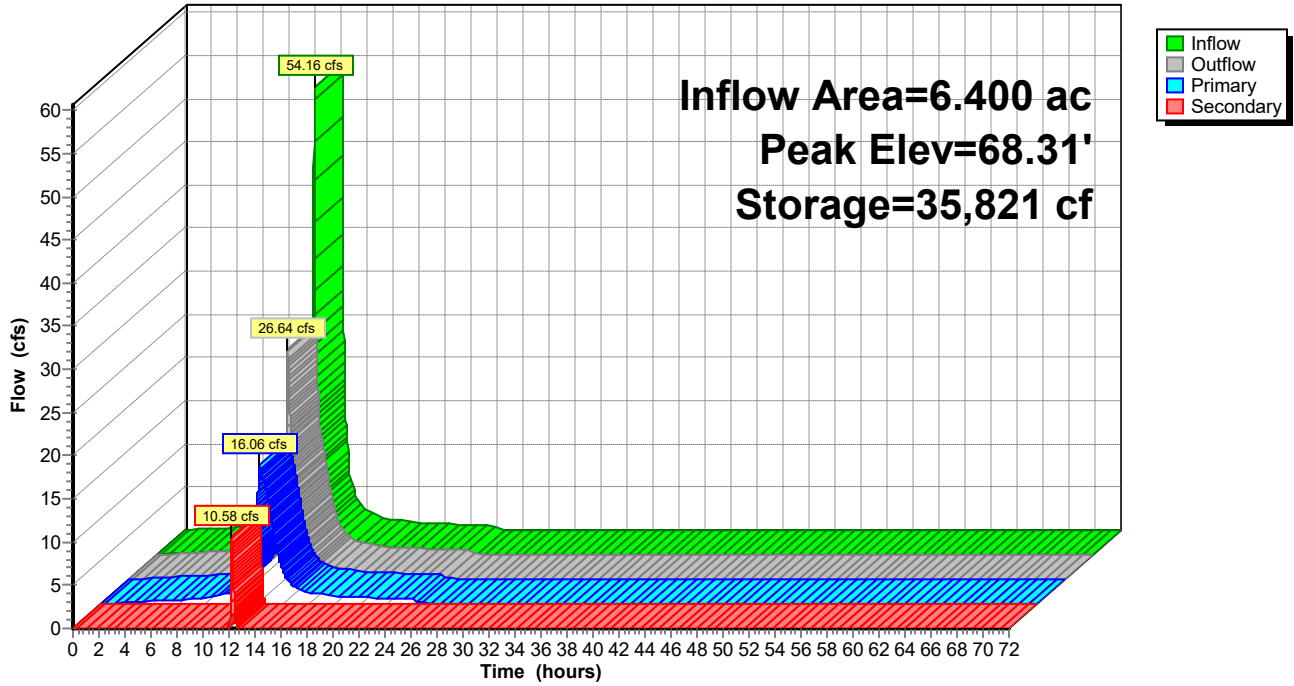
Device	Routing	Invert	Outlet Devices
#1	Primary	65.50'	24.0" Round Culvert L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.50' / 65.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	68.00'	25.0' long x 5.0' breadth Broad-Crested 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

Primary OutFlow Max=16.06 cfs @ 12.21 hrs HW=68.31' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 16.06 cfs @ 5.11 fps)

Secondary OutFlow Max=10.54 cfs @ 12.21 hrs HW=68.31' (Free Discharge)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 10.54 cfs @ 1.35 fps)

Pond 3P: Existing Basin 1

Hydrograph



Hydrograph for Pond 3P: Existing Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	65.50	0.00	0.00	0.00
2.00	0.21	418	65.75	0.14	0.14	0.00
4.00	0.33	642	65.85	0.31	0.31	0.00
6.00	0.45	774	65.91	0.42	0.42	0.00
8.00	0.81	1,109	66.02	0.75	0.75	0.00
10.00	1.67	1,894	66.21	1.45	1.45	0.00
12.00	30.37	17,350	67.49	10.38	10.38	0.00
14.00	2.29	5,114	66.64	3.80	3.80	0.00
16.00	1.26	1,769	66.19	1.35	1.35	0.00
18.00	0.85	1,281	66.07	0.92	0.92	0.00
20.00	0.73	1,107	66.02	0.75	0.75	0.00
22.00	0.63	1,005	65.99	0.65	0.65	0.00
24.00	0.63	915	65.96	0.56	0.56	0.00
26.00	0.00	152	65.61	0.02	0.02	0.00
28.00	0.00	84	65.56	0.01	0.01	0.00
30.00	0.00	59	65.55	0.00	0.00	0.00
32.00	0.00	48	65.54	0.00	0.00	0.00
34.00	0.00	38	65.53	0.00	0.00	0.00
36.00	0.00	31	65.52	0.00	0.00	0.00
38.00	0.00	25	65.52	0.00	0.00	0.00
40.00	0.00	20	65.52	0.00	0.00	0.00
42.00	0.00	16	65.51	0.00	0.00	0.00
44.00	0.00	13	65.51	0.00	0.00	0.00
46.00	0.00	11	65.51	0.00	0.00	0.00
48.00	0.00	8	65.51	0.00	0.00	0.00
50.00	0.00	7	65.51	0.00	0.00	0.00
52.00	0.00	6	65.50	0.00	0.00	0.00
54.00	0.00	4	65.50	0.00	0.00	0.00
56.00	0.00	4	65.50	0.00	0.00	0.00
58.00	0.00	3	65.50	0.00	0.00	0.00
60.00	0.00	2	65.50	0.00	0.00	0.00
62.00	0.00	2	65.50	0.00	0.00	0.00
64.00	0.00	2	65.50	0.00	0.00	0.00
66.00	0.00	1	65.50	0.00	0.00	0.00
68.00	0.00	1	65.50	0.00	0.00	0.00
70.00	0.00	1	65.50	0.00	0.00	0.00
72.00	0.00	1	65.50	0.00	0.00	0.00

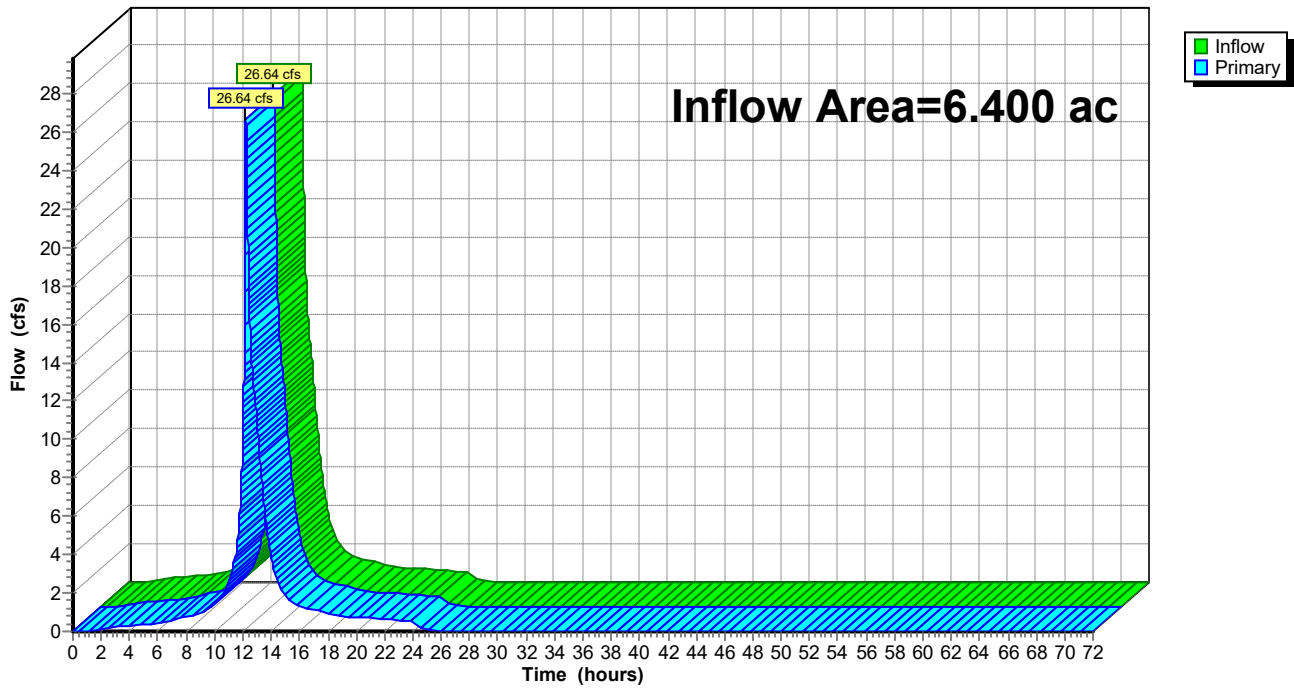
Summary for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 6.94" for 100-Year C event
Inflow = 26.64 cfs @ 12.21 hrs, Volume= 3.704 af
Primary = 26.64 cfs @ 12.21 hrs, Volume= 3.704 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.14		0.14	54.00	0.00		0.00
3.00	0.25		0.25	55.00	0.00		0.00
4.00	0.31		0.31	56.00	0.00		0.00
5.00	0.35		0.35	57.00	0.00		0.00
6.00	0.42		0.42	58.00	0.00		0.00
7.00	0.56		0.56	59.00	0.00		0.00
8.00	0.75		0.75	60.00	0.00		0.00
9.00	0.95		0.95	61.00	0.00		0.00
10.00	1.45		1.45	62.00	0.00		0.00
11.00	2.52		2.52	63.00	0.00		0.00
12.00	10.38		10.38	64.00	0.00		0.00
13.00	10.74		10.74	65.00	0.00		0.00
14.00	3.80		3.80	66.00	0.00		0.00
15.00	1.91		1.91	67.00	0.00		0.00
16.00	1.35		1.35	68.00	0.00		0.00
17.00	1.12		1.12	69.00	0.00		0.00
18.00	0.92		0.92	70.00	0.00		0.00
19.00	0.80		0.80	71.00	0.00		0.00
20.00	0.75		0.75	72.00	0.00		0.00
21.00	0.70		0.70				
22.00	0.65		0.65				
23.00	0.60		0.60				
24.00	0.56		0.56				
25.00	0.06		0.06				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.01		0.01				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1S: EA-2 IMP

Runoff = 39.81 cfs @ 12.12 hrs, Volume= 2.925 af, Depth=10.97"

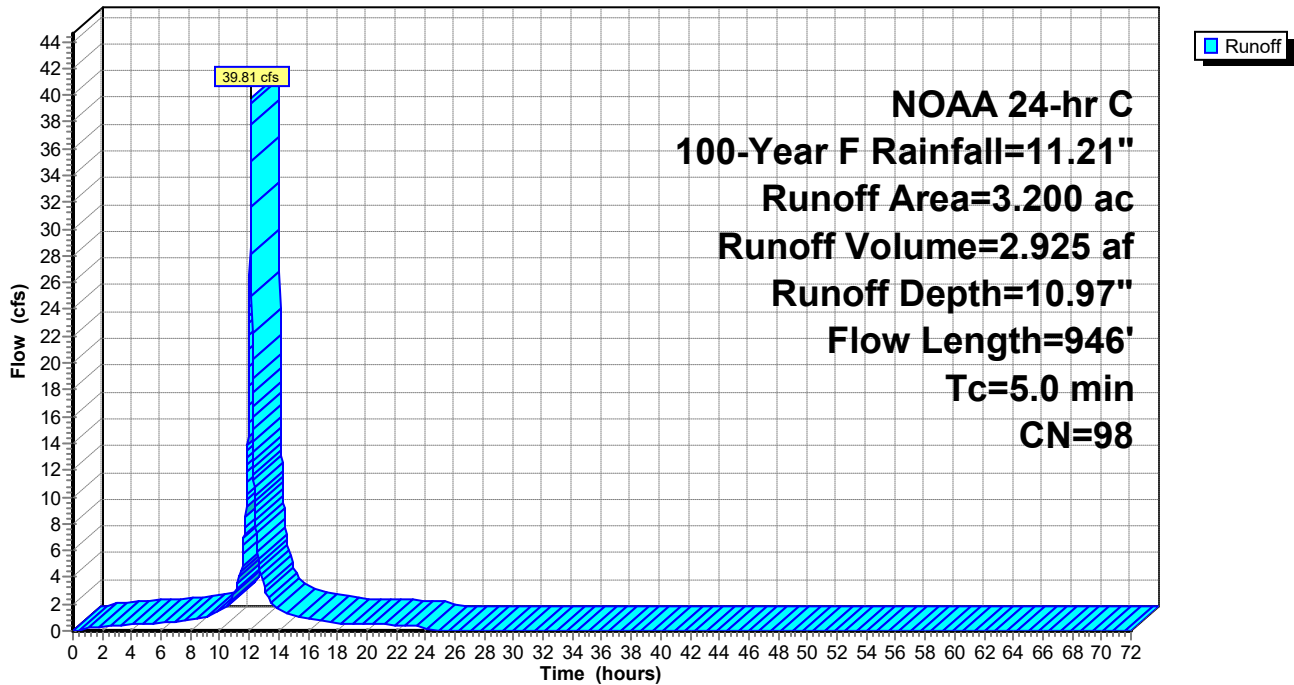
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
3.200	98	Paved parking, HSG D
3.200	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"
1.4	233	0.0180	2.72		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	613	0.0050	5.09	16.00	Pipe Channel, CMP_Round 24" 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
5.0	946	Total			

Subcatchment 1S: EA-2 IMP

Hydrograph



Summary for Subcatchment 2S: EA-2 PER

Runoff = 35.90 cfs @ 12.12 hrs, Volume= 2.316 af, Depth= 8.68"

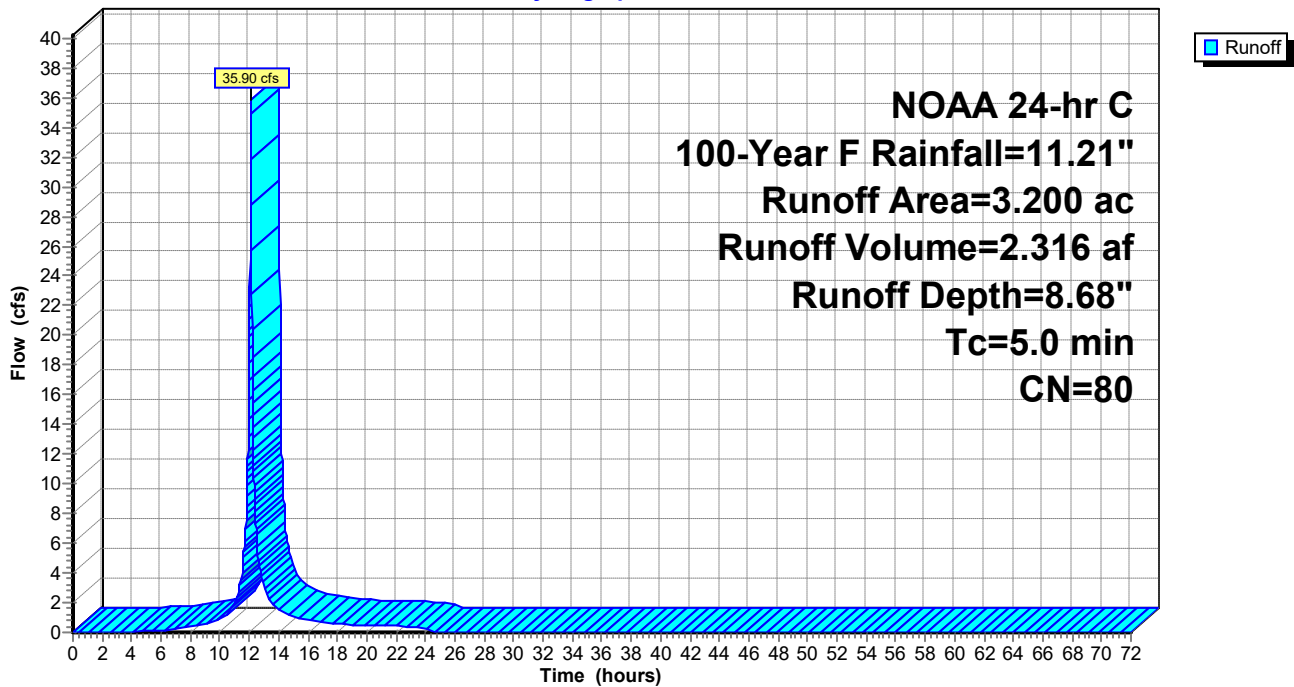
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
3.200	80	>75% Grass cover, Good, HSG D
3.200	80	100.00% Pervious Area

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

Subcatchment 2S: EA-2 PER

Hydrograph



Summary for Pond 3P: Existing Basin 1

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 9.83" for 100-Year F event
 Inflow = 75.71 cfs @ 12.12 hrs, Volume= 5.241 af
 Outflow = 52.29 cfs @ 12.17 hrs, Volume= 5.240 af, Atten= 31%, Lag= 3.1 min
 Primary = 18.92 cfs @ 12.17 hrs, Volume= 4.548 af
 Secondary = 33.37 cfs @ 12.17 hrs, Volume= 0.693 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.63' @ 12.17 hrs Surf.Area= 30,034 sf Storage= 44,738 cf

Plug-Flow detention time= 24.2 min calculated for 5.240 af (100% of inflow)
 Center-of-Mass det. time= 24.1 min (785.6 - 761.5)

Volume	Invert	Avail.Storage	Storage Description
#1	65.50'	91,206 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.50	1,200	0	0
66.00	2,939	1,035	1,035
67.00	13,768	8,354	9,388
68.00	23,467	18,618	28,006
69.00	33,967	28,717	56,723
70.00	35,000	34,484	91,206

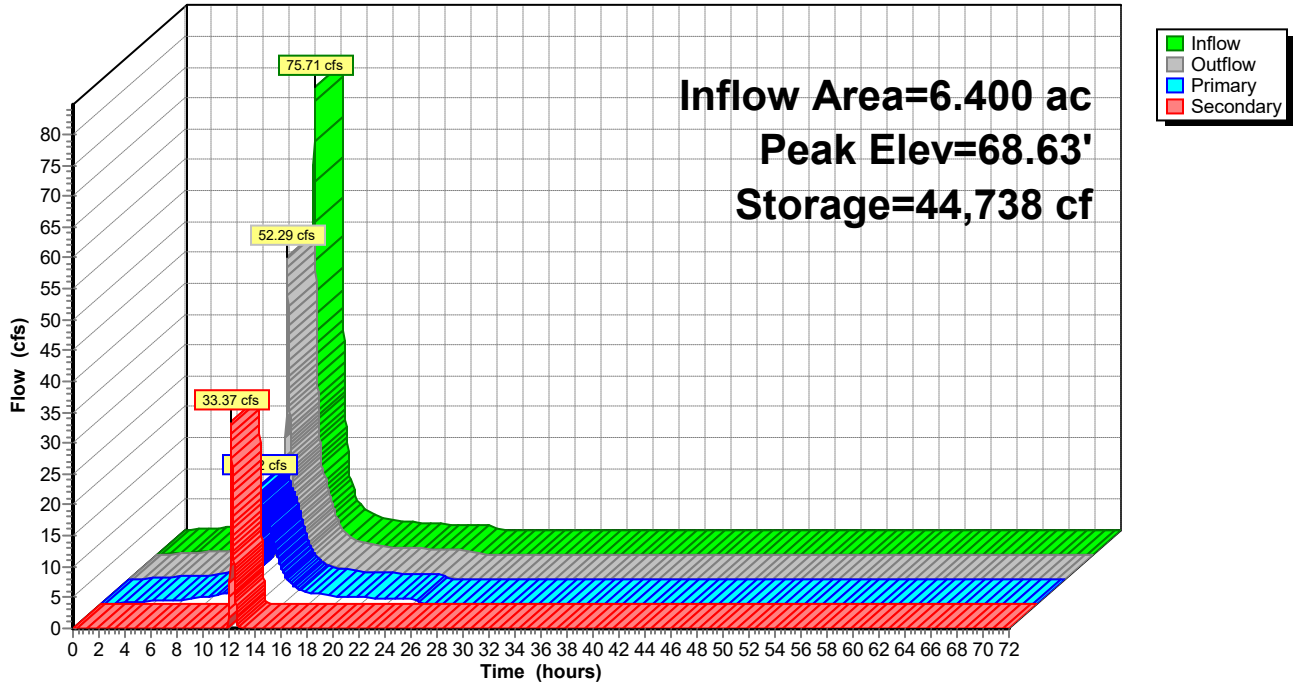
Device	Routing	Invert	Outlet Devices
#1	Primary	65.50'	24.0" Round Culvert L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.50' / 65.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	68.00'	25.0' long x 5.0' breadth Broad-Crested 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

Primary OutFlow Max=18.91 cfs @ 12.17 hrs HW=68.62' (Free Discharge)
 ↑1=Culvert (Barrel Controls 18.91 cfs @ 6.02 fps)

Secondary OutFlow Max=33.30 cfs @ 12.17 hrs HW=68.62' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 33.30 cfs @ 2.13 fps)

Pond 3P: Existing Basin 1

Hydrograph



Hydrograph for Pond 3P: Existing Basin 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	65.50	0.00	0.00	0.00
2.00	0.33	592	65.83	0.27	0.27	0.00
4.00	0.48	806	65.92	0.45	0.45	0.00
6.00	0.70	1,029	66.00	0.67	0.67	0.00
8.00	1.23	1,526	66.13	1.14	1.14	0.00
10.00	2.47	2,755	66.35	2.14	2.14	0.00
12.00	42.84	25,695	67.90	13.44	13.44	0.00
14.00	3.16	7,348	66.84	5.21	5.21	0.00
16.00	1.73	2,418	66.30	1.88	1.88	0.00
18.00	1.17	1,676	66.17	1.27	1.27	0.00
20.00	1.01	1,407	66.11	1.03	1.03	0.00
22.00	0.87	1,254	66.07	0.89	0.89	0.00
24.00	0.87	1,124	66.03	0.77	0.77	0.00
26.00	0.00	158	65.61	0.02	0.02	0.00
28.00	0.00	85	65.56	0.01	0.01	0.00
30.00	0.00	60	65.55	0.00	0.00	0.00
32.00	0.00	48	65.54	0.00	0.00	0.00
34.00	0.00	39	65.53	0.00	0.00	0.00
36.00	0.00	31	65.52	0.00	0.00	0.00
38.00	0.00	25	65.52	0.00	0.00	0.00
40.00	0.00	20	65.52	0.00	0.00	0.00
42.00	0.00	16	65.51	0.00	0.00	0.00
44.00	0.00	13	65.51	0.00	0.00	0.00
46.00	0.00	11	65.51	0.00	0.00	0.00
48.00	0.00	9	65.51	0.00	0.00	0.00
50.00	0.00	7	65.51	0.00	0.00	0.00
52.00	0.00	6	65.50	0.00	0.00	0.00
54.00	0.00	4	65.50	0.00	0.00	0.00
56.00	0.00	4	65.50	0.00	0.00	0.00
58.00	0.00	3	65.50	0.00	0.00	0.00
60.00	0.00	2	65.50	0.00	0.00	0.00
62.00	0.00	2	65.50	0.00	0.00	0.00
64.00	0.00	2	65.50	0.00	0.00	0.00
66.00	0.00	1	65.50	0.00	0.00	0.00
68.00	0.00	1	65.50	0.00	0.00	0.00
70.00	0.00	1	65.50	0.00	0.00	0.00
72.00	0.00	1	65.50	0.00	0.00	0.00

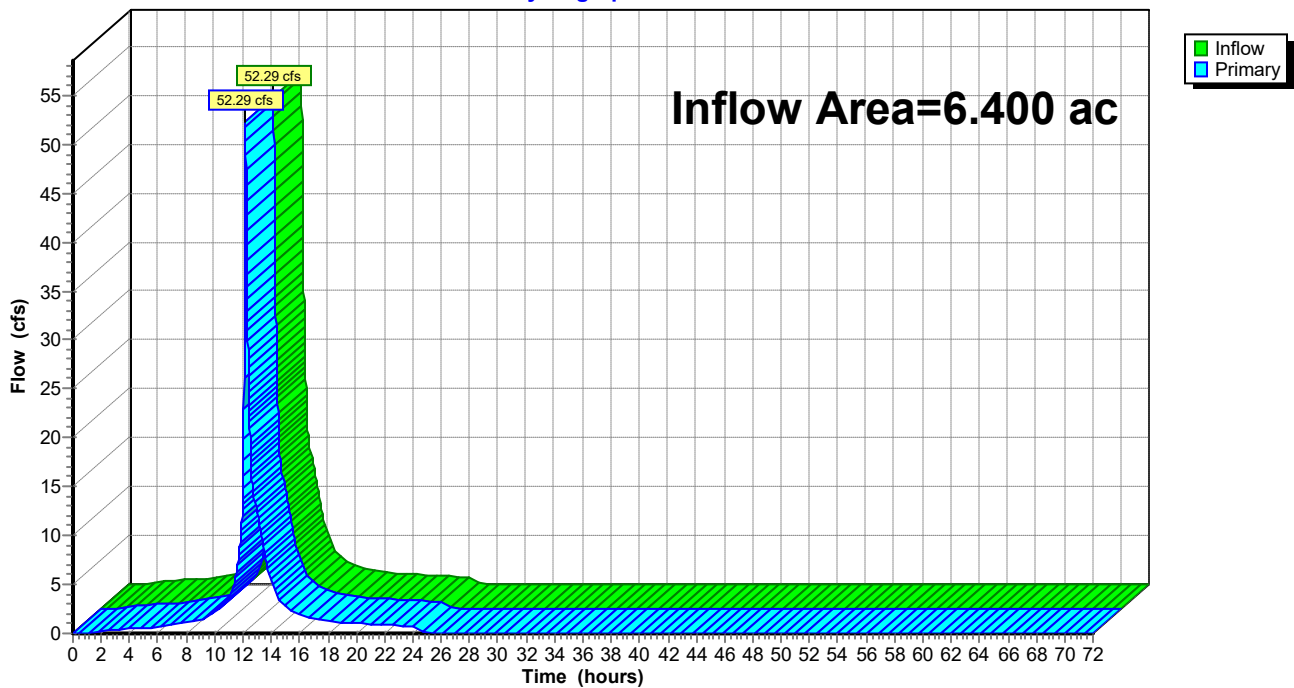
Summary for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.400 ac, 50.00% Impervious, Inflow Depth = 9.83" for 100-Year F event
Inflow = 52.29 cfs @ 12.17 hrs, Volume= 5.240 af
Primary = 52.29 cfs @ 12.17 hrs, Volume= 5.240 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond 4P: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.03		0.03	53.00	0.00		0.00
2.00	0.27		0.27	54.00	0.00		0.00
3.00	0.38		0.38	55.00	0.00		0.00
4.00	0.45		0.45	56.00	0.00		0.00
5.00	0.56		0.56	57.00	0.00		0.00
6.00	0.67		0.67	58.00	0.00		0.00
7.00	0.87		0.87	59.00	0.00		0.00
8.00	1.14		1.14	60.00	0.00		0.00
9.00	1.42		1.42	61.00	0.00		0.00
10.00	2.14		2.14	62.00	0.00		0.00
11.00	3.62		3.62	63.00	0.00		0.00
12.00	13.44		13.44	64.00	0.00		0.00
13.00	12.37		12.37	65.00	0.00		0.00
14.00	5.21		5.21	66.00	0.00		0.00
15.00	2.69		2.69	67.00	0.00		0.00
16.00	1.88		1.88	68.00	0.00		0.00
17.00	1.56		1.56	69.00	0.00		0.00
18.00	1.27		1.27	70.00	0.00		0.00
19.00	1.11		1.11	71.00	0.00		0.00
20.00	1.03		1.03	72.00	0.00		0.00
21.00	0.96		0.96				
22.00	0.89		0.89				
23.00	0.82		0.82				
24.00	0.77		0.77				
25.00	0.07		0.07				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.01		0.01				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

APPENDIX B

POST-DEVELOPMENT DRAINAGE ANALYSIS

Summary for Subcatchment 1I: IMPERVIOUS

Runoff = 0.90 cfs @ 1.08 hrs, Volume= 0.025 af, Depth= 1.03"

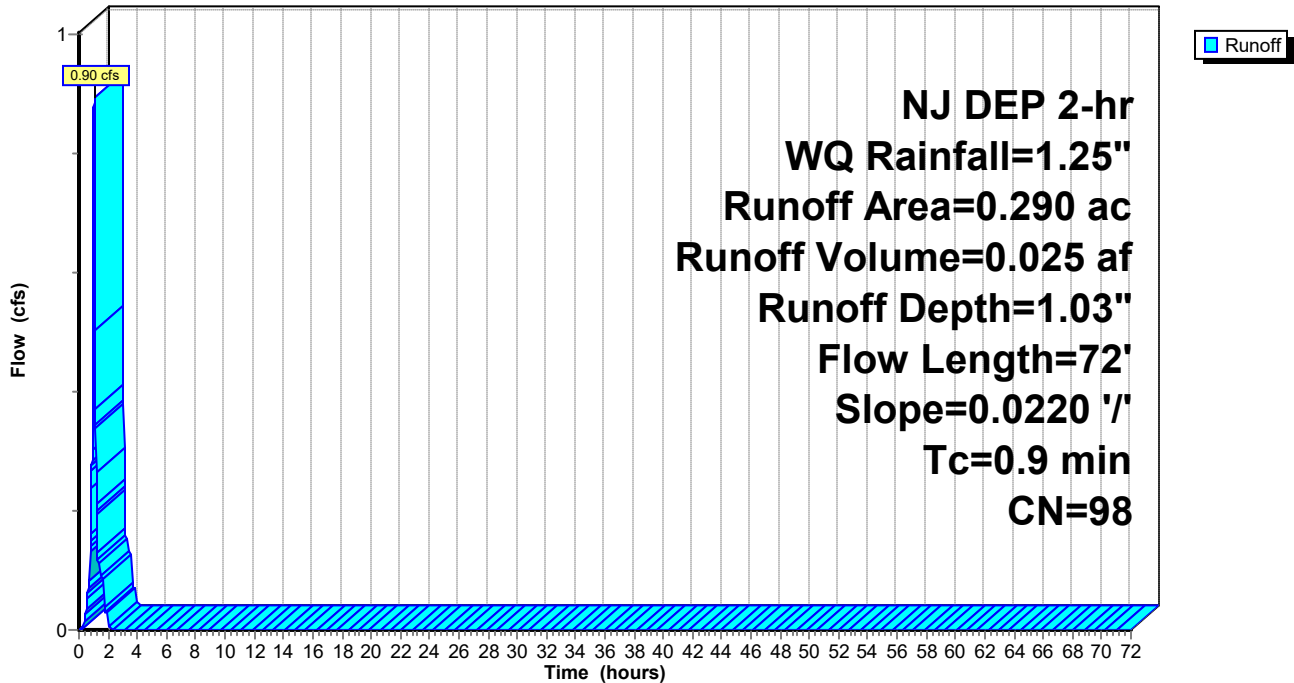
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	72	0.0220	1.38		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 1I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 1P: PERVIOUS

Runoff = 0.04 cfs @ 1.08 hrs, Volume= 0.001 af, Depth= 0.17"

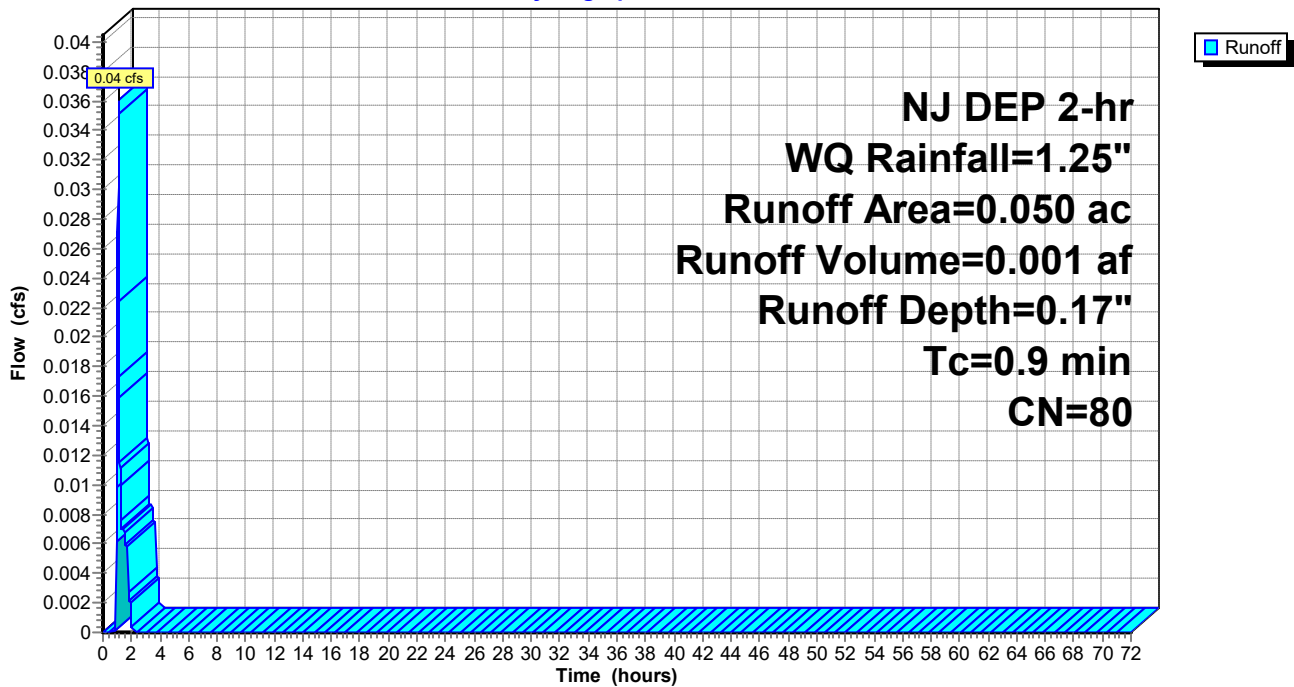
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.050	80	>75% Grass cover, Good, HSG D
0.050	80	100.00% Pervious Area

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

Subcatchment 1P: PERVIOUS

Hydrograph



Summary for Subcatchment 1S: PERVIOUS

Runoff = 0.14 cfs @ 1.08 hrs, Volume= 0.002 af, Depth= 0.17"

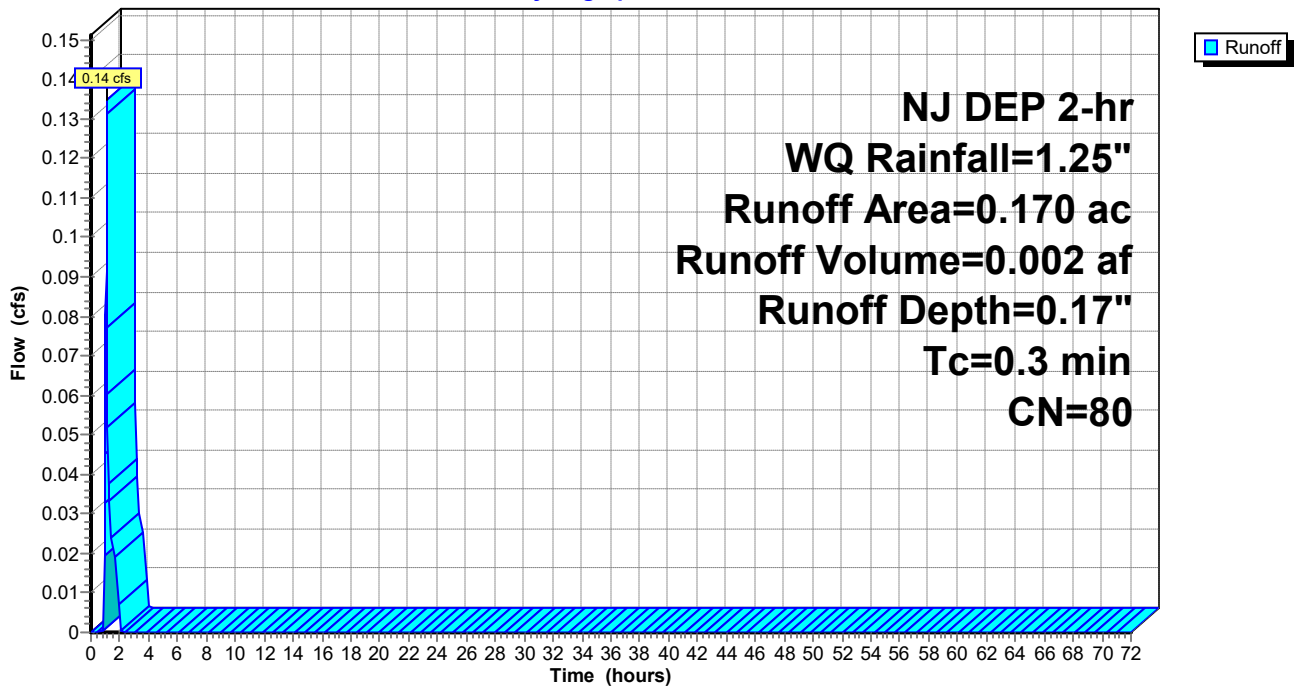
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.170	80	>75% Grass cover, Good, HSG D
0.170	80	100.00% Pervious Area

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

Subcatchment 1S: PERVIOUS

Hydrograph



Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 0.43 cfs @ 1.08 hrs, Volume= 0.012 af, Depth= 1.03"

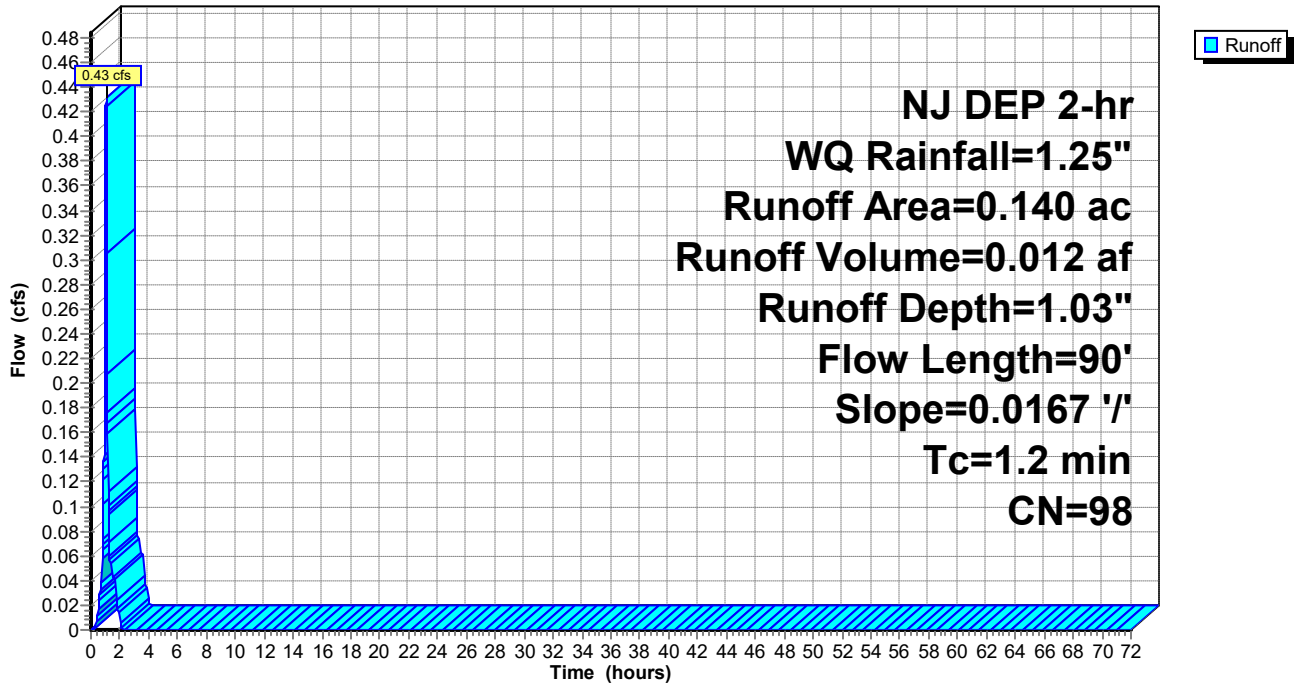
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG D
0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.02 cfs @ 1.09 hrs, Volume= 0.000 af, Depth= 0.17"

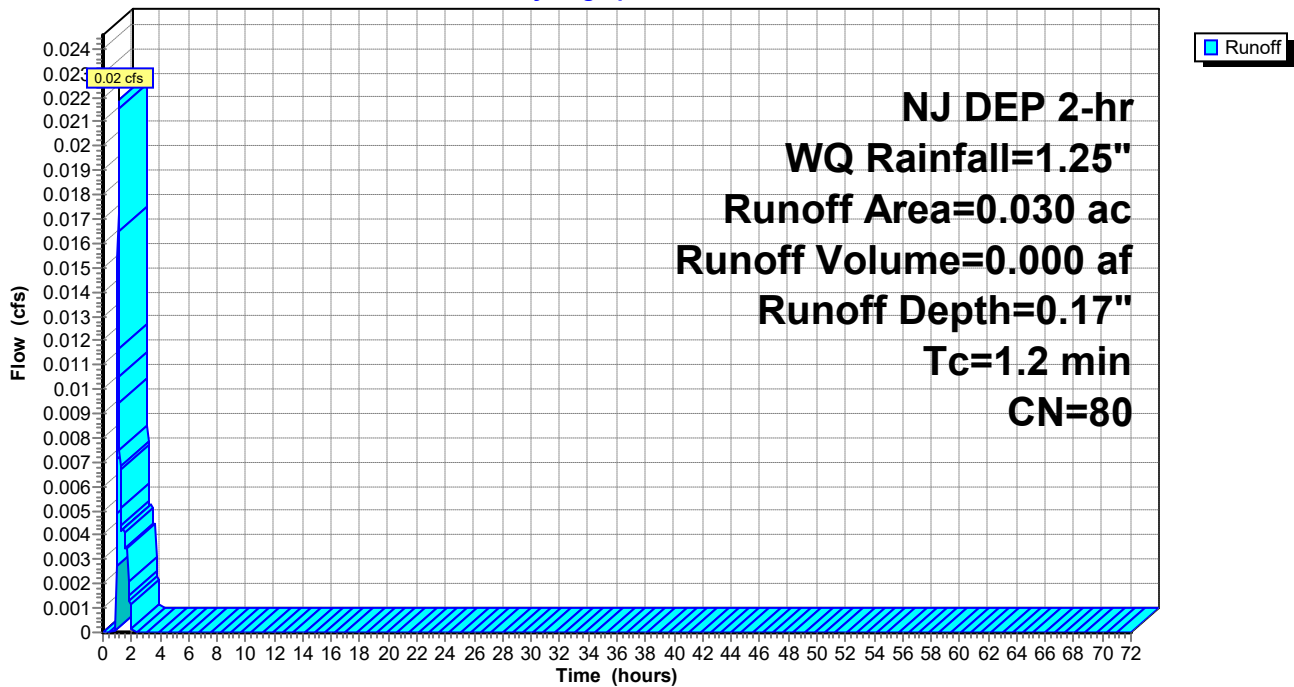
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 3I: IMPERVIOUS

Runoff = 0.90 cfs @ 1.08 hrs, Volume= 0.025 af, Depth= 1.03"

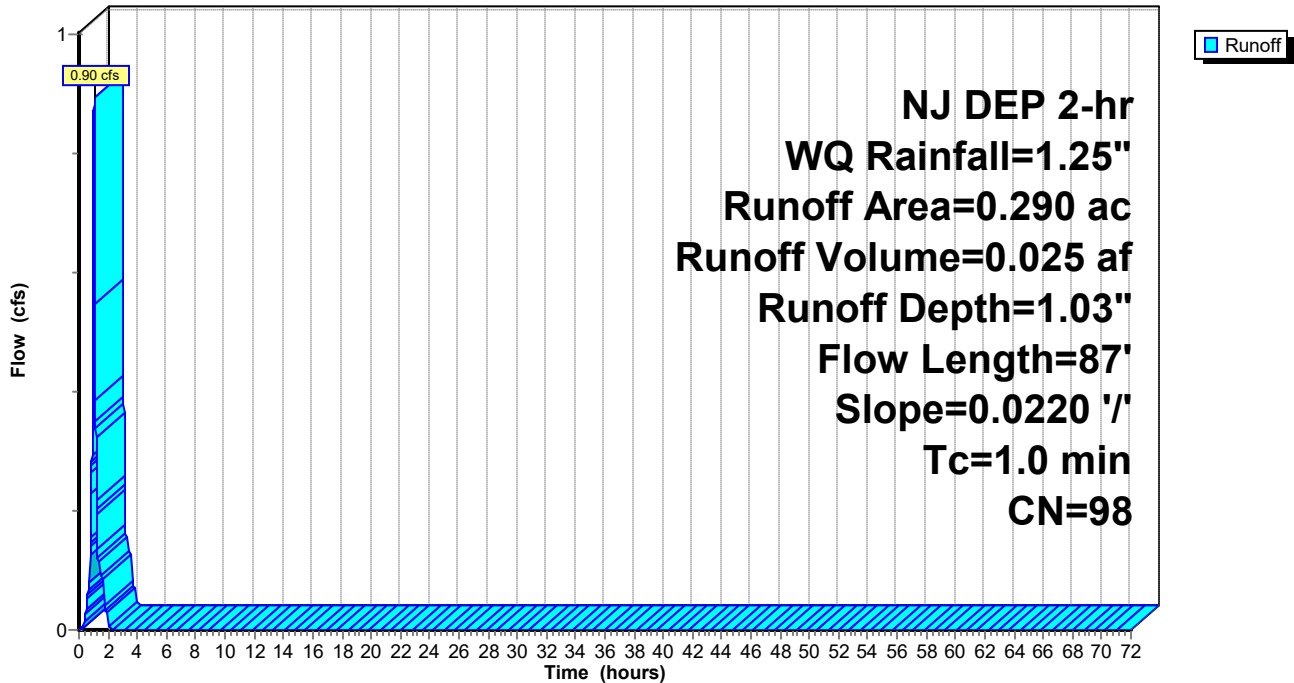
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	87	0.0220	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 3I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 3P: PERVIOUS

Runoff = 0.08 cfs @ 1.09 hrs, Volume= 0.002 af, Depth= 0.17"

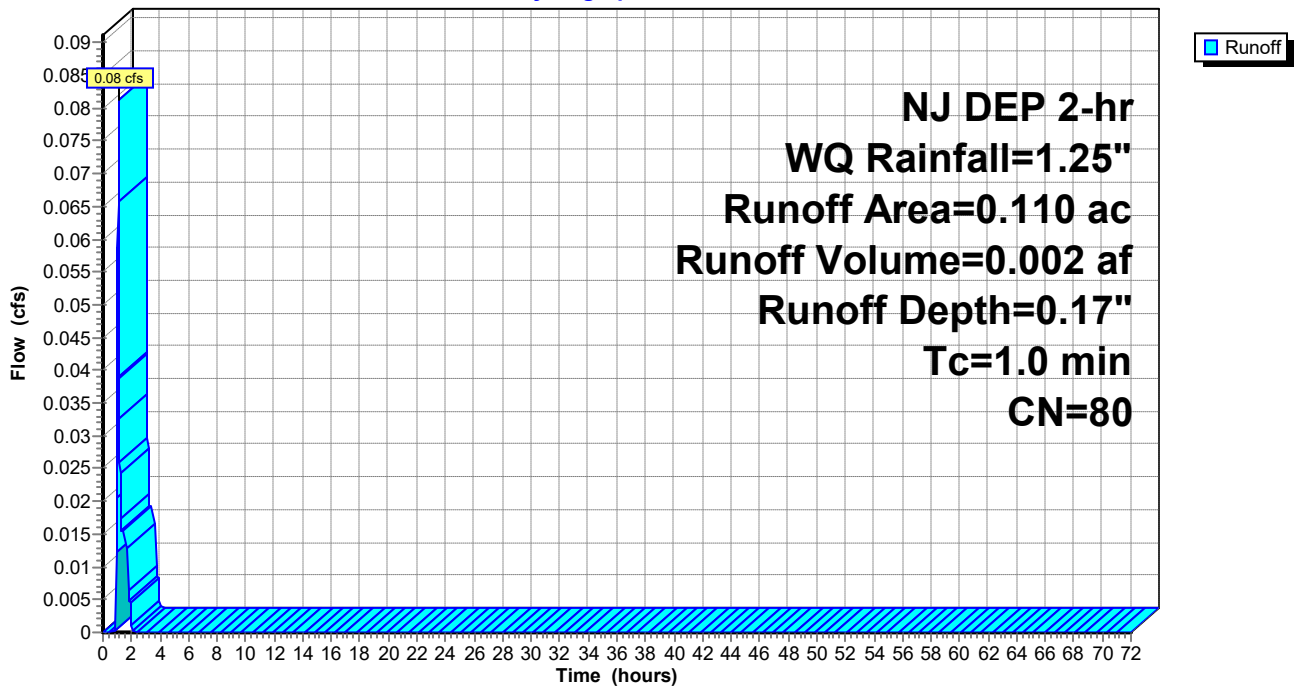
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.110	80	>75% Grass cover, Good, HSG D
0.110	80	100.00% Pervious Area

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

Subcatchment 3P: PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 1.42 cfs @ 1.08 hrs, Volume= 0.040 af, Depth= 1.03"

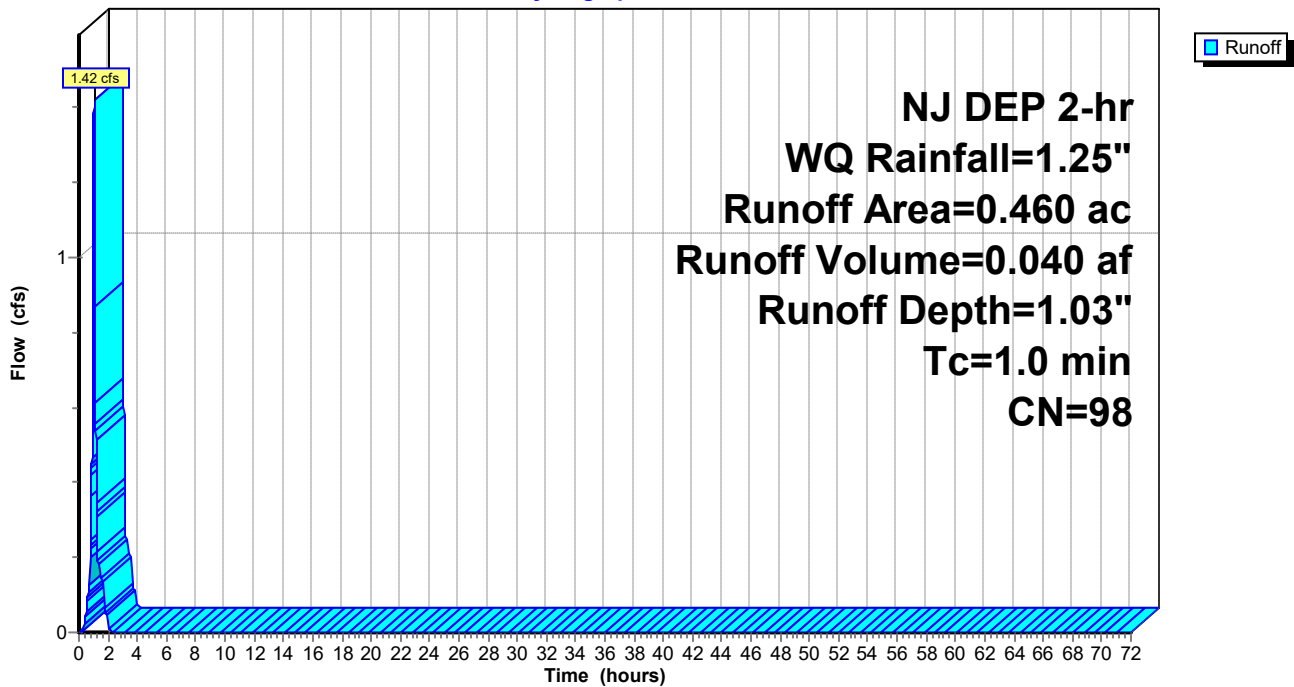
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.460	98	Roofs, HSG D
0.460	98	100.00% Impervious Area

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

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.09 cfs @ 1.09 hrs, Volume= 0.002 af, Depth= 0.17"

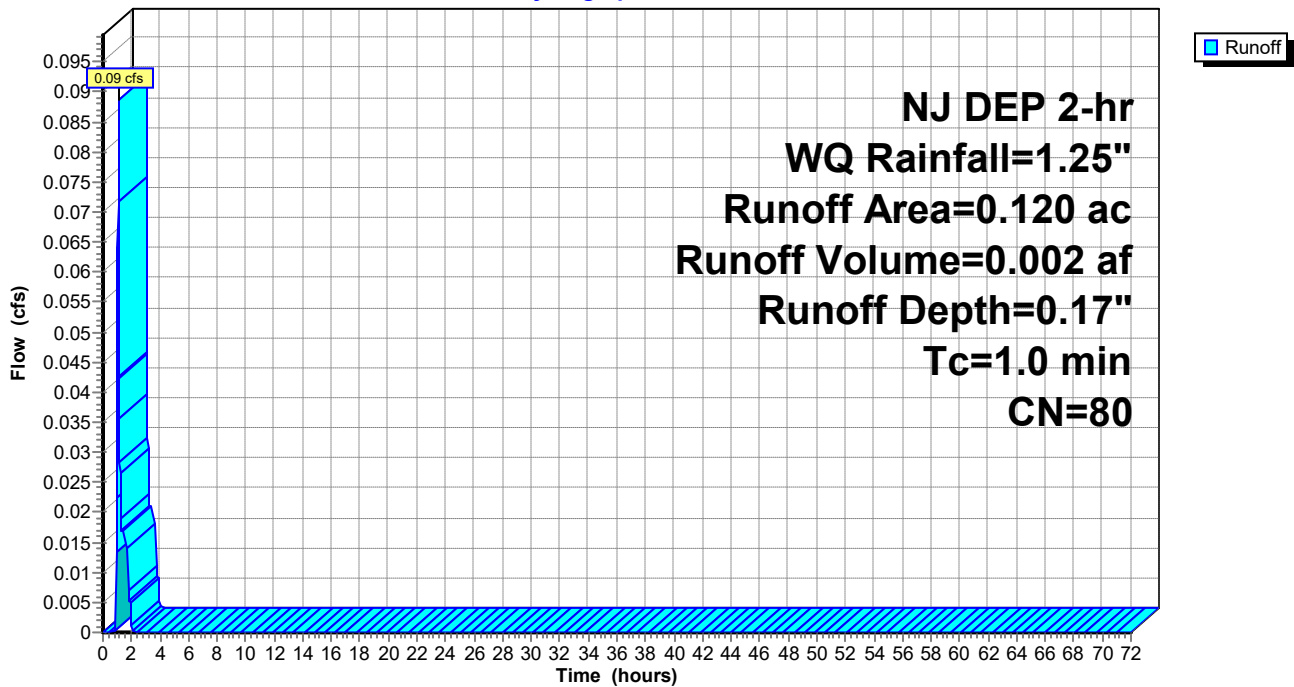
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.120	80	>75% Grass cover, Good, HSG D
0.120	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment OI-1: OFFSITE IMP

Runoff = 0.09 cfs @ 1.08 hrs, Volume= 0.003 af, Depth= 1.03"

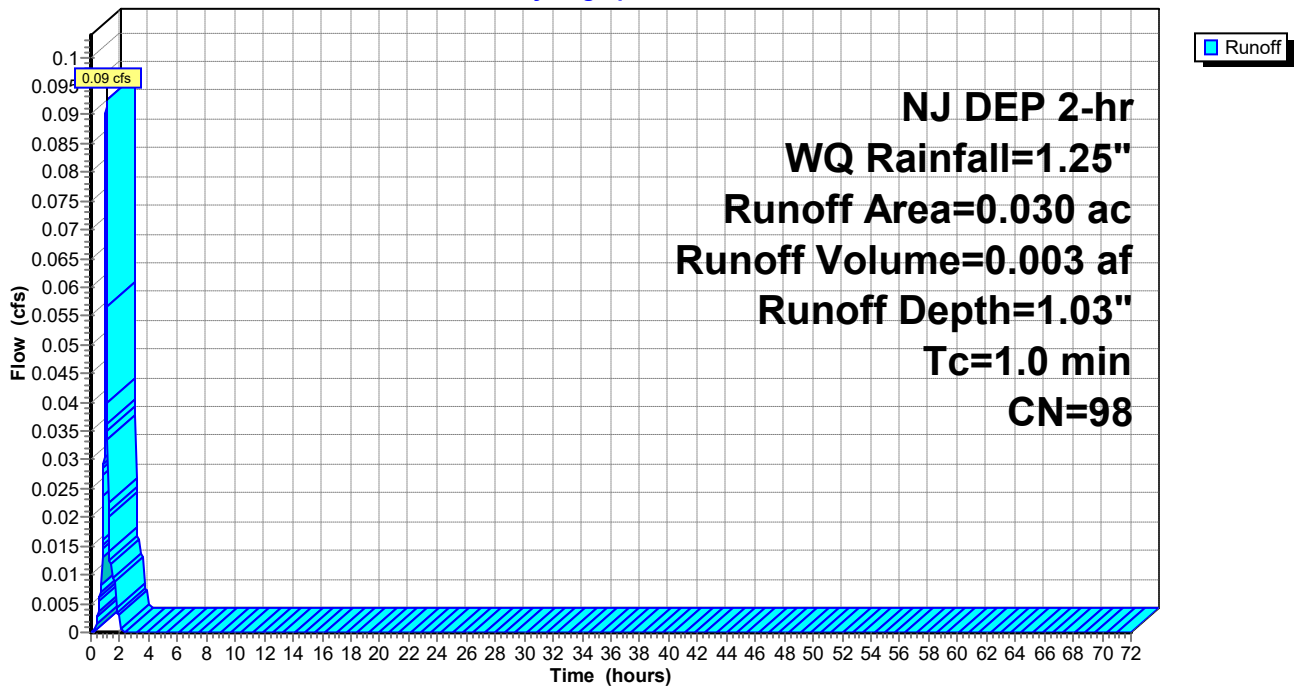
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

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

Subcatchment OI-1: OFFSITE IMP

Hydrograph



Summary for Subcatchment OP-1: OFFSITE PER

Runoff = 0.02 cfs @ 1.09 hrs, Volume= 0.000 af, Depth= 0.17"

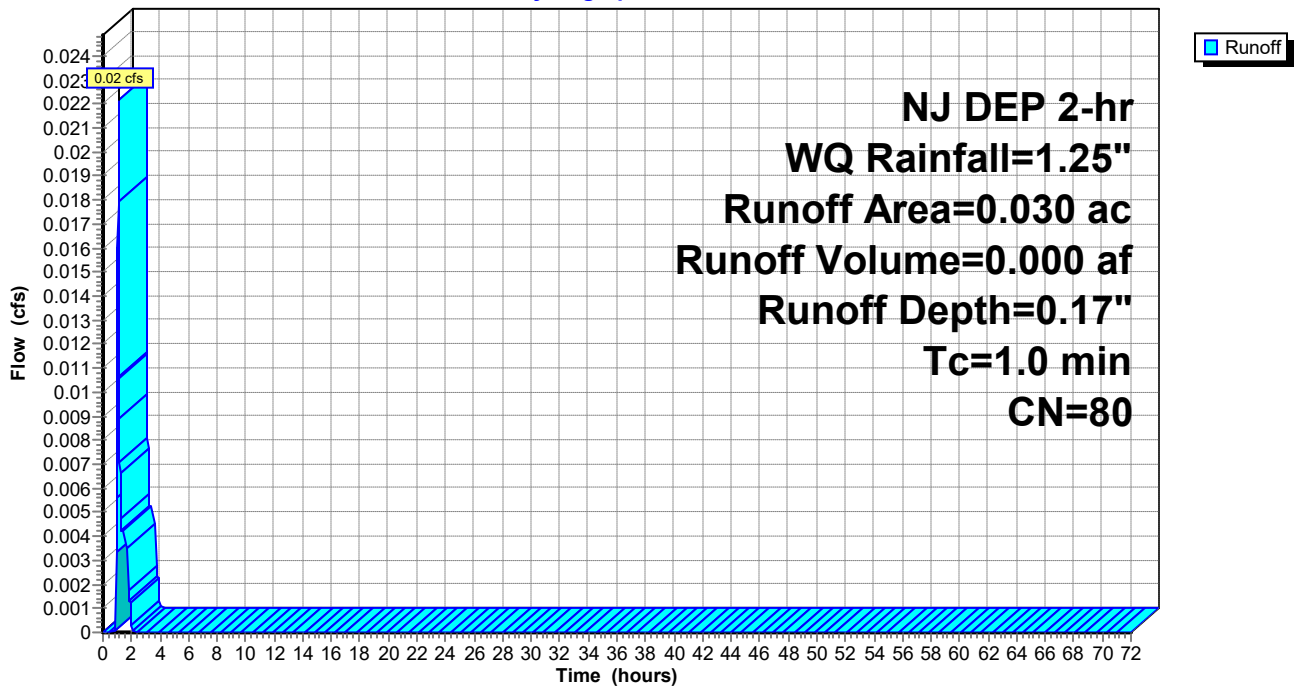
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment OP-1: OFFSITE PER

Hydrograph



Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 0.17" for WQ event
 Inflow = 0.14 cfs @ 1.08 hrs, Volume= 0.002 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.56' @ 2.03 hrs Surf.Area= 1,809 sf Storage= 107 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	1,766	0	0
72.50	2,487	2,127	2,127
73.50	3,432	2,960	5,086
74.00	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Primary	71.73'	24.0" Round Culvert L= 69.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.73' / 70.52' S= 0.0175 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.50'	2.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	72.00'	6.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#4	Device 1	74.00'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	73.50'	25.0' 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

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

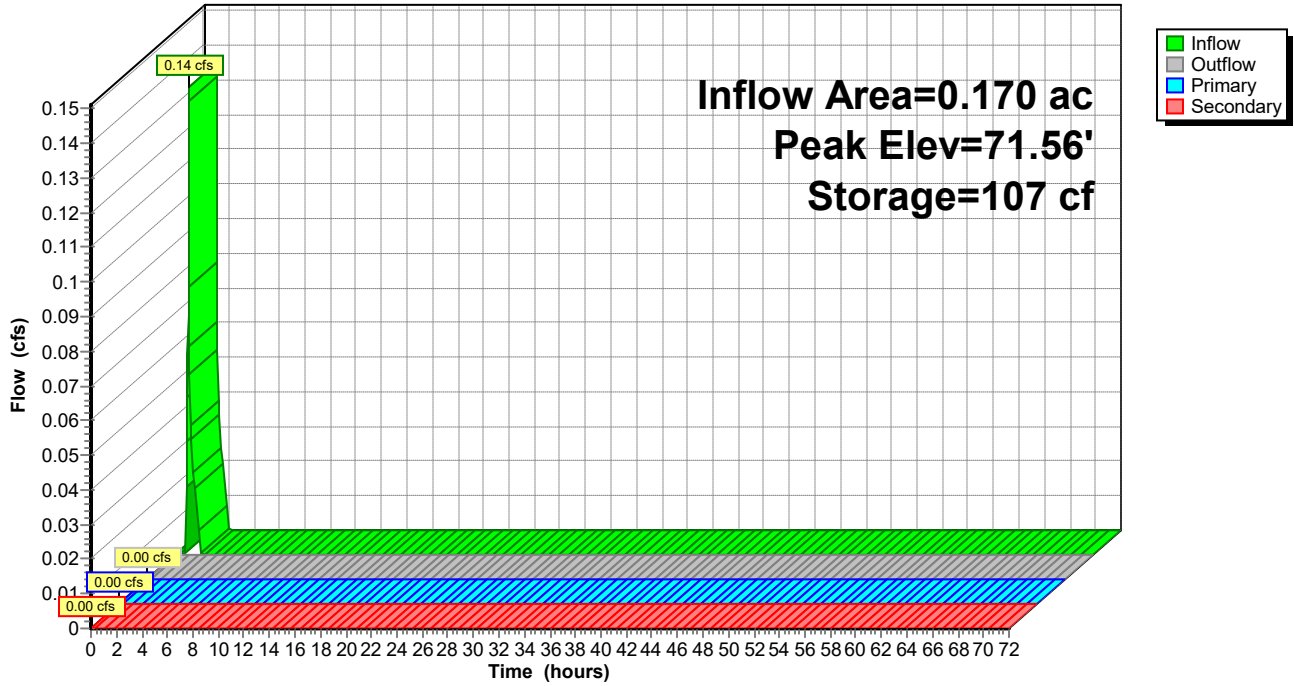
- ↑ 1=Culvert (Controls 0.00 cfs)
- ↑ 2=Orifice/Grate (Controls 0.00 cfs)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)
- ↑ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	71.50	0.00	0.00	0.00
2.00	0.01	107	71.56	0.00	0.00	0.00
4.00	0.00	107	71.56	0.00	0.00	0.00
6.00	0.00	107	71.56	0.00	0.00	0.00
8.00	0.00	107	71.56	0.00	0.00	0.00
10.00	0.00	107	71.56	0.00	0.00	0.00
12.00	0.00	107	71.56	0.00	0.00	0.00
14.00	0.00	107	71.56	0.00	0.00	0.00
16.00	0.00	107	71.56	0.00	0.00	0.00
18.00	0.00	107	71.56	0.00	0.00	0.00
20.00	0.00	107	71.56	0.00	0.00	0.00
22.00	0.00	107	71.56	0.00	0.00	0.00
24.00	0.00	107	71.56	0.00	0.00	0.00
26.00	0.00	107	71.56	0.00	0.00	0.00
28.00	0.00	107	71.56	0.00	0.00	0.00
30.00	0.00	107	71.56	0.00	0.00	0.00
32.00	0.00	107	71.56	0.00	0.00	0.00
34.00	0.00	107	71.56	0.00	0.00	0.00
36.00	0.00	107	71.56	0.00	0.00	0.00
38.00	0.00	107	71.56	0.00	0.00	0.00
40.00	0.00	107	71.56	0.00	0.00	0.00
42.00	0.00	107	71.56	0.00	0.00	0.00
44.00	0.00	107	71.56	0.00	0.00	0.00
46.00	0.00	107	71.56	0.00	0.00	0.00
48.00	0.00	107	71.56	0.00	0.00	0.00
50.00	0.00	107	71.56	0.00	0.00	0.00
52.00	0.00	107	71.56	0.00	0.00	0.00
54.00	0.00	107	71.56	0.00	0.00	0.00
56.00	0.00	107	71.56	0.00	0.00	0.00
58.00	0.00	107	71.56	0.00	0.00	0.00
60.00	0.00	107	71.56	0.00	0.00	0.00
62.00	0.00	107	71.56	0.00	0.00	0.00
64.00	0.00	107	71.56	0.00	0.00	0.00
66.00	0.00	107	71.56	0.00	0.00	0.00
68.00	0.00	107	71.56	0.00	0.00	0.00
70.00	0.00	107	71.56	0.00	0.00	0.00
72.00	0.00	107	71.56	0.00	0.00	0.00

Summary for Pond P1: Porous Pavement 1

Inflow Area = 0.340 ac, 85.29% Impervious, Inflow Depth = 0.91" for WQ event
 Inflow = 0.93 cfs @ 1.08 hrs, Volume= 0.026 af
 Outflow = 0.09 cfs @ 1.53 hrs, Volume= 0.015 af, Atten= 90%, Lag= 26.8 min
 Primary = 0.09 cfs @ 1.53 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.44' @ 1.53 hrs Surf.Area= 5,670 sf Storage= 895 cf

Plug-Flow detention time= 274.7 min calculated for 0.015 af (57% of inflow)
 Center-of-Mass det. time= 264.6 min (330.5 - 65.9)

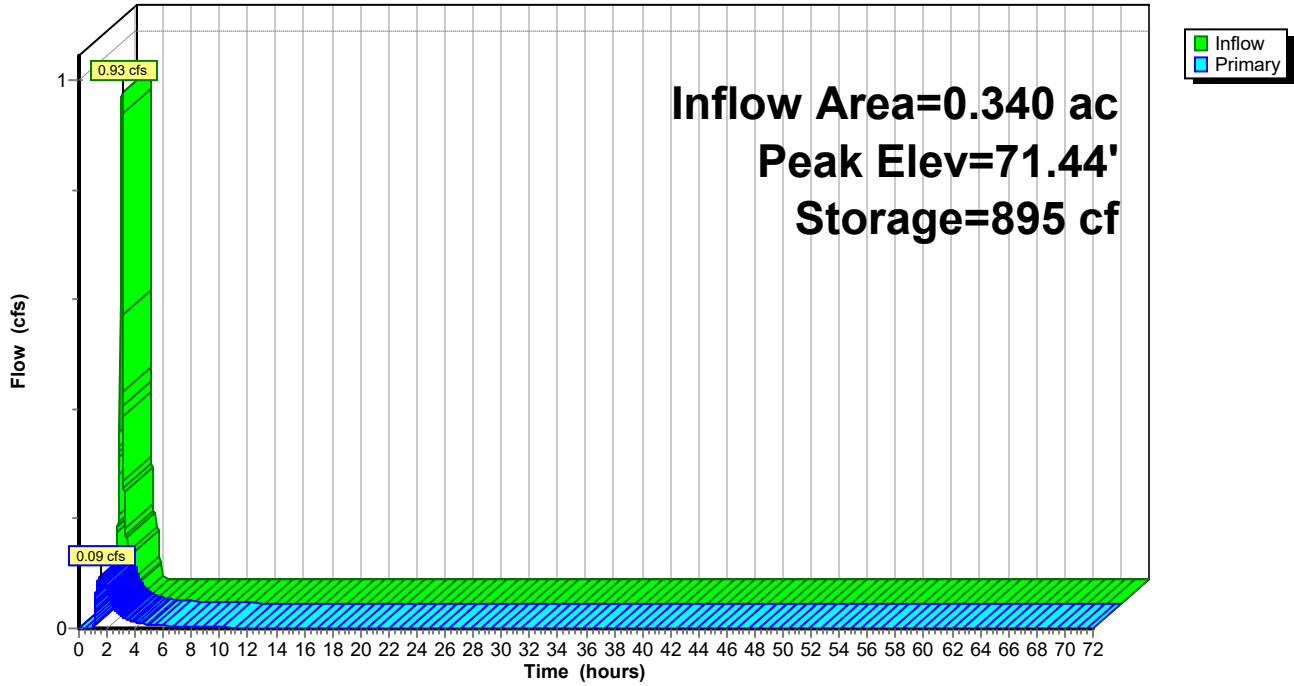
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	4,670 cf	18.00'W x 315.00'L x 2.50'H Prismaoid 14,175 cf Overall - 25 cf Embedded = 14,150 cf x 33.0% Voids
#2	71.22'	15 cf	3.0" Round Pipe Storage Inside #1 L= 315.0' 25 cf Overall - 0.4" Wall Thickness = 15 cf
		4,685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 3.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.09 cfs @ 1.53 hrs HW=71.44' (Free Discharge)
 1=Culvert (Barrel Controls 0.09 cfs @ 0.95 fps)
 2=Orifice/Grate (Passes 0.09 cfs of 0.17 cfs potential flow)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P1: Porous Pavement 1

Hydrograph



2024-04-26-Post-Development-POI 1

NJ DEP 2-hr WQ Rainfall=1.25"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P1: Porous Pavement 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.03	850	71.42	0.07
4.00	0.00	646	71.31	0.01
6.00	0.00	593	71.29	0.00
8.00	0.00	567	71.27	0.00
10.00	0.00	551	71.26	0.00
12.00	0.00	540	71.26	0.00
14.00	0.00	531	71.25	0.00
16.00	0.00	525	71.25	0.00
18.00	0.00	520	71.25	0.00
20.00	0.00	516	71.25	0.00
22.00	0.00	514	71.24	0.00
24.00	0.00	511	71.24	0.00
26.00	0.00	509	71.24	0.00
28.00	0.00	506	71.24	0.00
30.00	0.00	504	71.24	0.00
32.00	0.00	502	71.24	0.00
34.00	0.00	500	71.24	0.00
36.00	0.00	499	71.24	0.00
38.00	0.00	497	71.24	0.00
40.00	0.00	495	71.23	0.00
42.00	0.00	494	71.23	0.00
44.00	0.00	492	71.23	0.00
46.00	0.00	491	71.23	0.00
48.00	0.00	490	71.23	0.00
50.00	0.00	489	71.23	0.00
52.00	0.00	487	71.23	0.00
54.00	0.00	486	71.23	0.00
56.00	0.00	485	71.23	0.00
58.00	0.00	484	71.23	0.00
60.00	0.00	483	71.23	0.00
62.00	0.00	483	71.23	0.00
64.00	0.00	482	71.23	0.00
66.00	0.00	481	71.23	0.00
68.00	0.00	480	71.23	0.00
70.00	0.00	480	71.23	0.00
72.00	0.00	479	71.23	0.00

Summary for Pond P2: Porous Pavement 2

Inflow Area = 0.170 ac, 82.35% Impervious, Inflow Depth = 0.88" for WQ event
 Inflow = 0.45 cfs @ 1.08 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 1.18 hrs, Volume= 0.009 af, Atten= 67%, Lag= 6.0 min
 Primary = 0.15 cfs @ 1.18 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.08' @ 1.18 hrs Surf.Area= 1,782 sf Storage= 334 cf

Plug-Flow detention time= 88.9 min calculated for 0.009 af (73% of inflow)
 Center-of-Mass det. time= 81.6 min (147.9 - 66.3)

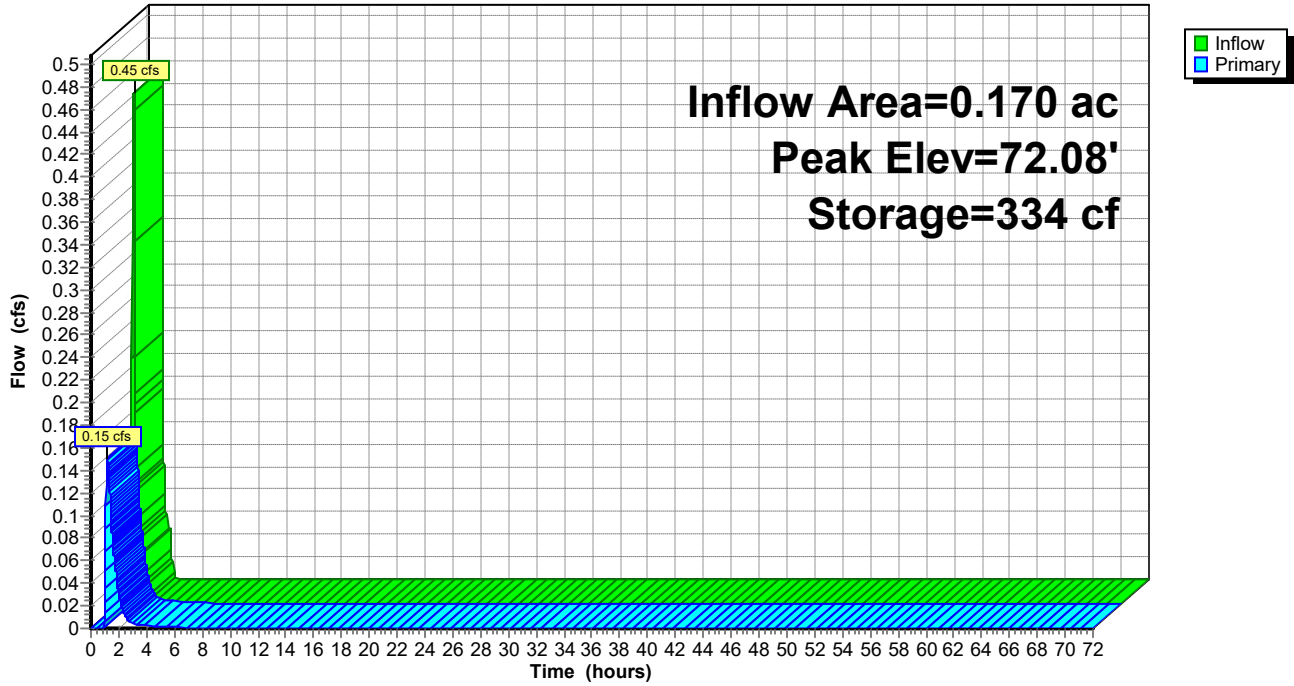
Volume	Invert	Avail.Storage	Storage Description
#1	71.52'	1,321 cf	18.00'W x 99.00'L x 2.25'H Prismatic 4,010 cf Overall - 8 cf Embedded = 4,002 cf x 33.0% Voids
#2	71.77'	5 cf	3.0" Round Pipe Storage Inside #1 L= 99.0' 8 cf Overall - 0.4" Wall Thickness = 5 cf
		1,325 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.77'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.77' / 71.77' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.77'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	72.77'	8.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.15 cfs @ 1.18 hrs HW=72.08' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.15 cfs of 0.20 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.15 cfs @ 2.21 fps)
 ↑ **3=Orifice/Grate** (Controls 0.00 cfs)

Pond P2: Porous Pavement 2

Hydrograph



2024-04-26-Post-Development-POI 1

NJ DEP 2-hr WQ Rainfall=1.25"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P2: Porous Pavement 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	71.52	0.00
2.00	0.01	233	71.91	0.03
4.00	0.00	176	71.82	0.00
6.00	0.00	166	71.80	0.00
8.00	0.00	161	71.79	0.00
10.00	0.00	159	71.79	0.00
12.00	0.00	158	71.79	0.00
14.00	0.00	156	71.79	0.00
16.00	0.00	155	71.78	0.00
18.00	0.00	154	71.78	0.00
20.00	0.00	153	71.78	0.00
22.00	0.00	153	71.78	0.00
24.00	0.00	152	71.78	0.00
26.00	0.00	151	71.78	0.00
28.00	0.00	151	71.78	0.00
30.00	0.00	150	71.78	0.00
32.00	0.00	150	71.78	0.00
34.00	0.00	150	71.77	0.00
36.00	0.00	149	71.77	0.00
38.00	0.00	149	71.77	0.00
40.00	0.00	149	71.77	0.00
42.00	0.00	149	71.77	0.00
44.00	0.00	148	71.77	0.00
46.00	0.00	148	71.77	0.00
48.00	0.00	148	71.77	0.00
50.00	0.00	148	71.77	0.00
52.00	0.00	148	71.77	0.00
54.00	0.00	148	71.77	0.00
56.00	0.00	148	71.77	0.00
58.00	0.00	148	71.77	0.00
60.00	0.00	147	71.77	0.00
62.00	0.00	147	71.77	0.00
64.00	0.00	147	71.77	0.00
66.00	0.00	147	71.77	0.00
68.00	0.00	147	71.77	0.00
70.00	0.00	147	71.77	0.00
72.00	0.00	147	71.77	0.00

Summary for Pond P3: Porous Pavement 3

Inflow Area = 0.400 ac, 72.50% Impervious, Inflow Depth = 0.80" for WQ event
 Inflow = 0.97 cfs @ 1.08 hrs, Volume= 0.027 af
 Outflow = 0.08 cfs @ 1.76 hrs, Volume= 0.014 af, Atten= 91%, Lag= 40.7 min
 Primary = 0.08 cfs @ 1.76 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.43' @ 1.76 hrs Surf.Area= 6,318 sf Storage= 973 cf

Plug-Flow detention time= 318.1 min calculated for 0.014 af (54% of inflow)
 Center-of-Mass det. time= 307.3 min (373.6 - 66.4)

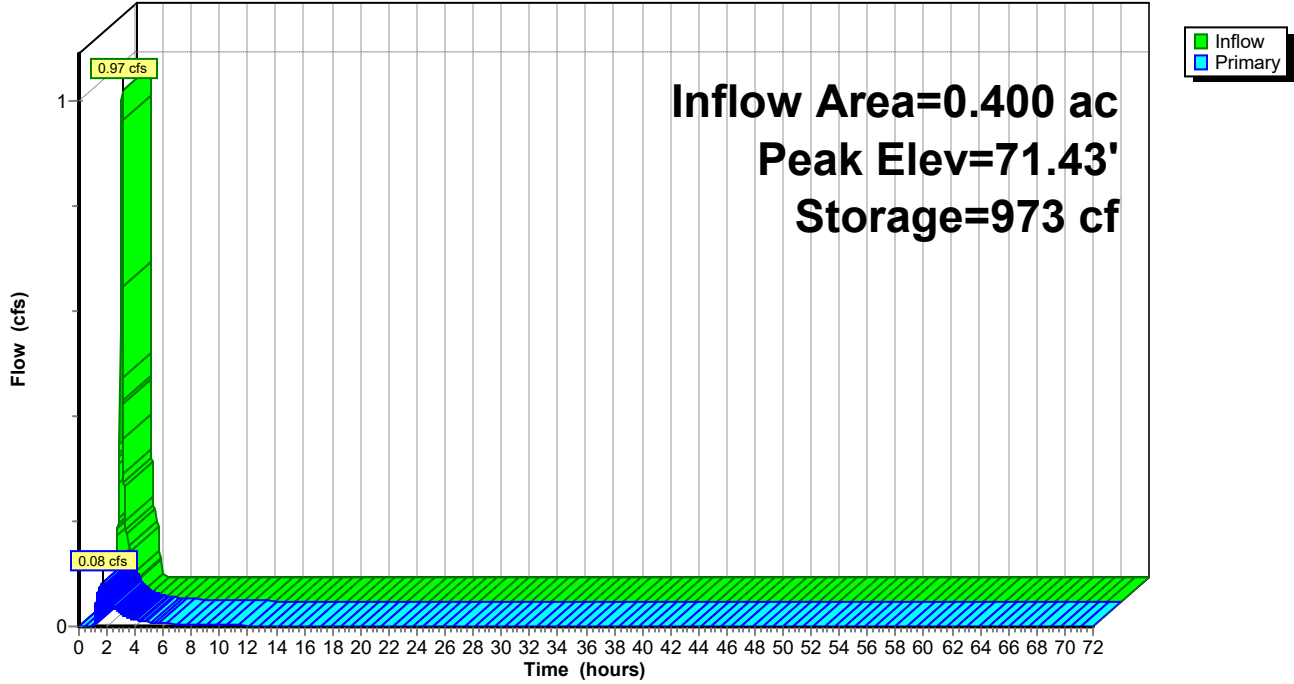
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	5,203 cf	18.00'W x 351.00'L x 2.50'H Prismaoid 15,795 cf Overall - 28 cf Embedded = 15,767 cf x 33.0% Voids
#2	71.22'	17 cf	3.0" Round Pipe Storage Inside #1 L= 351.0' 28 cf Overall - 0.4" Wall Thickness = 17 cf
		5,220 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.08 cfs @ 1.76 hrs HW=71.43' (Free Discharge)
 1=Culvert (Barrel Controls 0.08 cfs @ 0.91 fps)
 2=Orifice/Grate (Passes 0.08 cfs of 0.22 cfs potential flow)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P3: Porous Pavement 3

Hydrograph



2024-04-26-Post-Development-POI 1

NJ DEP 2-hr WQ Rainfall=1.25"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P3: Porous Pavement 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.03	938	71.42	0.07
4.00	0.00	729	71.32	0.01
6.00	0.00	669	71.29	0.01
8.00	0.00	638	71.28	0.00
10.00	0.00	620	71.27	0.00
12.00	0.00	608	71.26	0.00
14.00	0.00	598	71.26	0.00
16.00	0.00	590	71.25	0.00
18.00	0.00	584	71.25	0.00
20.00	0.00	579	71.25	0.00
22.00	0.00	575	71.25	0.00
24.00	0.00	573	71.24	0.00
26.00	0.00	570	71.24	0.00
28.00	0.00	568	71.24	0.00
30.00	0.00	565	71.24	0.00
32.00	0.00	563	71.24	0.00
34.00	0.00	561	71.24	0.00
36.00	0.00	559	71.24	0.00
38.00	0.00	557	71.24	0.00
40.00	0.00	556	71.24	0.00
42.00	0.00	554	71.24	0.00
44.00	0.00	552	71.24	0.00
46.00	0.00	551	71.23	0.00
48.00	0.00	549	71.23	0.00
50.00	0.00	548	71.23	0.00
52.00	0.00	547	71.23	0.00
54.00	0.00	545	71.23	0.00
56.00	0.00	544	71.23	0.00
58.00	0.00	543	71.23	0.00
60.00	0.00	542	71.23	0.00
62.00	0.00	541	71.23	0.00
64.00	0.00	540	71.23	0.00
66.00	0.00	539	71.23	0.00
68.00	0.00	538	71.23	0.00
70.00	0.00	537	71.23	0.00
72.00	0.00	536	71.23	0.00

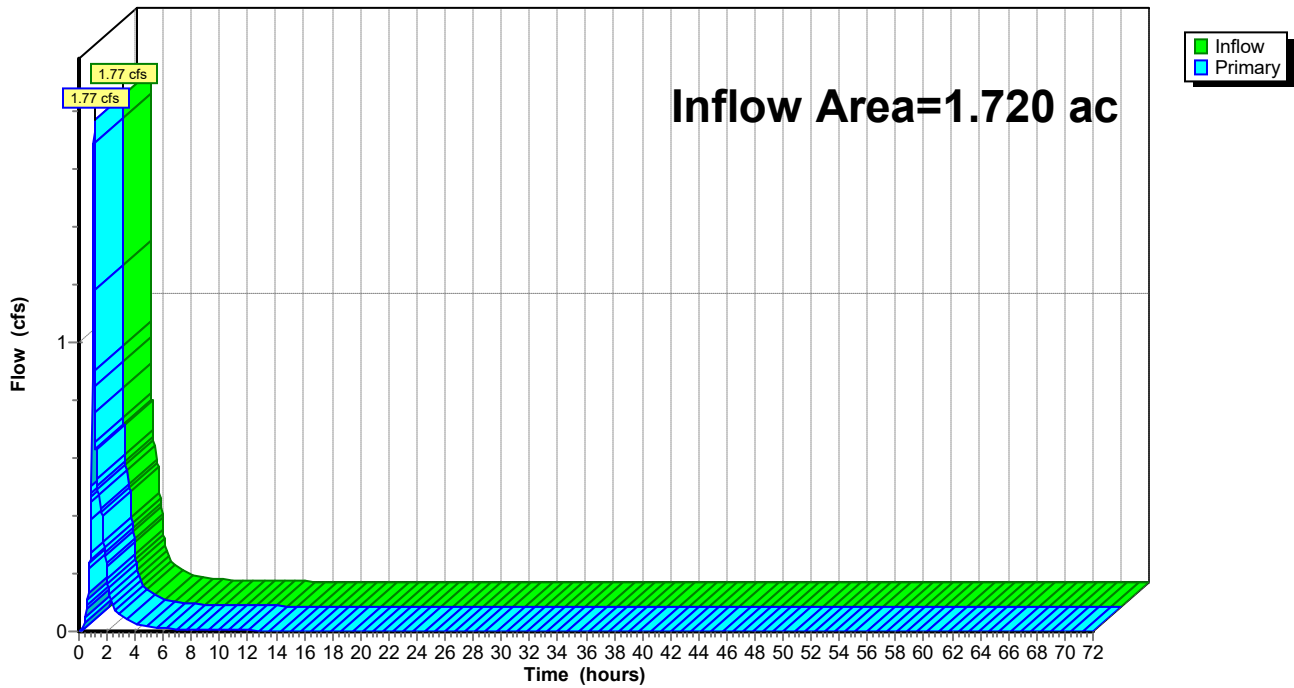
Summary for Pond POI 1: PRE - POI #1 (SW Basin)

Inflow Area = 1.720 ac, 70.35% Impervious, Inflow Depth > 0.58" for WQ event
Inflow = 1.77 cfs @ 1.08 hrs, Volume= 0.083 af
Primary = 1.77 cfs @ 1.08 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 1: PRE - POI #1 (SW Basin)

Hydrograph



2024-04-26-Post-Development-POI 1

Prepared by HP Inc.

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NJ DEP 2-hr WQ Rainfall=1.25"

Printed 4/23/2024

Hydrograph for Pond POI 1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	1.49		1.49	53.00	0.00		0.00
2.00	0.23		0.23	54.00	0.00		0.00
3.00	0.05		0.05	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1I: IMPERVIOUS

Runoff = 1.12 cfs @ 12.09 hrs, Volume= 0.075 af, Depth= 3.09"

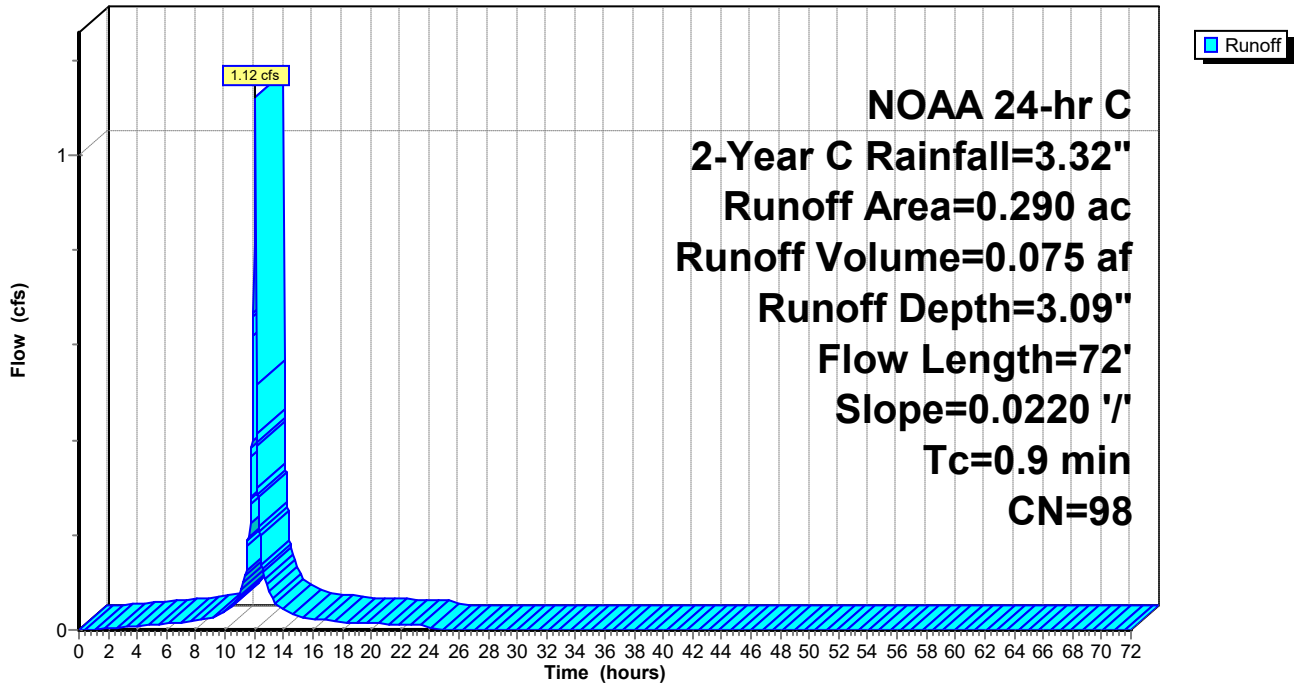
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	72	0.0220	1.38		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 1I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 1P: PERVIOUS

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.006 af, Depth= 1.49"

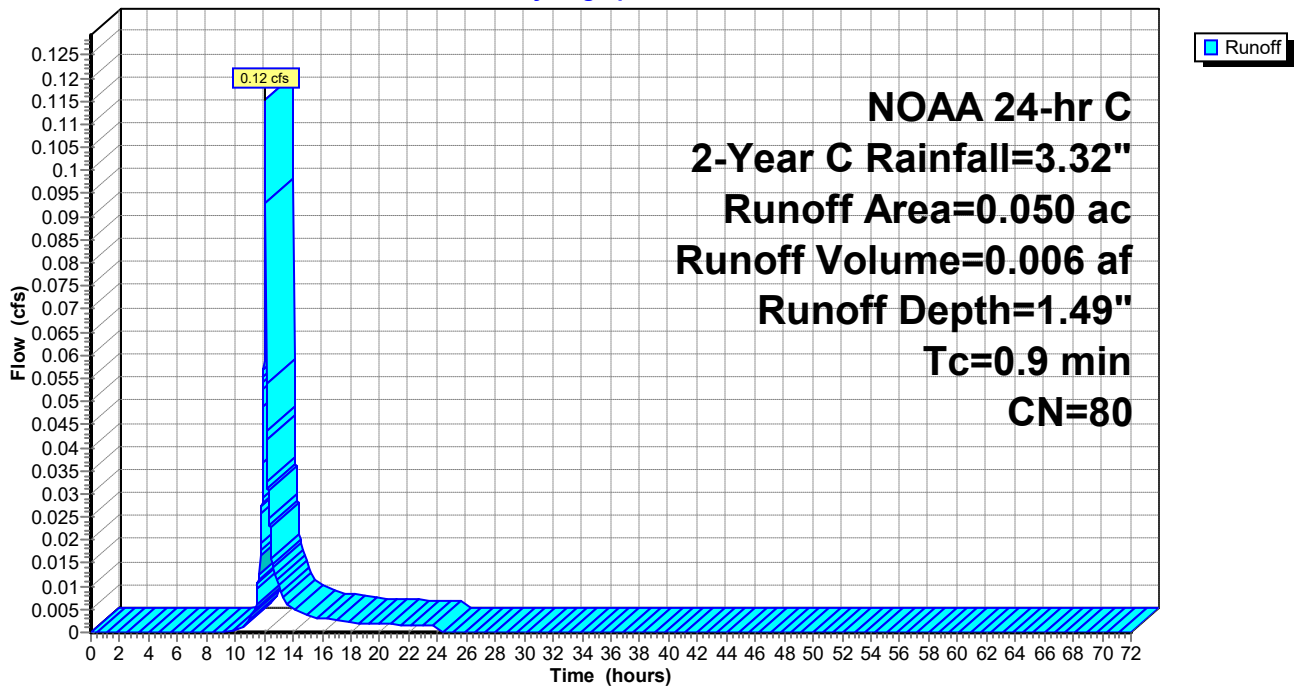
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.050	80	>75% Grass cover, Good, HSG D
0.050	80	100.00% Pervious Area

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

Subcatchment 1P: PERVIOUS

Hydrograph



Summary for Subcatchment 1S: PERVIOUS

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.021 af, Depth= 1.49"

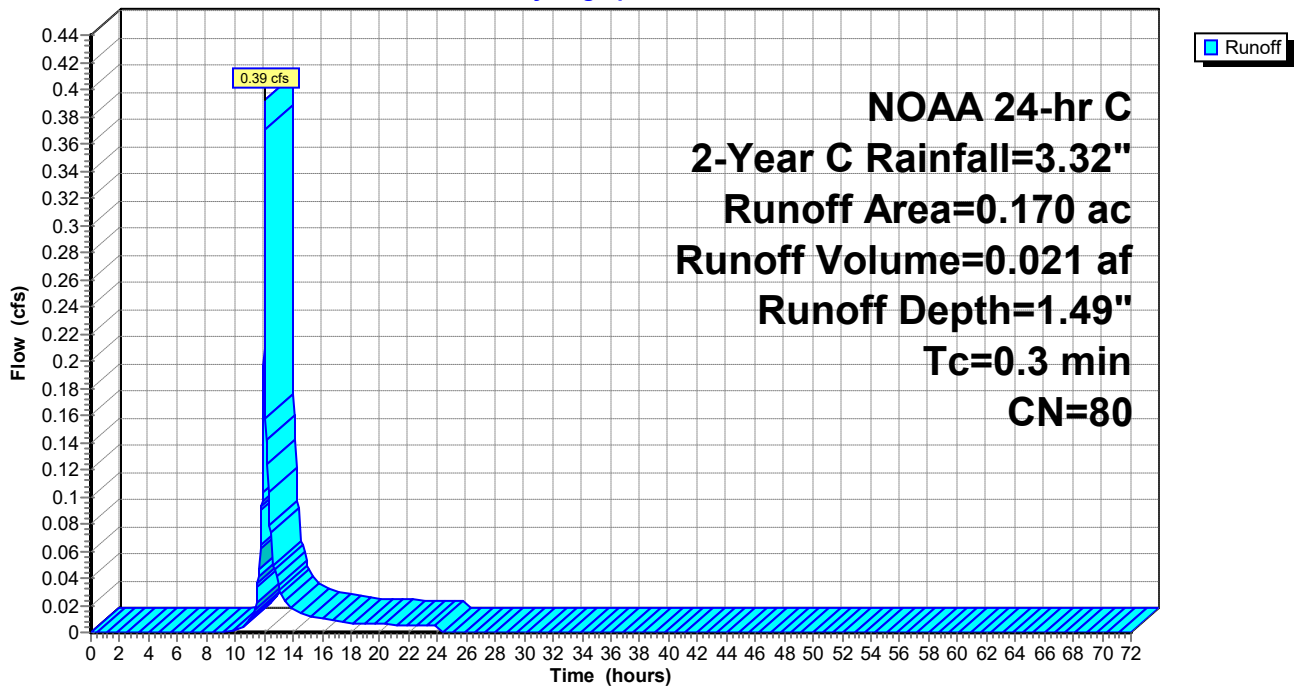
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.170	80	>75% Grass cover, Good, HSG D
0.170	80	100.00% Pervious Area

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

Subcatchment 1S: PERVIOUS

Hydrograph



Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.036 af, Depth= 3.09"

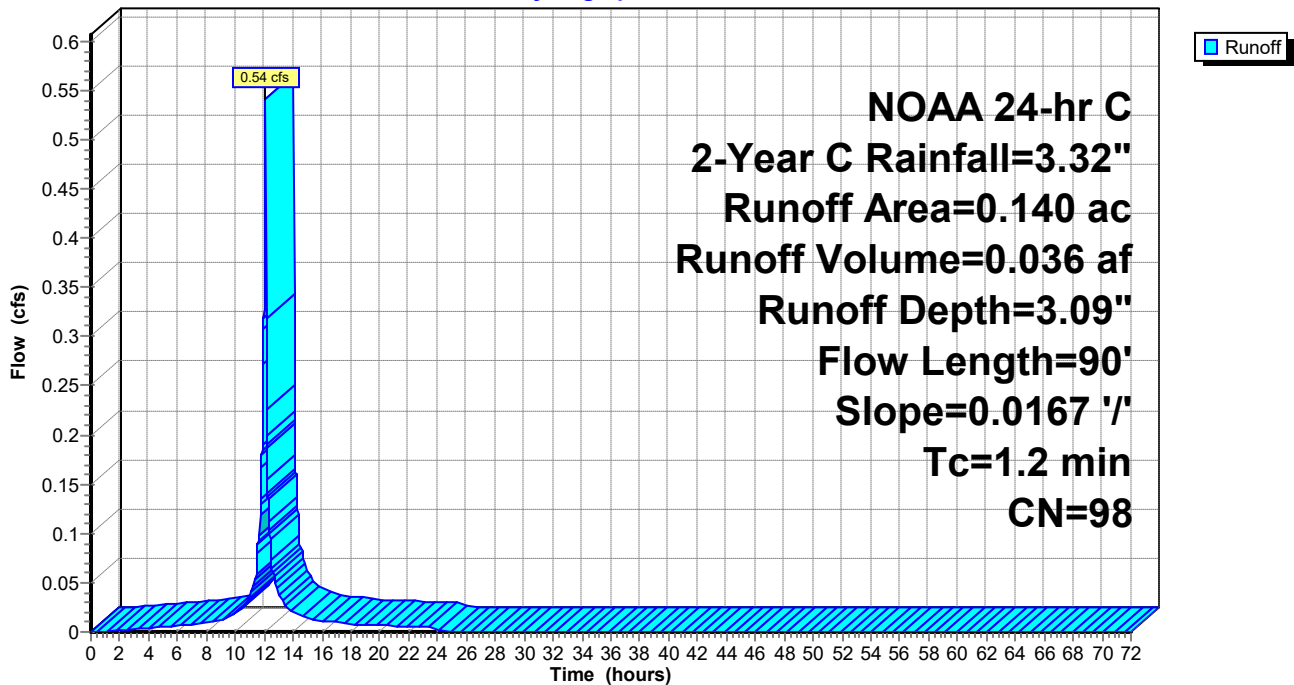
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG D
0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.07 cfs @ 12.10 hrs, Volume= 0.004 af, Depth= 1.49"

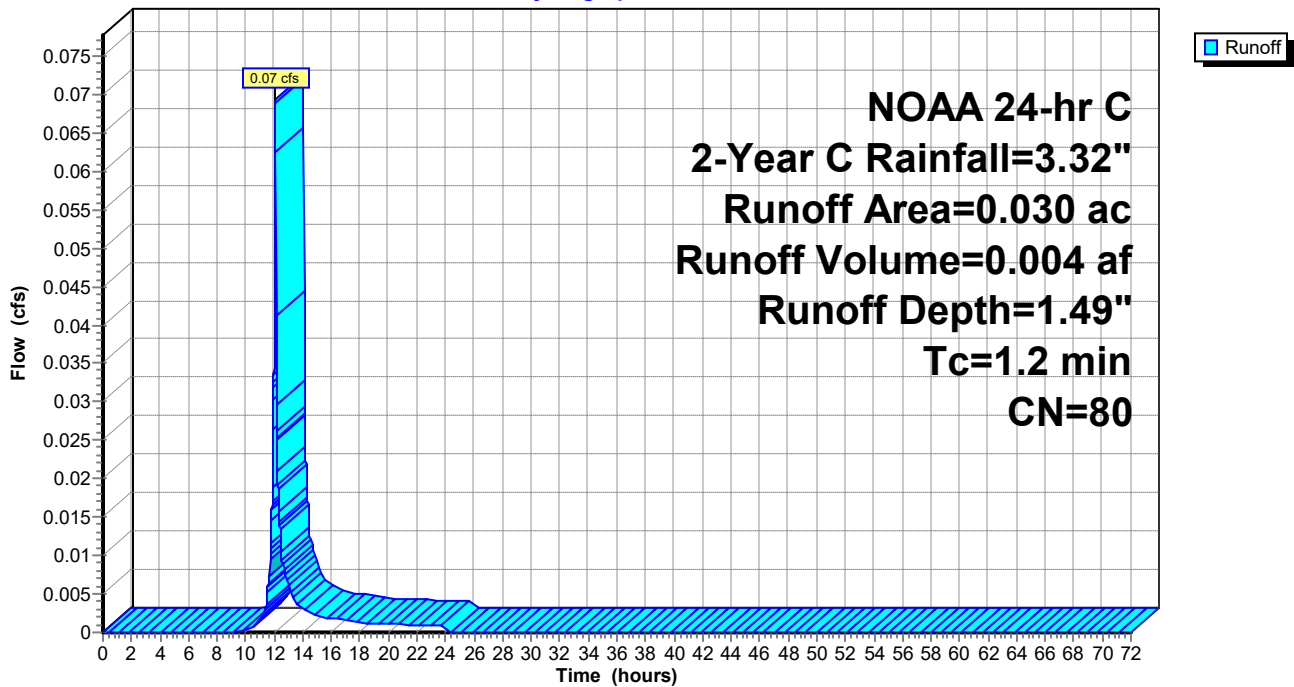
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 3I: IMPERVIOUS

Runoff = 1.12 cfs @ 12.09 hrs, Volume= 0.075 af, Depth= 3.09"

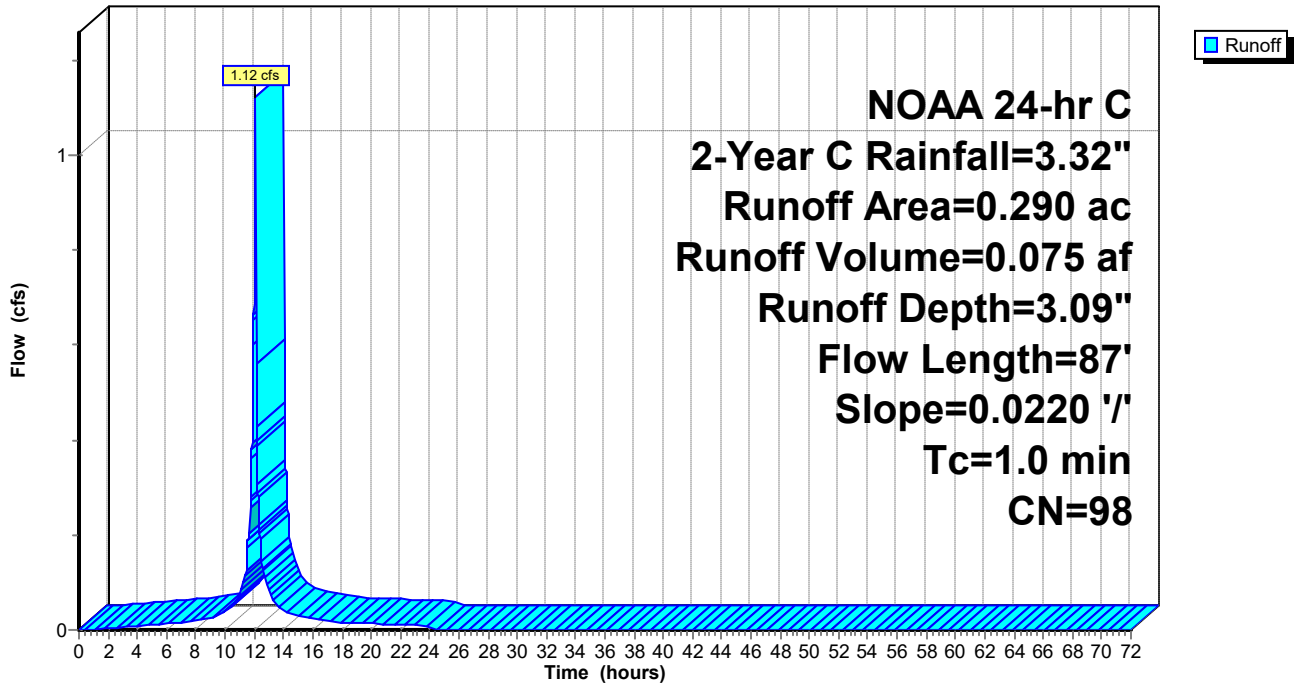
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	87	0.0220	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 3I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 3P: PERVIOUS

Runoff = 0.26 cfs @ 12.10 hrs, Volume= 0.014 af, Depth= 1.49"

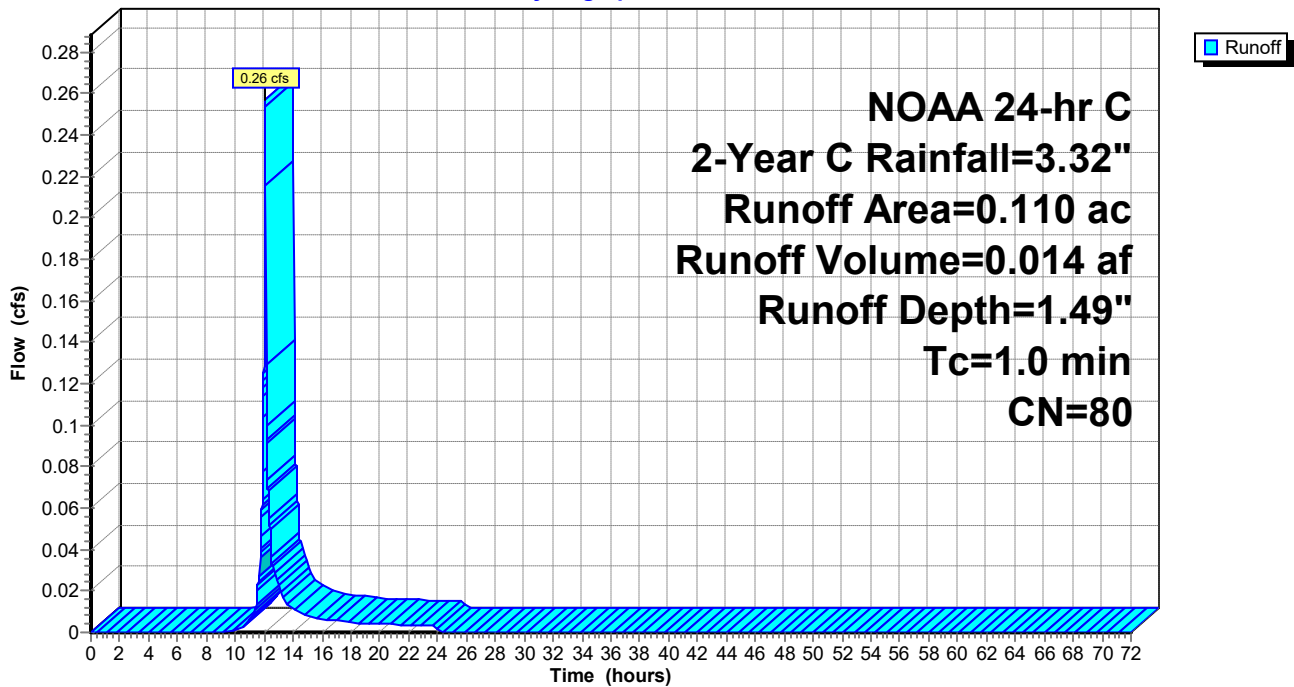
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.110	80	>75% Grass cover, Good, HSG D
0.110	80	100.00% Pervious Area

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

Subcatchment 3P: PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 1.78 cfs @ 12.09 hrs, Volume= 0.118 af, Depth= 3.09"

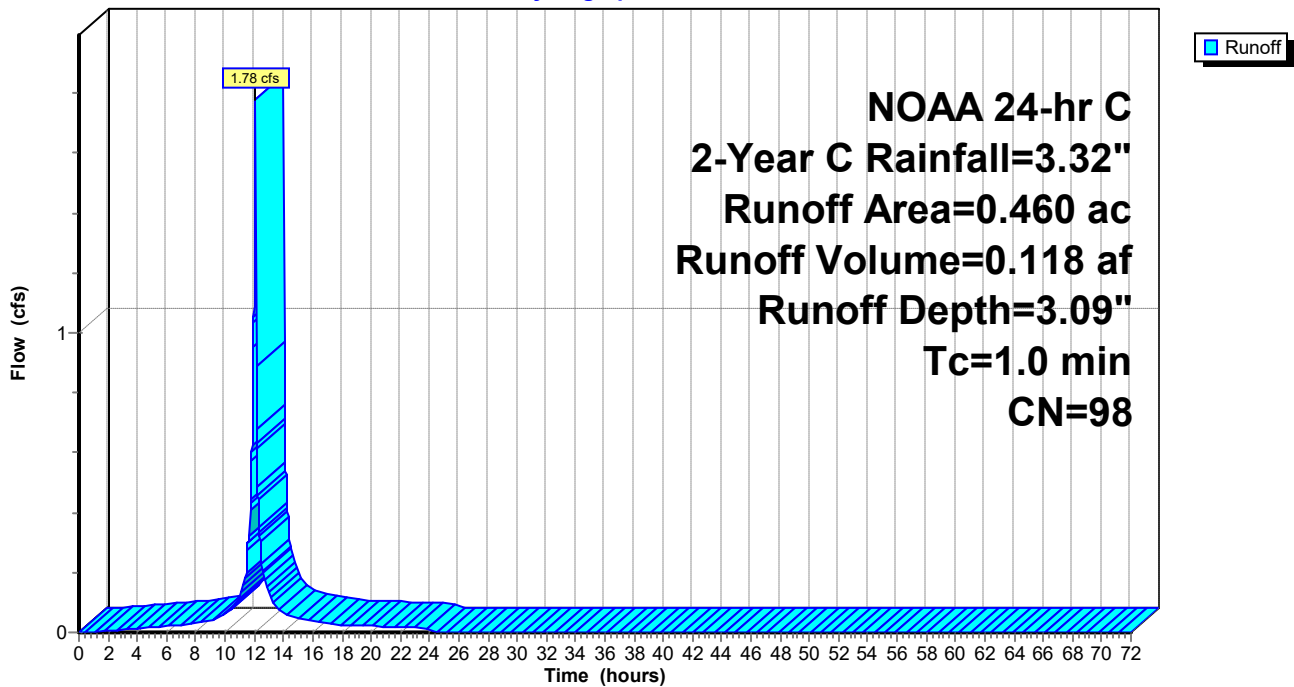
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.460	98	Roofs, HSG D
0.460	98	100.00% Impervious Area

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

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.28 cfs @ 12.10 hrs, Volume= 0.015 af, Depth= 1.49"

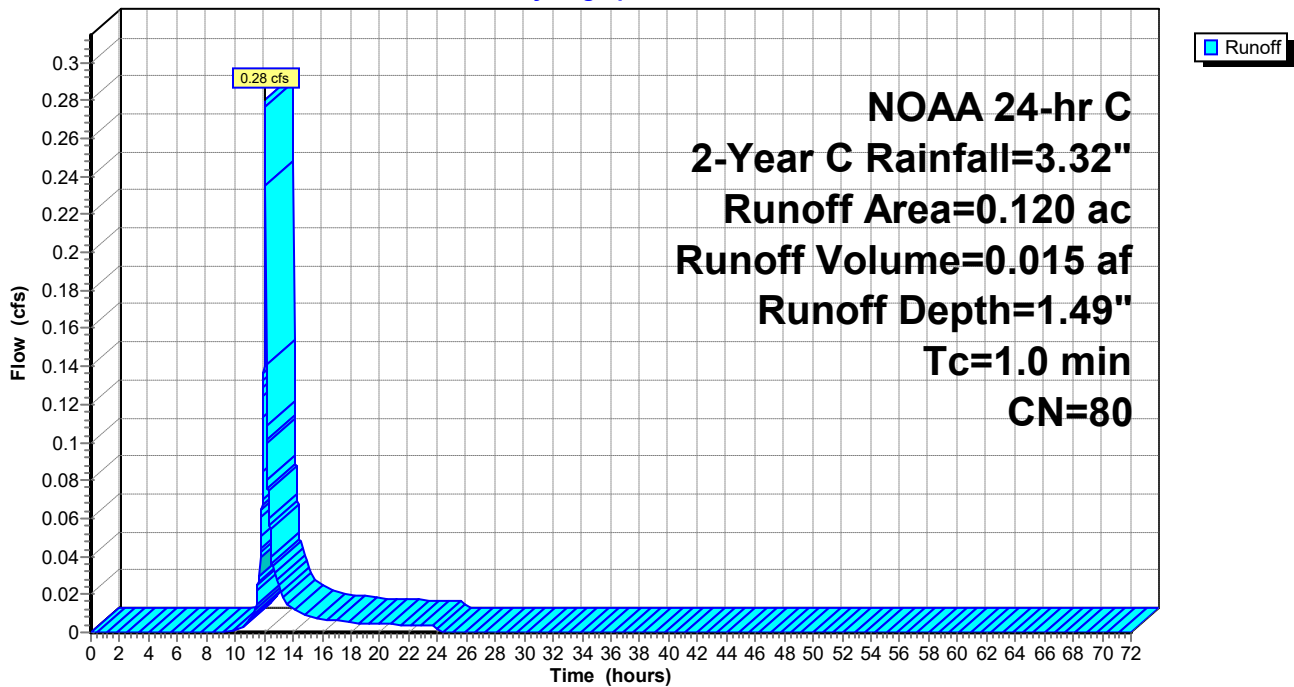
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.120	80	>75% Grass cover, Good, HSG D
0.120	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment OI-1: OFFSITE IMP

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.008 af, Depth= 3.09"

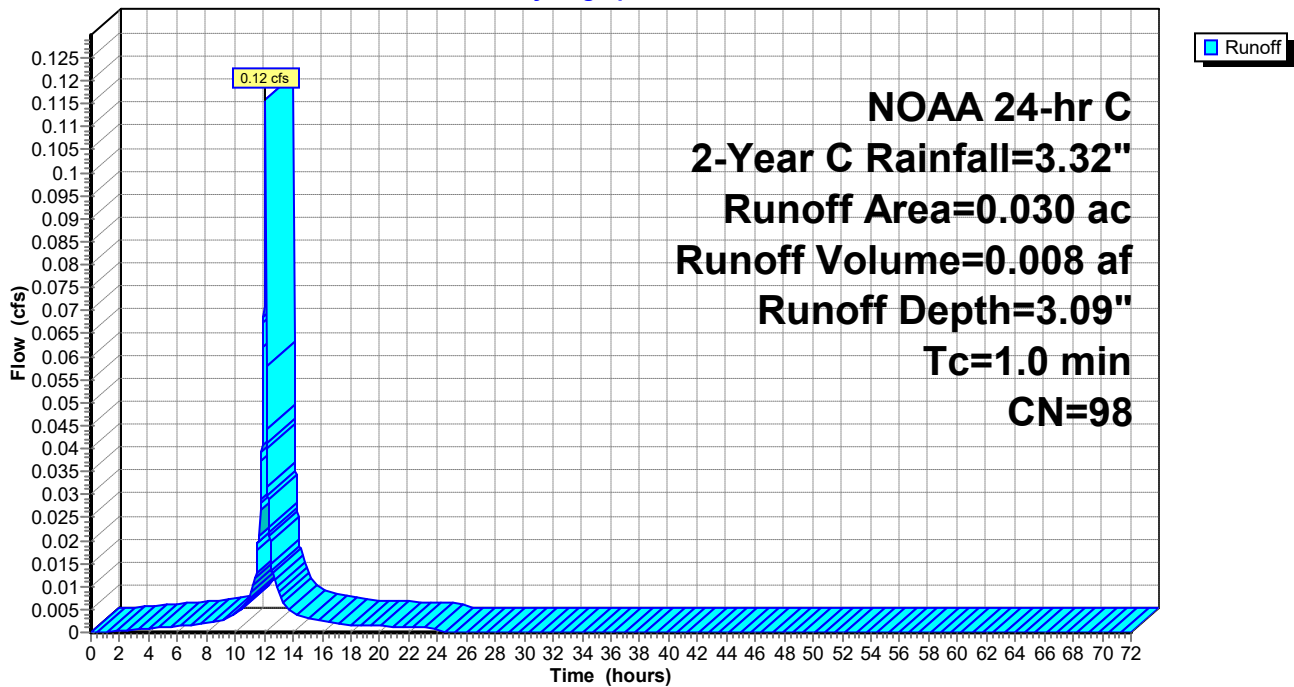
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

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

Subcatchment OI-1: OFFSITE IMP

Hydrograph



Summary for Subcatchment OP-1: OFFSITE PER

Runoff = 0.07 cfs @ 12.10 hrs, Volume= 0.004 af, Depth= 1.49"

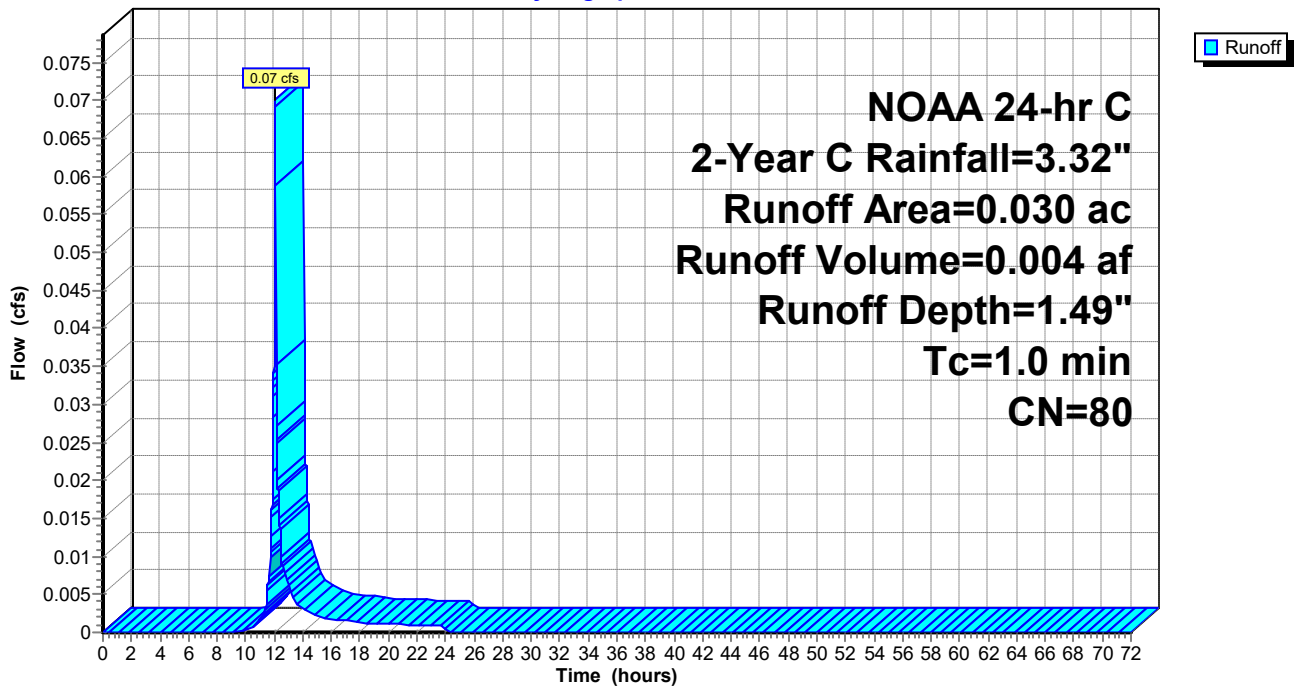
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment OP-1: OFFSITE PER

Hydrograph



Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 1.49" for 2-Year C event
 Inflow = 0.39 cfs @ 12.09 hrs, Volume= 0.021 af
 Outflow = 0.02 cfs @ 13.41 hrs, Volume= 0.011 af, Atten= 94%, Lag= 79.1 min
 Primary = 0.02 cfs @ 13.41 hrs, Volume= 0.011 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.79' @ 13.41 hrs Surf.Area= 1,975 sf Storage= 541 cf

Plug-Flow detention time= 358.5 min calculated for 0.011 af (54% of inflow)
 Center-of-Mass det. time= 237.8 min (1,076.8 - 839.0)

Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	1,766	0	0
72.50	2,487	2,127	2,127
73.50	3,432	2,960	5,086
74.00	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Primary	71.73'	24.0" Round Culvert L= 69.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.73' / 70.52' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.50'	2.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	72.00'	6.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#4	Device 1	74.00'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	73.50'	25.0' 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

Primary OutFlow Max=0.02 cfs @ 13.41 hrs HW=71.79' (Free Discharge)

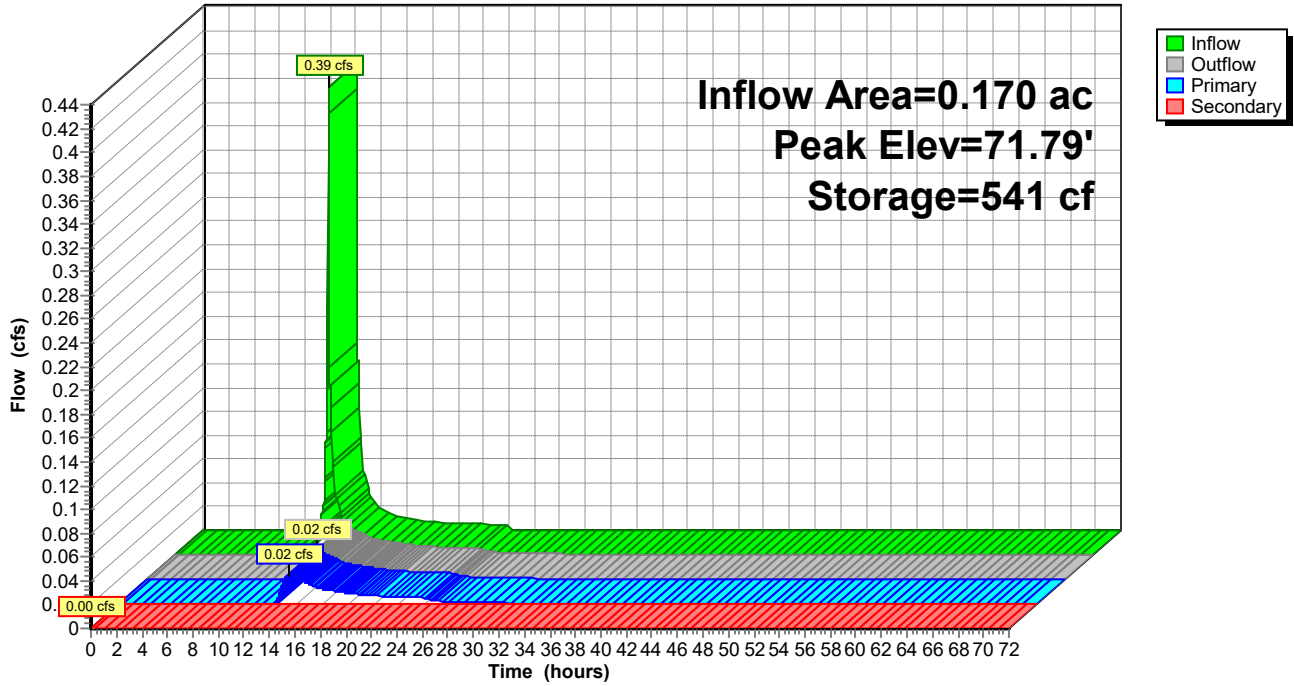
- ↑ 1=Culvert (Inlet Controls 0.02 cfs @ 0.83 fps)
- ↑ 2=Orifice/Grate (Passes 0.02 cfs of 0.04 cfs potential flow)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)
- ↑ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	71.50	0.00	0.00	0.00
2.00	0.00	0	71.50	0.00	0.00	0.00
4.00	0.00	0	71.50	0.00	0.00	0.00
6.00	0.00	0	71.50	0.00	0.00	0.00
8.00	0.00	0	71.50	0.00	0.00	0.00
10.00	0.00	3	71.50	0.00	0.00	0.00
12.00	0.22	199	71.61	0.00	0.00	0.00
14.00	0.02	536	71.79	0.02	0.02	0.00
16.00	0.01	511	71.77	0.01	0.01	0.00
18.00	0.01	495	71.77	0.01	0.01	0.00
20.00	0.01	486	71.76	0.01	0.01	0.00
22.00	0.01	481	71.76	0.01	0.01	0.00
24.00	0.01	477	71.76	0.01	0.01	0.00
26.00	0.00	456	71.75	0.00	0.00	0.00
28.00	0.00	445	71.74	0.00	0.00	0.00
30.00	0.00	438	71.74	0.00	0.00	0.00
32.00	0.00	433	71.73	0.00	0.00	0.00
34.00	0.00	430	71.73	0.00	0.00	0.00
36.00	0.00	429	71.73	0.00	0.00	0.00
38.00	0.00	427	71.73	0.00	0.00	0.00
40.00	0.00	427	71.73	0.00	0.00	0.00
42.00	0.00	426	71.73	0.00	0.00	0.00
44.00	0.00	426	71.73	0.00	0.00	0.00
46.00	0.00	426	71.73	0.00	0.00	0.00
48.00	0.00	425	71.73	0.00	0.00	0.00
50.00	0.00	425	71.73	0.00	0.00	0.00
52.00	0.00	425	71.73	0.00	0.00	0.00
54.00	0.00	425	71.73	0.00	0.00	0.00
56.00	0.00	425	71.73	0.00	0.00	0.00
58.00	0.00	425	71.73	0.00	0.00	0.00
60.00	0.00	425	71.73	0.00	0.00	0.00
62.00	0.00	425	71.73	0.00	0.00	0.00
64.00	0.00	425	71.73	0.00	0.00	0.00
66.00	0.00	425	71.73	0.00	0.00	0.00
68.00	0.00	425	71.73	0.00	0.00	0.00
70.00	0.00	425	71.73	0.00	0.00	0.00
72.00	0.00	425	71.73	0.00	0.00	0.00

Summary for Pond P1: Porous Pavement 1

Inflow Area = 0.340 ac, 85.29% Impervious, Inflow Depth = 2.85" for 2-Year C event
 Inflow = 1.24 cfs @ 12.09 hrs, Volume= 0.081 af
 Outflow = 0.34 cfs @ 12.22 hrs, Volume= 0.070 af, Atten= 72%, Lag= 7.8 min
 Primary = 0.34 cfs @ 12.22 hrs, Volume= 0.070 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.81' @ 12.22 hrs Surf.Area= 5,670 sf Storage= 1,582 cf

Plug-Flow detention time= 221.7 min calculated for 0.070 af (86% of inflow)
 Center-of-Mass det. time= 157.2 min (916.0 - 758.8)

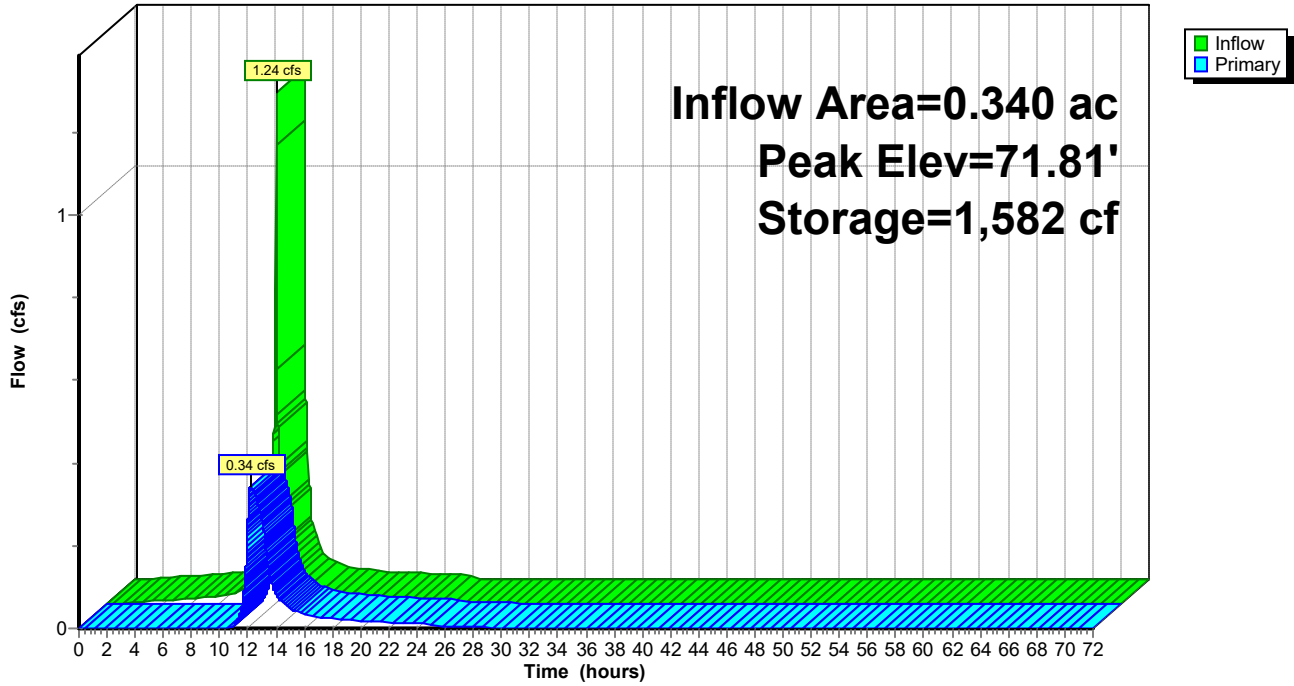
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	4,670 cf	18.00'W x 315.00'L x 2.50'H Prismatic 14,175 cf Overall - 25 cf Embedded = 14,150 cf x 33.0% Voids
#2	71.22'	15 cf	3.0" Round Pipe Storage Inside #1 L= 315.0' 25 cf Overall - 0.4" Wall Thickness = 15 cf
		4,685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 3.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.34 cfs @ 12.22 hrs HW=71.81' (Free Discharge)
 1=Culvert (Passes 0.34 cfs of 0.79 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.34 cfs @ 3.36 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P1: Porous Pavement 1

Hydrograph



Hydrograph for Pond P1: Porous Pavement 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.00	5	70.97	0.00
4.00	0.01	47	71.00	0.00
6.00	0.01	121	71.03	0.00
8.00	0.02	238	71.10	0.00
10.00	0.04	435	71.20	0.00
12.00	0.73	1,194	71.60	0.26
14.00	0.05	872	71.43	0.08
16.00	0.03	748	71.37	0.03
18.00	0.02	705	71.34	0.02
20.00	0.02	681	71.33	0.02
22.00	0.01	667	71.32	0.02
24.00	0.01	656	71.32	0.01
26.00	0.00	597	71.29	0.01
28.00	0.00	569	71.27	0.00
30.00	0.00	553	71.27	0.00
32.00	0.00	541	71.26	0.00
34.00	0.00	532	71.25	0.00
36.00	0.00	526	71.25	0.00
38.00	0.00	521	71.25	0.00
40.00	0.00	517	71.25	0.00
42.00	0.00	514	71.24	0.00
44.00	0.00	511	71.24	0.00
46.00	0.00	509	71.24	0.00
48.00	0.00	507	71.24	0.00
50.00	0.00	505	71.24	0.00
52.00	0.00	503	71.24	0.00
54.00	0.00	501	71.24	0.00
56.00	0.00	499	71.24	0.00
58.00	0.00	497	71.24	0.00
60.00	0.00	496	71.24	0.00
62.00	0.00	494	71.23	0.00
64.00	0.00	493	71.23	0.00
66.00	0.00	491	71.23	0.00
68.00	0.00	490	71.23	0.00
70.00	0.00	489	71.23	0.00
72.00	0.00	488	71.23	0.00

Summary for Pond P2: Porous Pavement 2

Inflow Area = 0.170 ac, 82.35% Impervious, Inflow Depth = 2.81" for 2-Year C event
 Inflow = 0.61 cfs @ 12.10 hrs, Volume= 0.040 af
 Outflow = 0.24 cfs @ 12.13 hrs, Volume= 0.036 af, Atten= 60%, Lag= 2.1 min
 Primary = 0.24 cfs @ 12.13 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.41' @ 12.13 hrs Surf.Area= 1,782 sf Storage= 527 cf

Plug-Flow detention time= 134.3 min calculated for 0.036 af (91% of inflow)
 Center-of-Mass det. time= 88.1 min (848.6 - 760.5)

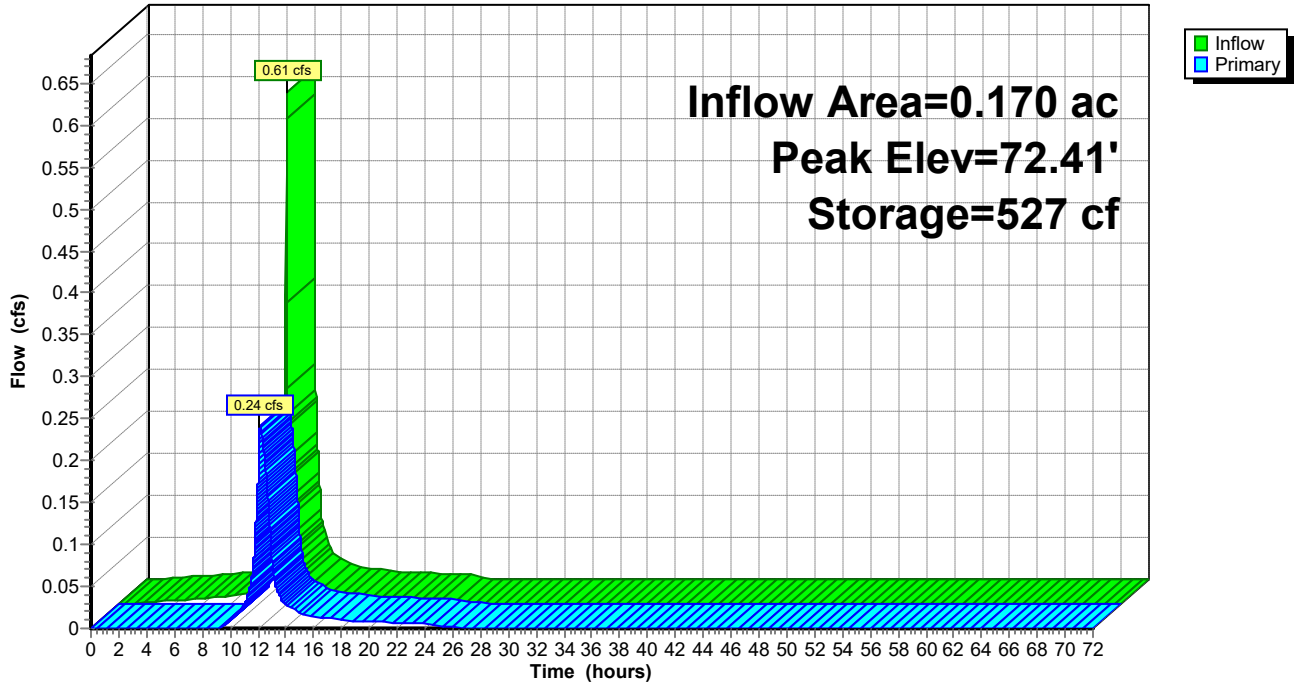
Volume	Invert	Avail.Storage	Storage Description
#1	71.52'	1,321 cf	18.00'W x 99.00'L x 2.25'H Prismaoid 4,010 cf Overall - 8 cf Embedded = 4,002 cf x 33.0% Voids
#2	71.77'	5 cf	3.0" Round Pipe Storage Inside #1 L= 99.0' 8 cf Overall - 0.4" Wall Thickness = 5 cf
		1,325 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.77'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.77' / 71.77' S= 0.0000 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.77'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	72.77'	8.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.24 cfs @ 12.13 hrs HW=72.41' (Free Discharge)
 1=Culvert (Passes 0.24 cfs of 0.94 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.24 cfs @ 3.53 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P2: Porous Pavement 2

Hydrograph



Hydrograph for Pond P2: Porous Pavement 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	71.52	0.00
2.00	0.00	2	71.52	0.00
4.00	0.00	23	71.56	0.00
6.00	0.01	59	71.62	0.00
8.00	0.01	115	71.72	0.00
10.00	0.02	198	71.86	0.01
12.00	0.36	376	72.16	0.17
14.00	0.02	228	71.91	0.03
16.00	0.01	209	71.87	0.01
18.00	0.01	200	71.86	0.01
20.00	0.01	196	71.85	0.01
22.00	0.01	193	71.85	0.01
24.00	0.01	190	71.84	0.01
26.00	0.00	170	71.81	0.00
28.00	0.00	164	71.80	0.00
30.00	0.00	160	71.79	0.00
32.00	0.00	158	71.79	0.00
34.00	0.00	157	71.79	0.00
36.00	0.00	156	71.79	0.00
38.00	0.00	155	71.78	0.00
40.00	0.00	154	71.78	0.00
42.00	0.00	153	71.78	0.00
44.00	0.00	152	71.78	0.00
46.00	0.00	152	71.78	0.00
48.00	0.00	151	71.78	0.00
50.00	0.00	151	71.78	0.00
52.00	0.00	150	71.78	0.00
54.00	0.00	150	71.78	0.00
56.00	0.00	150	71.77	0.00
58.00	0.00	149	71.77	0.00
60.00	0.00	149	71.77	0.00
62.00	0.00	149	71.77	0.00
64.00	0.00	148	71.77	0.00
66.00	0.00	148	71.77	0.00
68.00	0.00	148	71.77	0.00
70.00	0.00	148	71.77	0.00
72.00	0.00	148	71.77	0.00

Summary for Pond P3: Porous Pavement 3

Inflow Area = 0.400 ac, 72.50% Impervious, Inflow Depth = 2.65" for 2-Year C event
 Inflow = 1.37 cfs @ 12.10 hrs, Volume= 0.088 af
 Outflow = 0.44 cfs @ 12.21 hrs, Volume= 0.076 af, Atten= 68%, Lag= 6.6 min
 Primary = 0.44 cfs @ 12.21 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.78' @ 12.21 hrs Surf.Area= 6,318 sf Storage= 1,694 cf

Plug-Flow detention time= 224.7 min calculated for 0.076 af (86% of inflow)
 Center-of-Mass det. time= 158.2 min (923.9 - 765.7)

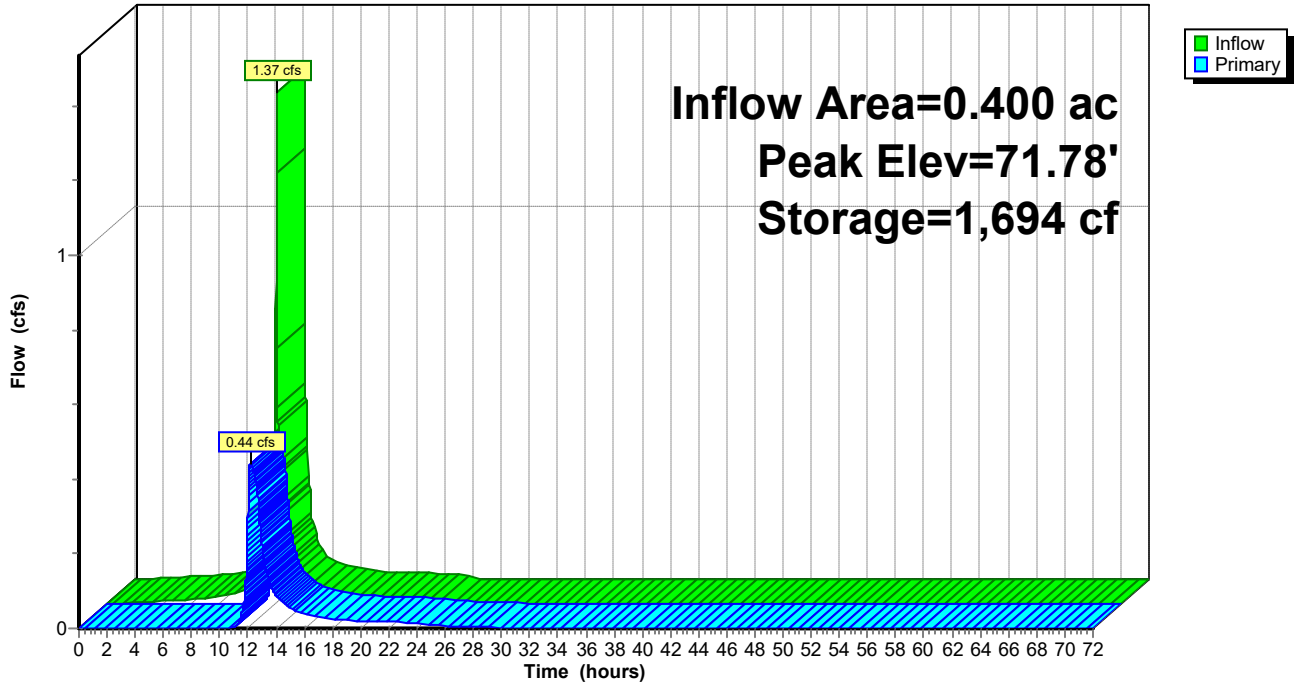
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	5,203 cf	18.00'W x 351.00'L x 2.50'H Prismatic 15,795 cf Overall - 28 cf Embedded = 15,767 cf x 33.0% Voids
#2	71.22'	17 cf	3.0" Round Pipe Storage Inside #1 L= 351.0' 28 cf Overall - 0.4" Wall Thickness = 17 cf
		5,220 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.44 cfs @ 12.21 hrs HW=71.78' (Free Discharge)
 1=Culvert (Passes 0.44 cfs of 0.70 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.44 cfs @ 3.25 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P3: Porous Pavement 3

Hydrograph



Hydrograph for Pond P3: Porous Pavement 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.00	5	70.97	0.00
4.00	0.01	47	70.99	0.00
6.00	0.01	121	71.03	0.00
8.00	0.02	238	71.08	0.00
10.00	0.04	436	71.18	0.00
12.00	0.80	1,305	71.59	0.30
14.00	0.05	981	71.44	0.09
16.00	0.03	851	71.38	0.04
18.00	0.02	801	71.35	0.03
20.00	0.02	773	71.34	0.02
22.00	0.02	756	71.33	0.02
24.00	0.02	742	71.32	0.01
26.00	0.00	675	71.29	0.01
28.00	0.00	642	71.28	0.00
30.00	0.00	623	71.27	0.00
32.00	0.00	609	71.26	0.00
34.00	0.00	599	71.26	0.00
36.00	0.00	591	71.25	0.00
38.00	0.00	585	71.25	0.00
40.00	0.00	580	71.25	0.00
42.00	0.00	576	71.25	0.00
44.00	0.00	573	71.24	0.00
46.00	0.00	570	71.24	0.00
48.00	0.00	568	71.24	0.00
50.00	0.00	566	71.24	0.00
52.00	0.00	564	71.24	0.00
54.00	0.00	561	71.24	0.00
56.00	0.00	559	71.24	0.00
58.00	0.00	558	71.24	0.00
60.00	0.00	556	71.24	0.00
62.00	0.00	554	71.24	0.00
64.00	0.00	552	71.24	0.00
66.00	0.00	551	71.23	0.00
68.00	0.00	549	71.23	0.00
70.00	0.00	548	71.23	0.00
72.00	0.00	547	71.23	0.00

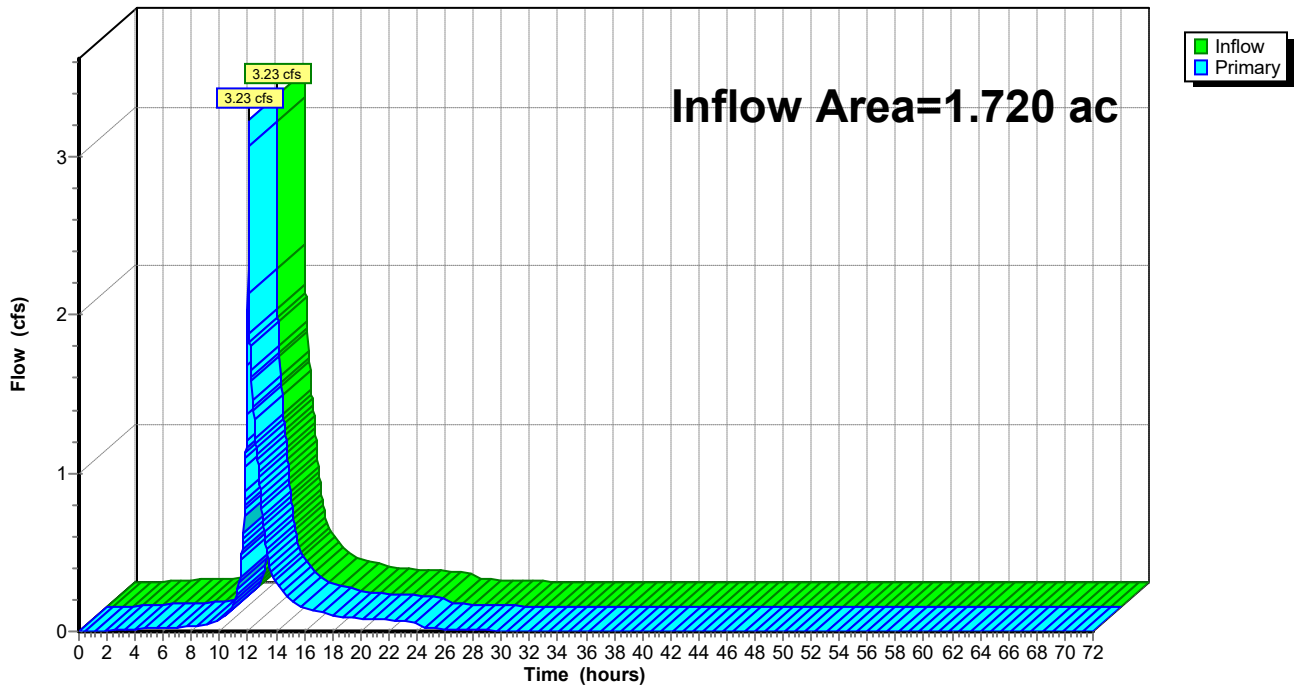
Summary for Pond POI 1: PRE - POI #1 (SW Basin)

Inflow Area = 1.720 ac, 70.35% Impervious, Inflow Depth > 2.36" for 2-Year C event
Inflow = 3.23 cfs @ 12.10 hrs, Volume= 0.338 af
Primary = 3.23 cfs @ 12.10 hrs, Volume= 0.338 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond POI 1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.04		0.04	61.00	0.00		0.00
10.00	0.08		0.08	62.00	0.00		0.00
11.00	0.17		0.17	63.00	0.00		0.00
12.00	2.04		2.04	64.00	0.00		0.00
13.00	0.76		0.76	65.00	0.00		0.00
14.00	0.31		0.31	66.00	0.00		0.00
15.00	0.20		0.20	67.00	0.00		0.00
16.00	0.15		0.15	68.00	0.00		0.00
17.00	0.12		0.12	69.00	0.00		0.00
18.00	0.10		0.10	70.00	0.00		0.00
19.00	0.09		0.09	71.00	0.00		0.00
20.00	0.08		0.08	72.00	0.00		0.00
21.00	0.08		0.08				
22.00	0.07		0.07				
23.00	0.06		0.06				
24.00	0.06		0.06				
25.00	0.02		0.02				
26.00	0.01		0.01				
27.00	0.01		0.01				
28.00	0.01		0.01				
29.00	0.01		0.01				
30.00	0.01		0.01				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1I: IMPERVIOUS

Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 3.61"

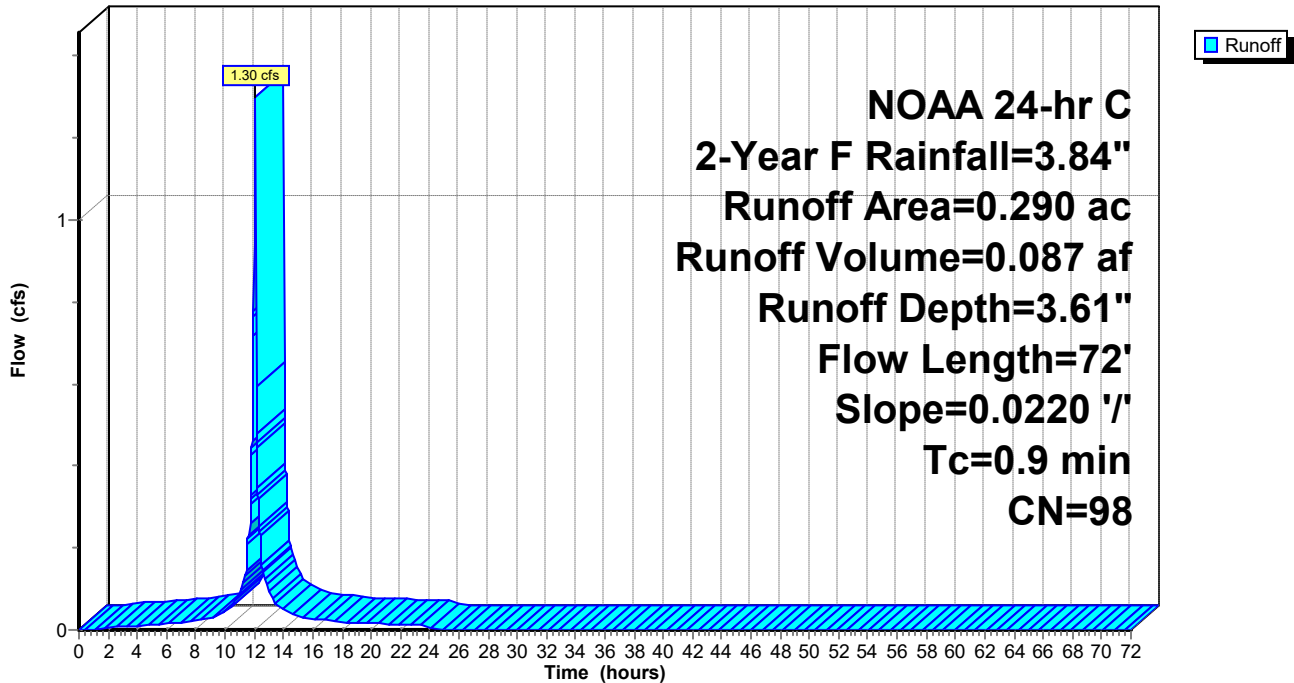
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	72	0.0220	1.38		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 1I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 1P: PERVIOUS

Runoff = 0.15 cfs @ 12.10 hrs, Volume= 0.008 af, Depth= 1.91"

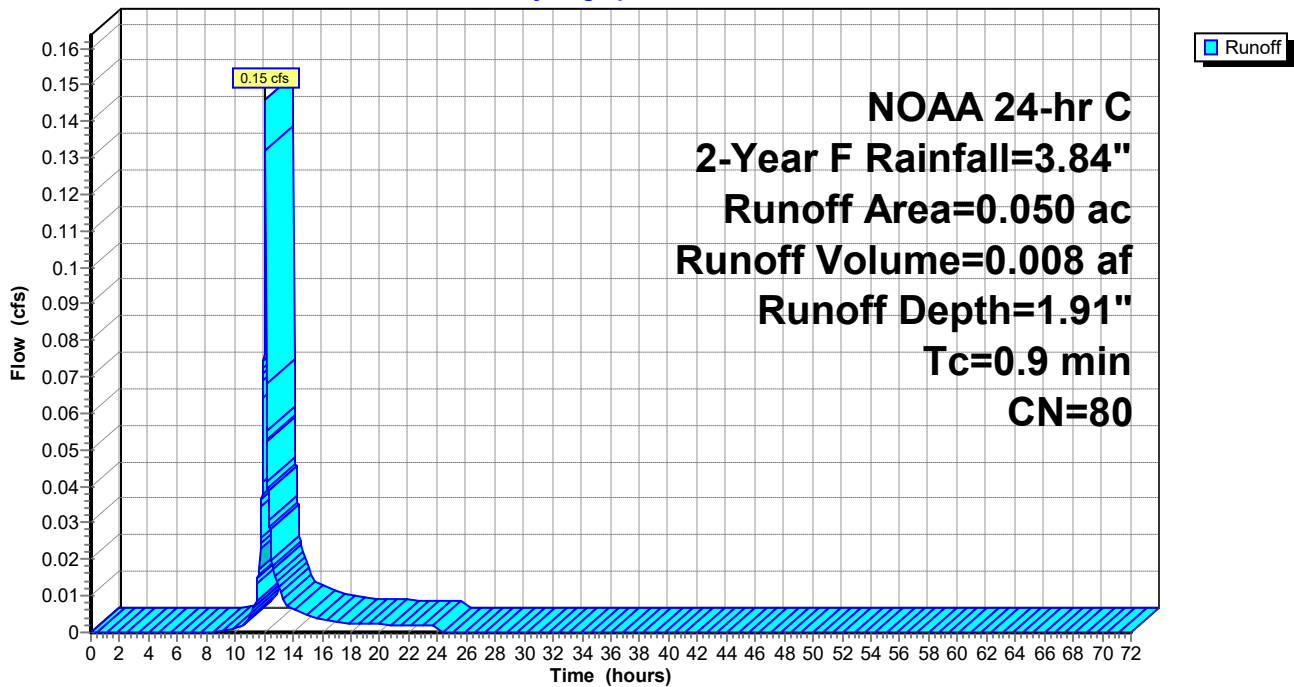
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.050	80	>75% Grass cover, Good, HSG D
0.050	80	100.00% Pervious Area

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

Subcatchment 1P: PERVIOUS

Hydrograph



Summary for Subcatchment 1S: PERVIOUS

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.027 af, Depth= 1.91"

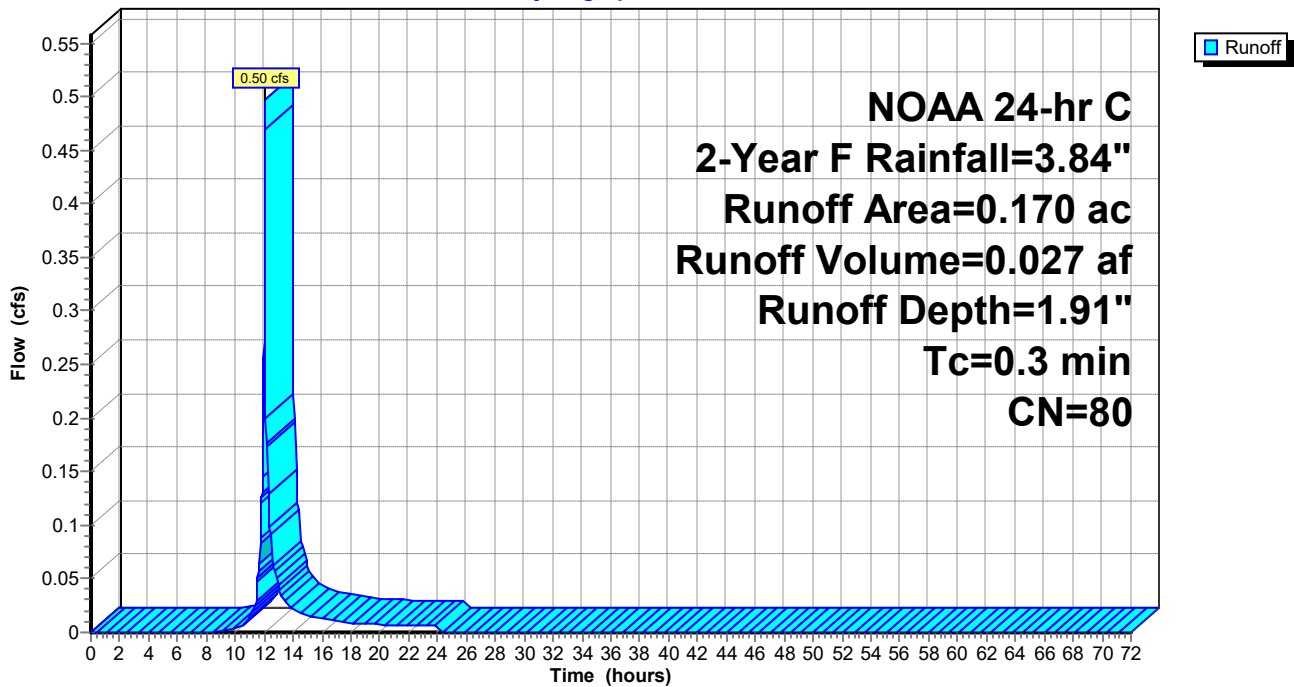
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.170	80	>75% Grass cover, Good, HSG D
0.170	80	100.00% Pervious Area

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

Subcatchment 1S: PERVIOUS

Hydrograph



Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.042 af, Depth= 3.61"

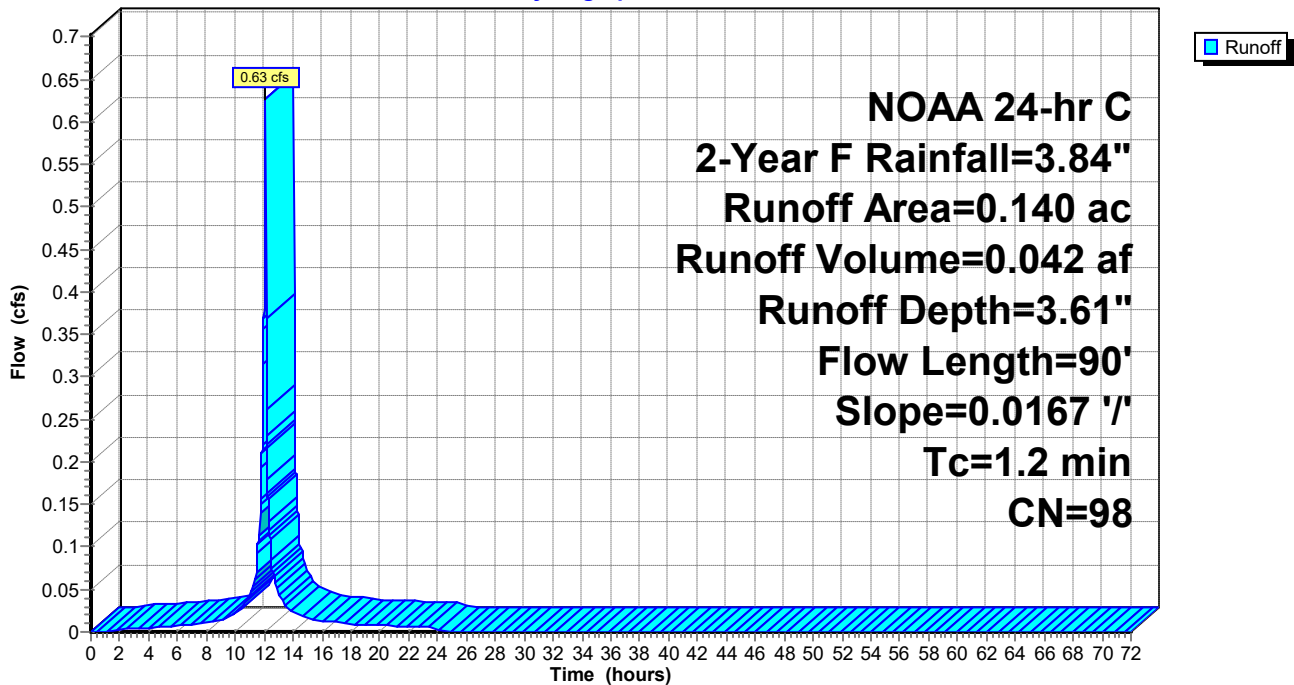
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG D
0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.09 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 1.91"

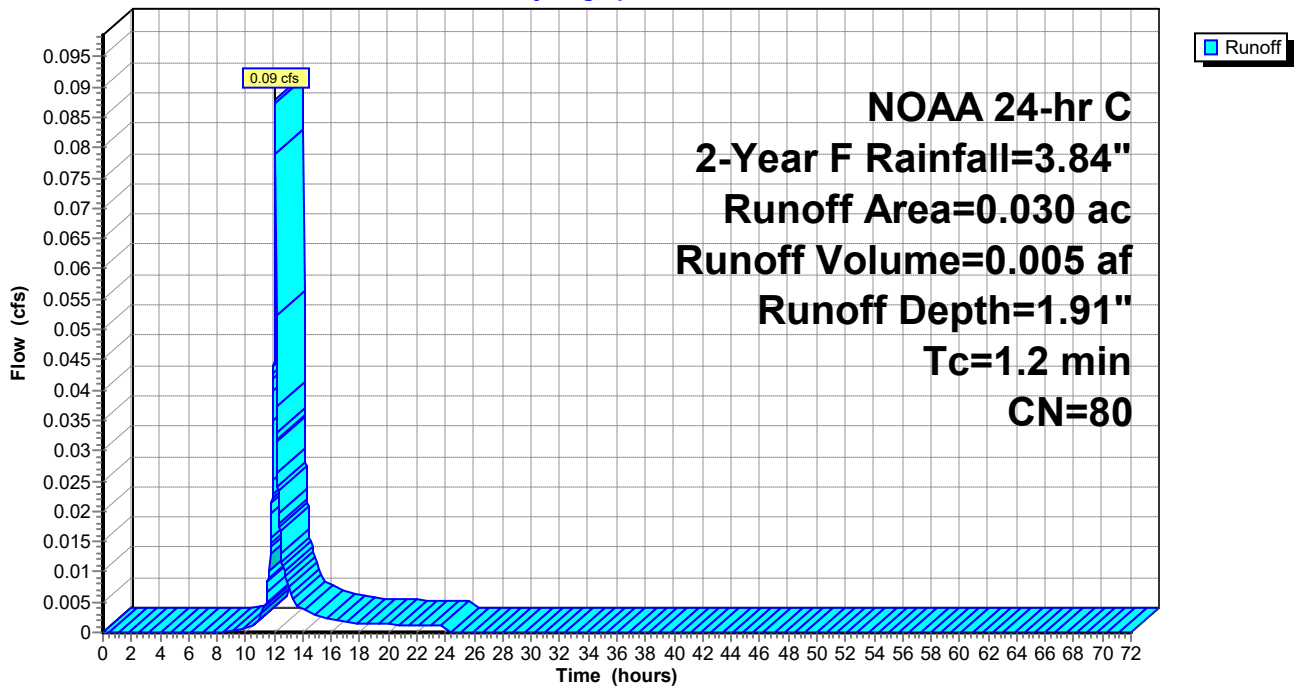
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 3I: IMPERVIOUS

Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 3.61"

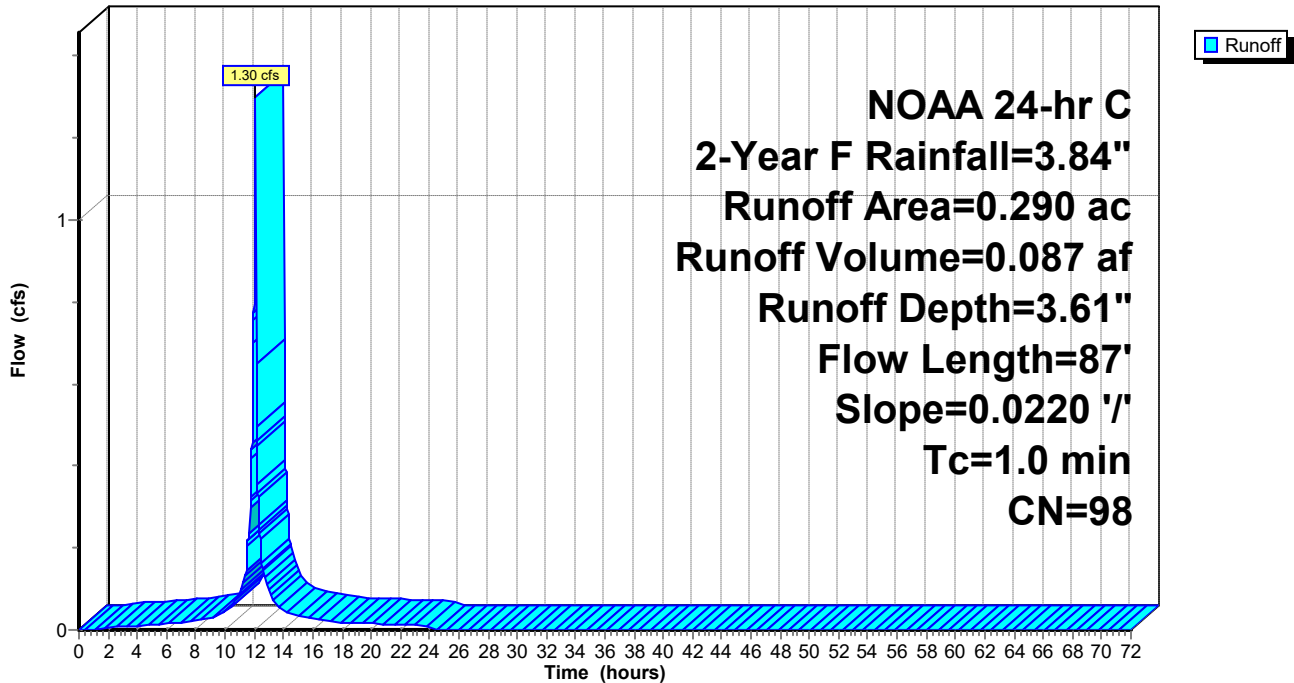
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	87	0.0220	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 3I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 3P: PERVIOUS

Runoff = 0.32 cfs @ 12.10 hrs, Volume= 0.018 af, Depth= 1.91"

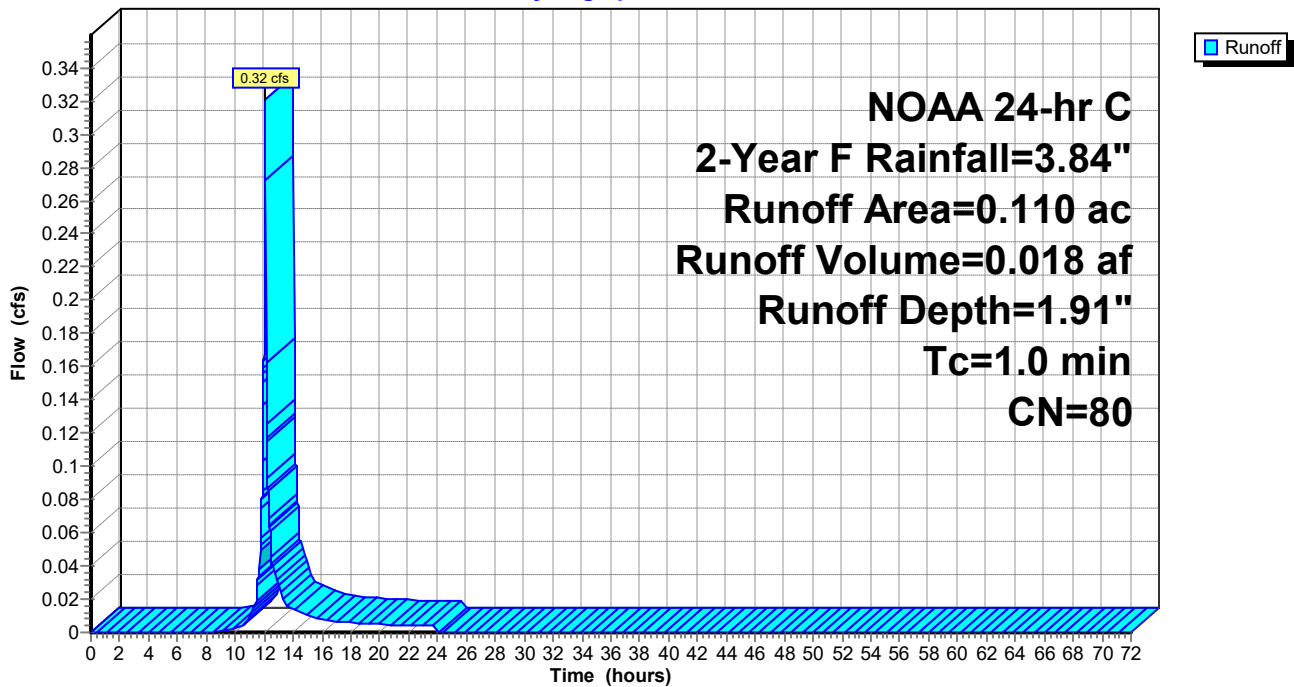
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.110	80	>75% Grass cover, Good, HSG D
0.110	80	100.00% Pervious Area

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

Subcatchment 3P: PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.138 af, Depth= 3.61"

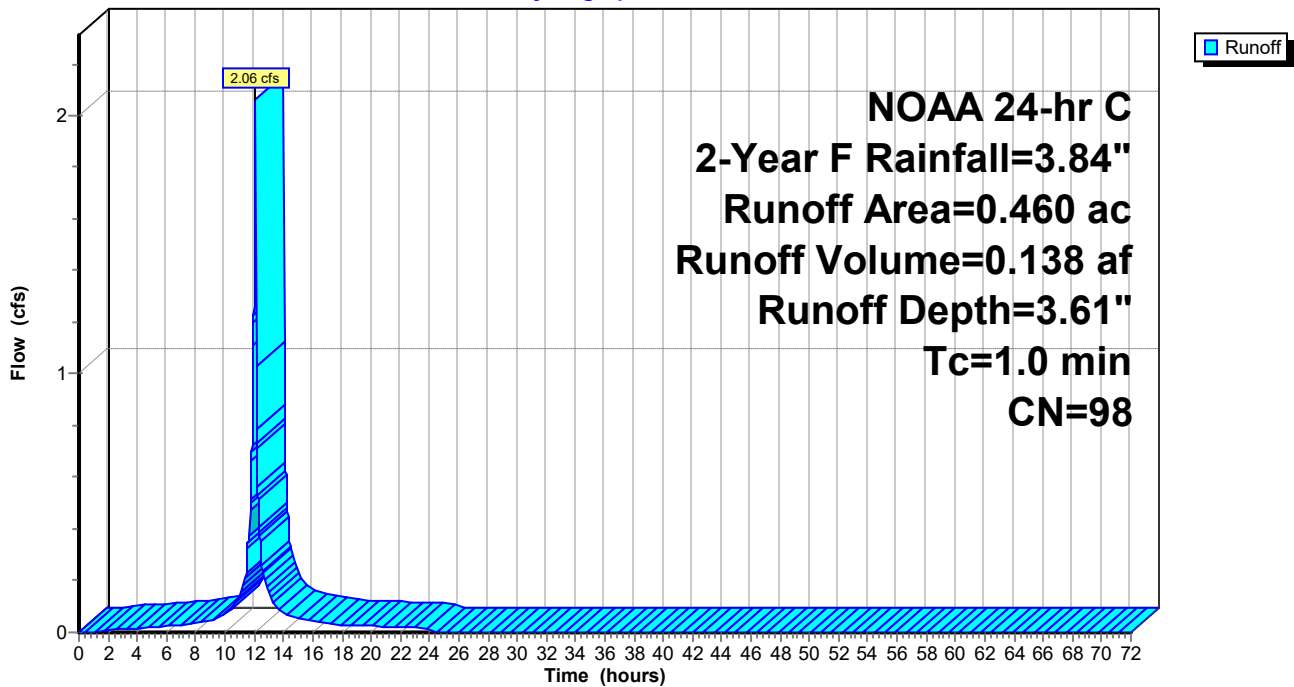
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.460	98	Roofs, HSG D
0.460	98	100.00% Impervious Area

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

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.35 cfs @ 12.10 hrs, Volume= 0.019 af, Depth= 1.91"

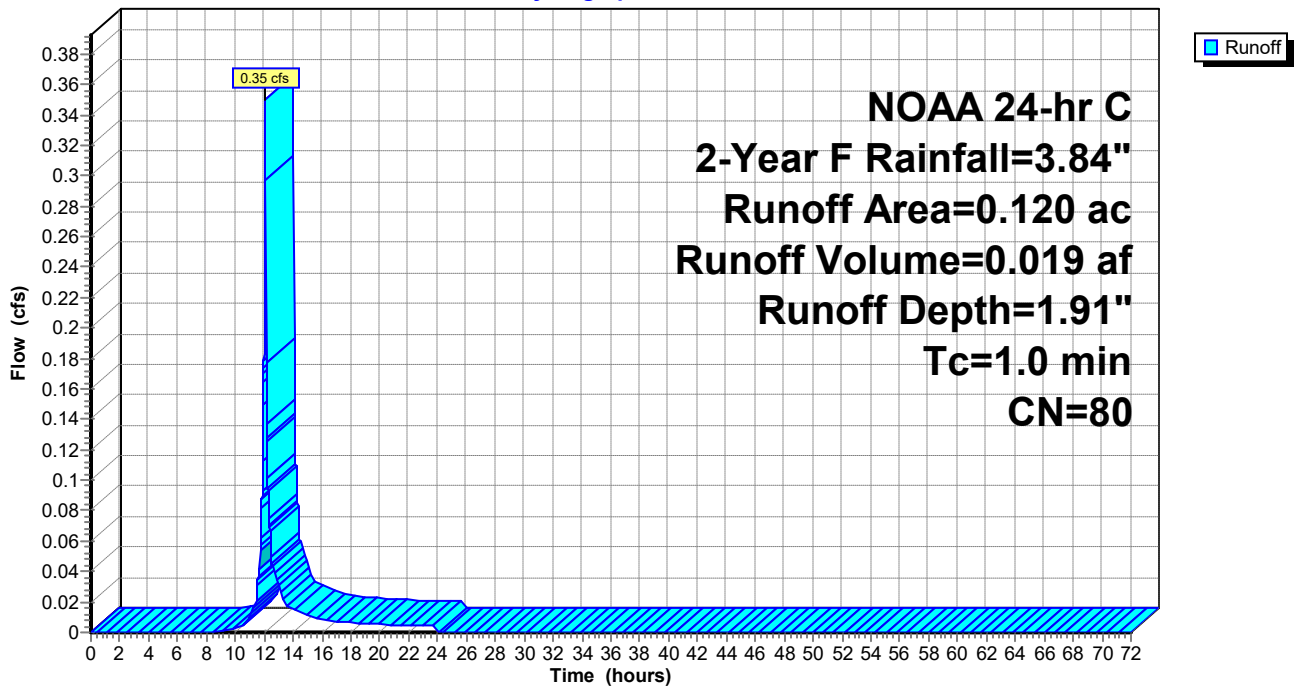
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.120	80	>75% Grass cover, Good, HSG D
0.120	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment OI-1: OFFSITE IMP

Runoff = 0.13 cfs @ 12.09 hrs, Volume= 0.009 af, Depth= 3.61"

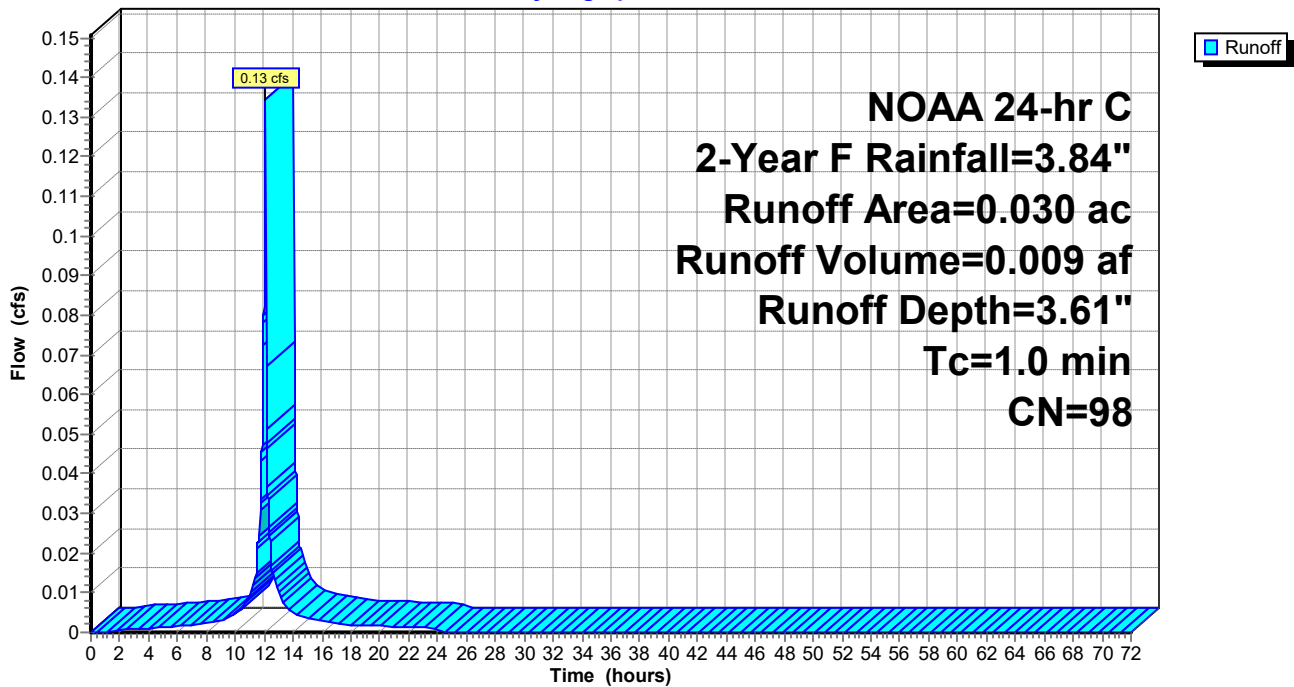
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

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

Subcatchment OI-1: OFFSITE IMP

Hydrograph



Summary for Subcatchment OP-1: OFFSITE PER

Runoff = 0.09 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 1.91"

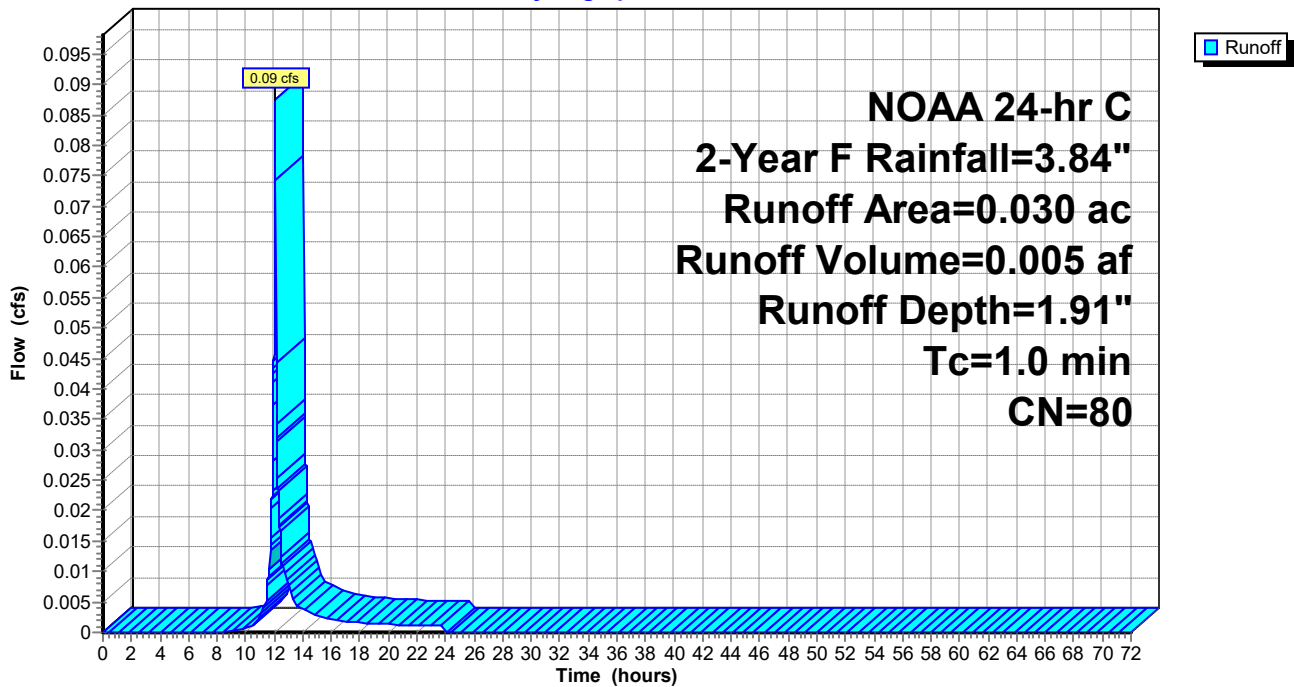
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment OP-1: OFFSITE PER

Hydrograph



Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 1.91" for 2-Year F event
 Inflow = 0.50 cfs @ 12.09 hrs, Volume= 0.027 af
 Outflow = 0.05 cfs @ 12.81 hrs, Volume= 0.017 af, Atten= 90%, Lag= 43.2 min
 Primary = 0.05 cfs @ 12.81 hrs, Volume= 0.017 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.82' @ 12.81 hrs Surf.Area= 2,000 sf Storage= 610 cf

Plug-Flow detention time= 287.2 min calculated for 0.017 af (64% of inflow)
 Center-of-Mass det. time= 177.5 min (1,009.3 - 831.8)

Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	1,766	0	0
72.50	2,487	2,127	2,127
73.50	3,432	2,960	5,086
74.00	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Primary	71.73'	24.0" Round Culvert L= 69.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.73' / 70.52' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.50'	2.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	72.00'	6.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#4	Device 1	74.00'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	73.50'	25.0' 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

Primary OutFlow Max=0.05 cfs @ 12.81 hrs HW=71.82' (Free Discharge)

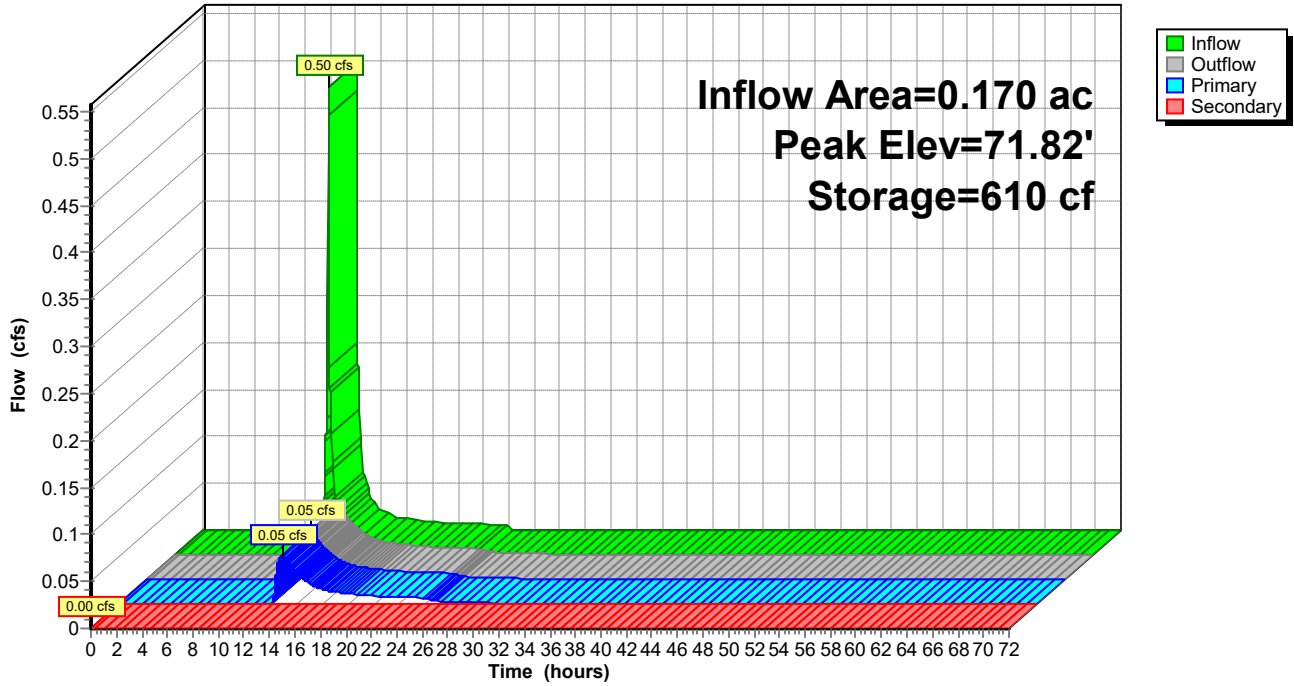
- ↑ 1=Culvert (Passes 0.05 cfs of 0.06 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 0.05 cfs @ 1.48 fps)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)
- ↑ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	71.50	0.00	0.00	0.00
2.00	0.00	0	71.50	0.00	0.00	0.00
4.00	0.00	0	71.50	0.00	0.00	0.00
6.00	0.00	0	71.50	0.00	0.00	0.00
8.00	0.00	0	71.50	0.00	0.00	0.00
10.00	0.00	9	71.51	0.00	0.00	0.00
12.00	0.28	281	71.65	0.00	0.00	0.00
14.00	0.02	565	71.80	0.03	0.03	0.00
16.00	0.01	520	71.78	0.02	0.02	0.00
18.00	0.01	504	71.77	0.01	0.01	0.00
20.00	0.01	492	71.76	0.01	0.01	0.00
22.00	0.01	486	71.76	0.01	0.01	0.00
24.00	0.01	482	71.76	0.01	0.01	0.00
26.00	0.00	458	71.75	0.00	0.00	0.00
28.00	0.00	446	71.74	0.00	0.00	0.00
30.00	0.00	439	71.74	0.00	0.00	0.00
32.00	0.00	434	71.73	0.00	0.00	0.00
34.00	0.00	431	71.73	0.00	0.00	0.00
36.00	0.00	429	71.73	0.00	0.00	0.00
38.00	0.00	427	71.73	0.00	0.00	0.00
40.00	0.00	427	71.73	0.00	0.00	0.00
42.00	0.00	426	71.73	0.00	0.00	0.00
44.00	0.00	426	71.73	0.00	0.00	0.00
46.00	0.00	426	71.73	0.00	0.00	0.00
48.00	0.00	425	71.73	0.00	0.00	0.00
50.00	0.00	425	71.73	0.00	0.00	0.00
52.00	0.00	425	71.73	0.00	0.00	0.00
54.00	0.00	425	71.73	0.00	0.00	0.00
56.00	0.00	425	71.73	0.00	0.00	0.00
58.00	0.00	425	71.73	0.00	0.00	0.00
60.00	0.00	425	71.73	0.00	0.00	0.00
62.00	0.00	425	71.73	0.00	0.00	0.00
64.00	0.00	425	71.73	0.00	0.00	0.00
66.00	0.00	425	71.73	0.00	0.00	0.00
68.00	0.00	425	71.73	0.00	0.00	0.00
70.00	0.00	425	71.73	0.00	0.00	0.00
72.00	0.00	425	71.73	0.00	0.00	0.00

Summary for Pond P1: Porous Pavement 1

Inflow Area = 0.340 ac, 85.29% Impervious, Inflow Depth = 3.36" for 2-Year F event
 Inflow = 1.45 cfs @ 12.09 hrs, Volume= 0.095 af
 Outflow = 0.38 cfs @ 12.22 hrs, Volume= 0.084 af, Atten= 74%, Lag= 8.1 min
 Primary = 0.38 cfs @ 12.22 hrs, Volume= 0.084 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.92' @ 12.22 hrs Surf.Area= 5,670 sf Storage= 1,781 cf

Plug-Flow detention time= 204.0 min calculated for 0.084 af (88% of inflow)
 Center-of-Mass det. time= 145.9 min (901.9 - 756.0)

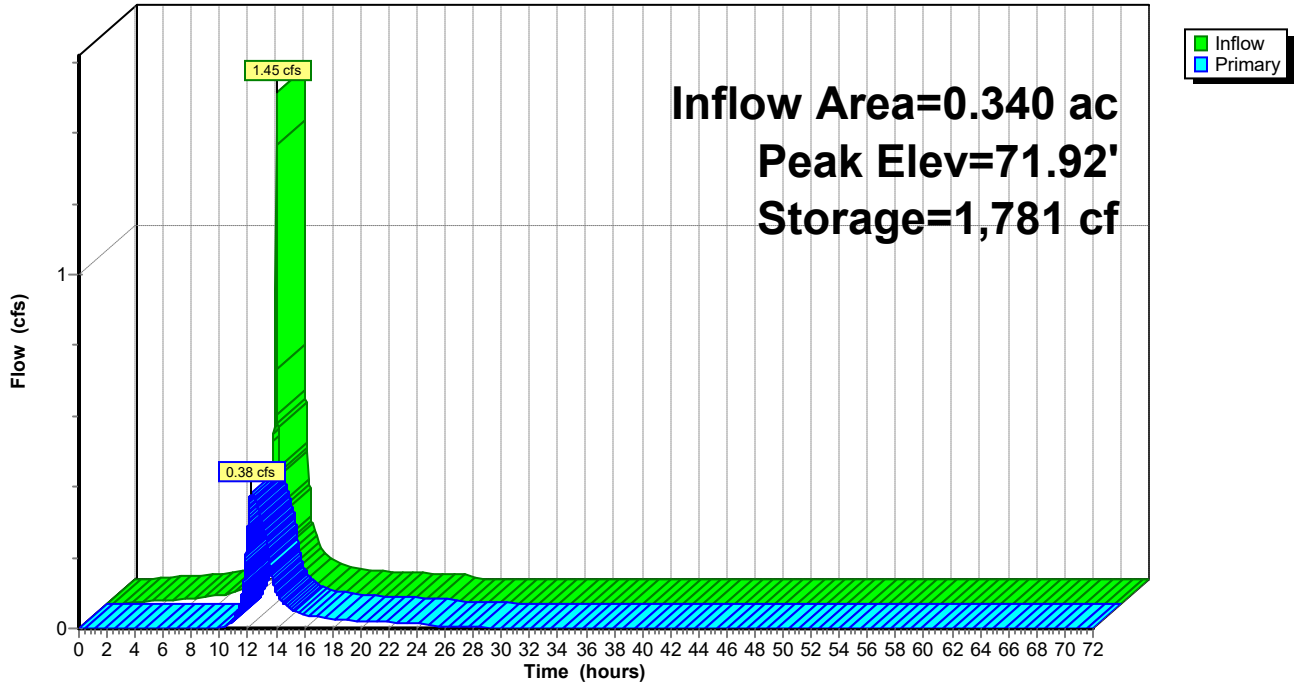
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	4,670 cf	18.00'W x 315.00'L x 2.50'H Prismatic 14,175 cf Overall - 25 cf Embedded = 14,150 cf x 33.0% Voids
#2	71.22'	15 cf	3.0" Round Pipe Storage Inside #1 L= 315.0' 25 cf Overall - 0.4" Wall Thickness = 15 cf
		4,685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 3.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.38 cfs @ 12.22 hrs HW=71.92' (Free Discharge)
 1=Culvert (Passes 0.38 cfs of 1.10 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.38 cfs @ 3.71 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P1: Porous Pavement 1

Hydrograph



Hydrograph for Pond P1: Porous Pavement 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.00	9	70.97	0.00
4.00	0.01	64	71.00	0.00
6.00	0.01	156	71.05	0.00
8.00	0.02	296	71.13	0.00
10.00	0.05	530	71.25	0.00
12.00	0.86	1,309	71.67	0.29
14.00	0.06	912	71.45	0.10
16.00	0.03	764	71.38	0.04
18.00	0.02	718	71.35	0.03
20.00	0.02	693	71.34	0.02
22.00	0.02	679	71.33	0.02
24.00	0.02	667	71.32	0.01
26.00	0.00	602	71.29	0.01
28.00	0.00	571	71.27	0.00
30.00	0.00	554	71.27	0.00
32.00	0.00	542	71.26	0.00
34.00	0.00	533	71.25	0.00
36.00	0.00	526	71.25	0.00
38.00	0.00	521	71.25	0.00
40.00	0.00	517	71.25	0.00
42.00	0.00	514	71.24	0.00
44.00	0.00	512	71.24	0.00
46.00	0.00	509	71.24	0.00
48.00	0.00	507	71.24	0.00
50.00	0.00	505	71.24	0.00
52.00	0.00	503	71.24	0.00
54.00	0.00	501	71.24	0.00
56.00	0.00	499	71.24	0.00
58.00	0.00	497	71.24	0.00
60.00	0.00	496	71.24	0.00
62.00	0.00	494	71.23	0.00
64.00	0.00	493	71.23	0.00
66.00	0.00	491	71.23	0.00
68.00	0.00	490	71.23	0.00
70.00	0.00	489	71.23	0.00
72.00	0.00	488	71.23	0.00

Summary for Pond P2: Porous Pavement 2

Inflow Area = 0.170 ac, 82.35% Impervious, Inflow Depth = 3.31" for 2-Year F event
 Inflow = 0.71 cfs @ 12.10 hrs, Volume= 0.047 af
 Outflow = 0.27 cfs @ 12.14 hrs, Volume= 0.043 af, Atten= 63%, Lag= 2.5 min
 Primary = 0.27 cfs @ 12.14 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.53' @ 12.14 hrs Surf.Area= 1,782 sf Storage= 596 cf

Plug-Flow detention time= 122.4 min calculated for 0.043 af (93% of inflow)
 Center-of-Mass det. time= 81.7 min (839.5 - 757.8)

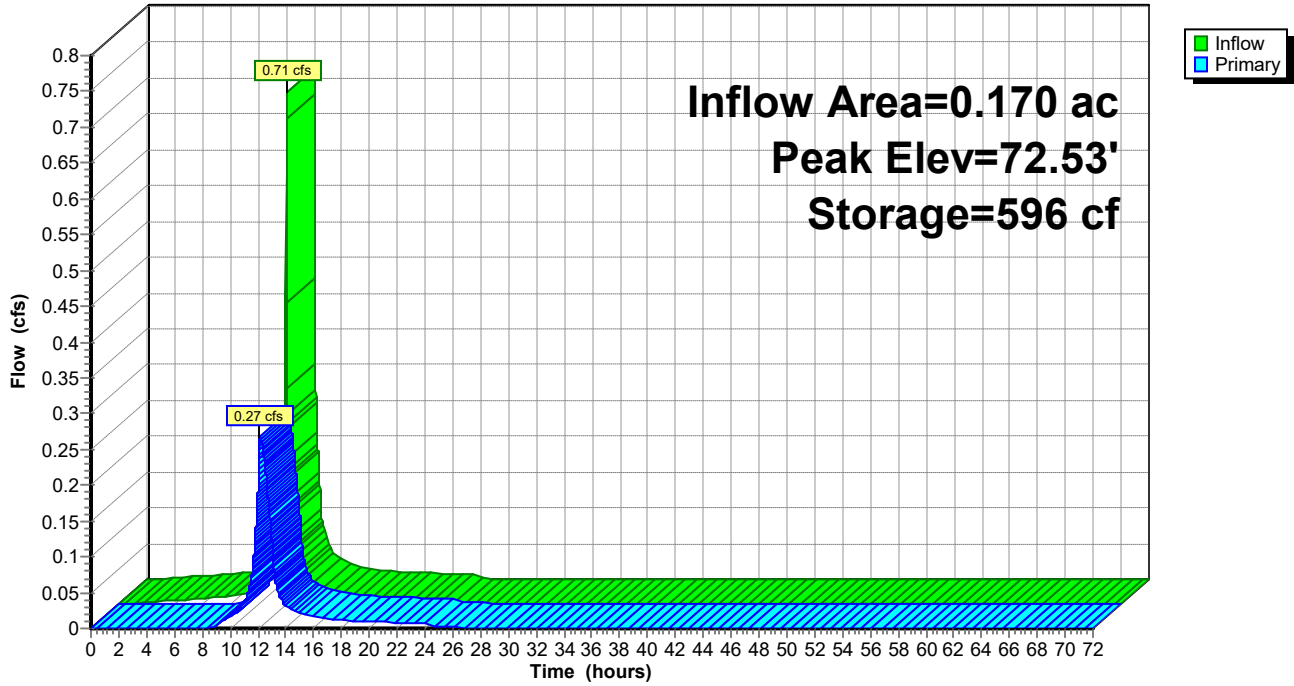
Volume	Invert	Avail.Storage	Storage Description
#1	71.52'	1,321 cf	18.00'W x 99.00'L x 2.25'H Prismatic 4,010 cf Overall - 8 cf Embedded = 4,002 cf x 33.0% Voids
#2	71.77'	5 cf	3.0" Round Pipe Storage Inside #1 L= 99.0' 8 cf Overall - 0.4" Wall Thickness = 5 cf
		1,325 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.77'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.77' / 71.77' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.77'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	72.77'	8.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.27 cfs @ 12.14 hrs HW=72.53' (Free Discharge)
 1=Culvert (Passes 0.27 cfs of 1.30 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.27 cfs @ 3.90 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P2: Porous Pavement 2

Hydrograph



Hydrograph for Pond P2: Porous Pavement 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	71.52	0.00
2.00	0.00	4	71.53	0.00
4.00	0.01	31	71.57	0.00
6.00	0.01	75	71.65	0.00
8.00	0.01	143	71.76	0.00
10.00	0.02	213	71.88	0.02
12.00	0.42	411	72.21	0.19
14.00	0.03	233	71.91	0.03
16.00	0.02	212	71.88	0.02
18.00	0.01	203	71.86	0.01
20.00	0.01	199	71.86	0.01
22.00	0.01	196	71.85	0.01
24.00	0.01	193	71.85	0.01
26.00	0.00	171	71.81	0.00
28.00	0.00	164	71.80	0.00
30.00	0.00	160	71.79	0.00
32.00	0.00	158	71.79	0.00
34.00	0.00	157	71.79	0.00
36.00	0.00	156	71.79	0.00
38.00	0.00	155	71.78	0.00
40.00	0.00	154	71.78	0.00
42.00	0.00	153	71.78	0.00
44.00	0.00	152	71.78	0.00
46.00	0.00	152	71.78	0.00
48.00	0.00	151	71.78	0.00
50.00	0.00	151	71.78	0.00
52.00	0.00	150	71.78	0.00
54.00	0.00	150	71.78	0.00
56.00	0.00	150	71.77	0.00
58.00	0.00	149	71.77	0.00
60.00	0.00	149	71.77	0.00
62.00	0.00	149	71.77	0.00
64.00	0.00	148	71.77	0.00
66.00	0.00	148	71.77	0.00
68.00	0.00	148	71.77	0.00
70.00	0.00	148	71.77	0.00
72.00	0.00	148	71.77	0.00

Summary for Pond P3: Porous Pavement 3

Inflow Area = 0.400 ac, 72.50% Impervious, Inflow Depth = 3.14" for 2-Year F event
 Inflow = 1.62 cfs @ 12.10 hrs, Volume= 0.105 af
 Outflow = 0.49 cfs @ 12.21 hrs, Volume= 0.092 af, Atten= 70%, Lag= 6.9 min
 Primary = 0.49 cfs @ 12.21 hrs, Volume= 0.092 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.88' @ 12.21 hrs Surf.Area= 6,318 sf Storage= 1,915 cf

Plug-Flow detention time= 203.8 min calculated for 0.092 af (88% of inflow)
 Center-of-Mass det. time= 144.9 min (908.0 - 763.1)

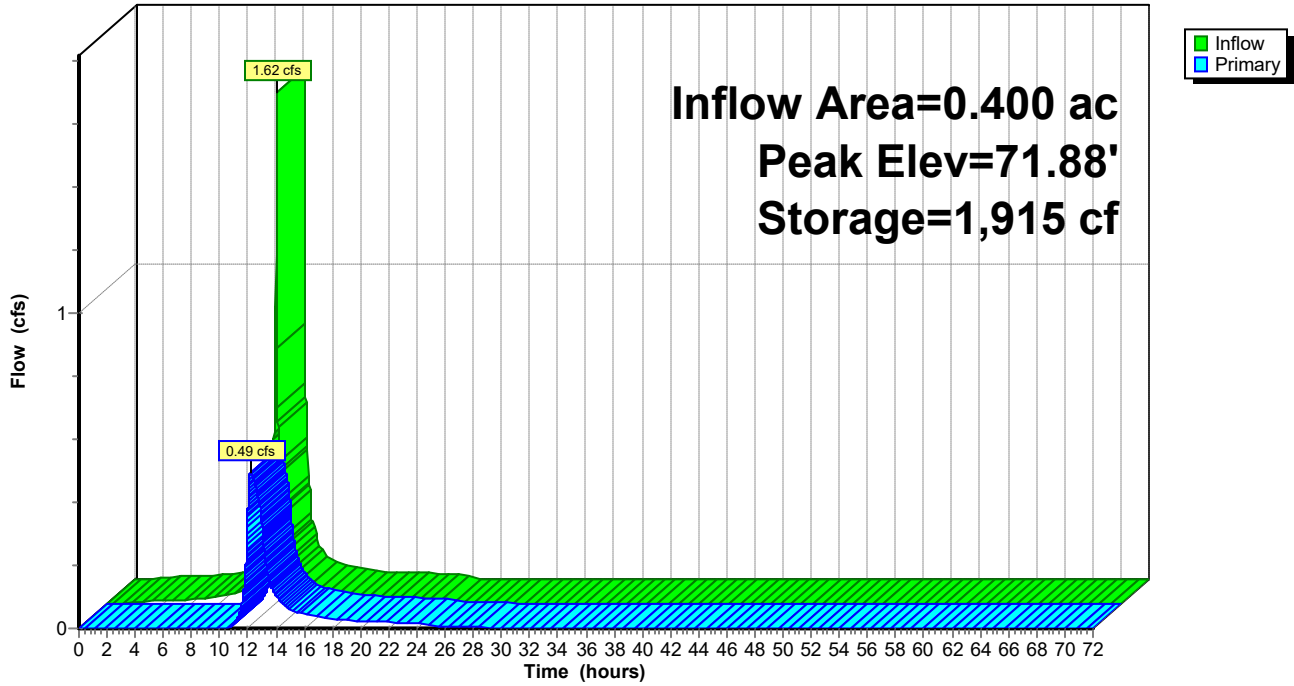
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	5,203 cf	18.00'W x 351.00'L x 2.50'H Prismaoid 15,795 cf Overall - 28 cf Embedded = 15,767 cf x 33.0% Voids
#2	71.22'	17 cf	3.0" Round Pipe Storage Inside #1 L= 351.0' 28 cf Overall - 0.4" Wall Thickness = 17 cf
		5,220 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.49 cfs @ 12.21 hrs HW=71.88' (Free Discharge)
 1=Culvert (Passes 0.49 cfs of 1.00 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.49 cfs @ 3.60 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P3: Porous Pavement 3

Hydrograph



Hydrograph for Pond P3: Porous Pavement 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.00	9	70.97	0.00
4.00	0.01	64	71.00	0.00
6.00	0.01	156	71.04	0.00
8.00	0.02	296	71.11	0.00
10.00	0.05	533	71.23	0.00
12.00	0.95	1,437	71.66	0.38
14.00	0.06	1,014	71.45	0.10
16.00	0.04	870	71.38	0.05
18.00	0.02	817	71.36	0.03
20.00	0.02	788	71.35	0.02
22.00	0.02	771	71.34	0.02
24.00	0.02	756	71.33	0.02
26.00	0.00	680	71.30	0.01
28.00	0.00	645	71.28	0.00
30.00	0.00	624	71.27	0.00
32.00	0.00	611	71.26	0.00
34.00	0.00	600	71.26	0.00
36.00	0.00	592	71.25	0.00
38.00	0.00	585	71.25	0.00
40.00	0.00	580	71.25	0.00
42.00	0.00	576	71.25	0.00
44.00	0.00	573	71.25	0.00
46.00	0.00	571	71.24	0.00
48.00	0.00	568	71.24	0.00
50.00	0.00	566	71.24	0.00
52.00	0.00	564	71.24	0.00
54.00	0.00	562	71.24	0.00
56.00	0.00	560	71.24	0.00
58.00	0.00	558	71.24	0.00
60.00	0.00	556	71.24	0.00
62.00	0.00	554	71.24	0.00
64.00	0.00	553	71.24	0.00
66.00	0.00	551	71.23	0.00
68.00	0.00	550	71.23	0.00
70.00	0.00	548	71.23	0.00
72.00	0.00	547	71.23	0.00

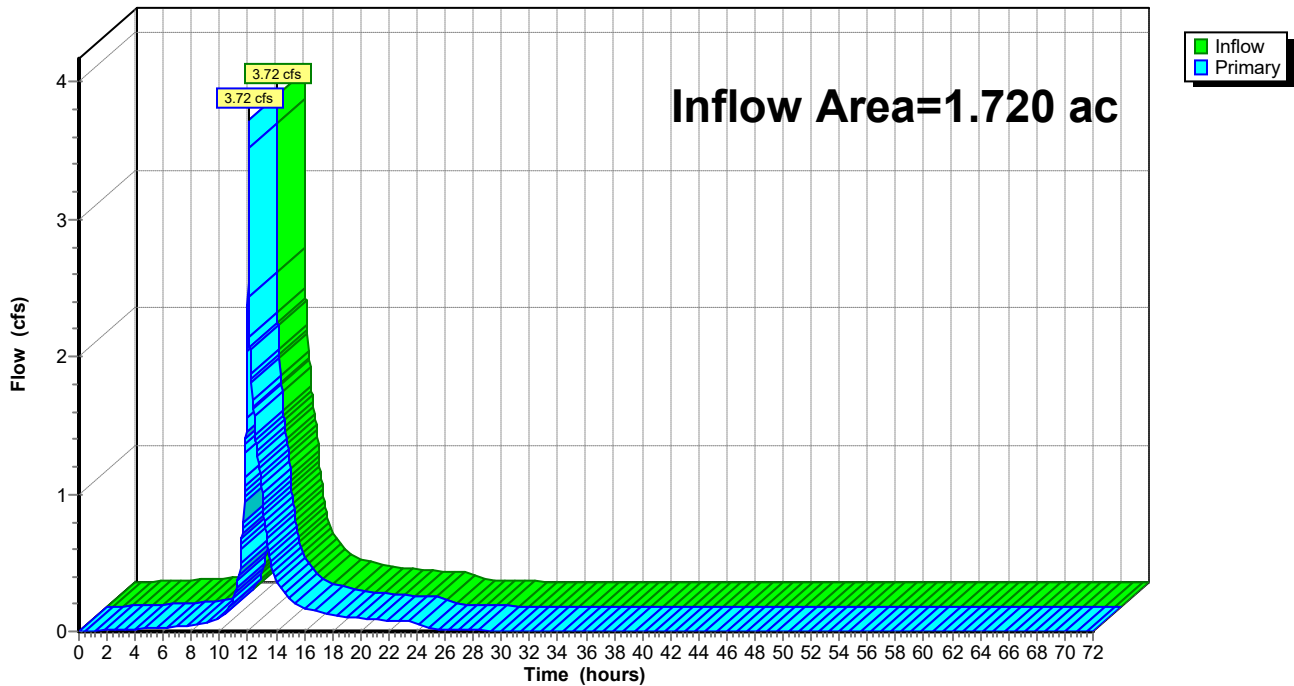
Summary for Pond POI 1: PRE - POI #1 (SW Basin)

Inflow Area = 1.720 ac, 70.35% Impervious, Inflow Depth = 2.85" for 2-Year F event
Inflow = 3.72 cfs @ 12.10 hrs, Volume= 0.408 af
Primary = 3.72 cfs @ 12.10 hrs, Volume= 0.408 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond POI 1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.04		0.04	60.00	0.00		0.00
9.00	0.05		0.05	61.00	0.00		0.00
10.00	0.10		0.10	62.00	0.00		0.00
11.00	0.24		0.24	63.00	0.00		0.00
12.00	2.40		2.40	64.00	0.00		0.00
13.00	1.01		1.01	65.00	0.00		0.00
14.00	0.37		0.37	66.00	0.00		0.00
15.00	0.23		0.23	67.00	0.00		0.00
16.00	0.17		0.17	68.00	0.00		0.00
17.00	0.14		0.14	69.00	0.00		0.00
18.00	0.12		0.12	70.00	0.00		0.00
19.00	0.10		0.10	71.00	0.00		0.00
20.00	0.10		0.10	72.00	0.00		0.00
21.00	0.09		0.09				
22.00	0.08		0.08				
23.00	0.08		0.08				
24.00	0.08		0.08				
25.00	0.02		0.02				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.01		0.01				
29.00	0.01		0.01				
30.00	0.01		0.01				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1I: IMPERVIOUS

Runoff = 1.70 cfs @ 12.09 hrs, Volume= 0.115 af, Depth= 4.76"

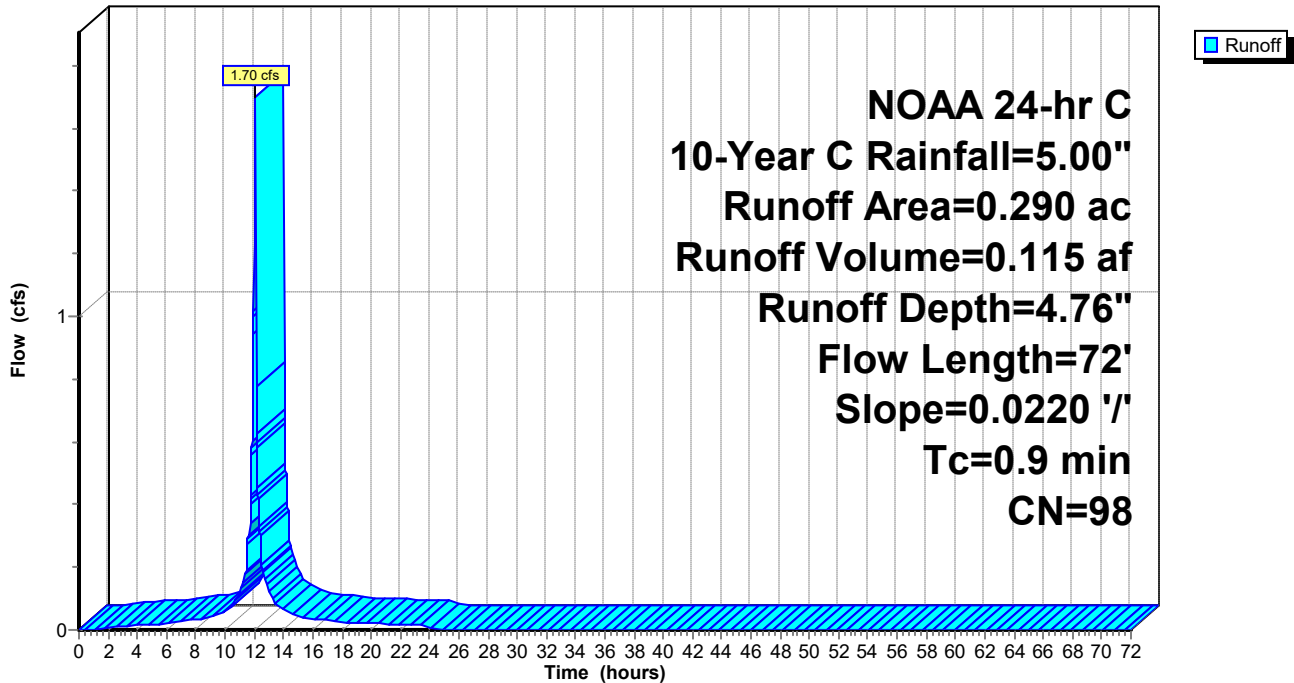
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	72	0.0220	1.38		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 1I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 1P: PERVIOUS

Runoff = 0.22 cfs @ 12.10 hrs, Volume= 0.012 af, Depth= 2.89"

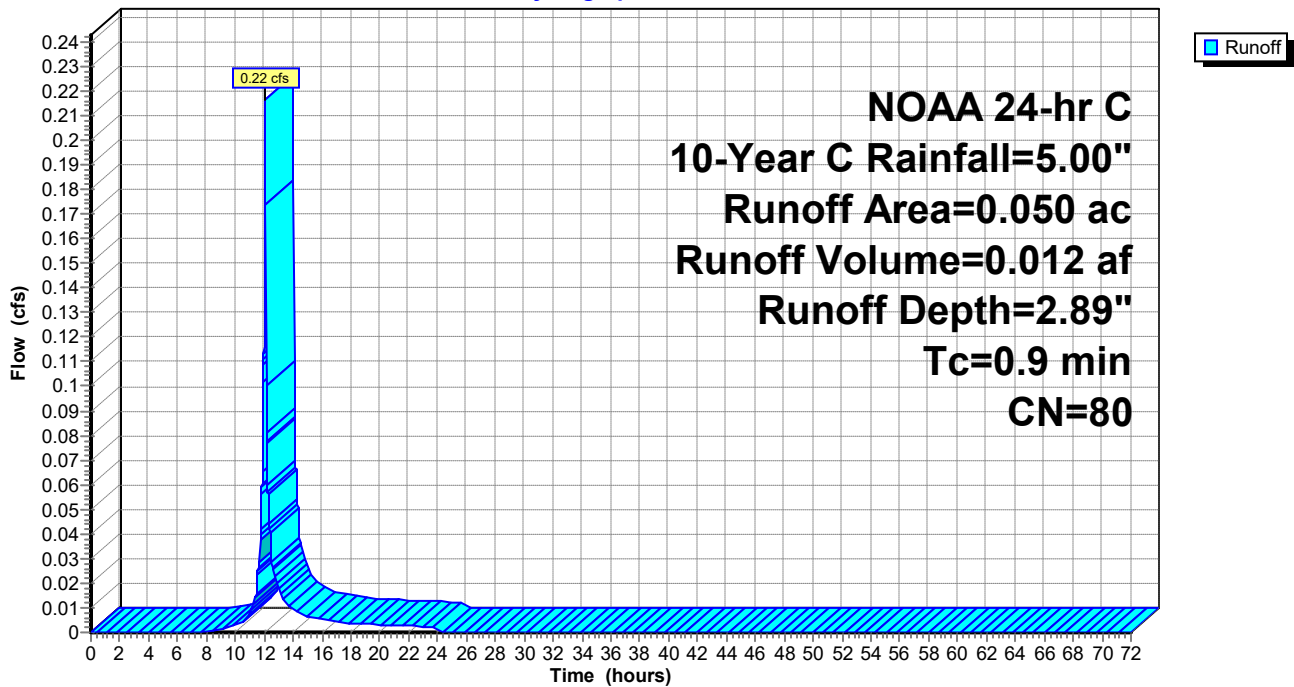
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.050	80	>75% Grass cover, Good, HSG D
0.050	80	100.00% Pervious Area

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

Subcatchment 1P: PERVIOUS

Hydrograph



Summary for Subcatchment 1S: PERVIOUS

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.041 af, Depth= 2.89"

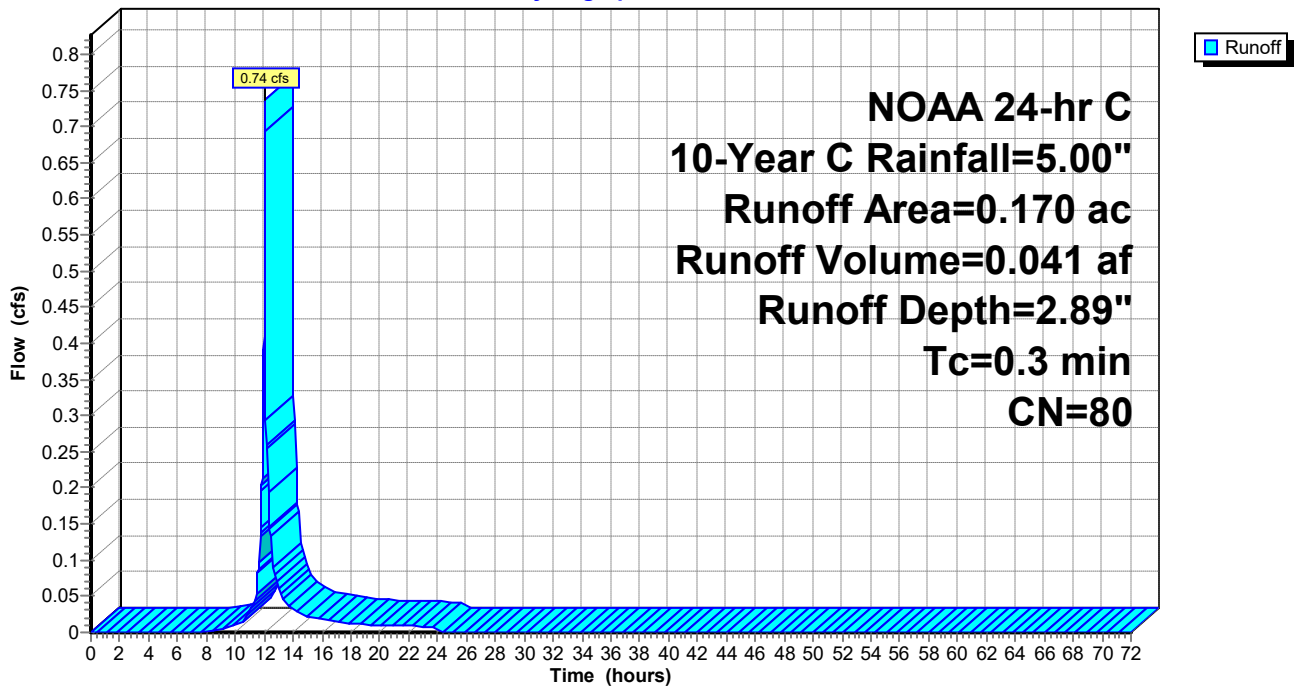
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.170	80	>75% Grass cover, Good, HSG D
0.170	80	100.00% Pervious Area

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

Subcatchment 1S: PERVIOUS

Hydrograph



Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 4.76"

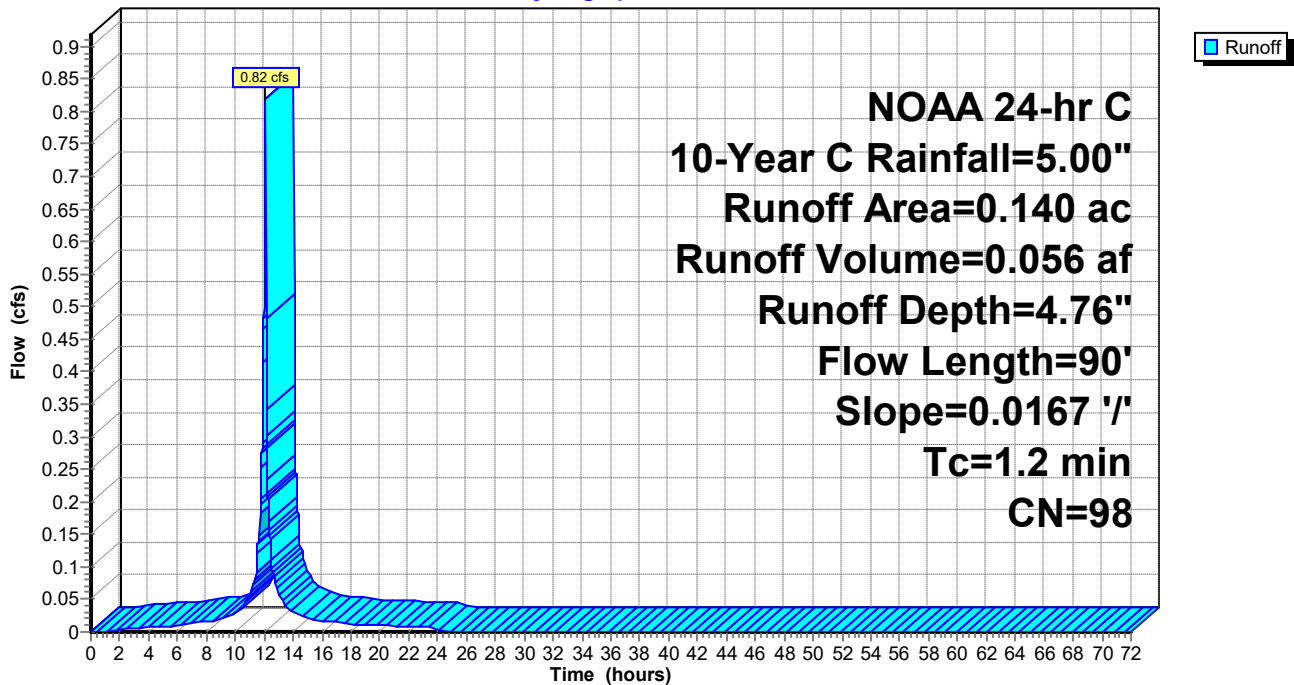
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG D
0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.13 cfs @ 12.10 hrs, Volume= 0.007 af, Depth= 2.89"

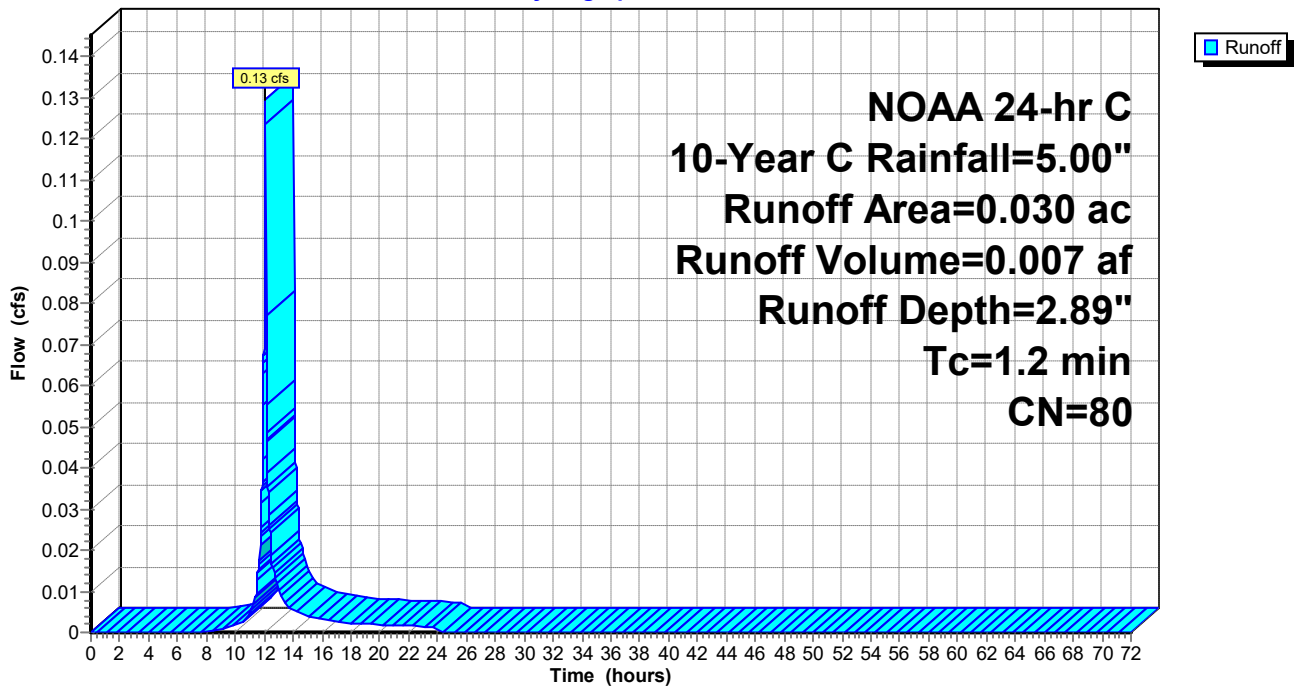
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 3I: IMPERVIOUS

Runoff = 1.70 cfs @ 12.09 hrs, Volume= 0.115 af, Depth= 4.76"

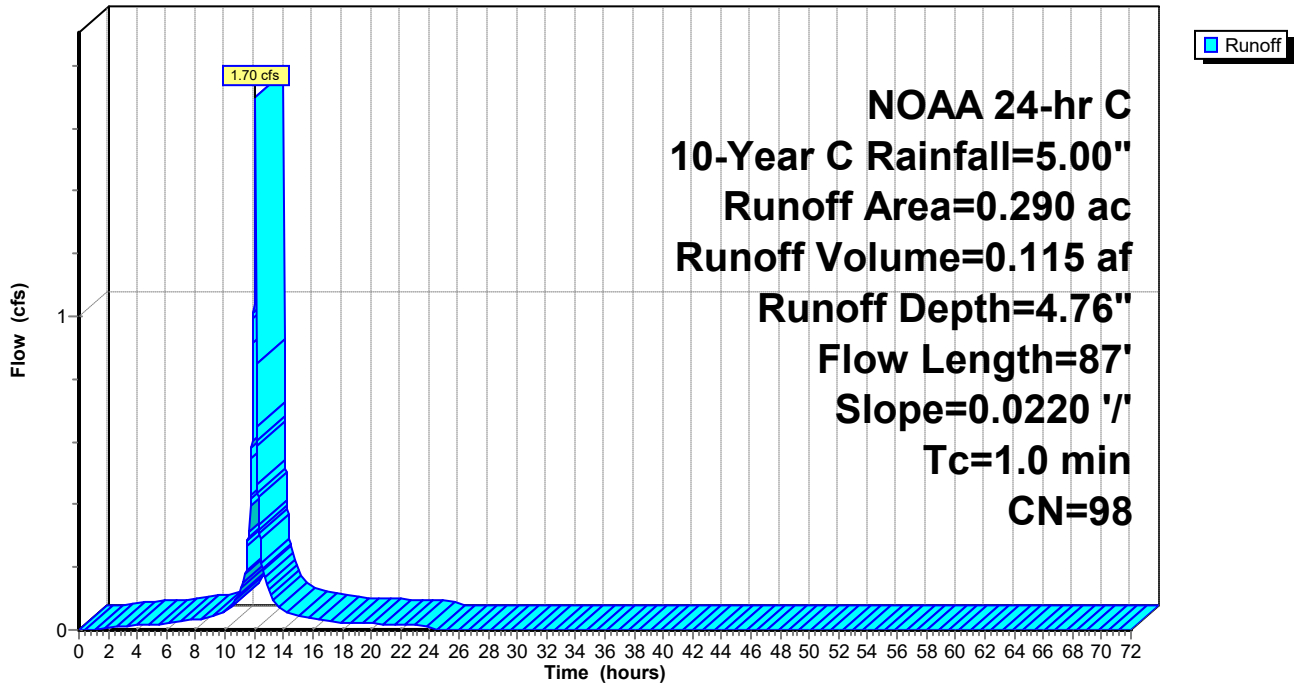
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	87	0.0220	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 3I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 3P: PERVIOUS

Runoff = 0.48 cfs @ 12.10 hrs, Volume= 0.027 af, Depth= 2.89"

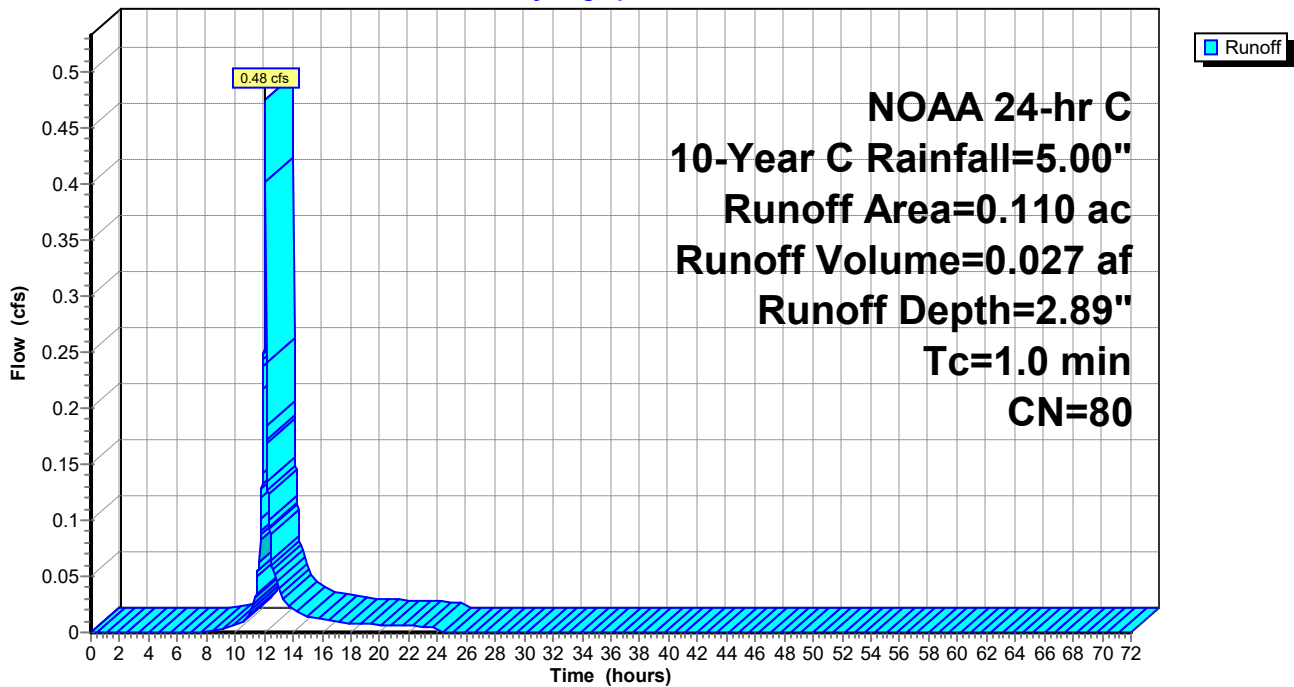
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.110	80	>75% Grass cover, Good, HSG D
0.110	80	100.00% Pervious Area

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

Subcatchment 3P: PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 2.69 cfs @ 12.09 hrs, Volume= 0.183 af, Depth= 4.76"

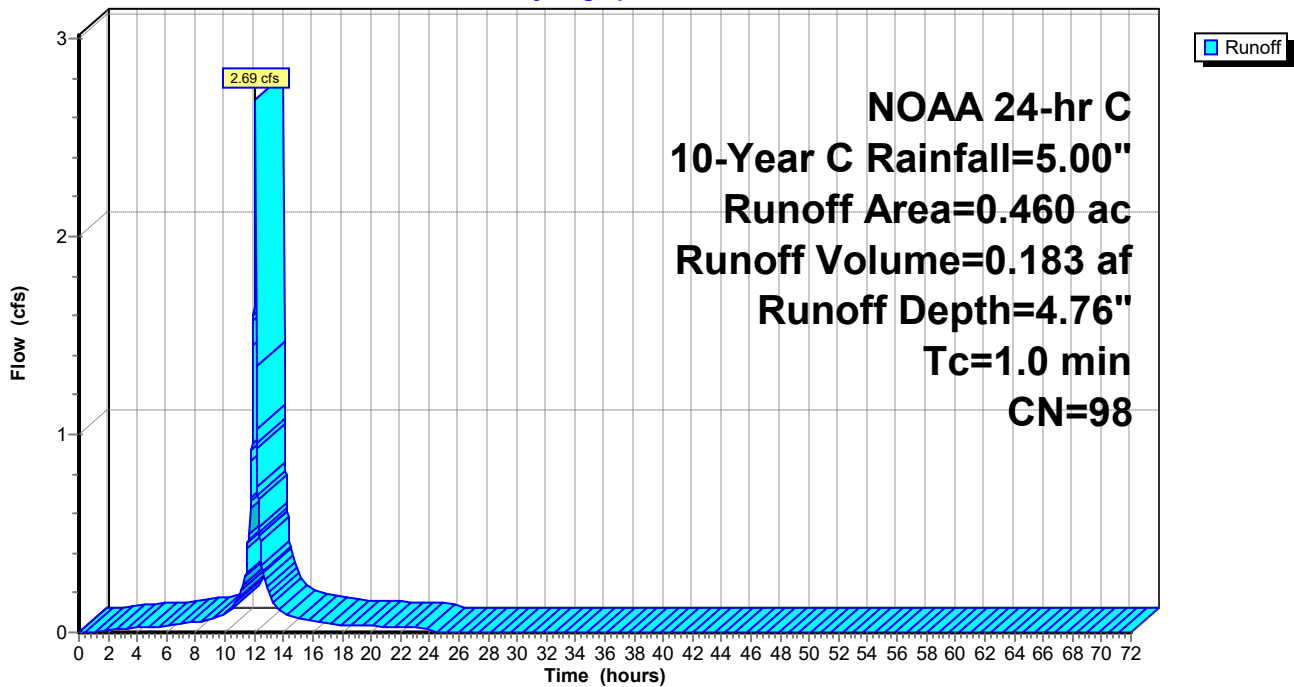
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.460	98	Roofs, HSG D
0.460	98	100.00% Impervious Area

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

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.52 cfs @ 12.10 hrs, Volume= 0.029 af, Depth= 2.89"

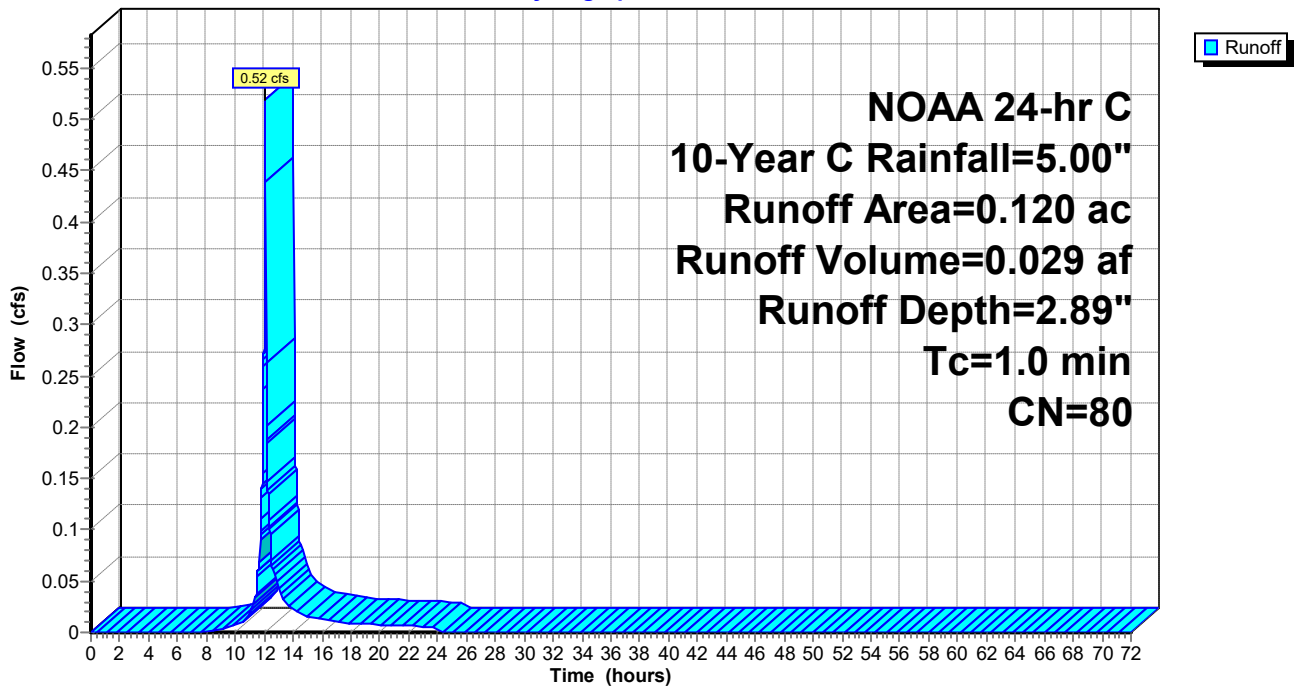
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.120	80	>75% Grass cover, Good, HSG D
0.120	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment OI-1: OFFSITE IMP

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.012 af, Depth= 4.76"

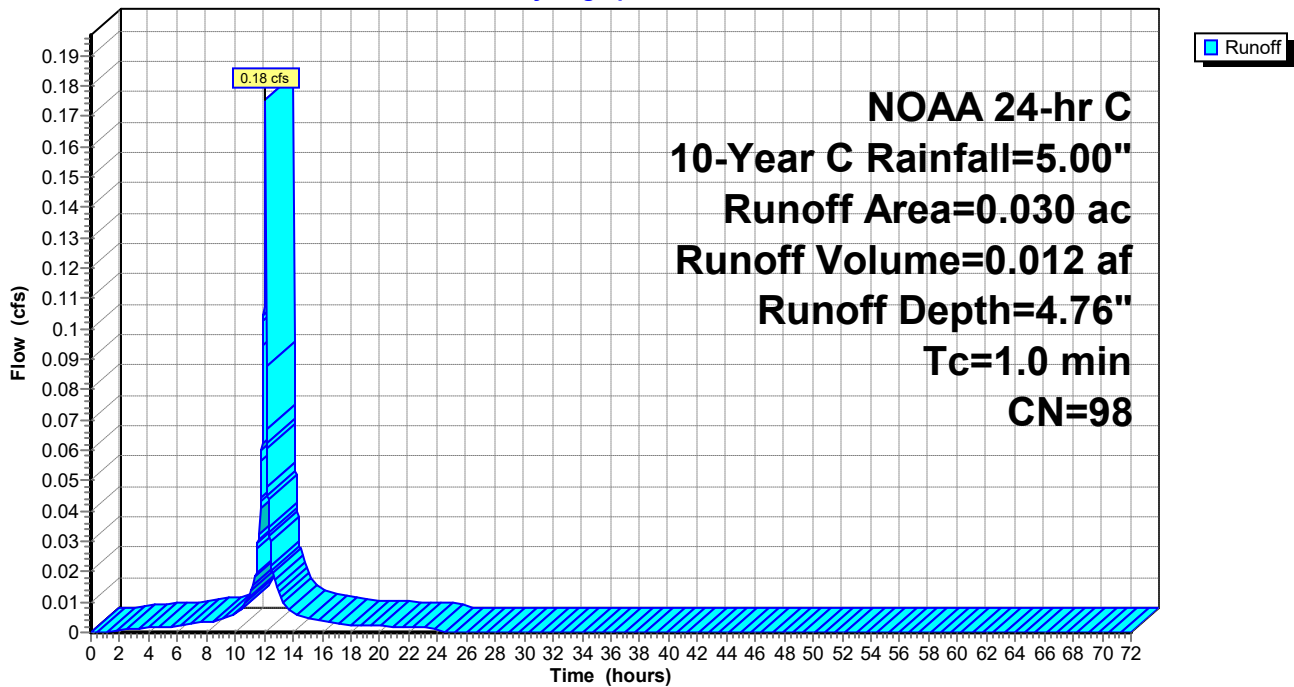
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

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

Subcatchment OI-1: OFFSITE IMP

Hydrograph



Summary for Subcatchment OP-1: OFFSITE PER

Runoff = 0.13 cfs @ 12.10 hrs, Volume= 0.007 af, Depth= 2.89"

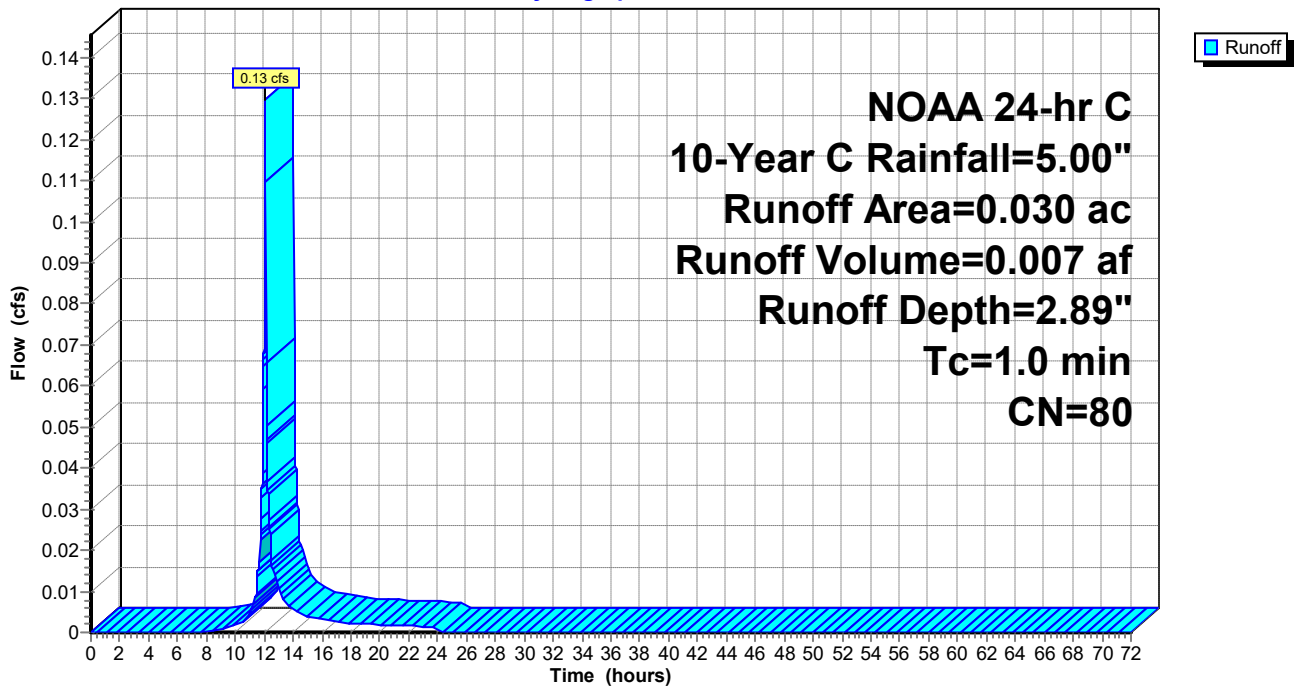
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment OP-1: OFFSITE PER

Hydrograph



Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 2.89" for 10-Year C event
 Inflow = 0.74 cfs @ 12.09 hrs, Volume= 0.041 af
 Outflow = 0.08 cfs @ 12.71 hrs, Volume= 0.031 af, Atten= 89%, Lag= 37.0 min
 Primary = 0.08 cfs @ 12.71 hrs, Volume= 0.031 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.97' @ 12.71 hrs Surf.Area= 2,102 sf Storage= 902 cf

Plug-Flow detention time= 231.3 min calculated for 0.031 af (76% of inflow)
 Center-of-Mass det. time= 142.2 min (961.9 - 819.7)

Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	1,766	0	0
72.50	2,487	2,127	2,127
73.50	3,432	2,960	5,086
74.00	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Primary	71.73'	24.0" Round Culvert L= 69.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.73' / 70.52' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.50'	2.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	72.00'	6.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#4	Device 1	74.00'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	73.50'	25.0' 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

Primary OutFlow Max=0.08 cfs @ 12.71 hrs HW=71.97' (Free Discharge)

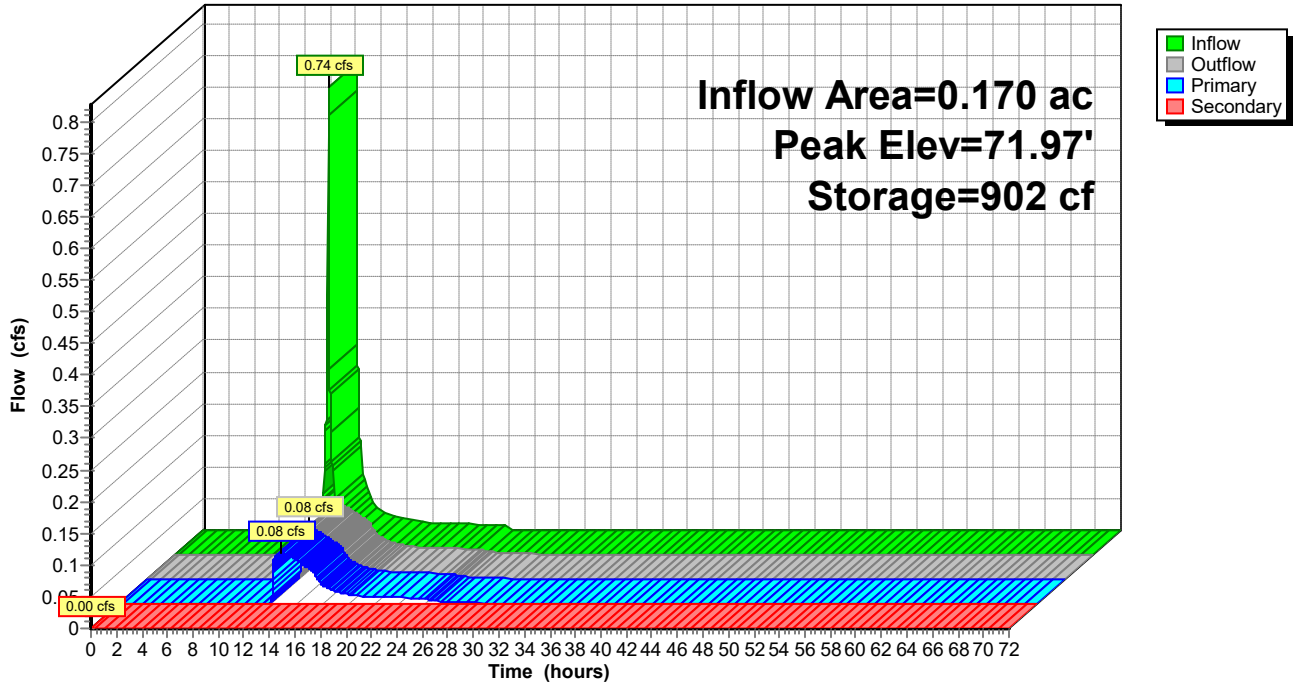
- ↑ 1=Culvert (Passes 0.08 cfs of 0.35 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 0.08 cfs @ 2.34 fps)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)
- ↑ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	71.50	0.00	0.00	0.00
2.00	0.00	0	71.50	0.00	0.00	0.00
4.00	0.00	0	71.50	0.00	0.00	0.00
6.00	0.00	0	71.50	0.00	0.00	0.00
8.00	0.00	2	71.50	0.00	0.00	0.00
10.00	0.01	36	71.52	0.00	0.00	0.00
12.00	0.43	492	71.76	0.01	0.01	0.00
14.00	0.03	772	71.90	0.07	0.07	0.00
16.00	0.02	559	71.80	0.03	0.03	0.00
18.00	0.01	518	71.78	0.01	0.01	0.00
20.00	0.01	507	71.77	0.01	0.01	0.00
22.00	0.01	499	71.77	0.01	0.01	0.00
24.00	0.01	493	71.76	0.01	0.01	0.00
26.00	0.00	461	71.75	0.00	0.00	0.00
28.00	0.00	448	71.74	0.00	0.00	0.00
30.00	0.00	440	71.74	0.00	0.00	0.00
32.00	0.00	435	71.73	0.00	0.00	0.00
34.00	0.00	431	71.73	0.00	0.00	0.00
36.00	0.00	429	71.73	0.00	0.00	0.00
38.00	0.00	428	71.73	0.00	0.00	0.00
40.00	0.00	427	71.73	0.00	0.00	0.00
42.00	0.00	426	71.73	0.00	0.00	0.00
44.00	0.00	426	71.73	0.00	0.00	0.00
46.00	0.00	426	71.73	0.00	0.00	0.00
48.00	0.00	426	71.73	0.00	0.00	0.00
50.00	0.00	425	71.73	0.00	0.00	0.00
52.00	0.00	425	71.73	0.00	0.00	0.00
54.00	0.00	425	71.73	0.00	0.00	0.00
56.00	0.00	425	71.73	0.00	0.00	0.00
58.00	0.00	425	71.73	0.00	0.00	0.00
60.00	0.00	425	71.73	0.00	0.00	0.00
62.00	0.00	425	71.73	0.00	0.00	0.00
64.00	0.00	425	71.73	0.00	0.00	0.00
66.00	0.00	425	71.73	0.00	0.00	0.00
68.00	0.00	425	71.73	0.00	0.00	0.00
70.00	0.00	425	71.73	0.00	0.00	0.00
72.00	0.00	425	71.73	0.00	0.00	0.00

Summary for Pond P1: Porous Pavement 1

Inflow Area = 0.340 ac, 85.29% Impervious, Inflow Depth = 4.49" for 10-Year C event
 Inflow = 1.91 cfs @ 12.09 hrs, Volume= 0.127 af
 Outflow = 0.45 cfs @ 12.31 hrs, Volume= 0.116 af, Atten= 77%, Lag= 13.0 min
 Primary = 0.45 cfs @ 12.31 hrs, Volume= 0.116 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.16' @ 12.31 hrs Surf.Area= 5,670 sf Storage= 2,227 cf

Plug-Flow detention time= 177.6 min calculated for 0.116 af (91% of inflow)
 Center-of-Mass det. time= 130.0 min (881.4 - 751.3)

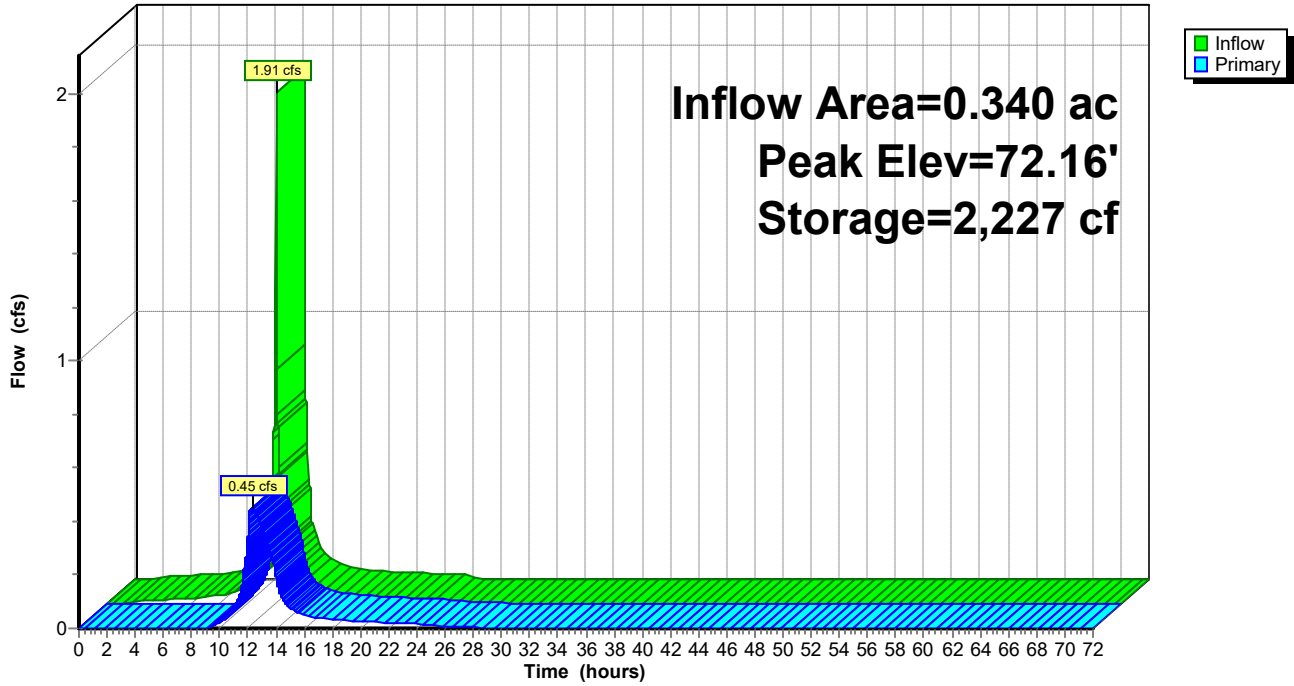
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	4,670 cf	18.00'W x 315.00'L x 2.50'H Prismaoid 14,175 cf Overall - 25 cf Embedded = 14,150 cf x 33.0% Voids
#2	71.22'	15 cf	3.0" Round Pipe Storage Inside #1 L= 315.0' 25 cf Overall - 0.4" Wall Thickness = 15 cf
		4,685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 3.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.45 cfs @ 12.31 hrs HW=72.16' (Free Discharge)
 1=Culvert (Passes 0.45 cfs of 1.93 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.45 cfs @ 4.39 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P1: Porous Pavement 1

Hydrograph



Hydrograph for Pond P1: Porous Pavement 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.01	19	70.98	0.00
4.00	0.02	106	71.03	0.00
6.00	0.02	237	71.10	0.00
8.00	0.03	429	71.20	0.00
10.00	0.06	709	71.35	0.02
12.00	1.14	1,550	71.79	0.34
14.00	0.07	1,047	71.53	0.19
16.00	0.04	797	71.39	0.05
18.00	0.03	745	71.37	0.03
20.00	0.02	718	71.35	0.03
22.00	0.02	703	71.34	0.02
24.00	0.02	689	71.34	0.02
26.00	0.00	609	71.29	0.01
28.00	0.00	575	71.28	0.00
30.00	0.00	557	71.27	0.00
32.00	0.00	544	71.26	0.00
34.00	0.00	535	71.26	0.00
36.00	0.00	527	71.25	0.00
38.00	0.00	522	71.25	0.00
40.00	0.00	518	71.25	0.00
42.00	0.00	515	71.25	0.00
44.00	0.00	512	71.24	0.00
46.00	0.00	510	71.24	0.00
48.00	0.00	507	71.24	0.00
50.00	0.00	505	71.24	0.00
52.00	0.00	503	71.24	0.00
54.00	0.00	501	71.24	0.00
56.00	0.00	499	71.24	0.00
58.00	0.00	498	71.24	0.00
60.00	0.00	496	71.24	0.00
62.00	0.00	494	71.23	0.00
64.00	0.00	493	71.23	0.00
66.00	0.00	492	71.23	0.00
68.00	0.00	490	71.23	0.00
70.00	0.00	489	71.23	0.00
72.00	0.00	488	71.23	0.00

Summary for Pond P2: Porous Pavement 2

Inflow Area = 0.170 ac, 82.35% Impervious, Inflow Depth = 4.43" for 10-Year C event
 Inflow = 0.95 cfs @ 12.10 hrs, Volume= 0.063 af
 Outflow = 0.33 cfs @ 12.20 hrs, Volume= 0.059 af, Atten= 65%, Lag= 6.0 min
 Primary = 0.33 cfs @ 12.20 hrs, Volume= 0.059 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.81' @ 12.20 hrs Surf.Area= 1,782 sf Storage= 758 cf

Plug-Flow detention time= 103.8 min calculated for 0.059 af (95% of inflow)
 Center-of-Mass det. time= 71.8 min (824.9 - 753.2)

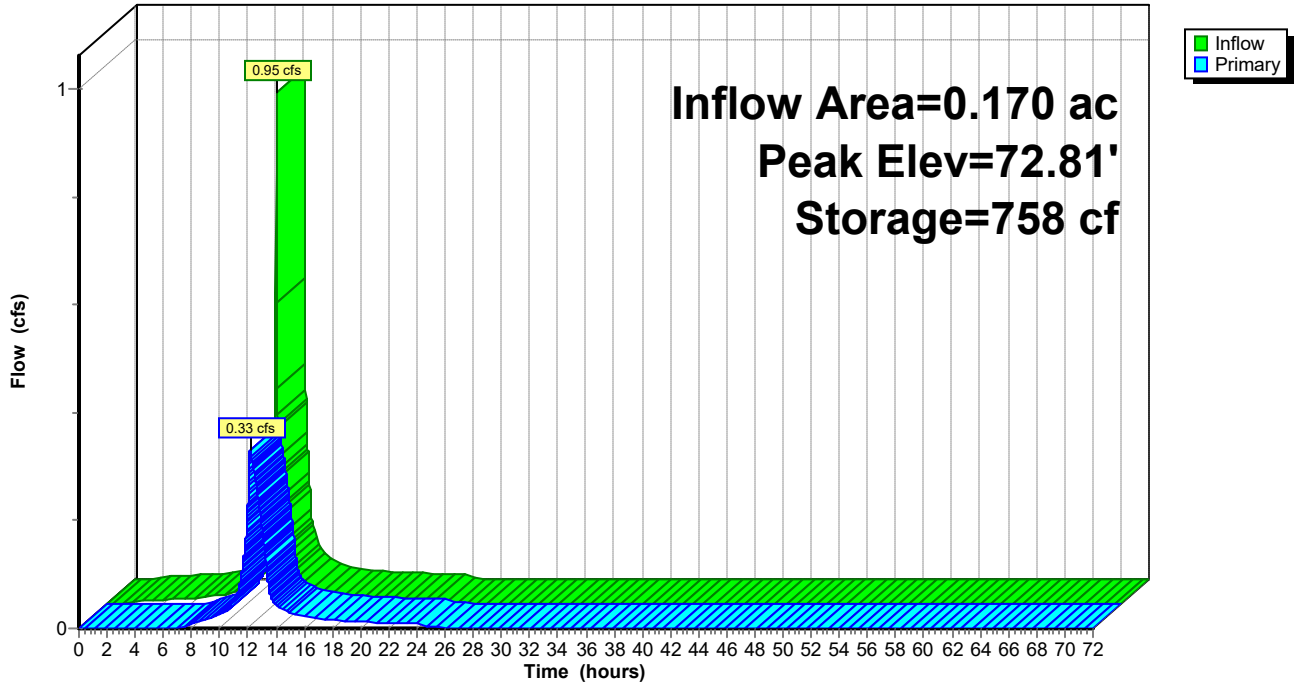
Volume	Invert	Avail.Storage	Storage Description
#1	71.52'	1,321 cf	18.00'W x 99.00'L x 2.25'H Prismatic 4,010 cf Overall - 8 cf Embedded = 4,002 cf x 33.0% Voids
#2	71.77'	5 cf	3.0" Round Pipe Storage Inside #1 L= 99.0' 8 cf Overall - 0.4" Wall Thickness = 5 cf
		1,325 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.77'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.77' / 71.77' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.77'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	72.77'	8.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.33 cfs @ 12.20 hrs HW=72.81' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.33 cfs of 2.31 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.32 cfs @ 4.65 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.60 fps)

Pond P2: Porous Pavement 2

Hydrograph



Hydrograph for Pond P2: Porous Pavement 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	71.52	0.00
2.00	0.00	9	71.54	0.00
4.00	0.01	51	71.61	0.00
6.00	0.01	114	71.71	0.00
8.00	0.02	196	71.85	0.01
10.00	0.03	227	71.90	0.03
12.00	0.56	496	72.36	0.23
14.00	0.04	243	71.93	0.04
16.00	0.02	220	71.89	0.02
18.00	0.01	210	71.88	0.02
20.00	0.01	205	71.87	0.01
22.00	0.01	201	71.86	0.01
24.00	0.01	199	71.86	0.01
26.00	0.00	172	71.81	0.00
28.00	0.00	164	71.80	0.00
30.00	0.00	161	71.79	0.00
32.00	0.00	159	71.79	0.00
34.00	0.00	157	71.79	0.00
36.00	0.00	156	71.79	0.00
38.00	0.00	155	71.78	0.00
40.00	0.00	154	71.78	0.00
42.00	0.00	153	71.78	0.00
44.00	0.00	152	71.78	0.00
46.00	0.00	152	71.78	0.00
48.00	0.00	151	71.78	0.00
50.00	0.00	151	71.78	0.00
52.00	0.00	150	71.78	0.00
54.00	0.00	150	71.78	0.00
56.00	0.00	150	71.77	0.00
58.00	0.00	149	71.77	0.00
60.00	0.00	149	71.77	0.00
62.00	0.00	149	71.77	0.00
64.00	0.00	149	71.77	0.00
66.00	0.00	148	71.77	0.00
68.00	0.00	148	71.77	0.00
70.00	0.00	148	71.77	0.00
72.00	0.00	148	71.77	0.00

Summary for Pond P3: Porous Pavement 3

Inflow Area = 0.400 ac, 72.50% Impervious, Inflow Depth = 4.25" for 10-Year C event
 Inflow = 2.17 cfs @ 12.10 hrs, Volume= 0.142 af
 Outflow = 0.58 cfs @ 12.22 hrs, Volume= 0.129 af, Atten= 73%, Lag= 7.5 min
 Primary = 0.58 cfs @ 12.22 hrs, Volume= 0.129 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.12' @ 12.22 hrs Surf.Area= 6,318 sf Storage= 2,399 cf

Plug-Flow detention time= 173.7 min calculated for 0.129 af (91% of inflow)
 Center-of-Mass det. time= 126.3 min (884.8 - 758.5)

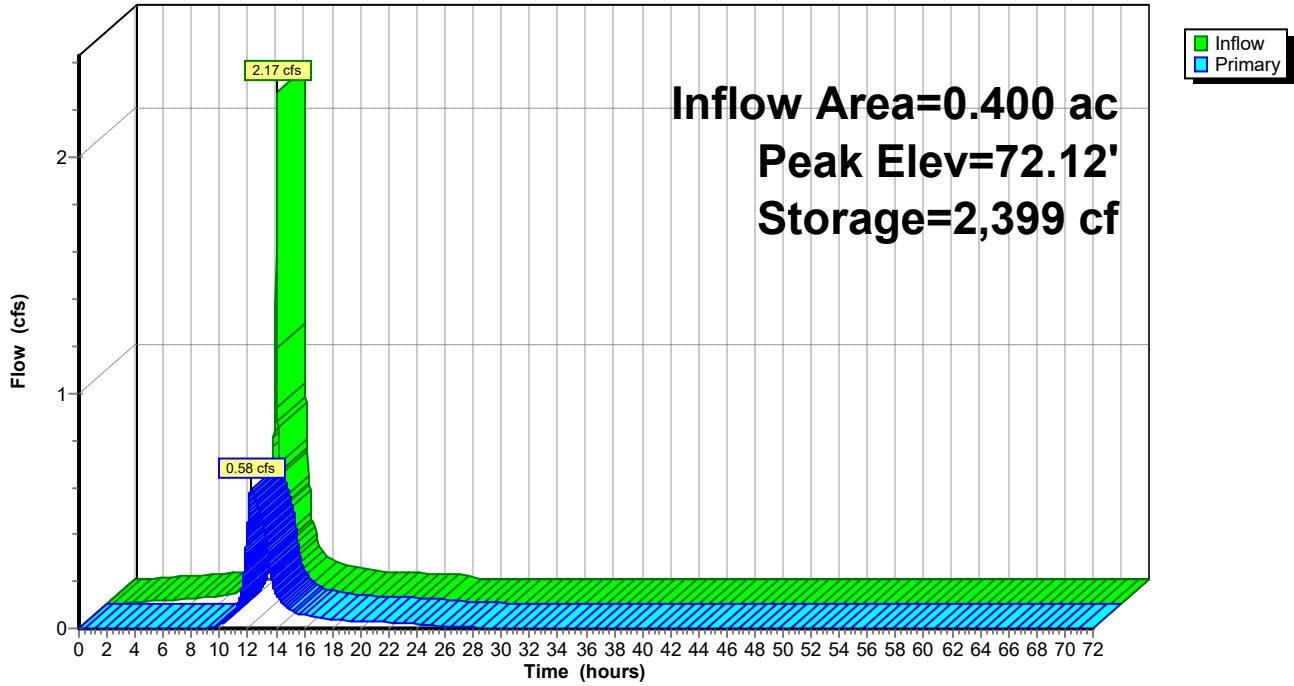
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	5,203 cf	18.00'W x 351.00'L x 2.50'H Prismatic 15,795 cf Overall - 28 cf Embedded = 15,767 cf x 33.0% Voids
#2	71.22'	17 cf	3.0" Round Pipe Storage Inside #1 L= 351.0' 28 cf Overall - 0.4" Wall Thickness = 17 cf
		5,220 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.58 cfs @ 12.22 hrs HW=72.12' (Free Discharge)
 1=Culvert (Passes 0.58 cfs of 1.79 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.58 cfs @ 4.29 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P3: Porous Pavement 3

Hydrograph



Hydrograph for Pond P3: Porous Pavement 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.01	19	70.98	0.00
4.00	0.02	106	71.02	0.00
6.00	0.02	237	71.08	0.00
8.00	0.03	430	71.18	0.00
10.00	0.07	743	71.33	0.02
12.00	1.28	1,699	71.78	0.44
14.00	0.09	1,096	71.49	0.15
16.00	0.05	908	71.40	0.06
18.00	0.03	850	71.37	0.04
20.00	0.03	817	71.36	0.03
22.00	0.02	799	71.35	0.03
24.00	0.02	784	71.34	0.02
26.00	0.00	690	71.30	0.01
28.00	0.00	650	71.28	0.00
30.00	0.00	628	71.27	0.00
32.00	0.00	613	71.26	0.00
34.00	0.00	602	71.26	0.00
36.00	0.00	593	71.25	0.00
38.00	0.00	586	71.25	0.00
40.00	0.00	581	71.25	0.00
42.00	0.00	577	71.25	0.00
44.00	0.00	574	71.25	0.00
46.00	0.00	571	71.24	0.00
48.00	0.00	569	71.24	0.00
50.00	0.00	566	71.24	0.00
52.00	0.00	564	71.24	0.00
54.00	0.00	562	71.24	0.00
56.00	0.00	560	71.24	0.00
58.00	0.00	558	71.24	0.00
60.00	0.00	556	71.24	0.00
62.00	0.00	555	71.24	0.00
64.00	0.00	553	71.24	0.00
66.00	0.00	551	71.23	0.00
68.00	0.00	550	71.23	0.00
70.00	0.00	548	71.23	0.00
72.00	0.00	547	71.23	0.00

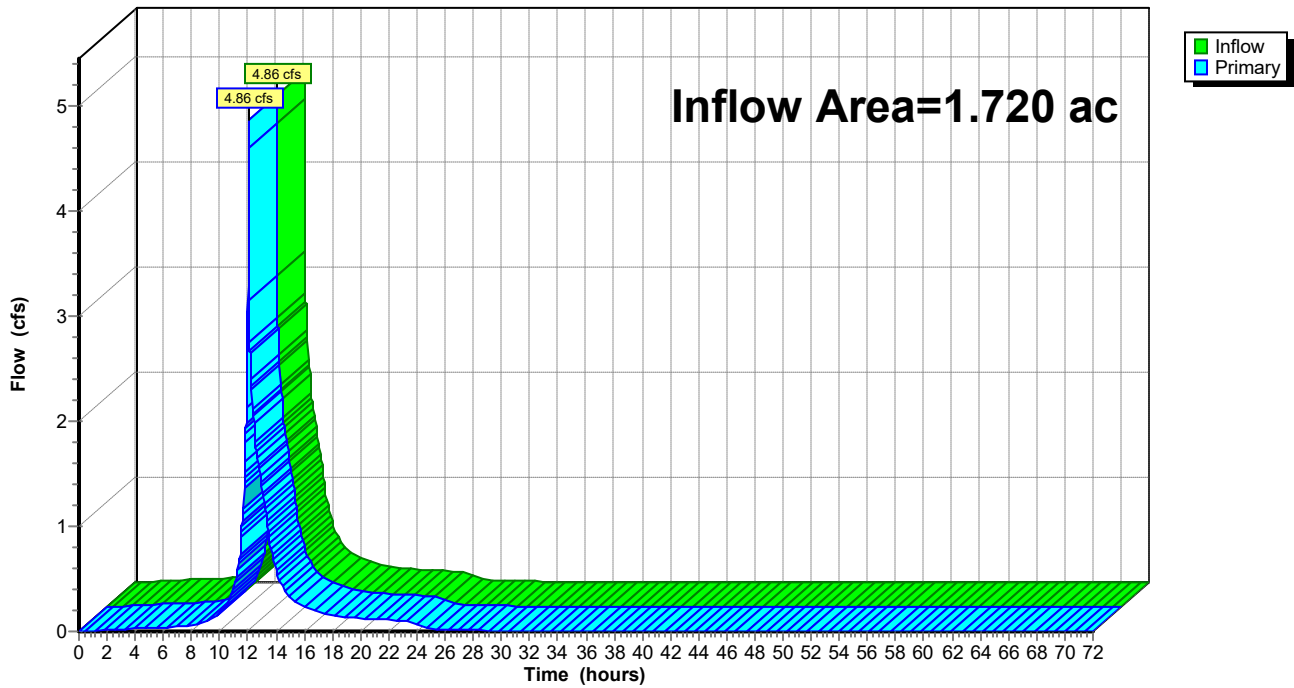
Summary for Pond POI 1: PRE - POI #1 (SW Basin)

Inflow Area = 1.720 ac, 70.35% Impervious, Inflow Depth = 3.95" for 10-Year C event
Inflow = 4.86 cfs @ 12.10 hrs, Volume= 0.566 af
Primary = 4.86 cfs @ 12.10 hrs, Volume= 0.566 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond POI 1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.03		0.03	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.06		0.06	60.00	0.00		0.00
9.00	0.09		0.09	61.00	0.00		0.00
10.00	0.18		0.18	62.00	0.00		0.00
11.00	0.41		0.41	63.00	0.00		0.00
12.00	3.09		3.09	64.00	0.00		0.00
13.00	1.37		1.37	65.00	0.00		0.00
14.00	0.59		0.59	66.00	0.00		0.00
15.00	0.33		0.33	67.00	0.00		0.00
16.00	0.24		0.24	68.00	0.00		0.00
17.00	0.19		0.19	69.00	0.00		0.00
18.00	0.15		0.15	70.00	0.00		0.00
19.00	0.14		0.14	71.00	0.00		0.00
20.00	0.12		0.12	72.00	0.00		0.00
21.00	0.12		0.12				
22.00	0.11		0.11				
23.00	0.10		0.10				
24.00	0.10		0.10				
25.00	0.03		0.03				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.01		0.01				
29.00	0.01		0.01				
30.00	0.01		0.01				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1I: IMPERVIOUS

Runoff = 2.00 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 5.63"

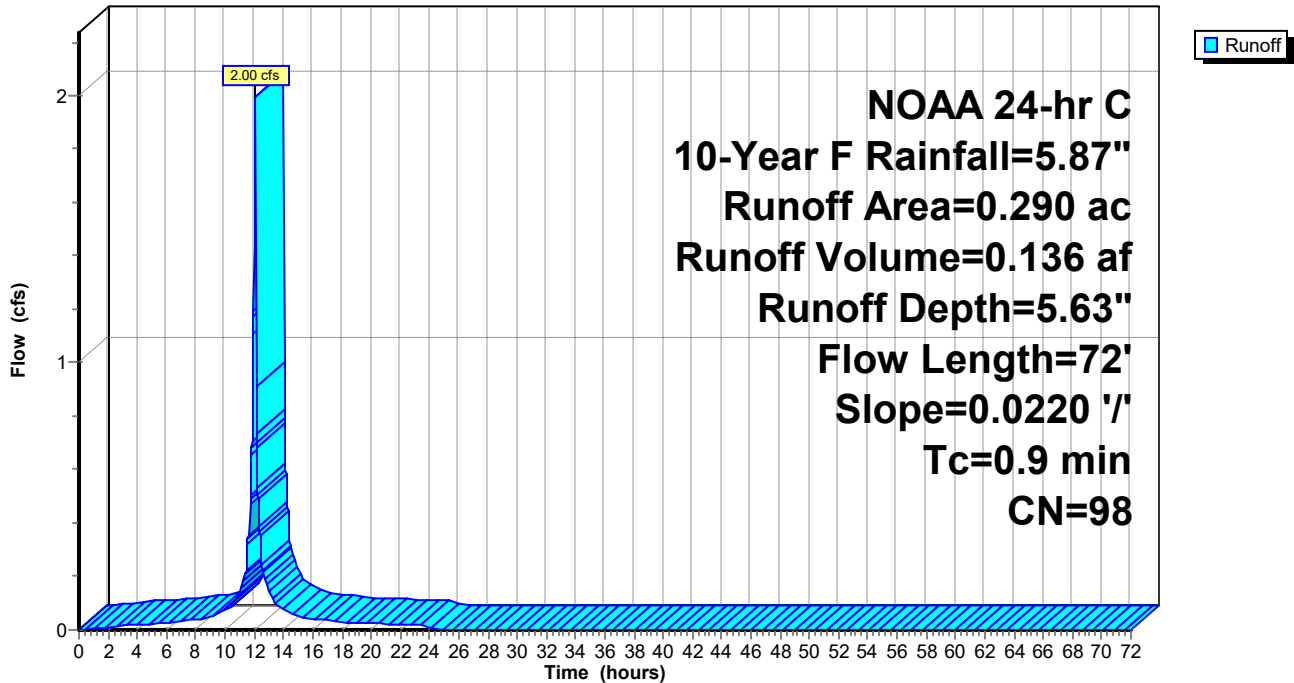
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	72	0.0220	1.38		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 1I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 1P: PERVIOUS

Runoff = 0.27 cfs @ 12.10 hrs, Volume= 0.015 af, Depth= 3.66"

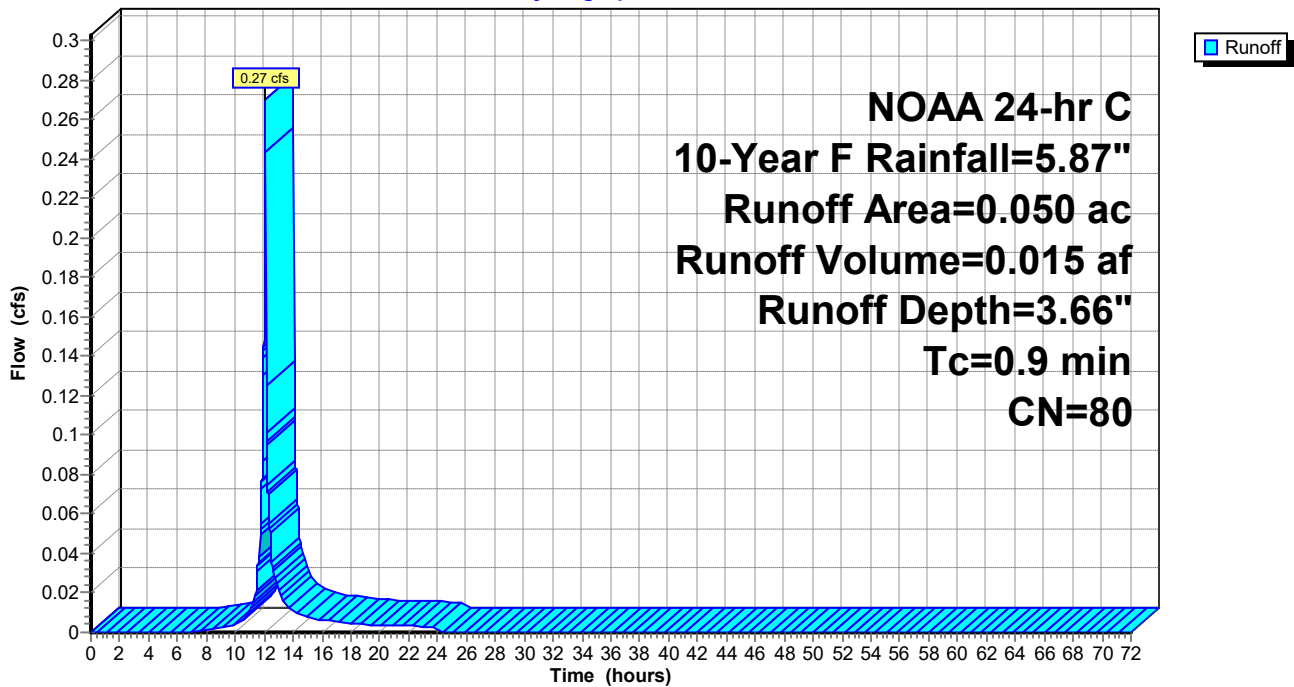
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.050	80	>75% Grass cover, Good, HSG D
0.050	80	100.00% Pervious Area

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

Subcatchment 1P: PERVIOUS

Hydrograph



Summary for Subcatchment 1S: PERVIOUS

Runoff = 0.92 cfs @ 12.09 hrs, Volume= 0.052 af, Depth= 3.66"

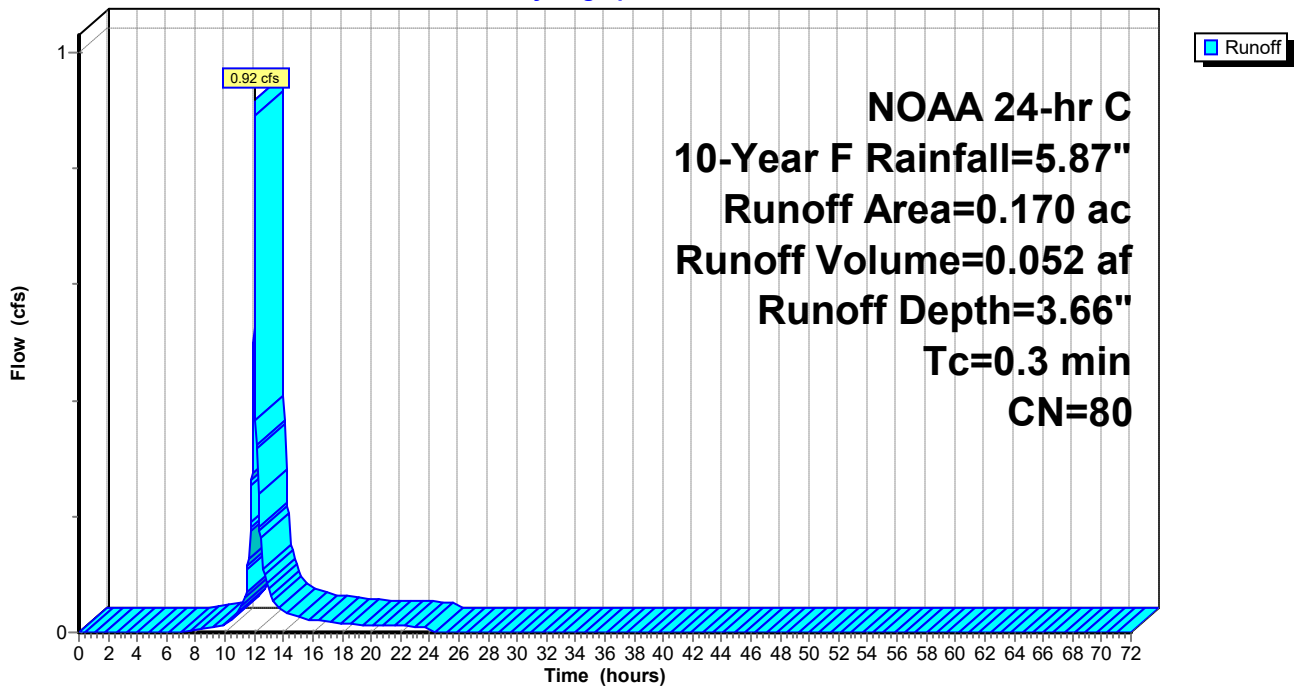
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.170	80	>75% Grass cover, Good, HSG D
0.170	80	100.00% Pervious Area

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

Subcatchment 1S: PERVIOUS

Hydrograph



Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.066 af, Depth= 5.63"

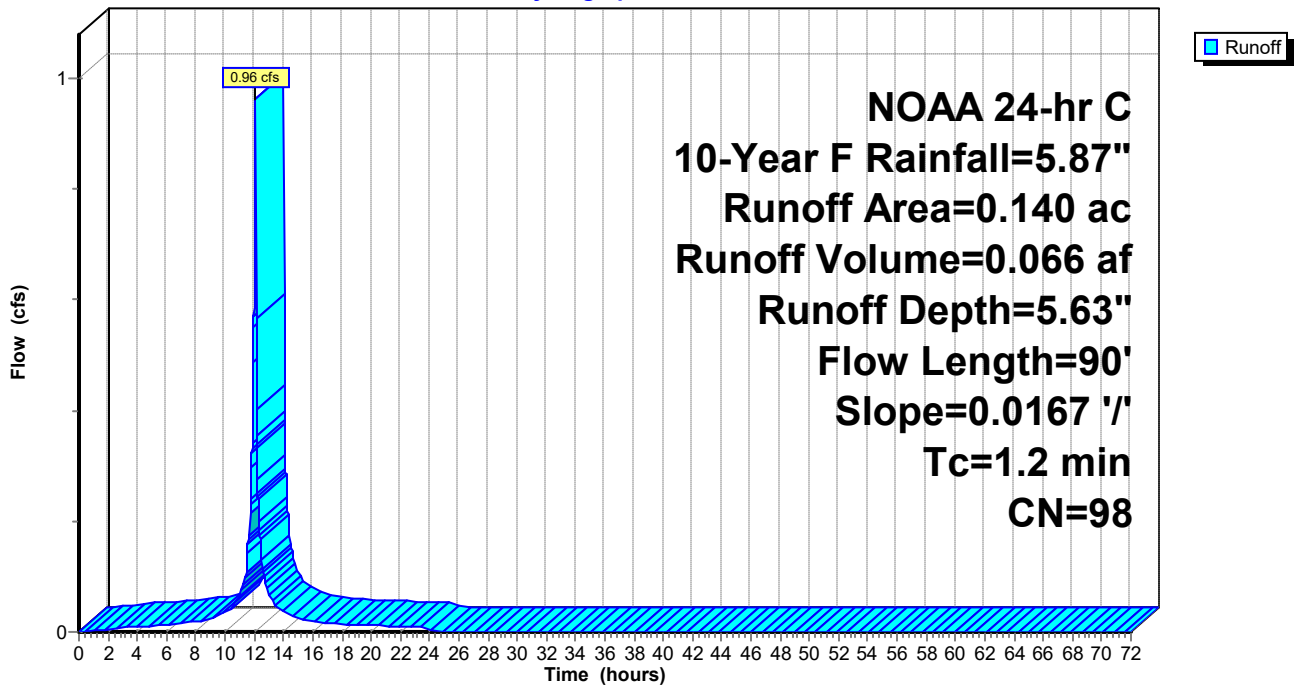
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG D
0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.16 cfs @ 12.10 hrs, Volume= 0.009 af, Depth= 3.66"

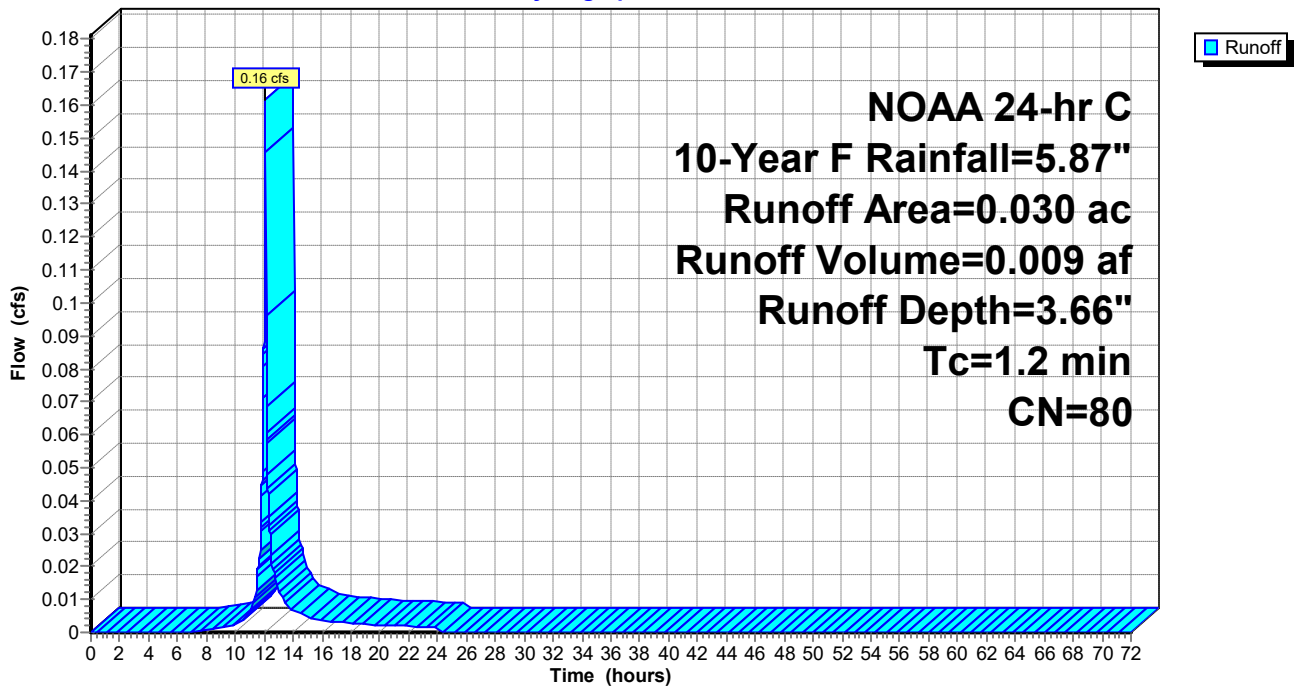
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 3I: IMPERVIOUS

Runoff = 2.00 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 5.63"

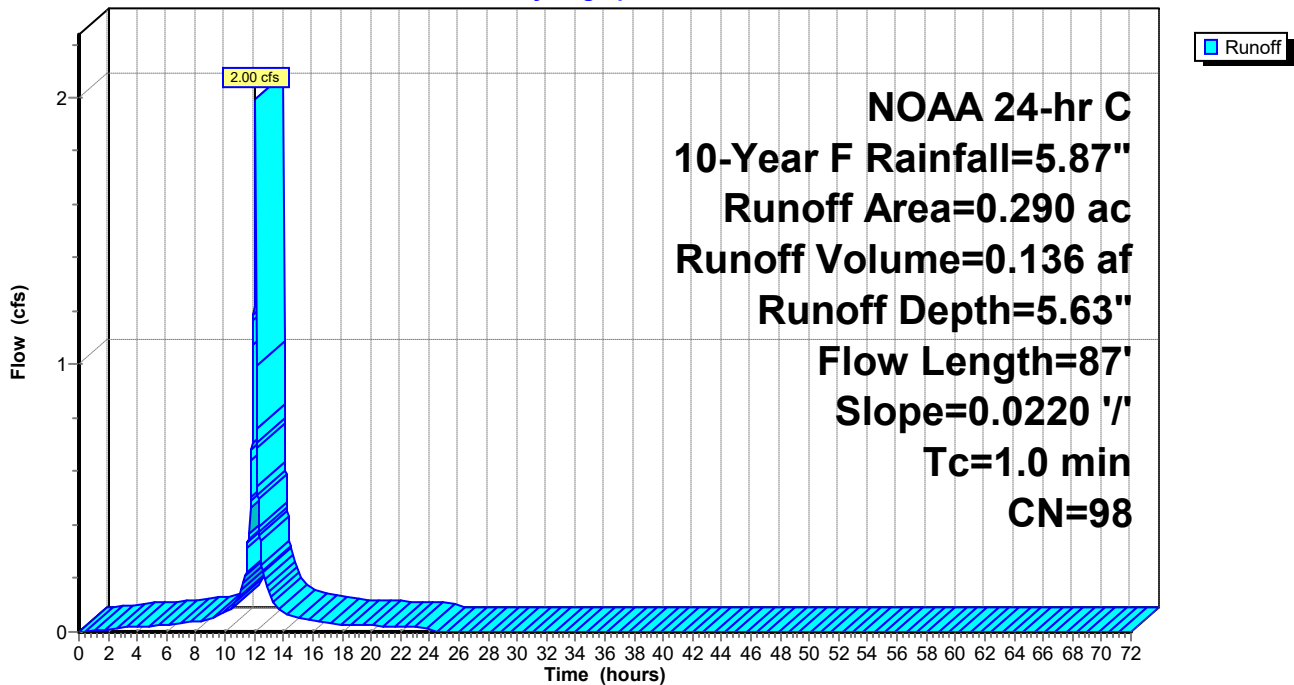
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	87	0.0220	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 3I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 3P: PERVIOUS

Runoff = 0.59 cfs @ 12.10 hrs, Volume= 0.034 af, Depth= 3.66"

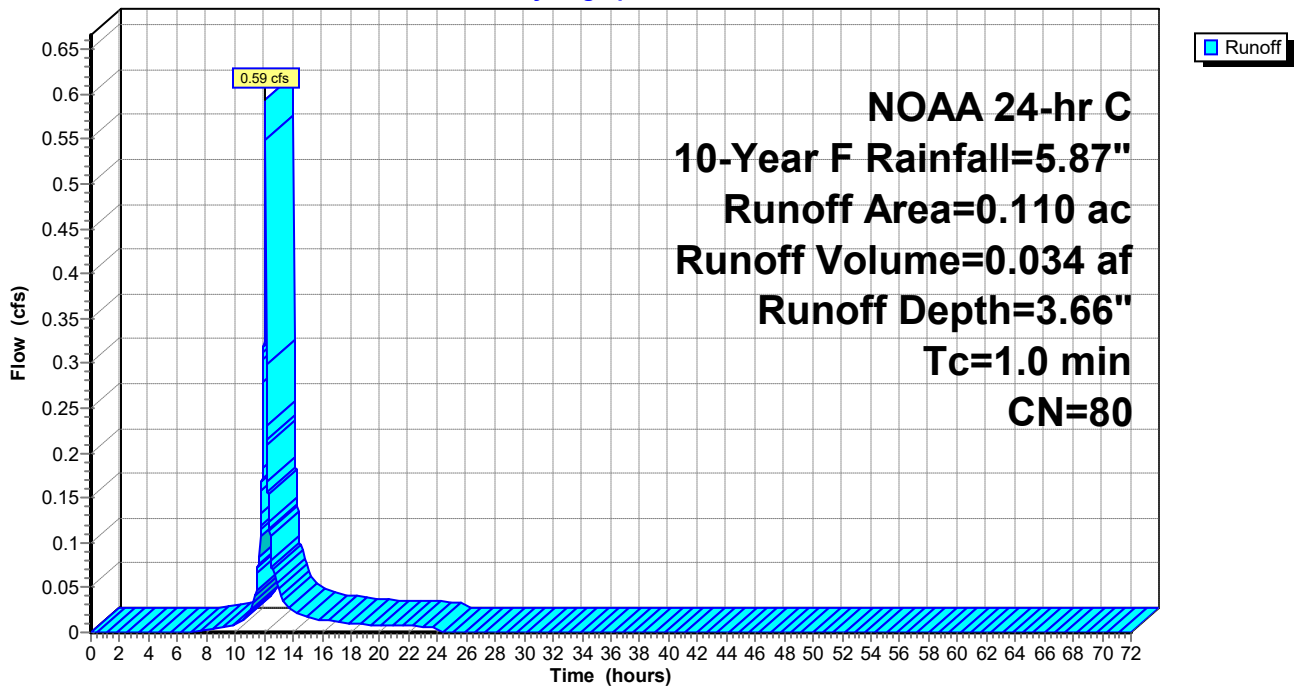
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.110	80	>75% Grass cover, Good, HSG D
0.110	80	100.00% Pervious Area

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

Subcatchment 3P: PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 3.17 cfs @ 12.09 hrs, Volume= 0.216 af, Depth= 5.63"

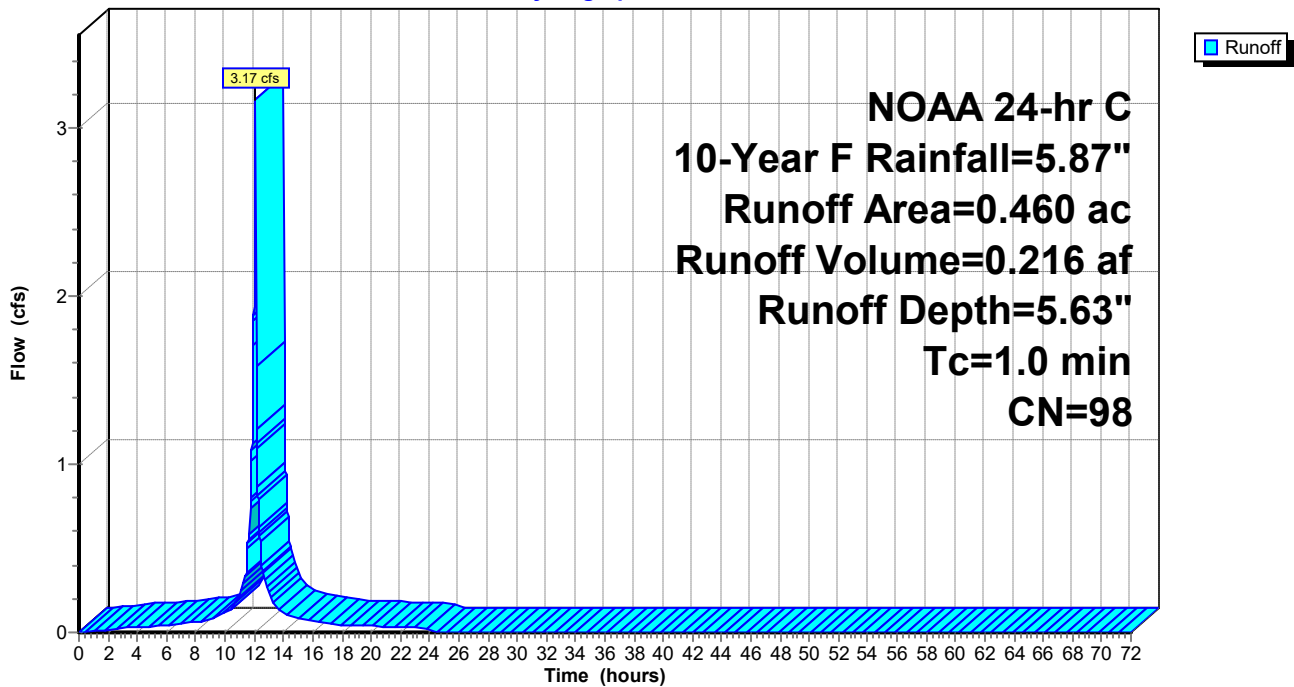
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.460	98	Roofs, HSG D
0.460	98	100.00% Impervious Area

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

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.65 cfs @ 12.10 hrs, Volume= 0.037 af, Depth= 3.66"

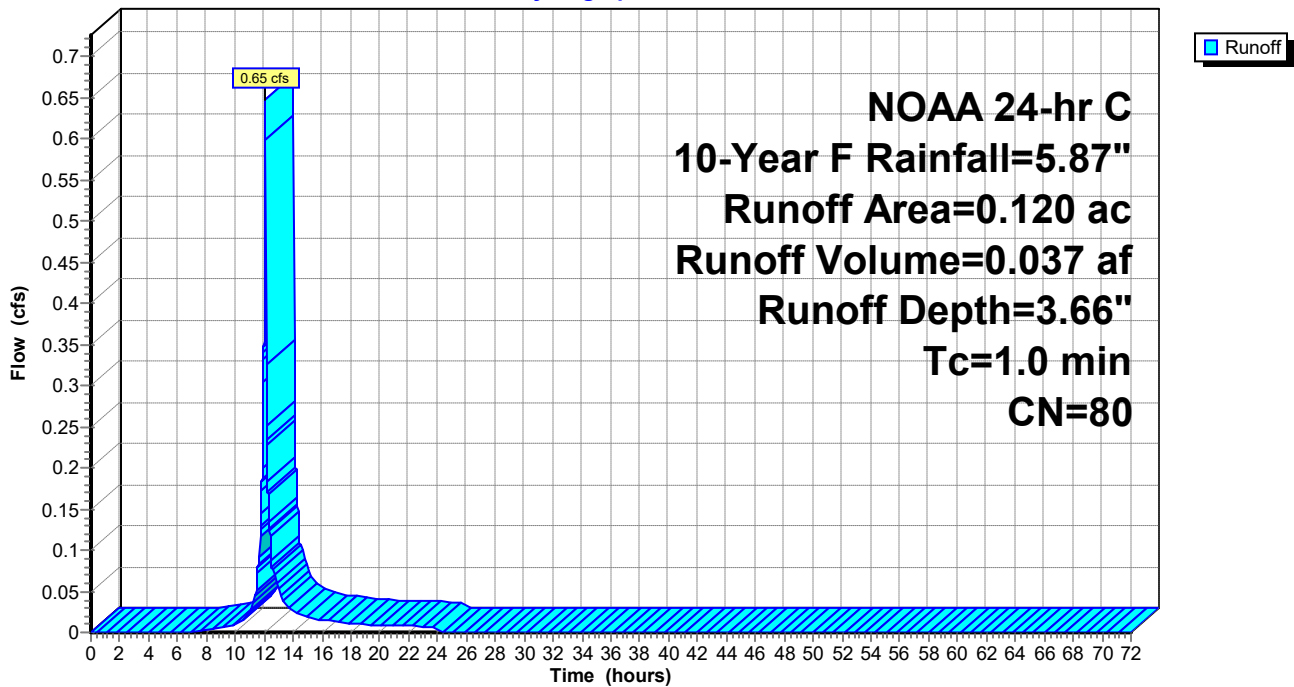
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.120	80	>75% Grass cover, Good, HSG D
0.120	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment OI-1: OFFSITE IMP

Runoff = 0.21 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 5.63"

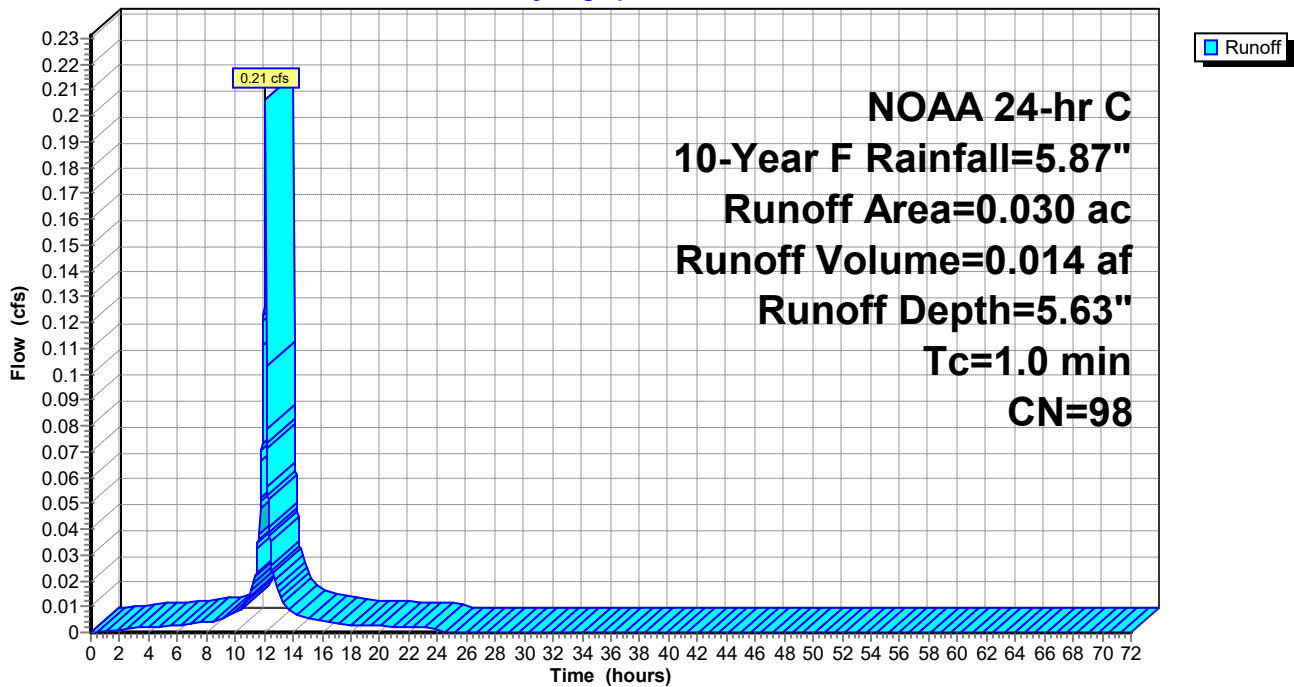
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

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

Subcatchment OI-1: OFFSITE IMP

Hydrograph



Summary for Subcatchment OP-1: OFFSITE PER

Runoff = 0.16 cfs @ 12.10 hrs, Volume= 0.009 af, Depth= 3.66"

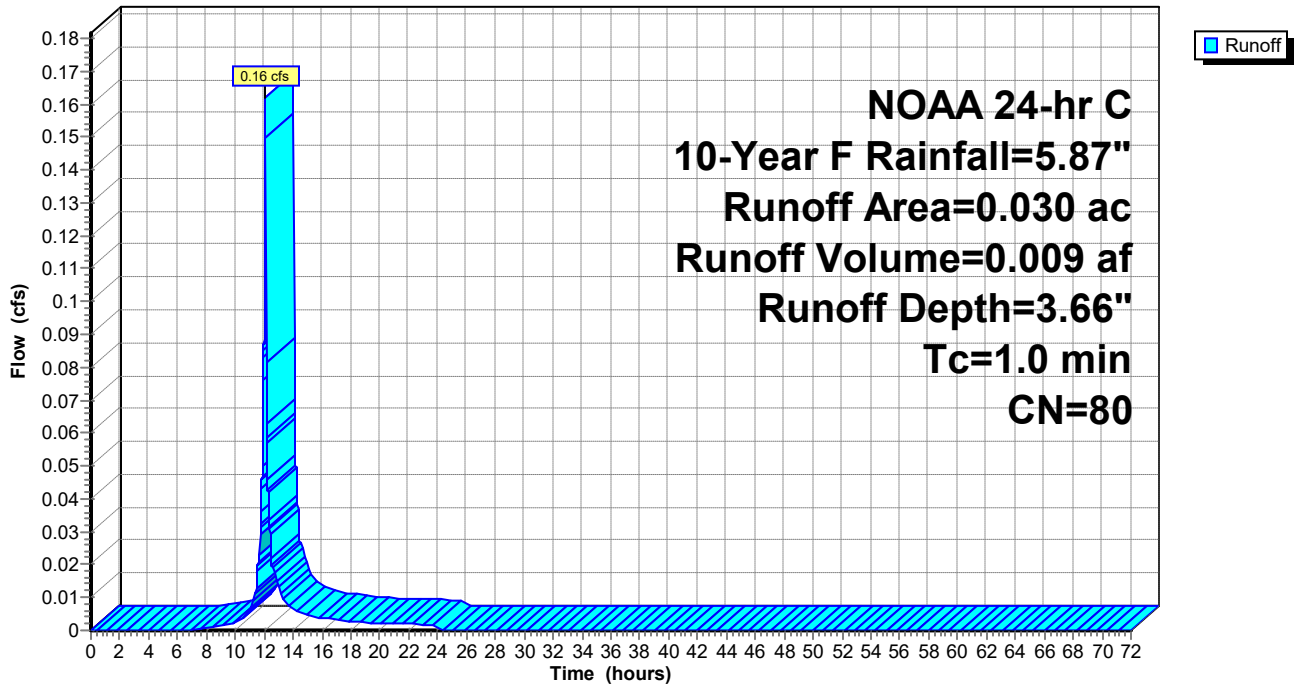
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment OP-1: OFFSITE PER

Hydrograph



Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 3.66" for 10-Year F event
 Inflow = 0.92 cfs @ 12.09 hrs, Volume= 0.052 af
 Outflow = 0.13 cfs @ 12.51 hrs, Volume= 0.042 af, Atten= 86%, Lag= 25.1 min
 Primary = 0.13 cfs @ 12.51 hrs, Volume= 0.042 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.07' @ 12.51 hrs Surf.Area= 2,179 sf Storage= 1,129 cf

Plug-Flow detention time= 212.0 min calculated for 0.042 af (81% of inflow)
 Center-of-Mass det. time= 134.4 min (947.3 - 812.8)

Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	1,766	0	0
72.50	2,487	2,127	2,127
73.50	3,432	2,960	5,086
74.00	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Primary	71.73'	24.0" Round Culvert L= 69.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.73' / 70.52' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.50'	2.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	72.00'	6.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#4	Device 1	74.00'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	73.50'	25.0' 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

Primary OutFlow Max=0.13 cfs @ 12.51 hrs HW=72.07' (Free Discharge)

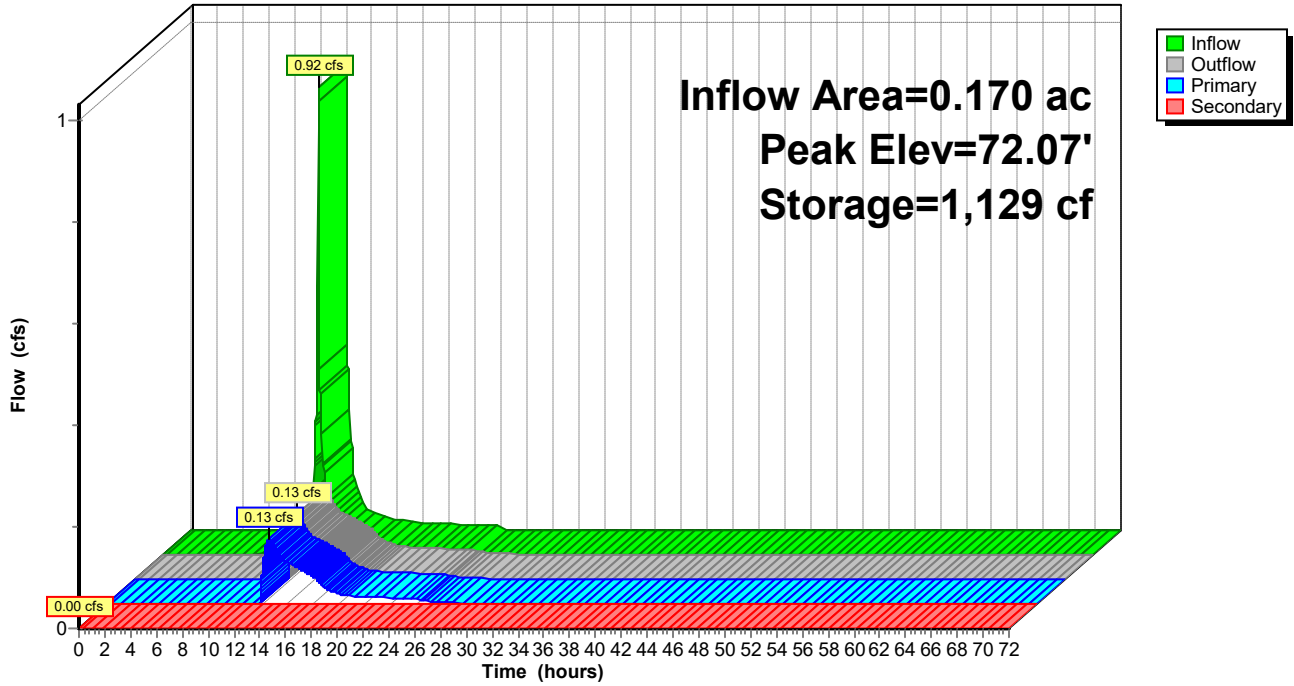
- ↑ 1=Culvert (Passes 0.13 cfs of 0.71 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 0.10 cfs @ 2.82 fps)
- ↑ 3=Orifice/Grate (Orifice Controls 0.03 cfs @ 0.86 fps)
- ↑ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	71.50	0.00	0.00	0.00
2.00	0.00	0	71.50	0.00	0.00	0.00
4.00	0.00	0	71.50	0.00	0.00	0.00
6.00	0.00	0	71.50	0.00	0.00	0.00
8.00	0.00	9	71.51	0.00	0.00	0.00
10.00	0.01	65	71.54	0.00	0.00	0.00
12.00	0.55	658	71.85	0.06	0.06	0.00
14.00	0.04	927	71.98	0.08	0.08	0.00
16.00	0.02	635	71.84	0.05	0.05	0.00
18.00	0.01	531	71.78	0.02	0.02	0.00
20.00	0.01	515	71.78	0.01	0.01	0.00
22.00	0.01	509	71.77	0.01	0.01	0.00
24.00	0.01	502	71.77	0.01	0.01	0.00
26.00	0.00	463	71.75	0.00	0.00	0.00
28.00	0.00	450	71.74	0.00	0.00	0.00
30.00	0.00	441	71.74	0.00	0.00	0.00
32.00	0.00	435	71.74	0.00	0.00	0.00
34.00	0.00	432	71.73	0.00	0.00	0.00
36.00	0.00	429	71.73	0.00	0.00	0.00
38.00	0.00	428	71.73	0.00	0.00	0.00
40.00	0.00	427	71.73	0.00	0.00	0.00
42.00	0.00	426	71.73	0.00	0.00	0.00
44.00	0.00	426	71.73	0.00	0.00	0.00
46.00	0.00	426	71.73	0.00	0.00	0.00
48.00	0.00	426	71.73	0.00	0.00	0.00
50.00	0.00	425	71.73	0.00	0.00	0.00
52.00	0.00	425	71.73	0.00	0.00	0.00
54.00	0.00	425	71.73	0.00	0.00	0.00
56.00	0.00	425	71.73	0.00	0.00	0.00
58.00	0.00	425	71.73	0.00	0.00	0.00
60.00	0.00	425	71.73	0.00	0.00	0.00
62.00	0.00	425	71.73	0.00	0.00	0.00
64.00	0.00	425	71.73	0.00	0.00	0.00
66.00	0.00	425	71.73	0.00	0.00	0.00
68.00	0.00	425	71.73	0.00	0.00	0.00
70.00	0.00	425	71.73	0.00	0.00	0.00
72.00	0.00	425	71.73	0.00	0.00	0.00

Summary for Pond P1: Porous Pavement 1

Inflow Area = 0.340 ac, 85.29% Impervious, Inflow Depth = 5.34" for 10-Year F event
 Inflow = 2.27 cfs @ 12.09 hrs, Volume= 0.151 af
 Outflow = 0.61 cfs @ 12.22 hrs, Volume= 0.140 af, Atten= 73%, Lag= 8.0 min
 Primary = 0.61 cfs @ 12.22 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.31' @ 12.22 hrs Surf.Area= 5,670 sf Storage= 2,517 cf

Plug-Flow detention time= 162.6 min calculated for 0.140 af (93% of inflow)
 Center-of-Mass det. time= 120.9 min (869.7 - 748.7)

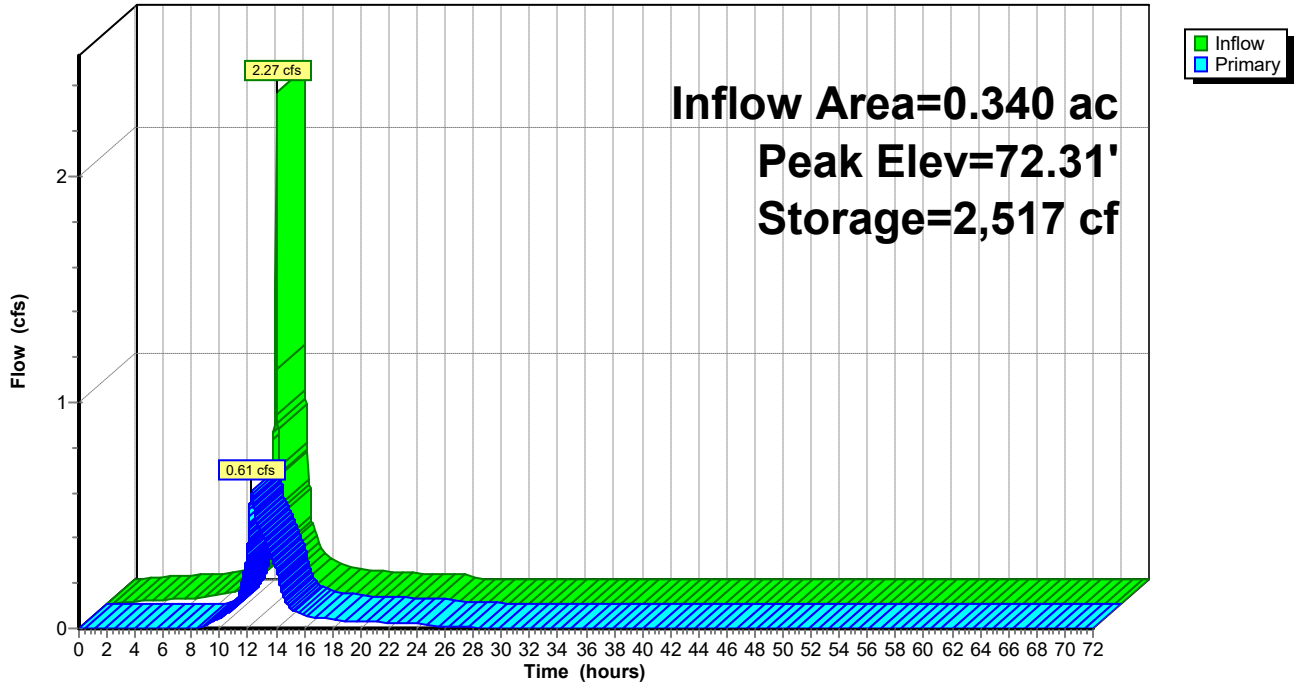
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	4,670 cf	18.00'W x 315.00'L x 2.50'H Prismatic 14,175 cf Overall - 25 cf Embedded = 14,150 cf x 33.0% Voids
#2	71.22'	15 cf	3.0" Round Pipe Storage Inside #1 L= 315.0' 25 cf Overall - 0.4" Wall Thickness = 15 cf
		4,685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 3.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.61 cfs @ 12.22 hrs HW=72.31' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.61 cfs of 2.54 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.49 cfs @ 4.78 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 0.12 cfs @ 0.97 fps)

Pond P1: Porous Pavement 1

Hydrograph



Hydrograph for Pond P1: Porous Pavement 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.01	29	70.99	0.00
4.00	0.02	141	71.05	0.00
6.00	0.02	300	71.13	0.00
8.00	0.04	533	71.26	0.00
10.00	0.08	787	71.39	0.05
12.00	1.35	1,734	71.89	0.37
14.00	0.09	1,196	71.61	0.26
16.00	0.05	819	71.40	0.06
18.00	0.03	763	71.37	0.04
20.00	0.03	734	71.36	0.03
22.00	0.02	718	71.35	0.03
24.00	0.03	704	71.34	0.02
26.00	0.00	614	71.30	0.01
28.00	0.00	578	71.28	0.00
30.00	0.00	558	71.27	0.00
32.00	0.00	545	71.26	0.00
34.00	0.00	535	71.26	0.00
36.00	0.00	528	71.25	0.00
38.00	0.00	522	71.25	0.00
40.00	0.00	518	71.25	0.00
42.00	0.00	515	71.25	0.00
44.00	0.00	512	71.24	0.00
46.00	0.00	510	71.24	0.00
48.00	0.00	508	71.24	0.00
50.00	0.00	505	71.24	0.00
52.00	0.00	503	71.24	0.00
54.00	0.00	501	71.24	0.00
56.00	0.00	500	71.24	0.00
58.00	0.00	498	71.24	0.00
60.00	0.00	496	71.24	0.00
62.00	0.00	495	71.23	0.00
64.00	0.00	493	71.23	0.00
66.00	0.00	492	71.23	0.00
68.00	0.00	490	71.23	0.00
70.00	0.00	489	71.23	0.00
72.00	0.00	488	71.23	0.00

Summary for Pond P2: Porous Pavement 2

Inflow Area = 0.170 ac, 82.35% Impervious, Inflow Depth = 5.28" for 10-Year F event
 Inflow = 1.12 cfs @ 12.09 hrs, Volume= 0.075 af
 Outflow = 0.55 cfs @ 12.13 hrs, Volume= 0.071 af, Atten= 51%, Lag= 2.2 min
 Primary = 0.55 cfs @ 12.13 hrs, Volume= 0.071 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.98' @ 12.13 hrs Surf.Area= 1,782 sf Storage= 859 cf

Plug-Flow detention time= 93.1 min calculated for 0.071 af (95% of inflow)
 Center-of-Mass det. time= 65.5 min (816.0 - 750.6)

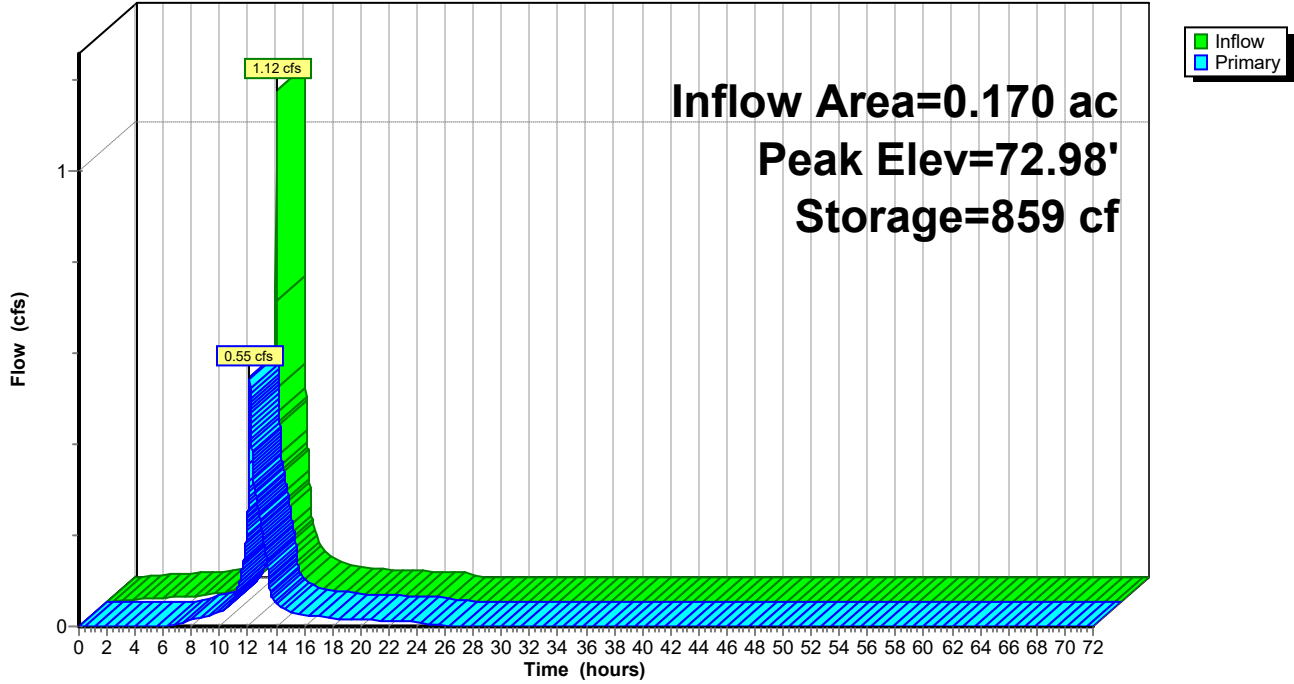
Volume	Invert	Avail.Storage	Storage Description
#1	71.52'	1,321 cf	18.00'W x 99.00'L x 2.25'H Prismatic 4,010 cf Overall - 8 cf Embedded = 4,002 cf x 33.0% Voids
#2	71.77'	5 cf	3.0" Round Pipe Storage Inside #1 L= 99.0' 8 cf Overall - 0.4" Wall Thickness = 5 cf
		1,325 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.77'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.77' / 71.77' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.77'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	72.77'	8.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.55 cfs @ 12.13 hrs HW=72.98' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.55 cfs of 3.00 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.34 cfs @ 5.06 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 0.20 cfs @ 1.46 fps)

Pond P2: Porous Pavement 2

Hydrograph



Hydrograph for Pond P2: Porous Pavement 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	71.52	0.00
2.00	0.01	14	71.54	0.00
4.00	0.01	68	71.64	0.00
6.00	0.01	145	71.77	0.00
8.00	0.02	211	71.88	0.02
10.00	0.04	234	71.92	0.03
12.00	0.67	566	72.48	0.26
14.00	0.04	250	71.94	0.05
16.00	0.02	225	71.90	0.03
18.00	0.02	214	71.88	0.02
20.00	0.01	209	71.87	0.01
22.00	0.01	205	71.87	0.01
24.00	0.01	202	71.86	0.01
26.00	0.00	173	71.81	0.00
28.00	0.00	165	71.80	0.00
30.00	0.00	161	71.79	0.00
32.00	0.00	159	71.79	0.00
34.00	0.00	157	71.79	0.00
36.00	0.00	156	71.79	0.00
38.00	0.00	155	71.78	0.00
40.00	0.00	154	71.78	0.00
42.00	0.00	153	71.78	0.00
44.00	0.00	153	71.78	0.00
46.00	0.00	152	71.78	0.00
48.00	0.00	151	71.78	0.00
50.00	0.00	151	71.78	0.00
52.00	0.00	150	71.78	0.00
54.00	0.00	150	71.78	0.00
56.00	0.00	150	71.77	0.00
58.00	0.00	149	71.77	0.00
60.00	0.00	149	71.77	0.00
62.00	0.00	149	71.77	0.00
64.00	0.00	149	71.77	0.00
66.00	0.00	148	71.77	0.00
68.00	0.00	148	71.77	0.00
70.00	0.00	148	71.77	0.00
72.00	0.00	148	71.77	0.00

Summary for Pond P3: Porous Pavement 3

Inflow Area = 0.400 ac, 72.50% Impervious, Inflow Depth = 5.09" for 10-Year F event
 Inflow = 2.59 cfs @ 12.10 hrs, Volume= 0.170 af
 Outflow = 0.72 cfs @ 12.22 hrs, Volume= 0.157 af, Atten= 72%, Lag= 7.3 min
 Primary = 0.72 cfs @ 12.22 hrs, Volume= 0.157 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.29' @ 12.22 hrs Surf.Area= 6,318 sf Storage= 2,750 cf

Plug-Flow detention time= 158.6 min calculated for 0.157 af (93% of inflow)
 Center-of-Mass det. time= 117.0 min (872.9 - 755.8)

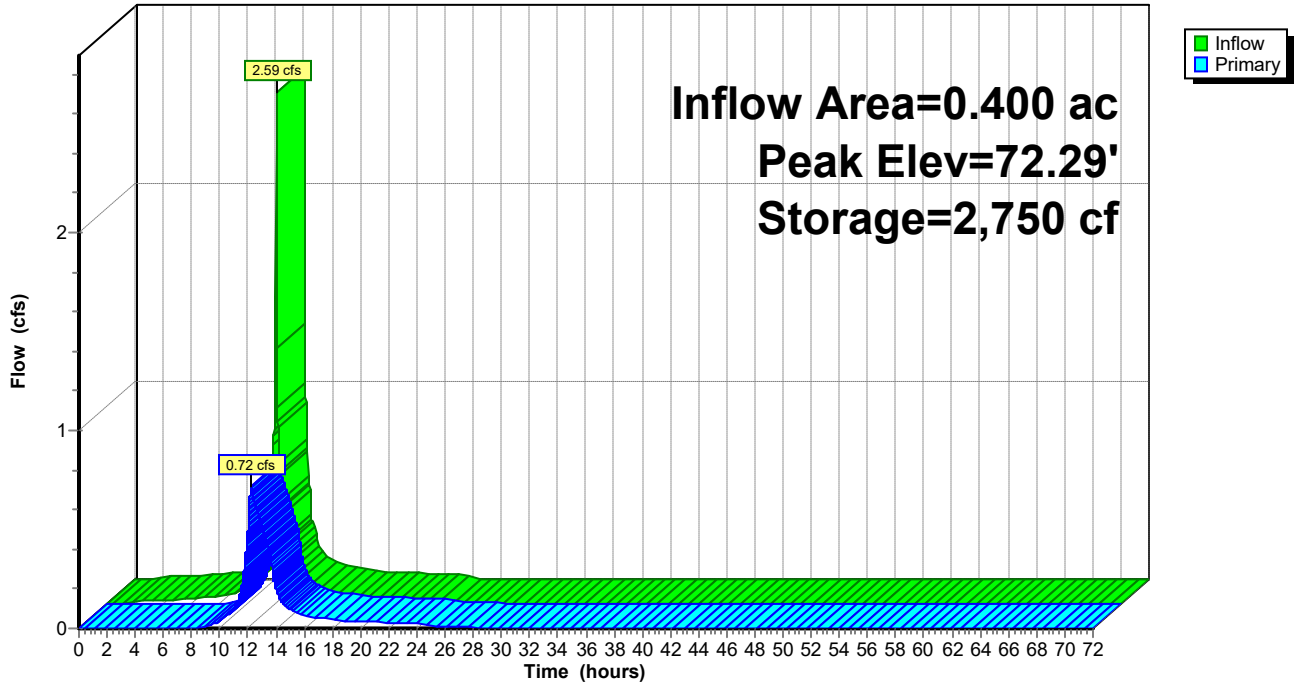
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	5,203 cf	18.00'W x 351.00'L x 2.50'H Prismatic 15,795 cf Overall - 28 cf Embedded = 15,767 cf x 33.0% Voids
#2	71.22'	17 cf	3.0" Round Pipe Storage Inside #1 L= 351.0' 28 cf Overall - 0.4" Wall Thickness = 17 cf
		5,220 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.71 cfs @ 12.22 hrs HW=72.29' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.71 cfs of 2.43 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.64 cfs @ 4.72 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 0.07 cfs @ 0.82 fps)

Pond P3: Porous Pavement 3

Hydrograph



Hydrograph for Pond P3: Porous Pavement 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.01	29	70.98	0.00
4.00	0.02	141	71.04	0.00
6.00	0.02	300	71.11	0.00
8.00	0.04	537	71.23	0.00
10.00	0.08	854	71.38	0.04
12.00	1.52	1,894	71.87	0.49
14.00	0.10	1,174	71.53	0.20
16.00	0.06	934	71.41	0.07
18.00	0.04	871	71.39	0.05
20.00	0.03	838	71.37	0.04
22.00	0.03	818	71.36	0.03
24.00	0.03	801	71.35	0.03
26.00	0.00	696	71.30	0.01
28.00	0.00	653	71.28	0.00
30.00	0.00	629	71.27	0.00
32.00	0.00	614	71.26	0.00
34.00	0.00	603	71.26	0.00
36.00	0.00	594	71.25	0.00
38.00	0.00	587	71.25	0.00
40.00	0.00	582	71.25	0.00
42.00	0.00	577	71.25	0.00
44.00	0.00	574	71.25	0.00
46.00	0.00	571	71.24	0.00
48.00	0.00	569	71.24	0.00
50.00	0.00	567	71.24	0.00
52.00	0.00	564	71.24	0.00
54.00	0.00	562	71.24	0.00
56.00	0.00	560	71.24	0.00
58.00	0.00	558	71.24	0.00
60.00	0.00	557	71.24	0.00
62.00	0.00	555	71.24	0.00
64.00	0.00	553	71.24	0.00
66.00	0.00	552	71.23	0.00
68.00	0.00	550	71.23	0.00
70.00	0.00	549	71.23	0.00
72.00	0.00	547	71.23	0.00

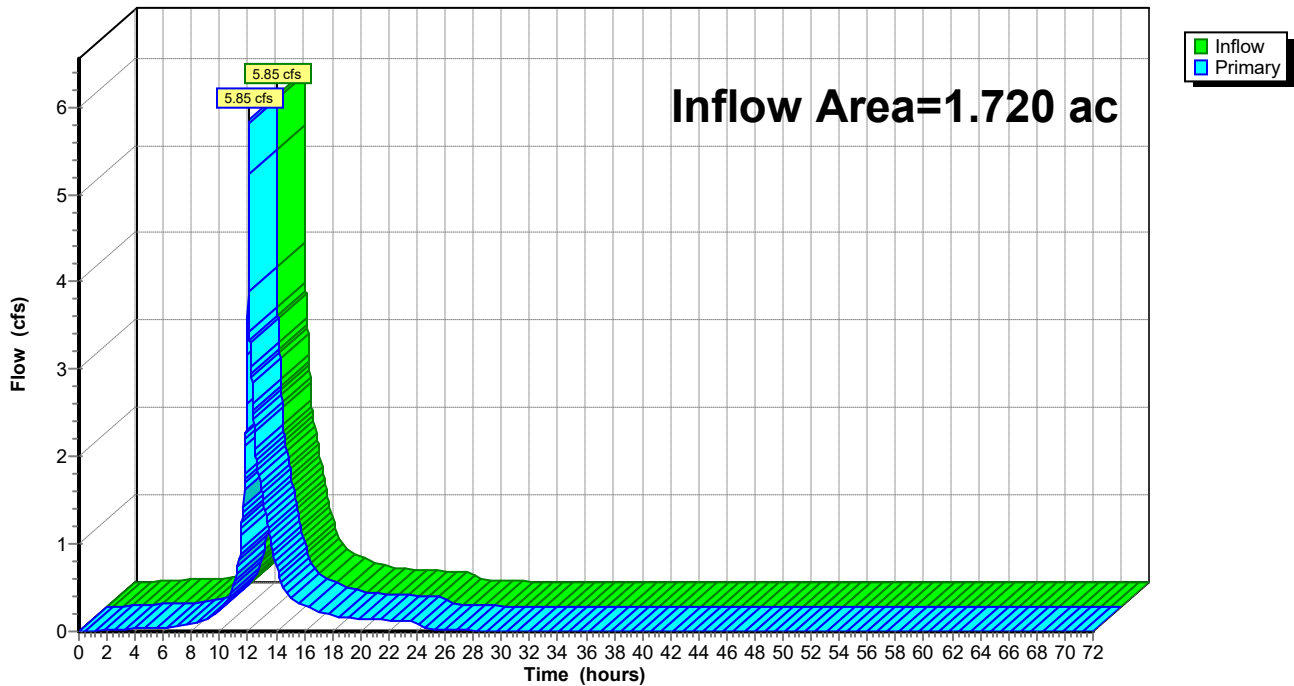
Summary for Pond POI 1: PRE - POI #1 (SW Basin)

Inflow Area = 1.720 ac, 70.35% Impervious, Inflow Depth = 4.79" for 10-Year F event
Inflow = 5.85 cfs @ 12.10 hrs, Volume= 0.687 af
Primary = 5.85 cfs @ 12.10 hrs, Volume= 0.687 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond POI 1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.04		0.04	57.00	0.00		0.00
6.00	0.04		0.04	58.00	0.00		0.00
7.00	0.06		0.06	59.00	0.00		0.00
8.00	0.09		0.09	60.00	0.00		0.00
9.00	0.13		0.13	61.00	0.00		0.00
10.00	0.25		0.25	62.00	0.00		0.00
11.00	0.52		0.52	63.00	0.00		0.00
12.00	3.64		3.64	64.00	0.00		0.00
13.00	1.58		1.58	65.00	0.00		0.00
14.00	0.75		0.75	66.00	0.00		0.00
15.00	0.40		0.40	67.00	0.00		0.00
16.00	0.29		0.29	68.00	0.00		0.00
17.00	0.23		0.23	69.00	0.00		0.00
18.00	0.18		0.18	70.00	0.00		0.00
19.00	0.16		0.16	71.00	0.00		0.00
20.00	0.15		0.15	72.00	0.00		0.00
21.00	0.14		0.14				
22.00	0.13		0.13				
23.00	0.12		0.12				
24.00	0.12		0.12				
25.00	0.03		0.03				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.01		0.01				
29.00	0.01		0.01				
30.00	0.01		0.01				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1I: IMPERVIOUS

Runoff = 2.10 cfs @ 12.09 hrs, Volume= 0.143 af, Depth= 5.92"

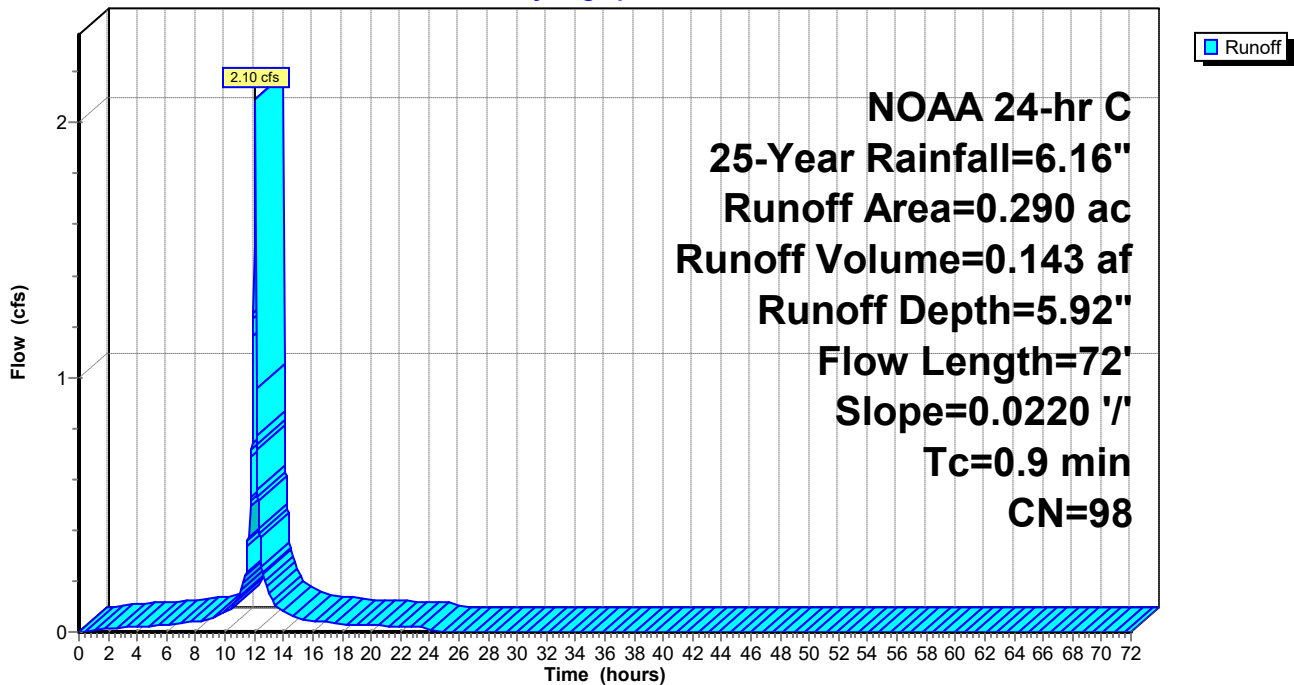
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	72	0.0220	1.38		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 1I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 1P: PERVIOUS

Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.016 af, Depth= 3.93"

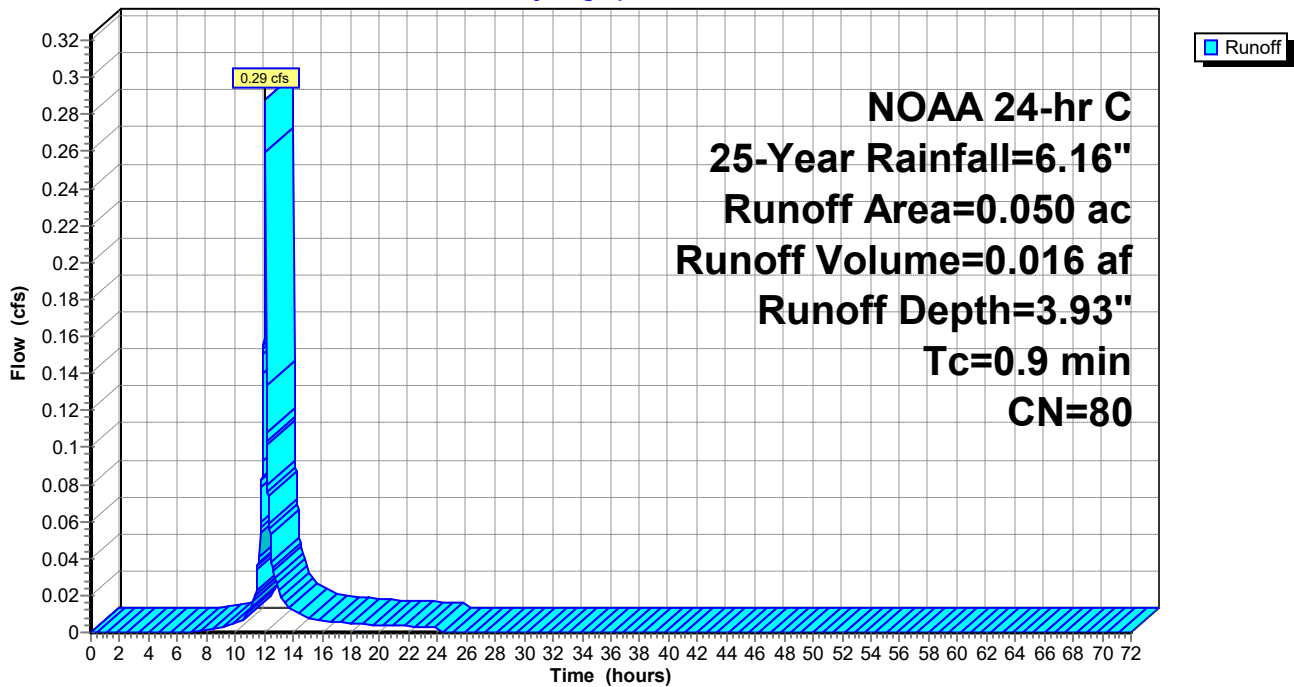
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.050	80	>75% Grass cover, Good, HSG D
0.050	80	100.00% Pervious Area

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

Subcatchment 1P: PERVIOUS

Hydrograph



Summary for Subcatchment 1S: PERVIOUS

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 3.93"

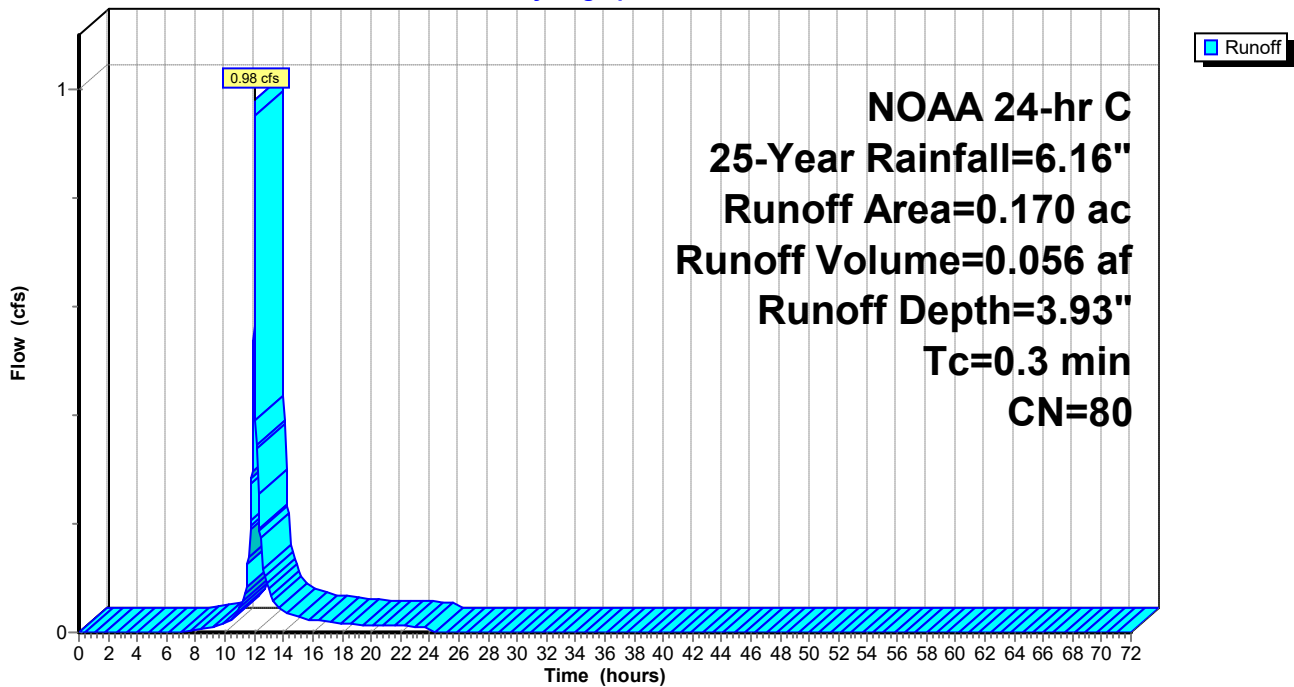
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.170	80	>75% Grass cover, Good, HSG D
0.170	80	100.00% Pervious Area

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

Subcatchment 1S: PERVIOUS

Hydrograph



Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 1.01 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 5.92"

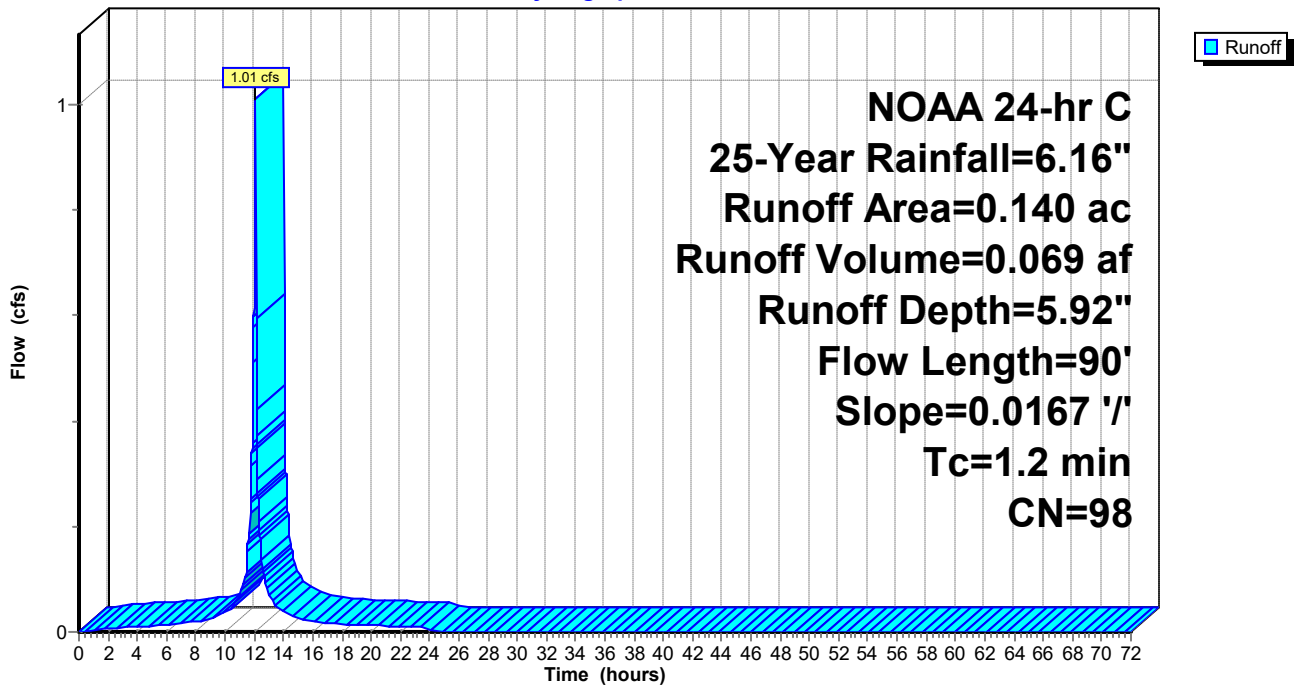
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG D
0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.17 cfs @ 12.10 hrs, Volume= 0.010 af, Depth= 3.93"

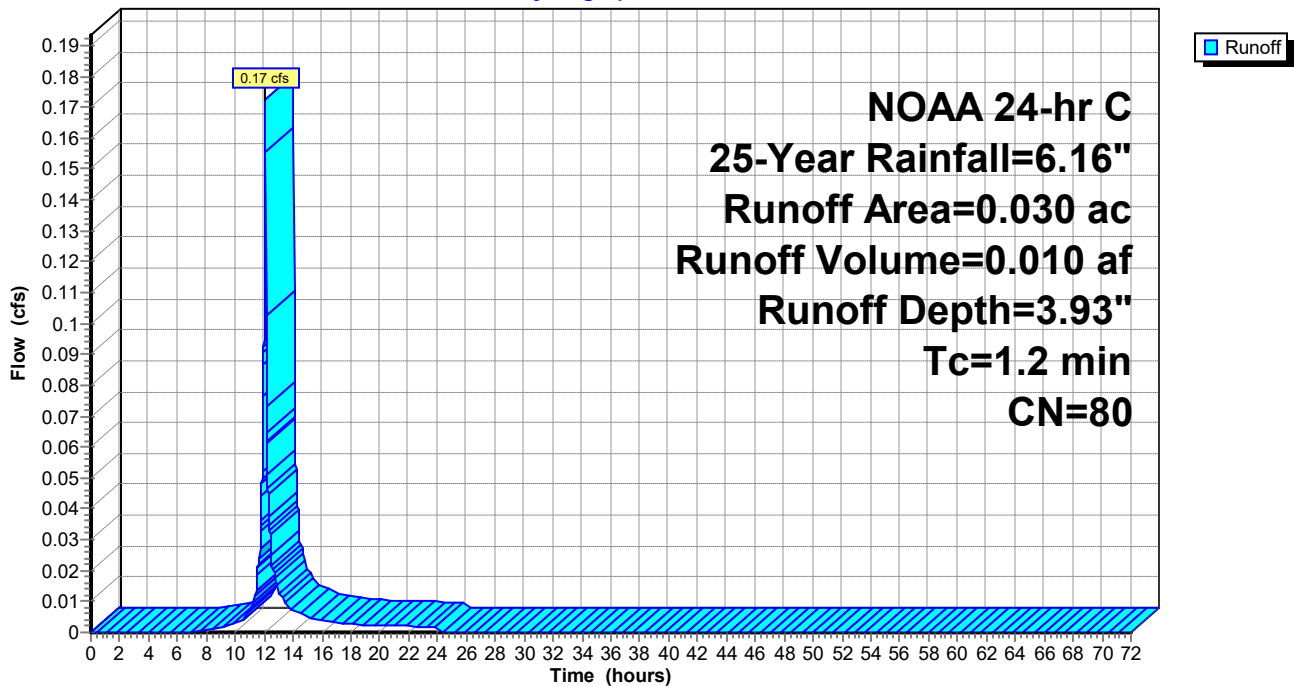
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 3I: IMPERVIOUS

Runoff = 2.10 cfs @ 12.09 hrs, Volume= 0.143 af, Depth= 5.92"

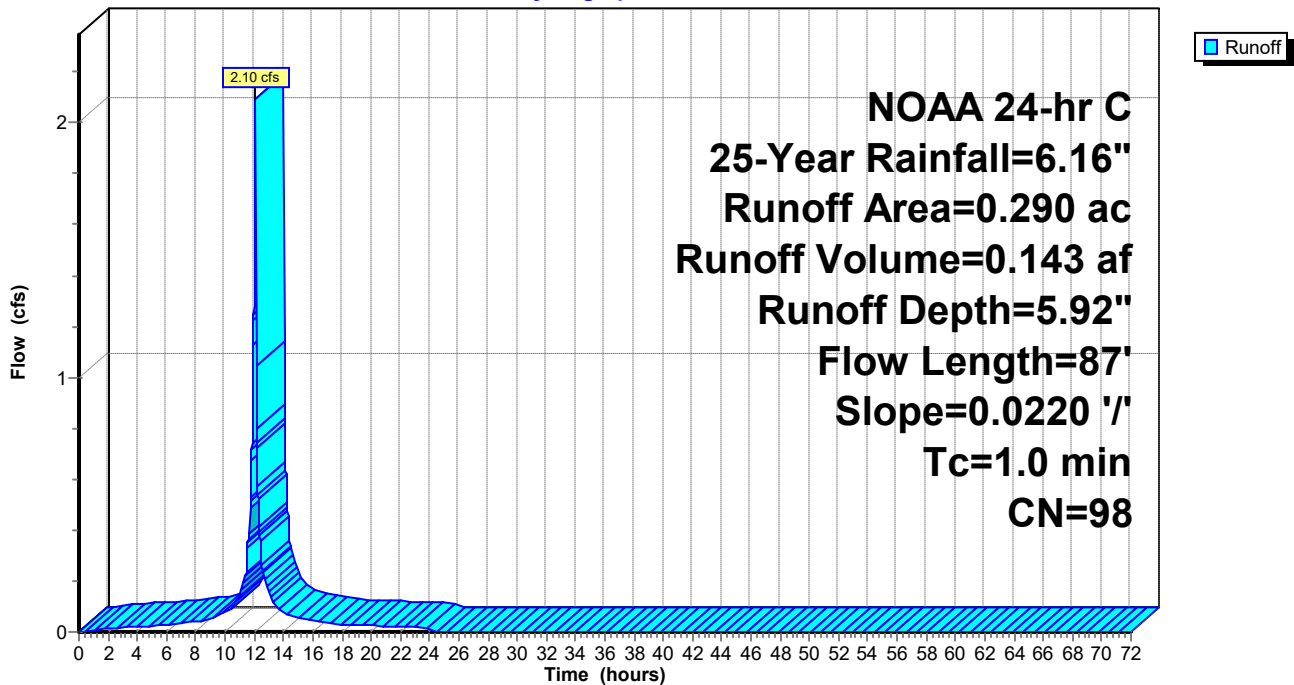
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	87	0.0220	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 3I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 3P: PERVIOUS

Runoff = 0.63 cfs @ 12.10 hrs, Volume= 0.036 af, Depth= 3.93"

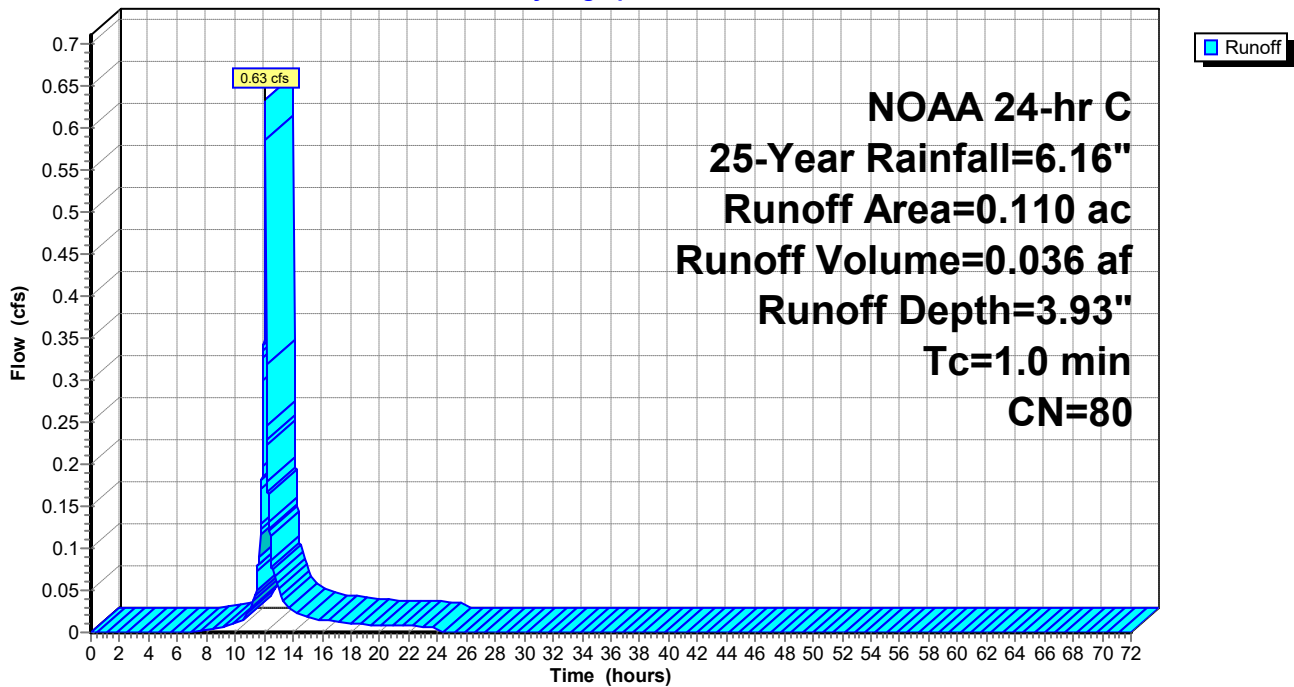
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.110	80	>75% Grass cover, Good, HSG D
0.110	80	100.00% Pervious Area

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

Subcatchment 3P: PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 3.32 cfs @ 12.09 hrs, Volume= 0.227 af, Depth= 5.92"

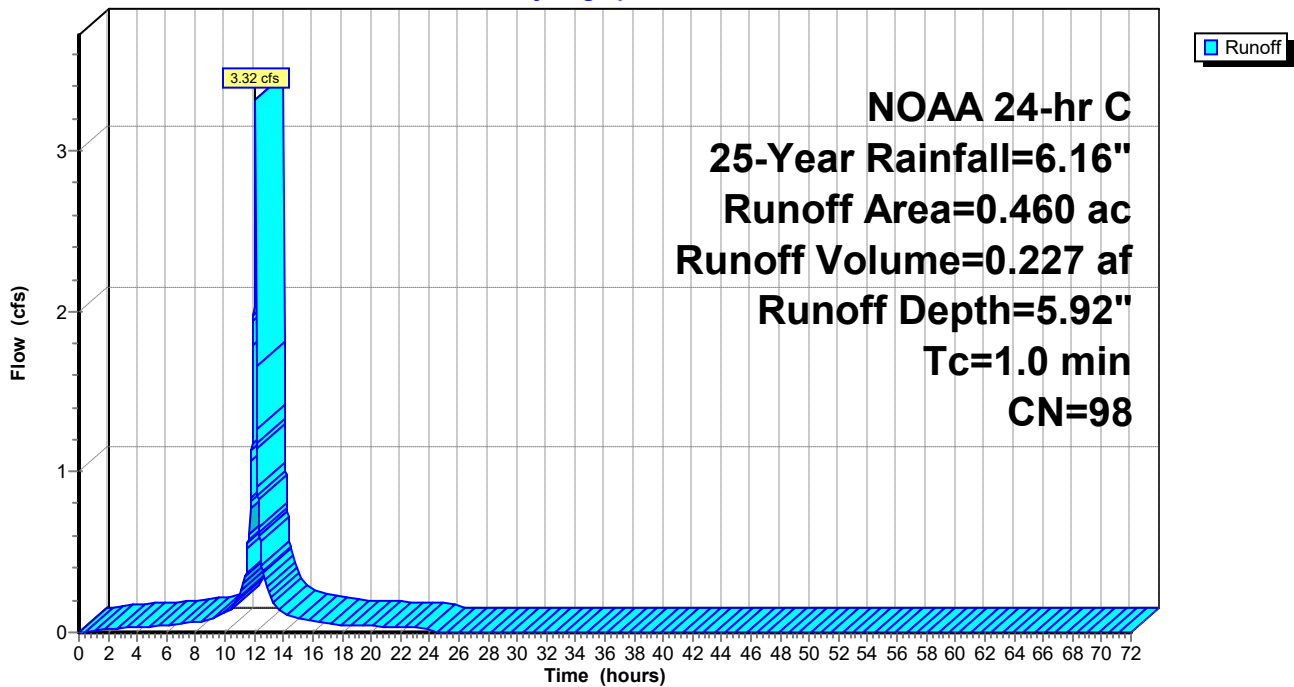
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.460	98	Roofs, HSG D
0.460	98	100.00% Impervious Area

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

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.69 cfs @ 12.10 hrs, Volume= 0.039 af, Depth= 3.93"

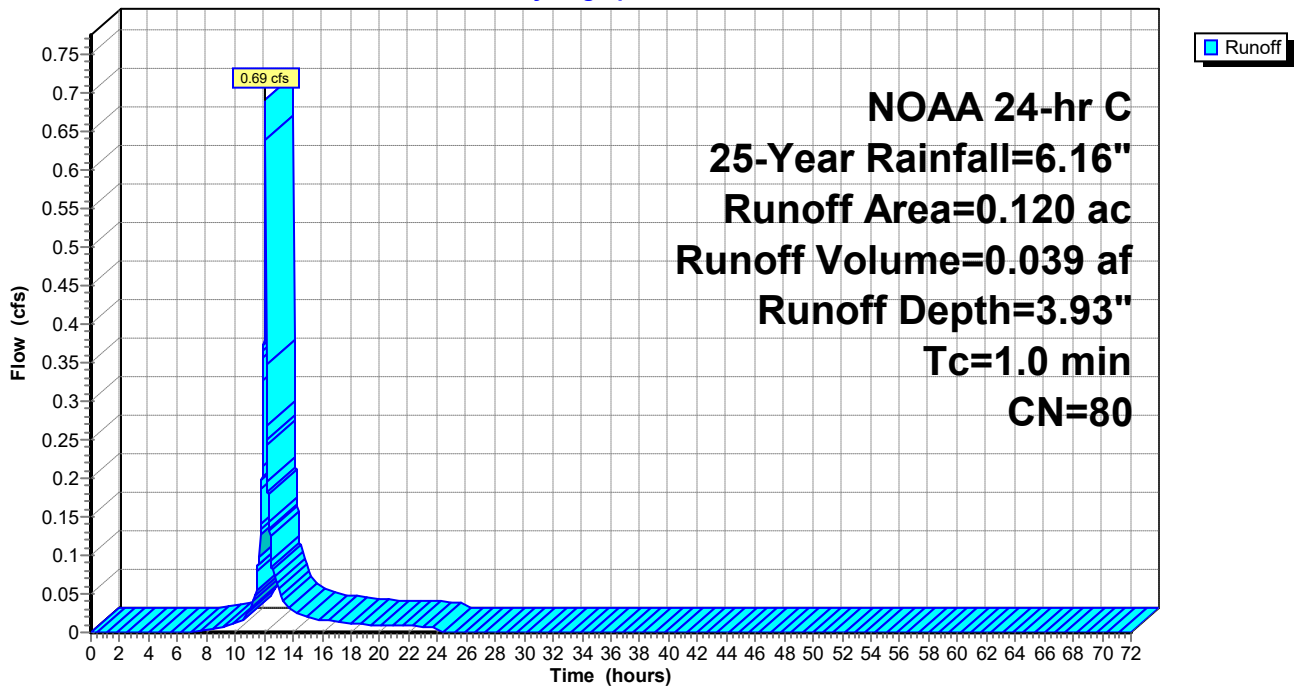
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.120	80	>75% Grass cover, Good, HSG D
0.120	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment OI-1: OFFSITE IMP

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.015 af, Depth= 5.92"

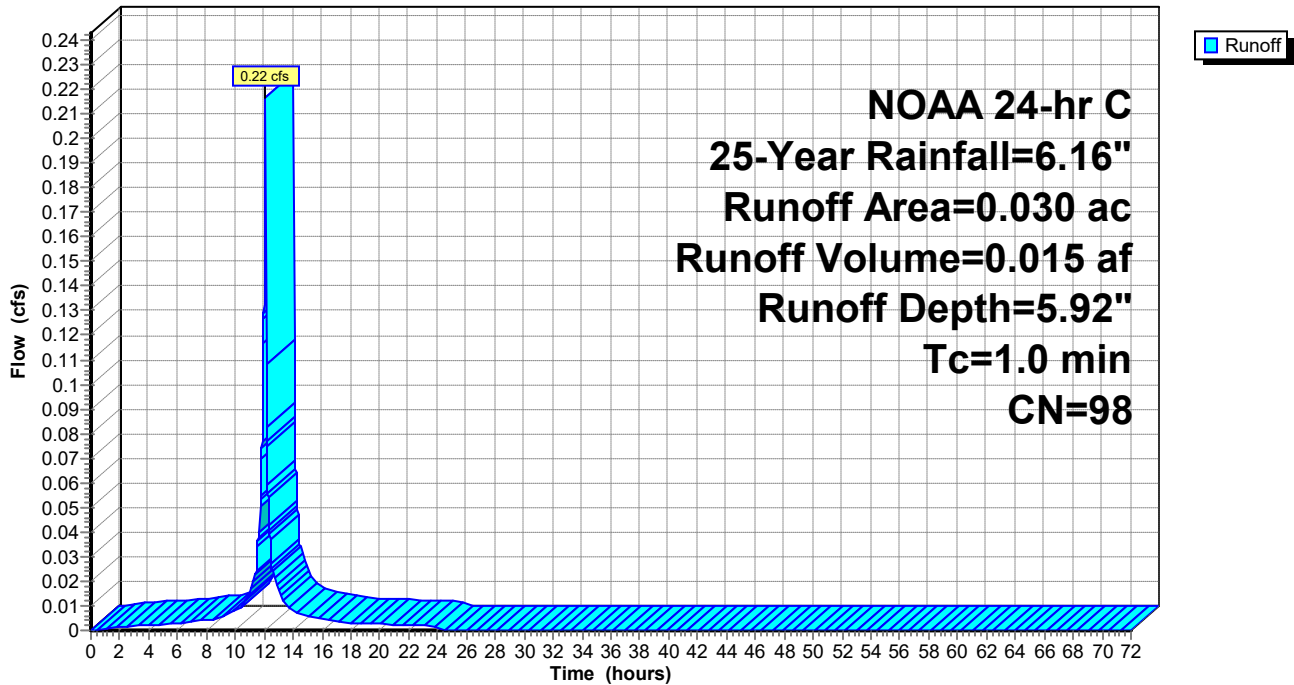
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

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

Subcatchment OI-1: OFFSITE IMP

Hydrograph



Summary for Subcatchment OP-1: OFFSITE PER

Runoff = 0.17 cfs @ 12.10 hrs, Volume= 0.010 af, Depth= 3.93"

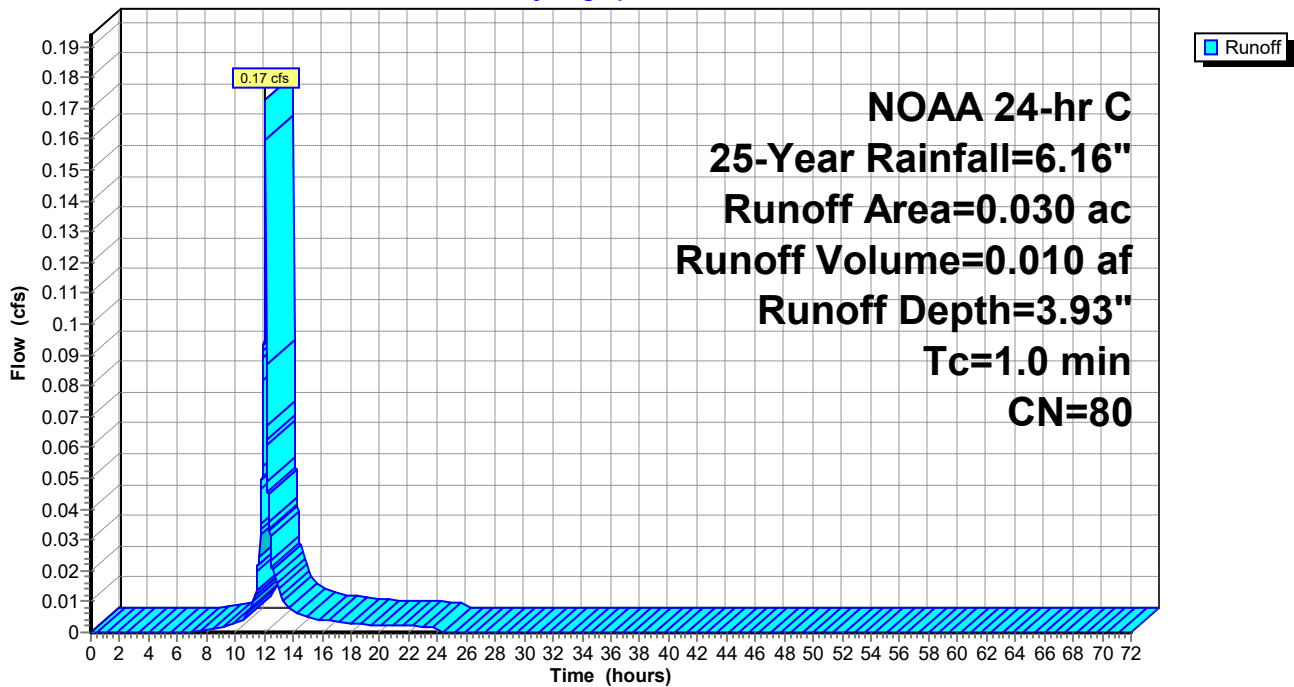
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment OP-1: OFFSITE PER

Hydrograph



Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 3.93" for 25-Year event
 Inflow = 0.98 cfs @ 12.09 hrs, Volume= 0.056 af
 Outflow = 0.15 cfs @ 12.50 hrs, Volume= 0.046 af, Atten= 85%, Lag= 24.8 min
 Primary = 0.15 cfs @ 12.50 hrs, Volume= 0.046 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.10' @ 12.50 hrs Surf.Area= 2,199 sf Storage= 1,191 cf

Plug-Flow detention time= 204.8 min calculated for 0.046 af (82% of inflow)
 Center-of-Mass det. time= 130.5 min (941.3 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	1,766	0	0
72.50	2,487	2,127	2,127
73.50	3,432	2,960	5,086
74.00	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Primary	71.73'	24.0" Round Culvert L= 69.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.73' / 70.52' S= 0.0175' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.50'	2.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	72.00'	6.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#4	Device 1	74.00'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	73.50'	25.0' 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

Primary OutFlow Max=0.15 cfs @ 12.50 hrs HW=72.10' (Free Discharge)

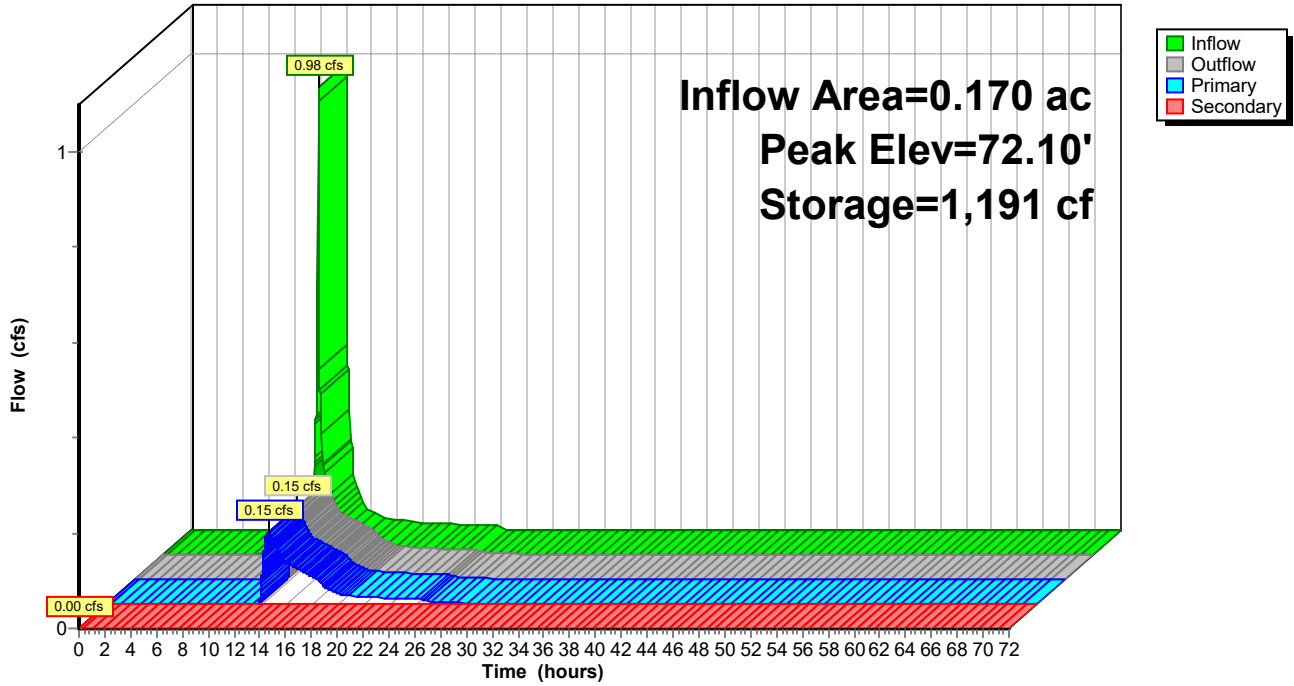
- ↑ 1=Culvert (Passes 0.15 cfs of 0.83 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 0.10 cfs @ 2.93 fps)
- ↑ 3=Orifice/Grate (Orifice Controls 0.05 cfs @ 1.02 fps)
- ↑ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	71.50	0.00	0.00	0.00
2.00	0.00	0	71.50	0.00	0.00	0.00
4.00	0.00	0	71.50	0.00	0.00	0.00
6.00	0.00	0	71.50	0.00	0.00	0.00
8.00	0.00	13	71.51	0.00	0.00	0.00
10.00	0.02	76	71.54	0.00	0.00	0.00
12.00	0.59	713	71.87	0.06	0.06	0.00
14.00	0.04	953	71.99	0.08	0.08	0.00
16.00	0.02	656	71.85	0.06	0.06	0.00
18.00	0.02	535	71.79	0.02	0.02	0.00
20.00	0.01	517	71.78	0.01	0.01	0.00
22.00	0.01	511	71.77	0.01	0.01	0.00
24.00	0.01	504	71.77	0.01	0.01	0.00
26.00	0.00	464	71.75	0.00	0.00	0.00
28.00	0.00	450	71.74	0.00	0.00	0.00
30.00	0.00	441	71.74	0.00	0.00	0.00
32.00	0.00	435	71.74	0.00	0.00	0.00
34.00	0.00	432	71.73	0.00	0.00	0.00
36.00	0.00	429	71.73	0.00	0.00	0.00
38.00	0.00	428	71.73	0.00	0.00	0.00
40.00	0.00	427	71.73	0.00	0.00	0.00
42.00	0.00	426	71.73	0.00	0.00	0.00
44.00	0.00	426	71.73	0.00	0.00	0.00
46.00	0.00	426	71.73	0.00	0.00	0.00
48.00	0.00	426	71.73	0.00	0.00	0.00
50.00	0.00	425	71.73	0.00	0.00	0.00
52.00	0.00	425	71.73	0.00	0.00	0.00
54.00	0.00	425	71.73	0.00	0.00	0.00
56.00	0.00	425	71.73	0.00	0.00	0.00
58.00	0.00	425	71.73	0.00	0.00	0.00
60.00	0.00	425	71.73	0.00	0.00	0.00
62.00	0.00	425	71.73	0.00	0.00	0.00
64.00	0.00	425	71.73	0.00	0.00	0.00
66.00	0.00	425	71.73	0.00	0.00	0.00
68.00	0.00	425	71.73	0.00	0.00	0.00
70.00	0.00	425	71.73	0.00	0.00	0.00
72.00	0.00	425	71.73	0.00	0.00	0.00

Summary for Pond P1: Porous Pavement 1

Inflow Area = 0.340 ac, 85.29% Impervious, Inflow Depth = 5.63" for 25-Year event
 Inflow = 2.38 cfs @ 12.09 hrs, Volume= 0.159 af
 Outflow = 0.70 cfs @ 12.21 hrs, Volume= 0.148 af, Atten= 70%, Lag= 7.5 min
 Primary = 0.70 cfs @ 12.21 hrs, Volume= 0.148 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.35' @ 12.21 hrs Surf.Area= 5,670 sf Storage= 2,592 cf

Plug-Flow detention time= 157.8 min calculated for 0.148 af (93% of inflow)
 Center-of-Mass det. time= 117.7 min (865.7 - 748.0)

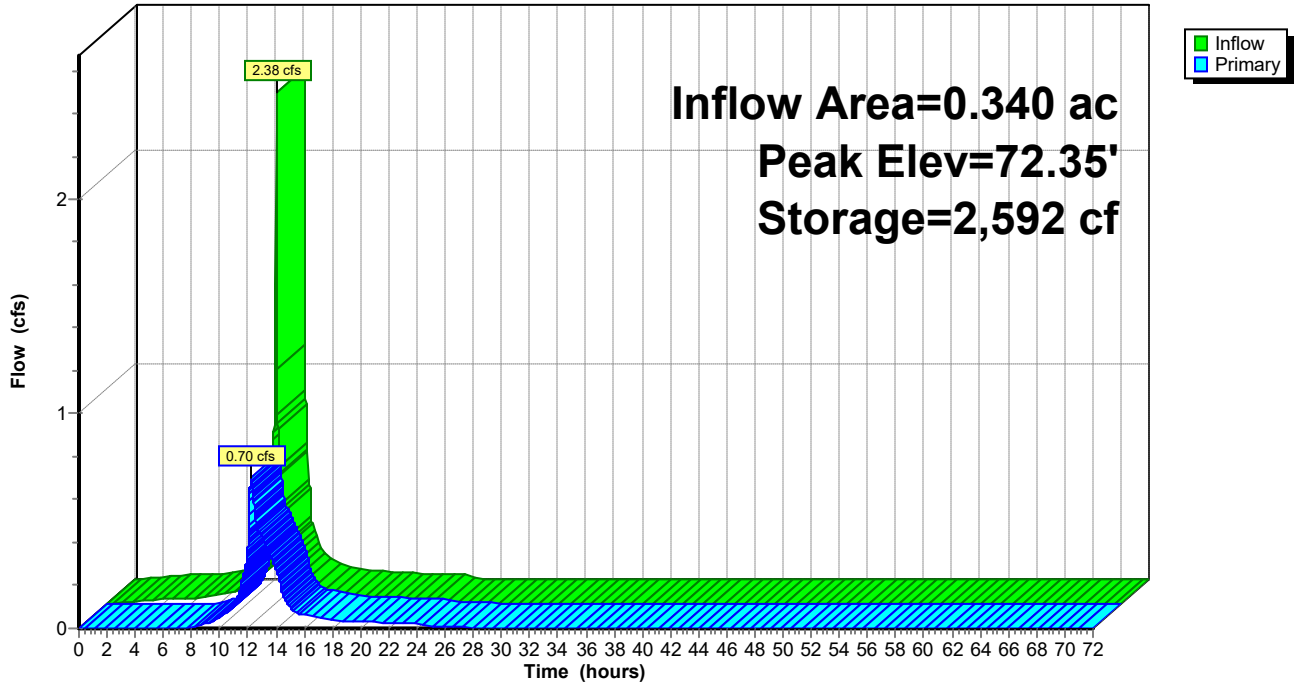
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	4,670 cf	18.00'W x 315.00'L x 2.50'H Prismatic 14,175 cf Overall - 25 cf Embedded = 14,150 cf x 33.0% Voids
#2	71.22'	15 cf	3.0" Round Pipe Storage Inside #1 L= 315.0' 25 cf Overall - 0.4" Wall Thickness = 15 cf
		4,685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 3.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.70 cfs @ 12.21 hrs HW=72.35' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.70 cfs of 2.70 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.50 cfs @ 4.88 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 0.20 cfs @ 1.16 fps)

Pond P1: Porous Pavement 1

Hydrograph



Hydrograph for Pond P1: Porous Pavement 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.01	33	70.99	0.00
4.00	0.02	153	71.05	0.00
6.00	0.03	322	71.14	0.00
8.00	0.04	567	71.27	0.00
10.00	0.08	805	71.40	0.05
12.00	1.42	1,796	71.93	0.38
14.00	0.09	1,231	71.62	0.27
16.00	0.05	826	71.41	0.06
18.00	0.03	768	71.38	0.04
20.00	0.03	740	71.36	0.03
22.00	0.03	723	71.35	0.03
24.00	0.03	709	71.35	0.02
26.00	0.00	615	71.30	0.01
28.00	0.00	579	71.28	0.00
30.00	0.00	559	71.27	0.00
32.00	0.00	546	71.26	0.00
34.00	0.00	536	71.26	0.00
36.00	0.00	528	71.25	0.00
38.00	0.00	522	71.25	0.00
40.00	0.00	518	71.25	0.00
42.00	0.00	515	71.25	0.00
44.00	0.00	512	71.24	0.00
46.00	0.00	510	71.24	0.00
48.00	0.00	508	71.24	0.00
50.00	0.00	505	71.24	0.00
52.00	0.00	503	71.24	0.00
54.00	0.00	501	71.24	0.00
56.00	0.00	500	71.24	0.00
58.00	0.00	498	71.24	0.00
60.00	0.00	496	71.24	0.00
62.00	0.00	495	71.23	0.00
64.00	0.00	493	71.23	0.00
66.00	0.00	492	71.23	0.00
68.00	0.00	490	71.23	0.00
70.00	0.00	489	71.23	0.00
72.00	0.00	488	71.23	0.00

Summary for Pond P2: Porous Pavement 2

Inflow Area = 0.170 ac, 82.35% Impervious, Inflow Depth = 5.57" for 25-Year event
 Inflow = 1.18 cfs @ 12.09 hrs, Volume= 0.079 af
 Outflow = 0.63 cfs @ 12.12 hrs, Volume= 0.076 af, Atten= 46%, Lag= 2.0 min
 Primary = 0.63 cfs @ 12.12 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 73.03' @ 12.12 hrs Surf.Area= 1,782 sf Storage= 889 cf

Plug-Flow detention time= 90.0 min calculated for 0.076 af (96% of inflow)
 Center-of-Mass det. time= 63.6 min (813.4 - 749.8)

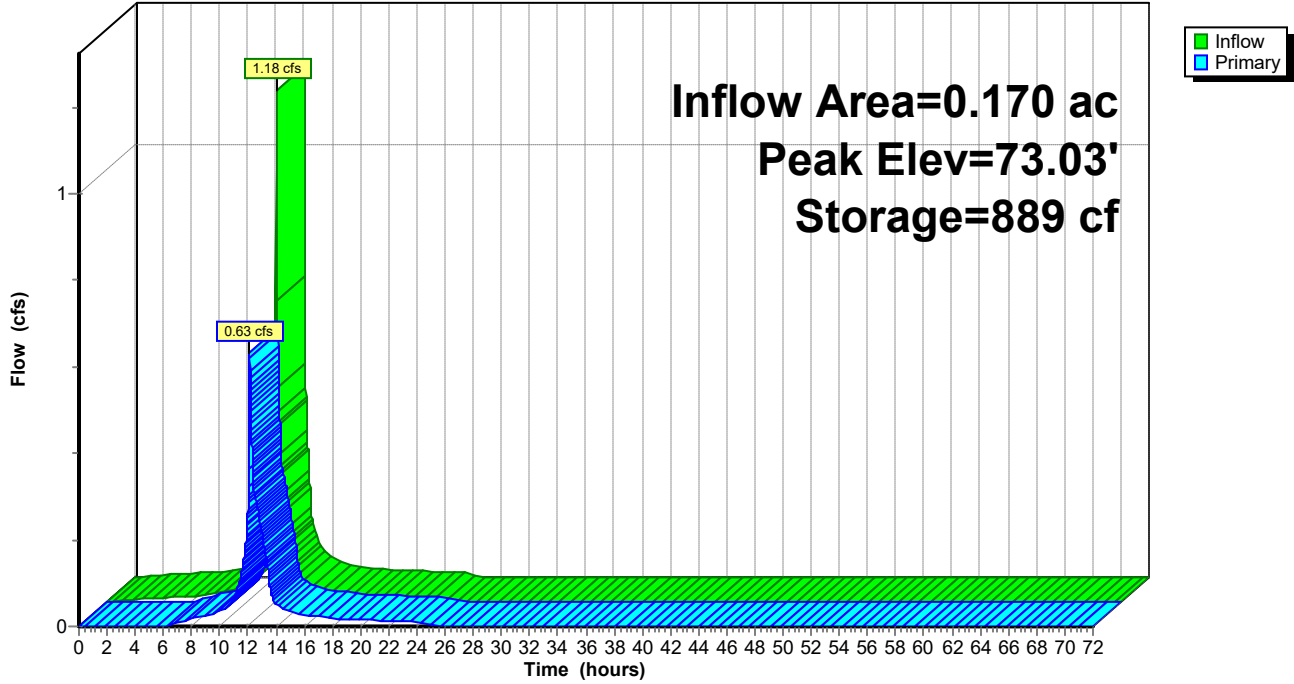
Volume	Invert	Avail.Storage	Storage Description
#1	71.52'	1,321 cf	18.00'W x 99.00'L x 2.25'H Prismatic 4,010 cf Overall - 8 cf Embedded = 4,002 cf x 33.0% Voids
#2	71.77'	5 cf	3.0" Round Pipe Storage Inside #1 L= 99.0' 8 cf Overall - 0.4" Wall Thickness = 5 cf
		1,325 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.77'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.77' / 71.77' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.77'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	72.77'	8.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.63 cfs @ 12.12 hrs HW=73.03' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.63 cfs of 3.19 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.35 cfs @ 5.17 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 0.28 cfs @ 1.62 fps)

Pond P2: Porous Pavement 2

Hydrograph



Hydrograph for Pond P2: Porous Pavement 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	71.52	0.00
2.00	0.01	16	71.55	0.00
4.00	0.01	74	71.65	0.00
6.00	0.01	155	71.78	0.00
8.00	0.02	214	71.88	0.02
10.00	0.04	236	71.92	0.04
12.00	0.70	590	72.52	0.26
14.00	0.05	253	71.95	0.05
16.00	0.03	226	71.90	0.03
18.00	0.02	215	71.88	0.02
20.00	0.01	210	71.88	0.02
22.00	0.01	206	71.87	0.01
24.00	0.01	203	71.86	0.01
26.00	0.00	173	71.81	0.00
28.00	0.00	165	71.80	0.00
30.00	0.00	161	71.79	0.00
32.00	0.00	159	71.79	0.00
34.00	0.00	157	71.79	0.00
36.00	0.00	156	71.79	0.00
38.00	0.00	155	71.78	0.00
40.00	0.00	154	71.78	0.00
42.00	0.00	153	71.78	0.00
44.00	0.00	153	71.78	0.00
46.00	0.00	152	71.78	0.00
48.00	0.00	151	71.78	0.00
50.00	0.00	151	71.78	0.00
52.00	0.00	150	71.78	0.00
54.00	0.00	150	71.78	0.00
56.00	0.00	150	71.77	0.00
58.00	0.00	149	71.77	0.00
60.00	0.00	149	71.77	0.00
62.00	0.00	149	71.77	0.00
64.00	0.00	149	71.77	0.00
66.00	0.00	148	71.77	0.00
68.00	0.00	148	71.77	0.00
70.00	0.00	148	71.77	0.00
72.00	0.00	148	71.77	0.00

Summary for Pond P3: Porous Pavement 3

Inflow Area = 0.400 ac, 72.50% Impervious, Inflow Depth = 5.37" for 25-Year event
 Inflow = 2.73 cfs @ 12.09 hrs, Volume= 0.179 af
 Outflow = 0.81 cfs @ 12.22 hrs, Volume= 0.167 af, Atten= 70%, Lag= 7.5 min
 Primary = 0.81 cfs @ 12.22 hrs, Volume= 0.167 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.33' @ 12.22 hrs Surf.Area= 6,318 sf Storage= 2,842 cf

Plug-Flow detention time= 153.8 min calculated for 0.167 af (93% of inflow)
 Center-of-Mass det. time= 114.0 min (869.0 - 755.0)

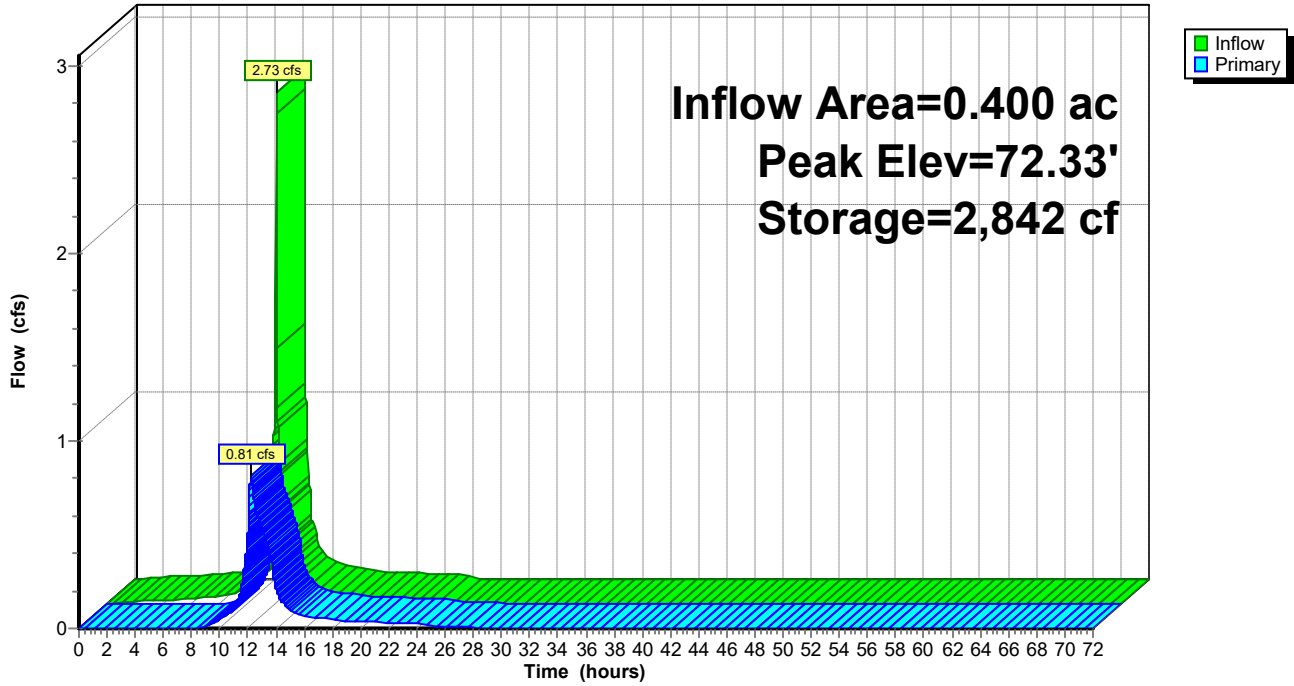
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	5,203 cf	18.00'W x 351.00'L x 2.50'H Prismatic 15,795 cf Overall - 28 cf Embedded = 15,767 cf x 33.0% Voids
#2	71.22'	17 cf	3.0" Round Pipe Storage Inside #1 L= 351.0' 28 cf Overall - 0.4" Wall Thickness = 17 cf
		5,220 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.81 cfs @ 12.22 hrs HW=72.33' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.81 cfs of 2.61 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.66 cfs @ 4.83 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 0.15 cfs @ 1.06 fps)

Pond P3: Porous Pavement 3

Hydrograph



Hydrograph for Pond P3: Porous Pavement 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.01	33	70.99	0.00
4.00	0.02	153	71.04	0.00
6.00	0.03	322	71.12	0.00
8.00	0.04	573	71.25	0.00
10.00	0.09	881	71.39	0.05
12.00	1.61	1,960	71.91	0.50
14.00	0.11	1,196	71.54	0.21
16.00	0.06	942	71.42	0.07
18.00	0.04	878	71.39	0.05
20.00	0.03	844	71.37	0.04
22.00	0.03	824	71.36	0.03
24.00	0.03	806	71.35	0.03
26.00	0.00	697	71.30	0.01
28.00	0.00	654	71.28	0.00
30.00	0.00	630	71.27	0.00
32.00	0.00	615	71.26	0.00
34.00	0.00	603	71.26	0.00
36.00	0.00	594	71.25	0.00
38.00	0.00	587	71.25	0.00
40.00	0.00	582	71.25	0.00
42.00	0.00	577	71.25	0.00
44.00	0.00	574	71.25	0.00
46.00	0.00	572	71.24	0.00
48.00	0.00	569	71.24	0.00
50.00	0.00	567	71.24	0.00
52.00	0.00	564	71.24	0.00
54.00	0.00	562	71.24	0.00
56.00	0.00	560	71.24	0.00
58.00	0.00	558	71.24	0.00
60.00	0.00	557	71.24	0.00
62.00	0.00	555	71.24	0.00
64.00	0.00	553	71.24	0.00
66.00	0.00	552	71.23	0.00
68.00	0.00	550	71.23	0.00
70.00	0.00	549	71.23	0.00
72.00	0.00	547	71.23	0.00

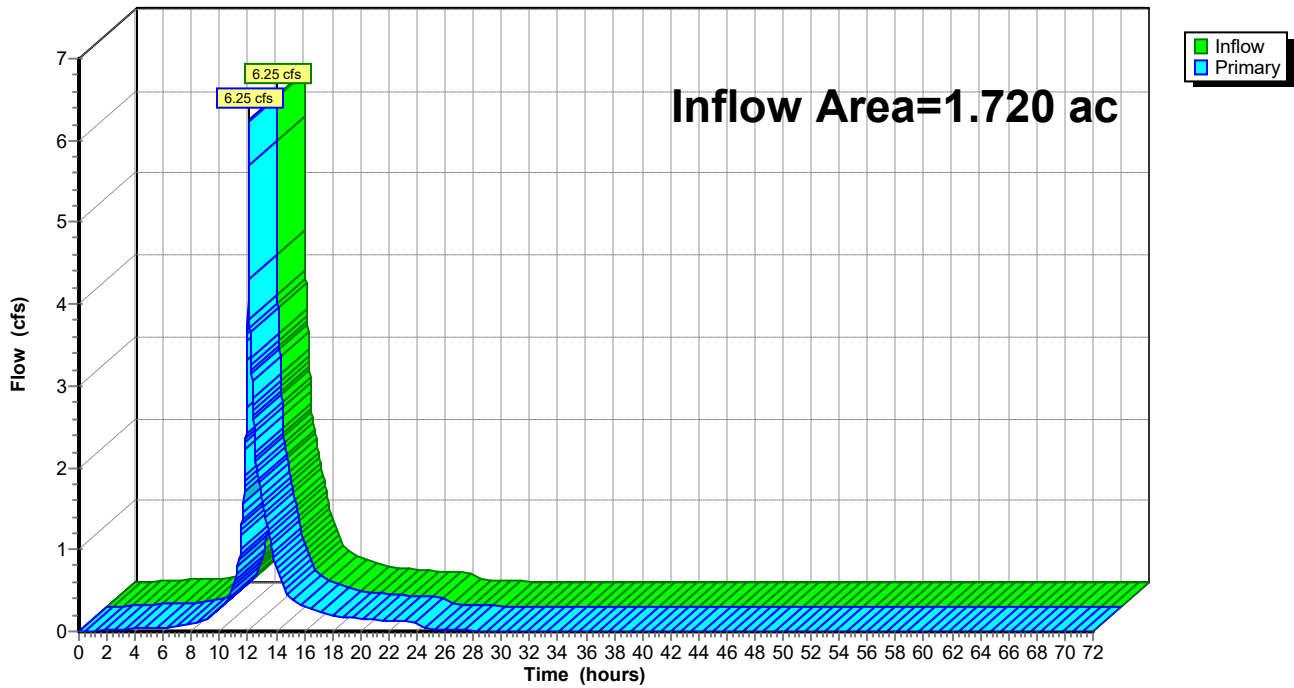
Summary for Pond POI 1: PRE - POI #1 (SW Basin)

Inflow Area = 1.720 ac, 70.35% Impervious, Inflow Depth = 5.07" for 25-Year event
Inflow = 6.25 cfs @ 12.10 hrs, Volume= 0.727 af
Primary = 6.25 cfs @ 12.10 hrs, Volume= 0.727 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond POI 1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.04		0.04	57.00	0.00		0.00
6.00	0.04		0.04	58.00	0.00		0.00
7.00	0.07		0.07	59.00	0.00		0.00
8.00	0.09		0.09	60.00	0.00		0.00
9.00	0.15		0.15	61.00	0.00		0.00
10.00	0.28		0.28	62.00	0.00		0.00
11.00	0.56		0.56	63.00	0.00		0.00
12.00	3.81		3.81	64.00	0.00		0.00
13.00	1.64		1.64	65.00	0.00		0.00
14.00	0.79		0.79	66.00	0.00		0.00
15.00	0.41		0.41	67.00	0.00		0.00
16.00	0.31		0.31	68.00	0.00		0.00
17.00	0.24		0.24	69.00	0.00		0.00
18.00	0.19		0.19	70.00	0.00		0.00
19.00	0.17		0.17	71.00	0.00		0.00
20.00	0.15		0.15	72.00	0.00		0.00
21.00	0.14		0.14				
22.00	0.13		0.13				
23.00	0.12		0.12				
24.00	0.12		0.12				
25.00	0.03		0.03				
26.00	0.02		0.02				
27.00	0.01		0.01				
28.00	0.01		0.01				
29.00	0.01		0.01				
30.00	0.01		0.01				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1I: IMPERVIOUS

Runoff = 2.81 cfs @ 12.09 hrs, Volume= 0.194 af, Depth= 8.02"

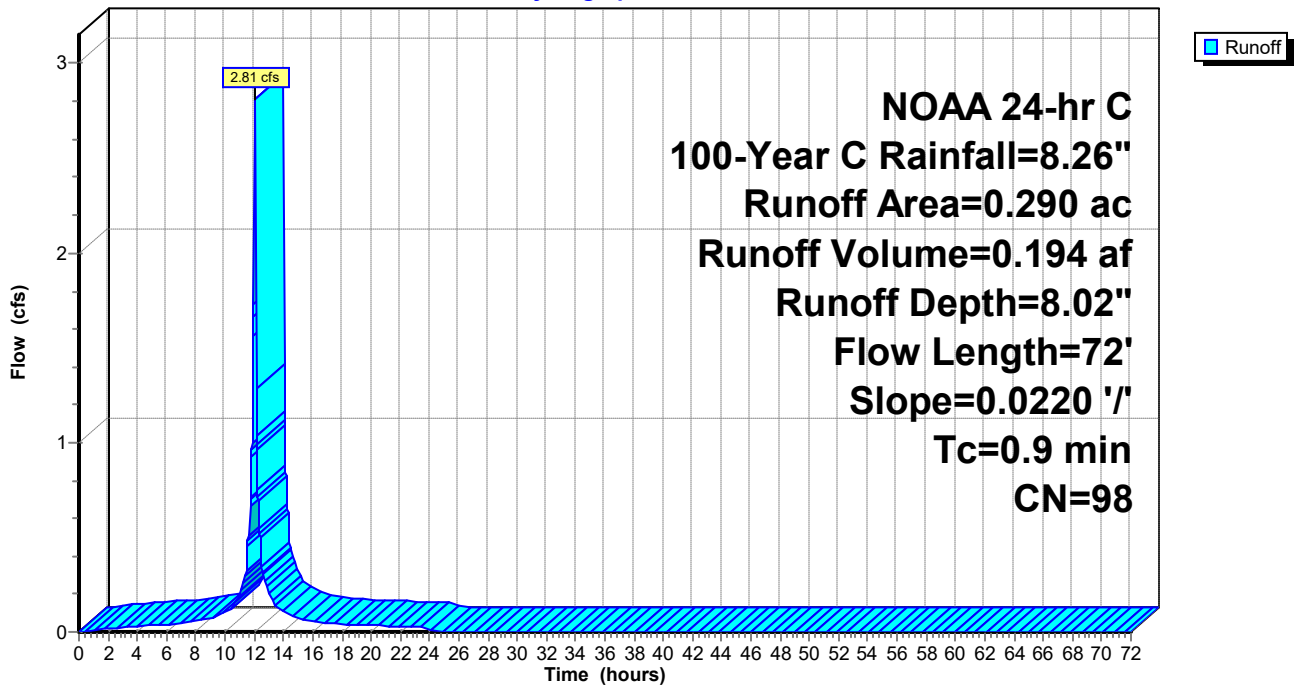
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	72	0.0220	1.38		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 1I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 1P: PERVIOUS

Runoff = 0.42 cfs @ 12.10 hrs, Volume= 0.024 af, Depth= 5.87"

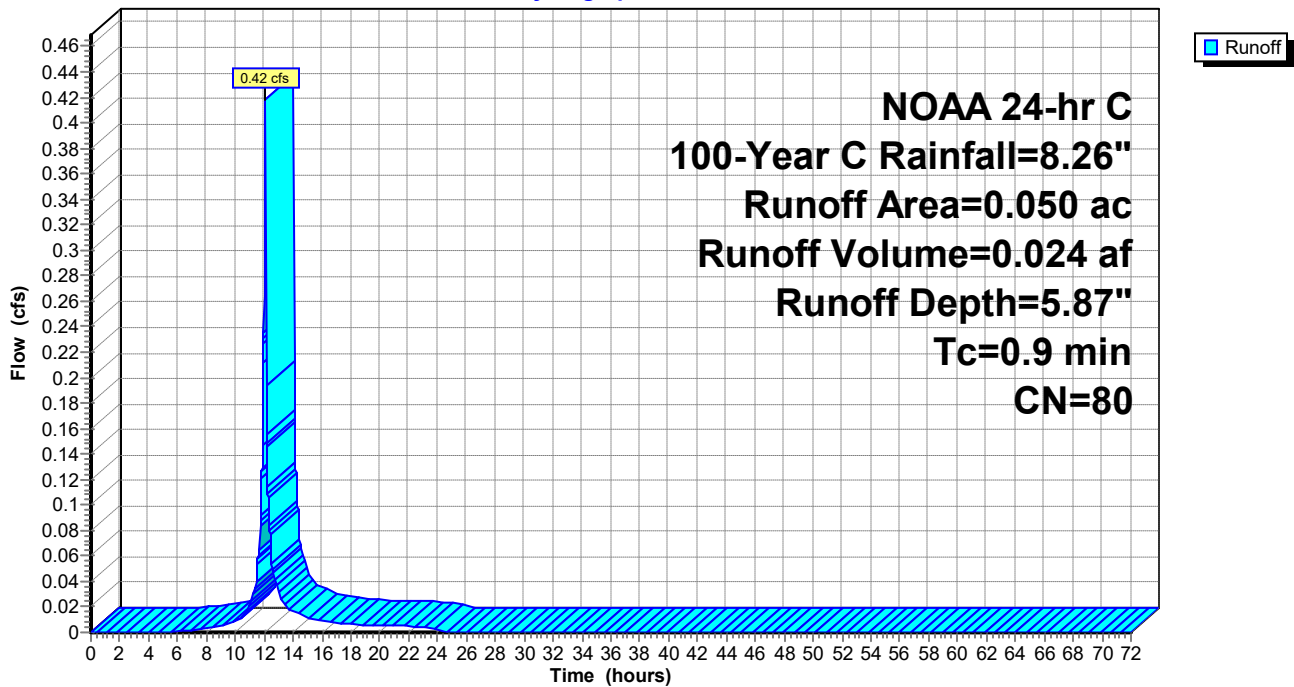
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.050	80	>75% Grass cover, Good, HSG D
0.050	80	100.00% Pervious Area

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

Subcatchment 1P: PERVIOUS

Hydrograph



Summary for Subcatchment 1S: PERVIOUS

Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.083 af, Depth= 5.87"

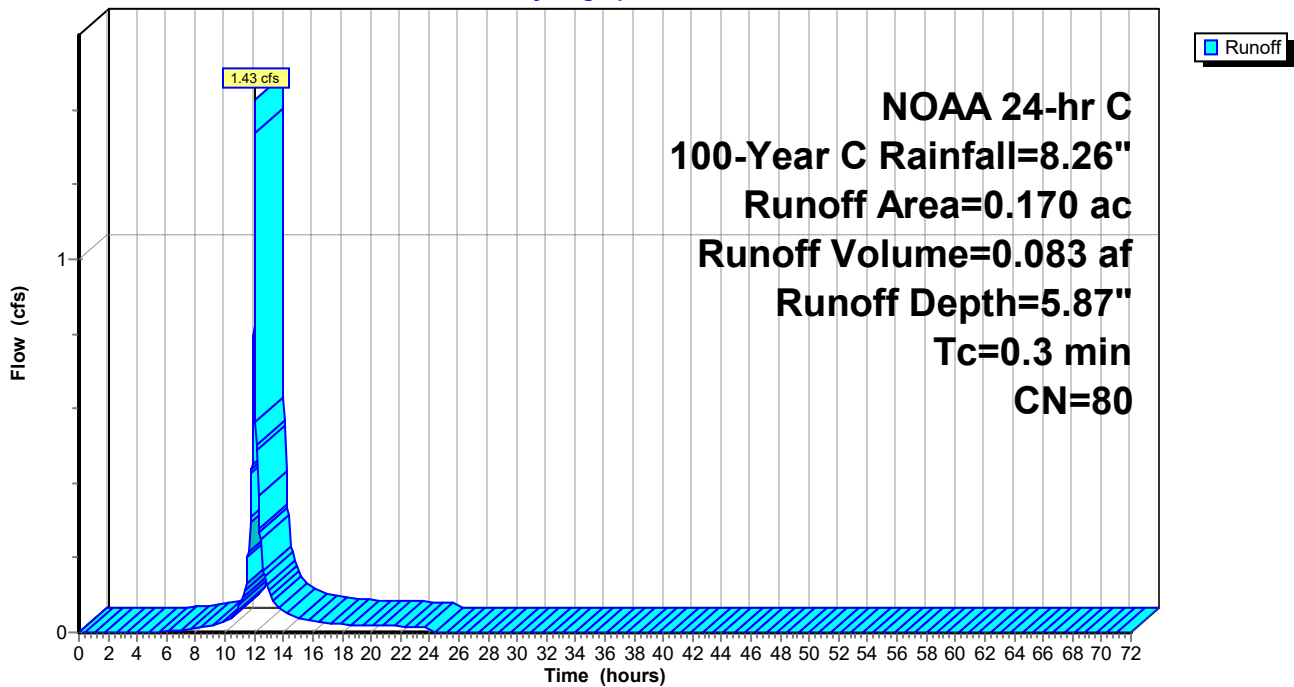
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.170	80	>75% Grass cover, Good, HSG D
0.170	80	100.00% Pervious Area

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

Subcatchment 1S: PERVIOUS

Hydrograph



Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.094 af, Depth= 8.02"

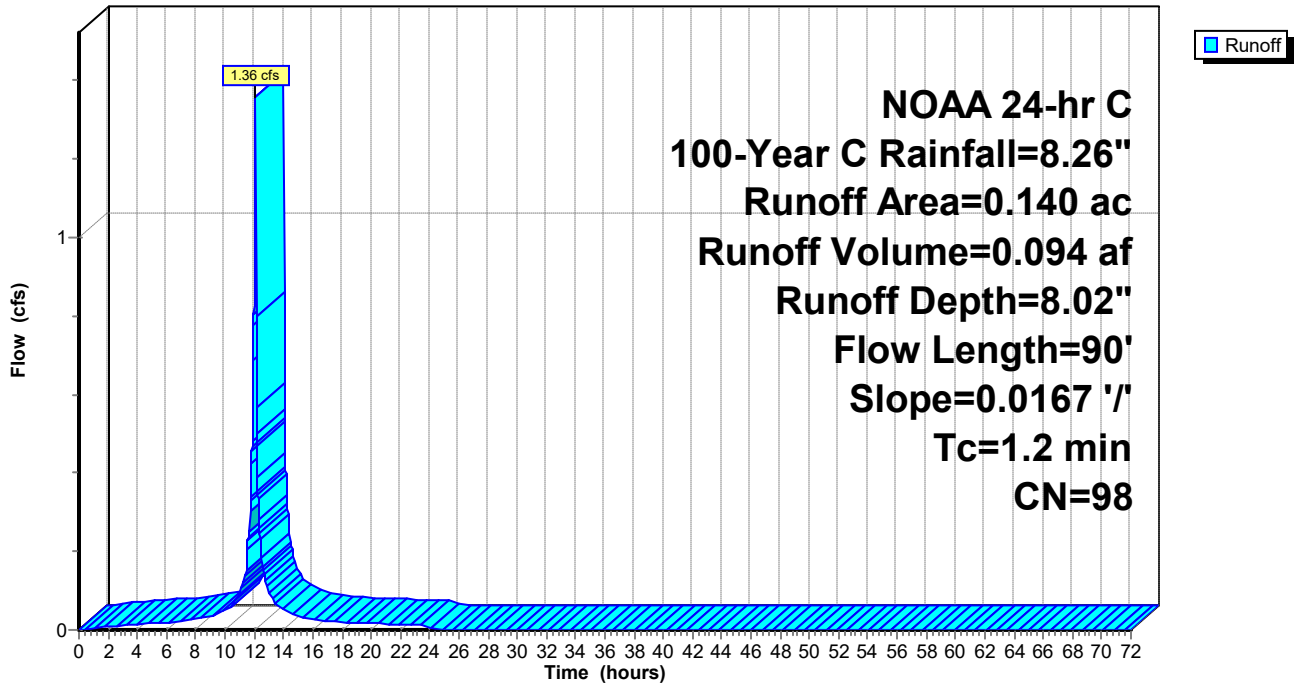
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG D
0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 0.015 af, Depth= 5.87"

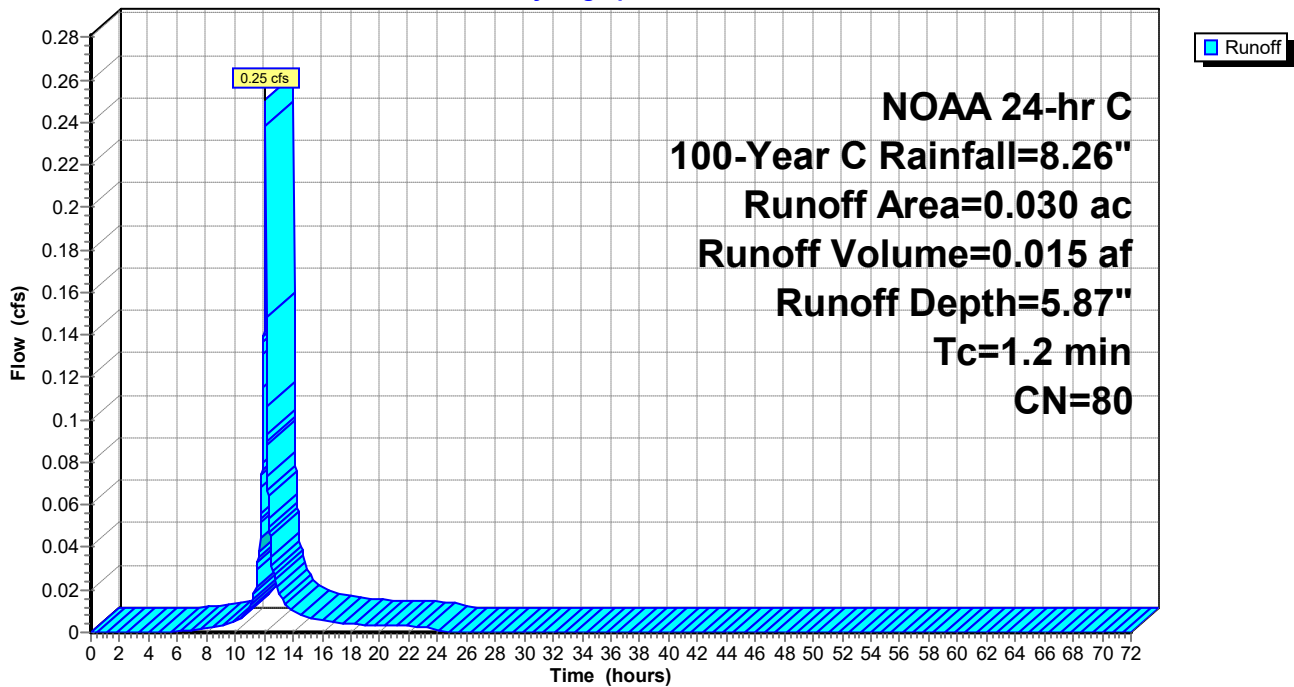
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 3I: IMPERVIOUS

Runoff = 2.81 cfs @ 12.09 hrs, Volume= 0.194 af, Depth= 8.02"

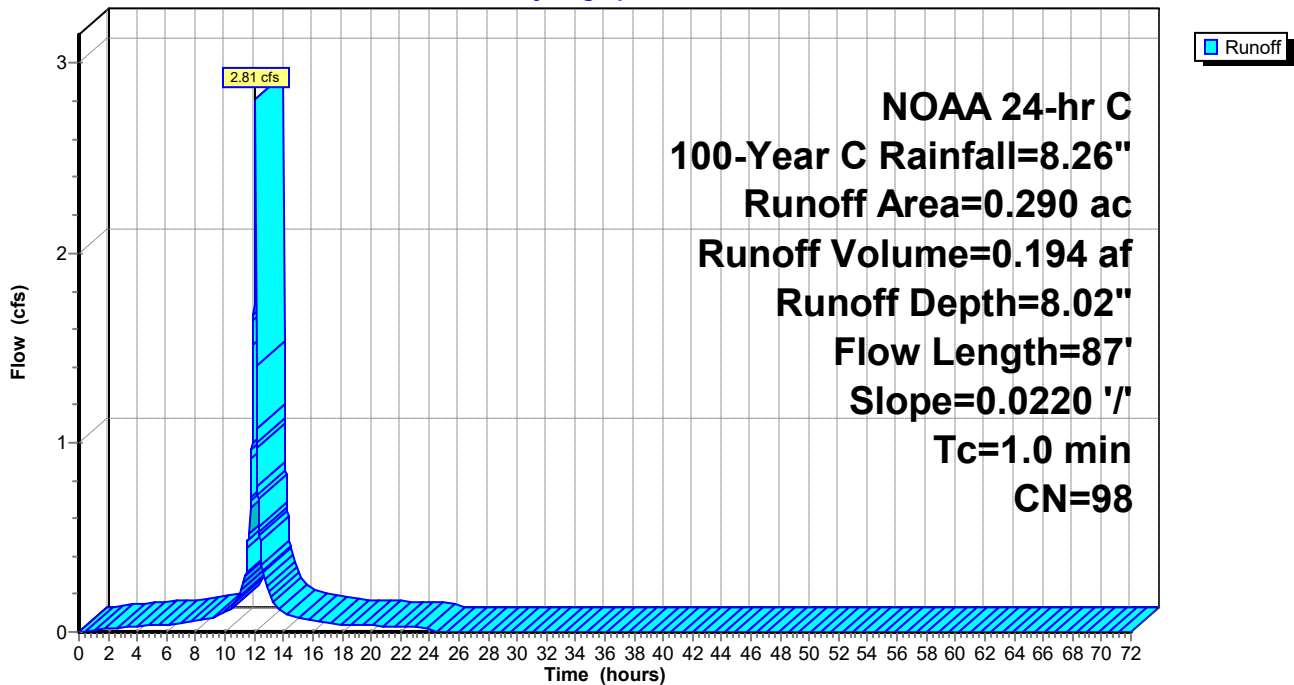
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	87	0.0220	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 3I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 3P: PERVIOUS

Runoff = 0.92 cfs @ 12.10 hrs, Volume= 0.054 af, Depth= 5.87"

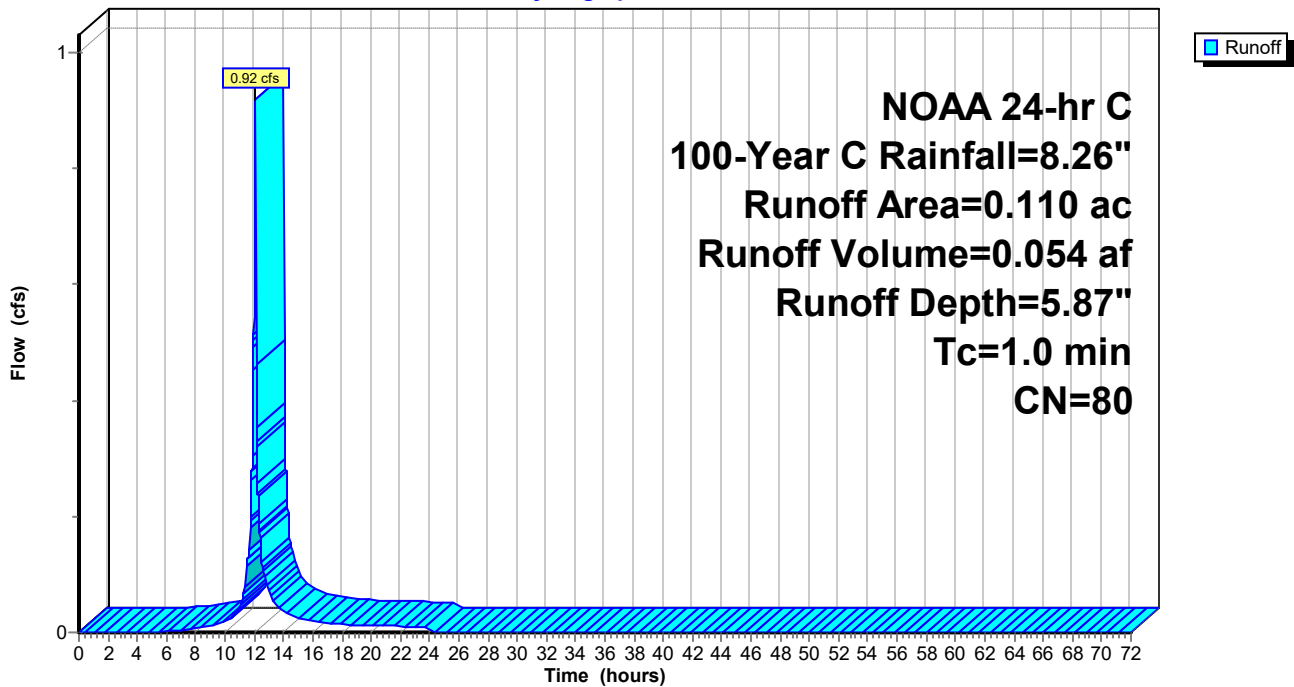
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.110	80	>75% Grass cover, Good, HSG D
0.110	80	100.00% Pervious Area

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

Subcatchment 3P: PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 4.46 cfs @ 12.09 hrs, Volume= 0.307 af, Depth= 8.02"

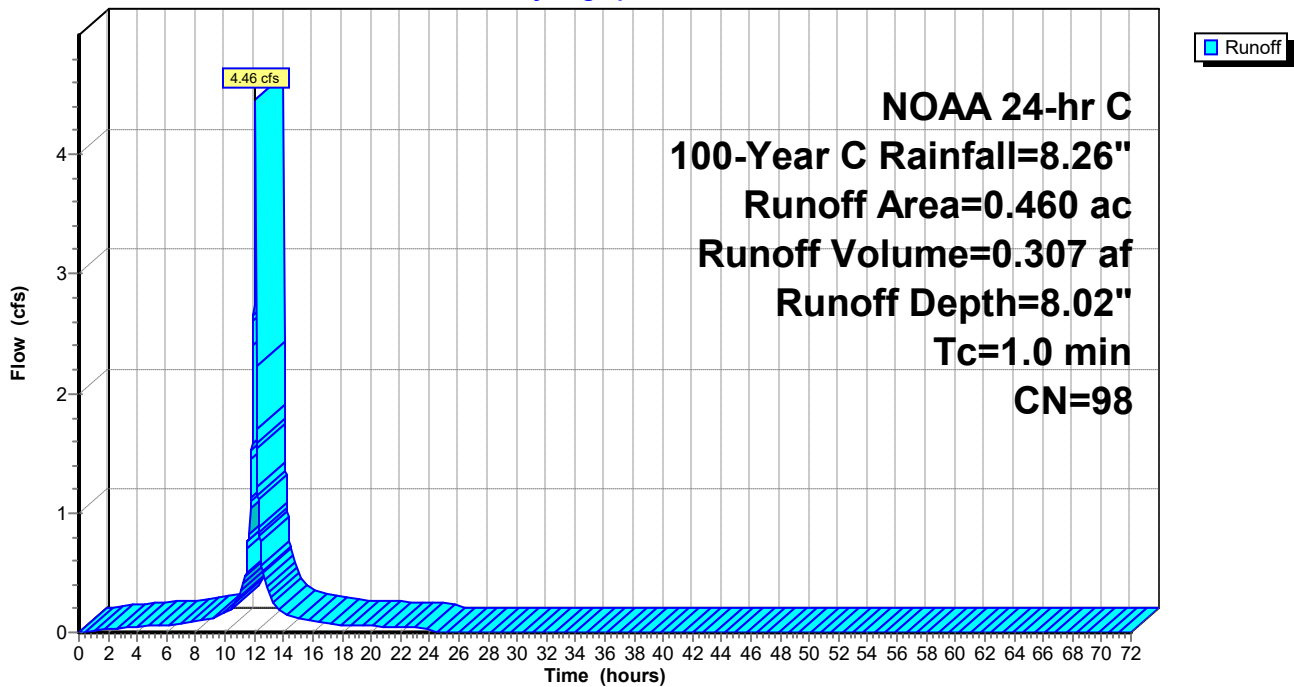
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.460	98	Roofs, HSG D
0.460	98	100.00% Impervious Area

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

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 1.00 cfs @ 12.10 hrs, Volume= 0.059 af, Depth= 5.87"

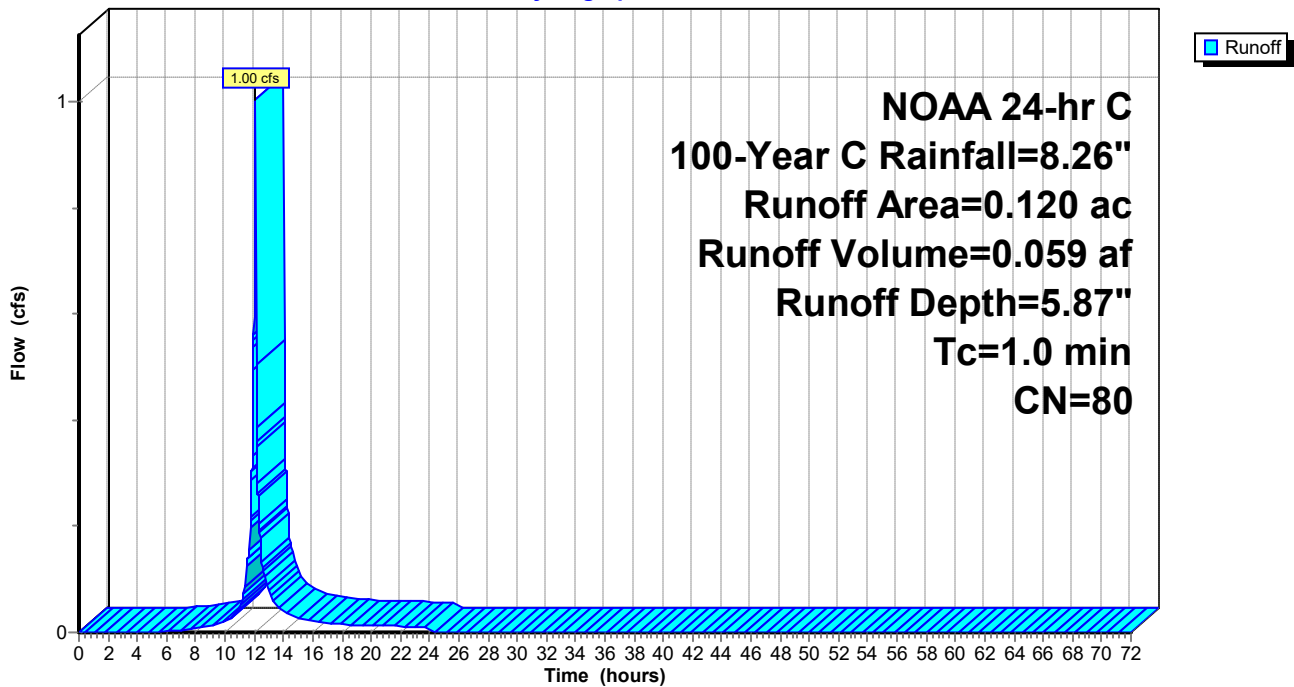
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.120	80	>75% Grass cover, Good, HSG D
0.120	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment OI-1: OFFSITE IMP

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.020 af, Depth= 8.02"

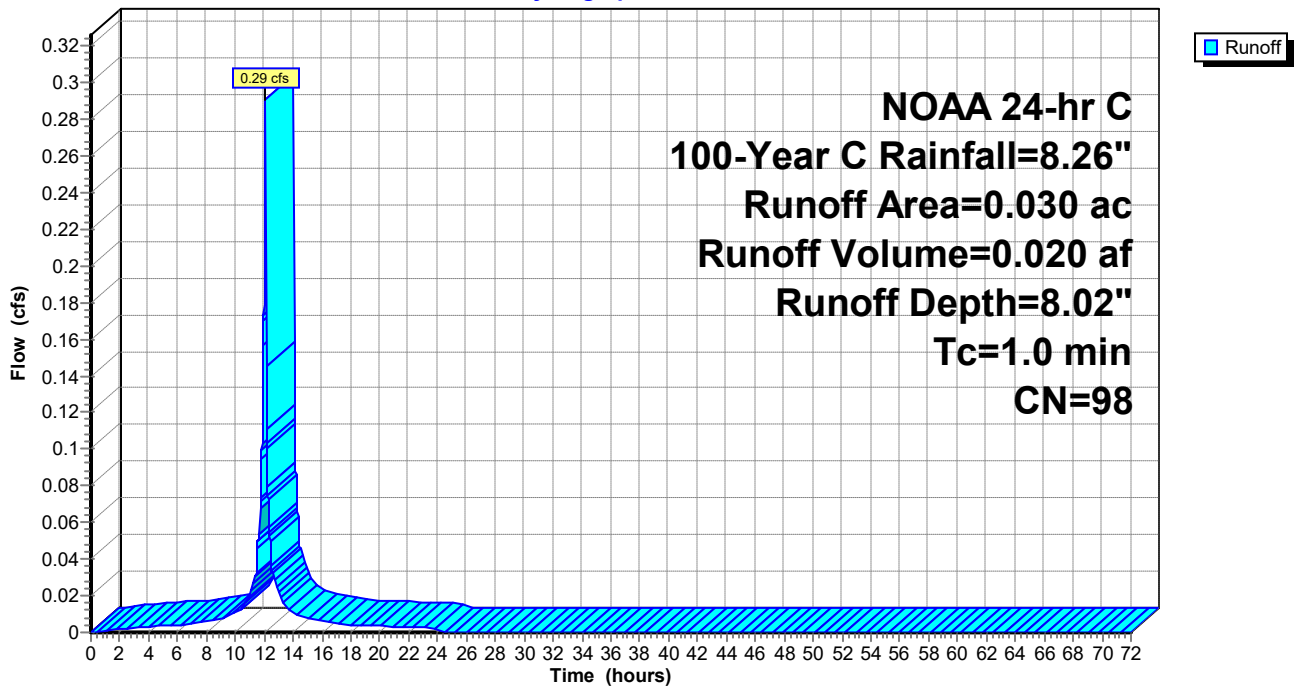
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

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

Subcatchment OI-1: OFFSITE IMP

Hydrograph



Summary for Subcatchment OP-1: OFFSITE PER

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 0.015 af, Depth= 5.87"

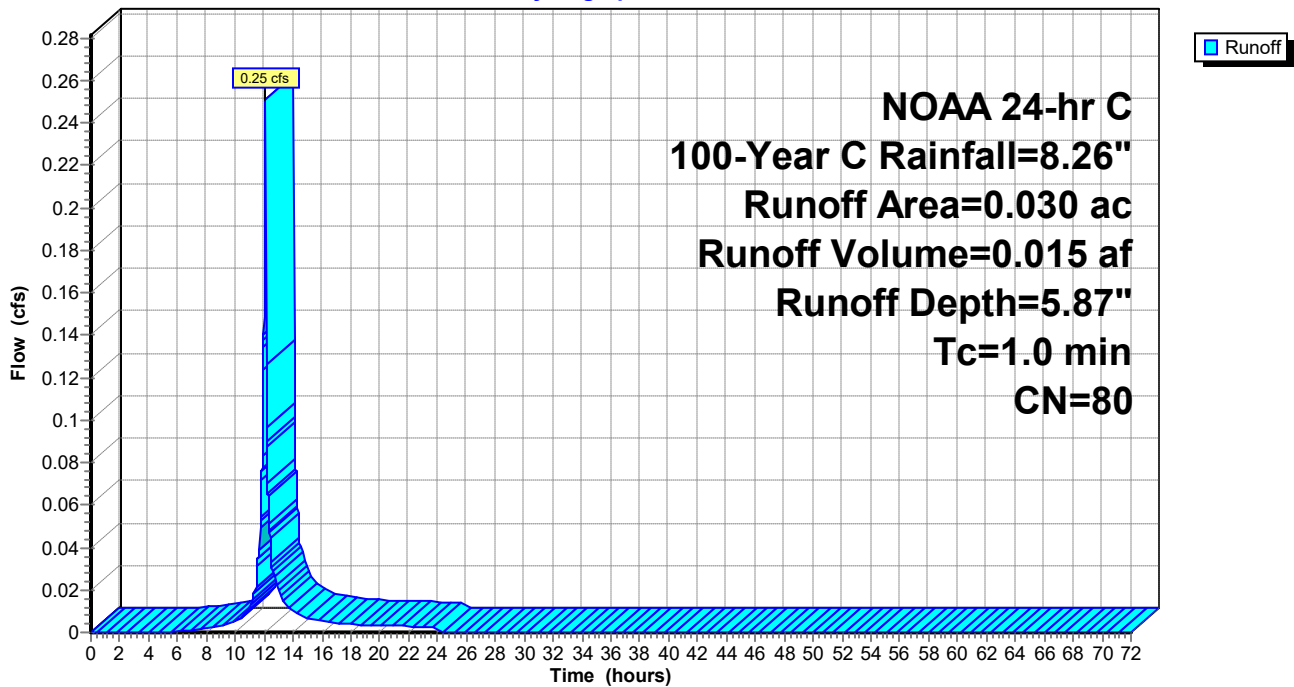
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment OP-1: OFFSITE PER

Hydrograph



Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 5.87" for 100-Year C event
 Inflow = 1.43 cfs @ 12.09 hrs, Volume= 0.083 af
 Outflow = 0.36 cfs @ 12.30 hrs, Volume= 0.073 af, Atten= 75%, Lag= 12.6 min
 Primary = 0.36 cfs @ 12.30 hrs, Volume= 0.073 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.28' @ 12.30 hrs Surf.Area= 2,329 sf Storage= 1,599 cf

Plug-Flow detention time= 166.1 min calculated for 0.073 af (88% of inflow)
 Center-of-Mass det. time= 109.1 min (908.3 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	1,766	0	0
72.50	2,487	2,127	2,127
73.50	3,432	2,960	5,086
74.00	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Primary	71.73'	24.0" Round Culvert L= 69.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.73' / 70.52' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.50'	2.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	72.00'	6.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#4	Device 1	74.00'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	73.50'	25.0' 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

Primary OutFlow Max=0.36 cfs @ 12.30 hrs HW=72.28' (Free Discharge)

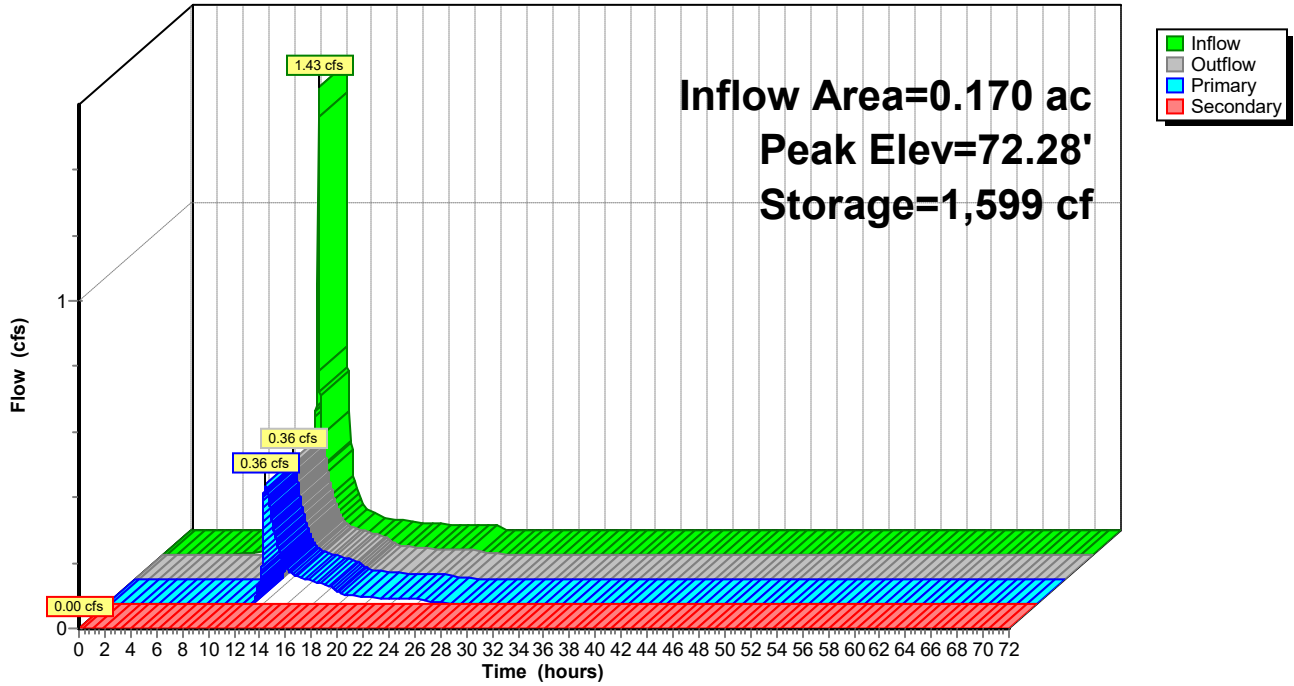
- ↑ **1=Culvert** (Passes 0.36 cfs of 1.78 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 3.57 fps)
- ↑ **3=Orifice/Grate** (Orifice Controls 0.24 cfs @ 1.70 fps)
- ↑ **4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

- ↑ **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	71.50	0.00	0.00	0.00
2.00	0.00	0	71.50	0.00	0.00	0.00
4.00	0.00	0	71.50	0.00	0.00	0.00
6.00	0.00	6	71.50	0.00	0.00	0.00
8.00	0.01	49	71.53	0.00	0.00	0.00
10.00	0.03	178	71.60	0.00	0.00	0.00
12.00	0.87	1,105	72.06	0.12	0.12	0.00
14.00	0.06	1,062	72.04	0.11	0.11	0.00
16.00	0.03	767	71.90	0.07	0.07	0.00
18.00	0.02	571	71.80	0.03	0.03	0.00
20.00	0.02	534	71.79	0.02	0.02	0.00
22.00	0.02	525	71.78	0.02	0.02	0.00
24.00	0.02	518	71.78	0.01	0.01	0.00
26.00	0.00	467	71.75	0.00	0.00	0.00
28.00	0.00	452	71.74	0.00	0.00	0.00
30.00	0.00	442	71.74	0.00	0.00	0.00
32.00	0.00	436	71.74	0.00	0.00	0.00
34.00	0.00	432	71.73	0.00	0.00	0.00
36.00	0.00	430	71.73	0.00	0.00	0.00
38.00	0.00	428	71.73	0.00	0.00	0.00
40.00	0.00	427	71.73	0.00	0.00	0.00
42.00	0.00	426	71.73	0.00	0.00	0.00
44.00	0.00	426	71.73	0.00	0.00	0.00
46.00	0.00	426	71.73	0.00	0.00	0.00
48.00	0.00	426	71.73	0.00	0.00	0.00
50.00	0.00	425	71.73	0.00	0.00	0.00
52.00	0.00	425	71.73	0.00	0.00	0.00
54.00	0.00	425	71.73	0.00	0.00	0.00
56.00	0.00	425	71.73	0.00	0.00	0.00
58.00	0.00	425	71.73	0.00	0.00	0.00
60.00	0.00	425	71.73	0.00	0.00	0.00
62.00	0.00	425	71.73	0.00	0.00	0.00
64.00	0.00	425	71.73	0.00	0.00	0.00
66.00	0.00	425	71.73	0.00	0.00	0.00
68.00	0.00	425	71.73	0.00	0.00	0.00
70.00	0.00	425	71.73	0.00	0.00	0.00
72.00	0.00	425	71.73	0.00	0.00	0.00

Summary for Pond P1: Porous Pavement 1

Inflow Area = 0.340 ac, 85.29% Impervious, Inflow Depth = 7.70" for 100-Year C event
 Inflow = 3.23 cfs @ 12.09 hrs, Volume= 0.218 af
 Outflow = 1.67 cfs @ 12.12 hrs, Volume= 0.207 af, Atten= 48%, Lag= 1.8 min
 Primary = 1.67 cfs @ 12.12 hrs, Volume= 0.207 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.63' @ 12.12 hrs Surf.Area= 5,670 sf Storage= 3,106 cf

Plug-Flow detention time= 130.1 min calculated for 0.207 af (95% of inflow)
 Center-of-Mass det. time= 99.1 min (842.8 - 743.7)

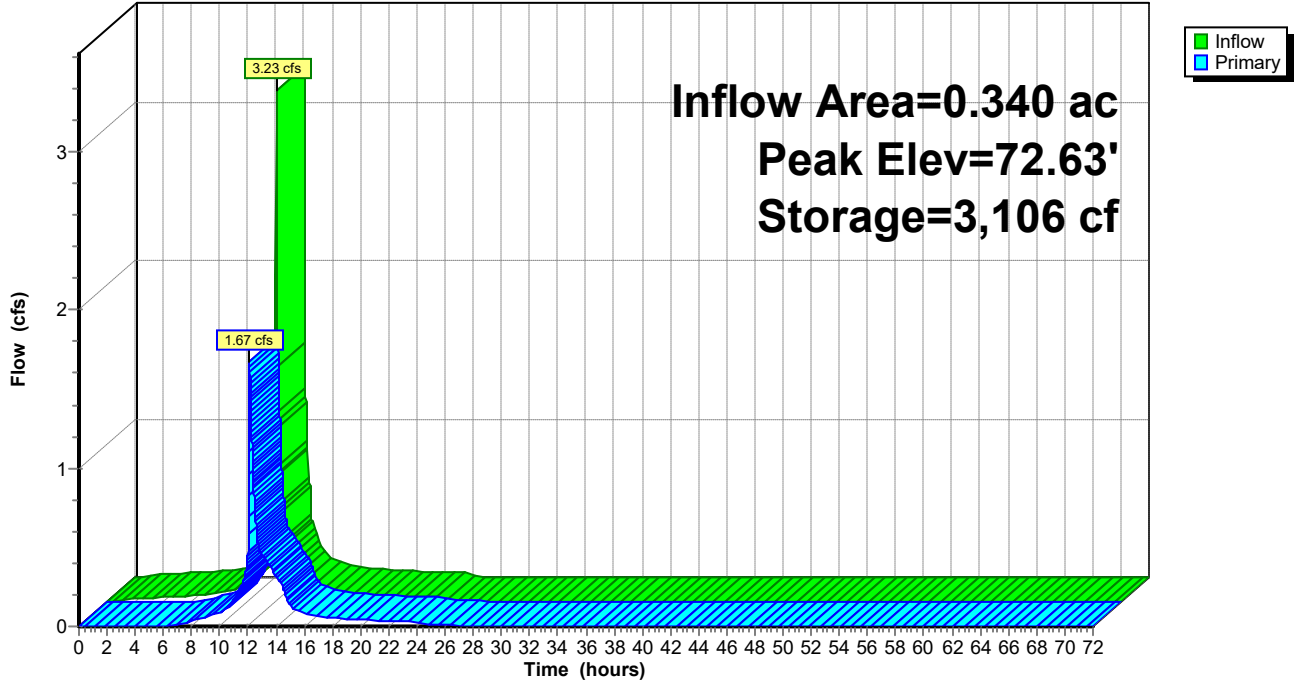
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	4,670 cf	18.00'W x 315.00'L x 2.50'H Prismatic 14,175 cf Overall - 25 cf Embedded = 14,150 cf x 33.0% Voids
#2	71.22'	15 cf	3.0" Round Pipe Storage Inside #1 L= 315.0' 25 cf Overall - 0.4" Wall Thickness = 15 cf
		4,685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 3.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=1.67 cfs @ 12.12 hrs HW=72.63' (Free Discharge)
 ↑ **1=Culvert** (Passes 1.67 cfs of 3.76 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.56 cfs @ 5.49 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 1.11 cfs @ 2.05 fps)

Pond P1: Porous Pavement 1

Hydrograph



Hydrograph for Pond P1: Porous Pavement 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.02	63	71.00	0.00
4.00	0.03	244	71.10	0.00
6.00	0.04	485	71.23	0.00
8.00	0.06	747	71.37	0.03
10.00	0.11	887	71.44	0.09
12.00	1.93	2,267	72.18	0.45
14.00	0.12	1,435	71.73	0.31
16.00	0.07	869	71.43	0.08
18.00	0.05	805	71.40	0.05
20.00	0.04	773	71.38	0.04
22.00	0.03	755	71.37	0.04
24.00	0.04	739	71.36	0.03
26.00	0.00	624	71.30	0.01
28.00	0.00	583	71.28	0.00
30.00	0.00	561	71.27	0.00
32.00	0.00	547	71.26	0.00
34.00	0.00	537	71.26	0.00
36.00	0.00	529	71.25	0.00
38.00	0.00	523	71.25	0.00
40.00	0.00	519	71.25	0.00
42.00	0.00	515	71.25	0.00
44.00	0.00	513	71.24	0.00
46.00	0.00	510	71.24	0.00
48.00	0.00	508	71.24	0.00
50.00	0.00	506	71.24	0.00
52.00	0.00	504	71.24	0.00
54.00	0.00	502	71.24	0.00
56.00	0.00	500	71.24	0.00
58.00	0.00	498	71.24	0.00
60.00	0.00	496	71.24	0.00
62.00	0.00	495	71.23	0.00
64.00	0.00	493	71.23	0.00
66.00	0.00	492	71.23	0.00
68.00	0.00	491	71.23	0.00
70.00	0.00	489	71.23	0.00
72.00	0.00	488	71.23	0.00

Summary for Pond P2: Porous Pavement 2

Inflow Area = 0.170 ac, 82.35% Impervious, Inflow Depth = 7.64" for 100-Year C event
 Inflow = 1.61 cfs @ 12.09 hrs, Volume= 0.108 af
 Outflow = 1.22 cfs @ 12.11 hrs, Volume= 0.105 af, Atten= 24%, Lag= 1.5 min
 Primary = 1.22 cfs @ 12.11 hrs, Volume= 0.105 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 73.31' @ 12.11 hrs Surf.Area= 1,782 sf Storage= 1,052 cf

Plug-Flow detention time= 73.0 min calculated for 0.105 af (97% of inflow)
 Center-of-Mass det. time= 53.0 min (798.5 - 745.5)

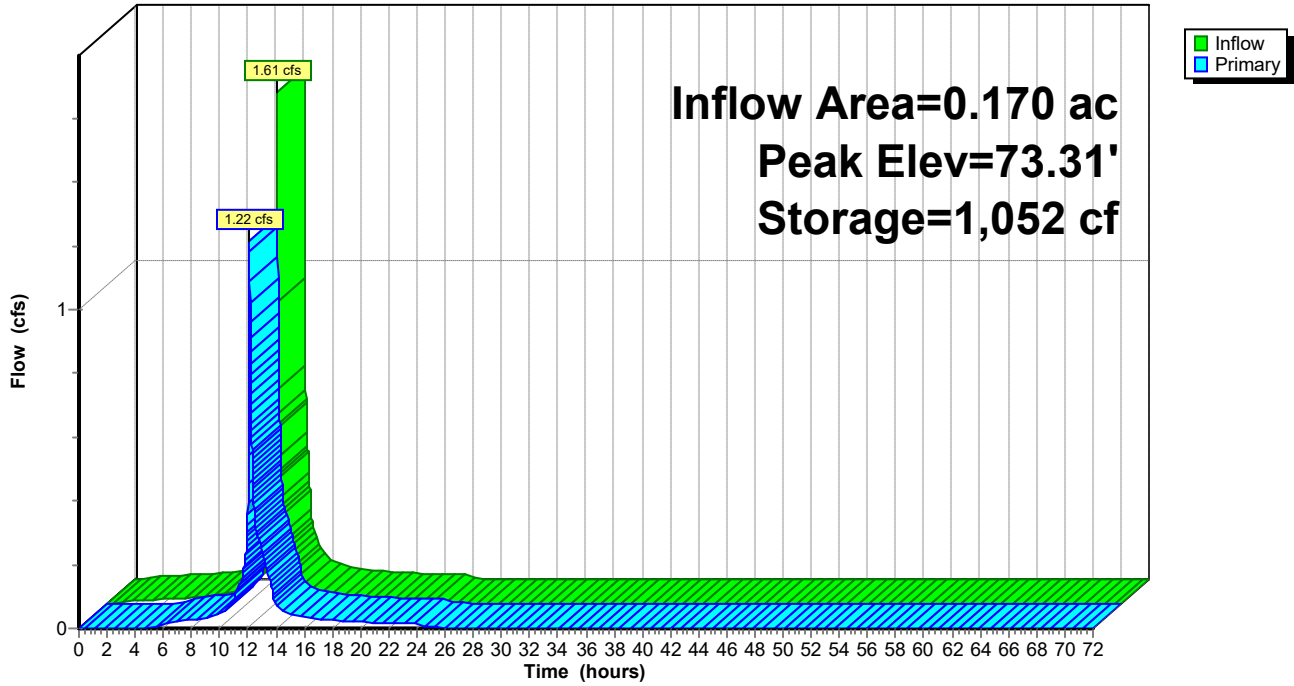
Volume	Invert	Avail.Storage	Storage Description
#1	71.52'	1,321 cf	18.00'W x 99.00'L x 2.25'H Prismatic 4,010 cf Overall - 8 cf Embedded = 4,002 cf x 33.0% Voids
#2	71.77'	5 cf	3.0" Round Pipe Storage Inside #1 L= 99.0' 8 cf Overall - 0.4" Wall Thickness = 5 cf
		1,325 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.77'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.77' / 71.77' S= 0.0000 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.77'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	72.77'	8.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.21 cfs @ 12.11 hrs HW=73.30' (Free Discharge)
 ↑ **1=Culvert** (Passes 1.21 cfs of 4.18 cfs potential flow)
 ↓ **2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 5.75 fps)
 ↓ **3=Orifice/Grate** (Orifice Controls 0.82 cfs @ 2.46 fps)

Pond P2: Porous Pavement 2

Hydrograph



Hydrograph for Pond P2: Porous Pavement 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	71.52	0.00
2.00	0.01	30	71.57	0.00
4.00	0.01	117	71.72	0.00
6.00	0.02	207	71.87	0.01
8.00	0.03	227	71.90	0.03
10.00	0.05	250	71.94	0.05
12.00	0.96	775	72.83	0.36
14.00	0.06	269	71.97	0.07
16.00	0.03	236	71.92	0.04
18.00	0.02	224	71.90	0.02
20.00	0.02	218	71.89	0.02
22.00	0.02	214	71.88	0.02
24.00	0.02	211	71.88	0.02
26.00	0.00	174	71.82	0.00
28.00	0.00	165	71.80	0.00
30.00	0.00	161	71.79	0.00
32.00	0.00	159	71.79	0.00
34.00	0.00	157	71.79	0.00
36.00	0.00	156	71.79	0.00
38.00	0.00	155	71.78	0.00
40.00	0.00	154	71.78	0.00
42.00	0.00	153	71.78	0.00
44.00	0.00	153	71.78	0.00
46.00	0.00	152	71.78	0.00
48.00	0.00	151	71.78	0.00
50.00	0.00	151	71.78	0.00
52.00	0.00	150	71.78	0.00
54.00	0.00	150	71.78	0.00
56.00	0.00	150	71.77	0.00
58.00	0.00	149	71.77	0.00
60.00	0.00	149	71.77	0.00
62.00	0.00	149	71.77	0.00
64.00	0.00	149	71.77	0.00
66.00	0.00	148	71.77	0.00
68.00	0.00	148	71.77	0.00
70.00	0.00	148	71.77	0.00
72.00	0.00	148	71.77	0.00

Summary for Pond P3: Porous Pavement 3

Inflow Area = 0.400 ac, 72.50% Impervious, Inflow Depth = 7.43" for 100-Year C event
 Inflow = 3.73 cfs @ 12.09 hrs, Volume= 0.248 af
 Outflow = 1.84 cfs @ 12.12 hrs, Volume= 0.235 af, Atten= 51%, Lag= 2.0 min
 Primary = 1.84 cfs @ 12.12 hrs, Volume= 0.235 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.62' @ 12.12 hrs Surf.Area= 6,318 sf Storage= 3,452 cf

Plug-Flow detention time= 126.1 min calculated for 0.235 af (95% of inflow)
 Center-of-Mass det. time= 95.7 min (846.1 - 750.5)

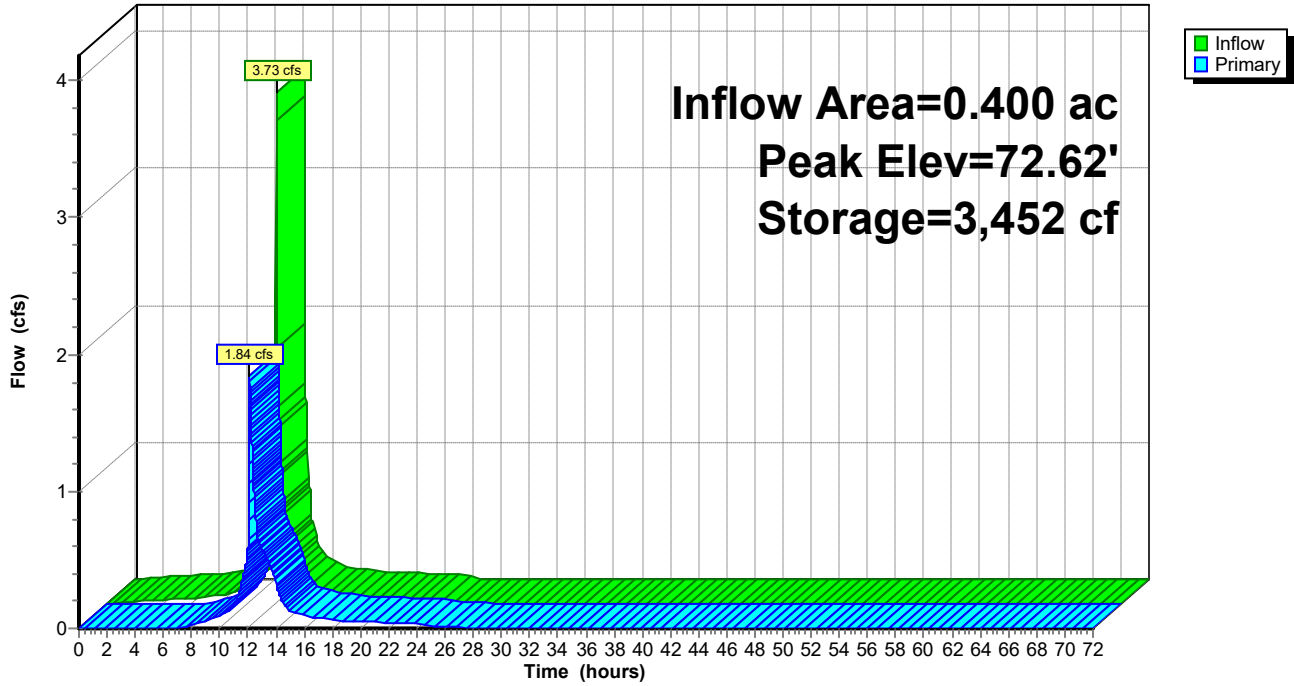
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	5,203 cf	18.00'W x 351.00'L x 2.50'H Prismaoid 15,795 cf Overall - 28 cf Embedded = 15,767 cf x 33.0% Voids
#2	71.22'	17 cf	3.0" Round Pipe Storage Inside #1 L= 351.0' 28 cf Overall - 0.4" Wall Thickness = 17 cf
		5,220 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=1.83 cfs @ 12.12 hrs HW=72.62' (Free Discharge)
 ↑ **1=Culvert** (Passes 1.83 cfs of 3.74 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.75 cfs @ 5.48 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 1.08 cfs @ 2.03 fps)

Pond P3: Porous Pavement 3

Hydrograph



Hydrograph for Pond P3: Porous Pavement 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.02	63	71.00	0.00
4.00	0.03	243	71.09	0.00
6.00	0.04	486	71.20	0.00
8.00	0.06	800	71.35	0.03
10.00	0.12	998	71.44	0.09
12.00	2.21	2,467	72.15	0.60
14.00	0.14	1,363	71.62	0.35
16.00	0.08	993	71.44	0.09
18.00	0.05	922	71.41	0.06
20.00	0.05	885	71.39	0.05
22.00	0.04	863	71.38	0.04
24.00	0.04	844	71.37	0.04
26.00	0.00	708	71.31	0.01
28.00	0.00	659	71.29	0.00
30.00	0.00	633	71.27	0.00
32.00	0.00	617	71.27	0.00
34.00	0.00	605	71.26	0.00
36.00	0.00	595	71.26	0.00
38.00	0.00	588	71.25	0.00
40.00	0.00	582	71.25	0.00
42.00	0.00	578	71.25	0.00
44.00	0.00	575	71.25	0.00
46.00	0.00	572	71.24	0.00
48.00	0.00	569	71.24	0.00
50.00	0.00	567	71.24	0.00
52.00	0.00	565	71.24	0.00
54.00	0.00	563	71.24	0.00
56.00	0.00	561	71.24	0.00
58.00	0.00	559	71.24	0.00
60.00	0.00	557	71.24	0.00
62.00	0.00	555	71.24	0.00
64.00	0.00	553	71.24	0.00
66.00	0.00	552	71.23	0.00
68.00	0.00	550	71.23	0.00
70.00	0.00	549	71.23	0.00
72.00	0.00	548	71.23	0.00

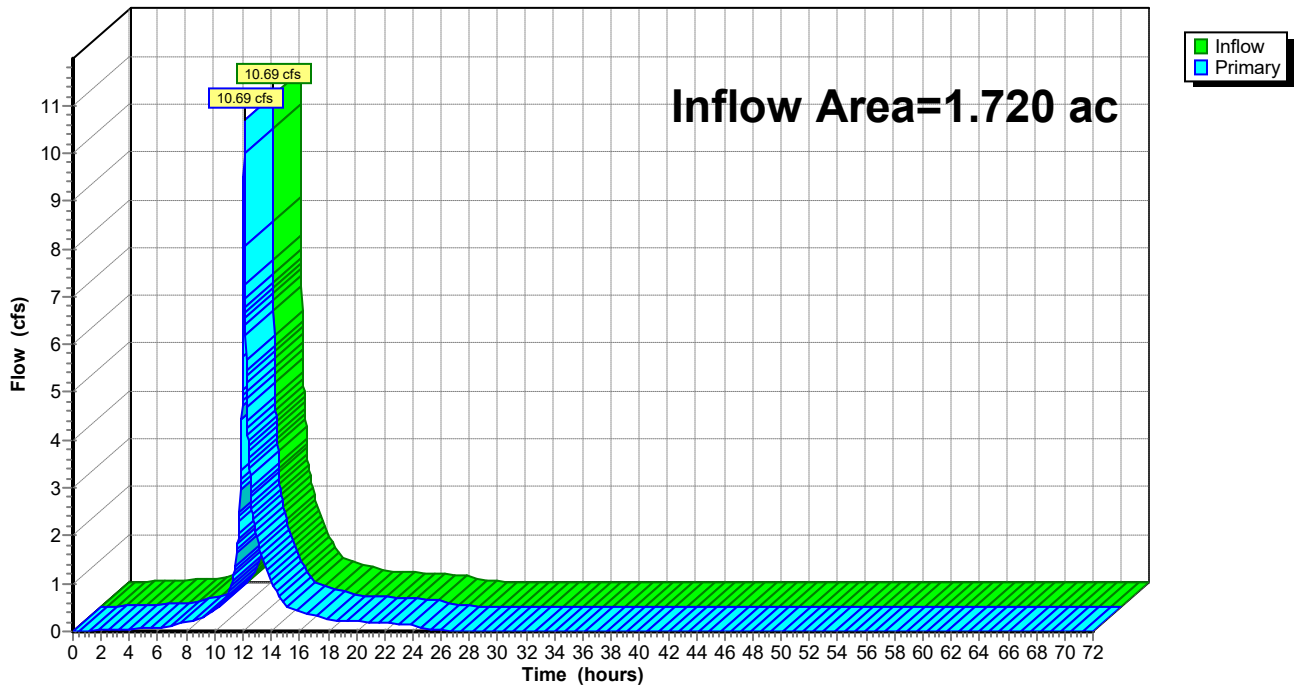
Summary for Pond POI 1: PRE - POI #1 (SW Basin)

Inflow Area = 1.720 ac, 70.35% Impervious, Inflow Depth = 7.12" for 100-Year C event
Inflow = 10.69 cfs @ 12.10 hrs, Volume= 1.021 af
Primary = 10.69 cfs @ 12.10 hrs, Volume= 1.021 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond POI 1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.03		0.03	54.00	0.00		0.00
3.00	0.04		0.04	55.00	0.00		0.00
4.00	0.05		0.05	56.00	0.00		0.00
5.00	0.06		0.06	57.00	0.00		0.00
6.00	0.08		0.08	58.00	0.00		0.00
7.00	0.12		0.12	59.00	0.00		0.00
8.00	0.19		0.19	60.00	0.00		0.00
9.00	0.27		0.27	61.00	0.00		0.00
10.00	0.43		0.43	62.00	0.00		0.00
11.00	0.81		0.81	63.00	0.00		0.00
12.00	5.09		5.09	64.00	0.00		0.00
13.00	1.96		1.96	65.00	0.00		0.00
14.00	1.07		1.07	66.00	0.00		0.00
15.00	0.55		0.55	67.00	0.00		0.00
16.00	0.40		0.40	68.00	0.00		0.00
17.00	0.33		0.33	69.00	0.00		0.00
18.00	0.26		0.26	70.00	0.00		0.00
19.00	0.23		0.23	71.00	0.00		0.00
20.00	0.21		0.21	72.00	0.00		0.00
21.00	0.19		0.19				
22.00	0.18		0.18				
23.00	0.17		0.17				
24.00	0.17		0.17				
25.00	0.04		0.04				
26.00	0.02		0.02				
27.00	0.02		0.02				
28.00	0.01		0.01				
29.00	0.01		0.01				
30.00	0.01		0.01				
31.00	0.01		0.01				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 1I: IMPERVIOUS

Runoff = 3.82 cfs @ 12.09 hrs, Volume= 0.265 af, Depth=10.97"

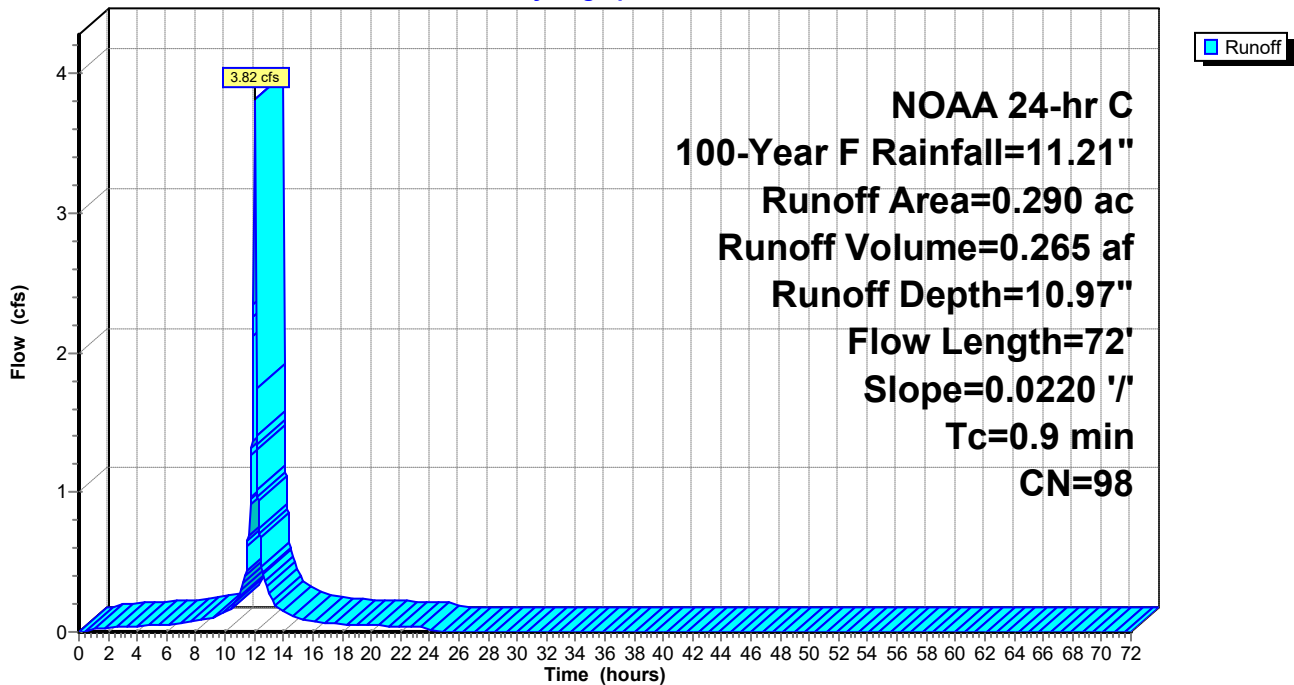
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	72	0.0220	1.38		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 1I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 1P: PERVIOUS

Runoff = 0.60 cfs @ 12.10 hrs, Volume= 0.036 af, Depth= 8.68"

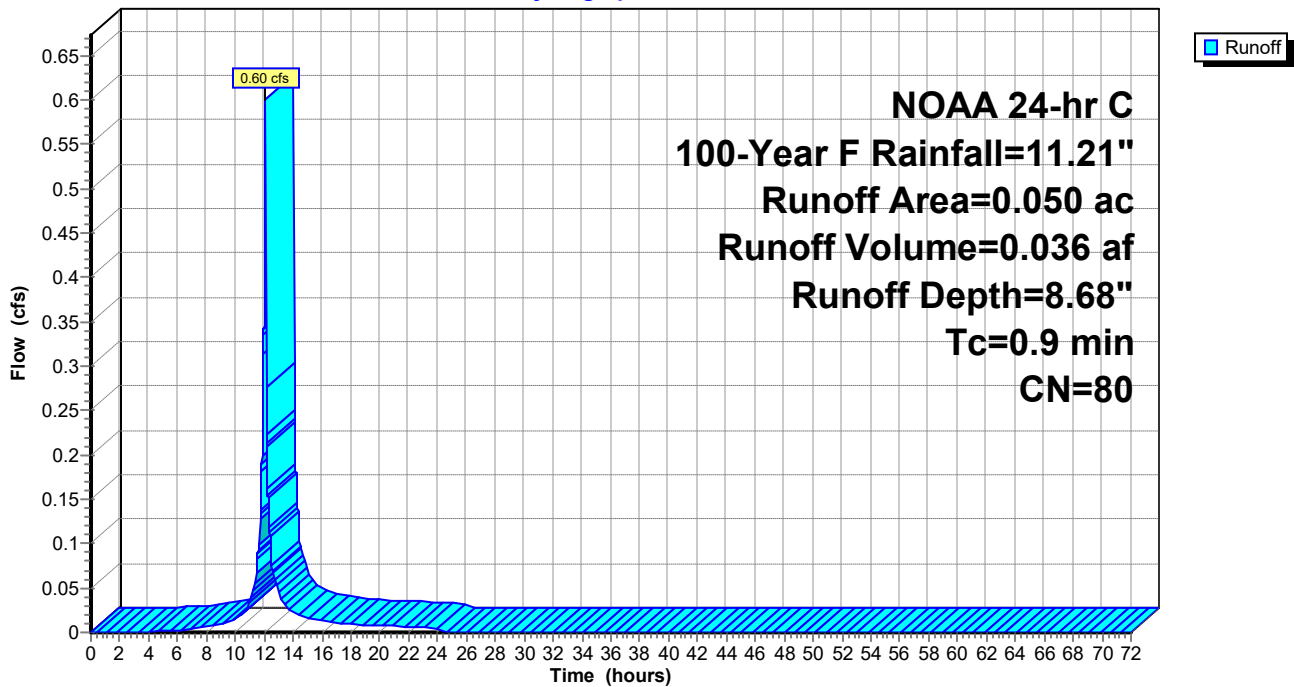
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.050	80	>75% Grass cover, Good, HSG D
0.050	80	100.00% Pervious Area

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

Subcatchment 1P: PERVIOUS

Hydrograph



Summary for Subcatchment 1S: PERVIOUS

Runoff = 2.05 cfs @ 12.09 hrs, Volume= 0.123 af, Depth= 8.68"

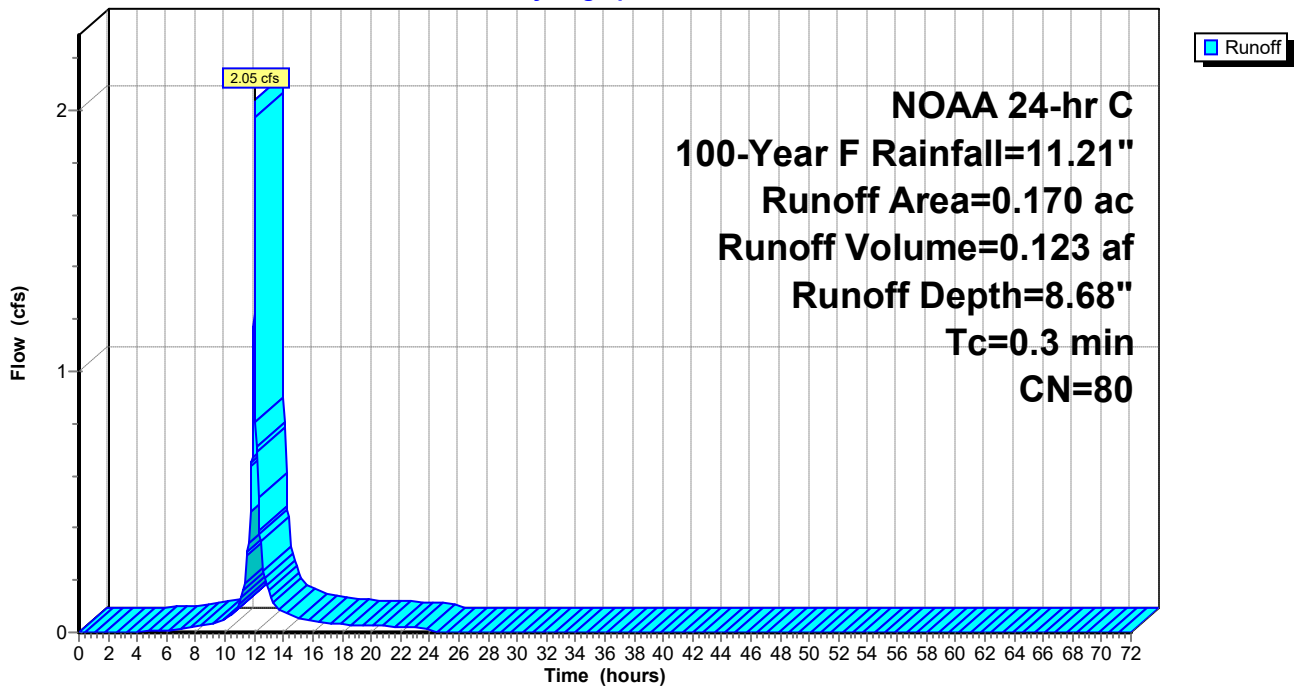
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.170	80	>75% Grass cover, Good, HSG D
0.170	80	100.00% Pervious Area

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

Subcatchment 1S: PERVIOUS

Hydrograph



Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 1.85 cfs @ 12.09 hrs, Volume= 0.128 af, Depth=10.97"

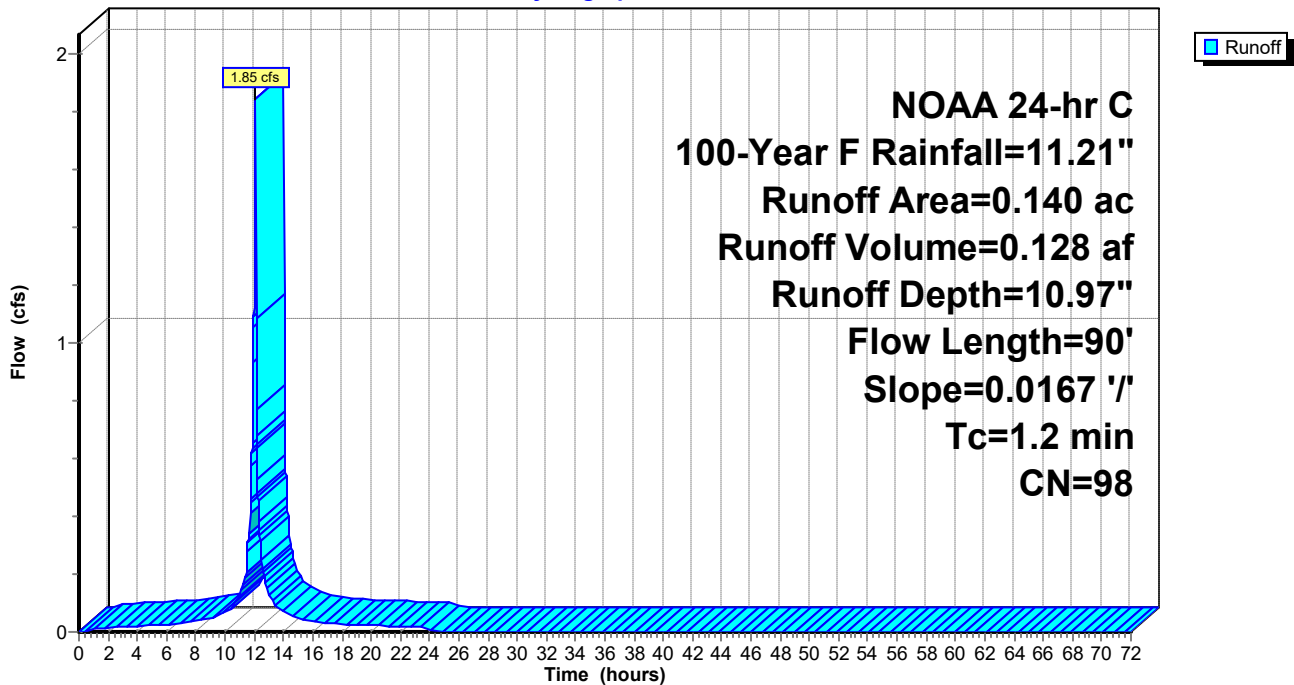
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.140	98	Paved parking, HSG D
0.140	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	90	0.0167	1.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.36 cfs @ 12.10 hrs, Volume= 0.022 af, Depth= 8.68"

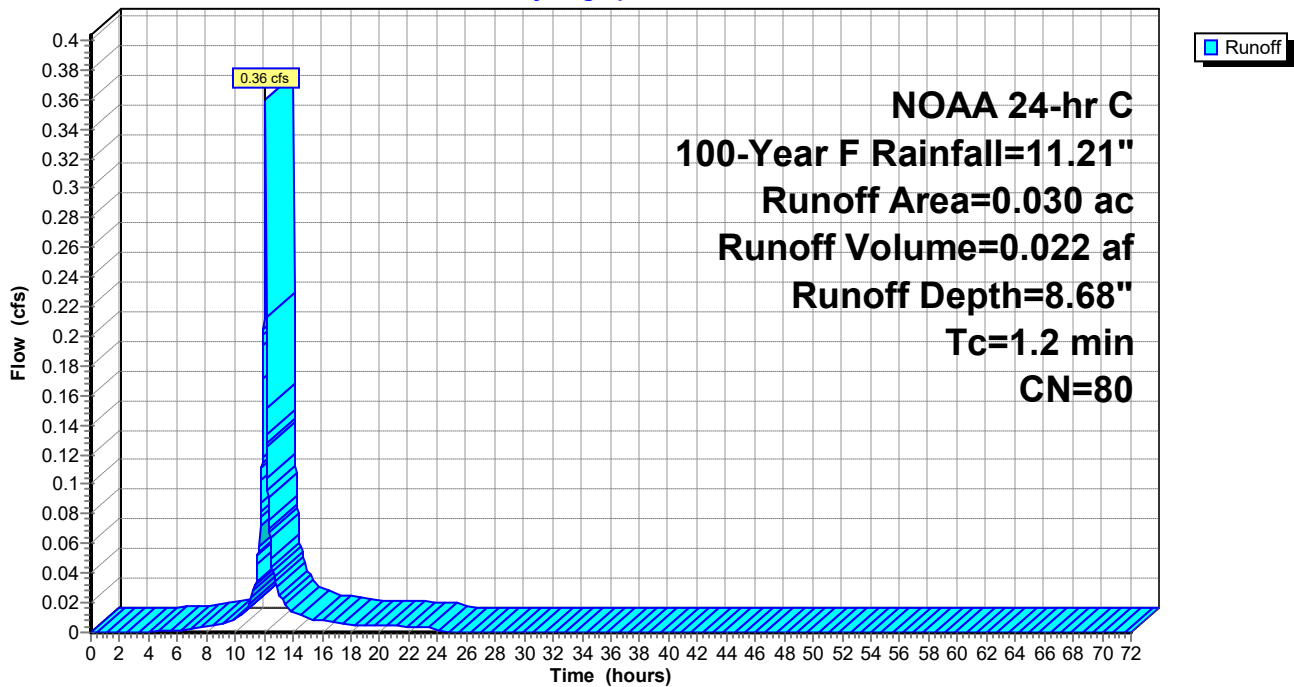
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 3I: IMPERVIOUS

Runoff = 3.82 cfs @ 12.09 hrs, Volume= 0.265 af, Depth=10.97"

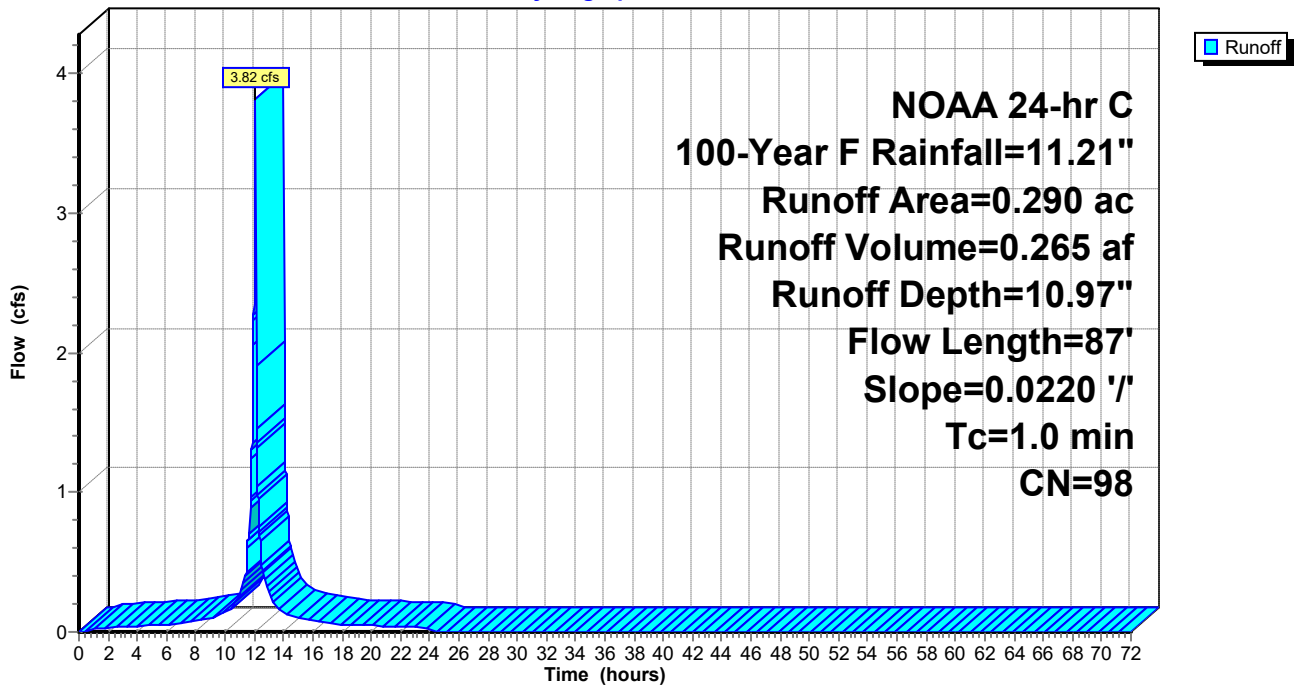
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.290	98	Paved parking, HSG D
0.290	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	87	0.0220	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 3I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 3P: PERVIOUS

Runoff = 1.32 cfs @ 12.10 hrs, Volume= 0.080 af, Depth= 8.68"

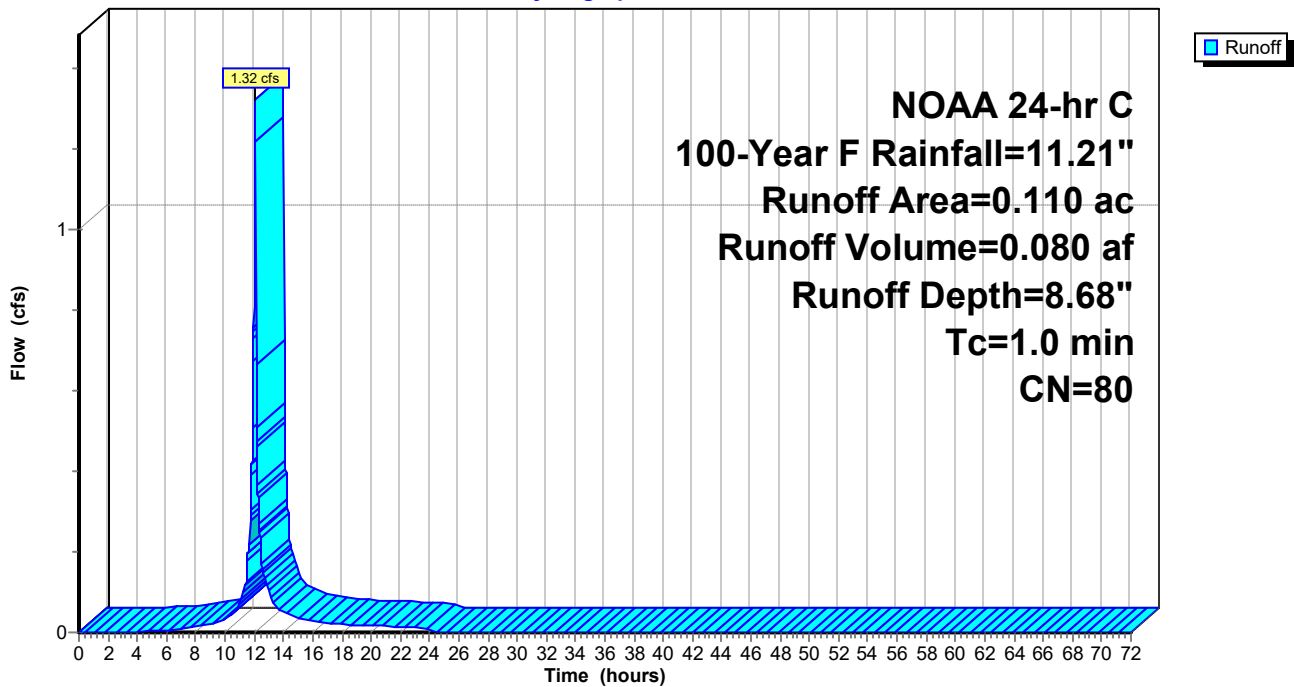
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.110	80	>75% Grass cover, Good, HSG D
0.110	80	100.00% Pervious Area

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

Subcatchment 3P: PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 6.06 cfs @ 12.09 hrs, Volume= 0.420 af, Depth=10.97"

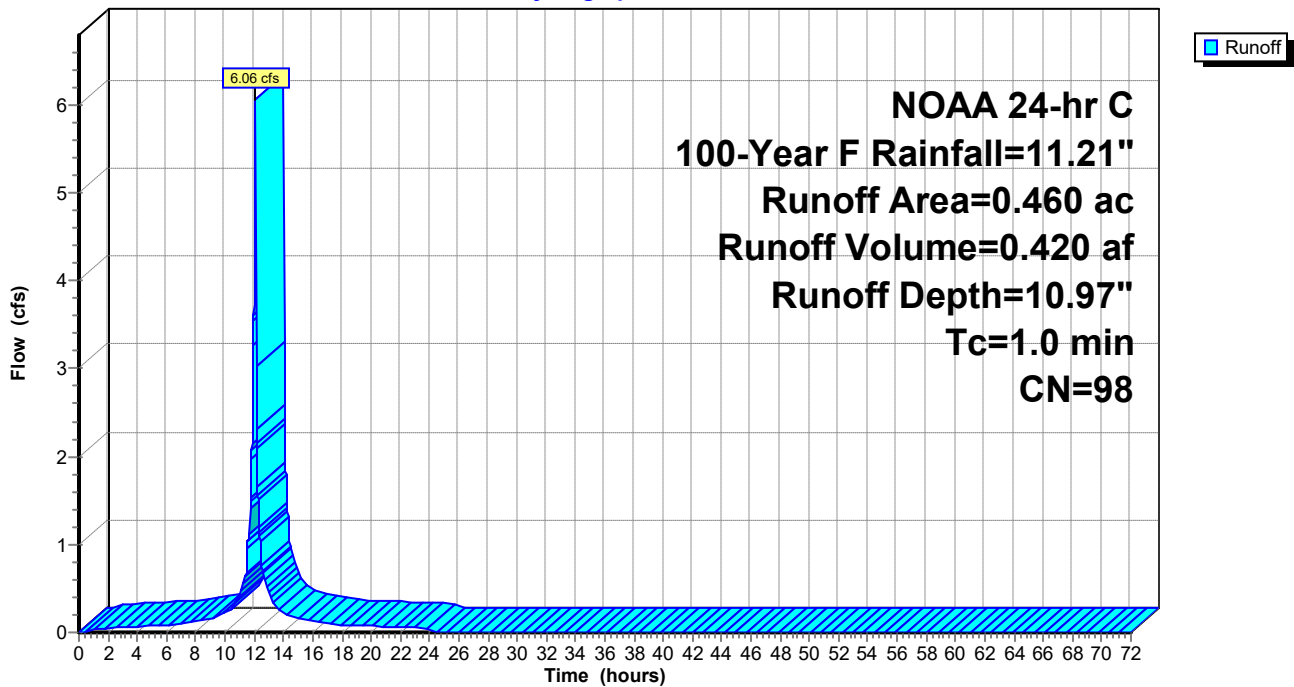
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.460	98	Roofs, HSG D
0.460	98	100.00% Impervious Area

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

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 1.44 cfs @ 12.10 hrs, Volume= 0.087 af, Depth= 8.68"

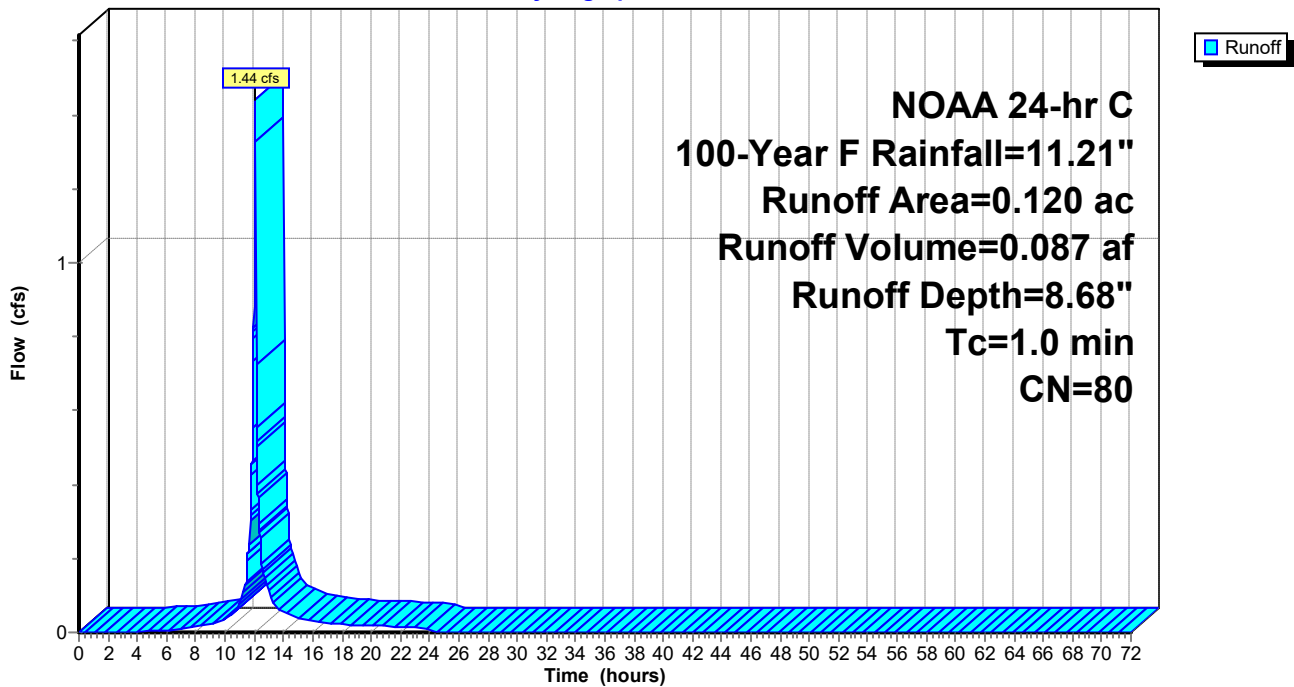
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.120	80	>75% Grass cover, Good, HSG D
0.120	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment OI-1: OFFSITE IMP

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.027 af, Depth=10.97"

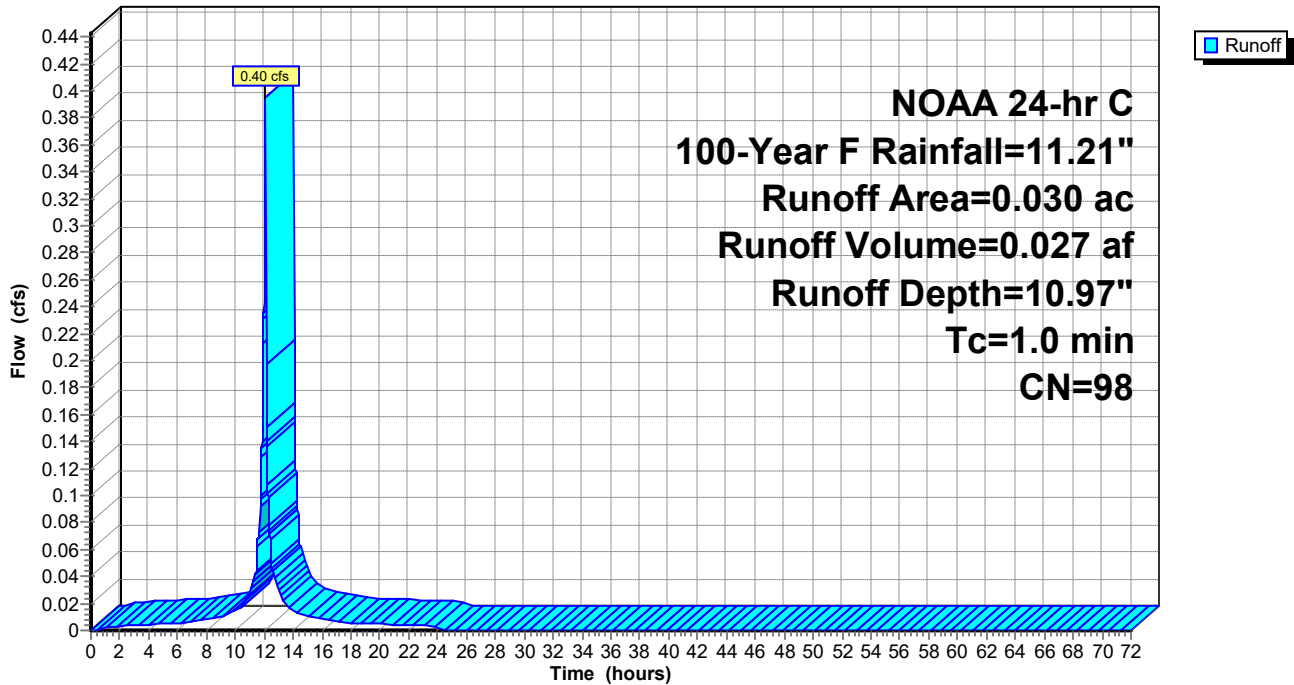
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.030	98	Paved parking, HSG D
0.030	98	100.00% Impervious Area

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

Subcatchment OI-1: OFFSITE IMP

Hydrograph



Summary for Subcatchment OP-1: OFFSITE PER

Runoff = 0.36 cfs @ 12.10 hrs, Volume= 0.022 af, Depth= 8.68"

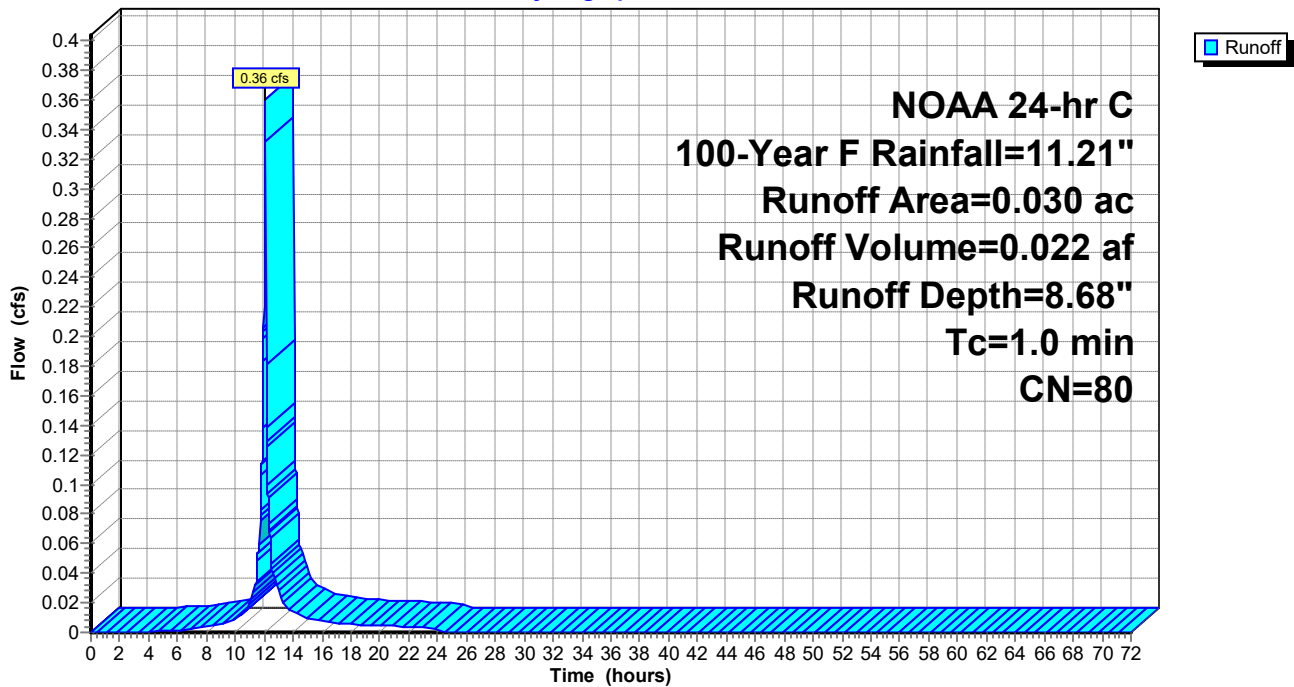
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.030	80	>75% Grass cover, Good, HSG D
0.030	80	100.00% Pervious Area

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

Subcatchment OP-1: OFFSITE PER

Hydrograph



Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 8.68" for 100-Year F event
 Inflow = 2.05 cfs @ 12.09 hrs, Volume= 0.123 af
 Outflow = 0.71 cfs @ 12.19 hrs, Volume= 0.113 af, Atten= 65%, Lag= 6.1 min
 Primary = 0.71 cfs @ 12.19 hrs, Volume= 0.113 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.50' @ 12.19 hrs Surf.Area= 2,487 sf Storage= 2,128 cf

Plug-Flow detention time= 136.3 min calculated for 0.113 af (92% of inflow)
 Center-of-Mass det. time= 94.1 min (882.1 - 788.0)

Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	1,766	0	0
72.50	2,487	2,127	2,127
73.50	3,432	2,960	5,086
74.00	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Primary	71.73'	24.0" Round Culvert L= 69.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.73' / 70.52' S= 0.0175 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.50'	2.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	72.00'	6.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#4	Device 1	74.00'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Secondary	73.50'	25.0' 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

Primary OutFlow Max=0.71 cfs @ 12.19 hrs HW=72.50' (Free Discharge)

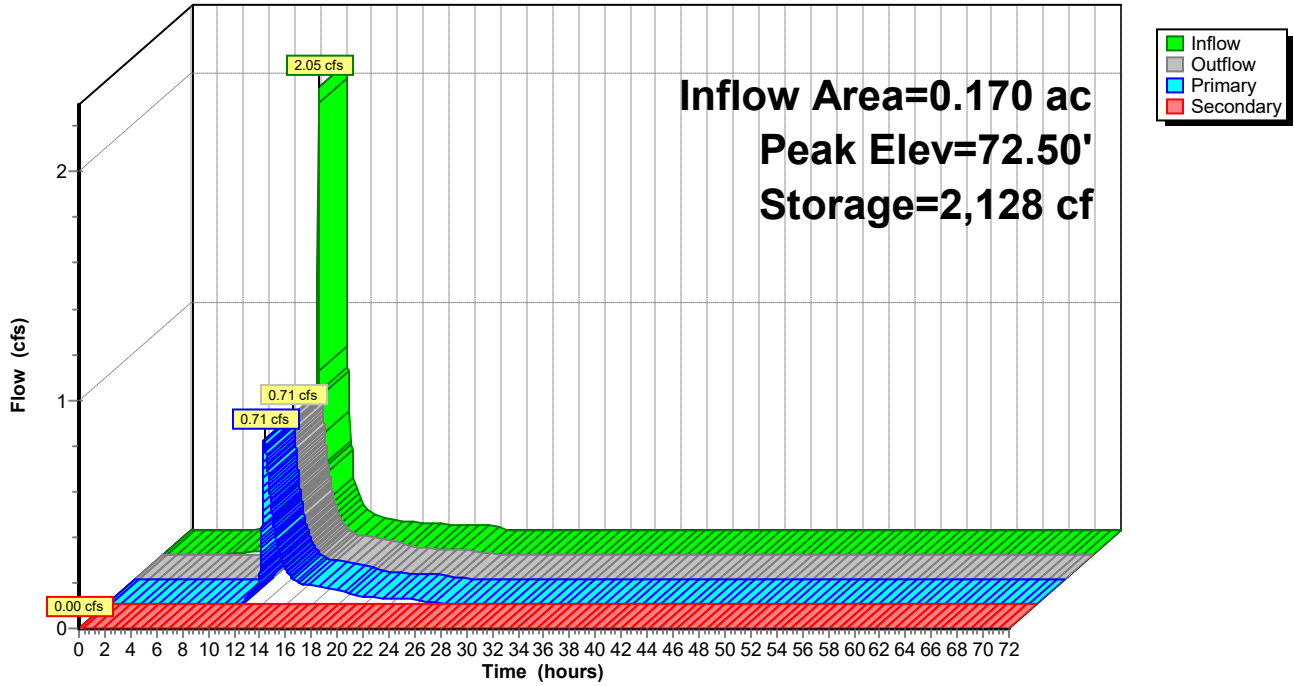
- ↑ 1=Culvert (Passes 0.71 cfs of 3.33 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 0.14 cfs @ 4.23 fps)
- ↑ 3=Orifice/Grate (Orifice Controls 0.57 cfs @ 2.27 fps)
- ↑ 4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.50' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	71.50	0.00	0.00	0.00
2.00	0.00	0	71.50	0.00	0.00	0.00
4.00	0.00	1	71.50	0.00	0.00	0.00
6.00	0.01	32	71.52	0.00	0.00	0.00
8.00	0.02	131	71.57	0.00	0.00	0.00
10.00	0.05	363	71.70	0.00	0.00	0.00
12.00	1.27	1,578	72.27	0.35	0.35	0.00
14.00	0.08	1,156	72.08	0.14	0.14	0.00
16.00	0.04	876	71.95	0.08	0.08	0.00
18.00	0.03	660	71.85	0.06	0.06	0.00
20.00	0.03	560	71.80	0.03	0.03	0.00
22.00	0.02	543	71.79	0.02	0.02	0.00
24.00	0.02	534	71.79	0.02	0.02	0.00
26.00	0.00	470	71.75	0.00	0.00	0.00
28.00	0.00	453	71.74	0.00	0.00	0.00
30.00	0.00	443	71.74	0.00	0.00	0.00
32.00	0.00	437	71.74	0.00	0.00	0.00
34.00	0.00	433	71.73	0.00	0.00	0.00
36.00	0.00	430	71.73	0.00	0.00	0.00
38.00	0.00	428	71.73	0.00	0.00	0.00
40.00	0.00	427	71.73	0.00	0.00	0.00
42.00	0.00	426	71.73	0.00	0.00	0.00
44.00	0.00	426	71.73	0.00	0.00	0.00
46.00	0.00	426	71.73	0.00	0.00	0.00
48.00	0.00	426	71.73	0.00	0.00	0.00
50.00	0.00	425	71.73	0.00	0.00	0.00
52.00	0.00	425	71.73	0.00	0.00	0.00
54.00	0.00	425	71.73	0.00	0.00	0.00
56.00	0.00	425	71.73	0.00	0.00	0.00
58.00	0.00	425	71.73	0.00	0.00	0.00
60.00	0.00	425	71.73	0.00	0.00	0.00
62.00	0.00	425	71.73	0.00	0.00	0.00
64.00	0.00	425	71.73	0.00	0.00	0.00
66.00	0.00	425	71.73	0.00	0.00	0.00
68.00	0.00	425	71.73	0.00	0.00	0.00
70.00	0.00	425	71.73	0.00	0.00	0.00
72.00	0.00	425	71.73	0.00	0.00	0.00

Summary for Pond P1: Porous Pavement 1

Inflow Area = 0.340 ac, 85.29% Impervious, Inflow Depth = 10.63" for 100-Year F event
 Inflow = 4.42 cfs @ 12.09 hrs, Volume= 0.301 af
 Outflow = 2.81 cfs @ 12.11 hrs, Volume= 0.290 af, Atten= 36%, Lag= 1.5 min
 Primary = 2.81 cfs @ 12.11 hrs, Volume= 0.290 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.94' @ 12.11 hrs Surf.Area= 5,670 sf Storage= 3,702 cf

Plug-Flow detention time= 106.0 min calculated for 0.290 af (96% of inflow)
 Center-of-Mass det. time= 82.6 min (822.4 - 739.9)

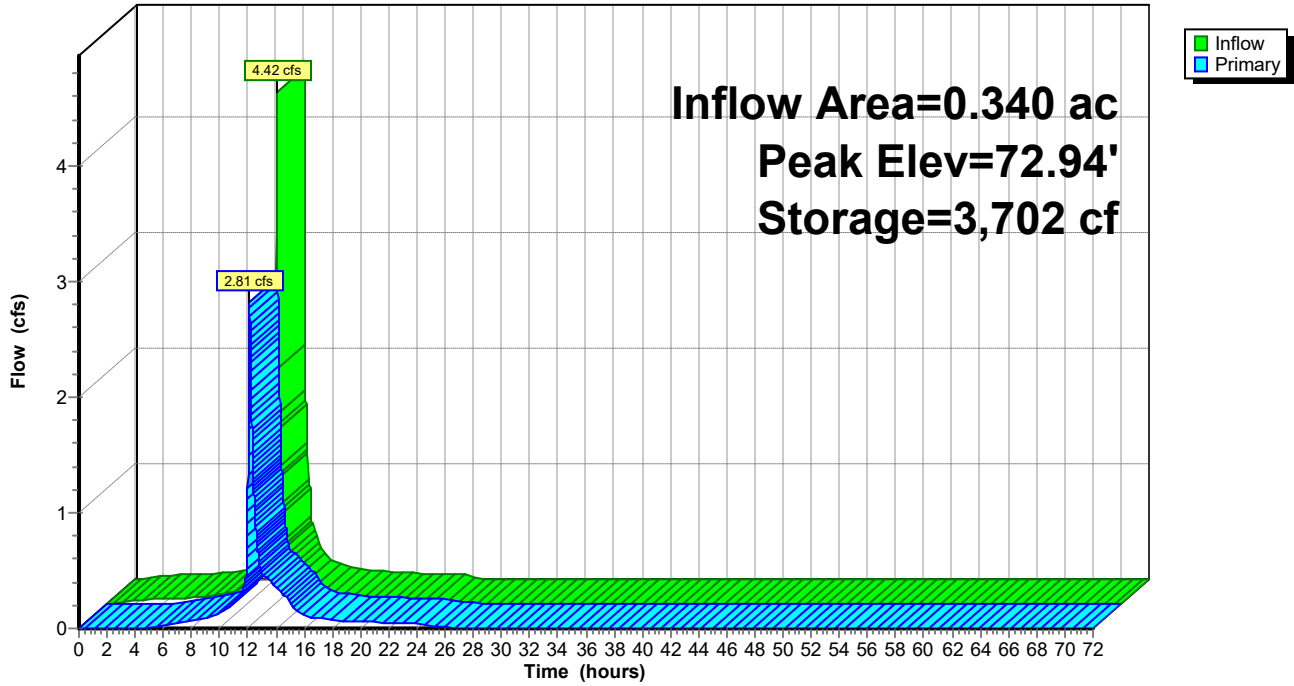
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	4,670 cf	18.00'W x 315.00'L x 2.50'H Prismaoid 14,175 cf Overall - 25 cf Embedded = 14,150 cf x 33.0% Voids
#2	71.22'	15 cf	3.0" Round Pipe Storage Inside #1 L= 315.0' 25 cf Overall - 0.4" Wall Thickness = 15 cf
		4,685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 3.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=2.80 cfs @ 12.11 hrs HW=72.94' (Free Discharge)
 ↑ **1=Culvert** (Passes 2.80 cfs of 4.69 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.63 cfs @ 6.12 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 2.18 cfs @ 3.27 fps)

Pond P1: Porous Pavement 1

Hydrograph



Hydrograph for Pond P1: Porous Pavement 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.03	113	71.03	0.00
4.00	0.04	379	71.17	0.00
6.00	0.05	692	71.34	0.02
8.00	0.08	847	71.42	0.07
10.00	0.15	961	71.48	0.13
12.00	2.64	2,894	72.51	1.22
14.00	0.17	1,669	71.86	0.36
16.00	0.09	925	71.46	0.11
18.00	0.06	848	71.42	0.07
20.00	0.05	814	71.40	0.06
22.00	0.05	794	71.39	0.05
24.00	0.05	775	71.38	0.04
26.00	0.00	633	71.31	0.01
28.00	0.00	587	71.28	0.00
30.00	0.00	563	71.27	0.00
32.00	0.00	549	71.26	0.00
34.00	0.00	538	71.26	0.00
36.00	0.00	530	71.25	0.00
38.00	0.00	524	71.25	0.00
40.00	0.00	519	71.25	0.00
42.00	0.00	516	71.25	0.00
44.00	0.00	513	71.24	0.00
46.00	0.00	511	71.24	0.00
48.00	0.00	508	71.24	0.00
50.00	0.00	506	71.24	0.00
52.00	0.00	504	71.24	0.00
54.00	0.00	502	71.24	0.00
56.00	0.00	500	71.24	0.00
58.00	0.00	498	71.24	0.00
60.00	0.00	497	71.24	0.00
62.00	0.00	495	71.23	0.00
64.00	0.00	494	71.23	0.00
66.00	0.00	492	71.23	0.00
68.00	0.00	491	71.23	0.00
70.00	0.00	490	71.23	0.00
72.00	0.00	488	71.23	0.00

Summary for Pond P2: Porous Pavement 2

Inflow Area = 0.170 ac, 82.35% Impervious, Inflow Depth = 10.57" for 100-Year F event
 Inflow = 2.20 cfs @ 12.09 hrs, Volume= 0.150 af
 Outflow = 1.68 cfs @ 12.11 hrs, Volume= 0.146 af, Atten= 24%, Lag= 1.4 min
 Primary = 1.68 cfs @ 12.11 hrs, Volume= 0.146 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 73.63' @ 12.11 hrs Surf.Area= 1,782 sf Storage= 1,245 cf

Plug-Flow detention time= 58.7 min calculated for 0.146 af (98% of inflow)
 Center-of-Mass det. time= 43.8 min (785.4 - 741.5)

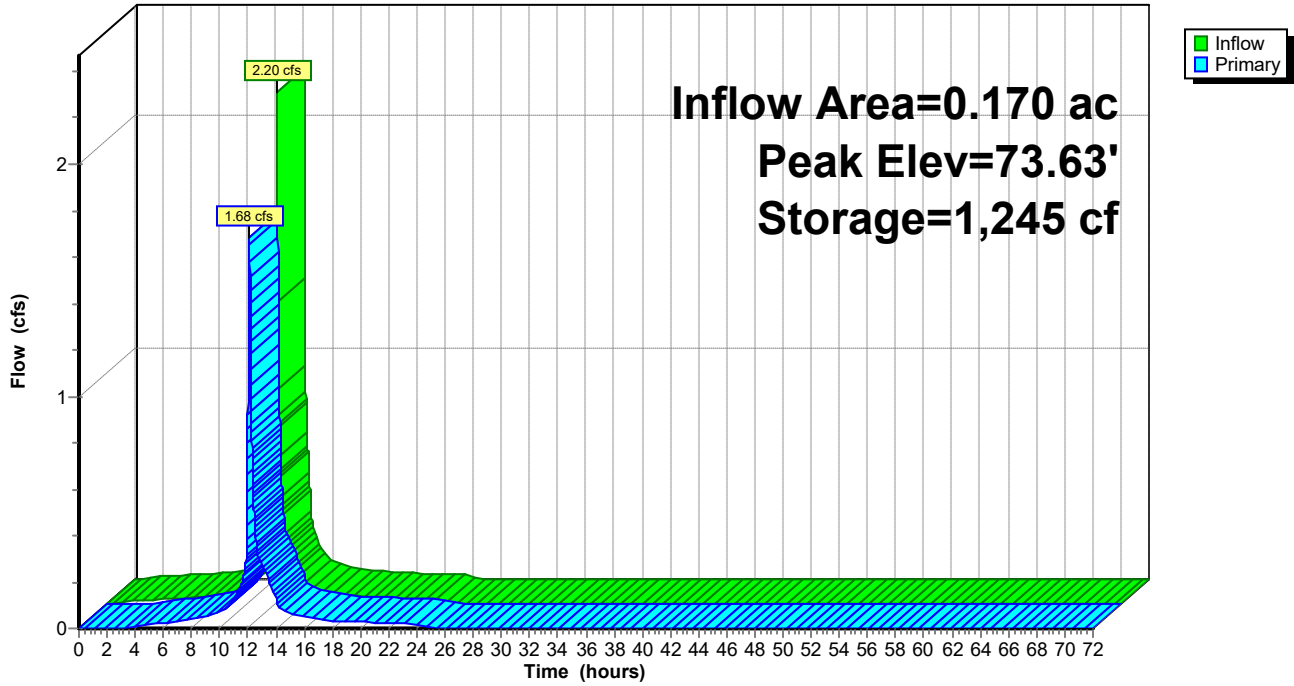
Volume	Invert	Avail.Storage	Storage Description
#1	71.52'	1,321 cf	18.00'W x 99.00'L x 2.25'H Prismaoid 4,010 cf Overall - 8 cf Embedded = 4,002 cf x 33.0% Voids
#2	71.77'	5 cf	3.0" Round Pipe Storage Inside #1 L= 99.0' 8 cf Overall - 0.4" Wall Thickness = 5 cf
		1,325 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.77'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.77' / 71.77' S= 0.0000 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.77'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	72.77'	8.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.68 cfs @ 12.11 hrs HW=73.63' (Free Discharge)
 ↑ **1=Culvert** (Passes 1.68 cfs of 5.33 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.43 cfs @ 6.38 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 1.24 cfs @ 3.73 fps)

Pond P2: Porous Pavement 2

Hydrograph



Hydrograph for Pond P2: Porous Pavement 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	71.52	0.00
2.00	0.01	54	71.61	0.00
4.00	0.02	181	71.83	0.00
6.00	0.03	224	71.90	0.02
8.00	0.04	240	71.93	0.04
10.00	0.08	267	71.97	0.07
12.00	1.31	973	73.17	0.92
14.00	0.08	303	72.03	0.13
16.00	0.05	248	71.94	0.05
18.00	0.03	234	71.92	0.03
20.00	0.03	228	71.90	0.03
22.00	0.02	223	71.90	0.02
24.00	0.02	219	71.89	0.02
26.00	0.00	174	71.82	0.00
28.00	0.00	166	71.80	0.00
30.00	0.00	161	71.79	0.00
32.00	0.00	159	71.79	0.00
34.00	0.00	157	71.79	0.00
36.00	0.00	156	71.79	0.00
38.00	0.00	155	71.78	0.00
40.00	0.00	154	71.78	0.00
42.00	0.00	153	71.78	0.00
44.00	0.00	153	71.78	0.00
46.00	0.00	152	71.78	0.00
48.00	0.00	151	71.78	0.00
50.00	0.00	151	71.78	0.00
52.00	0.00	150	71.78	0.00
54.00	0.00	150	71.78	0.00
56.00	0.00	150	71.77	0.00
58.00	0.00	149	71.77	0.00
60.00	0.00	149	71.77	0.00
62.00	0.00	149	71.77	0.00
64.00	0.00	149	71.77	0.00
66.00	0.00	148	71.77	0.00
68.00	0.00	148	71.77	0.00
70.00	0.00	148	71.77	0.00
72.00	0.00	148	71.77	0.00

Summary for Pond P3: Porous Pavement 3

Inflow Area = 0.400 ac, 72.50% Impervious, Inflow Depth = 10.34" for 100-Year F event
 Inflow = 5.14 cfs @ 12.09 hrs, Volume= 0.345 af
 Outflow = 3.09 cfs @ 12.12 hrs, Volume= 0.332 af, Atten= 40%, Lag= 1.7 min
 Primary = 3.09 cfs @ 12.12 hrs, Volume= 0.332 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.97' @ 12.12 hrs Surf.Area= 6,318 sf Storage= 4,180 cf

Plug-Flow detention time= 101.9 min calculated for 0.332 af (96% of inflow)
 Center-of-Mass det. time= 79.5 min (825.5 - 746.1)

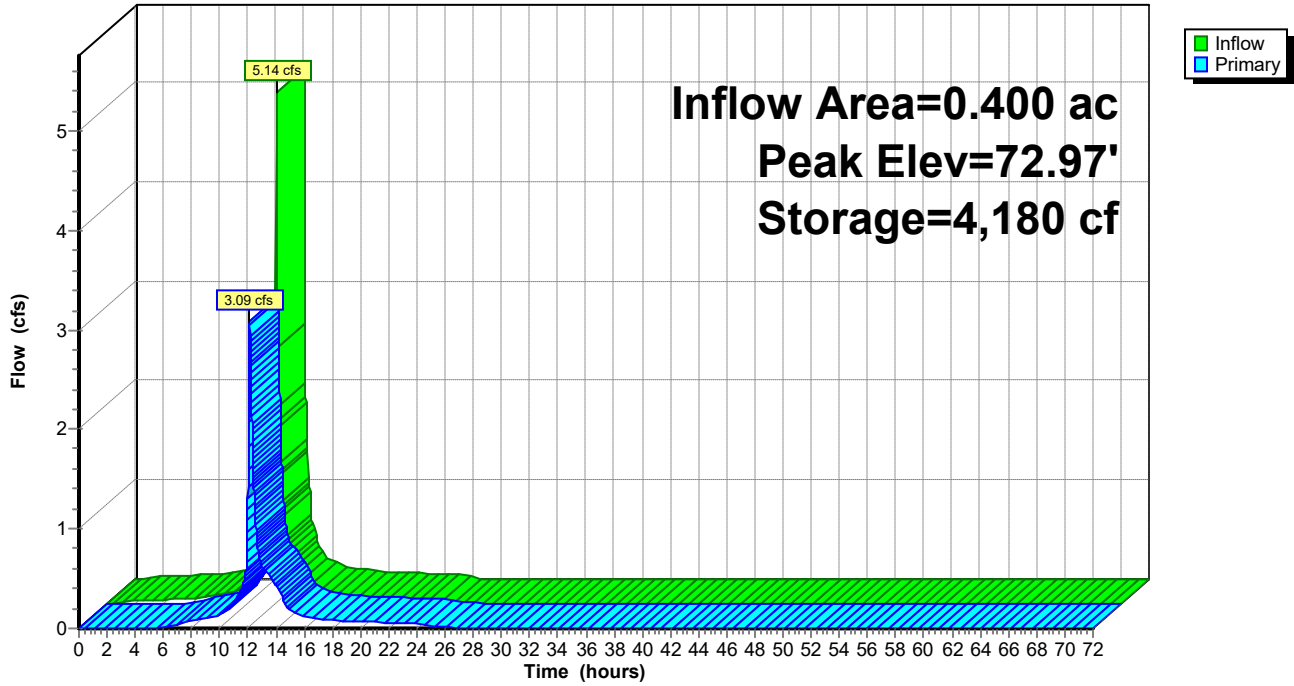
Volume	Invert	Avail.Storage	Storage Description
#1	70.97'	5,203 cf	18.00'W x 351.00'L x 2.50'H Prismaoid 15,795 cf Overall - 28 cf Embedded = 15,767 cf x 33.0% Voids
#2	71.22'	17 cf	3.0" Round Pipe Storage Inside #1 L= 351.0' 28 cf Overall - 0.4" Wall Thickness = 17 cf
		5,220 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	71.22'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.22' / 71.22' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	71.22'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	72.22'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=3.09 cfs @ 12.12 hrs HW=72.97' (Free Discharge)
 ↑ **1=Culvert** (Passes 3.09 cfs of 4.82 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.84 cfs @ 6.18 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 2.24 cfs @ 3.36 fps)

Pond P3: Porous Pavement 3

Hydrograph



Hydrograph for Pond P3: Porous Pavement 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.97	0.00
2.00	0.03	113	71.02	0.00
4.00	0.04	379	71.15	0.00
6.00	0.06	722	71.32	0.01
8.00	0.09	948	71.42	0.07
10.00	0.17	1,093	71.49	0.14
12.00	3.06	3,173	72.49	1.30
14.00	0.20	1,627	71.75	0.43
16.00	0.11	1,054	71.47	0.12
18.00	0.07	975	71.43	0.08
20.00	0.06	934	71.41	0.07
22.00	0.05	909	71.40	0.06
24.00	0.06	887	71.39	0.05
26.00	0.00	719	71.31	0.01
28.00	0.00	664	71.29	0.01
30.00	0.00	636	71.27	0.00
32.00	0.00	619	71.27	0.00
34.00	0.00	606	71.26	0.00
36.00	0.00	597	71.26	0.00
38.00	0.00	589	71.25	0.00
40.00	0.00	583	71.25	0.00
42.00	0.00	579	71.25	0.00
44.00	0.00	575	71.25	0.00
46.00	0.00	572	71.24	0.00
48.00	0.00	570	71.24	0.00
50.00	0.00	567	71.24	0.00
52.00	0.00	565	71.24	0.00
54.00	0.00	563	71.24	0.00
56.00	0.00	561	71.24	0.00
58.00	0.00	559	71.24	0.00
60.00	0.00	557	71.24	0.00
62.00	0.00	555	71.24	0.00
64.00	0.00	554	71.24	0.00
66.00	0.00	552	71.23	0.00
68.00	0.00	551	71.23	0.00
70.00	0.00	549	71.23	0.00
72.00	0.00	548	71.23	0.00

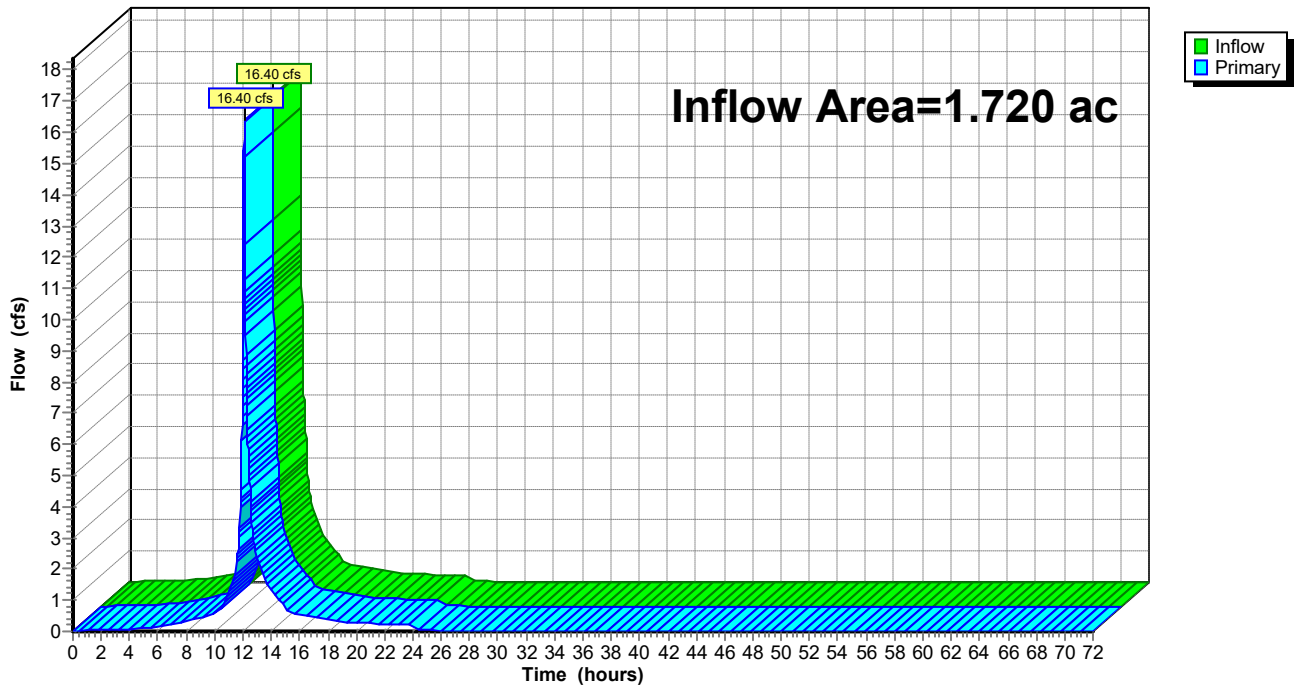
Summary for Pond POI 1: PRE - POI #1 (SW Basin)

Inflow Area = 1.720 ac, 70.35% Impervious, Inflow Depth = 10.03" for 100-Year F event
Inflow = 16.40 cfs @ 12.10 hrs, Volume= 1.438 af
Primary = 16.40 cfs @ 12.10 hrs, Volume= 1.438 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 1: PRE - POI #1 (SW Basin)

Hydrograph



Hydrograph for Pond POI 1: PRE - POI #1 (SW Basin)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.03		0.03	53.00	0.00		0.00
2.00	0.05		0.05	54.00	0.00		0.00
3.00	0.06		0.06	55.00	0.00		0.00
4.00	0.08		0.08	56.00	0.00		0.00
5.00	0.10		0.10	57.00	0.00		0.00
6.00	0.15		0.15	58.00	0.00		0.00
7.00	0.24		0.24	59.00	0.00		0.00
8.00	0.33		0.33	60.00	0.00		0.00
9.00	0.41		0.41	61.00	0.00		0.00
10.00	0.63		0.63	62.00	0.00		0.00
11.00	1.19		1.19	63.00	0.00		0.00
12.00	8.70		8.70	64.00	0.00		0.00
13.00	2.33		2.33	65.00	0.00		0.00
14.00	1.37		1.37	66.00	0.00		0.00
15.00	0.77		0.77	67.00	0.00		0.00
16.00	0.53		0.53	68.00	0.00		0.00
17.00	0.44		0.44	69.00	0.00		0.00
18.00	0.36		0.36	70.00	0.00		0.00
19.00	0.31		0.31	71.00	0.00		0.00
20.00	0.28		0.28	72.00	0.00		0.00
21.00	0.26		0.26				
22.00	0.24		0.24				
23.00	0.22		0.22				
24.00	0.23		0.23				
25.00	0.05		0.05				
26.00	0.03		0.03				
27.00	0.02		0.02				
28.00	0.01		0.01				
29.00	0.01		0.01				
30.00	0.01		0.01				
31.00	0.01		0.01				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 1.30 cfs @ 1.08 hrs, Volume= 0.036 af, Depth= 1.03"

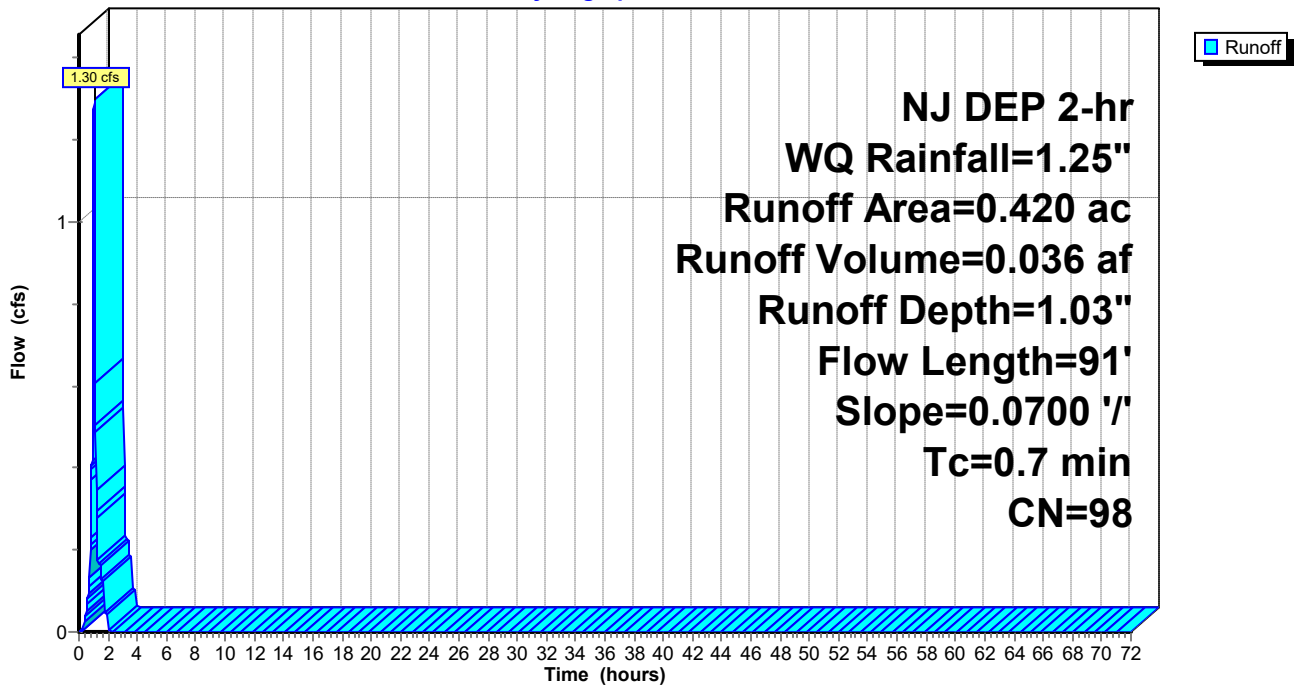
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG D
0.420	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	91	0.0700	2.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.14 cfs @ 1.08 hrs, Volume= 0.003 af, Depth= 0.17"

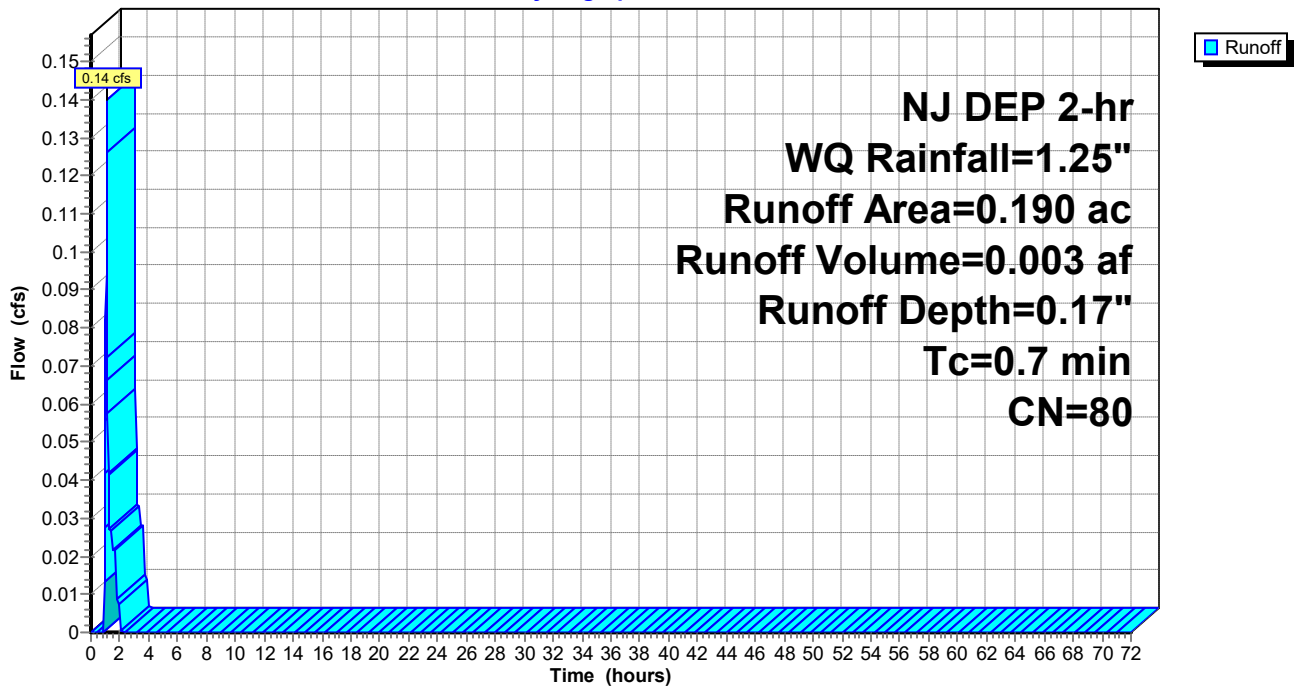
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.190	80	>75% Grass cover, Good, HSG D
0.190	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 4I: IMPERVIOUS

Runoff = 3.21 cfs @ 1.08 hrs, Volume= 0.090 af, Depth= 1.03"

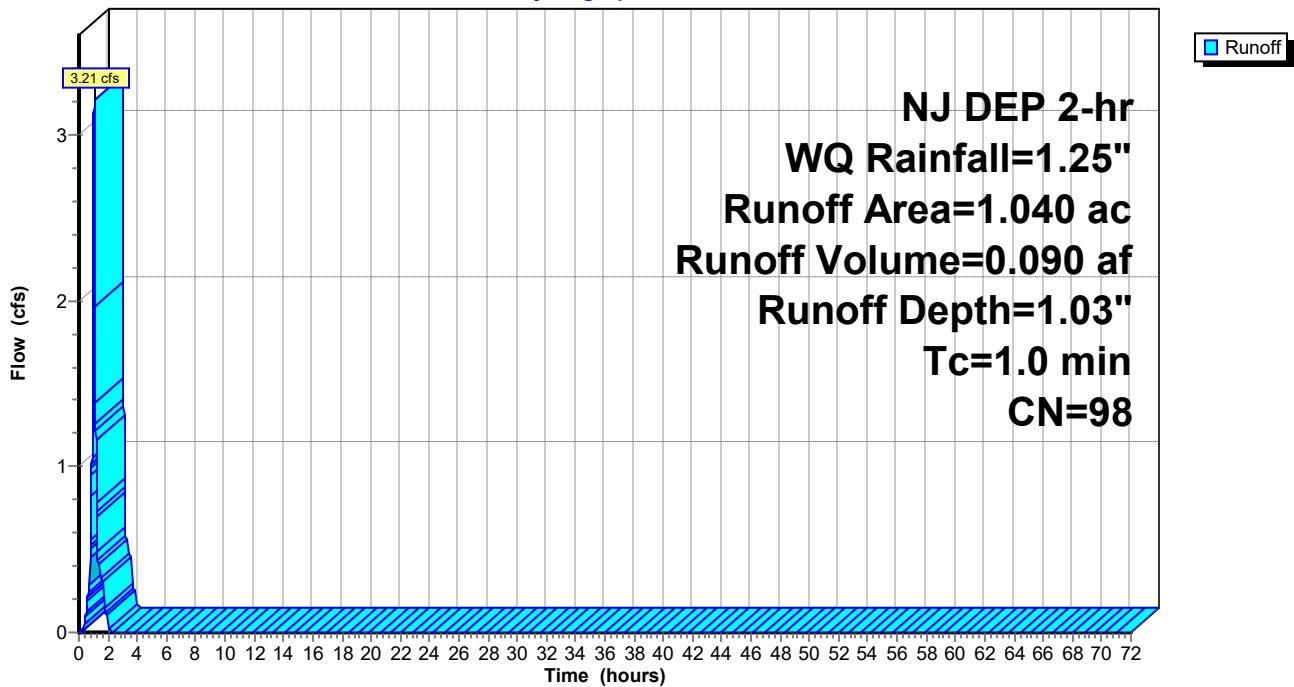
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG D
1.040	98	100.00% Impervious Area

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

Subcatchment 4I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 4P: BASIN PERVIOUS

Runoff = 2.10 cfs @ 1.08 hrs, Volume= 0.059 af, Depth= 1.03"

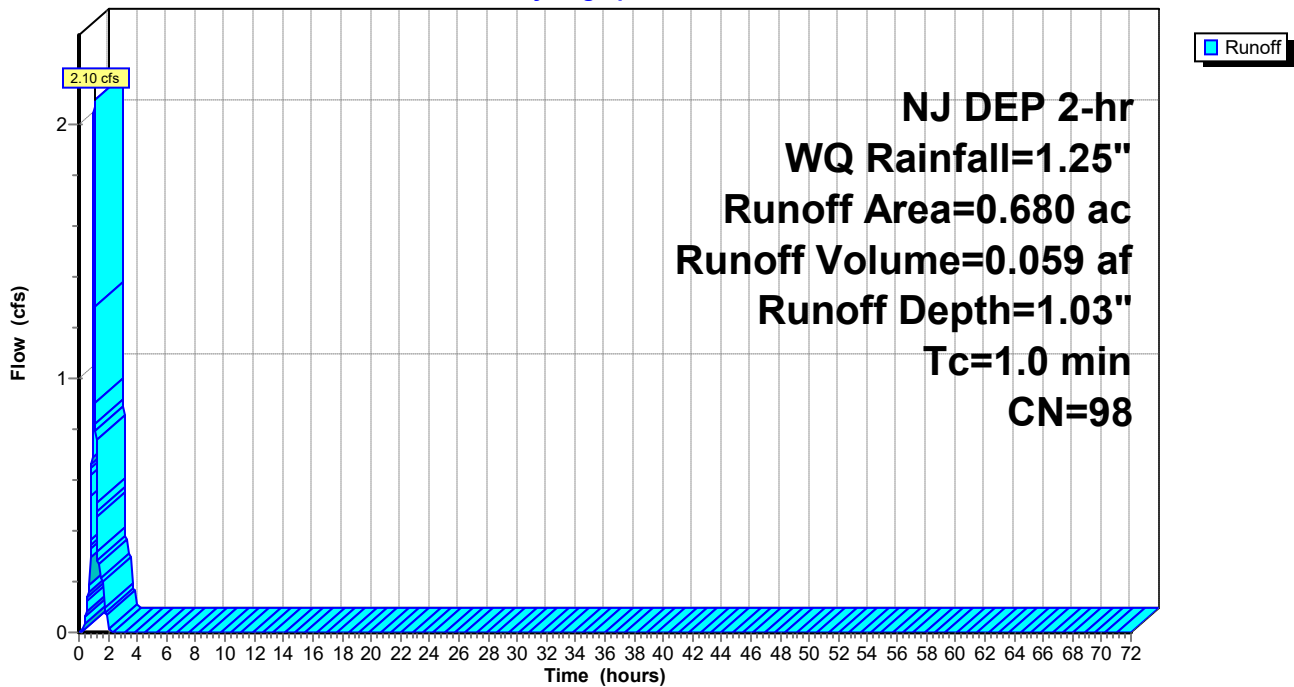
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.680	98	Paved parking, HSG D
0.680	98	100.00% Impervious Area

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

Subcatchment 4P: BASIN PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 3.00 cfs @ 1.08 hrs, Volume= 0.084 af, Depth= 1.03"

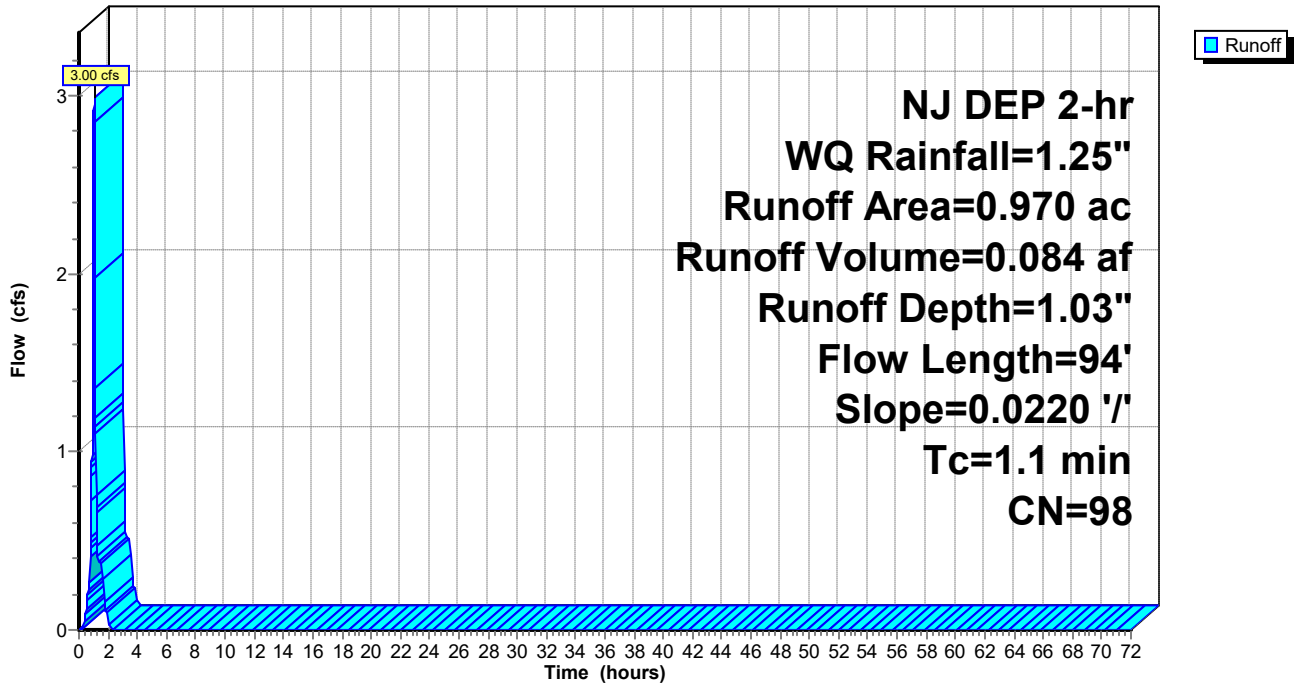
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.970	98	Paved parking, HSG D
0.970	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	94	0.0220	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.11 cfs @ 1.09 hrs, Volume= 0.002 af, Depth= 0.17"

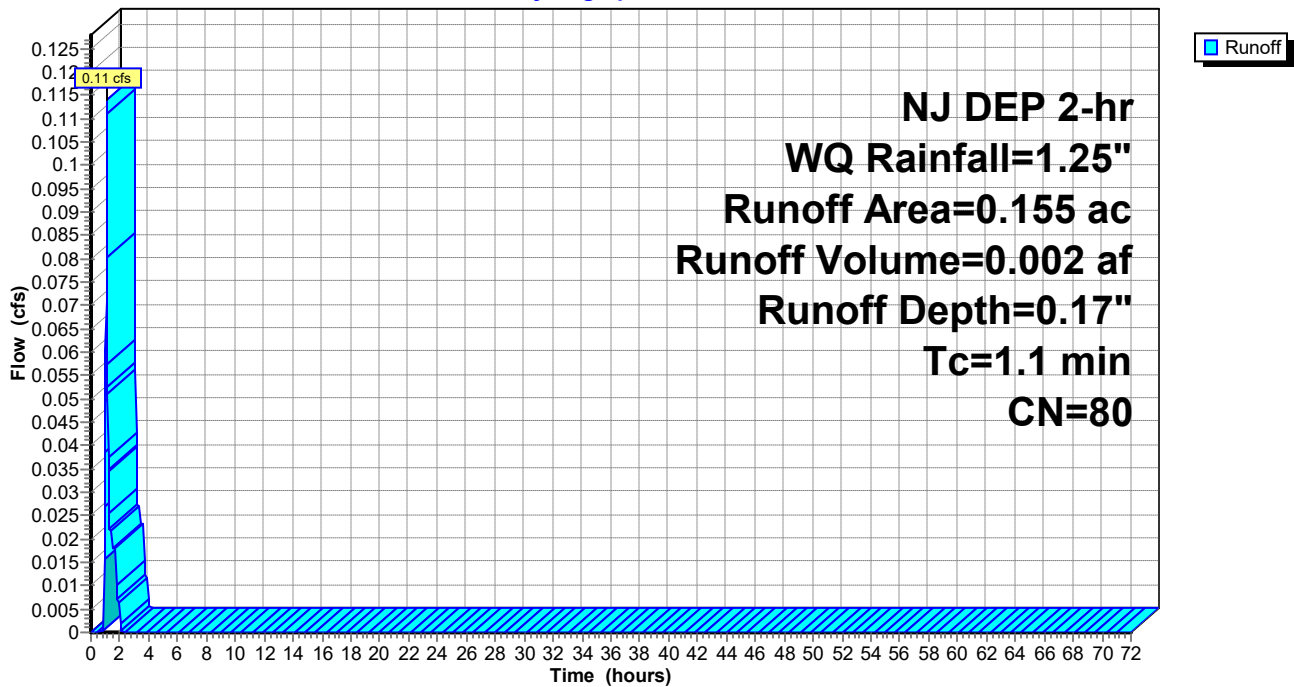
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.155	80	>75% Grass cover, Good, HSG D
0.155	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment 8I: IMPERVIOUS

Runoff = 0.74 cfs @ 1.08 hrs, Volume= 0.021 af, Depth= 1.03"

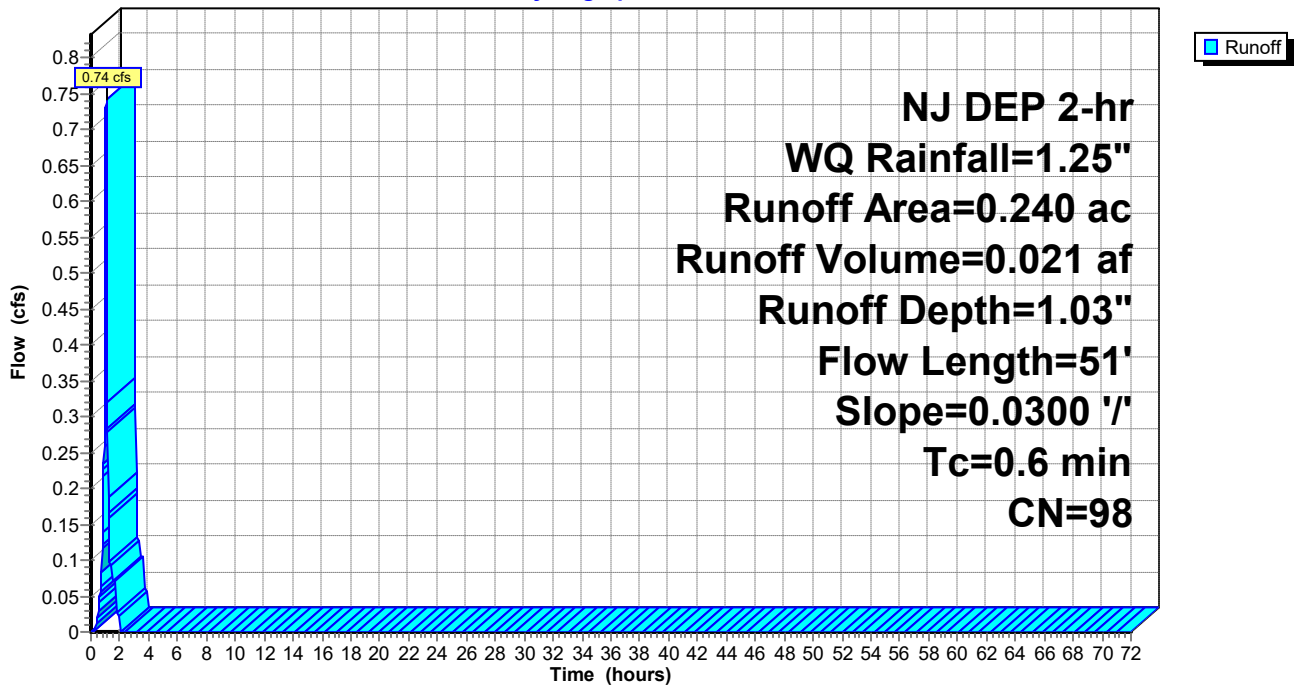
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0300	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 8I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9I: IMPERVIOUS

Runoff = 0.96 cfs @ 1.08 hrs, Volume= 0.027 af, Depth= 1.03"

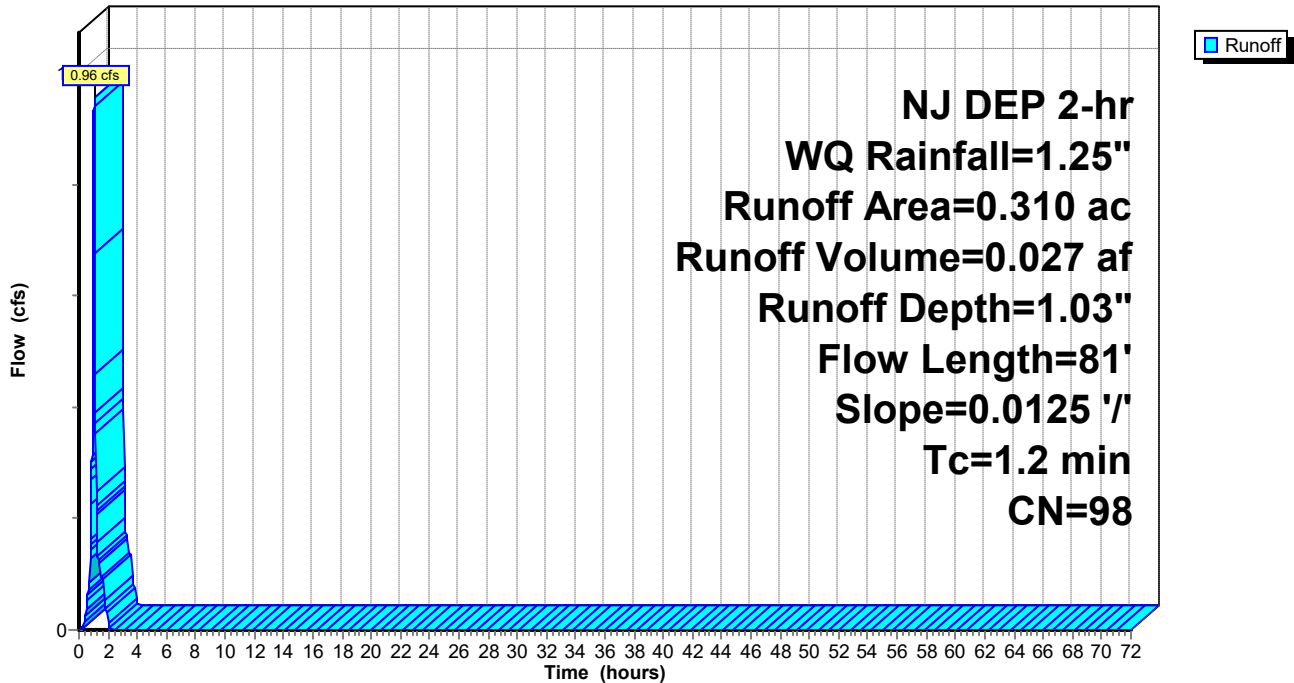
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG D
0.310	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	81	0.0125	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9P: PERVIOUS

Runoff = 0.03 cfs @ 1.09 hrs, Volume= 0.001 af, Depth= 0.17"

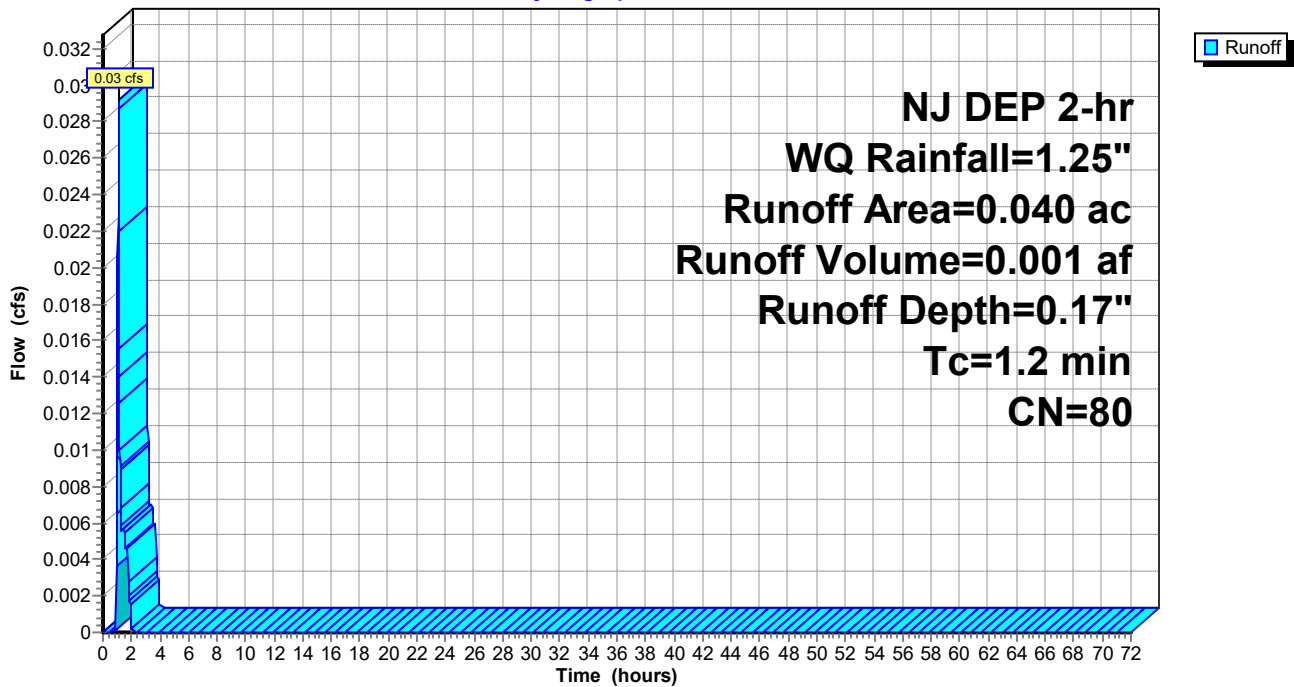
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.040	80	>75% Grass cover, Good, HSG D
0.040	80	100.00% Pervious Area

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

Subcatchment 9P: PERVIOUS

Hydrograph



Summary for Subcatchment 10I: IMPERVIOUS

Runoff = 1.98 cfs @ 1.08 hrs, Volume= 0.055 af, Depth= 1.03"

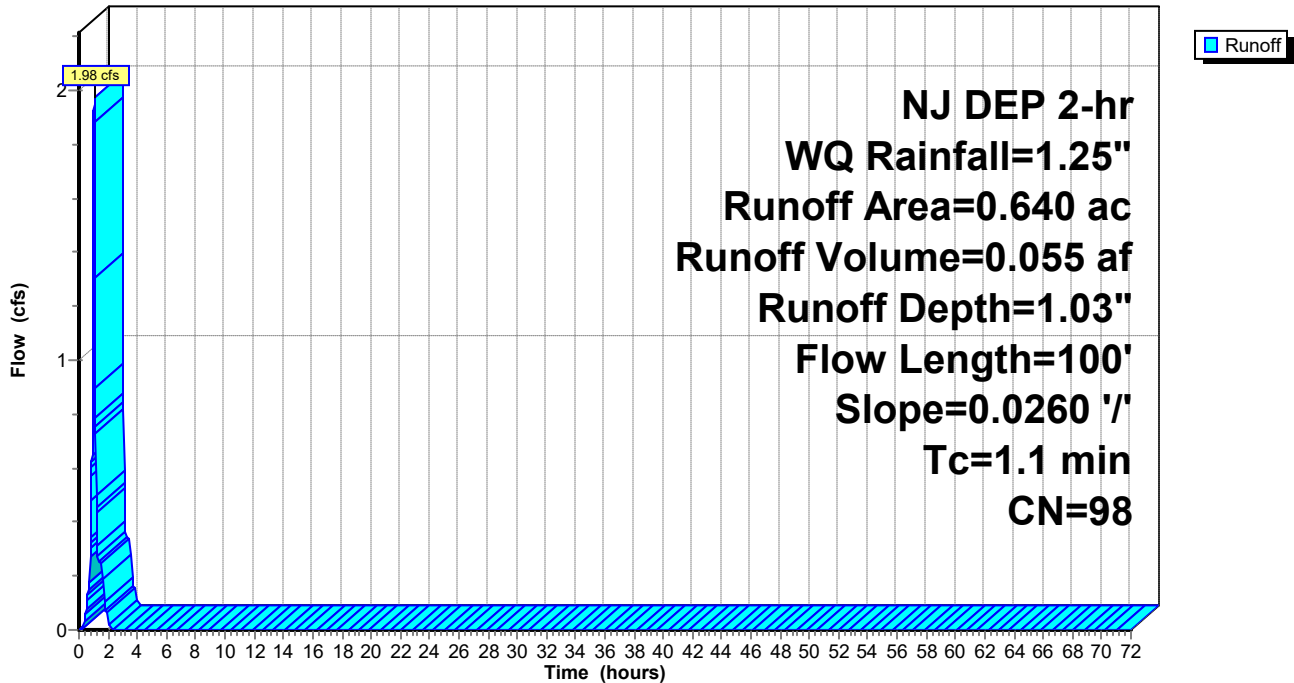
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.640	98	Paved parking, HSG D
0.640	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0260	1.57		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 10I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 10P: PERVIOUS

Runoff = 0.05 cfs @ 1.09 hrs, Volume= 0.001 af, Depth= 0.17"

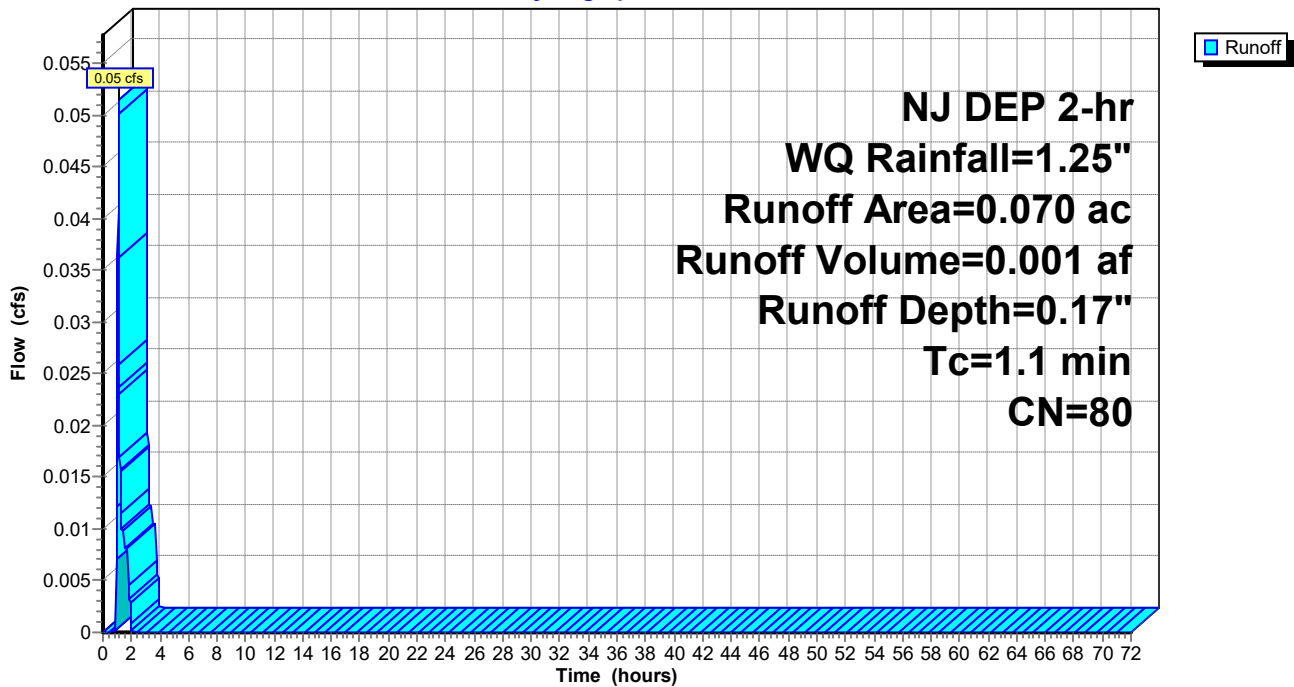
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.070	80	>75% Grass cover, Good, HSG D
0.070	80	100.00% Pervious Area

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

Subcatchment 10P: PERVIOUS

Hydrograph



Summary for Subcatchment I2: OFFSITE

Runoff = 0.46 cfs @ 1.08 hrs, Volume= 0.013 af, Depth= 1.03"

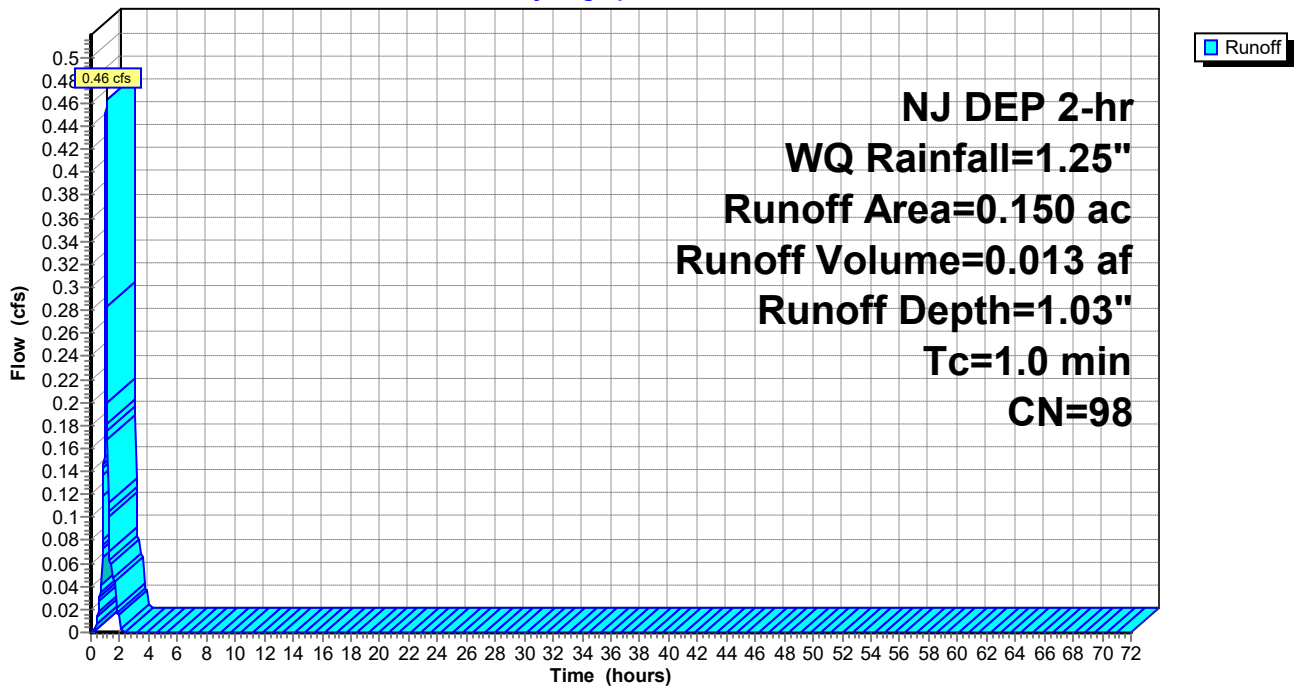
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG D
0.150	98	100.00% Impervious Area

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

Subcatchment I2: OFFSITE

Hydrograph



Summary for Subcatchment I3: IMPERVIOUS

Runoff = 4.54 cfs @ 1.08 hrs, Volume= 0.127 af, Depth= 1.03"

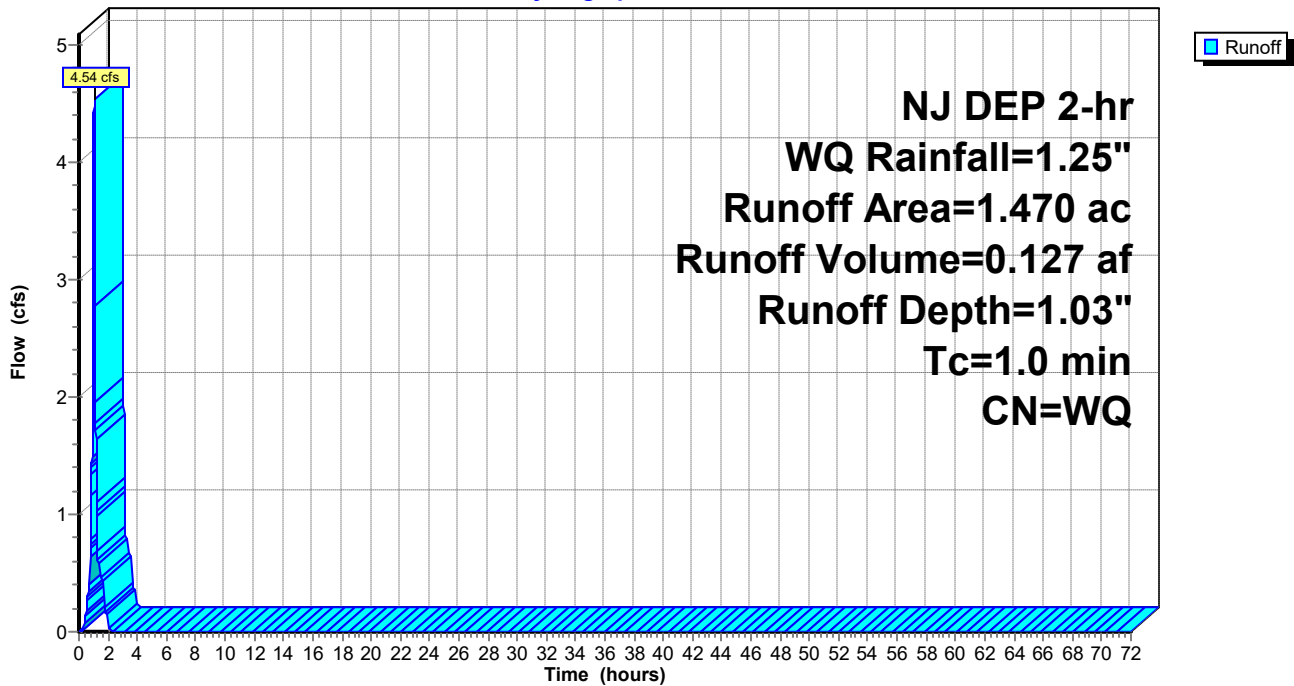
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
1.330	98	Unconnected roofs, HSG D
0.140	98	Unconnected pavement, HSG D
1.470		Weighted Average
1.470	98	100.00% Impervious Area
1.470		100.00% Unconnected

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

Subcatchment I3: IMPERVIOUS

Hydrograph



Summary for Subcatchment P2: OFFSITE

Runoff = 0.18 cfs @ 1.09 hrs, Volume= 0.004 af, Depth= 0.17"

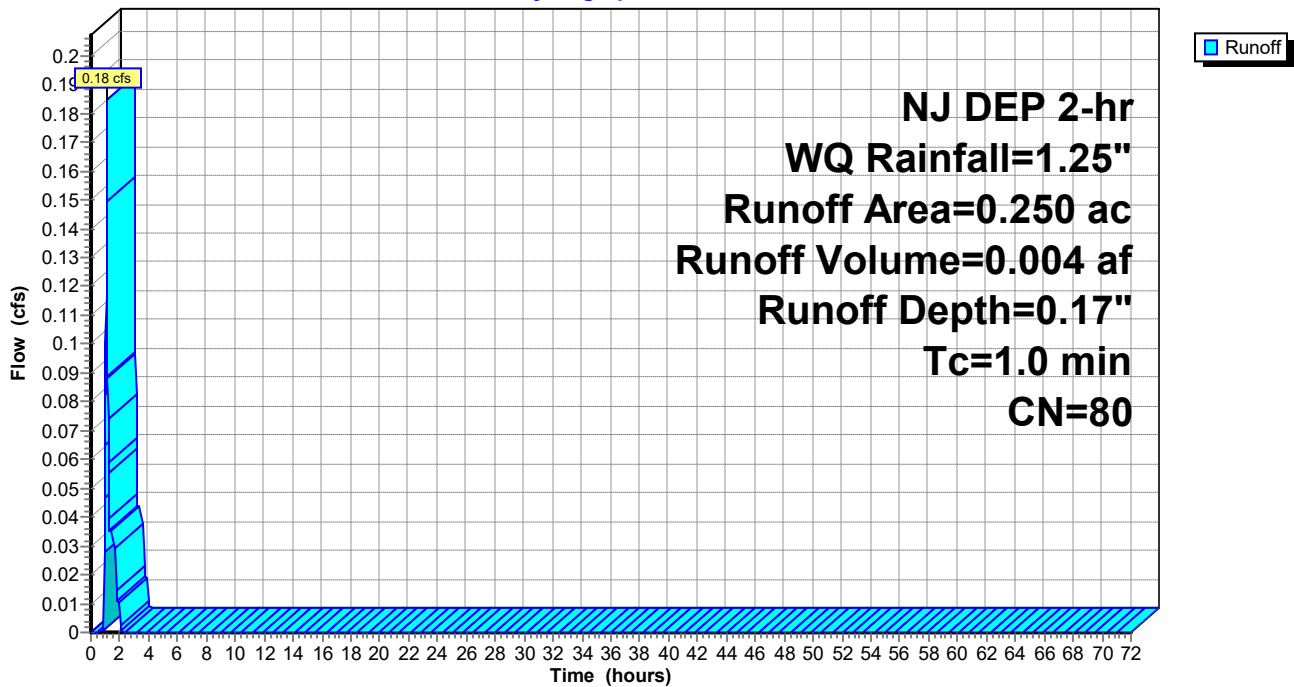
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P2: OFFSITE

Hydrograph



Summary for Subcatchment P3: PERVIOUS

Runoff = 0.18 cfs @ 1.09 hrs, Volume= 0.004 af, Depth= 0.17"

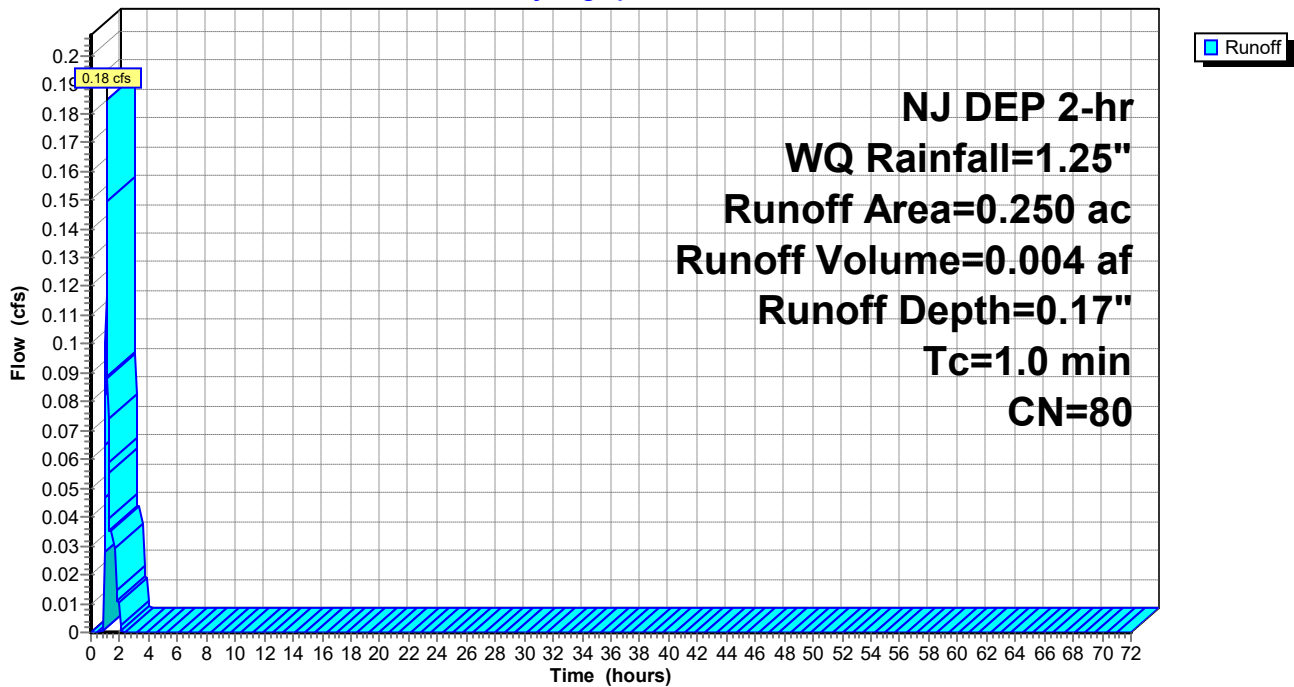
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P3: PERVIOUS

Hydrograph



Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 0.77" for WQ event
 Inflow = 1.44 cfs @ 1.08 hrs, Volume= 0.039 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 70.81' @ 2.05 hrs Surf.Area= 1,499 sf Storage= 1,697 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	8,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	432	0	0
69.50	686	280	280
70.50	1,294	990	1,270
71.50	1,963	1,629	2,898
72.50	2,677	2,320	5,218
73.50	3,448	3,063	8,281

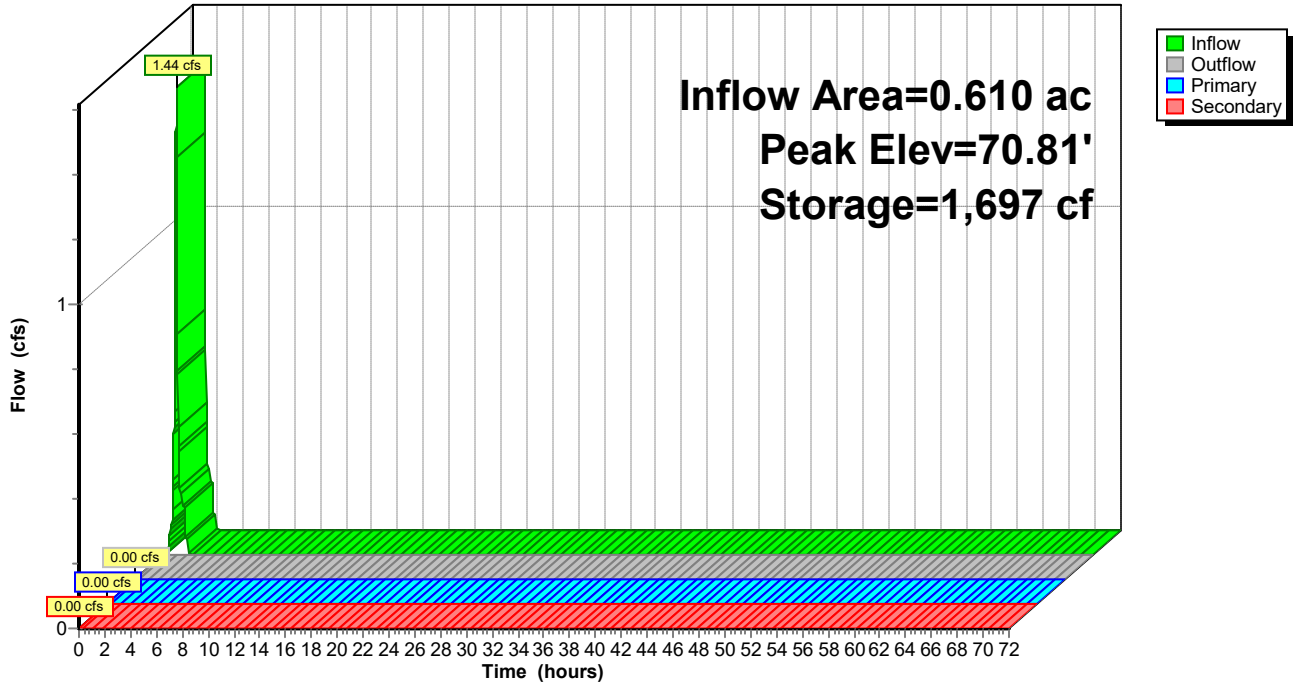
Device	Routing	Invert	Outlet Devices
#1	Primary	67.49'	24.0" Round Culvert L= 165.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.49' / 67.00' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	73.50'	50.0' 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

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)
 ↑1=Culvert (Passes 0.00 cfs of 7.48 cfs potential flow)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph



Hydrograph for Pond B2: SMALL-SCALE BIORETENTION 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	69.00	0.00	0.00	0.00
2.00	0.05	1,695	70.80	0.00	0.00	0.00
4.00	0.00	1,697	70.81	0.00	0.00	0.00
6.00	0.00	1,697	70.81	0.00	0.00	0.00
8.00	0.00	1,697	70.81	0.00	0.00	0.00
10.00	0.00	1,697	70.81	0.00	0.00	0.00
12.00	0.00	1,697	70.81	0.00	0.00	0.00
14.00	0.00	1,697	70.81	0.00	0.00	0.00
16.00	0.00	1,697	70.81	0.00	0.00	0.00
18.00	0.00	1,697	70.81	0.00	0.00	0.00
20.00	0.00	1,697	70.81	0.00	0.00	0.00
22.00	0.00	1,697	70.81	0.00	0.00	0.00
24.00	0.00	1,697	70.81	0.00	0.00	0.00
26.00	0.00	1,697	70.81	0.00	0.00	0.00
28.00	0.00	1,697	70.81	0.00	0.00	0.00
30.00	0.00	1,697	70.81	0.00	0.00	0.00
32.00	0.00	1,697	70.81	0.00	0.00	0.00
34.00	0.00	1,697	70.81	0.00	0.00	0.00
36.00	0.00	1,697	70.81	0.00	0.00	0.00
38.00	0.00	1,697	70.81	0.00	0.00	0.00
40.00	0.00	1,697	70.81	0.00	0.00	0.00
42.00	0.00	1,697	70.81	0.00	0.00	0.00
44.00	0.00	1,697	70.81	0.00	0.00	0.00
46.00	0.00	1,697	70.81	0.00	0.00	0.00
48.00	0.00	1,697	70.81	0.00	0.00	0.00
50.00	0.00	1,697	70.81	0.00	0.00	0.00
52.00	0.00	1,697	70.81	0.00	0.00	0.00
54.00	0.00	1,697	70.81	0.00	0.00	0.00
56.00	0.00	1,697	70.81	0.00	0.00	0.00
58.00	0.00	1,697	70.81	0.00	0.00	0.00
60.00	0.00	1,697	70.81	0.00	0.00	0.00
62.00	0.00	1,697	70.81	0.00	0.00	0.00
64.00	0.00	1,697	70.81	0.00	0.00	0.00
66.00	0.00	1,697	70.81	0.00	0.00	0.00
68.00	0.00	1,697	70.81	0.00	0.00	0.00
70.00	0.00	1,697	70.81	0.00	0.00	0.00
72.00	0.00	1,697	70.81	0.00	0.00	0.00

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 0.76" for WQ event
 Inflow = 10.73 cfs @ 1.08 hrs, Volume= 0.408 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.90' @ 72.00 hrs Surf.Area= 20,395 sf Storage= 17,770 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.95'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Device 1	69.40'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	70.08'	50.0' 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

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

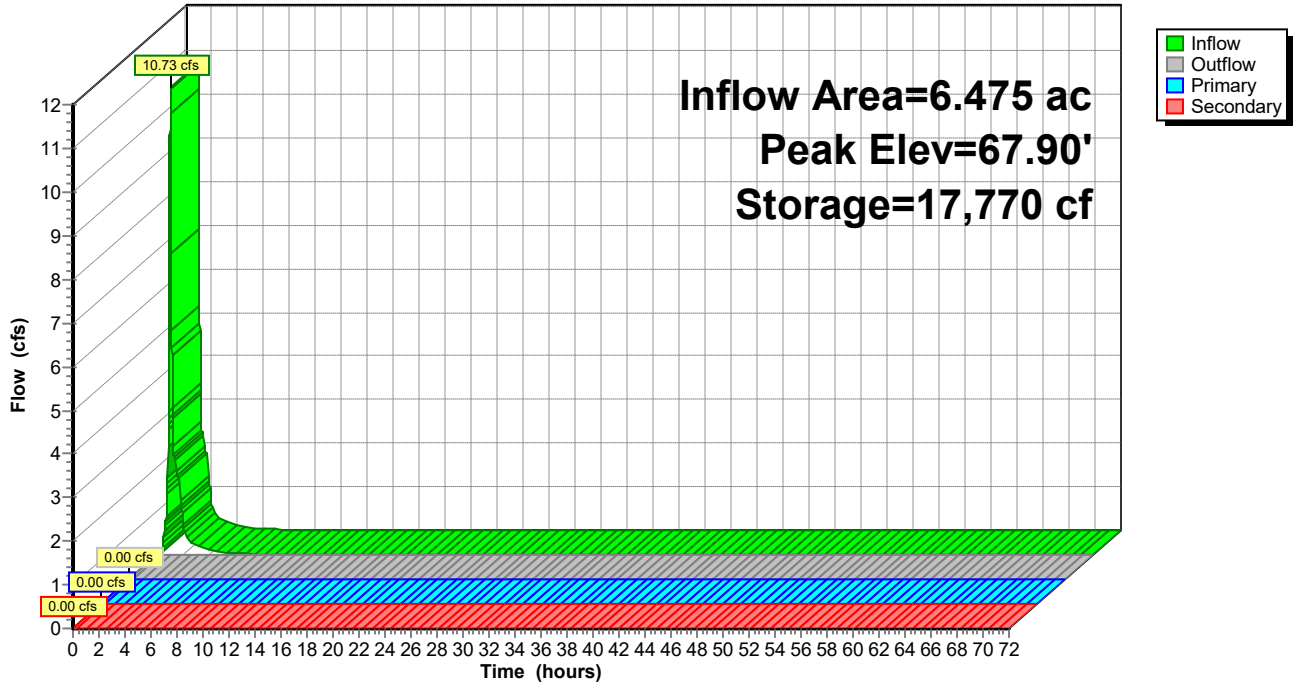
- ↑ 1=Culvert (Passes 0.00 cfs of 10.18 cfs potential flow)
- ↑ 2=Orifice/Grate (Controls 0.00 cfs)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

- ↑ 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	67.00	0.00	0.00	0.00
2.00	0.95	14,975	67.77	0.00	0.00	0.00
4.00	0.11	16,903	67.86	0.00	0.00	0.00
6.00	0.03	17,344	67.88	0.00	0.00	0.00
8.00	0.02	17,513	67.89	0.00	0.00	0.00
10.00	0.01	17,602	67.90	0.00	0.00	0.00
12.00	0.01	17,651	67.90	0.00	0.00	0.00
14.00	0.00	17,685	67.90	0.00	0.00	0.00
16.00	0.00	17,708	67.90	0.00	0.00	0.00
18.00	0.00	17,725	67.90	0.00	0.00	0.00
20.00	0.00	17,736	67.90	0.00	0.00	0.00
22.00	0.00	17,745	67.90	0.00	0.00	0.00
24.00	0.00	17,751	67.90	0.00	0.00	0.00
26.00	0.00	17,756	67.90	0.00	0.00	0.00
28.00	0.00	17,759	67.90	0.00	0.00	0.00
30.00	0.00	17,762	67.90	0.00	0.00	0.00
32.00	0.00	17,764	67.90	0.00	0.00	0.00
34.00	0.00	17,765	67.90	0.00	0.00	0.00
36.00	0.00	17,766	67.90	0.00	0.00	0.00
38.00	0.00	17,767	67.90	0.00	0.00	0.00
40.00	0.00	17,768	67.90	0.00	0.00	0.00
42.00	0.00	17,768	67.90	0.00	0.00	0.00
44.00	0.00	17,769	67.90	0.00	0.00	0.00
46.00	0.00	17,769	67.90	0.00	0.00	0.00
48.00	0.00	17,769	67.90	0.00	0.00	0.00
50.00	0.00	17,769	67.90	0.00	0.00	0.00
52.00	0.00	17,770	67.90	0.00	0.00	0.00
54.00	0.00	17,770	67.90	0.00	0.00	0.00
56.00	0.00	17,770	67.90	0.00	0.00	0.00
58.00	0.00	17,770	67.90	0.00	0.00	0.00
60.00	0.00	17,770	67.90	0.00	0.00	0.00
62.00	0.00	17,770	67.90	0.00	0.00	0.00
64.00	0.00	17,770	67.90	0.00	0.00	0.00
66.00	0.00	17,770	67.90	0.00	0.00	0.00
68.00	0.00	17,770	67.90	0.00	0.00	0.00
70.00	0.00	17,770	67.90	0.00	0.00	0.00
72.00	0.00	17,770	67.90	0.00	0.00	0.00

Summary for Pond P10: Porous Pavement 10

Inflow Area = 0.710 ac, 90.14% Impervious, Inflow Depth = 0.95" for WQ event
 Inflow = 2.03 cfs @ 1.08 hrs, Volume= 0.056 af
 Outflow = 0.15 cfs @ 1.76 hrs, Volume= 0.039 af, Atten= 93%, Lag= 41.0 min
 Primary = 0.15 cfs @ 1.76 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.16' @ 1.76 hrs Surf.Area= 9,090 sf Storage= 2,036 cf

Plug-Flow detention time= 189.7 min calculated for 0.039 af (70% of inflow)
 Center-of-Mass det. time= 181.8 min (247.7 - 66.0)

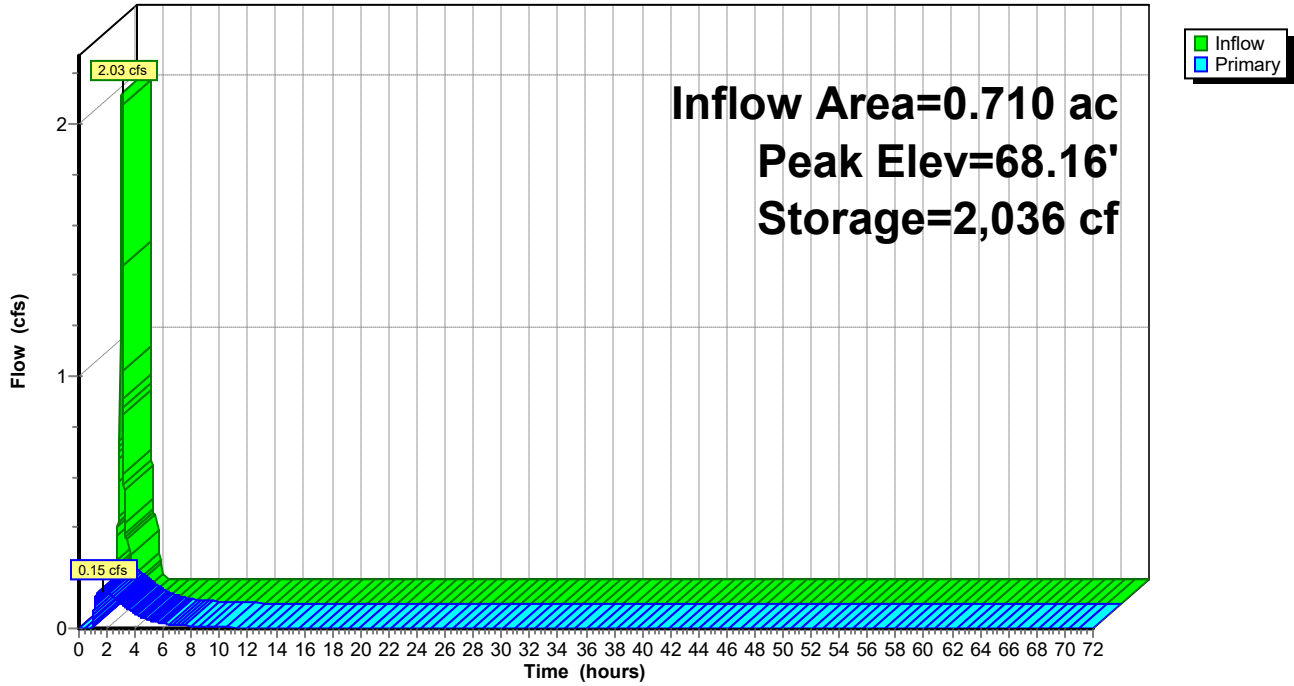
Volume	Invert	Avail.Storage	Storage Description
#1	67.61'	9,763 cf	18.00'W x 505.00'L x 4.00'H Prismaoid 36,360 cf Overall - 6,776 cf Embedded = 29,584 cf x 33.0% Voids
#2	67.86'	6,346 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 505.0' 6,776 cf Overall - 0.4" Wall Thickness = 6,346 cf
		16,109 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.61'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.61' / 67.53' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	67.86'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	70.50'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.15 cfs @ 1.76 hrs HW=68.16' (Free Discharge)
 1=Culvert (Passes 0.15 cfs of 0.87 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.15 cfs @ 2.16 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P10: Porous Pavement 10

Hydrograph



2024-04-26 Post-Development-POI 2

NJ DEP 2-hr WQ Rainfall=1.25"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P10: Porous Pavement 10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.61	0.00
2.00	0.07	1,972	68.15	0.14
4.00	0.00	1,253	67.99	0.06
6.00	0.00	1,000	67.93	0.02
8.00	0.00	900	67.91	0.01
10.00	0.00	851	67.89	0.00
12.00	0.00	825	67.89	0.00
14.00	0.00	806	67.88	0.00
16.00	0.00	791	67.88	0.00
18.00	0.00	780	67.87	0.00
20.00	0.00	771	67.87	0.00
22.00	0.00	764	67.87	0.00
24.00	0.00	759	67.87	0.00
26.00	0.00	755	67.86	0.00
28.00	0.00	752	67.86	0.00
30.00	0.00	750	67.86	0.00
32.00	0.00	748	67.86	0.00
34.00	0.00	747	67.86	0.00
36.00	0.00	746	67.86	0.00
38.00	0.00	745	67.86	0.00
40.00	0.00	744	67.86	0.00
42.00	0.00	744	67.86	0.00
44.00	0.00	743	67.86	0.00
46.00	0.00	743	67.86	0.00
48.00	0.00	743	67.86	0.00
50.00	0.00	743	67.86	0.00
52.00	0.00	743	67.86	0.00
54.00	0.00	743	67.86	0.00
56.00	0.00	742	67.86	0.00
58.00	0.00	742	67.86	0.00
60.00	0.00	742	67.86	0.00
62.00	0.00	742	67.86	0.00
64.00	0.00	742	67.86	0.00
66.00	0.00	742	67.86	0.00
68.00	0.00	742	67.86	0.00
70.00	0.00	742	67.86	0.00
72.00	0.00	742	67.86	0.00

Summary for Pond P5: Porous Pavement 5

Inflow Area = 1.125 ac, 86.22% Impervious, Inflow Depth = 0.92" for WQ event
 Inflow = 3.11 cfs @ 1.08 hrs, Volume= 0.086 af
 Outflow = 0.50 cfs @ 1.27 hrs, Volume= 0.058 af, Atten= 84%, Lag= 11.5 min
 Primary = 0.50 cfs @ 1.27 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.84' @ 1.27 hrs Surf.Area= 14,886 sf Storage= 2,658 cf

Plug-Flow detention time= 82.2 min calculated for 0.058 af (68% of inflow)
 Center-of-Mass det. time= 73.3 min (139.4 - 66.1)

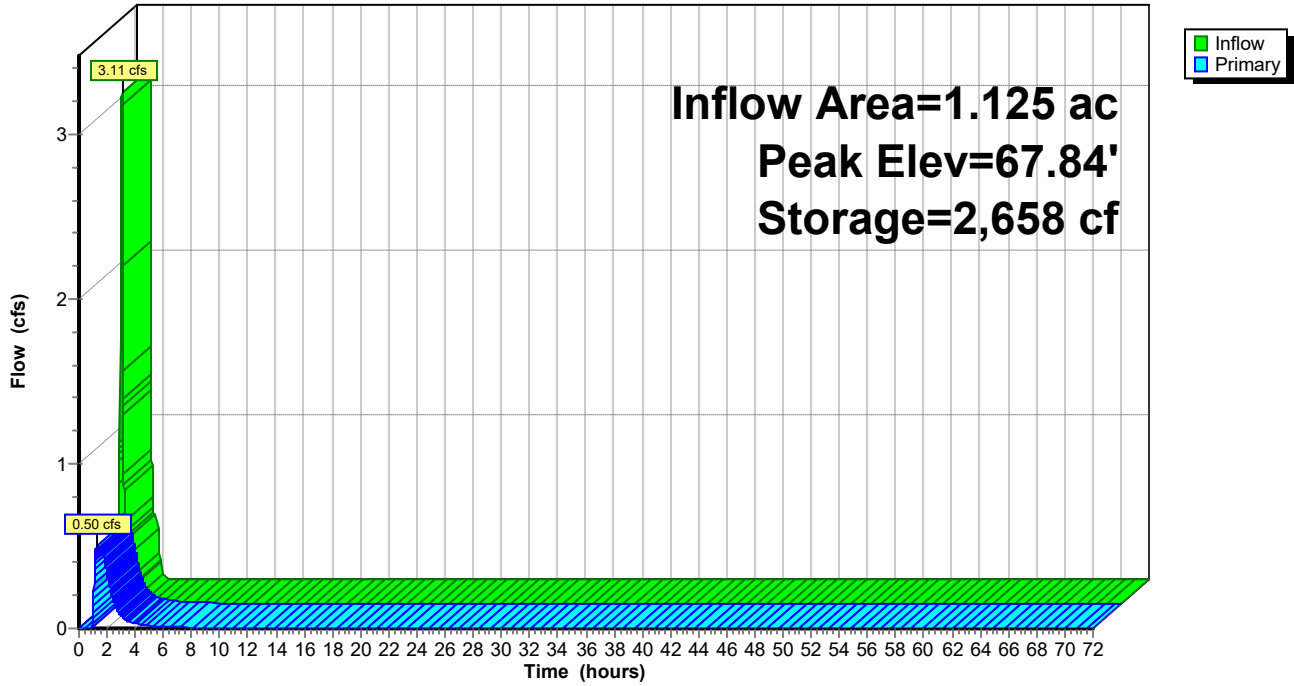
Volume	Invert	Avail.Storage	Storage Description
#1	67.37'	13,040 cf	18.00'W x 827.00'L x 3.40'H Prismatic 50,612 cf Overall - 11,097 cf Embedded = 39,516 cf x 33.0% Voids
#2	67.62'	10,392 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 827.0' 11,097 cf Overall - 0.4" Wall Thickness = 10,392 cf
		23,433 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.37'	24.0" Round Culvert L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.37' / 67.19' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.62'	2.5" Vert. Orifice/Grate X 9.00 C= 0.600
#3	Device 1	69.88'	8.0" W x 6.0" H Vert. Orifice/Grate X 7.00 C= 0.600

Primary OutFlow Max=0.50 cfs @ 1.27 hrs HW=67.84' (Free Discharge)
 1=Culvert (Passes 0.50 cfs of 0.83 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.50 cfs @ 1.62 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P5: Porous Pavement 5

Hydrograph



2024-04-26 Post-Development-POI 2

NJ DEP 2-hr WQ Rainfall=1.25"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P5: Porous Pavement 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.37	0.00
2.00	0.10	2,214	67.78	0.34
4.00	0.00	1,428	67.66	0.03
6.00	0.00	1,317	67.64	0.01
8.00	0.00	1,274	67.63	0.00
10.00	0.00	1,249	67.63	0.00
12.00	0.00	1,235	67.62	0.00
14.00	0.00	1,227	67.62	0.00
16.00	0.00	1,222	67.62	0.00
18.00	0.00	1,219	67.62	0.00
20.00	0.00	1,218	67.62	0.00
22.00	0.00	1,217	67.62	0.00
24.00	0.00	1,216	67.62	0.00
26.00	0.00	1,216	67.62	0.00
28.00	0.00	1,216	67.62	0.00
30.00	0.00	1,216	67.62	0.00
32.00	0.00	1,216	67.62	0.00
34.00	0.00	1,215	67.62	0.00
36.00	0.00	1,215	67.62	0.00
38.00	0.00	1,215	67.62	0.00
40.00	0.00	1,215	67.62	0.00
42.00	0.00	1,215	67.62	0.00
44.00	0.00	1,215	67.62	0.00
46.00	0.00	1,215	67.62	0.00
48.00	0.00	1,215	67.62	0.00
50.00	0.00	1,215	67.62	0.00
52.00	0.00	1,215	67.62	0.00
54.00	0.00	1,215	67.62	0.00
56.00	0.00	1,215	67.62	0.00
58.00	0.00	1,215	67.62	0.00
60.00	0.00	1,215	67.62	0.00
62.00	0.00	1,215	67.62	0.00
64.00	0.00	1,215	67.62	0.00
66.00	0.00	1,215	67.62	0.00
68.00	0.00	1,215	67.62	0.00
70.00	0.00	1,215	67.62	0.00
72.00	0.00	1,215	67.62	0.00

Summary for Pond P8: Porous Pavement 8

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth = 1.03" for WQ event
 Inflow = 0.74 cfs @ 1.08 hrs, Volume= 0.021 af
 Outflow = 0.23 cfs @ 1.17 hrs, Volume= 0.015 af, Atten= 69%, Lag= 5.7 min
 Primary = 0.23 cfs @ 1.17 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.87' @ 1.17 hrs Surf.Area= 3,078 sf Storage= 563 cf

Plug-Flow detention time= 42.9 min calculated for 0.015 af (72% of inflow)
 Center-of-Mass det. time= 34.9 min (100.1 - 65.3)

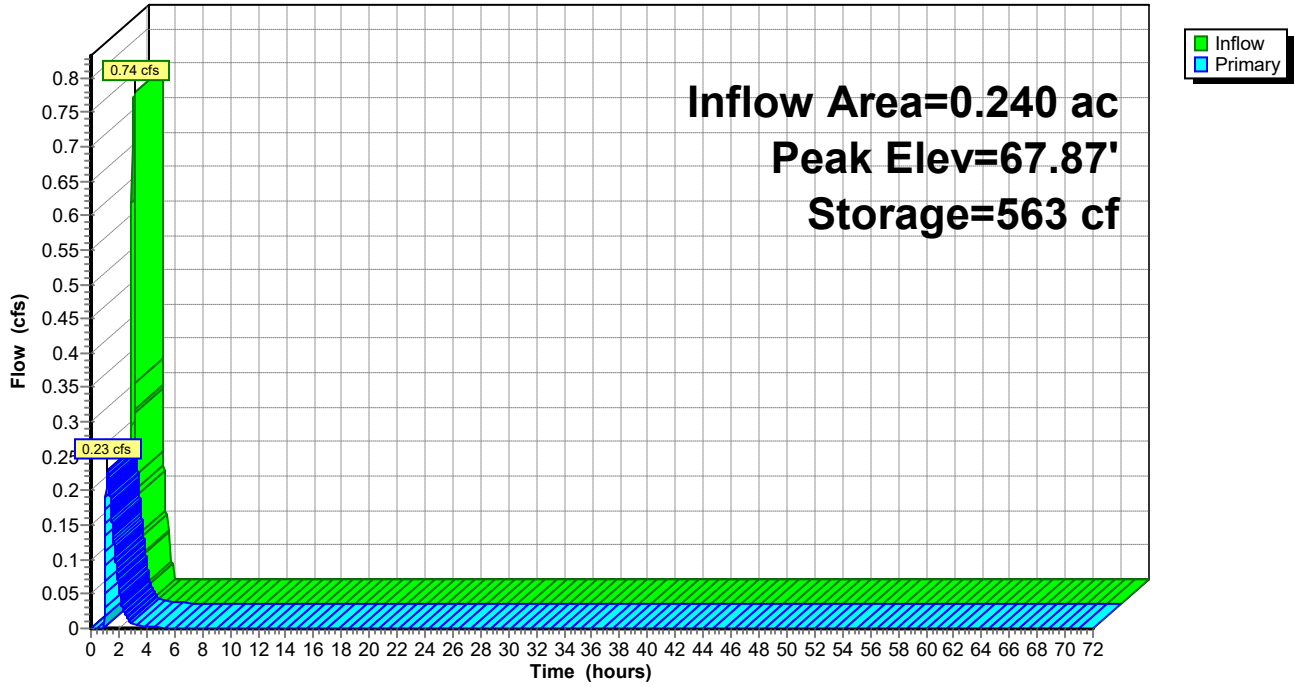
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	3,306 cf	18.00'W x 171.00'L x 4.00'H Prismaoid 12,312 cf Overall - 2,294 cf Embedded = 10,018 cf x 33.0% Voids
#2	67.64'	2,149 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 171.0' 2,294 cf Overall - 0.4" Wall Thickness = 2,149 cf
		5,455 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.24' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	70.13'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.23 cfs @ 1.17 hrs HW=67.87' (Free Discharge)
 1=Culvert (Passes 0.23 cfs of 0.98 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.23 cfs @ 1.68 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P8: Porous Pavement 8

Hydrograph



2024-04-26 Post-Development-POI 2

NJ DEP 2-hr WQ Rainfall=1.25"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P8: Porous Pavement 8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.02	364	67.73	0.06
4.00	0.00	266	67.65	0.00
6.00	0.00	254	67.64	0.00
8.00	0.00	252	67.64	0.00
10.00	0.00	251	67.64	0.00
12.00	0.00	251	67.64	0.00
14.00	0.00	251	67.64	0.00
16.00	0.00	251	67.64	0.00
18.00	0.00	251	67.64	0.00
20.00	0.00	251	67.64	0.00
22.00	0.00	251	67.64	0.00
24.00	0.00	251	67.64	0.00
26.00	0.00	251	67.64	0.00
28.00	0.00	251	67.64	0.00
30.00	0.00	251	67.64	0.00
32.00	0.00	251	67.64	0.00
34.00	0.00	251	67.64	0.00
36.00	0.00	251	67.64	0.00
38.00	0.00	251	67.64	0.00
40.00	0.00	251	67.64	0.00
42.00	0.00	251	67.64	0.00
44.00	0.00	251	67.64	0.00
46.00	0.00	251	67.64	0.00
48.00	0.00	251	67.64	0.00
50.00	0.00	251	67.64	0.00
52.00	0.00	251	67.64	0.00
54.00	0.00	251	67.64	0.00
56.00	0.00	251	67.64	0.00
58.00	0.00	251	67.64	0.00
60.00	0.00	251	67.64	0.00
62.00	0.00	251	67.64	0.00
64.00	0.00	251	67.64	0.00
66.00	0.00	251	67.64	0.00
68.00	0.00	251	67.64	0.00
70.00	0.00	251	67.64	0.00
72.00	0.00	251	67.64	0.00

Summary for Pond P9: Porous Pavement 9

Inflow Area = 0.350 ac, 88.57% Impervious, Inflow Depth = 0.94" for WQ event
 Inflow = 0.99 cfs @ 1.08 hrs, Volume= 0.027 af
 Outflow = 0.10 cfs @ 1.52 hrs, Volume= 0.017 af, Atten= 89%, Lag= 26.7 min
 Primary = 0.10 cfs @ 1.52 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 67.84' @ 1.52 hrs Surf.Area= 5,346 sf Storage= 919 cf

Plug-Flow detention time= 125.4 min calculated for 0.017 af (63% of inflow)
 Center-of-Mass det. time= 116.0 min (182.1 - 66.1)

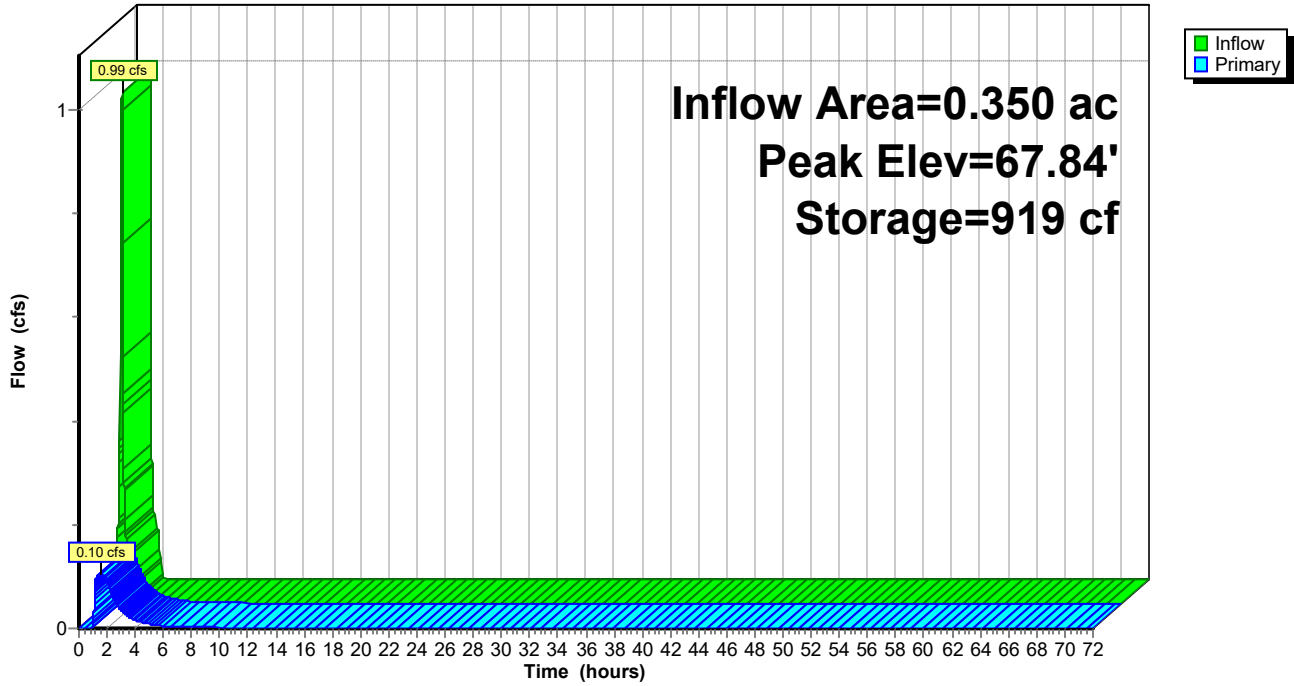
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	5,742 cf	18.00'W x 297.00'L x 4.00'H Prismaoid 21,384 cf Overall - 3,985 cf Embedded = 17,399 cf x 33.0% Voids
#2	67.64'	3,732 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 297.0' 3,985 cf Overall - 0.4" Wall Thickness = 3,732 cf
		9,474 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.32' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	69.76'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.10 cfs @ 1.52 hrs HW=67.84' (Free Discharge)
 1=Culvert (Passes 0.10 cfs of 0.89 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.10 cfs @ 1.54 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P9: Porous Pavement 9

Hydrograph



2024-04-26 Post-Development-POI 2

NJ DEP 2-hr WQ Rainfall=1.25"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P9: Porous Pavement 9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.03	859	67.82	0.09
4.00	0.00	566	67.70	0.02
6.00	0.00	500	67.67	0.00
8.00	0.00	477	67.66	0.00
10.00	0.00	462	67.65	0.00
12.00	0.00	453	67.65	0.00
14.00	0.00	447	67.65	0.00
16.00	0.00	443	67.64	0.00
18.00	0.00	441	67.64	0.00
20.00	0.00	439	67.64	0.00
22.00	0.00	438	67.64	0.00
24.00	0.00	438	67.64	0.00
26.00	0.00	437	67.64	0.00
28.00	0.00	437	67.64	0.00
30.00	0.00	437	67.64	0.00
32.00	0.00	437	67.64	0.00
34.00	0.00	437	67.64	0.00
36.00	0.00	437	67.64	0.00
38.00	0.00	437	67.64	0.00
40.00	0.00	437	67.64	0.00
42.00	0.00	437	67.64	0.00
44.00	0.00	437	67.64	0.00
46.00	0.00	437	67.64	0.00
48.00	0.00	436	67.64	0.00
50.00	0.00	436	67.64	0.00
52.00	0.00	436	67.64	0.00
54.00	0.00	436	67.64	0.00
56.00	0.00	436	67.64	0.00
58.00	0.00	436	67.64	0.00
60.00	0.00	436	67.64	0.00
62.00	0.00	436	67.64	0.00
64.00	0.00	436	67.64	0.00
66.00	0.00	436	67.64	0.00
68.00	0.00	436	67.64	0.00
70.00	0.00	436	67.64	0.00
72.00	0.00	436	67.64	0.00

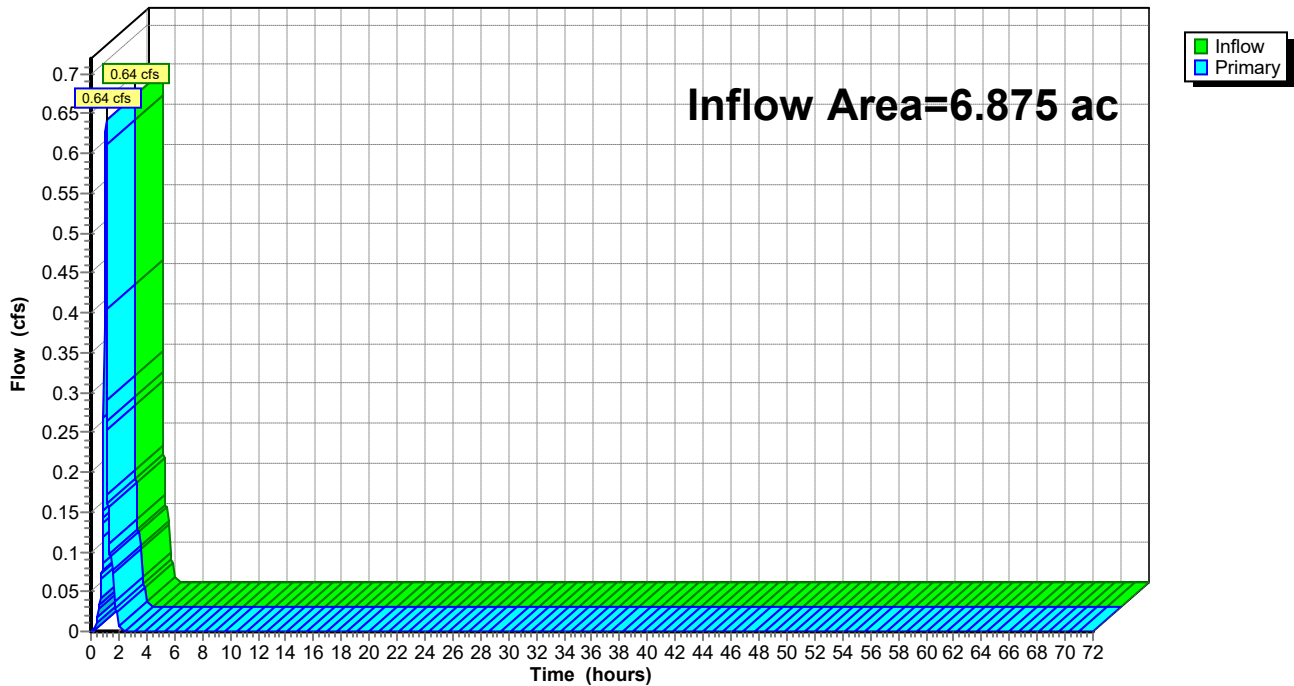
Summary for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.875 ac, 86.11% Impervious, Inflow Depth = 0.03" for WQ event
Inflow = 0.64 cfs @ 1.08 hrs, Volume= 0.017 af
Primary = 0.64 cfs @ 1.08 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



2024-04-26 Post-Development-POI 2

Prepared by HP Inc.

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NJ DEP 2-hr WQ Rainfall=1.25"

Printed 4/23/2024

Hydrograph for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.49		0.49	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 1.62 cfs @ 12.09 hrs, Volume= 0.108 af, Depth= 3.09"

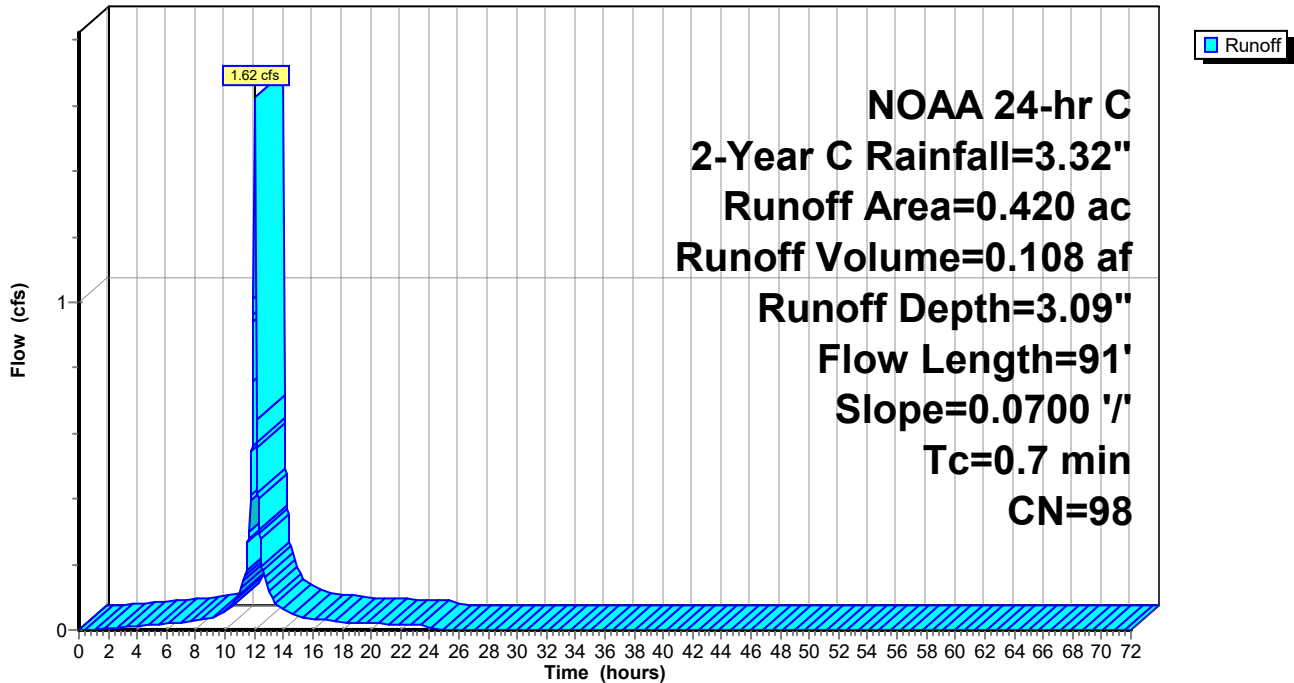
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG D
0.420	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	91	0.0700	2.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.44 cfs @ 12.10 hrs, Volume= 0.024 af, Depth= 1.49"

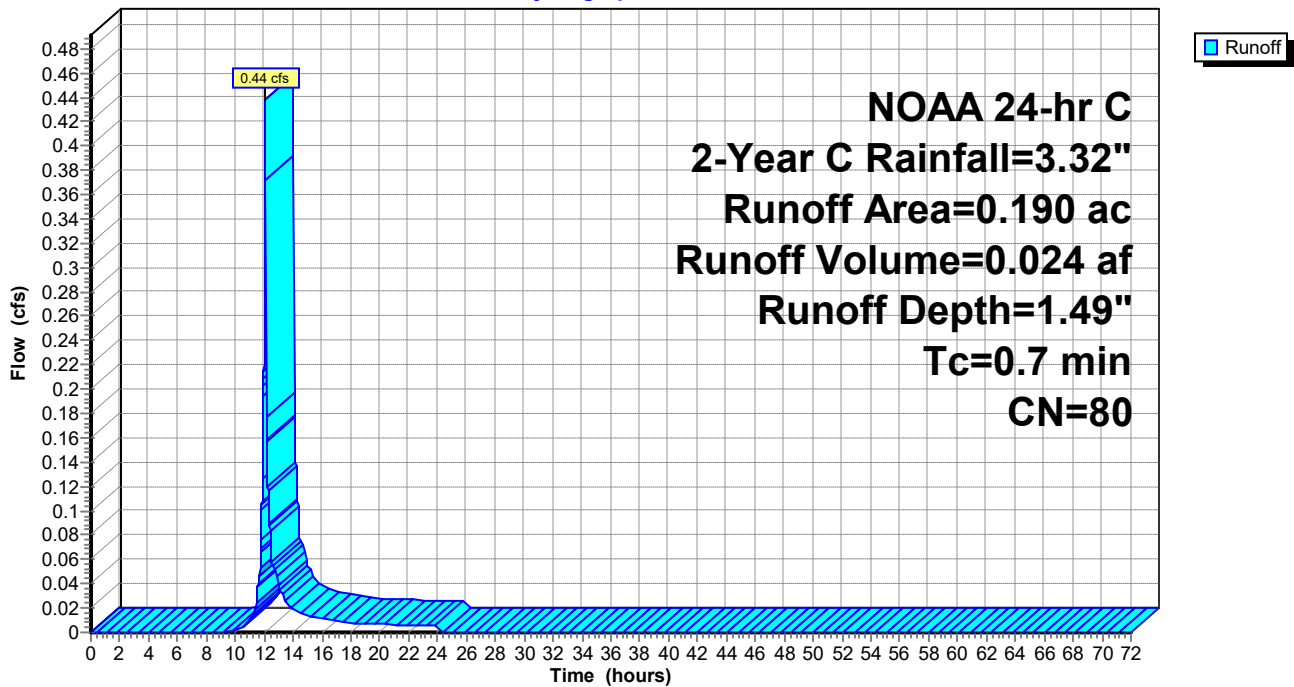
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.190	80	>75% Grass cover, Good, HSG D
0.190	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 4I: IMPERVIOUS

Runoff = 4.02 cfs @ 12.09 hrs, Volume= 0.268 af, Depth= 3.09"

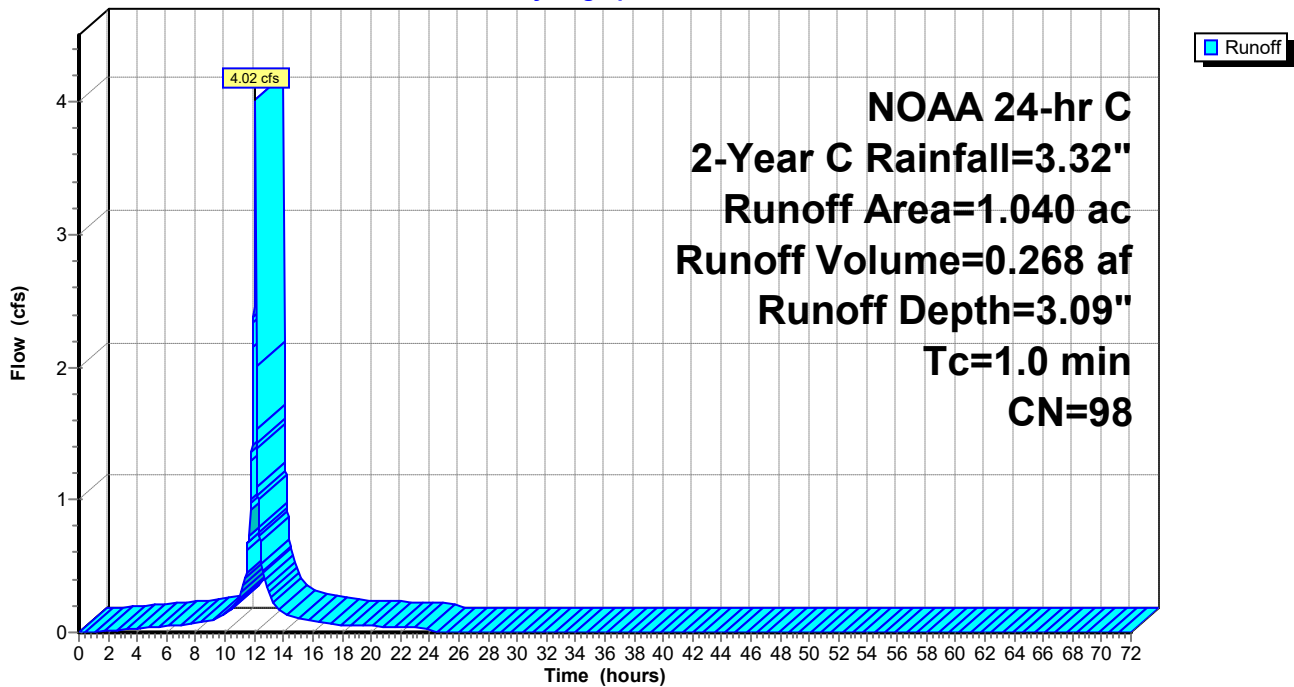
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG D
1.040	98	100.00% Impervious Area

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

Subcatchment 4I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 4P: BASIN PERVIOUS

Runoff = 2.63 cfs @ 12.09 hrs, Volume= 0.175 af, Depth= 3.09"

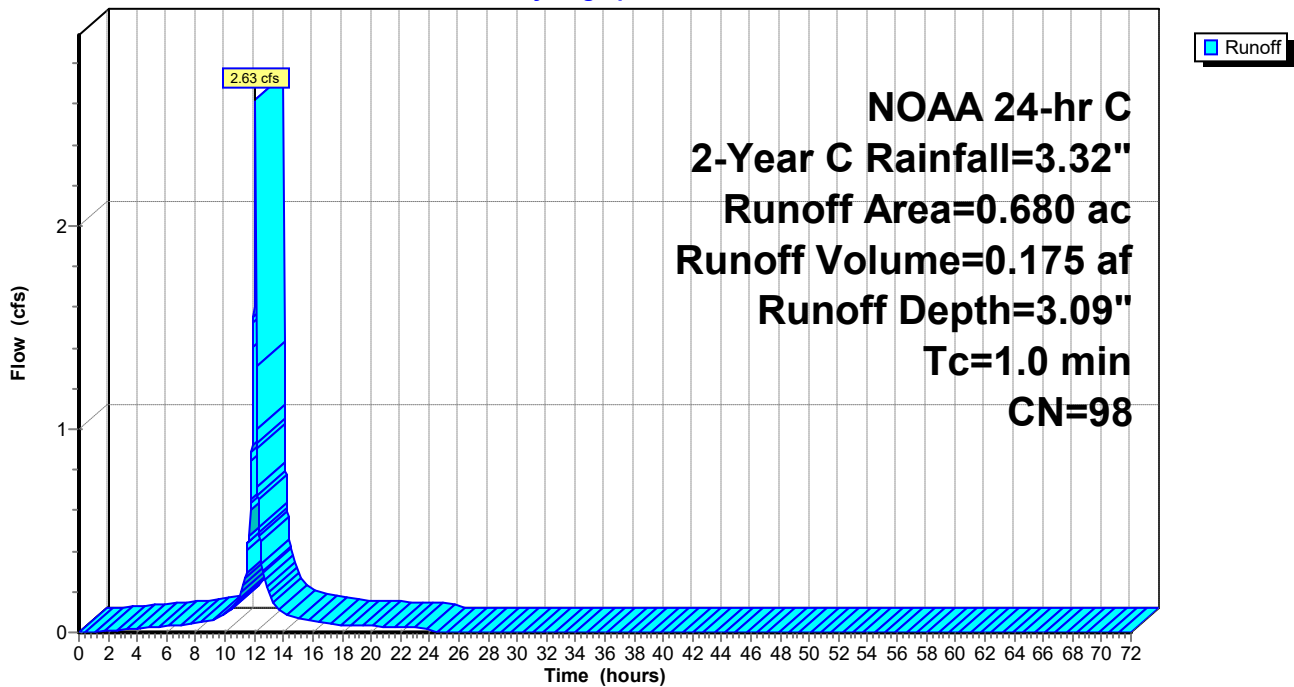
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.680	98	Paved parking, HSG D
0.680	98	100.00% Impervious Area

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

Subcatchment 4P: BASIN PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 3.75 cfs @ 12.09 hrs, Volume= 0.250 af, Depth= 3.09"

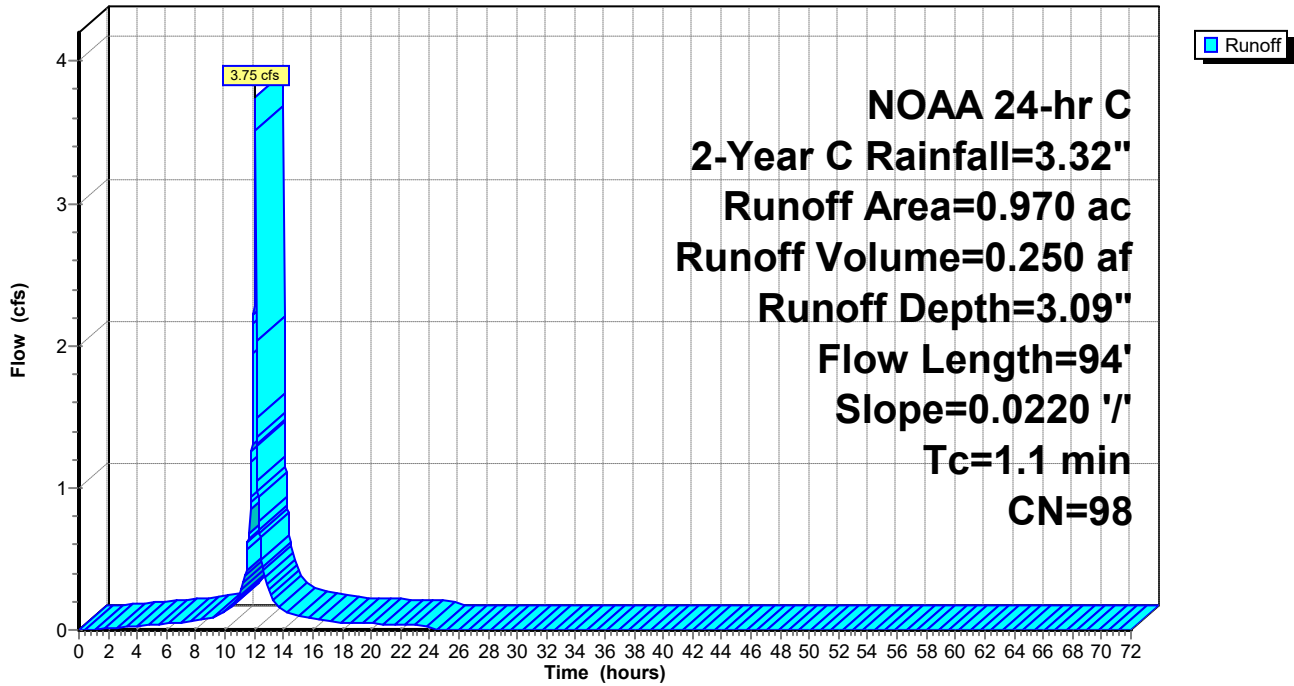
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.970	98	Paved parking, HSG D
0.970	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	94	0.0220	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.36 cfs @ 12.10 hrs, Volume= 0.019 af, Depth= 1.49"

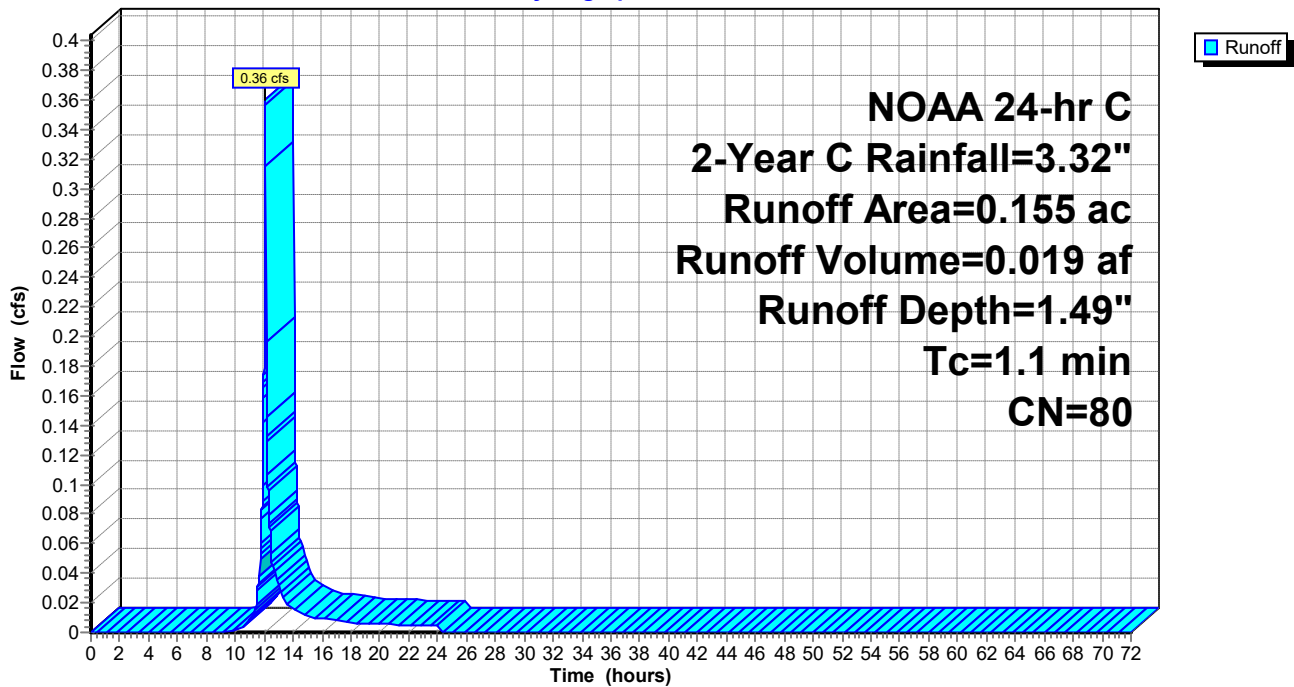
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.155	80	>75% Grass cover, Good, HSG D
0.155	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment 8I: IMPERVIOUS

Runoff = 0.93 cfs @ 12.09 hrs, Volume= 0.062 af, Depth= 3.09"

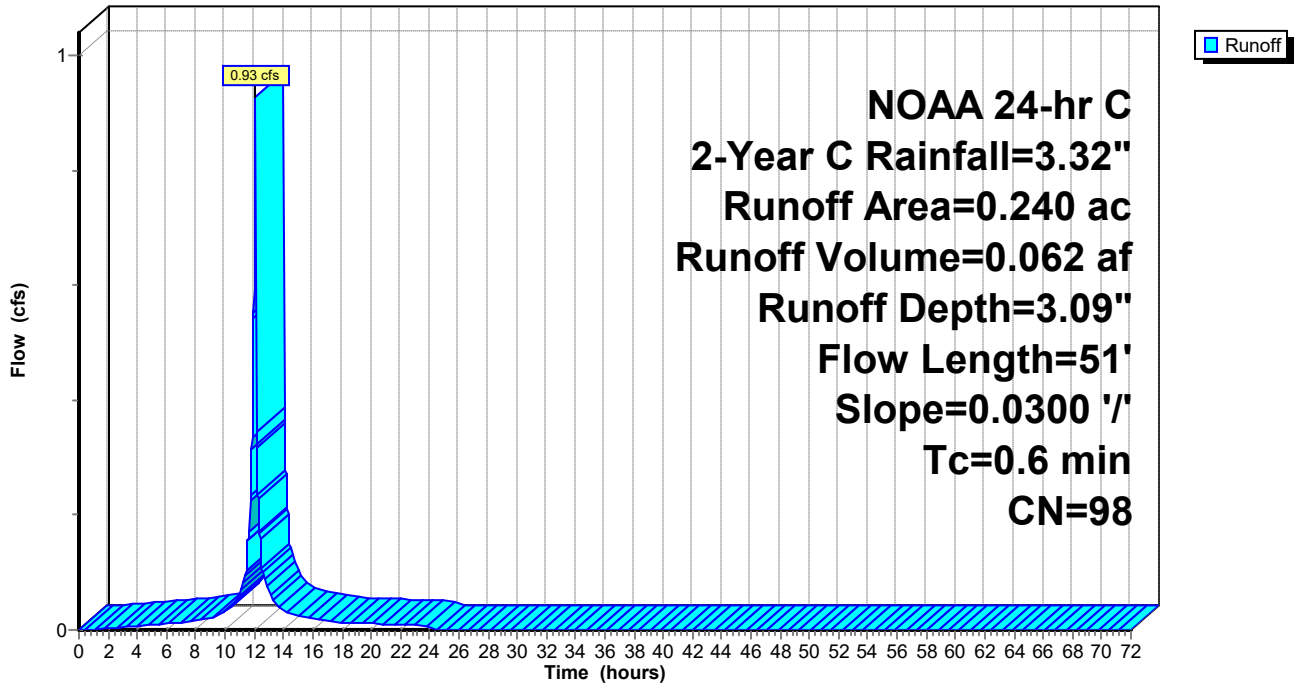
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0300	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 8I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9I: IMPERVIOUS

Runoff = 1.20 cfs @ 12.09 hrs, Volume= 0.080 af, Depth= 3.09"

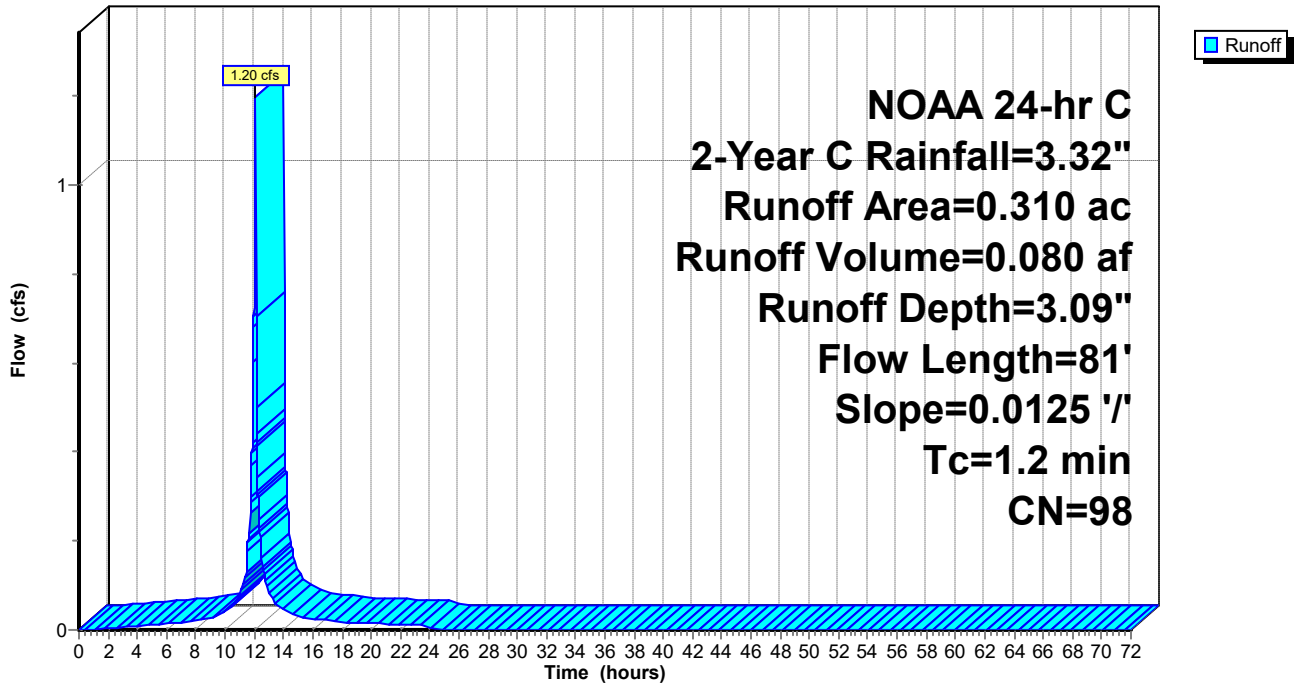
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG D
0.310	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	81	0.0125	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9P: PERVIOUS

Runoff = 0.09 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 1.49"

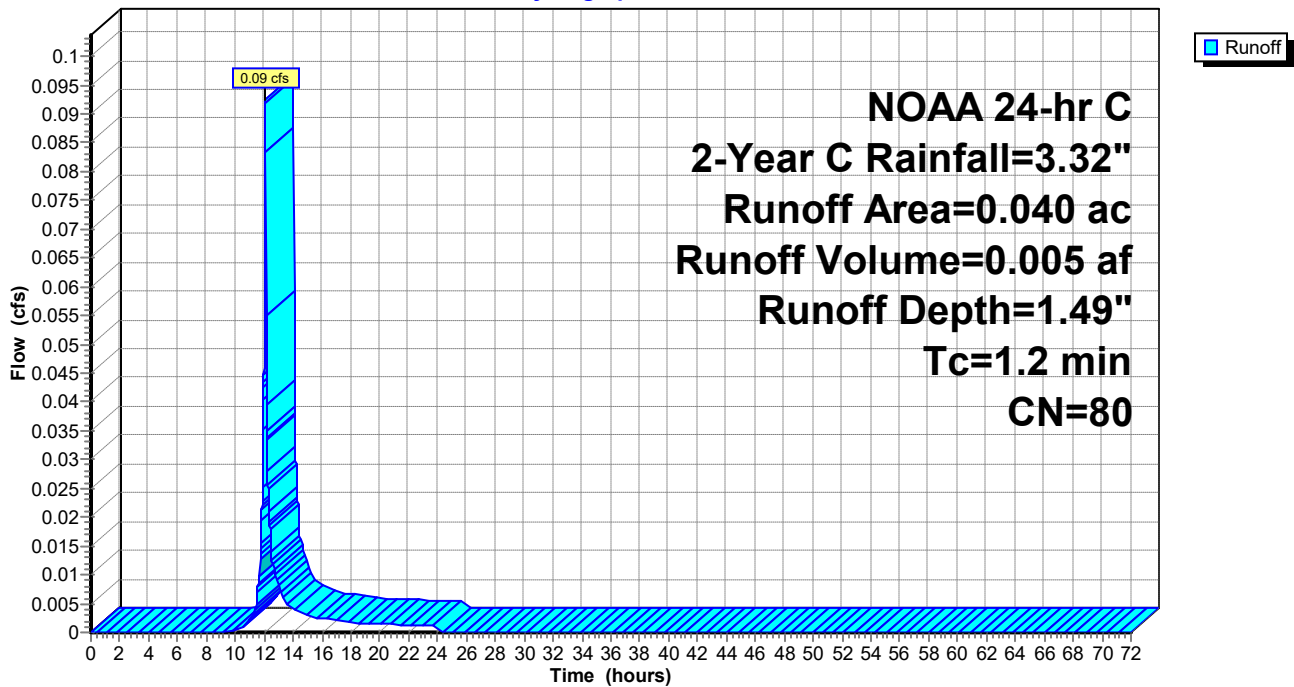
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.040	80	>75% Grass cover, Good, HSG D
0.040	80	100.00% Pervious Area

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

Subcatchment 9P: PERVIOUS

Hydrograph



Summary for Subcatchment 10I: IMPERVIOUS

Runoff = 2.48 cfs @ 12.09 hrs, Volume= 0.165 af, Depth= 3.09"

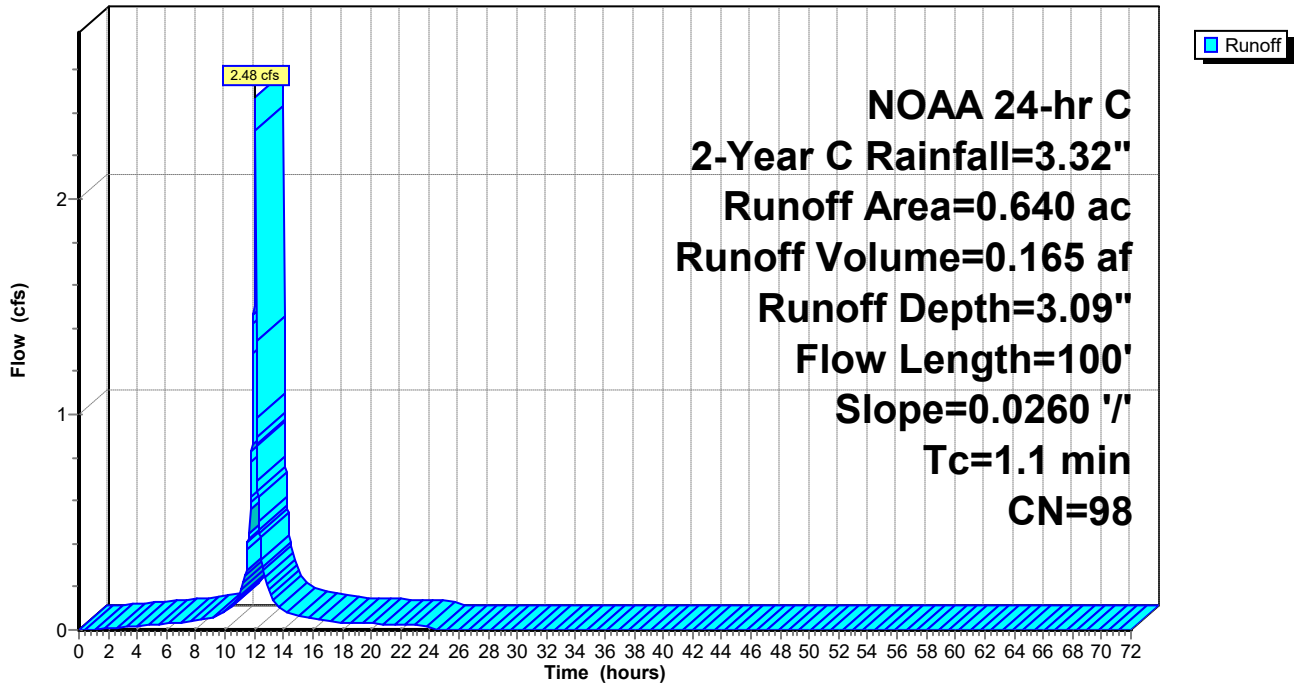
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.640	98	Paved parking, HSG D
0.640	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0260	1.57		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 10I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 10P: PERVIOUS

Runoff = 0.16 cfs @ 12.10 hrs, Volume= 0.009 af, Depth= 1.49"

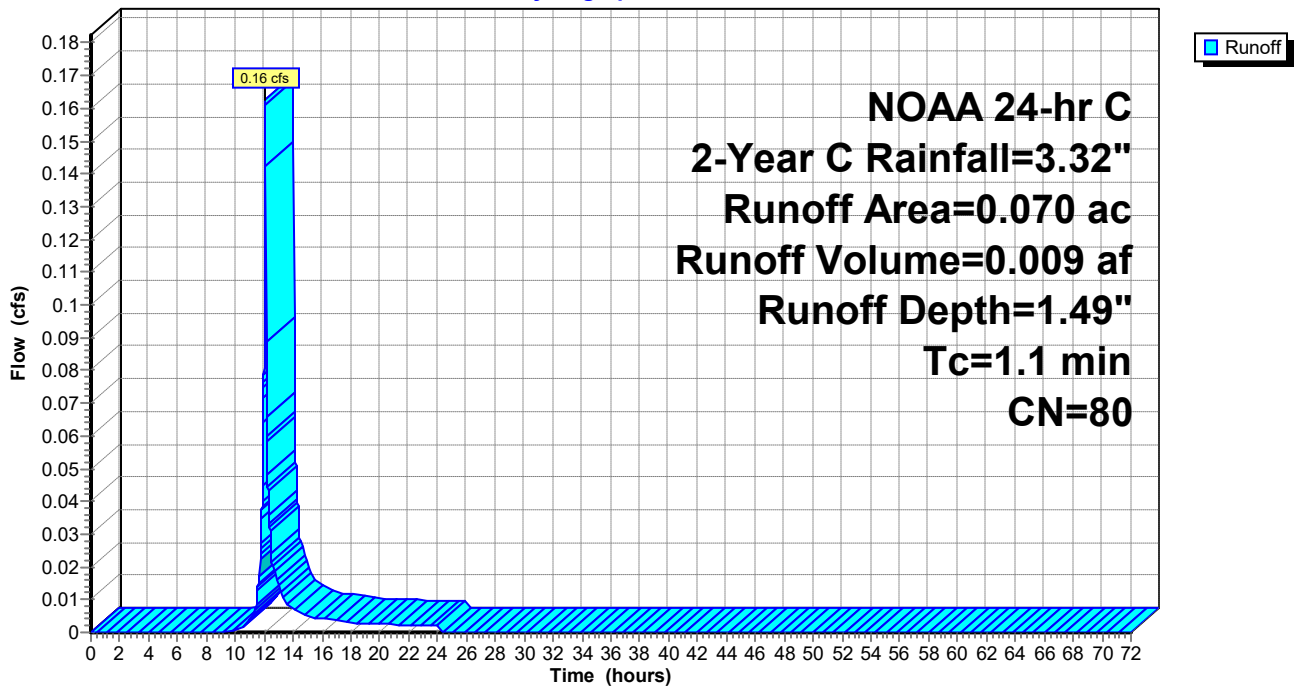
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.070	80	>75% Grass cover, Good, HSG D
0.070	80	100.00% Pervious Area

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

Subcatchment 10P: PERVIOUS

Hydrograph



Summary for Subcatchment I2: OFFSITE

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.039 af, Depth= 3.09"

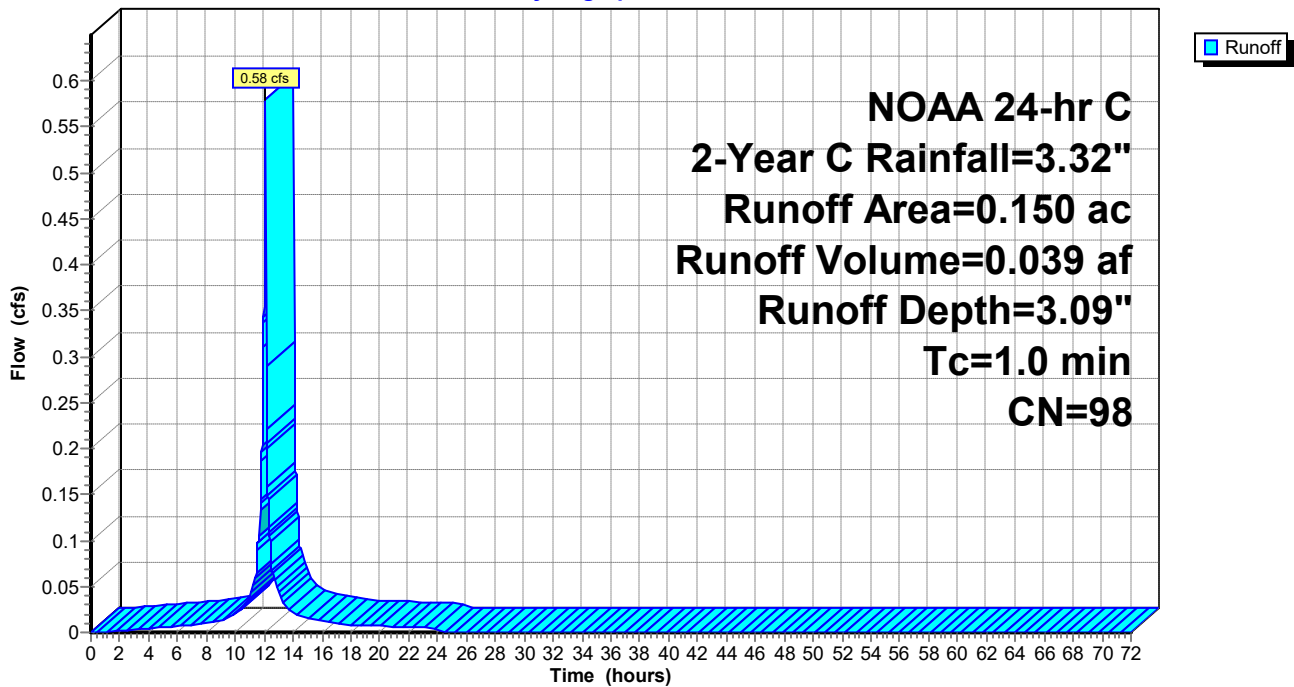
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG D
0.150	98	100.00% Impervious Area

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

Subcatchment I2: OFFSITE

Hydrograph



Summary for Subcatchment I3: IMPERVIOUS

Runoff = 5.69 cfs @ 12.09 hrs, Volume= 0.378 af, Depth= 3.09"

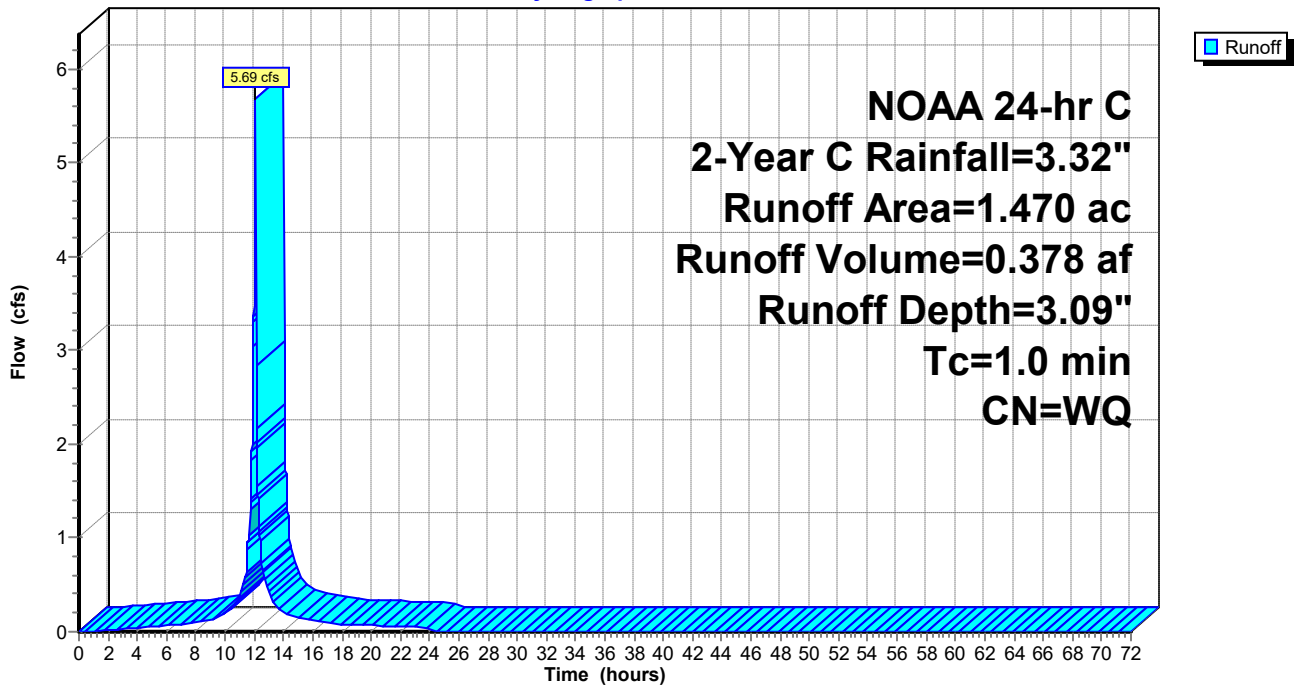
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
1.330	98	Unconnected roofs, HSG D
0.140	98	Unconnected pavement, HSG D
1.470		Weighted Average
1.470	98	100.00% Impervious Area
1.470		100.00% Unconnected

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

Subcatchment I3: IMPERVIOUS

Hydrograph



Summary for Subcatchment P2: OFFSITE

Runoff = 0.58 cfs @ 12.10 hrs, Volume= 0.031 af, Depth= 1.49"

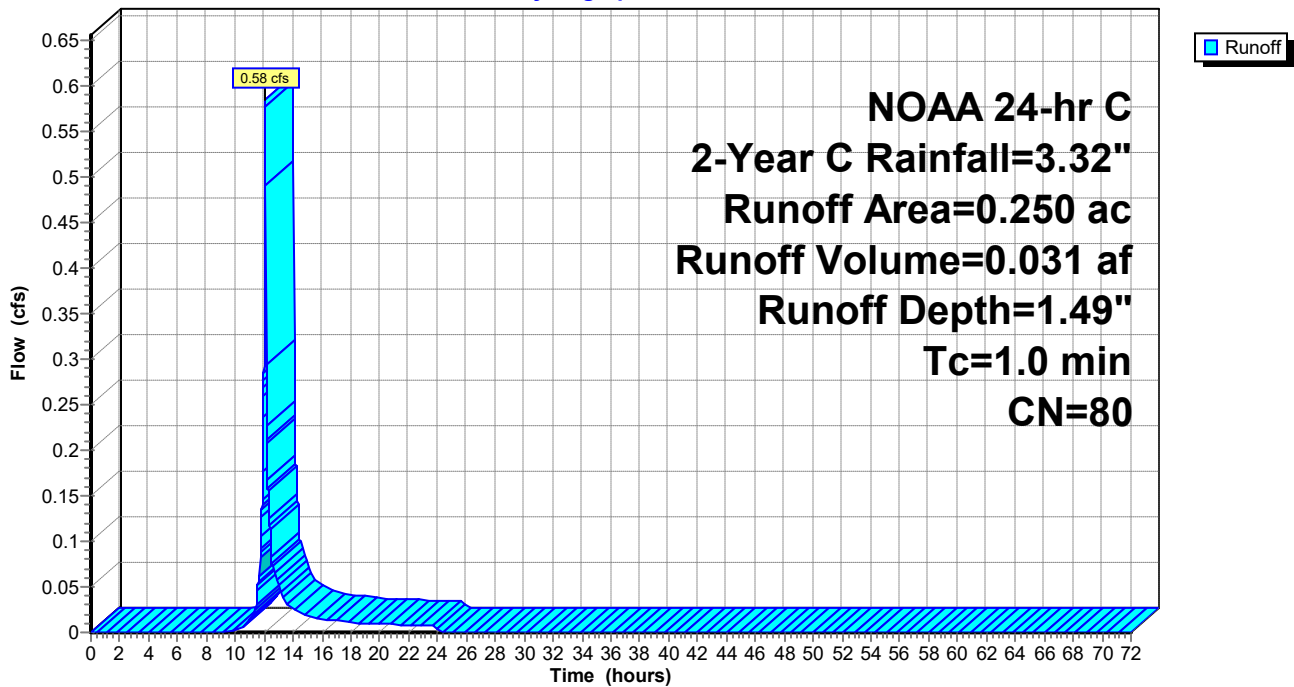
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P2: OFFSITE

Hydrograph



Summary for Subcatchment P3: PERVIOUS

Runoff = 0.58 cfs @ 12.10 hrs, Volume= 0.031 af, Depth= 1.49"

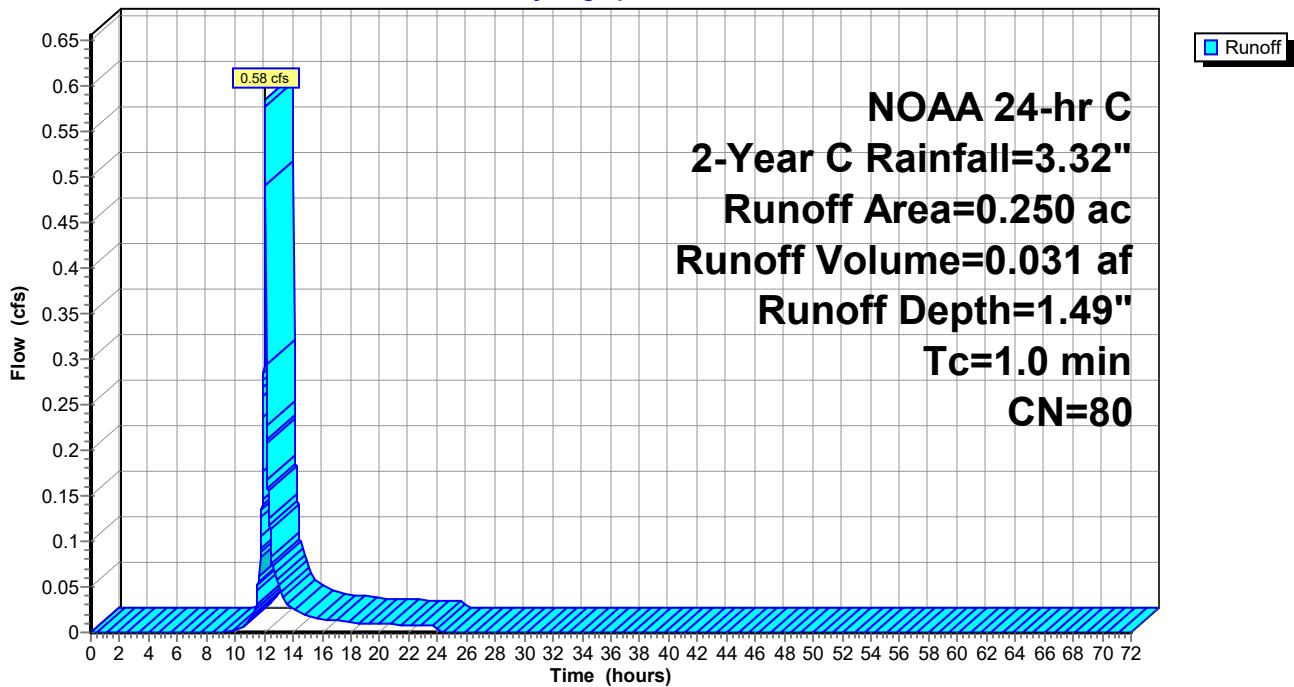
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year C Rainfall=3.32"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P3: PERVIOUS

Hydrograph



Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 2.59" for 2-Year C event
 Inflow = 2.06 cfs @ 12.09 hrs, Volume= 0.132 af
 Outflow = 0.37 cfs @ 12.50 hrs, Volume= 0.053 af, Atten= 82%, Lag= 24.6 min
 Primary = 0.37 cfs @ 12.50 hrs, Volume= 0.053 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.79' @ 12.50 hrs Surf.Area= 2,167 sf Storage= 3,487 cf

Plug-Flow detention time= 316.0 min calculated for 0.053 af (41% of inflow)
 Center-of-Mass det. time= 169.4 min (937.0 - 767.6)

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	8,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	432	0	0
69.50	686	280	280
70.50	1,294	990	1,270
71.50	1,963	1,629	2,898
72.50	2,677	2,320	5,218
73.50	3,448	3,063	8,281

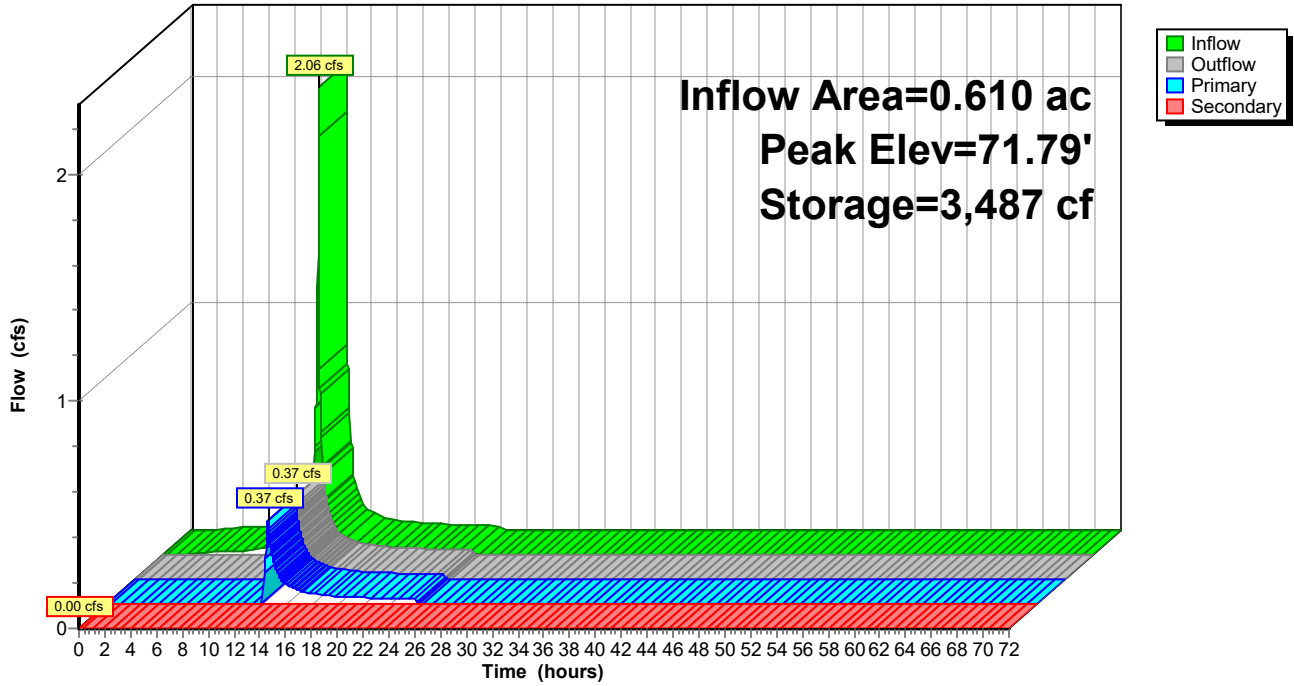
Device	Routing	Invert	Outlet Devices
#1	Primary	67.49'	24.0" Round Culvert L= 165.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.49' / 67.00' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	73.50'	50.0' 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

Primary OutFlow Max=0.34 cfs @ 12.50 hrs HW=71.79' (Free Discharge)
 ↑1=Culvert (Passes 0.34 cfs of 22.31 cfs potential flow)
 ↑2=Orifice/Grate (Weir Controls 0.34 cfs @ 0.61 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph



Hydrograph for Pond B2: SMALL-SCALE BIORETENTION 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	69.00	0.00	0.00	0.00
2.00	0.00	7	69.02	0.00	0.00	0.00
4.00	0.01	69	69.15	0.00	0.00	0.00
6.00	0.02	176	69.34	0.00	0.00	0.00
8.00	0.03	345	69.59	0.00	0.00	0.00
10.00	0.06	633	69.93	0.00	0.00	0.00
12.00	1.20	2,255	71.15	0.00	0.00	0.00
14.00	0.08	3,428	71.76	0.08	0.08	0.00
16.00	0.05	3,421	71.75	0.05	0.05	0.00
18.00	0.03	3,417	71.75	0.03	0.03	0.00
20.00	0.03	3,417	71.75	0.03	0.03	0.00
22.00	0.02	3,416	71.75	0.02	0.02	0.00
24.00	0.02	3,416	71.75	0.02	0.02	0.00
26.00	0.00	3,411	71.75	0.00	0.00	0.00
28.00	0.00	3,411	71.75	0.00	0.00	0.00
30.00	0.00	3,411	71.75	0.00	0.00	0.00
32.00	0.00	3,411	71.75	0.00	0.00	0.00
34.00	0.00	3,411	71.75	0.00	0.00	0.00
36.00	0.00	3,411	71.75	0.00	0.00	0.00
38.00	0.00	3,411	71.75	0.00	0.00	0.00
40.00	0.00	3,411	71.75	0.00	0.00	0.00
42.00	0.00	3,411	71.75	0.00	0.00	0.00
44.00	0.00	3,411	71.75	0.00	0.00	0.00
46.00	0.00	3,411	71.75	0.00	0.00	0.00
48.00	0.00	3,411	71.75	0.00	0.00	0.00
50.00	0.00	3,411	71.75	0.00	0.00	0.00
52.00	0.00	3,411	71.75	0.00	0.00	0.00
54.00	0.00	3,411	71.75	0.00	0.00	0.00
56.00	0.00	3,411	71.75	0.00	0.00	0.00
58.00	0.00	3,411	71.75	0.00	0.00	0.00
60.00	0.00	3,411	71.75	0.00	0.00	0.00
62.00	0.00	3,411	71.75	0.00	0.00	0.00
64.00	0.00	3,411	71.75	0.00	0.00	0.00
66.00	0.00	3,411	71.75	0.00	0.00	0.00
68.00	0.00	3,411	71.75	0.00	0.00	0.00
70.00	0.00	3,411	71.75	0.00	0.00	0.00
72.00	0.00	3,411	71.75	0.00	0.00	0.00

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 2.66" for 2-Year C event
 Inflow = 14.52 cfs @ 12.10 hrs, Volume= 1.433 af
 Outflow = 2.52 cfs @ 13.01 hrs, Volume= 1.003 af, Atten= 83%, Lag= 54.6 min
 Primary = 2.52 cfs @ 13.01 hrs, Volume= 1.003 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.49' @ 13.01 hrs Surf.Area= 21,253 sf Storage= 29,895 cf

Plug-Flow detention time= 303.9 min calculated for 1.003 af (70% of inflow)
 Center-of-Mass det. time= 189.5 min (1,005.5 - 816.0)

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.95'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Device 1	69.40'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	70.08'	50.0' 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

Primary OutFlow Max=2.52 cfs @ 13.01 hrs HW=68.49' (Free Discharge)

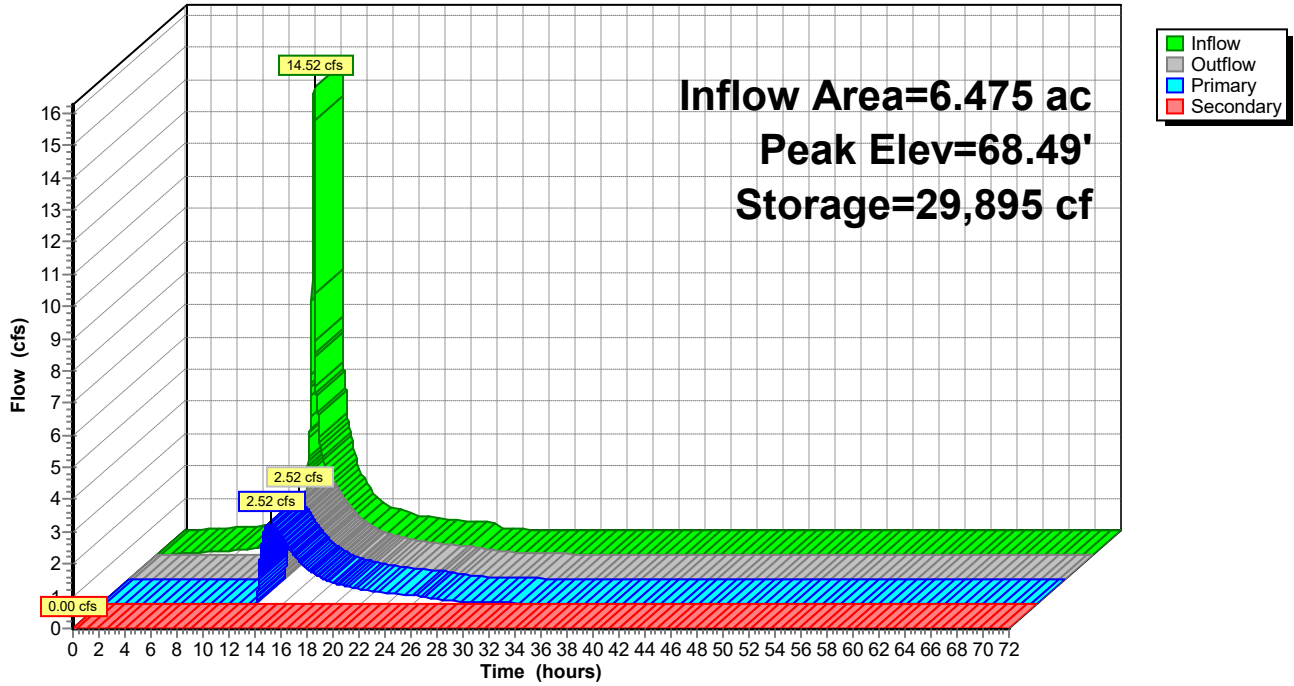
- ↑ **1=Culvert** (Passes 2.52 cfs of 21.09 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 2.52 cfs @ 2.35 fps)
- ↑ **3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

- ↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	67.00	0.00	0.00	0.00
2.00	0.03	55	67.00	0.00	0.00	0.00
4.00	0.09	521	67.03	0.00	0.00	0.00
6.00	0.13	1,335	67.07	0.00	0.00	0.00
8.00	0.22	2,617	67.14	0.00	0.00	0.00
10.00	0.50	4,868	67.25	0.00	0.00	0.00
12.00	8.93	18,449	67.94	0.00	0.00	0.00
14.00	1.48	28,365	68.41	2.03	2.03	0.00
16.00	0.71	24,871	68.25	1.04	1.04	0.00
18.00	0.47	23,164	68.17	0.64	0.64	0.00
20.00	0.35	22,209	68.12	0.45	0.45	0.00
22.00	0.28	21,629	68.09	0.34	0.34	0.00
24.00	0.26	21,251	68.07	0.28	0.28	0.00
26.00	0.03	20,238	68.02	0.13	0.13	0.00
28.00	0.01	19,693	68.00	0.07	0.07	0.00
30.00	0.01	19,378	67.98	0.04	0.04	0.00
32.00	0.01	19,178	67.97	0.03	0.03	0.00
34.00	0.00	19,054	67.97	0.02	0.02	0.00
36.00	0.00	18,976	67.96	0.01	0.01	0.00
38.00	0.00	18,928	67.96	0.01	0.01	0.00
40.00	0.00	18,894	67.96	0.01	0.01	0.00
42.00	0.00	18,865	67.96	0.00	0.00	0.00
44.00	0.00	18,840	67.96	0.00	0.00	0.00
46.00	0.00	18,818	67.96	0.00	0.00	0.00
48.00	0.00	18,800	67.95	0.00	0.00	0.00
50.00	0.00	18,785	67.95	0.00	0.00	0.00
52.00	0.00	18,772	67.95	0.00	0.00	0.00
54.00	0.00	18,762	67.95	0.00	0.00	0.00
56.00	0.00	18,753	67.95	0.00	0.00	0.00
58.00	0.00	18,746	67.95	0.00	0.00	0.00
60.00	0.00	18,740	67.95	0.00	0.00	0.00
62.00	0.00	18,736	67.95	0.00	0.00	0.00
64.00	0.00	18,732	67.95	0.00	0.00	0.00
66.00	0.00	18,729	67.95	0.00	0.00	0.00
68.00	0.00	18,726	67.95	0.00	0.00	0.00
70.00	0.00	18,724	67.95	0.00	0.00	0.00
72.00	0.00	18,722	67.95	0.00	0.00	0.00

Summary for Pond P10: Porous Pavement 10

Inflow Area = 0.710 ac, 90.14% Impervious, Inflow Depth = 2.93" for 2-Year C event
 Inflow = 2.63 cfs @ 12.10 hrs, Volume= 0.173 af
 Outflow = 0.26 cfs @ 12.75 hrs, Volume= 0.156 af, Atten= 90%, Lag= 39.2 min
 Primary = 0.26 cfs @ 12.75 hrs, Volume= 0.156 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.57' @ 12.75 hrs Surf.Area= 9,090 sf Storage= 4,169 cf

Plug-Flow detention time= 276.0 min calculated for 0.156 af (90% of inflow)
 Center-of-Mass det. time= 225.0 min (981.6 - 756.6)

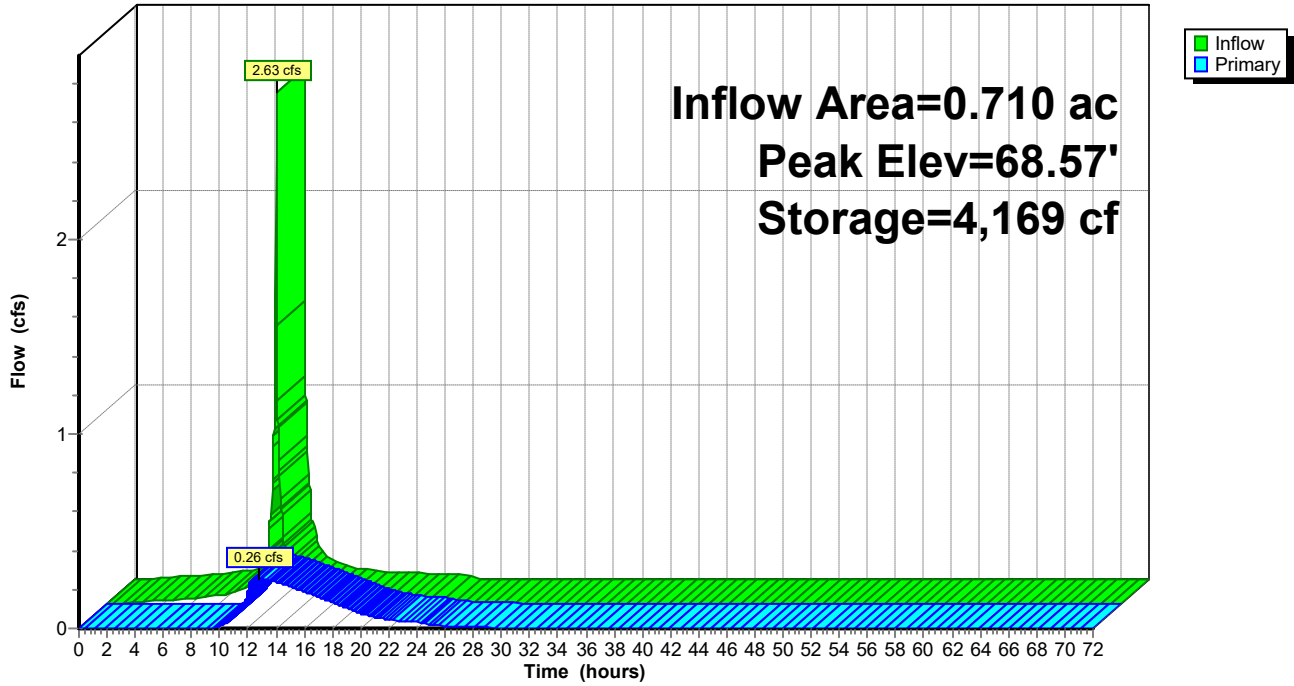
Volume	Invert	Avail.Storage	Storage Description
#1	67.61'	9,763 cf	18.00'W x 505.00'L x 4.00'H Prismatic 36,360 cf Overall - 6,776 cf Embedded = 29,584 cf x 33.0% Voids
#2	67.86'	6,346 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 505.0' 6,776 cf Overall - 0.4" Wall Thickness = 6,346 cf
		16,109 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.61'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.61' / 67.53' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	67.86'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	70.50'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.26 cfs @ 12.75 hrs HW=68.57' (Free Discharge)
 1=Culvert (Passes 0.26 cfs of 2.33 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.26 cfs @ 3.75 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P10: Porous Pavement 10

Hydrograph



Hydrograph for Pond P10: Porous Pavement 10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.61	0.00
2.00	0.01	11	67.61	0.00
4.00	0.02	104	67.64	0.00
6.00	0.03	268	67.70	0.00
8.00	0.04	525	67.78	0.00
10.00	0.09	944	67.92	0.01
12.00	1.56	2,636	68.28	0.19
14.00	0.10	3,739	68.49	0.24
16.00	0.06	2,712	68.30	0.19
18.00	0.04	1,879	68.13	0.13
20.00	0.03	1,371	68.02	0.08
22.00	0.03	1,169	67.97	0.04
24.00	0.03	1,087	67.95	0.03
26.00	0.00	939	67.92	0.01
28.00	0.00	870	67.90	0.01
30.00	0.00	836	67.89	0.00
32.00	0.00	814	67.88	0.00
34.00	0.00	798	67.88	0.00
36.00	0.00	785	67.87	0.00
38.00	0.00	775	67.87	0.00
40.00	0.00	767	67.87	0.00
42.00	0.00	761	67.87	0.00
44.00	0.00	757	67.86	0.00
46.00	0.00	754	67.86	0.00
48.00	0.00	751	67.86	0.00
50.00	0.00	749	67.86	0.00
52.00	0.00	747	67.86	0.00
54.00	0.00	746	67.86	0.00
56.00	0.00	745	67.86	0.00
58.00	0.00	745	67.86	0.00
60.00	0.00	744	67.86	0.00
62.00	0.00	744	67.86	0.00
64.00	0.00	743	67.86	0.00
66.00	0.00	743	67.86	0.00
68.00	0.00	743	67.86	0.00
70.00	0.00	743	67.86	0.00
72.00	0.00	743	67.86	0.00

Summary for Pond P5: Porous Pavement 5

Inflow Area = 1.125 ac, 86.22% Impervious, Inflow Depth = 2.87" for 2-Year C event
 Inflow = 4.11 cfs @ 12.10 hrs, Volume= 0.269 af
 Outflow = 0.92 cfs @ 12.31 hrs, Volume= 0.241 af, Atten= 78%, Lag= 12.8 min
 Primary = 0.92 cfs @ 12.31 hrs, Volume= 0.241 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.11' @ 12.31 hrs Surf.Area= 14,886 sf Storage= 4,901 cf

Plug-Flow detention time= 161.4 min calculated for 0.241 af (90% of inflow)
 Center-of-Mass det. time= 107.9 min (866.4 - 758.5)

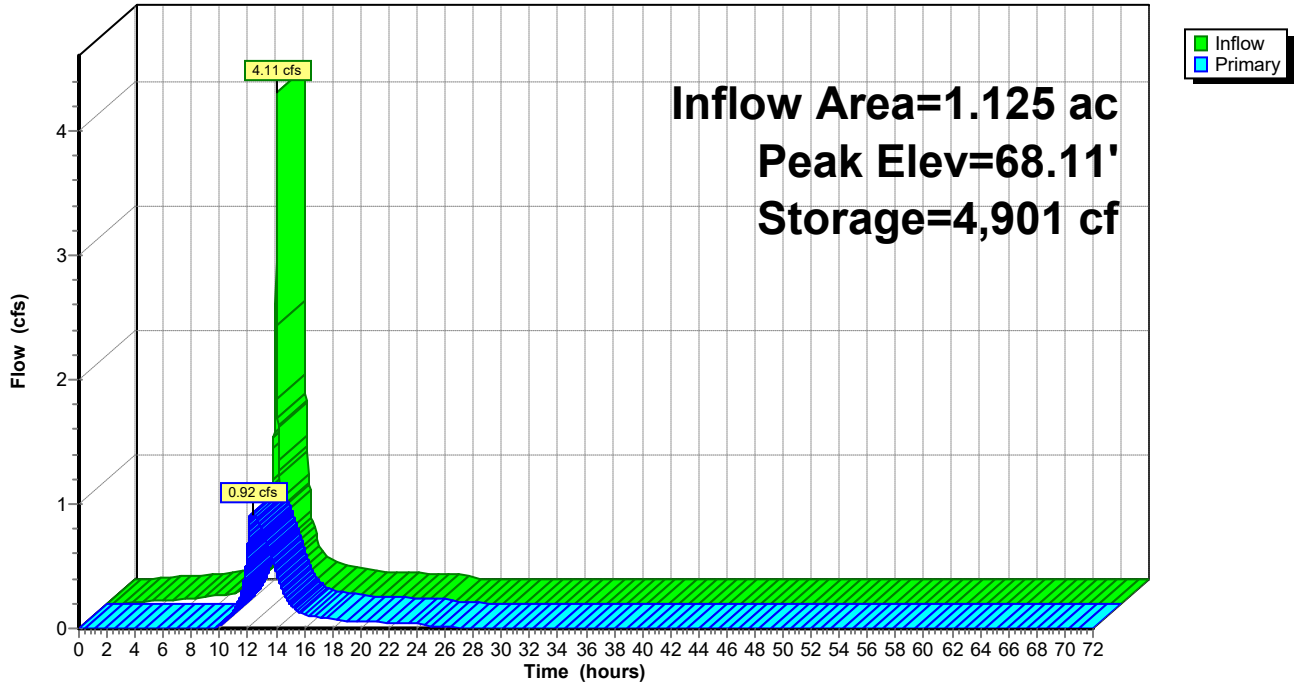
Volume	Invert	Avail.Storage	Storage Description
#1	67.37'	13,040 cf	18.00'W x 827.00'L x 3.40'H Prismatic 50,612 cf Overall - 11,097 cf Embedded = 39,516 cf x 33.0% Voids
#2	67.62'	10,392 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 827.0' 11,097 cf Overall - 0.4" Wall Thickness = 10,392 cf
		23,433 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.37'	24.0" Round Culvert L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.37' / 67.19' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.62'	2.5" Vert. Orifice/Grate X 9.00 C= 0.600
#3	Device 1	69.88'	8.0" W x 6.0" H Vert. Orifice/Grate X 7.00 C= 0.600

Primary OutFlow Max=0.92 cfs @ 12.31 hrs HW=68.11' (Free Discharge)
 1=Culvert (Passes 0.92 cfs of 2.05 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.92 cfs @ 3.00 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P5: Porous Pavement 5

Hydrograph



Hydrograph for Pond P5: Porous Pavement 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.37	0.00
2.00	0.01	17	67.37	0.00
4.00	0.03	158	67.40	0.00
6.00	0.04	406	67.45	0.00
8.00	0.07	796	67.53	0.00
10.00	0.13	1,430	67.66	0.03
12.00	2.42	3,379	67.93	0.67
14.00	0.16	2,513	67.82	0.46
16.00	0.09	1,712	67.70	0.12
18.00	0.06	1,583	67.68	0.07
20.00	0.05	1,535	67.68	0.06
22.00	0.04	1,508	67.67	0.05
24.00	0.05	1,479	67.67	0.04
26.00	0.00	1,329	67.64	0.01
28.00	0.00	1,281	67.63	0.00
30.00	0.00	1,253	67.63	0.00
32.00	0.00	1,237	67.62	0.00
34.00	0.00	1,228	67.62	0.00
36.00	0.00	1,223	67.62	0.00
38.00	0.00	1,220	67.62	0.00
40.00	0.00	1,218	67.62	0.00
42.00	0.00	1,217	67.62	0.00
44.00	0.00	1,216	67.62	0.00
46.00	0.00	1,216	67.62	0.00
48.00	0.00	1,216	67.62	0.00
50.00	0.00	1,216	67.62	0.00
52.00	0.00	1,216	67.62	0.00
54.00	0.00	1,215	67.62	0.00
56.00	0.00	1,215	67.62	0.00
58.00	0.00	1,215	67.62	0.00
60.00	0.00	1,215	67.62	0.00
62.00	0.00	1,215	67.62	0.00
64.00	0.00	1,215	67.62	0.00
66.00	0.00	1,215	67.62	0.00
68.00	0.00	1,215	67.62	0.00
70.00	0.00	1,215	67.62	0.00
72.00	0.00	1,215	67.62	0.00

Summary for Pond P8: Porous Pavement 8

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth = 3.09" for 2-Year C event
 Inflow = 0.93 cfs @ 12.09 hrs, Volume= 0.062 af
 Outflow = 0.36 cfs @ 12.12 hrs, Volume= 0.056 af, Atten= 62%, Lag= 2.0 min
 Primary = 0.36 cfs @ 12.12 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.04' @ 12.12 hrs Surf.Area= 3,078 sf Storage= 847 cf

Plug-Flow detention time= 121.7 min calculated for 0.056 af (91% of inflow)
 Center-of-Mass det. time= 72.4 min (824.1 - 751.8)

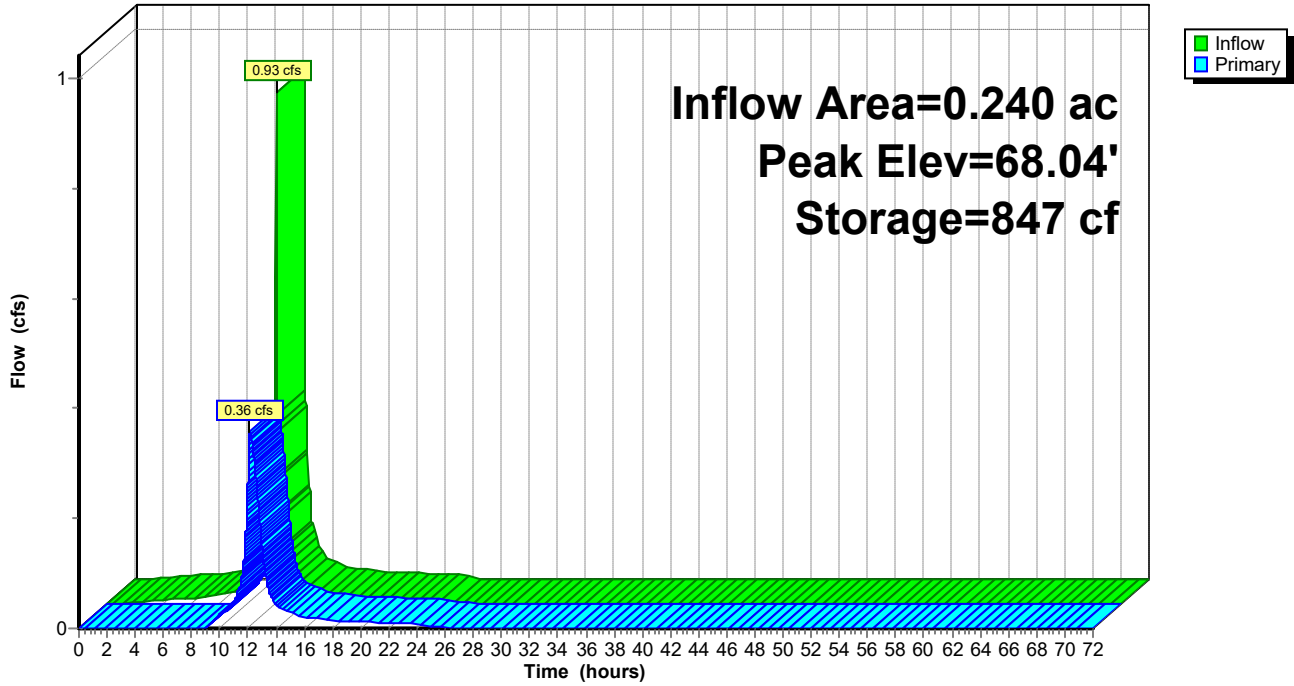
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	3,306 cf	18.00'W x 171.00'L x 4.00'H Prismatic 12,312 cf Overall - 2,294 cf Embedded = 10,018 cf x 33.0% Voids
#2	67.64'	2,149 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 171.0' 2,294 cf Overall - 0.4" Wall Thickness = 2,149 cf
		5,455 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.24' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	70.13'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.36 cfs @ 12.12 hrs HW=68.04' (Free Discharge)
 1=Culvert (Passes 0.36 cfs of 1.81 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.36 cfs @ 2.61 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P8: Porous Pavement 8

Hydrograph



Hydrograph for Pond P8: Porous Pavement 8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.00	4	67.39	0.00
4.00	0.01	39	67.43	0.00
6.00	0.01	101	67.49	0.00
8.00	0.02	197	67.58	0.00
10.00	0.03	313	67.69	0.02
12.00	0.56	618	67.90	0.26
14.00	0.04	344	67.72	0.04
16.00	0.02	309	67.69	0.02
18.00	0.01	297	67.68	0.01
20.00	0.01	292	67.68	0.01
22.00	0.01	289	67.67	0.01
24.00	0.01	287	67.67	0.01
26.00	0.00	259	67.65	0.00
28.00	0.00	253	67.64	0.00
30.00	0.00	252	67.64	0.00
32.00	0.00	251	67.64	0.00
34.00	0.00	251	67.64	0.00
36.00	0.00	251	67.64	0.00
38.00	0.00	251	67.64	0.00
40.00	0.00	251	67.64	0.00
42.00	0.00	251	67.64	0.00
44.00	0.00	251	67.64	0.00
46.00	0.00	251	67.64	0.00
48.00	0.00	251	67.64	0.00
50.00	0.00	251	67.64	0.00
52.00	0.00	251	67.64	0.00
54.00	0.00	251	67.64	0.00
56.00	0.00	251	67.64	0.00
58.00	0.00	251	67.64	0.00
60.00	0.00	251	67.64	0.00
62.00	0.00	251	67.64	0.00
64.00	0.00	251	67.64	0.00
66.00	0.00	251	67.64	0.00
68.00	0.00	251	67.64	0.00
70.00	0.00	251	67.64	0.00
72.00	0.00	251	67.64	0.00

Summary for Pond P9: Porous Pavement 9

Inflow Area = 0.350 ac, 88.57% Impervious, Inflow Depth = 2.91" for 2-Year C event
 Inflow = 1.29 cfs @ 12.10 hrs, Volume= 0.085 af
 Outflow = 0.21 cfs @ 12.51 hrs, Volume= 0.075 af, Atten= 84%, Lag= 24.6 min
 Primary = 0.21 cfs @ 12.51 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.15' @ 12.51 hrs Surf.Area= 5,346 sf Storage= 1,816 cf

Plug-Flow detention time= 207.2 min calculated for 0.075 af (88% of inflow)
 Center-of-Mass det. time= 148.6 min (906.1 - 757.5)

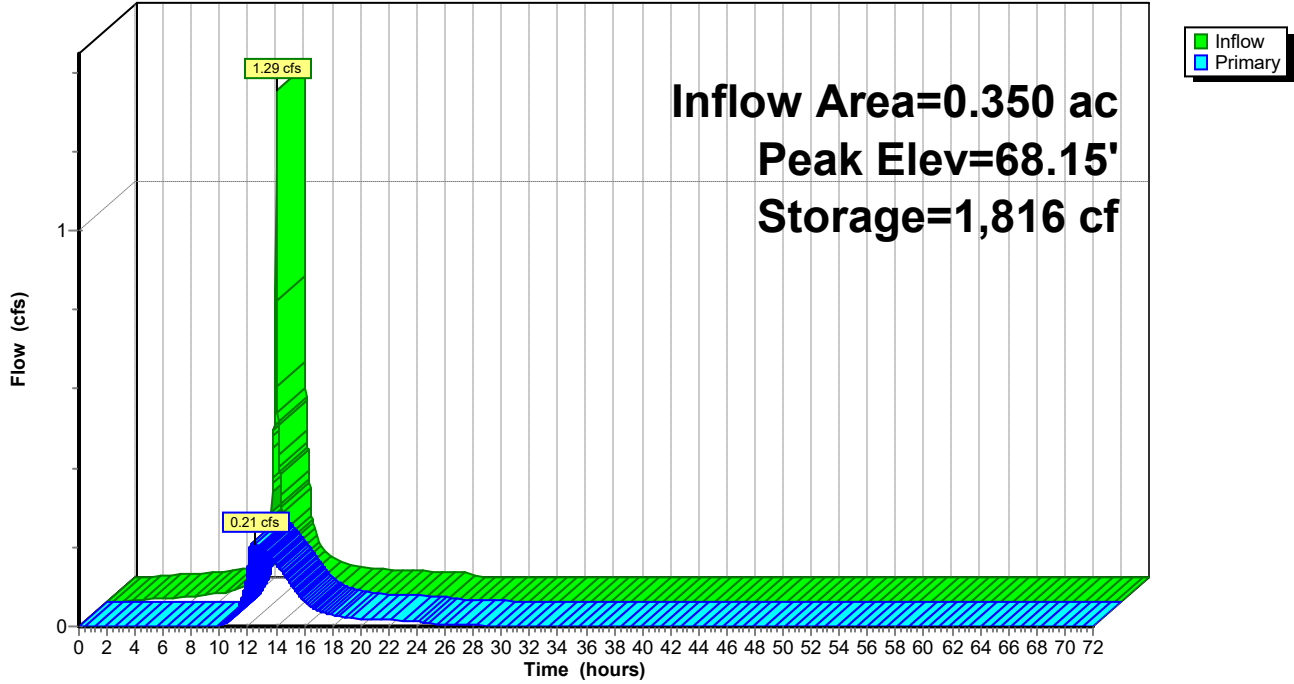
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	5,742 cf	18.00'W x 297.00'L x 4.00'H Prismatic 21,384 cf Overall - 3,985 cf Embedded = 17,399 cf x 33.0% Voids
#2	67.64'	3,732 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 297.0' 3,985 cf Overall - 0.4" Wall Thickness = 3,732 cf
		9,474 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.32' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	69.76'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.21 cfs @ 12.51 hrs HW=68.15' (Free Discharge)
 1=Culvert (Passes 0.21 cfs of 2.44 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.21 cfs @ 3.07 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P9: Porous Pavement 9

Hydrograph



Hydrograph for Pond P9: Porous Pavement 9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.00	5	67.39	0.00
4.00	0.01	51	67.42	0.00
6.00	0.01	130	67.46	0.00
8.00	0.02	254	67.53	0.00
10.00	0.04	464	67.65	0.00
12.00	0.76	1,228	67.96	0.15
14.00	0.05	1,277	67.97	0.16
16.00	0.03	750	67.78	0.06
18.00	0.02	622	67.73	0.03
20.00	0.02	584	67.71	0.02
22.00	0.01	568	67.70	0.02
24.00	0.01	554	67.70	0.01
26.00	0.00	497	67.67	0.00
28.00	0.00	475	67.66	0.00
30.00	0.00	461	67.65	0.00
32.00	0.00	452	67.65	0.00
34.00	0.00	447	67.65	0.00
36.00	0.00	443	67.64	0.00
38.00	0.00	441	67.64	0.00
40.00	0.00	439	67.64	0.00
42.00	0.00	438	67.64	0.00
44.00	0.00	438	67.64	0.00
46.00	0.00	437	67.64	0.00
48.00	0.00	437	67.64	0.00
50.00	0.00	437	67.64	0.00
52.00	0.00	437	67.64	0.00
54.00	0.00	437	67.64	0.00
56.00	0.00	437	67.64	0.00
58.00	0.00	437	67.64	0.00
60.00	0.00	437	67.64	0.00
62.00	0.00	437	67.64	0.00
64.00	0.00	437	67.64	0.00
66.00	0.00	437	67.64	0.00
68.00	0.00	436	67.64	0.00
70.00	0.00	436	67.64	0.00
72.00	0.00	436	67.64	0.00

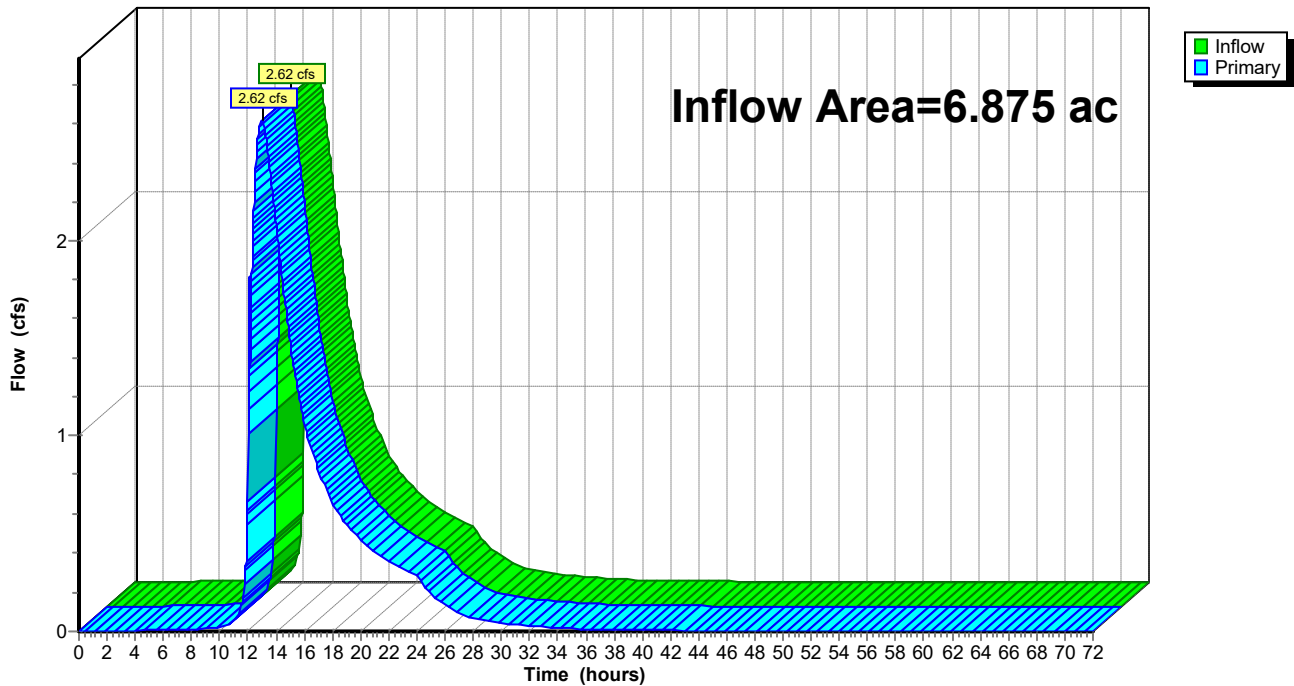
Summary for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.875 ac, 86.11% Impervious, Inflow Depth = 1.87" for 2-Year C event
Inflow = 2.62 cfs @ 13.00 hrs, Volume= 1.073 af
Primary = 2.62 cfs @ 13.00 hrs, Volume= 1.073 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.02		0.02	62.00	0.00		0.00
11.00	0.05		0.05	63.00	0.00		0.00
12.00	0.64		0.64	64.00	0.00		0.00
13.00	2.62		2.62	65.00	0.00		0.00
14.00	2.08		2.08	66.00	0.00		0.00
15.00	1.48		1.48	67.00	0.00		0.00
16.00	1.07		1.07	68.00	0.00		0.00
17.00	0.83		0.83	69.00	0.00		0.00
18.00	0.66		0.66	70.00	0.00		0.00
19.00	0.55		0.55	71.00	0.00		0.00
20.00	0.46		0.46	72.00	0.00		0.00
21.00	0.41		0.41				
22.00	0.36		0.36				
23.00	0.32		0.32				
24.00	0.29		0.29				
25.00	0.19		0.19				
26.00	0.13		0.13				
27.00	0.09		0.09				
28.00	0.07		0.07				
29.00	0.05		0.05				
30.00	0.04		0.04				
31.00	0.03		0.03				
32.00	0.03		0.03				
33.00	0.02		0.02				
34.00	0.02		0.02				
35.00	0.01		0.01				
36.00	0.01		0.01				
37.00	0.01		0.01				
38.00	0.01		0.01				
39.00	0.01		0.01				
40.00	0.01		0.01				
41.00	0.01		0.01				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.126 af, Depth= 3.61"

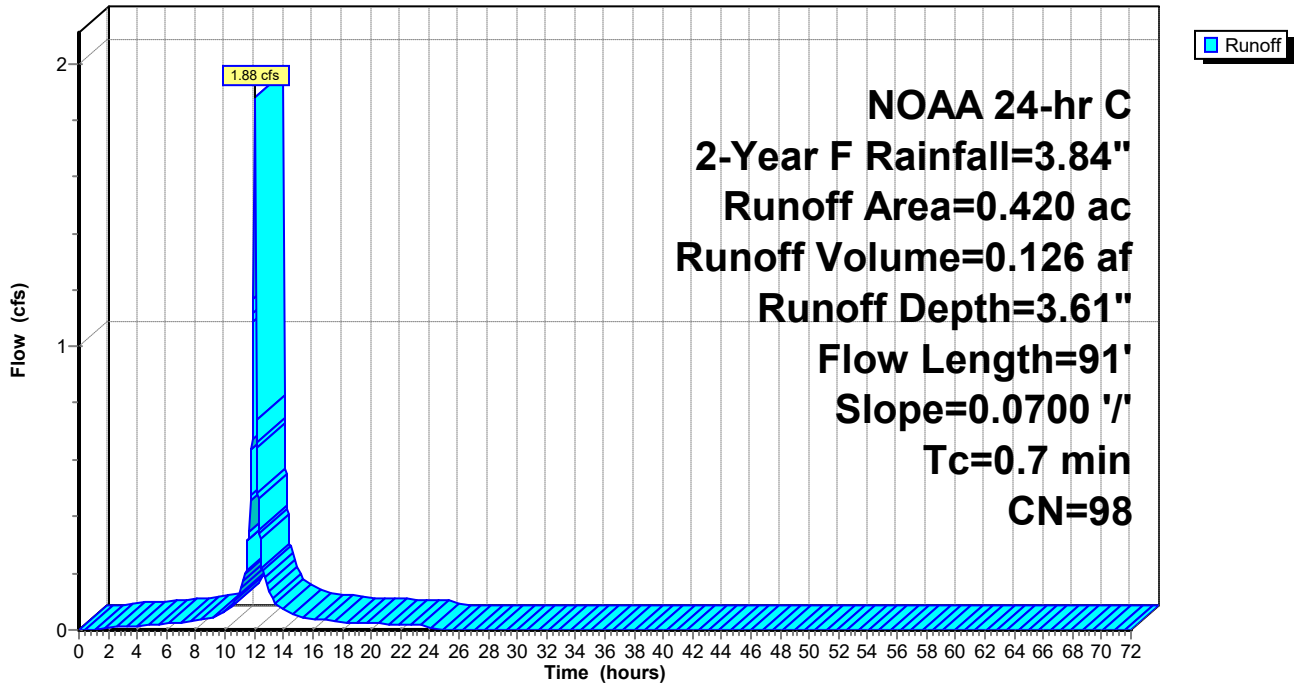
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG D
0.420	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	91	0.0700	2.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.55 cfs @ 12.10 hrs, Volume= 0.030 af, Depth= 1.91"

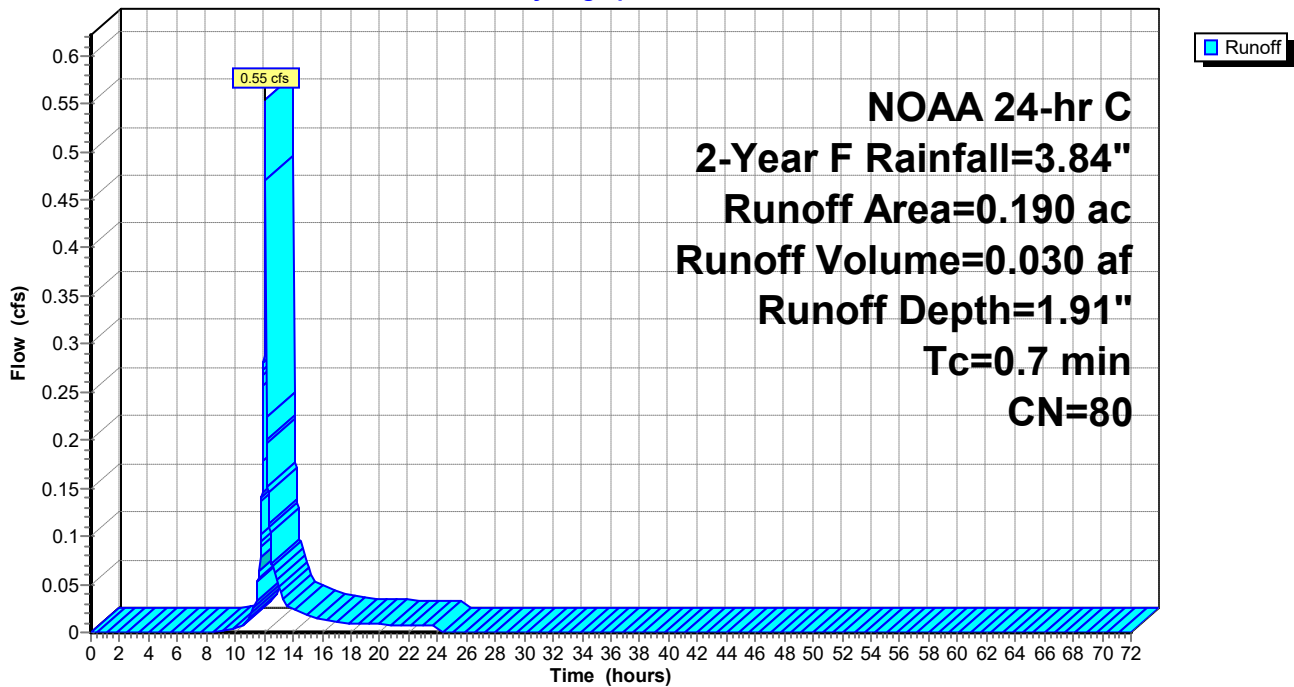
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.190	80	>75% Grass cover, Good, HSG D
0.190	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 4I: IMPERVIOUS

Runoff = 4.66 cfs @ 12.09 hrs, Volume= 0.312 af, Depth= 3.61"

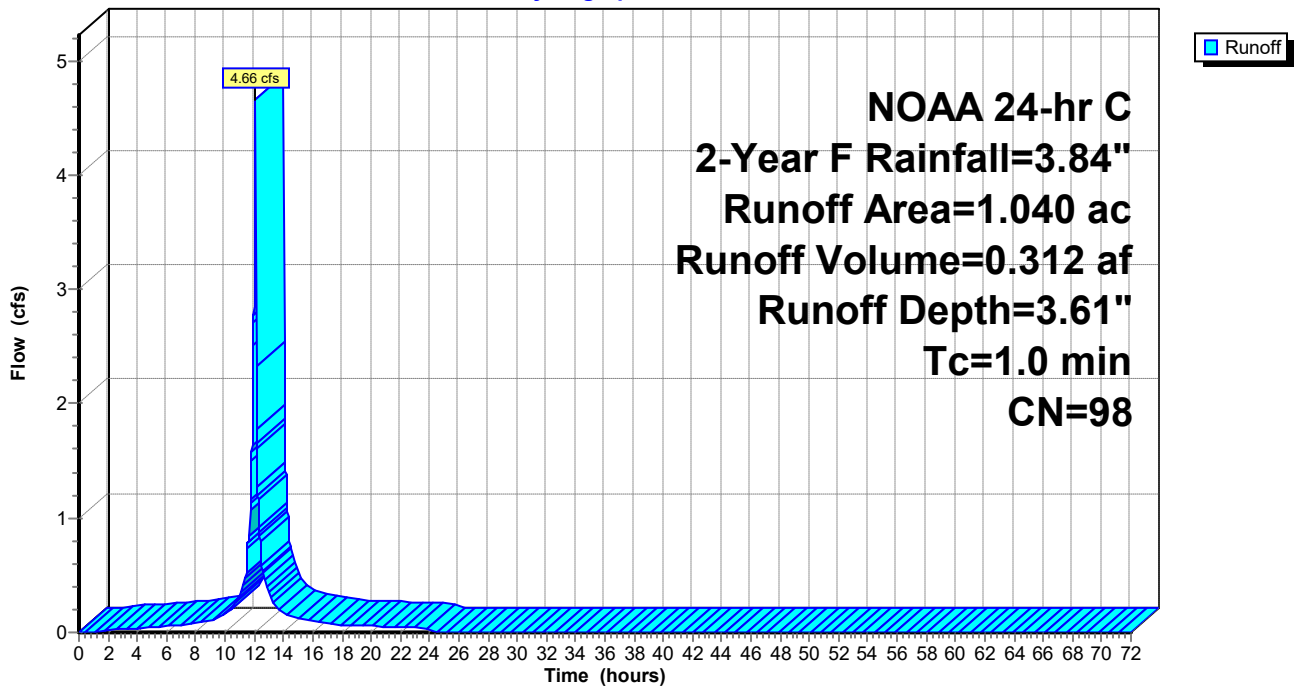
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG D
1.040	98	100.00% Impervious Area

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

Subcatchment 4I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 4P: BASIN PERVIOUS

Runoff = 3.05 cfs @ 12.09 hrs, Volume= 0.204 af, Depth= 3.61"

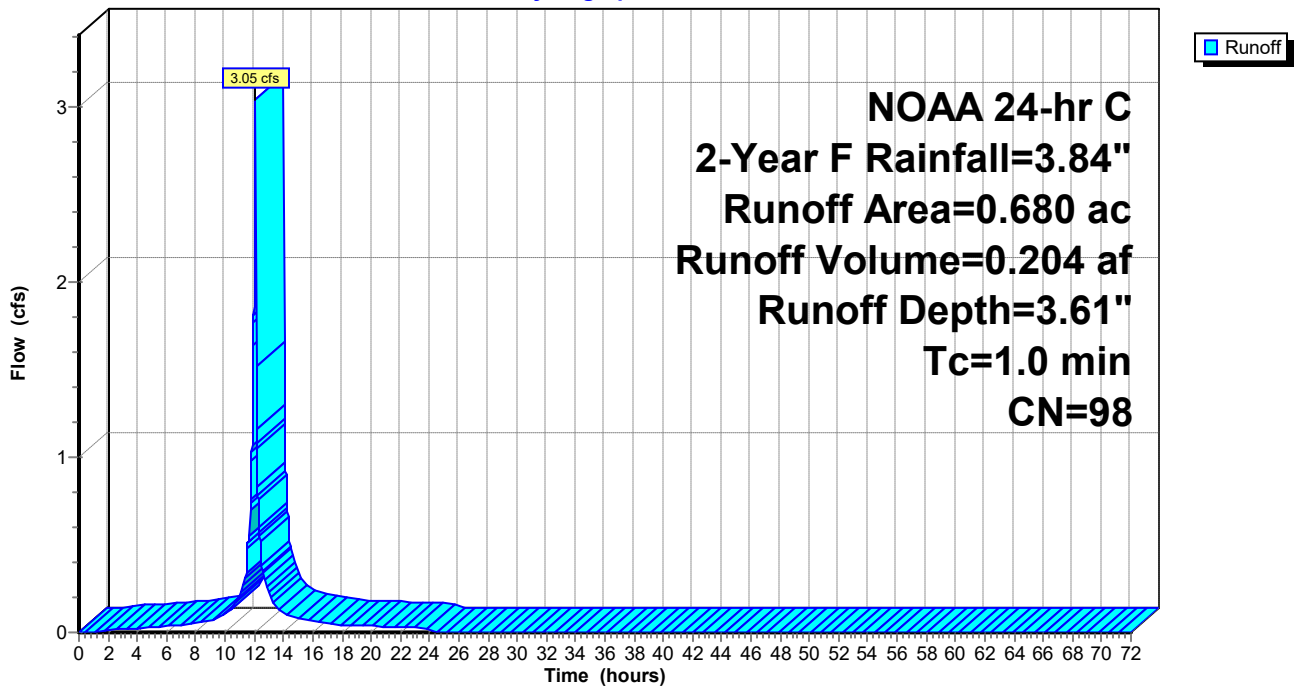
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.680	98	Paved parking, HSG D
0.680	98	100.00% Impervious Area

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

Subcatchment 4P: BASIN PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 4.35 cfs @ 12.09 hrs, Volume= 0.291 af, Depth= 3.61"

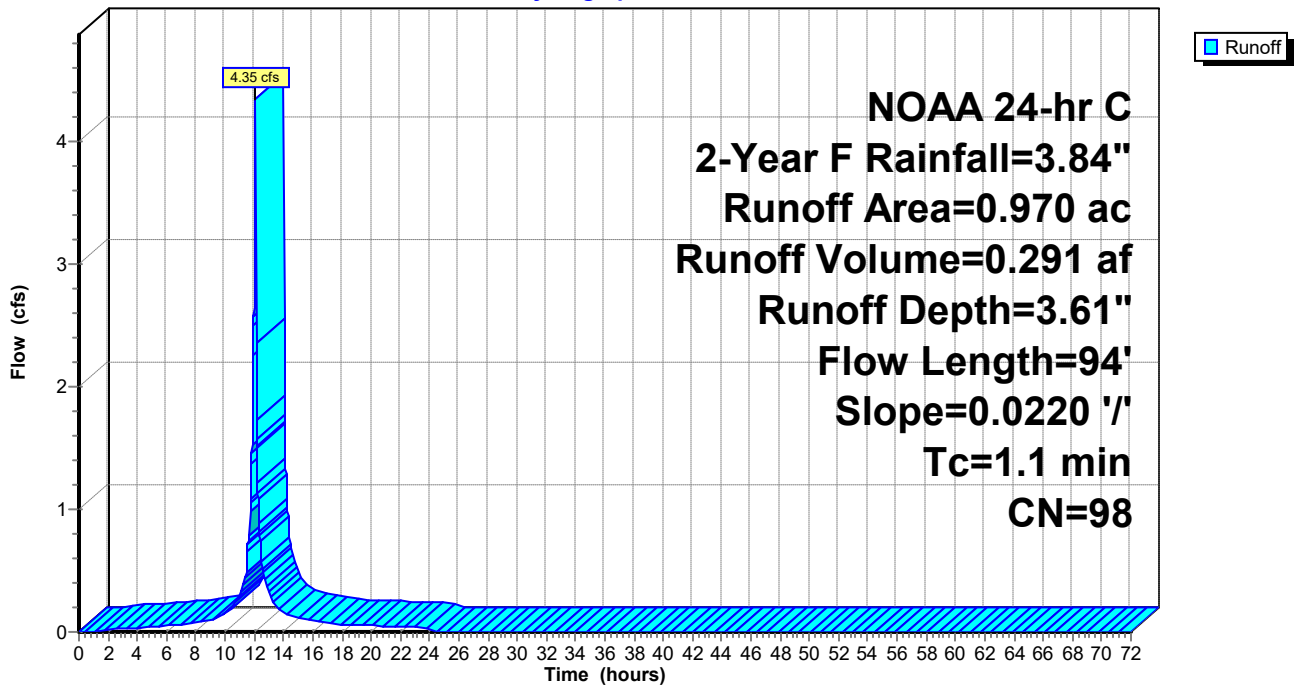
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.970	98	Paved parking, HSG D
0.970	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	94	0.0220	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.46 cfs @ 12.10 hrs, Volume= 0.025 af, Depth= 1.91"

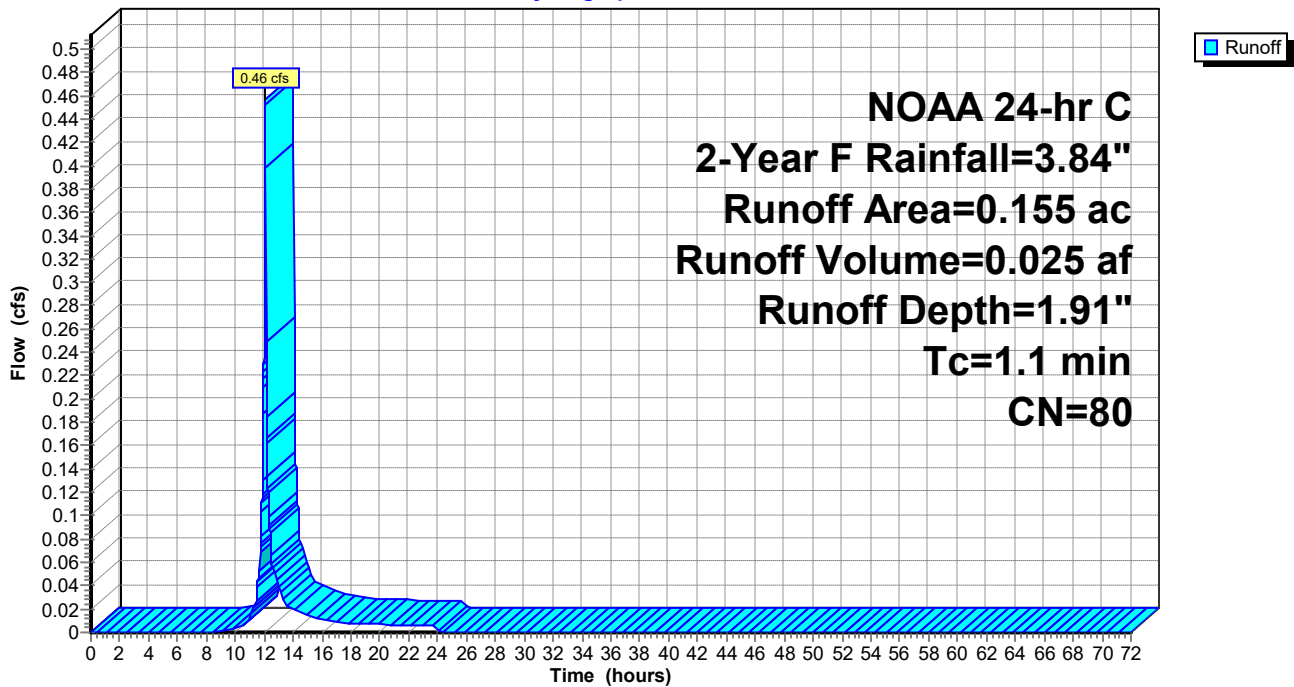
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.155	80	>75% Grass cover, Good, HSG D
0.155	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment 8I: IMPERVIOUS

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 0.072 af, Depth= 3.61"

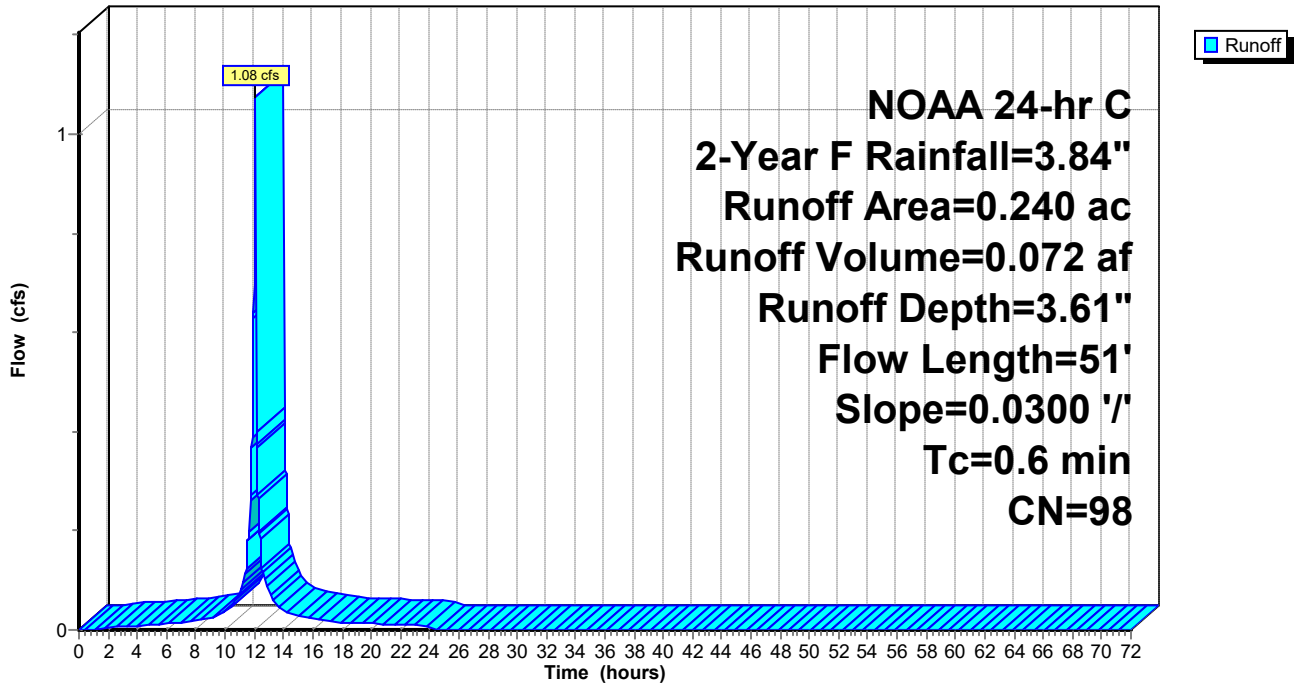
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0300	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 8I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9I: IMPERVIOUS

Runoff = 1.39 cfs @ 12.09 hrs, Volume= 0.093 af, Depth= 3.61"

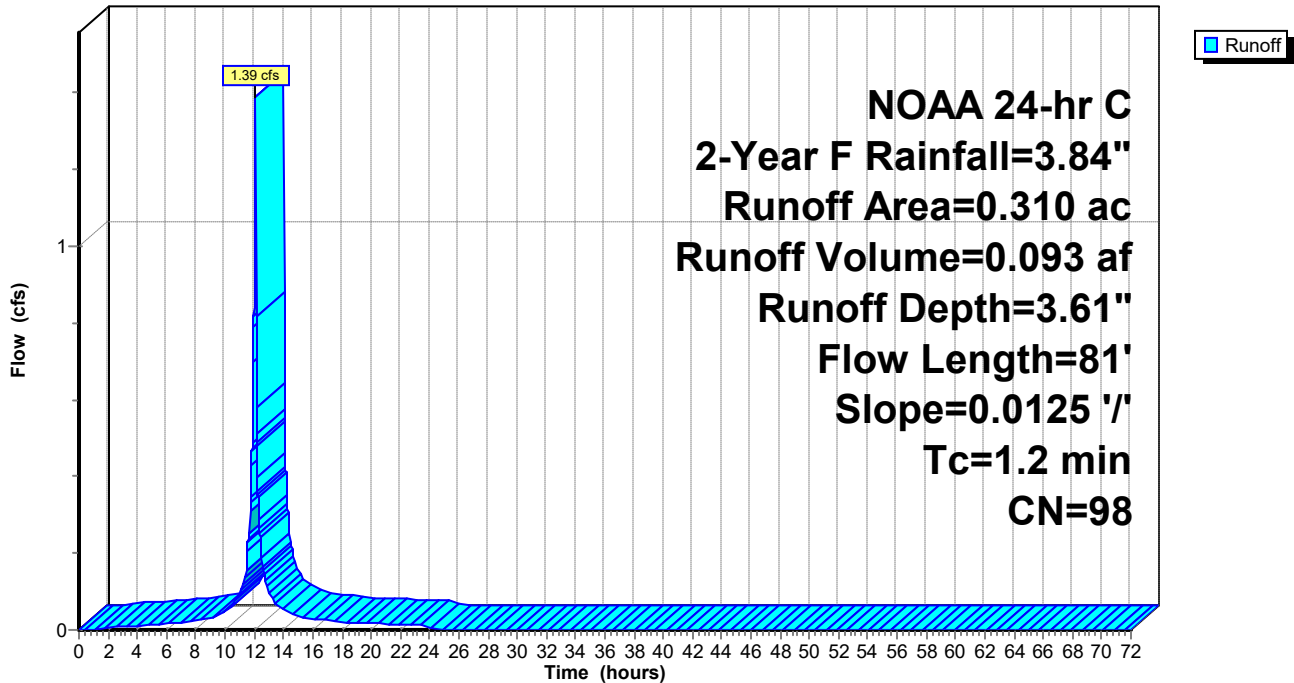
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG D
0.310	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	81	0.0125	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9P: PERVIOUS

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.006 af, Depth= 1.91"

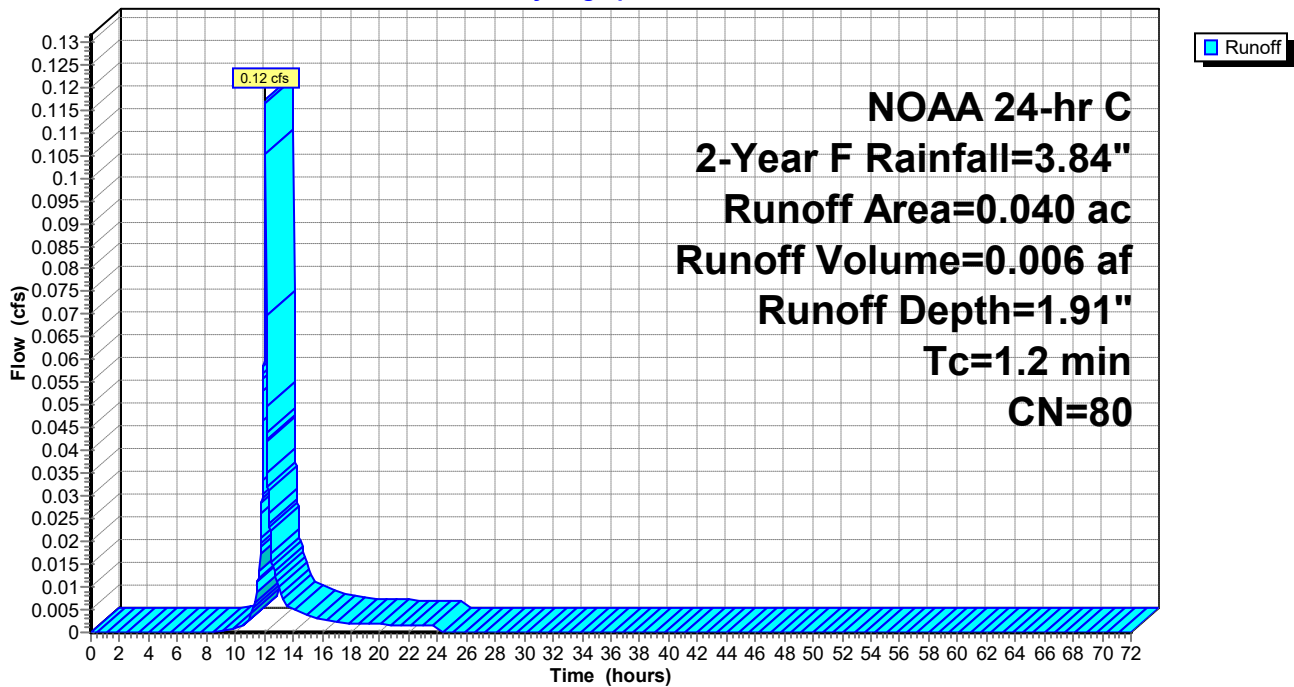
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.040	80	>75% Grass cover, Good, HSG D
0.040	80	100.00% Pervious Area

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

Subcatchment 9P: PERVIOUS

Hydrograph



Summary for Subcatchment 10I: IMPERVIOUS

Runoff = 2.87 cfs @ 12.09 hrs, Volume= 0.192 af, Depth= 3.61"

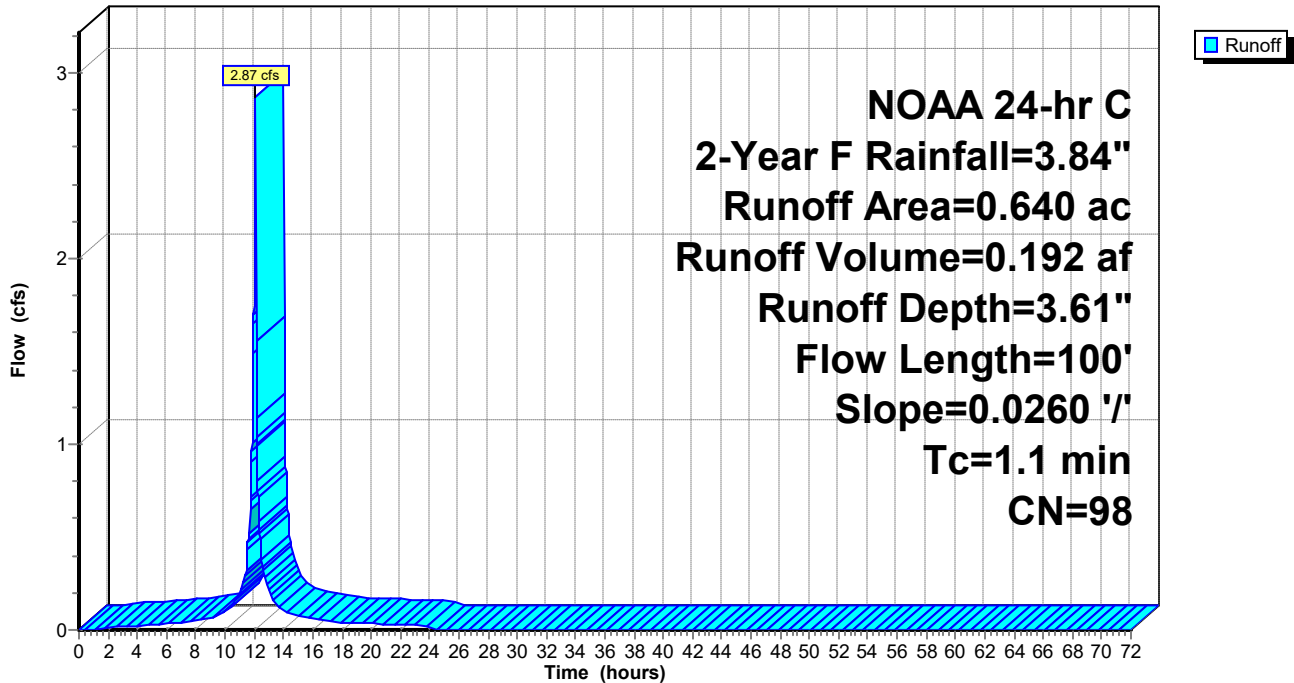
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.640	98	Paved parking, HSG D
0.640	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0260	1.57		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 10I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 10P: PERVIOUS

Runoff = 0.21 cfs @ 12.10 hrs, Volume= 0.011 af, Depth= 1.91"

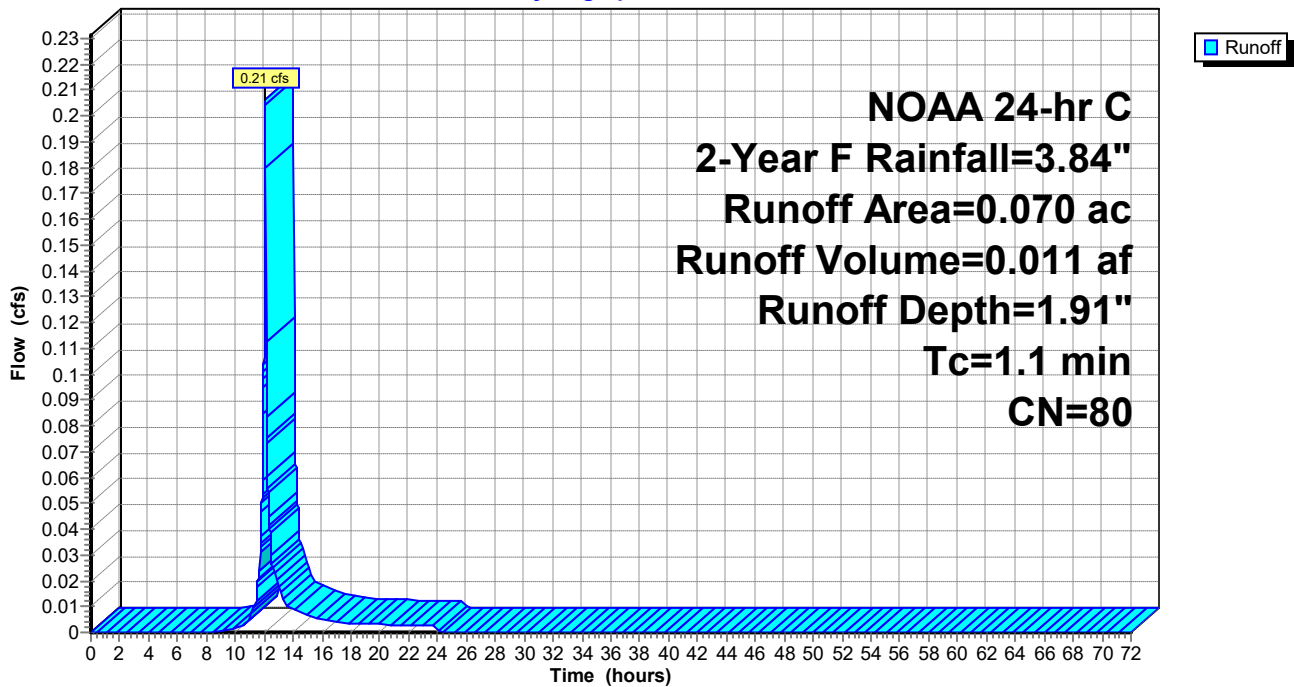
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.070	80	>75% Grass cover, Good, HSG D
0.070	80	100.00% Pervious Area

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

Subcatchment 10P: PERVIOUS

Hydrograph



Summary for Subcatchment I2: OFFSITE

Runoff = 0.67 cfs @ 12.09 hrs, Volume= 0.045 af, Depth= 3.61"

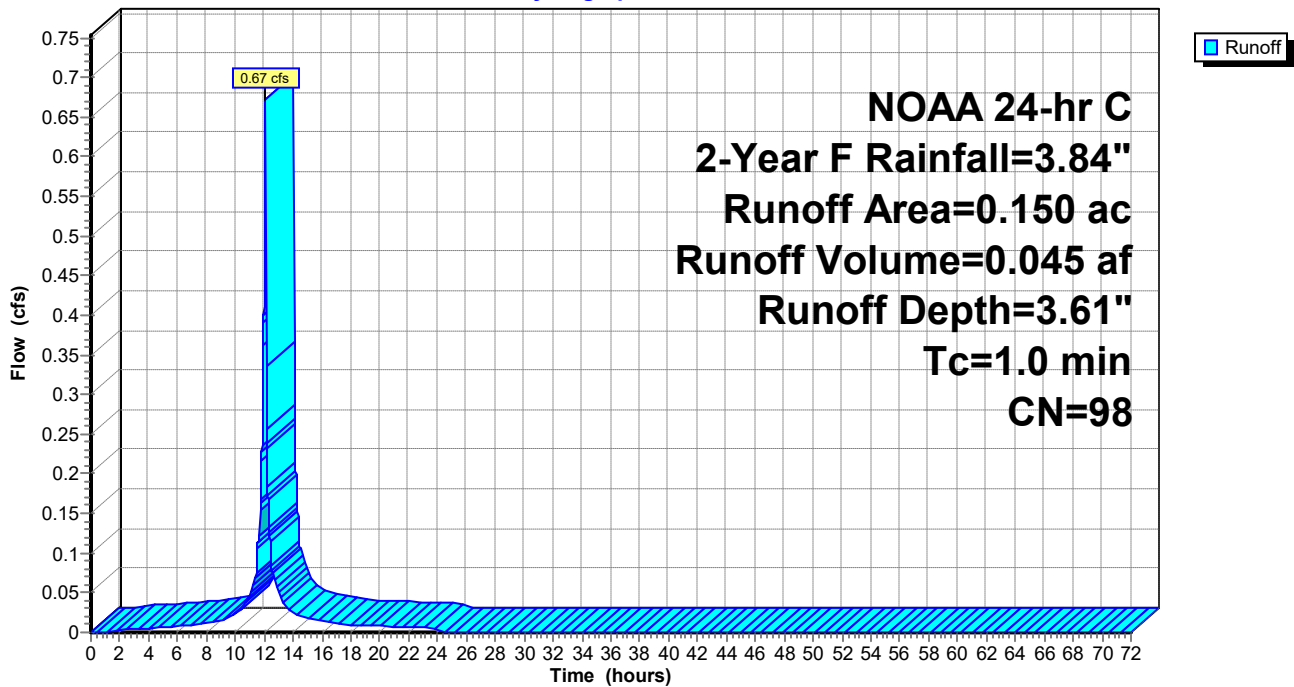
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG D
0.150	98	100.00% Impervious Area

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

Subcatchment I2: OFFSITE

Hydrograph



Summary for Subcatchment I3: IMPERVIOUS

Runoff = 6.59 cfs @ 12.09 hrs, Volume= 0.442 af, Depth= 3.61"

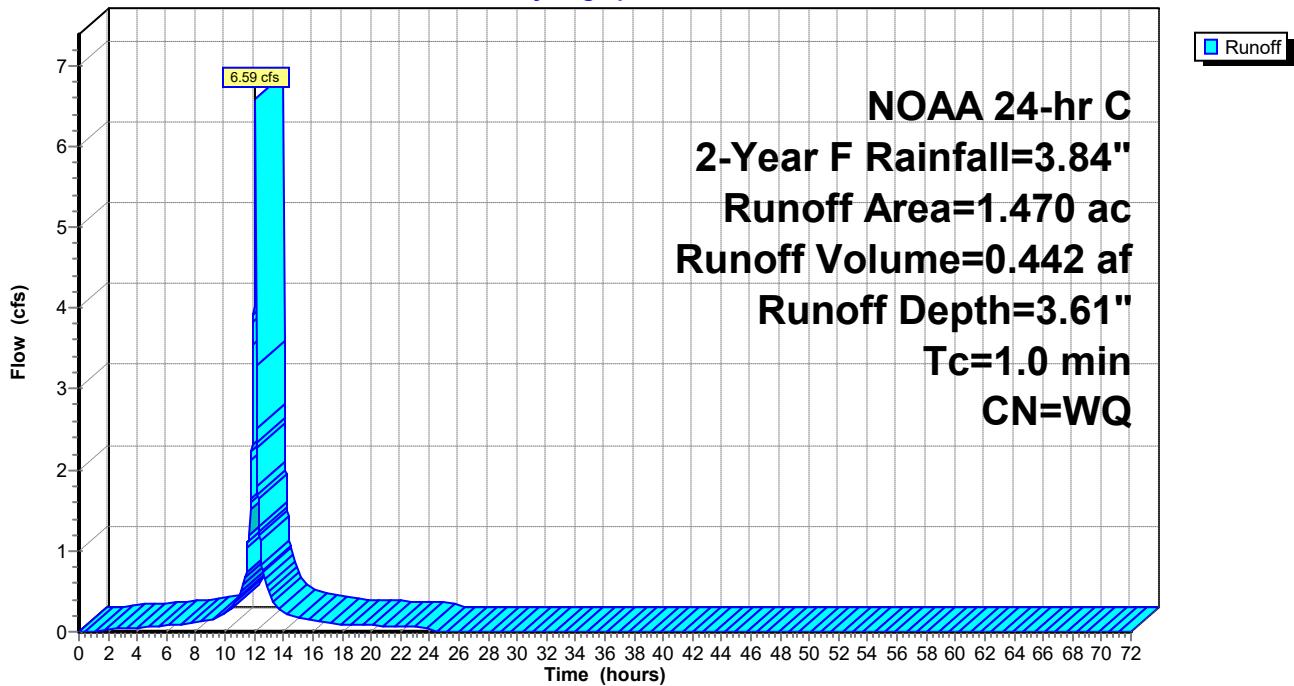
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
1.330	98	Unconnected roofs, HSG D
0.140	98	Unconnected pavement, HSG D
1.470		Weighted Average
1.470	98	100.00% Impervious Area
1.470		100.00% Unconnected

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

Subcatchment I3: IMPERVIOUS

Hydrograph



Summary for Subcatchment P2: OFFSITE

Runoff = 0.73 cfs @ 12.10 hrs, Volume= 0.040 af, Depth= 1.91"

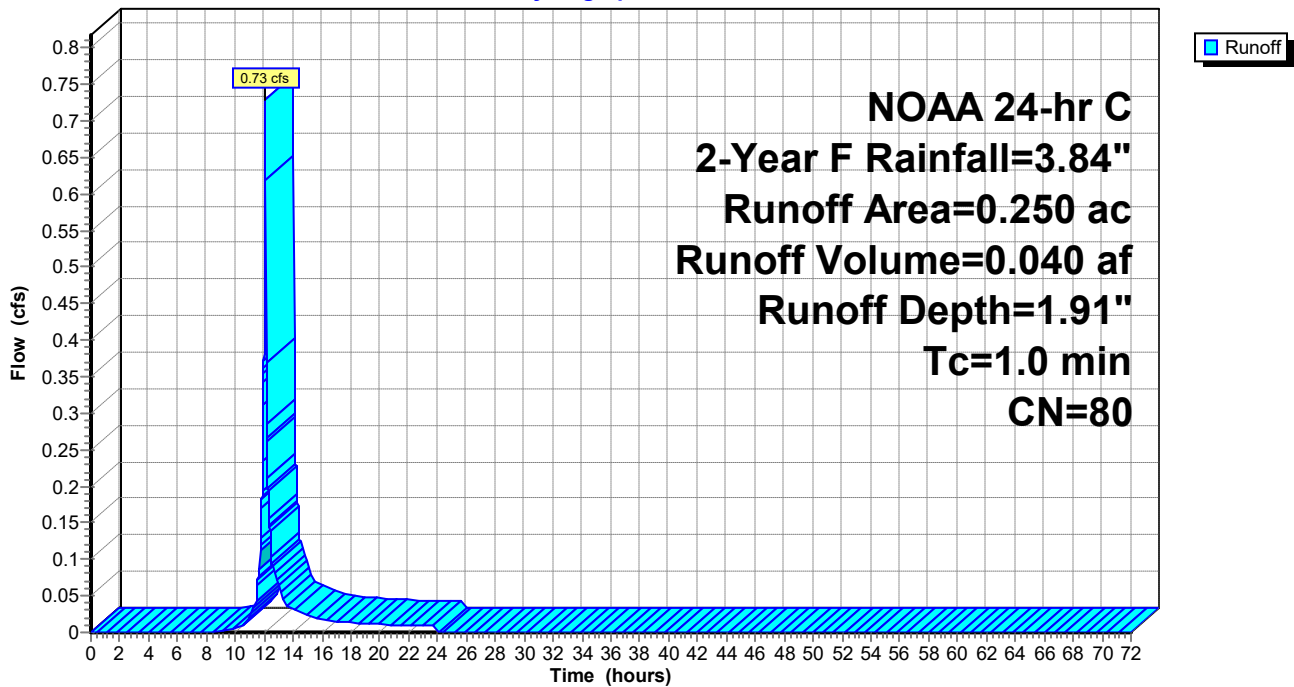
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P2: OFFSITE

Hydrograph



Summary for Subcatchment P3: PERVIOUS

Runoff = 0.73 cfs @ 12.10 hrs, Volume= 0.040 af, Depth= 1.91"

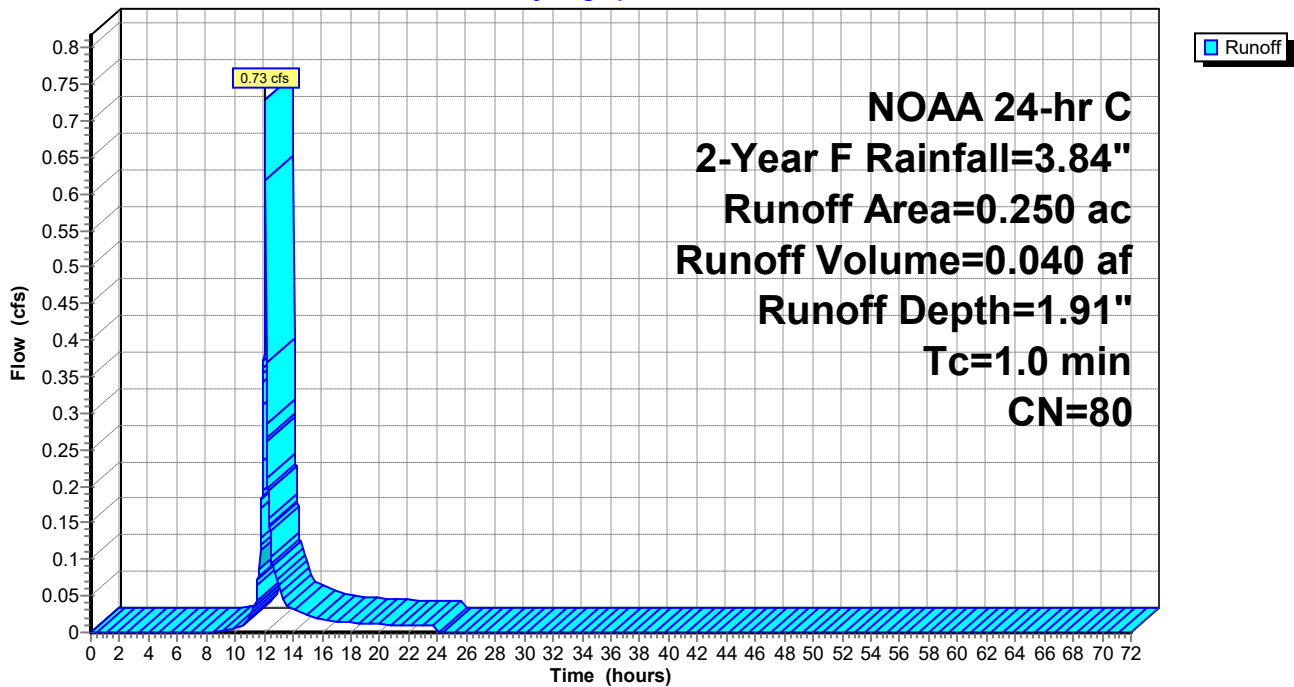
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 2-Year F Rainfall=3.84"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P3: PERVIOUS

Hydrograph



Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 3.08" for 2-Year F event
 Inflow = 2.44 cfs @ 12.09 hrs, Volume= 0.156 af
 Outflow = 1.11 cfs @ 12.12 hrs, Volume= 0.078 af, Atten= 54%, Lag= 1.9 min
 Primary = 1.11 cfs @ 12.12 hrs, Volume= 0.078 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.83' @ 12.12 hrs Surf.Area= 2,195 sf Storage= 3,575 cf

Plug-Flow detention time= 259.7 min calculated for 0.078 af (50% of inflow)
 Center-of-Mass det. time= 131.5 min (896.4 - 764.9)

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	8,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	432	0	0
69.50	686	280	280
70.50	1,294	990	1,270
71.50	1,963	1,629	2,898
72.50	2,677	2,320	5,218
73.50	3,448	3,063	8,281

Device	Routing	Invert	Outlet Devices
#1	Primary	67.49'	24.0" Round Culvert L= 165.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.49' / 67.00' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	73.50'	50.0' 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

Primary OutFlow Max=1.08 cfs @ 12.12 hrs HW=71.83' (Free Discharge)

↑1=Culvert (Passes 1.08 cfs of 22.47 cfs potential flow)

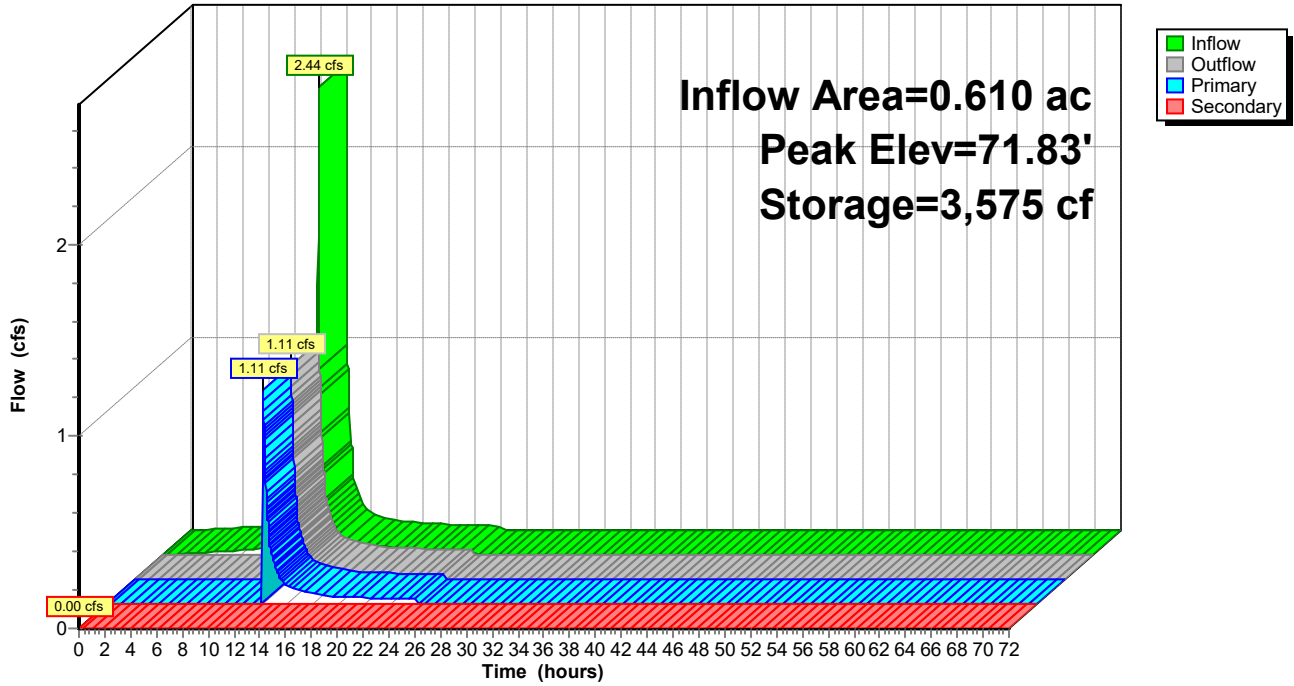
↑2=Orifice/Grate (Weir Controls 1.08 cfs @ 0.90 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph



Hydrograph for Pond B2: SMALL-SCALE BIORETENTION 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	69.00	0.00	0.00	0.00
2.00	0.01	13	69.03	0.00	0.00	0.00
4.00	0.02	93	69.19	0.00	0.00	0.00
6.00	0.02	226	69.42	0.00	0.00	0.00
8.00	0.03	429	69.70	0.00	0.00	0.00
10.00	0.07	775	70.08	0.00	0.00	0.00
12.00	1.43	2,712	71.40	0.00	0.00	0.00
14.00	0.10	3,431	71.76	0.10	0.10	0.00
16.00	0.05	3,422	71.76	0.05	0.05	0.00
18.00	0.04	3,419	71.75	0.04	0.04	0.00
20.00	0.03	3,418	71.75	0.03	0.03	0.00
22.00	0.03	3,417	71.75	0.03	0.03	0.00
24.00	0.03	3,417	71.75	0.03	0.03	0.00
26.00	0.00	3,411	71.75	0.00	0.00	0.00
28.00	0.00	3,411	71.75	0.00	0.00	0.00
30.00	0.00	3,411	71.75	0.00	0.00	0.00
32.00	0.00	3,411	71.75	0.00	0.00	0.00
34.00	0.00	3,411	71.75	0.00	0.00	0.00
36.00	0.00	3,411	71.75	0.00	0.00	0.00
38.00	0.00	3,411	71.75	0.00	0.00	0.00
40.00	0.00	3,411	71.75	0.00	0.00	0.00
42.00	0.00	3,411	71.75	0.00	0.00	0.00
44.00	0.00	3,411	71.75	0.00	0.00	0.00
46.00	0.00	3,411	71.75	0.00	0.00	0.00
48.00	0.00	3,411	71.75	0.00	0.00	0.00
50.00	0.00	3,411	71.75	0.00	0.00	0.00
52.00	0.00	3,411	71.75	0.00	0.00	0.00
54.00	0.00	3,411	71.75	0.00	0.00	0.00
56.00	0.00	3,411	71.75	0.00	0.00	0.00
58.00	0.00	3,411	71.75	0.00	0.00	0.00
60.00	0.00	3,411	71.75	0.00	0.00	0.00
62.00	0.00	3,411	71.75	0.00	0.00	0.00
64.00	0.00	3,411	71.75	0.00	0.00	0.00
66.00	0.00	3,411	71.75	0.00	0.00	0.00
68.00	0.00	3,411	71.75	0.00	0.00	0.00
70.00	0.00	3,411	71.75	0.00	0.00	0.00
72.00	0.00	3,411	71.75	0.00	0.00	0.00

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 3.16" for 2-Year F event
 Inflow = 17.55 cfs @ 12.10 hrs, Volume= 1.707 af
 Outflow = 3.61 cfs @ 12.70 hrs, Volume= 1.277 af, Atten= 79%, Lag= 35.9 min
 Primary = 3.61 cfs @ 12.70 hrs, Volume= 1.277 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.63' @ 12.70 hrs Surf.Area= 21,464 sf Storage= 33,003 cf

Plug-Flow detention time= 273.4 min calculated for 1.277 af (75% of inflow)
 Center-of-Mass det. time= 169.5 min (982.5 - 813.1)

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.95'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Device 1	69.40'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	70.08'	50.0' 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

Primary OutFlow Max=3.61 cfs @ 12.70 hrs HW=68.63' (Free Discharge)

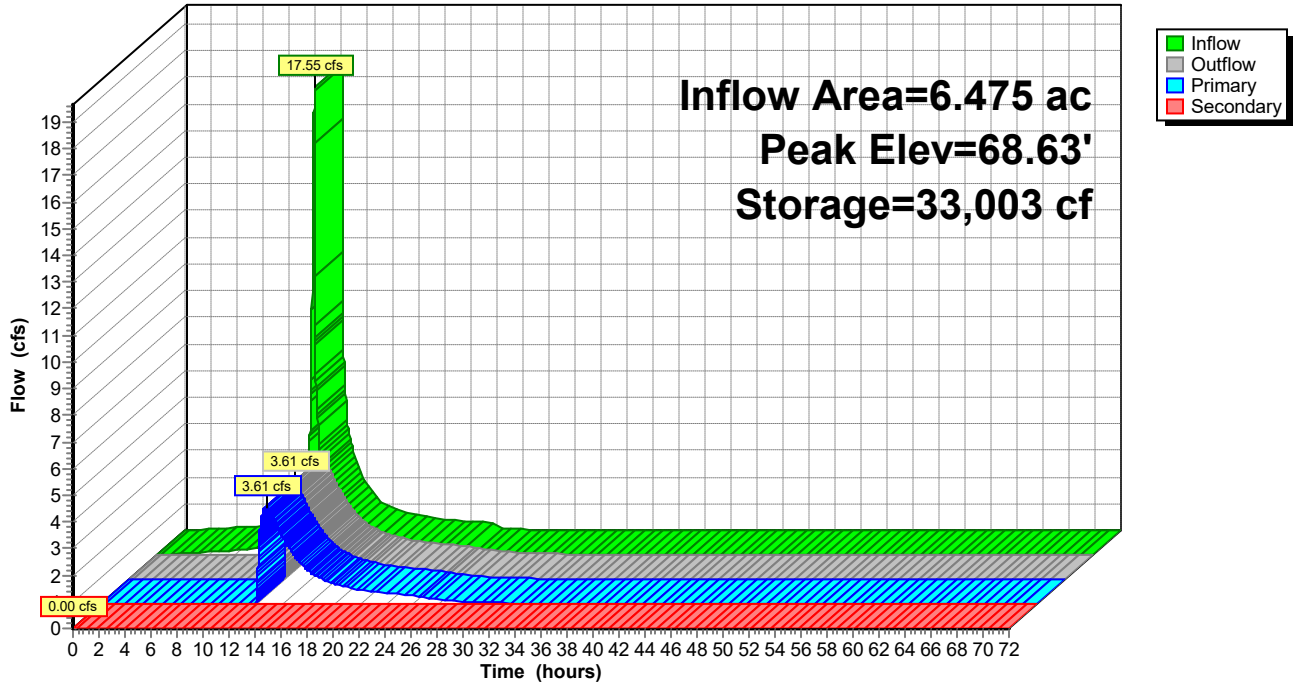
- ↑1=Culvert (Passes 3.61 cfs of 22.10 cfs potential flow)
- ↑2=Orifice/Grate (Orifice Controls 3.61 cfs @ 2.65 fps)
- ↑3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

- ↑4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	67.00	0.00	0.00	0.00
2.00	0.05	95	67.01	0.00	0.00	0.00
4.00	0.12	707	67.04	0.00	0.00	0.00
6.00	0.16	1,711	67.09	0.00	0.00	0.00
8.00	0.27	3,251	67.17	0.00	0.00	0.00
10.00	0.67	6,164	67.32	0.00	0.00	0.00
12.00	10.34	22,298	68.12	0.47	0.47	0.00
14.00	1.74	29,801	68.48	2.49	2.49	0.00
16.00	0.84	25,578	68.28	1.22	1.22	0.00
18.00	0.55	23,637	68.19	0.75	0.75	0.00
20.00	0.43	22,611	68.14	0.53	0.53	0.00
22.00	0.33	21,981	68.11	0.41	0.41	0.00
24.00	0.31	21,528	68.09	0.33	0.33	0.00
26.00	0.03	20,371	68.03	0.15	0.15	0.00
28.00	0.02	19,758	68.00	0.07	0.07	0.00
30.00	0.01	19,419	67.98	0.05	0.05	0.00
32.00	0.01	19,203	67.97	0.03	0.03	0.00
34.00	0.00	19,069	67.97	0.02	0.02	0.00
36.00	0.00	18,986	67.96	0.01	0.01	0.00
38.00	0.00	18,934	67.96	0.01	0.01	0.00
40.00	0.00	18,899	67.96	0.01	0.01	0.00
42.00	0.00	18,869	67.96	0.00	0.00	0.00
44.00	0.00	18,843	67.96	0.00	0.00	0.00
46.00	0.00	18,821	67.96	0.00	0.00	0.00
48.00	0.00	18,803	67.95	0.00	0.00	0.00
50.00	0.00	18,787	67.95	0.00	0.00	0.00
52.00	0.00	18,774	67.95	0.00	0.00	0.00
54.00	0.00	18,763	67.95	0.00	0.00	0.00
56.00	0.00	18,755	67.95	0.00	0.00	0.00
58.00	0.00	18,747	67.95	0.00	0.00	0.00
60.00	0.00	18,741	67.95	0.00	0.00	0.00
62.00	0.00	18,736	67.95	0.00	0.00	0.00
64.00	0.00	18,732	67.95	0.00	0.00	0.00
66.00	0.00	18,729	67.95	0.00	0.00	0.00
68.00	0.00	18,726	67.95	0.00	0.00	0.00
70.00	0.00	18,724	67.95	0.00	0.00	0.00
72.00	0.00	18,722	67.95	0.00	0.00	0.00

Summary for Pond P10: Porous Pavement 10

Inflow Area = 0.710 ac, 90.14% Impervious, Inflow Depth = 3.44" for 2-Year F event
 Inflow = 3.07 cfs @ 12.09 hrs, Volume= 0.203 af
 Outflow = 0.28 cfs @ 12.82 hrs, Volume= 0.186 af, Atten= 91%, Lag= 43.8 min
 Primary = 0.28 cfs @ 12.82 hrs, Volume= 0.186 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.69' @ 12.82 hrs Surf.Area= 9,090 sf Storage= 4,851 cf

Plug-Flow detention time= 276.4 min calculated for 0.186 af (92% of inflow)
 Center-of-Mass det. time= 231.1 min (984.9 - 753.8)

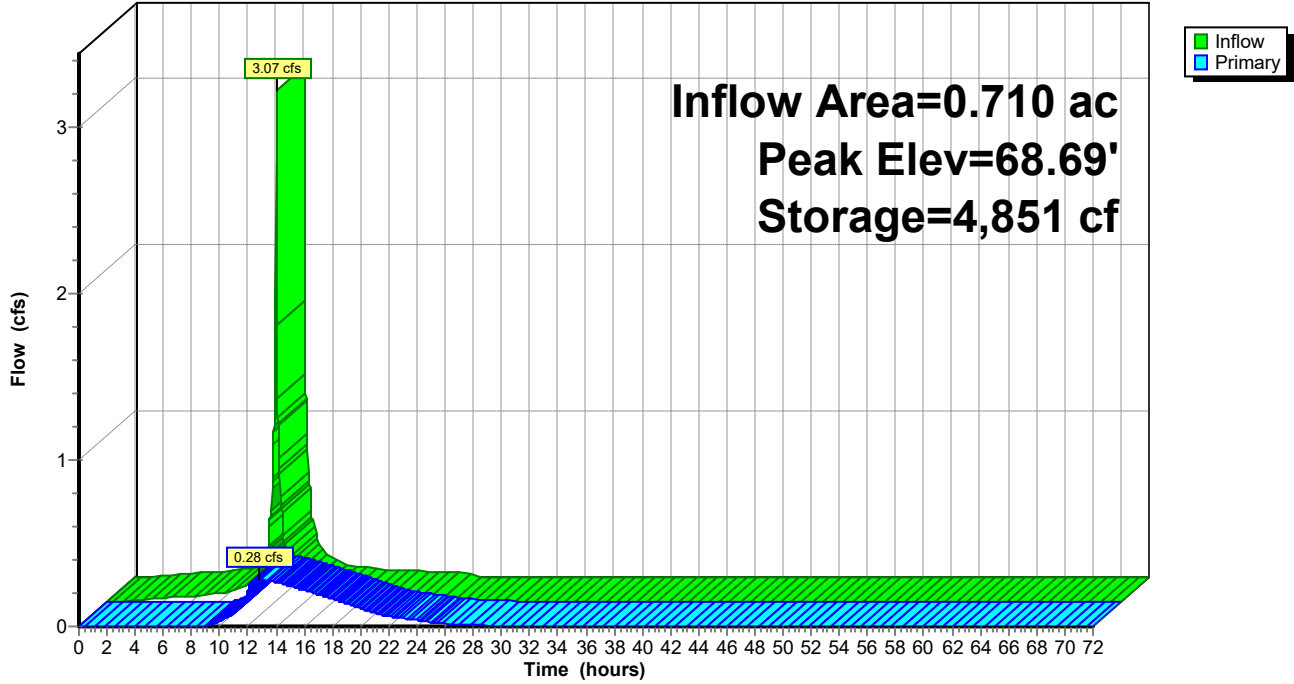
Volume	Invert	Avail.Storage	Storage Description
#1	67.61'	9,763 cf	18.00'W x 505.00'L x 4.00'H Prismatic 36,360 cf Overall - 6,776 cf Embedded = 29,584 cf x 33.0% Voids
#2	67.86'	6,346 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 505.0' 6,776 cf Overall - 0.4" Wall Thickness = 6,346 cf
		16,109 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.61'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.61' / 67.53' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	67.86'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	70.50'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.28 cfs @ 12.82 hrs HW=68.69' (Free Discharge)
 1=Culvert (Passes 0.28 cfs of 2.84 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.28 cfs @ 4.11 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P10: Porous Pavement 10

Hydrograph



2024-04-26 Post-Development-POI 2

NOAA 24-hr C 2-Year F Rainfall=3.84"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P10: Porous Pavement 10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.61	0.00
2.00	0.01	19	67.62	0.00
4.00	0.02	142	67.66	0.00
6.00	0.03	343	67.72	0.00
8.00	0.05	652	67.83	0.00
10.00	0.10	1,098	67.96	0.03
12.00	1.82	3,013	68.36	0.21
14.00	0.12	4,415	68.61	0.26
16.00	0.07	3,276	68.41	0.22
18.00	0.04	2,289	68.22	0.16
20.00	0.04	1,602	68.07	0.11
22.00	0.03	1,264	68.00	0.06
24.00	0.03	1,137	67.97	0.04
26.00	0.00	959	67.92	0.02
28.00	0.00	880	67.90	0.01
30.00	0.00	841	67.89	0.00
32.00	0.00	818	67.88	0.00
34.00	0.00	801	67.88	0.00
36.00	0.00	787	67.87	0.00
38.00	0.00	777	67.87	0.00
40.00	0.00	769	67.87	0.00
42.00	0.00	762	67.87	0.00
44.00	0.00	758	67.86	0.00
46.00	0.00	754	67.86	0.00
48.00	0.00	751	67.86	0.00
50.00	0.00	749	67.86	0.00
52.00	0.00	748	67.86	0.00
54.00	0.00	746	67.86	0.00
56.00	0.00	745	67.86	0.00
58.00	0.00	745	67.86	0.00
60.00	0.00	744	67.86	0.00
62.00	0.00	744	67.86	0.00
64.00	0.00	743	67.86	0.00
66.00	0.00	743	67.86	0.00
68.00	0.00	743	67.86	0.00
70.00	0.00	743	67.86	0.00
72.00	0.00	743	67.86	0.00

Summary for Pond P5: Porous Pavement 5

Inflow Area = 1.125 ac, 86.22% Impervious, Inflow Depth = 3.37" for 2-Year F event
 Inflow = 4.80 cfs @ 12.10 hrs, Volume= 0.316 af
 Outflow = 1.01 cfs @ 12.32 hrs, Volume= 0.288 af, Atten= 79%, Lag= 13.2 min
 Primary = 1.01 cfs @ 12.32 hrs, Volume= 0.288 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.19' @ 12.32 hrs Surf.Area= 14,886 sf Storage= 5,608 cf

Plug-Flow detention time= 152.6 min calculated for 0.288 af (91% of inflow)
 Center-of-Mass det. time= 105.0 min (860.7 - 755.7)

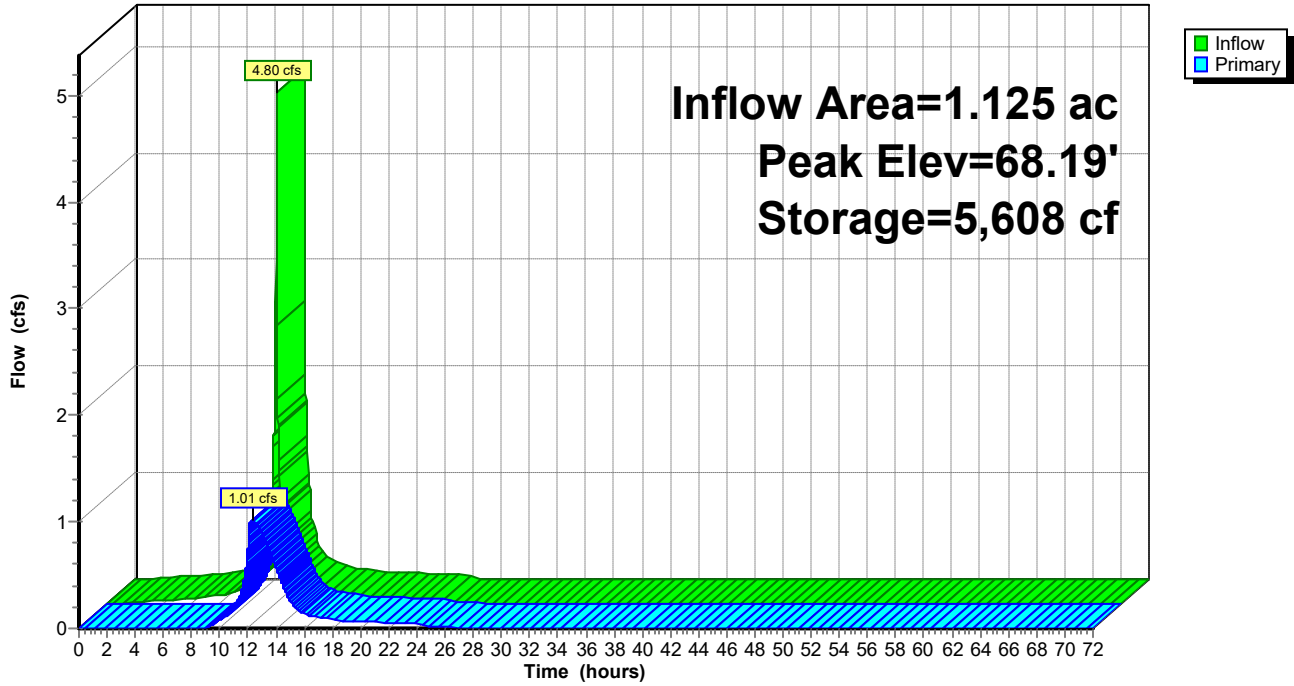
Volume	Invert	Avail.Storage	Storage Description
#1	67.37'	13,040 cf	18.00'W x 827.00'L x 3.40'H Prismatic 50,612 cf Overall - 11,097 cf Embedded = 39,516 cf x 33.0% Voids
#2	67.62'	10,392 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 827.0' 11,097 cf Overall - 0.4" Wall Thickness = 10,392 cf
		23,433 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.37'	24.0" Round Culvert L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.37' / 67.19' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.62'	2.5" Vert. Orifice/Grate X 9.00 C= 0.600
#3	Device 1	69.88'	8.0" W x 6.0" H Vert. Orifice/Grate X 7.00 C= 0.600

Primary OutFlow Max=1.01 cfs @ 12.32 hrs HW=68.19' (Free Discharge)
 1=Culvert (Passes 1.01 cfs of 2.50 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 1.01 cfs @ 3.30 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P5: Porous Pavement 5

Hydrograph



2024-04-26 Post-Development-POI 2

NOAA 24-hr C 2-Year F Rainfall=3.84"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P5: Porous Pavement 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.37	0.00
2.00	0.01	29	67.38	0.00
4.00	0.03	215	67.41	0.00
6.00	0.05	520	67.48	0.00
8.00	0.08	988	67.57	0.00
10.00	0.16	1,618	67.69	0.08
12.00	2.84	3,759	67.98	0.74
14.00	0.19	2,916	67.87	0.57
16.00	0.10	1,769	67.71	0.14
18.00	0.07	1,617	67.69	0.08
20.00	0.06	1,561	67.68	0.06
22.00	0.05	1,534	67.68	0.05
24.00	0.05	1,508	67.67	0.05
26.00	0.00	1,335	67.64	0.01
28.00	0.00	1,284	67.63	0.01
30.00	0.00	1,255	67.63	0.00
32.00	0.00	1,238	67.62	0.00
34.00	0.00	1,229	67.62	0.00
36.00	0.00	1,223	67.62	0.00
38.00	0.00	1,220	67.62	0.00
40.00	0.00	1,218	67.62	0.00
42.00	0.00	1,217	67.62	0.00
44.00	0.00	1,216	67.62	0.00
46.00	0.00	1,216	67.62	0.00
48.00	0.00	1,216	67.62	0.00
50.00	0.00	1,216	67.62	0.00
52.00	0.00	1,216	67.62	0.00
54.00	0.00	1,215	67.62	0.00
56.00	0.00	1,215	67.62	0.00
58.00	0.00	1,215	67.62	0.00
60.00	0.00	1,215	67.62	0.00
62.00	0.00	1,215	67.62	0.00
64.00	0.00	1,215	67.62	0.00
66.00	0.00	1,215	67.62	0.00
68.00	0.00	1,215	67.62	0.00
70.00	0.00	1,215	67.62	0.00
72.00	0.00	1,215	67.62	0.00

Summary for Pond P8: Porous Pavement 8

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth = 3.61" for 2-Year F event
 Inflow = 1.08 cfs @ 12.09 hrs, Volume= 0.072 af
 Outflow = 0.39 cfs @ 12.12 hrs, Volume= 0.066 af, Atten= 64%, Lag= 1.8 min
 Primary = 0.39 cfs @ 12.12 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.10' @ 12.12 hrs Surf.Area= 3,078 sf Storage= 949 cf

Plug-Flow detention time= 112.8 min calculated for 0.066 af (92% of inflow)
 Center-of-Mass det. time= 68.8 min (817.6 - 748.7)

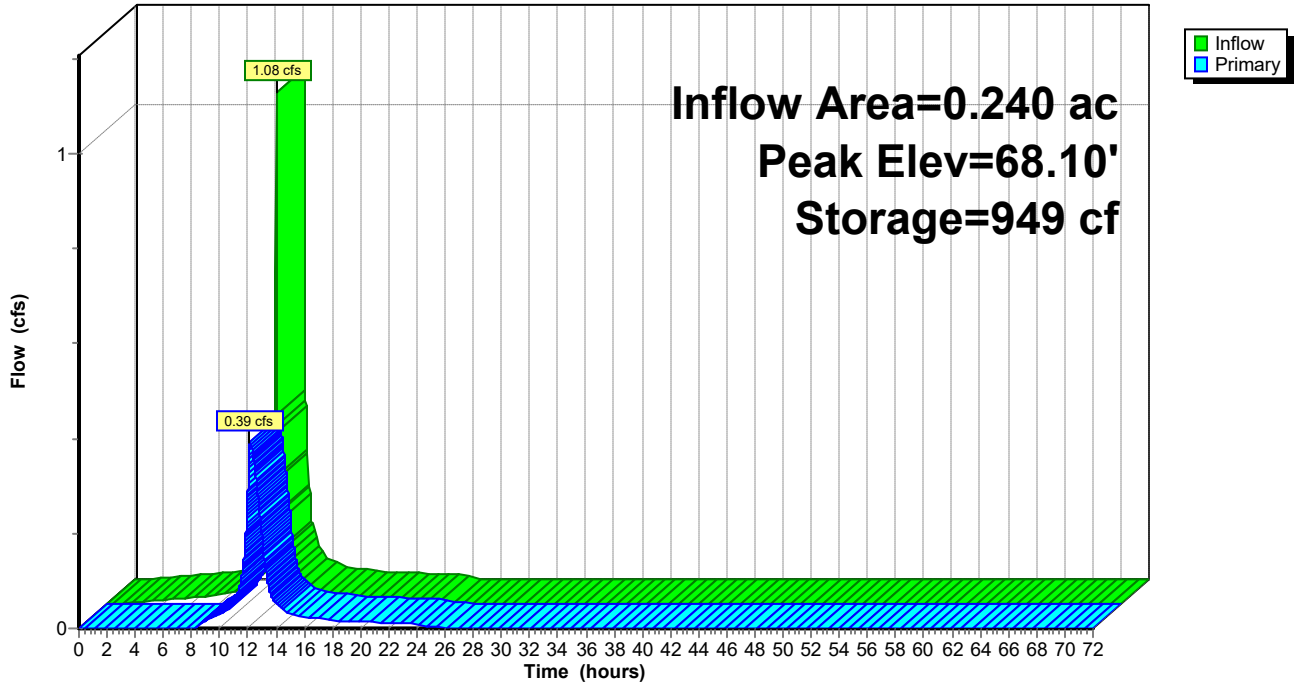
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	3,306 cf	18.00'W x 171.00'L x 4.00'H Prismaoid 12,312 cf Overall - 2,294 cf Embedded = 10,018 cf x 33.0% Voids
#2	67.64'	2,149 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 171.0' 2,294 cf Overall - 0.4" Wall Thickness = 2,149 cf
		5,455 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.24' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	70.13'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.39 cfs @ 12.12 hrs HW=68.10' (Free Discharge)
 1=Culvert (Passes 0.39 cfs of 2.14 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.39 cfs @ 2.86 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P8: Porous Pavement 8

Hydrograph



2024-04-26 Post-Development-POI 2

NOAA 24-hr C 2-Year F Rainfall=3.84"

Prepared by HP Inc.

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Hydrograph for Pond P8: Porous Pavement 8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.00	7	67.40	0.00
4.00	0.01	53	67.44	0.00
6.00	0.01	129	67.52	0.00
8.00	0.02	245	67.63	0.00
10.00	0.04	326	67.70	0.03
12.00	0.65	676	67.94	0.29
14.00	0.04	353	67.72	0.05
16.00	0.02	315	67.69	0.02
18.00	0.02	301	67.68	0.02
20.00	0.01	295	67.68	0.01
22.00	0.01	292	67.68	0.01
24.00	0.01	290	67.67	0.01
26.00	0.00	259	67.65	0.00
28.00	0.00	253	67.64	0.00
30.00	0.00	252	67.64	0.00
32.00	0.00	251	67.64	0.00
34.00	0.00	251	67.64	0.00
36.00	0.00	251	67.64	0.00
38.00	0.00	251	67.64	0.00
40.00	0.00	251	67.64	0.00
42.00	0.00	251	67.64	0.00
44.00	0.00	251	67.64	0.00
46.00	0.00	251	67.64	0.00
48.00	0.00	251	67.64	0.00
50.00	0.00	251	67.64	0.00
52.00	0.00	251	67.64	0.00
54.00	0.00	251	67.64	0.00
56.00	0.00	251	67.64	0.00
58.00	0.00	251	67.64	0.00
60.00	0.00	251	67.64	0.00
62.00	0.00	251	67.64	0.00
64.00	0.00	251	67.64	0.00
66.00	0.00	251	67.64	0.00
68.00	0.00	251	67.64	0.00
70.00	0.00	251	67.64	0.00
72.00	0.00	251	67.64	0.00

Summary for Pond P9: Porous Pavement 9

Inflow Area = 0.350 ac, 88.57% Impervious, Inflow Depth = 3.41" for 2-Year F event
 Inflow = 1.51 cfs @ 12.09 hrs, Volume= 0.100 af
 Outflow = 0.23 cfs @ 12.51 hrs, Volume= 0.089 af, Atten= 85%, Lag= 25.4 min
 Primary = 0.23 cfs @ 12.51 hrs, Volume= 0.089 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.24' @ 12.51 hrs Surf.Area= 5,346 sf Storage= 2,090 cf

Plug-Flow detention time= 199.3 min calculated for 0.089 af (90% of inflow)
 Center-of-Mass det. time= 147.2 min (901.8 - 754.6)

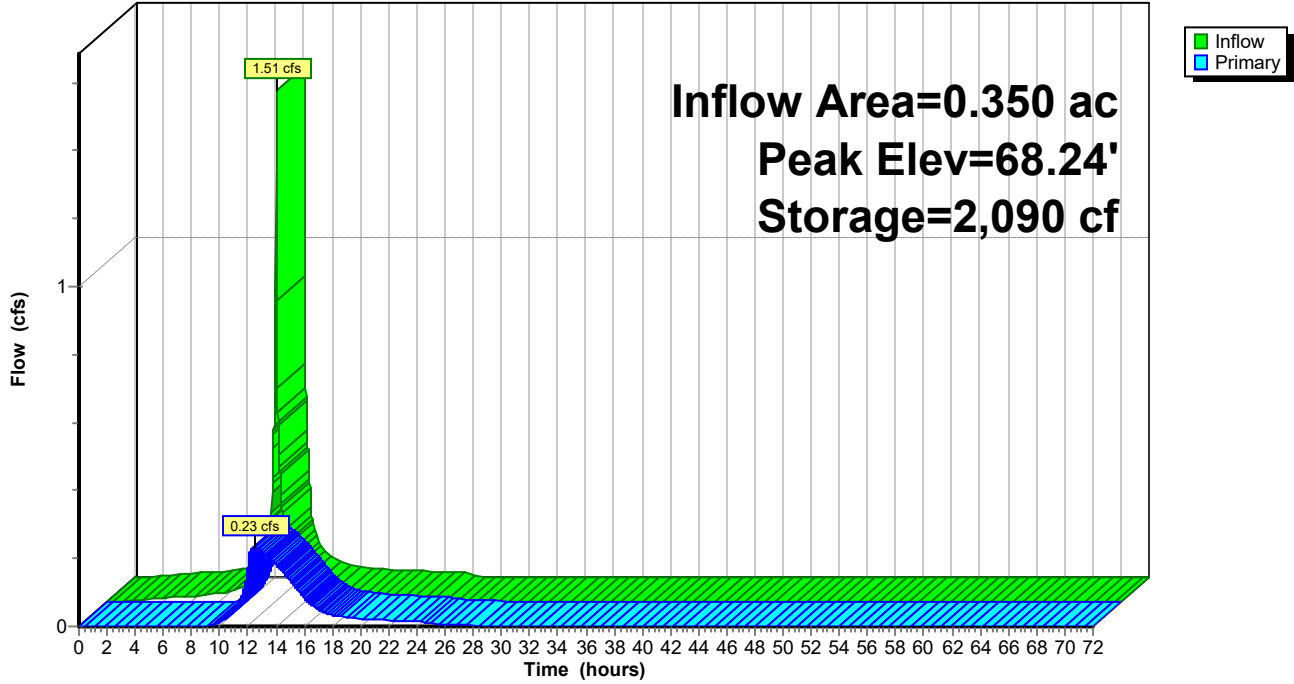
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	5,742 cf	18.00'W x 297.00'L x 4.00'H Prismatic 21,384 cf Overall - 3,985 cf Embedded = 17,399 cf x 33.0% Voids
#2	67.64'	3,732 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 297.0' 3,985 cf Overall - 0.4" Wall Thickness = 3,732 cf
		9,474 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.32' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	69.76'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.23 cfs @ 12.51 hrs HW=68.24' (Free Discharge)
 1=Culvert (Passes 0.23 cfs of 3.00 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.23 cfs @ 3.38 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P9: Porous Pavement 9

Hydrograph



2024-04-26 Post-Development-POI 2

NOAA 24-hr C 2-Year F Rainfall=3.84"

Prepared by HP Inc.

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Hydrograph for Pond P9: Porous Pavement 9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.00	9	67.40	0.00
4.00	0.01	69	67.43	0.00
6.00	0.02	166	67.48	0.00
8.00	0.03	316	67.57	0.00
10.00	0.05	550	67.70	0.01
12.00	0.89	1,379	68.01	0.17
14.00	0.06	1,503	68.05	0.18
16.00	0.03	835	67.81	0.09
18.00	0.02	646	67.74	0.03
20.00	0.02	598	67.72	0.02
22.00	0.02	580	67.71	0.02
24.00	0.02	567	67.70	0.02
26.00	0.00	501	67.67	0.00
28.00	0.00	477	67.66	0.00
30.00	0.00	463	67.65	0.00
32.00	0.00	453	67.65	0.00
34.00	0.00	447	67.65	0.00
36.00	0.00	443	67.64	0.00
38.00	0.00	441	67.64	0.00
40.00	0.00	439	67.64	0.00
42.00	0.00	438	67.64	0.00
44.00	0.00	438	67.64	0.00
46.00	0.00	437	67.64	0.00
48.00	0.00	437	67.64	0.00
50.00	0.00	437	67.64	0.00
52.00	0.00	437	67.64	0.00
54.00	0.00	437	67.64	0.00
56.00	0.00	437	67.64	0.00
58.00	0.00	437	67.64	0.00
60.00	0.00	437	67.64	0.00
62.00	0.00	437	67.64	0.00
64.00	0.00	437	67.64	0.00
66.00	0.00	437	67.64	0.00
68.00	0.00	436	67.64	0.00
70.00	0.00	436	67.64	0.00
72.00	0.00	436	67.64	0.00

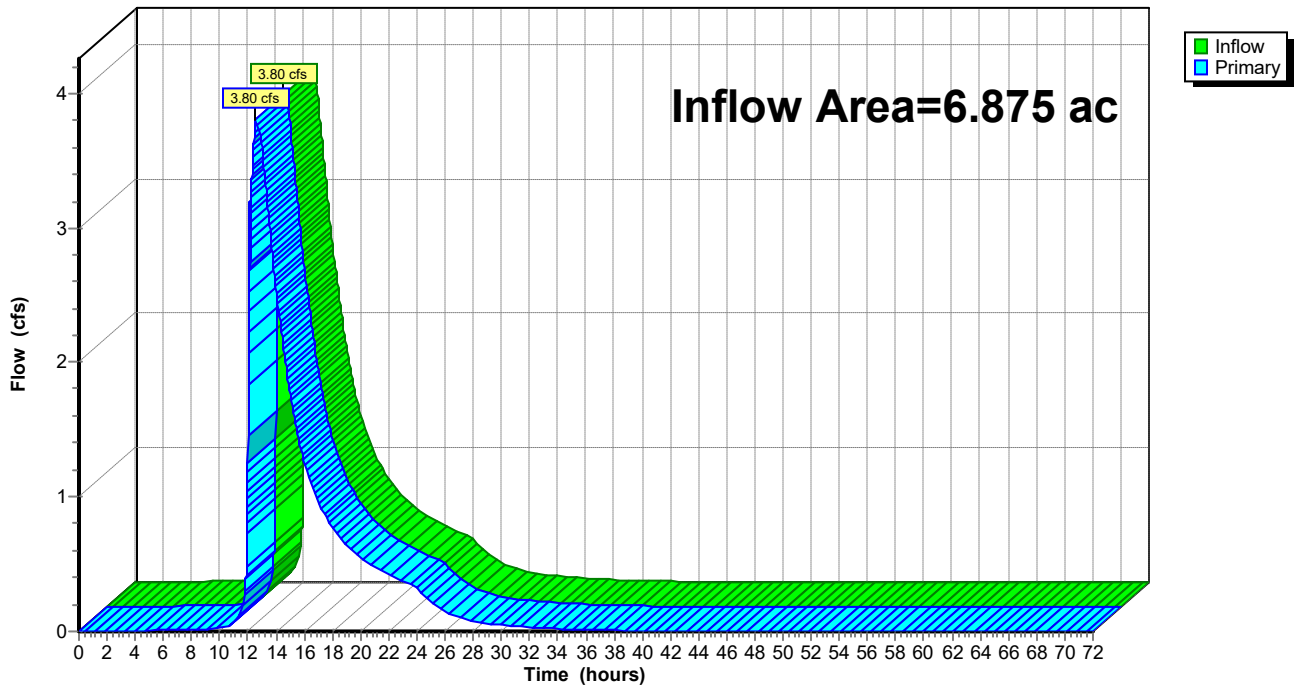
Summary for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.875 ac, 86.11% Impervious, Inflow Depth = 2.38" for 2-Year F event
Inflow = 3.80 cfs @ 12.50 hrs, Volume= 1.362 af
Primary = 3.80 cfs @ 12.50 hrs, Volume= 1.362 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



2024-04-26 Post-Development-POI 2

NOAA 24-hr C 2-Year F Rainfall=3.84"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.02		0.02	61.00	0.00		0.00
10.00	0.03		0.03	62.00	0.00		0.00
11.00	0.06		0.06	63.00	0.00		0.00
12.00	1.25		1.25	64.00	0.00		0.00
13.00	3.60		3.60	65.00	0.00		0.00
14.00	2.55		2.55	66.00	0.00		0.00
15.00	1.76		1.76	67.00	0.00		0.00
16.00	1.26		1.26	68.00	0.00		0.00
17.00	0.97		0.97	69.00	0.00		0.00
18.00	0.77		0.77	70.00	0.00		0.00
19.00	0.64		0.64	71.00	0.00		0.00
20.00	0.55		0.55	72.00	0.00		0.00
21.00	0.48		0.48				
22.00	0.42		0.42				
23.00	0.38		0.38				
24.00	0.34		0.34				
25.00	0.22		0.22				
26.00	0.15		0.15				
27.00	0.11		0.11				
28.00	0.07		0.07				
29.00	0.06		0.06				
30.00	0.05		0.05				
31.00	0.04		0.04				
32.00	0.03		0.03				
33.00	0.02		0.02				
34.00	0.02		0.02				
35.00	0.01		0.01				
36.00	0.01		0.01				
37.00	0.01		0.01				
38.00	0.01		0.01				
39.00	0.01		0.01				
40.00	0.01		0.01				
41.00	0.01		0.01				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 2.46 cfs @ 12.09 hrs, Volume= 0.167 af, Depth= 4.76"

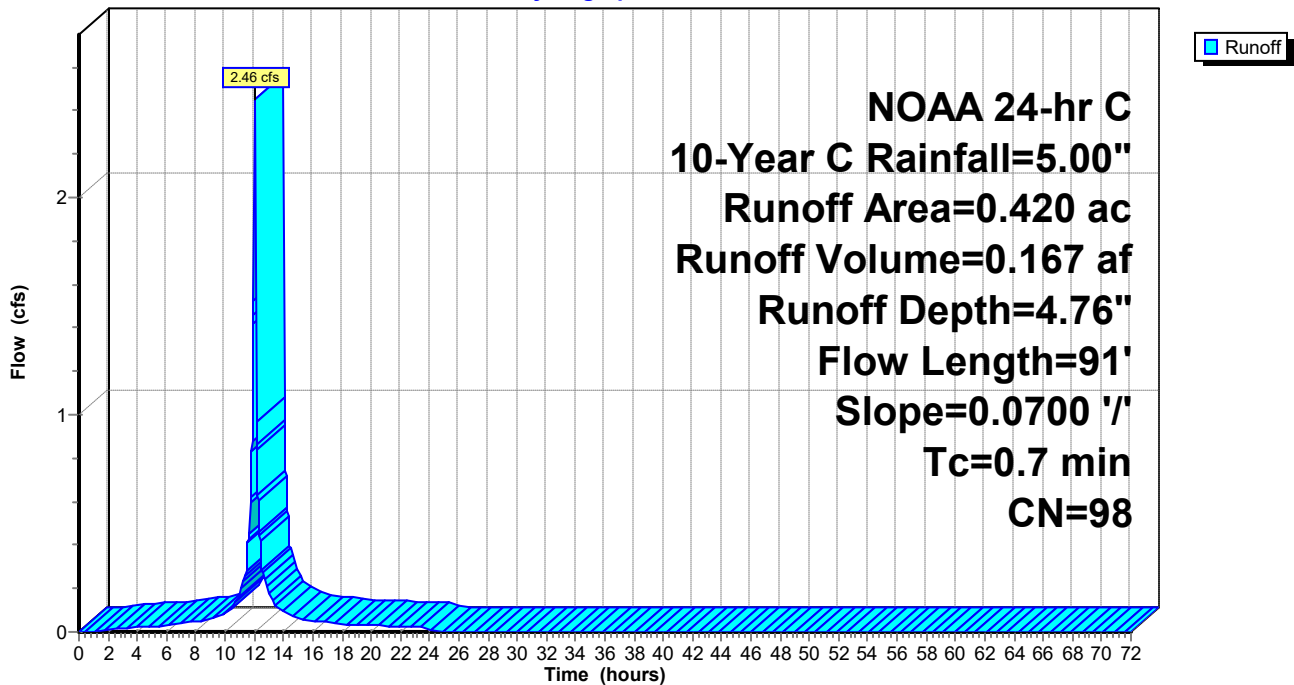
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG D
0.420	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	91	0.0700	2.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 0.82 cfs @ 12.10 hrs, Volume= 0.046 af, Depth= 2.89"

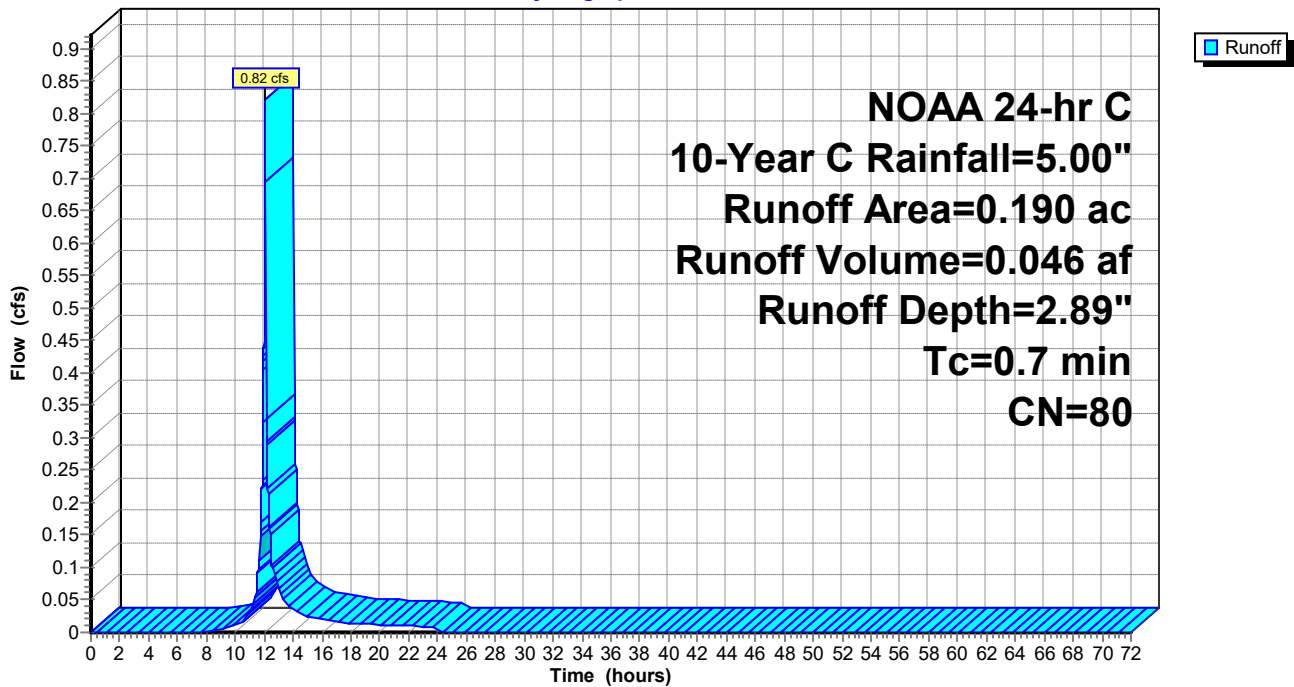
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.190	80	>75% Grass cover, Good, HSG D
0.190	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 4I: IMPERVIOUS

Runoff = 6.09 cfs @ 12.09 hrs, Volume= 0.413 af, Depth= 4.76"

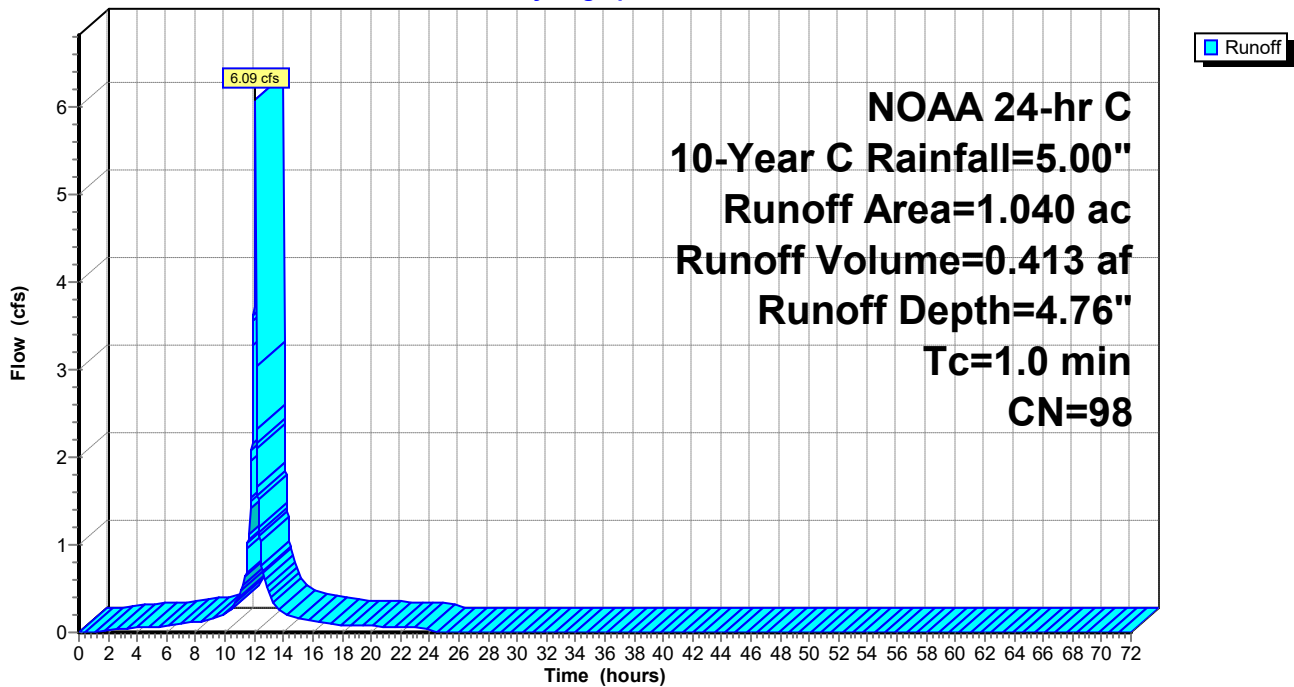
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG D
1.040	98	100.00% Impervious Area

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

Subcatchment 4I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 4P: BASIN PERVIOUS

Runoff = 3.98 cfs @ 12.09 hrs, Volume= 0.270 af, Depth= 4.76"

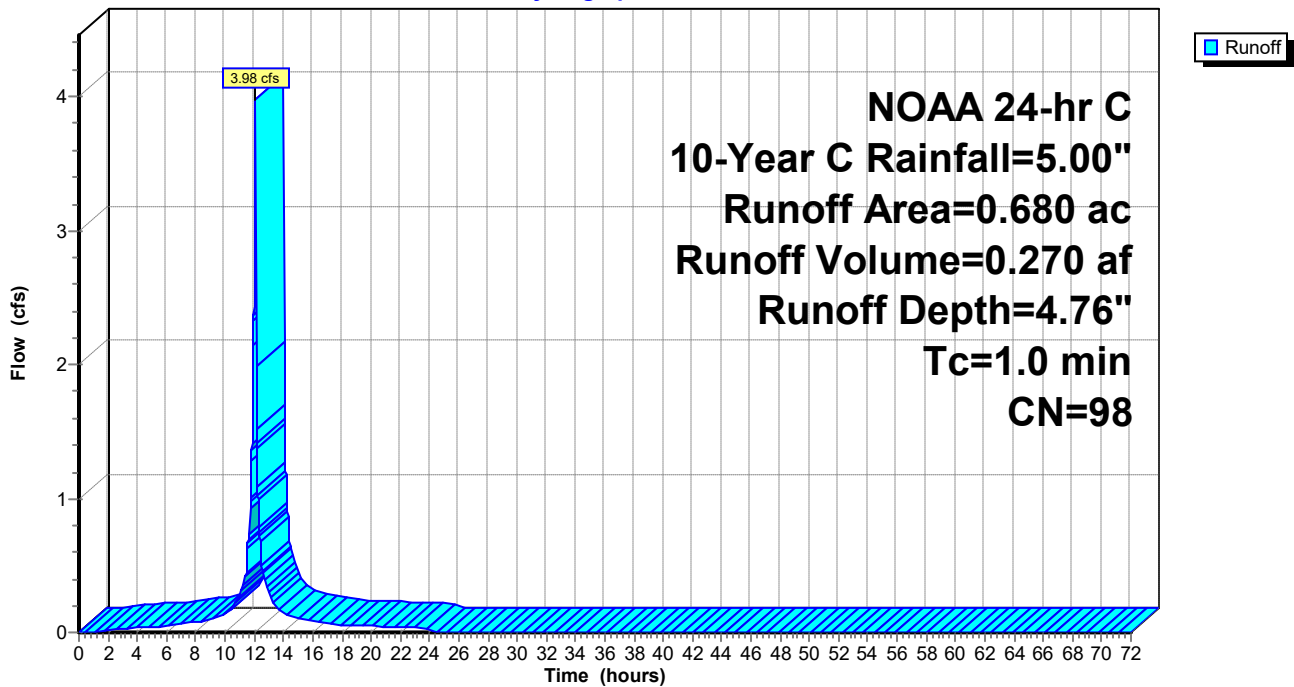
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.680	98	Paved parking, HSG D
0.680	98	100.00% Impervious Area

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

Subcatchment 4P: BASIN PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 5.68 cfs @ 12.09 hrs, Volume= 0.385 af, Depth= 4.76"

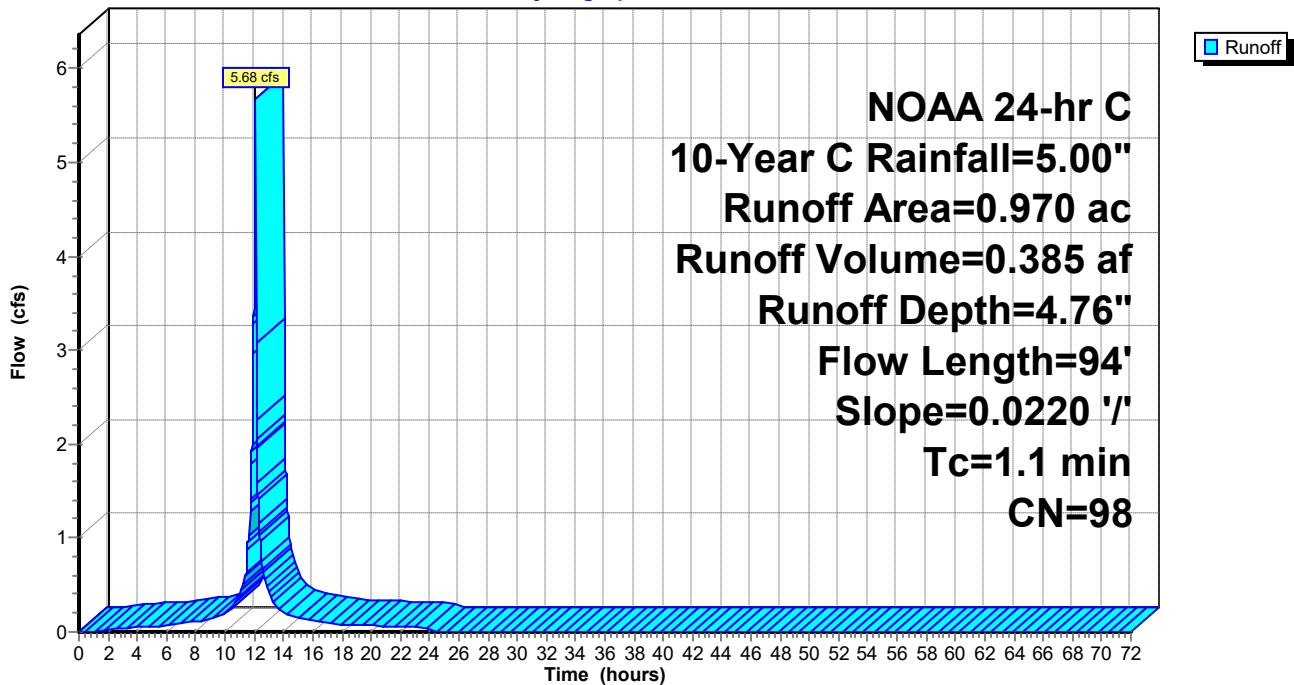
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.970	98	Paved parking, HSG D
0.970	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	94	0.0220	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.67 cfs @ 12.10 hrs, Volume= 0.037 af, Depth= 2.89"

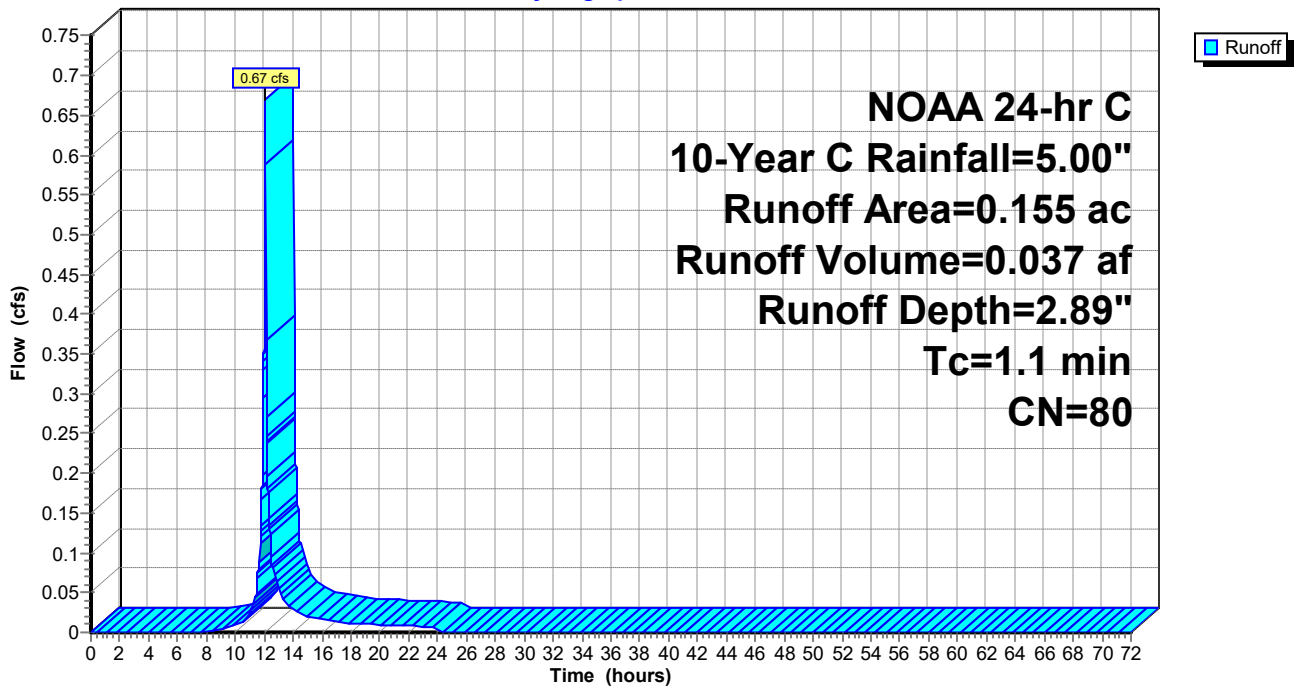
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.155	80	>75% Grass cover, Good, HSG D
0.155	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment 8I: IMPERVIOUS

Runoff = 1.41 cfs @ 12.09 hrs, Volume= 0.095 af, Depth= 4.76"

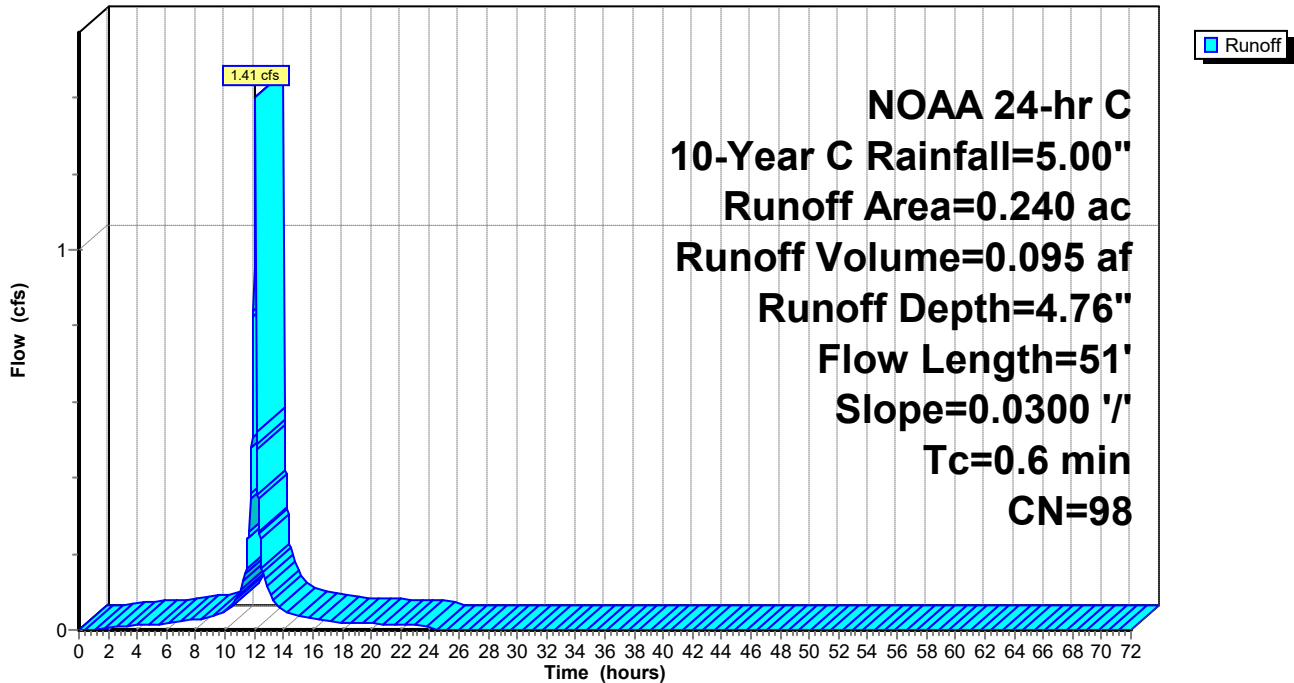
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0300	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 8I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9I: IMPERVIOUS

Runoff = 1.82 cfs @ 12.09 hrs, Volume= 0.123 af, Depth= 4.76"

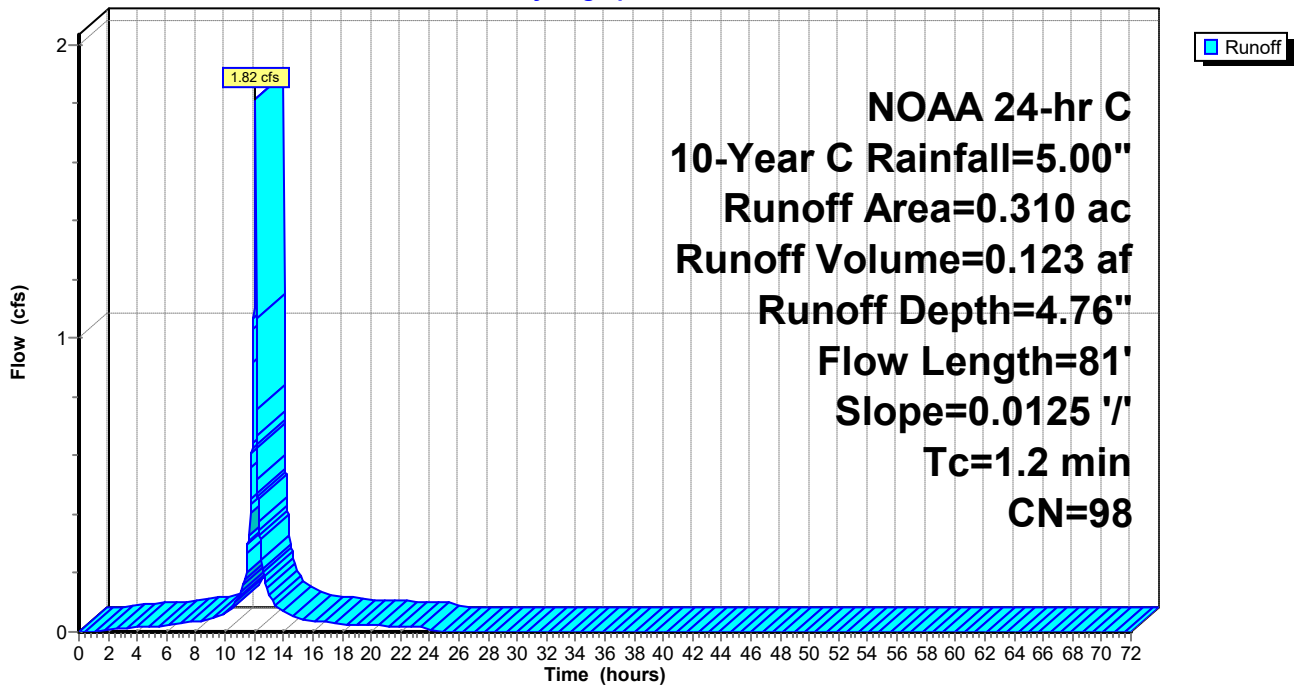
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG D
0.310	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	81	0.0125	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9P: PERVIOUS

Runoff = 0.17 cfs @ 12.10 hrs, Volume= 0.010 af, Depth= 2.89"

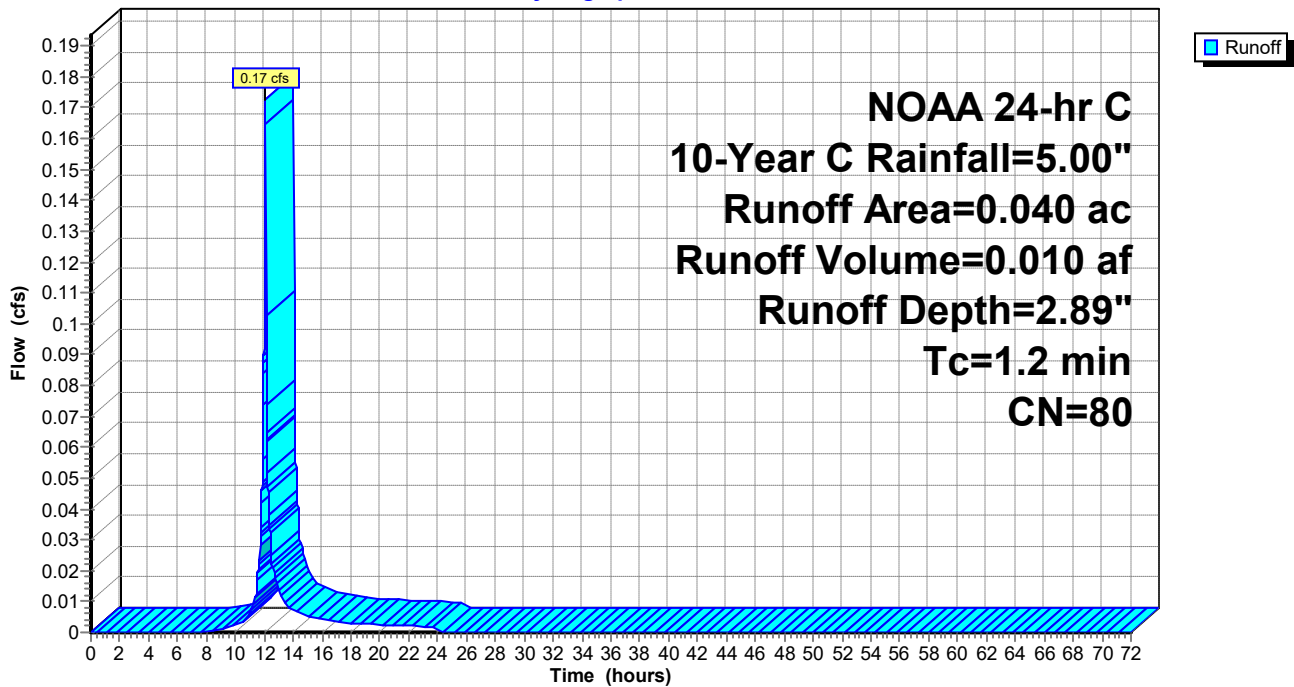
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.040	80	>75% Grass cover, Good, HSG D
0.040	80	100.00% Pervious Area

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

Subcatchment 9P: PERVIOUS

Hydrograph



Summary for Subcatchment 10I: IMPERVIOUS

Runoff = 3.75 cfs @ 12.09 hrs, Volume= 0.254 af, Depth= 4.76"

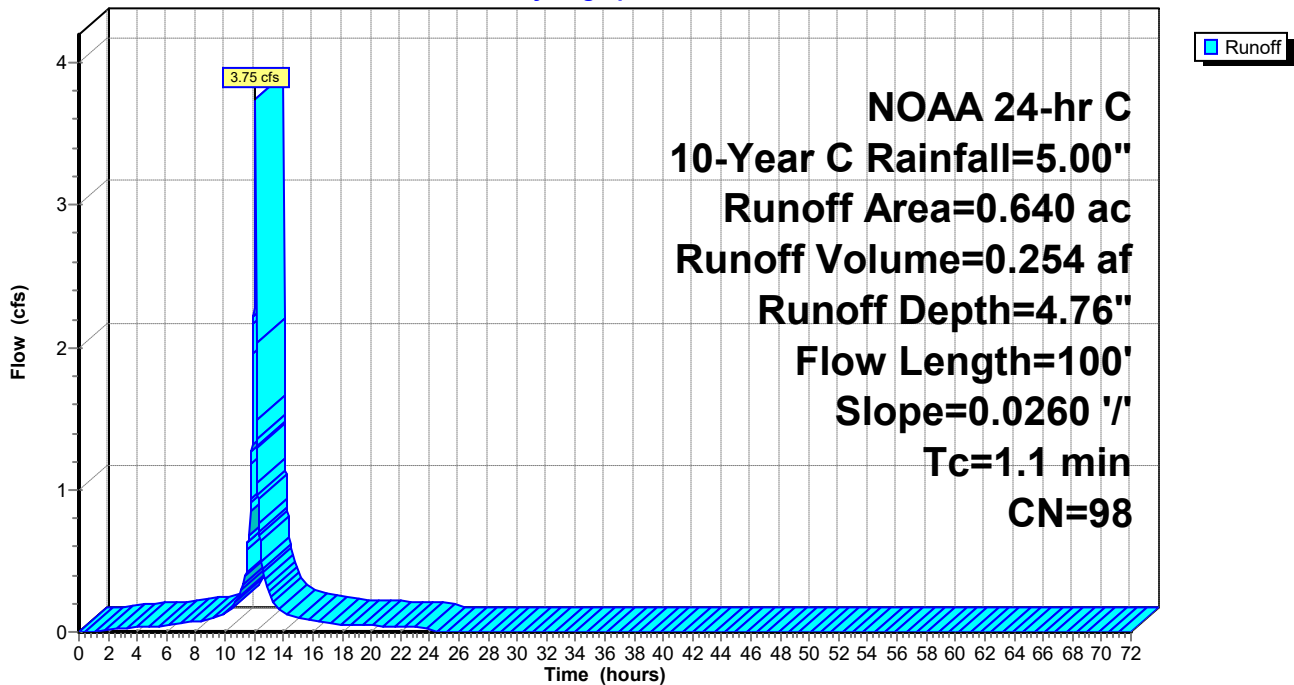
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.640	98	Paved parking, HSG D
0.640	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0260	1.57		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 10I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 10P: PERVIOUS

Runoff = 0.30 cfs @ 12.10 hrs, Volume= 0.017 af, Depth= 2.89"

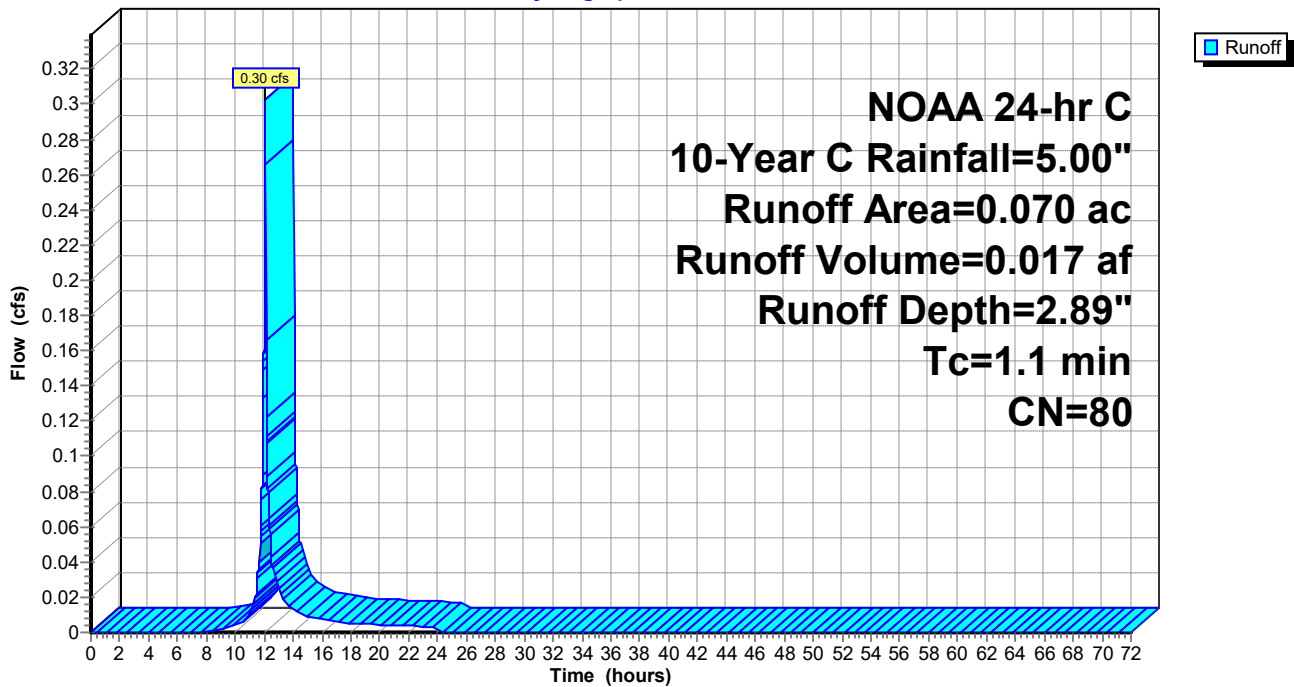
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.070	80	>75% Grass cover, Good, HSG D
0.070	80	100.00% Pervious Area

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

Subcatchment 10P: PERVIOUS

Hydrograph



Summary for Subcatchment I2: OFFSITE

Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 4.76"

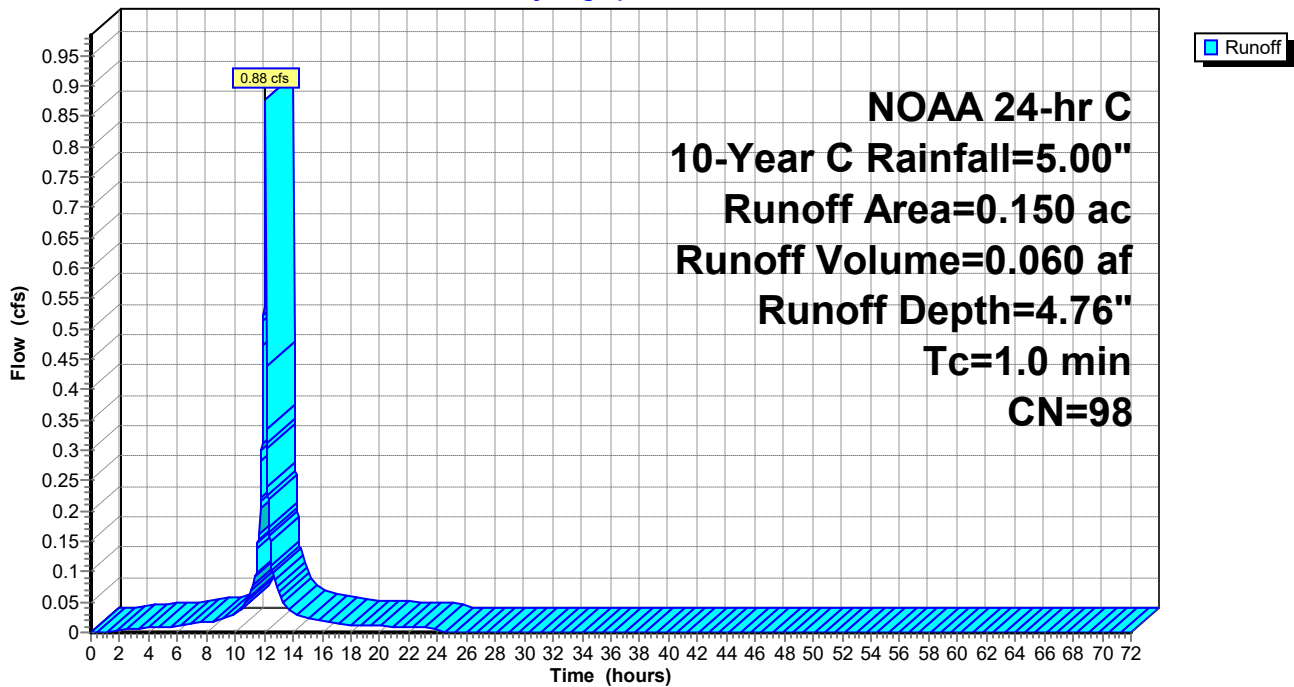
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG D
0.150	98	100.00% Impervious Area

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

Subcatchment I2: OFFSITE

Hydrograph



Summary for Subcatchment I3: IMPERVIOUS

Runoff = 8.61 cfs @ 12.09 hrs, Volume= 0.583 af, Depth= 4.76"

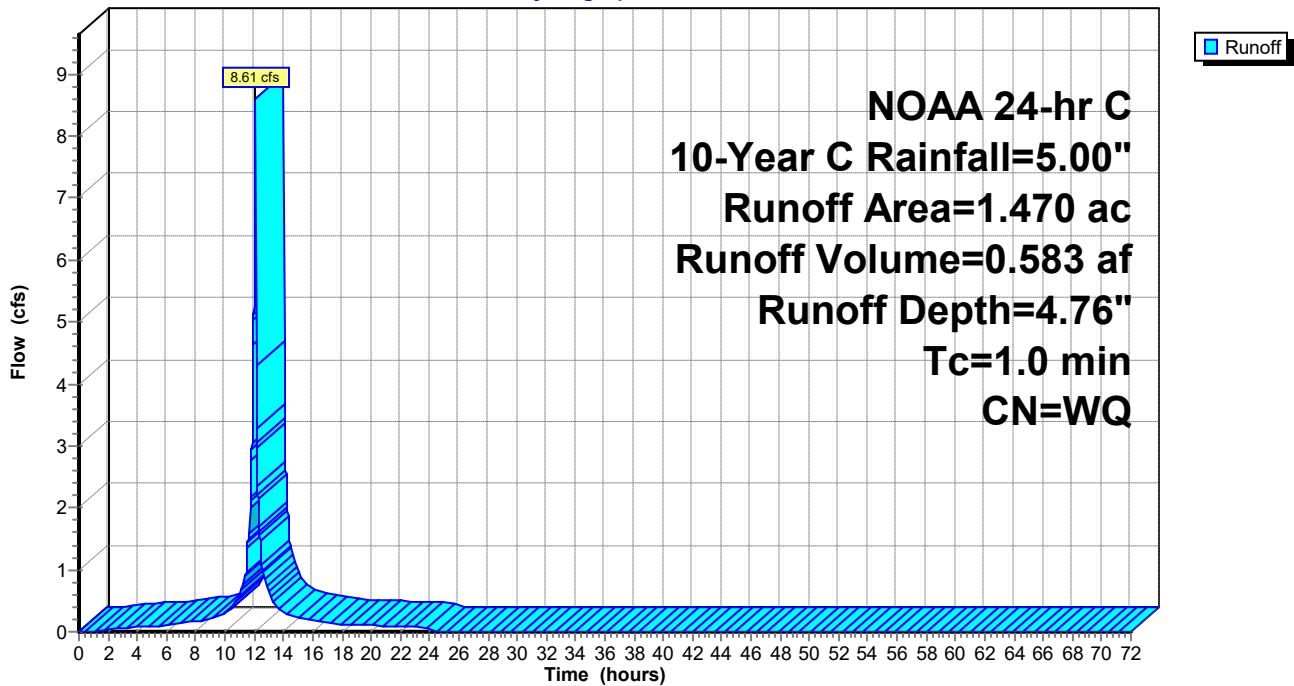
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
1.330	98	Unconnected roofs, HSG D
0.140	98	Unconnected pavement, HSG D
1.470		Weighted Average
1.470	98	100.00% Impervious Area
1.470		100.00% Unconnected

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

Subcatchment I3: IMPERVIOUS

Hydrograph



Summary for Subcatchment P2: OFFSITE

Runoff = 1.08 cfs @ 12.10 hrs, Volume= 0.060 af, Depth= 2.89"

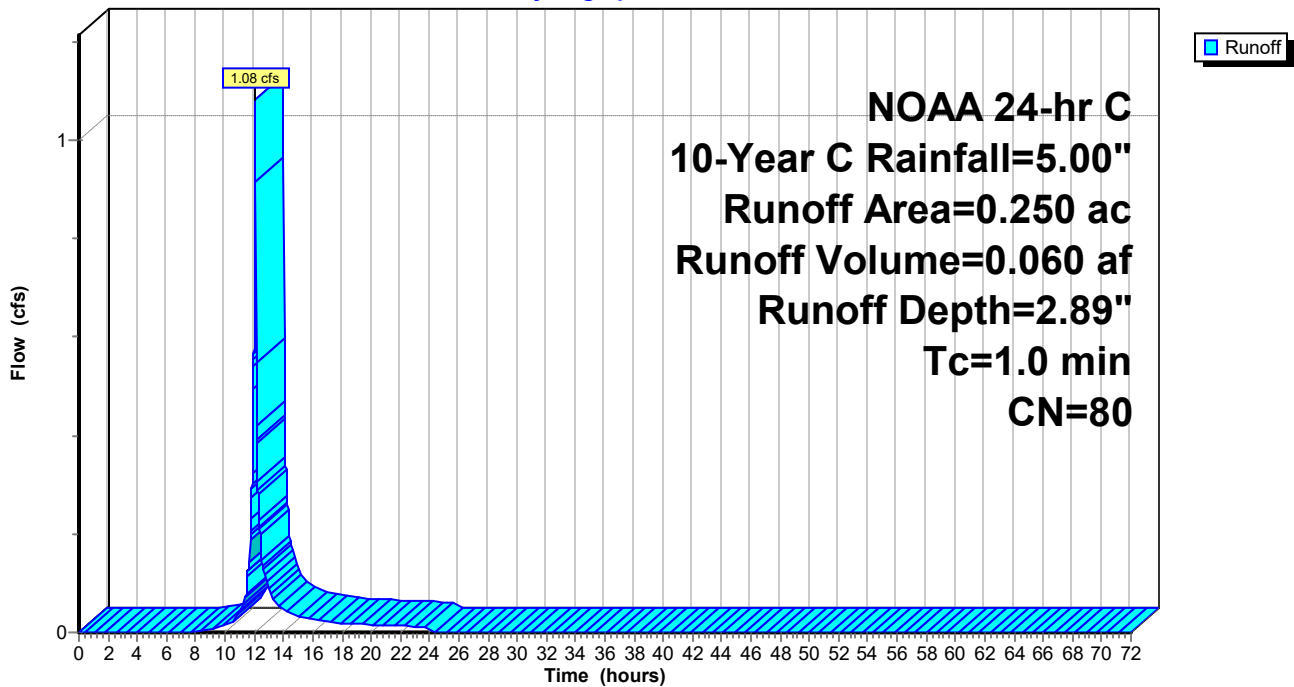
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P2: OFFSITE

Hydrograph



Summary for Subcatchment P3: PERVIOUS

Runoff = 1.08 cfs @ 12.10 hrs, Volume= 0.060 af, Depth= 2.89"

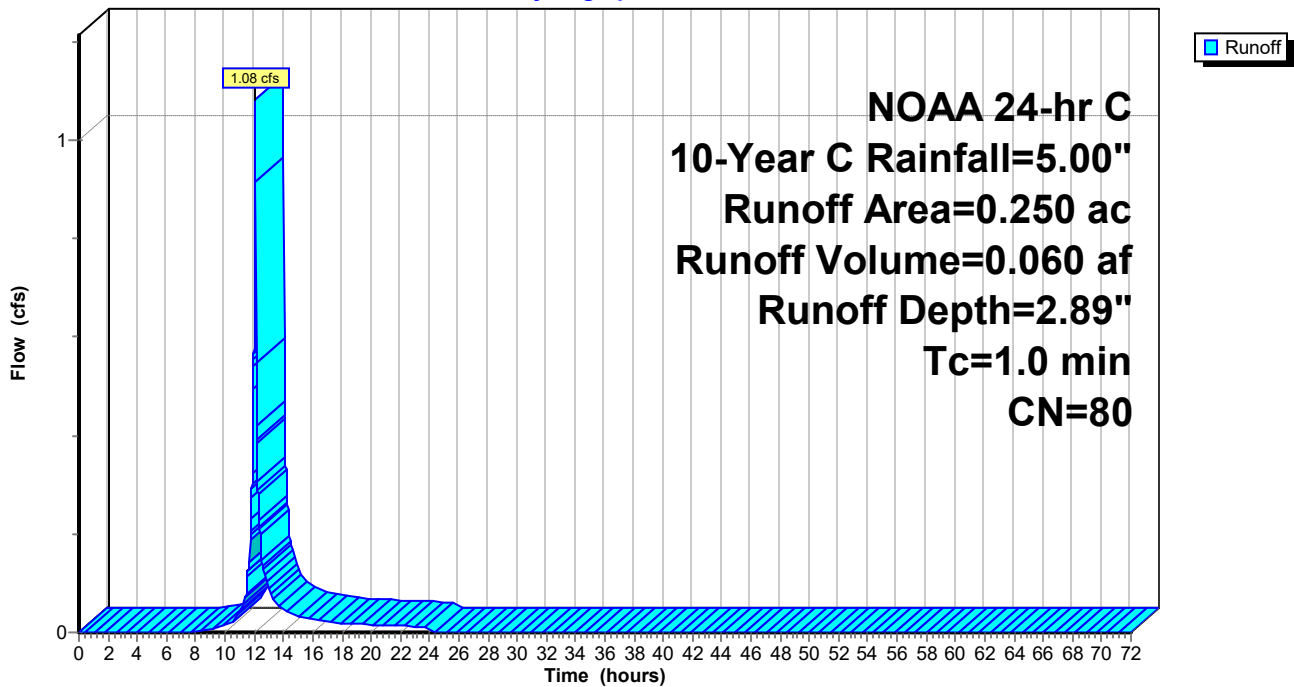
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year C Rainfall=5.00"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P3: PERVIOUS

Hydrograph



Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 4.18" for 10-Year C event
 Inflow = 3.28 cfs @ 12.09 hrs, Volume= 0.213 af
 Outflow = 3.26 cfs @ 12.10 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.4 min
 Primary = 3.26 cfs @ 12.10 hrs, Volume= 0.134 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.91' @ 12.10 hrs Surf.Area= 2,253 sf Storage= 3,755 cf

Plug-Flow detention time= 205.2 min calculated for 0.134 af (63% of inflow)
 Center-of-Mass det. time= 96.9 min (857.3 - 760.3)

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	8,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	432	0	0
69.50	686	280	280
70.50	1,294	990	1,270
71.50	1,963	1,629	2,898
72.50	2,677	2,320	5,218
73.50	3,448	3,063	8,281

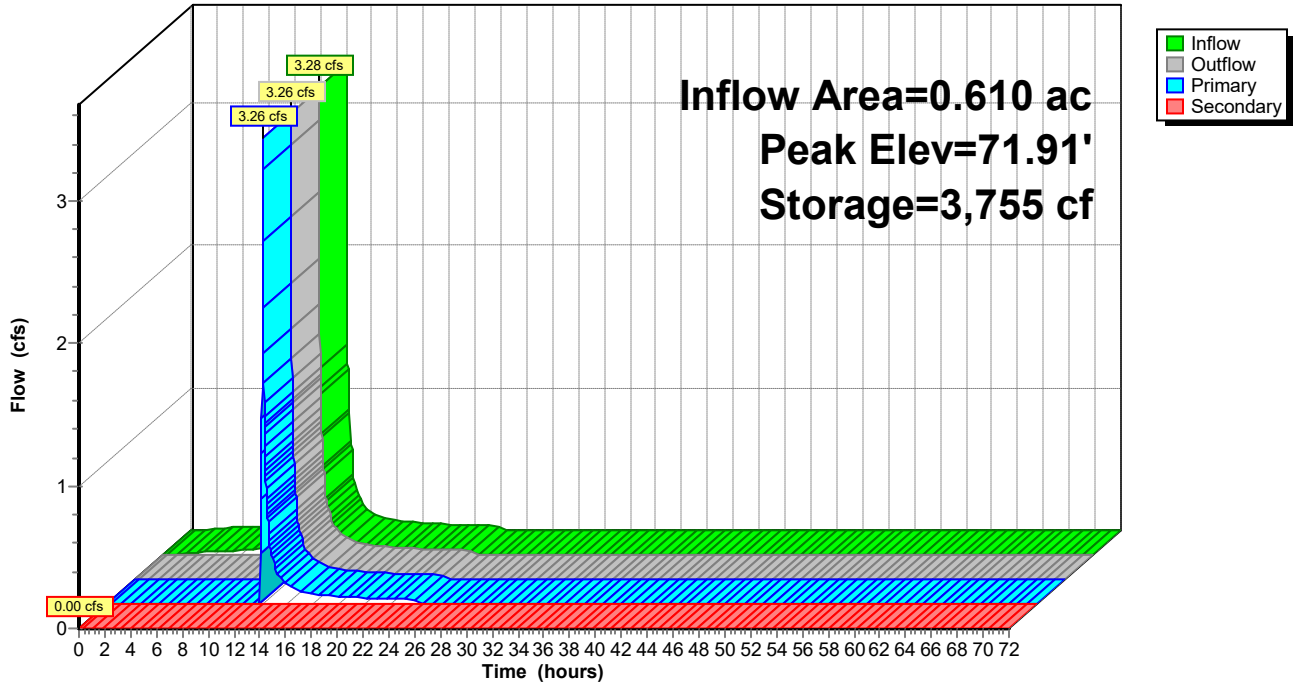
Device	Routing	Invert	Outlet Devices
#1	Primary	67.49'	24.0" Round Culvert L= 165.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.49' / 67.00' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	73.50'	50.0' 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

Primary OutFlow Max=3.21 cfs @ 12.10 hrs HW=71.91' (Free Discharge)
 ↑1=Culvert (Passes 3.21 cfs of 22.79 cfs potential flow)
 ↑2=Orifice/Grate (Weir Controls 3.21 cfs @ 1.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph



Hydrograph for Pond B2: SMALL-SCALE BIORETENTION 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	69.00	0.00	0.00	0.00
2.00	0.01	28	69.06	0.00	0.00	0.00
4.00	0.02	154	69.30	0.00	0.00	0.00
6.00	0.03	343	69.59	0.00	0.00	0.00
8.00	0.05	624	69.92	0.00	0.00	0.00
10.00	0.10	1,112	70.37	0.00	0.00	0.00
12.00	1.93	3,614	71.84	1.51	1.51	0.00
14.00	0.13	3,438	71.76	0.13	0.13	0.00
16.00	0.07	3,426	71.76	0.07	0.07	0.00
18.00	0.05	3,421	71.75	0.05	0.05	0.00
20.00	0.04	3,420	71.75	0.04	0.04	0.00
22.00	0.04	3,418	71.75	0.04	0.04	0.00
24.00	0.04	3,419	71.75	0.04	0.04	0.00
26.00	0.00	3,411	71.75	0.00	0.00	0.00
28.00	0.00	3,411	71.75	0.00	0.00	0.00
30.00	0.00	3,411	71.75	0.00	0.00	0.00
32.00	0.00	3,411	71.75	0.00	0.00	0.00
34.00	0.00	3,411	71.75	0.00	0.00	0.00
36.00	0.00	3,411	71.75	0.00	0.00	0.00
38.00	0.00	3,411	71.75	0.00	0.00	0.00
40.00	0.00	3,411	71.75	0.00	0.00	0.00
42.00	0.00	3,411	71.75	0.00	0.00	0.00
44.00	0.00	3,411	71.75	0.00	0.00	0.00
46.00	0.00	3,411	71.75	0.00	0.00	0.00
48.00	0.00	3,411	71.75	0.00	0.00	0.00
50.00	0.00	3,411	71.75	0.00	0.00	0.00
52.00	0.00	3,411	71.75	0.00	0.00	0.00
54.00	0.00	3,411	71.75	0.00	0.00	0.00
56.00	0.00	3,411	71.75	0.00	0.00	0.00
58.00	0.00	3,411	71.75	0.00	0.00	0.00
60.00	0.00	3,411	71.75	0.00	0.00	0.00
62.00	0.00	3,411	71.75	0.00	0.00	0.00
64.00	0.00	3,411	71.75	0.00	0.00	0.00
66.00	0.00	3,411	71.75	0.00	0.00	0.00
68.00	0.00	3,411	71.75	0.00	0.00	0.00
70.00	0.00	3,411	71.75	0.00	0.00	0.00
72.00	0.00	3,411	71.75	0.00	0.00	0.00

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 4.30" for 10-Year C event
 Inflow = 25.07 cfs @ 12.10 hrs, Volume= 2.321 af
 Outflow = 6.57 cfs @ 12.34 hrs, Volume= 1.891 af, Atten= 74%, Lag= 14.4 min
 Primary = 6.57 cfs @ 12.34 hrs, Volume= 1.891 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.97' @ 12.34 hrs Surf.Area= 21,950 sf Storage= 40,305 cf

Plug-Flow detention time= 231.4 min calculated for 1.891 af (81% of inflow)
 Center-of-Mass det. time= 144.6 min (953.8 - 809.2)

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.95'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Device 1	69.40'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	70.08'	50.0' 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

Primary OutFlow Max=6.58 cfs @ 12.34 hrs HW=68.97' (Free Discharge)

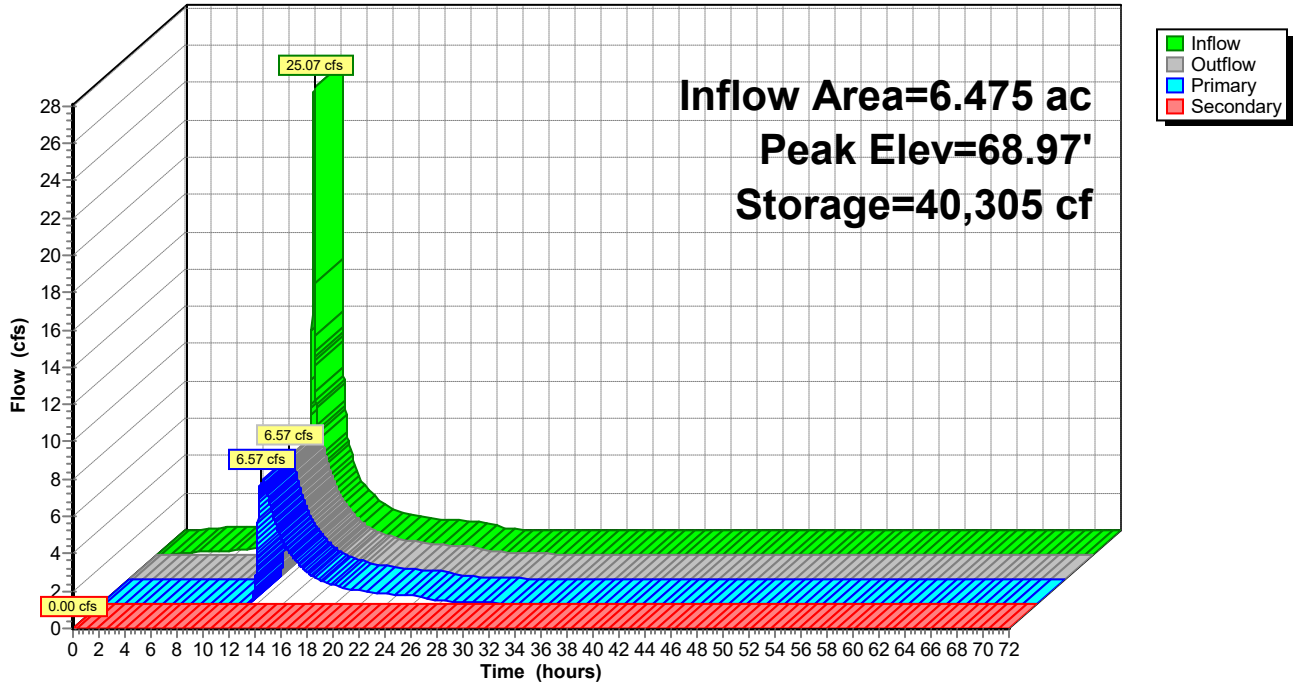
- ↑ 1=Culvert (Passes 6.58 cfs of 24.27 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 6.58 cfs @ 3.29 fps)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

- ↑ 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	67.00	0.00	0.00	0.00
2.00	0.09	214	67.01	0.00	0.00	0.00
4.00	0.17	1,170	67.06	0.00	0.00	0.00
6.00	0.22	2,602	67.14	0.00	0.00	0.00
8.00	0.42	4,800	67.25	0.00	0.00	0.00
10.00	1.00	9,567	67.49	0.00	0.00	0.00
12.00	14.96	30,009	68.49	2.56	2.56	0.00
14.00	2.30	32,298	68.60	3.35	3.35	0.00
16.00	1.14	27,012	68.35	1.62	1.62	0.00
18.00	0.74	24,612	68.24	0.98	0.98	0.00
20.00	0.59	23,418	68.18	0.70	0.70	0.00
22.00	0.47	22,737	68.15	0.56	0.56	0.00
24.00	0.42	22,181	68.12	0.44	0.44	0.00
26.00	0.04	20,670	68.05	0.19	0.19	0.00
28.00	0.02	19,905	68.01	0.09	0.09	0.00
30.00	0.01	19,510	67.99	0.05	0.05	0.00
32.00	0.01	19,259	67.98	0.03	0.03	0.00
34.00	0.00	19,103	67.97	0.02	0.02	0.00
36.00	0.00	19,007	67.96	0.01	0.01	0.00
38.00	0.00	18,947	67.96	0.01	0.01	0.00
40.00	0.00	18,909	67.96	0.01	0.01	0.00
42.00	0.00	18,878	67.96	0.01	0.01	0.00
44.00	0.00	18,851	67.96	0.00	0.00	0.00
46.00	0.00	18,828	67.96	0.00	0.00	0.00
48.00	0.00	18,808	67.95	0.00	0.00	0.00
50.00	0.00	18,792	67.95	0.00	0.00	0.00
52.00	0.00	18,778	67.95	0.00	0.00	0.00
54.00	0.00	18,767	67.95	0.00	0.00	0.00
56.00	0.00	18,757	67.95	0.00	0.00	0.00
58.00	0.00	18,749	67.95	0.00	0.00	0.00
60.00	0.00	18,743	67.95	0.00	0.00	0.00
62.00	0.00	18,738	67.95	0.00	0.00	0.00
64.00	0.00	18,734	67.95	0.00	0.00	0.00
66.00	0.00	18,730	67.95	0.00	0.00	0.00
68.00	0.00	18,727	67.95	0.00	0.00	0.00
70.00	0.00	18,725	67.95	0.00	0.00	0.00
72.00	0.00	18,723	67.95	0.00	0.00	0.00

Summary for Pond P10: Porous Pavement 10

Inflow Area = 0.710 ac, 90.14% Impervious, Inflow Depth = 4.58" for 10-Year C event
 Inflow = 4.05 cfs @ 12.09 hrs, Volume= 0.271 af
 Outflow = 0.33 cfs @ 12.92 hrs, Volume= 0.254 af, Atten= 92%, Lag= 49.8 min
 Primary = 0.33 cfs @ 12.92 hrs, Volume= 0.254 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.96' @ 12.92 hrs Surf.Area= 9,090 sf Storage= 6,397 cf

Plug-Flow detention time= 283.6 min calculated for 0.254 af (94% of inflow)
 Center-of-Mass det. time= 247.4 min (996.4 - 749.0)

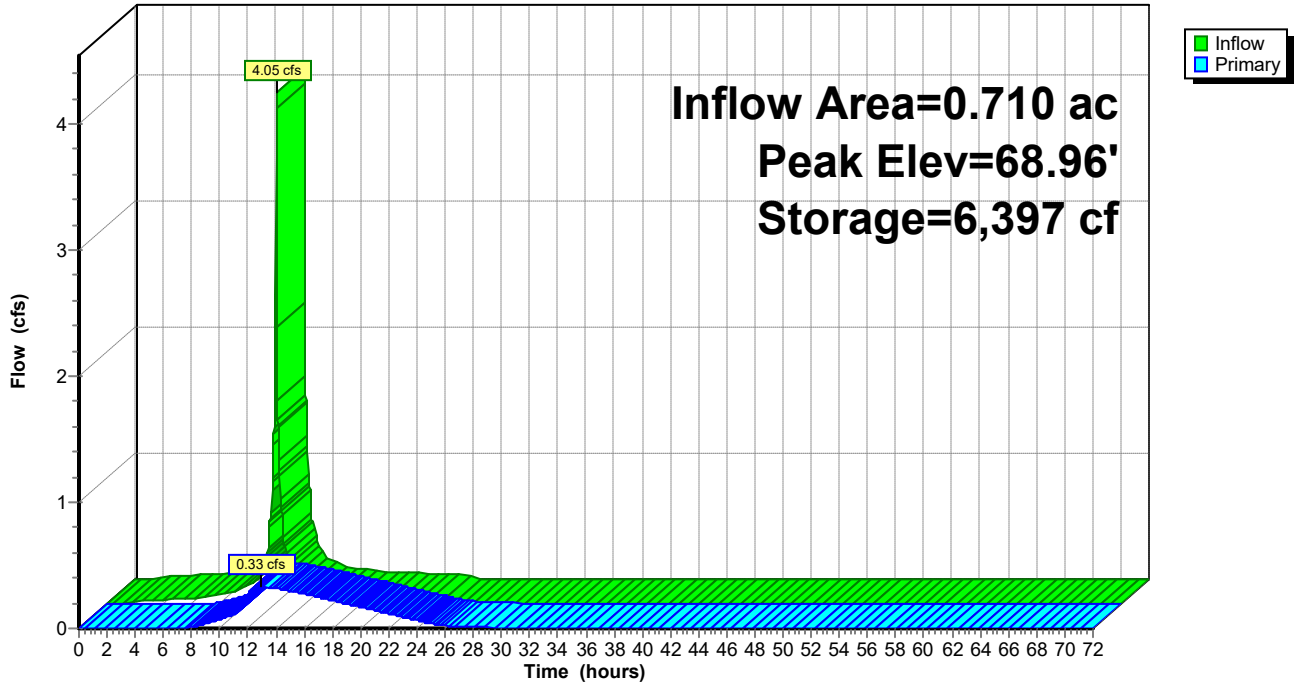
Volume	Invert	Avail.Storage	Storage Description
#1	67.61'	9,763 cf	18.00'W x 505.00'L x 4.00'H Prismaoid 36,360 cf Overall - 6,776 cf Embedded = 29,584 cf x 33.0% Voids
#2	67.86'	6,346 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 505.0' 6,776 cf Overall - 0.4" Wall Thickness = 6,346 cf
		16,109 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.61'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.61' / 67.53' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	67.86'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	70.50'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.33 cfs @ 12.92 hrs HW=68.96' (Free Discharge)
 1=Culvert (Passes 0.33 cfs of 3.97 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.33 cfs @ 4.82 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P10: Porous Pavement 10

Hydrograph



Hydrograph for Pond P10: Porous Pavement 10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.61	0.00
2.00	0.02	43	67.62	0.00
4.00	0.03	235	67.69	0.00
6.00	0.05	522	67.78	0.00
8.00	0.07	931	67.91	0.01
10.00	0.14	1,342	68.02	0.07
12.00	2.41	3,850	68.51	0.24
14.00	0.16	5,968	68.89	0.32
16.00	0.09	4,639	68.65	0.27
18.00	0.06	3,370	68.42	0.22
20.00	0.05	2,348	68.23	0.17
22.00	0.04	1,665	68.09	0.11
24.00	0.05	1,306	68.01	0.07
26.00	0.00	1,019	67.94	0.02
28.00	0.00	909	67.91	0.01
30.00	0.00	855	67.89	0.01
32.00	0.00	828	67.89	0.00
34.00	0.00	808	67.88	0.00
36.00	0.00	793	67.88	0.00
38.00	0.00	781	67.87	0.00
40.00	0.00	772	67.87	0.00
42.00	0.00	765	67.87	0.00
44.00	0.00	760	67.87	0.00
46.00	0.00	756	67.86	0.00
48.00	0.00	753	67.86	0.00
50.00	0.00	750	67.86	0.00
52.00	0.00	748	67.86	0.00
54.00	0.00	747	67.86	0.00
56.00	0.00	746	67.86	0.00
58.00	0.00	745	67.86	0.00
60.00	0.00	744	67.86	0.00
62.00	0.00	744	67.86	0.00
64.00	0.00	743	67.86	0.00
66.00	0.00	743	67.86	0.00
68.00	0.00	743	67.86	0.00
70.00	0.00	743	67.86	0.00
72.00	0.00	743	67.86	0.00

Summary for Pond P5: Porous Pavement 5

Inflow Area = 1.125 ac, 86.22% Impervious, Inflow Depth = 4.51" for 10-Year C event
 Inflow = 6.35 cfs @ 12.10 hrs, Volume= 0.422 af
 Outflow = 1.19 cfs @ 12.33 hrs, Volume= 0.394 af, Atten= 81%, Lag= 14.1 min
 Primary = 1.19 cfs @ 12.33 hrs, Volume= 0.394 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.37' @ 12.33 hrs Surf.Area= 14,886 sf Storage= 7,243 cf

Plug-Flow detention time= 139.5 min calculated for 0.394 af (93% of inflow)
 Center-of-Mass det. time= 101.4 min (852.4 - 751.0)

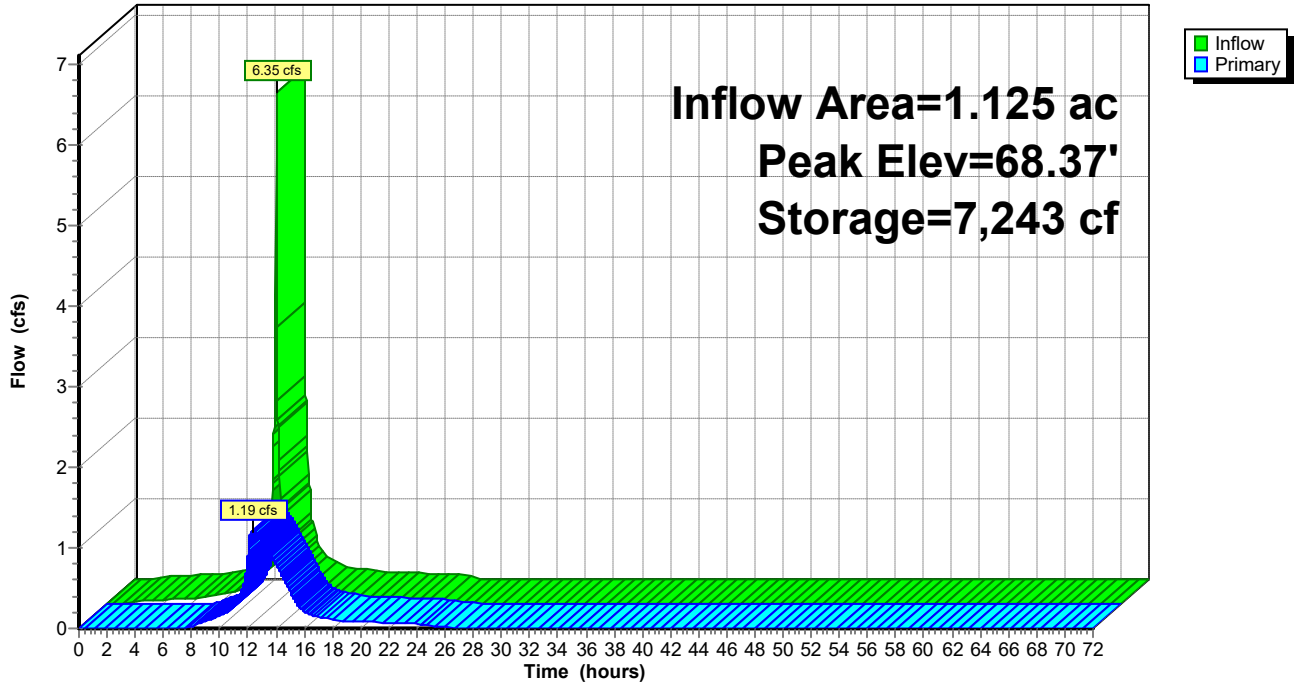
Volume	Invert	Avail.Storage	Storage Description
#1	67.37'	13,040 cf	18.00'W x 827.00'L x 3.40'H Prismatic 50,612 cf Overall - 11,097 cf Embedded = 39,516 cf x 33.0% Voids
#2	67.62'	10,392 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 827.0' 11,097 cf Overall - 0.4" Wall Thickness = 10,392 cf
		23,433 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.37'	24.0" Round Culvert L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.37' / 67.19' S= 0.0030 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.62'	2.5" Vert. Orifice/Grate X 9.00 C= 0.600
#3	Device 1	69.88'	8.0" W x 6.0" H Vert. Orifice/Grate X 7.00 C= 0.600

Primary OutFlow Max=1.19 cfs @ 12.33 hrs HW=68.37' (Free Discharge)
 1=Culvert (Passes 1.19 cfs of 3.63 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 1.19 cfs @ 3.88 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P5: Porous Pavement 5

Hydrograph



Hydrograph for Pond P5: Porous Pavement 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.37	0.00
2.00	0.03	65	67.38	0.00
4.00	0.05	356	67.44	0.00
6.00	0.07	791	67.53	0.00
8.00	0.11	1,413	67.66	0.03
10.00	0.21	1,821	67.72	0.16
12.00	3.76	4,632	68.08	0.88
14.00	0.25	4,041	68.01	0.79
16.00	0.14	1,932	67.74	0.21
18.00	0.09	1,692	67.70	0.11
20.00	0.08	1,618	67.69	0.08
22.00	0.07	1,584	67.68	0.07
24.00	0.07	1,556	67.68	0.06
26.00	0.00	1,344	67.64	0.01
28.00	0.00	1,289	67.63	0.01
30.00	0.00	1,258	67.63	0.00
32.00	0.00	1,240	67.62	0.00
34.00	0.00	1,229	67.62	0.00
36.00	0.00	1,223	67.62	0.00
38.00	0.00	1,220	67.62	0.00
40.00	0.00	1,218	67.62	0.00
42.00	0.00	1,217	67.62	0.00
44.00	0.00	1,216	67.62	0.00
46.00	0.00	1,216	67.62	0.00
48.00	0.00	1,216	67.62	0.00
50.00	0.00	1,216	67.62	0.00
52.00	0.00	1,216	67.62	0.00
54.00	0.00	1,215	67.62	0.00
56.00	0.00	1,215	67.62	0.00
58.00	0.00	1,215	67.62	0.00
60.00	0.00	1,215	67.62	0.00
62.00	0.00	1,215	67.62	0.00
64.00	0.00	1,215	67.62	0.00
66.00	0.00	1,215	67.62	0.00
68.00	0.00	1,215	67.62	0.00
70.00	0.00	1,215	67.62	0.00
72.00	0.00	1,215	67.62	0.00

Summary for Pond P8: Porous Pavement 8

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth = 4.76" for 10-Year C event
 Inflow = 1.41 cfs @ 12.09 hrs, Volume= 0.095 af
 Outflow = 0.46 cfs @ 12.20 hrs, Volume= 0.089 af, Atten= 67%, Lag= 6.7 min
 Primary = 0.46 cfs @ 12.20 hrs, Volume= 0.089 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.23' @ 12.20 hrs Surf.Area= 3,078 sf Storage= 1,196 cf

Plug-Flow detention time= 98.4 min calculated for 0.089 af (94% of inflow)
 Center-of-Mass det. time= 63.1 min (806.9 - 743.8)

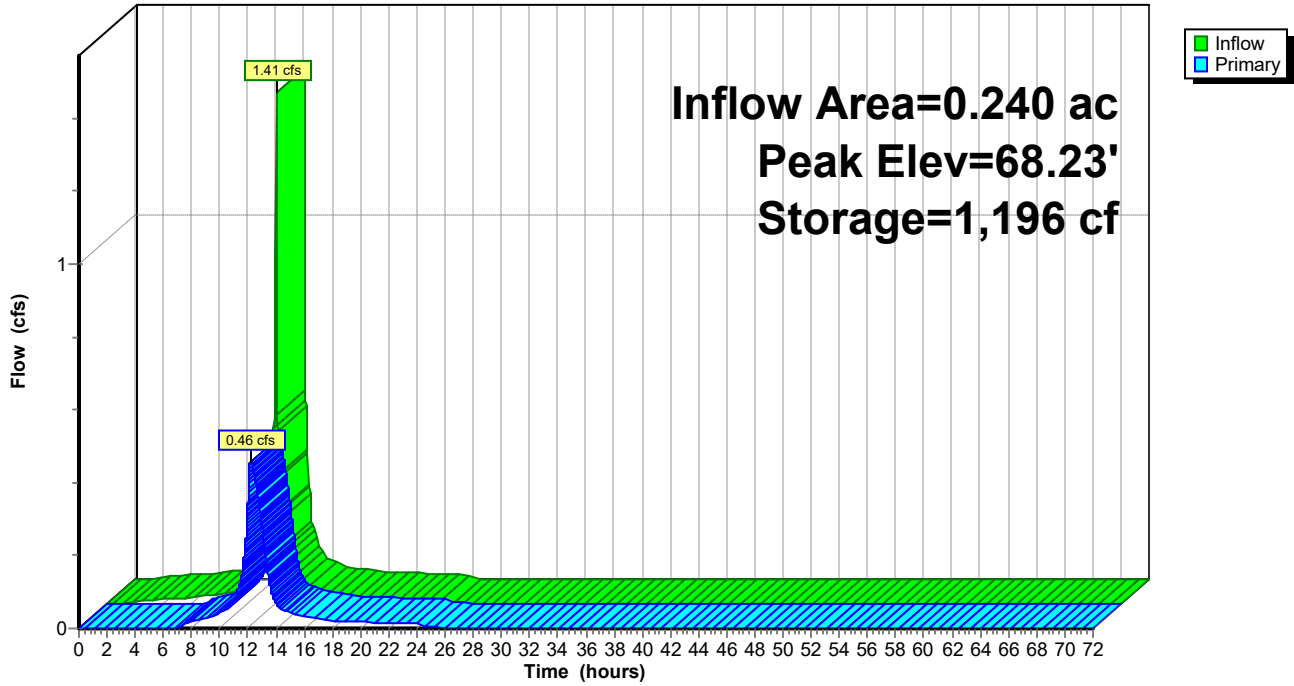
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	3,306 cf	18.00'W x 171.00'L x 4.00'H Prismatic 12,312 cf Overall - 2,294 cf Embedded = 10,018 cf x 33.0% Voids
#2	67.64'	2,149 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 171.0' 2,294 cf Overall - 0.4" Wall Thickness = 2,149 cf
		5,455 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.24' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	70.13'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.46 cfs @ 12.20 hrs HW=68.23' (Free Discharge)
 1=Culvert (Passes 0.46 cfs of 3.02 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.46 cfs @ 3.37 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P8: Porous Pavement 8

Hydrograph



Hydrograph for Pond P8: Porous Pavement 8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.01	16	67.41	0.00
4.00	0.01	88	67.48	0.00
6.00	0.02	196	67.58	0.00
8.00	0.03	309	67.69	0.02
10.00	0.05	344	67.72	0.04
12.00	0.85	810	68.02	0.34
14.00	0.05	375	67.74	0.07
16.00	0.03	327	67.70	0.03
18.00	0.02	310	67.69	0.02
20.00	0.02	303	67.68	0.02
22.00	0.01	298	67.68	0.02
24.00	0.02	295	67.68	0.01
26.00	0.00	260	67.65	0.00
28.00	0.00	253	67.64	0.00
30.00	0.00	252	67.64	0.00
32.00	0.00	251	67.64	0.00
34.00	0.00	251	67.64	0.00
36.00	0.00	251	67.64	0.00
38.00	0.00	251	67.64	0.00
40.00	0.00	251	67.64	0.00
42.00	0.00	251	67.64	0.00
44.00	0.00	251	67.64	0.00
46.00	0.00	251	67.64	0.00
48.00	0.00	251	67.64	0.00
50.00	0.00	251	67.64	0.00
52.00	0.00	251	67.64	0.00
54.00	0.00	251	67.64	0.00
56.00	0.00	251	67.64	0.00
58.00	0.00	251	67.64	0.00
60.00	0.00	251	67.64	0.00
62.00	0.00	251	67.64	0.00
64.00	0.00	251	67.64	0.00
66.00	0.00	251	67.64	0.00
68.00	0.00	251	67.64	0.00
70.00	0.00	251	67.64	0.00
72.00	0.00	251	67.64	0.00

Summary for Pond P9: Porous Pavement 9

Inflow Area = 0.350 ac, 88.57% Impervious, Inflow Depth = 4.55" for 10-Year C event
 Inflow = 1.99 cfs @ 12.09 hrs, Volume= 0.133 af
 Outflow = 0.27 cfs @ 12.52 hrs, Volume= 0.123 af, Atten= 86%, Lag= 25.9 min
 Primary = 0.27 cfs @ 12.52 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.43' @ 12.52 hrs Surf.Area= 5,346 sf Storage= 2,708 cf

Plug-Flow detention time= 189.3 min calculated for 0.123 af (92% of inflow)
 Center-of-Mass det. time= 146.9 min (896.8 - 749.9)

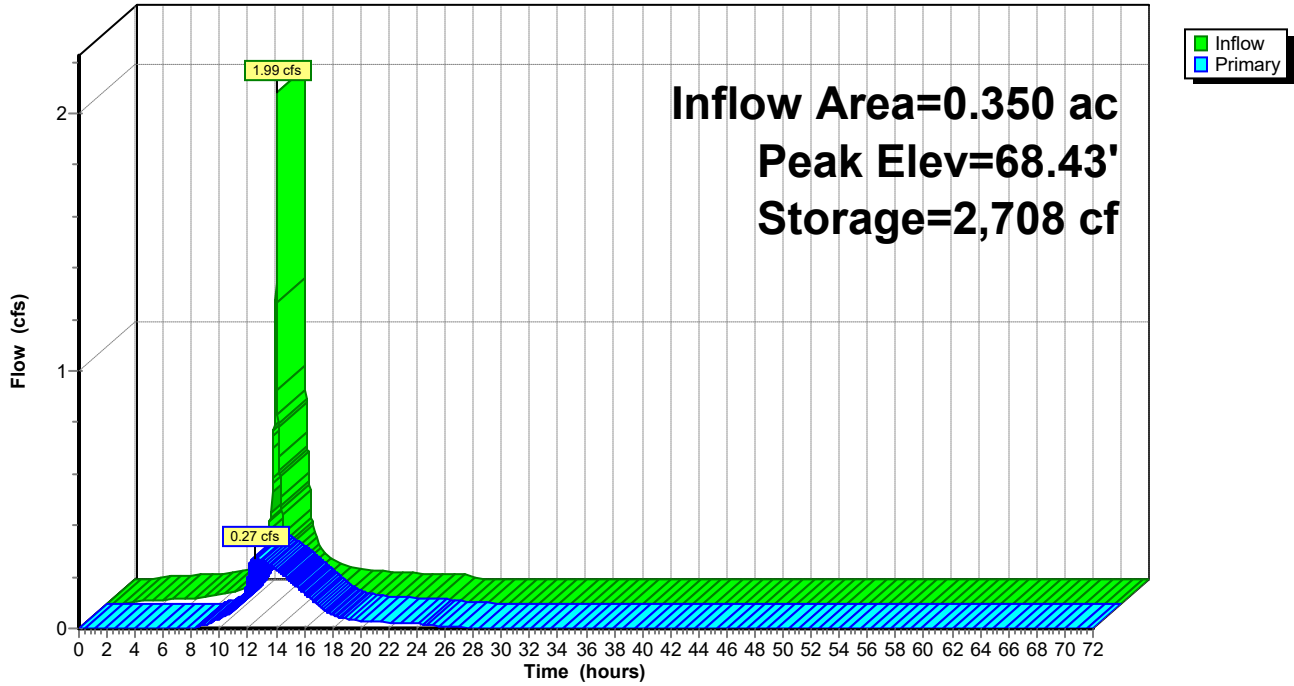
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	5,742 cf	18.00'W x 297.00'L x 4.00'H Prismatic 21,384 cf Overall - 3,985 cf Embedded = 17,399 cf x 33.0% Voids
#2	67.64'	3,732 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 297.0' 3,985 cf Overall - 0.4" Wall Thickness = 3,732 cf
		9,474 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.32' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	69.76'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.27 cfs @ 12.52 hrs HW=68.43' (Free Discharge)
 1=Culvert (Passes 0.27 cfs of 4.41 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.27 cfs @ 3.98 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P9: Porous Pavement 9

Hydrograph



Hydrograph for Pond P9: Porous Pavement 9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.01	21	67.40	0.00
4.00	0.02	114	67.45	0.00
6.00	0.02	253	67.53	0.00
8.00	0.04	458	67.65	0.00
10.00	0.07	670	67.75	0.04
12.00	1.18	1,710	68.12	0.20
14.00	0.08	2,054	68.23	0.23
16.00	0.04	1,123	67.92	0.14
18.00	0.03	718	67.77	0.05
20.00	0.02	630	67.73	0.03
22.00	0.02	604	67.72	0.02
24.00	0.02	589	67.71	0.02
26.00	0.00	508	67.68	0.01
28.00	0.00	481	67.66	0.00
30.00	0.00	465	67.65	0.00
32.00	0.00	454	67.65	0.00
34.00	0.00	448	67.65	0.00
36.00	0.00	444	67.64	0.00
38.00	0.00	441	67.64	0.00
40.00	0.00	439	67.64	0.00
42.00	0.00	438	67.64	0.00
44.00	0.00	438	67.64	0.00
46.00	0.00	437	67.64	0.00
48.00	0.00	437	67.64	0.00
50.00	0.00	437	67.64	0.00
52.00	0.00	437	67.64	0.00
54.00	0.00	437	67.64	0.00
56.00	0.00	437	67.64	0.00
58.00	0.00	437	67.64	0.00
60.00	0.00	437	67.64	0.00
62.00	0.00	437	67.64	0.00
64.00	0.00	437	67.64	0.00
66.00	0.00	437	67.64	0.00
68.00	0.00	436	67.64	0.00
70.00	0.00	436	67.64	0.00
72.00	0.00	436	67.64	0.00

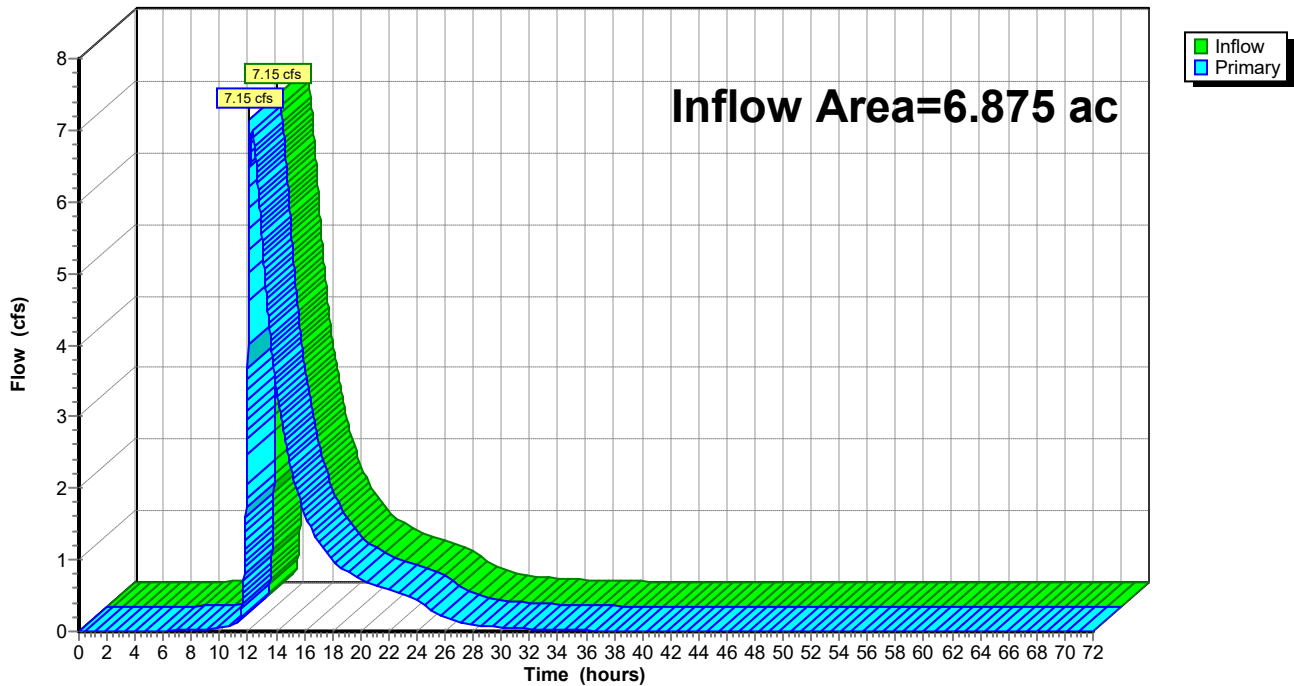
Summary for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.875 ac, 86.11% Impervious, Inflow Depth = 3.51" for 10-Year C event
Inflow = 7.15 cfs @ 12.10 hrs, Volume= 2.011 af
Primary = 7.15 cfs @ 12.10 hrs, Volume= 2.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.03		0.03	61.00	0.00		0.00
10.00	0.05		0.05	62.00	0.00		0.00
11.00	0.10		0.10	63.00	0.00		0.00
12.00	3.67		3.67	64.00	0.00		0.00
13.00	5.50		5.50	65.00	0.00		0.00
14.00	3.43		3.43	66.00	0.00		0.00
15.00	2.35		2.35	67.00	0.00		0.00
16.00	1.67		1.67	68.00	0.00		0.00
17.00	1.27		1.27	69.00	0.00		0.00
18.00	1.01		1.01	70.00	0.00		0.00
19.00	0.84		0.84	71.00	0.00		0.00
20.00	0.73		0.73	72.00	0.00		0.00
21.00	0.64		0.64				
22.00	0.58		0.58				
23.00	0.52		0.52				
24.00	0.47		0.47				
25.00	0.29		0.29				
26.00	0.19		0.19				
27.00	0.13		0.13				
28.00	0.09		0.09				
29.00	0.07		0.07				
30.00	0.05		0.05				
31.00	0.04		0.04				
32.00	0.03		0.03				
33.00	0.03		0.03				
34.00	0.02		0.02				
35.00	0.02		0.02				
36.00	0.01		0.01				
37.00	0.01		0.01				
38.00	0.01		0.01				
39.00	0.01		0.01				
40.00	0.01		0.01				
41.00	0.01		0.01				
42.00	0.01		0.01				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 2.89 cfs @ 12.09 hrs, Volume= 0.197 af, Depth= 5.63"

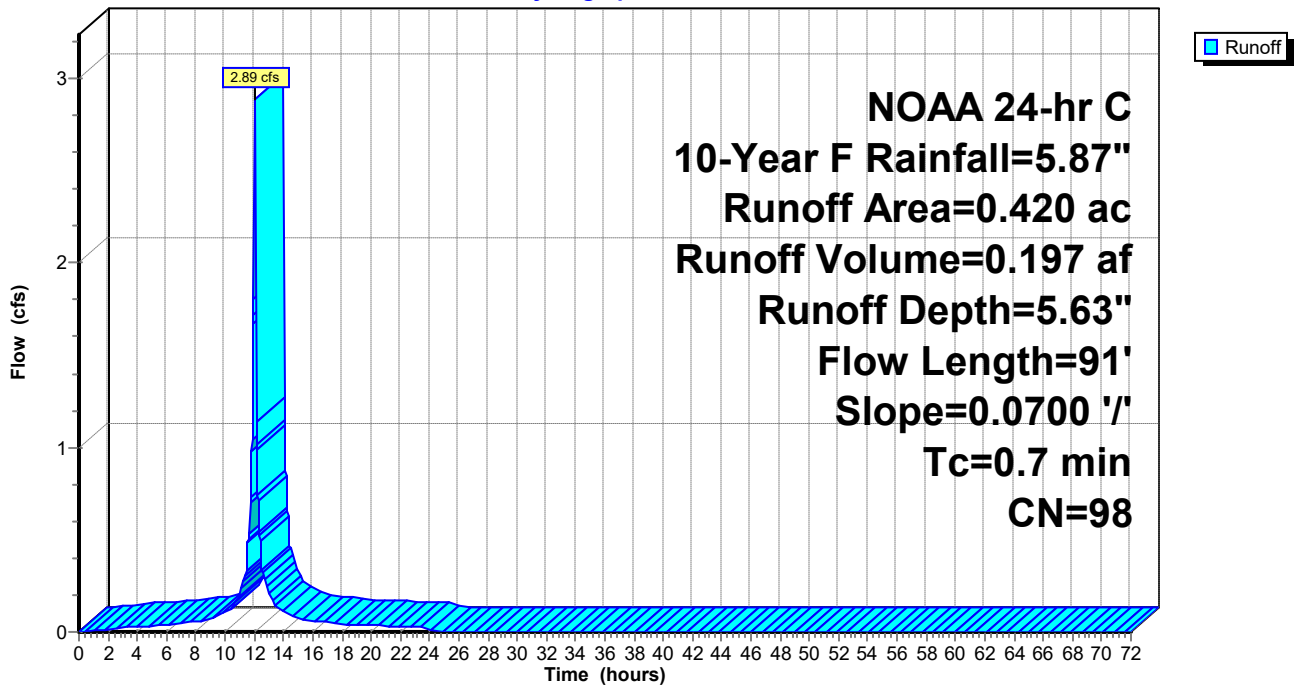
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG D
0.420	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	91	0.0700	2.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 1.02 cfs @ 12.10 hrs, Volume= 0.058 af, Depth= 3.66"

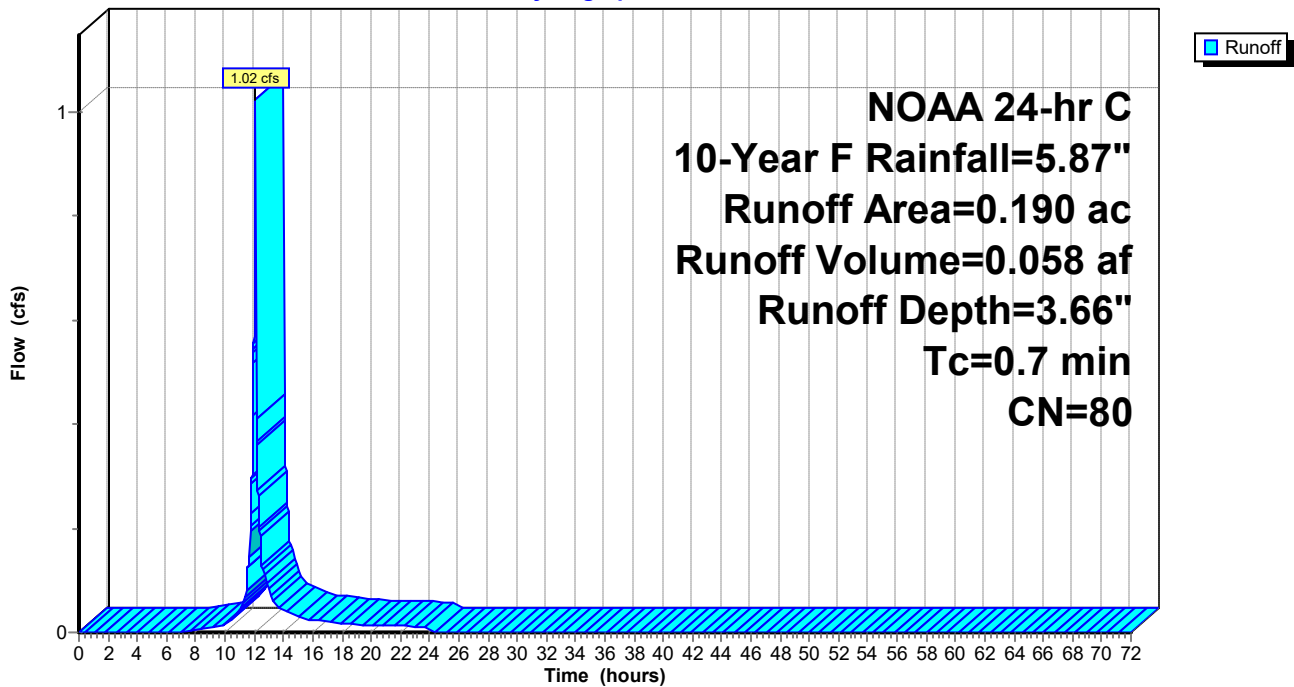
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.190	80	>75% Grass cover, Good, HSG D
0.190	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 4I: IMPERVIOUS

Runoff = 7.16 cfs @ 12.09 hrs, Volume= 0.488 af, Depth= 5.63"

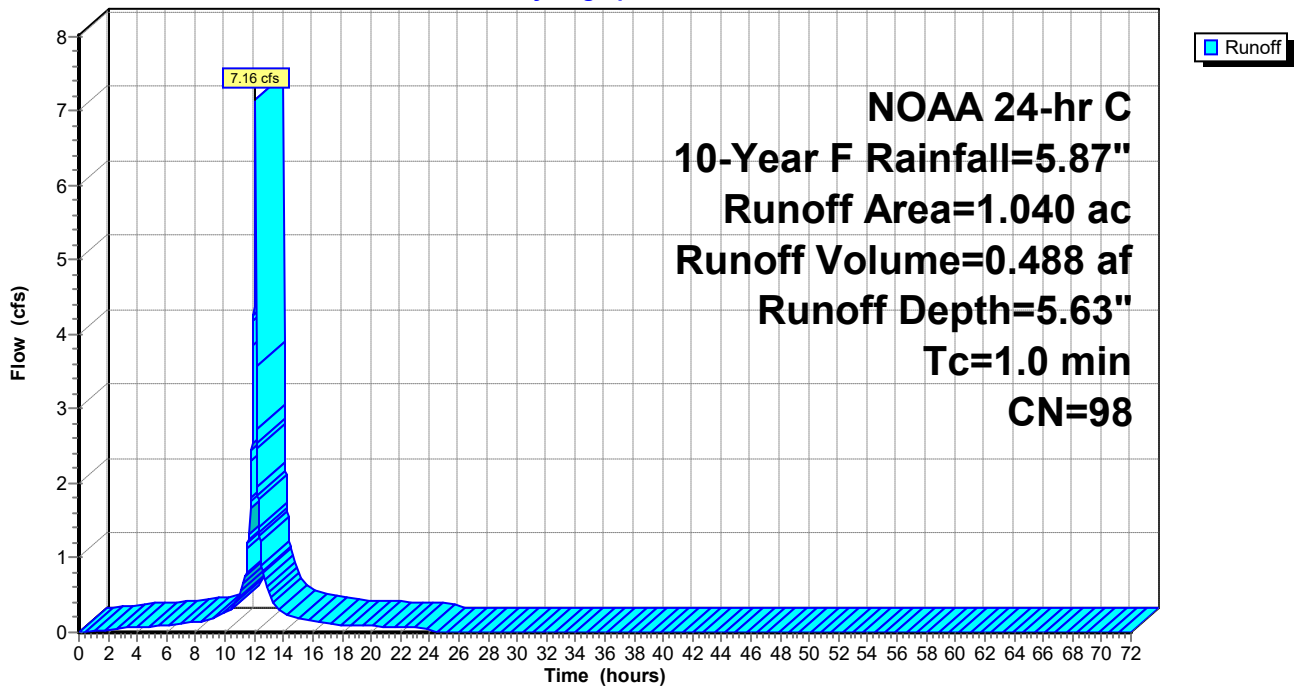
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG D
1.040	98	100.00% Impervious Area

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

Subcatchment 4I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 4P: BASIN PERVIOUS

Runoff = 4.68 cfs @ 12.09 hrs, Volume= 0.319 af, Depth= 5.63"

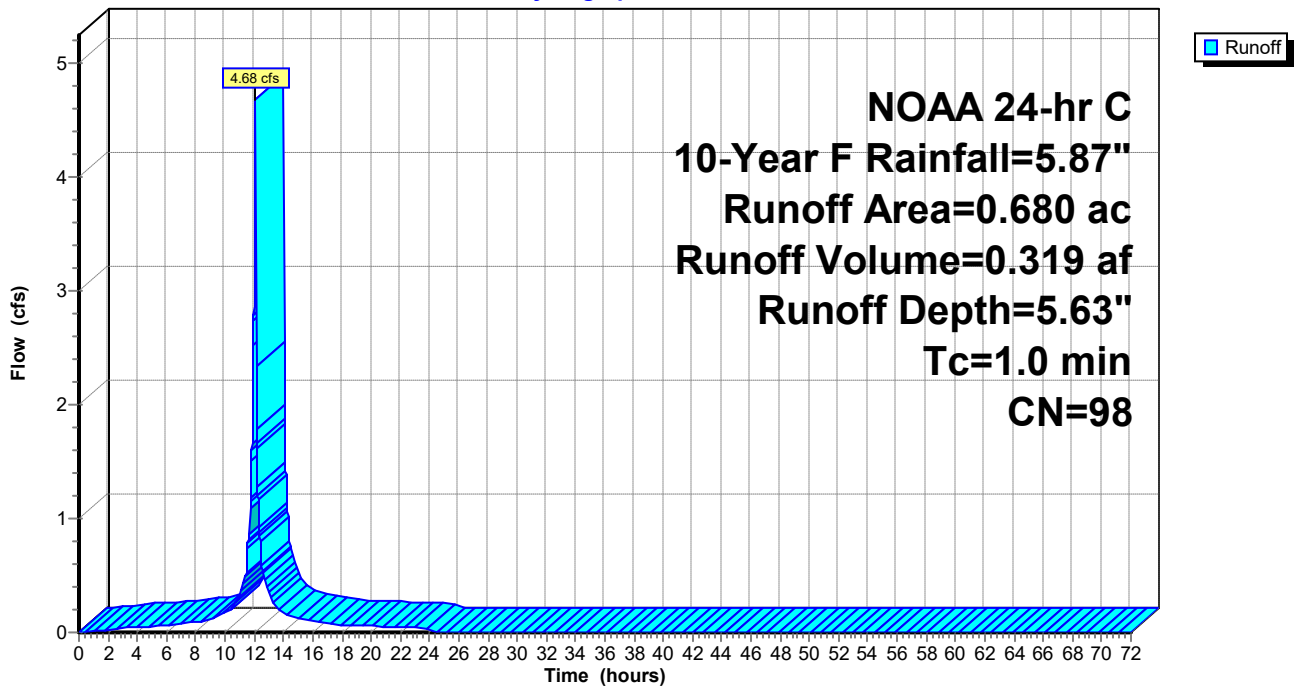
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.680	98	Paved parking, HSG D
0.680	98	100.00% Impervious Area

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

Subcatchment 4P: BASIN PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 6.68 cfs @ 12.09 hrs, Volume= 0.455 af, Depth= 5.63"

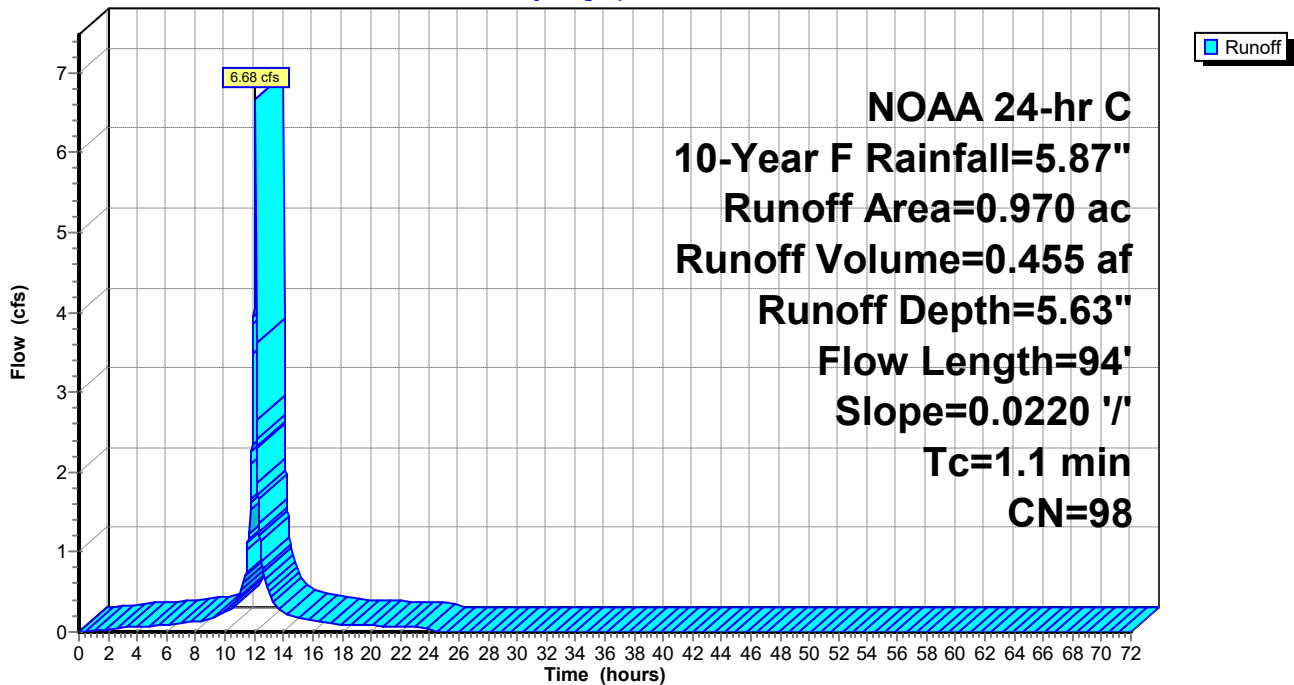
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.970	98	Paved parking, HSG D
0.970	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	94	0.0220	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.84 cfs @ 12.10 hrs, Volume= 0.047 af, Depth= 3.66"

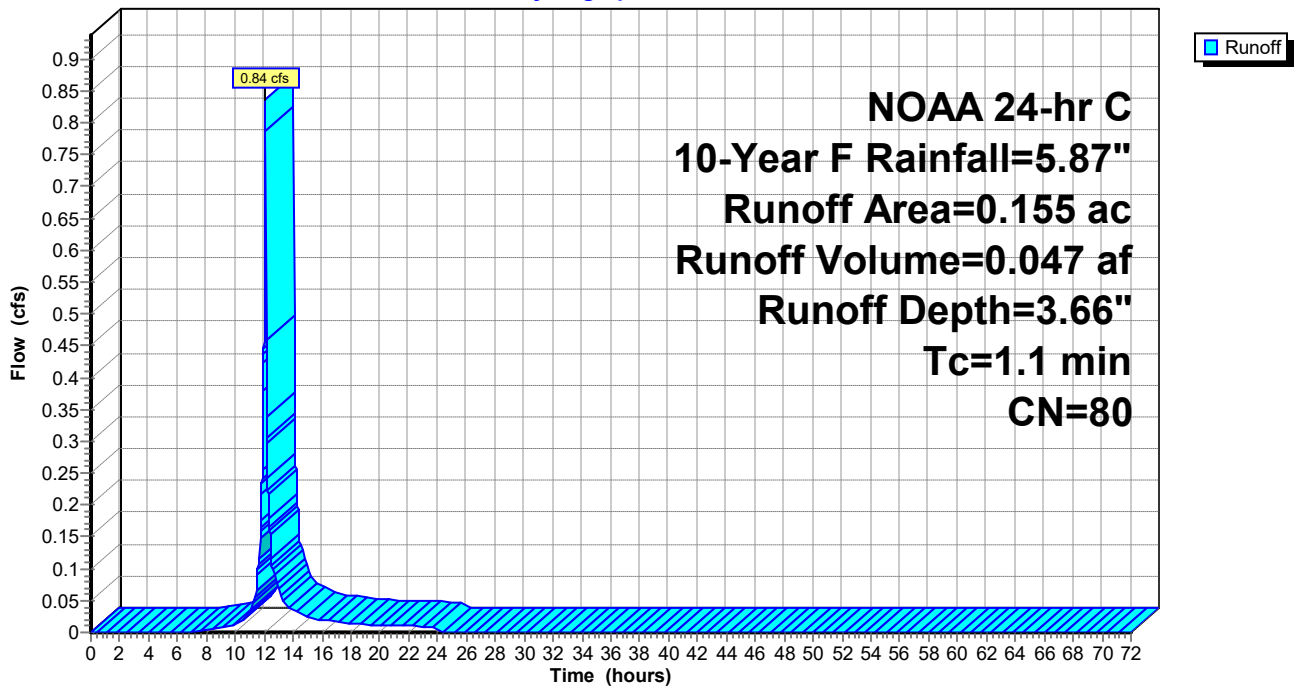
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.155	80	>75% Grass cover, Good, HSG D
0.155	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment 8I: IMPERVIOUS

Runoff = 1.65 cfs @ 12.09 hrs, Volume= 0.113 af, Depth= 5.63"

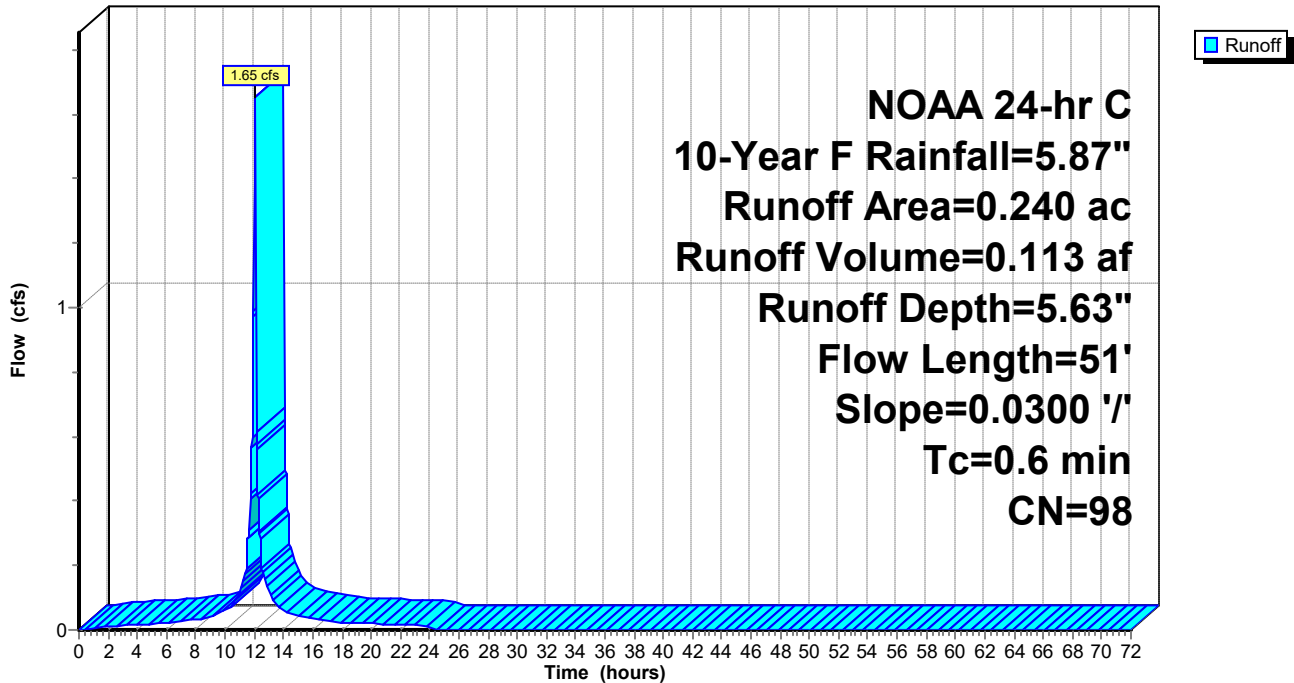
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0300	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 8I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9I: IMPERVIOUS

Runoff = 2.13 cfs @ 12.09 hrs, Volume= 0.145 af, Depth= 5.63"

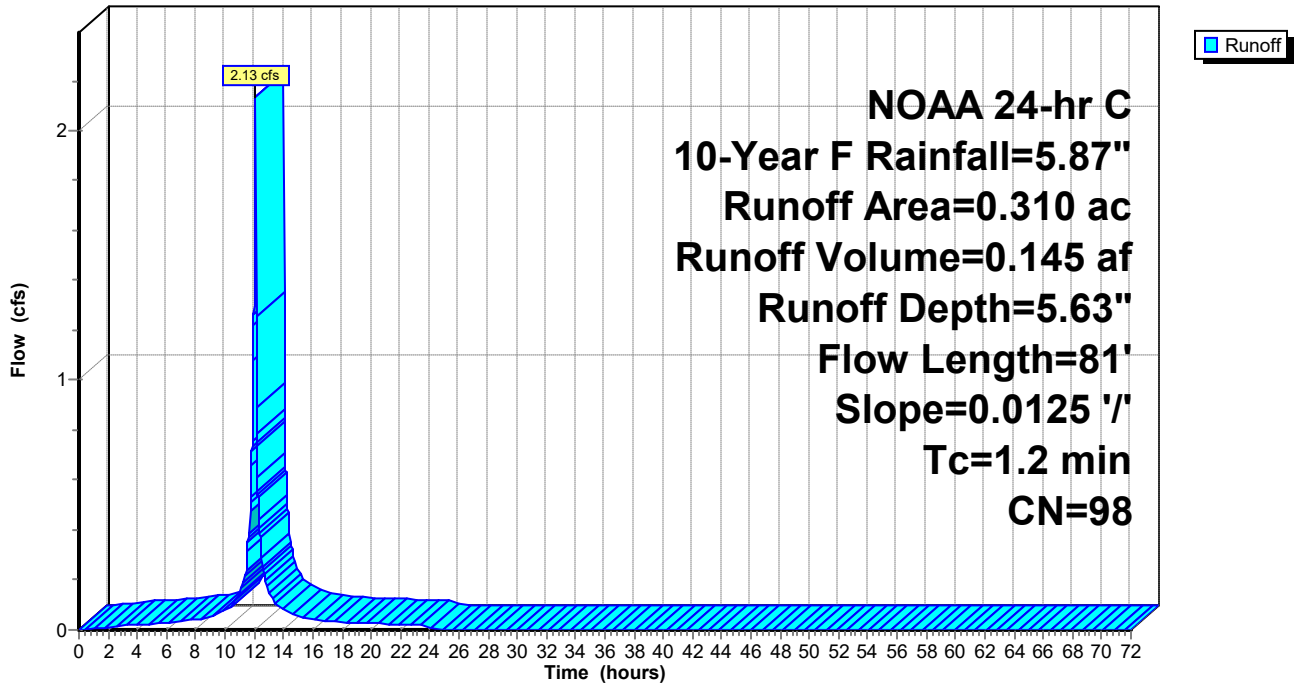
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG D
0.310	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	81	0.0125	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9P: PERVIOUS

Runoff = 0.22 cfs @ 12.10 hrs, Volume= 0.012 af, Depth= 3.66"

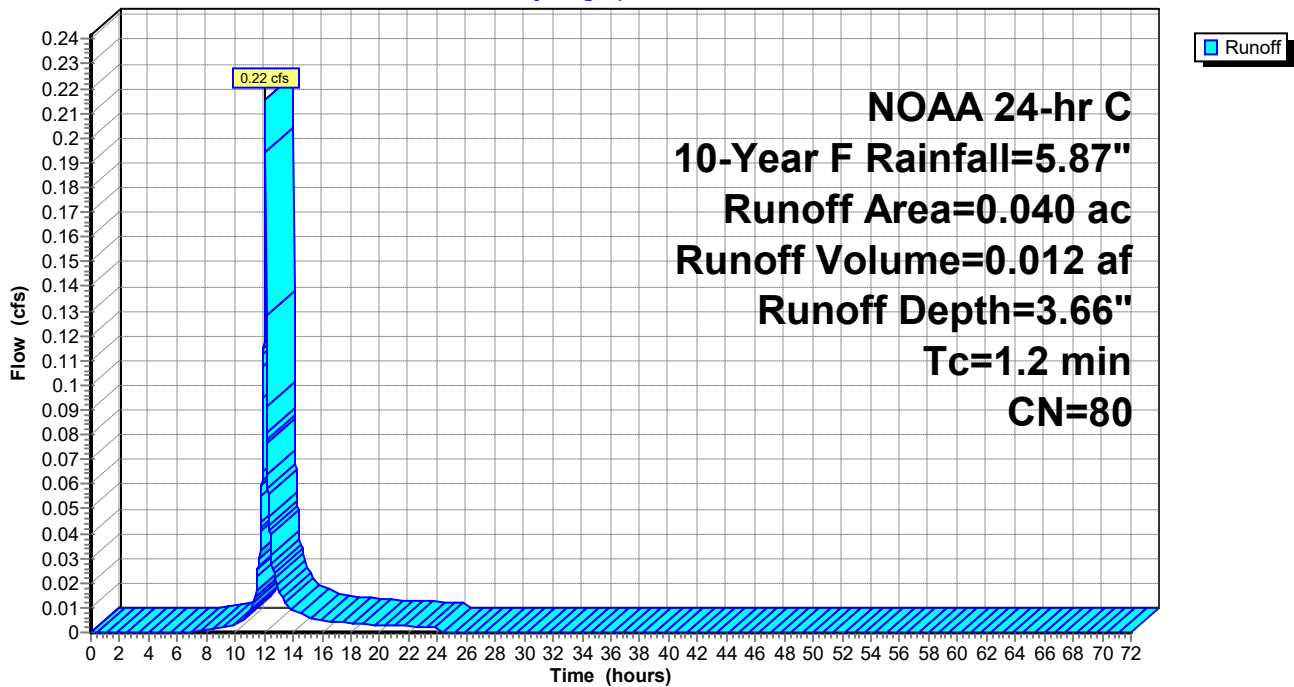
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.040	80	>75% Grass cover, Good, HSG D
0.040	80	100.00% Pervious Area

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

Subcatchment 9P: PERVIOUS

Hydrograph



Summary for Subcatchment 10I: IMPERVIOUS

Runoff = 4.41 cfs @ 12.09 hrs, Volume= 0.300 af, Depth= 5.63"

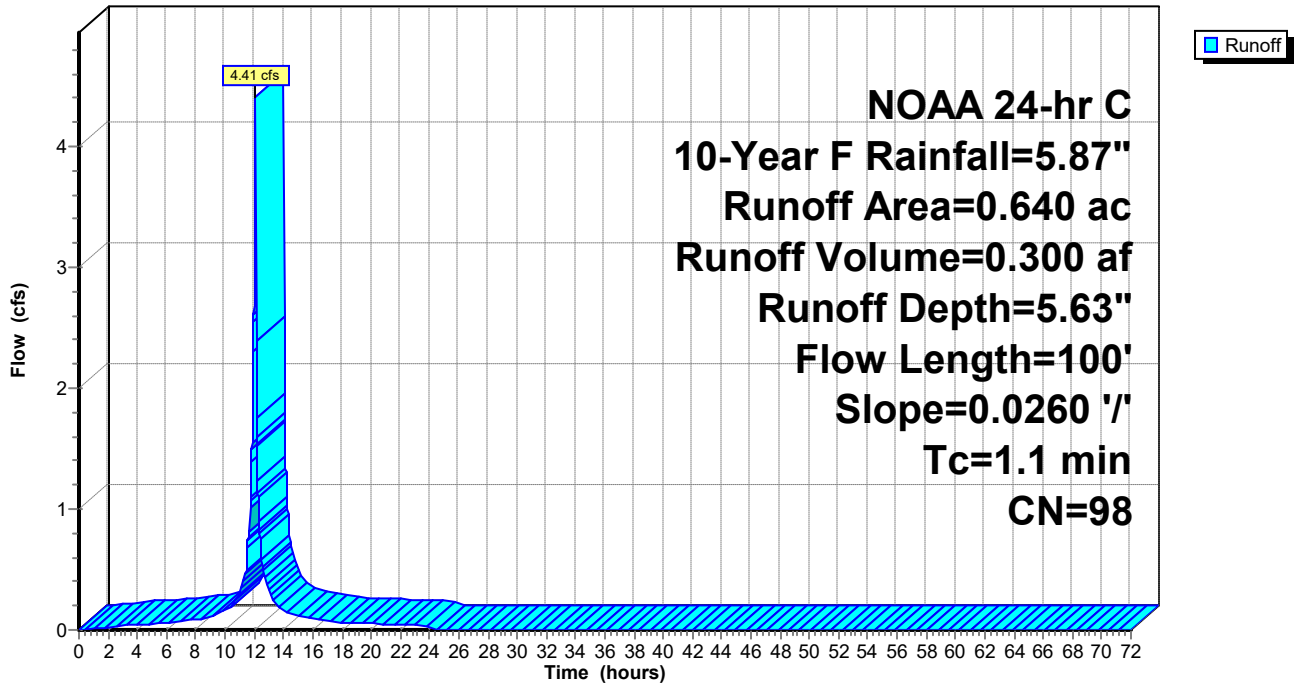
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.640	98	Paved parking, HSG D
0.640	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0260	1.57		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 10I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 10P: PERVIOUS

Runoff = 0.38 cfs @ 12.10 hrs, Volume= 0.021 af, Depth= 3.66"

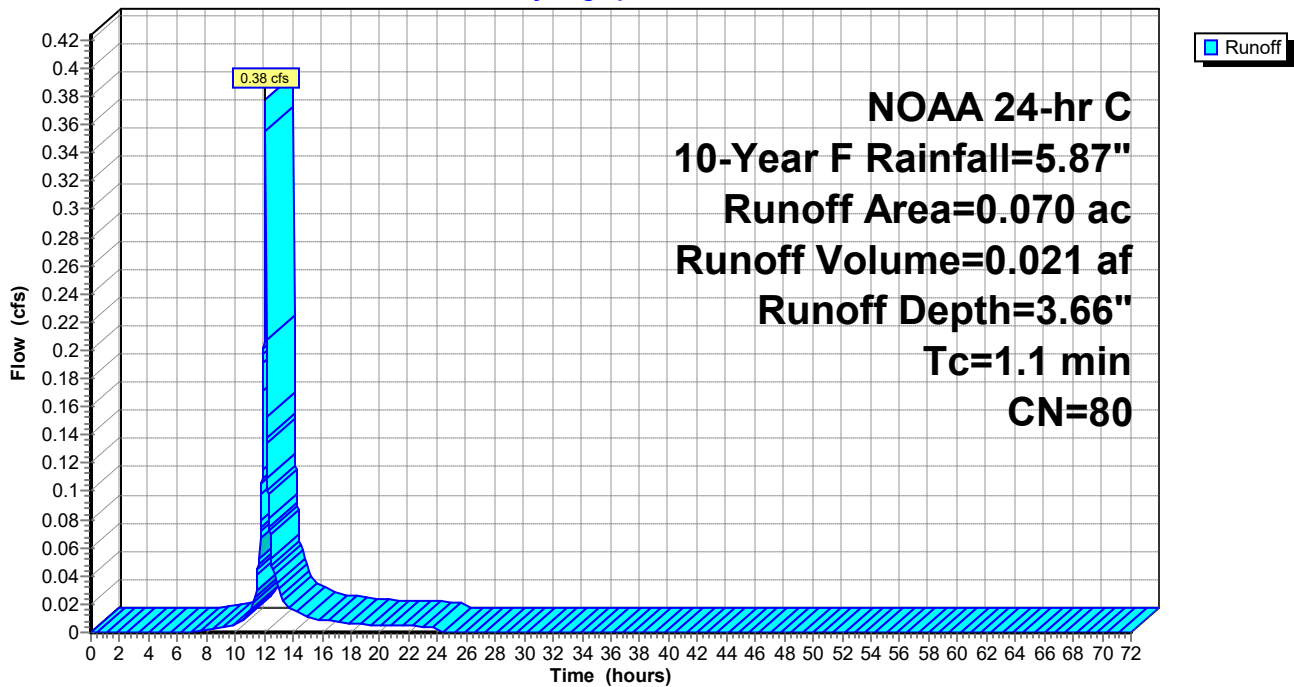
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.070	80	>75% Grass cover, Good, HSG D
0.070	80	100.00% Pervious Area

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

Subcatchment 10P: PERVIOUS

Hydrograph



Summary for Subcatchment I2: OFFSITE

Runoff = 1.03 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 5.63"

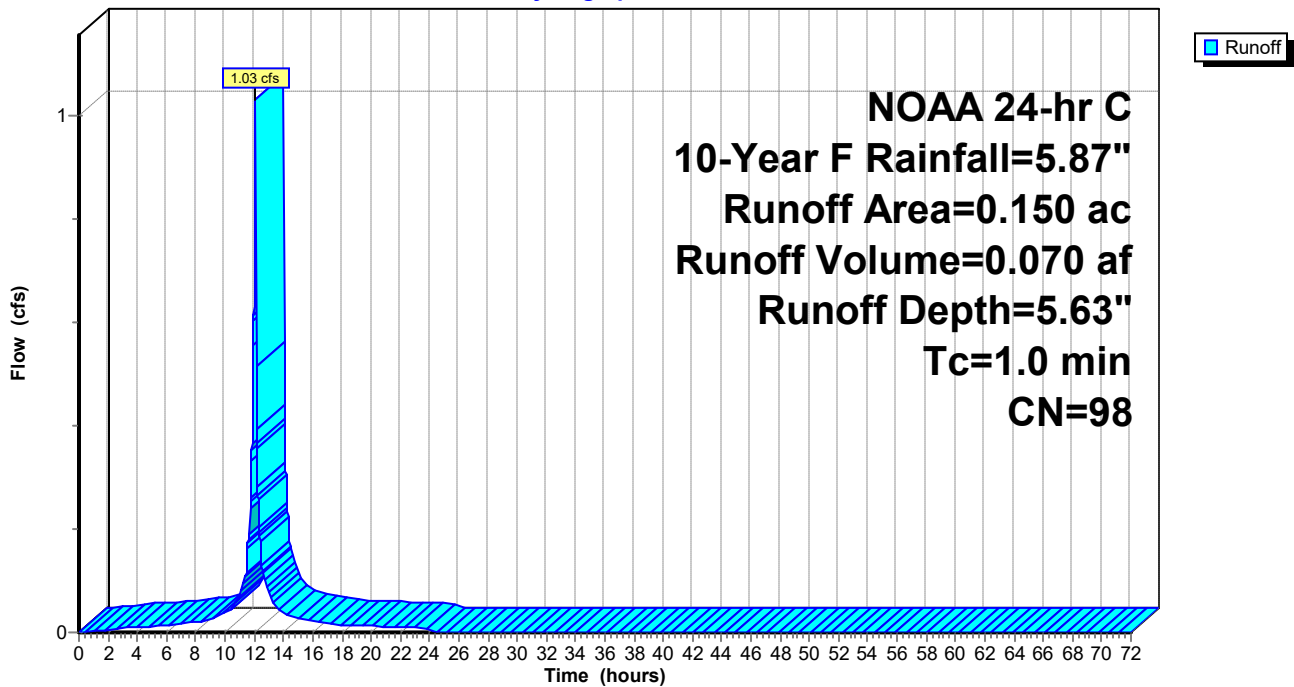
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG D
0.150	98	100.00% Impervious Area

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

Subcatchment I2: OFFSITE

Hydrograph



Summary for Subcatchment I3: IMPERVIOUS

Runoff = 10.12 cfs @ 12.09 hrs, Volume= 0.690 af, Depth= 5.63"

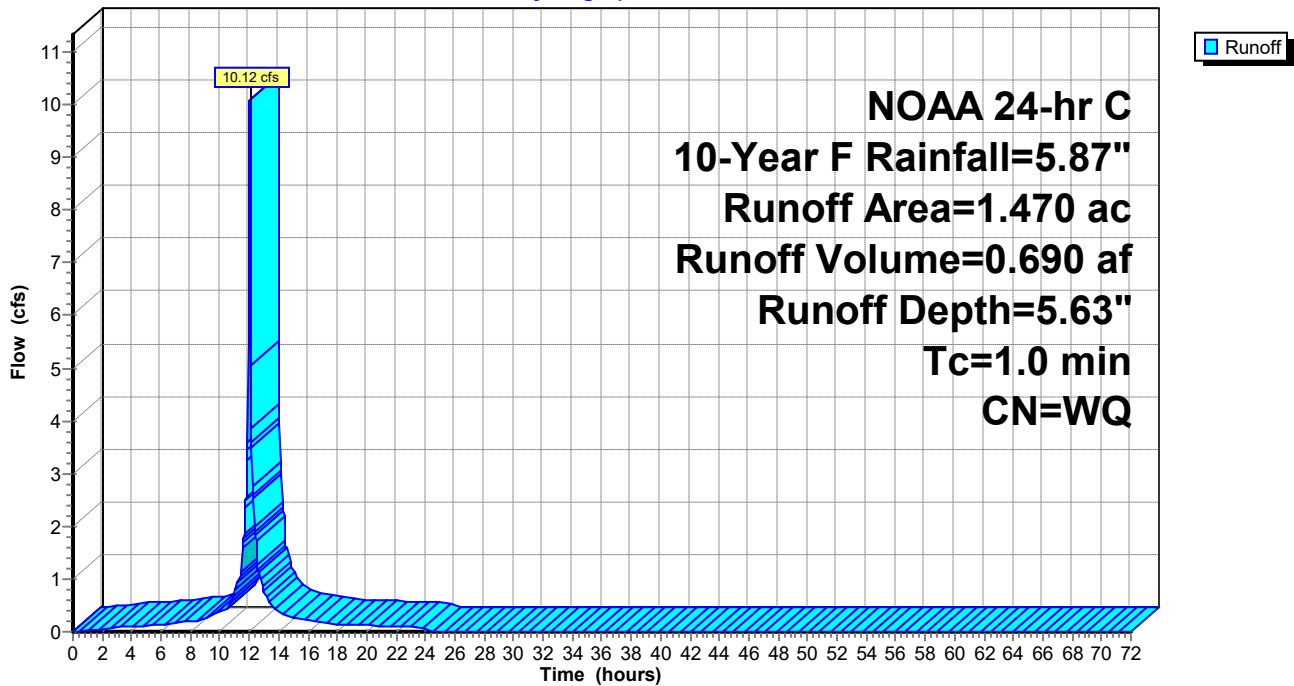
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
1.330	98	Unconnected roofs, HSG D
0.140	98	Unconnected pavement, HSG D
1.470		Weighted Average
1.470	98	100.00% Impervious Area
1.470		100.00% Unconnected

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

Subcatchment I3: IMPERVIOUS

Hydrograph



Summary for Subcatchment P2: OFFSITE

Runoff = 1.35 cfs @ 12.10 hrs, Volume= 0.076 af, Depth= 3.66"

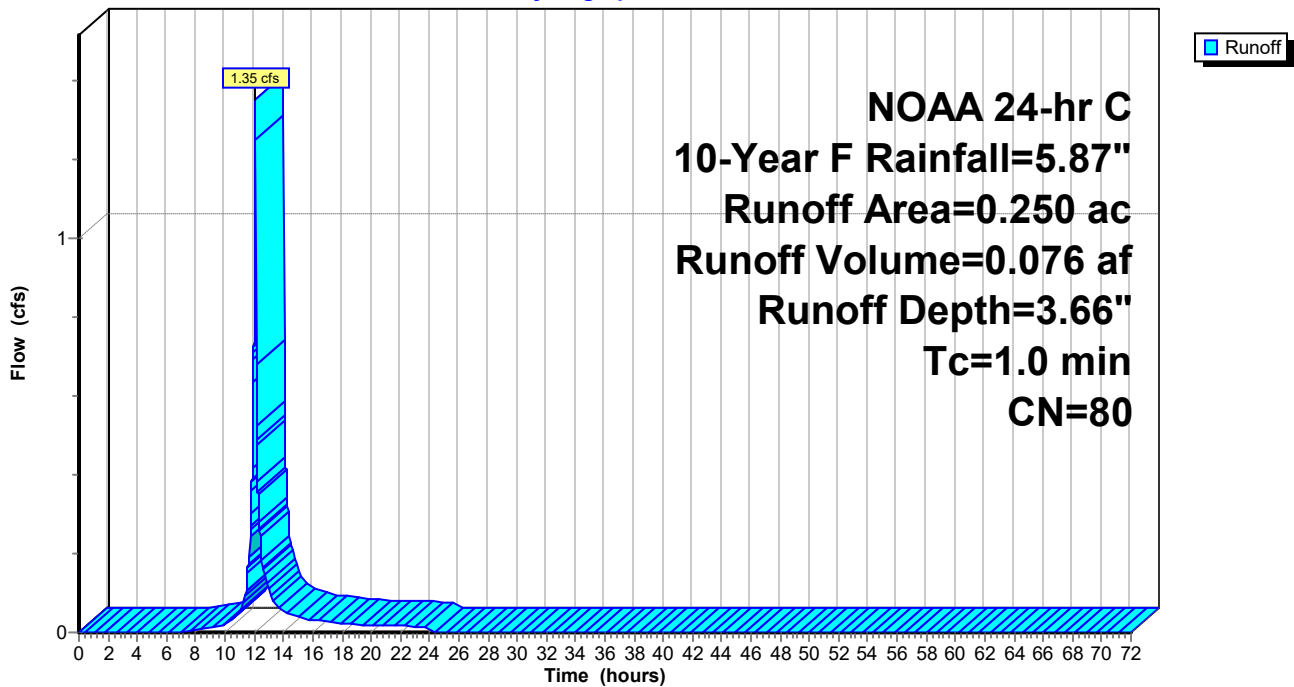
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P2: OFFSITE

Hydrograph



Summary for Subcatchment P3: PERVIOUS

Runoff = 1.35 cfs @ 12.10 hrs, Volume= 0.076 af, Depth= 3.66"

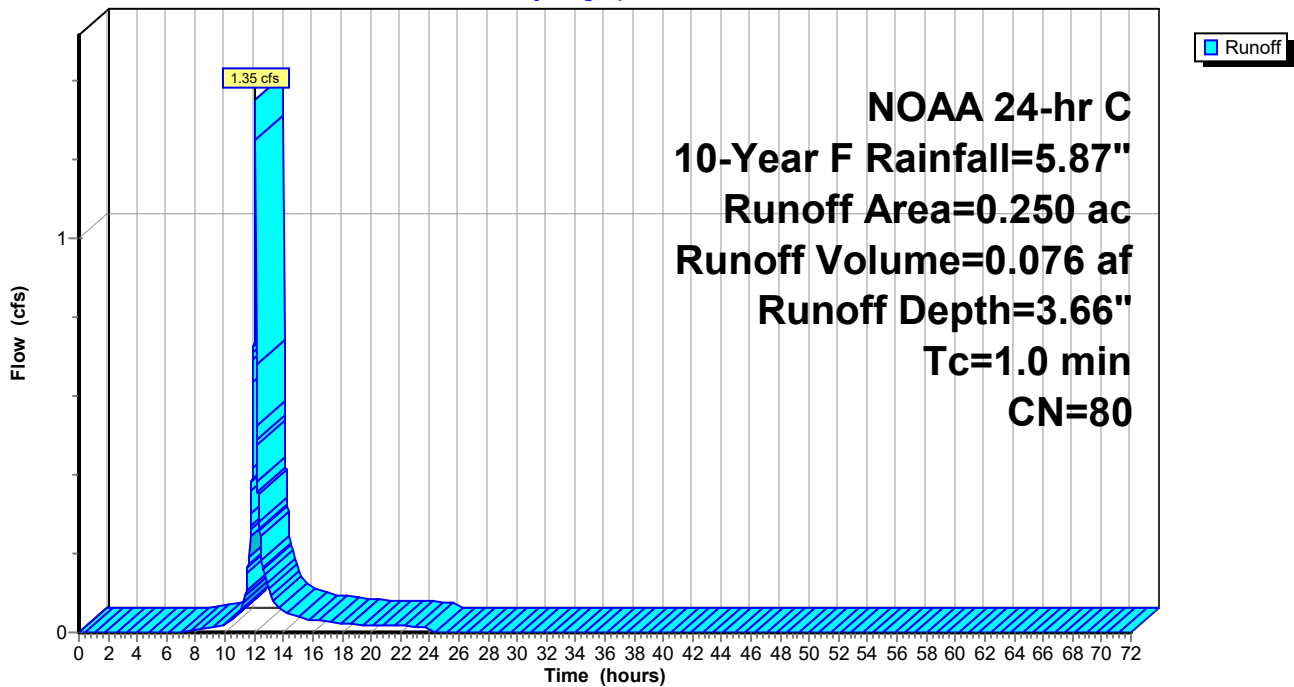
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 10-Year F Rainfall=5.87"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P3: PERVIOUS

Hydrograph



Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 5.02" for 10-Year F event
 Inflow = 3.92 cfs @ 12.09 hrs, Volume= 0.255 af
 Outflow = 3.91 cfs @ 12.10 hrs, Volume= 0.177 af, Atten= 0%, Lag= 0.3 min
 Primary = 3.91 cfs @ 12.10 hrs, Volume= 0.177 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.93' @ 12.10 hrs Surf.Area= 2,268 sf Storage= 3,802 cf

Plug-Flow detention time= 184.9 min calculated for 0.177 af (69% of inflow)
 Center-of-Mass det. time= 85.4 min (843.1 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	8,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	432	0	0
69.50	686	280	280
70.50	1,294	990	1,270
71.50	1,963	1,629	2,898
72.50	2,677	2,320	5,218
73.50	3,448	3,063	8,281

Device	Routing	Invert	Outlet Devices
#1	Primary	67.49'	24.0" Round Culvert L= 165.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.49' / 67.00' S= 0.0030 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	73.50'	50.0' 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

Primary OutFlow Max=3.88 cfs @ 12.10 hrs HW=71.93' (Free Discharge)

↑1=Culvert (Passes 3.88 cfs of 22.87 cfs potential flow)

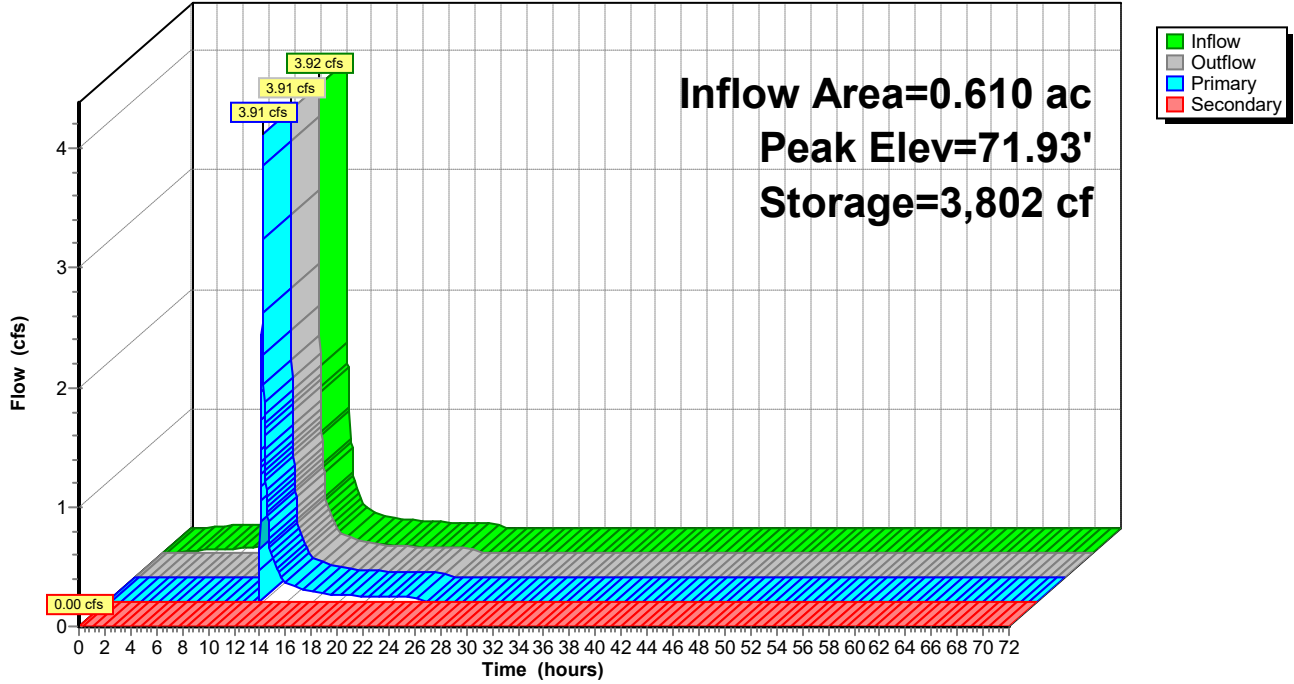
↑2=Orifice/Grate (Weir Controls 3.88 cfs @ 1.37 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph



Hydrograph for Pond B2: SMALL-SCALE BIORETENTION 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	69.00	0.00	0.00	0.00
2.00	0.02	43	69.09	0.00	0.00	0.00
4.00	0.03	204	69.39	0.00	0.00	0.00
6.00	0.04	436	69.71	0.00	0.00	0.00
8.00	0.06	780	70.08	0.00	0.00	0.00
10.00	0.12	1,378	70.58	0.00	0.00	0.00
12.00	2.31	3,679	71.87	2.26	2.26	0.00
14.00	0.15	3,443	71.76	0.16	0.16	0.00
16.00	0.08	3,429	71.76	0.09	0.09	0.00
18.00	0.06	3,423	71.76	0.06	0.06	0.00
20.00	0.05	3,421	71.75	0.05	0.05	0.00
22.00	0.04	3,420	71.75	0.04	0.04	0.00
24.00	0.04	3,420	71.75	0.04	0.04	0.00
26.00	0.00	3,411	71.75	0.00	0.00	0.00
28.00	0.00	3,411	71.75	0.00	0.00	0.00
30.00	0.00	3,411	71.75	0.00	0.00	0.00
32.00	0.00	3,411	71.75	0.00	0.00	0.00
34.00	0.00	3,411	71.75	0.00	0.00	0.00
36.00	0.00	3,411	71.75	0.00	0.00	0.00
38.00	0.00	3,411	71.75	0.00	0.00	0.00
40.00	0.00	3,411	71.75	0.00	0.00	0.00
42.00	0.00	3,411	71.75	0.00	0.00	0.00
44.00	0.00	3,411	71.75	0.00	0.00	0.00
46.00	0.00	3,411	71.75	0.00	0.00	0.00
48.00	0.00	3,411	71.75	0.00	0.00	0.00
50.00	0.00	3,411	71.75	0.00	0.00	0.00
52.00	0.00	3,411	71.75	0.00	0.00	0.00
54.00	0.00	3,411	71.75	0.00	0.00	0.00
56.00	0.00	3,411	71.75	0.00	0.00	0.00
58.00	0.00	3,411	71.75	0.00	0.00	0.00
60.00	0.00	3,411	71.75	0.00	0.00	0.00
62.00	0.00	3,411	71.75	0.00	0.00	0.00
64.00	0.00	3,411	71.75	0.00	0.00	0.00
66.00	0.00	3,411	71.75	0.00	0.00	0.00
68.00	0.00	3,411	71.75	0.00	0.00	0.00
70.00	0.00	3,411	71.75	0.00	0.00	0.00
72.00	0.00	3,411	71.75	0.00	0.00	0.00

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 5.16" for 10-Year F event
 Inflow = 29.45 cfs @ 12.10 hrs, Volume= 2.784 af
 Outflow = 8.30 cfs @ 12.32 hrs, Volume= 2.354 af, Atten= 72%, Lag= 13.1 min
 Primary = 8.30 cfs @ 12.32 hrs, Volume= 2.354 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.22' @ 12.32 hrs Surf.Area= 22,324 sf Storage= 45,951 cf

Plug-Flow detention time= 212.7 min calculated for 2.354 af (85% of inflow)
 Center-of-Mass det. time= 134.4 min (942.3 - 807.9)

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.95'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Device 1	69.40'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	70.08'	50.0' 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

Primary OutFlow Max=8.30 cfs @ 12.32 hrs HW=69.22' (Free Discharge)

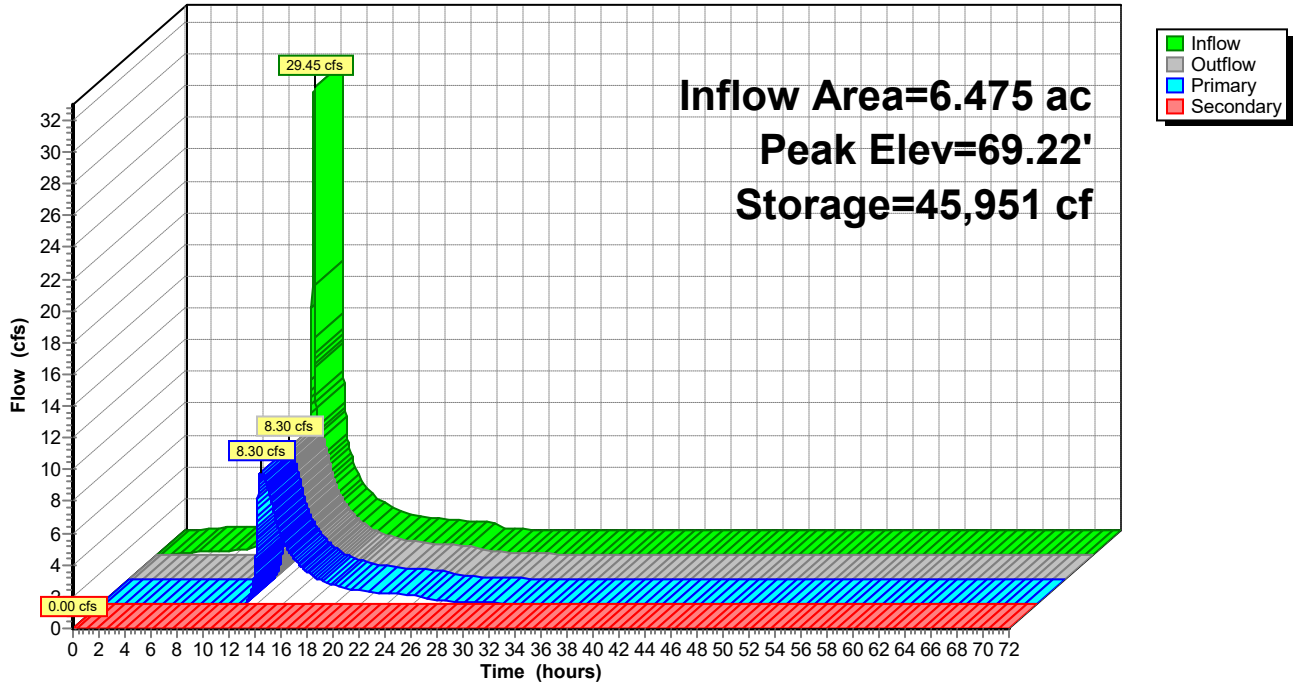
- ↑ 1=Culvert (Passes 8.30 cfs of 25.80 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 8.30 cfs @ 4.15 fps)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

- ↑ 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	67.00	0.00	0.00	0.00
2.00	0.12	324	67.02	0.00	0.00	0.00
4.00	0.21	1,549	67.08	0.00	0.00	0.00
6.00	0.27	3,303	67.17	0.00	0.00	0.00
8.00	0.59	6,242	67.33	0.00	0.00	0.00
10.00	1.22	12,327	67.63	0.00	0.00	0.00
12.00	18.01	35,122	68.73	4.42	4.42	0.00
14.00	2.69	33,996	68.68	3.98	3.98	0.00
16.00	1.39	28,049	68.40	1.93	1.93	0.00
18.00	0.88	25,314	68.27	1.16	1.16	0.00
20.00	0.70	23,971	68.20	0.82	0.82	0.00
22.00	0.58	23,245	68.17	0.66	0.66	0.00
24.00	0.52	22,665	68.14	0.54	0.54	0.00
26.00	0.06	20,921	68.06	0.23	0.23	0.00
28.00	0.02	20,035	68.01	0.11	0.11	0.00
30.00	0.01	19,587	67.99	0.06	0.06	0.00
32.00	0.01	19,309	67.98	0.04	0.04	0.00
34.00	0.00	19,133	67.97	0.02	0.02	0.00
36.00	0.00	19,026	67.97	0.01	0.01	0.00
38.00	0.00	18,959	67.96	0.01	0.01	0.00
40.00	0.00	18,917	67.96	0.01	0.01	0.00
42.00	0.00	18,885	67.96	0.01	0.01	0.00
44.00	0.00	18,857	67.96	0.00	0.00	0.00
46.00	0.00	18,833	67.96	0.00	0.00	0.00
48.00	0.00	18,813	67.95	0.00	0.00	0.00
50.00	0.00	18,796	67.95	0.00	0.00	0.00
52.00	0.00	18,781	67.95	0.00	0.00	0.00
54.00	0.00	18,770	67.95	0.00	0.00	0.00
56.00	0.00	18,760	67.95	0.00	0.00	0.00
58.00	0.00	18,751	67.95	0.00	0.00	0.00
60.00	0.00	18,745	67.95	0.00	0.00	0.00
62.00	0.00	18,739	67.95	0.00	0.00	0.00
64.00	0.00	18,735	67.95	0.00	0.00	0.00
66.00	0.00	18,731	67.95	0.00	0.00	0.00
68.00	0.00	18,728	67.95	0.00	0.00	0.00
70.00	0.00	18,726	67.95	0.00	0.00	0.00
72.00	0.00	18,724	67.95	0.00	0.00	0.00

Summary for Pond P10: Porous Pavement 10

Inflow Area = 0.710 ac, 90.14% Impervious, Inflow Depth = 5.44" for 10-Year F event
 Inflow = 4.78 cfs @ 12.09 hrs, Volume= 0.322 af
 Outflow = 0.36 cfs @ 13.01 hrs, Volume= 0.305 af, Atten= 92%, Lag= 55.1 min
 Primary = 0.36 cfs @ 13.01 hrs, Volume= 0.305 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.18' @ 13.01 hrs Surf.Area= 9,090 sf Storage= 7,585 cf

Plug-Flow detention time= 292.2 min calculated for 0.305 af (95% of inflow)
 Center-of-Mass det. time= 260.9 min (1,007.3 - 746.4)

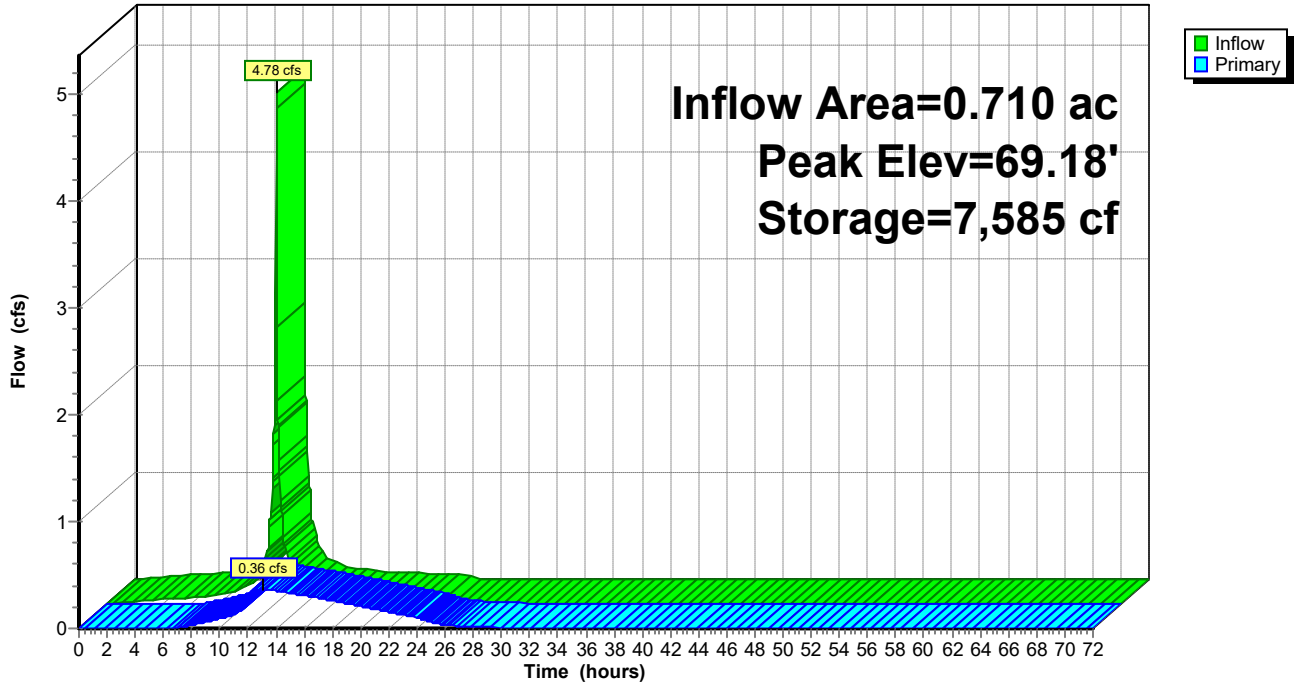
Volume	Invert	Avail.Storage	Storage Description
#1	67.61'	9,763 cf	18.00'W x 505.00'L x 4.00'H Prismatic 36,360 cf Overall - 6,776 cf Embedded = 29,584 cf x 33.0% Voids
#2	67.86'	6,346 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 505.0' 6,776 cf Overall - 0.4" Wall Thickness = 6,346 cf
		16,109 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.61'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.61' / 67.53' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	67.86'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	70.50'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.36 cfs @ 13.01 hrs HW=69.18' (Free Discharge)
 1=Culvert (Passes 0.36 cfs of 4.69 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.36 cfs @ 5.30 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P10: Porous Pavement 10

Hydrograph



Hydrograph for Pond P10: Porous Pavement 10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.61	0.00
2.00	0.02	65	67.63	0.00
4.00	0.04	311	67.71	0.00
6.00	0.05	662	67.83	0.00
8.00	0.09	1,097	67.96	0.03
10.00	0.16	1,484	68.05	0.10
12.00	2.85	4,489	68.63	0.27
14.00	0.18	7,169	69.10	0.35
16.00	0.10	5,728	68.85	0.31
18.00	0.07	4,288	68.59	0.26
20.00	0.06	3,058	68.36	0.21
22.00	0.05	2,147	68.19	0.15
24.00	0.05	1,558	68.06	0.10
26.00	0.00	1,101	67.96	0.03
28.00	0.00	944	67.92	0.01
30.00	0.00	873	67.90	0.01
32.00	0.00	838	67.89	0.00
34.00	0.00	815	67.88	0.00
36.00	0.00	798	67.88	0.00
38.00	0.00	785	67.87	0.00
40.00	0.00	775	67.87	0.00
42.00	0.00	768	67.87	0.00
44.00	0.00	762	67.87	0.00
46.00	0.00	757	67.86	0.00
48.00	0.00	754	67.86	0.00
50.00	0.00	751	67.86	0.00
52.00	0.00	749	67.86	0.00
54.00	0.00	747	67.86	0.00
56.00	0.00	746	67.86	0.00
58.00	0.00	745	67.86	0.00
60.00	0.00	745	67.86	0.00
62.00	0.00	744	67.86	0.00
64.00	0.00	744	67.86	0.00
66.00	0.00	743	67.86	0.00
68.00	0.00	743	67.86	0.00
70.00	0.00	743	67.86	0.00
72.00	0.00	743	67.86	0.00

Summary for Pond P5: Porous Pavement 5

Inflow Area = 1.125 ac, 86.22% Impervious, Inflow Depth = 5.36" for 10-Year F event
 Inflow = 7.51 cfs @ 12.09 hrs, Volume= 0.503 af
 Outflow = 1.31 cfs @ 12.44 hrs, Volume= 0.475 af, Atten= 83%, Lag= 21.0 min
 Primary = 1.31 cfs @ 12.44 hrs, Volume= 0.475 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.52' @ 12.44 hrs Surf.Area= 14,886 sf Storage= 8,539 cf

Plug-Flow detention time= 133.2 min calculated for 0.475 af (94% of inflow)
 Center-of-Mass det. time= 100.5 min (848.9 - 748.4)

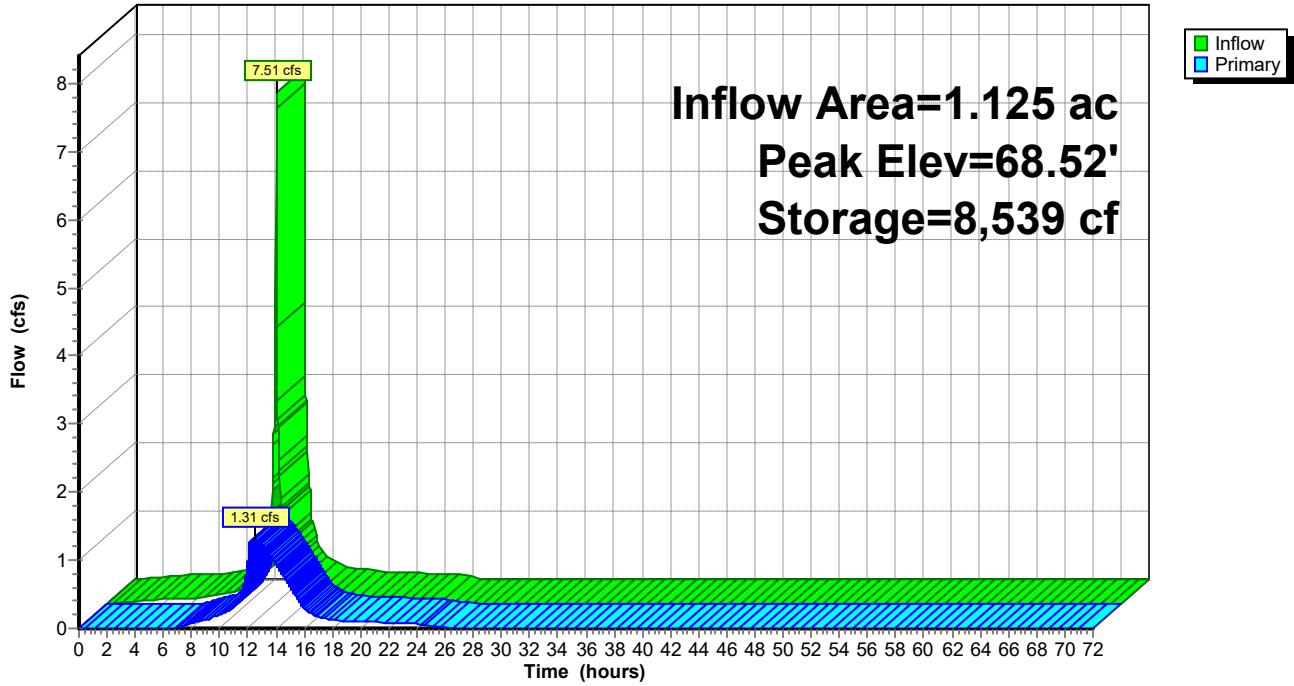
Volume	Invert	Avail.Storage	Storage Description
#1	67.37'	13,040 cf	18.00'W x 827.00'L x 3.40'H Prismatic 50,612 cf Overall - 11,097 cf Embedded = 39,516 cf x 33.0% Voids
#2	67.62'	10,392 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 827.0' 11,097 cf Overall - 0.4" Wall Thickness = 10,392 cf
		23,433 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.37'	24.0" Round Culvert L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.37' / 67.19' S= 0.0030 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.62'	2.5" Vert. Orifice/Grate X 9.00 C= 0.600
#3	Device 1	69.88'	8.0" W x 6.0" H Vert. Orifice/Grate X 7.00 C= 0.600

Primary OutFlow Max=1.31 cfs @ 12.44 hrs HW=68.52' (Free Discharge)
 1=Culvert (Passes 1.31 cfs of 4.61 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 1.31 cfs @ 4.28 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P5: Porous Pavement 5

Hydrograph



Hydrograph for Pond P5: Porous Pavement 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.37	0.00
2.00	0.04	98	67.39	0.00
4.00	0.06	471	67.47	0.00
6.00	0.08	1,004	67.57	0.00
8.00	0.13	1,611	67.69	0.08
10.00	0.25	1,915	67.73	0.20
12.00	4.46	5,318	68.16	0.98
14.00	0.29	5,039	68.13	0.94
16.00	0.16	2,121	67.76	0.29
18.00	0.11	1,746	67.71	0.13
20.00	0.09	1,661	67.70	0.10
22.00	0.08	1,620	67.69	0.09
24.00	0.08	1,588	67.69	0.07
26.00	0.00	1,350	67.65	0.01
28.00	0.00	1,291	67.63	0.01
30.00	0.00	1,259	67.63	0.00
32.00	0.00	1,241	67.62	0.00
34.00	0.00	1,230	67.62	0.00
36.00	0.00	1,224	67.62	0.00
38.00	0.00	1,220	67.62	0.00
40.00	0.00	1,218	67.62	0.00
42.00	0.00	1,217	67.62	0.00
44.00	0.00	1,216	67.62	0.00
46.00	0.00	1,216	67.62	0.00
48.00	0.00	1,216	67.62	0.00
50.00	0.00	1,216	67.62	0.00
52.00	0.00	1,216	67.62	0.00
54.00	0.00	1,215	67.62	0.00
56.00	0.00	1,215	67.62	0.00
58.00	0.00	1,215	67.62	0.00
60.00	0.00	1,215	67.62	0.00
62.00	0.00	1,215	67.62	0.00
64.00	0.00	1,215	67.62	0.00
66.00	0.00	1,215	67.62	0.00
68.00	0.00	1,215	67.62	0.00
70.00	0.00	1,215	67.62	0.00
72.00	0.00	1,215	67.62	0.00

Summary for Pond P8: Porous Pavement 8

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth = 5.63" for 10-Year F event
 Inflow = 1.65 cfs @ 12.09 hrs, Volume= 0.113 af
 Outflow = 0.51 cfs @ 12.21 hrs, Volume= 0.107 af, Atten= 69%, Lag= 7.0 min
 Primary = 0.51 cfs @ 12.21 hrs, Volume= 0.107 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.34' @ 12.21 hrs Surf.Area= 3,078 sf Storage= 1,394 cf

Plug-Flow detention time= 91.0 min calculated for 0.107 af (95% of inflow)
 Center-of-Mass det. time= 60.1 min (801.3 - 741.2)

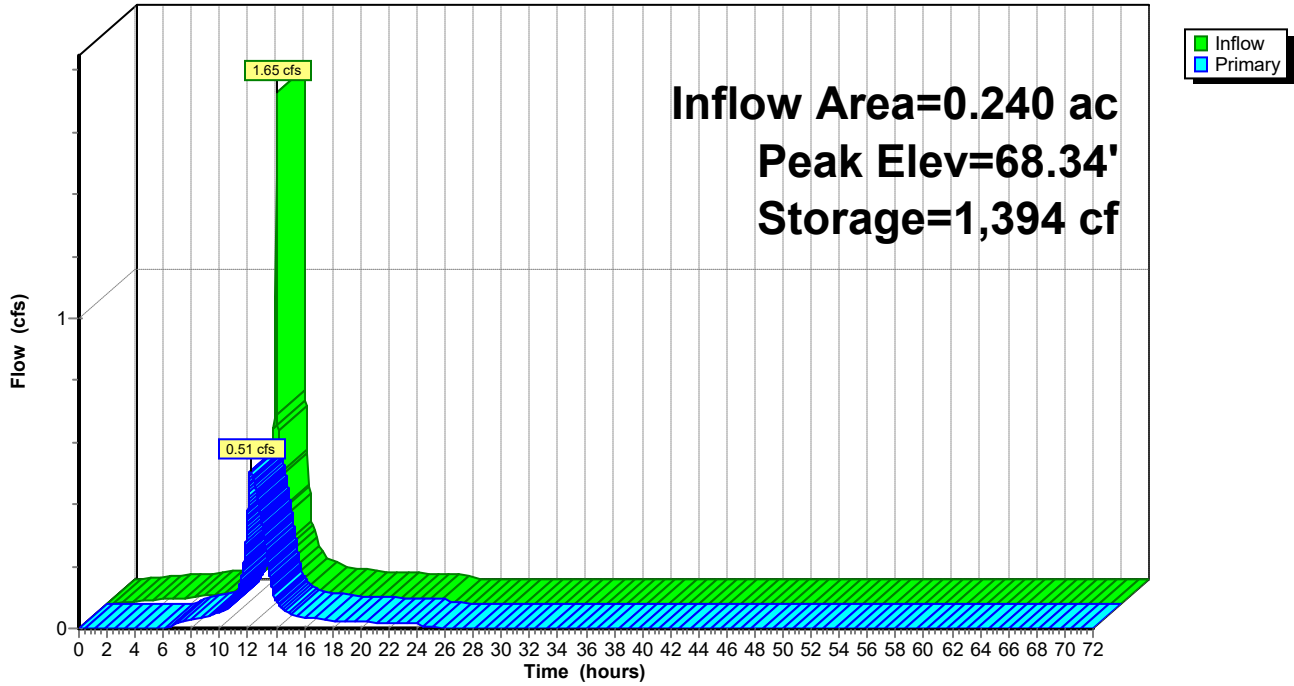
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	3,306 cf	18.00'W x 171.00'L x 4.00'H Prismatic 12,312 cf Overall - 2,294 cf Embedded = 10,018 cf x 33.0% Voids
#2	67.64'	2,149 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 171.0' 2,294 cf Overall - 0.4" Wall Thickness = 2,149 cf
		5,455 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.24' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	70.13'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.51 cfs @ 12.21 hrs HW=68.34' (Free Discharge)
 1=Culvert (Passes 0.51 cfs of 3.79 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.51 cfs @ 3.72 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P8: Porous Pavement 8

Hydrograph



Hydrograph for Pond P8: Porous Pavement 8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.01	25	67.41	0.00
4.00	0.02	117	67.51	0.00
6.00	0.02	249	67.64	0.00
8.00	0.03	322	67.70	0.03
10.00	0.06	355	67.72	0.05
12.00	1.00	917	68.08	0.38
14.00	0.06	394	67.75	0.09
16.00	0.03	335	67.71	0.04
18.00	0.02	317	67.70	0.03
20.00	0.02	308	67.69	0.02
22.00	0.02	303	67.68	0.02
24.00	0.02	299	67.68	0.02
26.00	0.00	261	67.65	0.00
28.00	0.00	253	67.64	0.00
30.00	0.00	252	67.64	0.00
32.00	0.00	251	67.64	0.00
34.00	0.00	251	67.64	0.00
36.00	0.00	251	67.64	0.00
38.00	0.00	251	67.64	0.00
40.00	0.00	251	67.64	0.00
42.00	0.00	251	67.64	0.00
44.00	0.00	251	67.64	0.00
46.00	0.00	251	67.64	0.00
48.00	0.00	251	67.64	0.00
50.00	0.00	251	67.64	0.00
52.00	0.00	251	67.64	0.00
54.00	0.00	251	67.64	0.00
56.00	0.00	251	67.64	0.00
58.00	0.00	251	67.64	0.00
60.00	0.00	251	67.64	0.00
62.00	0.00	251	67.64	0.00
64.00	0.00	251	67.64	0.00
66.00	0.00	251	67.64	0.00
68.00	0.00	251	67.64	0.00
70.00	0.00	251	67.64	0.00
72.00	0.00	251	67.64	0.00

Summary for Pond P9: Porous Pavement 9

Inflow Area = 0.350 ac, 88.57% Impervious, Inflow Depth = 5.41" for 10-Year F event
 Inflow = 2.35 cfs @ 12.09 hrs, Volume= 0.158 af
 Outflow = 0.30 cfs @ 12.53 hrs, Volume= 0.148 af, Atten= 87%, Lag= 26.1 min
 Primary = 0.30 cfs @ 12.53 hrs, Volume= 0.148 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.57' @ 12.53 hrs Surf.Area= 5,346 sf Storage= 3,182 cf

Plug-Flow detention time= 185.5 min calculated for 0.148 af (94% of inflow)
 Center-of-Mass det. time= 148.6 min (895.9 - 747.3)

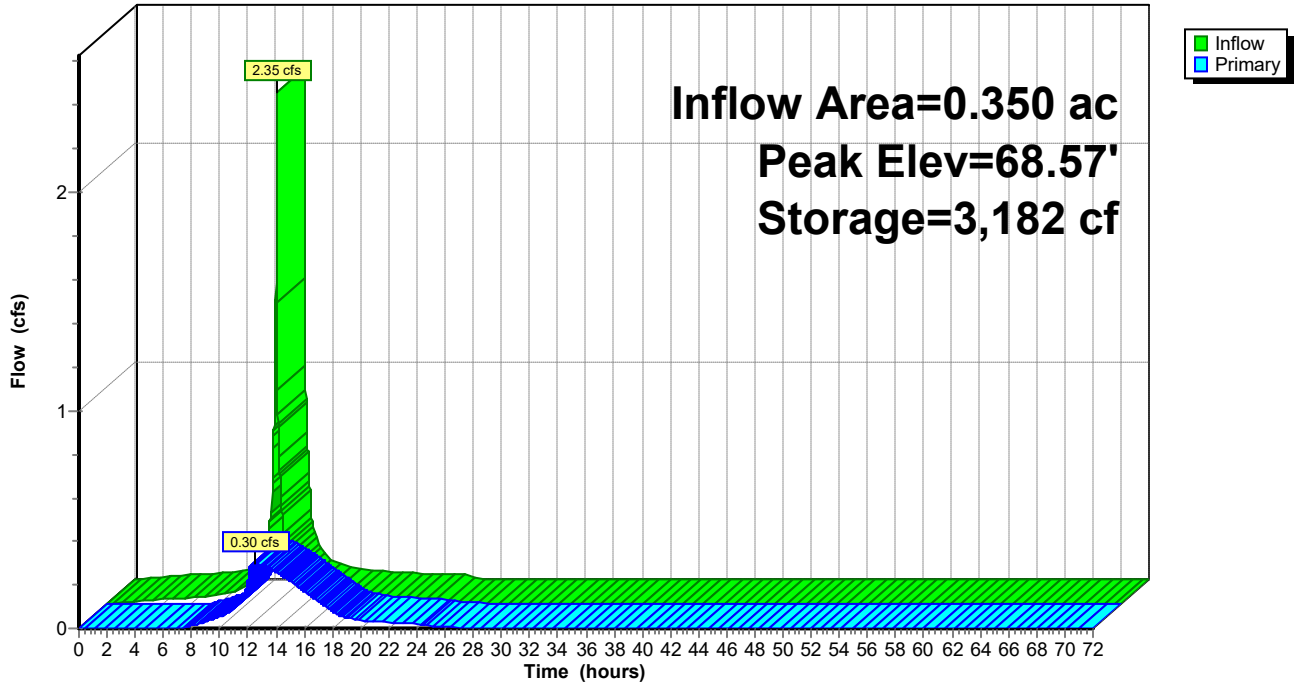
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	5,742 cf	18.00'W x 297.00'L x 4.00'H Prismatic 21,384 cf Overall - 3,985 cf Embedded = 17,399 cf x 33.0% Voids
#2	67.64'	3,732 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 297.0' 3,985 cf Overall - 0.4" Wall Thickness = 3,732 cf
		9,474 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.32' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	69.76'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.30 cfs @ 12.53 hrs HW=68.57' (Free Discharge)
 1=Culvert (Passes 0.30 cfs of 5.61 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.30 cfs @ 4.38 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P9: Porous Pavement 9

Hydrograph



Hydrograph for Pond P9: Porous Pavement 9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.01	31	67.41	0.00
4.00	0.02	150	67.48	0.00
6.00	0.03	321	67.57	0.00
8.00	0.04	551	67.70	0.01
10.00	0.08	724	67.77	0.05
12.00	1.40	1,963	68.20	0.22
14.00	0.09	2,498	68.36	0.26
16.00	0.05	1,405	68.02	0.17
18.00	0.03	808	67.80	0.08
20.00	0.03	659	67.74	0.04
22.00	0.02	622	67.73	0.03
24.00	0.03	604	67.72	0.02
26.00	0.00	512	67.68	0.01
28.00	0.00	483	67.66	0.00
30.00	0.00	466	67.66	0.00
32.00	0.00	455	67.65	0.00
34.00	0.00	448	67.65	0.00
36.00	0.00	444	67.64	0.00
38.00	0.00	441	67.64	0.00
40.00	0.00	440	67.64	0.00
42.00	0.00	438	67.64	0.00
44.00	0.00	438	67.64	0.00
46.00	0.00	437	67.64	0.00
48.00	0.00	437	67.64	0.00
50.00	0.00	437	67.64	0.00
52.00	0.00	437	67.64	0.00
54.00	0.00	437	67.64	0.00
56.00	0.00	437	67.64	0.00
58.00	0.00	437	67.64	0.00
60.00	0.00	437	67.64	0.00
62.00	0.00	437	67.64	0.00
64.00	0.00	437	67.64	0.00
66.00	0.00	437	67.64	0.00
68.00	0.00	436	67.64	0.00
70.00	0.00	436	67.64	0.00
72.00	0.00	436	67.64	0.00

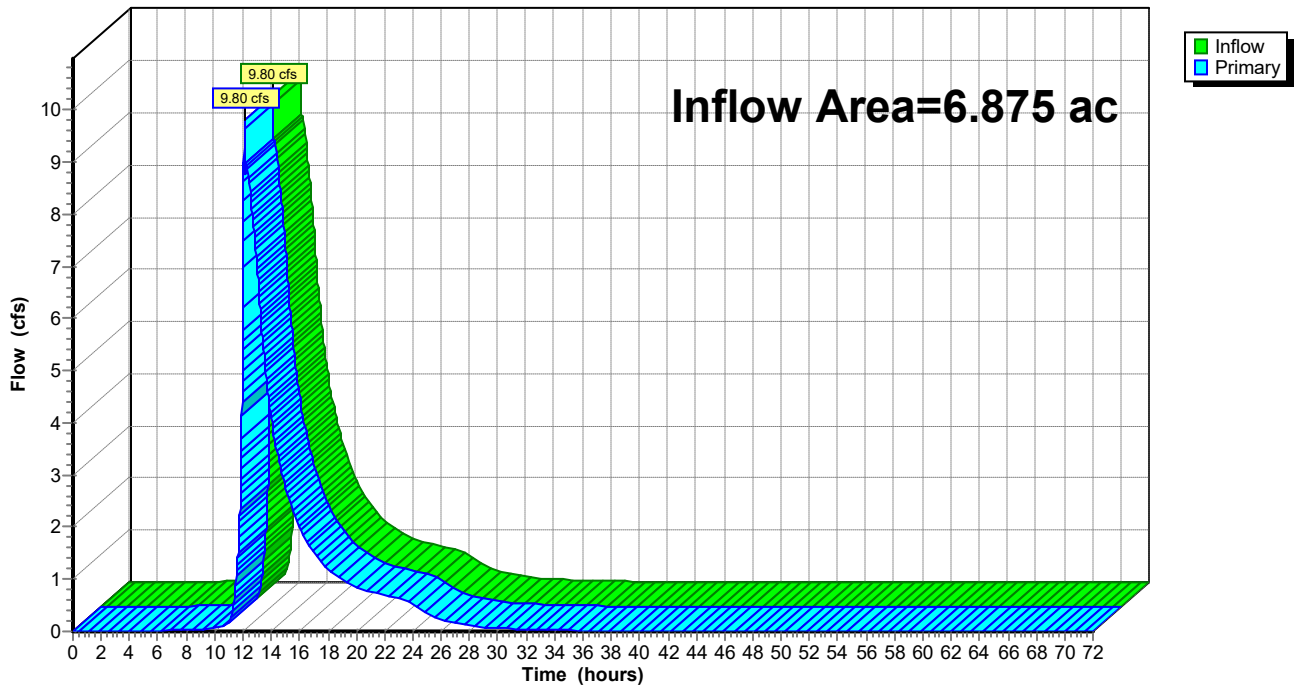
Summary for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.875 ac, 86.11% Impervious, Inflow Depth = 4.37" for 10-Year F event
Inflow = 9.80 cfs @ 12.10 hrs, Volume= 2.501 af
Primary = 9.80 cfs @ 12.10 hrs, Volume= 2.501 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



2024-04-26 Post-Development-POI 2

NOAA 24-hr C 10-Year F Rainfall=5.87"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.03		0.03	61.00	0.00		0.00
10.00	0.06		0.06	62.00	0.00		0.00
11.00	0.12		0.12	63.00	0.00		0.00
12.00	5.79		5.79	64.00	0.00		0.00
13.00	7.00		7.00	65.00	0.00		0.00
14.00	4.08		4.08	66.00	0.00		0.00
15.00	2.76		2.76	67.00	0.00		0.00
16.00	1.98		1.98	68.00	0.00		0.00
17.00	1.50		1.50	69.00	0.00		0.00
18.00	1.19		1.19	70.00	0.00		0.00
19.00	0.99		0.99	71.00	0.00		0.00
20.00	0.86		0.86	72.00	0.00		0.00
21.00	0.76		0.76				
22.00	0.69		0.69				
23.00	0.62		0.62				
24.00	0.57		0.57				
25.00	0.35		0.35				
26.00	0.23		0.23				
27.00	0.15		0.15				
28.00	0.11		0.11				
29.00	0.08		0.08				
30.00	0.06		0.06				
31.00	0.05		0.05				
32.00	0.04		0.04				
33.00	0.03		0.03				
34.00	0.02		0.02				
35.00	0.02		0.02				
36.00	0.01		0.01				
37.00	0.01		0.01				
38.00	0.01		0.01				
39.00	0.01		0.01				
40.00	0.01		0.01				
41.00	0.01		0.01				
42.00	0.01		0.01				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 3.04 cfs @ 12.09 hrs, Volume= 0.207 af, Depth= 5.92"

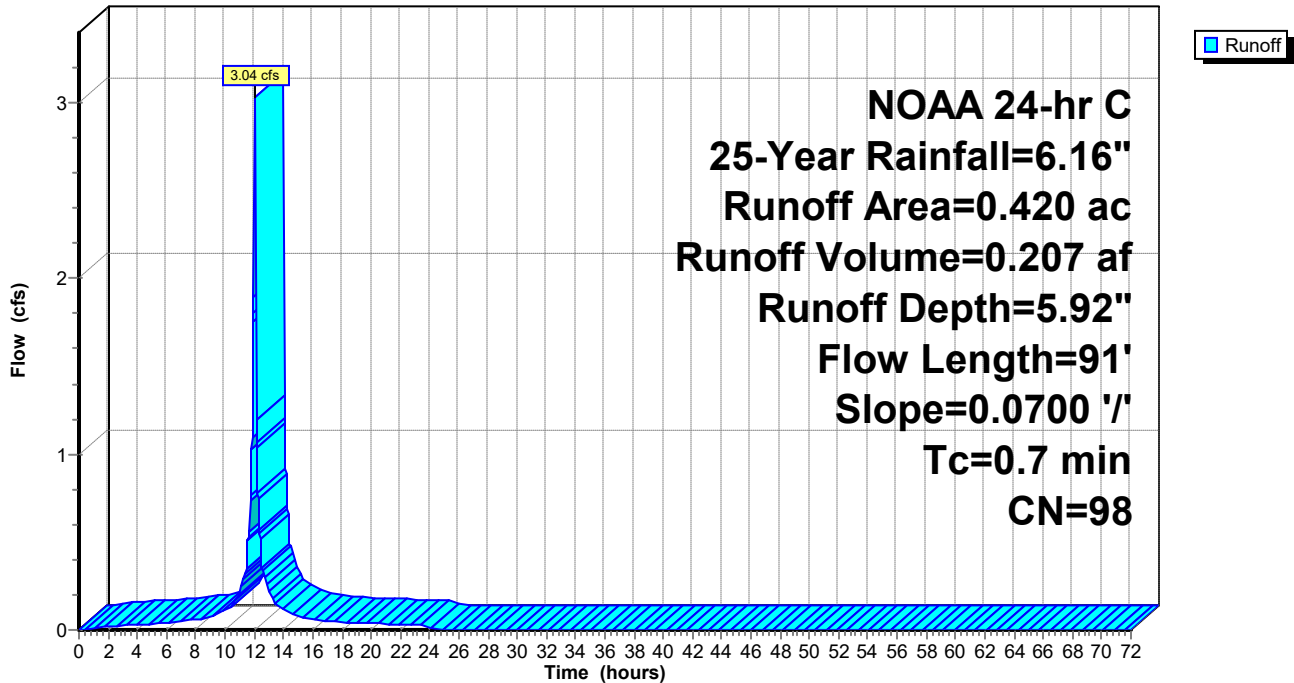
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG D
0.420	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	91	0.0700	2.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 1.09 cfs @ 12.09 hrs, Volume= 0.062 af, Depth= 3.93"

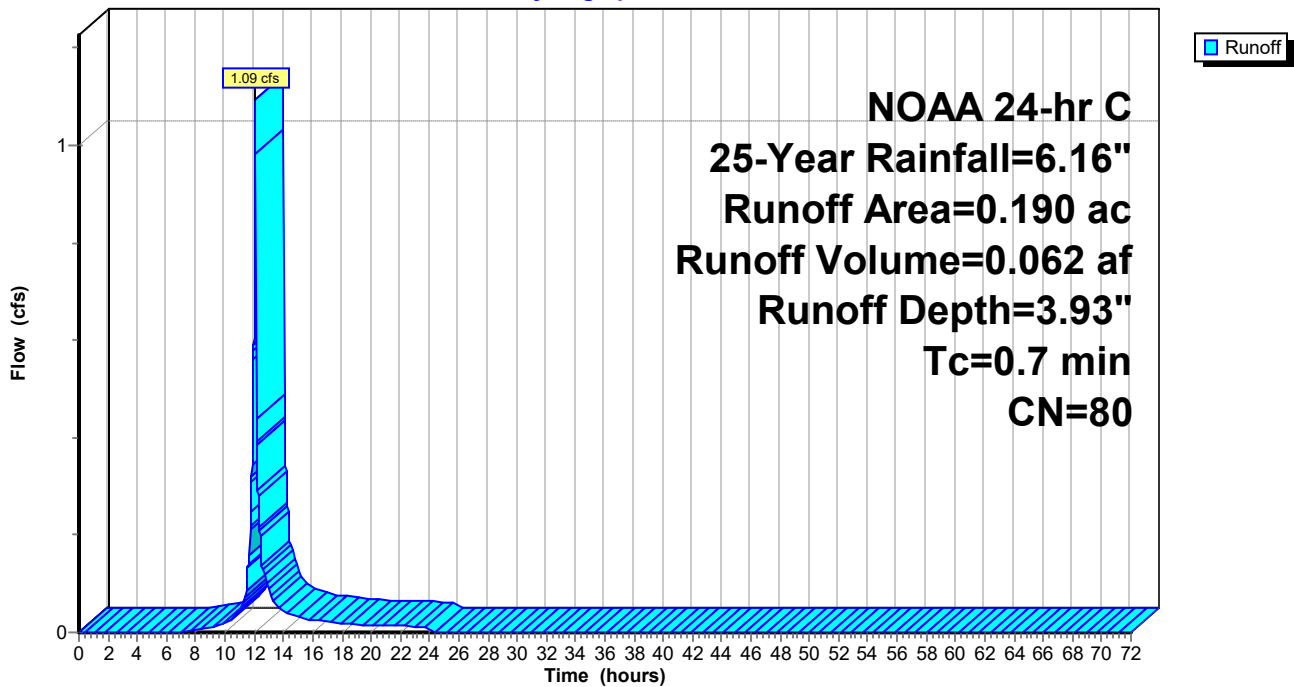
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.190	80	>75% Grass cover, Good, HSG D
0.190	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 4I: IMPERVIOUS

Runoff = 7.52 cfs @ 12.09 hrs, Volume= 0.513 af, Depth= 5.92"

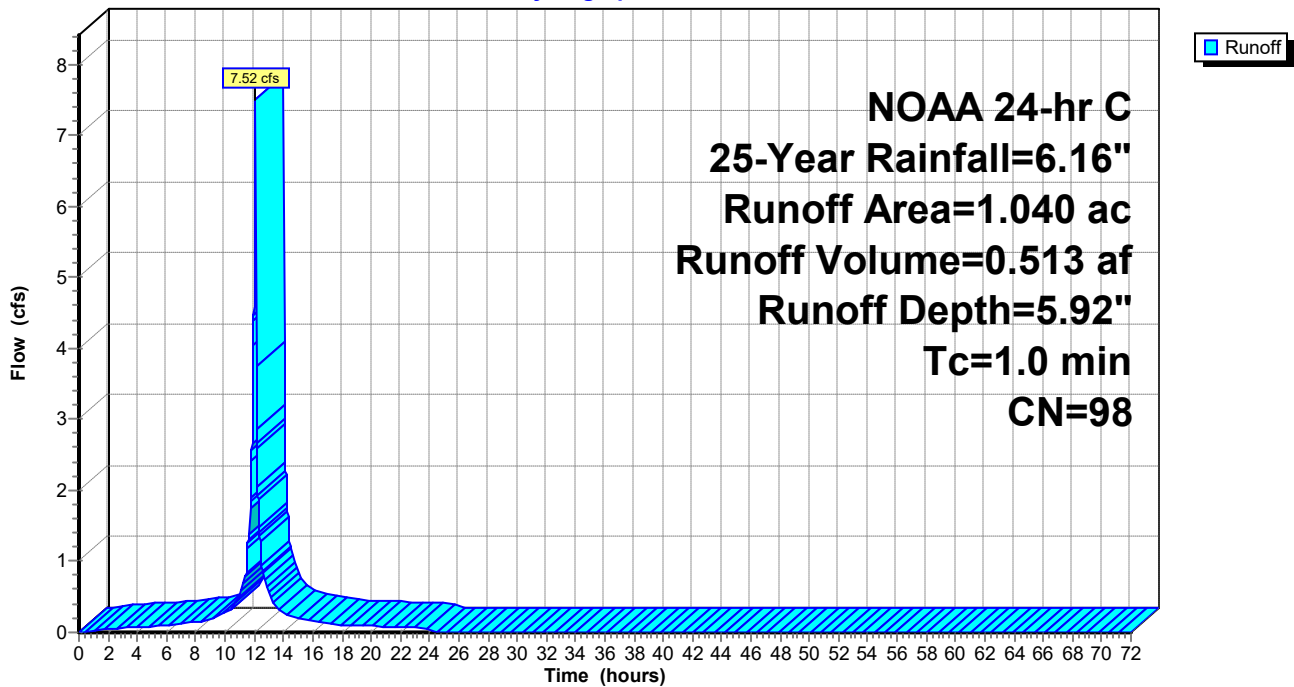
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG D
1.040	98	100.00% Impervious Area

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

Subcatchment 4I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 4P: BASIN PERVIOUS

Runoff = 4.91 cfs @ 12.09 hrs, Volume= 0.336 af, Depth= 5.92"

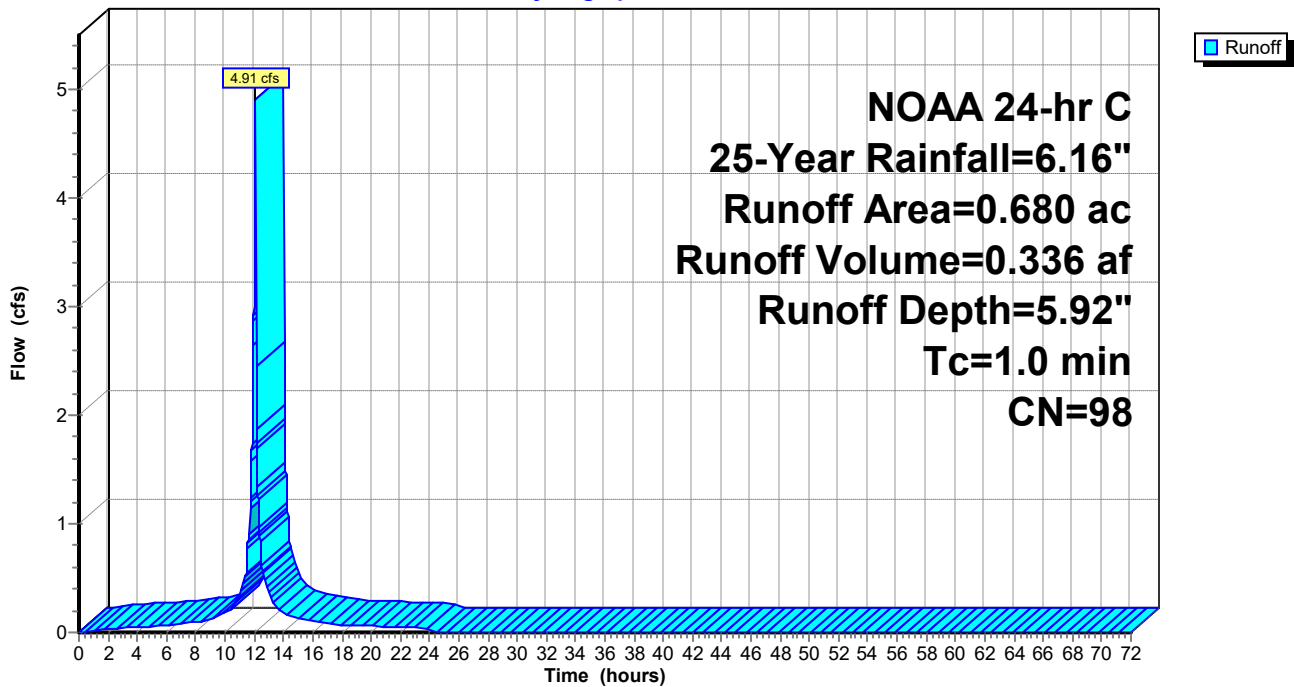
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.680	98	Paved parking, HSG D
0.680	98	100.00% Impervious Area

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

Subcatchment 4P: BASIN PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 7.01 cfs @ 12.09 hrs, Volume= 0.479 af, Depth= 5.92"

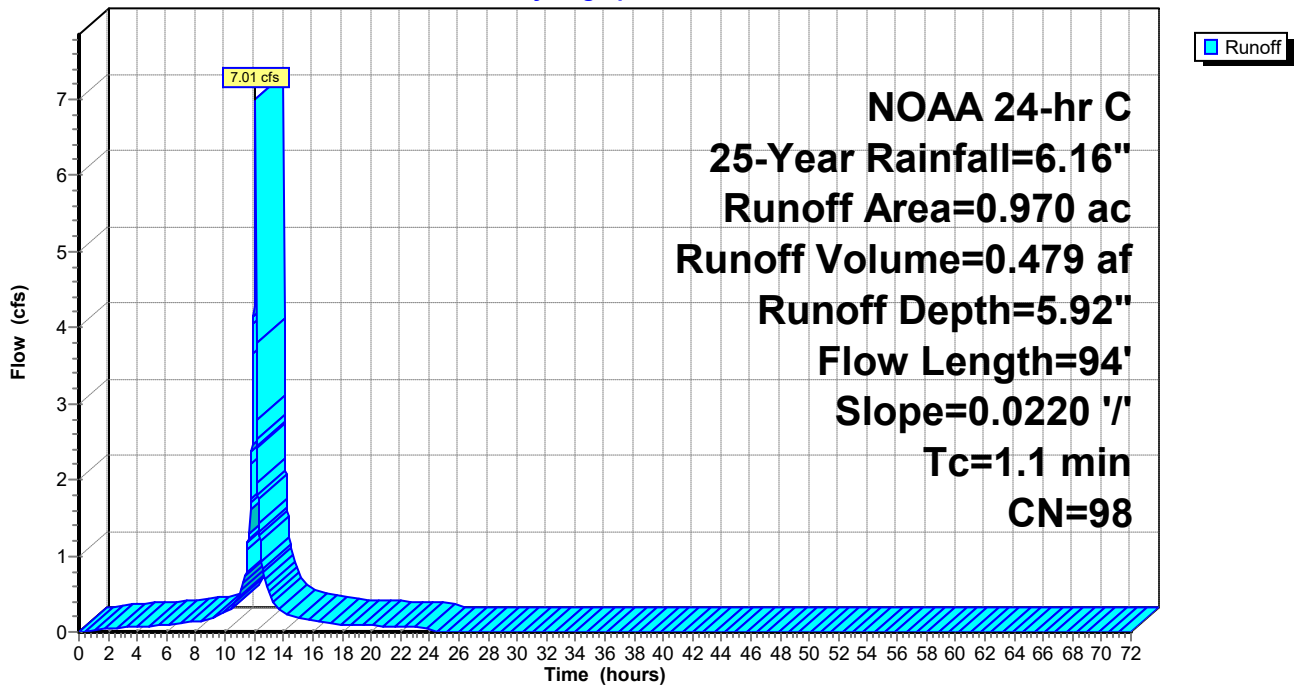
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.970	98	Paved parking, HSG D
0.970	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	94	0.0220	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 0.89 cfs @ 12.10 hrs, Volume= 0.051 af, Depth= 3.93"

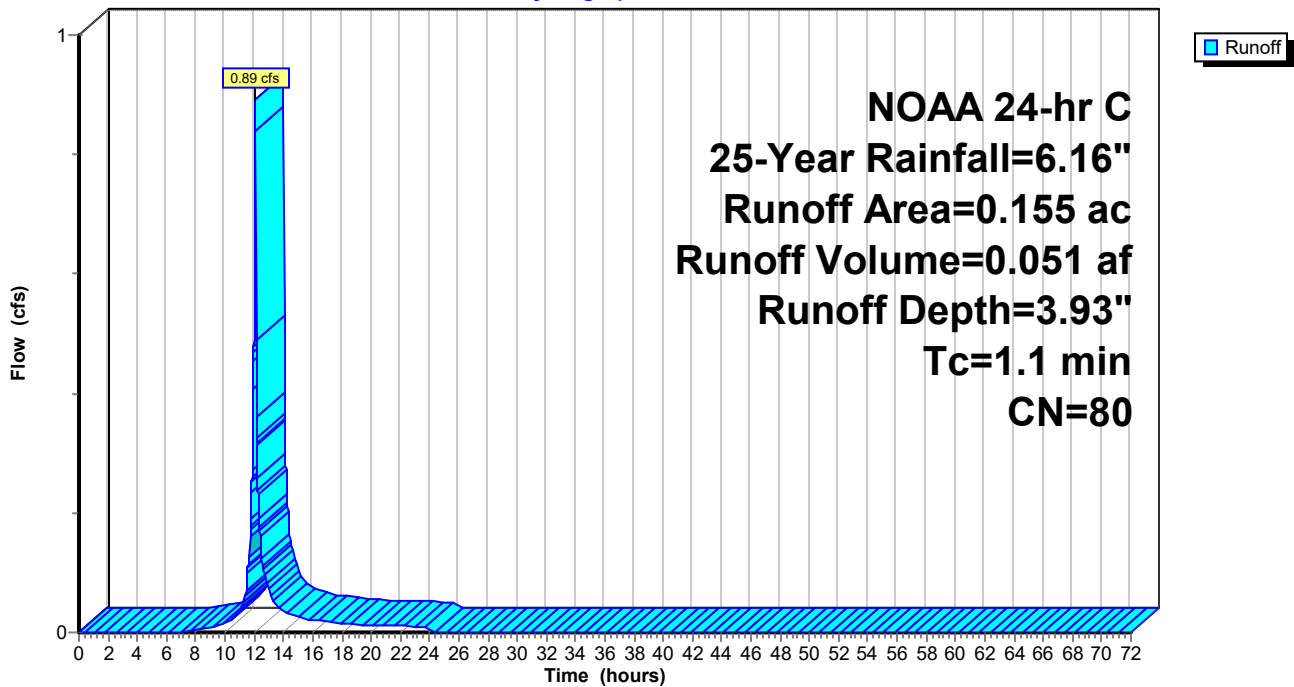
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.155	80	>75% Grass cover, Good, HSG D
0.155	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment 8I: IMPERVIOUS

Runoff = 1.73 cfs @ 12.09 hrs, Volume= 0.118 af, Depth= 5.92"

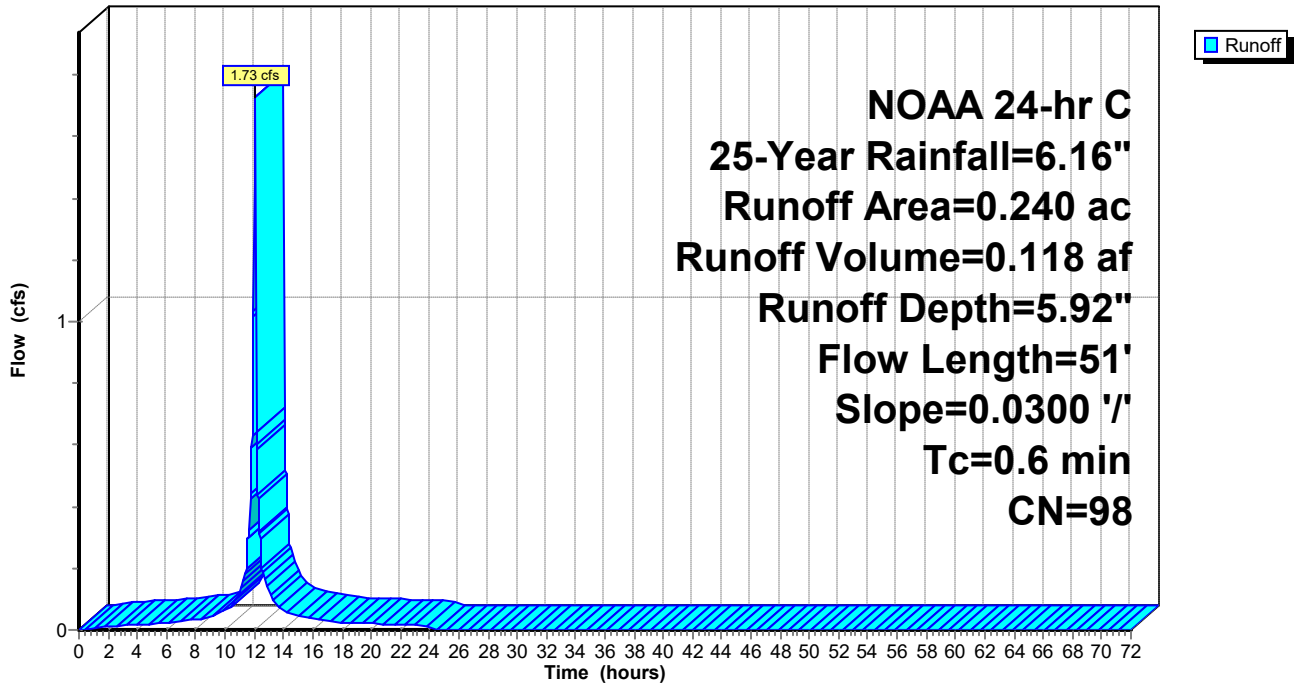
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0300	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 8I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9I: IMPERVIOUS

Runoff = 2.24 cfs @ 12.09 hrs, Volume= 0.153 af, Depth= 5.92"

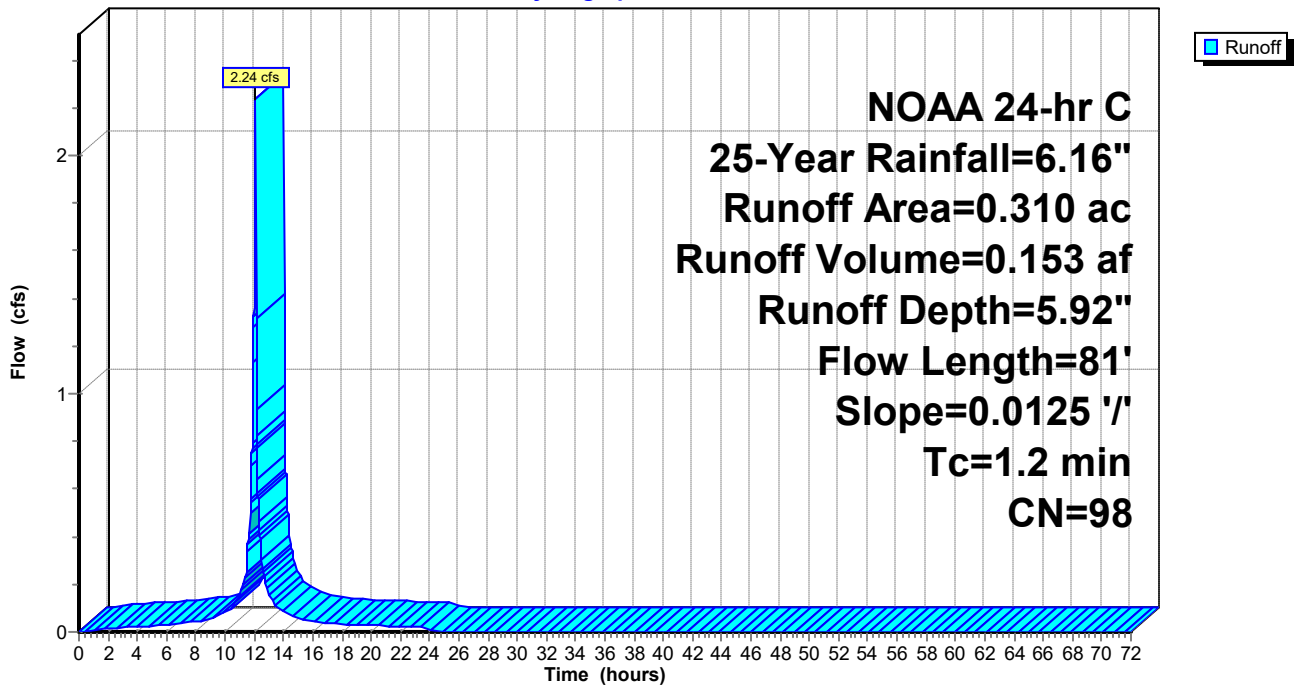
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG D
0.310	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	81	0.0125	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9P: PERVIOUS

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.013 af, Depth= 3.93"

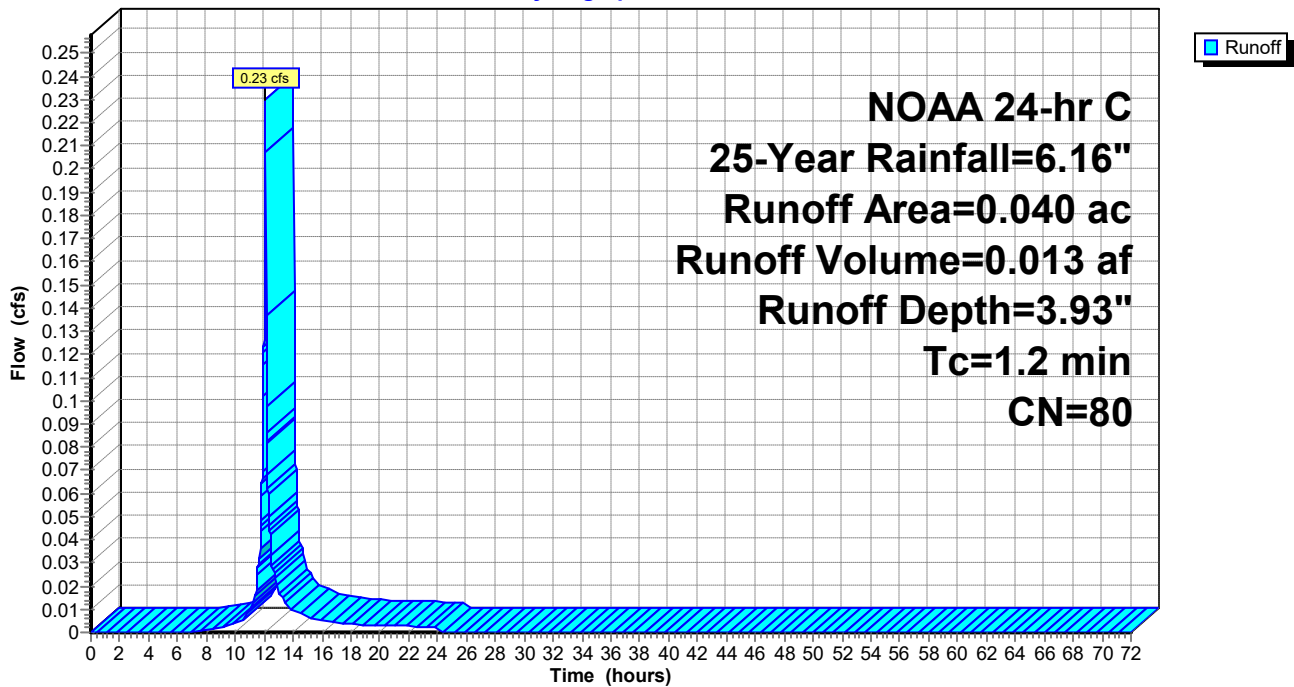
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.040	80	>75% Grass cover, Good, HSG D
0.040	80	100.00% Pervious Area

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

Subcatchment 9P: PERVIOUS

Hydrograph



Summary for Subcatchment 10I: IMPERVIOUS

Runoff = 4.62 cfs @ 12.09 hrs, Volume= 0.316 af, Depth= 5.92"

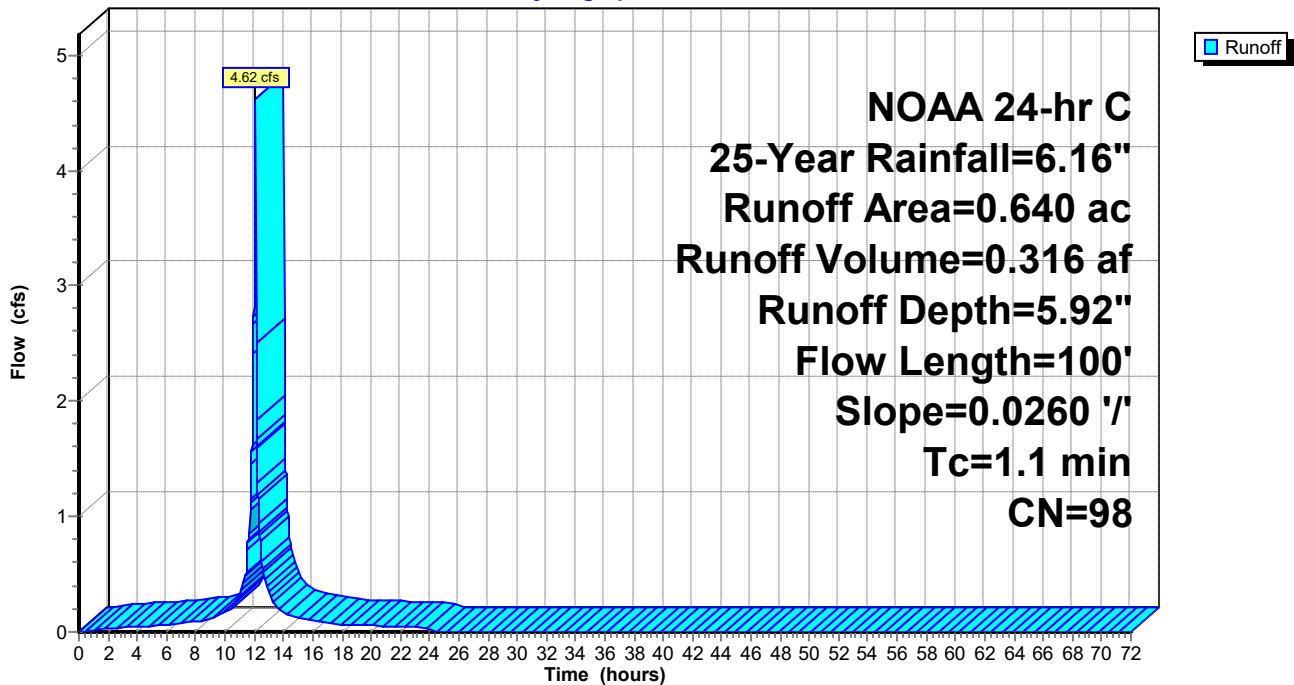
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.640	98	Paved parking, HSG D
0.640	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0260	1.57		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 10I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 10P: PERVIOUS

Runoff = 0.40 cfs @ 12.10 hrs, Volume= 0.023 af, Depth= 3.93"

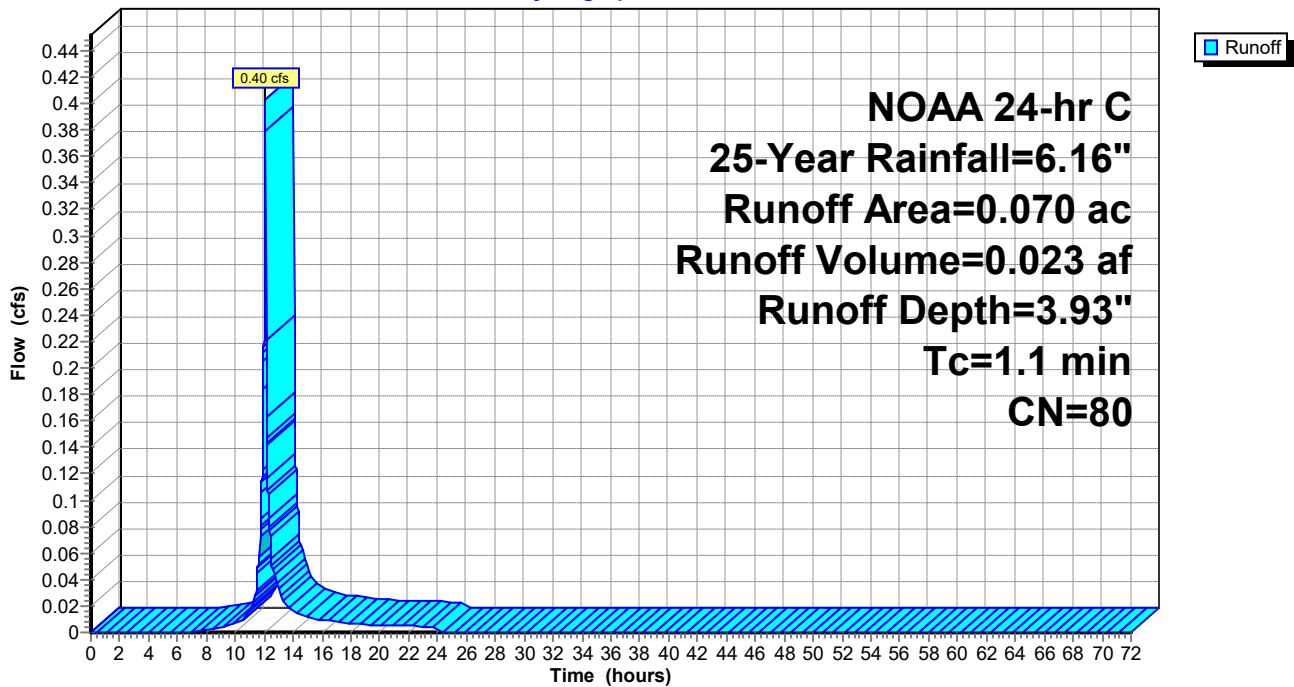
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.070	80	>75% Grass cover, Good, HSG D
0.070	80	100.00% Pervious Area

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

Subcatchment 10P: PERVIOUS

Hydrograph



Summary for Subcatchment I2: OFFSITE

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 0.074 af, Depth= 5.92"

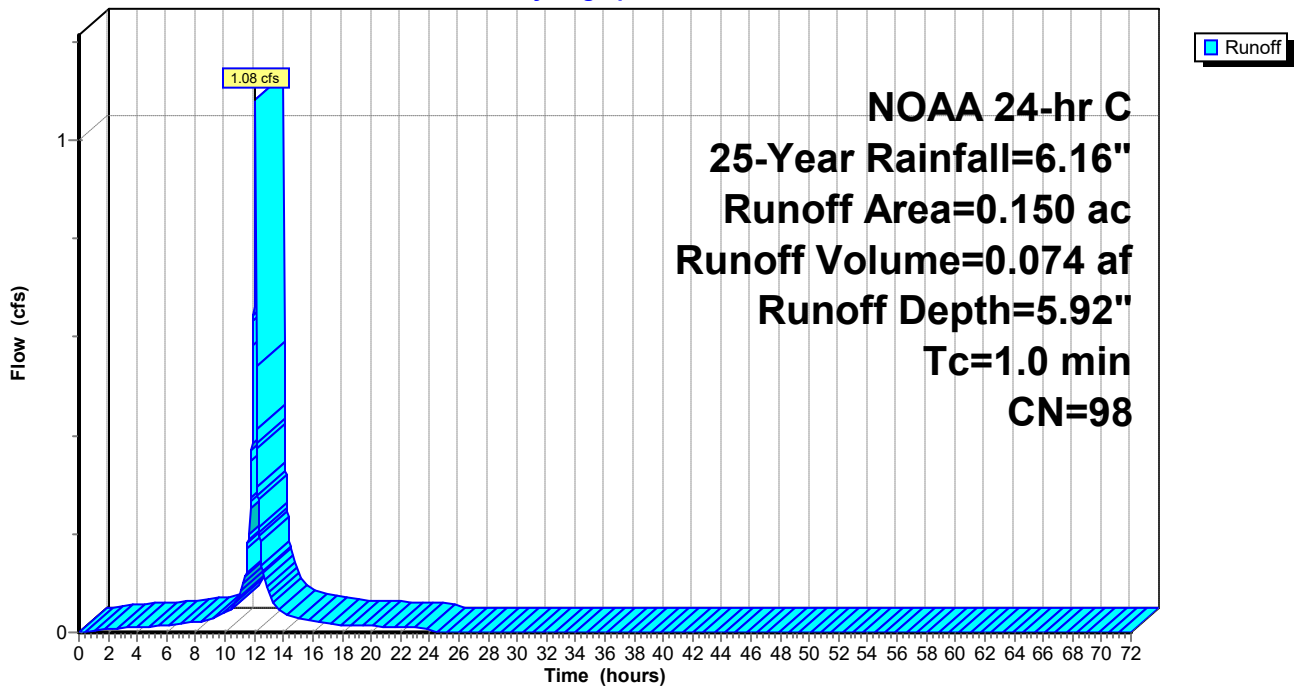
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG D
0.150	98	100.00% Impervious Area

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

Subcatchment I2: OFFSITE

Hydrograph



Summary for Subcatchment I3: IMPERVIOUS

Runoff = 10.62 cfs @ 12.09 hrs, Volume= 0.725 af, Depth= 5.92"

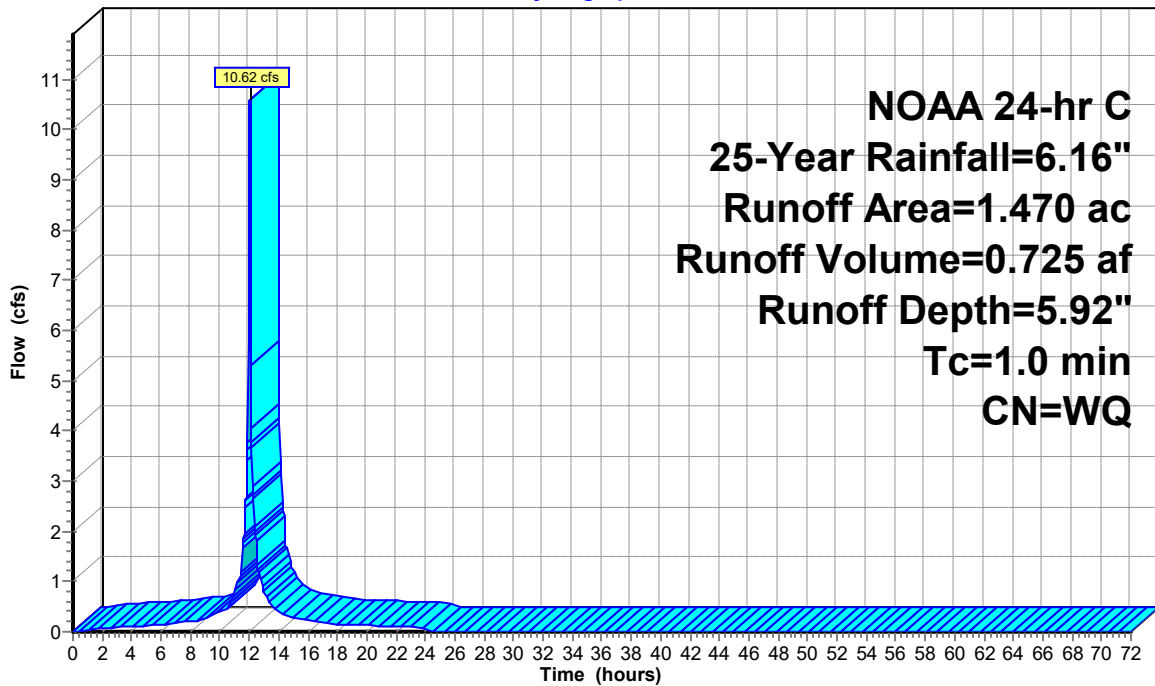
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
1.330	98	Unconnected roofs, HSG D
0.140	98	Unconnected pavement, HSG D
1.470		Weighted Average
1.470	98	100.00% Impervious Area
1.470		100.00% Unconnected

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

Subcatchment I3: IMPERVIOUS

Hydrograph



Summary for Subcatchment P2: OFFSITE

Runoff = 1.44 cfs @ 12.10 hrs, Volume= 0.082 af, Depth= 3.93"

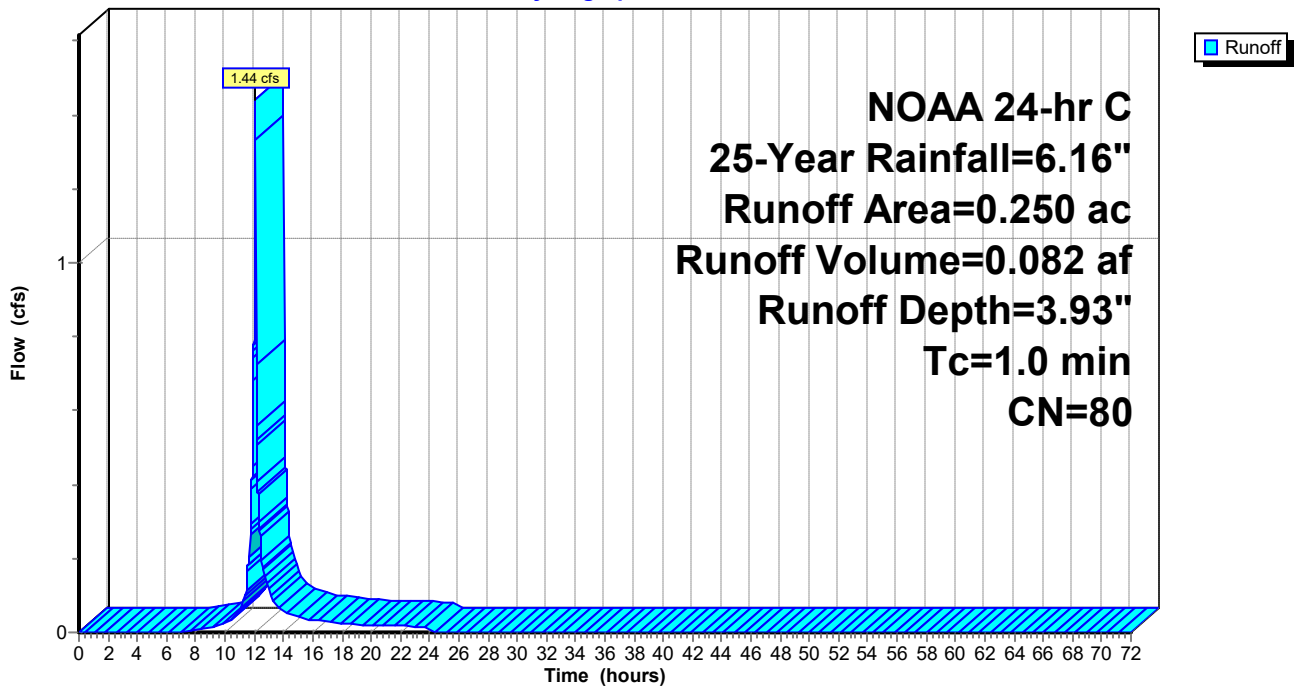
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P2: OFFSITE

Hydrograph



Summary for Subcatchment P3: PERVIOUS

Runoff = 1.44 cfs @ 12.10 hrs, Volume= 0.082 af, Depth= 3.93"

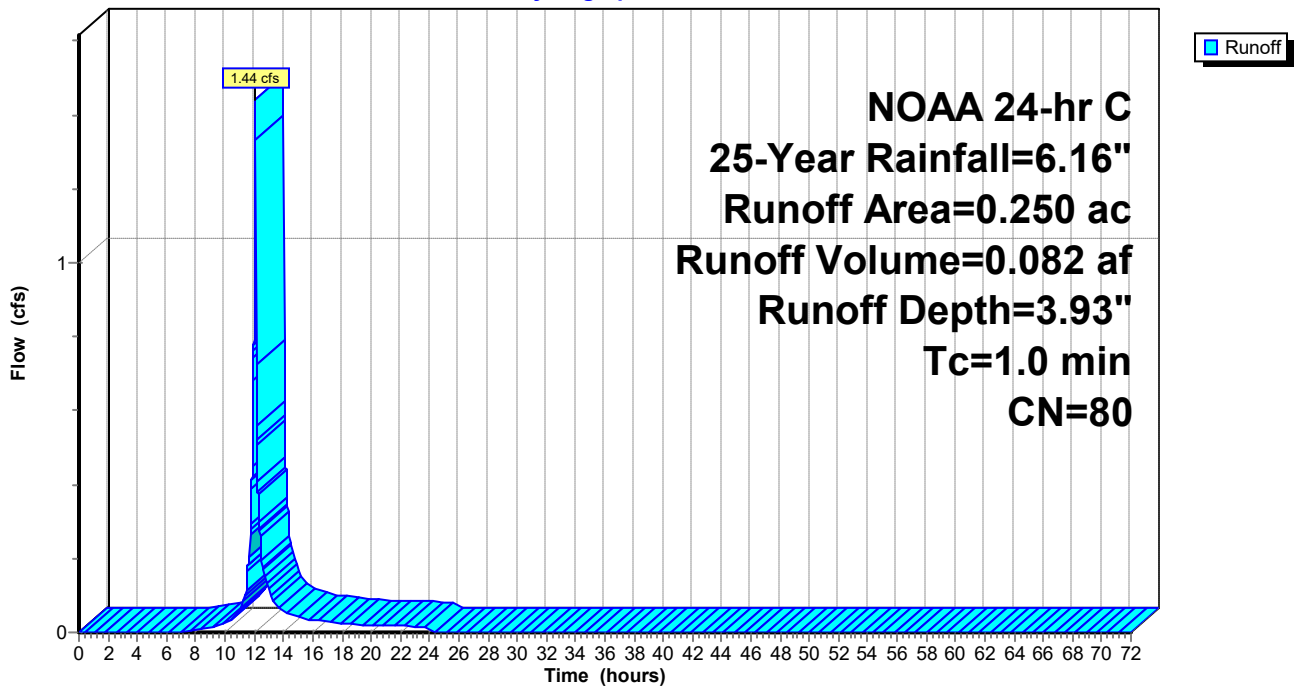
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 25-Year Rainfall=6.16"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P3: PERVIOUS

Hydrograph



Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 5.30" for 25-Year event
 Inflow = 4.13 cfs @ 12.09 hrs, Volume= 0.269 af
 Outflow = 4.10 cfs @ 12.10 hrs, Volume= 0.191 af, Atten= 1%, Lag= 0.6 min
 Primary = 4.10 cfs @ 12.10 hrs, Volume= 0.191 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.93' @ 12.10 hrs Surf.Area= 2,272 sf Storage= 3,814 cf

Plug-Flow detention time= 179.7 min calculated for 0.191 af (71% of inflow)
 Center-of-Mass det. time= 82.7 min (839.6 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	8,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	432	0	0
69.50	686	280	280
70.50	1,294	990	1,270
71.50	1,963	1,629	2,898
72.50	2,677	2,320	5,218
73.50	3,448	3,063	8,281

Device	Routing	Invert	Outlet Devices
#1	Primary	67.49'	24.0" Round Culvert L= 165.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.49' / 67.00' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	73.50'	50.0' 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

Primary OutFlow Max=4.09 cfs @ 12.10 hrs HW=71.93' (Free Discharge)

↑1=Culvert (Passes 4.09 cfs of 22.89 cfs potential flow)

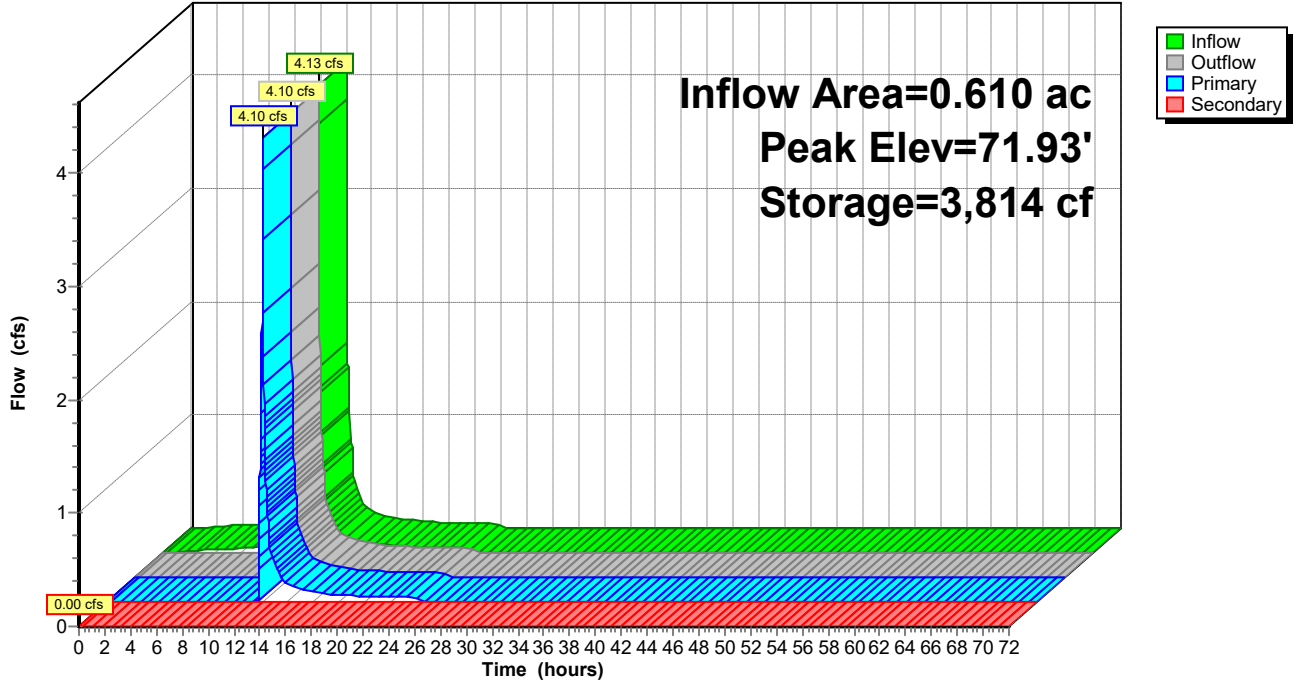
↑2=Orifice/Grate (Weir Controls 4.09 cfs @ 1.40 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph



Hydrograph for Pond B2: SMALL-SCALE BIORETENTION 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	69.00	0.00	0.00	0.00
2.00	0.02	48	69.10	0.00	0.00	0.00
4.00	0.03	222	69.41	0.00	0.00	0.00
6.00	0.04	467	69.75	0.00	0.00	0.00
8.00	0.06	834	70.13	0.00	0.00	0.00
10.00	0.13	1,469	70.65	0.00	0.00	0.00
12.00	2.44	3,690	71.88	2.39	2.39	0.00
14.00	0.16	3,445	71.77	0.16	0.16	0.00
16.00	0.09	3,430	71.76	0.09	0.09	0.00
18.00	0.06	3,424	71.76	0.06	0.06	0.00
20.00	0.05	3,422	71.75	0.05	0.05	0.00
22.00	0.04	3,420	71.75	0.04	0.04	0.00
24.00	0.05	3,420	71.75	0.05	0.05	0.00
26.00	0.00	3,411	71.75	0.00	0.00	0.00
28.00	0.00	3,411	71.75	0.00	0.00	0.00
30.00	0.00	3,411	71.75	0.00	0.00	0.00
32.00	0.00	3,411	71.75	0.00	0.00	0.00
34.00	0.00	3,411	71.75	0.00	0.00	0.00
36.00	0.00	3,411	71.75	0.00	0.00	0.00
38.00	0.00	3,411	71.75	0.00	0.00	0.00
40.00	0.00	3,411	71.75	0.00	0.00	0.00
42.00	0.00	3,411	71.75	0.00	0.00	0.00
44.00	0.00	3,411	71.75	0.00	0.00	0.00
46.00	0.00	3,411	71.75	0.00	0.00	0.00
48.00	0.00	3,411	71.75	0.00	0.00	0.00
50.00	0.00	3,411	71.75	0.00	0.00	0.00
52.00	0.00	3,411	71.75	0.00	0.00	0.00
54.00	0.00	3,411	71.75	0.00	0.00	0.00
56.00	0.00	3,411	71.75	0.00	0.00	0.00
58.00	0.00	3,411	71.75	0.00	0.00	0.00
60.00	0.00	3,411	71.75	0.00	0.00	0.00
62.00	0.00	3,411	71.75	0.00	0.00	0.00
64.00	0.00	3,411	71.75	0.00	0.00	0.00
66.00	0.00	3,411	71.75	0.00	0.00	0.00
68.00	0.00	3,411	71.75	0.00	0.00	0.00
70.00	0.00	3,411	71.75	0.00	0.00	0.00
72.00	0.00	3,411	71.75	0.00	0.00	0.00

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 5.45" for 25-Year event
 Inflow = 30.91 cfs @ 12.10 hrs, Volume= 2.939 af
 Outflow = 8.76 cfs @ 12.32 hrs, Volume= 2.509 af, Atten= 72%, Lag= 13.0 min
 Primary = 8.76 cfs @ 12.32 hrs, Volume= 2.509 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.30' @ 12.32 hrs Surf.Area= 22,443 sf Storage= 47,770 cf

Plug-Flow detention time= 207.6 min calculated for 2.509 af (85% of inflow)
 Center-of-Mass det. time= 131.9 min (939.5 - 807.6)

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.95'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Device 1	69.40'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	70.08'	50.0' 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

Primary OutFlow Max=8.76 cfs @ 12.32 hrs HW=69.30' (Free Discharge)

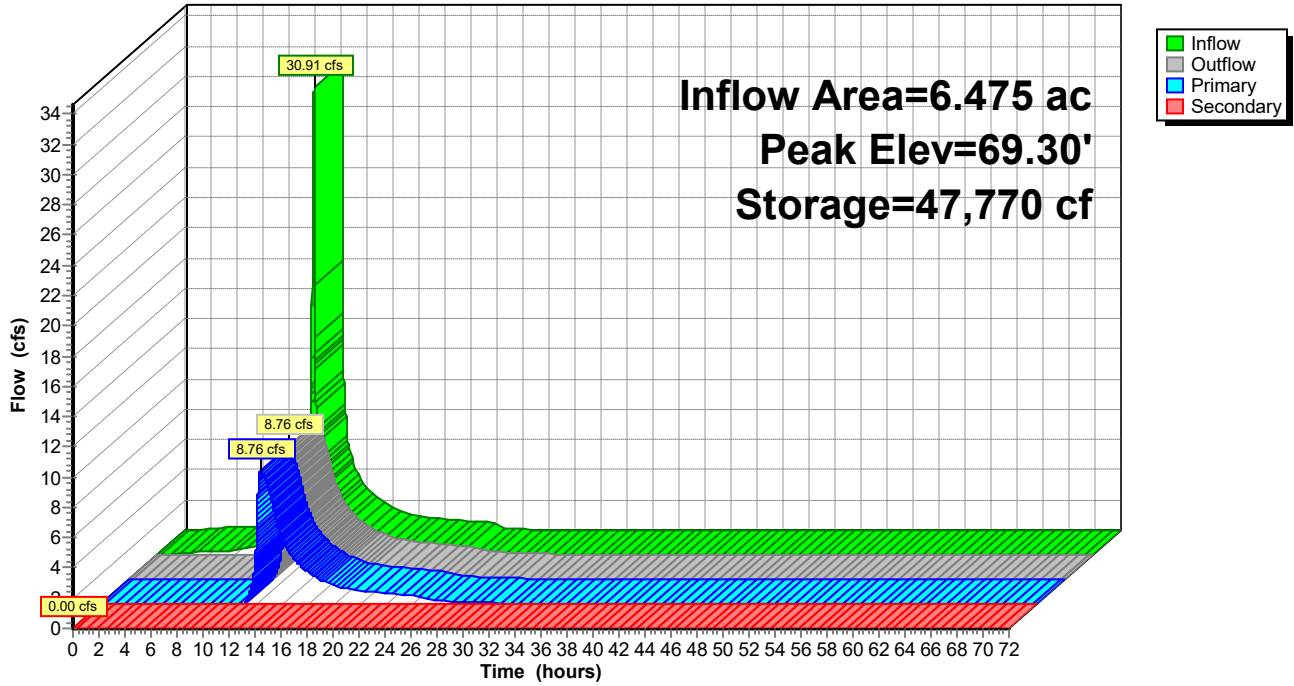
- ↑ 1=Culvert (Passes 8.76 cfs of 26.26 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 8.76 cfs @ 4.38 fps)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

- ↑ 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	67.00	0.00	0.00	0.00
2.00	0.13	364	67.02	0.00	0.00	0.00
4.00	0.23	1,680	67.09	0.00	0.00	0.00
6.00	0.29	3,543	67.19	0.00	0.00	0.00
8.00	0.64	6,771	67.35	0.00	0.00	0.00
10.00	1.28	13,265	67.68	0.00	0.00	0.00
12.00	18.90	36,602	68.80	5.01	5.01	0.00
14.00	2.81	34,582	68.70	4.21	4.21	0.00
16.00	1.48	28,390	68.41	2.04	2.04	0.00
18.00	0.93	25,544	68.28	1.22	1.22	0.00
20.00	0.74	24,149	68.21	0.87	0.87	0.00
22.00	0.61	23,407	68.18	0.70	0.70	0.00
24.00	0.55	22,820	68.15	0.57	0.57	0.00
26.00	0.06	21,012	68.06	0.24	0.24	0.00
28.00	0.02	20,084	68.02	0.11	0.11	0.00
30.00	0.01	19,616	67.99	0.06	0.06	0.00
32.00	0.01	19,328	67.98	0.04	0.04	0.00
34.00	0.00	19,145	67.97	0.02	0.02	0.00
36.00	0.00	19,033	67.97	0.02	0.02	0.00
38.00	0.00	18,963	67.96	0.01	0.01	0.00
40.00	0.00	18,920	67.96	0.01	0.01	0.00
42.00	0.00	18,888	67.96	0.01	0.01	0.00
44.00	0.00	18,859	67.96	0.00	0.00	0.00
46.00	0.00	18,835	67.96	0.00	0.00	0.00
48.00	0.00	18,815	67.95	0.00	0.00	0.00
50.00	0.00	18,797	67.95	0.00	0.00	0.00
52.00	0.00	18,783	67.95	0.00	0.00	0.00
54.00	0.00	18,771	67.95	0.00	0.00	0.00
56.00	0.00	18,761	67.95	0.00	0.00	0.00
58.00	0.00	18,752	67.95	0.00	0.00	0.00
60.00	0.00	18,745	67.95	0.00	0.00	0.00
62.00	0.00	18,740	67.95	0.00	0.00	0.00
64.00	0.00	18,735	67.95	0.00	0.00	0.00
66.00	0.00	18,731	67.95	0.00	0.00	0.00
68.00	0.00	18,728	67.95	0.00	0.00	0.00
70.00	0.00	18,726	67.95	0.00	0.00	0.00
72.00	0.00	18,724	67.95	0.00	0.00	0.00

Summary for Pond P10: Porous Pavement 10

Inflow Area = 0.710 ac, 90.14% Impervious, Inflow Depth = 5.72" for 25-Year event
 Inflow = 5.03 cfs @ 12.09 hrs, Volume= 0.339 af
 Outflow = 0.37 cfs @ 13.01 hrs, Volume= 0.322 af, Atten= 93%, Lag= 55.4 min
 Primary = 0.37 cfs @ 13.01 hrs, Volume= 0.322 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.25' @ 13.01 hrs Surf.Area= 9,090 sf Storage= 7,987 cf

Plug-Flow detention time= 295.5 min calculated for 0.322 af (95% of inflow)
 Center-of-Mass det. time= 265.4 min (1,011.1 - 745.7)

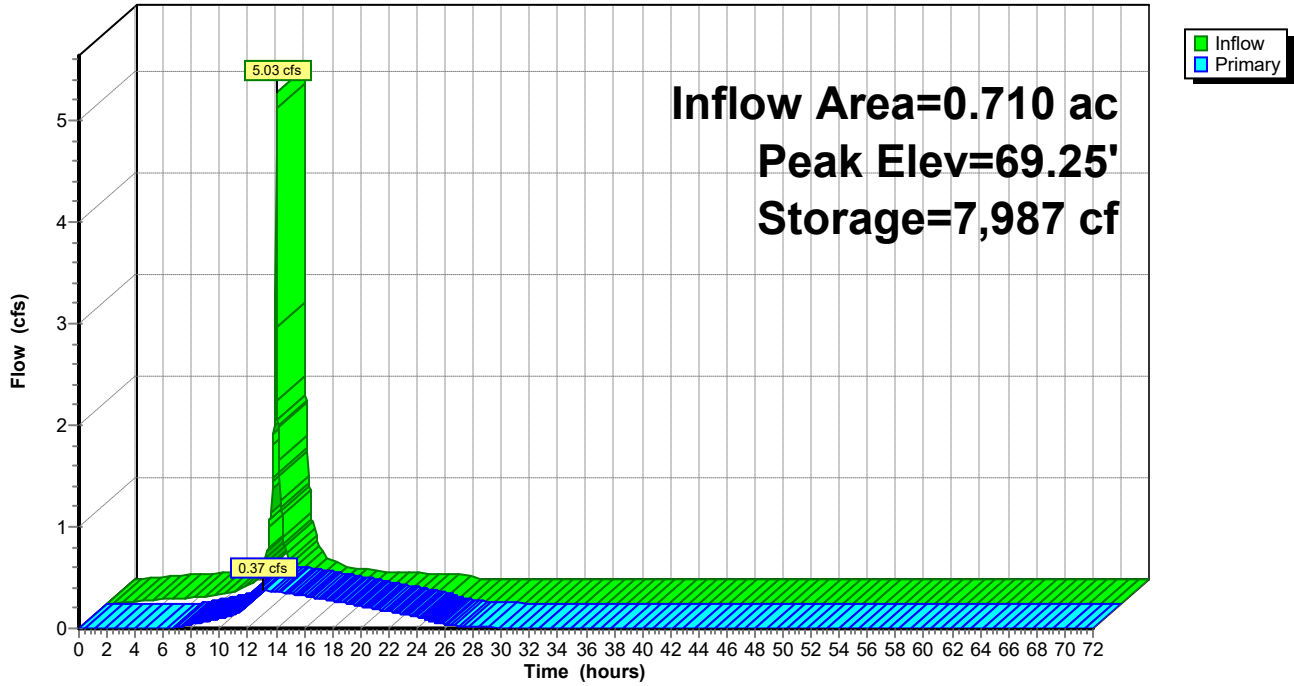
Volume	Invert	Avail.Storage	Storage Description
#1	67.61'	9,763 cf	18.00'W x 505.00'L x 4.00'H Prismatic 36,360 cf Overall - 6,776 cf Embedded = 29,584 cf x 33.0% Voids
#2	67.86'	6,346 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 505.0' 6,776 cf Overall - 0.4" Wall Thickness = 6,346 cf
		16,109 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.61'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.61' / 67.53' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	67.86'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	70.50'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.37 cfs @ 13.01 hrs HW=69.25' (Free Discharge)
 1=Culvert (Passes 0.37 cfs of 4.83 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.37 cfs @ 5.46 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P10: Porous Pavement 10

Hydrograph



2024-04-26 Post-Development-POI 2

NOAA 24-hr C 25-Year Rainfall=6.16"

Prepared by HP Inc.

Printed 4/23/2024

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Hydrograph for Pond P10: Porous Pavement 10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.61	0.00
2.00	0.03	73	67.63	0.00
4.00	0.05	337	67.72	0.00
6.00	0.06	710	67.85	0.00
8.00	0.09	1,143	67.97	0.04
10.00	0.17	1,529	68.06	0.10
12.00	2.99	4,704	68.67	0.27
14.00	0.19	7,575	69.18	0.36
16.00	0.11	6,101	68.91	0.32
18.00	0.07	4,608	68.65	0.27
20.00	0.06	3,316	68.41	0.22
22.00	0.05	2,335	68.22	0.17
24.00	0.06	1,673	68.09	0.12
26.00	0.00	1,140	67.97	0.04
28.00	0.00	960	67.92	0.02
30.00	0.00	880	67.90	0.01
32.00	0.00	841	67.89	0.00
34.00	0.00	818	67.88	0.00
36.00	0.00	801	67.88	0.00
38.00	0.00	787	67.87	0.00
40.00	0.00	777	67.87	0.00
42.00	0.00	769	67.87	0.00
44.00	0.00	763	67.87	0.00
46.00	0.00	758	67.86	0.00
48.00	0.00	754	67.86	0.00
50.00	0.00	751	67.86	0.00
52.00	0.00	749	67.86	0.00
54.00	0.00	748	67.86	0.00
56.00	0.00	746	67.86	0.00
58.00	0.00	745	67.86	0.00
60.00	0.00	745	67.86	0.00
62.00	0.00	744	67.86	0.00
64.00	0.00	744	67.86	0.00
66.00	0.00	743	67.86	0.00
68.00	0.00	743	67.86	0.00
70.00	0.00	743	67.86	0.00
72.00	0.00	743	67.86	0.00

Summary for Pond P5: Porous Pavement 5

Inflow Area = 1.125 ac, 86.22% Impervious, Inflow Depth = 5.65" for 25-Year event
 Inflow = 7.90 cfs @ 12.09 hrs, Volume= 0.529 af
 Outflow = 1.35 cfs @ 12.50 hrs, Volume= 0.501 af, Atten= 83%, Lag= 24.6 min
 Primary = 1.35 cfs @ 12.50 hrs, Volume= 0.501 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.56' @ 12.50 hrs Surf.Area= 14,886 sf Storage= 8,990 cf

Plug-Flow detention time= 131.7 min calculated for 0.501 af (95% of inflow)
 Center-of-Mass det. time= 100.4 min (848.1 - 747.7)

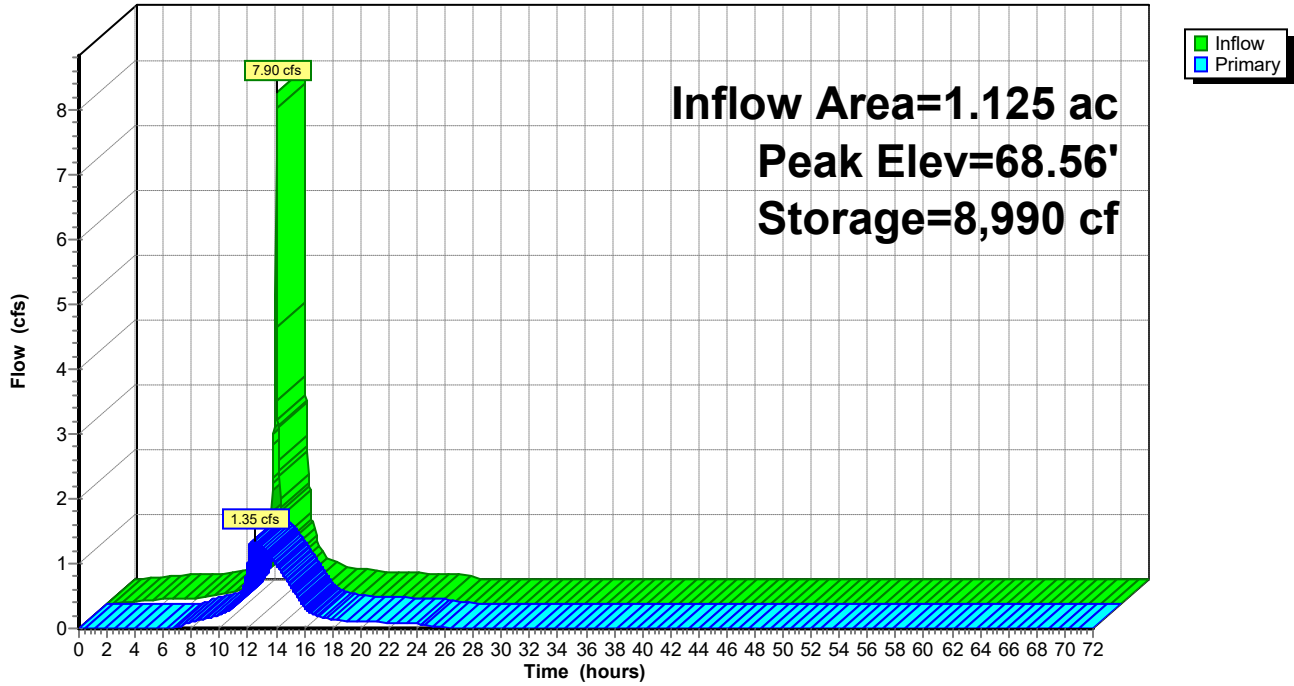
Volume	Invert	Avail.Storage	Storage Description
#1	67.37'	13,040 cf	18.00'W x 827.00'L x 3.40'H Prismatic 50,612 cf Overall - 11,097 cf Embedded = 39,516 cf x 33.0% Voids
#2	67.62'	10,392 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 827.0' 11,097 cf Overall - 0.4" Wall Thickness = 10,392 cf
		23,433 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.37'	24.0" Round Culvert L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.37' / 67.19' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.62'	2.5" Vert. Orifice/Grate X 9.00 C= 0.600
#3	Device 1	69.88'	8.0" W x 6.0" H Vert. Orifice/Grate X 7.00 C= 0.600

Primary OutFlow Max=1.35 cfs @ 12.50 hrs HW=68.56' (Free Discharge)
 ↑ **1=Culvert** (Passes 1.35 cfs of 4.96 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 1.35 cfs @ 4.41 fps)
 ↑ **3=Orifice/Grate** (Controls 0.00 cfs)

Pond P5: Porous Pavement 5

Hydrograph



Hydrograph for Pond P5: Porous Pavement 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.37	0.00
2.00	0.04	110	67.39	0.00
4.00	0.07	511	67.47	0.00
6.00	0.09	1,076	67.59	0.00
8.00	0.14	1,653	67.70	0.10
10.00	0.27	1,944	67.74	0.21
12.00	4.69	5,552	68.19	1.00
14.00	0.31	5,395	68.17	0.99
16.00	0.17	2,207	67.78	0.33
18.00	0.11	1,763	67.71	0.14
20.00	0.10	1,676	67.70	0.10
22.00	0.08	1,633	67.69	0.09
24.00	0.09	1,598	67.69	0.08
26.00	0.00	1,352	67.65	0.01
28.00	0.00	1,292	67.63	0.01
30.00	0.00	1,260	67.63	0.00
32.00	0.00	1,241	67.62	0.00
34.00	0.00	1,230	67.62	0.00
36.00	0.00	1,224	67.62	0.00
38.00	0.00	1,220	67.62	0.00
40.00	0.00	1,218	67.62	0.00
42.00	0.00	1,217	67.62	0.00
44.00	0.00	1,216	67.62	0.00
46.00	0.00	1,216	67.62	0.00
48.00	0.00	1,216	67.62	0.00
50.00	0.00	1,216	67.62	0.00
52.00	0.00	1,216	67.62	0.00
54.00	0.00	1,215	67.62	0.00
56.00	0.00	1,215	67.62	0.00
58.00	0.00	1,215	67.62	0.00
60.00	0.00	1,215	67.62	0.00
62.00	0.00	1,215	67.62	0.00
64.00	0.00	1,215	67.62	0.00
66.00	0.00	1,215	67.62	0.00
68.00	0.00	1,215	67.62	0.00
70.00	0.00	1,215	67.62	0.00
72.00	0.00	1,215	67.62	0.00

Summary for Pond P8: Porous Pavement 8

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth = 5.92" for 25-Year event
 Inflow = 1.73 cfs @ 12.09 hrs, Volume= 0.118 af
 Outflow = 0.52 cfs @ 12.21 hrs, Volume= 0.113 af, Atten= 70%, Lag= 7.1 min
 Primary = 0.52 cfs @ 12.21 hrs, Volume= 0.113 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.38' @ 12.21 hrs Surf.Area= 3,078 sf Storage= 1,462 cf

Plug-Flow detention time= 88.9 min calculated for 0.113 af (95% of inflow)
 Center-of-Mass det. time= 59.3 min (799.8 - 740.5)

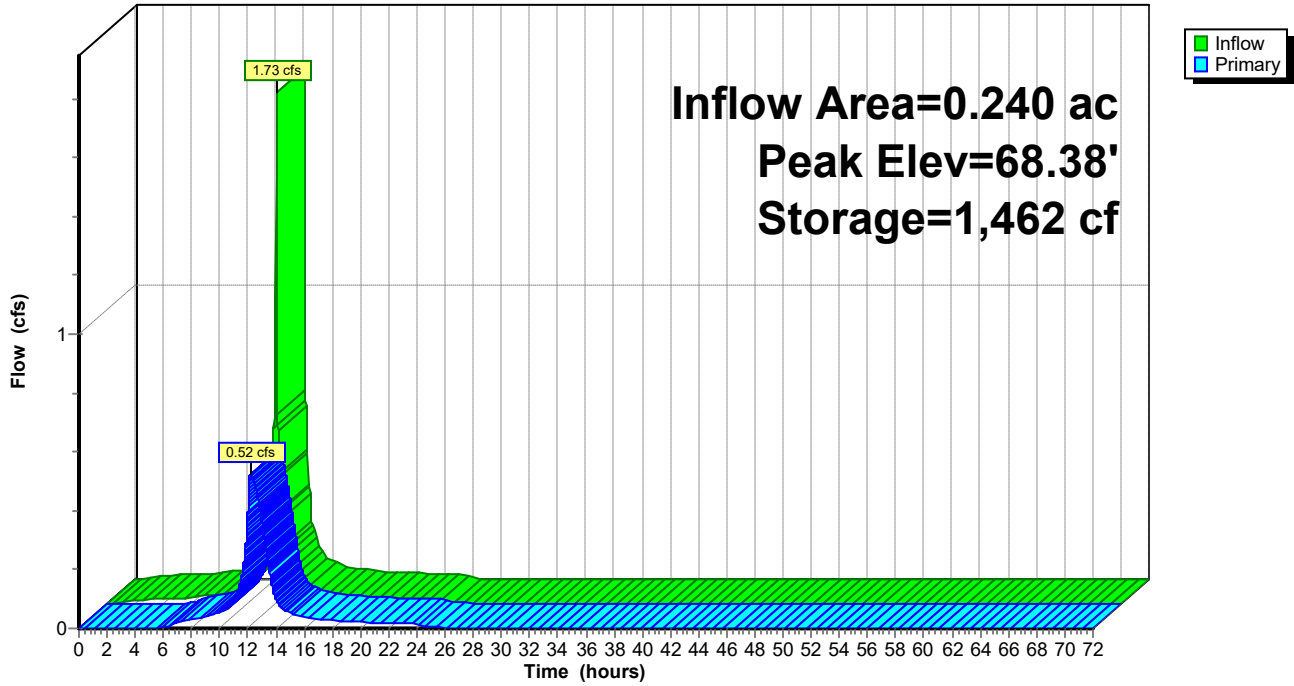
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	3,306 cf	18.00'W x 171.00'L x 4.00'H Prismatic 12,312 cf Overall - 2,294 cf Embedded = 10,018 cf x 33.0% Voids
#2	67.64'	2,149 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 171.0' 2,294 cf Overall - 0.4" Wall Thickness = 2,149 cf
		5,455 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.24' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	70.13'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.52 cfs @ 12.21 hrs HW=68.38' (Free Discharge)
 1=Culvert (Passes 0.52 cfs of 4.06 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.52 cfs @ 3.83 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P8: Porous Pavement 8

Hydrograph



Hydrograph for Pond P8: Porous Pavement 8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.01	28	67.42	0.00
4.00	0.02	127	67.51	0.00
6.00	0.02	266	67.65	0.00
8.00	0.03	325	67.70	0.03
10.00	0.06	358	67.73	0.06
12.00	1.05	954	68.10	0.39
14.00	0.07	402	67.76	0.09
16.00	0.04	337	67.71	0.04
18.00	0.02	319	67.70	0.03
20.00	0.02	310	67.69	0.02
22.00	0.02	304	67.69	0.02
24.00	0.02	300	67.68	0.02
26.00	0.00	261	67.65	0.00
28.00	0.00	253	67.64	0.00
30.00	0.00	252	67.64	0.00
32.00	0.00	251	67.64	0.00
34.00	0.00	251	67.64	0.00
36.00	0.00	251	67.64	0.00
38.00	0.00	251	67.64	0.00
40.00	0.00	251	67.64	0.00
42.00	0.00	251	67.64	0.00
44.00	0.00	251	67.64	0.00
46.00	0.00	251	67.64	0.00
48.00	0.00	251	67.64	0.00
50.00	0.00	251	67.64	0.00
52.00	0.00	251	67.64	0.00
54.00	0.00	251	67.64	0.00
56.00	0.00	251	67.64	0.00
58.00	0.00	251	67.64	0.00
60.00	0.00	251	67.64	0.00
62.00	0.00	251	67.64	0.00
64.00	0.00	251	67.64	0.00
66.00	0.00	251	67.64	0.00
68.00	0.00	251	67.64	0.00
70.00	0.00	251	67.64	0.00
72.00	0.00	251	67.64	0.00

Summary for Pond P9: Porous Pavement 9

Inflow Area = 0.350 ac, 88.57% Impervious, Inflow Depth = 5.69" for 25-Year event
 Inflow = 2.47 cfs @ 12.09 hrs, Volume= 0.166 af
 Outflow = 0.31 cfs @ 12.53 hrs, Volume= 0.156 af, Atten= 88%, Lag= 26.3 min
 Primary = 0.31 cfs @ 12.53 hrs, Volume= 0.156 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.62' @ 12.53 hrs Surf.Area= 5,346 sf Storage= 3,343 cf

Plug-Flow detention time= 184.5 min calculated for 0.156 af (94% of inflow)
 Center-of-Mass det. time= 149.4 min (895.9 - 746.6)

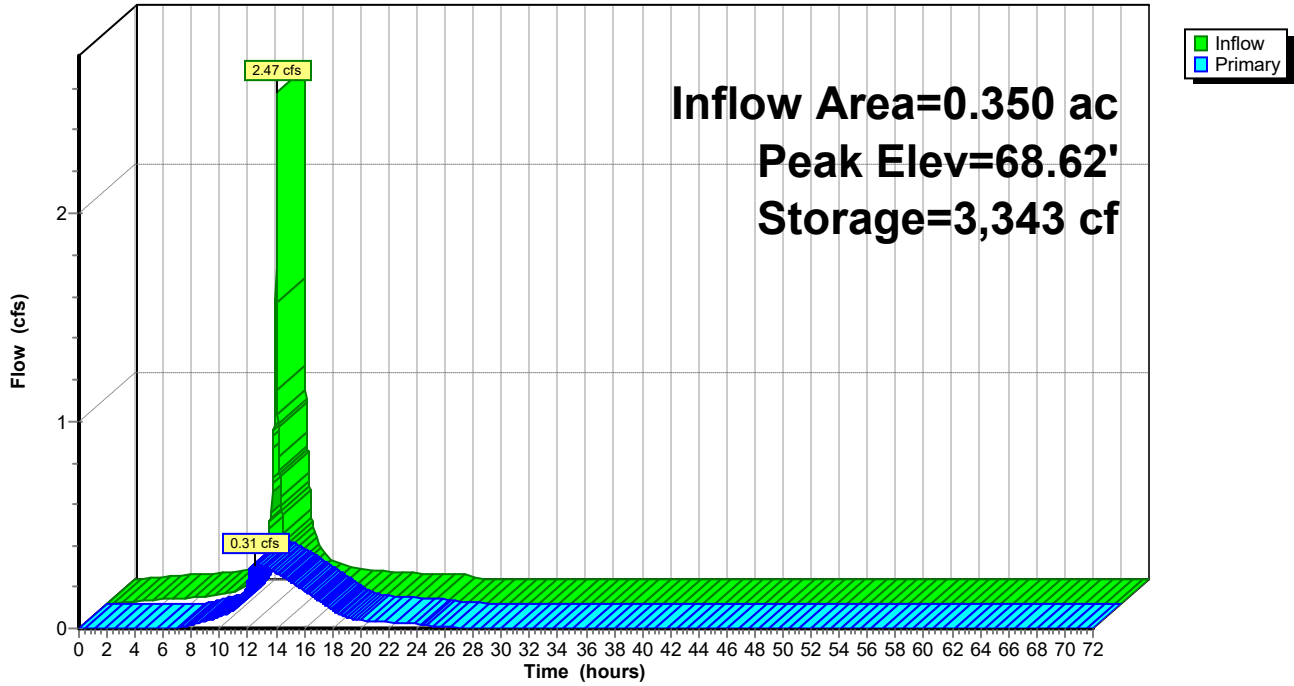
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	5,742 cf	18.00'W x 297.00'L x 4.00'H Prismatic 21,384 cf Overall - 3,985 cf Embedded = 17,399 cf x 33.0% Voids
#2	67.64'	3,732 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 297.0' 3,985 cf Overall - 0.4" Wall Thickness = 3,732 cf
		9,474 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.32' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	69.76'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.31 cfs @ 12.53 hrs HW=68.62' (Free Discharge)
 ↑ **1=Culvert** (Passes 0.31 cfs of 6.04 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.31 cfs @ 4.50 fps)
 ↑ **3=Orifice/Grate** (Controls 0.00 cfs)

Pond P9: Porous Pavement 9

Hydrograph



Hydrograph for Pond P9: Porous Pavement 9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.01	35	67.41	0.00
4.00	0.02	163	67.48	0.00
6.00	0.03	344	67.58	0.00
8.00	0.04	576	67.71	0.02
10.00	0.08	739	67.78	0.06
12.00	1.47	2,048	68.22	0.23
14.00	0.10	2,651	68.41	0.27
16.00	0.05	1,509	68.05	0.18
18.00	0.04	849	67.82	0.09
20.00	0.03	670	67.75	0.04
22.00	0.03	629	67.73	0.03
24.00	0.03	609	67.72	0.02
26.00	0.00	513	67.68	0.01
28.00	0.00	483	67.66	0.00
30.00	0.00	466	67.66	0.00
32.00	0.00	456	67.65	0.00
34.00	0.00	449	67.65	0.00
36.00	0.00	444	67.64	0.00
38.00	0.00	441	67.64	0.00
40.00	0.00	440	67.64	0.00
42.00	0.00	439	67.64	0.00
44.00	0.00	438	67.64	0.00
46.00	0.00	437	67.64	0.00
48.00	0.00	437	67.64	0.00
50.00	0.00	437	67.64	0.00
52.00	0.00	437	67.64	0.00
54.00	0.00	437	67.64	0.00
56.00	0.00	437	67.64	0.00
58.00	0.00	437	67.64	0.00
60.00	0.00	437	67.64	0.00
62.00	0.00	437	67.64	0.00
64.00	0.00	437	67.64	0.00
66.00	0.00	437	67.64	0.00
68.00	0.00	436	67.64	0.00
70.00	0.00	436	67.64	0.00
72.00	0.00	436	67.64	0.00

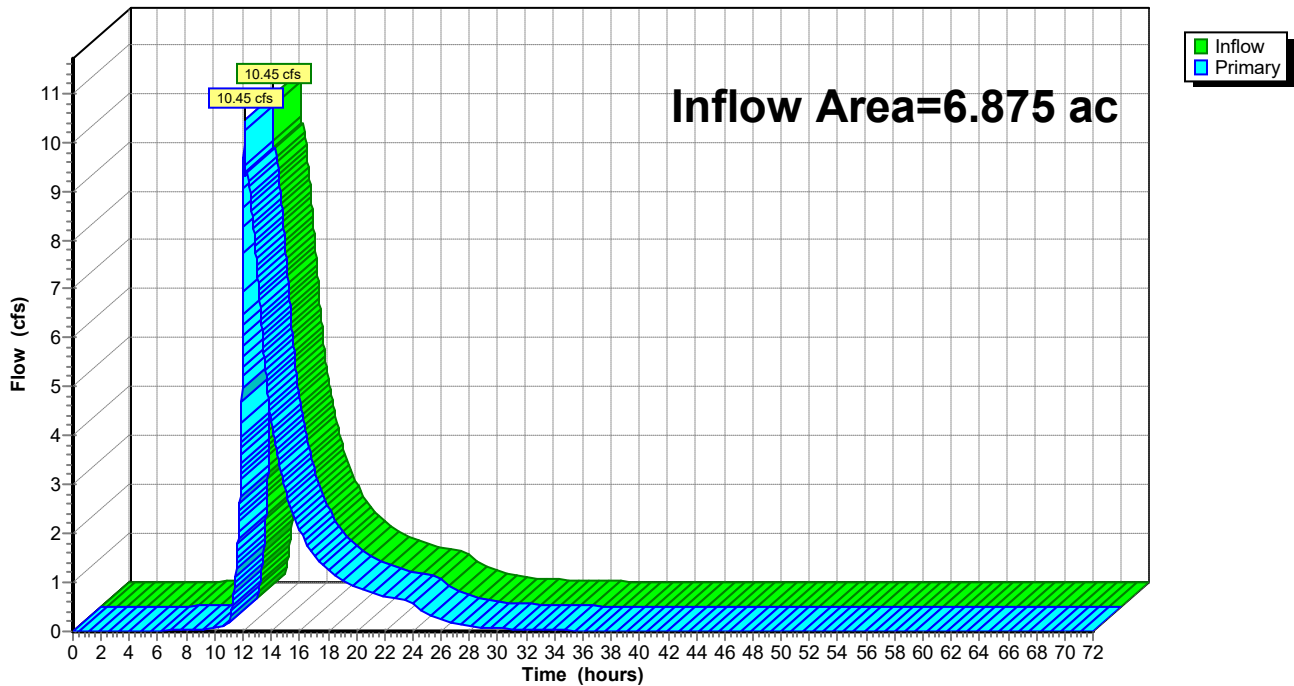
Summary for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.875 ac, 86.11% Impervious, Inflow Depth = 4.65" for 25-Year event
Inflow = 10.45 cfs @ 12.10 hrs, Volume= 2.665 af
Primary = 10.45 cfs @ 12.10 hrs, Volume= 2.665 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.04		0.04	61.00	0.00		0.00
10.00	0.06		0.06	62.00	0.00		0.00
11.00	0.17		0.17	63.00	0.00		0.00
12.00	6.46		6.46	64.00	0.00		0.00
13.00	7.45		7.45	65.00	0.00		0.00
14.00	4.31		4.31	66.00	0.00		0.00
15.00	2.90		2.90	67.00	0.00		0.00
16.00	2.09		2.09	68.00	0.00		0.00
17.00	1.58		1.58	69.00	0.00		0.00
18.00	1.25		1.25	70.00	0.00		0.00
19.00	1.04		1.04	71.00	0.00		0.00
20.00	0.90		0.90	72.00	0.00		0.00
21.00	0.80		0.80				
22.00	0.73		0.73				
23.00	0.66		0.66				
24.00	0.60		0.60				
25.00	0.37		0.37				
26.00	0.24		0.24				
27.00	0.16		0.16				
28.00	0.11		0.11				
29.00	0.08		0.08				
30.00	0.06		0.06				
31.00	0.05		0.05				
32.00	0.04		0.04				
33.00	0.03		0.03				
34.00	0.02		0.02				
35.00	0.02		0.02				
36.00	0.02		0.02				
37.00	0.01		0.01				
38.00	0.01		0.01				
39.00	0.01		0.01				
40.00	0.01		0.01				
41.00	0.01		0.01				
42.00	0.01		0.01				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 4.08 cfs @ 12.09 hrs, Volume= 0.281 af, Depth= 8.02"

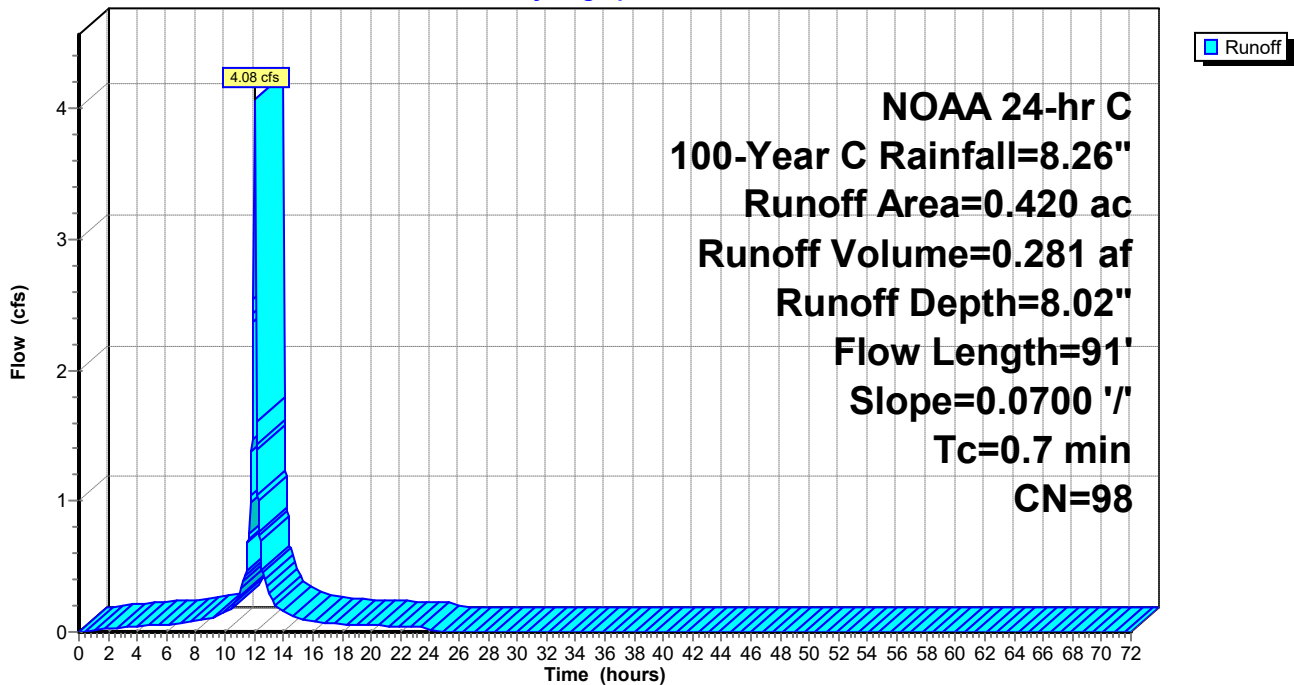
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG D
0.420	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	91	0.0700	2.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 1.59 cfs @ 12.09 hrs, Volume= 0.093 af, Depth= 5.87"

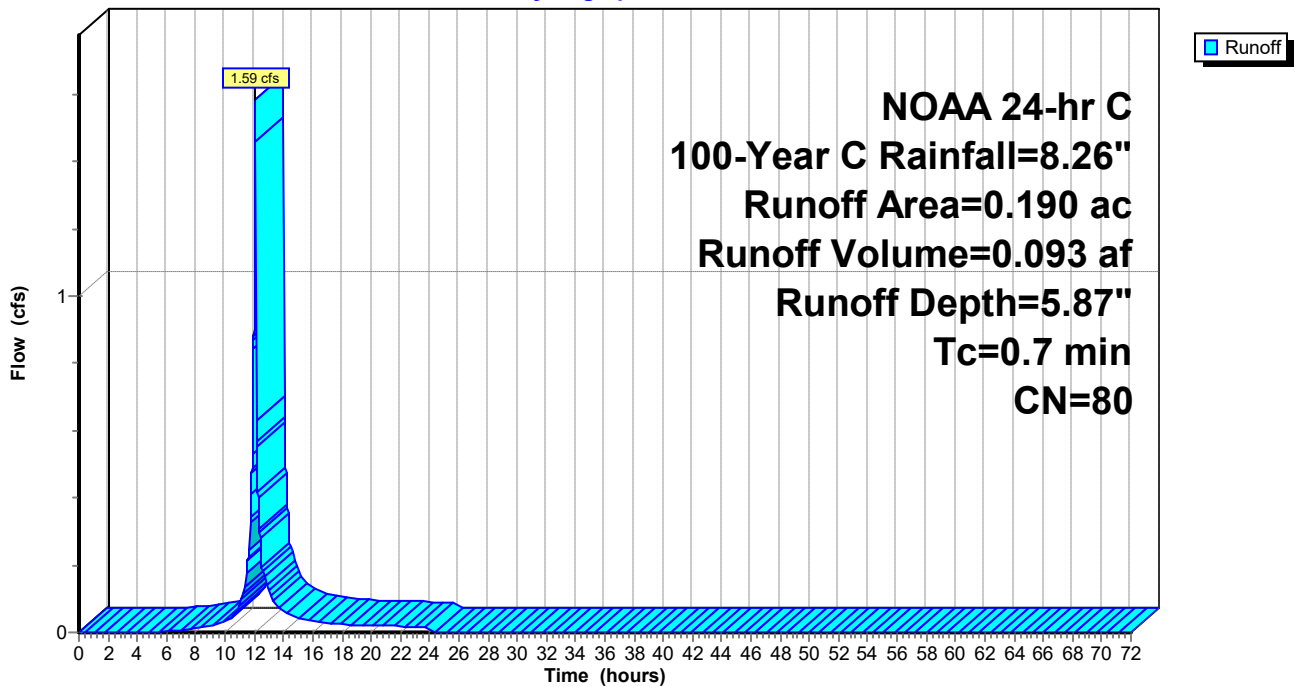
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.190	80	>75% Grass cover, Good, HSG D
0.190	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 4I: IMPERVIOUS

Runoff = 10.09 cfs @ 12.09 hrs, Volume= 0.695 af, Depth= 8.02"

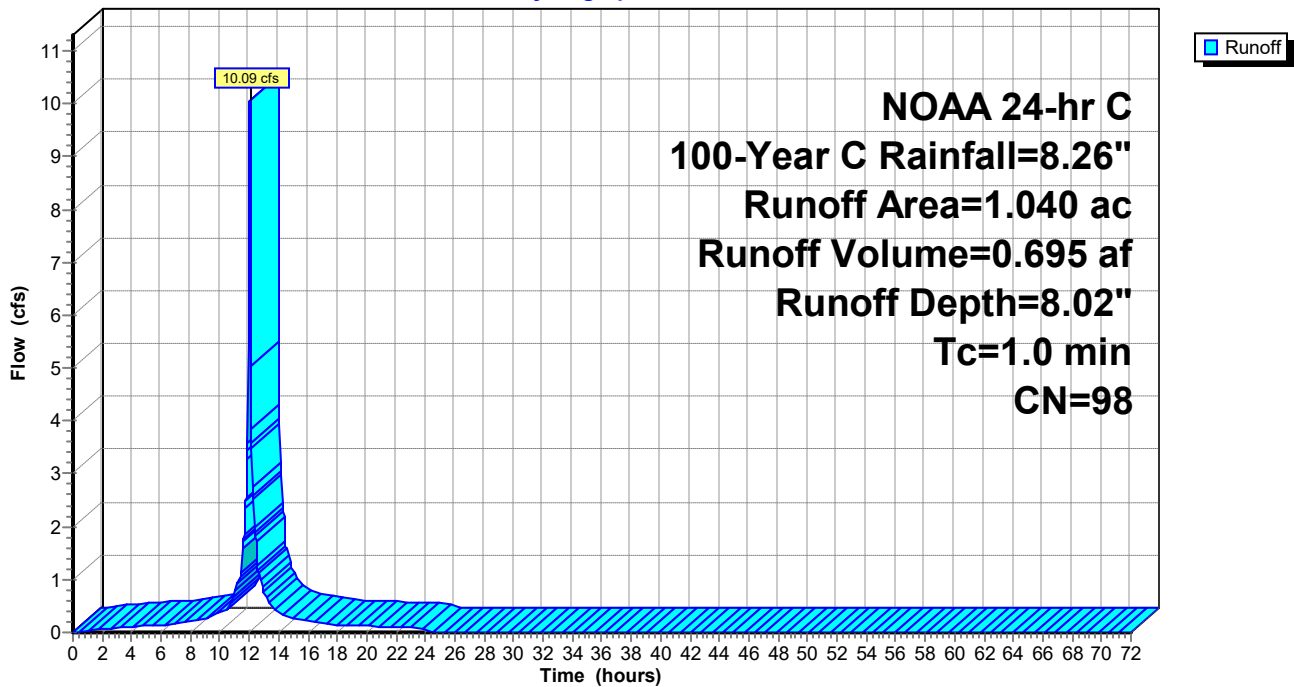
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG D
1.040	98	100.00% Impervious Area

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

Subcatchment 4I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 4P: BASIN PERVIOUS

Runoff = 6.60 cfs @ 12.09 hrs, Volume= 0.454 af, Depth= 8.02"

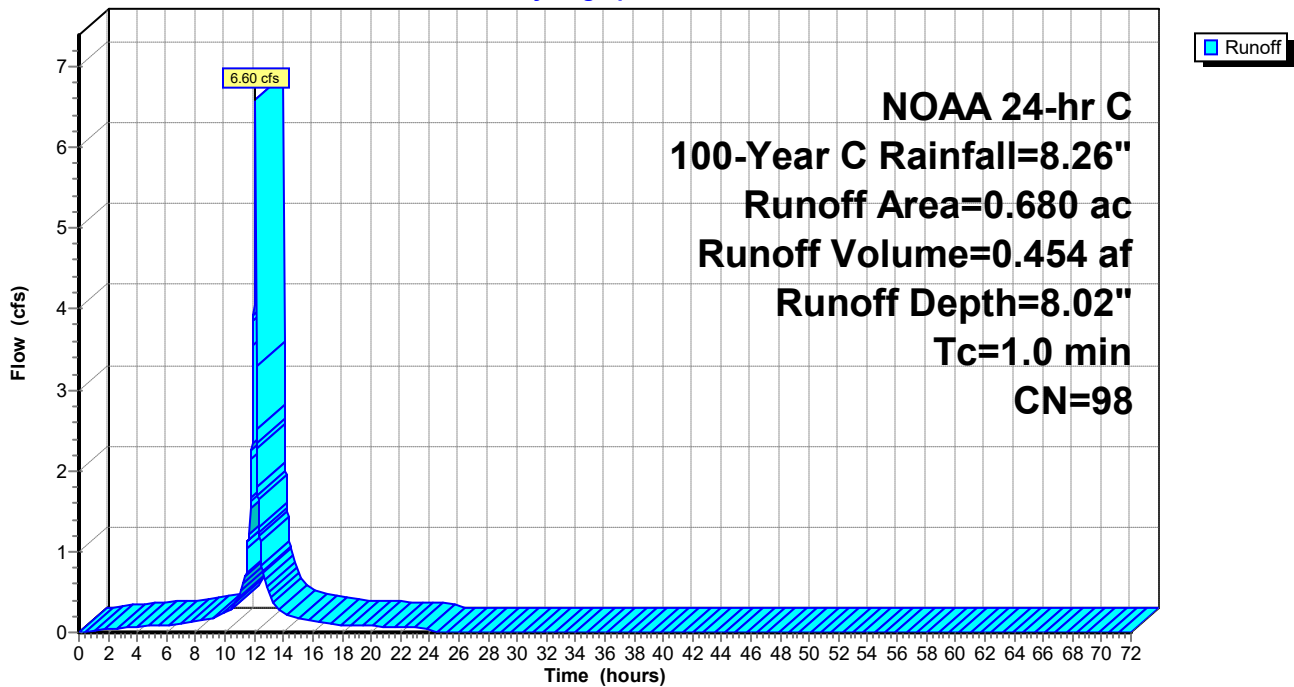
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.680	98	Paved parking, HSG D
0.680	98	100.00% Impervious Area

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

Subcatchment 4P: BASIN PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 9.41 cfs @ 12.09 hrs, Volume= 0.648 af, Depth= 8.02"

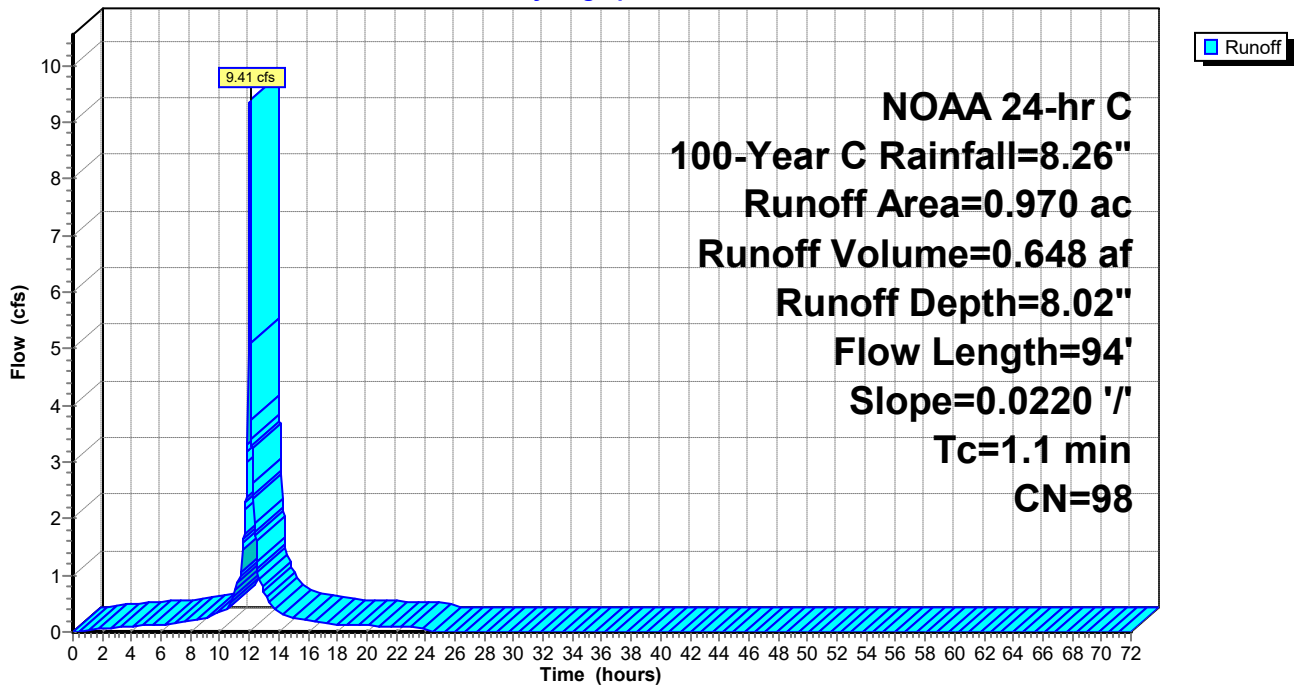
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.970	98	Paved parking, HSG D
0.970	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	94	0.0220	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 1.30 cfs @ 12.10 hrs, Volume= 0.076 af, Depth= 5.87"

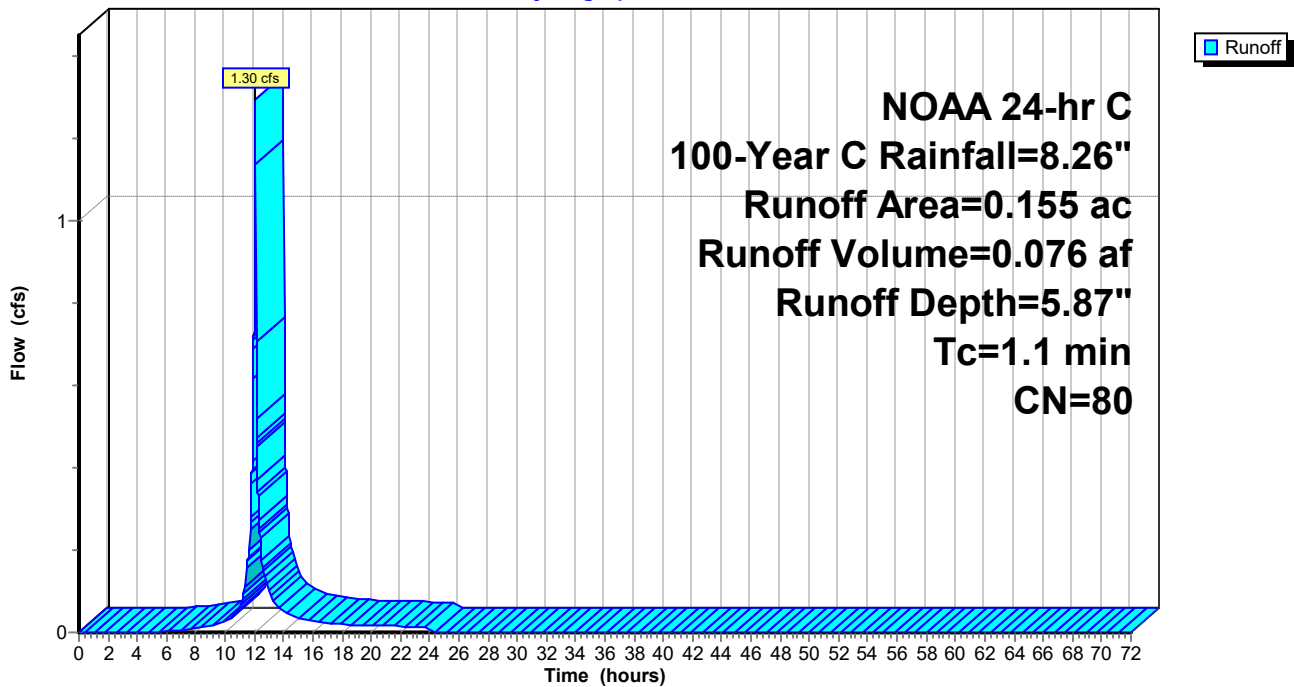
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.155	80	>75% Grass cover, Good, HSG D
0.155	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment 8I: IMPERVIOUS

Runoff = 2.33 cfs @ 12.09 hrs, Volume= 0.160 af, Depth= 8.02"

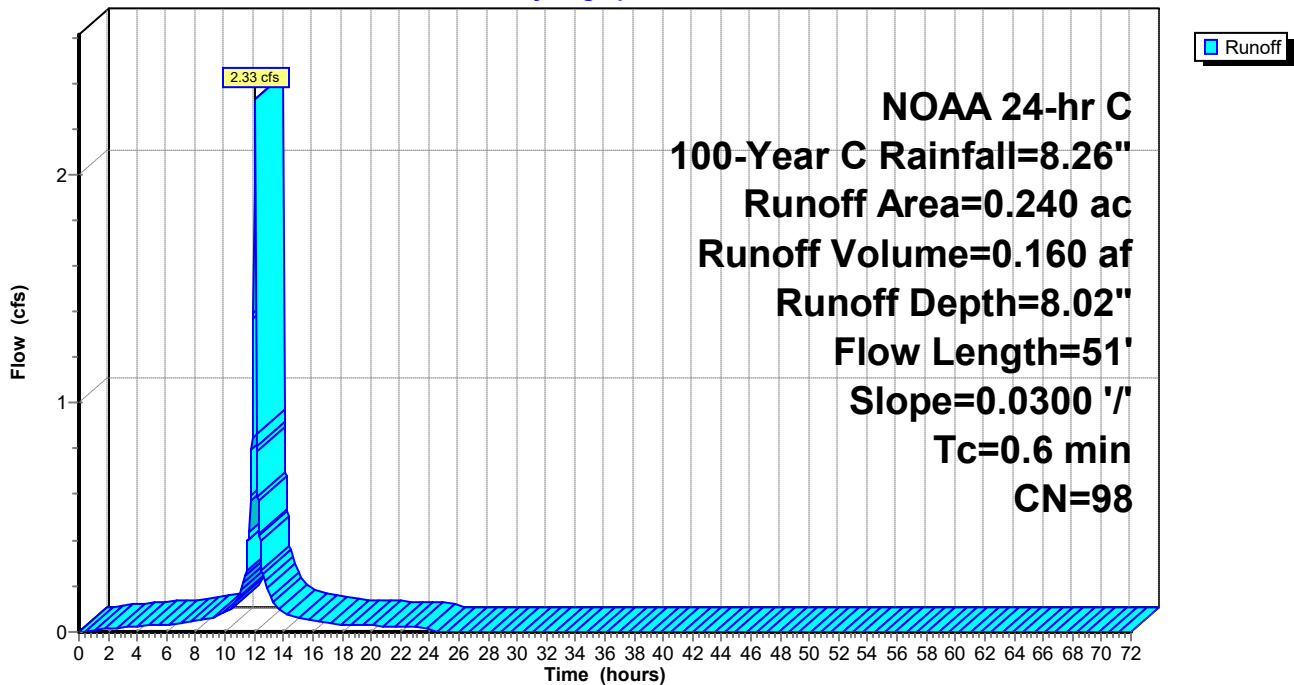
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0300	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 8I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9I: IMPERVIOUS

Runoff = 3.01 cfs @ 12.09 hrs, Volume= 0.207 af, Depth= 8.02"

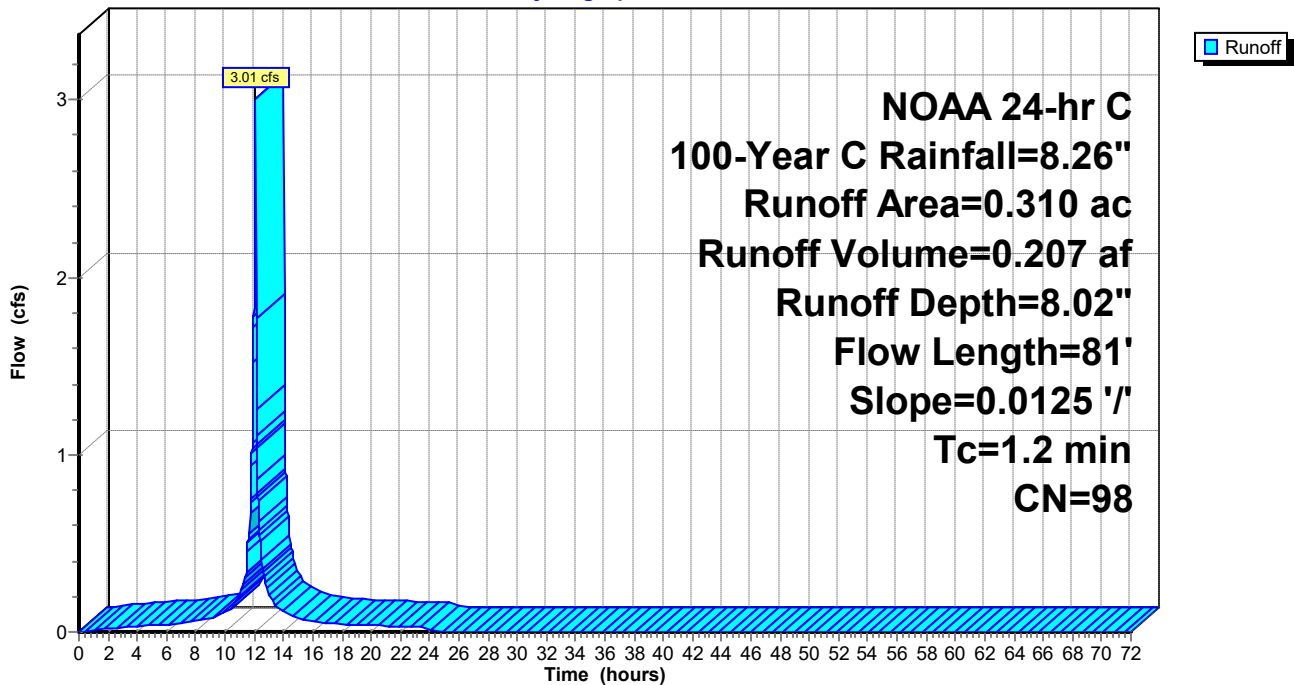
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG D
0.310	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	81	0.0125	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9P: PERVIOUS

Runoff = 0.33 cfs @ 12.10 hrs, Volume= 0.020 af, Depth= 5.87"

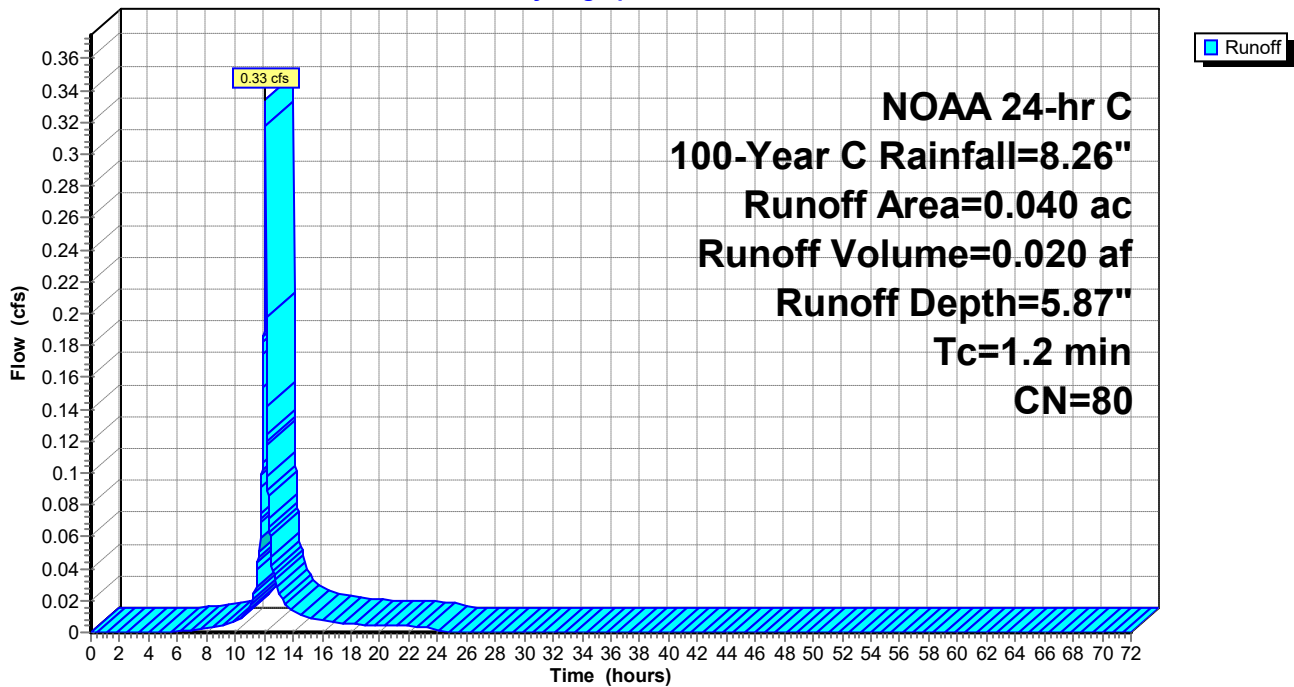
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.040	80	>75% Grass cover, Good, HSG D
0.040	80	100.00% Pervious Area

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

Subcatchment 9P: PERVIOUS

Hydrograph



Summary for Subcatchment 10I: IMPERVIOUS

Runoff = 6.21 cfs @ 12.09 hrs, Volume= 0.428 af, Depth= 8.02"

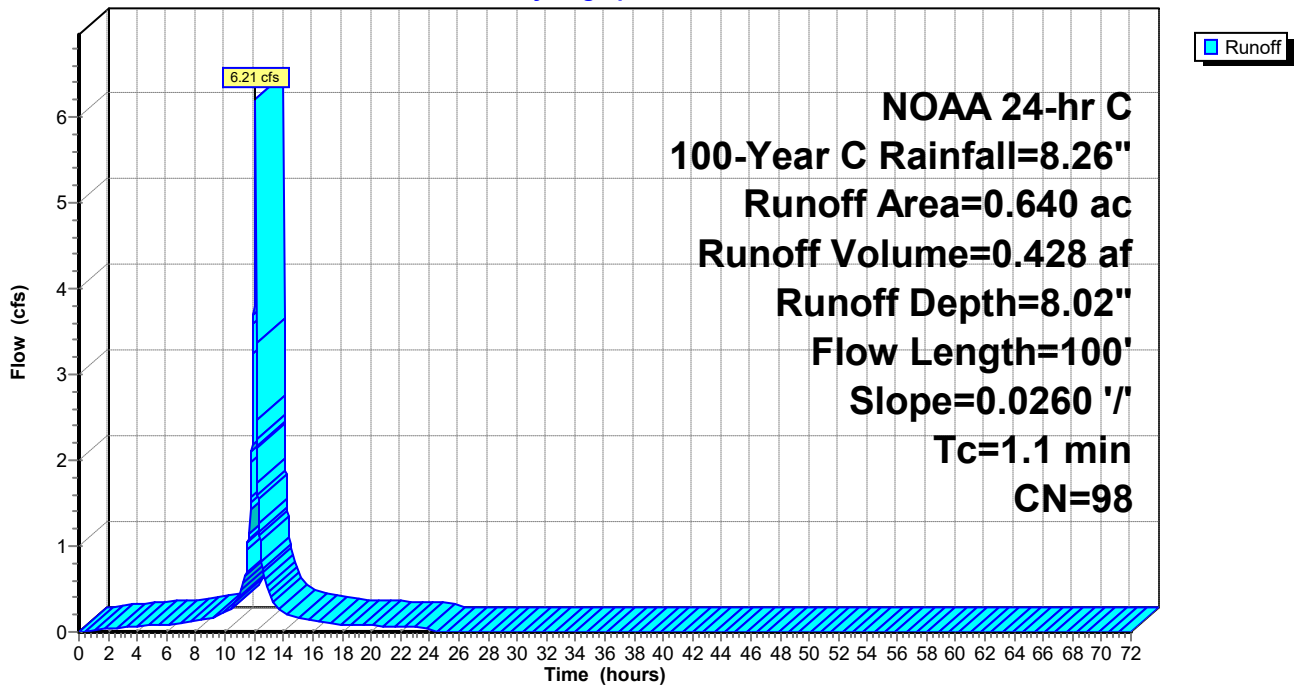
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.640	98	Paved parking, HSG D
0.640	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0260	1.57		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 10I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 10P: PERVIOUS

Runoff = 0.59 cfs @ 12.10 hrs, Volume= 0.034 af, Depth= 5.87"

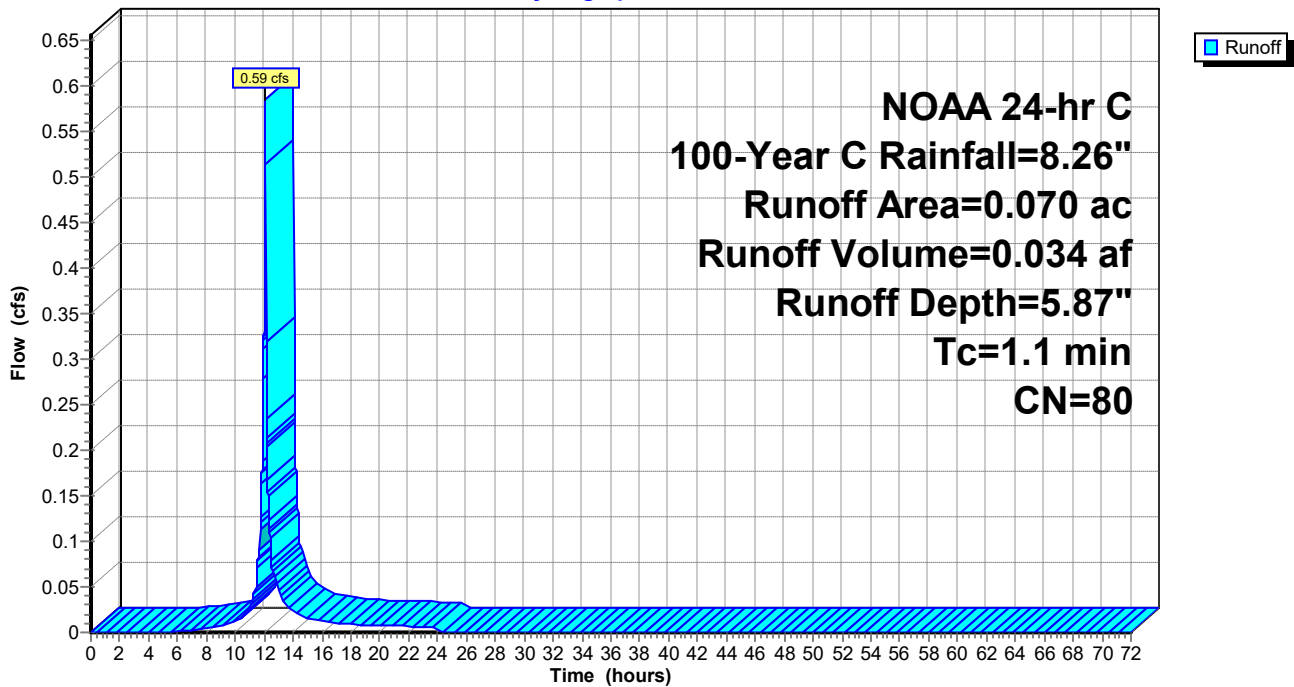
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.070	80	>75% Grass cover, Good, HSG D
0.070	80	100.00% Pervious Area

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

Subcatchment 10P: PERVIOUS

Hydrograph



Summary for Subcatchment I2: OFFSITE

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.100 af, Depth= 8.02"

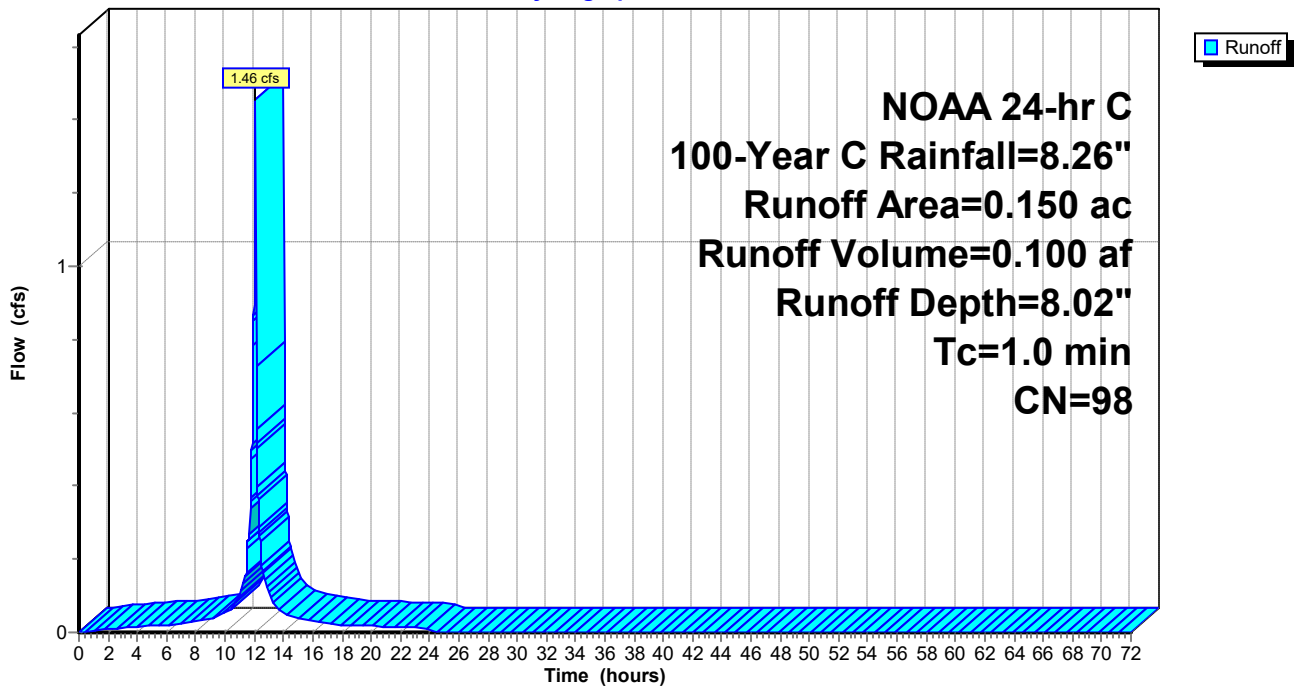
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG D
0.150	98	100.00% Impervious Area

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

Subcatchment I2: OFFSITE

Hydrograph



Summary for Subcatchment I3: IMPERVIOUS

Runoff = 14.26 cfs @ 12.09 hrs, Volume= 0.982 af, Depth= 8.02"

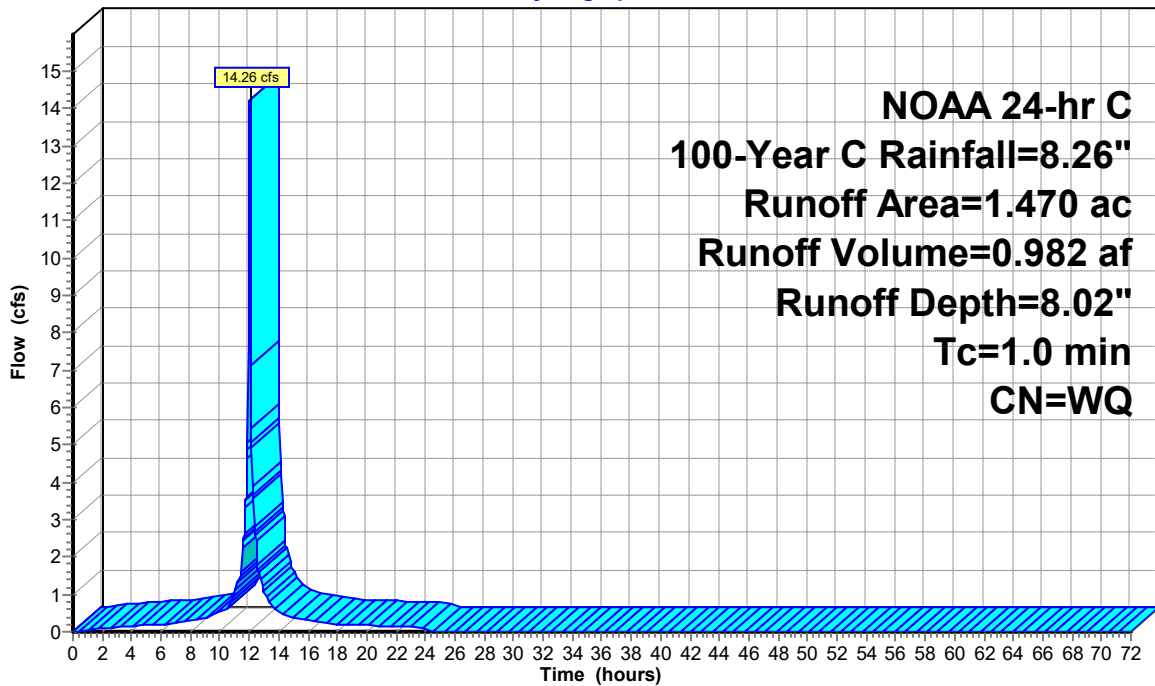
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
1.330	98	Unconnected roofs, HSG D
0.140	98	Unconnected pavement, HSG D
1.470		Weighted Average
1.470	98	100.00% Impervious Area
1.470		100.00% Unconnected

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

Subcatchment I3: IMPERVIOUS

Hydrograph



Runoff

Summary for Subcatchment P2: OFFSITE

Runoff = 2.09 cfs @ 12.10 hrs, Volume= 0.122 af, Depth= 5.87"

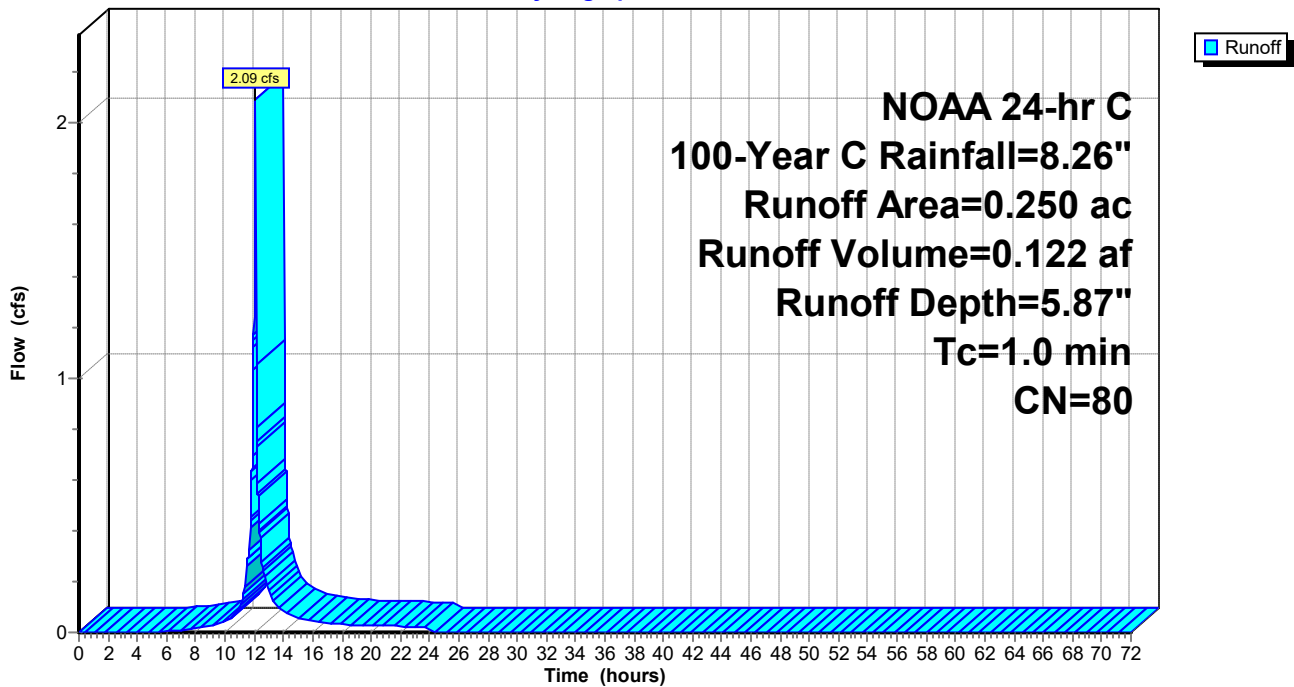
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P2: OFFSITE

Hydrograph



Summary for Subcatchment P3: PERVIOUS

Runoff = 2.09 cfs @ 12.10 hrs, Volume= 0.122 af, Depth= 5.87"

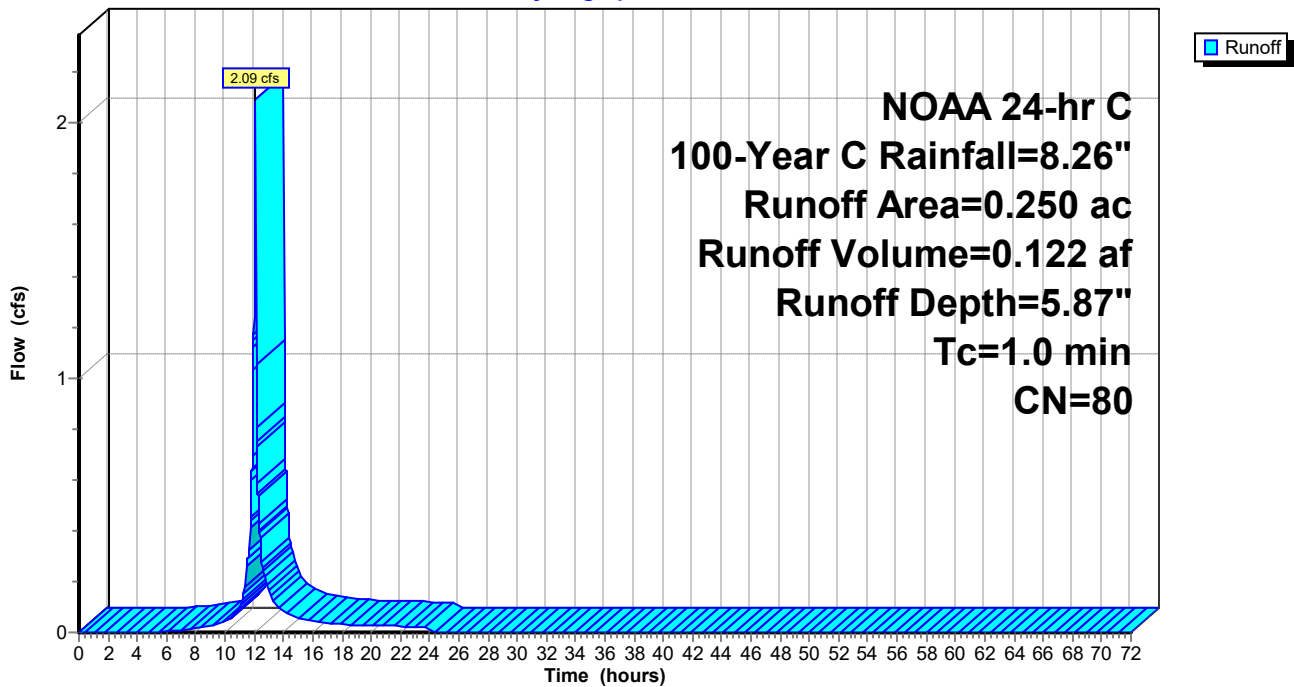
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year C Rainfall=8.26"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P3: PERVIOUS

Hydrograph



Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 7.35" for 100-Year C event
 Inflow = 5.67 cfs @ 12.09 hrs, Volume= 0.374 af
 Outflow = 5.64 cfs @ 12.10 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.6 min
 Primary = 5.64 cfs @ 12.10 hrs, Volume= 0.295 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 71.98' @ 12.10 hrs Surf.Area= 2,303 sf Storage= 3,914 cf

Plug-Flow detention time= 152.9 min calculated for 0.295 af (79% of inflow)
 Center-of-Mass det. time= 70.0 min (822.2 - 752.2)

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	8,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	432	0	0
69.50	686	280	280
70.50	1,294	990	1,270
71.50	1,963	1,629	2,898
72.50	2,677	2,320	5,218
73.50	3,448	3,063	8,281

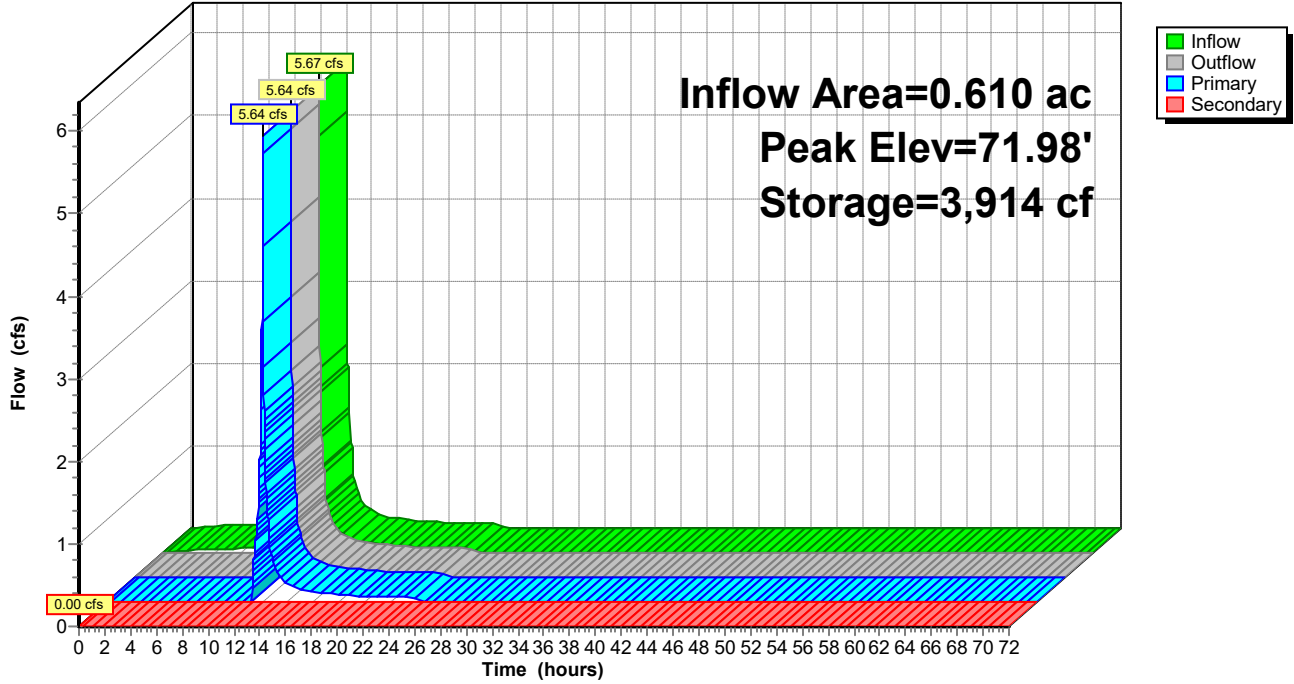
Device	Routing	Invert	Outlet Devices
#1	Primary	67.49'	24.0" Round Culvert L= 165.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.49' / 67.00' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	73.50'	50.0' 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

Primary OutFlow Max=5.63 cfs @ 12.10 hrs HW=71.98' (Free Discharge)
 ↑1=Culvert (Passes 5.63 cfs of 23.06 cfs potential flow)
 ↑2=Orifice/Grate (Weir Controls 5.63 cfs @ 1.56 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph



Hydrograph for Pond B2: SMALL-SCALE BIORETENTION 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	69.00	0.00	0.00	0.00
2.00	0.03	92	69.19	0.00	0.00	0.00
4.00	0.04	353	69.60	0.00	0.00	0.00
6.00	0.06	706	70.01	0.00	0.00	0.00
8.00	0.09	1,242	70.48	0.00	0.00	0.00
10.00	0.18	2,153	71.09	0.00	0.00	0.00
12.00	3.37	3,759	71.91	3.32	3.32	0.00
14.00	0.22	3,457	71.77	0.22	0.22	0.00
16.00	0.12	3,436	71.76	0.12	0.12	0.00
18.00	0.08	3,428	71.76	0.08	0.08	0.00
20.00	0.07	3,426	71.76	0.07	0.07	0.00
22.00	0.06	3,424	71.76	0.06	0.06	0.00
24.00	0.06	3,424	71.76	0.06	0.06	0.00
26.00	0.00	3,411	71.75	0.00	0.00	0.00
28.00	0.00	3,411	71.75	0.00	0.00	0.00
30.00	0.00	3,411	71.75	0.00	0.00	0.00
32.00	0.00	3,411	71.75	0.00	0.00	0.00
34.00	0.00	3,411	71.75	0.00	0.00	0.00
36.00	0.00	3,411	71.75	0.00	0.00	0.00
38.00	0.00	3,411	71.75	0.00	0.00	0.00
40.00	0.00	3,411	71.75	0.00	0.00	0.00
42.00	0.00	3,411	71.75	0.00	0.00	0.00
44.00	0.00	3,411	71.75	0.00	0.00	0.00
46.00	0.00	3,411	71.75	0.00	0.00	0.00
48.00	0.00	3,411	71.75	0.00	0.00	0.00
50.00	0.00	3,411	71.75	0.00	0.00	0.00
52.00	0.00	3,411	71.75	0.00	0.00	0.00
54.00	0.00	3,411	71.75	0.00	0.00	0.00
56.00	0.00	3,411	71.75	0.00	0.00	0.00
58.00	0.00	3,411	71.75	0.00	0.00	0.00
60.00	0.00	3,411	71.75	0.00	0.00	0.00
62.00	0.00	3,411	71.75	0.00	0.00	0.00
64.00	0.00	3,411	71.75	0.00	0.00	0.00
66.00	0.00	3,411	71.75	0.00	0.00	0.00
68.00	0.00	3,411	71.75	0.00	0.00	0.00
70.00	0.00	3,411	71.75	0.00	0.00	0.00
72.00	0.00	3,411	71.75	0.00	0.00	0.00

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 7.53" for 100-Year C event
 Inflow = 41.42 cfs @ 12.10 hrs, Volume= 4.062 af
 Outflow = 18.58 cfs @ 12.13 hrs, Volume= 3.632 af, Atten= 55%, Lag= 2.0 min
 Primary = 18.58 cfs @ 12.13 hrs, Volume= 3.632 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.68' @ 12.13 hrs Surf.Area= 23,002 sf Storage= 56,423 cf

Plug-Flow detention time= 178.2 min calculated for 3.632 af (89% of inflow)
 Center-of-Mass det. time= 116.4 min (923.6 - 807.3)

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.95'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Device 1	69.40'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	70.08'	50.0' 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

Primary OutFlow Max=18.55 cfs @ 12.13 hrs HW=69.68' (Free Discharge)

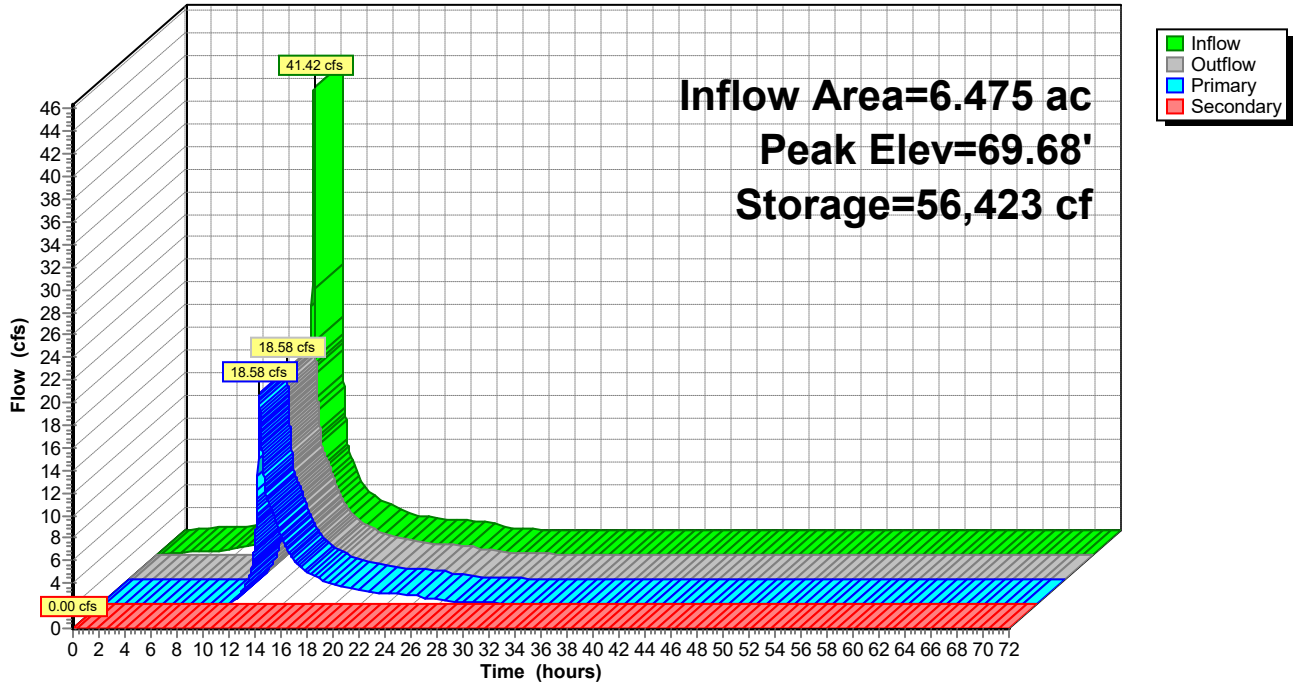
- ↑ 1=Culvert (Passes 18.55 cfs of 28.35 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 10.62 cfs @ 5.31 fps)
- ↑ 3=Orifice/Grate (Weir Controls 7.93 cfs @ 1.74 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

- ↑ 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	67.00	0.00	0.00	0.00
2.00	0.21	693	67.04	0.00	0.00	0.00
4.00	0.33	2,677	67.14	0.00	0.00	0.00
6.00	0.52	5,531	67.29	0.00	0.00	0.00
8.00	0.98	10,976	67.57	0.00	0.00	0.00
10.00	1.77	20,147	68.02	0.12	0.12	0.00
12.00	25.33	45,037	69.18	8.06	8.06	0.00
14.00	3.73	37,883	68.86	5.55	5.55	0.00
16.00	2.17	30,572	68.52	2.75	2.75	0.00
18.00	1.30	27,162	68.36	1.67	1.67	0.00
20.00	1.02	25,401	68.27	1.18	1.18	0.00
22.00	0.84	24,483	68.23	0.95	0.95	0.00
24.00	0.78	23,826	68.20	0.79	0.79	0.00
26.00	0.15	21,654	68.09	0.35	0.35	0.00
28.00	0.05	20,532	68.04	0.17	0.17	0.00
30.00	0.02	19,874	68.01	0.09	0.09	0.00
32.00	0.01	19,502	67.99	0.05	0.05	0.00
34.00	0.01	19,257	67.98	0.03	0.03	0.00
36.00	0.00	19,100	67.97	0.02	0.02	0.00
38.00	0.00	19,005	67.96	0.01	0.01	0.00
40.00	0.00	18,946	67.96	0.01	0.01	0.00
42.00	0.00	18,908	67.96	0.01	0.01	0.00
44.00	0.00	18,878	67.96	0.01	0.01	0.00
46.00	0.00	18,851	67.96	0.00	0.00	0.00
48.00	0.00	18,828	67.96	0.00	0.00	0.00
50.00	0.00	18,809	67.95	0.00	0.00	0.00
52.00	0.00	18,793	67.95	0.00	0.00	0.00
54.00	0.00	18,779	67.95	0.00	0.00	0.00
56.00	0.00	18,768	67.95	0.00	0.00	0.00
58.00	0.00	18,758	67.95	0.00	0.00	0.00
60.00	0.00	18,750	67.95	0.00	0.00	0.00
62.00	0.00	18,744	67.95	0.00	0.00	0.00
64.00	0.00	18,739	67.95	0.00	0.00	0.00
66.00	0.00	18,734	67.95	0.00	0.00	0.00
68.00	0.00	18,731	67.95	0.00	0.00	0.00
70.00	0.00	18,728	67.95	0.00	0.00	0.00
72.00	0.00	18,725	67.95	0.00	0.00	0.00

Summary for Pond P10: Porous Pavement 10

Inflow Area = 0.710 ac, 90.14% Impervious, Inflow Depth = 7.81" for 100-Year C event
 Inflow = 6.79 cfs @ 12.09 hrs, Volume= 0.462 af
 Outflow = 0.46 cfs @ 13.11 hrs, Volume= 0.445 af, Atten= 93%, Lag= 61.2 min
 Primary = 0.46 cfs @ 13.11 hrs, Volume= 0.445 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.89' @ 13.11 hrs Surf.Area= 9,090 sf Storage= 10,939 cf

Plug-Flow detention time= 319.7 min calculated for 0.445 af (96% of inflow)
 Center-of-Mass det. time= 296.4 min (1,037.9 - 741.5)

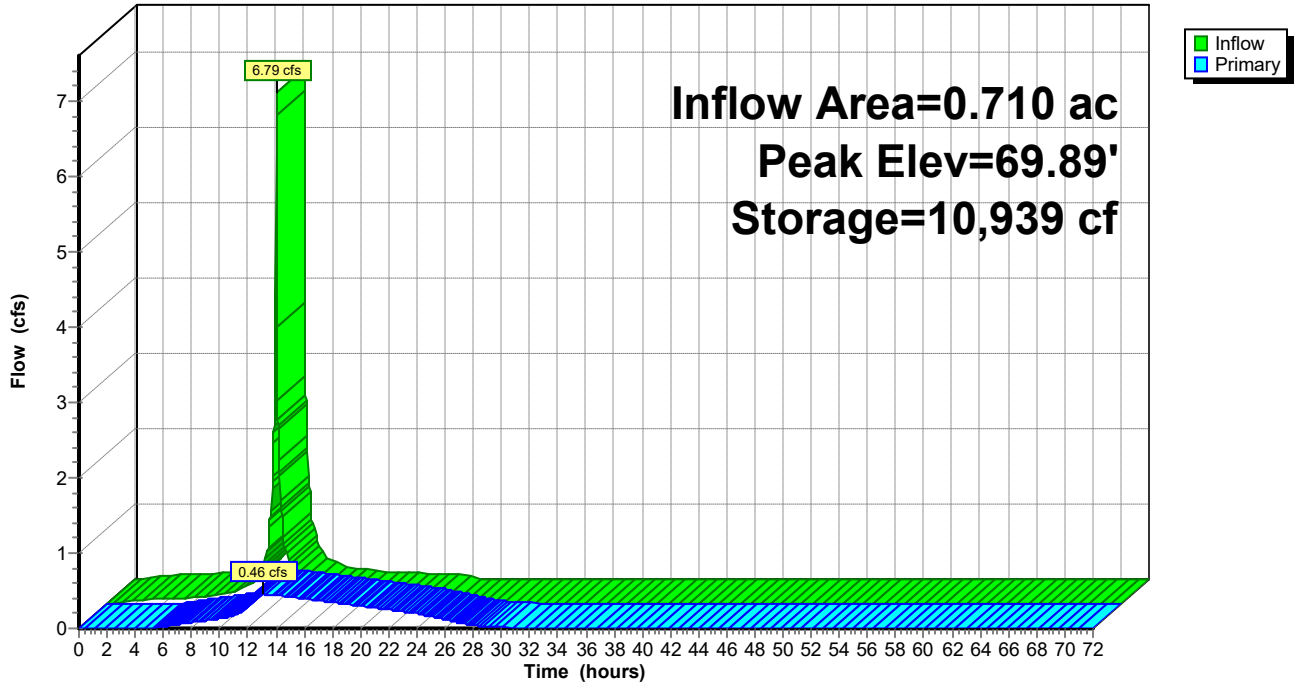
Volume	Invert	Avail.Storage	Storage Description
#1	67.61'	9,763 cf	18.00'W x 505.00'L x 4.00'H Prismatic 36,360 cf Overall - 6,776 cf Embedded = 29,584 cf x 33.0% Voids
#2	67.86'	6,346 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 505.0' 6,776 cf Overall - 0.4" Wall Thickness = 6,346 cf
		16,109 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.61'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.61' / 67.53' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	67.86'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	70.50'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.46 cfs @ 13.11 hrs HW=69.89' (Free Discharge)
 1=Culvert (Passes 0.46 cfs of 7.18 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.46 cfs @ 6.68 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P10: Porous Pavement 10

Hydrograph



Hydrograph for Pond P10: Porous Pavement 10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.61	0.00
2.00	0.04	139	67.66	0.00
4.00	0.07	537	67.79	0.00
6.00	0.08	1,027	67.94	0.02
8.00	0.13	1,401	68.03	0.08
10.00	0.24	1,858	68.13	0.13
12.00	4.05	6,309	68.95	0.33
14.00	0.26	10,544	69.77	0.44
16.00	0.14	8,855	69.41	0.40
18.00	0.10	7,043	69.08	0.35
20.00	0.08	5,368	68.78	0.30
22.00	0.07	3,965	68.53	0.25
24.00	0.08	2,844	68.32	0.20
26.00	0.00	1,706	68.10	0.12
28.00	0.00	1,151	67.97	0.04
30.00	0.00	964	67.92	0.02
32.00	0.00	882	67.90	0.01
34.00	0.00	842	67.89	0.00
36.00	0.00	819	67.88	0.00
38.00	0.00	801	67.88	0.00
40.00	0.00	787	67.87	0.00
42.00	0.00	777	67.87	0.00
44.00	0.00	769	67.87	0.00
46.00	0.00	763	67.87	0.00
48.00	0.00	758	67.86	0.00
50.00	0.00	754	67.86	0.00
52.00	0.00	751	67.86	0.00
54.00	0.00	749	67.86	0.00
56.00	0.00	748	67.86	0.00
58.00	0.00	746	67.86	0.00
60.00	0.00	745	67.86	0.00
62.00	0.00	745	67.86	0.00
64.00	0.00	744	67.86	0.00
66.00	0.00	744	67.86	0.00
68.00	0.00	743	67.86	0.00
70.00	0.00	743	67.86	0.00
72.00	0.00	743	67.86	0.00

Summary for Pond P5: Porous Pavement 5

Inflow Area = 1.125 ac, 86.22% Impervious, Inflow Depth = 7.72" for 100-Year C event
 Inflow = 10.70 cfs @ 12.09 hrs, Volume= 0.724 af
 Outflow = 1.62 cfs @ 12.51 hrs, Volume= 0.696 af, Atten= 85%, Lag= 25.4 min
 Primary = 1.62 cfs @ 12.51 hrs, Volume= 0.696 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.93' @ 12.51 hrs Surf.Area= 14,886 sf Storage= 12,368 cf

Plug-Flow detention time= 125.9 min calculated for 0.696 af (96% of inflow)
 Center-of-Mass det. time= 102.0 min (845.4 - 743.5)

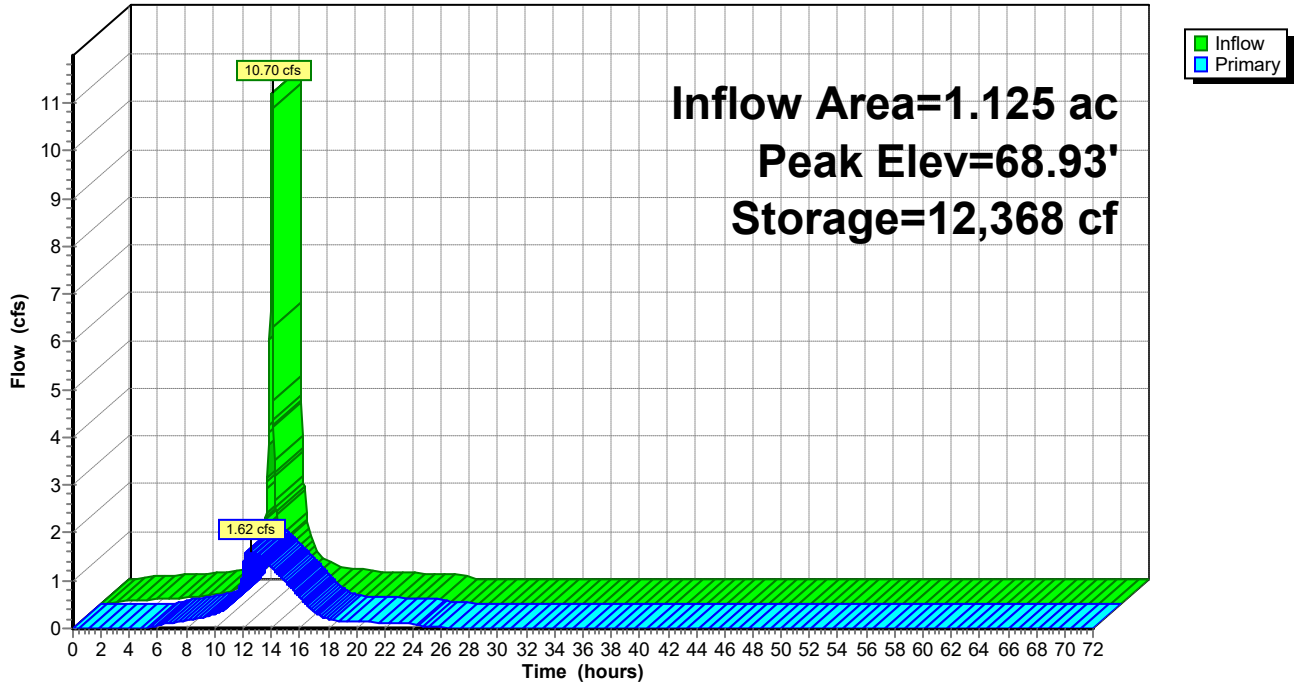
Volume	Invert	Avail.Storage	Storage Description
#1	67.37'	13,040 cf	18.00'W x 827.00'L x 3.40'H Prismatic 50,612 cf Overall - 11,097 cf Embedded = 39,516 cf x 33.0% Voids
#2	67.62'	10,392 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 827.0' 11,097 cf Overall - 0.4" Wall Thickness = 10,392 cf
		23,433 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.37'	24.0" Round Culvert L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.37' / 67.19' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.62'	2.5" Vert. Orifice/Grate X 9.00 C= 0.600
#3	Device 1	69.88'	8.0" W x 6.0" H Vert. Orifice/Grate X 7.00 C= 0.600

Primary OutFlow Max=1.62 cfs @ 12.51 hrs HW=68.93' (Free Discharge)
 1=Culvert (Passes 1.62 cfs of 7.88 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 1.62 cfs @ 5.29 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P5: Porous Pavement 5

Hydrograph



Hydrograph for Pond P5: Porous Pavement 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.37	0.00
2.00	0.06	210	67.41	0.00
4.00	0.10	813	67.54	0.00
6.00	0.12	1,536	67.68	0.06
8.00	0.20	1,843	67.72	0.17
10.00	0.37	2,138	67.77	0.30
12.00	6.38	7,318	68.38	1.20
14.00	0.41	8,222	68.48	1.29
16.00	0.23	3,294	67.92	0.65
18.00	0.15	1,918	67.74	0.20
20.00	0.13	1,771	67.71	0.14
22.00	0.11	1,721	67.71	0.12
24.00	0.12	1,675	67.70	0.10
26.00	0.00	1,365	67.65	0.02
28.00	0.00	1,297	67.64	0.01
30.00	0.00	1,263	67.63	0.00
32.00	0.00	1,243	67.63	0.00
34.00	0.00	1,231	67.62	0.00
36.00	0.00	1,224	67.62	0.00
38.00	0.00	1,221	67.62	0.00
40.00	0.00	1,218	67.62	0.00
42.00	0.00	1,217	67.62	0.00
44.00	0.00	1,216	67.62	0.00
46.00	0.00	1,216	67.62	0.00
48.00	0.00	1,216	67.62	0.00
50.00	0.00	1,216	67.62	0.00
52.00	0.00	1,216	67.62	0.00
54.00	0.00	1,215	67.62	0.00
56.00	0.00	1,215	67.62	0.00
58.00	0.00	1,215	67.62	0.00
60.00	0.00	1,215	67.62	0.00
62.00	0.00	1,215	67.62	0.00
64.00	0.00	1,215	67.62	0.00
66.00	0.00	1,215	67.62	0.00
68.00	0.00	1,215	67.62	0.00
70.00	0.00	1,215	67.62	0.00
72.00	0.00	1,215	67.62	0.00

Summary for Pond P8: Porous Pavement 8

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth = 8.02" for 100-Year C event
 Inflow = 2.33 cfs @ 12.09 hrs, Volume= 0.160 af
 Outflow = 0.62 cfs @ 12.22 hrs, Volume= 0.155 af, Atten= 73%, Lag= 7.6 min
 Primary = 0.62 cfs @ 12.22 hrs, Volume= 0.155 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.64' @ 12.22 hrs Surf.Area= 3,078 sf Storage= 1,971 cf

Plug-Flow detention time= 78.4 min calculated for 0.155 af (96% of inflow)
 Center-of-Mass det. time= 55.5 min (791.9 - 736.4)

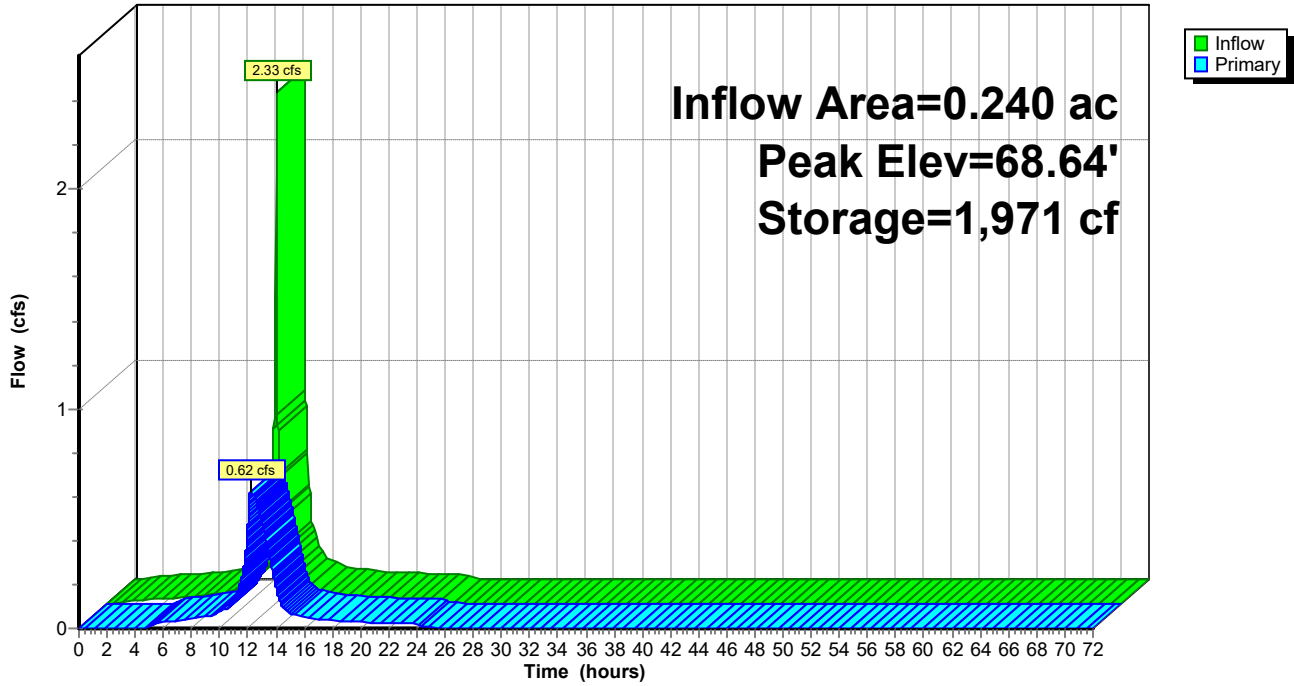
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	3,306 cf	18.00'W x 171.00'L x 4.00'H Prismatic 12,312 cf Overall - 2,294 cf Embedded = 10,018 cf x 33.0% Voids
#2	67.64'	2,149 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 171.0' 2,294 cf Overall - 0.4" Wall Thickness = 2,149 cf
		5,455 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.24' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	70.13'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.62 cfs @ 12.22 hrs HW=68.64' (Free Discharge)
 1=Culvert (Passes 0.62 cfs of 6.35 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.62 cfs @ 4.56 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P8: Porous Pavement 8

Hydrograph



Hydrograph for Pond P8: Porous Pavement 8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.02	52	67.44	0.00
4.00	0.02	202	67.59	0.00
6.00	0.03	318	67.70	0.03
8.00	0.05	344	67.72	0.04
10.00	0.08	382	67.74	0.08
12.00	1.41	1,232	68.25	0.47
14.00	0.09	494	67.82	0.18
16.00	0.05	353	67.72	0.05
18.00	0.03	333	67.71	0.04
20.00	0.03	323	67.70	0.03
22.00	0.02	316	67.69	0.03
24.00	0.03	310	67.69	0.02
26.00	0.00	262	67.65	0.00
28.00	0.00	254	67.64	0.00
30.00	0.00	252	67.64	0.00
32.00	0.00	251	67.64	0.00
34.00	0.00	251	67.64	0.00
36.00	0.00	251	67.64	0.00
38.00	0.00	251	67.64	0.00
40.00	0.00	251	67.64	0.00
42.00	0.00	251	67.64	0.00
44.00	0.00	251	67.64	0.00
46.00	0.00	251	67.64	0.00
48.00	0.00	251	67.64	0.00
50.00	0.00	251	67.64	0.00
52.00	0.00	251	67.64	0.00
54.00	0.00	251	67.64	0.00
56.00	0.00	251	67.64	0.00
58.00	0.00	251	67.64	0.00
60.00	0.00	251	67.64	0.00
62.00	0.00	251	67.64	0.00
64.00	0.00	251	67.64	0.00
66.00	0.00	251	67.64	0.00
68.00	0.00	251	67.64	0.00
70.00	0.00	251	67.64	0.00
72.00	0.00	251	67.64	0.00

Summary for Pond P9: Porous Pavement 9

Inflow Area = 0.350 ac, 88.57% Impervious, Inflow Depth = 7.77" for 100-Year C event
 Inflow = 3.34 cfs @ 12.09 hrs, Volume= 0.227 af
 Outflow = 0.36 cfs @ 12.62 hrs, Volume= 0.217 af, Atten= 89%, Lag= 31.6 min
 Primary = 0.36 cfs @ 12.62 hrs, Volume= 0.217 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.98' @ 12.62 hrs Surf.Area= 5,346 sf Storage= 4,536 cf

Plug-Flow detention time= 184.3 min calculated for 0.217 af (96% of inflow)
 Center-of-Mass det. time= 157.3 min (899.7 - 742.4)

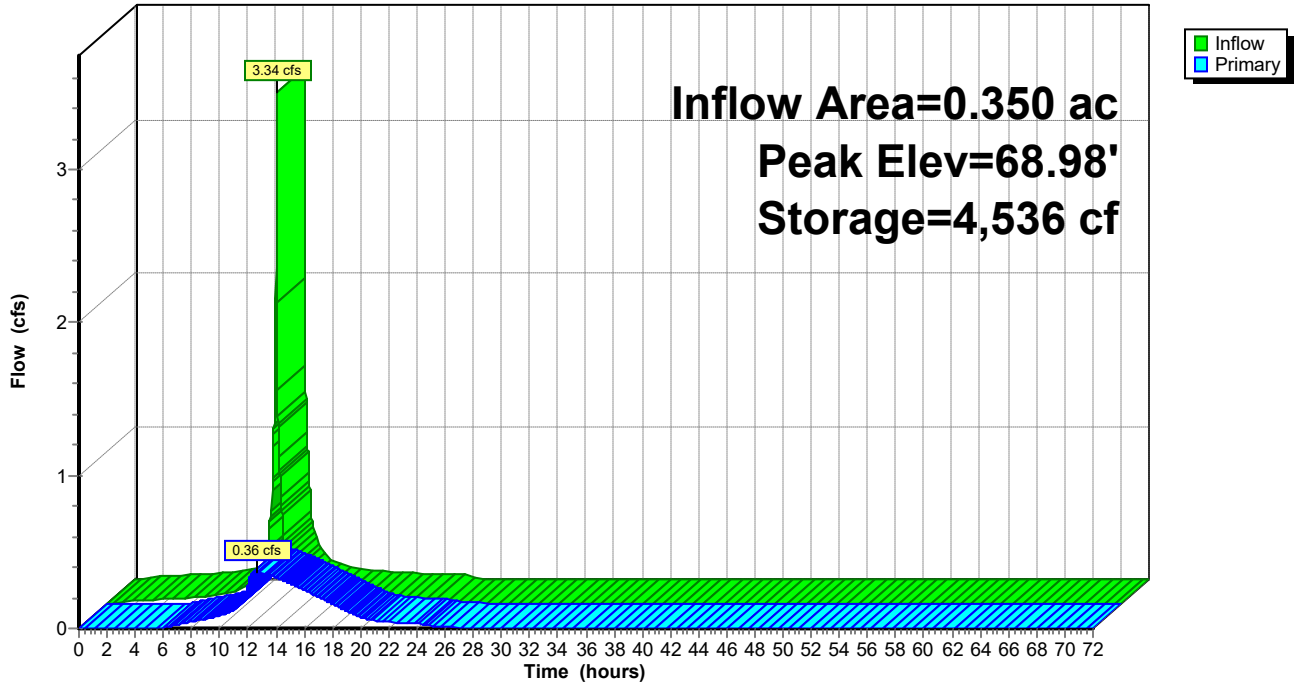
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	5,742 cf	18.00'W x 297.00'L x 4.00'H Prismatic 21,384 cf Overall - 3,985 cf Embedded = 17,399 cf x 33.0% Voids
#2	67.64'	3,732 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 297.0' 3,985 cf Overall - 0.4" Wall Thickness = 3,732 cf
		9,474 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.32' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	69.76'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.36 cfs @ 12.62 hrs HW=68.98' (Free Discharge)
 1=Culvert (Passes 0.36 cfs of 9.64 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.36 cfs @ 5.35 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P9: Porous Pavement 9

Hydrograph



Hydrograph for Pond P9: Porous Pavement 9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.02	67	67.43	0.00
4.00	0.03	260	67.54	0.00
6.00	0.04	512	67.68	0.01
8.00	0.06	691	67.76	0.05
10.00	0.12	835	67.81	0.09
12.00	1.99	2,687	68.42	0.27
14.00	0.13	3,816	68.76	0.33
16.00	0.07	2,370	68.32	0.25
18.00	0.05	1,311	67.98	0.16
20.00	0.04	794	67.80	0.07
22.00	0.04	679	67.75	0.04
24.00	0.04	646	67.74	0.03
26.00	0.00	523	67.68	0.01
28.00	0.00	487	67.67	0.00
30.00	0.00	469	67.66	0.00
32.00	0.00	457	67.65	0.00
34.00	0.00	450	67.65	0.00
36.00	0.00	445	67.64	0.00
38.00	0.00	442	67.64	0.00
40.00	0.00	440	67.64	0.00
42.00	0.00	439	67.64	0.00
44.00	0.00	438	67.64	0.00
46.00	0.00	437	67.64	0.00
48.00	0.00	437	67.64	0.00
50.00	0.00	437	67.64	0.00
52.00	0.00	437	67.64	0.00
54.00	0.00	437	67.64	0.00
56.00	0.00	437	67.64	0.00
58.00	0.00	437	67.64	0.00
60.00	0.00	437	67.64	0.00
62.00	0.00	437	67.64	0.00
64.00	0.00	437	67.64	0.00
66.00	0.00	437	67.64	0.00
68.00	0.00	437	67.64	0.00
70.00	0.00	436	67.64	0.00
72.00	0.00	436	67.64	0.00

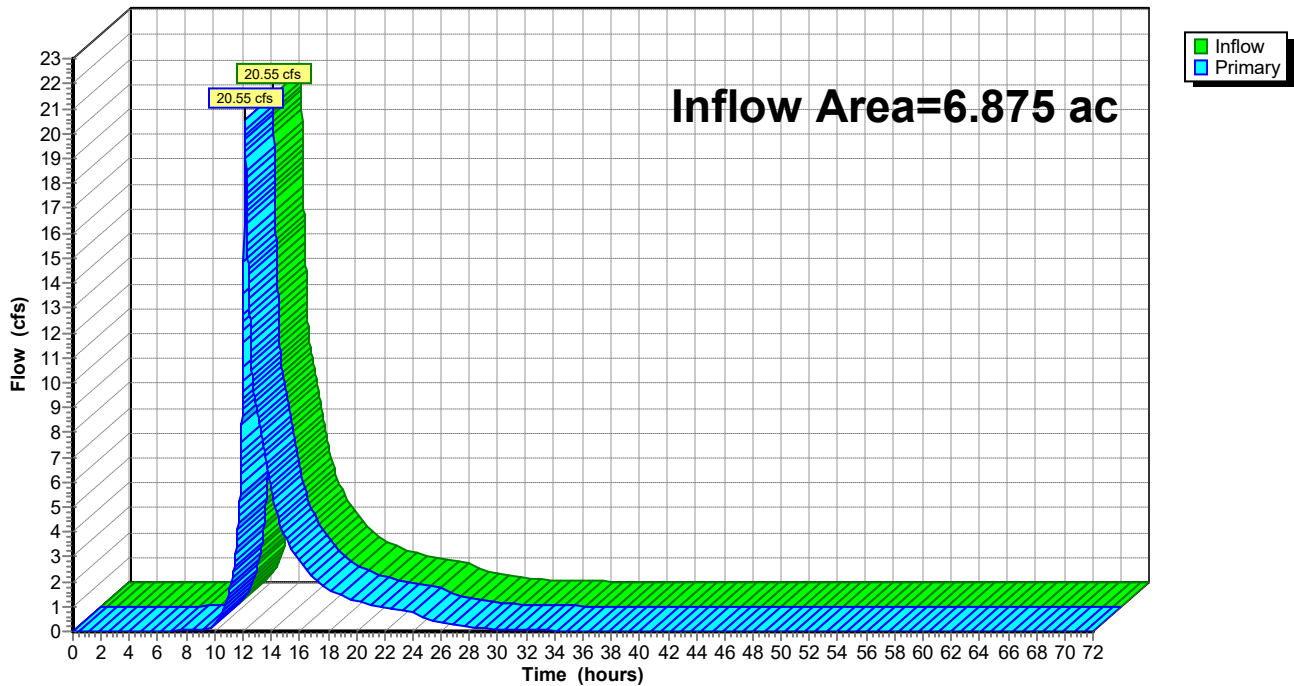
Summary for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.875 ac, 86.11% Impervious, Inflow Depth = 6.73" for 100-Year C event
Inflow = 20.55 cfs @ 12.11 hrs, Volume= 3.855 af
Primary = 20.55 cfs @ 12.11 hrs, Volume= 3.855 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.04		0.04	60.00	0.00		0.00
9.00	0.06		0.06	61.00	0.00		0.00
10.00	0.22		0.22	62.00	0.00		0.00
11.00	1.55		1.55	63.00	0.00		0.00
12.00	10.12		10.12	64.00	0.00		0.00
13.00	8.95		8.95	65.00	0.00		0.00
14.00	5.69		5.69	66.00	0.00		0.00
15.00	3.79		3.79	67.00	0.00		0.00
16.00	2.82		2.82	68.00	0.00		0.00
17.00	2.20		2.20	69.00	0.00		0.00
18.00	1.72		1.72	70.00	0.00		0.00
19.00	1.41		1.41	71.00	0.00		0.00
20.00	1.22		1.22	72.00	0.00		0.00
21.00	1.09		1.09				
22.00	0.99		0.99				
23.00	0.90		0.90				
24.00	0.83		0.83				
25.00	0.51		0.51				
26.00	0.35		0.35				
27.00	0.24		0.24				
28.00	0.17		0.17				
29.00	0.12		0.12				
30.00	0.09		0.09				
31.00	0.07		0.07				
32.00	0.05		0.05				
33.00	0.04		0.04				
34.00	0.03		0.03				
35.00	0.03		0.03				
36.00	0.02		0.02				
37.00	0.02		0.02				
38.00	0.01		0.01				
39.00	0.01		0.01				
40.00	0.01		0.01				
41.00	0.01		0.01				
42.00	0.01		0.01				
43.00	0.01		0.01				
44.00	0.01		0.01				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 2I: IMPERVIOUS

Runoff = 5.54 cfs @ 12.09 hrs, Volume= 0.384 af, Depth=10.97"

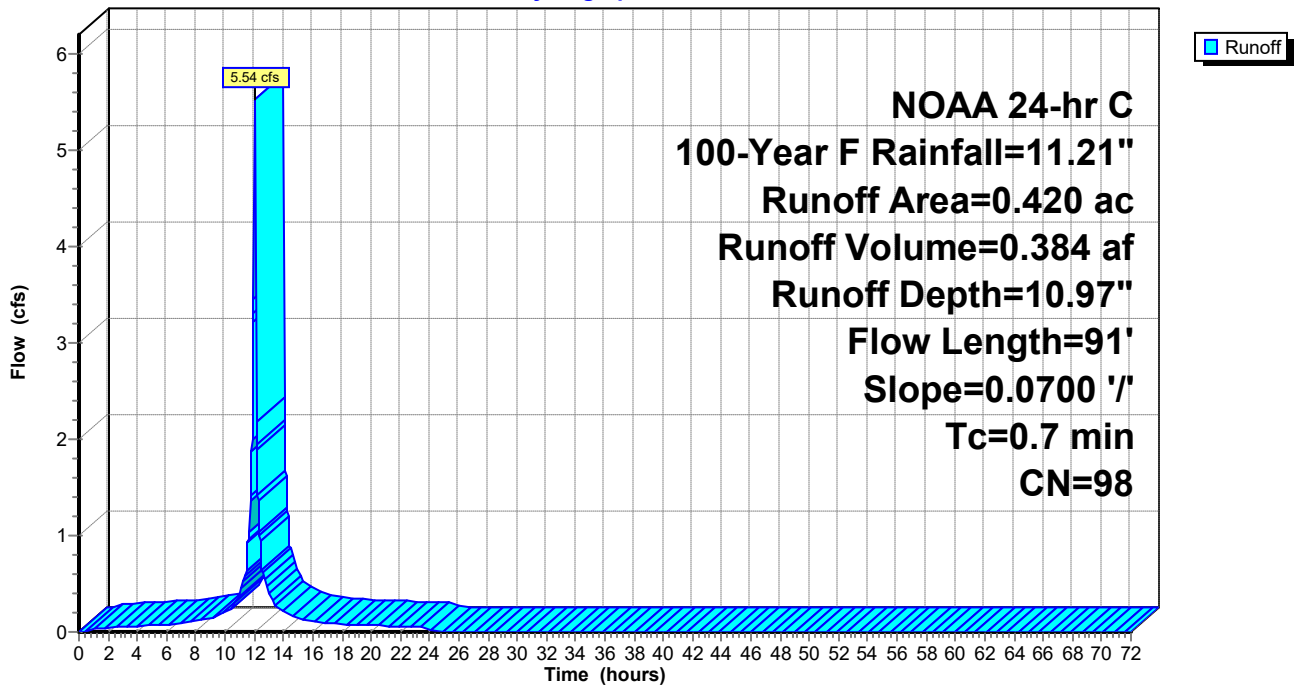
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.420	98	Paved parking, HSG D
0.420	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	91	0.0700	2.29		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 2I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 2P: PERVIOUS

Runoff = 2.28 cfs @ 12.09 hrs, Volume= 0.137 af, Depth= 8.68"

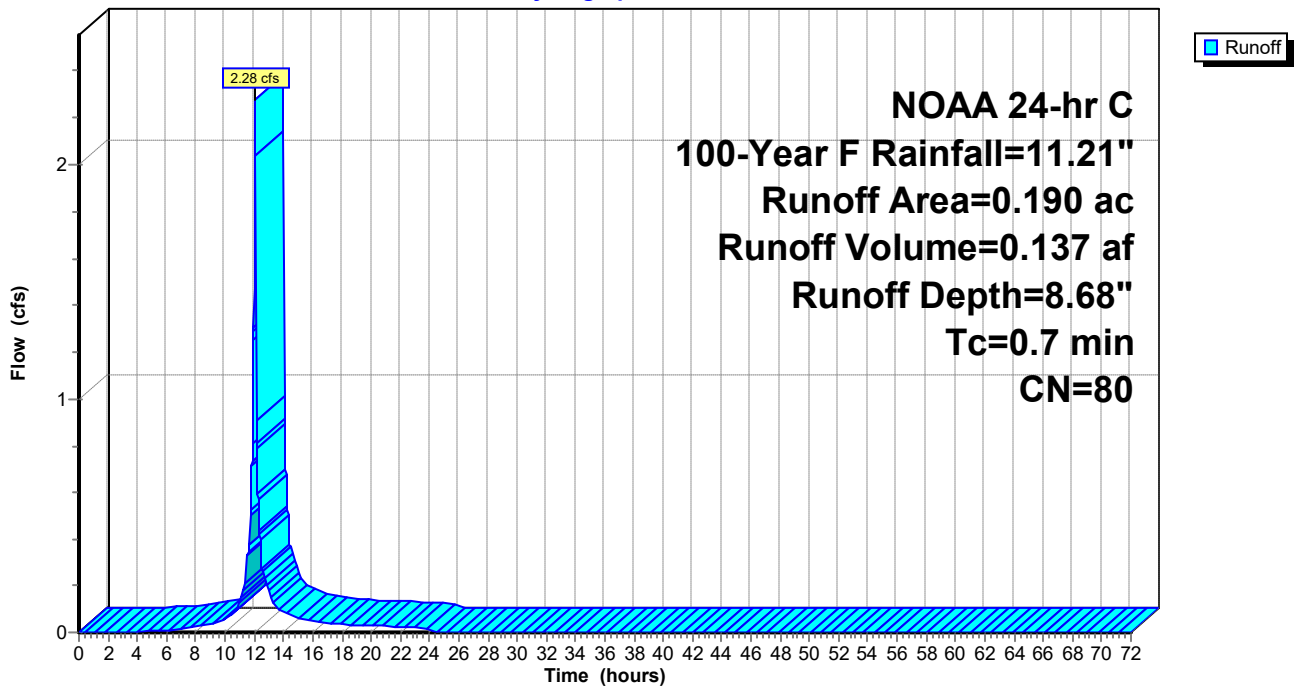
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.190	80	>75% Grass cover, Good, HSG D
0.190	80	100.00% Pervious Area

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

Subcatchment 2P: PERVIOUS

Hydrograph



Summary for Subcatchment 4I: IMPERVIOUS

Runoff = 13.71 cfs @ 12.09 hrs, Volume= 0.951 af, Depth=10.97"

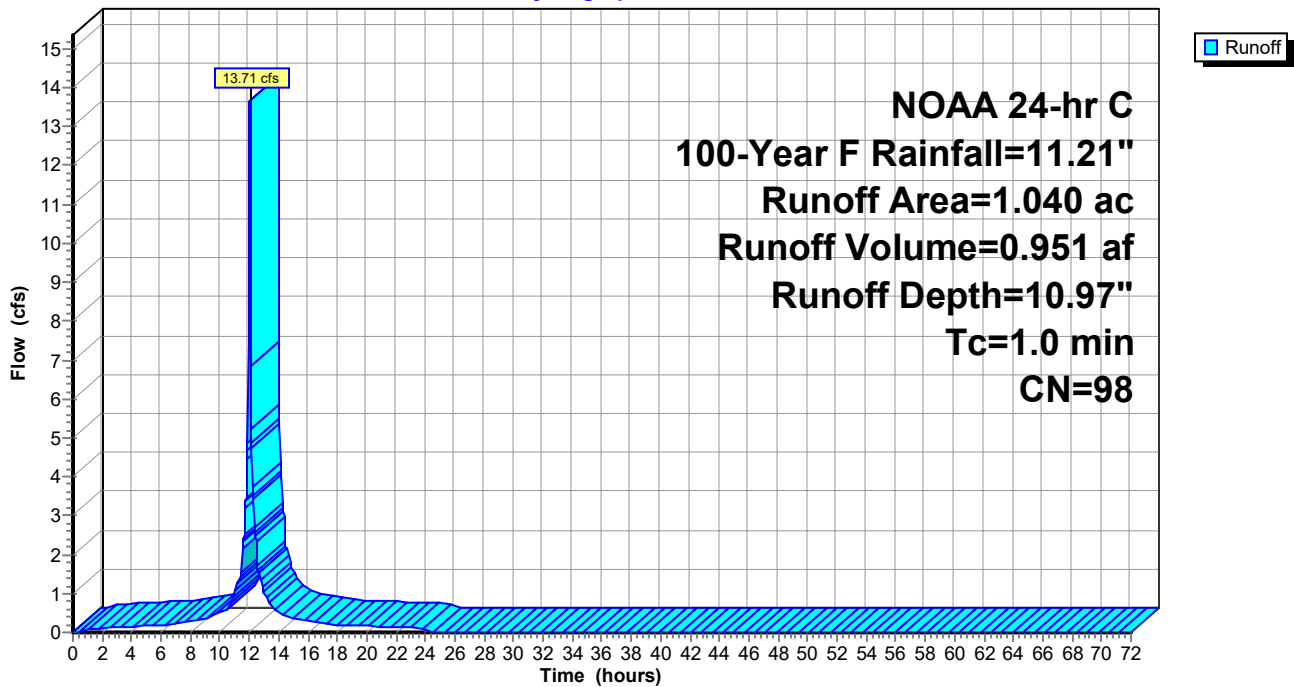
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
1.040	98	Paved parking, HSG D
1.040	98	100.00% Impervious Area

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

Subcatchment 4I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 4P: BASIN PERVIOUS

Runoff = 8.96 cfs @ 12.09 hrs, Volume= 0.622 af, Depth=10.97"

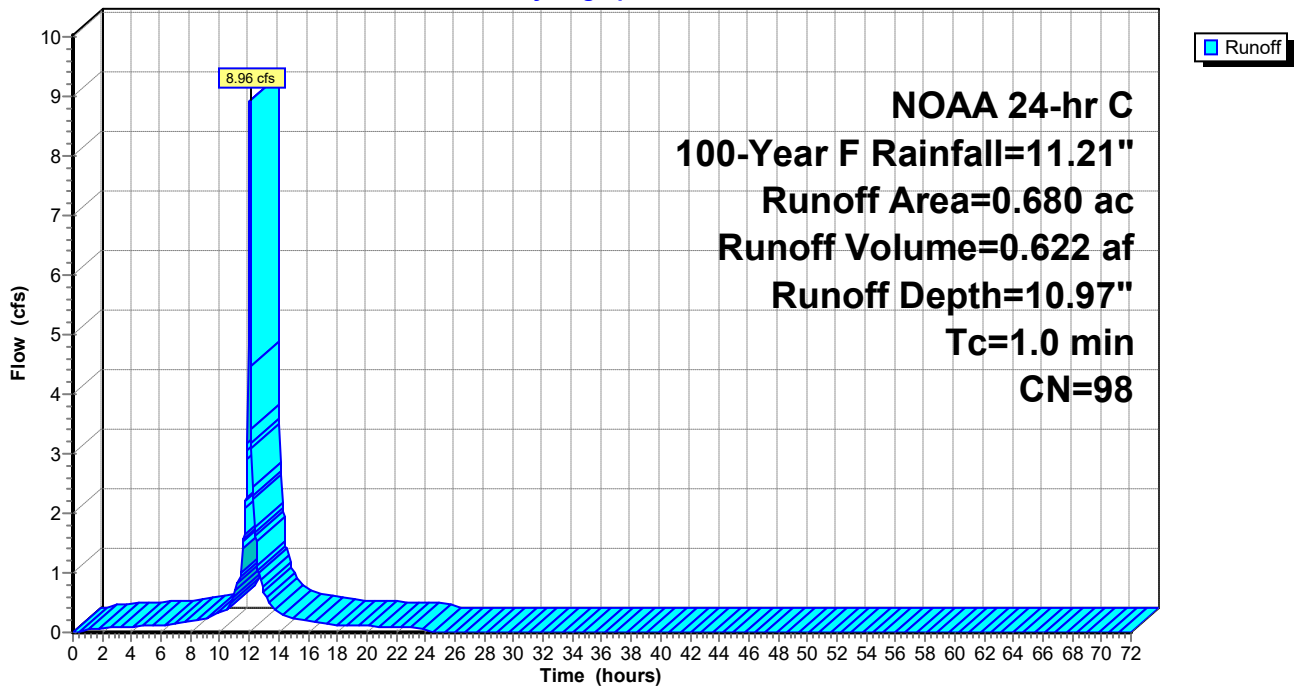
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.680	98	Paved parking, HSG D
0.680	98	100.00% Impervious Area

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

Subcatchment 4P: BASIN PERVIOUS

Hydrograph



Summary for Subcatchment 5I: IMPERVIOUS

Runoff = 12.78 cfs @ 12.09 hrs, Volume= 0.887 af, Depth=10.97"

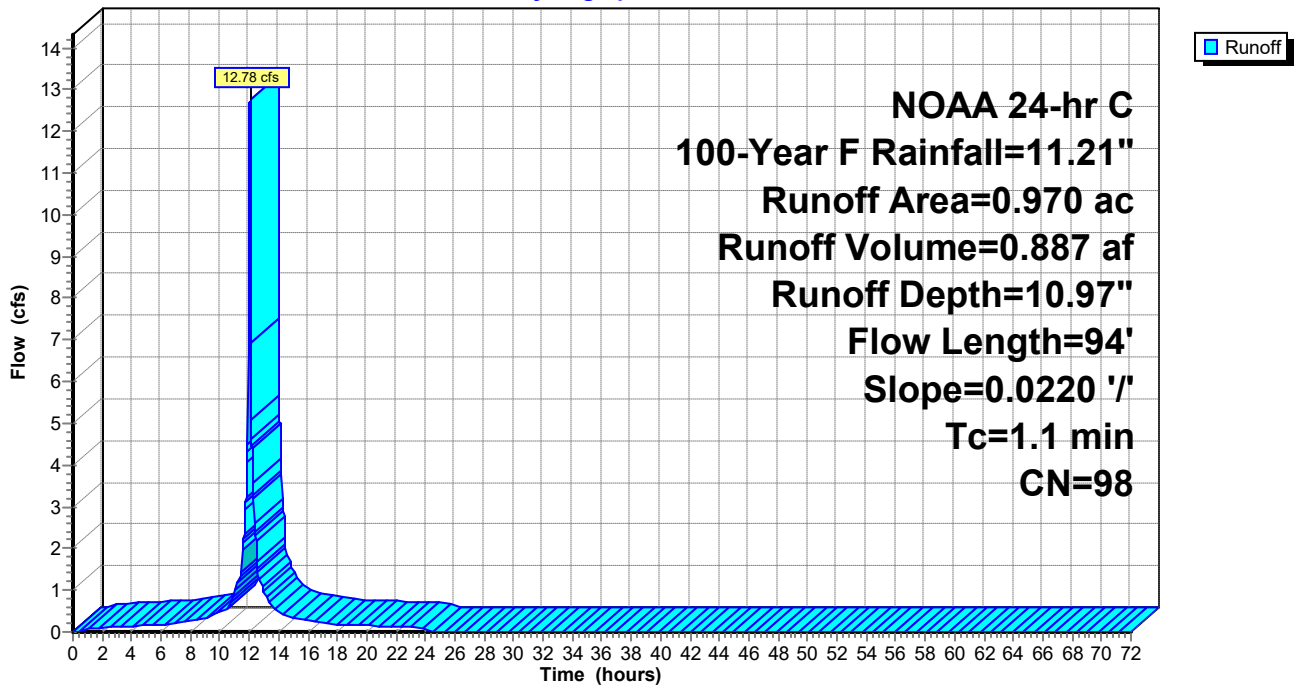
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.970	98	Paved parking, HSG D
0.970	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	94	0.0220	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 5I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 5P: PERVIOUS

Runoff = 1.86 cfs @ 12.10 hrs, Volume= 0.112 af, Depth= 8.68"

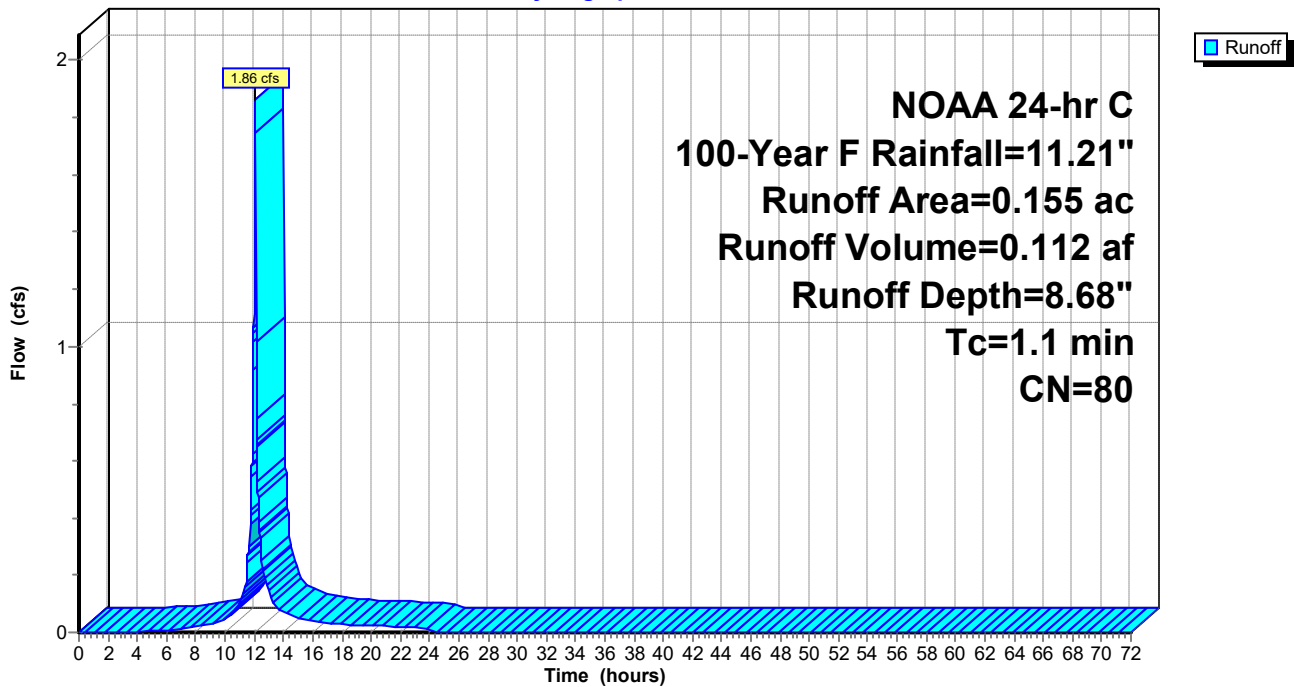
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.155	80	>75% Grass cover, Good, HSG D
0.155	80	100.00% Pervious Area

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

Subcatchment 5P: PERVIOUS

Hydrograph



Summary for Subcatchment 8I: IMPERVIOUS

Runoff = 3.16 cfs @ 12.08 hrs, Volume= 0.219 af, Depth=10.97"

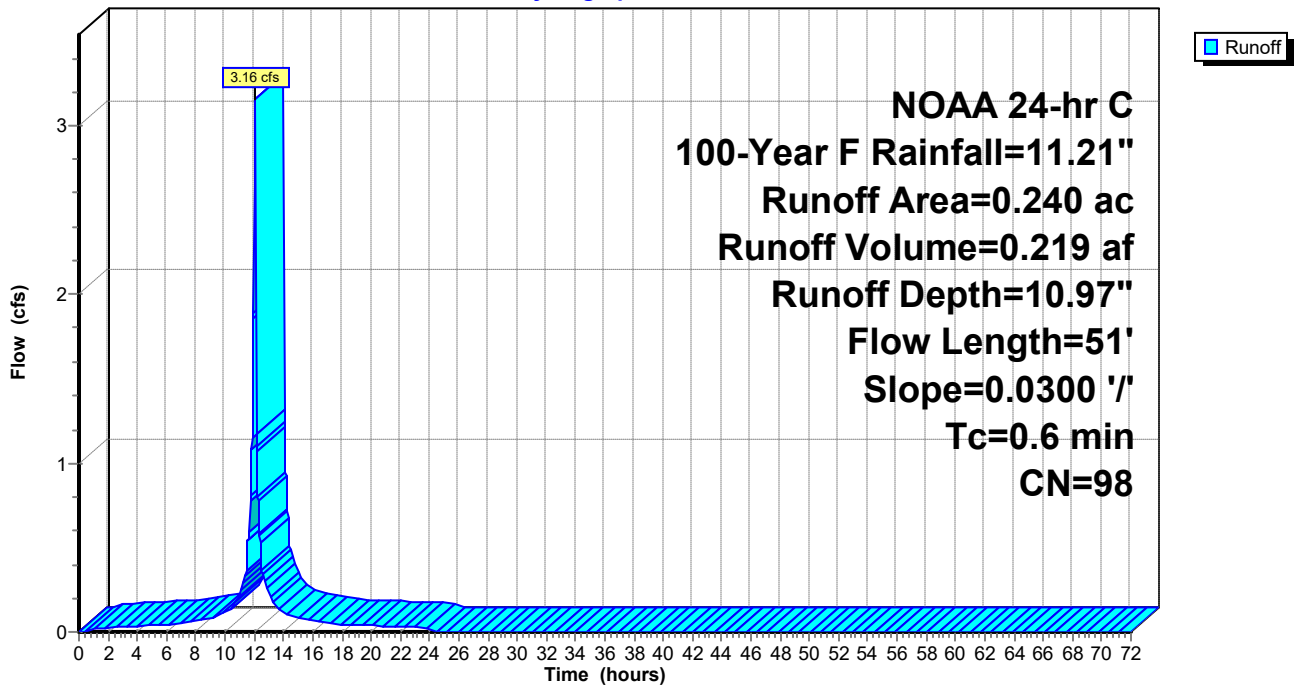
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.240	98	Paved parking, HSG D
0.240	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	51	0.0300	1.45		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 8I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9I: IMPERVIOUS

Runoff = 4.09 cfs @ 12.09 hrs, Volume= 0.283 af, Depth=10.97"

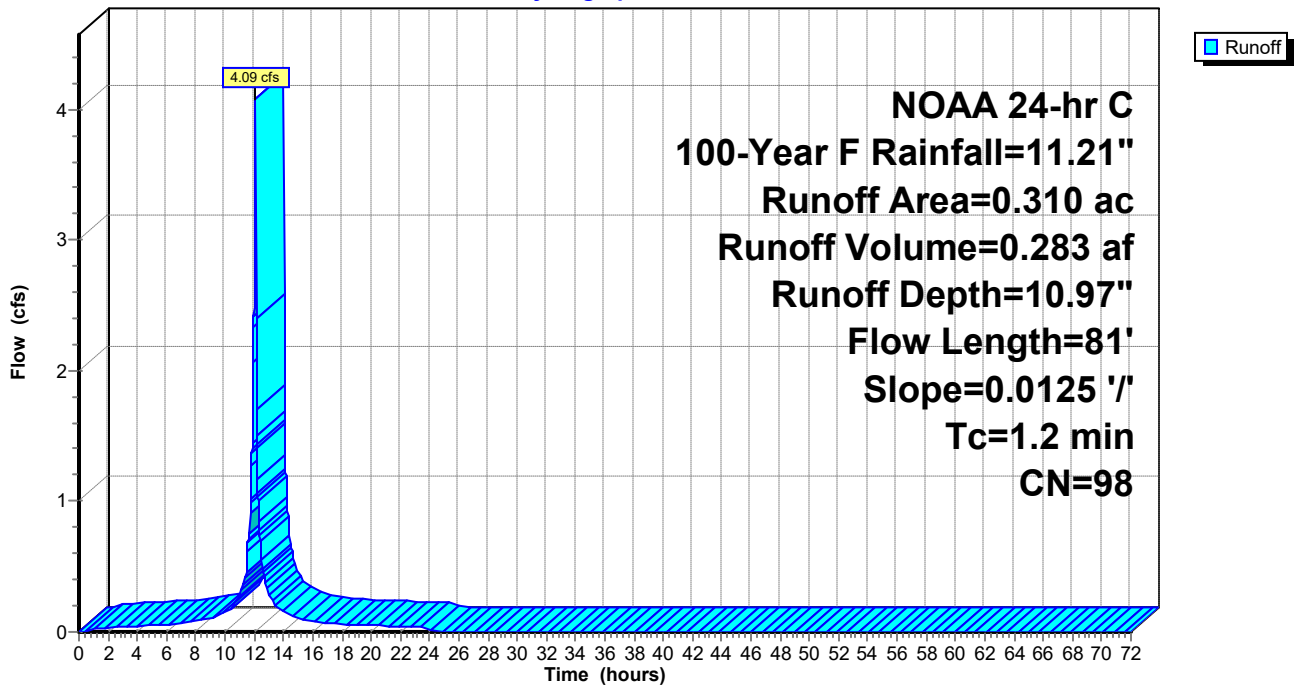
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.310	98	Paved parking, HSG D
0.310	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	81	0.0125	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 9P: PERVIOUS

Runoff = 0.48 cfs @ 12.10 hrs, Volume= 0.029 af, Depth= 8.68"

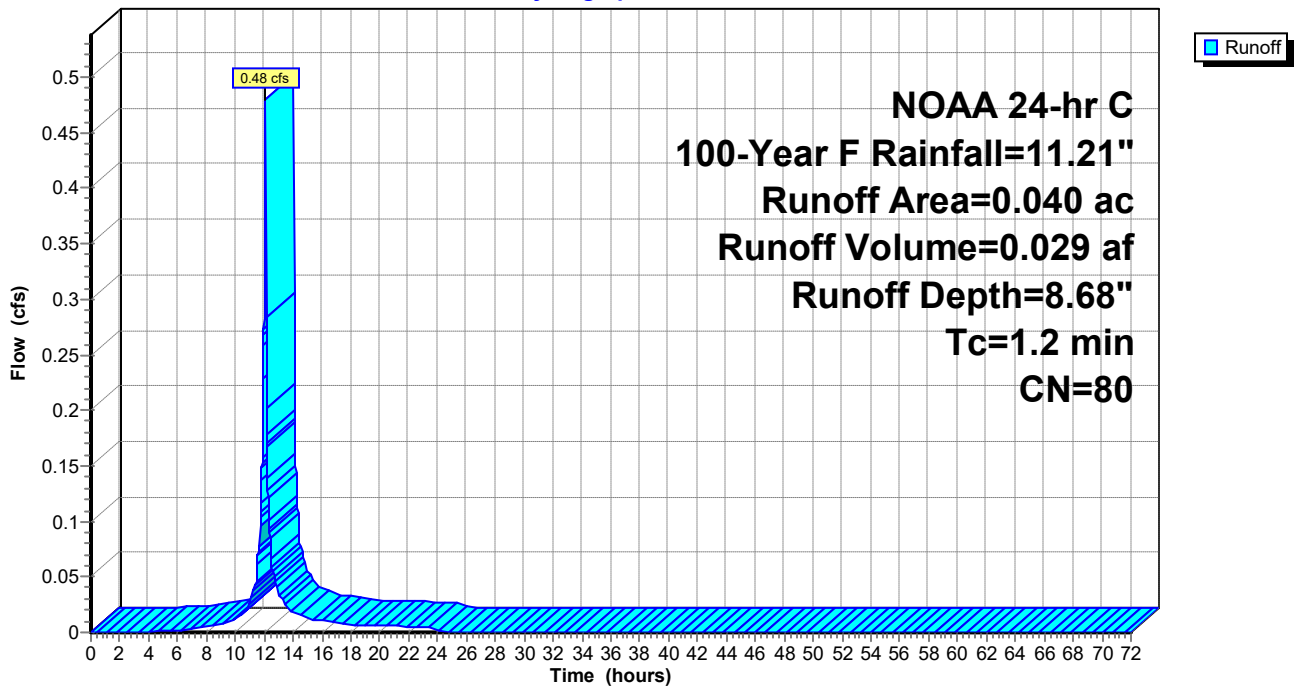
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.040	80	>75% Grass cover, Good, HSG D
0.040	80	100.00% Pervious Area

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

Subcatchment 9P: PERVIOUS

Hydrograph



Summary for Subcatchment 10I: IMPERVIOUS

Runoff = 8.43 cfs @ 12.09 hrs, Volume= 0.585 af, Depth=10.97"

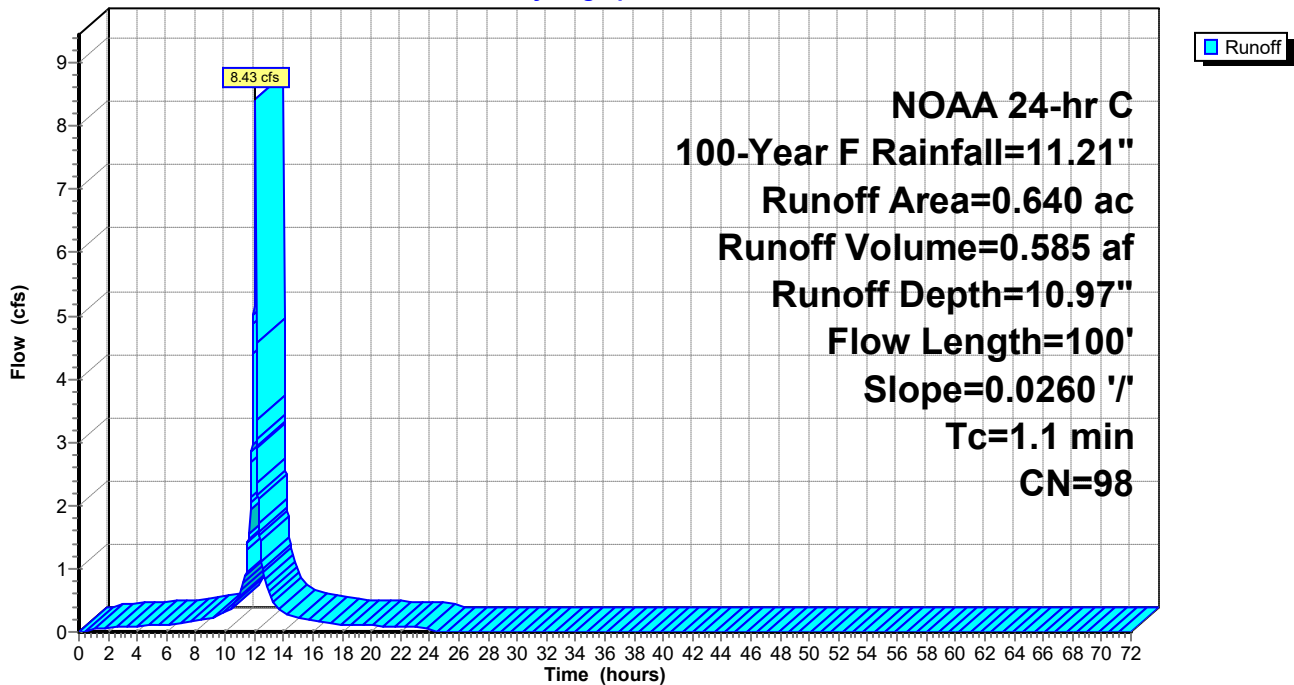
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.640	98	Paved parking, HSG D
0.640	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0260	1.57		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 10I: IMPERVIOUS

Hydrograph



Summary for Subcatchment 10P: PERVIOUS

Runoff = 0.84 cfs @ 12.10 hrs, Volume= 0.051 af, Depth= 8.68"

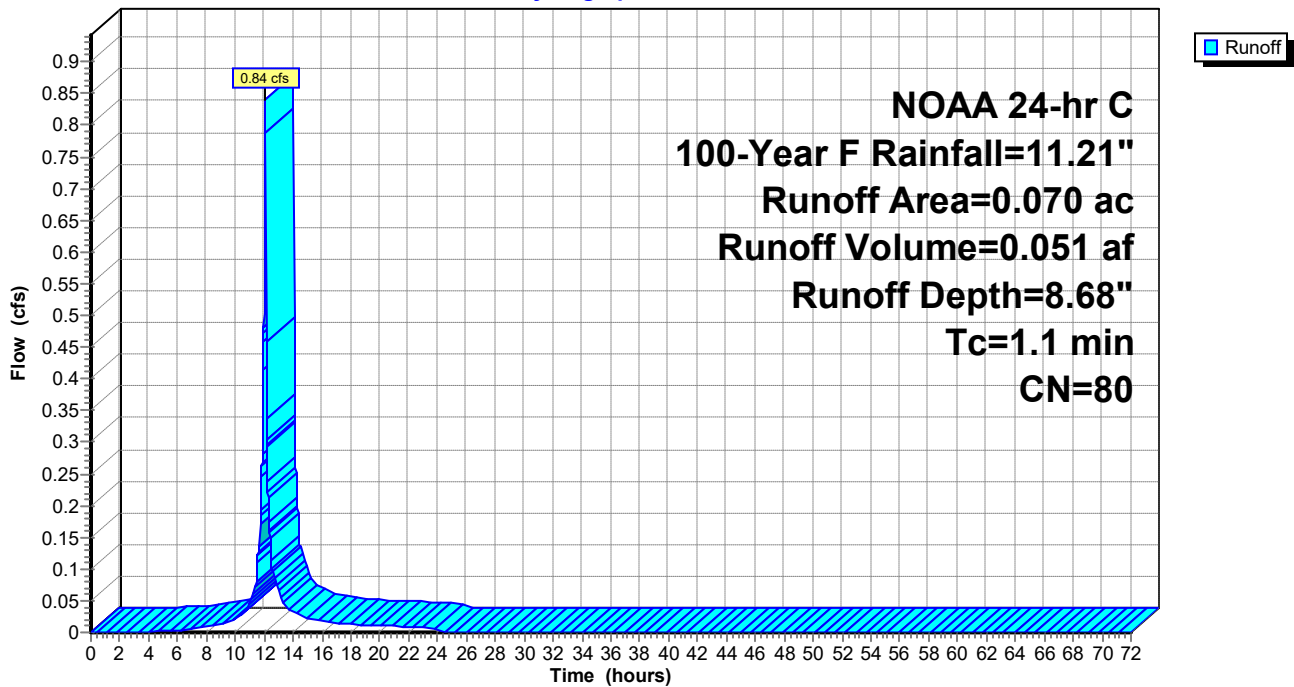
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.070	80	>75% Grass cover, Good, HSG D
0.070	80	100.00% Pervious Area

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

Subcatchment 10P: PERVIOUS

Hydrograph



Summary for Subcatchment I2: OFFSITE

Runoff = 1.98 cfs @ 12.09 hrs, Volume= 0.137 af, Depth=10.97"

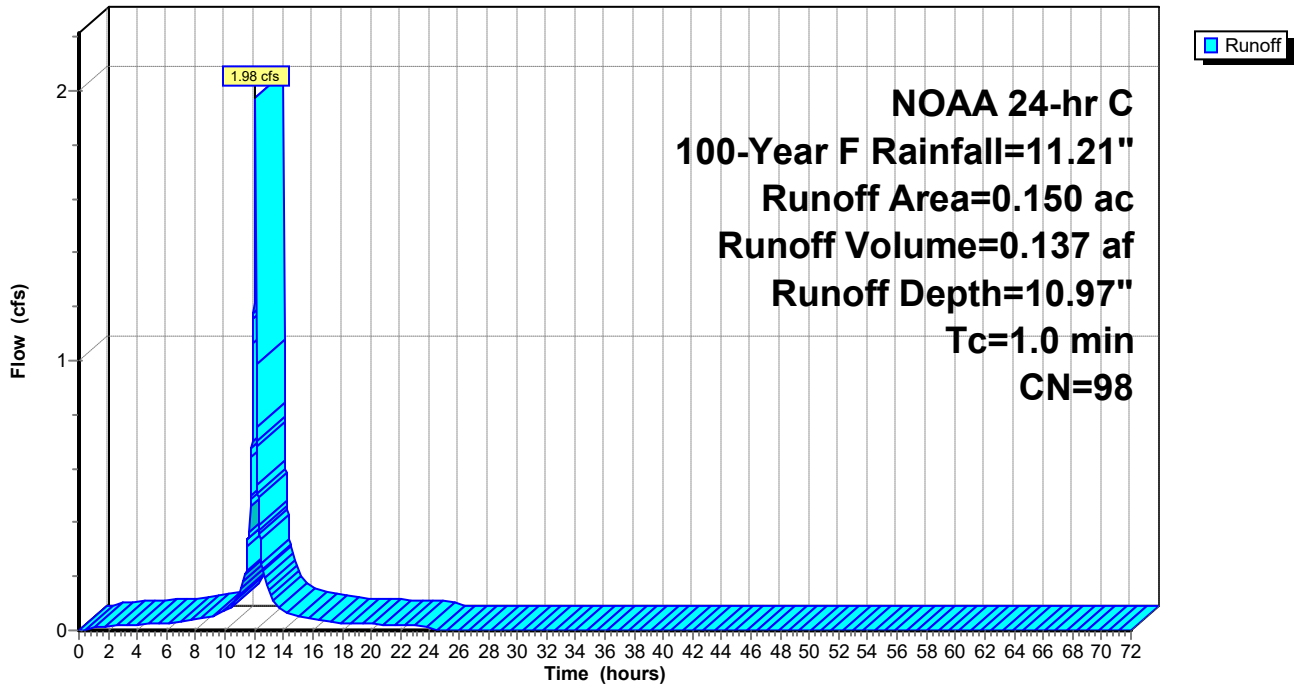
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG D
0.150	98	100.00% Impervious Area

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

Subcatchment I2: OFFSITE

Hydrograph



Summary for Subcatchment I3: IMPERVIOUS

Runoff = 19.37 cfs @ 12.09 hrs, Volume= 1.344 af, Depth=10.97"

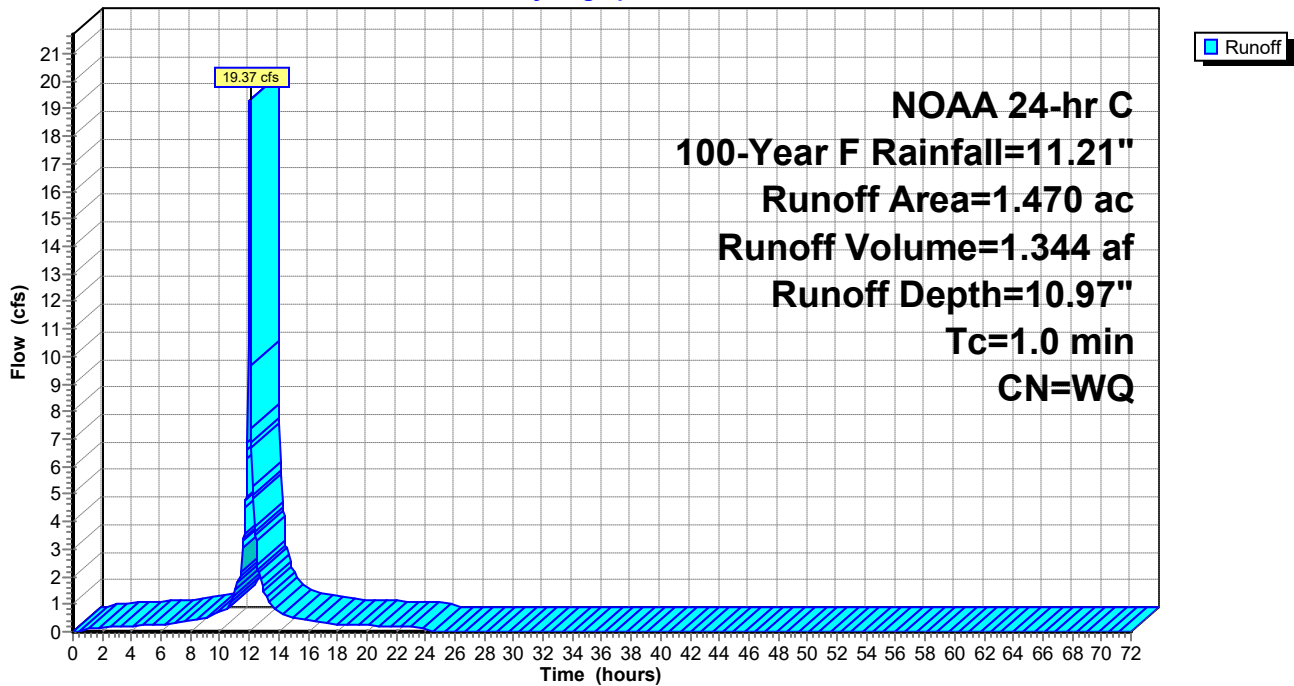
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
1.330	98	Unconnected roofs, HSG D
0.140	98	Unconnected pavement, HSG D
1.470		Weighted Average
1.470	98	100.00% Impervious Area
1.470		100.00% Unconnected

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

Subcatchment I3: IMPERVIOUS

Hydrograph



Summary for Subcatchment P2: OFFSITE

Runoff = 3.00 cfs @ 12.10 hrs, Volume= 0.181 af, Depth= 8.68"

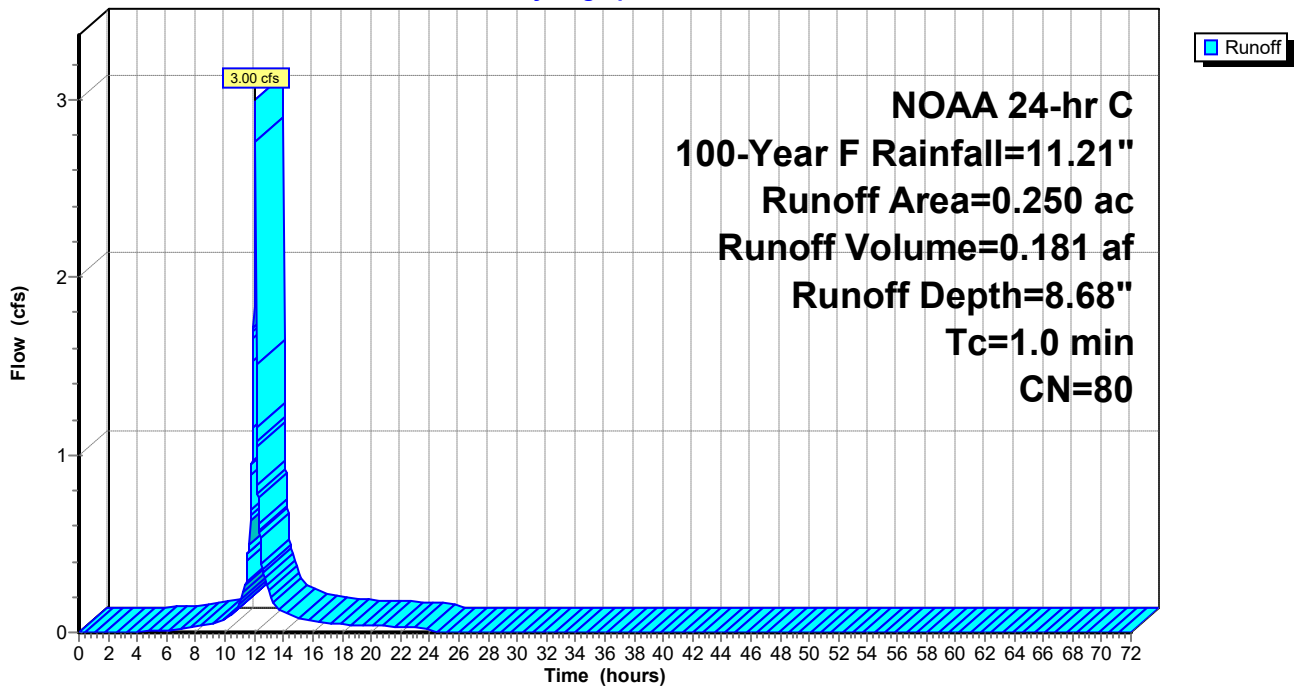
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P2: OFFSITE

Hydrograph



Summary for Subcatchment P3: PERVIOUS

Runoff = 3.00 cfs @ 12.10 hrs, Volume= 0.181 af, Depth= 8.68"

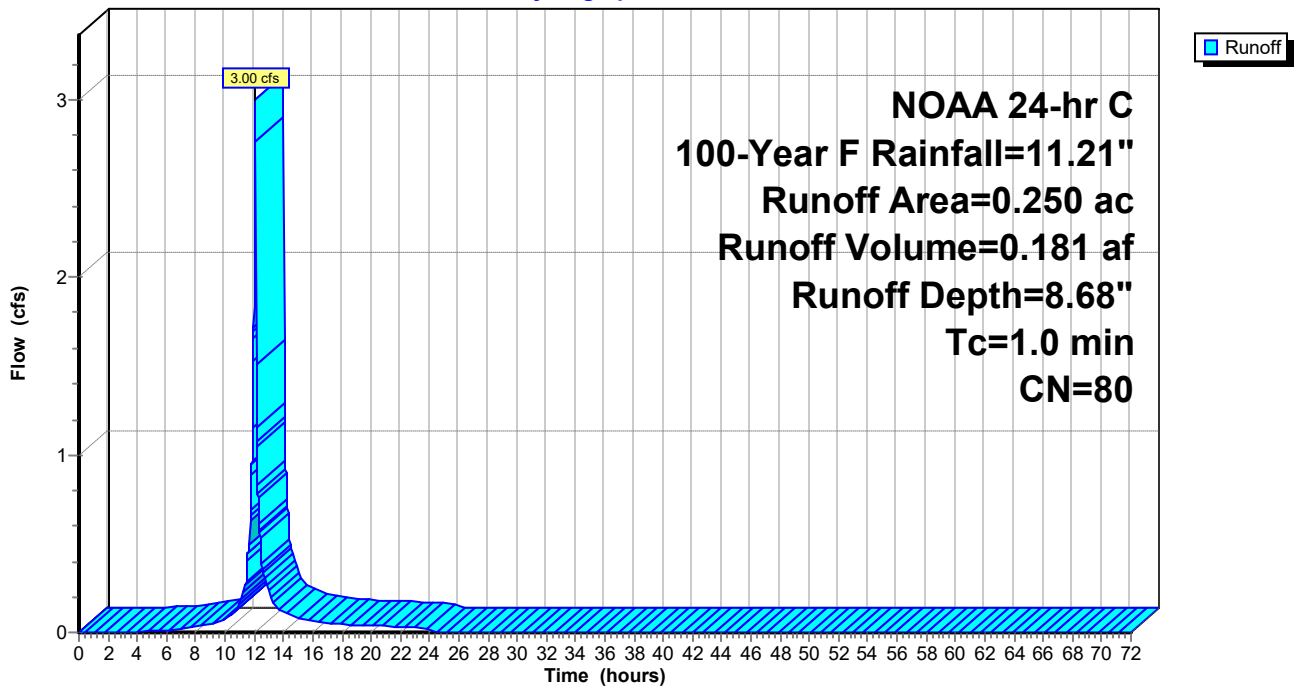
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NOAA 24-hr C 100-Year F Rainfall=11.21"

Area (ac)	CN	Description
0.250	80	>75% Grass cover, Good, HSG D
0.250	80	100.00% Pervious Area

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

Subcatchment P3: PERVIOUS

Hydrograph



Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 10.26" for 100-Year F event
 Inflow = 7.82 cfs @ 12.09 hrs, Volume= 0.521 af
 Outflow = 7.79 cfs @ 12.10 hrs, Volume= 0.443 af, Atten= 0%, Lag= 0.6 min
 Primary = 7.79 cfs @ 12.10 hrs, Volume= 0.443 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 72.03' @ 12.10 hrs Surf.Area= 2,342 sf Storage= 4,040 cf

Plug-Flow detention time= 128.8 min calculated for 0.443 af (85% of inflow)
 Center-of-Mass det. time= 60.0 min (807.6 - 747.6)

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	8,281 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	432	0	0
69.50	686	280	280
70.50	1,294	990	1,270
71.50	1,963	1,629	2,898
72.50	2,677	2,320	5,218
73.50	3,448	3,063	8,281

Device	Routing	Invert	Outlet Devices
#1	Primary	67.49'	24.0" Round Culvert L= 165.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.49' / 67.00' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	71.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Secondary	73.50'	50.0' 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

Primary OutFlow Max=7.77 cfs @ 12.10 hrs HW=72.03' (Free Discharge)

↑1=Culvert (Passes 7.77 cfs of 23.27 cfs potential flow)

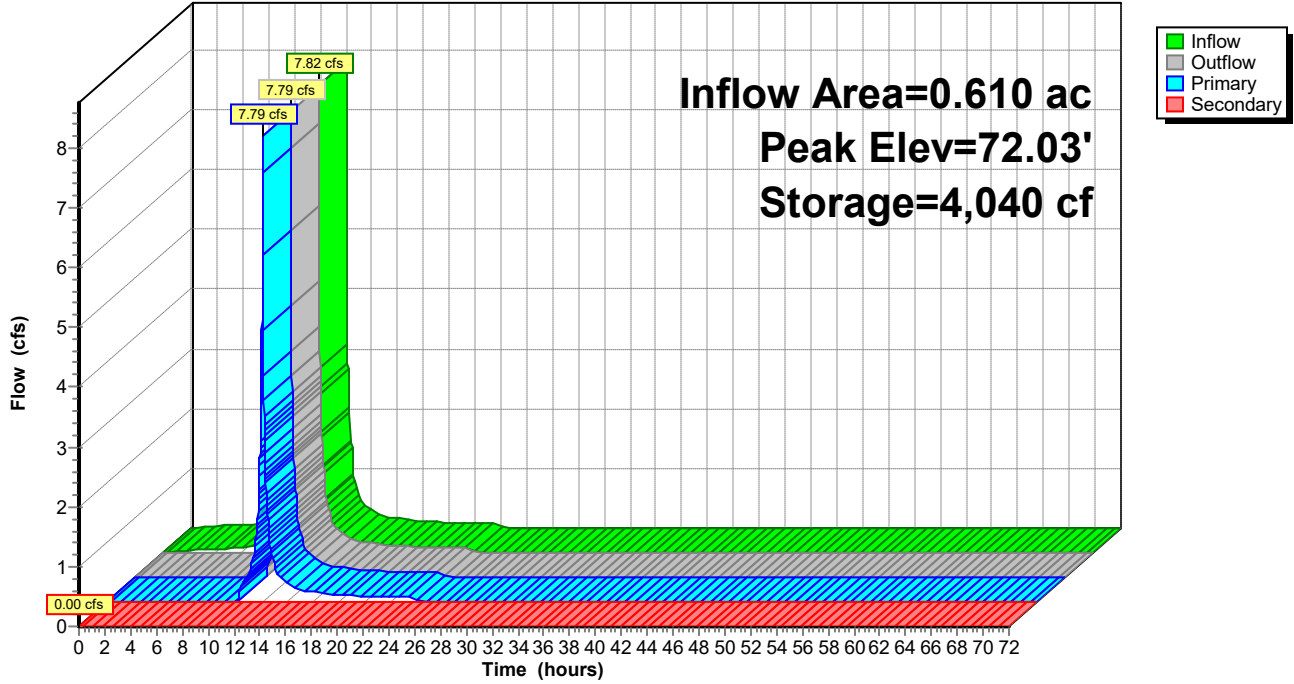
↑2=Orifice/Grate (Weir Controls 7.77 cfs @ 1.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph



Hydrograph for Pond B2: SMALL-SCALE BIORETENTION 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	69.00	0.00	0.00	0.00
2.00	0.04	164	69.32	0.00	0.00	0.00
4.00	0.06	550	69.84	0.00	0.00	0.00
6.00	0.08	1,074	70.34	0.00	0.00	0.00
8.00	0.14	1,858	70.91	0.00	0.00	0.00
10.00	0.26	3,168	71.63	0.00	0.00	0.00
12.00	4.67	3,849	71.95	4.62	4.62	0.00
14.00	0.30	3,474	71.78	0.30	0.30	0.00
16.00	0.17	3,445	71.77	0.17	0.17	0.00
18.00	0.11	3,434	71.76	0.11	0.11	0.00
20.00	0.10	3,431	71.76	0.10	0.10	0.00
22.00	0.08	3,428	71.76	0.08	0.08	0.00
24.00	0.09	3,428	71.76	0.08	0.08	0.00
26.00	0.00	3,411	71.75	0.00	0.00	0.00
28.00	0.00	3,411	71.75	0.00	0.00	0.00
30.00	0.00	3,411	71.75	0.00	0.00	0.00
32.00	0.00	3,411	71.75	0.00	0.00	0.00
34.00	0.00	3,411	71.75	0.00	0.00	0.00
36.00	0.00	3,411	71.75	0.00	0.00	0.00
38.00	0.00	3,411	71.75	0.00	0.00	0.00
40.00	0.00	3,411	71.75	0.00	0.00	0.00
42.00	0.00	3,411	71.75	0.00	0.00	0.00
44.00	0.00	3,411	71.75	0.00	0.00	0.00
46.00	0.00	3,411	71.75	0.00	0.00	0.00
48.00	0.00	3,411	71.75	0.00	0.00	0.00
50.00	0.00	3,411	71.75	0.00	0.00	0.00
52.00	0.00	3,411	71.75	0.00	0.00	0.00
54.00	0.00	3,411	71.75	0.00	0.00	0.00
56.00	0.00	3,411	71.75	0.00	0.00	0.00
58.00	0.00	3,411	71.75	0.00	0.00	0.00
60.00	0.00	3,411	71.75	0.00	0.00	0.00
62.00	0.00	3,411	71.75	0.00	0.00	0.00
64.00	0.00	3,411	71.75	0.00	0.00	0.00
66.00	0.00	3,411	71.75	0.00	0.00	0.00
68.00	0.00	3,411	71.75	0.00	0.00	0.00
70.00	0.00	3,411	71.75	0.00	0.00	0.00
72.00	0.00	3,411	71.75	0.00	0.00	0.00

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 10.46" for 100-Year F event
 Inflow = 56.12 cfs @ 12.10 hrs, Volume= 5.645 af
 Outflow = 30.32 cfs @ 12.12 hrs, Volume= 5.215 af, Atten= 46%, Lag= 1.4 min
 Primary = 30.32 cfs @ 12.12 hrs, Volume= 5.215 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 70.07' @ 12.12 hrs Surf.Area= 23,569 sf Storage= 65,391 cf

Plug-Flow detention time= 149.5 min calculated for 5.215 af (92% of inflow)
 Center-of-Mass det. time= 100.7 min (904.5 - 803.9)

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	24.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.95'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Device 1	69.40'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	70.08'	50.0' 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

Primary OutFlow Max=30.31 cfs @ 12.12 hrs HW=70.07' (Free Discharge)

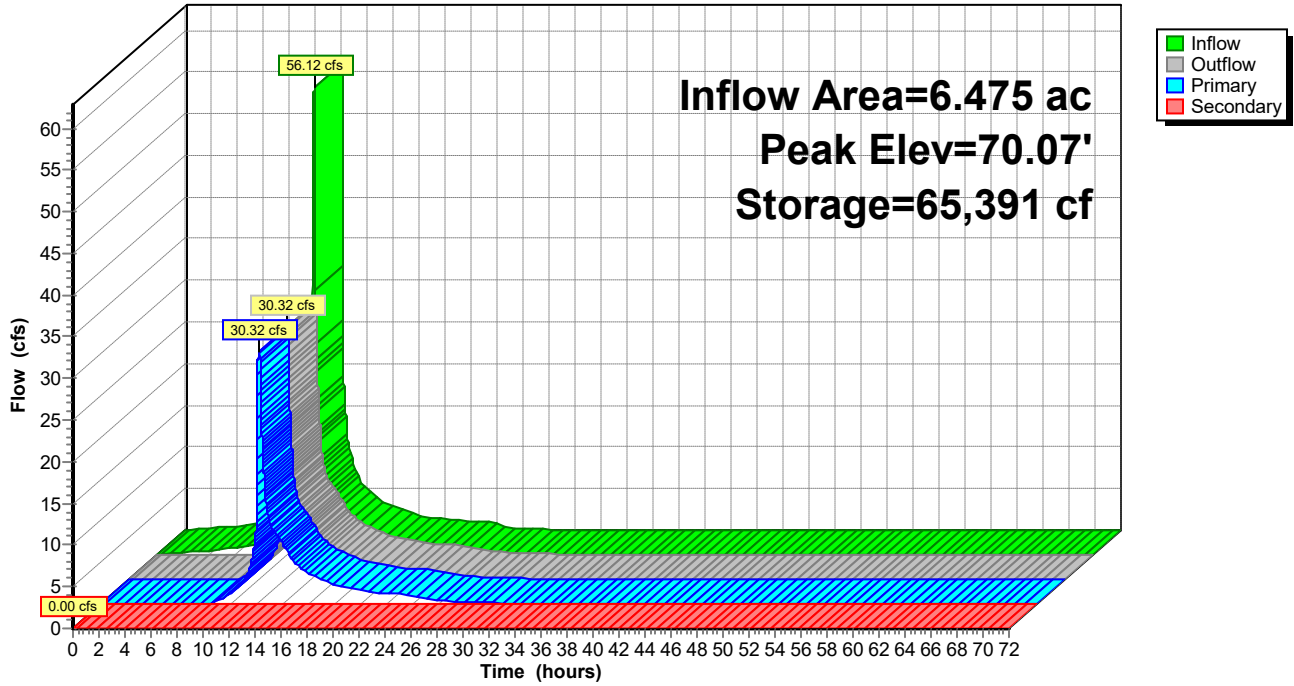
- ↑ 1=Culvert (Barrel Controls 30.31 cfs @ 9.65 fps)
- ↑ 2=Orifice/Grate (Passes < 12.20 cfs potential flow)
- ↑ 3=Orifice/Grate (Passes < 28.57 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=67.00' (Free Discharge)

- ↑ 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	67.00	0.00	0.00	0.00
2.00	0.33	1,238	67.07	0.00	0.00	0.00
4.00	0.49	4,185	67.22	0.00	0.00	0.00
6.00	0.87	9,186	67.48	0.00	0.00	0.00
8.00	1.38	17,309	67.88	0.00	0.00	0.00
10.00	2.42	26,268	68.31	1.41	1.41	0.00
12.00	34.29	54,038	69.58	14.19	14.19	0.00
14.00	4.93	41,983	69.04	7.16	7.16	0.00
16.00	3.00	33,049	68.63	3.63	3.63	0.00
18.00	1.87	29,345	68.46	2.34	2.34	0.00
20.00	1.39	26,937	68.35	1.60	1.60	0.00
22.00	1.14	25,759	68.29	1.27	1.27	0.00
24.00	1.06	24,919	68.25	1.06	1.06	0.00
26.00	0.22	22,204	68.12	0.45	0.45	0.00
28.00	0.12	21,012	68.06	0.24	0.24	0.00
30.00	0.04	20,238	68.02	0.13	0.13	0.00
32.00	0.02	19,725	68.00	0.07	0.07	0.00
34.00	0.01	19,408	67.98	0.05	0.05	0.00
36.00	0.00	19,195	67.97	0.03	0.03	0.00
38.00	0.00	19,062	67.97	0.02	0.02	0.00
40.00	0.00	18,981	67.96	0.01	0.01	0.00
42.00	0.00	18,931	67.96	0.01	0.01	0.00
44.00	0.00	18,897	67.96	0.01	0.01	0.00
46.00	0.00	18,868	67.96	0.00	0.00	0.00
48.00	0.00	18,843	67.96	0.00	0.00	0.00
50.00	0.00	18,822	67.96	0.00	0.00	0.00
52.00	0.00	18,803	67.95	0.00	0.00	0.00
54.00	0.00	18,788	67.95	0.00	0.00	0.00
56.00	0.00	18,775	67.95	0.00	0.00	0.00
58.00	0.00	18,765	67.95	0.00	0.00	0.00
60.00	0.00	18,756	67.95	0.00	0.00	0.00
62.00	0.00	18,748	67.95	0.00	0.00	0.00
64.00	0.00	18,742	67.95	0.00	0.00	0.00
66.00	0.00	18,737	67.95	0.00	0.00	0.00
68.00	0.00	18,733	67.95	0.00	0.00	0.00
70.00	0.00	18,730	67.95	0.00	0.00	0.00
72.00	0.00	18,727	67.95	0.00	0.00	0.00

Summary for Pond P10: Porous Pavement 10

Inflow Area = 0.710 ac, 90.14% Impervious, Inflow Depth = 10.74" for 100-Year F event
 Inflow = 9.27 cfs @ 12.09 hrs, Volume= 0.636 af
 Outflow = 1.45 cfs @ 12.51 hrs, Volume= 0.619 af, Atten= 84%, Lag= 25.2 min
 Primary = 1.45 cfs @ 12.51 hrs, Volume= 0.619 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 70.85' @ 12.51 hrs Surf.Area= 9,090 sf Storage= 13,836 cf

Plug-Flow detention time= 304.6 min calculated for 0.619 af (97% of inflow)
 Center-of-Mass det. time= 287.5 min (1,025.3 - 737.8)

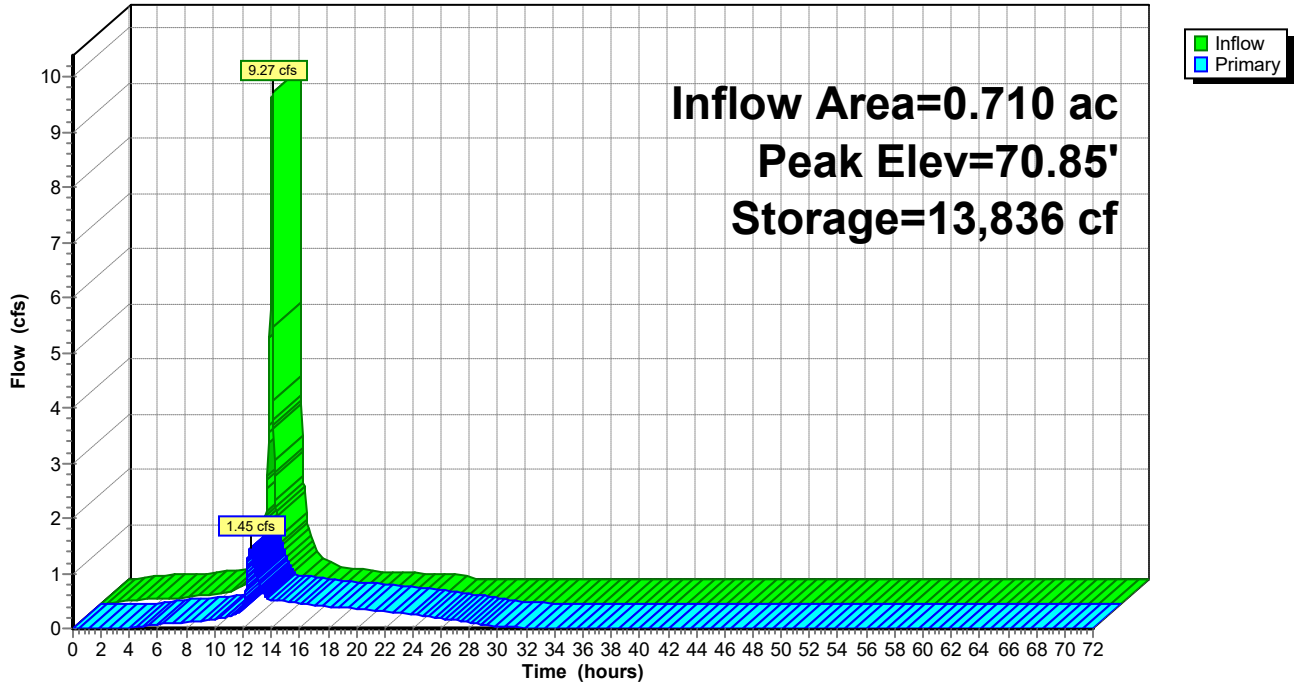
Volume	Invert	Avail.Storage	Storage Description
#1	67.61'	9,763 cf	18.00'W x 505.00'L x 4.00'H Prismatic 36,360 cf Overall - 6,776 cf Embedded = 29,584 cf x 33.0% Voids
#2	67.86'	6,346 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 505.0' 6,776 cf Overall - 0.4" Wall Thickness = 6,346 cf
		16,109 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.61'	15.0" Round Culvert L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.61' / 67.53' S= 0.0032 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	67.86'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	70.50'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=1.45 cfs @ 12.51 hrs HW=70.85' (Free Discharge)
 ↑ **1=Culvert** (Passes 1.45 cfs of 9.56 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.56 cfs @ 8.18 fps)
 ↑ **3=Orifice/Grate** (Orifice Controls 0.90 cfs @ 1.91 fps)

Pond P10: Porous Pavement 10

Hydrograph



Hydrograph for Pond P10: Porous Pavement 10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.61	0.00
2.00	0.07	248	67.69	0.00
4.00	0.09	834	67.89	0.00
6.00	0.12	1,324	68.01	0.07
8.00	0.18	1,701	68.09	0.12
10.00	0.33	2,378	68.23	0.17
12.00	5.54	8,678	69.38	0.39
14.00	0.36	12,704	70.47	0.52
16.00	0.19	10,974	69.90	0.46
18.00	0.13	9,070	69.45	0.40
20.00	0.11	7,236	69.11	0.35
22.00	0.10	5,628	68.83	0.31
24.00	0.10	4,250	68.58	0.26
26.00	0.00	2,651	68.29	0.19
28.00	0.00	1,590	68.07	0.11
30.00	0.00	1,111	67.96	0.04
32.00	0.00	948	67.92	0.01
34.00	0.00	875	67.90	0.01
36.00	0.00	838	67.89	0.00
38.00	0.00	816	67.88	0.00
40.00	0.00	799	67.88	0.00
42.00	0.00	786	67.87	0.00
44.00	0.00	776	67.87	0.00
46.00	0.00	768	67.87	0.00
48.00	0.00	762	67.87	0.00
50.00	0.00	757	67.86	0.00
52.00	0.00	754	67.86	0.00
54.00	0.00	751	67.86	0.00
56.00	0.00	749	67.86	0.00
58.00	0.00	747	67.86	0.00
60.00	0.00	746	67.86	0.00
62.00	0.00	745	67.86	0.00
64.00	0.00	745	67.86	0.00
66.00	0.00	744	67.86	0.00
68.00	0.00	744	67.86	0.00
70.00	0.00	743	67.86	0.00
72.00	0.00	743	67.86	0.00

Summary for Pond P5: Porous Pavement 5

Inflow Area = 1.125 ac, 86.22% Impervious, Inflow Depth = 10.65" for 100-Year F event
 Inflow = 14.64 cfs @ 12.09 hrs, Volume= 0.999 af
 Outflow = 1.99 cfs @ 12.52 hrs, Volume= 0.971 af, Atten= 86%, Lag= 25.8 min
 Primary = 1.99 cfs @ 12.52 hrs, Volume= 0.971 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.54' @ 12.52 hrs Surf.Area= 14,886 sf Storage= 17,326 cf

Plug-Flow detention time= 125.2 min calculated for 0.971 af (97% of inflow)
 Center-of-Mass det. time= 107.2 min (846.8 - 739.6)

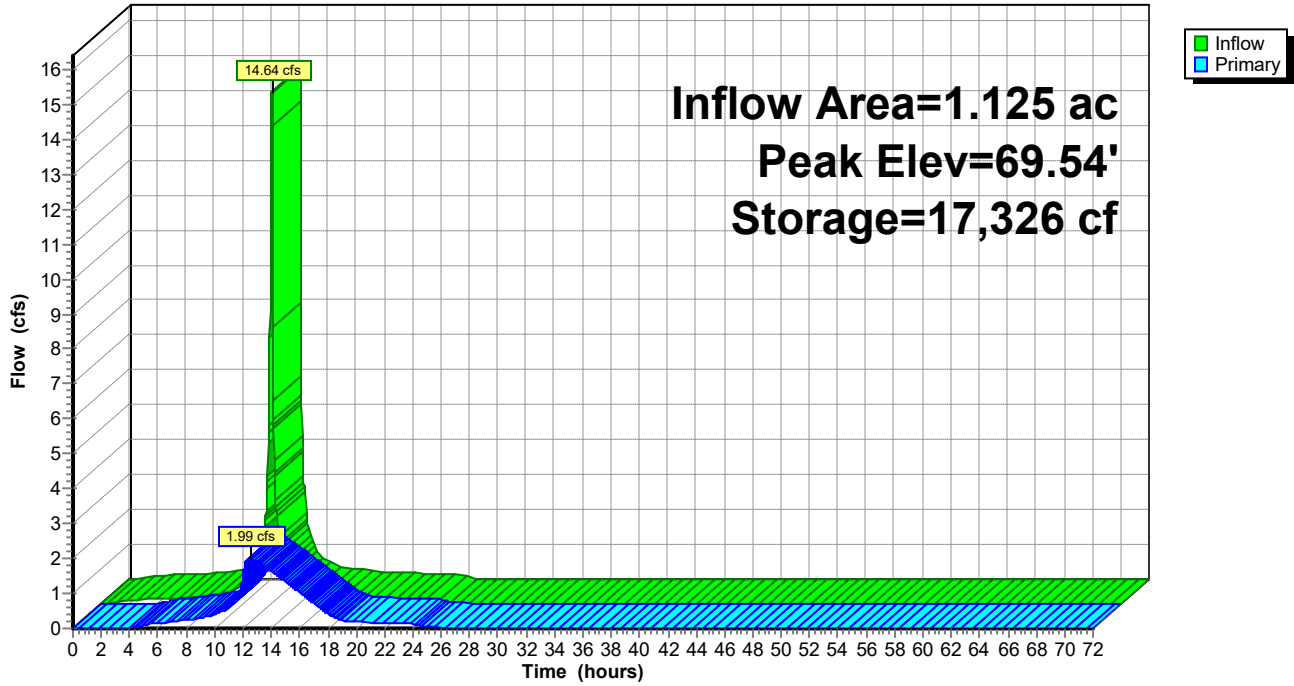
Volume	Invert	Avail.Storage	Storage Description
#1	67.37'	13,040 cf	18.00'W x 827.00'L x 3.40'H Prismatic 50,612 cf Overall - 11,097 cf Embedded = 39,516 cf x 33.0% Voids
#2	67.62'	10,392 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 827.0' 11,097 cf Overall - 0.4" Wall Thickness = 10,392 cf
		23,433 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.37'	24.0" Round Culvert L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.37' / 67.19' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	67.62'	2.5" Vert. Orifice/Grate X 9.00 C= 0.600
#3	Device 1	69.88'	8.0" W x 6.0" H Vert. Orifice/Grate X 7.00 C= 0.600

Primary OutFlow Max=1.99 cfs @ 12.52 hrs HW=69.54' (Free Discharge)
 1=Culvert (Passes 1.99 cfs of 12.96 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 1.99 cfs @ 6.49 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P5: Porous Pavement 5

Hydrograph



Hydrograph for Pond P5: Porous Pavement 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.37	0.00
2.00	0.10	376	67.45	0.00
4.00	0.14	1,267	67.63	0.00
6.00	0.18	1,800	67.72	0.15
8.00	0.28	2,018	67.75	0.25
10.00	0.51	2,406	67.80	0.42
12.00	8.74	9,971	68.67	1.44
14.00	0.56	12,615	68.96	1.64
16.00	0.31	5,805	68.22	1.04
18.00	0.21	2,431	67.81	0.43
20.00	0.18	1,903	67.73	0.20
22.00	0.15	1,824	67.72	0.16
24.00	0.16	1,774	67.71	0.14
26.00	0.00	1,380	67.65	0.02
28.00	0.00	1,303	67.64	0.01
30.00	0.00	1,266	67.63	0.00
32.00	0.00	1,244	67.63	0.00
34.00	0.00	1,232	67.62	0.00
36.00	0.00	1,225	67.62	0.00
38.00	0.00	1,221	67.62	0.00
40.00	0.00	1,219	67.62	0.00
42.00	0.00	1,217	67.62	0.00
44.00	0.00	1,216	67.62	0.00
46.00	0.00	1,216	67.62	0.00
48.00	0.00	1,216	67.62	0.00
50.00	0.00	1,216	67.62	0.00
52.00	0.00	1,216	67.62	0.00
54.00	0.00	1,215	67.62	0.00
56.00	0.00	1,215	67.62	0.00
58.00	0.00	1,215	67.62	0.00
60.00	0.00	1,215	67.62	0.00
62.00	0.00	1,215	67.62	0.00
64.00	0.00	1,215	67.62	0.00
66.00	0.00	1,215	67.62	0.00
68.00	0.00	1,215	67.62	0.00
70.00	0.00	1,215	67.62	0.00
72.00	0.00	1,215	67.62	0.00

Summary for Pond P8: Porous Pavement 8

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth = 10.97" for 100-Year F event
 Inflow = 3.16 cfs @ 12.08 hrs, Volume= 0.219 af
 Outflow = 0.75 cfs @ 12.30 hrs, Volume= 0.214 af, Atten= 76%, Lag= 13.3 min
 Primary = 0.75 cfs @ 12.30 hrs, Volume= 0.214 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.05' @ 12.30 hrs Surf.Area= 3,078 sf Storage= 2,746 cf

Plug-Flow detention time= 70.9 min calculated for 0.214 af (97% of inflow)
 Center-of-Mass det. time= 53.5 min (786.4 - 732.9)

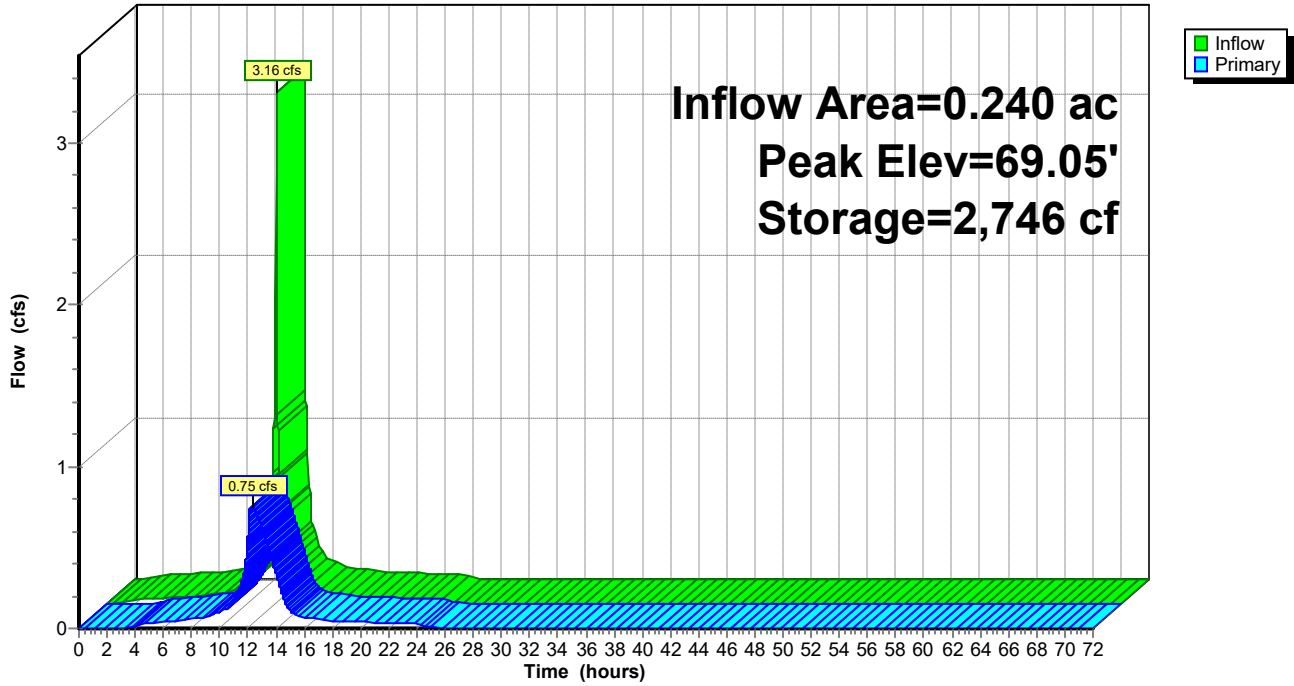
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	3,306 cf	18.00'W x 171.00'L x 4.00'H Prismatic 12,312 cf Overall - 2,294 cf Embedded = 10,018 cf x 33.0% Voids
#2	67.64'	2,149 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 171.0' 2,294 cf Overall - 0.4" Wall Thickness = 2,149 cf
		5,455 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.24' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 4.00 C= 0.600
#3	Device 1	70.13'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.75 cfs @ 12.30 hrs HW=69.05' (Free Discharge)
 1=Culvert (Passes 0.75 cfs of 10.54 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.75 cfs @ 5.51 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P8: Porous Pavement 8

Hydrograph



Hydrograph for Pond P8: Porous Pavement 8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.02	94	67.48	0.00
4.00	0.04	301	67.68	0.02
6.00	0.04	340	67.71	0.04
8.00	0.06	364	67.73	0.06
10.00	0.12	413	67.77	0.11
12.00	1.91	1,656	68.48	0.56
14.00	0.12	791	68.01	0.34
16.00	0.07	375	67.74	0.07
18.00	0.04	348	67.72	0.05
20.00	0.04	338	67.71	0.04
22.00	0.03	331	67.71	0.03
24.00	0.03	324	67.70	0.03
26.00	0.00	263	67.65	0.00
28.00	0.00	254	67.64	0.00
30.00	0.00	252	67.64	0.00
32.00	0.00	251	67.64	0.00
34.00	0.00	251	67.64	0.00
36.00	0.00	251	67.64	0.00
38.00	0.00	251	67.64	0.00
40.00	0.00	251	67.64	0.00
42.00	0.00	251	67.64	0.00
44.00	0.00	251	67.64	0.00
46.00	0.00	251	67.64	0.00
48.00	0.00	251	67.64	0.00
50.00	0.00	251	67.64	0.00
52.00	0.00	251	67.64	0.00
54.00	0.00	251	67.64	0.00
56.00	0.00	251	67.64	0.00
58.00	0.00	251	67.64	0.00
60.00	0.00	251	67.64	0.00
62.00	0.00	251	67.64	0.00
64.00	0.00	251	67.64	0.00
66.00	0.00	251	67.64	0.00
68.00	0.00	251	67.64	0.00
70.00	0.00	251	67.64	0.00
72.00	0.00	251	67.64	0.00

Summary for Pond P9: Porous Pavement 9

Inflow Area = 0.350 ac, 88.57% Impervious, Inflow Depth = 10.71" for 100-Year F event
 Inflow = 4.56 cfs @ 12.09 hrs, Volume= 0.312 af
 Outflow = 0.45 cfs @ 12.73 hrs, Volume= 0.302 af, Atten= 90%, Lag= 38.2 min
 Primary = 0.45 cfs @ 12.73 hrs, Volume= 0.302 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.59' @ 12.73 hrs Surf.Area= 5,346 sf Storage= 6,300 cf

Plug-Flow detention time= 191.4 min calculated for 0.302 af (97% of inflow)
 Center-of-Mass det. time= 171.0 min (909.6 - 738.6)

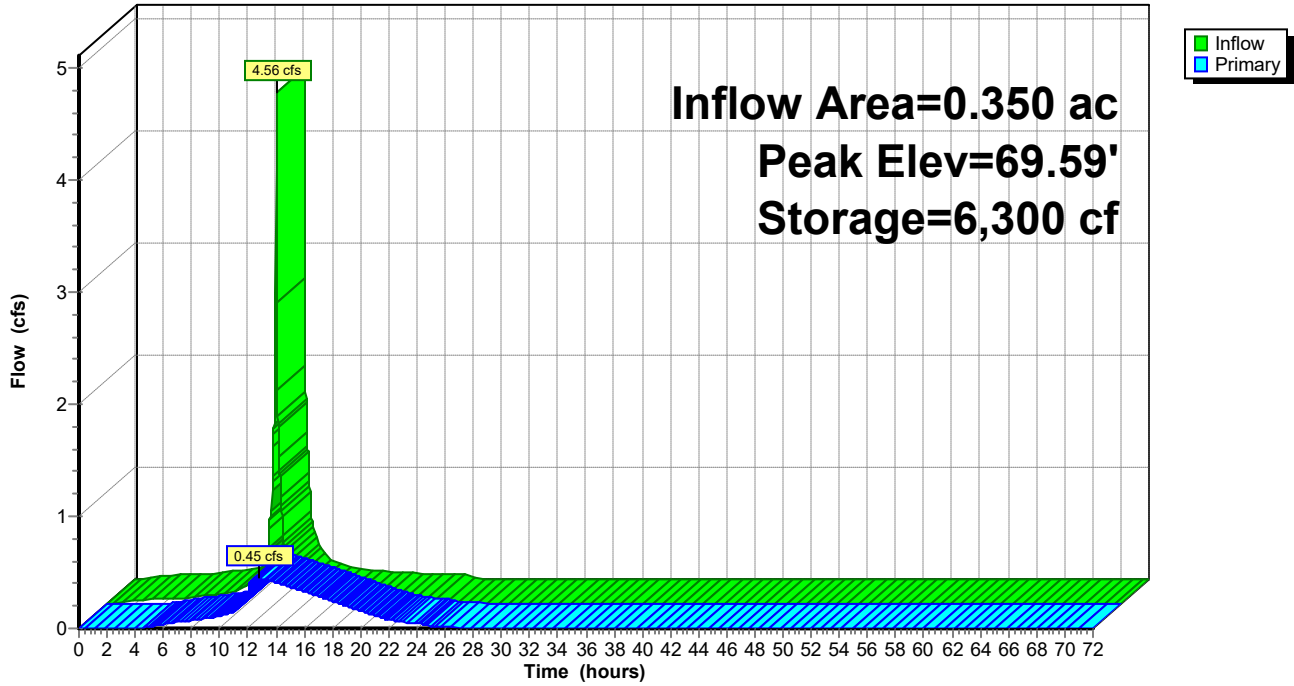
Volume	Invert	Avail.Storage	Storage Description
#1	67.39'	5,742 cf	18.00'W x 297.00'L x 4.00'H Prismatic 21,384 cf Overall - 3,985 cf Embedded = 17,399 cf x 33.0% Voids
#2	67.64'	3,732 cf	24.0" Round Pipe Storage x 4 Inside #1 L= 297.0' 3,985 cf Overall - 0.4" Wall Thickness = 3,732 cf
		9,474 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	67.39'	30.0" Round Culvert L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.39' / 67.32' S= 0.0029 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Device 1	67.64'	2.5" Vert. Orifice/Grate X 2.00 C= 0.600
#3	Device 1	69.76'	8.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600

Primary OutFlow Max=0.45 cfs @ 12.73 hrs HW=69.59' (Free Discharge)
 1=Culvert (Passes 0.45 cfs of 16.79 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.45 cfs @ 6.55 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond P9: Porous Pavement 9

Hydrograph



Hydrograph for Pond P9: Porous Pavement 9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	67.39	0.00
2.00	0.03	120	67.46	0.00
4.00	0.05	405	67.62	0.00
6.00	0.06	659	67.74	0.04
8.00	0.09	784	67.79	0.07
10.00	0.16	969	67.86	0.11
12.00	2.73	3,639	68.71	0.32
14.00	0.17	5,538	69.30	0.41
16.00	0.10	3,766	68.75	0.33
18.00	0.06	2,279	68.30	0.24
20.00	0.06	1,272	67.97	0.16
22.00	0.05	812	67.80	0.08
24.00	0.05	701	67.76	0.05
26.00	0.00	536	67.69	0.01
28.00	0.00	491	67.67	0.00
30.00	0.00	472	67.66	0.00
32.00	0.00	459	67.65	0.00
34.00	0.00	451	67.65	0.00
36.00	0.00	446	67.64	0.00
38.00	0.00	442	67.64	0.00
40.00	0.00	440	67.64	0.00
42.00	0.00	439	67.64	0.00
44.00	0.00	438	67.64	0.00
46.00	0.00	437	67.64	0.00
48.00	0.00	437	67.64	0.00
50.00	0.00	437	67.64	0.00
52.00	0.00	437	67.64	0.00
54.00	0.00	437	67.64	0.00
56.00	0.00	437	67.64	0.00
58.00	0.00	437	67.64	0.00
60.00	0.00	437	67.64	0.00
62.00	0.00	437	67.64	0.00
64.00	0.00	437	67.64	0.00
66.00	0.00	437	67.64	0.00
68.00	0.00	437	67.64	0.00
70.00	0.00	436	67.64	0.00
72.00	0.00	436	67.64	0.00

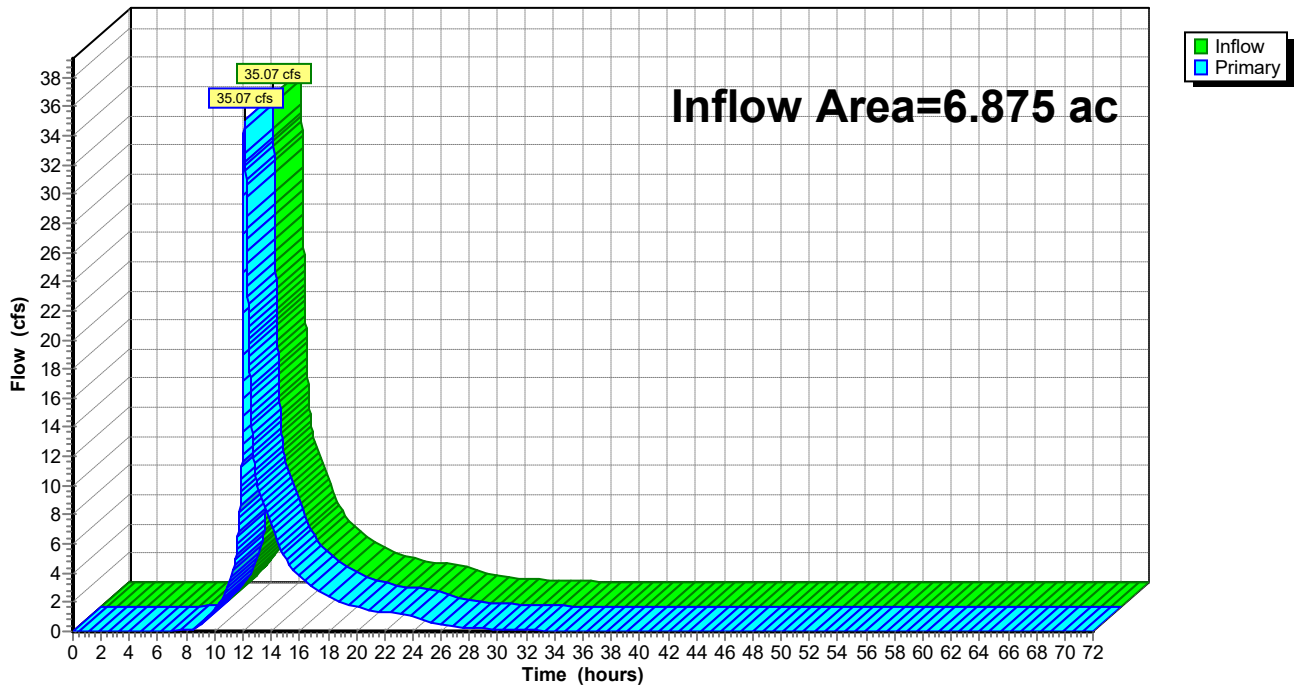
Summary for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Inflow Area = 6.875 ac, 86.11% Impervious, Inflow Depth = 9.66" for 100-Year F event
Inflow = 35.07 cfs @ 12.10 hrs, Volume= 5.533 af
Primary = 35.07 cfs @ 12.10 hrs, Volume= 5.533 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Hydrograph



Hydrograph for Pond POI 2: PRE - POI #2 (SE Property Corner Manhole)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.03		0.03	57.00	0.00		0.00
6.00	0.04		0.04	58.00	0.00		0.00
7.00	0.05		0.05	59.00	0.00		0.00
8.00	0.07		0.07	60.00	0.00		0.00
9.00	0.55		0.55	61.00	0.00		0.00
10.00	1.56		1.56	62.00	0.00		0.00
11.00	3.20		3.20	63.00	0.00		0.00
12.00	17.12		17.12	64.00	0.00		0.00
13.00	10.13		10.13	65.00	0.00		0.00
14.00	7.36		7.36	66.00	0.00		0.00
15.00	4.95		4.95	67.00	0.00		0.00
16.00	3.74		3.74	68.00	0.00		0.00
17.00	3.01		3.01	69.00	0.00		0.00
18.00	2.41		2.41	70.00	0.00		0.00
19.00	1.95		1.95	71.00	0.00		0.00
20.00	1.66		1.66	72.00	0.00		0.00
21.00	1.47		1.47				
22.00	1.33		1.33				
23.00	1.20		1.20				
24.00	1.11		1.11				
25.00	0.66		0.66				
26.00	0.45		0.45				
27.00	0.32		0.32				
28.00	0.24		0.24				
29.00	0.18		0.18				
30.00	0.13		0.13				
31.00	0.10		0.10				
32.00	0.07		0.07				
33.00	0.06		0.06				
34.00	0.05		0.05				
35.00	0.04		0.04				
36.00	0.03		0.03				
37.00	0.02		0.02				
38.00	0.02		0.02				
39.00	0.01		0.01				
40.00	0.01		0.01				
41.00	0.01		0.01				
42.00	0.01		0.01				
43.00	0.01		0.01				
44.00	0.01		0.01				
45.00	0.01		0.01				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

APPENDIX C

POST-DEVELOPMENT DRAINAGE ANALYSIS
(EMERGENCY OVERFLOW)



North American Green
 5401 St. Wendel-Cynthiana Rd.
 Poseyville, Indiana 47633
 Tel. 800.772.2040
 >Fax 812.867.0247
 www.nagreen.com
 ECMDS v7.0

SPILLWAY ANALYSIS

> > > [bio basin 1](#)

Name bio basin 1
 Discharge 0.02
 Peak Flow Period 2
 Channel Slope 0.05
 Channel Bottom Width 25
 Low Flow Liner
 Retardence Class C 6-12 in
 Vegetation Type Mix (Sod and Bunch)
 Vegetation Density Good 65-79%
 Soil Type Silt Loam (SM)

P550 - Class C - Mix (Sod & Bunch) - Good 65-79%

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
P550 Unvegetated	Straight	0.02 cfs	0.12 ft/s	0.01 ft	0.095	3.3 lbs/ft2	0.02 lbs/ft2	163.1	STABLE	E
Underlying Substrate	Straight	0.02 cfs	0.12 ft/s	0.01 ft	0.095	2.42 lbs/ft2	0.02 lbs/ft2	119.54	STABLE	E
P550 Reinforced Vegetation	Straight	0.02 cfs	0.08 ft/s	0.01 ft	0.189	14 lbs/ft2	0.03 lbs/ft2	455.32	STABLE	E
Underlying Substrate	Straight	0.02 cfs	0.08 ft/s	0.01 ft	0.189	14 lbs/ft2	0.03 lbs/ft2	455.65	STABLE	E



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ANALYSIS COMPUTATIONS

> > > [View Computation](#)

Project Parameters	
Discharge:	0.02
Peak Flow Period:	2
Left Side Slope (ZL):	0
Right Side Slope (ZR):	0
Bottom Width:	25
Spillway Slope:	0.05
Bend Coefficient (Kb):	1
Retardance Class (A - E):	C 6-12 in
Vegetation Type:	Mix (Sod and Bunch)
Vegetation Density:	Good 65-79%
Soil Type:	Silt Loam (SM)
Channel Lining Options	
Protection Type	Permanent

Basic Relationships	
$A = \text{Cross sectional area, ft}^2 \text{ (m}^2\text{)} = (B * D) + (Z_L / 2 * D^2) + (Z_R / 2 * D^2)$	
Where:	
B = Base width of channel, ft (m)	
D = Flow depth, ft (m)	
Z _L = Left side bank slope (H : 1 V)	
Z _R = Right side bank slope (H : 1 V)	
P = Wetted perimeter, ft (m) = B + Z _L * D + Z _R * D	
R = Hydraulic radius, ft (m) = A / P	
V = Flow velocity, ft/s (m/s) = Q / A	
Where:	
Q = Channel discharge, cfs (cms)	
Tau _a Average bed shear stress, psf (Pa) = 62.4 * R * S ₀	
Where:	
S ₀ = Gradient of channel, ft/ft (m/m)	
Tau ₀ = Maximum bed shear stress, psf (Pa) = 62.4 * D * S ₀	

Unvegetated Conditions Computations:	
n = Manning's n = a * Tau _a ^b	
<u>and (iteratively solved)</u>	
$n = 1.486 / Q * A * R^{(2/3)} S_0^{0.5}$	
Where:	
n = Manning's n	
a = Product specific coefficient from performance testing	
b = Product specific coefficient from performance testing	
SF _P = Product factor of safety = Tau _r / Tau ₀	

Where:
τ_{uT} = Permissible shear stress from testing, psf (Pa)
τ_{up} = In place permissible shear, psf (Pa) = $\tau_{uT} / \alpha * (\tau_{us} + \alpha / 4.3)$
Where:
α = unit conversion constant, 0.14 English, 6.5 Metric
τ_{us} = Permissible shear stress of soil
SFL = Factor of safety of installed liner = τ_{up} / τ_{ua}

Vegetated Computations:
n = Manning's $n = \alpha * C_n * \tau_{ua}^{-0.4}$
<u>and (iteratively solved)</u>
$n = 1.486 / Q * A * R(2/3) S_0^{0.5}$
Where:
α = Unit conversion constant, 0.213 English, 1.0 Metric
C_n = Vegetation retardance coefficient
SFP = Product factor of safety = τ_{uTV} / τ_{uo}
Where:
τ_{uTV} = Permissible shear stress from testing, psf (Pa)
τ_{up} = In place permissible shear, psf (Pa) = $\tau_{us} / (1 - C_{FRM}) * (n / n_s)^2$
Where:
C_{FRM} = Coefficient of TRM performance derived from testing τ_{us} = Permissible shear stress of soil
n_s = Manning's of soil bed if left unprotected
SFL = Factor of safety of installed liner = τ_{up} / τ_{ua}

P550 - Class C - Mix (Sod & Bunch) - Good 65-79%

Phase	Mannings N	Predicted flow depth (D)	Cross sectional area (A)	Wetted perimeter (P)	Hydraulic radius (R)	Flow velocity (V)	Froude number (FR)	Calculated Shear Stress	SFP/SFL
P550 Unvegetated	0.095	0.01 ft	0.16 ft ²	25.02 ft	0.01 ft	0.12 ft/s	0.21	0.02 lbs/ft ²	163.1 (SFP)
Underlying Substrate	0.095	0.01 ft	0.16 ft ²	25.02 ft	0.01 ft	0.12 ft/s	0.21	0.02 lbs/ft ²	119.54 (SFL)
P550 Reinforced Vegetation	0.189	0.01 ft	0.25 ft ²	25.03 ft	0.01 ft	0.08 ft/s	0.14	0.03 lbs/ft ²	455.32 (SFP)
Underlying Substrate	0.189	0.01 ft	0.25 ft ²	25.03 ft	0.01 ft	0.08 ft/s	0.14	0.03 lbs/ft ²	455.65 (SFL)

Summary for Pond B1: BIORETENTION 1

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 8.68" for 100-Year F event
 Inflow = 2.05 cfs @ 12.09 hrs, Volume= 0.123 af
 Outflow = 0.02 cfs @ 21.10 hrs, Volume= 0.006 af, Atten= 99%, Lag= 540.6 min
 Secondary = 0.02 cfs @ 21.10 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 73.00' @ 21.10 hrs Surf.Area= 3,432 sf Storage= 5,095 cf

Plug-Flow detention time= 873.1 min calculated for 0.006 af (5% of inflow)
 Center-of-Mass det. time= 551.7 min (1,339.7 - 788.0)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	6,819 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

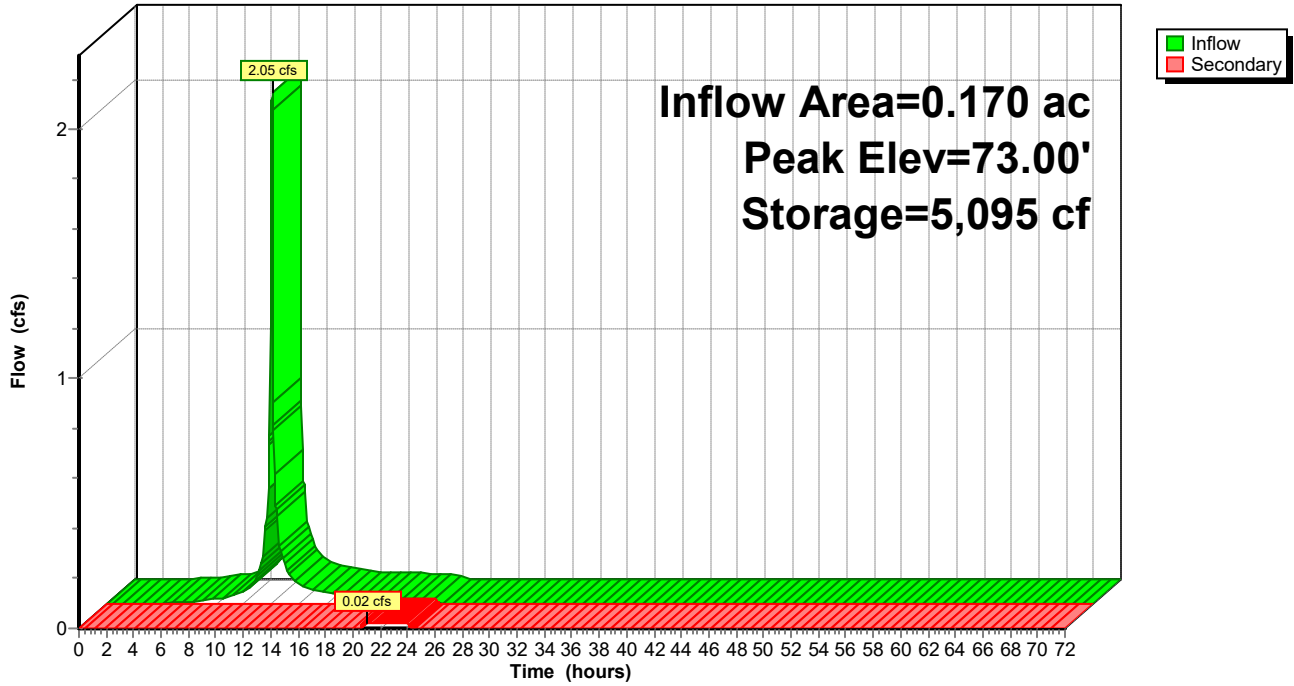
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	1,766	0	0
72.00	2,487	2,127	2,127
73.00	3,432	2,960	5,086
73.50	3,500	1,733	6,819

Device	Routing	Invert	Outlet Devices
#1	Secondary	73.00'	25.0' 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

Secondary OutFlow Max=0.01 cfs @ 21.10 hrs HW=73.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.12 fps)

Pond B1: BIORETENTION 1

Hydrograph



Hydrograph for Pond B1: BIORETENTION 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Secondary (cfs)
0.00	0.00	0	71.00	0.00
2.00	0.00	0	71.00	0.00
4.00	0.00	1	71.00	0.00
6.00	0.01	32	71.02	0.00
8.00	0.02	131	71.07	0.00
10.00	0.05	363	71.20	0.00
12.00	1.27	1,953	71.93	0.00
14.00	0.08	4,149	72.72	0.00
16.00	0.04	4,562	72.84	0.00
18.00	0.03	4,831	72.92	0.00
20.00	0.03	5,032	72.98	0.00
22.00	0.02	5,094	73.00	0.02
24.00	0.02	5,094	73.00	0.02
26.00	0.00	5,086	73.00	0.00
28.00	0.00	5,086	73.00	0.00
30.00	0.00	5,086	73.00	0.00
32.00	0.00	5,086	73.00	0.00
34.00	0.00	5,086	73.00	0.00
36.00	0.00	5,086	73.00	0.00
38.00	0.00	5,086	73.00	0.00
40.00	0.00	5,086	73.00	0.00
42.00	0.00	5,086	73.00	0.00
44.00	0.00	5,086	73.00	0.00
46.00	0.00	5,086	73.00	0.00
48.00	0.00	5,086	73.00	0.00
50.00	0.00	5,086	73.00	0.00
52.00	0.00	5,086	73.00	0.00
54.00	0.00	5,086	73.00	0.00
56.00	0.00	5,086	73.00	0.00
58.00	0.00	5,086	73.00	0.00
60.00	0.00	5,086	73.00	0.00
62.00	0.00	5,086	73.00	0.00
64.00	0.00	5,086	73.00	0.00
66.00	0.00	5,086	73.00	0.00
68.00	0.00	5,086	73.00	0.00
70.00	0.00	5,086	73.00	0.00
72.00	0.00	5,086	73.00	0.00



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SPILLWAY ANALYSIS

> > > bio basin 2

Name bio basin 2
 Discharge 7.8
 Peak Flow Period 2
 Channel Slope 0.05
 Channel Bottom Width 25
 Low Flow Liner
 Retardence Class C 6-12 in
 Vegetation Type Mix (Sod and Bunch)
 Vegetation Density Good 65-79%
 Soil Type Silt Loam (SM)

P550 - Class C - Mix (Sod & Bunch) - Good 65-79%

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
P550 Unvegetated	Straight	7.8 cfs	2.18 ft/s	0.14 ft	0.041	3.3 lbs/ft2	0.44 lbs/ft2	7.45	STABLE	E
Underlying Substrate	Straight	7.8 cfs	2.18 ft/s	0.14 ft	0.041	2.42 lbs/ft2	0.44 lbs/ft2	5.51	STABLE	E
P550 Reinforced Vegetation	Straight	7.8 cfs	1.75 ft/s	0.18 ft	0.06	14 lbs/ft2	0.55 lbs/ft2	25.26	STABLE	E
Underlying Substrate	Straight	7.8 cfs	1.75 ft/s	0.18 ft	0.06	7 lbs/ft2	0.55 lbs/ft2	12.8	STABLE	E



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ANALYSIS COMPUTATIONS

> > > [View Computation](#)

Project Parameters	
Discharge:	7.8
Peak Flow Period:	2
Left Side Slope (ZL):	0
Right Side Slope (ZR):	0
Bottom Width:	25
Spillway Slope:	0.05
Bend Coefficient (Kb):	1
Retardance Class (A - E):	C 6-12 in
Vegetation Type:	Mix (Sod and Bunch)
Vegetation Density:	Good 65-79%
Soil Type:	Silt Loam (SM)
Channel Lining Options	
Protection Type	Permanent

Basic Relationships	
$A = \text{Cross sectional area, ft}^2 \text{ (m}^2\text{)} = (B * D) + (Z_L / 2 * D^2) + (Z_R / 2 * D^2)$	
Where:	
B = Base width of channel, ft (m)	
D = Flow depth, ft (m)	
Z _L = Left side bank slope (H : 1 V)	
Z _R = Right side bank slope (H : 1 V)	
P = Wetted perimeter, ft (m) = B + Z _L * D + Z _R * D	
R = Hydraulic radius, ft (m) = A / P	
V = Flow velocity, ft/s (m/s) = Q / A	
Where:	
Q = Channel discharge, cfs (cms)	
Tau _a Average bed shear stress, psf (Pa) = 62.4 * R * S ₀	
Where:	
S ₀ = Gradient of channel, ft/ft (m/m)	
Tau ₀ = Maximum bed shear stress, psf (Pa) = 62.4 * D * S ₀	

Unvegetated Conditions Computations:	
n = Manning's n = a * Tau _a ^b	
<u>and (iteratively solved)</u>	
$n = 1.486 / Q * A * R^{(2/3)} S_0^{0.5}$	
Where:	
n = Manning's n	
a = Product specific coefficient from performance testing	
b = Product specific coefficient from performance testing	
SF _P = Product factor of safety = Tau _r / Tau ₀	

Where:
τ_{T} = Permissible shear stress from testing, psf (Pa)
τ_{p} = In place permissible shear, psf (Pa) = $\tau_{T} / \alpha * (\tau_{s} + \alpha / 4.3)$
Where:
α = unit conversion constant, 0.14 English, 6.5 Metric
τ_{s} = Permissible shear stress of soil
SFL = Factor of safety of installed liner = τ_{p} / τ_{a}

Vegetated Computations:
n = Manning's $n = \alpha * C_n * \tau_{a}^{-0.4}$
<u>and (iteratively solved)</u>
$n = 1.486 / Q * A * R(2/3) S_0^{0.5}$
Where:
α = Unit conversion constant, 0.213 English, 1.0 Metric
C_n = Vegetation retardance coefficient
SFP = Product factor of safety = τ_{TV} / τ_{a}
Where:
τ_{TV} = Permissible shear stress from testing, psf (Pa)
τ_{p} = In place permissible shear, psf (Pa) = $\tau_{s} / (1 - C_{FRM}) * (n / n_s)^2$
Where:
C_{FRM} = Coefficient of TRM performance derived from testing τ_{s} = Permissible shear stress of soil
n_s = Manning's of soil bed if left unprotected
SFL = Factor of safety of installed liner = τ_{p} / τ_{a}

P550 - Class C - Mix (Sod & Bunch) - Good 65-79%

Phase	Mannings N	Predicted flow depth (D)	Cross sectional area (A)	Wetted perimeter (P)	Hydraulic radius (R)	Flow velocity (V)	Froude number (FR)	Calculated Shear Stress	SFP/SFL
P550 Unvegetated	0.041	0.14 ft	3.57 ft ²	25.4 ft	0.14 ft	2.18 ft/s	1.03	0.44 lbs/ft ²	7.45 (SFP)
Underlying Substrate	0.041	0.14 ft	3.57 ft ²	25.4 ft	0.14 ft	2.18 ft/s	1.03	0.44 lbs/ft ²	5.51 (SFL)
P550 Reinforced Vegetation	0.06	0.18 ft	4.47 ft ²	25.5 ft	0.18 ft	1.75 ft/s	0.73	0.55 lbs/ft ²	25.26 (SFP)
Underlying Substrate	0.06	0.18 ft	4.47 ft ²	25.5 ft	0.18 ft	1.75 ft/s	0.73	0.55 lbs/ft ²	12.8 (SFL)

Summary for Pond B2: SMALL-SCALE BIORETENTION 2

Inflow Area = 0.610 ac, 68.85% Impervious, Inflow Depth = 10.26" for 100-Year F event
 Inflow = 7.82 cfs @ 12.09 hrs, Volume= 0.521 af
 Outflow = 7.80 cfs @ 12.10 hrs, Volume= 0.332 af, Atten= 0%, Lag= 0.6 min
 Secondary = 7.80 cfs @ 12.10 hrs, Volume= 0.332 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 73.16' @ 12.10 hrs Surf.Area= 3,643 sf Storage= 8,830 cf

Plug-Flow detention time= 208.8 min calculated for 0.332 af (64% of inflow)
 Center-of-Mass det. time= 100.7 min (848.3 - 747.6)

Volume	Invert	Avail.Storage	Storage Description
#1	69.00'	10,082 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

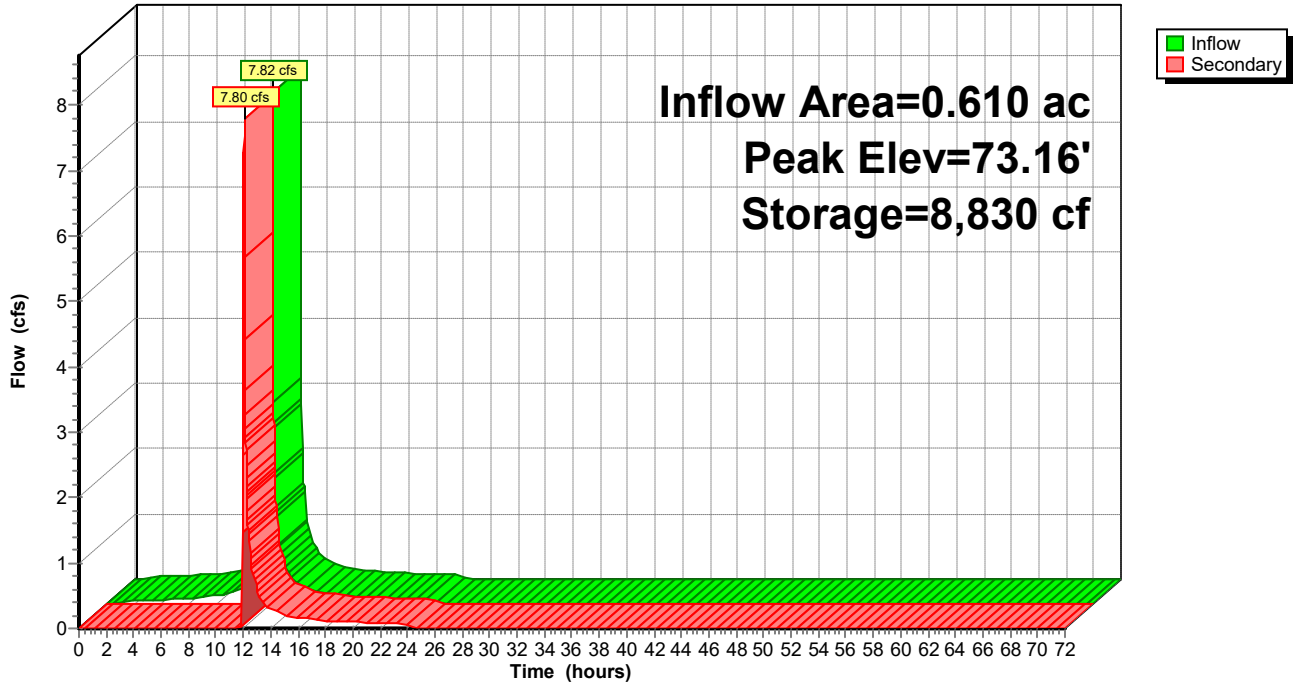
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
69.00	686	0	0
70.00	1,325	1,006	1,006
71.00	2,023	1,674	2,680
72.00	2,766	2,395	5,074
73.00	3,566	3,166	8,240
73.50	3,800	1,842	10,082

Device	Routing	Invert	Outlet Devices
#1	Secondary	73.00'	50.0' 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

Secondary OutFlow Max=7.74 cfs @ 12.10 hrs HW=73.16' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 7.74 cfs @ 0.95 fps)

Pond B2: SMALL-SCALE BIORETENTION 2

Hydrograph





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SPILLWAY ANALYSIS

> > > [bio basin 3](#)

Name bio basin 3
 Discharge 51.84
 Peak Flow Period 2
 Channel Slope 0.3333
 Channel Bottom Width 50
 Low Flow Liner
 Retardence Class C 6-12 in
 Vegetation Type Mix (Sod and Bunch)
 Vegetation Density Good 65-79%
 Soil Type Silt Loam (SM)

P550 - Class C - Mix (Sod & Bunch) - Good 65-79%

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
P550 Unvegetated	Straight	51.84 cfs	8.33 ft/s	0.12 ft	0.026	3.3 lbs/ft2	2.58 lbs/ft2	1.28	STABLE	E
Underlying Substrate	Straight	51.84 cfs	8.33 ft/s	0.12 ft	0.026	2.42 lbs/ft2	2.57 lbs/ft2	0.94	UNSTABLE	E
P550 Reinforced Vegetation	Straight	51.84 cfs	7.45 ft/s	0.14 ft	0.031	14 lbs/ft2	2.88 lbs/ft2	4.86	STABLE	E
Underlying Substrate	Straight	51.84 cfs	7.45 ft/s	0.14 ft	0.031	3.3 lbs/ft2	2.87 lbs/ft2	1.15	STABLE	E



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ANALYSIS COMPUTATIONS

> > > [View Computation](#)

Project Parameters	
Discharge:	51.84
Peak Flow Period:	2
Left Side Slope (ZL):	0
Right Side Slope (ZR):	0
Bottom Width:	50
Spillway Slope:	0.3333
Bend Coefficient (Kb):	1
Retardance Class (A - E):	C 6-12 in
Vegetation Type:	Mix (Sod and Bunch)
Vegetation Density:	Good 65-79%
Soil Type:	Silt Loam (SM)
Channel Lining Options	
Protection Type	Permanent

Basic Relationships	
$A = \text{Cross sectional area, ft}^2 \text{ (m}^2\text{)} = (B * D) + (Z_L / 2 * D^2) + (Z_R / 2 * D^2)$	
Where:	
B = Base width of channel, ft (m)	
D = Flow depth, ft (m)	
Z _L = Left side bank slope (H : 1 V)	
Z _R = Right side bank slope (H : 1 V)	
P = Wetted perimeter, ft (m) = B + Z _L * D + Z _R * D	
R = Hydraulic radius, ft (m) = A / P	
V = Flow velocity, ft/s (m/s) = Q / A	
Where:	
Q = Channel discharge, cfs (cms)	
Tau _a Average bed shear stress, psf (Pa) = 62.4 * R * S ₀	
Where:	
S ₀ = Gradient of channel, ft/ft (m/m)	
Tau ₀ = Maximum bed shear stress, psf (Pa) = 62.4 * D * S ₀	

Unvegetated Conditions Computations:	
n = Manning's n = a * Tau _a ^b	
<u>and (iteratively solved)</u>	
$n = 1.486 / Q * A * R^{(2/3)} S_0^{0.5}$	
Where:	
n = Manning's n	
a = Product specific coefficient from performance testing	
b = Product specific coefficient from performance testing	
SF _F = Product factor of safety = Tau _r / Tau ₀	

Where:
τ_{uT} = Permissible shear stress from testing, psf (Pa)
τ_{up} = In place permissible shear, psf (Pa) = $\tau_{uT} / \alpha * (\tau_{us} + \alpha / 4.3)$
Where:
α = unit conversion constant, 0.14 English, 6.5 Metric
τ_{us} = Permissible shear stress of soil
SFL = Factor of safety of installed liner = τ_{up} / τ_{ua}

Vegetated Computations:
n = Manning's $n = \alpha * C_n * \tau_{ua}^{-0.4}$
<u>and (iteratively solved)</u>
$n = 1.486 / Q * A * R(2/3) S_0^{0.5}$
Where:
α = Unit conversion constant, 0.213 English, 1.0 Metric
C_n = Vegetation retardance coefficient
SFP = Product factor of safety = τ_{uTV} / τ_{uo}
Where:
τ_{uTV} = Permissible shear stress from testing, psf (Pa)
τ_{up} = In place permissible shear, psf (Pa) = $\tau_{us} / (1 - C_{FRM}) * (n / n_s)^2$
Where:
C_{FRM} = Coefficient of TRM performance derived from testing τ_{us} = Permissible shear stress of soil
n_s = Manning's of soil bed if left unprotected
SFL = Factor of safety of installed liner = τ_{up} / τ_{ua}

P550 - Class C - Mix (Sod & Bunch) - Good 65-79%

Phase	Mannings N	Predicted flow depth (D)	Cross sectional area (A)	Wetted perimeter (P)	Hydraulic radius (R)	Flow velocity (V)	Froude number (FR)	Calculated Shear Stress	SFP/SFL
P550 Unvegetated	0.026	0.12 ft	6.22 ft ²	50.35 ft	0.12 ft	8.33 ft/s	4.24	2.58 lbs/ft ²	1.28 (SFP)
Underlying Substrate	0.026	0.12 ft	6.22 ft ²	50.35 ft	0.12 ft	8.33 ft/s	4.24	2.57 lbs/ft ²	0.94 (SFL)
P550 Reinforced Vegetation	0.031	0.14 ft	6.95 ft ²	50.39 ft	0.14 ft	7.45 ft/s	3.51	2.88 lbs/ft ²	4.86 (SFP)
Underlying Substrate	0.031	0.14 ft	6.95 ft ²	50.39 ft	0.14 ft	7.45 ft/s	3.51	2.87 lbs/ft ²	1.15 (SFL)

Summary for Pond B3: LARGE BIORETENTION 3

Inflow Area = 6.475 ac, 89.11% Impervious, Inflow Depth = 10.26" for 100-Year F event
 Inflow = 56.12 cfs @ 12.09 hrs, Volume= 5.533 af
 Outflow = 51.84 cfs @ 12.11 hrs, Volume= 4.027 af, Atten= 8%, Lag= 0.9 min
 Secondary = 51.84 cfs @ 12.11 hrs, Volume= 4.027 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 70.62' @ 12.11 hrs Surf.Area= 24,384 sf Storage= 78,492 cf

Plug-Flow detention time= 223.6 min calculated for 4.027 af (73% of inflow)
 Center-of-Mass det. time= 102.9 min (909.1 - 806.2)

Volume	Invert	Avail.Storage	Storage Description
#1	67.00'	87,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

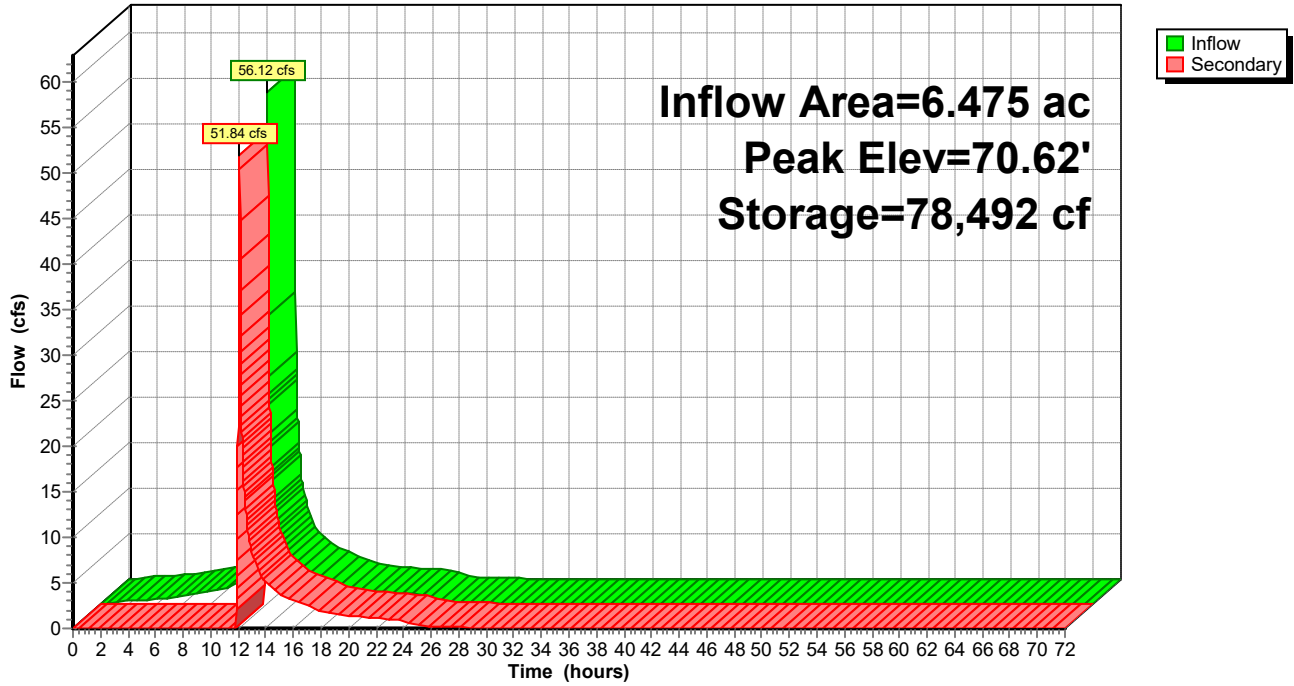
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
67.00	18,930	0	0
68.00	20,551	19,741	19,741
69.00	21,997	21,274	41,015
70.00	23,464	22,731	63,745
71.00	24,957	24,211	87,956

Device	Routing	Invert	Outlet Devices
#1	Secondary	70.08'	50.0' 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

Secondary OutFlow Max=51.46 cfs @ 12.11 hrs HW=70.61' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 51.46 cfs @ 1.93 fps)

Pond B3: LARGE BIORETENTION 3

Hydrograph



Hydrograph for Pond B3: LARGE BIORETENTION 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Secondary (cfs)
0.00	0.00	0	67.00	0.00
2.00	0.33	1,238	67.07	0.00
4.00	0.49	4,185	67.22	0.00
6.00	0.87	9,186	67.48	0.00
8.00	1.38	17,309	67.88	0.00
10.00	2.42	30,084	68.49	0.00
12.00	34.28	73,985	70.43	25.56
14.00	4.93	68,537	70.20	5.06
16.00	3.00	67,699	70.17	3.07
18.00	1.87	67,133	70.14	1.95
20.00	1.39	66,835	70.13	1.41
22.00	1.14	66,692	70.13	1.15
24.00	1.06	66,607	70.12	1.00
26.00	0.22	65,869	70.09	0.24
28.00	0.12	65,759	70.09	0.13
30.00	0.04	65,676	70.08	0.05
32.00	0.02	65,647	70.08	0.02
34.00	0.01	65,637	70.08	0.01
36.00	0.00	65,632	70.08	0.01
38.00	0.00	65,631	70.08	0.00
40.00	0.00	65,630	70.08	0.00
42.00	0.00	65,629	70.08	0.00
44.00	0.00	65,628	70.08	0.00
46.00	0.00	65,628	70.08	0.00
48.00	0.00	65,628	70.08	0.00
50.00	0.00	65,628	70.08	0.00
52.00	0.00	65,627	70.08	0.00
54.00	0.00	65,627	70.08	0.00
56.00	0.00	65,627	70.08	0.00
58.00	0.00	65,627	70.08	0.00
60.00	0.00	65,627	70.08	0.00
62.00	0.00	65,627	70.08	0.00
64.00	0.00	65,627	70.08	0.00
66.00	0.00	65,627	70.08	0.00
68.00	0.00	65,627	70.08	0.00
70.00	0.00	65,627	70.08	0.00
72.00	0.00	65,627	70.08	0.00

APPENDIX D
OUTLET PROTECTION

MidAtlantic Engineering Partners

Riprap Apron Calculations

Project: RAM-2201
Location: Lawrence, NJ

Computed By: DJS
Checked By: IAB
Date: 3/12/2024

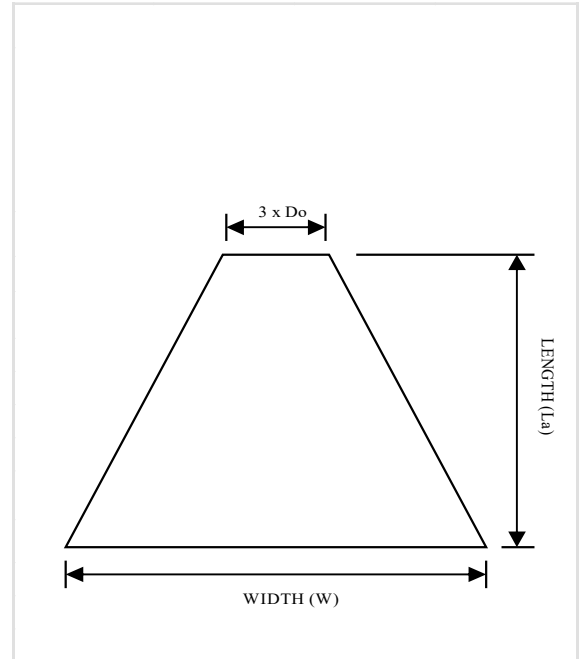
Detention / Infiltration Basin

APRON FES-2

Criteria: N.J. Soil Erosion and Sediment Control Standards

INPUT

Q = 3.71 cfs	25-yr storm
Pipe size, D(o) = 18 in	
Pipe Width, W(o) = 18 in	
q = 2.47 cfs/ft	
1/2 D(o) = 9.0 in	
0.2*D(o) = 0.3 ft	
Tailwater, Tw = 2.78 ft	(from pond w.s.e.) 2yr
Use Tw = 2.78 ft	
Is apron confined? (yes/no) -	no



OUTPUT

Since $TW > 1/2 * Do$, $La = 3q/Do^{(1/2)}$
= 6.06 ft

Use La = 7 ft (Extend to toe of slope)

$W = 3Wo + 0.4La$
= 6.92 ft

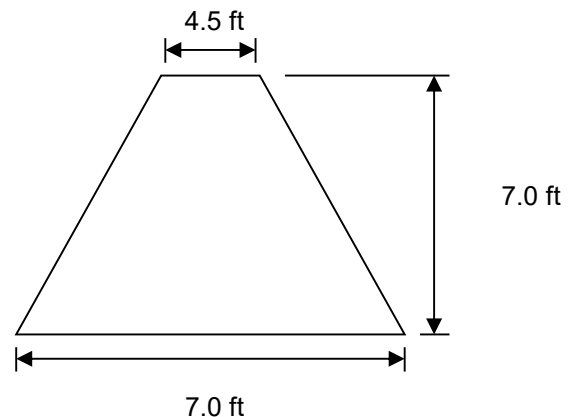
Use W = 7 ft

$d(50) = (0.016/Tw)(q)^{(4/3)}$
= 0.2 in

Use d(50) = 6 in

Th = 2*d(50) w/filter fabric

Th = 12 in w/filter fabric



MidAtlantic Engineering Partners

Riprap Apron Calculations

Project: RAM-2201
Location: Lawrence, NJ

Computed By: DJS
Checked By: IAB
Date: 3/12/2024

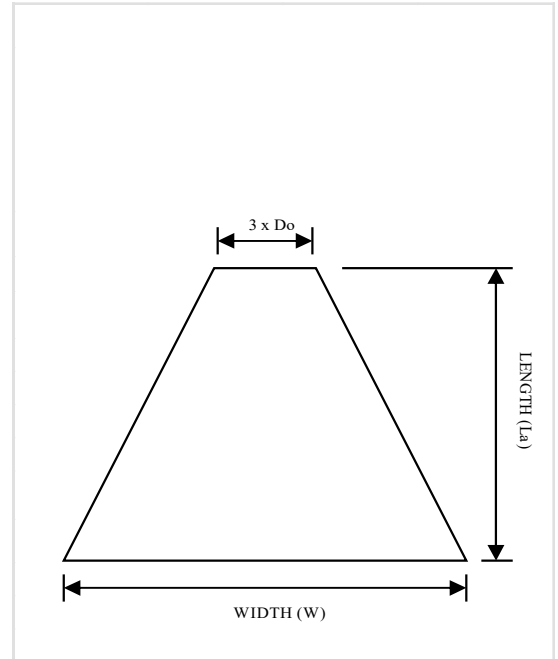
Detention / Infiltration Basin

APRON HW-3

Criteria: N.J. Soil Erosion and Sediment Control Standards

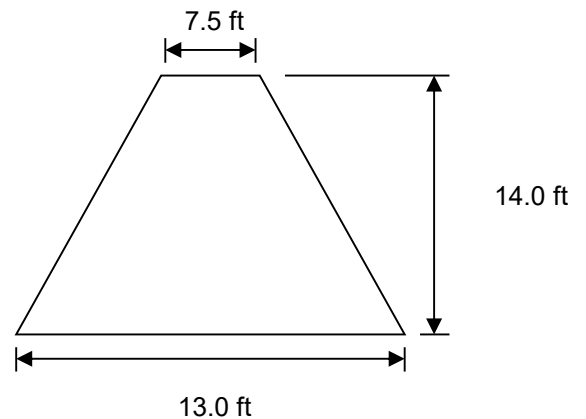
INPUT

Q = 17.25 cfs	25-yr storm
Pipe size, D(o) = 30 in	
Pipe Width, W(o) = 30 in	
q = 6.90 cfs/ft	
1/2 D(o) = 15.0 in	
0.2*D(o) = 0.5 ft	
Tailwater, Tw = 1.66 ft	(from pond w.s.e.) 2yr
Use Tw = 1.66 ft	
Is apron confined? (yes/no) -	no



OUTPUT

Since TW > 1/2*Do, La = 3q/Do^(1/2)	
= 13.09 ft	
Use La = 14 ft	(Extend to toe of slope)
W = 3Wo + 0.4La	
= 12.74 ft	
Use W = 13 ft	
d(50) = (0.016/Tw)(q)^(4/3)	
= 1.5 in	
Use d(50) = 6 in	
Th = 2*d(50) w/filter fabric	
Th = 12 in w/filter fabric	



MidAtlantic

Engineering Partners

Riprap Apron Calculations

Project: RAM-2201
 Location: Lawrence, NJ

Computed By: DJS
 Checked By: IAB
 Date: 3/12/2024

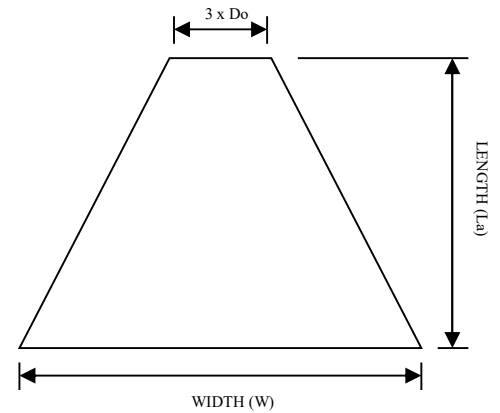
Detention / Infiltration Basin

APRON FES-3

Criteria: N.J. Soil Erosion and Sediment Control Standards

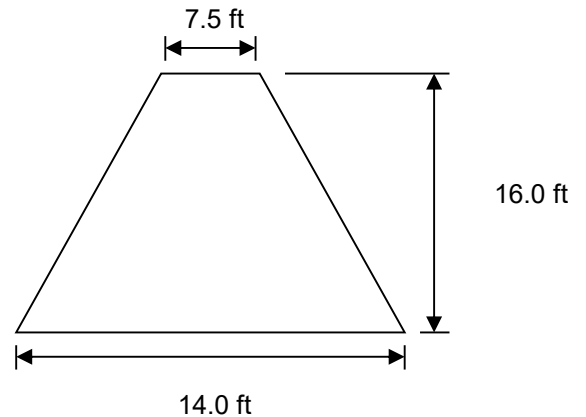
INPUT

Q = 20.41 cfs	25-yr storm
Pipe size, D(o) = 30 in	
Pipe Width, W(o) = 30 in	
q = 8.16 cfs/ft	
1/2 D(o) = 15.0 in	
0.2*D(o) = 0.5 ft	
Tailwater, Tw = 1.66 ft	(from pond w.s.e.) 2yr
Use Tw = 1.66 ft	
Is apron confined? (yes/no) -	no



OUTPUT

Since TW > 1/2*Do, La = 3q/Do^(1/2)	
= 15.49 ft	
Use La = 16 ft	(Extend to toe of slope)
W = 3Wo + 0.4La	
= 13.70 ft	
Use W = 14 ft	
d(50) = (0.016/Tw)(q)^(4/3)	
= 1.9 in	
Use d(50) = 6 in	
Th = 2*d(50) w/filter fabric	
Th = 12 in w/filter fabric	



APPENDIX E
STORM SEWER CHART

Line No.	Inlet ID	DnStm Ln No	Drng Area	Total Area	Runoff Coeff	i Sys	Line Size	Line Length	Invert Up	Invert Dn	Line Slope	Flow Rate	Capac Full	Vel Ave	Cover Up	n-val Pipe	Tc	HGL Up	HGL Dn	Gnd/Rim El Up
			(ac)	(ac)	(C)	(in/hr)	(in)	(ft)	(ft)	(ft)	(%)	(cfs)	(cfs)	(ft/s)	(ft)		(min)	(ft)	(ft)	(ft)
31	OS-2	9	0.00	0.00	0.97	0.00	24	99.541	67.51	67.21	0.30	4.09	12.42	1.32	2.24	0.013	0.7	69.39	69.36	71.75
30	CB-42	27	0.07	0.07	0.97	9.70	15	60.075	67.97	67.79	0.30	0.66	3.53	0.54	2.16	0.013	1.2	70.75	70.74	71.38
29	CB-43	28	0.11	0.11	0.97	9.83	15	24.000	67.90	67.83	0.29	1.05	3.49	0.85	2.40	0.013	0.6	70.77	70.76	71.55
28	CB-44	27	0.07	0.18	0.97	9.70	15	14.011	67.83	67.79	0.29	1.69	3.45	1.38	2.47	0.013	1.2	70.75	70.74	71.55
27	CB-45	26	0.16	0.41	0.97	8.71	18	60.007	67.79	67.61	0.30	3.47	5.75	1.96	2.54	0.013	3.1	70.65	70.58	71.83
26	CB-46	12	0.59	1.00	0.97	8.50	24	44.000	67.61	67.48	0.30	8.24	12.29	2.62	2.35	0.013	3.5	70.53	70.47	71.96
25	CB-22	18	0.20	0.20	0.97	9.77	15	52.159	68.41	68.25	0.31	1.89	3.58	1.54	2.65	0.013	1.1	69.89	69.85	72.31
24	CB-32	21	0.11	0.11	0.97	9.83	15	24.000	69.19	69.12	0.29	1.05	3.49	0.85	1.12	0.013	0.7	70.48	70.47	71.56
23	CB-30	22	0.11	0.11	0.97	9.83	15	24.000	69.52	69.45	0.29	1.05	3.49	0.89	0.79	0.013	0.7	70.64	70.64	71.56
22	CB-31	21	0.10	0.21	0.97	9.72	15	109.875	69.45	69.12	0.30	1.98	3.54	1.66	0.85	0.013	1.2	70.57	70.47	71.55
21	CB-33	Outfall	0.10	0.42	0.97	9.10	18	39.867	69.12	69.00	0.30	3.71	5.76	2.34	0.93	0.013	2.3	70.34	70.30	71.55
20	CB-20	19	0.48	0.48	0.97	9.77	18	243.616	70.23	69.50	0.30	4.55	5.75	3.60	1.64	0.013	1.1	71.24	70.51	73.37
19	CB-21	18	0.48	0.96	0.97	8.90	24	161.023	68.23	67.75	0.30	8.29	12.35	2.71	2.51	0.013	2.7	70.04	69.85	72.74
18	CB-24	17	0.30	1.46	0.97	8.42	24	22.785	67.75	67.68	0.31	11.92	12.54	4.07	1.38	0.013	3.7	69.50	69.45	71.13
17	CB-25	16	0.13	1.59	0.97	8.37	30	129.147	67.68	67.29	0.30	12.91	22.54	3.45	0.72	0.013	3.8	69.34	69.23	70.90
16	CB-26	15	0.08	1.67	0.97	8.02	30	59.897	67.29	67.11	0.30	12.99	22.48	3.91	1.19	0.013	4.7	68.84	68.77	70.98
15	CB-27	Outfall	0.03	1.70	0.97	7.87	30	36.460	67.11	67.00	0.30	12.97	22.53	5.12	2.01	0.013	5.1	68.46	68.22	71.62
14	CB-40	13	0.58	0.58	0.97	9.83	24	102.457	70.06	69.75	0.30	5.53	12.44	2.76	2.78	0.013	1.0	71.18	71.10	74.84
13	CB-41	12	0.49	1.07	0.97	9.27	24	222.068	69.17	68.50	0.30	9.62	12.42	3.28	3.67	0.013	2.0	70.81	70.47	74.84
12	CB-47	11	0.31	2.38	0.97	8.38	30	16.362	67.48	67.43	0.31	19.35	22.67	3.94	2.30	0.013	3.8	70.13	70.10	72.28
11	CB-48	10	0.05	2.43	0.97	8.35	30	24.000	67.43	67.36	0.29	19.69	22.15	4.01	1.62	0.013	3.9	69.93	69.89	71.55
10	CB-49	9	0.13	2.56	0.97	8.31	30	50.032	67.36	67.21	0.30	20.64	22.46	4.63	1.70	0.013	4.0	69.47	69.36	71.56
9	MH-50	Outfall	0.00	2.56	0.00	8.23	36	71.000	67.21	67.00	0.30	24.52	39.29	5.92	2.72	0.012	4.2	68.92	68.69	72.93

Project File: 2024-03-29-storm a.stm

Number of lines: 31

Date: 3/22/2024

NOTES: Intensity = 84.74 / (Inlet time + 12.30) ^ 0.83 -- Return period = 25 Yrs. ; ** Critical depth

Line No.	Inlet ID	DnStm Ln No	Drng Area (ac)	Total Area (ac)	Runoff Coeff (C)	i Sys (in/hr)	Line Size (in)	Line Length (ft)	Invert Up (ft)	Invert Dn (ft)	Line Slope (%)	Flow Rate (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Cover Up (ft)	n-val Pipe	Tc (min)	HGL Up (ft)	HGL Dn (ft)	Gnd/Rim El Up (ft)
8	CB-2	5	0.17	0.17	0.97	9.83	15	42,000	71.30	71.17	0.31	1.62	3.59	1.32	1.95	0.013	0.9	73.45	73.42	74.50
7	CB-4	4	0.40	0.40	0.97	9.83	18	42,000	71.34	71.21	0.31	3.81	5.84	2.16	1.66	0.013	1.0	73.44	73.39	74.50
6	CB-1	4	0.36	0.36	0.97	9.70	18	130,980	71.50	71.11	0.30	3.39	5.73	1.92	0.93	0.013	1.2	73.53	73.39	73.93
5	CB-3	4	0.14	0.31	0.97	9.57	18	14,080	71.25	71.21	0.28	2.88	5.60	1.63	0.89	0.013	1.4	73.40	73.39	73.64
4	CB-5	1	0.20	1.27	0.97	9.07	24	106,131	71.11	70.79	0.30	11.18	12.42	3.71	0.53	0.013	2.3	72.89	72.68	73.64
3	OS-1	2	0.00	0.00	0.97	0.00	24	68,798	71.23	71.02	0.31	0.15	12.50	0.06	0.25	0.013	1.0	72.68	72.68	73.48
2	MH-6	1	0.19	0.19	0.97	4.16	24	78,103	71.02	70.79	0.29	0.92	12.27	0.31	2.16	0.013	25.0	72.68	72.68	75.18
1	CB-7	Outfall	0.03	1.49	0.97	3.97	24	83,416	70.79	70.54	0.30	5.89	12.38	1.93	2.19	0.013	27.2	72.59	72.54	74.98

Project File: 2024-03-29-storm a.stm Number of lines: 31

NOTES: Intensity = 84.74 / (Inlet time + 12.30) ^ 0.83 -- Return period = 25 Yrs. ; ** Critical depth Date: 3/22/2024

APPENDIX F
BASIN SUMMARY SHEETS

New Jersey Department of Agriculture
Hydrologic Modeling Database – Data Entry Form

Project Site Details

Chpt. 251 Application Number: _____

Start Date (if known): _____

County: Mercer

Street Address: 3131 Princeton Pike

Municipality: Lawrence Township

Block: 3801

Lot: 2 & 3

NJDEP Anderson Landuse Code (4 digits):

Landuse description: 1150

Site Centroid Location (NJ State Plane Feet): ¹

 Northing: _____ Easting: _____

Project Contact Details

Applicant: Lawrenceville Development Group, LLC

Address: 45 Eisenhower Drive, Suite 50, Paramus, NJ 07652

Phone: 267-303-3382

Email: matthew@reynoldsasset.com

Post Construction Operation & Maintenance:²

Party Name: Lawrenceville Development Group, LLC

Address: 45 Eisenhower Drive, Suite 50, Paramus, NJ 07652

Phone: 267-303-3382

Email: matthew@reynoldsasset.com

Party type: Owner

New Jersey Department of Agriculture
Hydrologic Modeling Database – Data Entry Form

Basin Details:³

Basin Centroid (NJ State Plane Feet):⁴

 Northing: _____ Easting: _____

Basin Type: Small-scale Bioretention Basin 1

Construction: excavated embankment sub-surface (check one)

Status phase:⁵ Design As-built

Dam Height: (ft) _____ top width: (ft) _____

Dam Classification: _____

Drainage Area(s) to Basin [note- include any bypass areas]⁶

Drainage Area Name	Drainage Area (acres)	Post-Development CN#	Percent Impervious	Time of Concentration (min)
BA-1	0.17	97	0	0.3

Basin Outlet Structure(s)⁷

ID: os-1

End of Pipe Location:⁸ Northing: _____ Easting: _____

Discharge Type ⁹ (weir, orifice, etc)	Dimensions (diameter, length)	Elevation (USGS)	Discharge ¹⁰ Coefficient	Equation Used ¹¹
orifice	2.5" dia.	71.50	0.6	Hydrocad
orifice	6"H x 6"W	72.00	0.6	Hydrocad
grate	48" x 48"	74.00	0.6	Hydrocad

New Jersey Department of Agriculture
Hydrologic Modeling Database – Data Entry Form

Basin Outlet Structure(s)

ID:

End of Pipe Location: Northing:

Easting:

Discharge Type (weir, orifice, etc)	Dimensions (diameter, length)	Elevation (USGS)	Discharge Coefficient	Equation Used

Basin Stage-Discharge Rating Table¹²

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
WQ	0.14	0.00	107	71.56
2	0.39	0.02	541	71.79
10	0.74	0.08	902	71.97
100	1.43	0.36	1,599	72.28

Table 9: Small-scale Bioretention basin 1 summary

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
2	0.50	0.05	610	71.82
10	0.92	0.13	1,129	72.07
100	2.05	0.71	2,128	72.50

Table 10: Small-scale Bioretention basin 1 2100-year summary

NJDEP BMP Water Quality Structures¹³

Type (rain garden, green roof, seepage pit etc)	Size	Size Units (cu ft, sq ft etc)	Northing (SPF)	Easting (SPF)
bioretention basin 1	3,432	sqft		

New Jersey Department of Agriculture
Hydrologic Modeling Database – Data Entry Form

Basin Details:³

Basin Centroid (NJ State Plane Feet):⁴

 Northing: _____ Easting: _____

Basin Type: Small-scale Bioretention Basin 2

Construction: excavated embankment sub-surface (check one)

Status phase:⁵ Design As-built

Dam Height: (ft) _____ top width: (ft) _____

Dam Classification: _____

Drainage Area(s) to Basin [note- include any bypass areas]⁶

Drainage Area Name	Drainage Area (acres)	Post-Development CN#	Percent Impervious	Time of Concentration (min)
BA-2	0.61	97	68%	0.7

Basin Outlet Structure(s)⁷

ID: OS-2

End of Pipe Location:⁸ Northing: _____ Easting: _____

Discharge Type ⁹ (weir, orifice, etc)	Dimensions (diameter, length)	Elevation (USGS)	Discharge ¹⁰ Coefficient	Equation Used ¹¹
grate	48 "x48 "	71.75	0.6	Hydrocad

New Jersey Department of Agriculture
Hydrologic Modeling Database – Data Entry Form

Basin Outlet Structure(s)

ID:

End of Pipe Location: Northing:

Easting:

Discharge Type (weir, orifice, etc)	Dimensions (diameter, length)	Elevation (USGS)	Discharge Coefficient	Equation Used

Basin Stage-Discharge Rating Table¹²

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
WQ	1.44	0.00	1,697	70.81
2	2.06	0.37	3,487	71.79
10	3.28	3.26	3,755	71.91
100	5.64	5.64	3,914	71.98

Table 11: Small-scale Bioretention basin 2 summary

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
2	2.44	1.11	3,575	71.83
10	3.92	3.91	3,802	71.93
100	7.82	7.79	4,040	72.03

Table 12: Small-scale Bioretention basin 2 2100-year summary

NJDEP BMP Water Quality Structures¹³

Type (rain garden, green roof, seepage pit etc)	Size	Size Units (cu ft, sq ft etc)	Northing (SPF)	Easting (SPF)
bioretention basin 2	3,448	sqft		

New Jersey Department of Agriculture
Hydrologic Modeling Database – Data Entry Form

Basin Details:³

Basin Centroid (NJ State Plane Feet):⁴

 Northing: _____ Easting: _____

Basin Type: Large-scale Bioretention Basin 3

Construction: excavated embankment sub-surface (check one)

Status phase:⁵ Design As-built

Dam Height: (ft) _____ top width: (ft) _____

Dam Classification: _____

Drainage Area(s) to Basin [note- include any bypass areas]⁶

Drainage Area Name	Drainage Area (acres)	Post-Development CN#	Percent Impervious	Time of Concentration (min)
BA-3	1.72	97	60%	1.0

Basin Outlet Structure(s)⁷

ID: os-3

End of Pipe Location:⁸ Northing: _____ Easting: _____

Discharge Type ⁹ (weir, orifice, etc)	Dimensions (diameter, length)	Elevation (USGS)	Discharge ¹⁰ Coefficient	Equation Used ¹¹
orifice	24"W x12"H	67.95	0.6	Hydrocad
grate	48"x48"	69.40	0.6	Hydrocad

New Jersey Department of Agriculture
Hydrologic Modeling Database – Data Entry Form

Basin Outlet Structure(s)

ID:

End of Pipe Location: Northing:

Easting:

Discharge Type (weir, orifice, etc)	Dimensions (diameter, length)	Elevation (USGS)	Discharge Coefficient	Equation Used

Basin Stage-Discharge Rating Table¹²

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
WQ	10.73	0.00	17,770	67.90
2	14.52	2.52	29,895	68.49
10	25.07	6.57	40,305	68.97
100	41.42	18.58	56,423	69.68

Table 7: Large-scale Bioretention basin summary

Storm (Yr.)	Basin Inflow (cfs)	Basin Outflow (cfs)	Maximum Basin Storage (cubic ft)	Peak Elevation
2	17.55	3.61	33,003	68.63
10	29.45	8.30	45,951	69.22
100	56.12	30.32	65,391	70.07

Table 8: Large-scale Bioretention basin 2100-year summary

NJDEP BMP Water Quality Structures¹³

Type (rain garden, green roof, seepage pit etc)	Size	Size Units (cu ft, sq ft etc)	Northing (SPF)	Easting (SPF)
bioretention basin 3	24,957	sqft		

New Jersey Department of Agriculture
Hydrologic Modeling Database – Data Entry Form

Explanatory Notes-

¹ Approximate location of center of site, coordinates in state plane feet

² Indicate who will be responsible for permanent operation and maintenance

³ Additional Basin Detail Pages can be used for more than one basin in a project.

⁴ Approximate location of center of basin, coordinates in state plane feet

⁵ Indicate “design” for basins not yet constructed

⁶ Drainage areas which are modified by construction, but not directed to the basin should still be listed and described

⁷ “Outlet structure” means the control box, outlet headwall, FES etc. This does not refer to an individual control on the structure such as a weir or orifice. There are two tables for more than one outlet structure

⁸ Approximate location of terminal discharge end of basin outfall, coordinates in state plane feet

⁹ Indicate the type of outlet – weir, orifice, hydro brake, etc.

¹⁰ Discharge Coefficient specific to the type of outlet control i.e., 0.6 for circular orifice

¹¹ List the discharge equation for each outlet (weir, orifice etc) used

¹² For basins with dead storage below the primary outlet, indicate 0 cfs discharge until the lowest outlet is reached. Routing table should begin at the lowest basin elevation.

¹³ Describe NJDEP BMP Manual water quality devices such as seepage pits, rain gardens etc. Size is appropriate for device – cubic feet, square feet or linear feet. Location of device using state plane feet coordinates.

APPENDIX G

TEST PIT LOGS AND INFILTRATION TESTING



March 12, 2024

Mr. Ian Burton
MidAtlantic Engineering Partners
1971 Highway 34, Suite 201
Wall Township, NJ 07719

ECS Project Number: 44-2006

Reference: Results of Infiltration Testing
Lawrenceville Office Park Redevelopment
3131 Princeton Pike
Lawrence Township, Mercer County, New Jersey

Dear Mr. Burton:

ECS Mid-Atlantic, LLC (ECS) is pleased to present the interpreted subsurface profiles and results from the infiltration testing completed at the referenced project site location. Our services were provided in accordance with our proposal dated January 23, 2024 (ECS Proposal No. 44:1991-GPR), which was authorized on February 2, 2024 under the existing Professional Services Agreement between MidAtlantic Engineering Partners (MEP) and ECS.

PROJECT UNDERSTANDING

The project site is located at 3131 Princeton Pike, Lawrence County, New Jersey. The testing locations were selected by MEP to explore the potential for infiltration at proposed storm water facility locations.

Our soil profiling and infiltration test program were based on the information provided by MEP via email, including the file named "Survey w Geotech Locations (006)" provided by Ian Burton on February 14, 2024.

SUBSURFACE EXPLORATION AND TESTING

Prior to intrusive activities at the project site, our exploration subcontractor made notification for mark-out of public utilities via New Jersey One Call. Our exploration procedures are explained in greater detail in Attachment 2 in the insert titled Subsurface Exploration Procedure. A rubber tracked mini excavator was used, and the Exploration Location Diagram in Attachment 1 depicts the approximate as-completed locations of the test pit excavations. Soil profiling and field infiltration testing was performed in general accordance with Chapter 12 of the BMP Manual. The Single Ring Infiltration Test (Subsection A5 of the Chapter 12 Appendix) was used.

Upon completion of the infiltration testing, the test pits were backfilled with the excavation spoils. The spoils were placed in consecutive, generally horizontal lifts of relatively uniform thickness and tamped with the excavator bucket. Excess spoils were mounded above the backfilled test pit footprint and smoothed and firmed with the excavator bucket.

Test Pit TP-12 was originally placed at south of TP-11 at the east side of the property. Due to the existing ponding condition at the ground surface, TP-12 was relocated to the location shown on the attached Test Pit Location Diagram with the permission of MEP. Perched water was observed at TP-5; therefore, infiltration testing was not performed at this test pit location. MEP was notified about this prior to abandonment.

SUBSURFACE CHARACTERIZATION

Soils encountered were visually classified during logging on the basis of texture in general accordance with the United States Department of Agriculture (USDA) Textural Classification System per the requirements of the BMP Manual. After classification, the samples were grouped in the major zones noted on the exploration logs contained in Attachment 2. Divisions between soil strata/soil horizons on the exploration logs are approximate; in-situ, the transitions may be gradual. Additionally, index property tests were performed on select soil samples collected to confirm USDA classifications made in the field. Each laboratory test was completed in general accordance with the applicable ASTM Standard Test Method as indicated on the laboratory testing sheets included in Attachment 3.

The subsurface conditions encountered were generally consistent with the published geologic mapping available from the New Jersey Geological and Water Survey via NJ-GeoWeb and the United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) via Web Soil Survey for the general site vicinity. Refer to Attachment 1 for geologic maps for the general vicinity of the project site.

TESP PIT DESIGNATION	INFILTRATION TEST ID	APPROXIMATE TEST ELEVATION	USDA TEXTURAL CLASSIFICATION AT TEST ELEVATION
TP-01	TP-01A	±68.0	LOAM
TP-02	TP-02A	±68.0	Sandy Clay
TP-03	TP-03A	±71.5	SANDY CLAY LOAM
TP-04	TP-04A	±71.4	SILT LOAM
TP-05	TP-05A	±78.0	-
TP-06	TP-06A	±75.0	Silty Clay Loam
TP-07	TP-07A	±74.0	SILT LOAM
TP-08	TP-08A	±72.5	LOAM
TP-09	TP-09A	±65.0	SANDY LOAM
TP-10	TP-10A	±65.0	SANDY LOAM
TP-11	TP-11A	±65.0	SANDY LOAM
TP-12	TP-12A	±71.0	SILT LOAM

GROUNDWATER

Groundwater was observed within test pit TP-2, TP-3, TP-4, TP-5, TP-6, TP-9, TP-10, and TP-11. Depth of groundwater ranged from 5.0 to 8.0 feet. Perched water was also observed in test pit TP-5 at depth of 1.5 feet, possibly due to the adjacent infiltration from snow melting. Mottling was not observed in each of the other test pits during excavation and no water was observed entering the test pits; however, each of the test pits were not left open for 24-hour to monitoring the seasonal high-water determination (SHWT). The possibility

of groundwater level fluctuations should be considered in stormwater design development. Variations in perched groundwater levels and long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors.

INFILTRATION TEST RESULTS

As previously indicated, field infiltration testing were performed within the test pits in general accordance with the Appendix to Chapter 12 of the BMP Manual, Subsection A5, Single Ring Infiltration Test. Findings from our field infiltration testing are reported on the Single Ring Infiltration Test Logs contained in Attachment 2. Listed in the following table present the hydraulic conductivity rate of the soil layers tested as determined by the procedure outlined in Subsection A5.

BASIN DESIGNATION	INFILTRATION TEST ID	TESTED SOIL
		HYDRAULIC CONDUCTIVITY RATE (inch/hour)
TP-01	TP-01A	< 0.3
TP-02	TP-02A	< 0.3
TP-03	TP-03A	< 0.3
TP-04	TP-04A	< 0.3
TP-05	TP-05A	-
TP-06	TP-06A	2.46
TP-07	TP-07A	< 0.3
TP-08	TP-08A	< 0.3
TP-09	TP-09A	< 0.3
TP-10	TP-10A	< 0.3
TP-11	TP-11A	< 0.3
TP-12	TP-12A	< 0.3

CLOSING

It has been our pleasure to be of service during this phase of the project. Please note, ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data contained in this letter and its associated attachments. Should you have any questions concerning the information contained herein, or if we can be of further assistance to you, please contact us.

Respectfully,

ECS MID-ATLANTIC, LLC



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Attachments: Appendix A – Diagrams and Reports
Appendix B – Field Operations
Appendix C – Laboratory Testing

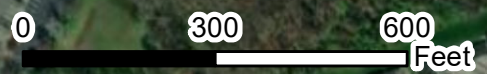
Appendix A - Drawings and Reports

Site Location Diagram

Test Pit Location Diagram(s)

Geologic/Soil Survey Maps

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



SITE LOCATION DIAGRAM LAWRENCEVILLE OFFICE PARK REDEVELOPMENT

3131 PRINCETON PIKE, LAWRENCEVILLE, NEW JERSEY
MIDATLANTIC ENGINEERING PARTNERS

ENGINEER YZ
SCALE AS NOTED
PROJECT NO. 44:2006
FIGURE 1 OF 1
DATE 2/23/2024


Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors



68A



Legend

 Approximate Test Pit Locations

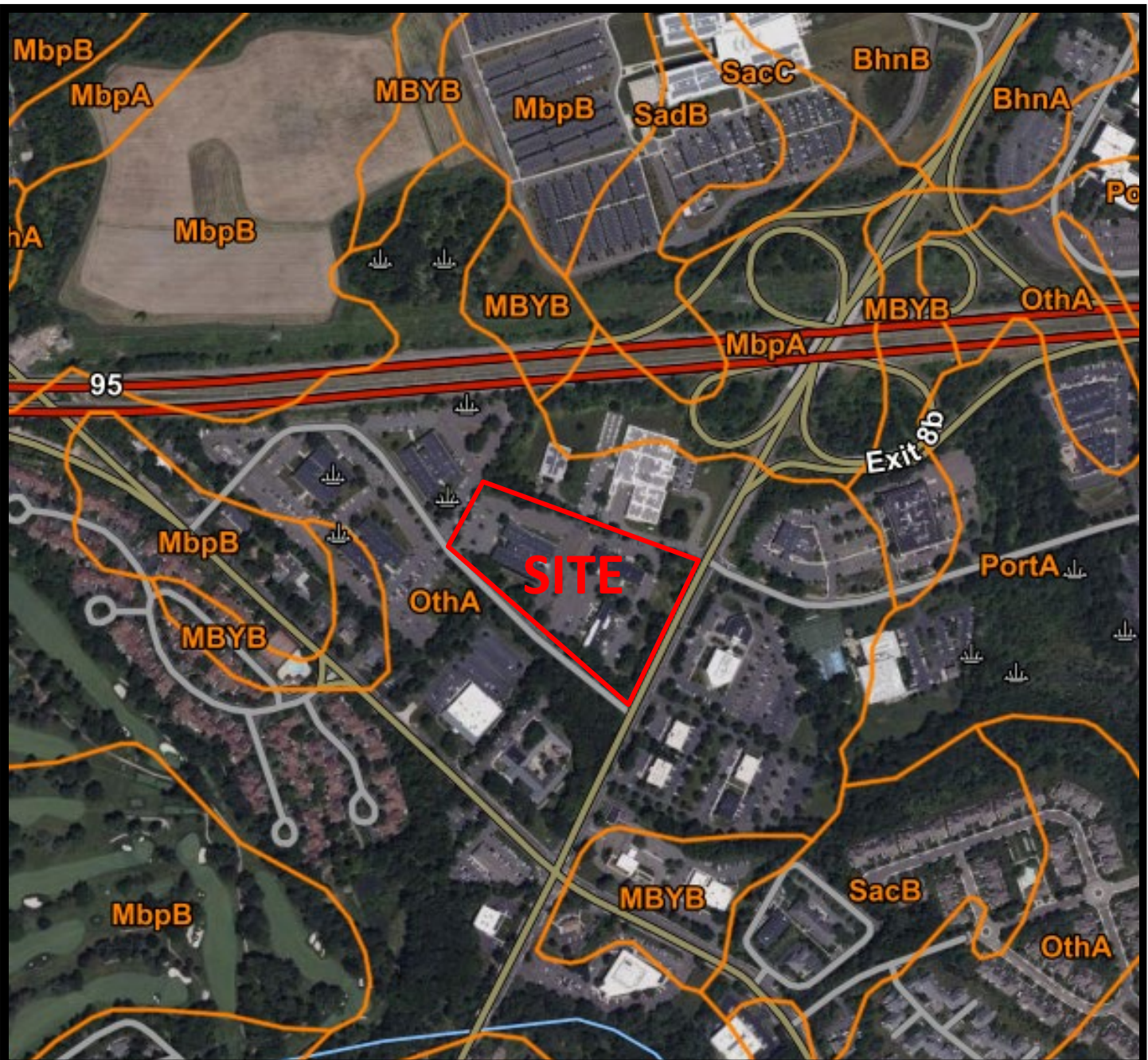
TEST PIT LOCATION DIAGRAM

LAWRENCEVILLE OFFICE PARK REDEVELOPMENT

3131 PRINCETON PIKE, LAWRENCEVILLE, NEW JERSEY
 MIDATLANTIC ENGINEERING PARTNERS



ENGINEER YZ
SCALE AS NOTED
PROJECT NO. 44:2006
FIGURE 1 OF 1
DATE 2/23/2024



Map Unit Symbol	Map Unit Name
OthA	Othello silt loams, 0 to 2 percent slopes, northern coastal plain
MbpA	Matapeake loam, 0 to 2 percent slopes
MBYB	Mattapex and Bertie loams, 0 to 5 percent slopes

Source: Web Soil Survey



**LAWRENCEVILLE OFFICE PARK
REDEVELOPMENT**

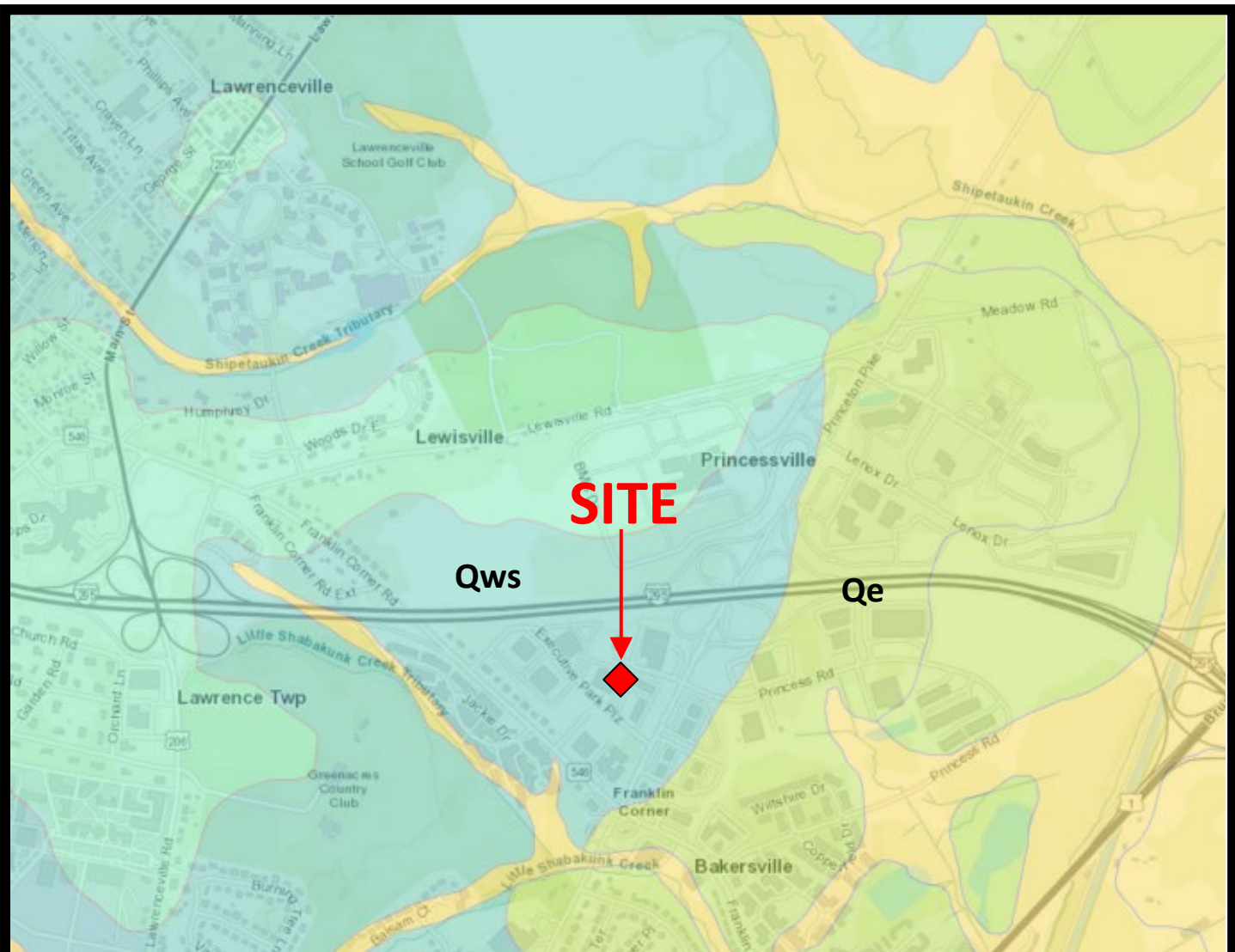
3131 Princeton Pike,
Lawrence Township, New Jersey

MidAtlantic Engineering Partners



SOIL SURVEY MAP

ECS Project 44:2006
February 13, 2024



Geologic Formation Name (Abbreviation)	Lithology	Notes
Weathered shale, mudstone, and sandstone (Qws)	Silty sand to silty clay with shale, mudstone, or sandstone fragments; reddish brown, yellow, light gray. As much as 10 feet thick on shale and mudstone, 30 feet thick on sandstone.	
Eolian Deposits (Qe)	Windblown fine sand and silt; very pale brown, yellowish brown. As much as 15 feet thick.	Form sand sheets and, locally, dunes.

Source: NJ-Geoweb (Surficial Geology)



LAWRENCEVILLE OFFICE PARK REDEVELOPMENT

3131 Princeton Pike,
Lawrence Township, New Jersey

MidAtlantic Engineering Partners



SURFICIAL GEOLOGY MAP

ECS Project 44:2006
February 13, 2024



Stratigraphic Unit Name (Abbreviation)	Stratigraphic Unit Number	Lithology
Stockton Formation (Trs)	5,400	sandstone, mudstone, silty mudstone, argillaceous siltstone, and shale

Source: NJ-Geoweb (Regional Geology)



**LAWRENCEVILLE OFFICE PARK
REDEVELOPMENT**

3131 Princeton Pike,
Lawrence Township, New Jersey

MidAtlantic Engineering Partners



REGIONAL GEOLOGY MAP

ECS Project 44:2006
February 13, 2024

Appendix B – Field Operations

Reference Notes

Exploration Procedures

Test Pit Logs

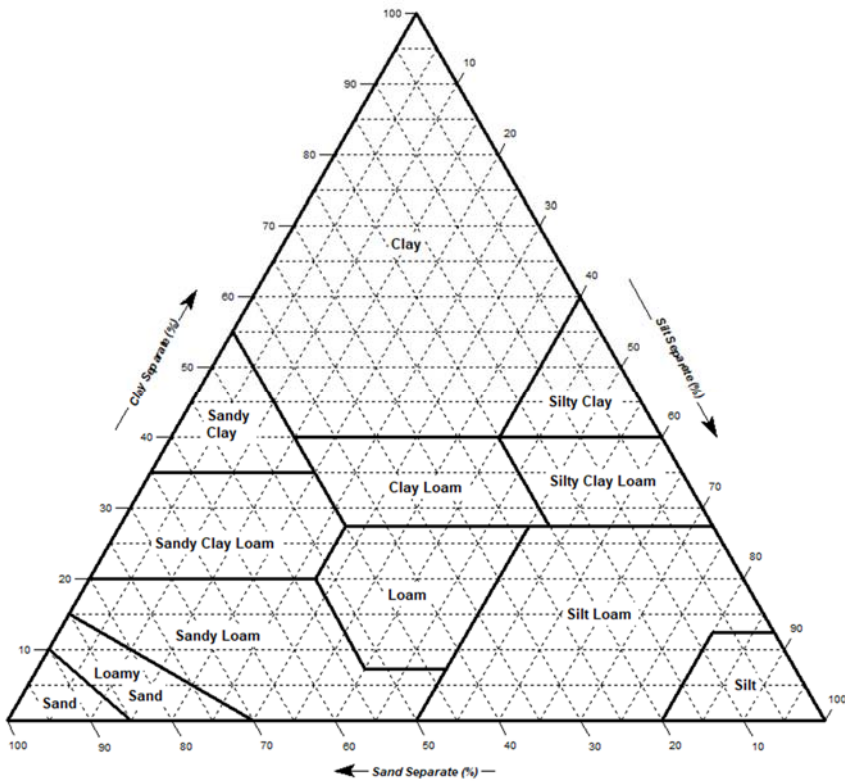
Infiltration/Permeability/Hydraulic Test Results



U.S. Department of Agriculture (USDA) Soil Classification System

Texture Triangle

Fine Earth Texture Classes (—)



Texture Class

Texture Class or Subclass	Code	
	Conv.	NASIS
Coarse Sand	cos	COS
Sand	s	S
Fine Sand	fs	FS
Very Fine Sand	vfs	VFS
Loamy Coarse Sand	lcos	LCOS
Loamy Sand	ls	LS
Loamy Fine Sand	lfs	LFS
Loamy Very Fine Sand	lvfs	LVFS
Coarse Sandy Loam	cosl	COSL
Sandy Loam	sl	SL
Fine Sandy Loam	fsl	FSL
Very Fine Sandy Loam	vfsl	VFSL
Loam	l	L
Silt Loam	sil	SIL
Silt	si	SI
Sandy Clay Loam	scl	SCL
Clay Loam	cl	CL
Silty Clay Loam	sicl	SICL
Sandy Clay	sc	SC
Silty Clay	sic	SIC
Clay	c	C

Texture Modifiers – Conventions for using “Rock Fragment Texture Modifiers” and for using textural adjectives that convey the “% volume” ranges for Rock Fragments – Size and Quantity.

Fragment Content % By Volume	Rock Fragment Modifier Usage
< 15	No texture adjective is used (noun only; e.g., <i>loam</i>).
15 to < 35	Use adjective for appropriate size; e.g., <i>gravelly</i> .
35 to < 60	Use “very” with the appropriate size adjective; e.g., <i>very gravelly</i> .
60 to < 90	Use “extremely” with the appropriate size adjective; e.g., <i>extremely gravelly</i> .
≥ 90	No adjective modifier. If ≤ 10% fine earth, use the appropriate noun for the dominant size class; e.g., <i>gravel</i> . Use terms in lieu of texture.

Texture Modifiers – (Adjectives)

Rock Fragments: Size and Quantity	Code		Criteria: Percent (by volume) of total rock fragments and dominated by (<i>name size</i>):
	Conv.	PDP/NASIS	
Rock Fragments (> 2mm; ≥ Strongly Cemented)			
Gravelly	GR	GR	≥ 15% but < 35% gravel
Fine Gravelly	FGR	GRF	≥ 15% but < 35% fine gravel
Medium Gravelly	MGR	GRM	≥ 15% but < 35% med. gravel
Coarse Gravelly	CGR	GRC	≥ 15% but < 35% coarse gravel
Very Gravelly	VGR	GRV	≥ 35% but < 60% gravel
Extremely Gravelly	XGR	GRX	≥ 60% but < 90% gravel
Cobbly	CB	CB	≥ 15% but < 35% cobbles
Very Cobbly	VCB	CBV	≥ 35% but < 60% cobbles
Extremely Cobbly	XCB	CBX	≥ 60% but < 90% cobbles
Stony	ST	ST	≥ 15% but < 35% stones
Very Stony	VST	STV	≥ 35% but < 60% stones
Extremely Stony	XST	STX	≥ 60% but < 90% stones
Bouldery	BY	BY	≥ 15% but < 35% boulders
Very Bouldery	VBY	BYV	≥ 35% but < 60% boulders
Extremely Bouldery	XBY	BYX	≥ 60% but < 90% boulders
Channery	CN	CN	≥ 15% but < 35% channers
Very Channery	VCN	CNV	≥ 35% but < 60% channers
Extremely Channery	XCN	CNX	≥ 60% but < 90% channers
Flaggy	FL	FL	≥ 15% but < 35% flagstones
Very Flaggy	VFL	FLV	≥ 35% but < 60% flagstones
Extremely Flaggy	XFL	FLX	≥ 60% but < 90% flagstones



SUBSURFACE EXPLORATION PROCEDURE: TEST PIT EXCAVATION

A test pit is an excavation of subsurface materials to characterize the composition and rippability/excavation efforts. Test pit exploration allows observation of the boundary relationships within a soil and rock profile and is useful to identify existing fill composition, disturbed material or the depth of soft sediments. Both track mounted excavators and backhoes are used in a variety of ground conditions allowing for difficult terrain to be accessed. The excavation process also provides access for in-situ and field testing and acquisition of samples for laboratory testing.

TEST PIT Procedure:

- Involves excavation subsurface material to observe composition and physical characteristics
- Recording the approximate depth of subsurface strata
- Excavation is continued as prescribed or to limits of equipment and subsurface conditions
- The exploration is typically carried out with an excavator or backhoe, with the depth dependent on machine size and ground



Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ
Project Location:	3131 Princeton Pike	Block/Lot:	
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Yuze Zhang / ECS

Date of Observation:	2/16/2024	Lowest point in BMP (ft) =	-
Prepared by:	YZ	Maximum Impounded Water Depth (ft) =	-
		Required Soil Profile Depth (ft) =	12.0

Exploration ID:	TP-1	
		Elevation (ft)
Existing Ground Level:	73.5	
Proposed SWM Basin Bottom Level:	-	
Seasonal High Water Table:	-	
Termination:	61.5	

Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.

USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
		73.5/73.0		Asphalt	
		73.0/72.5		Sand with gravel	subbase material
loamy sand		72.5/70.5		7.5YR 5/3 brown, massive, moist, firm, medium	
LOAM	X	70.5/66.5		5YR 7/1 light gray, massive, moist, firm, 5% gravel, sub-rounded	infiltration testing at 68.0
loamy sand		66.5/61.5		7.5YR 5/3 brown, single grain, moist, loose, 10% gravel, sub-rounded	

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ		
Project Location:	3131 Princeton Pike	Block/Lot:			
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Yuze Zhang / ECS		
Date of Observation:		2/12/2024		Lowest point in BMP (ft) =	
Prepared by:		YZ		Maximum Impounded Water Depth (ft) =	
				Required Soil Profile Depth (ft) =	
				8.0	
Exploration ID:	TP-2	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.			
Elevation (ft)					
Existing Ground Level:	72.0				
Proposed SWM Basin Bottom Level:	-				
Seasonal High Water Table:	-				
Termination:	64.0				
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
sandy clay	X	72.0/67.0		5YR 7/1 light gray, massive, moist, firm, fine, 5% gravel, sub-rounded	infiltration testing at 68.0
LOAM		67.0/64.0	64.0	5YR 4/3 reddish brown, massive, moist, loose, 10% gravel, sub-rounded	

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ		
Project Location:	3131 Princeton Pike	Block/Lot:			
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Maddie Trudnak / ECS		
Date of Observation:		2/16/2024		Lowest point in BMP (ft) =	
Prepared by:		YZ		Maximum Impounded Water Depth (ft) =	
				Required Soil Profile Depth (ft) =	
				10.0	
Exploration ID:	TP-3	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.			
Elevation (ft)					
Existing Ground Level:	71.5				
Proposed SWM Basin Bottom Level:	-				
Seasonal High Water Table:	-				
Termination:		61.5			
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
Clay Loam		71.5/71.0		7.5YR 4/2 brown, granular, moist, friable, medium	topsoil
Silty Clay Loam		71.0/69.5		7.5YR 4/4 brown, blocky, moist, friable, medium, 30% gravel, sub-rounded	
SANY CLAY LOAM	X	69.5/68.2		5YR 4/6 yellowish red, blocky, moist, firm, fine	infiltration testing at 68.8
Silty Clay Loam		68.2/64.5		2.5Y 4/1 dark gray, platy, moist, friable, medium	
Silt Loam		64.5/61.5	64.5	2.5YR 3/4 dark reddish brown, blocky, wet, non-sticky, medium, 90% rock fragments, angular	weathered bedrock, siltstone

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ		
Project Location:	3131 Princeton Pike	Block/Lot:			
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Maddie Trudnak / ECS		
Date of Observation:		2/16/2024		Lowest point in BMP (ft) =	
Prepared by:		YZ		Maximum Impounded Water Depth (ft) =	
				Required Soil Profile Depth (ft) =	
				8.5	
Exploration ID:	TP-4	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.			
Elevation (ft)					
Existing Ground Level:	71.4				
Proposed SWM Basin Bottom Level:	-				
Seasonal High Water Table:	-				
Termination:	62.9				
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
Clay Loam		71.4/70.9		7.5YR 4/2 brown, granular, moist, friable, medium	topsoil, roots and organics
Clay Loam		70.9/69.9		10YR 4/2 dark grayish brown, blocky, moist, firm medium, 5% gravel, angular	roots
SILT LOAM	X	69.9/66.4		10YR 5/2 grayish brown, blocky, moist, firm, very fine, 20% gravel, sub-rounded	infiltration testing at 69.4
Silt Loam		66.4/62.9	64.4	2.5 YR 3/4 dark reddish brown, blocky, wet, non-sticky, medium, 60% rock fragments, angular	highly weathered bedrock, siltstone

Soil Profile Report

Project Name/#:		Lawrenceville Office Park Redevelopment /2006	Municipality:		Lawrence Township, NJ
Project Location:		3131 Princeton Pike	Block/Lot:		
Driller:		Raymond Makowski / Accurate Drilling	Inspector:		Maddie Trudnak / ECS
Date of Observation:			2/16/2024		
Prepared by:			YZ		
			Lowest point in BMP (ft) =		
			-		
			Maximum Impounded Water Depth (ft) =		
			-		
			Required Soil Profile Depth (ft) =		
			8.5		
Exploration ID:		TP-5	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.		
		Elevation (ft)			
Existing Ground Level:		78.0			
Proposed SWM Basin Bottom Level:		-			
Seasonal High Water Table:		-			
Termination:		69.5			
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
		78/77.5		GLE1 3/N very dark gray	Asphalt
		77.5/76.5	76.5	10YR 3/3 dark brown, 2.5YR 4/1 dark gray, massive, moist to wet, very firm, coarse	subbase material, likely perched water
SANDY LOAM	X	76.5/73.0		GLE1 6/10Y greenish gray, blocky, wet to moist, friable, medium	
Sandy Loam		73.0/71.2		5YR 3/3 dark reddish brown, single grained, moist, loose, coarse	
Sand Loam		71.2/69.5		5YR 4/3 reddish brown, blocky, moist to wet, very firm, coarse, 90% rock fragments, sub-angular	weathered bedrock, sandstone

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ		
Project Location:	3131 Princeton Pike	Block/Lot:			
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Maddie Trudnak / ECS		
Date of Observation:		2/16/2024		Lowest point in BMP (ft) =	
Prepared by:		YZ		Maximum Impounded Water Depth (ft) =	
				Required Soil Profile Depth (ft) =	
Exploration ID:		TP-6		Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.	
		Elevation (ft)			
Existing Ground Level:		75.0			
Proposed SWM Basin Bottom Level:		-			
Seasonal High Water Table:		-			
Termination:		65.0			
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
		75.0/75.4		GLE1 3/N very dark gray	Asphalt
		74.5/74.0		10YR 3/3 dark brown, massive, moist, very firm, coarse	subbase material
Silty Clay Loam	X	74.0/73.3		7.5YR 7/2 pinkish gray, blocky, moist, friable, fine, 20% gravel, sub-rounded	
LOAMY SAND		73.3/65.5	67.0	5YR 4/4 reddish brown, single grain, moist to wet, loose, fine 40% gravel, sub-round	infiltration testing at 70.5
Silt Loam		65.5/65.0		2.5YR 3/2 dusky red, blocky, wet, firm, fine 5% gravel, sub-round	

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ		
Project Location:	3131 Princeton Pike	Block/Lot:			
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Maddie Trudnak / ECS		
Date of Observation:		2/15/2024		Lowest point in BMP (ft) =	
Prepared by:		YZ		Maximum Impounded Water Depth (ft) =	
				Required Soil Profile Depth (ft) =	
				11.0	
Exploration ID:	TP-7	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.			
Elevation (ft)					
Existing Ground Level:	74.0				
Proposed SWM Basin Bottom Level:	-				
Seasonal High Water Table:	-				
Termination:	63.0				
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
Silty Clay Loam		74.0/73.0		7.5YR 3/2 dark brown, granular, moist, friable, fine	topsoil, roots
SILT LOAM	X	73.0/69.0		10YR 5/2 grayish brown, platy, very moist, firm, very fine, 20% gravel, sub-round	infiltration testing at 71.0
Silt Loam		69.0/63.0		10YR 2.5/2 very dusky red, blocky, moist, friable, 50% gravel, sub-angular, 5% rock fragments, angular	highly weathered bedrock, siltstone

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ
Project Location:	3131 Princeton Pike	Block/Lot:	
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Maddie Trudnak / ECS

Date of Observation:	2/16/2024	Lowest point in BMP (ft) =	-
Prepared by:	YZ	Maximum Impounded Water Depth (ft) =	-
		Required Soil Profile Depth (ft) =	11.3

Exploration ID:	TP-8				
		Elevation (ft)			
Existing Ground Level:		72.5			
Proposed SWM Basin Bottom Level:		-			
Seasonal High Water Table:		-			
Termination:		61.3			

Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.

USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
Silty Clay Loam		72.5/71.0		7.5YR 3/2 dark brown, granular, moist, friable, fine	topsoil, roots and organics
LOAM	X	71.0/68.5		GLE Y1 6/N gray, 10YR 5/8 yellowish brown, blocky, moist, friable, fine, 30% gravel, sub-round	infiltration testing at 70.0
Sand Loam		68.5/67.5		7.5YR 5/8 strong brown, single grain, moist, loose, medium, 5% gravel, sub-round	
Sandy Loam		67.5/63.5		7.5YR 4/2 brown, single grain, wet, loose, medium, 40% gravel, sub-angular	
Silt Loam		63.5/61.3		10R 2.5/2 very dusky red, blocky, wet, very friable, fine, 40% gravel, angular	highly weathered bedrock, siltstone

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ		
Project Location:	3131 Princeton Pike	Block/Lot:			
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Yuze Zhang / ECS		
Date of Observation:		2/12/2024		Lowest point in BMP (ft) =	
Prepared by:		YZ		Maximum Impounded Water Depth (ft) =	
				Required Soil Profile Depth (ft) =	
				9.0	
Exploration ID:	TP-9	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.			
Elevation (ft)					
Existing Ground Level:	70.0				
Proposed SWM Basin Bottom Level:	-				
Seasonal High Water Table:	-				
Termination:	61.0				
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
silt		70.0/67.0		10YR 7/1 light gray, massvie, moist, firm, fine, 5% gravel, sub-rounded	
SANDY LOAM	X	67.0/63.0		5YR 7/1 light gray, massive, moist, firm, 10% gravel, sub-rounded	infiltration testing at 65.0
loamy sand		63.0/61.0	62.0	7.5YR 5/3 brown, single grain, moist, loose, 10% gravel, sub-rounded	

Soil Profile Report

Project Name/#:		Lawrenceville Office Park Redevelopment /2006	Municipality:		Lawrence Township, NJ
Project Location:		3131 Princeton Pike	Block/Lot:		
Driller:		Raymond Makowski / Accurate Drilling	Inspector:		Yuze Zhang / ECS
Date of Observation:		2/12/2024	Lowest point in BMP (ft) =		-
Prepared by:		YZ	Maximum Impounded Water Depth (ft) =		-
			Required Soil Profile Depth (ft) =		7.0
Exploration ID:		TP-10	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.		
		Elevation (ft)			
Existing Ground Level:		67.0			
Proposed SWM Basin Bottom Level:		-			
Seasonal High Water Table:		-			
Termination:		60.0			
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
SANDY LOAM	X	67.0/64.0		5YR 4/3 reddish brown, massvie, moist, firm, fine, 5% gravel, sub-rounded	infiltration testing at 65.0
loamy sand		64.0/60.0	62.0	5YR 4/3 reddish brown, massive, moist, firm, 10% gravel, sub-rounded	

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ		
Project Location:	3131 Princeton Pike	Block/Lot:			
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Yuze Zhang / ECS		
Date of Observation:		2/12/2024		Lowest point in BMP (ft) =	
Prepared by:		YZ		Maximum Impounded Water Depth (ft) =	
				Required Soil Profile Depth (ft) =	
				8.0	
Exploration ID:	TP-11	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.			
Elevation (ft)					
Existing Ground Level:	66.5				
Proposed SWM Basin Bottom Level:	-				
Seasonal High Water Table:	-				
Termination:	58.5				
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
SANDY LOAM	X	66.5/63.5		10YR 7/1 light gray, massive, moist, firm, fine, 5% gravel, sub-rounded	infiltration testing at 65.0
silt		63.5/60.5	60.5	5YR 4/3 reddish brown, massive, moist, firm, 15% gravel, sub-rounded	
loamy sand		60.5/58.5		7.5YR 5/3 brown, single grain, moist, loose, 10% gravel, sub-rounded	

Soil Profile Report

Project Name/#:	Lawrenceville Office Park Redevelopment /2006	Municipality:	Lawrence Township, NJ		
Project Location:	3131 Princeton Pike	Block/Lot:			
Driller:	Raymond Makowski / Accurate Drilling	Inspector:	Yuze Zhang / ECS		
Date of Observation:		2/16/2024		Lowest point in BMP (ft) =	
Prepared by:		YZ		Maximum Impounded Water Depth (ft) =	
				Required Soil Profile Depth (ft) =	
				12.0	
Exploration ID:	TP-12	Elevations are approximate and based on the topographic information shown on the survey plan provided by MidAtlantic Engineering Partners.			
Elevation (ft)					
Existing Ground Level:	75.5				
Proposed SWM Basin Bottom Level:	-				
Seasonal High Water Table:	-				
Termination:	63.5				
USDA Soil Texture	Mark Most Hydraulically Restrictive	Top Elevation/Bottom Elevation (ft.)	Observed Water Table Elevation (ft.)	Soil Morphological Observations	Note
loamy sand		75.5/73.5		7.5YR 5/3 brown, massvie, moist, firm, 5% gravel, sub-rounded	
SILT LOAM	X	73.5/70.5		10YR 7/1 light gray, massvie, moist, firm, 5% gravel, sub-rounded	infiltration testing at 71.0
silt		70.5/67.5		7.5YR 5/3 brown, massive, moist, slightly sticky, 10% gravel, sub-rounded	
loamy sand		67.5/63.5		7.5YR 5/3 brown, single grain, moist, loose, 5% gravel, sub-rounded	

Single Ring Infiltrometer Test Log

ECS Project No.: 44:2006

Project Location: 3131 Princeton Pike

Project Name: Lawrenceville Office Park Redevelopment

Lawrenceville, NJ

Township: Lawrence

Block/Lot:

Testing per New Jersey Stormwater Best Management Practices Manual, Chapter 12, Subsection A5 (April 2022)

				TEST ID:	TP-01A	Soil Layer Classification:			LOAM	Infiltration Test Elev.:		68.0
				Date:	2/6/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		

				TEST ID:	TP-02A	Soil Layer Classification:			sandy clay	Infiltration Test Elev.:		68.0
				Date:	2/6/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		

				TEST ID:	TP-03A	Soil Layer Classification:			SANDY CLAY LOAM	Infiltration Test Elev.:		68.8
				Date:	2/14/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		

				TEST ID:	TP-04A	Soil Layer Classification:			SILT LOAM	Infiltration Test Elev.:		69.4
				Date:	2/14/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		
				7								
				8								

				TEST ID:	TP-05A	Soil Layer Classification:				Infiltration Test Elev.:		
				Date:	2/15/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
							No infil ran, water pooling in TP				N/A	

				TEST ID:	TP-06A	Soil Layer Classification:			silty clay loam	Infiltration Test Elev.:		70.5
				Date:	2/15/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00	07	20	50	1	1.0	07:20.50	7.34	0.14	8.17	2.78	2.46	
1.00	08	18	88	2	1.0	08:18.88	8.31	0.12	7.22	2.45		
1.00	08	28	61	3	1.0	08:28.61	8.48	0.12	7.08	2.41		
1.00	08	35	68	4	1.0	08:35.68	8.59	0.12	6.98	2.37		
1.00	08	35	45	5	1.0	08:35.45	8.59	0.12	6.98	2.37		
1.00	08	37	32	6	1.0	08:37.32	8.62	0.12	6.96	2.37		



Single Ring Infiltrometer Test Log

ECS Project No.: 44:2006

Project Location: 3131 Princeton Pike

Project Name: Lawrenceville Office Park Redevelopment

Lawrenceville, NJ

Township: Lawrence

Block/Lot:

Testing per New Jersey Stormwater Best Management Practices Manual, Chapter 12, Subsection A5 (April 2022)

				TEST ID:	TP-07A	Soil Layer Classification:		SILT LOAM	Infiltration Test Elev.:			71.0
				Date:	2/14/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		

				TEST ID:	TP-08A	Soil Layer Classification:		LOAM	Infiltration Test Elev.:			70.0
				Date:	2/14/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		

				TEST ID:	TP-09A	Soil Layer Classification:		SANDY LOAM	Infiltration Test Elev.:			65.0
				Date:	2/6/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		

				TEST ID:	TP-010A	Soil Layer Classification:		SANDY LOAM	Infiltration Test Elev.:			65.0
				Date:	2/6/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		

				TEST ID:	TP-011A	Soil Layer Classification:		SANDY LOAM	Infiltration Test Elev.:			65.0
				Date:	2/6/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		

				TEST ID:	TP-012A	Soil Layer Classification:		SILT LOAM	Infiltration Test Elev.:			71.0
				Date:	2/6/2024							
Water Level Drop	MM	SS	.ss	Trial #	Water Level Drop (in)	Field Recorded Time (MM:SS.ss)	Calculated Time Per 1-inch Water Level Drop (MM.mm)	Field Observed Intake Rate (inches/min)	Field Observed Intake Rate (inches/hr)	Converted Hydraulic Conductivity (inches/hr)	Averaged Hydraulic Conductivity Rate (inches/hr)	
1.00				1	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3	< 0.3	
1.00				2	1.0	> 1 hour	> 1 hour	< 0.017	< 1	< 0.3		



Appendix C – Laboratory Testing

Laboratory Testing Summary
Grain Size Analysis/Analyses
Textural Triangle USDA Test(s)

Laboratory Testing Summary

Sample Location	Sample Number	Depth (ft)	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
TP-01	TP-01A	5.0-5.5	16.1										
TP-02	TP-02A	6.0-6.5	12.7										
TP-03	TP-03A	3.0-3.5	13.3										
TP-04	TP-04A	2.0-2.5	18.1										
TP-05	TP-05A	3.5-4.0	14.6										
TP-06	TP-06A	4.5-5.0	14.0										
TP-07	TP-07A	3.0-3.5	15.4										
TP-08	TP-08A	3.5-4.0	16.0										
TP-09	TP-09A	5.0-5.5	12.3										
TP-10	TP-10A	2.0-2.5	10.0										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Lawrenceville Office Park Redevelopment
Client: MidAtlantic Engineering Partners

Project No.: 44:2006
Date Reported: 3/8/2024



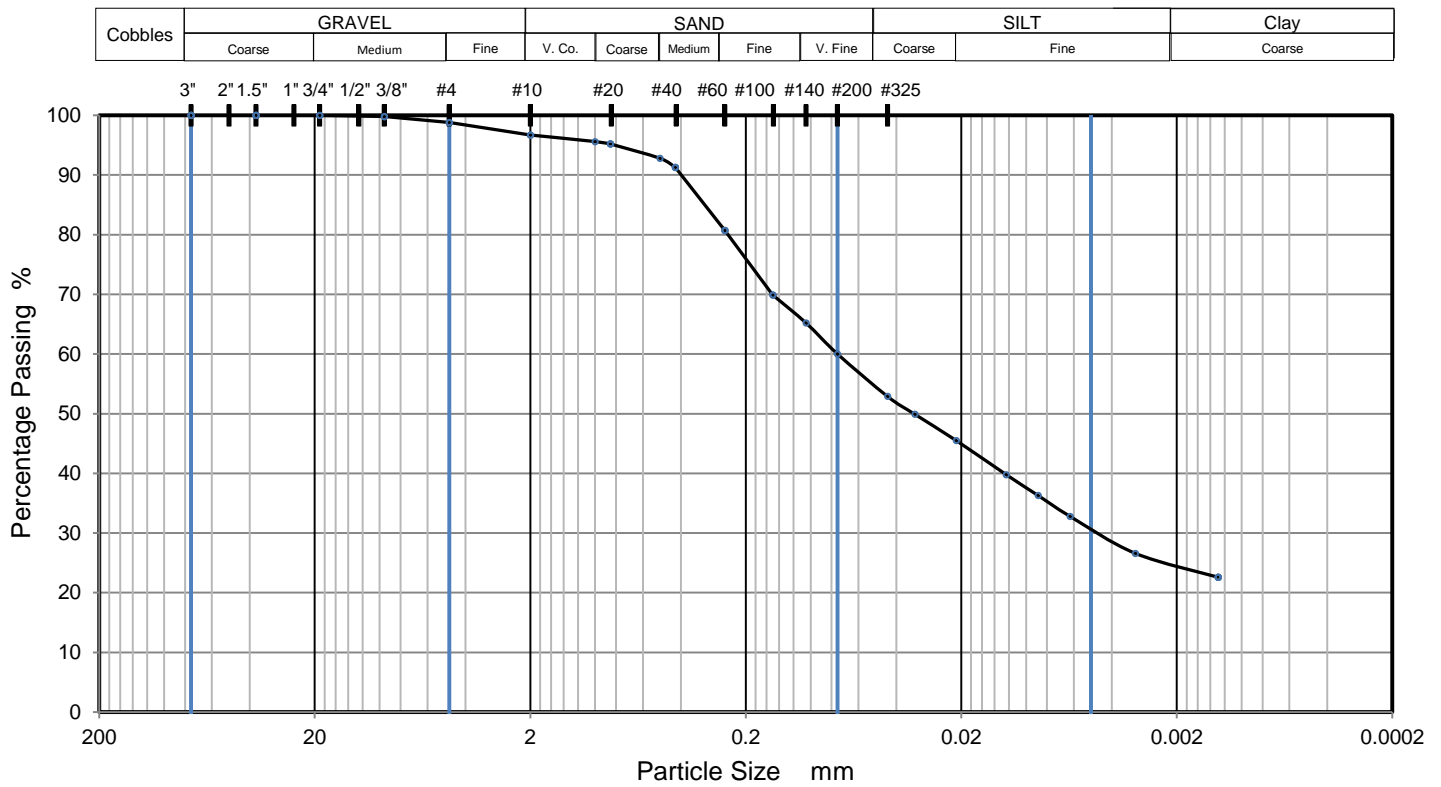
Office / Lab
ECS Mid-Atlantic LLC - Philadelphia

Address
2 Executive Drive
Suite 11
Moorestown, NJ 08057

Office Number / Fax
(609)832-3910
(484)840-5586

Tested by	Checked by	Approved by	Date Received
J Gross	Y Zhang	J Yates	2/25/2024

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0328	21.86	49.9
37.5	0.00	100.0	0.0211	32.06	45.5
19	0.00	100.0	0.0124	41.53	39.8
9.5	1.63	99.8	0.0088	25.50	36.3
4.75	8.49	98.8	0.0063	25.50	32.8
2	23.88	96.7	0.0031	45.18	26.6
1	0.57	95.6	0.0013	29.15	22.6
0.85	0.78	95.2			
0.5	2.00	92.8			
0.425	2.78	91.3			
0.25	8.14	80.7	Specific Gravity (Historical) 2.65		
0.15	13.67	69.9			
0.105	16.03	65.2			
0.075	18.69	60.0			
0.044	22.29	52.9			

Dry Mass of sample, g

728.7

Uncorrected USDA Soil Percentages:

% GRAVEL	3.30
% SAND	42.10
% Very Coarse Sand	1.10
% Coarse Sand	2.80
% Medium Sand	12.10
% Fine Sand	16.25
% Very Fine Sand	9.84
% SILT	30.01
% Coarse Silt	9.70
% Fine Silt	20.30
% CLAY	24.60
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment
 Client: MidAtlantic Engineering Partners
 Sample Description: Very Pale Brown 10YR-7/3
 Sample Source: TP-01

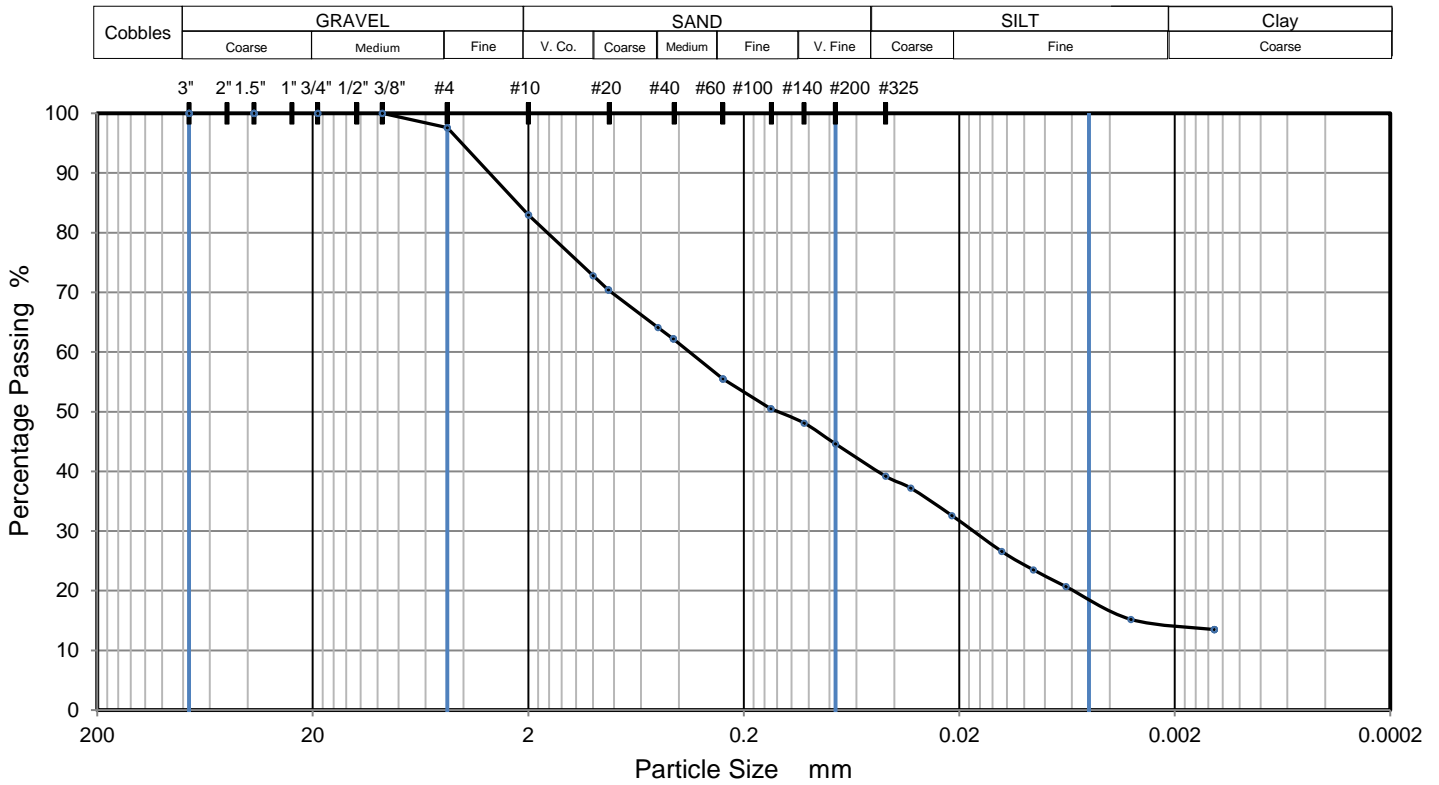
Project No.: 44:2006
 Depth (ft): 5 - 5.5
 Sample No.: TP-01A
 Date Reported: 3/8/2024



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Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates	2/25/2024	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B)

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0336	14.90	37.2
37.5	0.00	100.0	0.0216	34.27	32.6
19	0.00	100.0	0.0127	44.70	26.6
9.5	0.00	100.0	0.0091	23.09	23.5
4.75	18.03	97.6	0.0064	20.86	20.7
2	126.63	83.0	0.0032	40.97	15.2
1	6.07	72.8	0.0013	12.66	13.5
0.85	7.52	70.4			
0.5	11.25	64.1			
0.425	12.40	62.2			
0.25	16.35	55.5	Specific Gravity (Historical) 2.65		
0.15	19.35	50.5			
0.105	20.74	48.1			
0.075	22.83	44.6			
0.044	26.05	39.2			

Dry Mass of sample, g

745.0

Uncorrected USDA Soil Percentages:

% GRAVEL	17.00
% SAND	42.51
% Very Coarse Sand	10.20
% Coarse Sand	8.70
% Medium Sand	8.60
% Fine Sand	7.91
% Very Fine Sand	7.10
% SILT	26.19
% Coarse Silt	8.79
% Fine Silt	17.40
% CLAY	14.30
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 6 - 6.5

Sample Description: Weak Red 10YR-5/4

Sample No.: TP-02A

Sample Source: TP-02

Date Reported: 3/8/2024



Office / Lab

Address

Office Number / Fax

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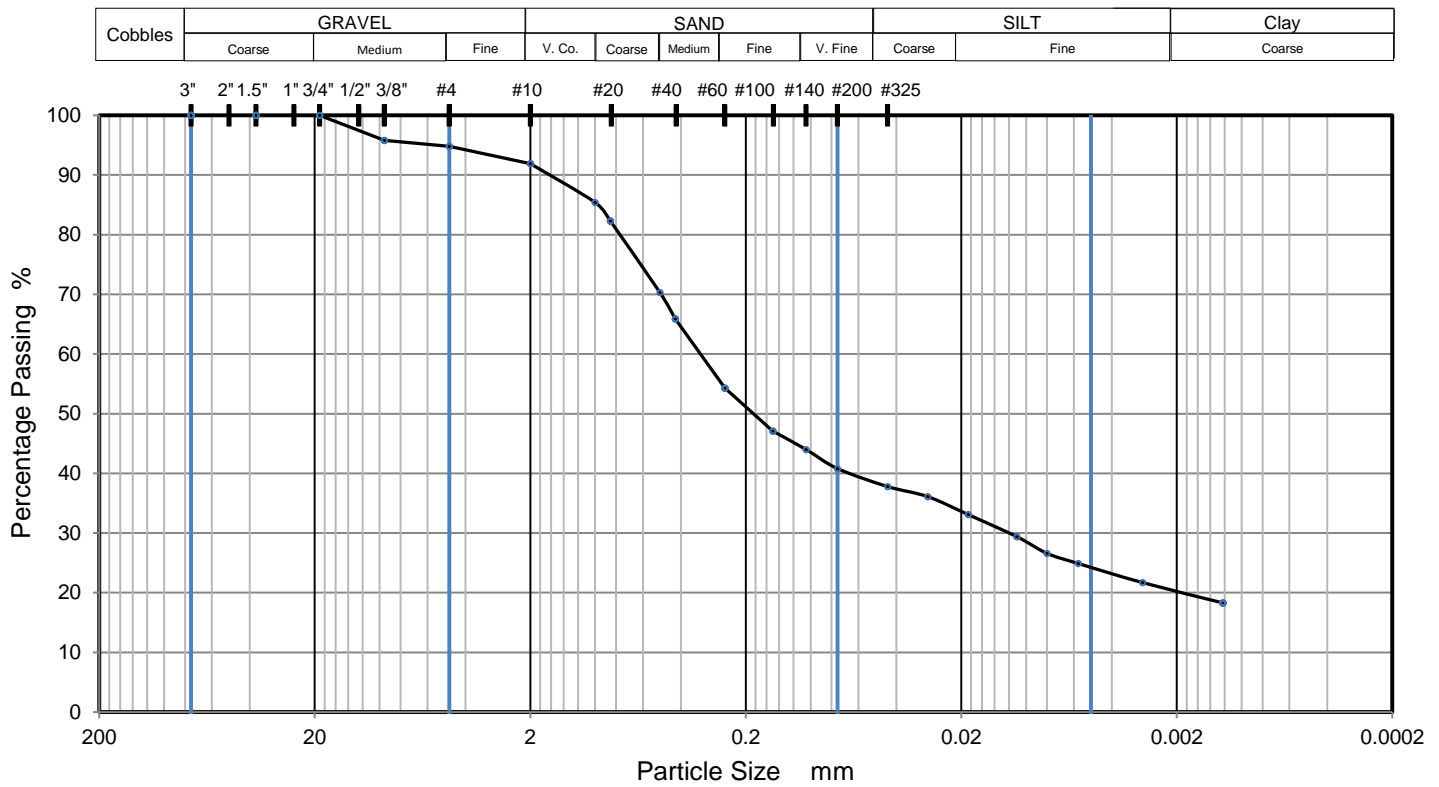
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Suite 11
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(609)832-3910

(484)840-5586

Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates	2/25/2024	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0286	10.26	36.1
37.5	0.00	100.0	0.0186	18.10	33.1
19	0.00	100.0	0.0111	22.32	29.4
9.5	25.63	95.8	0.0080	16.89	26.6
4.75	31.16	94.8	0.0057	10.26	24.9
2	49.12	91.9	0.0029	19.31	21.7
1	6.98	85.4	0.0012	20.51	18.3
0.85	10.30	82.3			
0.5	23.27	70.3			
0.425	28.05	65.9			
0.25	40.52	54.3	Specific Gravity (Historical) 2.65		
0.15	48.32	47.1			
0.105	51.62	44.0			
0.075	55.14	40.8			
0.044	58.36	37.8			

Dry Mass of sample, g

603.3

Uncorrected USDA Soil Percentages:

% GRAVEL	8.10
% SAND	53.38
% Very Coarse Sand	6.50
% Coarse Sand	15.10
% Medium Sand	16.00
% Fine Sand	10.76
% Very Fine Sand	5.02
% SILT	18.27
% Coarse Silt	4.92
% Fine Silt	13.30
% CLAY	20.25
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment
 Client: MidAtlantic Engineering Partners
 Sample Description: Light Brown 7.5YR-6/3
 Sample Source: TP-03

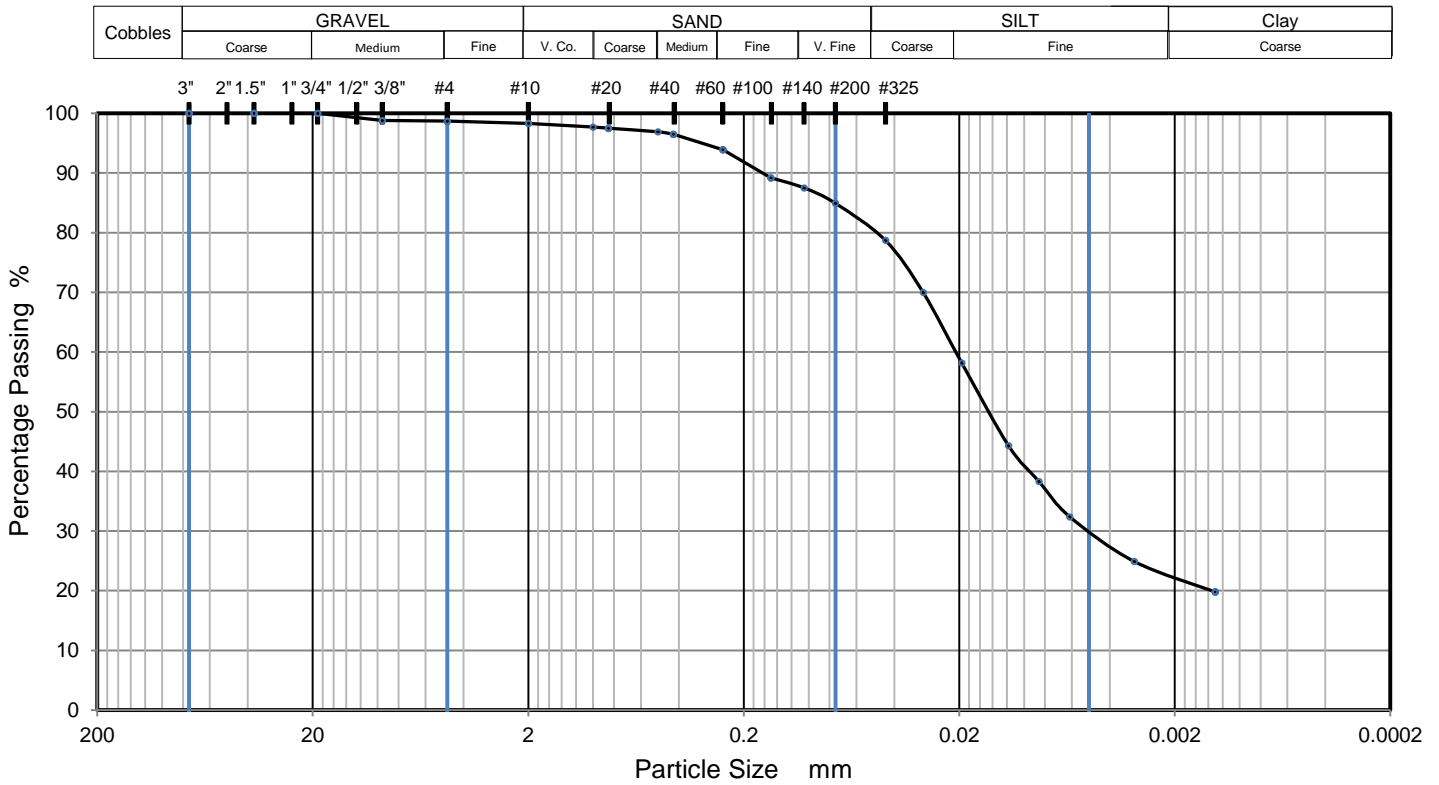
Project No.: 44:2006
 Depth (ft): 3 - 3.5
 Sample No.: TP-03A
 Date Reported: 3/8/2024



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Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates	2/25/2024	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0294	47.59	70.0
37.5	0.00	100.0	0.0195	64.55	58.2
19	0.00	100.0	0.0118	76.04	44.3
9.5	6.46	98.8	0.0085	32.82	38.3
4.75	7.37	98.7	0.0061	32.28	32.4
2	9.26	98.3	0.0031	41.03	24.9
1	0.32	97.7	0.0013	27.90	19.8
0.85	0.39	97.5			
0.5	0.70	96.9			
0.425	0.93	96.5			
0.25	2.24	93.9	Specific Gravity (Historical) 2.65		
0.15	4.59	89.2			
0.105	5.47	87.5			
0.075	6.81	84.9			
0.044	9.94	78.7			

Dry Mass of sample, g

547.0

Uncorrected USDA Soil Percentages:

% GRAVEL	1.70
% SAND	18.11
% Very Coarse Sand	0.60
% Coarse Sand	0.80
% Medium Sand	3.00
% Fine Sand	6.78
% Very Fine Sand	6.94
% SILT	57.84
% Coarse Silt	21.29
% Fine Silt	36.60
% CLAY	22.35
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment
 Client: MidAtlantic Engineering Partners
 Sample Description: Pinkish White 5YR-8/2
 Sample Source: TP-04

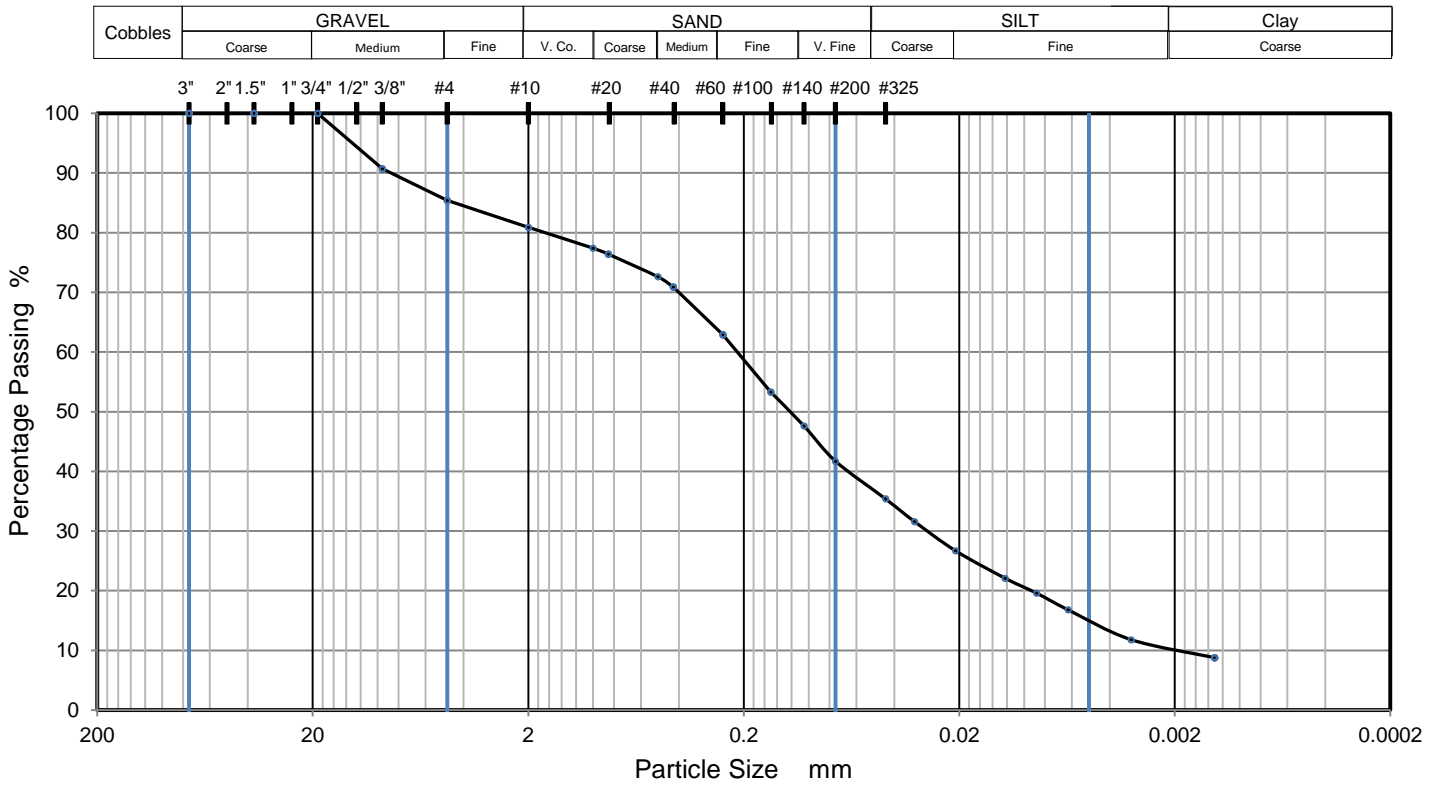
Project No.: 44:2006
 Depth (ft): 2 - 2.5
 Sample No.: TP-04A
 Date Reported: 3/8/2024



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - Philadelphia	2 Executive Drive Suite 11 Moorestown, NJ 08057	(609)832-3910 (484)840-5586

Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates	2/25/2024	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0323	24.81	31.6
37.5	0.00	100.0	0.0208	31.99	26.7
19	0.00	100.0	0.0123	30.03	22.1
9.5	60.93	90.7	0.0088	16.32	19.6
4.75	95.01	85.4	0.0063	18.28	16.8
2	124.79	80.9	0.0032	32.64	11.8
1	2.11	77.4	0.0013	19.58	8.8
0.85	2.75	76.4			
0.5	5.11	72.6			
0.425	6.14	70.9			
0.25	11.05	62.9	Specific Gravity (Historical) 2.65		
0.15	16.91	53.3			
0.105	20.43	47.6			
0.075	24.08	41.7			
0.044	27.94	35.4			

Dry Mass of sample, g

652.8

Uncorrected USDA Soil Percentages:

% GRAVEL	19.10
% SAND	43.99
% Very Coarse Sand	3.50
% Coarse Sand	4.80
% Medium Sand	9.70
% Fine Sand	16.16
% Very Fine Sand	9.83
% SILT	26.68
% Coarse Silt	10.51
% Fine Silt	16.20
% CLAY	10.23
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 3.5 - 4

Sample Description: Very Pale Brown 10YR-7/3

Sample No.: TP-05A

Sample Source: TP-05

Date Reported: 3/8/2024



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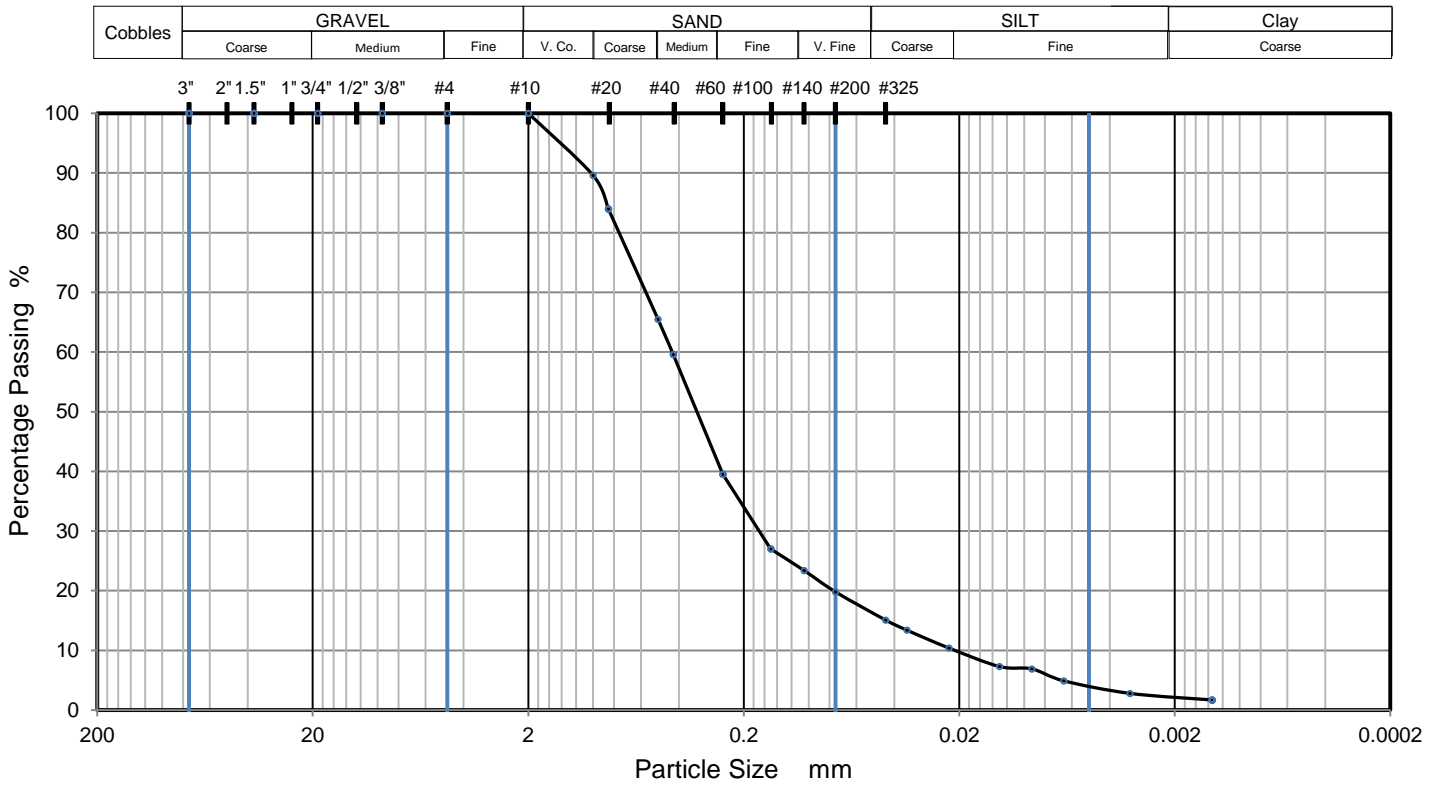
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J Gross	Y Zhang	J Yates	2/25/2024	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0350	11.89	13.4
37.5	0.00	100.0	0.0223	20.99	10.4
19	0.00	100.0	0.0130	21.69	7.3
9.5	0.00	100.0	0.0092	2.80	6.9
4.75	0.10	100.0	0.0065	13.99	4.9
2	0.26	100.0	0.0032	14.69	2.8
1	5.18	89.6	0.0013	7.70	1.7
0.85	7.97	84.0			
0.5	17.22	65.5			
0.425	20.19	59.6			
0.25	30.23	39.5	Specific Gravity (Historical) 2.65		
0.15	36.46	27.0			
0.105	38.30	23.4			
0.075	40.10	19.8			
0.044	42.42	15.1			

Dry Mass of sample, g

699.6

Uncorrected USDA Soil Percentages:

% GRAVEL	0.00
% SAND	83.77
% Very Coarse Sand	10.40
% Coarse Sand	24.10
% Medium Sand	26.00
% Fine Sand	16.62
% Very Fine Sand	6.65
% SILT	14.03
% Coarse Silt	6.43
% Fine Silt	7.60
% CLAY	2.20
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment
 Client: MidAtlantic Engineering Partners
 Sample Description: Reddish Brown 2.5YR-5/4
 Sample Source: TP-06

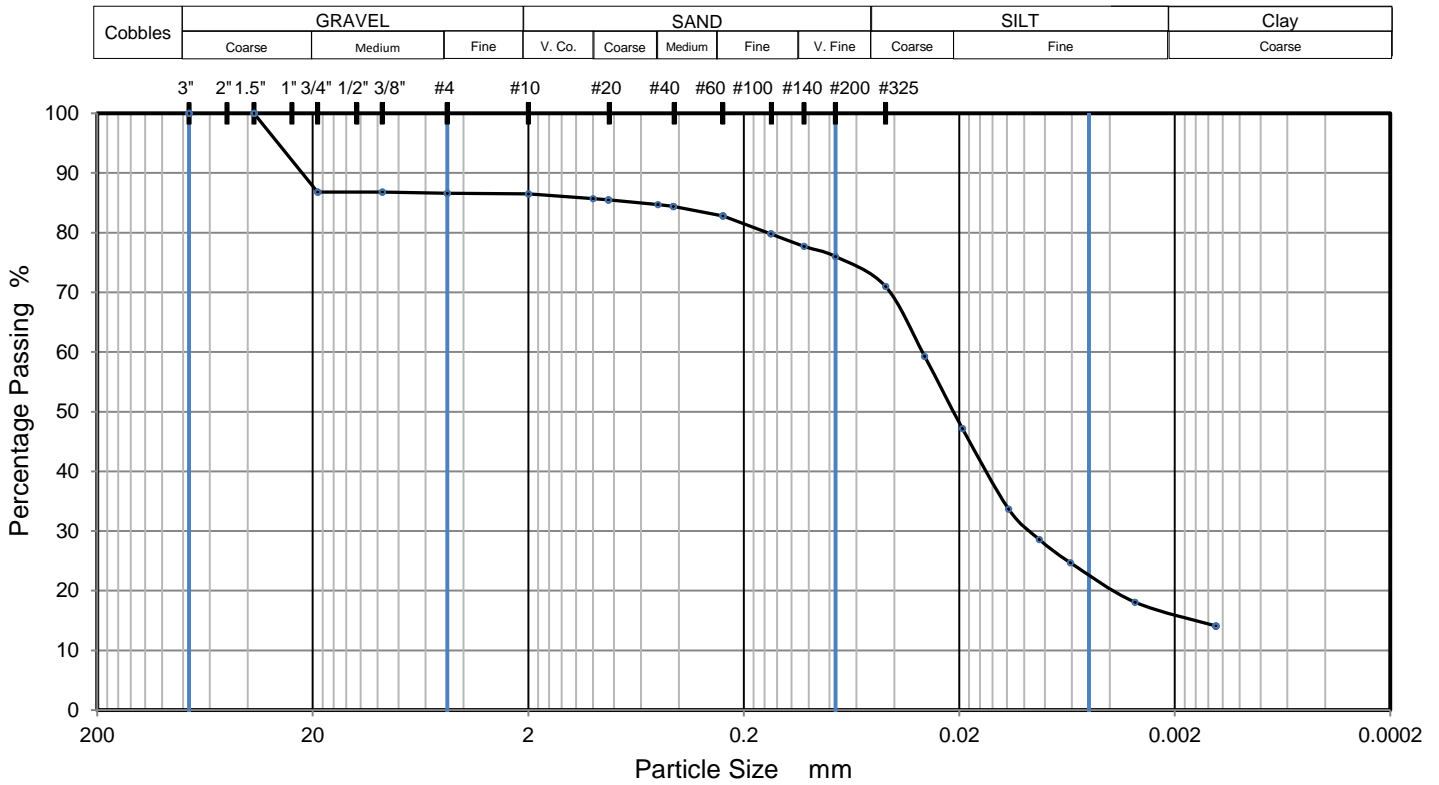
Project No.: 44:2006
 Depth (ft): 4.5 - 5
 Sample No.: TP-06A
 Date Reported: 3/8/2024



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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0290	80.02	59.3
37.5	0.00	100.0	0.0194	82.76	47.2
19	90.59	86.8	0.0118	92.33	33.7
9.5	90.59	86.8	0.0085	34.88	28.6
4.75	91.64	86.6	0.0061	26.67	24.7
2	92.43	86.5	0.0031	45.14	18.1
1	0.44	85.7	0.0013	27.36	14.1
0.85	0.59	85.5			
0.5	1.02	84.7			
0.425	1.18	84.4			
0.25	2.13	82.8	Specific Gravity (Historical) 2.65		
0.15	3.90	79.8			
0.105	5.07	77.7			
0.075	6.06	76.0			
0.044	8.95	71.0			

Dry Mass of sample, g

683.9

Uncorrected USDA Soil Percentages:

% GRAVEL	13.50
% SAND	14.30
% Very Coarse Sand	0.80
% Coarse Sand	1.00
% Medium Sand	1.90
% Fine Sand	5.35
% Very Fine Sand	5.25
% SILT	56.07
% Coarse Silt	24.00
% Fine Silt	32.10
% CLAY	16.13
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment
 Client: MidAtlantic Engineering Partners
 Sample Description: Pinkish White 5YR-8/2
 Sample Source: TP-07

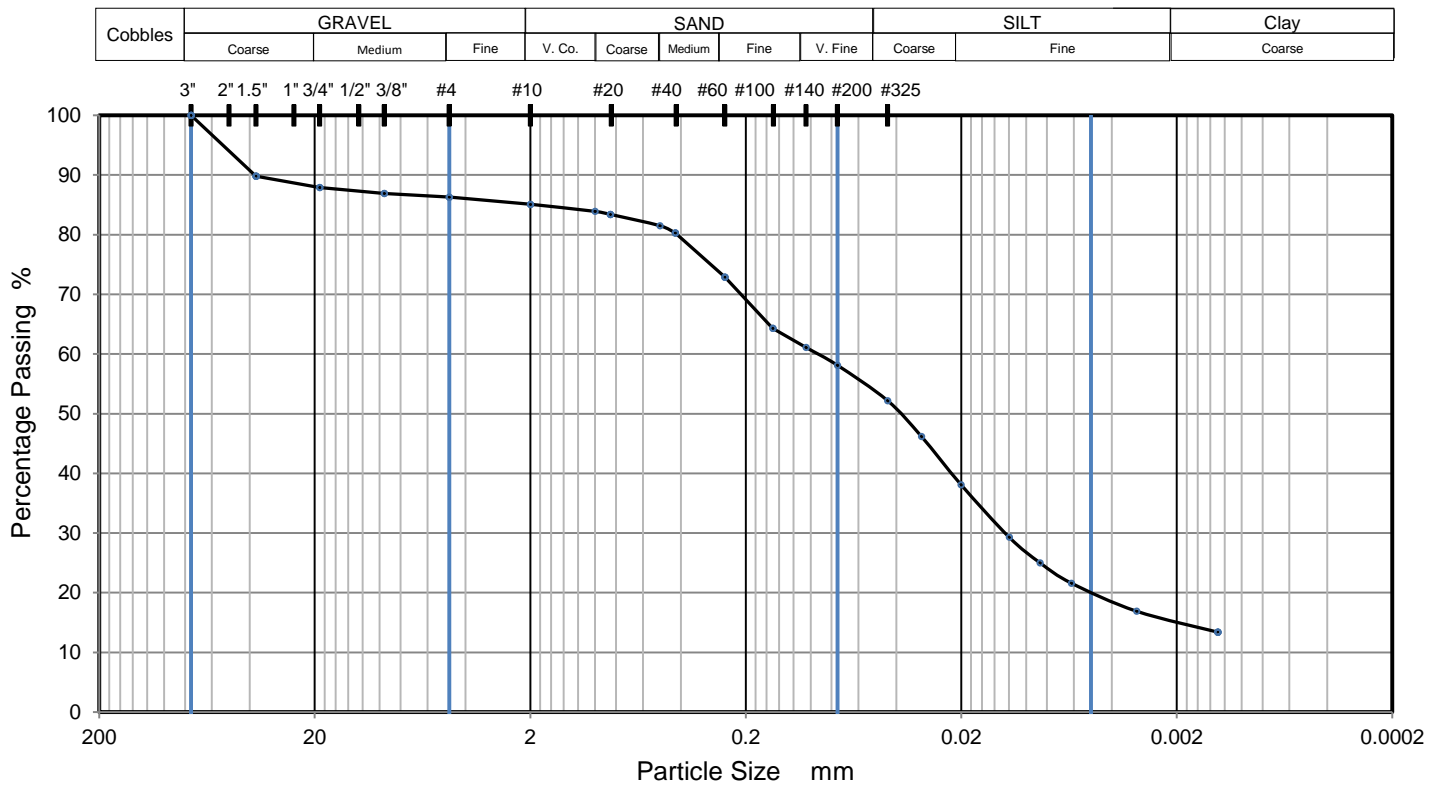
Project No.: 44:2006
 Depth (ft): 3 - 3.5
 Sample No.: TP-07A
 Date Reported: 3/8/2024



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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0306	43.01	46.2
37.5	73.22	89.8	0.0200	58.06	38.1
19	87.02	87.9	0.0120	63.08	29.3
9.5	94.05	86.9	0.0086	30.82	25.0
4.75	98.44	86.3	0.0062	24.37	21.6
2	106.64	85.1	0.0031	33.69	16.9
1	0.74	83.9	0.0013	25.09	13.4
0.85	0.99	83.4			
0.5	2.12	81.5			
0.425	2.83	80.3			
0.25	7.23	72.9	Specific Gravity (Historical) 2.65		
0.15	12.28	64.3			
0.105	14.17	61.1			
0.075	15.98	58.1			
0.044	19.45	52.2			

Dry Mass of sample, g

716.8

Uncorrected USDA Soil Percentages:

% GRAVEL	14.90
% SAND	31.49
% Very Coarse Sand	1.20
% Coarse Sand	2.40
% Medium Sand	8.60
% Fine Sand	12.24
% Very Fine Sand	7.05
% SILT	38.45
% Coarse Silt	15.51
% Fine Silt	22.90
% CLAY	15.17
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment
 Client: MidAtlantic Engineering Partners
 Sample Description: Pale Brown 10YR-6/3
 Sample Source: TP-08

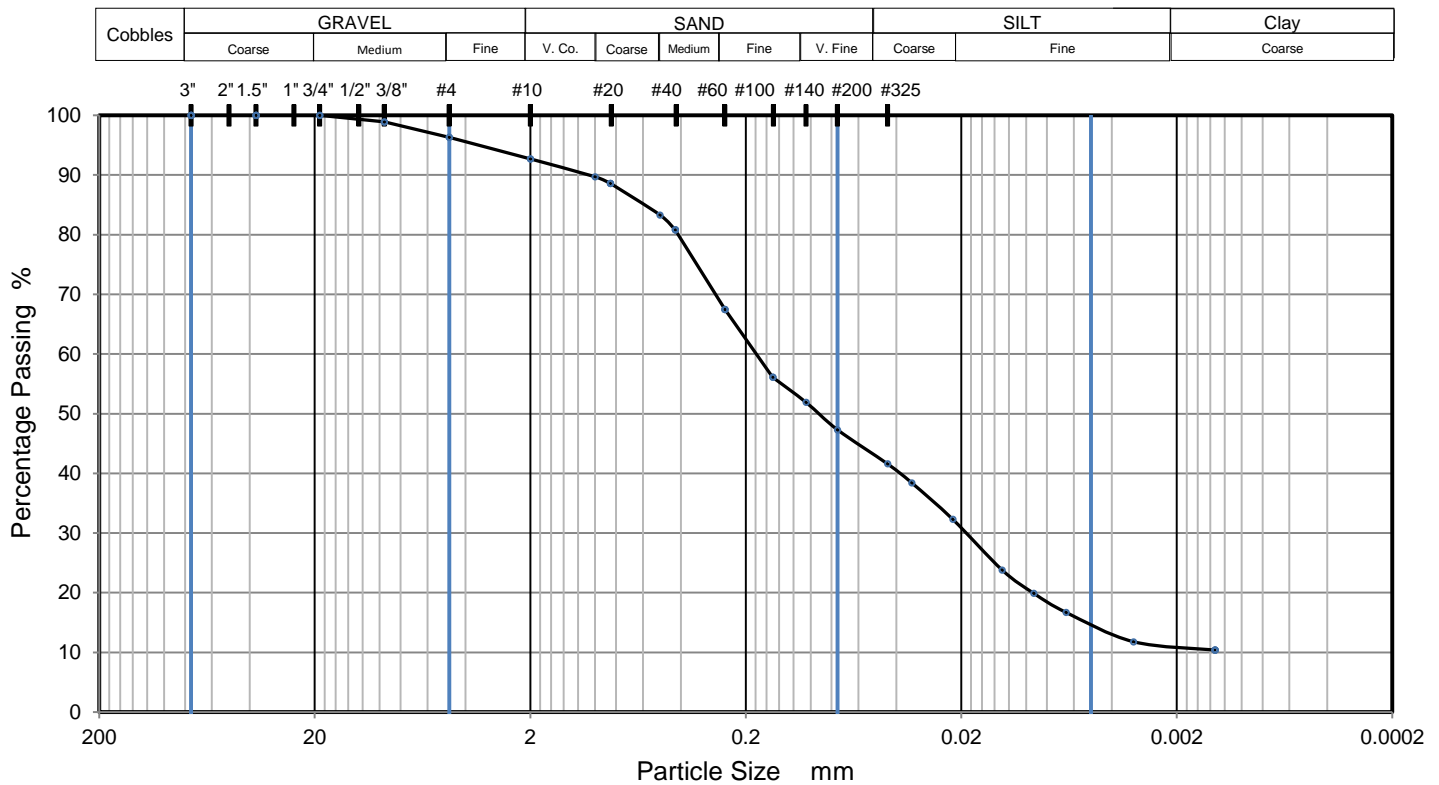
Project No.: 44:2006
 Depth (ft): 3.5 - 4
 Sample No.: TP-08A
 Date Reported: 3/8/2024



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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0339	23.69	38.4
37.5	0.00	100.0	0.0219	45.16	32.3
19	0.00	100.0	0.0129	62.93	23.8
9.5	8.40	98.9	0.0092	28.87	19.9
4.75	27.26	96.3	0.0065	23.69	16.7
2	54.36	92.7	0.0032	36.27	11.8
1	1.58	89.7	0.0013	10.36	10.4
0.85	2.14	88.6			
0.5	5.00	83.3			
0.425	6.33	80.8			
0.25	13.41	67.5	Specific Gravity (Historical) 2.65		
0.15	19.48	56.1			
0.105	21.73	51.9			
0.075	24.15	47.3			
0.044	27.21	41.6			

Dry Mass of sample, g

740.3

Uncorrected USDA Soil Percentages:

% GRAVEL	7.30
% SAND	49.73
% Very Coarse Sand	3.00
% Coarse Sand	6.40
% Medium Sand	15.80
% Fine Sand	16.27
% Very Fine Sand	8.27
% SILT	31.91
% Coarse Silt	12.17
% Fine Silt	19.70
% CLAY	11.06
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 5 - 5.5

Sample Description: Yellowish Brown 10YR-5/4

Sample No.: TP-9A

Sample Source: TP-09

Date Reported: 3/8/2024



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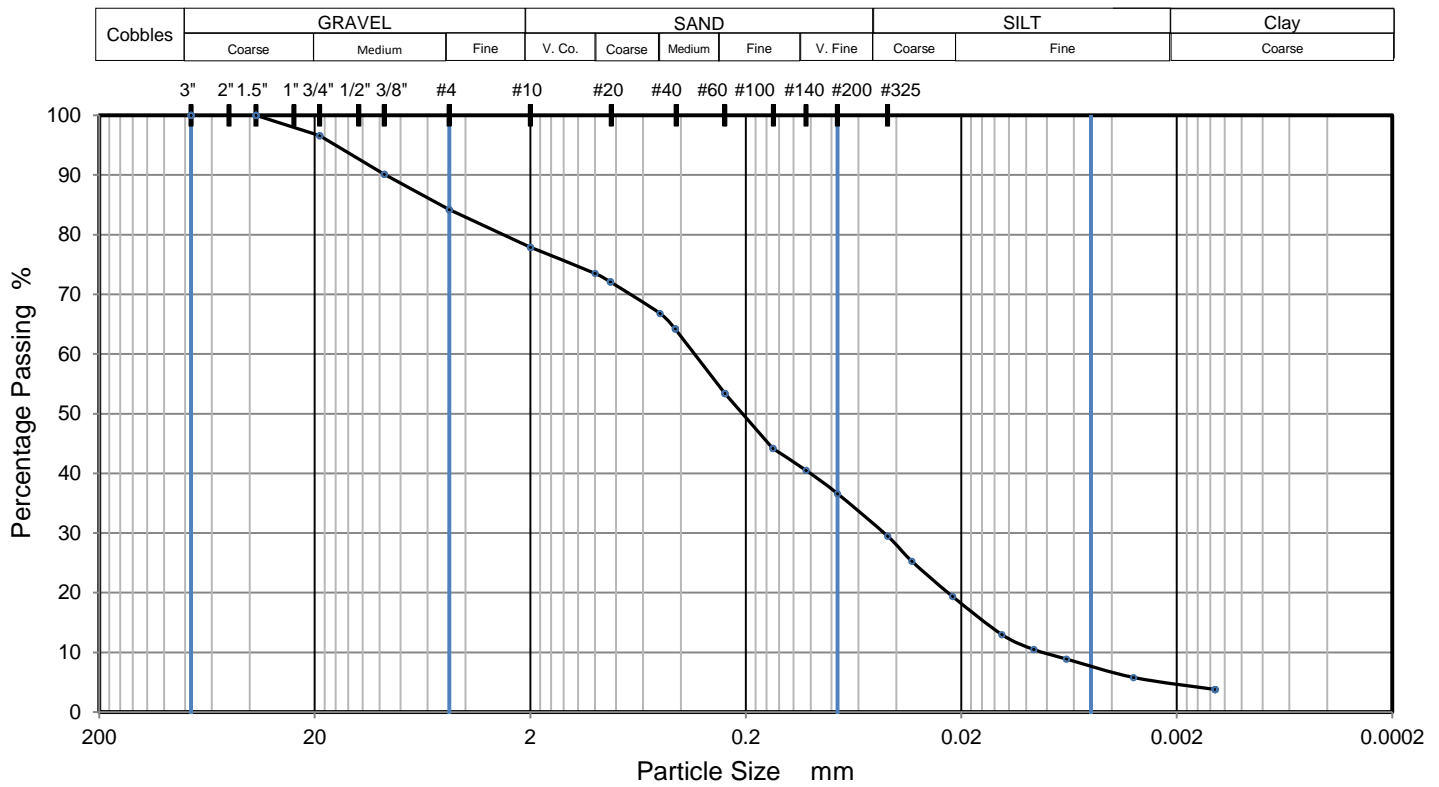
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0340	32.02	25.3
37.5	0.00	100.0	0.0220	44.97	19.4
19	25.68	96.6	0.0130	48.79	13.0
9.5	75.58	90.1	0.0092	19.06	10.5
4.75	120.26	84.2	0.0065	12.20	8.9
2	168.38	77.9	0.0032	23.63	5.8
1	2.82	73.5	0.0013	15.25	3.8
0.85	3.70	72.1			
0.5	7.09	66.8			
0.425	8.70	64.2			
0.25	15.57	53.4	Specific Gravity (Historical) 2.65		
0.15	21.44	44.2			
0.105	23.82	40.5			
0.075	26.29	36.6			
0.044	30.82	29.5			

Dry Mass of sample, g

762.3

Uncorrected USDA Soil Percentages:

% GRAVEL	22.10
% SAND	46.70
% Very Coarse Sand	4.40
% Coarse Sand	6.70
% Medium Sand	13.40
% Fine Sand	13.47
% Very Fine Sand	8.73
% SILT	26.46
% Coarse Silt	12.90
% Fine Silt	13.60
% CLAY	4.74
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment
 Client: MidAtlantic Engineering Partners
 Sample Description: Dark Yellowish Brown 10YR-4/6
 Sample Source: TP-10

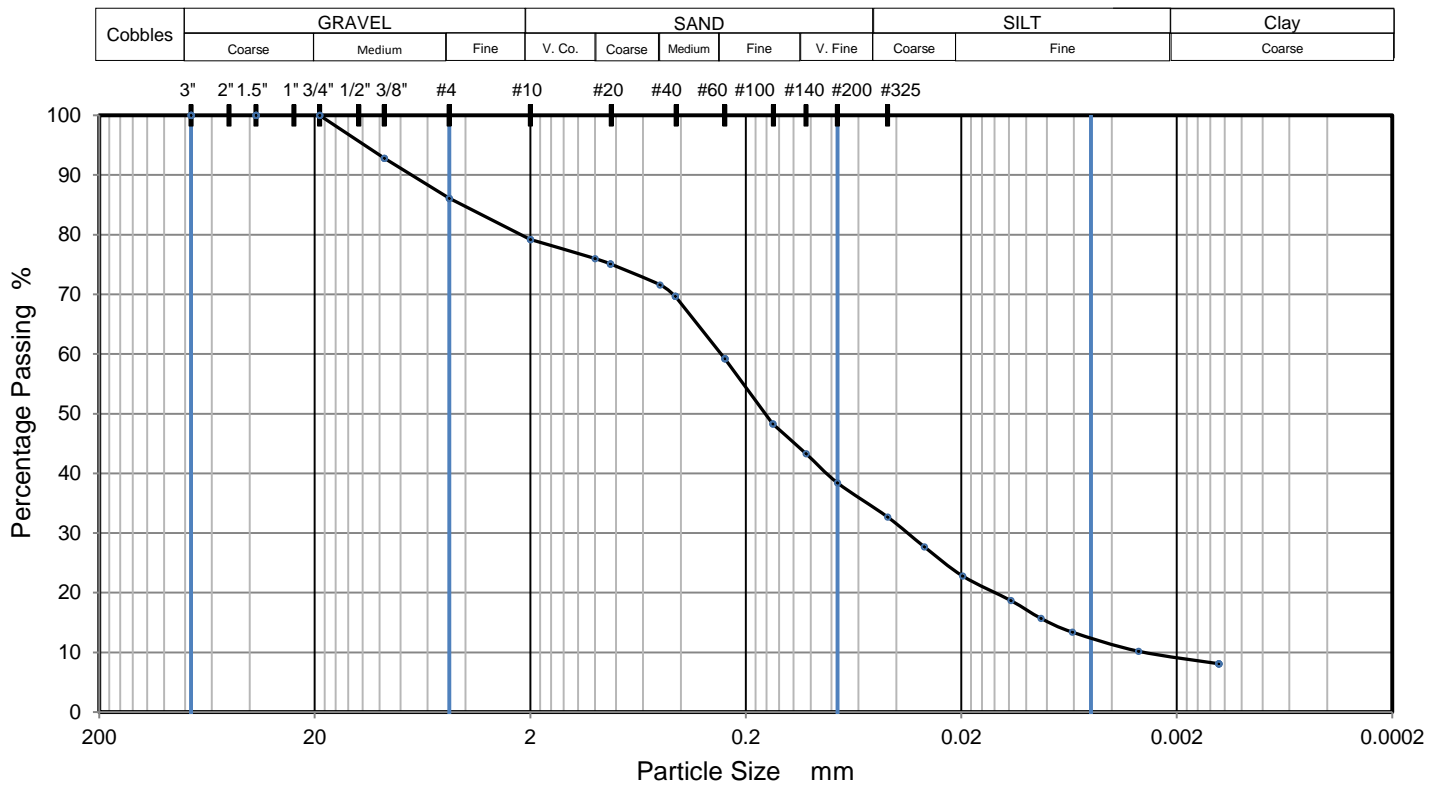
Project No.: 44:2006
 Depth (ft): 2 - 2.5
 Sample No.: TP-10A
 Date Reported: 3/8/2024



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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0297	36.94	27.7
37.5	0.00	100.0	0.0197	36.20	22.8
19	0.00	100.0	0.0118	30.29	18.7
9.5	53.56	92.8	0.0085	22.16	15.7
4.75	102.79	86.1	0.0061	16.99	13.4
2	153.53	79.2	0.0030	23.64	10.2
1	3.99	76.0	0.0013	15.51	8.1
0.85	5.07	75.1			
0.5	9.44	71.6			
0.425	11.84	69.7			
0.25	24.80	59.2	Specific Gravity (Historical)		
0.15	38.32	48.3	2.65		
0.105	44.55	43.3			
0.075	50.61	38.4			
0.044	57.72	32.7			

Dry Mass of sample, g

738.8

Uncorrected USDA Soil Percentages:

% GRAVEL	20.80
% SAND	45.13
% Very Coarse Sand	3.20
% Coarse Sand	4.40
% Medium Sand	12.40
% Fine Sand	16.61
% Very Fine Sand	8.52
% SILT	24.87
% Coarse Silt	11.07
% Fine Silt	13.80
% CLAY	9.20
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 1.5 - 2

Sample Description: Light Gray 10YR-7/2

Sample No.: TP-11A

Sample Source: TP-11

Date Reported: 3/8/2024



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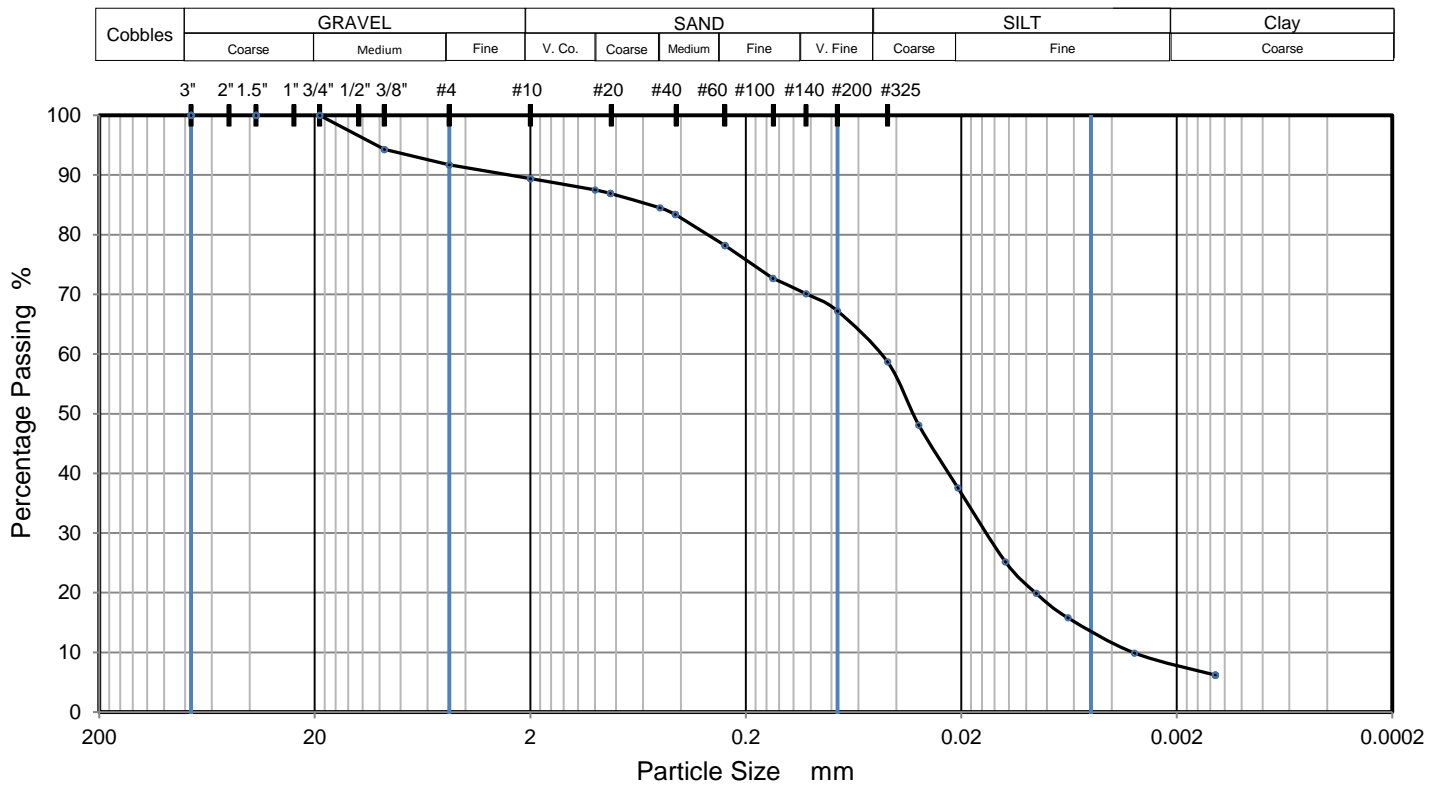
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

Sieving			Hydrometer Sedimentation		
Particle Size mm	Wgt. Retained, g	% Passing	Particle Size mm	Calc. Wt. Retained, g	% Passing
75	0.00	100.0	0.0315	79.88	48.1
37.5	0.00	100.0	0.0208	79.12	37.6
19	0.00	100.0	0.0125	93.44	25.2
9.5	42.81	94.3	0.0090	39.94	19.9
4.75	62.73	91.7	0.0064	30.90	15.8
2	79.60	89.4	0.0031	44.46	9.9
1	1.07	87.5	0.0013	27.88	6.2
0.85	1.42	86.9			
0.5	2.73	84.5			
0.425	3.31	83.4			
0.25	6.18	78.2	Specific Gravity (Historical) 2.65		
0.15	9.22	72.7			
0.105	10.67	70.1			
0.075	12.26	67.2			
0.044	16.95	58.7			

Dry Mass of sample, g

753.5

Uncorrected USDA Soil Percentages:

% GRAVEL	10.60
% SAND	28.66
% Very Coarse Sand	1.90
% Coarse Sand	3.00
% Medium Sand	6.30
% Fine Sand	8.52
% Very Fine Sand	8.94
% SILT	52.77
% Coarse Silt	24.04
% Fine Silt	28.70
% CLAY	7.97
% Coarse Clay	
% Fine Clay	

Project: Lawrenceville Office Park Redevelopment
 Client: MidAtlantic Engineering Partners
 Sample Description: Light Gray 2.5YR-7/1
 Sample Source: TP-12

Project No.: 44:2006
 Depth (ft): 4.5 - 5
 Sample No.: TP-12A
 Date Reported: 3/8/2024



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USDA Classification

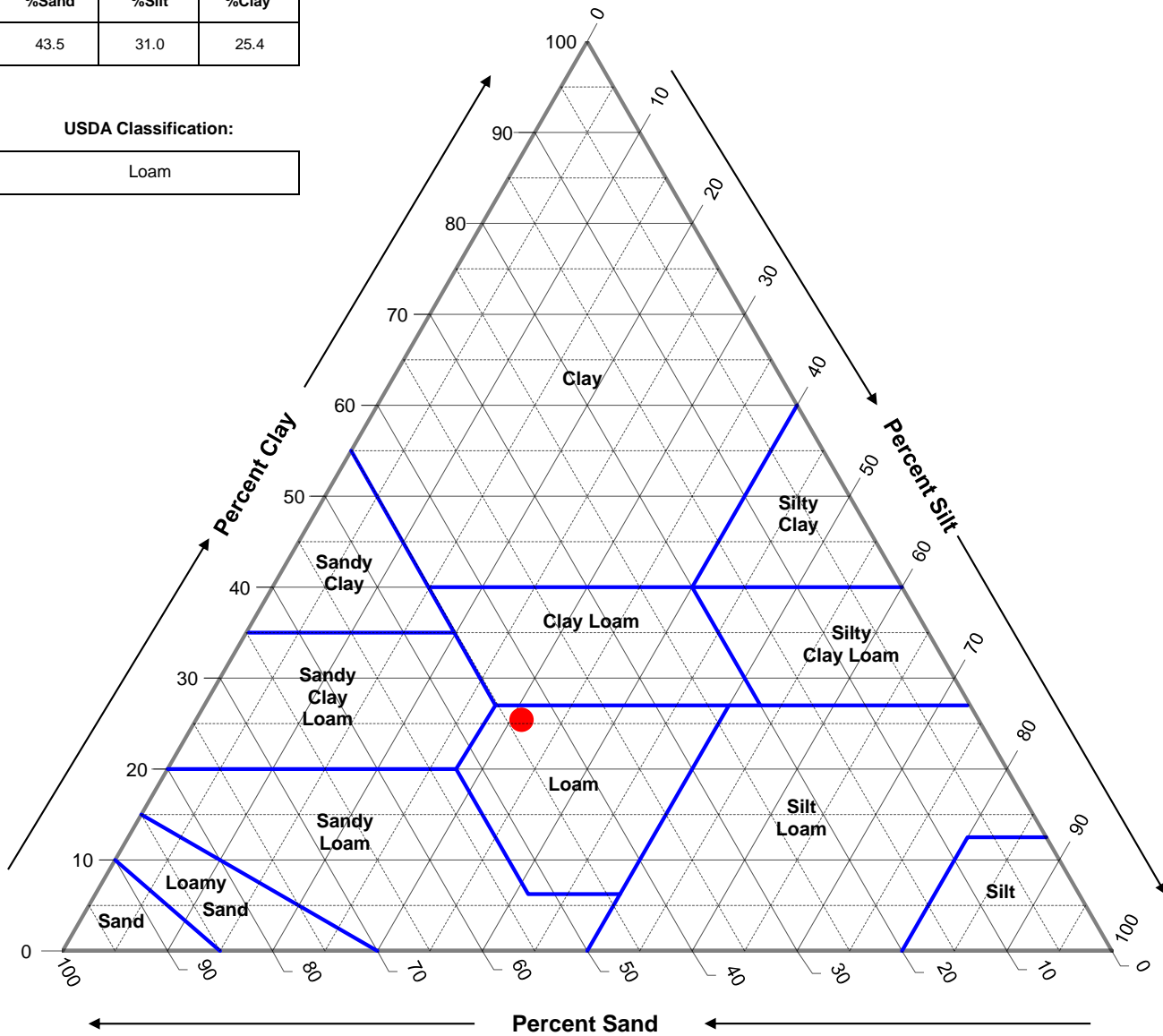
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
43.5	31.0	25.4

USDA Classification:

Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 5 - 5.5

Sample Description: Very Pale Brown 10YR-7/3

Sample No.: TP-01A

Sample Source: TP-01

Date Reported: 3/8/2024



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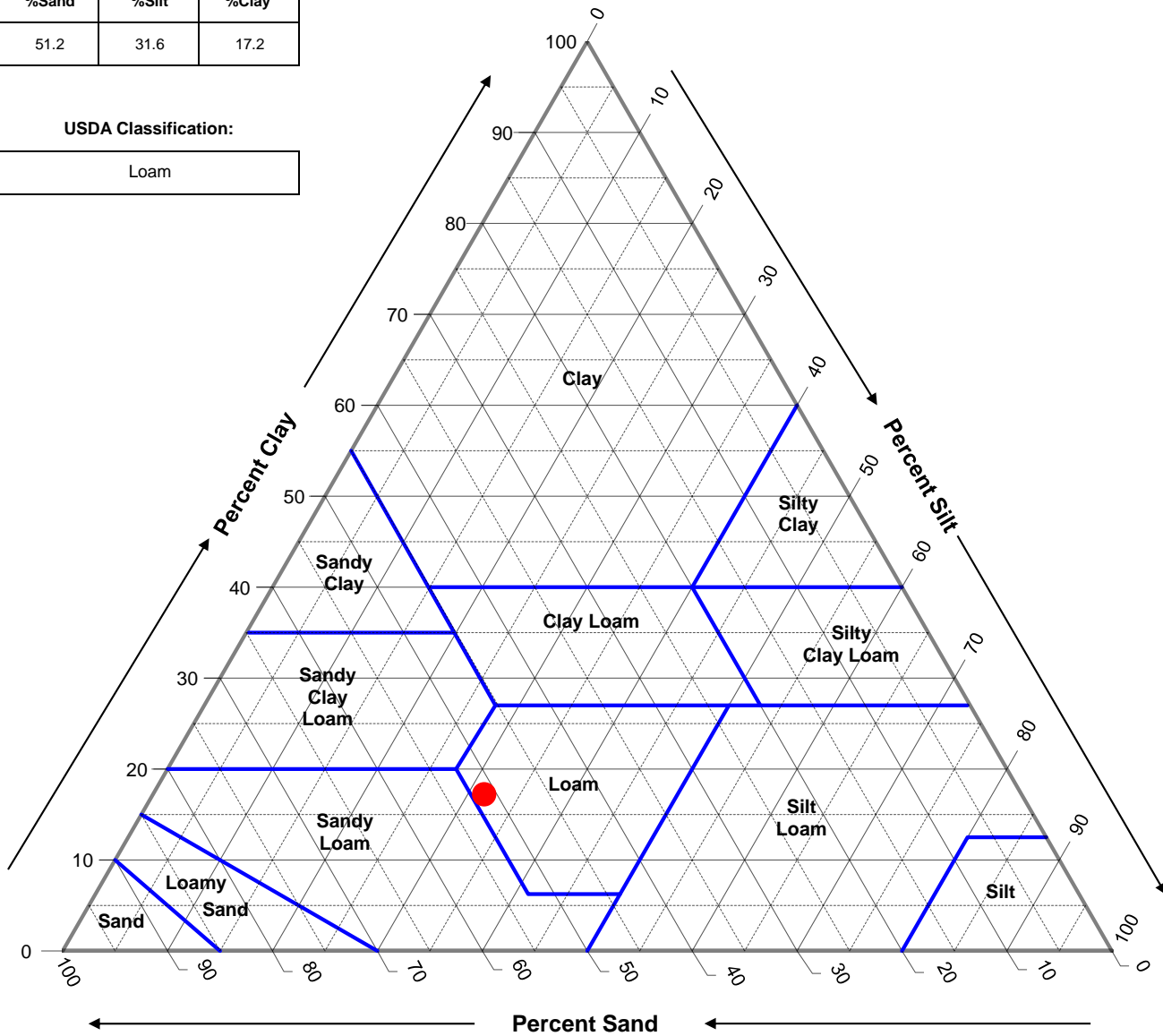
TEST RESULTS (ASTM D6913M-17-METHOD B)

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
51.2	31.6	17.2

USDA Classification:

Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 6 - 6.5

Sample Description: Weak Red 10YR-5/4

Sample No.: TP-02A

Sample Source: TP-02

Date Reported: 3/8/2024



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USDA Classification

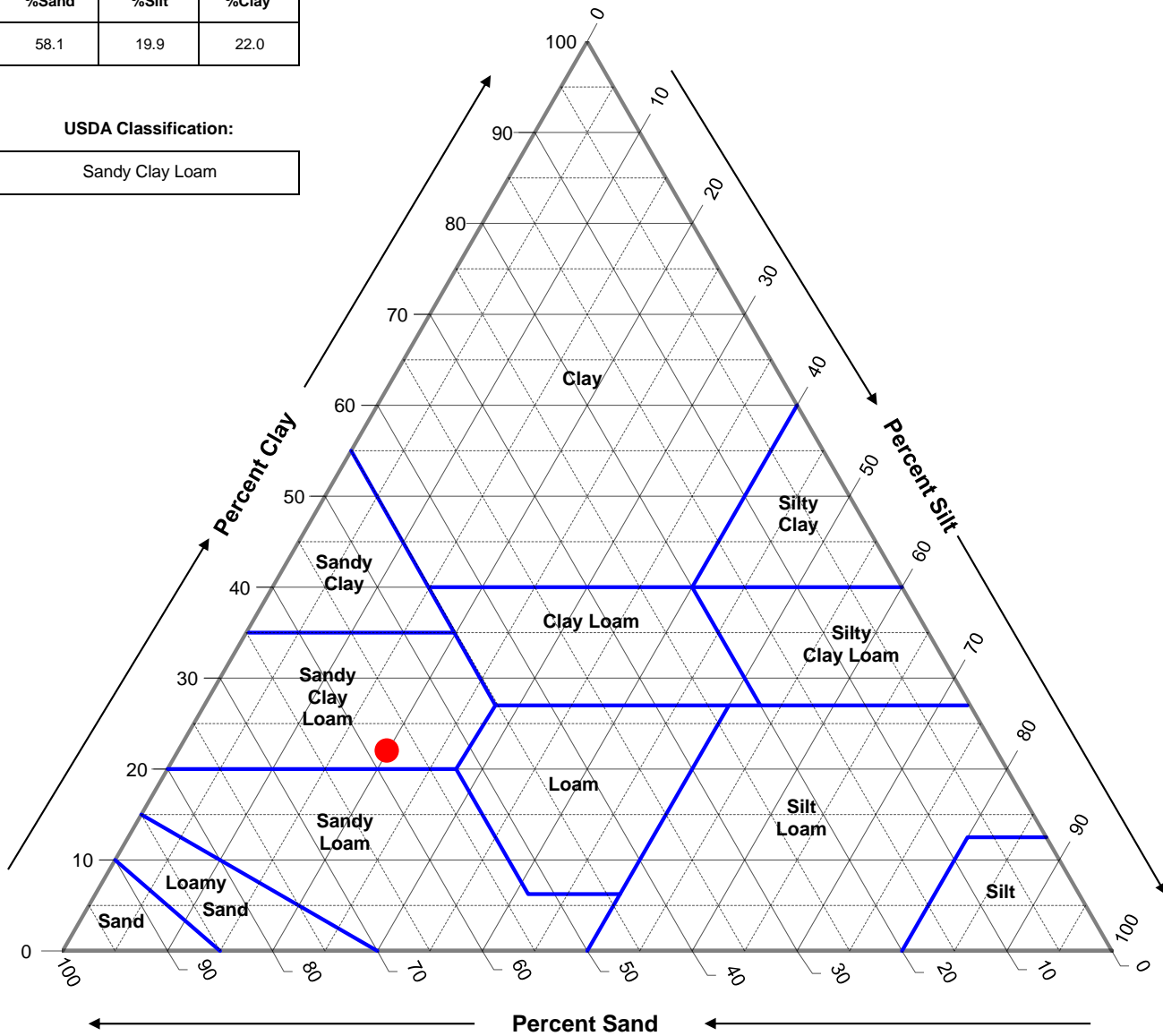
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
58.1	19.9	22.0

USDA Classification:

Sandy Clay Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 3 - 3.5

Sample Description: Light Brown 7.5YR-6/3

Sample No.: TP-03A

Sample Source: TP-03

Date Reported: 3/8/2024



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USDA Classification

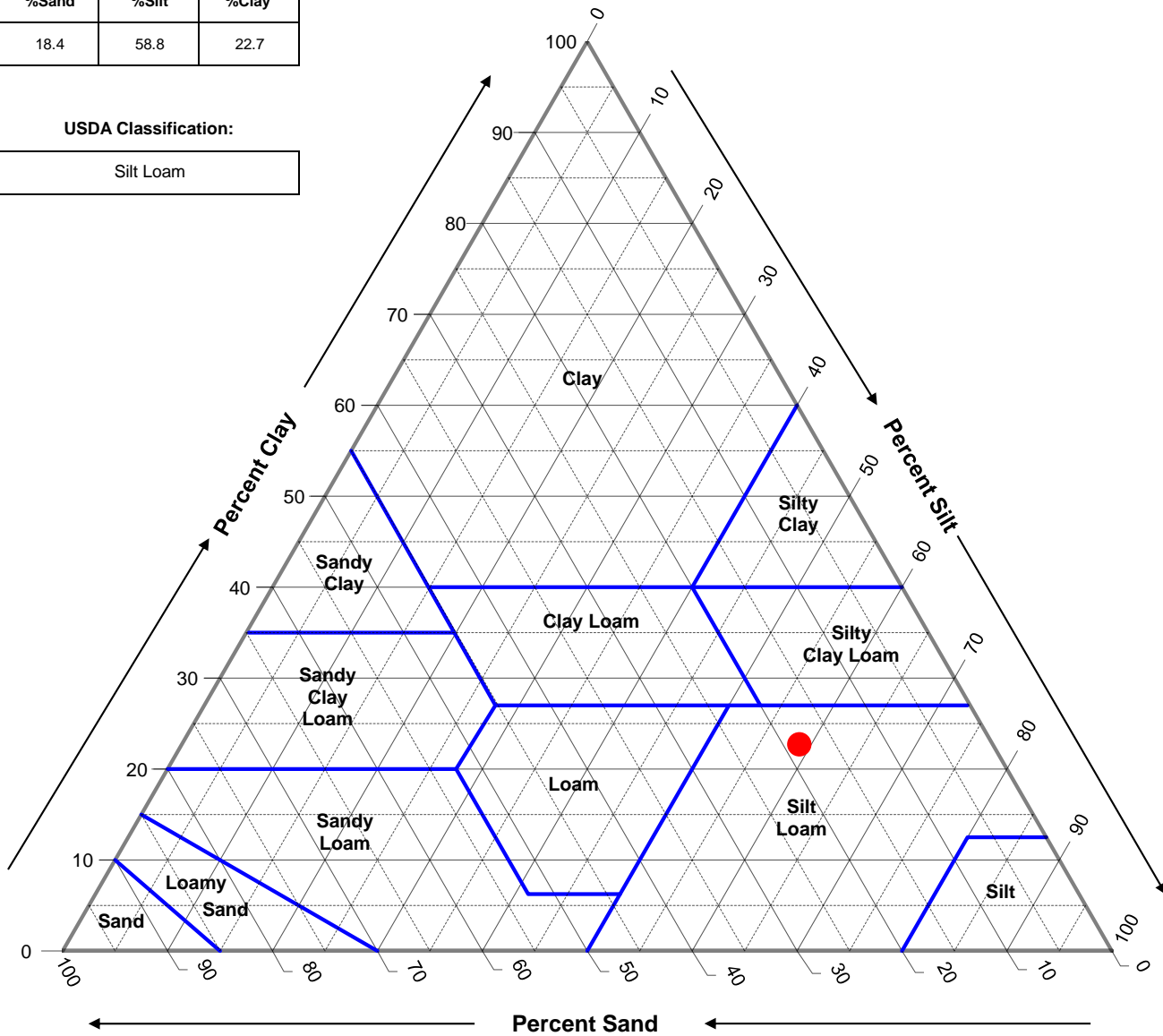
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
18.4	58.8	22.7

USDA Classification:

Silt Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 2 - 2.5

Sample Description: Pinkish White 5YR-8/2

Sample No.: TP-04A

Sample Source: TP-04

Date Reported: 3/8/2024



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USDA Classification

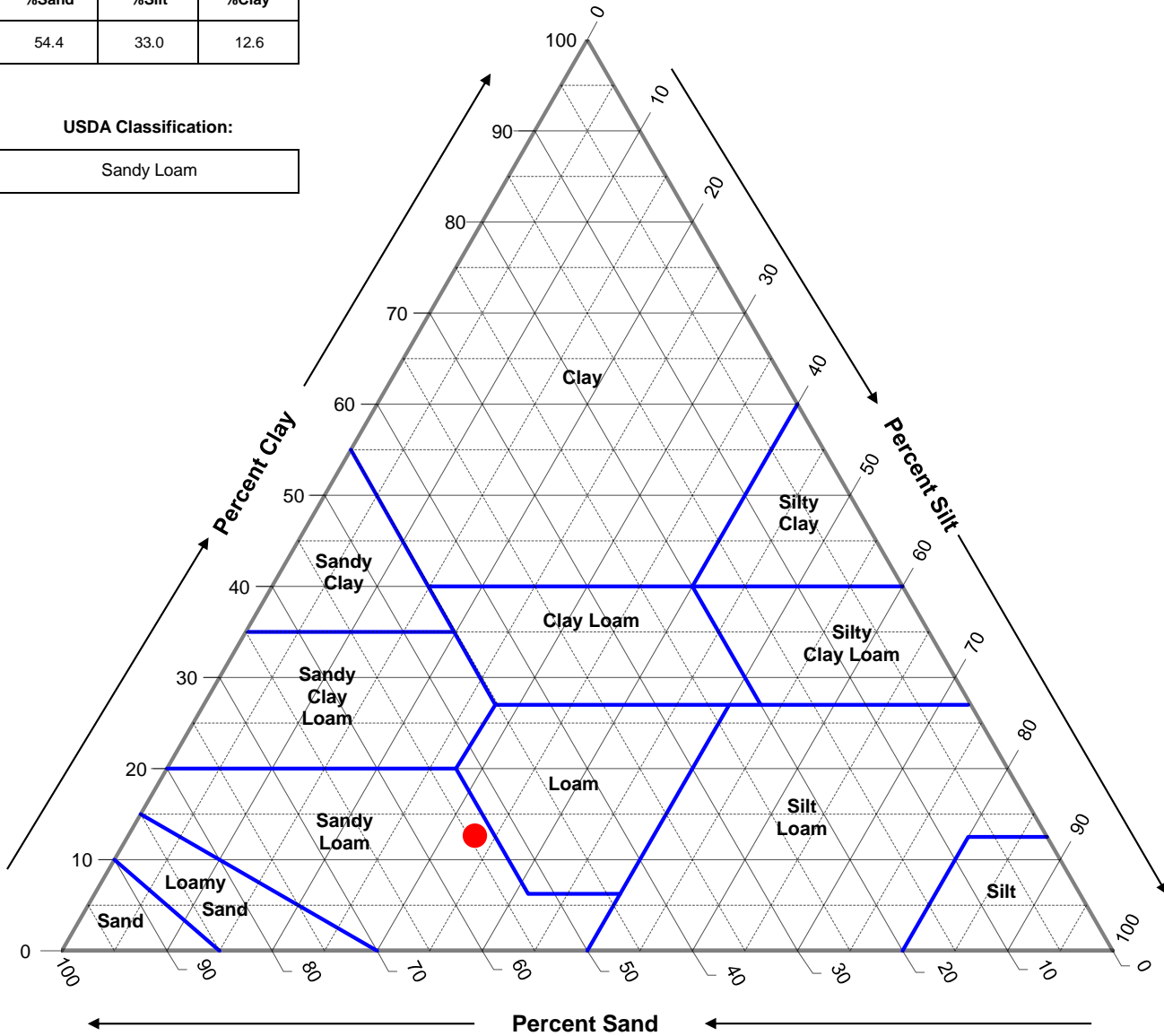
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
54.4	33.0	12.6

USDA Classification:

Sandy Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 3.5 - 4

Sample Description: Very Pale Brown 10YR-7/3

Sample No.: TP-05A

Sample Source: TP-05

Date Reported: 3/8/2024



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USDA Classification

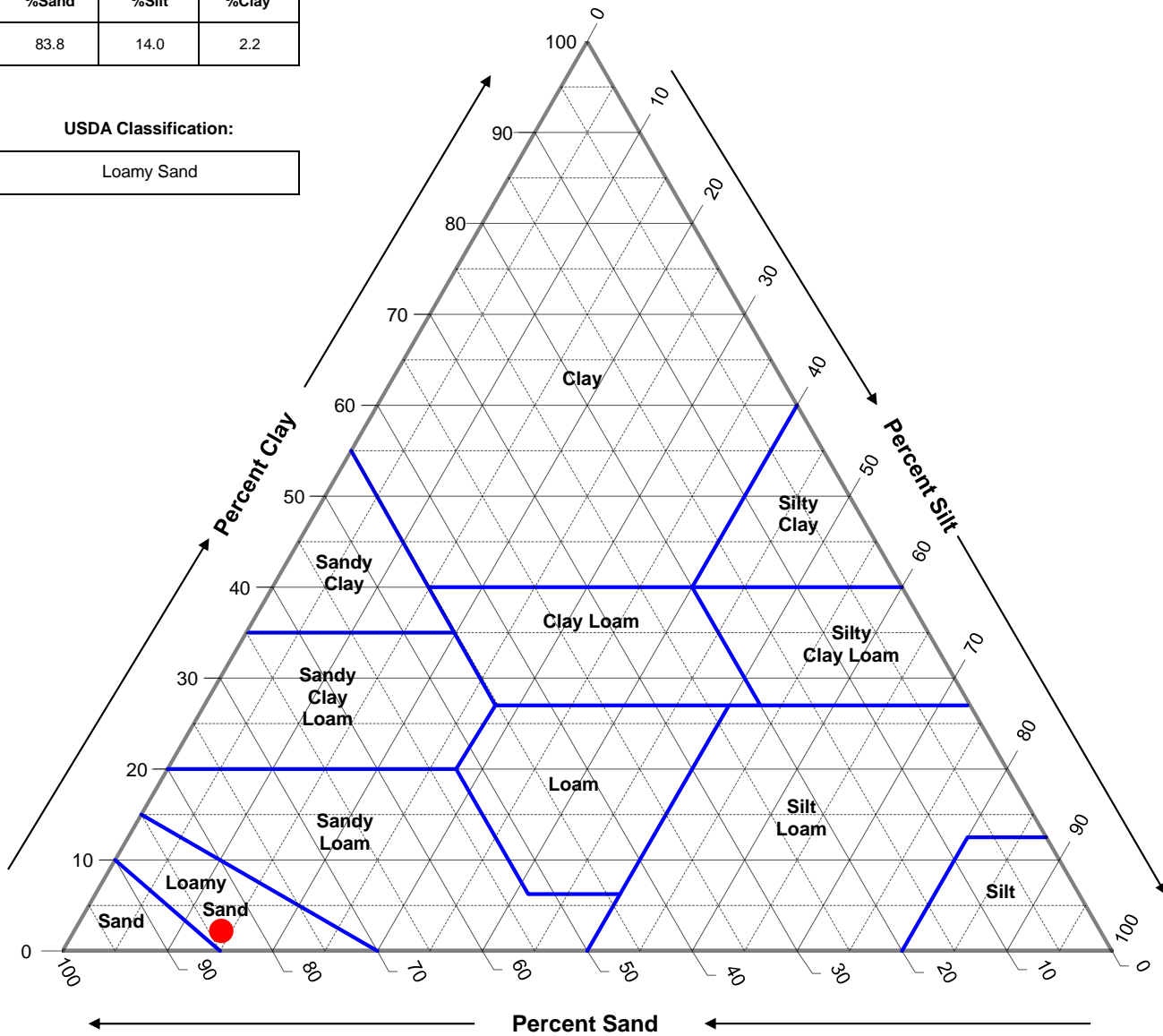
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
83.8	14.0	2.2

USDA Classification:

Loamy Sand



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 4.5 - 5

Sample Description: Reddish Brown 2.5YR-5/4

Sample No.: TP-06A

Sample Source: TP-06

Date Reported: 3/8/2024



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Tested by	Checked by	Approved by	Date Received	Remarks
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USDA Classification

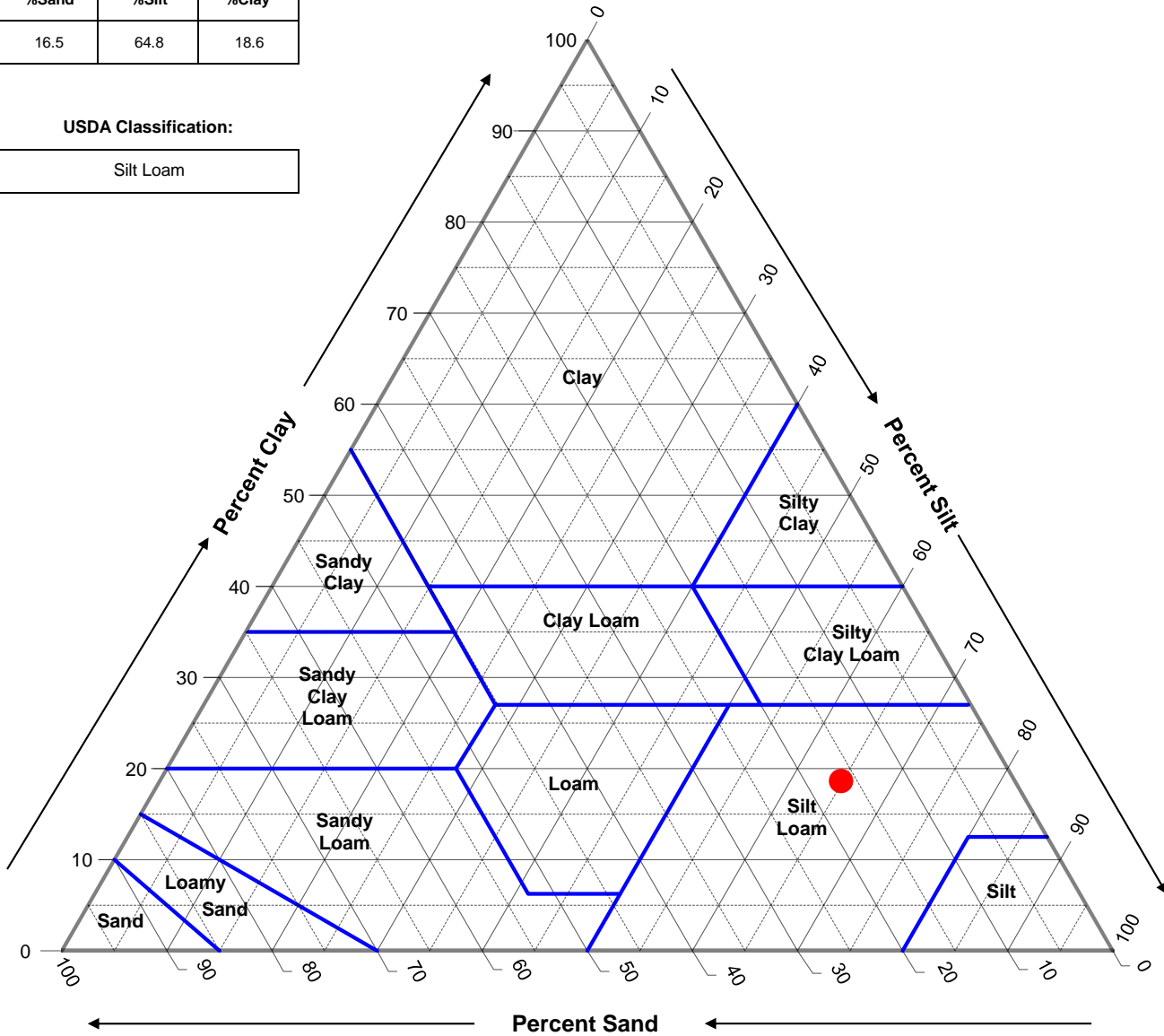
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
16.5	64.8	18.6

USDA Classification:

Silt Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 3 - 3.5

Sample Description: Pinkish white 5YR-8/2

Sample No.: TP-07A

Sample Source: TP-07

Date Reported: 3/8/2024



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Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates		

USDA Classification

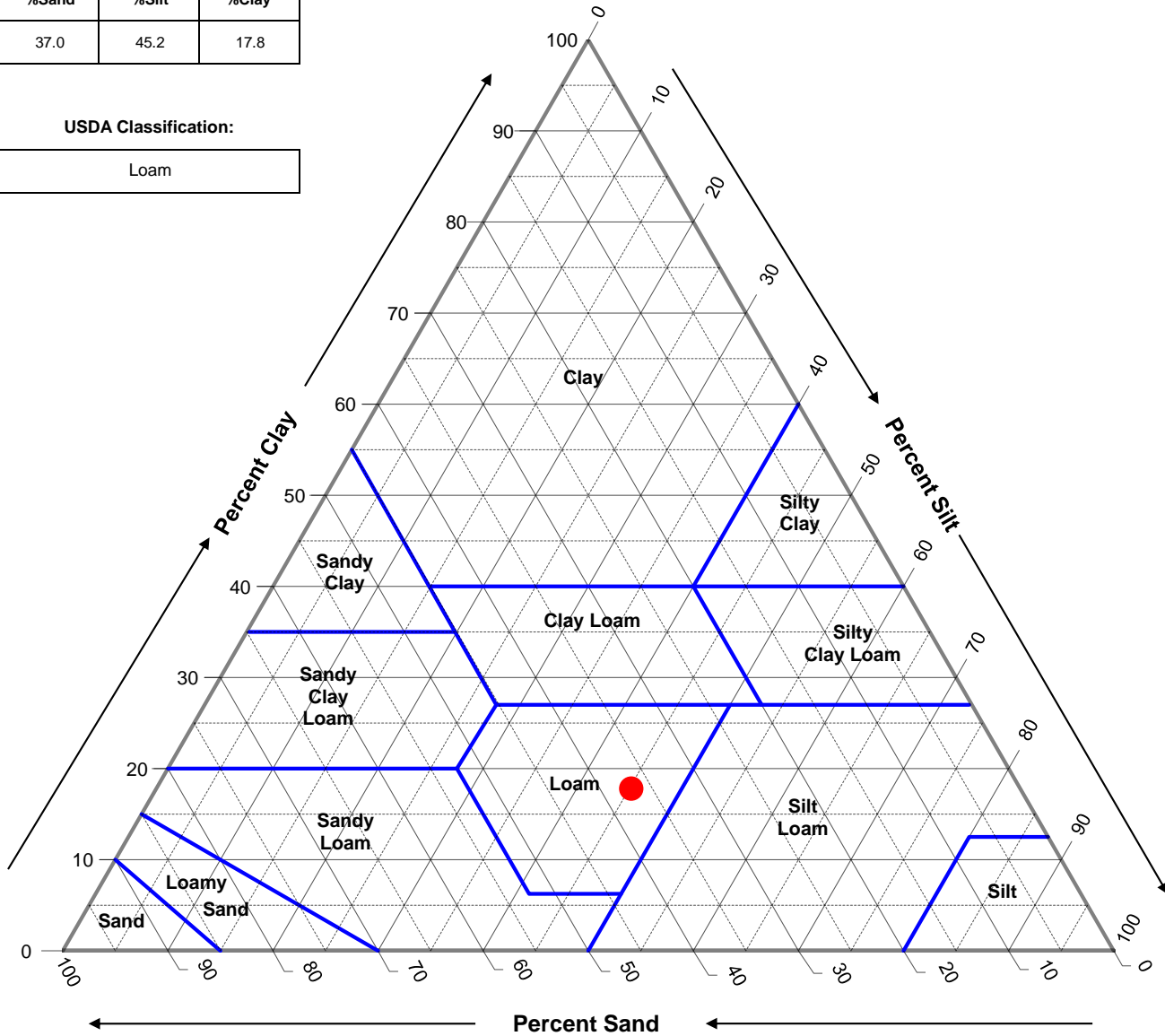
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
37.0	45.2	17.8

USDA Classification:

Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 3.5 - 4

Sample Description: Pale Brown 10YR-6/3

Sample No.: TP-08A

Sample Source: TP-08

Date Reported: 3/8/2024



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Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates		

USDA Classification

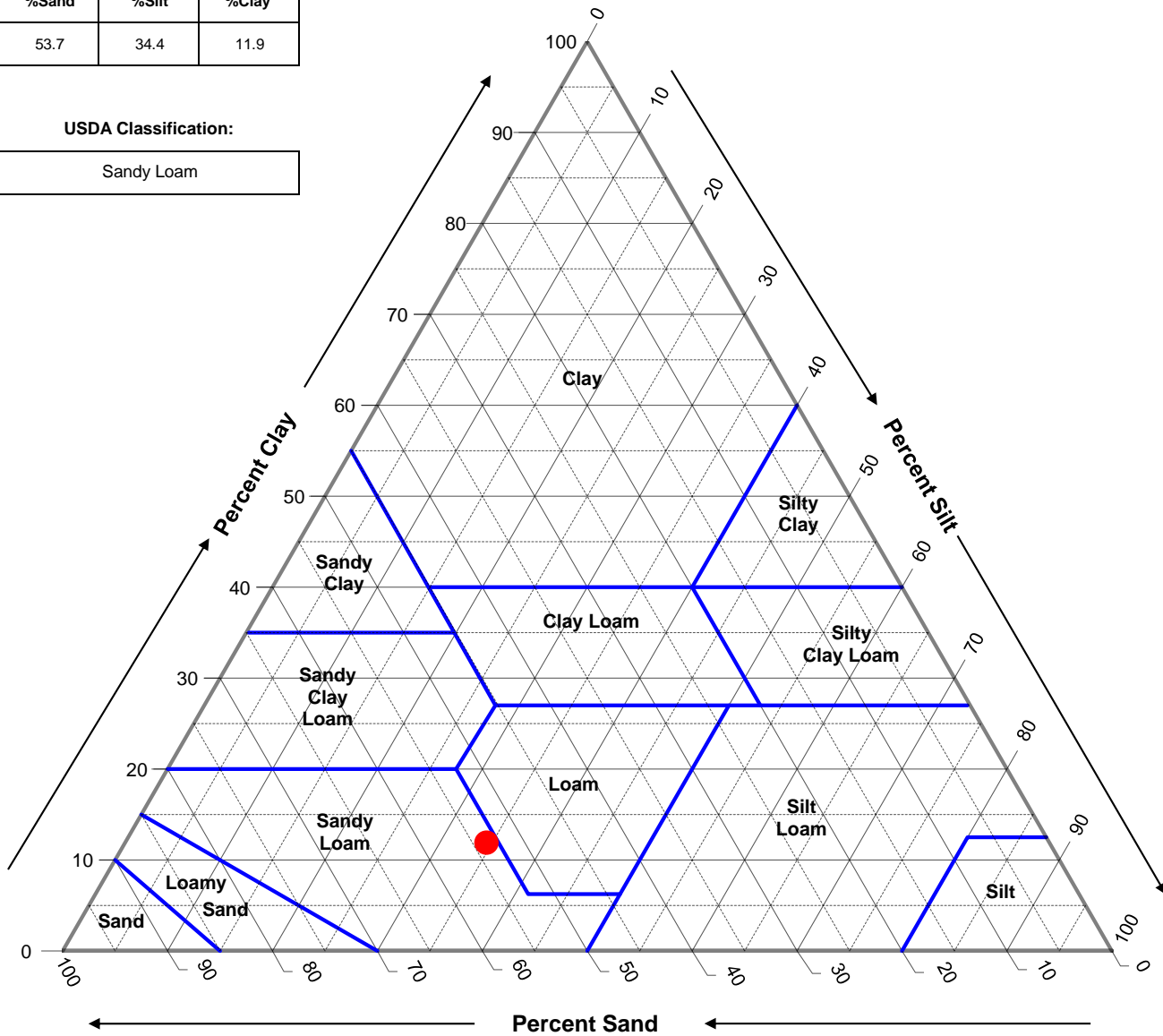
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
53.7	34.4	11.9

USDA Classification:

Sandy Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 5 - 5.5

Sample Description: Yellowish Brown 10YR-5/4

Sample No.: TP-9A

Sample Source: TP-09

Date Reported: 3/8/2024



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Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates		

USDA Classification

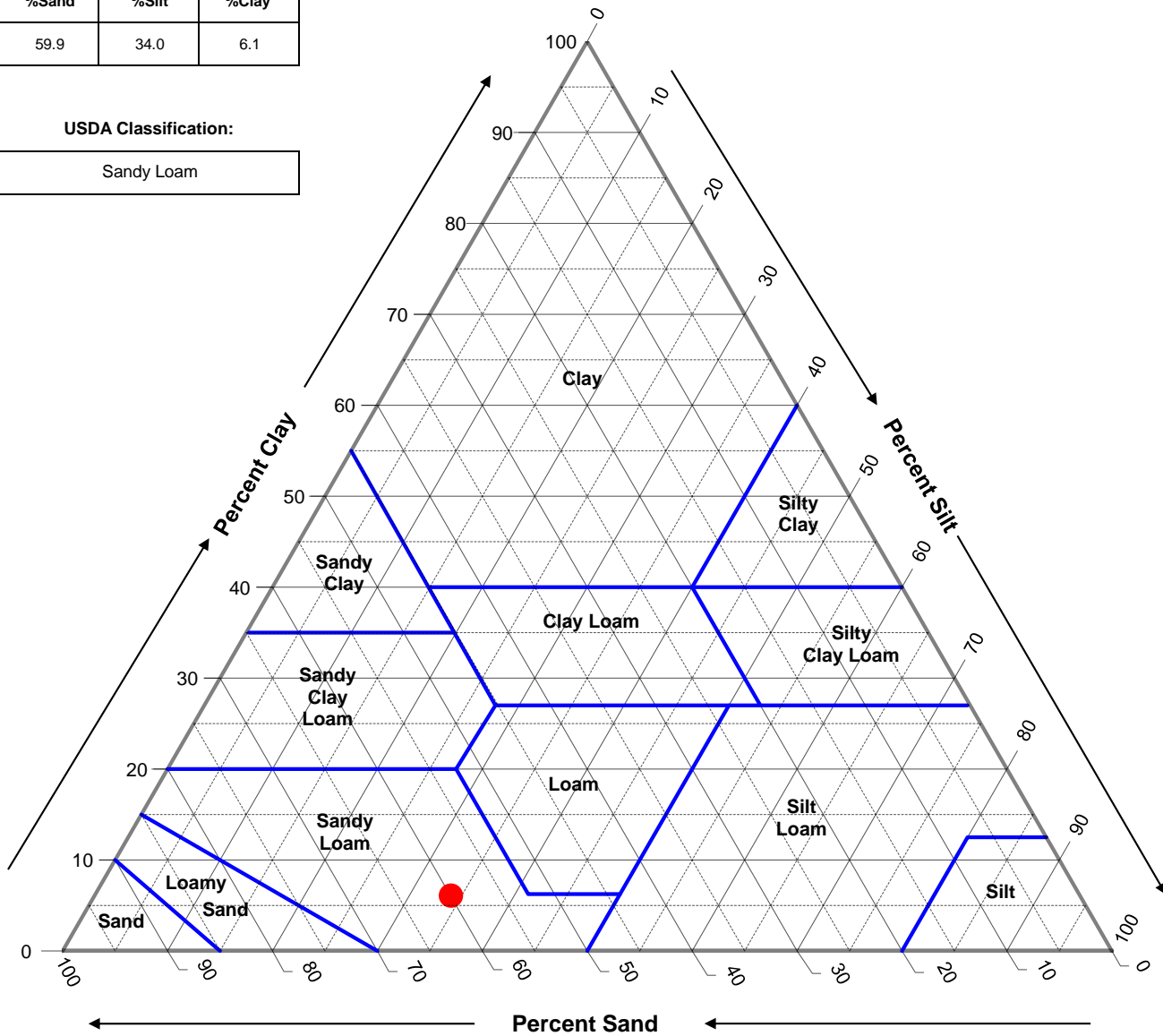
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
59.9	34.0	6.1

USDA Classification:

Sandy Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 2 - 2.5

Sample Description: Dark Yellowish Brown 10YR-4/6

Sample No.: TP-10A

Sample Source: TP-10

Date Reported: 3/8/2024



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J Gross	Y Zhang	J Yates		

USDA Classification

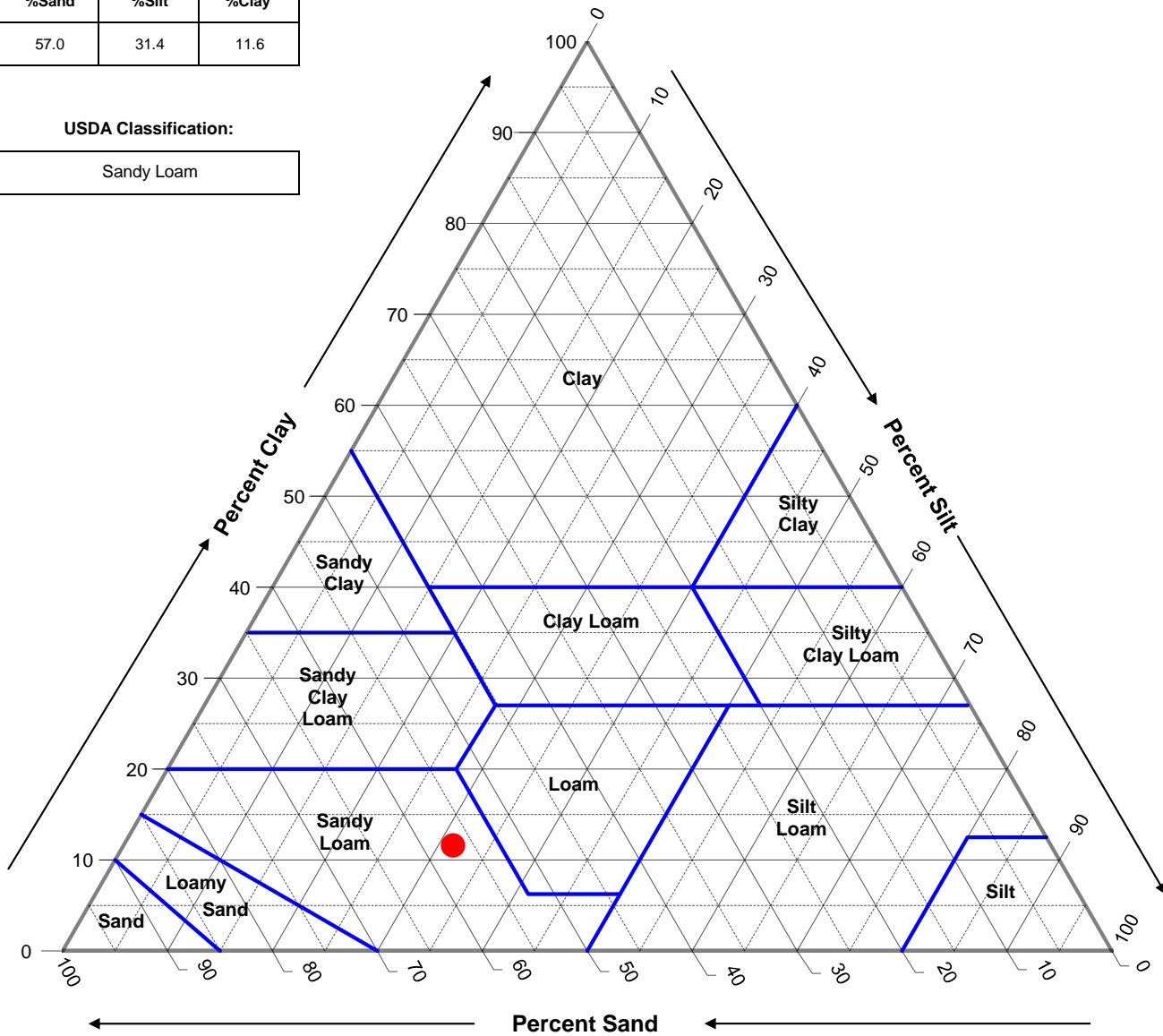
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
57.0	31.4	11.6

USDA Classification:

Sandy Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 1.5 - 2

Sample Description: Light Gray 10YR-7/2

Sample No.: TP-11A

Sample Source: TP-11

Date Reported: 3/8/2024



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Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates		

USDA Classification

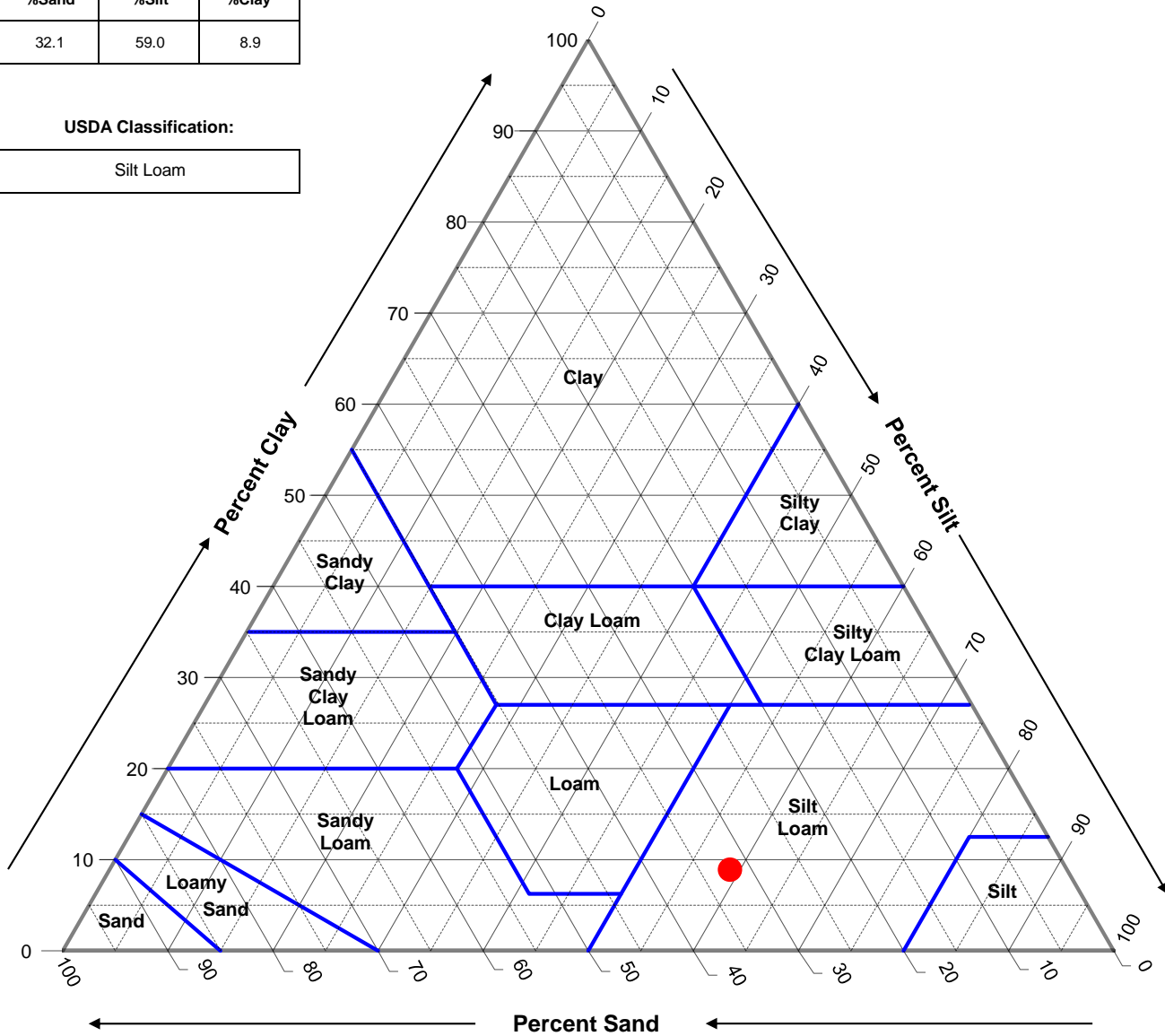
TEST RESULTS (ASTM D6913M-17-METHOD B & ASTM D422-63(2007))

USDA Soil Percentages
(Corrected for Gravel):

%Sand	%Silt	%Clay
32.1	59.0	8.9

USDA Classification:

Silt Loam



Project: Lawrenceville Office Park Redevelopment

Project No.: 44:2006

Client: MidAtlantic Engineering Partners

Depth (ft): 4.5 - 5

Sample Description: Light Gray 2.5YR-7/1

Sample No.: TP-12A

Sample Source: TP-12

Date Reported: 3/8/2024



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ECS Mid-Atlantic LLC - Philadelphia

Address

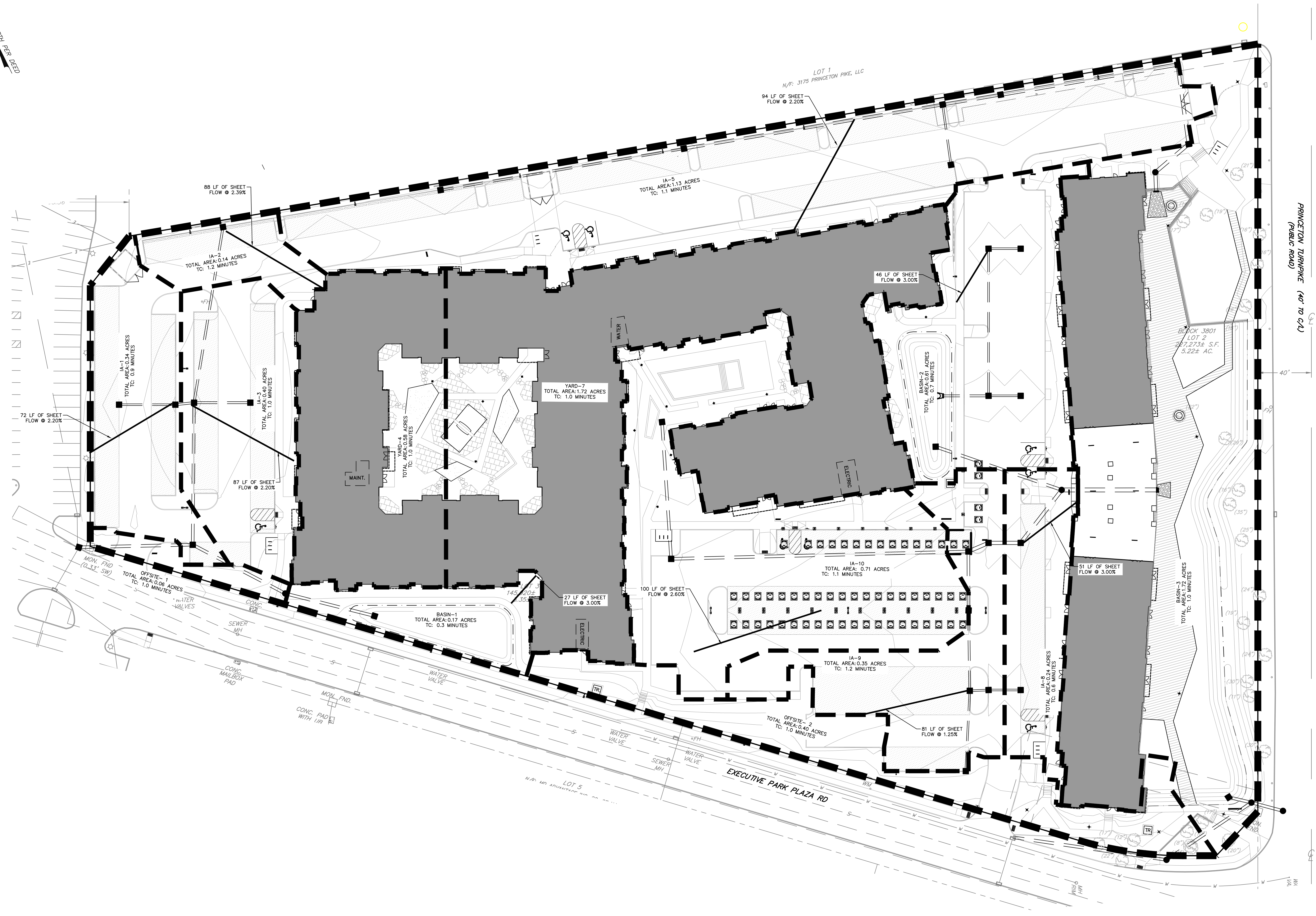
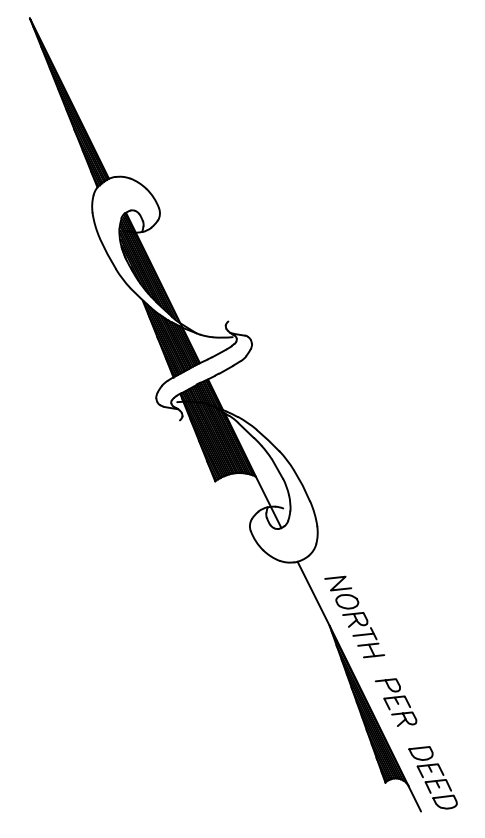
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Tested by	Checked by	Approved by	Date Received	Remarks
J Gross	Y Zhang	J Yates		

APPENDIX H
DRAINAGE AREA MAPS



DATE	REVISIONS	DRAWN BY	CHECKED BY	RELEASED BY

DRAWN BY: DJS	CHECKED BY: JAB	RELEASED BY:
DATE: 04/23/24	HORIZONTAL SCALE: 1"=30'	VERTICAL SCALE: N/A
PROJECT No.: RAM-2201	DRAWING NAME: 99-DA Maps.dwg	

LAWRENCE REDEVELOPMENT
BLOCK 3801, LOK 2 & 3
3131 PRINCETON PIKE
INLET AREA MAP

SITUATED IN
 LAWRENCE TOWNSHIP, MERCER COUNTY, NEW JERSEY

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 State of New Jersey
 Department of Environmental Protection
 P.E. No. 061000000
 P.E. No. 061000000
 P.E. No. 061000000