

Sunny Dayz Cannabis

0 Greenfield Road, Deerfield, MA

PREPARED FOR

Ken Bouquillon
Sunny Dayz Cannabis, Inc.
55 Locust Street Lynn, MA 01904
860.656.4624

PREPARED BY



1 Federal Street
Building 103-3N
Springfield, MA 01105
413.747.7113

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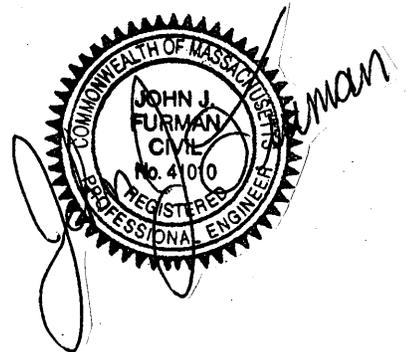


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Checklist for Stormwater Report



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

March 6, 2023

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): Above ground detention basins with no stormwater flow off-site

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

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

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.



Stormwater Report Narrative

This Stormwater Report has been prepared to demonstrate compliance with the Massachusetts Stormwater Management Standards in accordance with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and Water Quality Certification Regulations (314 CMR 9.00). This report also demonstrates compliance with the Town of Deerfield rules and regulations for stormwater design and mitigation.

Project Description

The Applicant, Sunny Dayz Cannabis, Inc., is proposing to construct three new cannabis related buildings, including a testing facility, dispensary, and cultivation facility (the Project). As proposed, the buildings consist of 5,000 square feet, 3,304 square feet, and 26,000 square feet of building space, ancillary landscape improvements, lighting, 70 total parking spaces, stormwater management, and utility improvements to support this use.

Site Description

The Project Site is a 17.25-acre parcel of land (the Site) located at 0 Greenfield Road, Deerfield, Massachusetts (see Figure 1). The Project will disturb approximately 4.6 acres of land including the entrance drive disturbance from the property line to the curb cut at Greenfield Road. The Site lies within the surface watershed of the Connecticut River and is bounded by businesses to the north and the south, Deerfield Bypass (Route 5 & 10) to the east, and Interstate 91 to the west. See Figure 1, Site Location Map.

Wetland Resource Areas on the Site include the following:

Table 1 Wetland Resource Areas

Name	Critical Area (yes/no)	Zone 1 or Zone A (yes/no)	ORW or SRW (yes/no)	Zone II or IWPA (yes/no)	Other
Shrub Swamp	No	No	No	No	

According to the National Resources Conservation Service (NRCS), surface soils on the Site include Amostown Fine Sandy Loam (258A & 258B), Sudbury Sandy Loam (260A), Birdsall Mucky Silt Loam (9A), Raynham Silt Loam (30A), and Deerfield Loamy Fine Sand (256B). The Deerfield

soils are classified as Hydrologic Soil Groups (HSG) A, Birdsall soils are classified as Hydrologic Soil Groups (HSG) C, while the Amostown, Sudbury, and Raynham soils are classified as Hydrologic Soil Groups (HSG) D. Based on the soil evaluation included in Appendix C, the Site is not considered to be within an area of rapid infiltration (soils with a saturated hydraulic conductivity greater than 2.4 inches per hour).

Subsurface soil explorations and testing have been completed by O'Reilly, Talbot, & Okun. They prepared a Preliminary Report of Geotechnical Investigation dated May 26, 2022. The presence of soft varved, silt and clay and a relatively shallow groundwater table were observed on the Site. Portions of the near surface soils are relatively silty and poorly draining; therefore, the analysis will use HSG "D" soils. Due to the poor soils on site and shallow groundwater table, this analysis will not account for infiltration; therefore, the basins will be lined, and an outlet control structure will be installed with an outlet orifice at the bottom of the basins. This will hold back water within the system but still allow it to fully drain at the end of the storm event.

Existing Drainage Conditions

Under existing conditions, the Site is undeveloped and moderately wooded with generally flat topography including some low-lying areas with wetlands. Figure 2 illustrates the existing drainage patterns on the Site. Currently, the Site is divided into 10 drainage areas as stormwater runoff flows to three Design Points, which have been identified as x1000, x2000, and x3000. Table 2 below provides a summary of the existing conditions hydrologic data.

Table 2 Existing Conditions Hydrologic Data

Drainage Area	Discharge Location	Design Point	Area (sf)	Curve Number	Time of Concentration (min)
10	Wetlands	x3000	13,074	70	27.3
20	Wetlands	x3000	89,938	72	101.4
30	Wetlands	x1000	20,657	77	40.8
40	Wetlands	x1000	83,662	77	142.4
50	Wetlands	x1000	208,224	65	123.7
60	Wetlands	x1000	145,723	60	130.8
70	Wetlands	x2000	64,469	75	80.7
80	Wetlands	x2000	74,095	69	149.8
90	Wetlands	x2000	42,640	73	136.8
100	Wetlands	x3000	163,106	75	140.2

Proposed Drainage Conditions

Figure 3 illustrates the proposed "post construction" drainage conditions for the project. Under proposed conditions, all new impervious development will be collected in a water quality swale and/or sediment forebay basin and conveyed to an aboveground detention basin. As shown, the

Site will be divided into 23 drainage areas that discharge treated stormwater to the three existing Design Points. Table 3 below provides a summary of the proposed conditions hydrologic data.

Table 3 Proposed Conditions Hydrologic Data

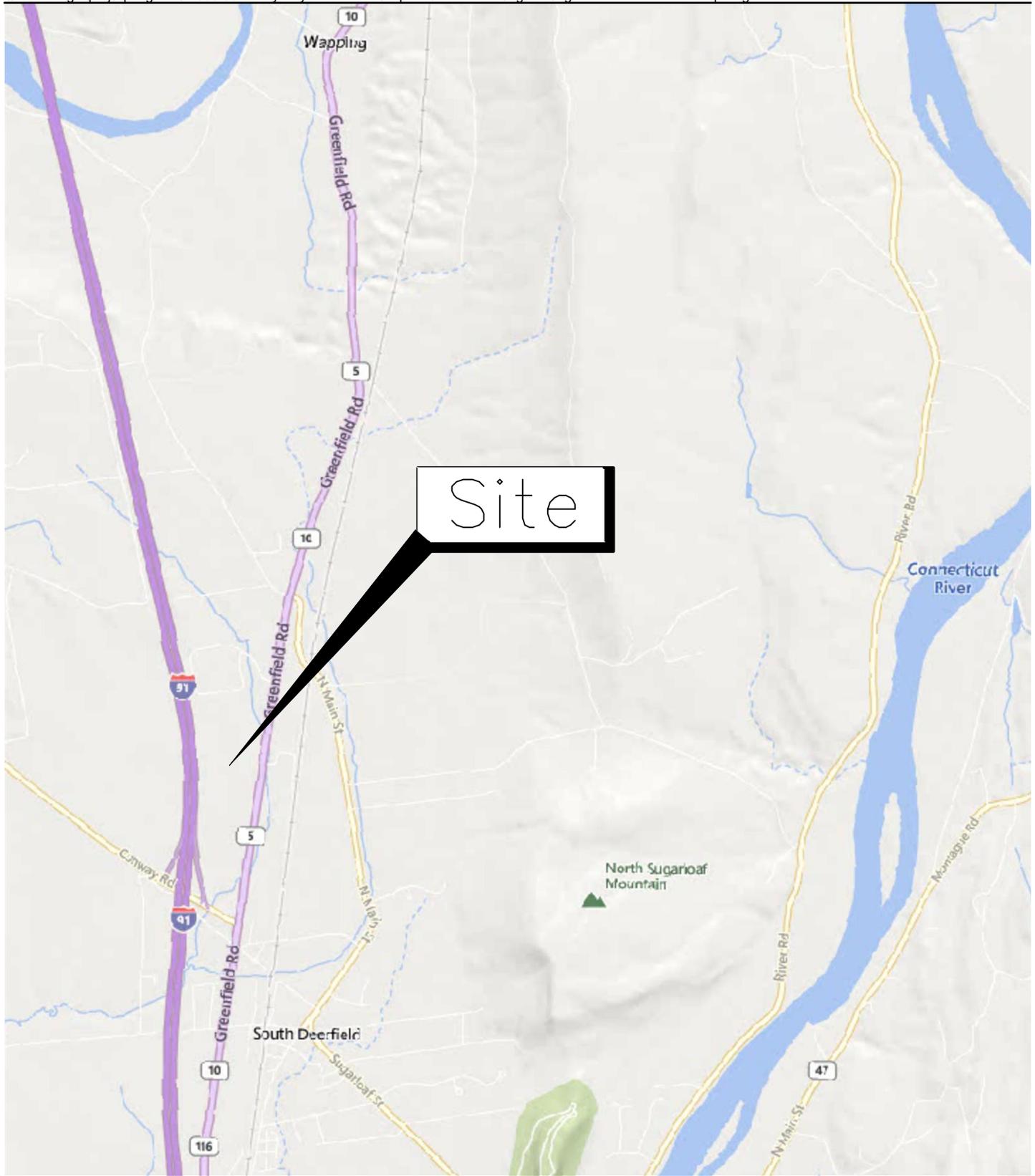
Drainage Area	Discharge Location	Design Point	Area (sf)	Curve Number	Time of Concentration (min)
100	Wetlands	x2000	21,241	87	6.0
200	Wetlands	x1000	7,259	84	6.0
Lab	Wetlands	x1000	5,000	98	6.0
Disp	Wetlands	x1000	4,073	98	6.0
300	Wetlands	x2000	25,373	88	6.0
350	Wetlands	x2000	2,640	70	6.0
400	Wetlands	x1000	17,459	88	6.0
450	Wetlands	x1000	5,879	59	6.0
500	Wetlands	x1000	24,492	50	6.0
550	Wetlands	x1000	24,095	82	6.0
600	Wetlands	x1000	44,164	94	6.0
700	Wetlands	x1000	155,394	73	123.7
800	Wetlands	x1000	83,661	77	142.4
900	Wetlands	x1000	20,660	77	40.8
1000	Wetlands	x3000	89,935	72	101.4
1100	Wetlands	x3000	13,074	70	27.3
1200	Wetlands	x3000	163,106	75	140.2
1300	Wetlands	x2000	41,280	73	136.8
1400	Wetlands	x2000	43,924	74	58.3
1500	Wetlands	x2000	15,037	77	110.0
1600	Wetlands	x2000	22,207	56	149.8
1700	Wetlands	x1000	23,148	33	159.8
1800	Wetlands	x1000	52,490	71	135.0

The site design integrates a comprehensive stormwater management system that has been developed in accordance with the Massachusetts Stormwater Handbook. The Site is not considered a LUHPPL and does not have rapid infiltration. The proposed stormwater management system has been designed to treat the half inch Water Quality Volume.

Environmentally Sensitive and Low Impact Development (LID) Techniques

Low Impact Development (LID) techniques and stormwater Best Management Practices (BMPs) implemented into the site design include minimized disturbance to existing trees and vegetation, the use of "country drainage" versus curb and gutter conveyance and pipe, and water quality swales. In general, stormwater from the proposed impervious surfaces is flowed into a swale and/or sedimentation forebay basin and deposited into a detention basin.

Figure 1 **Site Location Map**



Vanasse Hangen Brustlin, Inc.

Sunny Dayz Cannabis

Figure 1 - Site Location Map
September 2022



N.T.S.

0 Greenfield Road
Deerfield, MA

Figure 2 Existing Drainage Area

Existing Drainage Areas (SF)

<u>Area 10 =</u>	<u>13,074</u>	
	Woods =	13,074
<u>Area 20 =</u>	<u>89,937</u>	
	Woods =	89,937
<u>Area 30 =</u>	<u>20,657</u>	
	Woods =	20,657
<u>Area 40 =</u>	<u>83,663</u>	
	Woods =	83,663
<u>Area 50 =</u>	<u>208,224</u>	
	Woods =	208,224
<u>Area 60 =</u>	<u>145,723</u>	
	Woods =	145,723
<u>Area 70 =</u>	<u>64,468</u>	
	Woods =	64,468
<u>Area 80 =</u>	<u>74,095</u>	
	Woods =	74,095
<u>Area 90 =</u>	<u>42,639</u>	
	Woods =	42,639

Area 100 = 163,106

Woods = 163,106

Total =	905,586
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Existing Drainage Conditions Areas

Figure 2

Figure 3 Proposed Drainage Area

Proposed Drainage Areas (SF)

<u>Area 100 =</u>	<u>21,241</u>	
	Pavement C =	2,229
	Grass D =	12,881
	Pavement D =	6,131
<u>Area 200 =</u>	<u>7,259</u>	
	Pavement D =	356
	Pavement C =	1,201
	Grass D =	5,702
<u>Area Lab =</u>	<u>5,000</u>	
	Building C =	5,000
<u>Area Disp =</u>	<u>4,073</u>	
	Building D =	4,073
<u>Area 300 =</u>	<u>25,373</u>	
	Woods D =	6,584
	Pavement D =	10,134
	Grass D =	6,278
	Woods C =	425
	Pavement C =	1,952
<u>Area 350 =</u>	<u>2,640</u>	
	Woods C =	2,640
<u>Area 400 =</u>	<u>17,459</u>	
	Pavement D =	5,161
	Grass D =	1,112
	Pavement C =	4,402
	Grass C =	6,784
<u>Area 450 =</u>	<u>5,879</u>	
	Grass A =	2,450
	Grass C =	3,429

Area 1200 = 163,106

 Woods C = 35,065
 Woods D = 128,041

Area 1300 = 41,280

 Woods C = 25,740
 Woods D = 15,540

Area 1400 = 43,924

 Woods C = 19,885
 Woods D = 24,039

Area 1500 = 15,037

 Woods D = 15,037

Area 1600 = 22,207

 Woods A = 8,476
 Woods C = 8,994
 Grass C = 3,200
 Woods D = 715
 Grass D = 822

Area 1700 = 23,148

 Woods A = 21,327
 Woods C = 1,821

Area 1800 = 52,490

 Woods C = 44,782
 Grass C = 521
 Woods D = 6,038
 Grass D = 740
 Pave D = 409

Total =	905,592
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Figure 4 FEMA Map



FEMA Map

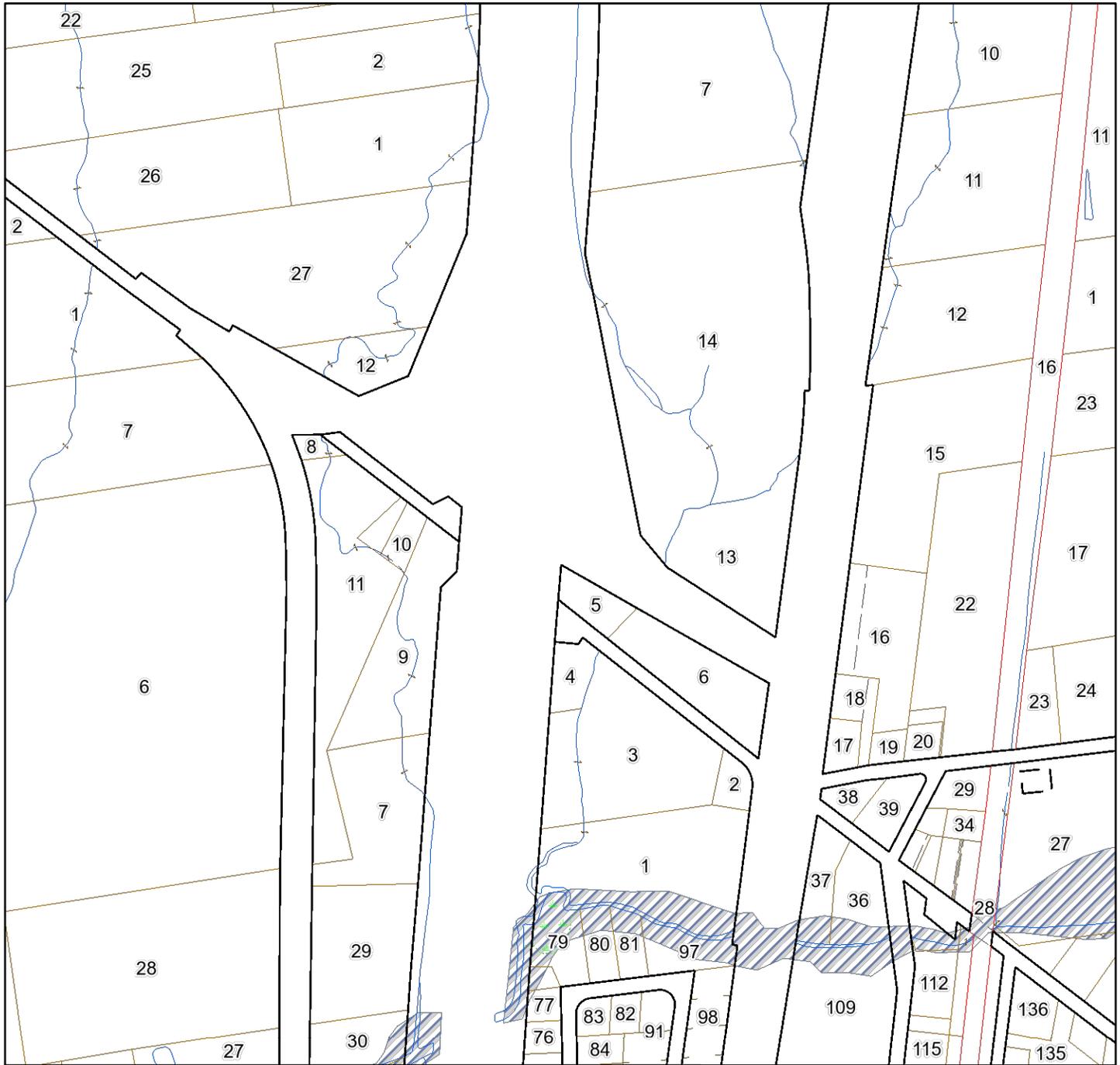
Deerfield, MA

1 inch = 500 Feet



www.cai-tech.com

January 4, 2023



	100 Year Flood Plain (Approx)		Property TIC
	Wet Areas		RoadNotPar
	WaterLines		Wetland
	Dashed Road		Right of Way
	Property Hook		

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.



Regulatory Compliance

Massachusetts Department of Environmental Protection (DEP) – Stormwater Management Standards

As demonstrated below, the proposed Project fully complies with the DEP Stormwater Management Standards.

Standard 1: No New Untreated Discharges or Erosion to Wetlands

The Project has been designed to comply with Standard 1.

The Best Management Practices (BMPs) included in the proposed stormwater management system have been designed in accordance with the Massachusetts Stormwater Handbook. Supporting information and computations demonstrating that no new untreated discharges will result from the Project are presented through compliance with Standards 4 through 6.

All proposed Project stormwater outlets and conveyances have been designed to not cause erosion or scour to wetlands or receiving waters. Outlets from closed drainage systems have been designed with flared end sections and stone protection to dissipate discharge velocities. Overflows from BMP's that impound stormwater have been designed with stone and vegetated material to protect downgradient areas from erosion.

Computations and supporting information for the sizing and selection of materials used to protect from scour and erosion are included in Appendix A.

Standard 2: Peak Rate Attenuation

The Project has been designed to comply with Standard 2.

The rainfall-runoff response of the Site under existing and proposed conditions was analyzed for storm events with recurrence intervals of 2, 10, 25 and 100 years. The results of the analysis, as summarized in Table 4 below, indicate that there is no increase in peak discharge rates between the existing and proposed conditions for the 10, 25, and 100-year storm events and a minor increase on 0.01 CFS for the two year storm.

Computations and supporting information regarding the hydrologic modeling are included in Appendix B.

Table 4 Peak Discharge Rates (cfs*)

Design Point	2-year	10-year	25-year	100-year
Design Point: x3000				
Existing	3.3	9.1	13.3	20.3
Proposed	3.4	8.4	11.9	17.7

Standard 3: Stormwater Recharge

Due to the very poor soils on Site and high groundwater, stormwater infiltration is not possible. The basins will be lined.

Soil evaluation (including Geotechnical Report) are included in Appendix C.

Standard 4: Water Quality

The Project has been designed to comply with Standard 4.

The proposed stormwater management system implements a treatment train of BMPs that has been designed to provide 80% TSS removal of stormwater runoff from all proposed impervious surfaces.

Computations and supporting information, including the Long-Term Pollution Prevention Plan, are included in Appendix D.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

The Project is not considered a LUHPPL.

Standard 6: Critical Areas

The Project will not discharge stormwater near or to a critical area.

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable

The project is not a redevelopment and complies with 9 of the 10 standards; however, due to the poor soils and high groundwater infiltration is not possible on Site.

Refer directly to each Standard for applicable computations and supporting information demonstrating compliance with each.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Controls

The Project will disturb approximately 4.6 acres of land and is therefore required to obtain coverage under the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit. As required under this permit, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and submitted before land disturbance begins. Recommended construction period pollution prevention and erosion and sedimentation controls to be finalized in the SWPPP are included in Appendix F.

Standard 9: Operation and Maintenance Plan

In compliance with Standard 9, a Post Construction Stormwater Operation and Maintenance (O&M) Plan has been developed for the Project. The O&M Plan is included in Appendix D as part of the Long Term Pollution Prevention Plan.

Standard 10: Prohibition of Illicit Discharges

The site was previously undeveloped and no sanitary sewer or storm drainage infrastructure is known to exist on the site. The design plans submitted with this report have been designed in full compliance with current standards. The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges.

Local Municipal Rules and Regulations

Stormwater Regulations for the Town of Deerfield as adopted by the Planning Board/Stormwater Authority 04.04.2011.

Appendix A: Standard 1 Computations and Supporting Information

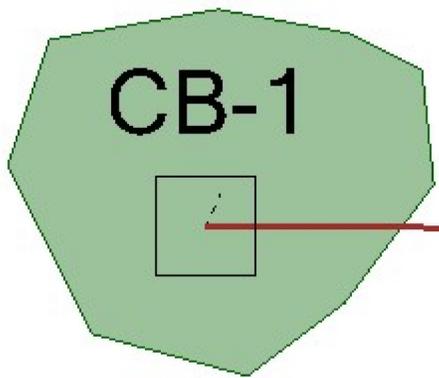
- › Pipe Sizing Calculations
- › Stone outlet protection for pipe ends (See Virginia Erosion and Sediment Control Handbook, Chapter 3.18)

Pipe Sizing Calculations

The closed drainage system was designed for the 10-year storm event.

Drainage pipes were sized using Manning's Equation for full-flow capacity and the Rational Method. Additionally, the performance of the system was analyzed using StormCAD, a HEC-22 based program.

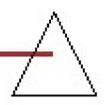
CM-1



CO-1



O-1



Scenario: Base
Current Time Step: 0.000 h
Flex Table: Conduit Table

ID	Label	Start Node	Set Invert to Start?	Invert (Start) (ft)	Stop Node	Set Invert to Stop?	Invert (Stop) (ft)	Has User Defined Length?	Length (User Defined) (ft)	Length (Scaled) (ft)	Slope (Scaled) (ft/ft)	Section Type	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Capacity (at Flow) (cfs)	Flow / Capacity (Design) (%)	Depth (Invert) / Rise (%)	Notes
33	CO-1	CB-1	True	205.50	C-1	False	205.00	True	95.0	69.3	0.005	Circle	10.0	0.012	0.98	3.26	0.44	1.72	57.1	54.1	-

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Scenario: Base**Current Time Step: 0.000 h****FlexTable: Catch Basin Table**

ID	Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Length (ft)	Width (ft)	Inlet Type	Flow (Maximum in) (cfs)	Inflow-Capture Curve	Capture Efficiency (Calculated) (%)	Flow (Captured) (cfs)	Hydraulic Grade Line (In) (ft)	Spread / Top Width (ft)
31	CB-1	208.50	True	208.50	205.50	-	-	Full Capture	-	<Collection: 0 items>	100.0	0.98	205.95	0.0

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Scenario: Base
Current Time Step: 0.000 h
FlexTable: Outfall Table

ID	Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Invert) (ft)	Boundary Condition Type	Boundary Element	Elevation (User Defined Tailwater) (ft)	Hydraulic Grade (ft)	Flow (Total Out) (cfs)	Notes
32	O-1	206.00	True	205.00	Free Outfall	<None>	-	205.44	0.96	-

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Scenario: Base
Current Time Step: 0.000 h
FlexTable: Catchment Table

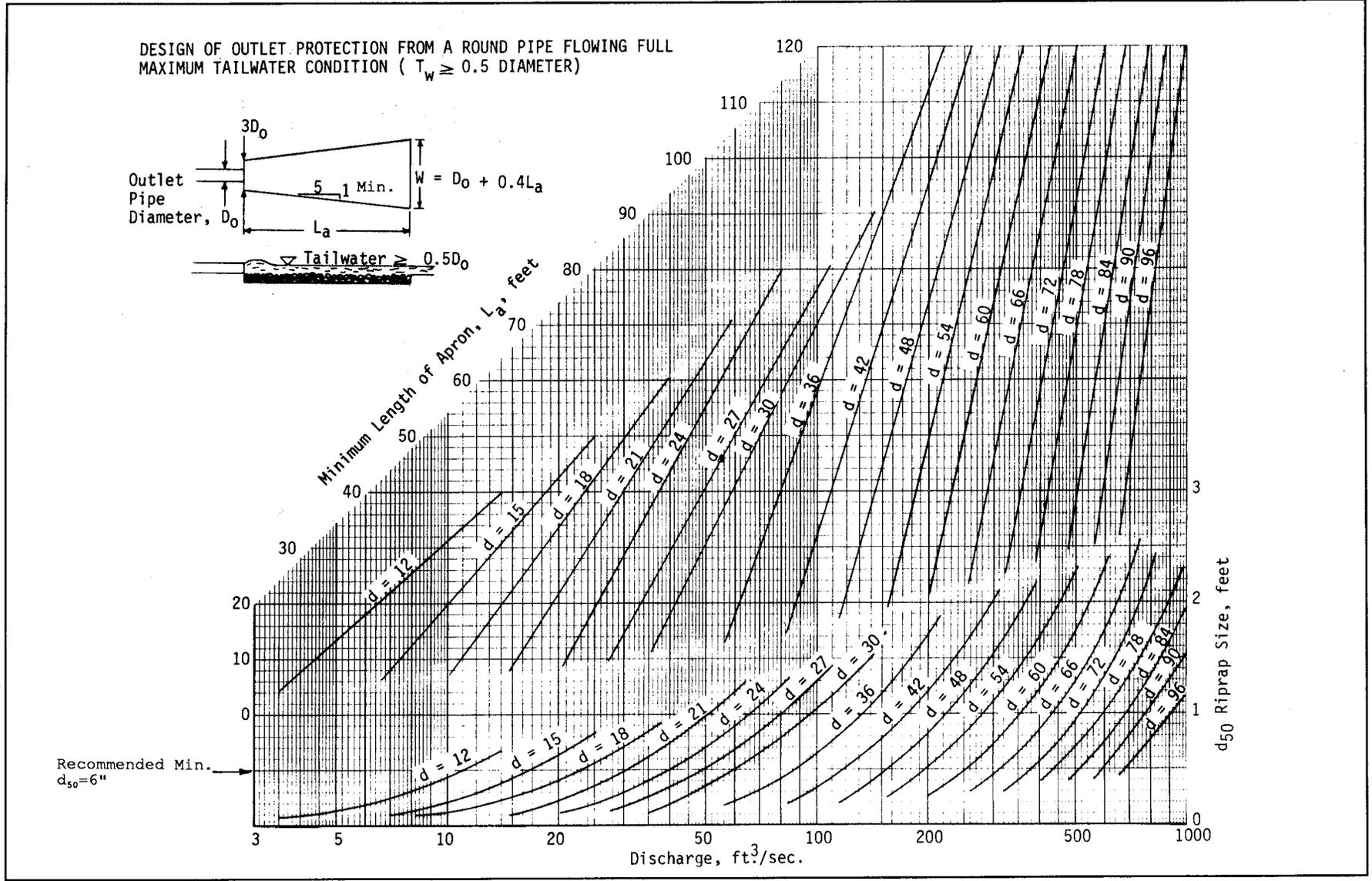
ID	Label	Outflow Element	Area (User Defined) (ft ²)	Runoff Coefficient (Rational)	Time of Concentration (min)	Flow (Total Out) (cfs)	Notes
35	CM-1	CB-1	7,100.000	0.950	5.000	0.98	-

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Stone Outlet Protection

Source: USDA-SCS

Plate 3.18-4



Appendix B: Standard 2 Computations and Supporting Information

The rainfall-runoff response of the Site under existing and proposed conditions was evaluated for storm events with recurrence intervals of 2, 10, 25, and 100-years. Rainfall volumes used for this analysis were based on the Natural Resources Conservation Service (NRCS) Type III, 24-hour storm and NOAA Atlas 14 precipitation depths for the site: 3.01, 4.66, 5.69, and 7.27 inches, respectively. Runoff coefficients for the pre- and post-development conditions, as previously shown in Tables 1 and 2 respectively, were determined using NRCS Technical Release 55 (TR-55) methodology as provided in HydroCAD. Drainage areas used in the analyses were described in previous sections and shown on Figures 1 and 2. The HydroCAD model is based on the NRCS Technical Release 20 (TR-20) Model for Project Formulation Hydrology.

NOAA Atlas 14, Volume 10, Version 3
 Location name: South Deerfield, Massachusetts,
 USA*



Latitude: 42.4837°, Longitude: -72.6118°
 Elevation: 205.41 ft**

* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.319 (0.248-0.408)	0.375 (0.291-0.480)	0.467 (0.361-0.600)	0.542 (0.417-0.701)	0.647 (0.481-0.869)	0.726 (0.529-0.995)	0.808 (0.571-1.14)	0.897 (0.604-1.30)	1.02 (0.662-1.53)	1.12 (0.709-1.72)
10-min	0.452 (0.351-0.578)	0.531 (0.412-0.680)	0.660 (0.511-0.848)	0.768 (0.591-0.992)	0.916 (0.682-1.23)	1.03 (0.750-1.41)	1.14 (0.809-1.62)	1.27 (0.855-1.84)	1.45 (0.937-2.17)	1.59 (1.00-2.43)
15-min	0.532 (0.413-0.680)	0.625 (0.485-0.800)	0.777 (0.601-0.998)	0.904 (0.695-1.17)	1.08 (0.802-1.45)	1.21 (0.881-1.66)	1.35 (0.952-1.91)	1.49 (1.01-2.17)	1.70 (1.10-2.56)	1.87 (1.18-2.86)
30-min	0.737 (0.572-0.942)	0.867 (0.672-1.11)	1.08 (0.835-1.39)	1.26 (0.965-1.62)	1.50 (1.12-2.01)	1.68 (1.23-2.31)	1.87 (1.33-2.65)	2.08 (1.40-3.02)	2.37 (1.54-3.56)	2.61 (1.65-3.99)
60-min	0.942 (0.732-1.21)	1.11 (0.860-1.42)	1.38 (1.07-1.78)	1.61 (1.24-2.08)	1.92 (1.43-2.58)	2.15 (1.57-2.95)	2.40 (1.70-3.40)	2.67 (1.80-3.87)	3.04 (1.97-4.57)	3.35 (2.12-5.12)
2-hr	1.19 (0.931-1.52)	1.41 (1.10-1.79)	1.76 (1.37-2.25)	2.05 (1.59-2.63)	2.45 (1.84-3.28)	2.76 (2.02-3.77)	3.07 (2.19-4.35)	3.43 (2.32-4.96)	3.95 (2.57-5.90)	4.37 (2.78-6.66)
3-hr	1.36 (1.07-1.73)	1.61 (1.26-2.05)	2.02 (1.58-2.58)	2.36 (1.83-3.03)	2.83 (2.13-3.78)	3.18 (2.35-4.34)	3.56 (2.55-5.03)	3.99 (2.70-5.74)	4.61 (3.00-6.87)	5.13 (3.27-7.80)
6-hr	1.69 (1.33-2.13)	2.03 (1.59-2.55)	2.57 (2.01-3.25)	3.02 (2.35-3.84)	3.63 (2.75-4.84)	4.09 (3.04-5.57)	4.59 (3.31-6.49)	5.18 (3.51-7.42)	6.06 (3.96-8.98)	6.81 (4.34-10.3)
12-hr	2.08 (1.65-2.60)	2.52 (1.99-3.15)	3.23 (2.54-4.06)	3.82 (2.99-4.83)	4.63 (3.53-6.15)	5.24 (3.91-7.11)	5.89 (4.29-8.33)	6.69 (4.56-9.55)	7.92 (5.19-11.7)	8.97 (5.74-13.5)
24-hr	2.45 (1.95-3.06)	3.01 (2.39-3.75)	3.91 (3.10-4.89)	4.66 (3.67-5.86)	5.69 (4.35-7.52)	6.44 (4.84-8.72)	7.27 (5.34-10.3)	8.31 (5.68-11.8)	9.94 (6.53-14.6)	11.4 (7.29-17.0)
2-day	2.80 (2.24-3.46)	3.46 (2.77-4.29)	4.54 (3.62-5.65)	5.44 (4.31-6.80)	6.68 (5.15-8.80)	7.59 (5.74-10.2)	8.59 (6.36-12.1)	9.88 (6.77-14.0)	11.9 (7.86-17.4)	13.7 (8.84-20.4)
3-day	3.05 (2.45-3.77)	3.78 (3.03-4.67)	4.97 (3.97-6.16)	5.96 (4.73-7.43)	7.32 (5.66-9.62)	8.31 (6.31-11.2)	9.41 (7.00-13.3)	10.8 (7.45-15.3)	13.2 (8.68-19.2)	15.2 (9.80-22.5)
4-day	3.28 (2.64-4.04)	4.06 (3.26-5.00)	5.32 (4.27-6.58)	6.37 (5.08-7.92)	7.82 (6.06-10.3)	8.87 (6.75-11.9)	10.0 (7.48-14.1)	11.6 (7.96-16.3)	14.0 (9.27-20.4)	16.2 (10.5-24.0)
7-day	3.94 (3.18-4.82)	4.79 (3.87-5.88)	6.20 (4.99-7.62)	7.36 (5.88-9.10)	8.96 (6.96-11.7)	10.1 (7.72-13.5)	11.4 (8.51-15.9)	13.1 (9.02-18.3)	15.7 (10.4-22.7)	18.0 (11.6-26.5)
10-day	4.59 (3.73-5.61)	5.49 (4.45-6.71)	6.96 (5.62-8.54)	8.18 (6.56-10.1)	9.85 (7.66-12.8)	11.1 (8.46-14.7)	12.4 (9.24-17.2)	14.1 (9.77-19.7)	16.7 (11.1-24.1)	19.0 (12.3-27.8)
20-day	6.63 (5.41-8.05)	7.59 (6.18-9.22)	9.14 (7.42-11.1)	10.4 (8.42-12.8)	12.2 (9.51-15.6)	13.6 (10.3-17.7)	15.0 (11.0-20.2)	16.5 (11.5-22.9)	18.8 (12.6-26.9)	20.7 (13.4-30.2)
30-day	8.32 (6.81-10.1)	9.31 (7.61-11.3)	10.9 (8.90-13.3)	12.3 (9.94-15.0)	14.1 (11.0-17.9)	15.5 (11.8-20.1)	17.0 (12.5-22.7)	18.5 (12.9-25.5)	20.5 (13.8-29.3)	22.1 (14.4-32.2)
45-day	10.4 (8.53-12.5)	11.4 (9.38-13.8)	13.2 (10.8-15.9)	14.6 (11.9-17.8)	16.6 (13.0-20.9)	18.1 (13.8-23.2)	19.6 (14.4-25.9)	21.1 (14.8-28.9)	23.0 (15.4-32.6)	24.3 (15.9-35.3)
60-day	12.1 (9.95-14.5)	13.2 (10.9-15.9)	15.0 (12.3-18.2)	16.6 (13.5-20.1)	18.7 (14.6-23.4)	20.3 (15.5-26.0)	21.9 (16.1-28.8)	23.4 (16.5-32.0)	25.3 (17.0-35.8)	26.6 (17.4-38.6)

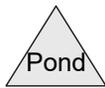
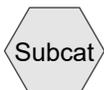
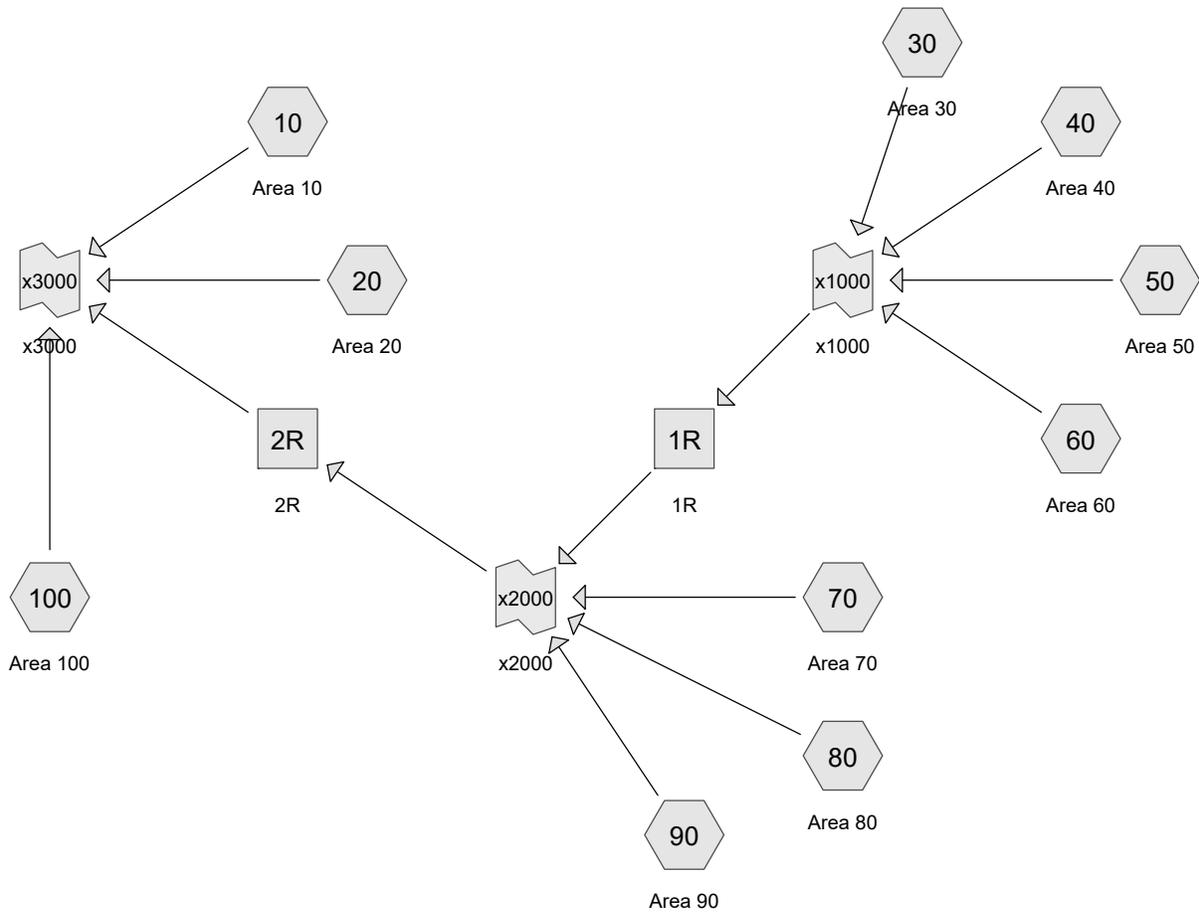
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

HydroCAD Analysis: Existing Conditions

2-Year Storm Event – Existing



Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	Type III 24-hr		Default	24.00	1	3.01	2
2	10-year	Type III 24-hr		Default	24.00	1	4.66	2
3	25-year	Type III 24-hr		Default	24.00	1	5.69	2
4	50-year	Type II 24-hr		Default	24.00	1	6.44	2
5	100-year	Type III 24-hr		Default	24.00	1	7.27	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.250	30	Woods, Good, HSG A (50, 60, 80)
6.957	70	Woods, Good, HSG C (10, 20, 40, 50, 60, 70, 80, 90, 100)
11.582	77	Woods, Good, HSG D (20, 30, 40, 50, 60, 70, 80, 90, 100)
20.789	70	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.250	HSG A	50, 60, 80
0.000	HSG B	
6.957	HSG C	10, 20, 40, 50, 60, 70, 80, 90, 100
11.582	HSG D	20, 30, 40, 50, 60, 70, 80, 90, 100
0.000	Other	
20.789		TOTAL AREA

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.250	0.000	6.957	11.582	0.000	20.789	Woods, Good	10, 20, 30, 40, 50, 60, 70, 80, 90, 100
2.250	0.000	6.957	11.582	0.000	20.789	TOTAL AREA	

Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 10: Area 10 Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>0.64"
Flow Length=215' Tc=27.3 min CN=70 Runoff=0.13 cfs 0.016 af

Subcatchment 20: Area 20 Runoff Area=89,938 sf 0.00% Impervious Runoff Depth>0.70"
Flow Length=675' Tc=101.4 min CN=72 Runoff=0.49 cfs 0.120 af

Subcatchment 30: Area 30 Runoff Area=20,657 sf 0.00% Impervious Runoff Depth>0.97"
Flow Length=370' Tc=40.8 min CN=77 Runoff=0.28 cfs 0.038 af

Subcatchment 40: Area 40 Runoff Area=83,662 sf 0.00% Impervious Runoff Depth>0.92"
Flow Length=850' Tc=142.4 min CN=77 Runoff=0.51 cfs 0.147 af

Subcatchment 50: Area 50 Runoff Area=208,224 sf 0.00% Impervious Runoff Depth>0.42"
Flow Length=914' Tc=123.7 min CN=65 Runoff=0.53 cfs 0.165 af

Subcatchment 60: Area 60 Runoff Area=145,723 sf 0.00% Impervious Runoff Depth>0.26"
Flow Length=835' Tc=130.8 min CN=60 Runoff=0.20 cfs 0.073 af

Subcatchment 70: Area 70 Runoff Area=64,469 sf 0.00% Impervious Runoff Depth>0.85"
Flow Length=645' Tc=80.7 min CN=75 Runoff=0.51 cfs 0.105 af

Subcatchment 80: Area 80 Runoff Area=74,095 sf 0.00% Impervious Runoff Depth>0.55"
Flow Length=1,245' Tc=149.8 min CN=69 Runoff=0.24 cfs 0.078 af

Subcatchment 90: Area 90 Runoff Area=42,640 sf 0.00% Impervious Runoff Depth>0.73"
Flow Length=525' Tc=136.8 min CN=73 Runoff=0.20 cfs 0.059 af

Subcatchment 100: Area 100 Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>0.82"
Flow Length=868' Tc=140.2 min CN=75 Runoff=0.88 cfs 0.256 af

Reach 1R: 1R Avg. Flow Depth=0.18' Max Vel=0.92 fps Inflow=1.30 cfs 0.424 af
n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=1.30 cfs 0.419 af

Reach 2R: 2R Avg. Flow Depth=0.37' Max Vel=0.88 fps Inflow=2.02 cfs 0.662 af
n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=2.01 cfs 0.652 af

Link x1000: x1000 Inflow=1.30 cfs 0.424 af
Primary=1.30 cfs 0.424 af

Link x2000: x2000 Inflow=2.02 cfs 0.662 af
Primary=2.02 cfs 0.662 af

Link x3000: x3000 Inflow=3.30 cfs 1.044 af
Primary=3.30 cfs 1.044 af

Total Runoff Area = 20.789 ac Runoff Volume = 1.058 af Average Runoff Depth = 0.61"
100.00% Pervious = 20.789 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 10: Area 10

Runoff = 0.13 cfs @ 12.44 hrs, Volume= 0.016 af, Depth> 0.64"
 Routed to Link x3000 : x3000

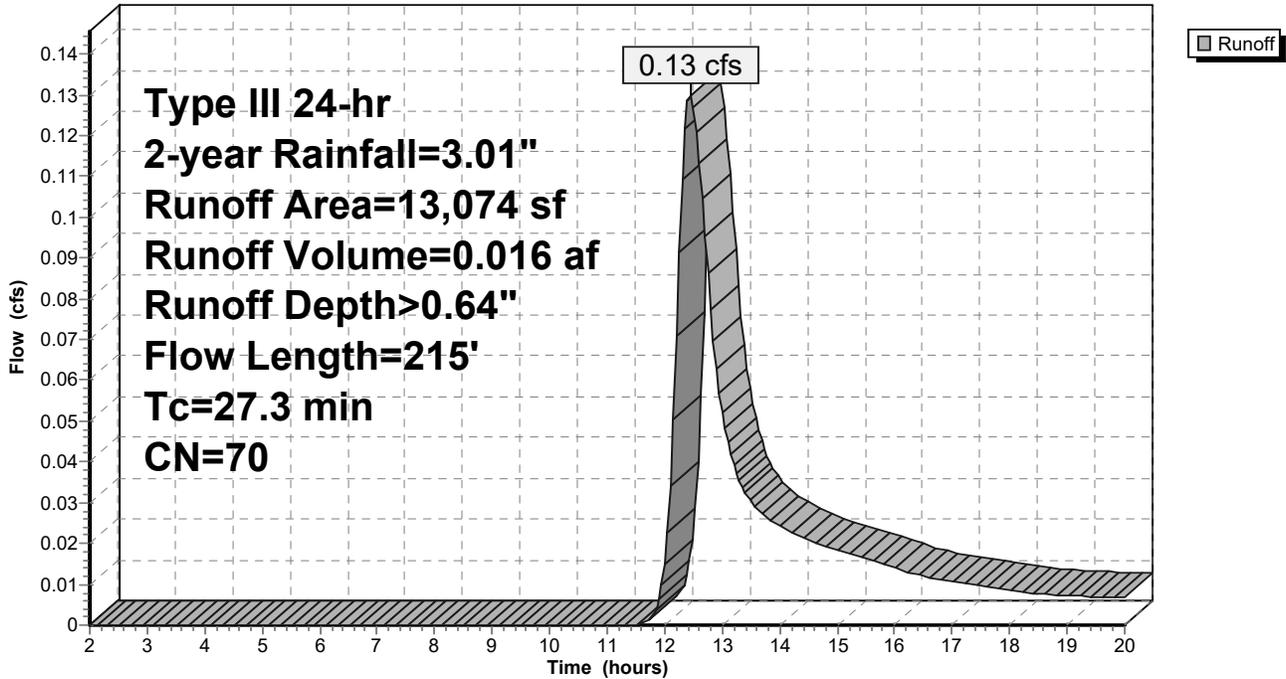
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
13,074	70	Woods, Good, HSG C
13,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1250	0.08		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.1	105	0.0297	0.43		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
12.6	60	0.0010	0.08		Shallow Concentrated Flow, Last 60' Forest w/Heavy Litter Kv= 2.5 fps
27.3	215	Total			

Subcatchment 10: Area 10

Hydrograph



Summary for Subcatchment 20: Area 20

Runoff = 0.49 cfs @ 13.48 hrs, Volume= 0.120 af, Depth> 0.70"
 Routed to Link x3000 : x3000

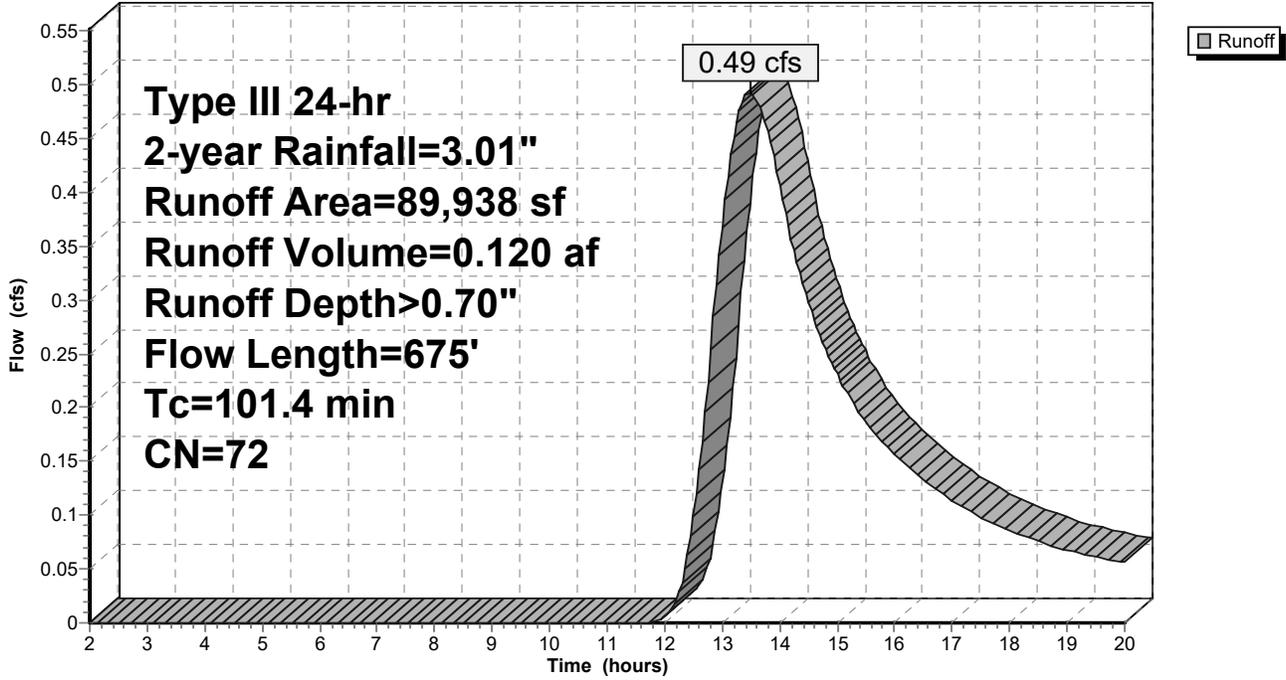
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
58,052	70	Woods, Good, HSG C
31,886	77	Woods, Good, HSG D
89,938	72	Weighted Average
89,938		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.6	50	0.0170	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
8.8	125	0.0090	0.24		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.5	20	0.0670	0.65		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
14.2	165	0.0060	0.19		Shallow Concentrated Flow, Next 165' Forest w/Heavy Litter Kv= 2.5 fps
1.6	65	0.0770	0.69		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
52.7	250	0.0010	0.08		Shallow Concentrated Flow, Last 250' Forest w/Heavy Litter Kv= 2.5 fps
101.4	675	Total			

Subcatchment 20: Area 20

Hydrograph



Summary for Subcatchment 30: Area 30

Runoff = 0.28 cfs @ 12.60 hrs, Volume= 0.038 af, Depth> 0.97"
 Routed to Link x1000 : x1000

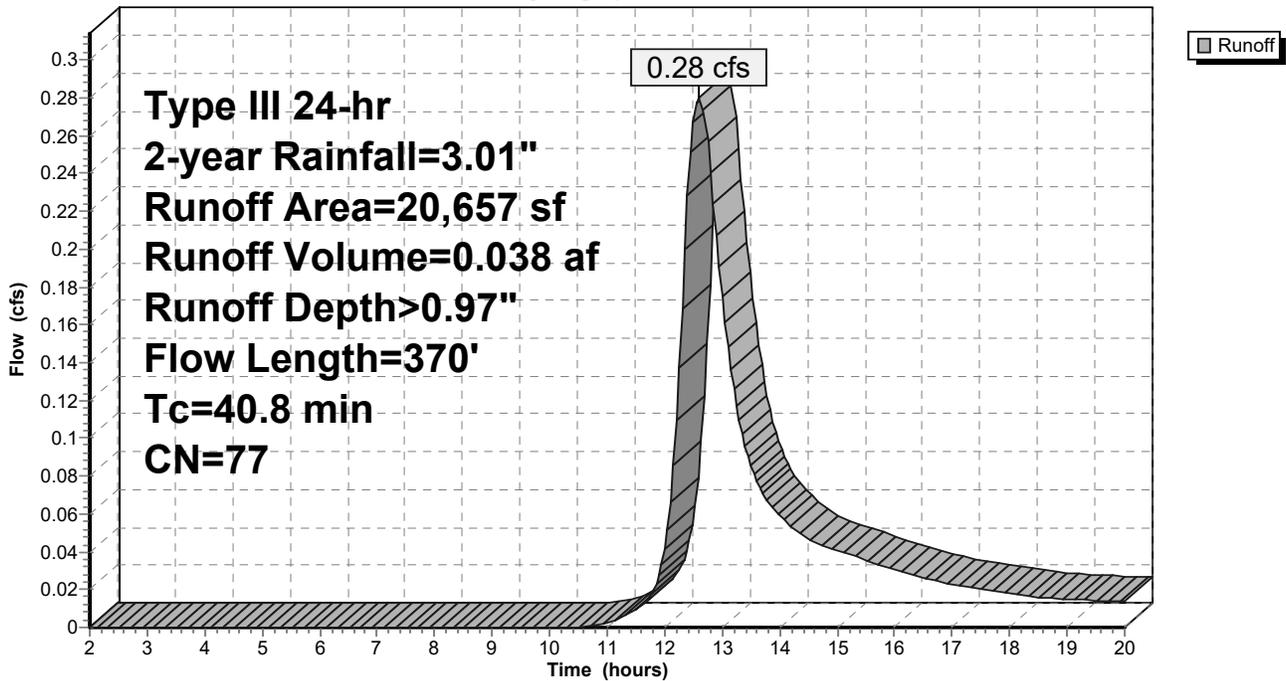
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
20,657	77	Woods, Good, HSG D
20,657		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0670	0.06		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
27.1	320	0.0062	0.20		Shallow Concentrated Flow, Next 320' Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 30: Area 30

Hydrograph



Summary for Subcatchment 40: Area 40

Runoff = 0.51 cfs @ 14.05 hrs, Volume= 0.147 af, Depth> 0.92"
 Routed to Link x1000 : x1000

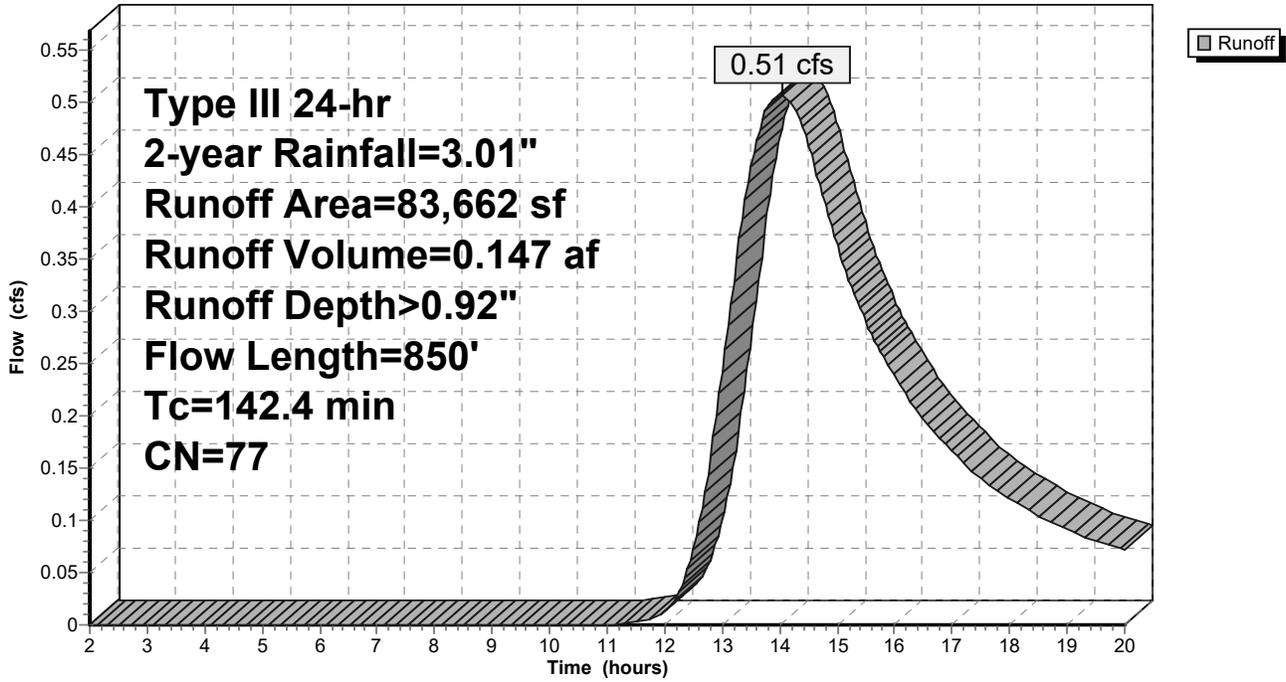
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
318	70	Woods, Good, HSG C
83,344	77	Woods, Good, HSG D
83,662	77	Weighted Average
83,662		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
47.8	470	0.0043	0.16		Shallow Concentrated Flow, Next 470' Forest w/Heavy Litter Kv= 2.5 fps
16.2	180	0.0055	0.19		Shallow Concentrated Flow, Next 180' Forest w/Heavy Litter Kv= 2.5 fps
2.4	50	0.0200	0.35		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
2.6	100	0.0670	0.65		Shallow Concentrated Flow, Last 100' Forest w/Heavy Litter Kv= 2.5 fps
142.4	850	Total			

Subcatchment 40: Area 40

Hydrograph



Summary for Subcatchment 50: Area 50

Runoff = 0.53 cfs @ 13.90 hrs, Volume= 0.165 af, Depth> 0.42"
 Routed to Link x1000 : x1000

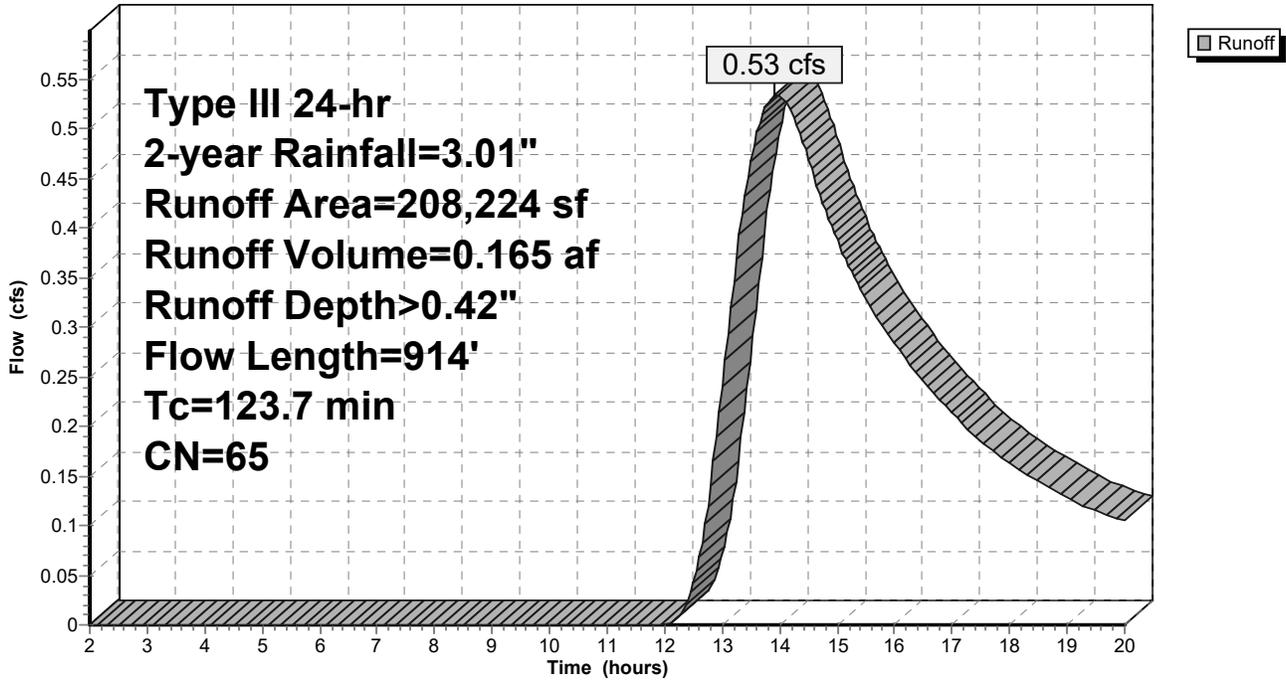
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
48,561	30	Woods, Good, HSG A
41,124	70	Woods, Good, HSG C
118,539	77	Woods, Good, HSG D
208,224	65	Weighted Average
208,224		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
10.0	150	0.0100	0.25		Shallow Concentrated Flow, Next 150' Forest w/Heavy Litter Kv= 2.5 fps
3.3	87	0.0300	0.43		Shallow Concentrated Flow, Next 87' Forest w/Heavy Litter Kv= 2.5 fps
24.7	117	0.0010	0.08		Shallow Concentrated Flow, Next 117' Forest w/Heavy Litter Kv= 2.5 fps
0.8	25	0.0400	0.50		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
10.9	225	0.0190	0.34		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
44.8	260	0.0015	0.10		Shallow Concentrated Flow, Last 260' Forest w/Heavy Litter Kv= 2.5 fps
123.7	914	Total			

Subcatchment 50: Area 50

Hydrograph



Summary for Subcatchment 60: Area 60

Runoff = 0.20 cfs @ 14.26 hrs, Volume= 0.073 af, Depth> 0.26"
 Routed to Link x1000 : x1000

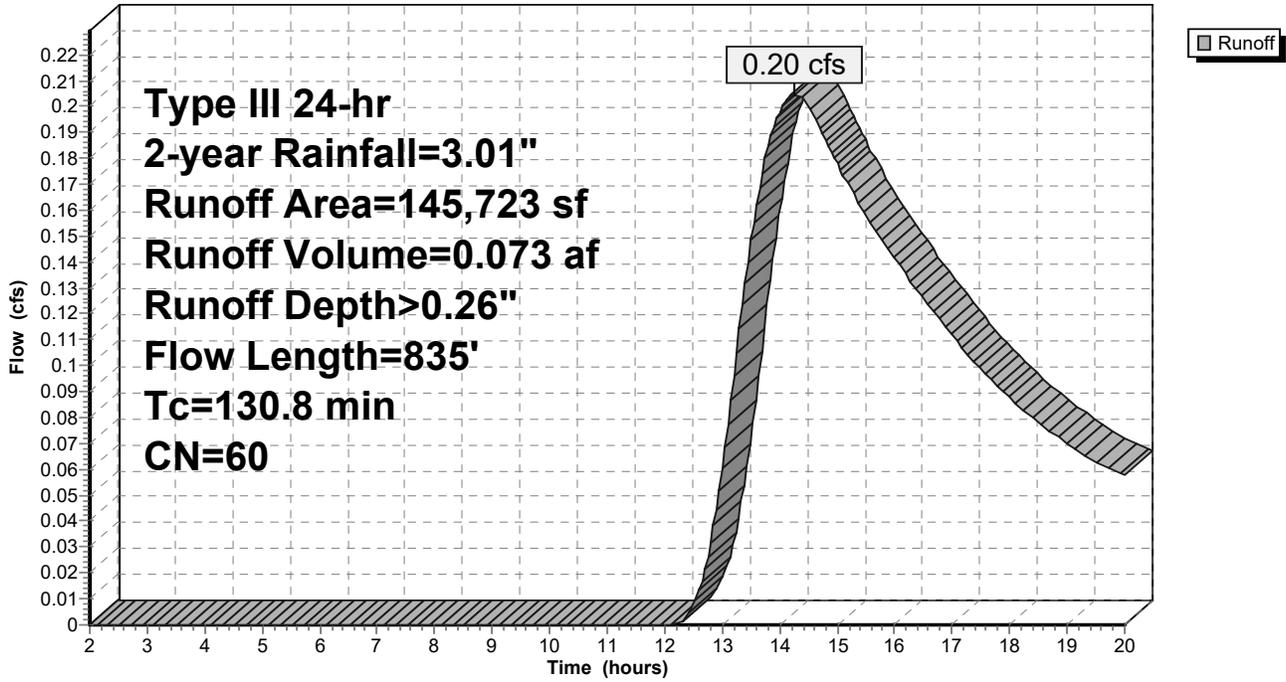
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
85,323	70	Woods, Good, HSG C
40,371	30	Woods, Good, HSG A
20,029	77	Woods, Good, HSG D
145,723	60	Weighted Average
145,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	50	0.0200	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.9	105	0.0200	0.35		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
2.7	65	0.0250	0.40		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
10.4	110	0.0050	0.18		Shallow Concentrated Flow, Next 110' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
130.8	835	Total			

Subcatchment 60: Area 60

Hydrograph



Summary for Subcatchment 70: Area 70

Runoff = 0.51 cfs @ 13.17 hrs, Volume= 0.105 af, Depth> 0.85"
 Routed to Link x2000 : x2000

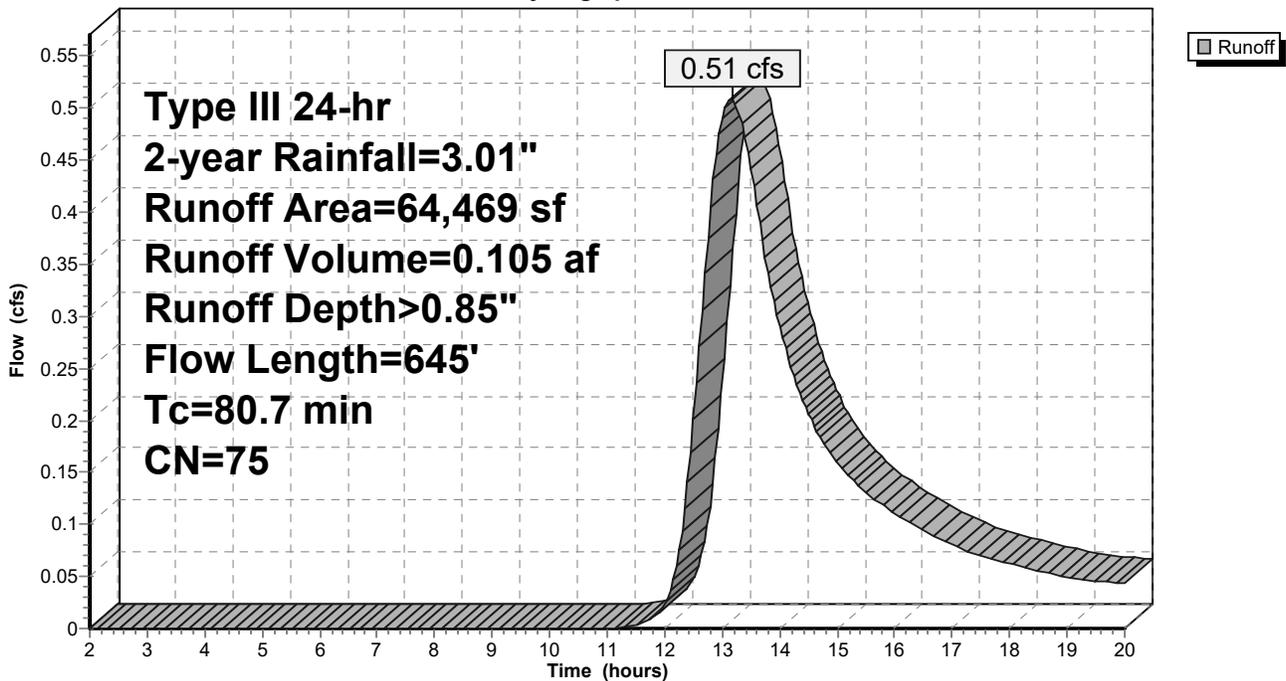
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
41,503	77	Woods, Good, HSG D
22,966	70	Woods, Good, HSG C
64,469	75	Weighted Average
64,469		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.3	50	0.0030	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
18.3	275	0.0100	0.25		Shallow Concentrated Flow, Next 275' Forest w/Heavy Litter Kv= 2.5 fps
8.9	225	0.0281	0.42		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
6.2	95	0.0106	0.26		Shallow Concentrated Flow, Last 95' Forest w/Heavy Litter Kv= 2.5 fps
80.7	645	Total			

Subcatchment 70: Area 70

Hydrograph



Summary for Subcatchment 80: Area 80

Runoff = 0.24 cfs @ 14.28 hrs, Volume= 0.078 af, Depth> 0.55"
 Routed to Link x2000 : x2000

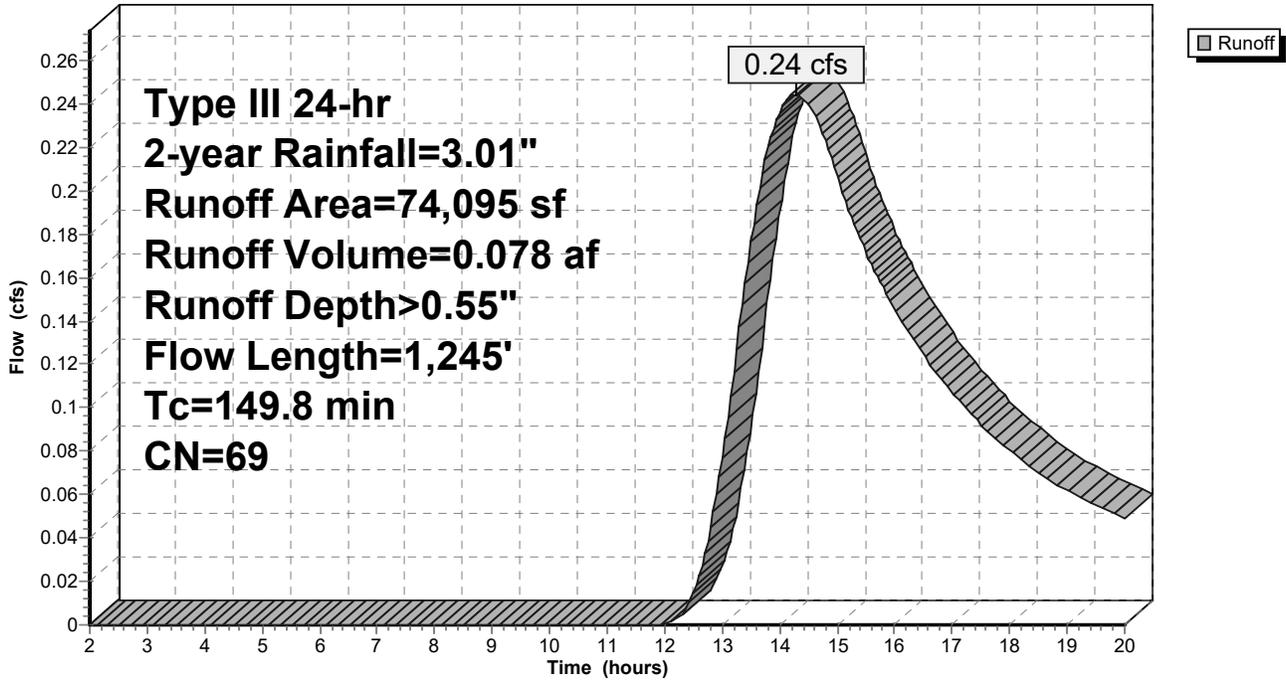
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
9,084	30	Woods, Good, HSG A
21,380	70	Woods, Good, HSG C
43,631	77	Woods, Good, HSG D
74,095	69	Weighted Average
74,095		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
3.3	50	0.0100	0.25		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
0.9	25	0.0370	0.48		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
23.3	350	0.0100	0.25		Shallow Concentrated Flow, Next 350' Forest w/Heavy Litter Kv= 2.5 fps
3.1	60	0.0167	0.32		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
6.9	170	0.0270	0.41		Shallow Concentrated Flow, Next 170' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
2.5	45	0.0140	0.30		Shallow Concentrated Flow, Next 45' Forest w/Heavy Litter Kv= 2.5 fps
0.9	18	0.0167	0.32		Shallow Concentrated Flow, Next 18' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
149.8	1,245	Total			

Subcatchment 80: Area 80

Hydrograph



Summary for Subcatchment 90: Area 90

Runoff = 0.20 cfs @ 13.99 hrs, Volume= 0.059 af, Depth> 0.73"
 Routed to Link x2000 : x2000

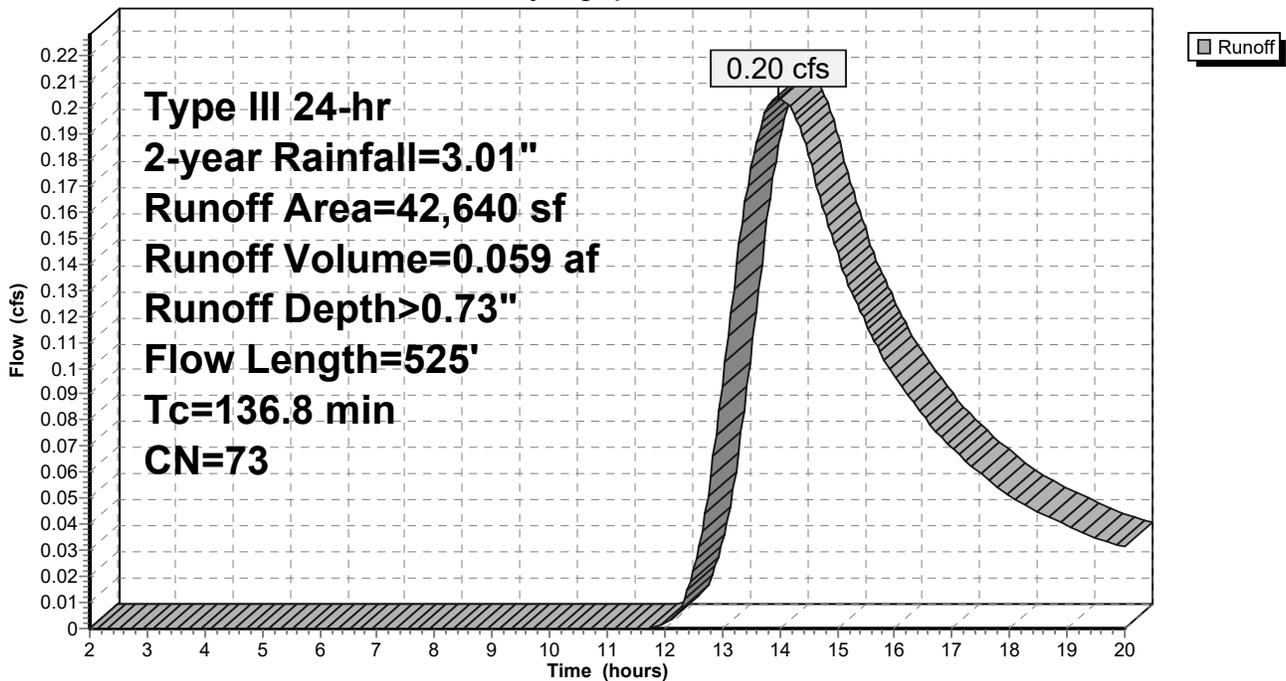
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
16,901	77	Woods, Good, HSG D
25,739	70	Woods, Good, HSG C
42,640	73	Weighted Average
42,640		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
2.5	60	0.0250	0.40		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
1.5	70	0.1000	0.79		Shallow Concentrated Flow, Next 70' Forest w/Heavy Litter Kv= 2.5 fps
59.4	345	0.0015	0.10		Shallow Concentrated Flow, Last 345' Forest w/Heavy Litter Kv= 2.5 fps
136.8	525	Total			

Subcatchment 90: Area 90

Hydrograph



Summary for Subcatchment 100: Area 100

Runoff = 0.88 cfs @ 14.00 hrs, Volume= 0.256 af, Depth> 0.82"
 Routed to Link x3000 : x3000

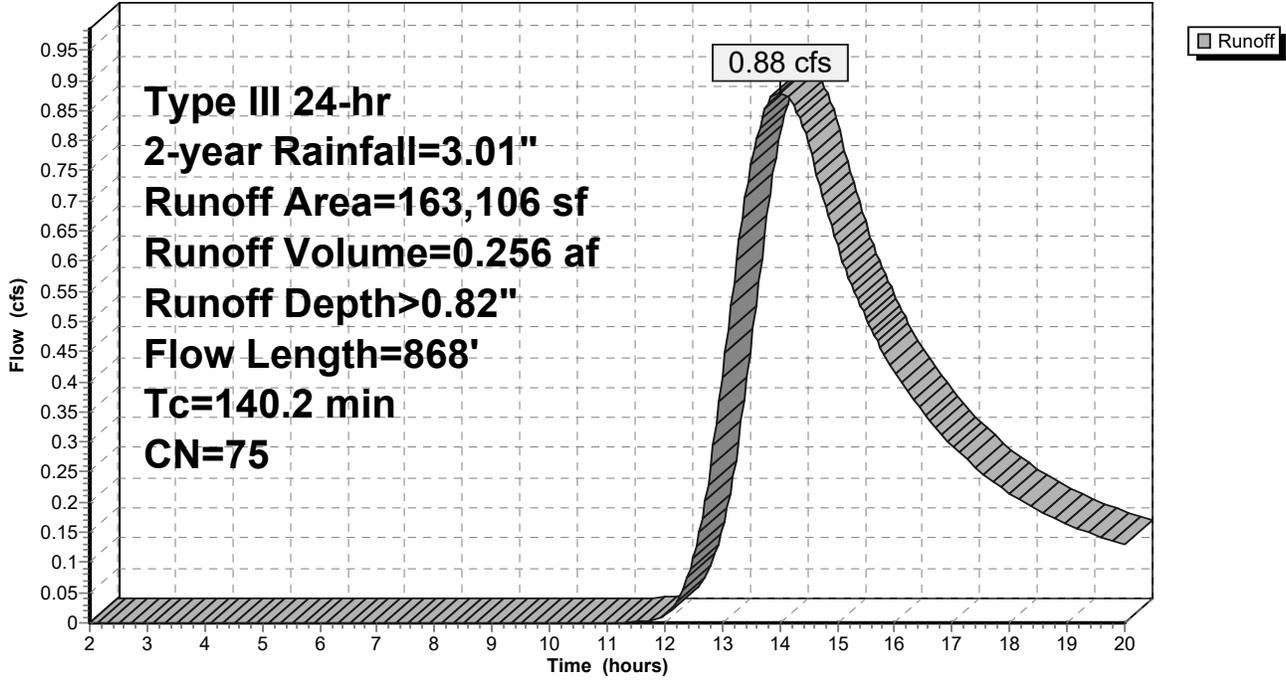
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
128,041	77	Woods, Good, HSG D
35,065	70	Woods, Good, HSG C
163,106	75	Weighted Average
163,106		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	20	0.2000	0.08		Sheet Flow, First 20' Woods: Dense underbrush n= 0.800 P2= 3.01"
31.4	30	0.0030	0.02		Sheet Flow, Next 30' Woods: Dense underbrush n= 0.800 P2= 3.01"
41.4	340	0.0030	0.14		Shallow Concentrated Flow, Next 340' Forest w/Heavy Litter Kv= 2.5 fps
2.1	95	0.0900	0.75		Shallow Concentrated Flow, Next 95' Forest w/Heavy Litter Kv= 2.5 fps
7.8	130	0.0125	0.28		Shallow Concentrated Flow, Next 130' Forest w/Heavy Litter Kv= 2.5 fps
53.3	253	0.0010	0.08		Shallow Concentrated Flow, Last 253' Forest w/Heavy Litter Kv= 2.5 fps
140.2	868	Total			

Subcatchment 100: Area 100

Hydrograph



Summary for Reach 1R: 1R

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 0.48" for 2-year event
 Inflow = 1.30 cfs @ 14.01 hrs, Volume= 0.424 af
 Outflow = 1.30 cfs @ 14.14 hrs, Volume= 0.419 af, Atten= 0%, Lag= 7.6 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.92 fps, Min. Travel Time= 4.7 min
 Avg. Velocity = 0.66 fps, Avg. Travel Time= 6.6 min

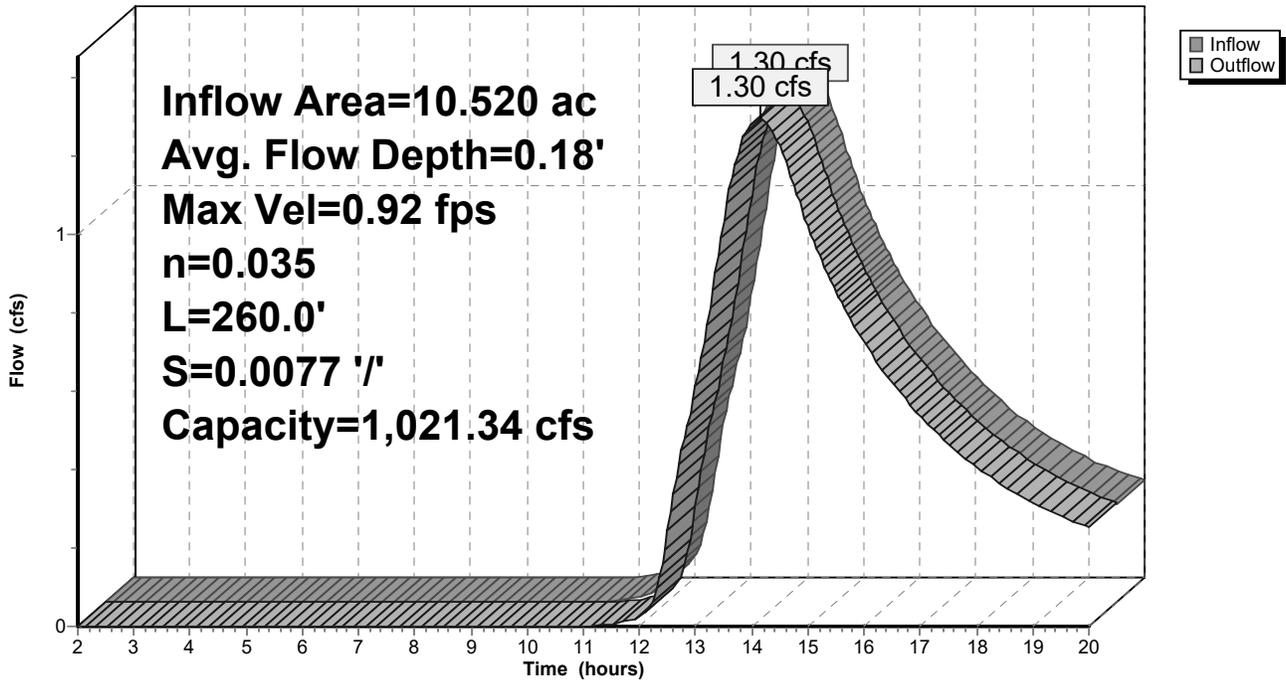
Peak Storage= 365 cf @ 14.07 hrs
 Average Depth at Peak Storage= 0.18' , Surface Width= 11.52'
 Bank-Full Depth= 4.00' Flow Area= 144.0 sf, Capacity= 1,021.34 cfs

54.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 260.0' Slope= 0.0077 '/'
 Inlet Invert= 198.00', Outlet Invert= 196.00'



Reach 1R: 1R

Hydrograph



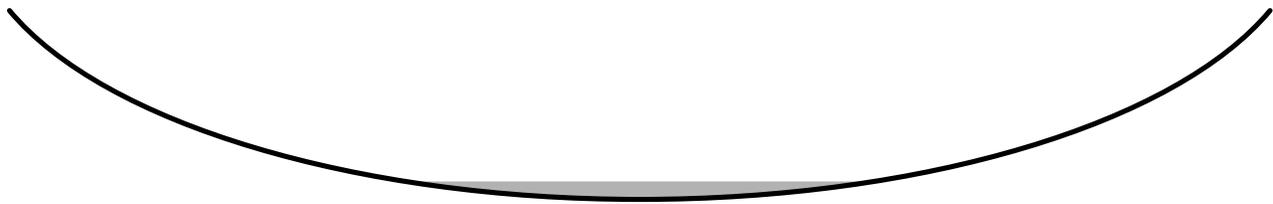
Summary for Reach 2R: 2R

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 0.54" for 2-year event
 Inflow = 2.02 cfs @ 13.99 hrs, Volume= 0.662 af
 Outflow = 2.01 cfs @ 14.19 hrs, Volume= 0.652 af, Atten= 0%, Lag= 11.8 min
 Routed to Link x3000 : x3000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.88 fps, Min. Travel Time= 6.8 min
 Avg. Velocity = 0.61 fps, Avg. Travel Time= 9.8 min

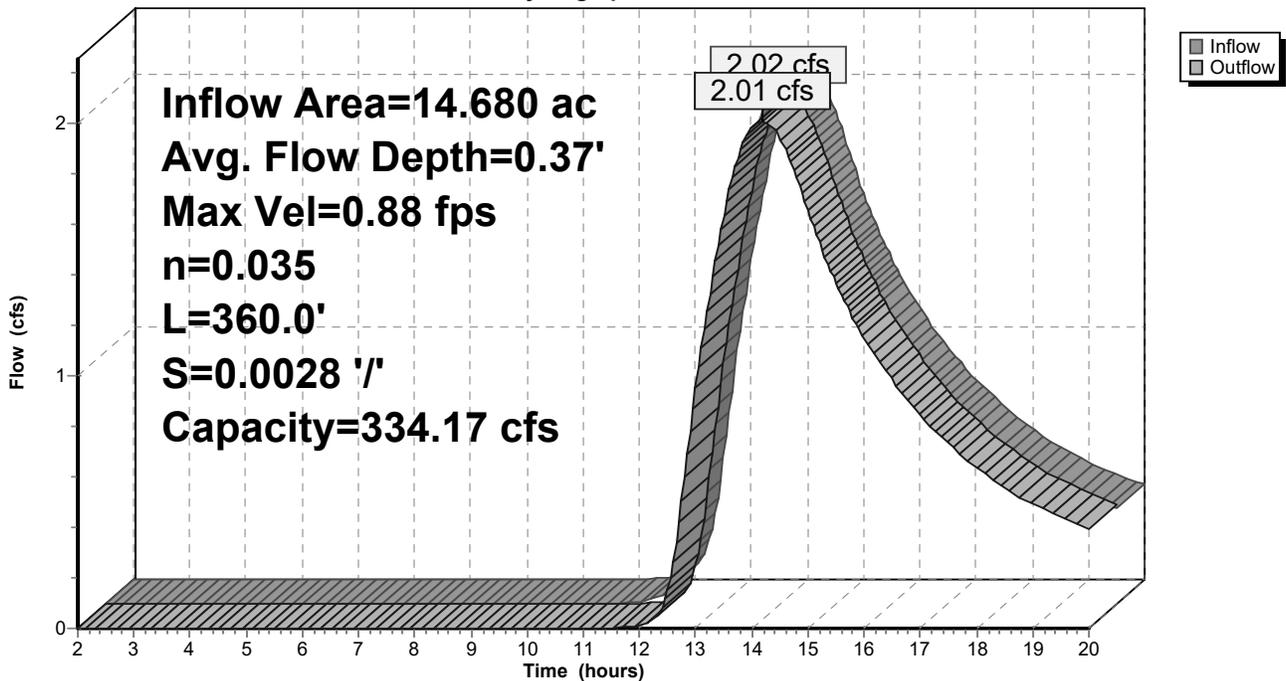
Peak Storage= 819 cf @ 14.07 hrs
 Average Depth at Peak Storage= 0.37' , Surface Width= 9.16'
 Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 360.0' Slope= 0.0028 '/'
 Inlet Invert= 196.00', Outlet Invert= 195.00'



Reach 2R: 2R

Hydrograph



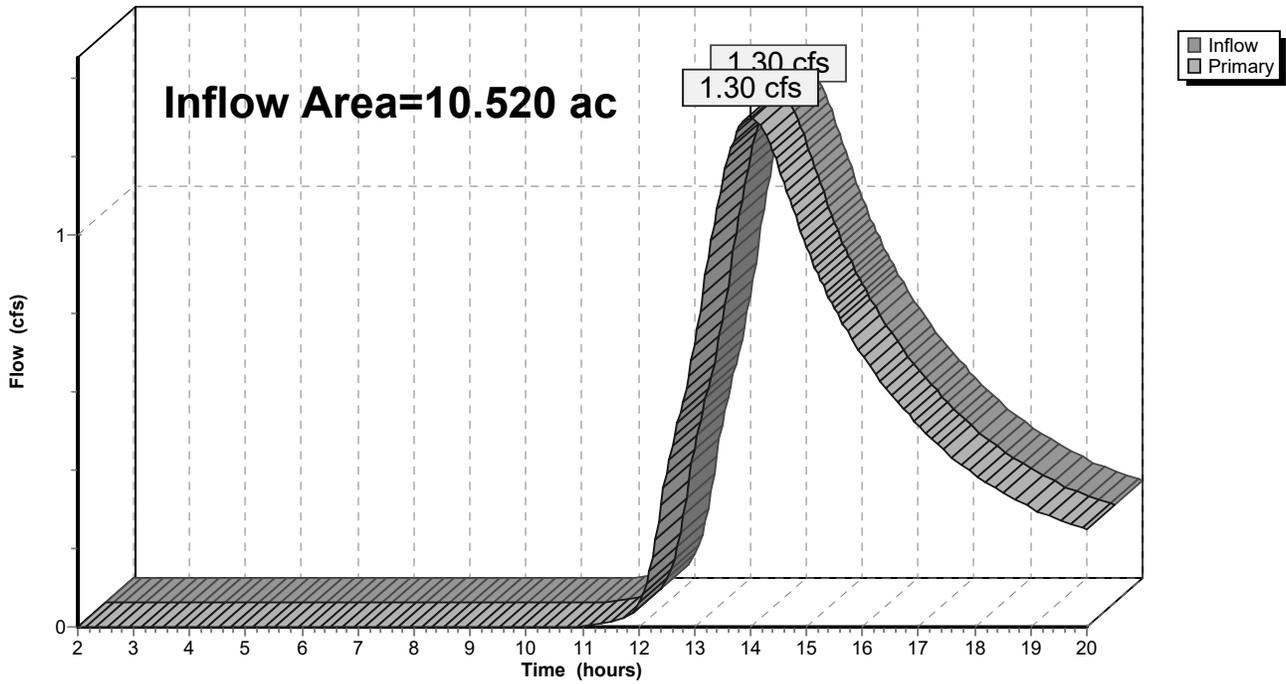
Summary for Link x1000: x1000

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 0.48" for 2-year event
Inflow = 1.30 cfs @ 14.01 hrs, Volume= 0.424 af
Primary = 1.30 cfs @ 14.01 hrs, Volume= 0.424 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : 1R

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x1000: x1000

Hydrograph



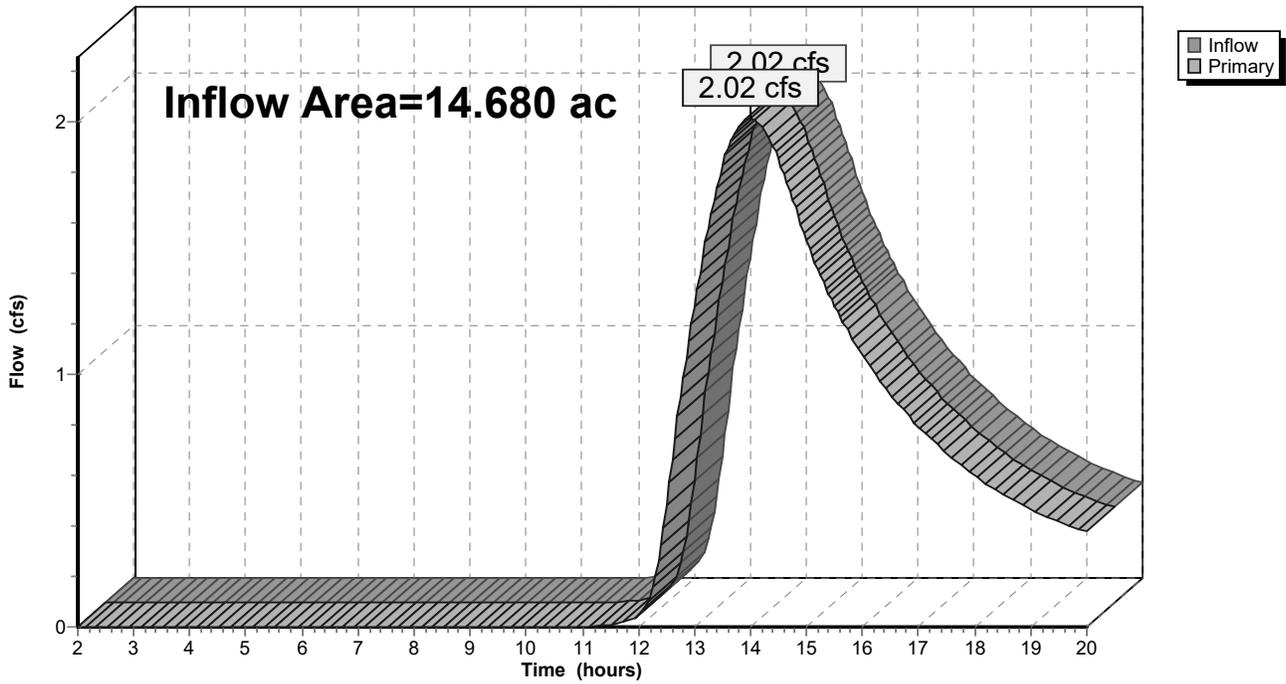
Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 0.54" for 2-year event
Inflow = 2.02 cfs @ 13.99 hrs, Volume= 0.662 af
Primary = 2.02 cfs @ 13.99 hrs, Volume= 0.662 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2R : 2R

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x2000: x2000

Hydrograph



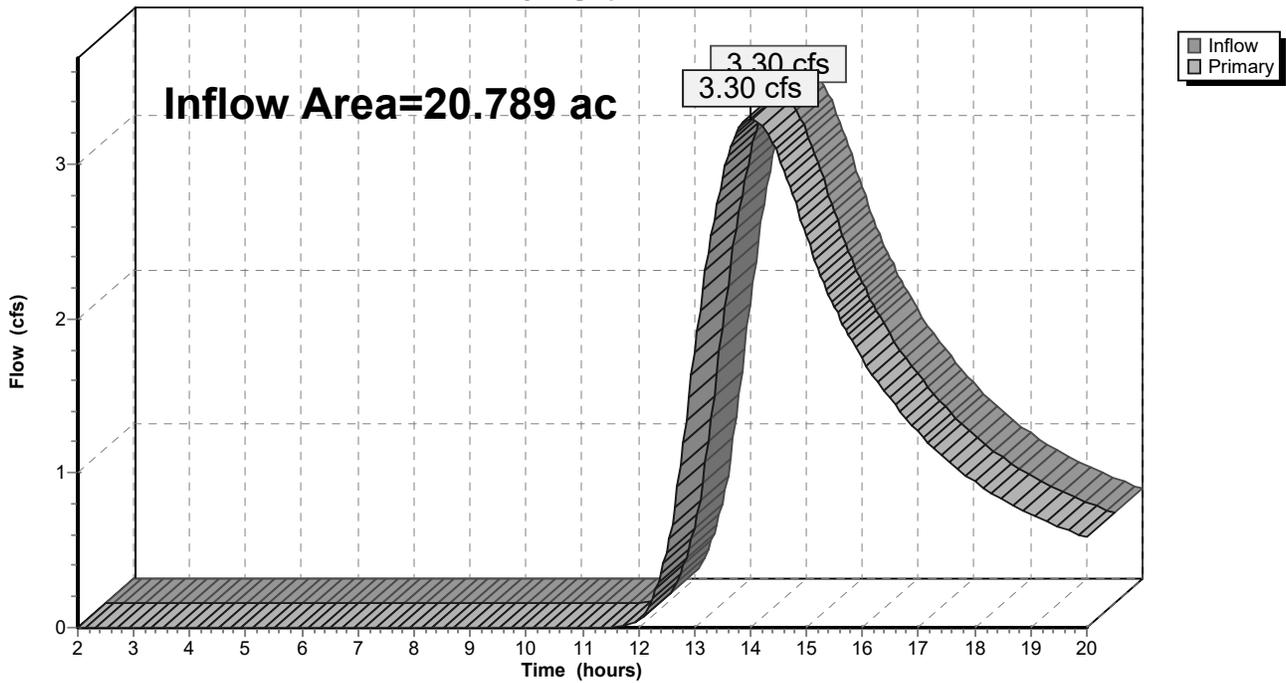
Summary for Link x3000: x3000

Inflow Area = 20.789 ac, 0.00% Impervious, Inflow Depth > 0.60" for 2-year event
Inflow = 3.30 cfs @ 14.00 hrs, Volume= 1.044 af
Primary = 3.30 cfs @ 14.00 hrs, Volume= 1.044 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x3000: x3000

Hydrograph



10-Year Storm Event – Existing

Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 10: Area 10 Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>1.63"
Flow Length=215' Tc=27.3 min CN=70 Runoff=0.36 cfs 0.041 af

Subcatchment 20: Area 20 Runoff Area=89,938 sf 0.00% Impervious Runoff Depth>1.71"
Flow Length=675' Tc=101.4 min CN=72 Runoff=1.29 cfs 0.295 af

Subcatchment 30: Area 30 Runoff Area=20,657 sf 0.00% Impervious Runoff Depth>2.15"
Flow Length=370' Tc=40.8 min CN=77 Runoff=0.63 cfs 0.085 af

Subcatchment 40: Area 40 Runoff Area=83,662 sf 0.00% Impervious Runoff Depth>2.05"
Flow Length=850' Tc=142.4 min CN=77 Runoff=1.15 cfs 0.328 af

Subcatchment 50: Area 50 Runoff Area=208,224 sf 0.00% Impervious Runoff Depth>1.22"
Flow Length=914' Tc=123.7 min CN=65 Runoff=1.79 cfs 0.487 af

Subcatchment 60: Area 60 Runoff Area=145,723 sf 0.00% Impervious Runoff Depth>0.92"
Flow Length=835' Tc=130.8 min CN=60 Runoff=0.88 cfs 0.257 af

Subcatchment 70: Area 70 Runoff Area=64,469 sf 0.00% Impervious Runoff Depth>1.96"
Flow Length=645' Tc=80.7 min CN=75 Runoff=1.21 cfs 0.241 af

Subcatchment 80: Area 80 Runoff Area=74,095 sf 0.00% Impervious Runoff Depth>1.46"
Flow Length=1,245' Tc=149.8 min CN=69 Runoff=0.70 cfs 0.207 af

Subcatchment 90: Area 90 Runoff Area=42,640 sf 0.00% Impervious Runoff Depth>1.75"
Flow Length=525' Tc=136.8 min CN=73 Runoff=0.52 cfs 0.143 af

Subcatchment 100: Area 100 Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>1.90"
Flow Length=868' Tc=140.2 min CN=75 Runoff=2.11 cfs 0.592 af

Reach 1R: 1R Avg. Flow Depth=0.31' Max Vel=1.29 fps Inflow=3.94 cfs 1.157 af
n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=3.94 cfs 1.150 af

Reach 2R: 2R Avg. Flow Depth=0.61' Max Vel=1.22 fps Inflow=5.83 cfs 1.740 af
n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=5.82 cfs 1.725 af

Link x1000: x1000 Inflow=3.94 cfs 1.157 af
Primary=3.94 cfs 1.157 af

Link x2000: x2000 Inflow=5.83 cfs 1.740 af
Primary=5.83 cfs 1.740 af

Link x3000: x3000 Inflow=9.05 cfs 2.652 af
Primary=9.05 cfs 2.652 af

Total Runoff Area = 20.789 ac Runoff Volume = 2.675 af Average Runoff Depth = 1.54"
100.00% Pervious = 20.789 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 10: Area 10

Runoff = 0.36 cfs @ 12.40 hrs, Volume= 0.041 af, Depth> 1.63"
 Routed to Link x3000 : x3000

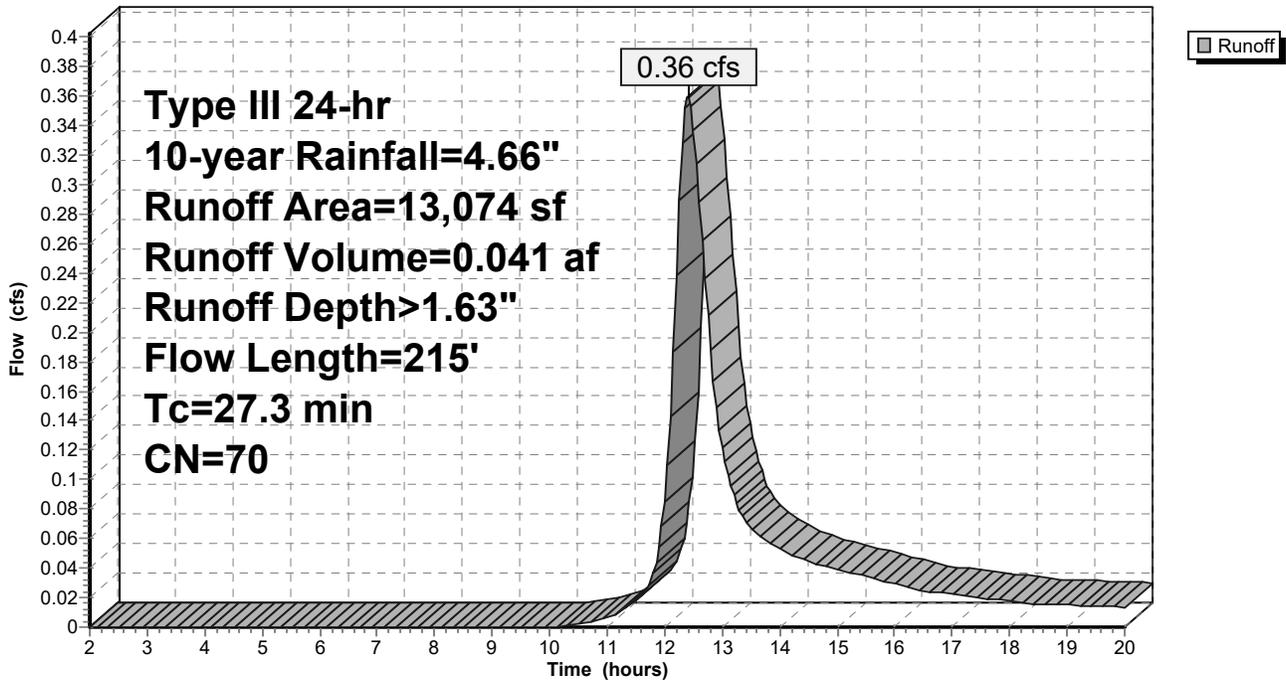
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
13,074	70	Woods, Good, HSG C
13,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1250	0.08		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.1	105	0.0297	0.43		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
12.6	60	0.0010	0.08		Shallow Concentrated Flow, Last 60' Forest w/Heavy Litter Kv= 2.5 fps
27.3	215	Total			

Subcatchment 10: Area 10

Hydrograph



Summary for Subcatchment 20: Area 20

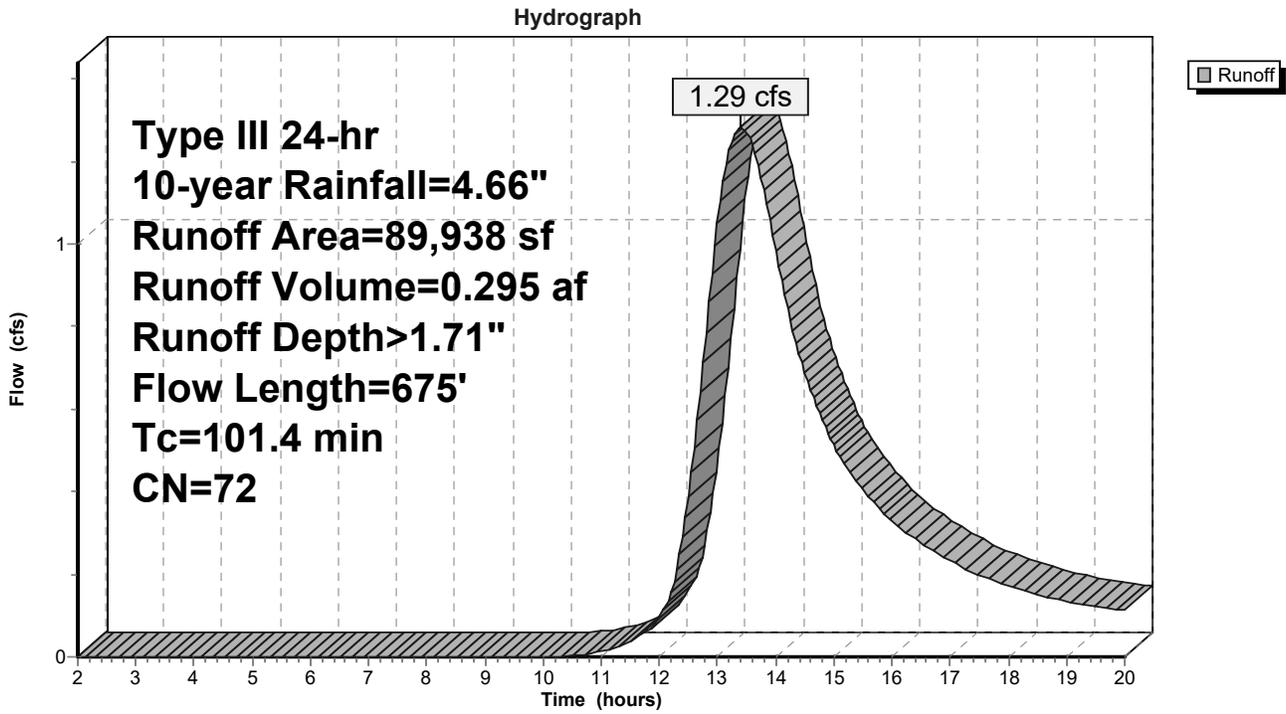
Runoff = 1.29 cfs @ 13.41 hrs, Volume= 0.295 af, Depth> 1.71"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
58,052	70	Woods, Good, HSG C
31,886	77	Woods, Good, HSG D
89,938	72	Weighted Average
89,938		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.6	50	0.0170	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
8.8	125	0.0090	0.24		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.5	20	0.0670	0.65		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
14.2	165	0.0060	0.19		Shallow Concentrated Flow, Next 165' Forest w/Heavy Litter Kv= 2.5 fps
1.6	65	0.0770	0.69		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
52.7	250	0.0010	0.08		Shallow Concentrated Flow, Last 250' Forest w/Heavy Litter Kv= 2.5 fps
101.4	675	Total			

Subcatchment 20: Area 20



Summary for Subcatchment 30: Area 30

Runoff = 0.63 cfs @ 12.57 hrs, Volume= 0.085 af, Depth> 2.15"
 Routed to Link x1000 : x1000

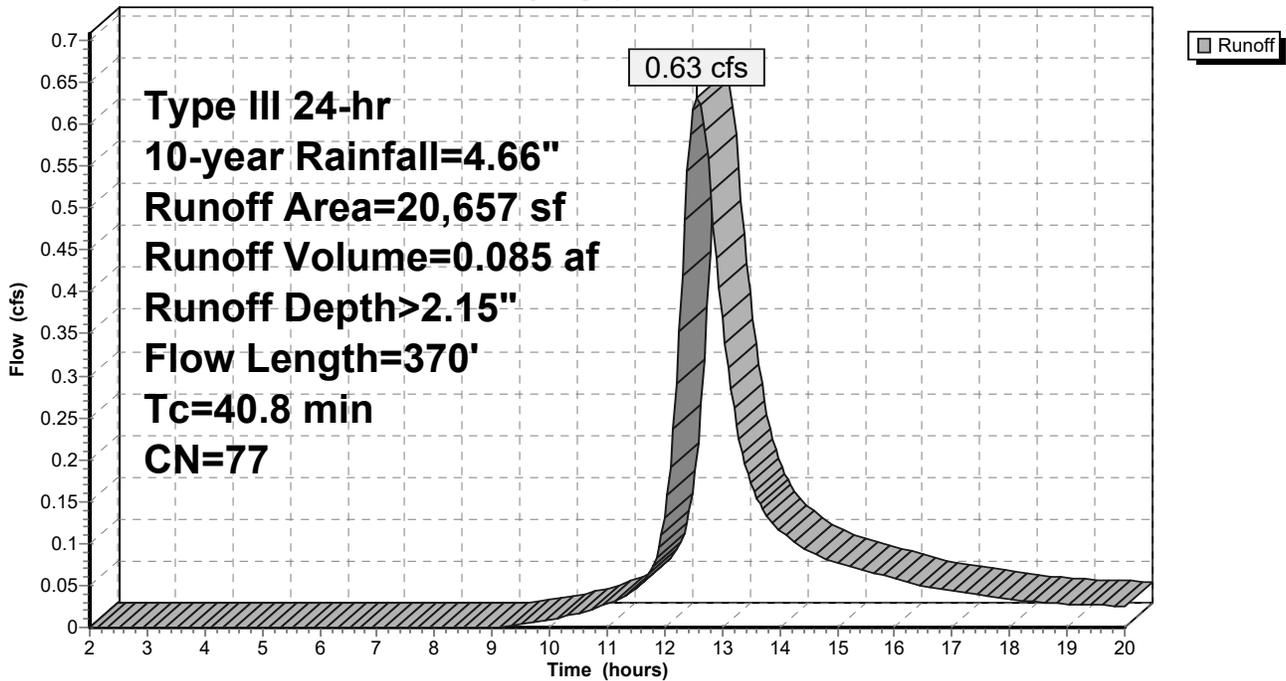
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
20,657	77	Woods, Good, HSG D
20,657		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0670	0.06		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
27.1	320	0.0062	0.20		Shallow Concentrated Flow, Next 320' Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 30: Area 30

Hydrograph



Summary for Subcatchment 40: Area 40

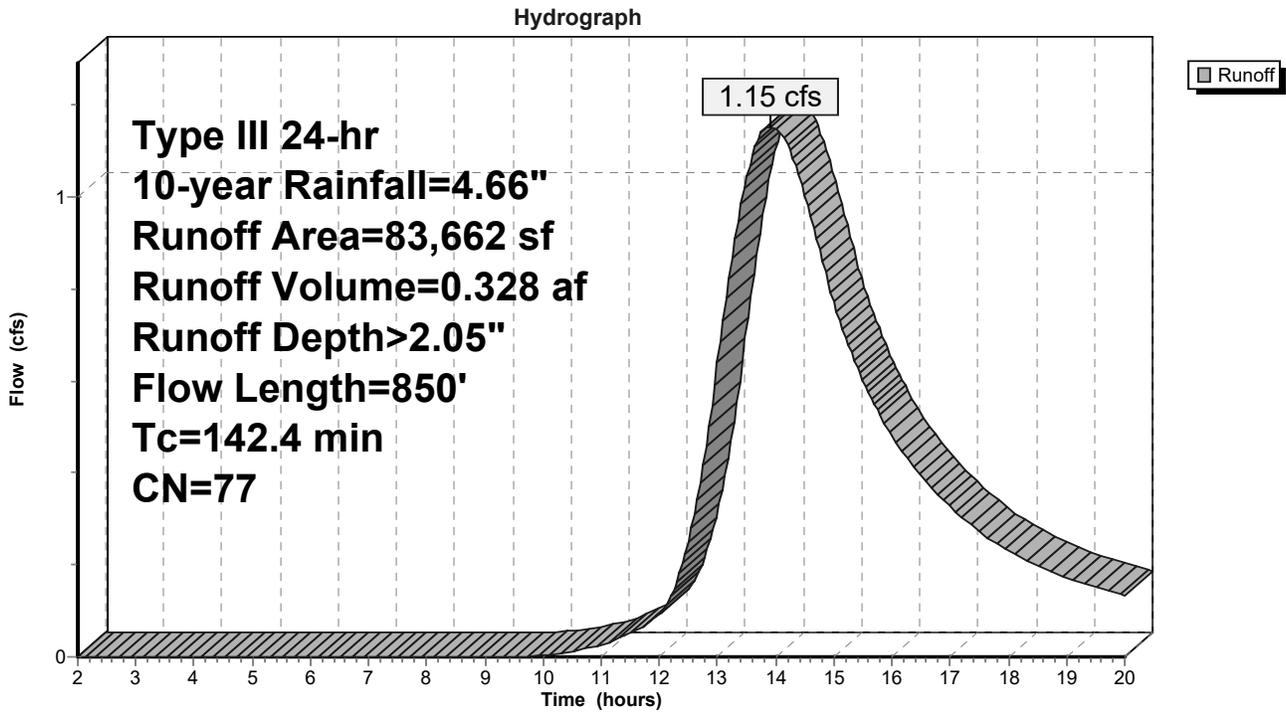
Runoff = 1.15 cfs @ 13.92 hrs, Volume= 0.328 af, Depth> 2.05"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
318	70	Woods, Good, HSG C
83,344	77	Woods, Good, HSG D
83,662	77	Weighted Average
83,662		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
47.8	470	0.0043	0.16		Shallow Concentrated Flow, Next 470' Forest w/Heavy Litter Kv= 2.5 fps
16.2	180	0.0055	0.19		Shallow Concentrated Flow, Next 180' Forest w/Heavy Litter Kv= 2.5 fps
2.4	50	0.0200	0.35		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
2.6	100	0.0670	0.65		Shallow Concentrated Flow, Last 100' Forest w/Heavy Litter Kv= 2.5 fps
142.4	850	Total			

Subcatchment 40: Area 40



Summary for Subcatchment 50: Area 50

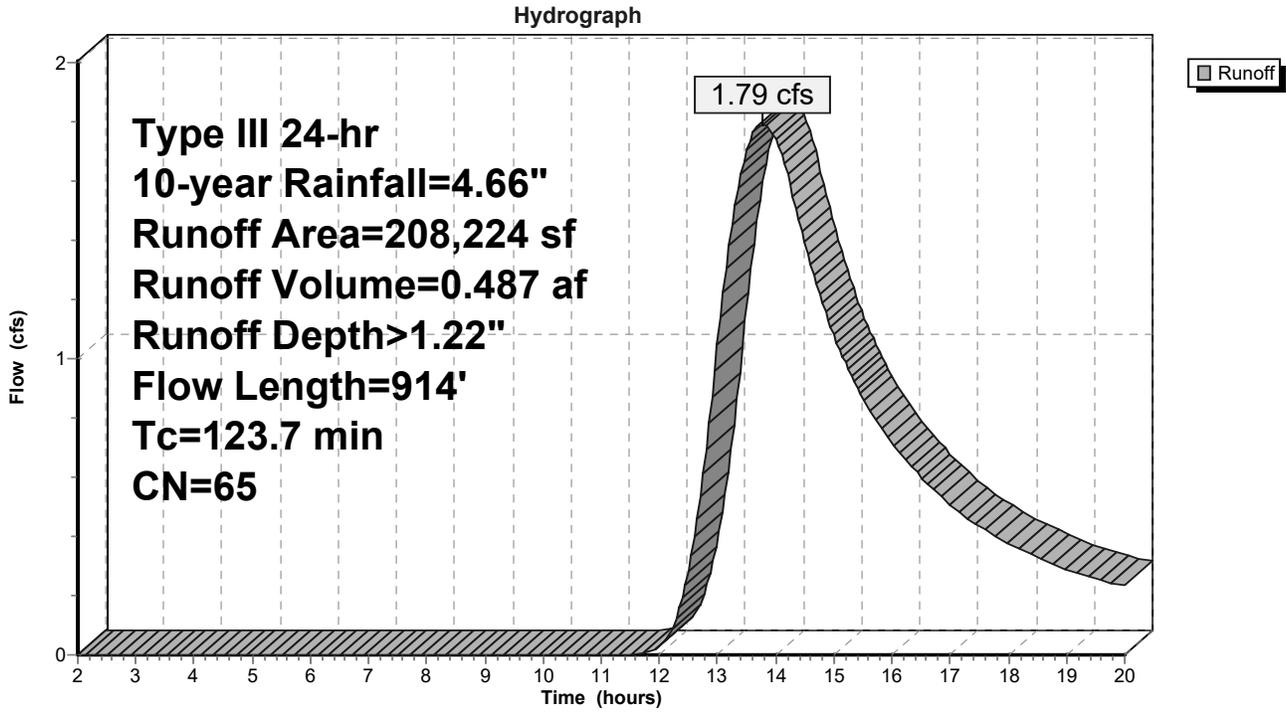
Runoff = 1.79 cfs @ 13.76 hrs, Volume= 0.487 af, Depth> 1.22"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
48,561	30	Woods, Good, HSG A
41,124	70	Woods, Good, HSG C
118,539	77	Woods, Good, HSG D
208,224	65	Weighted Average
208,224		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
10.0	150	0.0100	0.25		Shallow Concentrated Flow, Next 150' Forest w/Heavy Litter Kv= 2.5 fps
3.3	87	0.0300	0.43		Shallow Concentrated Flow, Next 87' Forest w/Heavy Litter Kv= 2.5 fps
24.7	117	0.0010	0.08		Shallow Concentrated Flow, Next 117' Forest w/Heavy Litter Kv= 2.5 fps
0.8	25	0.0400	0.50		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
10.9	225	0.0190	0.34		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
44.8	260	0.0015	0.10		Shallow Concentrated Flow, Last 260' Forest w/Heavy Litter Kv= 2.5 fps
123.7	914	Total			

Subcatchment 50: Area 50



Summary for Subcatchment 60: Area 60

Runoff = 0.88 cfs @ 13.96 hrs, Volume= 0.257 af, Depth> 0.92"
 Routed to Link x1000 : x1000

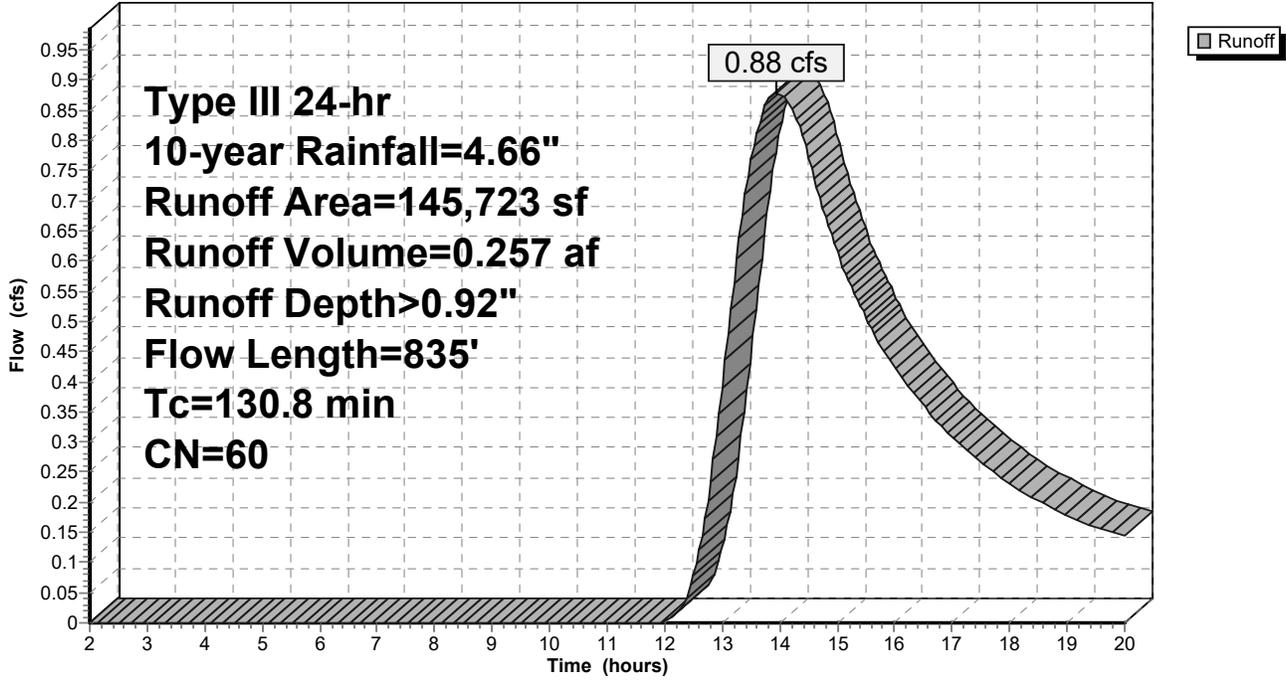
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
85,323	70	Woods, Good, HSG C
40,371	30	Woods, Good, HSG A
20,029	77	Woods, Good, HSG D
145,723	60	Weighted Average
145,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	50	0.0200	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.9	105	0.0200	0.35		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
2.7	65	0.0250	0.40		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
10.4	110	0.0050	0.18		Shallow Concentrated Flow, Next 110' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
130.8	835	Total			

Subcatchment 60: Area 60

Hydrograph



Summary for Subcatchment 70: Area 70

Runoff = 1.21 cfs @ 13.11 hrs, Volume= 0.241 af, Depth> 1.96"
 Routed to Link x2000 : x2000

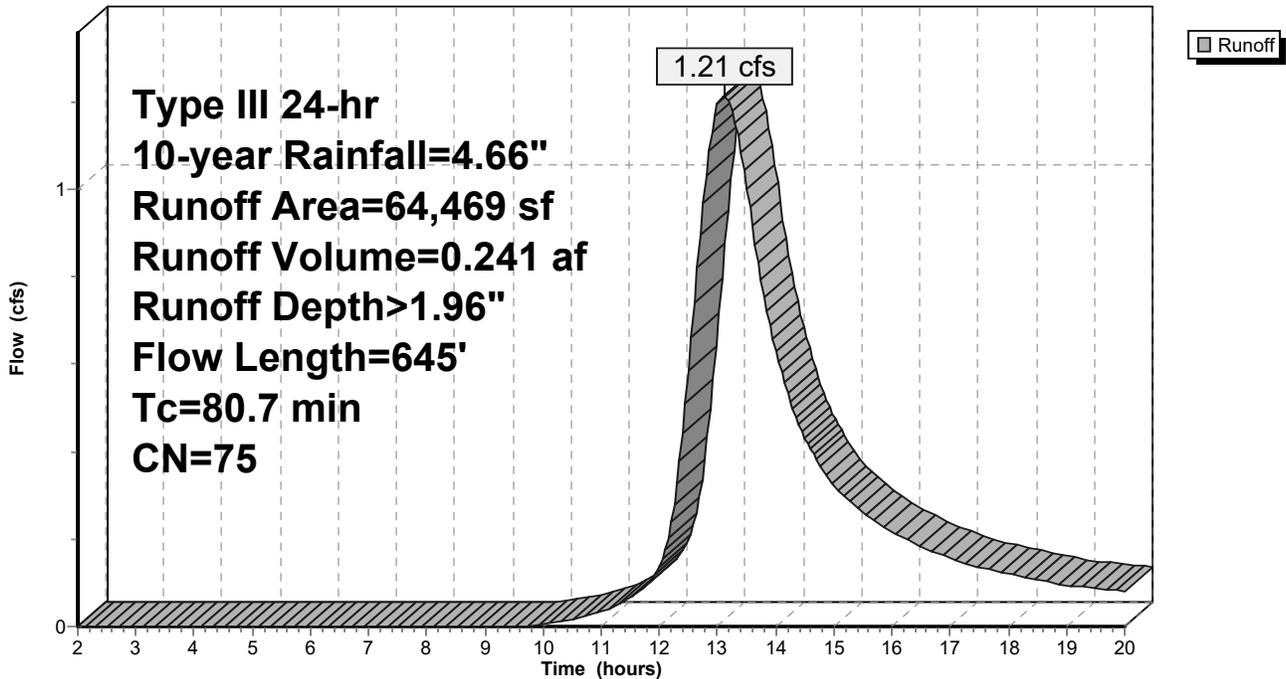
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
41,503	77	Woods, Good, HSG D
22,966	70	Woods, Good, HSG C
64,469	75	Weighted Average
64,469		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.3	50	0.0030	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
18.3	275	0.0100	0.25		Shallow Concentrated Flow, Next 275' Forest w/Heavy Litter Kv= 2.5 fps
8.9	225	0.0281	0.42		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
6.2	95	0.0106	0.26		Shallow Concentrated Flow, Last 95' Forest w/Heavy Litter Kv= 2.5 fps
80.7	645	Total			

Subcatchment 70: Area 70

Hydrograph



Summary for Subcatchment 80: Area 80

Runoff = 0.70 cfs @ 14.14 hrs, Volume= 0.207 af, Depth> 1.46"
 Routed to Link x2000 : x2000

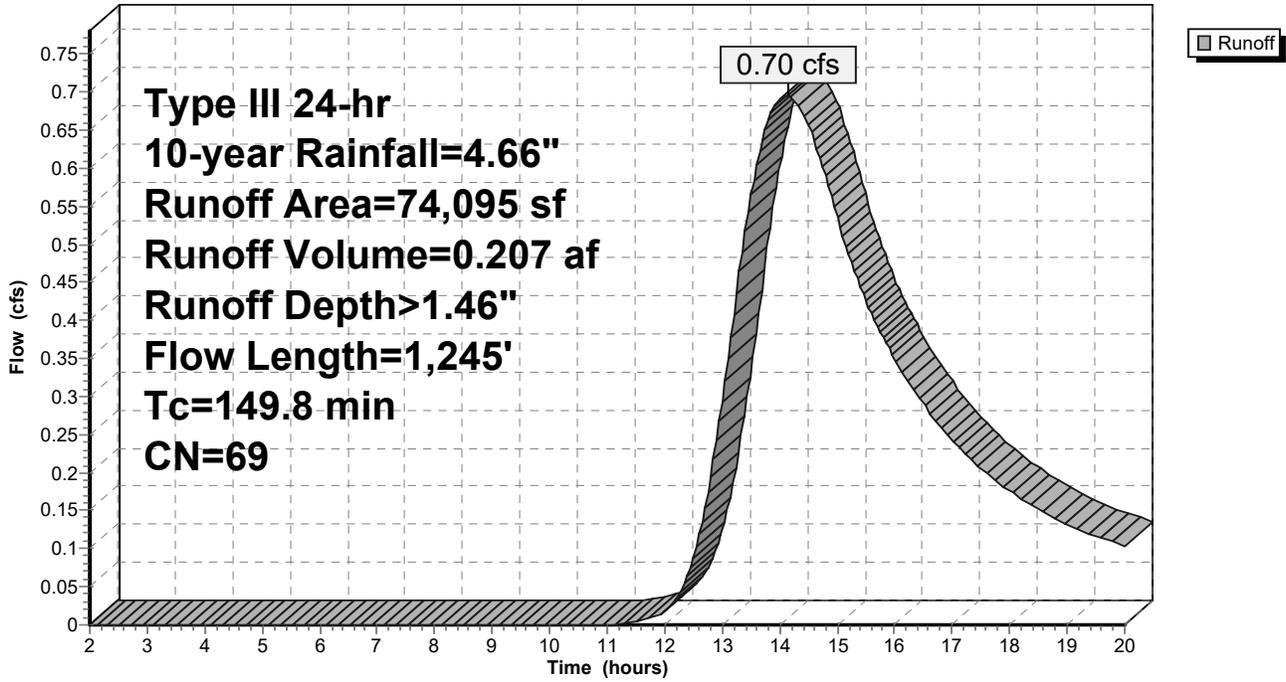
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
9,084	30	Woods, Good, HSG A
21,380	70	Woods, Good, HSG C
43,631	77	Woods, Good, HSG D
74,095	69	Weighted Average
74,095		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
3.3	50	0.0100	0.25		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
0.9	25	0.0370	0.48		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
23.3	350	0.0100	0.25		Shallow Concentrated Flow, Next 350' Forest w/Heavy Litter Kv= 2.5 fps
3.1	60	0.0167	0.32		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
6.9	170	0.0270	0.41		Shallow Concentrated Flow, Next 170' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
2.5	45	0.0140	0.30		Shallow Concentrated Flow, Next 45' Forest w/Heavy Litter Kv= 2.5 fps
0.9	18	0.0167	0.32		Shallow Concentrated Flow, Next 18' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
149.8	1,245	Total			

Subcatchment 80: Area 80

Hydrograph



Summary for Subcatchment 90: Area 90

Runoff = 0.52 cfs @ 13.85 hrs, Volume= 0.143 af, Depth> 1.75"
 Routed to Link x2000 : x2000

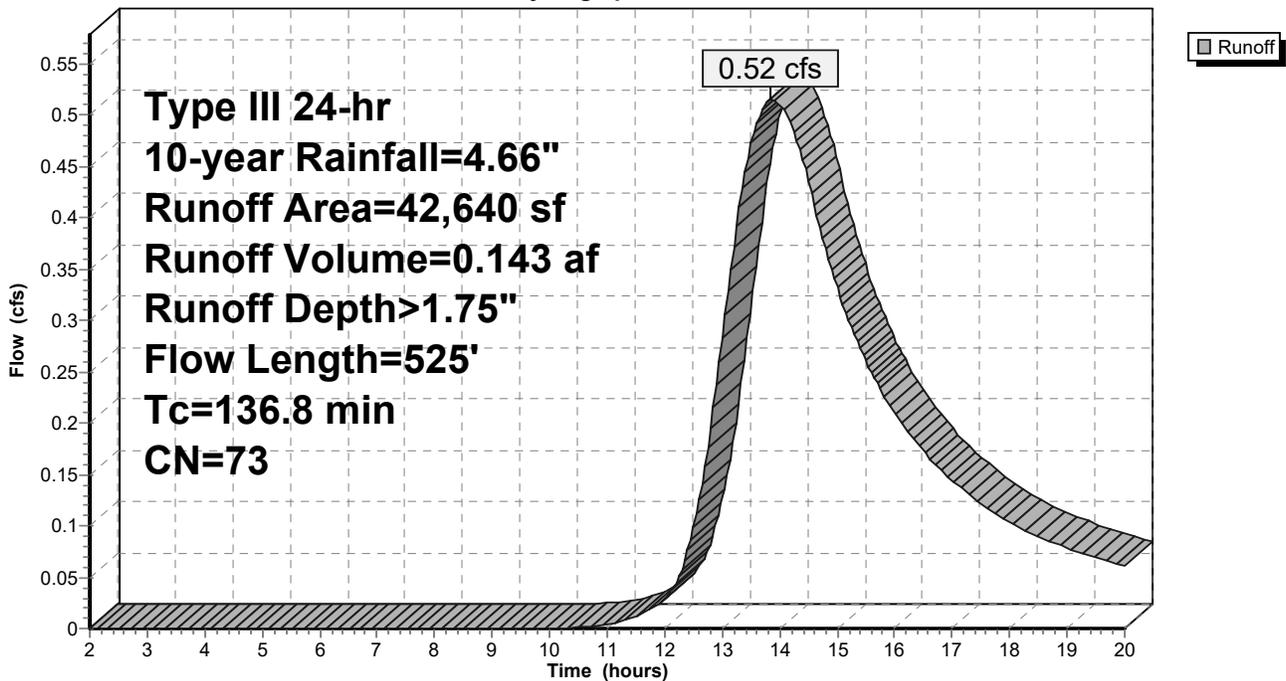
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
16,901	77	Woods, Good, HSG D
25,739	70	Woods, Good, HSG C
42,640	73	Weighted Average
42,640		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
2.5	60	0.0250	0.40		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
1.5	70	0.1000	0.79		Shallow Concentrated Flow, Next 70' Forest w/Heavy Litter Kv= 2.5 fps
59.4	345	0.0015	0.10		Shallow Concentrated Flow, Last 345' Forest w/Heavy Litter Kv= 2.5 fps
136.8	525	Total			

Subcatchment 90: Area 90

Hydrograph



Summary for Subcatchment 100: Area 100

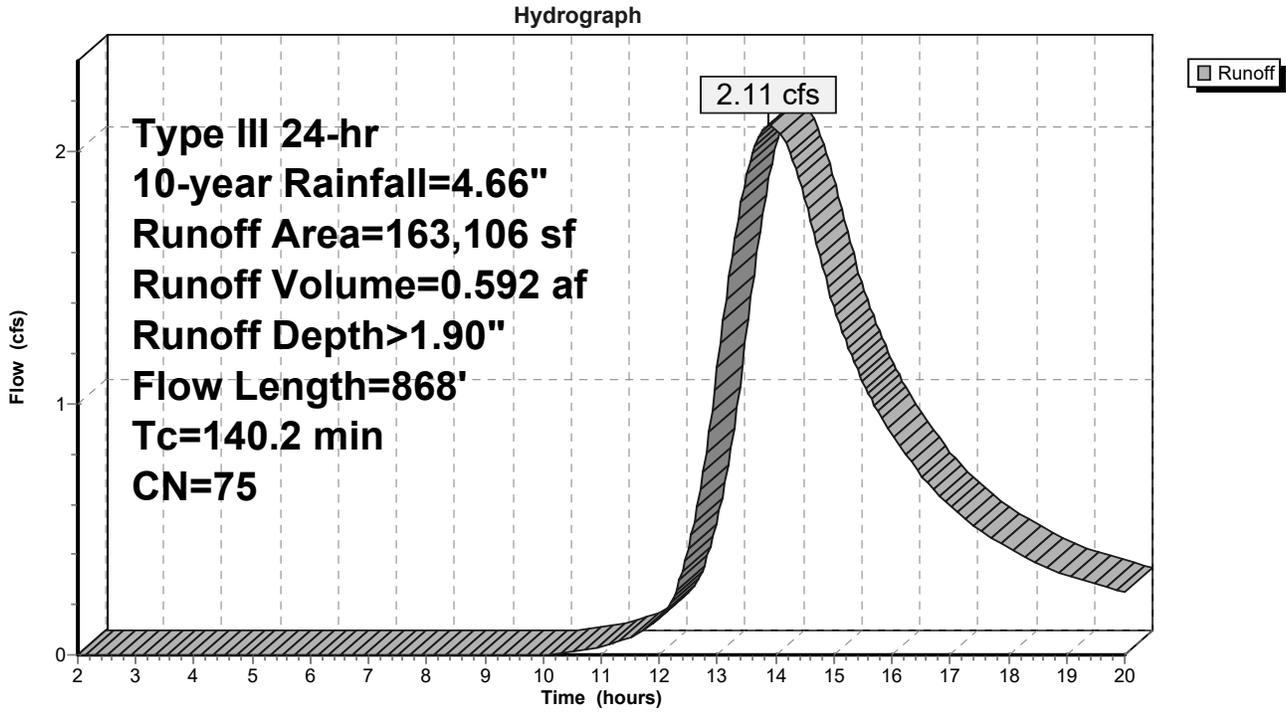
Runoff = 2.11 cfs @ 13.88 hrs, Volume= 0.592 af, Depth> 1.90"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
128,041	77	Woods, Good, HSG D
35,065	70	Woods, Good, HSG C
163,106	75	Weighted Average
163,106		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	20	0.2000	0.08		Sheet Flow, First 20' Woods: Dense underbrush n= 0.800 P2= 3.01"
31.4	30	0.0030	0.02		Sheet Flow, Next 30' Woods: Dense underbrush n= 0.800 P2= 3.01"
41.4	340	0.0030	0.14		Shallow Concentrated Flow, Next 340' Forest w/Heavy Litter Kv= 2.5 fps
2.1	95	0.0900	0.75		Shallow Concentrated Flow, Next 95' Forest w/Heavy Litter Kv= 2.5 fps
7.8	130	0.0125	0.28		Shallow Concentrated Flow, Next 130' Forest w/Heavy Litter Kv= 2.5 fps
53.3	253	0.0010	0.08		Shallow Concentrated Flow, Last 253' Forest w/Heavy Litter Kv= 2.5 fps
140.2	868	Total			

Subcatchment 100: Area 100



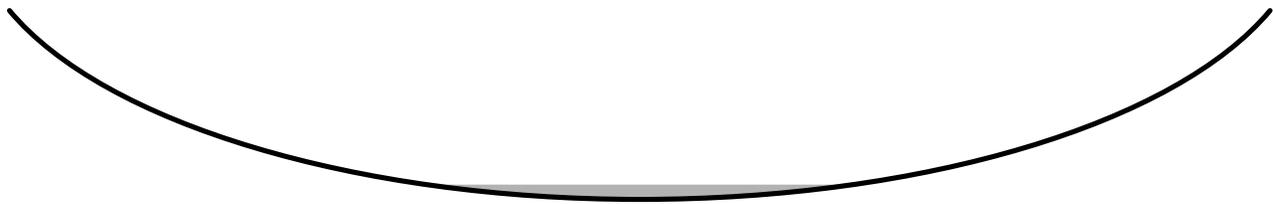
Summary for Reach 1R: 1R

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 1.32" for 10-year event
 Inflow = 3.94 cfs @ 13.83 hrs, Volume= 1.157 af
 Outflow = 3.94 cfs @ 13.93 hrs, Volume= 1.150 af, Atten= 0%, Lag= 6.1 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.29 fps, Min. Travel Time= 3.4 min
 Avg. Velocity = 0.79 fps, Avg. Travel Time= 5.5 min

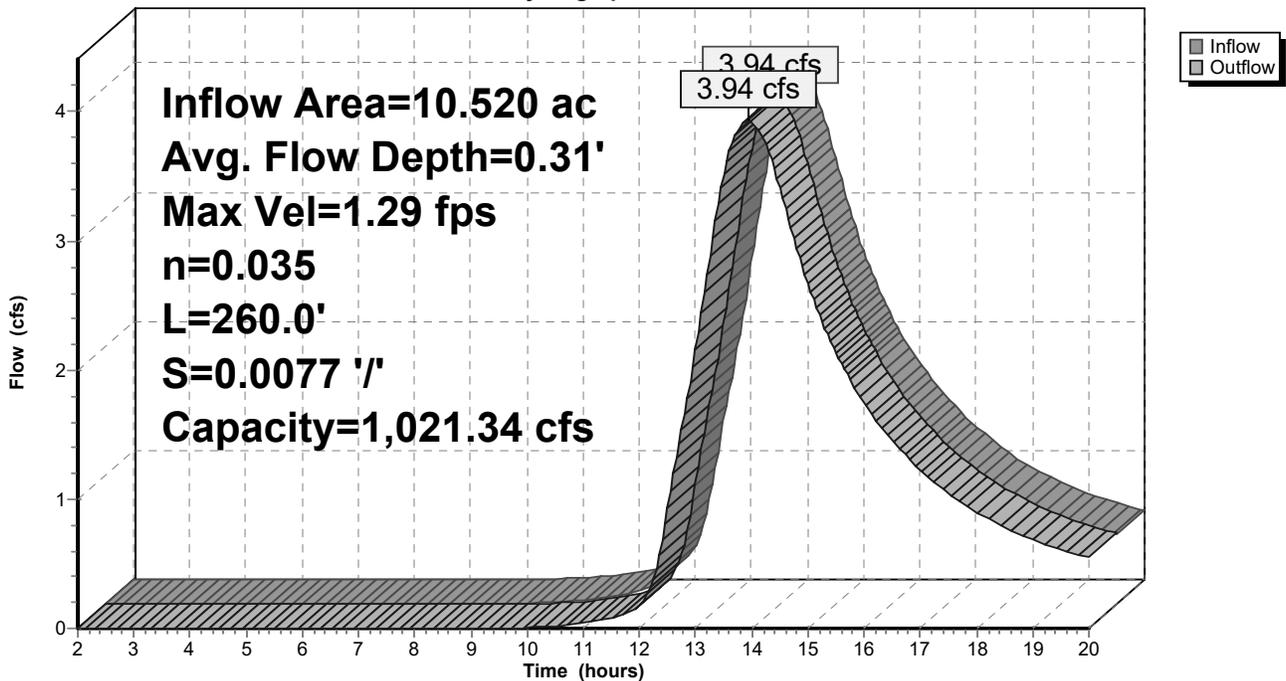
Peak Storage= 792 cf @ 13.87 hrs
 Average Depth at Peak Storage= 0.31' , Surface Width= 14.92'
 Bank-Full Depth= 4.00' Flow Area= 144.0 sf, Capacity= 1,021.34 cfs

54.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 260.0' Slope= 0.0077 '/'
 Inlet Invert= 198.00', Outlet Invert= 196.00'



Reach 1R: 1R

Hydrograph



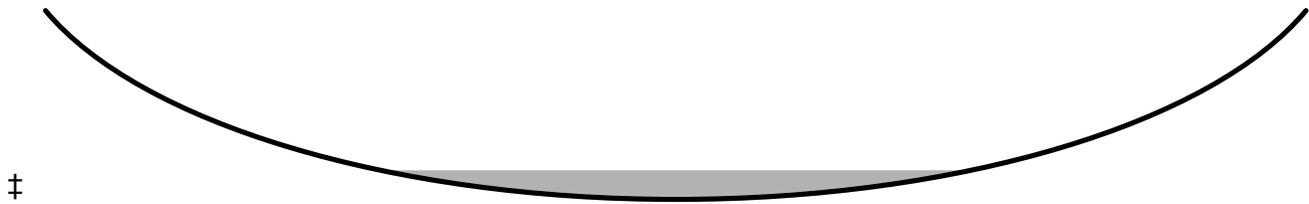
Summary for Reach 2R: 2R

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 1.42" for 10-year event
 Inflow = 5.83 cfs @ 13.83 hrs, Volume= 1.740 af
 Outflow = 5.82 cfs @ 13.96 hrs, Volume= 1.725 af, Atten= 0%, Lag= 8.0 min
 Routed to Link x3000 : x3000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.22 fps, Min. Travel Time= 4.9 min
 Avg. Velocity = 0.74 fps, Avg. Travel Time= 8.1 min

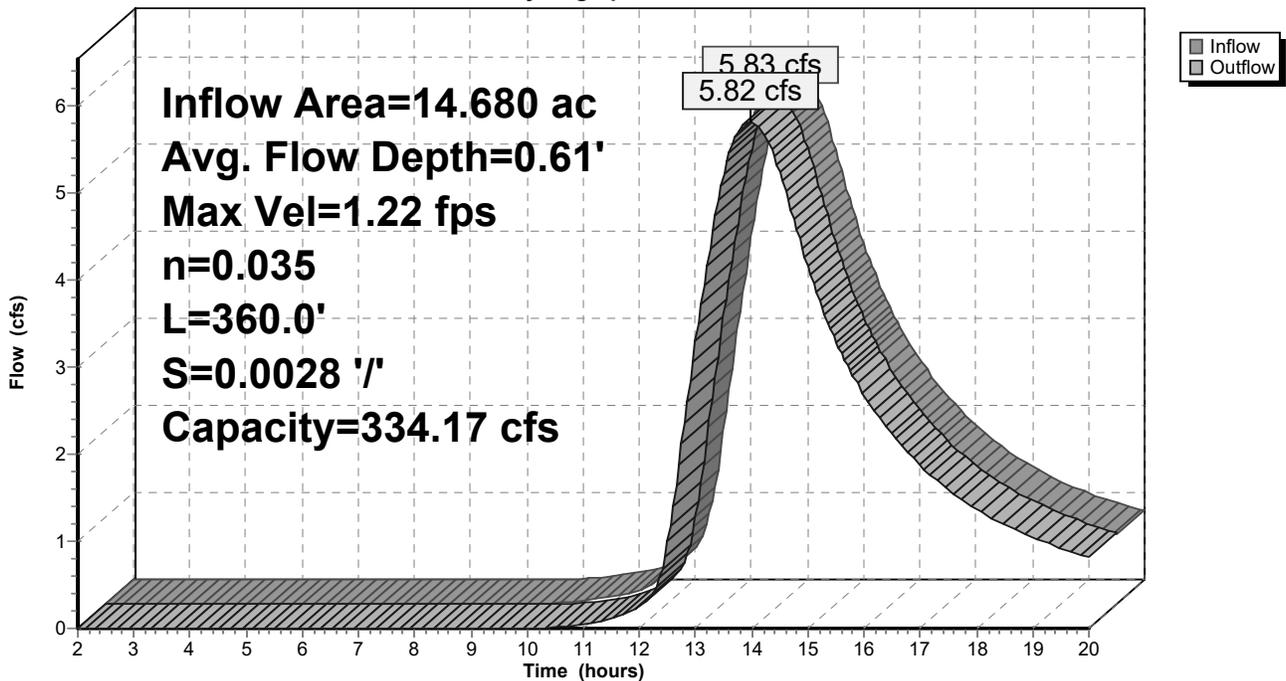
Peak Storage= 1,715 cf @ 13.88 hrs
 Average Depth at Peak Storage= 0.61' , Surface Width= 11.71'
 Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 360.0' Slope= 0.0028 '/'
 Inlet Invert= 196.00', Outlet Invert= 195.00'



Reach 2R: 2R

Hydrograph



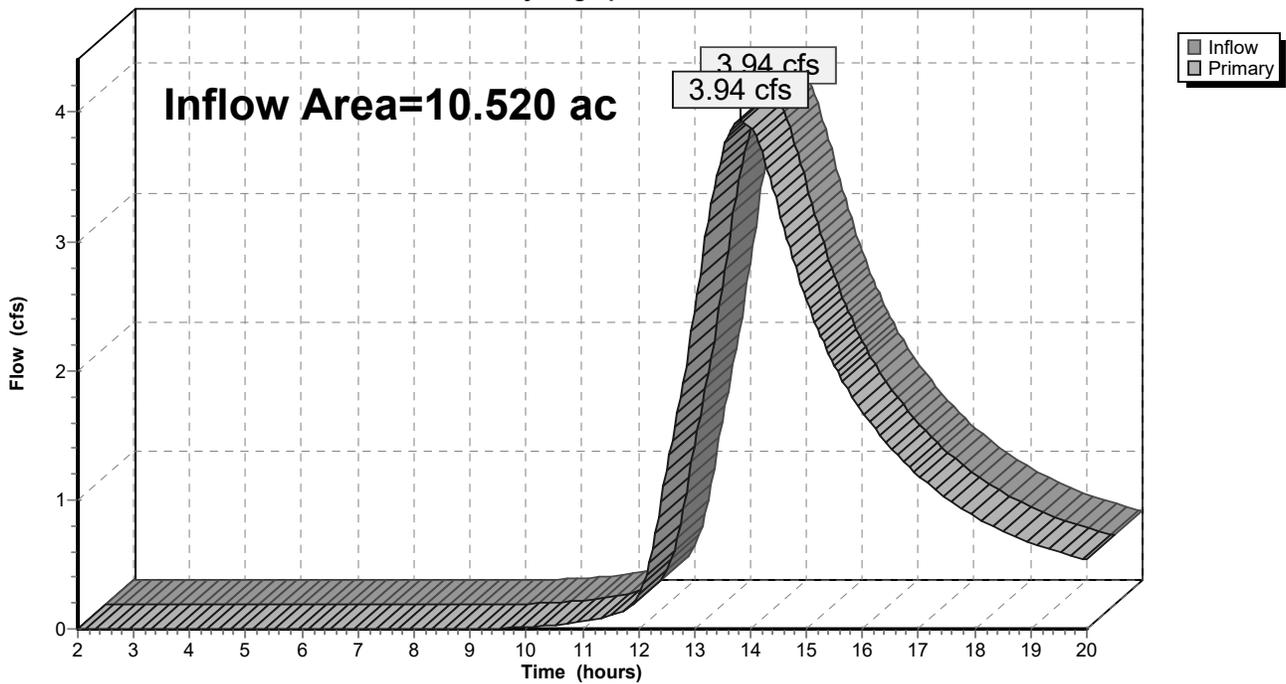
Summary for Link x1000: x1000

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 1.32" for 10-year event
Inflow = 3.94 cfs @ 13.83 hrs, Volume= 1.157 af
Primary = 3.94 cfs @ 13.83 hrs, Volume= 1.157 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : 1R

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x1000: x1000

Hydrograph



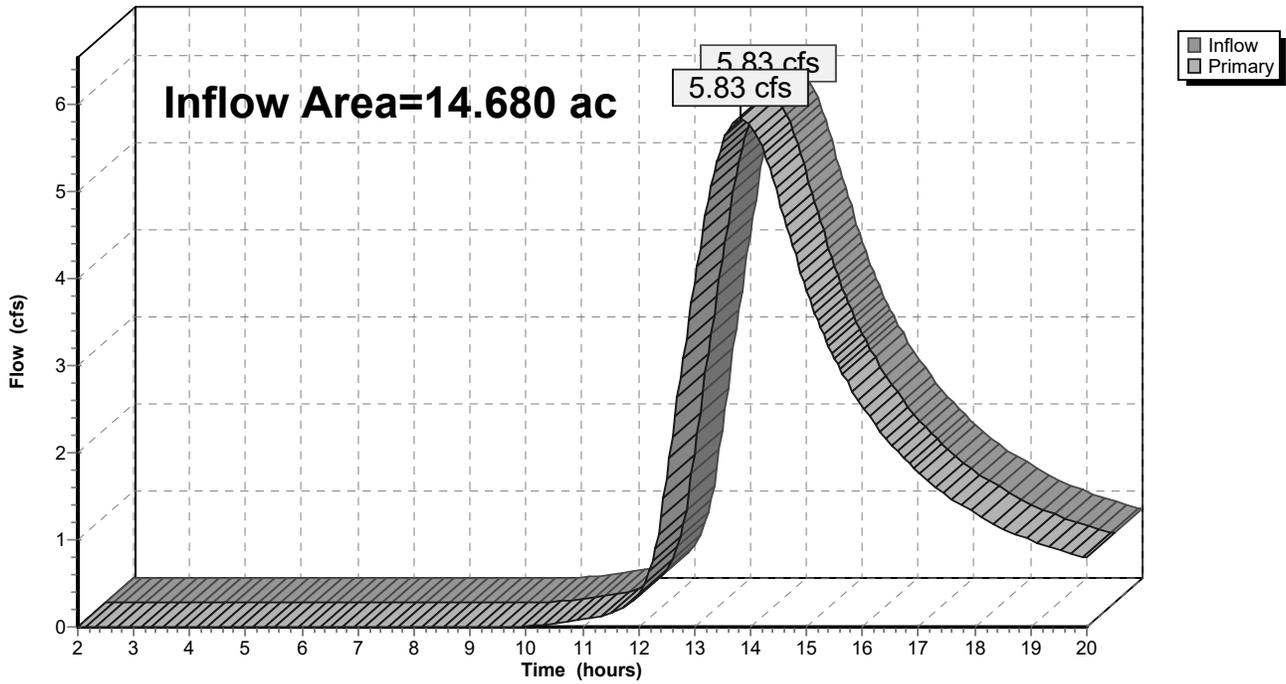
Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 1.42" for 10-year event
Inflow = 5.83 cfs @ 13.83 hrs, Volume= 1.740 af
Primary = 5.83 cfs @ 13.83 hrs, Volume= 1.740 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2R : 2R

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x2000: x2000

Hydrograph



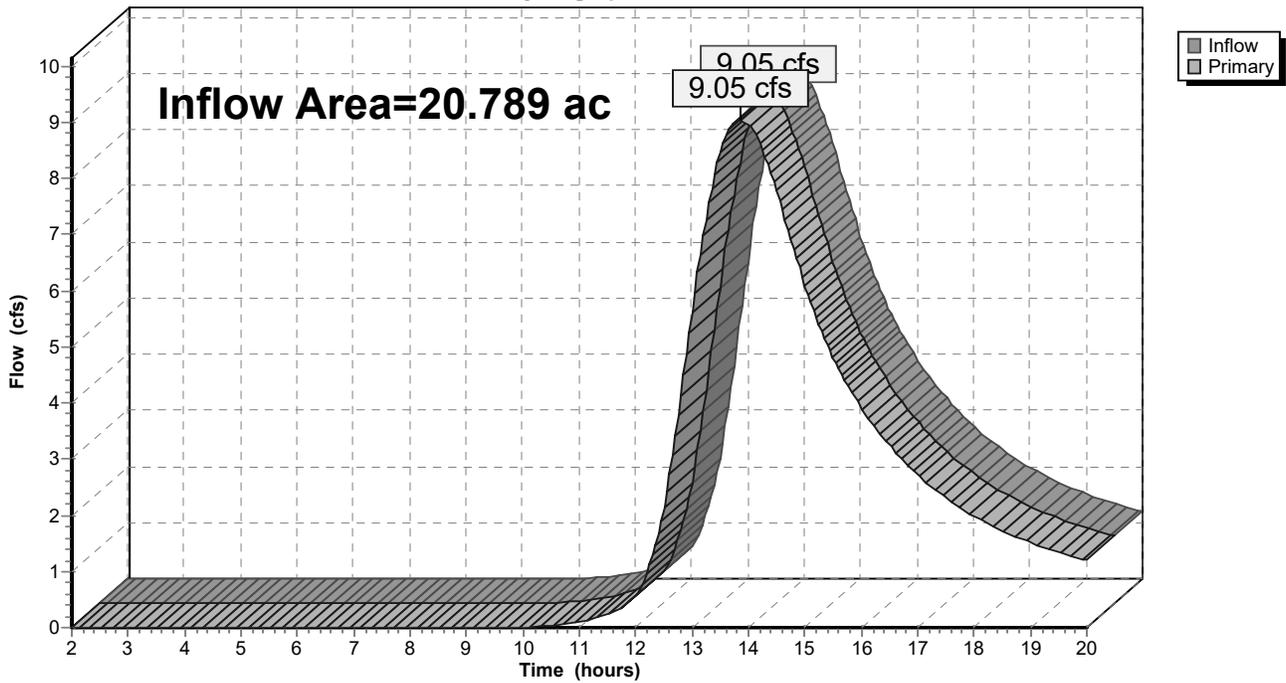
Summary for Link x3000: x3000

Inflow Area = 20.789 ac, 0.00% Impervious, Inflow Depth > 1.53" for 10-year event
Inflow = 9.05 cfs @ 13.85 hrs, Volume= 2.652 af
Primary = 9.05 cfs @ 13.85 hrs, Volume= 2.652 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x3000: x3000

Hydrograph



25-Year Storm Event – Existing

Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 10: Area 10	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>2.35" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.52 cfs 0.059 af
Subcatchment 20: Area 20	Runoff Area=89,938 sf 0.00% Impervious Runoff Depth>2.44" Flow Length=675' Tc=101.4 min CN=72 Runoff=1.85 cfs 0.421 af
Subcatchment 30: Area 30	Runoff Area=20,657 sf 0.00% Impervious Runoff Depth>2.96" Flow Length=370' Tc=40.8 min CN=77 Runoff=0.87 cfs 0.117 af
Subcatchment 40: Area 40	Runoff Area=83,662 sf 0.00% Impervious Runoff Depth>2.83" Flow Length=850' Tc=142.4 min CN=77 Runoff=1.59 cfs 0.453 af
Subcatchment 50: Area 50	Runoff Area=208,224 sf 0.00% Impervious Runoff Depth>1.84" Flow Length=914' Tc=123.7 min CN=65 Runoff=2.77 cfs 0.735 af
Subcatchment 60: Area 60	Runoff Area=145,723 sf 0.00% Impervious Runoff Depth>1.46" Flow Length=835' Tc=130.8 min CN=60 Runoff=1.46 cfs 0.408 af
Subcatchment 70: Area 70	Runoff Area=64,469 sf 0.00% Impervious Runoff Depth>2.73" Flow Length=645' Tc=80.7 min CN=75 Runoff=1.70 cfs 0.337 af
Subcatchment 80: Area 80	Runoff Area=74,095 sf 0.00% Impervious Runoff Depth>2.13" Flow Length=1,245' Tc=149.8 min CN=69 Runoff=1.03 cfs 0.302 af
Subcatchment 90: Area 90	Runoff Area=42,640 sf 0.00% Impervious Runoff Depth>2.49" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.74 cfs 0.203 af
Subcatchment 100: Area 100	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>2.66" Flow Length=868' Tc=140.2 min CN=75 Runoff=2.97 cfs 0.829 af
Reach 1R: 1R	Avg. Flow Depth=0.37' Max Vel=1.47 fps Inflow=5.98 cfs 1.712 af n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=5.97 cfs 1.704 af
Reach 2R: 2R	Avg. Flow Depth=0.73' Max Vel=1.38 fps Inflow=8.72 cfs 2.546 af n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=8.71 cfs 2.527 af
Link x1000: x1000	Inflow=5.98 cfs 1.712 af Primary=5.98 cfs 1.712 af
Link x2000: x2000	Inflow=8.72 cfs 2.546 af Primary=8.72 cfs 2.546 af
Link x3000: x3000	Inflow=13.30 cfs 3.835 af Primary=13.30 cfs 3.835 af

Total Runoff Area = 20.789 ac Runoff Volume = 3.862 af Average Runoff Depth = 2.23"
100.00% Pervious = 20.789 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 10: Area 10

Runoff = 0.52 cfs @ 12.39 hrs, Volume= 0.059 af, Depth> 2.35"
 Routed to Link x3000 : x3000

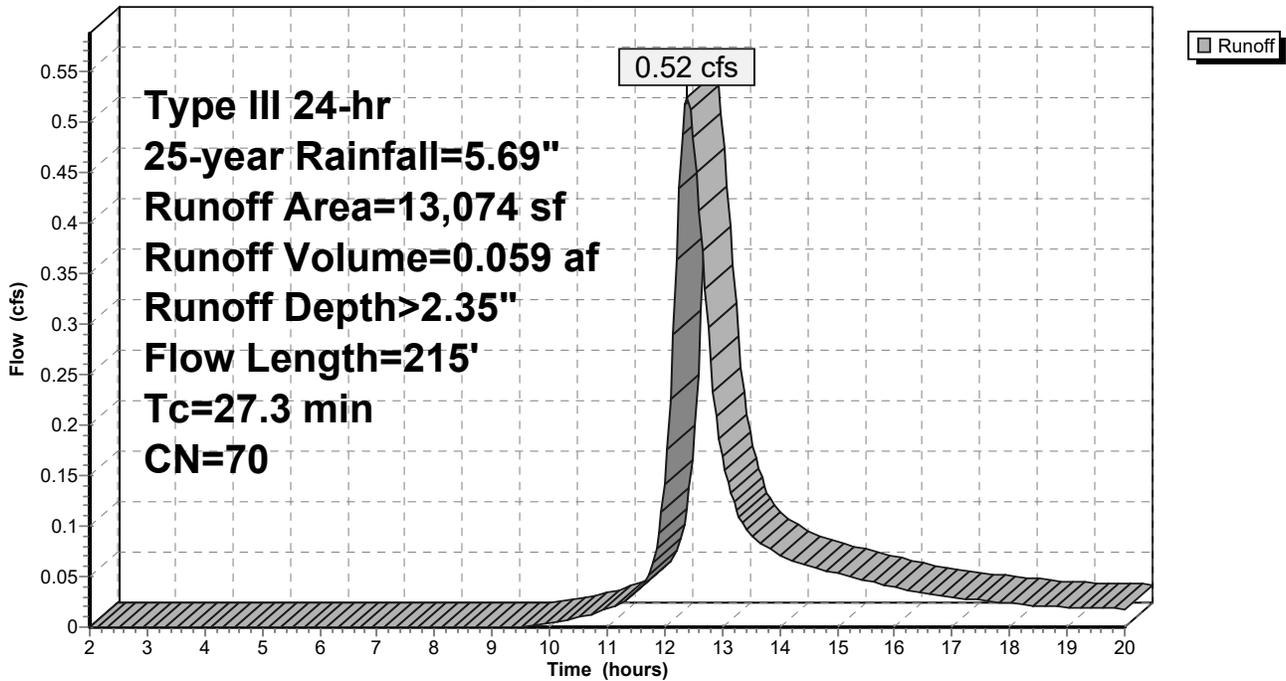
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
13,074	70	Woods, Good, HSG C
13,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1250	0.08		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.1	105	0.0297	0.43		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
12.6	60	0.0010	0.08		Shallow Concentrated Flow, Last 60' Forest w/Heavy Litter Kv= 2.5 fps
27.3	215	Total			

Subcatchment 10: Area 10

Hydrograph



Summary for Subcatchment 20: Area 20

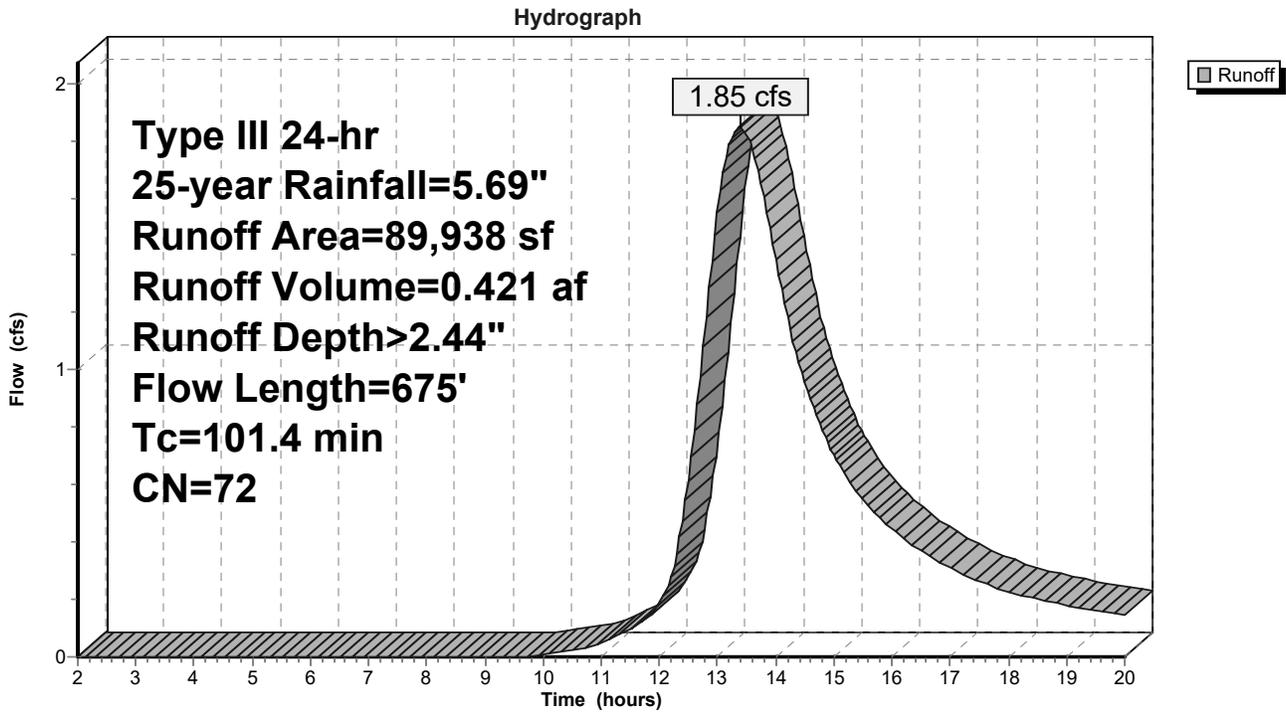
Runoff = 1.85 cfs @ 13.40 hrs, Volume= 0.421 af, Depth> 2.44"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
58,052	70	Woods, Good, HSG C
31,886	77	Woods, Good, HSG D
89,938	72	Weighted Average
89,938		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.6	50	0.0170	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
8.8	125	0.0090	0.24		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.5	20	0.0670	0.65		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
14.2	165	0.0060	0.19		Shallow Concentrated Flow, Next 165' Forest w/Heavy Litter Kv= 2.5 fps
1.6	65	0.0770	0.69		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
52.7	250	0.0010	0.08		Shallow Concentrated Flow, Last 250' Forest w/Heavy Litter Kv= 2.5 fps
101.4	675	Total			

Subcatchment 20: Area 20



Summary for Subcatchment 30: Area 30

Runoff = 0.87 cfs @ 12.56 hrs, Volume= 0.117 af, Depth> 2.96"
 Routed to Link x1000 : x1000

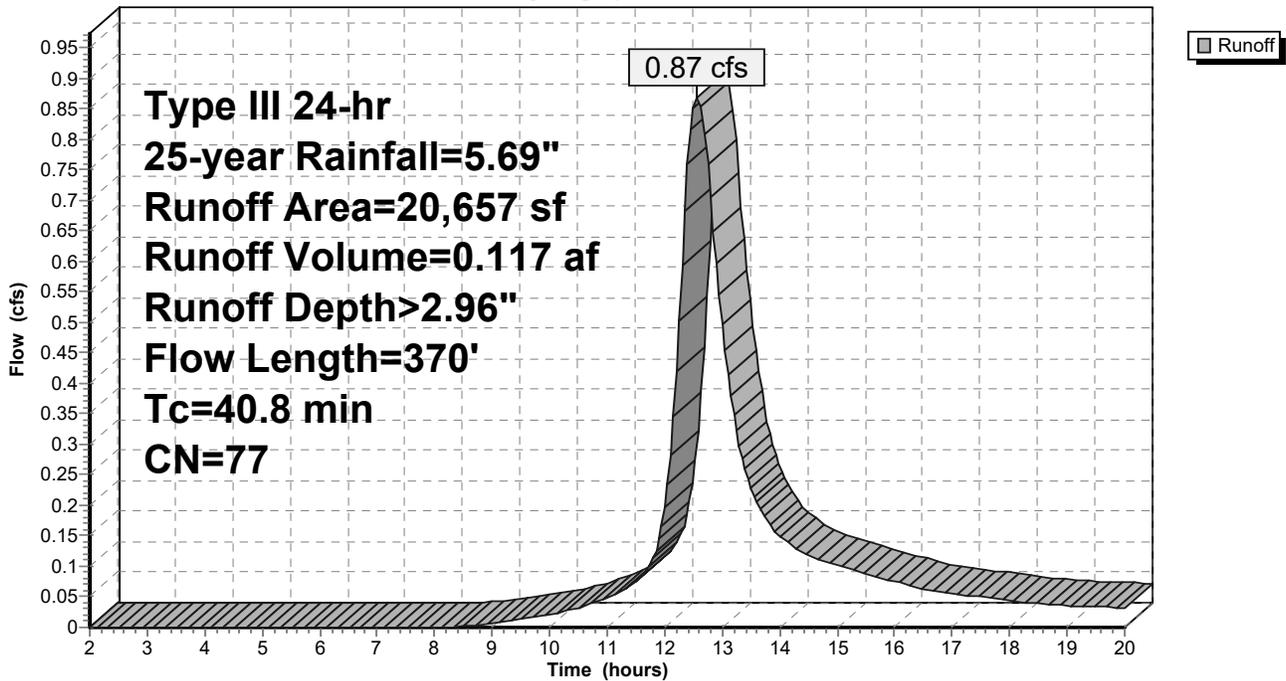
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
20,657	77	Woods, Good, HSG D
20,657		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0670	0.06		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
27.1	320	0.0062	0.20		Shallow Concentrated Flow, Next 320' Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 30: Area 30

Hydrograph



Summary for Subcatchment 40: Area 40

Runoff = 1.59 cfs @ 13.89 hrs, Volume= 0.453 af, Depth> 2.83"
 Routed to Link x1000 : x1000

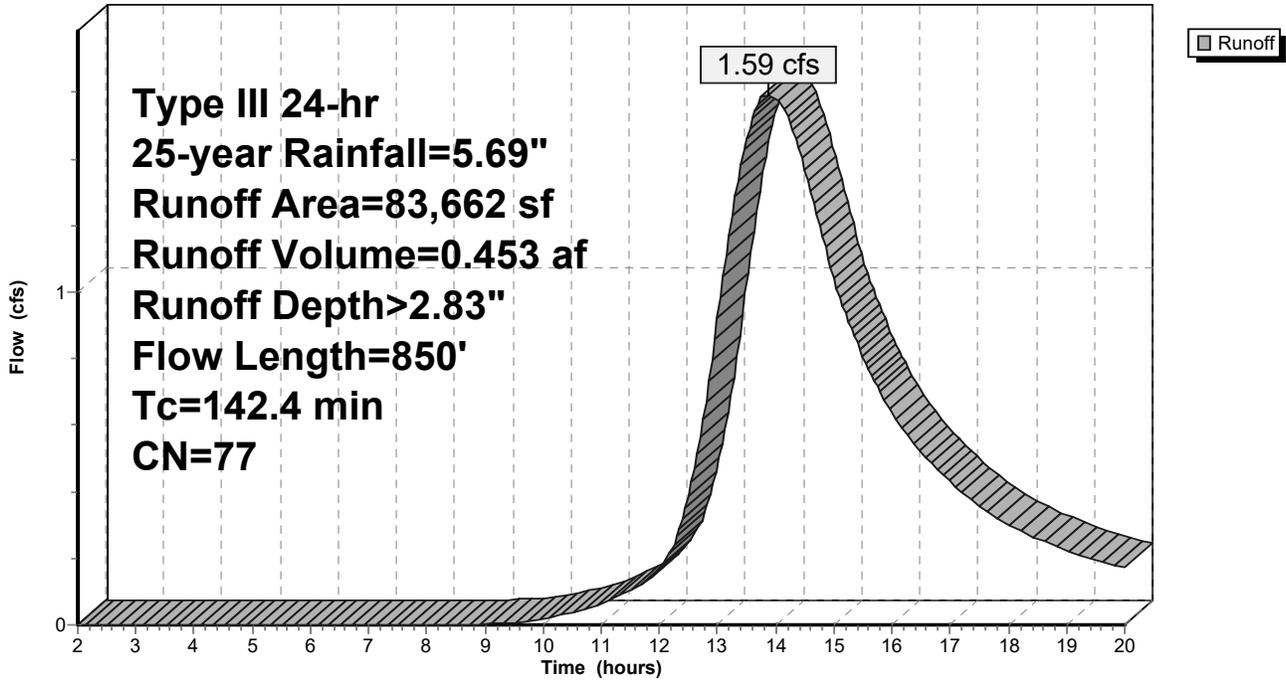
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
318	70	Woods, Good, HSG C
83,344	77	Woods, Good, HSG D
83,662	77	Weighted Average
83,662		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
47.8	470	0.0043	0.16		Shallow Concentrated Flow, Next 470' Forest w/Heavy Litter Kv= 2.5 fps
16.2	180	0.0055	0.19		Shallow Concentrated Flow, Next 180' Forest w/Heavy Litter Kv= 2.5 fps
2.4	50	0.0200	0.35		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
2.6	100	0.0670	0.65		Shallow Concentrated Flow, Last 100' Forest w/Heavy Litter Kv= 2.5 fps
142.4	850	Total			

Subcatchment 40: Area 40

Hydrograph



Summary for Subcatchment 50: Area 50

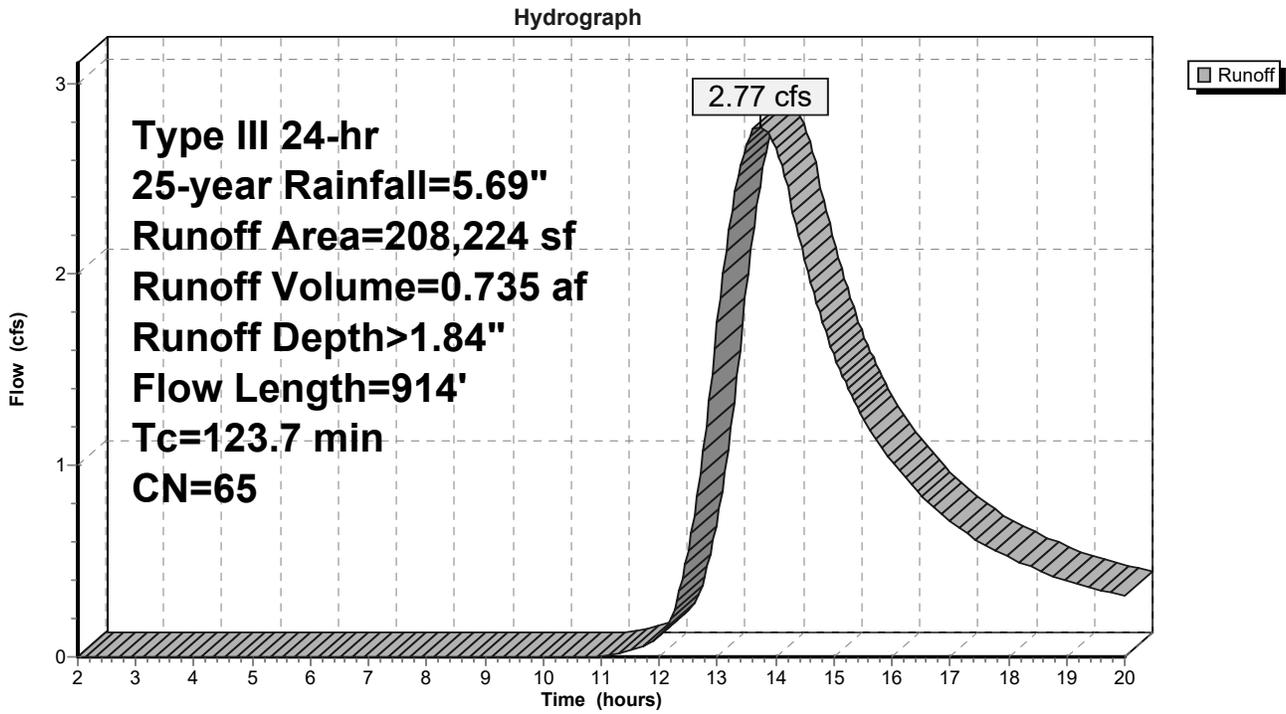
Runoff = 2.77 cfs @ 13.73 hrs, Volume= 0.735 af, Depth> 1.84"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
48,561	30	Woods, Good, HSG A
41,124	70	Woods, Good, HSG C
118,539	77	Woods, Good, HSG D
208,224	65	Weighted Average
208,224		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
10.0	150	0.0100	0.25		Shallow Concentrated Flow, Next 150' Forest w/Heavy Litter Kv= 2.5 fps
3.3	87	0.0300	0.43		Shallow Concentrated Flow, Next 87' Forest w/Heavy Litter Kv= 2.5 fps
24.7	117	0.0010	0.08		Shallow Concentrated Flow, Next 117' Forest w/Heavy Litter Kv= 2.5 fps
0.8	25	0.0400	0.50		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
10.9	225	0.0190	0.34		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
44.8	260	0.0015	0.10		Shallow Concentrated Flow, Last 260' Forest w/Heavy Litter Kv= 2.5 fps
123.7	914	Total			

Subcatchment 50: Area 50



Summary for Subcatchment 60: Area 60

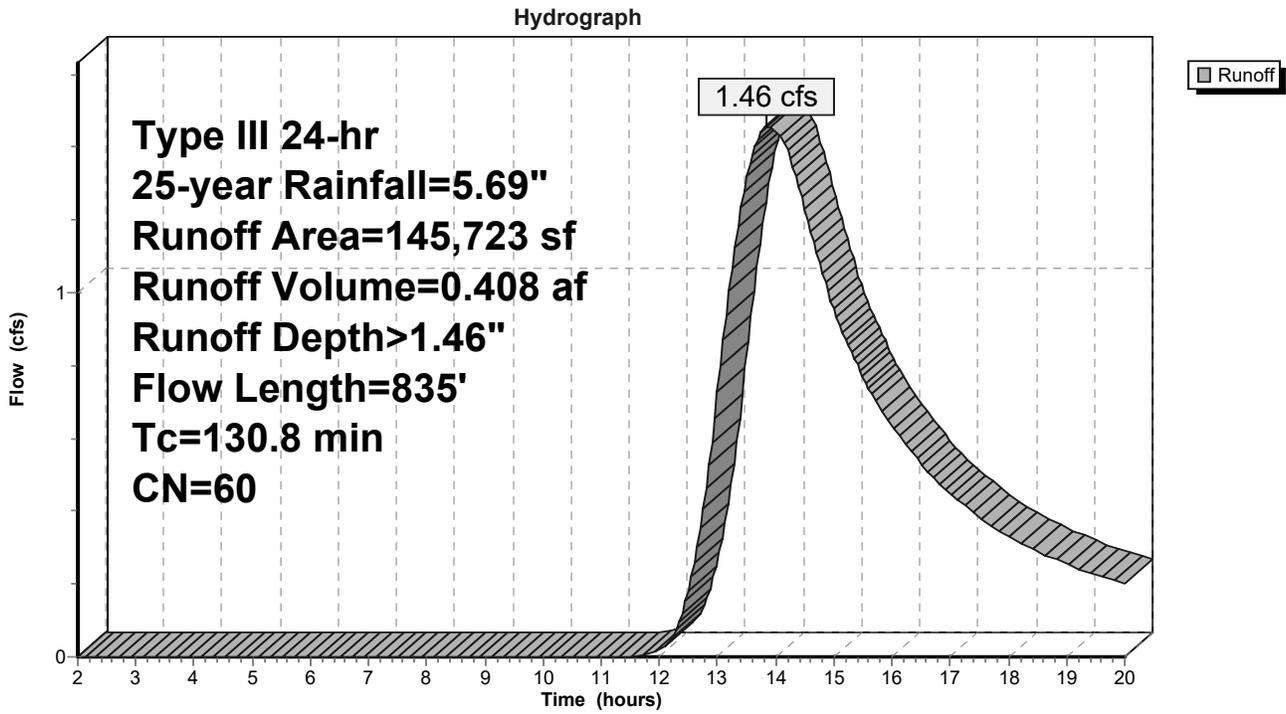
Runoff = 1.46 cfs @ 13.85 hrs, Volume= 0.408 af, Depth> 1.46"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
85,323	70	Woods, Good, HSG C
40,371	30	Woods, Good, HSG A
20,029	77	Woods, Good, HSG D
145,723	60	Weighted Average
145,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	50	0.0200	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.9	105	0.0200	0.35		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
2.7	65	0.0250	0.40		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
10.4	110	0.0050	0.18		Shallow Concentrated Flow, Next 110' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
130.8	835	Total			

Subcatchment 60: Area 60



Summary for Subcatchment 70: Area 70

Runoff = 1.70 cfs @ 13.09 hrs, Volume= 0.337 af, Depth> 2.73"
 Routed to Link x2000 : x2000

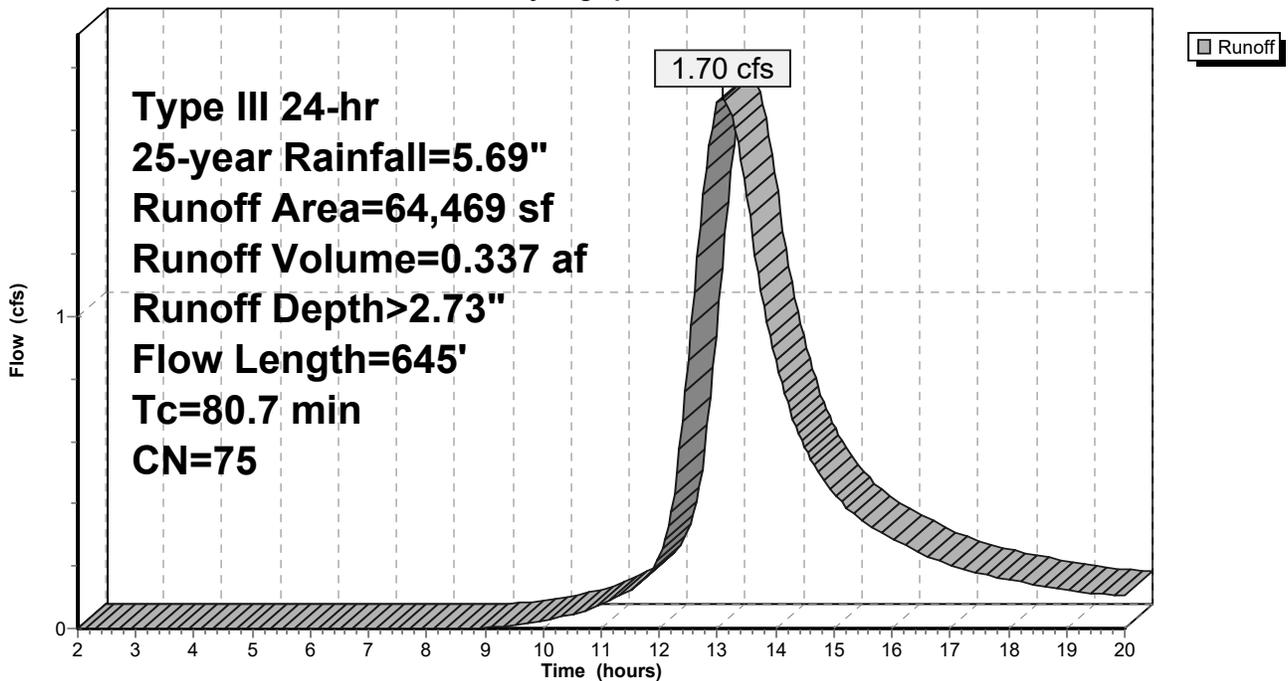
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
41,503	77	Woods, Good, HSG D
22,966	70	Woods, Good, HSG C
64,469	75	Weighted Average
64,469		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.3	50	0.0030	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
18.3	275	0.0100	0.25		Shallow Concentrated Flow, Next 275' Forest w/Heavy Litter Kv= 2.5 fps
8.9	225	0.0281	0.42		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
6.2	95	0.0106	0.26		Shallow Concentrated Flow, Last 95' Forest w/Heavy Litter Kv= 2.5 fps
80.7	645	Total			

Subcatchment 70: Area 70

Hydrograph



Summary for Subcatchment 80: Area 80

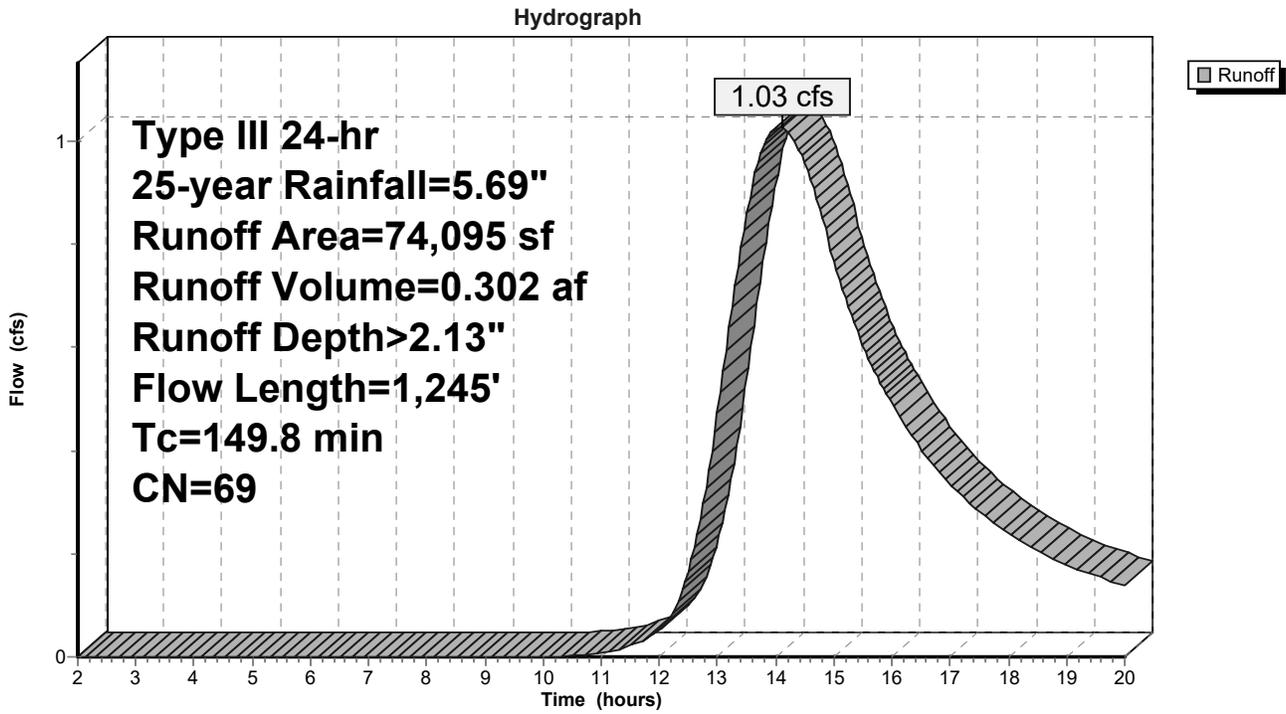
Runoff = 1.03 cfs @ 14.13 hrs, Volume= 0.302 af, Depth> 2.13"
 Routed to Link x2000 : x2000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
9,084	30	Woods, Good, HSG A
21,380	70	Woods, Good, HSG C
43,631	77	Woods, Good, HSG D
74,095	69	Weighted Average
74,095		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
3.3	50	0.0100	0.25		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
0.9	25	0.0370	0.48		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
23.3	350	0.0100	0.25		Shallow Concentrated Flow, Next 350' Forest w/Heavy Litter Kv= 2.5 fps
3.1	60	0.0167	0.32		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
6.9	170	0.0270	0.41		Shallow Concentrated Flow, Next 170' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
2.5	45	0.0140	0.30		Shallow Concentrated Flow, Next 45' Forest w/Heavy Litter Kv= 2.5 fps
0.9	18	0.0167	0.32		Shallow Concentrated Flow, Next 18' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
149.8	1,245	Total			

Subcatchment 80: Area 80



Summary for Subcatchment 90: Area 90

Runoff = 0.74 cfs @ 13.84 hrs, Volume= 0.203 af, Depth> 2.49"
 Routed to Link x2000 : x2000

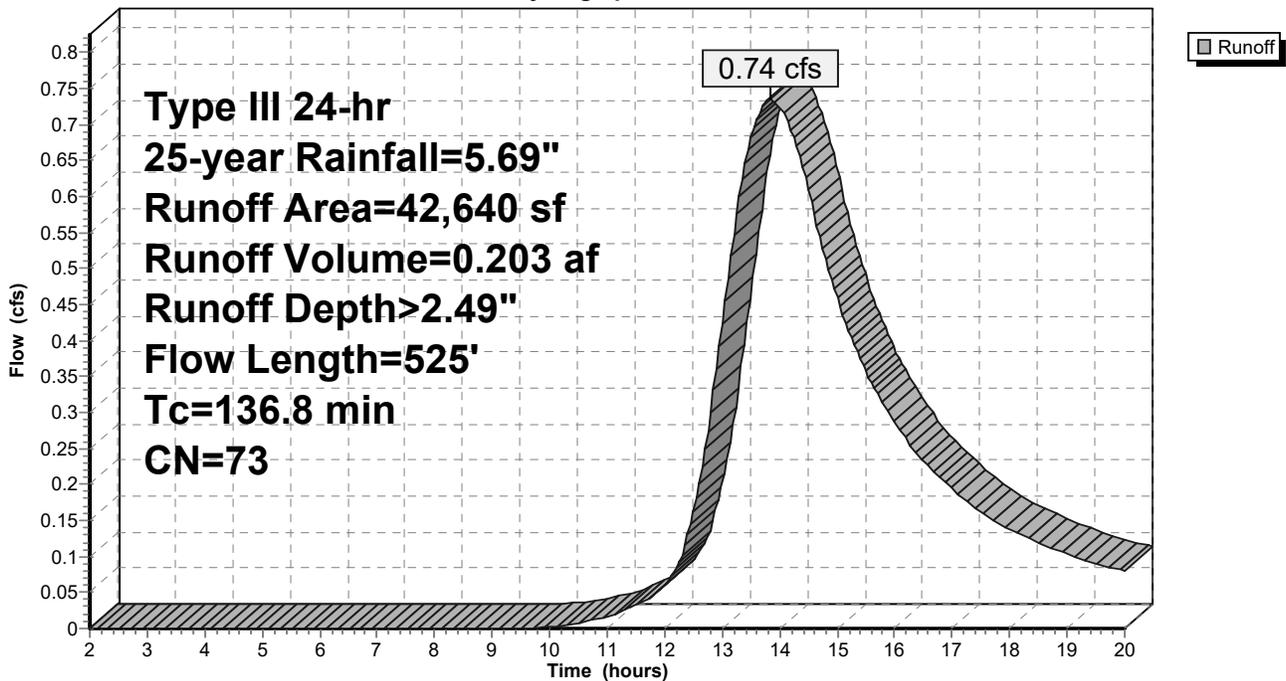
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
16,901	77	Woods, Good, HSG D
25,739	70	Woods, Good, HSG C
42,640	73	Weighted Average
42,640		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
2.5	60	0.0250	0.40		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
1.5	70	0.1000	0.79		Shallow Concentrated Flow, Next 70' Forest w/Heavy Litter Kv= 2.5 fps
59.4	345	0.0015	0.10		Shallow Concentrated Flow, Last 345' Forest w/Heavy Litter Kv= 2.5 fps
136.8	525	Total			

Subcatchment 90: Area 90

Hydrograph



Summary for Subcatchment 100: Area 100

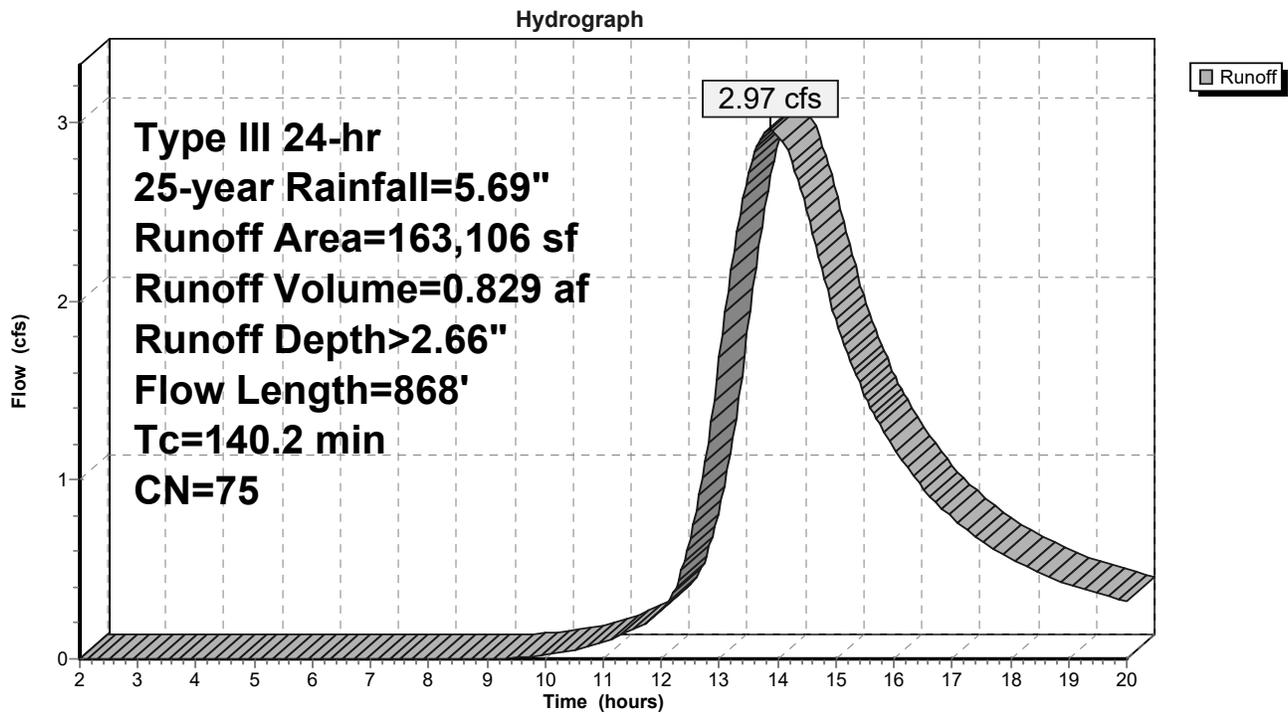
Runoff = 2.97 cfs @ 13.87 hrs, Volume= 0.829 af, Depth> 2.66"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
128,041	77	Woods, Good, HSG D
35,065	70	Woods, Good, HSG C
163,106	75	Weighted Average
163,106		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	20	0.2000	0.08		Sheet Flow, First 20' Woods: Dense underbrush n= 0.800 P2= 3.01"
31.4	30	0.0030	0.02		Sheet Flow, Next 30' Woods: Dense underbrush n= 0.800 P2= 3.01"
41.4	340	0.0030	0.14		Shallow Concentrated Flow, Next 340' Forest w/Heavy Litter Kv= 2.5 fps
2.1	95	0.0900	0.75		Shallow Concentrated Flow, Next 95' Forest w/Heavy Litter Kv= 2.5 fps
7.8	130	0.0125	0.28		Shallow Concentrated Flow, Next 130' Forest w/Heavy Litter Kv= 2.5 fps
53.3	253	0.0010	0.08		Shallow Concentrated Flow, Last 253' Forest w/Heavy Litter Kv= 2.5 fps
140.2	868	Total			

Subcatchment 100: Area 100



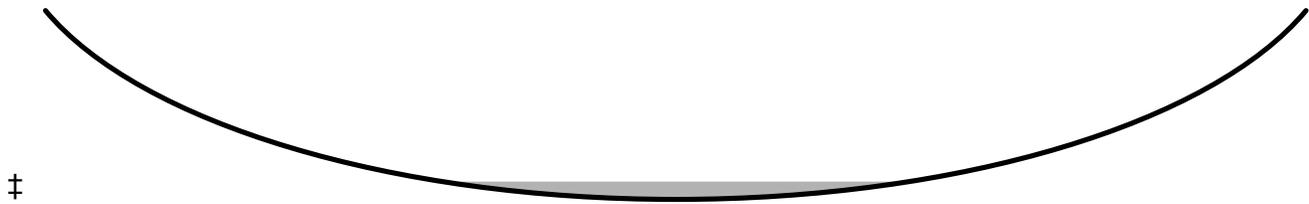
Summary for Reach 1R: 1R

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 1.95" for 25-year event
 Inflow = 5.98 cfs @ 13.79 hrs, Volume= 1.712 af
 Outflow = 5.97 cfs @ 13.87 hrs, Volume= 1.704 af, Atten= 0%, Lag= 5.0 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.47 fps, Min. Travel Time= 3.0 min
 Avg. Velocity = 0.85 fps, Avg. Travel Time= 5.1 min

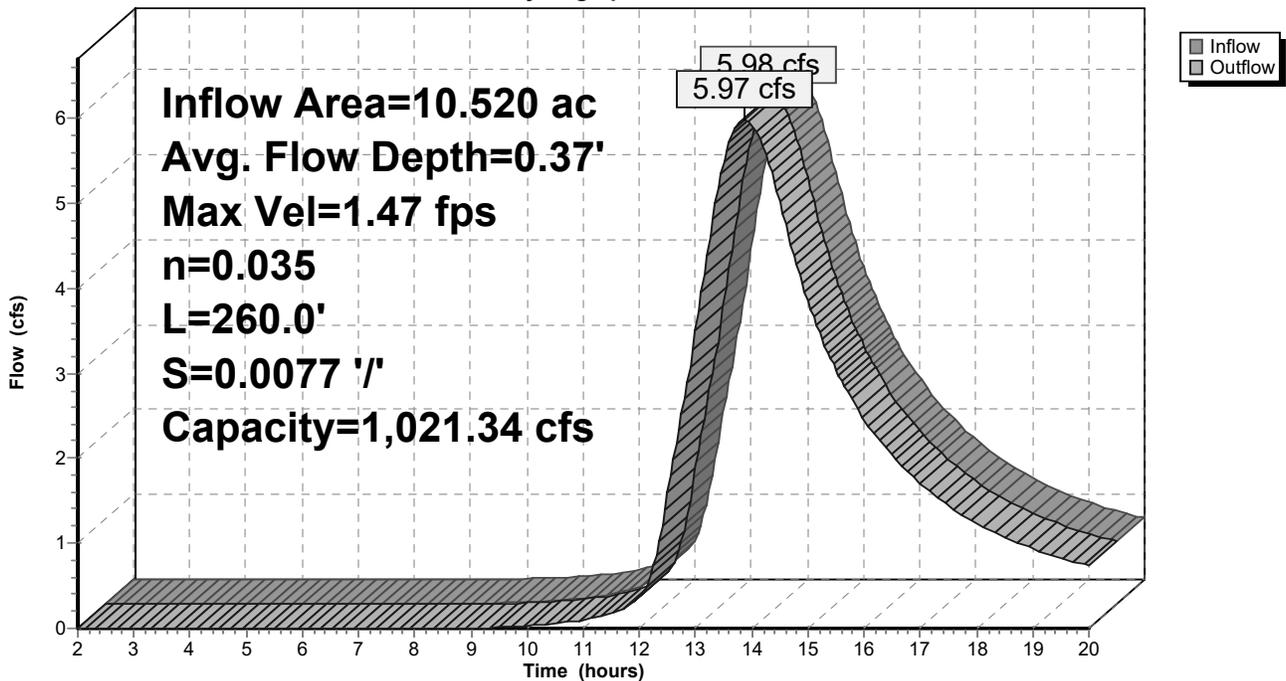
Peak Storage= 1,058 cf @ 13.82 hrs
 Average Depth at Peak Storage= 0.37' , Surface Width= 16.44'
 Bank-Full Depth= 4.00' Flow Area= 144.0 sf, Capacity= 1,021.34 cfs

54.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 260.0' Slope= 0.0077 '/'
 Inlet Invert= 198.00', Outlet Invert= 196.00'



Reach 1R: 1R

Hydrograph



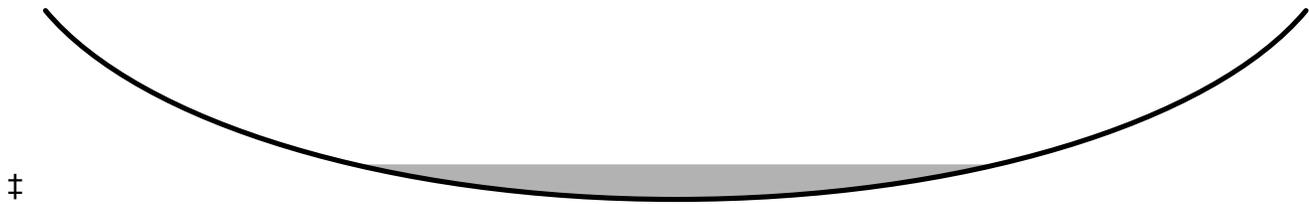
Summary for Reach 2R: 2R

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 2.08" for 25-year event
 Inflow = 8.72 cfs @ 13.78 hrs, Volume= 2.546 af
 Outflow = 8.71 cfs @ 13.90 hrs, Volume= 2.527 af, Atten= 0%, Lag= 6.9 min
 Routed to Link x3000 : x3000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.38 fps, Min. Travel Time= 4.3 min
 Avg. Velocity = 0.79 fps, Avg. Travel Time= 7.6 min

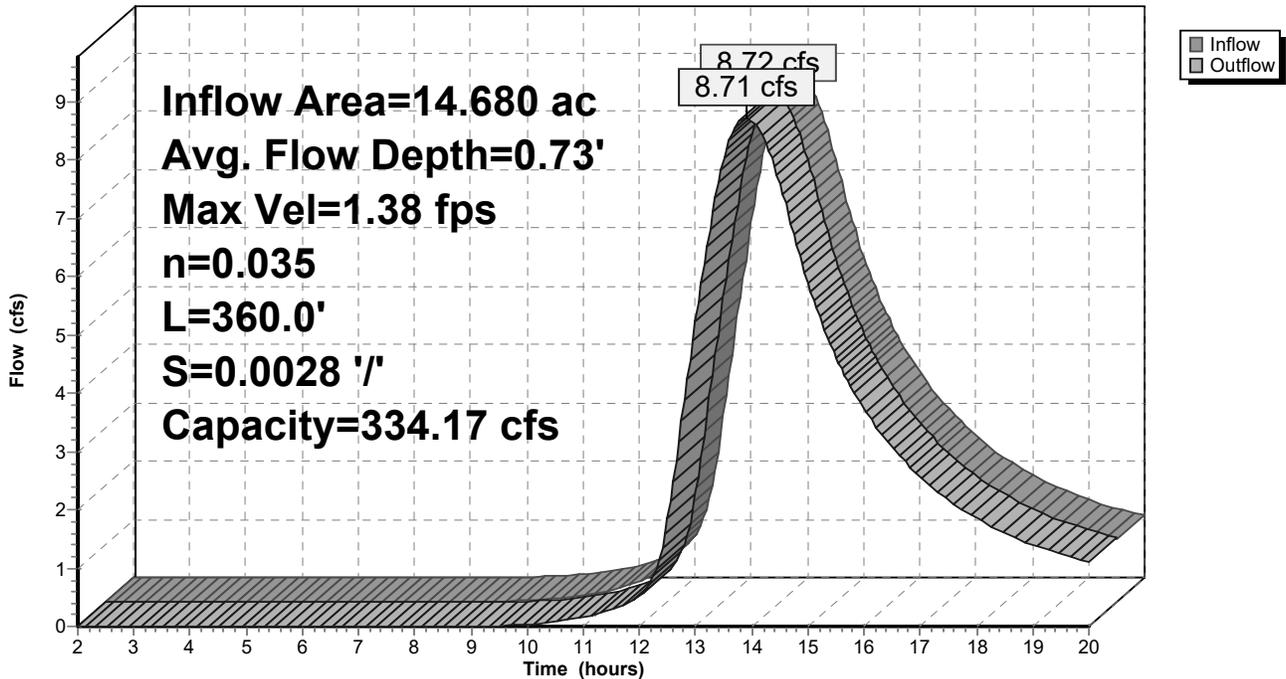
Peak Storage= 2,267 cf @ 13.83 hrs
 Average Depth at Peak Storage= 0.73' , Surface Width= 12.86'
 Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 360.0' Slope= 0.0028 '/'
 Inlet Invert= 196.00', Outlet Invert= 195.00'



Reach 2R: 2R

Hydrograph



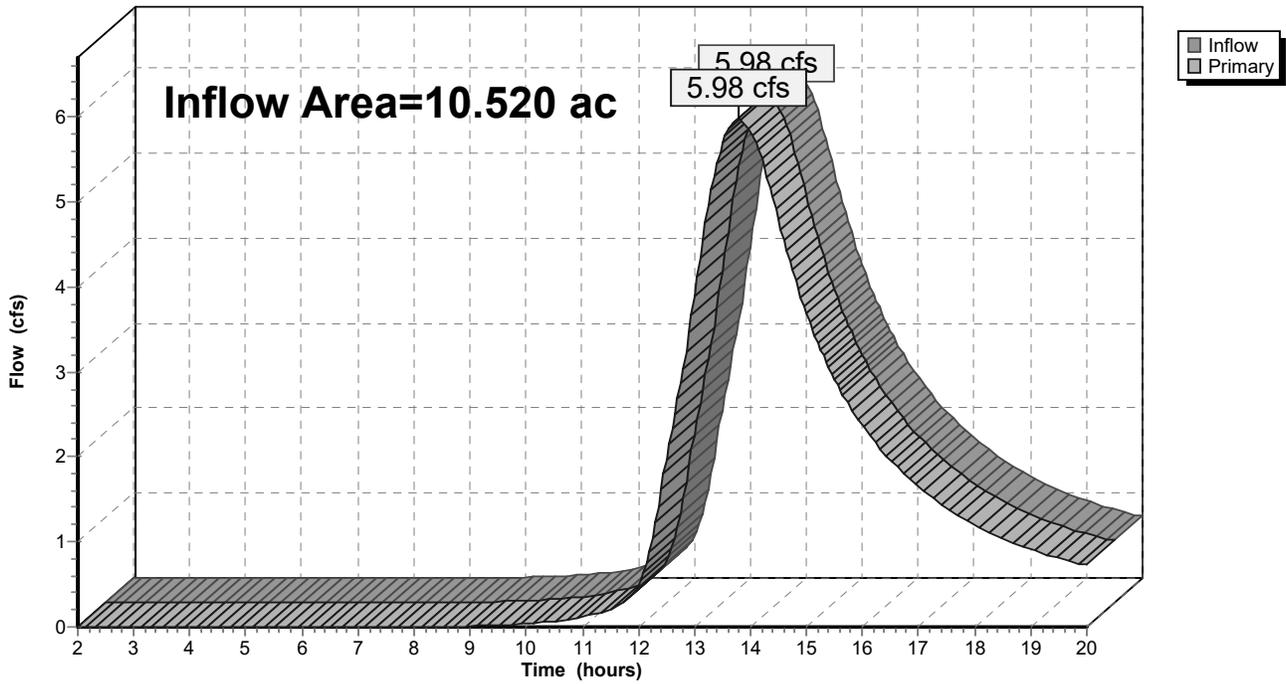
Summary for Link x1000: x1000

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 1.95" for 25-year event
Inflow = 5.98 cfs @ 13.79 hrs, Volume= 1.712 af
Primary = 5.98 cfs @ 13.79 hrs, Volume= 1.712 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : 1R

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x1000: x1000

Hydrograph



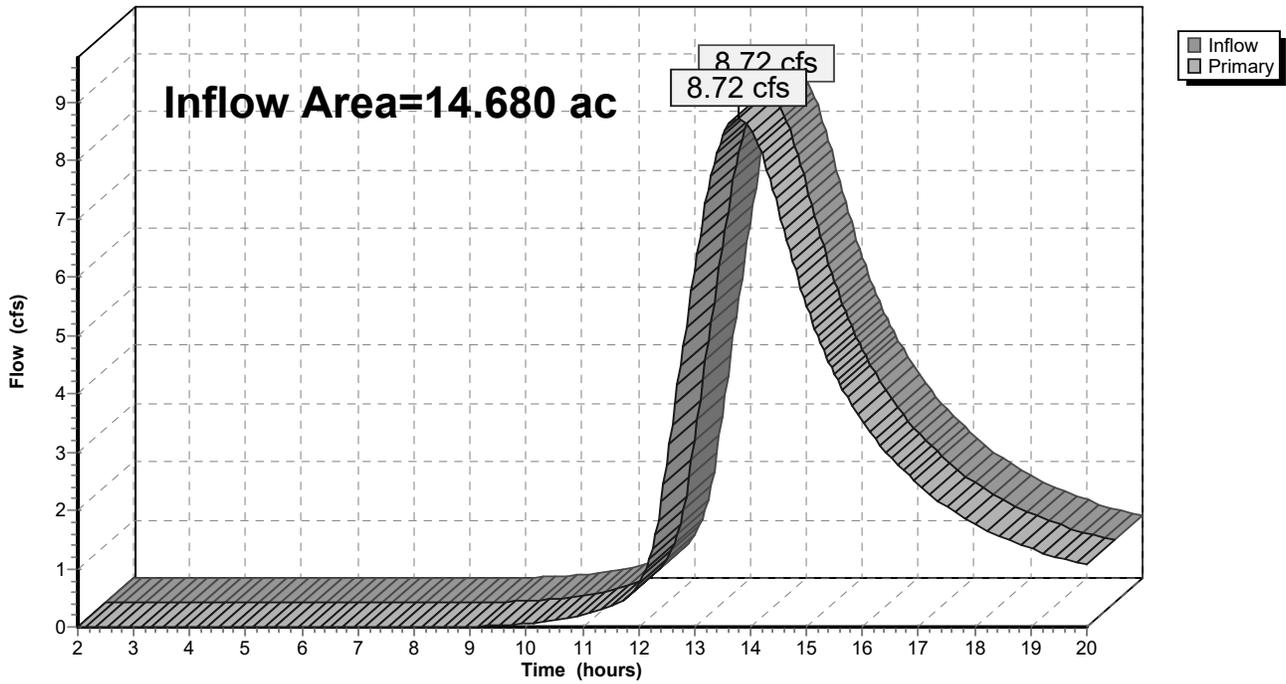
Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 2.08" for 25-year event
Inflow = 8.72 cfs @ 13.78 hrs, Volume= 2.546 af
Primary = 8.72 cfs @ 13.78 hrs, Volume= 2.546 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2R : 2R

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x2000: x2000

Hydrograph



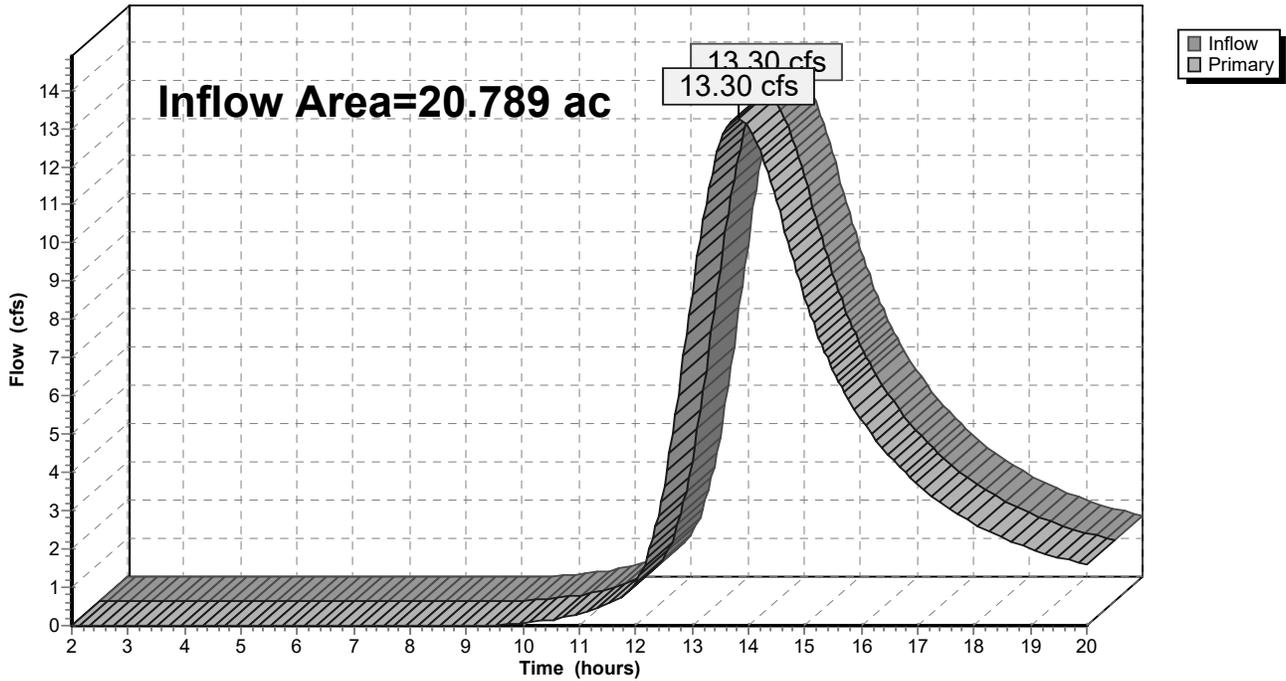
Summary for Link x3000: x3000

Inflow Area = 20.789 ac, 0.00% Impervious, Inflow Depth > 2.21" for 25-year event
Inflow = 13.30 cfs @ 13.81 hrs, Volume= 3.835 af
Primary = 13.30 cfs @ 13.81 hrs, Volume= 3.835 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x3000: x3000

Hydrograph



100-Year Storm Event – Existing

Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 10: Area 10 Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>3.55"
Flow Length=215' Tc=27.3 min CN=70 Runoff=0.80 cfs 0.089 af

Subcatchment 20: Area 20 Runoff Area=89,938 sf 0.00% Impervious Runoff Depth>3.65"
Flow Length=675' Tc=101.4 min CN=72 Runoff=2.76 cfs 0.629 af

Subcatchment 30: Area 30 Runoff Area=20,657 sf 0.00% Impervious Runoff Depth>4.27"
Flow Length=370' Tc=40.8 min CN=77 Runoff=1.25 cfs 0.169 af

Subcatchment 40: Area 40 Runoff Area=83,662 sf 0.00% Impervious Runoff Depth>4.10"
Flow Length=850' Tc=142.4 min CN=77 Runoff=2.29 cfs 0.657 af

Subcatchment 50: Area 50 Runoff Area=208,224 sf 0.00% Impervious Runoff Depth>2.91"
Flow Length=914' Tc=123.7 min CN=65 Runoff=4.45 cfs 1.159 af

Subcatchment 60: Area 60 Runoff Area=145,723 sf 0.00% Impervious Runoff Depth>2.42"
Flow Length=835' Tc=130.8 min CN=60 Runoff=2.49 cfs 0.674 af

Subcatchment 70: Area 70 Runoff Area=64,469 sf 0.00% Impervious Runoff Depth>4.00"
Flow Length=645' Tc=80.7 min CN=75 Runoff=2.48 cfs 0.493 af

Subcatchment 80: Area 80 Runoff Area=74,095 sf 0.00% Impervious Runoff Depth>3.26"
Flow Length=1,245' Tc=149.8 min CN=69 Runoff=1.58 cfs 0.462 af

Subcatchment 90: Area 90 Runoff Area=42,640 sf 0.00% Impervious Runoff Depth>3.69"
Flow Length=525' Tc=136.8 min CN=73 Runoff=1.09 cfs 0.301 af

Subcatchment 100: Area 100 Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>3.90"
Flow Length=868' Tc=140.2 min CN=75 Runoff=4.34 cfs 1.216 af

Reach 1R: 1R Avg. Flow Depth=0.46' Max Vel=1.69 fps Inflow=9.43 cfs 2.658 af
n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=9.43 cfs 2.647 af

Reach 2R: 2R Avg. Flow Depth=0.90' Max Vel=1.58 fps Inflow=13.56 cfs 3.904 af
n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=13.54 cfs 3.881 af

Link x1000: x1000 Inflow=9.43 cfs 2.658 af
Primary=9.43 cfs 2.658 af

Link x2000: x2000 Inflow=13.56 cfs 3.904 af
Primary=13.56 cfs 3.904 af

Link x3000: x3000 Inflow=20.34 cfs 5.814 af
Primary=20.34 cfs 5.814 af

Total Runoff Area = 20.789 ac Runoff Volume = 5.849 af Average Runoff Depth = 3.38"
100.00% Pervious = 20.789 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 10: Area 10

Runoff = 0.80 cfs @ 12.38 hrs, Volume= 0.089 af, Depth> 3.55"
 Routed to Link x3000 : x3000

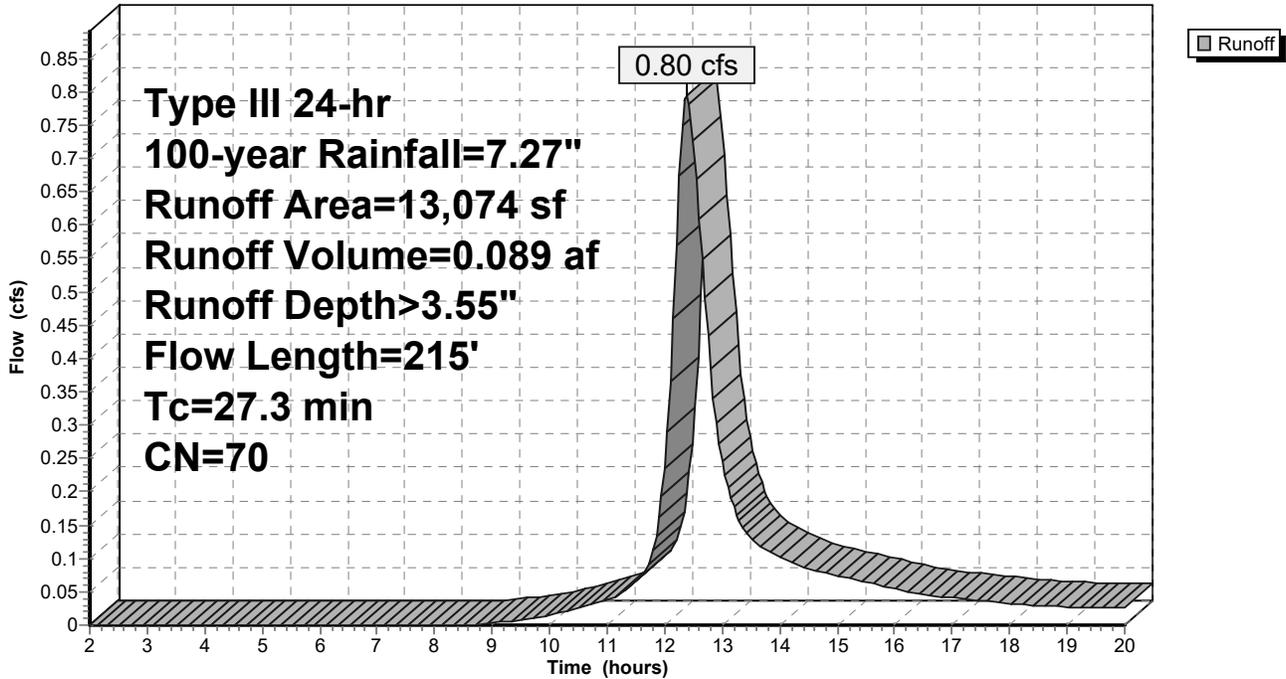
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
13,074	70	Woods, Good, HSG C
13,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1250	0.08		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.1	105	0.0297	0.43		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
12.6	60	0.0010	0.08		Shallow Concentrated Flow, Last 60' Forest w/Heavy Litter Kv= 2.5 fps
27.3	215	Total			

Subcatchment 10: Area 10

Hydrograph



Summary for Subcatchment 20: Area 20

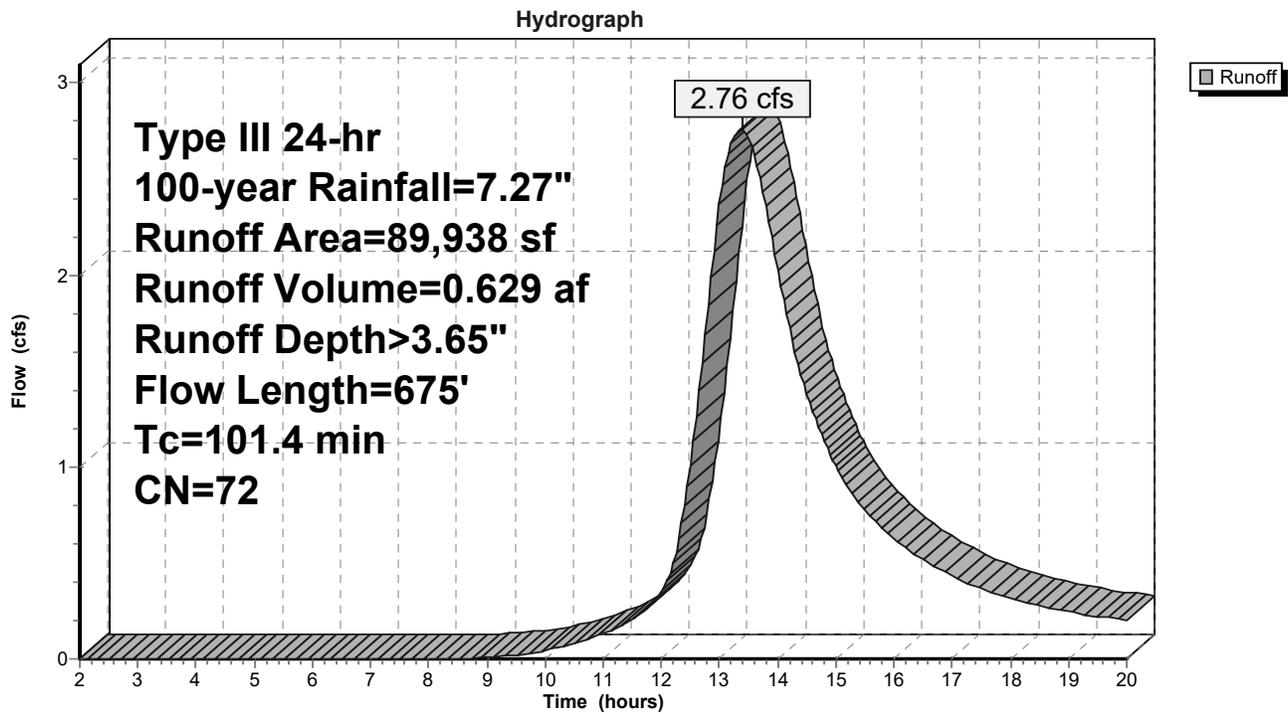
Runoff = 2.76 cfs @ 13.38 hrs, Volume= 0.629 af, Depth> 3.65"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
58,052	70	Woods, Good, HSG C
31,886	77	Woods, Good, HSG D
89,938	72	Weighted Average
89,938		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.6	50	0.0170	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
8.8	125	0.0090	0.24		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.5	20	0.0670	0.65		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
14.2	165	0.0060	0.19		Shallow Concentrated Flow, Next 165' Forest w/Heavy Litter Kv= 2.5 fps
1.6	65	0.0770	0.69		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
52.7	250	0.0010	0.08		Shallow Concentrated Flow, Last 250' Forest w/Heavy Litter Kv= 2.5 fps
101.4	675	Total			

Subcatchment 20: Area 20



Summary for Subcatchment 30: Area 30

Runoff = 1.25 cfs @ 12.56 hrs, Volume= 0.169 af, Depth> 4.27"
 Routed to Link x1000 : x1000

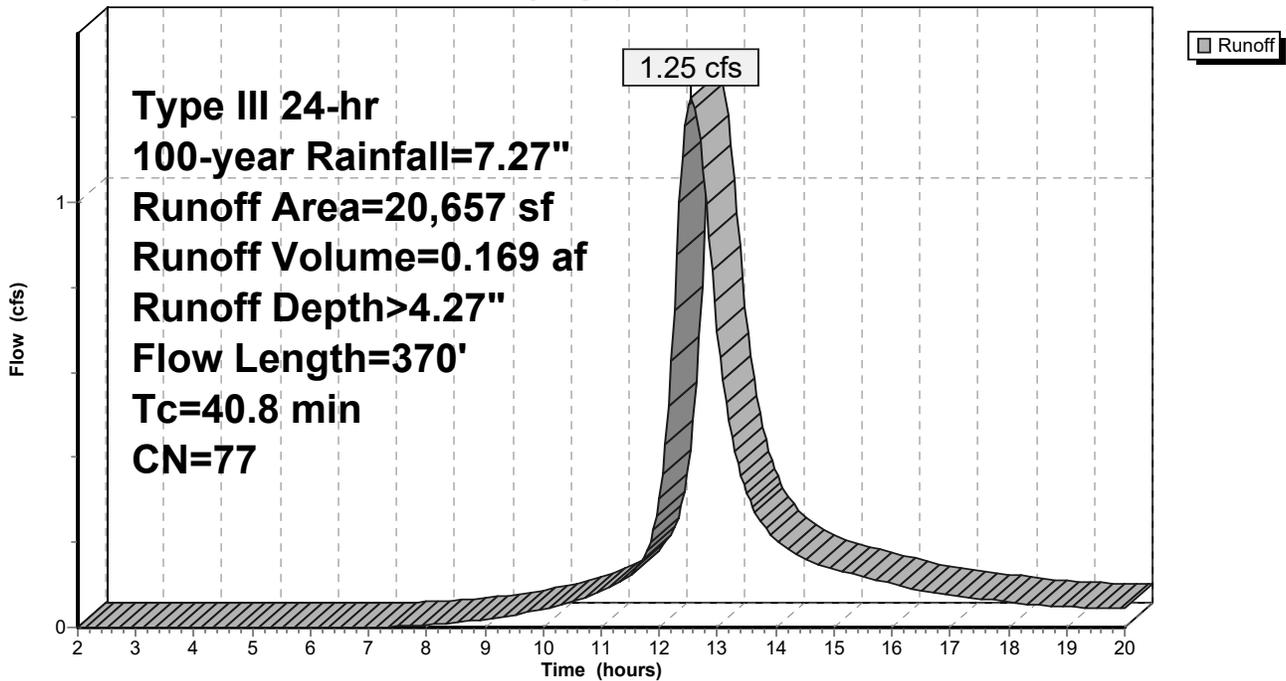
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
20,657	77	Woods, Good, HSG D
20,657		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0670	0.06		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
27.1	320	0.0062	0.20		Shallow Concentrated Flow, Next 320' Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 30: Area 30

Hydrograph



Summary for Subcatchment 40: Area 40

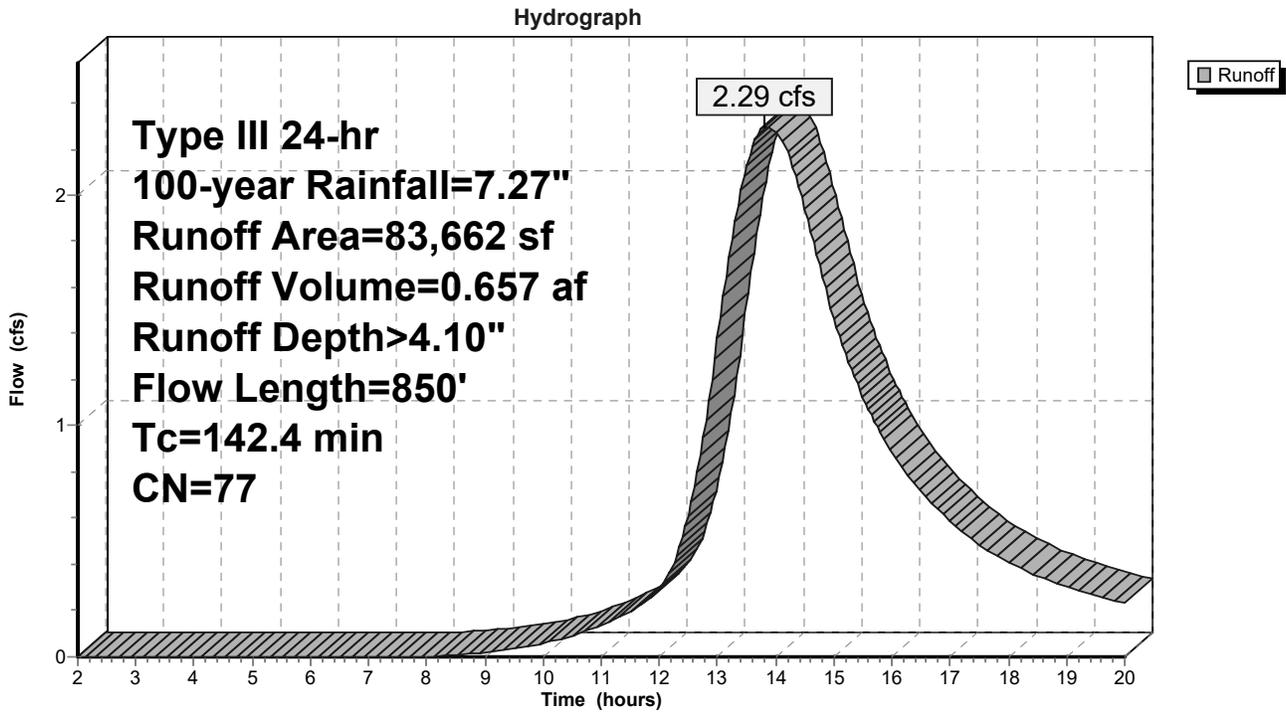
Runoff = 2.29 cfs @ 13.82 hrs, Volume= 0.657 af, Depth> 4.10"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
318	70	Woods, Good, HSG C
83,344	77	Woods, Good, HSG D
83,662	77	Weighted Average
83,662		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
47.8	470	0.0043	0.16		Shallow Concentrated Flow, Next 470' Forest w/Heavy Litter Kv= 2.5 fps
16.2	180	0.0055	0.19		Shallow Concentrated Flow, Next 180' Forest w/Heavy Litter Kv= 2.5 fps
2.4	50	0.0200	0.35		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
2.6	100	0.0670	0.65		Shallow Concentrated Flow, Last 100' Forest w/Heavy Litter Kv= 2.5 fps
142.4	850	Total			

Subcatchment 40: Area 40



Summary for Subcatchment 50: Area 50

Runoff = 4.45 cfs @ 13.64 hrs, Volume= 1.159 af, Depth> 2.91"
 Routed to Link x1000 : x1000

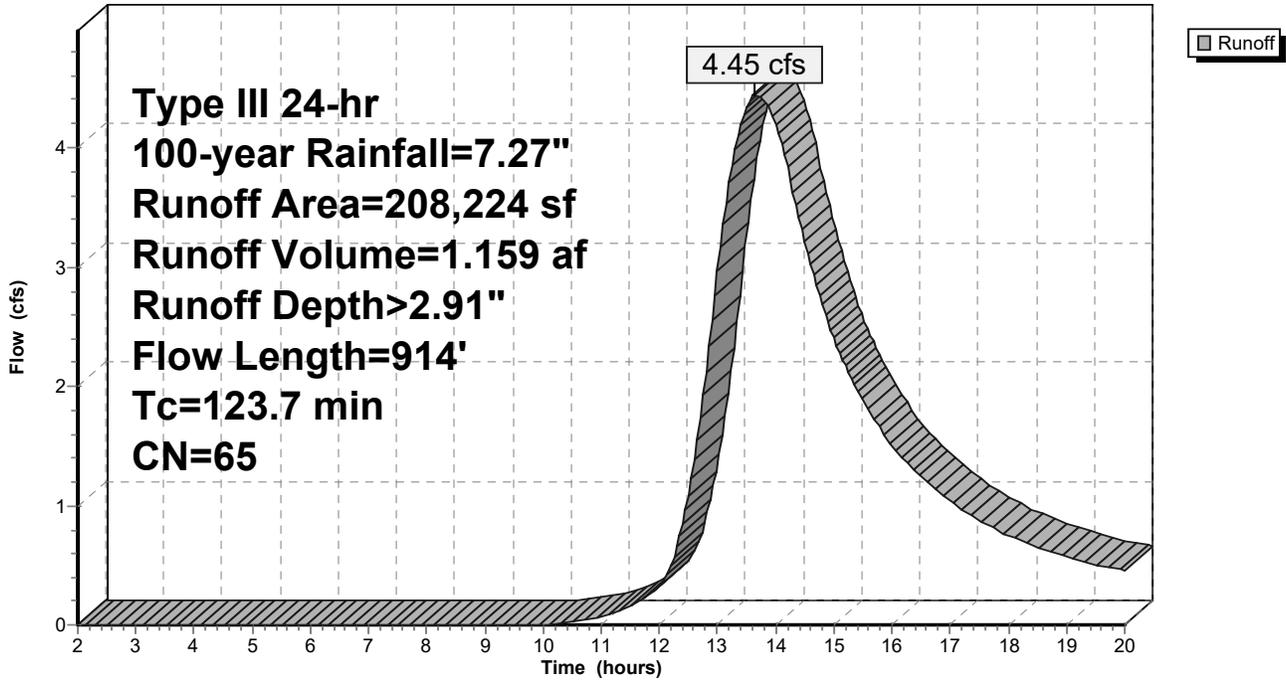
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
48,561	30	Woods, Good, HSG A
41,124	70	Woods, Good, HSG C
118,539	77	Woods, Good, HSG D
208,224	65	Weighted Average
208,224		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
10.0	150	0.0100	0.25		Shallow Concentrated Flow, Next 150' Forest w/Heavy Litter Kv= 2.5 fps
3.3	87	0.0300	0.43		Shallow Concentrated Flow, Next 87' Forest w/Heavy Litter Kv= 2.5 fps
24.7	117	0.0010	0.08		Shallow Concentrated Flow, Next 117' Forest w/Heavy Litter Kv= 2.5 fps
0.8	25	0.0400	0.50		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
10.9	225	0.0190	0.34		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
44.8	260	0.0015	0.10		Shallow Concentrated Flow, Last 260' Forest w/Heavy Litter Kv= 2.5 fps
123.7	914	Total			

Subcatchment 50: Area 50

Hydrograph



Summary for Subcatchment 60: Area 60

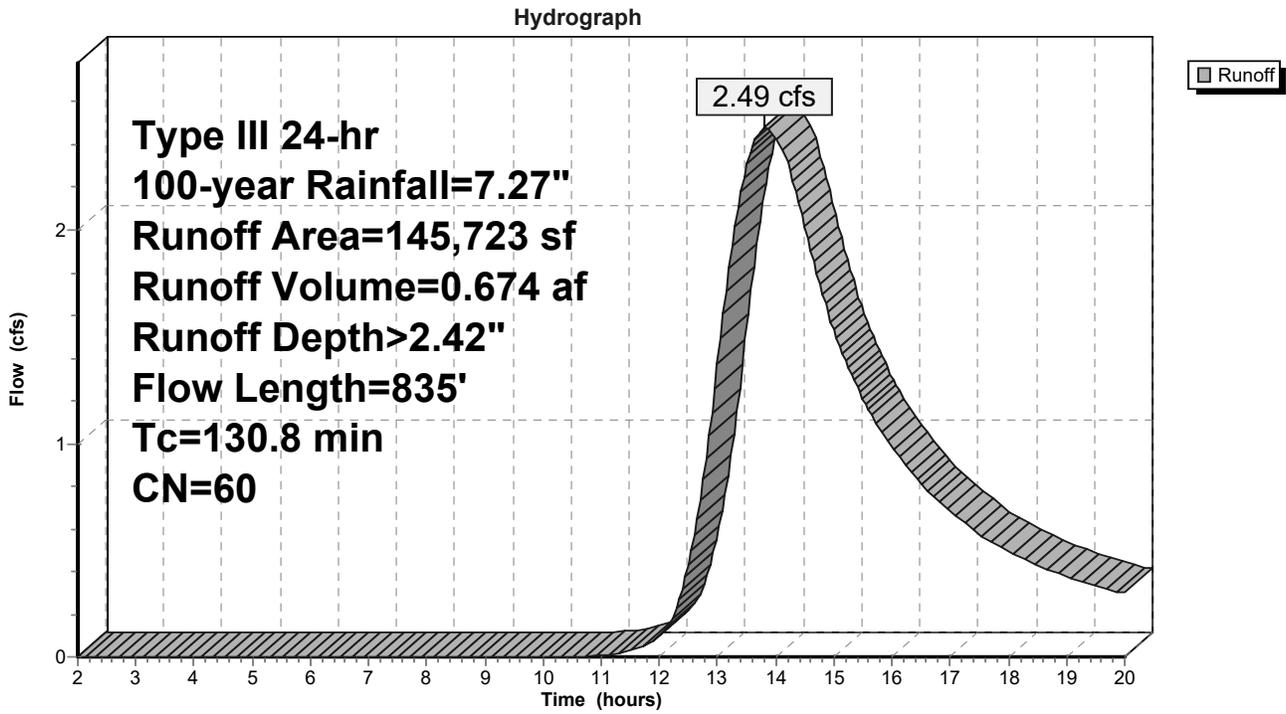
Runoff = 2.49 cfs @ 13.81 hrs, Volume= 0.674 af, Depth> 2.42"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
85,323	70	Woods, Good, HSG C
40,371	30	Woods, Good, HSG A
20,029	77	Woods, Good, HSG D
145,723	60	Weighted Average
145,723		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	50	0.0200	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.9	105	0.0200	0.35		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
2.7	65	0.0250	0.40		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
10.4	110	0.0050	0.18		Shallow Concentrated Flow, Next 110' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
130.8	835	Total			

Subcatchment 60: Area 60



Summary for Subcatchment 70: Area 70

Runoff = 2.48 cfs @ 13.07 hrs, Volume= 0.493 af, Depth> 4.00"
 Routed to Link x2000 : x2000

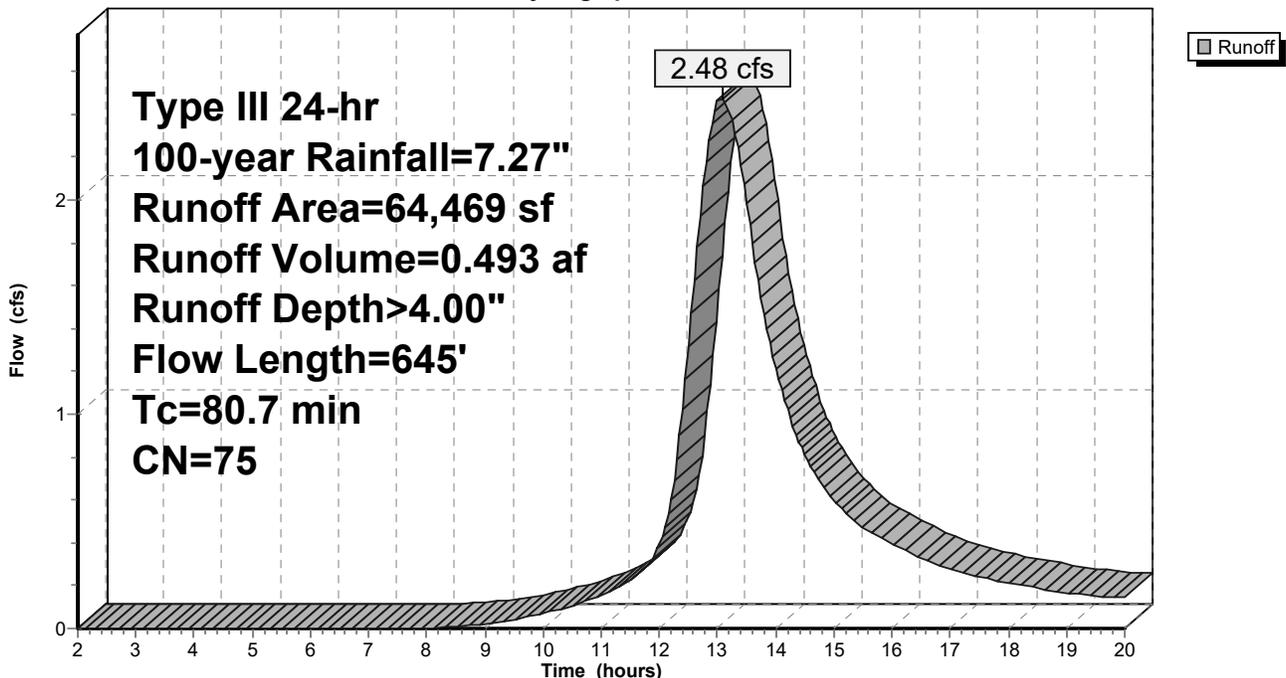
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
41,503	77	Woods, Good, HSG D
22,966	70	Woods, Good, HSG C
64,469	75	Weighted Average
64,469		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.3	50	0.0030	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
18.3	275	0.0100	0.25		Shallow Concentrated Flow, Next 275' Forest w/Heavy Litter Kv= 2.5 fps
8.9	225	0.0281	0.42		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
6.2	95	0.0106	0.26		Shallow Concentrated Flow, Last 95' Forest w/Heavy Litter Kv= 2.5 fps
80.7	645	Total			

Subcatchment 70: Area 70

Hydrograph



Summary for Subcatchment 80: Area 80

Runoff = 1.58 cfs @ 14.00 hrs, Volume= 0.462 af, Depth> 3.26"
 Routed to Link x2000 : x2000

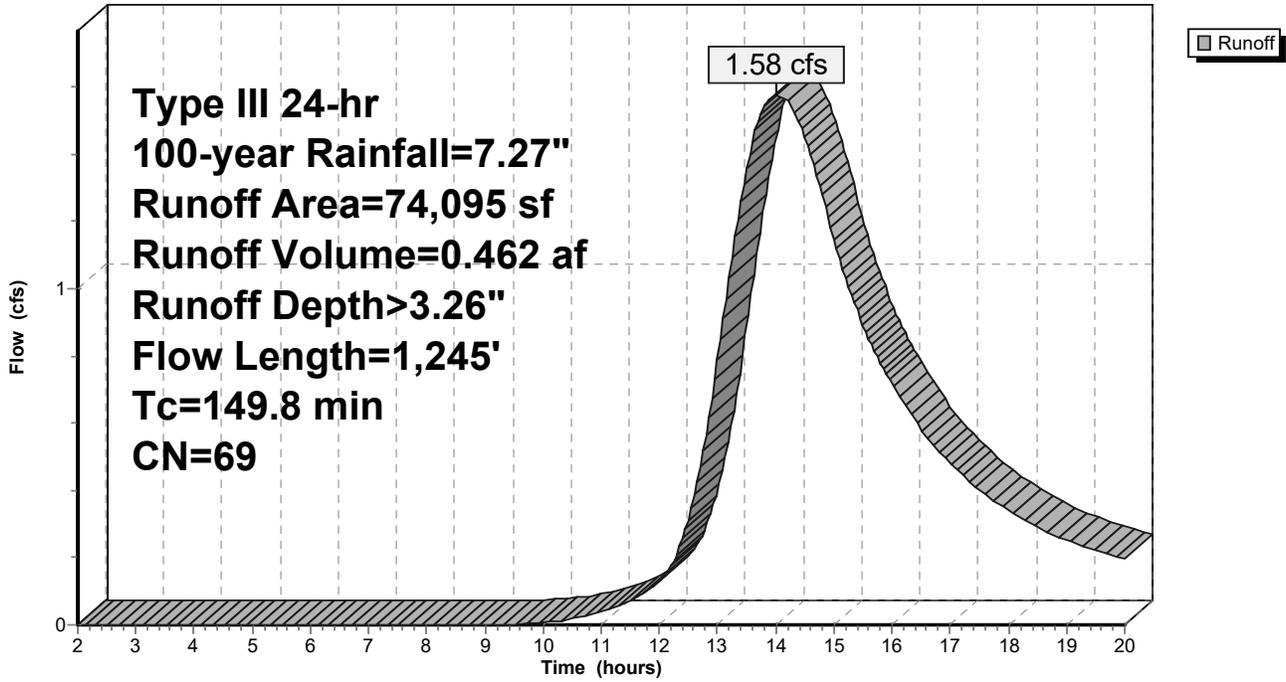
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
9,084	30	Woods, Good, HSG A
21,380	70	Woods, Good, HSG C
43,631	77	Woods, Good, HSG D
74,095	69	Weighted Average
74,095		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
3.3	50	0.0100	0.25		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
0.9	25	0.0370	0.48		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
23.3	350	0.0100	0.25		Shallow Concentrated Flow, Next 350' Forest w/Heavy Litter Kv= 2.5 fps
3.1	60	0.0167	0.32		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
6.9	170	0.0270	0.41		Shallow Concentrated Flow, Next 170' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
2.5	45	0.0140	0.30		Shallow Concentrated Flow, Next 45' Forest w/Heavy Litter Kv= 2.5 fps
0.9	18	0.0167	0.32		Shallow Concentrated Flow, Next 18' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
149.8	1,245	Total			

Subcatchment 80: Area 80

Hydrograph



Summary for Subcatchment 90: Area 90

Runoff = 1.09 cfs @ 13.83 hrs, Volume= 0.301 af, Depth> 3.69"
 Routed to Link x2000 : x2000

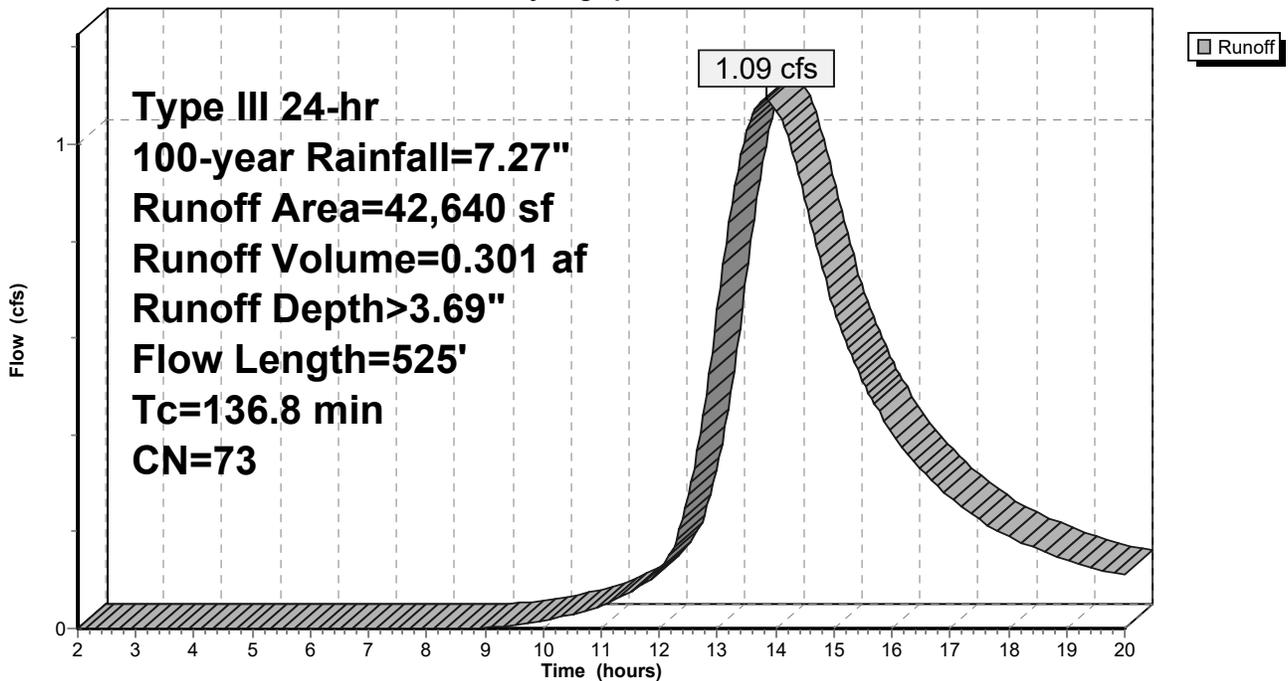
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
16,901	77	Woods, Good, HSG D
25,739	70	Woods, Good, HSG C
42,640	73	Weighted Average
42,640		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
2.5	60	0.0250	0.40		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
1.5	70	0.1000	0.79		Shallow Concentrated Flow, Next 70' Forest w/Heavy Litter Kv= 2.5 fps
59.4	345	0.0015	0.10		Shallow Concentrated Flow, Last 345' Forest w/Heavy Litter Kv= 2.5 fps
136.8	525	Total			

Subcatchment 90: Area 90

Hydrograph



Summary for Subcatchment 100: Area 100

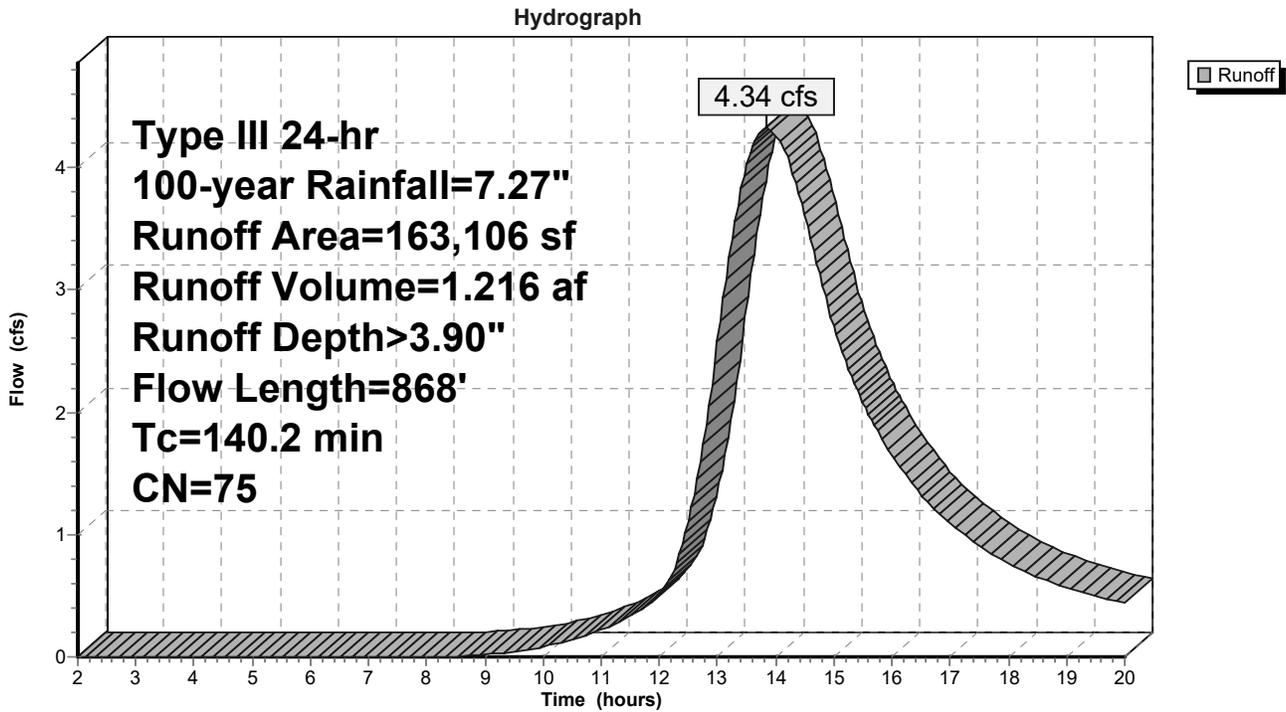
Runoff = 4.34 cfs @ 13.86 hrs, Volume= 1.216 af, Depth> 3.90"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
128,041	77	Woods, Good, HSG D
35,065	70	Woods, Good, HSG C
163,106	75	Weighted Average
163,106		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	20	0.2000	0.08		Sheet Flow, First 20' Woods: Dense underbrush n= 0.800 P2= 3.01"
31.4	30	0.0030	0.02		Sheet Flow, Next 30' Woods: Dense underbrush n= 0.800 P2= 3.01"
41.4	340	0.0030	0.14		Shallow Concentrated Flow, Next 340' Forest w/Heavy Litter Kv= 2.5 fps
2.1	95	0.0900	0.75		Shallow Concentrated Flow, Next 95' Forest w/Heavy Litter Kv= 2.5 fps
7.8	130	0.0125	0.28		Shallow Concentrated Flow, Next 130' Forest w/Heavy Litter Kv= 2.5 fps
53.3	253	0.0010	0.08		Shallow Concentrated Flow, Last 253' Forest w/Heavy Litter Kv= 2.5 fps
140.2	868	Total			

Subcatchment 100: Area 100



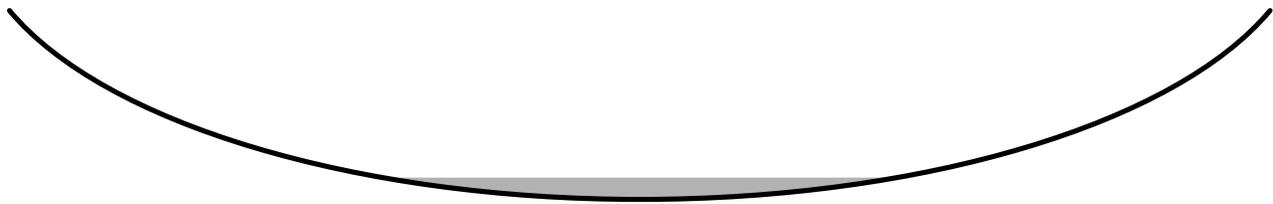
Summary for Reach 1R: 1R

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 3.03" for 100-year event
 Inflow = 9.43 cfs @ 13.76 hrs, Volume= 2.658 af
 Outflow = 9.43 cfs @ 13.83 hrs, Volume= 2.647 af, Atten= 0%, Lag= 4.3 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.69 fps, Min. Travel Time= 2.6 min
 Avg. Velocity = 0.92 fps, Avg. Travel Time= 4.7 min

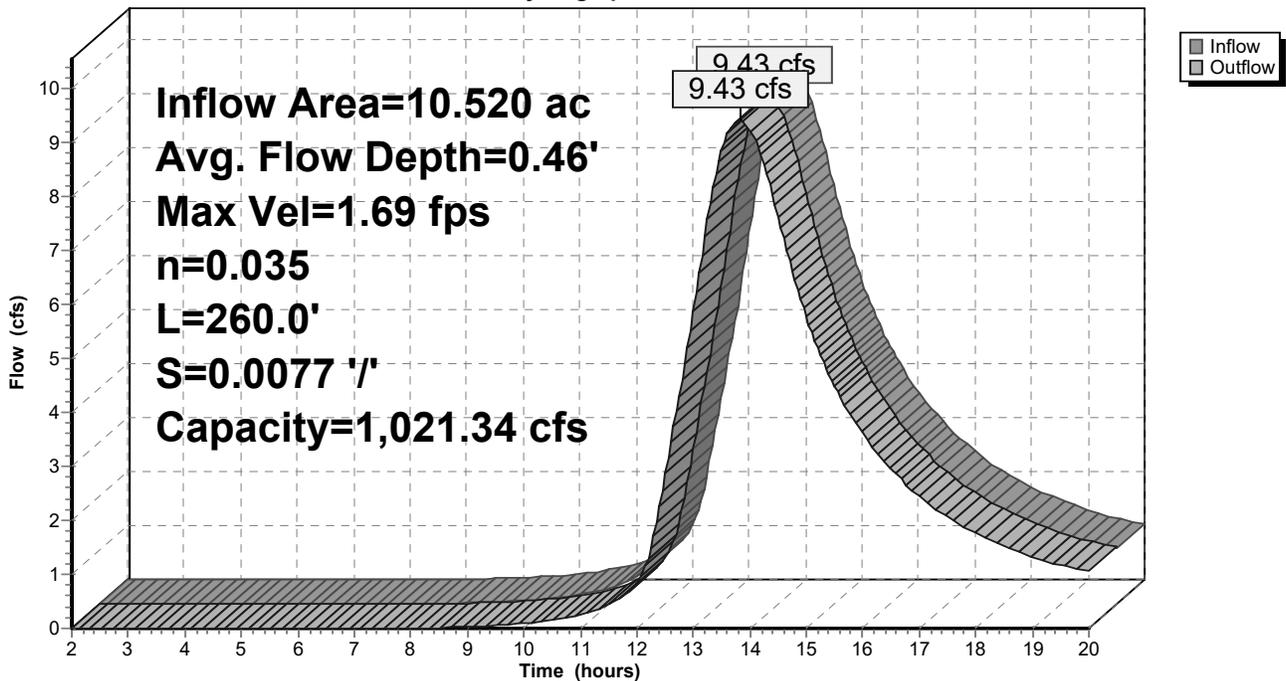
Peak Storage= 1,451 cf @ 13.78 hrs
 Average Depth at Peak Storage= 0.46' , Surface Width= 18.27'
 Bank-Full Depth= 4.00' Flow Area= 144.0 sf, Capacity= 1,021.34 cfs

54.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 260.0' Slope= 0.0077 '/'
 Inlet Invert= 198.00', Outlet Invert= 196.00'



Reach 1R: 1R

Hydrograph



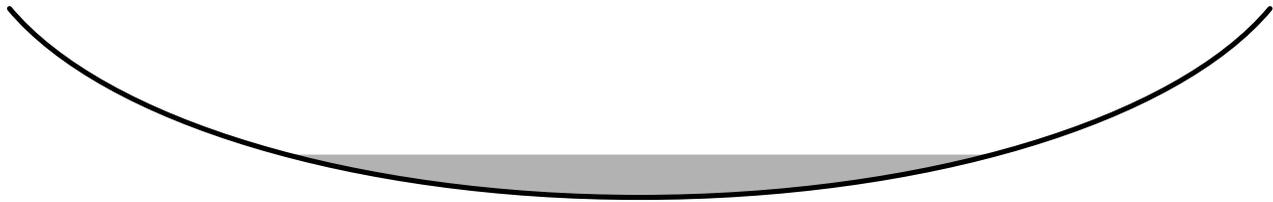
Summary for Reach 2R: 2R

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 3.19" for 100-year event
 Inflow = 13.56 cfs @ 13.72 hrs, Volume= 3.904 af
 Outflow = 13.54 cfs @ 13.83 hrs, Volume= 3.881 af, Atten= 0%, Lag= 7.0 min
 Routed to Link x3000 : x3000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.58 fps, Min. Travel Time= 3.8 min
 Avg. Velocity = 0.86 fps, Avg. Travel Time= 7.0 min

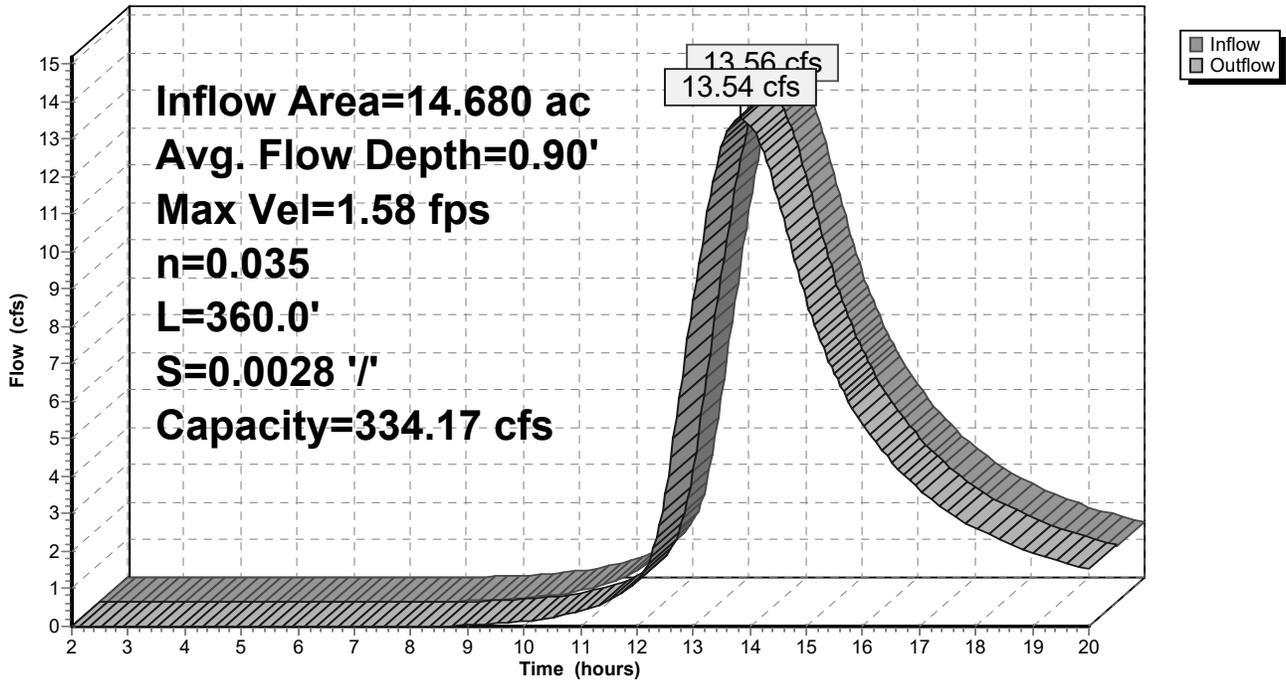
Peak Storage= 3,081 cf @ 13.77 hrs
 Average Depth at Peak Storage= 0.90' , Surface Width= 14.24'
 Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 360.0' Slope= 0.0028 '/'
 Inlet Invert= 196.00', Outlet Invert= 195.00'



Reach 2R: 2R

Hydrograph



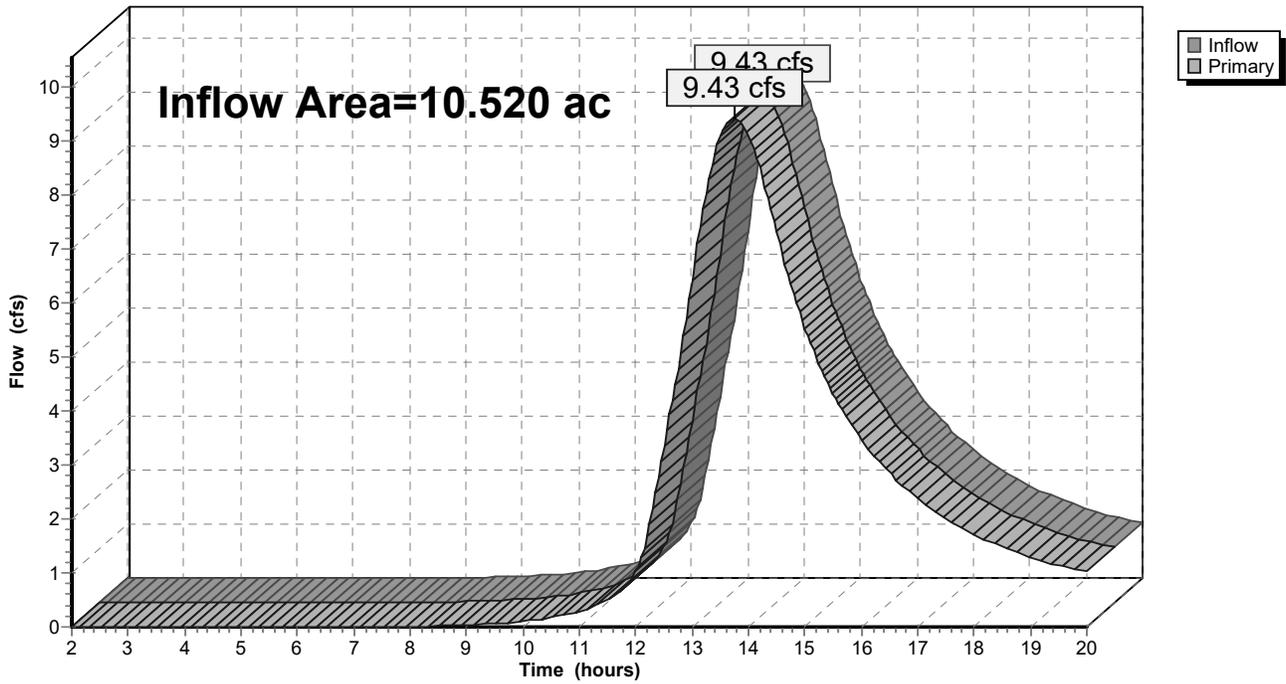
Summary for Link x1000: x1000

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 3.03" for 100-year event
Inflow = 9.43 cfs @ 13.76 hrs, Volume= 2.658 af
Primary = 9.43 cfs @ 13.76 hrs, Volume= 2.658 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : 1R

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x1000: x1000

Hydrograph



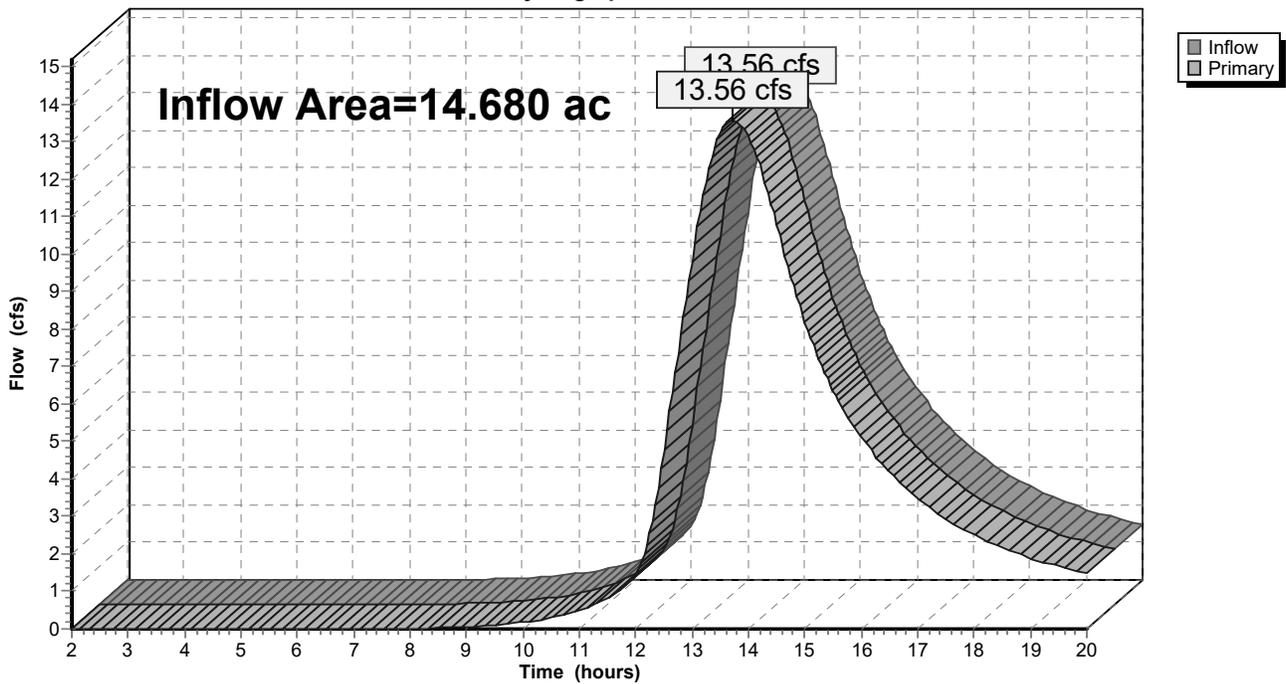
Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 3.19" for 100-year event
Inflow = 13.56 cfs @ 13.72 hrs, Volume= 3.904 af
Primary = 13.56 cfs @ 13.72 hrs, Volume= 3.904 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2R : 2R

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link x2000: x2000

Hydrograph



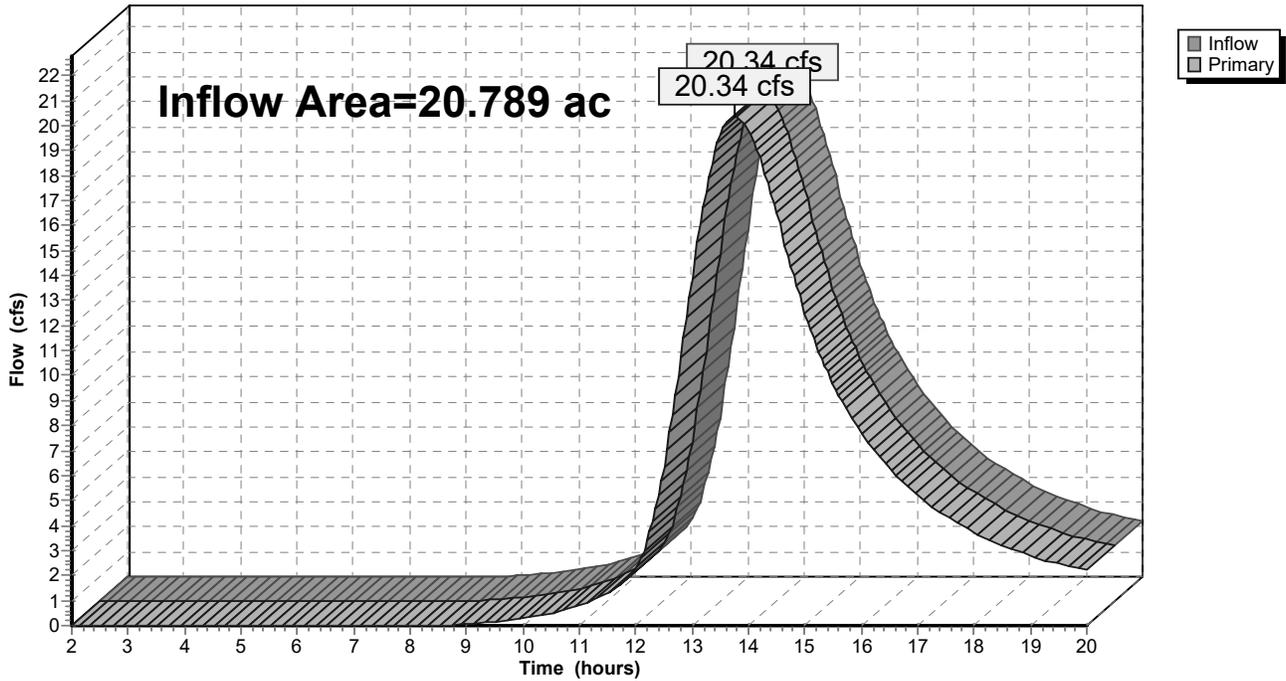
Summary for Link x3000: x3000

Inflow Area = 20.789 ac, 0.00% Impervious, Inflow Depth > 3.36" for 100-year event
Inflow = 20.34 cfs @ 13.75 hrs, Volume= 5.814 af
Primary = 20.34 cfs @ 13.75 hrs, Volume= 5.814 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

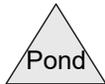
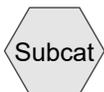
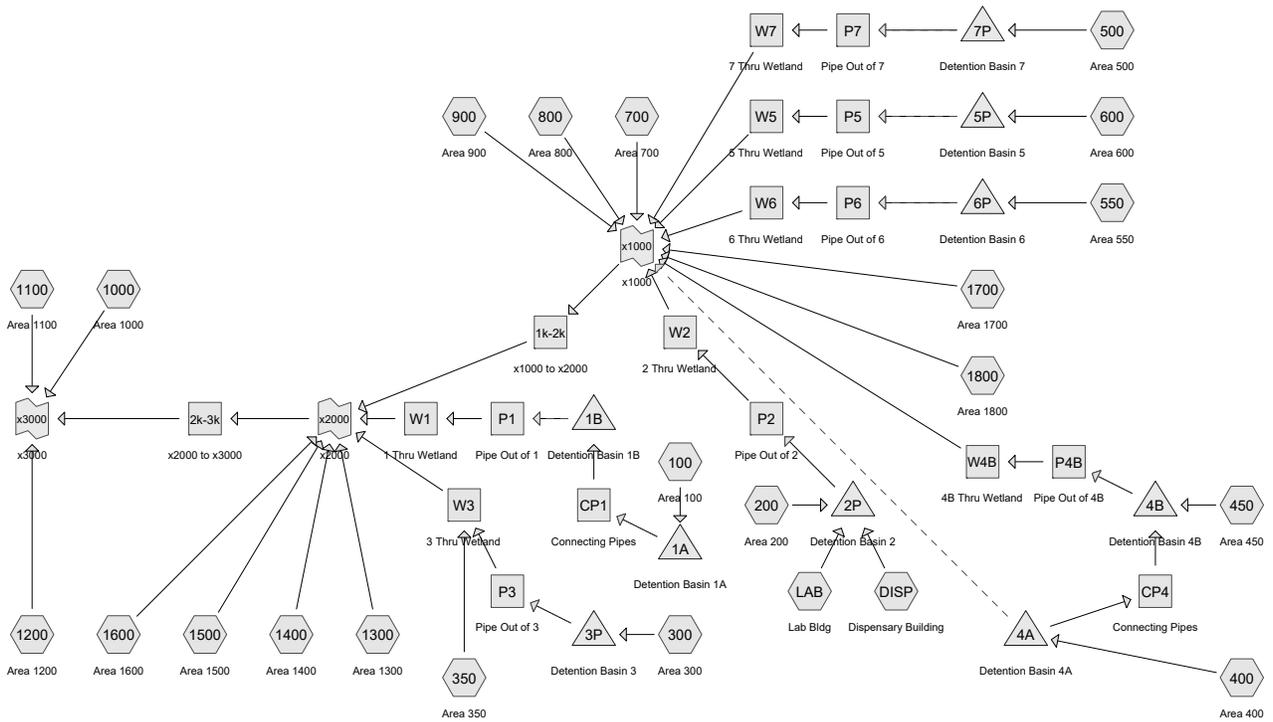
Link x3000: x3000

Hydrograph



HydroCAD Analysis: Proposed Conditions

2-Year Storm Event – Proposed



Routing Diagram for 4298600-PR - Reconfigure Basin #1
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4298600-PR - Reconfigure Basin #1

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	Type III 24-hr		Default	24.00	1	3.01	2
2	10-year	Type III 24-hr		Default	24.00	1	4.66	2
3	25-year	Type III 24-hr		Default	24.00	1	5.69	2
4	100-year	Type III 24-hr		Default	24.00	1	7.27	2

4298600-PR - Reconfigure Basin #1

Prepared by VHB

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.549	39	>75% Grass cover, Good, HSG A (450, 500, 550)
0.573	74	>75% Grass cover, Good, HSG C (400, 450, 550, 600, 1600, 1800)
0.632	80	>75% Grass cover, Good, HSG D (100, 200, 300, 400, 1600, 1800)
0.251	98	Paved parking, HSG A (500, 550)
0.670	98	Paved parking, HSG C (100, 200, 300, 400, 550, 600)
0.509	98	Paved parking, HSG D (100, 200, 300, 400, 1800)
0.421	98	Roofs, HSG A (600)
0.306	98	Roofs, HSG C (600, LAB)
0.094	98	Roofs, HSG D (DISP)
1.000	30	Woods, Good, HSG A (500, 700, 1600, 1700)
5.427	70	Woods, Good, HSG C (300, 350, 700, 1000, 1100, 1200, 1300, 1400, 1600, 1700, 1800)
10.358	77	Woods, Good, HSG D (300, 500, 700, 800, 900, 1000, 1200, 1300, 1400, 1500, 1600, 1800)
20.790	74	TOTAL AREA

4298600-PR - Reconfigure Basin #1

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.221	HSG A	450, 500, 550, 600, 700, 1600, 1700
0.000	HSG B	
6.976	HSG C	100, 200, 300, 350, 400, 450, 550, 600, 700, 1000, 1100, 1200, 1300, 1400, 1600, 1700, 1800, LAB
11.593	HSG D	100, 200, 300, 400, 500, 700, 800, 900, 1000, 1200, 1300, 1400, 1500, 1600, 1800, DISP
0.000	Other	
20.790		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.549	0.000	0.573	0.632	0.000	1.753	>75% Grass cover, Good	100, 200, 300, 400, 450, 500, 550, 600, 1600, 1800
0.251	0.000	0.670	0.509	0.000	1.431	Paved parking	100, 200, 300, 400, 500, 550, 600, 1800
0.421	0.000	0.306	0.094	0.000	0.821	Roofs	600, DISP, LAB
1.000	0.000	5.427	10.358	0.000	16.785	Woods, Good	300, 350, 500, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800
2.221	0.000	6.976	11.593	0.000	20.790	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1700	0.00	0.00	40.0	0.0250	0.013	0.0	18.0	0.0
2	CP1	204.00	203.40	60.0	0.0100	0.011	0.0	8.0	0.0
3	CP4	205.20	205.00	62.0	0.0032	0.011	0.0	15.0	0.0
4	P1	203.00	202.00	78.0	0.0128	0.013	0.0	12.0	0.0
5	P2	204.00	203.70	60.0	0.0050	0.013	0.0	12.0	0.0
6	P3	205.00	204.80	40.0	0.0050	0.013	0.0	12.0	0.0
7	P4B	205.00	204.00	182.0	0.0055	0.013	0.0	12.0	0.0
8	P5	204.00	203.80	35.0	0.0057	0.013	0.0	12.0	0.0
9	P6	206.00	205.50	60.0	0.0083	0.013	0.0	12.0	0.0
10	P7	206.00	204.00	290.0	0.0069	0.013	0.0	12.0	0.0

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Time span=2.00-20.00 hrs, dt=0.03 hrs, 601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 100: Area 100	Runoff Area=21,241 sf 39.36% Impervious Runoff Depth>1.63" Tc=6.0 min CN=87 Runoff=0.99 cfs 0.066 af
Subcatchment 200: Area 200	Runoff Area=7,259 sf 21.45% Impervious Runoff Depth>1.42" Tc=6.0 min CN=84 Runoff=0.30 cfs 0.020 af
Subcatchment 300: Area 300	Runoff Area=25,373 sf 47.63% Impervious Runoff Depth>1.71" Tc=6.0 min CN=88 Runoff=1.24 cfs 0.083 af
Subcatchment 350: Area 350	Runoff Area=2,640 sf 0.00% Impervious Runoff Depth>0.65" Tc=6.0 min CN=70 Runoff=0.04 cfs 0.003 af
Subcatchment 400: Area 400	Runoff Area=17,459 sf 54.77% Impervious Runoff Depth>1.71" Tc=6.0 min CN=88 Runoff=0.85 cfs 0.057 af
Subcatchment 450: Area 450	Runoff Area=5,879 sf 0.00% Impervious Runoff Depth>0.26" Tc=6.0 min CN=59 Runoff=0.02 cfs 0.003 af
Subcatchment 500: Area 500	Runoff Area=24,492 sf 21.12% Impervious Runoff Depth>0.07" Tc=6.0 min CN=50 Runoff=0.01 cfs 0.003 af
Subcatchment 550: Area 550	Runoff Area=24,095 sf 65.72% Impervious Runoff Depth>1.28" Tc=6.0 min CN=82 Runoff=0.89 cfs 0.059 af
Subcatchment 600: Area 600	Runoff Area=44,164 sf 81.56% Impervious Runoff Depth>2.23" Tc=6.0 min CN=94 Runoff=2.69 cfs 0.189 af
Subcatchment 700: Area 700	Runoff Area=155,394 sf 0.00% Impervious Runoff Depth>0.73" Flow Length=914' Tc=123.7 min CN=73 Runoff=0.79 cfs 0.218 af
Subcatchment 800: Area 800	Runoff Area=83,661 sf 0.00% Impervious Runoff Depth>0.92" Flow Length=850' Tc=142.4 min CN=77 Runoff=0.51 cfs 0.147 af
Subcatchment 900: Area 900	Runoff Area=20,660 sf 0.00% Impervious Runoff Depth>0.97" Flow Length=370' Tc=40.8 min CN=77 Runoff=0.28 cfs 0.038 af
Subcatchment 1000: Area 1000	Runoff Area=89,935 sf 0.00% Impervious Runoff Depth>0.70" Flow Length=675' Tc=101.4 min CN=72 Runoff=0.49 cfs 0.120 af
Subcatchment 1100: Area 1100	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>0.64" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.13 cfs 0.016 af
Subcatchment 1200: Area 1200	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>0.82" Flow Length=868' Tc=140.2 min CN=75 Runoff=0.88 cfs 0.256 af
Subcatchment 1300: Area 1300	Runoff Area=41,280 sf 0.00% Impervious Runoff Depth>0.73" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.20 cfs 0.057 af

Subcatchment 1400: Area 1400	Runoff Area=43,924 sf 0.00% Impervious Runoff Depth>0.81" Flow Length=410' Tc=58.3 min CN=74 Runoff=0.40 cfs 0.068 af
Subcatchment 1500: Area 1500	Runoff Area=15,037 sf 0.00% Impervious Runoff Depth>0.94" Flow Length=661' Tc=110.0 min CN=77 Runoff=0.11 cfs 0.027 af
Subcatchment 1600: Area 1600	Runoff Area=22,207 sf 0.00% Impervious Runoff Depth>0.16" Flow Length=1,245' Tc=149.8 min CN=56 Runoff=0.02 cfs 0.007 af
Subcatchment 1700: Area 1700	Runoff Area=23,148 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=917' Tc=159.8 min CN=33 Runoff=0.00 cfs 0.000 af
Subcatchment 1800: Area 1800	Runoff Area=52,490 sf 0.78% Impervious Runoff Depth>0.64" Flow Length=615' Tc=135.0 min CN=71 Runoff=0.22 cfs 0.064 af
Subcatchment DISP: Dispensary Building	Runoff Area=4,073 sf 100.00% Impervious Runoff Depth>2.65" Tc=6.0 min CN=98 Runoff=0.27 cfs 0.021 af
Subcatchment LAB: Lab Bldg	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>2.65" Tc=6.0 min CN=98 Runoff=0.33 cfs 0.025 af
Reach 1k-2k: x1000 to x2000	Avg. Flow Depth=0.21' Max Vel=0.99 fps Inflow=1.66 cfs 0.578 af n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=1.66 cfs 0.571 af
Reach 2k-3k: x2000 to x3000	Avg. Flow Depth=0.38' Max Vel=0.90 fps Inflow=2.11 cfs 0.756 af n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=2.11 cfs 0.742 af
Reach CP1: Connecting Pipes 8.0" Round Pipe x 2.00	n=0.011 Avg. Flow Depth=0.20' Max Vel=3.19 fps Inflow=0.57 cfs 0.064 af L=60.0' S=0.0100 '/' Capacity=2.86 cfs Outflow=0.57 cfs 0.064 af
Reach CP4: Connecting Pipes 15.0" Round Pipe x 2.00	n=0.011 Avg. Flow Depth=0.25' Max Vel=2.18 fps Inflow=0.76 cfs 0.057 af L=62.0' S=0.0032 '/' Capacity=8.67 cfs Outflow=0.76 cfs 0.056 af
Reach P1: Pipe Out of 1 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.09' Max Vel=1.89 fps Inflow=0.06 cfs 0.038 af L=78.0' S=0.0128 '/' Capacity=4.03 cfs Outflow=0.06 cfs 0.038 af
Reach P2: Pipe Out of 2 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.12' Max Vel=1.41 fps Inflow=0.07 cfs 0.046 af L=60.0' S=0.0050 '/' Capacity=2.52 cfs Outflow=0.07 cfs 0.046 af
Reach P3: Pipe Out of 3 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.12' Max Vel=1.42 fps Inflow=0.07 cfs 0.046 af L=40.0' S=0.0050 '/' Capacity=2.52 cfs Outflow=0.07 cfs 0.046 af
Reach P4B: Pipe Out of 4B 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.11' Max Vel=1.43 fps Inflow=0.07 cfs 0.040 af L=182.0' S=0.0055 '/' Capacity=2.64 cfs Outflow=0.07 cfs 0.040 af
Reach P5: Pipe Out of 5 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.15' Max Vel=1.77 fps Inflow=0.13 cfs 0.094 af L=35.0' S=0.0057 '/' Capacity=2.69 cfs Outflow=0.13 cfs 0.094 af
Reach P6: Pipe Out of 6 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.05' Max Vel=1.06 fps Inflow=0.02 cfs 0.003 af L=60.0' S=0.0083 '/' Capacity=3.25 cfs Outflow=0.02 cfs 0.003 af
Reach P7: Pipe Out of 7 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.02' Max Vel=0.56 fps Inflow=0.00 cfs 0.001 af L=290.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=0.00 cfs 0.001 af

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Type III 24-hr 2-year Rainfall=3.01"

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Reach W1: 1 Thru Wetland	Avg. Flow Depth=0.16' Max Vel=0.06 fps Inflow=0.06 cfs 0.038 af n=0.800 L=335.0' S=0.0197 '/' Capacity=3.31 cfs Outflow=0.06 cfs 0.023 af
Reach W2: 2 Thru Wetland	Avg. Flow Depth=0.17' Max Vel=0.05 fps Inflow=0.07 cfs 0.046 af n=0.800 L=375.0' S=0.0152 '/' Capacity=2.90 cfs Outflow=0.06 cfs 0.028 af
Reach W3: 3 Thru Wetland	Avg. Flow Depth=0.18' Max Vel=0.04 fps Inflow=0.09 cfs 0.049 af n=0.800 L=850.0' S=0.0092 '/' Capacity=2.26 cfs Outflow=0.03 cfs 0.003 af
Reach W4B: 4B Thru Wetland	Avg. Flow Depth=0.17' Max Vel=0.05 fps Inflow=0.07 cfs 0.040 af n=0.800 L=515.0' S=0.0117 '/' Capacity=2.54 cfs Outflow=0.05 cfs 0.013 af
Reach W5: 5 Thru Wetland	Avg. Flow Depth=0.23' Max Vel=0.07 fps Inflow=0.13 cfs 0.094 af n=0.800 L=318.0' S=0.0182 '/' Capacity=3.18 cfs Outflow=0.13 cfs 0.069 af
Reach W6: 6 Thru Wetland	Avg. Flow Depth=0.05' Max Vel=0.02 fps Inflow=0.02 cfs 0.003 af n=0.800 L=615.0' S=0.0122 '/' Capacity=2.60 cfs Outflow=0.00 cfs 0.000 af
Reach W7: 7 Thru Wetland	Avg. Flow Depth=0.02' Max Vel=0.01 fps Inflow=0.00 cfs 0.001 af n=0.800 L=600.0' S=0.0100 '/' Capacity=2.36 cfs Outflow=0.00 cfs 0.000 af
Pond 1A: Detention Basin 1A	Peak Elev=204.30' Storage=697 cf Inflow=0.99 cfs 0.066 af Outflow=0.57 cfs 0.064 af
Pond 1B: Detention Basin 1B	Peak Elev=203.45' Storage=1,601 cf Inflow=0.57 cfs 0.064 af Outflow=0.06 cfs 0.038 af
Pond 2P: Detention Basin 2	Peak Elev=204.55' Storage=1,625 cf Inflow=0.90 cfs 0.066 af Primary=0.07 cfs 0.046 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.046 af
Pond 3P: Detention Basin 3	Peak Elev=205.55' Storage=2,236 cf Inflow=1.24 cfs 0.083 af Primary=0.07 cfs 0.046 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.046 af
Pond 4A: Detention Basin 4A	Peak Elev=205.48' Storage=213 cf Inflow=0.85 cfs 0.057 af Primary=0.76 cfs 0.057 af Secondary=0.00 cfs 0.000 af Outflow=0.76 cfs 0.057 af
Pond 4B: Detention Basin 4B	Peak Elev=205.48' Storage=1,452 cf Inflow=0.78 cfs 0.059 af Primary=0.07 cfs 0.040 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.040 af
Pond 5P: Detention Basin 5	Peak Elev=205.62' Storage=5,250 cf Inflow=2.69 cfs 0.189 af Primary=0.13 cfs 0.094 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.094 af
Pond 6P: Detention Basin 6	Peak Elev=206.08' Storage=2,444 cf Inflow=0.89 cfs 0.059 af Primary=0.02 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.003 af
Pond 7P: Detention Basin 7	Peak Elev=206.04' Storage=112 cf Inflow=0.01 cfs 0.003 af Primary=0.00 cfs 0.001 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af
Link x1000: x1000	Inflow=1.66 cfs 0.578 af Primary=1.66 cfs 0.578 af

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Link x2000: x2000

Inflow=2.11 cfs 0.756 af
Primary=2.11 cfs 0.756 af

Link x3000: x3000

Inflow=3.40 cfs 1.134 af
Primary=3.40 cfs 1.134 af

Total Runoff Area = 20.790 ac Runoff Volume = 1.548 af Average Runoff Depth = 0.89"
89.17% Pervious = 18.538 ac 10.83% Impervious = 2.251 ac

4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 100: Area 100

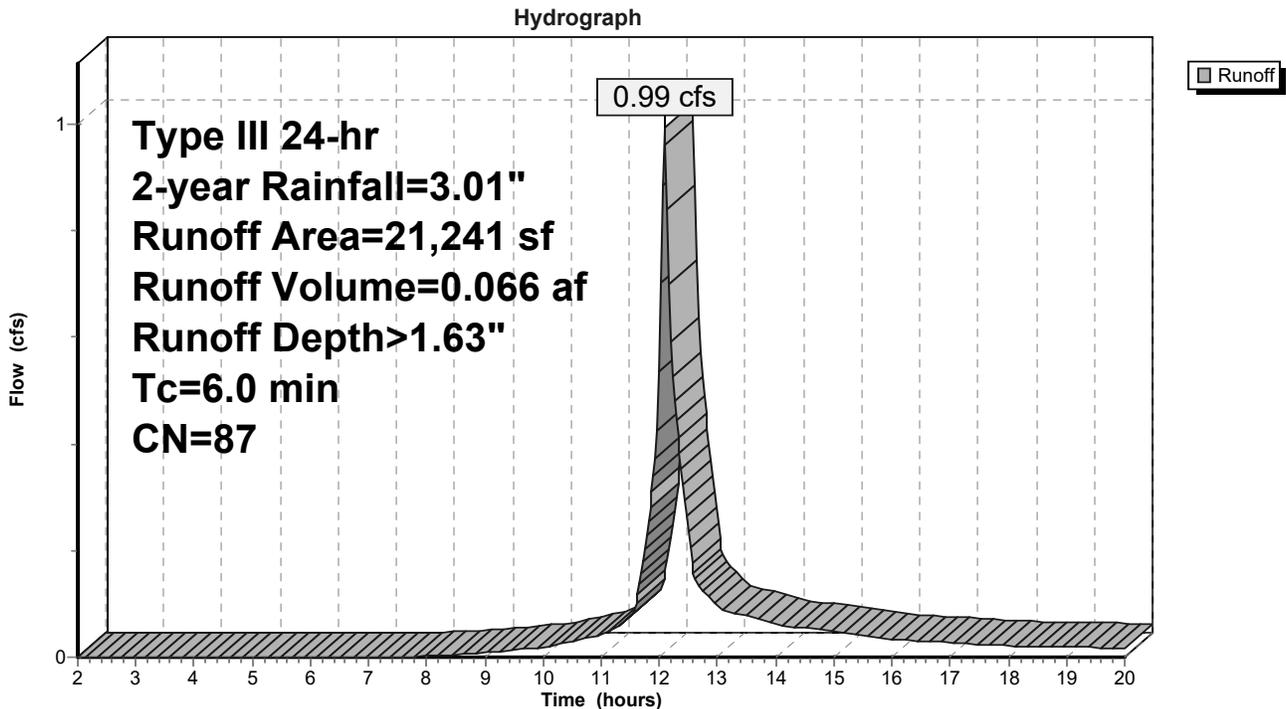
Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 1.63"
 Routed to Pond 1A : Detention Basin 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
2,229	98	Paved parking, HSG C
12,881	80	>75% Grass cover, Good, HSG D
6,131	98	Paved parking, HSG D
21,241	87	Weighted Average
12,881		60.64% Pervious Area
8,360		39.36% Impervious Area

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

Subcatchment 100: Area 100



4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 200: Area 200

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.020 af, Depth> 1.42"
 Routed to Pond 2P : Detention Basin 2

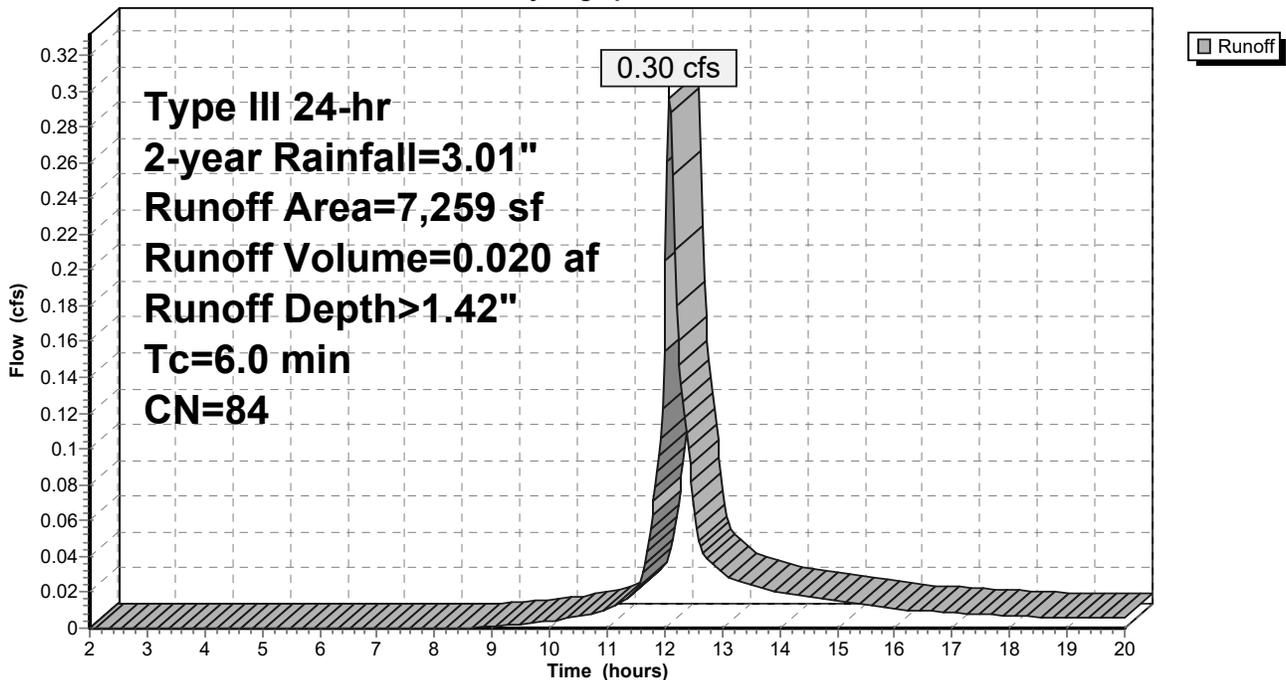
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
356	98	Paved parking, HSG D
1,201	98	Paved parking, HSG C
5,702	80	>75% Grass cover, Good, HSG D
7,259	84	Weighted Average
5,702		78.55% Pervious Area
1,557		21.45% Impervious Area

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

Subcatchment 200: Area 200

Hydrograph



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Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 300: Area 300

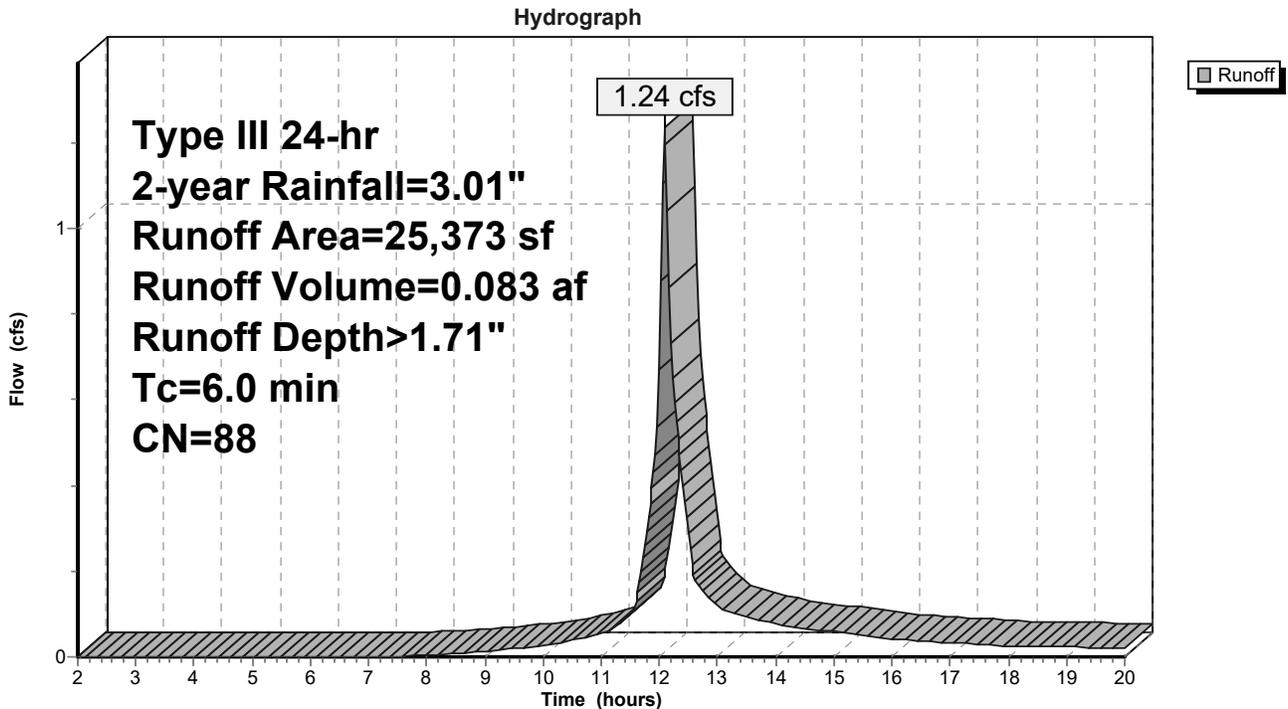
Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.083 af, Depth> 1.71"
 Routed to Pond 3P : Detention Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
6,584	77	Woods, Good, HSG D
10,134	98	Paved parking, HSG D
6,278	80	>75% Grass cover, Good, HSG D
425	70	Woods, Good, HSG C
1,952	98	Paved parking, HSG C
25,373	88	Weighted Average
13,287		52.37% Pervious Area
12,086		47.63% Impervious Area

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

Subcatchment 300: Area 300



Summary for Subcatchment 350: Area 350

Runoff = 0.04 cfs @ 12.10 hrs, Volume= 0.003 af, Depth> 0.65"
 Routed to Reach W3 : 3 Thru Wetland

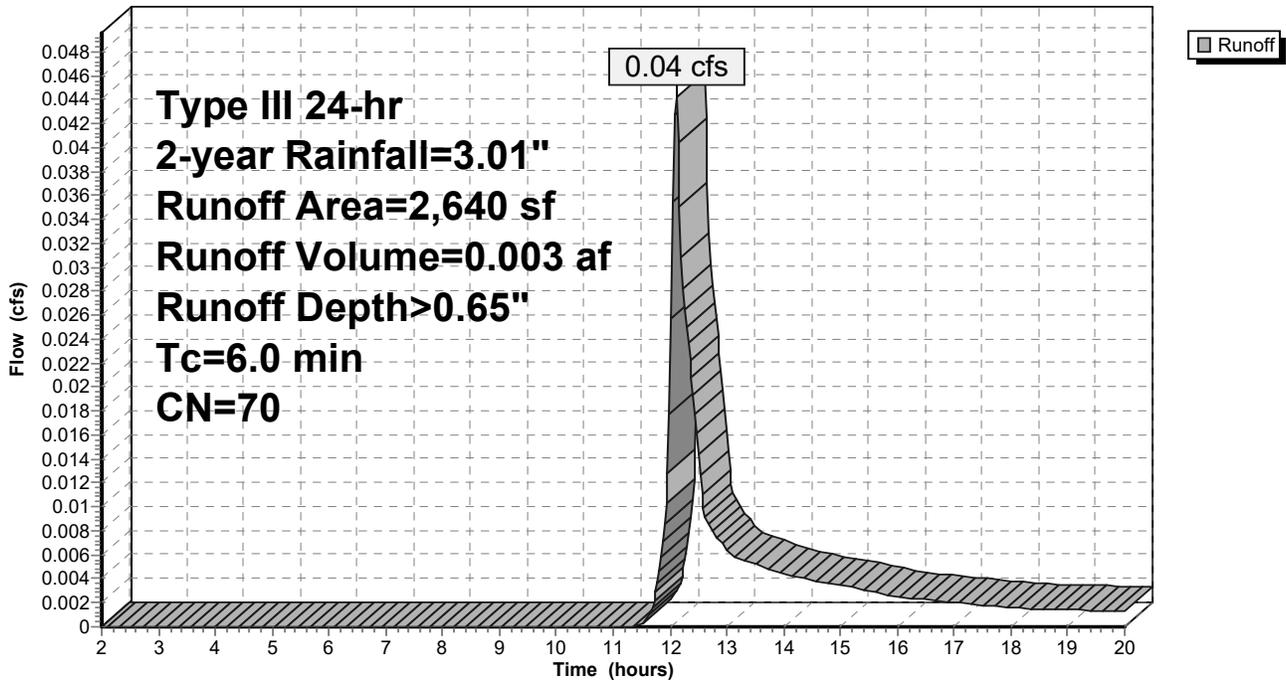
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
2,640	70	Woods, Good, HSG C
2,640		100.00% Pervious Area

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

Subcatchment 350: Area 350

Hydrograph



Summary for Subcatchment 400: Area 400

Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.057 af, Depth> 1.71"
 Routed to Pond 4A : Detention Basin 4A

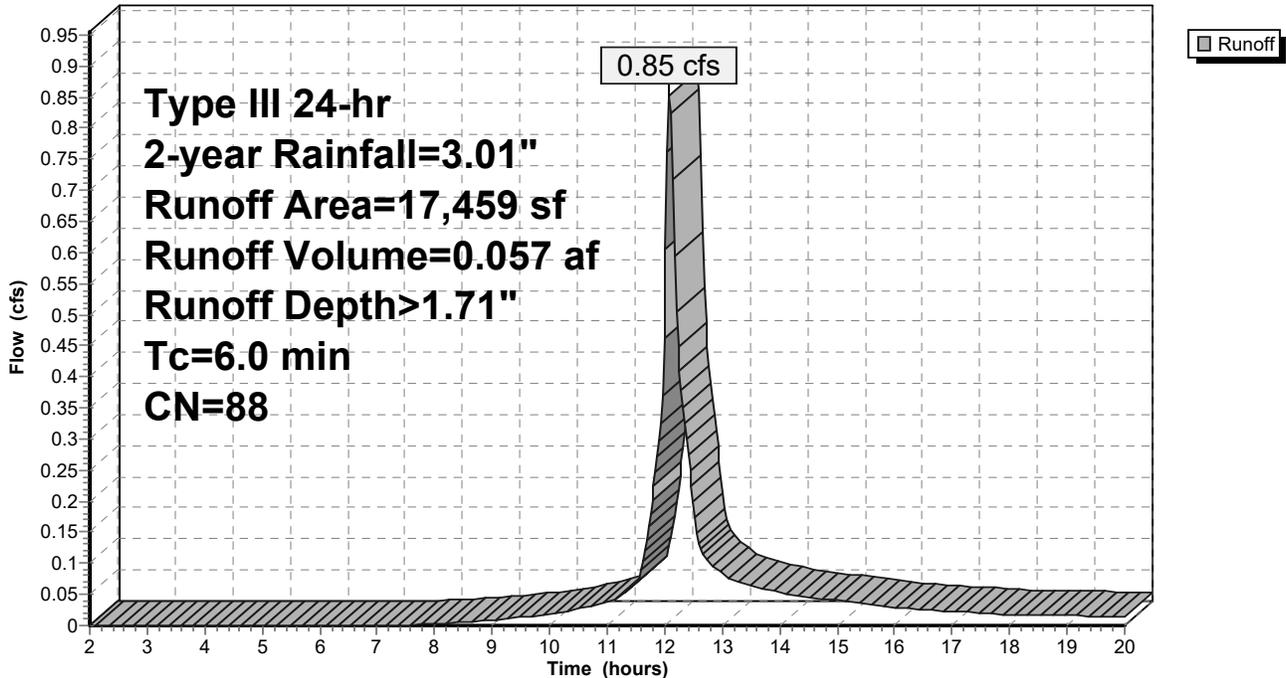
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
5,161	98	Paved parking, HSG D
1,112	80	>75% Grass cover, Good, HSG D
4,402	98	Paved parking, HSG C
6,784	74	>75% Grass cover, Good, HSG C
17,459	88	Weighted Average
7,896		45.23% Pervious Area
9,563		54.77% Impervious Area

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

Subcatchment 400: Area 400

Hydrograph



Summary for Subcatchment 450: Area 450

Runoff = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af, Depth> 0.26"
 Routed to Pond 4B : Detention Basin 4B

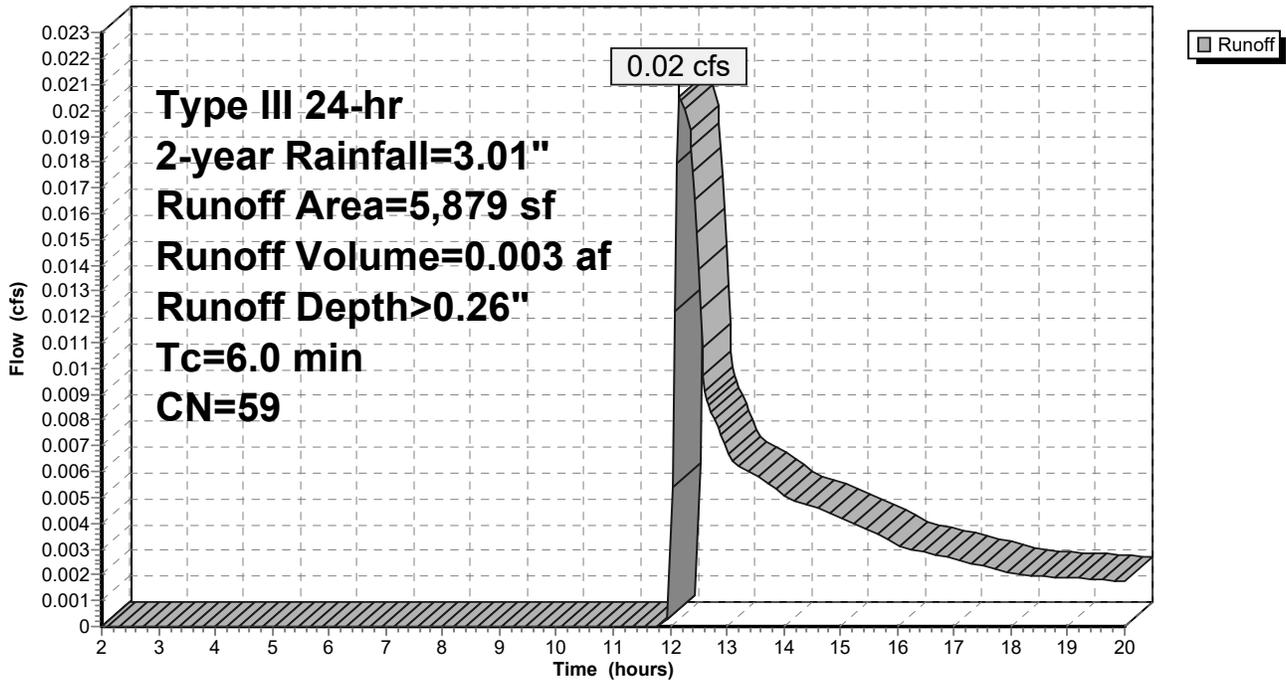
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
2,450	39	>75% Grass cover, Good, HSG A
3,429	74	>75% Grass cover, Good, HSG C
5,879	59	Weighted Average
5,879		100.00% Pervious Area

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

Subcatchment 450: Area 450

Hydrograph



Summary for Subcatchment 500: Area 500

Runoff = 0.01 cfs @ 13.75 hrs, Volume= 0.003 af, Depth> 0.07"
 Routed to Pond 7P : Detention Basin 7

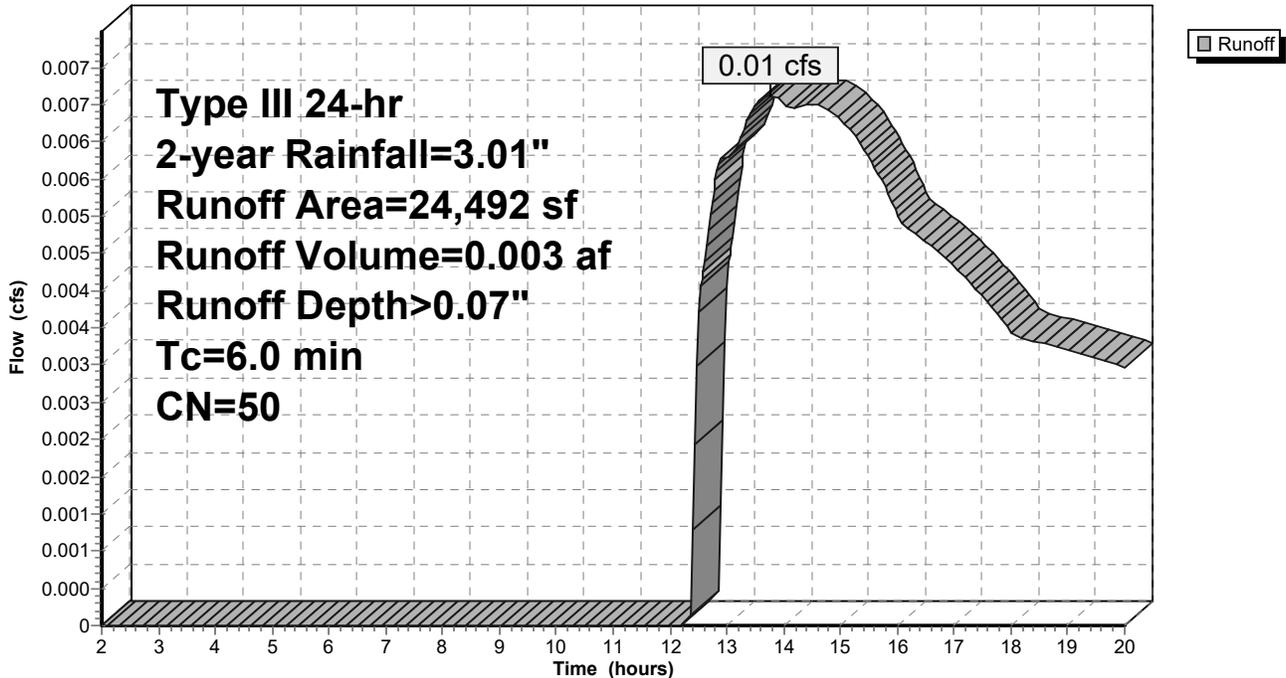
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
5,173	98	Paved parking, HSG A
3,184	30	Woods, Good, HSG A
16,049	39	>75% Grass cover, Good, HSG A
86	77	Woods, Good, HSG D
24,492	50	Weighted Average
19,319		78.88% Pervious Area
5,173		21.12% Impervious Area

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

Subcatchment 500: Area 500

Hydrograph



Summary for Subcatchment 550: Area 550

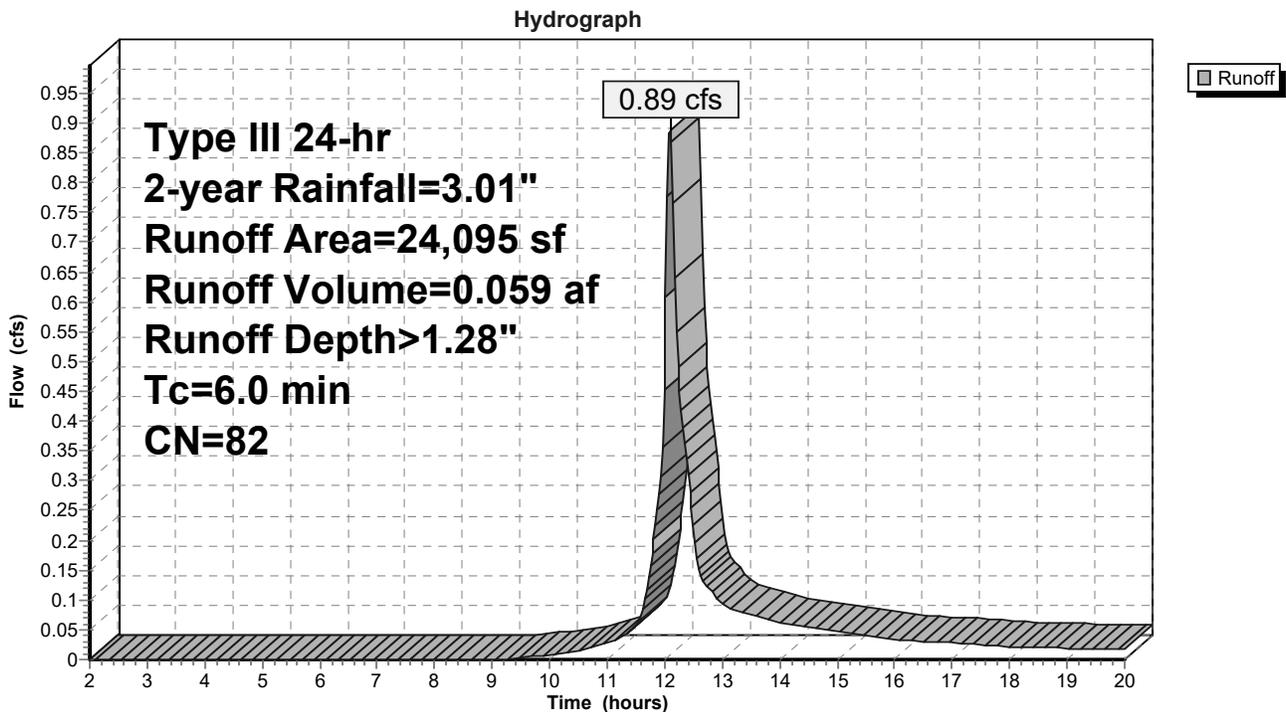
Runoff = 0.89 cfs @ 12.09 hrs, Volume= 0.059 af, Depth> 1.28"
 Routed to Pond 6P : Detention Basin 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
5,754	98	Paved parking, HSG A
5,395	39	>75% Grass cover, Good, HSG A
10,082	98	Paved parking, HSG C
2,864	74	>75% Grass cover, Good, HSG C
24,095	82	Weighted Average
8,259		34.28% Pervious Area
15,836		65.72% Impervious Area

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

Subcatchment 550: Area 550



4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 600: Area 600

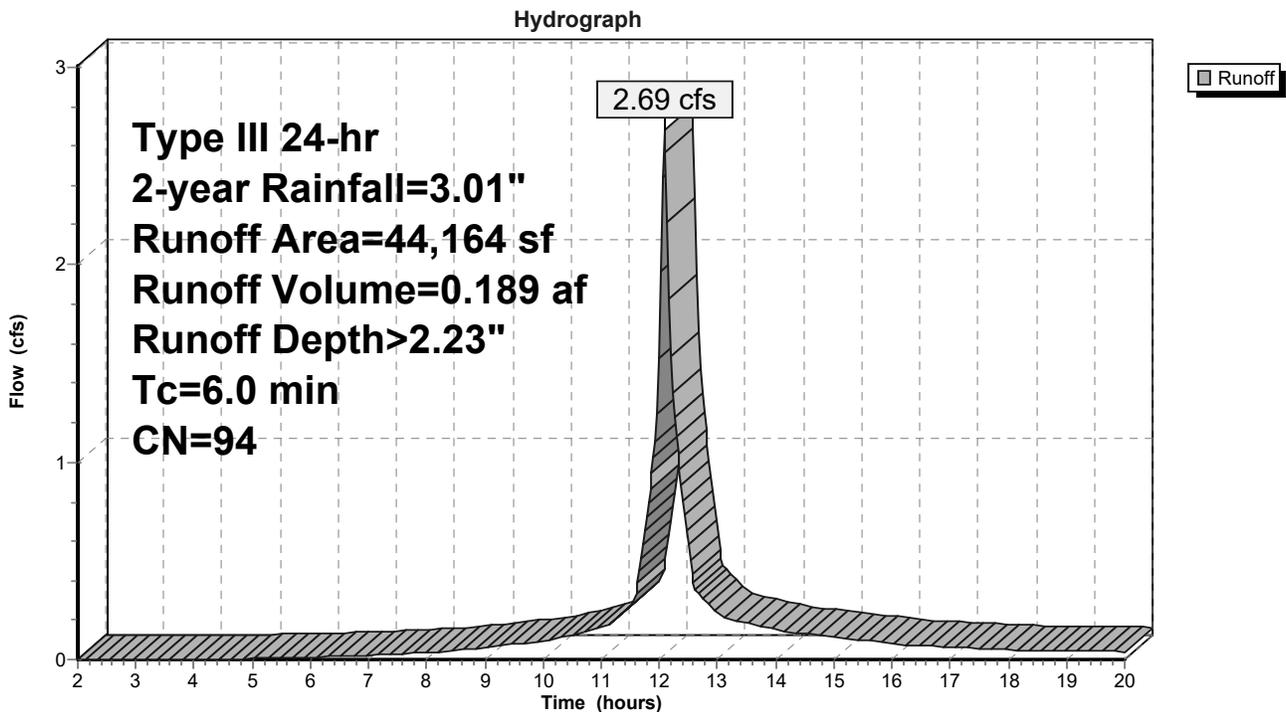
Runoff = 2.69 cfs @ 12.09 hrs, Volume= 0.189 af, Depth> 2.23"
 Routed to Pond 5P : Detention Basin 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
18,352	98	Roofs, HSG A
8,333	98	Roofs, HSG C
9,333	98	Paved parking, HSG C
8,146	74	>75% Grass cover, Good, HSG C
44,164	94	Weighted Average
8,146		18.44% Pervious Area
36,018		81.56% Impervious Area

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

Subcatchment 600: Area 600



Summary for Subcatchment 700: Area 700

Runoff = 0.79 cfs @ 13.77 hrs, Volume= 0.218 af, Depth> 0.73"
 Routed to Link x1000 : x1000

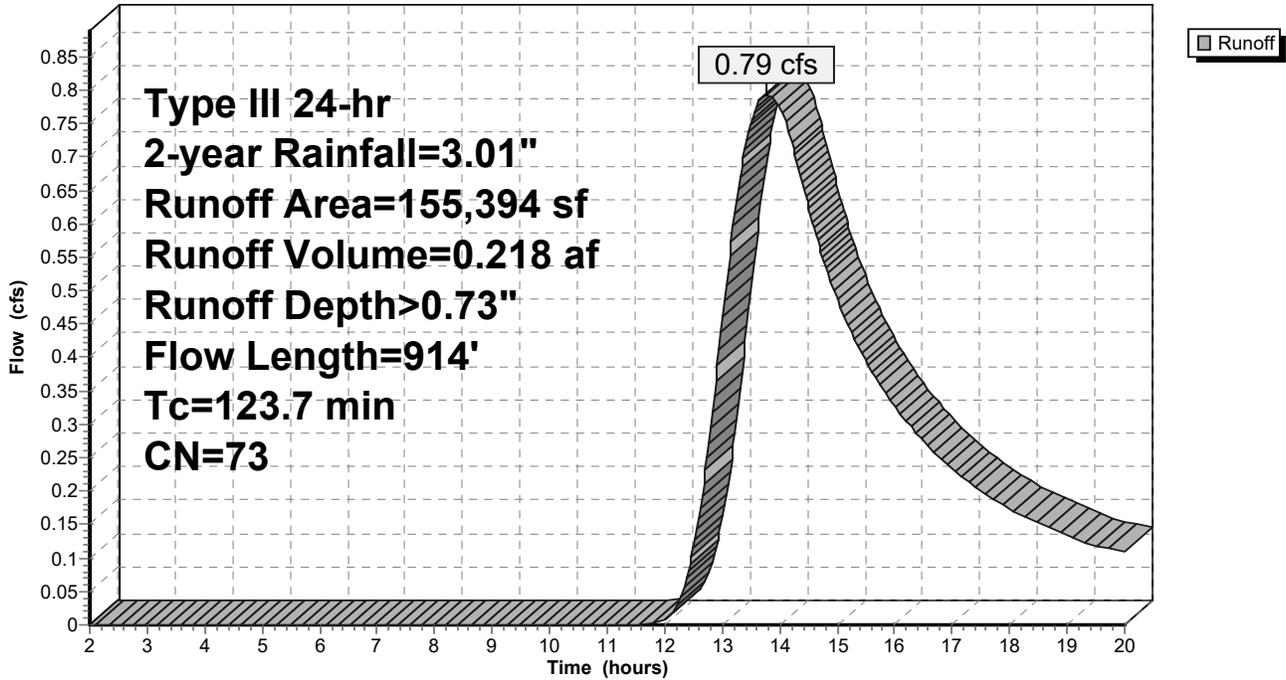
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
10,587	30	Woods, Good, HSG A
25,908	70	Woods, Good, HSG C
118,899	77	Woods, Good, HSG D
155,394	73	Weighted Average
155,394		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
10.0	150	0.0100	0.25		Shallow Concentrated Flow, Next 150' Forest w/Heavy Litter Kv= 2.5 fps
3.3	87	0.0300	0.43		Shallow Concentrated Flow, Next 87' Forest w/Heavy Litter Kv= 2.5 fps
24.7	117	0.0010	0.08		Shallow Concentrated Flow, Next 117' Forest w/Heavy Litter Kv= 2.5 fps
0.8	25	0.0400	0.50		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
10.9	225	0.0190	0.34		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
44.8	260	0.0015	0.10		Shallow Concentrated Flow, Last 260' Forest w/Heavy Litter Kv= 2.5 fps
123.7	914	Total			

Subcatchment 700: Area 700

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 800: Area 800

Runoff = 0.51 cfs @ 14.06 hrs, Volume= 0.147 af, Depth> 0.92"
 Routed to Link x1000 : x1000

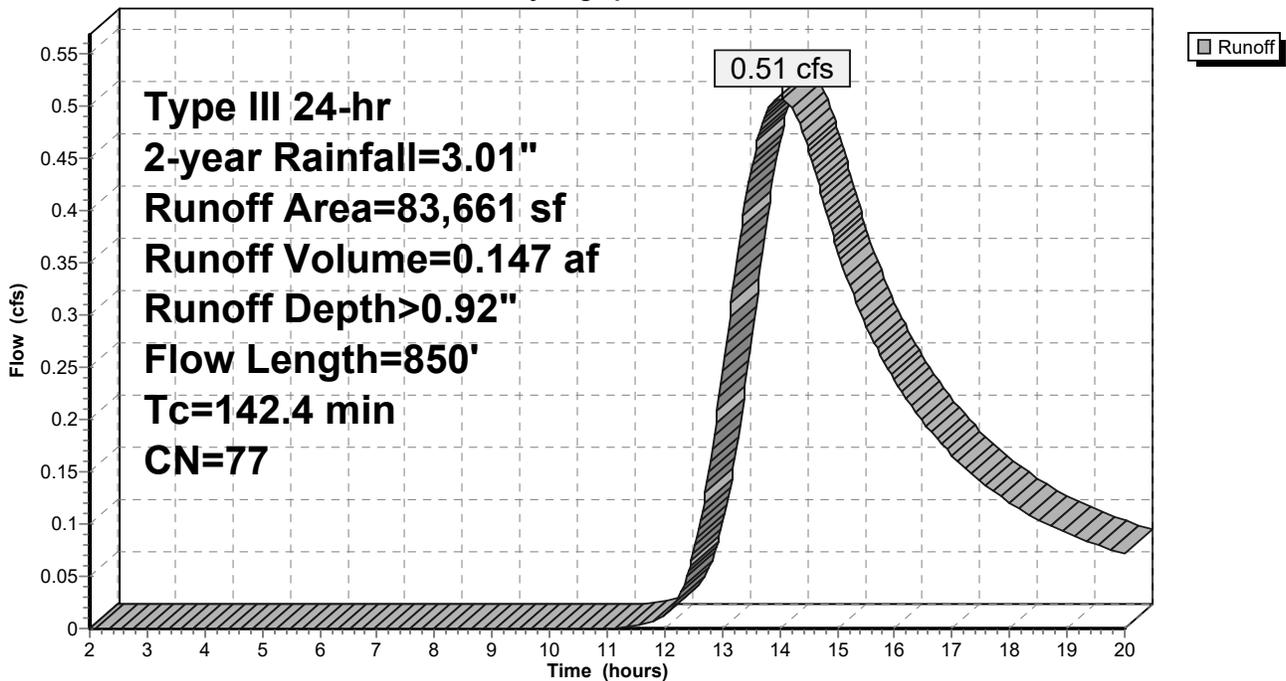
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
83,661	77	Woods, Good, HSG D
83,661		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
47.8	470	0.0043	0.16		Shallow Concentrated Flow, Next 470' Forest w/Heavy Litter Kv= 2.5 fps
16.2	180	0.0055	0.19		Shallow Concentrated Flow, Next 180' Forest w/Heavy Litter Kv= 2.5 fps
2.4	50	0.0200	0.35		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
2.6	100	0.0670	0.65		Shallow Concentrated Flow, Last 100' Forest w/Heavy Litter Kv= 2.5 fps
142.4	850	Total			

Subcatchment 800: Area 800

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 900: Area 900

Runoff = 0.28 cfs @ 12.60 hrs, Volume= 0.038 af, Depth> 0.97"
 Routed to Link x1000 : x1000

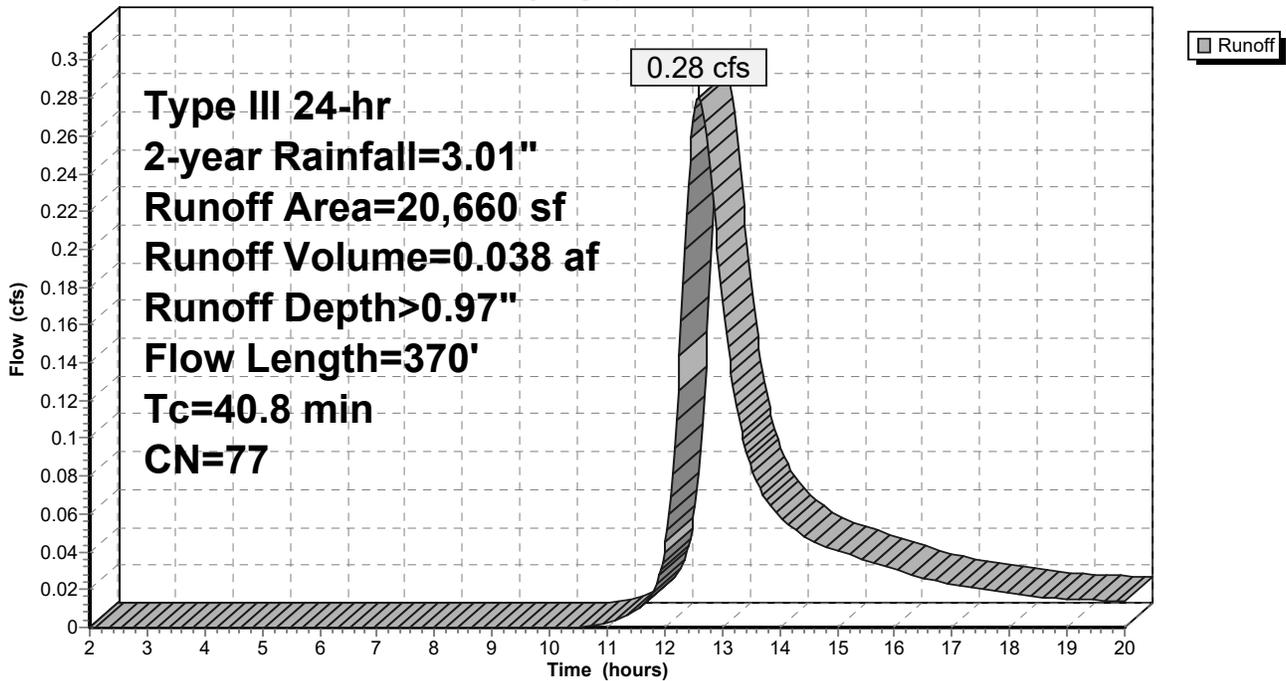
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
20,660	77	Woods, Good, HSG D
20,660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0670	0.06		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
27.1	320	0.0062	0.20		Shallow Concentrated Flow, Last 320' Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 900: Area 900

Hydrograph



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Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 1000: Area 1000

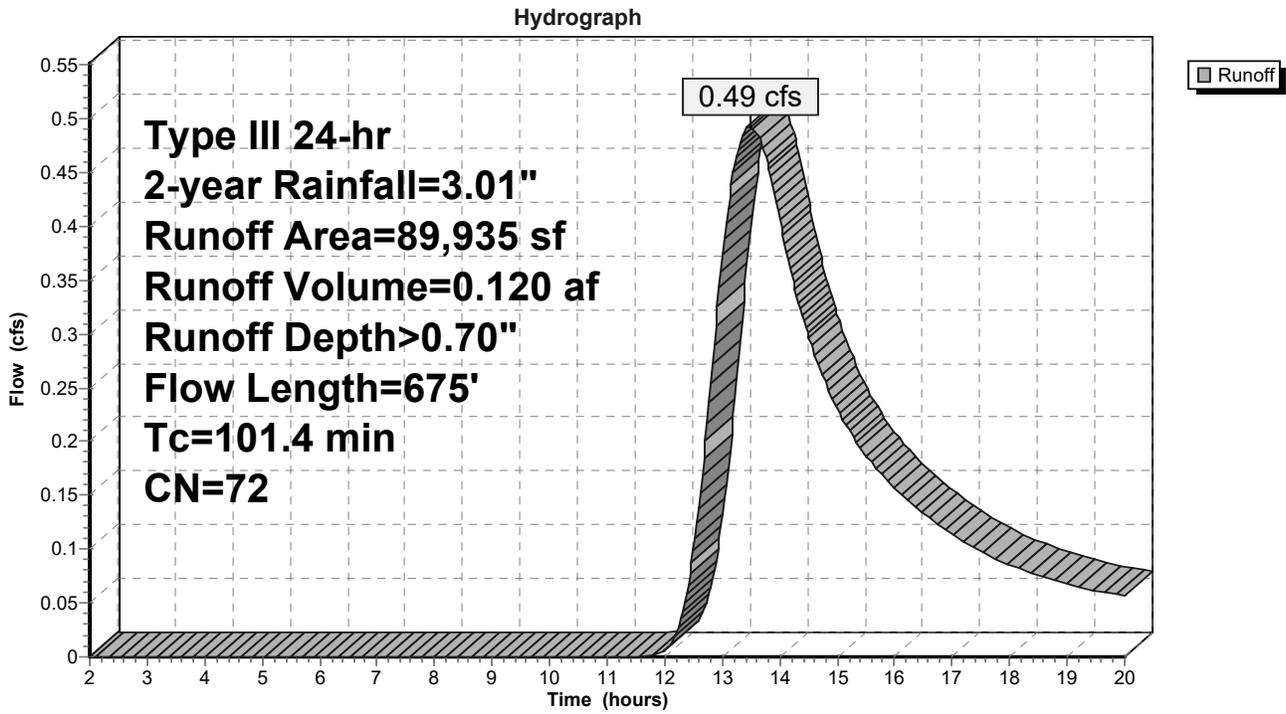
Runoff = 0.49 cfs @ 13.49 hrs, Volume= 0.120 af, Depth> 0.70"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
58,047	70	Woods, Good, HSG C
31,888	77	Woods, Good, HSG D
89,935	72	Weighted Average
89,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.6	50	0.0170	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
8.8	125	0.0090	0.24		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.5	20	0.0670	0.65		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
14.2	165	0.0060	0.19		Shallow Concentrated Flow, Next 165' Forest w/Heavy Litter Kv= 2.5 fps
1.6	65	0.0770	0.69		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
52.7	250	0.0010	0.08		Shallow Concentrated Flow, Last 250' Forest w/Heavy Litter Kv= 2.5 fps
101.4	675	Total			

Subcatchment 1000: Area 1000



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Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 1100: Area 1100

Runoff = 0.13 cfs @ 12.44 hrs, Volume= 0.016 af, Depth> 0.64"
 Routed to Link x3000 : x3000

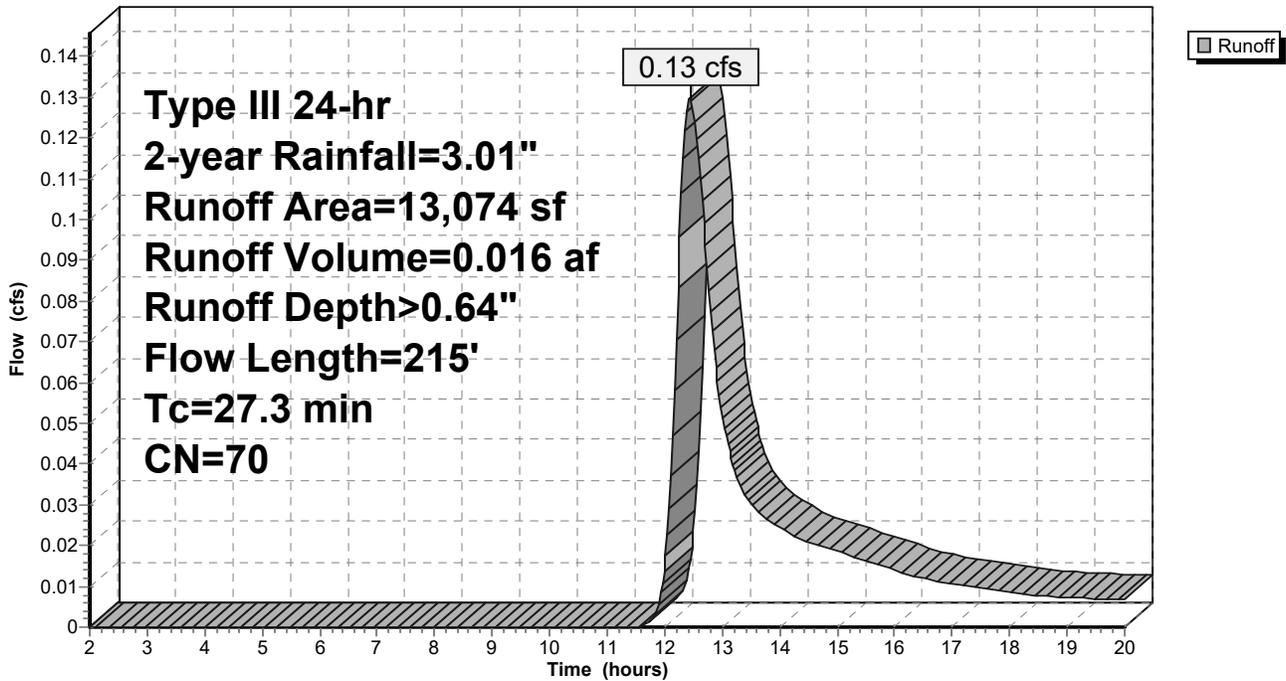
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
13,074	70	Woods, Good, HSG C
13,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1250	0.08		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.1	105	0.0297	0.43		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
12.6	60	0.0010	0.08		Shallow Concentrated Flow, Last 60' Forest w/Heavy Litter Kv= 2.5 fps
27.3	215	Total			

Subcatchment 1100: Area 1100

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 1200: Area 1200

Runoff = 0.88 cfs @ 14.01 hrs, Volume= 0.256 af, Depth> 0.82"
 Routed to Link x3000 : x3000

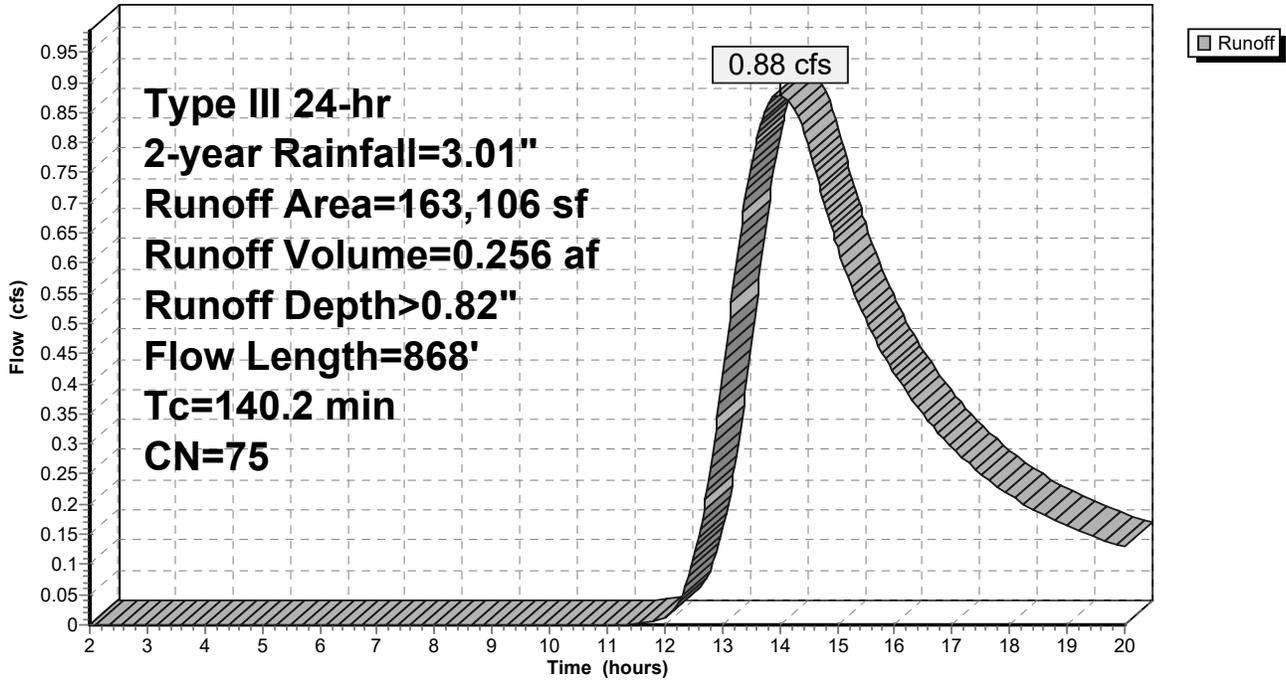
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
35,065	70	Woods, Good, HSG C
128,041	77	Woods, Good, HSG D
163,106	75	Weighted Average
163,106		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	20	0.2000	0.08		Sheet Flow, First 20' Woods: Dense underbrush n= 0.800 P2= 3.01"
31.4	30	0.0030	0.02		Sheet Flow, Next 30' Woods: Dense underbrush n= 0.800 P2= 3.01"
41.4	340	0.0030	0.14		Shallow Concentrated Flow, Next 340' Forest w/Heavy Litter Kv= 2.5 fps
2.1	95	0.0900	0.75		Shallow Concentrated Flow, Next 95' Forest w/Heavy Litter Kv= 2.5 fps
7.8	130	0.0125	0.28		Shallow Concentrated Flow, Next 130' Forest w/Heavy Litter Kv= 2.5 fps
53.3	253	0.0010	0.08		Shallow Concentrated Flow, Last 253' Forest w/Heavy Litter Kv= 2.5 fps
140.2	868	Total			

Subcatchment 1200: Area 1200

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 1300: Area 1300

Runoff = 0.20 cfs @ 13.98 hrs, Volume= 0.057 af, Depth> 0.73"
 Routed to Link x2000 : x2000

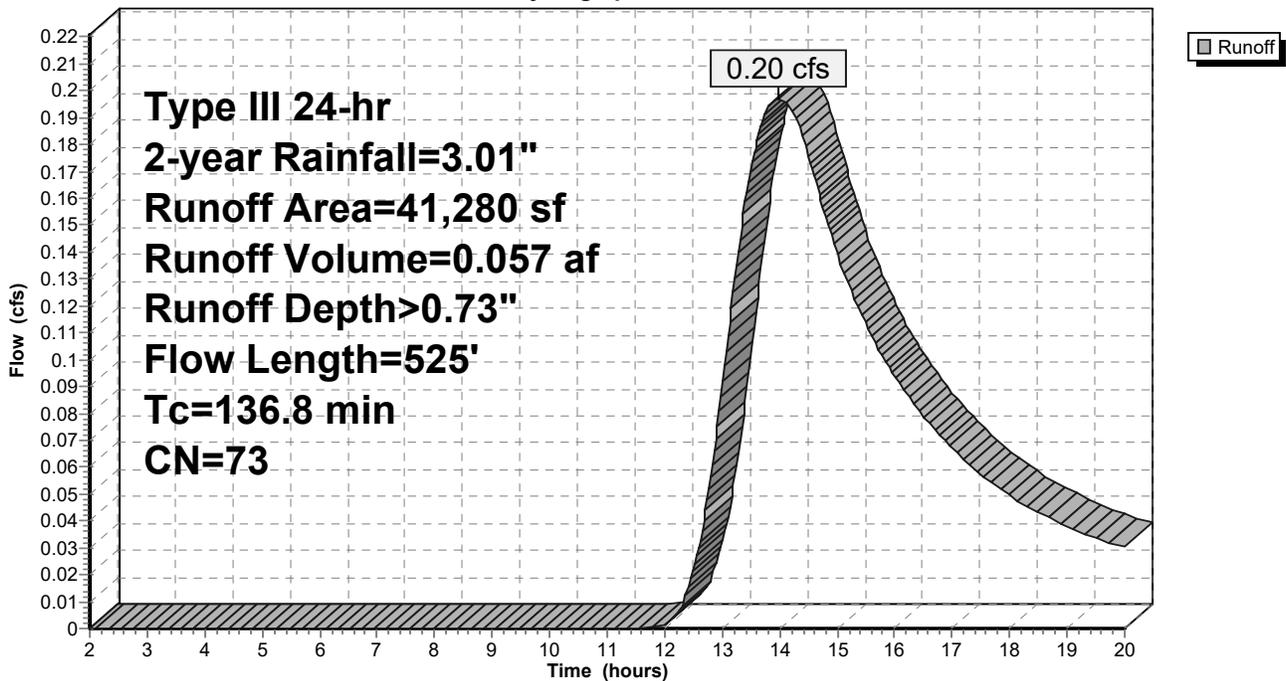
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
25,740	70	Woods, Good, HSG C
15,540	77	Woods, Good, HSG D
41,280	73	Weighted Average
41,280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
2.5	60	0.0250	0.40		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
1.5	70	0.1000	0.79		Shallow Concentrated Flow, Next 70' Forest w/Heavy Litter Kv= 2.5 fps
59.4	345	0.0015	0.10		Shallow Concentrated Flow, Last 345' Forest w/Heavy Litter Kv= 2.5 fps
136.8	525	Total			

Subcatchment 1300: Area 1300

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 1400: Area 1400

Runoff = 0.40 cfs @ 12.87 hrs, Volume= 0.068 af, Depth> 0.81"
 Routed to Link x2000 : x2000

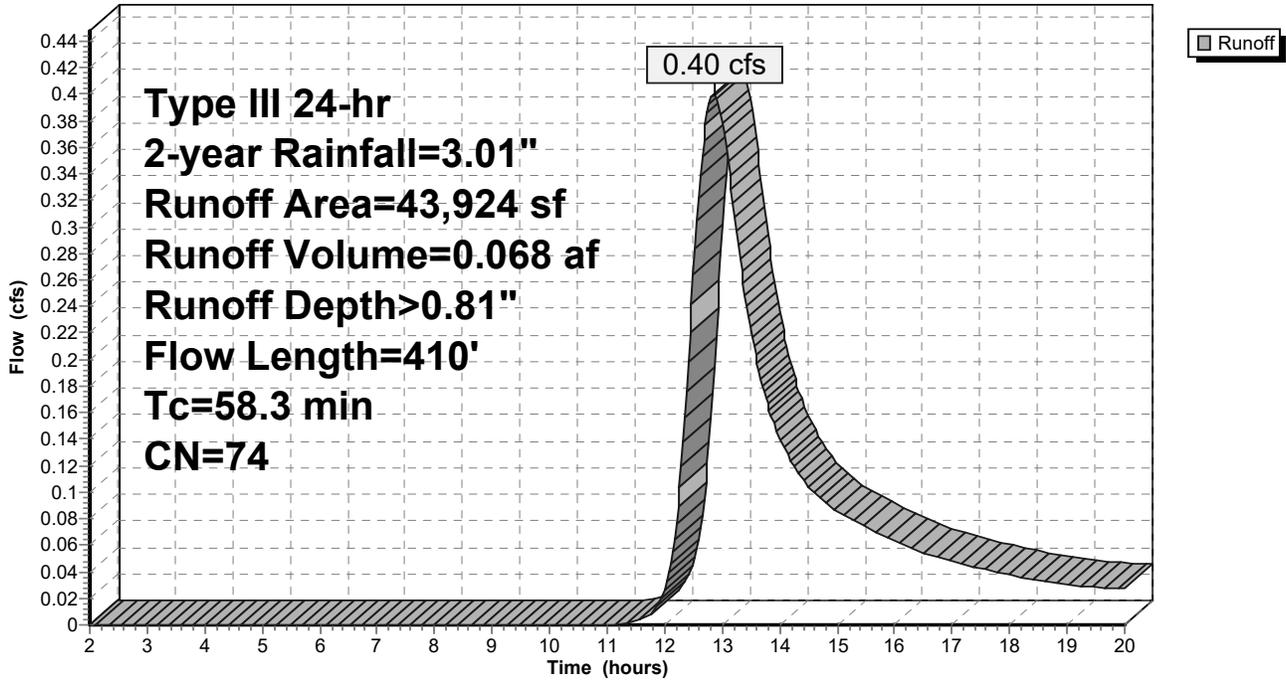
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
19,885	70	Woods, Good, HSG C
24,039	77	Woods, Good, HSG D
43,924	74	Weighted Average
43,924		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
9.3	125	0.0080	0.22		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.8	35	0.0830	0.72		Shallow Concentrated Flow, Next 35' Forest w/Heavy Litter Kv= 2.5 fps
4.4	115	0.0300	0.43		Shallow Concentrated Flow, Next 115' Forest w/Heavy Litter Kv= 2.5 fps
14.6	85	0.0015	0.10		Shallow Concentrated Flow, Last 85' Forest w/Heavy Litter Kv= 2.5 fps
58.3	410	Total			

Subcatchment 1400: Area 1400

Hydrograph



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Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 1500: Area 1500

Runoff = 0.11 cfs @ 13.56 hrs, Volume= 0.027 af, Depth> 0.94"
 Routed to Link x2000 : x2000

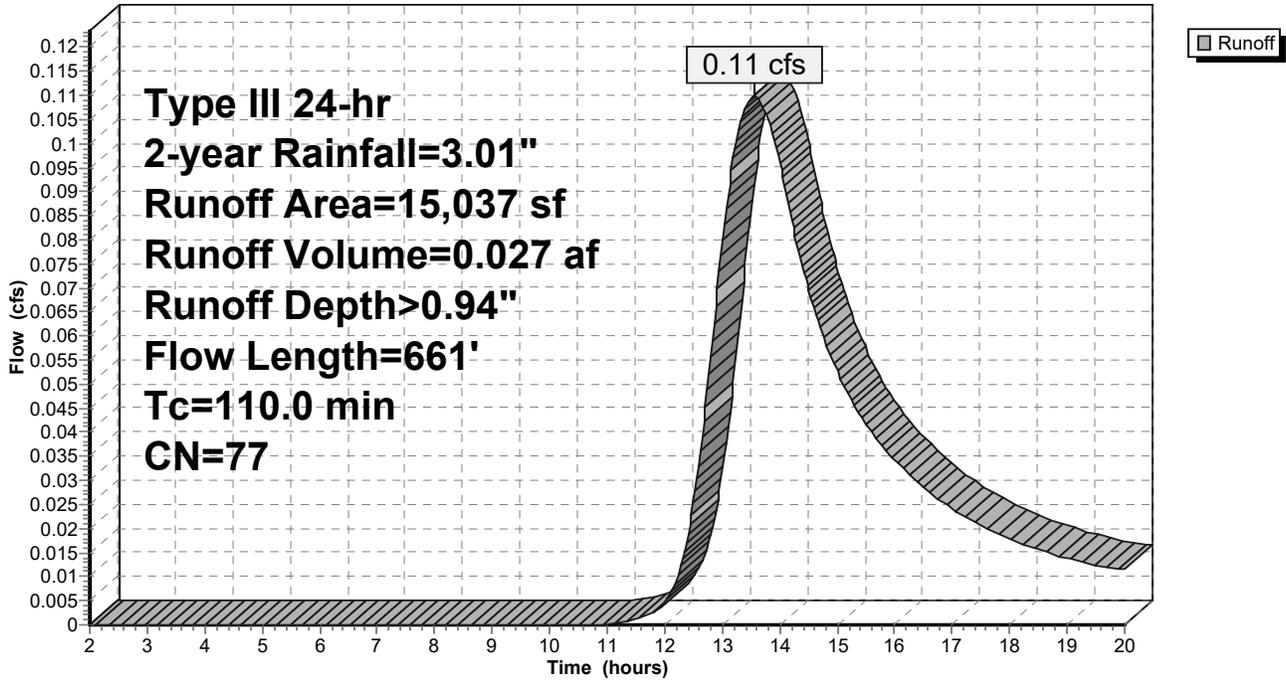
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
15,037	77	Woods, Good, HSG D
15,037		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0010	0.08		Shallow Concentrated Flow, First 50' Forest w/Heavy Litter Kv= 2.5 fps
19.0	90	0.0010	0.08		Shallow Concentrated Flow, Next 90' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
0.3	22	0.3330	1.44		Shallow Concentrated Flow, Next 22' Forest w/Heavy Litter Kv= 2.5 fps
0.5	22	0.0900	0.75		Shallow Concentrated Flow, Next 22' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
110.0	661	Total			

Subcatchment 1500: Area 1500

Hydrograph



Summary for Subcatchment 1600: Area 1600

Runoff = 0.02 cfs @ 14.84 hrs, Volume= 0.007 af, Depth> 0.16"
 Routed to Link x2000 : x2000

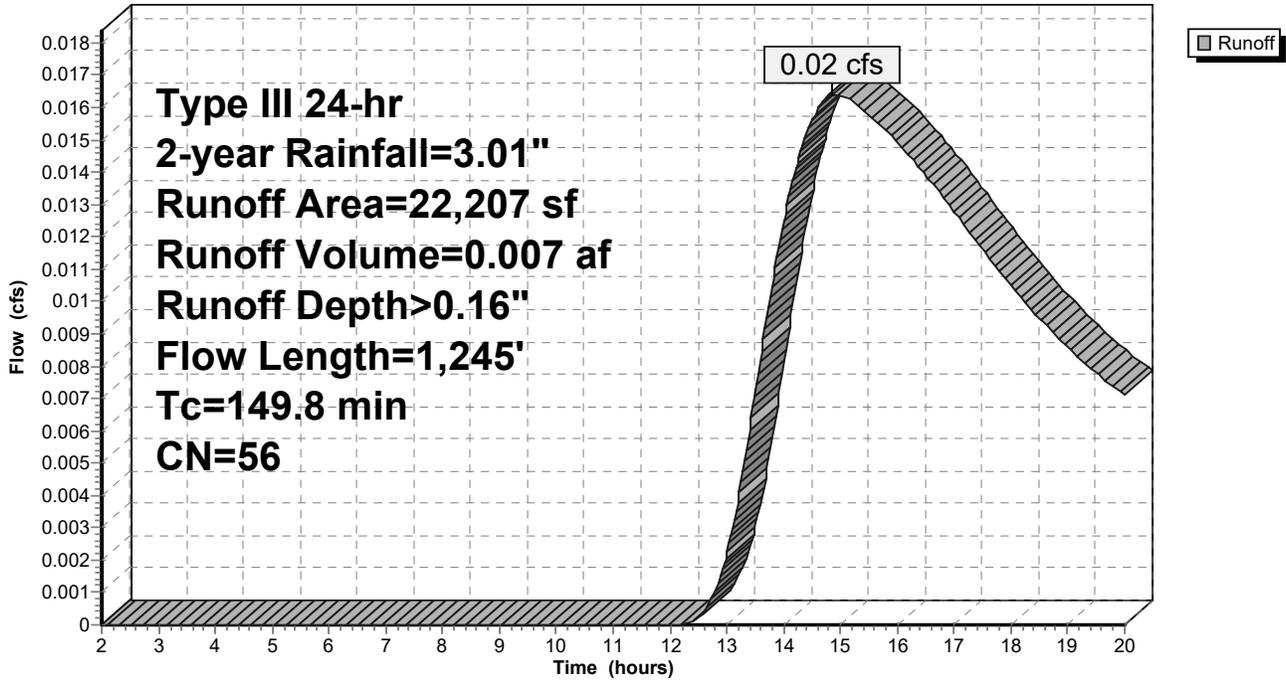
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
8,476	30	Woods, Good, HSG A
8,994	70	Woods, Good, HSG C
3,200	74	>75% Grass cover, Good, HSG C
715	77	Woods, Good, HSG D
822	80	>75% Grass cover, Good, HSG D
22,207	56	Weighted Average
22,207		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
3.3	50	0.0100	0.25		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
0.9	25	0.0370	0.48		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
23.3	350	0.0100	0.25		Shallow Concentrated Flow, Next 350' Forest w/Heavy Litter Kv= 2.5 fps
3.1	60	0.0167	0.32		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
6.9	170	0.0270	0.41		Shallow Concentrated Flow, Next 170' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
2.5	45	0.0140	0.30		Shallow Concentrated Flow, Next 45' Forest w/Heavy Litter Kv= 2.5 fps
0.9	18	0.0167	0.32		Shallow Concentrated Flow, Next 18' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
149.8	1,245	Total			

Subcatchment 1600: Area 1600

Hydrograph



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Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 1700: Area 1700

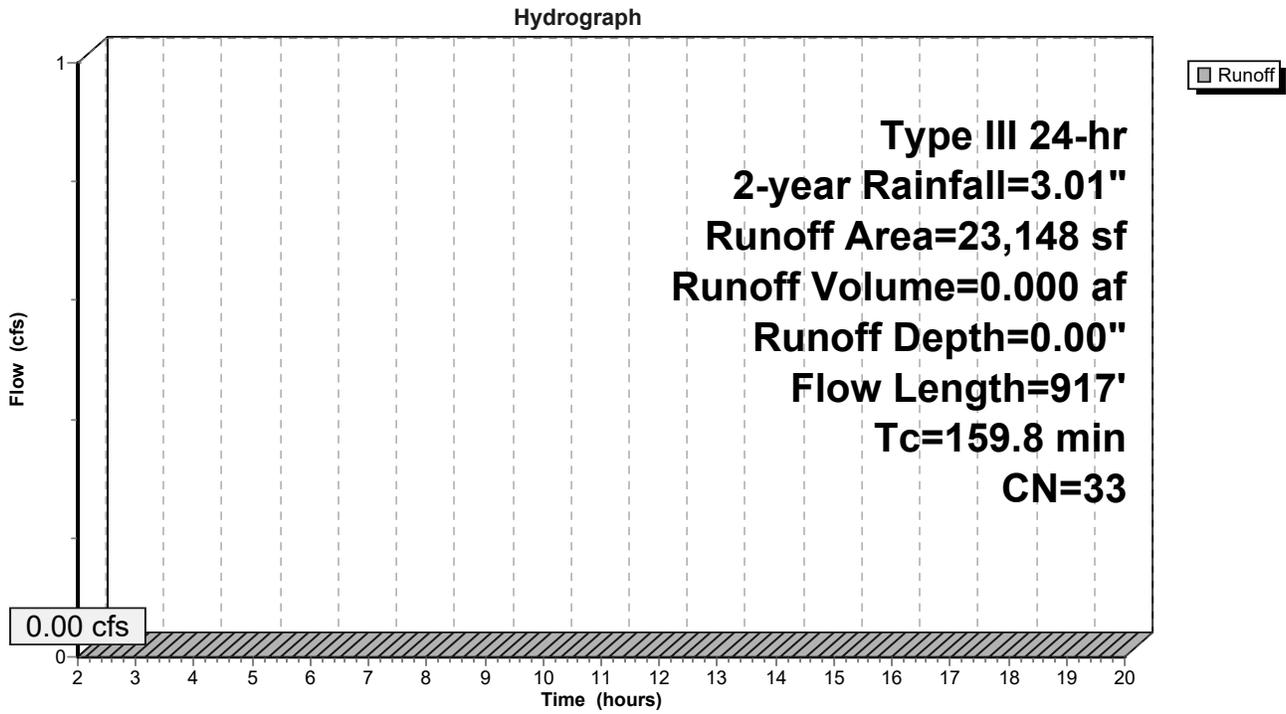
Runoff = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Depth= 0.00"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
21,327	30	Woods, Good, HSG A
1,821	70	Woods, Good, HSG C
23,148	33	Weighted Average
23,148		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	50	0.0050	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
20.0	212	0.0050	0.18		Shallow Concentrated Flow, Next 212' Forest w/Heavy Litter Kv= 2.5 fps
0.1	40	0.0250	9.40	16.61	Pipe Channel, Next 40' of pipe 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
10.4	110	0.0050	0.18		Shallow Concentrated Flow, Next 110' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
159.8	917	Total			

Subcatchment 1700: Area 1700



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Type III 24-hr 2-year Rainfall=3.01"

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Summary for Subcatchment 1800: Area 1800

Runoff = 0.22 cfs @ 13.97 hrs, Volume= 0.064 af, Depth> 0.64"
 Routed to Link x1000 : x1000

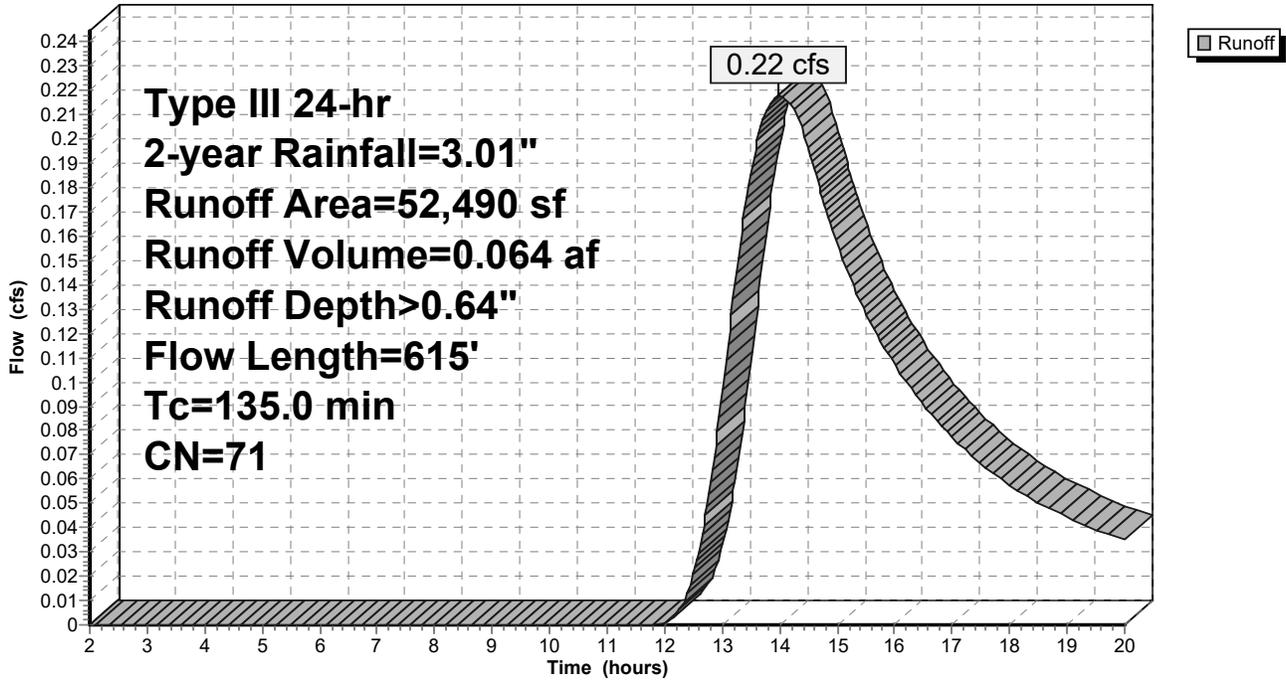
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
44,782	70	Woods, Good, HSG C
521	74	>75% Grass cover, Good, HSG C
6,038	77	Woods, Good, HSG D
740	80	>75% Grass cover, Good, HSG D
409	98	Paved parking, HSG D
52,490	71	Weighted Average
52,081		99.22% Pervious Area
409		0.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	50	0.0050	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
5.7	60	0.0050	0.18		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
135.0	615	Total			

Subcatchment 1800: Area 1800

Hydrograph



Summary for Subcatchment DISP: Dispensary Building

Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.021 af, Depth> 2.65"
 Routed to Pond 2P : Detention Basin 2

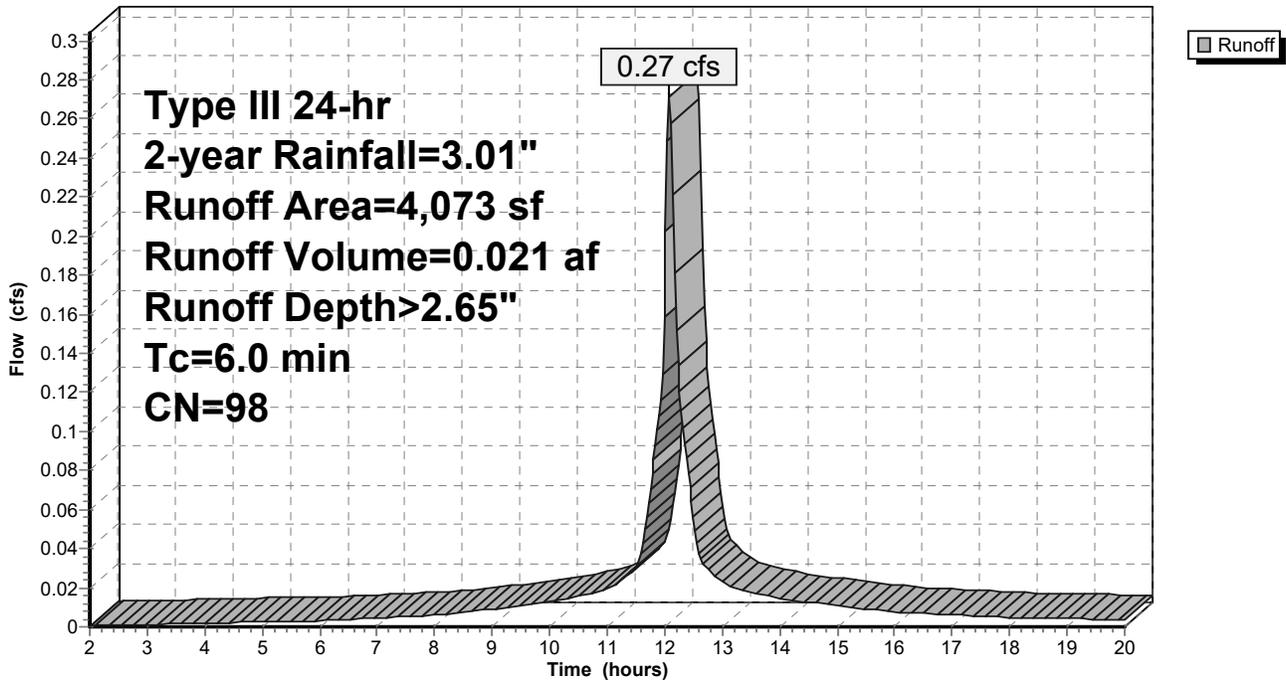
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
4,073	98	Roofs, HSG D
4,073		100.00% Impervious Area

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

Subcatchment DISP: Dispensary Building

Hydrograph



Summary for Subcatchment LAB: Lab Bldg

Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.025 af, Depth> 2.65"
 Routed to Pond 2P : Detention Basin 2

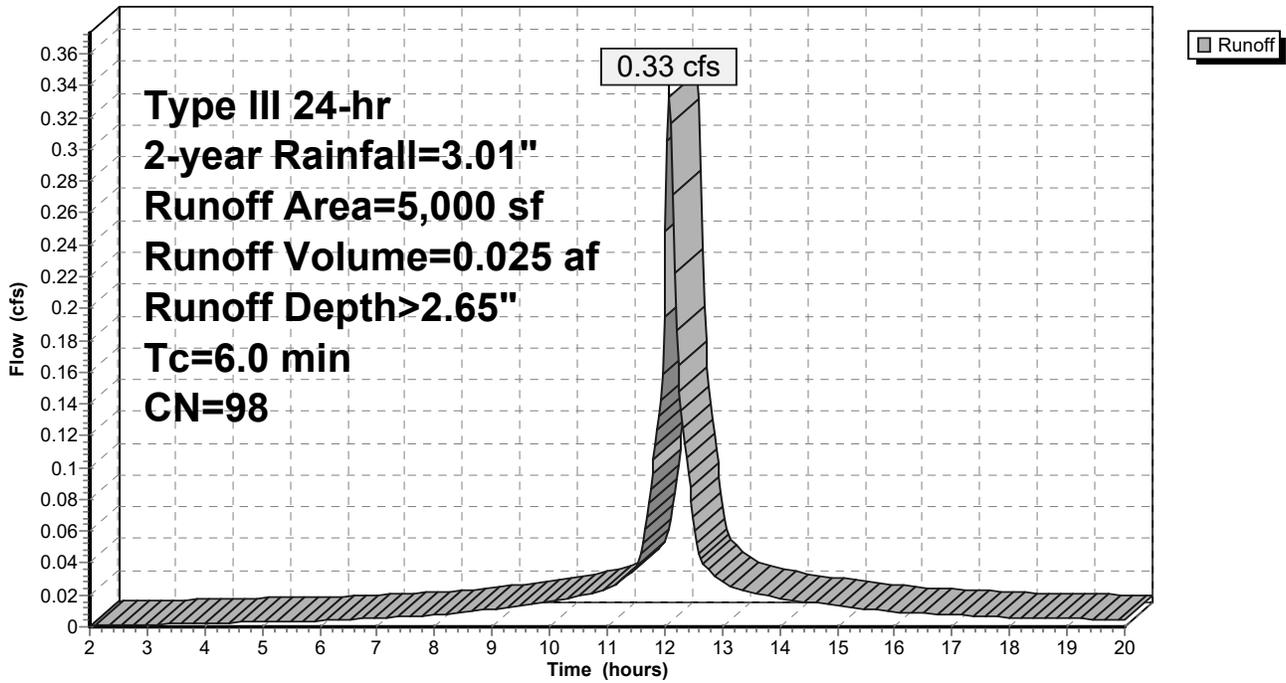
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-year Rainfall=3.01"

Area (sf)	CN	Description
5,000	98	Roofs, HSG C
5,000		100.00% Impervious Area

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

Subcatchment LAB: Lab Bldg

Hydrograph



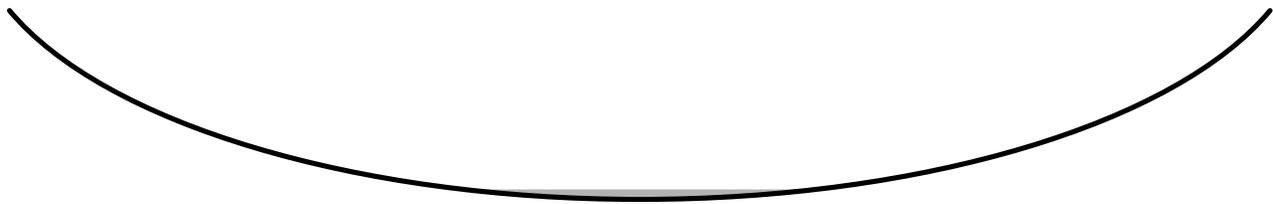
Summary for Reach 1k-2k: x1000 to x2000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 0.65" for 2-year event
Inflow = 1.66 cfs @ 13.90 hrs, Volume= 0.578 af
Outflow = 1.66 cfs @ 14.02 hrs, Volume= 0.571 af, Atten= 0%, Lag= 7.5 min
Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 0.99 fps, Min. Travel Time= 4.4 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 7.1 min

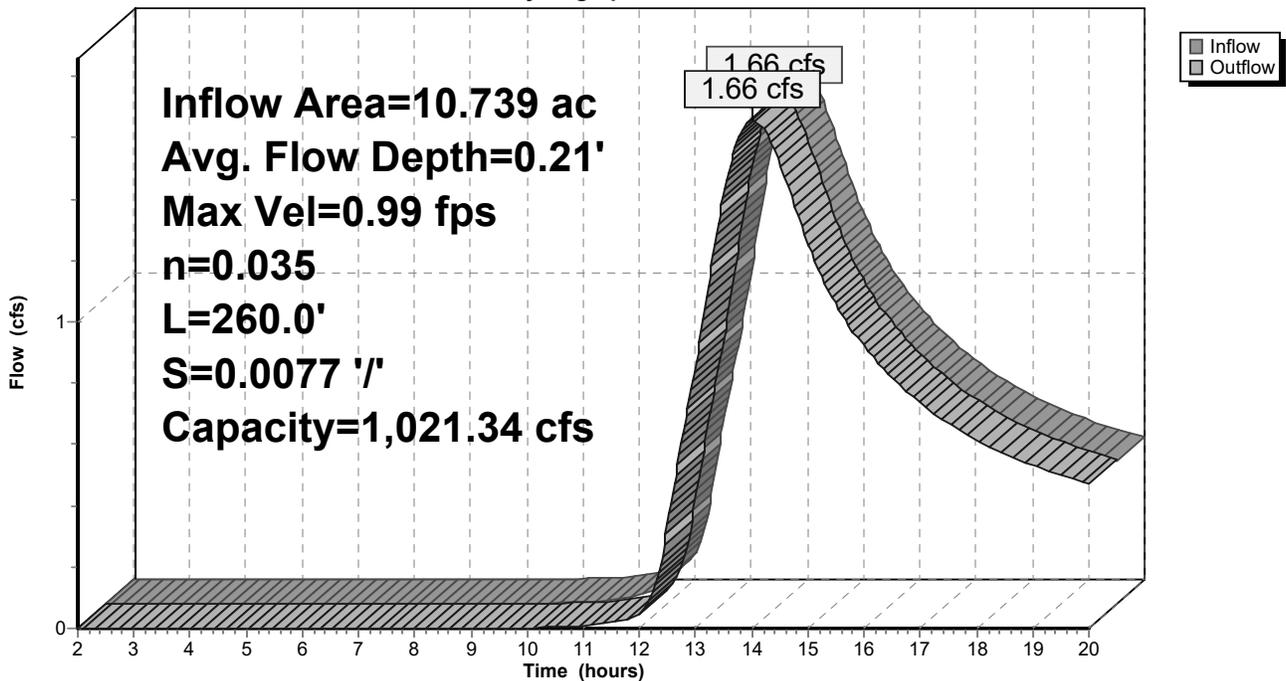
Peak Storage= 435 cf @ 13.95 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 12.23'
Bank-Full Depth= 4.00' Flow Area= 144.0 sf, Capacity= 1,021.34 cfs

54.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 260.0' Slope= 0.0077 '/'
Inlet Invert= 198.00', Outlet Invert= 196.00'



Reach 1k-2k: x1000 to x2000

Hydrograph



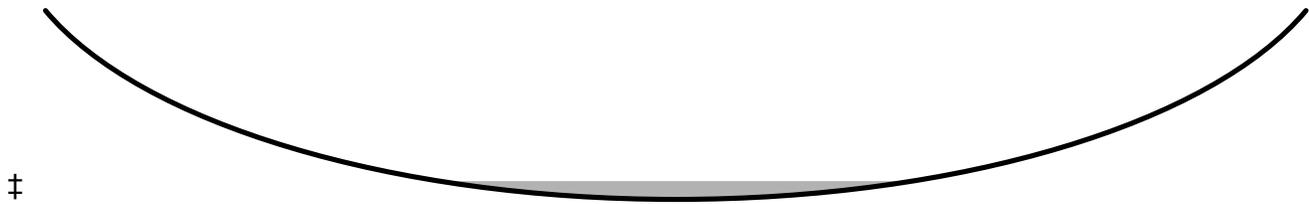
Summary for Reach 2k-3k: x2000 to x3000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 0.62" for 2-year event
Inflow = 2.11 cfs @ 13.95 hrs, Volume= 0.756 af
Outflow = 2.11 cfs @ 14.13 hrs, Volume= 0.742 af, Atten= 0%, Lag= 11.3 min
Routed to Link x3000 : x3000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 0.90 fps, Min. Travel Time= 6.7 min
Avg. Velocity = 0.52 fps, Avg. Travel Time= 11.6 min

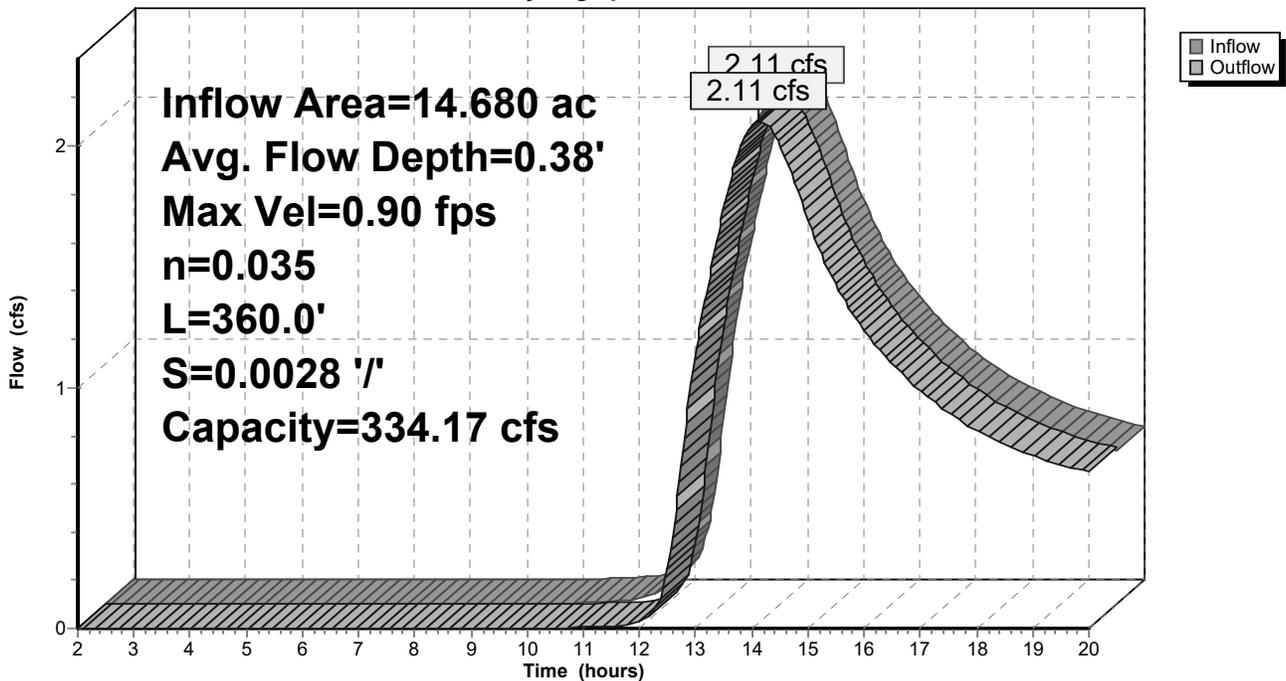
Peak Storage= 846 cf @ 14.02 hrs
Average Depth at Peak Storage= 0.38' , Surface Width= 9.25'
Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 360.0' Slope= 0.0028 '/
Inlet Invert= 196.00', Outlet Invert= 195.00'



Reach 2k-3k: x2000 to x3000

Hydrograph



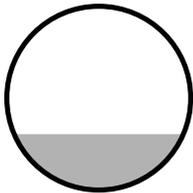
Summary for Reach CP1: Connecting Pipes

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.57" for 2-year event
 Inflow = 0.57 cfs @ 12.21 hrs, Volume= 0.064 af
 Outflow = 0.57 cfs @ 12.22 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.7 min
 Routed to Pond 1B : Detention Basin 1B

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 3.19 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 1.38 fps, Avg. Travel Time= 0.7 min

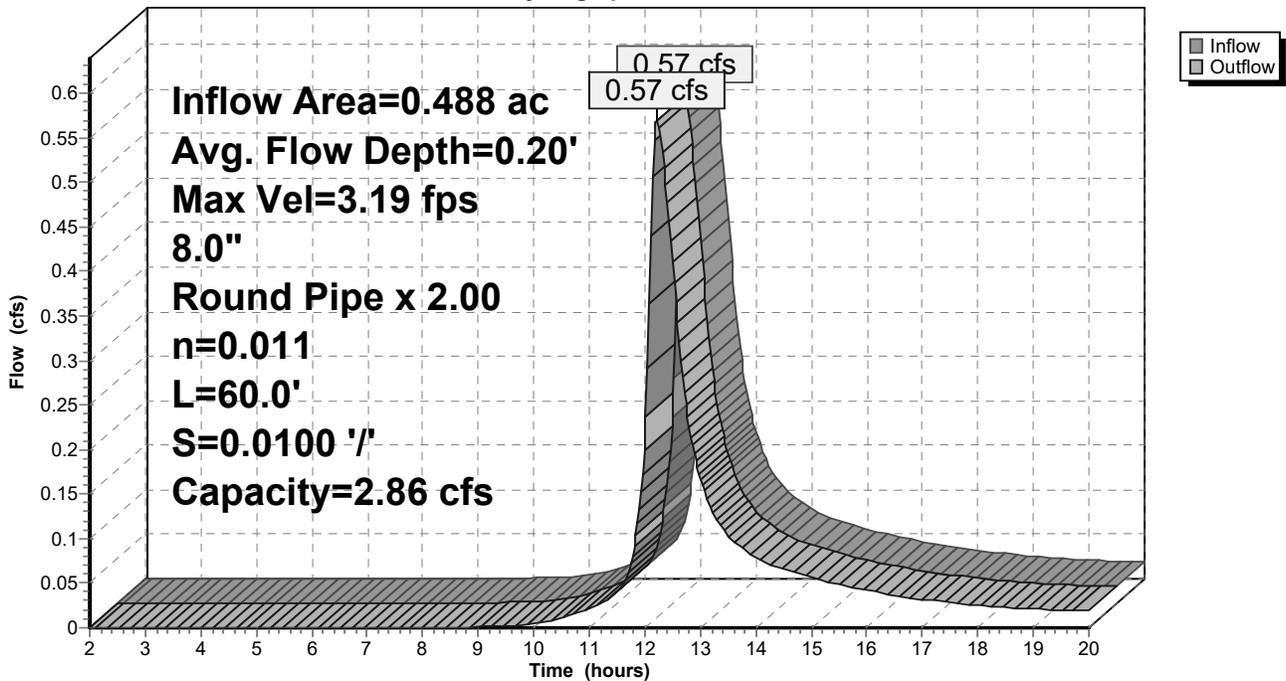
Peak Storage= 11 cf @ 12.21 hrs
 Average Depth at Peak Storage= 0.20' , Surface Width= 1.23'
 Bank-Full Depth= 0.67' Flow Area= 0.7 sf, Capacity= 2.86 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 8.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 60.0' Slope= 0.0100 '/'
 Inlet Invert= 204.00', Outlet Invert= 203.40'



Reach CP1: Connecting Pipes

Hydrograph



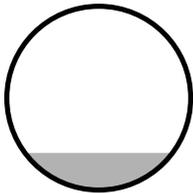
Summary for Reach CP4: Connecting Pipes

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 1.69" for 2-year event
 Inflow = 0.76 cfs @ 12.13 hrs, Volume= 0.057 af
 Outflow = 0.76 cfs @ 12.14 hrs, Volume= 0.056 af, Atten= 1%, Lag= 0.9 min
 Routed to Pond 4B : Detention Basin 4B

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.18 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 0.82 fps, Avg. Travel Time= 1.3 min

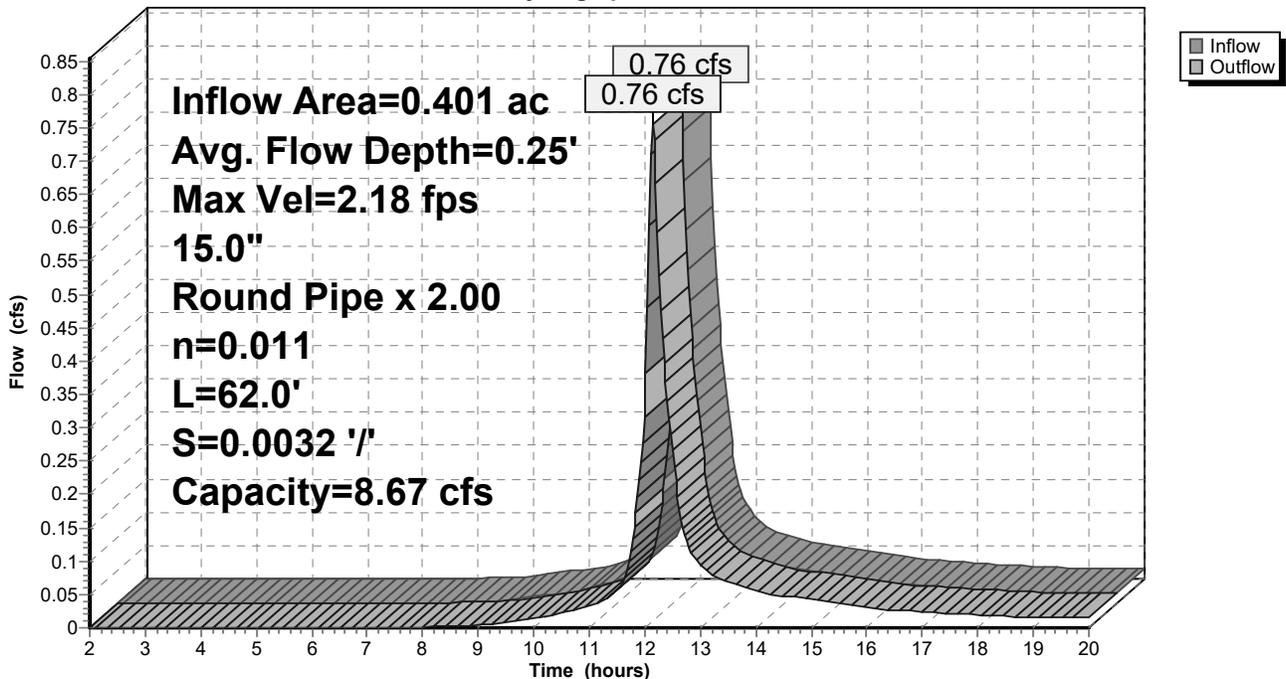
Peak Storage= 22 cf @ 12.14 hrs
 Average Depth at Peak Storage= 0.25' , Surface Width= 2.00'
 Bank-Full Depth= 1.25' Flow Area= 2.5 sf, Capacity= 8.67 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 15.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 62.0' Slope= 0.0032 '/'
 Inlet Invert= 205.20', Outlet Invert= 205.00'



Reach CP4: Connecting Pipes

Hydrograph



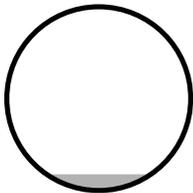
Summary for Reach P1: Pipe Out of 1

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 0.94" for 2-year event
 Inflow = 0.06 cfs @ 14.60 hrs, Volume= 0.038 af
 Outflow = 0.06 cfs @ 14.62 hrs, Volume= 0.038 af, Atten= 0%, Lag= 1.2 min
 Routed to Reach W1 : 1 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.89 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 1.51 fps, Avg. Travel Time= 0.9 min

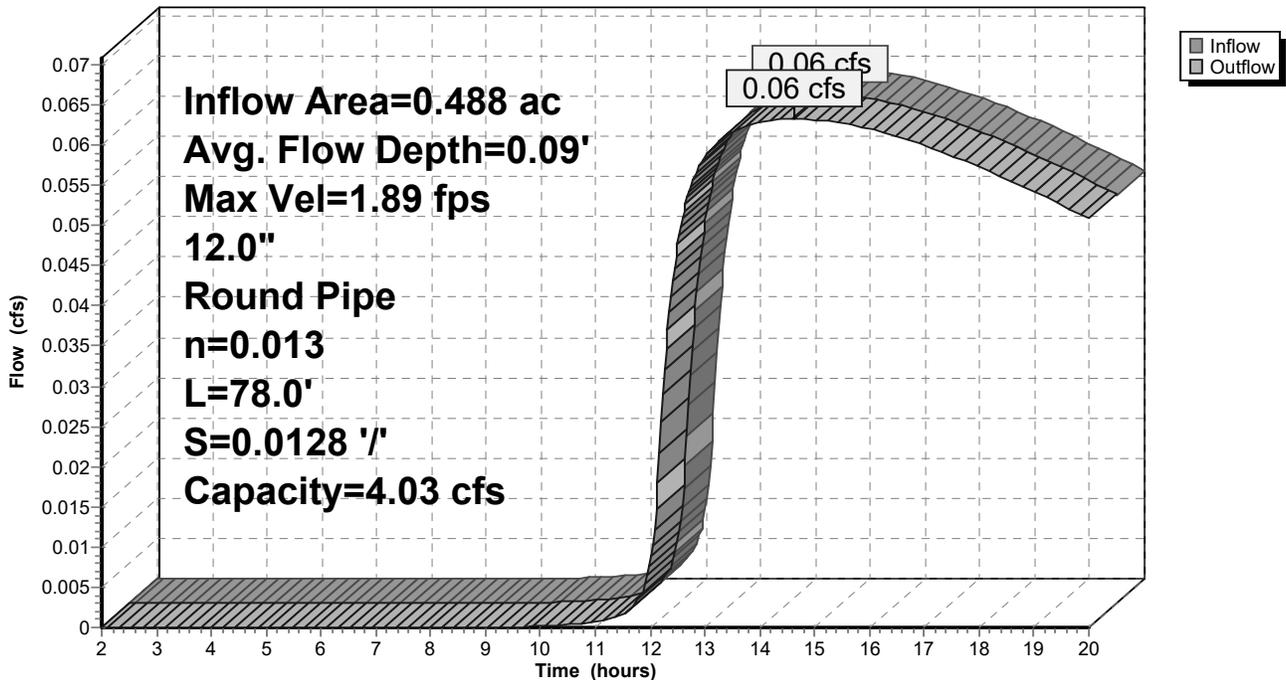
Peak Storage= 3 cf @ 14.61 hrs
 Average Depth at Peak Storage= 0.09' , Surface Width= 0.56'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.03 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 78.0' Slope= 0.0128 '/'
 Inlet Invert= 203.00', Outlet Invert= 202.00'



Reach P1: Pipe Out of 1

Hydrograph



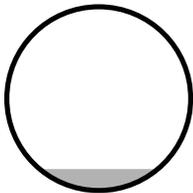
Summary for Reach P2: Pipe Out of 2

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 1.49" for 2-year event
 Inflow = 0.07 cfs @ 13.17 hrs, Volume= 0.046 af
 Outflow = 0.07 cfs @ 13.19 hrs, Volume= 0.046 af, Atten= 0%, Lag= 1.3 min
 Routed to Reach W2 : 2 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.41 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 0.92 fps, Avg. Travel Time= 1.1 min

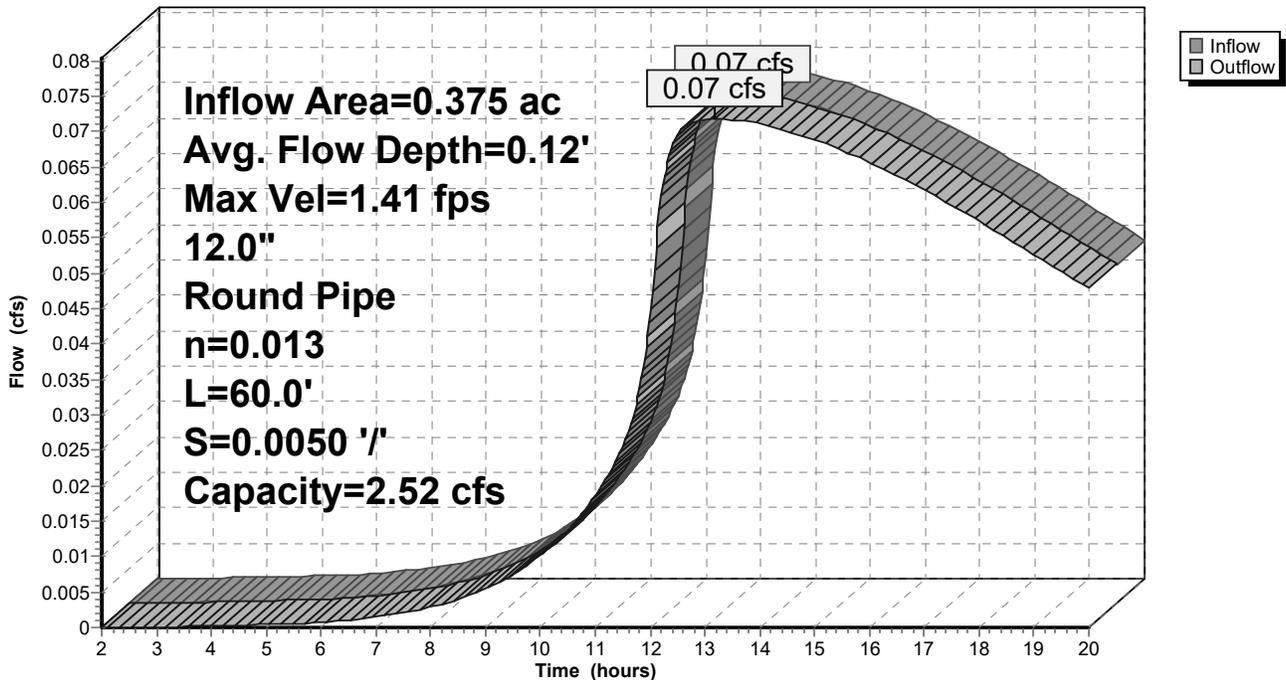
Peak Storage= 3 cf @ 13.18 hrs
 Average Depth at Peak Storage= 0.12' , Surface Width= 0.64'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 60.0' Slope= 0.0050 '/'
 Inlet Invert= 204.00', Outlet Invert= 203.70'



Reach P2: Pipe Out of 2

Hydrograph



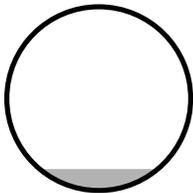
Summary for Reach P3: Pipe Out of 3

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 0.95" for 2-year event
 Inflow = 0.07 cfs @ 14.20 hrs, Volume= 0.046 af
 Outflow = 0.07 cfs @ 14.21 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.8 min
 Routed to Reach W3 : 3 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.42 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 1.08 fps, Avg. Travel Time= 0.6 min

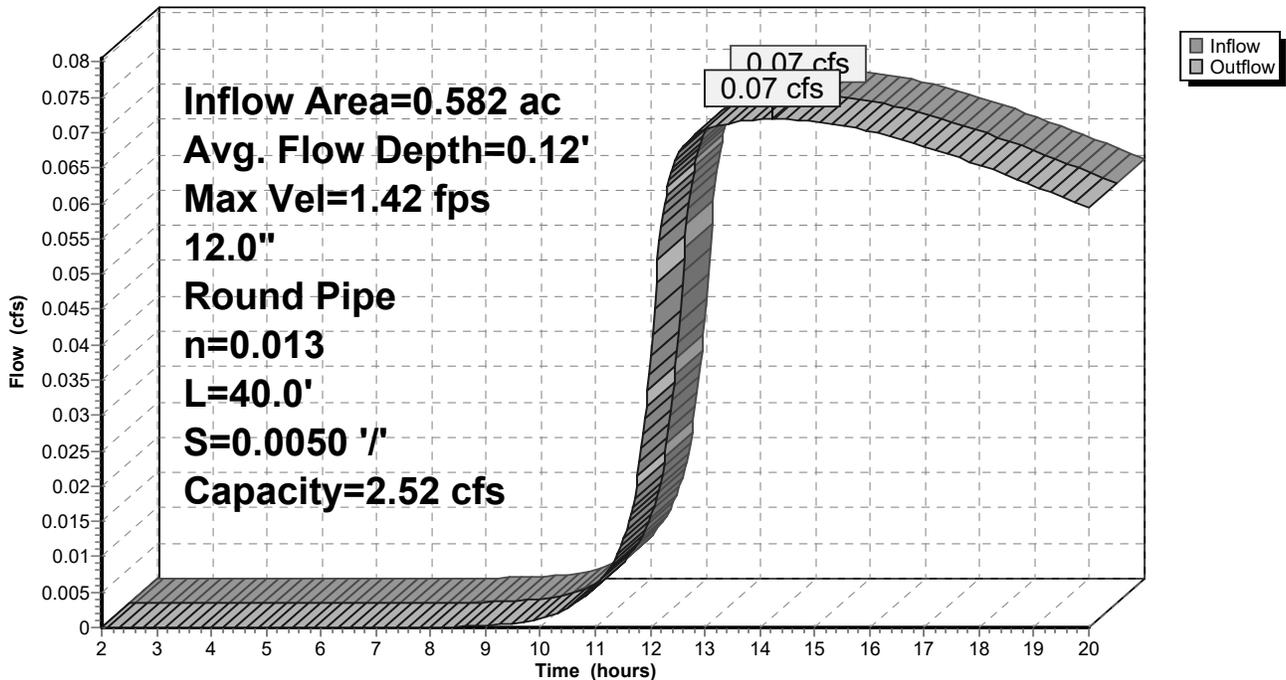
Peak Storage= 2 cf @ 14.21 hrs
 Average Depth at Peak Storage= 0.12' , Surface Width= 0.64'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 40.0' Slope= 0.0050 '/'
 Inlet Invert= 205.00', Outlet Invert= 204.80'



Reach P3: Pipe Out of 3

Hydrograph



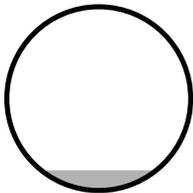
Summary for Reach P4B: Pipe Out of 4B

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 0.90" for 2-year event
 Inflow = 0.07 cfs @ 13.81 hrs, Volume= 0.040 af
 Outflow = 0.07 cfs @ 13.87 hrs, Volume= 0.040 af, Atten= 0%, Lag= 3.7 min
 Routed to Reach W4B : 4B Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.43 fps, Min. Travel Time= 2.1 min
 Avg. Velocity = 1.10 fps, Avg. Travel Time= 2.8 min

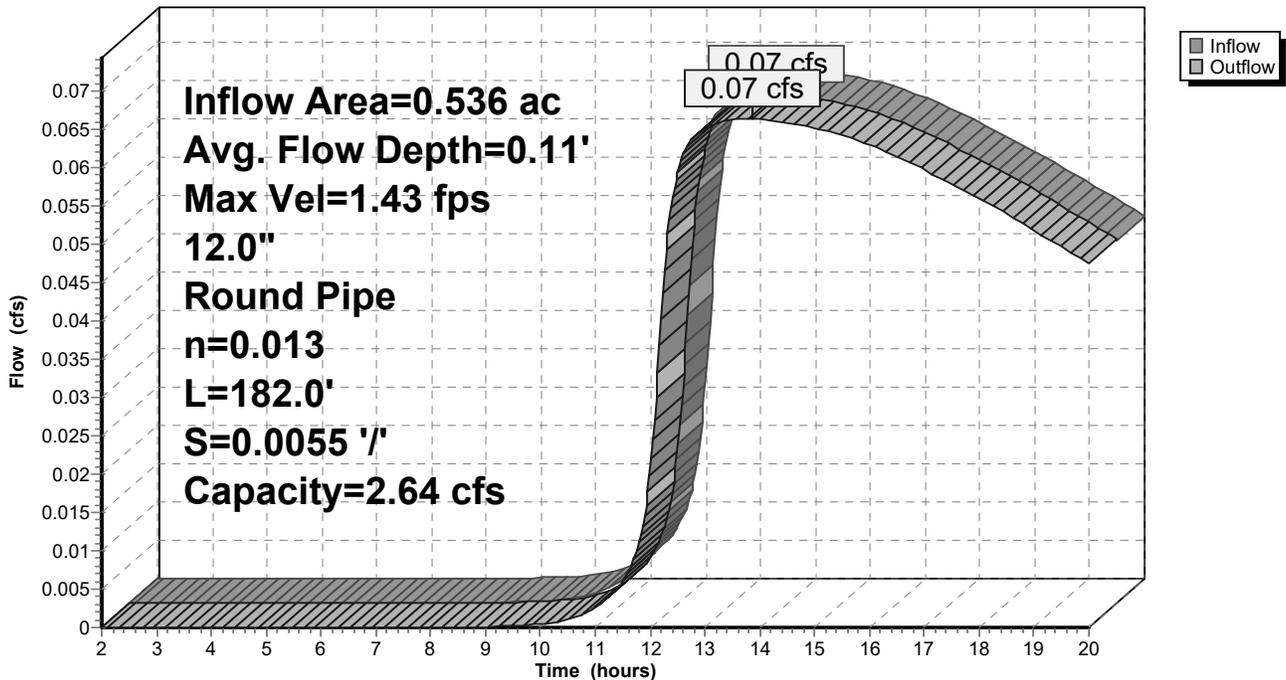
Peak Storage= 8 cf @ 13.83 hrs
 Average Depth at Peak Storage= 0.11' , Surface Width= 0.62'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.64 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 182.0' Slope= 0.0055 '/'
 Inlet Invert= 205.00', Outlet Invert= 204.00'



Reach P4B: Pipe Out of 4B

Hydrograph



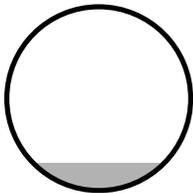
Summary for Reach P5: Pipe Out of 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.12" for 2-year event
 Inflow = 0.13 cfs @ 14.50 hrs, Volume= 0.094 af
 Outflow = 0.13 cfs @ 14.51 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.6 min
 Routed to Reach W5 : 5 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.77 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 1.29 fps, Avg. Travel Time= 0.5 min

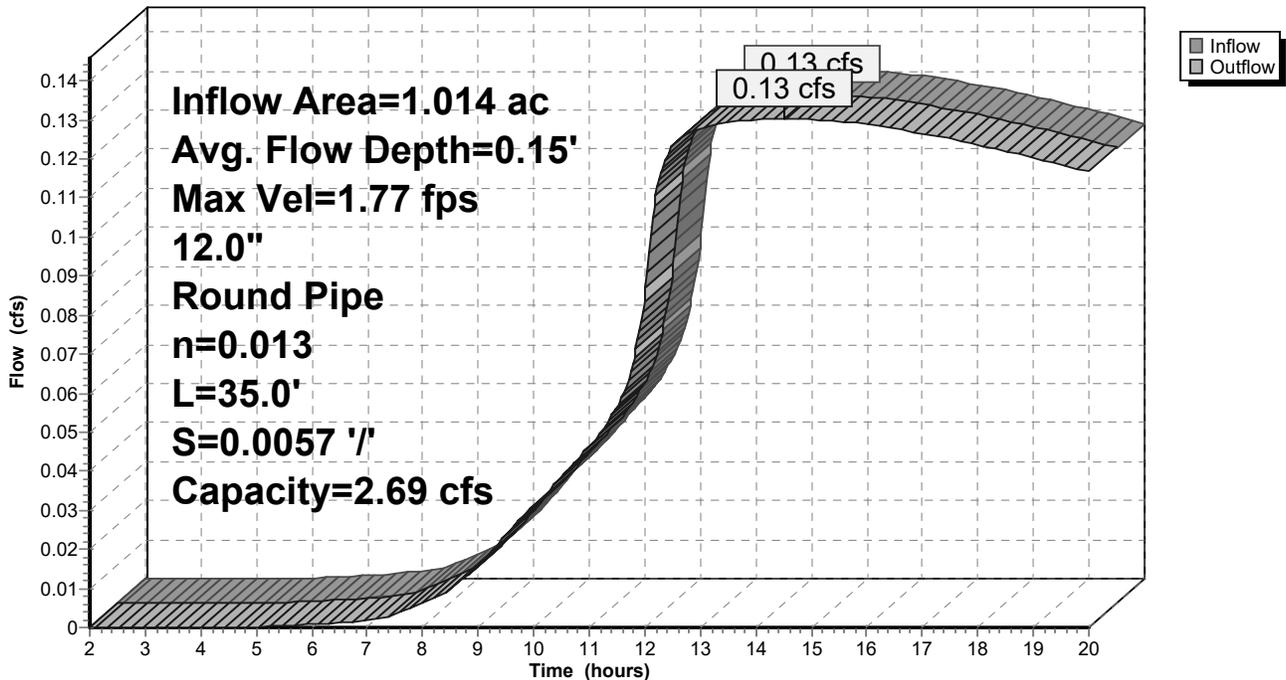
Peak Storage= 3 cf @ 14.50 hrs
 Average Depth at Peak Storage= 0.15', Surface Width= 0.71'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.69 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 35.0' Slope= 0.0057 '/
 Inlet Invert= 204.00', Outlet Invert= 203.80'



Reach P5: Pipe Out of 5

Hydrograph



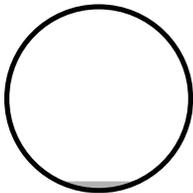
Summary for Reach P6: Pipe Out of 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 0.07" for 2-year event
 Inflow = 0.02 cfs @ 20.00 hrs, Volume= 0.003 af
 Outflow = 0.02 cfs @ 20.00 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach W6 : 6 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.06 fps, Min. Travel Time= 0.9 min
 Avg. Velocity = 0.86 fps, Avg. Travel Time= 1.2 min

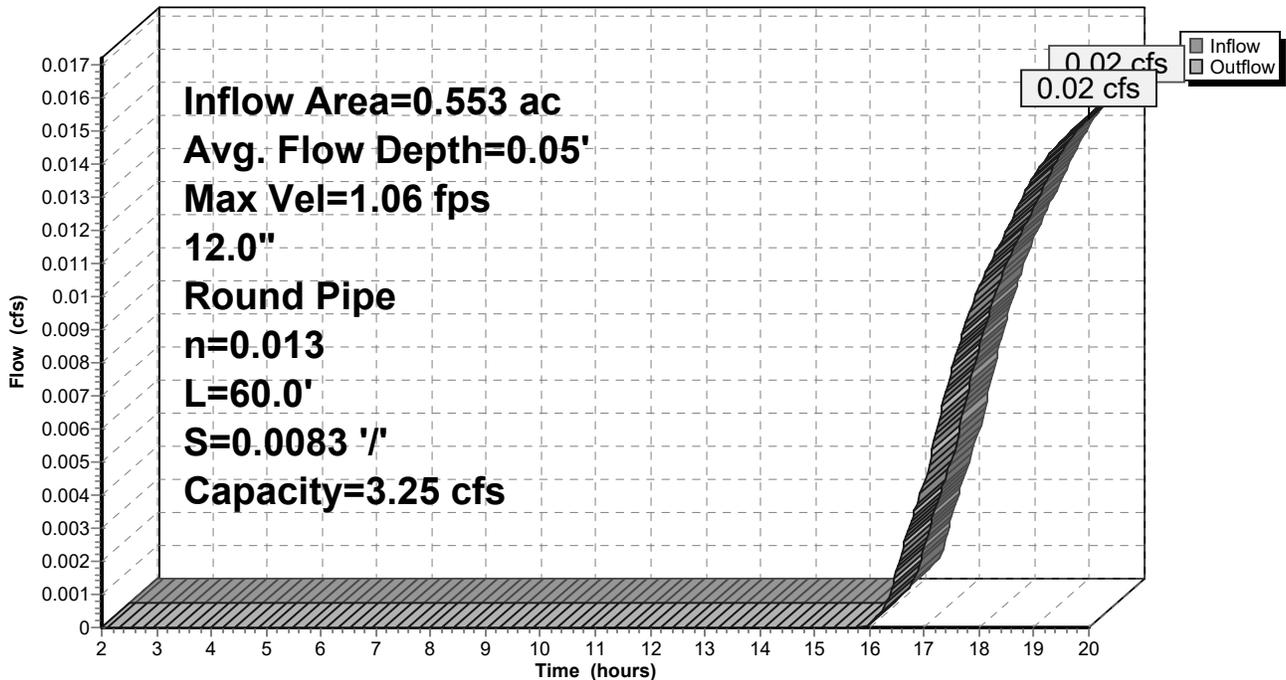
Peak Storage= 1 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.05' , Surface Width= 0.43'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.25 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 60.0' Slope= 0.0083 '/'
 Inlet Invert= 206.00', Outlet Invert= 205.50'



Reach P6: Pipe Out of 6

Hydrograph



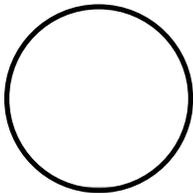
Summary for Reach P7: Pipe Out of 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.02" for 2-year event
 Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Atten= 2%, Lag= 0.0 min
 Routed to Reach W7 : 7 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.56 fps, Min. Travel Time= 8.7 min
 Avg. Velocity = 0.45 fps, Avg. Travel Time= 10.6 min

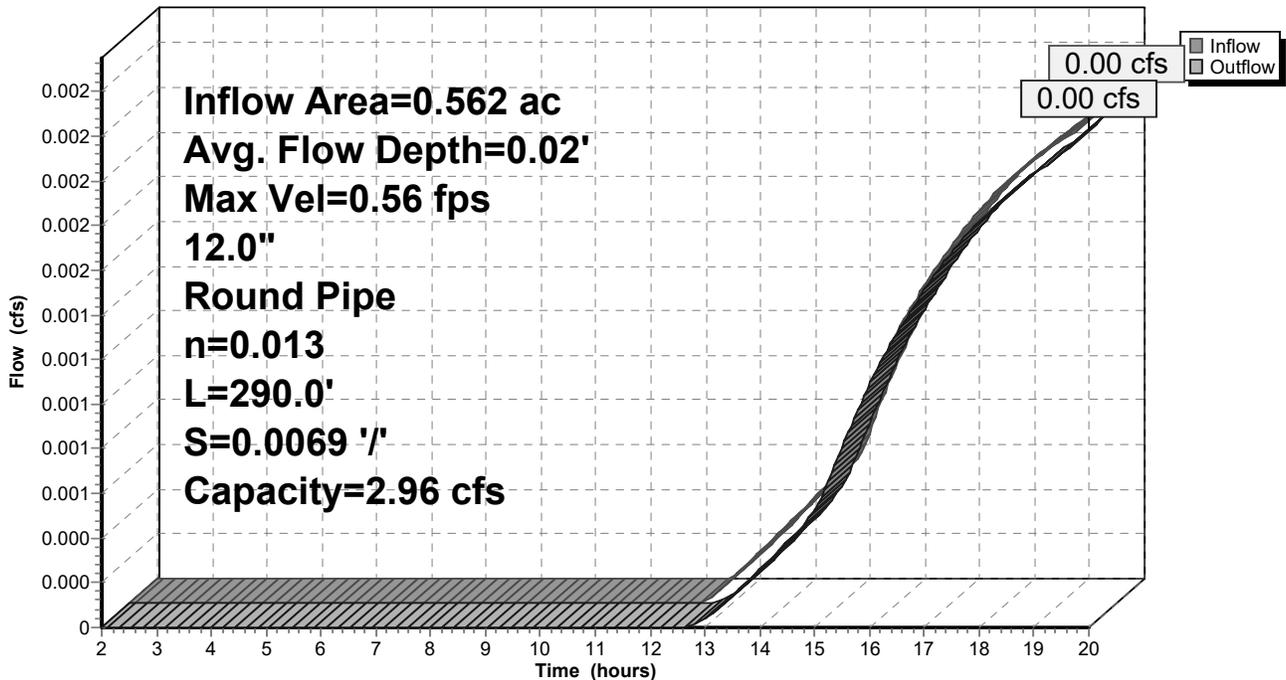
Peak Storage= 1 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.02' , Surface Width= 0.29'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 290.0' Slope= 0.0069 '/'
 Inlet Invert= 206.00', Outlet Invert= 204.00'



Reach P7: Pipe Out of 7

Hydrograph



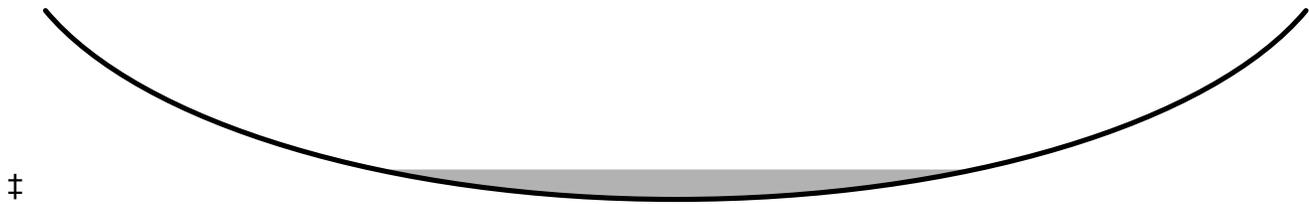
Summary for Reach W1: 1 Thru Wetland

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 0.94" for 2-year event
 Inflow = 0.06 cfs @ 14.62 hrs, Volume= 0.038 af
 Outflow = 0.06 cfs @ 18.62 hrs, Volume= 0.023 af, Atten= 5%, Lag= 240.1 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.06 fps, Min. Travel Time= 96.5 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 138.9 min

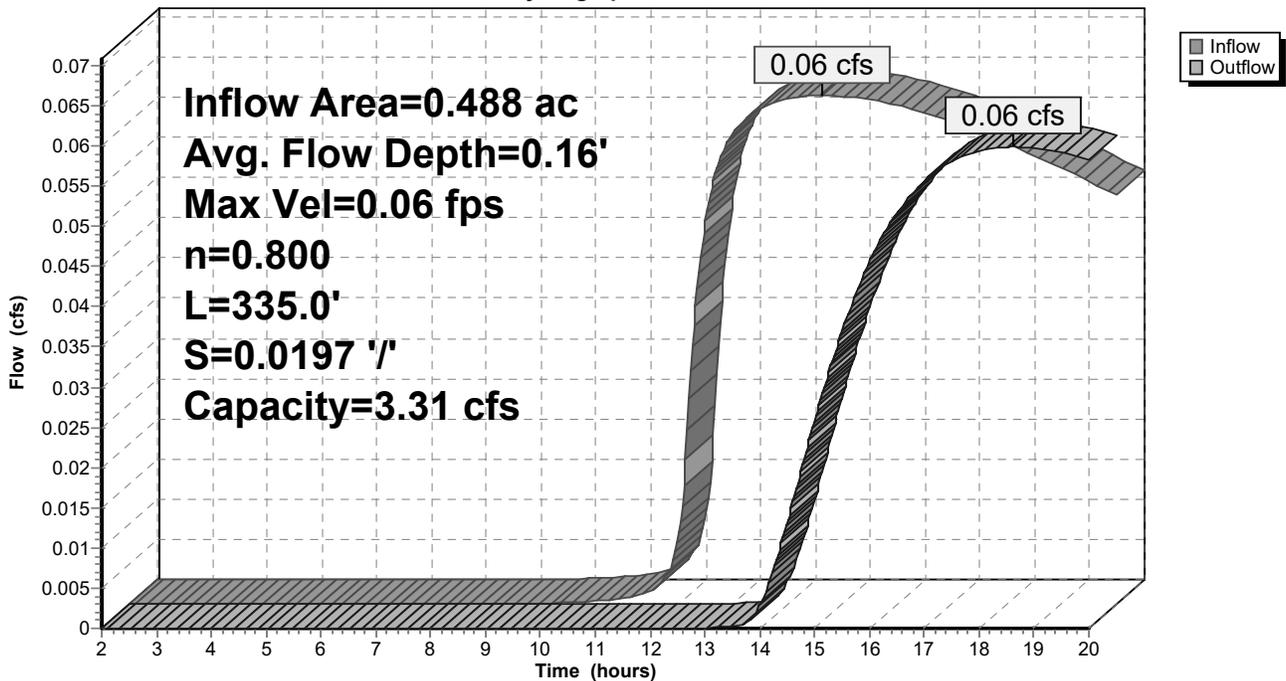
Peak Storage= 347 cf @ 17.02 hrs
 Average Depth at Peak Storage= 0.16' , Surface Width= 9.90'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 3.31 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 335.0' Slope= 0.0197 '/
 Inlet Invert= 203.60', Outlet Invert= 197.00'



Reach W1: 1 Thru Wetland

Hydrograph



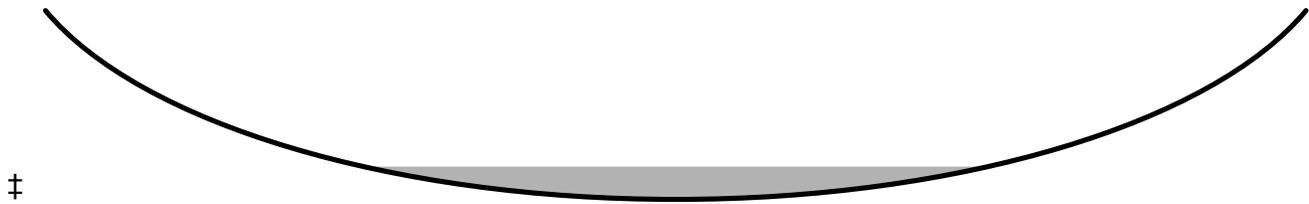
Summary for Reach W2: 2 Thru Wetland

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 1.48" for 2-year event
 Inflow = 0.07 cfs @ 13.19 hrs, Volume= 0.046 af
 Outflow = 0.06 cfs @ 18.15 hrs, Volume= 0.028 af, Atten= 10%, Lag= 297.9 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.05 fps, Min. Travel Time= 115.3 min
 Avg. Velocity = 0.03 fps, Avg. Travel Time= 201.8 min

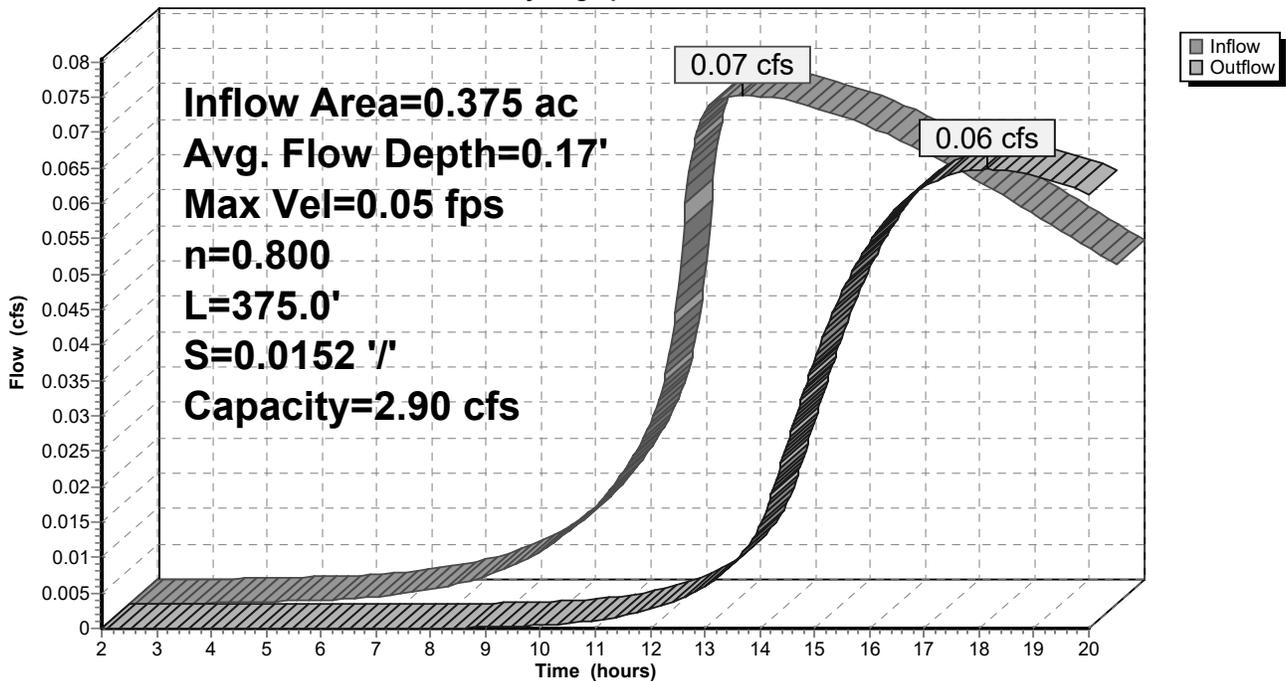
Peak Storage= 449 cf @ 16.23 hrs
 Average Depth at Peak Storage= 0.17' , Surface Width= 10.39'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.90 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 375.0' Slope= 0.0152 '/'
 Inlet Invert= 203.70', Outlet Invert= 198.00'



Reach W2: 2 Thru Wetland

Hydrograph



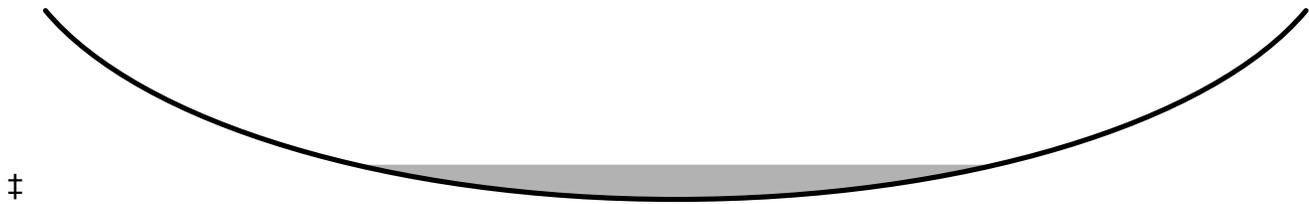
Summary for Reach W3: 3 Thru Wetland

Inflow Area = 0.643 ac, 43.14% Impervious, Inflow Depth > 0.92" for 2-year event
 Inflow = 0.09 cfs @ 12.12 hrs, Volume= 0.049 af
 Outflow = 0.03 cfs @ 20.00 hrs, Volume= 0.003 af, Atten= 70%, Lag= 472.6 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.04 fps, Min. Travel Time= 324.1 min
 Avg. Velocity = 0.03 fps, Avg. Travel Time= 525.0 min

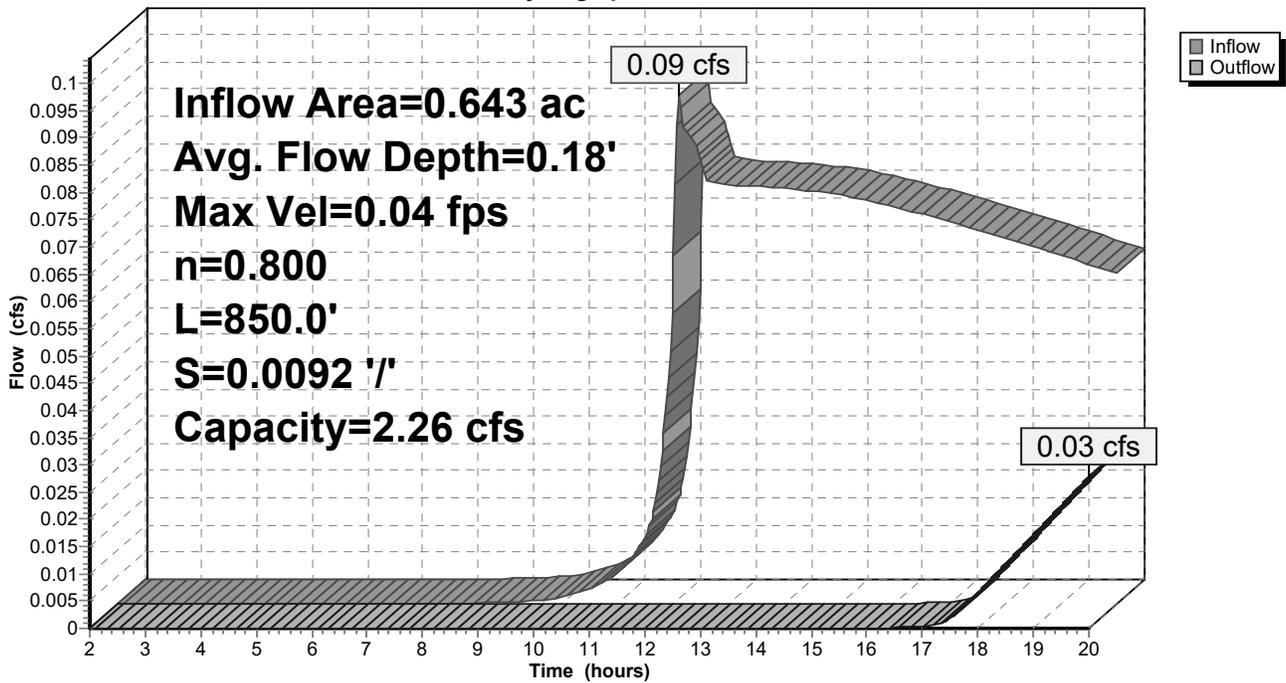
Peak Storage= 1,106 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.18' , Surface Width= 10.68'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.26 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 850.0' Slope= 0.0092 '/'
 Inlet Invert= 204.80', Outlet Invert= 197.00'



Reach W3: 3 Thru Wetland

Hydrograph



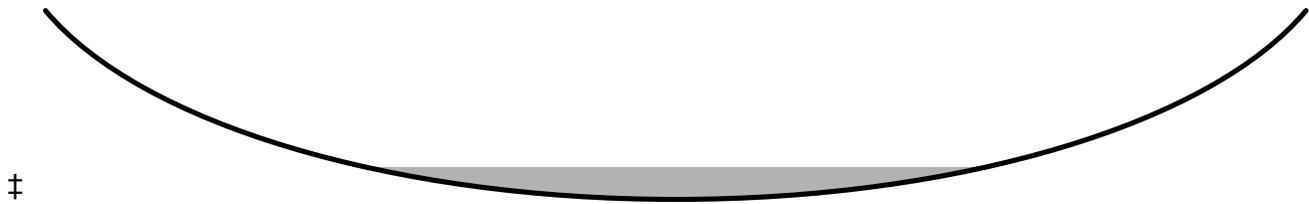
Summary for Reach W4B: 4B Thru Wetland

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 0.89" for 2-year event
 Inflow = 0.07 cfs @ 13.87 hrs, Volume= 0.040 af
 Outflow = 0.05 cfs @ 20.00 hrs, Volume= 0.013 af, Atten= 20%, Lag= 368.0 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.05 fps, Min. Travel Time= 182.5 min
 Avg. Velocity = 0.03 fps, Avg. Travel Time= 276.4 min

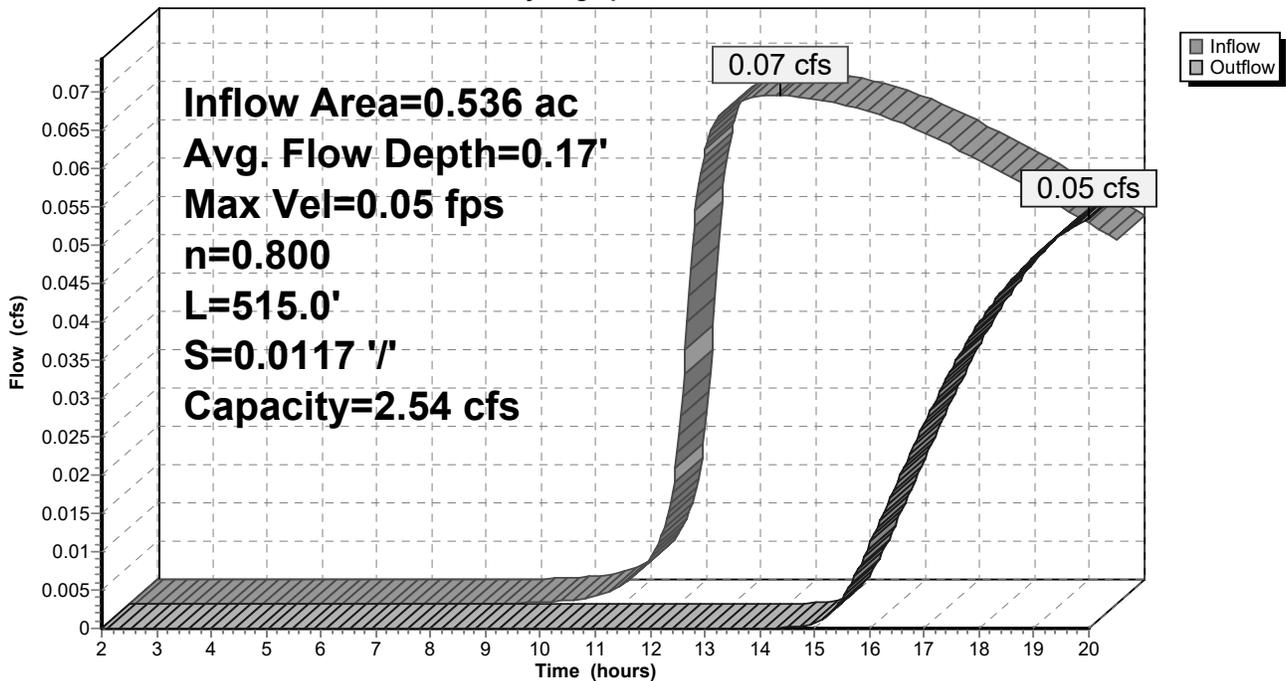
Peak Storage= 604 cf @ 18.22 hrs
 Average Depth at Peak Storage= 0.17' , Surface Width= 10.32'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.54 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 515.0' Slope= 0.0117 '/'
 Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W4B: 4B Thru Wetland

Hydrograph



Summary for Reach W5: 5 Thru Wetland

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.11" for 2-year event
 Inflow = 0.13 cfs @ 14.51 hrs, Volume= 0.094 af
 Outflow = 0.13 cfs @ 17.44 hrs, Volume= 0.069 af, Atten= 1%, Lag= 176.0 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.07 fps, Min. Travel Time= 74.4 min
 Avg. Velocity = 0.05 fps, Avg. Travel Time= 113.8 min

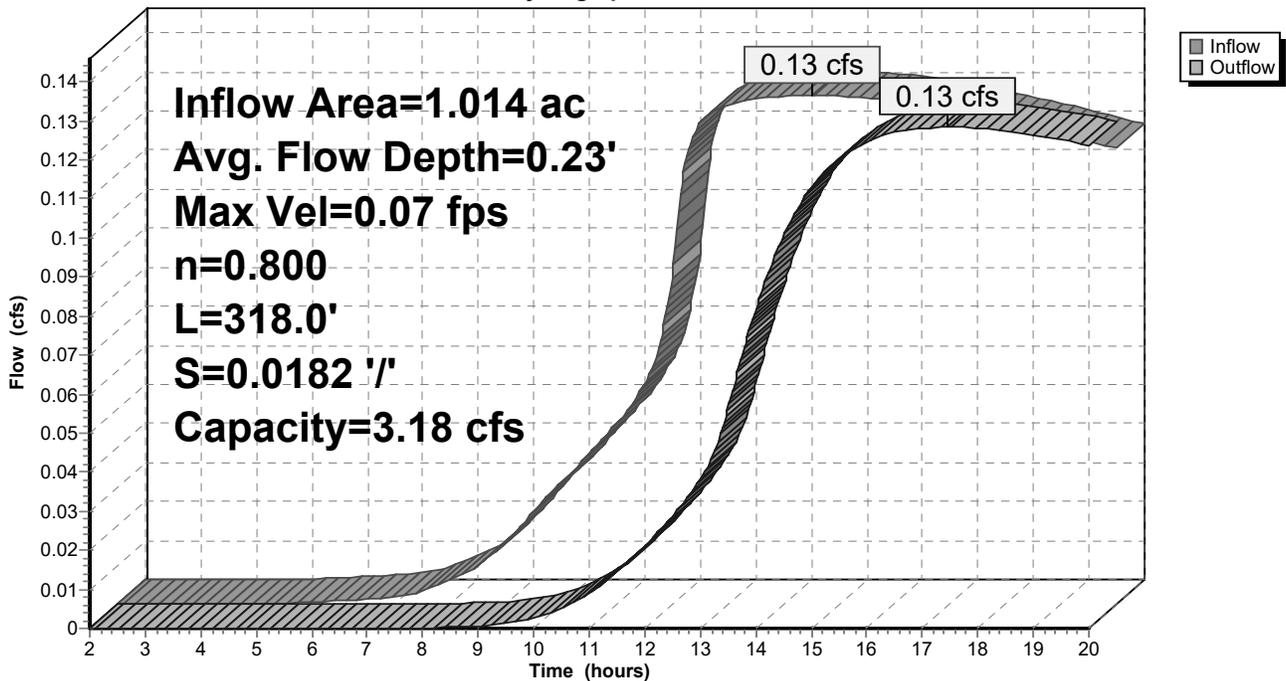
Peak Storage= 573 cf @ 16.20 hrs
 Average Depth at Peak Storage= 0.23' , Surface Width= 11.91'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 3.18 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 318.0' Slope= 0.0182 '/'
 Inlet Invert= 203.80', Outlet Invert= 198.00'



Reach W5: 5 Thru Wetland

Hydrograph



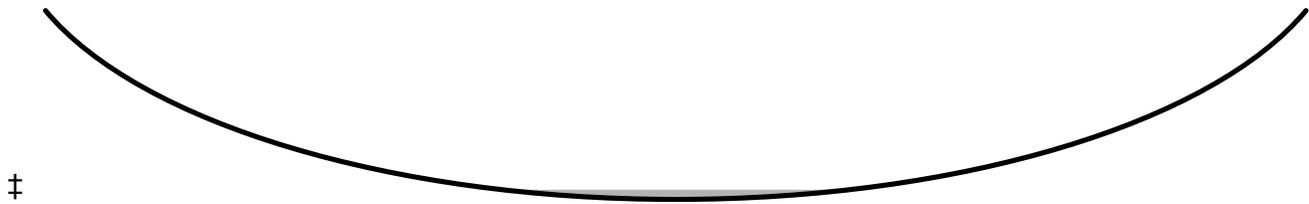
Summary for Reach W6: 6 Thru Wetland

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 0.07" for 2-year event
 Inflow = 0.02 cfs @ 20.00 hrs, Volume= 0.003 af
 Outflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.02 fps, Min. Travel Time= 483.8 min
 Avg. Velocity = 0.01 fps, Avg. Travel Time= 787.8 min

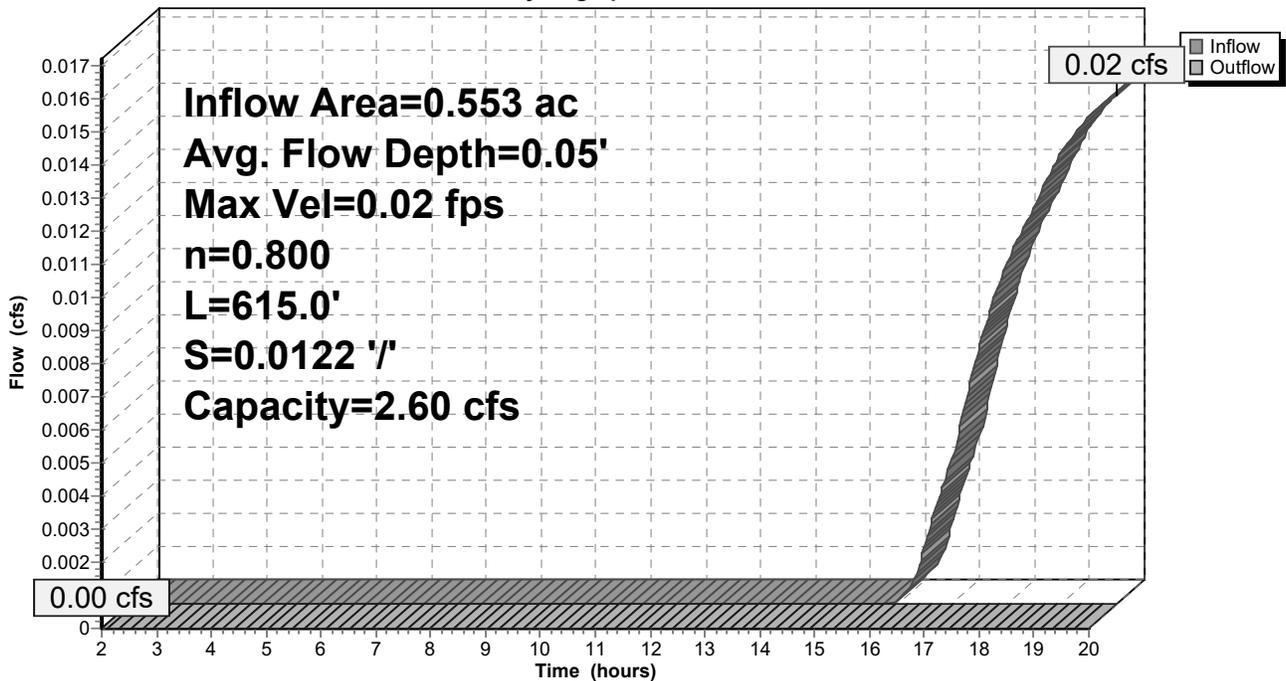
Peak Storage= 114 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.05' , Surface Width= 5.58'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.60 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 615.0' Slope= 0.0122 '/'
 Inlet Invert= 205.50', Outlet Invert= 198.00'



Reach W6: 6 Thru Wetland

Hydrograph



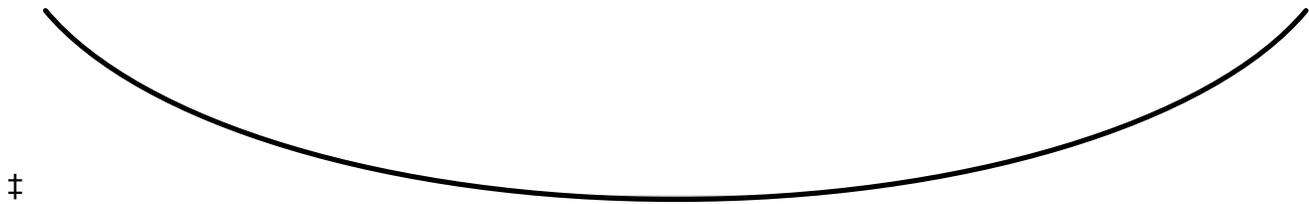
Summary for Reach W7: 7 Thru Wetland

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.01" for 2-year event
 Inflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.01 fps, Min. Travel Time= 968.3 min
 Avg. Velocity = 0.01 fps, Avg. Travel Time= 1,317.9 min

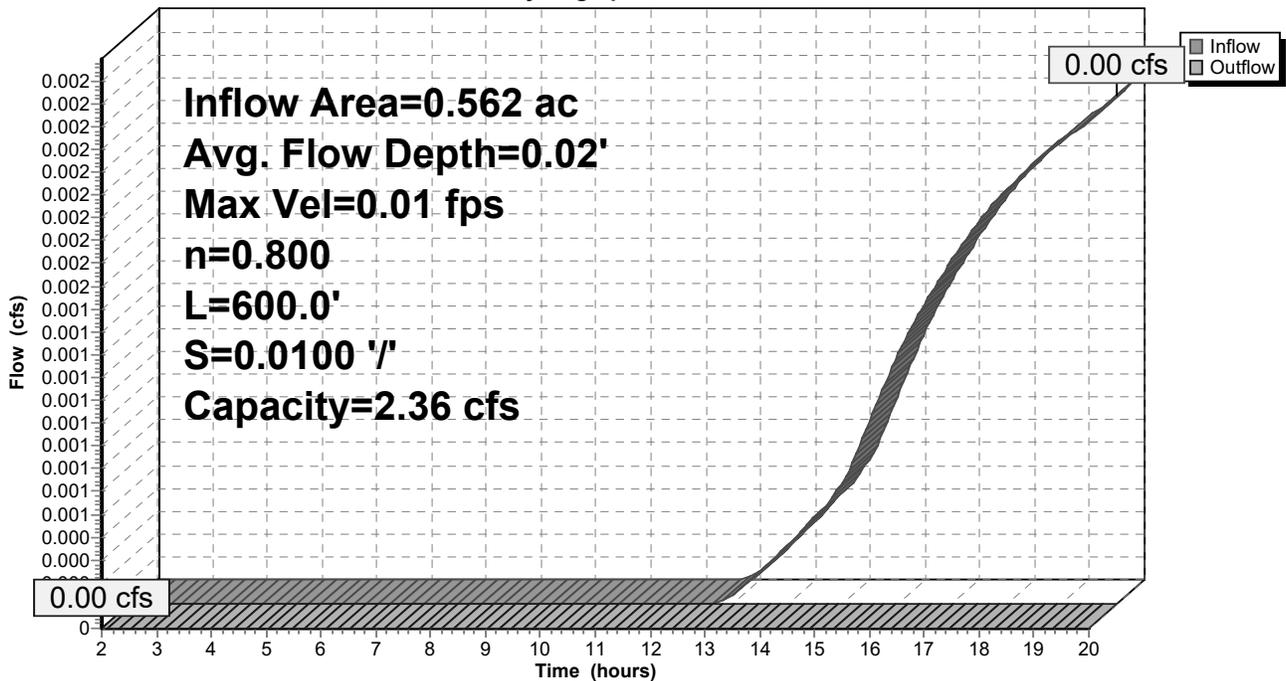
Peak Storage= 27 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.02' , Surface Width= 3.46'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.36 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 600.0' Slope= 0.0100 '/'
 Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W7: 7 Thru Wetland

Hydrograph



Summary for Pond 1A: Detention Basin 1A

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.63" for 2-year event
 Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.066 af
 Outflow = 0.57 cfs @ 12.21 hrs, Volume= 0.064 af, Atten= 43%, Lag= 7.4 min
 Primary = 0.57 cfs @ 12.21 hrs, Volume= 0.064 af
 Routed to Reach CP1 : Connecting Pipes

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.30' @ 12.21 hrs Surf.Area= 2,419 sf Storage= 697 cf

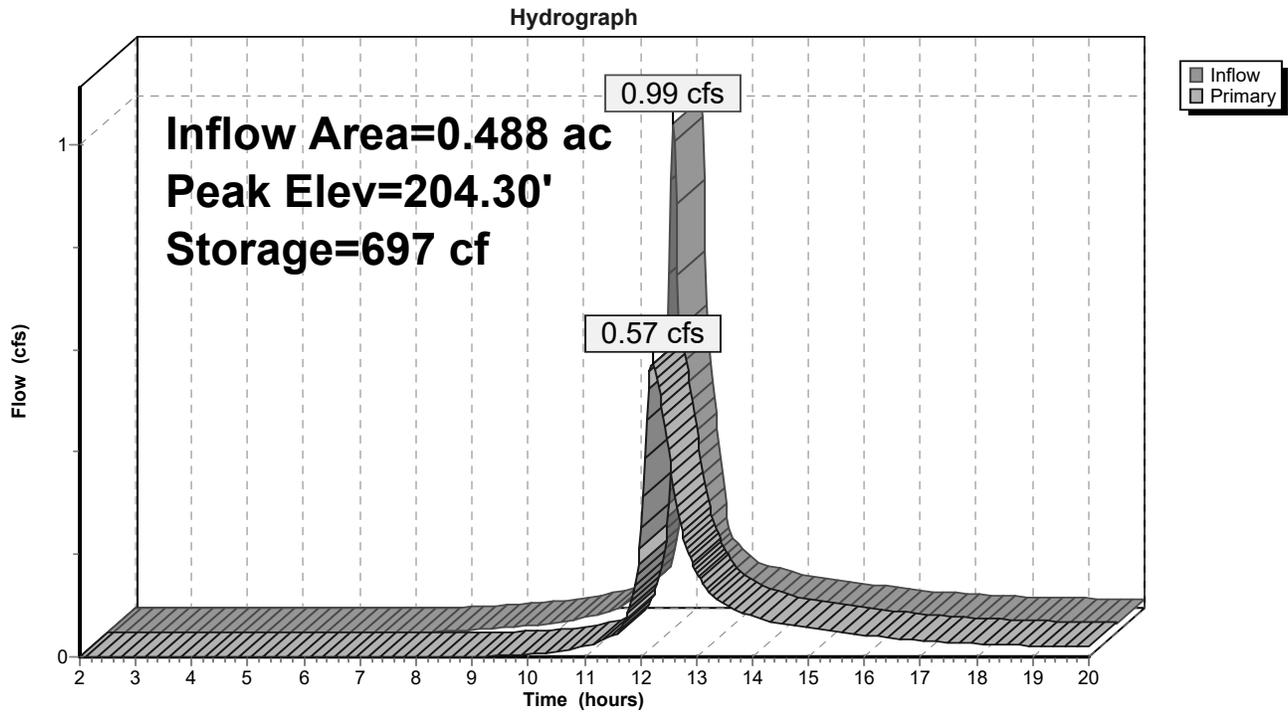
Plug-Flow detention time= 42.7 min calculated for 0.064 af (96% of inflow)
 Center-of-Mass det. time= 28.2 min (814.9 - 786.7)

Volume	Invert	Avail.Storage	Storage Description		
#1	204.00'	5,995 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
204.00	2,219	217.0	0	0	2,219
205.00	2,917	242.0	2,560	2,560	3,161
206.00	3,980	396.0	3,435	5,995	10,986

Device	Routing	Invert	Outlet Devices	
#1	Primary	204.00'	8.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.57 cfs @ 12.21 hrs HW=204.30' (Free Discharge)
 ↑**1=Orifice/Grate** (Orifice Controls 0.57 cfs @ 1.87 fps)

Pond 1A: Detention Basin 1A



4298600-PR - Reconfigure Basin #1

Type III 24-hr 2-year Rainfall=3.01"

Prepared by VHB

Printed 3/6/2023

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Summary for Pond 1B: Detention Basin 1B

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.57" for 2-year event
 Inflow = 0.57 cfs @ 12.22 hrs, Volume= 0.064 af
 Outflow = 0.06 cfs @ 14.60 hrs, Volume= 0.038 af, Atten= 89%, Lag= 142.8 min
 Primary = 0.06 cfs @ 14.60 hrs, Volume= 0.038 af
 Routed to Reach P1 : Pipe Out of 1

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 203.45' @ 14.60 hrs Surf.Area= 3,829 sf Storage= 1,601 cf

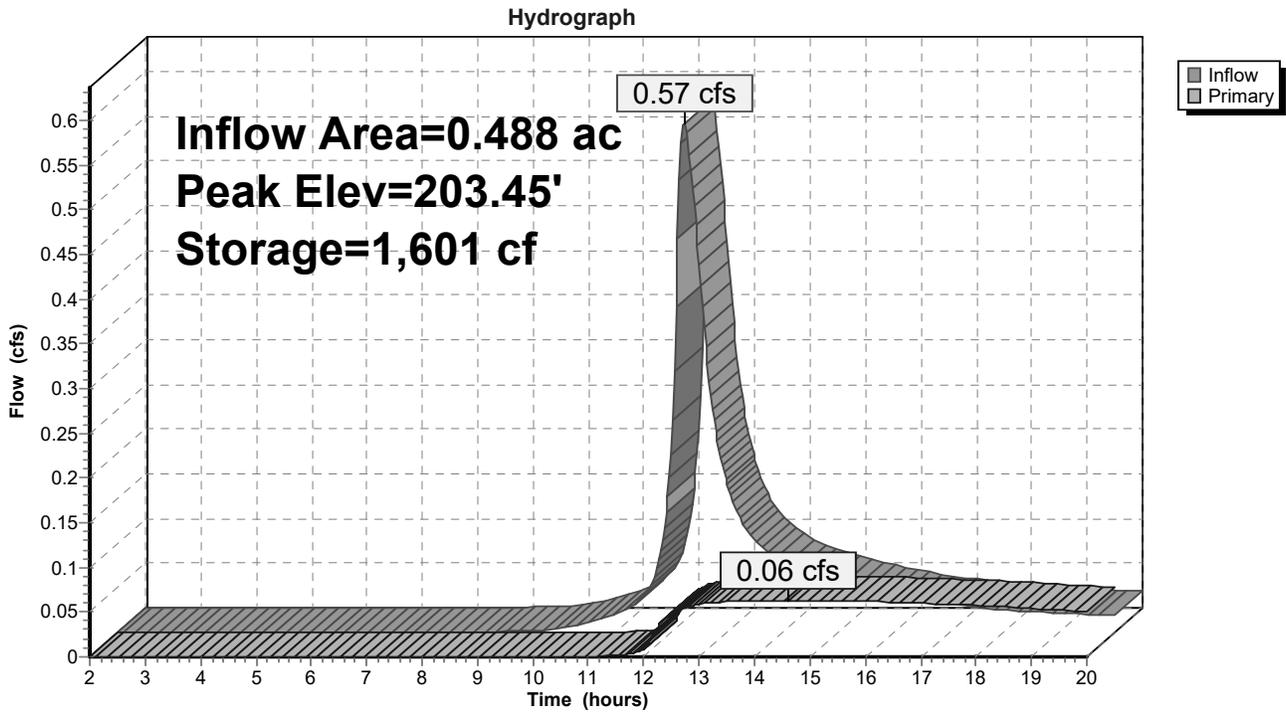
Plug-Flow detention time= 222.5 min calculated for 0.038 af (60% of inflow)
 Center-of-Mass det. time= 145.1 min (960.6 - 815.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	203.00'	15,252 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
203.00	3,355	332.0	0	0	3,355	
204.00	4,461	375.0	3,895	3,895	5,800	
205.00	5,613	394.0	5,026	8,921	7,025	
206.00	7,077	463.0	6,331	15,252	11,750	

Device	Routing	Invert	Outlet Devices		
#1	Primary	203.00'	2.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 14.60 hrs HW=203.45' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.06 cfs @ 2.90 fps)

Pond 1B: Detention Basin 1B



Summary for Pond 2P: Detention Basin 2

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.10" for 2-year event
 Inflow = 0.90 cfs @ 12.09 hrs, Volume= 0.066 af
 Outflow = 0.07 cfs @ 13.17 hrs, Volume= 0.046 af, Atten= 92%, Lag= 64.9 min
 Primary = 0.07 cfs @ 13.17 hrs, Volume= 0.046 af
 Routed to Reach P2 : Pipe Out of 2
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P2 : Pipe Out of 2

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.55' @ 13.17 hrs Surf.Area= 3,122 sf Storage= 1,625 cf

Plug-Flow detention time= 233.3 min calculated for 0.046 af (71% of inflow)
 Center-of-Mass det. time= 163.8 min (913.6 - 749.8)

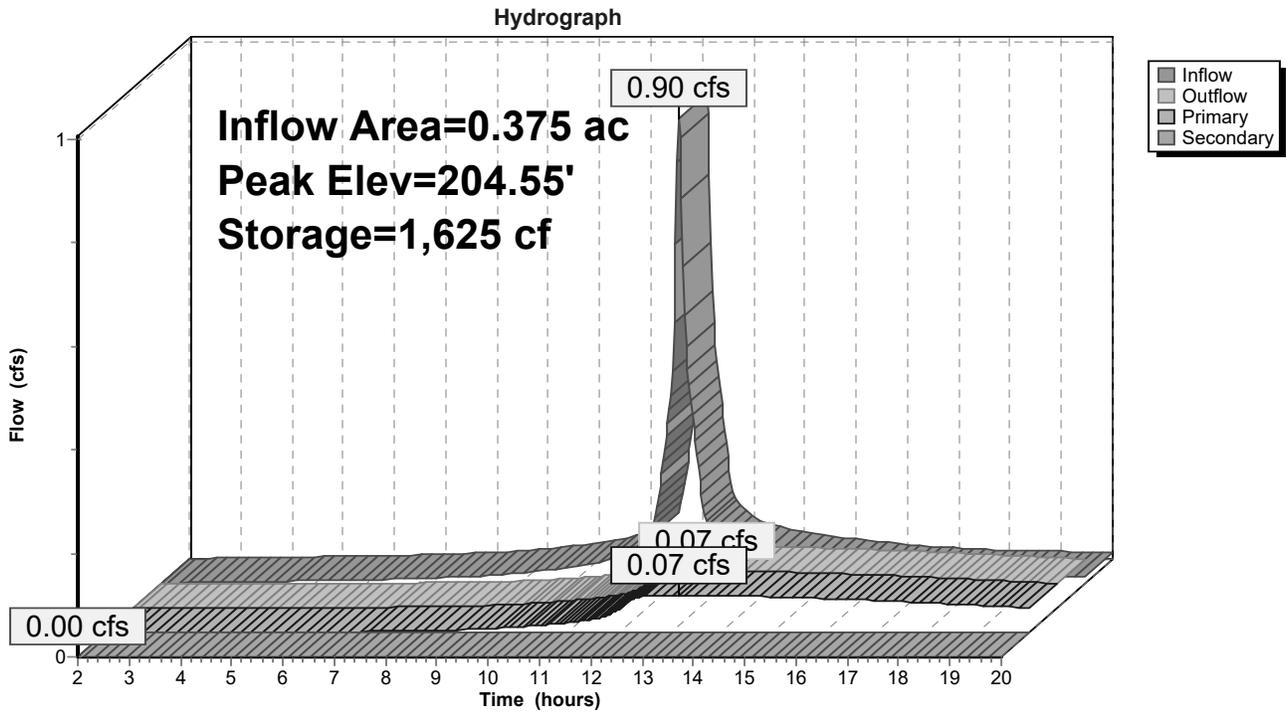
Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	6,845 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,781	215.0	0	0	2,781	
205.00	3,414	233.0	3,092	3,092	3,461	
206.00	4,102	253.0	3,753	6,845	4,271	

Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	206.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.07 cfs @ 13.17 hrs HW=204.55' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.07 cfs @ 3.29 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 2P: Detention Basin 2



Summary for Pond 3P: Detention Basin 3

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 1.71" for 2-year event
 Inflow = 1.24 cfs @ 12.09 hrs, Volume= 0.083 af
 Outflow = 0.07 cfs @ 14.20 hrs, Volume= 0.046 af, Atten= 94%, Lag= 126.8 min
 Primary = 0.07 cfs @ 14.20 hrs, Volume= 0.046 af
 Routed to Reach P3 : Pipe Out of 3
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P3 : Pipe Out of 3

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.55' @ 14.20 hrs Surf.Area= 4,268 sf Storage= 2,236 cf

Plug-Flow detention time= 241.6 min calculated for 0.046 af (56% of inflow)
 Center-of-Mass det. time= 163.6 min (947.1 - 783.5)

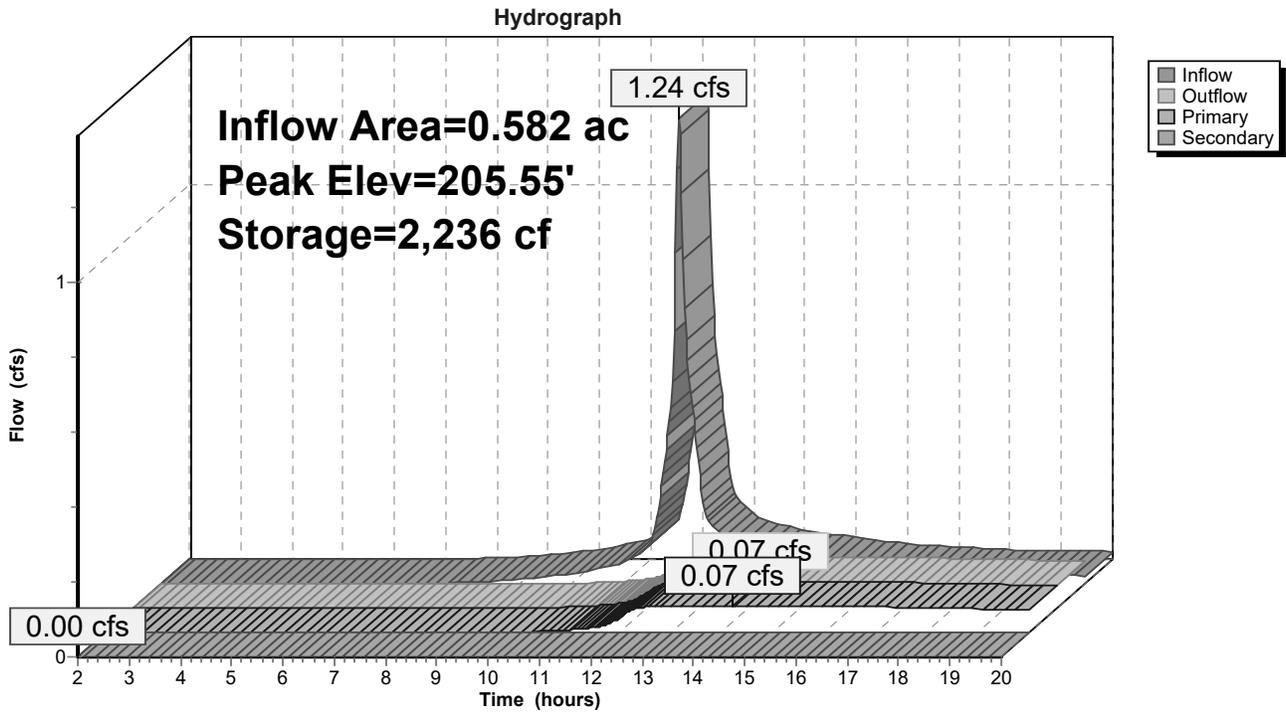
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	9,306 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	3,825	299.0	0	0	3,825	
206.00	4,645	321.0	4,228	4,228	4,954	
207.00	5,522	343.0	5,077	9,306	6,163	

Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.07 cfs @ 14.20 hrs HW=205.55' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.07 cfs @ 3.30 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: Detention Basin 3



Summary for Pond 4A: Detention Basin 4A

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 1.71" for 2-year event
 Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.057 af
 Outflow = 0.76 cfs @ 12.13 hrs, Volume= 0.057 af, Atten= 11%, Lag= 2.5 min
 Primary = 0.76 cfs @ 12.13 hrs, Volume= 0.057 af
 Routed to Reach CP4 : Connecting Pipes
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Link x1000 : x1000

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.48' @ 12.13 hrs Surf.Area= 824 sf Storage= 213 cf

Plug-Flow detention time= 12.5 min calculated for 0.057 af (99% of inflow)
 Center-of-Mass det. time= 8.4 min (791.8 - 783.5)

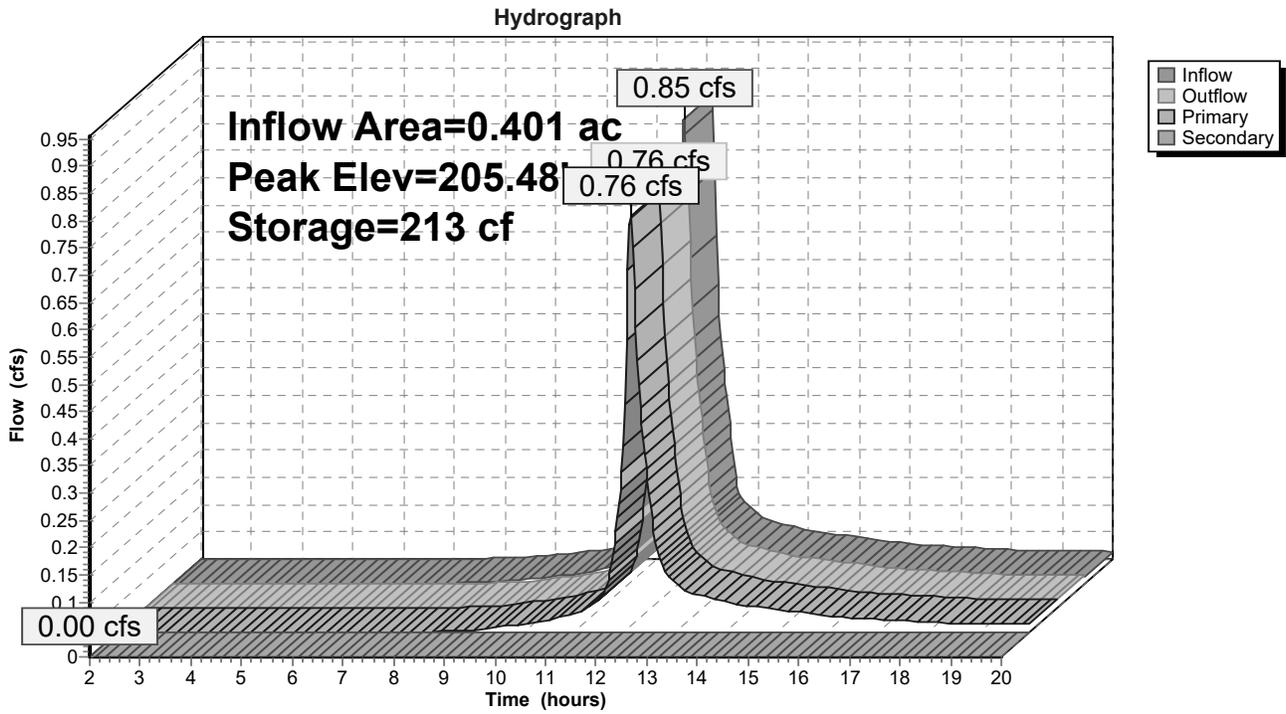
Volume	Invert	Avail.Storage	Storage Description			
#1	205.20'	3,389 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.20	680	165.0	0	0	680	
206.00	1,121	238.0	713	713	3,027	
207.00	2,031	428.0	1,554	2,267	13,102	
207.50	2,465	434.0	1,122	3,389	13,566	

Device	Routing	Invert	Outlet Devices									
#1	Primary	205.20'	15.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads									
#2	Secondary	207.50'	8.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32									

Primary OutFlow Max=0.75 cfs @ 12.13 hrs HW=205.48' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.75 cfs @ 1.81 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.20' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4A: Detention Basin 4A



Summary for Pond 4B: Detention Basin 4B

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.33" for 2-year event
 Inflow = 0.78 cfs @ 12.15 hrs, Volume= 0.059 af
 Outflow = 0.07 cfs @ 13.81 hrs, Volume= 0.040 af, Atten= 91%, Lag= 99.7 min
 Primary = 0.07 cfs @ 13.81 hrs, Volume= 0.040 af
 Routed to Reach P4B : Pipe Out of 4B
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P4B : Pipe Out of 4B

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.48' @ 13.81 hrs Surf.Area= 3,168 sf Storage= 1,452 cf

Plug-Flow detention time= 220.0 min calculated for 0.040 af (68% of inflow)
 Center-of-Mass det. time= 149.3 min (946.2 - 796.9)

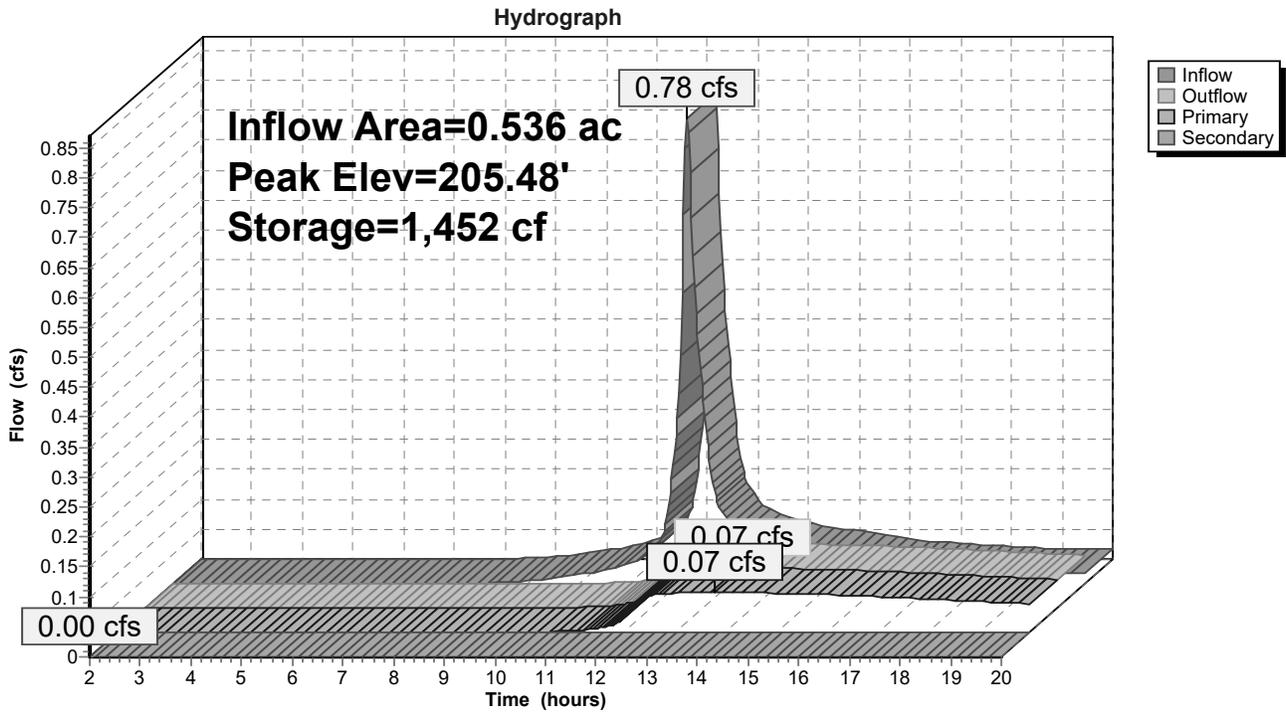
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	7,090 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	2,837	240.0	0	0	2,837	
206.00	3,542	256.0	3,183	3,183	3,515	
207.00	4,283	269.0	3,907	7,090	4,119	

Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.07 cfs @ 13.81 hrs HW=205.48' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.07 cfs @ 3.05 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 4B: Detention Basin 4B



Summary for Pond 5P: Detention Basin 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 2.23" for 2-year event
 Inflow = 2.69 cfs @ 12.09 hrs, Volume= 0.189 af
 Outflow = 0.13 cfs @ 14.50 hrs, Volume= 0.094 af, Atten= 95%, Lag= 144.8 min
 Primary = 0.13 cfs @ 14.50 hrs, Volume= 0.094 af
 Routed to Reach P5 : Pipe Out of 5
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P5 : Pipe Out of 5

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.62' @ 14.50 hrs Surf.Area= 3,893 sf Storage= 5,250 cf

Plug-Flow detention time= 246.8 min calculated for 0.094 af (50% of inflow)
 Center-of-Mass det. time= 160.2 min (919.2 - 759.0)

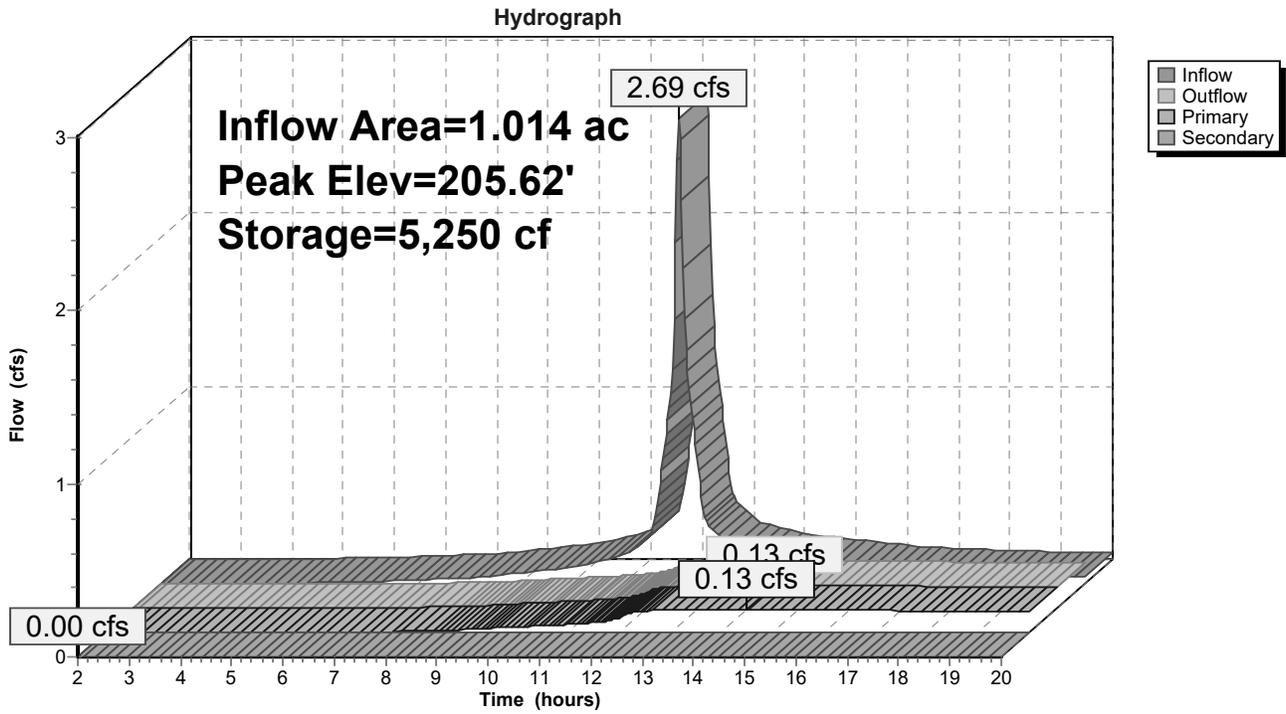
Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	15,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,787	236.0	0	0	2,787	
205.00	3,274	250.0	3,027	3,027	3,380	
206.00	4,298	383.0	3,774	6,802	10,087	
207.00	5,079	397.0	4,683	11,485	11,040	
207.75	5,683	407.0	4,034	15,518	11,747	

Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads
#2	Secondary	207.00'	4.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 14.50 hrs HW=205.62' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.13 cfs @ 5.97 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 5P: Detention Basin 5



Summary for Pond 6P: Detention Basin 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 1.28" for 2-year event
 Inflow = 0.89 cfs @ 12.09 hrs, Volume= 0.059 af
 Outflow = 0.02 cfs @ 20.00 hrs, Volume= 0.003 af, Atten= 98%, Lag= 474.5 min
 Primary = 0.02 cfs @ 20.00 hrs, Volume= 0.003 af
 Routed to Reach P6 : Pipe Out of 6
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P6 : Pipe Out of 6

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.08' @ 20.00 hrs Surf.Area= 2,612 sf Storage= 2,444 cf

Plug-Flow detention time= 466.7 min calculated for 0.003 af (5% of inflow)
 Center-of-Mass det. time= 316.3 min (1,117.2 - 800.9)

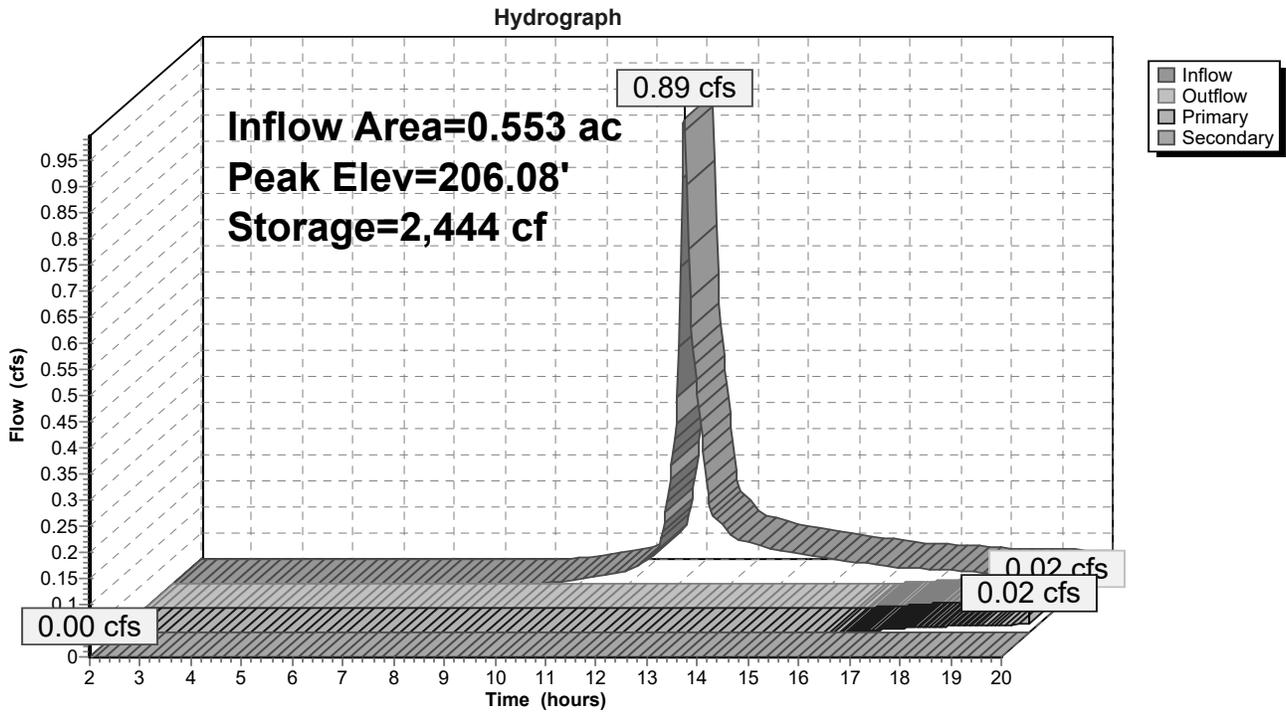
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	7,775 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	1,920	273.0	0	0	1,920	
206.00	2,558	295.0	2,231	2,231	2,954	
207.00	3,255	360.0	2,900	5,131	6,358	
207.75	3,802	370.0	2,644	7,775	7,000	

Device	Routing	Invert	Outlet Devices		
#1	Primary	206.00'	3.5" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.02 cfs @ 20.00 hrs HW=206.08' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.02 cfs @ 0.98 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 6P: Detention Basin 6



Summary for Pond 7P: Detention Basin 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.07" for 2-year event
 Inflow = 0.01 cfs @ 13.75 hrs, Volume= 0.003 af
 Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Atten= 68%, Lag= 374.9 min
 Primary = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af
 Routed to Reach P7 : Pipe Out of 7
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P7 : Pipe Out of 7

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.04' @ 20.00 hrs Surf.Area= 3,113 sf Storage= 112 cf

Plug-Flow detention time= 262.5 min calculated for 0.001 af (23% of inflow)
 Center-of-Mass det. time= 109.1 min (1,055.0 - 945.9)

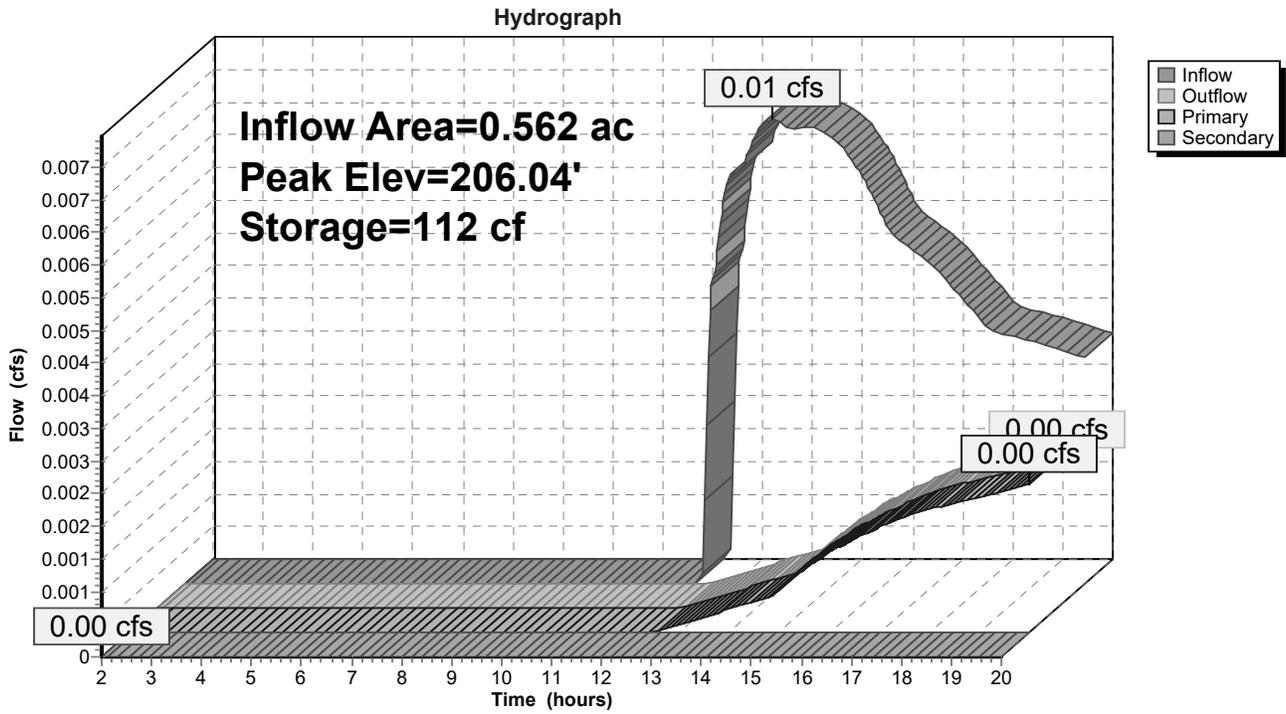
Volume	Invert	Avail.Storage	Storage Description			
#1	206.00'	7,029 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
206.00	3,078	335.0	0	0	3,078	
207.00	4,132	359.0	3,592	3,592	4,448	
207.75	5,049	375.0	3,437	7,029	5,422	

Device	Routing	Invert	Outlet Devices		
#1	Primary	206.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.00 cfs @ 20.00 hrs HW=206.04' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.65 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=206.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 7P: Detention Basin 7



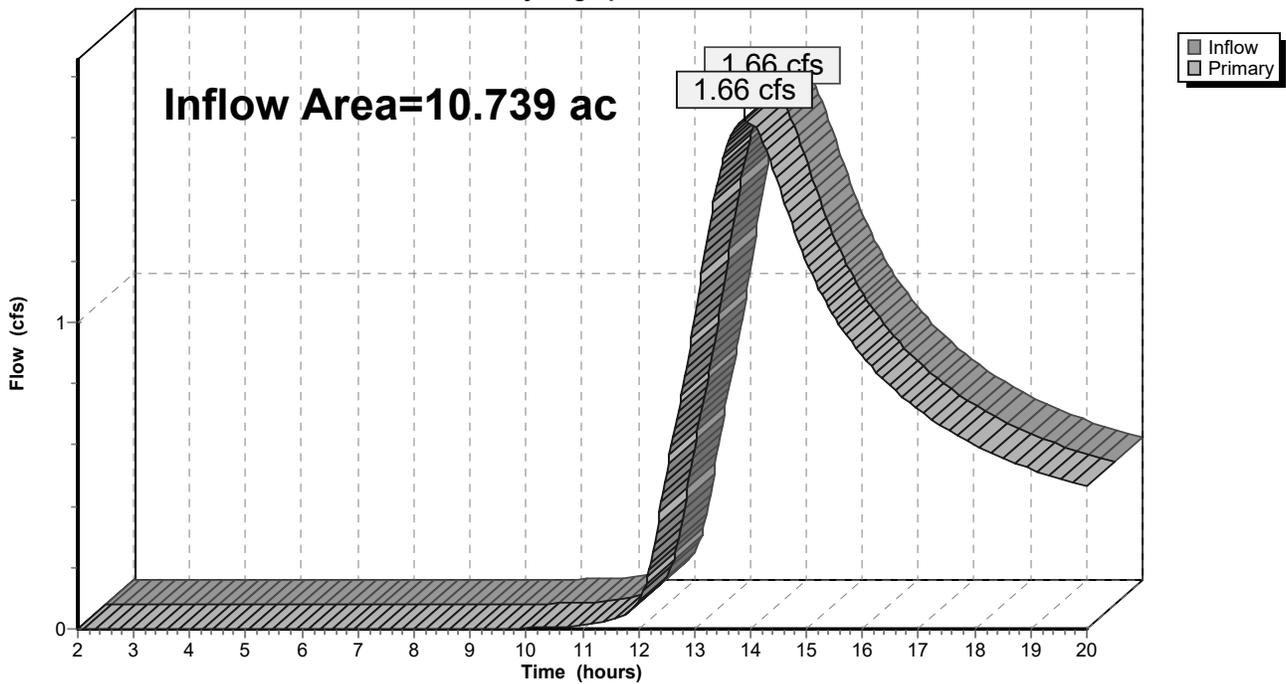
Summary for Link x1000: x1000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 0.65" for 2-year event
Inflow = 1.66 cfs @ 13.90 hrs, Volume= 0.578 af
Primary = 1.66 cfs @ 13.90 hrs, Volume= 0.578 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 1k-2k : x1000 to x2000

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x1000: x1000

Hydrograph



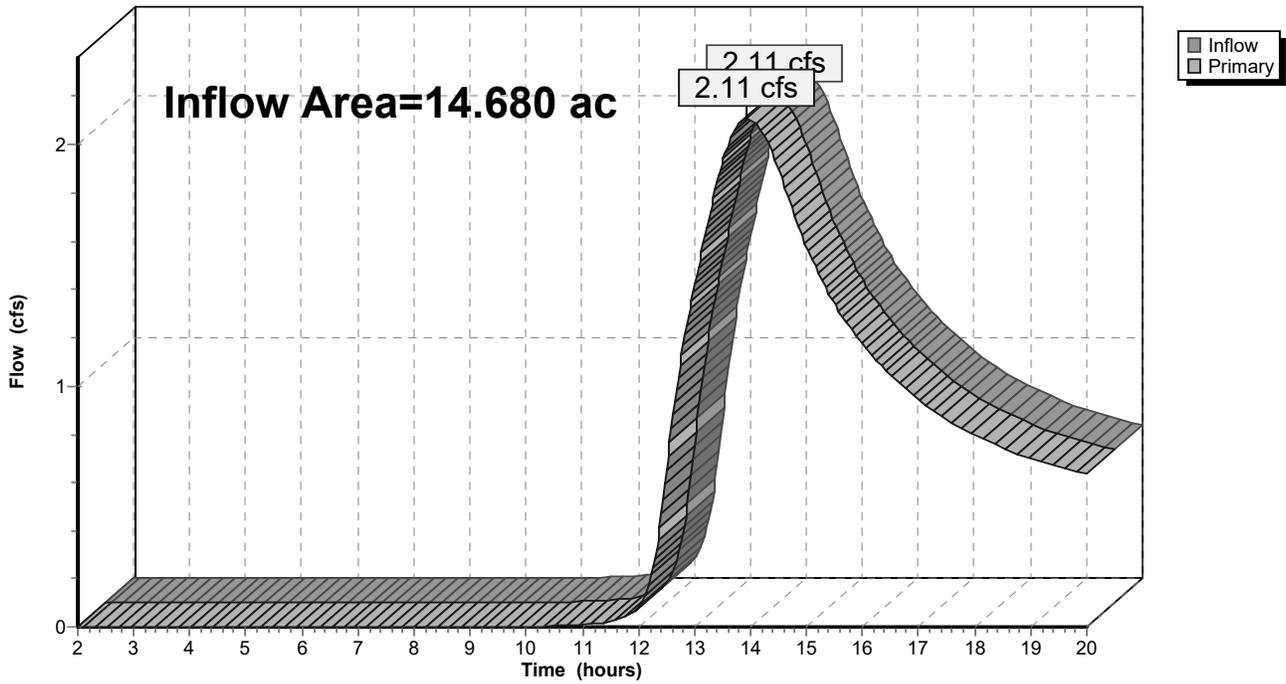
Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 0.62" for 2-year event
Inflow = 2.11 cfs @ 13.95 hrs, Volume= 0.756 af
Primary = 2.11 cfs @ 13.95 hrs, Volume= 0.756 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2k-3k : x2000 to x3000

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x2000: x2000

Hydrograph



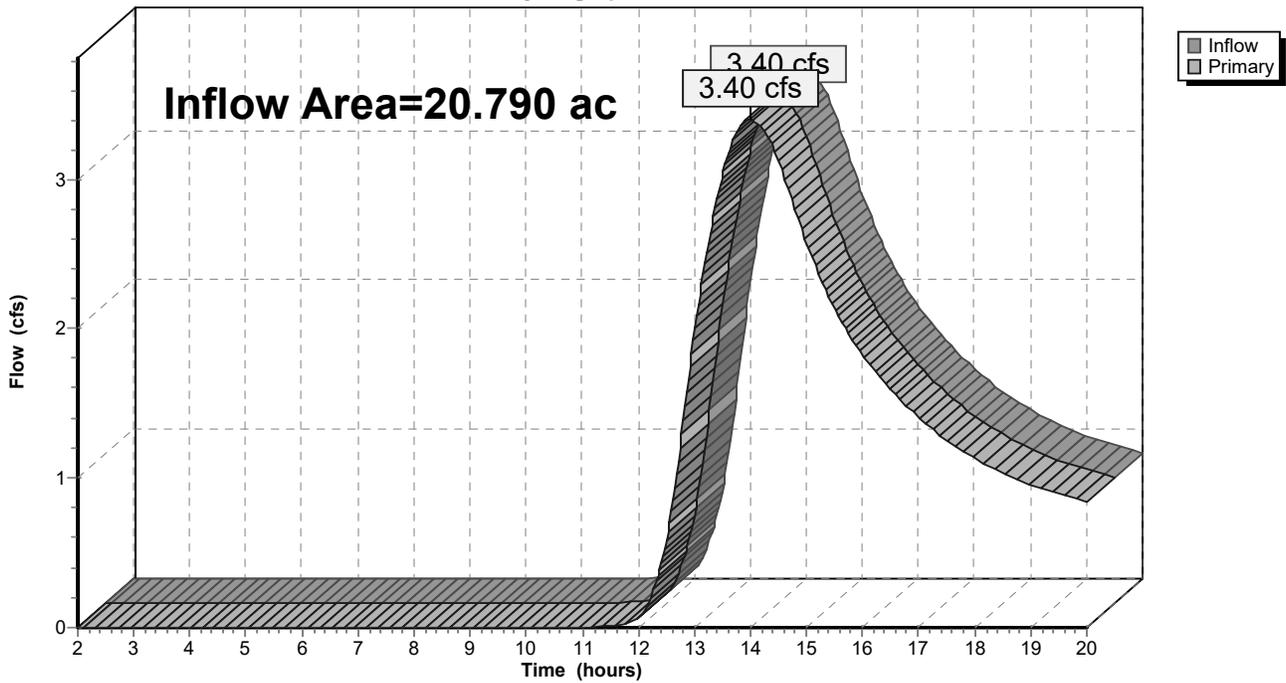
Summary for Link x3000: x3000

Inflow Area = 20.790 ac, 10.83% Impervious, Inflow Depth > 0.65" for 2-year event
Inflow = 3.40 cfs @ 13.99 hrs, Volume= 1.134 af
Primary = 3.40 cfs @ 13.99 hrs, Volume= 1.134 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x3000: x3000

Hydrograph



10-Year Storm Event – Proposed

4298600-PR - Reconfigure Basin #1

Type III 24-hr 10-year Rainfall=4.66"

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Time span=2.00-20.00 hrs, dt=0.03 hrs, 601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 100: Area 100	Runoff Area=21,241 sf 39.36% Impervious Runoff Depth>3.06" Tc=6.0 min CN=87 Runoff=1.82 cfs 0.124 af
Subcatchment 200: Area 200	Runoff Area=7,259 sf 21.45% Impervious Runoff Depth>2.78" Tc=6.0 min CN=84 Runoff=0.57 cfs 0.039 af
Subcatchment 300: Area 300	Runoff Area=25,373 sf 47.63% Impervious Runoff Depth>3.15" Tc=6.0 min CN=88 Runoff=2.23 cfs 0.153 af
Subcatchment 350: Area 350	Runoff Area=2,640 sf 0.00% Impervious Runoff Depth>1.64" Tc=6.0 min CN=70 Runoff=0.12 cfs 0.008 af
Subcatchment 400: Area 400	Runoff Area=17,459 sf 54.77% Impervious Runoff Depth>3.15" Tc=6.0 min CN=88 Runoff=1.54 cfs 0.105 af
Subcatchment 450: Area 450	Runoff Area=5,879 sf 0.00% Impervious Runoff Depth>0.94" Tc=6.0 min CN=59 Runoff=0.14 cfs 0.011 af
Subcatchment 500: Area 500	Runoff Area=24,492 sf 21.12% Impervious Runoff Depth>0.48" Tc=6.0 min CN=50 Runoff=0.20 cfs 0.023 af
Subcatchment 550: Area 550	Runoff Area=24,095 sf 65.72% Impervious Runoff Depth>2.60" Tc=6.0 min CN=82 Runoff=1.79 cfs 0.120 af
Subcatchment 600: Area 600	Runoff Area=44,164 sf 81.56% Impervious Runoff Depth>3.77" Tc=6.0 min CN=94 Runoff=4.39 cfs 0.319 af
Subcatchment 700: Area 700	Runoff Area=155,394 sf 0.00% Impervious Runoff Depth>1.76" Flow Length=914' Tc=123.7 min CN=73 Runoff=2.01 cfs 0.525 af
Subcatchment 800: Area 800	Runoff Area=83,661 sf 0.00% Impervious Runoff Depth>2.05" Flow Length=850' Tc=142.4 min CN=77 Runoff=1.15 cfs 0.328 af
Subcatchment 900: Area 900	Runoff Area=20,660 sf 0.00% Impervious Runoff Depth>2.15" Flow Length=370' Tc=40.8 min CN=77 Runoff=0.63 cfs 0.085 af
Subcatchment 1000: Area 1000	Runoff Area=89,935 sf 0.00% Impervious Runoff Depth>1.71" Flow Length=675' Tc=101.4 min CN=72 Runoff=1.29 cfs 0.295 af
Subcatchment 1100: Area 1100	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>1.63" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.36 cfs 0.041 af
Subcatchment 1200: Area 1200	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>1.90" Flow Length=868' Tc=140.2 min CN=75 Runoff=2.11 cfs 0.592 af
Subcatchment 1300: Area 1300	Runoff Area=41,280 sf 0.00% Impervious Runoff Depth>1.75" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.50 cfs 0.138 af

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Subcatchment 1400: Area 1400	Runoff Area=43,924 sf 0.00% Impervious Runoff Depth>1.90" Flow Length=410' Tc=58.3 min CN=74 Runoff=0.98 cfs 0.159 af
Subcatchment 1500: Area 1500	Runoff Area=15,037 sf 0.00% Impervious Runoff Depth>2.08" Flow Length=661' Tc=110.0 min CN=77 Runoff=0.25 cfs 0.060 af
Subcatchment 1600: Area 1600	Runoff Area=22,207 sf 0.00% Impervious Runoff Depth>0.70" Flow Length=1,245' Tc=149.8 min CN=56 Runoff=0.09 cfs 0.030 af
Subcatchment 1700: Area 1700	Runoff Area=23,148 sf 0.00% Impervious Runoff Depth>0.00" Flow Length=917' Tc=159.8 min CN=33 Runoff=0.00 cfs 0.000 af
Subcatchment 1800: Area 1800	Runoff Area=52,490 sf 0.78% Impervious Runoff Depth>1.61" Flow Length=615' Tc=135.0 min CN=71 Runoff=0.58 cfs 0.162 af
Subcatchment DISP: Dispensary Building	Runoff Area=4,073 sf 100.00% Impervious Runoff Depth>4.21" Tc=6.0 min CN=98 Runoff=0.42 cfs 0.033 af
Subcatchment LAB: Lab Bldg	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>4.21" Tc=6.0 min CN=98 Runoff=0.52 cfs 0.040 af
Reach 1k-2k: x1000 to x2000	Avg. Flow Depth=0.31' Max Vel=1.30 fps Inflow=4.00 cfs 1.293 af n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=3.99 cfs 1.283 af
Reach 2k-3k: x2000 to x3000	Avg. Flow Depth=0.58' Max Vel=1.18 fps Inflow=5.16 cfs 1.722 af n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=5.15 cfs 1.700 af
Reach CP1: Connecting Pipes 8.0" Round Pipe x 2.00	n=0.011 Avg. Flow Depth=0.30' Max Vel=3.89 fps Inflow=1.17 cfs 0.121 af L=60.0' S=0.0100 '/' Capacity=2.86 cfs Outflow=1.17 cfs 0.121 af
Reach CP4: Connecting Pipes 15.0" Round Pipe x 2.00	n=0.011 Avg. Flow Depth=0.34' Max Vel=2.60 fps Inflow=1.42 cfs 0.105 af L=62.0' S=0.0032 '/' Capacity=8.67 cfs Outflow=1.40 cfs 0.105 af
Reach P1: Pipe Out of 1 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.10' Max Vel=2.13 fps Inflow=0.09 cfs 0.060 af L=78.0' S=0.0128 '/' Capacity=4.03 cfs Outflow=0.09 cfs 0.060 af
Reach P2: Pipe Out of 2 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.13' Max Vel=1.55 fps Inflow=0.10 cfs 0.069 af L=60.0' S=0.0050 '/' Capacity=2.52 cfs Outflow=0.10 cfs 0.069 af
Reach P3: Pipe Out of 3 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.14' Max Vel=1.57 fps Inflow=0.10 cfs 0.071 af L=40.0' S=0.0050 '/' Capacity=2.52 cfs Outflow=0.10 cfs 0.071 af
Reach P4B: Pipe Out of 4B 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.13' Max Vel=1.60 fps Inflow=0.10 cfs 0.065 af L=182.0' S=0.0055 '/' Capacity=2.64 cfs Outflow=0.10 cfs 0.065 af
Reach P5: Pipe Out of 5 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.17' Max Vel=1.90 fps Inflow=0.17 cfs 0.129 af L=35.0' S=0.0057 '/' Capacity=2.69 cfs Outflow=0.17 cfs 0.129 af
Reach P6: Pipe Out of 6 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.15' Max Vel=2.10 fps Inflow=0.15 cfs 0.060 af L=60.0' S=0.0083 '/' Capacity=3.25 cfs Outflow=0.15 cfs 0.060 af
Reach P7: Pipe Out of 7 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.07' Max Vel=1.17 fps Inflow=0.03 cfs 0.014 af L=290.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=0.03 cfs 0.014 af

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Reach W1: 1 Thru Wetland	Avg. Flow Depth=0.19' Max Vel=0.07 fps Inflow=0.09 cfs 0.060 af n=0.800 L=335.0' S=0.0197 '/' Capacity=3.31 cfs Outflow=0.09 cfs 0.040 af
Reach W2: 2 Thru Wetland	Avg. Flow Depth=0.20' Max Vel=0.06 fps Inflow=0.10 cfs 0.069 af n=0.800 L=375.0' S=0.0152 '/' Capacity=2.90 cfs Outflow=0.09 cfs 0.045 af
Reach W3: 3 Thru Wetland	Avg. Flow Depth=0.23' Max Vel=0.05 fps Inflow=0.20 cfs 0.079 af n=0.800 L=850.0' S=0.0092 '/' Capacity=2.26 cfs Outflow=0.07 cfs 0.012 af
Reach W4B: 4B Thru Wetland	Avg. Flow Depth=0.21' Max Vel=0.05 fps Inflow=0.10 cfs 0.065 af n=0.800 L=515.0' S=0.0117 '/' Capacity=2.54 cfs Outflow=0.09 cfs 0.027 af
Reach W5: 5 Thru Wetland	Avg. Flow Depth=0.25' Max Vel=0.08 fps Inflow=0.17 cfs 0.129 af n=0.800 L=318.0' S=0.0182 '/' Capacity=3.18 cfs Outflow=0.17 cfs 0.098 af
Reach W6: 6 Thru Wetland	Avg. Flow Depth=0.22' Max Vel=0.06 fps Inflow=0.15 cfs 0.060 af n=0.800 L=615.0' S=0.0122 '/' Capacity=2.60 cfs Outflow=0.09 cfs 0.024 af
Reach W7: 7 Thru Wetland	Avg. Flow Depth=0.11' Max Vel=0.03 fps Inflow=0.03 cfs 0.014 af n=0.800 L=600.0' S=0.0100 '/' Capacity=2.36 cfs Outflow=0.01 cfs 0.000 af
Pond 1A: Detention Basin 1A	Peak Elev=204.46' Storage=1,083 cf Inflow=1.82 cfs 0.124 af Outflow=1.17 cfs 0.121 af
Pond 1B: Detention Basin 1B	Peak Elev=203.87' Storage=3,324 cf Inflow=1.17 cfs 0.121 af Outflow=0.09 cfs 0.060 af
Pond 2P: Detention Basin 2	Peak Elev=204.94' Storage=2,873 cf Inflow=1.52 cfs 0.112 af Primary=0.10 cfs 0.069 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.069 af
Pond 3P: Detention Basin 3	Peak Elev=206.04' Storage=4,392 cf Inflow=2.23 cfs 0.153 af Primary=0.10 cfs 0.071 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.071 af
Pond 4A: Detention Basin 4A	Peak Elev=205.59' Storage=307 cf Inflow=1.54 cfs 0.105 af Primary=1.42 cfs 0.105 af Secondary=0.00 cfs 0.000 af Outflow=1.42 cfs 0.105 af
Pond 4B: Detention Basin 4B	Peak Elev=205.96' Storage=3,031 cf Inflow=1.53 cfs 0.115 af Primary=0.10 cfs 0.065 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.065 af
Pond 5P: Detention Basin 5	Peak Elev=206.58' Storage=9,426 cf Inflow=4.39 cfs 0.319 af Primary=0.17 cfs 0.129 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.129 af
Pond 6P: Detention Basin 6	Peak Elev=206.36' Storage=3,195 cf Inflow=1.79 cfs 0.120 af Primary=0.15 cfs 0.060 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.060 af
Pond 7P: Detention Basin 7	Peak Elev=206.15' Storage=463 cf Inflow=0.20 cfs 0.023 af Primary=0.03 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.014 af
Link x1000: x1000	Inflow=4.00 cfs 1.293 af Primary=4.00 cfs 1.293 af

4298600-PR - Reconfigure Basin #1

Type III 24-hr 10-year Rainfall=4.66"

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Link x2000: x2000

Inflow=5.16 cfs 1.722 af
Primary=5.16 cfs 1.722 af

Link x3000: x3000

Inflow=8.40 cfs 2.627 af
Primary=8.40 cfs 2.627 af

Total Runoff Area = 20.790 ac Runoff Volume = 3.388 af Average Runoff Depth = 1.96"
89.17% Pervious = 18.538 ac 10.83% Impervious = 2.251 ac

Summary for Subcatchment 100: Area 100

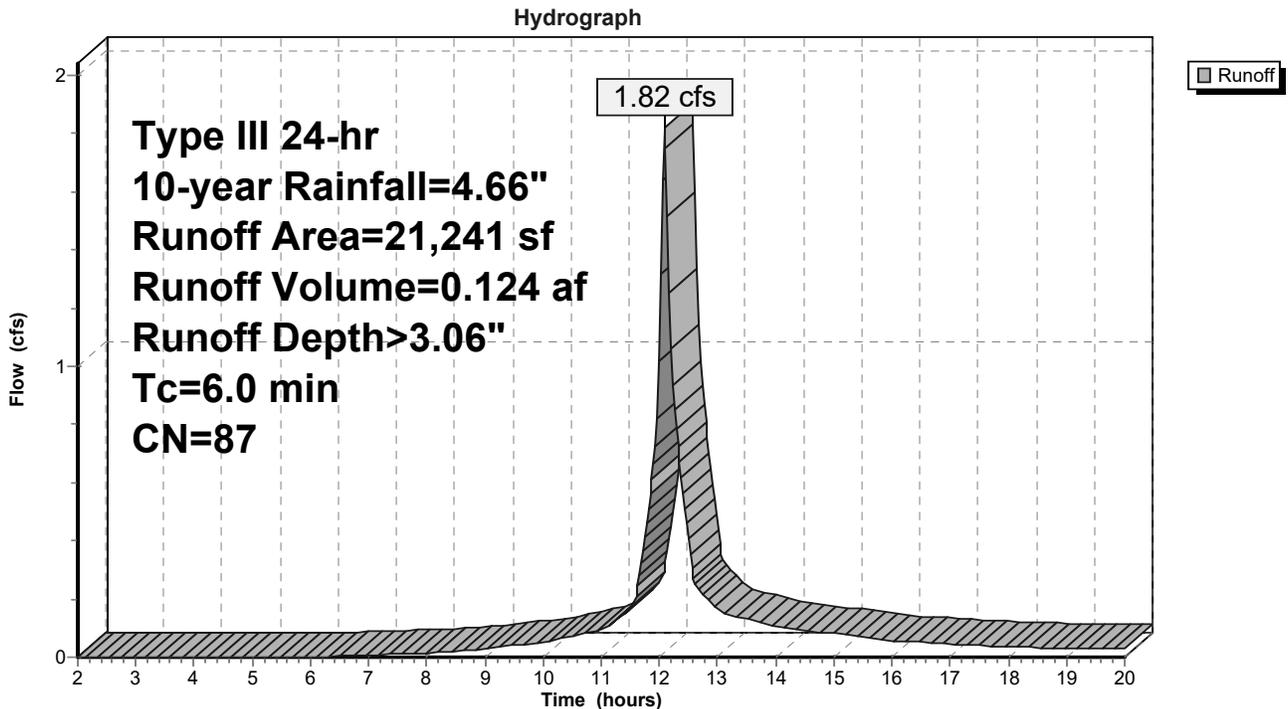
Runoff = 1.82 cfs @ 12.09 hrs, Volume= 0.124 af, Depth> 3.06"
 Routed to Pond 1A : Detention Basin 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
2,229	98	Paved parking, HSG C
12,881	80	>75% Grass cover, Good, HSG D
6,131	98	Paved parking, HSG D
21,241	87	Weighted Average
12,881		60.64% Pervious Area
8,360		39.36% Impervious Area

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

Subcatchment 100: Area 100



Summary for Subcatchment 200: Area 200

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 2.78"
 Routed to Pond 2P : Detention Basin 2

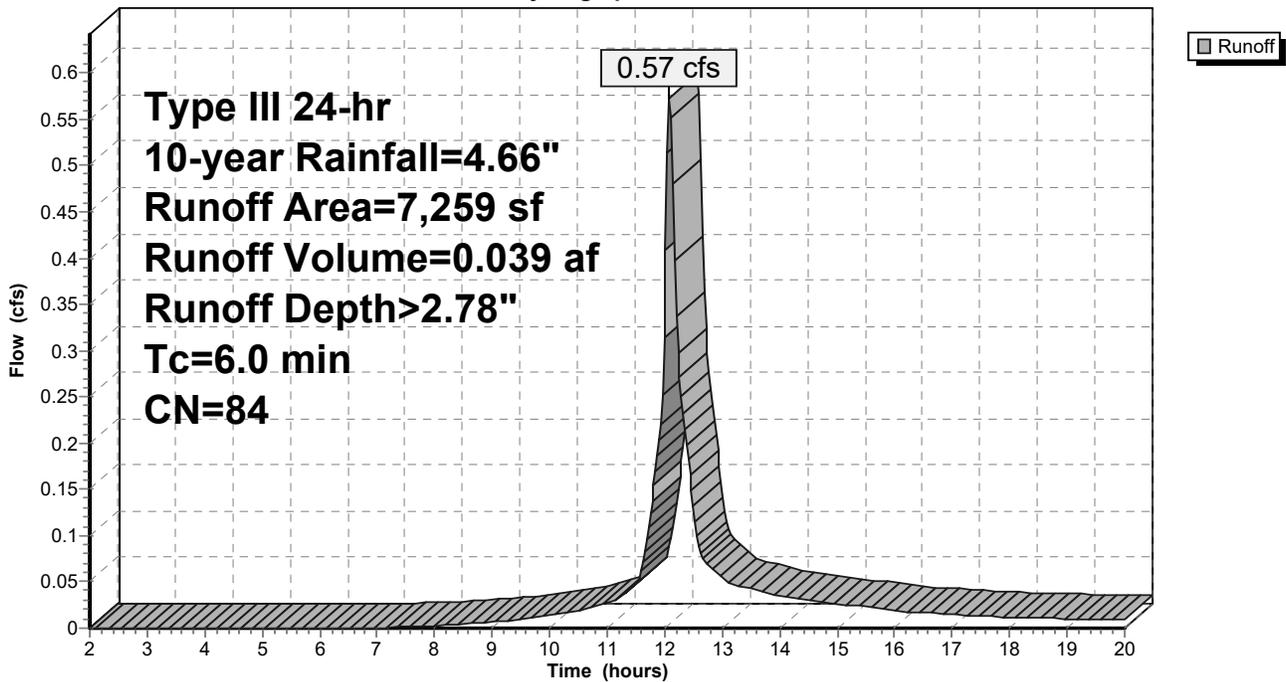
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
356	98	Paved parking, HSG D
1,201	98	Paved parking, HSG C
5,702	80	>75% Grass cover, Good, HSG D
7,259	84	Weighted Average
5,702		78.55% Pervious Area
1,557		21.45% Impervious Area

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

Subcatchment 200: Area 200

Hydrograph



Summary for Subcatchment 300: Area 300

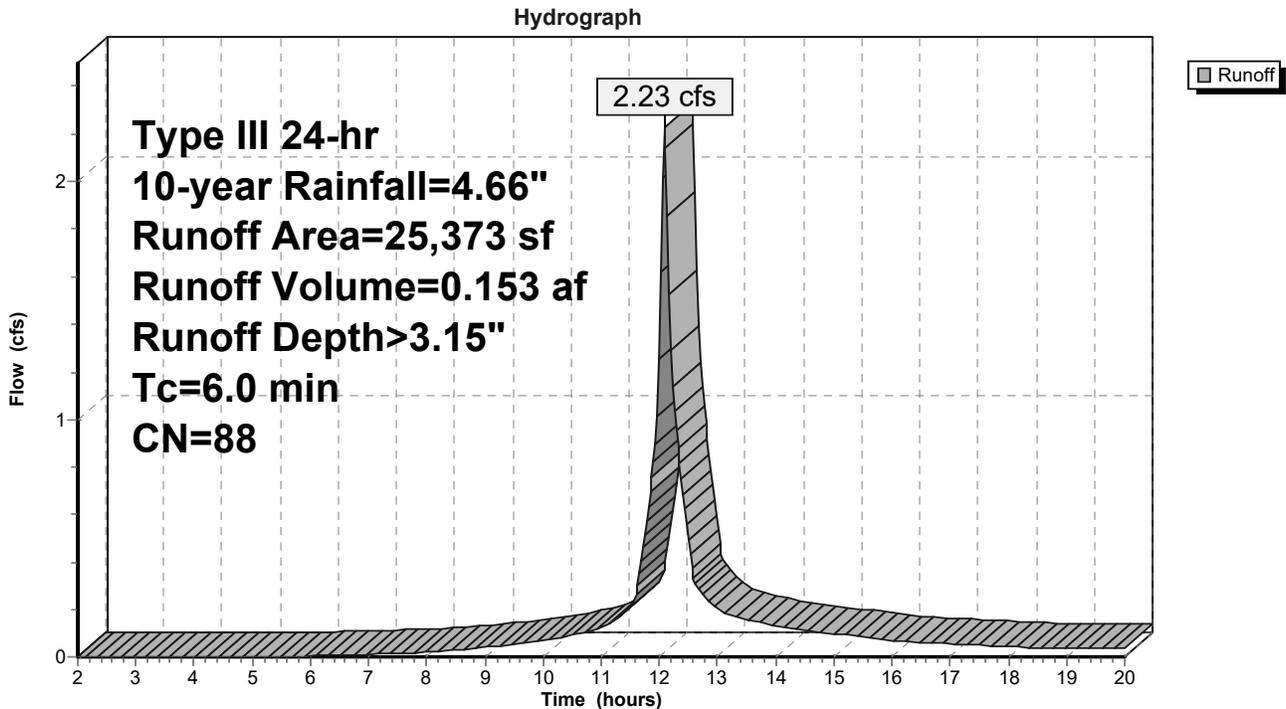
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.153 af, Depth> 3.15"
 Routed to Pond 3P : Detention Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
6,584	77	Woods, Good, HSG D
10,134	98	Paved parking, HSG D
6,278	80	>75% Grass cover, Good, HSG D
425	70	Woods, Good, HSG C
1,952	98	Paved parking, HSG C
25,373	88	Weighted Average
13,287		52.37% Pervious Area
12,086		47.63% Impervious Area

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

Subcatchment 300: Area 300



Summary for Subcatchment 350: Area 350

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.008 af, Depth> 1.64"
 Routed to Reach W3 : 3 Thru Wetland

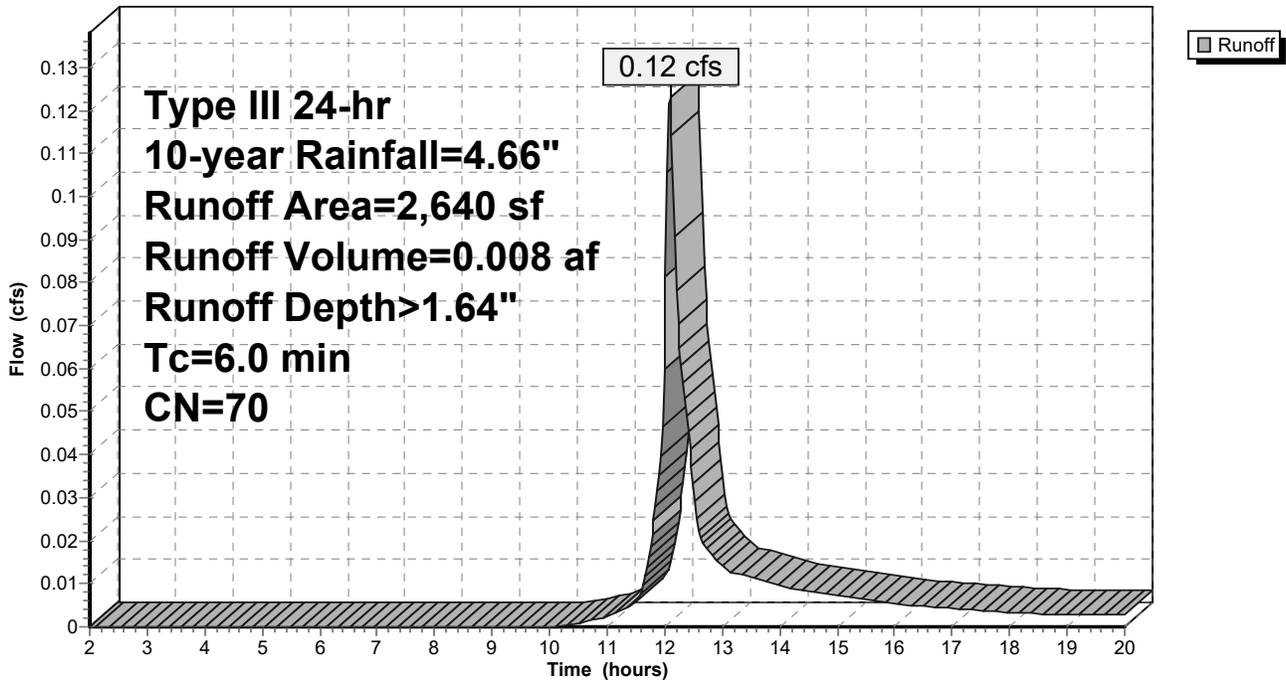
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
2,640	70	Woods, Good, HSG C
2,640		100.00% Pervious Area

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

Subcatchment 350: Area 350

Hydrograph



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Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 400: Area 400

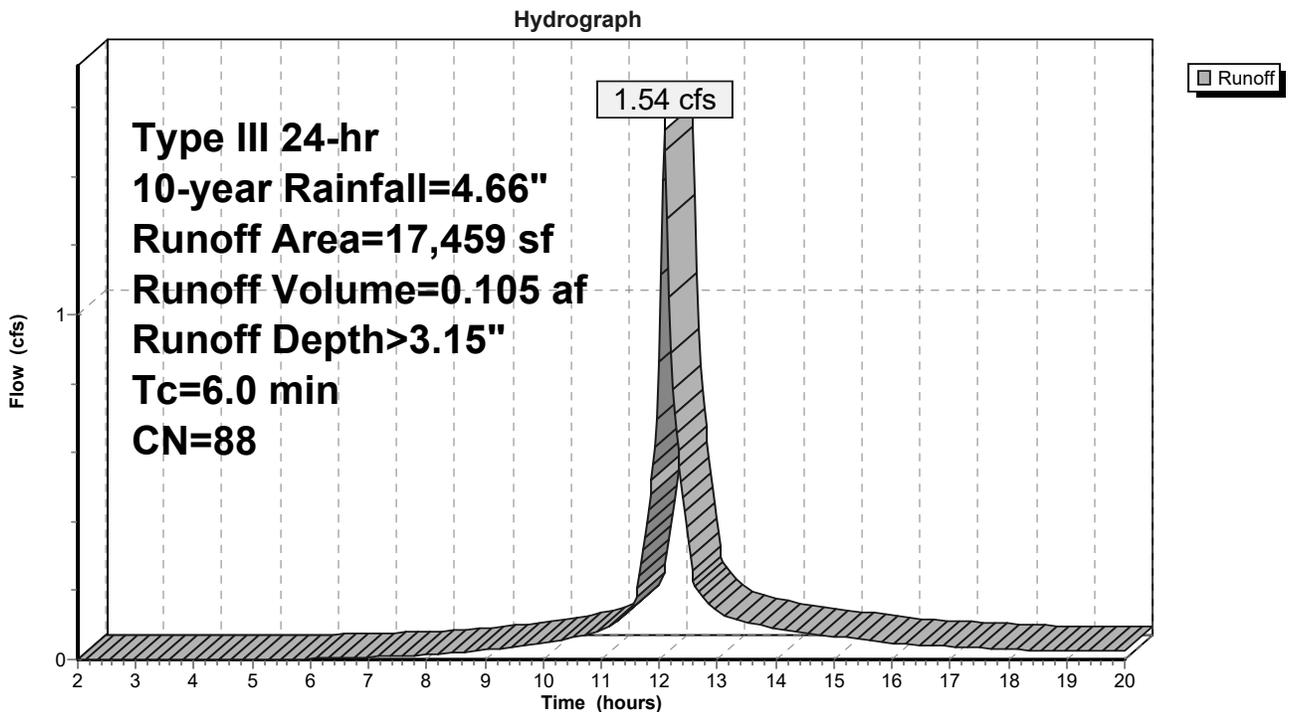
Runoff = 1.54 cfs @ 12.09 hrs, Volume= 0.105 af, Depth> 3.15"
 Routed to Pond 4A : Detention Basin 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
5,161	98	Paved parking, HSG D
1,112	80	>75% Grass cover, Good, HSG D
4,402	98	Paved parking, HSG C
6,784	74	>75% Grass cover, Good, HSG C
17,459	88	Weighted Average
7,896		45.23% Pervious Area
9,563		54.77% Impervious Area

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

Subcatchment 400: Area 400



Summary for Subcatchment 450: Area 450

Runoff = 0.14 cfs @ 12.11 hrs, Volume= 0.011 af, Depth> 0.94"
 Routed to Pond 4B : Detention Basin 4B

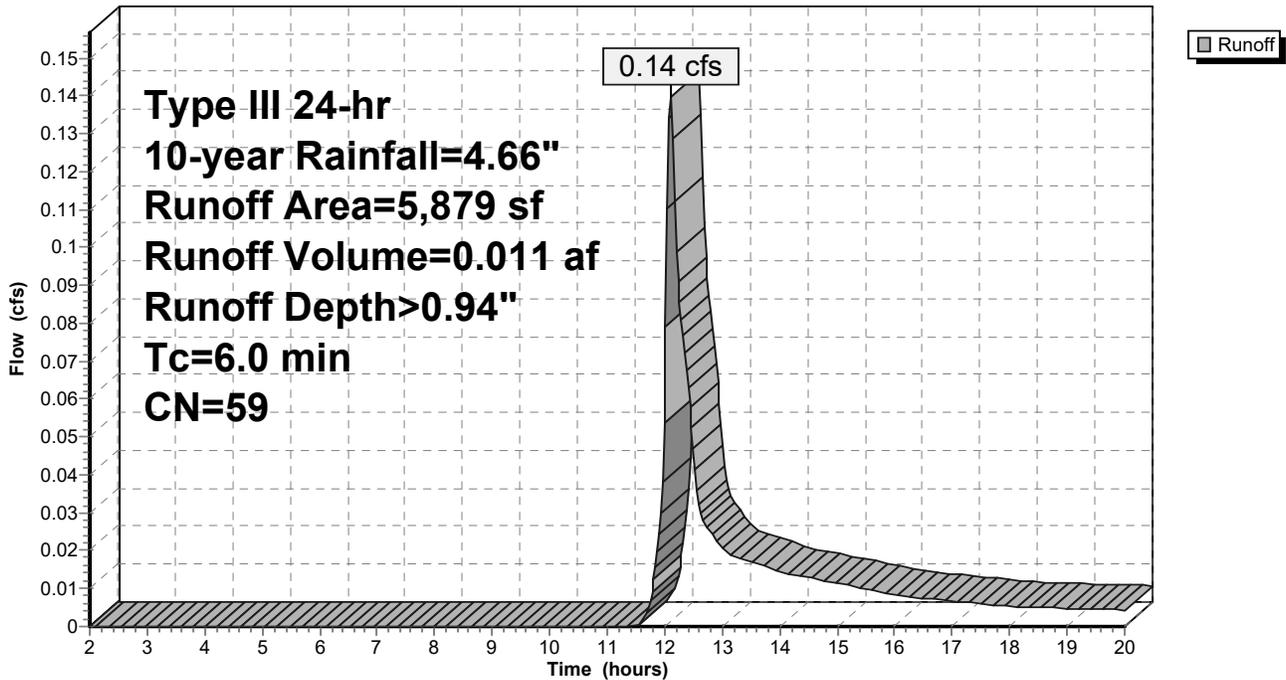
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
2,450	39	>75% Grass cover, Good, HSG A
3,429	74	>75% Grass cover, Good, HSG C
5,879	59	Weighted Average
5,879		100.00% Pervious Area

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

Subcatchment 450: Area 450

Hydrograph



Summary for Subcatchment 500: Area 500

Runoff = 0.20 cfs @ 12.14 hrs, Volume= 0.023 af, Depth> 0.48"
 Routed to Pond 7P : Detention Basin 7

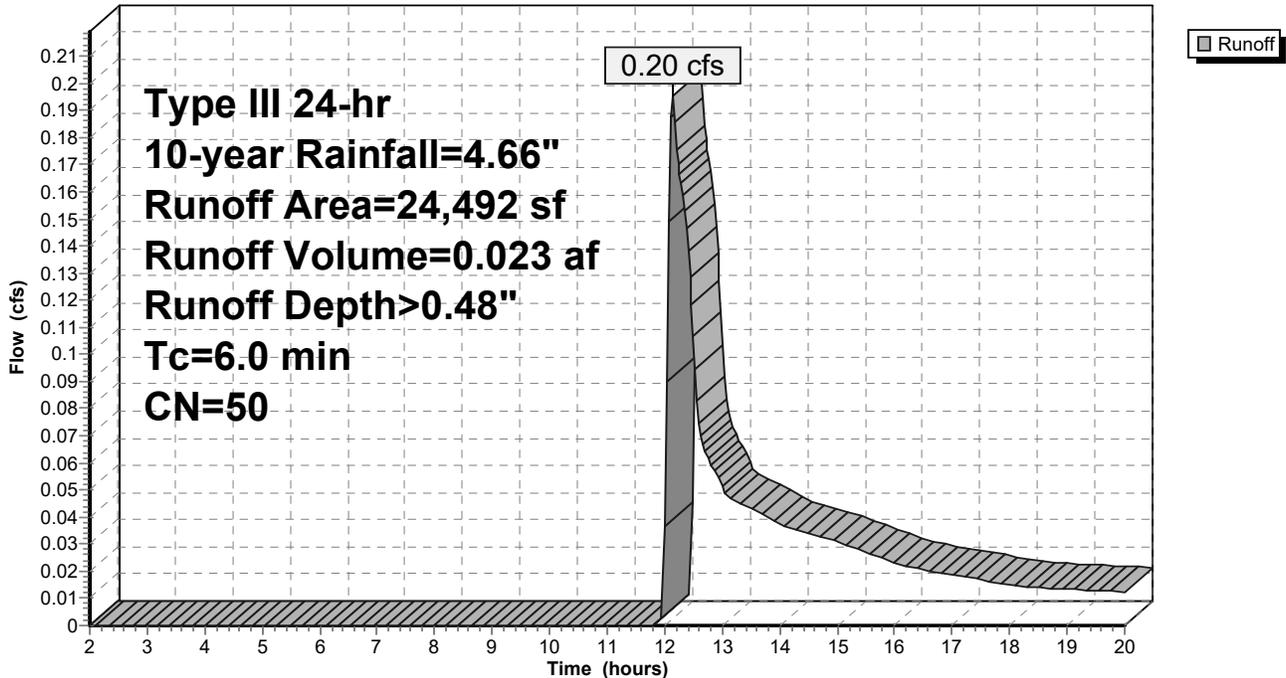
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
5,173	98	Paved parking, HSG A
3,184	30	Woods, Good, HSG A
16,049	39	>75% Grass cover, Good, HSG A
86	77	Woods, Good, HSG D
24,492	50	Weighted Average
19,319		78.88% Pervious Area
5,173		21.12% Impervious Area

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

Subcatchment 500: Area 500

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 550: Area 550

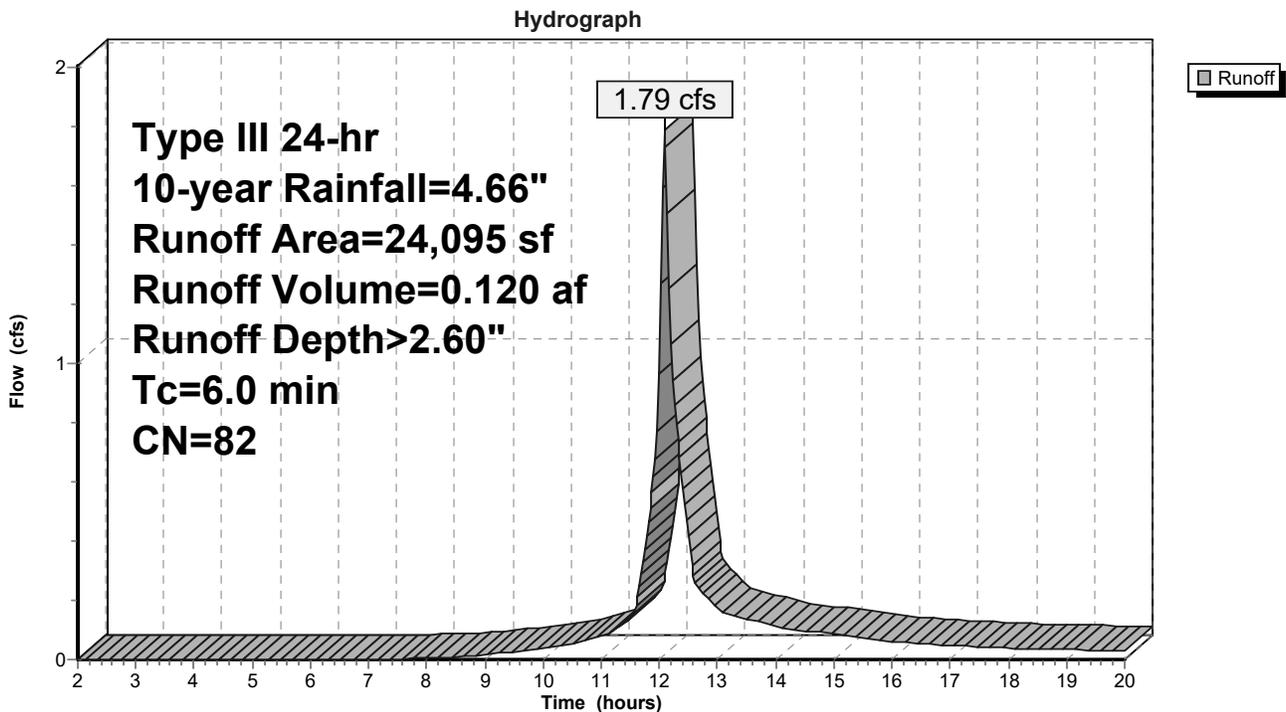
Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.120 af, Depth> 2.60"
 Routed to Pond 6P : Detention Basin 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
5,754	98	Paved parking, HSG A
5,395	39	>75% Grass cover, Good, HSG A
10,082	98	Paved parking, HSG C
2,864	74	>75% Grass cover, Good, HSG C
24,095	82	Weighted Average
8,259		34.28% Pervious Area
15,836		65.72% Impervious Area

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

Subcatchment 550: Area 550



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Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 600: Area 600

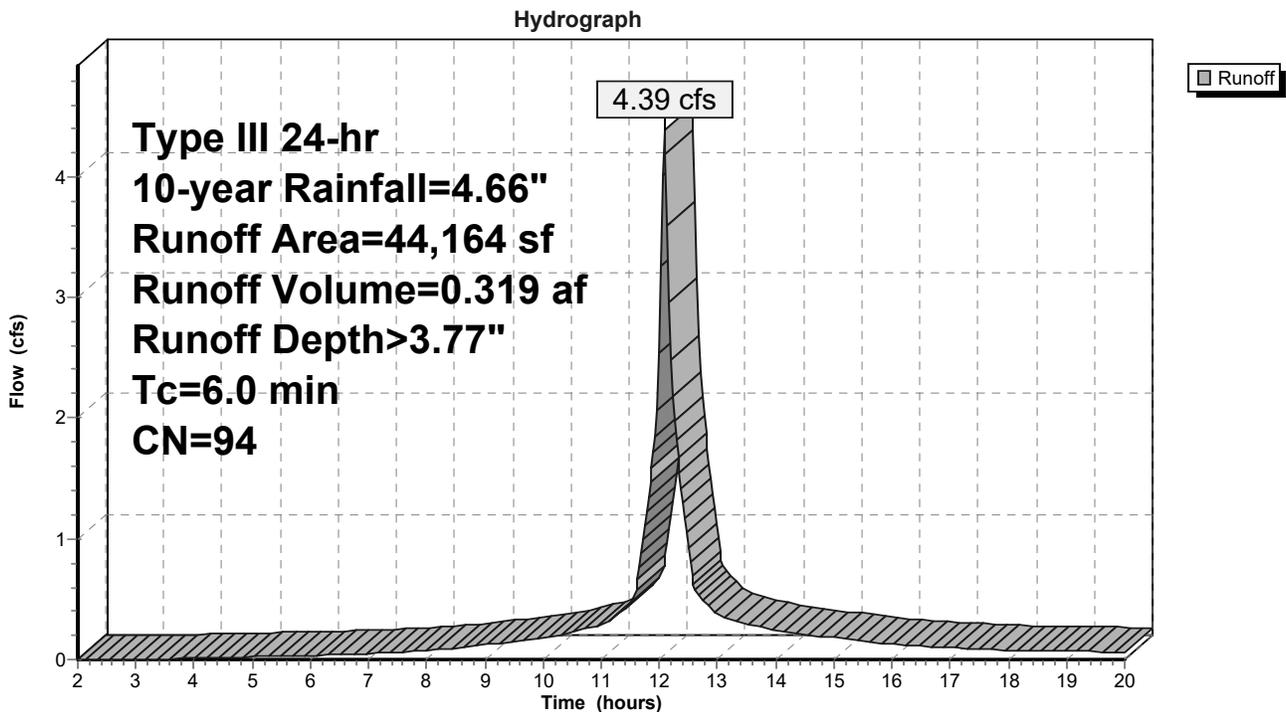
Runoff = 4.39 cfs @ 12.08 hrs, Volume= 0.319 af, Depth> 3.77"
 Routed to Pond 5P : Detention Basin 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
18,352	98	Roofs, HSG A
8,333	98	Roofs, HSG C
9,333	98	Paved parking, HSG C
8,146	74	>75% Grass cover, Good, HSG C
44,164	94	Weighted Average
8,146		18.44% Pervious Area
36,018		81.56% Impervious Area

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

Subcatchment 600: Area 600



4298600-PR - Reconfigure Basin #1

Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 700: Area 700

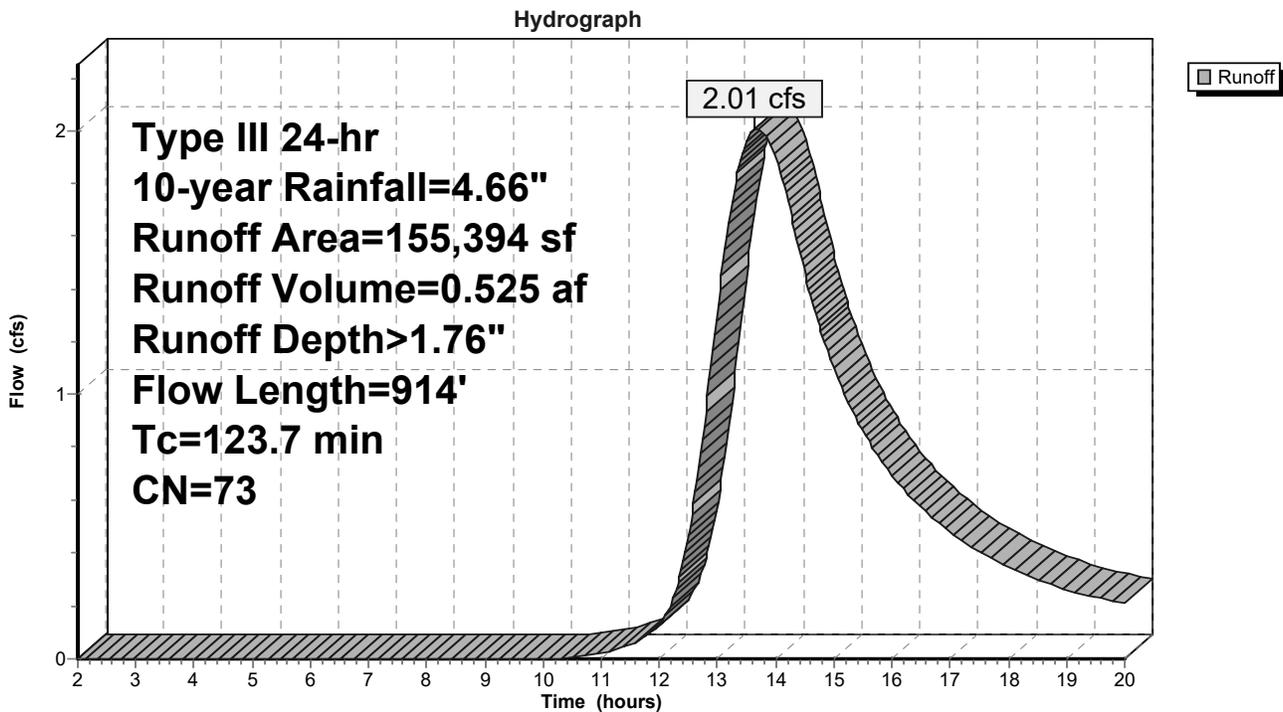
Runoff = 2.01 cfs @ 13.63 hrs, Volume= 0.525 af, Depth> 1.76"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
10,587	30	Woods, Good, HSG A
25,908	70	Woods, Good, HSG C
118,899	77	Woods, Good, HSG D
155,394	73	Weighted Average
155,394		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
10.0	150	0.0100	0.25		Shallow Concentrated Flow, Next 150' Forest w/Heavy Litter Kv= 2.5 fps
3.3	87	0.0300	0.43		Shallow Concentrated Flow, Next 87' Forest w/Heavy Litter Kv= 2.5 fps
24.7	117	0.0010	0.08		Shallow Concentrated Flow, Next 117' Forest w/Heavy Litter Kv= 2.5 fps
0.8	25	0.0400	0.50		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
10.9	225	0.0190	0.34		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
44.8	260	0.0015	0.10		Shallow Concentrated Flow, Last 260' Forest w/Heavy Litter Kv= 2.5 fps
123.7	914	Total			

Subcatchment 700: Area 700



Summary for Subcatchment 800: Area 800

Runoff = 1.15 cfs @ 13.92 hrs, Volume= 0.328 af, Depth> 2.05"
 Routed to Link x1000 : x1000

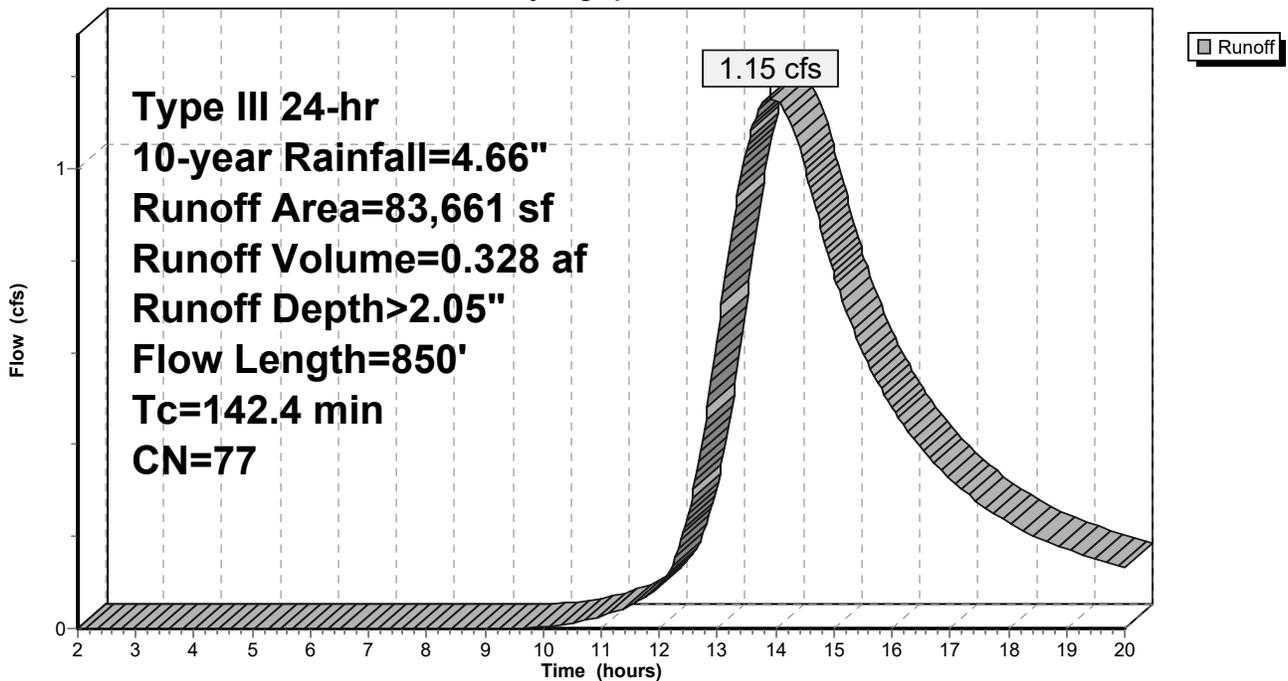
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
83,661	77	Woods, Good, HSG D
83,661		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
47.8	470	0.0043	0.16		Shallow Concentrated Flow, Next 470' Forest w/Heavy Litter Kv= 2.5 fps
16.2	180	0.0055	0.19		Shallow Concentrated Flow, Next 180' Forest w/Heavy Litter Kv= 2.5 fps
2.4	50	0.0200	0.35		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
2.6	100	0.0670	0.65		Shallow Concentrated Flow, Last 100' Forest w/Heavy Litter Kv= 2.5 fps
142.4	850	Total			

Subcatchment 800: Area 800

Hydrograph



Summary for Subcatchment 900: Area 900

Runoff = 0.63 cfs @ 12.57 hrs, Volume= 0.085 af, Depth> 2.15"
 Routed to Link x1000 : x1000

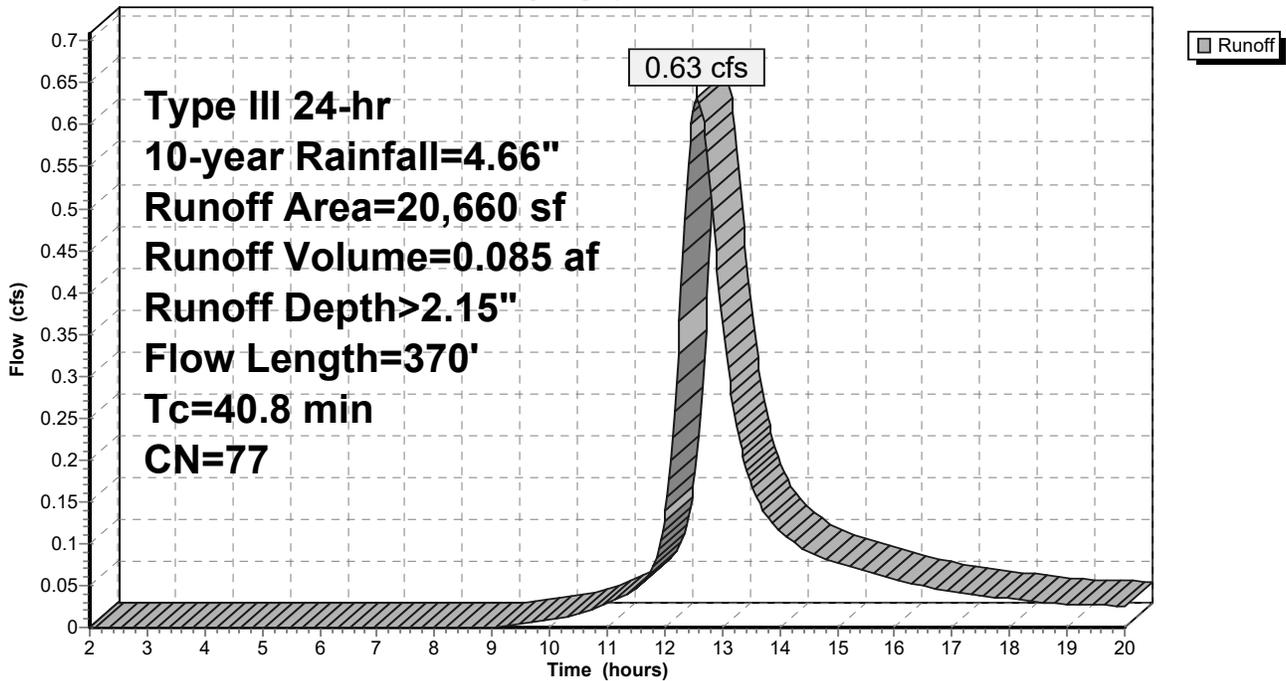
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
20,660	77	Woods, Good, HSG D
20,660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0670	0.06		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
27.1	320	0.0062	0.20		Shallow Concentrated Flow, Last 320' Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 900: Area 900

Hydrograph



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Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 1000: Area 1000

Runoff = 1.29 cfs @ 13.41 hrs, Volume= 0.295 af, Depth> 1.71"
 Routed to Link x3000 : x3000

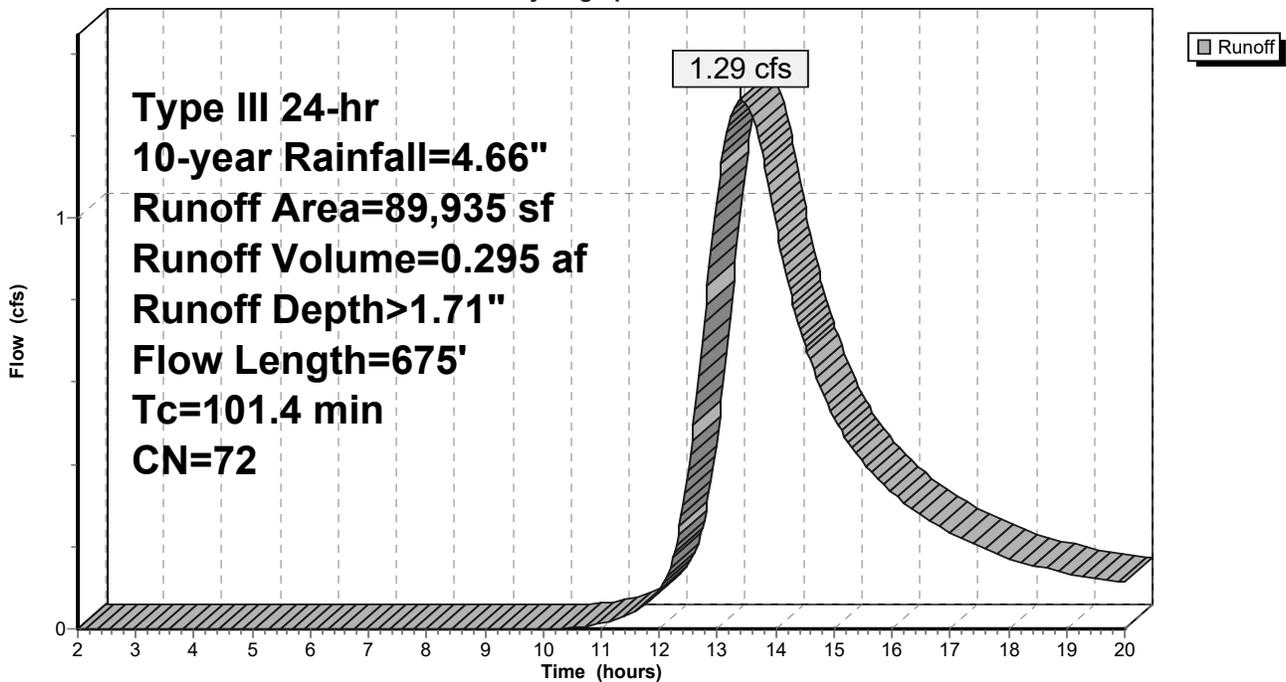
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
58,047	70	Woods, Good, HSG C
31,888	77	Woods, Good, HSG D
89,935	72	Weighted Average
89,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.6	50	0.0170	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
8.8	125	0.0090	0.24		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.5	20	0.0670	0.65		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
14.2	165	0.0060	0.19		Shallow Concentrated Flow, Next 165' Forest w/Heavy Litter Kv= 2.5 fps
1.6	65	0.0770	0.69		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
52.7	250	0.0010	0.08		Shallow Concentrated Flow, Last 250' Forest w/Heavy Litter Kv= 2.5 fps
101.4	675	Total			

Subcatchment 1000: Area 1000

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 1100: Area 1100

Runoff = 0.36 cfs @ 12.40 hrs, Volume= 0.041 af, Depth> 1.63"
 Routed to Link x3000 : x3000

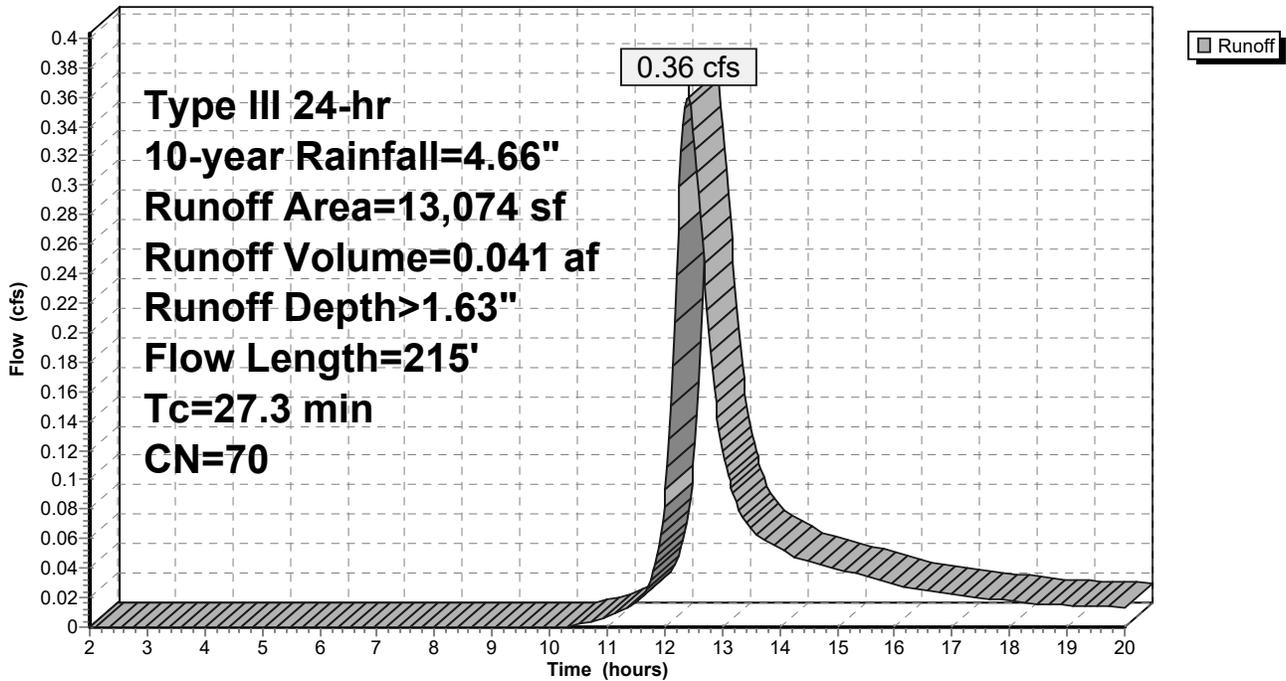
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
13,074	70	Woods, Good, HSG C
13,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1250	0.08		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.1	105	0.0297	0.43		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
12.6	60	0.0010	0.08		Shallow Concentrated Flow, Last 60' Forest w/Heavy Litter Kv= 2.5 fps
27.3	215	Total			

Subcatchment 1100: Area 1100

Hydrograph



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Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 1200: Area 1200

Runoff = 2.11 cfs @ 13.88 hrs, Volume= 0.592 af, Depth> 1.90"
 Routed to Link x3000 : x3000

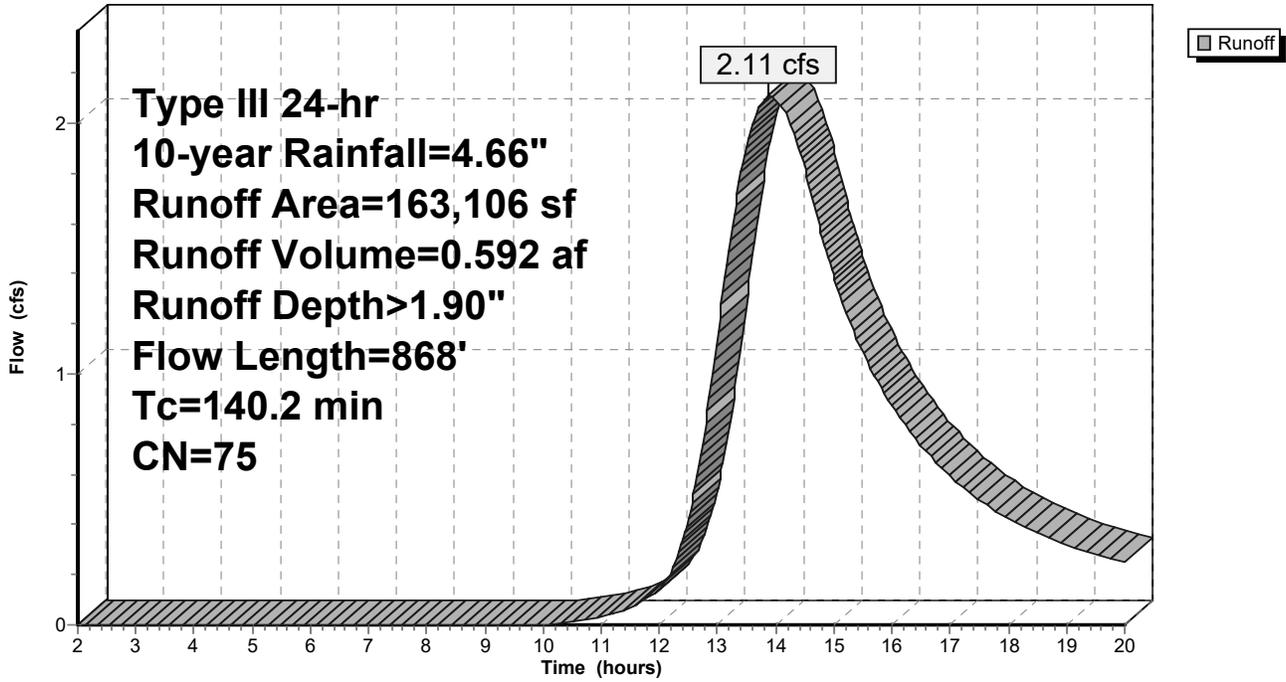
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
35,065	70	Woods, Good, HSG C
128,041	77	Woods, Good, HSG D
163,106	75	Weighted Average
163,106		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	20	0.2000	0.08		Sheet Flow, First 20' Woods: Dense underbrush n= 0.800 P2= 3.01"
31.4	30	0.0030	0.02		Sheet Flow, Next 30' Woods: Dense underbrush n= 0.800 P2= 3.01"
41.4	340	0.0030	0.14		Shallow Concentrated Flow, Next 340' Forest w/Heavy Litter Kv= 2.5 fps
2.1	95	0.0900	0.75		Shallow Concentrated Flow, Next 95' Forest w/Heavy Litter Kv= 2.5 fps
7.8	130	0.0125	0.28		Shallow Concentrated Flow, Next 130' Forest w/Heavy Litter Kv= 2.5 fps
53.3	253	0.0010	0.08		Shallow Concentrated Flow, Last 253' Forest w/Heavy Litter Kv= 2.5 fps
140.2	868	Total			

Subcatchment 1200: Area 1200

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 1300: Area 1300

Runoff = 0.50 cfs @ 13.84 hrs, Volume= 0.138 af, Depth> 1.75"
 Routed to Link x2000 : x2000

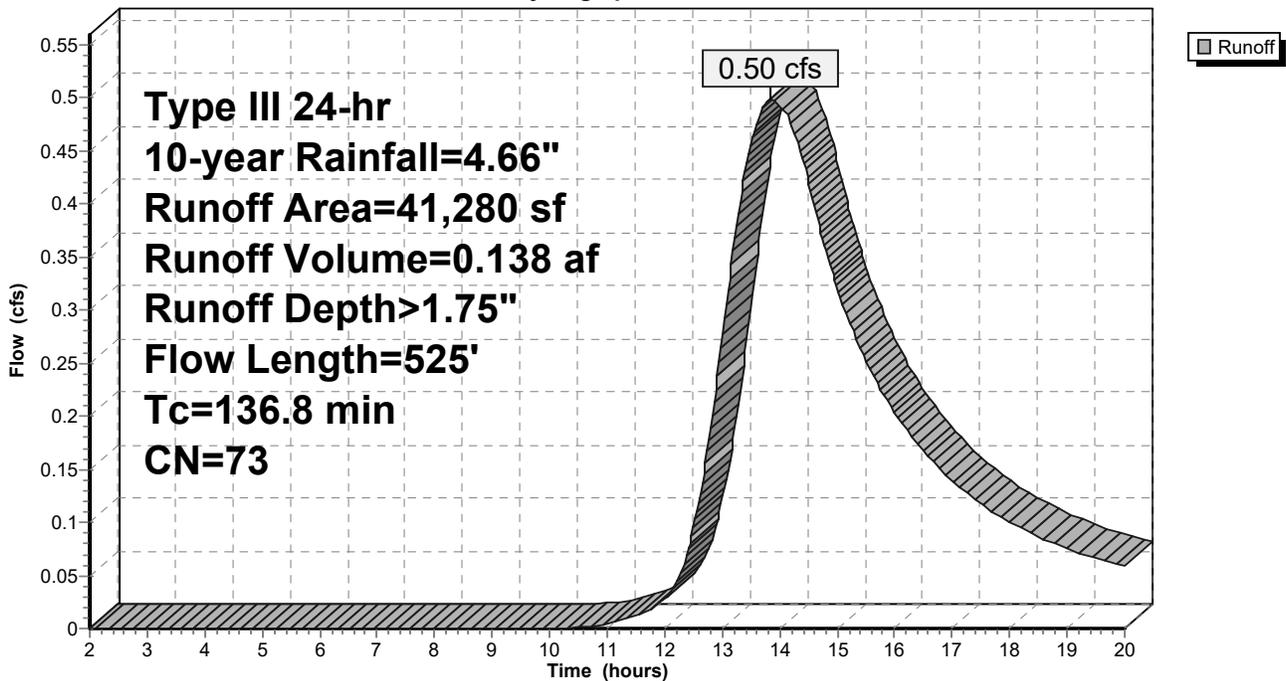
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
25,740	70	Woods, Good, HSG C
15,540	77	Woods, Good, HSG D
41,280	73	Weighted Average
41,280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
2.5	60	0.0250	0.40		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
1.5	70	0.1000	0.79		Shallow Concentrated Flow, Next 70' Forest w/Heavy Litter Kv= 2.5 fps
59.4	345	0.0015	0.10		Shallow Concentrated Flow, Last 345' Forest w/Heavy Litter Kv= 2.5 fps
136.8	525	Total			

Subcatchment 1300: Area 1300

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 1400: Area 1400

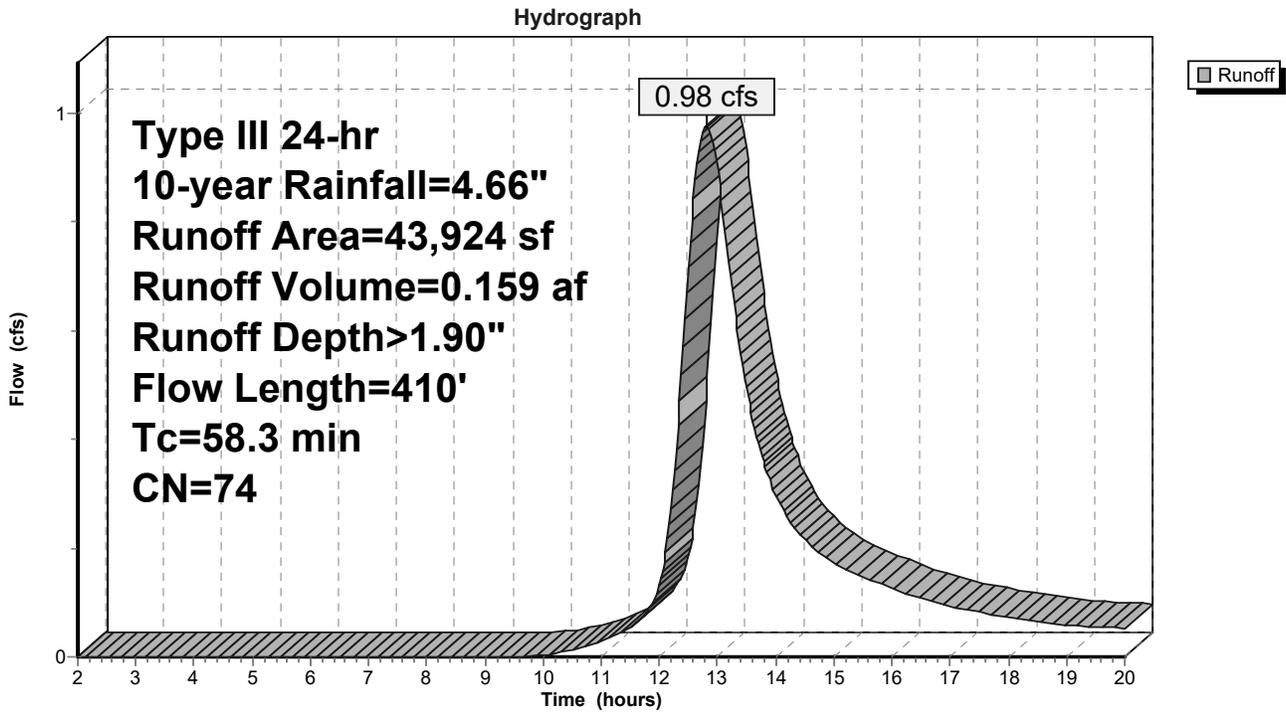
Runoff = 0.98 cfs @ 12.81 hrs, Volume= 0.159 af, Depth> 1.90"
 Routed to Link x2000 : x2000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
19,885	70	Woods, Good, HSG C
24,039	77	Woods, Good, HSG D
43,924	74	Weighted Average
43,924		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
9.3	125	0.0080	0.22		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.8	35	0.0830	0.72		Shallow Concentrated Flow, Next 35' Forest w/Heavy Litter Kv= 2.5 fps
4.4	115	0.0300	0.43		Shallow Concentrated Flow, Next 115' Forest w/Heavy Litter Kv= 2.5 fps
14.6	85	0.0015	0.10		Shallow Concentrated Flow, Last 85' Forest w/Heavy Litter Kv= 2.5 fps
58.3	410	Total			

Subcatchment 1400: Area 1400



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Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 1500: Area 1500

Runoff = 0.25 cfs @ 13.54 hrs, Volume= 0.060 af, Depth> 2.08"
 Routed to Link x2000 : x2000

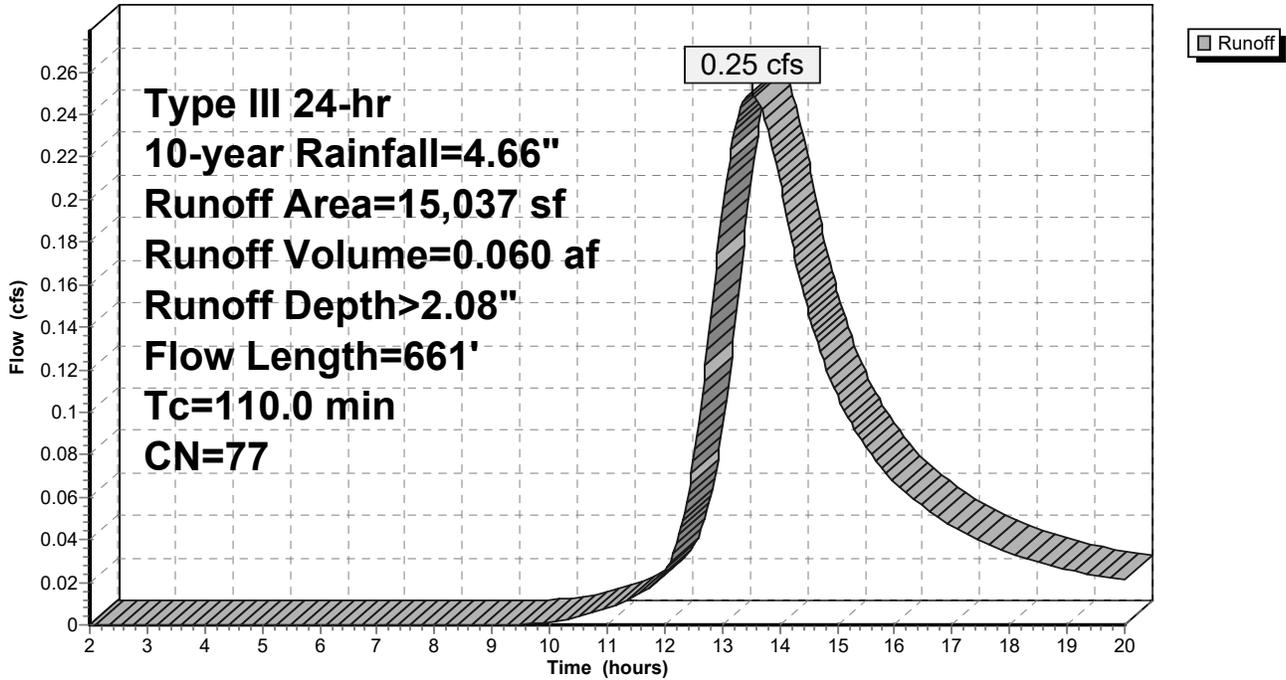
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
15,037	77	Woods, Good, HSG D
15,037		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0010	0.08		Shallow Concentrated Flow, First 50' Forest w/Heavy Litter Kv= 2.5 fps
19.0	90	0.0010	0.08		Shallow Concentrated Flow, Next 90' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
0.3	22	0.3330	1.44		Shallow Concentrated Flow, Next 22' Forest w/Heavy Litter Kv= 2.5 fps
0.5	22	0.0900	0.75		Shallow Concentrated Flow, Next 22' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
110.0	661	Total			

Subcatchment 1500: Area 1500

Hydrograph



Summary for Subcatchment 1600: Area 1600

Runoff = 0.09 cfs @ 14.33 hrs, Volume= 0.030 af, Depth> 0.70"
 Routed to Link x2000 : x2000

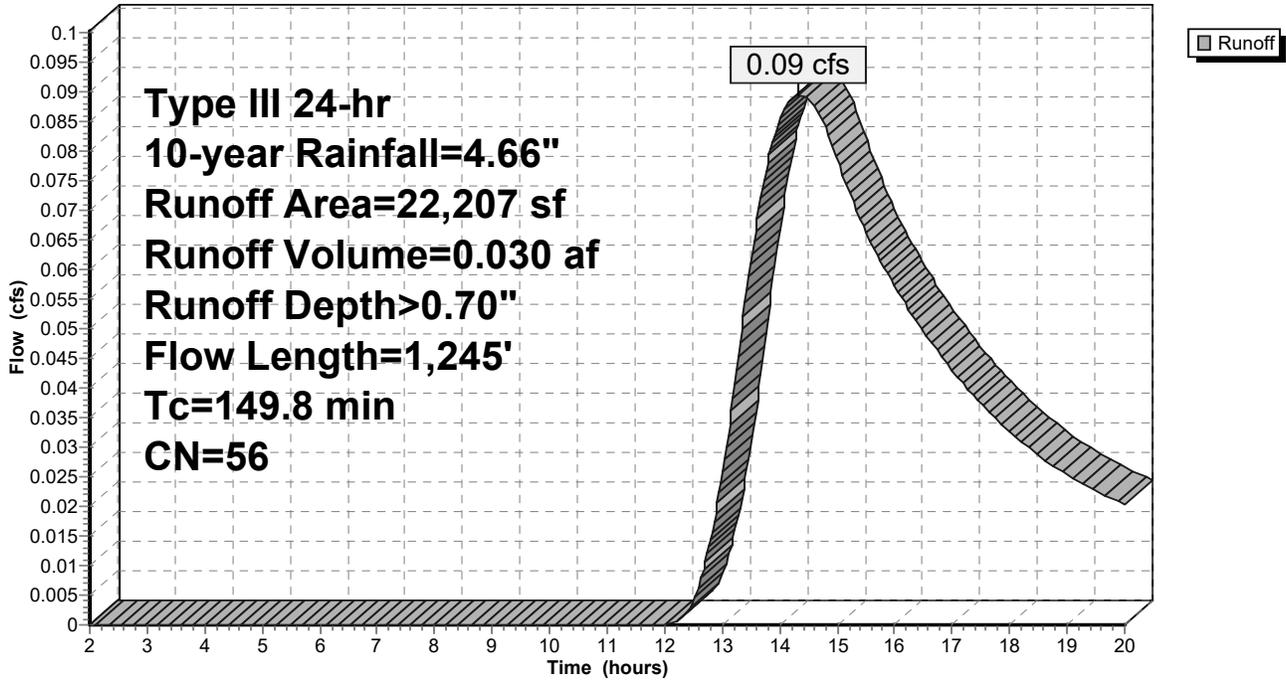
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
8,476	30	Woods, Good, HSG A
8,994	70	Woods, Good, HSG C
3,200	74	>75% Grass cover, Good, HSG C
715	77	Woods, Good, HSG D
822	80	>75% Grass cover, Good, HSG D
22,207	56	Weighted Average
22,207		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
3.3	50	0.0100	0.25		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
0.9	25	0.0370	0.48		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
23.3	350	0.0100	0.25		Shallow Concentrated Flow, Next 350' Forest w/Heavy Litter Kv= 2.5 fps
3.1	60	0.0167	0.32		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
6.9	170	0.0270	0.41		Shallow Concentrated Flow, Next 170' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
2.5	45	0.0140	0.30		Shallow Concentrated Flow, Next 45' Forest w/Heavy Litter Kv= 2.5 fps
0.9	18	0.0167	0.32		Shallow Concentrated Flow, Next 18' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
149.8	1,245	Total			

Subcatchment 1600: Area 1600

Hydrograph



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Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 1700: Area 1700

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
21,327	30	Woods, Good, HSG A
1,821	70	Woods, Good, HSG C
23,148	33	Weighted Average
23,148		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	50	0.0050	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
20.0	212	0.0050	0.18		Shallow Concentrated Flow, Next 212' Forest w/Heavy Litter Kv= 2.5 fps
0.1	40	0.0250	9.40	16.61	Pipe Channel, Next 40' of pipe 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
10.4	110	0.0050	0.18		Shallow Concentrated Flow, Next 110' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
159.8	917	Total			

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Type III 24-hr 10-year Rainfall=4.66"

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Summary for Subcatchment 1800: Area 1800

Runoff = 0.58 cfs @ 13.93 hrs, Volume= 0.162 af, Depth> 1.61"
 Routed to Link x1000 : x1000

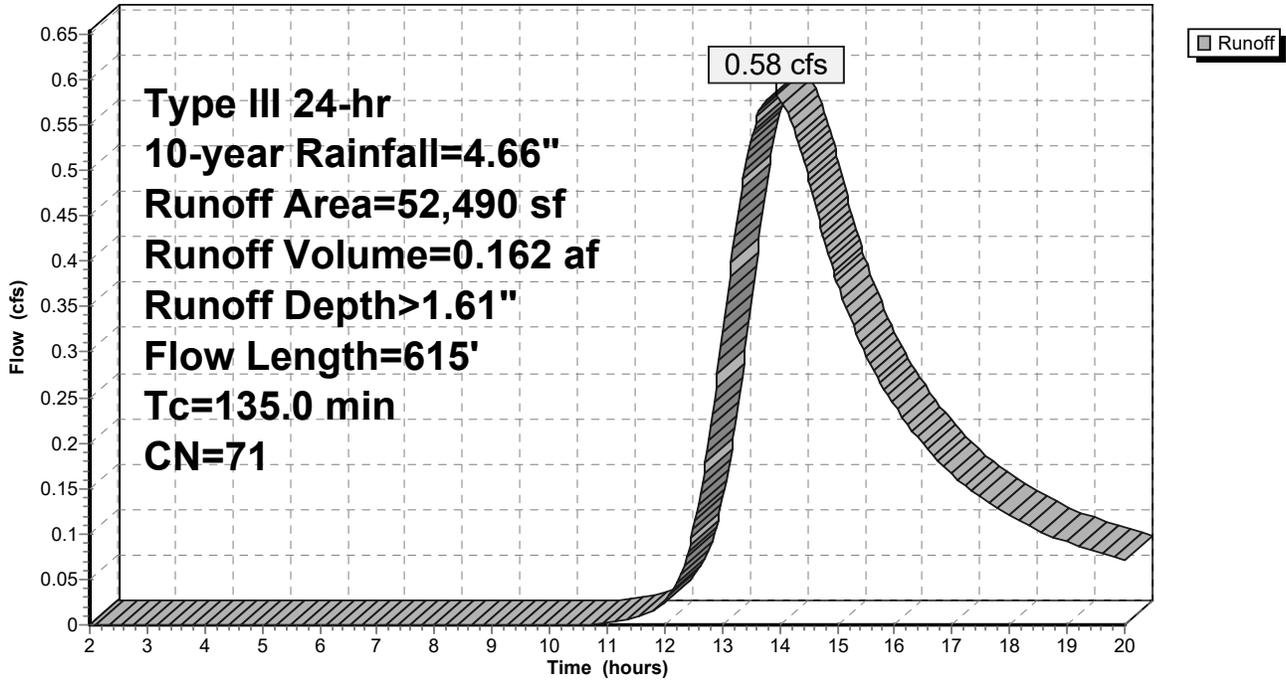
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
44,782	70	Woods, Good, HSG C
521	74	>75% Grass cover, Good, HSG C
6,038	77	Woods, Good, HSG D
740	80	>75% Grass cover, Good, HSG D
409	98	Paved parking, HSG D
52,490	71	Weighted Average
52,081		99.22% Pervious Area
409		0.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	50	0.0050	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
5.7	60	0.0050	0.18		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
135.0	615	Total			

Subcatchment 1800: Area 1800

Hydrograph



Summary for Subcatchment DISP: Dispensary Building

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.033 af, Depth> 4.21"
 Routed to Pond 2P : Detention Basin 2

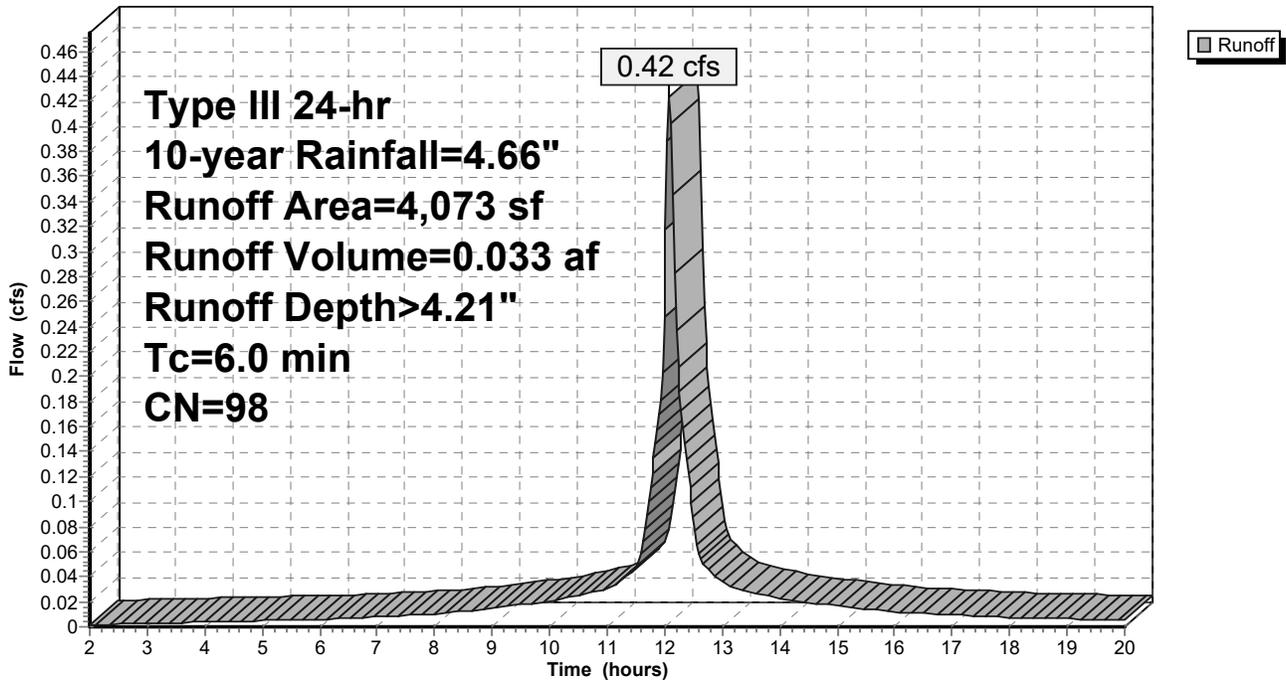
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
4,073	98	Roofs, HSG D
4,073		100.00% Impervious Area

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

Subcatchment DISP: Dispensary Building

Hydrograph



Summary for Subcatchment LAB: Lab Bldg

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.040 af, Depth> 4.21"
 Routed to Pond 2P : Detention Basin 2

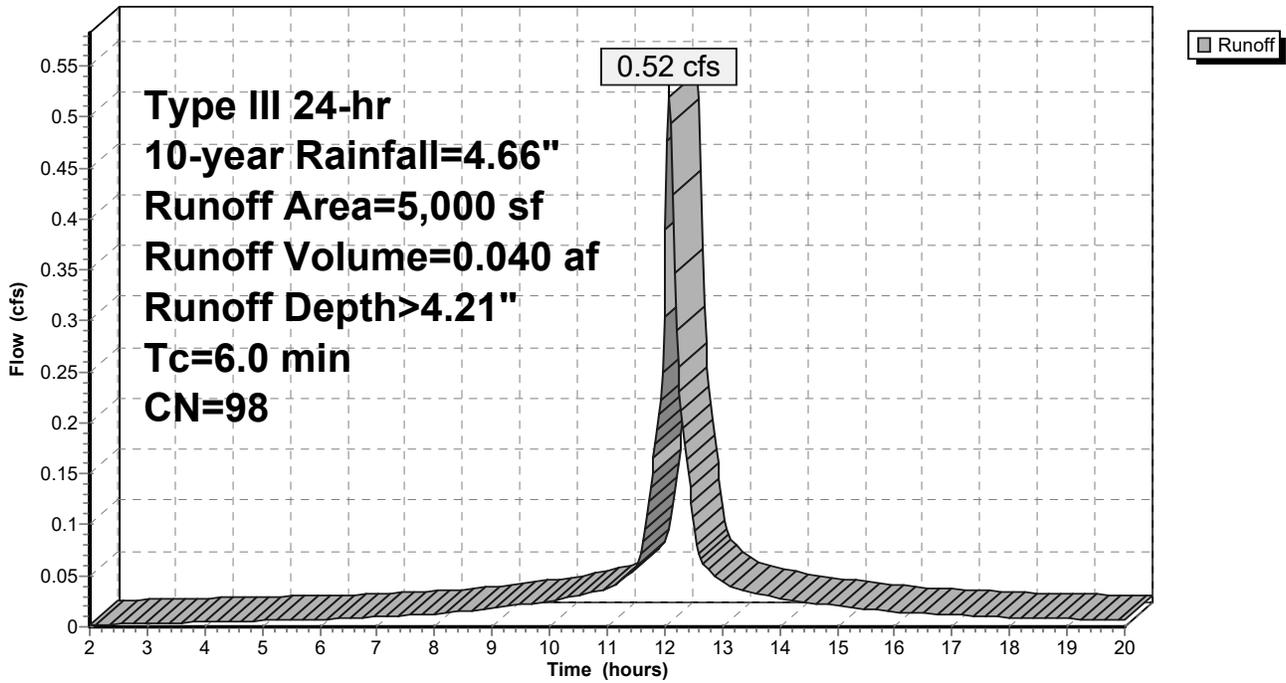
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-year Rainfall=4.66"

Area (sf)	CN	Description
5,000	98	Roofs, HSG C
5,000		100.00% Impervious Area

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

Subcatchment LAB: Lab Bldg

Hydrograph



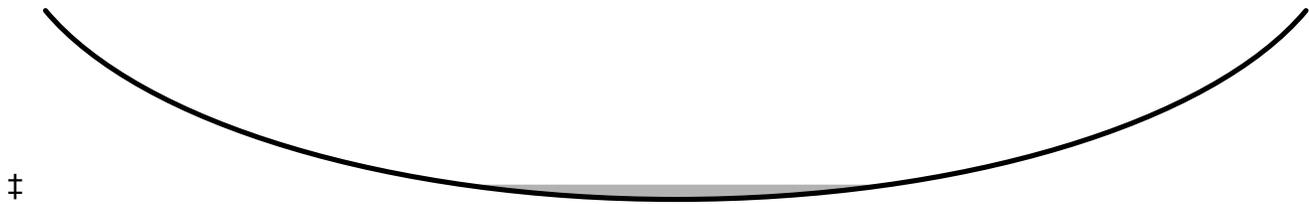
Summary for Reach 1k-2k: x1000 to x2000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 1.45" for 10-year event
Inflow = 4.00 cfs @ 13.77 hrs, Volume= 1.293 af
Outflow = 3.99 cfs @ 13.87 hrs, Volume= 1.283 af, Atten= 0%, Lag= 5.9 min
Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.30 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.72 fps, Avg. Travel Time= 6.1 min

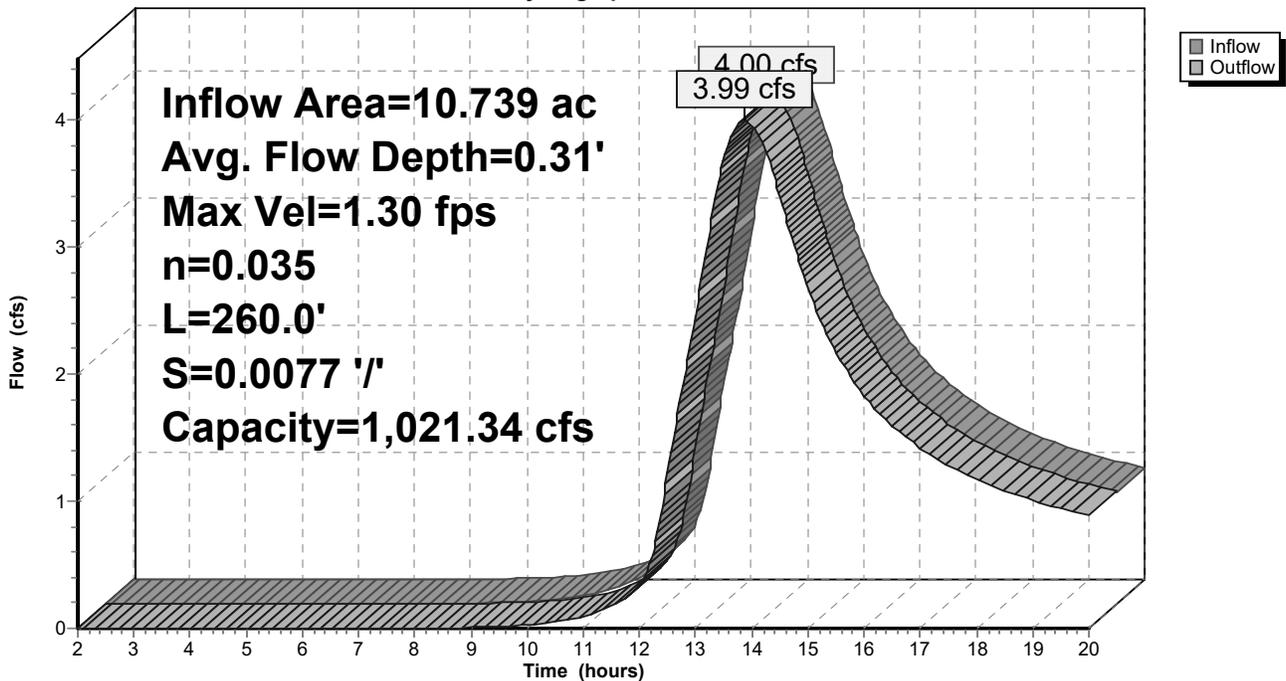
Peak Storage= 799 cf @ 13.81 hrs
Average Depth at Peak Storage= 0.31' , Surface Width= 14.97'
Bank-Full Depth= 4.00' Flow Area= 144.0 sf, Capacity= 1,021.34 cfs

54.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 260.0' Slope= 0.0077 '/'
Inlet Invert= 198.00', Outlet Invert= 196.00'



Reach 1k-2k: x1000 to x2000

Hydrograph



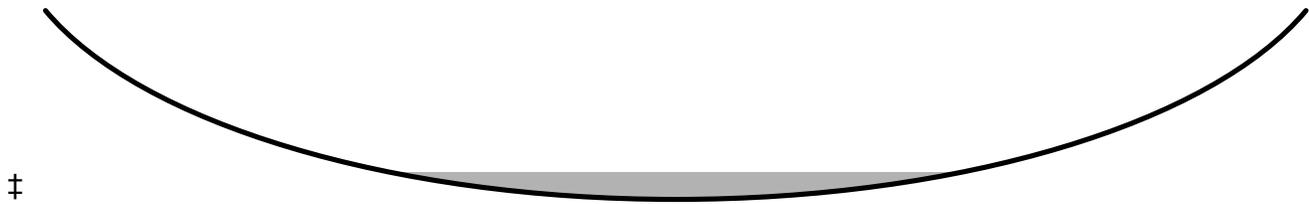
Summary for Reach 2k-3k: x2000 to x3000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 1.41" for 10-year event
 Inflow = 5.16 cfs @ 13.81 hrs, Volume= 1.722 af
 Outflow = 5.15 cfs @ 13.94 hrs, Volume= 1.700 af, Atten= 0%, Lag= 7.8 min
 Routed to Link x3000 : x3000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.18 fps, Min. Travel Time= 5.1 min
 Avg. Velocity = 0.62 fps, Avg. Travel Time= 9.6 min

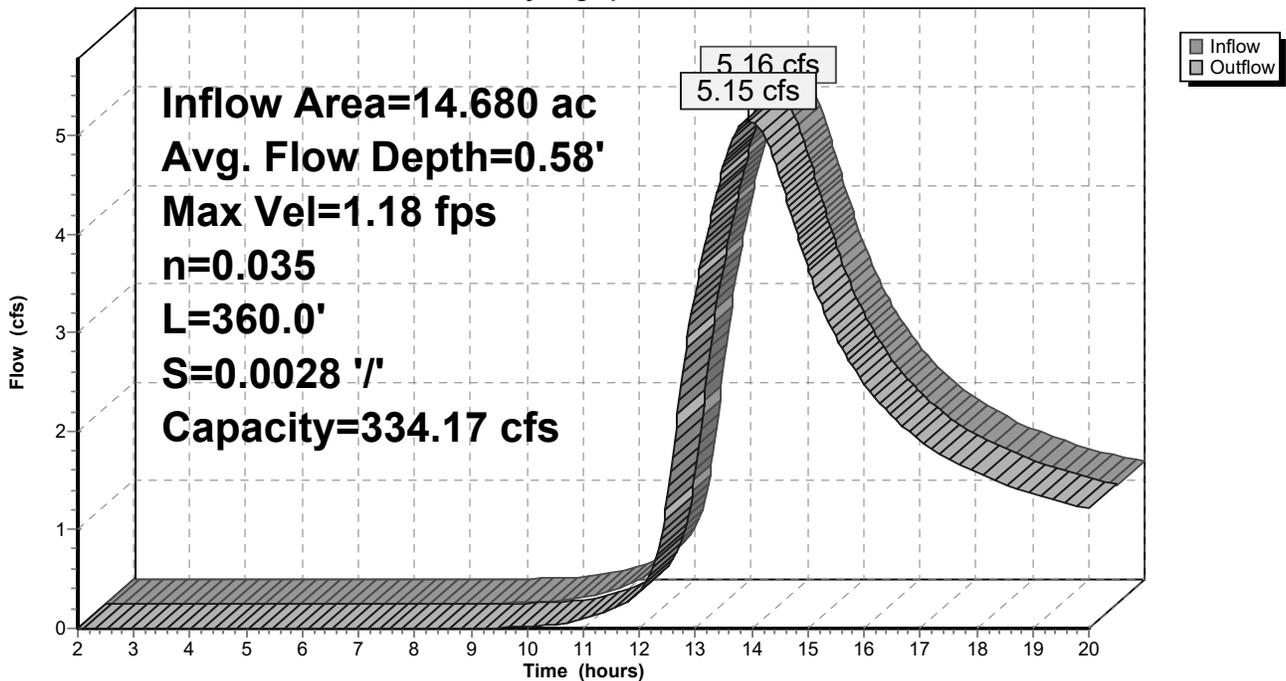
Peak Storage= 1,575 cf @ 13.85 hrs
 Average Depth at Peak Storage= 0.58' , Surface Width= 11.38'
 Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 360.0' Slope= 0.0028 '/'
 Inlet Invert= 196.00', Outlet Invert= 195.00'



Reach 2k-3k: x2000 to x3000

Hydrograph



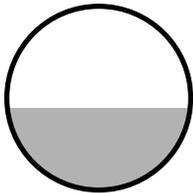
Summary for Reach CP1: Connecting Pipes

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 2.98" for 10-year event
 Inflow = 1.17 cfs @ 12.18 hrs, Volume= 0.121 af
 Outflow = 1.17 cfs @ 12.19 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.6 min
 Routed to Pond 1B : Detention Basin 1B

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 3.89 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 1.56 fps, Avg. Travel Time= 0.6 min

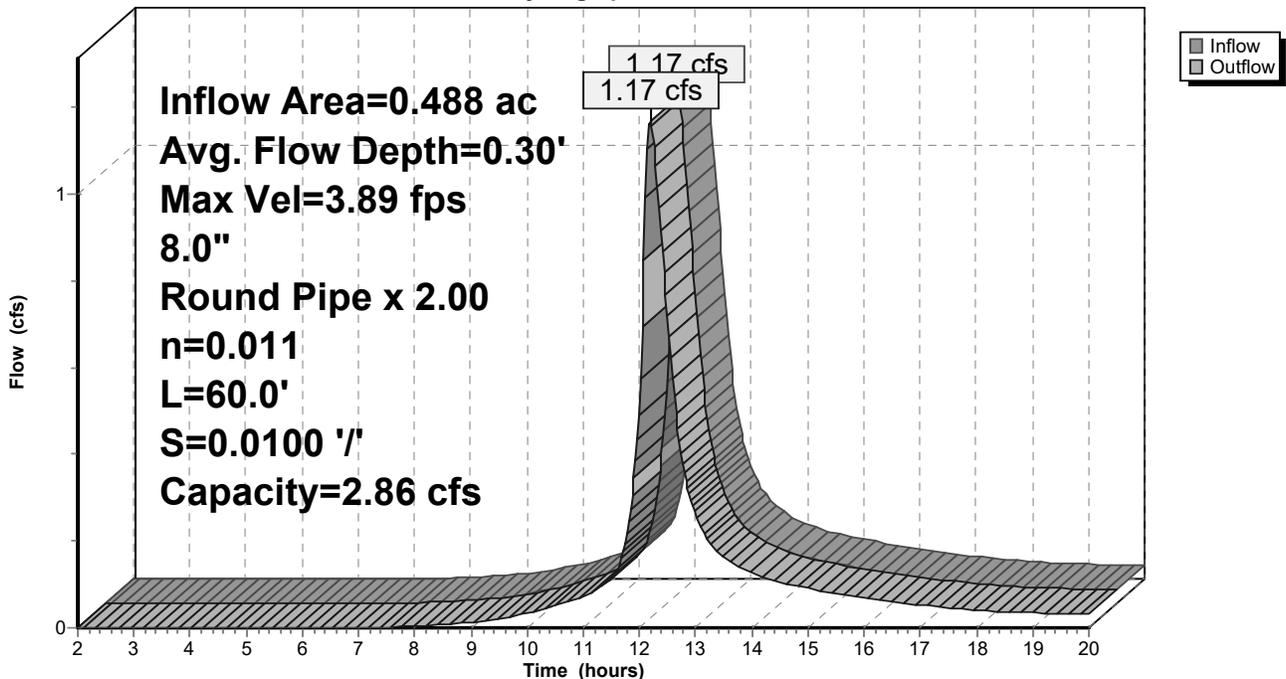
Peak Storage= 18 cf @ 12.19 hrs
 Average Depth at Peak Storage= 0.30' , Surface Width= 1.33'
 Bank-Full Depth= 0.67' Flow Area= 0.7 sf, Capacity= 2.86 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 8.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 60.0' Slope= 0.0100 '/'
 Inlet Invert= 204.00', Outlet Invert= 203.40'



Reach CP1: Connecting Pipes

Hydrograph



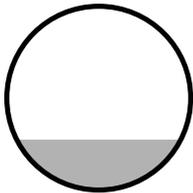
Summary for Reach CP4: Connecting Pipes

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 3.13" for 10-year event
 Inflow = 1.42 cfs @ 12.12 hrs, Volume= 0.105 af
 Outflow = 1.40 cfs @ 12.13 hrs, Volume= 0.105 af, Atten= 1%, Lag= 0.8 min
 Routed to Pond 4B : Detention Basin 4B

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.60 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 0.93 fps, Avg. Travel Time= 1.1 min

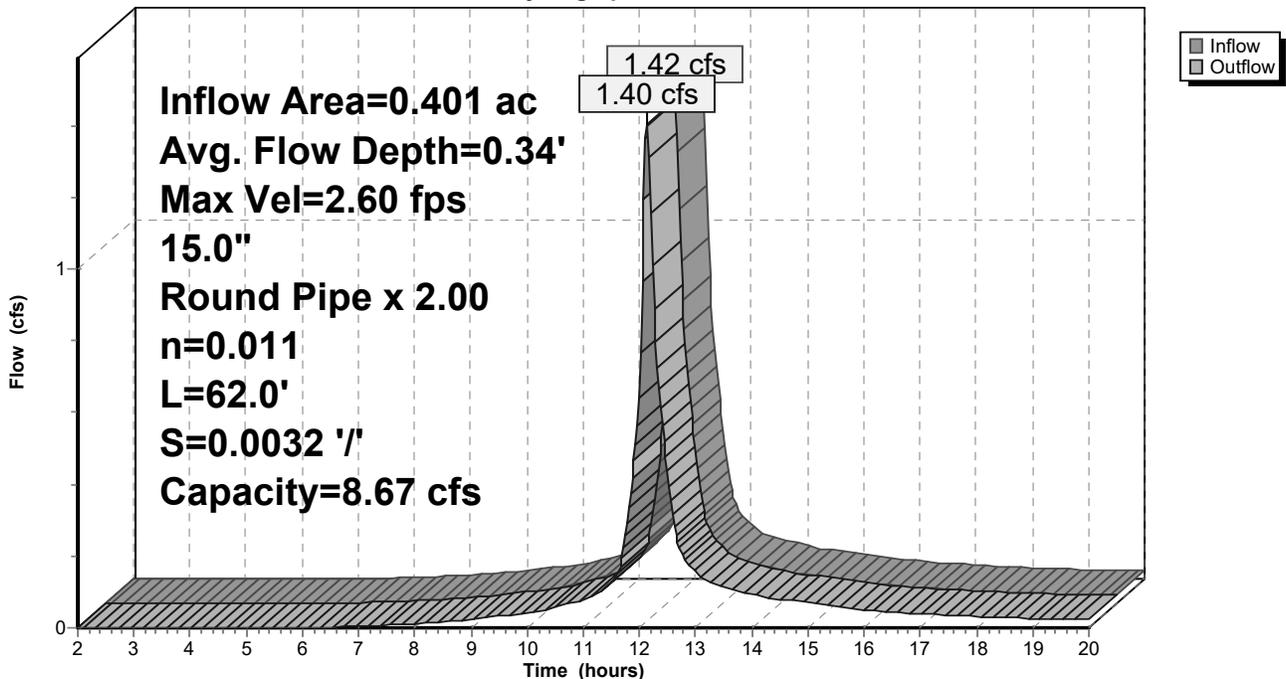
Peak Storage= 34 cf @ 12.13 hrs
 Average Depth at Peak Storage= 0.34' , Surface Width= 2.23'
 Bank-Full Depth= 1.25' Flow Area= 2.5 sf, Capacity= 8.67 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 15.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 62.0' Slope= 0.0032 '/'
 Inlet Invert= 205.20', Outlet Invert= 205.00'



Reach CP4: Connecting Pipes

Hydrograph



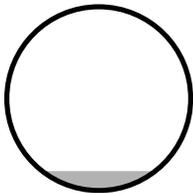
Summary for Reach P1: Pipe Out of 1

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.49" for 10-year event
 Inflow = 0.09 cfs @ 14.94 hrs, Volume= 0.060 af
 Outflow = 0.09 cfs @ 14.96 hrs, Volume= 0.060 af, Atten= 0%, Lag= 1.0 min
 Routed to Reach W1 : 1 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.13 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.61 fps, Avg. Travel Time= 0.8 min

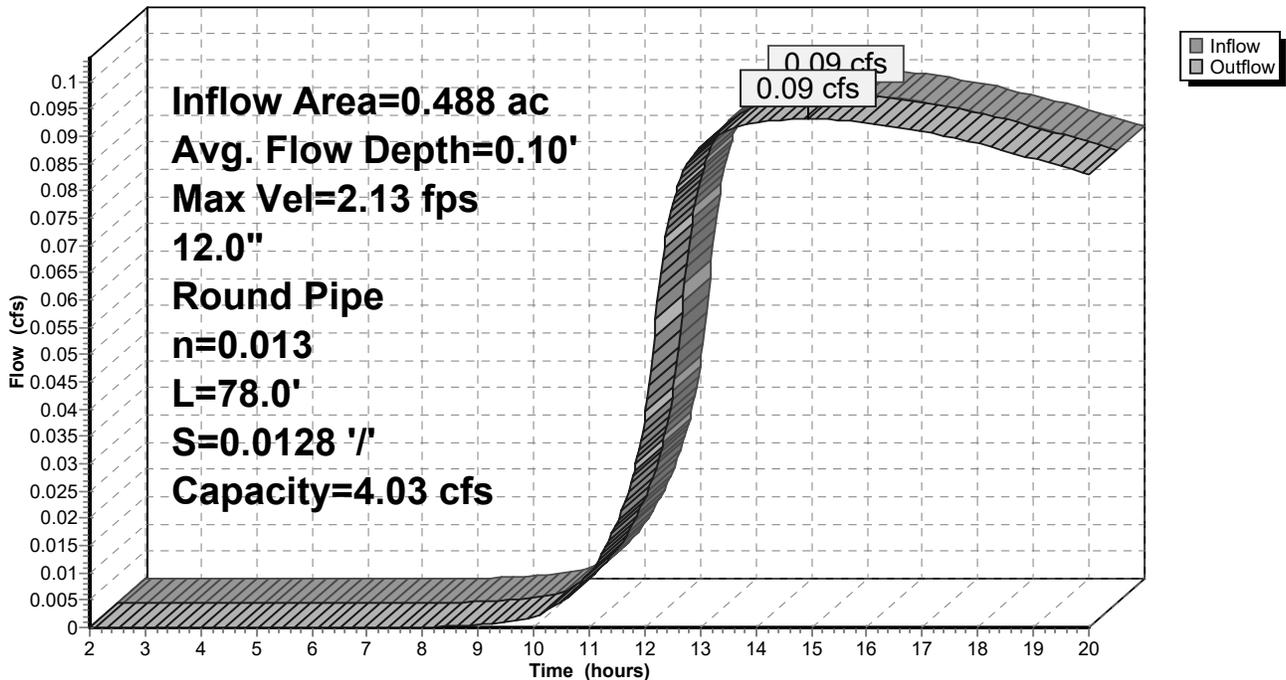
Peak Storage= 3 cf @ 14.95 hrs
 Average Depth at Peak Storage= 0.10' , Surface Width= 0.61'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.03 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 78.0' Slope= 0.0128 '/'
 Inlet Invert= 203.00', Outlet Invert= 202.00'



Reach P1: Pipe Out of 1

Hydrograph



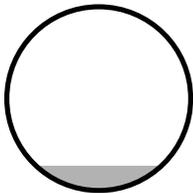
Summary for Reach P2: Pipe Out of 2

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.22" for 10-year event
 Inflow = 0.10 cfs @ 13.69 hrs, Volume= 0.069 af
 Outflow = 0.10 cfs @ 13.71 hrs, Volume= 0.069 af, Atten= 0%, Lag= 1.1 min
 Routed to Reach W2 : 2 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.55 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.06 fps, Avg. Travel Time= 0.9 min

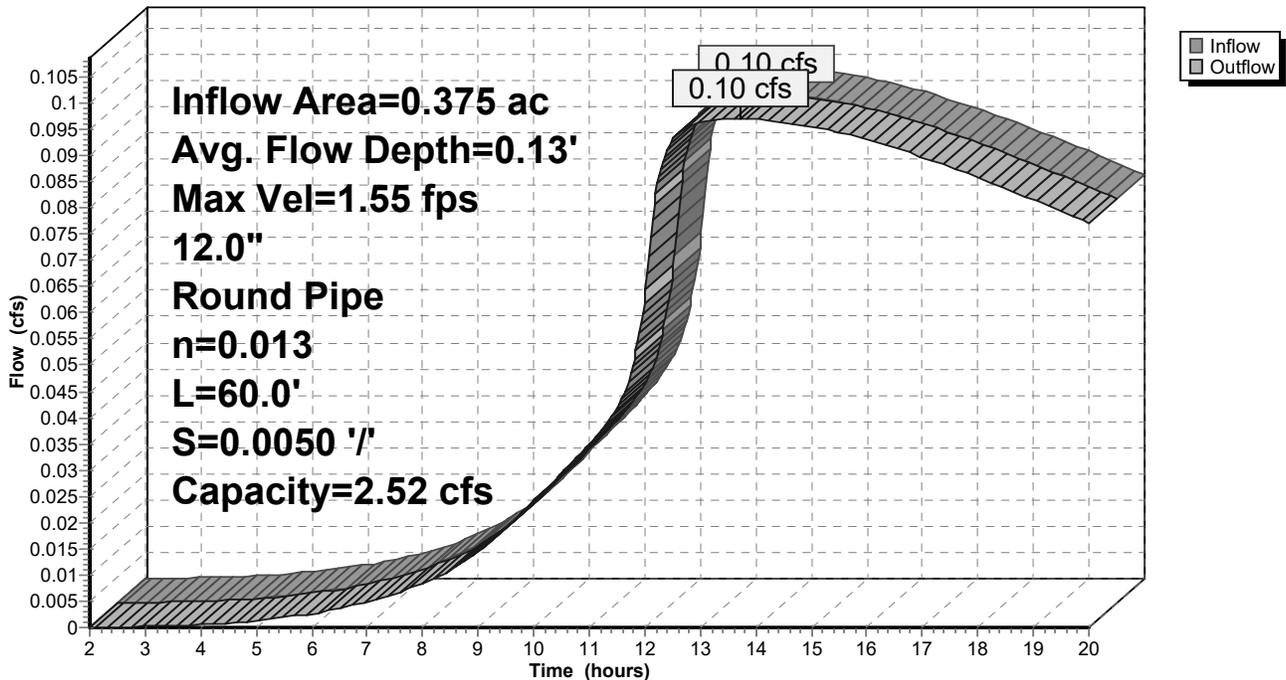
Peak Storage= 4 cf @ 13.70 hrs
 Average Depth at Peak Storage= 0.13' , Surface Width= 0.68'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 60.0' Slope= 0.0050 '/'
 Inlet Invert= 204.00', Outlet Invert= 203.70'



Reach P2: Pipe Out of 2

Hydrograph



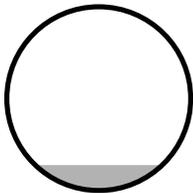
Summary for Reach P3: Pipe Out of 3

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 1.46" for 10-year event
 Inflow = 0.10 cfs @ 14.84 hrs, Volume= 0.071 af
 Outflow = 0.10 cfs @ 14.85 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.7 min
 Routed to Reach W3 : 3 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.57 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 1.16 fps, Avg. Travel Time= 0.6 min

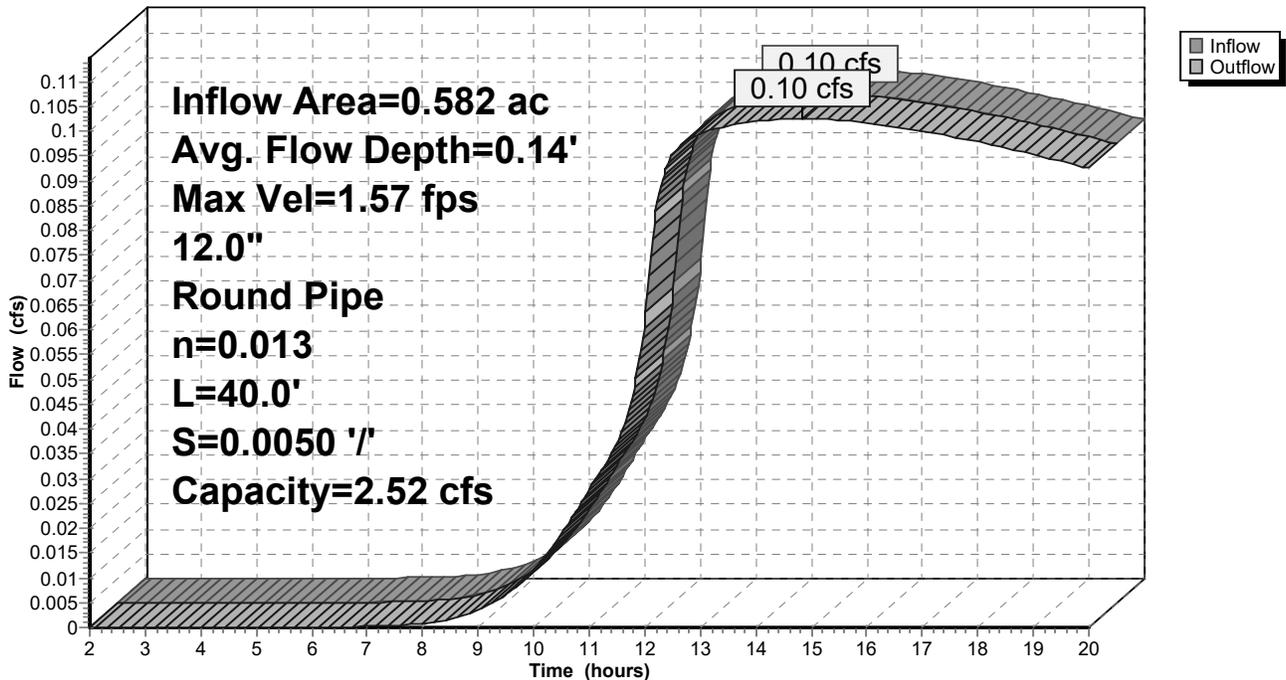
Peak Storage= 3 cf @ 14.84 hrs
 Average Depth at Peak Storage= 0.14' , Surface Width= 0.69'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 40.0' Slope= 0.0050 '/'
 Inlet Invert= 205.00', Outlet Invert= 204.80'



Reach P3: Pipe Out of 3

Hydrograph



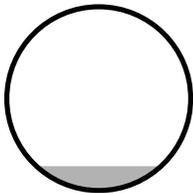
Summary for Reach P4B: Pipe Out of 4B

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.46" for 10-year event
 Inflow = 0.10 cfs @ 14.26 hrs, Volume= 0.065 af
 Outflow = 0.10 cfs @ 14.31 hrs, Volume= 0.065 af, Atten= 0%, Lag= 3.2 min
 Routed to Reach W4B : 4B Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.60 fps, Min. Travel Time= 1.9 min
 Avg. Velocity = 1.19 fps, Avg. Travel Time= 2.6 min

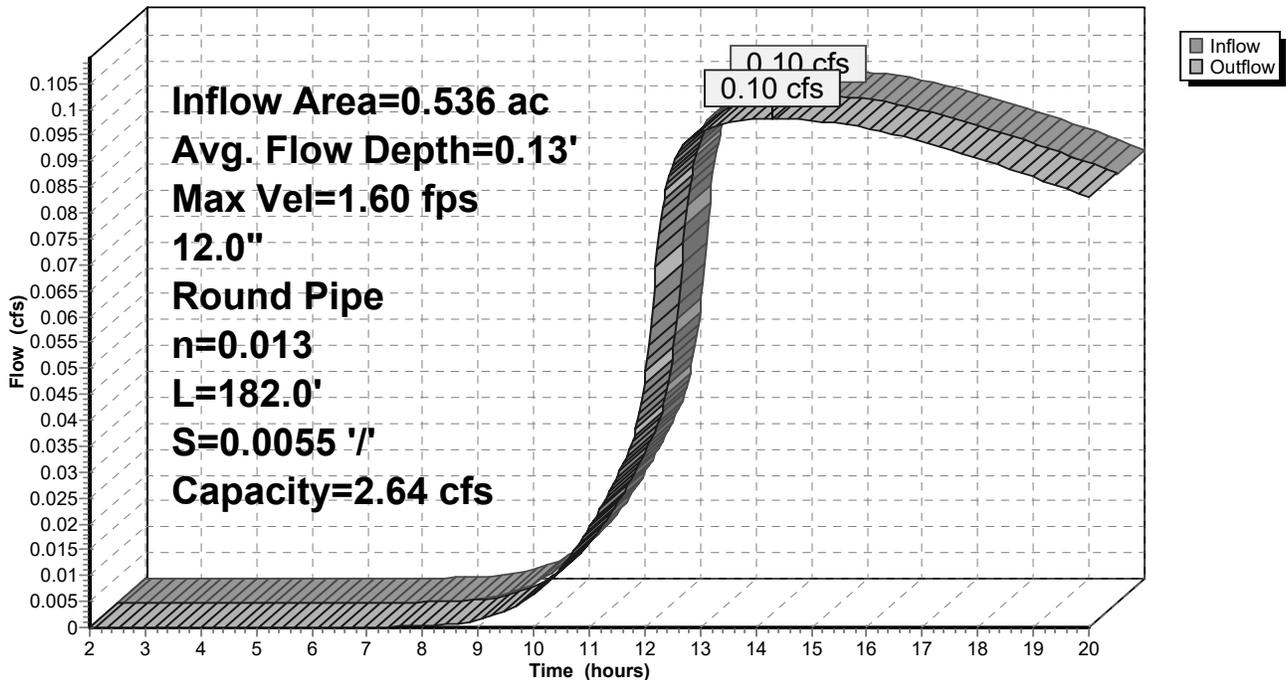
Peak Storage= 11 cf @ 14.28 hrs
 Average Depth at Peak Storage= 0.13' , Surface Width= 0.68'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.64 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 182.0' Slope= 0.0055 '/'
 Inlet Invert= 205.00', Outlet Invert= 204.00'



Reach P4B: Pipe Out of 4B

Hydrograph



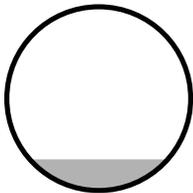
Summary for Reach P5: Pipe Out of 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.53" for 10-year event
 Inflow = 0.17 cfs @ 15.26 hrs, Volume= 0.129 af
 Outflow = 0.17 cfs @ 15.27 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.5 min
 Routed to Reach W5 : 5 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.90 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 1.40 fps, Avg. Travel Time= 0.4 min

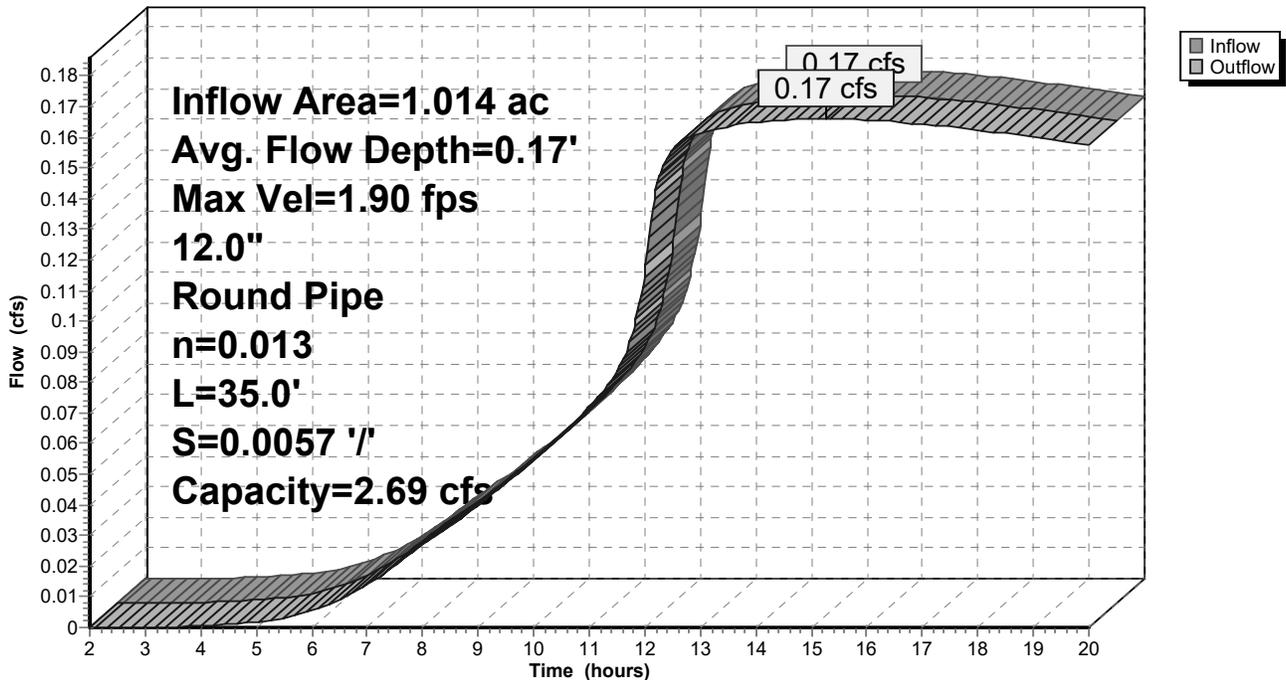
Peak Storage= 3 cf @ 15.27 hrs
 Average Depth at Peak Storage= 0.17' , Surface Width= 0.75'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.69 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 35.0' Slope= 0.0057 '/'
 Inlet Invert= 204.00', Outlet Invert= 203.80'



Reach P5: Pipe Out of 5

Hydrograph



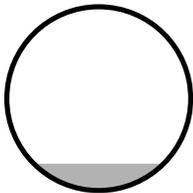
Summary for Reach P6: Pipe Out of 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 1.31" for 10-year event
 Inflow = 0.15 cfs @ 13.26 hrs, Volume= 0.060 af
 Outflow = 0.15 cfs @ 13.27 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.8 min
 Routed to Reach W6 : 6 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.10 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 1.79 fps, Avg. Travel Time= 0.6 min

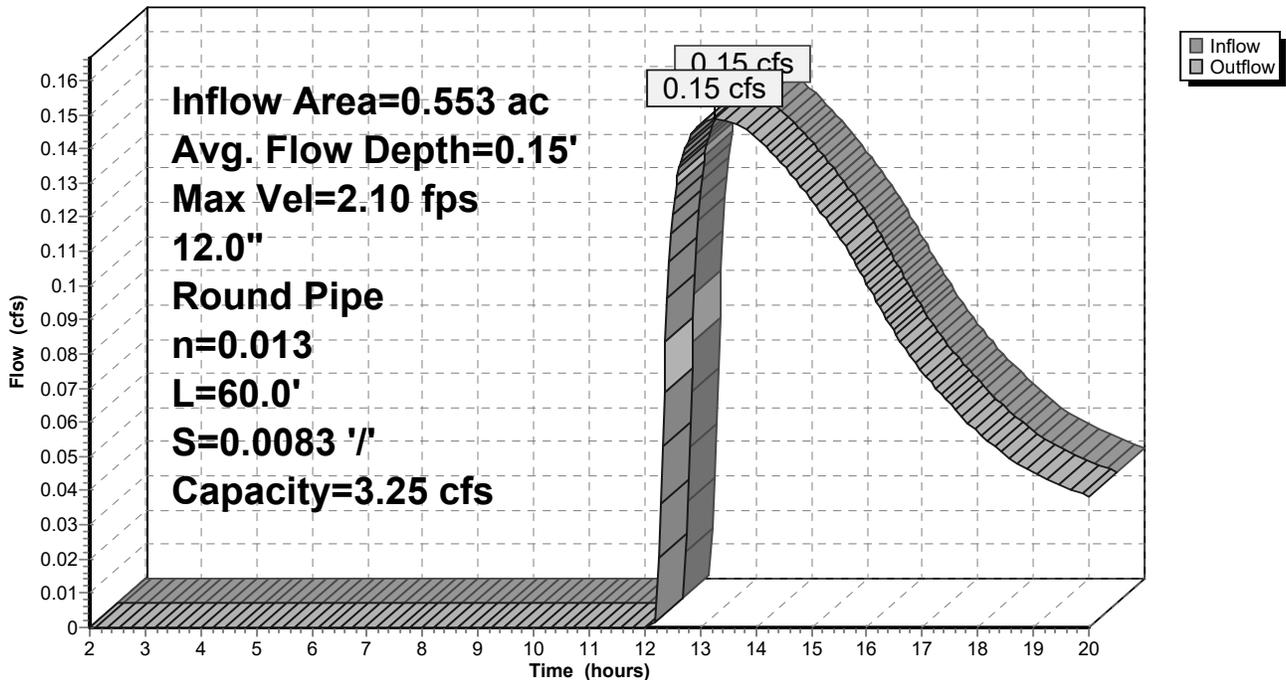
Peak Storage= 4 cf @ 13.26 hrs
 Average Depth at Peak Storage= 0.15', Surface Width= 0.71'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.25 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 60.0' Slope= 0.0083 '/'
 Inlet Invert= 206.00', Outlet Invert= 205.50'



Reach P6: Pipe Out of 6

Hydrograph



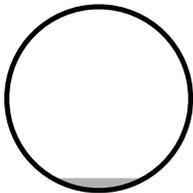
Summary for Reach P7: Pipe Out of 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.31" for 10-year event
 Inflow = 0.03 cfs @ 15.56 hrs, Volume= 0.014 af
 Outflow = 0.03 cfs @ 15.68 hrs, Volume= 0.014 af, Atten= 0%, Lag= 7.1 min
 Routed to Reach W7 : 7 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.17 fps, Min. Travel Time= 4.1 min
 Avg. Velocity = 1.09 fps, Avg. Travel Time= 4.4 min

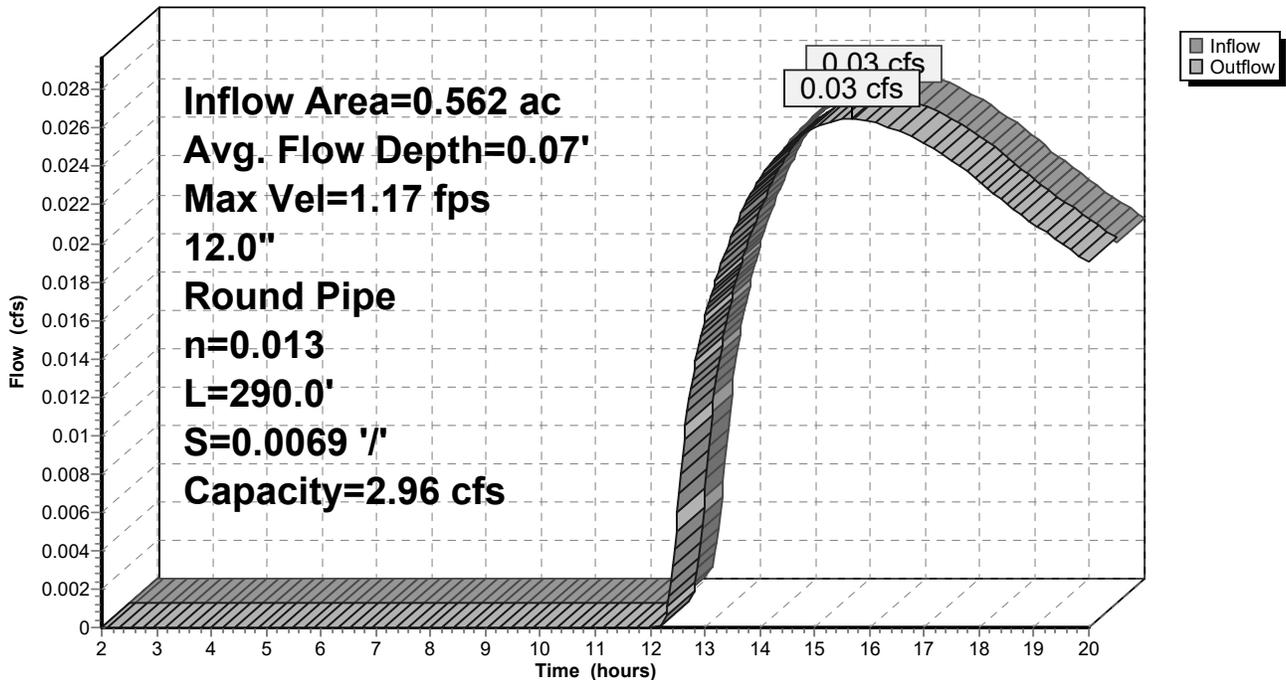
Peak Storage= 7 cf @ 15.61 hrs
 Average Depth at Peak Storage= 0.07' , Surface Width= 0.50'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 290.0' Slope= 0.0069 '/'
 Inlet Invert= 206.00', Outlet Invert= 204.00'



Reach P7: Pipe Out of 7

Hydrograph



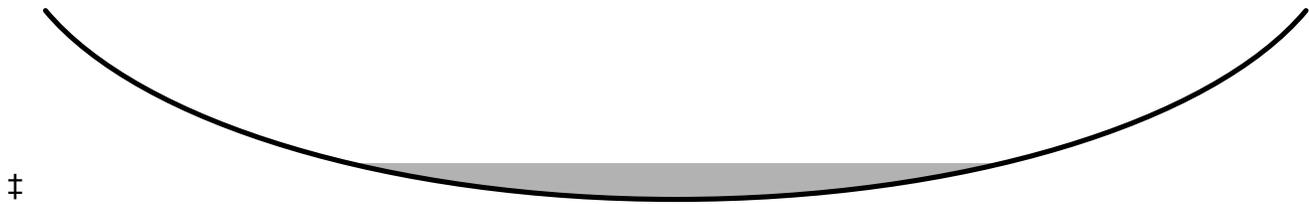
Summary for Reach W1: 1 Thru Wetland

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.48" for 10-year event
 Inflow = 0.09 cfs @ 14.96 hrs, Volume= 0.060 af
 Outflow = 0.09 cfs @ 18.38 hrs, Volume= 0.040 af, Atten= 2%, Lag= 205.4 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.07 fps, Min. Travel Time= 84.9 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 130.0 min

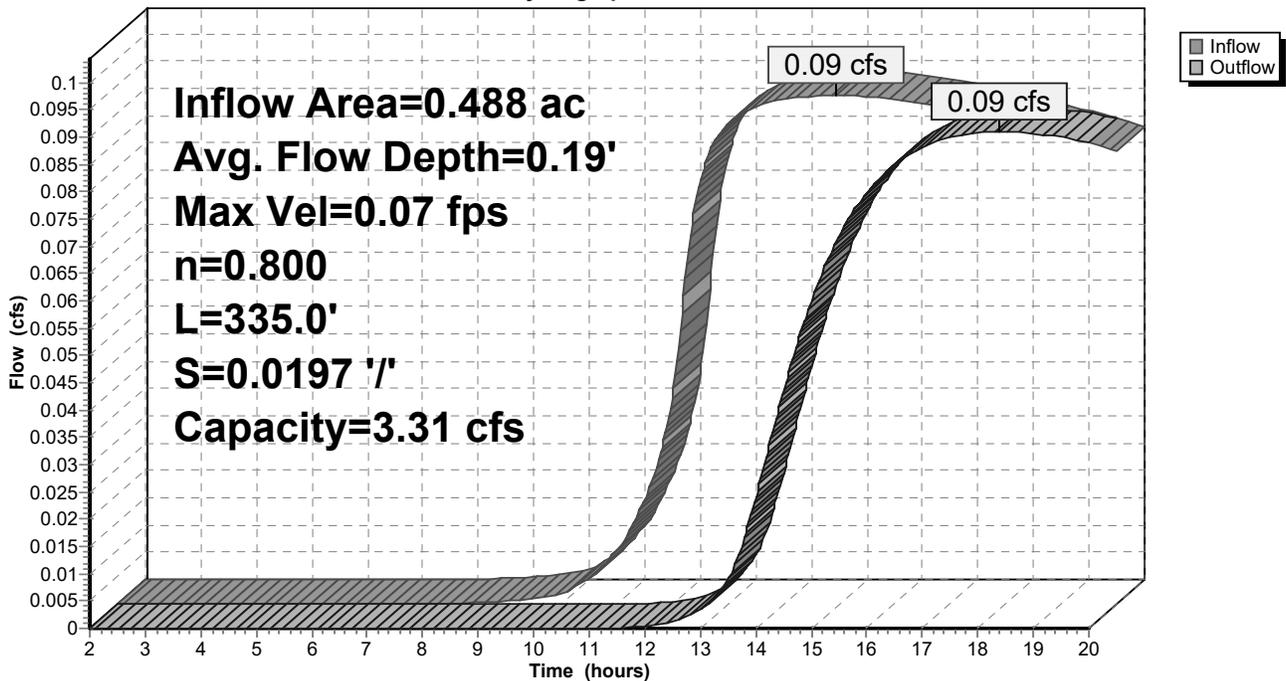
Peak Storage= 463 cf @ 16.96 hrs
 Average Depth at Peak Storage= 0.19' , Surface Width= 10.90'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 3.31 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 335.0' Slope= 0.0197 '/'
 Inlet Invert= 203.60', Outlet Invert= 197.00'



Reach W1: 1 Thru Wetland

Hydrograph



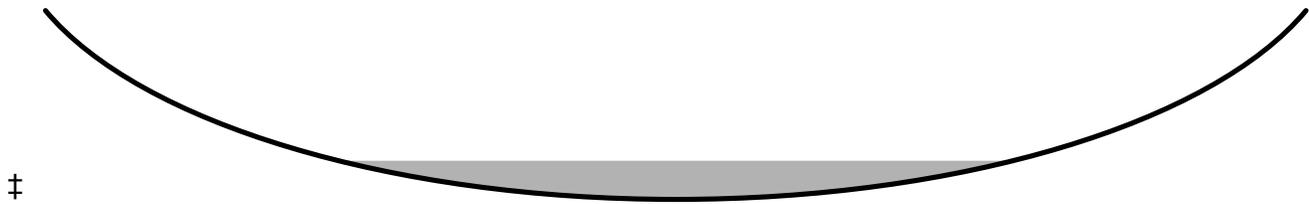
Summary for Reach W2: 2 Thru Wetland

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.21" for 10-year event
 Inflow = 0.10 cfs @ 13.71 hrs, Volume= 0.069 af
 Outflow = 0.09 cfs @ 18.06 hrs, Volume= 0.045 af, Atten= 5%, Lag= 261.2 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.06 fps, Min. Travel Time= 103.6 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 172.0 min

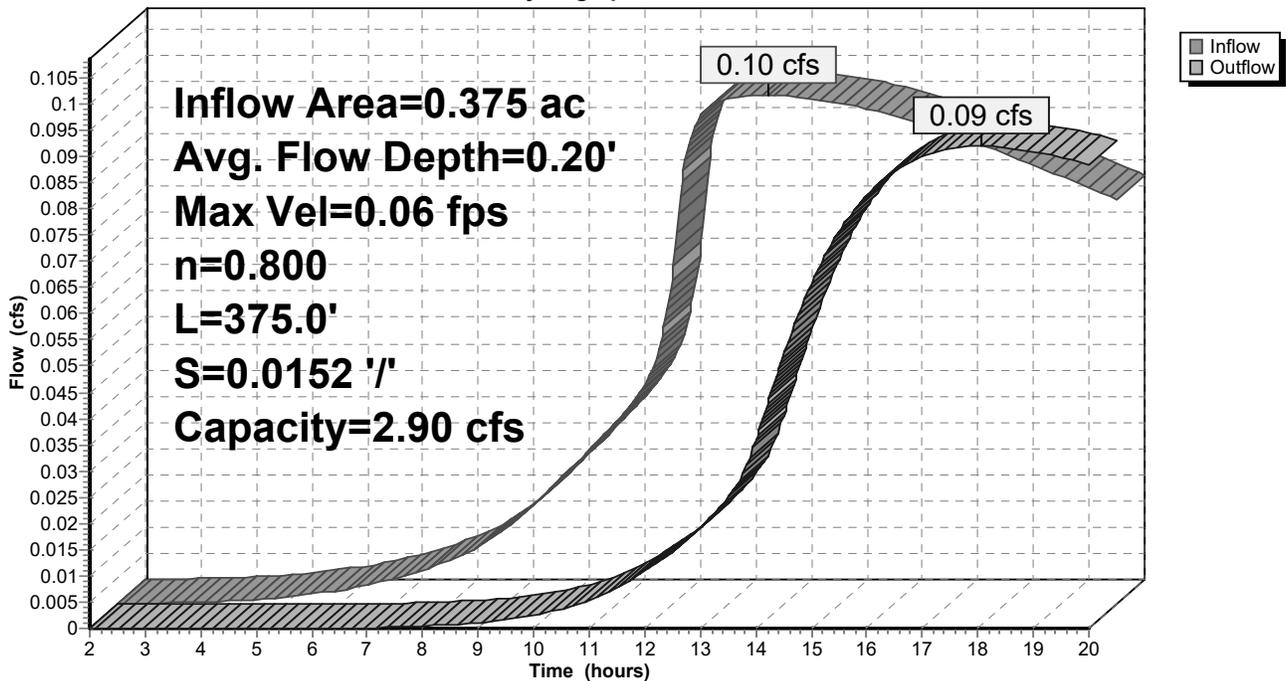
Peak Storage= 571 cf @ 16.34 hrs
 Average Depth at Peak Storage= 0.20' , Surface Width= 11.26'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.90 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 375.0' Slope= 0.0152 '/'
 Inlet Invert= 203.70', Outlet Invert= 198.00'



Reach W2: 2 Thru Wetland

Hydrograph



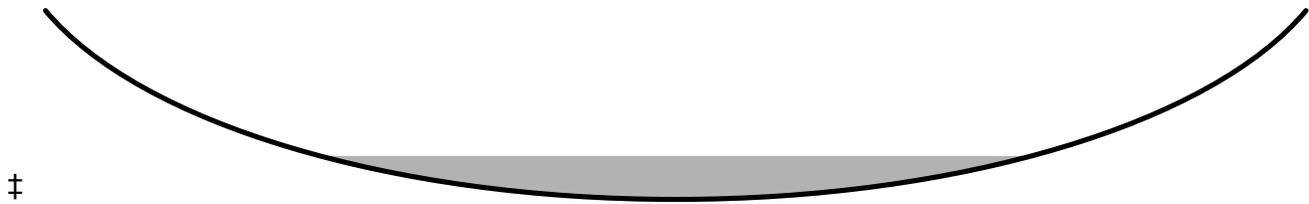
Summary for Reach W3: 3 Thru Wetland

Inflow Area = 0.643 ac, 43.14% Impervious, Inflow Depth > 1.48" for 10-year event
 Inflow = 0.20 cfs @ 12.10 hrs, Volume= 0.079 af
 Outflow = 0.07 cfs @ 20.00 hrs, Volume= 0.012 af, Atten= 66%, Lag= 473.8 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.05 fps, Min. Travel Time= 279.6 min
 Avg. Velocity = 0.03 fps, Avg. Travel Time= 470.7 min

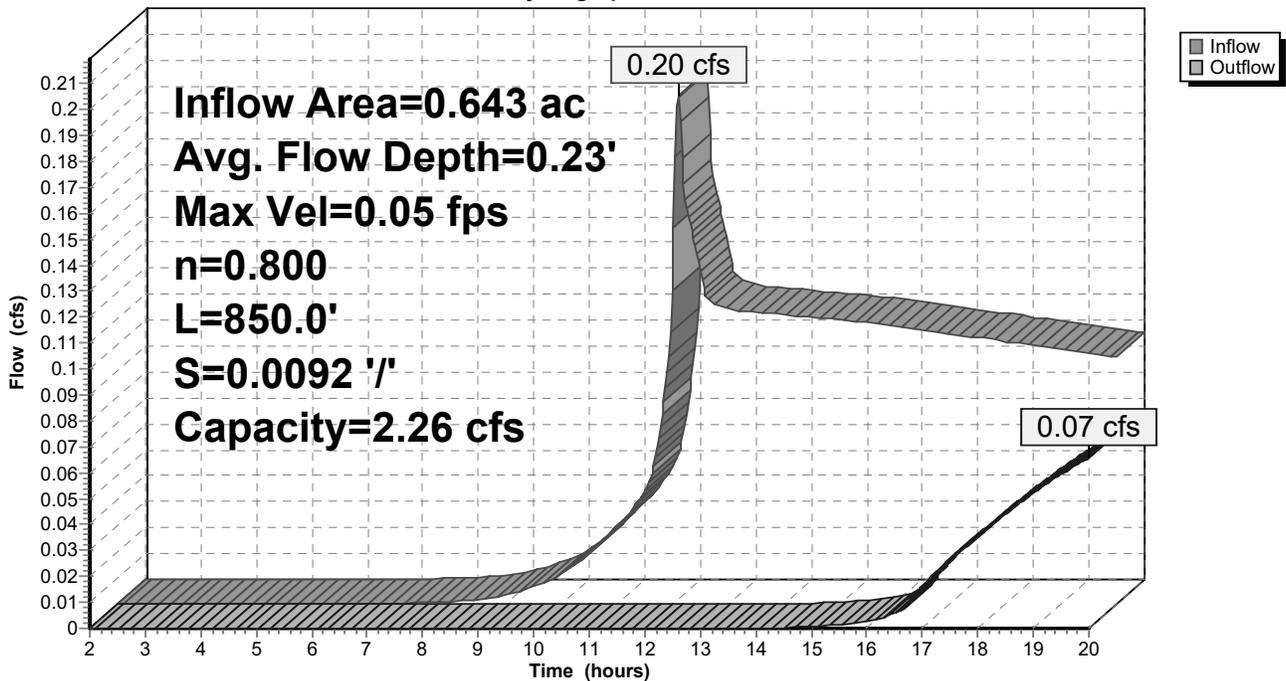
Peak Storage= 1,543 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.23' , Surface Width= 11.94'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.26 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 850.0' Slope= 0.0092 '/'
 Inlet Invert= 204.80', Outlet Invert= 197.00'



Reach W3: 3 Thru Wetland

Hydrograph



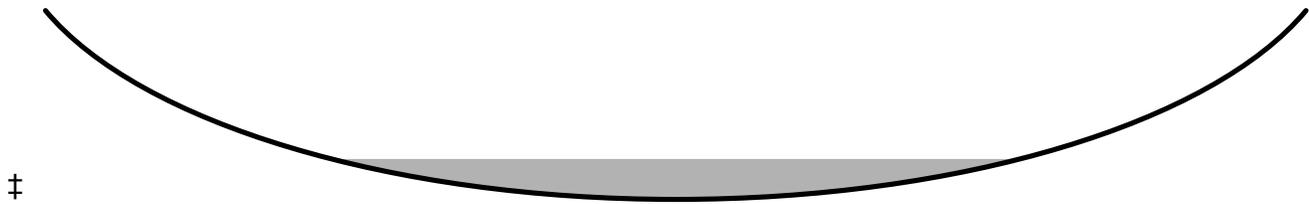
Summary for Reach W4B: 4B Thru Wetland

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.45" for 10-year event
 Inflow = 0.10 cfs @ 14.31 hrs, Volume= 0.065 af
 Outflow = 0.09 cfs @ 20.00 hrs, Volume= 0.027 af, Atten= 10%, Lag= 341.3 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.05 fps, Min. Travel Time= 157.4 min
 Avg. Velocity = 0.03 fps, Avg. Travel Time= 252.5 min

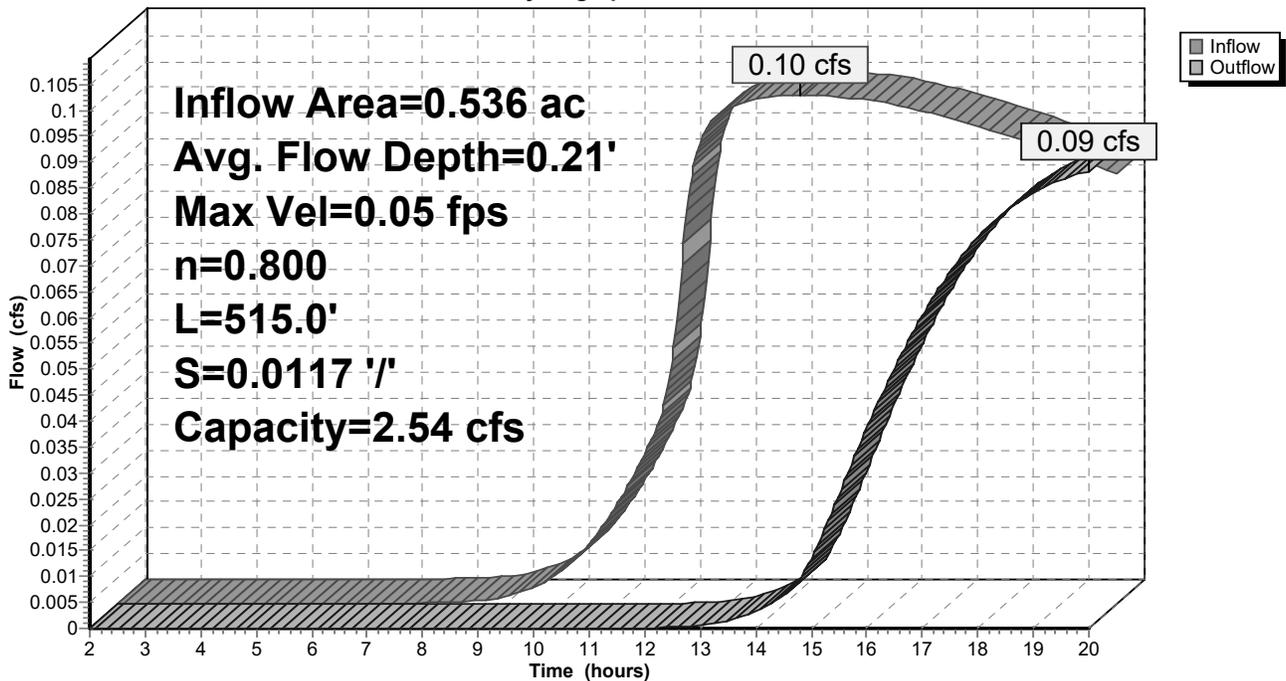
Peak Storage= 844 cf @ 18.35 hrs
 Average Depth at Peak Storage= 0.21' , Surface Width= 11.54'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.54 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 515.0' Slope= 0.0117 '/'
 Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W4B: 4B Thru Wetland

Hydrograph



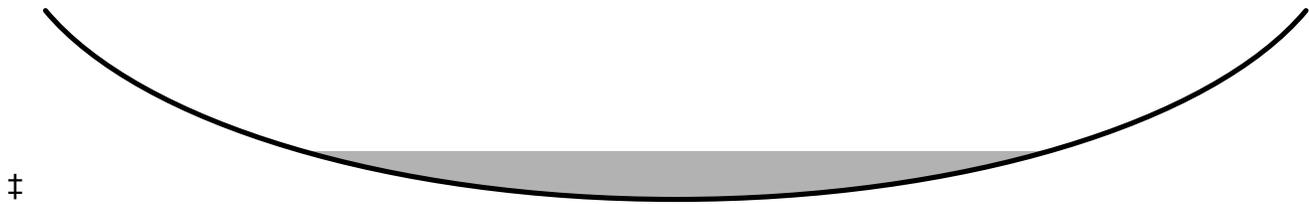
Summary for Reach W5: 5 Thru Wetland

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.53" for 10-year event
 Inflow = 0.17 cfs @ 15.27 hrs, Volume= 0.129 af
 Outflow = 0.17 cfs @ 17.67 hrs, Volume= 0.098 af, Atten= 1%, Lag= 143.7 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.08 fps, Min. Travel Time= 68.9 min
 Avg. Velocity = 0.05 fps, Avg. Travel Time= 103.2 min

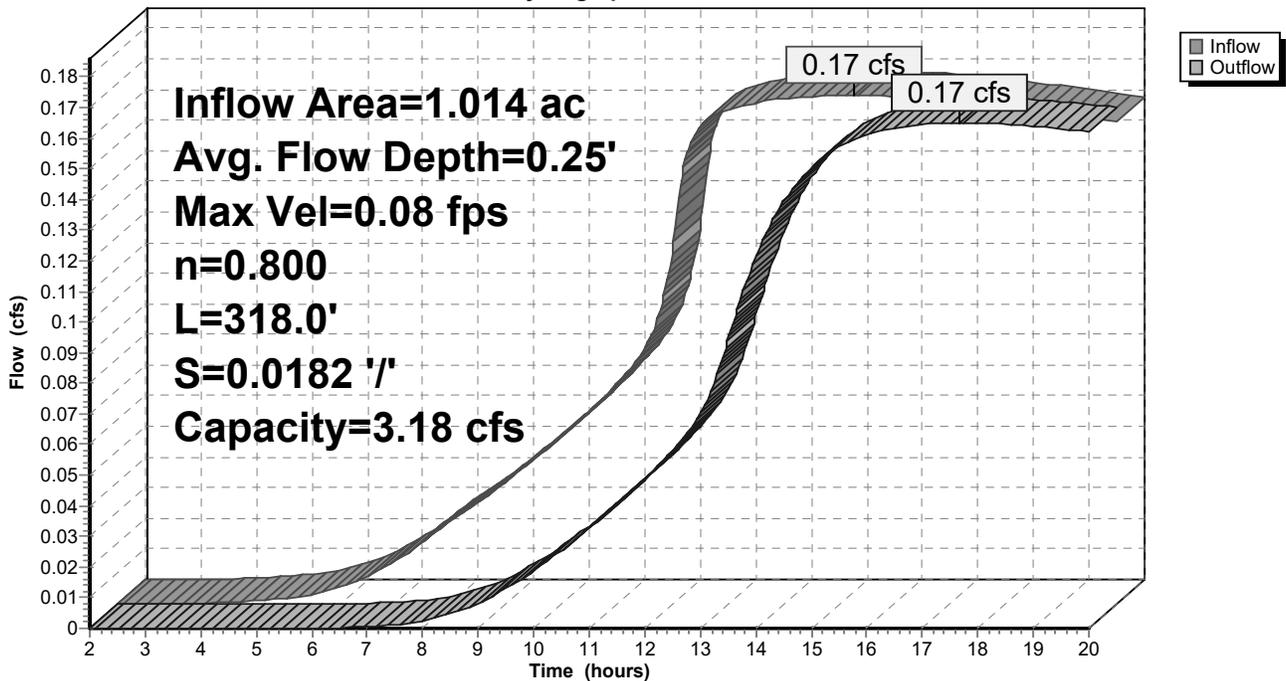
Peak Storage= 682 cf @ 16.52 hrs
 Average Depth at Peak Storage= 0.25' , Surface Width= 12.62'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 3.18 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 318.0' Slope= 0.0182 '/'
 Inlet Invert= 203.80', Outlet Invert= 198.00'



Reach W5: 5 Thru Wetland

Hydrograph



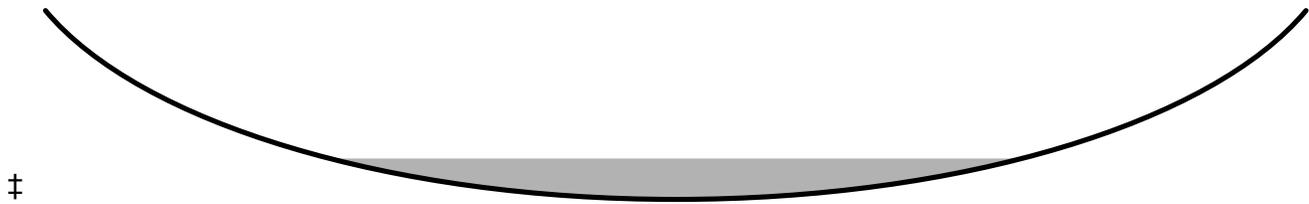
Summary for Reach W6: 6 Thru Wetland

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 1.31" for 10-year event
 Inflow = 0.15 cfs @ 13.27 hrs, Volume= 0.060 af
 Outflow = 0.09 cfs @ 19.25 hrs, Volume= 0.024 af, Atten= 37%, Lag= 358.5 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.06 fps, Min. Travel Time= 182.0 min
 Avg. Velocity = 0.05 fps, Avg. Travel Time= 211.1 min

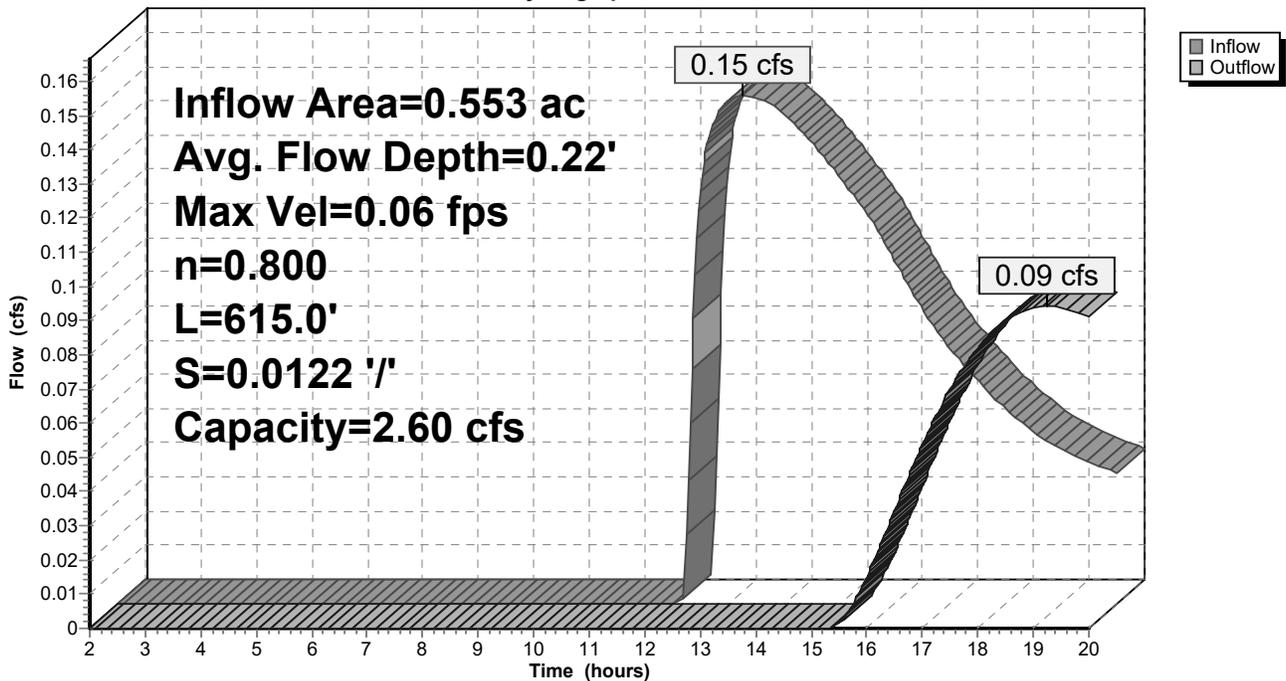
Peak Storage= 1,029 cf @ 16.21 hrs
 Average Depth at Peak Storage= 0.22' , Surface Width= 11.62'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.60 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 615.0' Slope= 0.0122 '/'
 Inlet Invert= 205.50', Outlet Invert= 198.00'



Reach W6: 6 Thru Wetland

Hydrograph



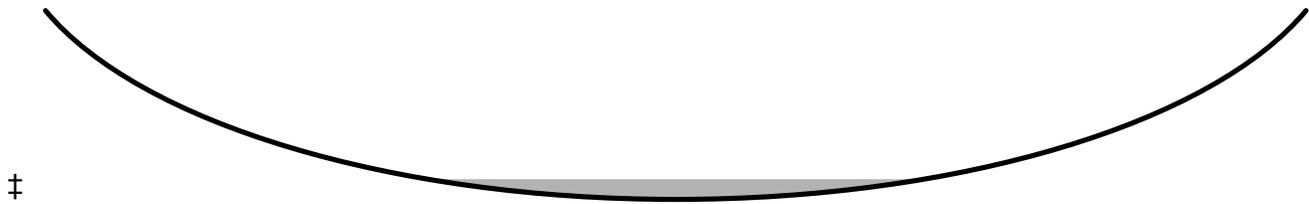
Summary for Reach W7: 7 Thru Wetland

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.30" for 10-year event
 Inflow = 0.03 cfs @ 15.68 hrs, Volume= 0.014 af
 Outflow = 0.01 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 80%, Lag= 259.3 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.03 fps, Min. Travel Time= 316.0 min
 Avg. Velocity = 0.02 fps, Avg. Travel Time= 418.4 min

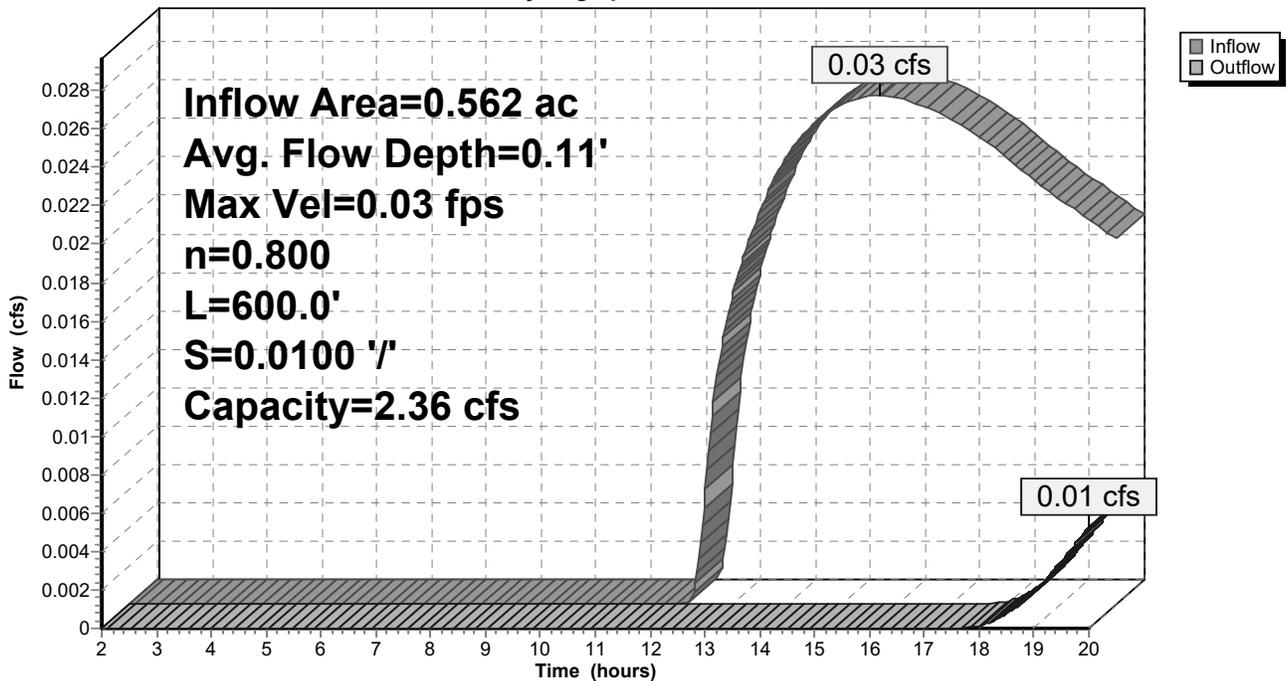
Peak Storage= 342 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.11' , Surface Width= 8.11'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.36 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 600.0' Slope= 0.0100 '/
 Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W7: 7 Thru Wetland

Hydrograph



Summary for Pond 1A: Detention Basin 1A

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 3.06" for 10-year event
 Inflow = 1.82 cfs @ 12.09 hrs, Volume= 0.124 af
 Outflow = 1.17 cfs @ 12.18 hrs, Volume= 0.121 af, Atten= 36%, Lag= 5.8 min
 Primary = 1.17 cfs @ 12.18 hrs, Volume= 0.121 af
 Routed to Reach CP1 : Connecting Pipes

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.46' @ 12.18 hrs Surf.Area= 2,526 sf Storage= 1,083 cf

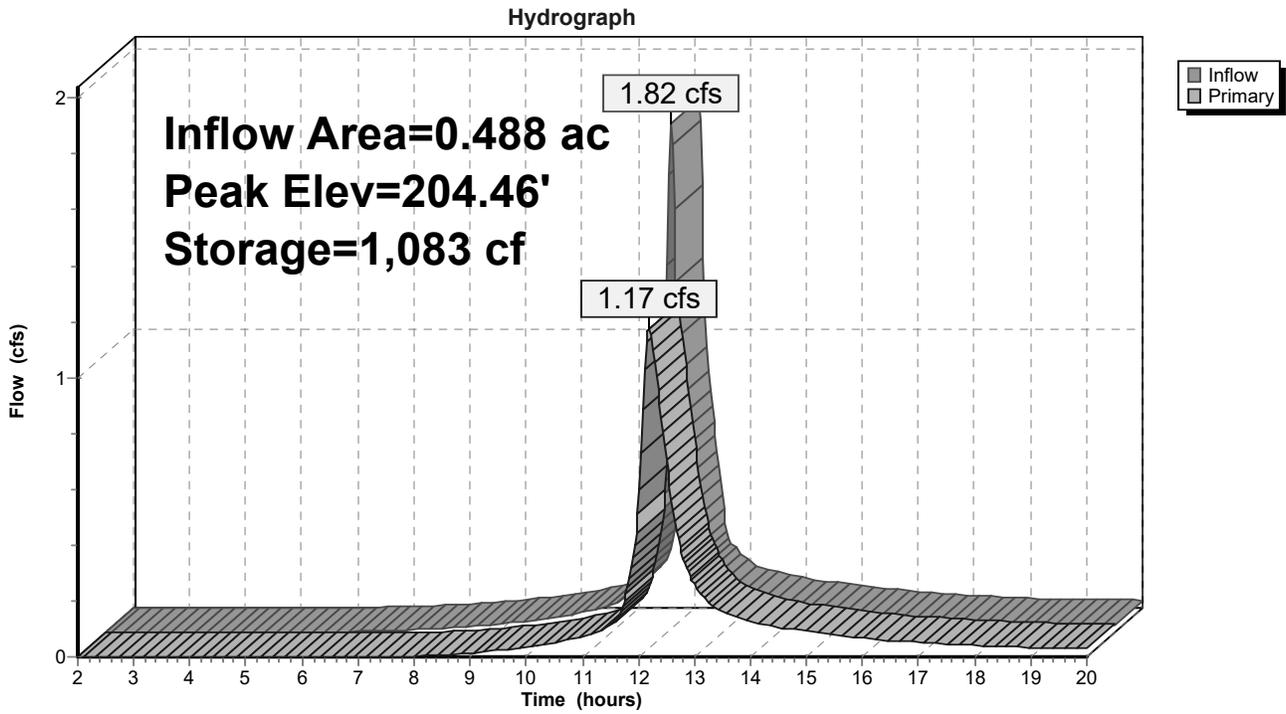
Plug-Flow detention time= 33.9 min calculated for 0.121 af (97% of inflow)
 Center-of-Mass det. time= 23.3 min (795.2 - 771.9)

Volume	Invert	Avail.Storage	Storage Description		
#1	204.00'	5,995 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
204.00	2,219	217.0	0	0	2,219
205.00	2,917	242.0	2,560	2,560	3,161
206.00	3,980	396.0	3,435	5,995	10,986

Device	Routing	Invert	Outlet Devices
#1	Primary	204.00'	8.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.17 cfs @ 12.18 hrs HW=204.46' (Free Discharge)
 ↑**1=Orifice/Grate** (Orifice Controls 1.17 cfs @ 2.30 fps)

Pond 1A: Detention Basin 1A



4298600-PR - Reconfigure Basin #1

Type III 24-hr 10-year Rainfall=4.66"

Prepared by VHB

Printed 3/6/2023

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Summary for Pond 1B: Detention Basin 1B

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 2.97" for 10-year event
 Inflow = 1.17 cfs @ 12.19 hrs, Volume= 0.121 af
 Outflow = 0.09 cfs @ 14.94 hrs, Volume= 0.060 af, Atten= 92%, Lag= 164.8 min
 Primary = 0.09 cfs @ 14.94 hrs, Volume= 0.060 af
 Routed to Reach P1 : Pipe Out of 1

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 203.87' @ 14.94 hrs Surf.Area= 4,308 sf Storage= 3,324 cf

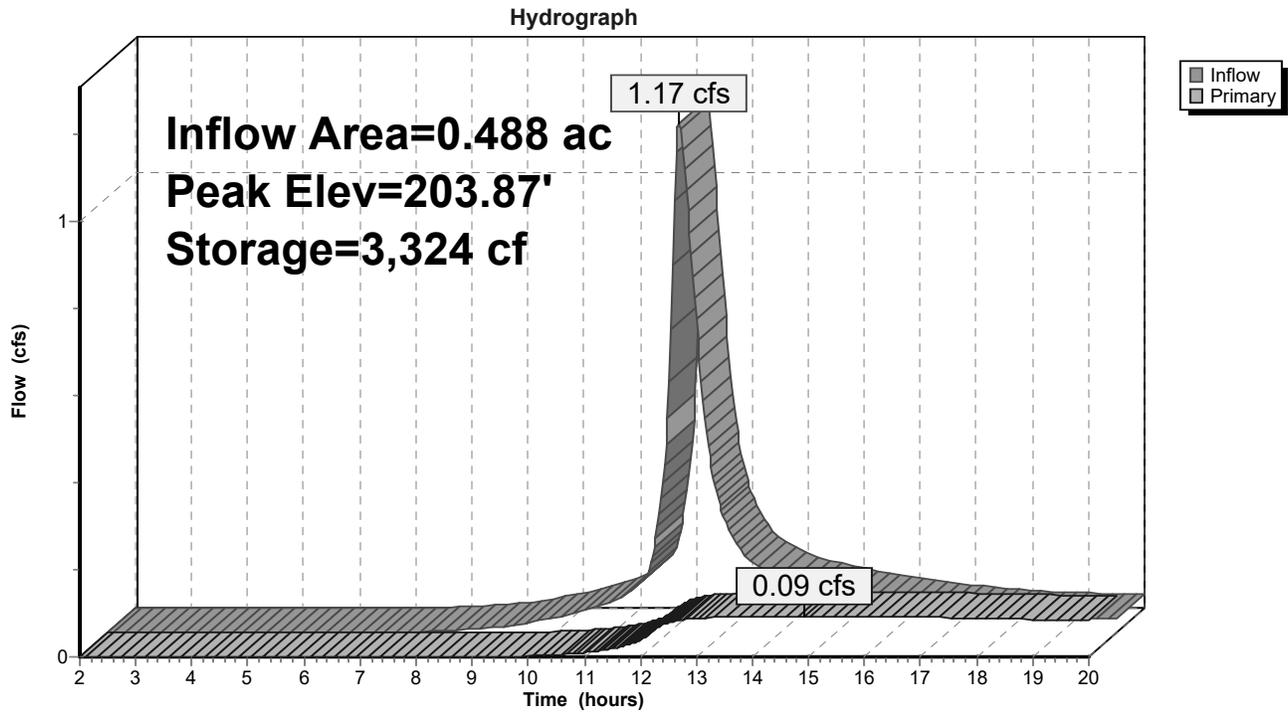
Plug-Flow detention time= 239.3 min calculated for 0.060 af (50% of inflow)
 Center-of-Mass det. time= 156.3 min (952.1 - 795.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	203.00'	15,252 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
203.00	3,355	332.0	0	0	3,355	
204.00	4,461	375.0	3,895	3,895	5,800	
205.00	5,613	394.0	5,026	8,921	7,025	
206.00	7,077	463.0	6,331	15,252	11,750	

Device	Routing	Invert	Outlet Devices		
#1	Primary	203.00'	2.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 14.94 hrs HW=203.87' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.09 cfs @ 4.27 fps)

Pond 1B: Detention Basin 1B



Summary for Pond 2P: Detention Basin 2

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 3.57" for 10-year event
 Inflow = 1.52 cfs @ 12.09 hrs, Volume= 0.112 af
 Outflow = 0.10 cfs @ 13.69 hrs, Volume= 0.069 af, Atten= 94%, Lag= 96.4 min
 Primary = 0.10 cfs @ 13.69 hrs, Volume= 0.069 af
 Routed to Reach P2 : Pipe Out of 2
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P2 : Pipe Out of 2

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.94' @ 13.69 hrs Surf.Area= 3,371 sf Storage= 2,873 cf

Plug-Flow detention time= 242.5 min calculated for 0.069 af (62% of inflow)
 Center-of-Mass det. time= 161.9 min (904.6 - 742.7)

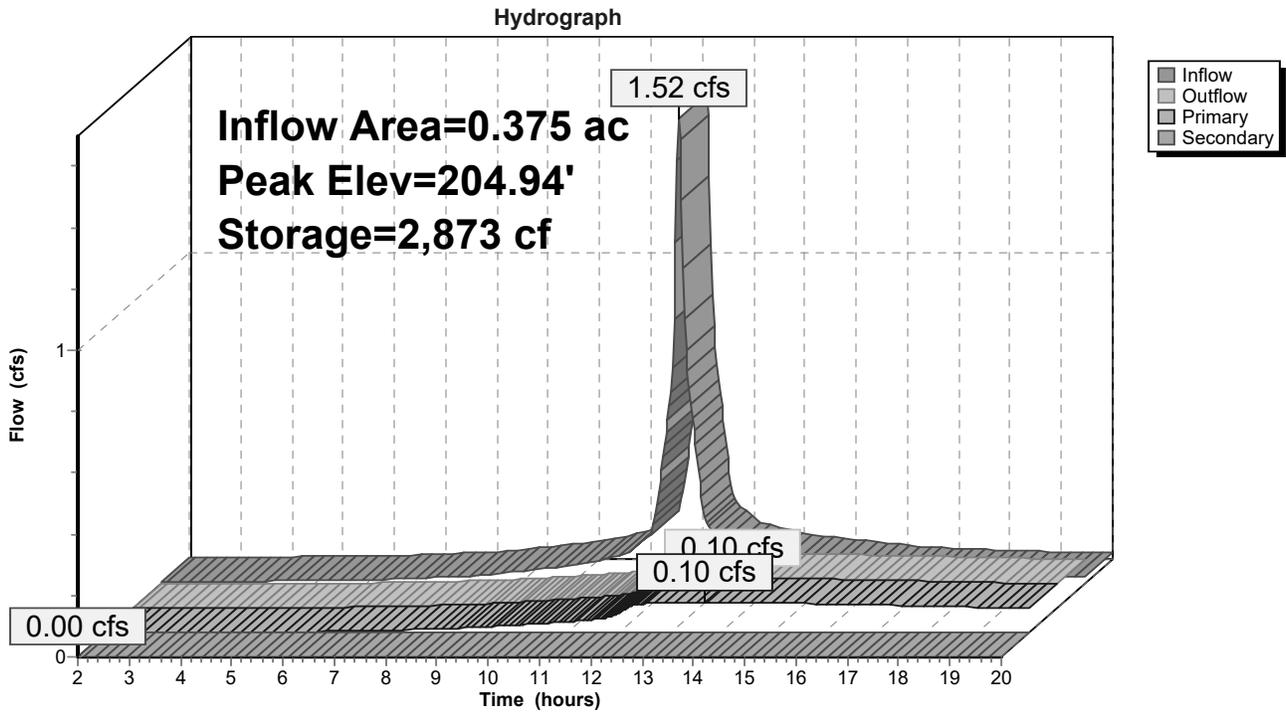
Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	6,845 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,781	215.0	0	0	2,781	
205.00	3,414	233.0	3,092	3,092	3,461	
206.00	4,102	253.0	3,753	6,845	4,271	

Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	206.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.10 cfs @ 13.69 hrs HW=204.94' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.10 cfs @ 4.44 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 2P: Detention Basin 2



Summary for Pond 3P: Detention Basin 3

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 3.15" for 10-year event
 Inflow = 2.23 cfs @ 12.09 hrs, Volume= 0.153 af
 Outflow = 0.10 cfs @ 14.84 hrs, Volume= 0.071 af, Atten= 95%, Lag= 165.1 min
 Primary = 0.10 cfs @ 14.84 hrs, Volume= 0.071 af
 Routed to Reach P3 : Pipe Out of 3
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P3 : Pipe Out of 3

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.04' @ 14.84 hrs Surf.Area= 4,675 sf Storage= 4,392 cf

Plug-Flow detention time= 254.3 min calculated for 0.071 af (46% of inflow)
 Center-of-Mass det. time= 166.7 min (935.7 - 769.0)

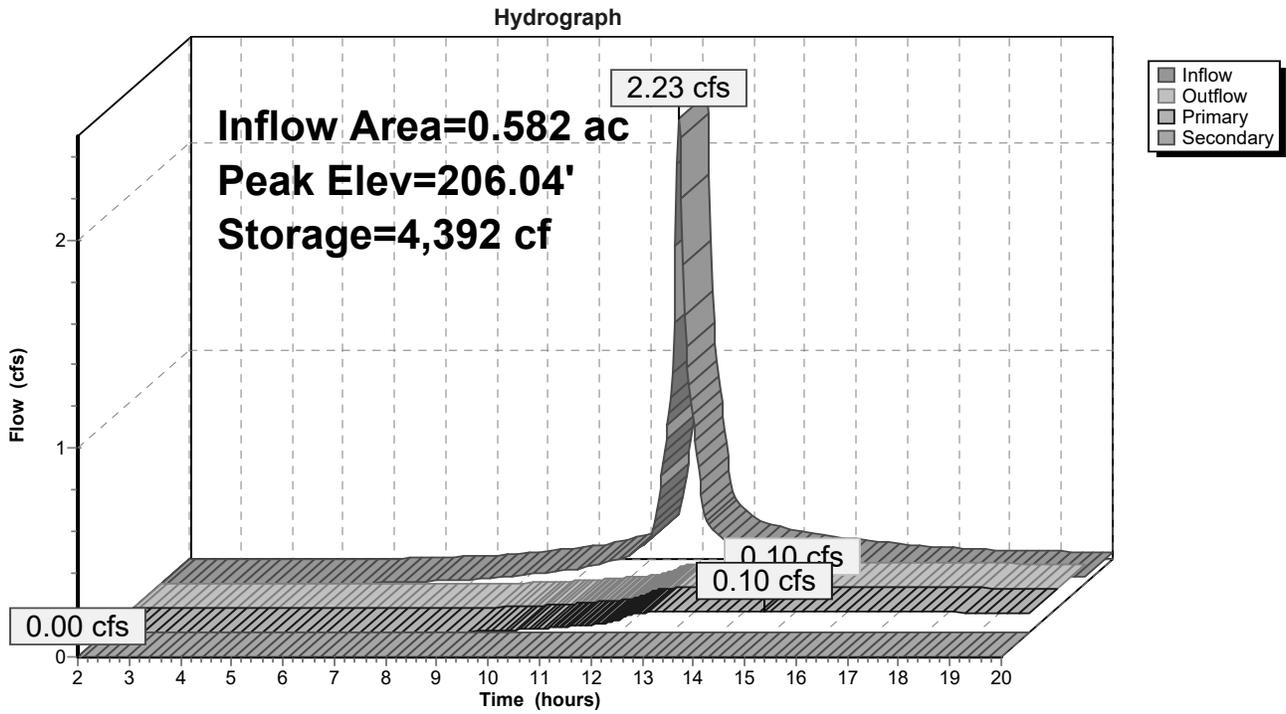
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	9,306 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	3,825	299.0	0	0	3,825	
206.00	4,645	321.0	4,228	4,228	4,954	
207.00	5,522	343.0	5,077	9,306	6,163	

Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.10 cfs @ 14.84 hrs HW=206.04' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.10 cfs @ 4.70 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: Detention Basin 3



Summary for Pond 4A: Detention Basin 4A

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 3.15" for 10-year event
 Inflow = 1.54 cfs @ 12.09 hrs, Volume= 0.105 af
 Outflow = 1.42 cfs @ 12.12 hrs, Volume= 0.105 af, Atten= 8%, Lag= 2.1 min
 Primary = 1.42 cfs @ 12.12 hrs, Volume= 0.105 af
 Routed to Reach CP4 : Connecting Pipes
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Link x1000 : x1000

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.59' @ 12.12 hrs Surf.Area= 884 sf Storage= 307 cf

Plug-Flow detention time= 9.9 min calculated for 0.105 af (99% of inflow)
 Center-of-Mass det. time= 6.8 min (775.8 - 769.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	205.20'	3,389 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.20	680	165.0	0	0	680	
206.00	1,121	238.0	713	713	3,027	
207.00	2,031	428.0	1,554	2,267	13,102	
207.50	2,465	434.0	1,122	3,389	13,566	

Device	Routing	Invert	Outlet Devices
#1	Primary	205.20'	15.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	207.50'	8.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

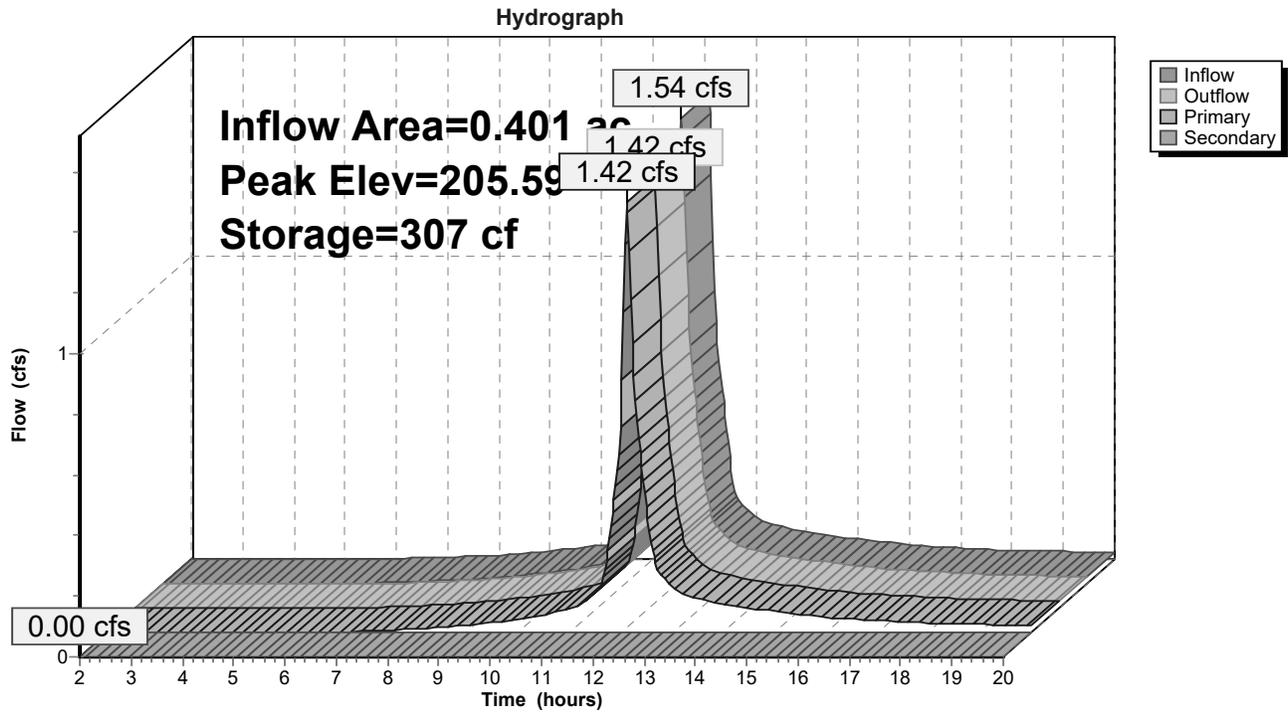
Primary OutFlow Max=1.40 cfs @ 12.12 hrs HW=205.59' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 1.40 cfs @ 2.13 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.20' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4A: Detention Basin 4A



Summary for Pond 4B: Detention Basin 4B

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 2.58" for 10-year event
 Inflow = 1.53 cfs @ 12.13 hrs, Volume= 0.115 af
 Outflow = 0.10 cfs @ 14.26 hrs, Volume= 0.065 af, Atten= 94%, Lag= 127.6 min
 Primary = 0.10 cfs @ 14.26 hrs, Volume= 0.065 af
 Routed to Reach P4B : Pipe Out of 4B
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P4B : Pipe Out of 4B

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.96' @ 14.26 hrs Surf.Area= 3,510 sf Storage= 3,031 cf

Plug-Flow detention time= 236.3 min calculated for 0.065 af (57% of inflow)
 Center-of-Mass det. time= 157.3 min (939.3 - 782.0)

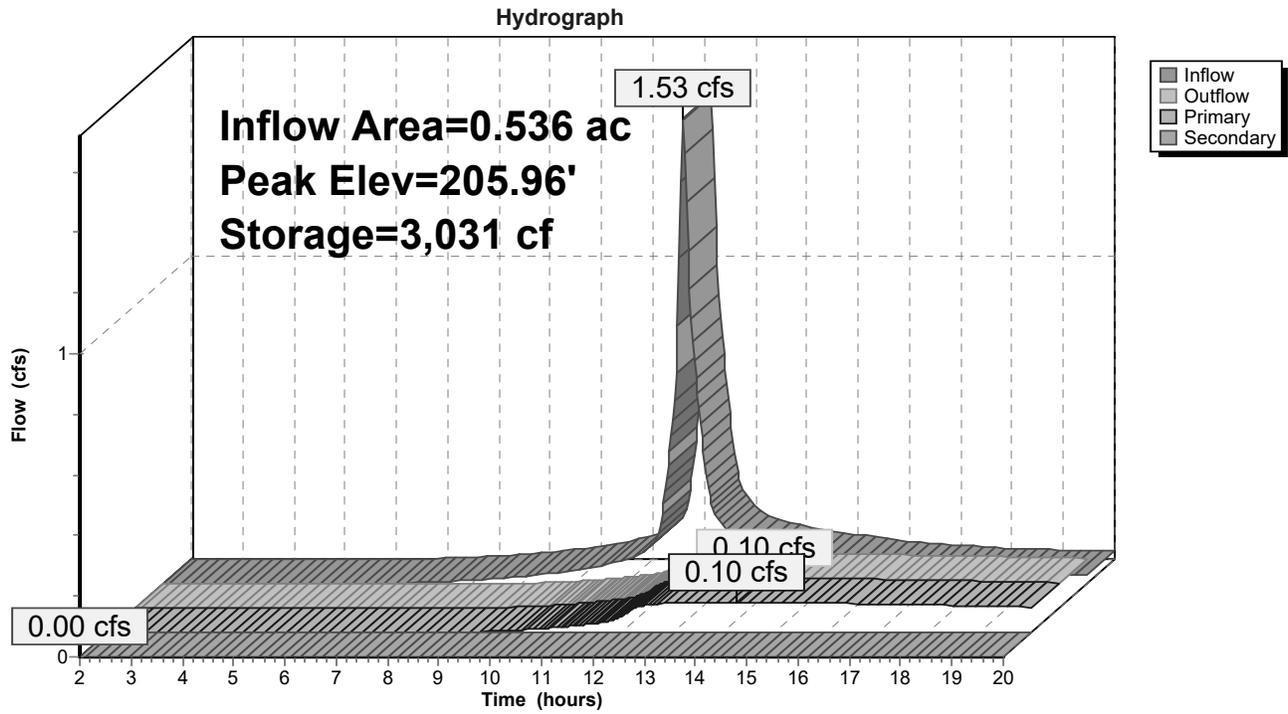
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	7,090 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	2,837	240.0	0	0	2,837	
206.00	3,542	256.0	3,183	3,183	3,515	
207.00	4,283	269.0	3,907	7,090	4,119	

Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.10 cfs @ 14.26 hrs HW=205.96' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.10 cfs @ 4.50 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 4B: Detention Basin 4B



Summary for Pond 5P: Detention Basin 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 3.77" for 10-year event
 Inflow = 4.39 cfs @ 12.08 hrs, Volume= 0.319 af
 Outflow = 0.17 cfs @ 15.26 hrs, Volume= 0.129 af, Atten= 96%, Lag= 190.6 min
 Primary = 0.17 cfs @ 15.26 hrs, Volume= 0.129 af
 Routed to Reach P5 : Pipe Out of 5
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P5 : Pipe Out of 5

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.58' @ 15.26 hrs Surf.Area= 4,744 sf Storage= 9,426 cf

Plug-Flow detention time= 261.1 min calculated for 0.129 af (41% of inflow)
 Center-of-Mass det. time= 152.8 min (899.5 - 746.6)

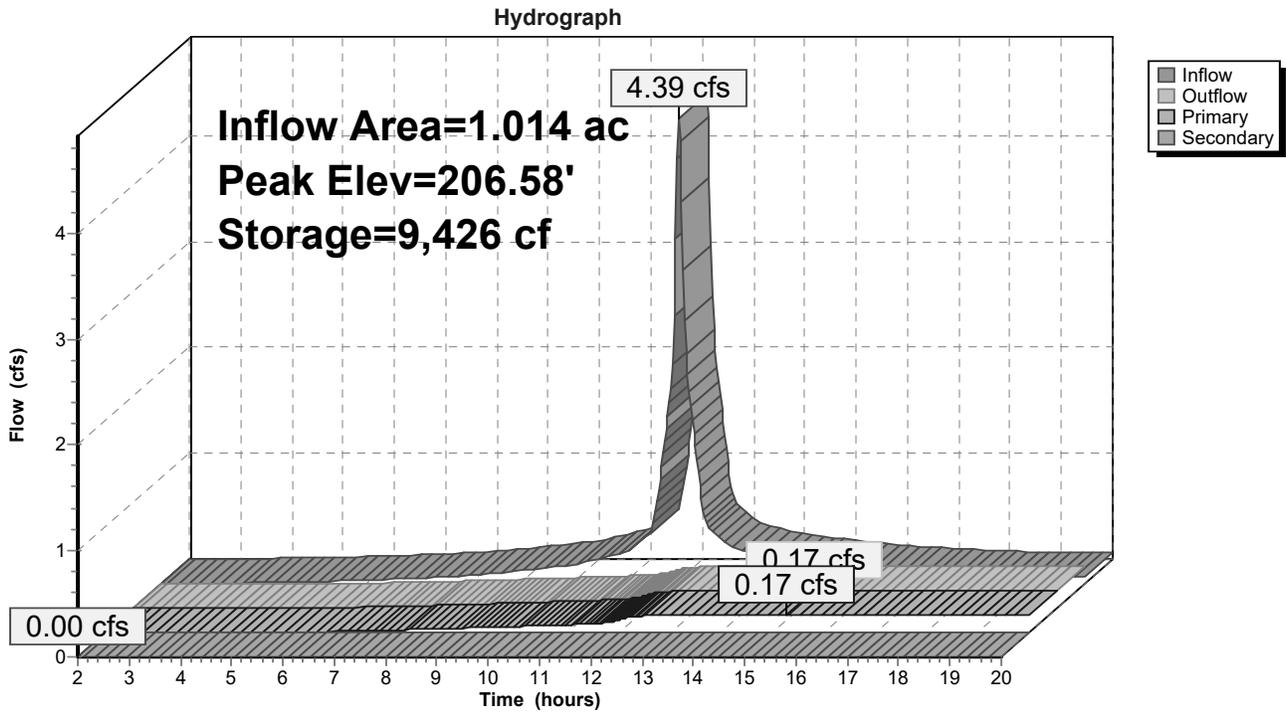
Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	15,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,787	236.0	0	0	2,787	
205.00	3,274	250.0	3,027	3,027	3,380	
206.00	4,298	383.0	3,774	6,802	10,087	
207.00	5,079	397.0	4,683	11,485	11,040	
207.75	5,683	407.0	4,034	15,518	11,747	

Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads
#2	Secondary	207.00'	4.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=0.17 cfs @ 15.26 hrs HW=206.58' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.17 cfs @ 7.61 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 5P: Detention Basin 5



Summary for Pond 6P: Detention Basin 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 2.60" for 10-year event
 Inflow = 1.79 cfs @ 12.09 hrs, Volume= 0.120 af
 Outflow = 0.15 cfs @ 13.26 hrs, Volume= 0.060 af, Atten= 92%, Lag= 70.2 min
 Primary = 0.15 cfs @ 13.26 hrs, Volume= 0.060 af
 Routed to Reach P6 : Pipe Out of 6
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P6 : Pipe Out of 6

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.36' @ 13.26 hrs Surf.Area= 2,799 sf Storage= 3,195 cf

Plug-Flow detention time= 213.8 min calculated for 0.060 af (50% of inflow)
 Center-of-Mass det. time= 132.1 min (916.9 - 784.8)

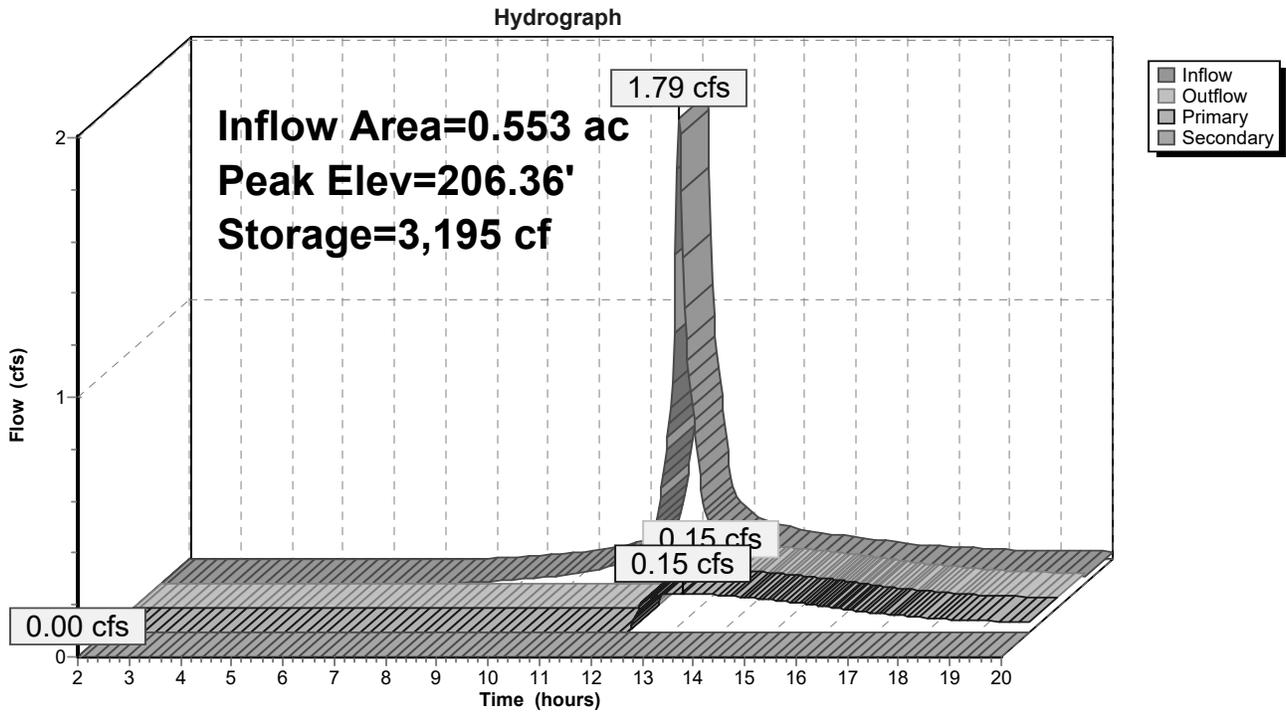
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	7,775 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	1,920	273.0	0	0	1,920	
206.00	2,558	295.0	2,231	2,231	2,954	
207.00	3,255	360.0	2,900	5,131	6,358	
207.75	3,802	370.0	2,644	7,775	7,000	

Device	Routing	Invert	Outlet Devices		
#1	Primary	206.00'	3.5" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.15 cfs @ 13.26 hrs HW=206.36' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.15 cfs @ 2.23 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 6P: Detention Basin 6



Summary for Pond 7P: Detention Basin 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.48" for 10-year event
 Inflow = 0.20 cfs @ 12.14 hrs, Volume= 0.023 af
 Outflow = 0.03 cfs @ 15.56 hrs, Volume= 0.014 af, Atten= 86%, Lag= 205.3 min
 Primary = 0.03 cfs @ 15.56 hrs, Volume= 0.014 af
 Routed to Reach P7 : Pipe Out of 7
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P7 : Pipe Out of 7

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.15' @ 15.56 hrs Surf.Area= 3,223 sf Storage= 463 cf

Plug-Flow detention time= 196.8 min calculated for 0.014 af (63% of inflow)
 Center-of-Mass det. time= 109.8 min (973.7 - 864.0)

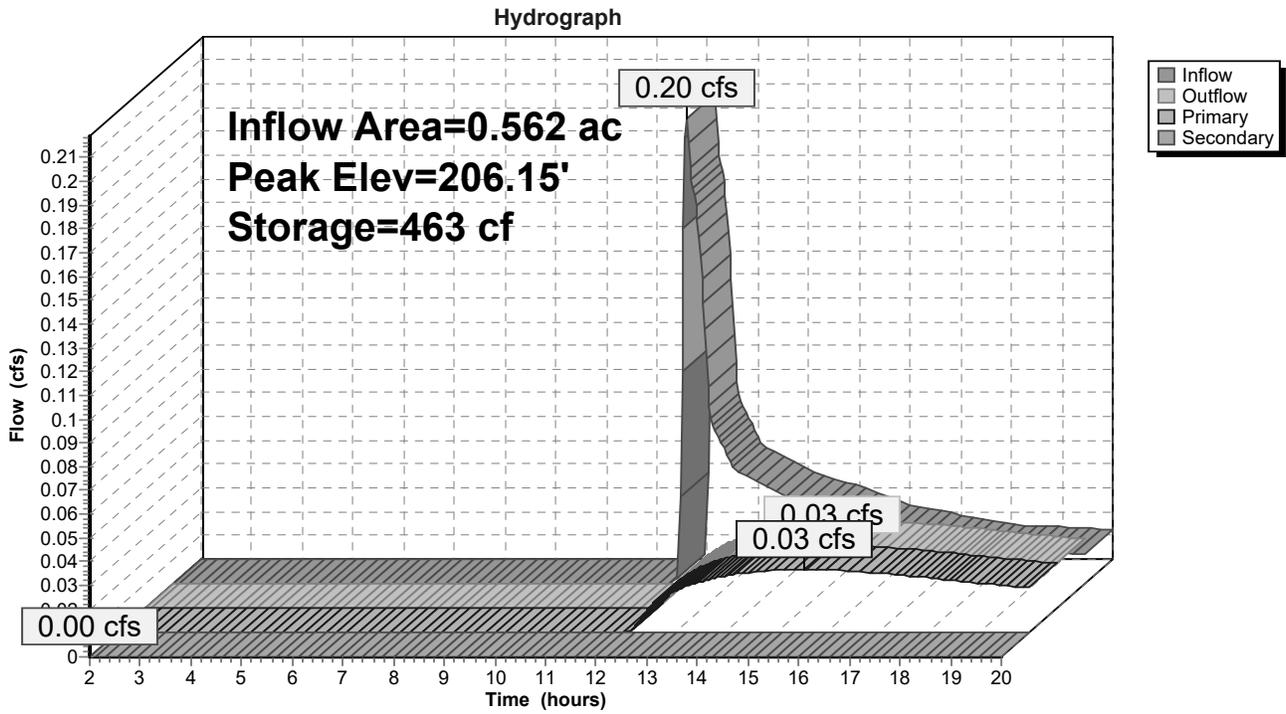
Volume	Invert	Avail.Storage	Storage Description			
#1	206.00'	7,029 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
206.00	3,078	335.0	0	0	3,078	
207.00	4,132	359.0	3,592	3,592	4,448	
207.75	5,049	375.0	3,437	7,029	5,422	

Device	Routing	Invert	Outlet Devices		
#1	Primary	206.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.03 cfs @ 15.56 hrs HW=206.15' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.03 cfs @ 1.31 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=206.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 7P: Detention Basin 7



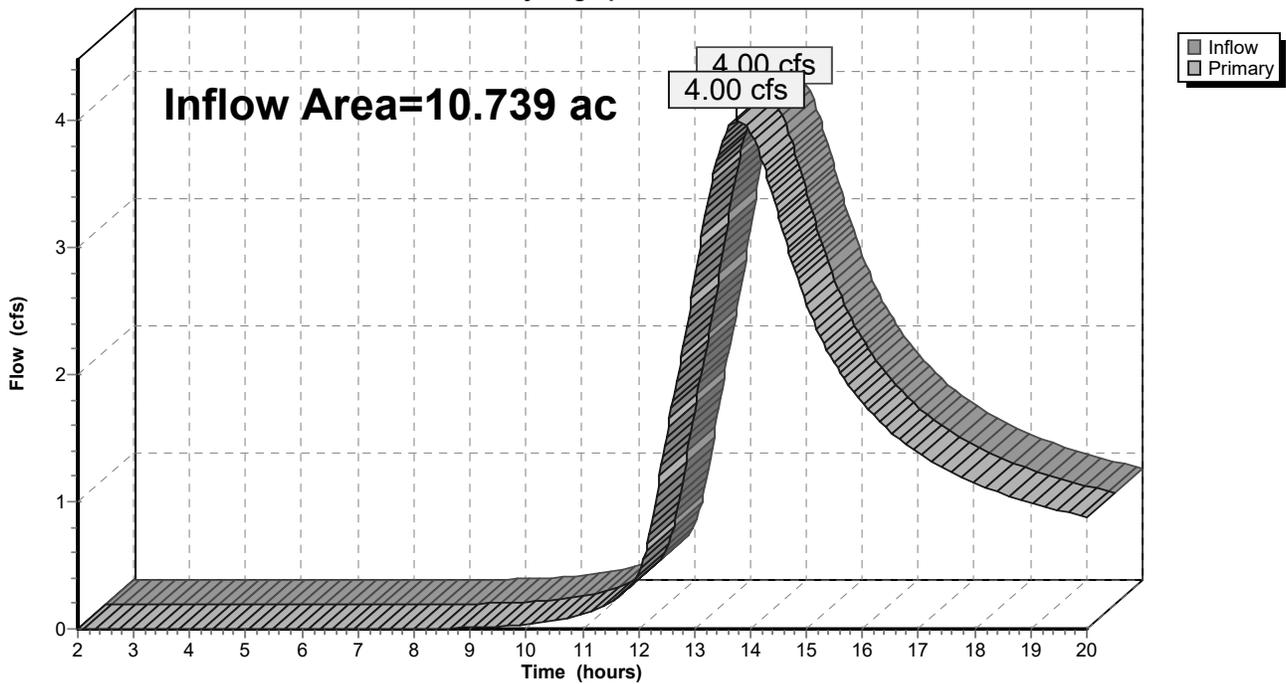
Summary for Link x1000: x1000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 1.45" for 10-year event
Inflow = 4.00 cfs @ 13.77 hrs, Volume= 1.293 af
Primary = 4.00 cfs @ 13.77 hrs, Volume= 1.293 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 1k-2k : x1000 to x2000

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x1000: x1000

Hydrograph



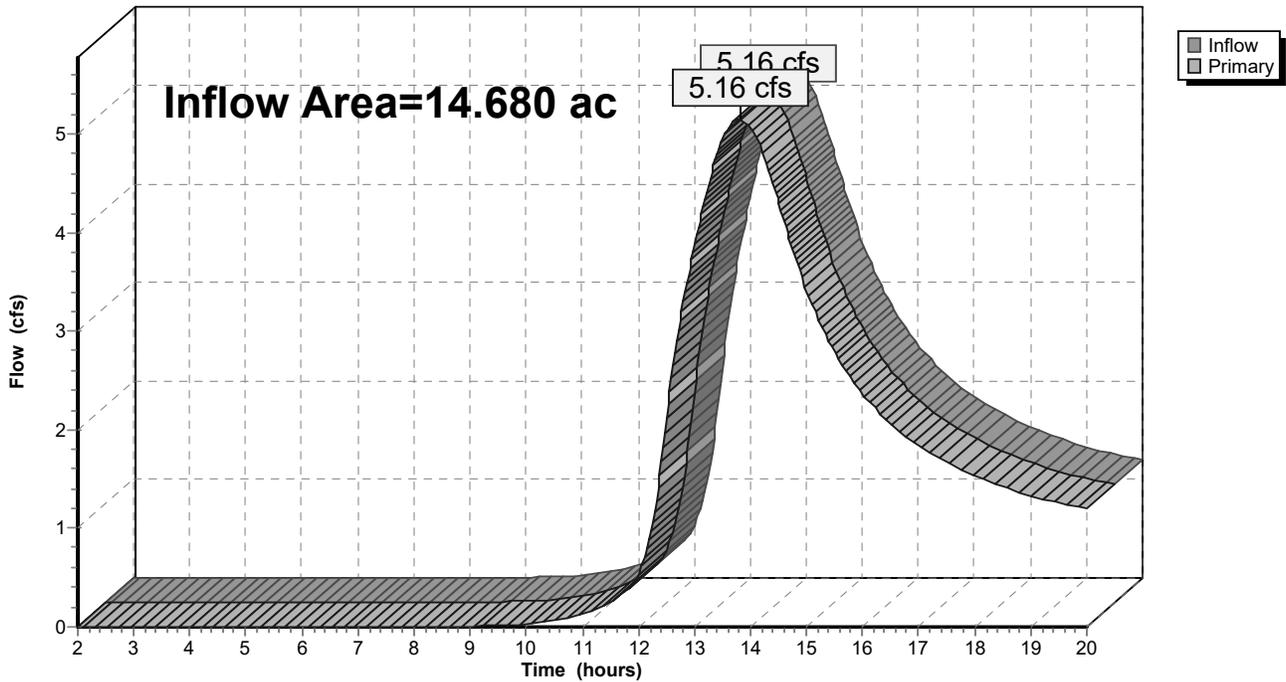
Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 1.41" for 10-year event
Inflow = 5.16 cfs @ 13.81 hrs, Volume= 1.722 af
Primary = 5.16 cfs @ 13.81 hrs, Volume= 1.722 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2k-3k : x2000 to x3000

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x2000: x2000

Hydrograph



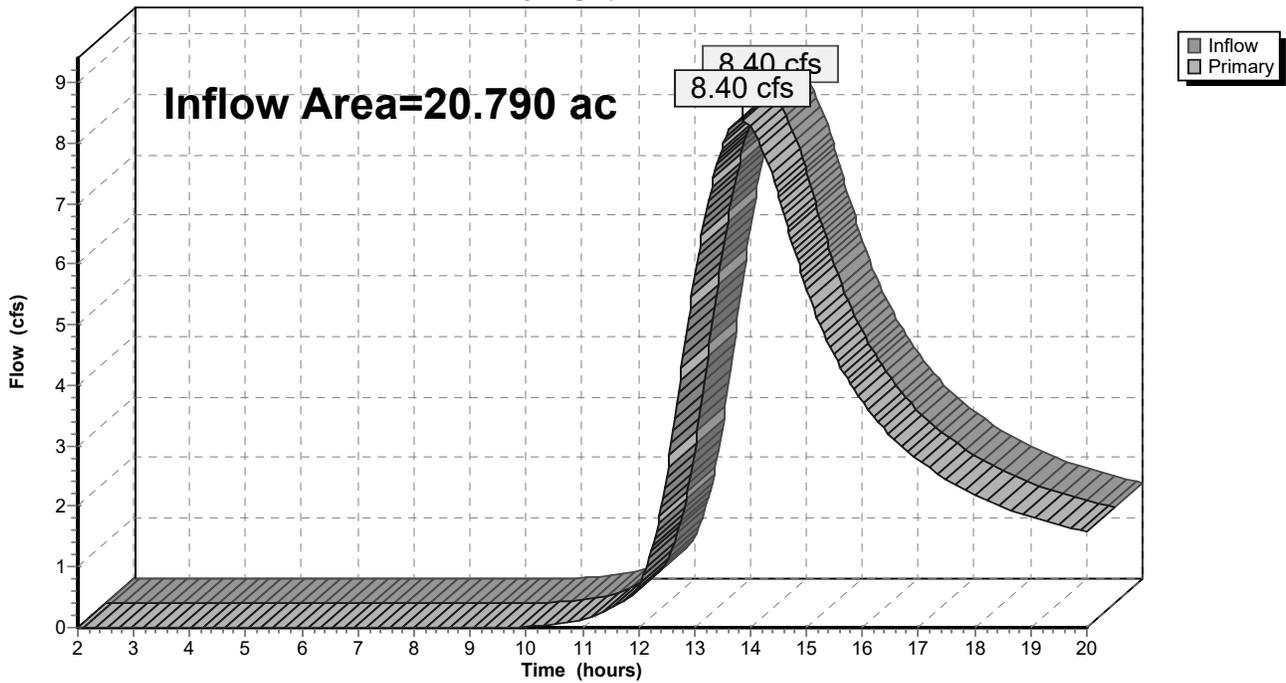
Summary for Link x3000: x3000

Inflow Area = 20.790 ac, 10.83% Impervious, Inflow Depth > 1.52" for 10-year event
Inflow = 8.40 cfs @ 13.84 hrs, Volume= 2.627 af
Primary = 8.40 cfs @ 13.84 hrs, Volume= 2.627 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x3000: x3000

Hydrograph



25-Year Storm Event – Proposed

4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Time span=2.00-20.00 hrs, dt=0.03 hrs, 601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 100: Area 100	Runoff Area=21,241 sf 39.36% Impervious Runoff Depth>3.98" Tc=6.0 min CN=87 Runoff=2.34 cfs 0.162 af
Subcatchment 200: Area 200	Runoff Area=7,259 sf 21.45% Impervious Runoff Depth>3.67" Tc=6.0 min CN=84 Runoff=0.75 cfs 0.051 af
Subcatchment 300: Area 300	Runoff Area=25,373 sf 47.63% Impervious Runoff Depth>4.09" Tc=6.0 min CN=88 Runoff=2.85 cfs 0.198 af
Subcatchment 350: Area 350	Runoff Area=2,640 sf 0.00% Impervious Runoff Depth>2.37" Tc=6.0 min CN=70 Runoff=0.18 cfs 0.012 af
Subcatchment 400: Area 400	Runoff Area=17,459 sf 54.77% Impervious Runoff Depth>4.09" Tc=6.0 min CN=88 Runoff=1.96 cfs 0.137 af
Subcatchment 450: Area 450	Runoff Area=5,879 sf 0.00% Impervious Runoff Depth>1.49" Tc=6.0 min CN=59 Runoff=0.24 cfs 0.017 af
Subcatchment 500: Area 500	Runoff Area=24,492 sf 21.12% Impervious Runoff Depth>0.88" Tc=6.0 min CN=50 Runoff=0.49 cfs 0.041 af
Subcatchment 550: Area 550	Runoff Area=24,095 sf 65.72% Impervious Runoff Depth>3.48" Tc=6.0 min CN=82 Runoff=2.37 cfs 0.160 af
Subcatchment 600: Area 600	Runoff Area=44,164 sf 81.56% Impervious Runoff Depth>4.74" Tc=6.0 min CN=94 Runoff=5.44 cfs 0.401 af
Subcatchment 700: Area 700	Runoff Area=155,394 sf 0.00% Impervious Runoff Depth>2.50" Flow Length=914' Tc=123.7 min CN=73 Runoff=2.87 cfs 0.744 af
Subcatchment 800: Area 800	Runoff Area=83,661 sf 0.00% Impervious Runoff Depth>2.83" Flow Length=850' Tc=142.4 min CN=77 Runoff=1.59 cfs 0.453 af
Subcatchment 900: Area 900	Runoff Area=20,660 sf 0.00% Impervious Runoff Depth>2.96" Flow Length=370' Tc=40.8 min CN=77 Runoff=0.87 cfs 0.117 af
Subcatchment 1000: Area 1000	Runoff Area=89,935 sf 0.00% Impervious Runoff Depth>2.44" Flow Length=675' Tc=101.4 min CN=72 Runoff=1.85 cfs 0.420 af
Subcatchment 1100: Area 1100	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>2.35" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.53 cfs 0.059 af
Subcatchment 1200: Area 1200	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>2.66" Flow Length=868' Tc=140.2 min CN=75 Runoff=2.97 cfs 0.829 af
Subcatchment 1300: Area 1300	Runoff Area=41,280 sf 0.00% Impervious Runoff Depth>2.48" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.71 cfs 0.196 af

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Subcatchment 1400: Area 1400	Runoff Area=43,924 sf 0.00% Impervious Runoff Depth>2.67" Flow Length=410' Tc=58.3 min CN=74 Runoff=1.38 cfs 0.224 af
Subcatchment 1500: Area 1500	Runoff Area=15,037 sf 0.00% Impervious Runoff Depth>2.88" Flow Length=661' Tc=110.0 min CN=77 Runoff=0.34 cfs 0.083 af
Subcatchment 1600: Area 1600	Runoff Area=22,207 sf 0.00% Impervious Runoff Depth>1.17" Flow Length=1,245' Tc=149.8 min CN=56 Runoff=0.16 cfs 0.049 af
Subcatchment 1700: Area 1700	Runoff Area=23,148 sf 0.00% Impervious Runoff Depth>0.06" Flow Length=917' Tc=159.8 min CN=33 Runoff=0.01 cfs 0.003 af
Subcatchment 1800: Area 1800	Runoff Area=52,490 sf 0.78% Impervious Runoff Depth>2.32" Flow Length=615' Tc=135.0 min CN=71 Runoff=0.84 cfs 0.233 af
Subcatchment DISP: Dispensary Building	Runoff Area=4,073 sf 100.00% Impervious Runoff Depth>5.19" Tc=6.0 min CN=98 Runoff=0.52 cfs 0.040 af
Subcatchment LAB: Lab Bldg	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>5.19" Tc=6.0 min CN=98 Runoff=0.64 cfs 0.050 af
Reach 1k-2k: x1000 to x2000	Avg. Flow Depth=0.36' Max Vel=1.44 fps Inflow=5.63 cfs 1.812 af n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=5.62 cfs 1.800 af
Reach 2k-3k: x2000 to x3000	Avg. Flow Depth=0.68' Max Vel=1.31 fps Inflow=7.31 cfs 2.420 af n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=7.30 cfs 2.394 af
Reach CP1: Connecting Pipes 8.0" Round Pipe x 2.00	n=0.011 Avg. Flow Depth=0.35' Max Vel=4.16 fps Inflow=1.54 cfs 0.158 af L=60.0' S=0.0100 '/' Capacity=2.86 cfs Outflow=1.53 cfs 0.158 af
Reach CP4: Connecting Pipes 15.0" Round Pipe x 2.00	n=0.011 Avg. Flow Depth=0.39' Max Vel=2.79 fps Inflow=1.83 cfs 0.136 af L=62.0' S=0.0032 '/' Capacity=8.67 cfs Outflow=1.81 cfs 0.136 af
Reach P1: Pipe Out of 1 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.11' Max Vel=2.22 fps Inflow=0.11 cfs 0.072 af L=78.0' S=0.0128 '/' Capacity=4.03 cfs Outflow=0.11 cfs 0.072 af
Reach P2: Pipe Out of 2 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.14' Max Vel=1.61 fps Inflow=0.11 cfs 0.081 af L=60.0' S=0.0050 '/' Capacity=2.52 cfs Outflow=0.11 cfs 0.081 af
Reach P3: Pipe Out of 3 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.15' Max Vel=1.64 fps Inflow=0.12 cfs 0.084 af L=40.0' S=0.0050 '/' Capacity=2.52 cfs Outflow=0.12 cfs 0.084 af
Reach P4B: Pipe Out of 4B 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.14' Max Vel=1.68 fps Inflow=0.11 cfs 0.079 af L=182.0' S=0.0055 '/' Capacity=2.64 cfs Outflow=0.11 cfs 0.078 af
Reach P5: Pipe Out of 5 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.19' Max Vel=2.04 fps Inflow=0.21 cfs 0.152 af L=35.0' S=0.0057 '/' Capacity=2.69 cfs Outflow=0.21 cfs 0.152 af
Reach P6: Pipe Out of 6 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.18' Max Vel=2.41 fps Inflow=0.24 cfs 0.099 af L=60.0' S=0.0083 '/' Capacity=3.25 cfs Outflow=0.24 cfs 0.099 af
Reach P7: Pipe Out of 7 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.09' Max Vel=1.38 fps Inflow=0.05 cfs 0.027 af L=290.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=0.05 cfs 0.026 af

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Reach W1: 1 Thru Wetland	Avg. Flow Depth=0.20' Max Vel=0.07 fps Inflow=0.11 cfs 0.072 af n=0.800 L=335.0' S=0.0197 '/' Capacity=3.31 cfs Outflow=0.11 cfs 0.049 af
Reach W2: 2 Thru Wetland	Avg. Flow Depth=0.22' Max Vel=0.06 fps Inflow=0.11 cfs 0.081 af n=0.800 L=375.0' S=0.0152 '/' Capacity=2.90 cfs Outflow=0.11 cfs 0.054 af
Reach W3: 3 Thru Wetland	Avg. Flow Depth=0.25' Max Vel=0.05 fps Inflow=0.26 cfs 0.096 af n=0.800 L=850.0' S=0.0092 '/' Capacity=2.26 cfs Outflow=0.09 cfs 0.018 af
Reach W4B: 4B Thru Wetland	Avg. Flow Depth=0.23' Max Vel=0.06 fps Inflow=0.11 cfs 0.078 af n=0.800 L=515.0' S=0.0117 '/' Capacity=2.54 cfs Outflow=0.11 cfs 0.035 af
Reach W5: 5 Thru Wetland	Avg. Flow Depth=0.28' Max Vel=0.08 fps Inflow=0.21 cfs 0.152 af n=0.800 L=318.0' S=0.0182 '/' Capacity=3.18 cfs Outflow=0.21 cfs 0.120 af
Reach W6: 6 Thru Wetland	Avg. Flow Depth=0.28' Max Vel=0.07 fps Inflow=0.24 cfs 0.099 af n=0.800 L=615.0' S=0.0122 '/' Capacity=2.60 cfs Outflow=0.16 cfs 0.051 af
Reach W7: 7 Thru Wetland	Avg. Flow Depth=0.14' Max Vel=0.04 fps Inflow=0.05 cfs 0.026 af n=0.800 L=600.0' S=0.0100 '/' Capacity=2.36 cfs Outflow=0.02 cfs 0.003 af
Pond 1A: Detention Basin 1A	Peak Elev=204.54' Storage=1,308 cf Inflow=2.34 cfs 0.162 af Outflow=1.54 cfs 0.158 af
Pond 1B: Detention Basin 1B	Peak Elev=204.13' Storage=4,492 cf Inflow=1.53 cfs 0.158 af Outflow=0.11 cfs 0.072 af
Pond 2P: Detention Basin 2	Peak Elev=205.18' Storage=3,713 cf Inflow=1.91 cfs 0.141 af Primary=0.11 cfs 0.081 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.081 af
Pond 3P: Detention Basin 3	Peak Elev=206.34' Storage=5,844 cf Inflow=2.85 cfs 0.198 af Primary=0.12 cfs 0.084 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.084 af
Pond 4A: Detention Basin 4A	Peak Elev=205.65' Storage=359 cf Inflow=1.96 cfs 0.137 af Primary=1.83 cfs 0.136 af Secondary=0.00 cfs 0.000 af Outflow=1.83 cfs 0.136 af
Pond 4B: Detention Basin 4B	Peak Elev=206.26' Storage=4,146 cf Inflow=2.03 cfs 0.152 af Primary=0.11 cfs 0.079 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.079 af
Pond 5P: Detention Basin 5	Peak Elev=207.11' Storage=12,045 cf Inflow=5.44 cfs 0.401 af Primary=0.18 cfs 0.147 af Secondary=0.03 cfs 0.006 af Outflow=0.21 cfs 0.152 af
Pond 6P: Detention Basin 6	Peak Elev=206.68' Storage=4,137 cf Inflow=2.37 cfs 0.160 af Primary=0.24 cfs 0.099 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.099 af
Pond 7P: Detention Basin 7	Peak Elev=206.27' Storage=870 cf Inflow=0.49 cfs 0.041 af Primary=0.05 cfs 0.027 af Secondary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.027 af
Link x1000: x1000	Inflow=5.63 cfs 1.812 af Primary=5.63 cfs 1.812 af

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Type III 24-hr 25-year Rainfall=5.69"

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Link x2000: x2000

Inflow=7.31 cfs 2.420 af
Primary=7.31 cfs 2.420 af

Link x3000: x3000

Inflow=11.91 cfs 3.702 af
Primary=11.91 cfs 3.702 af

Total Runoff Area = 20.790 ac Runoff Volume = 4.679 af Average Runoff Depth = 2.70"
89.17% Pervious = 18.538 ac 10.83% Impervious = 2.251 ac

4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 100: Area 100

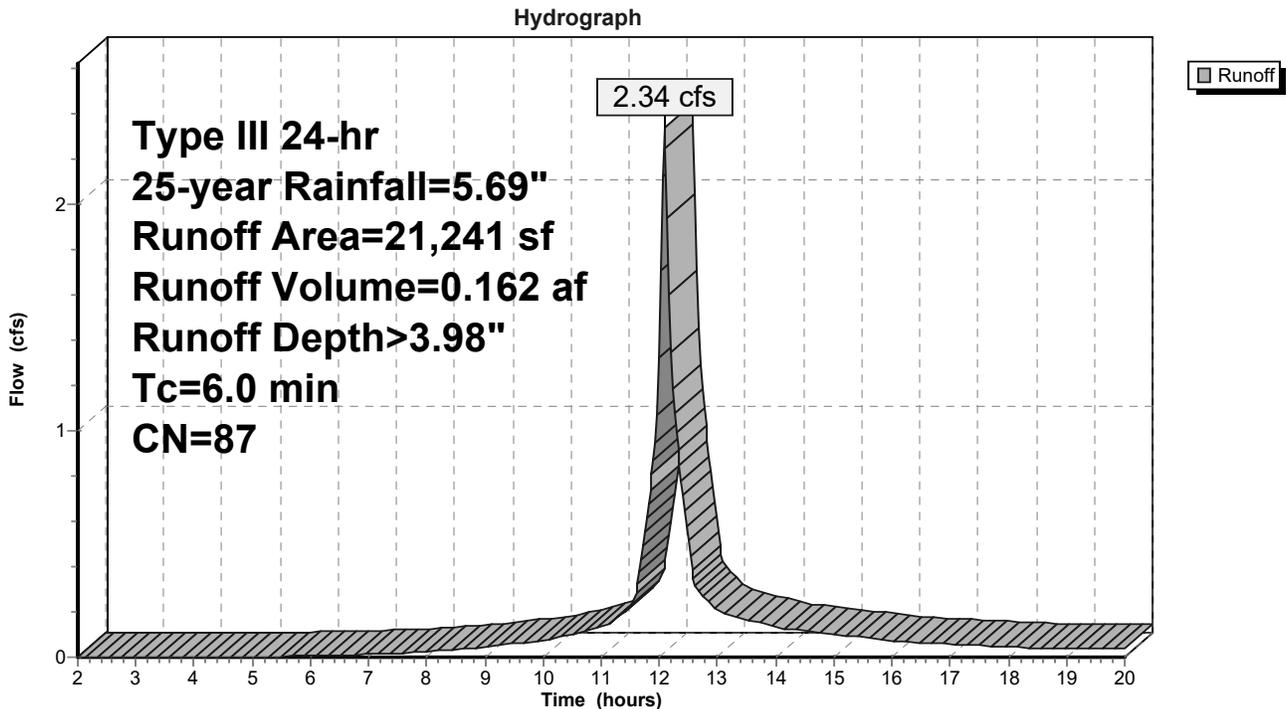
Runoff = 2.34 cfs @ 12.09 hrs, Volume= 0.162 af, Depth> 3.98"
 Routed to Pond 1A : Detention Basin 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
2,229	98	Paved parking, HSG C
12,881	80	>75% Grass cover, Good, HSG D
6,131	98	Paved parking, HSG D
21,241	87	Weighted Average
12,881		60.64% Pervious Area
8,360		39.36% Impervious Area

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

Subcatchment 100: Area 100



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 200: Area 200

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.051 af, Depth> 3.67"
 Routed to Pond 2P : Detention Basin 2

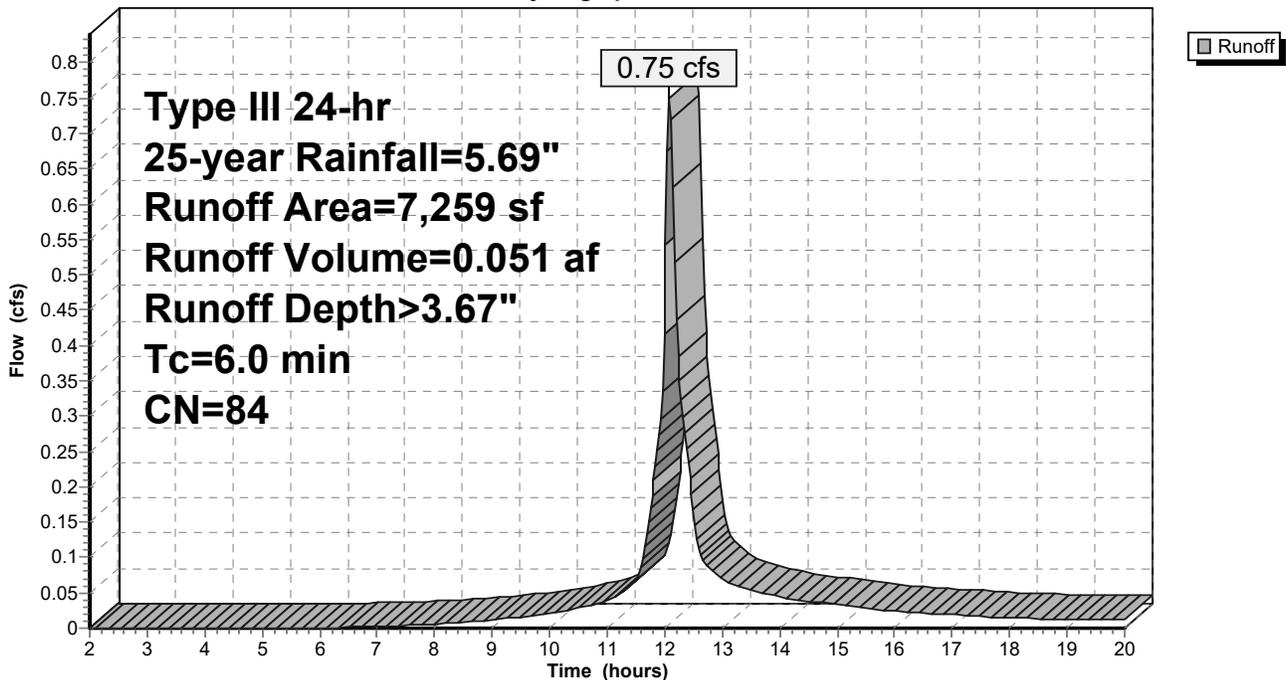
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
356	98	Paved parking, HSG D
1,201	98	Paved parking, HSG C
5,702	80	>75% Grass cover, Good, HSG D
7,259	84	Weighted Average
5,702		78.55% Pervious Area
1,557		21.45% Impervious Area

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

Subcatchment 200: Area 200

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 300: Area 300

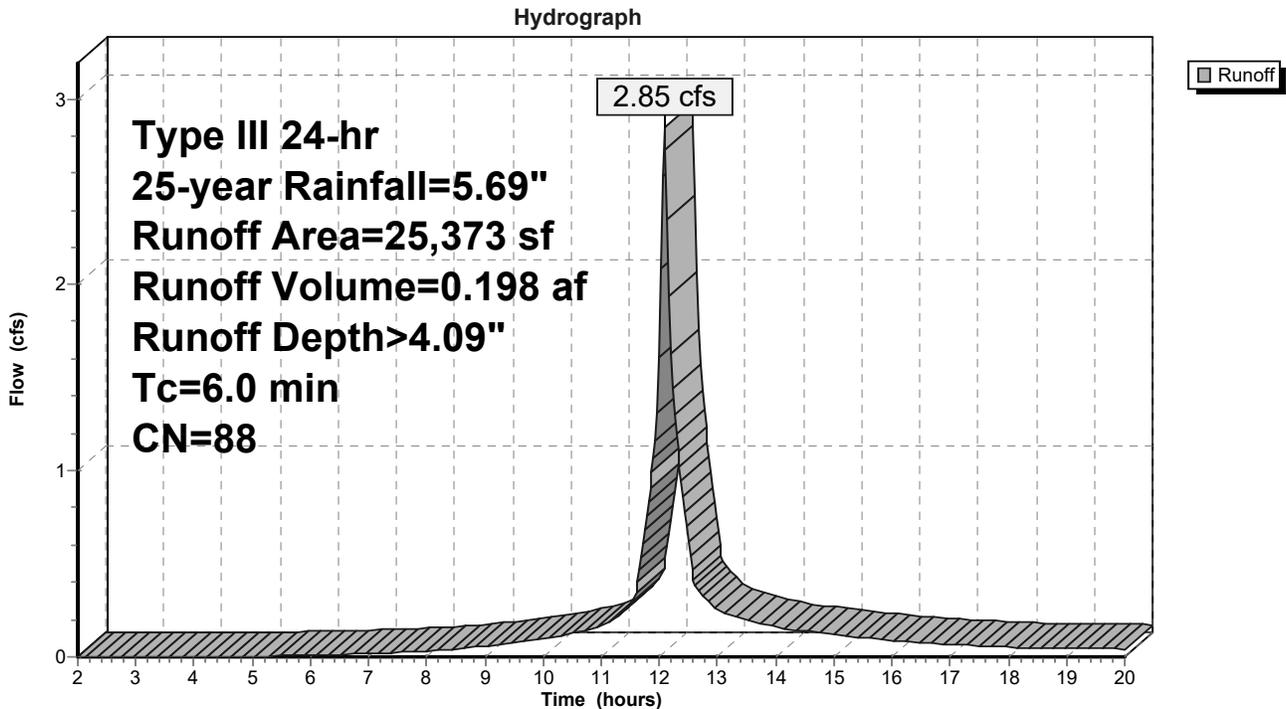
Runoff = 2.85 cfs @ 12.09 hrs, Volume= 0.198 af, Depth> 4.09"
 Routed to Pond 3P : Detention Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
6,584	77	Woods, Good, HSG D
10,134	98	Paved parking, HSG D
6,278	80	>75% Grass cover, Good, HSG D
425	70	Woods, Good, HSG C
1,952	98	Paved parking, HSG C
25,373	88	Weighted Average
13,287		52.37% Pervious Area
12,086		47.63% Impervious Area

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

Subcatchment 300: Area 300



Summary for Subcatchment 350: Area 350

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 2.37"
 Routed to Reach W3 : 3 Thru Wetland

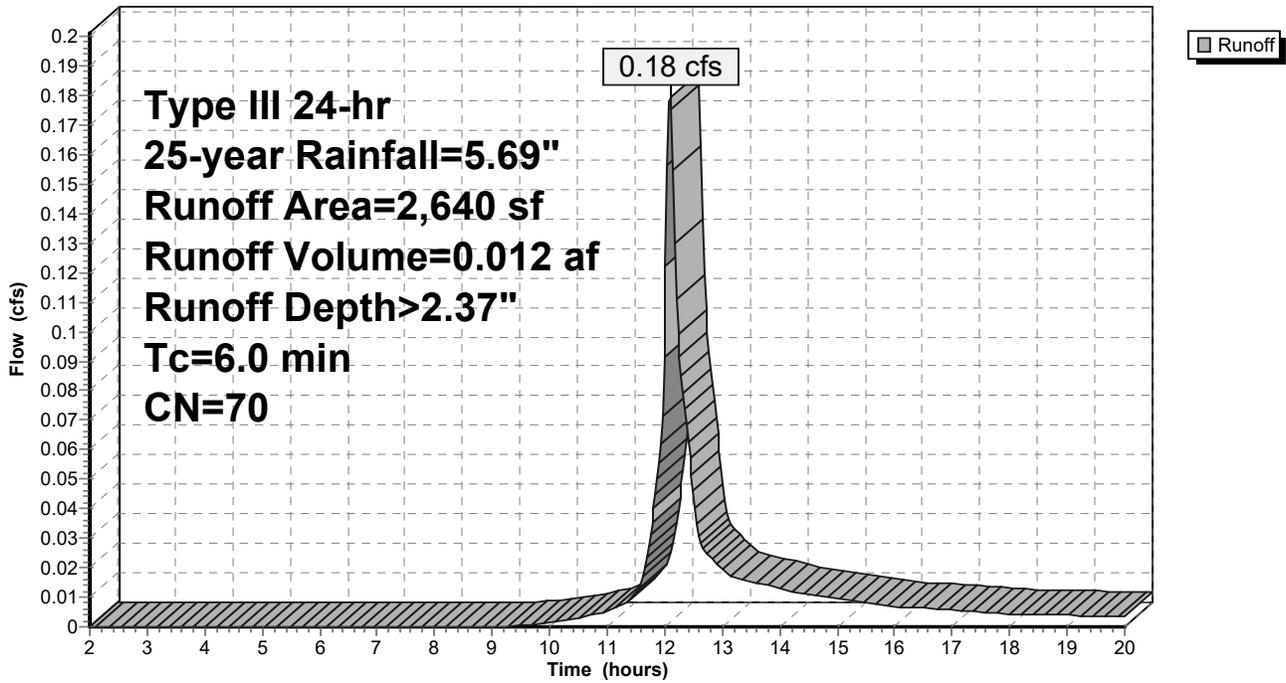
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
2,640	70	Woods, Good, HSG C
2,640		100.00% Pervious Area

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

Subcatchment 350: Area 350

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 400: Area 400

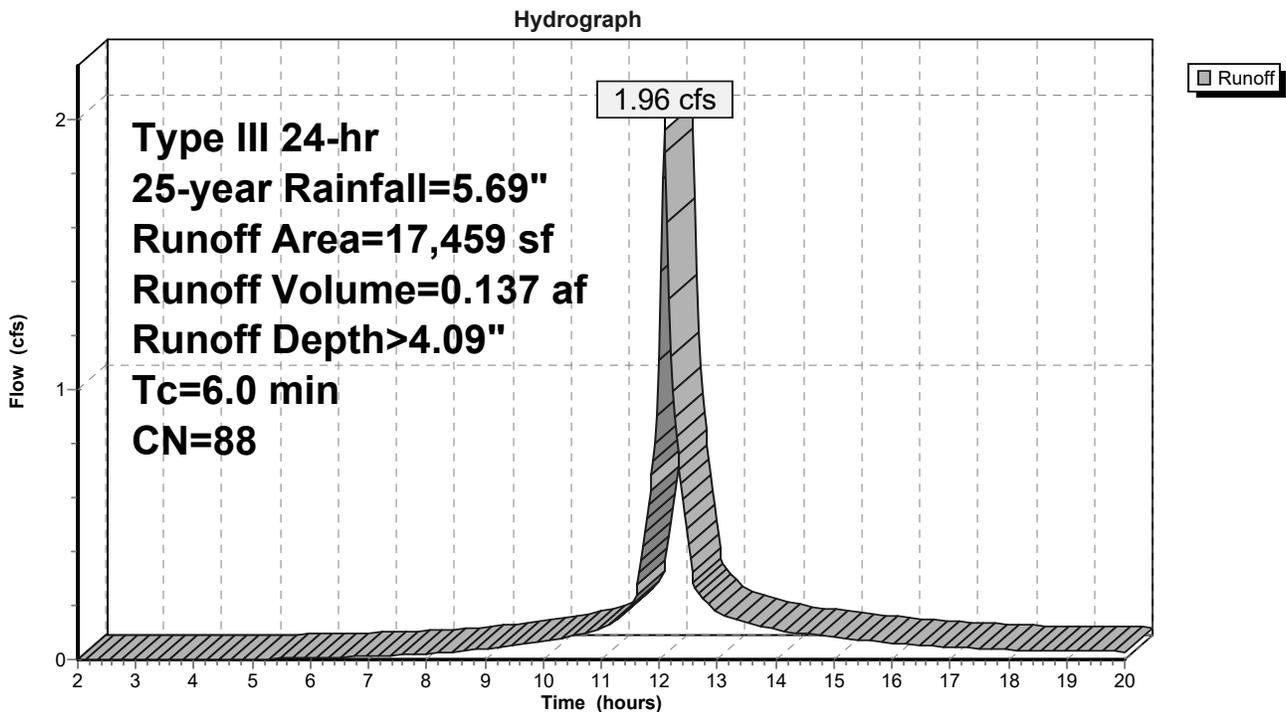
Runoff = 1.96 cfs @ 12.09 hrs, Volume= 0.137 af, Depth> 4.09"
 Routed to Pond 4A : Detention Basin 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
5,161	98	Paved parking, HSG D
1,112	80	>75% Grass cover, Good, HSG D
4,402	98	Paved parking, HSG C
6,784	74	>75% Grass cover, Good, HSG C
17,459	88	Weighted Average
7,896		45.23% Pervious Area
9,563		54.77% Impervious Area

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

Subcatchment 400: Area 400



Summary for Subcatchment 450: Area 450

Runoff = 0.24 cfs @ 12.10 hrs, Volume= 0.017 af, Depth> 1.49"
 Routed to Pond 4B : Detention Basin 4B

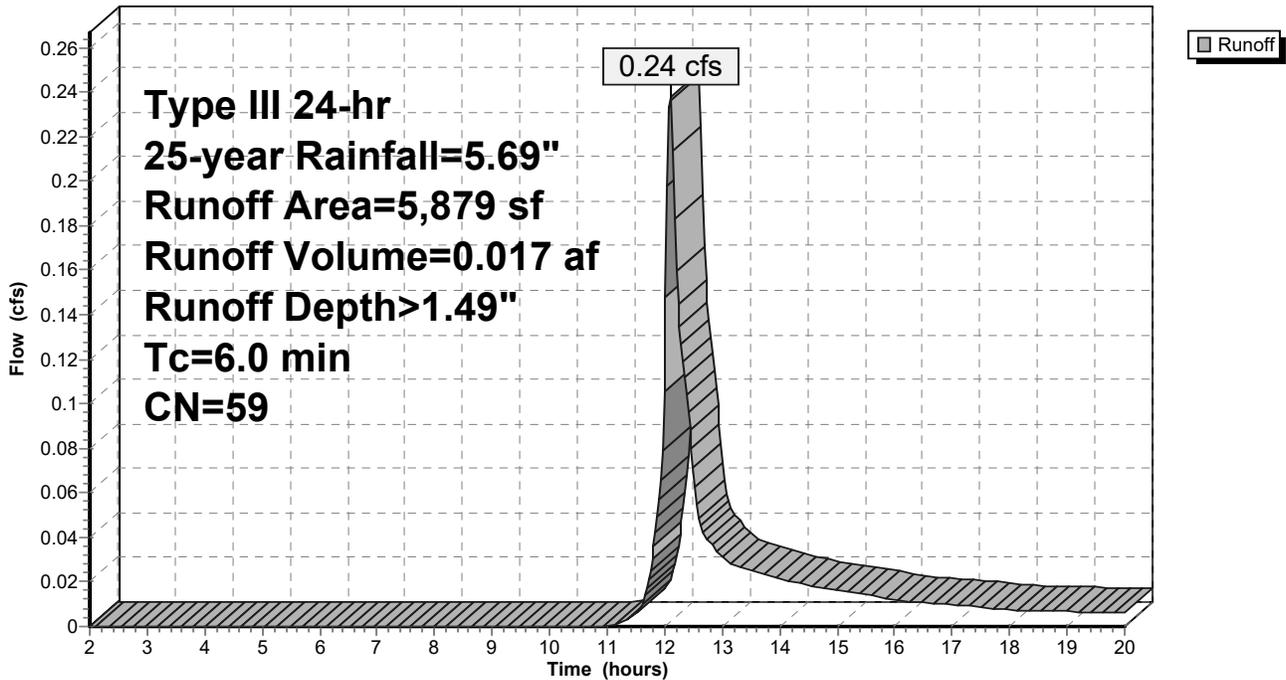
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
2,450	39	>75% Grass cover, Good, HSG A
3,429	74	>75% Grass cover, Good, HSG C
5,879	59	Weighted Average
5,879		100.00% Pervious Area

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

Subcatchment 450: Area 450

Hydrograph



Summary for Subcatchment 500: Area 500

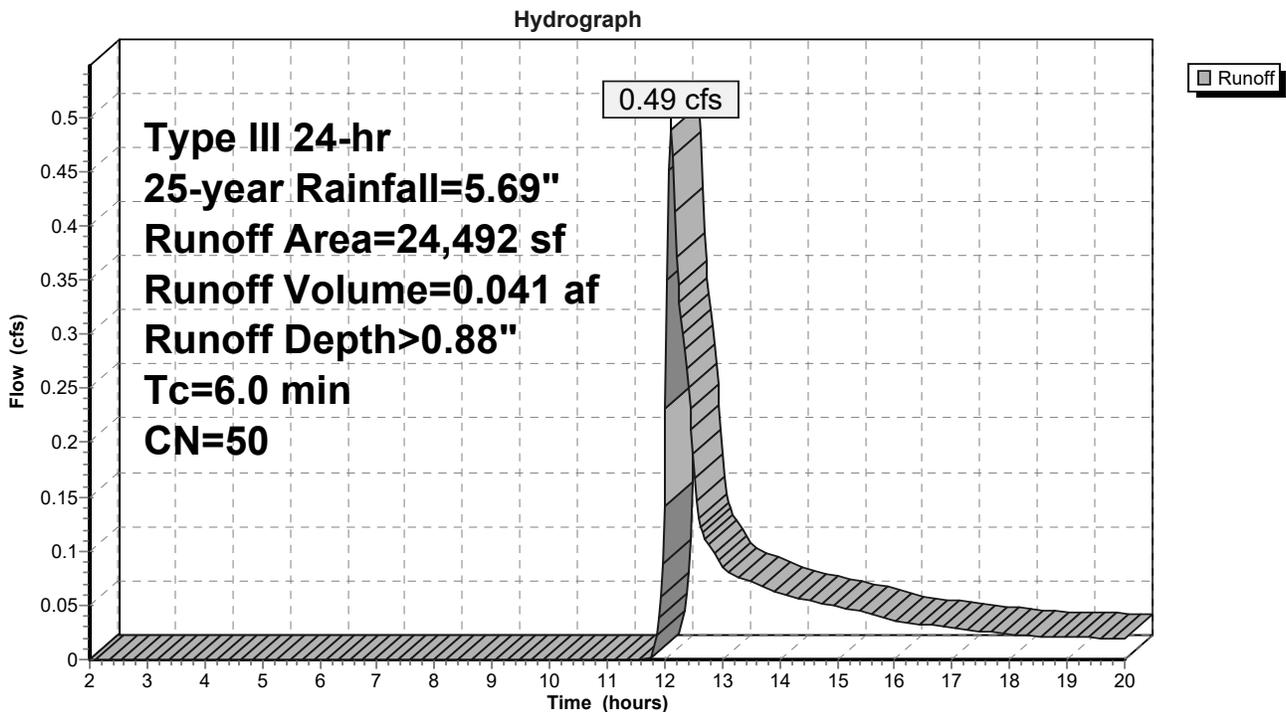
Runoff = 0.49 cfs @ 12.11 hrs, Volume= 0.041 af, Depth> 0.88"
 Routed to Pond 7P : Detention Basin 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
5,173	98	Paved parking, HSG A
3,184	30	Woods, Good, HSG A
16,049	39	>75% Grass cover, Good, HSG A
86	77	Woods, Good, HSG D
24,492	50	Weighted Average
19,319		78.88% Pervious Area
5,173		21.12% Impervious Area

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

Subcatchment 500: Area 500



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 550: Area 550

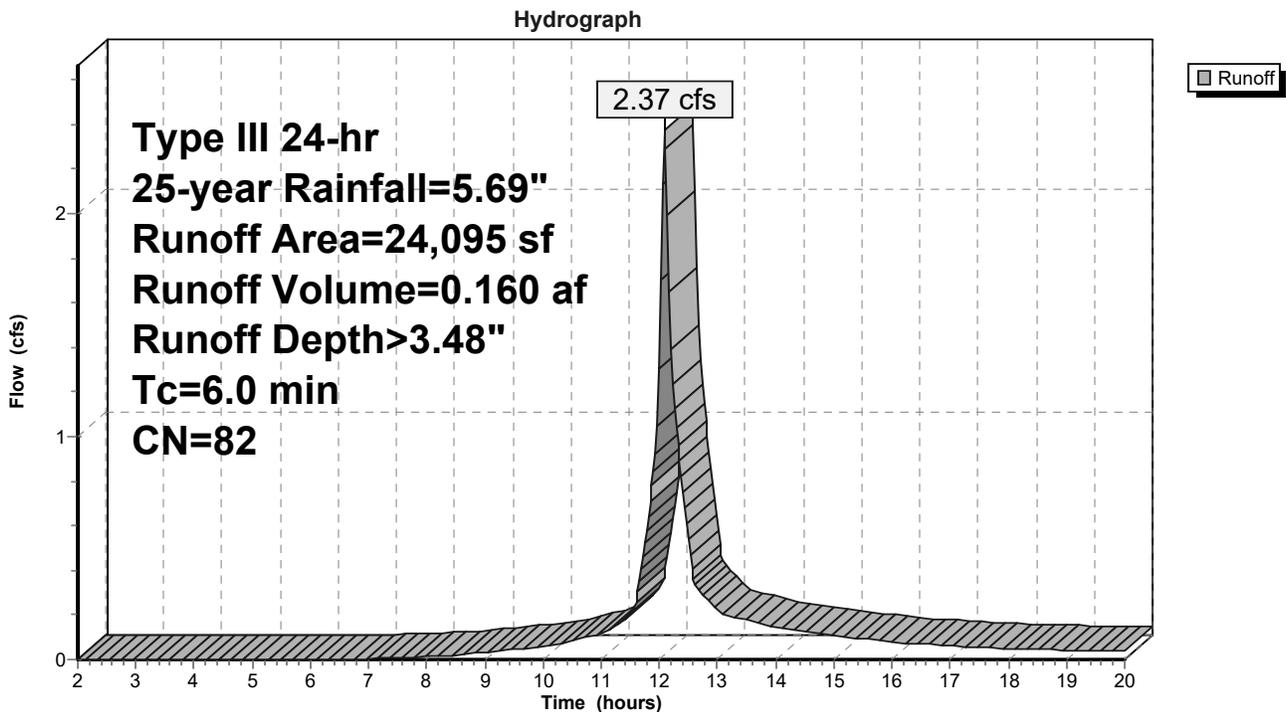
Runoff = 2.37 cfs @ 12.09 hrs, Volume= 0.160 af, Depth> 3.48"
 Routed to Pond 6P : Detention Basin 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
5,754	98	Paved parking, HSG A
5,395	39	>75% Grass cover, Good, HSG A
10,082	98	Paved parking, HSG C
2,864	74	>75% Grass cover, Good, HSG C
24,095	82	Weighted Average
8,259		34.28% Pervious Area
15,836		65.72% Impervious Area

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

Subcatchment 550: Area 550



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Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 600: Area 600

Runoff = 5.44 cfs @ 12.08 hrs, Volume= 0.401 af, Depth> 4.74"
 Routed to Pond 5P : Detention Basin 5

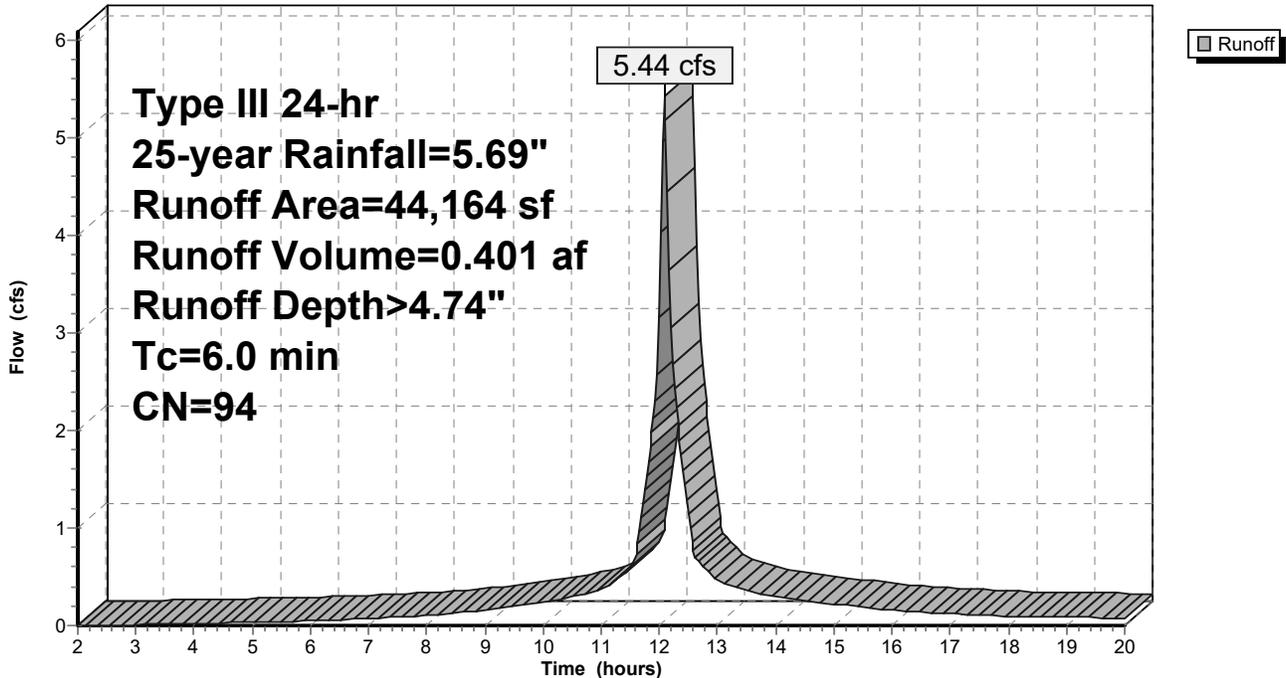
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
18,352	98	Roofs, HSG A
8,333	98	Roofs, HSG C
9,333	98	Paved parking, HSG C
8,146	74	>75% Grass cover, Good, HSG C
44,164	94	Weighted Average
8,146		18.44% Pervious Area
36,018		81.56% Impervious Area

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

Subcatchment 600: Area 600

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 700: Area 700

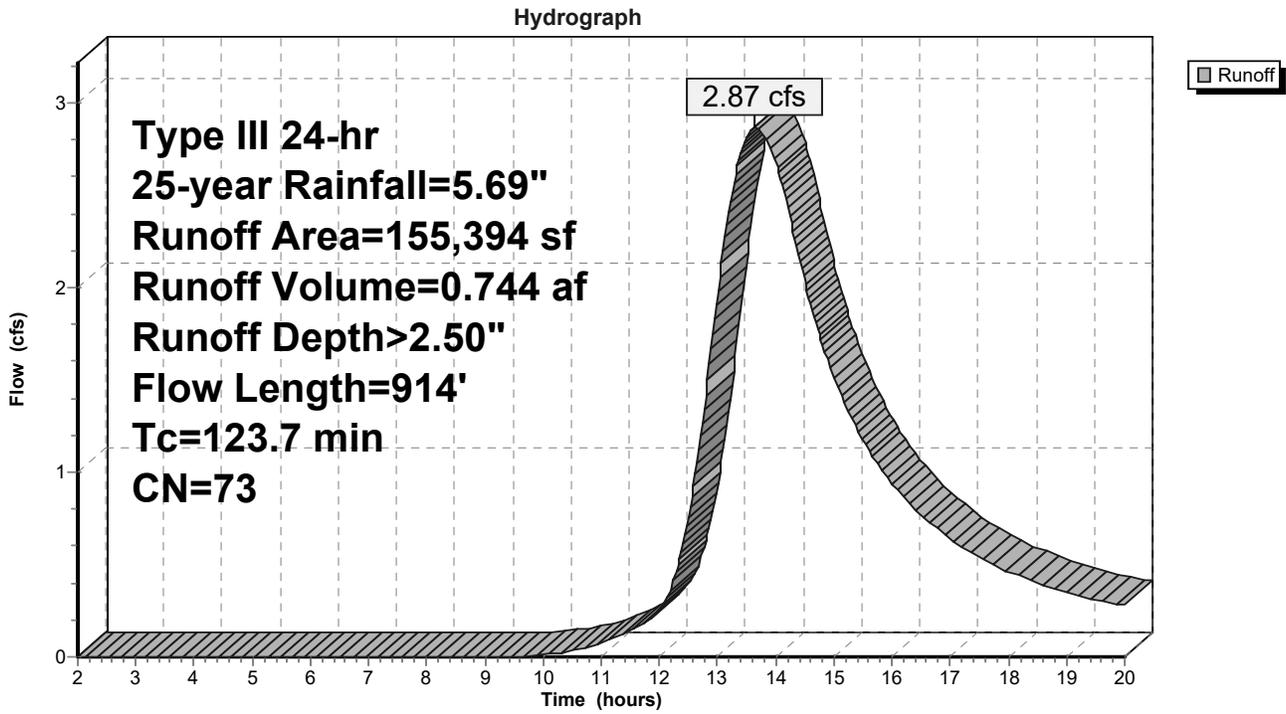
Runoff = 2.87 cfs @ 13.62 hrs, Volume= 0.744 af, Depth> 2.50"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
10,587	30	Woods, Good, HSG A
25,908	70	Woods, Good, HSG C
118,899	77	Woods, Good, HSG D
155,394	73	Weighted Average
155,394		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
10.0	150	0.0100	0.25		Shallow Concentrated Flow, Next 150' Forest w/Heavy Litter Kv= 2.5 fps
3.3	87	0.0300	0.43		Shallow Concentrated Flow, Next 87' Forest w/Heavy Litter Kv= 2.5 fps
24.7	117	0.0010	0.08		Shallow Concentrated Flow, Next 117' Forest w/Heavy Litter Kv= 2.5 fps
0.8	25	0.0400	0.50		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
10.9	225	0.0190	0.34		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
44.8	260	0.0015	0.10		Shallow Concentrated Flow, Last 260' Forest w/Heavy Litter Kv= 2.5 fps
123.7	914	Total			

Subcatchment 700: Area 700



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 800: Area 800

Runoff = 1.59 cfs @ 13.90 hrs, Volume= 0.453 af, Depth> 2.83"
 Routed to Link x1000 : x1000

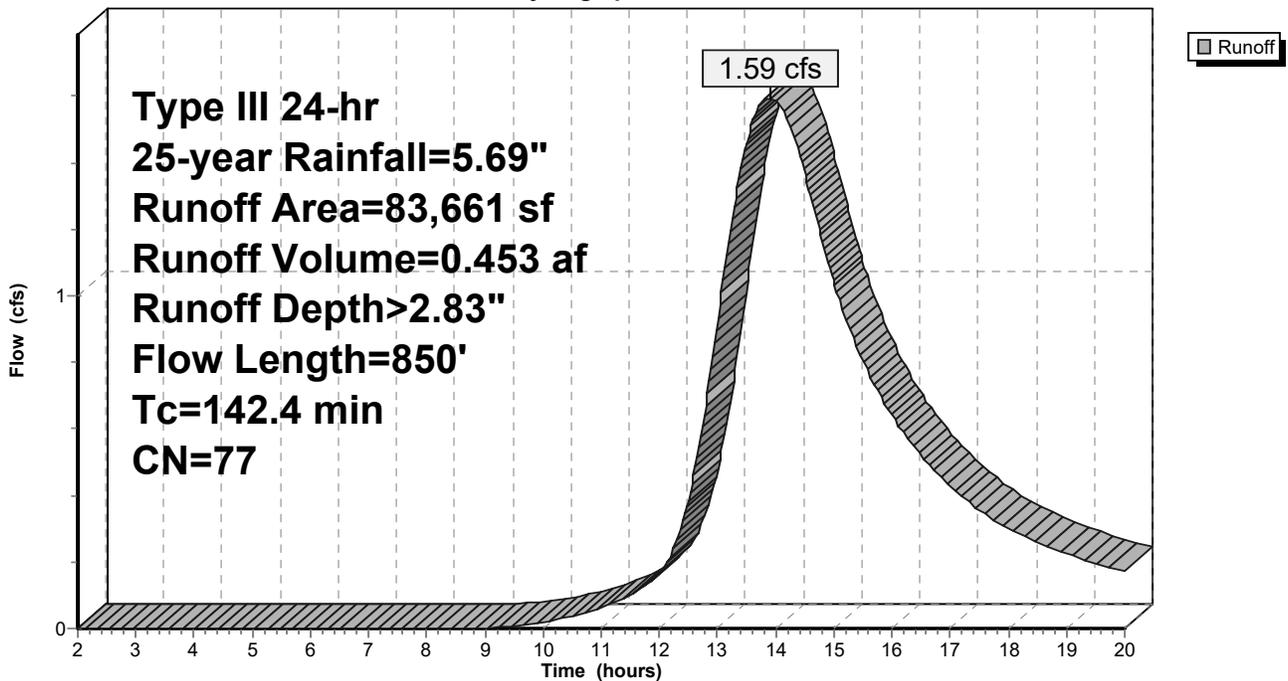
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
83,661	77	Woods, Good, HSG D
83,661		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
47.8	470	0.0043	0.16		Shallow Concentrated Flow, Next 470' Forest w/Heavy Litter Kv= 2.5 fps
16.2	180	0.0055	0.19		Shallow Concentrated Flow, Next 180' Forest w/Heavy Litter Kv= 2.5 fps
2.4	50	0.0200	0.35		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
2.6	100	0.0670	0.65		Shallow Concentrated Flow, Last 100' Forest w/Heavy Litter Kv= 2.5 fps
142.4	850	Total			

Subcatchment 800: Area 800

Hydrograph



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Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 900: Area 900

Runoff = 0.87 cfs @ 12.56 hrs, Volume= 0.117 af, Depth> 2.96"
 Routed to Link x1000 : x1000

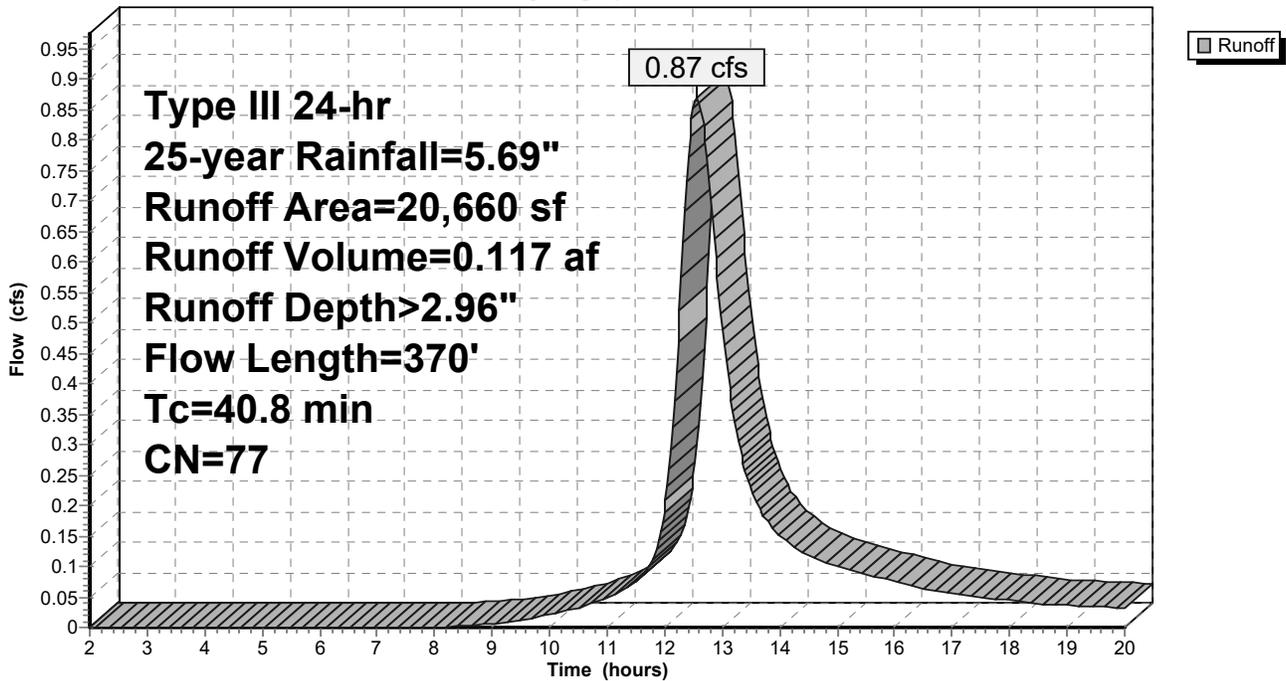
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
20,660	77	Woods, Good, HSG D
20,660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0670	0.06		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
27.1	320	0.0062	0.20		Shallow Concentrated Flow, Last 320' Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 900: Area 900

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 1000: Area 1000

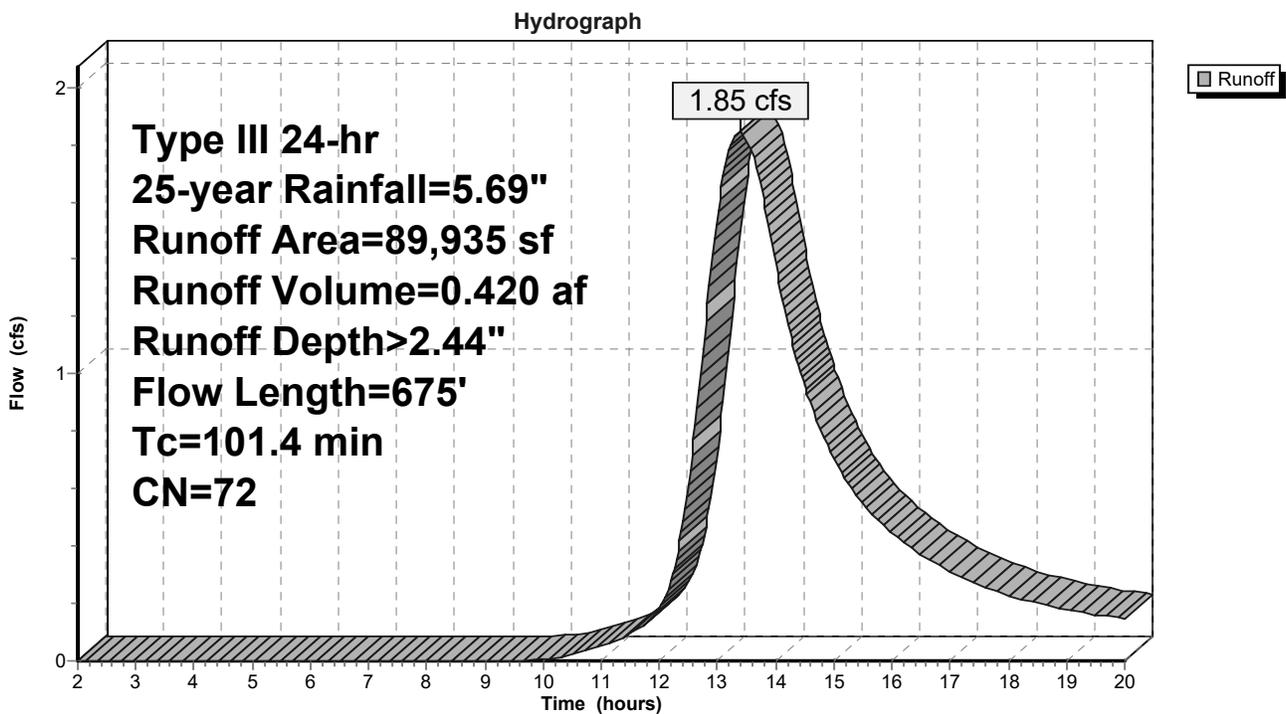
Runoff = 1.85 cfs @ 13.40 hrs, Volume= 0.420 af, Depth> 2.44"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
58,047	70	Woods, Good, HSG C
31,888	77	Woods, Good, HSG D
89,935	72	Weighted Average
89,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.6	50	0.0170	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
8.8	125	0.0090	0.24		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.5	20	0.0670	0.65		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
14.2	165	0.0060	0.19		Shallow Concentrated Flow, Next 165' Forest w/Heavy Litter Kv= 2.5 fps
1.6	65	0.0770	0.69		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
52.7	250	0.0010	0.08		Shallow Concentrated Flow, Last 250' Forest w/Heavy Litter Kv= 2.5 fps
101.4	675	Total			

Subcatchment 1000: Area 1000



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Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 1100: Area 1100

Runoff = 0.53 cfs @ 12.39 hrs, Volume= 0.059 af, Depth> 2.35"
 Routed to Link x3000 : x3000

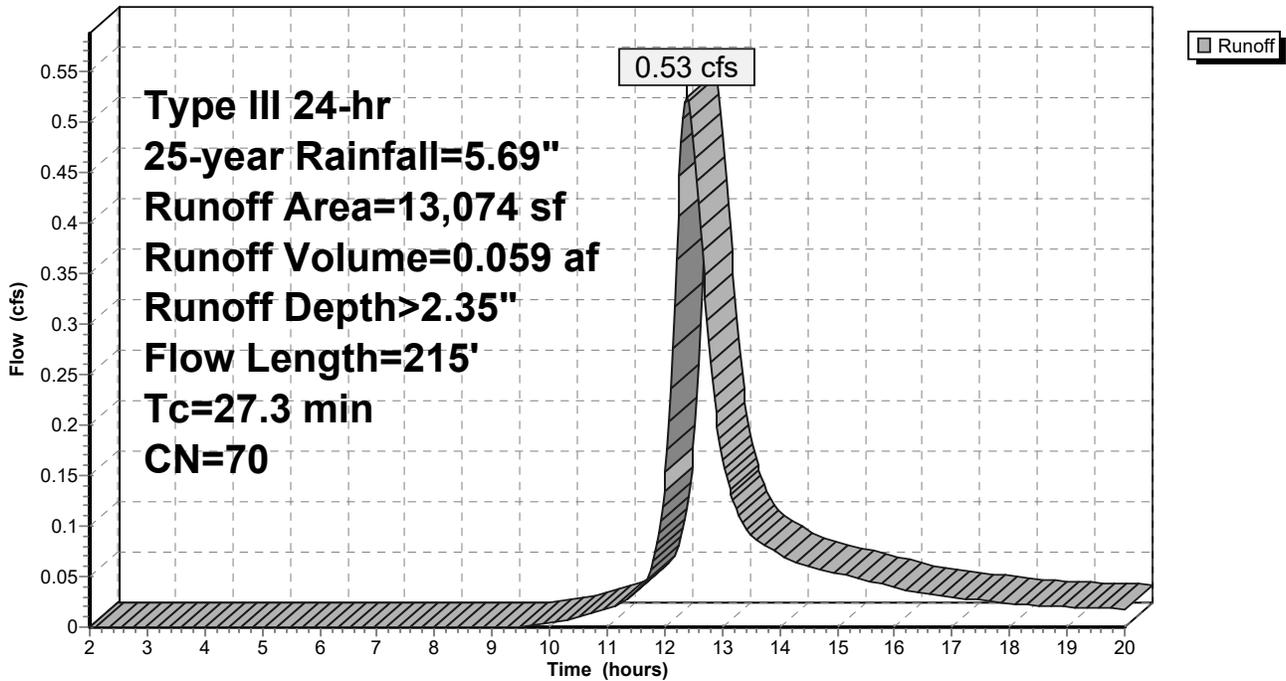
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
13,074	70	Woods, Good, HSG C
13,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1250	0.08		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.1	105	0.0297	0.43		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
12.6	60	0.0010	0.08		Shallow Concentrated Flow, Last 60' Forest w/Heavy Litter Kv= 2.5 fps
27.3	215	Total			

Subcatchment 1100: Area 1100

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 1200: Area 1200

Runoff = 2.97 cfs @ 13.87 hrs, Volume= 0.829 af, Depth> 2.66"
 Routed to Link x3000 : x3000

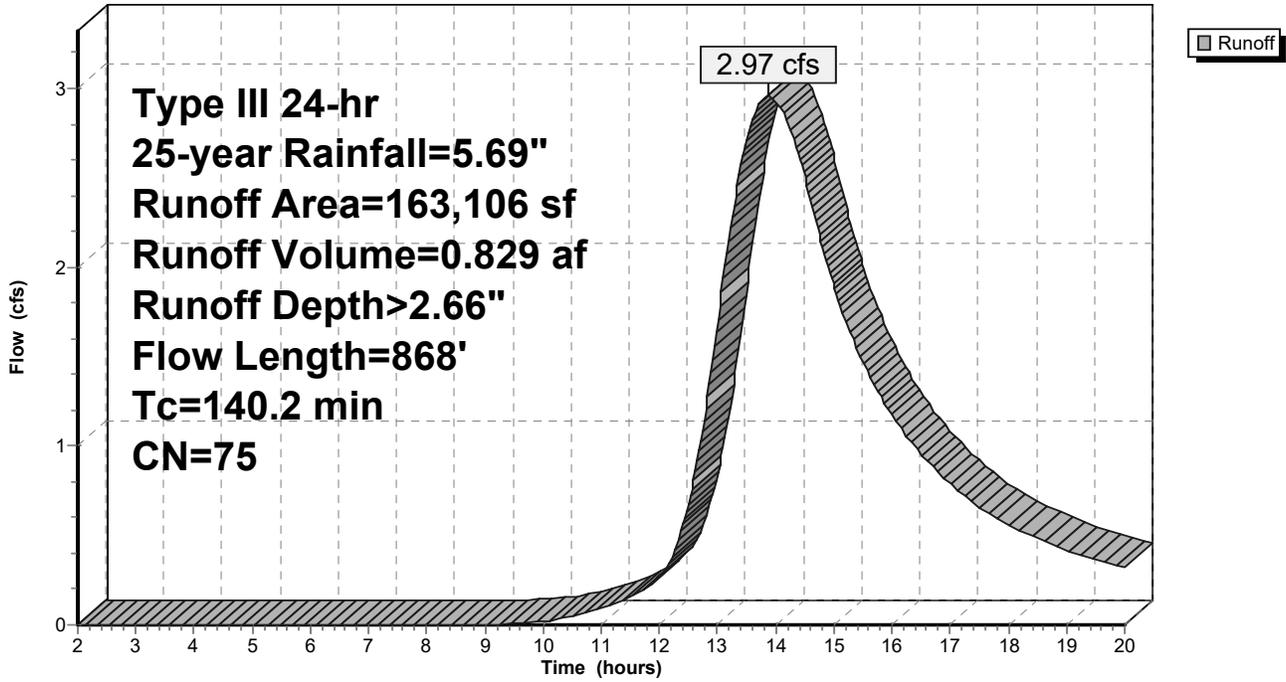
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
35,065	70	Woods, Good, HSG C
128,041	77	Woods, Good, HSG D
163,106	75	Weighted Average
163,106		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	20	0.2000	0.08		Sheet Flow, First 20' Woods: Dense underbrush n= 0.800 P2= 3.01"
31.4	30	0.0030	0.02		Sheet Flow, Next 30' Woods: Dense underbrush n= 0.800 P2= 3.01"
41.4	340	0.0030	0.14		Shallow Concentrated Flow, Next 340' Forest w/Heavy Litter Kv= 2.5 fps
2.1	95	0.0900	0.75		Shallow Concentrated Flow, Next 95' Forest w/Heavy Litter Kv= 2.5 fps
7.8	130	0.0125	0.28		Shallow Concentrated Flow, Next 130' Forest w/Heavy Litter Kv= 2.5 fps
53.3	253	0.0010	0.08		Shallow Concentrated Flow, Last 253' Forest w/Heavy Litter Kv= 2.5 fps
140.2	868	Total			

Subcatchment 1200: Area 1200

Hydrograph



Summary for Subcatchment 1300: Area 1300

Runoff = 0.71 cfs @ 13.83 hrs, Volume= 0.196 af, Depth> 2.48"
 Routed to Link x2000 : x2000

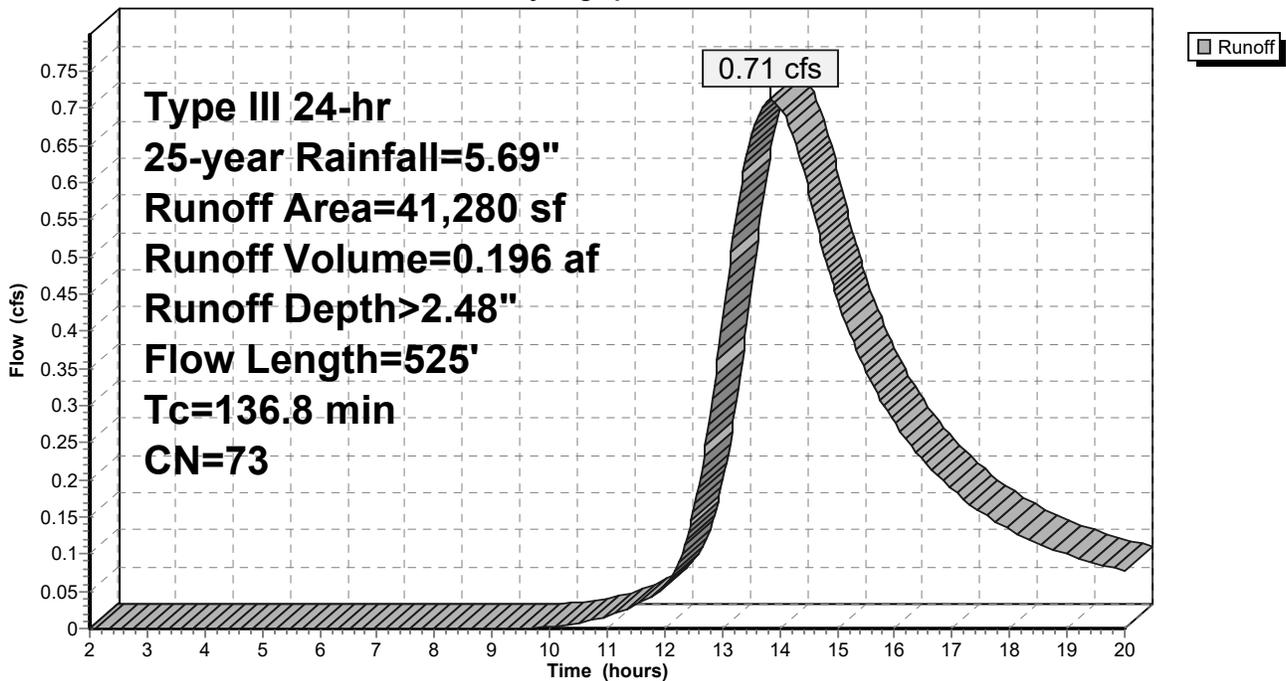
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
25,740	70	Woods, Good, HSG C
15,540	77	Woods, Good, HSG D
41,280	73	Weighted Average
41,280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
2.5	60	0.0250	0.40		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
1.5	70	0.1000	0.79		Shallow Concentrated Flow, Next 70' Forest w/Heavy Litter Kv= 2.5 fps
59.4	345	0.0015	0.10		Shallow Concentrated Flow, Last 345' Forest w/Heavy Litter Kv= 2.5 fps
136.8	525	Total			

Subcatchment 1300: Area 1300

Hydrograph



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Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 1400: Area 1400

Runoff = 1.38 cfs @ 12.78 hrs, Volume= 0.224 af, Depth> 2.67"
 Routed to Link x2000 : x2000

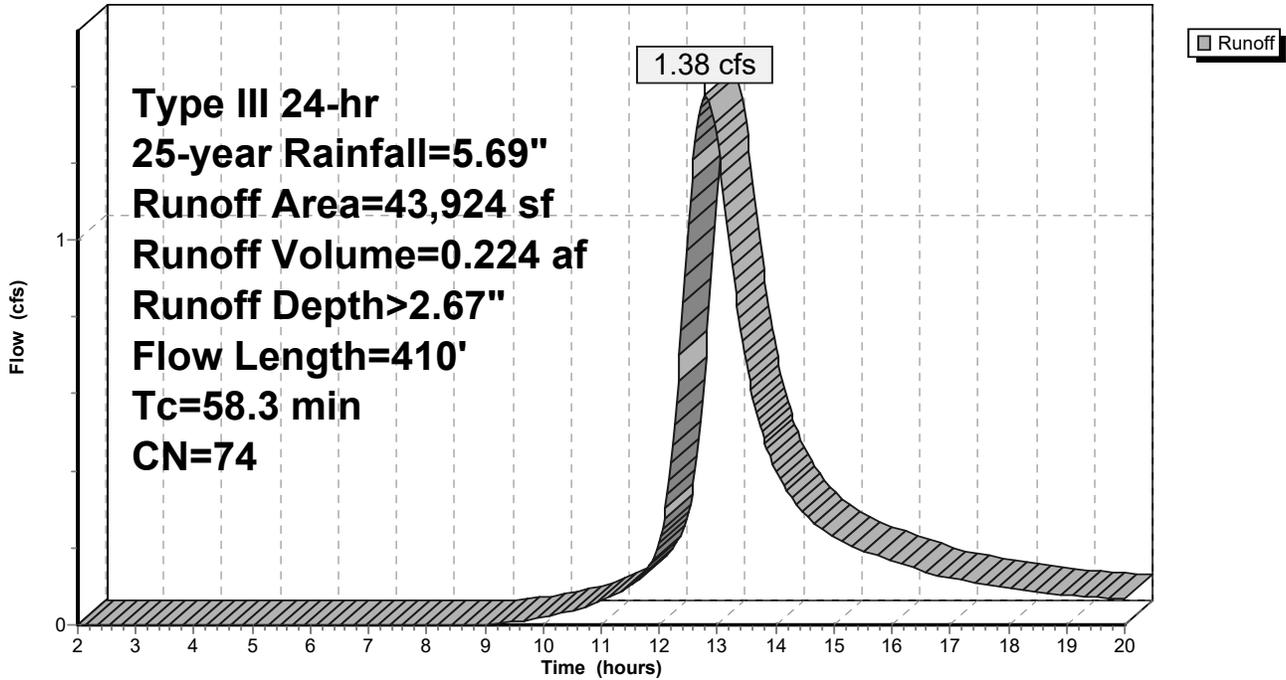
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
19,885	70	Woods, Good, HSG C
24,039	77	Woods, Good, HSG D
43,924	74	Weighted Average
43,924		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
9.3	125	0.0080	0.22		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.8	35	0.0830	0.72		Shallow Concentrated Flow, Next 35' Forest w/Heavy Litter Kv= 2.5 fps
4.4	115	0.0300	0.43		Shallow Concentrated Flow, Next 115' Forest w/Heavy Litter Kv= 2.5 fps
14.6	85	0.0015	0.10		Shallow Concentrated Flow, Last 85' Forest w/Heavy Litter Kv= 2.5 fps
58.3	410	Total			

Subcatchment 1400: Area 1400

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 1500: Area 1500

Runoff = 0.34 cfs @ 13.47 hrs, Volume= 0.083 af, Depth> 2.88"
 Routed to Link x2000 : x2000

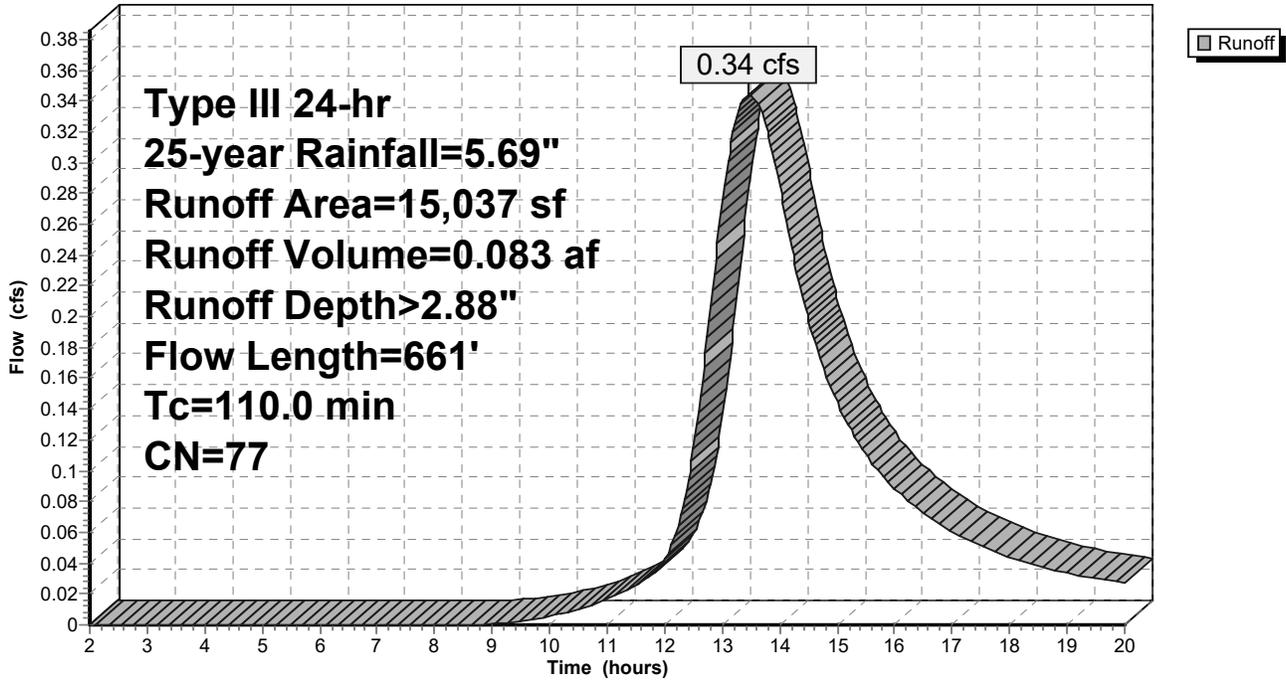
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
15,037	77	Woods, Good, HSG D
15,037		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0010	0.08		Shallow Concentrated Flow, First 50' Forest w/Heavy Litter Kv= 2.5 fps
19.0	90	0.0010	0.08		Shallow Concentrated Flow, Next 90' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
0.3	22	0.3330	1.44		Shallow Concentrated Flow, Next 22' Forest w/Heavy Litter Kv= 2.5 fps
0.5	22	0.0900	0.75		Shallow Concentrated Flow, Next 22' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
110.0	661	Total			

Subcatchment 1500: Area 1500

Hydrograph



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Summary for Subcatchment 1600: Area 1600

Runoff = 0.16 cfs @ 14.16 hrs, Volume= 0.049 af, Depth> 1.17"
 Routed to Link x2000 : x2000

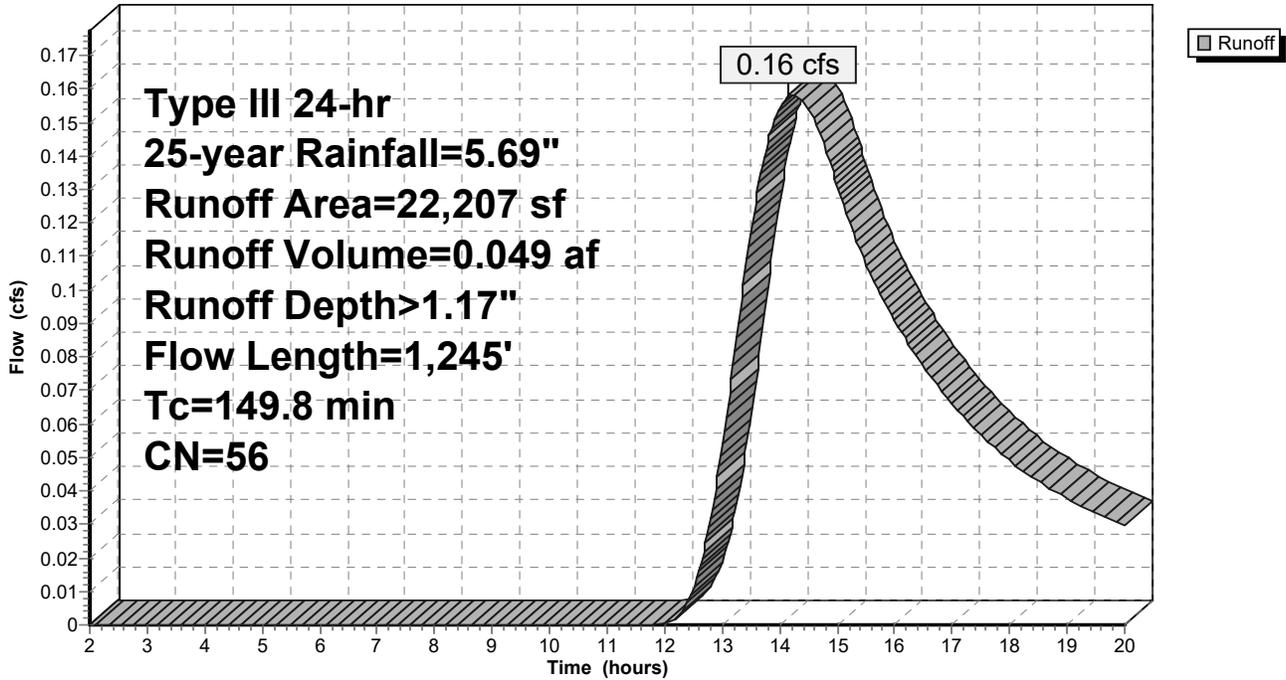
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
8,476	30	Woods, Good, HSG A
8,994	70	Woods, Good, HSG C
3,200	74	>75% Grass cover, Good, HSG C
715	77	Woods, Good, HSG D
822	80	>75% Grass cover, Good, HSG D
22,207	56	Weighted Average
22,207		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
3.3	50	0.0100	0.25		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
0.9	25	0.0370	0.48		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
23.3	350	0.0100	0.25		Shallow Concentrated Flow, Next 350' Forest w/Heavy Litter Kv= 2.5 fps
3.1	60	0.0167	0.32		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
6.9	170	0.0270	0.41		Shallow Concentrated Flow, Next 170' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
2.5	45	0.0140	0.30		Shallow Concentrated Flow, Next 45' Forest w/Heavy Litter Kv= 2.5 fps
0.9	18	0.0167	0.32		Shallow Concentrated Flow, Next 18' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
149.8	1,245	Total			

Subcatchment 1600: Area 1600

Hydrograph



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Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 1700: Area 1700

Runoff = 0.01 cfs @ 17.56 hrs, Volume= 0.003 af, Depth> 0.06"
 Routed to Link x1000 : x1000

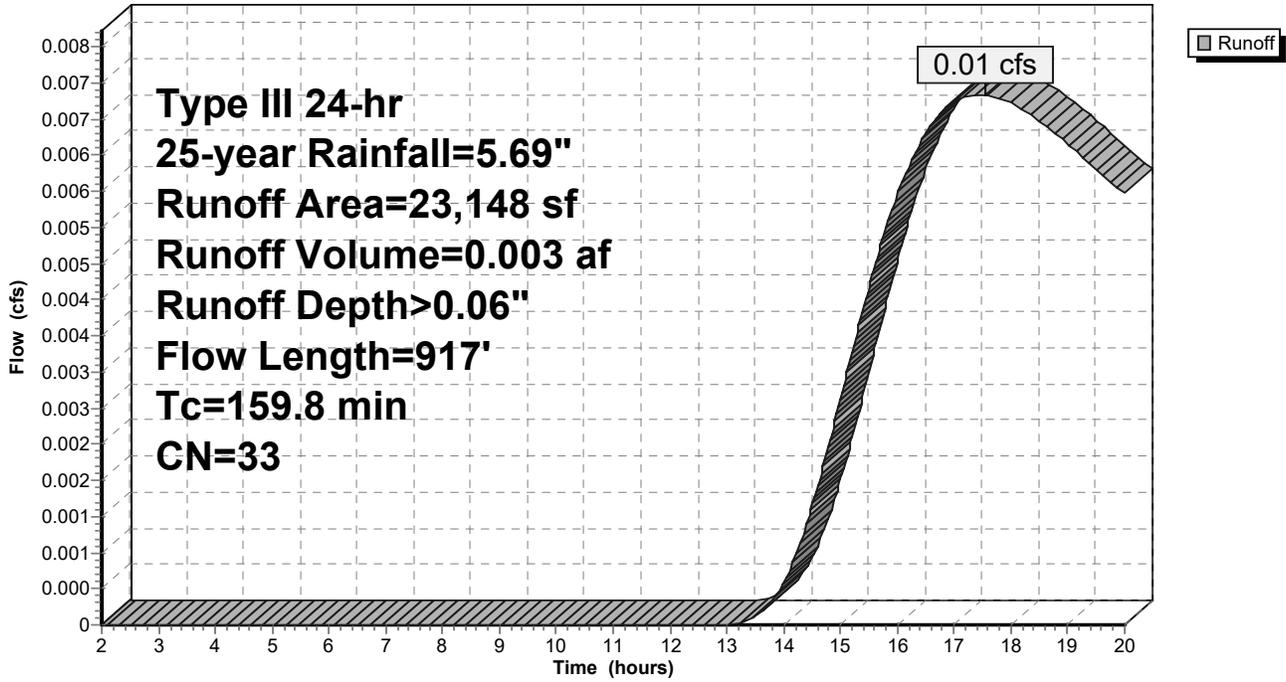
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
21,327	30	Woods, Good, HSG A
1,821	70	Woods, Good, HSG C
23,148	33	Weighted Average
23,148		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	50	0.0050	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
20.0	212	0.0050	0.18		Shallow Concentrated Flow, Next 212' Forest w/Heavy Litter Kv= 2.5 fps
0.1	40	0.0250	9.40	16.61	Pipe Channel, Next 40' of pipe 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
10.4	110	0.0050	0.18		Shallow Concentrated Flow, Next 110' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
159.8	917	Total			

Subcatchment 1700: Area 1700

Hydrograph



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Type III 24-hr 25-year Rainfall=5.69"

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Summary for Subcatchment 1800: Area 1800

Runoff = 0.84 cfs @ 13.82 hrs, Volume= 0.233 af, Depth> 2.32"
 Routed to Link x1000 : x1000

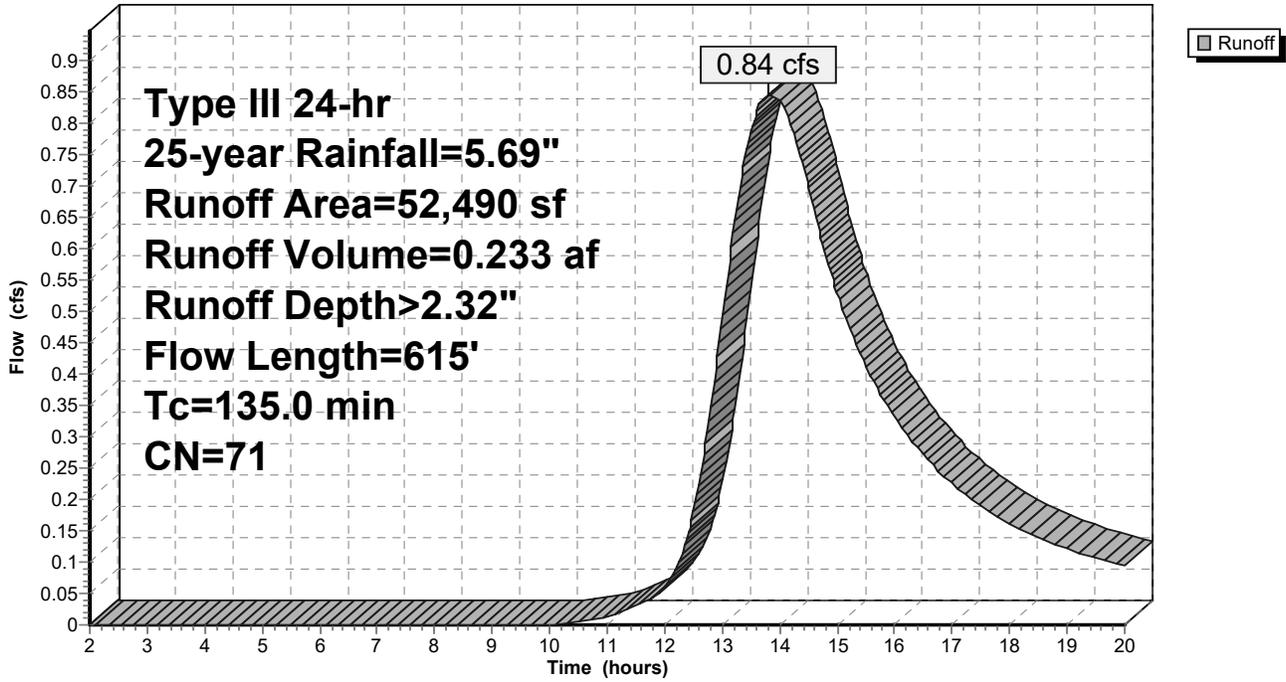
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
44,782	70	Woods, Good, HSG C
521	74	>75% Grass cover, Good, HSG C
6,038	77	Woods, Good, HSG D
740	80	>75% Grass cover, Good, HSG D
409	98	Paved parking, HSG D
52,490	71	Weighted Average
52,081		99.22% Pervious Area
409		0.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	50	0.0050	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
5.7	60	0.0050	0.18		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
135.0	615	Total			

Subcatchment 1800: Area 1800

Hydrograph



Summary for Subcatchment DISP: Dispensary Building

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.040 af, Depth> 5.19"
 Routed to Pond 2P : Detention Basin 2

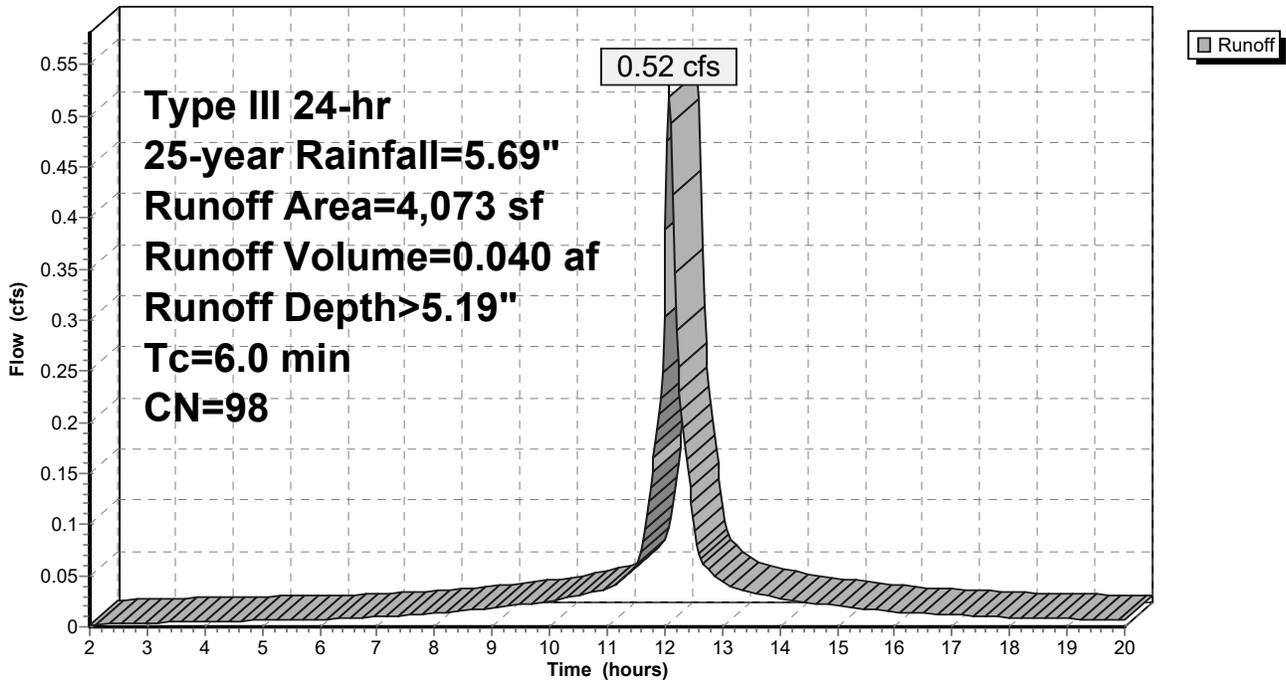
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
4,073	98	Roofs, HSG D
4,073		100.00% Impervious Area

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

Subcatchment DISP: Dispensary Building

Hydrograph



Summary for Subcatchment LAB: Lab Bldg

Runoff = 0.64 cfs @ 12.08 hrs, Volume= 0.050 af, Depth> 5.19"
 Routed to Pond 2P : Detention Basin 2

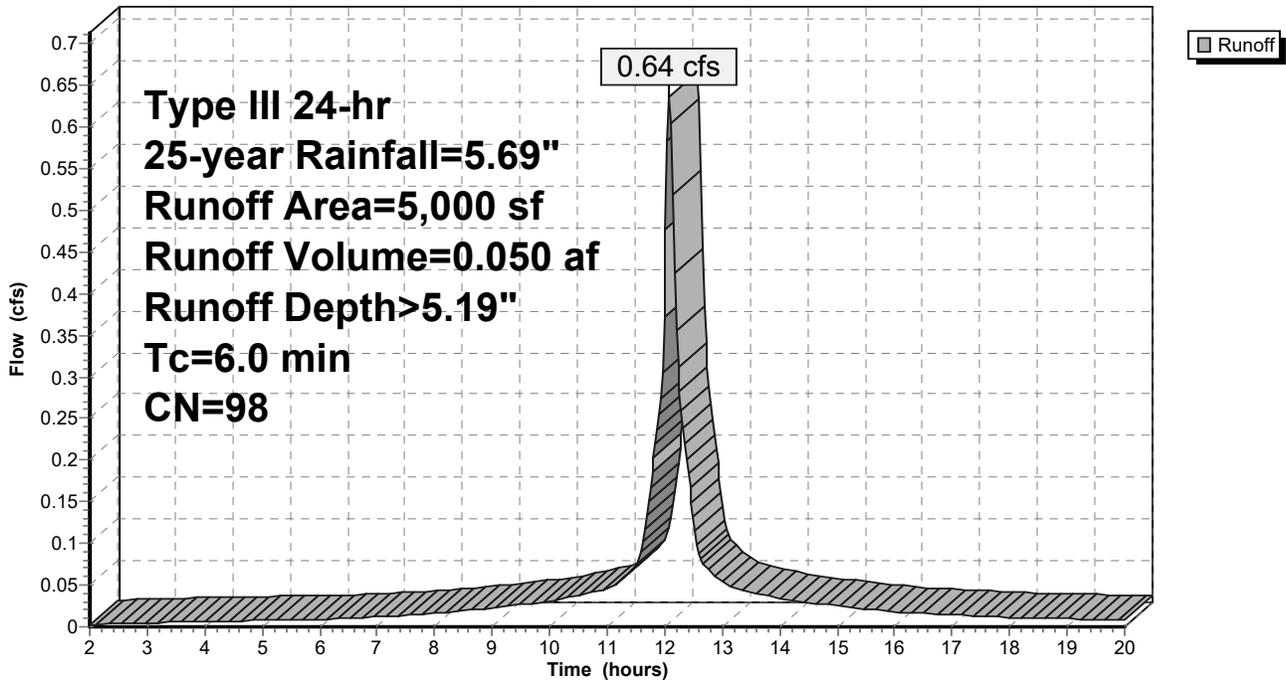
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-year Rainfall=5.69"

Area (sf)	CN	Description
5,000	98	Roofs, HSG C
5,000		100.00% Impervious Area

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

Subcatchment LAB: Lab Bldg

Hydrograph



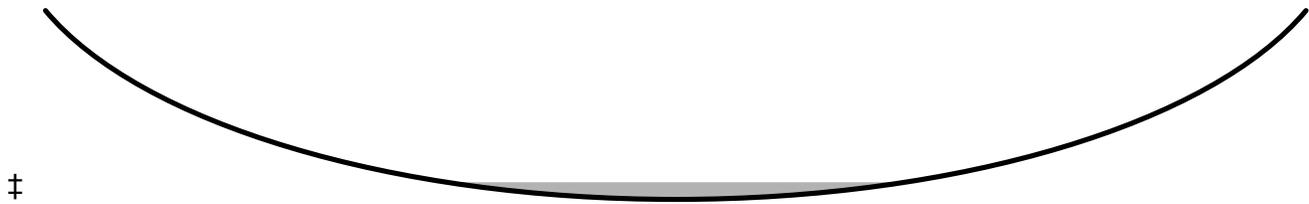
Summary for Reach 1k-2k: x1000 to x2000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 2.03" for 25-year event
Inflow = 5.63 cfs @ 13.75 hrs, Volume= 1.812 af
Outflow = 5.62 cfs @ 13.83 hrs, Volume= 1.800 af, Atten= 0%, Lag= 4.6 min
Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.44 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 0.77 fps, Avg. Travel Time= 5.6 min

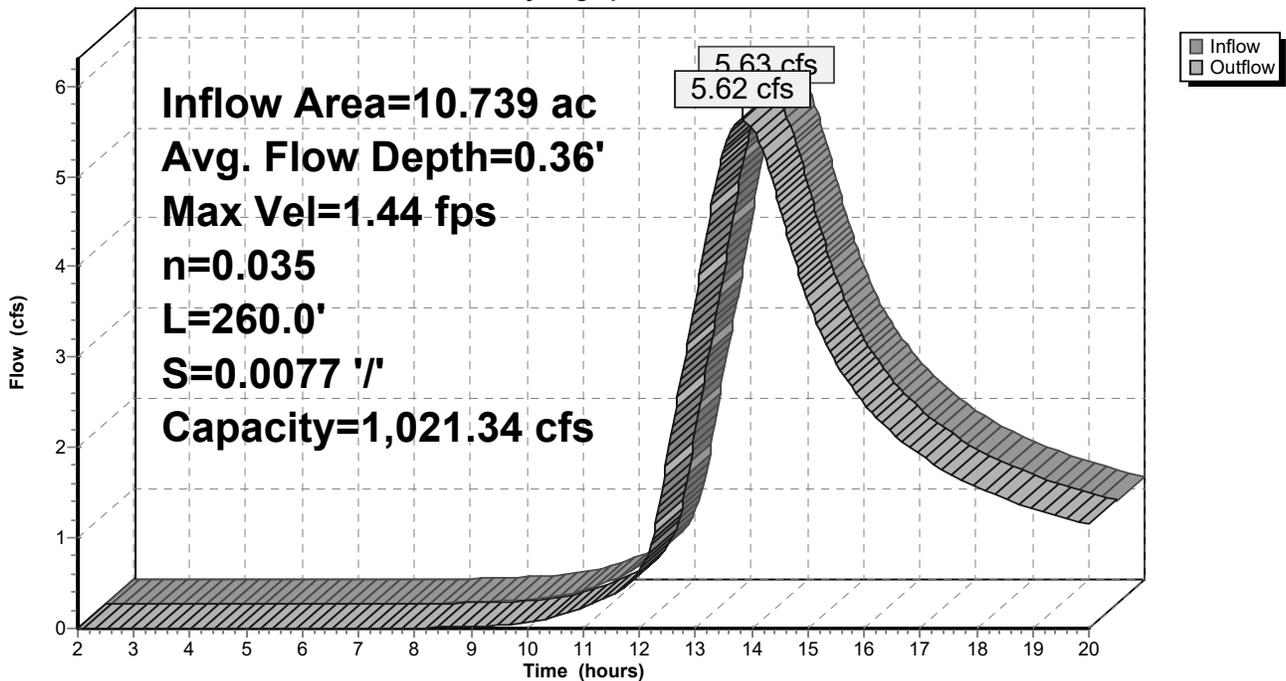
Peak Storage= 1,015 cf @ 13.78 hrs
Average Depth at Peak Storage= 0.36', Surface Width= 16.22'
Bank-Full Depth= 4.00' Flow Area= 144.0 sf, Capacity= 1,021.34 cfs

54.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 260.0' Slope= 0.0077 '/'
Inlet Invert= 198.00', Outlet Invert= 196.00'



Reach 1k-2k: x1000 to x2000

Hydrograph



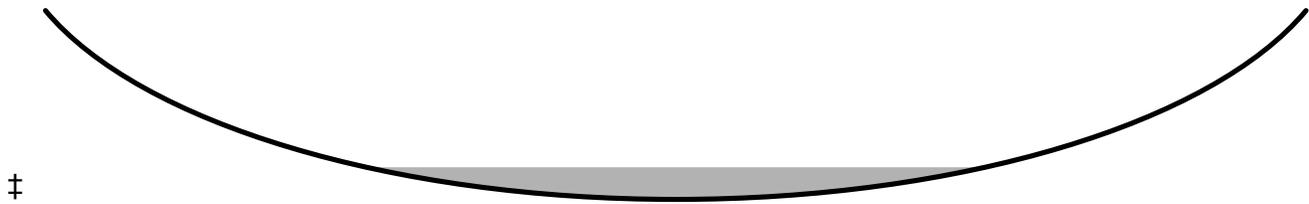
Summary for Reach 2k-3k: x2000 to x3000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 1.98" for 25-year event
Inflow = 7.31 cfs @ 13.74 hrs, Volume= 2.420 af
Outflow = 7.30 cfs @ 13.89 hrs, Volume= 2.394 af, Atten= 0%, Lag= 8.5 min
Routed to Link x3000 : x3000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.31 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.68 fps, Avg. Travel Time= 8.8 min

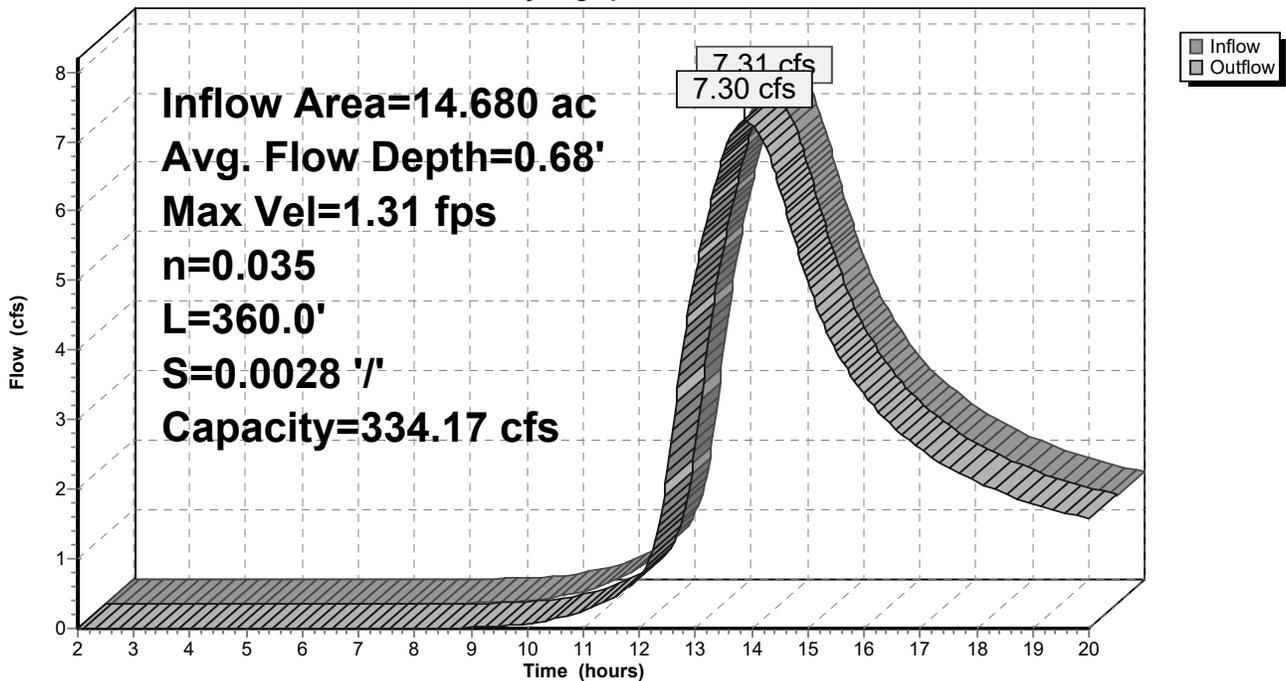
Peak Storage= 2,007 cf @ 13.81 hrs
Average Depth at Peak Storage= 0.68' , Surface Width= 12.34'
Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 360.0' Slope= 0.0028 '/'
Inlet Invert= 196.00', Outlet Invert= 195.00'



Reach 2k-3k: x2000 to x3000

Hydrograph



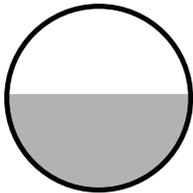
Summary for Reach CP1: Connecting Pipes

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 3.89" for 25-year event
 Inflow = 1.54 cfs @ 12.18 hrs, Volume= 0.158 af
 Outflow = 1.53 cfs @ 12.19 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.4 min
 Routed to Pond 1B : Detention Basin 1B

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 4.16 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.65 fps, Avg. Travel Time= 0.6 min

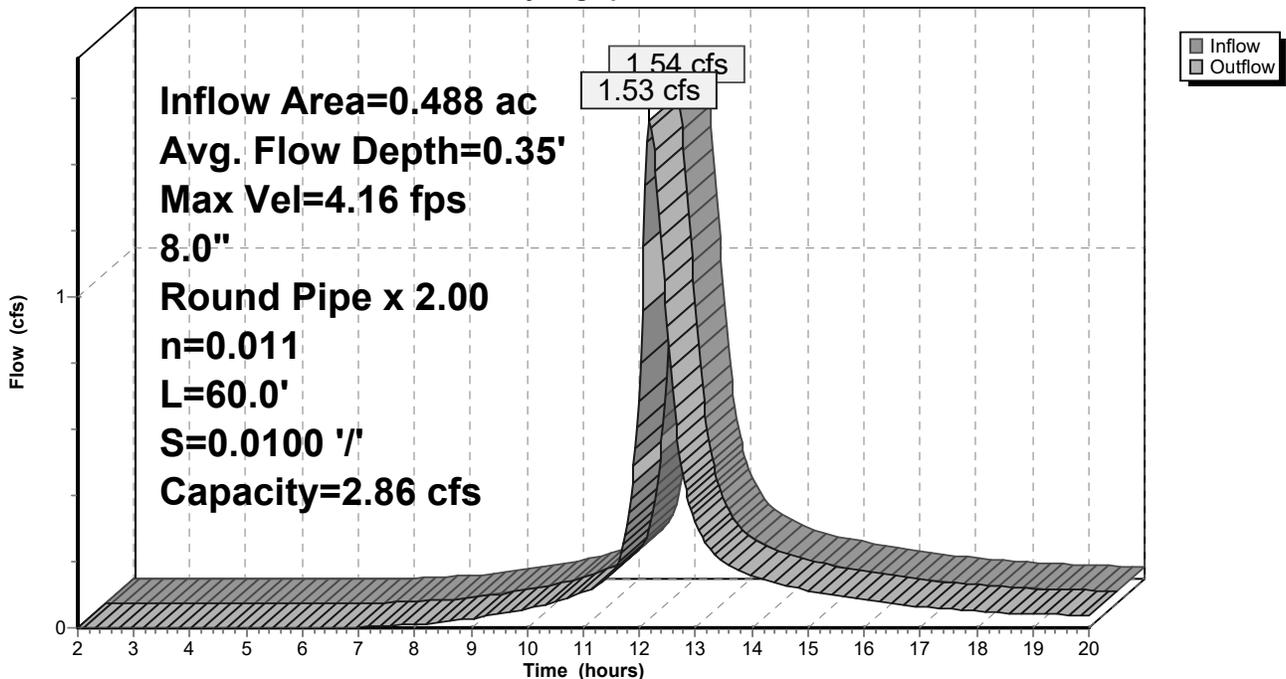
Peak Storage= 22 cf @ 12.18 hrs
 Average Depth at Peak Storage= 0.35' , Surface Width= 1.33'
 Bank-Full Depth= 0.67' Flow Area= 0.7 sf, Capacity= 2.86 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 8.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 60.0' Slope= 0.0100 '/'
 Inlet Invert= 204.00', Outlet Invert= 203.40'



Reach CP1: Connecting Pipes

Hydrograph



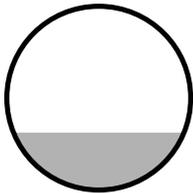
Summary for Reach CP4: Connecting Pipes

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 4.06" for 25-year event
 Inflow = 1.83 cfs @ 12.12 hrs, Volume= 0.136 af
 Outflow = 1.81 cfs @ 12.13 hrs, Volume= 0.136 af, Atten= 1%, Lag= 0.7 min
 Routed to Pond 4B : Detention Basin 4B

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.79 fps, Min. Travel Time= 0.4 min
 Avg. Velocity= 0.99 fps, Avg. Travel Time= 1.0 min

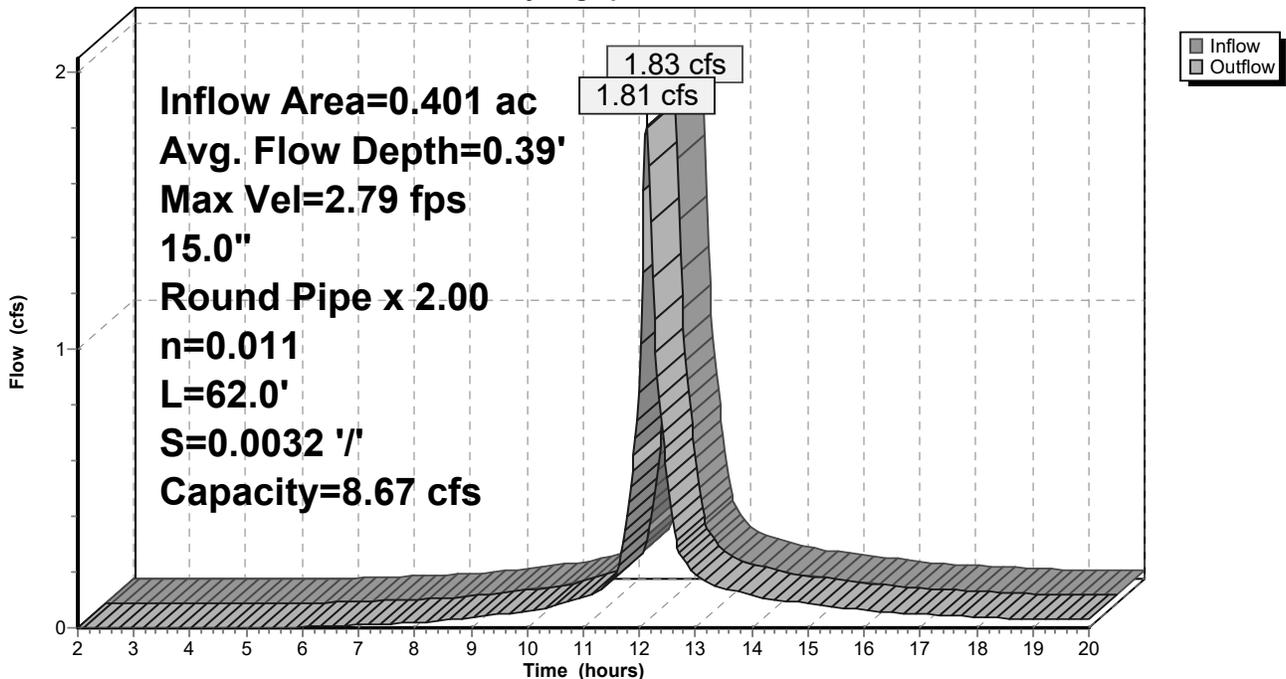
Peak Storage= 40 cf @ 12.12 hrs
 Average Depth at Peak Storage= 0.39' , Surface Width= 2.32'
 Bank-Full Depth= 1.25' Flow Area= 2.5 sf, Capacity= 8.67 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 15.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 62.0' Slope= 0.0032 '/'
 Inlet Invert= 205.20', Outlet Invert= 205.00'



Reach CP4: Connecting Pipes

Hydrograph



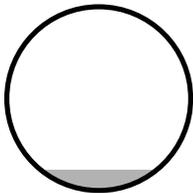
Summary for Reach P1: Pipe Out of 1

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.78" for 25-year event
 Inflow = 0.11 cfs @ 15.18 hrs, Volume= 0.072 af
 Outflow = 0.11 cfs @ 15.20 hrs, Volume= 0.072 af, Atten= 0%, Lag= 1.0 min
 Routed to Reach W1 : 1 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.22 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.65 fps, Avg. Travel Time= 0.8 min

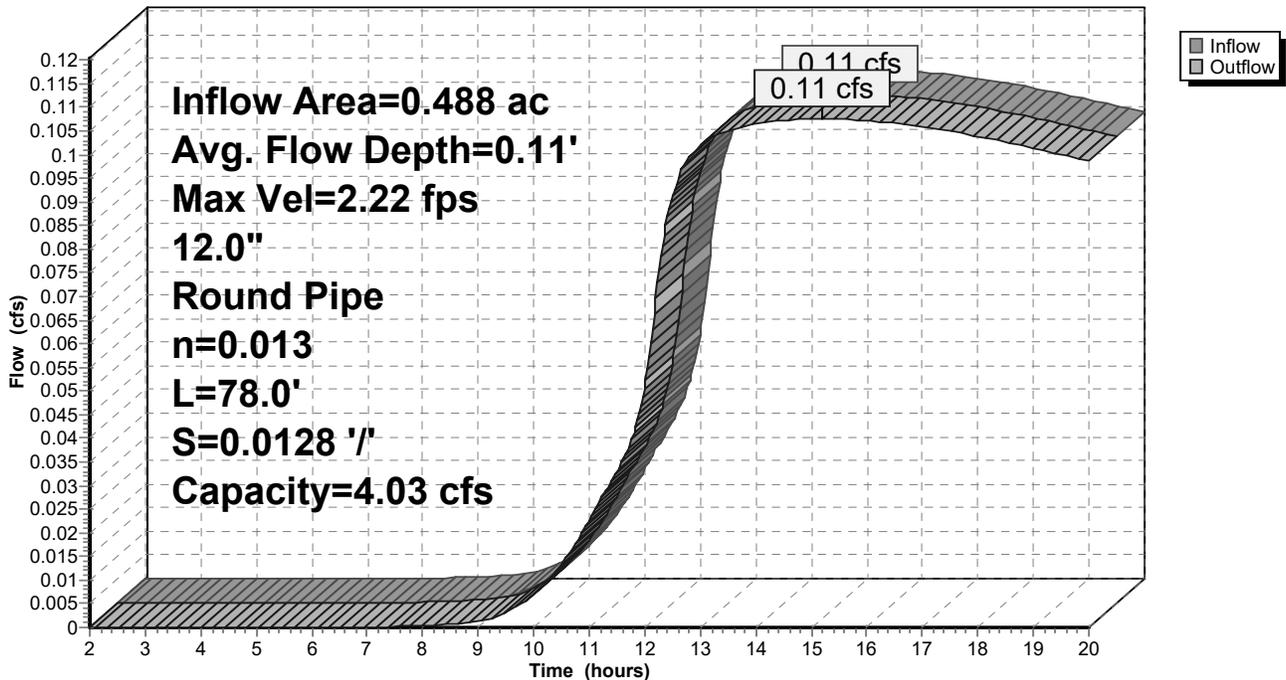
Peak Storage= 4 cf @ 15.19 hrs
 Average Depth at Peak Storage= 0.11' , Surface Width= 0.63'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.03 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 78.0' Slope= 0.0128 '/'
 Inlet Invert= 203.00', Outlet Invert= 202.00'



Reach P1: Pipe Out of 1

Hydrograph



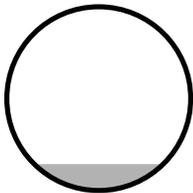
Summary for Reach P2: Pipe Out of 2

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.61" for 25-year event
 Inflow = 0.11 cfs @ 13.91 hrs, Volume= 0.081 af
 Outflow = 0.11 cfs @ 13.92 hrs, Volume= 0.081 af, Atten= 0%, Lag= 1.1 min
 Routed to Reach W2 : 2 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.61 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.12 fps, Avg. Travel Time= 0.9 min

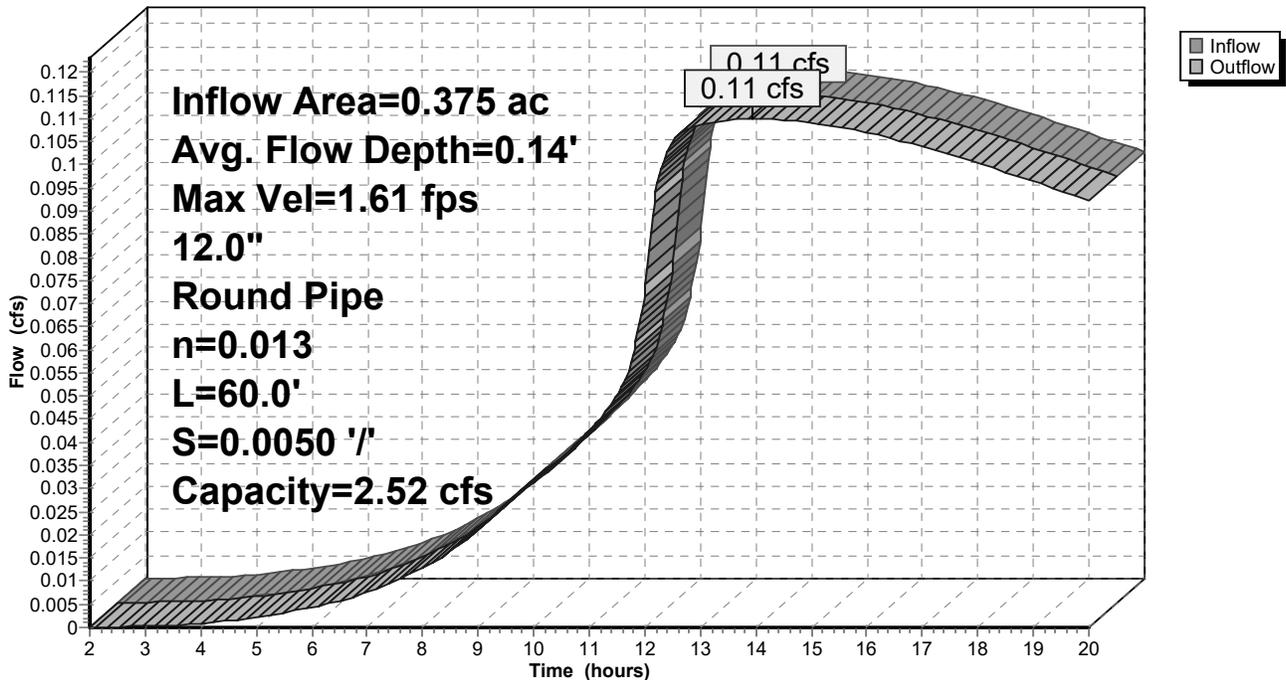
Peak Storage= 4 cf @ 13.91 hrs
 Average Depth at Peak Storage= 0.14' , Surface Width= 0.70'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 60.0' Slope= 0.0050 '/
 Inlet Invert= 204.00', Outlet Invert= 203.70'



Reach P2: Pipe Out of 2

Hydrograph



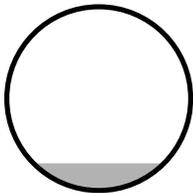
Summary for Reach P3: Pipe Out of 3

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 1.73" for 25-year event
 Inflow = 0.12 cfs @ 15.12 hrs, Volume= 0.084 af
 Outflow = 0.12 cfs @ 15.14 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.7 min
 Routed to Reach W3 : 3 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.64 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 1.20 fps, Avg. Travel Time= 0.6 min

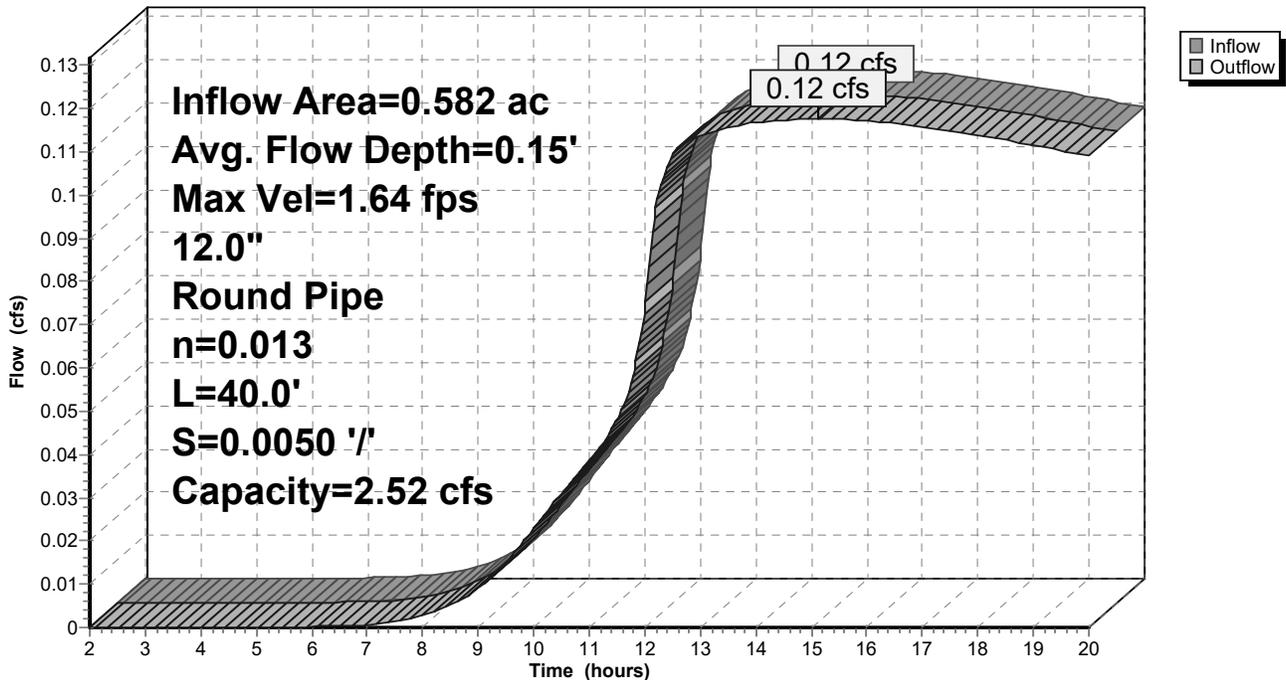
Peak Storage= 3 cf @ 15.13 hrs
 Average Depth at Peak Storage= 0.15' , Surface Width= 0.71'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 40.0' Slope= 0.0050 '/'
 Inlet Invert= 205.00', Outlet Invert= 204.80'



Reach P3: Pipe Out of 3

Hydrograph



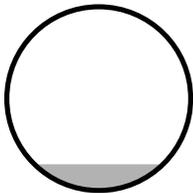
Summary for Reach P4B: Pipe Out of 4B

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.76" for 25-year event
 Inflow = 0.11 cfs @ 14.63 hrs, Volume= 0.079 af
 Outflow = 0.11 cfs @ 14.68 hrs, Volume= 0.078 af, Atten= 0%, Lag= 3.1 min
 Routed to Reach W4B : 4B Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.68 fps, Min. Travel Time= 1.8 min
 Avg. Velocity = 1.23 fps, Avg. Travel Time= 2.5 min

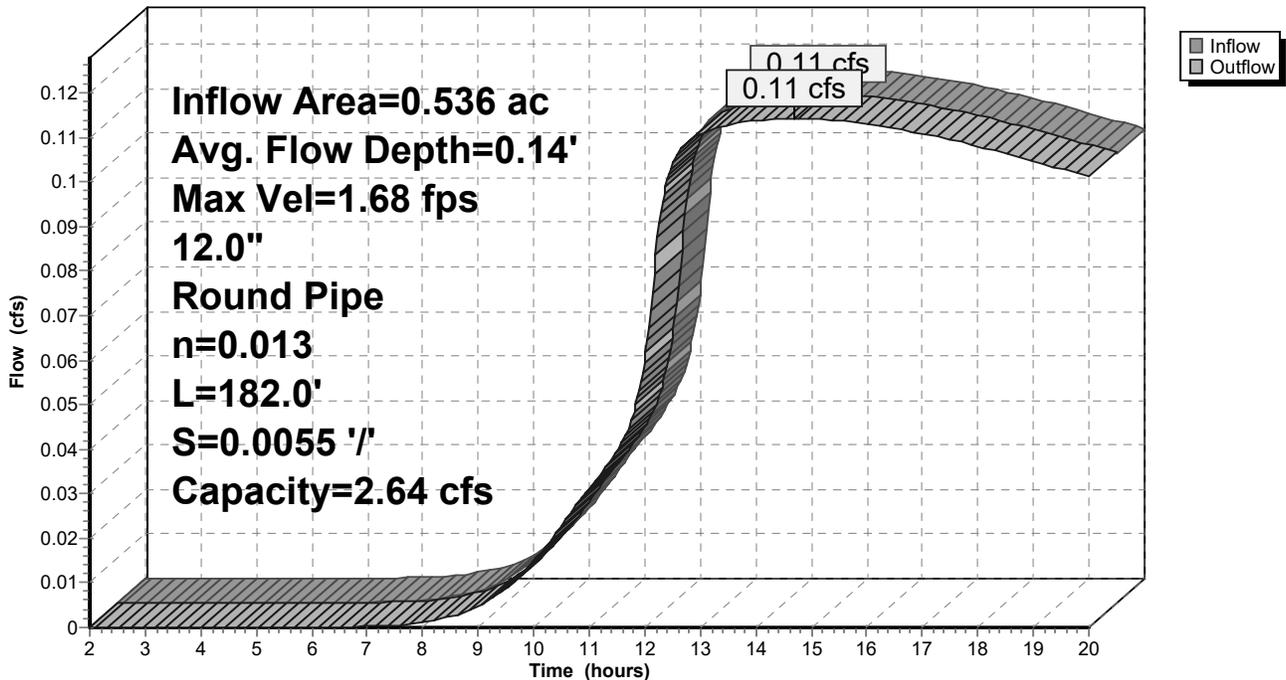
Peak Storage= 12 cf @ 14.65 hrs
 Average Depth at Peak Storage= 0.14' , Surface Width= 0.70'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.64 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 182.0' Slope= 0.0055 '/'
 Inlet Invert= 205.00', Outlet Invert= 204.00'



Reach P4B: Pipe Out of 4B

Hydrograph



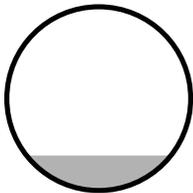
Summary for Reach P5: Pipe Out of 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.80" for 25-year event
 Inflow = 0.21 cfs @ 15.15 hrs, Volume= 0.152 af
 Outflow = 0.21 cfs @ 15.16 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.5 min
 Routed to Reach W5 : 5 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.04 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 1.47 fps, Avg. Travel Time= 0.4 min

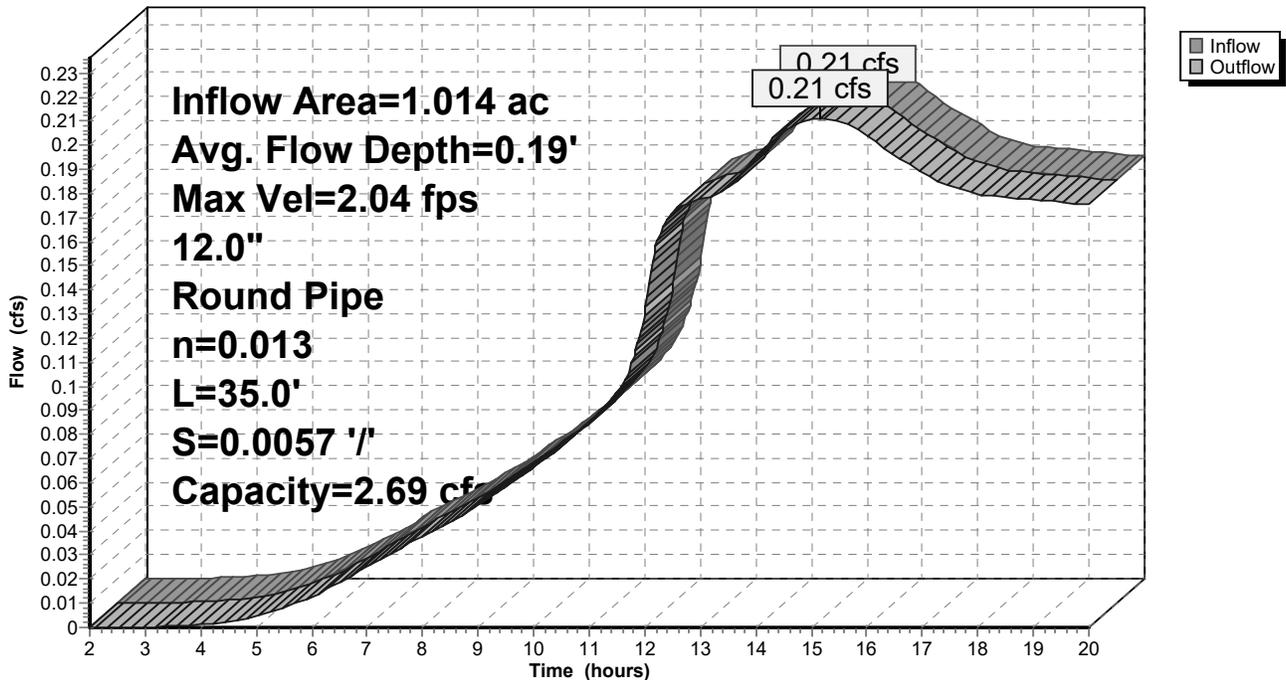
Peak Storage= 4 cf @ 15.16 hrs
 Average Depth at Peak Storage= 0.19' , Surface Width= 0.78'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.69 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 35.0' Slope= 0.0057 '/'
 Inlet Invert= 204.00', Outlet Invert= 203.80'



Reach P5: Pipe Out of 5

Hydrograph



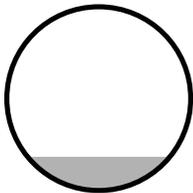
Summary for Reach P6: Pipe Out of 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 2.15" for 25-year event
 Inflow = 0.24 cfs @ 12.95 hrs, Volume= 0.099 af
 Outflow = 0.24 cfs @ 12.96 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.7 min
 Routed to Reach W6 : 6 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.41 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.06 fps, Avg. Travel Time= 0.5 min

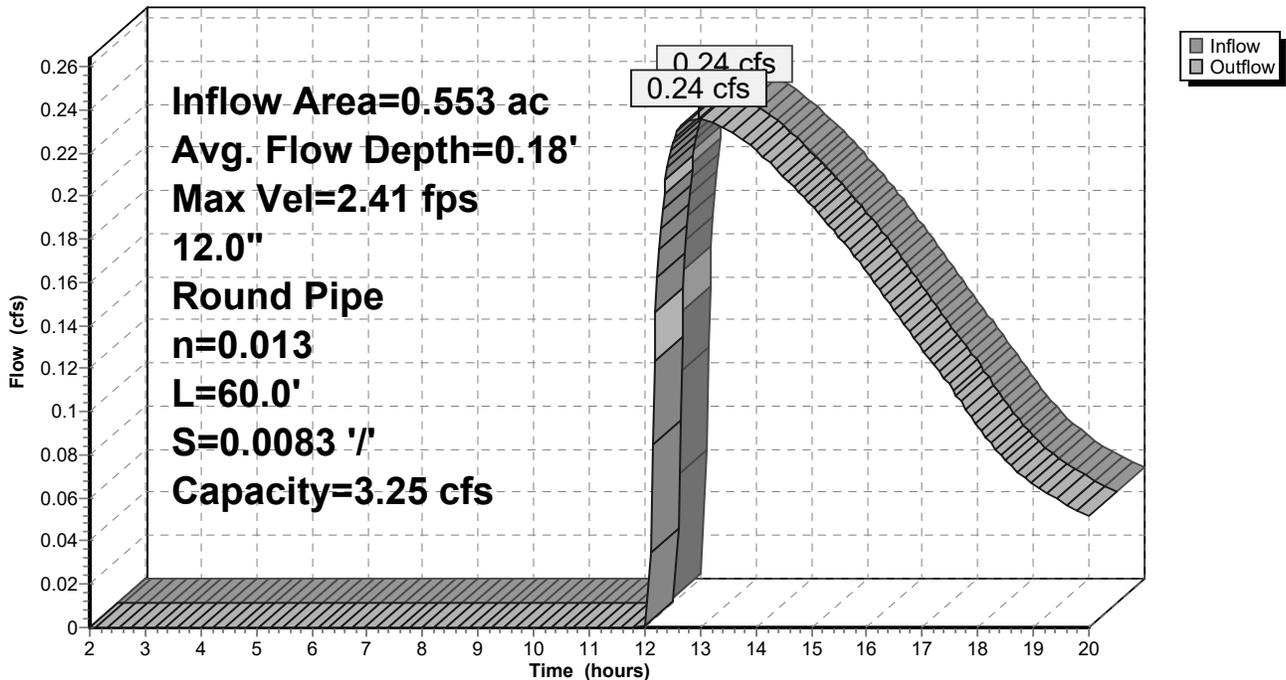
Peak Storage= 6 cf @ 12.96 hrs
 Average Depth at Peak Storage= 0.18' , Surface Width= 0.77'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.25 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 60.0' Slope= 0.0083 '/'
 Inlet Invert= 206.00', Outlet Invert= 205.50'



Reach P6: Pipe Out of 6

Hydrograph



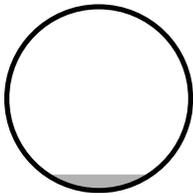
Summary for Reach P7: Pipe Out of 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.57" for 25-year event
 Inflow = 0.05 cfs @ 15.28 hrs, Volume= 0.027 af
 Outflow = 0.05 cfs @ 15.38 hrs, Volume= 0.026 af, Atten= 0%, Lag= 6.0 min
 Routed to Reach W7 : 7 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.38 fps, Min. Travel Time= 3.5 min
 Avg. Velocity = 1.31 fps, Avg. Travel Time= 3.7 min

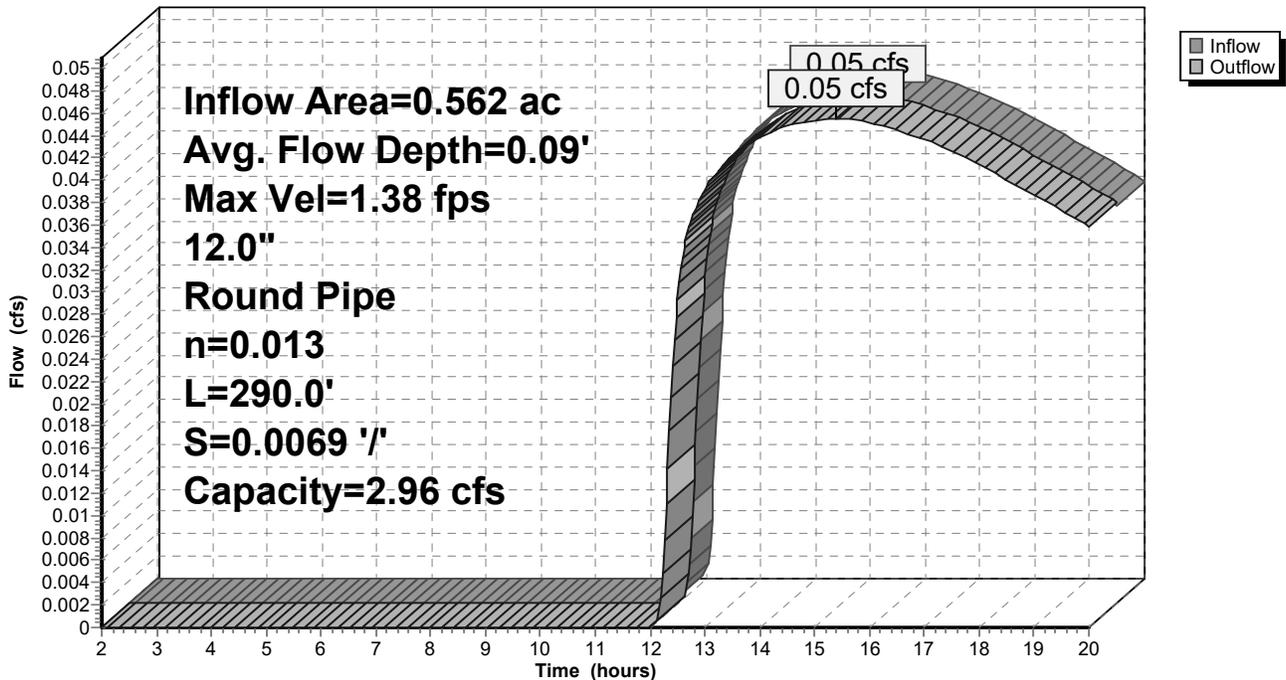
Peak Storage= 10 cf @ 15.32 hrs
 Average Depth at Peak Storage= 0.09' , Surface Width= 0.56'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 290.0' Slope= 0.0069 '/'
 Inlet Invert= 206.00', Outlet Invert= 204.00'



Reach P7: Pipe Out of 7

Hydrograph



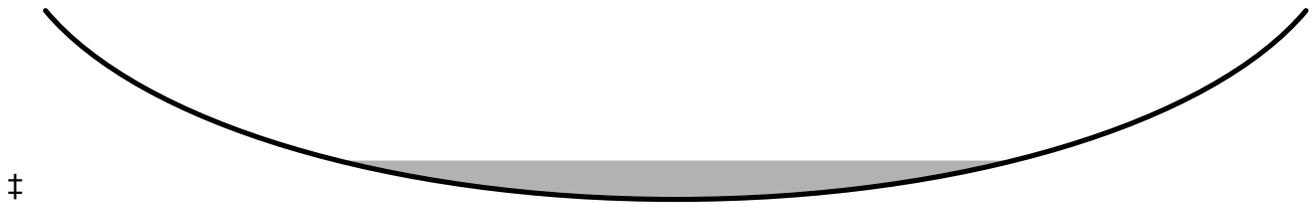
Summary for Reach W1: 1 Thru Wetland

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.78" for 25-year event
 Inflow = 0.11 cfs @ 15.20 hrs, Volume= 0.072 af
 Outflow = 0.11 cfs @ 18.32 hrs, Volume= 0.049 af, Atten= 2%, Lag= 187.6 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.07 fps, Min. Travel Time= 81.0 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 125.6 min

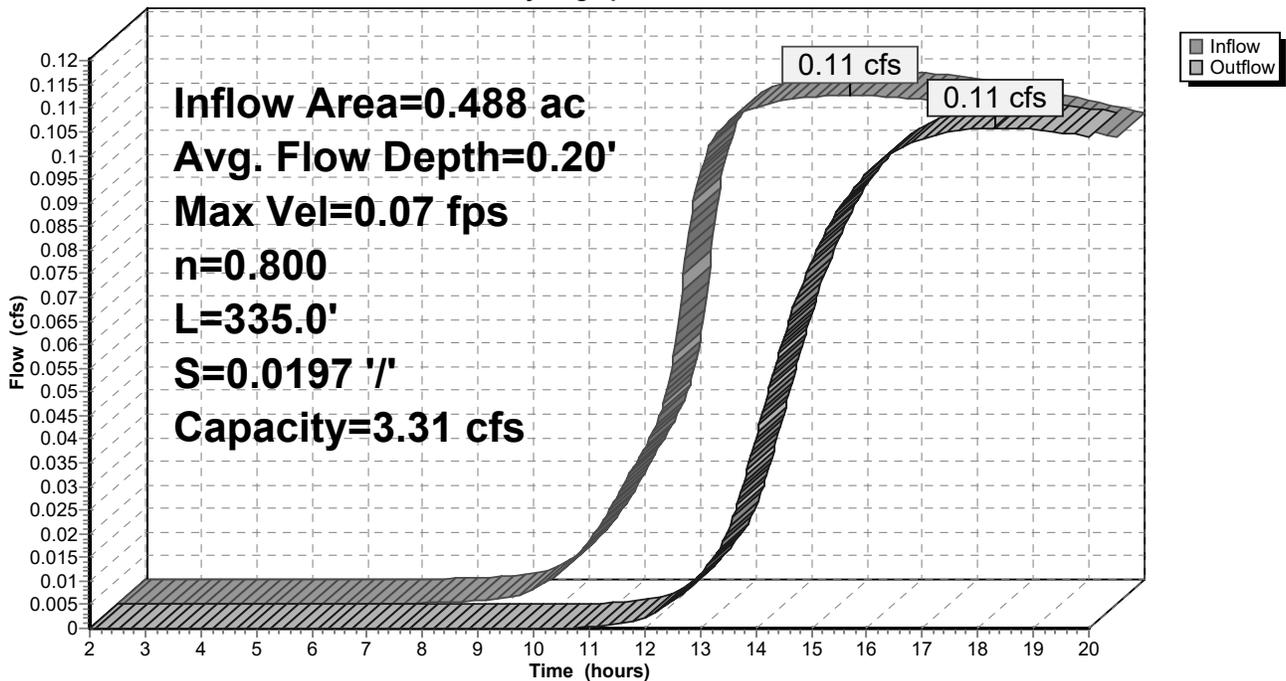
Peak Storage= 514 cf @ 16.97 hrs
 Average Depth at Peak Storage= 0.20' , Surface Width= 11.29'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 3.31 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 335.0' Slope= 0.0197 '/'
 Inlet Invert= 203.60', Outlet Invert= 197.00'



Reach W1: 1 Thru Wetland

Hydrograph



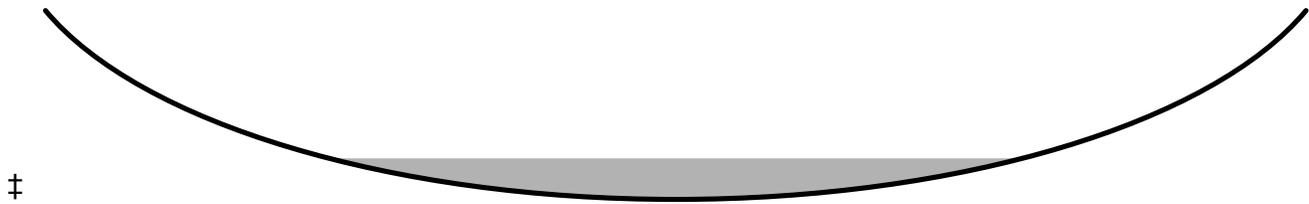
Summary for Reach W2: 2 Thru Wetland

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.60" for 25-year event
 Inflow = 0.11 cfs @ 13.92 hrs, Volume= 0.081 af
 Outflow = 0.11 cfs @ 18.07 hrs, Volume= 0.054 af, Atten= 4%, Lag= 248.9 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.06 fps, Min. Travel Time= 99.2 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 160.5 min

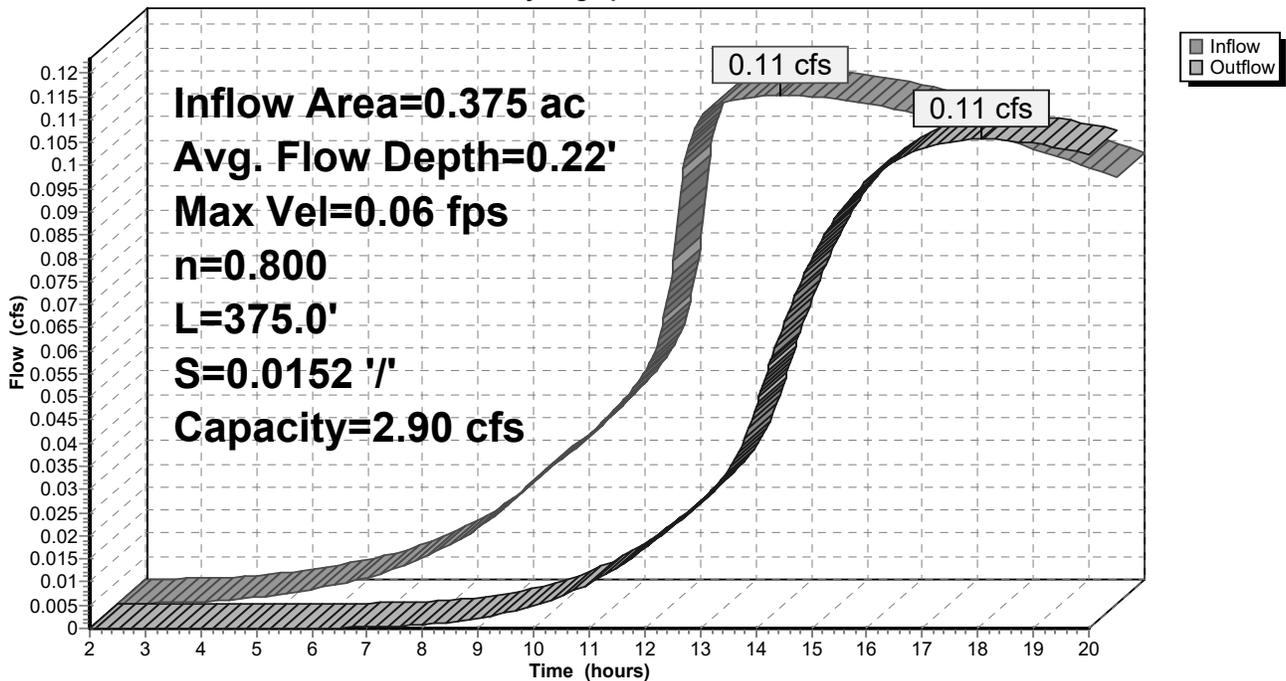
Peak Storage= 629 cf @ 16.42 hrs
 Average Depth at Peak Storage= 0.22' , Surface Width= 11.63'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.90 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 375.0' Slope= 0.0152 '/'
 Inlet Invert= 203.70', Outlet Invert= 198.00'



Reach W2: 2 Thru Wetland

Hydrograph



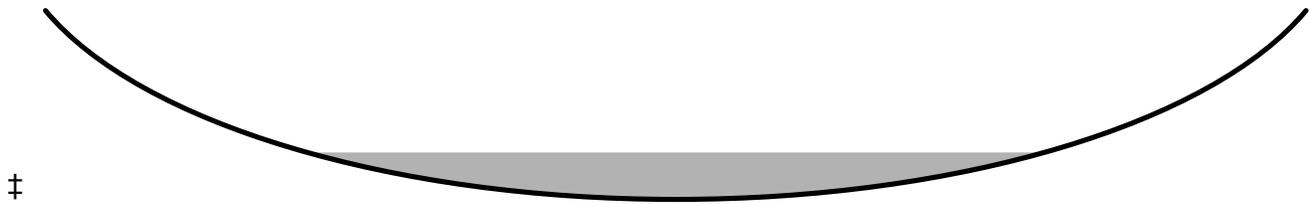
Summary for Reach W3: 3 Thru Wetland

Inflow Area = 0.643 ac, 43.14% Impervious, Inflow Depth > 1.79" for 25-year event
 Inflow = 0.26 cfs @ 12.10 hrs, Volume= 0.096 af
 Outflow = 0.09 cfs @ 20.00 hrs, Volume= 0.018 af, Atten= 67%, Lag= 474.1 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.05 fps, Min. Travel Time= 264.5 min
 Avg. Velocity = 0.03 fps, Avg. Travel Time= 447.1 min

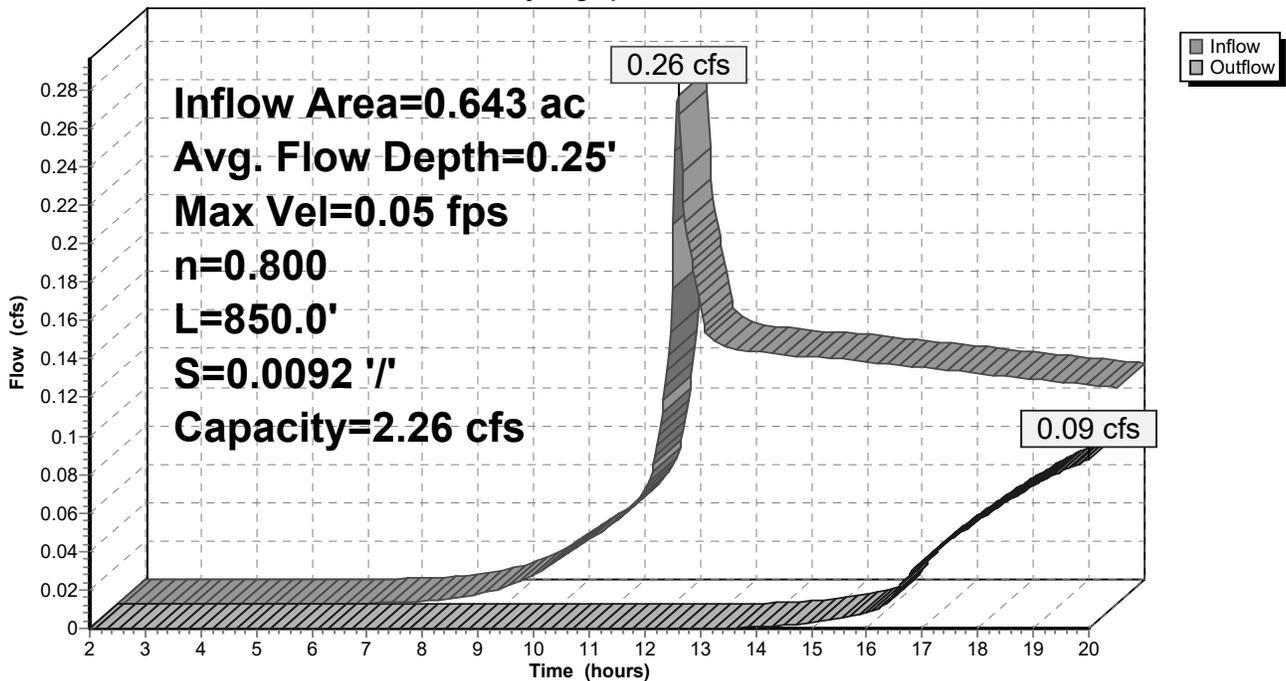
Peak Storage= 1,749 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.25' , Surface Width= 12.45'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.26 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 850.0' Slope= 0.0092 '/'
 Inlet Invert= 204.80', Outlet Invert= 197.00'



Reach W3: 3 Thru Wetland

Hydrograph



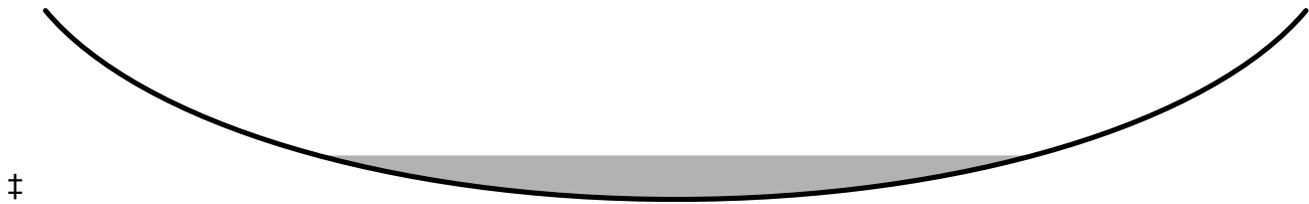
Summary for Reach W4B: 4B Thru Wetland

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.75" for 25-year event
 Inflow = 0.11 cfs @ 14.68 hrs, Volume= 0.078 af
 Outflow = 0.11 cfs @ 20.00 hrs, Volume= 0.035 af, Atten= 7%, Lag= 319.3 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.06 fps, Min. Travel Time= 149.0 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 242.0 min

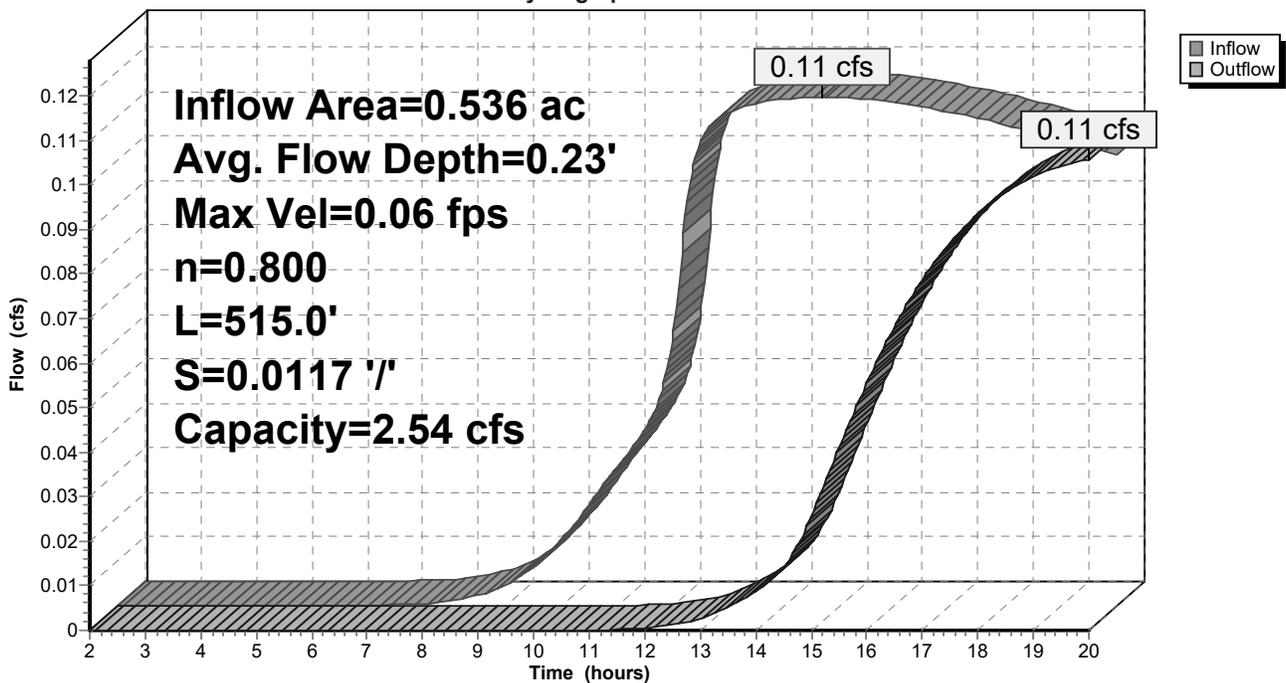
Peak Storage= 954 cf @ 18.43 hrs
 Average Depth at Peak Storage= 0.23' , Surface Width= 12.02'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.54 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 515.0' Slope= 0.0117 '/'
 Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W4B: 4B Thru Wetland

Hydrograph



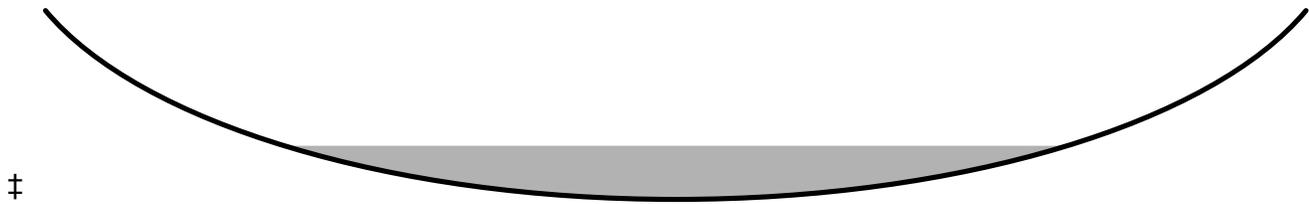
Summary for Reach W5: 5 Thru Wetland

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.80" for 25-year event
 Inflow = 0.21 cfs @ 15.16 hrs, Volume= 0.152 af
 Outflow = 0.21 cfs @ 16.98 hrs, Volume= 0.120 af, Atten= 3%, Lag= 109.0 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.08 fps, Min. Travel Time= 64.4 min
 Avg. Velocity = 0.05 fps, Avg. Travel Time= 97.8 min

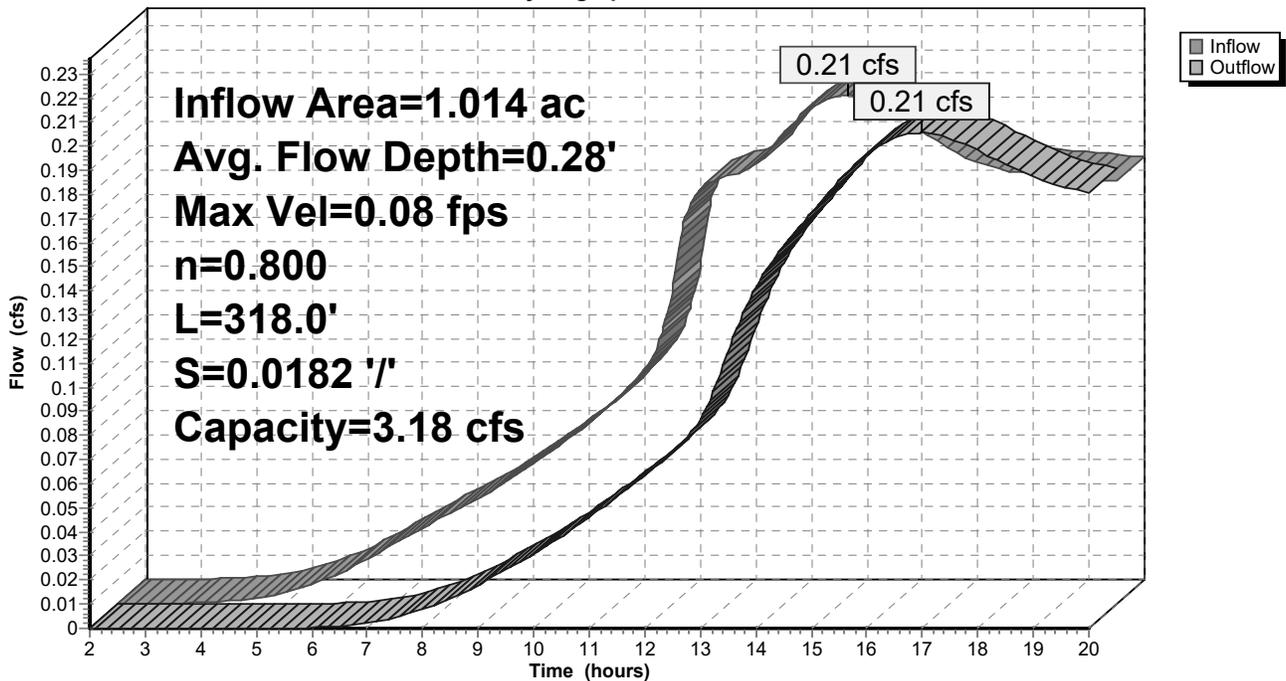
Peak Storage= 795 cf @ 15.91 hrs
 Average Depth at Peak Storage= 0.28' , Surface Width= 13.28'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 3.18 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 318.0' Slope= 0.0182 '/'
 Inlet Invert= 203.80', Outlet Invert= 198.00'



Reach W5: 5 Thru Wetland

Hydrograph



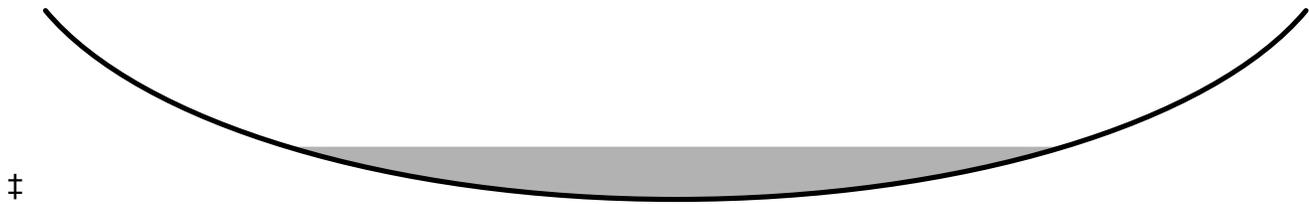
Summary for Reach W6: 6 Thru Wetland

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 2.15" for 25-year event
 Inflow = 0.24 cfs @ 12.96 hrs, Volume= 0.099 af
 Outflow = 0.16 cfs @ 18.60 hrs, Volume= 0.051 af, Atten= 31%, Lag= 338.3 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.07 fps, Min. Travel Time= 153.7 min
 Avg. Velocity = 0.06 fps, Avg. Travel Time= 177.4 min

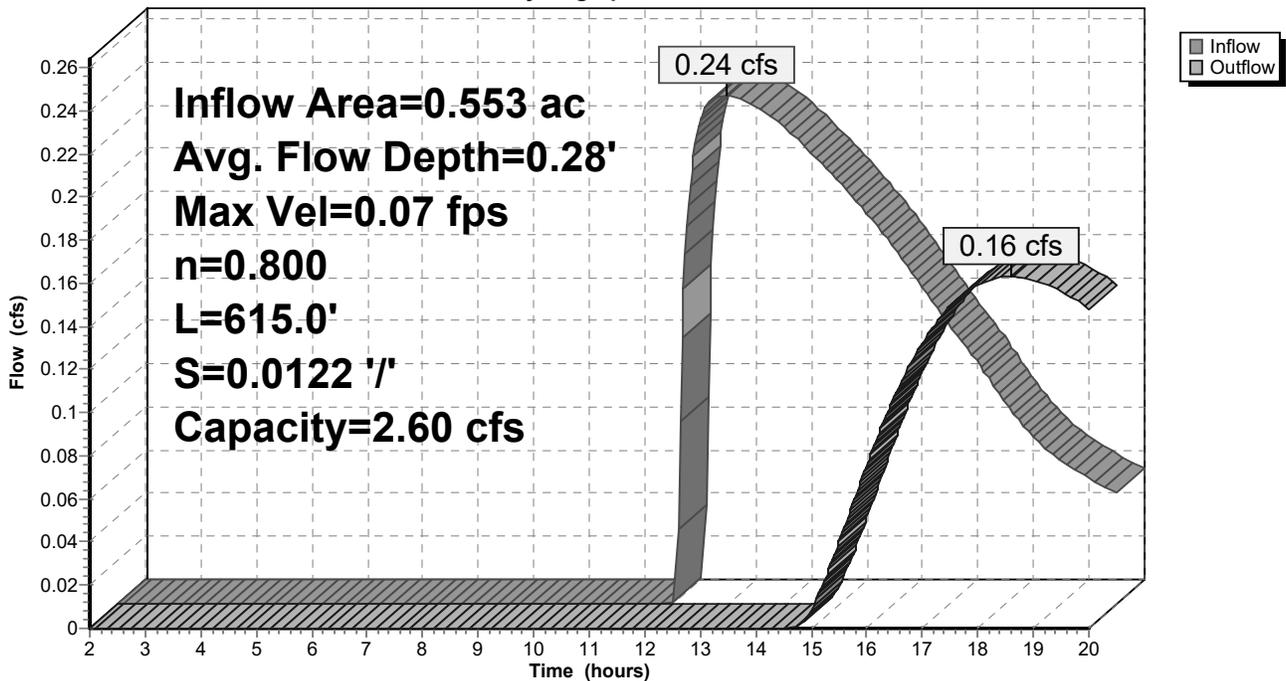
Peak Storage= 1,504 cf @ 16.04 hrs
 Average Depth at Peak Storage= 0.28' , Surface Width= 13.19'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.60 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 615.0' Slope= 0.0122 '/'
 Inlet Invert= 205.50', Outlet Invert= 198.00'



Reach W6: 6 Thru Wetland

Hydrograph



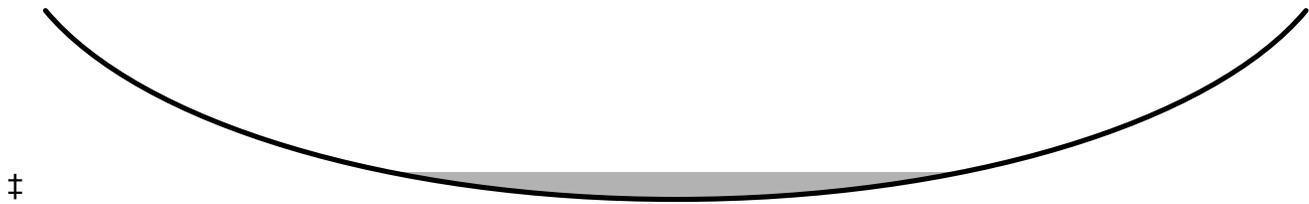
Summary for Reach W7: 7 Thru Wetland

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.56" for 25-year event
 Inflow = 0.05 cfs @ 15.38 hrs, Volume= 0.026 af
 Outflow = 0.02 cfs @ 20.00 hrs, Volume= 0.003 af, Atten= 51%, Lag= 277.1 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.04 fps, Min. Travel Time= 256.3 min
 Avg. Velocity = 0.03 fps, Avg. Travel Time= 324.0 min

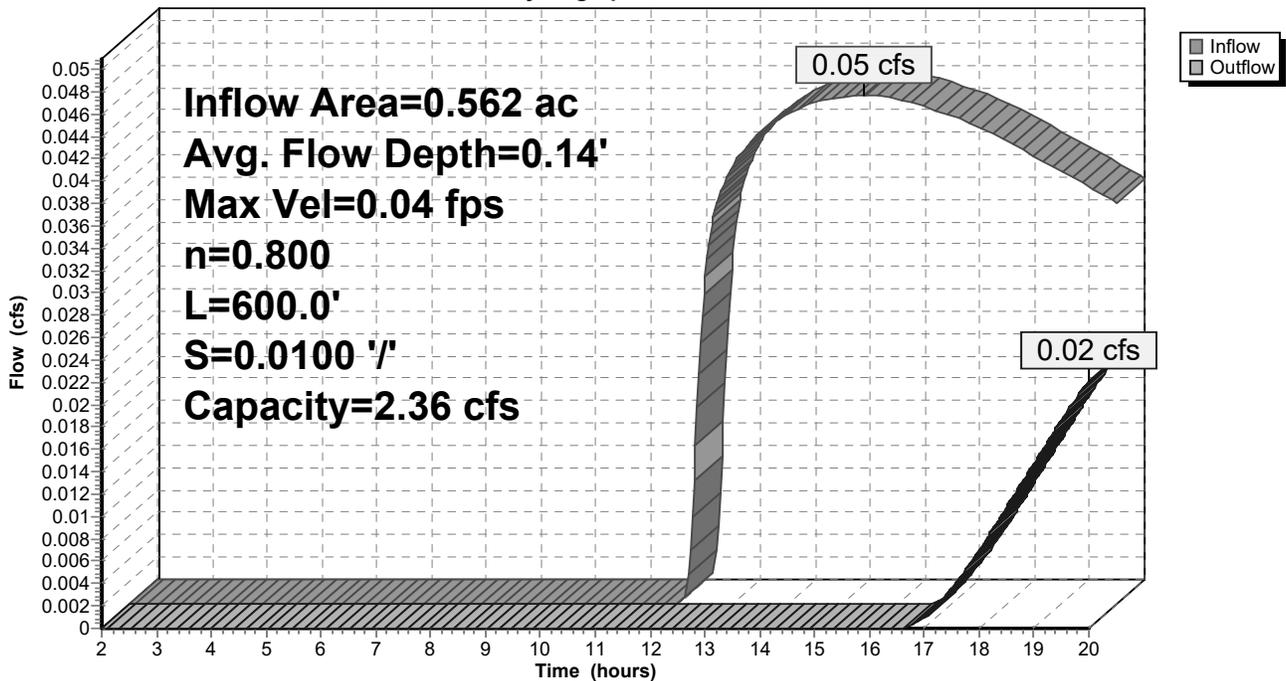
Peak Storage= 548 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.14' , Surface Width= 9.49'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.36 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 600.0' Slope= 0.0100 1/100'
 Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W7: 7 Thru Wetland

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

Prepared by VHB

Printed 3/6/2023

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Summary for Pond 1A: Detention Basin 1A

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 3.98" for 25-year event
 Inflow = 2.34 cfs @ 12.09 hrs, Volume= 0.162 af
 Outflow = 1.54 cfs @ 12.18 hrs, Volume= 0.158 af, Atten= 34%, Lag= 5.6 min
 Primary = 1.54 cfs @ 12.18 hrs, Volume= 0.158 af
 Routed to Reach CP1 : Connecting Pipes

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.54' @ 12.18 hrs Surf.Area= 2,588 sf Storage= 1,308 cf

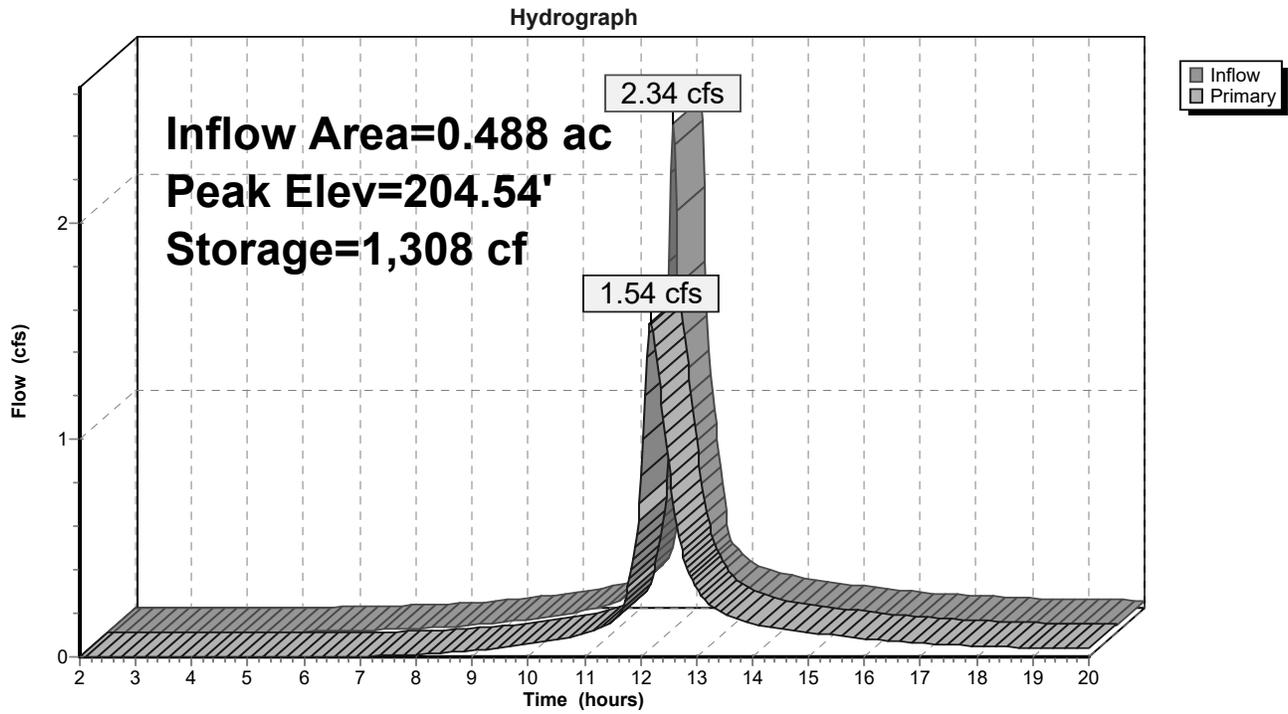
Plug-Flow detention time= 30.9 min calculated for 0.158 af (98% of inflow)
 Center-of-Mass det. time= 21.6 min (787.2 - 765.5)

Volume	Invert	Avail.Storage	Storage Description		
#1	204.00'	5,995 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
204.00	2,219	217.0	0	0	2,219
205.00	2,917	242.0	2,560	2,560	3,161
206.00	3,980	396.0	3,435	5,995	10,986

Device	Routing	Invert	Outlet Devices
#1	Primary	204.00'	8.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.53 cfs @ 12.18 hrs HW=204.54' (Free Discharge)
 ↳ **1=Orifice/Grate** (Orifice Controls 1.53 cfs @ 2.51 fps)

Pond 1A: Detention Basin 1A



4298600-PR - Reconfigure Basin #1

Type III 24-hr 25-year Rainfall=5.69"

Prepared by VHB

Printed 3/6/2023

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Summary for Pond 1B: Detention Basin 1B

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 3.89" for 25-year event
 Inflow = 1.53 cfs @ 12.19 hrs, Volume= 0.158 af
 Outflow = 0.11 cfs @ 15.18 hrs, Volume= 0.072 af, Atten= 93%, Lag= 179.5 min
 Primary = 0.11 cfs @ 15.18 hrs, Volume= 0.072 af
 Routed to Reach P1 : Pipe Out of 1

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.13' @ 15.18 hrs Surf.Area= 4,605 sf Storage= 4,492 cf

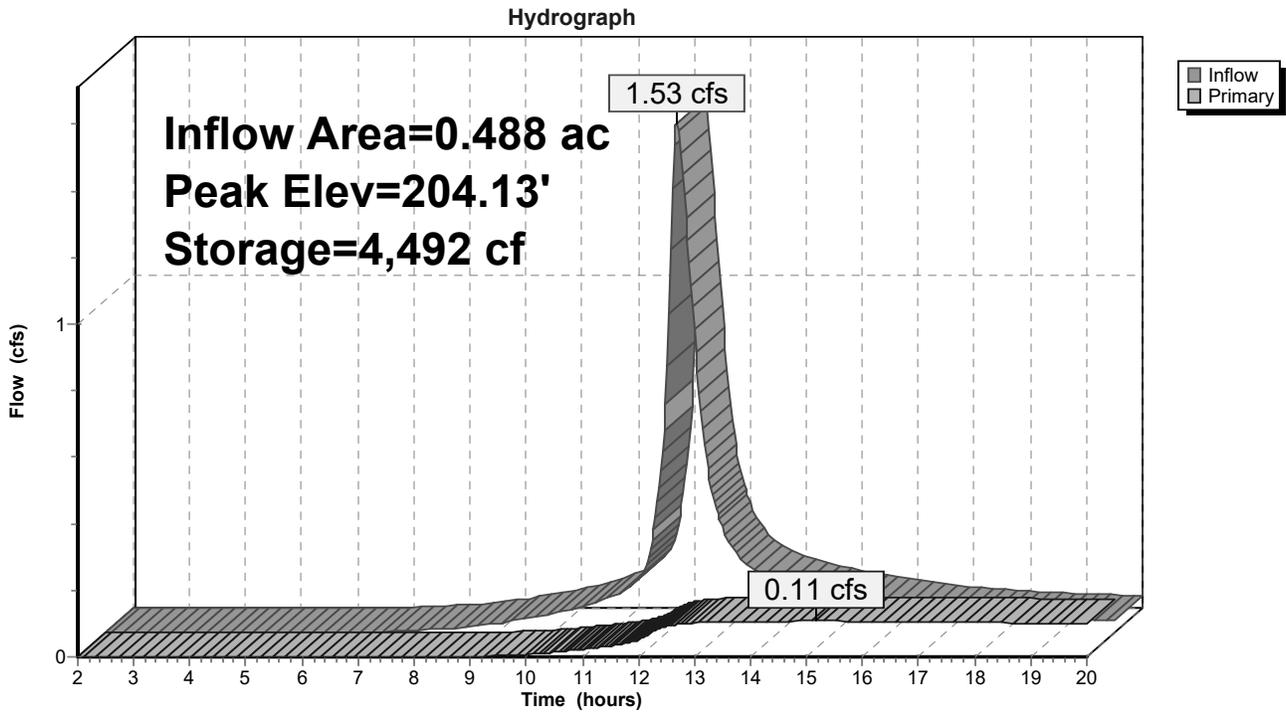
Plug-Flow detention time= 245.0 min calculated for 0.072 af (46% of inflow)
 Center-of-Mass det. time= 157.7 min (945.3 - 787.7)

Volume	Invert	Avail.Storage	Storage Description		
#1	203.00'	15,252 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
203.00	3,355	332.0	0	0	3,355
204.00	4,461	375.0	3,895	3,895	5,800
205.00	5,613	394.0	5,026	8,921	7,025
206.00	7,077	463.0	6,331	15,252	11,750

Device	Routing	Invert	Outlet Devices	
#1	Primary	203.00'	2.0" Vert. Orifice/Grate	C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.11 cfs @ 15.18 hrs HW=204.13' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.11 cfs @ 4.93 fps)

Pond 1B: Detention Basin 1B



Summary for Pond 2P: Detention Basin 2

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 4.51" for 25-year event
 Inflow = 1.91 cfs @ 12.08 hrs, Volume= 0.141 af
 Outflow = 0.11 cfs @ 13.91 hrs, Volume= 0.081 af, Atten= 94%, Lag= 109.2 min
 Primary = 0.11 cfs @ 13.91 hrs, Volume= 0.081 af
 Routed to Reach P2 : Pipe Out of 2
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P2 : Pipe Out of 2

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.18' @ 13.91 hrs Surf.Area= 3,532 sf Storage= 3,713 cf

Plug-Flow detention time= 245.9 min calculated for 0.081 af (58% of inflow)
 Center-of-Mass det. time= 159.5 min (899.2 - 739.7)

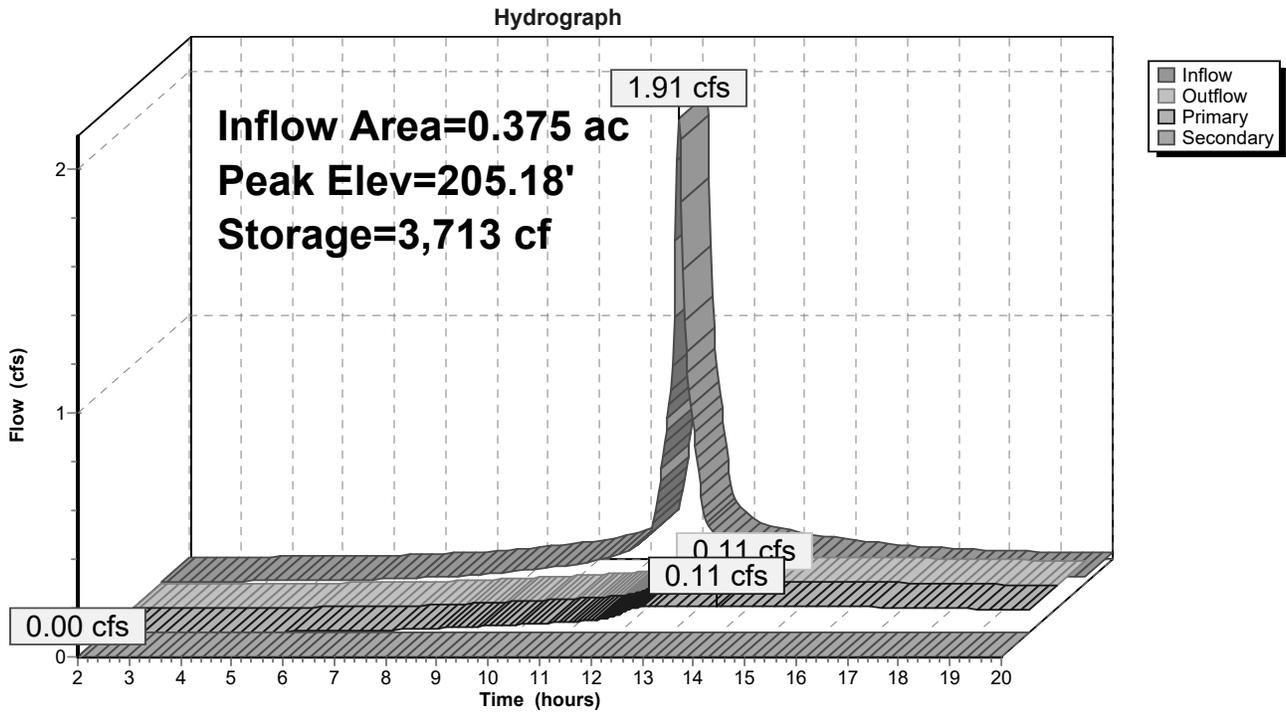
Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	6,845 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,781	215.0	0	0	2,781	
205.00	3,414	233.0	3,092	3,092	3,461	
206.00	4,102	253.0	3,753	6,845	4,271	

Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	206.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.11 cfs @ 13.91 hrs HW=205.18' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.11 cfs @ 5.04 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 2P: Detention Basin 2



Summary for Pond 3P: Detention Basin 3

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 4.09" for 25-year event
 Inflow = 2.85 cfs @ 12.09 hrs, Volume= 0.198 af
 Outflow = 0.12 cfs @ 15.12 hrs, Volume= 0.084 af, Atten= 96%, Lag= 182.3 min
 Primary = 0.12 cfs @ 15.12 hrs, Volume= 0.084 af
 Routed to Reach P3 : Pipe Out of 3
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P3 : Pipe Out of 3

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.34' @ 15.12 hrs Surf.Area= 4,933 sf Storage= 5,844 cf

Plug-Flow detention time= 259.9 min calculated for 0.084 af (42% of inflow)
 Center-of-Mass det. time= 165.5 min (928.2 - 762.7)

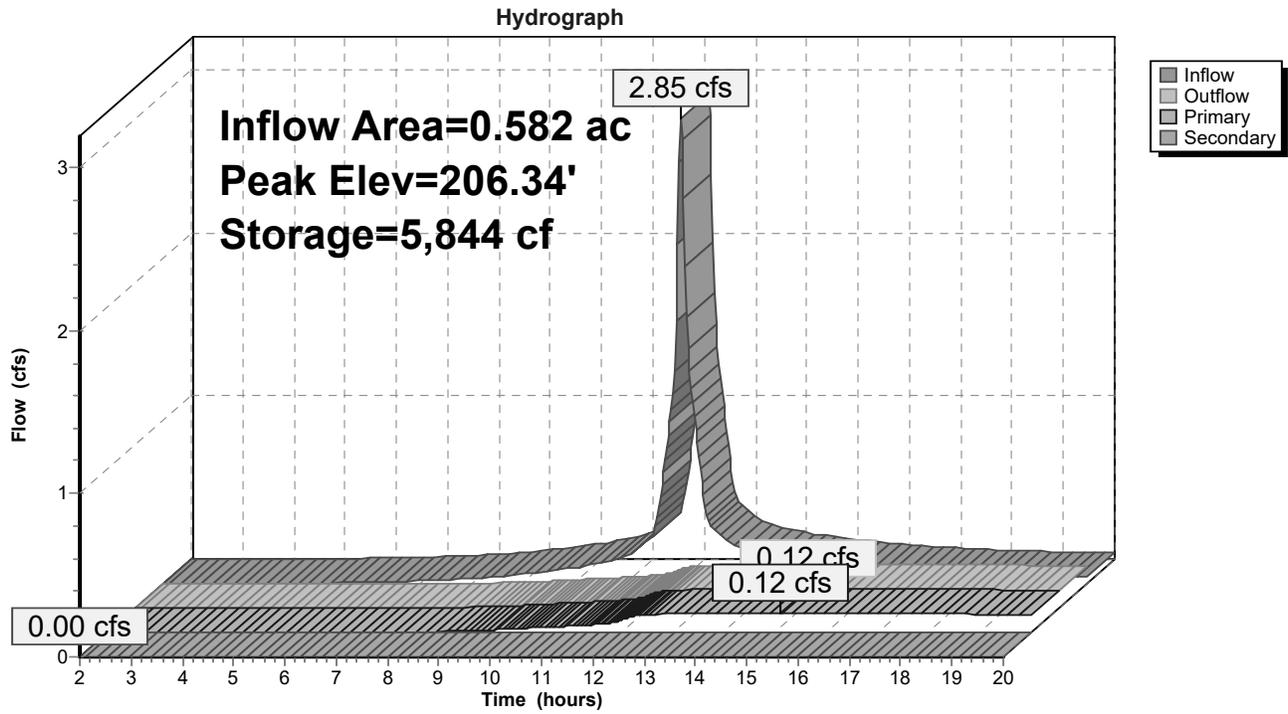
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	9,306 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	3,825	299.0	0	0	3,825	
206.00	4,645	321.0	4,228	4,228	4,954	
207.00	5,522	343.0	5,077	9,306	6,163	

Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.12 cfs @ 15.12 hrs HW=206.34' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.12 cfs @ 5.39 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: Detention Basin 3



Summary for Pond 4A: Detention Basin 4A

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 4.09" for 25-year event
 Inflow = 1.96 cfs @ 12.09 hrs, Volume= 0.137 af
 Outflow = 1.83 cfs @ 12.12 hrs, Volume= 0.136 af, Atten= 7%, Lag= 1.9 min
 Primary = 1.83 cfs @ 12.12 hrs, Volume= 0.136 af
 Routed to Reach CP4 : Connecting Pipes
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Link x1000 : x1000

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.65' @ 12.12 hrs Surf.Area= 915 sf Storage= 359 cf

Plug-Flow detention time= 9.0 min calculated for 0.136 af (99% of inflow)
 Center-of-Mass det. time= 6.3 min (769.0 - 762.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	205.20'	3,389 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.20	680	165.0	0	0	680	
206.00	1,121	238.0	713	713	3,027	
207.00	2,031	428.0	1,554	2,267	13,102	
207.50	2,465	434.0	1,122	3,389	13,566	

Device	Routing	Invert	Outlet Devices	
#1	Primary	205.20'	15.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads	
#2	Secondary	207.50'	8.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32	

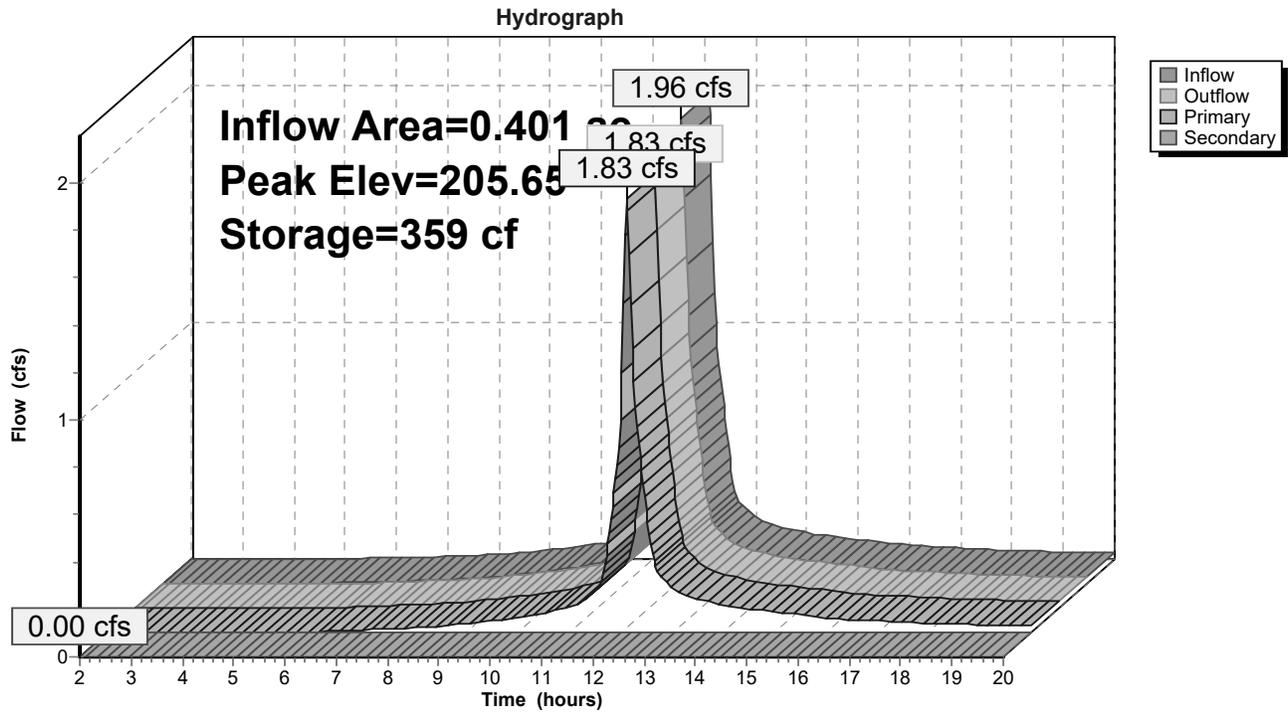
Primary OutFlow Max=1.81 cfs @ 12.12 hrs HW=205.65' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 1.81 cfs @ 2.28 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.20' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4A: Detention Basin 4A



Summary for Pond 4B: Detention Basin 4B

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 3.41" for 25-year event
 Inflow = 2.03 cfs @ 12.13 hrs, Volume= 0.152 af
 Outflow = 0.11 cfs @ 14.63 hrs, Volume= 0.079 af, Atten= 94%, Lag= 150.1 min
 Primary = 0.11 cfs @ 14.63 hrs, Volume= 0.079 af
 Routed to Reach P4B : Pipe Out of 4B
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P4B : Pipe Out of 4B

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.26' @ 14.63 hrs Surf.Area= 3,731 sf Storage= 4,146 cf

Plug-Flow detention time= 241.8 min calculated for 0.079 af (52% of inflow)
 Center-of-Mass det. time= 157.7 min (933.5 - 775.8)

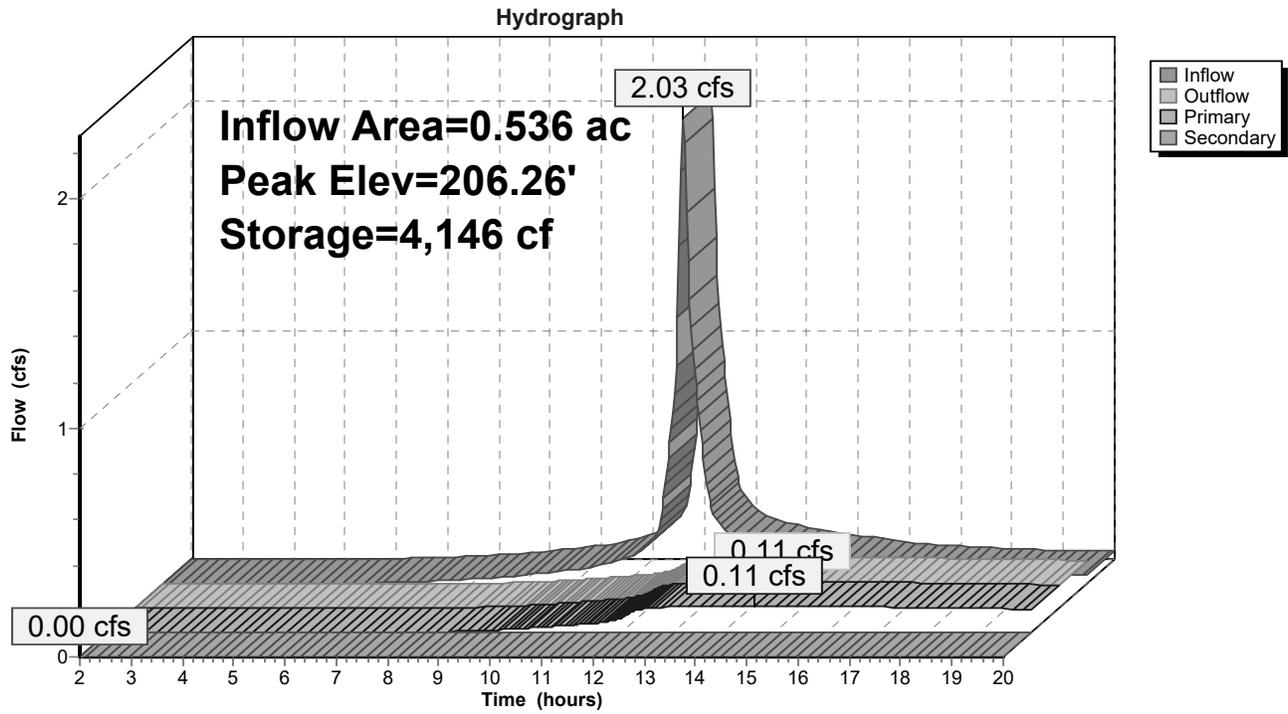
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	7,090 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	2,837	240.0	0	0	2,837	
206.00	3,542	256.0	3,183	3,183	3,515	
207.00	4,283	269.0	3,907	7,090	4,119	

Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.11 cfs @ 14.63 hrs HW=206.26' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.11 cfs @ 5.23 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 4B: Detention Basin 4B



Summary for Pond 5P: Detention Basin 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 4.74" for 25-year event
 Inflow = 5.44 cfs @ 12.08 hrs, Volume= 0.401 af
 Outflow = 0.21 cfs @ 15.15 hrs, Volume= 0.152 af, Atten= 96%, Lag= 184.2 min
 Primary = 0.18 cfs @ 15.15 hrs, Volume= 0.147 af
 Routed to Reach P5 : Pipe Out of 5
 Secondary = 0.03 cfs @ 15.15 hrs, Volume= 0.006 af
 Routed to Reach P5 : Pipe Out of 5

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 207.11' @ 15.15 hrs Surf.Area= 5,165 sf Storage= 12,045 cf

Plug-Flow detention time= 267.0 min calculated for 0.152 af (38% of inflow)
 Center-of-Mass det. time= 148.4 min (889.8 - 741.5)

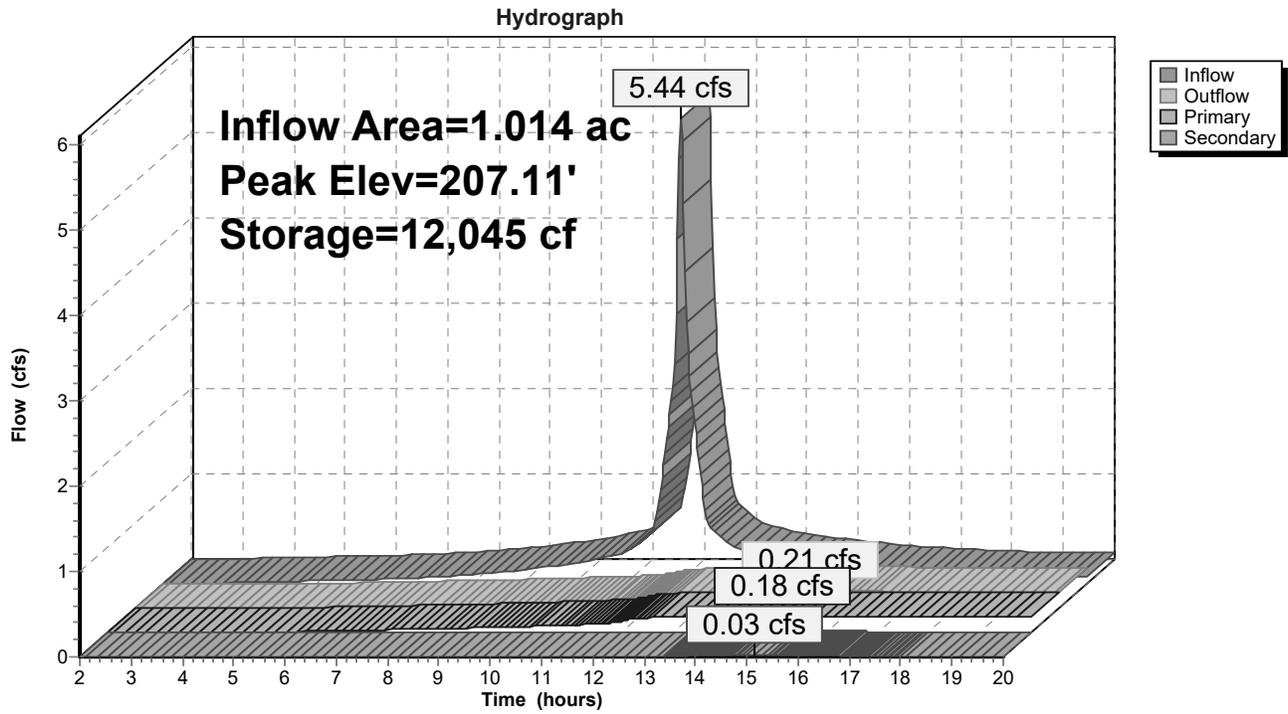
Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	15,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,787	236.0	0	0	2,787	
205.00	3,274	250.0	3,027	3,027	3,380	
206.00	4,298	383.0	3,774	6,802	10,087	
207.00	5,079	397.0	4,683	11,485	11,040	
207.75	5,683	407.0	4,034	15,518	11,747	

Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads
#2	Secondary	207.00'	4.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=0.18 cfs @ 15.15 hrs HW=207.11' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.18 cfs @ 8.38 fps)

Secondary OutFlow Max=0.03 cfs @ 15.15 hrs HW=207.11' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.03 cfs @ 1.13 fps)

Pond 5P: Detention Basin 5



Summary for Pond 6P: Detention Basin 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 3.48" for 25-year event
 Inflow = 2.37 cfs @ 12.09 hrs, Volume= 0.160 af
 Outflow = 0.24 cfs @ 12.95 hrs, Volume= 0.099 af, Atten= 90%, Lag= 51.9 min
 Primary = 0.24 cfs @ 12.95 hrs, Volume= 0.099 af
 Routed to Reach P6 : Pipe Out of 6
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P6 : Pipe Out of 6

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.68' @ 12.95 hrs Surf.Area= 3,025 sf Storage= 4,137 cf

Plug-Flow detention time= 205.2 min calculated for 0.099 af (62% of inflow)
 Center-of-Mass det. time= 132.4 min (910.3 - 778.0)

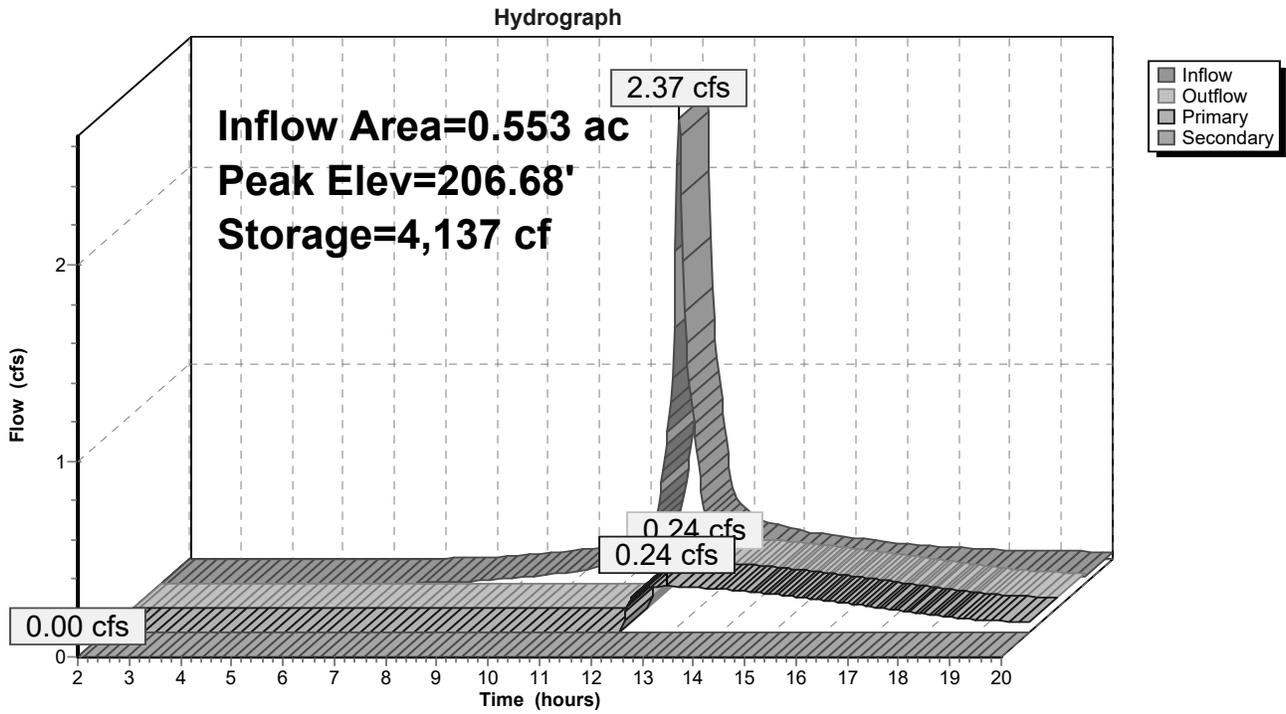
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	7,775 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	1,920	273.0	0	0	1,920	
206.00	2,558	295.0	2,231	2,231	2,954	
207.00	3,255	360.0	2,900	5,131	6,358	
207.75	3,802	370.0	2,644	7,775	7,000	

Device	Routing	Invert	Outlet Devices	
#1	Primary	206.00'	3.5" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads	
#2	Secondary	207.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.24 cfs @ 12.95 hrs HW=206.68' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.24 cfs @ 3.53 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 6P: Detention Basin 6



Summary for Pond 7P: Detention Basin 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.88" for 25-year event
 Inflow = 0.49 cfs @ 12.11 hrs, Volume= 0.041 af
 Outflow = 0.05 cfs @ 15.28 hrs, Volume= 0.027 af, Atten= 91%, Lag= 190.1 min
 Primary = 0.05 cfs @ 15.28 hrs, Volume= 0.027 af
 Routed to Reach P7 : Pipe Out of 7
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P7 : Pipe Out of 7

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.27' @ 15.28 hrs Surf.Area= 3,348 sf Storage= 870 cf

Plug-Flow detention time= 201.8 min calculated for 0.027 af (65% of inflow)
 Center-of-Mass det. time= 119.1 min (964.9 - 845.8)

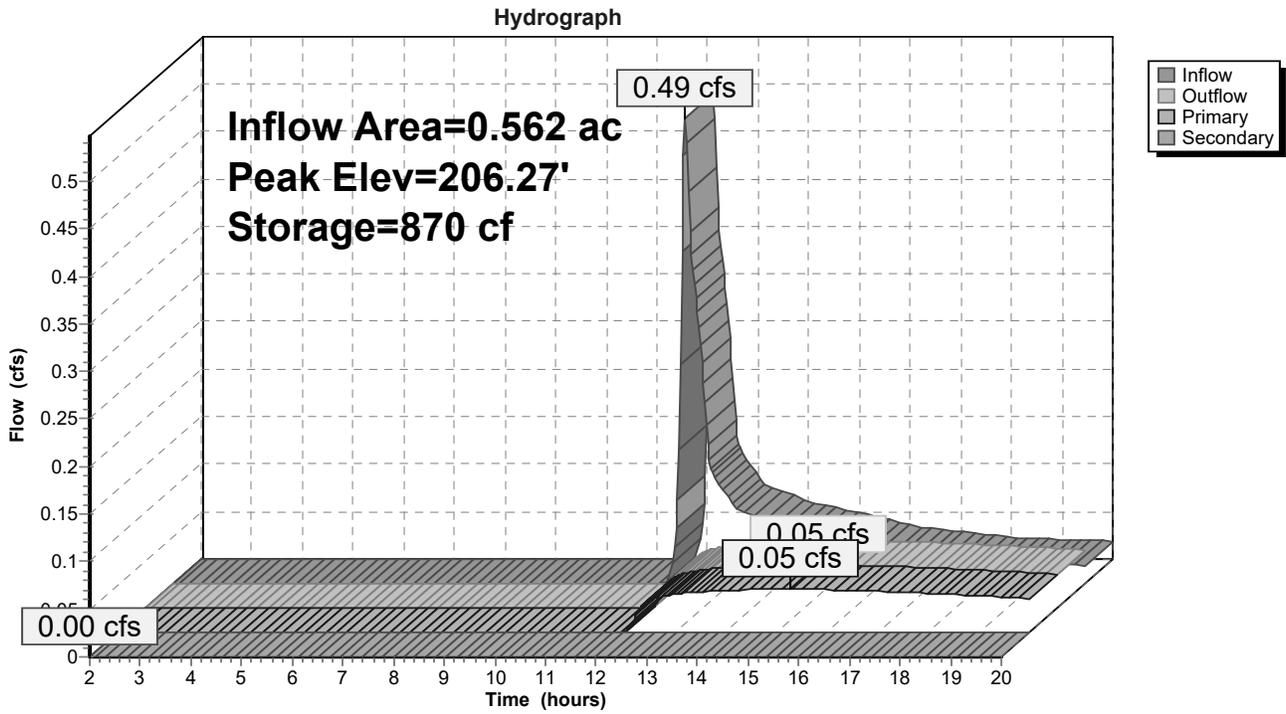
Volume	Invert	Avail.Storage	Storage Description			
#1	206.00'	7,029 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
206.00	3,078	335.0	0	0	3,078	
207.00	4,132	359.0	3,592	3,592	4,448	
207.75	5,049	375.0	3,437	7,029	5,422	

Device	Routing	Invert	Outlet Devices		
#1	Primary	206.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.05 cfs @ 15.28 hrs HW=206.27' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.05 cfs @ 2.09 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=206.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 7P: Detention Basin 7



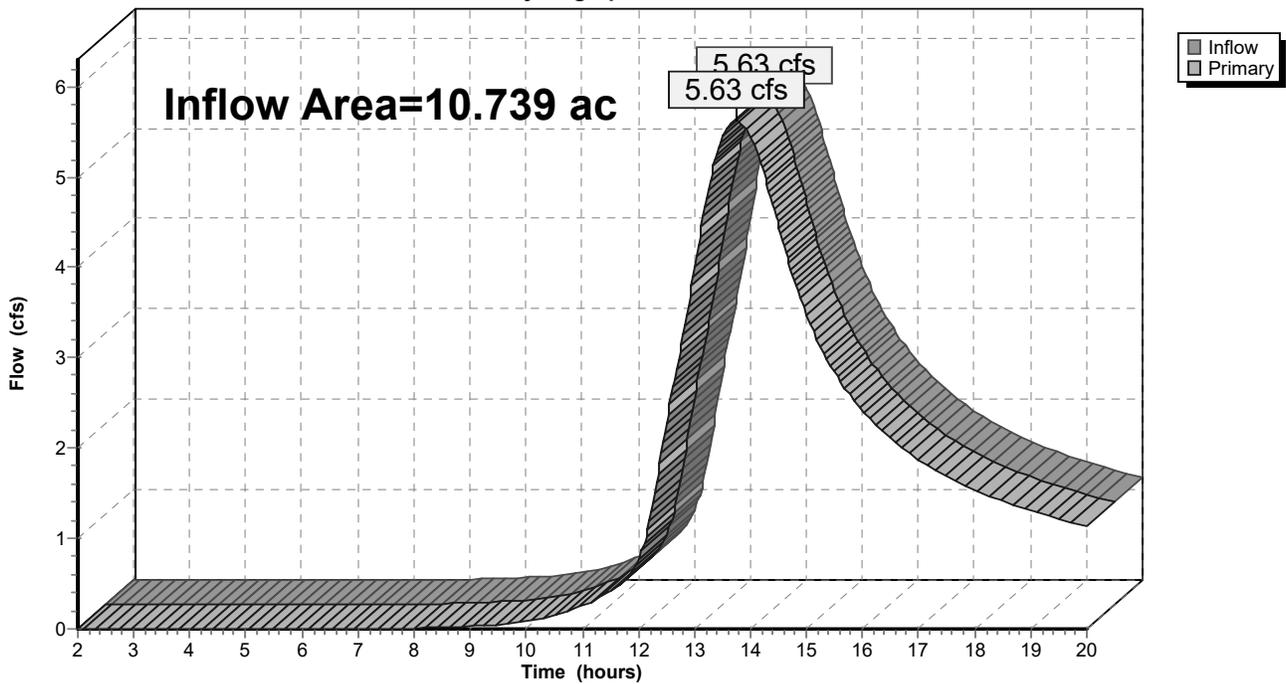
Summary for Link x1000: x1000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 2.03" for 25-year event
Inflow = 5.63 cfs @ 13.75 hrs, Volume= 1.812 af
Primary = 5.63 cfs @ 13.75 hrs, Volume= 1.812 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 1k-2k : x1000 to x2000

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x1000: x1000

Hydrograph



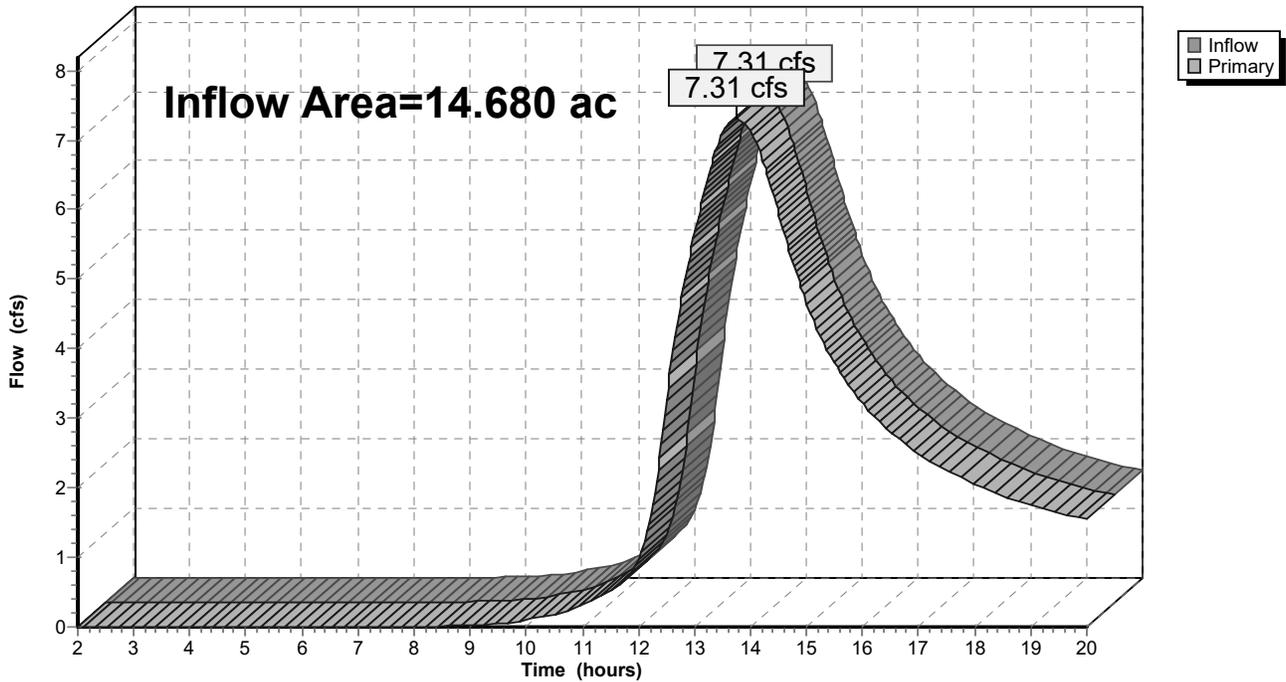
Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 1.98" for 25-year event
Inflow = 7.31 cfs @ 13.74 hrs, Volume= 2.420 af
Primary = 7.31 cfs @ 13.74 hrs, Volume= 2.420 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2k-3k : x2000 to x3000

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x2000: x2000

Hydrograph



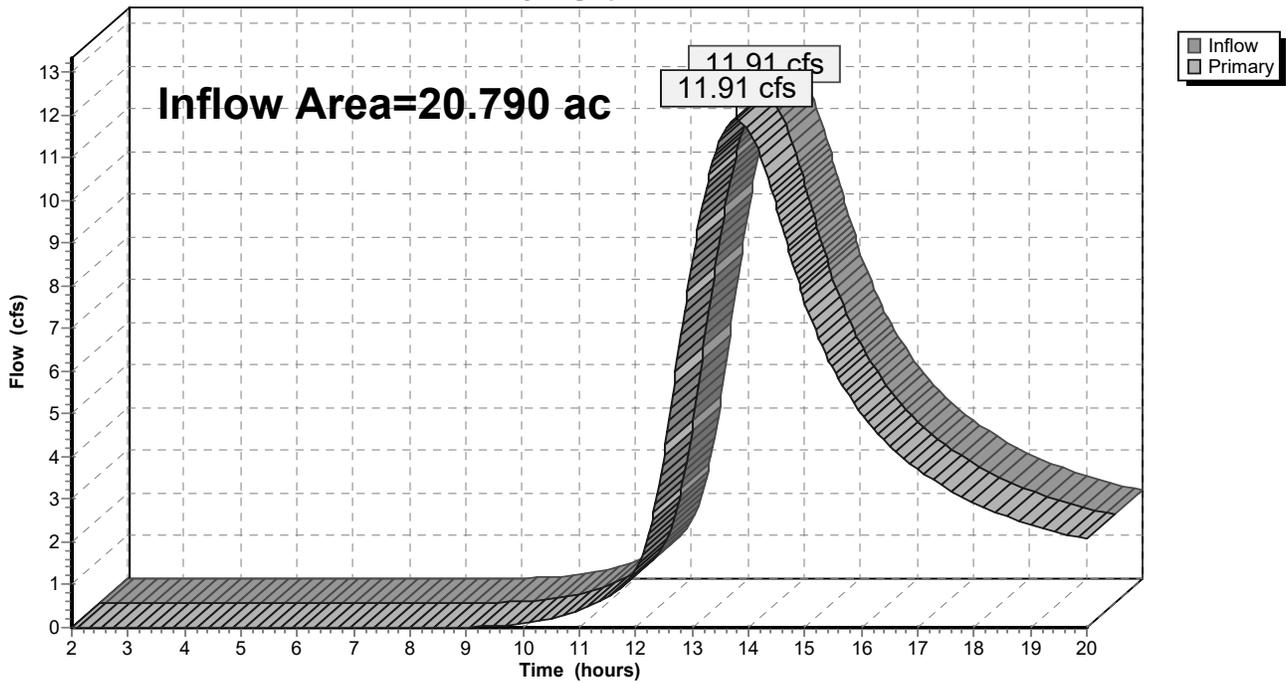
Summary for Link x3000: x3000

Inflow Area = 20.790 ac, 10.83% Impervious, Inflow Depth > 2.14" for 25-year event
Inflow = 11.91 cfs @ 13.79 hrs, Volume= 3.702 af
Primary = 11.91 cfs @ 13.79 hrs, Volume= 3.702 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x3000: x3000

Hydrograph



100-Year Storm Event – Proposed

4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Time span=2.00-20.00 hrs, dt=0.03 hrs, 601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 100: Area 100	Runoff Area=21,241 sf 39.36% Impervious Runoff Depth>5.43" Tc=6.0 min CN=87 Runoff=3.14 cfs 0.221 af
Subcatchment 200: Area 200	Runoff Area=7,259 sf 21.45% Impervious Runoff Depth>5.09" Tc=6.0 min CN=84 Runoff=1.02 cfs 0.071 af
Subcatchment 300: Area 300	Runoff Area=25,373 sf 47.63% Impervious Runoff Depth>5.54" Tc=6.0 min CN=88 Runoff=3.80 cfs 0.269 af
Subcatchment 350: Area 350	Runoff Area=2,640 sf 0.00% Impervious Runoff Depth>3.58" Tc=6.0 min CN=70 Runoff=0.27 cfs 0.018 af
Subcatchment 400: Area 400	Runoff Area=17,459 sf 54.77% Impervious Runoff Depth>5.54" Tc=6.0 min CN=88 Runoff=2.61 cfs 0.185 af
Subcatchment 450: Area 450	Runoff Area=5,879 sf 0.00% Impervious Runoff Depth>2.47" Tc=6.0 min CN=59 Runoff=0.41 cfs 0.028 af
Subcatchment 500: Area 500	Runoff Area=24,492 sf 21.12% Impervious Runoff Depth>1.64" Tc=6.0 min CN=50 Runoff=1.05 cfs 0.077 af
Subcatchment 550: Area 550	Runoff Area=24,095 sf 65.72% Impervious Runoff Depth>4.87" Tc=6.0 min CN=82 Runoff=3.28 cfs 0.224 af
Subcatchment 600: Area 600	Runoff Area=44,164 sf 81.56% Impervious Runoff Depth>6.24" Tc=6.0 min CN=94 Runoff=7.05 cfs 0.527 af
Subcatchment 700: Area 700	Runoff Area=155,394 sf 0.00% Impervious Runoff Depth>3.72" Flow Length=914' Tc=123.7 min CN=73 Runoff=4.27 cfs 1.105 af
Subcatchment 800: Area 800	Runoff Area=83,661 sf 0.00% Impervious Runoff Depth>4.10" Flow Length=850' Tc=142.4 min CN=77 Runoff=2.29 cfs 0.656 af
Subcatchment 900: Area 900	Runoff Area=20,660 sf 0.00% Impervious Runoff Depth>4.27" Flow Length=370' Tc=40.8 min CN=77 Runoff=1.25 cfs 0.169 af
Subcatchment 1000: Area 1000	Runoff Area=89,935 sf 0.00% Impervious Runoff Depth>3.65" Flow Length=675' Tc=101.4 min CN=72 Runoff=2.76 cfs 0.628 af
Subcatchment 1100: Area 1100	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>3.55" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.80 cfs 0.089 af
Subcatchment 1200: Area 1200	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>3.90" Flow Length=868' Tc=140.2 min CN=75 Runoff=4.34 cfs 1.215 af
Subcatchment 1300: Area 1300	Runoff Area=41,280 sf 0.00% Impervious Runoff Depth>3.69" Flow Length=525' Tc=136.8 min CN=73 Runoff=1.06 cfs 0.292 af

Subcatchment 1400: Area 1400	Runoff Area=43,924 sf 0.00% Impervious Runoff Depth>3.93" Flow Length=410' Tc=58.3 min CN=74 Runoff=2.03 cfs 0.330 af
Subcatchment 1500: Area 1500	Runoff Area=15,037 sf 0.00% Impervious Runoff Depth>4.16" Flow Length=661' Tc=110.0 min CN=77 Runoff=0.50 cfs 0.120 af
Subcatchment 1600: Area 1600	Runoff Area=22,207 sf 0.00% Impervious Runoff Depth>2.02" Flow Length=1,245' Tc=149.8 min CN=56 Runoff=0.29 cfs 0.086 af
Subcatchment 1700: Area 1700	Runoff Area=23,148 sf 0.00% Impervious Runoff Depth>0.30" Flow Length=917' Tc=159.8 min CN=33 Runoff=0.03 cfs 0.013 af
Subcatchment 1800: Area 1800	Runoff Area=52,490 sf 0.78% Impervious Runoff Depth>3.49" Flow Length=615' Tc=135.0 min CN=71 Runoff=1.28 cfs 0.351 af
Subcatchment DISP: Dispensary Building	Runoff Area=4,073 sf 100.00% Impervious Runoff Depth>6.68" Tc=6.0 min CN=98 Runoff=0.66 cfs 0.052 af
Subcatchment LAB: Lab Bldg	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>6.68" Tc=6.0 min CN=98 Runoff=0.82 cfs 0.064 af
Reach 1k-2k: x1000 to x2000	Avg. Flow Depth=0.43' Max Vel=1.63 fps Inflow=8.40 cfs 2.732 af n=0.035 L=260.0' S=0.0077 '/ Capacity=1,021.34 cfs Outflow=8.39 cfs 2.717 af
Reach 2k-3k: x2000 to x3000	Avg. Flow Depth=0.82' Max Vel=1.48 fps Inflow=10.93 cfs 3.636 af n=0.035 L=360.0' S=0.0028 '/ Capacity=334.17 cfs Outflow=10.92 cfs 3.604 af
Reach CP1: Connecting Pipes 8.0" Round Pipe x 2.00	n=0.011 Avg. Flow Depth=0.41' Max Vel=4.42 fps Inflow=1.99 cfs 0.216 af L=60.0' S=0.0100 '/ Capacity=2.86 cfs Outflow=1.98 cfs 0.216 af
Reach CP4: Connecting Pipes 15.0" Round Pipe x 2.00	n=0.011 Avg. Flow Depth=0.45' Max Vel=3.03 fps Inflow=2.45 cfs 0.184 af L=62.0' S=0.0032 '/ Capacity=8.67 cfs Outflow=2.43 cfs 0.184 af
Reach P1: Pipe Out of 1 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.12' Max Vel=2.33 fps Inflow=0.13 cfs 0.088 af L=78.0' S=0.0128 '/ Capacity=4.03 cfs Outflow=0.13 cfs 0.088 af
Reach P2: Pipe Out of 2 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.15' Max Vel=1.68 fps Inflow=0.13 cfs 0.098 af L=60.0' S=0.0050 '/ Capacity=2.52 cfs Outflow=0.13 cfs 0.098 af
Reach P3: Pipe Out of 3 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.16' Max Vel=1.72 fps Inflow=0.14 cfs 0.102 af L=40.0' S=0.0050 '/ Capacity=2.52 cfs Outflow=0.14 cfs 0.102 af
Reach P4B: Pipe Out of 4B 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.15' Max Vel=1.77 fps Inflow=0.14 cfs 0.097 af L=182.0' S=0.0055 '/ Capacity=2.64 cfs Outflow=0.14 cfs 0.097 af
Reach P5: Pipe Out of 5 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.28' Max Vel=2.57 fps Inflow=0.46 cfs 0.260 af L=35.0' S=0.0057 '/ Capacity=2.69 cfs Outflow=0.46 cfs 0.260 af
Reach P6: Pipe Out of 6 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.22' Max Vel=2.66 fps Inflow=0.33 cfs 0.159 af L=60.0' S=0.0083 '/ Capacity=3.25 cfs Outflow=0.33 cfs 0.159 af
Reach P7: Pipe Out of 7 12.0" Round Pipe	n=0.013 Avg. Flow Depth=0.11' Max Vel=1.58 fps Inflow=0.07 cfs 0.044 af L=290.0' S=0.0069 '/ Capacity=2.96 cfs Outflow=0.07 cfs 0.044 af

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Reach W1: 1 Thru Wetland	Avg. Flow Depth=0.22' Max Vel=0.07 fps Inflow=0.13 cfs 0.088 af n=0.800 L=335.0' S=0.0197 '/ Capacity=3.31 cfs Outflow=0.12 cfs 0.062 af
Reach W2: 2 Thru Wetland	Avg. Flow Depth=0.23' Max Vel=0.07 fps Inflow=0.13 cfs 0.098 af n=0.800 L=375.0' S=0.0152 '/ Capacity=2.90 cfs Outflow=0.12 cfs 0.067 af
Reach W3: 3 Thru Wetland	Avg. Flow Depth=0.27' Max Vel=0.06 fps Inflow=0.37 cfs 0.120 af n=0.800 L=850.0' S=0.0092 '/ Capacity=2.26 cfs Outflow=0.12 cfs 0.029 af
Reach W4B: 4B Thru Wetland	Avg. Flow Depth=0.25' Max Vel=0.06 fps Inflow=0.14 cfs 0.097 af n=0.800 L=515.0' S=0.0117 '/ Capacity=2.54 cfs Outflow=0.13 cfs 0.047 af
Reach W5: 5 Thru Wetland	Avg. Flow Depth=0.40' Max Vel=0.10 fps Inflow=0.46 cfs 0.260 af n=0.800 L=318.0' S=0.0182 '/ Capacity=3.18 cfs Outflow=0.44 cfs 0.228 af
Reach W6: 6 Thru Wetland	Avg. Flow Depth=0.34' Max Vel=0.08 fps Inflow=0.33 cfs 0.159 af n=0.800 L=615.0' S=0.0122 '/ Capacity=2.60 cfs Outflow=0.25 cfs 0.088 af
Reach W7: 7 Thru Wetland	Avg. Flow Depth=0.19' Max Vel=0.05 fps Inflow=0.07 cfs 0.044 af n=0.800 L=600.0' S=0.0100 '/ Capacity=2.36 cfs Outflow=0.05 cfs 0.008 af
Pond 1A: Detention Basin 1A	Peak Elev=204.68' Storage=1,670 cf Inflow=3.14 cfs 0.221 af Outflow=1.99 cfs 0.216 af
Pond 1B: Detention Basin 1B	Peak Elev=204.52' Storage=6,377 cf Inflow=1.98 cfs 0.216 af Outflow=0.13 cfs 0.088 af
Pond 2P: Detention Basin 2	Peak Elev=205.55' Storage=5,062 cf Inflow=2.50 cfs 0.187 af Primary=0.13 cfs 0.098 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.098 af
Pond 3P: Detention Basin 3	Peak Elev=206.79' Storage=8,176 cf Inflow=3.80 cfs 0.269 af Primary=0.14 cfs 0.102 af Secondary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.102 af
Pond 4A: Detention Basin 4A	Peak Elev=205.73' Storage=432 cf Inflow=2.61 cfs 0.185 af Primary=2.45 cfs 0.184 af Secondary=0.00 cfs 0.000 af Outflow=2.45 cfs 0.184 af
Pond 4B: Detention Basin 4B	Peak Elev=206.74' Storage=6,002 cf Inflow=2.82 cfs 0.212 af Primary=0.14 cfs 0.097 af Secondary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.097 af
Pond 5P: Detention Basin 5	Peak Elev=207.57' Storage=14,533 cf Inflow=7.05 cfs 0.527 af Primary=0.20 cfs 0.162 af Secondary=0.27 cfs 0.098 af Outflow=0.46 cfs 0.260 af
Pond 6P: Detention Basin 6	Peak Elev=207.21' Storage=5,824 cf Inflow=3.28 cfs 0.224 af Primary=0.33 cfs 0.159 af Secondary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.159 af
Pond 7P: Detention Basin 7	Peak Elev=206.55' Storage=1,833 cf Inflow=1.05 cfs 0.077 af Primary=0.07 cfs 0.044 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.044 af
Link x1000: x1000	Inflow=8.40 cfs 2.732 af Primary=8.40 cfs 2.732 af

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Link x2000: x2000

Inflow=10.93 cfs 3.636 af
Primary=10.93 cfs 3.636 af

Link x3000: x3000

Inflow=17.71 cfs 5.537 af
Primary=17.71 cfs 5.537 af

Total Runoff Area = 20.790 ac Runoff Volume = 6.790 af Average Runoff Depth = 3.92"
89.17% Pervious = 18.538 ac 10.83% Impervious = 2.251 ac

4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 100: Area 100

Runoff = 3.14 cfs @ 12.09 hrs, Volume= 0.221 af, Depth> 5.43"
Routed to Pond 1A : Detention Basin 1A

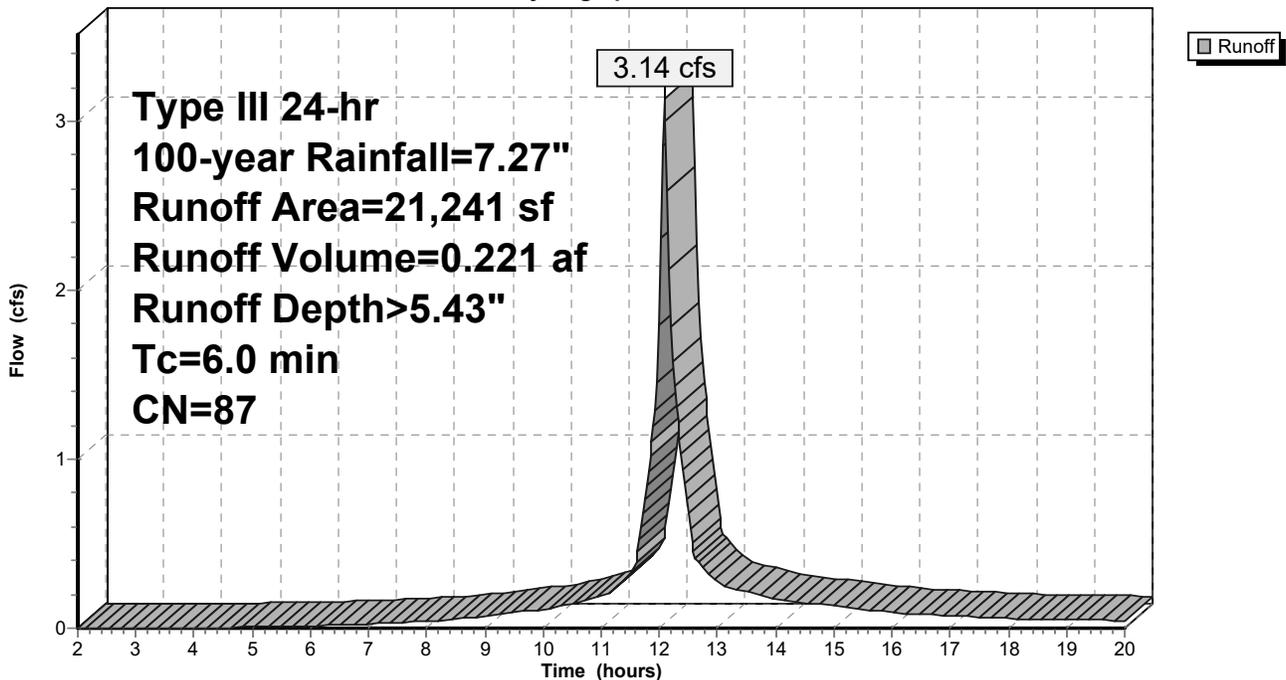
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
2,229	98	Paved parking, HSG C
12,881	80	>75% Grass cover, Good, HSG D
6,131	98	Paved parking, HSG D
21,241	87	Weighted Average
12,881		60.64% Pervious Area
8,360		39.36% Impervious Area

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

Subcatchment 100: Area 100

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 200: Area 200

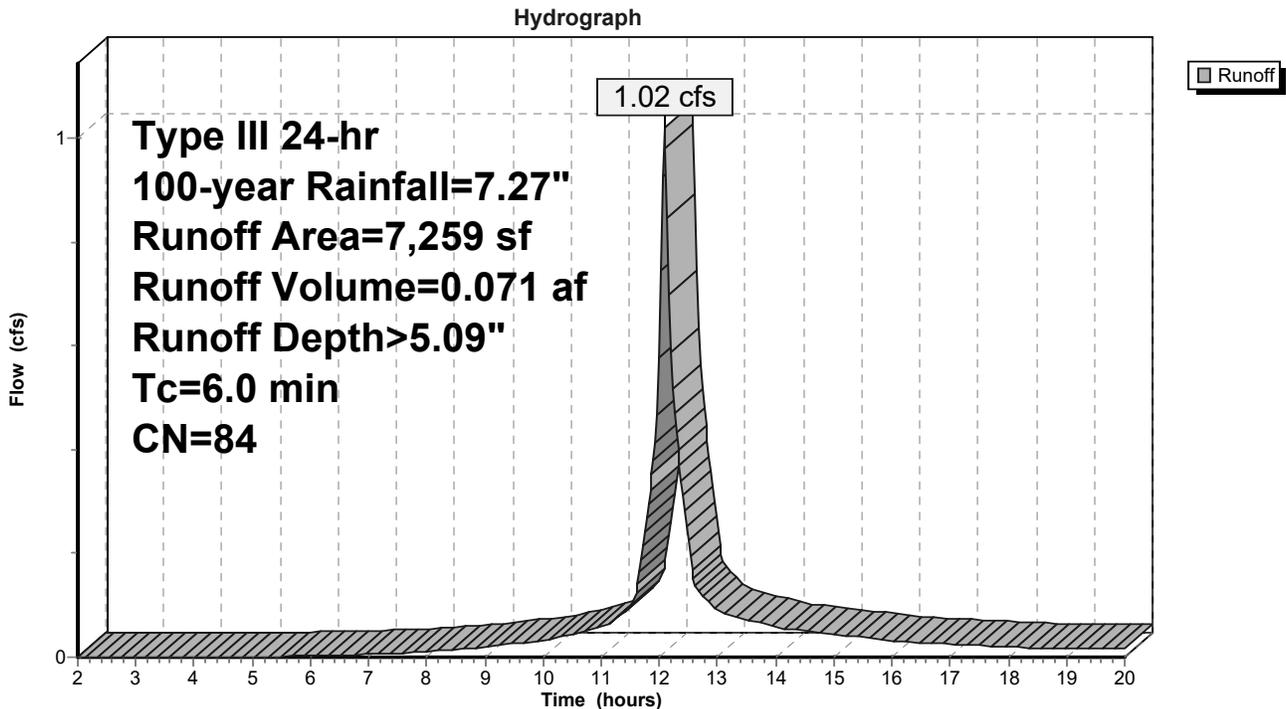
Runoff = 1.02 cfs @ 12.09 hrs, Volume= 0.071 af, Depth> 5.09"
 Routed to Pond 2P : Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
356	98	Paved parking, HSG D
1,201	98	Paved parking, HSG C
5,702	80	>75% Grass cover, Good, HSG D
7,259	84	Weighted Average
5,702		78.55% Pervious Area
1,557		21.45% Impervious Area

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

Subcatchment 200: Area 200



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 300: Area 300

Runoff = 3.80 cfs @ 12.09 hrs, Volume= 0.269 af, Depth> 5.54"
 Routed to Pond 3P : Detention Basin 3

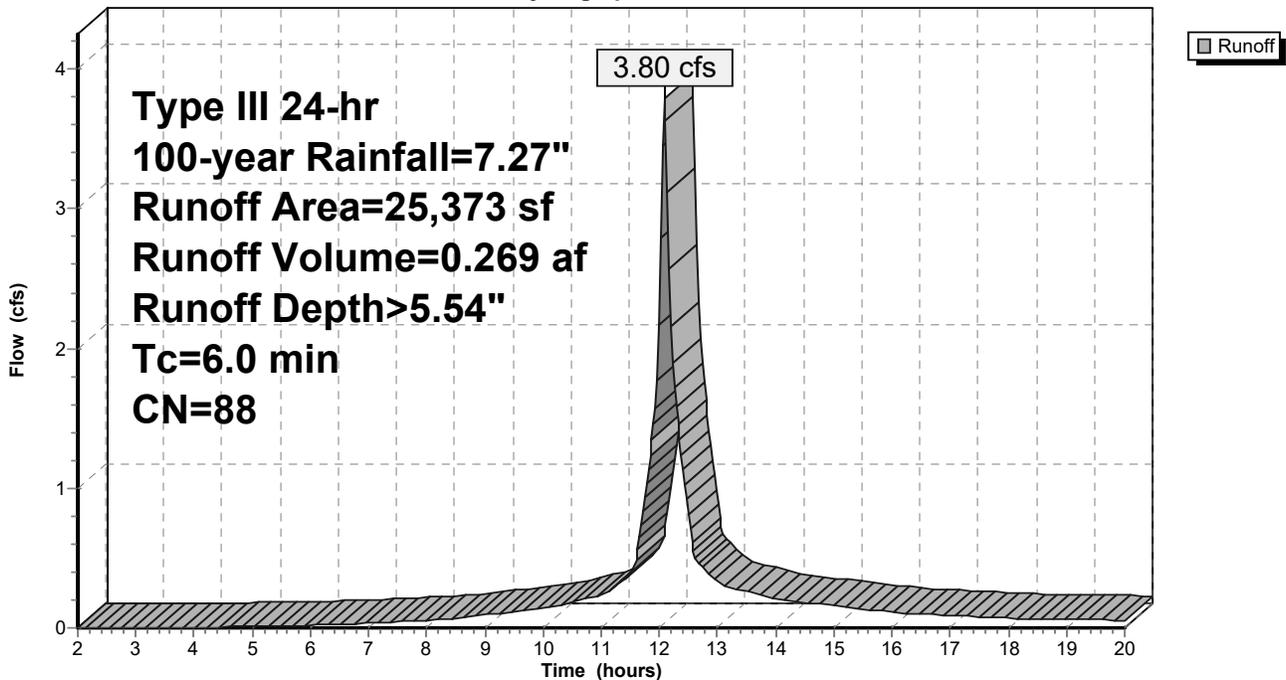
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
6,584	77	Woods, Good, HSG D
10,134	98	Paved parking, HSG D
6,278	80	>75% Grass cover, Good, HSG D
425	70	Woods, Good, HSG C
1,952	98	Paved parking, HSG C
25,373	88	Weighted Average
13,287		52.37% Pervious Area
12,086		47.63% Impervious Area

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

Subcatchment 300: Area 300

Hydrograph



Summary for Subcatchment 350: Area 350

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 3.58"
 Routed to Reach W3 : 3 Thru Wetland

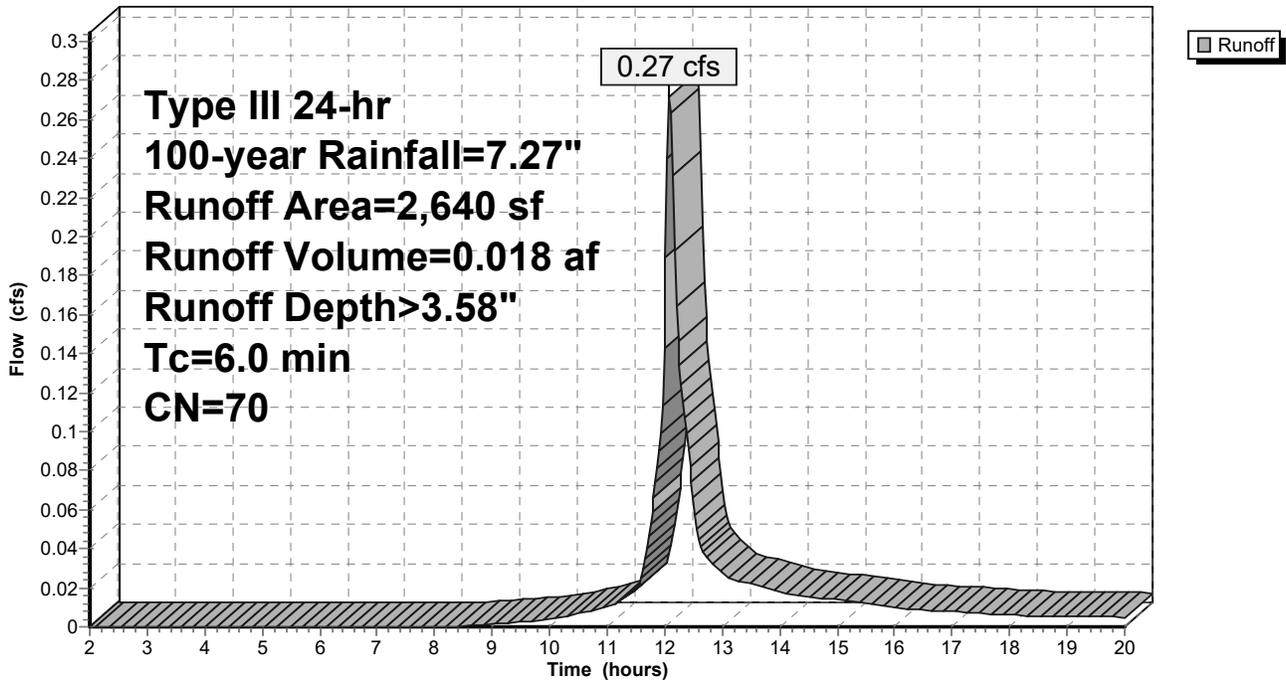
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
2,640	70	Woods, Good, HSG C
2,640		100.00% Pervious Area

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

Subcatchment 350: Area 350

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 400: Area 400

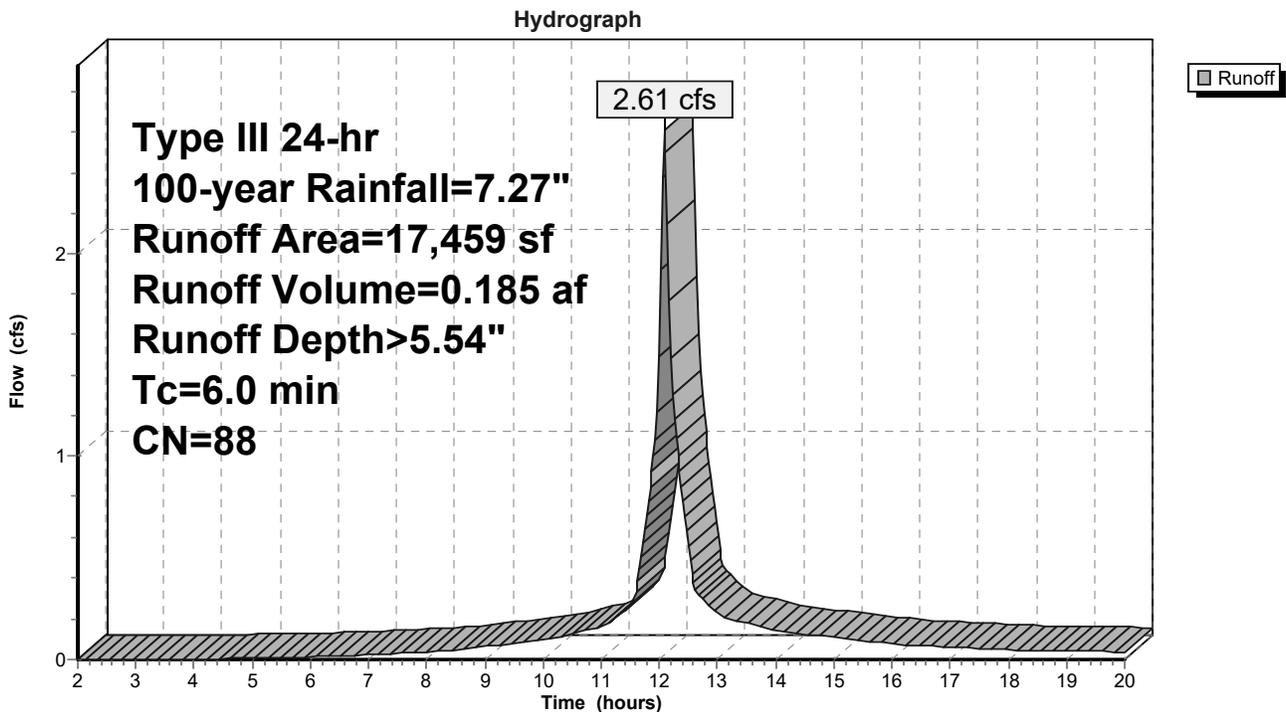
Runoff = 2.61 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 5.54"
 Routed to Pond 4A : Detention Basin 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
5,161	98	Paved parking, HSG D
1,112	80	>75% Grass cover, Good, HSG D
4,402	98	Paved parking, HSG C
6,784	74	>75% Grass cover, Good, HSG C
17,459	88	Weighted Average
7,896		45.23% Pervious Area
9,563		54.77% Impervious Area

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

Subcatchment 400: Area 400



Summary for Subcatchment 450: Area 450

Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 2.47"
 Routed to Pond 4B : Detention Basin 4B

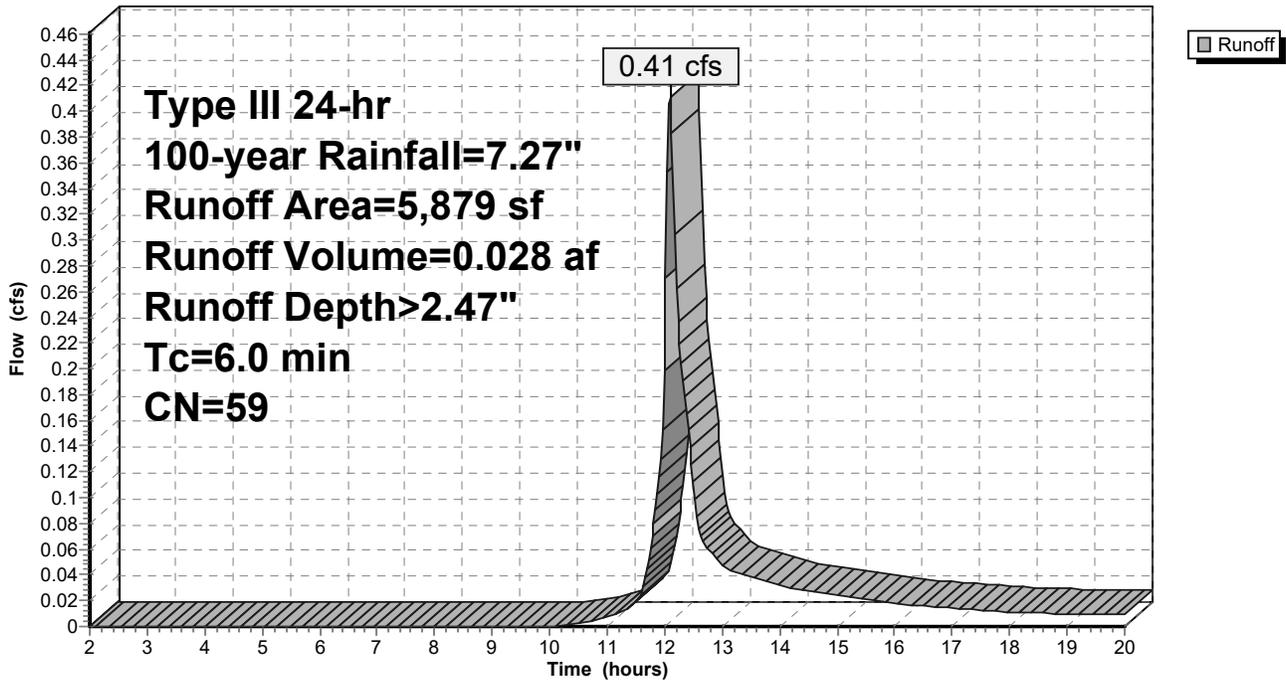
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
2,450	39	>75% Grass cover, Good, HSG A
3,429	74	>75% Grass cover, Good, HSG C
5,879	59	Weighted Average
5,879		100.00% Pervious Area

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

Subcatchment 450: Area 450

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 500: Area 500

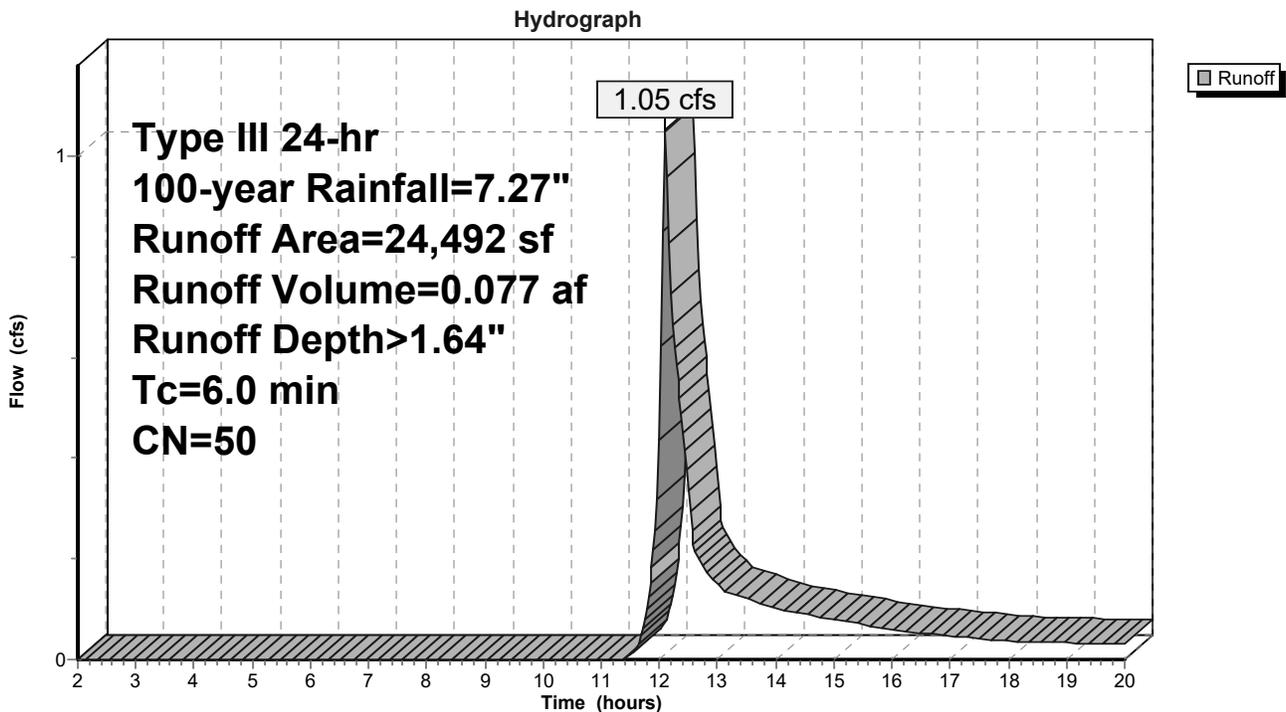
Runoff = 1.05 cfs @ 12.10 hrs, Volume= 0.077 af, Depth> 1.64"
 Routed to Pond 7P : Detention Basin 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
5,173	98	Paved parking, HSG A
3,184	30	Woods, Good, HSG A
16,049	39	>75% Grass cover, Good, HSG A
86	77	Woods, Good, HSG D
24,492	50	Weighted Average
19,319		78.88% Pervious Area
5,173		21.12% Impervious Area

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

Subcatchment 500: Area 500



4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 550: Area 550

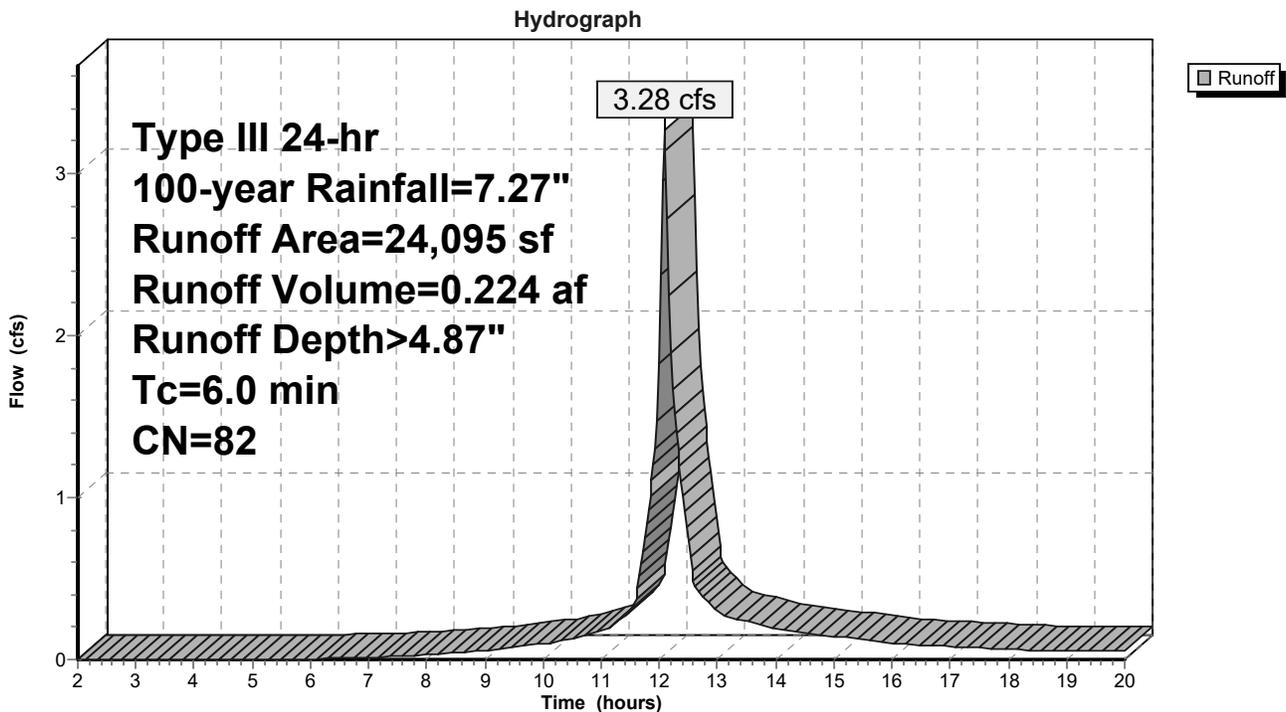
Runoff = 3.28 cfs @ 12.09 hrs, Volume= 0.224 af, Depth> 4.87"
 Routed to Pond 6P : Detention Basin 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
5,754	98	Paved parking, HSG A
5,395	39	>75% Grass cover, Good, HSG A
10,082	98	Paved parking, HSG C
2,864	74	>75% Grass cover, Good, HSG C
24,095	82	Weighted Average
8,259		34.28% Pervious Area
15,836		65.72% Impervious Area

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

Subcatchment 550: Area 550



4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 600: Area 600

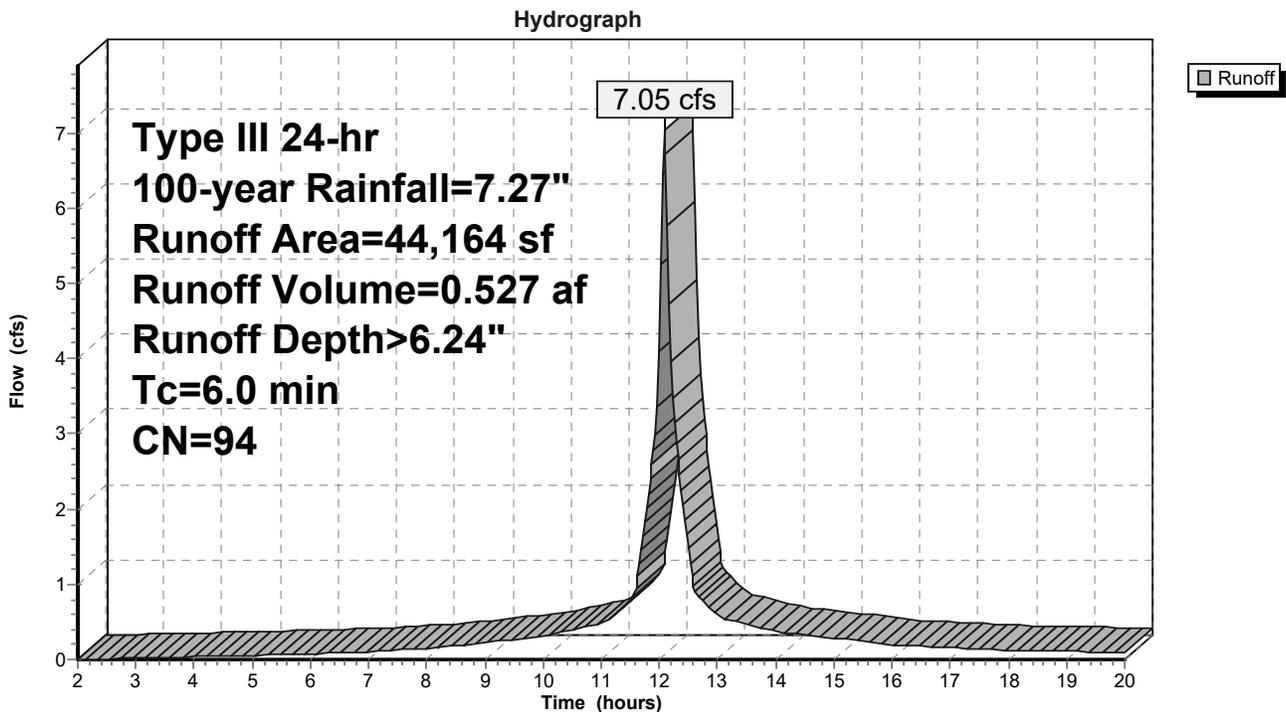
Runoff = 7.05 cfs @ 12.08 hrs, Volume= 0.527 af, Depth> 6.24"
 Routed to Pond 5P : Detention Basin 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
18,352	98	Roofs, HSG A
8,333	98	Roofs, HSG C
9,333	98	Paved parking, HSG C
8,146	74	>75% Grass cover, Good, HSG C
44,164	94	Weighted Average
8,146		18.44% Pervious Area
36,018		81.56% Impervious Area

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

Subcatchment 600: Area 600



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 700: Area 700

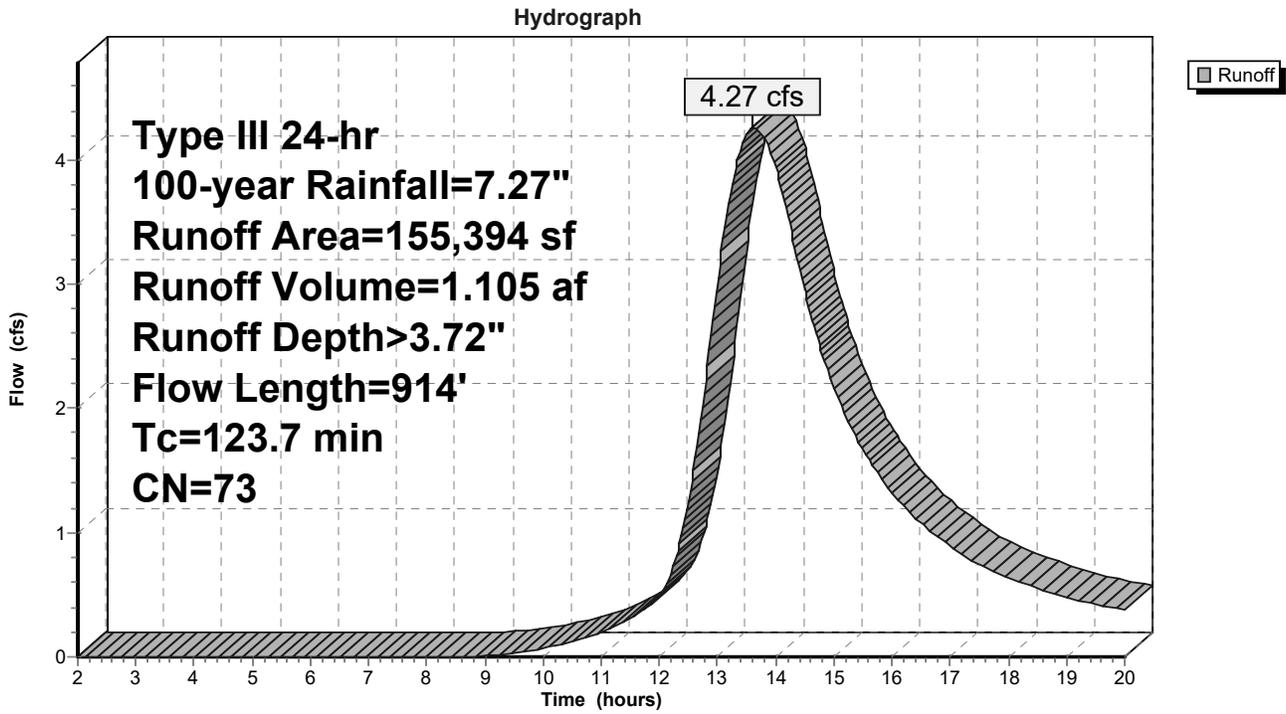
Runoff = 4.27 cfs @ 13.61 hrs, Volume= 1.105 af, Depth> 3.72"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
10,587	30	Woods, Good, HSG A
25,908	70	Woods, Good, HSG C
118,899	77	Woods, Good, HSG D
155,394	73	Weighted Average
155,394		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
10.0	150	0.0100	0.25		Shallow Concentrated Flow, Next 150' Forest w/Heavy Litter Kv= 2.5 fps
3.3	87	0.0300	0.43		Shallow Concentrated Flow, Next 87' Forest w/Heavy Litter Kv= 2.5 fps
24.7	117	0.0010	0.08		Shallow Concentrated Flow, Next 117' Forest w/Heavy Litter Kv= 2.5 fps
0.8	25	0.0400	0.50		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
10.9	225	0.0190	0.34		Shallow Concentrated Flow, Next 225' Forest w/Heavy Litter Kv= 2.5 fps
44.8	260	0.0015	0.10		Shallow Concentrated Flow, Last 260' Forest w/Heavy Litter Kv= 2.5 fps
123.7	914	Total			

Subcatchment 700: Area 700



4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 800: Area 800

Runoff = 2.29 cfs @ 13.80 hrs, Volume= 0.656 af, Depth> 4.10"
 Routed to Link x1000 : x1000

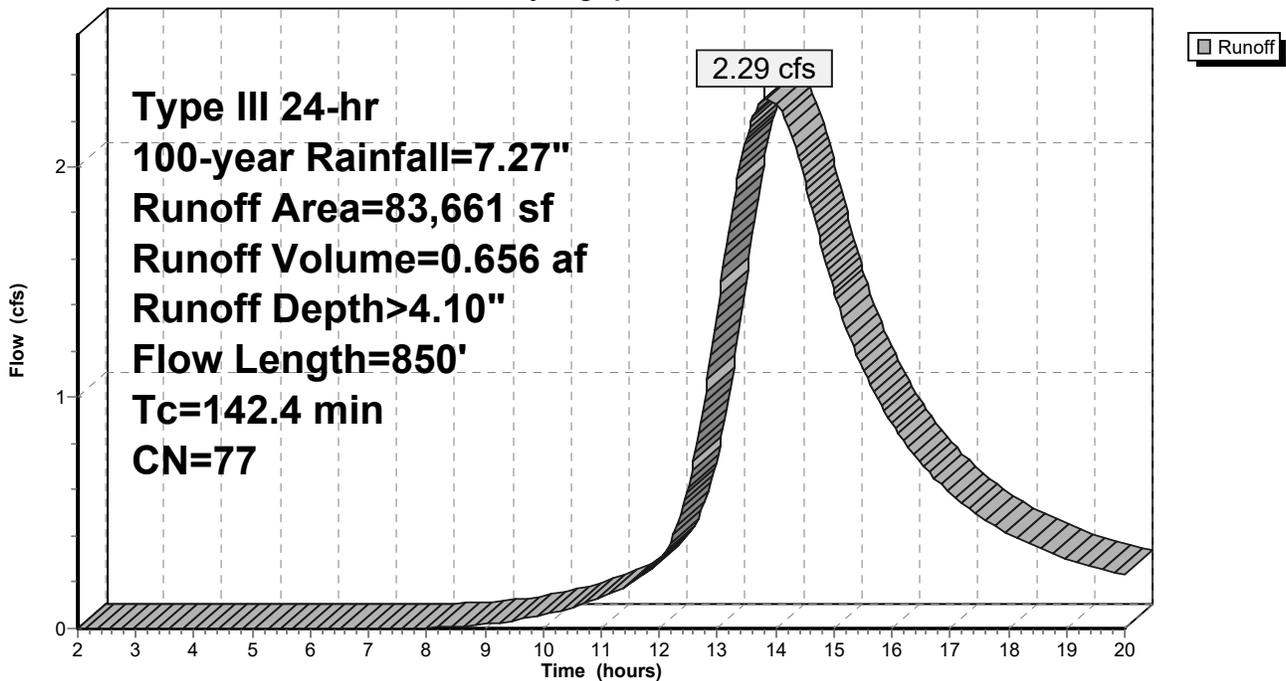
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
83,661	77	Woods, Good, HSG D
83,661		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
47.8	470	0.0043	0.16		Shallow Concentrated Flow, Next 470' Forest w/Heavy Litter Kv= 2.5 fps
16.2	180	0.0055	0.19		Shallow Concentrated Flow, Next 180' Forest w/Heavy Litter Kv= 2.5 fps
2.4	50	0.0200	0.35		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
2.6	100	0.0670	0.65		Shallow Concentrated Flow, Last 100' Forest w/Heavy Litter Kv= 2.5 fps
142.4	850	Total			

Subcatchment 800: Area 800

Hydrograph



Summary for Subcatchment 900: Area 900

Runoff = 1.25 cfs @ 12.56 hrs, Volume= 0.169 af, Depth> 4.27"
 Routed to Link x1000 : x1000

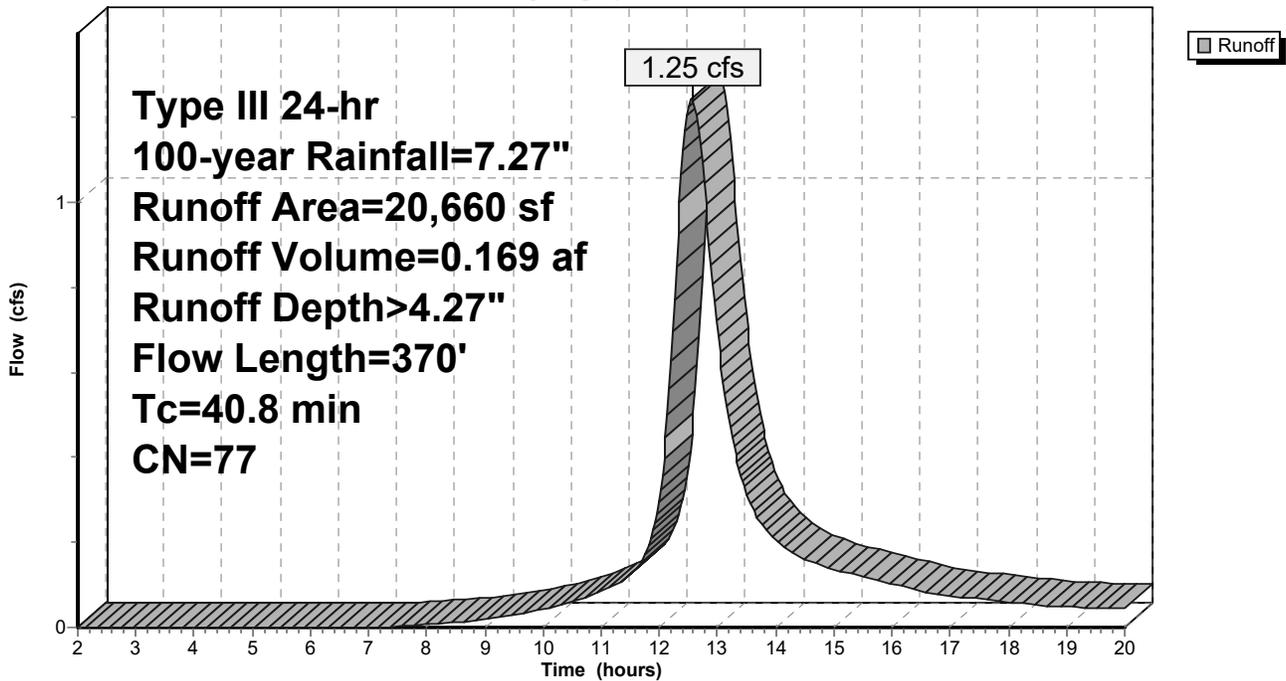
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
20,660	77	Woods, Good, HSG D
20,660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0670	0.06		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
27.1	320	0.0062	0.20		Shallow Concentrated Flow, Last 320' Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 900: Area 900

Hydrograph



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 1000: Area 1000

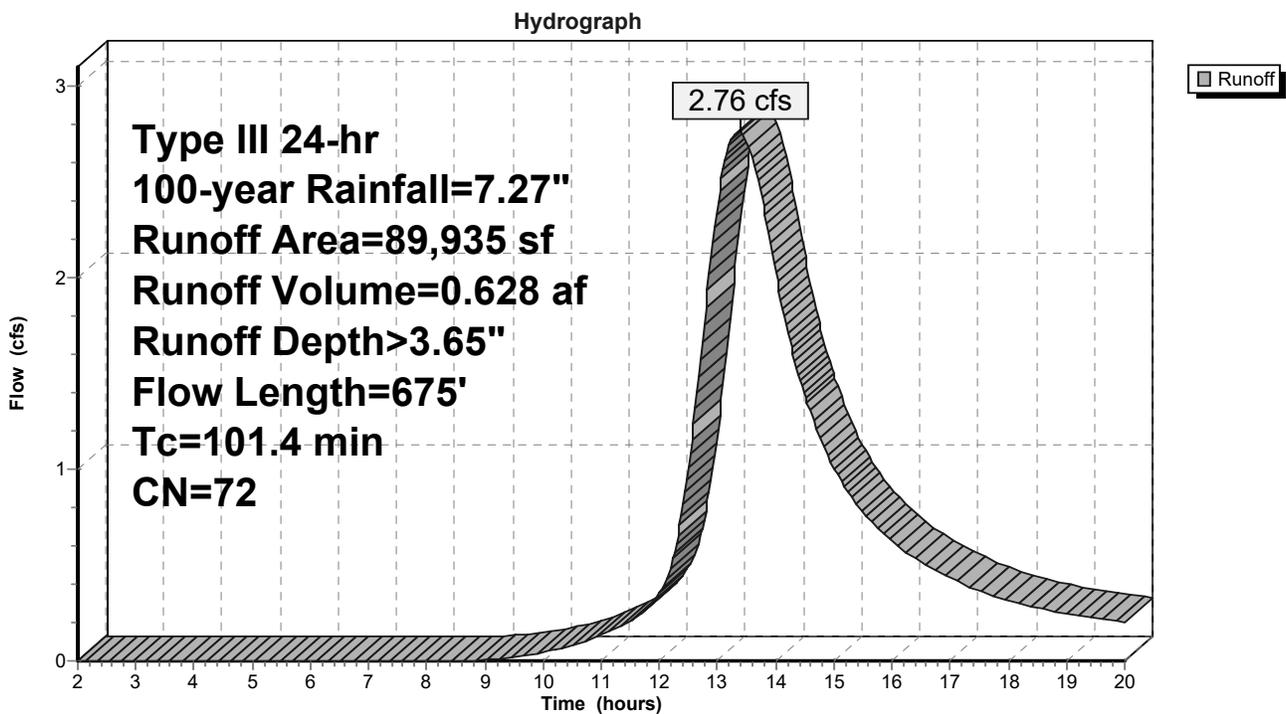
Runoff = 2.76 cfs @ 13.39 hrs, Volume= 0.628 af, Depth> 3.65"
 Routed to Link x3000 : x3000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
58,047	70	Woods, Good, HSG C
31,888	77	Woods, Good, HSG D
89,935	72	Weighted Average
89,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.6	50	0.0170	0.04		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
8.8	125	0.0090	0.24		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.5	20	0.0670	0.65		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
14.2	165	0.0060	0.19		Shallow Concentrated Flow, Next 165' Forest w/Heavy Litter Kv= 2.5 fps
1.6	65	0.0770	0.69		Shallow Concentrated Flow, Next 65' Forest w/Heavy Litter Kv= 2.5 fps
52.7	250	0.0010	0.08		Shallow Concentrated Flow, Last 250' Forest w/Heavy Litter Kv= 2.5 fps
101.4	675	Total			

Subcatchment 1000: Area 1000



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 1100: Area 1100

Runoff = 0.80 cfs @ 12.38 hrs, Volume= 0.089 af, Depth> 3.55"
 Routed to Link x3000 : x3000

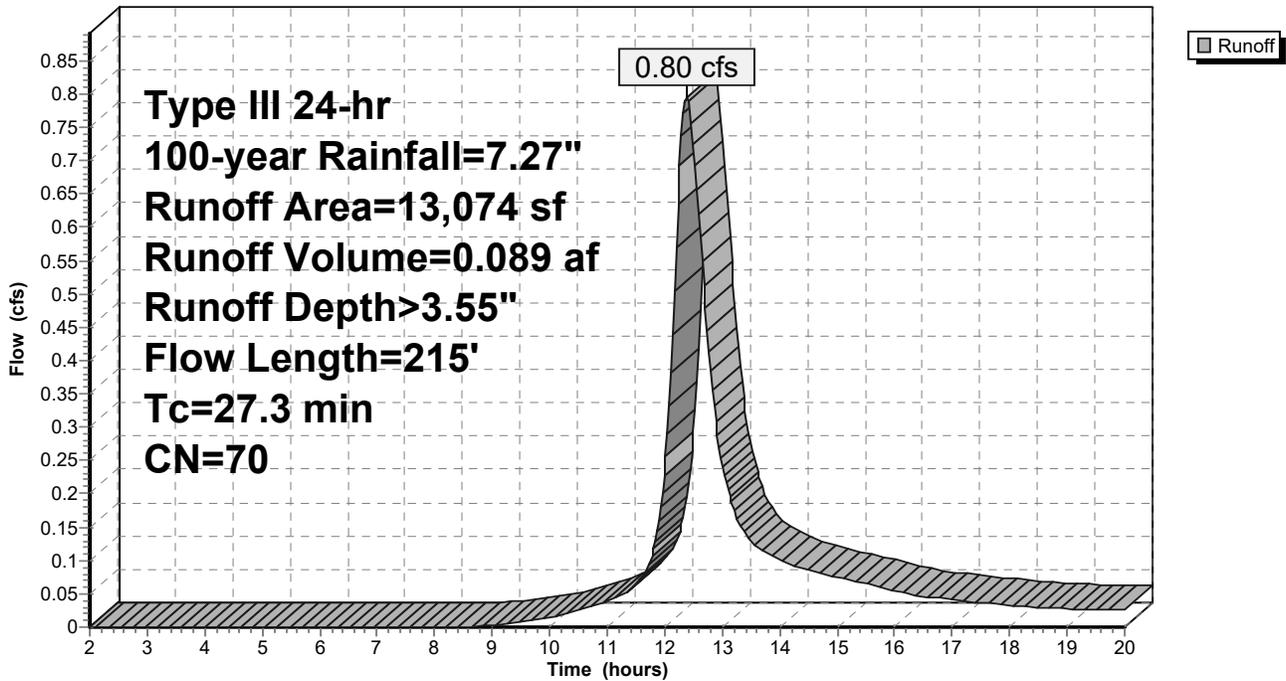
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
13,074	70	Woods, Good, HSG C
13,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1250	0.08		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
4.1	105	0.0297	0.43		Shallow Concentrated Flow, Next 105' Forest w/Heavy Litter Kv= 2.5 fps
12.6	60	0.0010	0.08		Shallow Concentrated Flow, Last 60' Forest w/Heavy Litter Kv= 2.5 fps
27.3	215	Total			

Subcatchment 1100: Area 1100

Hydrograph



4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 1200: Area 1200

Runoff = 4.34 cfs @ 13.86 hrs, Volume= 1.215 af, Depth> 3.90"
 Routed to Link x3000 : x3000

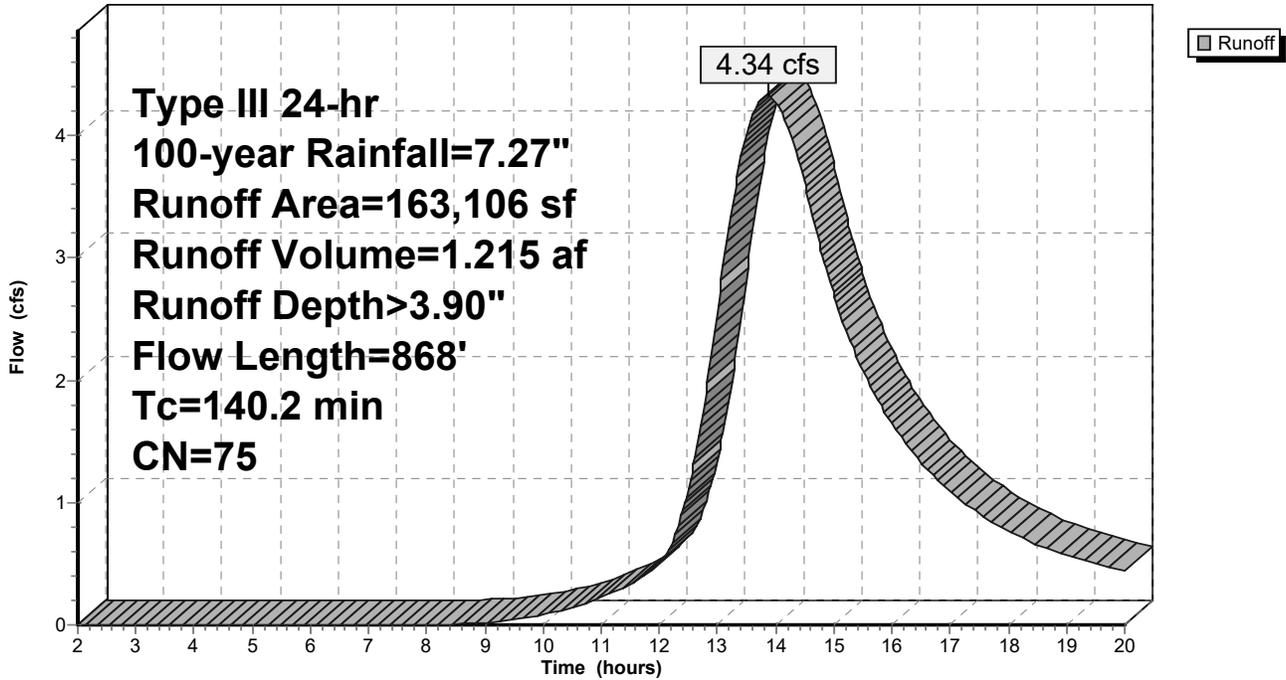
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
35,065	70	Woods, Good, HSG C
128,041	77	Woods, Good, HSG D
163,106	75	Weighted Average
163,106		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	20	0.2000	0.08		Sheet Flow, First 20' Woods: Dense underbrush n= 0.800 P2= 3.01"
31.4	30	0.0030	0.02		Sheet Flow, Next 30' Woods: Dense underbrush n= 0.800 P2= 3.01"
41.4	340	0.0030	0.14		Shallow Concentrated Flow, Next 340' Forest w/Heavy Litter Kv= 2.5 fps
2.1	95	0.0900	0.75		Shallow Concentrated Flow, Next 95' Forest w/Heavy Litter Kv= 2.5 fps
7.8	130	0.0125	0.28		Shallow Concentrated Flow, Next 130' Forest w/Heavy Litter Kv= 2.5 fps
53.3	253	0.0010	0.08		Shallow Concentrated Flow, Last 253' Forest w/Heavy Litter Kv= 2.5 fps
140.2	868	Total			

Subcatchment 1200: Area 1200

Hydrograph



Summary for Subcatchment 1300: Area 1300

Runoff = 1.06 cfs @ 13.83 hrs, Volume= 0.292 af, Depth> 3.69"
 Routed to Link x2000 : x2000

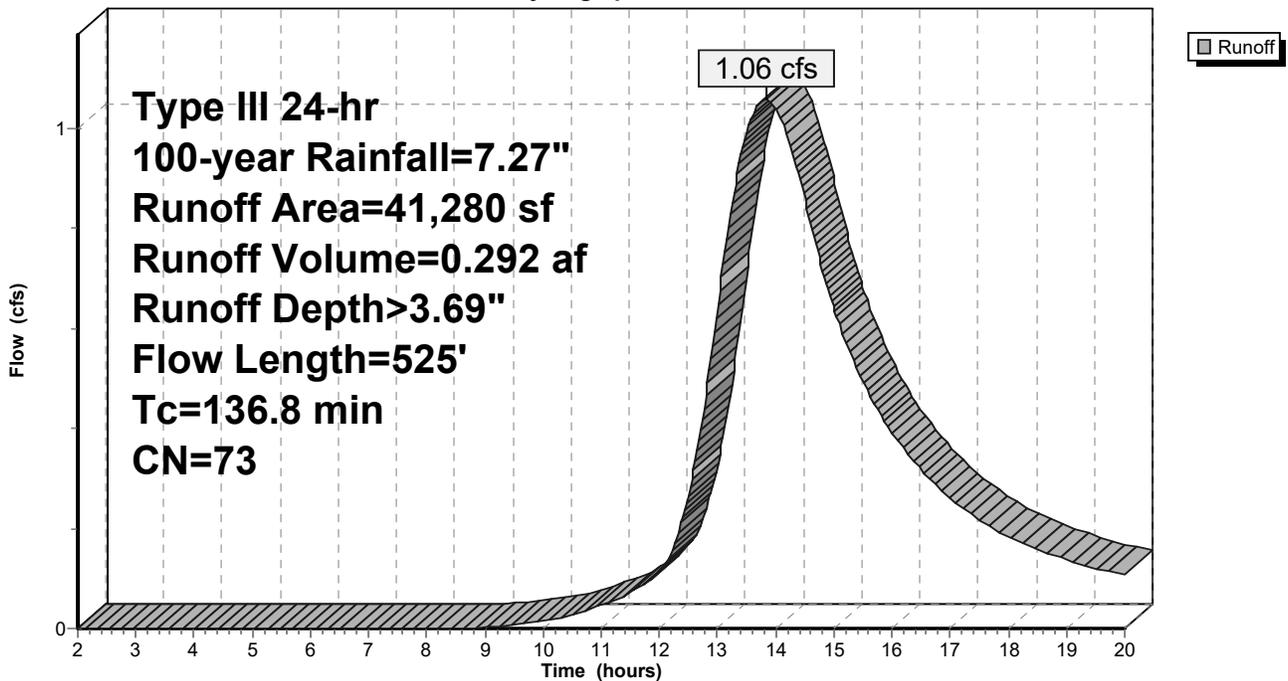
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
25,740	70	Woods, Good, HSG C
15,540	77	Woods, Good, HSG D
41,280	73	Weighted Average
41,280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
73.4	50	0.0010	0.01		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
2.5	60	0.0250	0.40		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
1.5	70	0.1000	0.79		Shallow Concentrated Flow, Next 70' Forest w/Heavy Litter Kv= 2.5 fps
59.4	345	0.0015	0.10		Shallow Concentrated Flow, Last 345' Forest w/Heavy Litter Kv= 2.5 fps
136.8	525	Total			

Subcatchment 1300: Area 1300

Hydrograph



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 1400: Area 1400

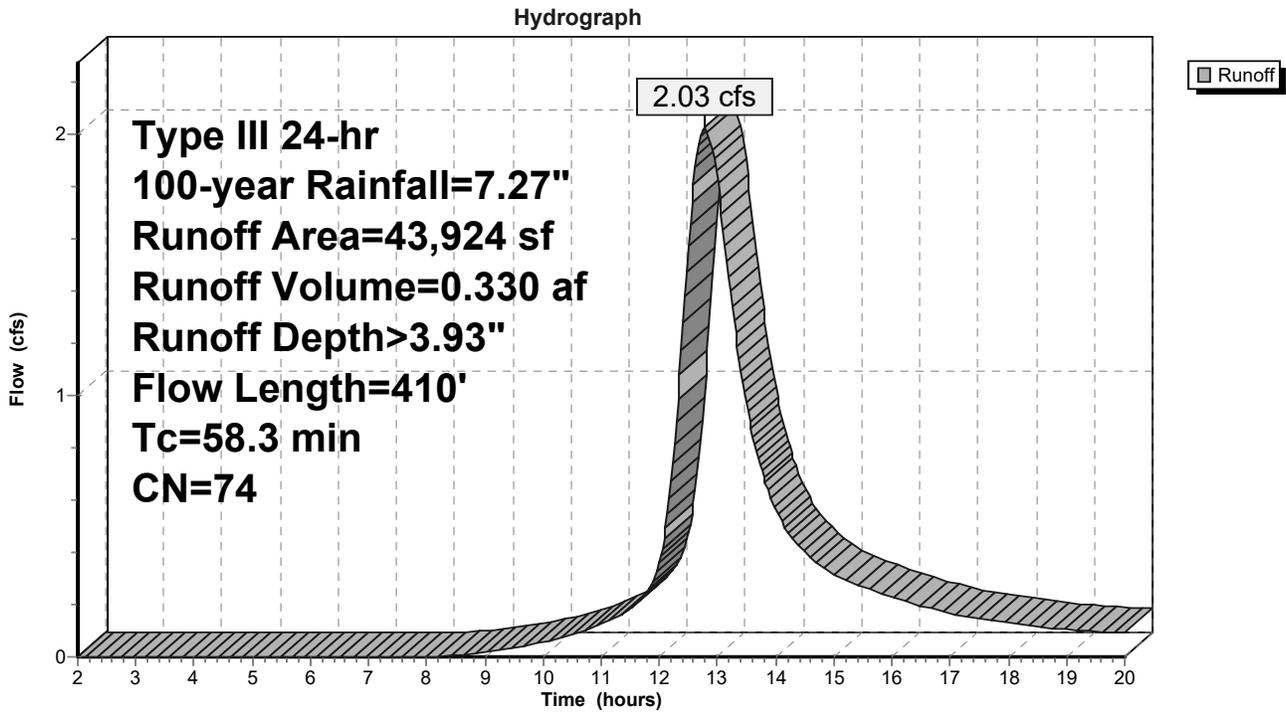
Runoff = 2.03 cfs @ 12.78 hrs, Volume= 0.330 af, Depth> 3.93"
 Routed to Link x2000 : x2000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
19,885	70	Woods, Good, HSG C
24,039	77	Woods, Good, HSG D
43,924	74	Weighted Average
43,924		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
9.3	125	0.0080	0.22		Shallow Concentrated Flow, Next 125' Forest w/Heavy Litter Kv= 2.5 fps
0.8	35	0.0830	0.72		Shallow Concentrated Flow, Next 35' Forest w/Heavy Litter Kv= 2.5 fps
4.4	115	0.0300	0.43		Shallow Concentrated Flow, Next 115' Forest w/Heavy Litter Kv= 2.5 fps
14.6	85	0.0015	0.10		Shallow Concentrated Flow, Last 85' Forest w/Heavy Litter Kv= 2.5 fps
58.3	410	Total			

Subcatchment 1400: Area 1400



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 1500: Area 1500

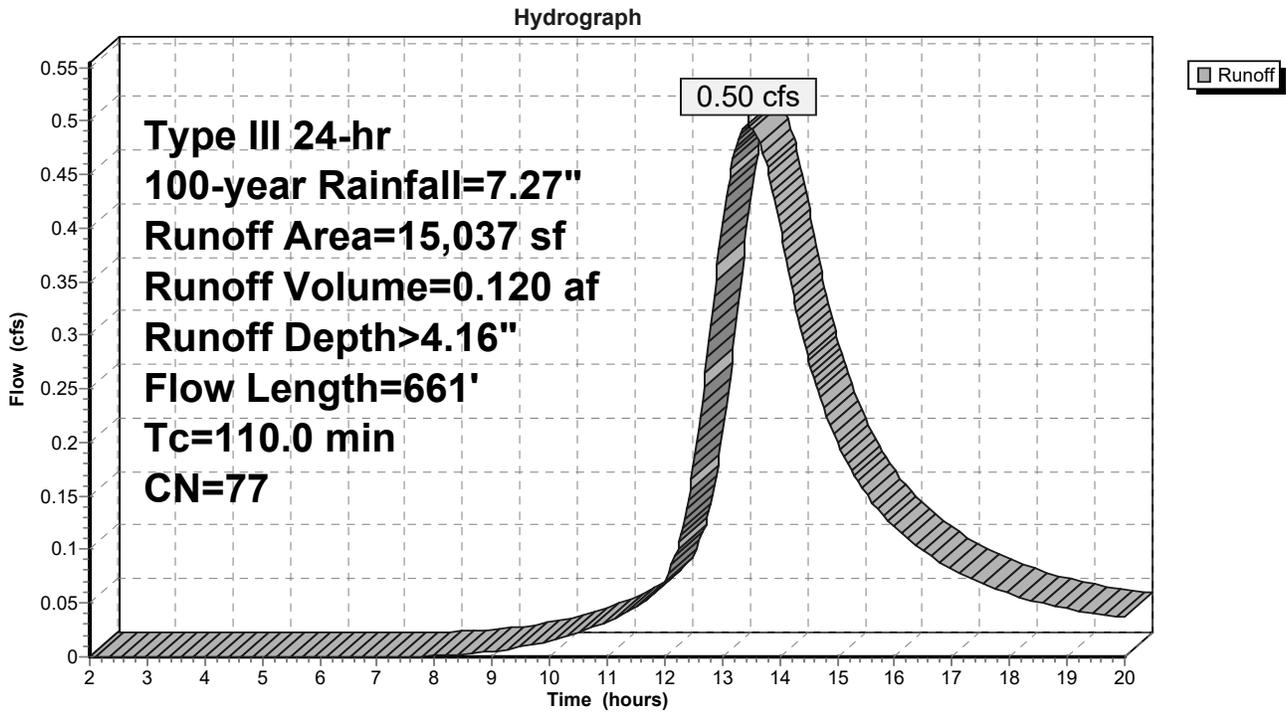
Runoff = 0.50 cfs @ 13.45 hrs, Volume= 0.120 af, Depth> 4.16"
 Routed to Link x2000 : x2000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
15,037	77	Woods, Good, HSG D
15,037		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0010	0.08		Shallow Concentrated Flow, First 50' Forest w/Heavy Litter Kv= 2.5 fps
19.0	90	0.0010	0.08		Shallow Concentrated Flow, Next 90' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
0.3	22	0.3330	1.44		Shallow Concentrated Flow, Next 22' Forest w/Heavy Litter Kv= 2.5 fps
0.5	22	0.0900	0.75		Shallow Concentrated Flow, Next 22' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
110.0	661	Total			

Subcatchment 1500: Area 1500



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 1600: Area 1600

Runoff = 0.29 cfs @ 14.15 hrs, Volume= 0.086 af, Depth> 2.02"
 Routed to Link x2000 : x2000

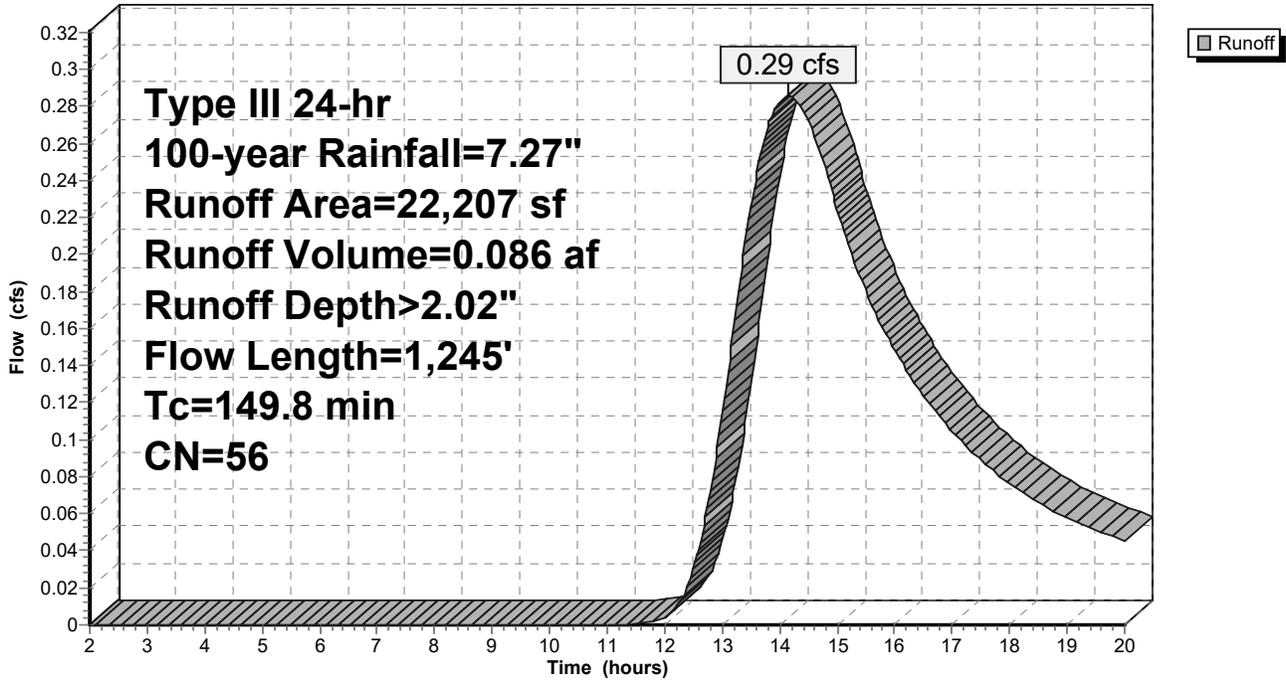
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
8,476	30	Woods, Good, HSG A
8,994	70	Woods, Good, HSG C
3,200	74	>75% Grass cover, Good, HSG C
715	77	Woods, Good, HSG D
822	80	>75% Grass cover, Good, HSG D
22,207	56	Weighted Average
22,207		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	50	0.0100	0.03		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
3.3	50	0.0100	0.25		Shallow Concentrated Flow, Next 50' Forest w/Heavy Litter Kv= 2.5 fps
0.9	25	0.0370	0.48		Shallow Concentrated Flow, Next 25' Forest w/Heavy Litter Kv= 2.5 fps
23.3	350	0.0100	0.25		Shallow Concentrated Flow, Next 350' Forest w/Heavy Litter Kv= 2.5 fps
3.1	60	0.0167	0.32		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
6.9	170	0.0270	0.41		Shallow Concentrated Flow, Next 170' Forest w/Heavy Litter Kv= 2.5 fps
0.5	17	0.0590	0.61		Shallow Concentrated Flow, Next 17' Forest w/Heavy Litter Kv= 2.5 fps
2.5	45	0.0140	0.30		Shallow Concentrated Flow, Next 45' Forest w/Heavy Litter Kv= 2.5 fps
0.9	18	0.0167	0.32		Shallow Concentrated Flow, Next 18' Forest w/Heavy Litter Kv= 2.5 fps
79.2	460	0.0015	0.10		Shallow Concentrated Flow, Last 460' Forest w/Heavy Litter Kv= 2.5 fps
149.8	1,245	Total			

Subcatchment 1600: Area 1600

Hydrograph



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 1700: Area 1700

Runoff = 0.03 cfs @ 15.45 hrs, Volume= 0.013 af, Depth> 0.30"
 Routed to Link x1000 : x1000

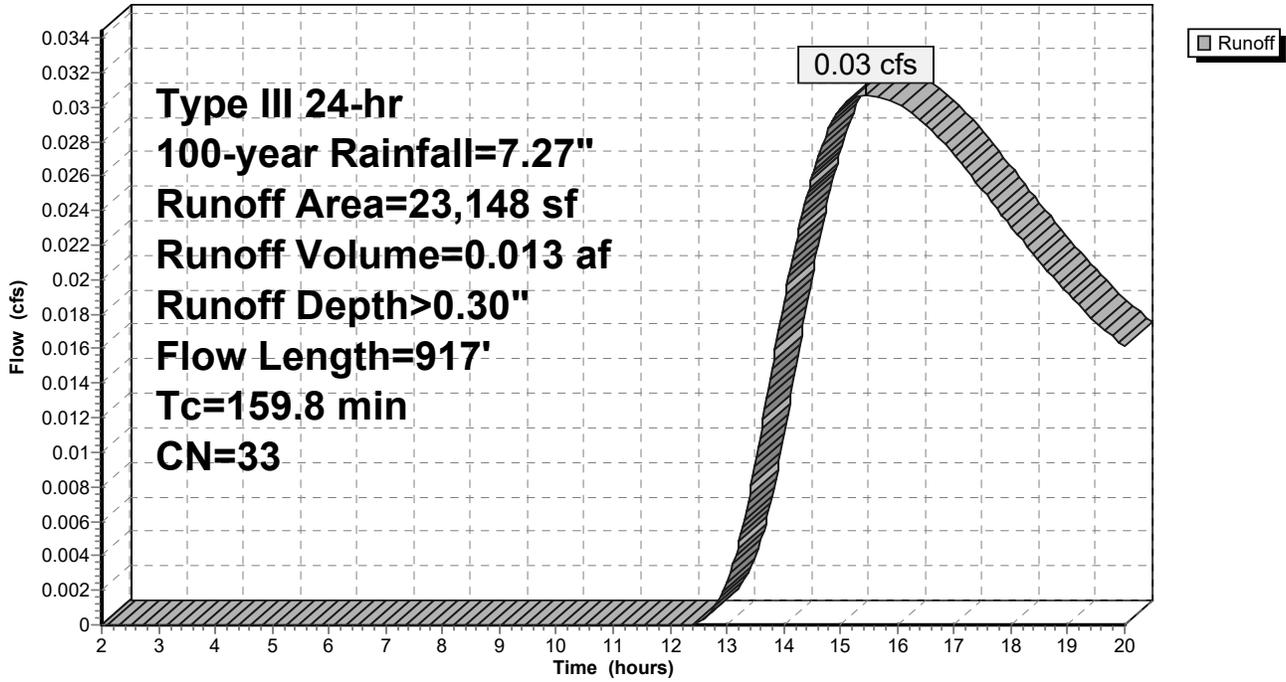
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
21,327	30	Woods, Good, HSG A
1,821	70	Woods, Good, HSG C
23,148	33	Weighted Average
23,148		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	50	0.0050	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
20.0	212	0.0050	0.18		Shallow Concentrated Flow, Next 212' Forest w/Heavy Litter Kv= 2.5 fps
0.1	40	0.0250	9.40	16.61	Pipe Channel, Next 40' of pipe 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
10.4	110	0.0050	0.18		Shallow Concentrated Flow, Next 110' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
159.8	917	Total			

Subcatchment 1700: Area 1700

Hydrograph



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Type III 24-hr 100-year Rainfall=7.27"

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Summary for Subcatchment 1800: Area 1800

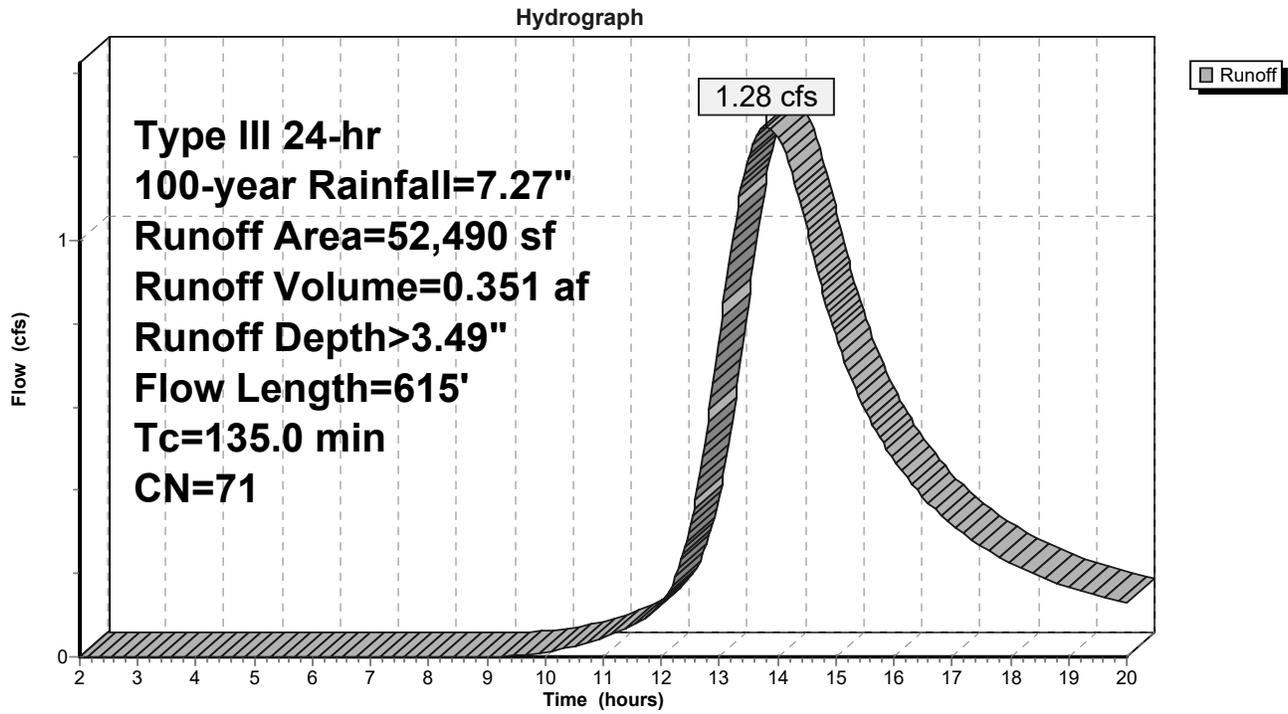
Runoff = 1.28 cfs @ 13.80 hrs, Volume= 0.351 af, Depth> 3.49"
 Routed to Link x1000 : x1000

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
44,782	70	Woods, Good, HSG C
521	74	>75% Grass cover, Good, HSG C
6,038	77	Woods, Good, HSG D
740	80	>75% Grass cover, Good, HSG D
409	98	Paved parking, HSG D
52,490	71	Weighted Average
52,081		99.22% Pervious Area
409		0.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	50	0.0050	0.02		Sheet Flow, First 50' Woods: Dense underbrush n= 0.800 P2= 3.01"
5.7	60	0.0050	0.18		Shallow Concentrated Flow, Next 60' Forest w/Heavy Litter Kv= 2.5 fps
0.4	20	0.1400	0.94		Shallow Concentrated Flow, Next 20' Forest w/Heavy Litter Kv= 2.5 fps
36.9	175	0.0010	0.08		Shallow Concentrated Flow, Next 175' Forest w/Heavy Litter Kv= 2.5 fps
53.4	310	0.0015	0.10		Shallow Concentrated Flow, Last 310' Forest w/Heavy Litter Kv= 2.5 fps
135.0	615	Total			

Subcatchment 1800: Area 1800



Summary for Subcatchment DISP: Dispensary Building

Runoff = 0.66 cfs @ 12.08 hrs, Volume= 0.052 af, Depth> 6.68"
 Routed to Pond 2P : Detention Basin 2

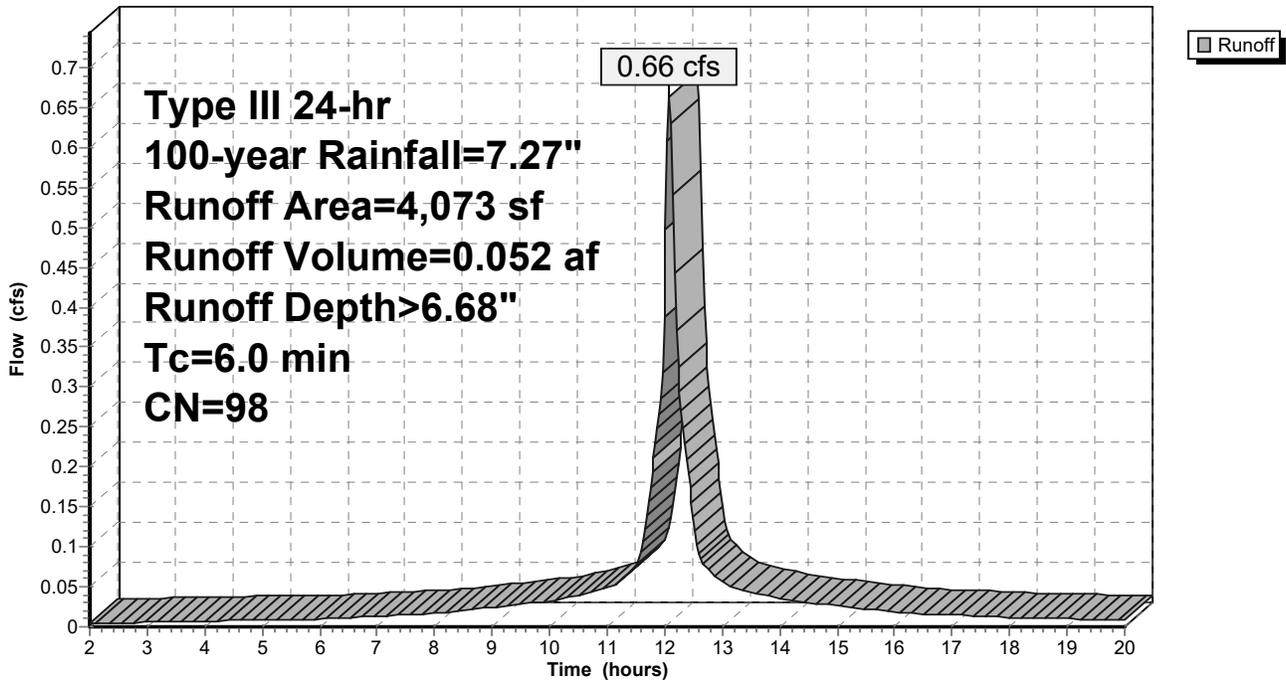
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
4,073	98	Roofs, HSG D
4,073		100.00% Impervious Area

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

Subcatchment DISP: Dispensary Building

Hydrograph



Summary for Subcatchment LAB: Lab Bldg

Runoff = 0.82 cfs @ 12.08 hrs, Volume= 0.064 af, Depth> 6.68"
 Routed to Pond 2P : Detention Basin 2

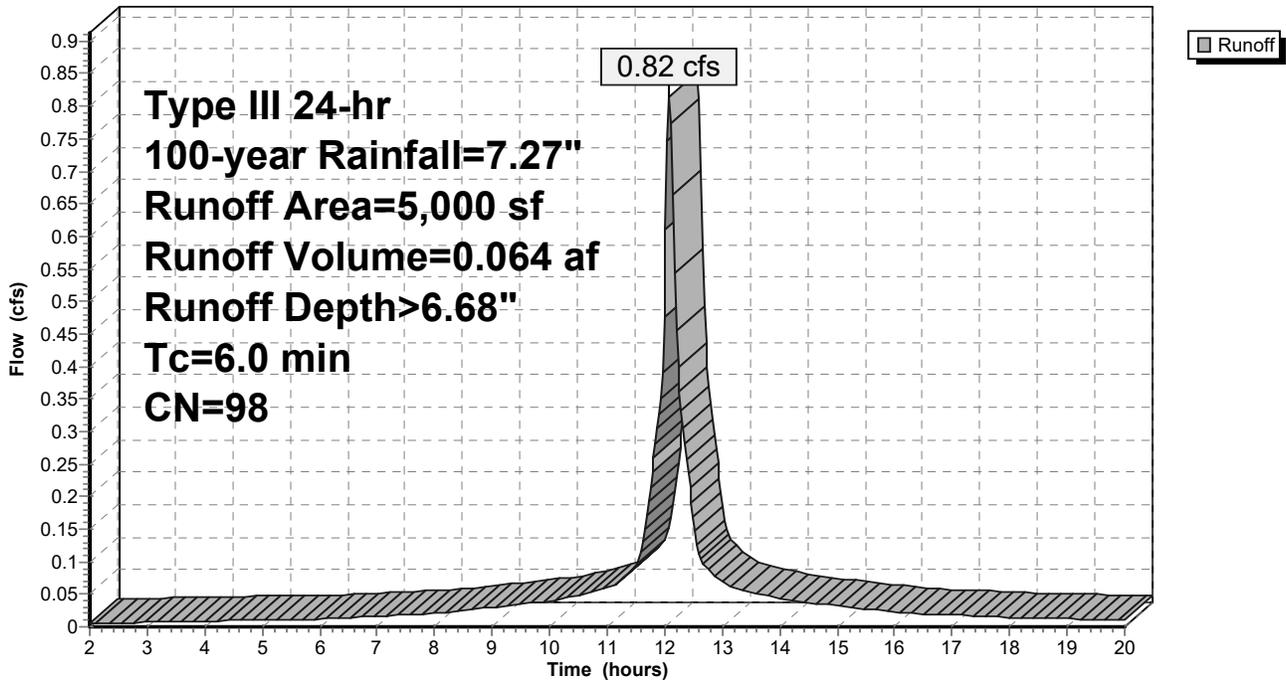
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-year Rainfall=7.27"

Area (sf)	CN	Description
5,000	98	Roofs, HSG C
5,000		100.00% Impervious Area

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

Subcatchment LAB: Lab Bldg

Hydrograph



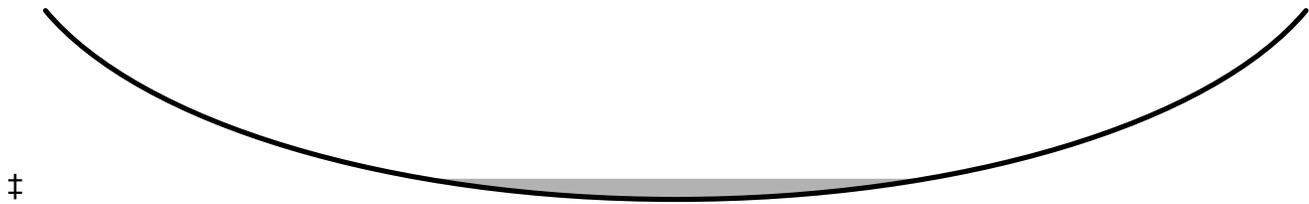
Summary for Reach 1k-2k: x1000 to x2000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 3.05" for 100-year event
 Inflow = 8.40 cfs @ 13.75 hrs, Volume= 2.732 af
 Outflow = 8.39 cfs @ 13.81 hrs, Volume= 2.717 af, Atten= 0%, Lag= 3.9 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.63 fps, Min. Travel Time= 2.7 min
 Avg. Velocity = 0.85 fps, Avg. Travel Time= 5.1 min

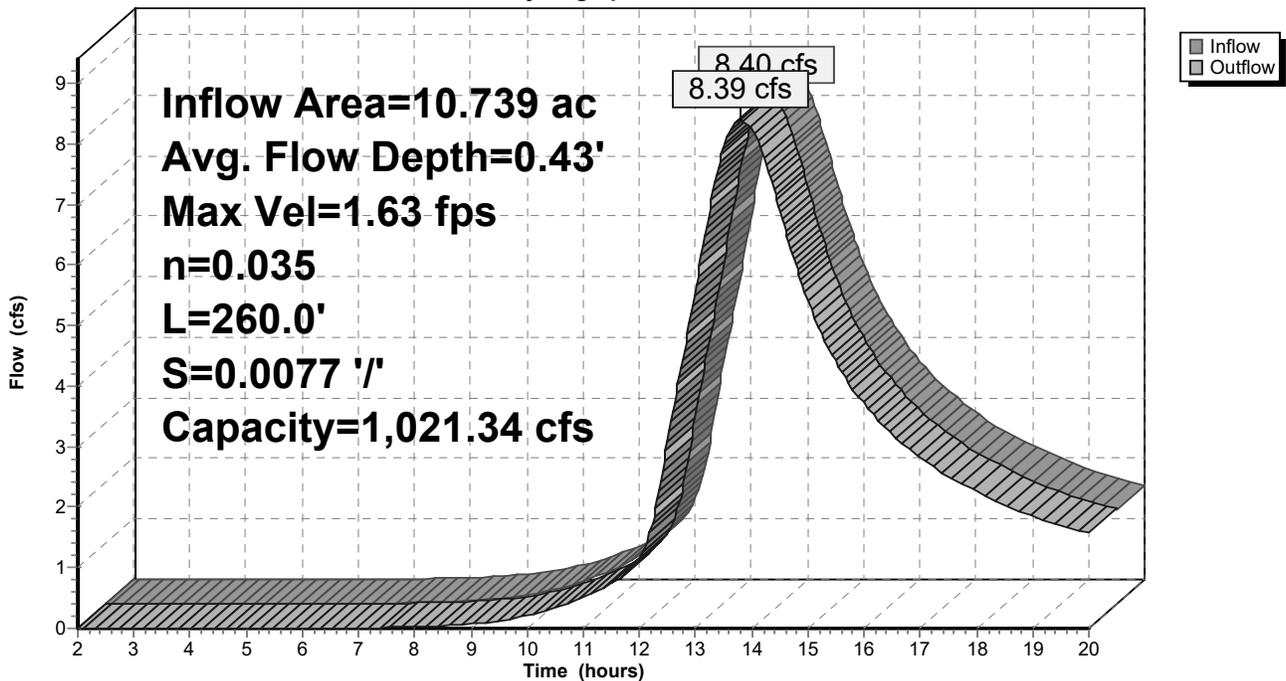
Peak Storage= 1,339 cf @ 13.77 hrs
 Average Depth at Peak Storage= 0.43' , Surface Width= 17.79'
 Bank-Full Depth= 4.00' Flow Area= 144.0 sf, Capacity= 1,021.34 cfs

54.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 260.0' Slope= 0.0077 '/'
 Inlet Invert= 198.00', Outlet Invert= 196.00'



Reach 1k-2k: x1000 to x2000

Hydrograph



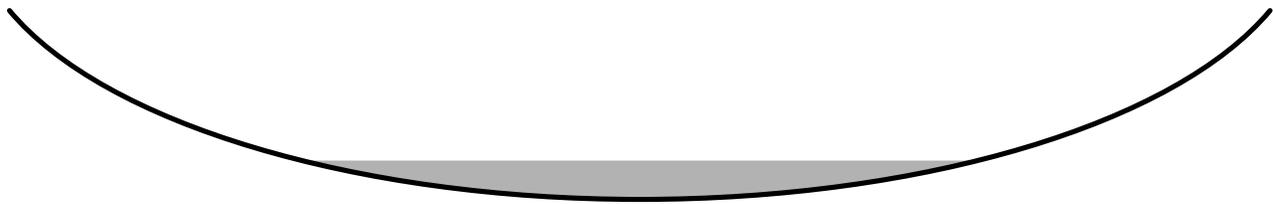
Summary for Reach 2k-3k: x2000 to x3000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 2.97" for 100-year event
 Inflow = 10.93 cfs @ 13.71 hrs, Volume= 3.636 af
 Outflow = 10.92 cfs @ 13.84 hrs, Volume= 3.604 af, Atten= 0%, Lag= 8.0 min
 Routed to Link x3000 : x3000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.48 fps, Min. Travel Time= 4.0 min
 Avg. Velocity = 0.75 fps, Avg. Travel Time= 8.0 min

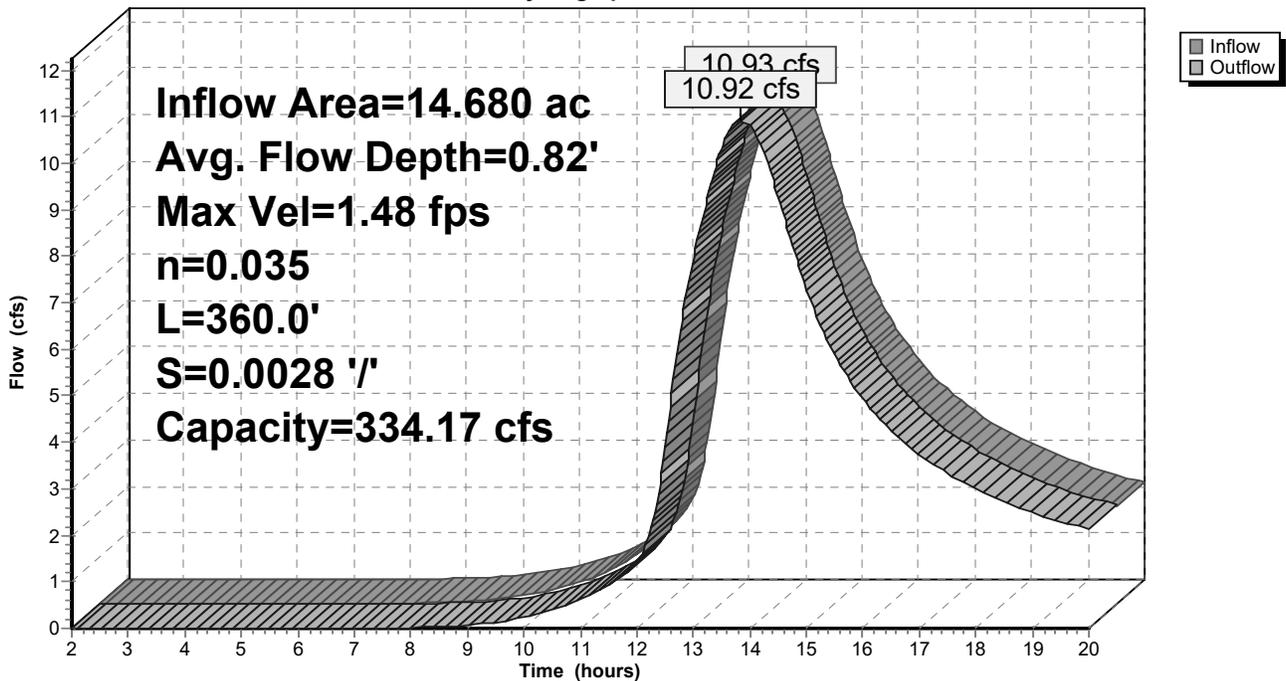
Peak Storage= 2,652 cf @ 13.78 hrs
 Average Depth at Peak Storage= 0.82' , Surface Width= 13.55'
 Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 360.0' Slope= 0.0028 '/'
 Inlet Invert= 196.00', Outlet Invert= 195.00'



Reach 2k-3k: x2000 to x3000

Hydrograph



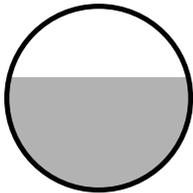
Summary for Reach CP1: Connecting Pipes

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 5.33" for 100-year event
 Inflow = 1.99 cfs @ 12.18 hrs, Volume= 0.216 af
 Outflow = 1.98 cfs @ 12.19 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.5 min
 Routed to Pond 1B : Detention Basin 1B

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 4.42 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.78 fps, Avg. Travel Time= 0.6 min

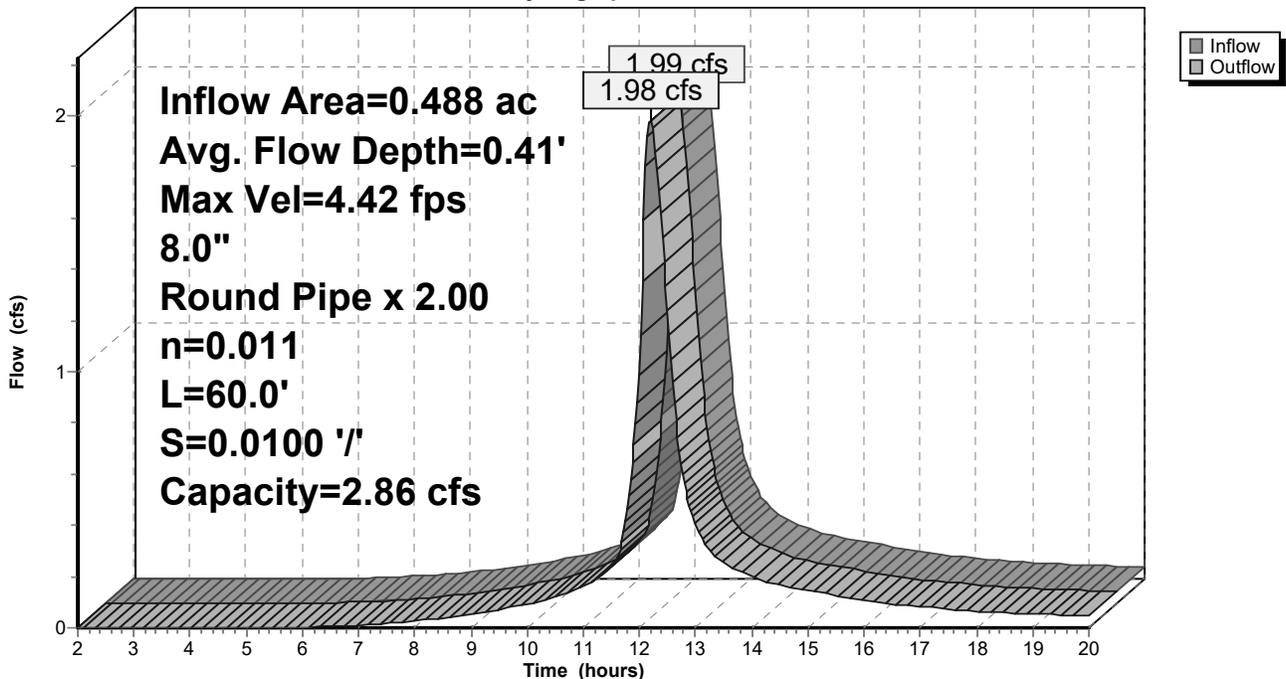
Peak Storage= 27 cf @ 12.19 hrs
 Average Depth at Peak Storage= 0.41' , Surface Width= 1.30'
 Bank-Full Depth= 0.67' Flow Area= 0.7 sf, Capacity= 2.86 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 8.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 60.0' Slope= 0.0100 '/'
 Inlet Invert= 204.00', Outlet Invert= 203.40'



Reach CP1: Connecting Pipes

Hydrograph



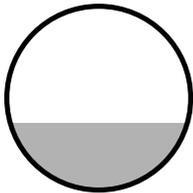
Summary for Reach CP4: Connecting Pipes

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 5.52" for 100-year event
 Inflow = 2.45 cfs @ 12.12 hrs, Volume= 0.184 af
 Outflow = 2.43 cfs @ 12.13 hrs, Volume= 0.184 af, Atten= 1%, Lag= 0.6 min
 Routed to Pond 4B : Detention Basin 4B

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 3.03 fps, Min. Travel Time= 0.3 min
 Avg. Velocity = 1.07 fps, Avg. Travel Time= 1.0 min

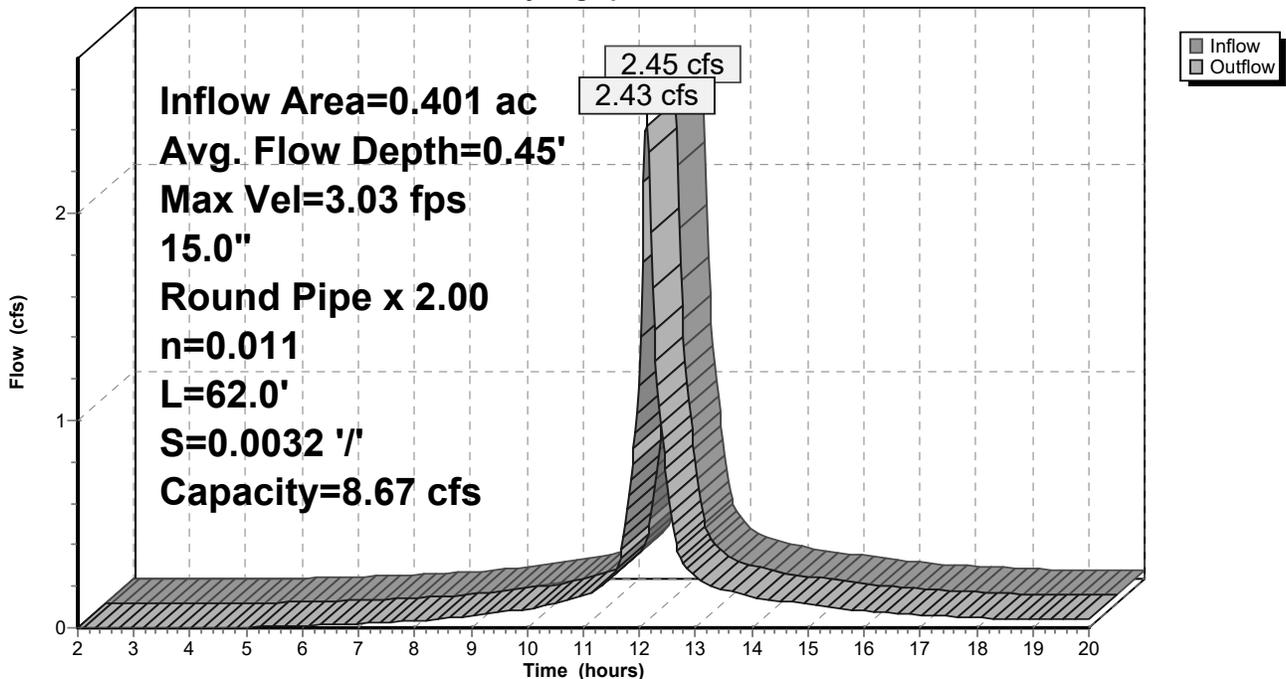
Peak Storage= 50 cf @ 12.12 hrs
 Average Depth at Peak Storage= 0.45' , Surface Width= 2.41'
 Bank-Full Depth= 1.25' Flow Area= 2.5 sf, Capacity= 8.67 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 15.0" Round Pipe
 n= 0.011 Concrete pipe, straight & clean
 Length= 62.0' Slope= 0.0032 '/'
 Inlet Invert= 205.20', Outlet Invert= 205.00'



Reach CP4: Connecting Pipes

Hydrograph



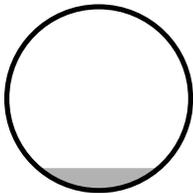
Summary for Reach P1: Pipe Out of 1

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 2.17" for 100-year event
 Inflow = 0.13 cfs @ 15.52 hrs, Volume= 0.088 af
 Outflow = 0.13 cfs @ 15.53 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.9 min
 Routed to Reach W1 : 1 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.33 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.72 fps, Avg. Travel Time= 0.8 min

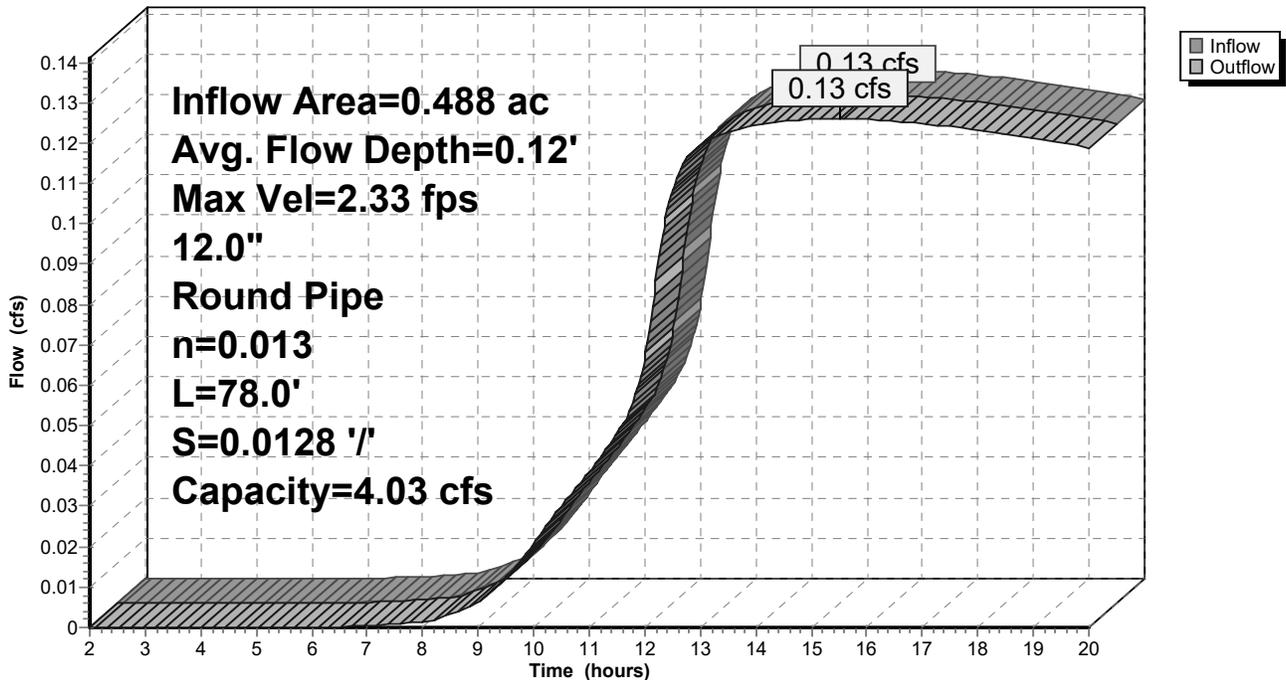
Peak Storage= 4 cf @ 15.52 hrs
 Average Depth at Peak Storage= 0.12' , Surface Width= 0.65'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.03 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 78.0' Slope= 0.0128 '/
 Inlet Invert= 203.00', Outlet Invert= 202.00'



Reach P1: Pipe Out of 1

Hydrograph



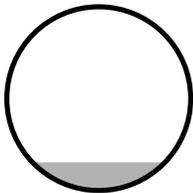
Summary for Reach P2: Pipe Out of 2

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 3.13" for 100-year event
 Inflow = 0.13 cfs @ 14.21 hrs, Volume= 0.098 af
 Outflow = 0.13 cfs @ 14.23 hrs, Volume= 0.098 af, Atten= 0%, Lag= 1.0 min
 Routed to Reach W2 : 2 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.68 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 1.20 fps, Avg. Travel Time= 0.8 min

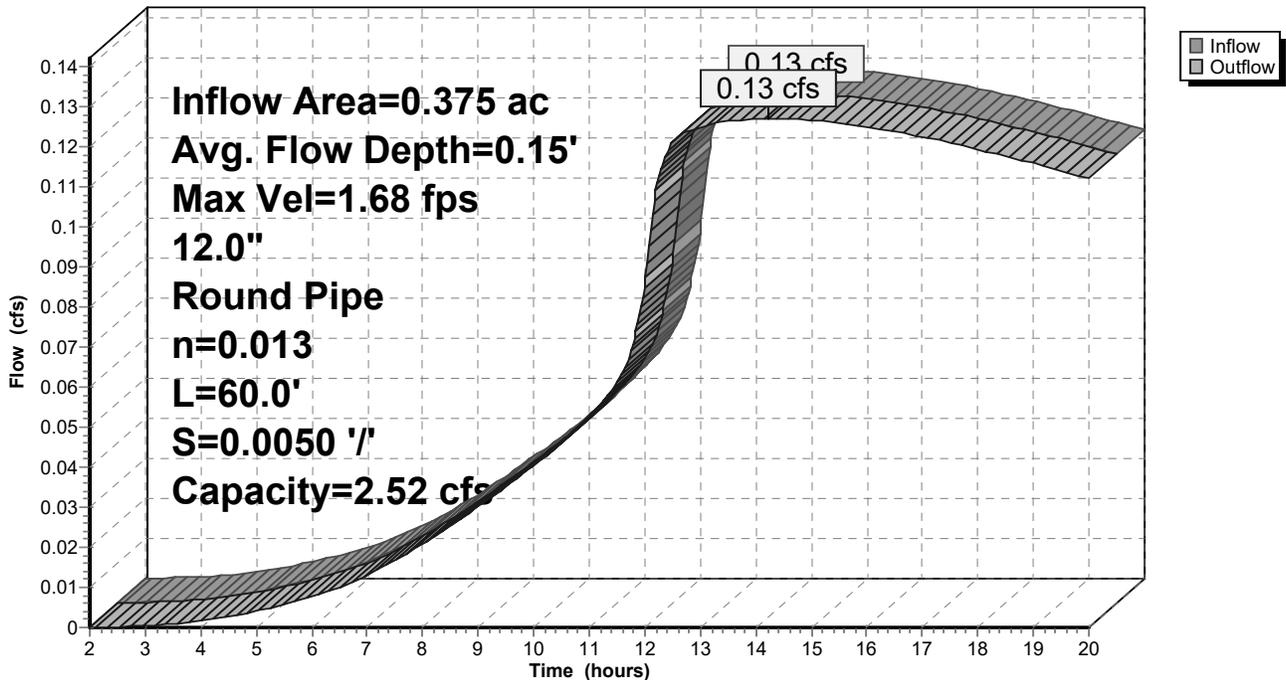
Peak Storage= 5 cf @ 14.22 hrs
 Average Depth at Peak Storage= 0.15' , Surface Width= 0.72'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 60.0' Slope= 0.0050 '/
 Inlet Invert= 204.00', Outlet Invert= 203.70'



Reach P2: Pipe Out of 2

Hydrograph



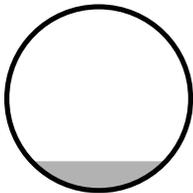
Summary for Reach P3: Pipe Out of 3

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 2.10" for 100-year event
 Inflow = 0.14 cfs @ 15.46 hrs, Volume= 0.102 af
 Outflow = 0.14 cfs @ 15.47 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.7 min
 Routed to Reach W3 : 3 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.72 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 1.25 fps, Avg. Travel Time= 0.5 min

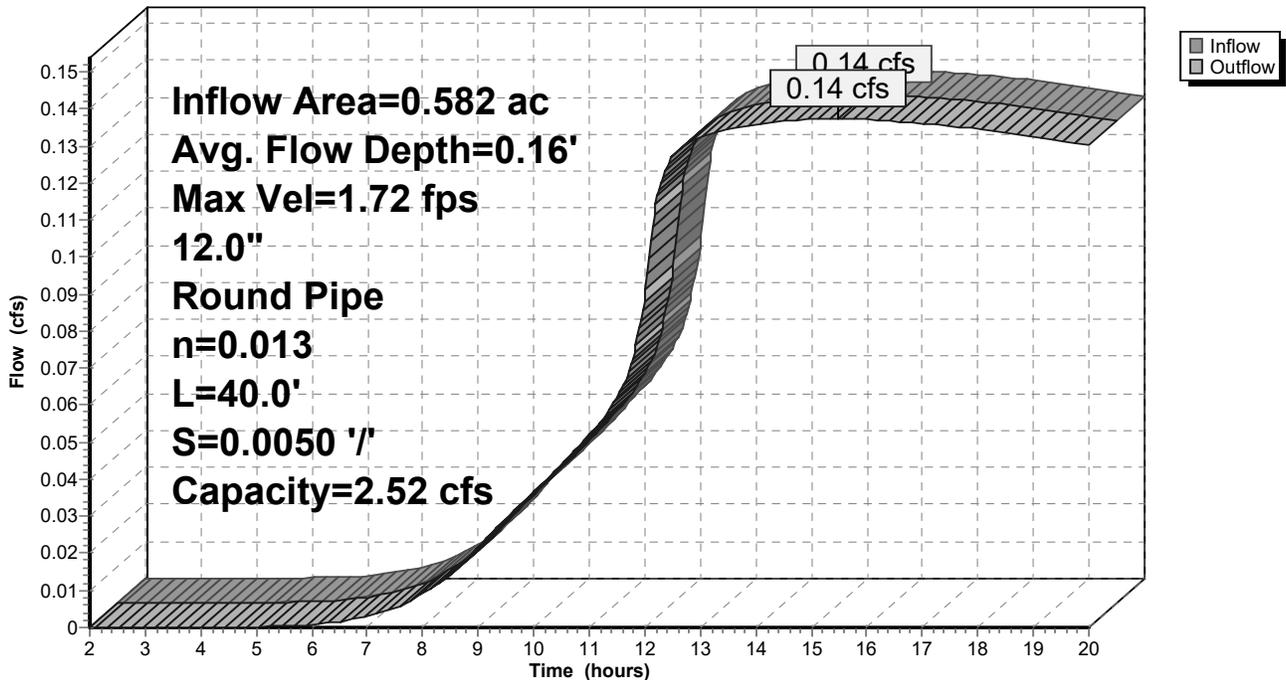
Peak Storage= 3 cf @ 15.46 hrs
 Average Depth at Peak Storage= 0.16' , Surface Width= 0.73'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 40.0' Slope= 0.0050 '/'
 Inlet Invert= 205.00', Outlet Invert= 204.80'



Reach P3: Pipe Out of 3

Hydrograph



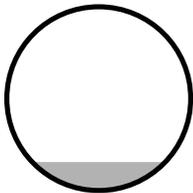
Summary for Reach P4B: Pipe Out of 4B

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 2.18" for 100-year event
 Inflow = 0.14 cfs @ 15.07 hrs, Volume= 0.097 af
 Outflow = 0.14 cfs @ 15.12 hrs, Volume= 0.097 af, Atten= 0%, Lag= 2.9 min
 Routed to Reach W4B : 4B Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.77 fps, Min. Travel Time= 1.7 min
 Avg. Velocity = 1.29 fps, Avg. Travel Time= 2.4 min

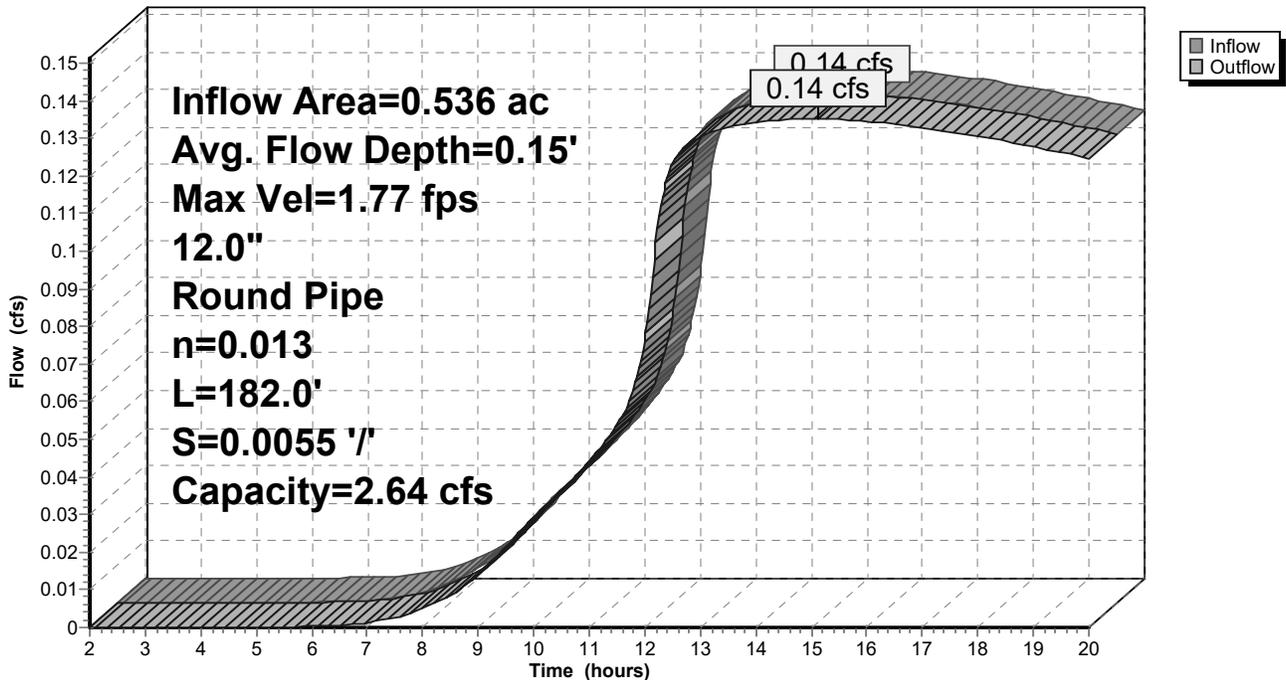
Peak Storage= 14 cf @ 15.09 hrs
 Average Depth at Peak Storage= 0.15' , Surface Width= 0.72'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.64 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 182.0' Slope= 0.0055 '/'
 Inlet Invert= 205.00', Outlet Invert= 204.00'



Reach P4B: Pipe Out of 4B

Hydrograph



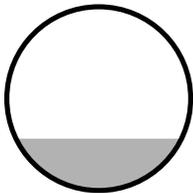
Summary for Reach P5: Pipe Out of 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 3.08" for 100-year event
 Inflow = 0.46 cfs @ 13.50 hrs, Volume= 0.260 af
 Outflow = 0.46 cfs @ 13.51 hrs, Volume= 0.260 af, Atten= 0%, Lag= 0.4 min
 Routed to Reach W5 : 5 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.57 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.66 fps, Avg. Travel Time= 0.4 min

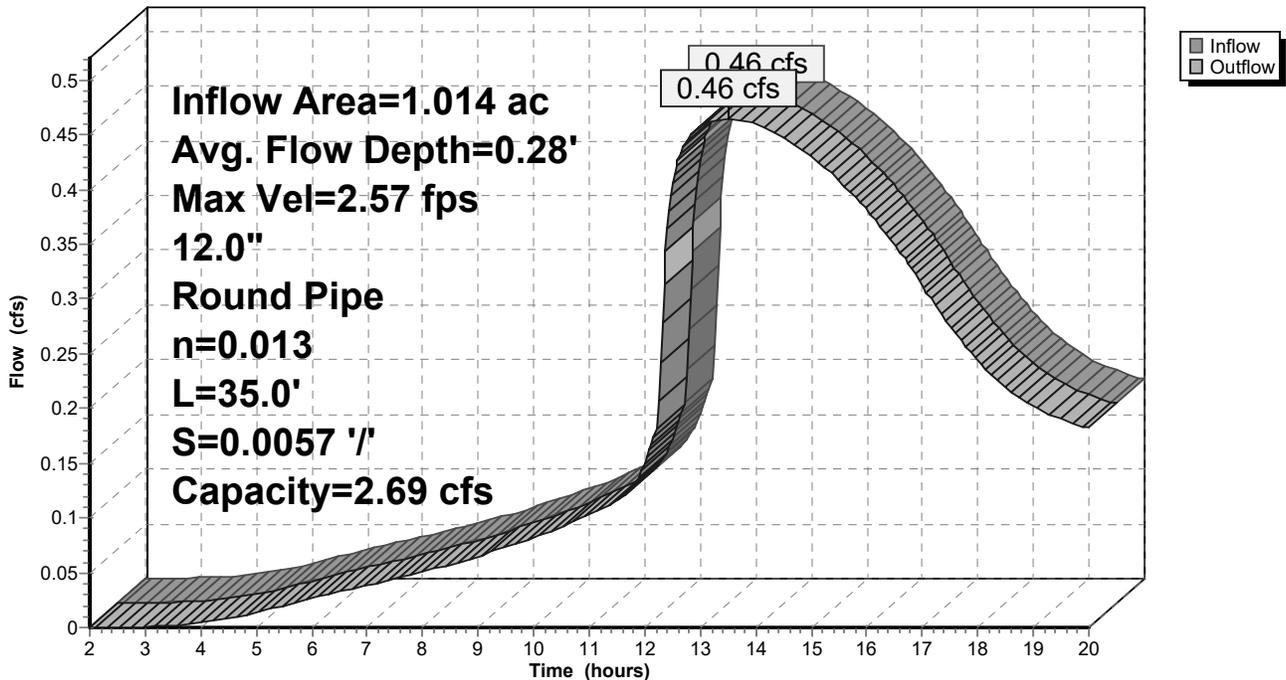
Peak Storage= 6 cf @ 13.50 hrs
 Average Depth at Peak Storage= 0.28' , Surface Width= 0.90'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.69 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 35.0' Slope= 0.0057 '/
 Inlet Invert= 204.00', Outlet Invert= 203.80'



Reach P5: Pipe Out of 5

Hydrograph



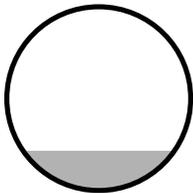
Summary for Reach P6: Pipe Out of 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 3.44" for 100-year event
 Inflow = 0.33 cfs @ 12.90 hrs, Volume= 0.159 af
 Outflow = 0.33 cfs @ 12.91 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.6 min
 Routed to Reach W6 : 6 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 2.66 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.37 fps, Avg. Travel Time= 0.4 min

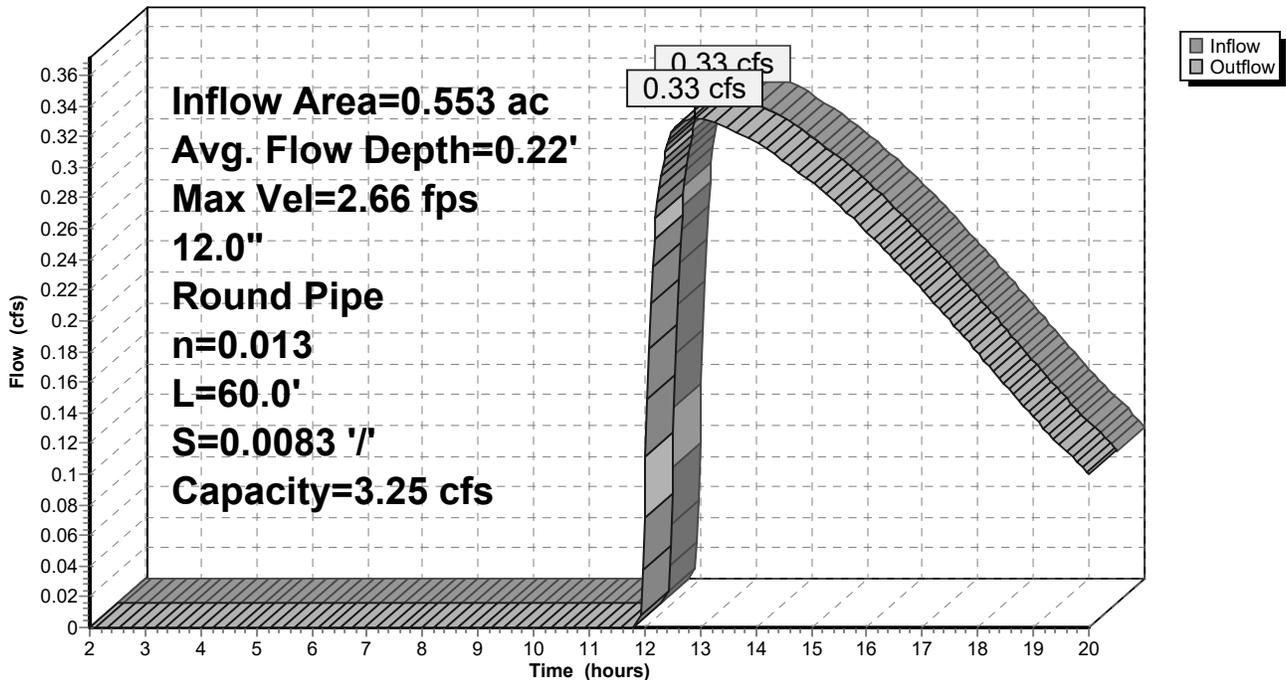
Peak Storage= 7 cf @ 12.91 hrs
 Average Depth at Peak Storage= 0.22' , Surface Width= 0.82'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.25 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 60.0' Slope= 0.0083 '/'
 Inlet Invert= 206.00', Outlet Invert= 205.50'



Reach P6: Pipe Out of 6

Hydrograph



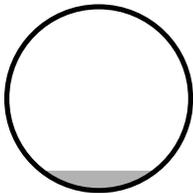
Summary for Reach P7: Pipe Out of 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.94" for 100-year event
 Inflow = 0.07 cfs @ 15.40 hrs, Volume= 0.044 af
 Outflow = 0.07 cfs @ 15.48 hrs, Volume= 0.044 af, Atten= 0%, Lag= 5.2 min
 Routed to Reach W7 : 7 Thru Wetland

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.58 fps, Min. Travel Time= 3.1 min
 Avg. Velocity= 1.49 fps, Avg. Travel Time= 3.2 min

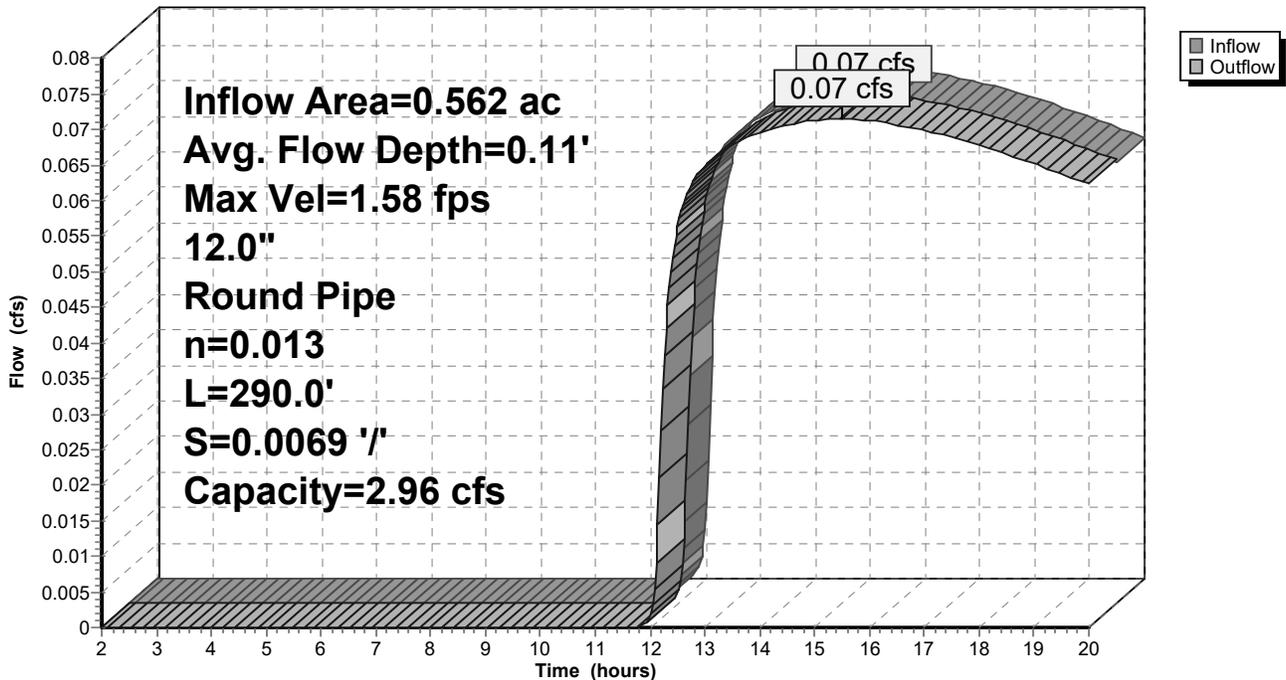
Peak Storage= 13 cf @ 15.43 hrs
 Average Depth at Peak Storage= 0.11' , Surface Width= 0.62'
 Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
 n= 0.013 Corrugated PE, smooth interior
 Length= 290.0' Slope= 0.0069 '/'
 Inlet Invert= 206.00', Outlet Invert= 204.00'



Reach P7: Pipe Out of 7

Hydrograph



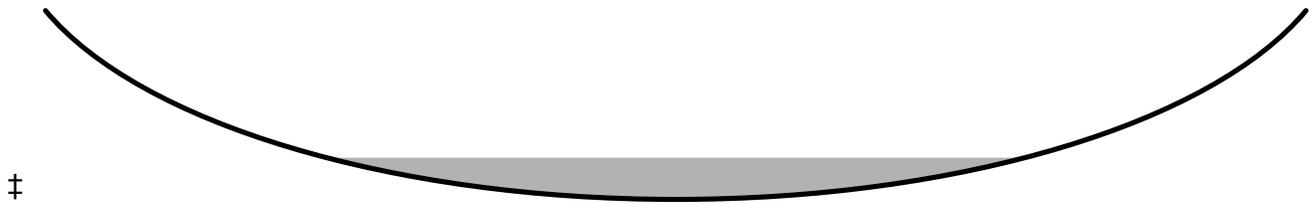
Summary for Reach W1: 1 Thru Wetland

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 2.17" for 100-year event
 Inflow = 0.13 cfs @ 15.53 hrs, Volume= 0.088 af
 Outflow = 0.12 cfs @ 18.35 hrs, Volume= 0.062 af, Atten= 1%, Lag= 169.2 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.07 fps, Min. Travel Time= 77.0 min
 Avg. Velocity = 0.05 fps, Avg. Travel Time= 119.6 min

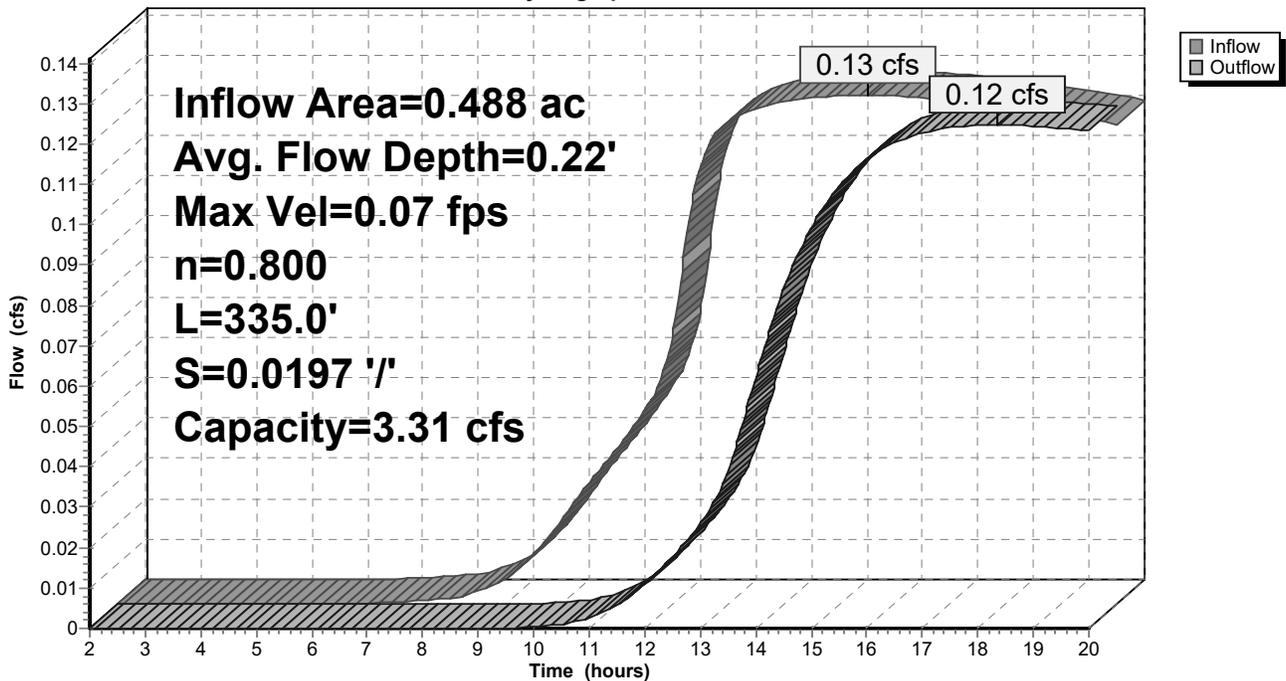
Peak Storage= 577 cf @ 17.07 hrs
 Average Depth at Peak Storage= 0.22' , Surface Width= 11.73'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 3.31 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 335.0' Slope= 0.0197 '/'
 Inlet Invert= 203.60', Outlet Invert= 197.00'



Reach W1: 1 Thru Wetland

Hydrograph



Summary for Reach W2: 2 Thru Wetland

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 3.13" for 100-year event
 Inflow = 0.13 cfs @ 14.23 hrs, Volume= 0.098 af
 Outflow = 0.12 cfs @ 18.12 hrs, Volume= 0.067 af, Atten= 3%, Lag= 233.3 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.07 fps, Min. Travel Time= 94.5 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 148.0 min

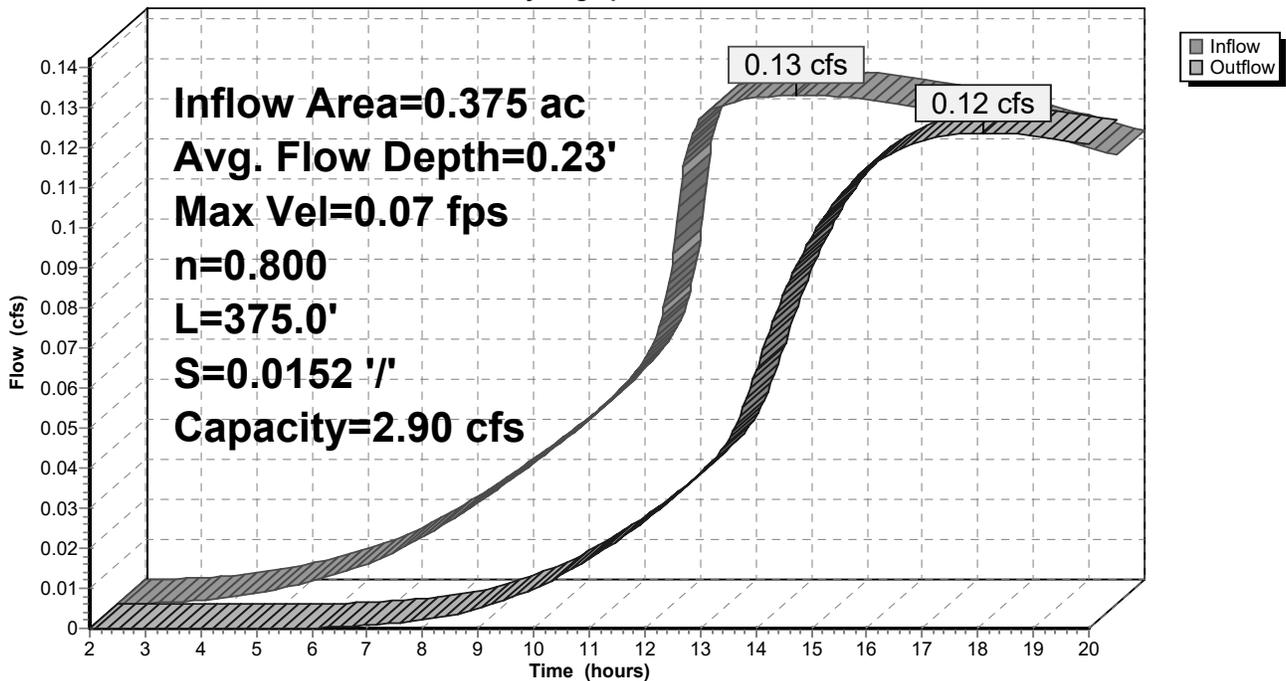
Peak Storage= 702 cf @ 16.54 hrs
 Average Depth at Peak Storage= 0.23' , Surface Width= 12.06'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.90 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 375.0' Slope= 0.0152 '/'
 Inlet Invert= 203.70', Outlet Invert= 198.00'



Reach W2: 2 Thru Wetland

Hydrograph



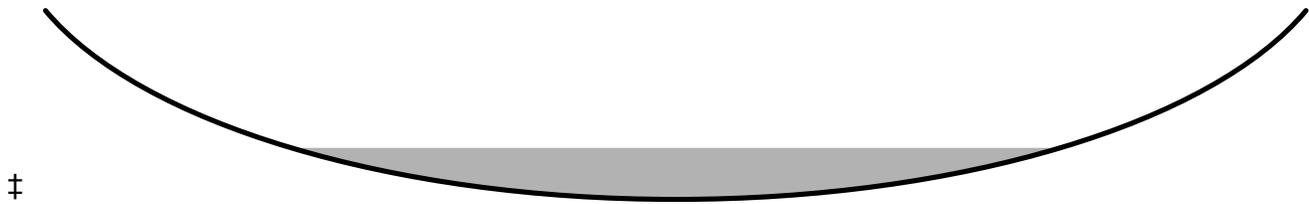
Summary for Reach W3: 3 Thru Wetland

Inflow Area = 0.643 ac, 43.14% Impervious, Inflow Depth > 2.23" for 100-year event
 Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.120 af
 Outflow = 0.12 cfs @ 20.00 hrs, Volume= 0.029 af, Atten= 68%, Lag= 474.4 min
 Routed to Link x2000 : x2000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.06 fps, Min. Travel Time= 248.9 min
 Avg. Velocity = 0.03 fps, Avg. Travel Time= 417.4 min

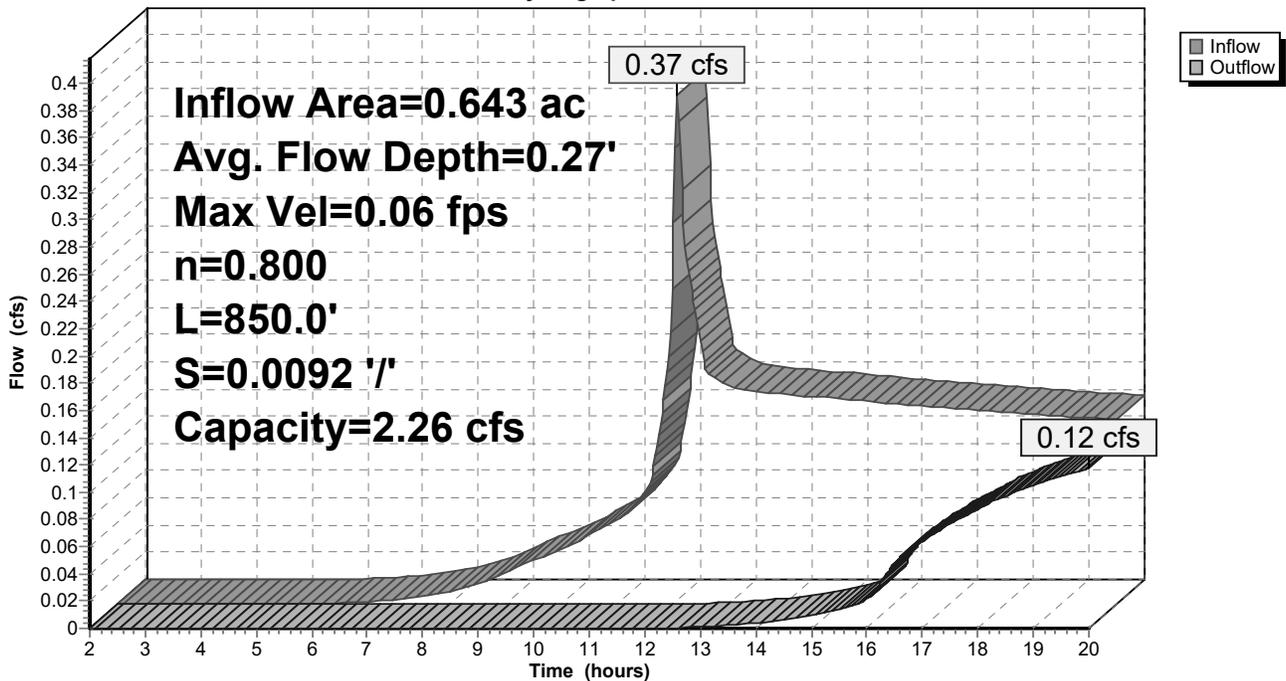
Peak Storage= 2,006 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.27' , Surface Width= 13.03'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.26 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 850.0' Slope= 0.0092 '/'
 Inlet Invert= 204.80', Outlet Invert= 197.00'



Reach W3: 3 Thru Wetland

Hydrograph



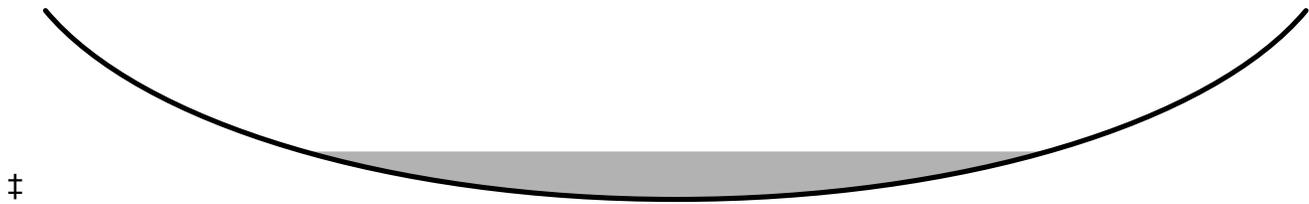
Summary for Reach W4B: 4B Thru Wetland

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 2.16" for 100-year event
 Inflow = 0.14 cfs @ 15.12 hrs, Volume= 0.097 af
 Outflow = 0.13 cfs @ 20.00 hrs, Volume= 0.047 af, Atten= 5%, Lag= 293.0 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.06 fps, Min. Travel Time= 140.5 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 228.4 min

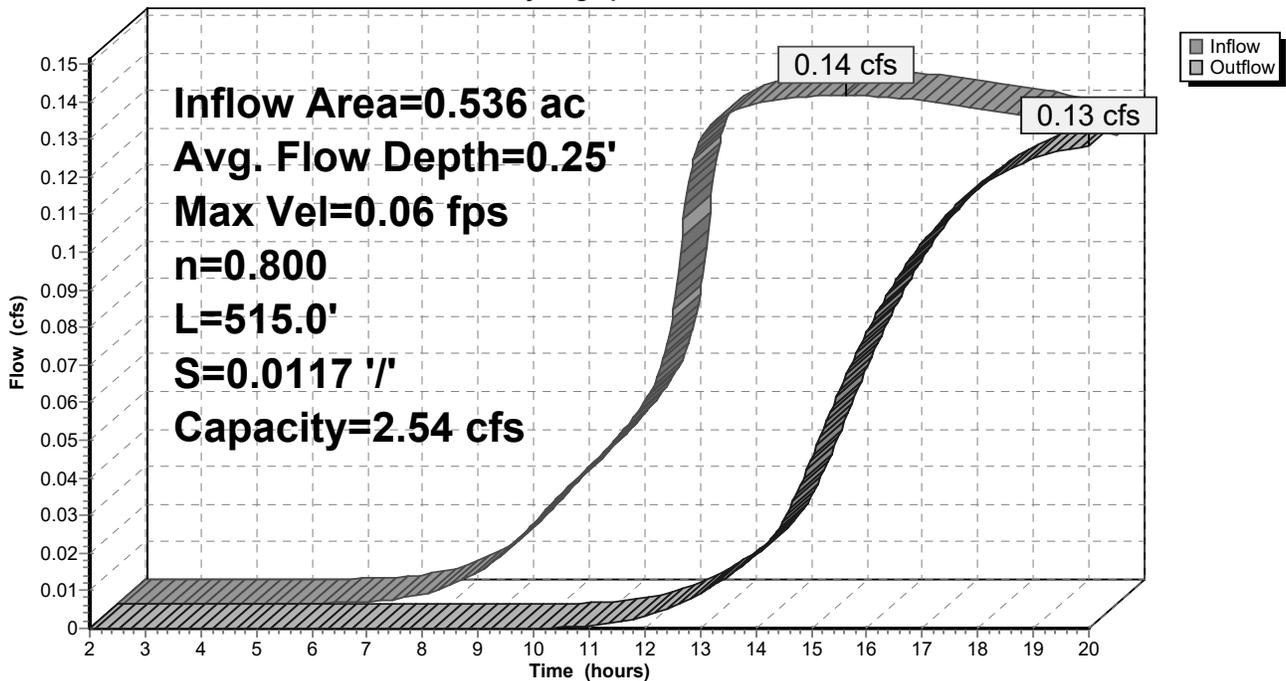
Peak Storage= 1,089 cf @ 18.53 hrs
 Average Depth at Peak Storage= 0.25' , Surface Width= 12.56'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.54 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 515.0' Slope= 0.0117 '/'
 Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W4B: 4B Thru Wetland

Hydrograph



Summary for Reach W5: 5 Thru Wetland

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 3.08" for 100-year event
 Inflow = 0.46 cfs @ 13.51 hrs, Volume= 0.260 af
 Outflow = 0.44 cfs @ 15.42 hrs, Volume= 0.228 af, Atten= 4%, Lag= 114.8 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.10 fps, Min. Travel Time= 50.8 min
 Avg. Velocity = 0.06 fps, Avg. Travel Time= 84.2 min

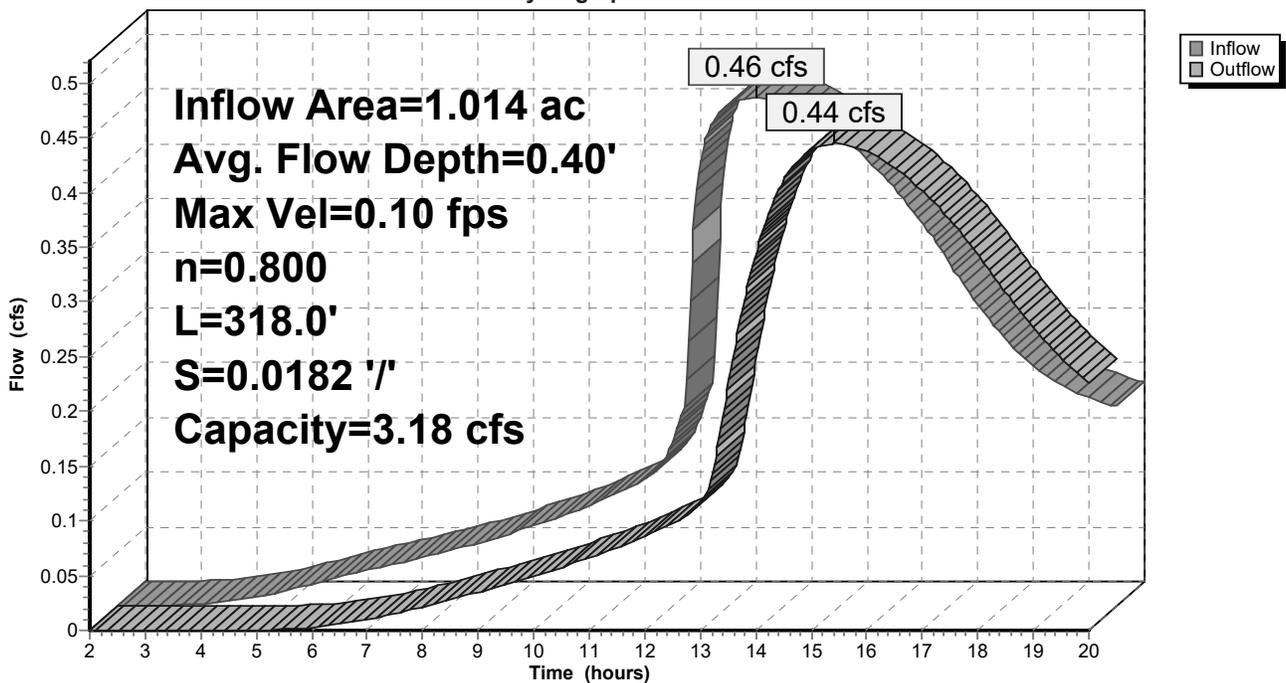
Peak Storage= 1,356 cf @ 14.58 hrs
 Average Depth at Peak Storage= 0.40', Surface Width= 15.87'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 3.18 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 318.0' Slope= 0.0182 '/'
 Inlet Invert= 203.80', Outlet Invert= 198.00'



Reach W5: 5 Thru Wetland

Hydrograph



Summary for Reach W6: 6 Thru Wetland

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 3.44" for 100-year event
 Inflow = 0.33 cfs @ 12.91 hrs, Volume= 0.159 af
 Outflow = 0.25 cfs @ 18.33 hrs, Volume= 0.088 af, Atten= 23%, Lag= 324.9 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.08 fps, Min. Travel Time= 134.1 min
 Avg. Velocity = 0.07 fps, Avg. Travel Time= 154.1 min

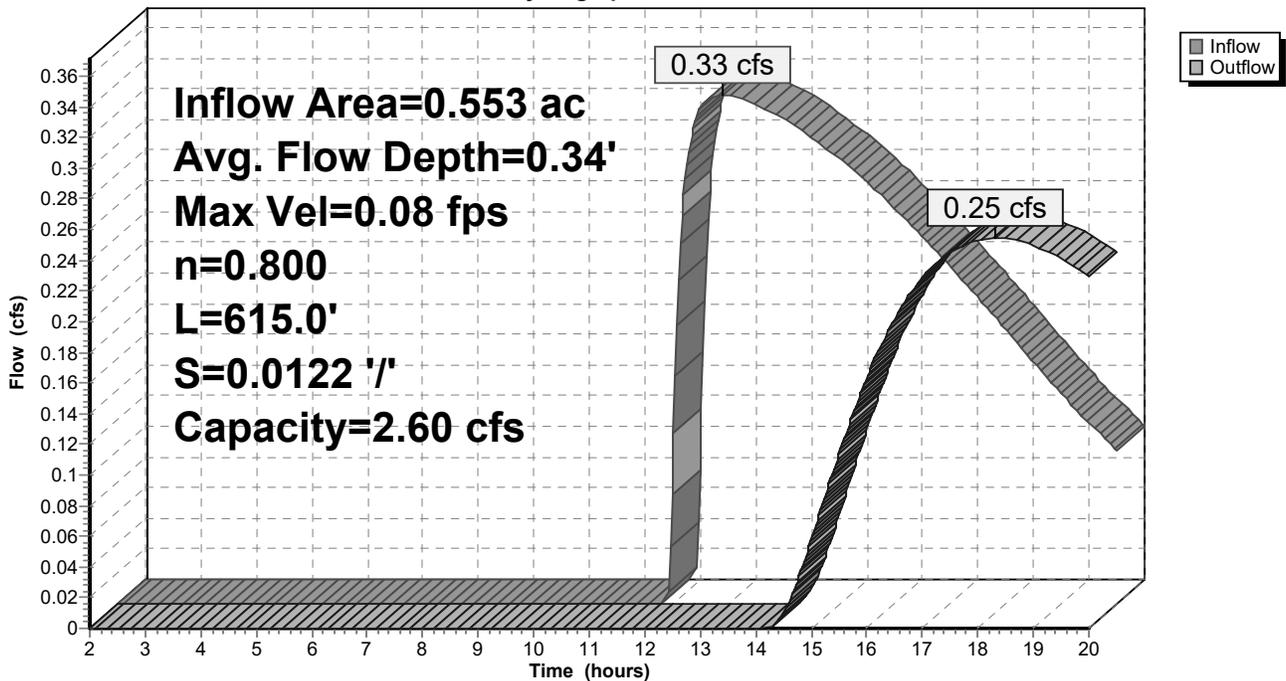
Peak Storage= 2,048 cf @ 16.09 hrs
 Average Depth at Peak Storage= 0.34' , Surface Width= 14.61'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.60 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 615.0' Slope= 0.0122 '/'
 Inlet Invert= 205.50', Outlet Invert= 198.00'



Reach W6: 6 Thru Wetland

Hydrograph



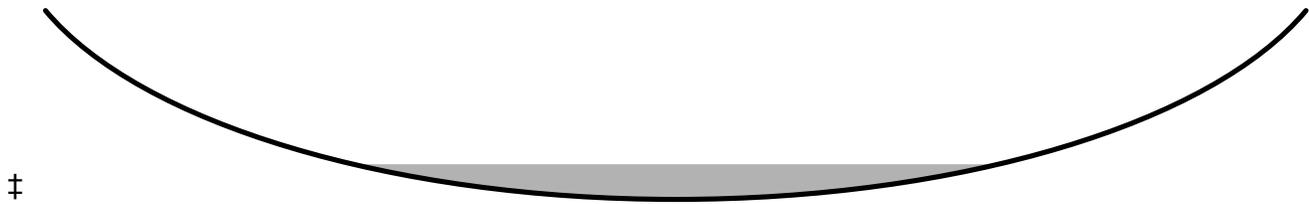
Summary for Reach W7: 7 Thru Wetland

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.93" for 100-year event
 Inflow = 0.07 cfs @ 15.48 hrs, Volume= 0.044 af
 Outflow = 0.05 cfs @ 20.00 hrs, Volume= 0.008 af, Atten= 33%, Lag= 271.0 min
 Routed to Link x1000 : x1000

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 0.05 fps, Min. Travel Time= 216.7 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 273.5 min

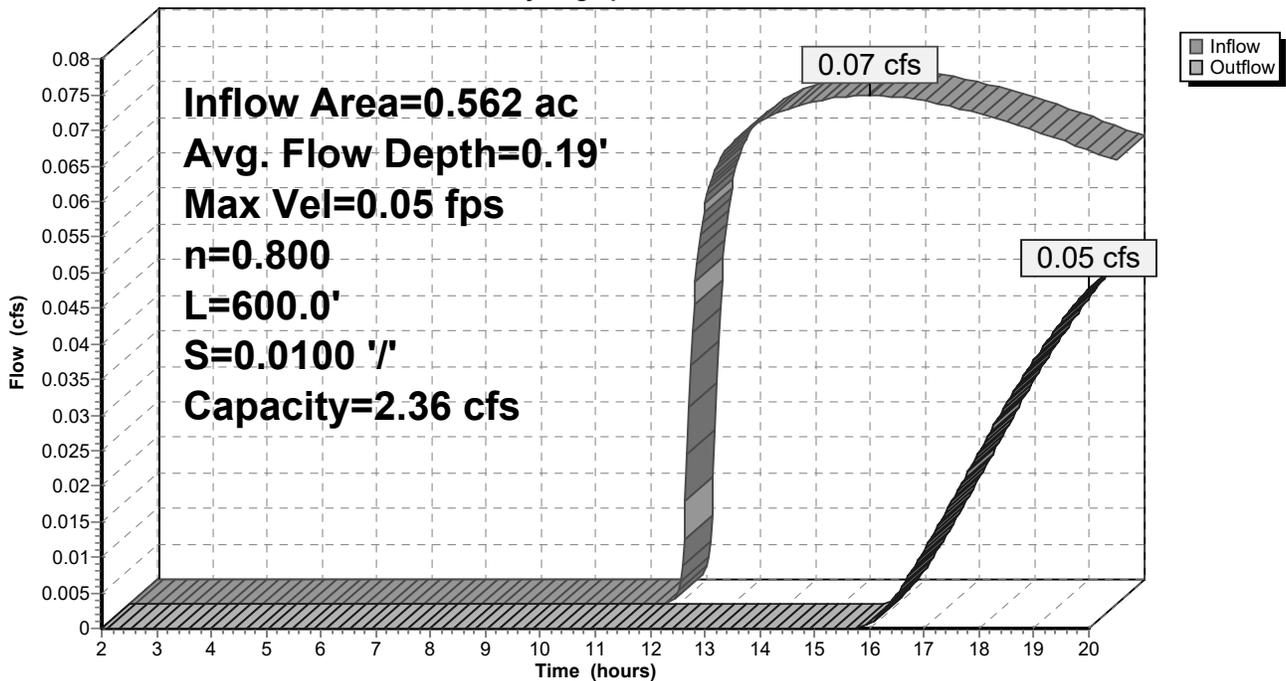
Peak Storage= 801 cf @ 20.00 hrs
 Average Depth at Peak Storage= 0.19' , Surface Width= 10.77'
 Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 2.36 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.800 Sheet flow: Woods+dense brush
 Length= 600.0' Slope= 0.0100 '/'
 Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W7: 7 Thru Wetland

Hydrograph



Summary for Pond 1A: Detention Basin 1A

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 5.43" for 100-year event
 Inflow = 3.14 cfs @ 12.09 hrs, Volume= 0.221 af
 Outflow = 1.99 cfs @ 12.18 hrs, Volume= 0.216 af, Atten= 37%, Lag= 5.9 min
 Primary = 1.99 cfs @ 12.18 hrs, Volume= 0.216 af
 Routed to Reach CP1 : Connecting Pipes

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.68' @ 12.18 hrs Surf.Area= 2,685 sf Storage= 1,670 cf

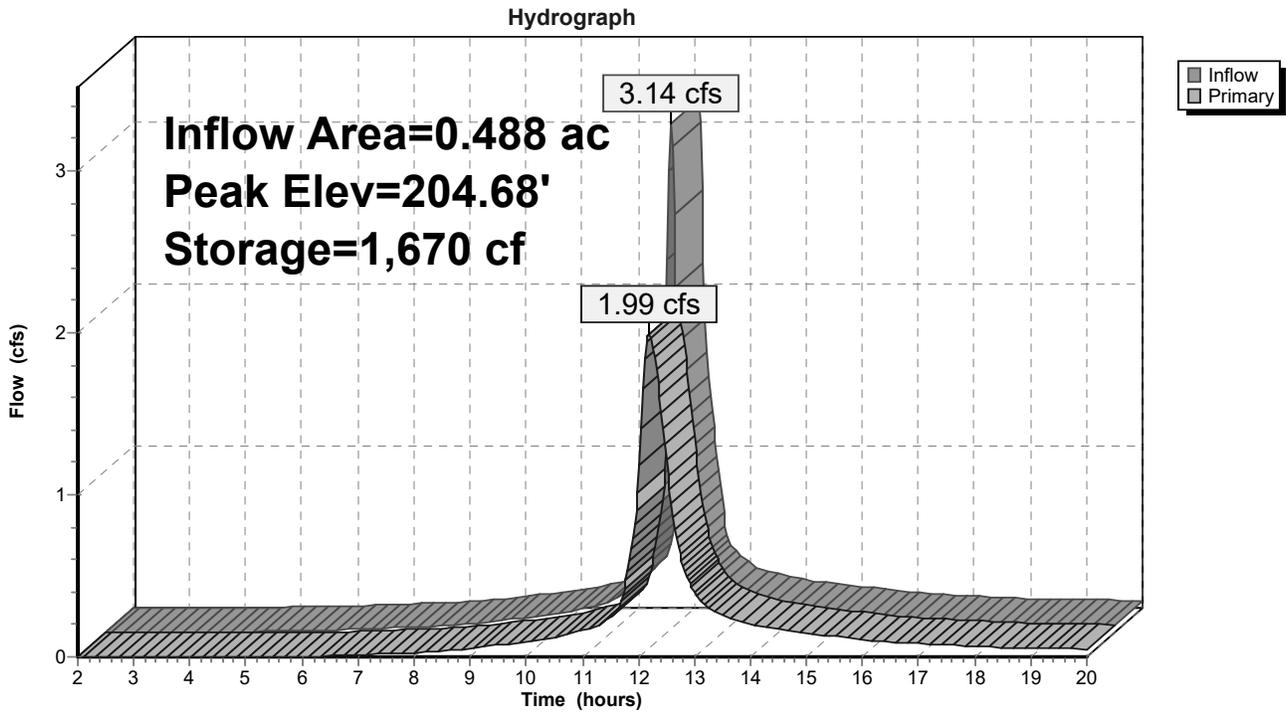
Plug-Flow detention time= 27.8 min calculated for 0.216 af (98% of inflow)
 Center-of-Mass det. time= 19.9 min (778.0 - 758.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	5,995 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,219	217.0	0	0	2,219	
205.00	2,917	242.0	2,560	2,560	3,161	
206.00	3,980	396.0	3,435	5,995	10,986	

Device	Routing	Invert	Outlet Devices	
#1	Primary	204.00'	8.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=1.98 cfs @ 12.18 hrs HW=204.68' (Free Discharge)
 ↑**1=Orifice/Grate** (Orifice Controls 1.98 cfs @ 2.84 fps)

Pond 1A: Detention Basin 1A



4298600-PR - Reconfigure Basin #1

Type III 24-hr 100-year Rainfall=7.27"

Prepared by VHB

Printed 3/6/2023

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Summary for Pond 1B: Detention Basin 1B

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 5.33" for 100-year event
 Inflow = 1.98 cfs @ 12.19 hrs, Volume= 0.216 af
 Outflow = 0.13 cfs @ 15.52 hrs, Volume= 0.088 af, Atten= 94%, Lag= 199.5 min
 Primary = 0.13 cfs @ 15.52 hrs, Volume= 0.088 af
 Routed to Reach P1 : Pipe Out of 1

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.52' @ 15.52 hrs Surf.Area= 5,046 sf Storage= 6,377 cf

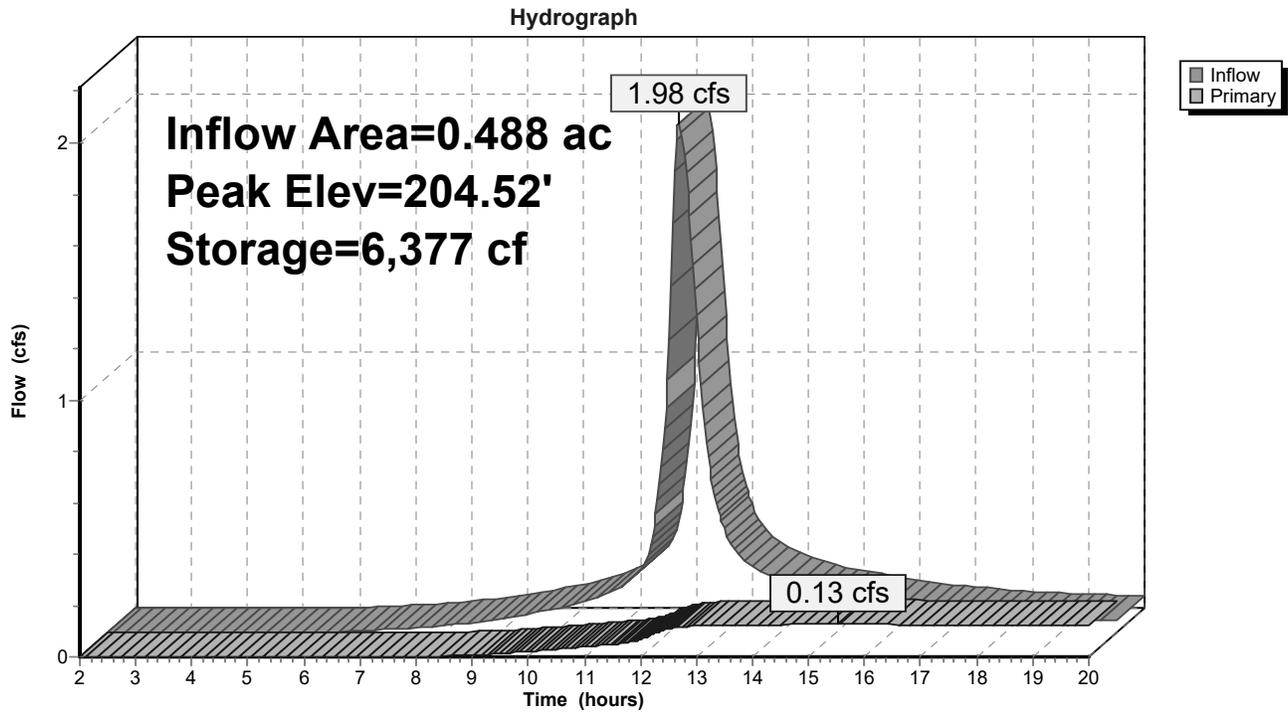
Plug-Flow detention time= 252.4 min calculated for 0.088 af (41% of inflow)
 Center-of-Mass det. time= 156.8 min (935.3 - 778.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	203.00'	15,252 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
203.00	3,355	332.0	0	0	3,355	
204.00	4,461	375.0	3,895	3,895	5,800	
205.00	5,613	394.0	5,026	8,921	7,025	
206.00	7,077	463.0	6,331	15,252	11,750	

Device	Routing	Invert	Outlet Devices		
#1	Primary	203.00'	2.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 15.52 hrs HW=204.52' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.13 cfs @ 5.78 fps)

Pond 1B: Detention Basin 1B



Summary for Pond 2P: Detention Basin 2

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 5.97" for 100-year event
 Inflow = 2.50 cfs @ 12.08 hrs, Volume= 0.187 af
 Outflow = 0.13 cfs @ 14.21 hrs, Volume= 0.098 af, Atten= 95%, Lag= 127.5 min
 Primary = 0.13 cfs @ 14.21 hrs, Volume= 0.098 af
 Routed to Reach P2 : Pipe Out of 2
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P2 : Pipe Out of 2

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.55' @ 14.21 hrs Surf.Area= 3,783 sf Storage= 5,062 cf

Plug-Flow detention time= 251.4 min calculated for 0.098 af (52% of inflow)
 Center-of-Mass det. time= 155.6 min (891.7 - 736.0)

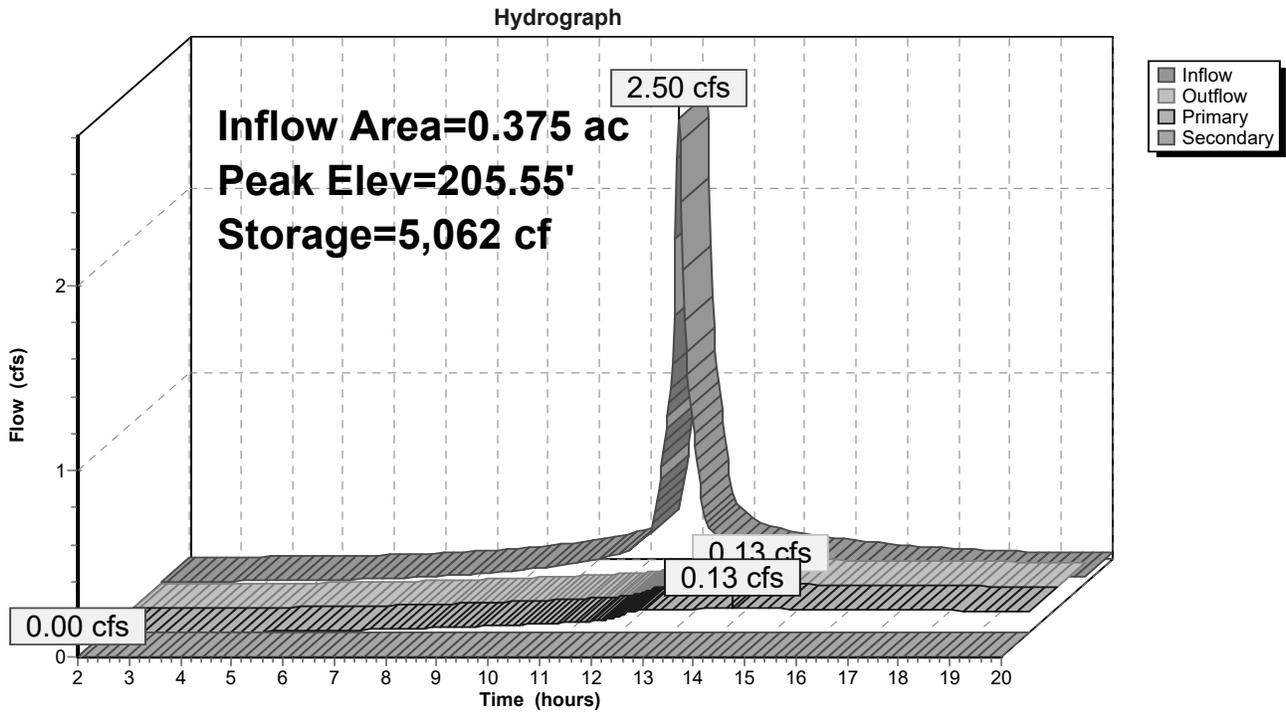
Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	6,845 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,781	215.0	0	0	2,781	
205.00	3,414	233.0	3,092	3,092	3,461	
206.00	4,102	253.0	3,753	6,845	4,271	

Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	206.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.13 cfs @ 14.21 hrs HW=205.55' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.13 cfs @ 5.83 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 2P: Detention Basin 2



Summary for Pond 3P: Detention Basin 3

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 5.54" for 100-year event
 Inflow = 3.80 cfs @ 12.09 hrs, Volume= 0.269 af
 Outflow = 0.14 cfs @ 15.46 hrs, Volume= 0.102 af, Atten= 96%, Lag= 202.4 min
 Primary = 0.14 cfs @ 15.46 hrs, Volume= 0.102 af
 Routed to Reach P3 : Pipe Out of 3
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P3 : Pipe Out of 3

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.79' @ 15.46 hrs Surf.Area= 5,333 sf Storage= 8,176 cf

Plug-Flow detention time= 269.2 min calculated for 0.102 af (38% of inflow)
 Center-of-Mass det. time= 162.4 min (917.8 - 755.4)

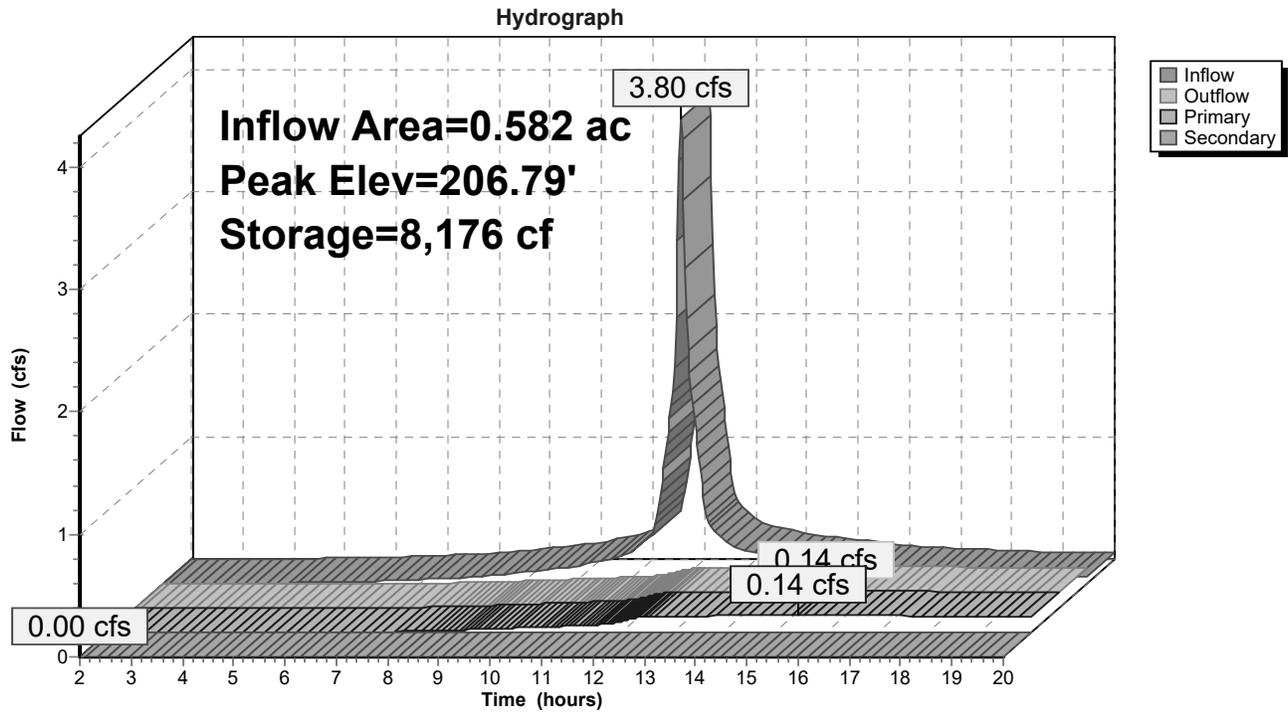
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	9,306 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	3,825	299.0	0	0	3,825	
206.00	4,645	321.0	4,228	4,228	4,954	
207.00	5,522	343.0	5,077	9,306	6,163	

Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.14 cfs @ 15.46 hrs HW=206.79' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.14 cfs @ 6.29 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: Detention Basin 3



Summary for Pond 4A: Detention Basin 4A

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 5.54" for 100-year event
 Inflow = 2.61 cfs @ 12.09 hrs, Volume= 0.185 af
 Outflow = 2.45 cfs @ 12.12 hrs, Volume= 0.184 af, Atten= 6%, Lag= 1.8 min
 Primary = 2.45 cfs @ 12.12 hrs, Volume= 0.184 af
 Routed to Reach CP4 : Connecting Pipes
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Link x1000 : x1000

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.73' @ 12.12 hrs Surf.Area= 960 sf Storage= 432 cf

Plug-Flow detention time= 8.0 min calculated for 0.184 af (99% of inflow)
 Center-of-Mass det. time= 5.7 min (761.1 - 755.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	205.20'	3,389 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.20	680	165.0	0	0	680	
206.00	1,121	238.0	713	713	3,027	
207.00	2,031	428.0	1,554	2,267	13,102	
207.50	2,465	434.0	1,122	3,389	13,566	

Device	Routing	Invert	Outlet Devices
#1	Primary	205.20'	15.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	207.50'	8.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

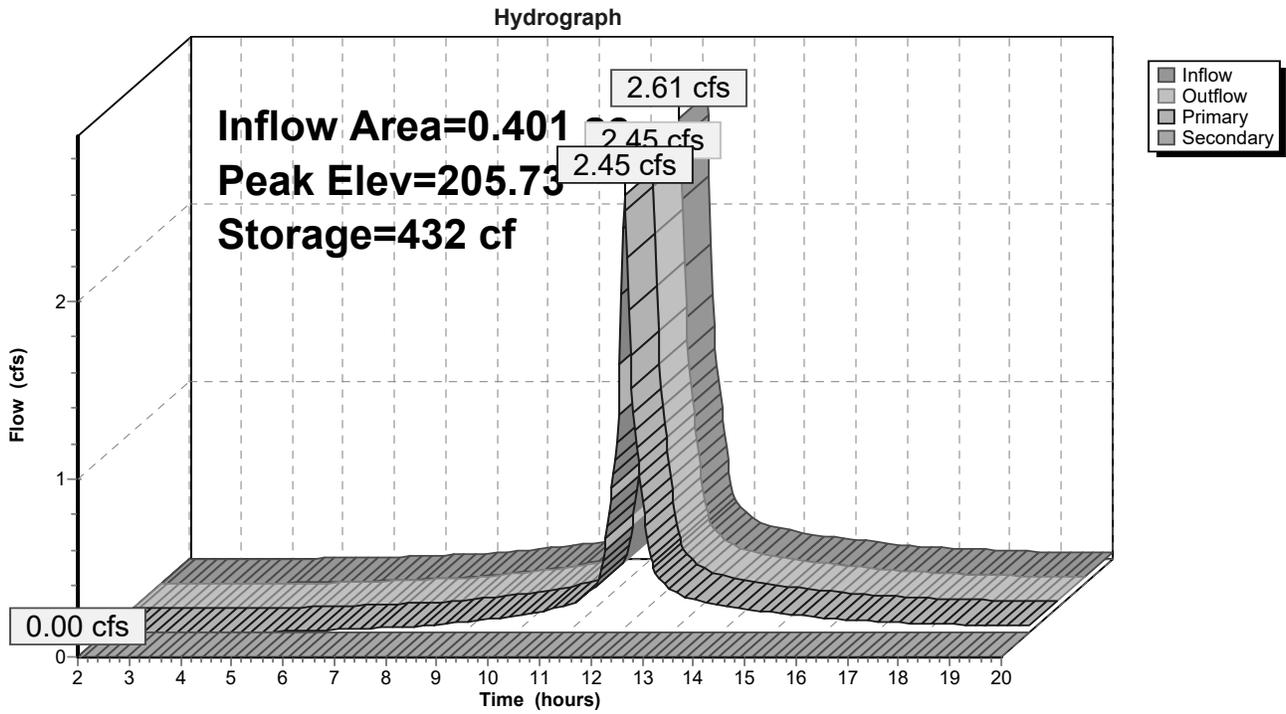
Primary OutFlow Max=2.43 cfs @ 12.12 hrs HW=205.73' (Free Discharge)

↑1=Orifice/Grate (Orifice Controls 2.43 cfs @ 2.47 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.20' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4A: Detention Basin 4A



Summary for Pond 4B: Detention Basin 4B

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 4.75" for 100-year event
 Inflow = 2.82 cfs @ 12.12 hrs, Volume= 0.212 af
 Outflow = 0.14 cfs @ 15.07 hrs, Volume= 0.097 af, Atten= 95%, Lag= 176.9 min
 Primary = 0.14 cfs @ 15.07 hrs, Volume= 0.097 af
 Routed to Reach P4B : Pipe Out of 4B
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P4B : Pipe Out of 4B

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.74' @ 15.07 hrs Surf.Area= 4,084 sf Storage= 6,002 cf

Plug-Flow detention time= 247.8 min calculated for 0.097 af (46% of inflow)
 Center-of-Mass det. time= 156.2 min (924.7 - 768.5)

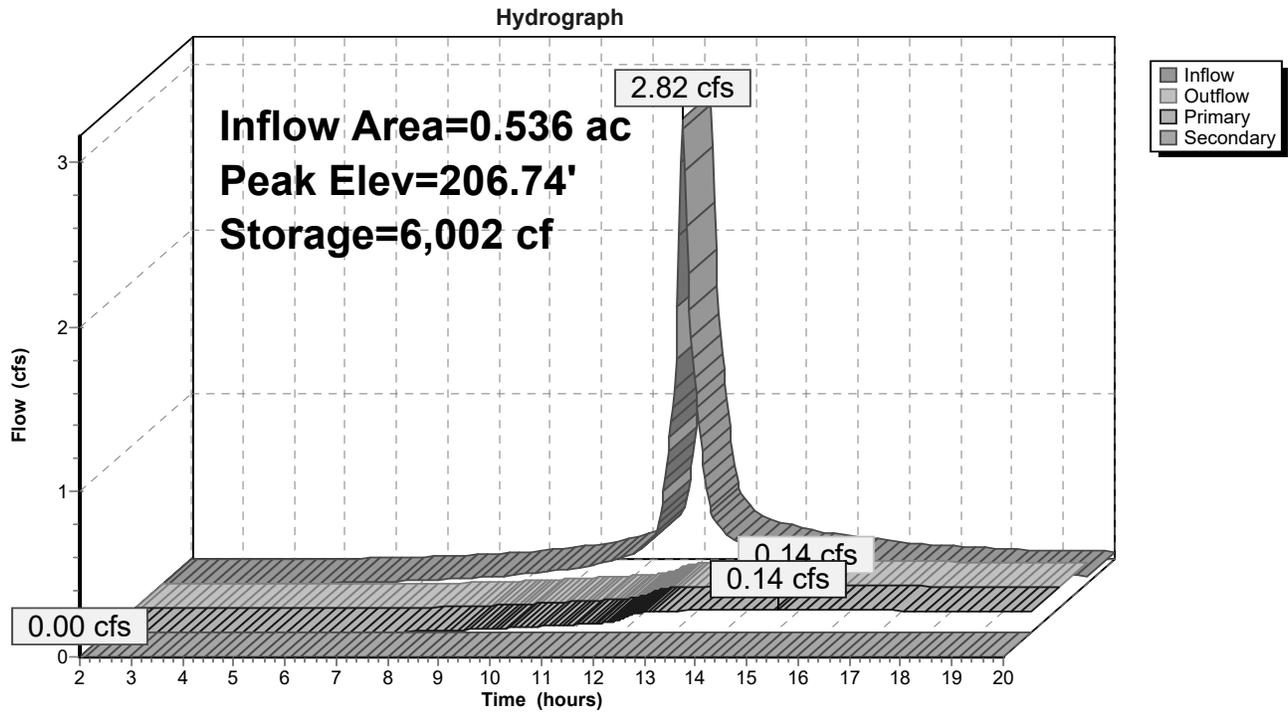
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	7,090 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	2,837	240.0	0	0	2,837	
206.00	3,542	256.0	3,183	3,183	3,515	
207.00	4,283	269.0	3,907	7,090	4,119	

Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.14 cfs @ 15.07 hrs HW=206.74' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.14 cfs @ 6.20 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 4B: Detention Basin 4B



Summary for Pond 5P: Detention Basin 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 6.24" for 100-year event
 Inflow = 7.05 cfs @ 12.08 hrs, Volume= 0.527 af
 Outflow = 0.46 cfs @ 13.50 hrs, Volume= 0.260 af, Atten= 93%, Lag= 85.1 min
 Primary = 0.20 cfs @ 13.50 hrs, Volume= 0.162 af
 Routed to Reach P5 : Pipe Out of 5
 Secondary = 0.27 cfs @ 13.50 hrs, Volume= 0.098 af
 Routed to Reach P5 : Pipe Out of 5

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 207.57' @ 13.50 hrs Surf.Area= 5,539 sf Storage= 14,533 cf

Plug-Flow detention time= 239.3 min calculated for 0.260 af (49% of inflow)
 Center-of-Mass det. time= 140.9 min (876.5 - 735.6)

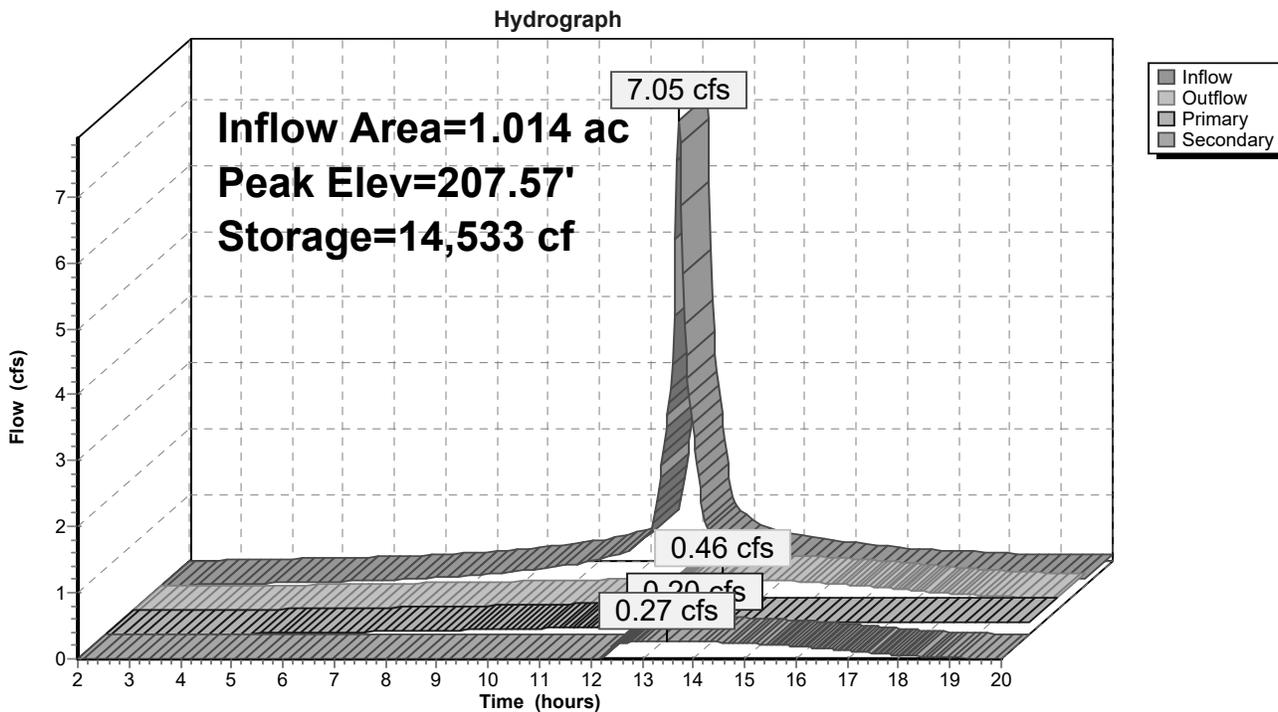
Volume	Invert	Avail.Storage	Storage Description			
#1	204.00'	15,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
204.00	2,787	236.0	0	0	2,787	
205.00	3,274	250.0	3,027	3,027	3,380	
206.00	4,298	383.0	3,774	6,802	10,087	
207.00	5,079	397.0	4,683	11,485	11,040	
207.75	5,683	407.0	4,034	15,518	11,747	

Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads
#2	Secondary	207.00'	4.0" Vert. Orifice/Grate	C= 0.600	Limited to weir flow at low heads

Primary OutFlow Max=0.20 cfs @ 13.50 hrs HW=207.57' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.20 cfs @ 9.00 fps)

Secondary OutFlow Max=0.27 cfs @ 13.50 hrs HW=207.57' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.27 cfs @ 3.07 fps)

Pond 5P: Detention Basin 5



Summary for Pond 6P: Detention Basin 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 4.87" for 100-year event
 Inflow = 3.28 cfs @ 12.09 hrs, Volume= 0.224 af
 Outflow = 0.33 cfs @ 12.90 hrs, Volume= 0.159 af, Atten= 90%, Lag= 49.0 min
 Primary = 0.33 cfs @ 12.90 hrs, Volume= 0.159 af
 Routed to Reach P6 : Pipe Out of 6
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P6 : Pipe Out of 6

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 207.21' @ 12.90 hrs Surf.Area= 3,403 sf Storage= 5,824 cf

Plug-Flow detention time= 216.2 min calculated for 0.158 af (71% of inflow)
 Center-of-Mass det. time= 151.3 min (921.2 - 770.0)

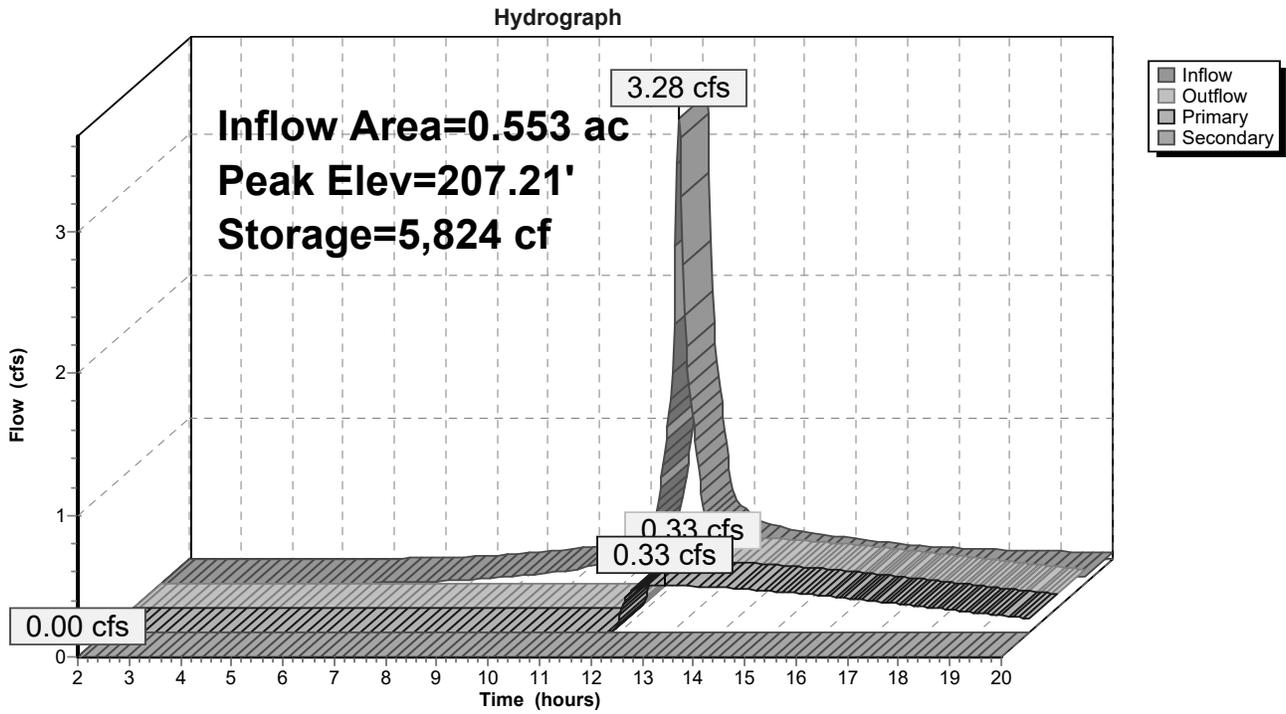
Volume	Invert	Avail.Storage	Storage Description			
#1	205.00'	7,775 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
205.00	1,920	273.0	0	0	1,920	
206.00	2,558	295.0	2,231	2,231	2,954	
207.00	3,255	360.0	2,900	5,131	6,358	
207.75	3,802	370.0	2,644	7,775	7,000	

Device	Routing	Invert	Outlet Devices	
#1	Primary	206.00'	3.5" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads	
#2	Secondary	207.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.33 cfs @ 12.90 hrs HW=207.21' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.33 cfs @ 4.96 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=205.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 6P: Detention Basin 6



Summary for Pond 7P: Detention Basin 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 1.64" for 100-year event
 Inflow = 1.05 cfs @ 12.10 hrs, Volume= 0.077 af
 Outflow = 0.07 cfs @ 15.40 hrs, Volume= 0.044 af, Atten= 93%, Lag= 197.7 min
 Primary = 0.07 cfs @ 15.40 hrs, Volume= 0.044 af
 Routed to Reach P7 : Pipe Out of 7
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af
 Routed to Reach P7 : Pipe Out of 7

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.55' @ 15.40 hrs Surf.Area= 3,635 sf Storage= 1,833 cf

Plug-Flow detention time= 222.6 min calculated for 0.044 af (57% of inflow)
 Center-of-Mass det. time= 134.0 min (963.8 - 829.8)

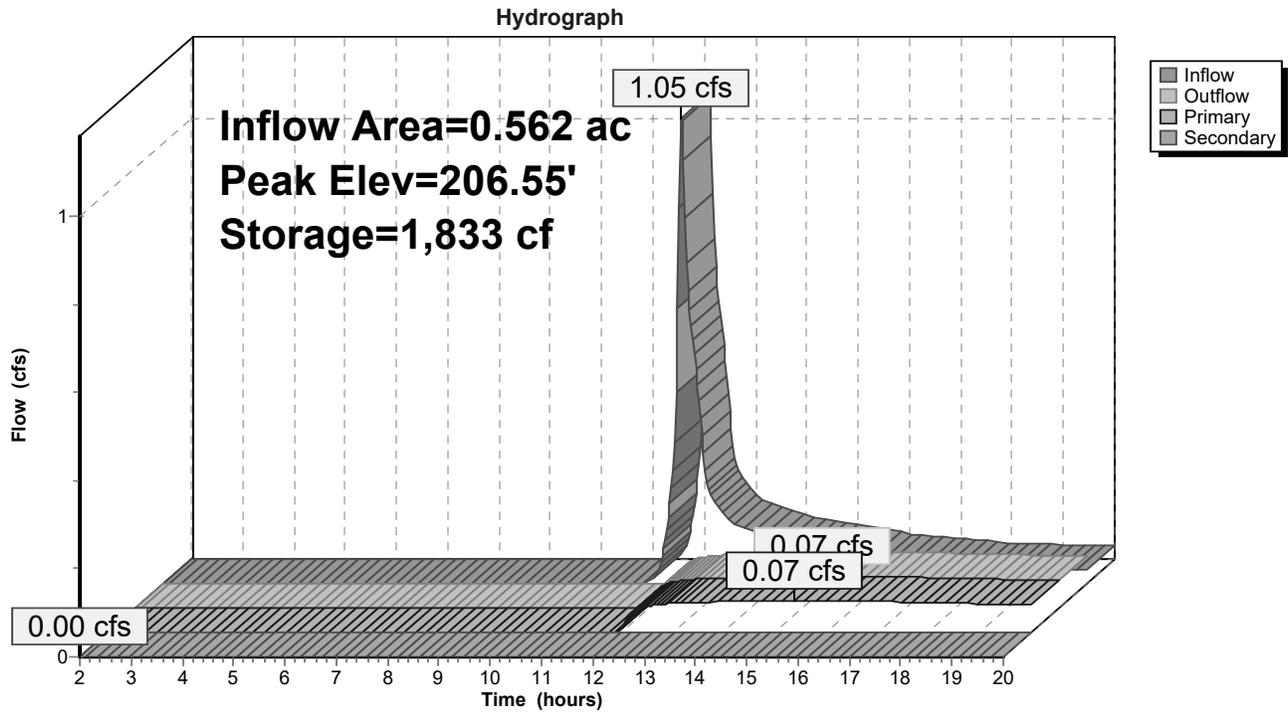
Volume	Invert	Avail.Storage	Storage Description			
#1	206.00'	7,029 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
206.00	3,078	335.0	0	0	3,078	
207.00	4,132	359.0	3,592	3,592	4,448	
207.75	5,049	375.0	3,437	7,029	5,422	

Device	Routing	Invert	Outlet Devices		
#1	Primary	206.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.07 cfs @ 15.40 hrs HW=206.55' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.07 cfs @ 3.28 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=206.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 7P: Detention Basin 7



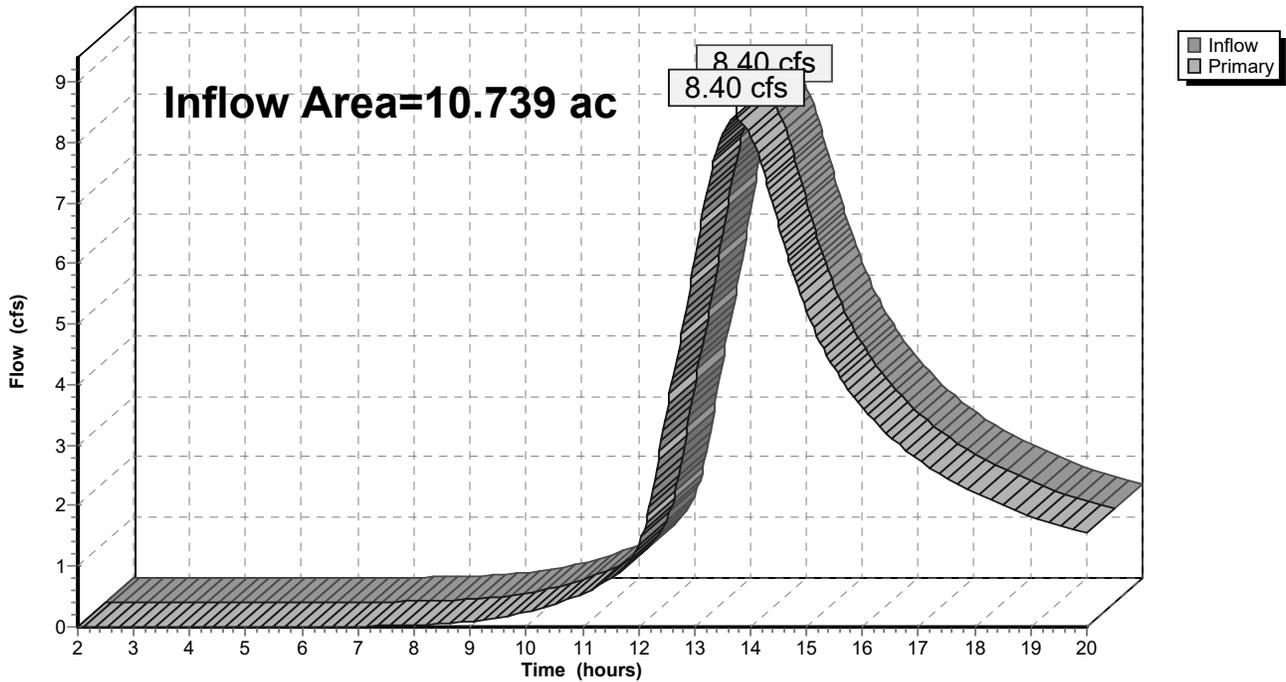
Summary for Link x1000: x1000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 3.05" for 100-year event
Inflow = 8.40 cfs @ 13.75 hrs, Volume= 2.732 af
Primary = 8.40 cfs @ 13.75 hrs, Volume= 2.732 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 1k-2k : x1000 to x2000

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x1000: x1000

Hydrograph



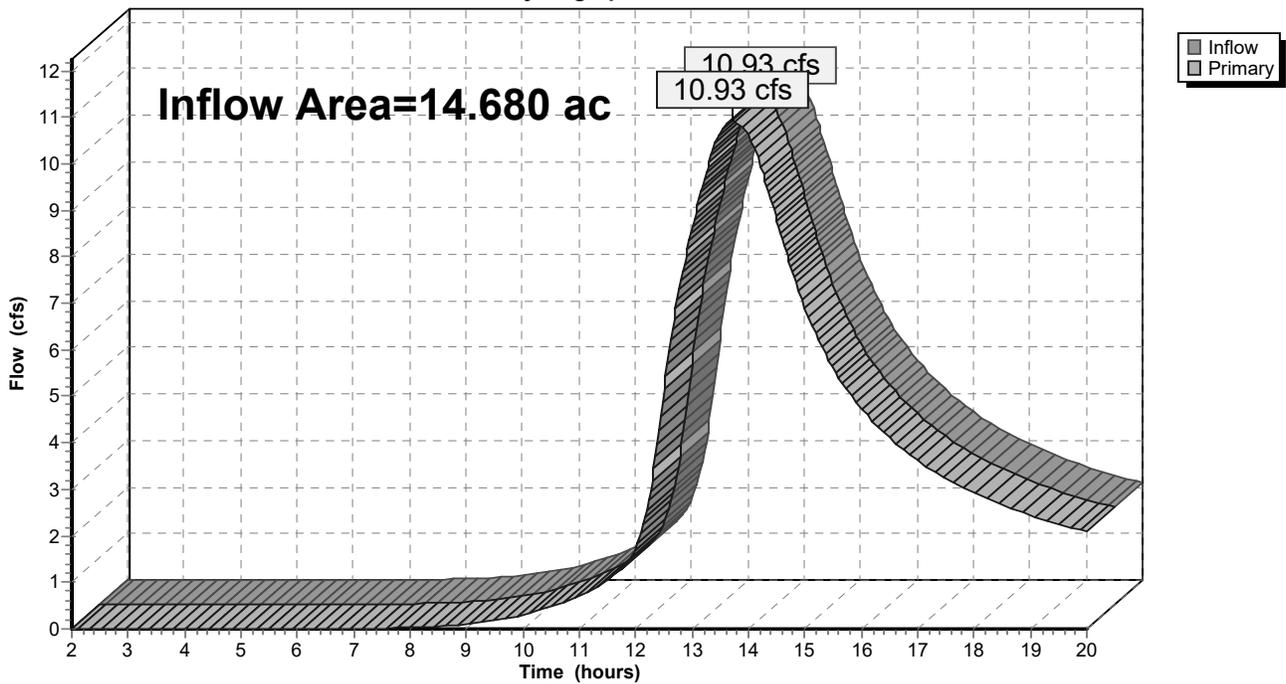
Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 2.97" for 100-year event
Inflow = 10.93 cfs @ 13.71 hrs, Volume= 3.636 af
Primary = 10.93 cfs @ 13.71 hrs, Volume= 3.636 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2k-3k : x2000 to x3000

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x2000: x2000

Hydrograph



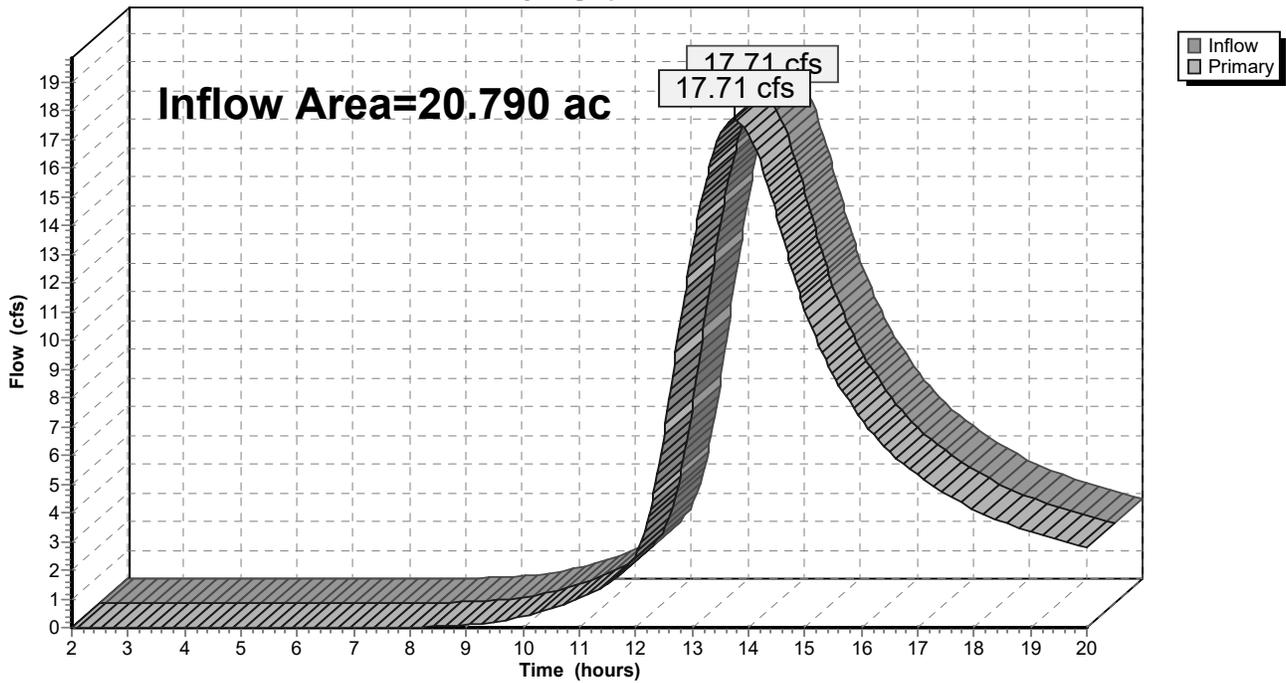
Summary for Link x3000: x3000

Inflow Area = 20.790 ac, 10.83% Impervious, Inflow Depth > 3.20" for 100-year event
Inflow = 17.71 cfs @ 13.75 hrs, Volume= 5.537 af
Primary = 17.71 cfs @ 13.75 hrs, Volume= 5.537 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x3000: x3000

Hydrograph



Appendix C: Soils Information

- › Soil Evaluation in accordance with Volume 3, Chapter 1 of the Handbook

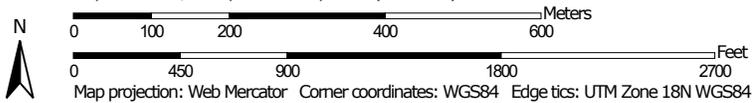
Soil Evaluation and Analysis

- NRCS Web Soil Survey Data
- Geotechnical Report

Soil Map—Franklin County, Massachusetts



Map Scale: 1:9,650 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Franklin County, Massachusetts

Survey Area Data: Version 17, Sep 9, 2022

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

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5A	Saco mucky silt loam, 0 to 2 percent slopes, frequently flooded	12.0	3.1%
6A	Scarboro mucky sandy loam, 0 to 2 percent slopes	1.1	0.3%
9A	Birdsall mucky silt loam, 0 to 2 percent slopes	17.4	4.5%
30A	Raynham silt loam, 0 to 3 percent slopes	124.3	32.4%
31A	Walpole sandy loam, 0 to 3 percent slopes	39.7	10.3%
51A	Swansea muck, 0 to 1 percent slopes	13.3	3.5%
223A	Scio silt loam, 0 to 3 percent slopes	9.7	2.5%
223B	Scio silt loam, 3 to 8 percent slopes	12.9	3.4%
230B	Unadilla silt loam, 3 to 8 percent slopes	0.9	0.2%
245B	Hinckley loamy sand, 3 to 8 percent slopes	3.5	0.9%
256B	Deerfield loamy fine sand, 3 to 8 percent slopes	5.1	1.3%
258A	Amostown fine sandy loam, 0 to 3 percent slopes	61.5	16.0%
258B	Amostown fine sandy loam, 3 to 8 percent slopes	12.7	3.3%
260A	Sudbury sandy loam, 0 to 3 percent slopes	11.0	2.9%
656	Udorthents-Urban land complex	59.0	15.4%
Totals for Area of Interest		384.1	100.0%

Franklin County, Massachusetts

9A—Birdsall mucky silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 9c49
Elevation: 120 to 1,030 feet
Mean annual precipitation: 37 to 52 inches
Mean annual air temperature: 35 to 59 degrees F
Frost-free period: 127 to 182 days
Farmland classification: Not prime farmland

Map Unit Composition

Birdsall and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Birdsall

Setting

Landform: Stream terraces, depressions
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty glaciolacustrine deposits

Typical profile

A - 0 to 10 inches: mucky silt loam
Bg - 10 to 29 inches: silt loam
Cg1 - 29 to 36 inches: silt loam
Cg2 - 36 to 43 inches: silt loam
Cg3 - 43 to 52 inches: silty clay loam
Cg4 - 52 to 58 inches: silt loam
Cg5 - 58 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table: About 0 to 2 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 12.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: B/D
Ecological site: F144AY031MA - Very Wet Outwash
Hydric soil rating: Yes

Minor Components

Raynham

Percent of map unit: 10 percent
Landform: Depressions, terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Scarboro

Percent of map unit: 1 percent
Landform: Outwash plains, deltas, outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Swansea

Percent of map unit: 1 percent
Landform: Outwash terraces, ground moraines, outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Franklin County, Massachusetts
Survey Area Data: Version 17, Sep 9, 2022

Franklin County, Massachusetts

30A—Raynham silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2qk83
Elevation: 30 to 1,040 feet
Mean annual precipitation: 37 to 51 inches
Mean annual air temperature: 37 to 59 degrees F
Frost-free period: 135 to 182 days
Farmland classification: Not prime farmland

Map Unit Composition

Raynham and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham

Setting

Landform: Terraces, depressions
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty glaciolacustrine deposits

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 7 inches: silt loam
Bg - 7 to 12 inches: silt loam
Bw - 12 to 16 inches: very fine sandy loam
B'g - 16 to 31 inches: very fine sandy loam
Cg - 31 to 38 inches: silt loam
C1 - 38 to 53 inches: stratified silt loam to silty clay loam
C2 - 53 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 4 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 12.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F145XY004CT - Wet Lake Plain
Hydric soil rating: Yes

Minor Components

Scio

Percent of map unit: 5 percent
Landform: Terraces, plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Birdsall

Percent of map unit: 2 percent
Landform: Stream terraces, depressions
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Walpole

Percent of map unit: 2 percent
Landform: Outwash plains, deltas, outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sudbury

Percent of map unit: 2 percent
Landform: Deltas, terraces, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Enosburg

Percent of map unit: 2 percent
Landform: Terraces, deltas, plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Amostown

Percent of map unit: 2 percent
Landform: Lake plains, deltas, terraces
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: Franklin County, Massachusetts
Survey Area Data: Version 17, Sep 9, 2022

Franklin County, Massachusetts

256B—Deerfield loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2xfg9

Elevation: 0 to 1,190 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces

Landform position (three-dimensional): Tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy outwash derived from granite, gneiss, and/or quartzite

Typical profile

Ap - 0 to 9 inches: loamy fine sand

Bw - 9 to 25 inches: loamy fine sand

BC - 25 to 33 inches: fine sand

Cg - 33 to 60 inches: sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: About 15 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Sodium adsorption ratio, maximum: 11.0

Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 7 percent
Landform: Outwash terraces, outwash plains, kame terraces, outwash deltas
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Wareham

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sudbury

Percent of map unit: 2 percent
Landform: Kame terraces, outwash deltas, outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Ninigret

Percent of map unit: 1 percent
Landform: Outwash plains, outwash terraces, kame terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex, linear
Across-slope shape: Convex, concave
Hydric soil rating: No

Data Source Information

Soil Survey Area: Franklin County, Massachusetts
Survey Area Data: Version 17, Sep 9, 2022

Franklin County, Massachusetts

258A—Amostown fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9c6g

Elevation: 130 to 480 feet

Mean annual precipitation: 37 to 51 inches

Mean annual air temperature: 37 to 59 degrees F

Frost-free period: 135 to 182 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Amostown and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Amostown

Setting

Landform: Lake plains, terraces, deltas

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Riser, talf

Down-slope shape: Linear

Across-slope shape: Convex, linear

Parent material: Loamy glaciofluvial deposits over glaciolacustrine deposits

Typical profile

Ap - 0 to 9 inches: fine sandy loam

Bw1 - 9 to 15 inches: fine sandy loam

Bw2 - 15 to 24 inches: fine sandy loam

2C1 - 24 to 30 inches: stratified very fine sandy loam to silt loam

2C2 - 30 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water

(Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)

Depth to water table: About 13 to 17 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D

Ecological site: F145XY005MA - Moist Lake Plain
Hydric soil rating: No

Minor Components

Scio

Percent of map unit: 9 percent
Landform: Terraces, plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ninigret

Percent of map unit: 6 percent
Landform: Outwash terraces, outwash plains
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sudbury

Percent of map unit: 6 percent
Landform: Deltas, terraces, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Deerfield

Percent of map unit: 2 percent
Landform: Deltas, terraces, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Pollux

Percent of map unit: 2 percent
Landform: Terraces, deltas, plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: Franklin County, Massachusetts
Survey Area Data: Version 17, Sep 9, 2022

Franklin County, Massachusetts

258B—Amostown fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9c6f
Elevation: 120 to 850 feet
Mean annual precipitation: 37 to 51 inches
Mean annual air temperature: 37 to 59 degrees F
Frost-free period: 135 to 182 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Amostown and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Amostown

Setting

Landform: Lake plains, terraces, deltas
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Loamy glaciofluvial deposits over glaciolacustrine deposits

Typical profile

Ap - 0 to 9 inches: fine sandy loam
Bw1 - 9 to 15 inches: fine sandy loam
Bw2 - 15 to 24 inches: fine sandy loam
2C1 - 24 to 30 inches: stratified very fine sandy loam to silt loam
2C2 - 30 to 65 inches: silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 13 to 17 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D

Ecological site: F145XY005MA - Moist Lake Plain
Hydric soil rating: No

Minor Components

Pollux

Percent of map unit: 15 percent
Landform: Terraces, deltas, plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ninigret

Percent of map unit: 10 percent
Landform: Outwash terraces, outwash plains
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: Franklin County, Massachusetts
Survey Area Data: Version 17, Sep 9, 2022

Franklin County, Massachusetts

260A—Sudbury sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9cbm

Elevation: 130 to 1,010 feet

Mean annual precipitation: 37 to 52 inches

Mean annual air temperature: 35 to 59 degrees F

Frost-free period: 127 to 182 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Sudbury and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sudbury

Setting

Landform: Deltas, terraces, outwash plains

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, dip

Down-slope shape: Concave

Across-slope shape: Linear

Parent material: Sandy glaciofluvial deposits

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material

Ap - 2 to 8 inches: sandy loam

Bw1 - 8 to 15 inches: fine sandy loam

Bw2 - 15 to 21 inches: loamy fine sand

C1 - 21 to 55 inches: stratified fine sand to sand

C2 - 55 to 65 inches: stratified fine sand to very fine sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 6 to 10 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D

Ecological site: F145XY010CT - Moist Outwash
Hydric soil rating: No

Minor Components

Deerfield

Percent of map unit: 10 percent
Landform: Terraces, outwash plains, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: Franklin County, Massachusetts

Survey Area Data: Version 17, Sep 9, 2022



J3431-01-01
May 26, 2022

Mr. Ken Bouquillon
SunnyDayz Inc
55 Locust Street
Lynn, Massachusetts 01904

Re: Preliminary Geotechnical Engineering Recommendations
SunnyDayz Development
Greenfield Road Parcels
South Deerfield, Massachusetts

Dear Mr. Bouquillon:

O'Reilly, Talbot & Okun Associates, Inc. (OTO) is pleased to provide this letter report summarizing our preliminary geotechnical findings and recommendations for the proposed cannabis cultivation buildings and dispensary in South Deerfield. The Site is located on the west side of Route 10, adjacent to Interstate I-91. A Site Locus is provided as Figure 1. A Site Plan is provided as Figure 2.

This report provides our preliminary findings regarding subsurface conditions at the Site. This report is intended to provide an opinion of the suitability of the Site for the proposed project, and to provide preliminary geotechnical recommendations to allow conceptual plans and cost estimates to be developed. Once a project design is chosen, additional explorations and analyses will be required.

Our geotechnical findings and preliminary recommendations are based upon subsurface conditions observed in six soil borings. Our services consisted of the full-time observation of the borings, review of the logs and soil samples, engineering analyses, and preparation of this report. This report is subject to the attached limitations.

SUMMARY OF SIGNIFICANT FINDINGS

The presence of soft varved, silt and clay and a relatively shallow groundwater table are the significant geotechnical concerns for the proposed development. The soft silt and clay soils allow for only a relatively light bearing capacity for the design of foundations. They are also compressible under moderate load increases (both building and fill loads), potentially resulting in building settlement. Although the Site buildings could likely be founded on normal shallow foundations (spread footings), a relatively low bearing pressure is provided for their design. Special construction techniques of ground improvement (such as aggregate piers and/or soil preload) may be needed to mitigate the potential settlements. Lastly, the groundwater table is shallow (within 2 to 3 feet below ground surface). This will make it difficult to manage surface water runoff on-Site, may cause frost movements of pavements and exterior hard surfaces (such as sidewalks).

In addition, the shallow groundwater table and silty near surface soils often result in soft ground conditions during wet weather periods, making it difficult to construct the proposed buildings and pavements. The construction schedule should account for weather conditions.

The recommendations provided in this report should be reviewed once a final building design and location are chosen.

SITE DESCRIPTION

The Site is located in South Deerfield, Massachusetts and is presently a moderately wooded, undeveloped property between Route 5 & 10 and Interstate 91. Site topography is generally flat and at least two low lying areas with wetlands are located in the southern and central portions of the Site. Wooded areas and wetlands further border the Site to the east, west and north.

PROPOSED PROJECT

We have assumed the new building(s) will be steel framed and will bear upon isolated column and continuous strip spread footing foundations. Foundation loads are unknown at this time, but it is assumed that column loads will be on the order of 15 to 25 kips and wall loads will be on the order of 2 kips per linear foot. These building loads should be confirmed by the design team.

SUBSURFACE EXPLORATIONS

Subsurface explorations consisted of six soil borings (GR-1 through GR-6), which were performed on May 3 and 4, 2022 by Seaboard Drilling of Chicopee, Massachusetts. The borings were performed using a Diedrich D-50 track mounted rig, equipped with either hollow stem augers or drive and wash drilling techniques. Borings GR-1 through GR-4 were performed within the south portion of the Site and borings GR-5 and GR-6 were performed within the north/central portion of the Site. We note that the boring locations were located and staked by others. Borings GR-1 through GR-4 and GR-6 were extended to a maximum depth of 22 feet. Boring GR-5 was extended to a depth of 57 feet. An O'Reilly, Talbot & Okun Associates, Inc. (OTO) engineer observed and logged each boring. Boring locations are shown on Figure 2. Boring logs are attached.

Soil samples were collected on a continuous basis from the ground surface to a depth of four feet, at a depth of five feet, and at five-foot intervals, thereafter in each boring. Standard Penetration Tests (SPT) were performed by driving a 2-inch outside diameter split-spoon sampler 24 inches into the soil using a 140 pound automatic hammer free falling 30 inches (American Society for Testing and Materials Test Method D1586-99 "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils"). The number of blows required to advance the split-spoon each 6-inch interval is recorded. The total blows required to drive the sampler the middle 12 inches of the 24-inch drive is the standard penetration resistance or N value. After drilling, each borehole was backfilled with soil cuttings. The depth to the groundwater table was measured during drilling and is presented on the boring logs.

SUBSURFACE CONDITIONS

Subsurface conditions were interpreted based upon the soil borings. In general, subsurface conditions consisted of a surface topsoil layer, underlain by fine sand or silty fine sand, followed by varved silt and clay.

Soil Conditions

Topsoil: Two inches of forest duff (consisting of leaves and sticks) underlain by approximately 4 to 7 inches of topsoil was present at the surface in each of the borings. The topsoil consisted of a dark brown fine sand with various amounts of silt and trace amounts of organics (roots). We note that testing for nutrient content, pH, or organic content was not part of this study. We recommend this testing be performed to evaluate the suitability of existing Site topsoil for reuse during final design, if appropriate.

Granular Soils: The surficial topsoil layer was directly underlain by a silty fine sand or fine to medium sand in each boring. This upper granular layer extended to a depth of between 10 and 15 feet below ground surface. This layer consisted of loose to medium dense, brown to gray-brown fine sand, with varying amounts of silt and medium sand, or fine to medium sand with trace amounts of silt. We note that the silt content within this layer was highly variable (both vertically and horizontally), varying from approximately 5% to as much as 50%. The variability of the silt content is important since the soils containing a high silt content will be poorly draining and will likely become soft when exposed to moisture. The soils with a high silt content are susceptible to disturbance, resulting in a soft subgrade for pavements and slabs. These soils are also highly susceptible to frost movements.

Varved Silt, Sand and Clay: A layer of gray, varved silt and clay was encountered in each boring below the upper granular layer. The varved silt and clay deposit consists of fine-grained, post-glacial lake deposits that were deposited within ancestral Lake Hitchcock (which filled much of the Connecticut River Valley from the retreat of the last continental glacier until approximately 15,000 years ago). These fine-grained soils are characterized by alternating layers (or varves) of silt, sand, and clay. At some locations, the upper few feet of this layer was predominantly silt and the varved silt and clay profile was not evident to a depth of approximately 20 feet. This profile is typical of the Connecticut River Valley.

The varved clay profile was generally very soft to medium stiff. A published geologic map¹ indicates the varved silt and clay is likely on the order of 50 to 100 feet thick in the Site vicinity. None of the Site borings fully penetrated the varved silt and clay layer. The deep boring performed for this study (GR-5) terminated within the clay layer of depth of 57 feet below ground surface.

The varved silt and clay unit can be compressible under moderate to heavy loads, such as thick fills placed to raise grades at the Site, heavy foundation loads, or moderate to heavy floor loads in warehouse developments. We note that portions of the varved silt and

¹ "Map Showing Distribution and Thickness of Fine-Grained Deposits, Connecticut Valley Urban Area, Central New England", USGS, William H. Langer, 1979.

clay unit contained frequent sand and sandy silt lenses. These lenses would decrease the compressibility of the silt and clay unit and increase horizontal drainage, which would speed the rate of consolidation (compression) of this layer under imposed loads. Based upon our understanding of the proposed development, a post construction settlement of approximately three inches is possible. However, this estimate is highly dependent on the amount of fill placed to regrade the Site. For purposes of this report, we have assumed that as much as four feet of fill may be placed to raise grades (given the relatively shallow groundwater table).

Groundwater Conditions

Groundwater was observed during drilling at a depth of between two and three feet below ground surface. This relatively shallow groundwater condition can make it difficult to infiltrate stormwater into the ground, can result in soft subgrades under pavements and slabs, can cause frost movements of pavements and exterior slabs and can cause construction issues. Therefore, the shallow depth of groundwater will need to be considered during final design and construction.

PRELIMINARY DESIGN RECOMMENDATIONS

We note that additional subsurface information is needed to refine the recommended geotechnical system design and to provide final geotechnical recommendations for this project. Recommended supplemental investigations are described in the next section.

Overall Site Conditions/Geotechnical Issues

Based upon the conditions observed in the borings, subsurface conditions vary across the Site; however, our preliminary study indicates that, based on geotechnical considerations, no one portion of the Site is preferable to another. No significant amounts of fill, organic soils or other deleterious soils were observed in the borings.

The most significant geotechnical issues identified during our preliminary geotechnical study involve the presence of a soft, varved silt and clay layer (which is compressible under moderate building loads), the shallow groundwater table, and the presence of silty near surface soils (which are poorly draining).

Based upon the above information, our preliminary findings and recommendations are presented below.

Foundations

The new building(s) can be supported on normal spread footings bearing on the near surface sandy soils. We recommend that the structural engineer use a relatively low bearing pressure of 2,500 pounds per square foot for preliminary foundation design, and that the footings be supported on a minimum of 12-inches of Crushed Stone or imported Sand and Gravel. The footings should be embedded at least four feet for frost protection, and other requirements of the Massachusetts State Building Code (MSBC) should be followed.

Settlement Consideration

The underlying soft, varved silt and clay unit encountered throughout the Site is compressible, potentially resulting in building settlement, particularly if the project involves large fills. We recommend that any fill be placed early in the project to allow the settlement to occur prior to the construction of the Site buildings. Depending on the size and weight of the future buildings and the thickness of any fill placed to achieve Site grades, it may be appropriate to preload the Site. A soil preload consists of placing additional soil fill (which is equal to the weight of the structure) to surcharge the Site to further promote settlement prior to construction. Preloading would induce the compression of the soft silt and clay layer in a controlled manner, which will reduce post-construction settlement. For preliminary consideration, we recommend that the design team assume the preload fill will be placed up to three months prior to the start of building construction.

In addition, ground improvement systems such as aggregate piers may be considered to help mitigate settlement and/or provide higher bearing pressures, if needed.

Seismic Considerations

Earthquake loadings must be considered under requirements in Section 1613 and 1806 of the 9th Edition (October 2017) of the Massachusetts State Building Code (MSBC). The 9th Edition of the MSBC is based upon the International Building Code 2015 (IBC) with Massachusetts amendments. Note that the IBC refers to ASCE-7 (2010), Minimum Design Loads for Buildings and Other Structures.

Section 1613 of the IBC covers lateral forces imposed on structures from earthquake shaking and requires that every structure be designed and constructed to resist the effects of earthquake motions in accordance with ASCE-7. Lateral forces are dependent on the type and properties of soils present beneath the Site, along with the geographic location. Per Table 1604.11, the maximum considered earthquake spectral response acceleration at short periods (S_s) and at 1-sec (S_1) was determined to be 0.172 and 0.068, respectively, for South Deerfield, Massachusetts.

Soil properties are represented through Site Classification. Procedures for the Site-specific determination of Site Classification are provided in Chapter 20 of ASCE-7. At this Site, we evaluated Site Classification using one of the parameters allowed, Standard Penetration Resistance (N-value). The Site Class was determined to be Class E based upon soil data collected. Furthermore, the Site coefficients F_a and F_v were determined according to Tables 1613.3.3(1) and 1613.3.3(2) of the IBC (2015), using both the S_s and S_1 values and the Site Class. For this Site, F_a and F_v were determined to be 2.5 and 3.5, respectively.

Section 1806.4 relates to the liquefaction potential of the underlying soils. The liquefaction potential was evaluated for saturated Site soils, using Figure 1806.4b or 1806.4c of the MSBC. However, based upon the observed density and fines content, it is unlikely that significant amounts of liquefaction-induced settlement would occur under the design earthquake. In addition, loose soil layers below the maximum depth explored are not anticipated.

Groundwater/Silty Near Surface Soils

The groundwater table at the Site is relatively shallow (less than three feet) and portions of the near surface soils are relatively silty and poorly draining. Therefore, it is unlikely that stormwater generated can be managed on-Site. In addition, the silty soils are poorly draining, which is not suitable for pavements and could potentially cause construction problems during wet periods. We recommend that the preliminary design incorporate subsurface drainage within pavement areas and a relatively robust pavement section. The contractor will need to take steps to control surface water and protect silty subgrade soils during construction.

SUPPLEMENTAL INVESTIGATIONS AND ANALYSIS

Design phase boring explorations will be required for final design. The design phase geotechnical study should also include testing to evaluate properties of the soft, clay and silt layer for use in settlement analyses, and the design of any soil improvement systems (such as a soil preload).

We appreciated the opportunity to be of service on this project. If you have any questions, please call the undersigned.

Sincerely yours,
O'Reilly, Talbot & Okun Associates, Inc.



Stephen McLaughlin, EIT
Sr. Project Manager

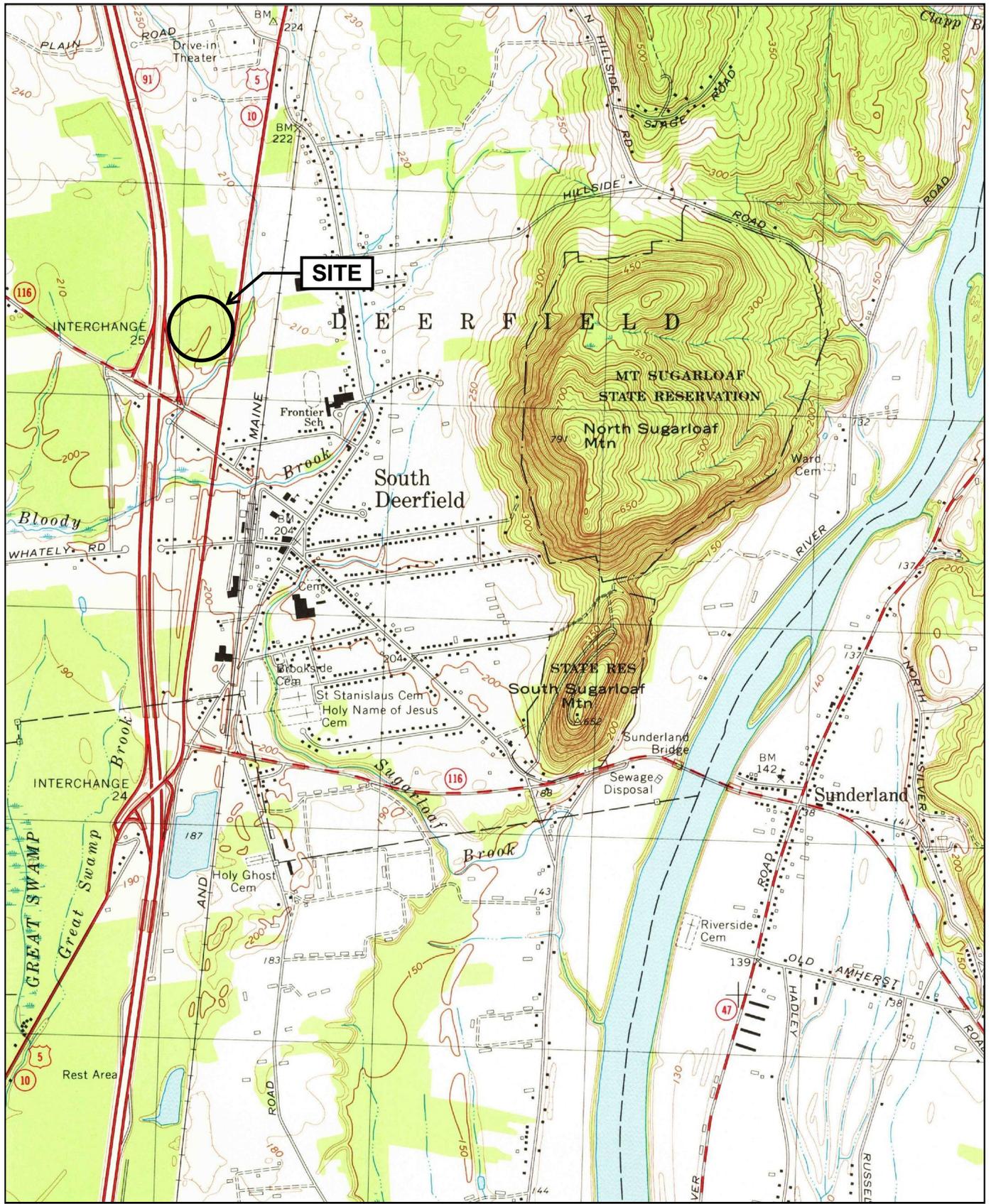


Michael J. Talbot, P.E.
Principal

Attachments: Limitations, Site Locus, Site Plan, Sheet 1, Boring Logs

LIMITATIONS

1. The observations presented in this report were made under the conditions described herein. The conclusions presented in this report were based solely upon the services described in the report and not on scientific tasks or procedures beyond the scope of the project or the time and budgetary constraints imposed by the client. The work described in this report was carried out in accordance with the Statement of Terms and Conditions attached to our proposal.
2. The analysis and recommendations submitted in this report are based in part upon the data obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it may be necessary to reevaluate the recommendations of this report.
3. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.
4. In the event that any changes in the nature, design or location of the proposed structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by O'Reilly, Talbot & Okun Associates Inc. It is recommended that we be retained to provide a general review of final plans and specifications.
5. Our report was prepared for the exclusive benefit of our client. Reliance upon the report and its conclusions is not made to third parties or future property owners.



1:25,000 SCALE NATIONAL GEODETIC VERTICAL DATUM 1929 10 FOOT CONTOUR INTERVAL

OUJ3430/3431 Sunny Dayz Inc01-01 Sunny Dayz Greenfield Rd, South Deerfield, MA - Geotech Figures and Calculations

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES
293 Bridge Street, Suite 500 Springfield, MA 01103 413.788.6222
www.OTO-ENV.com

SUNNYDAYZ DEVELOPMENT
ROUTE 10
SOUTH DEERFIELD, MASSACHUSETTS
SITE LOCUS

Topographic Map Quadrant:
MOUNT TOBY, MA
Map Version: 1970
Current As Of: 1971
Date: MAY 2022

PROJECT No.
J3431-01-01
FIGURE No.
1



LEGEND:

 APPROXIMATE SOIL BORING LOCATION PERFORMED BY SEABOARD DRILLING ON 4/28/2022 AND 4/29/2022, OBSERVED BY OTO

NOTES:

1. BASE MAP EXTRACTED FROM DRAWING TITLED "CONCEPTUAL PLAN" PROVIDED TO OTO IN ELECTRONIC FORMAT BY OWNER
2. SAMPLE LOCATIONS ARE SHOWN ACCORDING TO GPS COORDINATES. SAMPLE LOCATIONS WERE MARKED BY OTHERS.
3. ALL DATA IS TO BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED IN THE DEVELOPMENT OF THIS PLAN

DESIGNED BY: CYI
 DRAWN BY: CYI
 CHECKED BY: SMM
 DATE: 05/09/2022
 REV. DATE:

SUNNY DAYZ DEVELOPMENT
 ROUTE 5&10
 SOUTH DEERFIELD, MASSACHUSETTS
SITE SKETCH

PROJECT NO.
J3431-01-01

FIGURE NO.
2

**Table 1-1
Degree of Compaction Recommendations**

Location	Minimum Compaction
Below Structures (Foundations and Slabs)	95%
Below Pavements/Sidewalks/Exterior Slabs	95%
Against Basement Walls/Retaining Walls	92%
Utility Trenches	95%
General Landscaped Areas	90%
Notes. 1. Percentage of the maximum dry density as determined by Modified Proctor ASTM D1557, Method C. 2. When location falls into two or more categories, the engineer should be notified to determine appropriate compaction efforts and/or methods. 3. Crushed stone should be compacted in lifts of 12 inches to form a dense matrix using either traditional compaction methods (vibratory plate and/or roller) or tamping with an excavator bucket in deep excavations. It is generally not necessary to perform laboratory or field density testing on crushed stone.	

**Table 1-2
General Guidelines for Compaction Means and Methods**

Compaction Method	Maximum Stone Size (Inches Diameter)	Maximum Lift Thickness (Inches)		Minimum Number of Passes	
		Below Structures & Pavement	Non-Critical Areas	Below Structures & Pavement	Non-Critical Areas
Hand-operated Vibratory Plate and confined spaces	3	6	8	6	4
Hand-operated vibratory drum roller (less than 1000 pounds)	3	6	8	6	4
Hand-operated vibratory drum roller (at least 1,000 pounds)	6	8	10	6	4
Light vibratory drum roller (minimum 3000 pounds)	6	10	14	6	4
Heavy vibratory drum roller (minimum 6000 pounds)	6	12	18	6	4
Note: The contractor should reduce or stop drum vibration if pumping of the subgrade is observed.					

O:\3400\3431 Sunny Dayz Inc\01-01 SunnyDayz, Greenfield Rd., South Deerfield, MA - Geotech\Figures and Calculations

 <p align="center"> O'Reilly, Talbot & Okun <small>ENGINEERING ASSOCIATES</small> <small>293 Bridge Street, Suite 500 Springfield, MA 01103 413.788.6222 www.OTO-ENV.com</small> </p>	SUNNY DAYZ DEVELOPMENT ROUTE 5&10 SOUTH DEERFIELD, MASSACHUSETTS	DESIGNED BY: ALS DRAWN BY: DAH CHECKED BY: MJT DATE: 5/11/2022 REV. DATE:	PROJECT No. J3431-01-01
	GENERAL COMPACTION GUIDELINES		SHEET No. 1

BORING LOGS

SUMMARY OF THE BURMISTER SOIL CLASSIFICATION SYSTEM (MODIFIED)

RELATIVE DENSITY (of non-plastic soils) OR CONSISTENCY (of plastic soils)

<p style="text-align: center;">STANDARD PENETRATION TEST (SPT)</p> <p>Method: Samples were collected in accordance with ASTM D1586, using a 2" diameter split spoon sampler driven 24 inches. If samples were collected using direct push methodology (Geoprobe), SPTs were not performed and relative density/consistency were not reported. N-Value: The number of blows with a 140 lb. hammer required to drive the sampler the middle 12 inches. WOR: Weight Of Rod (depth dependent) WOH: Weight Of Hammer (140 lbs.)</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">COHESIONLESS SOILS</th> <th colspan="2">COHESIVE SOILS</th> </tr> <tr> <th>BLOWS/FOOT (SPT N-Value)</th> <th>RELATIVE DENSITY</th> <th>BLOWS/FOOT (SPT N-Value)</th> <th>CONSISTENCY</th> </tr> <tr> <td>0-4</td> <td>Very loose</td> <td><2</td> <td>Very soft</td> </tr> <tr> <td>4-10</td> <td>Loose</td> <td>2-4</td> <td>Soft</td> </tr> <tr> <td>10-30</td> <td>Medium dense</td> <td>4-8</td> <td>Medium Stiff</td> </tr> <tr> <td>30-50</td> <td>Dense</td> <td>8-15</td> <td>Stiff</td> </tr> <tr> <td>>50</td> <td>Very dense</td> <td>15-30</td> <td>Very stiff</td> </tr> <tr> <td colspan="2">*Based upon uncorrected field N-values</td> <td>>30</td> <td>Hard</td> </tr> </table>	COHESIONLESS SOILS		COHESIVE SOILS		BLOWS/FOOT (SPT N-Value)	RELATIVE DENSITY	BLOWS/FOOT (SPT N-Value)	CONSISTENCY	0-4	Very loose	<2	Very soft	4-10	Loose	2-4	Soft	10-30	Medium dense	4-8	Medium Stiff	30-50	Dense	8-15	Stiff	>50	Very dense	15-30	Very stiff	*Based upon uncorrected field N-values		>30	Hard	
COHESIONLESS SOILS		COHESIVE SOILS																																
BLOWS/FOOT (SPT N-Value)	RELATIVE DENSITY	BLOWS/FOOT (SPT N-Value)	CONSISTENCY																															
0-4	Very loose	<2	Very soft																															
4-10	Loose	2-4	Soft																															
10-30	Medium dense	4-8	Medium Stiff																															
30-50	Dense	8-15	Stiff																															
>50	Very dense	15-30	Very stiff																															
*Based upon uncorrected field N-values		>30	Hard																															

MATERIAL: (major constituent identified in CAPITAL letters)

COHESIONLESS SOILS			COHESIVE SOILS		
MATERIAL	FRACTION	GRAIN SIZE RANGE	SMALLEST DIAMETER	PLASTICITY	IDENTITY
GRAVEL	Coarse	3/4" to 3"	None	Non-plastic	SILT
	Fine	1/4" to 3/4"	1/4" (pencil)	Slight	Clayey SILT
SAND	Coarse	1/16" to 1/4"	1/8"	Low	SILT & CLAY
	Medium	1/64" to 1/16"	1/16"	Medium	CLAY & SILT
	Fine	Finest visible & distinguishable particles	1/32"	High	Silty CLAY
SILT/CLAY	see adjacent table	Cannot distinguish individual particles	1/64"	Very High	CLAY
COBBLES		3" to 6" in diameter	Wetted sample is rolled in hands to smallest possible diameter before breaking.		
BOULDERS		> 6" in diameter			

Note: Boulders and cobbles are observed in test pits and/or auger cuttings.

ORGANIC SILT: Typically gray to dark gray, often has strong H2S odor. May contain shells or shell fragments. Light weight.
Fibrous PEAT: Light weight, spongy, mostly visible organic matter, water squeezed readily from sample. Typically near top of layer.
Fine grained PEAT: Light weight, spongy, little visible organic matter, water squeezed from sample. Typically below fibrous peat.
DEBRIS: Detailed contents described in parentheses (wood, glass, ash, crushed brick, metal, etc.)
BEDROCK: Underlying rock beneath loose soil, can be weathered (easily crushed) or competent (difficult to crush).

ADDITIONAL CONSTITUENTS

TERM	% OF TOTAL
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

COMMON TERMS

Glacial till: Very dense/hard, heterogeneous mixture of sand, silt, clay, sub-angular gravel. Deposited at base of glaciers, which covered all of New England.
Varved clay: Fine-grained, post-glacial lake sediments characterized by alternating layers (or varves) of silt, sand and clay.
Fill: Material used to raise ground, can be engineered or non-engineered.

COMMON FIELD MEASUREMENTS

Torvane: Undrained shear strength is estimated using an E285 Pocket Torvane (TV). Values in tons/ft².
Penetrometer: Unconfined compressive strength is estimated using a Pocket Penetrometer (PP). Values in tons/ft².
RQD: Rock Quality Designation is determined by measuring total length of pieces of core 4" or greater and dividing by the total length of the run, expressed as %. 100-90% excellent; 90-75% good; 75-50% fair; 50-25% poor; 25-0% very poor.
PID: Soil screened for volatile organic compounds (VOCs) using a photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume.

LOG OF BORING GR-1

PROJECT				SunnyDayz Development		CONTRACTOR		Seaboard Environmental Drilling			
JOB NUMBER		3431-01-01		FINAL DEPTH (ft)		22.0		DRILLING EQUIPMENT		D-50 Track Mounted Rig	
LOCATION		South Deerfield, MA		SURFACE ELEV (ft)		100.0		FOREMAN		Dougie	
START DATE		5/3/2022		DISTURBED SAMPLES		6		HELPER		Jarrett	
FINISH DATE		5/3/2022		UNDISTURBED SAMPLES		0		BIT TYPE		Hollow Stem Auger	
ENGINEER/SCIENTIST				Caren Irgang		WATER LEVEL		ROD TYPE		A (1 5/8" O.D.)	
BORING LOCATION		Southern portion of site		FIRST (ft)		7.0		SAMPLER		2" O.D. Split Spoon	
				LAST (ft)		N/A		HAMMER TYPE		Automatic	
				TIME (hr)		N/A		HAMMER WGT/DROP		140 lb / 30"	
CASE DIAMETER		N/A		HAMMER WGT		N/A		HAMMER DROP		N/A	
ROCK CORING INFORMATION		TYPE		N/A		SIZE		N/A			

DEPTH (ft)/ SAMPLES	SAMPLES				SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE		REMARKS/ WELL CONSTRUCTION
	PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA		DEPTH (ft)	ELEV.	
1 for 12"/2	11/24	S-1 0-2	--	2" Topsoil: Loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF) Next 4": Loose, dark brown, fine to medium SAND, some silt, trace organics (roots, sticks), damp (TOPSOIL)	TOPSOIL			
					FINE TO MEDIUM SAND			
4/6/4/5	17/24	S-2 2-4	--	Bottom 5": Loose, brown, fine to medium SAND, little silt, damp Top 5": Medium dense, orange brown, fine to medium SAND, little silt, damp (top 3" wet) Next 7": Medium dense, gray brown, fine SAND, trace silt, damp Bottom 5": Stiff, gray, SILT, damp (some rust staining)	3.0	97.0		
					SILT			
5/5/7/5	18/24	S-3 5-7	--	Top 13": Medium dense, gray, fine SAND, little silt, damp (trace rust staining) Next 1": Medium dense, reddish brown, fine to medium SAND, trace silt, damp Next 2": Stiff, gray, SILT, little fine sand, damp Next 1/2": Medium dense, reddish brown, medium SAND, trace silt, damp Bottom 1": Stiff, gray, SILT, little fine sand, wet (trace rust staining)	5.0	95.0		
					FINE TO MEDIUM SAND			
4/3/2/3	10/24	S-4 10-12	--	Top 8": Loose, gray brown, fine SAND, some silt, wet (little rust staining) Bottom 2": Medium stiff, gray brown, varved SILT and CLAY, trace fine sand, wet (1/8" varves)	7.0	93.0		
					SILTY SAND			
3/7/7/7	15/24	S-5 15-17	--	Top 12": Medium dense, gray brown, varved fine SAND and SILT, wet (1/32" varves) Bottom 3": Medium dense, gray brown, fine to medium SAND, little silt, wet	10	90.0		
					SILT AND CLAY			
3/5/5/5	16/24	S-6 20-22	--	Top 12": Medium dense, gray brown, varved fine SAND and SILT, wet (1/32" varves) Bottom 3": Medium dense, gray brown, fine to medium SAND, little silt, wet	15.0	85.0		
					SILTY SAND			
20'	16/24	S-6 20-22	--	Top 3": Medium dense, gray brown, fine SAND, trace silt, wet Next 5": Medium dense, gray brown, fine to medium SAND, trace silt, wet Next 9": Medium dense, gray brown, varved clayey SILT, little fine sand, wet (2" varves) Bottom 0.5": Stiff, gray, SILT, wet	20.0	80.0		
					FINE SAND			
25'	16/24	S-6 20-22	--	END OF EXPLORATION AT 22'	21.0	79.0		
					SILT			
					22.0	78.0		

Remarks:	PROJECT NO. 3431-01-01
	LOG OF BORING GR-1

LOG OF BORING GR-2

PROJECT	SunnyDayz Development			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	3431-01-01	FINAL DEPTH (ft)	22.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	South Deerfield, MA	SURFACE ELEV (ft)	100.0	FOREMAN	Dougie	CASING	
START DATE	5/3/2022	DISTURBED SAMPLES	6	HELPER	Jarrett	CASE DIAMETER	N/A
FINISH DATE	5/3/2022	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang		WATER LEVEL	ROD TYPE	A (1 5/8" O.D.)		
BORING LOCATION	Southern portion of site		FIRST (ft)	2.3	SAMPLER	2" O.D. Split Spoon	
			LAST (ft)	N/A	HAMMER TYPE	Automatic	
			TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	
					HAMMER DROP	N/A	
						ROCK CORING INFORMATION	
						TYPE	N/A
						SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES				SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE		REMARKS/ WELL CONSTRUCTION
	PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA		DEPTH (ft)	ELEV.	
1 for 12" / 1/2"	18/24	S-1 0-2	--	Top 2": Very loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF) Next 6": Very loose, dark brown, fine to medium SAND, some silt, trace organics (roots), damp (TOPSOIL)	TOPSOIL	97.7		
5/7/7/6	14/24	S-3 5-7	--	Top 4": Stiff, gray brown, SILT, trace fine sand, wet (trace rust staining) Next 1": Medium dense, gray brown, fine SAND, trace silt, wet Next 2": Stiff, gray brown, SILT, wet Next 2": Medium dense, gray brown, fine to medium SAND, trace silt, wet Bottom 3": Stiff, gray brown, varved SILT and CLAY, wet (1/4" varves)	5.5	94.5		
5/9/11/13	15/24	S-5 15-17	--	Top 4": Very stiff, gray brown, Clayey SILT, trace fine sand, wet Next 2": Medium dense, gray brown, fine SAND, little silt, wet Bottom 8": Medium dense, gray brown, fine SAND, little medium sand, trace silt, wet	10.0	90.0		
20"	17/24	S-6 20-22	--	Top 9": Medium dense, gray brown, varved CLAY and SILT, wet (1" varves) Next 6": Medium dense, gray brown, fine SAND, some silt, trace medium sand, wet Bottom 2": Medium dense, gray, fine SAND, some silt, wet	20.0	80.0		
END OF EXPLORATION AT 22'								

Remarks:	PROJECT NO. 3431-01-01
	LOG OF BORING GR-2

LOG OF BORING GR-3

PROJECT				SunnyDayz Development		CONTRACTOR		Seaboard Environmental Drilling			
JOB NUMBER		3431-01-01		FINAL DEPTH (ft)		22.0		DRILLING EQUIPMENT		D-50 Track Mounted Rig	
LOCATION		South Deerfield, MA		SURFACE ELEV (ft)		100.0		FOREMAN		Dougie	
START DATE		5/3/2022		DISTURBED SAMPLES		6		HELPER		Jarrett	
FINISH DATE		5/3/2022		UNDISTURBED SAMPLES		0		BIT TYPE		Hollow Stem Auger	
ENGINEER/SCIENTIST				Caren Irgang		WATER LEVEL		ROD TYPE		A (1 5/8" O.D.)	
BORING LOCATION		Southern portion of site		FIRST (ft)		2.0		SAMPLER		2" O.D. Split Spoon	
				LAST (ft)		N/A		HAMMER TYPE		Automatic	
				TIME (hr)		N/A		HAMMER WGT/DROP		140 lb / 30"	
CASE DIAMETER		N/A		HAMMER DROP		N/A		ROCK CORING INFORMATION			
TYPE		N/A		SIZE		N/A					

DEPTH (ft)/ SAMPLES	SAMPLES				SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE		REMARKS/ WELL CONSTRUCTION
	PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA		DEPTH (ft)	ELEV.	
2.0	WOH 6"/ 1 for 12"/2	15/24	S-1	--	2" Topsoil: Very loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF) Next 5": Very loose, dark brown, fine to medium SAND, some silt, trace organics (roots, sticks), damp (TOPSOIL)	TOPSOIL		
			0-2			2.0	98.0	
3.0	3/5/5/6	16/24	S-2	--	Next 1": Very loose, orange brown, fine to medium SAND, little silt, damp Bottom 4": Very loose, brown, fine to medium SAND, trace silt, wet (top 1" orange brown, little silt) Top 12": Medium dense, brown, fine to medium SAND, trace fine to coarse sand, trace silt, wet Next 1": Medium dense, brown, fine to medium SAND, trace silt, wet Bottom 3": Stiff, brown, SILT, wet (some rust staining)	FINE TO MEDIUM SAND		
			2-4			3.0	97.0	
5.0	5/6/5/6	17/24	S-3	--	Top 8": Medium dense, gray brown, fine SAND and SILT, wet Bottom 5": Medium dense, gray brown, fine SAND, little silt, wet (some rust staining) Next 3": Medium dense, gray brown, fine to medium SAND, little silt, wet (1/4" varves) Bottom 6": Medium dense, gray brown, fine SAND, little silt, wet (some rust staining)	SILT		
			5-7			5.0	95.0	
10.0	2/5/7/9	13/24	S-4	--	Top 8": Medium dense, gray brown, fine SAND and SILT, wet Bottom 5": Medium dense, gray brown, fine SAND, little silt, wet (some rust staining)	SILTY SAND		
			10-12					
16.0	3/5/9/10	16/24	S-5	--	Top 8": Medium dense, gray brown, fine SAND, some silt, trace coarse sand, wet Next 6": Stiff, gray brown, Clayey SILT, trace fine sand, wet Bottom 2": Medium dense, gray brown, fine SAND, trace silt, wet	CLAYEY SILT		
			15-17			16.0	84.0	
20.0	6/6/6/6	17/24	S-6	--	Top 4": Medium dense, gray brown, fine SAND, little silt, wet Next 5": Medium dense, gray brown, varved clayey SILT, trace fine sand, wet (1.5" varves) Next 2": Medium dense, orange, fine SAND, trace silt, wet (rust stained) Bottom 7": Medium dense, gray brown, fine SAND, little silt, wet	FINE SAND		
			20-22			20.0	80.0	
22.0					END OF EXPLORATION AT 22'	FINE SAND		
						22.0	78.0	

Remarks: 1. WOH = Weight of rods and 140 lb. hammer.	PROJECT NO. 3431-01-01
	LOG OF BORING GR-3

LOG OF BORING GR-4

PROJECT	SunnyDayz Development			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	3431-01-01	FINAL DEPTH (ft)	22.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	South Deerfield, MA	SURFACE ELEV (ft)	100.0	FOREMAN	Dougie	CASING	
START DATE	5/3/2022	DISTURBED SAMPLES	6	HELPER	Jarrett	CASE DIAMETER	N/A
FINISH DATE	5/3/2022	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang		WATER LEVEL	ROD TYPE	A (1 5/8" O.D.)		
BORING LOCATION	Southern portion of site		FIRST (ft)	2.3	SAMPLER	2" O.D. Split Spoon	
			LAST (ft)	N/A	HAMMER TYPE	Automatic	
			TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	ROCK CORING INFORMATION

DEPTH (ft)/ SAMPLES	SAMPLES				SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE		REMARKS/ WELL CONSTRUCTION
	PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA		DEPTH (ft)	ELEV.	
1 for 12" / 1/2"	1 for 12" / 1/2"	20/24	S-1 0-2	--	2" Topsoil: Very loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF) Next 6": Very loose, dark brown, fine SAND, and silt, trace organics (roots), damp (TOPSOIL)	TOPSOIL		
						3/3/4/4	16/24	
5'	5/6/6/6	20/24	S-3 5-7	--	Medium dense, brown gray, fine SAND, some silt, wet (trace rust staining)			
10'	4/5/3/4	12/24	S-4 10-12	--	Top 7": Loose, gray brown, fine SAND, little silt, wet (trace rust staining) Next 2": Loose, gray brown, fine to medium SAND, trace silt, wet Bottom 4": Stiff, gray brown, Clayey SILT, little fine sand, wet	11.0	89.0	
15'	2/3/3/4	15/24	S-5 15-17	--	Top 11": Loose, gray brown, fine SAND, and silt, wet (trace rust staining) Bottom 4": Loose, gray brown, varved CLAY and SILT, trace fine sand, wet (1" varves)	12.0	88.0	
20'	2/3/3/6	16/24	S-6 20-22	--	Loose, brown gray, varved CLAY and SILT, trace fine sand, wet (1/4" to 1" varves, 1/2" seam of fine sand trace silt at 4")	20.0	80.0	
25'					END OF EXPLORATION AT 22'	22.0	78.0	

Remarks:	PROJECT NO. 3431-01-01
	LOG OF BORING GR-4

LOG OF BORING GR-5

PROJECT				SunnyDayz Development		CONTRACTOR		Seaboard Environmental Drilling							
JOB NUMBER		3431-01-01		FINAL DEPTH (ft)		57.0		DRILLING EQUIPMENT		D-50 Track Mounted Rig					
LOCATION		South Deerfield, MA		SURFACE ELEV (ft)		100.0		FOREMAN		Dougie					
START DATE		5/4/2022		DISTURBED SAMPLES		13		HELPER		Jarrett					
FINISH DATE		5/4/2022		UNDISTURBED SAMPLES		0		BIT TYPE		Roller Bit with Wash					
ENGINEER/SCIENTIST				Caren Irgang		WATER LEVEL		ROD TYPE		N (2 3/8" O.D.)					
BORING LOCATION		Northern/Central portion of site				FIRST (ft)		3.8		SAMPLER		2" O.D. Split Spoon			
						LAST (ft)		N/A		HAMMER TYPE		Automatic		ROCK CORING INFORMATION	
						TIME (hr)		N/A		HAMMER WGT/DROP		140 lb / 30"		TYPE	
										CASE DIAMETER		4"			
										HAMMER WGT		140 lb			
										HAMMER DROP		30"			

DEPTH (ft)/ SAMPLES	SAMPLES				SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE		REMARKS/ WELL CONSTRUCTION
	PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA		DEPTH (ft)	ELEV.	
1 for 12"/24	17/24	S-1 0-2	--	1" Topsoil: Loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF)	TOPSOIL		1.	
					FINE TO MEDIUM SAND			
4/5/7/6	18/24	S-2 2-4	--	Next 7": Loose, very dark brown, fine SAND and SILT, damp (bottom 5" orange brown) Next 5": Loose, orange brown, fine to medium SAND, little silt, damp Bottom 4": Loose, brown, fine to medium SAND, trace silt, damp Top 2": Medium dense, brown, fine to medium SAND, trace silt, damp Next 4": Medium dense, gray brown, fine SAND, some silt, damp Bottom 12": Stiff, gray to brown gray, SILT, trace fine sand, damp (some rust staining, last 3" moist)	3.0	97.0	SILT	
					96.3			
5/7/8/10	12/24	S-3 5-7	--	Very stiff, brown gray, SILT, trace fine sand, wet (trace rust staining, 1/8" thick seam of orange fine sand at 7")	10.0	90.0	FINE SAND	
					88.2			
9/7/5/7	16/24	S-4 10-12	--	Top 7": Medium dense, brown gray, fine SAND, trace silt, wet Next 6": Stiff, brown gray, SILT, some fine sand, wet Bottom 2": Stiff, brown gray, varved SILT and CLAY, some fine sand, wet (2" varves)	11.8	88.2	SILT AND CLAY	
					85.0			
4/6/7/5	15/24	S-5 15-17	--	Stiff, brown gray, SILT, some fine sand, wet (trace rust staining)	15.0	85.0	SILT	
					80.0			
2/3/2/1	18/24	S-6 20-22	--	Top 4": Medium stiff, gray, varved SILT and CLAY, wet (1/4"-1/2 varves) Bottom 14": Medium stiff, gray, varved clayey SILT, wet (1/4"-1/2 varves)	20.0	80.0	SILT AND CLAY	
2/2/2/3	24/24	S-7 25-27	--	Medium stiff, gray, varved SILT and CLAY, wet (1/4"-1/2 varves)				

Remarks: 1. WOH = Weight of rods and 140 lb. hammer. 2. WOR = Weight of rods. 3. Blow-in observed, driller cleared disturbed soil within auger prior to samples	PROJECT NO. 3431-01-01
	LOG OF BORING GR-5

Appendix D: Standard 4 and 9 Computations and Supporting Information

- › Long Term Stormwater Operation and Maintenance Measures
- › Long Term BMP Checklist
- › Water Quality Volume Calculations
- › TSS Removal Worksheets
- › Total Phosphorus Removal

Long Term Stormwater Operations and Maintenance Measures

.....
Project Information

Site

Project Name:

Address or Locus:

City, State & Zip:

Developer

Client Name:

Client Address:

Client City, State & Zip:

Client Telephone No.:

Client Cell Phone:

Client E-Mail:

Site Supervisor

Site Manager Name:

Site Manager Address:

Site Manager City, State & Zip:

Site Manager Telephone No.:

Site Manager Cell Phone:

Site Manager E-Mail:

Long Term Stormwater Maintenance Measures –

The following maintenance program is proposed to ensure the continued effectiveness of the structural water quality controls previously described.

- Inspect stormwater basins once annually, in the spring, for cracking or erosion of side slopes, embankments, and accumulated sediment. Necessary sediment removal, earth repair, and/or reseeding will be performed immediately upon identification.
- Inspect sediment traps/forebays monthly for erosion of side slopes and accumulated sediment. Necessary sediment removal, earth repair and/or reseeding shall be performed immediately upon identification. Clean traps/forebays approximately four times per year or as needed.
- Inspect water quality swales semi-annually; swales should be mowed once per year. Sediment and debris should be removed, at a minimum once per year.
- Clean all catch basins twice annually to remove accumulated sand, sediment, and floatable products or as needed based on use.
- Paved areas will be swept, at a minimum, 4 times per year.
- Routinely pick up and remove litter from the parking areas, islands and perimeter landscape areas in addition to regular pavement sweeping.
- Routinely inspect all dumpster and compactor locations for spills. Remove all trash litter from the enclosure and dispose of properly.

Pavement Systems

Standard Asphalt Pavement

- Sweep or vacuum standard asphalt pavement areas at least four times per year with a commercial cleaning unit and properly dispose of removed material.
- Recommended sweeping schedule:
 - Oct/Nov
 - Feb/Mar
 - Apr/May
 - Aug/Sep
- More frequent sweeping of paved surfaces will result in less accumulation in catch basins, less cleaning of subsurface structures, and less disposal costs.
- Check loading docks and dumpster areas frequently for spillage and/or pavement staining and clean as necessary.

Structural Stormwater Management Devices

Catch Basins

- All catch basins shall be inspected and cleaned a minimum of at least once per year.
- Sediment (if more than six inches deep) and/or floatable pollutants shall be pumped from the basin and disposed of at an approved offsite facility in accordance with all applicable regulations.
- Any structural damage or other indication of malfunction will be reported to the site manager and repaired as necessary
- During colder periods, the catch basin grates must be kept free of snow and ice.
- During warmer periods, the catch basin grates must be kept free of leaves, litter, sand, and debris.

Stormwater Outfalls

- Inspect outfall locations monthly for the first three months after construction to ensure proper functioning and correct any areas that have settled or experienced washouts.
- Inspect outfalls annually after initial three month period.
- Annual inspections should be supplemented after large storms, when washouts may occur.
- Maintain vegetation around outfalls to prevent blockages at the outfall.
- Maintain rip rap pad below each outfall and replace any washouts.
- Remove and dispose of any trash or debris at the outfall.

Roof Drain Leaders

- Perform routine roof inspections quarterly.
- Keep roofs clean and free of debris.
- Keep roof drainage systems clear.
- Keep roof access limited to authorized personnel.
- Clean inlets draining to the subsurface bed twice per year as necessary.

Vegetated Stormwater Management Devices

Detention Basin

Initial Post-Construction Inspection

- Detention basins should be inspected after every major storm for the first few months to ensure proper stabilization and function.

Long-Term Maintenance

- The grass on the side slopes and in the buffer areas should be mowed, and grass clippings, organic matter, and accumulated trash and debris removed, at least twice during the growing season.
- Eroded or barren spots should be reseeded immediately after inspection to prevent additional erosion and accumulation of sediment.
- Sediment should be removed from the basin as necessary. Removal procedures should not take place until the floor of the basin is thoroughly dry.

Inspections and Cleaning

- Detention basins should be inspected at least twice a year to ensure proper stabilization and function.
- Light equipment, which will not compact the underlying soil, should be used to remove the top layer.

Vegetated Areas Maintenance

Although not a structural component of the drainage system, the maintenance of vegetated areas may affect the functioning of stormwater management practices. This includes the health/density of vegetative cover and activities such as the application and disposal of lawn and garden care products, disposal of leaves and yard trimmings.

- Inspect planted areas on a semi-annual basis and remove any litter.
- Maintain planted areas adjacent to pavement to prevent soil washout.
- Immediately clean any soil deposited on pavement.
- Re-seed bare areas; install appropriate erosion control measures when native soil is exposed or erosion channels are forming.
- Plant alternative mixture of grass species in the event of unsuccessful establishment.
- The grass vegetation should be cut to a height between three and four inches.
- Pesticide/Herbicide Usage – No pesticides are to be used unless a single spot treatment is required for a specific control application.
- Fertilizer usage should be avoided. If deemed necessary, slow release fertilizer should be used. Fertilizer may be used to begin the establishment of vegetation in bare or damaged areas, but should not be applied on a regular basis unless necessary.

Long Term BMP Checklist

Sunny Dayz Cannabis, Deerfield, MA
Long Term Best Management Practices – Maintenance/ Evaluation Checklist

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed <input type="checkbox"/>yes <input type="checkbox"/>no (List Items)	Date of Cleaning/Repair	Performed by
Street Sweeping	Quarterly				<input type="checkbox"/> yes <input type="checkbox"/> no		
Sediment Forebay	Bi-annually				<input type="checkbox"/> yes <input type="checkbox"/> no		
Detention Basin	Bi-annually				<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		

Stormwater Control Manager _____

Water Quality Volume Calculations



Water Quality Volume Calculations

Project	Sunny Dayz Cannabis	Project #	42986
Calculated by	JAG	Date	10/11/2022
Checked by		Date	

BASIN #1

Runoff from subcatchment areas 100

Water Quality Storm Runoff Depth	(in)	0.5
Total Impervious Area	(ft ²)	8,360

SEDIMENT FOREBAY WQV:

Required Volume*:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.1	70

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	204.0	448	0
	205.0	553	501

BASIN WQV:

Required Volume:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.5	348

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	204.0	7,850	0
	205.0	8,884	8,367

FREEBOARD CHECK:

100-YR Peak Elevation:	204.9
Maximum Basin Elevation:	206.0
Basin Freeboard:	1.1

* Per MassDEP Treatment Requirement



Water Quality Volume Calculations

Project	Sunny Dayz Cannabis	Project #	42986
Calculated by	JAG	Date	10/11/2022
Checked by		Date	

BASIN #2

Runoff from subcatchment areas 200 and Lab

Water Quality Storm Runoff Depth	(in)	0.5
Total Impervious Area (Not Roofs)	(ft ²)	1,557

SEDIMENT FOREBAY WQV:

Required Volume*:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.1	13

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	204.0	197	0
	205.0	267	232

BASIN WQV:

Required Volume:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.5	65

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	204.0	2,781	0
	205.0	3,414	3,098
	206.0	4,102	6,856

FREEBOARD CHECK:

100-YR Peak Elevation:	205.6
Maximum Basin Elevation:	207.1
Basin Freeboard:	1.5

* Per MassDEP Treatment Requirement



Water Quality Volume Calculations

Project	Sunny Dayz Cannabis	Project #	42986
Calculated by	JAG	Date	10/11/2022
Checked by		Date	

BASIN #3

Runoff from subcatchment areas 300

Water Quality Storm Runoff Depth	(in)	0.5
Total Impervious Area	(ft ²)	12,086

SEDIMENT FOREBAY WQV:

Required Volume*:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.1	101

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	205.0	189	0
	206.0	227	208

BASIN WQV:

Required Volume:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.5	504

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	205.0	3,825	0
	206.0	4,645	4,235
	207.0	5,522	9,319

FREEBOARD CHECK:

100-YR Peak Elevation:	206.8
Maximum Basin Elevation:	207.5
Basin Freeboard:	0.7

* Per MassDEP Treatment Requirement



Water Quality Volume Calculations

Project	Sunny Dayz Cannabis	Project #	42986
Calculated by	JAG	Date	10/11/2022
Checked by		Date	

BASIN #4A

Runoff from subcatchment areas 400

Water Quality Storm Runoff Depth	(in)	0.5
Total Impervious Area	(ft ²)	9,563

SEDIMENT FOREBAY WQV:

Required Volume*:	Runoff Depth to be Treated (in)	Required Volume (ft ³)
	0.1	80

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (ft ³)
	205.0	21	0
	206.0	190	106

BASIN WQV:

Required Volume:	Runoff Depth to be Treated (in)	Required Volume (ft ³)
	0.5	398

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (ft ³)
	205.2	680	0
	206.0	1,121	720
	207.0	2,031	2,296
	207.5	2,465	3,420

FREEBOARD CHECK:

100-YR Peak Elevation:	205.9
Maximum Basin Elevation:	207.5
Basin Freeboard:	1.6

* Per MassDEP Treatment Requirement



Water Quality Volume Calculations

Project	Sunny Dayz Cannabis	Project #	42986
Calculated by	JAG	Date	10/11/2022
Checked by		Date	

BASIN #4B

Runoff from subcatchment areas 450 (THIS BASIN ONLY ACCEPTS WATER FROM BASIN 4A OVERFLOW)

Water Quality Storm Runoff Depth	(in)	0.5
Total Impervious Area	(ft ²)	0

BASIN WQV:

Required Volume:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.5	0

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	205.0	2,837	0
	206.0	3,542	3,190
	207.0	4,283	7,102

FREEBOARD CHECK:

100-YR Peak Elevation:	206.8
Maximum Basin Elevation:	208.0
Basin Freeboard:	<u>1.2</u>

** Per MassDEP Treatment Requirement*



Water Quality Volume Calculations

Project	<u>Sunny Dayz Cannabis</u>	Project #	<u>42986</u>
Calculated by	<u>JAG</u>	Date	<u>10/11/2022</u>
Checked by	<u></u>	Date	<u></u>

BASIN #5

Runoff from subcatchment areas 600

Water Quality Storm Runoff Depth	(in)	0.5
Total Impervious Area (Not Roofs)	(ft ²)	9,333

SEDIMENT FOREBAY WQV:

Required Volume*:	Runoff Depth to be Treated (in)	Required Volume (ft ³)
	0.1	78

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (ft ³)
	206.0	35	0
	207.0	160	98

BASIN WQV:

Required Volume:	Runoff Depth to be Treated (in)	Required Volume (ft ³)
	0.5	389

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (ft ³)
	204.0	2,787	0
	205.0	3,274	3,031
	206.0	4,298	6,817
	207.0	5,079	11,505

FREEBOARD CHECK:

100-YR Peak Elevation:	207.6
Maximum Basin Elevation:	208.1
Basin Freeboard:	0.5

* Per MassDEP Treatment Requirement



Water Quality Volume Calculations

Project	Sunny Dayz Cannabis	Project #	42986
Calculated by	JAG	Date	10/11/2022
Checked by		Date	

BASIN #6

Runoff from subcatchment areas 550

Water Quality Storm Runoff Depth	(in)	0.5
Total Impervious Area (Not Roofs)	(ft ²)	15,836

SEDIMENT FOREBAY WQV:

Required Volume*:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.1	<u>132</u>

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	206.0	81	0
	207.0	262	172

BASIN WQV:

Required Volume:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.5	<u>660</u>

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	205.0	1,920	0
	206.0	2,558	2,239
	207.0	3,255	5,146
	207.5	3,802	6,910

FREEBOARD CHECK:

100-YR Peak Elevation:	207.3
Maximum Basin Elevation:	208.3
Basin Freeboard:	<u>1.0</u>

* Per MassDEP Treatment Requirement



Water Quality Volume Calculations

Project	Sunny Dayz Cannabis	Project #	42986
Calculated by	JAG	Date	10/11/2022
Checked by		Date	

BASIN #7

Runoff from subcatchment areas 500

Water Quality Storm Runoff Depth	(in)	0.5
Total Impervious Area (Not Roofs)	(ft ²)	5,173

SEDIMENT FOREBAY WQV:

Required Volume*:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.1	43

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	206.0	34	0
	207.0	195	115

BASIN WQV:

Required Volume:	Runoff Depth to be Treated	Required Volume
	(in)	(ft ³)
	0.5	216

Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	206.0	3,078	0
	207.0	4,132	3,605

FREEBOARD CHECK:

100-YR Peak Elevation:	206.5
Maximum Basin Elevation:	208.0
Basin Freeboard:	1.5

* Per MassDEP Treatment Requirement

TSS Removal Worksheets



VHB, Inc.
 101 Walnut Street
 Post Office Box 9151
 Watertown, MA 02471
 P 617.924.1770

TSS Removal Calculation Worksheet

Project Name: **Sunny Dayz Cannabis**
 Project Number: **42986.00**
 Location: **Deerfield, MA**
 Discharge Point: **x2000**
 Drainage Area(s): **100**

Sheet: **1 of 7**
 Date: **6-Oct-2022**
 Computed by: **AEG**
 Checked by: _____

A	B	C	D	E
BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D-E)
Street Sweeping - 5% (Quarterly)	5%	1.00	0.05	0.95
Sediment Forebay	25%	0.95	0.24	0.71
Wet Basin	80%	0.71	0.57	0.14
	0%	0.14	0.00	0.14
	0%	0.14	0.00	0.14

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1.

** Equals remaining load from previous BMP (E)

**Treatment Train
 TSS Removal =**

86%



VHB, Inc.
 101 Walnut Street
 Post Office Box 9151
 Watertown, MA 02471
 P 617.924.1770

TSS Removal Calculation Worksheet

Project Name: **Sunny Dayz Cannabis**
 Project Number: **42986.00**
 Location: **Deerfield, MA**
 Discharge Point: **x1000**
 Drainage Area(s): **200, LAB, Dispensary**

Sheet: **2 of 7**
 Date: **6-Oct-2022**
 Computed by: **AEG**
 Checked by: _____

A	B	C	D	E
BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D-E)
Street Sweeping - 5% (Quarterly)	5%	1.00	0.05	0.95
Sediment Forebay	25%	0.95	0.24	0.71
Wet Basin	80%	0.71	0.57	0.14
	0%	0.14	0.00	0.14
	0%	0.14	0.00	0.14

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1.
 ** Equals remaining load from previous BMP (E)

**Treatment Train
 TSS Removal =** 86%



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TSS Removal Calculation Worksheet

Project Name: **Sunny Dayz Cannabis**
 Project Number: **42986.00**
 Location: **Deerfield, MA**
 Discharge Point: **x2000**
 Drainage Area(s): **300**

Sheet: **3 of 7**
 Date: **6-Oct-2022**
 Computed by: **AEG**
 Checked by: _____

A	B	C	D	E
BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D-E)
Street Sweeping - 5% (Quarterly)	5%	1.00	0.05	0.95
Sediment Forebay	25%	0.95	0.24	0.71
Wet Basin	80%	0.71	0.57	0.14
	0%	0.14	0.00	0.14
	0%	0.14	0.00	0.14

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1.

** Equals remaining load from previous BMP (E)

**Treatment Train
 TSS Removal =**

86%



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 P 617.924.1770

TSS Removal Calculation Worksheet

Project Name: **Sunny Dayz Cannabis**
 Project Number: **42986.00**
 Location: **Deerfield, MA**
 Discharge Point: **x1000**
 Drainage Area(s): **400, 450**

Sheet: **4 of 7**
 Date: **6-Oct-2022**
 Computed by: **AEG**
 Checked by: _____

A	B	C	D	E
BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D-E)
Street Sweeping - 5% (Quarterly)	5%	1.00	0.05	0.95
Sediment Forebay	25%	0.95	0.24	0.71
Wet Basin	80%	0.71	0.57	0.14
	0%	0.14	0.00	0.14
	0%	0.14	0.00	0.14

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1.

** Equals remaining load from previous BMP (E)

**Treatment Train
 TSS Removal =**

86%



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 Watertown, MA 02471
 P 617.924.1770

TSS Removal Calculation Worksheet

Project Name: **Sunny Dayz Cannabis**
 Project Number: **42986.00**
 Location: **Deerfield, MA**
 Discharge Point: **x1000**
 Drainage Area(s): **600**

Sheet: **5 of 7**
 Date: **6-Oct-2022**
 Computed by: **AEG**
 Checked by: _____

A	B	C	D	E
BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D-E)
Street Sweeping - 5% (Quarterly)	5%	1.00	0.05	0.95
Sediment Forebay	25%	0.95	0.24	0.71
Wet Basin	80%	0.71	0.57	0.14
	0%	0.14	0.00	0.14
	0%	0.14	0.00	0.14

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1.

** Equals remaining load from previous BMP (E)

**Treatment Train
TSS Removal =**

86%



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 P 617.924.1770

TSS Removal Calculation Worksheet

Project Name: **Sunny Dayz Cannabis**
 Project Number: **42986.00**
 Location: **Deerfield, MA**
 Discharge Point: **x1000**
 Drainage Area(s): **550**

Sheet: **6 of 7**
 Date: **6-Oct-2022**
 Computed by: **AEG**
 Checked by: _____

A	B	C	D	E
BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D E)
Street Sweeping - 5% (Quarterly)	5%	1.00	0.05	0.95
Deep Sump and Hooded Catch Basin	25%	0.95	0.24	0.71
Sediment Forebay	25%	0.71	0.18	0.53
Wet Basin	80%	0.53	0.43	0.11
	0%	0.11	0.00	0.11

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1.

** Equals remaining load from previous BMP (E)

**Treatment Train
 TSS Removal =**

89%



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 P 617.924.1770

TSS Removal Calculation Worksheet

Project Name: **Sunny Dayz Cannabis**
 Project Number: **42986.00**
 Location: **Deerfield, MA**
 Discharge Point: **x1000**
 Drainage Area(s): **500**

Sheet: **7 of 7**
 Date: **6-Oct-2022**
 Computed by: **AEG**
 Checked by: _____

A	B	C	D	E
BMP*	TSS Removal Rate*	Starting TSS Load**	Amount Removed (C*D)	Remaining Load (D-E)
Street Sweeping - 5% (Quarterly)	5%	1.00	0.05	0.95
Sediment Forebay	25%	0.95	0.24	0.71
Wet Basin	80%	0.71	0.57	0.14
	0%	0.14	0.00	0.14
	0%	0.14	0.00	0.14

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1.

** Equals remaining load from previous BMP (E)

**Treatment Train
 TSS Removal =**

86%

Total Phosphorus Removal



Project SUNNY DAYZ Project # 42986.00
Location DEERFIELD Sheet 1 of 2
Calculated by JAG Date 1-4-23
Checked by _____ Date _____
Title TOTAL PHOSPHORUS REMOVAL

Computations

BASIN #1

$$\text{IMP AREA} = 8,360 \text{ SF} (0.083 \text{ FT}) = 694 \text{ CF}$$

1 INCH

$$\text{VOLUME OF BASIN} = 8,362 \text{ CF} > 694 \quad 60\% \text{ ACHIEVED} \checkmark$$

BASIN #2

$$\text{IMP AREA} = 6,557 \text{ SF} (0.083 \text{ FT}) = 544 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 6,845 \text{ CF} > 544 \quad 60\% \text{ ACHIEVED} \checkmark$$

BASIN #3

$$\text{IMP AREA} = 12,086 \text{ SF} (0.083 \text{ FT}) = 1,003 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 9,306 \text{ CF} > 1,003 \quad 60\% \text{ ACHIEVED} \checkmark$$

BASIN #4A & 4B

$$\text{IMP AREA} = 9,563 \text{ SF} (0.083 \text{ FT}) = 794 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 10,479 \text{ CF} > 794 \quad 60\% \text{ ACHIEVED} \checkmark$$



Computations

Project _____ Project # _____
Location _____ Sheet 2 of 2
Calculated by _____ Date _____
Checked by _____ Date _____
Title TP REMOVAL

BASIN #5

$$\text{IMP AREA} = 36,018 \text{ SF} (0.083 \text{ FT}) = 2,989 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 11,485 \text{ CF} > 2,989 \quad \begin{array}{l} 60\% \\ \text{ACHIEVED} \end{array} \checkmark$$

BASIN #6

$$\text{IMP AREA} = 15,836 \text{ SF} (0.083 \text{ FT}) = 1,314 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 6,848 \text{ CF} > 1,314 \quad \begin{array}{l} 60\% \\ \text{ACHIEVED} \end{array} \checkmark$$

BASIN #7

$$\text{IMP AREA} = 5,173 \text{ SF} (0.083 \text{ FT}) = 429 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 3,592 \text{ CF} > 429 \quad \begin{array}{l} 60\% \\ \text{ACHIEVED} \end{array} \checkmark$$

Appendix E: Standard 8 Supporting Information

- › Construction Period Pollution Prevention and Erosion and Sedimentation Controls
- › Recommended Construction Period BMPs checklist

Construction Period Pollution Prevention and Erosion and Sedimentation Controls

Erosion and Sedimentation Control Measures

The following erosion and sedimentation controls are for use during the earthwork and construction phases of the project. The following controls are provided as recommendations for the site contractor and do not constitute or replace the final Stormwater Pollution Prevention Plan that must be fully implemented by the Contractor and owner in Compliance with EPA NPDES regulations.

Straw Bale Barriers

Straw bale barriers will be placed to trap sediment transported by runoff before it reaches the drainage system or leaves the construction site. Bales will be set at least four inches into the existing ground to minimize undercutting by runoff.

Silt Fencing

In areas where high runoff velocities or high sediment loads are expected, hay bale barriers will be backed up with silt fencing. This semi-permeable barrier made of a synthetic porous fabric will provide additional protection. The silt fences and hay bale barrier will be replaced as determined by periodic field inspections.

Catch Basin Protection

Newly constructed and existing catch basins will be protected with hay bale barriers (where appropriate) or silt sacks throughout construction.

Gravel and Construction Entrance/Exit

A temporary crushed-stone construction entrance/exit will be constructed. A cross slope will be placed in the entrance to direct runoff to a protected catch basin inlet or settling area. If deemed necessary after construction begins, a wash pad may be included to wash off vehicle wheels before leaving the project site.

Vegetative Slope Stabilization

Stabilization of open soil surfaces will be implemented within 14 days after grading or construction activities have temporarily or permanently ceased, unless there is sufficient snow cover to prohibit implementation. Vegetative slope stabilization will be used to minimize erosion on slopes of 3:1 or flatter. Annual grasses, such as annual rye, will be used to ensure rapid germination and production of root mass. Permanent stabilization will be completed with the planting of perennial grasses or legumes. Establishment of temporary and permanent vegetative cover may be established by hydro-seeding or sodding. A suitable topsoil, good seedbed preparation, and adequate lime, fertilizer and water will be provided for effective establishment of these vegetative stabilization

methods. Mulch will also be used after permanent seeding to protect soil from the impact of falling rain and to increase the capacity of the soil to absorb water.

Maintenance

- The contractor or subcontractor will be responsible for implementing each control shown on the Sedimentation and Erosion Control Plan. In accordance with EPA regulations, the contractor must sign a copy of a certification to verify that a plan has been prepared and that permit regulations are understood.
- The on-site contractor will inspect all sediment and erosion control structures periodically and after each rainfall event. Records of the inspections will be prepared and maintained on-site by the contractor.
- Silt shall be removed from behind barriers if greater than 6-inches deep or as needed.
- Damaged or deteriorated items will be repaired immediately after identification.
- The underside of hay bales should be kept in close contact with the earth and reset as necessary.
- Sediment that is collected in structures shall be disposed of properly and covered if stored on-site.
- Erosion control structures shall remain in place until all disturbed earth has been securely stabilized. After removal of structures, disturbed areas shall be regraded and stabilized as necessary.

The sedimentation and erosion control plan is included in project plan set. The Erosion Control Maintenance checklist is included here for quick reference.

Recommended Construction Period BMPs Checklist

Sunny Dayz Cannabis, Deerfield, MA
Construction Best Management Practices – Maintenance/ Evaluation Checklist

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed <input type="checkbox"/> yes <input type="checkbox"/> no (List Items)	Date of Cleaning/Repair	Performed by:
Straw Bales/Silt Fencing	Weekly and after storm events				<input type="checkbox"/> yes <input type="checkbox"/> no		
Gravel Construction Entrance	Weekly and after storm events				<input type="checkbox"/> yes <input type="checkbox"/> no		
Silt Sack	Weekly and after storm events				<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		
					<input type="checkbox"/> yes <input type="checkbox"/> no		

Stormwater Control Manager _____

