

Sunny Dayz Cannabis

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January 2023

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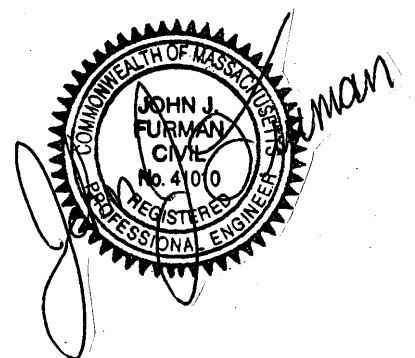


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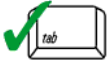
Checklist for Stormwater Report



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



January 11, 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 proprietary 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

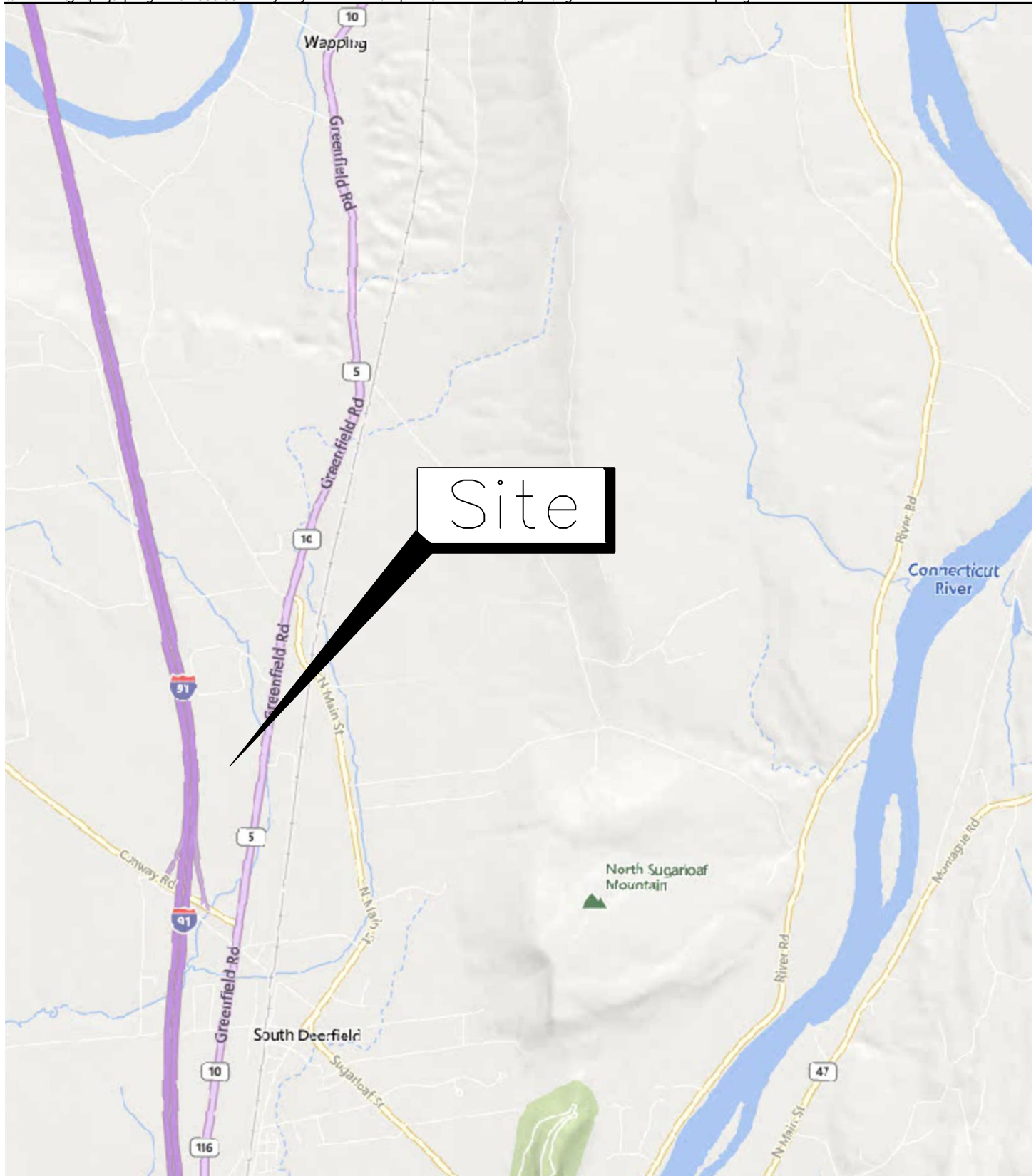
Drainage Area	Discharge Location	Design Point	Area (sf)	Curve Number	Time of Concentration (min)
100	Wetlands	x2000	21,241	87	6.0
200	Wetlands	x1000	7,259	84	6.0
Lab	Wetlands	x1000	5,000	98	6.0
Disp	Wetlands	x1000	4,073	98	6.0
300	Wetlands	x2000	25,373	88	6.0
350	Wetlands	x2000	2,640	70	6.0
400	Wetlands	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)

Area 10 = 13,074

Woods = 13,074

Area 20 = 89,937

Woods = 89,937

Area 30 = 20,657

Woods = 20,657

Area 40 = 83,663

Woods = 83,663

Area 50 = 208,224

Woods = 208,224

Area 60 = 145,723

Woods = 145,723

Area 70 = 64,468

Woods = 64,468

Area 80 = 74,095

Woods = 74,095

Area 90 = 42,639

Woods = 42,639

Area 100 = 163,106

Woods = 163,106

Total =	905,586



Existing Drainage Conditions Areas

Figure 2

Figure 3 Proposed Drainage Area

Proposed Drainage Areas (SF)

Area 100 = 21,241

Pavement C =	2,229
Grass D =	12,881
Pavement D =	6,131

Area 200 = 7,259

Pavement D =	356
Pavement C =	1,201
Grass D =	5,702

Area Lab = 5,000

Building C =	5,000

Area Disp = 4,073

Building D =	4,073

Area 300 = 25,373

Woods D =	6,584
Pavement D =	10,134
Grass D =	6,278
Woods C =	425
Pavement C =	1,952

Area 350 = 2,640

Woods C =	2,640

Area 400 = 17,459

Pavement D =	5,161
Grass D =	1,112
Pavement C =	4,402
Grass C =	6,784

Area 450 = 5,879

Grass A =	2,450
Grass C =	3,429

Area 500 = 24,492

Pavement A =	5,173
Woods A =	3,184
Grass A =	16,049
Woods D =	86

Area 550 = 24,095

Pavement A =	5,754
Grass A =	5,395
Pavement C =	10,082
Grass C =	2,864

Area 600 = 44,164

Building A =	18,352
Building C =	8,333
Pavement C =	9,333
Grass C =	8,146

Area 700 = 155,394

Woods A =	10,587
Woods C =	25,908
Woods D =	118,899

Area 800 = 83,661

Woods D =	83,661

Area 900 = 20,660

Woods D =	20,660

Area 1000 = 89,935

Woods C =	58,047
Woods D =	31,888

Area 1100 = 13,074

Woods C =	13,074

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



Proposed Drainage Conditions Areas **Figure 3**

Figure 4 FEMA Map



FEMA Map

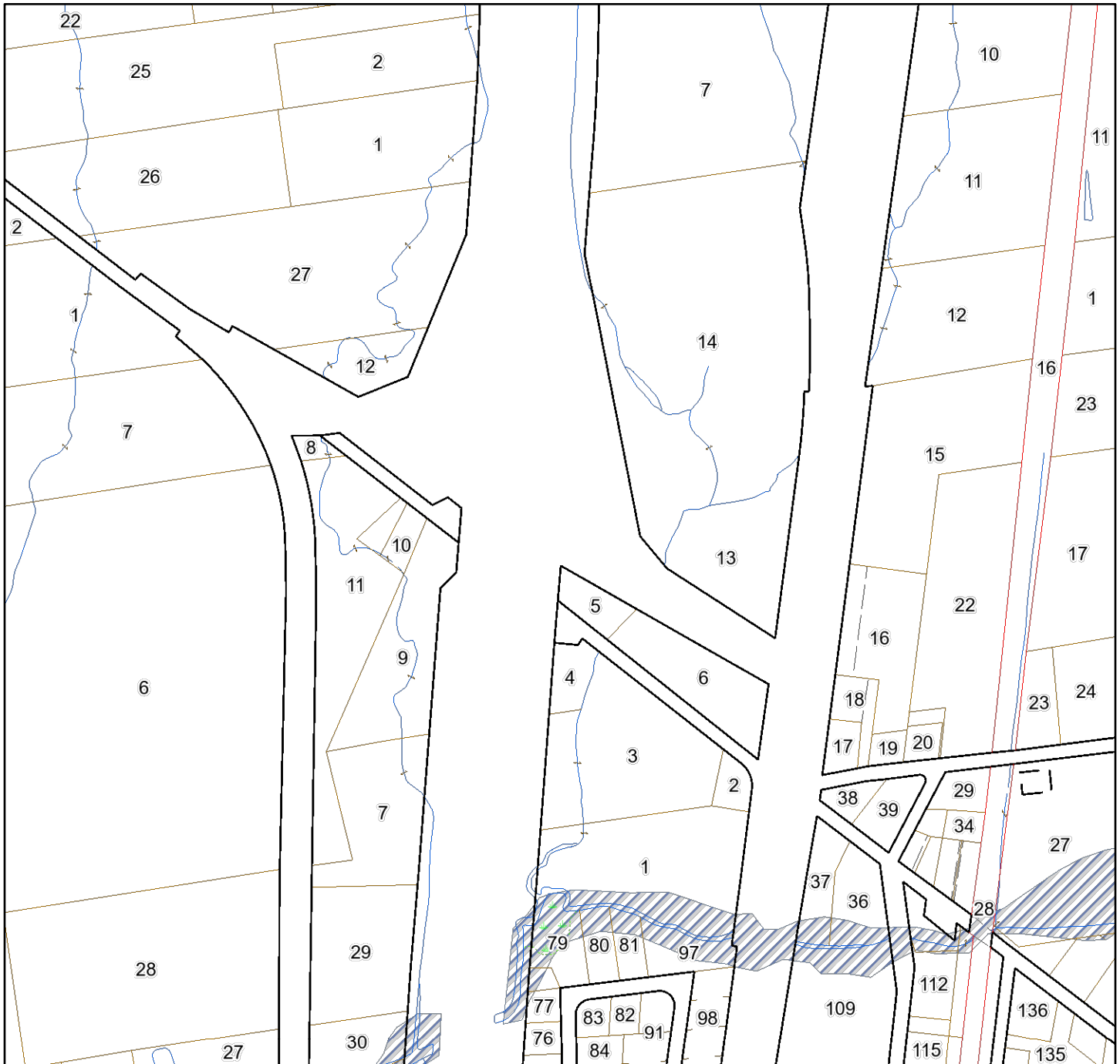
Deerfield, MA

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 2, 10, 25, and 100-year storm events.

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	3.5	9.5	14.1	21.7
Proposed	3.5	8.8	12.6	18.8

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.

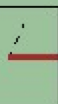
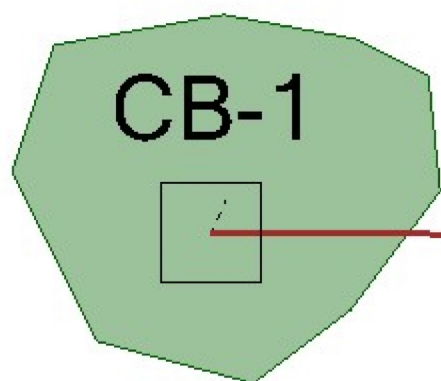
Drainage pipes were sized using Manning's Equation for full-flow capacity and the Rational Method. Additionally, the performance of the system was analyzed using StormCAD, a HEC-22 based program.

CM-1

CB-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 (Calculated) (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 (Normal) / Rise (%)	Notes
33	CO-1	CB-1	True	205.50	O-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	-

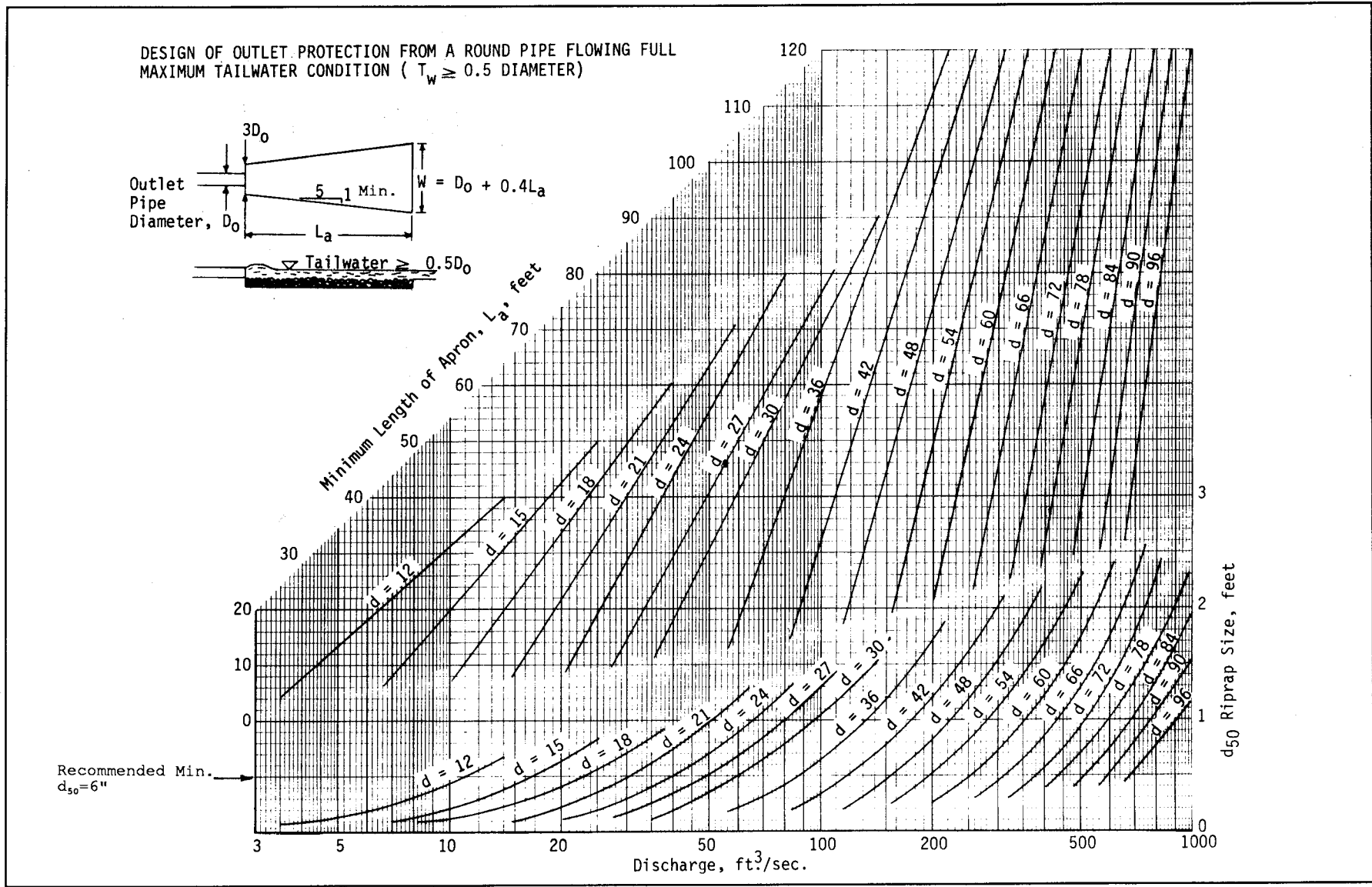
\\whb.com\gb\proj\Springfield\42986.00 Sunny Dayz - Deerfield\Reports\Stormwater\Appendix A - Rip Rap Sizing and Pipe Sizing\StormCAD\42986-PR.stsw

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

ID	Label	Outflow Element	Area (User Defined) (ft²)	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



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)

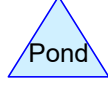
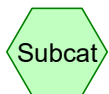
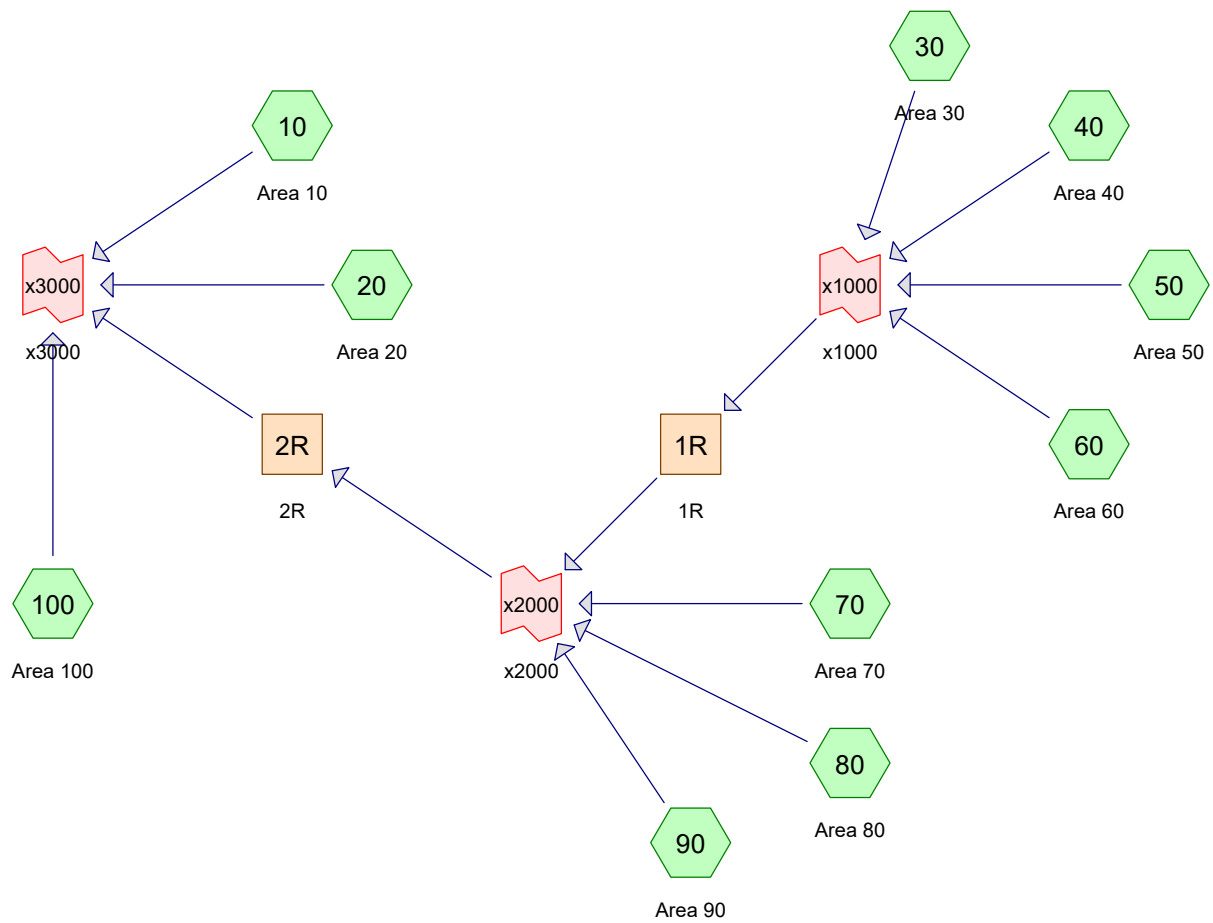
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average 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



Routing Diagram for 4298600-EX

Prepared by VHB, Printed 1/4/2023

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4298600-EX

Prepared by VHB

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	Type II 24-hr		Default	24.00	1	3.01	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

4298600-EX

Prepared by VHB

Printed 1/4/2023

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Page 5

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=5.00-20.00 hrs, dt=0.05 hrs, 301 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment10: Area 10	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>0.63" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.17 cfs 0.016 af
Subcatchment20: Area 20	Runoff Area=89,938 sf 0.00% Impervious Runoff Depth>0.69" Flow Length=675' Tc=101.4 min CN=72 Runoff=0.52 cfs 0.118 af
Subcatchment30: Area 30	Runoff Area=20,657 sf 0.00% Impervious Runoff Depth>0.96" Flow Length=370' Tc=40.8 min CN=77 Runoff=0.34 cfs 0.038 af
Subcatchment40: Area 40	Runoff Area=83,662 sf 0.00% Impervious Runoff Depth>0.91" Flow Length=850' Tc=142.4 min CN=77 Runoff=0.54 cfs 0.145 af
Subcatchment50: Area 50	Runoff Area=208,224 sf 0.00% Impervious Runoff Depth>0.41" Flow Length=914' Tc=123.7 min CN=65 Runoff=0.56 cfs 0.162 af
Subcatchment60: Area 60	Runoff Area=145,723 sf 0.00% Impervious Runoff Depth>0.25" Flow Length=835' Tc=130.8 min CN=60 Runoff=0.21 cfs 0.071 af
Subcatchment70: Area 70	Runoff Area=64,469 sf 0.00% Impervious Runoff Depth>0.84" Flow Length=645' Tc=80.7 min CN=75 Runoff=0.56 cfs 0.104 af
Subcatchment80: Area 80	Runoff Area=74,095 sf 0.00% Impervious Runoff Depth>0.54" Flow Length=1,245' Tc=149.8 min CN=69 Runoff=0.25 cfs 0.077 af
Subcatchment90: Area 90	Runoff Area=42,640 sf 0.00% Impervious Runoff Depth>0.72" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.21 cfs 0.058 af
Subcatchment100: Area 100	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>0.81" Flow Length=868' Tc=140.2 min CN=75 Runoff=0.93 cfs 0.252 af
Reach 1R: 1R	Avg. Flow Depth=0.19' Max Vel=0.93 fps Inflow=1.36 cfs 0.416 af n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=1.36 cfs 0.412 af
Reach 2R: 2R	Avg. Flow Depth=0.38' Max Vel=0.90 fps Inflow=2.11 cfs 0.651 af n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=2.10 cfs 0.641 af
Link x1000: x1000	Inflow=1.36 cfs 0.416 af Primary=1.36 cfs 0.416 af
Link x2000: x2000	Inflow=2.11 cfs 0.651 af Primary=2.11 cfs 0.651 af
Link x3000: x3000	Inflow=3.45 cfs 1.027 af Primary=3.45 cfs 1.027 af

Total Runoff Area = 20.789 ac Runoff Volume = 1.041 af Average Runoff Depth = 0.60"
100.00% Pervious = 20.789 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 10: Area 10

Runoff = 0.17 cfs @ 12.25 hrs, Volume= 0.016 af, Depth> 0.63"

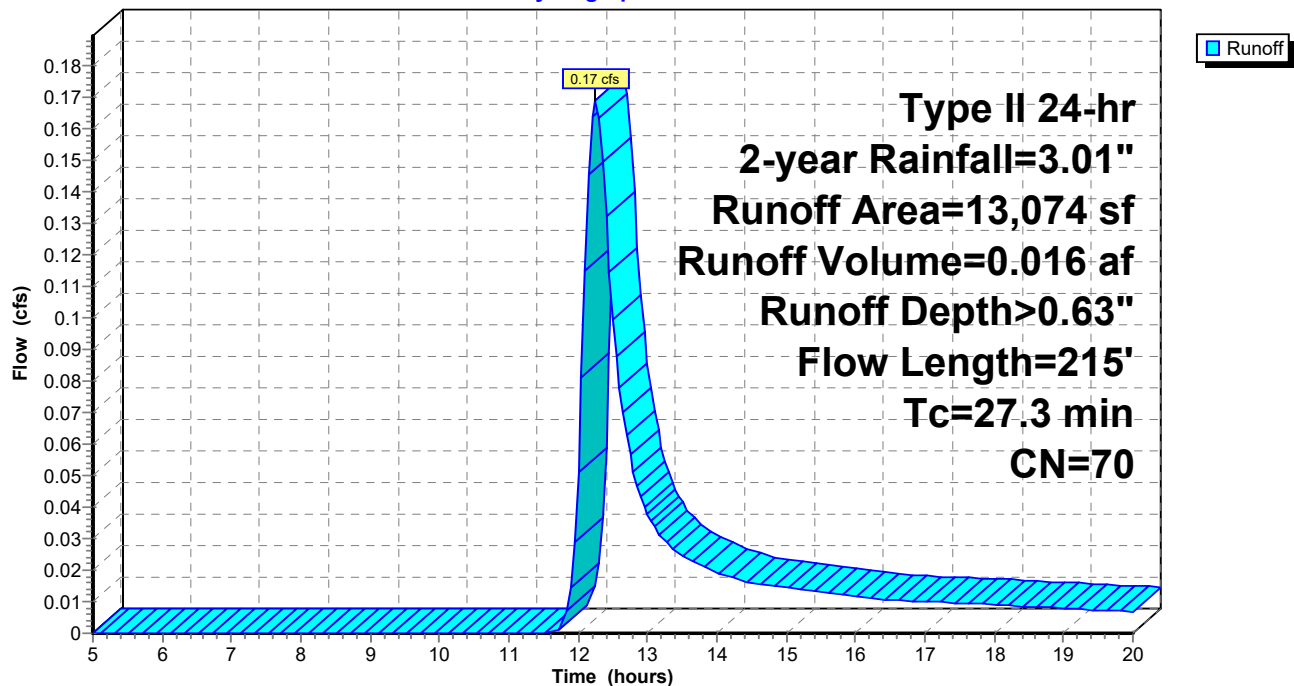
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.52 cfs @ 13.23 hrs, Volume= 0.118 af, Depth> 0.69"

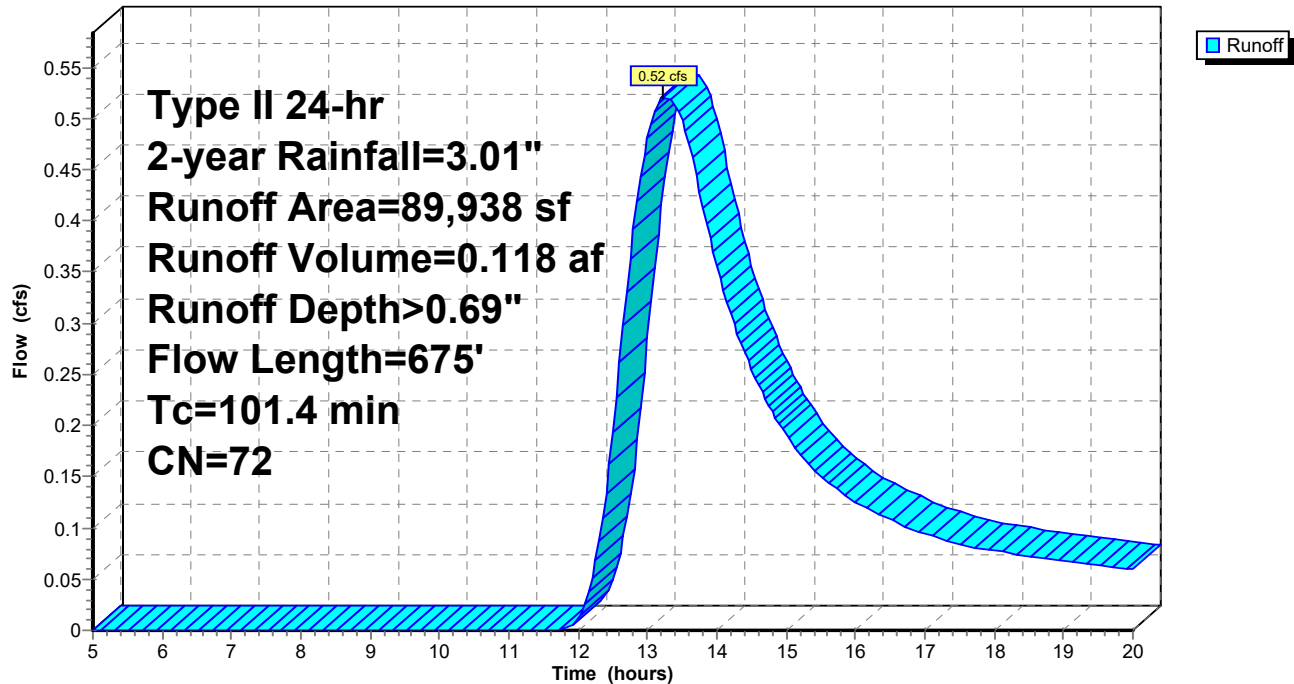
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.34 cfs @ 12.40 hrs, Volume= 0.038 af, Depth> 0.96"

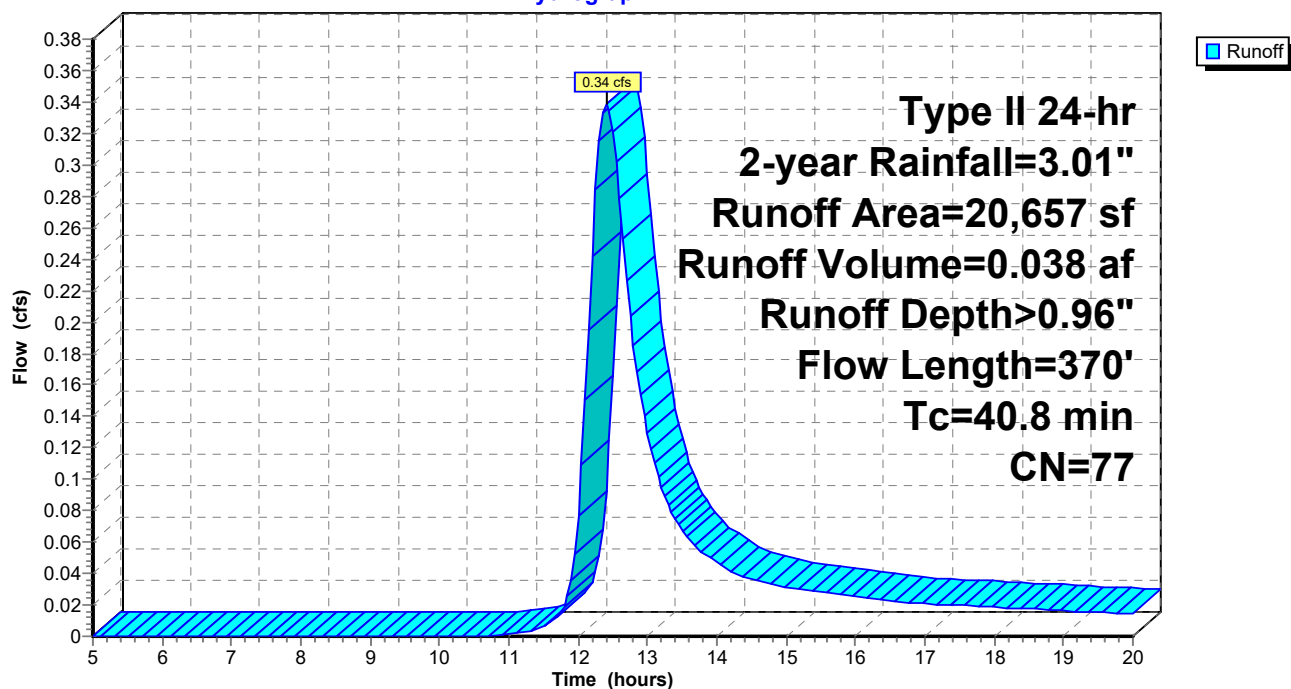
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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'
27.1	320	0.0062	0.20		Woods: Dense underbrush n= 0.800 P2= 3.01"
					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 = 0.54 cfs @ 13.77 hrs, Volume= 0.145 af, Depth> 0.91"

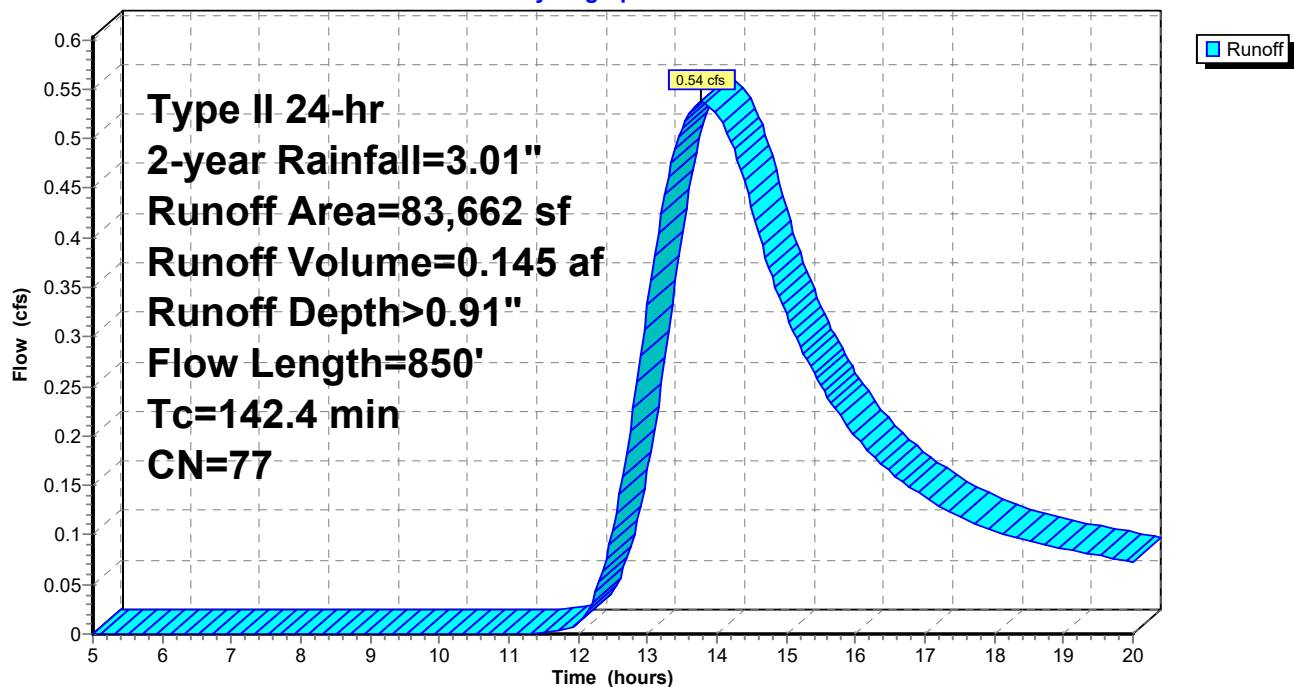
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.56 cfs @ 13.73 hrs, Volume= 0.162 af, Depth> 0.41"

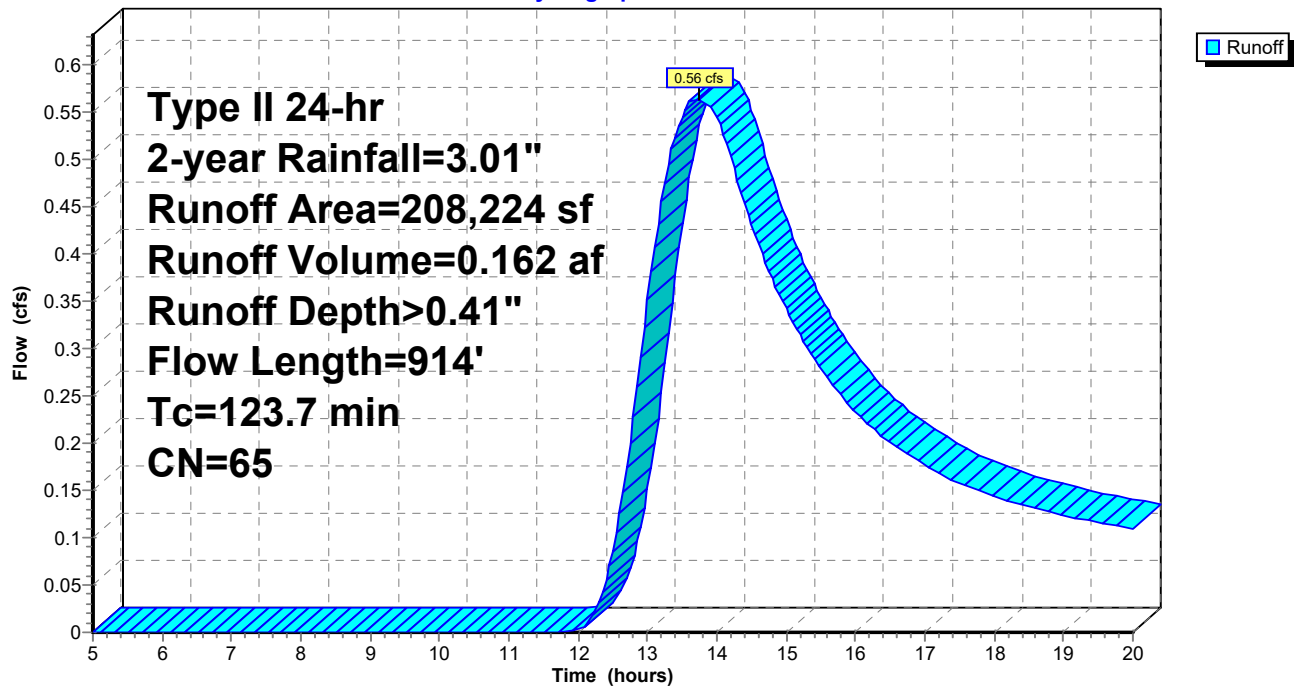
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.21 cfs @ 13.97 hrs, Volume= 0.071 af, Depth> 0.25"

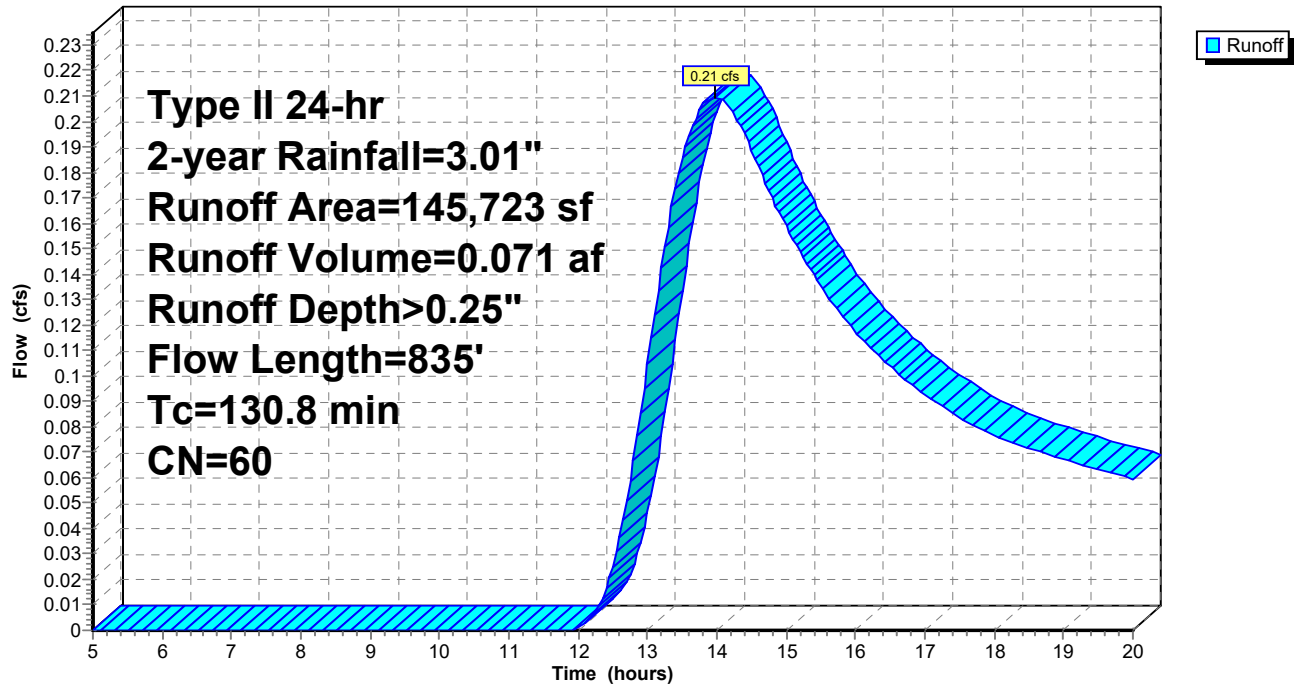
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.56 cfs @ 12.98 hrs, Volume= 0.104 af, Depth> 0.84"

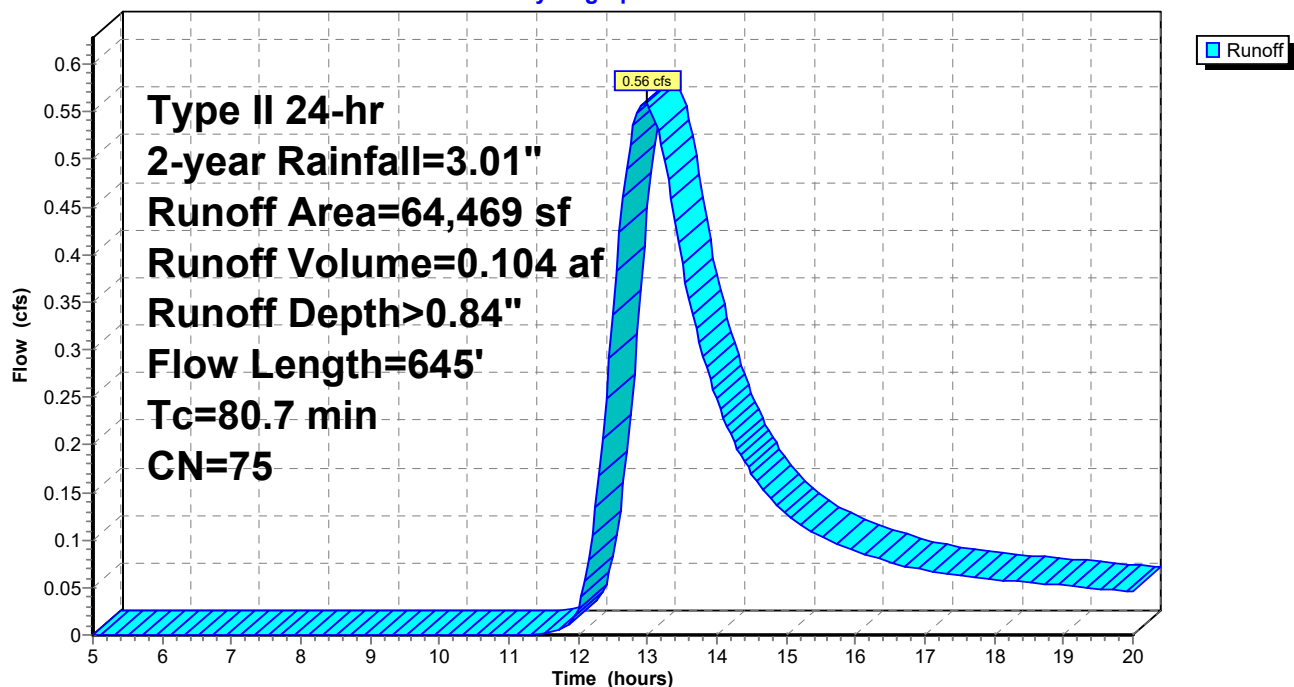
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.25 cfs @ 13.99 hrs, Volume= 0.077 af, Depth> 0.54"

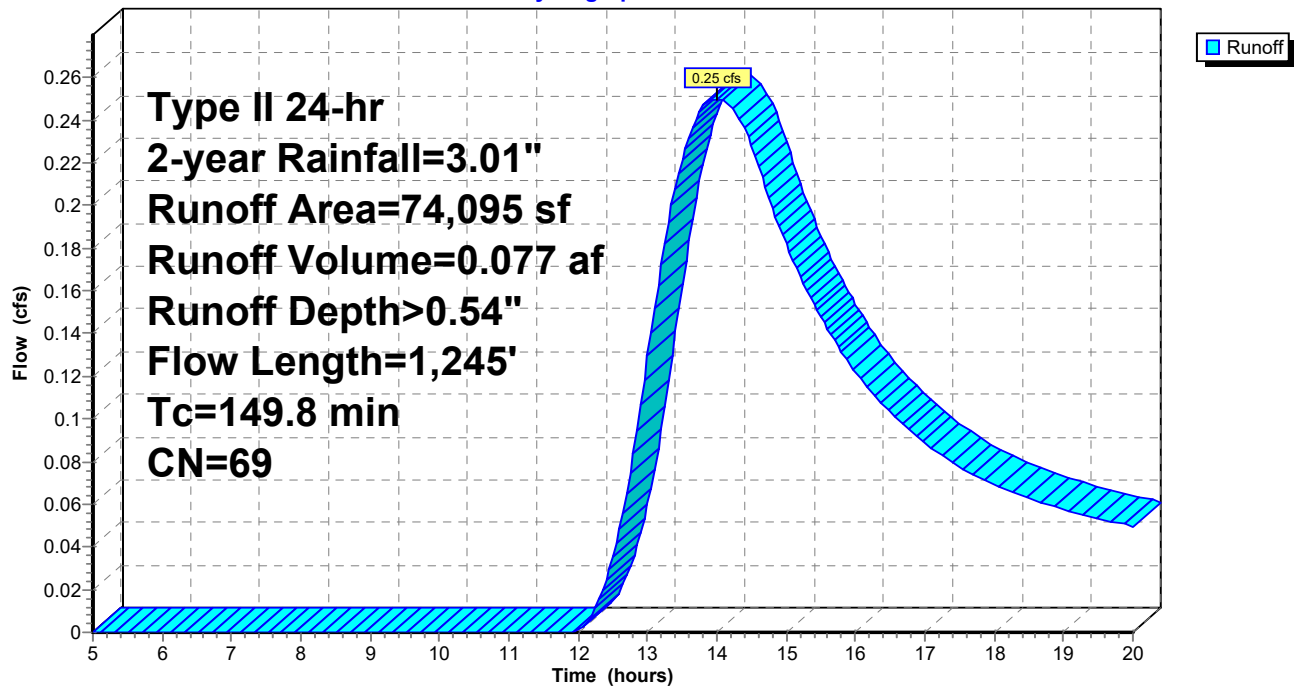
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.21 cfs @ 13.83 hrs, Volume= 0.058 af, Depth> 0.72"

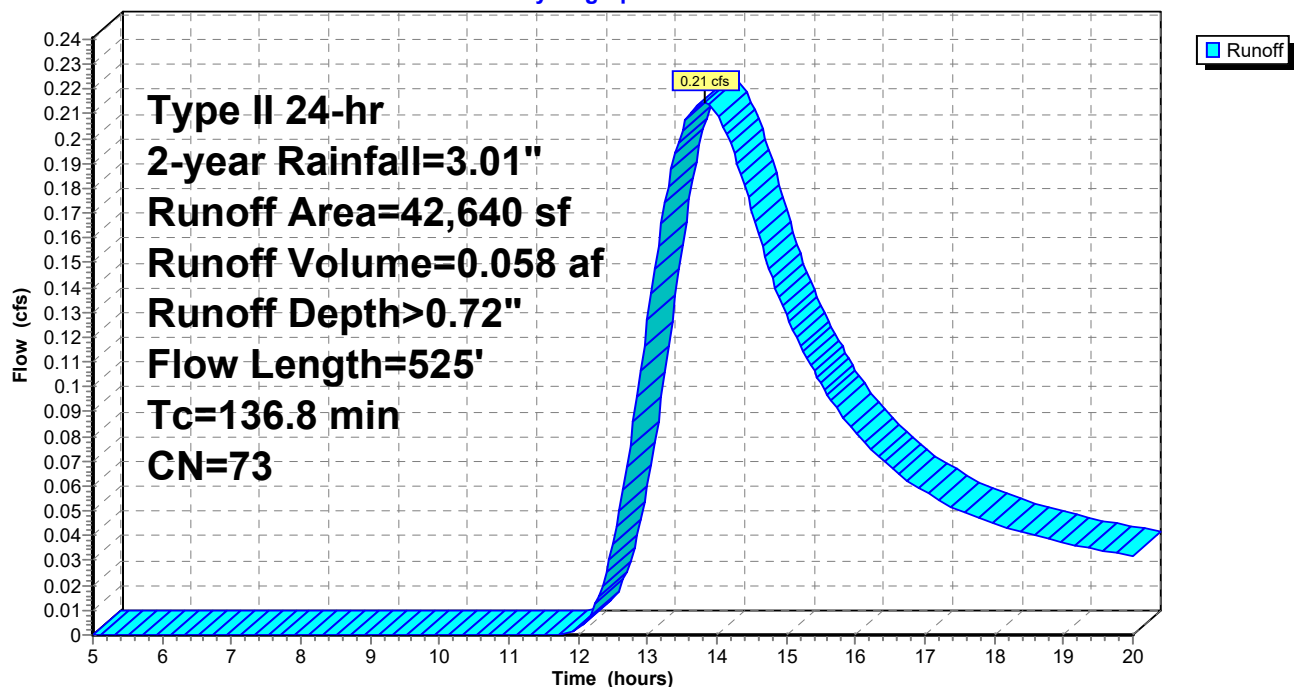
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.93 cfs @ 13.85 hrs, Volume= 0.252 af, Depth> 0.81"

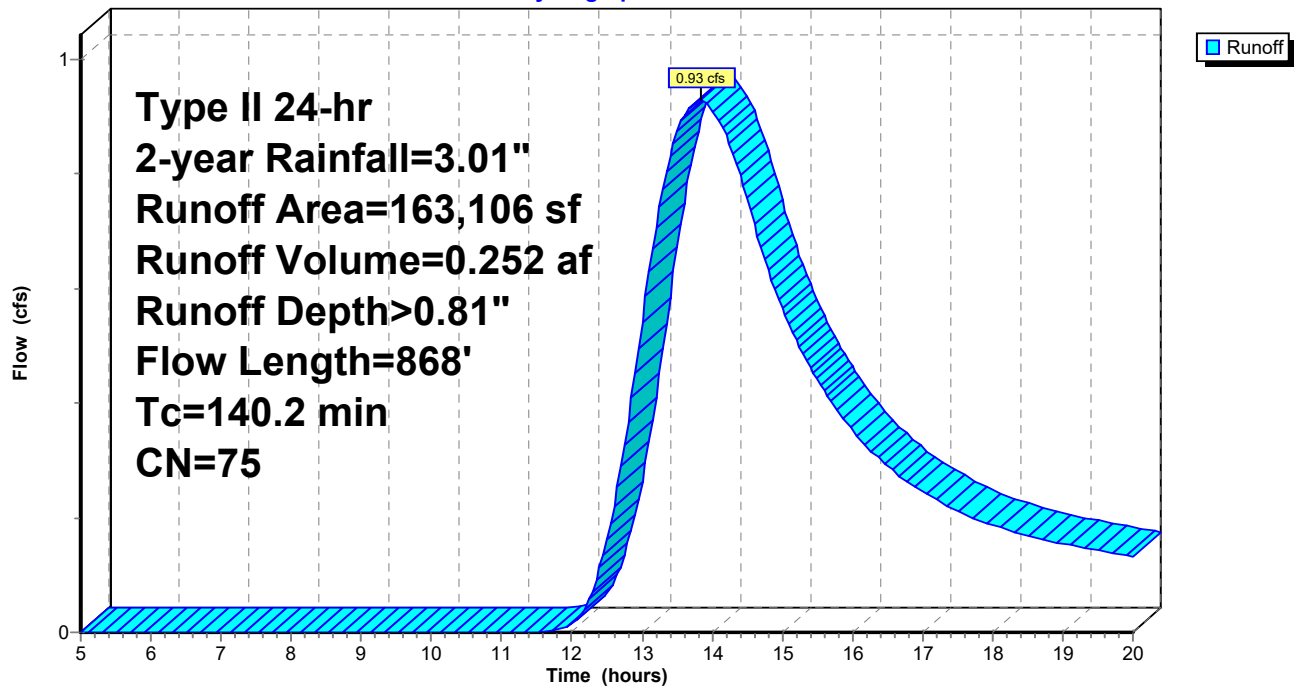
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 > 0.47" for 2-year event
 Inflow = 1.36 cfs @ 13.76 hrs, Volume= 0.416 af
 Outflow = 1.36 cfs @ 13.90 hrs, Volume= 0.412 af, Atten= 0%, Lag= 8.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.93 fps, Min. Travel Time= 4.6 min

Avg. Velocity = 0.66 fps, Avg. Travel Time= 6.5 min

Peak Storage= 378 cf @ 13.82 hrs

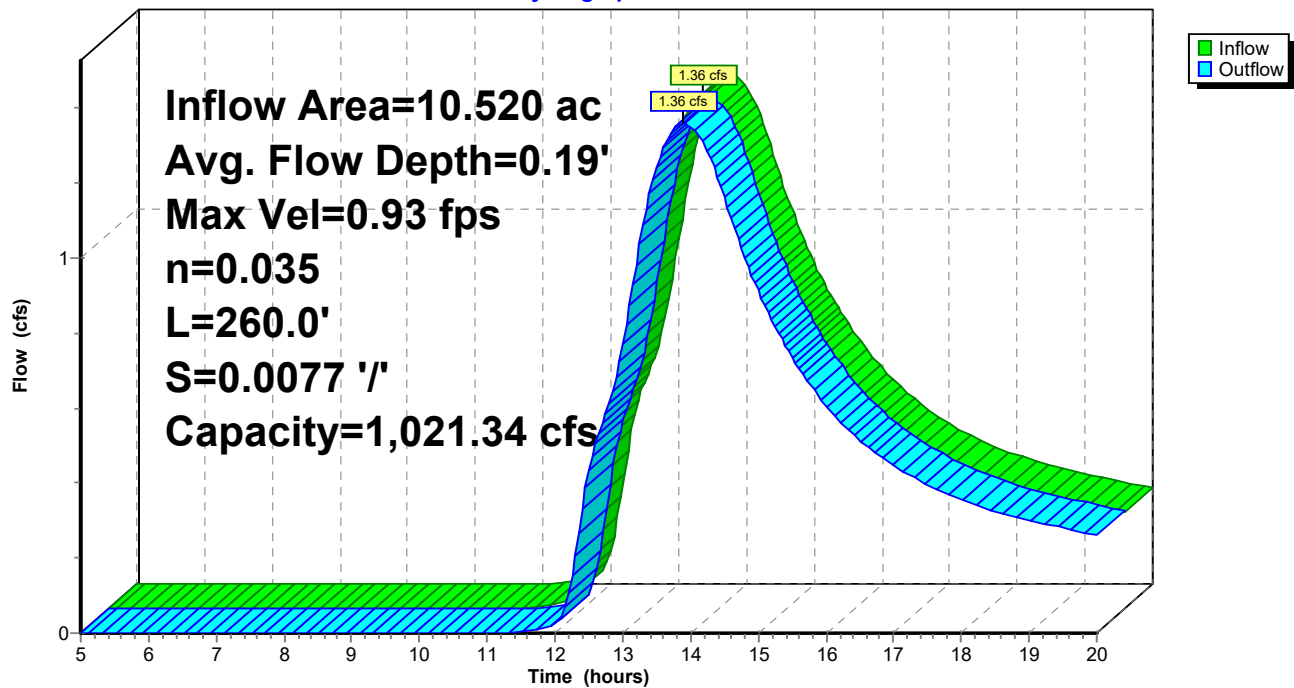
Average Depth at Peak Storage= 0.19' , Surface Width= 11.65'

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 > 0.53" for 2-year event
 Inflow = 2.11 cfs @ 13.77 hrs, Volume= 0.651 af
 Outflow = 2.10 cfs @ 13.95 hrs, Volume= 0.641 af, Atten= 0%, Lag= 11.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.90 fps, Min. Travel Time= 6.7 min

Avg. Velocity= 0.62 fps, Avg. Travel Time= 9.6 min

Peak Storage= 845 cf @ 13.84 hrs

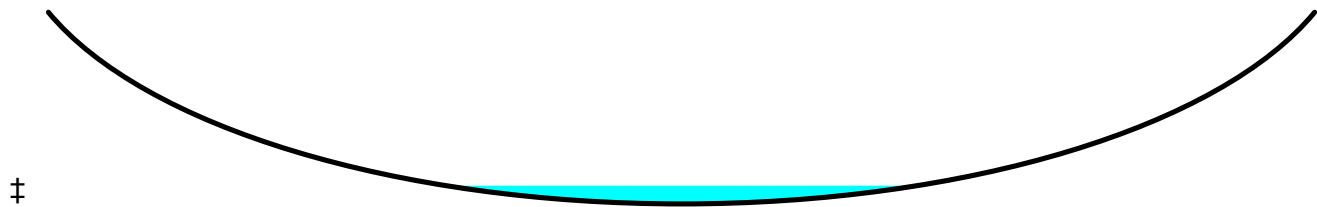
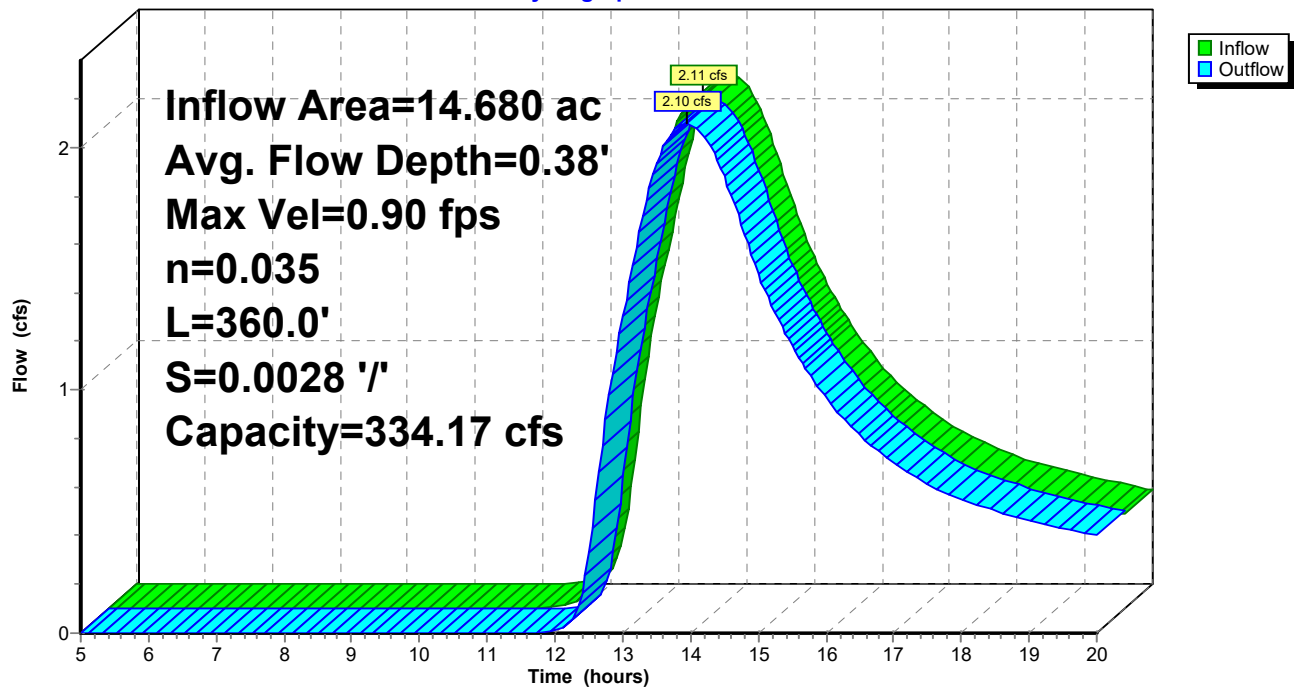
Average Depth at Peak Storage= 0.38' , Surface Width= 9.25'

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 '/'

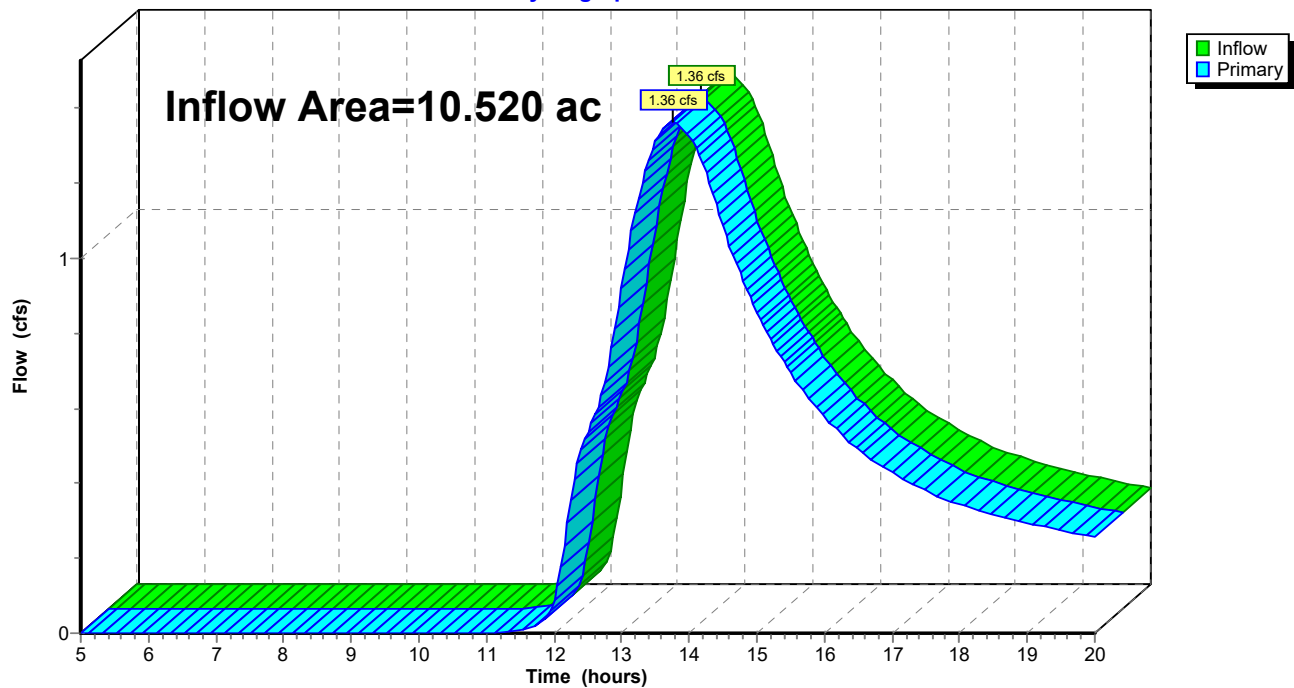
Inlet Invert= 196.00', Outlet Invert= 195.00'

**Reach 2R: 2R****Hydrograph**

Summary for Link x1000: x1000

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 0.47" for 2-year event
Inflow = 1.36 cfs @ 13.76 hrs, Volume= 0.416 af
Primary = 1.36 cfs @ 13.76 hrs, Volume= 0.416 af, Atten= 0%, Lag= 0.0 min

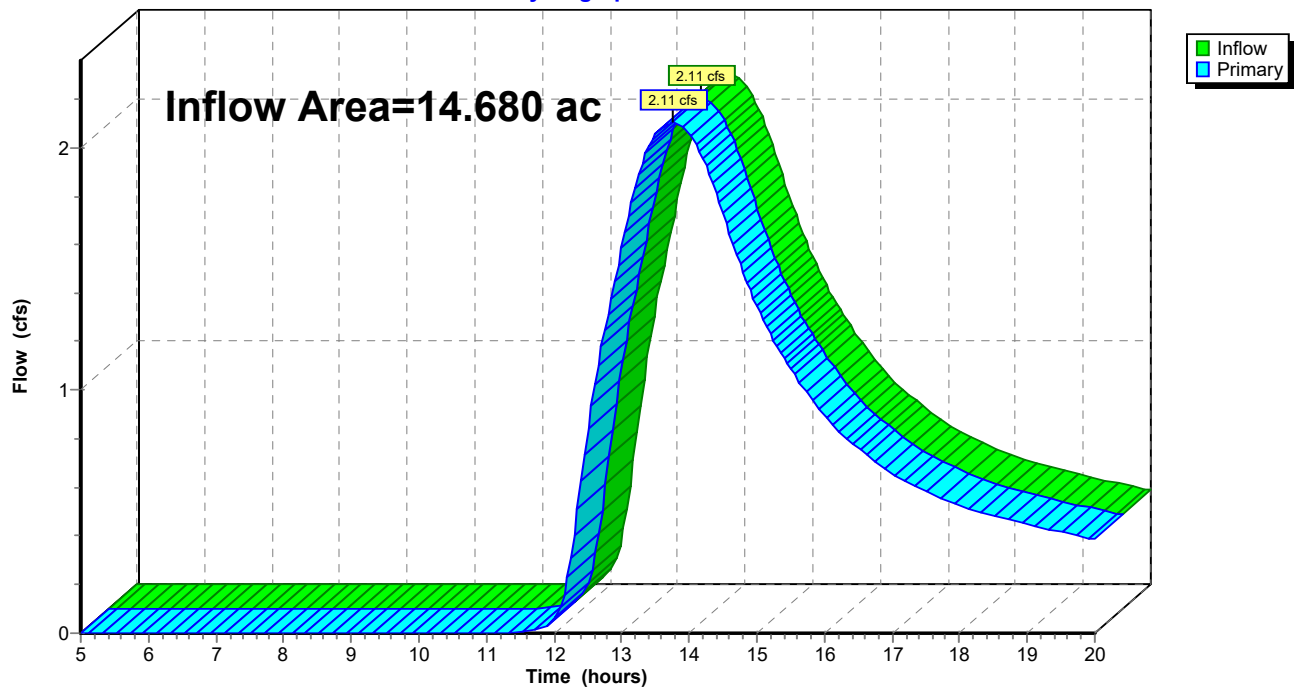
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x1000: x1000**Hydrograph**

Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 0.53" for 2-year event
Inflow = 2.11 cfs @ 13.77 hrs, Volume= 0.651 af
Primary = 2.11 cfs @ 13.77 hrs, Volume= 0.651 af, Atten= 0%, Lag= 0.0 min

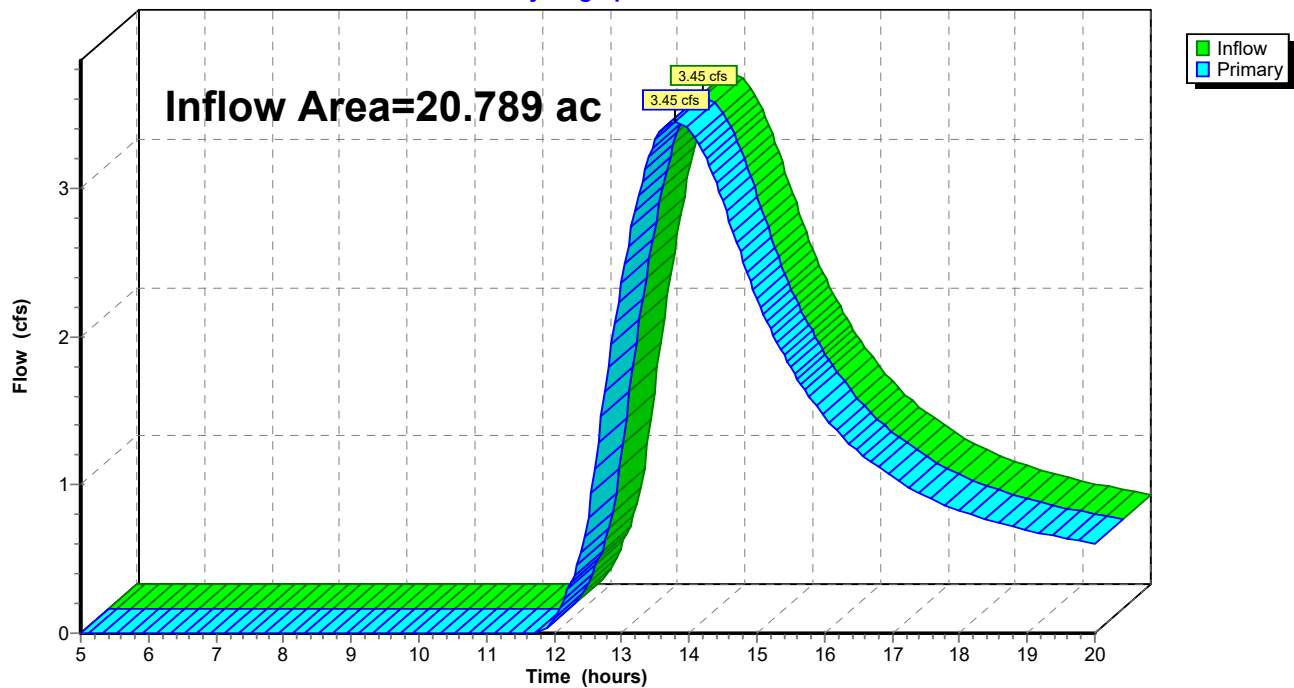
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x2000: x2000**Hydrograph**

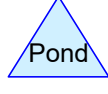
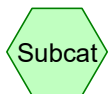
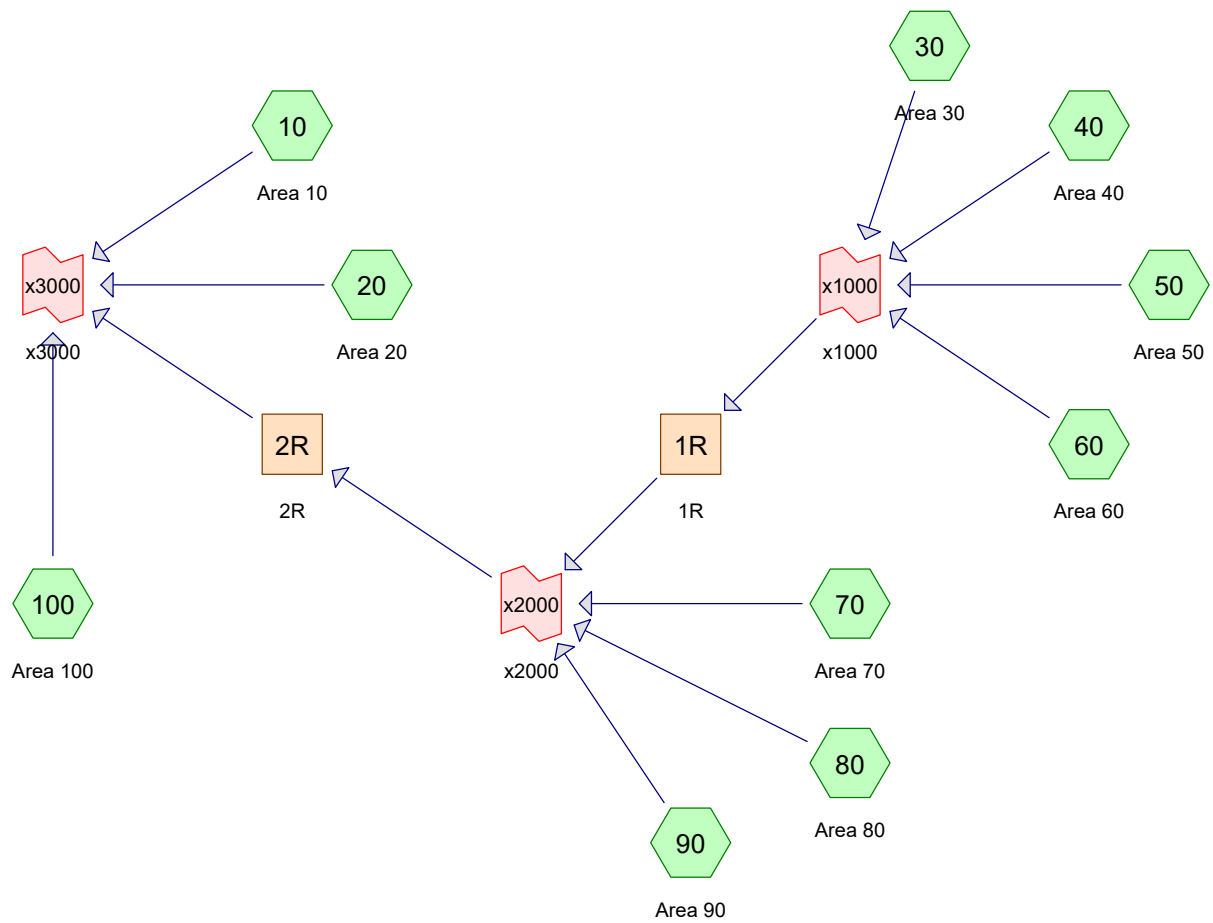
Summary for Link x3000: x3000

Inflow Area = 20.789 ac, 0.00% Impervious, Inflow Depth > 0.59" for 2-year event
Inflow = 3.45 cfs @ 13.79 hrs, Volume= 1.027 af
Primary = 3.45 cfs @ 13.79 hrs, Volume= 1.027 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x3000: x3000**Hydrograph**

10-Year Storm Event – Existing



Routing Diagram for 4298600-EX

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4298600-EX

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10-year	Type II 24-hr		Default	24.00	1	4.66	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

4298600-EX

Prepared by VHB

Printed 1/4/2023

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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
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=5.00-20.00 hrs, dt=0.05 hrs, 301 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment10: Area 10	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>1.61" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.48 cfs 0.040 af
Subcatchment20: Area 20	Runoff Area=89,938 sf 0.00% Impervious Runoff Depth>1.69" Flow Length=675' Tc=101.4 min CN=72 Runoff=1.39 cfs 0.291 af
Subcatchment30: Area 30	Runoff Area=20,657 sf 0.00% Impervious Runoff Depth>2.13" Flow Length=370' Tc=40.8 min CN=77 Runoff=0.77 cfs 0.084 af
Subcatchment40: Area 40	Runoff Area=83,662 sf 0.00% Impervious Runoff Depth>2.03" Flow Length=850' Tc=142.4 min CN=77 Runoff=1.24 cfs 0.324 af
Subcatchment50: Area 50	Runoff Area=208,224 sf 0.00% Impervious Runoff Depth>1.20" Flow Length=914' Tc=123.7 min CN=65 Runoff=1.92 cfs 0.480 af
Subcatchment60: Area 60	Runoff Area=145,723 sf 0.00% Impervious Runoff Depth>0.91" Flow Length=835' Tc=130.8 min CN=60 Runoff=0.91 cfs 0.253 af
Subcatchment70: Area 70	Runoff Area=64,469 sf 0.00% Impervious Runoff Depth>1.93" Flow Length=645' Tc=80.7 min CN=75 Runoff=1.35 cfs 0.239 af
Subcatchment80: Area 80	Runoff Area=74,095 sf 0.00% Impervious Runoff Depth>1.44" Flow Length=1,245' Tc=149.8 min CN=69 Runoff=0.73 cfs 0.204 af
Subcatchment90: Area 90	Runoff Area=42,640 sf 0.00% Impervious Runoff Depth>1.73" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.55 cfs 0.141 af
Subcatchment100: Area 100	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>1.87" Flow Length=868' Tc=140.2 min CN=75 Runoff=2.23 cfs 0.585 af
Reach 1R: 1R	Avg. Flow Depth=0.31' Max Vel=1.31 fps Inflow=4.16 cfs 1.141 af n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=4.16 cfs 1.134 af
Reach 2R: 2R	Avg. Flow Depth=0.62' Max Vel=1.24 fps Inflow=6.15 cfs 1.717 af n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=6.14 cfs 1.702 af
Link x1000: x1000	Inflow=4.16 cfs 1.141 af Primary=4.16 cfs 1.141 af
Link x2000: x2000	Inflow=6.15 cfs 1.717 af Primary=6.15 cfs 1.717 af
Link x3000: x3000	Inflow=9.54 cfs 2.618 af Primary=9.54 cfs 2.618 af

Total Runoff Area = 20.789 ac Runoff Volume = 2.641 af Average Runoff Depth = 1.52"
100.00% Pervious = 20.789 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 10: Area 10

Runoff = 0.48 cfs @ 12.22 hrs, Volume= 0.040 af, Depth> 1.61"

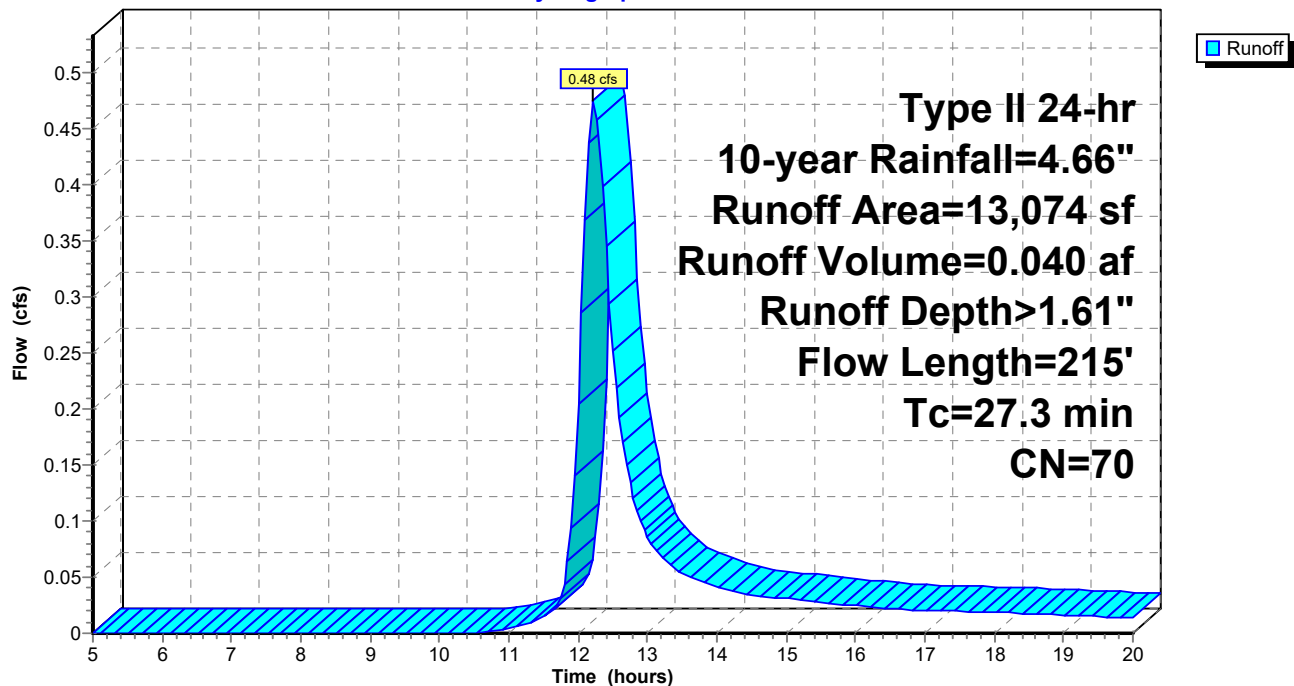
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 1.39 cfs @ 13.19 hrs, Volume= 0.291 af, Depth> 1.69"

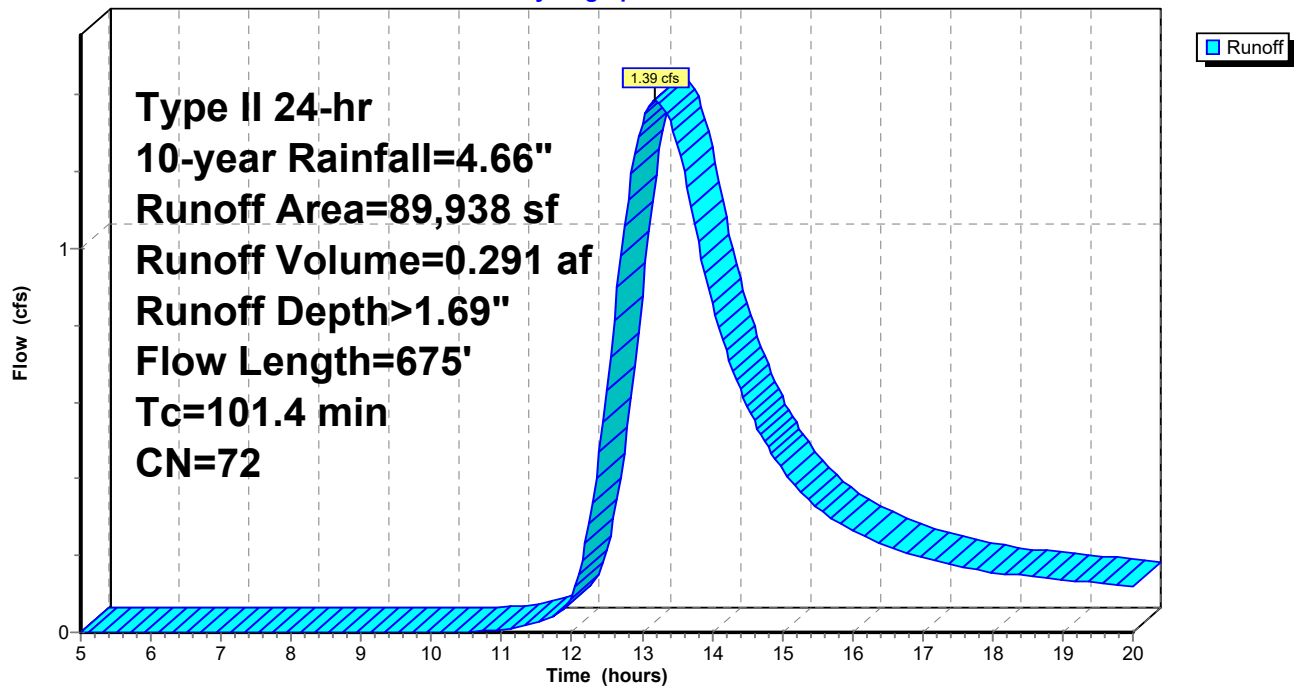
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 30: Area 30

Runoff = 0.77 cfs @ 12.38 hrs, Volume= 0.084 af, Depth> 2.13"

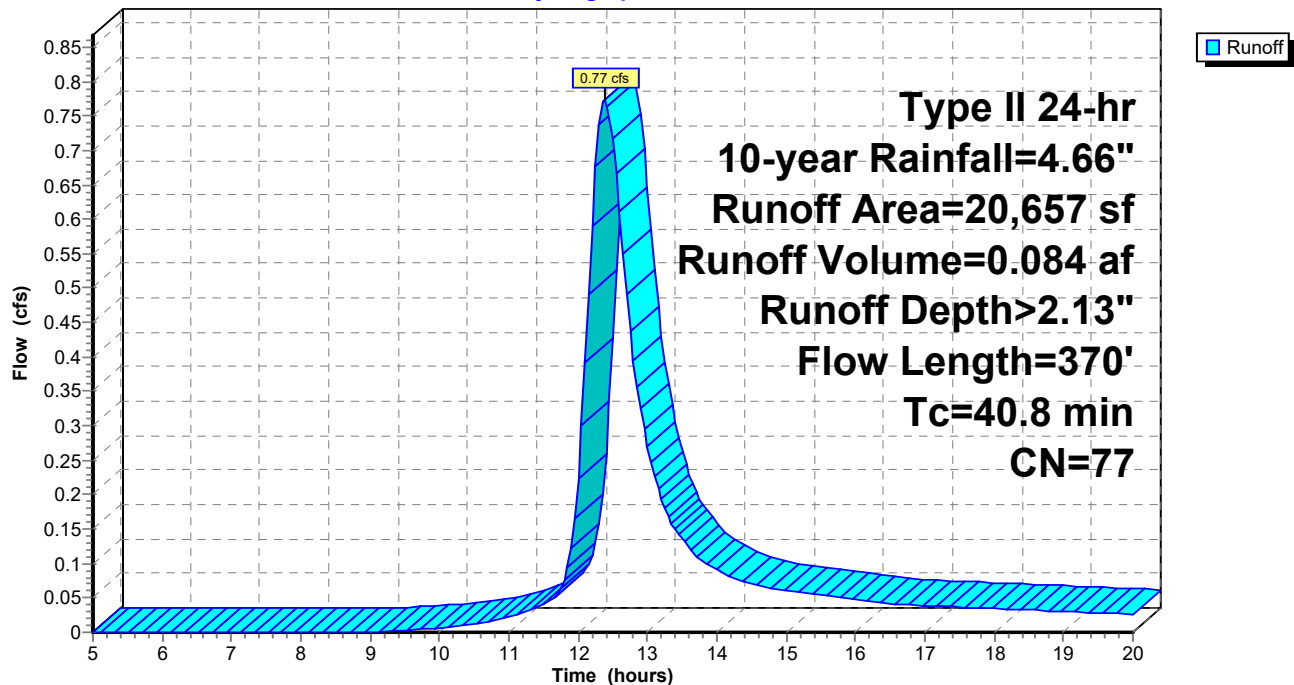
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 1.24 cfs @ 13.75 hrs, Volume= 0.324 af, Depth> 2.03"

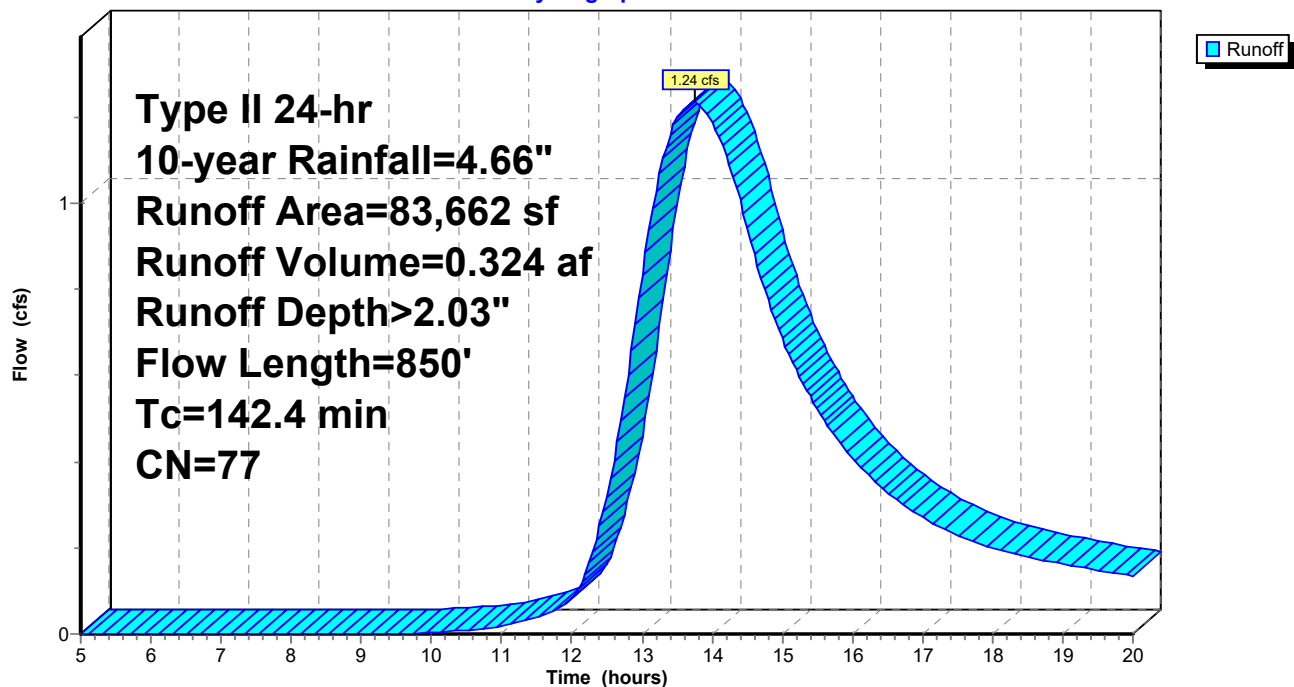
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 50: Area 50

Runoff = 1.92 cfs @ 13.60 hrs, Volume= 0.480 af, Depth> 1.20"

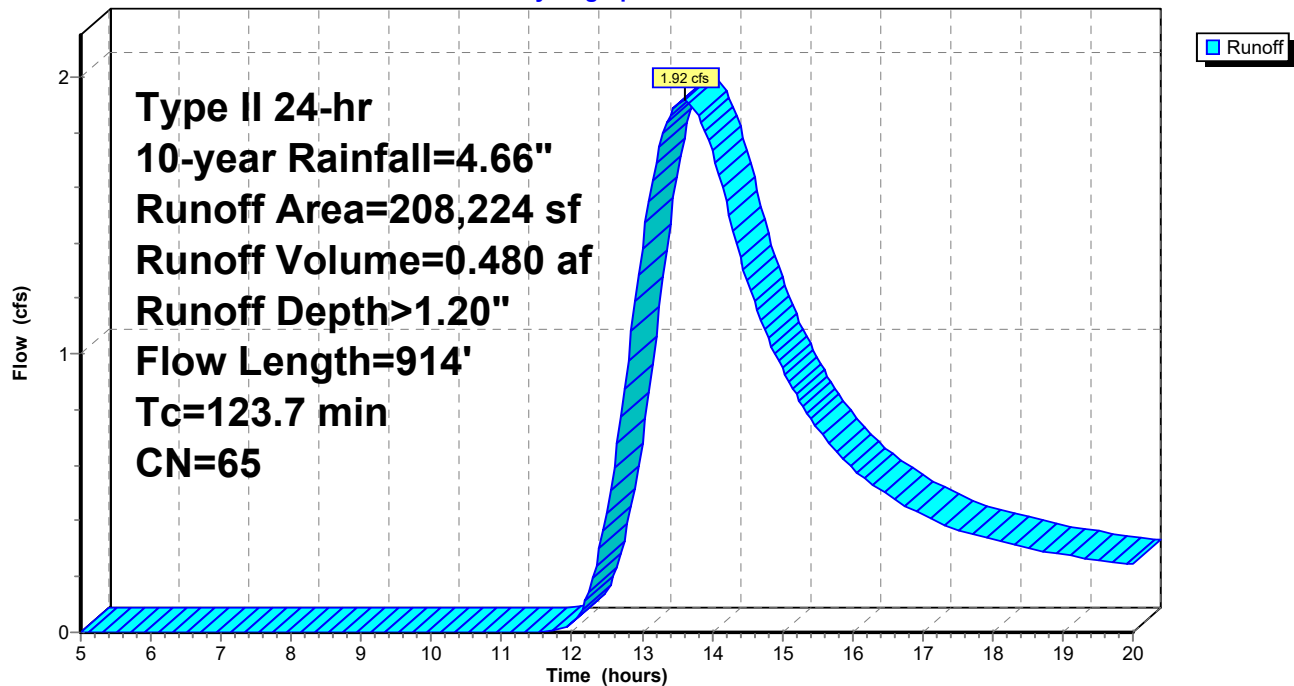
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 60: Area 60

Runoff = 0.91 cfs @ 13.78 hrs, Volume= 0.253 af, Depth> 0.91"

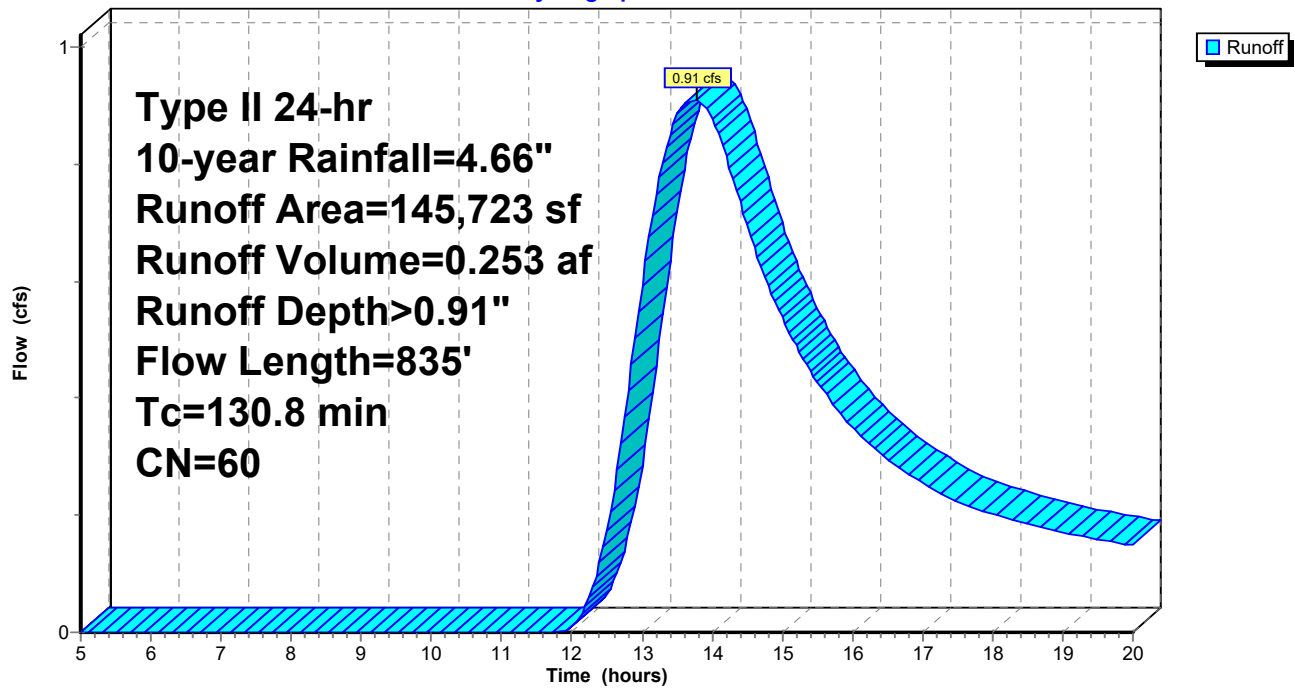
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 1.35 cfs @ 12.92 hrs, Volume= 0.239 af, Depth> 1.93"

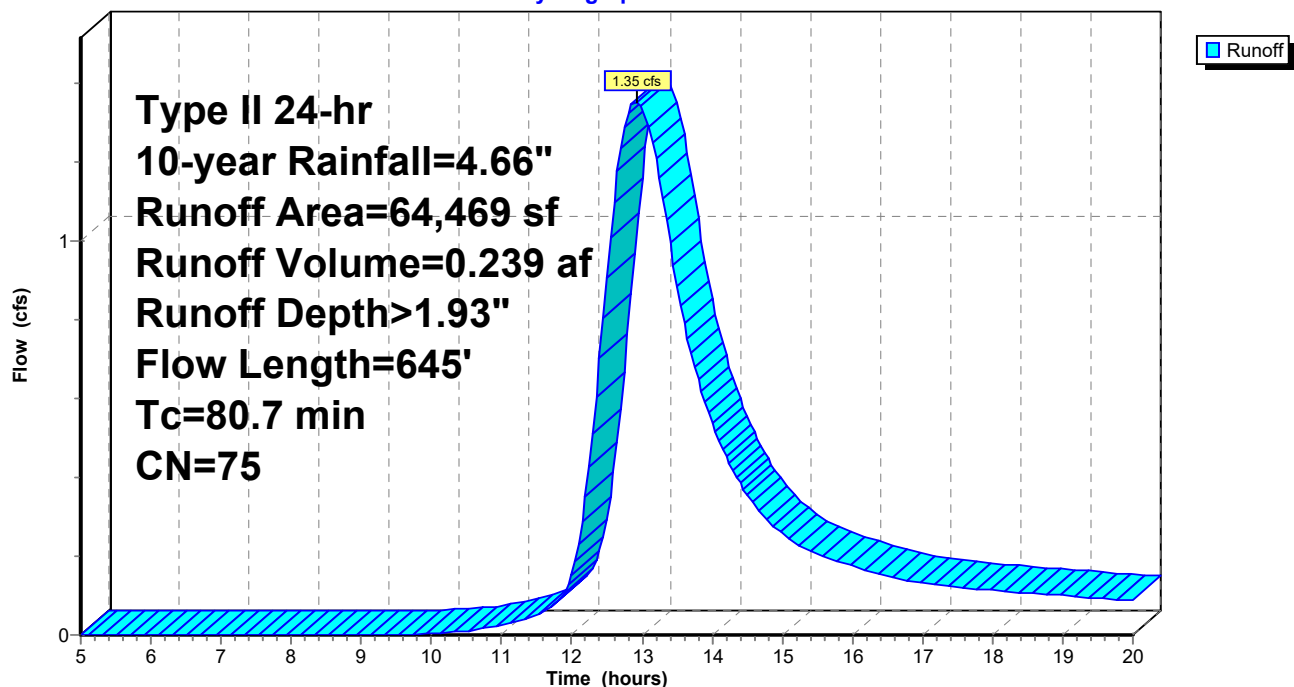
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 0.73 cfs @ 13.83 hrs, Volume= 0.204 af, Depth> 1.44"

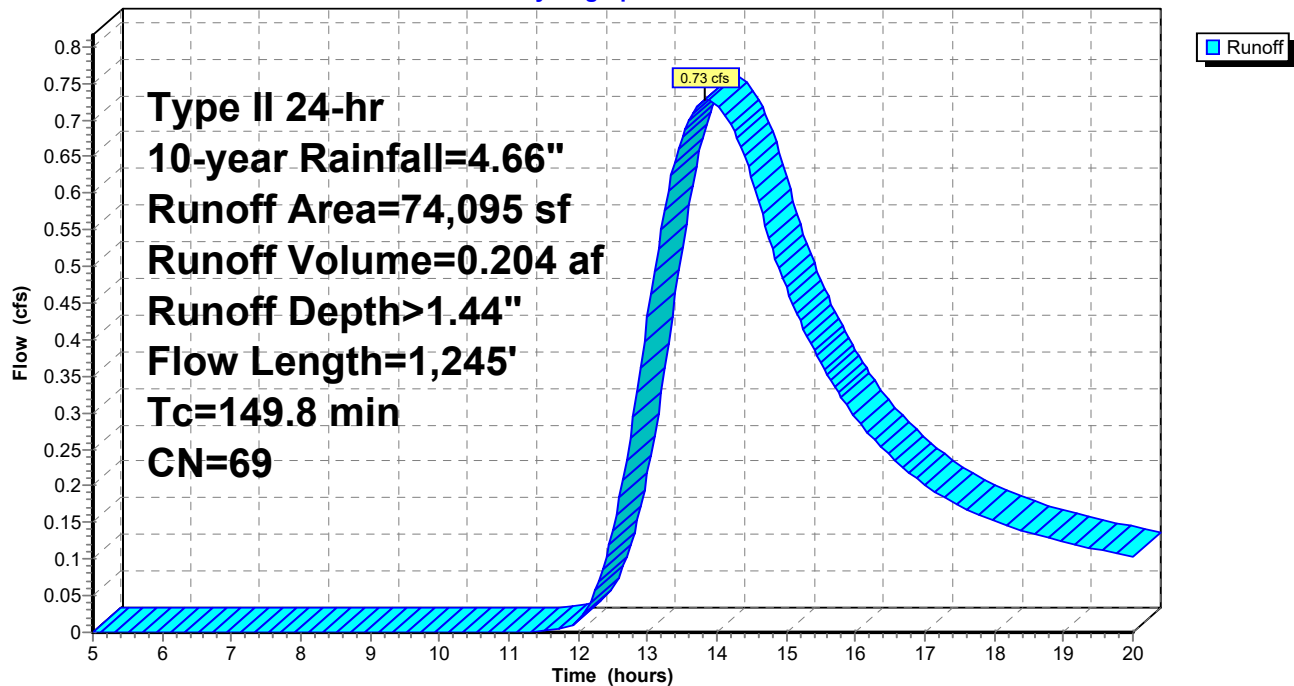
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 0.55 cfs @ 13.71 hrs, Volume= 0.141 af, Depth> 1.73"

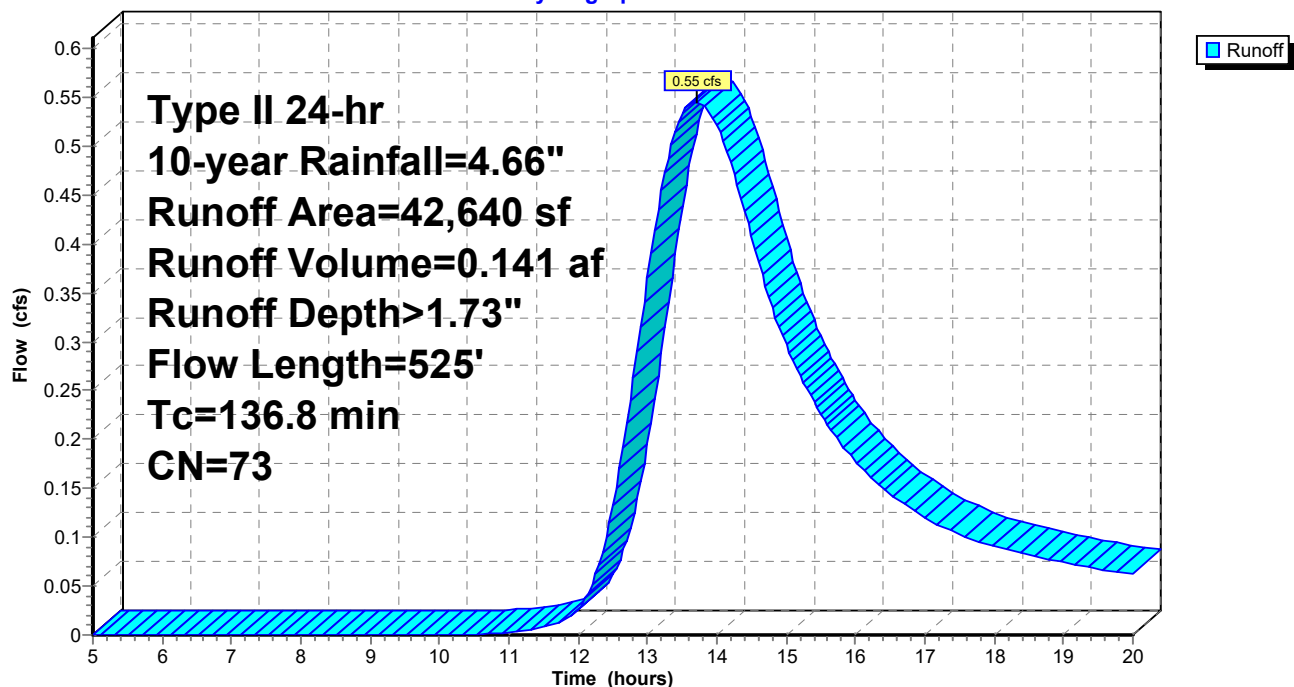
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 2.23 cfs @ 13.74 hrs, Volume= 0.585 af, Depth> 1.87"

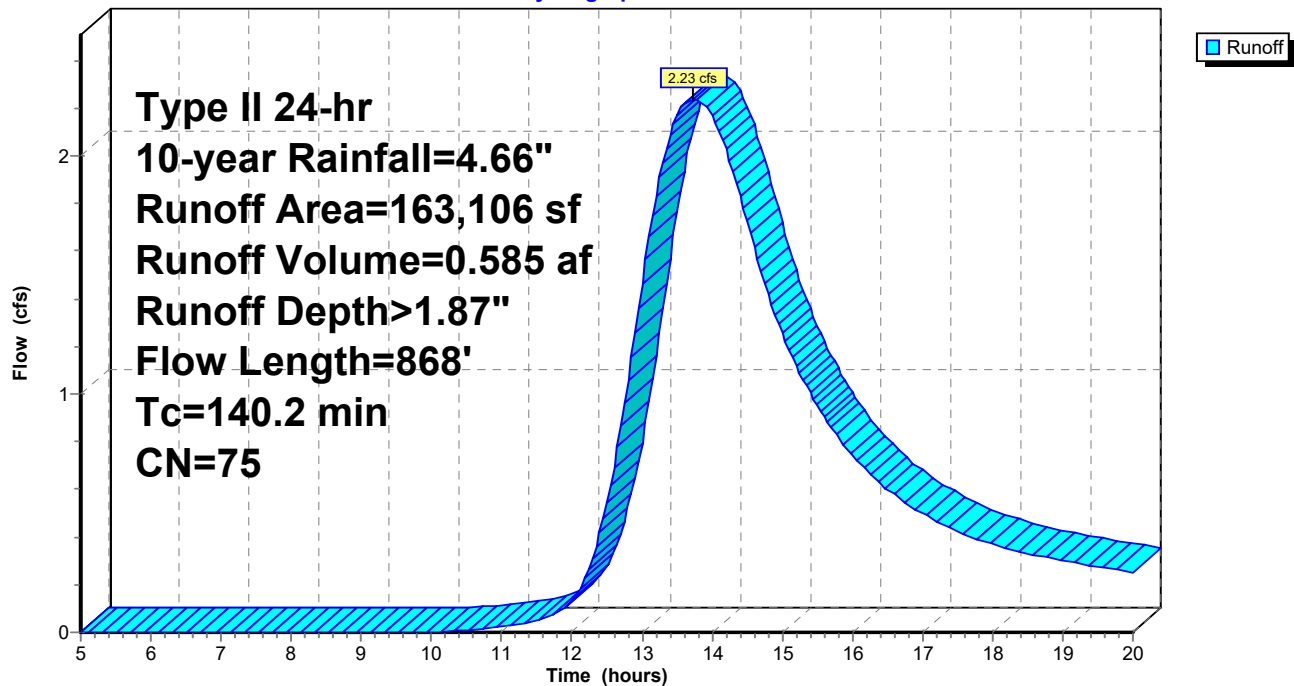
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Reach 1R: 1R

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 1.30" for 10-year event
 Inflow = 4.16 cfs @ 13.62 hrs, Volume= 1.141 af
 Outflow = 4.16 cfs @ 13.72 hrs, Volume= 1.134 af, Atten= 0%, Lag= 6.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.31 fps, Min. Travel Time= 3.3 min

Avg. Velocity = 0.78 fps, Avg. Travel Time= 5.6 min

Peak Storage= 823 cf @ 13.67 hrs

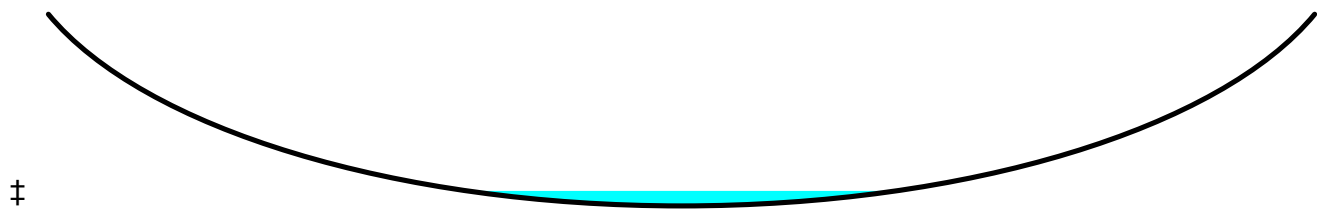
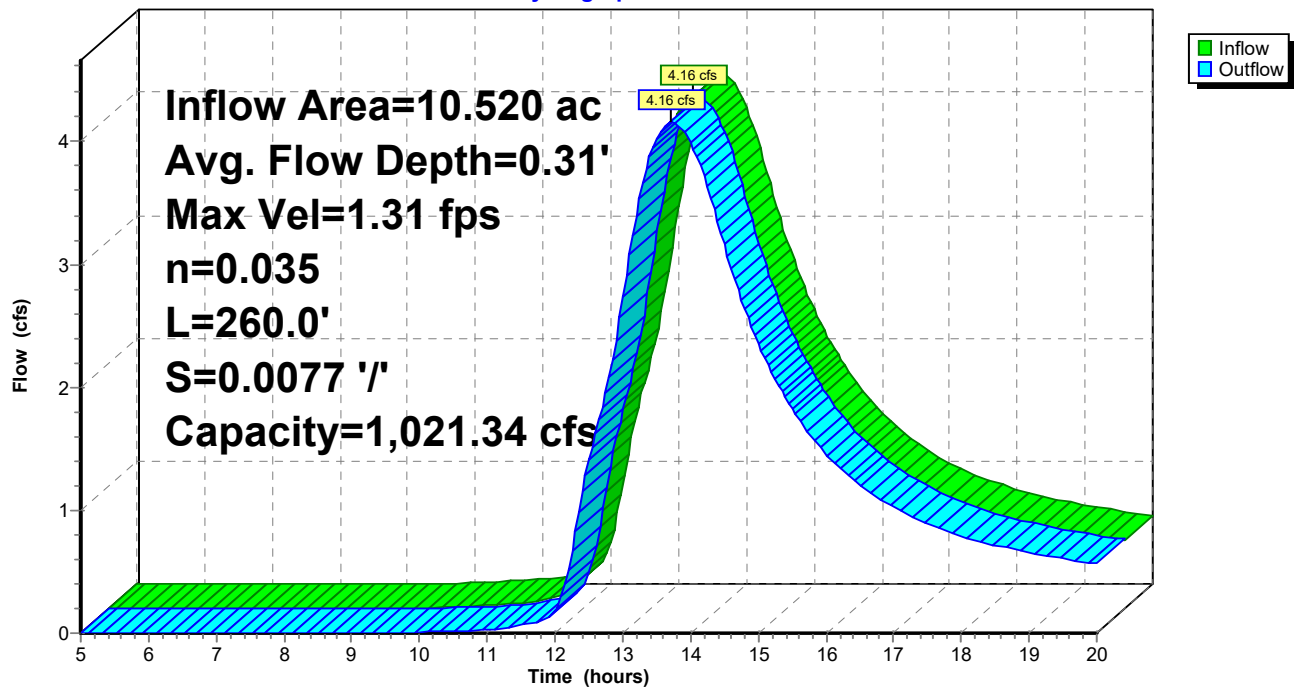
Average Depth at Peak Storage= 0.31', Surface Width= 15.12'

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 > 1.40" for 10-year event
 Inflow = 6.15 cfs @ 13.63 hrs, Volume= 1.717 af
 Outflow = 6.14 cfs @ 13.76 hrs, Volume= 1.702 af, Atten= 0%, Lag= 7.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.24 fps, Min. Travel Time= 4.8 min

Avg. Velocity = 0.72 fps, Avg. Travel Time= 8.3 min

Peak Storage= 1,778 cf @ 13.68 hrs

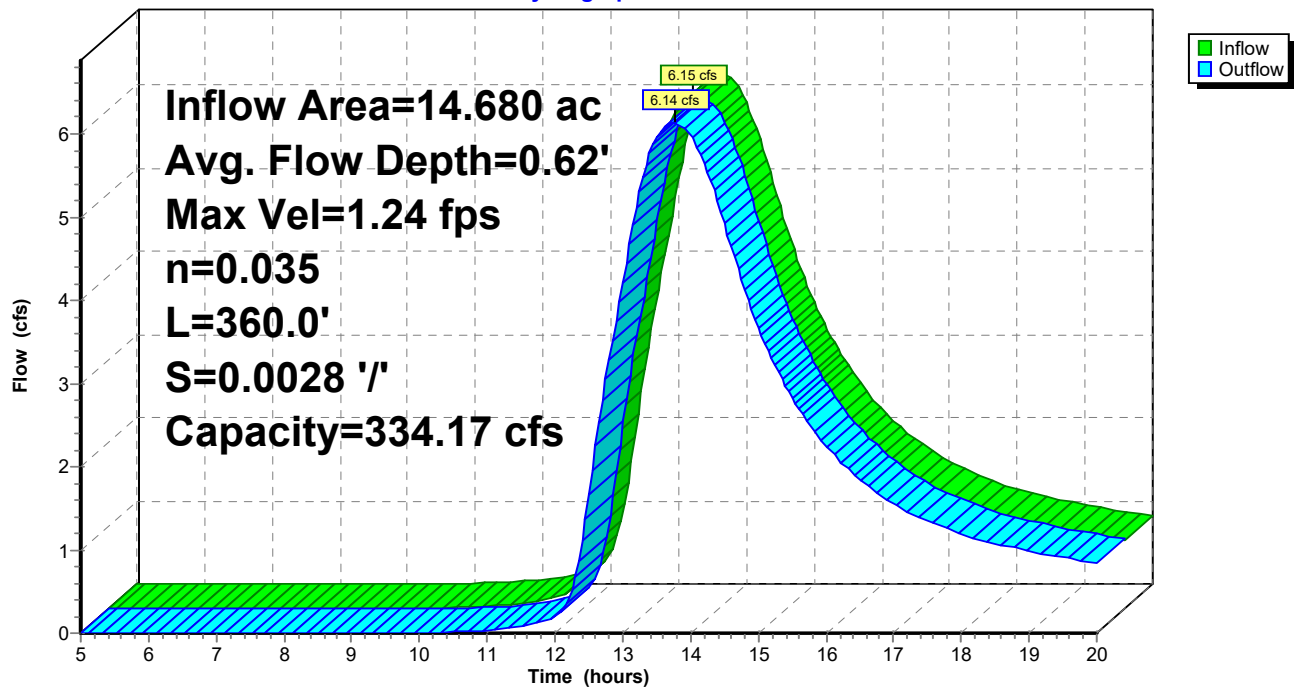
Average Depth at Peak Storage= 0.62' , Surface Width= 11.86'

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 '/'

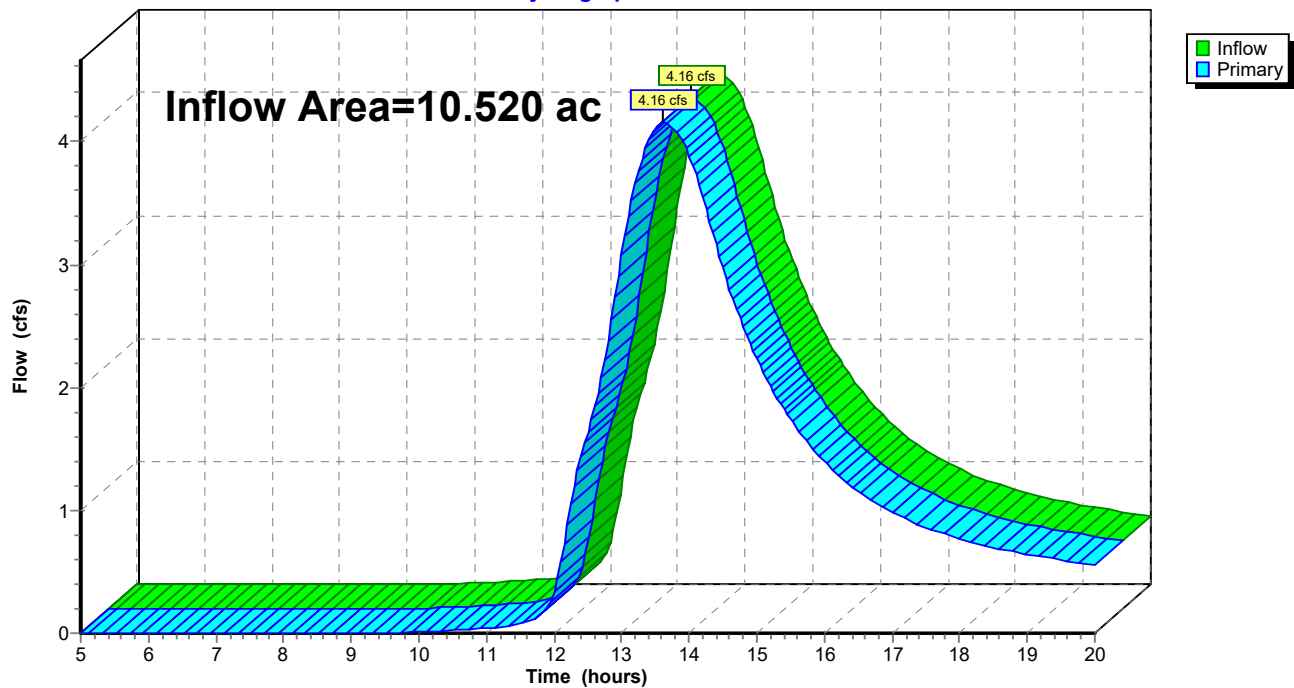
Inlet Invert= 196.00', Outlet Invert= 195.00'

**Reach 2R: 2R****Hydrograph**

Summary for Link x1000: x1000

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 1.30" for 10-year event
Inflow = 4.16 cfs @ 13.62 hrs, Volume= 1.141 af
Primary = 4.16 cfs @ 13.62 hrs, Volume= 1.141 af, Atten= 0%, Lag= 0.0 min

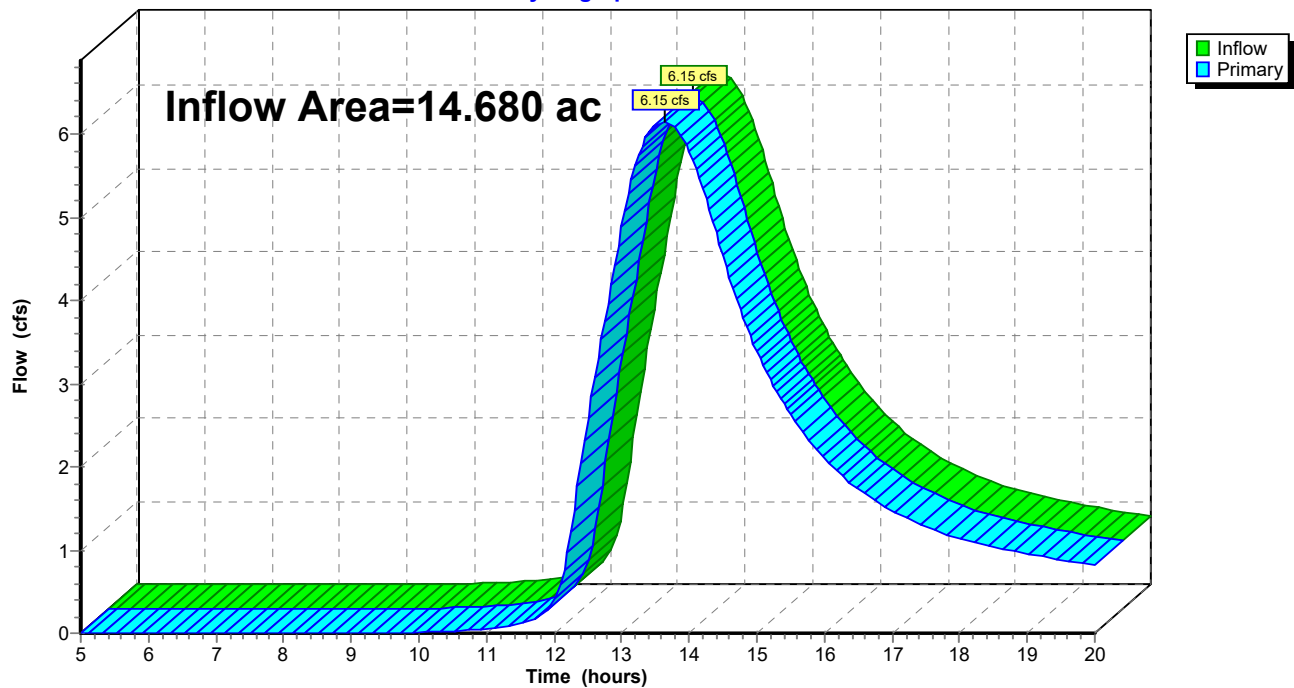
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x1000: x1000**Hydrograph**

Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 1.40" for 10-year event
Inflow = 6.15 cfs @ 13.63 hrs, Volume= 1.717 af
Primary = 6.15 cfs @ 13.63 hrs, Volume= 1.717 af, Atten= 0%, Lag= 0.0 min

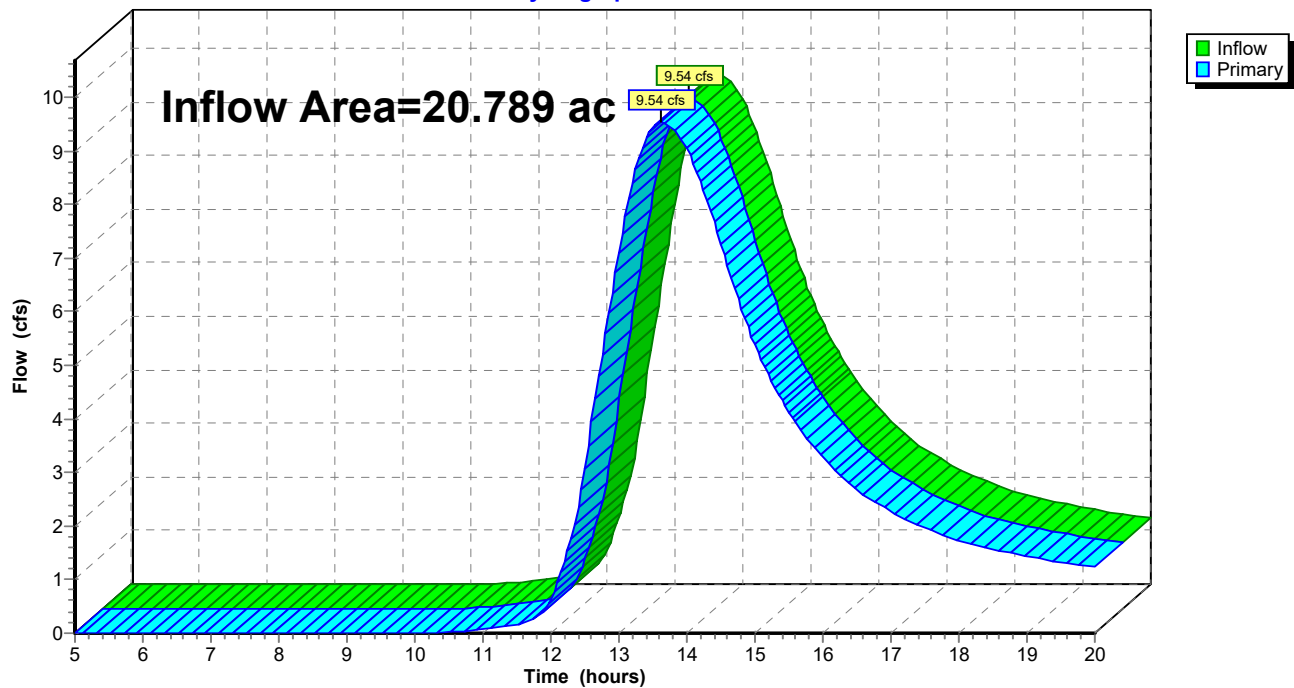
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x2000: x2000**Hydrograph**

Summary for Link x3000: x3000

Inflow Area = 20.789 ac, 0.00% Impervious, Inflow Depth > 1.51" for 10-year event
Inflow = 9.54 cfs @ 13.63 hrs, Volume= 2.618 af
Primary = 9.54 cfs @ 13.63 hrs, Volume= 2.618 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x3000: x3000**Hydrograph**

25-Year Storm Event – Existing

4298600-EX

Prepared by VHB

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	25-year	Type II 24-hr		Default	24.00	1	5.69	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

4298600-EX

Prepared by VHB

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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
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=5.00-20.00 hrs, dt=0.05 hrs, 301 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment10: Area 10	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>2.33" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.70 cfs 0.058 af
Subcatchment20: Area 20	Runoff Area=89,938 sf 0.00% Impervious Runoff Depth>2.42" Flow Length=675' Tc=101.4 min CN=72 Runoff=2.01 cfs 0.416 af
Subcatchment30: Area 30	Runoff Area=20,657 sf 0.00% Impervious Runoff Depth>2.93" Flow Length=370' Tc=40.8 min CN=77 Runoff=1.07 cfs 0.116 af
Subcatchment40: Area 40	Runoff Area=83,662 sf 0.00% Impervious Runoff Depth>2.80" Flow Length=850' Tc=142.4 min CN=77 Runoff=1.71 cfs 0.449 af
Subcatchment50: Area 50	Runoff Area=208,224 sf 0.00% Impervious Runoff Depth>1.82" Flow Length=914' Tc=123.7 min CN=65 Runoff=2.98 cfs 0.725 af
Subcatchment60: Area 60	Runoff Area=145,723 sf 0.00% Impervious Runoff Depth>1.44" Flow Length=835' Tc=130.8 min CN=60 Runoff=1.52 cfs 0.401 af
Subcatchment70: Area 70	Runoff Area=64,469 sf 0.00% Impervious Runoff Depth>2.71" Flow Length=645' Tc=80.7 min CN=75 Runoff=1.90 cfs 0.334 af
Subcatchment80: Area 80	Runoff Area=74,095 sf 0.00% Impervious Runoff Depth>2.10" Flow Length=1,245' Tc=149.8 min CN=69 Runoff=1.09 cfs 0.298 af
Subcatchment90: Area 90	Runoff Area=42,640 sf 0.00% Impervious Runoff Depth>2.46" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.78 cfs 0.200 af
Subcatchment100: Area 100	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>2.63" Flow Length=868' Tc=140.2 min CN=75 Runoff=3.15 cfs 0.820 af
Reach 1R: 1R	Avg. Flow Depth=0.38' Max Vel=1.50 fps Inflow=6.35 cfs 1.691 af n=0.035 L=260.0' S=0.0077 '/' Capacity=1,021.34 cfs Outflow=6.34 cfs 1.682 af
Reach 2R: 2R	Avg. Flow Depth=0.75' Max Vel=1.41 fps Inflow=9.23 cfs 2.514 af n=0.035 L=360.0' S=0.0028 '/' Capacity=334.17 cfs Outflow=9.22 cfs 2.495 af
Link x1000: x1000	Inflow=6.35 cfs 1.691 af Primary=6.35 cfs 1.691 af
Link x2000: x2000	Inflow=9.23 cfs 2.514 af Primary=9.23 cfs 2.514 af
Link x3000: x3000	Inflow=14.09 cfs 3.789 af Primary=14.09 cfs 3.789 af

Total Runoff Area = 20.789 ac Runoff Volume = 3.817 af Average Runoff Depth = 2.20"
100.00% Pervious = 20.789 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 10: Area 10

Runoff = 0.70 cfs @ 12.22 hrs, Volume= 0.058 af, Depth> 2.33"

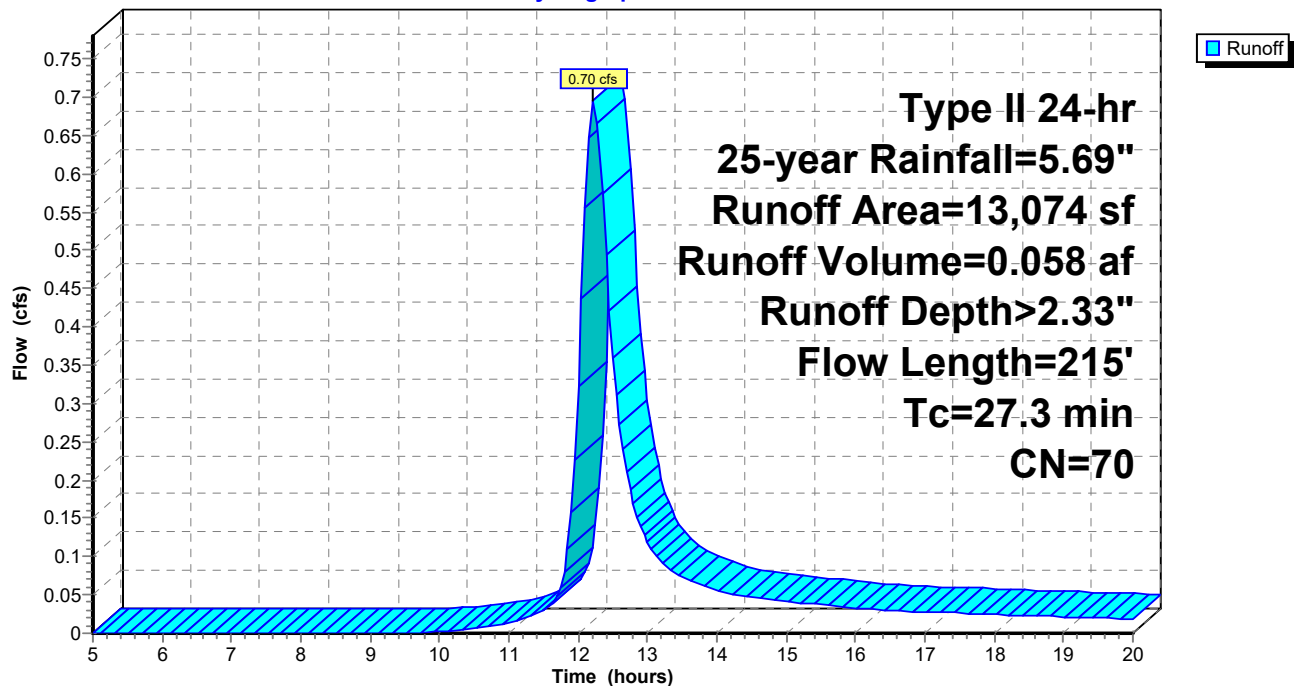
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

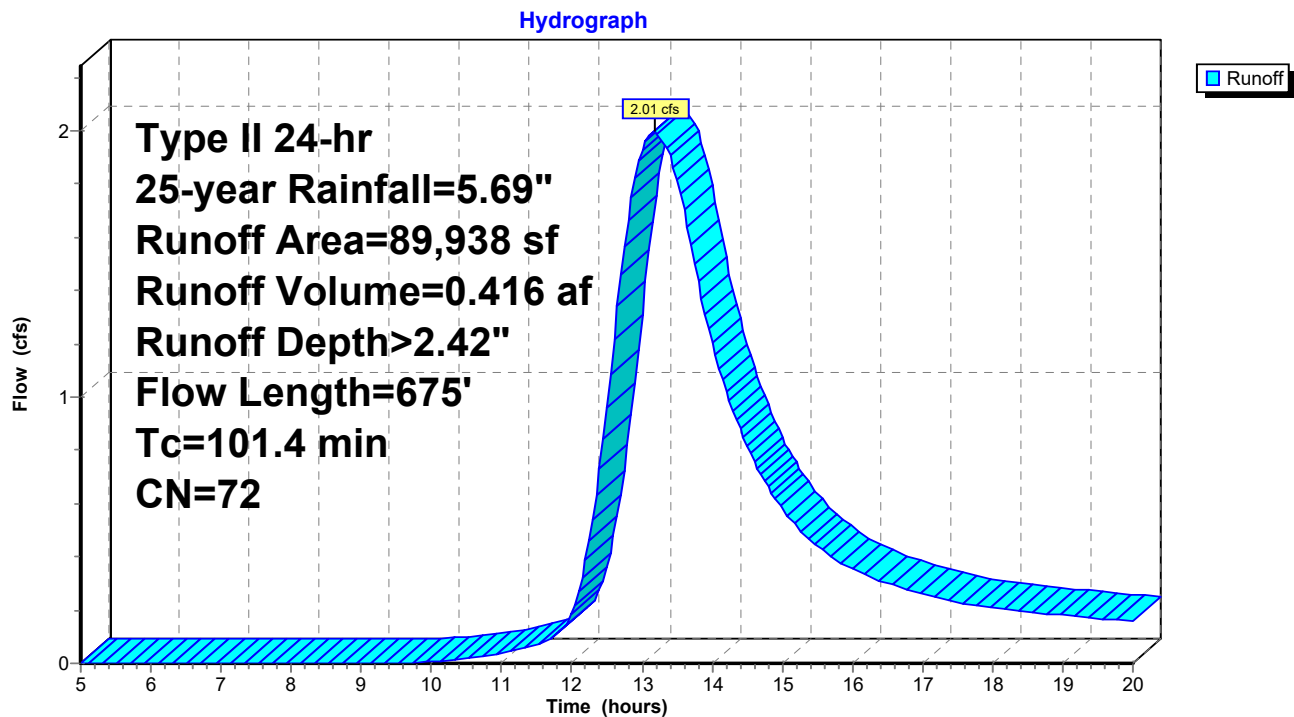
Runoff = 2.01 cfs @ 13.18 hrs, Volume= 0.416 af, Depth> 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 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 = 1.07 cfs @ 12.38 hrs, Volume= 0.116 af, Depth> 2.93"

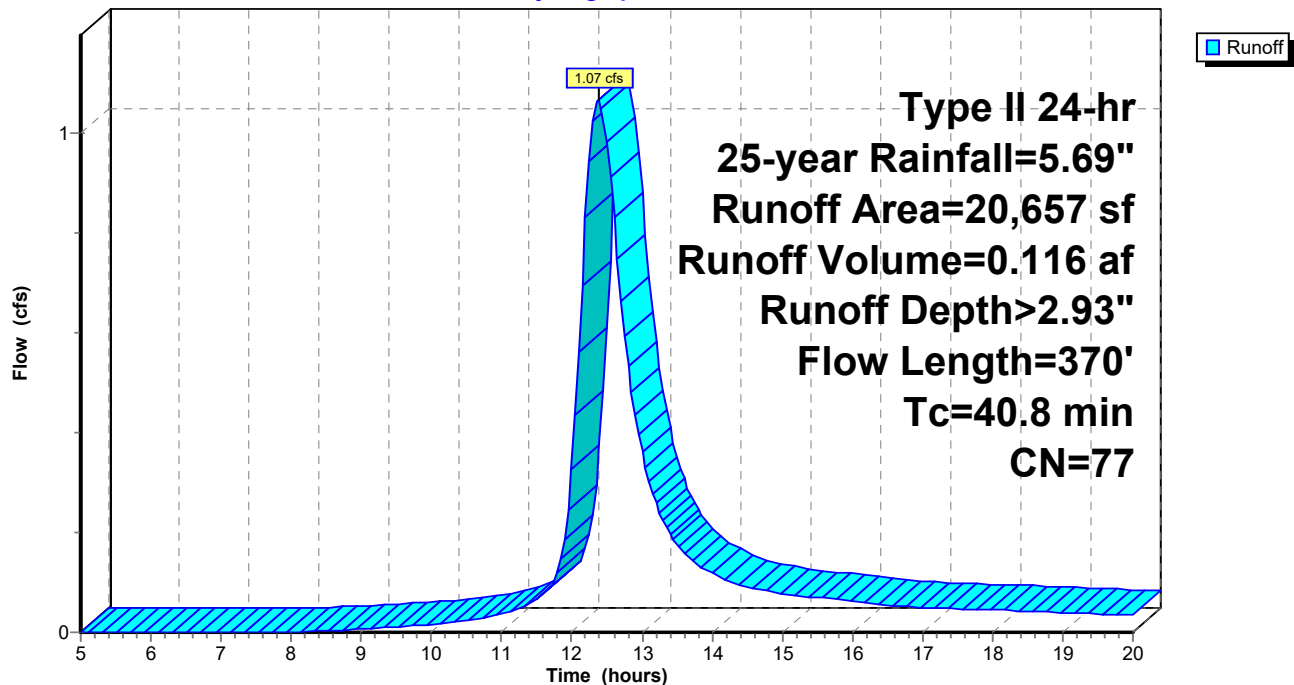
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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'
27.1	320	0.0062	0.20		Woods: Dense underbrush n= 0.800 P2= 3.01"
					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 = 1.71 cfs @ 13.74 hrs, Volume= 0.449 af, Depth> 2.80"

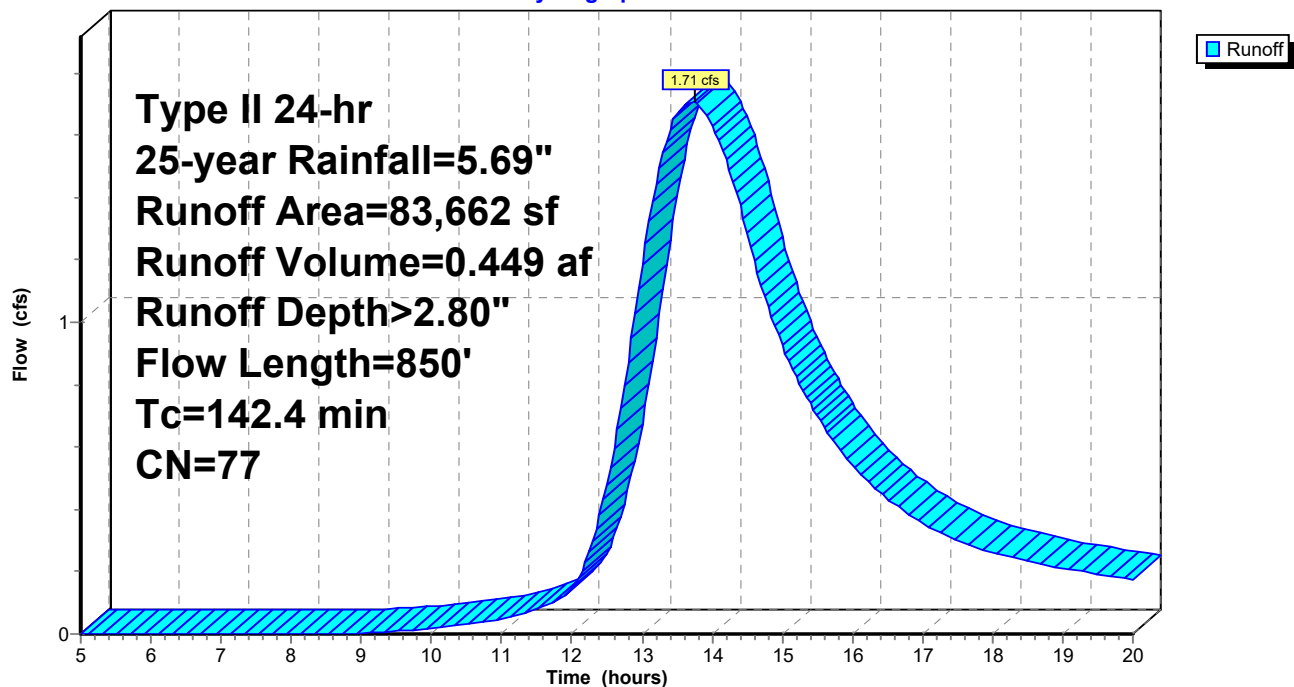
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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 = 2.98 cfs @ 13.59 hrs, Volume= 0.725 af, Depth> 1.82"

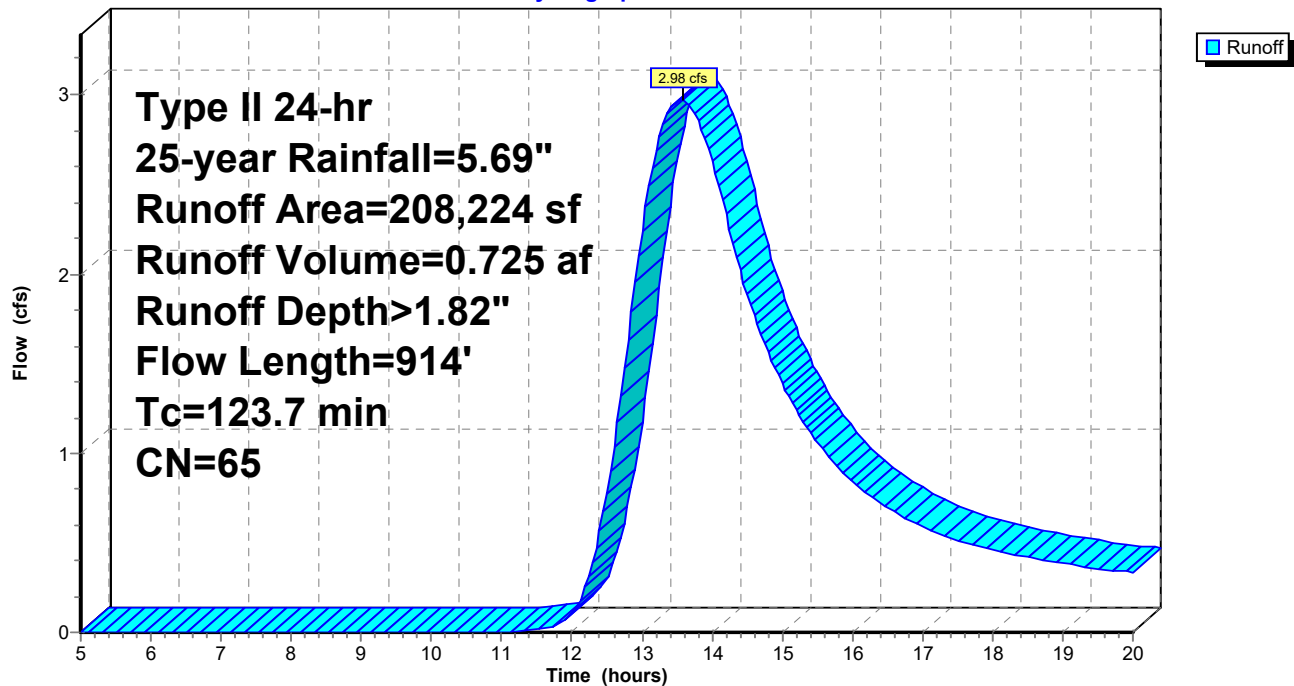
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 60: Area 60

Runoff = 1.52 cfs @ 13.66 hrs, Volume= 0.401 af, Depth> 1.44"

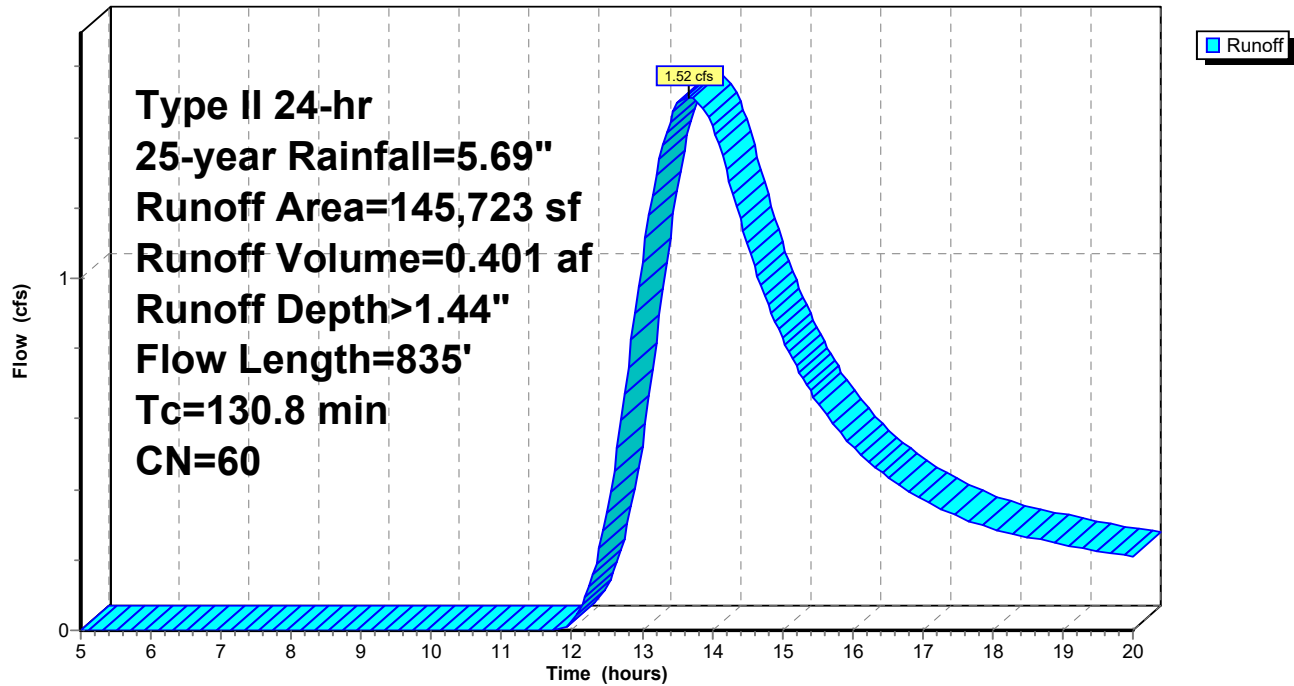
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 70: Area 70

Runoff = 1.90 cfs @ 12.90 hrs, Volume= 0.334 af, Depth> 2.71"

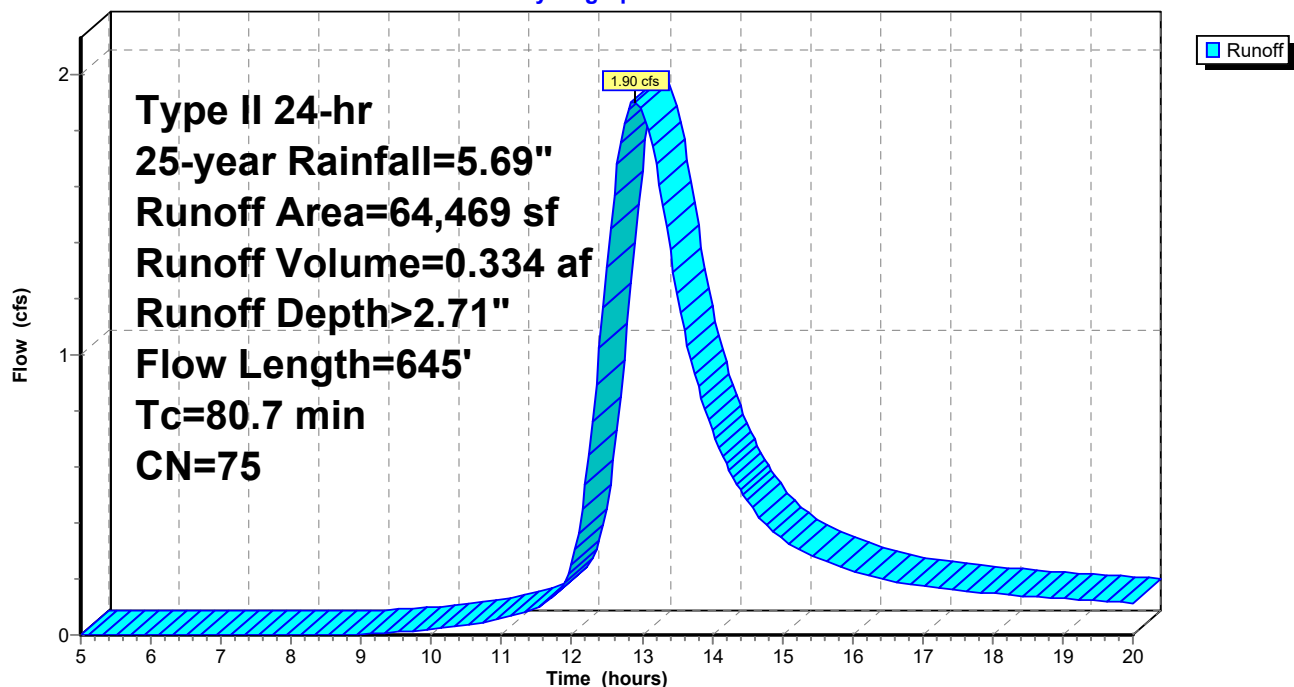
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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 = 1.09 cfs @ 13.82 hrs, Volume= 0.298 af, Depth> 2.10"

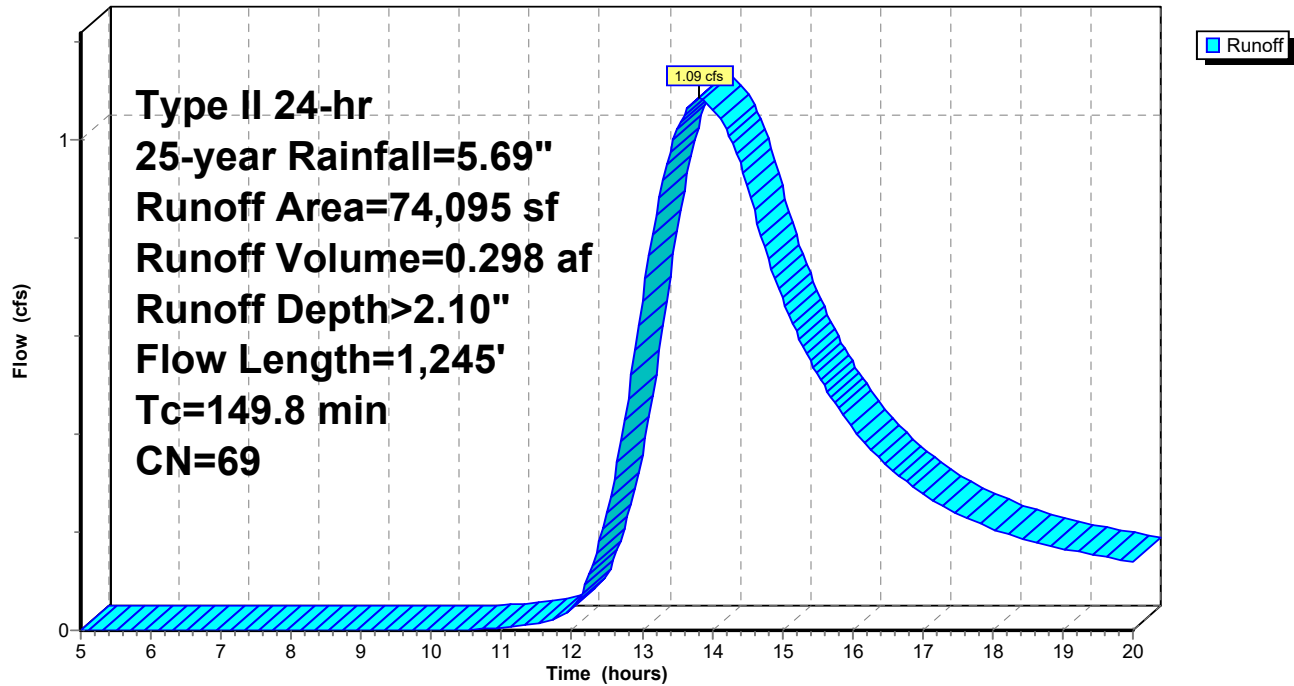
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 90: Area 90

Runoff = 0.78 cfs @ 13.68 hrs, Volume= 0.200 af, Depth> 2.46"

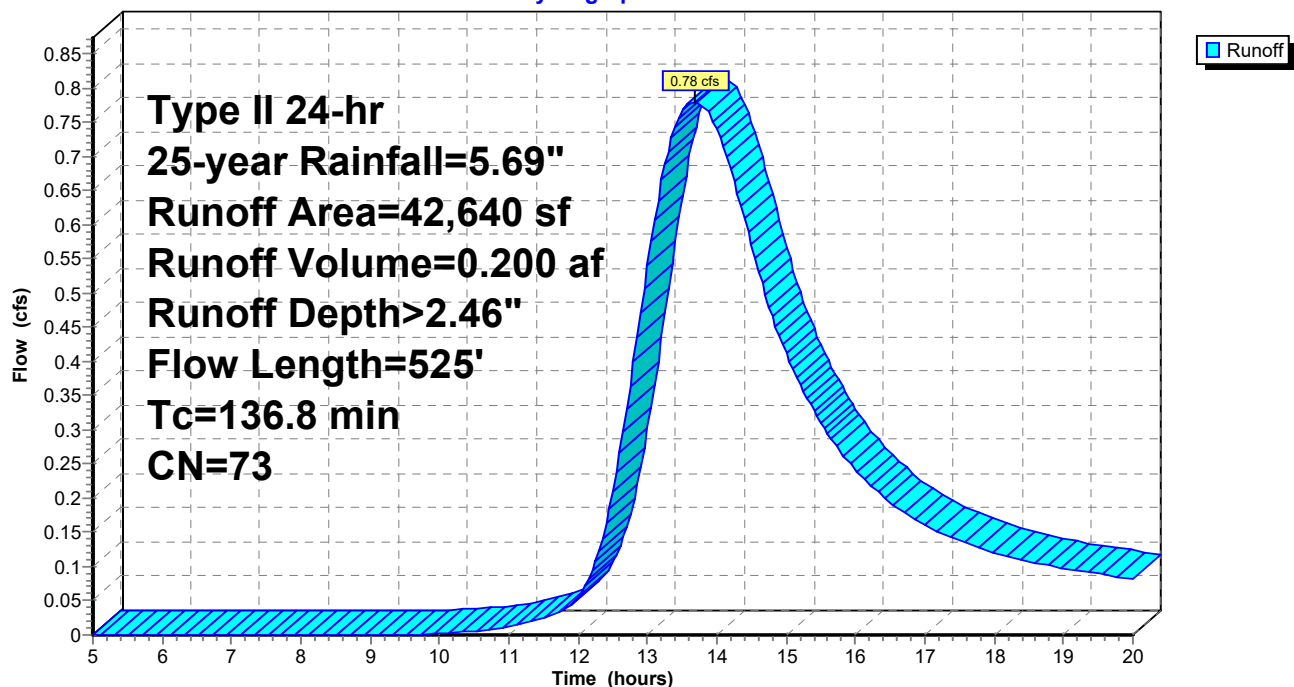
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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 = 3.15 cfs @ 13.71 hrs, Volume= 0.820 af, Depth> 2.63"

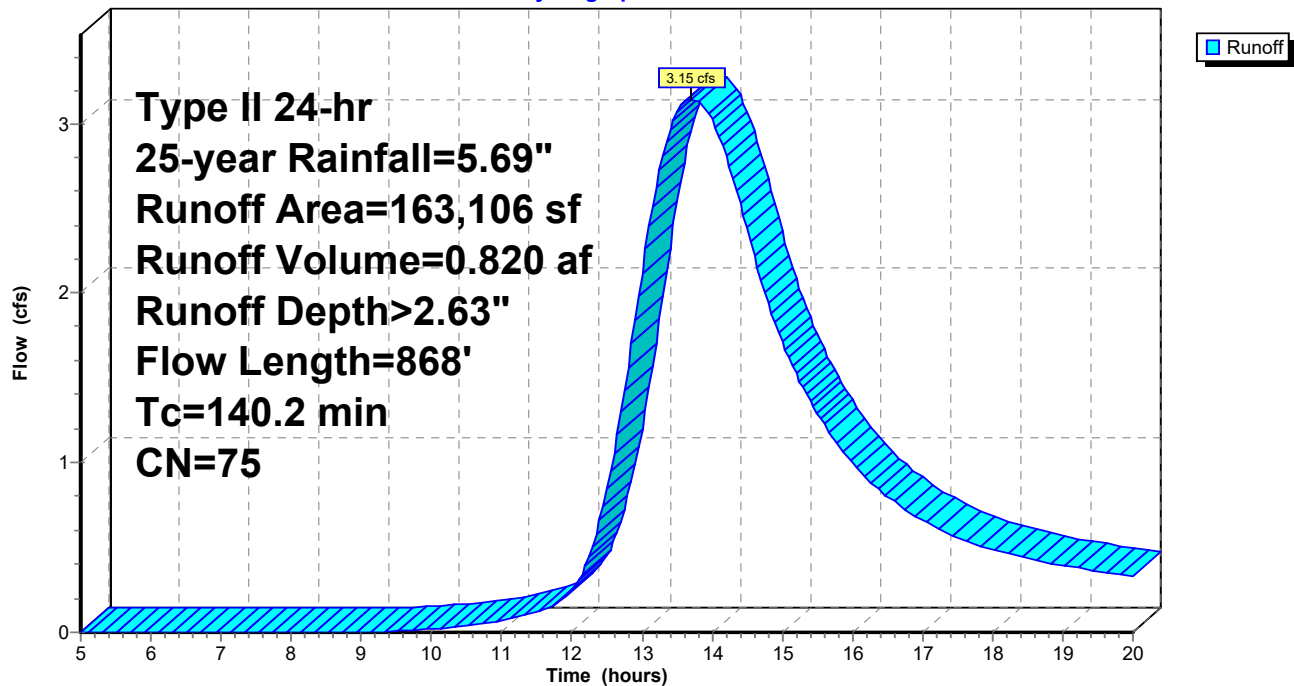
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



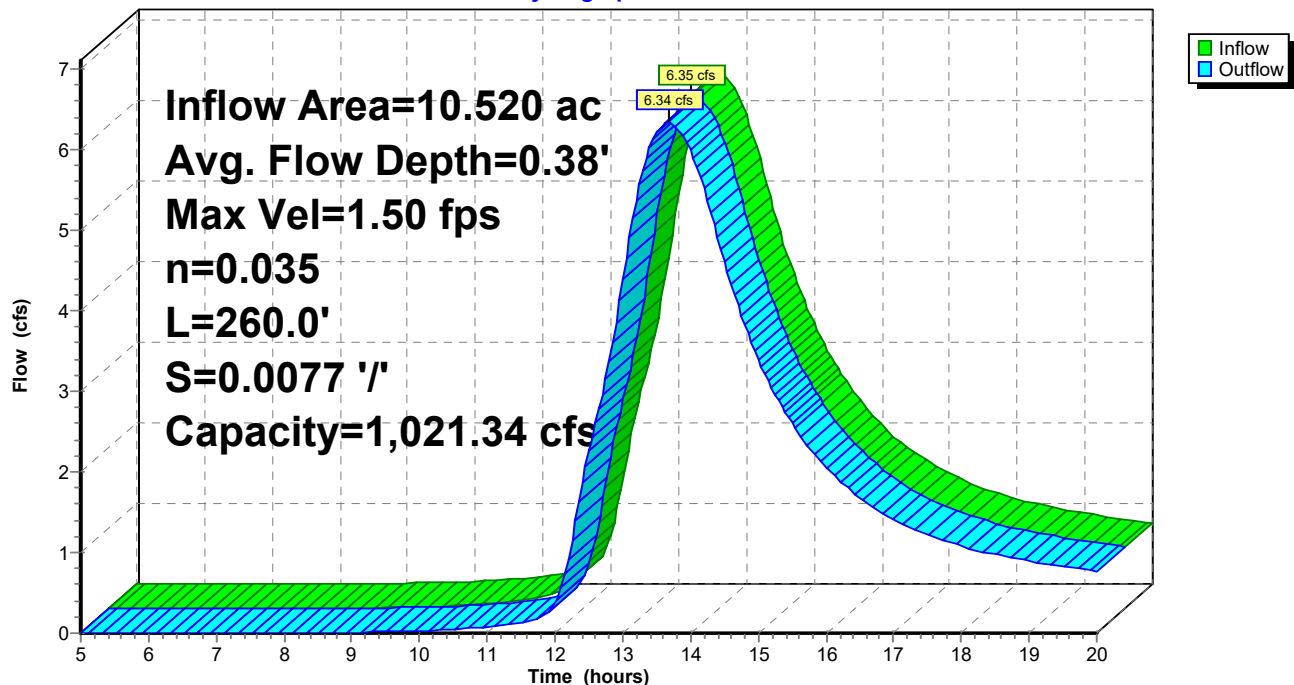
Summary for Reach 1R: 1R

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 1.93" for 25-year event
 Inflow = 6.35 cfs @ 13.60 hrs, Volume= 1.691 af
 Outflow = 6.34 cfs @ 13.68 hrs, Volume= 1.682 af, Atten= 0%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.50 fps, Min. Travel Time= 2.9 min
 Avg. Velocity = 0.83 fps, Avg. Travel Time= 5.2 min

Peak Storage= 1,102 cf @ 13.63 hrs
 Average Depth at Peak Storage= 0.38' , Surface Width= 16.67'
 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 > 2.06" for 25-year event
 Inflow = 9.23 cfs @ 13.56 hrs, Volume= 2.514 af
 Outflow = 9.22 cfs @ 13.69 hrs, Volume= 2.495 af, Atten= 0%, Lag= 7.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.41 fps, Min. Travel Time= 4.3 min

Avg. Velocity = 0.77 fps, Avg. Travel Time= 7.8 min

Peak Storage= 2,359 cf @ 13.62 hrs

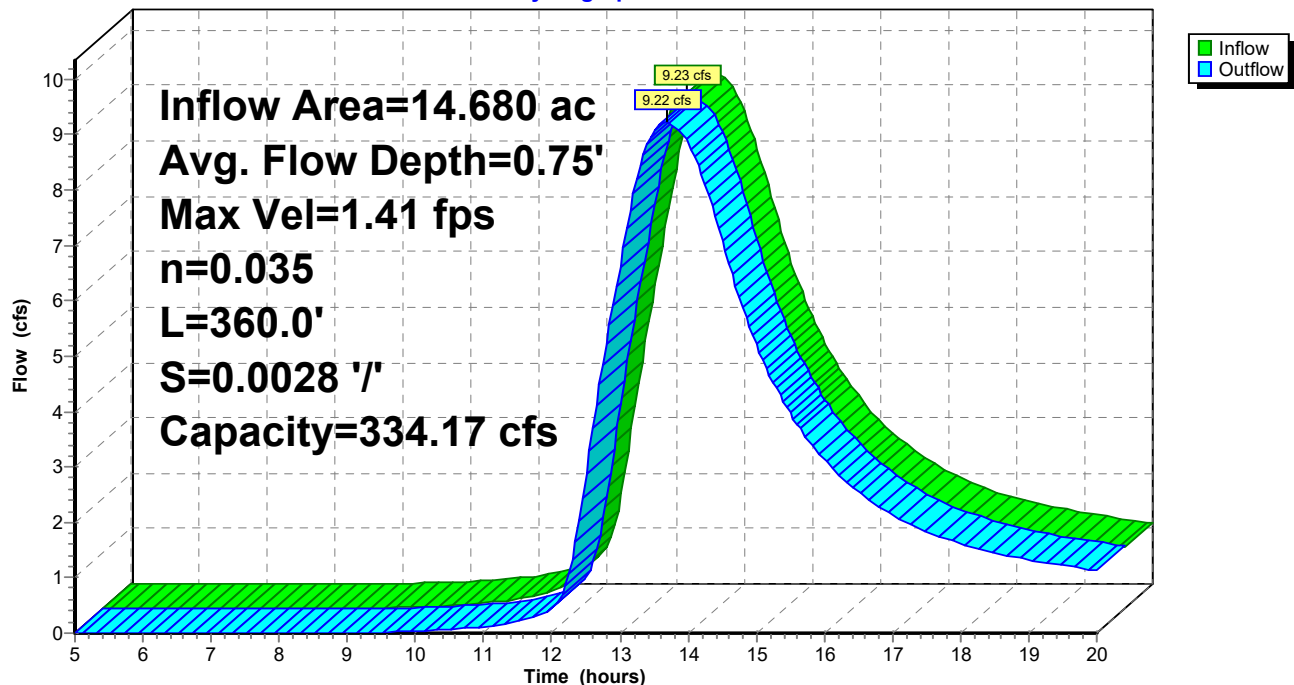
Average Depth at Peak Storage= 0.75' , Surface Width= 13.03'

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 '/'

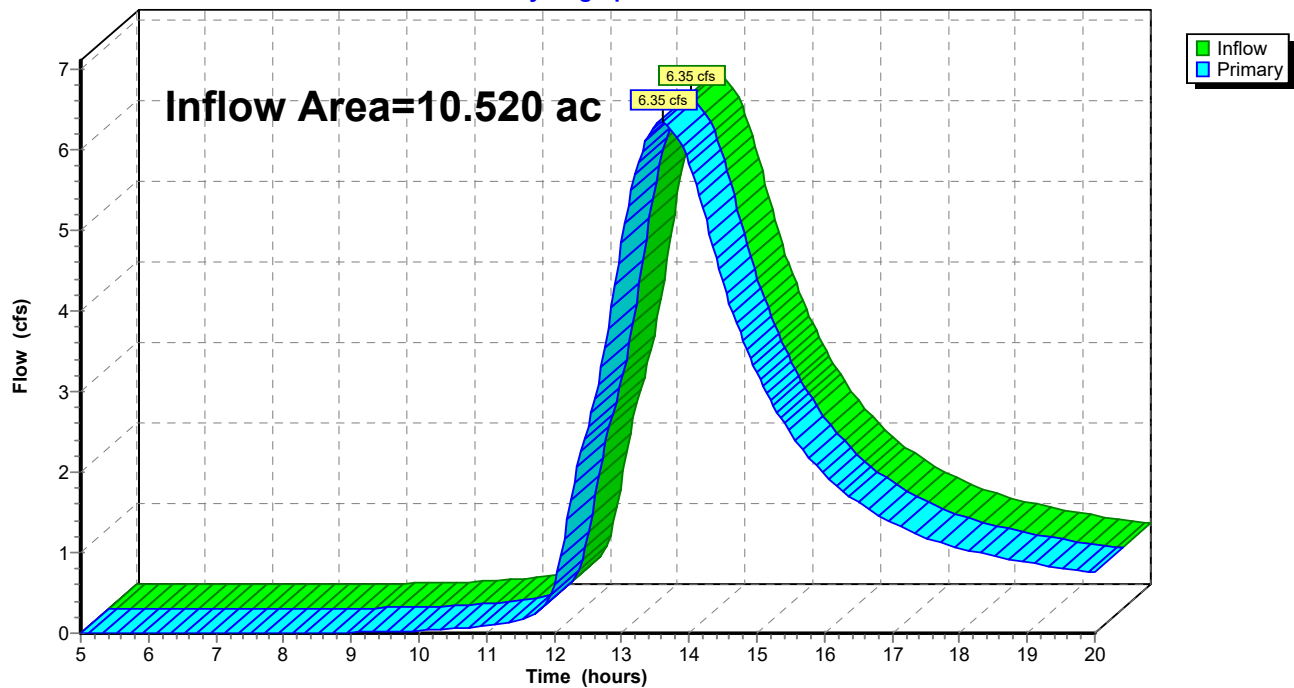
Inlet Invert= 196.00', Outlet Invert= 195.00'

**Reach 2R: 2R****Hydrograph**

Summary for Link x1000: x1000

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 1.93" for 25-year event
Inflow = 6.35 cfs @ 13.60 hrs, Volume= 1.691 af
Primary = 6.35 cfs @ 13.60 hrs, Volume= 1.691 af, Atten= 0%, Lag= 0.0 min

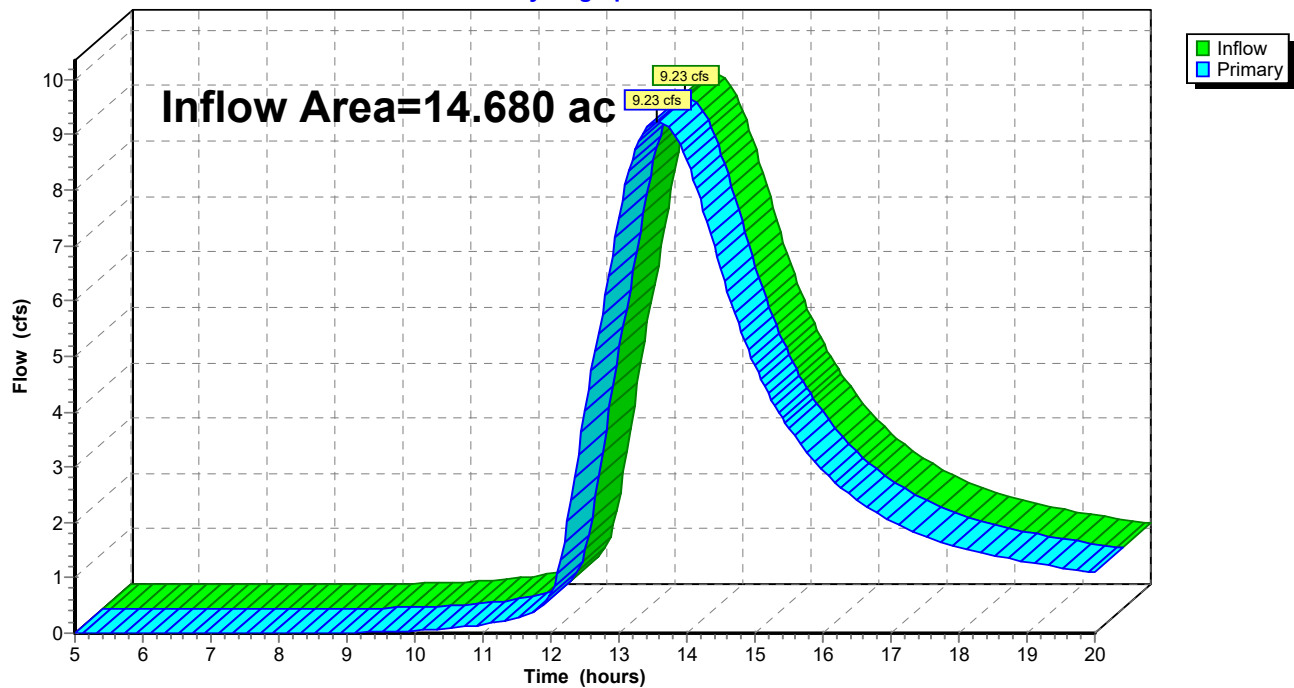
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x1000: x1000**Hydrograph**

Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 2.06" for 25-year event
Inflow = 9.23 cfs @ 13.56 hrs, Volume= 2.514 af
Primary = 9.23 cfs @ 13.56 hrs, Volume= 2.514 af, Atten= 0%, Lag= 0.0 min

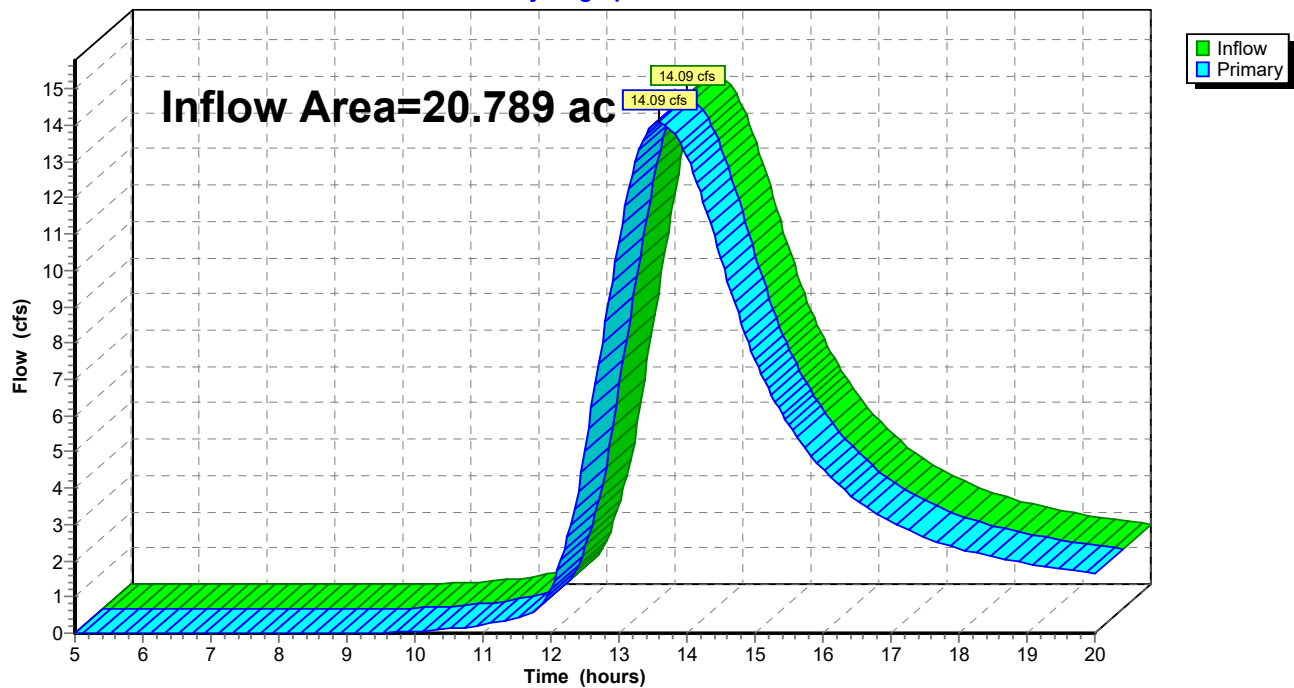
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x2000: x2000**Hydrograph**

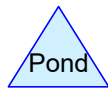
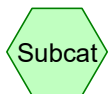
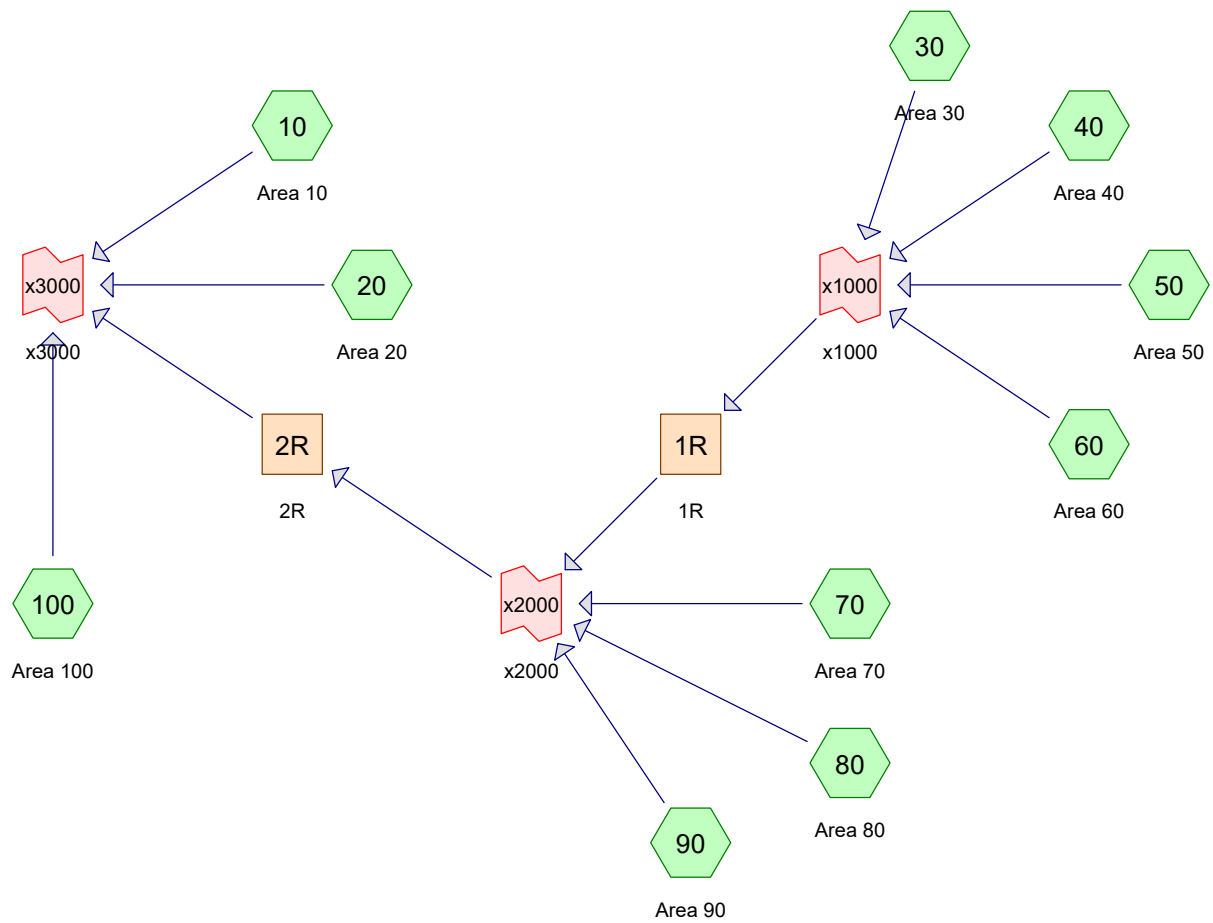
Summary for Link x3000: x3000

Inflow Area = 20.789 ac, 0.00% Impervious, Inflow Depth > 2.19" for 25-year event
Inflow = 14.09 cfs @ 13.58 hrs, Volume= 3.789 af
Primary = 14.09 cfs @ 13.58 hrs, Volume= 3.789 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x3000: x3000**Hydrograph**

100-Year Storm Event – Existing



Routing Diagram for 4298600-EX

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4298600-EX

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-year	Type II 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

4298600-EX

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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
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	

4298600-EX

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Type II 24-hr 100-year Rainfall=7.27"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment10: Area 10	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>3.52" Flow Length=215' Tc=27.3 min CN=70 Runoff=1.06 cfs 0.088 af
Subcatchment20: Area 20	Runoff Area=89,938 sf 0.00% Impervious Runoff Depth>3.62" Flow Length=675' Tc=101.4 min CN=72 Runoff=3.01 cfs 0.622 af
Subcatchment30: Area 30	Runoff Area=20,657 sf 0.00% Impervious Runoff Depth>4.24" Flow Length=370' Tc=40.8 min CN=77 Runoff=1.54 cfs 0.168 af
Subcatchment40: Area 40	Runoff Area=83,662 sf 0.00% Impervious Runoff Depth>4.06" Flow Length=850' Tc=142.4 min CN=77 Runoff=2.47 cfs 0.650 af
Subcatchment50: Area 50	Runoff Area=208,224 sf 0.00% Impervious Runoff Depth>2.87" Flow Length=914' Tc=123.7 min CN=65 Runoff=4.78 cfs 1.145 af
Subcatchment60: Area 60	Runoff Area=145,723 sf 0.00% Impervious Runoff Depth>2.38" Flow Length=835' Tc=130.8 min CN=60 Runoff=2.61 cfs 0.665 af
Subcatchment70: Area 70	Runoff Area=64,469 sf 0.00% Impervious Runoff Depth>3.96" Flow Length=645' Tc=80.7 min CN=75 Runoff=2.78 cfs 0.489 af
Subcatchment80: Area 80	Runoff Area=74,095 sf 0.00% Impervious Runoff Depth>3.22" Flow Length=1,245' Tc=149.8 min CN=69 Runoff=1.68 cfs 0.457 af
Subcatchment90: Area 90	Runoff Area=42,640 sf 0.00% Impervious Runoff Depth>3.66" Flow Length=525' Tc=136.8 min CN=73 Runoff=1.16 cfs 0.298 af
Subcatchment100: Area 100	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>3.86" Flow Length=868' Tc=140.2 min CN=75 Runoff=4.61 cfs 1.203 af
Reach 1R: 1R	Avg. Flow Depth=0.47' Max Vel=1.72 fps Inflow=10.06 cfs 2.628 af n=0.035 L=260.0' S=0.0077 ' ' Capacity=1,021.34 cfs Outflow=10.05 cfs 2.617 af
Reach 2R: 2R	Avg. Flow Depth=0.93' Max Vel=1.61 fps Inflow=14.44 cfs 3.861 af n=0.035 L=360.0' S=0.0028 ' ' Capacity=334.17 cfs Outflow=14.42 cfs 3.837 af
Link x1000: x1000	Inflow=10.06 cfs 2.628 af Primary=10.06 cfs 2.628 af
Link x2000: x2000	Inflow=14.44 cfs 3.861 af Primary=14.44 cfs 3.861 af
Link x3000: x3000	Inflow=21.68 cfs 5.750 af Primary=21.68 cfs 5.750 af

Total Runoff Area = 20.789 ac Runoff Volume = 5.785 af Average Runoff Depth = 3.34"
100.00% Pervious = 20.789 ac 0.00% Impervious = 0.000 ac

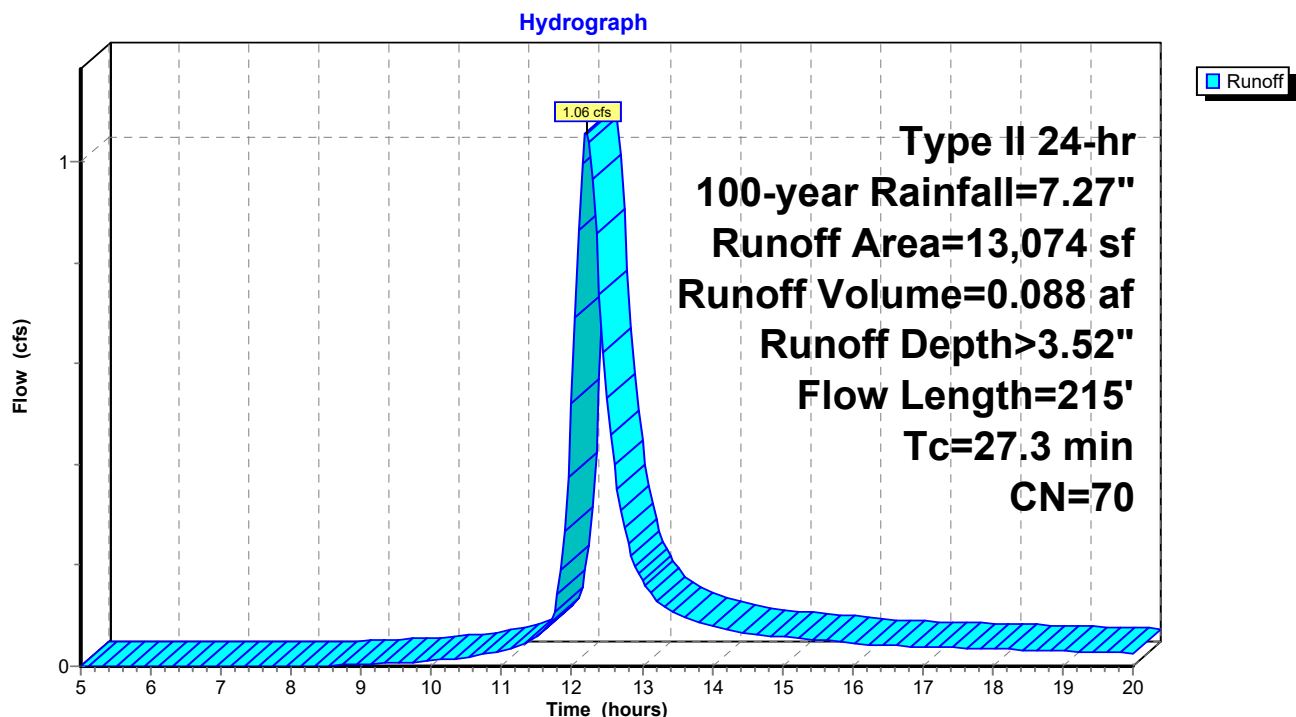
Summary for Subcatchment 10: Area 10

Runoff = 1.06 cfs @ 12.21 hrs, Volume= 0.088 af, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 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

Summary for Subcatchment 20: Area 20

Runoff = 3.01 cfs @ 13.17 hrs, Volume= 0.622 af, Depth> 3.62"

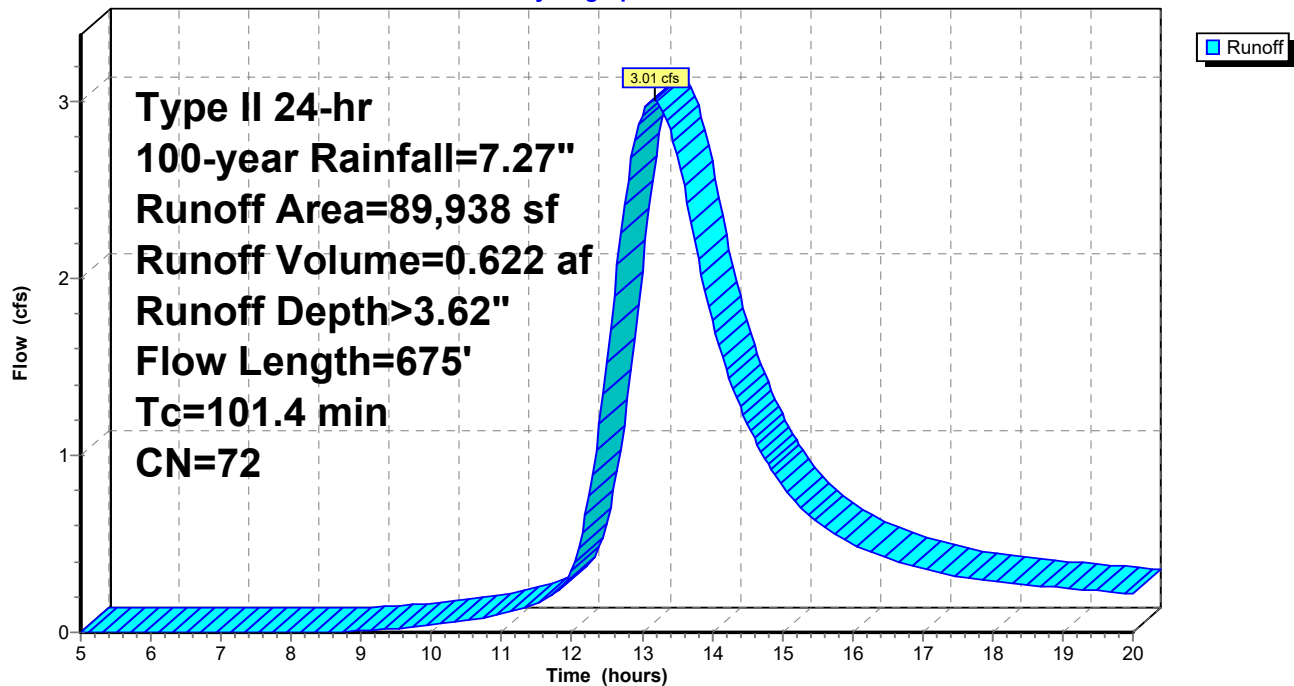
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 30: Area 30

Runoff = 1.54 cfs @ 12.37 hrs, Volume= 0.168 af, Depth> 4.24"

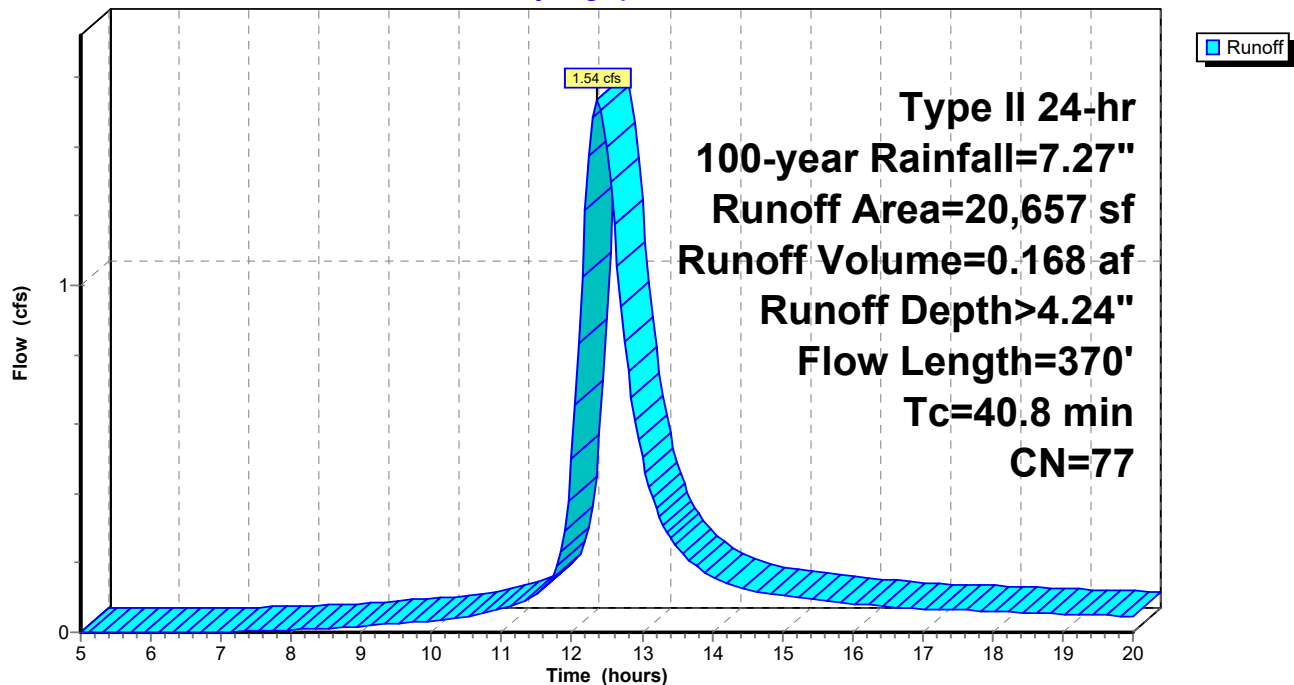
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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'
27.1	320	0.0062	0.20		Woods: Dense underbrush n= 0.800 P2= 3.01"
					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 = 2.47 cfs @ 13.73 hrs, Volume= 0.650 af, Depth> 4.06"

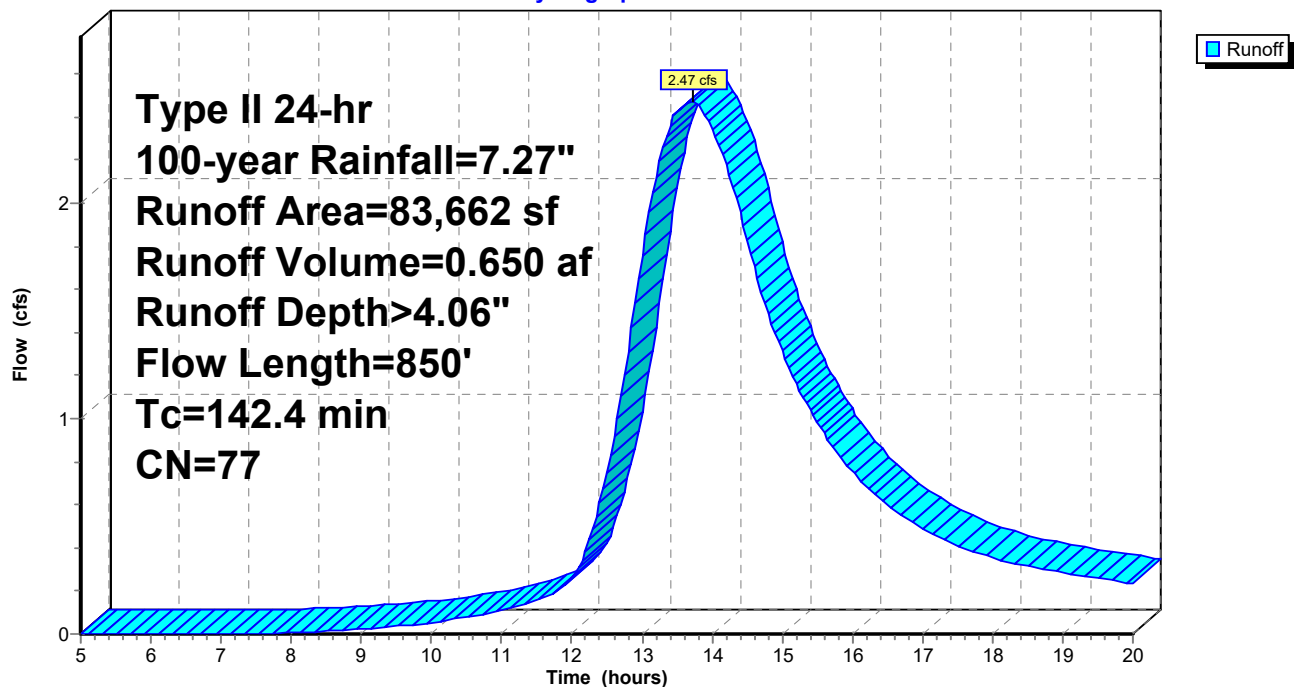
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 50: Area 50

Runoff = 4.78 cfs @ 13.55 hrs, Volume= 1.145 af, Depth> 2.87"

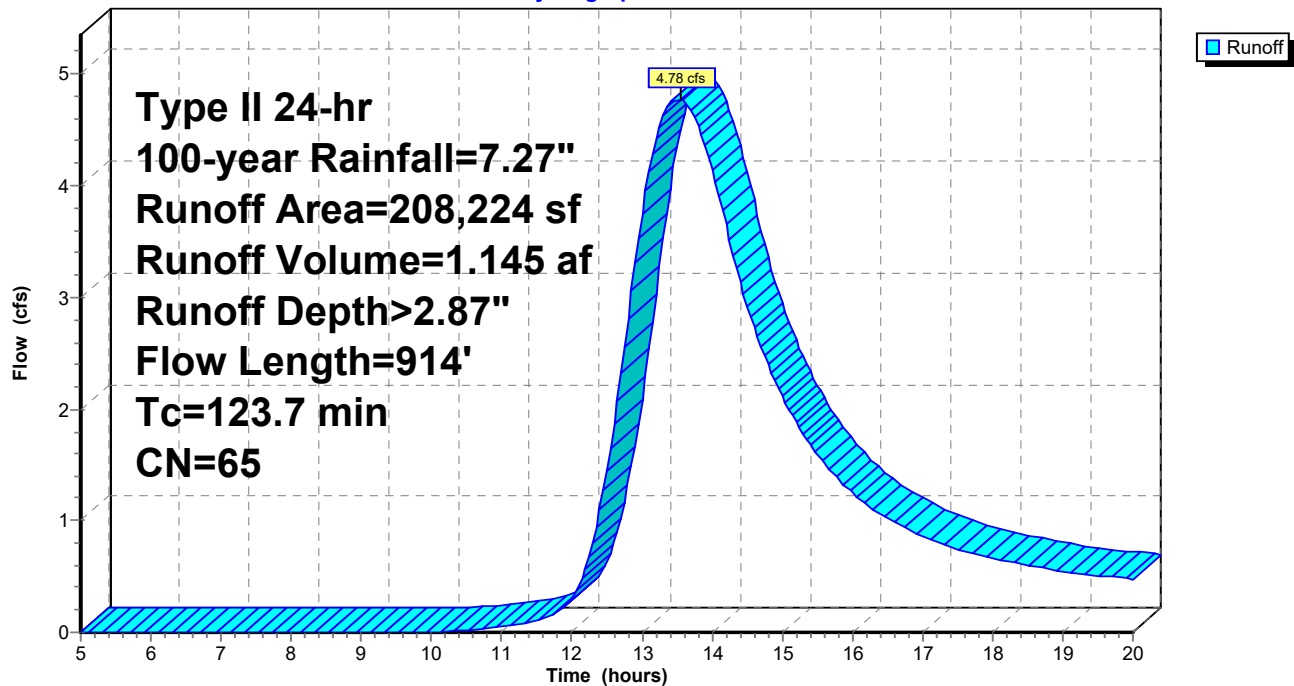
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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 = 2.61 cfs @ 13.57 hrs, Volume= 0.665 af, Depth> 2.38"

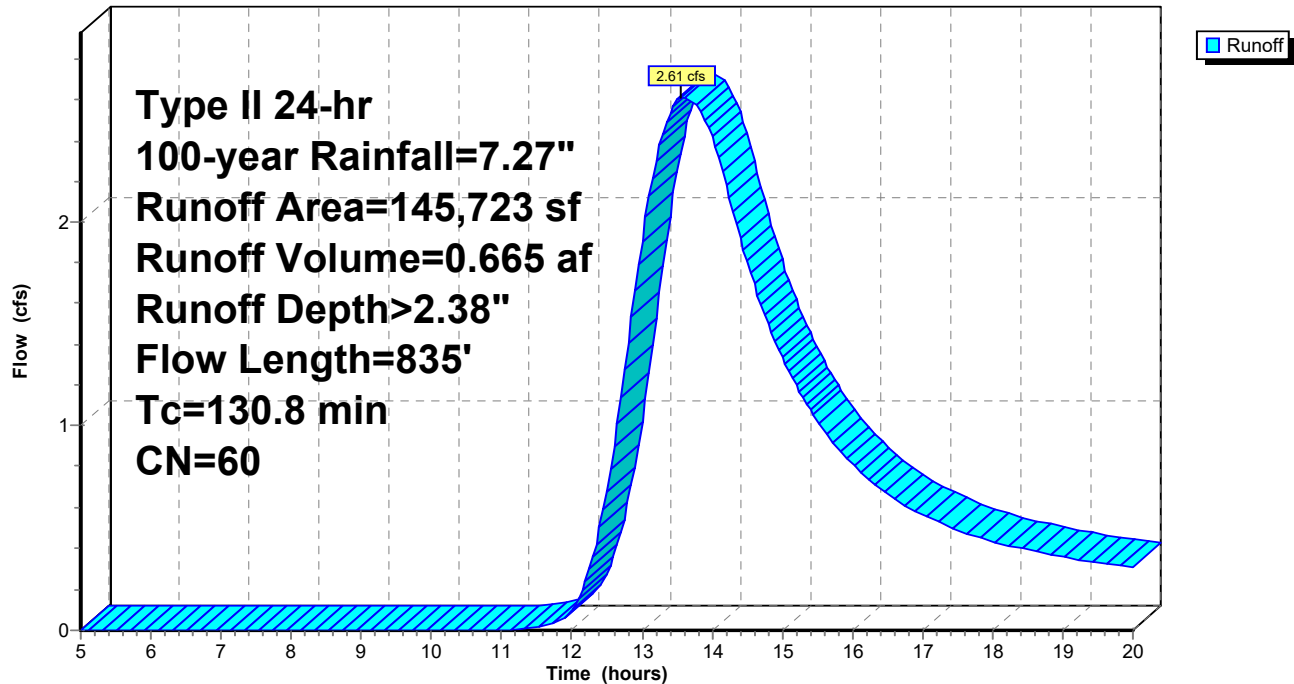
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 70: Area 70

Runoff = 2.78 cfs @ 12.88 hrs, Volume= 0.489 af, Depth> 3.96"

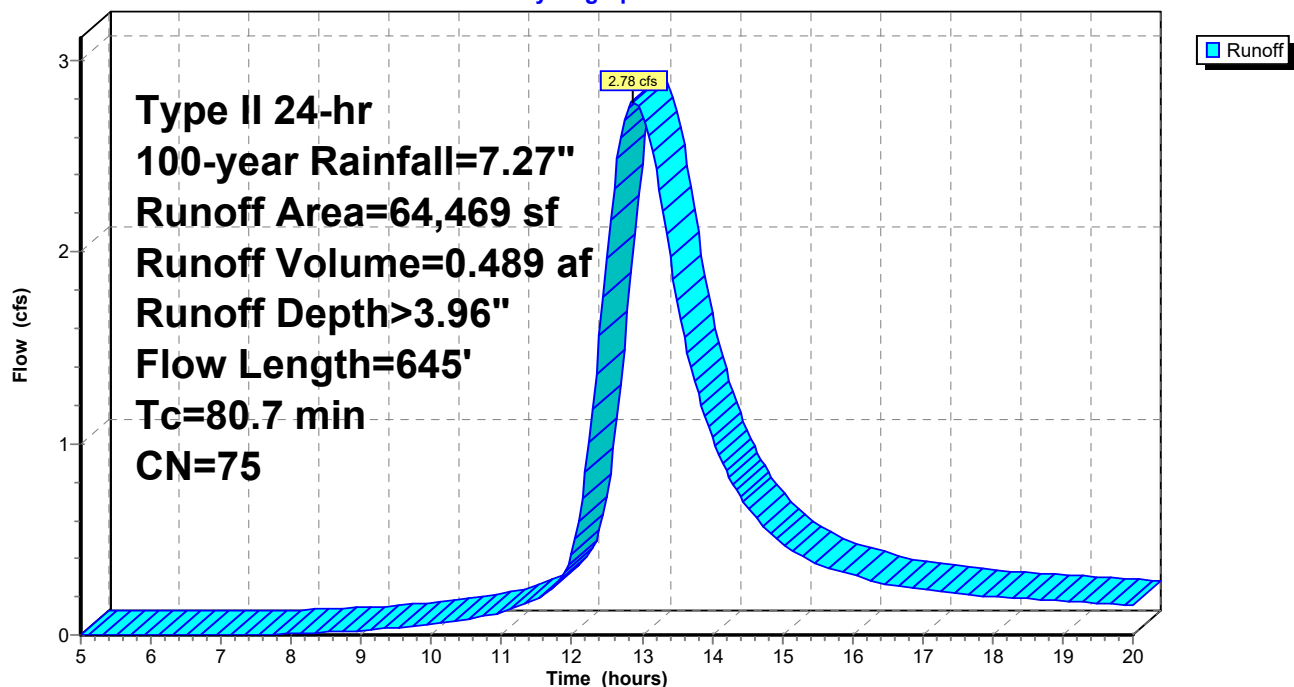
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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 = 1.68 cfs @ 13.81 hrs, Volume= 0.457 af, Depth> 3.22"

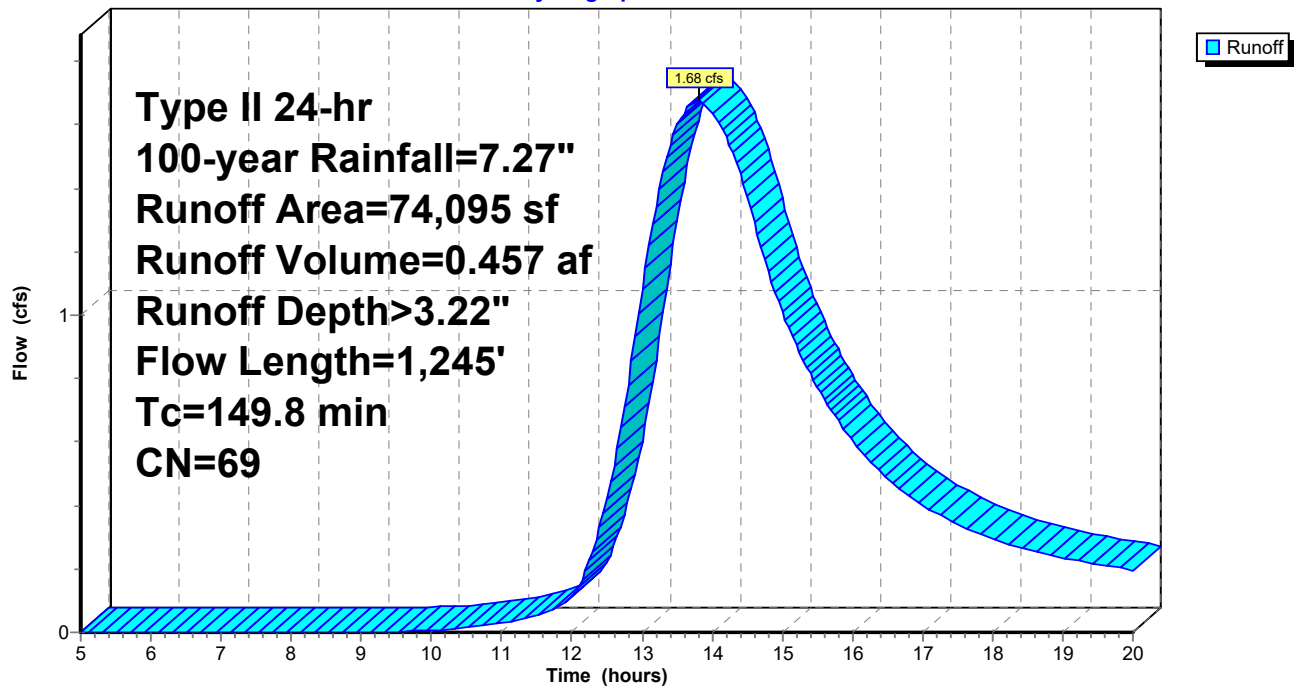
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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 = 1.16 cfs @ 13.64 hrs, Volume= 0.298 af, Depth> 3.66"

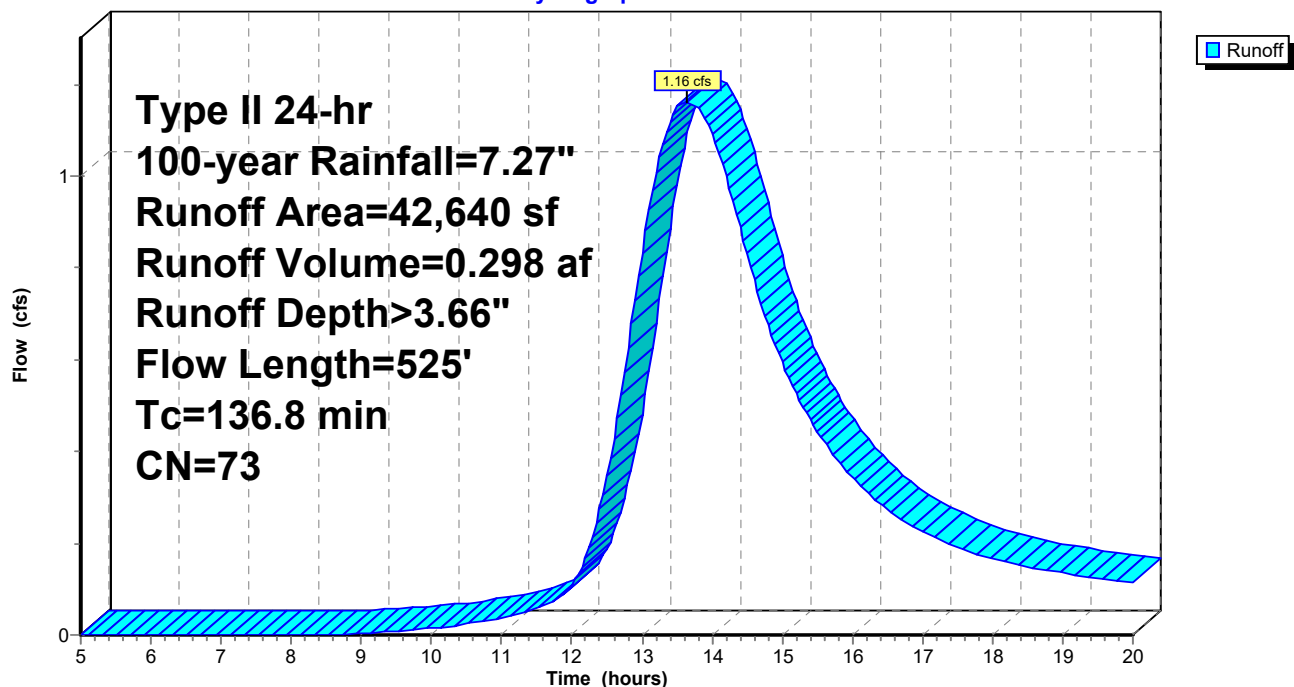
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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 = 4.61 cfs @ 13.69 hrs, Volume= 1.203 af, Depth> 3.86"

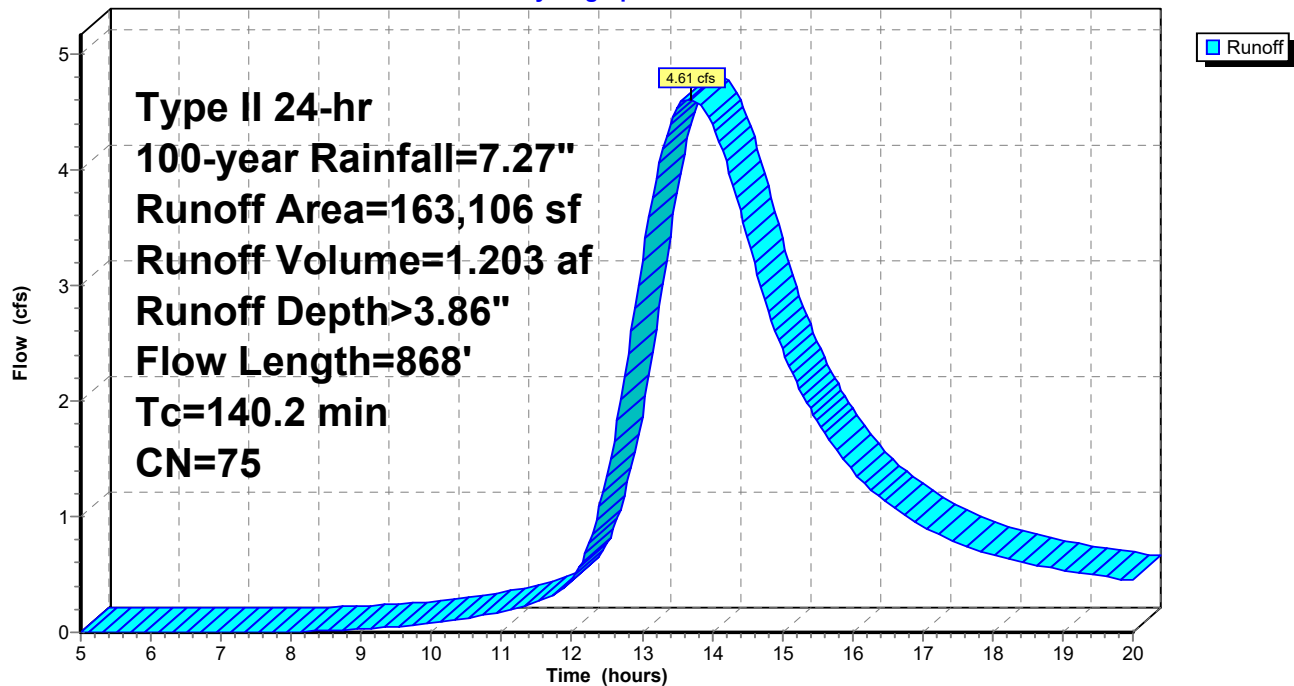
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



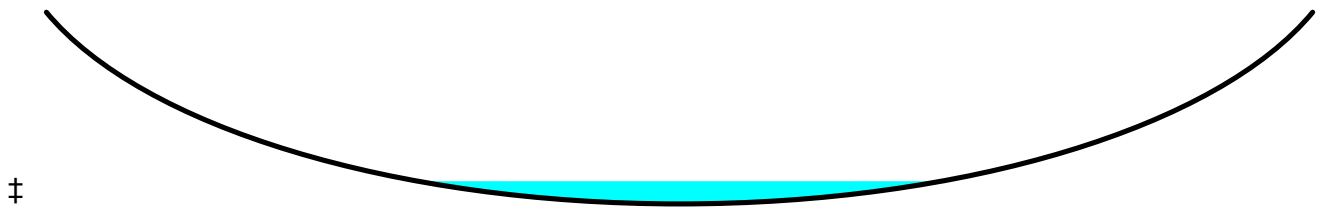
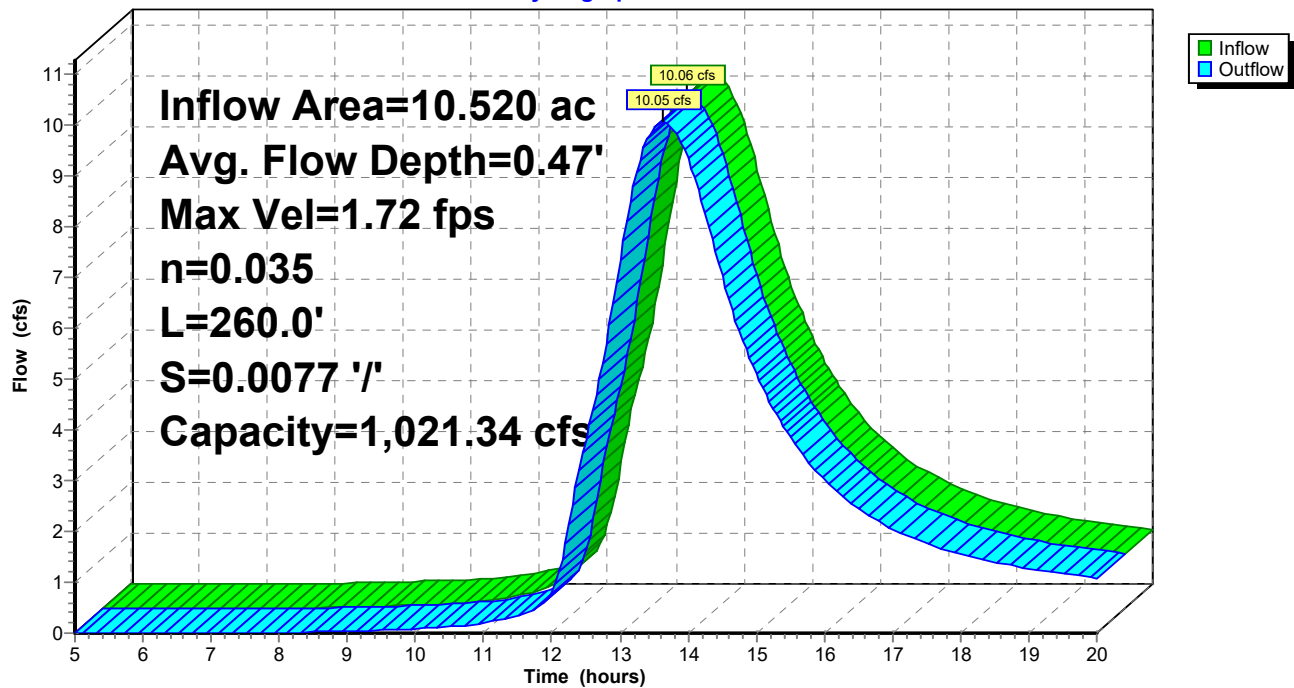
Summary for Reach 1R: 1R

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 3.00" for 100-year event
 Inflow = 10.06 cfs @ 13.58 hrs, Volume= 2.628 af
 Outflow = 10.05 cfs @ 13.64 hrs, Volume= 2.617 af, Atten= 0%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.72 fps, Min. Travel Time= 2.5 min
 Avg. Velocity = 0.89 fps, Avg. Travel Time= 4.9 min

Peak Storage= 1,518 cf @ 13.59 hrs
 Average Depth at Peak Storage= 0.47' , Surface Width= 18.55'
 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 > 3.16" for 100-year event
 Inflow = 14.44 cfs @ 13.52 hrs, Volume= 3.861 af
 Outflow = 14.42 cfs @ 13.63 hrs, Volume= 3.837 af, Atten= 0%, Lag= 6.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.61 fps, Min. Travel Time= 3.7 min

Avg. Velocity = 0.83 fps, Avg. Travel Time= 7.2 min

Peak Storage= 3,219 cf @ 13.57 hrs

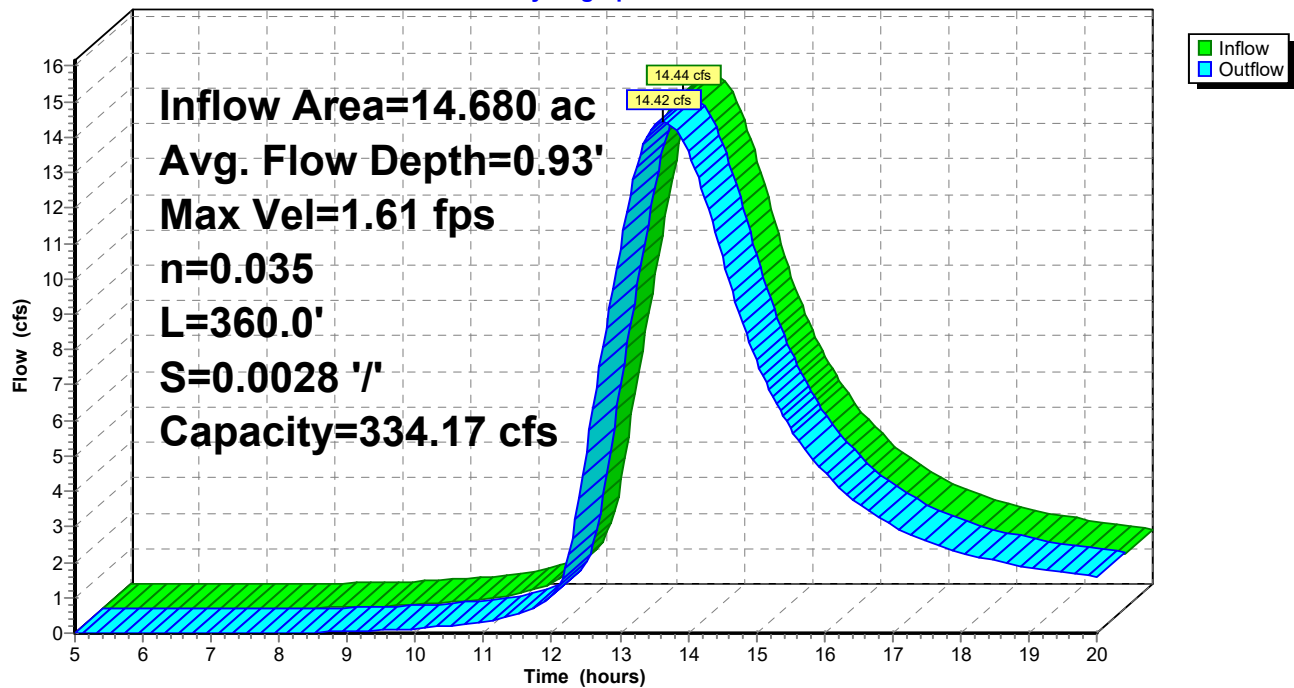
Average Depth at Peak Storage= 0.93' , Surface Width= 14.45'

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 '/'

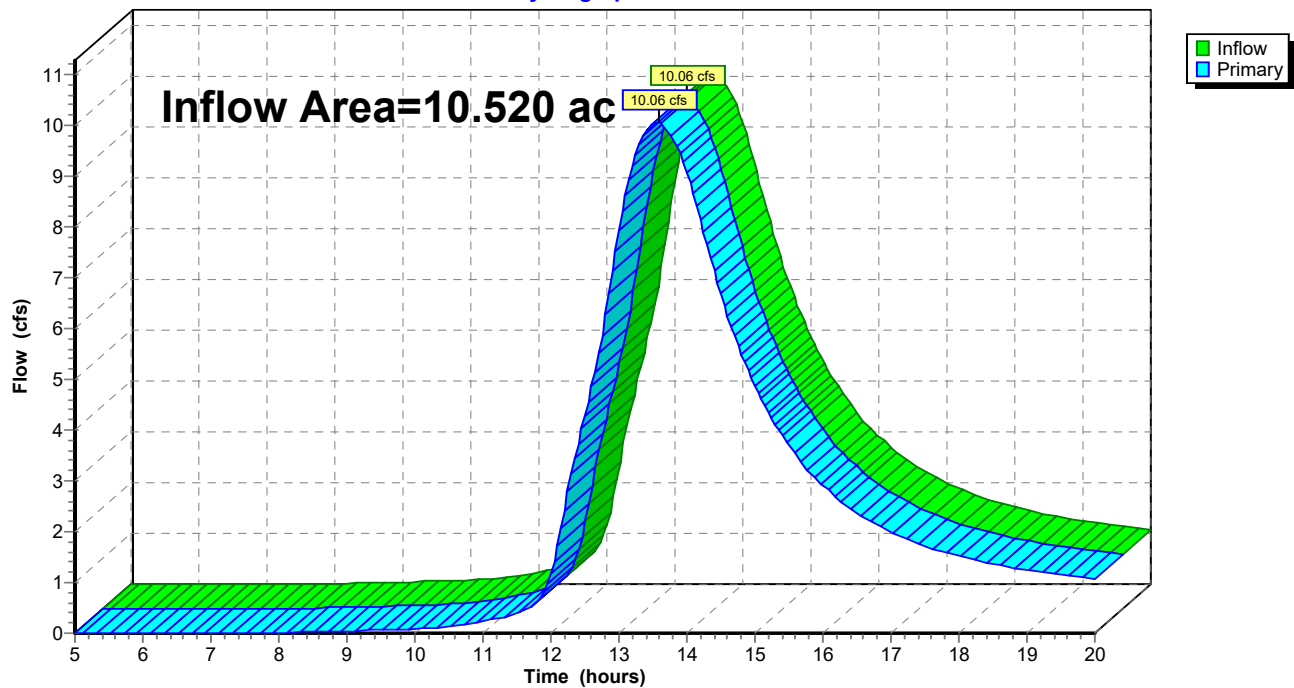
Inlet Invert= 196.00', Outlet Invert= 195.00'

**Reach 2R: 2R****Hydrograph**

Summary for Link x1000: x1000

Inflow Area = 10.520 ac, 0.00% Impervious, Inflow Depth > 3.00" for 100-year event
Inflow = 10.06 cfs @ 13.58 hrs, Volume= 2.628 af
Primary = 10.06 cfs @ 13.58 hrs, Volume= 2.628 af, Atten= 0%, Lag= 0.0 min

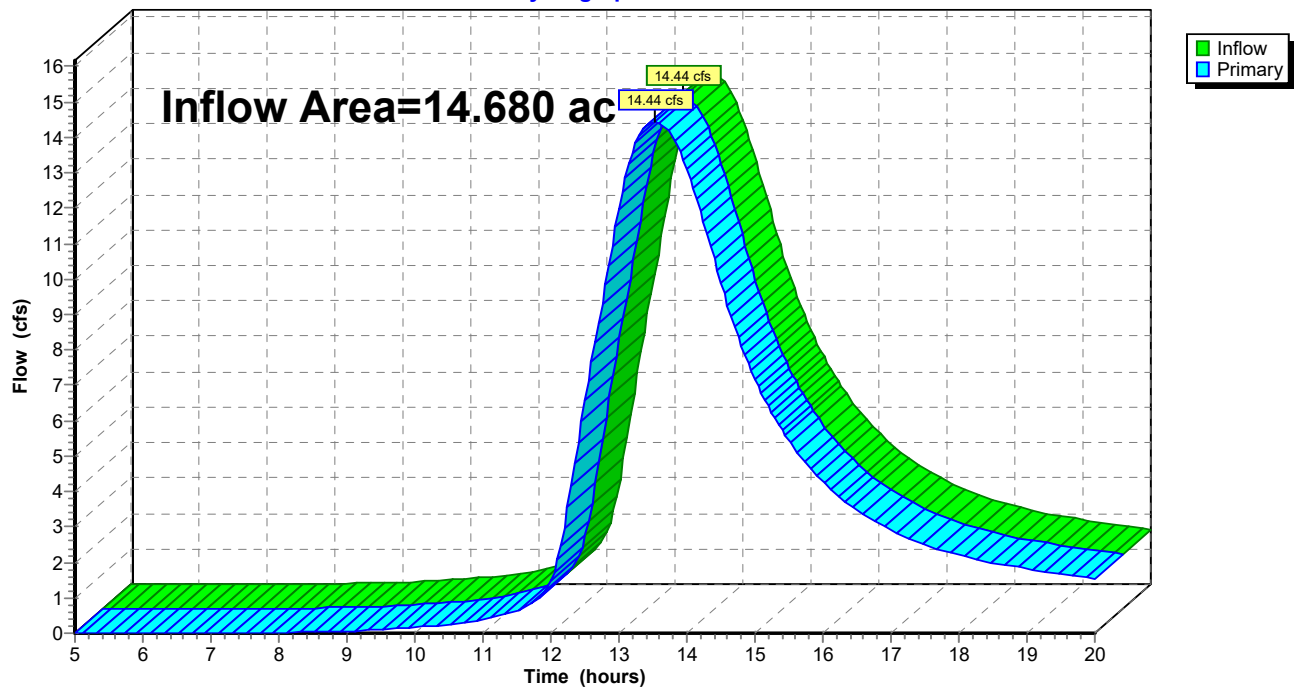
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x1000: x1000**Hydrograph**

Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 0.00% Impervious, Inflow Depth > 3.16" for 100-year event
Inflow = 14.44 cfs @ 13.52 hrs, Volume= 3.861 af
Primary = 14.44 cfs @ 13.52 hrs, Volume= 3.861 af, Atten= 0%, Lag= 0.0 min

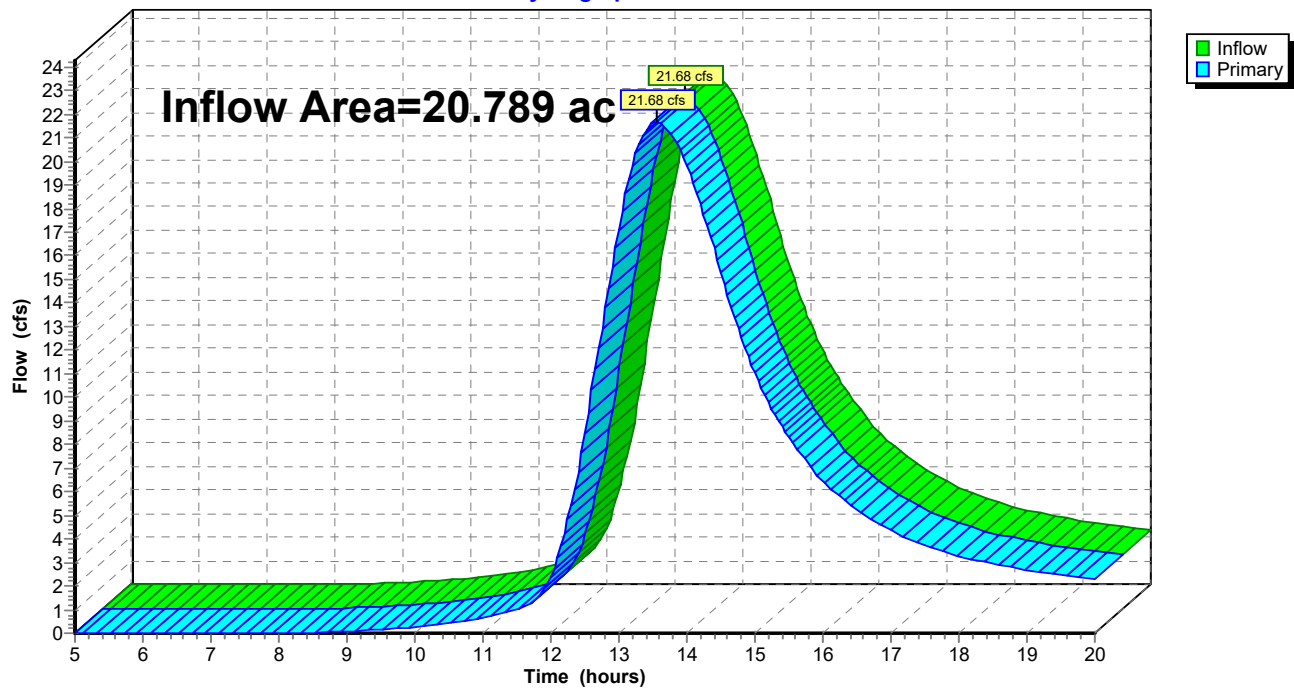
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x2000: x2000**Hydrograph**

Summary for Link x3000: x3000

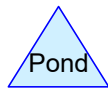
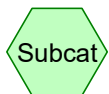
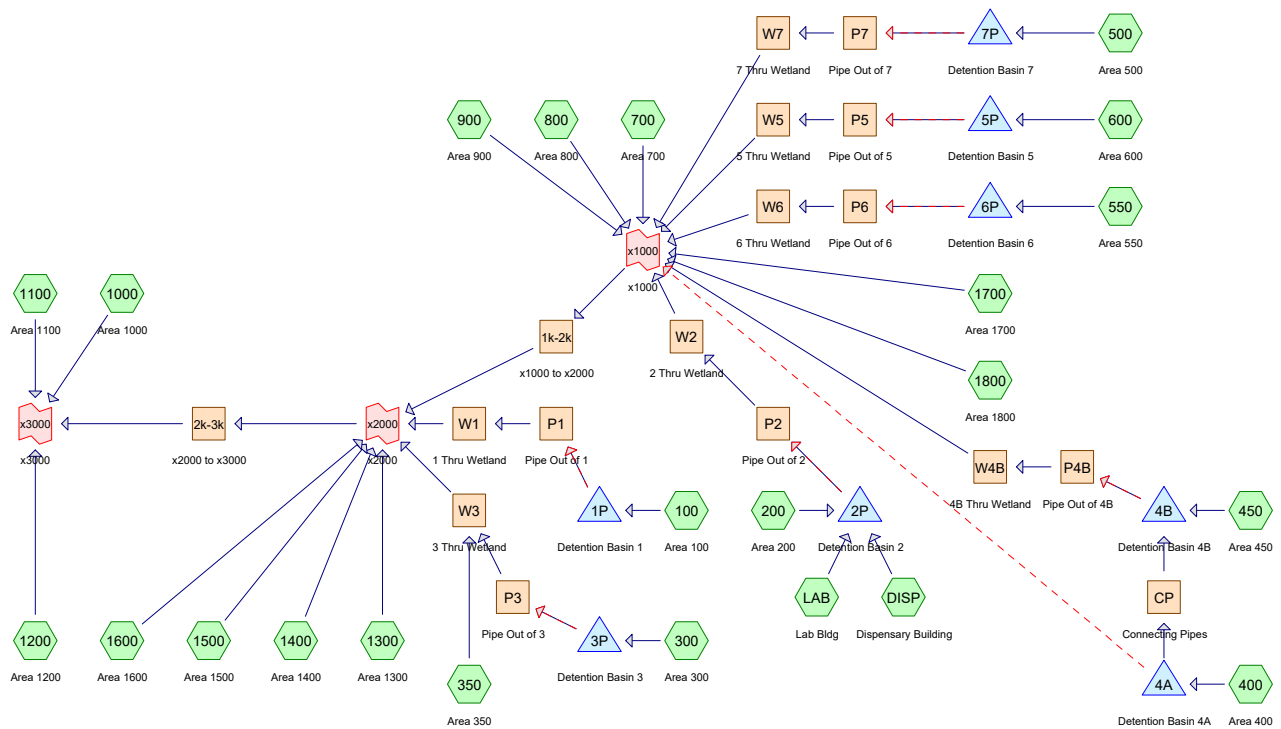
Inflow Area = 20.789 ac, 0.00% Impervious, Inflow Depth > 3.32" for 100-year event
Inflow = 21.68 cfs @ 13.55 hrs, Volume= 5.750 af
Primary = 21.68 cfs @ 13.55 hrs, Volume= 5.750 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link x3000: x3000**Hydrograph**

HydroCAD Analysis: Proposed Conditions

2-Year Storm Event – Proposed



Routing Diagram for 4298600-PR

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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 II 24-hr		Default	24.00	1	3.01	2

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

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

4298600-PR

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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	

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	CP	205.20	205.00	62.0	0.0032	0.011	0.0	15.0	0.0
3	P1	204.00	203.60	78.0	0.0051	0.013	0.0	12.0	0.0
4	P2	204.00	203.70	60.0	0.0050	0.013	0.0	12.0	0.0
5	P3	205.00	204.80	40.0	0.0050	0.013	0.0	12.0	0.0
6	P4B	205.00	204.00	182.0	0.0055	0.013	0.0	12.0	0.0
7	P5	204.00	203.80	35.0	0.0057	0.013	0.0	12.0	0.0
8	P6	206.00	205.50	60.0	0.0083	0.013	0.0	12.0	0.0
9	P7	206.00	204.00	290.0	0.0069	0.013	0.0	12.0	0.0

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

Subcatchment100: Area 100	Runoff Area=21,241 sf 39.36% Impervious Runoff Depth>1.62" Tc=6.0 min CN=87 Runoff=1.49 cfs 0.066 af
Subcatchment200: Area 200	Runoff Area=7,259 sf 21.45% Impervious Runoff Depth>1.40" Tc=6.0 min CN=84 Runoff=0.45 cfs 0.019 af
Subcatchment300: Area 300	Runoff Area=25,373 sf 47.63% Impervious Runoff Depth>1.70" Tc=6.0 min CN=88 Runoff=1.85 cfs 0.082 af
Subcatchment350: Area 350	Runoff Area=2,640 sf 0.00% Impervious Runoff Depth>0.64" Tc=6.0 min CN=70 Runoff=0.07 cfs 0.003 af
Subcatchment400: Area 400	Runoff Area=17,459 sf 54.77% Impervious Runoff Depth>1.70" Tc=6.0 min CN=88 Runoff=1.27 cfs 0.057 af
Subcatchment450: Area 450	Runoff Area=5,879 sf 0.00% Impervious Runoff Depth>0.26" Tc=6.0 min CN=59 Runoff=0.05 cfs 0.003 af
Subcatchment500: 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
Subcatchment550: Area 550	Runoff Area=24,095 sf 65.72% Impervious Runoff Depth>1.27" Tc=6.0 min CN=82 Runoff=1.36 cfs 0.059 af
Subcatchment600: Area 600	Runoff Area=44,164 sf 81.56% Impervious Runoff Depth>2.22" Tc=6.0 min CN=94 Runoff=3.94 cfs 0.187 af
Subcatchment700: Area 700	Runoff Area=155,394 sf 0.00% Impervious Runoff Depth>0.72" Flow Length=914' Tc=123.7 min CN=73 Runoff=0.85 cfs 0.215 af
Subcatchment800: Area 800	Runoff Area=83,661 sf 0.00% Impervious Runoff Depth>0.91" Flow Length=850' Tc=142.4 min CN=77 Runoff=0.54 cfs 0.145 af
Subcatchment900: Area 900	Runoff Area=20,660 sf 0.00% Impervious Runoff Depth>0.96" Flow Length=370' Tc=40.8 min CN=77 Runoff=0.34 cfs 0.038 af
Subcatchment1000: Area 1000	Runoff Area=89,935 sf 0.00% Impervious Runoff Depth>0.69" Flow Length=675' Tc=101.4 min CN=72 Runoff=0.52 cfs 0.118 af
Subcatchment1100: Area 1100	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>0.63" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.17 cfs 0.016 af
Subcatchment1200: Area 1200	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>0.81" Flow Length=868' Tc=140.2 min CN=75 Runoff=0.93 cfs 0.252 af
Subcatchment1300: Area 1300	Runoff Area=41,280 sf 0.00% Impervious Runoff Depth>0.72" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.21 cfs 0.056 af

Subcatchment1400: Area 1400	Runoff Area=43,924 sf 0.00% Impervious Runoff Depth>0.80" Flow Length=410' Tc=58.3 min CN=74 Runoff=0.45 cfs 0.067 af
Subcatchment1500: Area 1500	Runoff Area=15,037 sf 0.00% Impervious Runoff Depth>0.93" Flow Length=661' Tc=110.0 min CN=77 Runoff=0.12 cfs 0.027 af
Subcatchment1600: Area 1600	Runoff Area=22,207 sf 0.00% Impervious Runoff Depth>0.15" Flow Length=1,245' Tc=149.8 min CN=56 Runoff=0.02 cfs 0.007 af
Subcatchment1700: 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
Subcatchment1800: Area 1800	Runoff Area=52,490 sf 0.78% Impervious Runoff Depth>0.63" Flow Length=615' Tc=135.0 min CN=71 Runoff=0.23 cfs 0.063 af
SubcatchmentDISP: Dispensary Building	Runoff Area=4,073 sf 100.00% Impervious Runoff Depth>2.63" Tc=6.0 min CN=98 Runoff=0.39 cfs 0.020 af
SubcatchmentLAB: Lab Bldg	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>2.63" Tc=6.0 min CN=98 Runoff=0.48 cfs 0.025 af
Reach 1k-2k: x1000 to x2000	Avg. Flow Depth=0.21' Max Vel=1.01 fps Inflow=1.74 cfs 0.572 af n=0.035 L=260.0' S=0.0077 ' Capacity=1,021.34 cfs Outflow=1.74 cfs 0.565 af
Reach 2k-3k: x2000 to x3000	Avg. Flow Depth=0.39' Max Vel=0.91 fps Inflow=2.20 cfs 0.741 af n=0.035 L=360.0' S=0.0028 ' Capacity=334.17 cfs Outflow=2.19 cfs 0.727 af
Reach CP: Connecting Pipes	Avg. Flow Depth=0.31' Max Vel=2.46 fps Inflow=1.17 cfs 0.056 af 15.0" Round Pipe x 2.00 n=0.011 L=62.0' S=0.0032 ' Capacity=8.67 cfs Outflow=1.15 cfs 0.056 af
Reach P1: Pipe Out of 1	Avg. Flow Depth=0.09' Max Vel=1.22 fps Inflow=0.04 cfs 0.027 af 12.0" Round Pipe n=0.013 L=78.0' S=0.0051 ' Capacity=2.55 cfs Outflow=0.04 cfs 0.027 af
Reach P2: Pipe Out of 2	Avg. Flow Depth=0.12' Max Vel=1.42 fps Inflow=0.07 cfs 0.047 af 12.0" Round Pipe n=0.013 L=60.0' S=0.0050 ' Capacity=2.52 cfs Outflow=0.07 cfs 0.046 af
Reach P3: Pipe Out of 3	Avg. Flow Depth=0.12' Max Vel=1.42 fps Inflow=0.07 cfs 0.046 af 12.0" Round Pipe n=0.013 L=40.0' S=0.0050 ' Capacity=2.52 cfs Outflow=0.07 cfs 0.046 af
Reach P4B: Pipe Out of 4B	Avg. Flow Depth=0.11' Max Vel=1.43 fps Inflow=0.07 cfs 0.040 af 12.0" Round Pipe n=0.013 L=182.0' S=0.0055 ' Capacity=2.64 cfs Outflow=0.07 cfs 0.040 af
Reach P5: Pipe Out of 5	Avg. Flow Depth=0.15' Max Vel=1.77 fps Inflow=0.13 cfs 0.094 af 12.0" Round Pipe n=0.013 L=35.0' S=0.0057 ' Capacity=2.69 cfs Outflow=0.13 cfs 0.094 af
Reach P6: Pipe Out of 6	Avg. Flow Depth=0.05' Max Vel=1.05 fps Inflow=0.01 cfs 0.003 af 12.0" Round Pipe n=0.013 L=60.0' S=0.0083 ' Capacity=3.25 cfs Outflow=0.01 cfs 0.003 af
Reach P7: Pipe Out of 7	Avg. Flow Depth=0.02' Max Vel=0.54 fps Inflow=0.00 cfs 0.001 af 12.0" Round Pipe n=0.013 L=290.0' S=0.0069 ' Capacity=2.96 cfs Outflow=0.00 cfs 0.001 af

Reach W1: 1 Thru Wetland	Avg. Flow Depth=0.13' Max Vel=0.05 fps Inflow=0.04 cfs 0.027 af n=0.800 L=335.0' S=0.0197 ' Capacity=3.31 cfs Outflow=0.04 cfs 0.015 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=0.13 cfs 0.050 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 0.070 af
Reach W6: 6 Thru Wetland	Avg. Flow Depth=0.04' Max Vel=0.02 fps Inflow=0.01 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 1P: Detention Basin 1	Peak Elev=204.25' Storage=1,955 cf Inflow=1.49 cfs 0.066 af Primary=0.04 cfs 0.027 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.027 af
Pond 2P: Detention Basin 2	Peak Elev=204.57' Storage=1,693 cf Inflow=1.33 cfs 0.065 af Primary=0.07 cfs 0.047 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.047 af
Pond 3P: Detention Basin 3	Peak Elev=205.56' Storage=2,274 cf Inflow=1.85 cfs 0.082 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=205.56' Storage=273 cf Inflow=1.27 cfs 0.057 af Primary=1.17 cfs 0.056 af Secondary=0.00 cfs 0.000 af Outflow=1.17 cfs 0.056 af
Pond 4B: Detention Basin 4B	Peak Elev=205.50' Storage=1,494 cf Inflow=1.20 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=205.64' Storage=5,323 cf Inflow=3.94 cfs 0.187 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=2,441 cf Inflow=1.36 cfs 0.059 af Primary=0.01 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af
Pond 7P: Detention Basin 7	Peak Elev=206.04' Storage=109 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=1.74 cfs 0.572 af Primary=1.74 cfs 0.572 af
Link x2000: x2000	Inflow=2.20 cfs 0.741 af Primary=2.20 cfs 0.741 af

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

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Link x3000: x3000

Inflow=3.54 cfs 1.113 af

Primary=3.54 cfs 1.113 af

Total Runoff Area = 20.790 ac Runoff Volume = 1.529 af Average Runoff Depth = 0.88"
89.17% Pervious = 18.538 ac 10.83% Impervious = 2.251 ac

Summary for Subcatchment 100: Area 100

Runoff = 1.49 cfs @ 11.97 hrs, Volume= 0.066 af, Depth> 1.62"

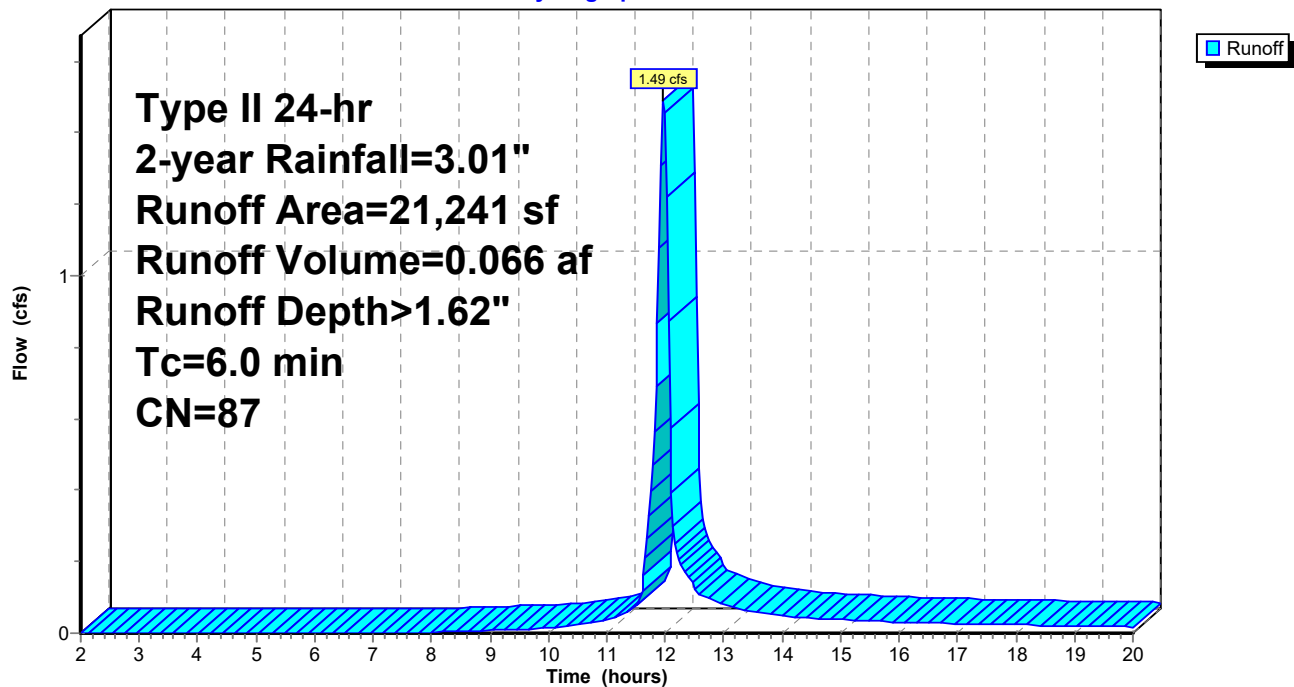
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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

Hydrograph



Summary for Subcatchment 200: Area 200

Runoff = 0.45 cfs @ 11.97 hrs, Volume= 0.019 af, Depth> 1.40"

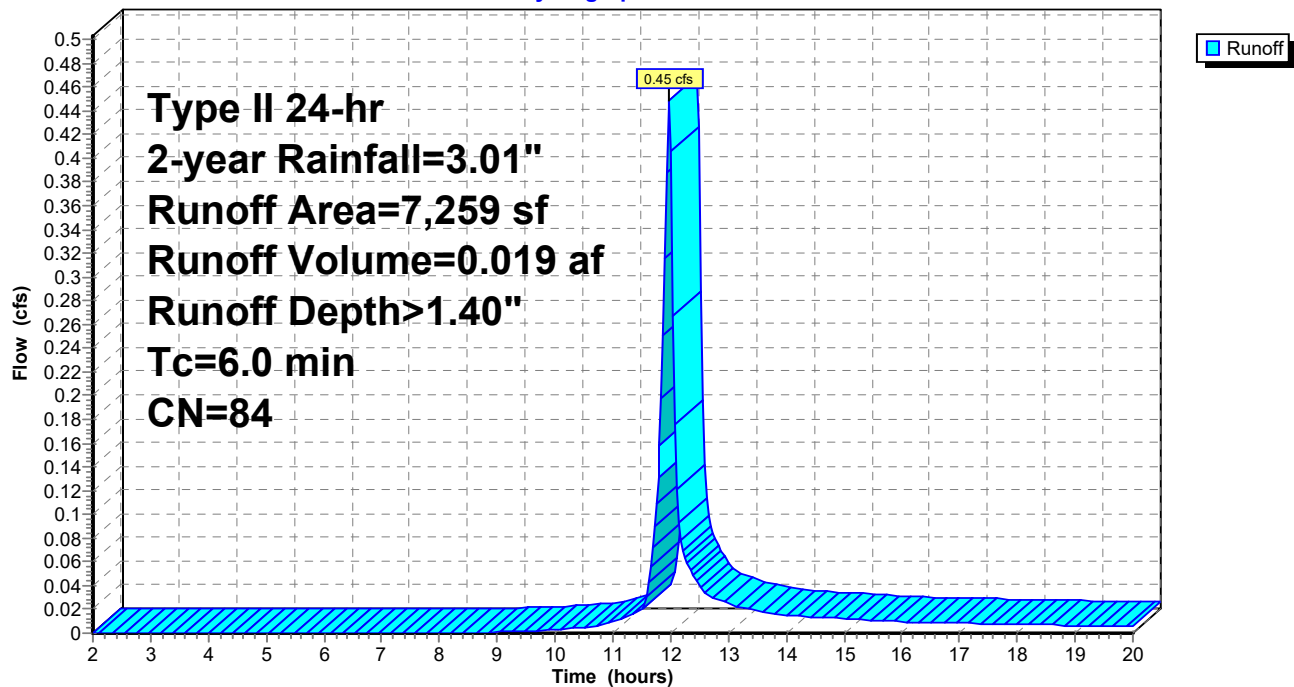
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



Summary for Subcatchment 300: Area 300

Runoff = 1.85 cfs @ 11.97 hrs, Volume= 0.082 af, Depth> 1.70"

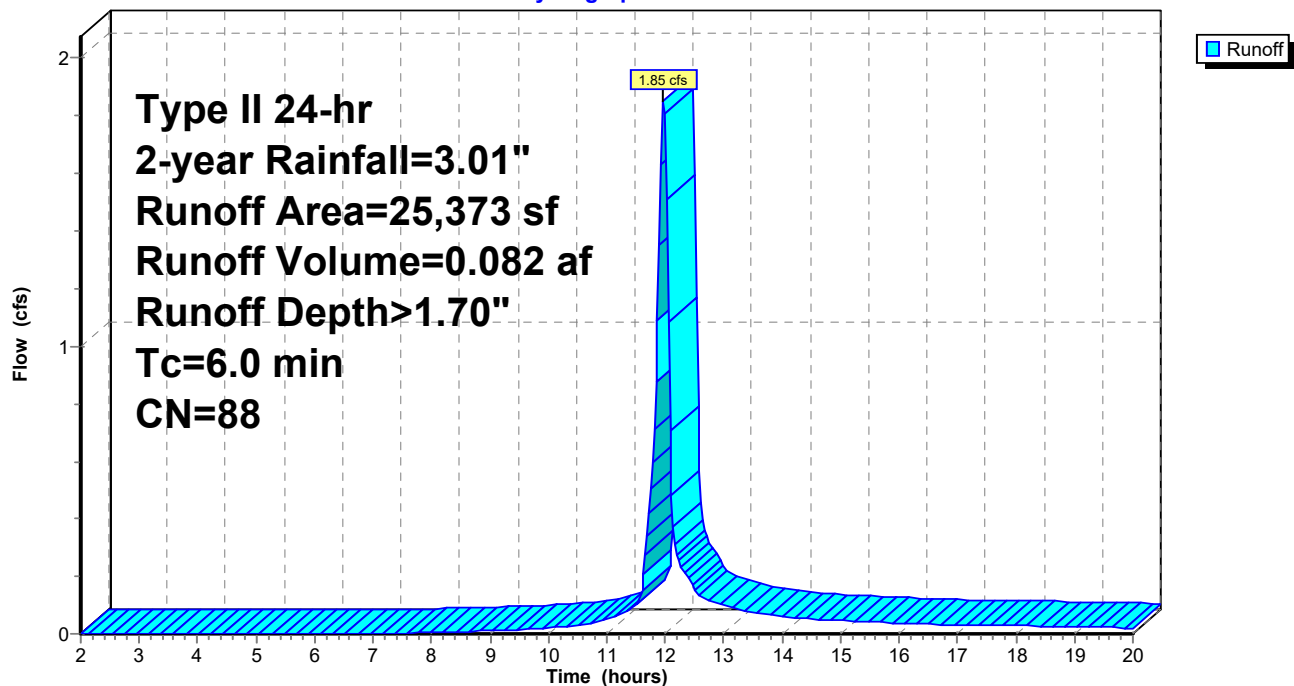
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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

Hydrograph



Summary for Subcatchment 350: Area 350

Runoff = 0.07 cfs @ 11.98 hrs, Volume= 0.003 af, Depth> 0.64"

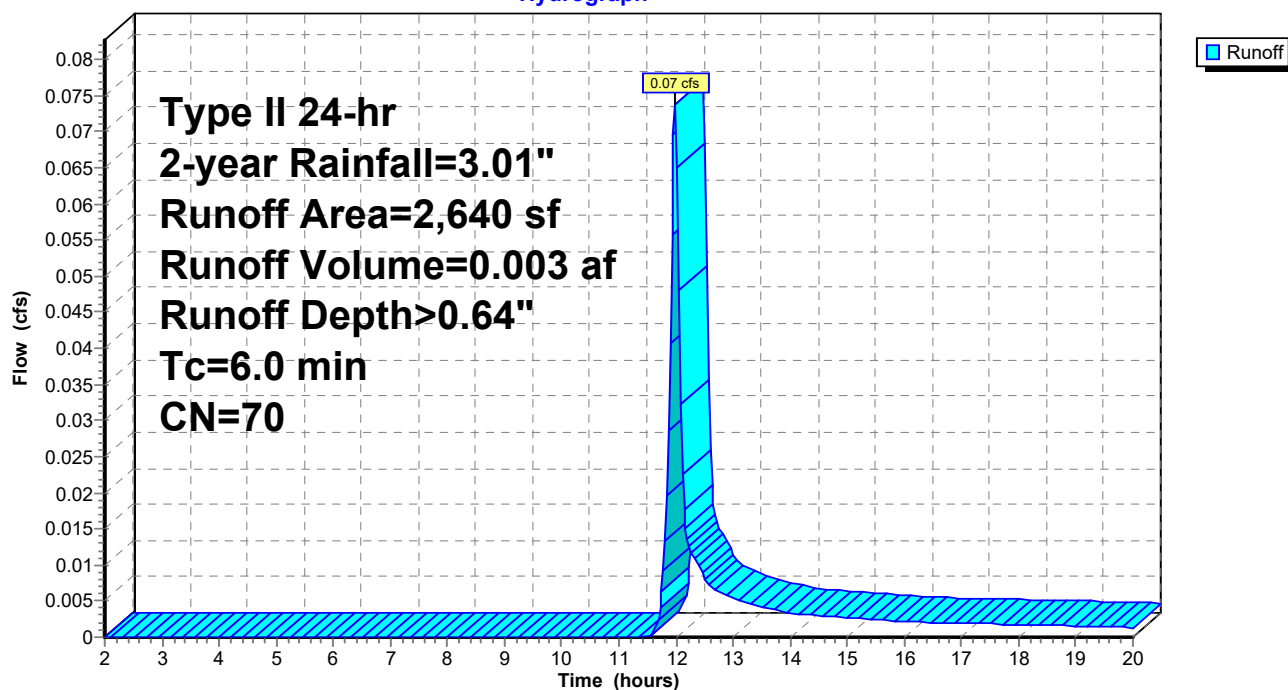
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



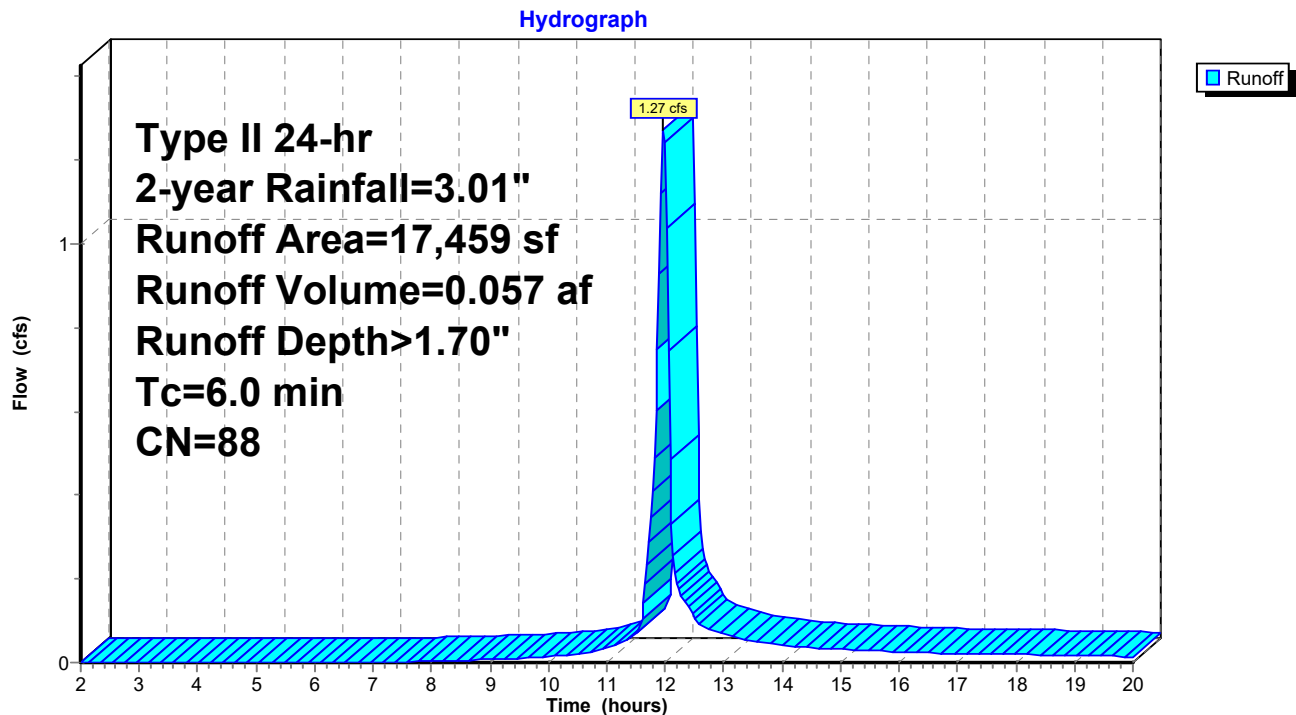
Summary for Subcatchment 400: Area 400

Runoff = 1.27 cfs @ 11.97 hrs, Volume= 0.057 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 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

Summary for Subcatchment 450: Area 450

Runoff = 0.05 cfs @ 12.01 hrs, Volume= 0.003 af, Depth> 0.26"

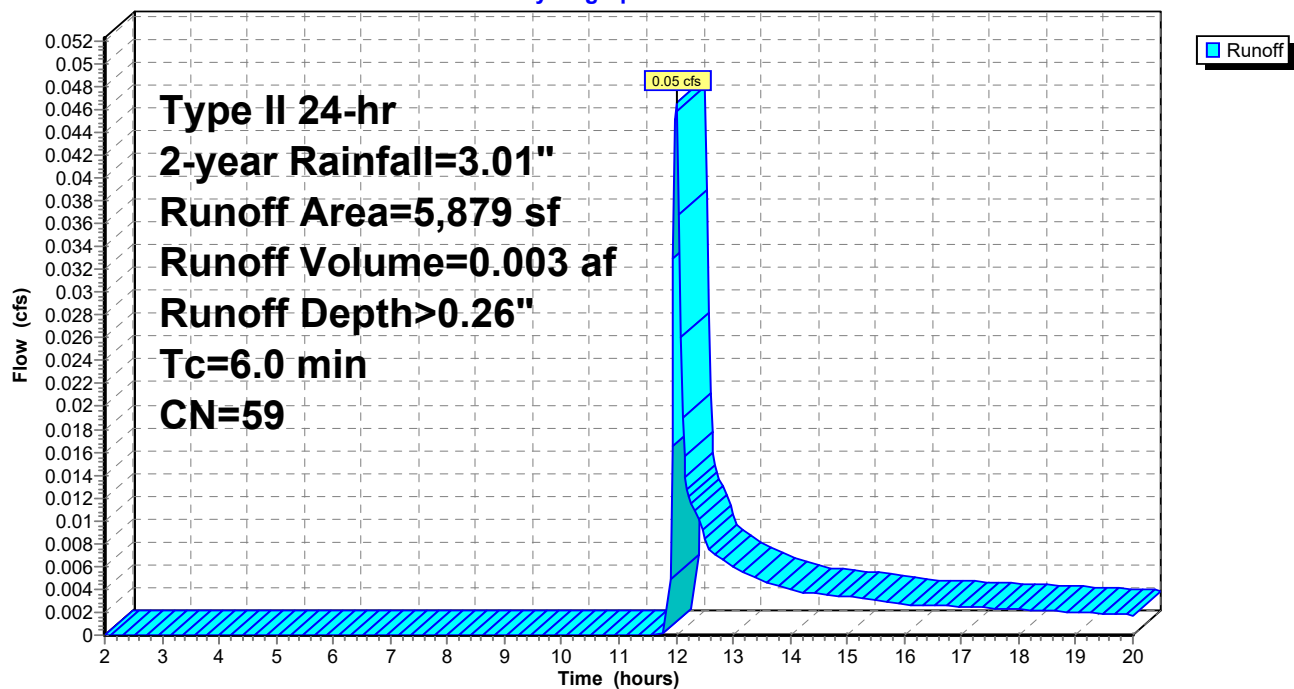
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 @ 12.89 hrs, Volume= 0.003 af, Depth> 0.07"

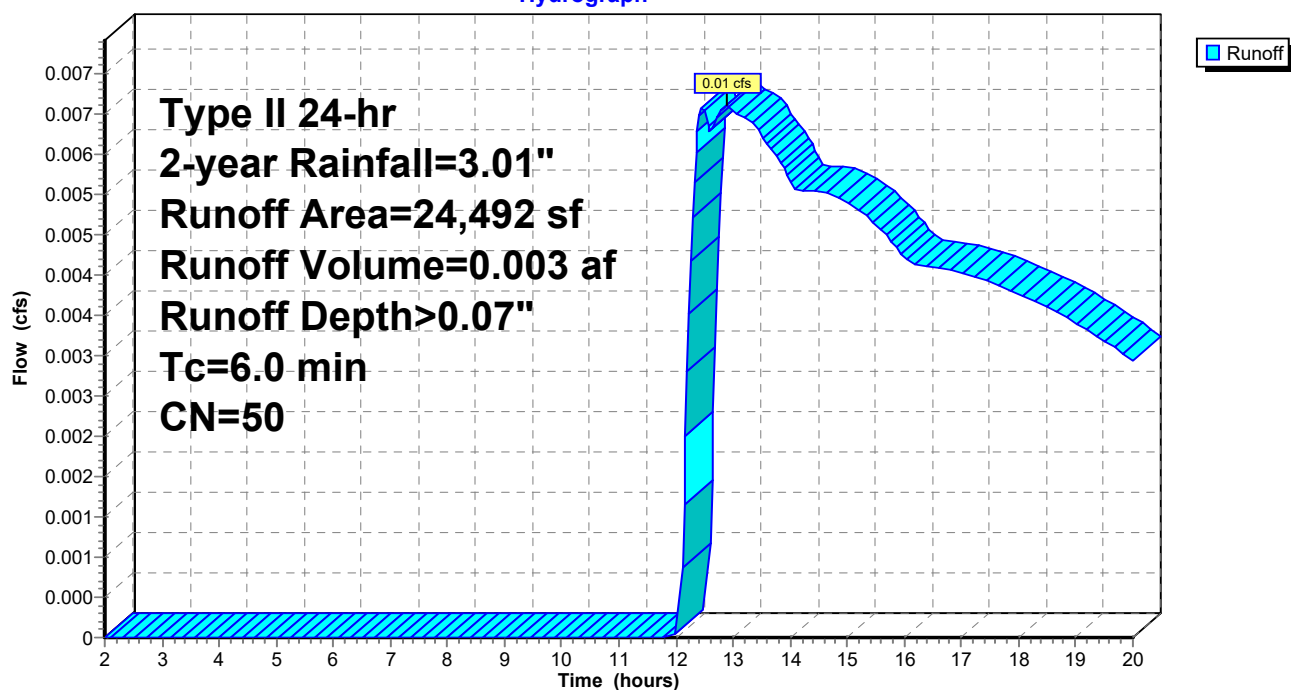
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



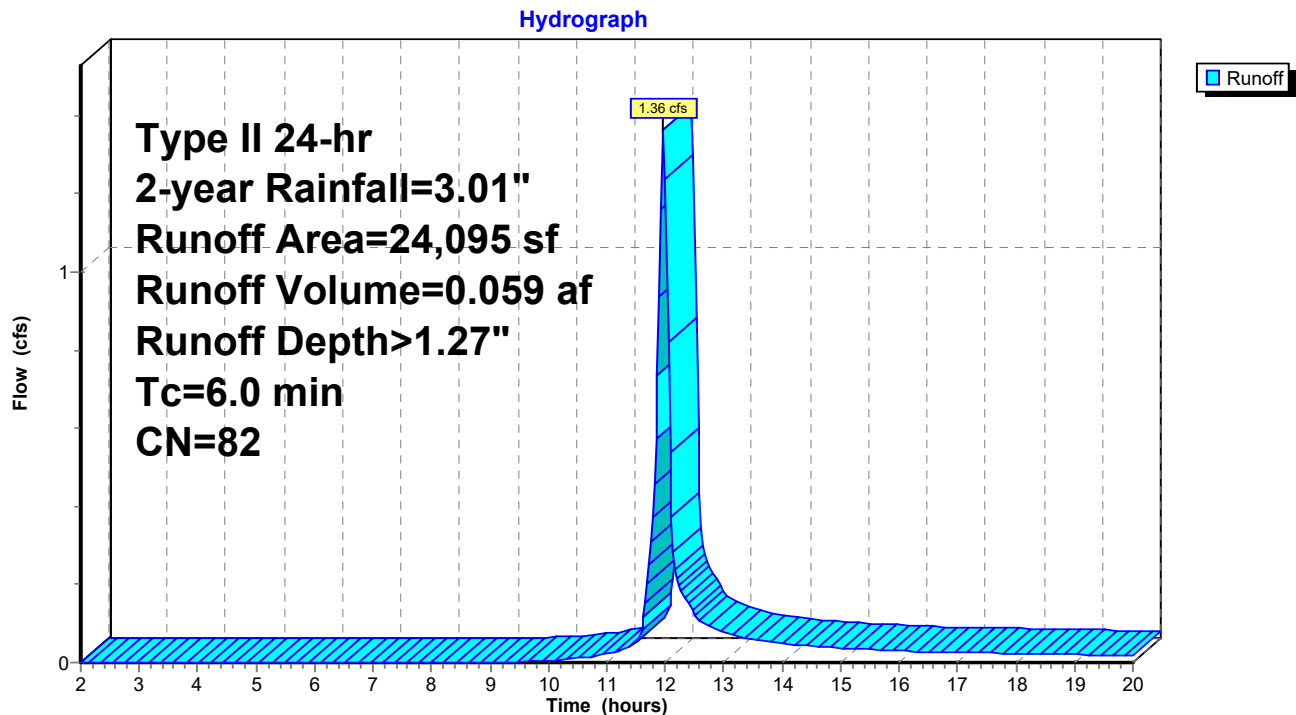
Summary for Subcatchment 550: Area 550

Runoff = 1.36 cfs @ 11.98 hrs, Volume= 0.059 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 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

Summary for Subcatchment 600: Area 600

Runoff = 3.94 cfs @ 11.97 hrs, Volume= 0.187 af, Depth> 2.22"

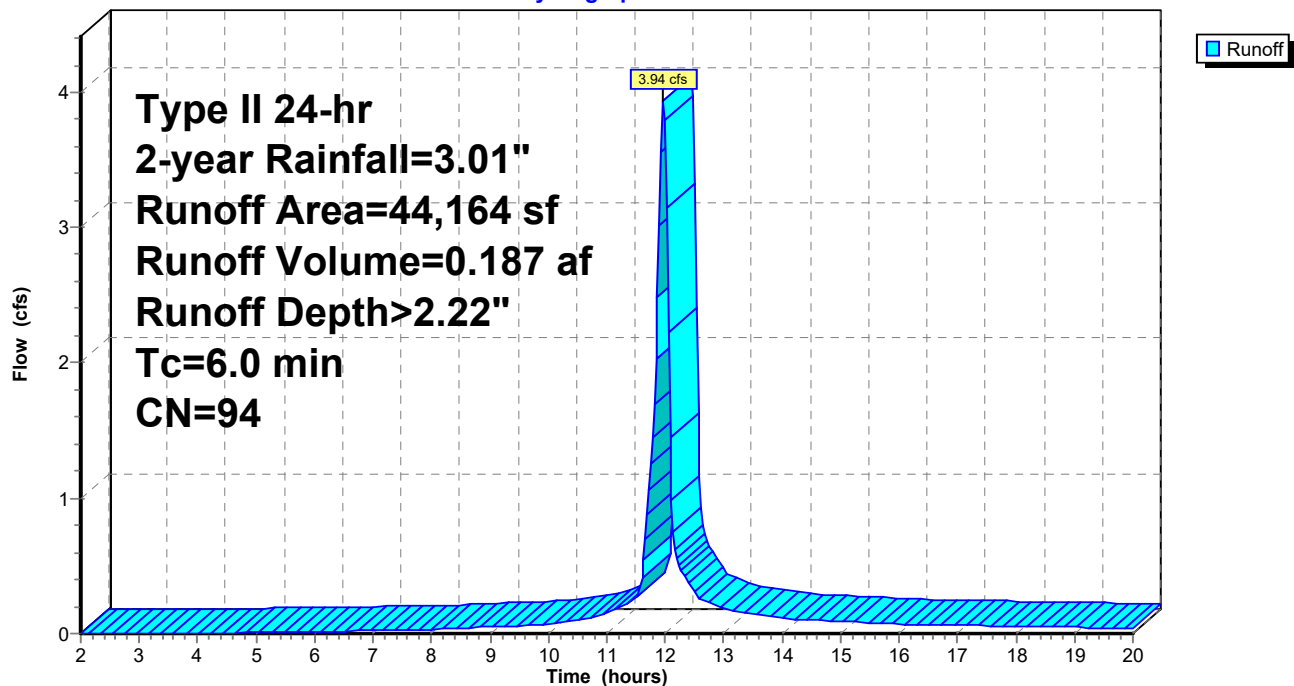
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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

Hydrograph



Summary for Subcatchment 700: Area 700

Runoff = 0.85 cfs @ 13.61 hrs, Volume= 0.215 af, Depth> 0.72"

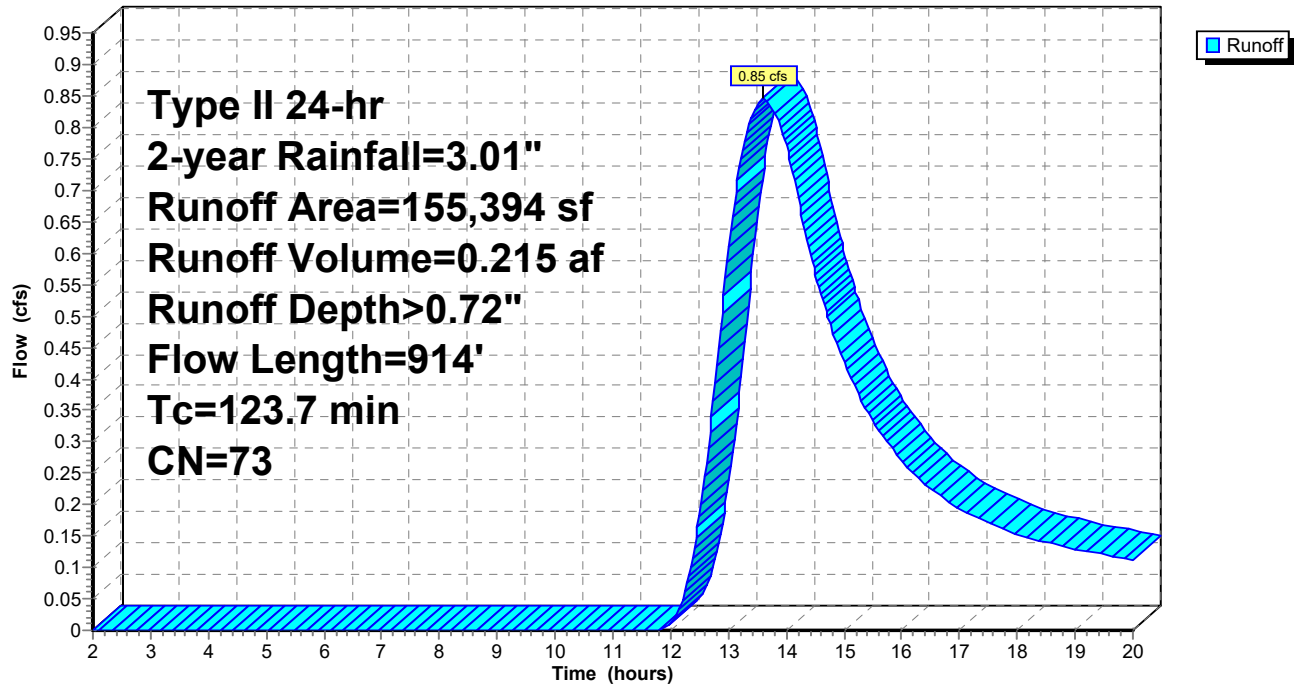
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



Summary for Subcatchment 800: Area 800

Runoff = 0.54 cfs @ 13.77 hrs, Volume= 0.145 af, Depth> 0.91"

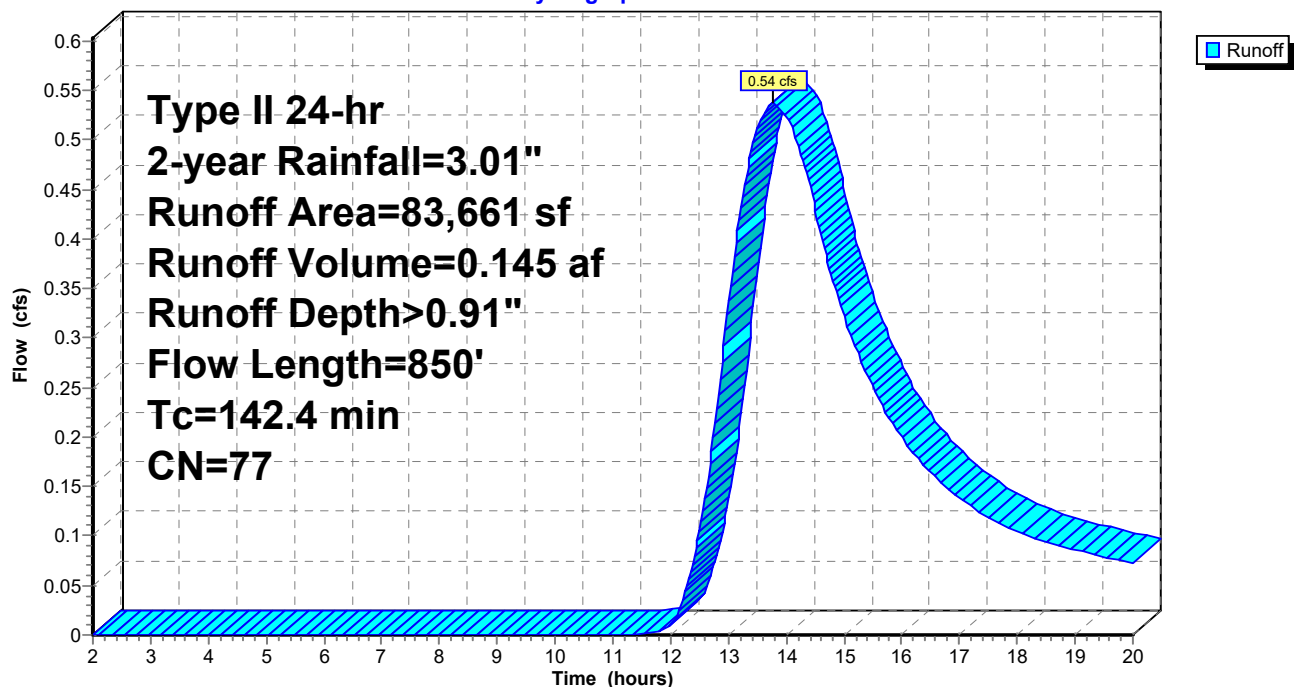
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



Summary for Subcatchment 900: Area 900

Runoff = 0.34 cfs @ 12.39 hrs, Volume= 0.038 af, Depth> 0.96"

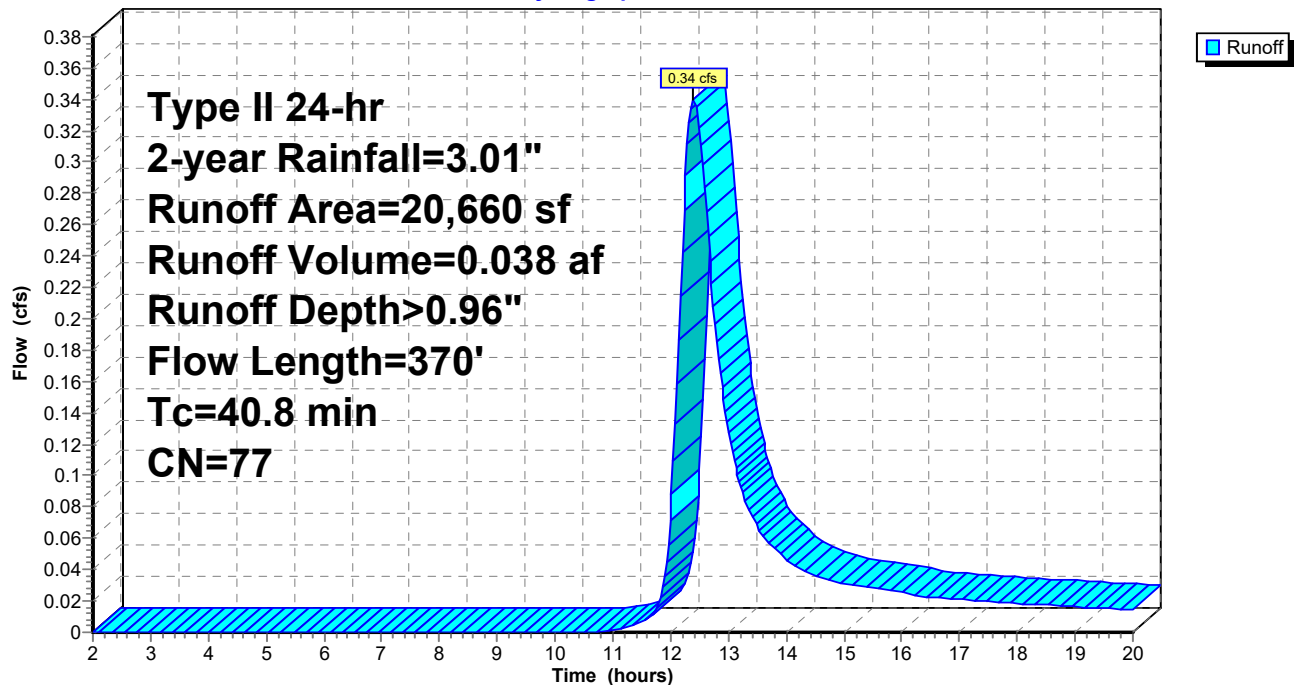
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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'
27.1	320	0.0062	0.20		Woods: Dense underbrush n= 0.800 P2= 3.01"
					Shallow Concentrated Flow, Last 320'
					Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 900: Area 900

Hydrograph



Summary for Subcatchment 1000: Area 1000

Runoff = 0.52 cfs @ 13.22 hrs, Volume= 0.118 af, Depth> 0.69"

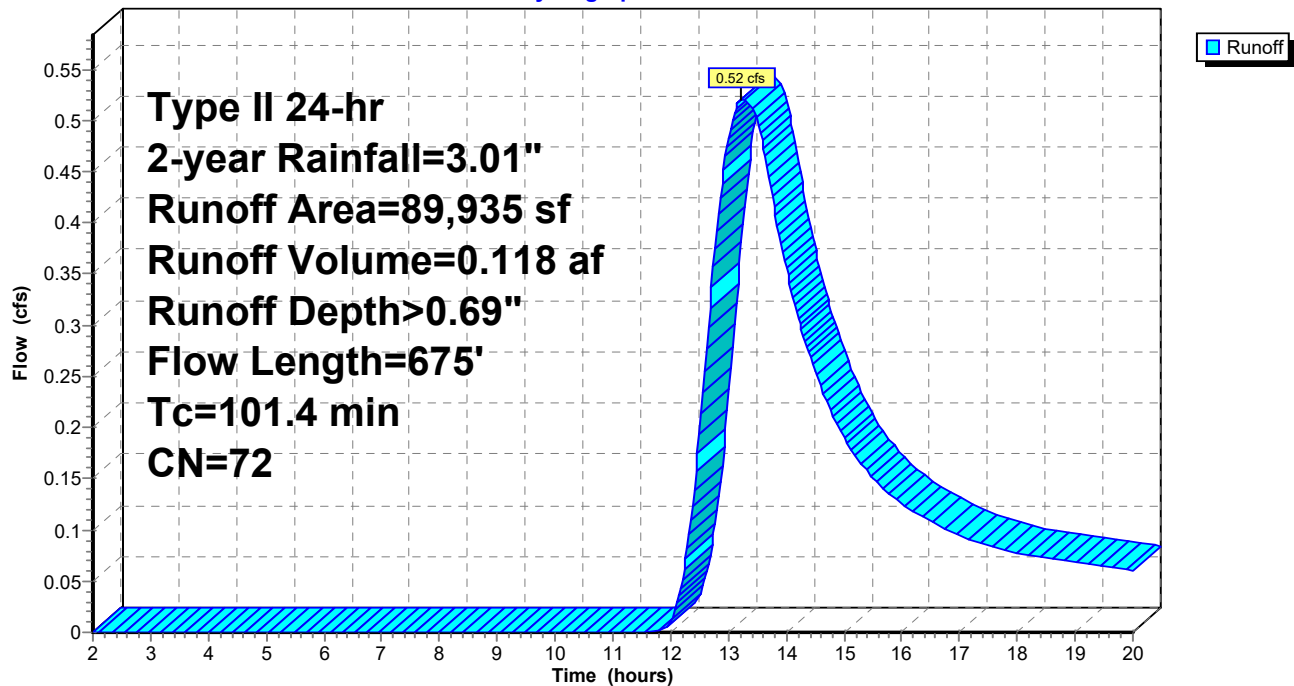
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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

Hydrograph



Summary for Subcatchment 1100: Area 1100

Runoff = 0.17 cfs @ 12.24 hrs, Volume= 0.016 af, Depth> 0.63"

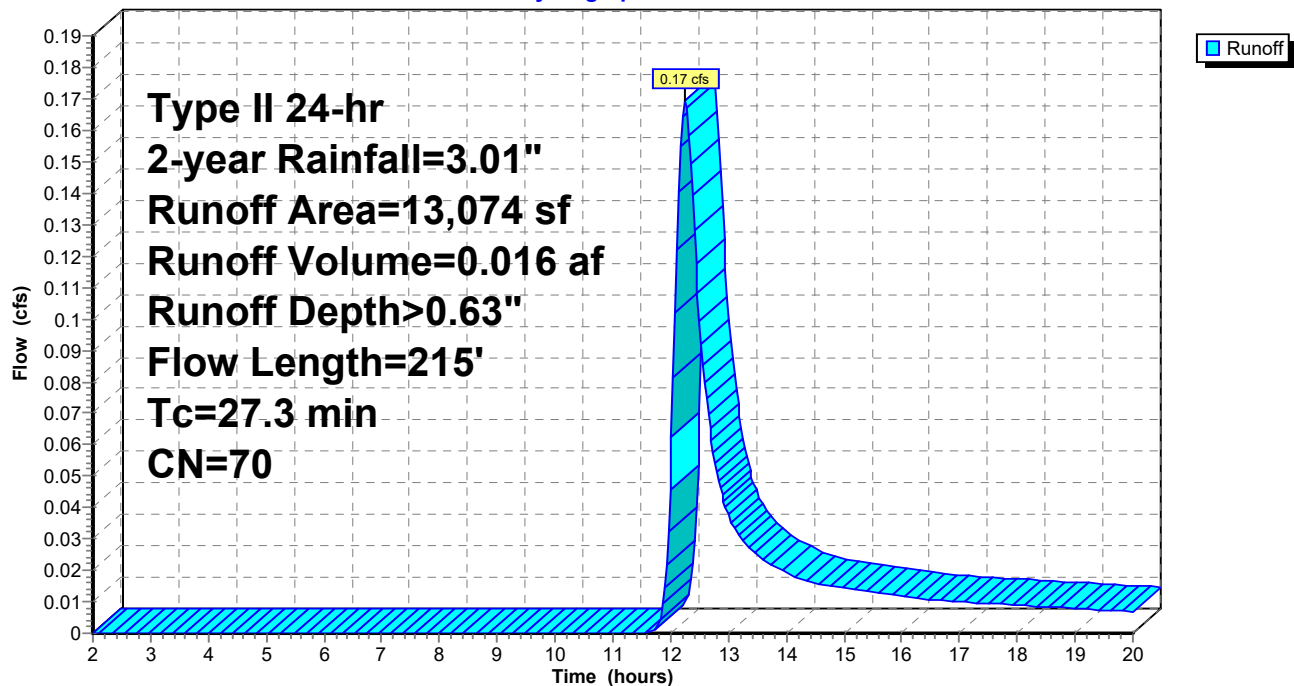
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



Summary for Subcatchment 1200: Area 1200

Runoff = 0.93 cfs @ 13.85 hrs, Volume= 0.252 af, Depth> 0.81"

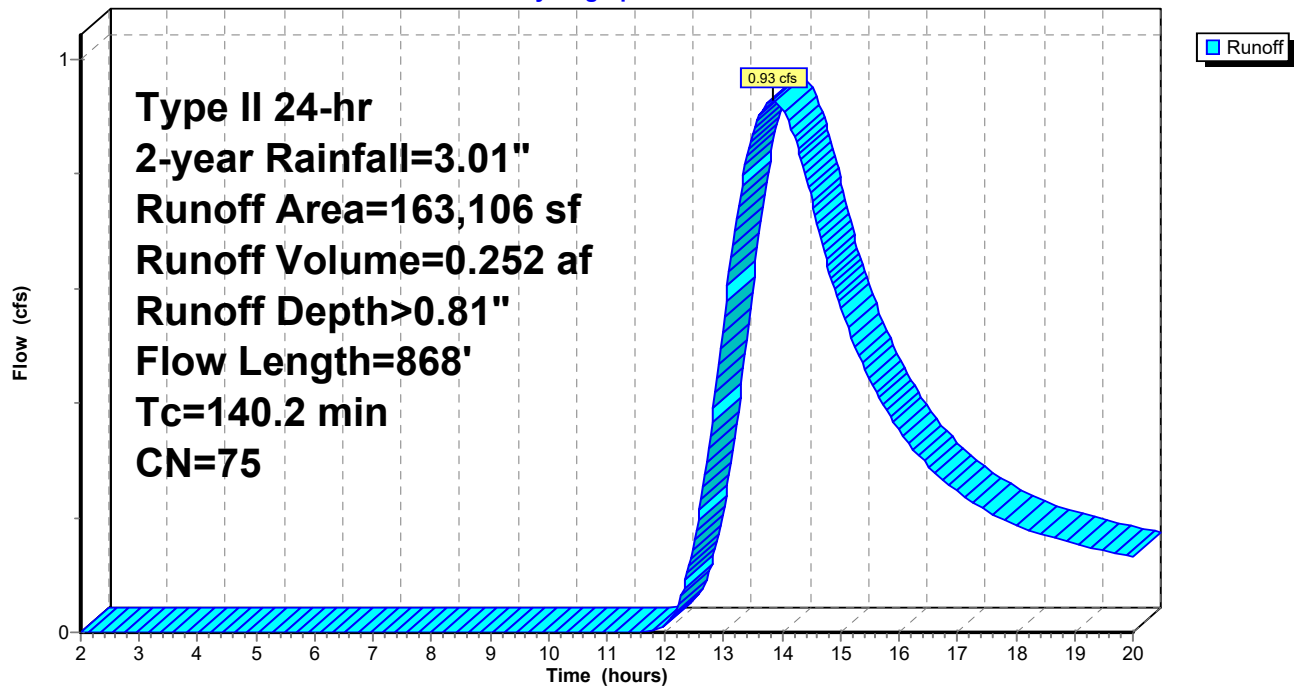
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



Summary for Subcatchment 1300: Area 1300

Runoff = 0.21 cfs @ 13.82 hrs, Volume= 0.056 af, Depth> 0.72"

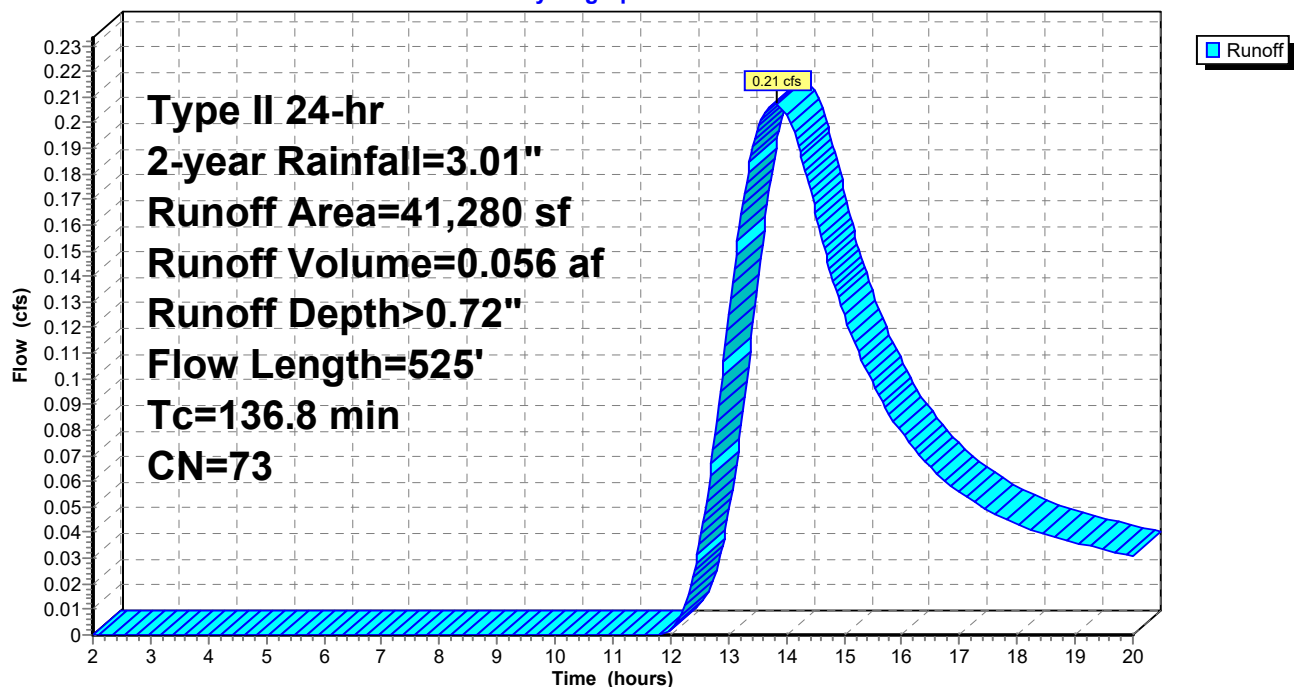
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



Summary for Subcatchment 1400: Area 1400

Runoff = 0.45 cfs @ 12.64 hrs, Volume= 0.067 af, Depth> 0.80"

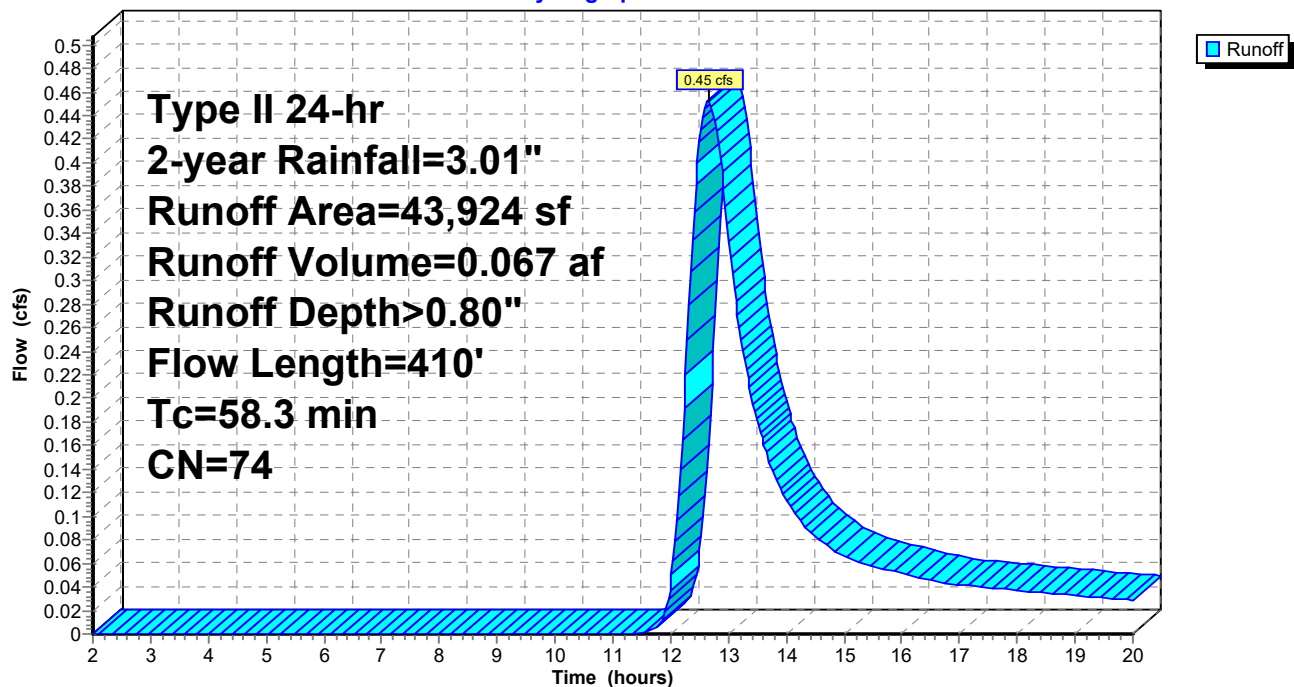
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



Summary for Subcatchment 1500: Area 1500

Runoff = 0.12 cfs @ 13.32 hrs, Volume= 0.027 af, Depth> 0.93"

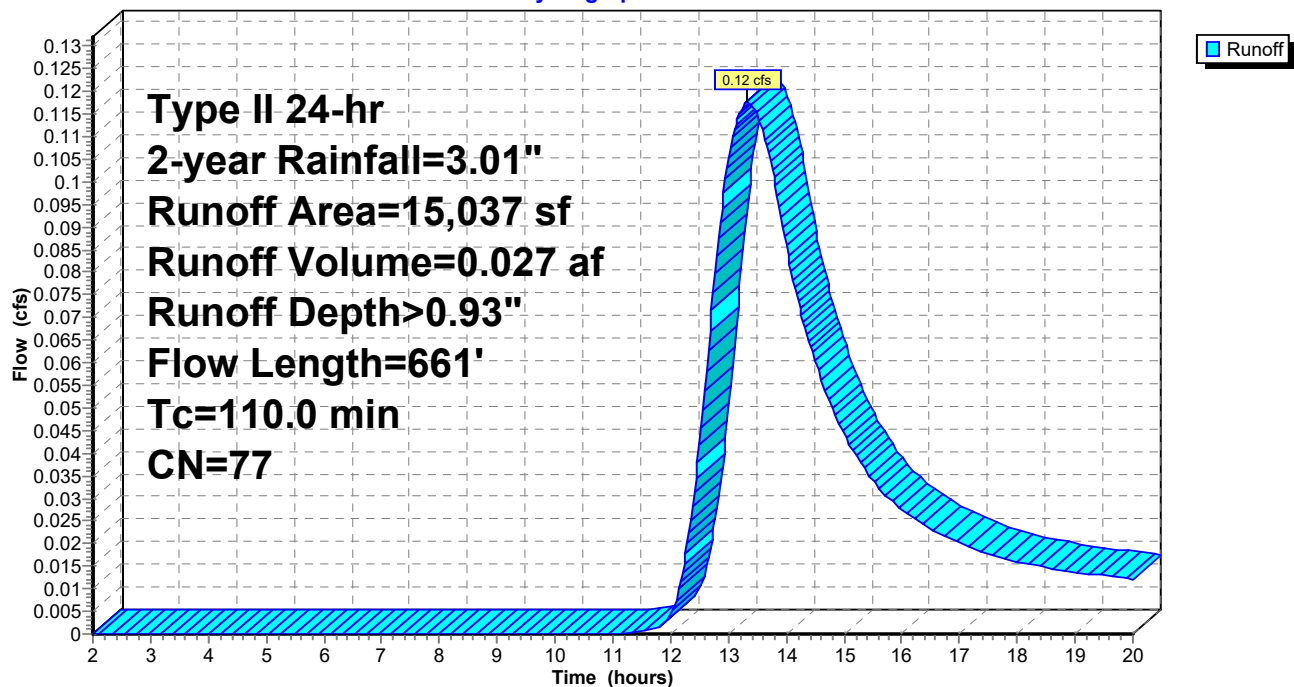
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 @ 14.49 hrs, Volume= 0.007 af, Depth> 0.15"

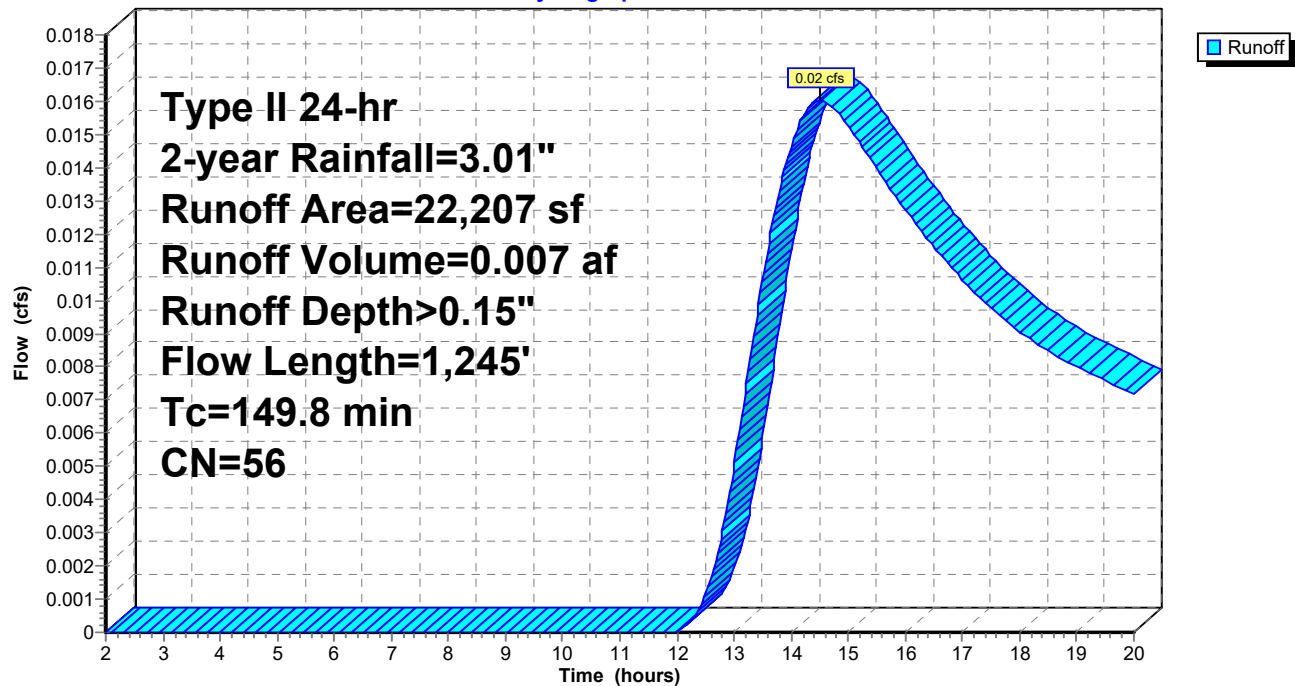
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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



Summary for Subcatchment 1700: Area 1700

[45] Hint: Runoff=Zero

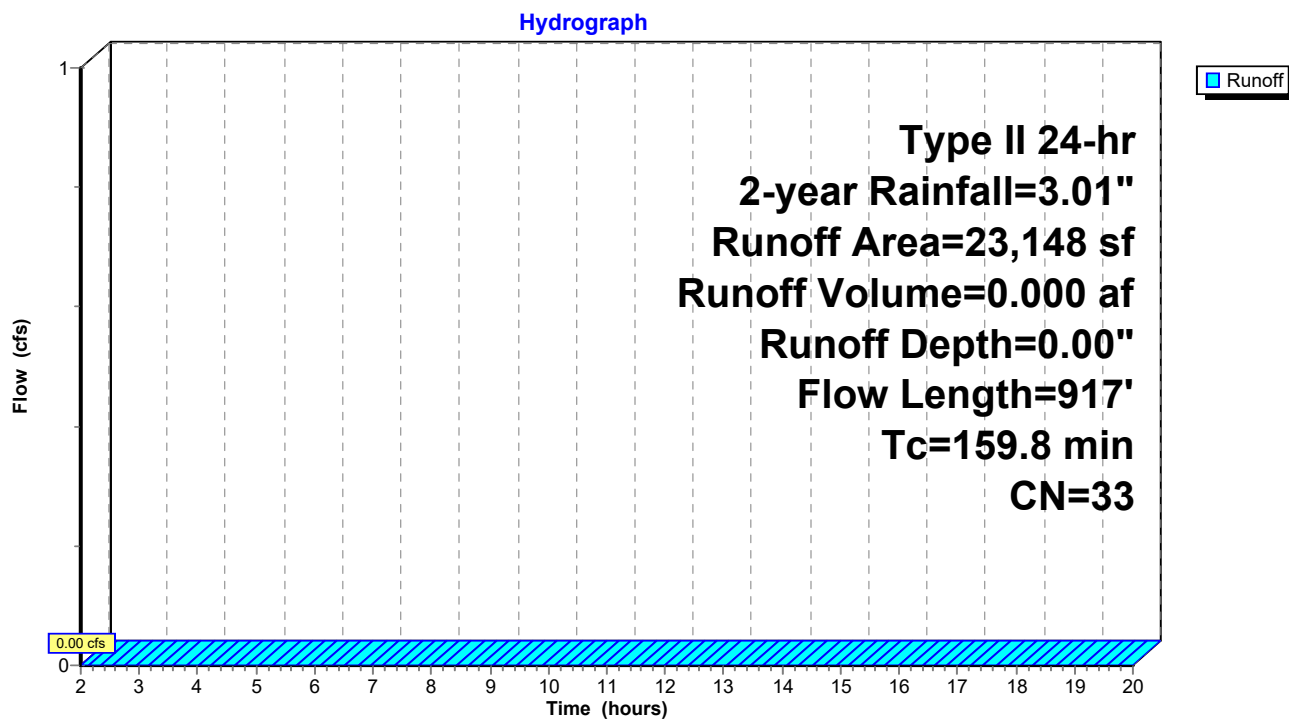
Runoff = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 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



Summary for Subcatchment 1800: Area 1800

Runoff = 0.23 cfs @ 13.68 hrs, Volume= 0.063 af, Depth> 0.63"

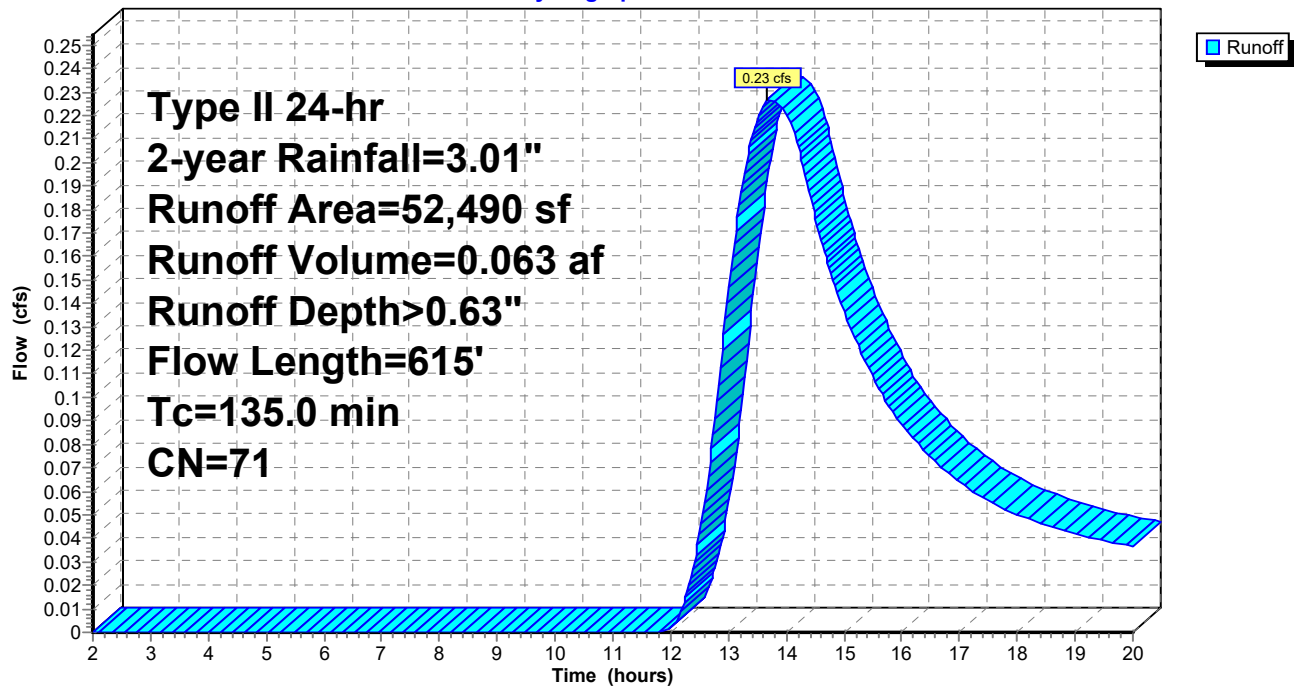
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.39 cfs @ 11.97 hrs, Volume= 0.020 af, Depth> 2.63"

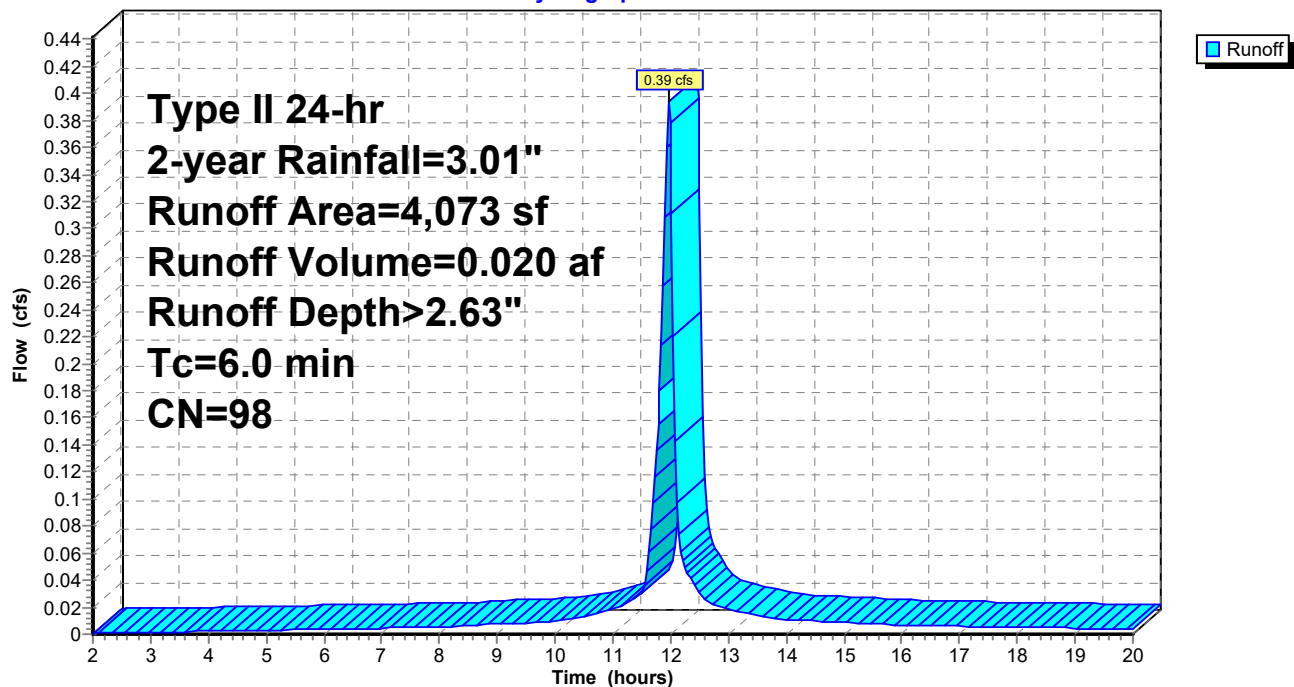
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 = 0.48 cfs @ 11.97 hrs, Volume= 0.025 af, Depth> 2.63"

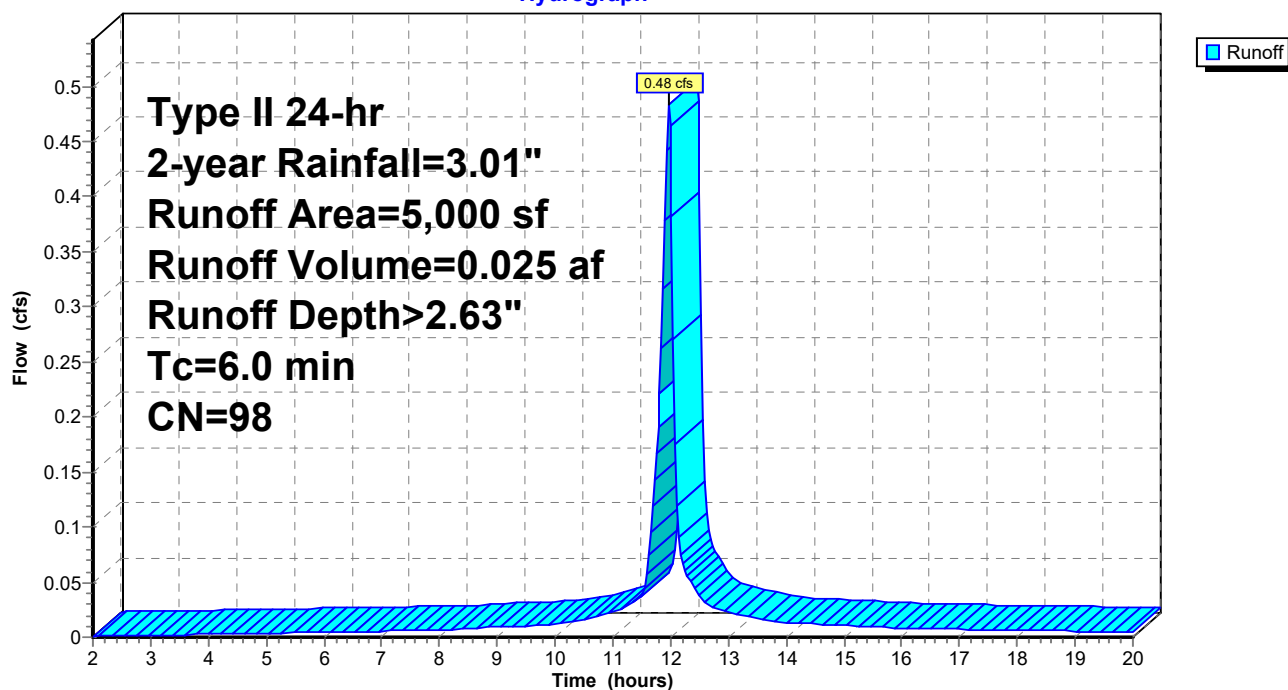
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 2-year Rainfall=3.01"

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 > 0.64" for 2-year event
 Inflow = 1.74 cfs @ 13.67 hrs, Volume= 0.572 af
 Outflow = 1.74 cfs @ 13.82 hrs, Volume= 0.565 af, Atten= 0%, Lag= 8.7 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 1.01 fps, Min. Travel Time= 4.3 min

Avg. Velocity = 0.60 fps, Avg. Travel Time= 7.2 min

Peak Storage= 449 cf @ 13.75 hrs

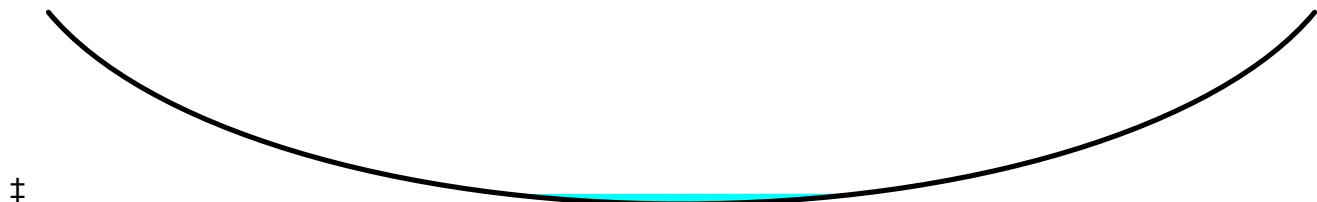
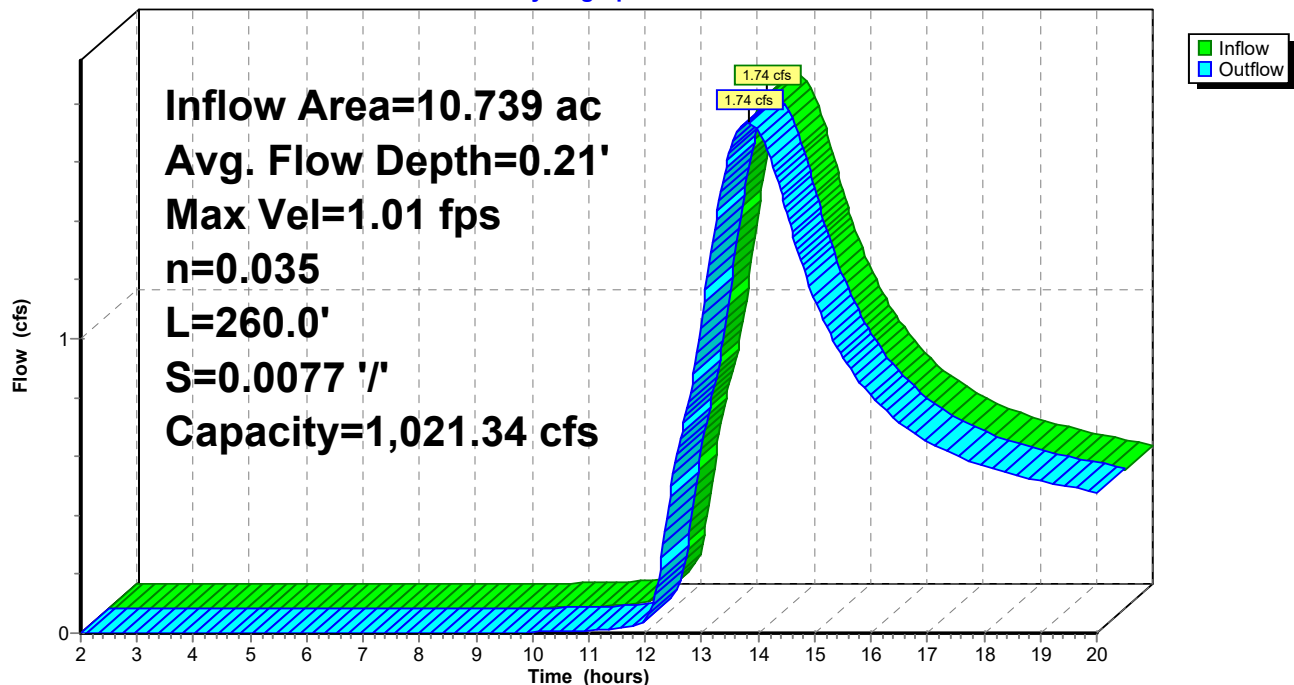
Average Depth at Peak Storage= 0.21' , Surface Width= 12.35'

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**

Stage-Area-Storage for Reach 1k-2k: x1000 to x2000

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
198.00	0.0	0	200.60	75.5	19,620
198.05	0.2	55	200.65	77.7	20,189
198.10	0.6	150	200.70	79.9	20,763
198.15	1.1	273	200.75	82.1	21,343
198.20	1.6	419	200.80	84.3	21,927
198.25	2.3	586	200.85	86.6	22,517
198.30	3.0	770	200.90	88.9	23,113
198.35	3.7	970	200.95	91.2	23,713
198.40	4.6	1,184	201.00	93.5	24,318
198.45	5.4	1,414	201.05	95.9	24,929
198.50	6.4	1,656	201.10	98.2	25,544
198.55	7.3	1,910	201.15	100.6	26,165
198.60	8.4	2,175	201.20	103.0	26,790
198.65	9.4	2,453	201.25	105.5	27,421
198.70	10.5	2,742	201.30	107.9	28,056
198.75	11.7	3,040	201.35	110.4	28,696
198.80	12.9	3,349	201.40	112.8	29,340
198.85	14.1	3,668	201.45	115.3	29,990
198.90	15.4	3,997	201.50	117.9	30,645
198.95	16.7	4,334	201.55	120.4	31,303
199.00	18.0	4,680	201.60	122.9	31,967
199.05	19.4	5,036	201.65	125.5	32,635
199.10	20.8	5,400	201.70	128.1	33,308
199.15	22.2	5,772	201.75	130.7	33,986
199.20	23.7	6,152	201.80	133.3	34,667
199.25	25.2	6,541	201.85	136.0	35,354
199.30	26.7	6,937	201.90	138.6	36,045
199.35	28.2	7,341	201.95	141.3	36,740
199.40	29.8	7,752	202.00	144.0	37,440
199.45	31.4	8,172			
199.50	33.1	8,598			
199.55	34.7	9,032			
199.60	36.4	9,472			
199.65	38.2	9,919			
199.70	39.9	10,374			
199.75	41.7	10,835			
199.80	43.5	11,302			
199.85	45.3	11,777			
199.90	47.1	12,257			
199.95	49.0	12,744			
200.00	50.9	13,237			
200.05	52.8	13,737			
200.10	54.8	14,243			
200.15	56.7	14,754			
200.20	58.7	15,271			
200.25	60.8	15,795			
200.30	62.8	16,325			
200.35	64.8	16,860			
200.40	66.9	17,401			
200.45	69.0	17,947			
200.50	71.2	18,500			
200.55	73.3	19,057			

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

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 0.61" for 2-year event
 Inflow = 2.20 cfs @ 13.73 hrs, Volume= 0.741 af
 Outflow = 2.19 cfs @ 13.92 hrs, Volume= 0.727 af, Atten= 0%, Lag= 11.7 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 0.91 fps, Min. Travel Time= 6.6 min

Avg. Velocity = 0.51 fps, Avg. Travel Time= 11.9 min

Peak Storage= 870 cf @ 13.81 hrs

Average Depth at Peak Storage= 0.39' , Surface Width= 9.34'

Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 334.17 cfs

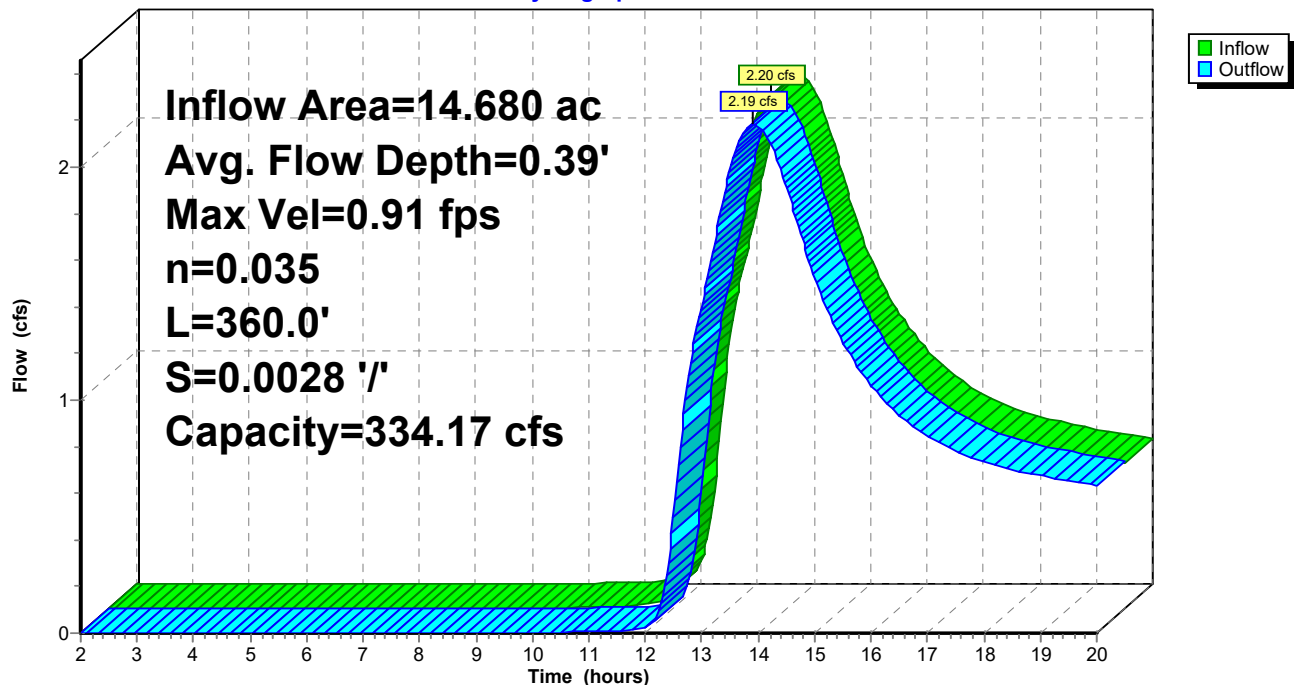
30.00' x 4.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds

Length= 360.0' Slope= 0.0028 '/'

Inlet Invert= 196.00', Outlet Invert= 195.00'

**Reach 2k-3k: x2000 to x3000**

Hydrograph



Stage-Area-Storage for Reach 2k-3k: x2000 to x3000

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
196.00	0.0	0	198.60	41.9	15,093
196.05	0.1	42	198.65	43.1	15,530
196.10	0.3	116	198.70	44.4	15,972
196.15	0.6	210	198.75	45.6	16,418
196.20	0.9	322	198.80	46.9	16,867
196.25	1.3	451	198.85	48.1	17,321
196.30	1.6	593	198.90	49.4	17,779
196.35	2.1	746	198.95	50.7	18,241
196.40	2.5	911	199.00	52.0	18,706
196.45	3.0	1,087	199.05	53.3	19,176
196.50	3.5	1,274	199.10	54.6	19,650
196.55	4.1	1,469	199.15	55.9	20,127
196.60	4.6	1,673	199.20	57.2	20,608
196.65	5.2	1,887	199.25	58.6	21,093
196.70	5.9	2,109	199.30	59.9	21,581
196.75	6.5	2,339	199.35	61.3	22,074
196.80	7.2	2,576	199.40	62.7	22,569
196.85	7.8	2,822	199.45	64.1	23,069
196.90	8.5	3,074	199.50	65.5	23,573
196.95	9.3	3,334	199.55	66.9	24,080
197.00	10.0	3,600	199.60	68.3	24,590
197.05	10.8	3,874	199.65	69.7	25,104
197.10	11.5	4,154	199.70	71.2	25,622
197.15	12.3	4,440	199.75	72.6	26,143
197.20	13.1	4,732	199.80	74.1	26,667
197.25	14.0	5,032	199.85	75.5	27,195
197.30	14.8	5,336	199.90	77.0	27,727
197.35	15.7	5,647	199.95	78.5	28,262
197.40	16.6	5,963	200.00	80.0	28,800
197.45	17.5	6,286			
197.50	18.4	6,614			
197.55	19.3	6,947			
197.60	20.2	7,286			
197.65	21.2	7,630			
197.70	22.2	7,980			
197.75	23.2	8,334			
197.80	24.1	8,694			
197.85	25.2	9,059			
197.90	26.2	9,429			
197.95	27.2	9,803			
198.00	28.3	10,182			
198.05	29.4	10,567			
198.10	30.4	10,956			
198.15	31.5	11,349			
198.20	32.6	11,747			
198.25	33.8	12,150			
198.30	34.9	12,558			
198.35	36.0	12,969			
198.40	37.2	13,385			
198.45	38.3	13,806			
198.50	39.5	14,231			
198.55	40.7	14,660			

Summary for Reach CP: Connecting Pipes

[52] Hint: Inlet/Outlet conditions not evaluated

[81] Warning: Exceeded Pond 4A by 0.01' @ 8.00 hrs

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 1.68" for 2-year event
Inflow = 1.17 cfs @ 12.00 hrs, Volume= 0.056 af
Outflow = 1.15 cfs @ 12.02 hrs, Volume= 0.056 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 2.46 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 0.78 fps, Avg. Travel Time= 1.3 min

Peak Storage= 29 cf @ 12.01 hrs

Average Depth at Peak Storage= 0.31' , Surface Width= 2.16'

Bank-Full Depth= 1.25' Flow Area= 2.5 sf, Capacity= 8.67 cfs

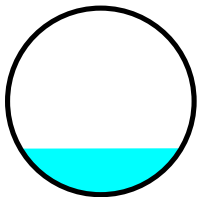
A factor of 2.00 has been applied to the storage and discharge capacity

15.0" Round Pipe

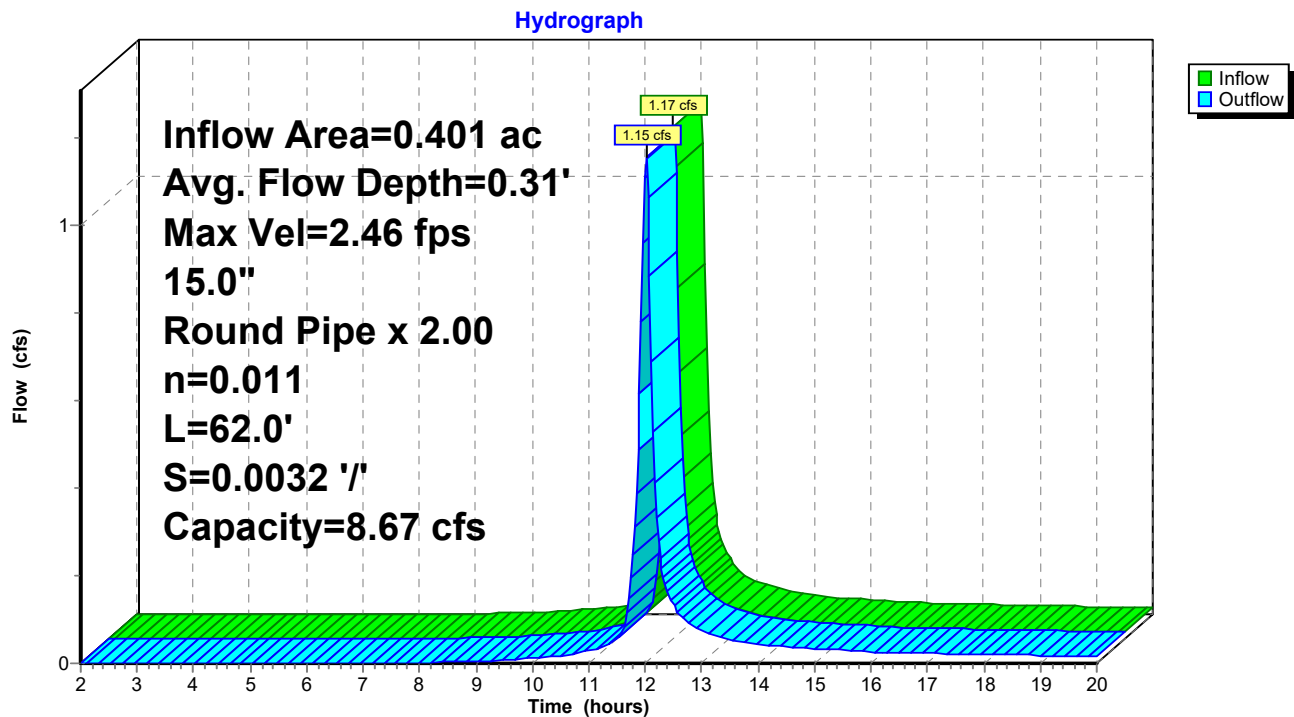
n= 0.011 Concrete pipe, straight & clean

Length= 62.0' Slope= 0.0032 '/'

Inlet Invert= 205.20', Outlet Invert= 205.00'



Reach CP: Connecting Pipes



Stage-Area-Storage for Reach CP: Connecting Pipes

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.20	0.0	0	206.24	2.2	135
205.22	0.0	1	206.26	2.2	138
205.24	0.0	1	206.28	2.3	140
205.26	0.0	3	206.30	2.3	142
205.28	0.1	4	206.32	2.3	144
205.30	0.1	6	206.34	2.3	146
205.32	0.1	7	206.36	2.4	147
205.34	0.2	9	206.38	2.4	149
205.36	0.2	11	206.40	2.4	150
205.38	0.2	13	206.42	2.4	151
205.40	0.3	16	206.44	2.5	152
205.42	0.3	18			
205.44	0.3	20			
205.46	0.4	23			
205.48	0.4	25			
205.50	0.5	28			
205.52	0.5	31			
205.54	0.5	33			
205.56	0.6	36			
205.58	0.6	39			
205.60	0.7	42			
205.62	0.7	45			
205.64	0.8	48			
205.66	0.8	51			
205.68	0.9	54			
205.70	0.9	57			
205.72	1.0	60			
205.74	1.0	63			
205.76	1.1	66			
205.78	1.1	69			
205.80	1.2	72			
205.82	1.2	75			
205.84	1.3	78			
205.86	1.3	82			
205.88	1.4	85			
205.90	1.4	88			
205.92	1.5	91			
205.94	1.5	94			
205.96	1.6	97			
205.98	1.6	100			
206.00	1.7	103			
206.02	1.7	106			
206.04	1.8	109			
206.06	1.8	112			
206.08	1.8	114			
206.10	1.9	117			
206.12	1.9	120			
206.14	2.0	123			
206.16	2.0	125			
206.18	2.1	128			
206.20	2.1	131			
206.22	2.1	133			

Summary for Reach P1: Pipe Out of 1

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 1P Primary device # 1 by 0.09'

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 0.67" for 2-year event
Inflow = 0.04 cfs @ 14.51 hrs, Volume= 0.027 af
Outflow = 0.04 cfs @ 14.54 hrs, Volume= 0.027 af, Atten= 0%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 1.22 fps, Min. Travel Time= 1.1 min

Avg. Velocity= 0.94 fps, Avg. Travel Time= 1.4 min

Peak Storage= 3 cf @ 14.52 hrs

Average Depth at Peak Storage= 0.09' , Surface Width= 0.57'

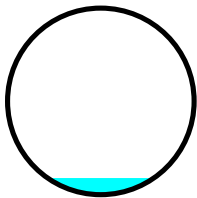
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.55 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

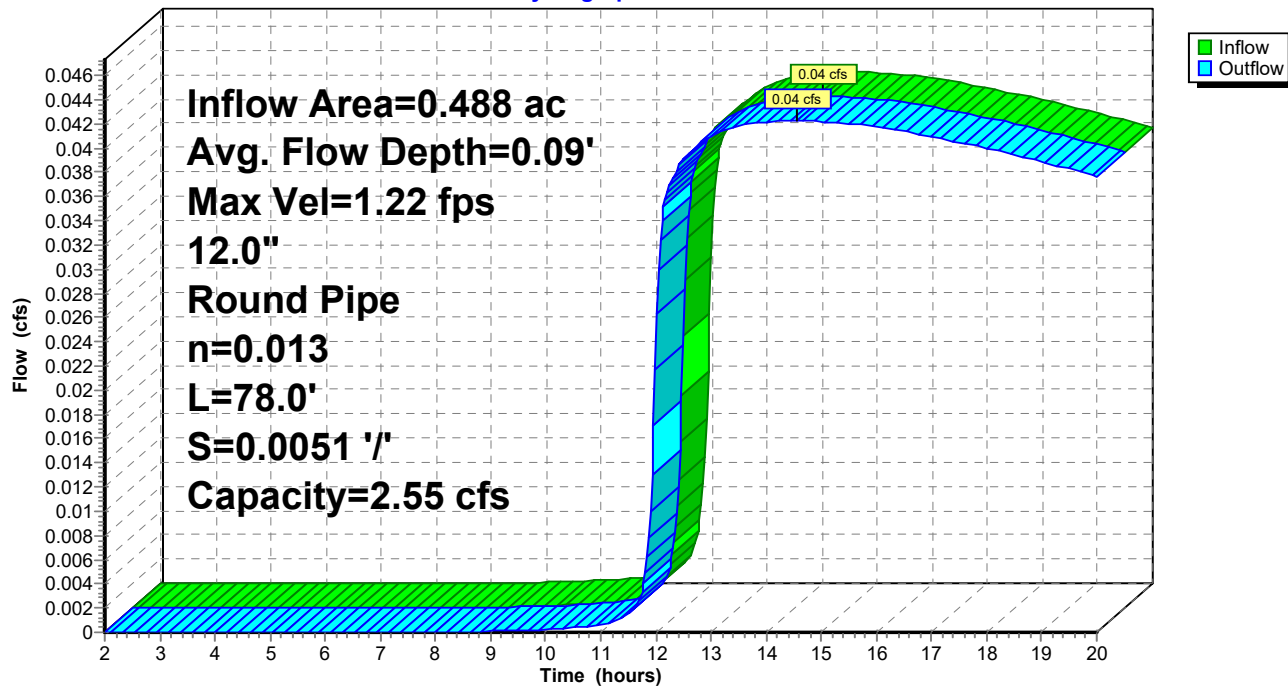
Length= 78.0' Slope= 0.0051 '/'

Inlet Invert= 204.00', Outlet Invert= 203.60'



Reach P1: Pipe Out of 1

Hydrograph



Stage-Area-Storage for Reach P1: Pipe Out of 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	32
204.01	0.0	0	204.53	0.4	33
204.02	0.0	0	204.54	0.4	34
204.03	0.0	1	204.55	0.4	35
204.04	0.0	1	204.56	0.5	35
204.05	0.0	1	204.57	0.5	36
204.06	0.0	2	204.58	0.5	37
204.07	0.0	2	204.59	0.5	38
204.08	0.0	2	204.60	0.5	38
204.09	0.0	3	204.61	0.5	39
204.10	0.0	3	204.62	0.5	40
204.11	0.0	4	204.63	0.5	41
204.12	0.1	4	204.64	0.5	41
204.13	0.1	5	204.65	0.5	42
204.14	0.1	5	204.66	0.5	43
204.15	0.1	6	204.67	0.6	44
204.16	0.1	6	204.68	0.6	44
204.17	0.1	7	204.69	0.6	45
204.18	0.1	7	204.70	0.6	46
204.19	0.1	8	204.71	0.6	47
204.20	0.1	9	204.72	0.6	47
204.21	0.1	9	204.73	0.6	48
204.22	0.1	10	204.74	0.6	49
204.23	0.1	11	204.75	0.6	49
204.24	0.1	11	204.76	0.6	50
204.25	0.2	12	204.77	0.6	51
204.26	0.2	13	204.78	0.7	51
204.27	0.2	13	204.79	0.7	52
204.28	0.2	14	204.80	0.7	53
204.29	0.2	15	204.81	0.7	53
204.30	0.2	15	204.82	0.7	54
204.31	0.2	16	204.83	0.7	54
204.32	0.2	17	204.84	0.7	55
204.33	0.2	18	204.85	0.7	55
204.34	0.2	18	204.86	0.7	56
204.35	0.2	19	204.87	0.7	57
204.36	0.3	20	204.88	0.7	57
204.37	0.3	21	204.89	0.7	58
204.38	0.3	21	204.90	0.7	58
204.39	0.3	22	204.91	0.8	59
204.40	0.3	23	204.92	0.8	59
204.41	0.3	24	204.93	0.8	59
204.42	0.3	24	204.94	0.8	60
204.43	0.3	25	204.95	0.8	60
204.44	0.3	26	204.96	0.8	60
204.45	0.3	27	204.97	0.8	61
204.46	0.4	28	204.98	0.8	61
204.47	0.4	28	204.99	0.8	61
204.48	0.4	29	205.00	0.8	61
204.49	0.4	30			
204.50	0.4	31			
204.51	0.4	31			

Summary for Reach P2: Pipe Out of 2

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 2P Primary device # 1 by 0.12'

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 1.49" for 2-year event
Inflow = 0.07 cfs @ 12.86 hrs, Volume= 0.047 af
Outflow = 0.07 cfs @ 12.88 hrs, Volume= 0.046 af, Atten= 0%, Lag= 1.2 min

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= 0.7 min

Avg. Velocity= 0.92 fps, Avg. Travel Time= 1.1 min

Peak Storage= 3 cf @ 12.87 hrs

Average Depth at Peak Storage= 0.12', Surface Width= 0.64'

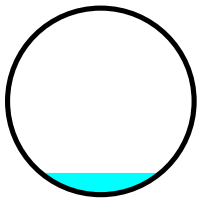
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

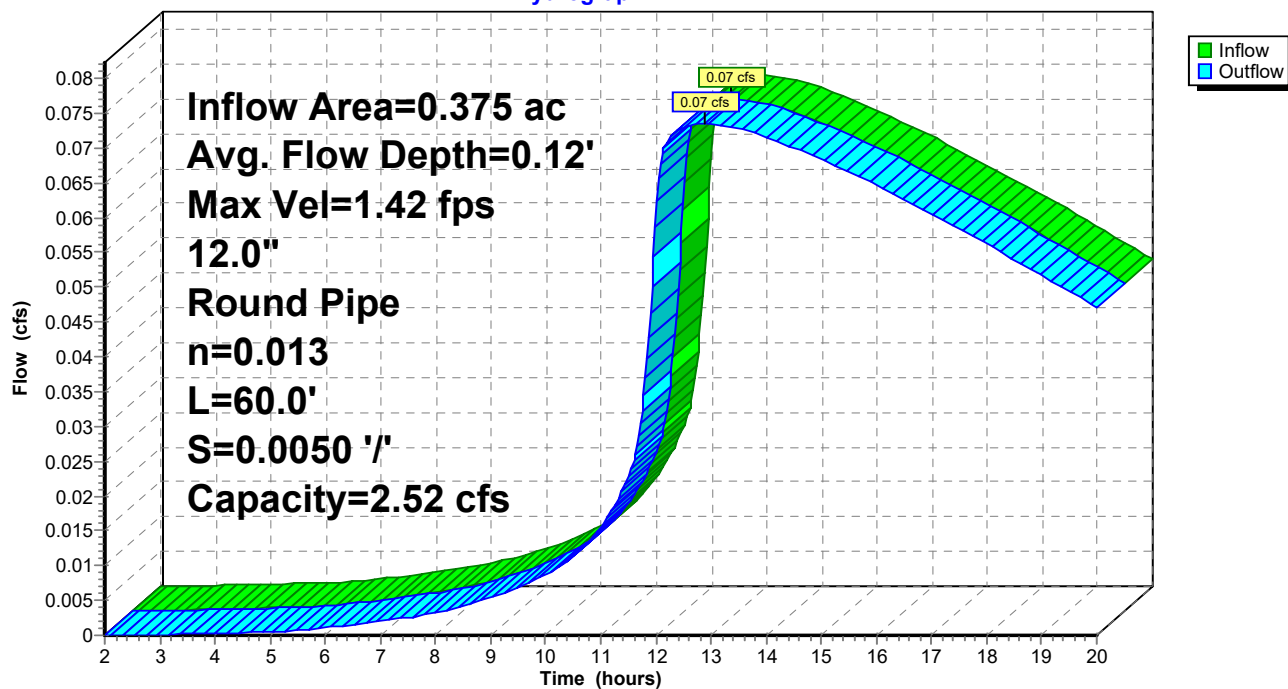
Length= 60.0' Slope= 0.0050 '/'

Inlet Invert= 204.00', Outlet Invert= 203.70'



Reach P2: Pipe Out of 2

Hydrograph



Stage-Area-Storage for Reach P2: Pipe Out of 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	25
204.01	0.0	0	204.53	0.4	25
204.02	0.0	0	204.54	0.4	26
204.03	0.0	0	204.55	0.4	27
204.04	0.0	1	204.56	0.5	27
204.05	0.0	1	204.57	0.5	28
204.06	0.0	1	204.58	0.5	28
204.07	0.0	1	204.59	0.5	29
204.08	0.0	2	204.60	0.5	30
204.09	0.0	2	204.61	0.5	30
204.10	0.0	2	204.62	0.5	31
204.11	0.0	3	204.63	0.5	31
204.12	0.1	3	204.64	0.5	32
204.13	0.1	4	204.65	0.5	32
204.14	0.1	4	204.66	0.5	33
204.15	0.1	4	204.67	0.6	34
204.16	0.1	5	204.68	0.6	34
204.17	0.1	5	204.69	0.6	35
204.18	0.1	6	204.70	0.6	35
204.19	0.1	6	204.71	0.6	36
204.20	0.1	7	204.72	0.6	36
204.21	0.1	7	204.73	0.6	37
204.22	0.1	8	204.74	0.6	37
204.23	0.1	8	204.75	0.6	38
204.24	0.1	9	204.76	0.6	38
204.25	0.2	9	204.77	0.6	39
204.26	0.2	10	204.78	0.7	39
204.27	0.2	10	204.79	0.7	40
204.28	0.2	11	204.80	0.7	40
204.29	0.2	11	204.81	0.7	41
204.30	0.2	12	204.82	0.7	41
204.31	0.2	12	204.83	0.7	42
204.32	0.2	13	204.84	0.7	42
204.33	0.2	14	204.85	0.7	43
204.34	0.2	14	204.86	0.7	43
204.35	0.2	15	204.87	0.7	44
204.36	0.3	15	204.88	0.7	44
204.37	0.3	16	204.89	0.7	44
204.38	0.3	16	204.90	0.7	45
204.39	0.3	17	204.91	0.8	45
204.40	0.3	18	204.92	0.8	45
204.41	0.3	18	204.93	0.8	46
204.42	0.3	19	204.94	0.8	46
204.43	0.3	19	204.95	0.8	46
204.44	0.3	20	204.96	0.8	46
204.45	0.3	21	204.97	0.8	47
204.46	0.4	21	204.98	0.8	47
204.47	0.4	22	204.99	0.8	47
204.48	0.4	22	205.00	0.8	47
204.49	0.4	23			
204.50	0.4	24			
204.51	0.4	24			

Summary for Reach P3: Pipe Out of 3

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.12'

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 0.96" for 2-year event
Inflow = 0.07 cfs @ 13.54 hrs, Volume= 0.046 af
Outflow = 0.07 cfs @ 13.55 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.8 min

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 = 1.05 fps, Avg. Travel Time= 0.6 min

Peak Storage= 2 cf @ 13.54 hrs

Average Depth at Peak Storage= 0.12' , Surface Width= 0.64'

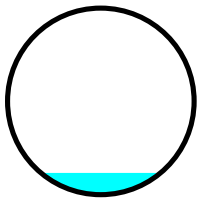
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

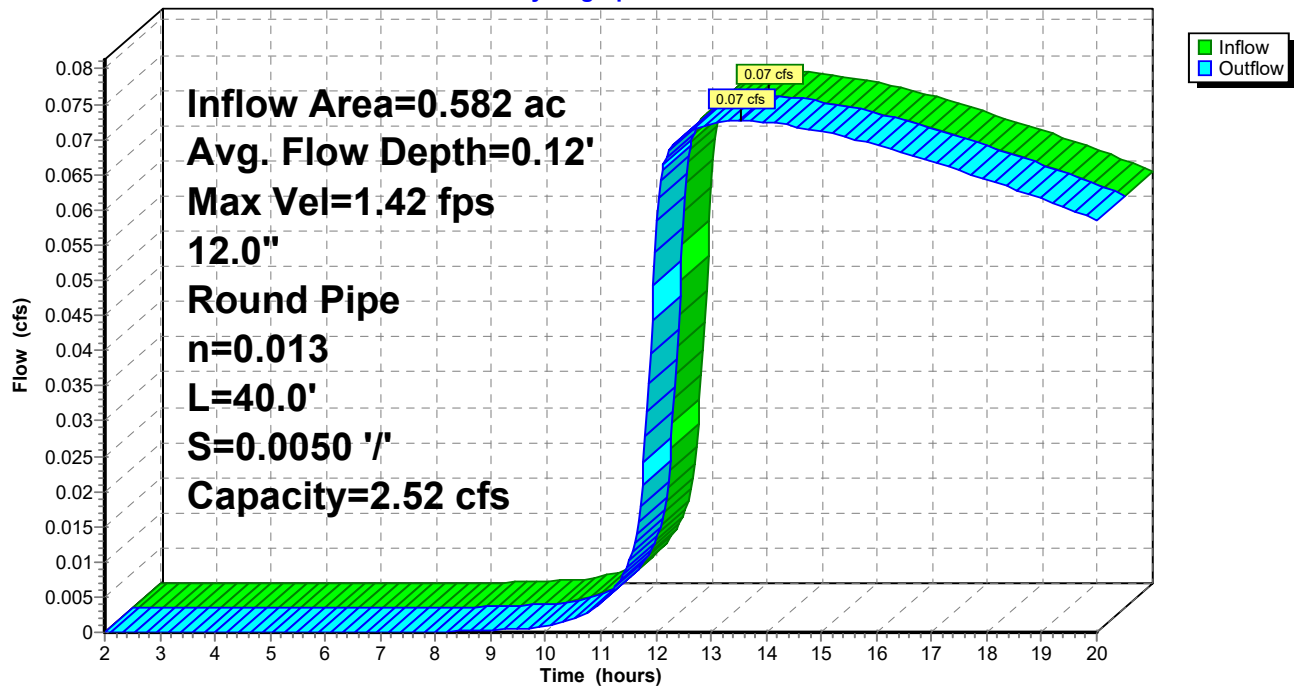
Length= 40.0' Slope= 0.0050 '/'

Inlet Invert= 205.00', Outlet Invert= 204.80'



Reach P3: Pipe Out of 3

Hydrograph



Stage-Area-Storage for Reach P3: Pipe Out of 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.00	0.0	0	205.52	0.4	17
205.01	0.0	0	205.53	0.4	17
205.02	0.0	0	205.54	0.4	17
205.03	0.0	0	205.55	0.4	18
205.04	0.0	0	205.56	0.5	18
205.05	0.0	1	205.57	0.5	18
205.06	0.0	1	205.58	0.5	19
205.07	0.0	1	205.59	0.5	19
205.08	0.0	1	205.60	0.5	20
205.09	0.0	1	205.61	0.5	20
205.10	0.0	2	205.62	0.5	20
205.11	0.0	2	205.63	0.5	21
205.12	0.1	2	205.64	0.5	21
205.13	0.1	2	205.65	0.5	22
205.14	0.1	3	205.66	0.5	22
205.15	0.1	3	205.67	0.6	22
205.16	0.1	3	205.68	0.6	23
205.17	0.1	4	205.69	0.6	23
205.18	0.1	4	205.70	0.6	23
205.19	0.1	4	205.71	0.6	24
205.20	0.1	4	205.72	0.6	24
205.21	0.1	5	205.73	0.6	25
205.22	0.1	5	205.74	0.6	25
205.23	0.1	5	205.75	0.6	25
205.24	0.1	6	205.76	0.6	26
205.25	0.2	6	205.77	0.6	26
205.26	0.2	6	205.78	0.7	26
205.27	0.2	7	205.79	0.7	27
205.28	0.2	7	205.80	0.7	27
205.29	0.2	8	205.81	0.7	27
205.30	0.2	8	205.82	0.7	28
205.31	0.2	8	205.83	0.7	28
205.32	0.2	9	205.84	0.7	28
205.33	0.2	9	205.85	0.7	28
205.34	0.2	9	205.86	0.7	29
205.35	0.2	10	205.87	0.7	29
205.36	0.3	10	205.88	0.7	29
205.37	0.3	11	205.89	0.7	30
205.38	0.3	11	205.90	0.7	30
205.39	0.3	11	205.91	0.8	30
205.40	0.3	12	205.92	0.8	30
205.41	0.3	12	205.93	0.8	30
205.42	0.3	13	205.94	0.8	31
205.43	0.3	13	205.95	0.8	31
205.44	0.3	13	205.96	0.8	31
205.45	0.3	14	205.97	0.8	31
205.46	0.4	14	205.98	0.8	31
205.47	0.4	15	205.99	0.8	31
205.48	0.4	15	206.00	0.8	31
205.49	0.4	15			
205.50	0.4	16			
205.51	0.4	16			

Summary for Reach P4B: Pipe Out of 4B

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 4B Primary device # 1 by 0.11'

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 0.90" for 2-year event
Inflow = 0.07 cfs @ 13.27 hrs, Volume= 0.040 af
Outflow = 0.07 cfs @ 13.33 hrs, Volume= 0.040 af, Atten= 0%, Lag= 3.6 min

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= 1.07 fps, Avg. Travel Time= 2.8 min

Peak Storage= 9 cf @ 13.30 hrs

Average Depth at Peak Storage= 0.11', Surface Width= 0.63'

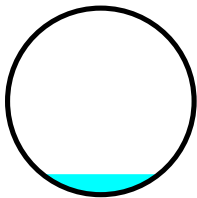
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.64 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

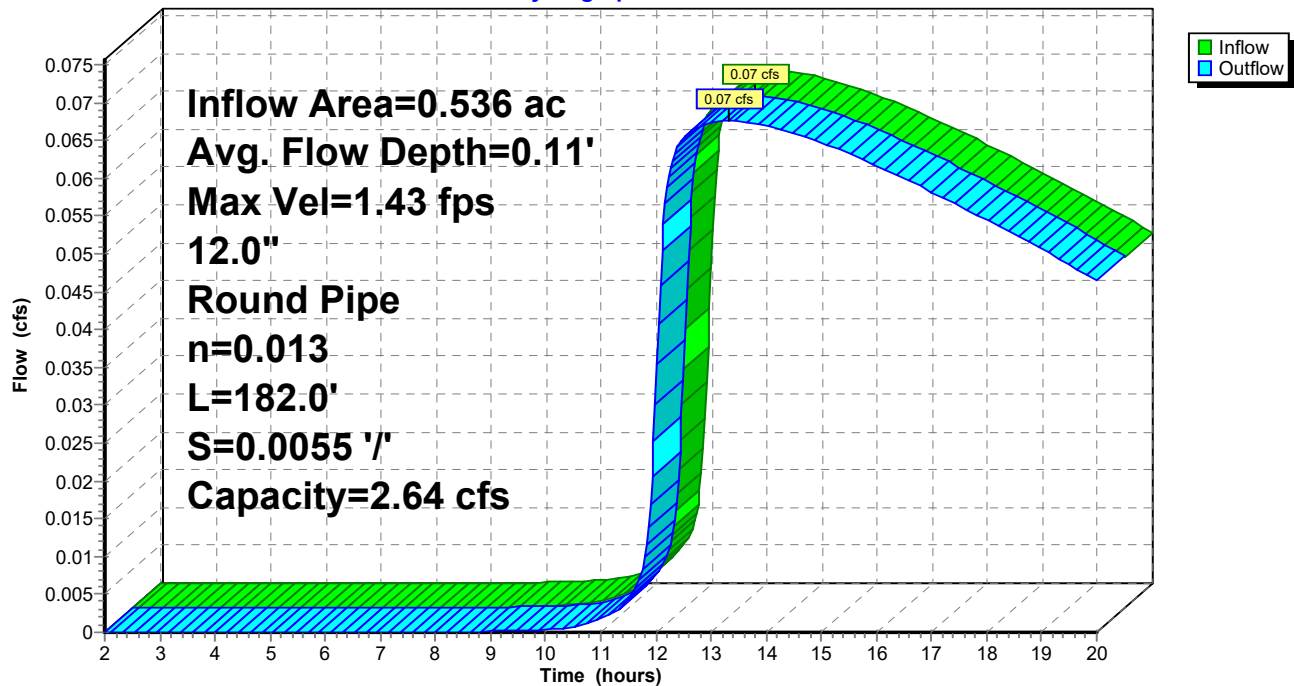
Length= 182.0' Slope= 0.0055 '/'

Inlet Invert= 205.00', Outlet Invert= 204.00'



Reach P4B: Pipe Out of 4B

Hydrograph



Stage-Area-Storage for Reach P4B: Pipe Out of 4B

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.00	0.0	0	205.52	0.4	75
205.01	0.0	0	205.53	0.4	77
205.02	0.0	1	205.54	0.4	79
205.03	0.0	1	205.55	0.4	81
205.04	0.0	2	205.56	0.5	82
205.05	0.0	3	205.57	0.5	84
205.06	0.0	4	205.58	0.5	86
205.07	0.0	4	205.59	0.5	88
205.08	0.0	5	205.60	0.5	90
205.09	0.0	6	205.61	0.5	91
205.10	0.0	7	205.62	0.5	93
205.11	0.0	9	205.63	0.5	95
205.12	0.1	10	205.64	0.5	97
205.13	0.1	11	205.65	0.5	98
205.14	0.1	12	205.66	0.5	100
205.15	0.1	13	205.67	0.6	102
205.16	0.1	15	205.68	0.6	104
205.17	0.1	16	205.69	0.6	105
205.18	0.1	17	205.70	0.6	107
205.19	0.1	19	205.71	0.6	109
205.20	0.1	20	205.72	0.6	110
205.21	0.1	22	205.73	0.6	112
205.22	0.1	23	205.74	0.6	113
205.23	0.1	25	205.75	0.6	115
205.24	0.1	26	205.76	0.6	117
205.25	0.2	28	205.77	0.6	118
205.26	0.2	30	205.78	0.7	120
205.27	0.2	31	205.79	0.7	121
205.28	0.2	33	205.80	0.7	123
205.29	0.2	34	205.81	0.7	124
205.30	0.2	36	205.82	0.7	125
205.31	0.2	38	205.83	0.7	127
205.32	0.2	39	205.84	0.7	128
205.33	0.2	41	205.85	0.7	129
205.34	0.2	43	205.86	0.7	131
205.35	0.2	45	205.87	0.7	132
205.36	0.3	46	205.88	0.7	133
205.37	0.3	48	205.89	0.7	134
205.38	0.3	50	205.90	0.7	136
205.39	0.3	52	205.91	0.8	137
205.40	0.3	53	205.92	0.8	138
205.41	0.3	55	205.93	0.8	139
205.42	0.3	57	205.94	0.8	139
205.43	0.3	59	205.95	0.8	140
205.44	0.3	61	205.96	0.8	141
205.45	0.3	62	205.97	0.8	142
205.46	0.4	64	205.98	0.8	142
205.47	0.4	66	205.99	0.8	143
205.48	0.4	68	206.00	0.8	143
205.49	0.4	70			
205.50	0.4	71			
205.51	0.4	73			

Summary for Reach P5: Pipe Out of 5

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 5P Primary device # 1 by 0.15'

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.12" for 2-year event
Inflow = 0.13 cfs @ 13.71 hrs, Volume= 0.094 af
Outflow = 0.13 cfs @ 13.72 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.6 min

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= 1.28 fps, Avg. Travel Time= 0.5 min

Peak Storage= 3 cf @ 13.71 hrs

Average Depth at Peak Storage= 0.15' , Surface Width= 0.71'

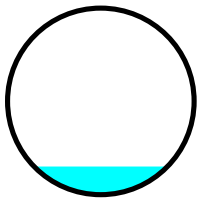
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.69 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

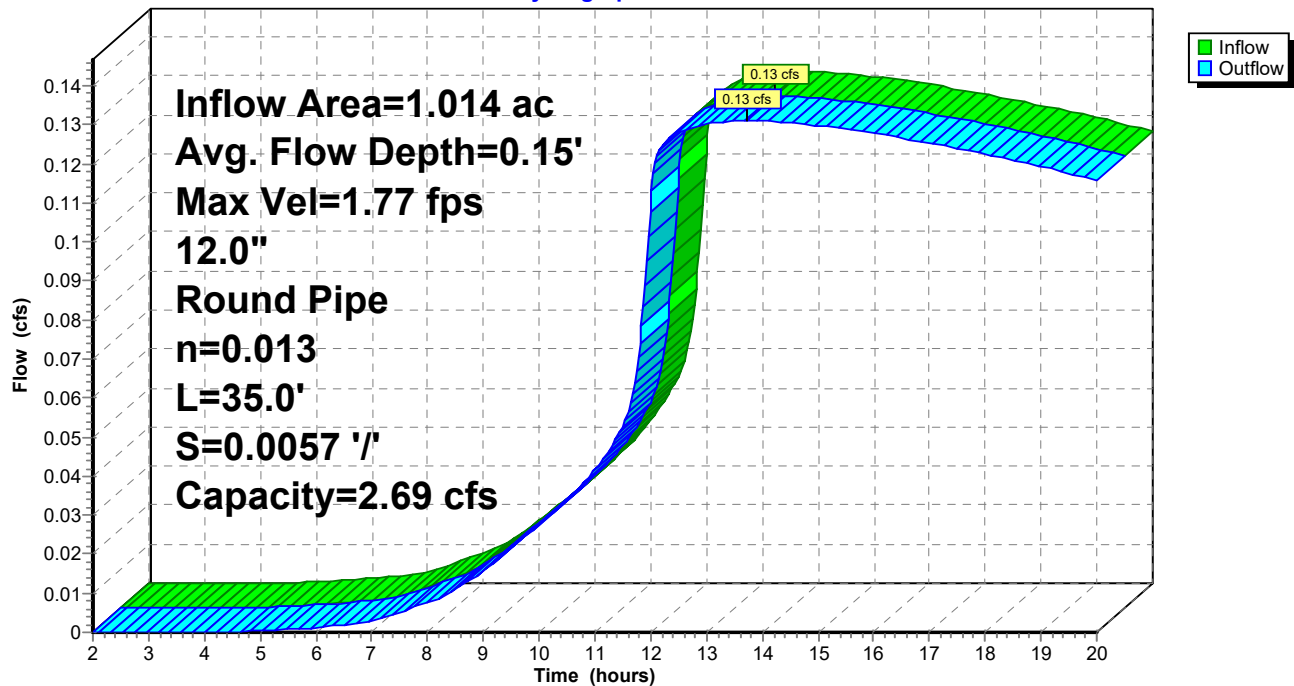
Length= 35.0' Slope= 0.0057 '/'

Inlet Invert= 204.00', Outlet Invert= 203.80'



Reach P5: Pipe Out of 5

Hydrograph



Stage-Area-Storage for Reach P5: Pipe Out of 5

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	14
204.01	0.0	0	204.53	0.4	15
204.02	0.0	0	204.54	0.4	15
204.03	0.0	0	204.55	0.4	15
204.04	0.0	0	204.56	0.5	16
204.05	0.0	1	204.57	0.5	16
204.06	0.0	1	204.58	0.5	17
204.07	0.0	1	204.59	0.5	17
204.08	0.0	1	204.60	0.5	17
204.09	0.0	1	204.61	0.5	18
204.10	0.0	1	204.62	0.5	18
204.11	0.0	2	204.63	0.5	18
204.12	0.1	2	204.64	0.5	19
204.13	0.1	2	204.65	0.5	19
204.14	0.1	2	204.66	0.5	19
204.15	0.1	3	204.67	0.6	20
204.16	0.1	3	204.68	0.6	20
204.17	0.1	3	204.69	0.6	20
204.18	0.1	3	204.70	0.6	21
204.19	0.1	4	204.71	0.6	21
204.20	0.1	4	204.72	0.6	21
204.21	0.1	4	204.73	0.6	22
204.22	0.1	4	204.74	0.6	22
204.23	0.1	5	204.75	0.6	22
204.24	0.1	5	204.76	0.6	22
204.25	0.2	5	204.77	0.6	23
204.26	0.2	6	204.78	0.7	23
204.27	0.2	6	204.79	0.7	23
204.28	0.2	6	204.80	0.7	24
204.29	0.2	7	204.81	0.7	24
204.30	0.2	7	204.82	0.7	24
204.31	0.2	7	204.83	0.7	24
204.32	0.2	8	204.84	0.7	25
204.33	0.2	8	204.85	0.7	25
204.34	0.2	8	204.86	0.7	25
204.35	0.2	9	204.87	0.7	25
204.36	0.3	9	204.88	0.7	26
204.37	0.3	9	204.89	0.7	26
204.38	0.3	10	204.90	0.7	26
204.39	0.3	10	204.91	0.8	26
204.40	0.3	10	204.92	0.8	26
204.41	0.3	11	204.93	0.8	27
204.42	0.3	11	204.94	0.8	27
204.43	0.3	11	204.95	0.8	27
204.44	0.3	12	204.96	0.8	27
204.45	0.3	12	204.97	0.8	27
204.46	0.4	12	204.98	0.8	27
204.47	0.4	13	204.99	0.8	27
204.48	0.4	13	205.00	0.8	27
204.49	0.4	13			
204.50	0.4	14			
204.51	0.4	14			

Summary for Reach P6: Pipe Out of 6

[52] Hint: Inlet/Outlet conditions not evaluated

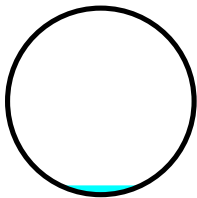
[79] Warning: Submerged Pond 6P Primary device # 1 by 0.05'

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 0.06" for 2-year event
Inflow = 0.01 cfs @ 20.00 hrs, Volume= 0.003 af
Outflow = 0.01 cfs @ 20.00 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.05 fps, Min. Travel Time= 1.0 min
Avg. Velocity= 0.82 fps, Avg. Travel Time= 1.2 min

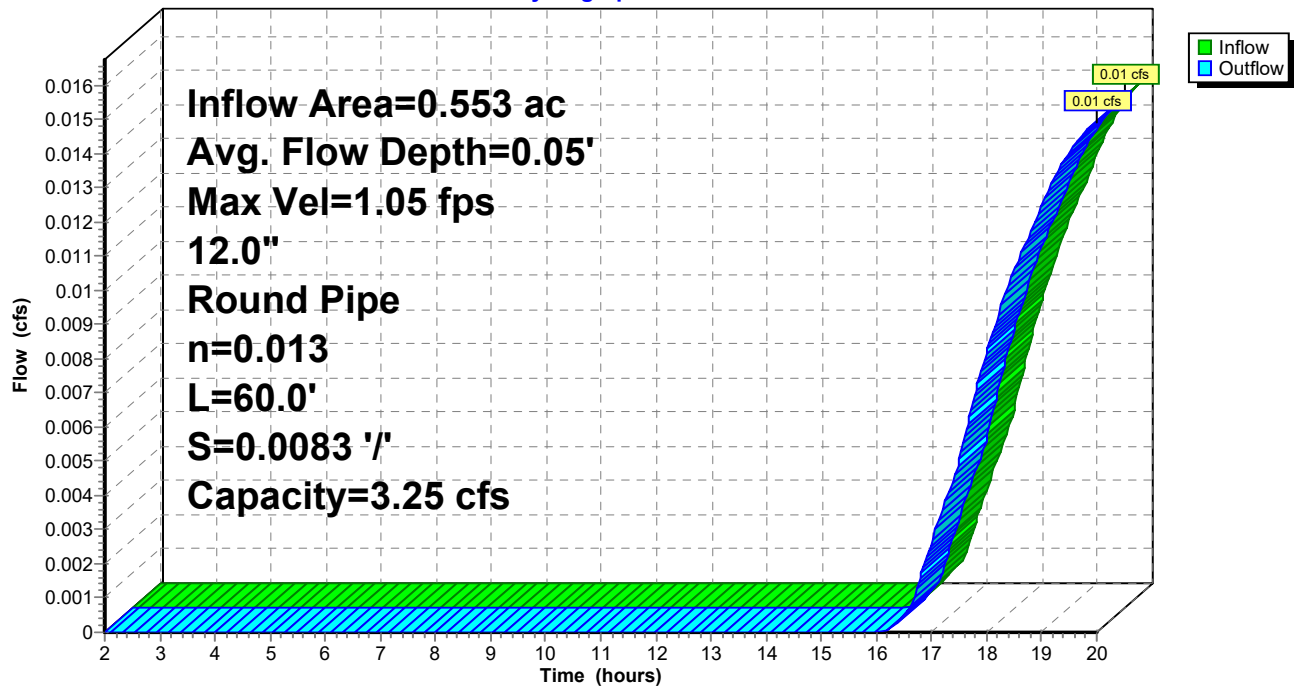
Peak Storage= 1 cf @ 20.00 hrs
Average Depth at Peak Storage= 0.05' , Surface Width= 0.43'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.25 cfs

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



Stage-Area-Storage for Reach P6: Pipe Out of 6

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
206.00	0.0	0	206.52	0.4	25
206.01	0.0	0	206.53	0.4	25
206.02	0.0	0	206.54	0.4	26
206.03	0.0	0	206.55	0.4	27
206.04	0.0	1	206.56	0.5	27
206.05	0.0	1	206.57	0.5	28
206.06	0.0	1	206.58	0.5	28
206.07	0.0	1	206.59	0.5	29
206.08	0.0	2	206.60	0.5	30
206.09	0.0	2	206.61	0.5	30
206.10	0.0	2	206.62	0.5	31
206.11	0.0	3	206.63	0.5	31
206.12	0.1	3	206.64	0.5	32
206.13	0.1	4	206.65	0.5	32
206.14	0.1	4	206.66	0.5	33
206.15	0.1	4	206.67	0.6	34
206.16	0.1	5	206.68	0.6	34
206.17	0.1	5	206.69	0.6	35
206.18	0.1	6	206.70	0.6	35
206.19	0.1	6	206.71	0.6	36
206.20	0.1	7	206.72	0.6	36
206.21	0.1	7	206.73	0.6	37
206.22	0.1	8	206.74	0.6	37
206.23	0.1	8	206.75	0.6	38
206.24	0.1	9	206.76	0.6	38
206.25	0.2	9	206.77	0.6	39
206.26	0.2	10	206.78	0.7	39
206.27	0.2	10	206.79	0.7	40
206.28	0.2	11	206.80	0.7	40
206.29	0.2	11	206.81	0.7	41
206.30	0.2	12	206.82	0.7	41
206.31	0.2	12	206.83	0.7	42
206.32	0.2	13	206.84	0.7	42
206.33	0.2	14	206.85	0.7	43
206.34	0.2	14	206.86	0.7	43
206.35	0.2	15	206.87	0.7	44
206.36	0.3	15	206.88	0.7	44
206.37	0.3	16	206.89	0.7	44
206.38	0.3	16	206.90	0.7	45
206.39	0.3	17	206.91	0.8	45
206.40	0.3	18	206.92	0.8	45
206.41	0.3	18	206.93	0.8	46
206.42	0.3	19	206.94	0.8	46
206.43	0.3	19	206.95	0.8	46
206.44	0.3	20	206.96	0.8	46
206.45	0.3	21	206.97	0.8	47
206.46	0.4	21	206.98	0.8	47
206.47	0.4	22	206.99	0.8	47
206.48	0.4	22	207.00	0.8	47
206.49	0.4	23			
206.50	0.4	24			
206.51	0.4	24			

Summary for Reach P7: Pipe Out of 7

[52] Hint: Inlet/Outlet conditions not evaluated

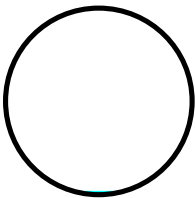
[79] Warning: Submerged Pond 7P Primary device # 1 by 0.02'

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

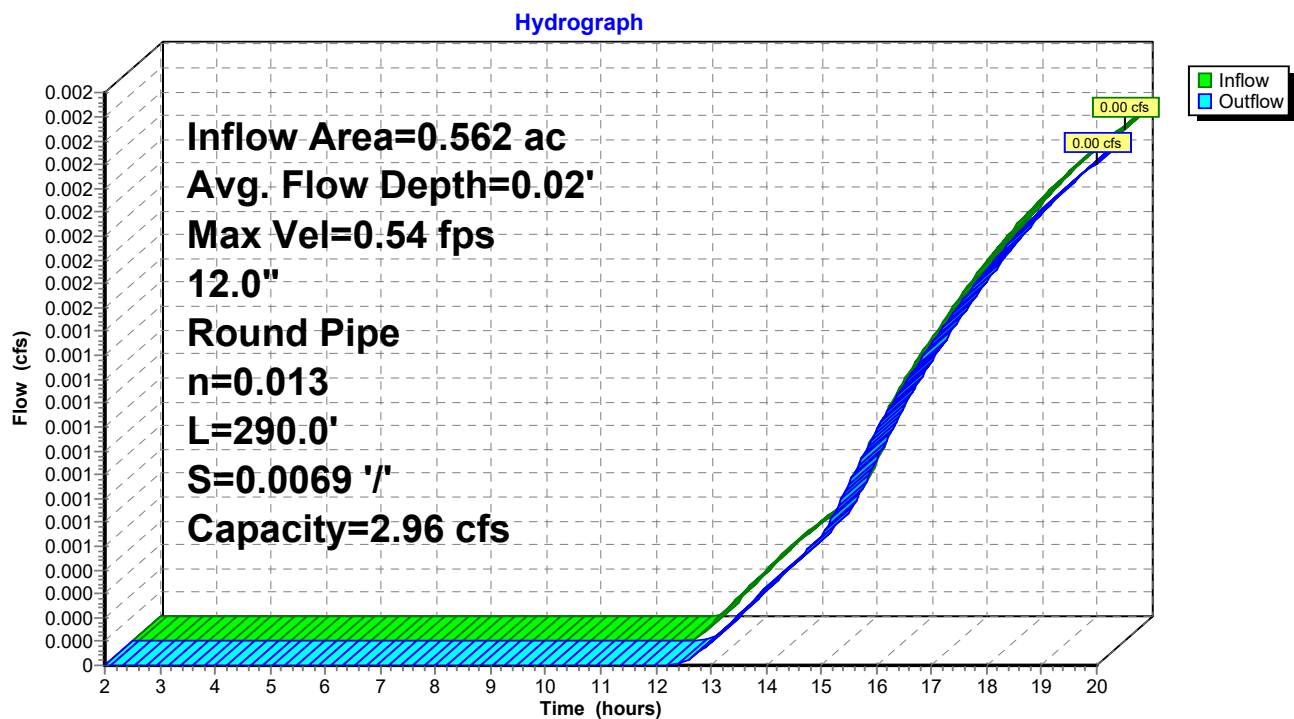
Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 0.54 fps, Min. Travel Time= 8.9 min
Avg. Velocity= 0.44 fps, Avg. Travel Time= 10.9 min

Peak Storage= 1 cf @ 20.00 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 0.28'
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



Stage-Area-Storage for Reach P7: Pipe Out of 7

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
206.00	0.0	0	206.52	0.4	120
206.01	0.0	0	206.53	0.4	123
206.02	0.0	1	206.54	0.4	125
206.03	0.0	2	206.55	0.4	128
206.04	0.0	3	206.56	0.5	131
206.05	0.0	4	206.57	0.5	134
206.06	0.0	6	206.58	0.5	137
206.07	0.0	7	206.59	0.5	140
206.08	0.0	9	206.60	0.5	143
206.09	0.0	10	206.61	0.5	146
206.10	0.0	12	206.62	0.5	148
206.11	0.0	14	206.63	0.5	151
206.12	0.1	15	206.64	0.5	154
206.13	0.1	17	206.65	0.5	157
206.14	0.1	19	206.66	0.5	159
206.15	0.1	21	206.67	0.6	162
206.16	0.1	24	206.68	0.6	165
206.17	0.1	26	206.69	0.6	168
206.18	0.1	28	206.70	0.6	170
206.19	0.1	30	206.71	0.6	173
206.20	0.1	32	206.72	0.6	176
206.21	0.1	35	206.73	0.6	178
206.22	0.1	37	206.74	0.6	181
206.23	0.1	40	206.75	0.6	183
206.24	0.1	42	206.76	0.6	186
206.25	0.2	45	206.77	0.6	188
206.26	0.2	47	206.78	0.7	191
206.27	0.2	50	206.79	0.7	193
206.28	0.2	52	206.80	0.7	195
206.29	0.2	55	206.81	0.7	198
206.30	0.2	57	206.82	0.7	200
206.31	0.2	60	206.83	0.7	202
206.32	0.2	63	206.84	0.7	204
206.33	0.2	66	206.85	0.7	206
206.34	0.2	68	206.86	0.7	208
206.35	0.2	71	206.87	0.7	210
206.36	0.3	74	206.88	0.7	212
206.37	0.3	77	206.89	0.7	214
206.38	0.3	79	206.90	0.7	216
206.39	0.3	82	206.91	0.8	218
206.40	0.3	85	206.92	0.8	219
206.41	0.3	88	206.93	0.8	221
206.42	0.3	91	206.94	0.8	222
206.43	0.3	94	206.95	0.8	224
206.44	0.3	97	206.96	0.8	225
206.45	0.3	99	206.97	0.8	226
206.46	0.4	102	206.98	0.8	227
206.47	0.4	105	206.99	0.8	227
206.48	0.4	108	207.00	0.8	228
206.49	0.4	111			
206.50	0.4	114			
206.51	0.4	117			

Summary for Reach W1: 1 Thru Wetland

[62] Hint: Exceeded Reach P1 OUTLET depth by 0.04' @ 19.52 hrs

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 0.67" for 2-year event
 Inflow = 0.04 cfs @ 14.54 hrs, Volume= 0.027 af
 Outflow = 0.04 cfs @ 19.45 hrs, Volume= 0.015 af, Atten= 5%, Lag= 294.6 min

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= 109.0 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 160.6 min

Peak Storage= 264 cf @ 17.63 hrs

Average Depth at Peak Storage= 0.13' , Surface Width= 9.04'

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

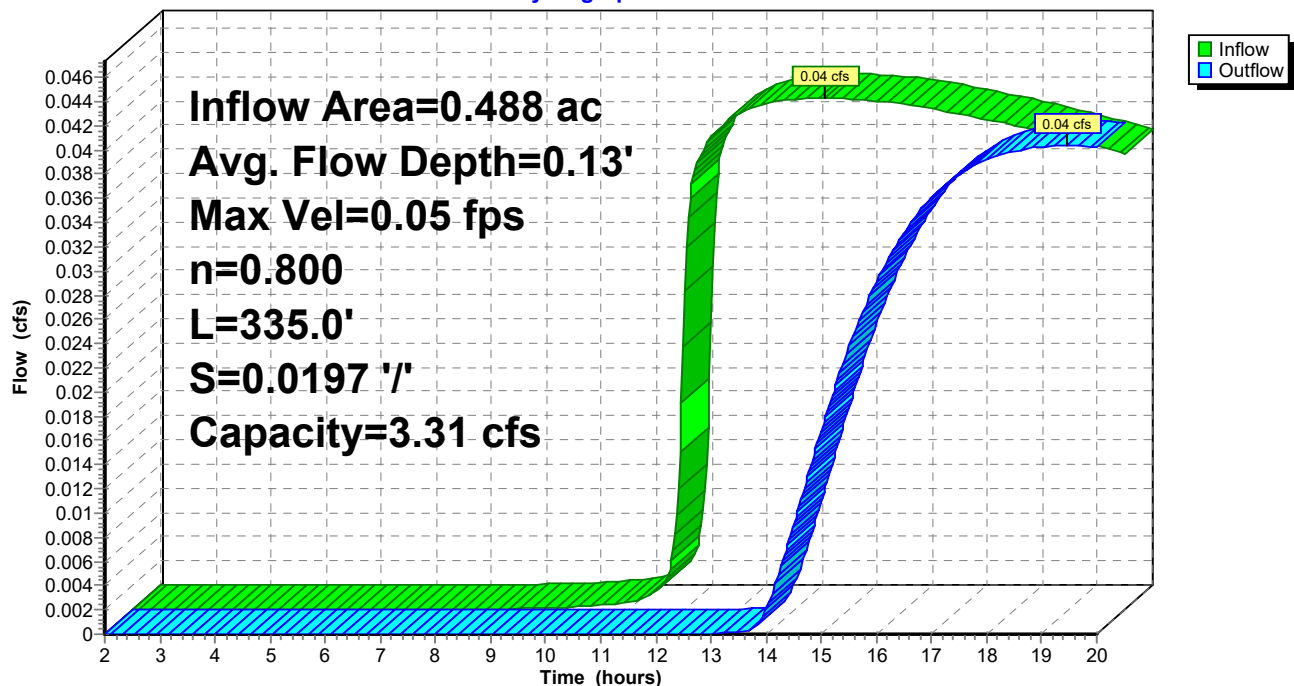
Length= 335.0' Slope= 0.0197 '/'

Inlet Invert= 203.60', Outlet Invert= 197.00'



Reach W1: 1 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W1: 1 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.60	0.0	0	204.12	6.2	2,094
203.61	0.0	6	204.13	6.4	2,154
203.62	0.0	16	204.14	6.6	2,216
203.63	0.1	29	204.15	6.8	2,277
203.64	0.1	45	204.16	7.0	2,340
203.65	0.2	62	204.17	7.2	2,403
203.66	0.2	82	204.18	7.4	2,466
203.67	0.3	103	204.19	7.6	2,530
203.68	0.4	126	204.20	7.7	2,595
203.69	0.4	151	204.21	7.9	2,660
203.70	0.5	177	204.22	8.1	2,726
203.71	0.6	204	204.23	8.3	2,792
203.72	0.7	232	204.24	8.5	2,859
203.73	0.8	262	204.25	8.7	2,926
203.74	0.9	292	204.26	8.9	2,994
203.75	1.0	324	204.27	9.1	3,062
203.76	1.1	357	204.28	9.3	3,131
203.77	1.2	391	204.29	9.6	3,200
203.78	1.3	426	204.30	9.8	3,270
203.79	1.4	462	204.31	10.0	3,340
203.80	1.5	499	204.32	10.2	3,411
203.81	1.6	537	204.33	10.4	3,482
203.82	1.7	576	204.34	10.6	3,554
203.83	1.8	616	204.35	10.8	3,626
203.84	2.0	656	204.36	11.0	3,699
203.85	2.1	698	204.37	11.3	3,773
203.86	2.2	740	204.38	11.5	3,846
203.87	2.3	783	204.39	11.7	3,920
203.88	2.5	827	204.40	11.9	3,995
203.89	2.6	872	204.41	12.2	4,070
203.90	2.7	917	204.42	12.4	4,146
203.91	2.9	964	204.43	12.6	4,222
203.92	3.0	1,011	204.44	12.8	4,298
203.93	3.2	1,058	204.45	13.1	4,375
203.94	3.3	1,107	204.46	13.3	4,453
203.95	3.5	1,156	204.47	13.5	4,531
203.96	3.6	1,206	204.48	13.8	4,609
203.97	3.8	1,257	204.49	14.0	4,688
203.98	3.9	1,308	204.50	14.2	4,767
203.99	4.1	1,360	204.51	14.5	4,847
204.00	4.2	1,412	204.52	14.7	4,927
204.01	4.4	1,466	204.53	14.9	5,007
204.02	4.5	1,520	204.54	15.2	5,088
204.03	4.7	1,574	204.55	15.4	5,170
204.04	4.9	1,630	204.56	15.7	5,252
204.05	5.0	1,685	204.57	15.9	5,334
204.06	5.2	1,742	204.58	16.2	5,417
204.07	5.4	1,799	204.59	16.4	5,500
204.08	5.5	1,857	204.60	16.7	5,583
204.09	5.7	1,915			
204.10	5.9	1,974			
204.11	6.1	2,034			

Summary for Reach W2: 2 Thru Wetland

[62] Hint: Exceeded Reach P2 OUTLET depth by 0.06' @ 17.57 hrs

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 1.49" for 2-year event
 Inflow = 0.07 cfs @ 12.88 hrs, Volume= 0.046 af
 Outflow = 0.06 cfs @ 17.92 hrs, Volume= 0.028 af, Atten= 12%, Lag= 302.1 min

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= 115.4 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 201.8 min

Peak Storage= 448 cf @ 15.99 hrs

Average Depth at Peak Storage= 0.17' , Surface Width= 10.38'

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

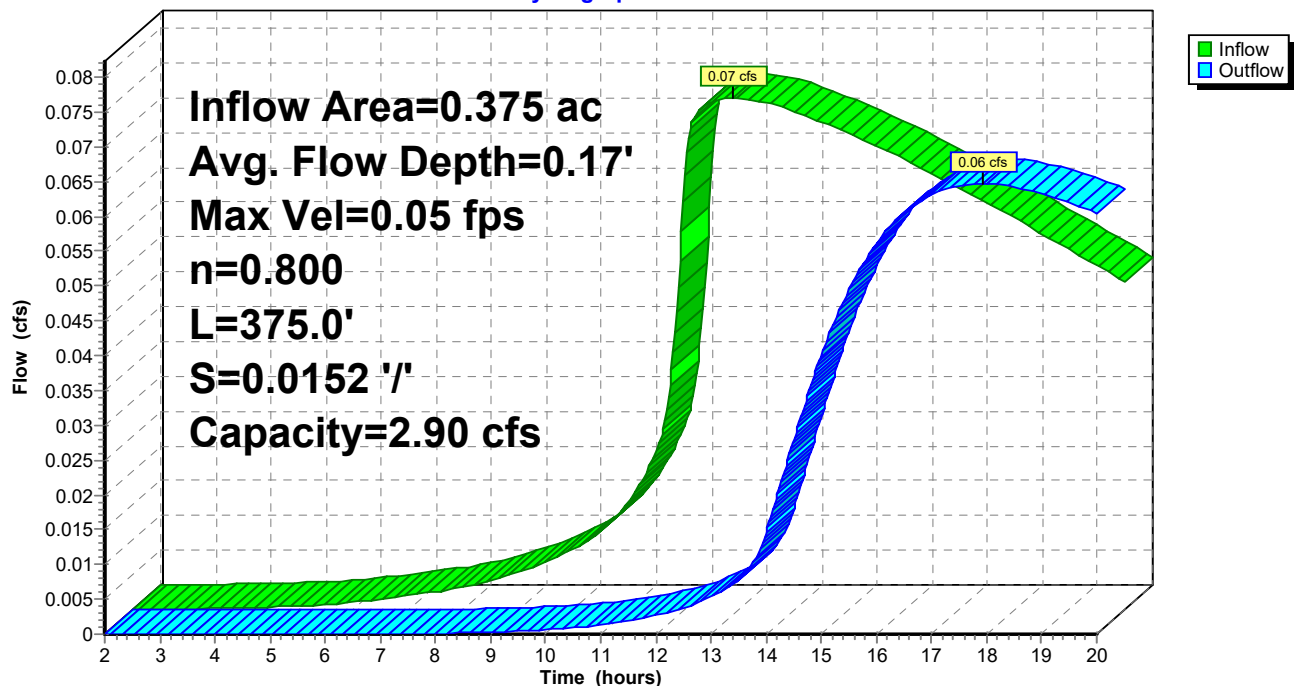
Length= 375.0' Slope= 0.0152 '/'

Inlet Invert= 203.70', Outlet Invert= 198.00'



Reach W2: 2 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W2: 2 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.70	0.0	0	204.22	6.2	2,344
203.71	0.0	6	204.23	6.4	2,412
203.72	0.0	18	204.24	6.6	2,480
203.73	0.1	32	204.25	6.8	2,549
203.74	0.1	50	204.26	7.0	2,619
203.75	0.2	70	204.27	7.2	2,690
203.76	0.2	92	204.28	7.4	2,761
203.77	0.3	116	204.29	7.6	2,832
203.78	0.4	141	204.30	7.7	2,905
203.79	0.4	169	204.31	7.9	2,978
203.80	0.5	198	204.32	8.1	3,051
203.81	0.6	228	204.33	8.3	3,125
203.82	0.7	260	204.34	8.5	3,200
203.83	0.8	293	204.35	8.7	3,275
203.84	0.9	327	204.36	8.9	3,351
203.85	1.0	363	204.37	9.1	3,428
203.86	1.1	400	204.38	9.3	3,505
203.87	1.2	438	204.39	9.6	3,582
203.88	1.3	477	204.40	9.8	3,660
203.89	1.4	518	204.41	10.0	3,739
203.90	1.5	559	204.42	10.2	3,818
203.91	1.6	601	204.43	10.4	3,898
203.92	1.7	645	204.44	10.6	3,979
203.93	1.8	689	204.45	10.8	4,059
203.94	2.0	735	204.46	11.0	4,141
203.95	2.1	781	204.47	11.3	4,223
203.96	2.2	829	204.48	11.5	4,305
203.97	2.3	877	204.49	11.7	4,389
203.98	2.5	926	204.50	11.9	4,472
203.99	2.6	976	204.51	12.2	4,556
204.00	2.7	1,027	204.52	12.4	4,641
204.01	2.9	1,079	204.53	12.6	4,726
204.02	3.0	1,131	204.54	12.8	4,812
204.03	3.2	1,185	204.55	13.1	4,898
204.04	3.3	1,239	204.56	13.3	4,985
204.05	3.5	1,294	204.57	13.5	5,072
204.06	3.6	1,350	204.58	13.8	5,159
204.07	3.8	1,407	204.59	14.0	5,248
204.08	3.9	1,464	204.60	14.2	5,336
204.09	4.1	1,522	204.61	14.5	5,426
204.10	4.2	1,581	204.62	14.7	5,515
204.11	4.4	1,641	204.63	14.9	5,605
204.12	4.5	1,701	204.64	15.2	5,696
204.13	4.7	1,762	204.65	15.4	5,787
204.14	4.9	1,824	204.66	15.7	5,879
204.15	5.0	1,887	204.67	15.9	5,971
204.16	5.2	1,950	204.68	16.2	6,063
204.17	5.4	2,014	204.69	16.4	6,156
204.18	5.5	2,078	204.70	16.7	6,250
204.19	5.7	2,144			
204.20	5.9	2,210			
204.21	6.1	2,276			

Summary for Reach W3: 3 Thru Wetland

[62] Hint: Exceeded Reach P3 OUTLET depth by 0.08' @ 19.97 hrs

Inflow Area = 0.643 ac, 43.14% Impervious, Inflow Depth > 0.92" for 2-year event
 Inflow = 0.13 cfs @ 12.00 hrs, Volume= 0.050 af
 Outflow = 0.03 cfs @ 20.00 hrs, Volume= 0.003 af, Atten= 77%, Lag= 480.3 min

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= 324.9 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 532.7 min

Peak Storage= 1,100 cf @ 20.00 hrs

Average Depth at Peak Storage= 0.18' , Surface Width= 10.66'

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

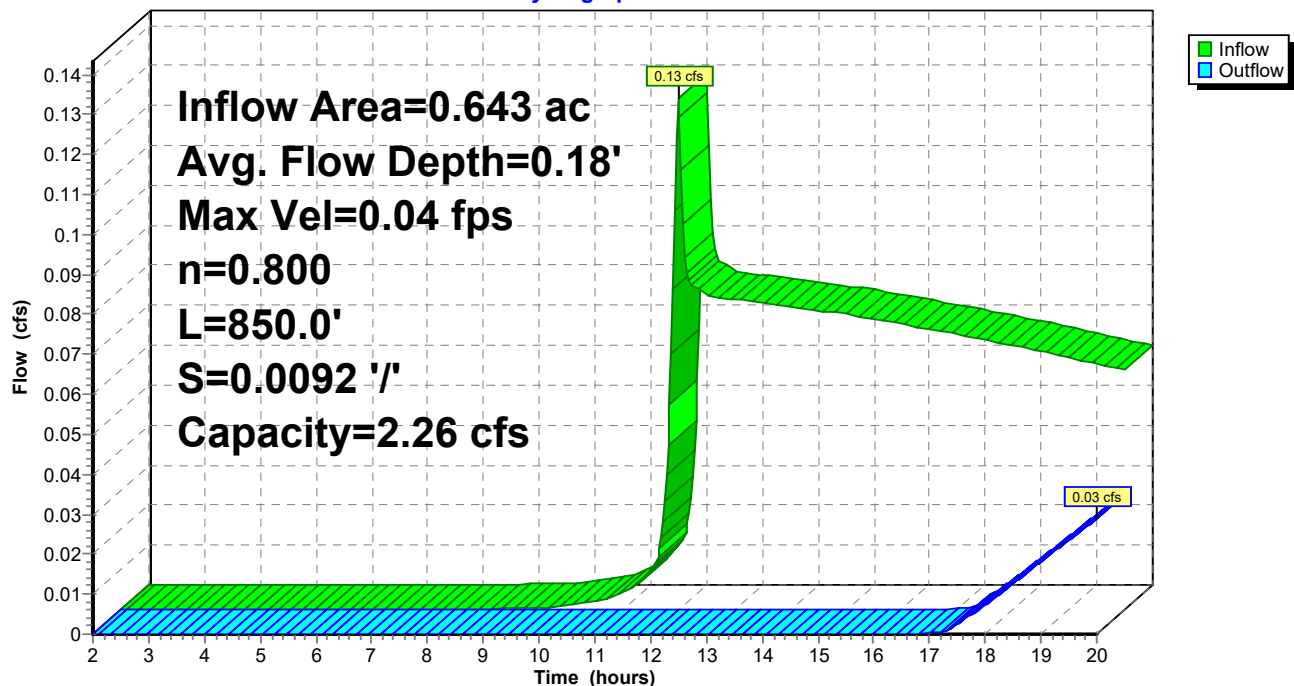
Length= 850.0' Slope= 0.0092 '/'

Inlet Invert= 204.80', Outlet Invert= 197.00'



Reach W3: 3 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W3: 3 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.80	0.0	0	205.32	6.2	5,312
204.81	0.0	14	205.33	6.4	5,466
204.82	0.0	40	205.34	6.6	5,622
204.83	0.1	74	205.35	6.8	5,778
204.84	0.1	113	205.36	7.0	5,937
204.85	0.2	158	205.37	7.2	6,096
204.86	0.2	208	205.38	7.4	6,258
204.87	0.3	262	205.39	7.6	6,420
204.88	0.4	321	205.40	7.7	6,584
204.89	0.4	382	205.41	7.9	6,749
204.90	0.5	448	205.42	8.1	6,916
204.91	0.6	517	205.43	8.3	7,084
204.92	0.7	589	205.44	8.5	7,253
204.93	0.8	664	205.45	8.7	7,424
204.94	0.9	742	205.46	8.9	7,596
204.95	1.0	823	205.47	9.1	7,769
204.96	1.1	907	205.48	9.3	7,944
204.97	1.2	993	205.49	9.6	8,120
204.98	1.3	1,082	205.50	9.8	8,297
204.99	1.4	1,173	205.51	10.0	8,475
205.00	1.5	1,267	205.52	10.2	8,655
205.01	1.6	1,363	205.53	10.4	8,836
205.02	1.7	1,462	205.54	10.6	9,018
205.03	1.8	1,563	205.55	10.8	9,202
205.04	2.0	1,666	205.56	11.0	9,386
205.05	2.1	1,771	205.57	11.3	9,572
205.06	2.2	1,878	205.58	11.5	9,759
205.07	2.3	1,988	205.59	11.7	9,947
205.08	2.5	2,099	205.60	11.9	10,137
205.09	2.6	2,212	205.61	12.2	10,328
205.10	2.7	2,328	205.62	12.4	10,519
205.11	2.9	2,445	205.63	12.6	10,712
205.12	3.0	2,564	205.64	12.8	10,907
205.13	3.2	2,686	205.65	13.1	11,102
205.14	3.3	2,809	205.66	13.3	11,298
205.15	3.5	2,933	205.67	13.5	11,496
205.16	3.6	3,060	205.68	13.8	11,695
205.17	3.8	3,188	205.69	14.0	11,895
205.18	3.9	3,319	205.70	14.2	12,096
205.19	4.1	3,450	205.71	14.5	12,298
205.20	4.2	3,584	205.72	14.7	12,501
205.21	4.4	3,719	205.73	14.9	12,706
205.22	4.5	3,856	205.74	15.2	12,911
205.23	4.7	3,995	205.75	15.4	13,118
205.24	4.9	4,135	205.76	15.7	13,325
205.25	5.0	4,276	205.77	15.9	13,534
205.26	5.2	4,420	205.78	16.2	13,744
205.27	5.4	4,565	205.79	16.4	13,955
205.28	5.5	4,711	205.80	16.7	14,167
205.29	5.7	4,859			
205.30	5.9	5,009			
205.31	6.1	5,160			

Summary for Reach W4B: 4B Thru Wetland

[62] Hint: Exceeded Reach P4B OUTLET depth by 0.07' @ 19.97 hrs

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 0.90" for 2-year event
 Inflow = 0.07 cfs @ 13.33 hrs, Volume= 0.040 af
 Outflow = 0.05 cfs @ 20.00 hrs, Volume= 0.013 af, Atten= 21%, Lag= 400.0 min

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= 183.3 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 280.1 min

Peak Storage= 599 cf @ 18.01 hrs

Average Depth at Peak Storage= 0.17' , Surface Width= 10.29'

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

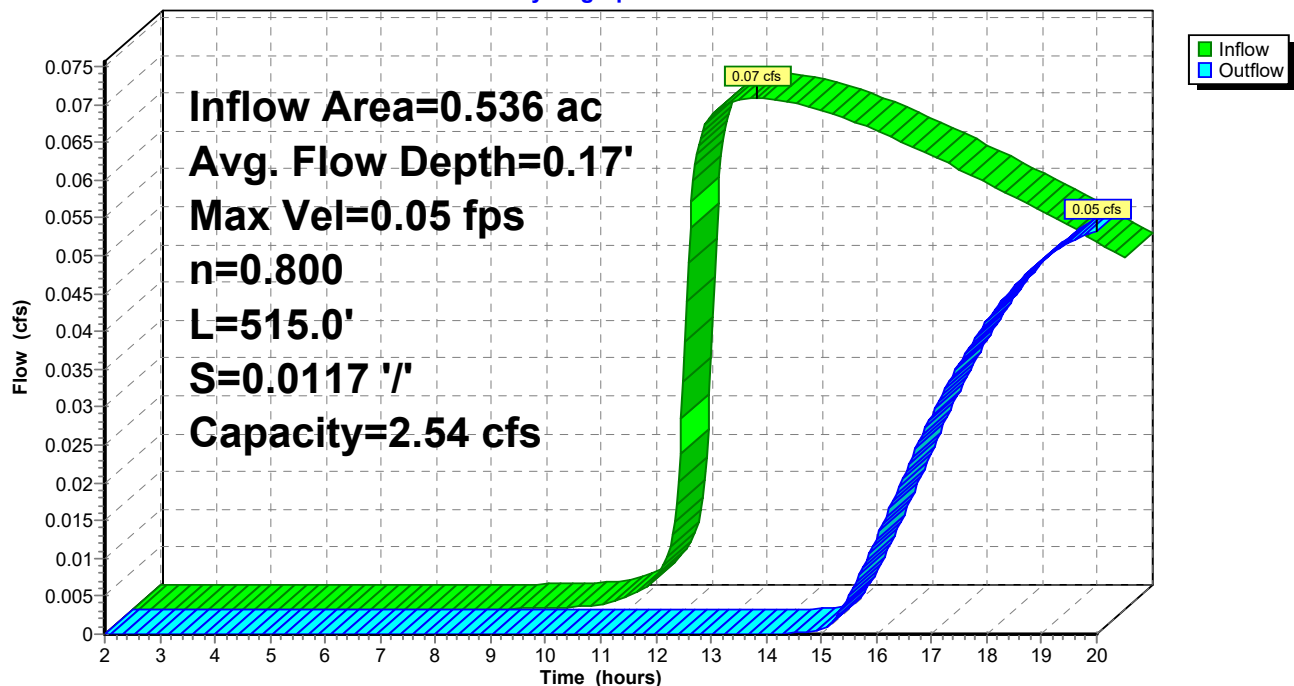
Length= 515.0' Slope= 0.0117 '/'

Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W4B: 4B Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W4B: 4B Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	6.2	3,219
204.01	0.0	9	204.53	6.4	3,312
204.02	0.0	24	204.54	6.6	3,406
204.03	0.1	45	204.55	6.8	3,501
204.04	0.1	69	204.56	7.0	3,597
204.05	0.2	96	204.57	7.2	3,694
204.06	0.2	126	204.58	7.4	3,791
204.07	0.3	159	204.59	7.6	3,890
204.08	0.4	194	204.60	7.7	3,989
204.09	0.4	232	204.61	7.9	4,089
204.10	0.5	271	204.62	8.1	4,190
204.11	0.6	313	204.63	8.3	4,292
204.12	0.7	357	204.64	8.5	4,395
204.13	0.8	402	204.65	8.7	4,498
204.14	0.9	450	204.66	8.9	4,602
204.15	1.0	499	204.67	9.1	4,707
204.16	1.1	549	204.68	9.3	4,813
204.17	1.2	602	204.69	9.6	4,920
204.18	1.3	655	204.70	9.8	5,027
204.19	1.4	711	204.71	10.0	5,135
204.20	1.5	768	204.72	10.2	5,244
204.21	1.6	826	204.73	10.4	5,354
204.22	1.7	886	204.74	10.6	5,464
204.23	1.8	947	204.75	10.8	5,575
204.24	2.0	1,009	204.76	11.0	5,687
204.25	2.1	1,073	204.77	11.3	5,800
204.26	2.2	1,138	204.78	11.5	5,913
204.27	2.3	1,204	204.79	11.7	6,027
204.28	2.5	1,272	204.80	11.9	6,142
204.29	2.6	1,340	204.81	12.2	6,257
204.30	2.7	1,410	204.82	12.4	6,373
204.31	2.9	1,481	204.83	12.6	6,490
204.32	3.0	1,554	204.84	12.8	6,608
204.33	3.2	1,627	204.85	13.1	6,726
204.34	3.3	1,702	204.86	13.3	6,845
204.35	3.5	1,777	204.87	13.5	6,965
204.36	3.6	1,854	204.88	13.8	7,086
204.37	3.8	1,932	204.89	14.0	7,207
204.38	3.9	2,011	204.90	14.2	7,329
204.39	4.1	2,091	204.91	14.5	7,451
204.40	4.2	2,171	204.92	14.7	7,574
204.41	4.4	2,253	204.93	14.9	7,698
204.42	4.5	2,336	204.94	15.2	7,823
204.43	4.7	2,420	204.95	15.4	7,948
204.44	4.9	2,505	204.96	15.7	8,074
204.45	5.0	2,591	204.97	15.9	8,200
204.46	5.2	2,678	204.98	16.2	8,327
204.47	5.4	2,766	204.99	16.4	8,455
204.48	5.5	2,854	205.00	16.7	8,583
204.49	5.7	2,944			
204.50	5.9	3,035			
204.51	6.1	3,126			

Summary for Reach W5: 5 Thru Wetland

[62] Hint: Exceeded Reach P5 OUTLET depth by 0.08' @ 17.00 hrs

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.12" for 2-year event
 Inflow = 0.13 cfs @ 13.72 hrs, Volume= 0.094 af
 Outflow = 0.13 cfs @ 17.11 hrs, Volume= 0.070 af, Atten= 2%, Lag= 203.5 min

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= 74.5 min

Avg. Velocity = 0.05 fps, Avg. Travel Time= 115.2 min

Peak Storage= 573 cf @ 15.87 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

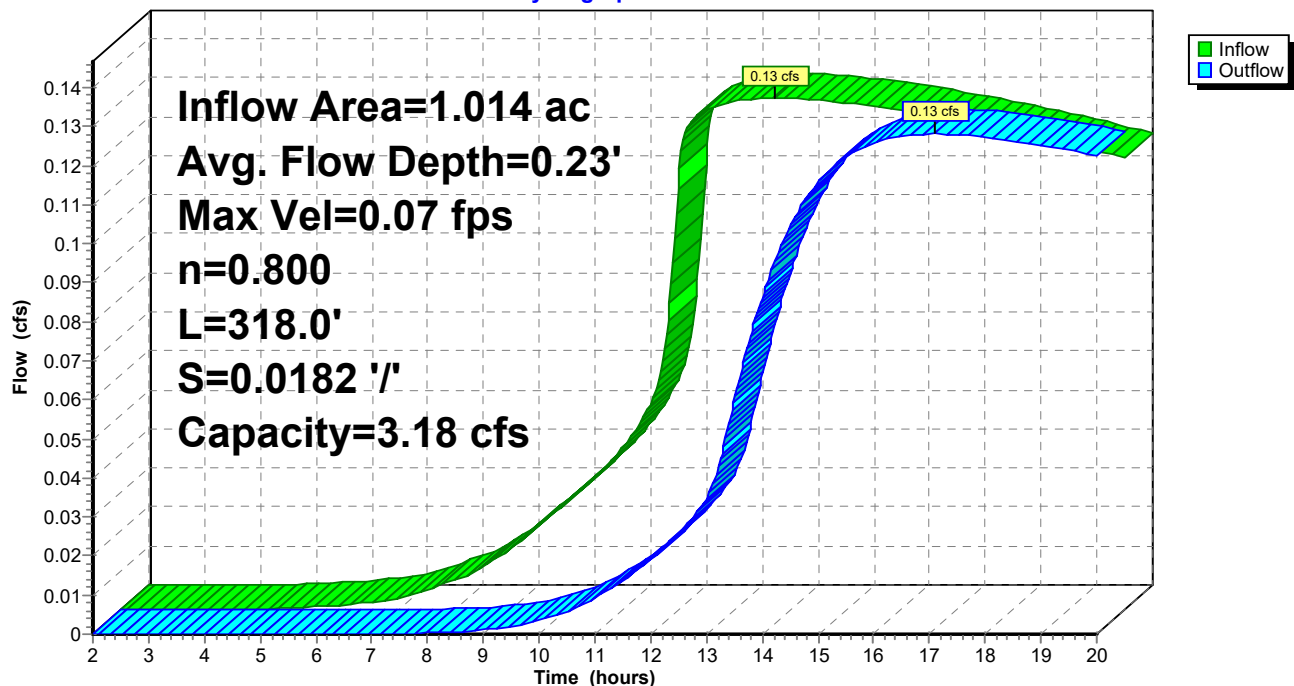
Length= 318.0' Slope= 0.0182 1'

Inlet Invert= 203.80', Outlet Invert= 198.00'



Reach W5: 5 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W5: 5 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.80	0.0	0	204.32	6.2	1,987
203.81	0.0	5	204.33	6.4	2,045
203.82	0.0	15	204.34	6.6	2,103
203.83	0.1	28	204.35	6.8	2,162
203.84	0.1	42	204.36	7.0	2,221
203.85	0.2	59	204.37	7.2	2,281
203.86	0.2	78	204.38	7.4	2,341
203.87	0.3	98	204.39	7.6	2,402
203.88	0.4	120	204.40	7.7	2,463
203.89	0.4	143	204.41	7.9	2,525
203.90	0.5	168	204.42	8.1	2,587
203.91	0.6	193	204.43	8.3	2,650
203.92	0.7	220	204.44	8.5	2,714
203.93	0.8	248	204.45	8.7	2,777
203.94	0.9	278	204.46	8.9	2,842
203.95	1.0	308	204.47	9.1	2,907
203.96	1.1	339	204.48	9.3	2,972
203.97	1.2	371	204.49	9.6	3,038
203.98	1.3	405	204.50	9.8	3,104
203.99	1.4	439	204.51	10.0	3,171
204.00	1.5	474	204.52	10.2	3,238
204.01	1.6	510	204.53	10.4	3,306
204.02	1.7	547	204.54	10.6	3,374
204.03	1.8	585	204.55	10.8	3,442
204.04	2.0	623	204.56	11.0	3,512
204.05	2.1	663	204.57	11.3	3,581
204.06	2.2	703	204.58	11.5	3,651
204.07	2.3	744	204.59	11.7	3,721
204.08	2.5	785	204.60	11.9	3,792
204.09	2.6	828	204.61	12.2	3,864
204.10	2.7	871	204.62	12.4	3,935
204.11	2.9	915	204.63	12.6	4,008
204.12	3.0	959	204.64	12.8	4,080
204.13	3.2	1,005	204.65	13.1	4,153
204.14	3.3	1,051	204.66	13.3	4,227
204.15	3.5	1,097	204.67	13.5	4,301
204.16	3.6	1,145	204.68	13.8	4,375
204.17	3.8	1,193	204.69	14.0	4,450
204.18	3.9	1,242	204.70	14.2	4,525
204.19	4.1	1,291	204.71	14.5	4,601
204.20	4.2	1,341	204.72	14.7	4,677
204.21	4.4	1,391	204.73	14.9	4,753
204.22	4.5	1,443	204.74	15.2	4,830
204.23	4.7	1,494	204.75	15.4	4,908
204.24	4.9	1,547	204.76	15.7	4,985
204.25	5.0	1,600	204.77	15.9	5,063
204.26	5.2	1,654	204.78	16.2	5,142
204.27	5.4	1,708	204.79	16.4	5,221
204.28	5.5	1,763	204.80	16.7	5,300
204.29	5.7	1,818			
204.30	5.9	1,874			
204.31	6.1	1,930			

Summary for Reach W6: 6 Thru Wetland

[61] Hint: Exceeded Reach P6 outlet invert by 0.04' @ 20.00 hrs

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 0.06" for 2-year event
 Inflow = 0.01 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

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= 512.6 min

Avg. Velocity = 0.01 fps, Avg. Travel Time= 852.6 min

Peak Storage= 98 cf @ 20.00 hrs

Average Depth at Peak Storage= 0.04' , Surface Width= 5.30'

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

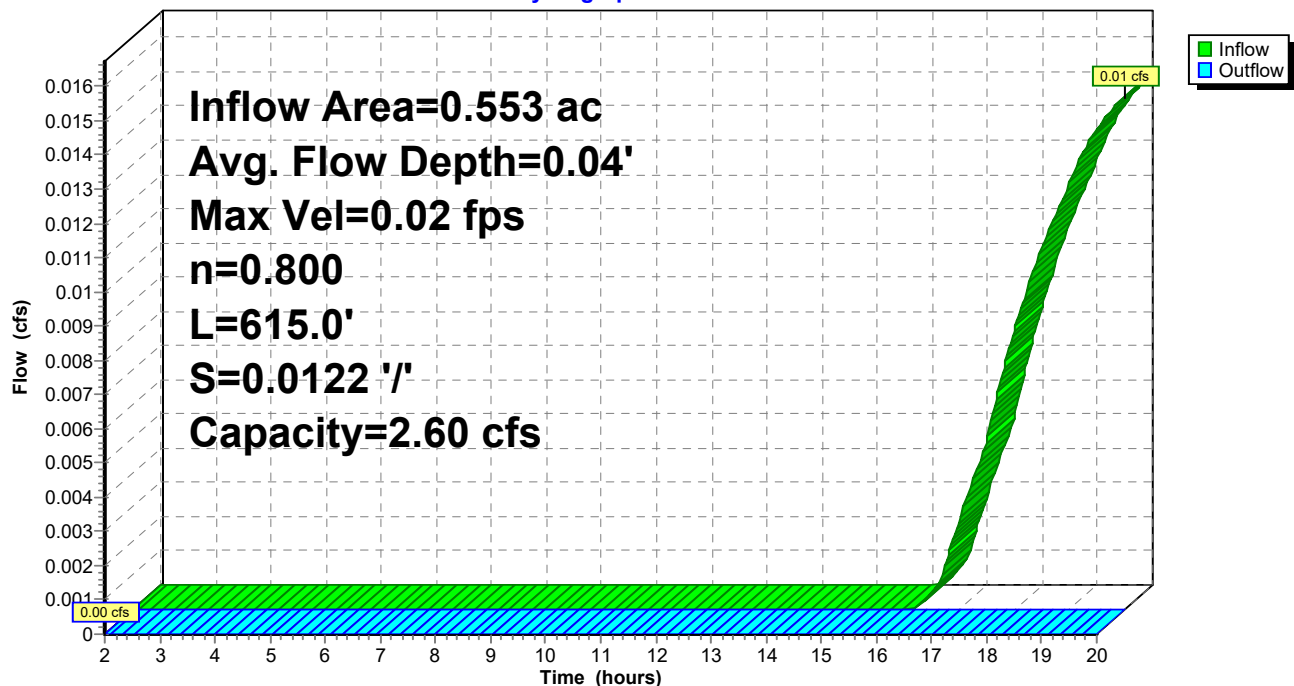
Length= 615.0' Slope= 0.0122 '/'

Inlet Invert= 205.50', Outlet Invert= 198.00'



Reach W6: 6 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W6: 6 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.50	0.0	0	206.02	6.2	3,844
205.51	0.0	10	206.03	6.4	3,955
205.52	0.0	29	206.04	6.6	4,067
205.53	0.1	53	206.05	6.8	4,181
205.54	0.1	82	206.06	7.0	4,295
205.55	0.2	115	206.07	7.2	4,411
205.56	0.2	151	206.08	7.4	4,528
205.57	0.3	190	206.09	7.6	4,645
205.58	0.4	232	206.10	7.7	4,764
205.59	0.4	277	206.11	7.9	4,883
205.60	0.5	324	206.12	8.1	5,004
205.61	0.6	374	206.13	8.3	5,125
205.62	0.7	426	206.14	8.5	5,248
205.63	0.8	480	206.15	8.7	5,371
205.64	0.9	537	206.16	8.9	5,496
205.65	1.0	595	206.17	9.1	5,621
205.66	1.1	656	206.18	9.3	5,748
205.67	1.2	718	206.19	9.6	5,875
205.68	1.3	783	206.20	9.8	6,003
205.69	1.4	849	206.21	10.0	6,132
205.70	1.5	917	206.22	10.2	6,262
205.71	1.6	986	206.23	10.4	6,393
205.72	1.7	1,058	206.24	10.6	6,525
205.73	1.8	1,131	206.25	10.8	6,658
205.74	2.0	1,205	206.26	11.0	6,791
205.75	2.1	1,281	206.27	11.3	6,926
205.76	2.2	1,359	206.28	11.5	7,061
205.77	2.3	1,438	206.29	11.7	7,197
205.78	2.5	1,519	206.30	11.9	7,334
205.79	2.6	1,601	206.31	12.2	7,472
205.80	2.7	1,684	206.32	12.4	7,611
205.81	2.9	1,769	206.33	12.6	7,751
205.82	3.0	1,855	206.34	12.8	7,891
205.83	3.2	1,943	206.35	13.1	8,033
205.84	3.3	2,032	206.36	13.3	8,175
205.85	3.5	2,122	206.37	13.5	8,318
205.86	3.6	2,214	206.38	13.8	8,462
205.87	3.8	2,307	206.39	14.0	8,606
205.88	3.9	2,401	206.40	14.2	8,752
205.89	4.1	2,496	206.41	14.5	8,898
205.90	4.2	2,593	206.42	14.7	9,045
205.91	4.4	2,691	206.43	14.9	9,193
205.92	4.5	2,790	206.44	15.2	9,341
205.93	4.7	2,890	206.45	15.4	9,491
205.94	4.9	2,992	206.46	15.7	9,641
205.95	5.0	3,094	206.47	15.9	9,792
205.96	5.2	3,198	206.48	16.2	9,944
205.97	5.4	3,303	206.49	16.4	10,097
205.98	5.5	3,409	206.50	16.7	10,250
205.99	5.7	3,516			
206.00	5.9	3,624			
206.01	6.1	3,733			

Summary for Reach W7: 7 Thru Wetland

[61] Hint: Exceeded Reach P7 outlet invert by 0.02' @ 20.00 hrs

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

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= 981.2 min

Avg. Velocity = 0.01 fps, Avg. Travel Time= 1,338.5 min

Peak Storage= 25 cf @ 20.00 hrs

Average Depth at Peak Storage= 0.02' , Surface Width= 3.39'

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

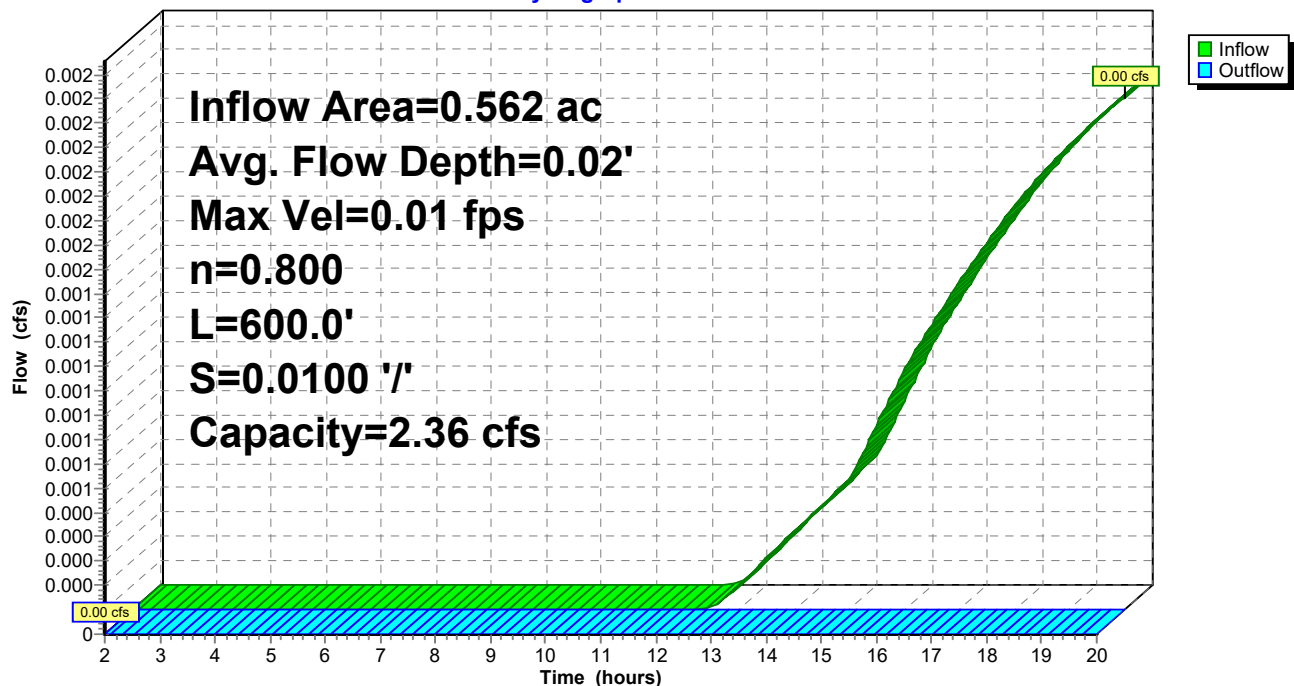
Length= 600.0' Slope= 0.0100 1'

Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W7: 7 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W7: 7 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	6.2	3,750
204.01	0.0	10	204.53	6.4	3,858
204.02	0.0	28	204.54	6.6	3,968
204.03	0.1	52	204.55	6.8	4,079
204.04	0.1	80	204.56	7.0	4,191
204.05	0.2	112	204.57	7.2	4,303
204.06	0.2	147	204.58	7.4	4,417
204.07	0.3	185	204.59	7.6	4,532
204.08	0.4	226	204.60	7.7	4,648
204.09	0.4	270	204.61	7.9	4,764
204.10	0.5	316	204.62	8.1	4,882
204.11	0.6	365	204.63	8.3	5,000
204.12	0.7	416	204.64	8.5	5,120
204.13	0.8	469	204.65	8.7	5,240
204.14	0.9	524	204.66	8.9	5,362
204.15	1.0	581	204.67	9.1	5,484
204.16	1.1	640	204.68	9.3	5,607
204.17	1.2	701	204.69	9.6	5,732
204.18	1.3	764	204.70	9.8	5,857
204.19	1.4	828	204.71	10.0	5,983
204.20	1.5	894	204.72	10.2	6,109
204.21	1.6	962	204.73	10.4	6,237
204.22	1.7	1,032	204.74	10.6	6,366
204.23	1.8	1,103	204.75	10.8	6,495
204.24	2.0	1,176	204.76	11.0	6,626
204.25	2.1	1,250	204.77	11.3	6,757
204.26	2.2	1,326	204.78	11.5	6,889
204.27	2.3	1,403	204.79	11.7	7,022
204.28	2.5	1,482	204.80	11.9	7,155
204.29	2.6	1,562	204.81	12.2	7,290
204.30	2.7	1,643	204.82	12.4	7,425
204.31	2.9	1,726	204.83	12.6	7,562
204.32	3.0	1,810	204.84	12.8	7,699
204.33	3.2	1,896	204.85	13.1	7,837
204.34	3.3	1,983	204.86	13.3	7,975
204.35	3.5	2,071	204.87	13.5	8,115
204.36	3.6	2,160	204.88	13.8	8,255
204.37	3.8	2,251	204.89	14.0	8,396
204.38	3.9	2,342	204.90	14.2	8,538
204.39	4.1	2,436	204.91	14.5	8,681
204.40	4.2	2,530	204.92	14.7	8,824
204.41	4.4	2,625	204.93	14.9	8,969
204.42	4.5	2,722	204.94	15.2	9,114
204.43	4.7	2,820	204.95	15.4	9,259
204.44	4.9	2,919	204.96	15.7	9,406
204.45	5.0	3,019	204.97	15.9	9,553
204.46	5.2	3,120	204.98	16.2	9,702
204.47	5.4	3,222	204.99	16.4	9,850
204.48	5.5	3,326	205.00	16.7	10,000
204.49	5.7	3,430			
204.50	5.9	3,536			
204.51	6.1	3,642			

Summary for Pond 1P: Detention Basin 1

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.62" for 2-year event
 Inflow = 1.49 cfs @ 11.97 hrs, Volume= 0.066 af
 Outflow = 0.04 cfs @ 14.51 hrs, Volume= 0.027 af, Atten= 97%, Lag= 152.3 min
 Primary = 0.04 cfs @ 14.51 hrs, Volume= 0.027 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.25' @ 14.51 hrs Surf.Area= 8,098 sf Storage= 1,955 cf

Plug-Flow detention time= 258.9 min calculated for 0.027 af (41% of inflow)
 Center-of-Mass det. time= 176.0 min (954.7 - 778.7)

Volume	Invert	Avail.Storage	Storage Description		
#1	204.00'	17,779 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	7,850	383.0	0	0	7,850
205.00	8,884	400.0	8,362	8,362	8,979
206.00	9,961	418.0	9,417	17,779	10,220

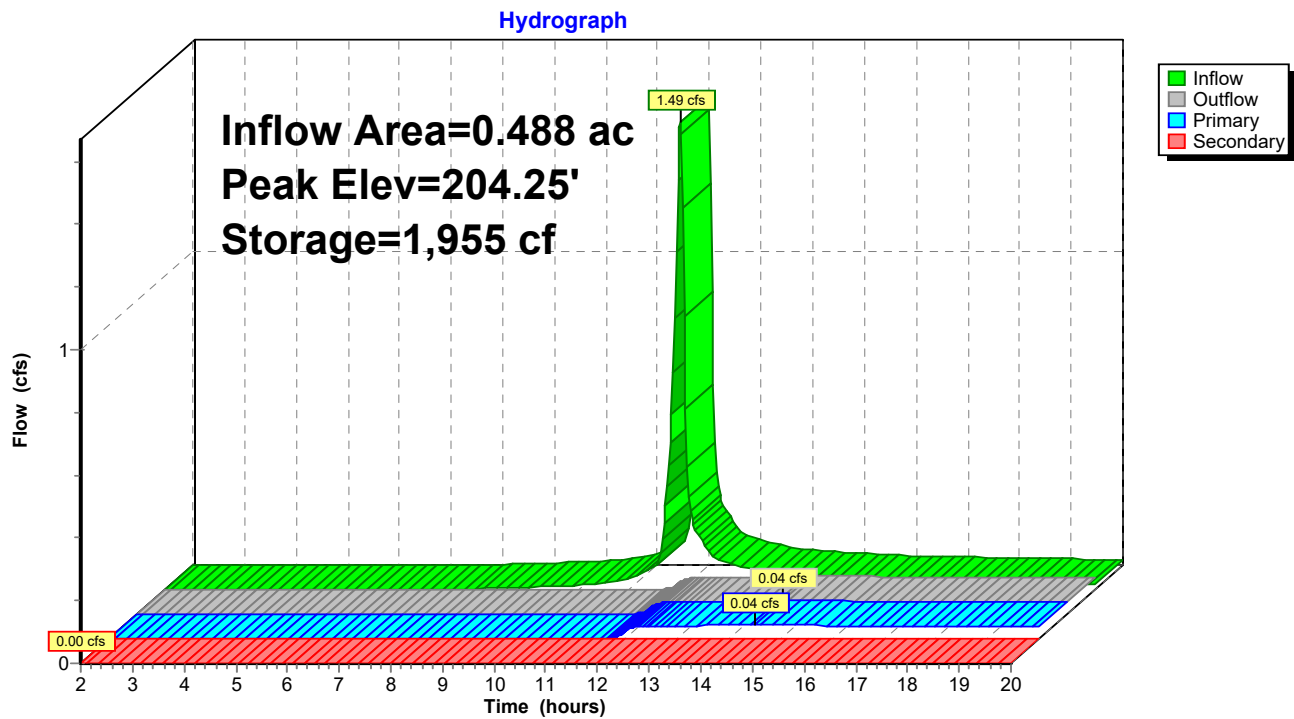
Device	Routing	Invert	Outlet Devices	
#1	Primary	204.00'	2.0" Vert. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2	Secondary	205.00'	12.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 14.51 hrs HW=204.25' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.04 cfs @ 1.94 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: Detention Basin 1

Stage-Area-Storage for Pond 1P: Detention Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	7,850	0	205.04	8,926	8,718
204.02	7,870	157	205.06	8,947	8,897
204.04	7,890	315	205.08	8,968	9,076
204.06	7,910	473	205.10	8,989	9,255
204.08	7,930	631	205.12	9,010	9,435
204.10	7,951	790	205.14	9,031	9,616
204.12	7,971	949	205.16	9,052	9,797
204.14	7,991	1,109	205.18	9,073	9,978
204.16	8,011	1,269	205.20	9,094	10,159
204.18	8,031	1,429	205.22	9,116	10,342
204.20	8,052	1,590	205.24	9,137	10,524
204.22	8,072	1,751	205.26	9,158	10,707
204.24	8,092	1,913	205.28	9,179	10,890
204.26	8,113	2,075	205.30	9,201	11,074
204.28	8,133	2,238	205.32	9,222	11,258
204.30	8,153	2,400	205.34	9,243	11,443
204.32	8,174	2,564	205.36	9,265	11,628
204.34	8,194	2,727	205.38	9,286	11,814
204.36	8,215	2,891	205.40	9,307	12,000
204.38	8,235	3,056	205.42	9,329	12,186
204.40	8,256	3,221	205.44	9,350	12,373
204.42	8,276	3,386	205.46	9,372	12,560
204.44	8,297	3,552	205.48	9,393	12,748
204.46	8,318	3,718	205.50	9,415	12,936
204.48	8,338	3,885	205.52	9,436	13,124
204.50	8,359	4,052	205.54	9,458	13,313
204.52	8,380	4,219	205.56	9,480	13,503
204.54	8,400	4,387	205.58	9,501	13,692
204.56	8,421	4,555	205.60	9,523	13,883
204.58	8,442	4,724	205.62	9,544	14,073
204.60	8,463	4,893	205.64	9,566	14,264
204.62	8,484	5,062	205.66	9,588	14,456
204.64	8,504	5,232	205.68	9,610	14,648
204.66	8,525	5,402	205.70	9,631	14,840
204.68	8,546	5,573	205.72	9,653	15,033
204.70	8,567	5,744	205.74	9,675	15,226
204.72	8,588	5,916	205.76	9,697	15,420
204.74	8,609	6,088	205.78	9,719	15,614
204.76	8,630	6,260	205.80	9,741	15,809
204.78	8,651	6,433	205.82	9,763	16,004
204.80	8,672	6,606	205.84	9,785	16,199
204.82	8,693	6,780	205.86	9,807	16,395
204.84	8,714	6,954	205.88	9,829	16,592
204.86	8,735	7,128	205.90	9,851	16,788
204.88	8,757	7,303	205.92	9,873	16,986
204.90	8,778	7,479	205.94	9,895	17,183
204.92	8,799	7,654	205.96	9,917	17,381
204.94	8,820	7,831	205.98	9,939	17,580
204.96	8,841	8,007	206.00	9,961	17,779
204.98	8,863	8,184			
205.00	8,884	8,362			
205.02	8,905	8,540			

Summary for Pond 2P: Detention Basin 2

[82] Warning: Early inflow requires earlier time span

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.08" for 2-year event
 Inflow = 1.33 cfs @ 11.97 hrs, Volume= 0.065 af
 Outflow = 0.07 cfs @ 12.86 hrs, Volume= 0.047 af, Atten= 94%, Lag= 53.6 min
 Primary = 0.07 cfs @ 12.86 hrs, Volume= 0.047 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.57' @ 12.86 hrs Surf.Area= 3,135 sf Storage= 1,693 cf

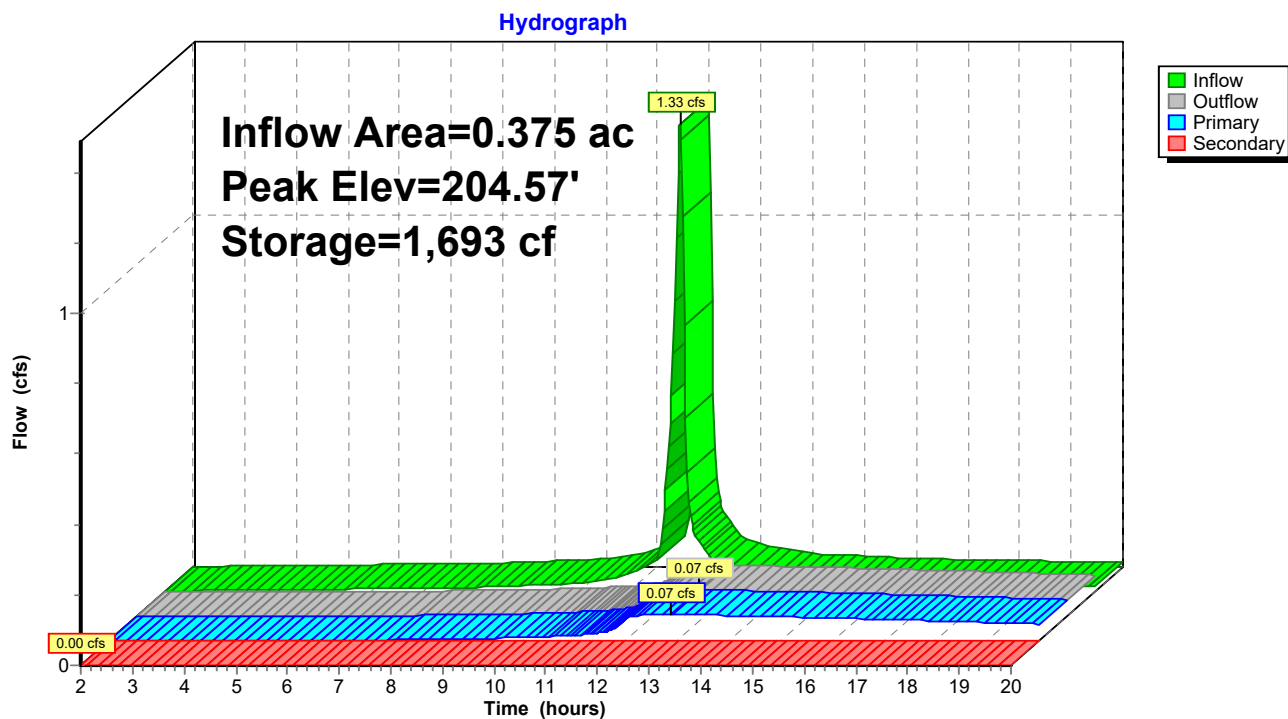
Plug-Flow detention time= 237.0 min calculated for 0.046 af (71% of inflow)
 Center-of-Mass det. time= 168.8 min (910.8 - 742.0)

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=0.07 cfs @ 12.86 hrs HW=204.57' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.07 cfs @ 3.37 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

Stage-Area-Storage for Pond 2P: Detention Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	2,781	0	205.04	3,440	3,229
204.02	2,793	56	205.06	3,454	3,298
204.04	2,805	112	205.08	3,467	3,367
204.06	2,817	168	205.10	3,480	3,437
204.08	2,829	224	205.12	3,493	3,507
204.10	2,841	281	205.14	3,507	3,577
204.12	2,854	338	205.16	3,520	3,647
204.14	2,866	395	205.18	3,533	3,717
204.16	2,878	453	205.20	3,547	3,788
204.18	2,890	510	205.22	3,560	3,859
204.20	2,902	568	205.24	3,573	3,931
204.22	2,915	626	205.26	3,587	4,002
204.24	2,927	685	205.28	3,600	4,074
204.26	2,939	744	205.30	3,614	4,146
204.28	2,952	802	205.32	3,627	4,219
204.30	2,964	862	205.34	3,641	4,291
204.32	2,977	921	205.36	3,654	4,364
204.34	2,989	981	205.38	3,668	4,437
204.36	3,001	1,041	205.40	3,682	4,511
204.38	3,014	1,101	205.42	3,695	4,585
204.40	3,026	1,161	205.44	3,709	4,659
204.42	3,039	1,222	205.46	3,723	4,733
204.44	3,052	1,283	205.48	3,736	4,808
204.46	3,064	1,344	205.50	3,750	4,882
204.48	3,077	1,405	205.52	3,764	4,958
204.50	3,089	1,467	205.54	3,778	5,033
204.52	3,102	1,529	205.56	3,792	5,109
204.54	3,115	1,591	205.58	3,805	5,185
204.56	3,127	1,653	205.60	3,819	5,261
204.58	3,140	1,716	205.62	3,833	5,337
204.60	3,153	1,779	205.64	3,847	5,414
204.62	3,166	1,842	205.66	3,861	5,491
204.64	3,179	1,906	205.68	3,875	5,569
204.66	3,192	1,969	205.70	3,889	5,646
204.68	3,204	2,033	205.72	3,903	5,724
204.70	3,217	2,098	205.74	3,917	5,802
204.72	3,230	2,162	205.76	3,931	5,881
204.74	3,243	2,227	205.78	3,945	5,960
204.76	3,256	2,292	205.80	3,959	6,039
204.78	3,269	2,357	205.82	3,974	6,118
204.80	3,282	2,423	205.84	3,988	6,198
204.82	3,295	2,488	205.86	4,002	6,278
204.84	3,308	2,554	205.88	4,016	6,358
204.86	3,321	2,621	205.90	4,030	6,438
204.88	3,335	2,687	205.92	4,045	6,519
204.90	3,348	2,754	205.94	4,059	6,600
204.92	3,361	2,821	205.96	4,073	6,681
204.94	3,374	2,888	205.98	4,088	6,763
204.96	3,387	2,956	206.00	4,102	6,845
204.98	3,401	3,024			
205.00	3,414	3,092			
205.02	3,427	3,161			

Summary for Pond 3P: Detention Basin 3

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 1.70" for 2-year event
 Inflow = 1.85 cfs @ 11.97 hrs, Volume= 0.082 af
 Outflow = 0.07 cfs @ 13.54 hrs, Volume= 0.046 af, Atten= 96%, Lag= 94.1 min
 Primary = 0.07 cfs @ 13.54 hrs, Volume= 0.046 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.56' @ 13.54 hrs Surf.Area= 4,276 sf Storage= 2,274 cf

Plug-Flow detention time= 243.2 min calculated for 0.046 af (56% of inflow)
 Center-of-Mass det. time= 168.0 min (943.6 - 775.6)

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

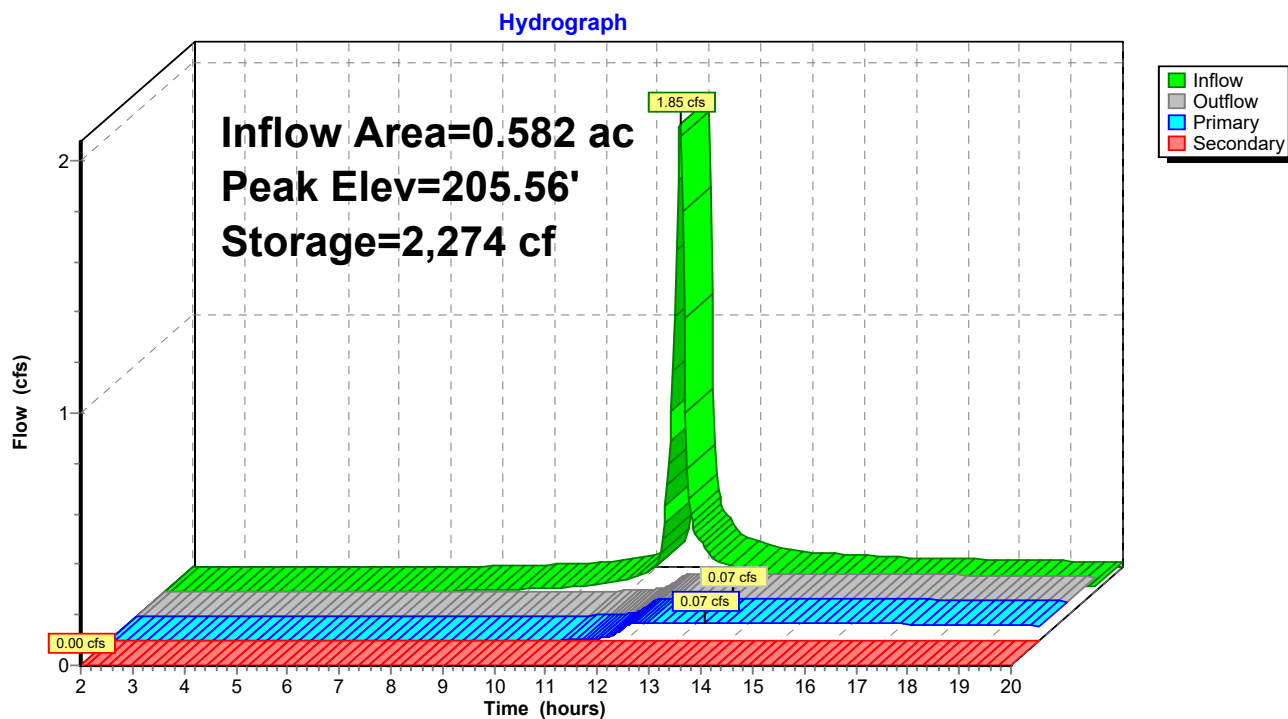
Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.07 cfs @ 13.54 hrs HW=205.56' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 3.33 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

Stage-Area-Storage for Pond 3P: Detention Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	3,825	0	206.04	4,679	4,415
205.02	3,841	77	206.06	4,695	4,509
205.04	3,856	154	206.08	4,712	4,603
205.06	3,872	231	206.10	4,729	4,697
205.08	3,888	309	206.12	4,746	4,792
205.10	3,903	386	206.14	4,763	4,887
205.12	3,919	465	206.16	4,780	4,982
205.14	3,935	543	206.18	4,797	5,078
205.16	3,951	622	206.20	4,814	5,174
205.18	3,967	701	206.22	4,831	5,271
205.20	3,983	781	206.24	4,849	5,368
205.22	3,999	861	206.26	4,866	5,465
205.24	4,015	941	206.28	4,883	5,562
205.26	4,031	1,021	206.30	4,900	5,660
205.28	4,047	1,102	206.32	4,917	5,758
205.30	4,063	1,183	206.34	4,935	5,857
205.32	4,079	1,264	206.36	4,952	5,956
205.34	4,095	1,346	206.38	4,969	6,055
205.36	4,111	1,428	206.40	4,987	6,154
205.38	4,127	1,511	206.42	5,004	6,254
205.40	4,143	1,593	206.44	5,022	6,354
205.42	4,160	1,676	206.46	5,039	6,455
205.44	4,176	1,760	206.48	5,057	6,556
205.46	4,192	1,843	206.50	5,074	6,657
205.48	4,209	1,927	206.52	5,092	6,759
205.50	4,225	2,012	206.54	5,109	6,861
205.52	4,241	2,096	206.56	5,127	6,963
205.54	4,258	2,181	206.58	5,144	7,066
205.56	4,274	2,267	206.60	5,162	7,169
205.58	4,291	2,352	206.62	5,180	7,273
205.60	4,307	2,438	206.64	5,198	7,376
205.62	4,324	2,525	206.66	5,215	7,480
205.64	4,341	2,611	206.68	5,233	7,585
205.66	4,357	2,698	206.70	5,251	7,690
205.68	4,374	2,786	206.72	5,269	7,795
205.70	4,391	2,873	206.74	5,287	7,901
205.72	4,407	2,961	206.76	5,305	8,006
205.74	4,424	3,049	206.78	5,323	8,113
205.76	4,441	3,138	206.80	5,341	8,219
205.78	4,458	3,227	206.82	5,359	8,326
205.80	4,475	3,316	206.84	5,377	8,434
205.82	4,492	3,406	206.86	5,395	8,541
205.84	4,508	3,496	206.88	5,413	8,649
205.86	4,525	3,586	206.90	5,431	8,758
205.88	4,542	3,677	206.92	5,449	8,867
205.90	4,559	3,768	206.94	5,467	8,976
205.92	4,576	3,860	206.96	5,485	9,085
205.94	4,594	3,951	206.98	5,504	9,195
205.96	4,611	4,043	207.00	5,522	9,306
205.98	4,628	4,136			
206.00	4,645	4,228			
206.02	4,662	4,321			

Summary for Pond 4A: Detention Basin 4A

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 1.70" for 2-year event
 Inflow = 1.27 cfs @ 11.97 hrs, Volume= 0.057 af
 Outflow = 1.17 cfs @ 12.00 hrs, Volume= 0.056 af, Atten= 8%, Lag= 1.9 min
 Primary = 1.17 cfs @ 12.00 hrs, Volume= 0.056 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.56' @ 12.00 hrs Surf.Area= 862 sf Storage= 273 cf

Plug-Flow detention time= 12.0 min calculated for 0.056 af (99% of inflow)
 Center-of-Mass det. time= 7.8 min (783.4 - 775.6)

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

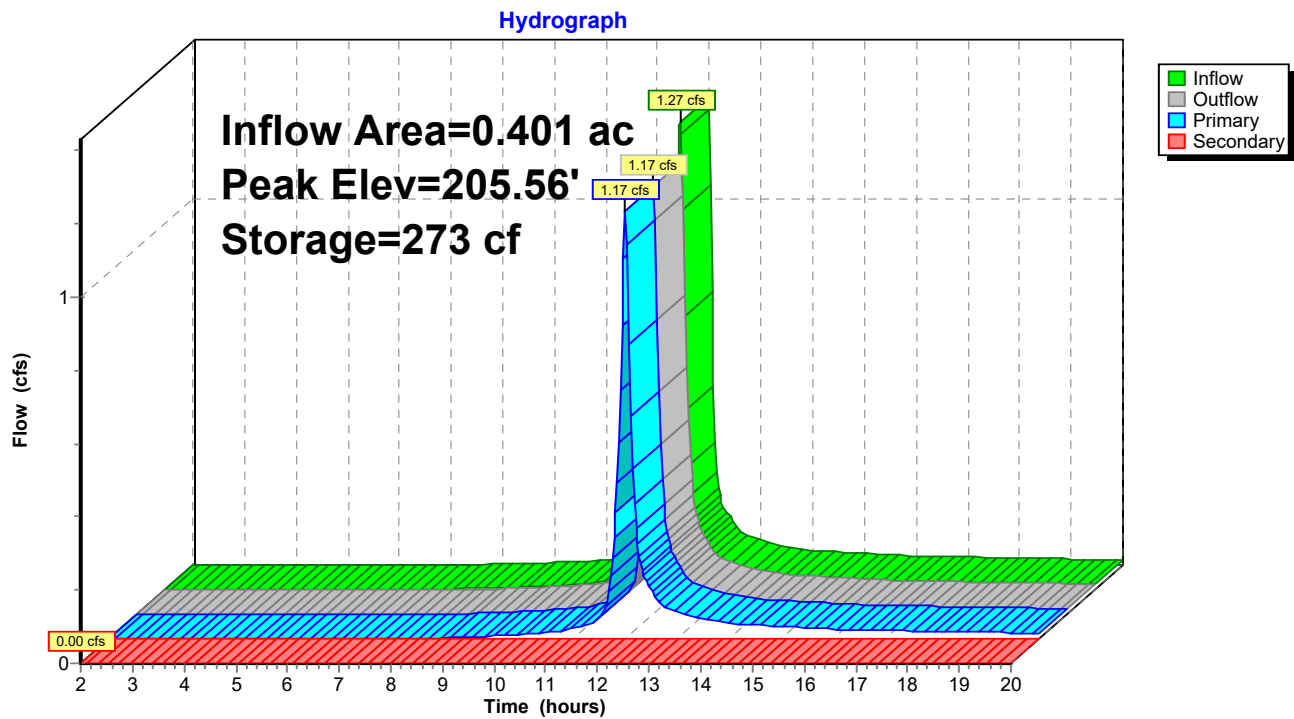
Device	Routing	Invert	Outlet Devices
#1	Primary	205.20'	15.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	207.50'	8.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 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=1.15 cfs @ 12.00 hrs HW=205.55' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 1.15 cfs @ 2.02 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

Stage-Area-Storage for Pond 4A: Detention Basin 4A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.20	680	0
205.25	704	35
205.30	729	70
205.35	754	108
205.40	780	146
205.45	806	186
205.50	833	226
205.55	859	269
205.60	887	312
205.65	915	357
205.70	943	404
205.75	971	452
205.80	1,000	501
205.85	1,030	552
205.90	1,060	604
205.95	1,090	658
206.00	1,121	713
206.05	1,160	770
206.10	1,200	829
206.15	1,240	890
206.20	1,282	953
206.25	1,323	1,018
206.30	1,366	1,086
206.35	1,409	1,155
206.40	1,453	1,226
206.45	1,497	1,300
206.50	1,542	1,376
206.55	1,588	1,454
206.60	1,635	1,535
206.65	1,682	1,618
206.70	1,730	1,703
206.75	1,778	1,791
206.80	1,828	1,881
206.85	1,877	1,974
206.90	1,928	2,069
206.95	1,979	2,166
207.00	2,031	2,267
207.05	2,073	2,369
207.10	2,114	2,474
207.15	2,157	2,581
207.20	2,200	2,690
207.25	2,243	2,801
207.30	2,286	2,914
207.35	2,330	3,029
207.40	2,375	3,147
207.45	2,420	3,267
207.50	2,465	3,389

Summary for Pond 4B: Detention Basin 4B

[92] Warning: Device #2 is above defined storage

[63] Warning: Exceeded Reach CP INLET depth by 0.23' @ 13.70 hrs

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.32" for 2-year event
 Inflow = 1.20 cfs @ 12.01 hrs, Volume= 0.059 af
 Outflow = 0.07 cfs @ 13.27 hrs, Volume= 0.040 af, Atten= 94%, Lag= 75.5 min
 Primary = 0.07 cfs @ 13.27 hrs, Volume= 0.040 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.50' @ 13.27 hrs Surf.Area= 3,178 sf Storage= 1,494 cf

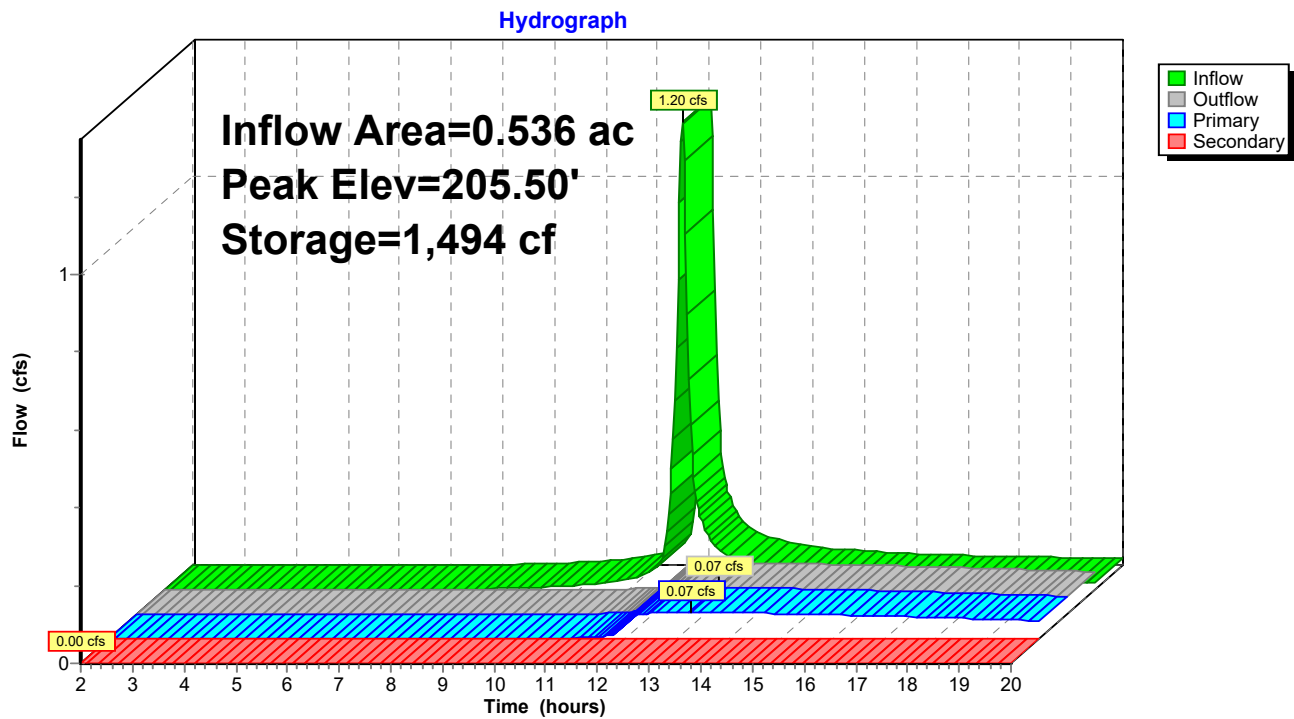
Plug-Flow detention time= 223.4 min calculated for 0.040 af (68% of inflow)
 Center-of-Mass det. time= 152.9 min (941.1 - 788.2)

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 @ 13.27 hrs HW=205.50' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.07 cfs @ 3.10 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

Stage-Area-Storage for Pond 4B: Detention Basin 4B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	2,837	0	206.04	3,570	3,325
205.02	2,850	57	206.06	3,584	3,397
205.04	2,864	114	206.08	3,599	3,469
205.06	2,877	171	206.10	3,613	3,541
205.08	2,891	229	206.12	3,627	3,613
205.10	2,904	287	206.14	3,642	3,686
205.12	2,917	345	206.16	3,656	3,759
205.14	2,931	404	206.18	3,670	3,832
205.16	2,945	462	206.20	3,685	3,906
205.18	2,958	522	206.22	3,699	3,979
205.20	2,972	581	206.24	3,713	4,054
205.22	2,985	640	206.26	3,728	4,128
205.24	2,999	700	206.28	3,742	4,203
205.26	3,013	760	206.30	3,757	4,278
205.28	3,027	821	206.32	3,771	4,353
205.30	3,040	881	206.34	3,786	4,429
205.32	3,054	942	206.36	3,801	4,504
205.34	3,068	1,004	206.38	3,815	4,581
205.36	3,082	1,065	206.40	3,830	4,657
205.38	3,096	1,127	206.42	3,845	4,734
205.40	3,110	1,189	206.44	3,859	4,811
205.42	3,124	1,251	206.46	3,874	4,888
205.44	3,138	1,314	206.48	3,889	4,966
205.46	3,152	1,377	206.50	3,904	5,044
205.48	3,166	1,440	206.52	3,919	5,122
205.50	3,180	1,503	206.54	3,933	5,200
205.52	3,194	1,567	206.56	3,948	5,279
205.54	3,208	1,631	206.58	3,963	5,358
205.56	3,222	1,695	206.60	3,978	5,438
205.58	3,236	1,760	206.62	3,993	5,517
205.60	3,251	1,825	206.64	4,008	5,597
205.62	3,265	1,890	206.66	4,023	5,678
205.64	3,279	1,955	206.68	4,038	5,758
205.66	3,294	2,021	206.70	4,053	5,839
205.68	3,308	2,087	206.72	4,068	5,921
205.70	3,322	2,154	206.74	4,084	6,002
205.72	3,337	2,220	206.76	4,099	6,084
205.74	3,351	2,287	206.78	4,114	6,166
205.76	3,366	2,354	206.80	4,129	6,248
205.78	3,380	2,422	206.82	4,144	6,331
205.80	3,395	2,489	206.84	4,160	6,414
205.82	3,409	2,557	206.86	4,175	6,498
205.84	3,424	2,626	206.88	4,190	6,581
205.86	3,439	2,694	206.90	4,206	6,665
205.88	3,453	2,763	206.92	4,221	6,749
205.90	3,468	2,832	206.94	4,237	6,834
205.92	3,483	2,902	206.96	4,252	6,919
205.94	3,497	2,972	206.98	4,267	7,004
205.96	3,512	3,042	207.00	4,283	7,090
205.98	3,527	3,112			
206.00	3,542	3,183			
206.02	3,556	3,254			

Summary for Pond 5P: Detention Basin 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 2.22" for 2-year event
 Inflow = 3.94 cfs @ 11.97 hrs, Volume= 0.187 af
 Outflow = 0.13 cfs @ 13.71 hrs, Volume= 0.094 af, Atten= 97%, Lag= 104.4 min
 Primary = 0.13 cfs @ 13.71 hrs, Volume= 0.094 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.64' @ 13.71 hrs Surf.Area= 3,913 sf Storage= 5,323 cf

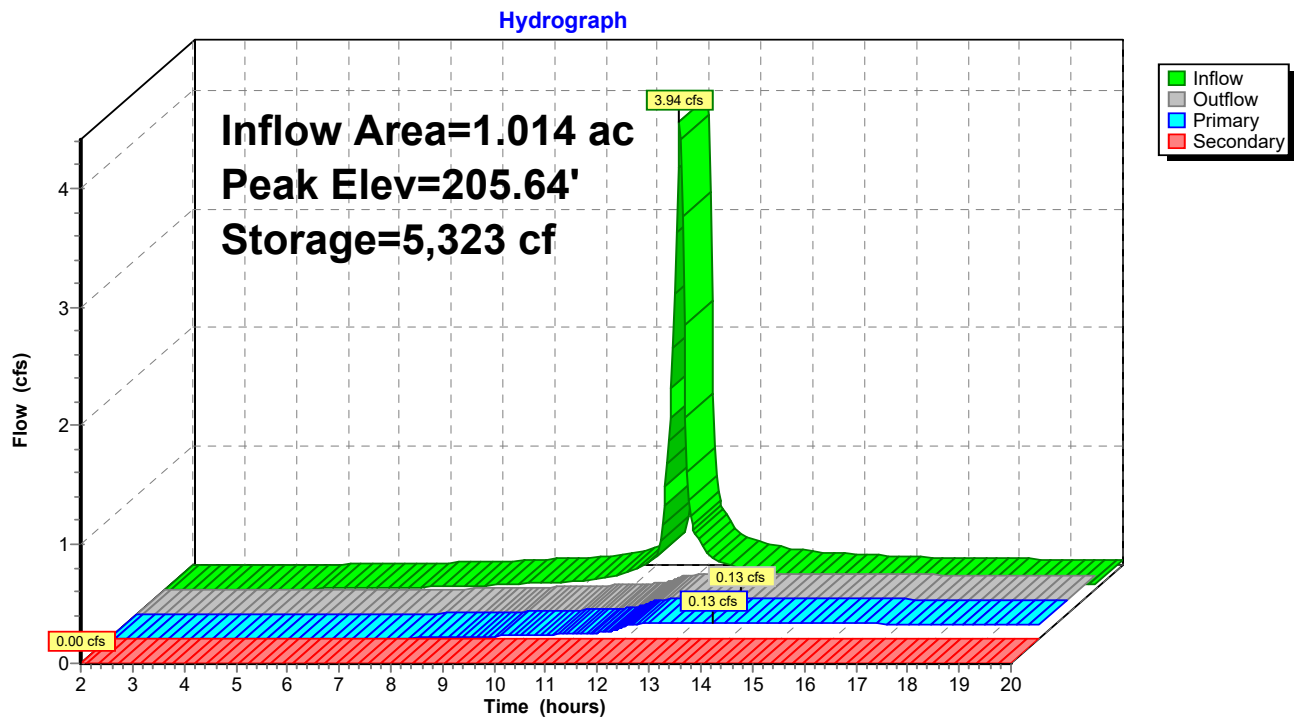
Plug-Flow detention time= 247.6 min calculated for 0.094 af (50% of inflow)
 Center-of-Mass det. time= 165.8 min (917.4 - 751.6)

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=0.13 cfs @ 13.71 hrs HW=205.64' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 0.13 cfs @ 6.01 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

Stage-Area-Storage for Pond 5P: Detention Basin 5

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	2,787	0	206.60	4,759	9,518
204.05	2,810	140	206.65	4,798	9,756
204.10	2,834	281	206.70	4,838	9,997
204.15	2,858	423	206.75	4,878	10,240
204.20	2,881	567	206.80	4,918	10,485
204.25	2,905	711	206.85	4,958	10,732
204.30	2,929	857	206.90	4,998	10,981
204.35	2,953	1,004	206.95	5,038	11,232
204.40	2,977	1,153	207.00	5,079	11,485
204.45	3,001	1,302	207.05	5,118	11,740
204.50	3,026	1,453	207.10	5,158	11,997
204.55	3,050	1,605	207.15	5,197	12,255
204.60	3,074	1,758	207.20	5,237	12,516
204.65	3,099	1,912	207.25	5,277	12,779
204.70	3,124	2,068	207.30	5,317	13,044
204.75	3,149	2,224	207.35	5,357	13,311
204.80	3,173	2,383	207.40	5,397	13,580
204.85	3,198	2,542	207.45	5,437	13,850
204.90	3,224	2,702	207.50	5,478	14,123
204.95	3,249	2,864	207.55	5,519	14,398
205.00	3,274	3,027	207.60	5,559	14,675
205.05	3,322	3,192	207.65	5,601	14,954
205.10	3,370	3,359	207.70	5,642	15,235
205.15	3,419	3,529	207.75	5,683	15,518
205.20	3,468	3,701			
205.25	3,517	3,876			
205.30	3,567	4,053			
205.35	3,617	4,233			
205.40	3,667	4,415			
205.45	3,718	4,599			
205.50	3,769	4,786			
205.55	3,820	4,976			
205.60	3,872	5,168			
205.65	3,924	5,363			
205.70	3,976	5,561			
205.75	4,029	5,761			
205.80	4,082	5,964			
205.85	4,136	6,169			
205.90	4,189	6,377			
205.95	4,243	6,588			
206.00	4,298	6,802			
206.05	4,336	7,017			
206.10	4,373	7,235			
206.15	4,411	7,455			
206.20	4,449	7,676			
206.25	4,487	7,900			
206.30	4,525	8,125			
206.35	4,564	8,352			
206.40	4,603	8,581			
206.45	4,641	8,813			
206.50	4,680	9,046			
206.55	4,719	9,281			

Summary for Pond 6P: Detention Basin 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 1.27" for 2-year event
 Inflow = 1.36 cfs @ 11.98 hrs, Volume= 0.059 af
 Outflow = 0.01 cfs @ 20.00 hrs, Volume= 0.003 af, Atten= 99%, Lag= 481.5 min
 Primary = 0.01 cfs @ 20.00 hrs, Volume= 0.003 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

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= 2,611 sf Storage= 2,441 cf

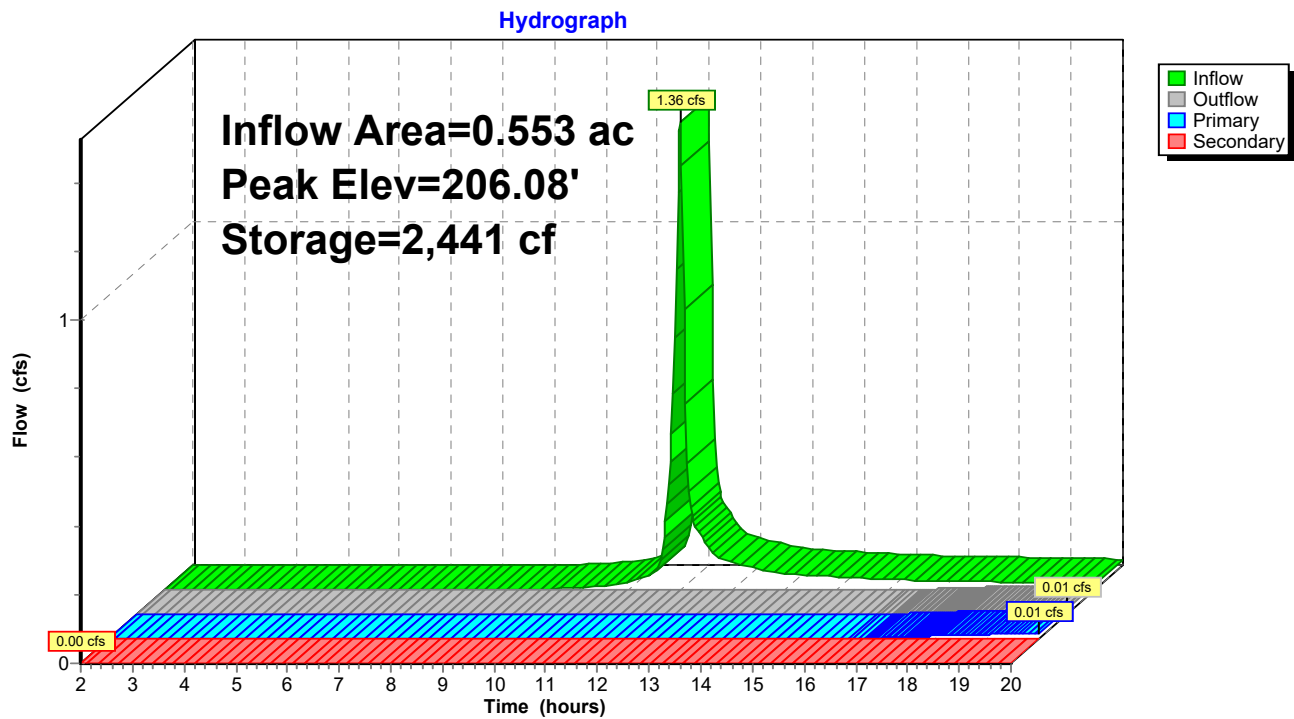
Plug-Flow detention time= 470.9 min calculated for 0.003 af (4% of inflow)
 Center-of-Mass det. time= 334.0 min (1,126.2 - 792.1)

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=0.01 cfs @ 20.00 hrs HW=206.08' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.97 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

Stage-Area-Storage for Pond 6P: Detention Basin 6

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	1,920	0	207.60	3,689	7,213
205.05	1,950	97	207.65	3,727	7,398
205.10	1,980	195	207.70	3,764	7,585
205.15	2,010	295	207.75	3,802	7,775
205.20	2,040	396			
205.25	2,071	499			
205.30	2,102	603			
205.35	2,133	709			
205.40	2,164	816			
205.45	2,196	925			
205.50	2,228	1,036			
205.55	2,260	1,148			
205.60	2,292	1,262			
205.65	2,324	1,377			
205.70	2,357	1,494			
205.75	2,390	1,613			
205.80	2,423	1,733			
205.85	2,456	1,855			
205.90	2,490	1,979			
205.95	2,524	2,104			
206.00	2,558	2,231			
206.05	2,591	2,360			
206.10	2,624	2,490			
206.15	2,657	2,623			
206.20	2,691	2,756			
206.25	2,724	2,892			
206.30	2,758	3,029			
206.35	2,792	3,167			
206.40	2,827	3,308			
206.45	2,861	3,450			
206.50	2,896	3,594			
206.55	2,931	3,740			
206.60	2,966	3,887			
206.65	3,002	4,036			
206.70	3,037	4,187			
206.75	3,073	4,340			
206.80	3,109	4,495			
206.85	3,145	4,651			
206.90	3,182	4,809			
206.95	3,218	4,969			
207.00	3,255	5,131			
207.05	3,290	5,295			
207.10	3,325	5,460			
207.15	3,361	5,627			
207.20	3,397	5,796			
207.25	3,433	5,967			
207.30	3,469	6,139			
207.35	3,505	6,314			
207.40	3,541	6,490			
207.45	3,578	6,668			
207.50	3,615	6,848			
207.55	3,652	7,029			

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 @ 12.89 hrs, Volume= 0.003 af
 Outflow = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Atten= 68%, Lag= 426.5 min
 Primary = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

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= 3,112 sf Storage= 109 cf

Plug-Flow detention time= 279.0 min calculated for 0.001 af (22% of inflow)
 Center-of-Mass det. time= 109.2 min (1,050.9 - 941.7)

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)

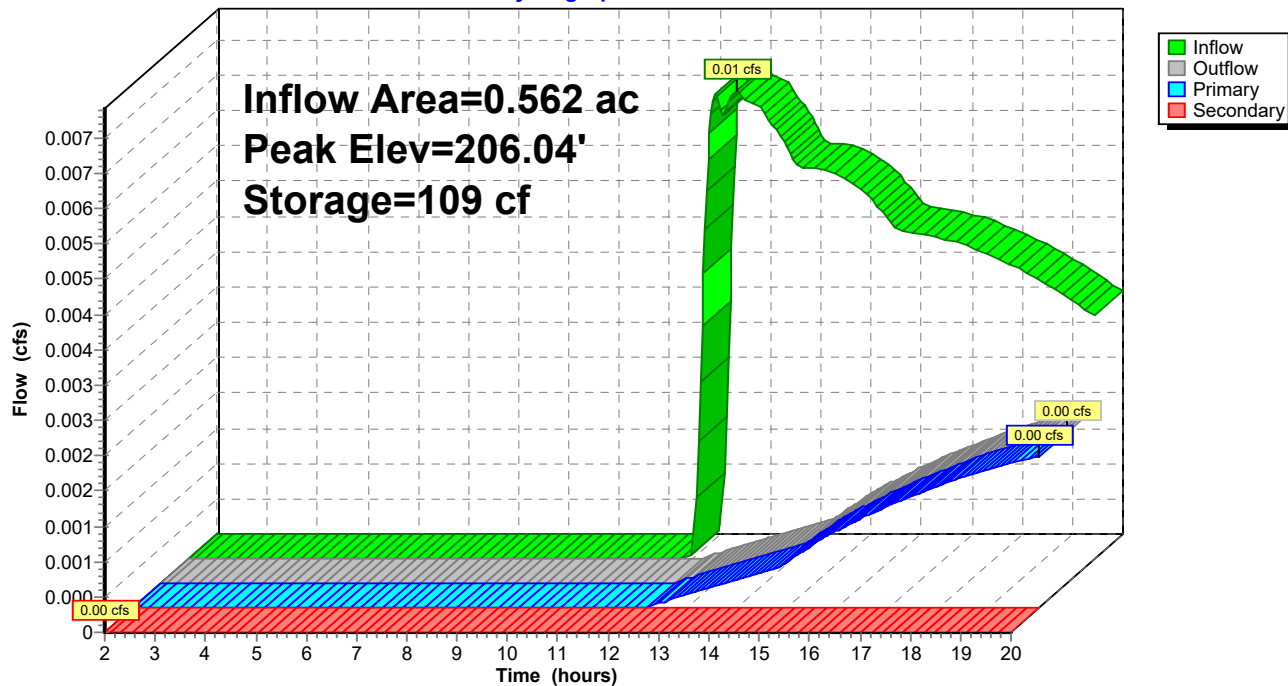
↑ **1=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.64 fps)

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

Hydrograph



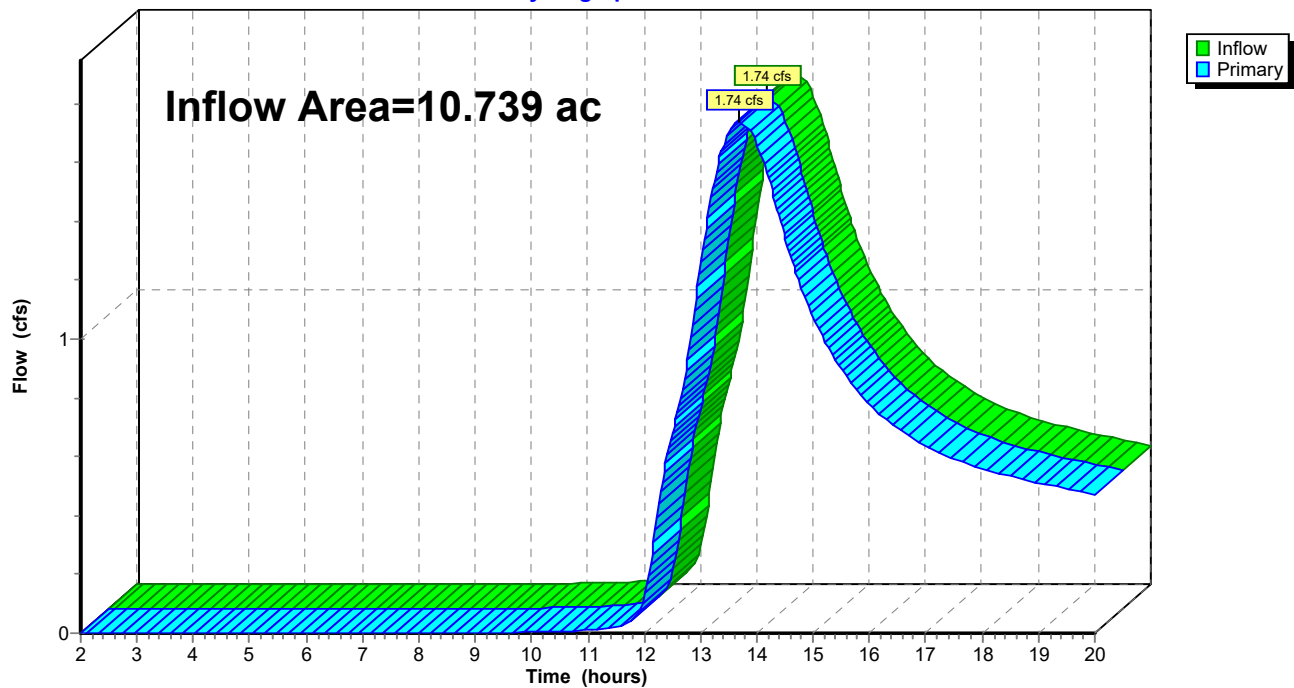
Stage-Area-Storage for Pond 7P: Detention Basin 7

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
206.00	3,078	0	207.04	4,179	3,758
206.02	3,098	62	207.06	4,202	3,842
206.04	3,117	124	207.08	4,225	3,926
206.06	3,137	186	207.10	4,249	4,011
206.08	3,157	249	207.12	4,273	4,096
206.10	3,176	313	207.14	4,296	4,182
206.12	3,196	376	207.16	4,320	4,268
206.14	3,216	441	207.18	4,344	4,355
206.16	3,236	505	207.20	4,368	4,442
206.18	3,256	570	207.22	4,391	4,530
206.20	3,276	635	207.24	4,415	4,618
206.22	3,297	701	207.26	4,439	4,706
206.24	3,317	767	207.28	4,464	4,795
206.26	3,337	834	207.30	4,488	4,885
206.28	3,358	901	207.32	4,512	4,975
206.30	3,378	968	207.34	4,536	5,065
206.32	3,398	1,036	207.36	4,561	5,156
206.34	3,419	1,104	207.38	4,585	5,248
206.36	3,440	1,173	207.40	4,610	5,340
206.38	3,460	1,242	207.42	4,634	5,432
206.40	3,481	1,311	207.44	4,659	5,525
206.42	3,502	1,381	207.46	4,684	5,618
206.44	3,523	1,451	207.48	4,708	5,712
206.46	3,544	1,522	207.50	4,733	5,807
206.48	3,565	1,593	207.52	4,758	5,902
206.50	3,586	1,664	207.54	4,783	5,997
206.52	3,607	1,736	207.56	4,808	6,093
206.54	3,628	1,809	207.58	4,833	6,189
206.56	3,649	1,881	207.60	4,858	6,286
206.58	3,670	1,955	207.62	4,883	6,384
206.60	3,692	2,028	207.64	4,909	6,482
206.62	3,713	2,102	207.66	4,934	6,580
206.64	3,735	2,177	207.68	4,960	6,679
206.66	3,756	2,252	207.70	4,985	6,778
206.68	3,778	2,327	207.72	5,011	6,878
206.70	3,800	2,403	207.74	5,036	6,979
206.72	3,821	2,479			
206.74	3,843	2,556			
206.76	3,865	2,633			
206.78	3,887	2,710			
206.80	3,909	2,788			
206.82	3,931	2,867			
206.84	3,953	2,945			
206.86	3,975	3,025			
206.88	3,997	3,104			
206.90	4,020	3,185			
206.92	4,042	3,265			
206.94	4,064	3,346			
206.96	4,087	3,428			
206.98	4,109	3,510			
207.00	4,132	3,592			
207.02	4,155	3,675			

Summary for Link x1000: x1000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 0.64" for 2-year event
Inflow = 1.74 cfs @ 13.67 hrs, Volume= 0.572 af
Primary = 1.74 cfs @ 13.67 hrs, Volume= 0.572 af, Atten= 0%, Lag= 0.0 min

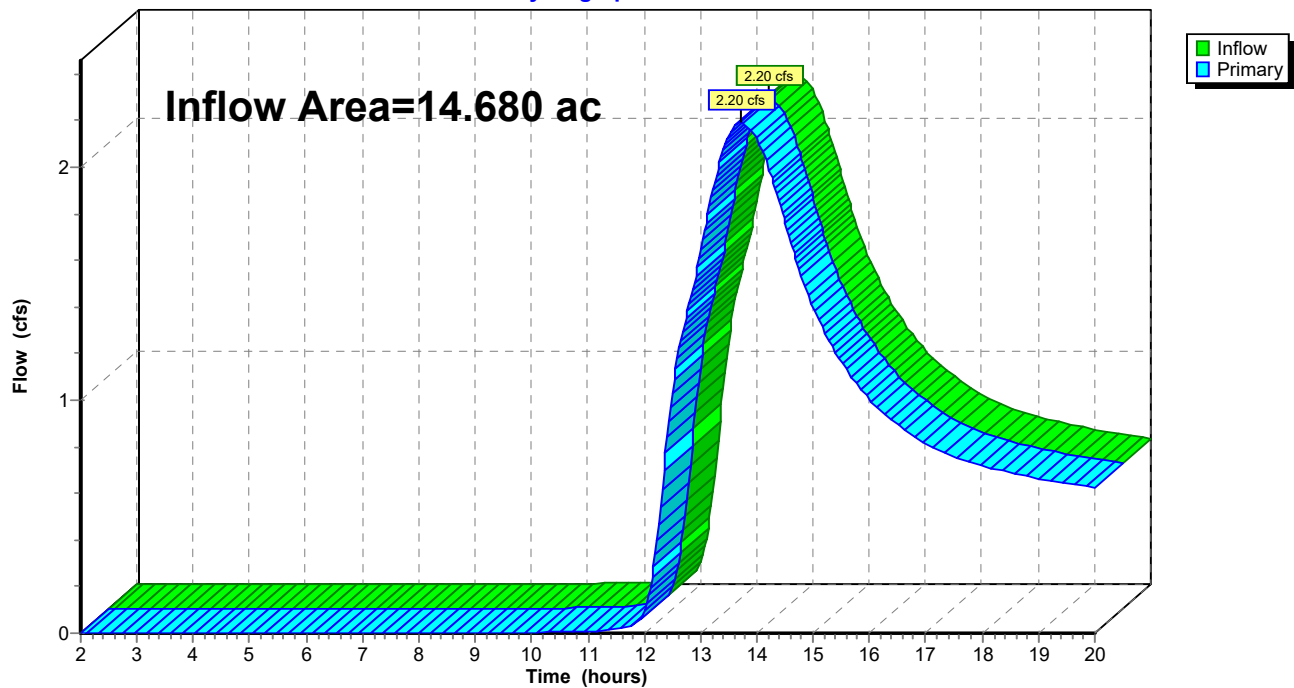
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x1000: x1000**Hydrograph**

Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 0.61" for 2-year event
Inflow = 2.20 cfs @ 13.73 hrs, Volume= 0.741 af
Primary = 2.20 cfs @ 13.73 hrs, Volume= 0.741 af, Atten= 0%, Lag= 0.0 min

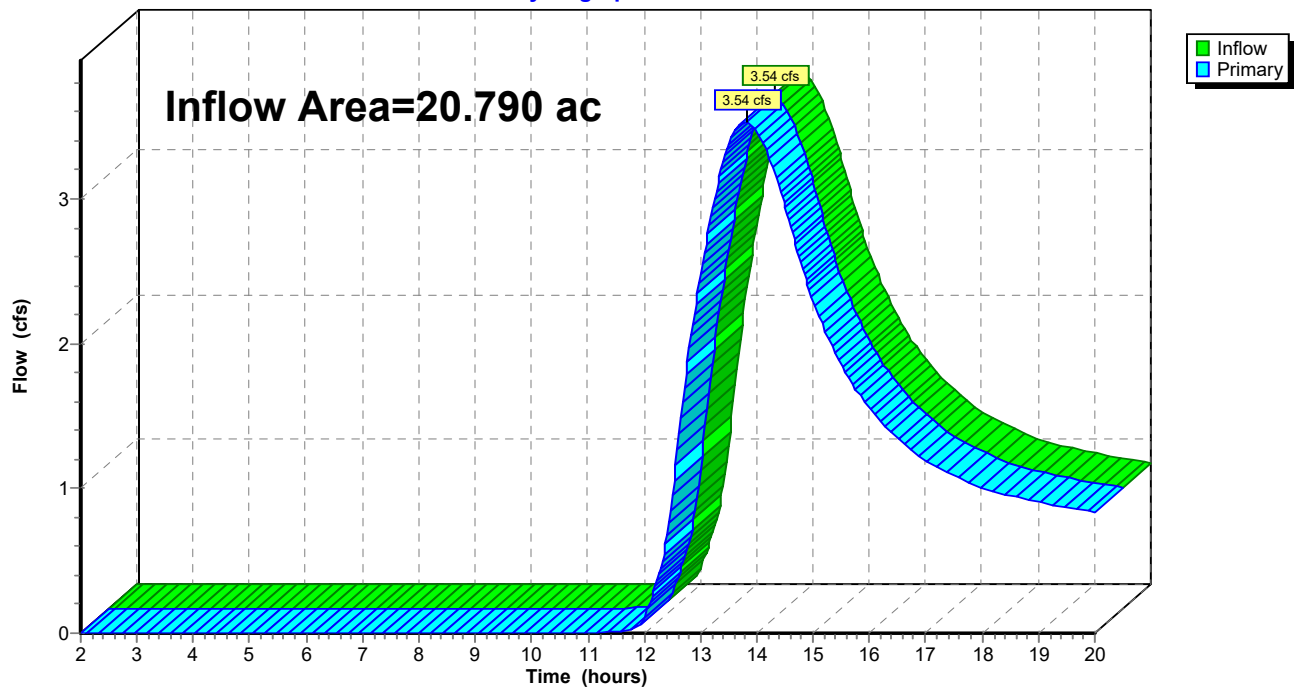
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x2000: x2000**Hydrograph**

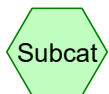
Summary for Link x3000: x3000

Inflow Area = 20.790 ac, 10.83% Impervious, Inflow Depth > 0.64" for 2-year event
Inflow = 3.54 cfs @ 13.81 hrs, Volume= 1.113 af
Primary = 3.54 cfs @ 13.81 hrs, Volume= 1.113 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



Reach



Link

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10-year	Type II 24-hr		Default	24.00	1	4.66	2

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

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	

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	CP	205.20	205.00	62.0	0.0032	0.011	0.0	15.0	0.0
3	P1	204.00	203.60	78.0	0.0051	0.013	0.0	12.0	0.0
4	P2	204.00	203.70	60.0	0.0050	0.013	0.0	12.0	0.0
5	P3	205.00	204.80	40.0	0.0050	0.013	0.0	12.0	0.0
6	P4B	205.00	204.00	182.0	0.0055	0.013	0.0	12.0	0.0
7	P5	204.00	203.80	35.0	0.0057	0.013	0.0	12.0	0.0
8	P6	206.00	205.50	60.0	0.0083	0.013	0.0	12.0	0.0
9	P7	206.00	204.00	290.0	0.0069	0.013	0.0	12.0	0.0

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

Subcatchment100: Area 100	Runoff Area=21,241 sf 39.36% Impervious Runoff Depth>3.04" Tc=6.0 min CN=87 Runoff=2.69 cfs 0.123 af
Subcatchment200: Area 200	Runoff Area=7,259 sf 21.45% Impervious Runoff Depth>2.76" Tc=6.0 min CN=84 Runoff=0.85 cfs 0.038 af
Subcatchment300: Area 300	Runoff Area=25,373 sf 47.63% Impervious Runoff Depth>3.13" Tc=6.0 min CN=88 Runoff=3.29 cfs 0.152 af
Subcatchment350: Area 350	Runoff Area=2,640 sf 0.00% Impervious Runoff Depth>1.63" Tc=6.0 min CN=70 Runoff=0.19 cfs 0.008 af
Subcatchment400: Area 400	Runoff Area=17,459 sf 54.77% Impervious Runoff Depth>3.13" Tc=6.0 min CN=88 Runoff=2.26 cfs 0.105 af
Subcatchment450: Area 450	Runoff Area=5,879 sf 0.00% Impervious Runoff Depth>0.93" Tc=6.0 min CN=59 Runoff=0.24 cfs 0.010 af
Subcatchment500: Area 500	Runoff Area=24,492 sf 21.12% Impervious Runoff Depth>0.48" Tc=6.0 min CN=50 Runoff=0.41 cfs 0.022 af
Subcatchment550: Area 550	Runoff Area=24,095 sf 65.72% Impervious Runoff Depth>2.58" Tc=6.0 min CN=82 Runoff=2.68 cfs 0.119 af
Subcatchment600: Area 600	Runoff Area=44,164 sf 81.56% Impervious Runoff Depth>3.75" Tc=6.0 min CN=94 Runoff=6.40 cfs 0.317 af
Subcatchment700: Area 700	Runoff Area=155,394 sf 0.00% Impervious Runoff Depth>1.74" Flow Length=914' Tc=123.7 min CN=73 Runoff=2.16 cfs 0.518 af
Subcatchment800: Area 800	Runoff Area=83,661 sf 0.00% Impervious Runoff Depth>2.02" Flow Length=850' Tc=142.4 min CN=77 Runoff=1.24 cfs 0.324 af
Subcatchment900: Area 900	Runoff Area=20,660 sf 0.00% Impervious Runoff Depth>2.13" Flow Length=370' Tc=40.8 min CN=77 Runoff=0.78 cfs 0.084 af
Subcatchment1000: Area 1000	Runoff Area=89,935 sf 0.00% Impervious Runoff Depth>1.69" Flow Length=675' Tc=101.4 min CN=72 Runoff=1.39 cfs 0.291 af
Subcatchment1100: Area 1100	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>1.61" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.48 cfs 0.040 af
Subcatchment1200: Area 1200	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>1.87" Flow Length=868' Tc=140.2 min CN=75 Runoff=2.24 cfs 0.585 af
Subcatchment1300: Area 1300	Runoff Area=41,280 sf 0.00% Impervious Runoff Depth>1.73" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.53 cfs 0.137 af

Subcatchment1400: Area 1400	Runoff Area=43,924 sf 0.00% Impervious Runoff Depth>1.88" Flow Length=410' Tc=58.3 min CN=74 Runoff=1.13 cfs 0.158 af
Subcatchment1500: Area 1500	Runoff Area=15,037 sf 0.00% Impervious Runoff Depth>2.06" Flow Length=661' Tc=110.0 min CN=77 Runoff=0.27 cfs 0.059 af
Subcatchment1600: Area 1600	Runoff Area=22,207 sf 0.00% Impervious Runoff Depth>0.68" Flow Length=1,245' Tc=149.8 min CN=56 Runoff=0.09 cfs 0.029 af
Subcatchment1700: 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
Subcatchment1800: Area 1800	Runoff Area=52,490 sf 0.78% Impervious Runoff Depth>1.59" Flow Length=615' Tc=135.0 min CN=71 Runoff=0.62 cfs 0.160 af
SubcatchmentDISP: Dispensary Building	Runoff Area=4,073 sf 100.00% Impervious Runoff Depth>4.18" Tc=6.0 min CN=98 Runoff=0.62 cfs 0.033 af
SubcatchmentLAB: Lab Bldg	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>4.18" Tc=6.0 min CN=98 Runoff=0.76 cfs 0.040 af
Reach 1k-2k: x1000 to x2000	Avg. Flow Depth=0.32' Max Vel=1.32 fps Inflow=4.25 cfs 1.283 af n=0.035 L=260.0' S=0.0077 ' Capacity=1,021.34 cfs Outflow=4.24 cfs 1.272 af
Reach 2k-3k: x2000 to x3000	Avg. Flow Depth=0.59' Max Vel=1.20 fps Inflow=5.43 cfs 1.694 af n=0.035 L=360.0' S=0.0028 ' Capacity=334.17 cfs Outflow=5.42 cfs 1.673 af
Reach CP: Connecting Pipes	Avg. Flow Depth=0.42' Max Vel=2.91 fps Inflow=2.13 cfs 0.104 af 15.0" Round Pipe x 2.00 n=0.011 L=62.0' S=0.0032 ' Capacity=8.67 cfs Outflow=2.10 cfs 0.104 af
Reach P1: Pipe Out of 1	Avg. Flow Depth=0.11' Max Vel=1.39 fps Inflow=0.07 cfs 0.044 af 12.0" Round Pipe n=0.013 L=78.0' S=0.0051 ' Capacity=2.55 cfs Outflow=0.07 cfs 0.044 af
Reach P2: Pipe Out of 2	Avg. Flow Depth=0.13' Max Vel=1.55 fps Inflow=0.10 cfs 0.069 af 12.0" Round Pipe n=0.013 L=60.0' S=0.0050 ' Capacity=2.52 cfs Outflow=0.10 cfs 0.069 af
Reach P3: Pipe Out of 3	Avg. Flow Depth=0.14' Max Vel=1.57 fps Inflow=0.10 cfs 0.071 af 12.0" Round Pipe n=0.013 L=40.0' S=0.0050 ' Capacity=2.52 cfs Outflow=0.10 cfs 0.071 af
Reach P4B: Pipe Out of 4B	Avg. Flow Depth=0.13' Max Vel=1.61 fps Inflow=0.10 cfs 0.065 af 12.0" Round Pipe n=0.013 L=182.0' S=0.0055 ' Capacity=2.64 cfs Outflow=0.10 cfs 0.065 af
Reach P5: Pipe Out of 5	Avg. Flow Depth=0.17' Max Vel=1.90 fps Inflow=0.17 cfs 0.130 af 12.0" Round Pipe n=0.013 L=35.0' S=0.0057 ' Capacity=2.69 cfs Outflow=0.17 cfs 0.130 af
Reach P6: Pipe Out of 6	Avg. Flow Depth=0.15' Max Vel=2.12 fps Inflow=0.15 cfs 0.059 af 12.0" Round Pipe n=0.013 L=60.0' S=0.0083 ' Capacity=3.25 cfs Outflow=0.15 cfs 0.059 af
Reach P7: Pipe Out of 7	Avg. Flow Depth=0.06' Max Vel=1.15 fps Inflow=0.02 cfs 0.014 af 12.0" Round Pipe n=0.013 L=290.0' S=0.0069 ' Capacity=2.96 cfs Outflow=0.02 cfs 0.014 af

Reach W1: 1 Thru Wetland	Avg. Flow Depth=0.16' Max Vel=0.06 fps Inflow=0.07 cfs 0.044 af n=0.800 L=335.0' S=0.0197 ' Capacity=3.31 cfs Outflow=0.06 cfs 0.028 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=0.27 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 0.130 af n=0.800 L=318.0' S=0.0182 ' Capacity=3.18 cfs Outflow=0.16 cfs 0.099 af
Reach W6: 6 Thru Wetland	Avg. Flow Depth=0.21' Max Vel=0.06 fps Inflow=0.15 cfs 0.059 af n=0.800 L=615.0' S=0.0122 ' Capacity=2.60 cfs Outflow=0.09 cfs 0.025 af
Reach W7: 7 Thru Wetland	Avg. Flow Depth=0.10' Max Vel=0.03 fps Inflow=0.02 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 1P: Detention Basin 1	Peak Elev=204.48' Storage=3,844 cf Inflow=2.69 cfs 0.123 af Primary=0.07 cfs 0.044 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.044 af
Pond 2P: Detention Basin 2	Peak Elev=204.96' Storage=2,959 cf Inflow=2.22 cfs 0.111 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=4,428 cf Inflow=3.29 cfs 0.152 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=205.69' Storage=394 cf Inflow=2.26 cfs 0.105 af Primary=2.13 cfs 0.104 af Secondary=0.00 cfs 0.000 af Outflow=2.13 cfs 0.104 af
Pond 4B: Detention Basin 4B	Peak Elev=205.98' Storage=3,095 cf Inflow=2.33 cfs 0.114 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=9,400 cf Inflow=6.40 cfs 0.317 af Primary=0.17 cfs 0.130 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.130 af
Pond 6P: Detention Basin 6	Peak Elev=206.37' Storage=3,220 cf Inflow=2.68 cfs 0.119 af Primary=0.15 cfs 0.059 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.059 af
Pond 7P: Detention Basin 7	Peak Elev=206.14' Storage=437 cf Inflow=0.41 cfs 0.022 af Primary=0.02 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.014 af
Link x1000: x1000	Inflow=4.25 cfs 1.283 af Primary=4.25 cfs 1.283 af
Link x2000: x2000	Inflow=5.43 cfs 1.694 af Primary=5.43 cfs 1.694 af

4298600-PR

Prepared by VHB

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

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Link x3000: x3000

Inflow=8.83 cfs 2.589 af

Primary=8.83 cfs 2.589 af

Total Runoff Area = 20.790 ac Runoff Volume = 3.352 af Average Runoff Depth = 1.93"
89.17% Pervious = 18.538 ac 10.83% Impervious = 2.251 ac

Summary for Subcatchment 100: Area 100

Runoff = 2.69 cfs @ 11.97 hrs, Volume= 0.123 af, Depth> 3.04"

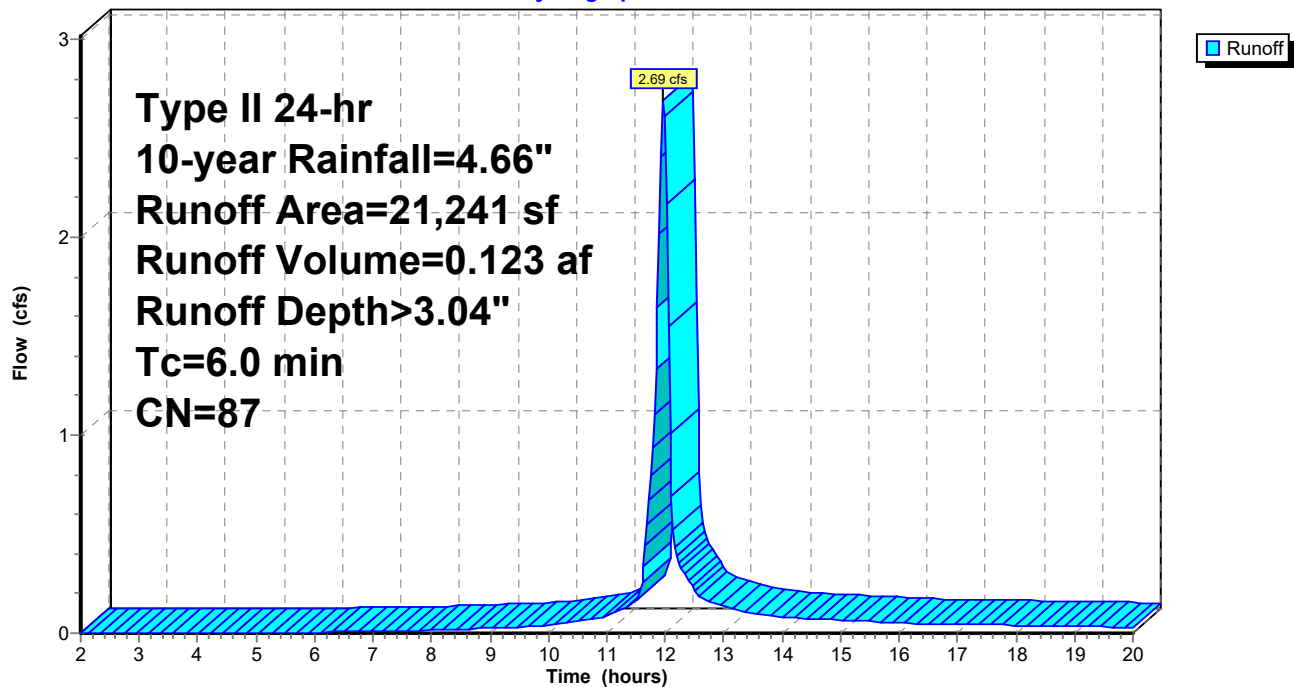
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 200: Area 200

Runoff = 0.85 cfs @ 11.97 hrs, Volume= 0.038 af, Depth> 2.76"

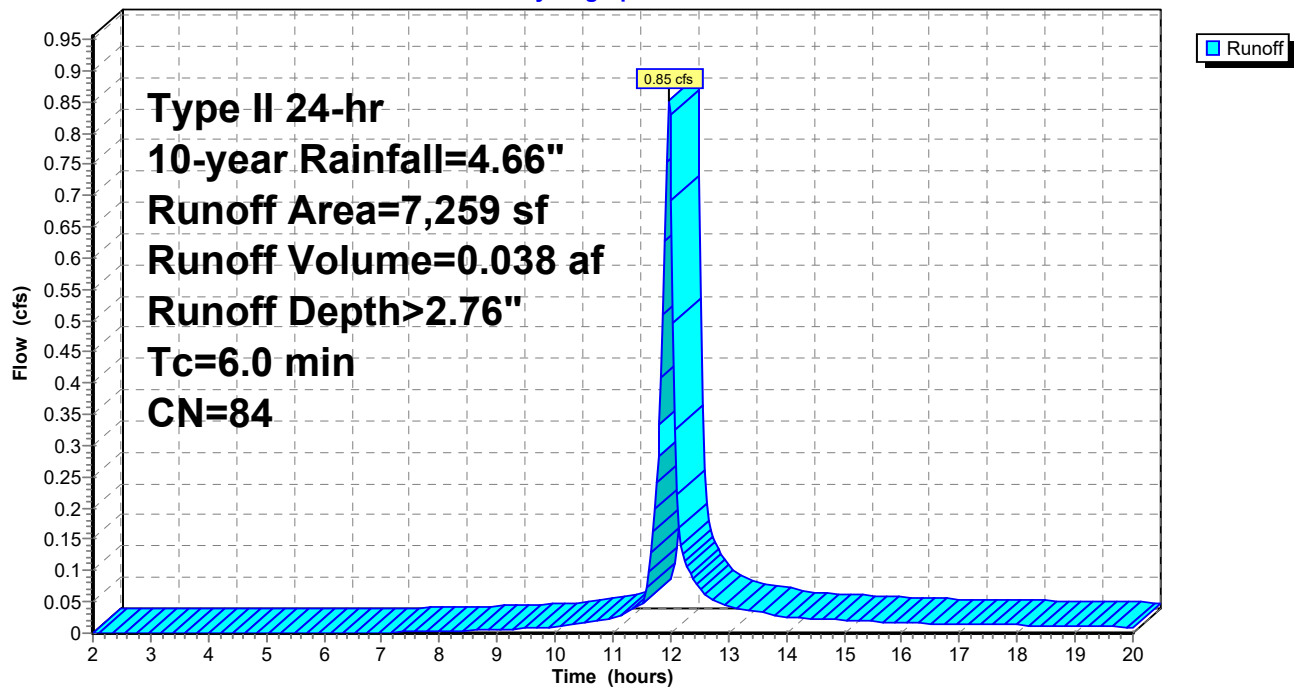
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 3.29 cfs @ 11.97 hrs, Volume= 0.152 af, Depth> 3.13"

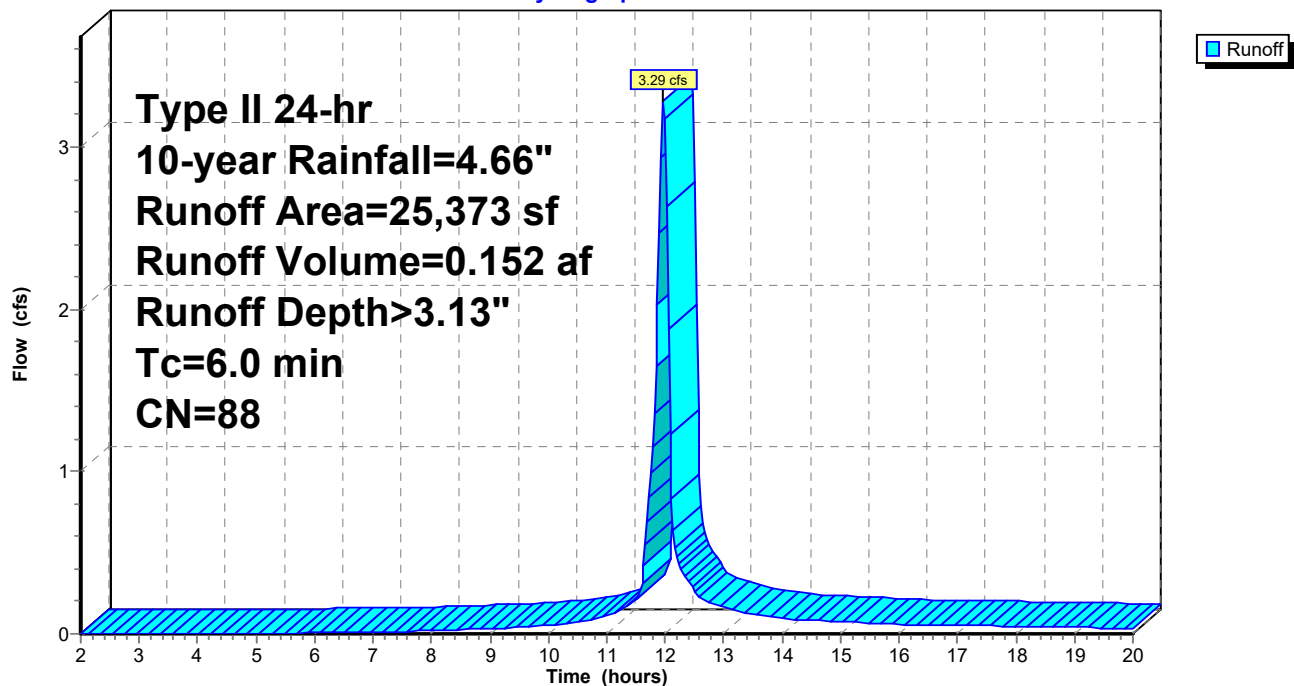
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 350: Area 350

Runoff = 0.19 cfs @ 11.98 hrs, Volume= 0.008 af, Depth> 1.63"

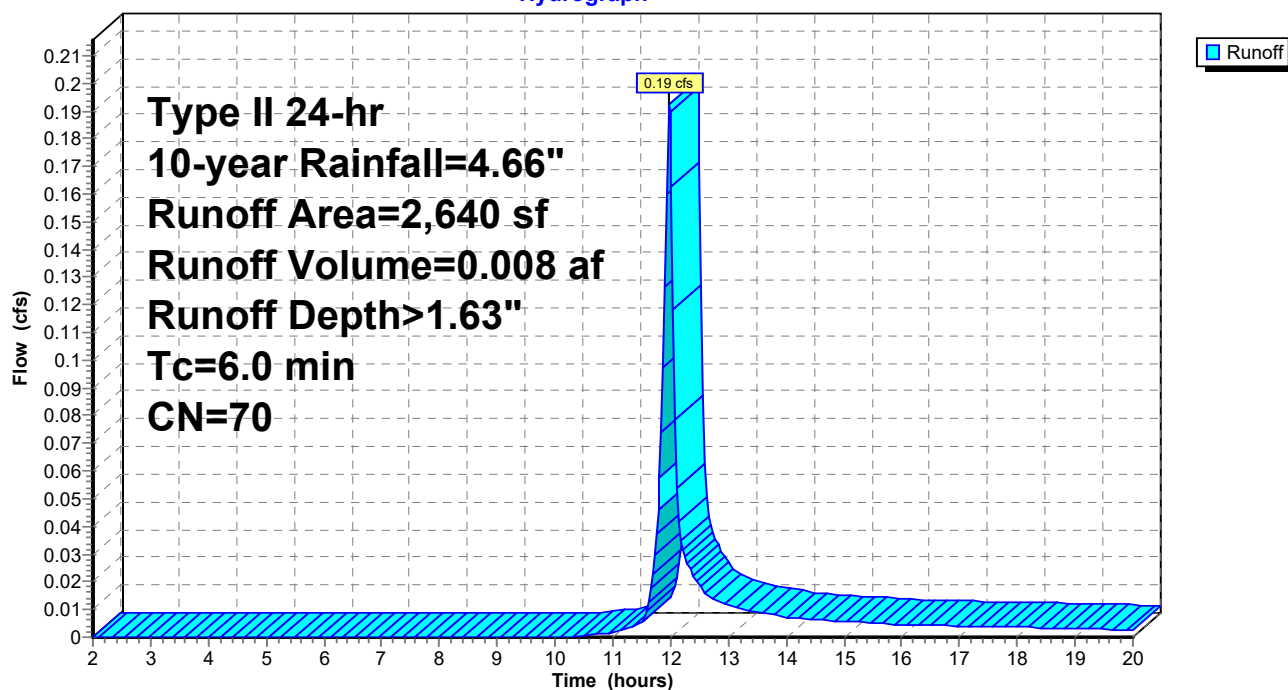
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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



Summary for Subcatchment 400: Area 400

Runoff = 2.26 cfs @ 11.97 hrs, Volume= 0.105 af, Depth> 3.13"

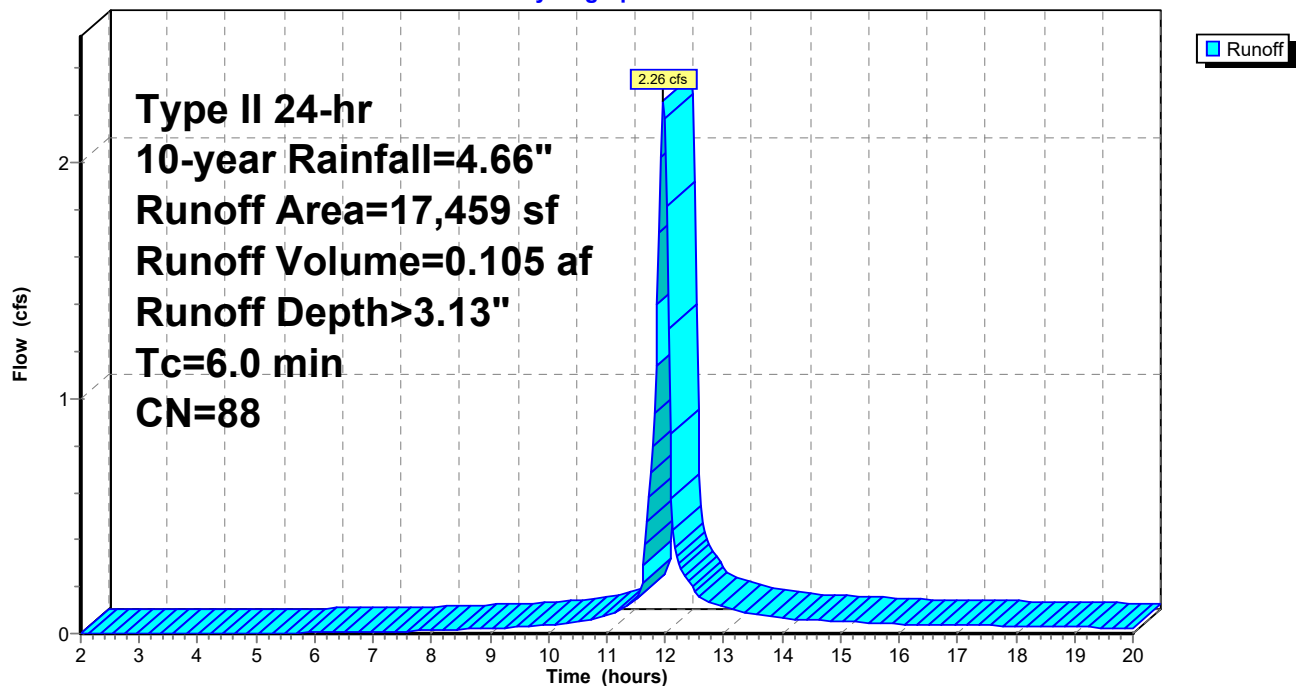
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 450: Area 450

Runoff = 0.24 cfs @ 11.99 hrs, Volume= 0.010 af, Depth> 0.93"

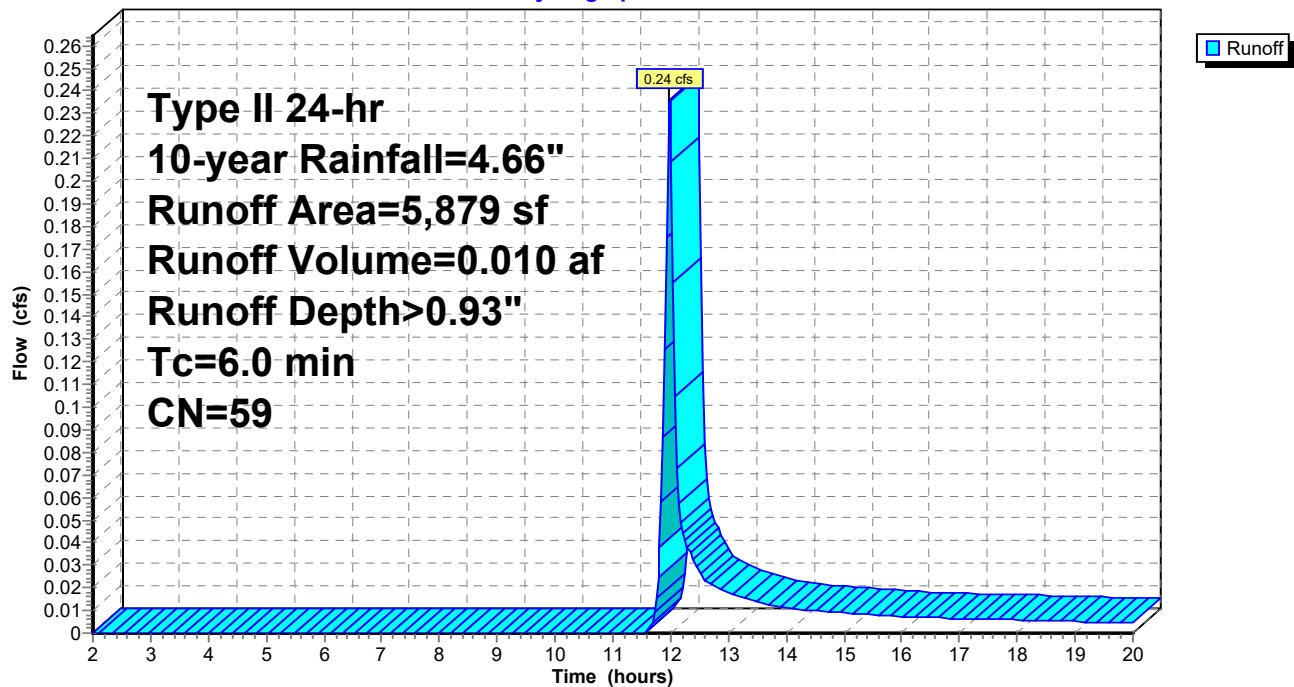
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 0.41 cfs @ 12.00 hrs, Volume= 0.022 af, Depth> 0.48"

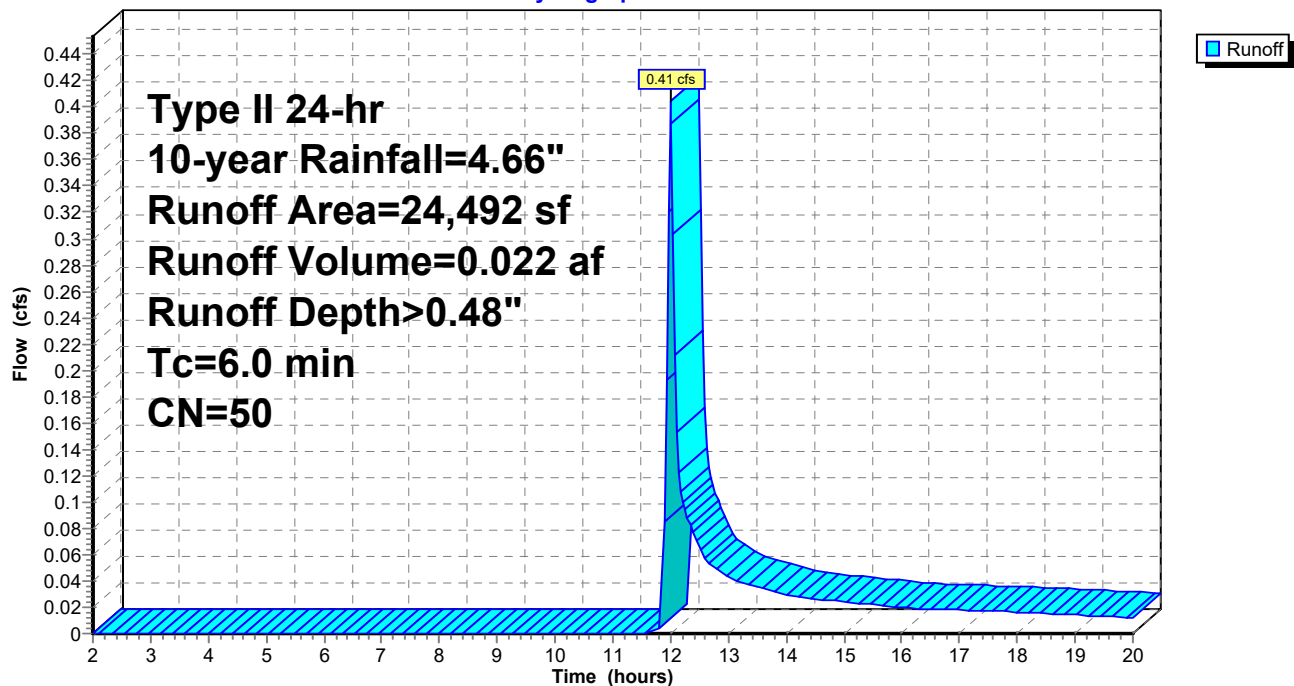
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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



Summary for Subcatchment 550: Area 550

Runoff = 2.68 cfs @ 11.97 hrs, Volume= 0.119 af, Depth> 2.58"

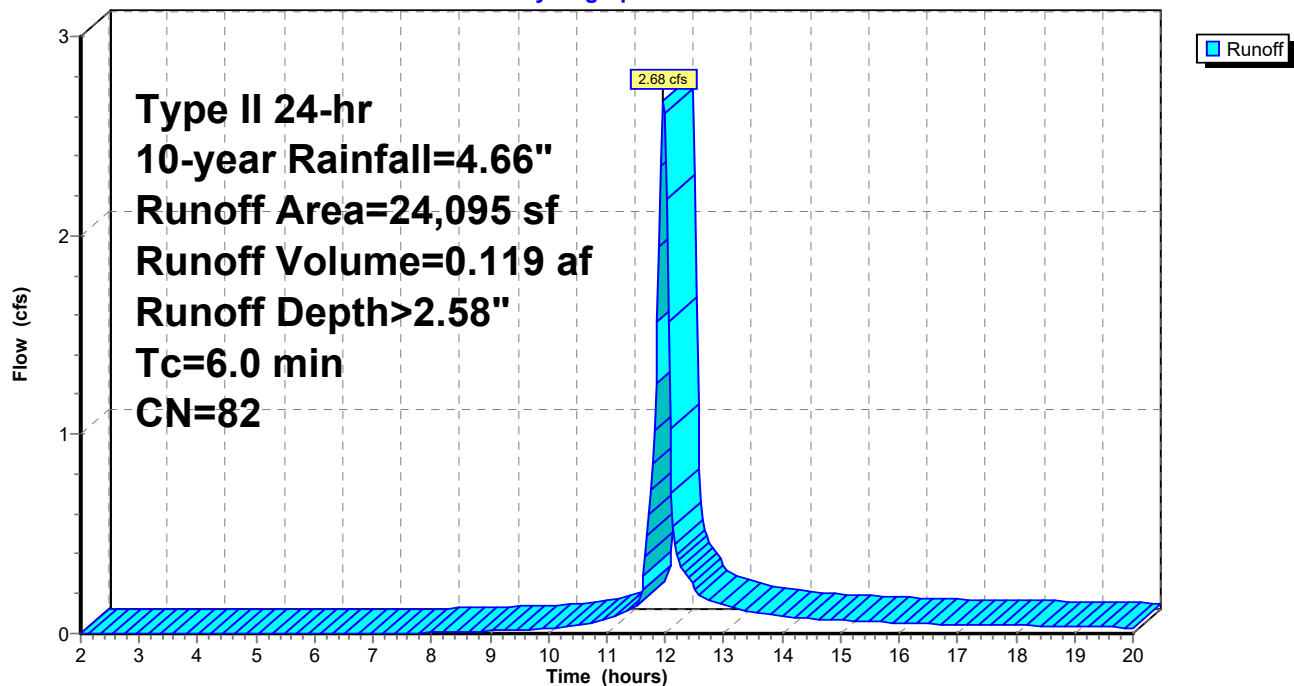
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 600: Area 600

Runoff = 6.40 cfs @ 11.97 hrs, Volume= 0.317 af, Depth> 3.75"

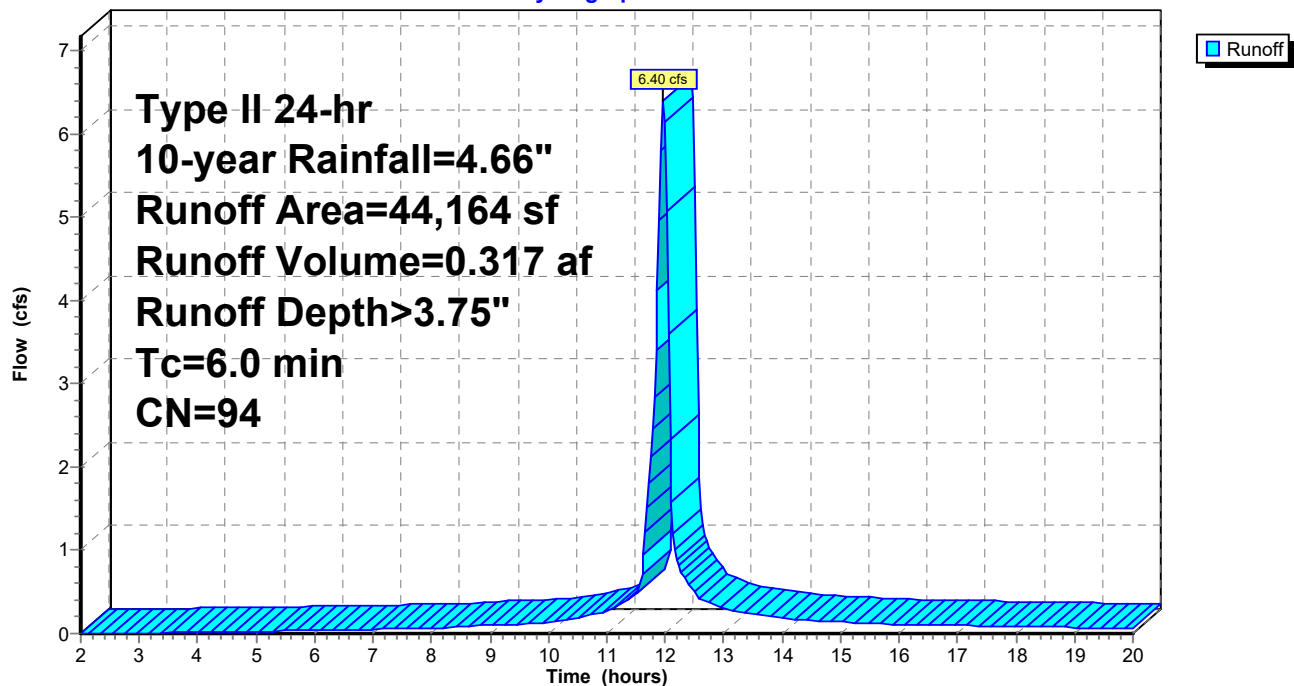
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 700: Area 700

Runoff = 2.16 cfs @ 13.58 hrs, Volume= 0.518 af, Depth> 1.74"

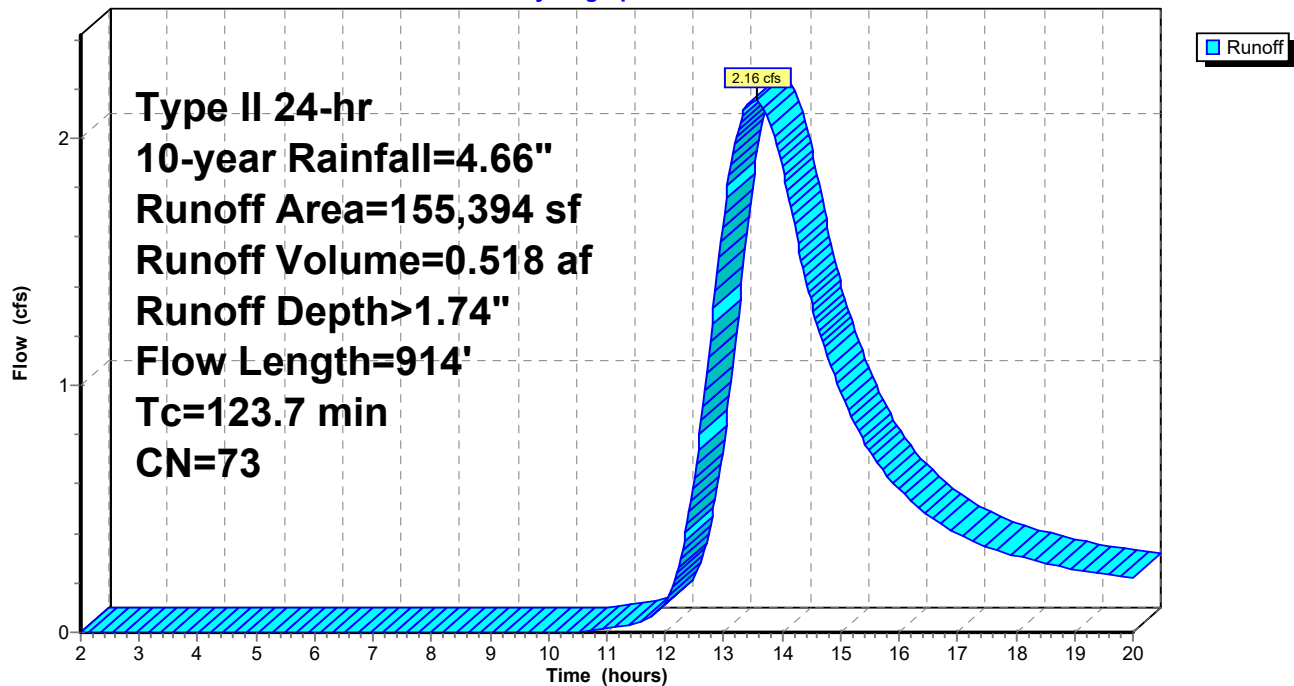
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 800: Area 800

Runoff = 1.24 cfs @ 13.76 hrs, Volume= 0.324 af, Depth> 2.02"

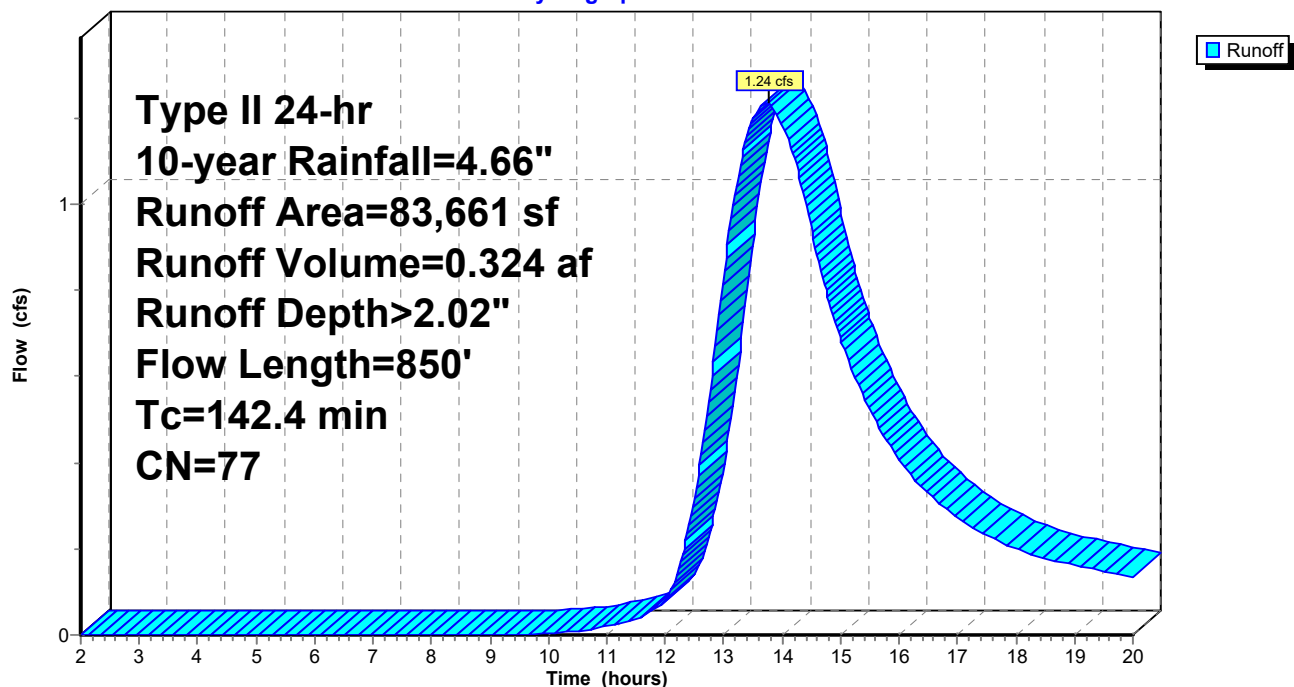
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 0.78 cfs @ 12.38 hrs, Volume= 0.084 af, Depth> 2.13"

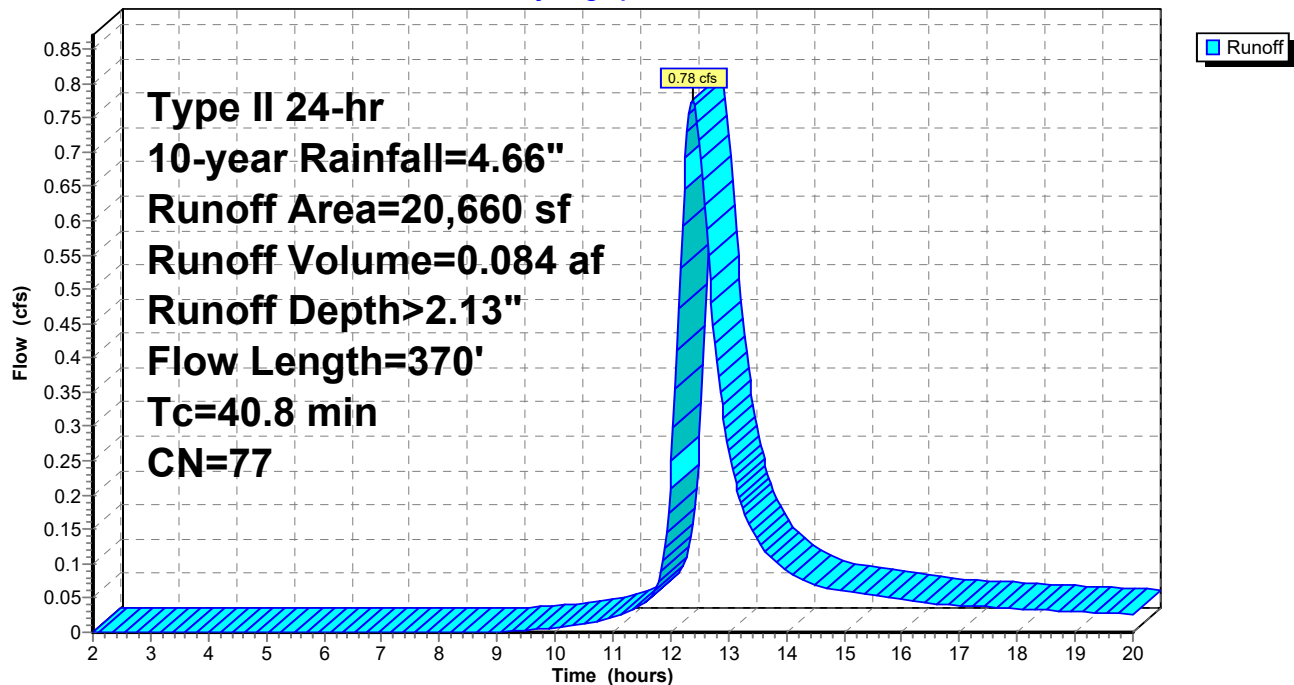
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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'
27.1	320	0.0062	0.20		Woods: Dense underbrush n= 0.800 P2= 3.01"
					Shallow Concentrated Flow, Last 320'
					Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 900: Area 900

Hydrograph



Summary for Subcatchment 1000: Area 1000

Runoff = 1.39 cfs @ 13.19 hrs, Volume= 0.291 af, Depth> 1.69"

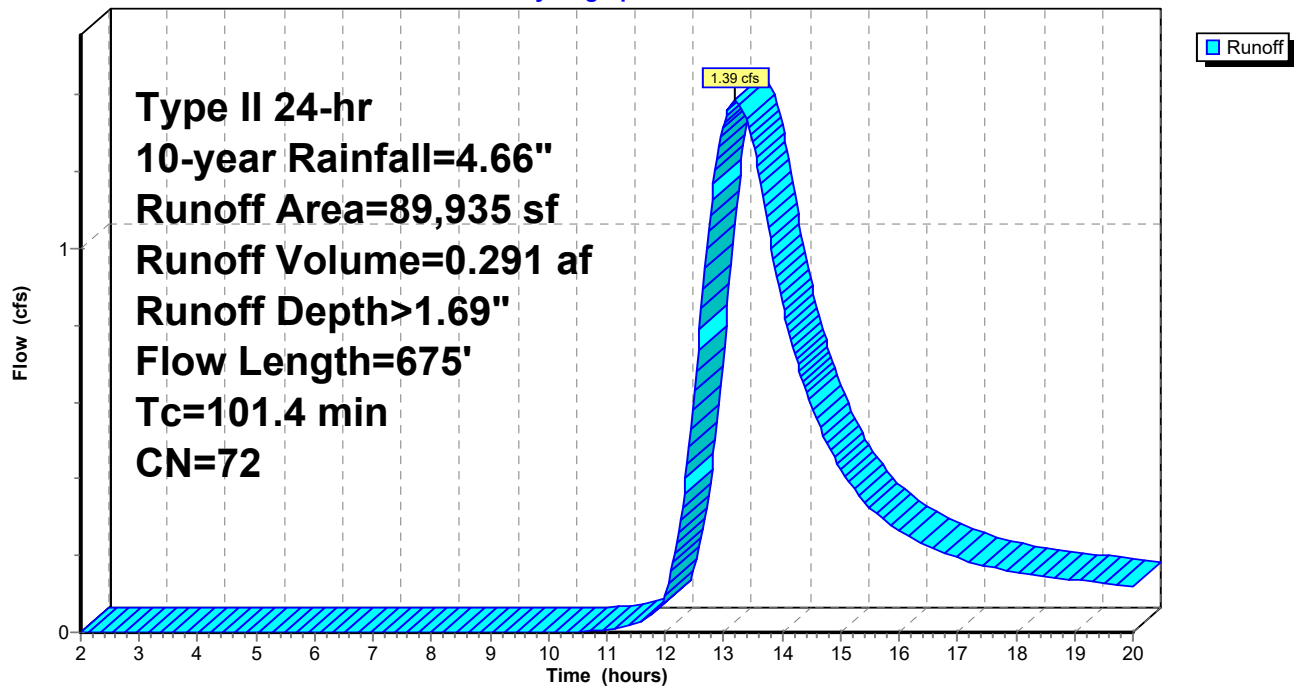
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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



Summary for Subcatchment 1100: Area 1100

Runoff = 0.48 cfs @ 12.22 hrs, Volume= 0.040 af, Depth> 1.61"

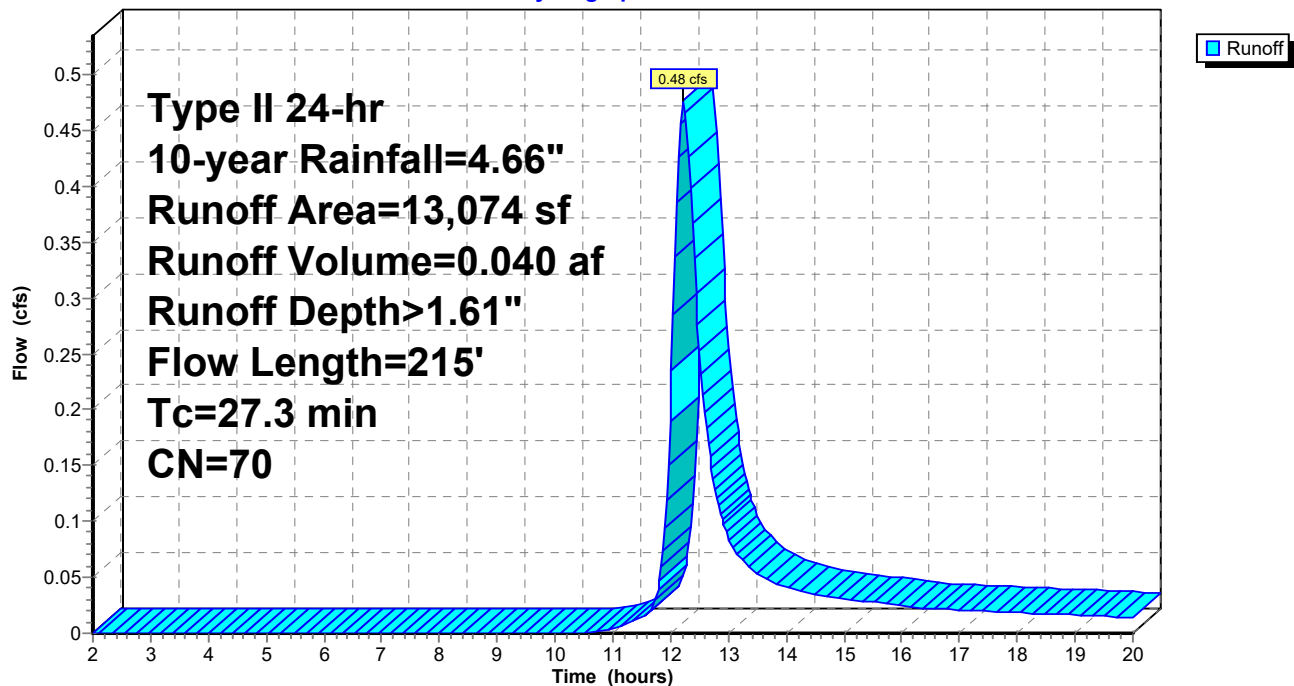
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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



Summary for Subcatchment 1200: Area 1200

Runoff = 2.24 cfs @ 13.73 hrs, Volume= 0.585 af, Depth> 1.87"

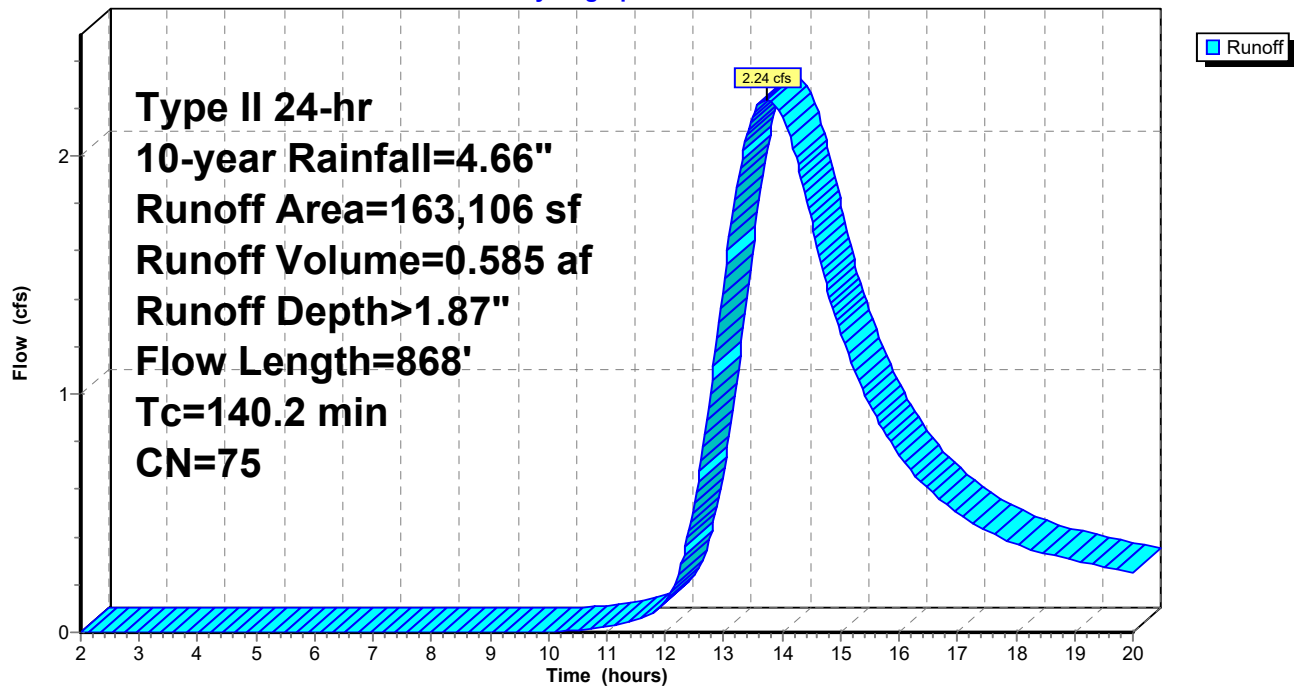
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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



Summary for Subcatchment 1300: Area 1300

Runoff = 0.53 cfs @ 13.70 hrs, Volume= 0.137 af, Depth> 1.73"

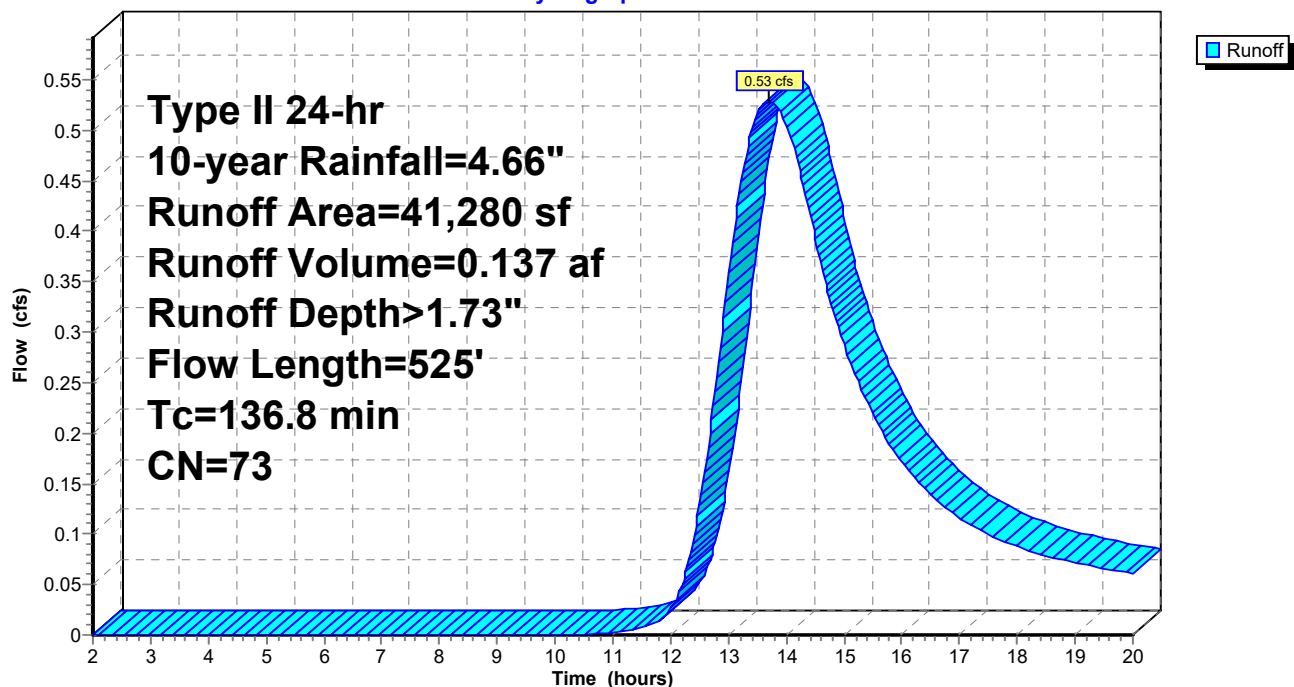
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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



Summary for Subcatchment 1400: Area 1400

Runoff = 1.13 cfs @ 12.62 hrs, Volume= 0.158 af, Depth> 1.88"

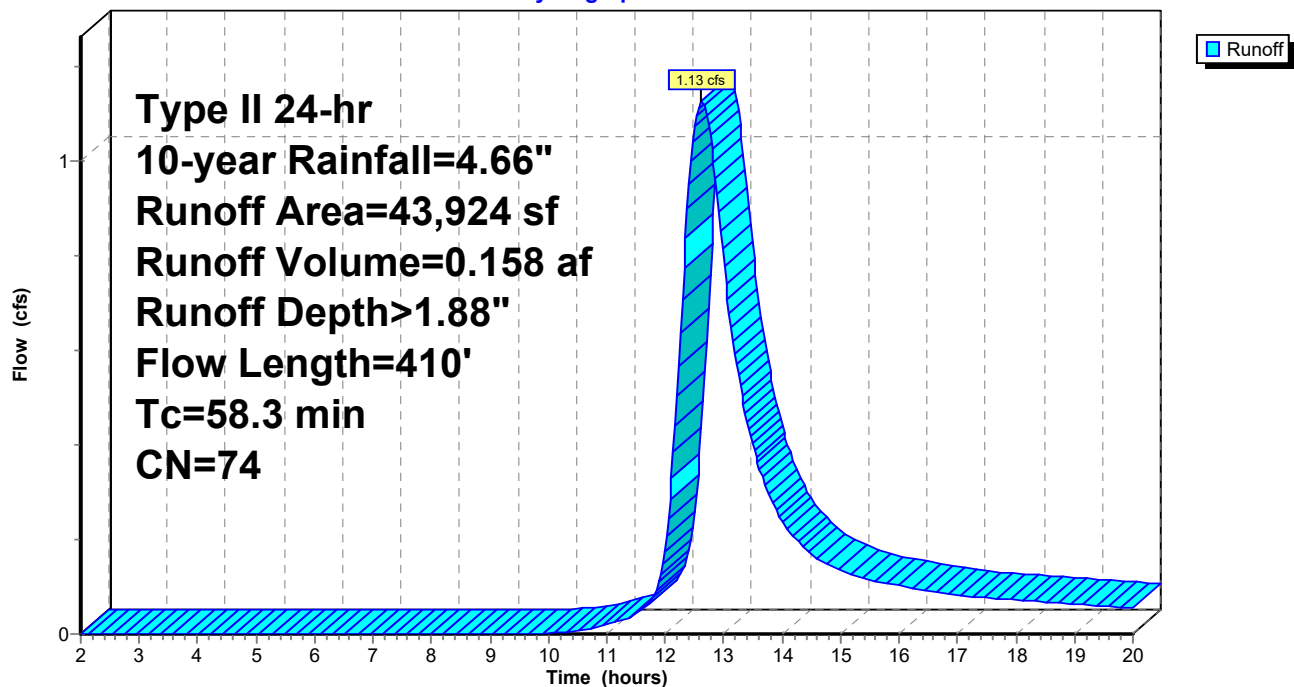
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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

Hydrograph



Summary for Subcatchment 1500: Area 1500

Runoff = 0.27 cfs @ 13.31 hrs, Volume= 0.059 af, Depth> 2.06"

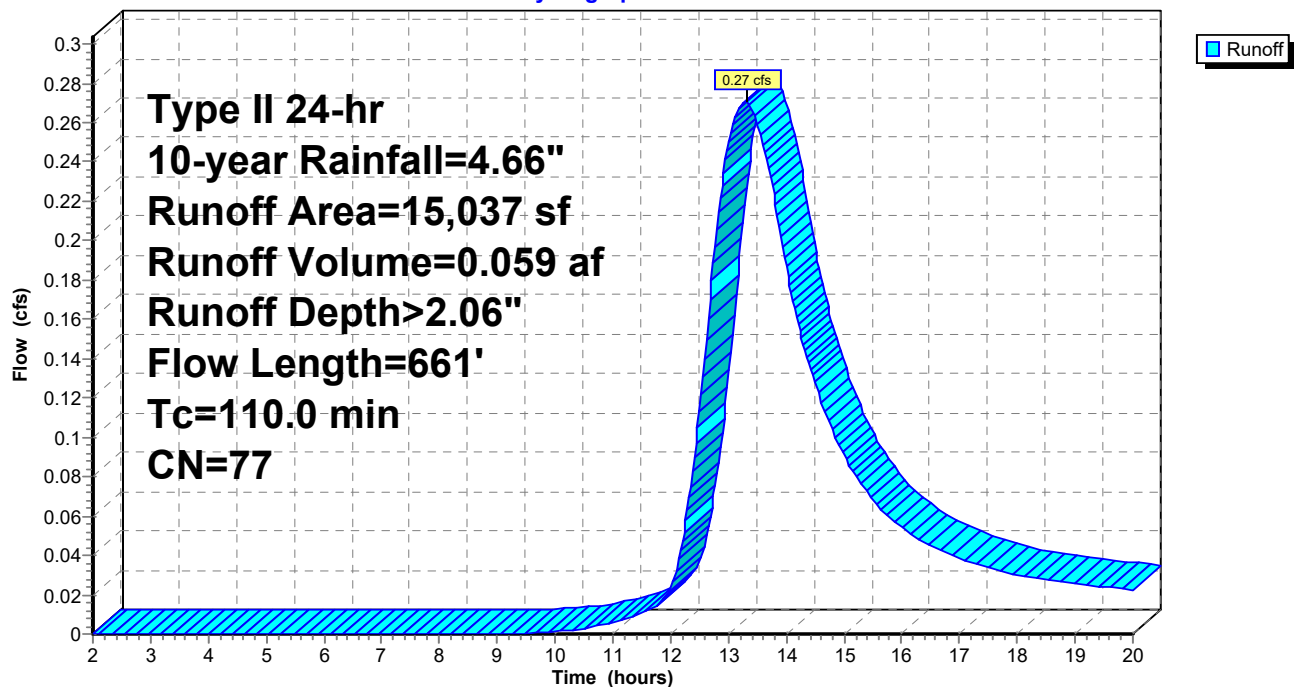
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 @ 14.11 hrs, Volume= 0.029 af, Depth> 0.68"

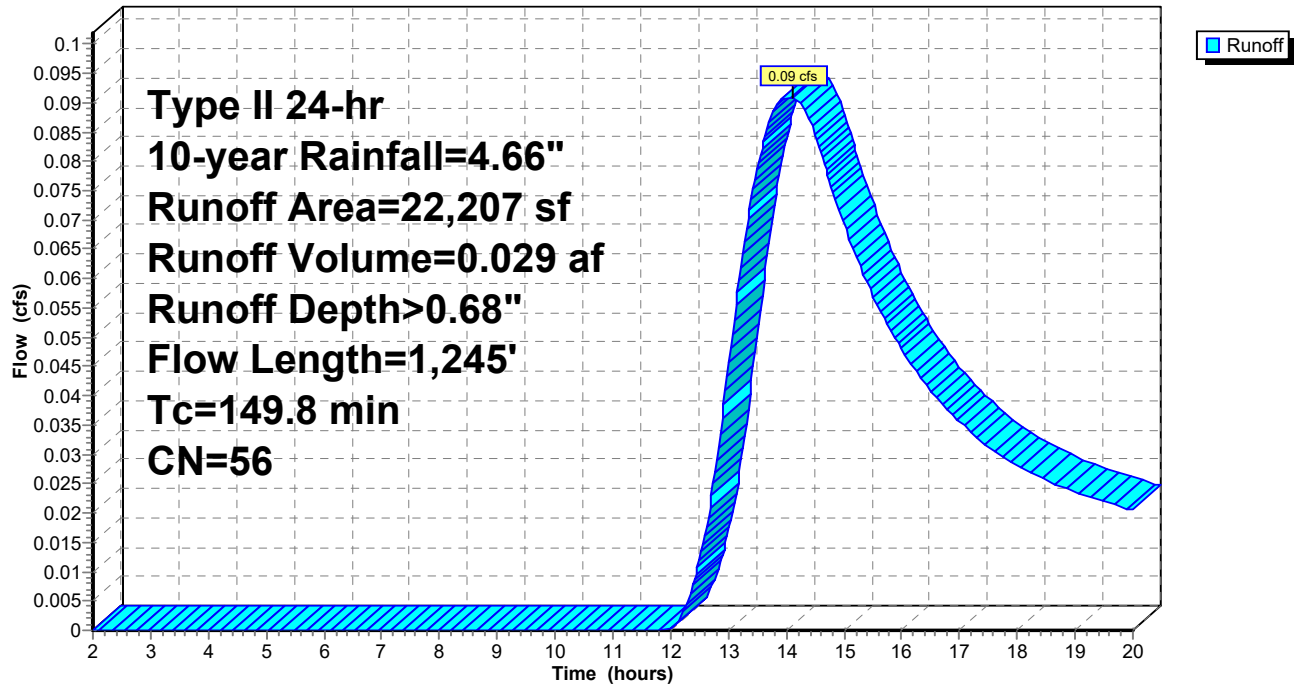
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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



Summary for Subcatchment 1700: Area 1700

[73] Warning: Peak may fall outside time span

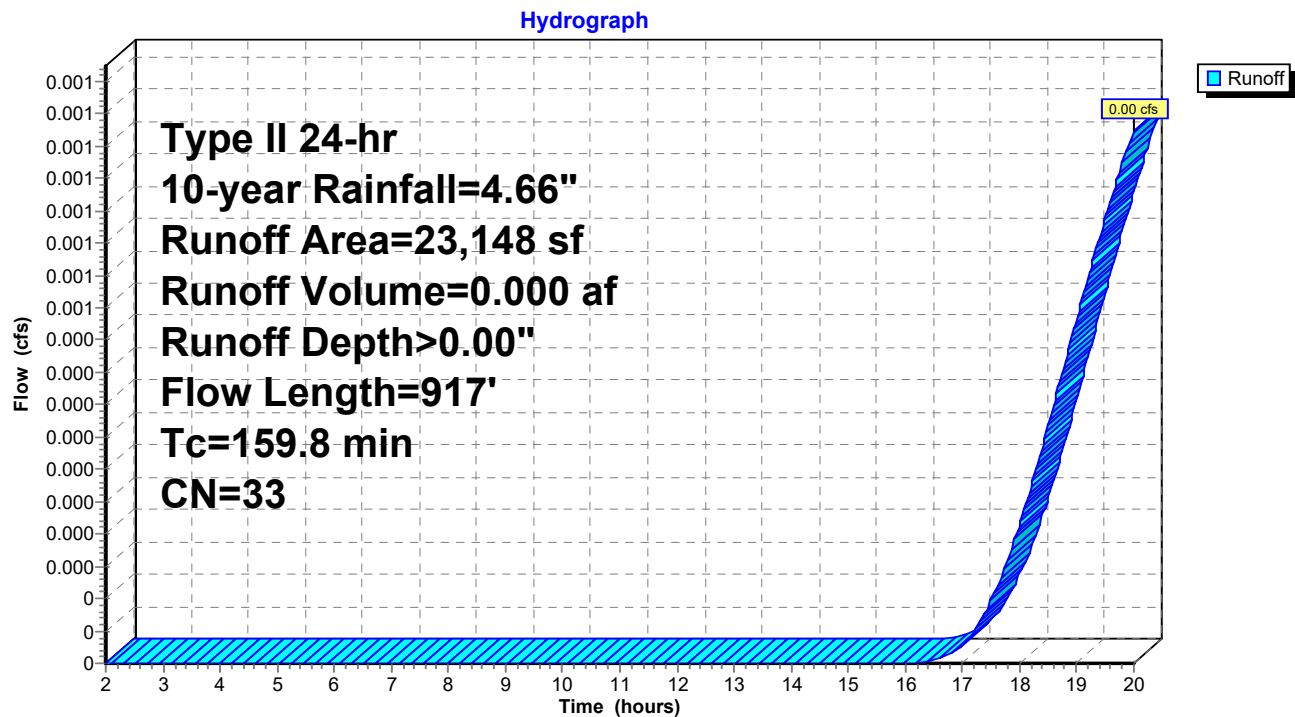
Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 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			

Subcatchment 1700: Area 1700



Summary for Subcatchment 1800: Area 1800

Runoff = 0.62 cfs @ 13.65 hrs, Volume= 0.160 af, Depth> 1.59"

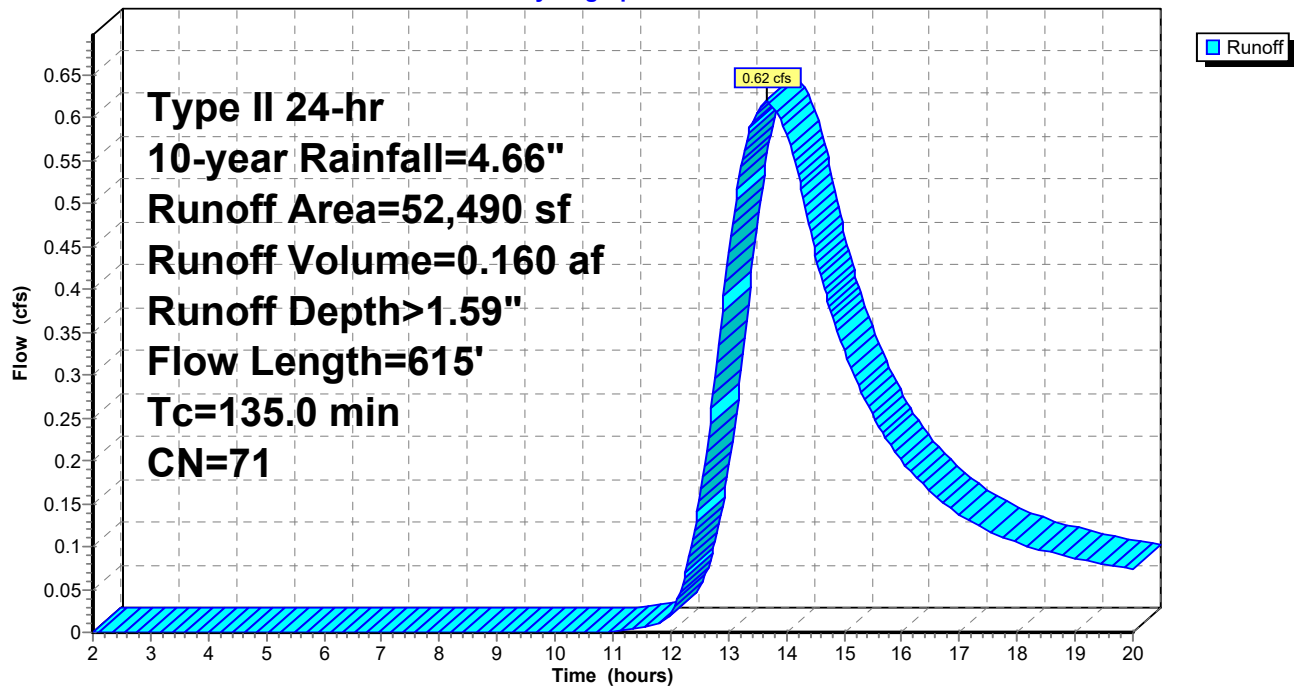
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 0.62 cfs @ 11.97 hrs, Volume= 0.033 af, Depth> 4.18"

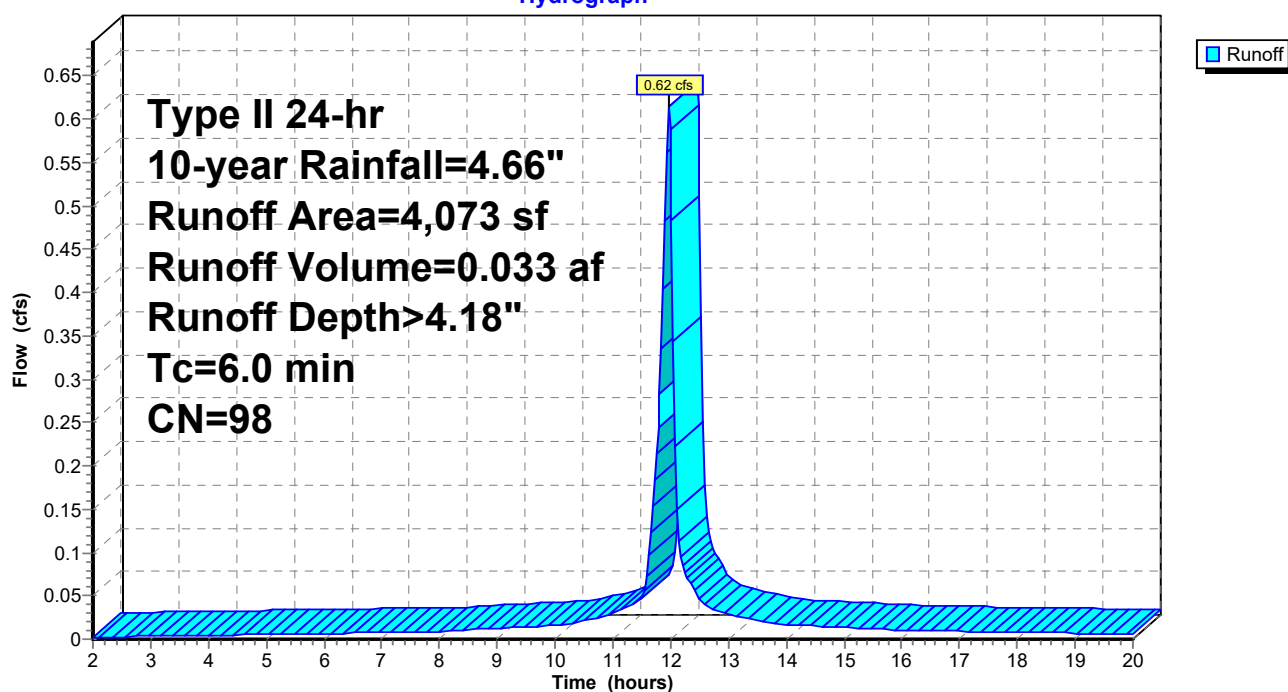
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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 = 0.76 cfs @ 11.97 hrs, Volume= 0.040 af, Depth> 4.18"

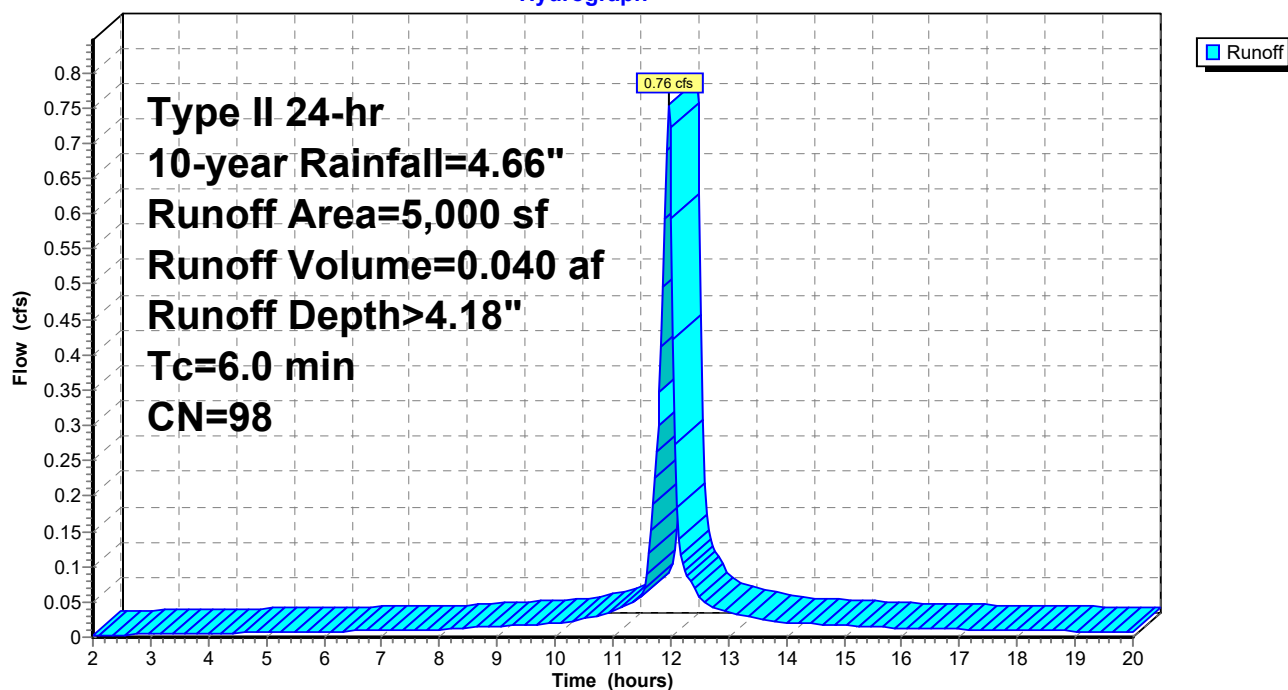
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 10-year Rainfall=4.66"

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



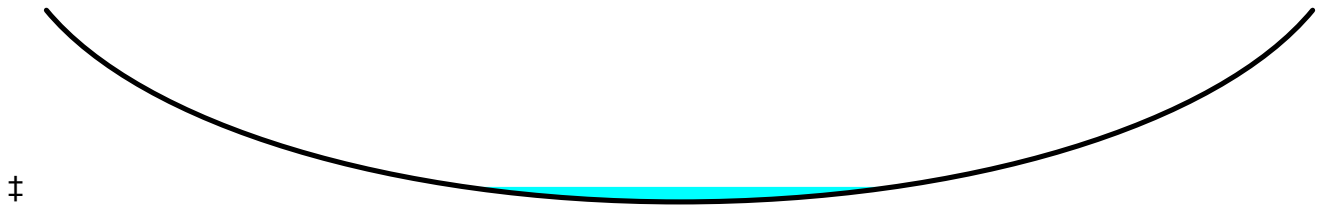
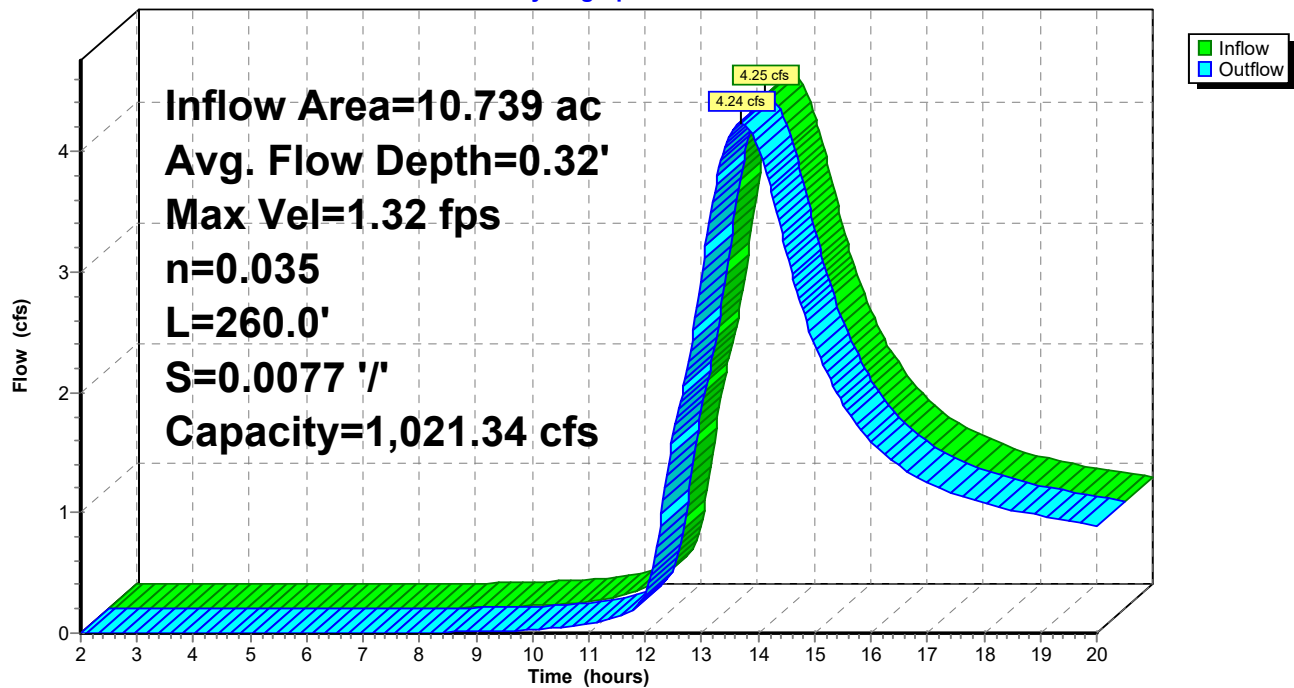
Summary for Reach 1k-2k: x1000 to x2000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 1.43" for 10-year event
 Inflow = 4.25 cfs @ 13.61 hrs, Volume= 1.283 af
 Outflow = 4.24 cfs @ 13.70 hrs, Volume= 1.272 af, Atten= 0%, Lag= 5.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.32 fps, Min. Travel Time= 3.3 min
 Avg. Velocity = 0.70 fps, Avg. Travel Time= 6.2 min

Peak Storage= 835 cf @ 13.64 hrs
 Average Depth at Peak Storage= 0.32' , Surface Width= 15.20'
 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**

Stage-Area-Storage for Reach 1k-2k: x1000 to x2000

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
198.00	0.0	0	200.60	75.5	19,620
198.05	0.2	55	200.65	77.7	20,189
198.10	0.6	150	200.70	79.9	20,763
198.15	1.1	273	200.75	82.1	21,343
198.20	1.6	419	200.80	84.3	21,927
198.25	2.3	586	200.85	86.6	22,517
198.30	3.0	770	200.90	88.9	23,113
198.35	3.7	970	200.95	91.2	23,713
198.40	4.6	1,184	201.00	93.5	24,318
198.45	5.4	1,414	201.05	95.9	24,929
198.50	6.4	1,656	201.10	98.2	25,544
198.55	7.3	1,910	201.15	100.6	26,165
198.60	8.4	2,175	201.20	103.0	26,790
198.65	9.4	2,453	201.25	105.5	27,421
198.70	10.5	2,742	201.30	107.9	28,056
198.75	11.7	3,040	201.35	110.4	28,696
198.80	12.9	3,349	201.40	112.8	29,340
198.85	14.1	3,668	201.45	115.3	29,990
198.90	15.4	3,997	201.50	117.9	30,645
198.95	16.7	4,334	201.55	120.4	31,303
199.00	18.0	4,680	201.60	122.9	31,967
199.05	19.4	5,036	201.65	125.5	32,635
199.10	20.8	5,400	201.70	128.1	33,308
199.15	22.2	5,772	201.75	130.7	33,986
199.20	23.7	6,152	201.80	133.3	34,667
199.25	25.2	6,541	201.85	136.0	35,354
199.30	26.7	6,937	201.90	138.6	36,045
199.35	28.2	7,341	201.95	141.3	36,740
199.40	29.8	7,752	202.00	144.0	37,440
199.45	31.4	8,172			
199.50	33.1	8,598			
199.55	34.7	9,032			
199.60	36.4	9,472			
199.65	38.2	9,919			
199.70	39.9	10,374			
199.75	41.7	10,835			
199.80	43.5	11,302			
199.85	45.3	11,777			
199.90	47.1	12,257			
199.95	49.0	12,744			
200.00	50.9	13,237			
200.05	52.8	13,737			
200.10	54.8	14,243			
200.15	56.7	14,754			
200.20	58.7	15,271			
200.25	60.8	15,795			
200.30	62.8	16,325			
200.35	64.8	16,860			
200.40	66.9	17,401			
200.45	69.0	17,947			
200.50	71.2	18,500			
200.55	73.3	19,057			

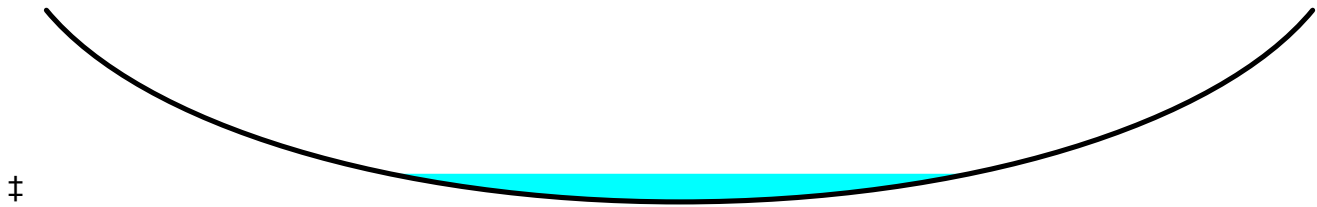
Summary for Reach 2k-3k: x2000 to x3000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 1.38" for 10-year event
 Inflow = 5.43 cfs @ 13.61 hrs, Volume= 1.694 af
 Outflow = 5.42 cfs @ 13.76 hrs, Volume= 1.673 af, Atten= 0%, Lag= 8.9 min

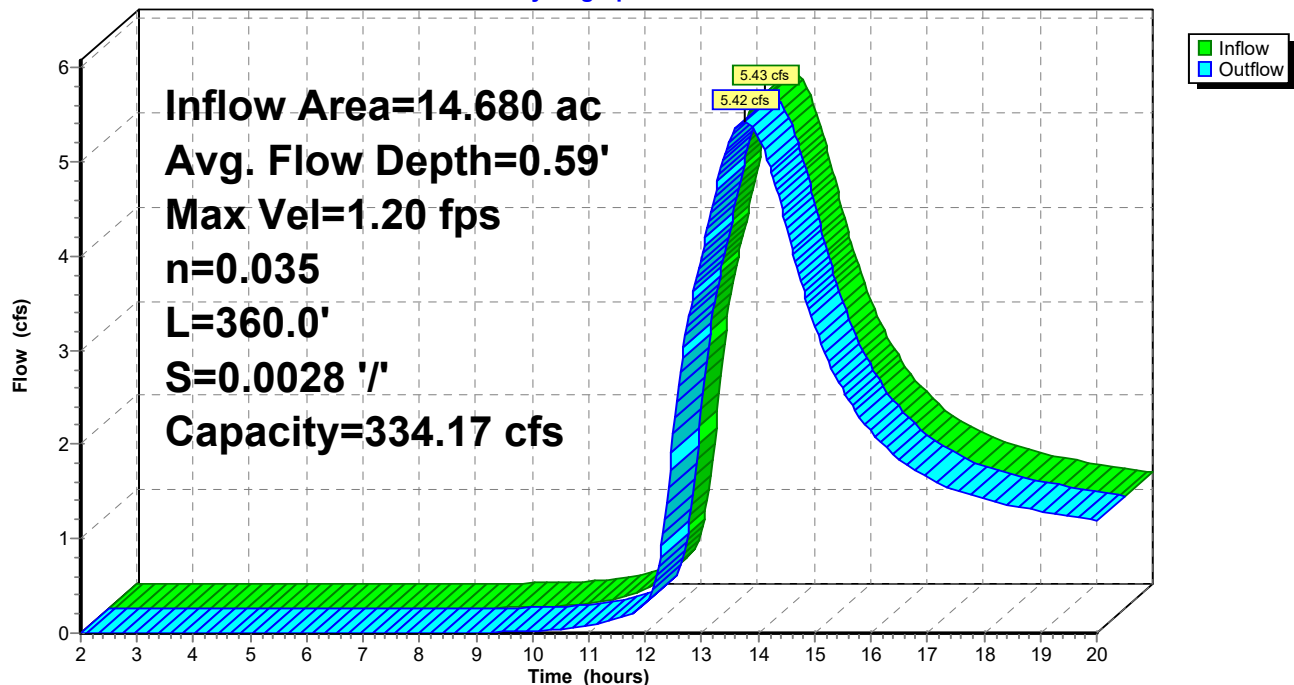
Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.20 fps, Min. Travel Time= 5.0 min
 Avg. Velocity = 0.61 fps, Avg. Travel Time= 9.9 min

Peak Storage= 1,632 cf @ 13.68 hrs
 Average Depth at Peak Storage= 0.59' , Surface Width= 11.52'
 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



Stage-Area-Storage for Reach 2k-3k: x2000 to x3000

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
196.00	0.0	0	198.60	41.9	15,093
196.05	0.1	42	198.65	43.1	15,530
196.10	0.3	116	198.70	44.4	15,972
196.15	0.6	210	198.75	45.6	16,418
196.20	0.9	322	198.80	46.9	16,867
196.25	1.3	451	198.85	48.1	17,321
196.30	1.6	593	198.90	49.4	17,779
196.35	2.1	746	198.95	50.7	18,241
196.40	2.5	911	199.00	52.0	18,706
196.45	3.0	1,087	199.05	53.3	19,176
196.50	3.5	1,274	199.10	54.6	19,650
196.55	4.1	1,469	199.15	55.9	20,127
196.60	4.6	1,673	199.20	57.2	20,608
196.65	5.2	1,887	199.25	58.6	21,093
196.70	5.9	2,109	199.30	59.9	21,581
196.75	6.5	2,339	199.35	61.3	22,074
196.80	7.2	2,576	199.40	62.7	22,569
196.85	7.8	2,822	199.45	64.1	23,069
196.90	8.5	3,074	199.50	65.5	23,573
196.95	9.3	3,334	199.55	66.9	24,080
197.00	10.0	3,600	199.60	68.3	24,590
197.05	10.8	3,874	199.65	69.7	25,104
197.10	11.5	4,154	199.70	71.2	25,622
197.15	12.3	4,440	199.75	72.6	26,143
197.20	13.1	4,732	199.80	74.1	26,667
197.25	14.0	5,032	199.85	75.5	27,195
197.30	14.8	5,336	199.90	77.0	27,727
197.35	15.7	5,647	199.95	78.5	28,262
197.40	16.6	5,963	200.00	80.0	28,800
197.45	17.5	6,286			
197.50	18.4	6,614			
197.55	19.3	6,947			
197.60	20.2	7,286			
197.65	21.2	7,630			
197.70	22.2	7,980			
197.75	23.2	8,334			
197.80	24.1	8,694			
197.85	25.2	9,059			
197.90	26.2	9,429			
197.95	27.2	9,803			
198.00	28.3	10,182			
198.05	29.4	10,567			
198.10	30.4	10,956			
198.15	31.5	11,349			
198.20	32.6	11,747			
198.25	33.8	12,150			
198.30	34.9	12,558			
198.35	36.0	12,969			
198.40	37.2	13,385			
198.45	38.3	13,806			
198.50	39.5	14,231			
198.55	40.7	14,660			

Summary for Reach CP: Connecting Pipes

[52] Hint: Inlet/Outlet conditions not evaluated

[81] Warning: Exceeded Pond 4A by 0.01' @ 5.84 hrs

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 3.11" for 10-year event
Inflow = 2.13 cfs @ 12.00 hrs, Volume= 0.104 af
Outflow = 2.10 cfs @ 12.01 hrs, Volume= 0.104 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 2.91 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 0.90 fps, Avg. Travel Time= 1.2 min

Peak Storage= 45 cf @ 12.00 hrs

Average Depth at Peak Storage= 0.42' , Surface Width= 2.36'

Bank-Full Depth= 1.25' Flow Area= 2.5 sf, Capacity= 8.67 cfs

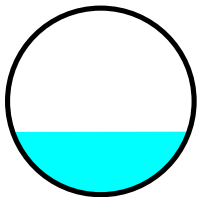
A factor of 2.00 has been applied to the storage and discharge capacity

15.0" Round Pipe

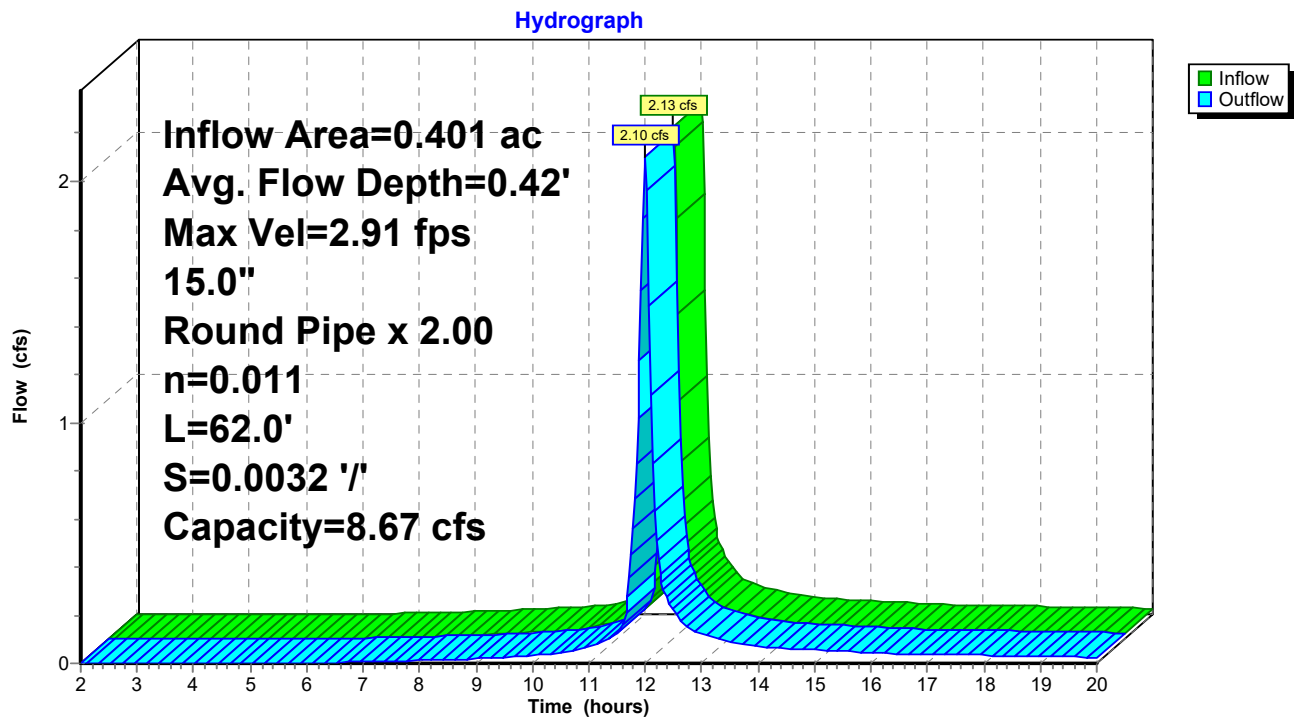
n= 0.011 Concrete pipe, straight & clean

Length= 62.0' Slope= 0.0032 '/'

Inlet Invert= 205.20', Outlet Invert= 205.00'



Reach CP: Connecting Pipes



Stage-Area-Storage for Reach CP: Connecting Pipes

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.20	0.0	0	206.24	2.2	135
205.22	0.0	1	206.26	2.2	138
205.24	0.0	1	206.28	2.3	140
205.26	0.0	3	206.30	2.3	142
205.28	0.1	4	206.32	2.3	144
205.30	0.1	6	206.34	2.3	146
205.32	0.1	7	206.36	2.4	147
205.34	0.2	9	206.38	2.4	149
205.36	0.2	11	206.40	2.4	150
205.38	0.2	13	206.42	2.4	151
205.40	0.3	16	206.44	2.5	152
205.42	0.3	18			
205.44	0.3	20			
205.46	0.4	23			
205.48	0.4	25			
205.50	0.5	28			
205.52	0.5	31			
205.54	0.5	33			
205.56	0.6	36			
205.58	0.6	39			
205.60	0.7	42			
205.62	0.7	45			
205.64	0.8	48			
205.66	0.8	51			
205.68	0.9	54			
205.70	0.9	57			
205.72	1.0	60			
205.74	1.0	63			
205.76	1.1	66			
205.78	1.1	69			
205.80	1.2	72			
205.82	1.2	75			
205.84	1.3	78			
205.86	1.3	82			
205.88	1.4	85			
205.90	1.4	88			
205.92	1.5	91			
205.94	1.5	94			
205.96	1.6	97			
205.98	1.6	100			
206.00	1.7	103			
206.02	1.7	106			
206.04	1.8	109			
206.06	1.8	112			
206.08	1.8	114			
206.10	1.9	117			
206.12	1.9	120			
206.14	2.0	123			
206.16	2.0	125			
206.18	2.1	128			
206.20	2.1	131			
206.22	2.1	133			

Summary for Reach P1: Pipe Out of 1

[52] Hint: Inlet/Outlet conditions not evaluated

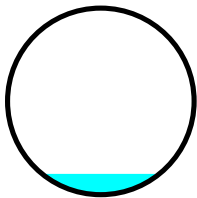
[79] Warning: Submerged Pond 1P Primary device # 1 by 0.11'

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.09" for 10-year event
Inflow = 0.07 cfs @ 14.90 hrs, Volume= 0.044 af
Outflow = 0.07 cfs @ 14.93 hrs, Volume= 0.044 af, Atten= 0%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.39 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 0.99 fps, Avg. Travel Time= 1.3 min

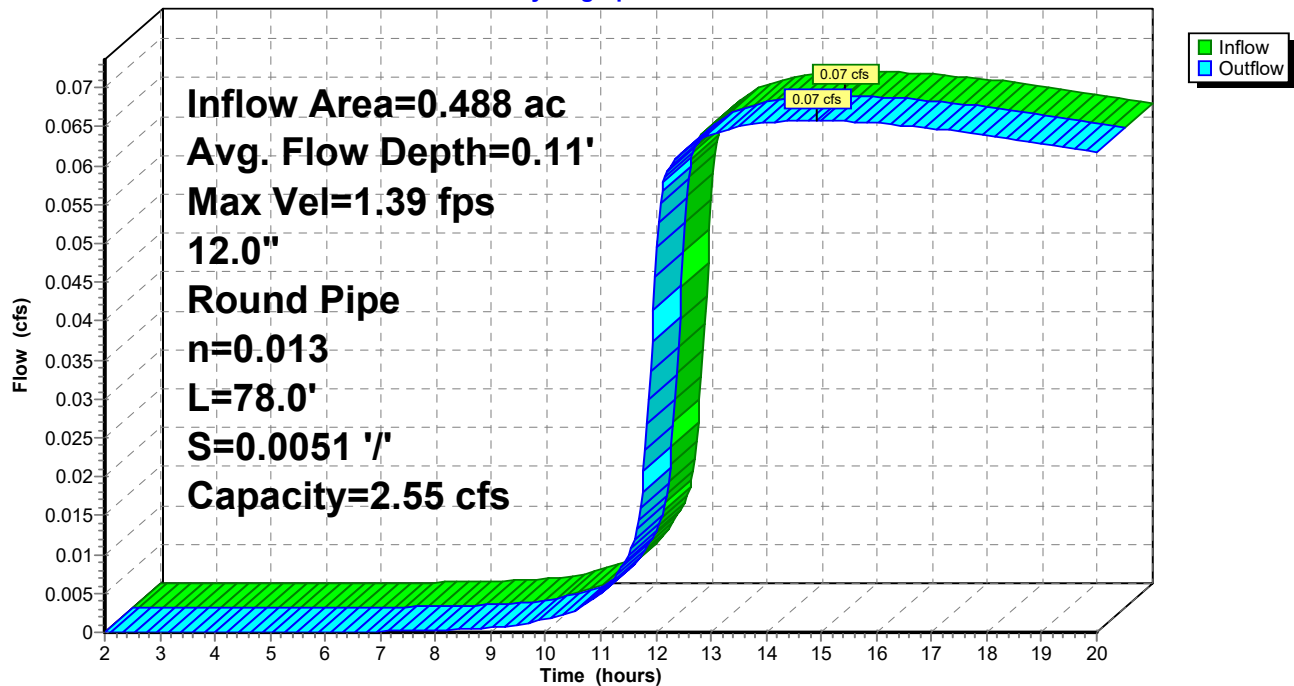
Peak Storage= 4 cf @ 14.91 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 0.63'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.55 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 78.0' Slope= 0.0051 '/
Inlet Invert= 204.00', Outlet Invert= 203.60'



Reach P1: Pipe Out of 1

Hydrograph



Stage-Area-Storage for Reach P1: Pipe Out of 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	32
204.01	0.0	0	204.53	0.4	33
204.02	0.0	0	204.54	0.4	34
204.03	0.0	1	204.55	0.4	35
204.04	0.0	1	204.56	0.5	35
204.05	0.0	1	204.57	0.5	36
204.06	0.0	2	204.58	0.5	37
204.07	0.0	2	204.59	0.5	38
204.08	0.0	2	204.60	0.5	38
204.09	0.0	3	204.61	0.5	39
204.10	0.0	3	204.62	0.5	40
204.11	0.0	4	204.63	0.5	41
204.12	0.1	4	204.64	0.5	41
204.13	0.1	5	204.65	0.5	42
204.14	0.1	5	204.66	0.5	43
204.15	0.1	6	204.67	0.6	44
204.16	0.1	6	204.68	0.6	44
204.17	0.1	7	204.69	0.6	45
204.18	0.1	7	204.70	0.6	46
204.19	0.1	8	204.71	0.6	47
204.20	0.1	9	204.72	0.6	47
204.21	0.1	9	204.73	0.6	48
204.22	0.1	10	204.74	0.6	49
204.23	0.1	11	204.75	0.6	49
204.24	0.1	11	204.76	0.6	50
204.25	0.2	12	204.77	0.6	51
204.26	0.2	13	204.78	0.7	51
204.27	0.2	13	204.79	0.7	52
204.28	0.2	14	204.80	0.7	53
204.29	0.2	15	204.81	0.7	53
204.30	0.2	15	204.82	0.7	54
204.31	0.2	16	204.83	0.7	54
204.32	0.2	17	204.84	0.7	55
204.33	0.2	18	204.85	0.7	55
204.34	0.2	18	204.86	0.7	56
204.35	0.2	19	204.87	0.7	57
204.36	0.3	20	204.88	0.7	57
204.37	0.3	21	204.89	0.7	58
204.38	0.3	21	204.90	0.7	58
204.39	0.3	22	204.91	0.8	59
204.40	0.3	23	204.92	0.8	59
204.41	0.3	24	204.93	0.8	59
204.42	0.3	24	204.94	0.8	60
204.43	0.3	25	204.95	0.8	60
204.44	0.3	26	204.96	0.8	60
204.45	0.3	27	204.97	0.8	61
204.46	0.4	28	204.98	0.8	61
204.47	0.4	28	204.99	0.8	61
204.48	0.4	29	205.00	0.8	61
204.49	0.4	30			
204.50	0.4	31			
204.51	0.4	31			

Summary for Reach P2: Pipe Out of 2

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 2P Primary device # 1 by 0.13'

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.22" for 10-year event
Inflow = 0.10 cfs @ 13.15 hrs, Volume= 0.069 af
Outflow = 0.10 cfs @ 13.17 hrs, Volume= 0.069 af, Atten= 0%, Lag= 1.1 min

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 @ 13.15 hrs

Average Depth at Peak Storage= 0.13' , Surface Width= 0.68'

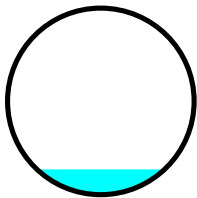
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

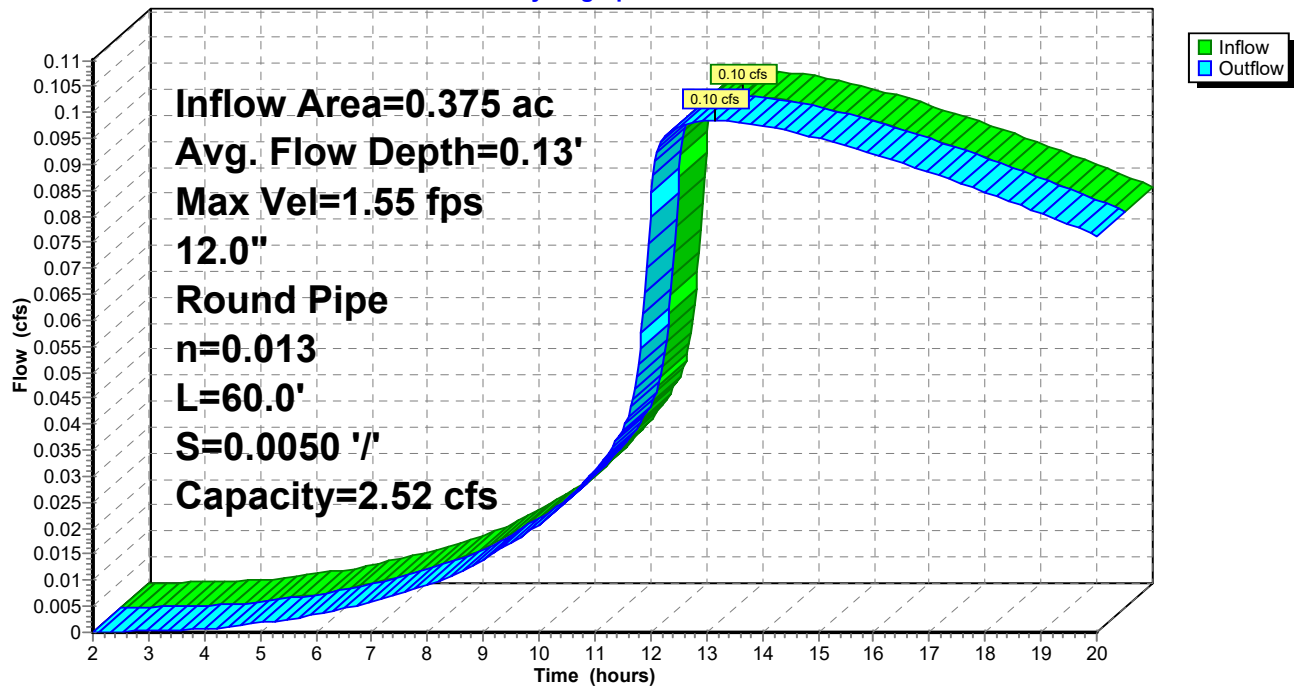
Length= 60.0' Slope= 0.0050 '/'

Inlet Invert= 204.00', Outlet Invert= 203.70'



Reach P2: Pipe Out of 2

Hydrograph



Stage-Area-Storage for Reach P2: Pipe Out of 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	25
204.01	0.0	0	204.53	0.4	25
204.02	0.0	0	204.54	0.4	26
204.03	0.0	0	204.55	0.4	27
204.04	0.0	1	204.56	0.5	27
204.05	0.0	1	204.57	0.5	28
204.06	0.0	1	204.58	0.5	28
204.07	0.0	1	204.59	0.5	29
204.08	0.0	2	204.60	0.5	30
204.09	0.0	2	204.61	0.5	30
204.10	0.0	2	204.62	0.5	31
204.11	0.0	3	204.63	0.5	31
204.12	0.1	3	204.64	0.5	32
204.13	0.1	4	204.65	0.5	32
204.14	0.1	4	204.66	0.5	33
204.15	0.1	4	204.67	0.6	34
204.16	0.1	5	204.68	0.6	34
204.17	0.1	5	204.69	0.6	35
204.18	0.1	6	204.70	0.6	35
204.19	0.1	6	204.71	0.6	36
204.20	0.1	7	204.72	0.6	36
204.21	0.1	7	204.73	0.6	37
204.22	0.1	8	204.74	0.6	37
204.23	0.1	8	204.75	0.6	38
204.24	0.1	9	204.76	0.6	38
204.25	0.2	9	204.77	0.6	39
204.26	0.2	10	204.78	0.7	39
204.27	0.2	10	204.79	0.7	40
204.28	0.2	11	204.80	0.7	40
204.29	0.2	11	204.81	0.7	41
204.30	0.2	12	204.82	0.7	41
204.31	0.2	12	204.83	0.7	42
204.32	0.2	13	204.84	0.7	42
204.33	0.2	14	204.85	0.7	43
204.34	0.2	14	204.86	0.7	43
204.35	0.2	15	204.87	0.7	44
204.36	0.3	15	204.88	0.7	44
204.37	0.3	16	204.89	0.7	44
204.38	0.3	16	204.90	0.7	45
204.39	0.3	17	204.91	0.8	45
204.40	0.3	18	204.92	0.8	45
204.41	0.3	18	204.93	0.8	46
204.42	0.3	19	204.94	0.8	46
204.43	0.3	19	204.95	0.8	46
204.44	0.3	20	204.96	0.8	46
204.45	0.3	21	204.97	0.8	47
204.46	0.4	21	204.98	0.8	47
204.47	0.4	22	204.99	0.8	47
204.48	0.4	22	205.00	0.8	47
204.49	0.4	23			
204.50	0.4	24			
204.51	0.4	24			

Summary for Reach P3: Pipe Out of 3

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.14'

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 1.46" for 10-year event
Inflow = 0.10 cfs @ 13.90 hrs, Volume= 0.071 af
Outflow = 0.10 cfs @ 13.92 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.7 min

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= 1.13 fps, Avg. Travel Time= 0.6 min

Peak Storage= 3 cf @ 13.91 hrs

Average Depth at Peak Storage= 0.14' , Surface Width= 0.69'

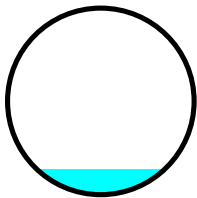
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

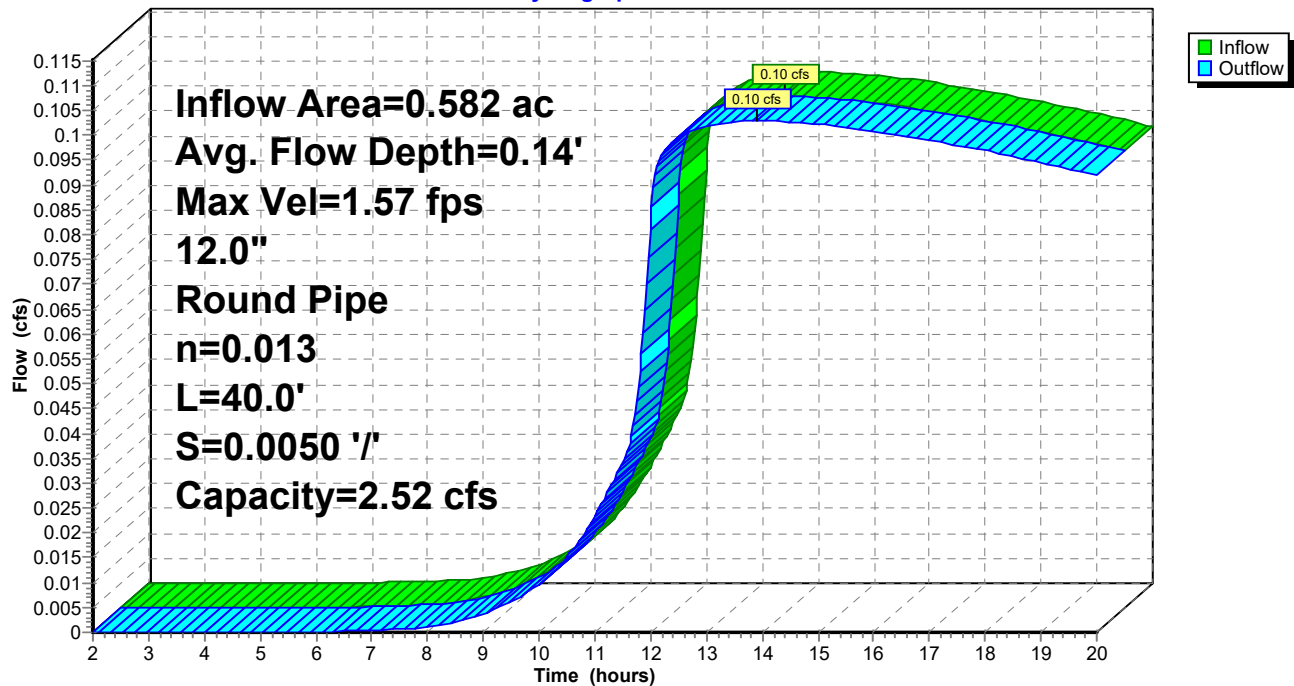
Length= 40.0' Slope= 0.0050 '/'

Inlet Invert= 205.00', Outlet Invert= 204.80'



Reach P3: Pipe Out of 3

Hydrograph



Stage-Area-Storage for Reach P3: Pipe Out of 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.00	0.0	0	205.52	0.4	17
205.01	0.0	0	205.53	0.4	17
205.02	0.0	0	205.54	0.4	17
205.03	0.0	0	205.55	0.4	18
205.04	0.0	0	205.56	0.5	18
205.05	0.0	1	205.57	0.5	18
205.06	0.0	1	205.58	0.5	19
205.07	0.0	1	205.59	0.5	19
205.08	0.0	1	205.60	0.5	20
205.09	0.0	1	205.61	0.5	20
205.10	0.0	2	205.62	0.5	20
205.11	0.0	2	205.63	0.5	21
205.12	0.1	2	205.64	0.5	21
205.13	0.1	2	205.65	0.5	22
205.14	0.1	3	205.66	0.5	22
205.15	0.1	3	205.67	0.6	22
205.16	0.1	3	205.68	0.6	23
205.17	0.1	4	205.69	0.6	23
205.18	0.1	4	205.70	0.6	23
205.19	0.1	4	205.71	0.6	24
205.20	0.1	4	205.72	0.6	24
205.21	0.1	5	205.73	0.6	25
205.22	0.1	5	205.74	0.6	25
205.23	0.1	5	205.75	0.6	25
205.24	0.1	6	205.76	0.6	26
205.25	0.2	6	205.77	0.6	26
205.26	0.2	6	205.78	0.7	26
205.27	0.2	7	205.79	0.7	27
205.28	0.2	7	205.80	0.7	27
205.29	0.2	8	205.81	0.7	27
205.30	0.2	8	205.82	0.7	28
205.31	0.2	8	205.83	0.7	28
205.32	0.2	9	205.84	0.7	28
205.33	0.2	9	205.85	0.7	28
205.34	0.2	9	205.86	0.7	29
205.35	0.2	10	205.87	0.7	29
205.36	0.3	10	205.88	0.7	29
205.37	0.3	11	205.89	0.7	30
205.38	0.3	11	205.90	0.7	30
205.39	0.3	11	205.91	0.8	30
205.40	0.3	12	205.92	0.8	30
205.41	0.3	12	205.93	0.8	30
205.42	0.3	13	205.94	0.8	31
205.43	0.3	13	205.95	0.8	31
205.44	0.3	13	205.96	0.8	31
205.45	0.3	14	205.97	0.8	31
205.46	0.4	14	205.98	0.8	31
205.47	0.4	15	205.99	0.8	31
205.48	0.4	15	206.00	0.8	31
205.49	0.4	15			
205.50	0.4	16			
205.51	0.4	16			

Summary for Reach P4B: Pipe Out of 4B

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 4B Primary device # 1 by 0.13'

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.47" for 10-year event
Inflow = 0.10 cfs @ 13.61 hrs, Volume= 0.065 af
Outflow = 0.10 cfs @ 13.67 hrs, Volume= 0.065 af, Atten= 0%, Lag= 3.2 min

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= 1.9 min

Avg. Velocity= 1.16 fps, Avg. Travel Time= 2.6 min

Peak Storage= 11 cf @ 13.63 hrs

Average Depth at Peak Storage= 0.13' , Surface Width= 0.68'

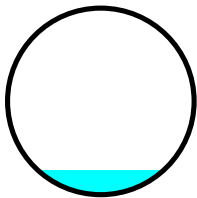
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.64 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

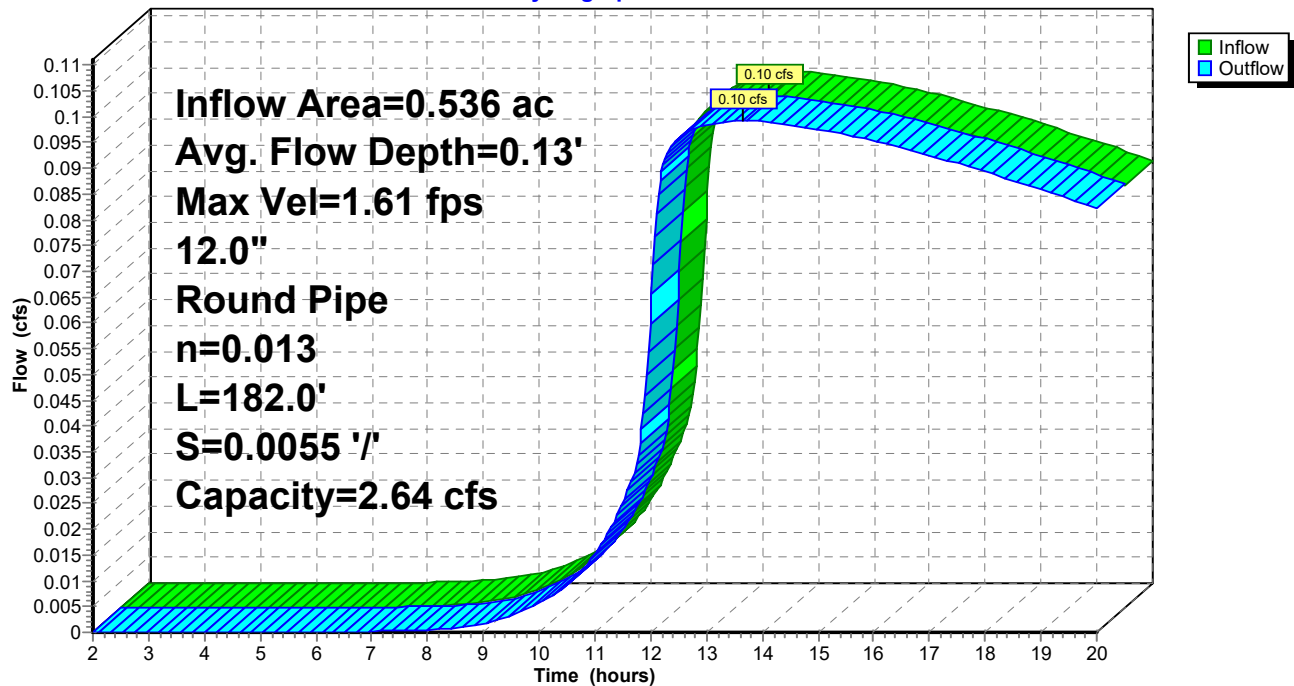
Length= 182.0' Slope= 0.0055 '/'

Inlet Invert= 205.00', Outlet Invert= 204.00'



Reach P4B: Pipe Out of 4B

Hydrograph



Stage-Area-Storage for Reach P4B: Pipe Out of 4B

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.00	0.0	0	205.52	0.4	75
205.01	0.0	0	205.53	0.4	77
205.02	0.0	1	205.54	0.4	79
205.03	0.0	1	205.55	0.4	81
205.04	0.0	2	205.56	0.5	82
205.05	0.0	3	205.57	0.5	84
205.06	0.0	4	205.58	0.5	86
205.07	0.0	4	205.59	0.5	88
205.08	0.0	5	205.60	0.5	90
205.09	0.0	6	205.61	0.5	91
205.10	0.0	7	205.62	0.5	93
205.11	0.0	9	205.63	0.5	95
205.12	0.1	10	205.64	0.5	97
205.13	0.1	11	205.65	0.5	98
205.14	0.1	12	205.66	0.5	100
205.15	0.1	13	205.67	0.6	102
205.16	0.1	15	205.68	0.6	104
205.17	0.1	16	205.69	0.6	105
205.18	0.1	17	205.70	0.6	107
205.19	0.1	19	205.71	0.6	109
205.20	0.1	20	205.72	0.6	110
205.21	0.1	22	205.73	0.6	112
205.22	0.1	23	205.74	0.6	113
205.23	0.1	25	205.75	0.6	115
205.24	0.1	26	205.76	0.6	117
205.25	0.2	28	205.77	0.6	118
205.26	0.2	30	205.78	0.7	120
205.27	0.2	31	205.79	0.7	121
205.28	0.2	33	205.80	0.7	123
205.29	0.2	34	205.81	0.7	124
205.30	0.2	36	205.82	0.7	125
205.31	0.2	38	205.83	0.7	127
205.32	0.2	39	205.84	0.7	128
205.33	0.2	41	205.85	0.7	129
205.34	0.2	43	205.86	0.7	131
205.35	0.2	45	205.87	0.7	132
205.36	0.3	46	205.88	0.7	133
205.37	0.3	48	205.89	0.7	134
205.38	0.3	50	205.90	0.7	136
205.39	0.3	52	205.91	0.8	137
205.40	0.3	53	205.92	0.8	138
205.41	0.3	55	205.93	0.8	139
205.42	0.3	57	205.94	0.8	139
205.43	0.3	59	205.95	0.8	140
205.44	0.3	61	205.96	0.8	141
205.45	0.3	62	205.97	0.8	142
205.46	0.4	64	205.98	0.8	142
205.47	0.4	66	205.99	0.8	143
205.48	0.4	68	206.00	0.8	143
205.49	0.4	70			
205.50	0.4	71			
205.51	0.4	73			

Summary for Reach P5: Pipe Out of 5

[52] Hint: Inlet/Outlet conditions not evaluated

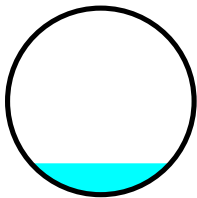
[79] Warning: Submerged Pond 5P Primary device # 1 by 0.17'

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.54" for 10-year event
Inflow = 0.17 cfs @ 14.30 hrs, Volume= 0.130 af
Outflow = 0.17 cfs @ 14.31 hrs, Volume= 0.130 af, Atten= 0%, Lag= 0.5 min

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

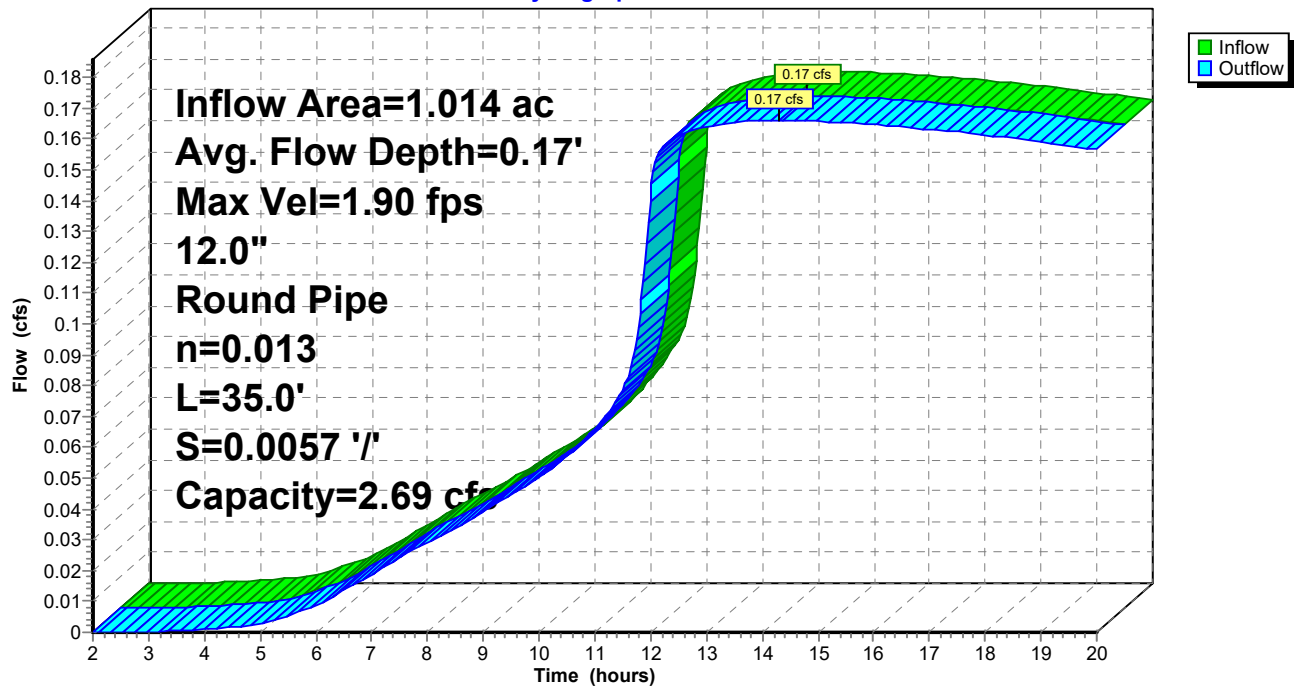
Peak Storage= 3 cf @ 14.30 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 0.75'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.69 cfs

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



Stage-Area-Storage for Reach P5: Pipe Out of 5

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	14
204.01	0.0	0	204.53	0.4	15
204.02	0.0	0	204.54	0.4	15
204.03	0.0	0	204.55	0.4	15
204.04	0.0	0	204.56	0.5	16
204.05	0.0	1	204.57	0.5	16
204.06	0.0	1	204.58	0.5	17
204.07	0.0	1	204.59	0.5	17
204.08	0.0	1	204.60	0.5	17
204.09	0.0	1	204.61	0.5	18
204.10	0.0	1	204.62	0.5	18
204.11	0.0	2	204.63	0.5	18
204.12	0.1	2	204.64	0.5	19
204.13	0.1	2	204.65	0.5	19
204.14	0.1	2	204.66	0.5	19
204.15	0.1	3	204.67	0.6	20
204.16	0.1	3	204.68	0.6	20
204.17	0.1	3	204.69	0.6	20
204.18	0.1	3	204.70	0.6	21
204.19	0.1	4	204.71	0.6	21
204.20	0.1	4	204.72	0.6	21
204.21	0.1	4	204.73	0.6	22
204.22	0.1	4	204.74	0.6	22
204.23	0.1	5	204.75	0.6	22
204.24	0.1	5	204.76	0.6	22
204.25	0.2	5	204.77	0.6	23
204.26	0.2	6	204.78	0.7	23
204.27	0.2	6	204.79	0.7	23
204.28	0.2	6	204.80	0.7	24
204.29	0.2	7	204.81	0.7	24
204.30	0.2	7	204.82	0.7	24
204.31	0.2	7	204.83	0.7	24
204.32	0.2	8	204.84	0.7	25
204.33	0.2	8	204.85	0.7	25
204.34	0.2	8	204.86	0.7	25
204.35	0.2	9	204.87	0.7	25
204.36	0.3	9	204.88	0.7	26
204.37	0.3	9	204.89	0.7	26
204.38	0.3	10	204.90	0.7	26
204.39	0.3	10	204.91	0.8	26
204.40	0.3	10	204.92	0.8	26
204.41	0.3	11	204.93	0.8	27
204.42	0.3	11	204.94	0.8	27
204.43	0.3	11	204.95	0.8	27
204.44	0.3	12	204.96	0.8	27
204.45	0.3	12	204.97	0.8	27
204.46	0.4	12	204.98	0.8	27
204.47	0.4	13	204.99	0.8	27
204.48	0.4	13	205.00	0.8	27
204.49	0.4	13			
204.50	0.4	14			
204.51	0.4	14			

Summary for Reach P6: Pipe Out of 6

[52] Hint: Inlet/Outlet conditions not evaluated

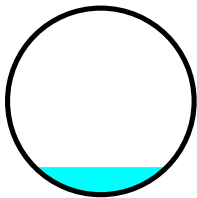
[79] Warning: Submerged Pond 6P Primary device # 1 by 0.15'

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 1.29" for 10-year event
Inflow = 0.15 cfs @ 12.91 hrs, Volume= 0.059 af
Outflow = 0.15 cfs @ 12.92 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.12 fps, Min. Travel Time= 0.5 min
Avg. Velocity= 1.77 fps, Avg. Travel Time= 0.6 min

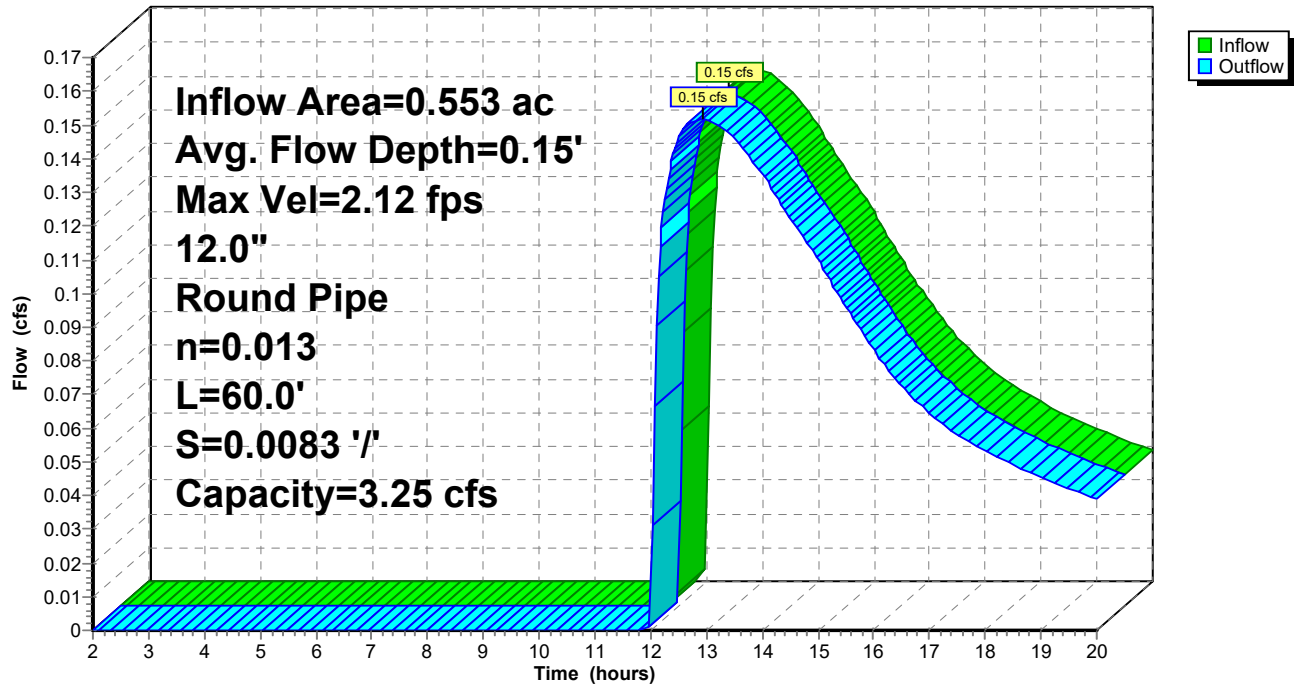
Peak Storage= 4 cf @ 12.91 hrs
Average Depth at Peak Storage= 0.15', Surface Width= 0.71'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.25 cfs

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



Stage-Area-Storage for Reach P6: Pipe Out of 6

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
206.00	0.0	0	206.52	0.4	25
206.01	0.0	0	206.53	0.4	25
206.02	0.0	0	206.54	0.4	26
206.03	0.0	0	206.55	0.4	27
206.04	0.0	1	206.56	0.5	27
206.05	0.0	1	206.57	0.5	28
206.06	0.0	1	206.58	0.5	28
206.07	0.0	1	206.59	0.5	29
206.08	0.0	2	206.60	0.5	30
206.09	0.0	2	206.61	0.5	30
206.10	0.0	2	206.62	0.5	31
206.11	0.0	3	206.63	0.5	31
206.12	0.1	3	206.64	0.5	32
206.13	0.1	4	206.65	0.5	32
206.14	0.1	4	206.66	0.5	33
206.15	0.1	4	206.67	0.6	34
206.16	0.1	5	206.68	0.6	34
206.17	0.1	5	206.69	0.6	35
206.18	0.1	6	206.70	0.6	35
206.19	0.1	6	206.71	0.6	36
206.20	0.1	7	206.72	0.6	36
206.21	0.1	7	206.73	0.6	37
206.22	0.1	8	206.74	0.6	37
206.23	0.1	8	206.75	0.6	38
206.24	0.1	9	206.76	0.6	38
206.25	0.2	9	206.77	0.6	39
206.26	0.2	10	206.78	0.7	39
206.27	0.2	10	206.79	0.7	40
206.28	0.2	11	206.80	0.7	40
206.29	0.2	11	206.81	0.7	41
206.30	0.2	12	206.82	0.7	41
206.31	0.2	12	206.83	0.7	42
206.32	0.2	13	206.84	0.7	42
206.33	0.2	14	206.85	0.7	43
206.34	0.2	14	206.86	0.7	43
206.35	0.2	15	206.87	0.7	44
206.36	0.3	15	206.88	0.7	44
206.37	0.3	16	206.89	0.7	44
206.38	0.3	16	206.90	0.7	45
206.39	0.3	17	206.91	0.8	45
206.40	0.3	18	206.92	0.8	45
206.41	0.3	18	206.93	0.8	46
206.42	0.3	19	206.94	0.8	46
206.43	0.3	19	206.95	0.8	46
206.44	0.3	20	206.96	0.8	46
206.45	0.3	21	206.97	0.8	47
206.46	0.4	21	206.98	0.8	47
206.47	0.4	22	206.99	0.8	47
206.48	0.4	22	207.00	0.8	47
206.49	0.4	23			
206.50	0.4	24			
206.51	0.4	24			

Summary for Reach P7: Pipe Out of 7

[52] Hint: Inlet/Outlet conditions not evaluated

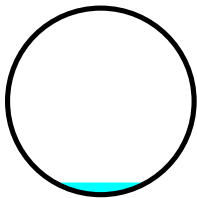
[79] Warning: Submerged Pond 7P Primary device # 1 by 0.06'

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.30" for 10-year event
Inflow = 0.02 cfs @ 14.95 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 15.07 hrs, Volume= 0.014 af, Atten= 0%, Lag= 7.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.15 fps, Min. Travel Time= 4.2 min
Avg. Velocity= 1.08 fps, Avg. Travel Time= 4.5 min

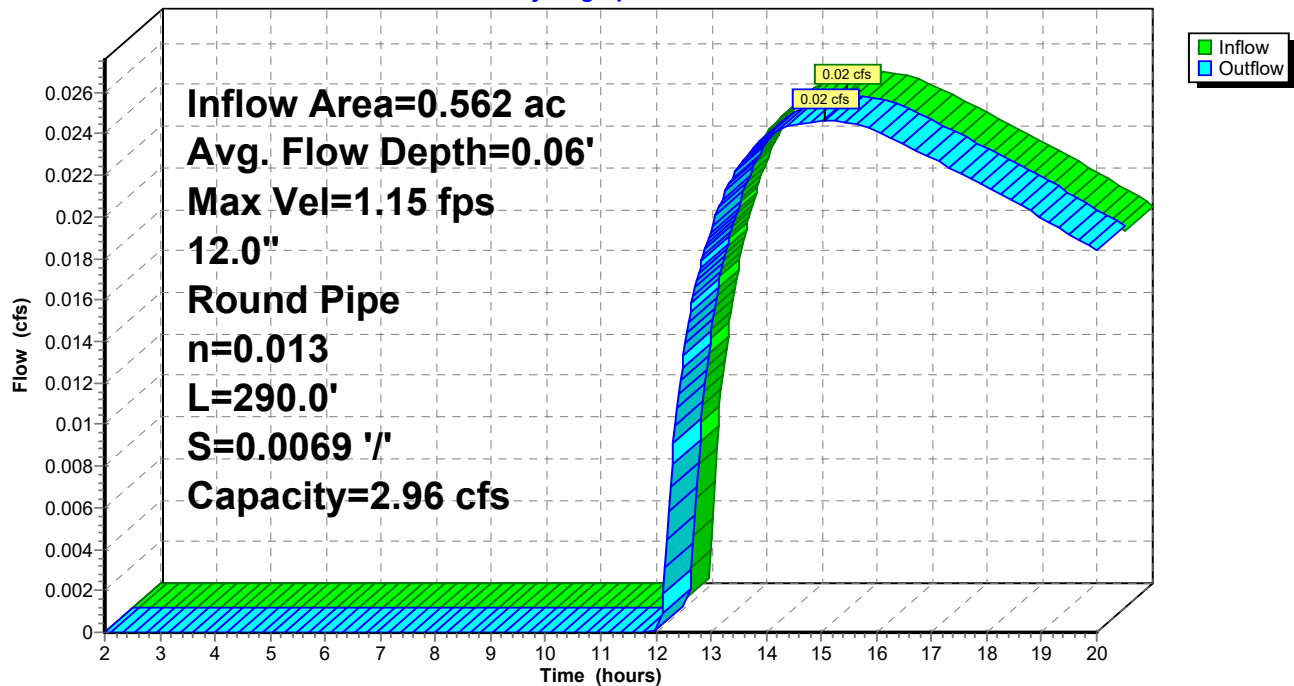
Peak Storage= 6 cf @ 15.00 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 0.49'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

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



Stage-Area-Storage for Reach P7: Pipe Out of 7

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
206.00	0.0	0	206.52	0.4	120
206.01	0.0	0	206.53	0.4	123
206.02	0.0	1	206.54	0.4	125
206.03	0.0	2	206.55	0.4	128
206.04	0.0	3	206.56	0.5	131
206.05	0.0	4	206.57	0.5	134
206.06	0.0	6	206.58	0.5	137
206.07	0.0	7	206.59	0.5	140
206.08	0.0	9	206.60	0.5	143
206.09	0.0	10	206.61	0.5	146
206.10	0.0	12	206.62	0.5	148
206.11	0.0	14	206.63	0.5	151
206.12	0.1	15	206.64	0.5	154
206.13	0.1	17	206.65	0.5	157
206.14	0.1	19	206.66	0.5	159
206.15	0.1	21	206.67	0.6	162
206.16	0.1	24	206.68	0.6	165
206.17	0.1	26	206.69	0.6	168
206.18	0.1	28	206.70	0.6	170
206.19	0.1	30	206.71	0.6	173
206.20	0.1	32	206.72	0.6	176
206.21	0.1	35	206.73	0.6	178
206.22	0.1	37	206.74	0.6	181
206.23	0.1	40	206.75	0.6	183
206.24	0.1	42	206.76	0.6	186
206.25	0.2	45	206.77	0.6	188
206.26	0.2	47	206.78	0.7	191
206.27	0.2	50	206.79	0.7	193
206.28	0.2	52	206.80	0.7	195
206.29	0.2	55	206.81	0.7	198
206.30	0.2	57	206.82	0.7	200
206.31	0.2	60	206.83	0.7	202
206.32	0.2	63	206.84	0.7	204
206.33	0.2	66	206.85	0.7	206
206.34	0.2	68	206.86	0.7	208
206.35	0.2	71	206.87	0.7	210
206.36	0.3	74	206.88	0.7	212
206.37	0.3	77	206.89	0.7	214
206.38	0.3	79	206.90	0.7	216
206.39	0.3	82	206.91	0.8	218
206.40	0.3	85	206.92	0.8	219
206.41	0.3	88	206.93	0.8	221
206.42	0.3	91	206.94	0.8	222
206.43	0.3	94	206.95	0.8	224
206.44	0.3	97	206.96	0.8	225
206.45	0.3	99	206.97	0.8	226
206.46	0.4	102	206.98	0.8	227
206.47	0.4	105	206.99	0.8	227
206.48	0.4	108	207.00	0.8	228
206.49	0.4	111			
206.50	0.4	114			
206.51	0.4	117			

Summary for Reach W1: 1 Thru Wetland

[62] Hint: Exceeded Reach P1 OUTLET depth by 0.05' @ 19.49 hrs

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.08" for 10-year event
 Inflow = 0.07 cfs @ 14.93 hrs, Volume= 0.044 af
 Outflow = 0.06 cfs @ 19.11 hrs, Volume= 0.028 af, Atten= 2%, Lag= 250.9 min

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= 94.4 min

Avg. Velocity = 0.04 fps, Avg. Travel Time= 151.8 min

Peak Storage= 364 cf @ 17.54 hrs

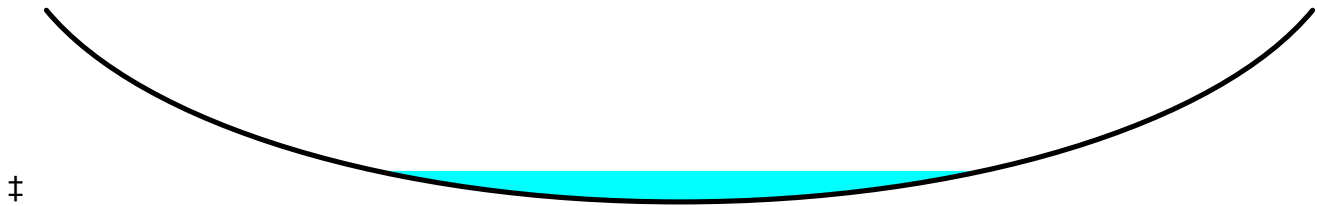
Average Depth at Peak Storage= 0.16' , Surface Width= 10.06'

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

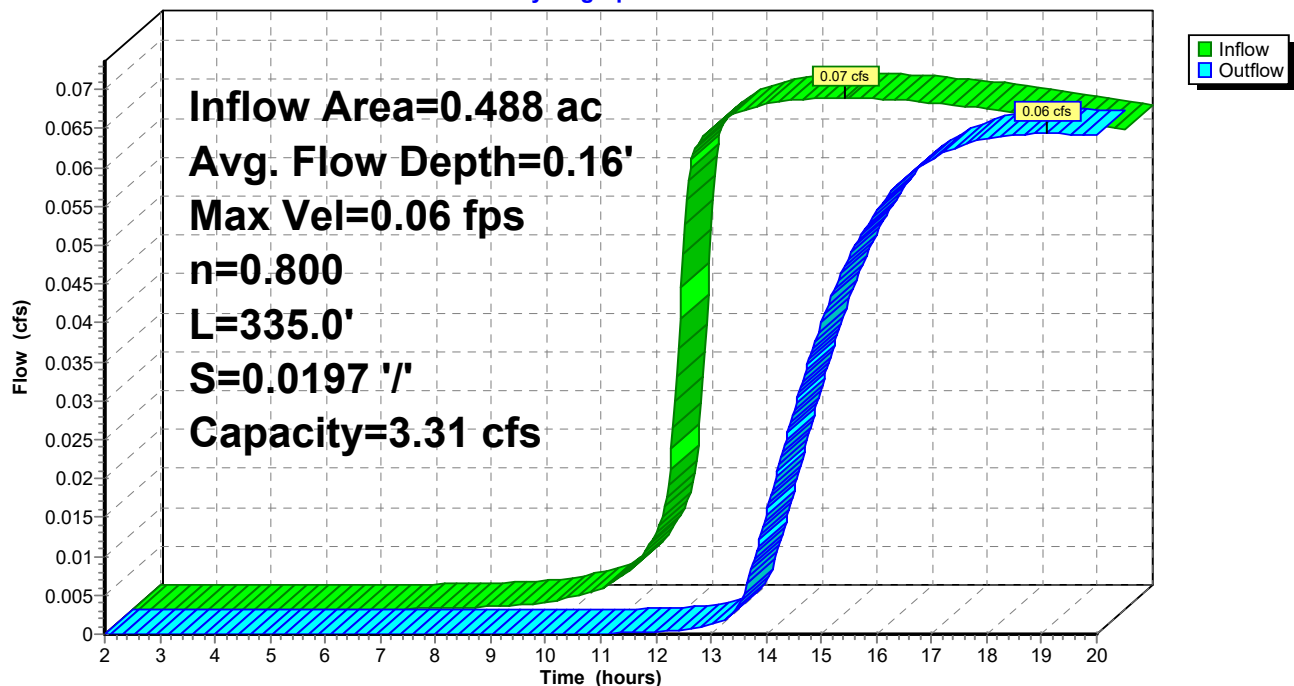
Length= 335.0' Slope= 0.0197 '/'

Inlet Invert= 203.60', Outlet Invert= 197.00'



Reach W1: 1 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W1: 1 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.60	0.0	0	204.12	6.2	2,094
203.61	0.0	6	204.13	6.4	2,154
203.62	0.0	16	204.14	6.6	2,216
203.63	0.1	29	204.15	6.8	2,277
203.64	0.1	45	204.16	7.0	2,340
203.65	0.2	62	204.17	7.2	2,403
203.66	0.2	82	204.18	7.4	2,466
203.67	0.3	103	204.19	7.6	2,530
203.68	0.4	126	204.20	7.7	2,595
203.69	0.4	151	204.21	7.9	2,660
203.70	0.5	177	204.22	8.1	2,726
203.71	0.6	204	204.23	8.3	2,792
203.72	0.7	232	204.24	8.5	2,859
203.73	0.8	262	204.25	8.7	2,926
203.74	0.9	292	204.26	8.9	2,994
203.75	1.0	324	204.27	9.1	3,062
203.76	1.1	357	204.28	9.3	3,131
203.77	1.2	391	204.29	9.6	3,200
203.78	1.3	426	204.30	9.8	3,270
203.79	1.4	462	204.31	10.0	3,340
203.80	1.5	499	204.32	10.2	3,411
203.81	1.6	537	204.33	10.4	3,482
203.82	1.7	576	204.34	10.6	3,554
203.83	1.8	616	204.35	10.8	3,626
203.84	2.0	656	204.36	11.0	3,699
203.85	2.1	698	204.37	11.3	3,773
203.86	2.2	740	204.38	11.5	3,846
203.87	2.3	783	204.39	11.7	3,920
203.88	2.5	827	204.40	11.9	3,995
203.89	2.6	872	204.41	12.2	4,070
203.90	2.7	917	204.42	12.4	4,146
203.91	2.9	964	204.43	12.6	4,222
203.92	3.0	1,011	204.44	12.8	4,298
203.93	3.2	1,058	204.45	13.1	4,375
203.94	3.3	1,107	204.46	13.3	4,453
203.95	3.5	1,156	204.47	13.5	4,531
203.96	3.6	1,206	204.48	13.8	4,609
203.97	3.8	1,257	204.49	14.0	4,688
203.98	3.9	1,308	204.50	14.2	4,767
203.99	4.1	1,360	204.51	14.5	4,847
204.00	4.2	1,412	204.52	14.7	4,927
204.01	4.4	1,466	204.53	14.9	5,007
204.02	4.5	1,520	204.54	15.2	5,088
204.03	4.7	1,574	204.55	15.4	5,170
204.04	4.9	1,630	204.56	15.7	5,252
204.05	5.0	1,685	204.57	15.9	5,334
204.06	5.2	1,742	204.58	16.2	5,417
204.07	5.4	1,799	204.59	16.4	5,500
204.08	5.5	1,857	204.60	16.7	5,583
204.09	5.7	1,915			
204.10	5.9	1,974			
204.11	6.1	2,034			

Summary for Reach W2: 2 Thru Wetland

[62] Hint: Exceeded Reach P2 OUTLET depth by 0.07' @ 17.69 hrs

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.22" for 10-year event
 Inflow = 0.10 cfs @ 13.17 hrs, Volume= 0.069 af
 Outflow = 0.09 cfs @ 17.81 hrs, Volume= 0.045 af, Atten= 7%, Lag= 278.6 min

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= 171.2 min

Peak Storage= 571 cf @ 16.08 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

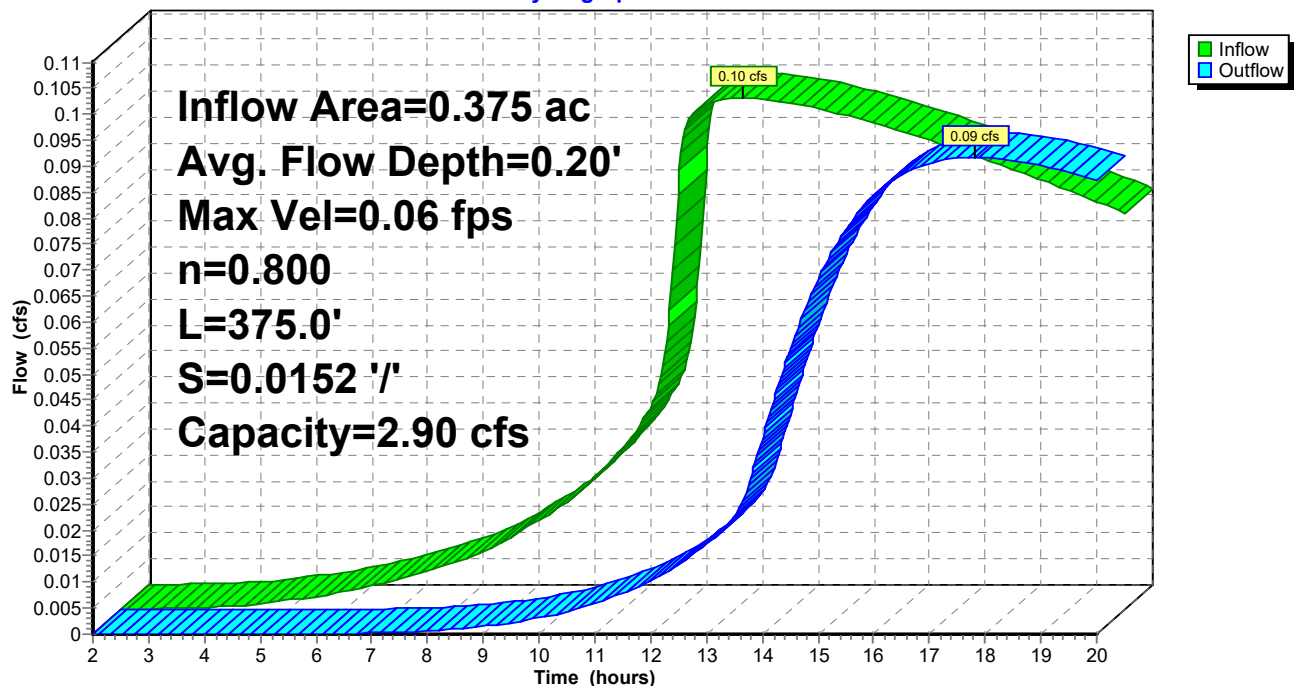
Length= 375.0' Slope= 0.0152 '/'

Inlet Invert= 203.70', Outlet Invert= 198.00'



Reach W2: 2 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W2: 2 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.70	0.0	0	204.22	6.2	2,344
203.71	0.0	6	204.23	6.4	2,412
203.72	0.0	18	204.24	6.6	2,480
203.73	0.1	32	204.25	6.8	2,549
203.74	0.1	50	204.26	7.0	2,619
203.75	0.2	70	204.27	7.2	2,690
203.76	0.2	92	204.28	7.4	2,761
203.77	0.3	116	204.29	7.6	2,832
203.78	0.4	141	204.30	7.7	2,905
203.79	0.4	169	204.31	7.9	2,978
203.80	0.5	198	204.32	8.1	3,051
203.81	0.6	228	204.33	8.3	3,125
203.82	0.7	260	204.34	8.5	3,200
203.83	0.8	293	204.35	8.7	3,275
203.84	0.9	327	204.36	8.9	3,351
203.85	1.0	363	204.37	9.1	3,428
203.86	1.1	400	204.38	9.3	3,505
203.87	1.2	438	204.39	9.6	3,582
203.88	1.3	477	204.40	9.8	3,660
203.89	1.4	518	204.41	10.0	3,739
203.90	1.5	559	204.42	10.2	3,818
203.91	1.6	601	204.43	10.4	3,898
203.92	1.7	645	204.44	10.6	3,979
203.93	1.8	689	204.45	10.8	4,059
203.94	2.0	735	204.46	11.0	4,141
203.95	2.1	781	204.47	11.3	4,223
203.96	2.2	829	204.48	11.5	4,305
203.97	2.3	877	204.49	11.7	4,389
203.98	2.5	926	204.50	11.9	4,472
203.99	2.6	976	204.51	12.2	4,556
204.00	2.7	1,027	204.52	12.4	4,641
204.01	2.9	1,079	204.53	12.6	4,726
204.02	3.0	1,131	204.54	12.8	4,812
204.03	3.2	1,185	204.55	13.1	4,898
204.04	3.3	1,239	204.56	13.3	4,985
204.05	3.5	1,294	204.57	13.5	5,072
204.06	3.6	1,350	204.58	13.8	5,159
204.07	3.8	1,407	204.59	14.0	5,248
204.08	3.9	1,464	204.60	14.2	5,336
204.09	4.1	1,522	204.61	14.5	5,426
204.10	4.2	1,581	204.62	14.7	5,515
204.11	4.4	1,641	204.63	14.9	5,605
204.12	4.5	1,701	204.64	15.2	5,696
204.13	4.7	1,762	204.65	15.4	5,787
204.14	4.9	1,824	204.66	15.7	5,879
204.15	5.0	1,887	204.67	15.9	5,971
204.16	5.2	1,950	204.68	16.2	6,063
204.17	5.4	2,014	204.69	16.4	6,156
204.18	5.5	2,078	204.70	16.7	6,250
204.19	5.7	2,144			
204.20	5.9	2,210			
204.21	6.1	2,276			

Summary for Reach W3: 3 Thru Wetland

[62] Hint: Exceeded Reach P3 OUTLET depth by 0.10' @ 19.97 hrs

Inflow Area = 0.643 ac, 43.14% Impervious, Inflow Depth > 1.48" for 10-year event
 Inflow = 0.27 cfs @ 11.98 hrs, Volume= 0.079 af
 Outflow = 0.07 cfs @ 20.00 hrs, Volume= 0.012 af, Atten= 76%, Lag= 481.0 min

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= 280.1 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 482.2 min

Peak Storage= 1,536 cf @ 20.00 hrs

Average Depth at Peak Storage= 0.23' , Surface Width= 11.92'

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

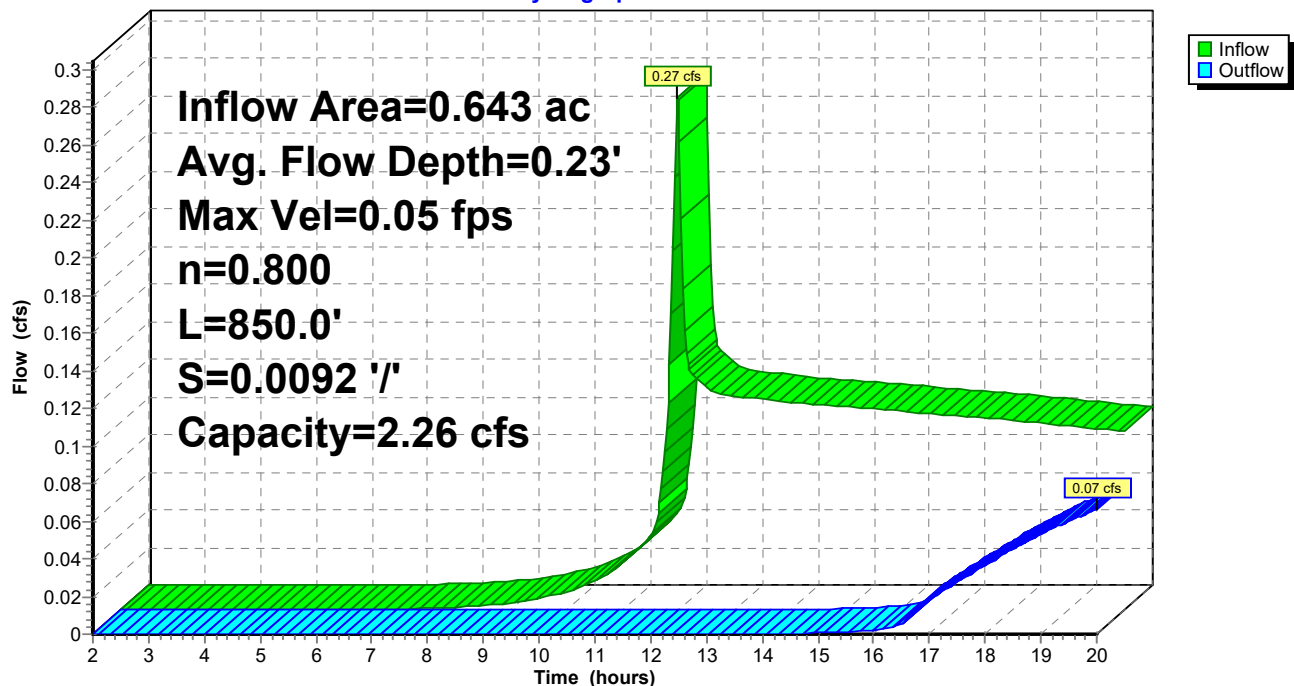
Length= 850.0' Slope= 0.0092 '/'

Inlet Invert= 204.80', Outlet Invert= 197.00'



Reach W3: 3 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W3: 3 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.80	0.0	0	205.32	6.2	5,312
204.81	0.0	14	205.33	6.4	5,466
204.82	0.0	40	205.34	6.6	5,622
204.83	0.1	74	205.35	6.8	5,778
204.84	0.1	113	205.36	7.0	5,937
204.85	0.2	158	205.37	7.2	6,096
204.86	0.2	208	205.38	7.4	6,258
204.87	0.3	262	205.39	7.6	6,420
204.88	0.4	321	205.40	7.7	6,584
204.89	0.4	382	205.41	7.9	6,749
204.90	0.5	448	205.42	8.1	6,916
204.91	0.6	517	205.43	8.3	7,084
204.92	0.7	589	205.44	8.5	7,253
204.93	0.8	664	205.45	8.7	7,424
204.94	0.9	742	205.46	8.9	7,596
204.95	1.0	823	205.47	9.1	7,769
204.96	1.1	907	205.48	9.3	7,944
204.97	1.2	993	205.49	9.6	8,120
204.98	1.3	1,082	205.50	9.8	8,297
204.99	1.4	1,173	205.51	10.0	8,475
205.00	1.5	1,267	205.52	10.2	8,655
205.01	1.6	1,363	205.53	10.4	8,836
205.02	1.7	1,462	205.54	10.6	9,018
205.03	1.8	1,563	205.55	10.8	9,202
205.04	2.0	1,666	205.56	11.0	9,386
205.05	2.1	1,771	205.57	11.3	9,572
205.06	2.2	1,878	205.58	11.5	9,759
205.07	2.3	1,988	205.59	11.7	9,947
205.08	2.5	2,099	205.60	11.9	10,137
205.09	2.6	2,212	205.61	12.2	10,328
205.10	2.7	2,328	205.62	12.4	10,519
205.11	2.9	2,445	205.63	12.6	10,712
205.12	3.0	2,564	205.64	12.8	10,907
205.13	3.2	2,686	205.65	13.1	11,102
205.14	3.3	2,809	205.66	13.3	11,298
205.15	3.5	2,933	205.67	13.5	11,496
205.16	3.6	3,060	205.68	13.8	11,695
205.17	3.8	3,188	205.69	14.0	11,895
205.18	3.9	3,319	205.70	14.2	12,096
205.19	4.1	3,450	205.71	14.5	12,298
205.20	4.2	3,584	205.72	14.7	12,501
205.21	4.4	3,719	205.73	14.9	12,706
205.22	4.5	3,856	205.74	15.2	12,911
205.23	4.7	3,995	205.75	15.4	13,118
205.24	4.9	4,135	205.76	15.7	13,325
205.25	5.0	4,276	205.77	15.9	13,534
205.26	5.2	4,420	205.78	16.2	13,744
205.27	5.4	4,565	205.79	16.4	13,955
205.28	5.5	4,711	205.80	16.7	14,167
205.29	5.7	4,859			
205.30	5.9	5,009			
205.31	6.1	5,160			

Summary for Reach W4B: 4B Thru Wetland

[62] Hint: Exceeded Reach P4B OUTLET depth by 0.09' @ 19.97 hrs

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.46" for 10-year event
 Inflow = 0.10 cfs @ 13.67 hrs, Volume= 0.065 af
 Outflow = 0.09 cfs @ 20.00 hrs, Volume= 0.027 af, Atten= 11%, Lag= 380.1 min

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= 157.7 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 259.2 min

Peak Storage= 839 cf @ 18.21 hrs

Average Depth at Peak Storage= 0.21' , Surface Width= 11.52'

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

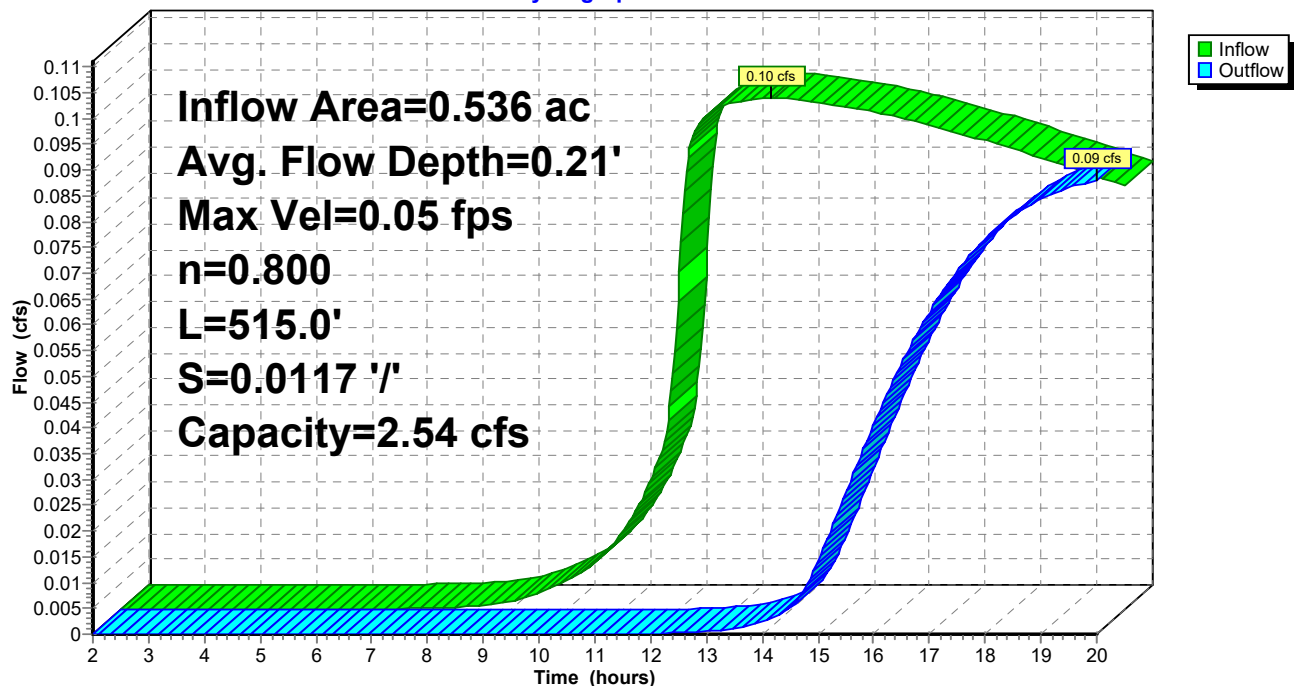
Length= 515.0' Slope= 0.0117 '/'

Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W4B: 4B Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W4B: 4B Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	6.2	3,219
204.01	0.0	9	204.53	6.4	3,312
204.02	0.0	24	204.54	6.6	3,406
204.03	0.1	45	204.55	6.8	3,501
204.04	0.1	69	204.56	7.0	3,597
204.05	0.2	96	204.57	7.2	3,694
204.06	0.2	126	204.58	7.4	3,791
204.07	0.3	159	204.59	7.6	3,890
204.08	0.4	194	204.60	7.7	3,989
204.09	0.4	232	204.61	7.9	4,089
204.10	0.5	271	204.62	8.1	4,190
204.11	0.6	313	204.63	8.3	4,292
204.12	0.7	357	204.64	8.5	4,395
204.13	0.8	402	204.65	8.7	4,498
204.14	0.9	450	204.66	8.9	4,602
204.15	1.0	499	204.67	9.1	4,707
204.16	1.1	549	204.68	9.3	4,813
204.17	1.2	602	204.69	9.6	4,920
204.18	1.3	655	204.70	9.8	5,027
204.19	1.4	711	204.71	10.0	5,135
204.20	1.5	768	204.72	10.2	5,244
204.21	1.6	826	204.73	10.4	5,354
204.22	1.7	886	204.74	10.6	5,464
204.23	1.8	947	204.75	10.8	5,575
204.24	2.0	1,009	204.76	11.0	5,687
204.25	2.1	1,073	204.77	11.3	5,800
204.26	2.2	1,138	204.78	11.5	5,913
204.27	2.3	1,204	204.79	11.7	6,027
204.28	2.5	1,272	204.80	11.9	6,142
204.29	2.6	1,340	204.81	12.2	6,257
204.30	2.7	1,410	204.82	12.4	6,373
204.31	2.9	1,481	204.83	12.6	6,490
204.32	3.0	1,554	204.84	12.8	6,608
204.33	3.2	1,627	204.85	13.1	6,726
204.34	3.3	1,702	204.86	13.3	6,845
204.35	3.5	1,777	204.87	13.5	6,965
204.36	3.6	1,854	204.88	13.8	7,086
204.37	3.8	1,932	204.89	14.0	7,207
204.38	3.9	2,011	204.90	14.2	7,329
204.39	4.1	2,091	204.91	14.5	7,451
204.40	4.2	2,171	204.92	14.7	7,574
204.41	4.4	2,253	204.93	14.9	7,698
204.42	4.5	2,336	204.94	15.2	7,823
204.43	4.7	2,420	204.95	15.4	7,948
204.44	4.9	2,505	204.96	15.7	8,074
204.45	5.0	2,591	204.97	15.9	8,200
204.46	5.2	2,678	204.98	16.2	8,327
204.47	5.4	2,766	204.99	16.4	8,455
204.48	5.5	2,854	205.00	16.7	8,583
204.49	5.7	2,944			
204.50	5.9	3,035			
204.51	6.1	3,126			

Summary for Reach W5: 5 Thru Wetland

[62] Hint: Exceeded Reach P5 OUTLET depth by 0.09' @ 17.27 hrs

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.54" for 10-year event
 Inflow = 0.17 cfs @ 14.31 hrs, Volume= 0.130 af
 Outflow = 0.16 cfs @ 17.29 hrs, Volume= 0.099 af, Atten= 1%, Lag= 178.7 min

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= 69.0 min

Avg. Velocity = 0.05 fps, Avg. Travel Time= 103.2 min

Peak Storage= 681 cf @ 16.14 hrs

Average Depth at Peak Storage= 0.25' , Surface Width= 12.61'

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

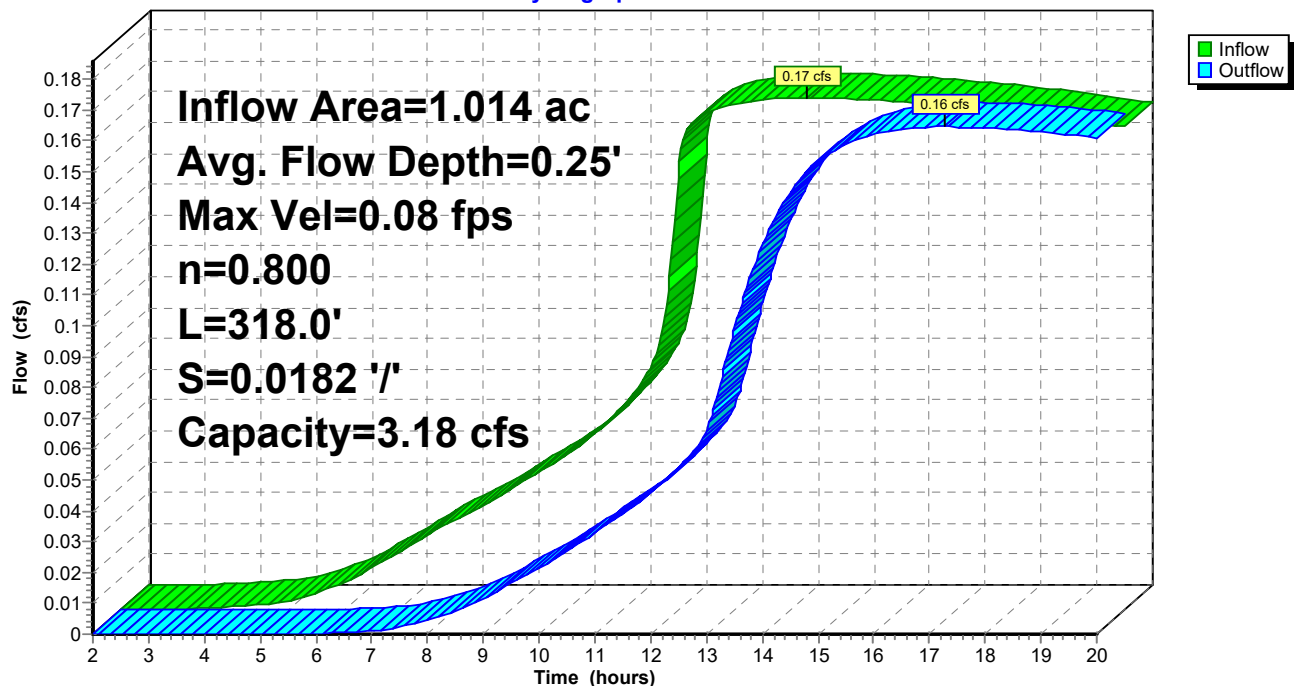
Length= 318.0' Slope= 0.0182 '/'

Inlet Invert= 203.80', Outlet Invert= 198.00'



Reach W5: 5 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W5: 5 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.80	0.0	0	204.32	6.2	1,987
203.81	0.0	5	204.33	6.4	2,045
203.82	0.0	15	204.34	6.6	2,103
203.83	0.1	28	204.35	6.8	2,162
203.84	0.1	42	204.36	7.0	2,221
203.85	0.2	59	204.37	7.2	2,281
203.86	0.2	78	204.38	7.4	2,341
203.87	0.3	98	204.39	7.6	2,402
203.88	0.4	120	204.40	7.7	2,463
203.89	0.4	143	204.41	7.9	2,525
203.90	0.5	168	204.42	8.1	2,587
203.91	0.6	193	204.43	8.3	2,650
203.92	0.7	220	204.44	8.5	2,714
203.93	0.8	248	204.45	8.7	2,777
203.94	0.9	278	204.46	8.9	2,842
203.95	1.0	308	204.47	9.1	2,907
203.96	1.1	339	204.48	9.3	2,972
203.97	1.2	371	204.49	9.6	3,038
203.98	1.3	405	204.50	9.8	3,104
203.99	1.4	439	204.51	10.0	3,171
204.00	1.5	474	204.52	10.2	3,238
204.01	1.6	510	204.53	10.4	3,306
204.02	1.7	547	204.54	10.6	3,374
204.03	1.8	585	204.55	10.8	3,442
204.04	2.0	623	204.56	11.0	3,512
204.05	2.1	663	204.57	11.3	3,581
204.06	2.2	703	204.58	11.5	3,651
204.07	2.3	744	204.59	11.7	3,721
204.08	2.5	785	204.60	11.9	3,792
204.09	2.6	828	204.61	12.2	3,864
204.10	2.7	871	204.62	12.4	3,935
204.11	2.9	915	204.63	12.6	4,008
204.12	3.0	959	204.64	12.8	4,080
204.13	3.2	1,005	204.65	13.1	4,153
204.14	3.3	1,051	204.66	13.3	4,227
204.15	3.5	1,097	204.67	13.5	4,301
204.16	3.6	1,145	204.68	13.8	4,375
204.17	3.8	1,193	204.69	14.0	4,450
204.18	3.9	1,242	204.70	14.2	4,525
204.19	4.1	1,291	204.71	14.5	4,601
204.20	4.2	1,341	204.72	14.7	4,677
204.21	4.4	1,391	204.73	14.9	4,753
204.22	4.5	1,443	204.74	15.2	4,830
204.23	4.7	1,494	204.75	15.4	4,908
204.24	4.9	1,547	204.76	15.7	4,985
204.25	5.0	1,600	204.77	15.9	5,063
204.26	5.2	1,654	204.78	16.2	5,142
204.27	5.4	1,708	204.79	16.4	5,221
204.28	5.5	1,763	204.80	16.7	5,300
204.29	5.7	1,818			
204.30	5.9	1,874			
204.31	6.1	1,930			

Summary for Reach W6: 6 Thru Wetland

[62] Hint: Exceeded Reach P6 OUTLET depth by 0.11' @ 17.09 hrs

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 1.29" for 10-year event
 Inflow = 0.15 cfs @ 12.92 hrs, Volume= 0.059 af
 Outflow = 0.09 cfs @ 18.86 hrs, Volume= 0.025 af, Atten= 41%, Lag= 356.0 min

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= 185.3 min

Avg. Velocity = 0.05 fps, Avg. Travel Time= 212.2 min

Peak Storage= 989 cf @ 15.77 hrs

Average Depth at Peak Storage= 0.21' , Surface Width= 11.46'

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

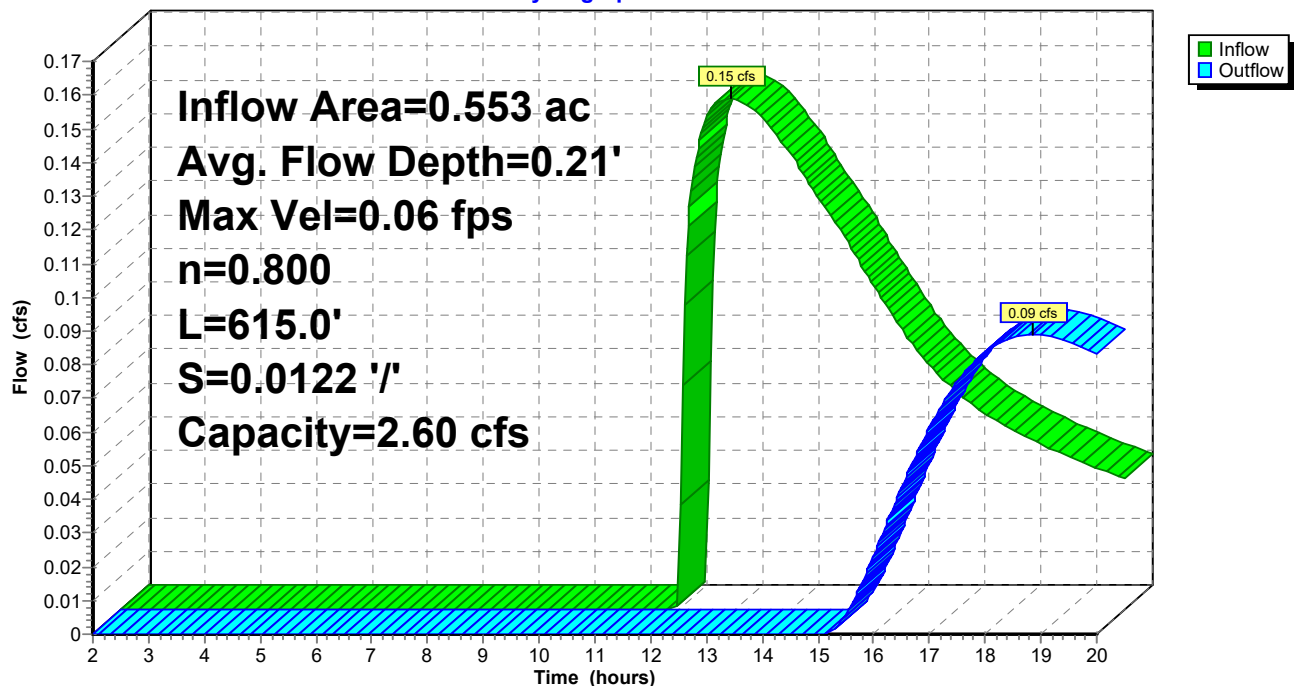
Length= 615.0' Slope= 0.0122 '/'

Inlet Invert= 205.50', Outlet Invert= 198.00'



Reach W6: 6 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W6: 6 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.50	0.0	0	206.02	6.2	3,844
205.51	0.0	10	206.03	6.4	3,955
205.52	0.0	29	206.04	6.6	4,067
205.53	0.1	53	206.05	6.8	4,181
205.54	0.1	82	206.06	7.0	4,295
205.55	0.2	115	206.07	7.2	4,411
205.56	0.2	151	206.08	7.4	4,528
205.57	0.3	190	206.09	7.6	4,645
205.58	0.4	232	206.10	7.7	4,764
205.59	0.4	277	206.11	7.9	4,883
205.60	0.5	324	206.12	8.1	5,004
205.61	0.6	374	206.13	8.3	5,125
205.62	0.7	426	206.14	8.5	5,248
205.63	0.8	480	206.15	8.7	5,371
205.64	0.9	537	206.16	8.9	5,496
205.65	1.0	595	206.17	9.1	5,621
205.66	1.1	656	206.18	9.3	5,748
205.67	1.2	718	206.19	9.6	5,875
205.68	1.3	783	206.20	9.8	6,003
205.69	1.4	849	206.21	10.0	6,132
205.70	1.5	917	206.22	10.2	6,262
205.71	1.6	986	206.23	10.4	6,393
205.72	1.7	1,058	206.24	10.6	6,525
205.73	1.8	1,131	206.25	10.8	6,658
205.74	2.0	1,205	206.26	11.0	6,791
205.75	2.1	1,281	206.27	11.3	6,926
205.76	2.2	1,359	206.28	11.5	7,061
205.77	2.3	1,438	206.29	11.7	7,197
205.78	2.5	1,519	206.30	11.9	7,334
205.79	2.6	1,601	206.31	12.2	7,472
205.80	2.7	1,684	206.32	12.4	7,611
205.81	2.9	1,769	206.33	12.6	7,751
205.82	3.0	1,855	206.34	12.8	7,891
205.83	3.2	1,943	206.35	13.1	8,033
205.84	3.3	2,032	206.36	13.3	8,175
205.85	3.5	2,122	206.37	13.5	8,318
205.86	3.6	2,214	206.38	13.8	8,462
205.87	3.8	2,307	206.39	14.0	8,606
205.88	3.9	2,401	206.40	14.2	8,752
205.89	4.1	2,496	206.41	14.5	8,898
205.90	4.2	2,593	206.42	14.7	9,045
205.91	4.4	2,691	206.43	14.9	9,193
205.92	4.5	2,790	206.44	15.2	9,341
205.93	4.7	2,890	206.45	15.4	9,491
205.94	4.9	2,992	206.46	15.7	9,641
205.95	5.0	3,094	206.47	15.9	9,792
205.96	5.2	3,198	206.48	16.2	9,944
205.97	5.4	3,303	206.49	16.4	10,097
205.98	5.5	3,409	206.50	16.7	10,250
205.99	5.7	3,516			
206.00	5.9	3,624			
206.01	6.1	3,733			

Summary for Reach W7: 7 Thru Wetland

[62] Hint: Exceeded Reach P7 OUTLET depth by 0.05' @ 19.97 hrs

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.30" for 10-year event
 Inflow = 0.02 cfs @ 15.07 hrs, Volume= 0.014 af
 Outflow = 0.01 cfs @ 20.00 hrs, Volume= 0.000 af, Atten= 76%, Lag= 295.9 min

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= 320.6 min

Avg. Velocity = 0.02 fps, Avg. Travel Time= 415.2 min

Peak Storage= 331 cf @ 20.00 hrs

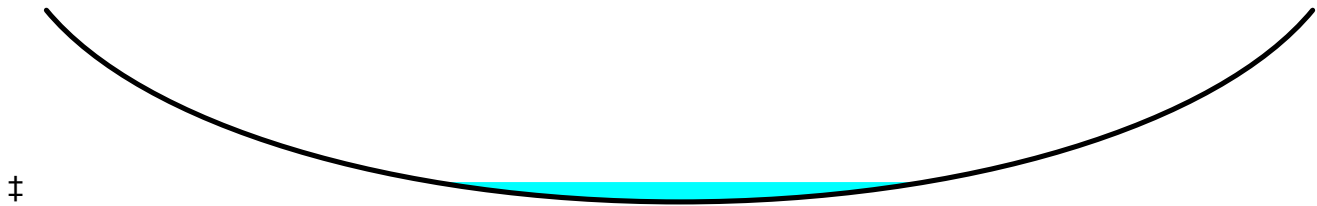
Average Depth at Peak Storage= 0.10' , Surface Width= 8.02'

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

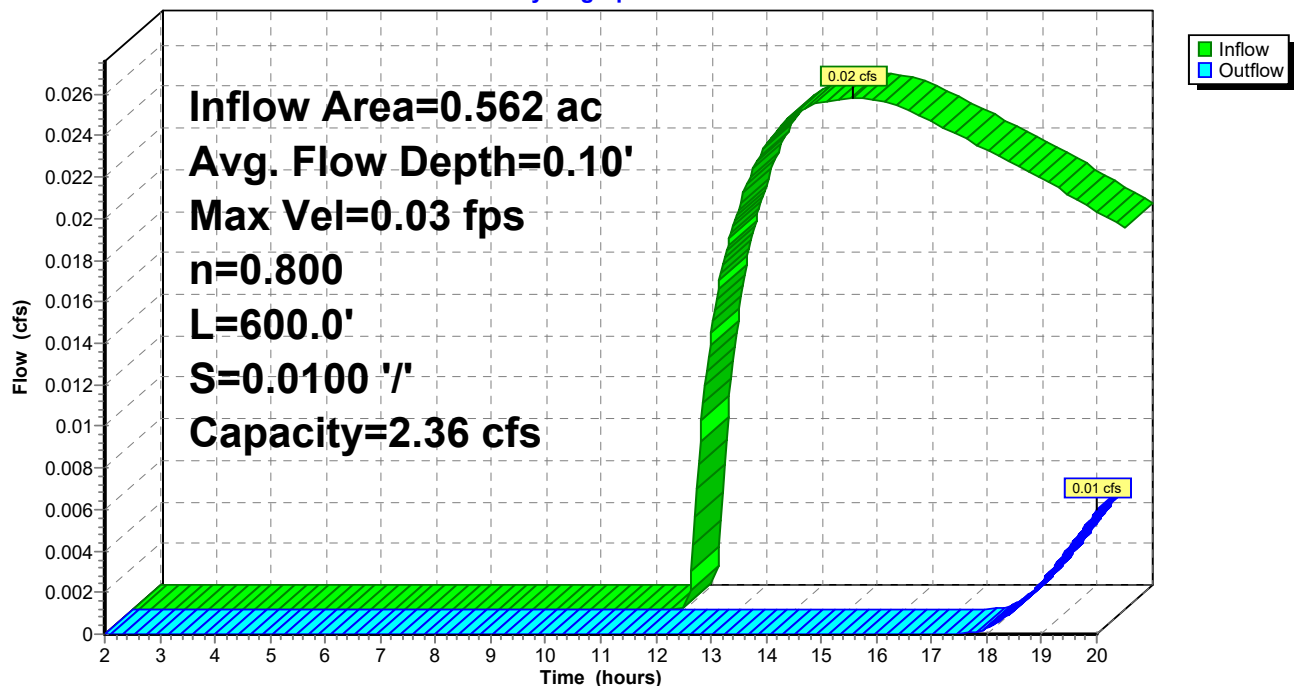
Length= 600.0' Slope= 0.0100 '/'

Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W7: 7 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W7: 7 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	6.2	3,750
204.01	0.0	10	204.53	6.4	3,858
204.02	0.0	28	204.54	6.6	3,968
204.03	0.1	52	204.55	6.8	4,079
204.04	0.1	80	204.56	7.0	4,191
204.05	0.2	112	204.57	7.2	4,303
204.06	0.2	147	204.58	7.4	4,417
204.07	0.3	185	204.59	7.6	4,532
204.08	0.4	226	204.60	7.7	4,648
204.09	0.4	270	204.61	7.9	4,764
204.10	0.5	316	204.62	8.1	4,882
204.11	0.6	365	204.63	8.3	5,000
204.12	0.7	416	204.64	8.5	5,120
204.13	0.8	469	204.65	8.7	5,240
204.14	0.9	524	204.66	8.9	5,362
204.15	1.0	581	204.67	9.1	5,484
204.16	1.1	640	204.68	9.3	5,607
204.17	1.2	701	204.69	9.6	5,732
204.18	1.3	764	204.70	9.8	5,857
204.19	1.4	828	204.71	10.0	5,983
204.20	1.5	894	204.72	10.2	6,109
204.21	1.6	962	204.73	10.4	6,237
204.22	1.7	1,032	204.74	10.6	6,366
204.23	1.8	1,103	204.75	10.8	6,495
204.24	2.0	1,176	204.76	11.0	6,626
204.25	2.1	1,250	204.77	11.3	6,757
204.26	2.2	1,326	204.78	11.5	6,889
204.27	2.3	1,403	204.79	11.7	7,022
204.28	2.5	1,482	204.80	11.9	7,155
204.29	2.6	1,562	204.81	12.2	7,290
204.30	2.7	1,643	204.82	12.4	7,425
204.31	2.9	1,726	204.83	12.6	7,562
204.32	3.0	1,810	204.84	12.8	7,699
204.33	3.2	1,896	204.85	13.1	7,837
204.34	3.3	1,983	204.86	13.3	7,975
204.35	3.5	2,071	204.87	13.5	8,115
204.36	3.6	2,160	204.88	13.8	8,255
204.37	3.8	2,251	204.89	14.0	8,396
204.38	3.9	2,342	204.90	14.2	8,538
204.39	4.1	2,436	204.91	14.5	8,681
204.40	4.2	2,530	204.92	14.7	8,824
204.41	4.4	2,625	204.93	14.9	8,969
204.42	4.5	2,722	204.94	15.2	9,114
204.43	4.7	2,820	204.95	15.4	9,259
204.44	4.9	2,919	204.96	15.7	9,406
204.45	5.0	3,019	204.97	15.9	9,553
204.46	5.2	3,120	204.98	16.2	9,702
204.47	5.4	3,222	204.99	16.4	9,850
204.48	5.5	3,326	205.00	16.7	10,000
204.49	5.7	3,430			
204.50	5.9	3,536			
204.51	6.1	3,642			

Summary for Pond 1P: Detention Basin 1

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 3.04" for 10-year event
 Inflow = 2.69 cfs @ 11.97 hrs, Volume= 0.123 af
 Outflow = 0.07 cfs @ 14.90 hrs, Volume= 0.044 af, Atten= 98%, Lag= 176.0 min
 Primary = 0.07 cfs @ 14.90 hrs, Volume= 0.044 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.48' @ 14.90 hrs Surf.Area= 8,333 sf Storage= 3,844 cf

Plug-Flow detention time= 276.8 min calculated for 0.044 af (36% of inflow)
 Center-of-Mass det. time= 184.9 min (949.3 - 764.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	204.00'	17,779 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	7,850	383.0	0	0	7,850
205.00	8,884	400.0	8,362	8,362	8,979
206.00	9,961	418.0	9,417	17,779	10,220

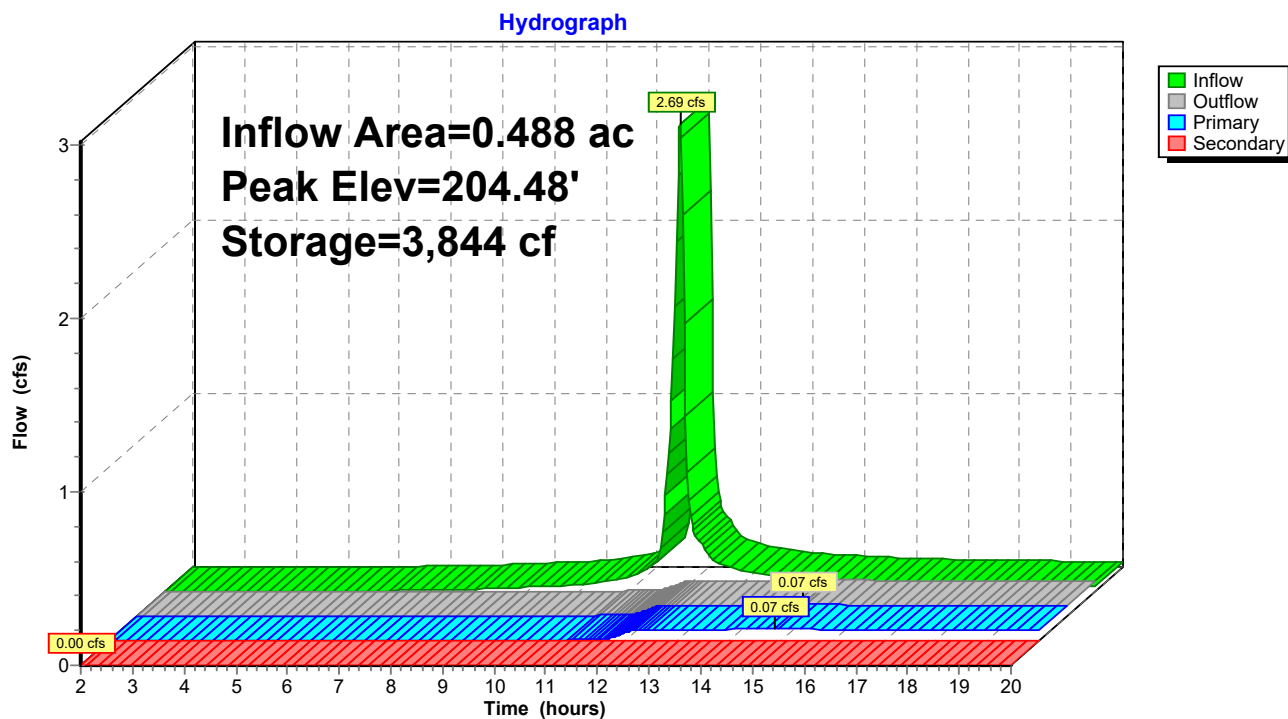
Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	205.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.07 cfs @ 14.90 hrs HW=204.48' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 3.01 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: Detention Basin 1

Stage-Area-Storage for Pond 1P: Detention Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	7,850	0	205.04	8,926	8,718
204.02	7,870	157	205.06	8,947	8,897
204.04	7,890	315	205.08	8,968	9,076
204.06	7,910	473	205.10	8,989	9,255
204.08	7,930	631	205.12	9,010	9,435
204.10	7,951	790	205.14	9,031	9,616
204.12	7,971	949	205.16	9,052	9,797
204.14	7,991	1,109	205.18	9,073	9,978
204.16	8,011	1,269	205.20	9,094	10,159
204.18	8,031	1,429	205.22	9,116	10,342
204.20	8,052	1,590	205.24	9,137	10,524
204.22	8,072	1,751	205.26	9,158	10,707
204.24	8,092	1,913	205.28	9,179	10,890
204.26	8,113	2,075	205.30	9,201	11,074
204.28	8,133	2,238	205.32	9,222	11,258
204.30	8,153	2,400	205.34	9,243	11,443
204.32	8,174	2,564	205.36	9,265	11,628
204.34	8,194	2,727	205.38	9,286	11,814
204.36	8,215	2,891	205.40	9,307	12,000
204.38	8,235	3,056	205.42	9,329	12,186
204.40	8,256	3,221	205.44	9,350	12,373
204.42	8,276	3,386	205.46	9,372	12,560
204.44	8,297	3,552	205.48	9,393	12,748
204.46	8,318	3,718	205.50	9,415	12,936
204.48	8,338	3,885	205.52	9,436	13,124
204.50	8,359	4,052	205.54	9,458	13,313
204.52	8,380	4,219	205.56	9,480	13,503
204.54	8,400	4,387	205.58	9,501	13,692
204.56	8,421	4,555	205.60	9,523	13,883
204.58	8,442	4,724	205.62	9,544	14,073
204.60	8,463	4,893	205.64	9,566	14,264
204.62	8,484	5,062	205.66	9,588	14,456
204.64	8,504	5,232	205.68	9,610	14,648
204.66	8,525	5,402	205.70	9,631	14,840
204.68	8,546	5,573	205.72	9,653	15,033
204.70	8,567	5,744	205.74	9,675	15,226
204.72	8,588	5,916	205.76	9,697	15,420
204.74	8,609	6,088	205.78	9,719	15,614
204.76	8,630	6,260	205.80	9,741	15,809
204.78	8,651	6,433	205.82	9,763	16,004
204.80	8,672	6,606	205.84	9,785	16,199
204.82	8,693	6,780	205.86	9,807	16,395
204.84	8,714	6,954	205.88	9,829	16,592
204.86	8,735	7,128	205.90	9,851	16,788
204.88	8,757	7,303	205.92	9,873	16,986
204.90	8,778	7,479	205.94	9,895	17,183
204.92	8,799	7,654	205.96	9,917	17,381
204.94	8,820	7,831	205.98	9,939	17,580
204.96	8,841	8,007	206.00	9,961	17,779
204.98	8,863	8,184			
205.00	8,884	8,362			
205.02	8,905	8,540			

Summary for Pond 2P: Detention Basin 2

[82] Warning: Early inflow requires earlier time span

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 3.55" for 10-year event
 Inflow = 2.22 cfs @ 11.97 hrs, Volume= 0.111 af
 Outflow = 0.10 cfs @ 13.15 hrs, Volume= 0.069 af, Atten= 96%, Lag= 70.8 min
 Primary = 0.10 cfs @ 13.15 hrs, Volume= 0.069 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.96' @ 13.15 hrs Surf.Area= 3,388 sf Storage= 2,959 cf

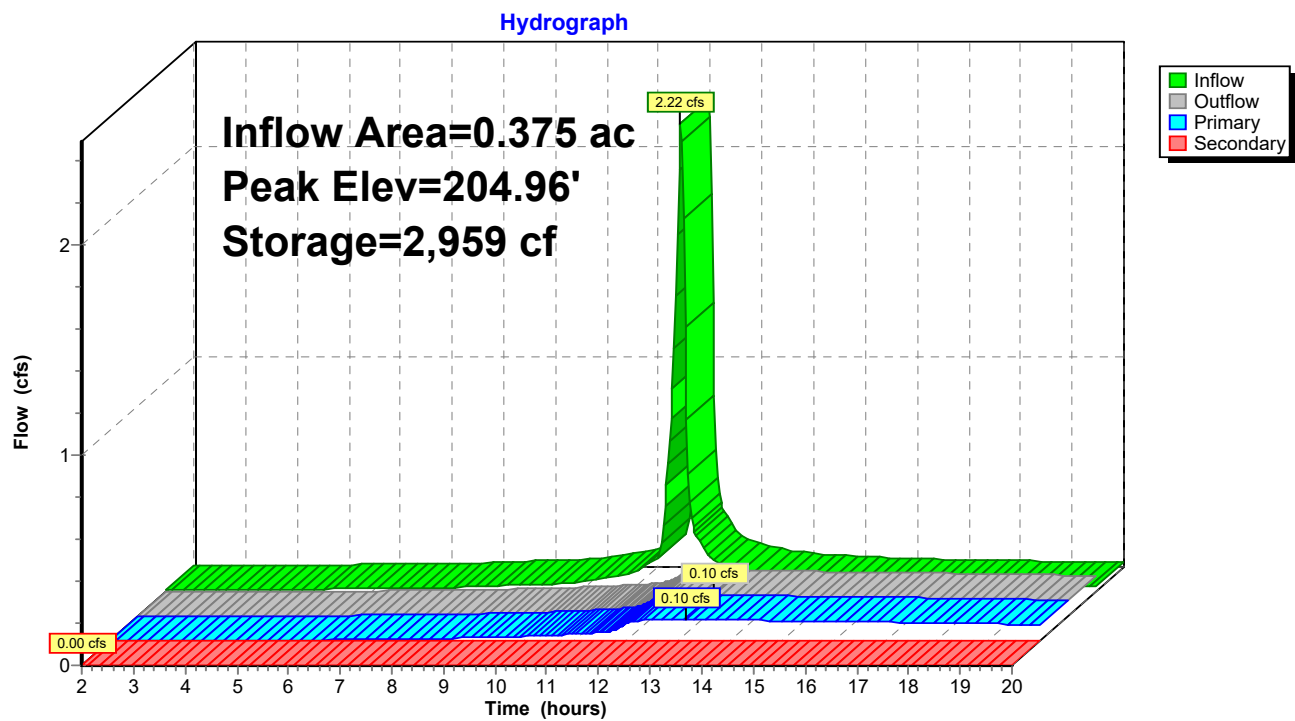
Plug-Flow detention time= 244.4 min calculated for 0.069 af (62% of inflow)
 Center-of-Mass det. time= 167.1 min (902.3 - 735.2)

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 @ 13.15 hrs HW=204.96' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 4.51 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

Stage-Area-Storage for Pond 2P: Detention Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	2,781	0	205.04	3,440	3,229
204.02	2,793	56	205.06	3,454	3,298
204.04	2,805	112	205.08	3,467	3,367
204.06	2,817	168	205.10	3,480	3,437
204.08	2,829	224	205.12	3,493	3,507
204.10	2,841	281	205.14	3,507	3,577
204.12	2,854	338	205.16	3,520	3,647
204.14	2,866	395	205.18	3,533	3,717
204.16	2,878	453	205.20	3,547	3,788
204.18	2,890	510	205.22	3,560	3,859
204.20	2,902	568	205.24	3,573	3,931
204.22	2,915	626	205.26	3,587	4,002
204.24	2,927	685	205.28	3,600	4,074
204.26	2,939	744	205.30	3,614	4,146
204.28	2,952	802	205.32	3,627	4,219
204.30	2,964	862	205.34	3,641	4,291
204.32	2,977	921	205.36	3,654	4,364
204.34	2,989	981	205.38	3,668	4,437
204.36	3,001	1,041	205.40	3,682	4,511
204.38	3,014	1,101	205.42	3,695	4,585
204.40	3,026	1,161	205.44	3,709	4,659
204.42	3,039	1,222	205.46	3,723	4,733
204.44	3,052	1,283	205.48	3,736	4,808
204.46	3,064	1,344	205.50	3,750	4,882
204.48	3,077	1,405	205.52	3,764	4,958
204.50	3,089	1,467	205.54	3,778	5,033
204.52	3,102	1,529	205.56	3,792	5,109
204.54	3,115	1,591	205.58	3,805	5,185
204.56	3,127	1,653	205.60	3,819	5,261
204.58	3,140	1,716	205.62	3,833	5,337
204.60	3,153	1,779	205.64	3,847	5,414
204.62	3,166	1,842	205.66	3,861	5,491
204.64	3,179	1,906	205.68	3,875	5,569
204.66	3,192	1,969	205.70	3,889	5,646
204.68	3,204	2,033	205.72	3,903	5,724
204.70	3,217	2,098	205.74	3,917	5,802
204.72	3,230	2,162	205.76	3,931	5,881
204.74	3,243	2,227	205.78	3,945	5,960
204.76	3,256	2,292	205.80	3,959	6,039
204.78	3,269	2,357	205.82	3,974	6,118
204.80	3,282	2,423	205.84	3,988	6,198
204.82	3,295	2,488	205.86	4,002	6,278
204.84	3,308	2,554	205.88	4,016	6,358
204.86	3,321	2,621	205.90	4,030	6,438
204.88	3,335	2,687	205.92	4,045	6,519
204.90	3,348	2,754	205.94	4,059	6,600
204.92	3,361	2,821	205.96	4,073	6,681
204.94	3,374	2,888	205.98	4,088	6,763
204.96	3,387	2,956	206.00	4,102	6,845
204.98	3,401	3,024			
205.00	3,414	3,092			
205.02	3,427	3,161			

Summary for Pond 3P: Detention Basin 3

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 3.13" for 10-year event
 Inflow = 3.29 cfs @ 11.97 hrs, Volume= 0.152 af
 Outflow = 0.10 cfs @ 13.90 hrs, Volume= 0.071 af, Atten= 97%, Lag= 116.1 min
 Primary = 0.10 cfs @ 13.90 hrs, Volume= 0.071 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.04' @ 13.90 hrs Surf.Area= 4,681 sf Storage= 4,428 cf

Plug-Flow detention time= 254.8 min calculated for 0.071 af (47% of inflow)
 Center-of-Mass det. time= 172.9 min (934.3 - 761.4)

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

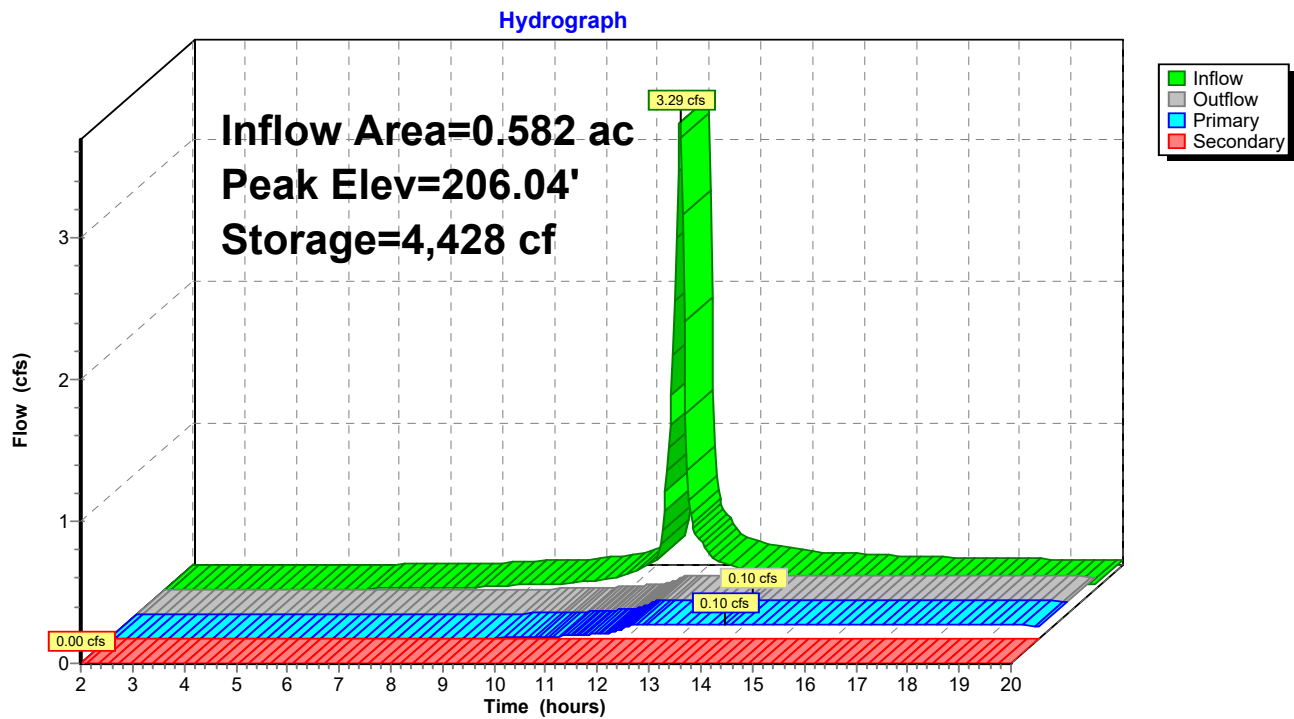
Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.10 cfs @ 13.90 hrs HW=206.04' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.10 cfs @ 4.72 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

Stage-Area-Storage for Pond 3P: Detention Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	3,825	0	206.04	4,679	4,415
205.02	3,841	77	206.06	4,695	4,509
205.04	3,856	154	206.08	4,712	4,603
205.06	3,872	231	206.10	4,729	4,697
205.08	3,888	309	206.12	4,746	4,792
205.10	3,903	386	206.14	4,763	4,887
205.12	3,919	465	206.16	4,780	4,982
205.14	3,935	543	206.18	4,797	5,078
205.16	3,951	622	206.20	4,814	5,174
205.18	3,967	701	206.22	4,831	5,271
205.20	3,983	781	206.24	4,849	5,368
205.22	3,999	861	206.26	4,866	5,465
205.24	4,015	941	206.28	4,883	5,562
205.26	4,031	1,021	206.30	4,900	5,660
205.28	4,047	1,102	206.32	4,917	5,758
205.30	4,063	1,183	206.34	4,935	5,857
205.32	4,079	1,264	206.36	4,952	5,956
205.34	4,095	1,346	206.38	4,969	6,055
205.36	4,111	1,428	206.40	4,987	6,154
205.38	4,127	1,511	206.42	5,004	6,254
205.40	4,143	1,593	206.44	5,022	6,354
205.42	4,160	1,676	206.46	5,039	6,455
205.44	4,176	1,760	206.48	5,057	6,556
205.46	4,192	1,843	206.50	5,074	6,657
205.48	4,209	1,927	206.52	5,092	6,759
205.50	4,225	2,012	206.54	5,109	6,861
205.52	4,241	2,096	206.56	5,127	6,963
205.54	4,258	2,181	206.58	5,144	7,066
205.56	4,274	2,267	206.60	5,162	7,169
205.58	4,291	2,352	206.62	5,180	7,273
205.60	4,307	2,438	206.64	5,198	7,376
205.62	4,324	2,525	206.66	5,215	7,480
205.64	4,341	2,611	206.68	5,233	7,585
205.66	4,357	2,698	206.70	5,251	7,690
205.68	4,374	2,786	206.72	5,269	7,795
205.70	4,391	2,873	206.74	5,287	7,901
205.72	4,407	2,961	206.76	5,305	8,006
205.74	4,424	3,049	206.78	5,323	8,113
205.76	4,441	3,138	206.80	5,341	8,219
205.78	4,458	3,227	206.82	5,359	8,326
205.80	4,475	3,316	206.84	5,377	8,434
205.82	4,492	3,406	206.86	5,395	8,541
205.84	4,508	3,496	206.88	5,413	8,649
205.86	4,525	3,586	206.90	5,431	8,758
205.88	4,542	3,677	206.92	5,449	8,867
205.90	4,559	3,768	206.94	5,467	8,976
205.92	4,576	3,860	206.96	5,485	9,085
205.94	4,594	3,951	206.98	5,504	9,195
205.96	4,611	4,043	207.00	5,522	9,306
205.98	4,628	4,136			
206.00	4,645	4,228			
206.02	4,662	4,321			

Summary for Pond 4A: Detention Basin 4A

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 3.13" for 10-year event
 Inflow = 2.26 cfs @ 11.97 hrs, Volume= 0.105 af
 Outflow = 2.13 cfs @ 12.00 hrs, Volume= 0.104 af, Atten= 6%, Lag= 1.6 min
 Primary = 2.13 cfs @ 12.00 hrs, Volume= 0.104 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.69' @ 12.00 hrs Surf.Area= 937 sf Storage= 394 cf

Plug-Flow detention time= 9.6 min calculated for 0.104 af (99% of inflow)
 Center-of-Mass det. time= 6.5 min (767.9 - 761.4)

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

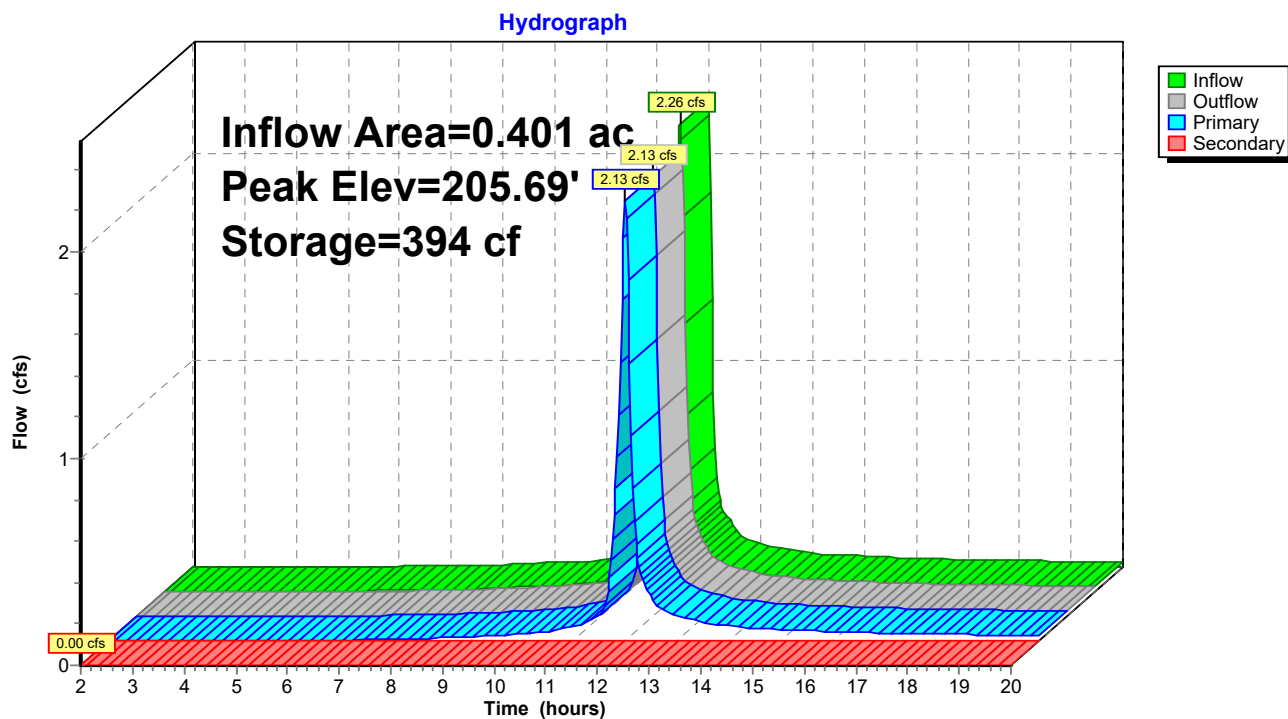
Device	Routing	Invert	Outlet Devices
#1	Primary	205.20'	15.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	207.50'	8.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 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=2.11 cfs @ 12.00 hrs HW=205.69' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 2.11 cfs @ 2.38 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

Stage-Area-Storage for Pond 4A: Detention Basin 4A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.20	680	0
205.25	704	35
205.30	729	70
205.35	754	108
205.40	780	146
205.45	806	186
205.50	833	226
205.55	859	269
205.60	887	312
205.65	915	357
205.70	943	404
205.75	971	452
205.80	1,000	501
205.85	1,030	552
205.90	1,060	604
205.95	1,090	658
206.00	1,121	713
206.05	1,160	770
206.10	1,200	829
206.15	1,240	890
206.20	1,282	953
206.25	1,323	1,018
206.30	1,366	1,086
206.35	1,409	1,155
206.40	1,453	1,226
206.45	1,497	1,300
206.50	1,542	1,376
206.55	1,588	1,454
206.60	1,635	1,535
206.65	1,682	1,618
206.70	1,730	1,703
206.75	1,778	1,791
206.80	1,828	1,881
206.85	1,877	1,974
206.90	1,928	2,069
206.95	1,979	2,166
207.00	2,031	2,267
207.05	2,073	2,369
207.10	2,114	2,474
207.15	2,157	2,581
207.20	2,200	2,690
207.25	2,243	2,801
207.30	2,286	2,914
207.35	2,330	3,029
207.40	2,375	3,147
207.45	2,420	3,267
207.50	2,465	3,389

Summary for Pond 4B: Detention Basin 4B

[92] Warning: Device #2 is above defined storage

[63] Warning: Exceeded Reach CP INLET depth by 0.69' @ 14.06 hrs

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 2.56" for 10-year event
 Inflow = 2.33 cfs @ 12.00 hrs, Volume= 0.114 af
 Outflow = 0.10 cfs @ 13.61 hrs, Volume= 0.065 af, Atten= 96%, Lag= 96.5 min
 Primary = 0.10 cfs @ 13.61 hrs, Volume= 0.065 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.98' @ 13.61 hrs Surf.Area= 3,524 sf Storage= 3,095 cf

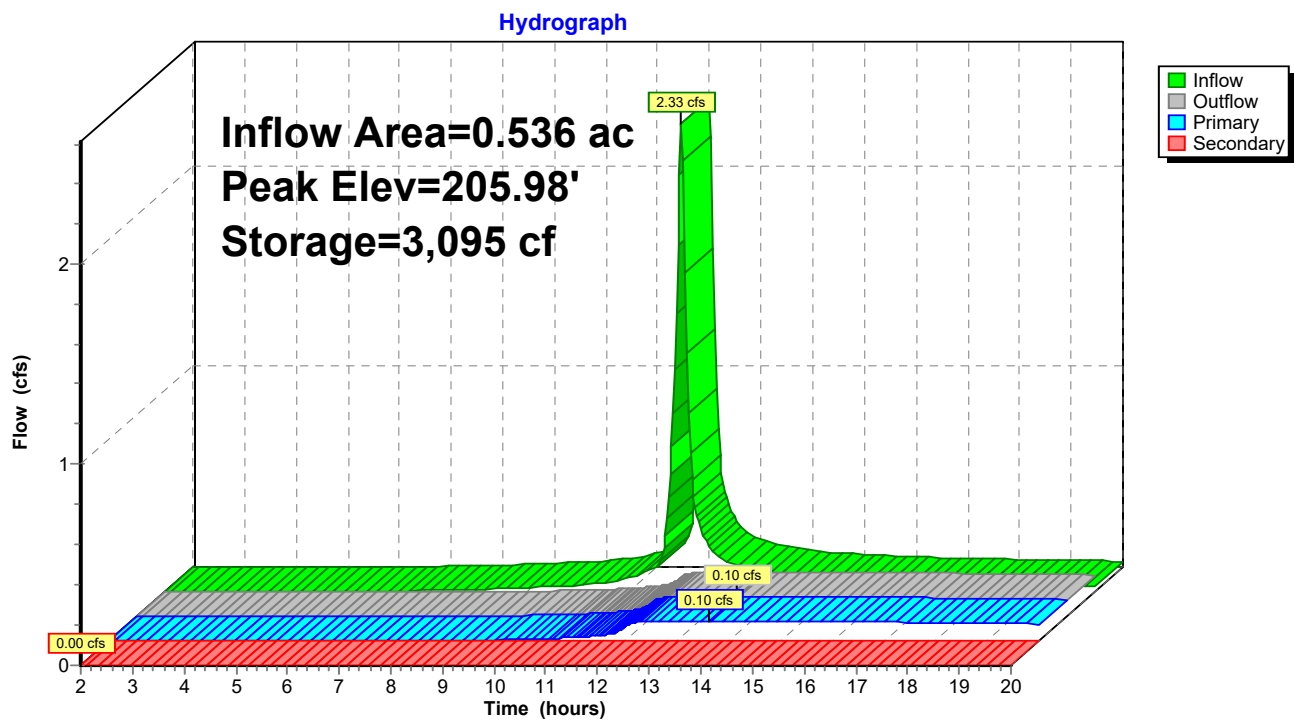
Plug-Flow detention time= 239.7 min calculated for 0.065 af (57% of inflow)
 Center-of-Mass det. time= 163.4 min (937.2 - 773.8)

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=0.10 cfs @ 13.61 hrs HW=205.98' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.10 cfs @ 4.55 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

Stage-Area-Storage for Pond 4B: Detention Basin 4B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	2,837	0	206.04	3,570	3,325
205.02	2,850	57	206.06	3,584	3,397
205.04	2,864	114	206.08	3,599	3,469
205.06	2,877	171	206.10	3,613	3,541
205.08	2,891	229	206.12	3,627	3,613
205.10	2,904	287	206.14	3,642	3,686
205.12	2,917	345	206.16	3,656	3,759
205.14	2,931	404	206.18	3,670	3,832
205.16	2,945	462	206.20	3,685	3,906
205.18	2,958	522	206.22	3,699	3,979
205.20	2,972	581	206.24	3,713	4,054
205.22	2,985	640	206.26	3,728	4,128
205.24	2,999	700	206.28	3,742	4,203
205.26	3,013	760	206.30	3,757	4,278
205.28	3,027	821	206.32	3,771	4,353
205.30	3,040	881	206.34	3,786	4,429
205.32	3,054	942	206.36	3,801	4,504
205.34	3,068	1,004	206.38	3,815	4,581
205.36	3,082	1,065	206.40	3,830	4,657
205.38	3,096	1,127	206.42	3,845	4,734
205.40	3,110	1,189	206.44	3,859	4,811
205.42	3,124	1,251	206.46	3,874	4,888
205.44	3,138	1,314	206.48	3,889	4,966
205.46	3,152	1,377	206.50	3,904	5,044
205.48	3,166	1,440	206.52	3,919	5,122
205.50	3,180	1,503	206.54	3,933	5,200
205.52	3,194	1,567	206.56	3,948	5,279
205.54	3,208	1,631	206.58	3,963	5,358
205.56	3,222	1,695	206.60	3,978	5,438
205.58	3,236	1,760	206.62	3,993	5,517
205.60	3,251	1,825	206.64	4,008	5,597
205.62	3,265	1,890	206.66	4,023	5,678
205.64	3,279	1,955	206.68	4,038	5,758
205.66	3,294	2,021	206.70	4,053	5,839
205.68	3,308	2,087	206.72	4,068	5,921
205.70	3,322	2,154	206.74	4,084	6,002
205.72	3,337	2,220	206.76	4,099	6,084
205.74	3,351	2,287	206.78	4,114	6,166
205.76	3,366	2,354	206.80	4,129	6,248
205.78	3,380	2,422	206.82	4,144	6,331
205.80	3,395	2,489	206.84	4,160	6,414
205.82	3,409	2,557	206.86	4,175	6,498
205.84	3,424	2,626	206.88	4,190	6,581
205.86	3,439	2,694	206.90	4,206	6,665
205.88	3,453	2,763	206.92	4,221	6,749
205.90	3,468	2,832	206.94	4,237	6,834
205.92	3,483	2,902	206.96	4,252	6,919
205.94	3,497	2,972	206.98	4,267	7,004
205.96	3,512	3,042	207.00	4,283	7,090
205.98	3,527	3,112			
206.00	3,542	3,183			
206.02	3,556	3,254			

Summary for Pond 5P: Detention Basin 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 3.75" for 10-year event
 Inflow = 6.40 cfs @ 11.97 hrs, Volume= 0.317 af
 Outflow = 0.17 cfs @ 14.30 hrs, Volume= 0.130 af, Atten= 97%, Lag= 139.9 min
 Primary = 0.17 cfs @ 14.30 hrs, Volume= 0.130 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.58' @ 14.30 hrs Surf.Area= 4,739 sf Storage= 9,400 cf

Plug-Flow detention time= 258.1 min calculated for 0.130 af (41% of inflow)
 Center-of-Mass det. time= 156.8 min (895.9 - 739.2)

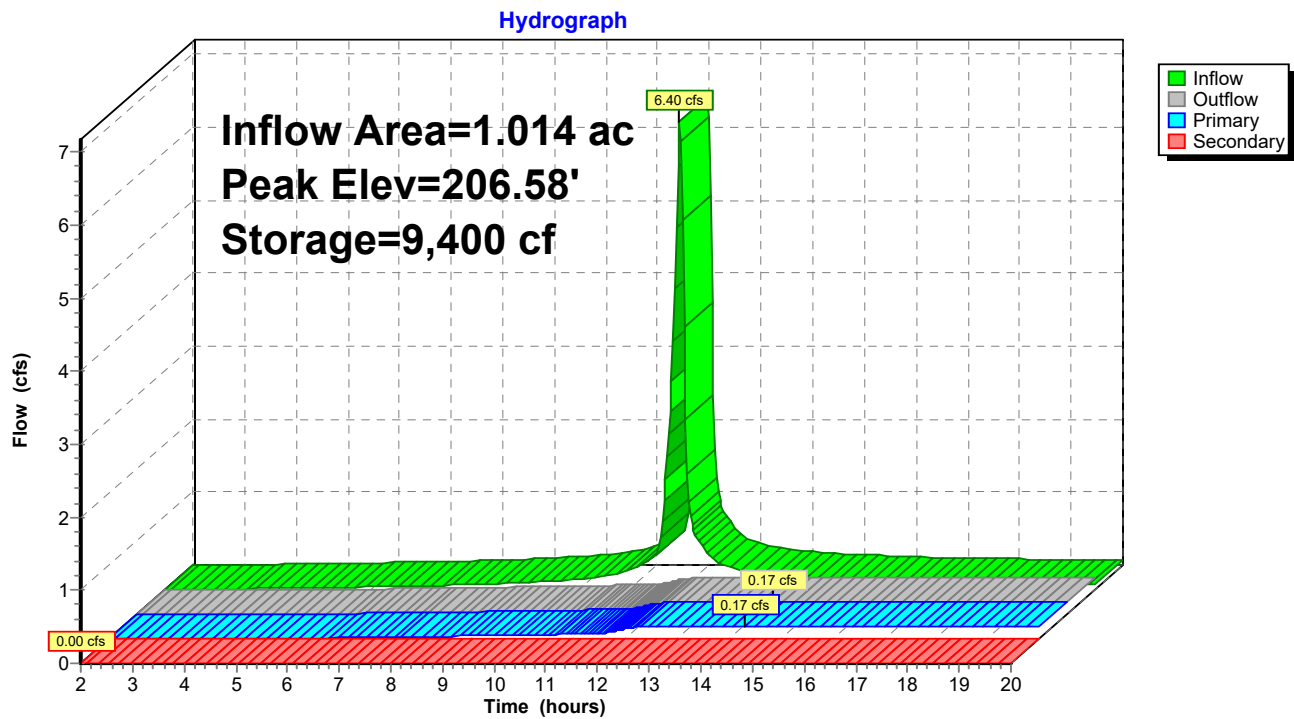
Volume	Invert	Avail.Storage	Storage Description
#1	204.00'	15,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)

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 @ 14.30 hrs HW=206.58' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 0.17 cfs @ 7.60 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

Stage-Area-Storage for Pond 5P: Detention Basin 5

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	2,787	0	206.60	4,759	9,518
204.05	2,810	140	206.65	4,798	9,756
204.10	2,834	281	206.70	4,838	9,997
204.15	2,858	423	206.75	4,878	10,240
204.20	2,881	567	206.80	4,918	10,485
204.25	2,905	711	206.85	4,958	10,732
204.30	2,929	857	206.90	4,998	10,981
204.35	2,953	1,004	206.95	5,038	11,232
204.40	2,977	1,153	207.00	5,079	11,485
204.45	3,001	1,302	207.05	5,118	11,740
204.50	3,026	1,453	207.10	5,158	11,997
204.55	3,050	1,605	207.15	5,197	12,255
204.60	3,074	1,758	207.20	5,237	12,516
204.65	3,099	1,912	207.25	5,277	12,779
204.70	3,124	2,068	207.30	5,317	13,044
204.75	3,149	2,224	207.35	5,357	13,311
204.80	3,173	2,383	207.40	5,397	13,580
204.85	3,198	2,542	207.45	5,437	13,850
204.90	3,224	2,702	207.50	5,478	14,123
204.95	3,249	2,864	207.55	5,519	14,398
205.00	3,274	3,027	207.60	5,559	14,675
205.05	3,322	3,192	207.65	5,601	14,954
205.10	3,370	3,359	207.70	5,642	15,235
205.15	3,419	3,529	207.75	5,683	15,518
205.20	3,468	3,701			
205.25	3,517	3,876			
205.30	3,567	4,053			
205.35	3,617	4,233			
205.40	3,667	4,415			
205.45	3,718	4,599			
205.50	3,769	4,786			
205.55	3,820	4,976			
205.60	3,872	5,168			
205.65	3,924	5,363			
205.70	3,976	5,561			
205.75	4,029	5,761			
205.80	4,082	5,964			
205.85	4,136	6,169			
205.90	4,189	6,377			
205.95	4,243	6,588			
206.00	4,298	6,802			
206.05	4,336	7,017			
206.10	4,373	7,235			
206.15	4,411	7,455			
206.20	4,449	7,676			
206.25	4,487	7,900			
206.30	4,525	8,125			
206.35	4,564	8,352			
206.40	4,603	8,581			
206.45	4,641	8,813			
206.50	4,680	9,046			
206.55	4,719	9,281			

Summary for Pond 6P: Detention Basin 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 2.58" for 10-year event
 Inflow = 2.68 cfs @ 11.97 hrs, Volume= 0.119 af
 Outflow = 0.15 cfs @ 12.91 hrs, Volume= 0.059 af, Atten= 94%, Lag= 56.3 min
 Primary = 0.15 cfs @ 12.91 hrs, Volume= 0.059 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.37' @ 12.91 hrs Surf.Area= 2,805 sf Storage= 3,220 cf

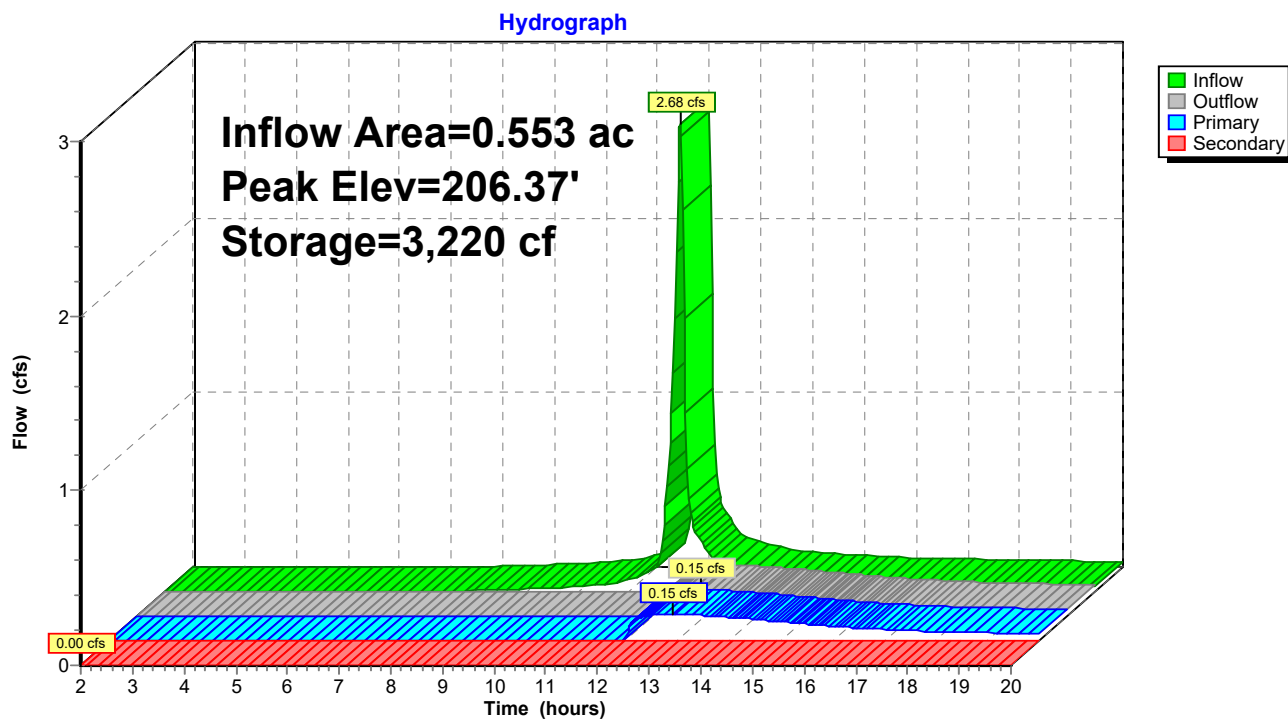
Plug-Flow detention time= 205.7 min calculated for 0.059 af (50% of inflow)
 Center-of-Mass det. time= 127.6 min (904.5 - 776.9)

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=0.15 cfs @ 12.91 hrs HW=206.37' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 0.15 cfs @ 2.27 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

Stage-Area-Storage for Pond 6P: Detention Basin 6

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	1,920	0	207.60	3,689	7,213
205.05	1,950	97	207.65	3,727	7,398
205.10	1,980	195	207.70	3,764	7,585
205.15	2,010	295	207.75	3,802	7,775
205.20	2,040	396			
205.25	2,071	499			
205.30	2,102	603			
205.35	2,133	709			
205.40	2,164	816			
205.45	2,196	925			
205.50	2,228	1,036			
205.55	2,260	1,148			
205.60	2,292	1,262			
205.65	2,324	1,377			
205.70	2,357	1,494			
205.75	2,390	1,613			
205.80	2,423	1,733			
205.85	2,456	1,855			
205.90	2,490	1,979			
205.95	2,524	2,104			
206.00	2,558	2,231			
206.05	2,591	2,360			
206.10	2,624	2,490			
206.15	2,657	2,623			
206.20	2,691	2,756			
206.25	2,724	2,892			
206.30	2,758	3,029			
206.35	2,792	3,167			
206.40	2,827	3,308			
206.45	2,861	3,450			
206.50	2,896	3,594			
206.55	2,931	3,740			
206.60	2,966	3,887			
206.65	3,002	4,036			
206.70	3,037	4,187			
206.75	3,073	4,340			
206.80	3,109	4,495			
206.85	3,145	4,651			
206.90	3,182	4,809			
206.95	3,218	4,969			
207.00	3,255	5,131			
207.05	3,290	5,295			
207.10	3,325	5,460			
207.15	3,361	5,627			
207.20	3,397	5,796			
207.25	3,433	5,967			
207.30	3,469	6,139			
207.35	3,505	6,314			
207.40	3,541	6,490			
207.45	3,578	6,668			
207.50	3,615	6,848			
207.55	3,652	7,029			

Summary for Pond 7P: Detention Basin 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.48" for 10-year event
 Inflow = 0.41 cfs @ 12.00 hrs, Volume= 0.022 af
 Outflow = 0.02 cfs @ 14.95 hrs, Volume= 0.014 af, Atten= 94%, Lag= 176.9 min
 Primary = 0.02 cfs @ 14.95 hrs, Volume= 0.014 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.14' @ 14.95 hrs Surf.Area= 3,215 sf Storage= 437 cf

Plug-Flow detention time= 202.7 min calculated for 0.014 af (63% of inflow)
 Center-of-Mass det. time= 108.8 min (963.0 - 854.2)

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

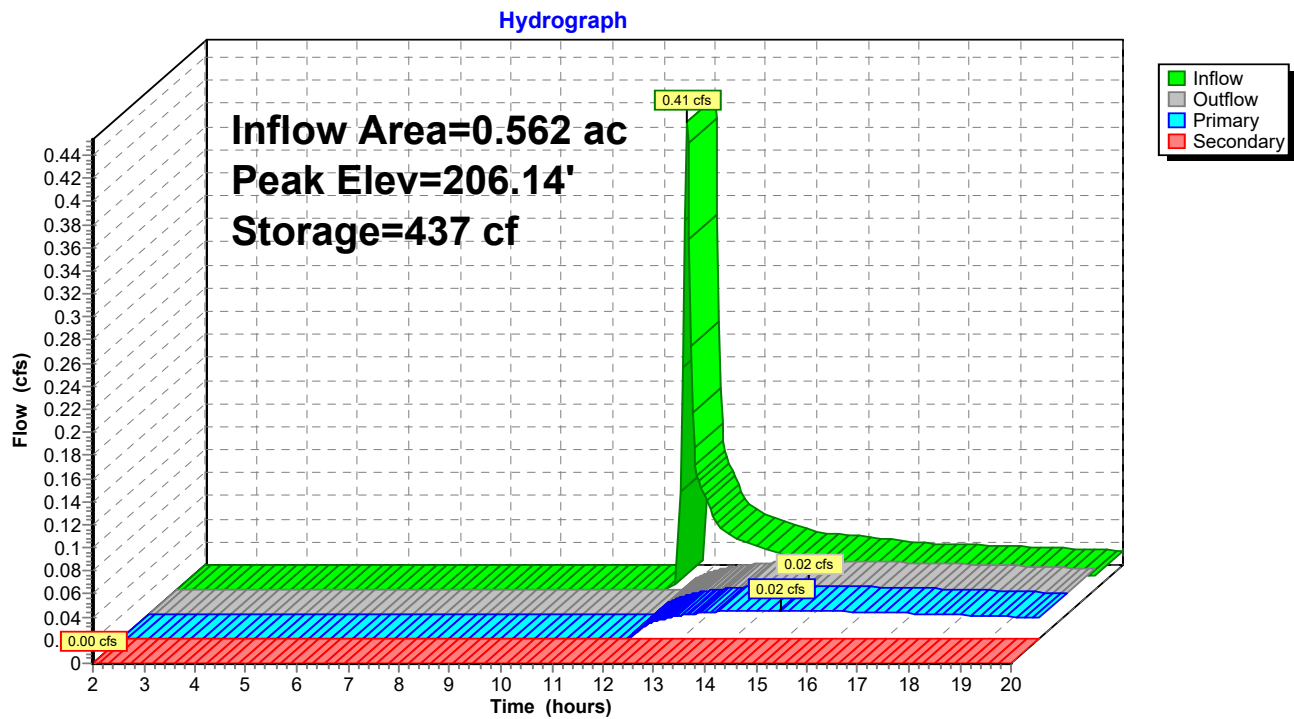
Device	Routing	Invert	Outlet Devices	
#1	Primary	206.00'	2.0" Vert. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 14.95 hrs HW=206.14' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.02 cfs @ 1.27 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

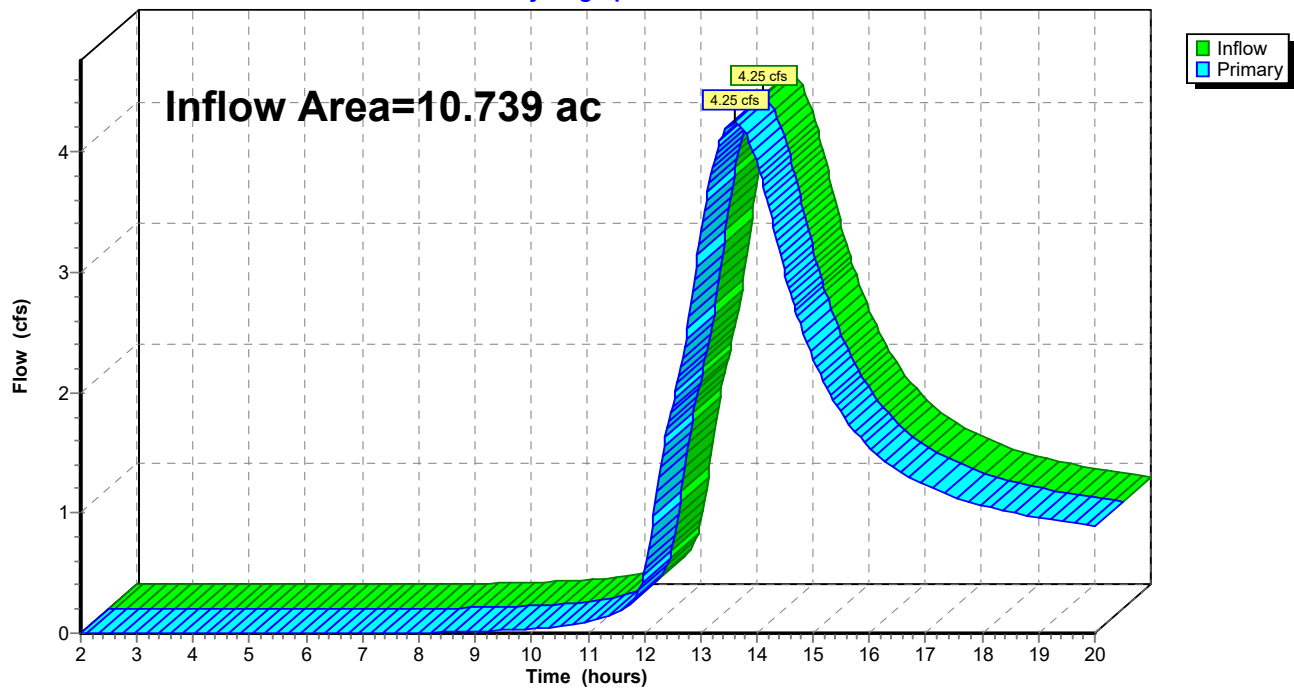
Stage-Area-Storage for Pond 7P: Detention Basin 7

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
206.00	3,078	0	207.04	4,179	3,758
206.02	3,098	62	207.06	4,202	3,842
206.04	3,117	124	207.08	4,225	3,926
206.06	3,137	186	207.10	4,249	4,011
206.08	3,157	249	207.12	4,273	4,096
206.10	3,176	313	207.14	4,296	4,182
206.12	3,196	376	207.16	4,320	4,268
206.14	3,216	441	207.18	4,344	4,355
206.16	3,236	505	207.20	4,368	4,442
206.18	3,256	570	207.22	4,391	4,530
206.20	3,276	635	207.24	4,415	4,618
206.22	3,297	701	207.26	4,439	4,706
206.24	3,317	767	207.28	4,464	4,795
206.26	3,337	834	207.30	4,488	4,885
206.28	3,358	901	207.32	4,512	4,975
206.30	3,378	968	207.34	4,536	5,065
206.32	3,398	1,036	207.36	4,561	5,156
206.34	3,419	1,104	207.38	4,585	5,248
206.36	3,440	1,173	207.40	4,610	5,340
206.38	3,460	1,242	207.42	4,634	5,432
206.40	3,481	1,311	207.44	4,659	5,525
206.42	3,502	1,381	207.46	4,684	5,618
206.44	3,523	1,451	207.48	4,708	5,712
206.46	3,544	1,522	207.50	4,733	5,807
206.48	3,565	1,593	207.52	4,758	5,902
206.50	3,586	1,664	207.54	4,783	5,997
206.52	3,607	1,736	207.56	4,808	6,093
206.54	3,628	1,809	207.58	4,833	6,189
206.56	3,649	1,881	207.60	4,858	6,286
206.58	3,670	1,955	207.62	4,883	6,384
206.60	3,692	2,028	207.64	4,909	6,482
206.62	3,713	2,102	207.66	4,934	6,580
206.64	3,735	2,177	207.68	4,960	6,679
206.66	3,756	2,252	207.70	4,985	6,778
206.68	3,778	2,327	207.72	5,011	6,878
206.70	3,800	2,403	207.74	5,036	6,979
206.72	3,821	2,479			
206.74	3,843	2,556			
206.76	3,865	2,633			
206.78	3,887	2,710			
206.80	3,909	2,788			
206.82	3,931	2,867			
206.84	3,953	2,945			
206.86	3,975	3,025			
206.88	3,997	3,104			
206.90	4,020	3,185			
206.92	4,042	3,265			
206.94	4,064	3,346			
206.96	4,087	3,428			
206.98	4,109	3,510			
207.00	4,132	3,592			
207.02	4,155	3,675			

Summary for Link x1000: x1000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 1.43" for 10-year event
Inflow = 4.25 cfs @ 13.61 hrs, Volume= 1.283 af
Primary = 4.25 cfs @ 13.61 hrs, Volume= 1.283 af, Atten= 0%, Lag= 0.0 min

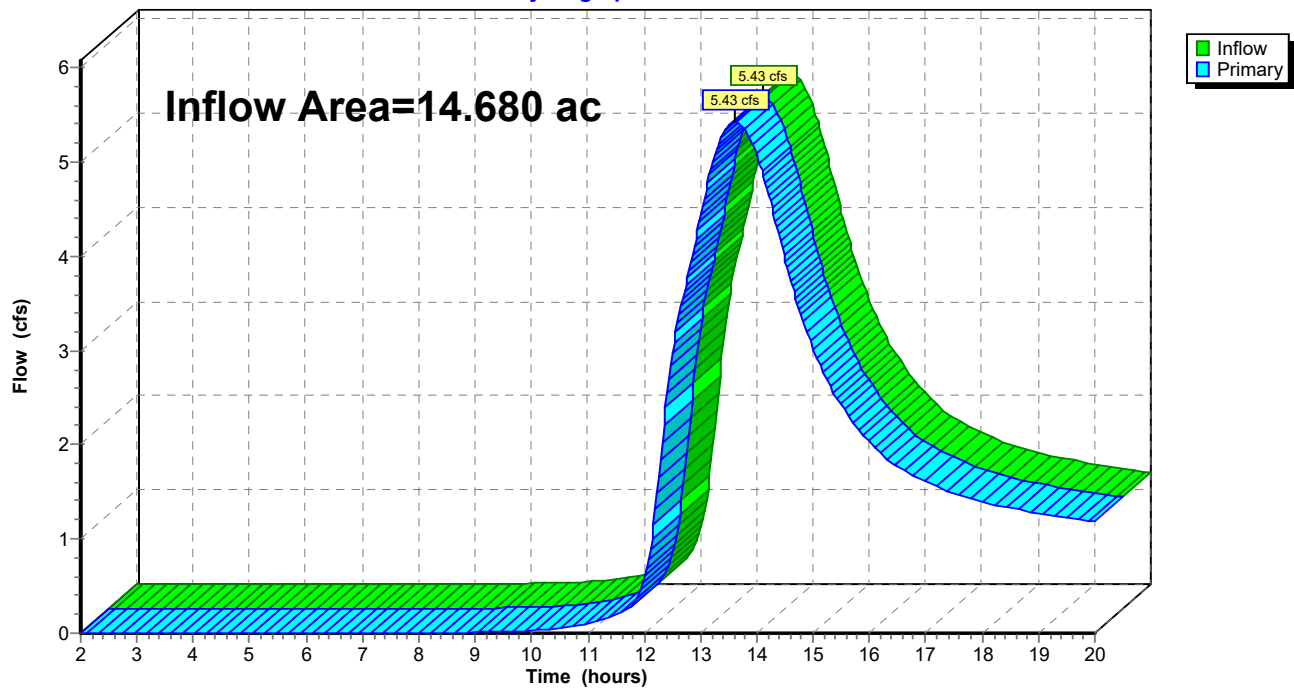
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x1000: x1000**Hydrograph**

Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 1.38" for 10-year event
Inflow = 5.43 cfs @ 13.61 hrs, Volume= 1.694 af
Primary = 5.43 cfs @ 13.61 hrs, Volume= 1.694 af, Atten= 0%, Lag= 0.0 min

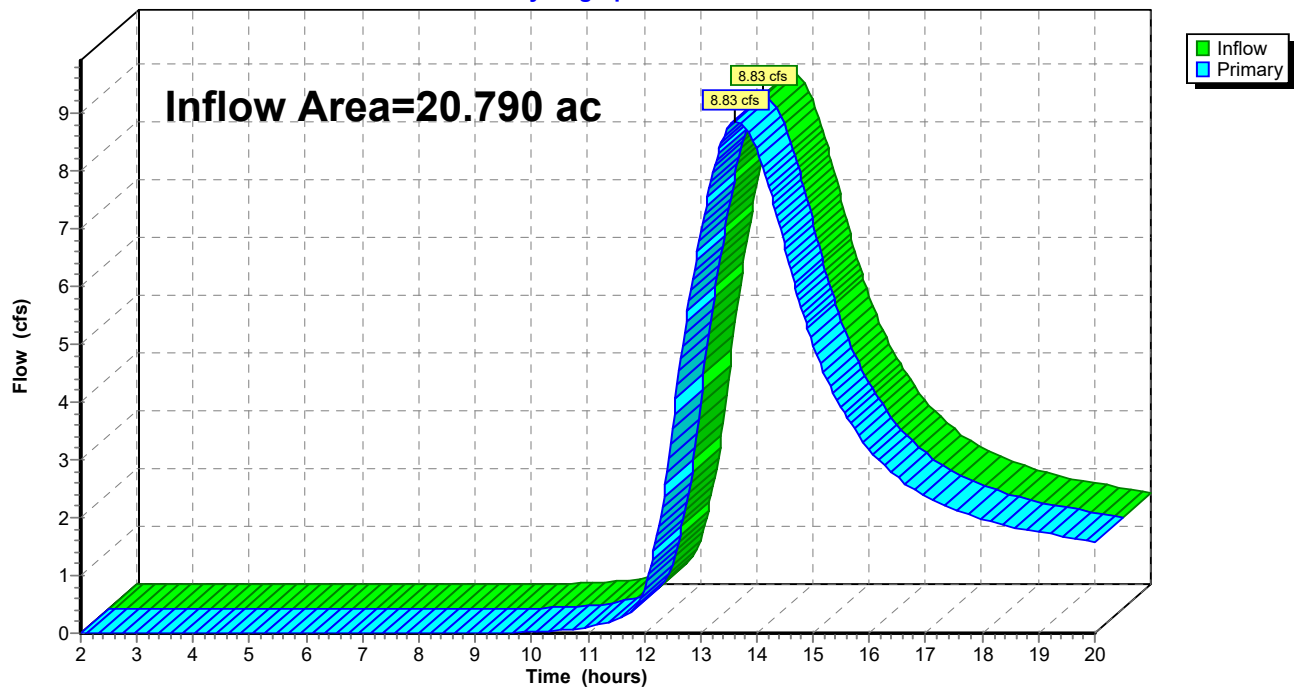
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x2000: x2000**Hydrograph**

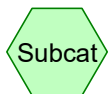
Summary for Link x3000: x3000

Inflow Area = 20.790 ac, 10.83% Impervious, Inflow Depth > 1.49" for 10-year event
Inflow = 8.83 cfs @ 13.63 hrs, Volume= 2.589 af
Primary = 8.83 cfs @ 13.63 hrs, Volume= 2.589 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



Reach



Link

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	25-year	Type II 24-hr		Default	24.00	1	5.69	2

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

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	

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	CP	205.20	205.00	62.0	0.0032	0.011	0.0	15.0	0.0
3	P1	204.00	203.60	78.0	0.0051	0.013	0.0	12.0	0.0
4	P2	204.00	203.70	60.0	0.0050	0.013	0.0	12.0	0.0
5	P3	205.00	204.80	40.0	0.0050	0.013	0.0	12.0	0.0
6	P4B	205.00	204.00	182.0	0.0055	0.013	0.0	12.0	0.0
7	P5	204.00	203.80	35.0	0.0057	0.013	0.0	12.0	0.0
8	P6	206.00	205.50	60.0	0.0083	0.013	0.0	12.0	0.0
9	P7	206.00	204.00	290.0	0.0069	0.013	0.0	12.0	0.0

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

Subcatchment100: Area 100	Runoff Area=21,241 sf 39.36% Impervious Runoff Depth>3.96" Tc=6.0 min CN=87 Runoff=3.45 cfs 0.161 af
Subcatchment200: Area 200	Runoff Area=7,259 sf 21.45% Impervious Runoff Depth>3.65" Tc=6.0 min CN=84 Runoff=1.11 cfs 0.051 af
Subcatchment300: Area 300	Runoff Area=25,373 sf 47.63% Impervious Runoff Depth>4.06" Tc=6.0 min CN=88 Runoff=4.19 cfs 0.197 af
Subcatchment350: Area 350	Runoff Area=2,640 sf 0.00% Impervious Runoff Depth>2.35" Tc=6.0 min CN=70 Runoff=0.28 cfs 0.012 af
Subcatchment400: Area 400	Runoff Area=17,459 sf 54.77% Impervious Runoff Depth>4.06" Tc=6.0 min CN=88 Runoff=2.88 cfs 0.136 af
Subcatchment450: Area 450	Runoff Area=5,879 sf 0.00% Impervious Runoff Depth>1.47" Tc=6.0 min CN=59 Runoff=0.39 cfs 0.017 af
Subcatchment500: Area 500	Runoff Area=24,492 sf 21.12% Impervious Runoff Depth>0.87" Tc=6.0 min CN=50 Runoff=0.87 cfs 0.041 af
Subcatchment550: Area 550	Runoff Area=24,095 sf 65.72% Impervious Runoff Depth>3.45" Tc=6.0 min CN=82 Runoff=3.53 cfs 0.159 af
Subcatchment600: Area 600	Runoff Area=44,164 sf 81.56% Impervious Runoff Depth>4.71" Tc=6.0 min CN=94 Runoff=7.92 cfs 0.398 af
Subcatchment700: Area 700	Runoff Area=155,394 sf 0.00% Impervious Runoff Depth>2.47" Flow Length=914' Tc=123.7 min CN=73 Runoff=3.08 cfs 0.735 af
Subcatchment800: Area 800	Runoff Area=83,661 sf 0.00% Impervious Runoff Depth>2.80" Flow Length=850' Tc=142.4 min CN=77 Runoff=1.71 cfs 0.448 af
Subcatchment900: Area 900	Runoff Area=20,660 sf 0.00% Impervious Runoff Depth>2.93" Flow Length=370' Tc=40.8 min CN=77 Runoff=1.07 cfs 0.116 af
Subcatchment1000: Area 1000	Runoff Area=89,935 sf 0.00% Impervious Runoff Depth>2.42" Flow Length=675' Tc=101.4 min CN=72 Runoff=2.01 cfs 0.416 af
Subcatchment1100: Area 1100	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>2.33" Flow Length=215' Tc=27.3 min CN=70 Runoff=0.70 cfs 0.058 af
Subcatchment1200: Area 1200	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>2.63" Flow Length=868' Tc=140.2 min CN=75 Runoff=3.15 cfs 0.819 af
Subcatchment1300: Area 1300	Runoff Area=41,280 sf 0.00% Impervious Runoff Depth>2.46" Flow Length=525' Tc=136.8 min CN=73 Runoff=0.76 cfs 0.194 af

Subcatchment1400: Area 1400	Runoff Area=43,924 sf 0.00% Impervious Runoff Depth>2.64" Flow Length=410' Tc=58.3 min CN=74 Runoff=1.60 cfs 0.222 af
Subcatchment1500: Area 1500	Runoff Area=15,037 sf 0.00% Impervious Runoff Depth>2.85" Flow Length=661' Tc=110.0 min CN=77 Runoff=0.38 cfs 0.082 af
Subcatchment1600: Area 1600	Runoff Area=22,207 sf 0.00% Impervious Runoff Depth>1.15" Flow Length=1,245' Tc=149.8 min CN=56 Runoff=0.16 cfs 0.049 af
Subcatchment1700: 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
Subcatchment1800: Area 1800	Runoff Area=52,490 sf 0.78% Impervious Runoff Depth>2.29" Flow Length=615' Tc=135.0 min CN=71 Runoff=0.91 cfs 0.230 af
SubcatchmentDISP: Dispensary Building	Runoff Area=4,073 sf 100.00% Impervious Runoff Depth>5.15" Tc=6.0 min CN=98 Runoff=0.75 cfs 0.040 af
SubcatchmentLAB: Lab Bldg	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>5.15" Tc=6.0 min CN=98 Runoff=0.92 cfs 0.049 af
Reach 1k-2k: x1000 to x2000	Avg. Flow Depth=0.37' Max Vel=1.47 fps Inflow=6.00 cfs 1.797 af n=0.035 L=260.0' S=0.0077 ' Capacity=1,021.34 cfs Outflow=5.99 cfs 1.785 af
Reach 2k-3k: x2000 to x3000	Avg. Flow Depth=0.69' Max Vel=1.33 fps Inflow=7.73 cfs 2.385 af n=0.035 L=360.0' S=0.0028 ' Capacity=334.17 cfs Outflow=7.72 cfs 2.359 af
Reach CP: Connecting Pipes	Avg. Flow Depth=0.48' Max Vel=3.12 fps Inflow=2.72 cfs 0.135 af 15.0" Round Pipe x 2.00 n=0.011 L=62.0' S=0.0032 ' Capacity=8.67 cfs Outflow=2.69 cfs 0.135 af
Reach P1: Pipe Out of 1	Avg. Flow Depth=0.12' Max Vel=1.46 fps Inflow=0.08 cfs 0.053 af 12.0" Round Pipe n=0.013 L=78.0' S=0.0051 ' Capacity=2.55 cfs Outflow=0.08 cfs 0.053 af
Reach P2: Pipe Out of 2	Avg. Flow Depth=0.14' Max Vel=1.61 fps Inflow=0.11 cfs 0.082 af 12.0" Round Pipe n=0.013 L=60.0' S=0.0050 ' Capacity=2.52 cfs Outflow=0.11 cfs 0.081 af
Reach P3: Pipe Out of 3	Avg. Flow Depth=0.15' Max Vel=1.64 fps Inflow=0.12 cfs 0.084 af 12.0" Round Pipe n=0.013 L=40.0' S=0.0050 ' Capacity=2.52 cfs Outflow=0.12 cfs 0.084 af
Reach P4B: Pipe Out of 4B	Avg. Flow Depth=0.14' Max Vel=1.68 fps Inflow=0.11 cfs 0.079 af 12.0" Round Pipe n=0.013 L=182.0' S=0.0055 ' Capacity=2.64 cfs Outflow=0.11 cfs 0.078 af
Reach P5: Pipe Out of 5	Avg. Flow Depth=0.19' Max Vel=2.03 fps Inflow=0.21 cfs 0.152 af 12.0" Round Pipe n=0.013 L=35.0' S=0.0057 ' Capacity=2.69 cfs Outflow=0.21 cfs 0.152 af
Reach P6: Pipe Out of 6	Avg. Flow Depth=0.18' Max Vel=2.43 fps Inflow=0.24 cfs 0.098 af 12.0" Round Pipe n=0.013 L=60.0' S=0.0083 ' Capacity=3.25 cfs Outflow=0.24 cfs 0.098 af
Reach P7: Pipe Out of 7	Avg. Flow Depth=0.09' Max Vel=1.37 fps Inflow=0.04 cfs 0.027 af 12.0" Round Pipe n=0.013 L=290.0' S=0.0069 ' Capacity=2.96 cfs Outflow=0.04 cfs 0.027 af

Reach W1: 1 Thru Wetland	Avg. Flow Depth=0.18' Max Vel=0.06 fps Inflow=0.08 cfs 0.053 af n=0.800 L=335.0' S=0.0197 ' Capacity=3.31 cfs Outflow=0.08 cfs 0.034 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=0.37 cfs 0.096 af n=0.800 L=850.0' S=0.0092 ' Capacity=2.26 cfs Outflow=0.09 cfs 0.019 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=0.20 cfs 0.120 af
Reach W6: 6 Thru Wetland	Avg. Flow Depth=0.28' Max Vel=0.07 fps Inflow=0.24 cfs 0.098 af n=0.800 L=615.0' S=0.0122 ' Capacity=2.60 cfs Outflow=0.16 cfs 0.052 af
Reach W7: 7 Thru Wetland	Avg. Flow Depth=0.14' Max Vel=0.04 fps Inflow=0.04 cfs 0.027 af n=0.800 L=600.0' S=0.0100 ' Capacity=2.36 cfs Outflow=0.02 cfs 0.003 af
Pond 1P: Detention Basin 1	Peak Elev=204.63' Storage=5,107 cf Inflow=3.45 cfs 0.161 af Primary=0.08 cfs 0.053 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.053 af
Pond 2P: Detention Basin 2	Peak Elev=205.20' Storage=3,798 cf Inflow=2.79 cfs 0.140 af Primary=0.11 cfs 0.082 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.082 af
Pond 3P: Detention Basin 3	Peak Elev=206.34' Storage=5,855 cf Inflow=4.19 cfs 0.197 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=205.76' Storage=462 cf Inflow=2.88 cfs 0.136 af Primary=2.72 cfs 0.135 af Secondary=0.00 cfs 0.000 af Outflow=2.72 cfs 0.135 af
Pond 4B: Detention Basin 4B	Peak Elev=206.28' Storage=4,206 cf Inflow=3.06 cfs 0.151 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=207.10' Storage=11,982 cf Inflow=7.92 cfs 0.398 af Primary=0.18 cfs 0.148 af Secondary=0.02 cfs 0.005 af Outflow=0.21 cfs 0.152 af
Pond 6P: Detention Basin 6	Peak Elev=206.71' Storage=4,229 cf Inflow=3.53 cfs 0.159 af Primary=0.24 cfs 0.098 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.098 af
Pond 7P: Detention Basin 7	Peak Elev=206.26' Storage=838 cf Inflow=0.87 cfs 0.041 af Primary=0.04 cfs 0.027 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.027 af
Link x1000: x1000	Inflow=6.00 cfs 1.797 af Primary=6.00 cfs 1.797 af
Link x2000: x2000	Inflow=7.73 cfs 2.385 af Primary=7.73 cfs 2.385 af

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Prepared by VHB

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Type II 24-hr 25-year Rainfall=5.69"

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Link x3000: x3000

Inflow=12.59 cfs 3.653 af

Primary=12.59 cfs 3.653 af

Total Runoff Area = 20.790 ac Runoff Volume = 4.632 af Average Runoff Depth = 2.67"
89.17% Pervious = 18.538 ac 10.83% Impervious = 2.251 ac

Summary for Subcatchment 100: Area 100

Runoff = 3.45 cfs @ 11.97 hrs, Volume= 0.161 af, Depth> 3.96"

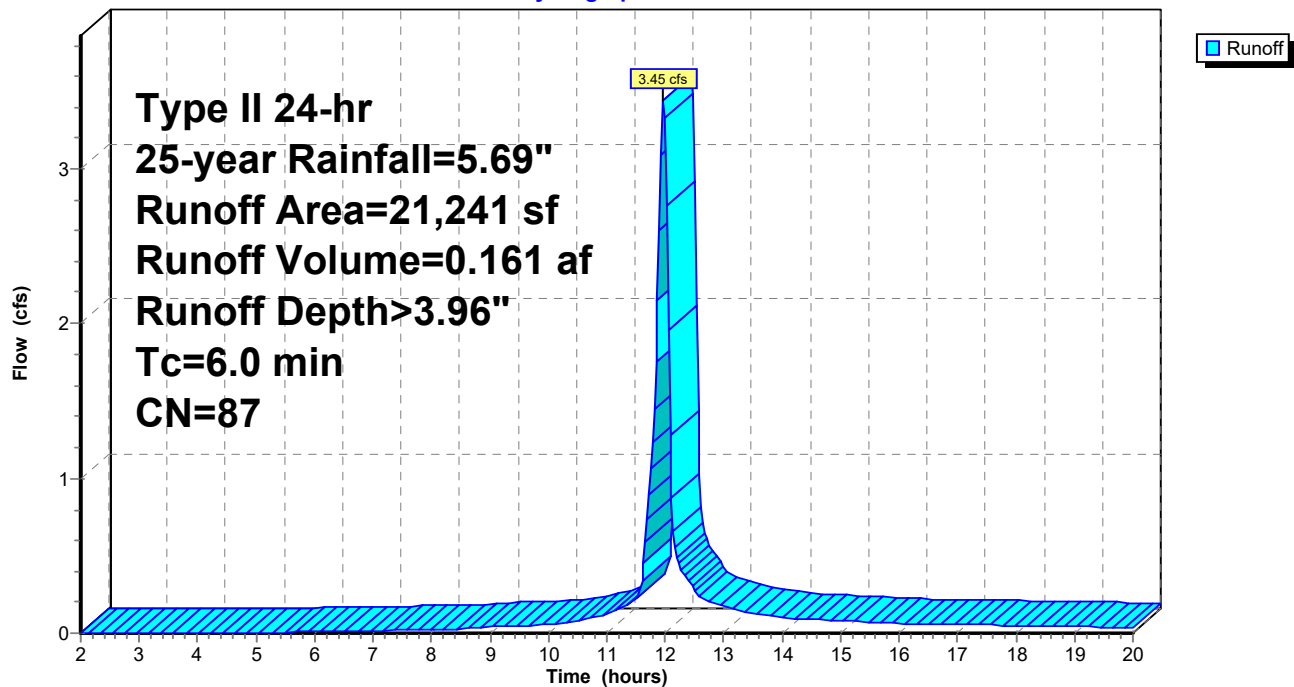
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 200: Area 200

Runoff = 1.11 cfs @ 11.97 hrs, Volume= 0.051 af, Depth> 3.65"

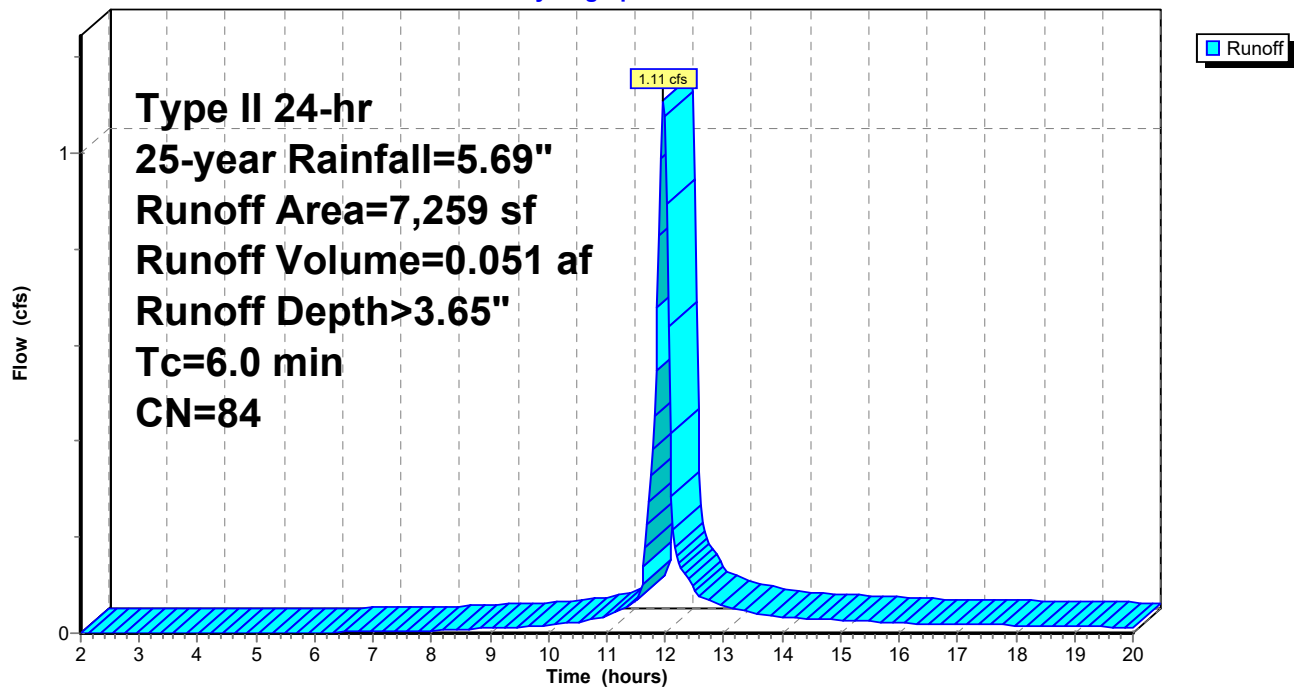
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 300: Area 300

Runoff = 4.19 cfs @ 11.97 hrs, Volume= 0.197 af, Depth> 4.06"

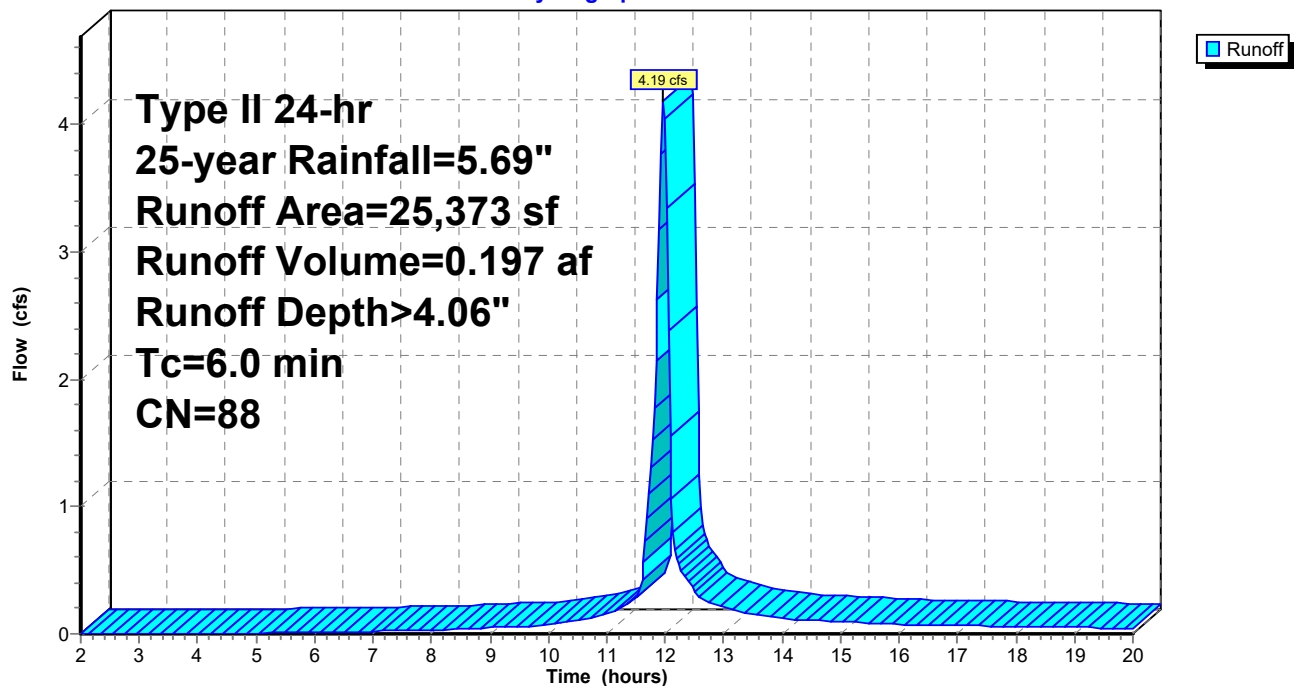
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 350: Area 350

Runoff = 0.28 cfs @ 11.98 hrs, Volume= 0.012 af, Depth> 2.35"

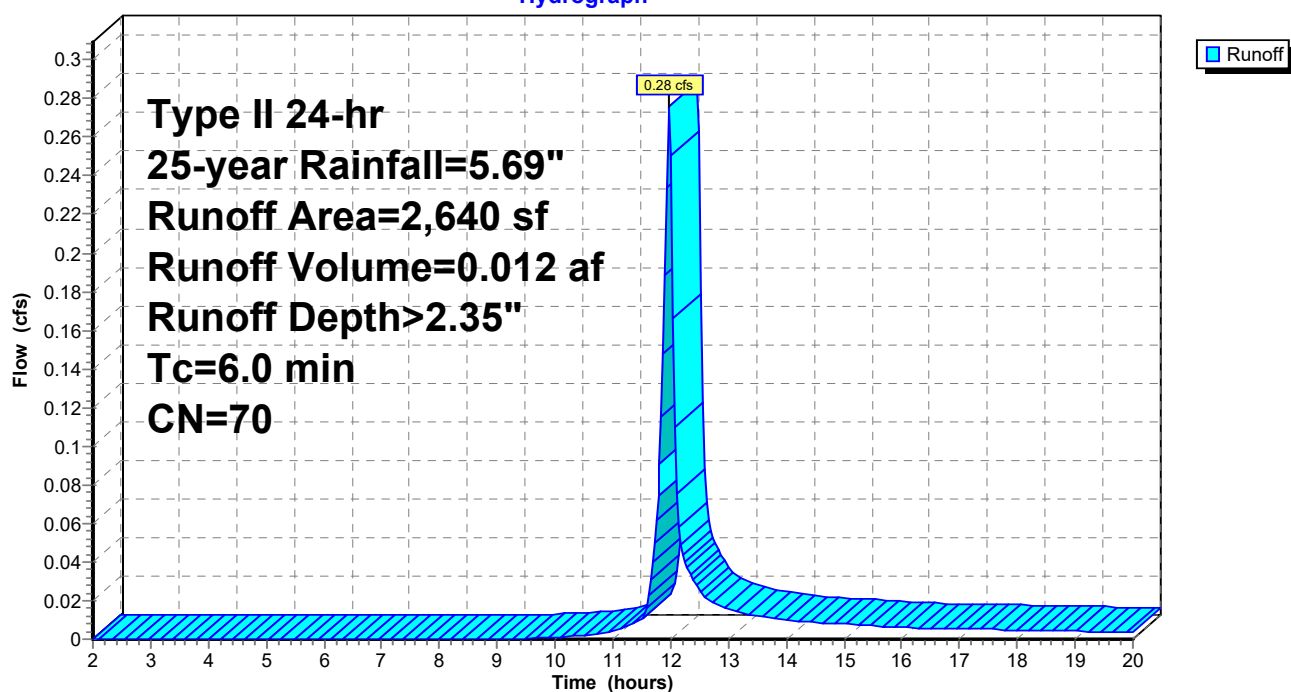
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 400: Area 400

Runoff = 2.88 cfs @ 11.97 hrs, Volume= 0.136 af, Depth> 4.06"

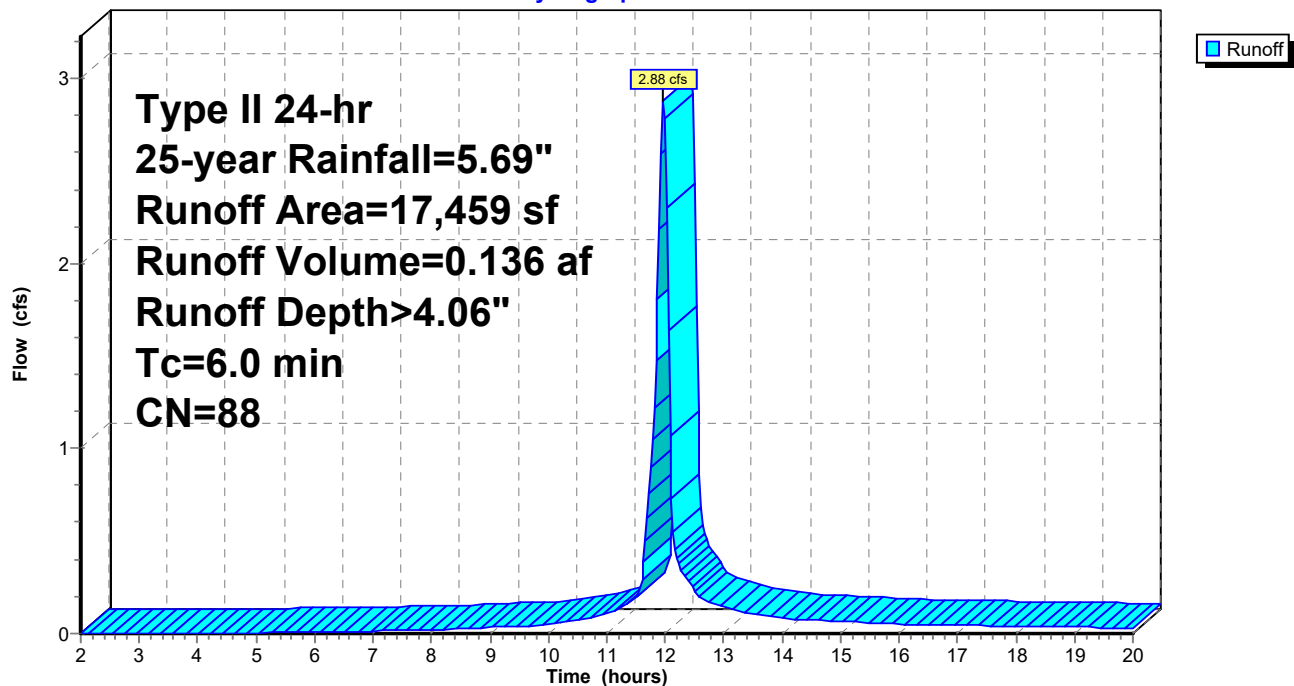
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 450: Area 450

Runoff = 0.39 cfs @ 11.98 hrs, Volume= 0.017 af, Depth> 1.47"

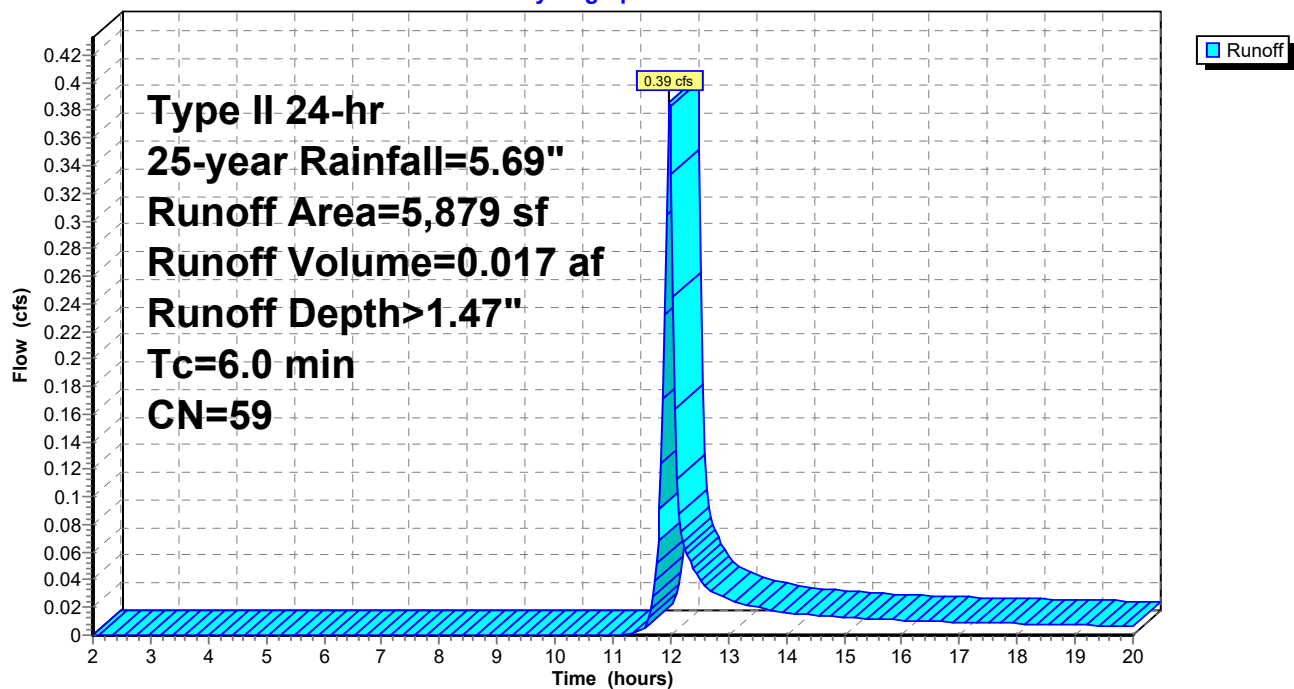
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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 = 0.87 cfs @ 11.99 hrs, Volume= 0.041 af, Depth> 0.87"

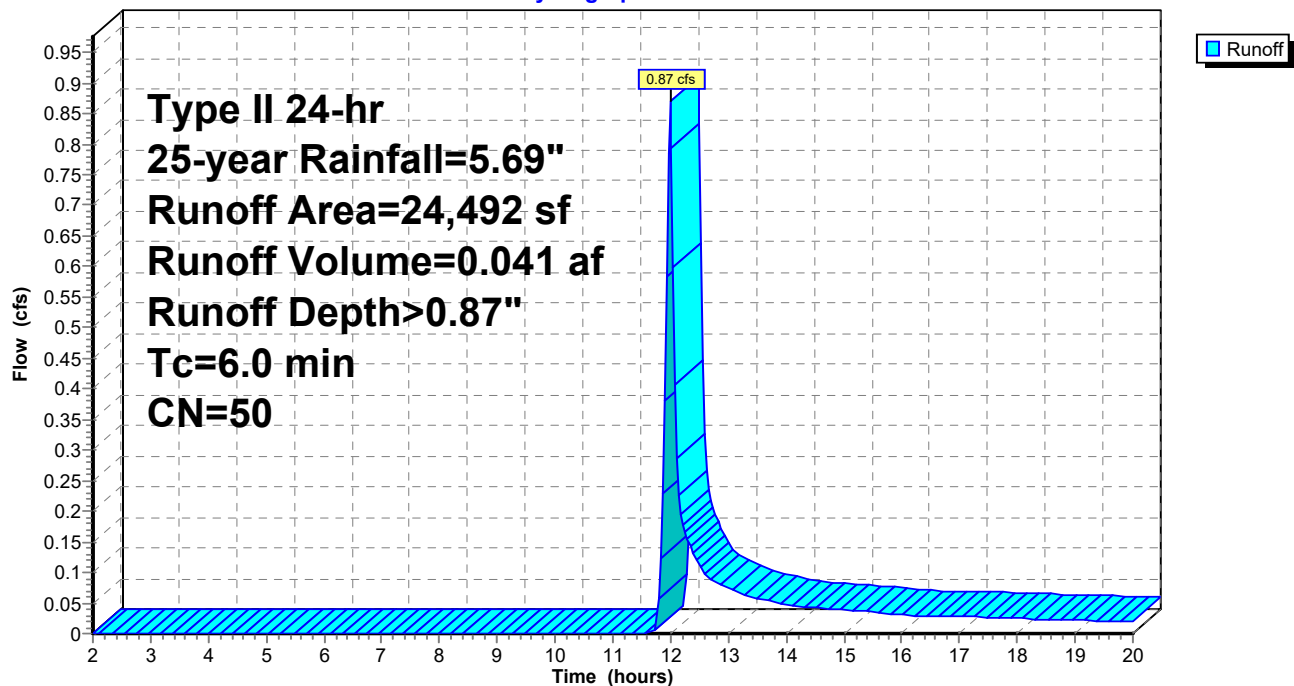
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 550: Area 550

Runoff = 3.53 cfs @ 11.97 hrs, Volume= 0.159 af, Depth> 3.45"

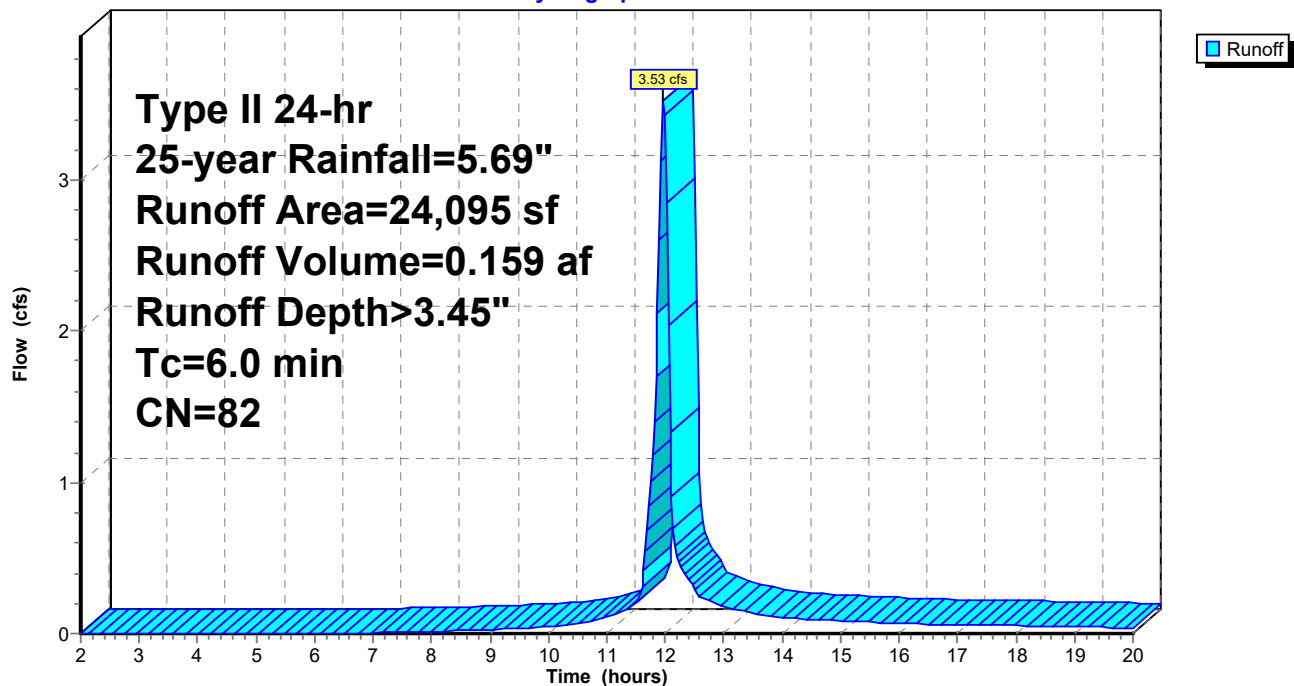
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 600: Area 600

Runoff = 7.92 cfs @ 11.97 hrs, Volume= 0.398 af, Depth> 4.71"

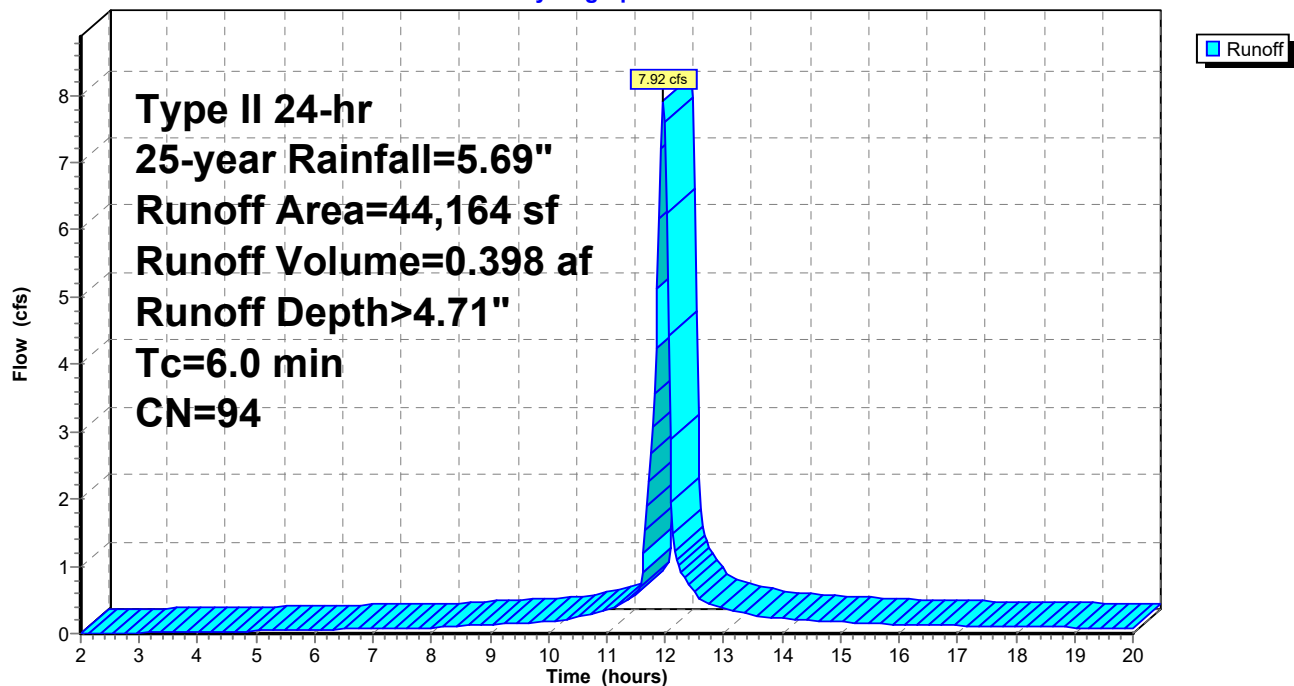
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 700: Area 700

Runoff = 3.08 cfs @ 13.49 hrs, Volume= 0.735 af, Depth> 2.47"

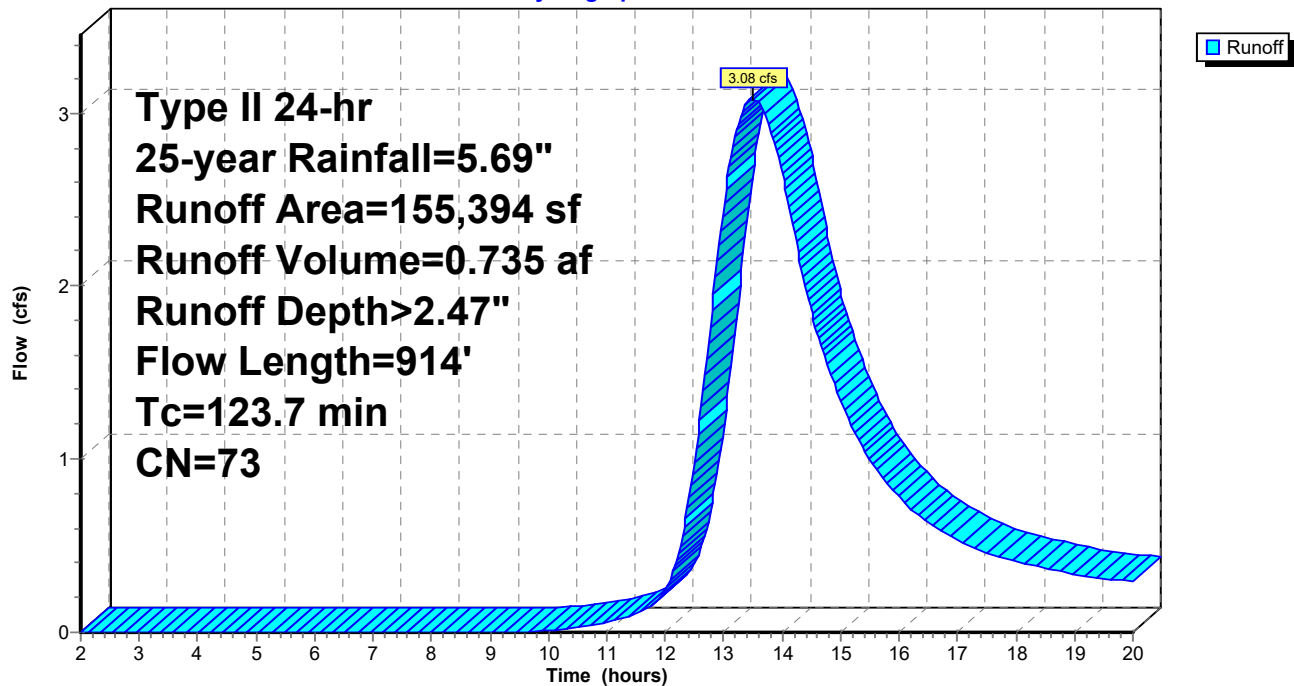
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 800: Area 800

Runoff = 1.71 cfs @ 13.75 hrs, Volume= 0.448 af, Depth> 2.80"

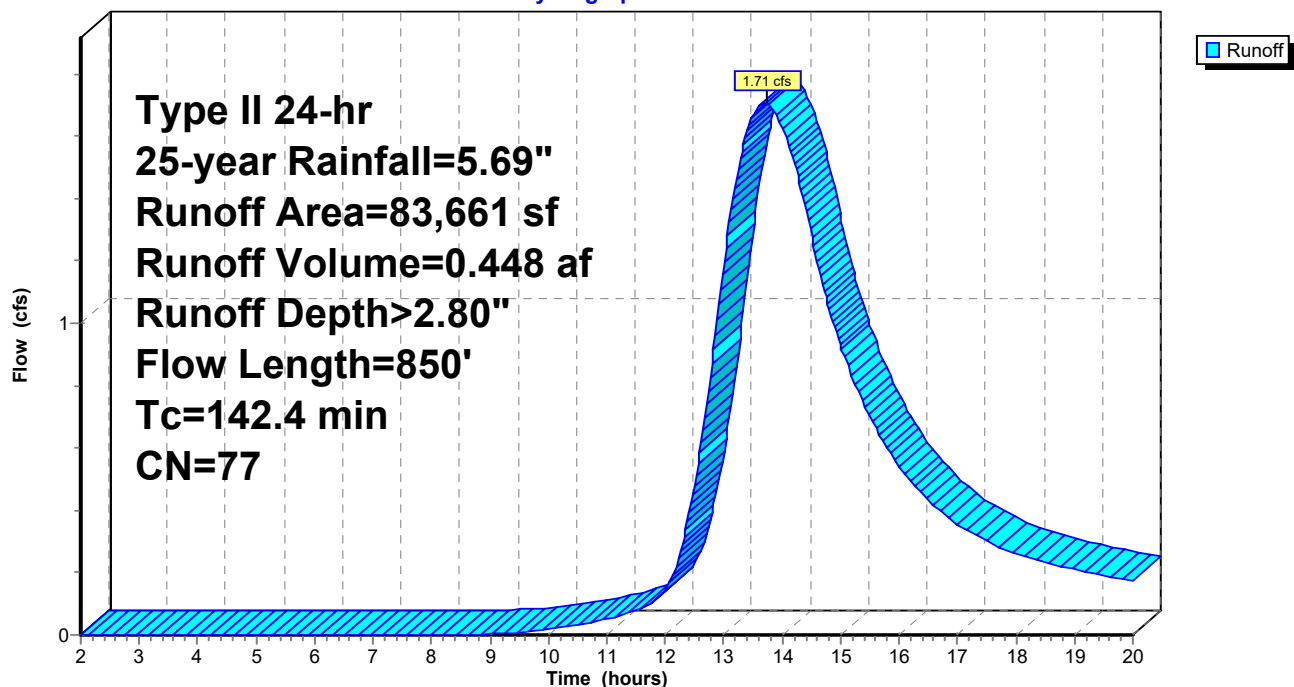
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 900: Area 900

Runoff = 1.07 cfs @ 12.38 hrs, Volume= 0.116 af, Depth> 2.93"

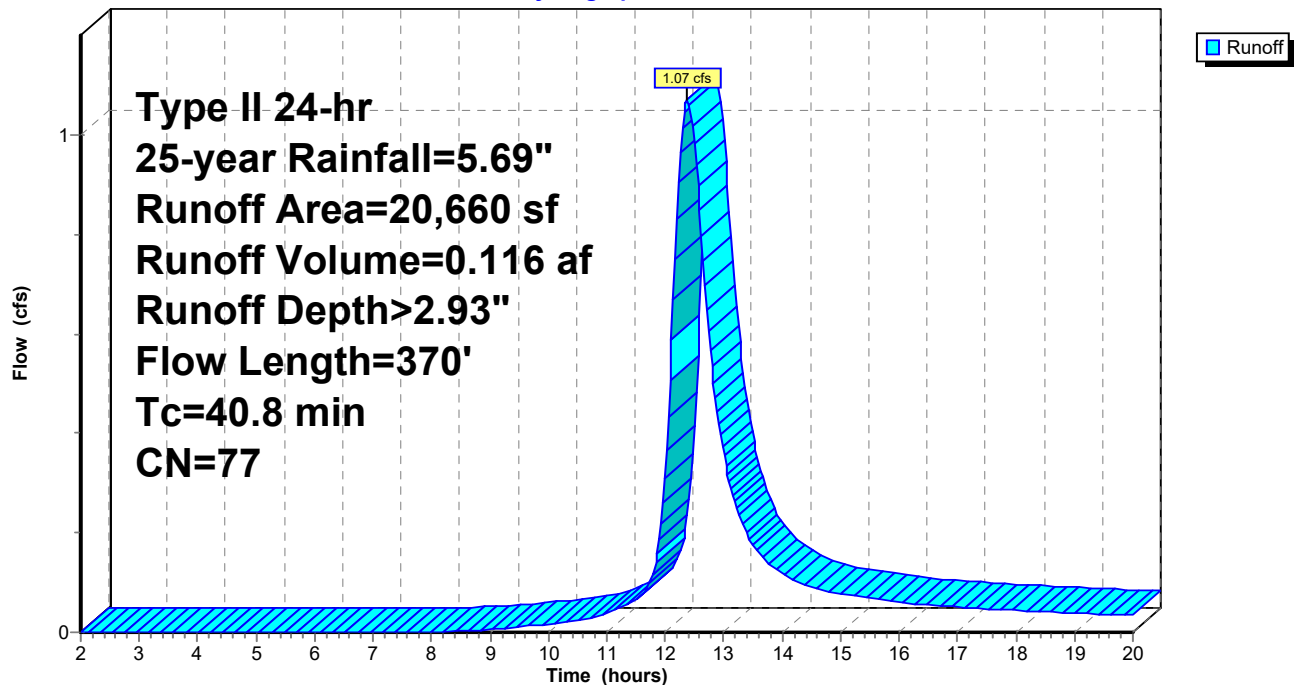
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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'
27.1	320	0.0062	0.20		Woods: Dense underbrush n= 0.800 P2= 3.01"
					Shallow Concentrated Flow, Last 320'
					Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 900: Area 900

Hydrograph



Summary for Subcatchment 1000: Area 1000

Runoff = 2.01 cfs @ 13.18 hrs, Volume= 0.416 af, Depth> 2.42"

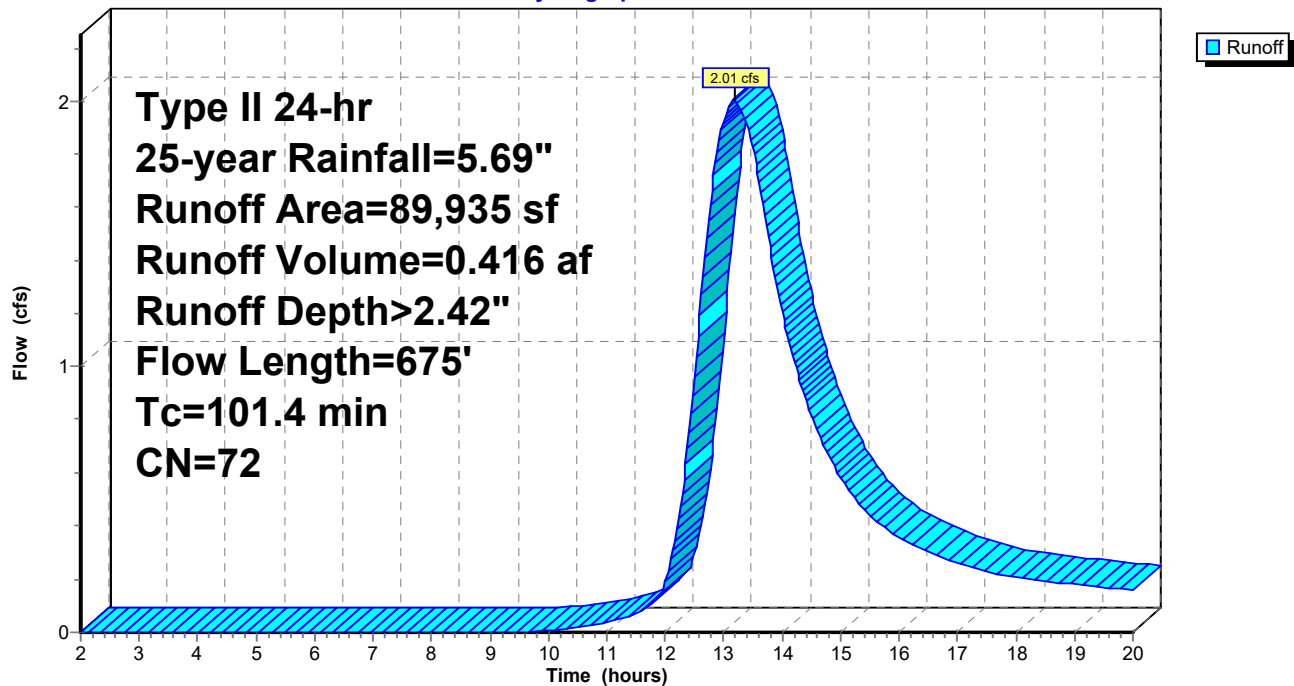
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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

Hydrograph



Summary for Subcatchment 1100: Area 1100

Runoff = 0.70 cfs @ 12.22 hrs, Volume= 0.058 af, Depth> 2.33"

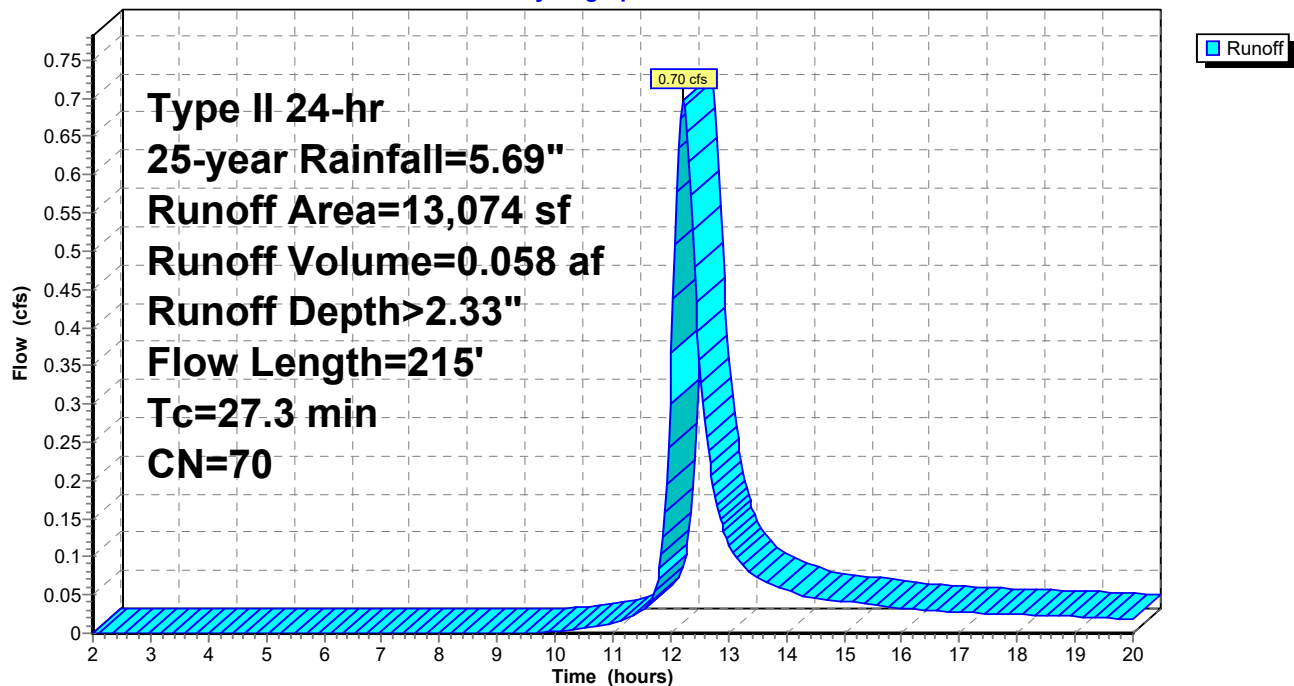
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 1200: Area 1200

Runoff = 3.15 cfs @ 13.71 hrs, Volume= 0.819 af, Depth> 2.63"

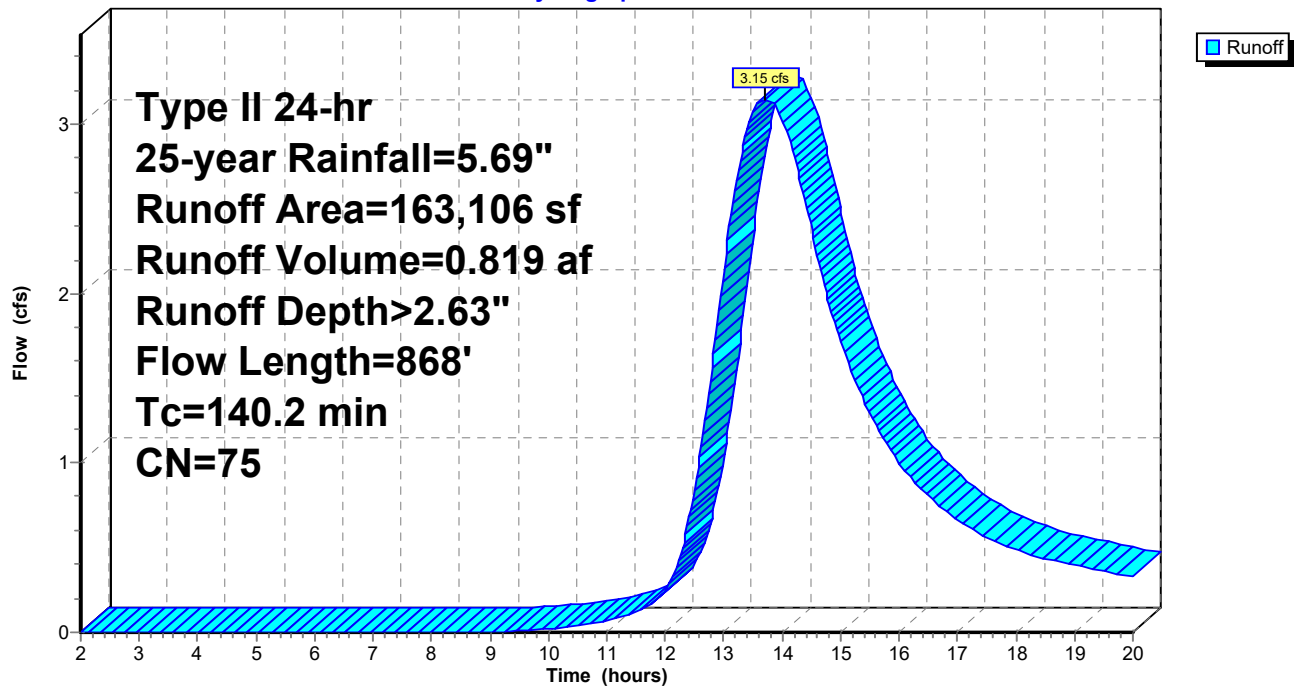
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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 = 0.76 cfs @ 13.68 hrs, Volume= 0.194 af, Depth> 2.46"

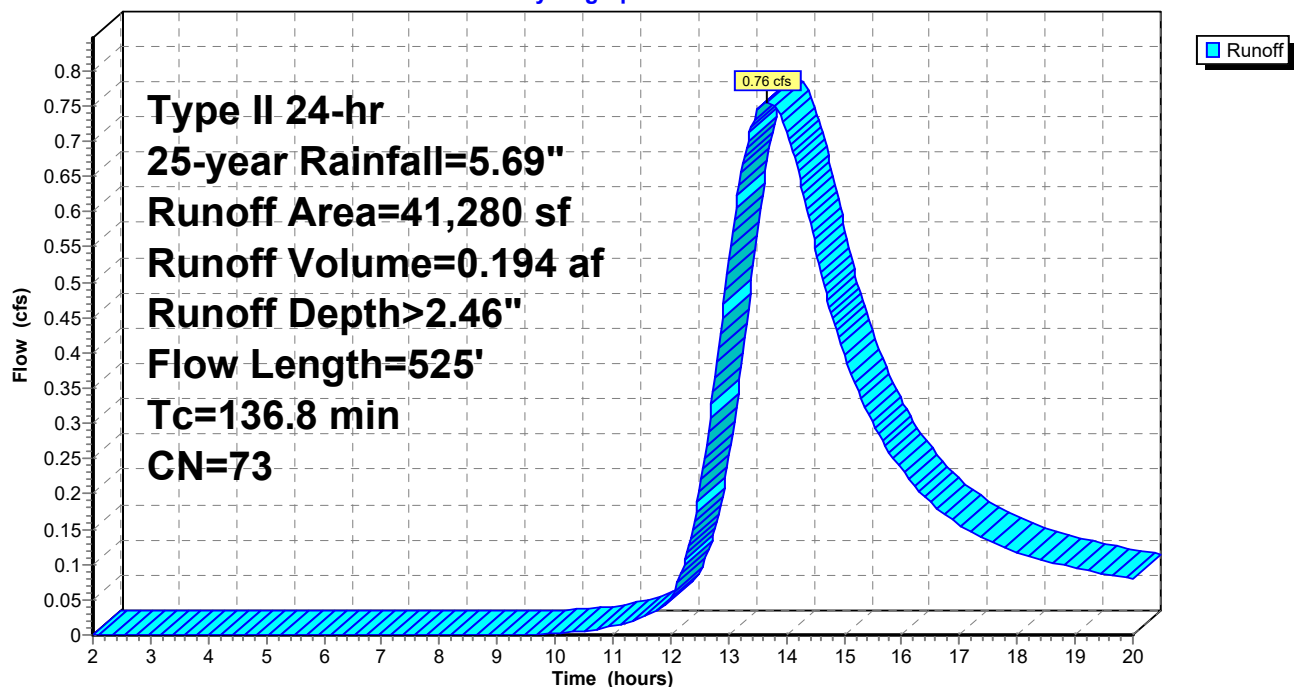
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 1400: Area 1400

Runoff = 1.60 cfs @ 12.62 hrs, Volume= 0.222 af, Depth> 2.64"

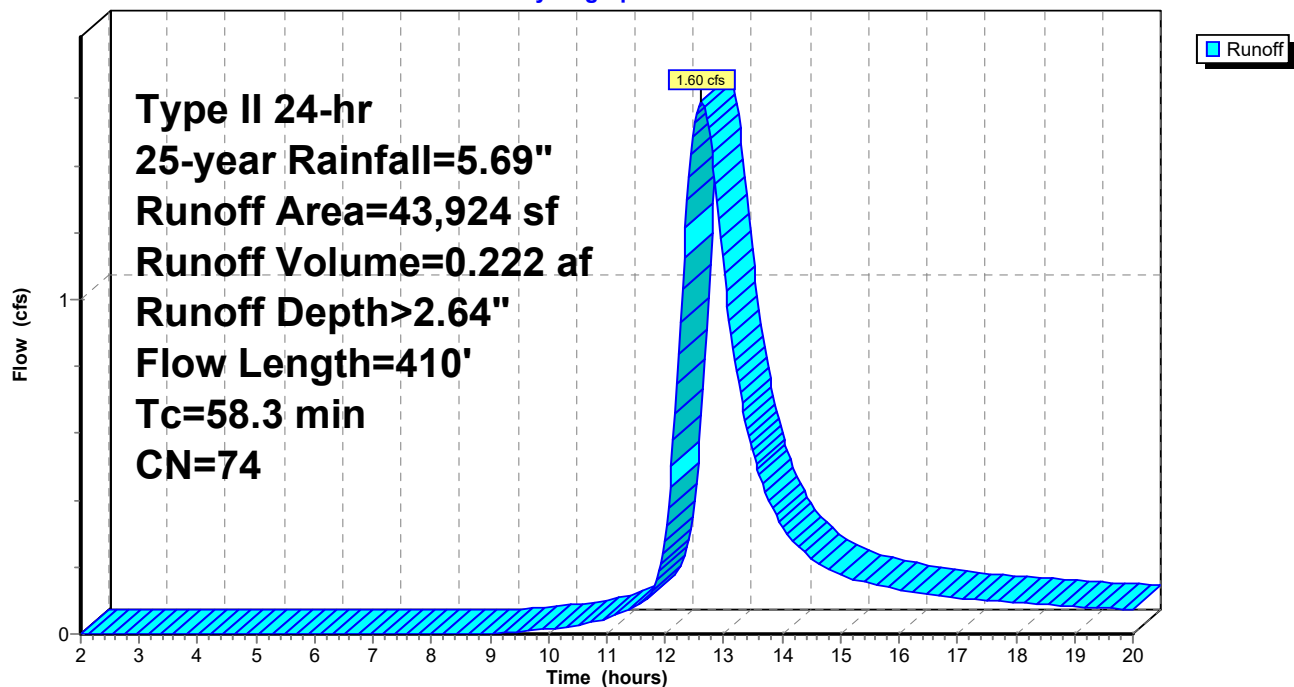
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 1500: Area 1500

Runoff = 0.38 cfs @ 13.30 hrs, Volume= 0.082 af, Depth> 2.85"

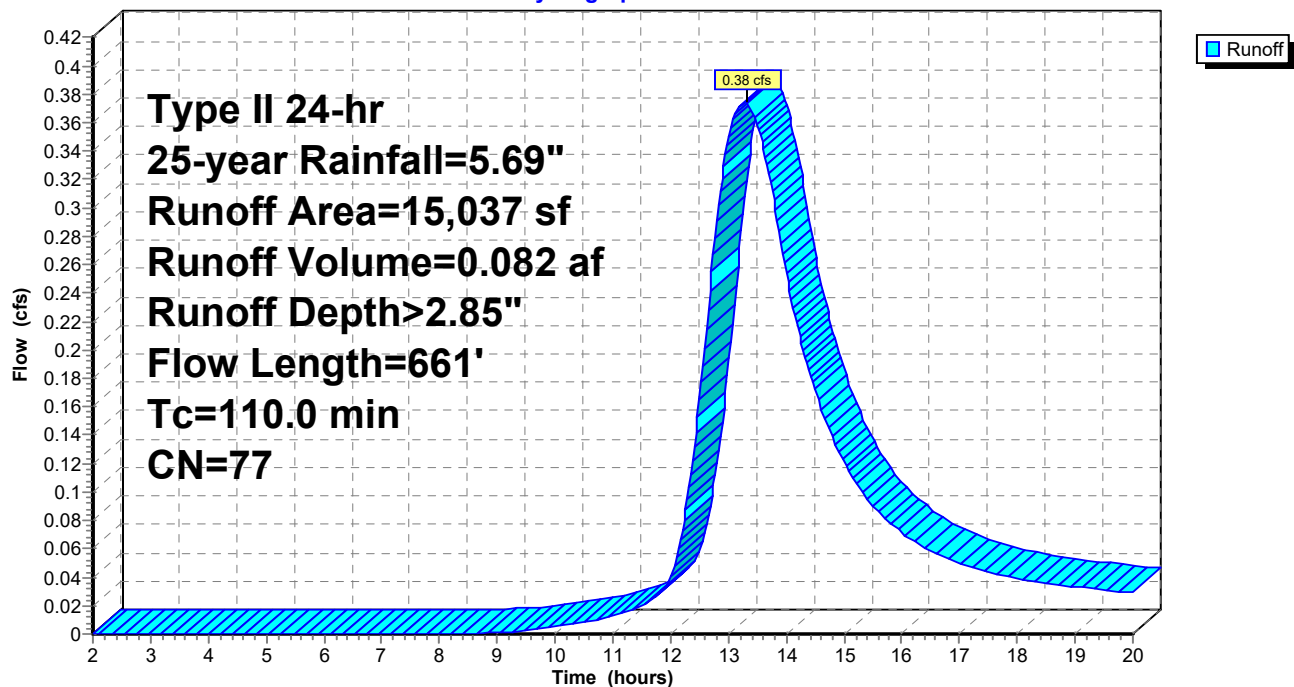
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 1600: Area 1600

Runoff = 0.16 cfs @ 13.97 hrs, Volume= 0.049 af, Depth> 1.15"

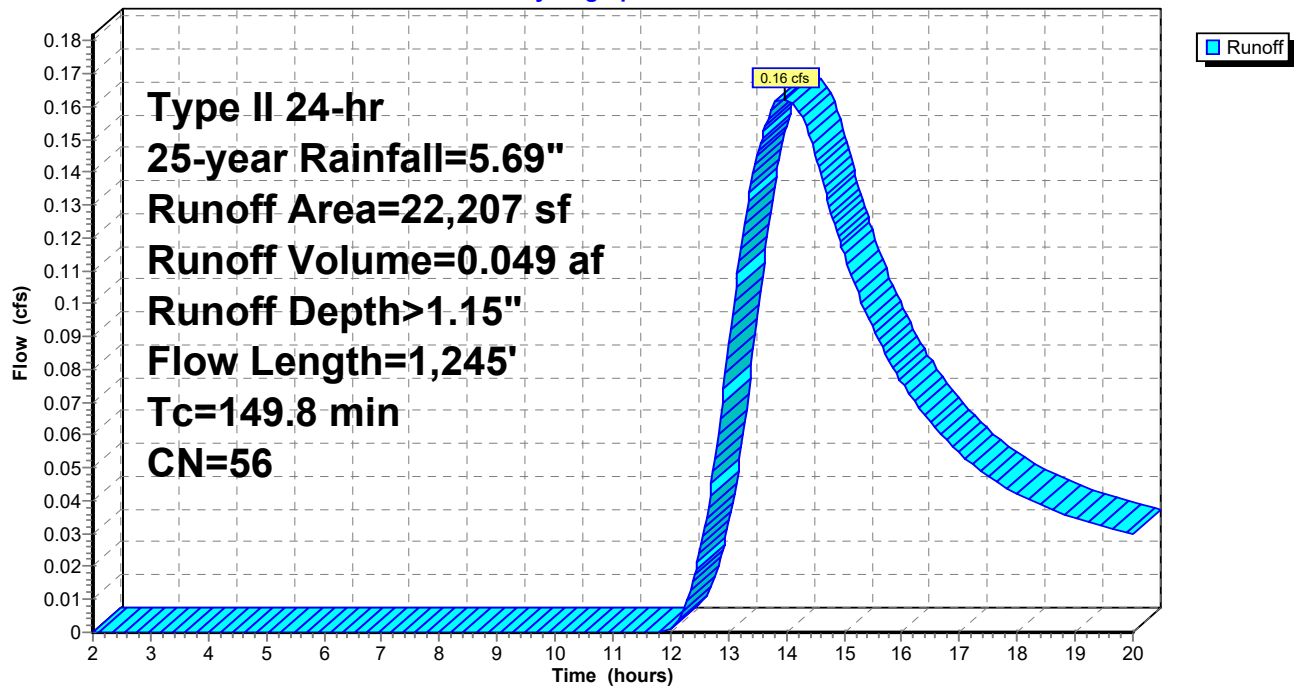
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 1700: Area 1700

Runoff = 0.01 cfs @ 17.58 hrs, Volume= 0.003 af, Depth> 0.06"

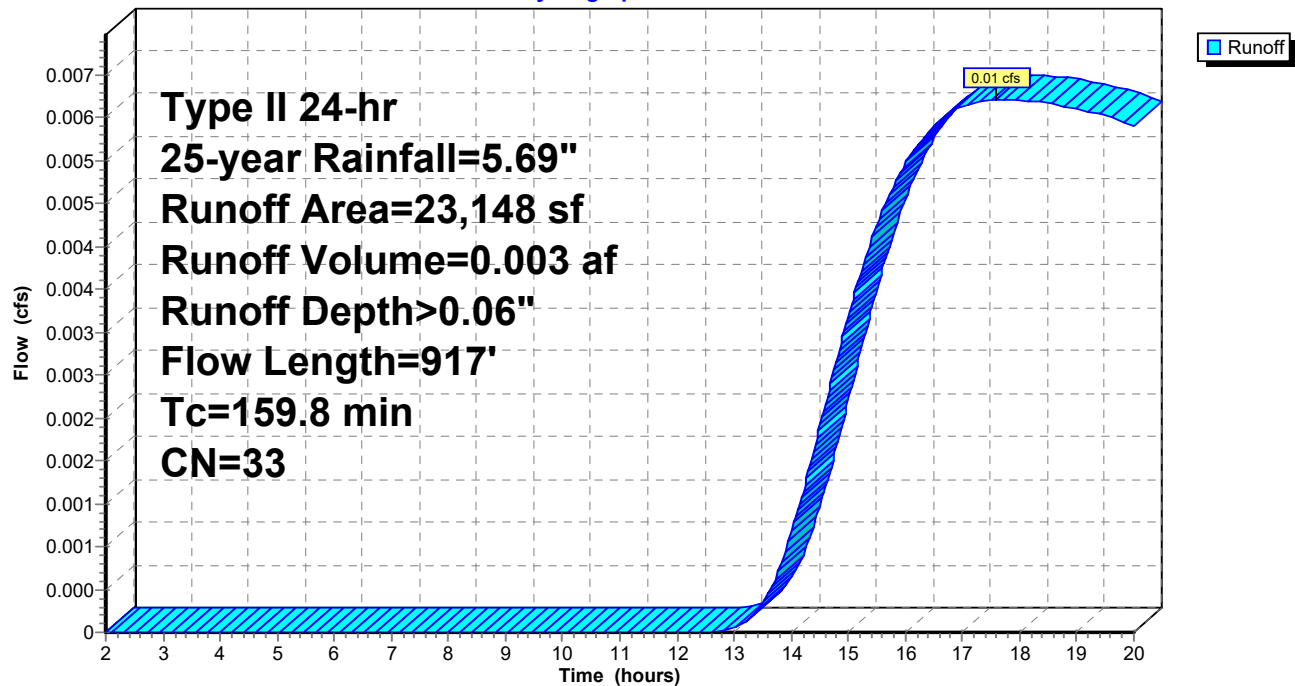
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



Summary for Subcatchment 1800: Area 1800

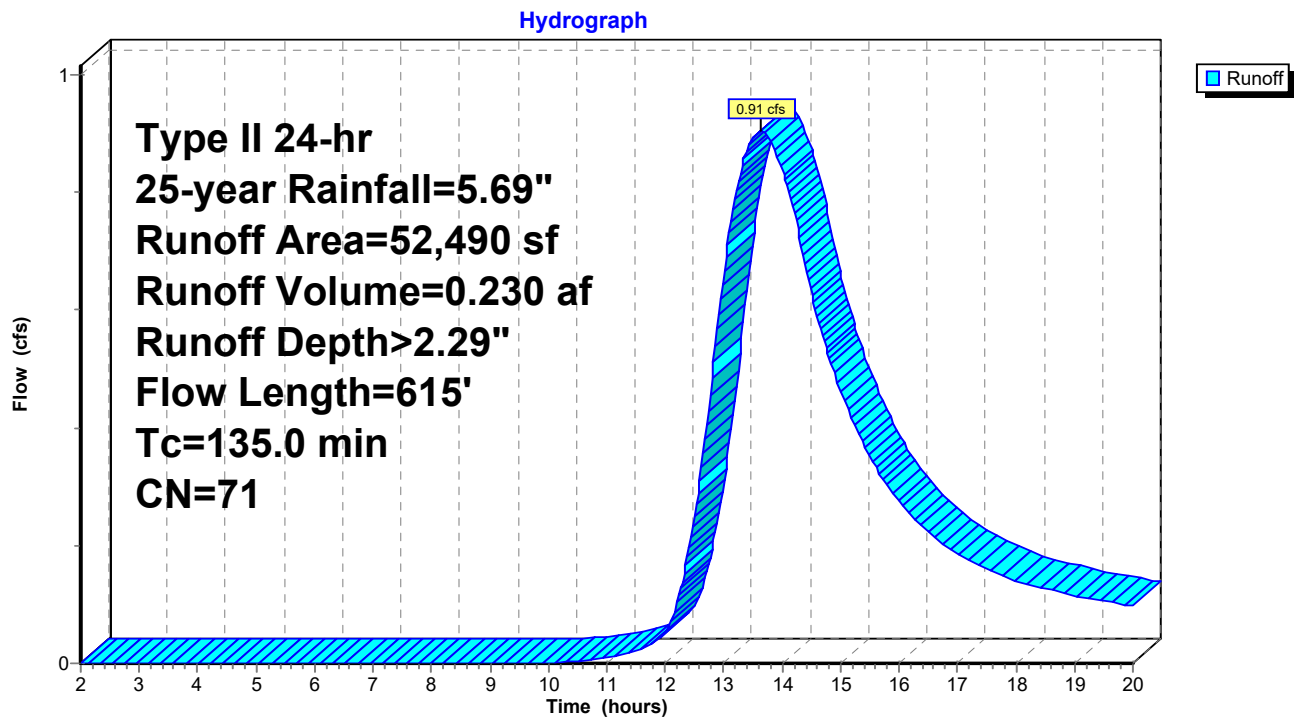
Runoff = 0.91 cfs @ 13.64 hrs, Volume= 0.230 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 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



Summary for Subcatchment DISP: Dispensary Building

Runoff = 0.75 cfs @ 11.97 hrs, Volume= 0.040 af, Depth> 5.15"

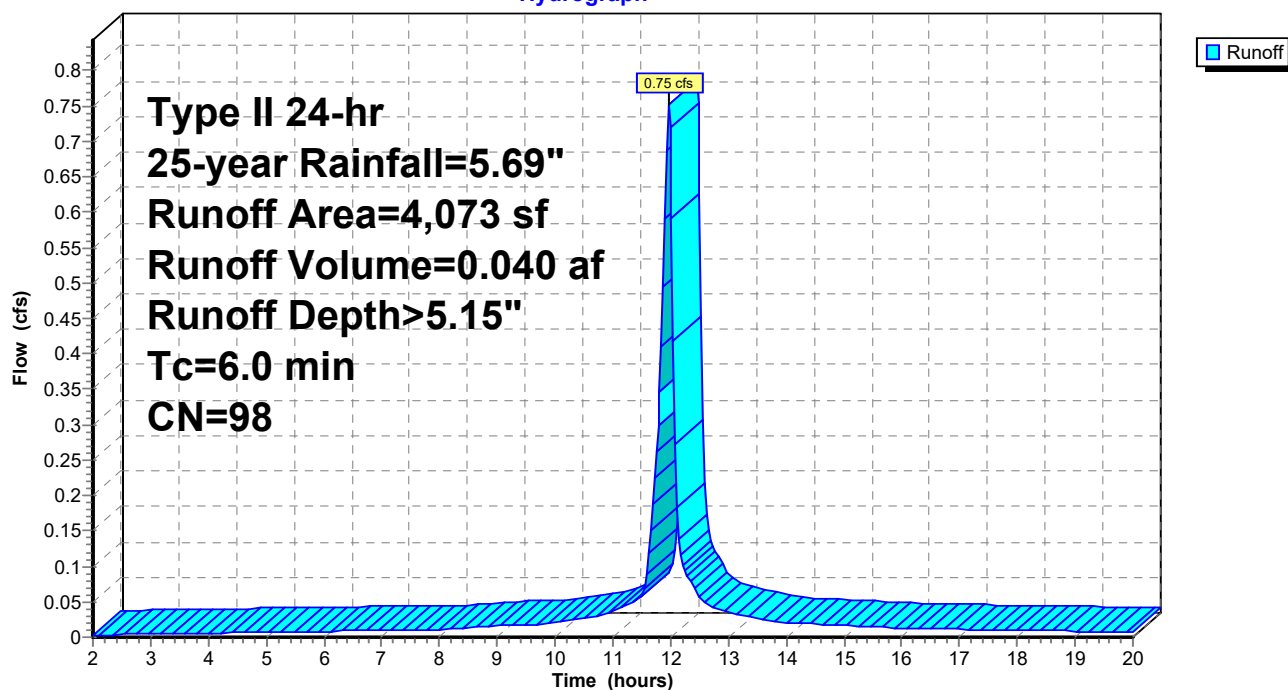
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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 = 0.92 cfs @ 11.97 hrs, Volume= 0.049 af, Depth> 5.15"

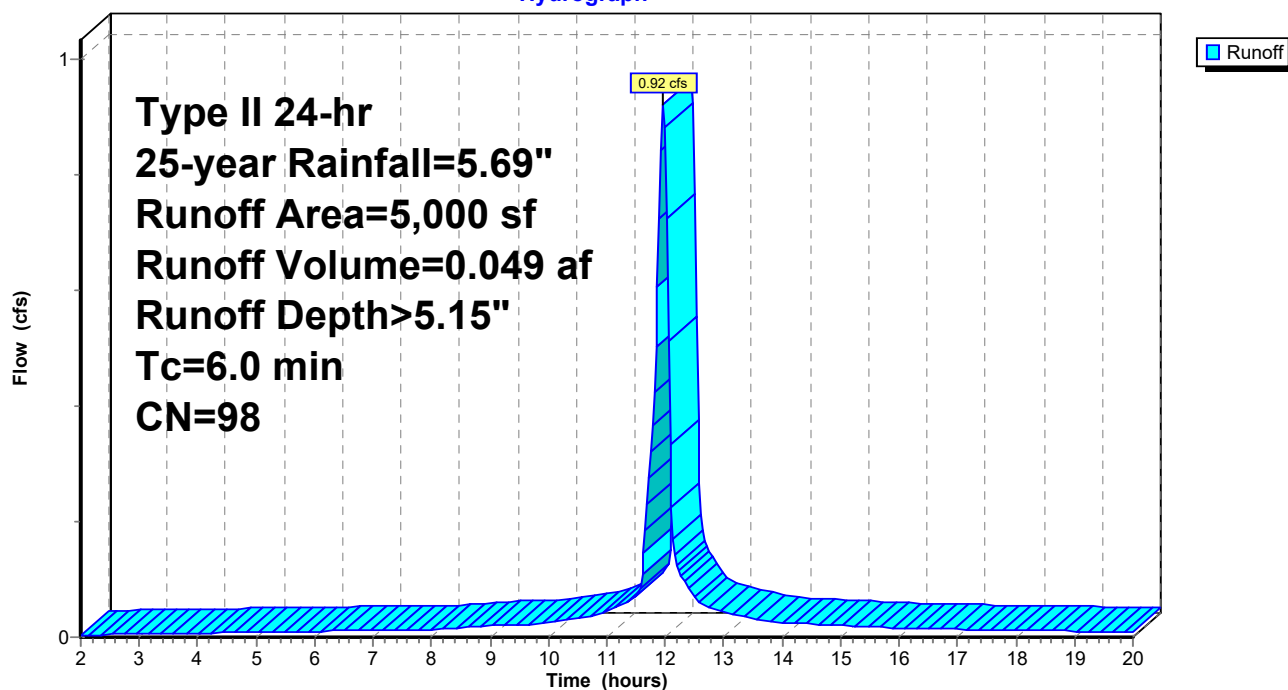
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 25-year Rainfall=5.69"

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



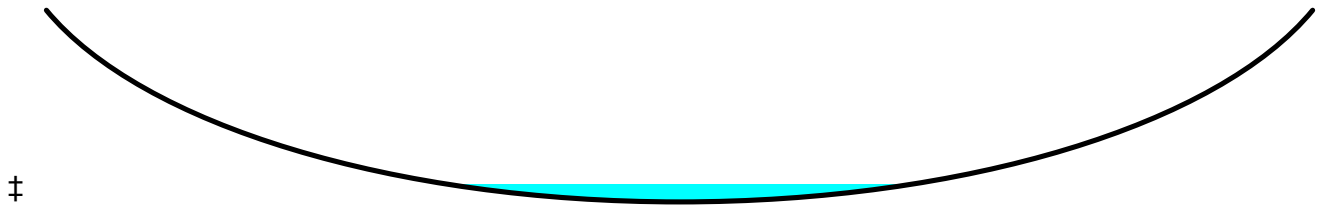
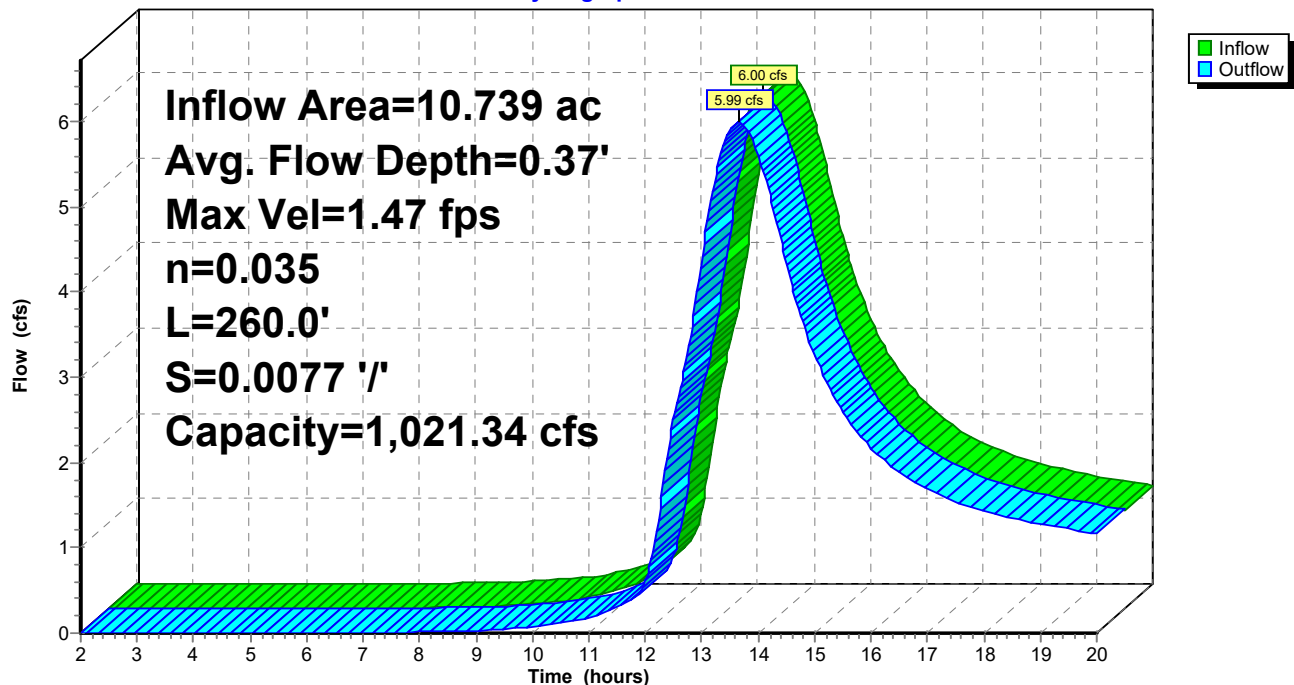
Summary for Reach 1k-2k: x1000 to x2000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 2.01" for 25-year event
 Inflow = 6.00 cfs @ 13.60 hrs, Volume= 1.797 af
 Outflow = 5.99 cfs @ 13.67 hrs, Volume= 1.785 af, Atten= 0%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.47 fps, Min. Travel Time= 2.9 min
 Avg. Velocity = 0.76 fps, Avg. Travel Time= 5.7 min

Peak Storage= 1,060 cf @ 13.62 hrs
 Average Depth at Peak Storage= 0.37' , Surface Width= 16.46'
 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**

Stage-Area-Storage for Reach 1k-2k: x1000 to x2000

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
198.00	0.0	0	200.60	75.5	19,620
198.05	0.2	55	200.65	77.7	20,189
198.10	0.6	150	200.70	79.9	20,763
198.15	1.1	273	200.75	82.1	21,343
198.20	1.6	419	200.80	84.3	21,927
198.25	2.3	586	200.85	86.6	22,517
198.30	3.0	770	200.90	88.9	23,113
198.35	3.7	970	200.95	91.2	23,713
198.40	4.6	1,184	201.00	93.5	24,318
198.45	5.4	1,414	201.05	95.9	24,929
198.50	6.4	1,656	201.10	98.2	25,544
198.55	7.3	1,910	201.15	100.6	26,165
198.60	8.4	2,175	201.20	103.0	26,790
198.65	9.4	2,453	201.25	105.5	27,421
198.70	10.5	2,742	201.30	107.9	28,056
198.75	11.7	3,040	201.35	110.4	28,696
198.80	12.9	3,349	201.40	112.8	29,340
198.85	14.1	3,668	201.45	115.3	29,990
198.90	15.4	3,997	201.50	117.9	30,645
198.95	16.7	4,334	201.55	120.4	31,303
199.00	18.0	4,680	201.60	122.9	31,967
199.05	19.4	5,036	201.65	125.5	32,635
199.10	20.8	5,400	201.70	128.1	33,308
199.15	22.2	5,772	201.75	130.7	33,986
199.20	23.7	6,152	201.80	133.3	34,667
199.25	25.2	6,541	201.85	136.0	35,354
199.30	26.7	6,937	201.90	138.6	36,045
199.35	28.2	7,341	201.95	141.3	36,740
199.40	29.8	7,752	202.00	144.0	37,440
199.45	31.4	8,172			
199.50	33.1	8,598			
199.55	34.7	9,032			
199.60	36.4	9,472			
199.65	38.2	9,919			
199.70	39.9	10,374			
199.75	41.7	10,835			
199.80	43.5	11,302			
199.85	45.3	11,777			
199.90	47.1	12,257			
199.95	49.0	12,744			
200.00	50.9	13,237			
200.05	52.8	13,737			
200.10	54.8	14,243			
200.15	56.7	14,754			
200.20	58.7	15,271			
200.25	60.8	15,795			
200.30	62.8	16,325			
200.35	64.8	16,860			
200.40	66.9	17,401			
200.45	69.0	17,947			
200.50	71.2	18,500			
200.55	73.3	19,057			

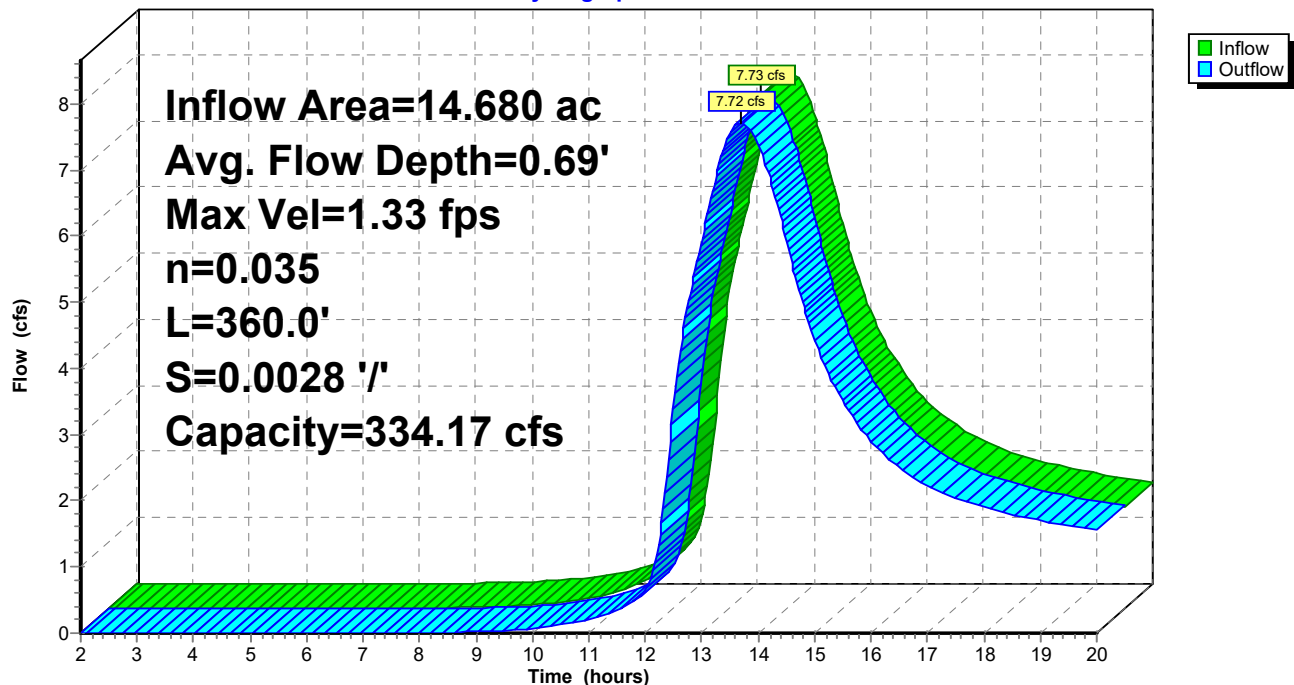
Summary for Reach 2k-3k: x2000 to x3000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 1.95" for 25-year event
 Inflow = 7.73 cfs @ 13.55 hrs, Volume= 2.385 af
 Outflow = 7.72 cfs @ 13.69 hrs, Volume= 2.359 af, Atten= 0%, Lag= 8.4 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.33 fps, Min. Travel Time= 4.5 min
 Avg. Velocity = 0.67 fps, Avg. Travel Time= 9.0 min

Peak Storage= 2,084 cf @ 13.62 hrs
 Average Depth at Peak Storage= 0.69' , Surface Width= 12.50'
 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**

Stage-Area-Storage for Reach 2k-3k: x2000 to x3000

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
196.00	0.0	0	198.60	41.9	15,093
196.05	0.1	42	198.65	43.1	15,530
196.10	0.3	116	198.70	44.4	15,972
196.15	0.6	210	198.75	45.6	16,418
196.20	0.9	322	198.80	46.9	16,867
196.25	1.3	451	198.85	48.1	17,321
196.30	1.6	593	198.90	49.4	17,779
196.35	2.1	746	198.95	50.7	18,241
196.40	2.5	911	199.00	52.0	18,706
196.45	3.0	1,087	199.05	53.3	19,176
196.50	3.5	1,274	199.10	54.6	19,650
196.55	4.1	1,469	199.15	55.9	20,127
196.60	4.6	1,673	199.20	57.2	20,608
196.65	5.2	1,887	199.25	58.6	21,093
196.70	5.9	2,109	199.30	59.9	21,581
196.75	6.5	2,339	199.35	61.3	22,074
196.80	7.2	2,576	199.40	62.7	22,569
196.85	7.8	2,822	199.45	64.1	23,069
196.90	8.5	3,074	199.50	65.5	23,573
196.95	9.3	3,334	199.55	66.9	24,080
197.00	10.0	3,600	199.60	68.3	24,590
197.05	10.8	3,874	199.65	69.7	25,104
197.10	11.5	4,154	199.70	71.2	25,622
197.15	12.3	4,440	199.75	72.6	26,143
197.20	13.1	4,732	199.80	74.1	26,667
197.25	14.0	5,032	199.85	75.5	27,195
197.30	14.8	5,336	199.90	77.0	27,727
197.35	15.7	5,647	199.95	78.5	28,262
197.40	16.6	5,963	200.00	80.0	28,800
197.45	17.5	6,286			
197.50	18.4	6,614			
197.55	19.3	6,947			
197.60	20.2	7,286			
197.65	21.2	7,630			
197.70	22.2	7,980			
197.75	23.2	8,334			
197.80	24.1	8,694			
197.85	25.2	9,059			
197.90	26.2	9,429			
197.95	27.2	9,803			
198.00	28.3	10,182			
198.05	29.4	10,567			
198.10	30.4	10,956			
198.15	31.5	11,349			
198.20	32.6	11,747			
198.25	33.8	12,150			
198.30	34.9	12,558			
198.35	36.0	12,969			
198.40	37.2	13,385			
198.45	38.3	13,806			
198.50	39.5	14,231			
198.55	40.7	14,660			

Summary for Reach CP: Connecting Pipes

[52] Hint: Inlet/Outlet conditions not evaluated

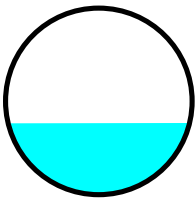
[81] Warning: Exceeded Pond 4A by 0.01' @ 5.00 hrs

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 4.04" for 25-year event
Inflow = 2.72 cfs @ 11.99 hrs, Volume= 0.135 af
Outflow = 2.69 cfs @ 12.00 hrs, Volume= 0.135 af, Atten= 1%, Lag= 0.6 min

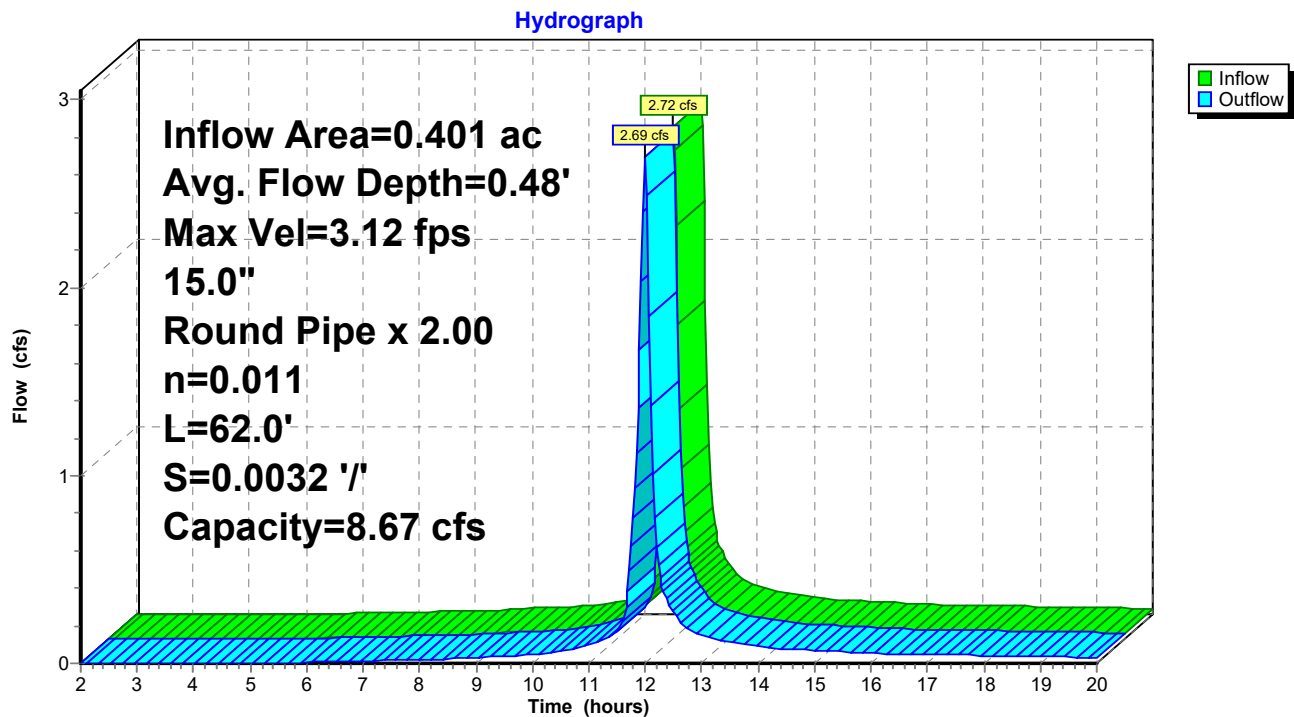
Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 3.12 fps, Min. Travel Time= 0.3 min
Avg. Velocity= 0.95 fps, Avg. Travel Time= 1.1 min

Peak Storage= 54 cf @ 12.00 hrs
Average Depth at Peak Storage= 0.48' , Surface Width= 2.43'
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 CP: Connecting Pipes



Stage-Area-Storage for Reach CP: Connecting Pipes

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.20	0.0	0	206.24	2.2	135
205.22	0.0	1	206.26	2.2	138
205.24	0.0	1	206.28	2.3	140
205.26	0.0	3	206.30	2.3	142
205.28	0.1	4	206.32	2.3	144
205.30	0.1	6	206.34	2.3	146
205.32	0.1	7	206.36	2.4	147
205.34	0.2	9	206.38	2.4	149
205.36	0.2	11	206.40	2.4	150
205.38	0.2	13	206.42	2.4	151
205.40	0.3	16	206.44	2.5	152
205.42	0.3	18			
205.44	0.3	20			
205.46	0.4	23			
205.48	0.4	25			
205.50	0.5	28			
205.52	0.5	31			
205.54	0.5	33			
205.56	0.6	36			
205.58	0.6	39			
205.60	0.7	42			
205.62	0.7	45			
205.64	0.8	48			
205.66	0.8	51			
205.68	0.9	54			
205.70	0.9	57			
205.72	1.0	60			
205.74	1.0	63			
205.76	1.1	66			
205.78	1.1	69			
205.80	1.2	72			
205.82	1.2	75			
205.84	1.3	78			
205.86	1.3	82			
205.88	1.4	85			
205.90	1.4	88			
205.92	1.5	91			
205.94	1.5	94			
205.96	1.6	97			
205.98	1.6	100			
206.00	1.7	103			
206.02	1.7	106			
206.04	1.8	109			
206.06	1.8	112			
206.08	1.8	114			
206.10	1.9	117			
206.12	1.9	120			
206.14	2.0	123			
206.16	2.0	125			
206.18	2.1	128			
206.20	2.1	131			
206.22	2.1	133			

Summary for Reach P1: Pipe Out of 1

[52] Hint: Inlet/Outlet conditions not evaluated

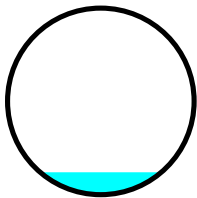
[79] Warning: Submerged Pond 1P Primary device # 1 by 0.12'

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.31" for 25-year event
Inflow = 0.08 cfs @ 15.17 hrs, Volume= 0.053 af
Outflow = 0.08 cfs @ 15.20 hrs, Volume= 0.053 af, Atten= 0%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.46 fps, Min. Travel Time= 0.9 min
Avg. Velocity= 1.02 fps, Avg. Travel Time= 1.3 min

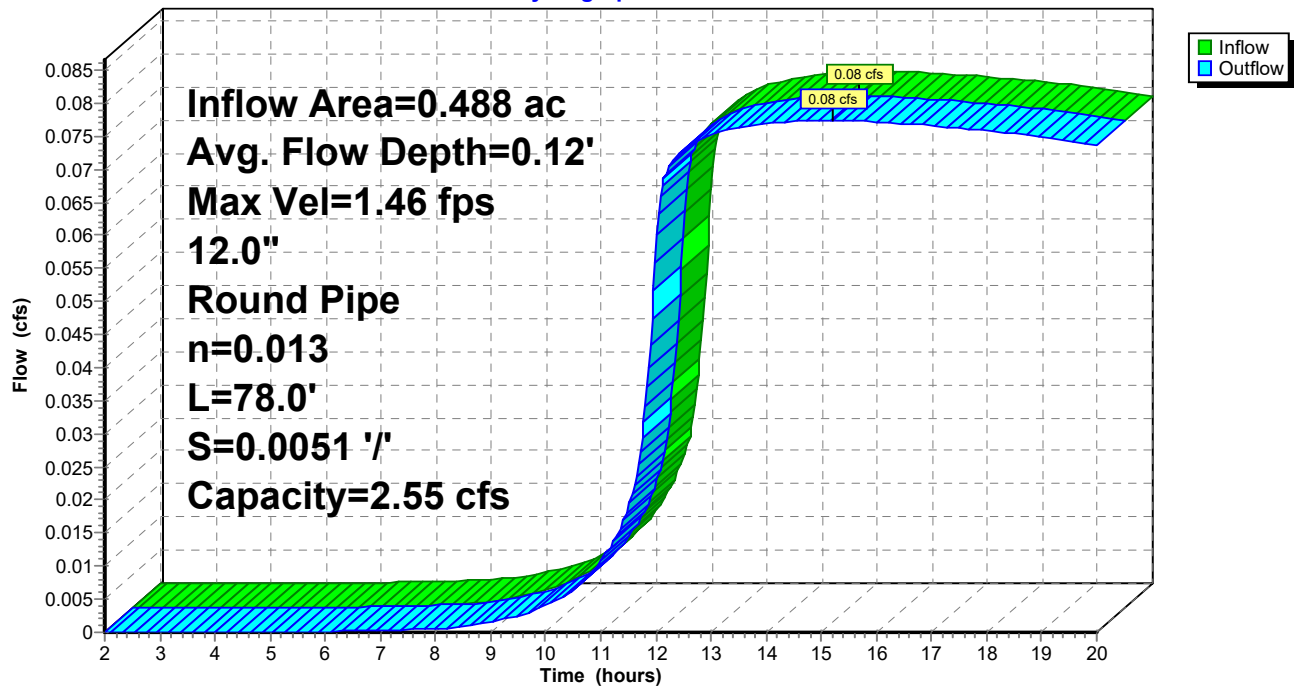
Peak Storage= 4 cf @ 15.19 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 0.65'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.55 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 78.0' Slope= 0.0051 '/
Inlet Invert= 204.00', Outlet Invert= 203.60'



Reach P1: Pipe Out of 1

Hydrograph



Stage-Area-Storage for Reach P1: Pipe Out of 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	32
204.01	0.0	0	204.53	0.4	33
204.02	0.0	0	204.54	0.4	34
204.03	0.0	1	204.55	0.4	35
204.04	0.0	1	204.56	0.5	35
204.05	0.0	1	204.57	0.5	36
204.06	0.0	2	204.58	0.5	37
204.07	0.0	2	204.59	0.5	38
204.08	0.0	2	204.60	0.5	38
204.09	0.0	3	204.61	0.5	39
204.10	0.0	3	204.62	0.5	40
204.11	0.0	4	204.63	0.5	41
204.12	0.1	4	204.64	0.5	41
204.13	0.1	5	204.65	0.5	42
204.14	0.1	5	204.66	0.5	43
204.15	0.1	6	204.67	0.6	44
204.16	0.1	6	204.68	0.6	44
204.17	0.1	7	204.69	0.6	45
204.18	0.1	7	204.70	0.6	46
204.19	0.1	8	204.71	0.6	47
204.20	0.1	9	204.72	0.6	47
204.21	0.1	9	204.73	0.6	48
204.22	0.1	10	204.74	0.6	49
204.23	0.1	11	204.75	0.6	49
204.24	0.1	11	204.76	0.6	50
204.25	0.2	12	204.77	0.6	51
204.26	0.2	13	204.78	0.7	51
204.27	0.2	13	204.79	0.7	52
204.28	0.2	14	204.80	0.7	53
204.29	0.2	15	204.81	0.7	53
204.30	0.2	15	204.82	0.7	54
204.31	0.2	16	204.83	0.7	54
204.32	0.2	17	204.84	0.7	55
204.33	0.2	18	204.85	0.7	55
204.34	0.2	18	204.86	0.7	56
204.35	0.2	19	204.87	0.7	57
204.36	0.3	20	204.88	0.7	57
204.37	0.3	21	204.89	0.7	58
204.38	0.3	21	204.90	0.7	58
204.39	0.3	22	204.91	0.8	59
204.40	0.3	23	204.92	0.8	59
204.41	0.3	24	204.93	0.8	59
204.42	0.3	24	204.94	0.8	60
204.43	0.3	25	204.95	0.8	60
204.44	0.3	26	204.96	0.8	60
204.45	0.3	27	204.97	0.8	61
204.46	0.4	28	204.98	0.8	61
204.47	0.4	28	204.99	0.8	61
204.48	0.4	29	205.00	0.8	61
204.49	0.4	30			
204.50	0.4	31			
204.51	0.4	31			

Summary for Reach P2: Pipe Out of 2

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 2P Primary device # 1 by 0.14'

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.61" for 25-year event
Inflow = 0.11 cfs @ 13.34 hrs, Volume= 0.082 af
Outflow = 0.11 cfs @ 13.35 hrs, Volume= 0.081 af, Atten= 0%, Lag= 1.1 min

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 = 1.13 fps, Avg. Travel Time= 0.9 min

Peak Storage= 4 cf @ 13.34 hrs

Average Depth at Peak Storage= 0.14' , Surface Width= 0.70'

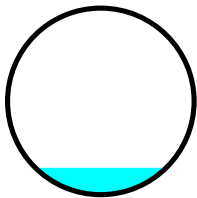
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

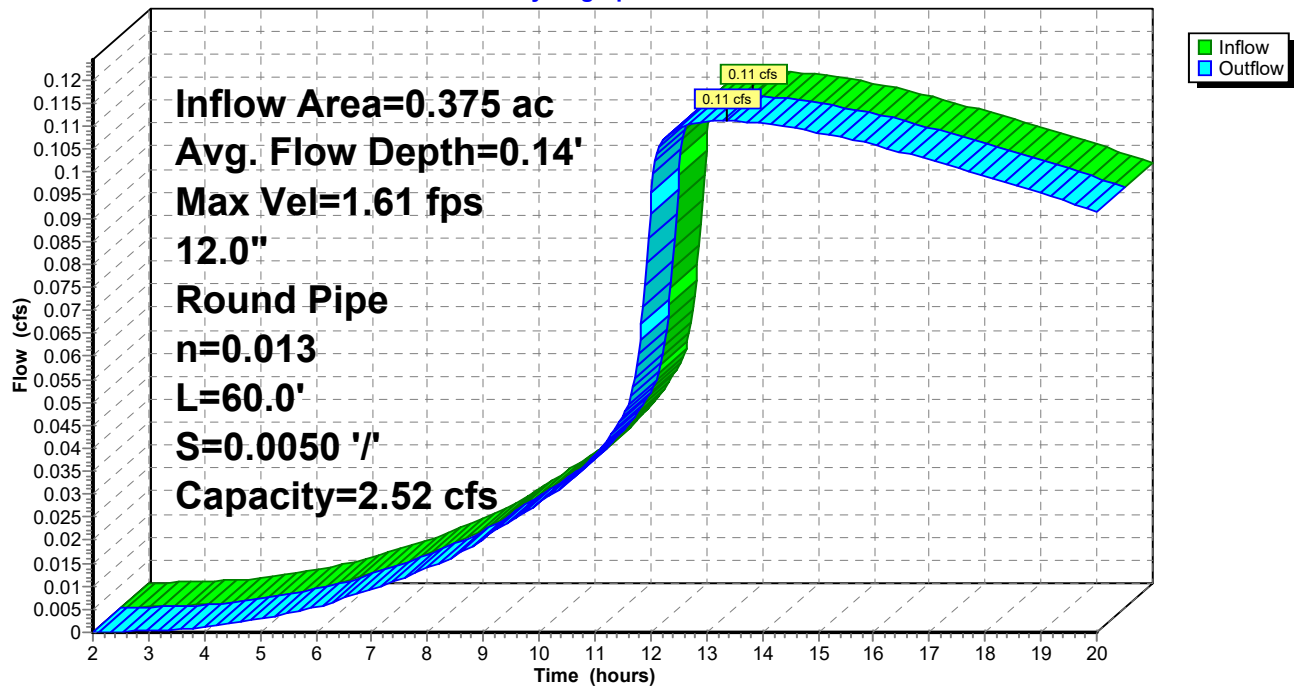
Length= 60.0' Slope= 0.0050 '/'

Inlet Invert= 204.00', Outlet Invert= 203.70'



Reach P2: Pipe Out of 2

Hydrograph



Stage-Area-Storage for Reach P2: Pipe Out of 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	25
204.01	0.0	0	204.53	0.4	25
204.02	0.0	0	204.54	0.4	26
204.03	0.0	0	204.55	0.4	27
204.04	0.0	1	204.56	0.5	27
204.05	0.0	1	204.57	0.5	28
204.06	0.0	1	204.58	0.5	28
204.07	0.0	1	204.59	0.5	29
204.08	0.0	2	204.60	0.5	30
204.09	0.0	2	204.61	0.5	30
204.10	0.0	2	204.62	0.5	31
204.11	0.0	3	204.63	0.5	31
204.12	0.1	3	204.64	0.5	32
204.13	0.1	4	204.65	0.5	32
204.14	0.1	4	204.66	0.5	33
204.15	0.1	4	204.67	0.6	34
204.16	0.1	5	204.68	0.6	34
204.17	0.1	5	204.69	0.6	35
204.18	0.1	6	204.70	0.6	35
204.19	0.1	6	204.71	0.6	36
204.20	0.1	7	204.72	0.6	36
204.21	0.1	7	204.73	0.6	37
204.22	0.1	8	204.74	0.6	37
204.23	0.1	8	204.75	0.6	38
204.24	0.1	9	204.76	0.6	38
204.25	0.2	9	204.77	0.6	39
204.26	0.2	10	204.78	0.7	39
204.27	0.2	10	204.79	0.7	40
204.28	0.2	11	204.80	0.7	40
204.29	0.2	11	204.81	0.7	41
204.30	0.2	12	204.82	0.7	41
204.31	0.2	12	204.83	0.7	42
204.32	0.2	13	204.84	0.7	42
204.33	0.2	14	204.85	0.7	43
204.34	0.2	14	204.86	0.7	43
204.35	0.2	15	204.87	0.7	44
204.36	0.3	15	204.88	0.7	44
204.37	0.3	16	204.89	0.7	44
204.38	0.3	16	204.90	0.7	45
204.39	0.3	17	204.91	0.8	45
204.40	0.3	18	204.92	0.8	45
204.41	0.3	18	204.93	0.8	46
204.42	0.3	19	204.94	0.8	46
204.43	0.3	19	204.95	0.8	46
204.44	0.3	20	204.96	0.8	46
204.45	0.3	21	204.97	0.8	47
204.46	0.4	21	204.98	0.8	47
204.47	0.4	22	204.99	0.8	47
204.48	0.4	22	205.00	0.8	47
204.49	0.4	23			
204.50	0.4	24			
204.51	0.4	24			

Summary for Reach P3: Pipe Out of 3

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.15'

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 1.73" for 25-year event
Inflow = 0.12 cfs @ 14.09 hrs, Volume= 0.084 af
Outflow = 0.12 cfs @ 14.10 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.7 min

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= 1.18 fps, Avg. Travel Time= 0.6 min

Peak Storage= 3 cf @ 14.09 hrs

Average Depth at Peak Storage= 0.15', Surface Width= 0.71'

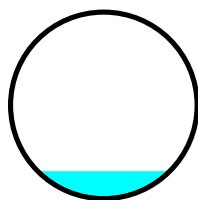
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

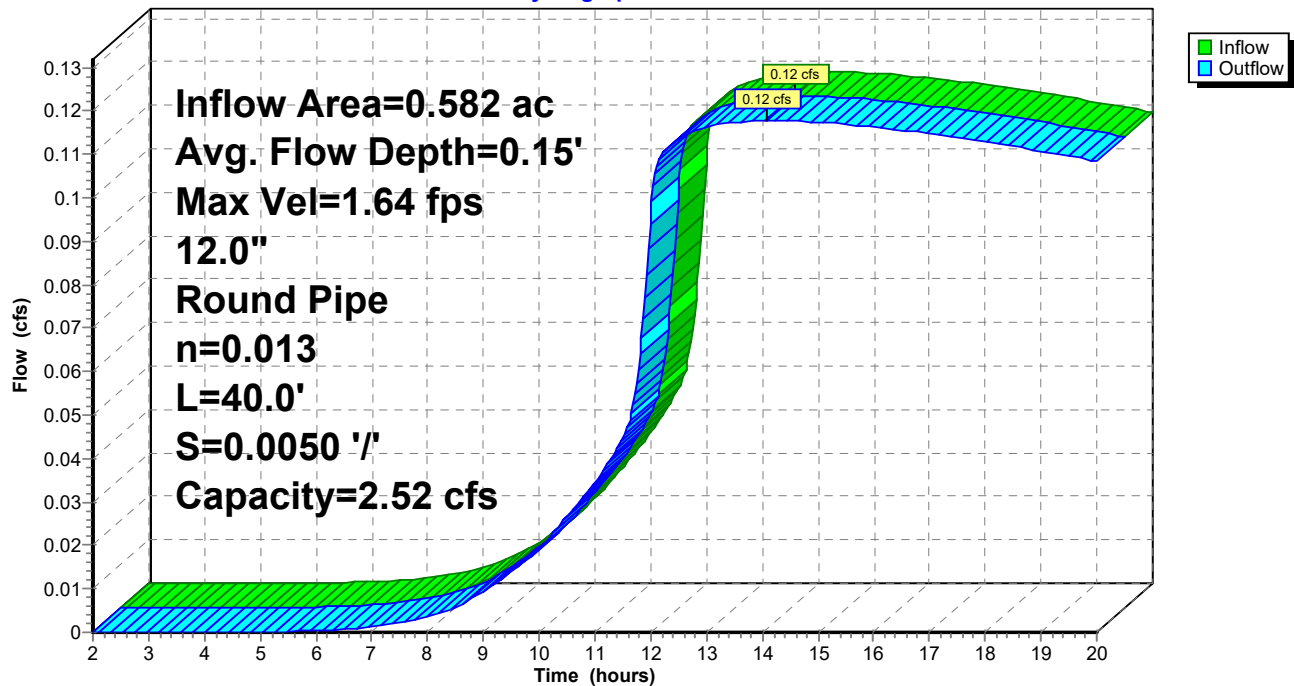
Length= 40.0' Slope= 0.0050 '/'

Inlet Invert= 205.00', Outlet Invert= 204.80'



Reach P3: Pipe Out of 3

Hydrograph



Stage-Area-Storage for Reach P3: Pipe Out of 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.00	0.0	0	205.52	0.4	17
205.01	0.0	0	205.53	0.4	17
205.02	0.0	0	205.54	0.4	17
205.03	0.0	0	205.55	0.4	18
205.04	0.0	0	205.56	0.5	18
205.05	0.0	1	205.57	0.5	18
205.06	0.0	1	205.58	0.5	19
205.07	0.0	1	205.59	0.5	19
205.08	0.0	1	205.60	0.5	20
205.09	0.0	1	205.61	0.5	20
205.10	0.0	2	205.62	0.5	20
205.11	0.0	2	205.63	0.5	21
205.12	0.1	2	205.64	0.5	21
205.13	0.1	2	205.65	0.5	22
205.14	0.1	3	205.66	0.5	22
205.15	0.1	3	205.67	0.6	22
205.16	0.1	3	205.68	0.6	23
205.17	0.1	4	205.69	0.6	23
205.18	0.1	4	205.70	0.6	23
205.19	0.1	4	205.71	0.6	24
205.20	0.1	4	205.72	0.6	24
205.21	0.1	5	205.73	0.6	25
205.22	0.1	5	205.74	0.6	25
205.23	0.1	5	205.75	0.6	25
205.24	0.1	6	205.76	0.6	26
205.25	0.2	6	205.77	0.6	26
205.26	0.2	6	205.78	0.7	26
205.27	0.2	7	205.79	0.7	27
205.28	0.2	7	205.80	0.7	27
205.29	0.2	8	205.81	0.7	27
205.30	0.2	8	205.82	0.7	28
205.31	0.2	8	205.83	0.7	28
205.32	0.2	9	205.84	0.7	28
205.33	0.2	9	205.85	0.7	28
205.34	0.2	9	205.86	0.7	29
205.35	0.2	10	205.87	0.7	29
205.36	0.3	10	205.88	0.7	29
205.37	0.3	11	205.89	0.7	30
205.38	0.3	11	205.90	0.7	30
205.39	0.3	11	205.91	0.8	30
205.40	0.3	12	205.92	0.8	30
205.41	0.3	12	205.93	0.8	30
205.42	0.3	13	205.94	0.8	31
205.43	0.3	13	205.95	0.8	31
205.44	0.3	13	205.96	0.8	31
205.45	0.3	14	205.97	0.8	31
205.46	0.4	14	205.98	0.8	31
205.47	0.4	15	205.99	0.8	31
205.48	0.4	15	206.00	0.8	31
205.49	0.4	15			
205.50	0.4	16			
205.51	0.4	16			

Summary for Reach P4B: Pipe Out of 4B

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 4B Primary device # 1 by 0.14'

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.77" for 25-year event
Inflow = 0.11 cfs @ 13.82 hrs, Volume= 0.079 af
Outflow = 0.11 cfs @ 13.87 hrs, Volume= 0.078 af, Atten= 0%, Lag= 3.1 min

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= 1.21 fps, Avg. Travel Time= 2.5 min

Peak Storage= 12 cf @ 13.84 hrs

Average Depth at Peak Storage= 0.14' , Surface Width= 0.70'

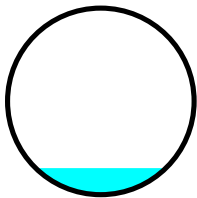
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.64 cfs

12.0" Round Pipe

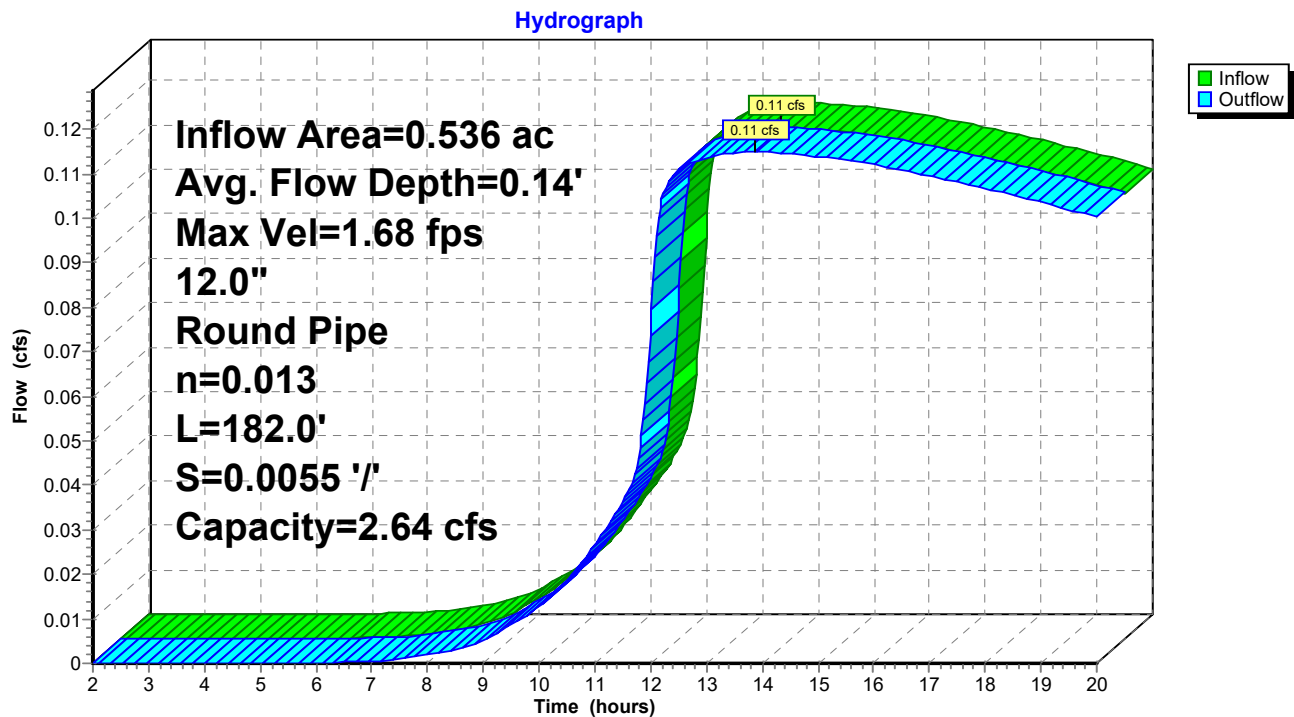
n= 0.013 Corrugated PE, smooth interior

Length= 182.0' Slope= 0.0055 '/'

Inlet Invert= 205.00', Outlet Invert= 204.00'



Reach P4B: Pipe Out of 4B



Stage-Area-Storage for Reach P4B: Pipe Out of 4B

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.00	0.0	0	205.52	0.4	75
205.01	0.0	0	205.53	0.4	77
205.02	0.0	1	205.54	0.4	79
205.03	0.0	1	205.55	0.4	81
205.04	0.0	2	205.56	0.5	82
205.05	0.0	3	205.57	0.5	84
205.06	0.0	4	205.58	0.5	86
205.07	0.0	4	205.59	0.5	88
205.08	0.0	5	205.60	0.5	90
205.09	0.0	6	205.61	0.5	91
205.10	0.0	7	205.62	0.5	93
205.11	0.0	9	205.63	0.5	95
205.12	0.1	10	205.64	0.5	97
205.13	0.1	11	205.65	0.5	98
205.14	0.1	12	205.66	0.5	100
205.15	0.1	13	205.67	0.6	102
205.16	0.1	15	205.68	0.6	104
205.17	0.1	16	205.69	0.6	105
205.18	0.1	17	205.70	0.6	107
205.19	0.1	19	205.71	0.6	109
205.20	0.1	20	205.72	0.6	110
205.21	0.1	22	205.73	0.6	112
205.22	0.1	23	205.74	0.6	113
205.23	0.1	25	205.75	0.6	115
205.24	0.1	26	205.76	0.6	117
205.25	0.2	28	205.77	0.6	118
205.26	0.2	30	205.78	0.7	120
205.27	0.2	31	205.79	0.7	121
205.28	0.2	33	205.80	0.7	123
205.29	0.2	34	205.81	0.7	124
205.30	0.2	36	205.82	0.7	125
205.31	0.2	38	205.83	0.7	127
205.32	0.2	39	205.84	0.7	128
205.33	0.2	41	205.85	0.7	129
205.34	0.2	43	205.86	0.7	131
205.35	0.2	45	205.87	0.7	132
205.36	0.3	46	205.88	0.7	133
205.37	0.3	48	205.89	0.7	134
205.38	0.3	50	205.90	0.7	136
205.39	0.3	52	205.91	0.8	137
205.40	0.3	53	205.92	0.8	138
205.41	0.3	55	205.93	0.8	139
205.42	0.3	57	205.94	0.8	139
205.43	0.3	59	205.95	0.8	140
205.44	0.3	61	205.96	0.8	141
205.45	0.3	62	205.97	0.8	142
205.46	0.4	64	205.98	0.8	142
205.47	0.4	66	205.99	0.8	143
205.48	0.4	68	206.00	0.8	143
205.49	0.4	70			
205.50	0.4	71			
205.51	0.4	73			

Summary for Reach P5: Pipe Out of 5

[52] Hint: Inlet/Outlet conditions not evaluated

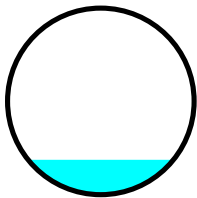
[79] Warning: Submerged Pond 5P Primary device # 1 by 0.19'

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.80" for 25-year event
Inflow = 0.21 cfs @ 14.26 hrs, Volume= 0.152 af
Outflow = 0.21 cfs @ 14.26 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.03 fps, Min. Travel Time= 0.3 min
Avg. Velocity= 1.47 fps, Avg. Travel Time= 0.4 min

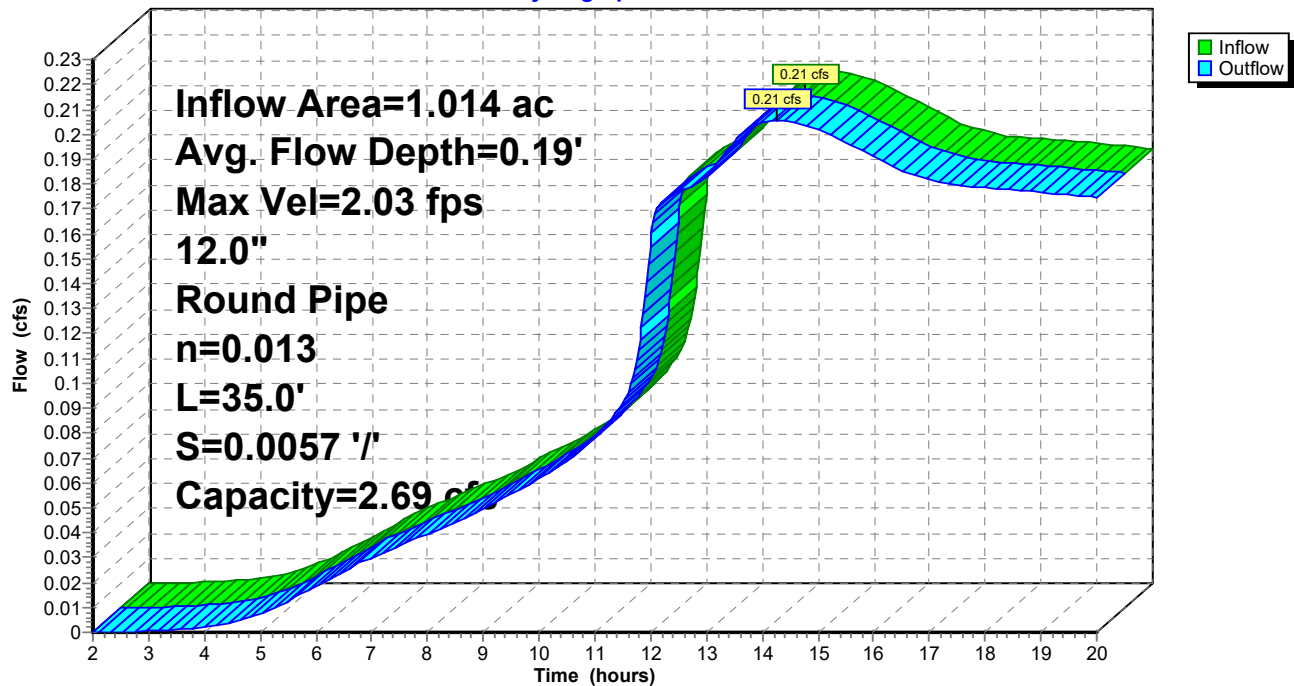
Peak Storage= 4 cf @ 14.26 hrs
Average Depth at Peak Storage= 0.19' , Surface Width= 0.78'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.69 cfs

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



Stage-Area-Storage for Reach P5: Pipe Out of 5

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	14
204.01	0.0	0	204.53	0.4	15
204.02	0.0	0	204.54	0.4	15
204.03	0.0	0	204.55	0.4	15
204.04	0.0	0	204.56	0.5	16
204.05	0.0	1	204.57	0.5	16
204.06	0.0	1	204.58	0.5	17
204.07	0.0	1	204.59	0.5	17
204.08	0.0	1	204.60	0.5	17
204.09	0.0	1	204.61	0.5	18
204.10	0.0	1	204.62	0.5	18
204.11	0.0	2	204.63	0.5	18
204.12	0.1	2	204.64	0.5	19
204.13	0.1	2	204.65	0.5	19
204.14	0.1	2	204.66	0.5	19
204.15	0.1	3	204.67	0.6	20
204.16	0.1	3	204.68	0.6	20
204.17	0.1	3	204.69	0.6	20
204.18	0.1	3	204.70	0.6	21
204.19	0.1	4	204.71	0.6	21
204.20	0.1	4	204.72	0.6	21
204.21	0.1	4	204.73	0.6	22
204.22	0.1	4	204.74	0.6	22
204.23	0.1	5	204.75	0.6	22
204.24	0.1	5	204.76	0.6	22
204.25	0.2	5	204.77	0.6	23
204.26	0.2	6	204.78	0.7	23
204.27	0.2	6	204.79	0.7	23
204.28	0.2	6	204.80	0.7	24
204.29	0.2	7	204.81	0.7	24
204.30	0.2	7	204.82	0.7	24
204.31	0.2	7	204.83	0.7	24
204.32	0.2	8	204.84	0.7	25
204.33	0.2	8	204.85	0.7	25
204.34	0.2	8	204.86	0.7	25
204.35	0.2	9	204.87	0.7	25
204.36	0.3	9	204.88	0.7	26
204.37	0.3	9	204.89	0.7	26
204.38	0.3	10	204.90	0.7	26
204.39	0.3	10	204.91	0.8	26
204.40	0.3	10	204.92	0.8	26
204.41	0.3	11	204.93	0.8	27
204.42	0.3	11	204.94	0.8	27
204.43	0.3	11	204.95	0.8	27
204.44	0.3	12	204.96	0.8	27
204.45	0.3	12	204.97	0.8	27
204.46	0.4	12	204.98	0.8	27
204.47	0.4	13	204.99	0.8	27
204.48	0.4	13	205.00	0.8	27
204.49	0.4	13			
204.50	0.4	14			
204.51	0.4	14			

Summary for Reach P6: Pipe Out of 6

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 6P Primary device # 1 by 0.18'

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 2.13" for 25-year event
Inflow = 0.24 cfs @ 12.61 hrs, Volume= 0.098 af
Outflow = 0.24 cfs @ 12.62 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 2.43 fps, Min. Travel Time= 0.4 min

Avg. Velocity= 2.04 fps, Avg. Travel Time= 0.5 min

Peak Storage= 6 cf @ 12.61 hrs

Average Depth at Peak Storage= 0.18' , Surface Width= 0.78'

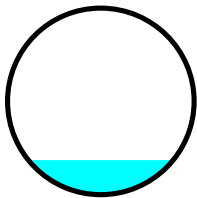
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.25 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

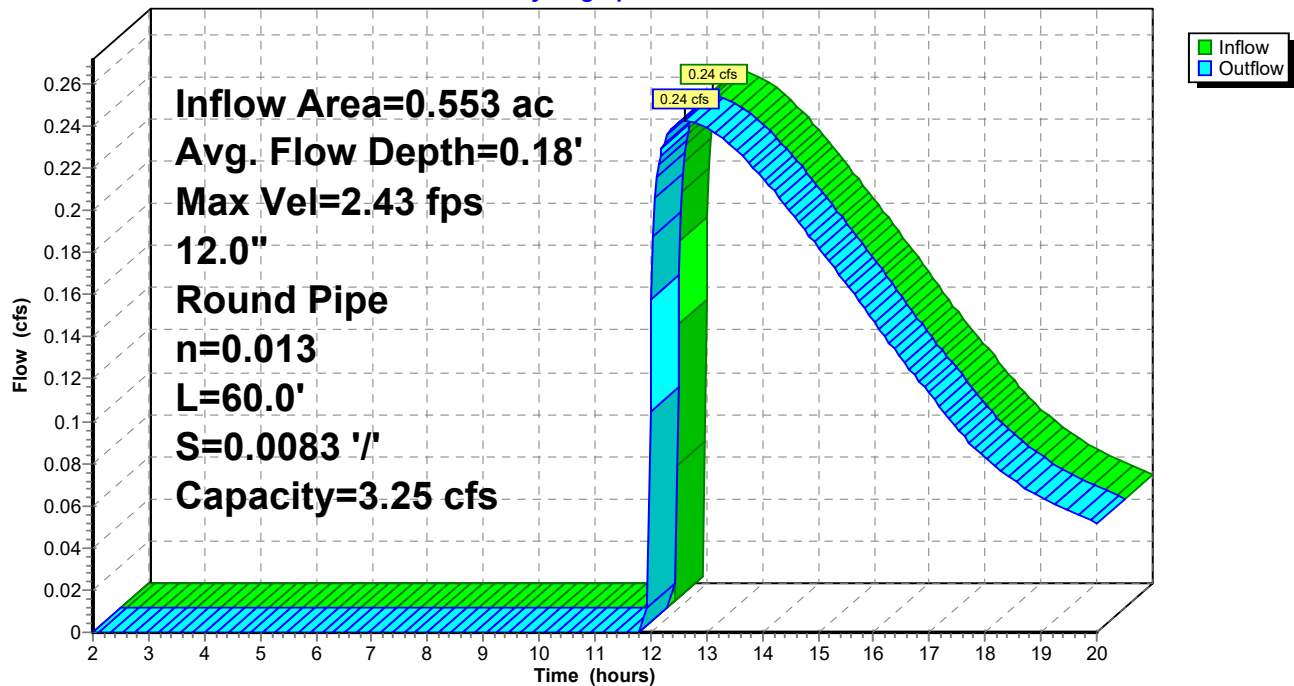
Length= 60.0' Slope= 0.0083 '/'

Inlet Invert= 206.00', Outlet Invert= 205.50'



Reach P6: Pipe Out of 6

Hydrograph



Stage-Area-Storage for Reach P6: Pipe Out of 6

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
206.00	0.0	0	206.52	0.4	25
206.01	0.0	0	206.53	0.4	25
206.02	0.0	0	206.54	0.4	26
206.03	0.0	0	206.55	0.4	27
206.04	0.0	1	206.56	0.5	27
206.05	0.0	1	206.57	0.5	28
206.06	0.0	1	206.58	0.5	28
206.07	0.0	1	206.59	0.5	29
206.08	0.0	2	206.60	0.5	30
206.09	0.0	2	206.61	0.5	30
206.10	0.0	2	206.62	0.5	31
206.11	0.0	3	206.63	0.5	31
206.12	0.1	3	206.64	0.5	32
206.13	0.1	4	206.65	0.5	32
206.14	0.1	4	206.66	0.5	33
206.15	0.1	4	206.67	0.6	34
206.16	0.1	5	206.68	0.6	34
206.17	0.1	5	206.69	0.6	35
206.18	0.1	6	206.70	0.6	35
206.19	0.1	6	206.71	0.6	36
206.20	0.1	7	206.72	0.6	36
206.21	0.1	7	206.73	0.6	37
206.22	0.1	8	206.74	0.6	37
206.23	0.1	8	206.75	0.6	38
206.24	0.1	9	206.76	0.6	38
206.25	0.2	9	206.77	0.6	39
206.26	0.2	10	206.78	0.7	39
206.27	0.2	10	206.79	0.7	40
206.28	0.2	11	206.80	0.7	40
206.29	0.2	11	206.81	0.7	41
206.30	0.2	12	206.82	0.7	41
206.31	0.2	12	206.83	0.7	42
206.32	0.2	13	206.84	0.7	42
206.33	0.2	14	206.85	0.7	43
206.34	0.2	14	206.86	0.7	43
206.35	0.2	15	206.87	0.7	44
206.36	0.3	15	206.88	0.7	44
206.37	0.3	16	206.89	0.7	44
206.38	0.3	16	206.90	0.7	45
206.39	0.3	17	206.91	0.8	45
206.40	0.3	18	206.92	0.8	45
206.41	0.3	18	206.93	0.8	46
206.42	0.3	19	206.94	0.8	46
206.43	0.3	19	206.95	0.8	46
206.44	0.3	20	206.96	0.8	46
206.45	0.3	21	206.97	0.8	47
206.46	0.4	21	206.98	0.8	47
206.47	0.4	22	206.99	0.8	47
206.48	0.4	22	207.00	0.8	47
206.49	0.4	23			
206.50	0.4	24			
206.51	0.4	24			

Summary for Reach P7: Pipe Out of 7

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 7P Primary device # 1 by 0.09'

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.57" for 25-year event
Inflow = 0.04 cfs @ 14.20 hrs, Volume= 0.027 af
Outflow = 0.04 cfs @ 14.30 hrs, Volume= 0.027 af, Atten= 0%, Lag= 6.2 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 1.37 fps, Min. Travel Time= 3.5 min

Avg. Velocity= 1.31 fps, Avg. Travel Time= 3.7 min

Peak Storage= 9 cf @ 14.24 hrs

Average Depth at Peak Storage= 0.09' , Surface Width= 0.56'

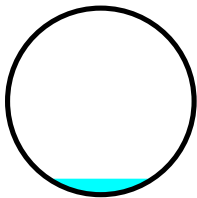
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

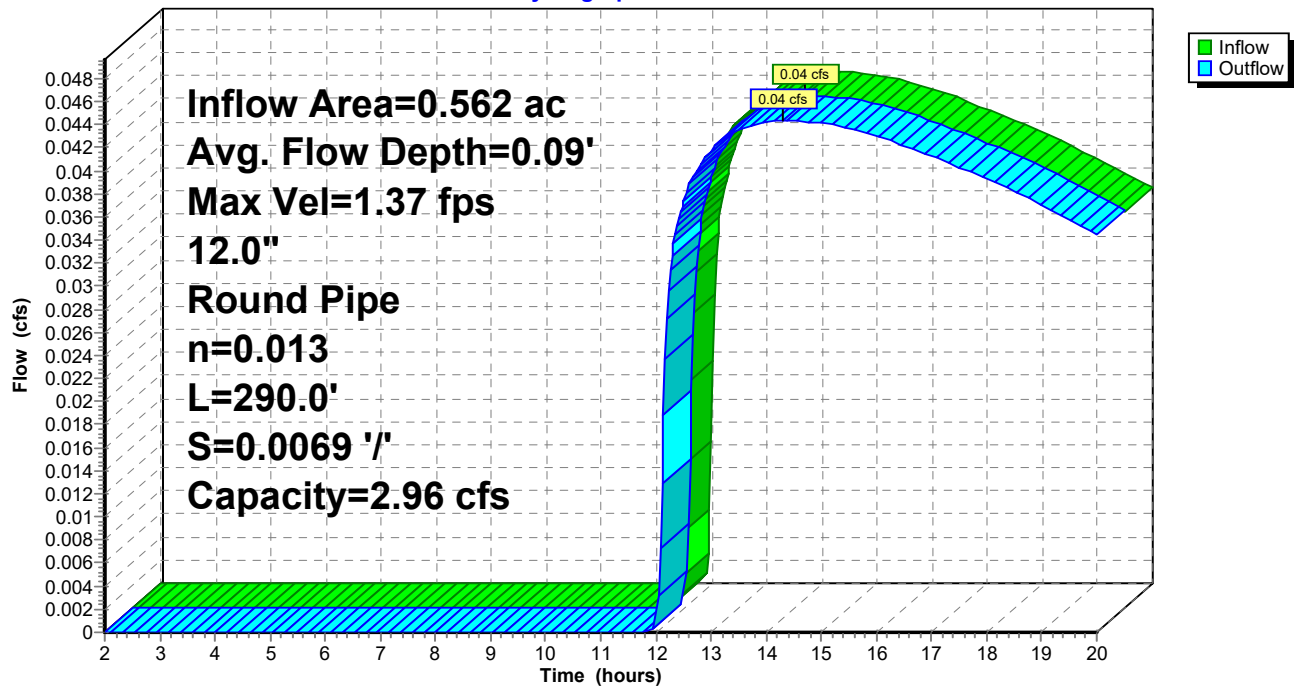
Length= 290.0' Slope= 0.0069 '/'

Inlet Invert= 206.00', Outlet Invert= 204.00'



Reach P7: Pipe Out of 7

Hydrograph



Stage-Area-Storage for Reach P7: Pipe Out of 7

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
206.00	0.0	0	206.52	0.4	120
206.01	0.0	0	206.53	0.4	123
206.02	0.0	1	206.54	0.4	125
206.03	0.0	2	206.55	0.4	128
206.04	0.0	3	206.56	0.5	131
206.05	0.0	4	206.57	0.5	134
206.06	0.0	6	206.58	0.5	137
206.07	0.0	7	206.59	0.5	140
206.08	0.0	9	206.60	0.5	143
206.09	0.0	10	206.61	0.5	146
206.10	0.0	12	206.62	0.5	148
206.11	0.0	14	206.63	0.5	151
206.12	0.1	15	206.64	0.5	154
206.13	0.1	17	206.65	0.5	157
206.14	0.1	19	206.66	0.5	159
206.15	0.1	21	206.67	0.6	162
206.16	0.1	24	206.68	0.6	165
206.17	0.1	26	206.69	0.6	168
206.18	0.1	28	206.70	0.6	170
206.19	0.1	30	206.71	0.6	173
206.20	0.1	32	206.72	0.6	176
206.21	0.1	35	206.73	0.6	178
206.22	0.1	37	206.74	0.6	181
206.23	0.1	40	206.75	0.6	183
206.24	0.1	42	206.76	0.6	186
206.25	0.2	45	206.77	0.6	188
206.26	0.2	47	206.78	0.7	191
206.27	0.2	50	206.79	0.7	193
206.28	0.2	52	206.80	0.7	195
206.29	0.2	55	206.81	0.7	198
206.30	0.2	57	206.82	0.7	200
206.31	0.2	60	206.83	0.7	202
206.32	0.2	63	206.84	0.7	204
206.33	0.2	66	206.85	0.7	206
206.34	0.2	68	206.86	0.7	208
206.35	0.2	71	206.87	0.7	210
206.36	0.3	74	206.88	0.7	212
206.37	0.3	77	206.89	0.7	214
206.38	0.3	79	206.90	0.7	216
206.39	0.3	82	206.91	0.8	218
206.40	0.3	85	206.92	0.8	219
206.41	0.3	88	206.93	0.8	221
206.42	0.3	91	206.94	0.8	222
206.43	0.3	94	206.95	0.8	224
206.44	0.3	97	206.96	0.8	225
206.45	0.3	99	206.97	0.8	226
206.46	0.4	102	206.98	0.8	227
206.47	0.4	105	206.99	0.8	227
206.48	0.4	108	207.00	0.8	228
206.49	0.4	111			
206.50	0.4	114			
206.51	0.4	117			

Summary for Reach W1: 1 Thru Wetland

[62] Hint: Exceeded Reach P1 OUTLET depth by 0.06' @ 19.28 hrs

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.30" for 25-year event
 Inflow = 0.08 cfs @ 15.20 hrs, Volume= 0.053 af
 Outflow = 0.08 cfs @ 19.03 hrs, Volume= 0.034 af, Atten= 1%, Lag= 229.7 min

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= 89.6 min

Avg. Velocity = 0.04 fps, Avg. Travel Time= 146.2 min

Peak Storage= 410 cf @ 17.53 hrs

Average Depth at Peak Storage= 0.18' , Surface Width= 10.47'

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

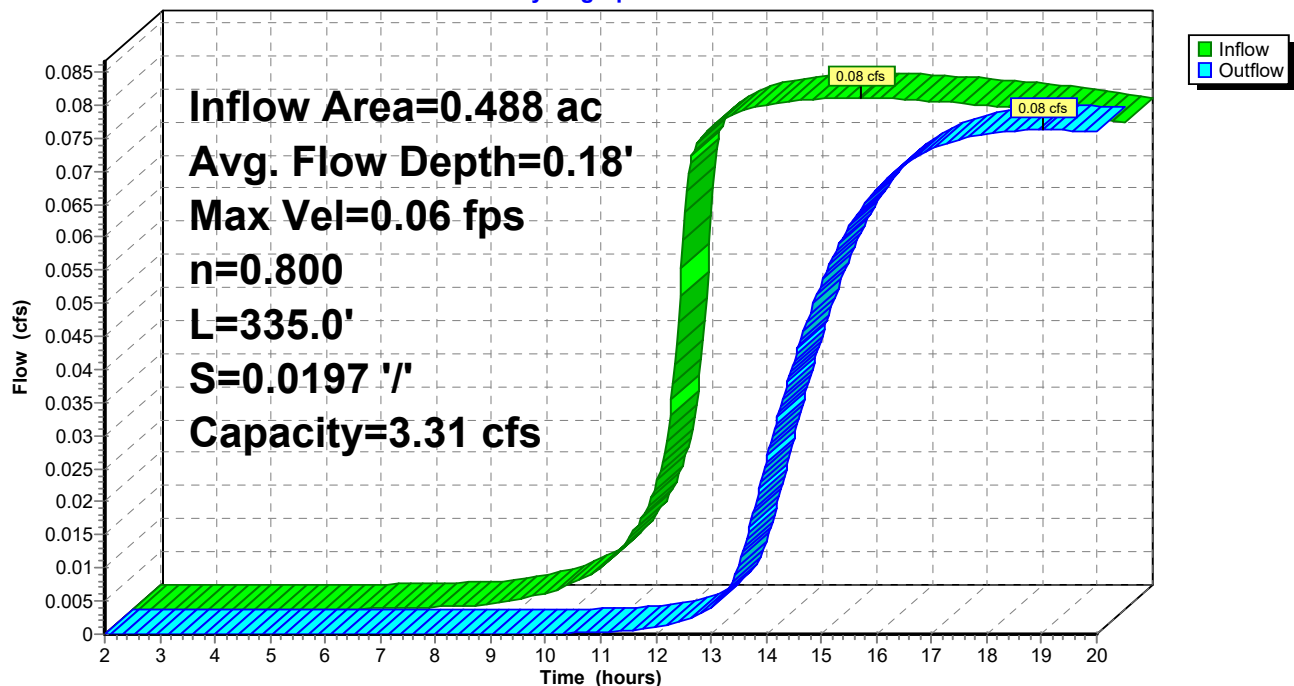
Length= 335.0' Slope= 0.0197 '/'

Inlet Invert= 203.60', Outlet Invert= 197.00'



Reach W1: 1 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W1: 1 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.60	0.0	0	204.12	6.2	2,094
203.61	0.0	6	204.13	6.4	2,154
203.62	0.0	16	204.14	6.6	2,216
203.63	0.1	29	204.15	6.8	2,277
203.64	0.1	45	204.16	7.0	2,340
203.65	0.2	62	204.17	7.2	2,403
203.66	0.2	82	204.18	7.4	2,466
203.67	0.3	103	204.19	7.6	2,530
203.68	0.4	126	204.20	7.7	2,595
203.69	0.4	151	204.21	7.9	2,660
203.70	0.5	177	204.22	8.1	2,726
203.71	0.6	204	204.23	8.3	2,792
203.72	0.7	232	204.24	8.5	2,859
203.73	0.8	262	204.25	8.7	2,926
203.74	0.9	292	204.26	8.9	2,994
203.75	1.0	324	204.27	9.1	3,062
203.76	1.1	357	204.28	9.3	3,131
203.77	1.2	391	204.29	9.6	3,200
203.78	1.3	426	204.30	9.8	3,270
203.79	1.4	462	204.31	10.0	3,340
203.80	1.5	499	204.32	10.2	3,411
203.81	1.6	537	204.33	10.4	3,482
203.82	1.7	576	204.34	10.6	3,554
203.83	1.8	616	204.35	10.8	3,626
203.84	2.0	656	204.36	11.0	3,699
203.85	2.1	698	204.37	11.3	3,773
203.86	2.2	740	204.38	11.5	3,846
203.87	2.3	783	204.39	11.7	3,920
203.88	2.5	827	204.40	11.9	3,995
203.89	2.6	872	204.41	12.2	4,070
203.90	2.7	917	204.42	12.4	4,146
203.91	2.9	964	204.43	12.6	4,222
203.92	3.0	1,011	204.44	12.8	4,298
203.93	3.2	1,058	204.45	13.1	4,375
203.94	3.3	1,107	204.46	13.3	4,453
203.95	3.5	1,156	204.47	13.5	4,531
203.96	3.6	1,206	204.48	13.8	4,609
203.97	3.8	1,257	204.49	14.0	4,688
203.98	3.9	1,308	204.50	14.2	4,767
203.99	4.1	1,360	204.51	14.5	4,847
204.00	4.2	1,412	204.52	14.7	4,927
204.01	4.4	1,466	204.53	14.9	5,007
204.02	4.5	1,520	204.54	15.2	5,088
204.03	4.7	1,574	204.55	15.4	5,170
204.04	4.9	1,630	204.56	15.7	5,252
204.05	5.0	1,685	204.57	15.9	5,334
204.06	5.2	1,742	204.58	16.2	5,417
204.07	5.4	1,799	204.59	16.4	5,500
204.08	5.5	1,857	204.60	16.7	5,583
204.09	5.7	1,915			
204.10	5.9	1,974			
204.11	6.1	2,034			

Summary for Reach W2: 2 Thru Wetland

[62] Hint: Exceeded Reach P2 OUTLET depth by 0.08' @ 17.66 hrs

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 2.61" for 25-year event
 Inflow = 0.11 cfs @ 13.35 hrs, Volume= 0.081 af
 Outflow = 0.11 cfs @ 17.80 hrs, Volume= 0.054 af, Atten= 5%, Lag= 266.9 min

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= 99.3 min

Avg. Velocity = 0.04 fps, Avg. Travel Time= 159.2 min

Peak Storage= 628 cf @ 16.15 hrs

Average Depth at Peak Storage= 0.22' , Surface Width= 11.62'

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

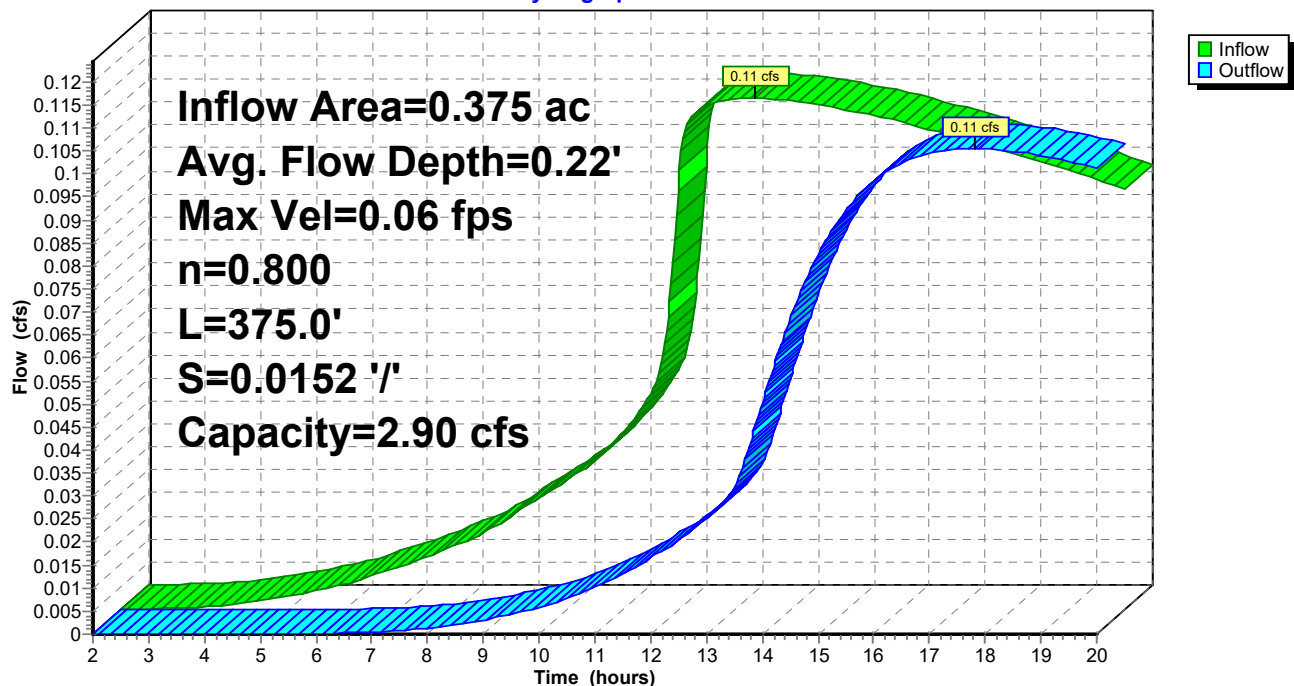
Length= 375.0' Slope= 0.0152 '/'

Inlet Invert= 203.70', Outlet Invert= 198.00'



Reach W2: 2 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W2: 2 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.70	0.0	0	204.22	6.2	2,344
203.71	0.0	6	204.23	6.4	2,412
203.72	0.0	18	204.24	6.6	2,480
203.73	0.1	32	204.25	6.8	2,549
203.74	0.1	50	204.26	7.0	2,619
203.75	0.2	70	204.27	7.2	2,690
203.76	0.2	92	204.28	7.4	2,761
203.77	0.3	116	204.29	7.6	2,832
203.78	0.4	141	204.30	7.7	2,905
203.79	0.4	169	204.31	7.9	2,978
203.80	0.5	198	204.32	8.1	3,051
203.81	0.6	228	204.33	8.3	3,125
203.82	0.7	260	204.34	8.5	3,200
203.83	0.8	293	204.35	8.7	3,275
203.84	0.9	327	204.36	8.9	3,351
203.85	1.0	363	204.37	9.1	3,428
203.86	1.1	400	204.38	9.3	3,505
203.87	1.2	438	204.39	9.6	3,582
203.88	1.3	477	204.40	9.8	3,660
203.89	1.4	518	204.41	10.0	3,739
203.90	1.5	559	204.42	10.2	3,818
203.91	1.6	601	204.43	10.4	3,898
203.92	1.7	645	204.44	10.6	3,979
203.93	1.8	689	204.45	10.8	4,059
203.94	2.0	735	204.46	11.0	4,141
203.95	2.1	781	204.47	11.3	4,223
203.96	2.2	829	204.48	11.5	4,305
203.97	2.3	877	204.49	11.7	4,389
203.98	2.5	926	204.50	11.9	4,472
203.99	2.6	976	204.51	12.2	4,556
204.00	2.7	1,027	204.52	12.4	4,641
204.01	2.9	1,079	204.53	12.6	4,726
204.02	3.0	1,131	204.54	12.8	4,812
204.03	3.2	1,185	204.55	13.1	4,898
204.04	3.3	1,239	204.56	13.3	4,985
204.05	3.5	1,294	204.57	13.5	5,072
204.06	3.6	1,350	204.58	13.8	5,159
204.07	3.8	1,407	204.59	14.0	5,248
204.08	3.9	1,464	204.60	14.2	5,336
204.09	4.1	1,522	204.61	14.5	5,426
204.10	4.2	1,581	204.62	14.7	5,515
204.11	4.4	1,641	204.63	14.9	5,605
204.12	4.5	1,701	204.64	15.2	5,696
204.13	4.7	1,762	204.65	15.4	5,787
204.14	4.9	1,824	204.66	15.7	5,879
204.15	5.0	1,887	204.67	15.9	5,971
204.16	5.2	1,950	204.68	16.2	6,063
204.17	5.4	2,014	204.69	16.4	6,156
204.18	5.5	2,078	204.70	16.7	6,250
204.19	5.7	2,144			
204.20	5.9	2,210			
204.21	6.1	2,276			

Summary for Reach W3: 3 Thru Wetland

[62] Hint: Exceeded Reach P3 OUTLET depth by 0.11' @ 19.97 hrs

Inflow Area = 0.643 ac, 43.14% Impervious, Inflow Depth > 1.79" for 25-year event
 Inflow = 0.37 cfs @ 11.98 hrs, Volume= 0.096 af
 Outflow = 0.09 cfs @ 20.00 hrs, Volume= 0.019 af, Atten= 76%, Lag= 481.2 min

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= 264.9 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 454.9 min

Peak Storage= 1,742 cf @ 20.00 hrs

Average Depth at Peak Storage= 0.25' , Surface Width= 12.43'

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

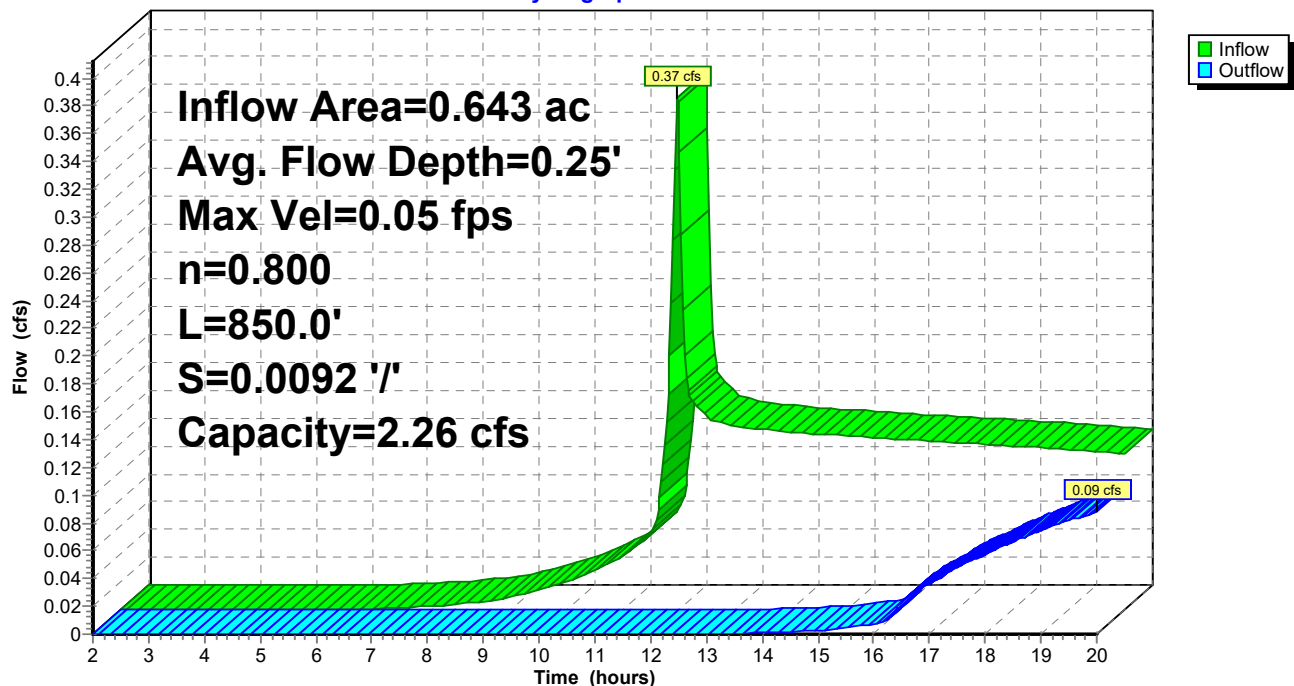
Length= 850.0' Slope= 0.0092 1'

Inlet Invert= 204.80', Outlet Invert= 197.00'



Reach W3: 3 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W3: 3 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.80	0.0	0	205.32	6.2	5,312
204.81	0.0	14	205.33	6.4	5,466
204.82	0.0	40	205.34	6.6	5,622
204.83	0.1	74	205.35	6.8	5,778
204.84	0.1	113	205.36	7.0	5,937
204.85	0.2	158	205.37	7.2	6,096
204.86	0.2	208	205.38	7.4	6,258
204.87	0.3	262	205.39	7.6	6,420
204.88	0.4	321	205.40	7.7	6,584
204.89	0.4	382	205.41	7.9	6,749
204.90	0.5	448	205.42	8.1	6,916
204.91	0.6	517	205.43	8.3	7,084
204.92	0.7	589	205.44	8.5	7,253
204.93	0.8	664	205.45	8.7	7,424
204.94	0.9	742	205.46	8.9	7,596
204.95	1.0	823	205.47	9.1	7,769
204.96	1.1	907	205.48	9.3	7,944
204.97	1.2	993	205.49	9.6	8,120
204.98	1.3	1,082	205.50	9.8	8,297
204.99	1.4	1,173	205.51	10.0	8,475
205.00	1.5	1,267	205.52	10.2	8,655
205.01	1.6	1,363	205.53	10.4	8,836
205.02	1.7	1,462	205.54	10.6	9,018
205.03	1.8	1,563	205.55	10.8	9,202
205.04	2.0	1,666	205.56	11.0	9,386
205.05	2.1	1,771	205.57	11.3	9,572
205.06	2.2	1,878	205.58	11.5	9,759
205.07	2.3	1,988	205.59	11.7	9,947
205.08	2.5	2,099	205.60	11.9	10,137
205.09	2.6	2,212	205.61	12.2	10,328
205.10	2.7	2,328	205.62	12.4	10,519
205.11	2.9	2,445	205.63	12.6	10,712
205.12	3.0	2,564	205.64	12.8	10,907
205.13	3.2	2,686	205.65	13.1	11,102
205.14	3.3	2,809	205.66	13.3	11,298
205.15	3.5	2,933	205.67	13.5	11,496
205.16	3.6	3,060	205.68	13.8	11,695
205.17	3.8	3,188	205.69	14.0	11,895
205.18	3.9	3,319	205.70	14.2	12,096
205.19	4.1	3,450	205.71	14.5	12,298
205.20	4.2	3,584	205.72	14.7	12,501
205.21	4.4	3,719	205.73	14.9	12,706
205.22	4.5	3,856	205.74	15.2	12,911
205.23	4.7	3,995	205.75	15.4	13,118
205.24	4.9	4,135	205.76	15.7	13,325
205.25	5.0	4,276	205.77	15.9	13,534
205.26	5.2	4,420	205.78	16.2	13,744
205.27	5.4	4,565	205.79	16.4	13,955
205.28	5.5	4,711	205.80	16.7	14,167
205.29	5.7	4,859			
205.30	5.9	5,009			
205.31	6.1	5,160			

Summary for Reach W4B: 4B Thru Wetland

[62] Hint: Exceeded Reach P4B OUTLET depth by 0.10' @ 19.97 hrs

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 1.76" for 25-year event
 Inflow = 0.11 cfs @ 13.87 hrs, Volume= 0.078 af
 Outflow = 0.11 cfs @ 20.00 hrs, Volume= 0.035 af, Atten= 8%, Lag= 368.0 min

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= 149.4 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 246.7 min

Peak Storage= 949 cf @ 18.29 hrs

Average Depth at Peak Storage= 0.23' , Surface Width= 12.00'

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

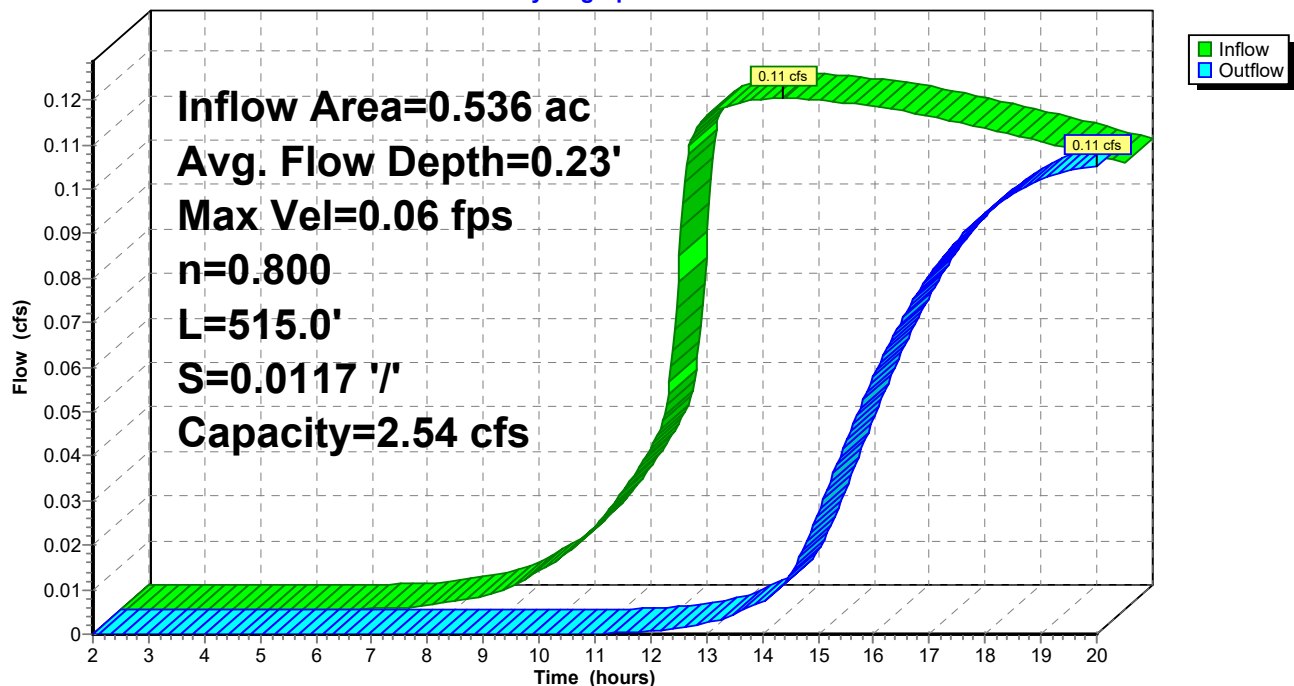
Length= 515.0' Slope= 0.0117 '/'

Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W4B: 4B Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W4B: 4B Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	6.2	3,219
204.01	0.0	9	204.53	6.4	3,312
204.02	0.0	24	204.54	6.6	3,406
204.03	0.1	45	204.55	6.8	3,501
204.04	0.1	69	204.56	7.0	3,597
204.05	0.2	96	204.57	7.2	3,694
204.06	0.2	126	204.58	7.4	3,791
204.07	0.3	159	204.59	7.6	3,890
204.08	0.4	194	204.60	7.7	3,989
204.09	0.4	232	204.61	7.9	4,089
204.10	0.5	271	204.62	8.1	4,190
204.11	0.6	313	204.63	8.3	4,292
204.12	0.7	357	204.64	8.5	4,395
204.13	0.8	402	204.65	8.7	4,498
204.14	0.9	450	204.66	8.9	4,602
204.15	1.0	499	204.67	9.1	4,707
204.16	1.1	549	204.68	9.3	4,813
204.17	1.2	602	204.69	9.6	4,920
204.18	1.3	655	204.70	9.8	5,027
204.19	1.4	711	204.71	10.0	5,135
204.20	1.5	768	204.72	10.2	5,244
204.21	1.6	826	204.73	10.4	5,354
204.22	1.7	886	204.74	10.6	5,464
204.23	1.8	947	204.75	10.8	5,575
204.24	2.0	1,009	204.76	11.0	5,687
204.25	2.1	1,073	204.77	11.3	5,800
204.26	2.2	1,138	204.78	11.5	5,913
204.27	2.3	1,204	204.79	11.7	6,027
204.28	2.5	1,272	204.80	11.9	6,142
204.29	2.6	1,340	204.81	12.2	6,257
204.30	2.7	1,410	204.82	12.4	6,373
204.31	2.9	1,481	204.83	12.6	6,490
204.32	3.0	1,554	204.84	12.8	6,608
204.33	3.2	1,627	204.85	13.1	6,726
204.34	3.3	1,702	204.86	13.3	6,845
204.35	3.5	1,777	204.87	13.5	6,965
204.36	3.6	1,854	204.88	13.8	7,086
204.37	3.8	1,932	204.89	14.0	7,207
204.38	3.9	2,011	204.90	14.2	7,329
204.39	4.1	2,091	204.91	14.5	7,451
204.40	4.2	2,171	204.92	14.7	7,574
204.41	4.4	2,253	204.93	14.9	7,698
204.42	4.5	2,336	204.94	15.2	7,823
204.43	4.7	2,420	204.95	15.4	7,948
204.44	4.9	2,505	204.96	15.7	8,074
204.45	5.0	2,591	204.97	15.9	8,200
204.46	5.2	2,678	204.98	16.2	8,327
204.47	5.4	2,766	204.99	16.4	8,455
204.48	5.5	2,854	205.00	16.7	8,583
204.49	5.7	2,944			
204.50	5.9	3,035			
204.51	6.1	3,126			

Summary for Reach W5: 5 Thru Wetland

[62] Hint: Exceeded Reach P5 OUTLET depth by 0.10' @ 16.37 hrs

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 1.80" for 25-year event
 Inflow = 0.21 cfs @ 14.26 hrs, Volume= 0.152 af
 Outflow = 0.20 cfs @ 16.36 hrs, Volume= 0.120 af, Atten= 3%, Lag= 125.9 min

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= 65.0 min

Avg. Velocity = 0.05 fps, Avg. Travel Time= 97.5 min

Peak Storage= 778 cf @ 15.28 hrs

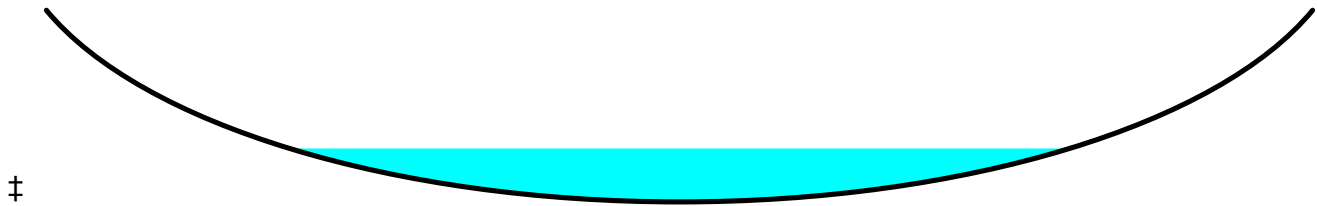
Average Depth at Peak Storage= 0.28' , Surface Width= 13.19'

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

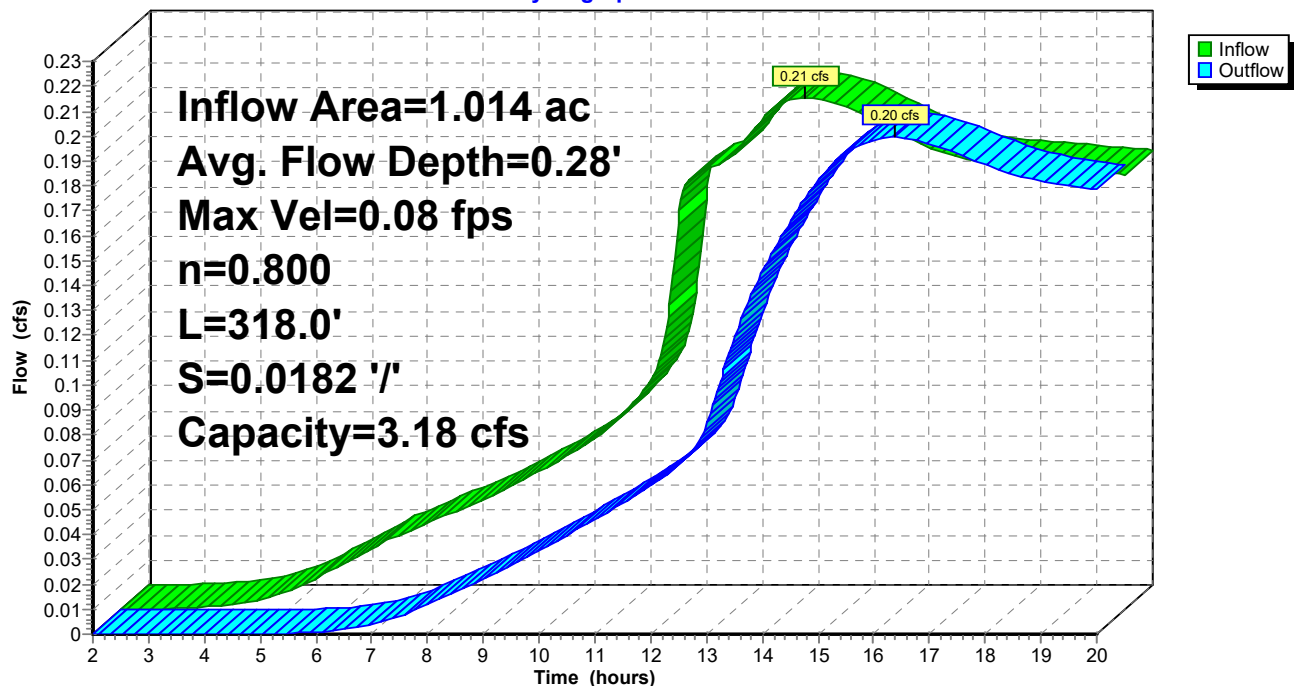
Length= 318.0' Slope= 0.0182 '/'

Inlet Invert= 203.80', Outlet Invert= 198.00'



Reach W5: 5 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W5: 5 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.80	0.0	0	204.32	6.2	1,987
203.81	0.0	5	204.33	6.4	2,045
203.82	0.0	15	204.34	6.6	2,103
203.83	0.1	28	204.35	6.8	2,162
203.84	0.1	42	204.36	7.0	2,221
203.85	0.2	59	204.37	7.2	2,281
203.86	0.2	78	204.38	7.4	2,341
203.87	0.3	98	204.39	7.6	2,402
203.88	0.4	120	204.40	7.7	2,463
203.89	0.4	143	204.41	7.9	2,525
203.90	0.5	168	204.42	8.1	2,587
203.91	0.6	193	204.43	8.3	2,650
203.92	0.7	220	204.44	8.5	2,714
203.93	0.8	248	204.45	8.7	2,777
203.94	0.9	278	204.46	8.9	2,842
203.95	1.0	308	204.47	9.1	2,907
203.96	1.1	339	204.48	9.3	2,972
203.97	1.2	371	204.49	9.6	3,038
203.98	1.3	405	204.50	9.8	3,104
203.99	1.4	439	204.51	10.0	3,171
204.00	1.5	474	204.52	10.2	3,238
204.01	1.6	510	204.53	10.4	3,306
204.02	1.7	547	204.54	10.6	3,374
204.03	1.8	585	204.55	10.8	3,442
204.04	2.0	623	204.56	11.0	3,512
204.05	2.1	663	204.57	11.3	3,581
204.06	2.2	703	204.58	11.5	3,651
204.07	2.3	744	204.59	11.7	3,721
204.08	2.5	785	204.60	11.9	3,792
204.09	2.6	828	204.61	12.2	3,864
204.10	2.7	871	204.62	12.4	3,935
204.11	2.9	915	204.63	12.6	4,008
204.12	3.0	959	204.64	12.8	4,080
204.13	3.2	1,005	204.65	13.1	4,153
204.14	3.3	1,051	204.66	13.3	4,227
204.15	3.5	1,097	204.67	13.5	4,301
204.16	3.6	1,145	204.68	13.8	4,375
204.17	3.8	1,193	204.69	14.0	4,450
204.18	3.9	1,242	204.70	14.2	4,525
204.19	4.1	1,291	204.71	14.5	4,601
204.20	4.2	1,341	204.72	14.7	4,677
204.21	4.4	1,391	204.73	14.9	4,753
204.22	4.5	1,443	204.74	15.2	4,830
204.23	4.7	1,494	204.75	15.4	4,908
204.24	4.9	1,547	204.76	15.7	4,985
204.25	5.0	1,600	204.77	15.9	5,063
204.26	5.2	1,654	204.78	16.2	5,142
204.27	5.4	1,708	204.79	16.4	5,221
204.28	5.5	1,763	204.80	16.7	5,300
204.29	5.7	1,818			
204.30	5.9	1,874			
204.31	6.1	1,930			

Summary for Reach W6: 6 Thru Wetland

[62] Hint: Exceeded Reach P6 OUTLET depth by 0.14' @ 17.57 hrs

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 2.13" for 25-year event
 Inflow = 0.24 cfs @ 12.62 hrs, Volume= 0.098 af
 Outflow = 0.16 cfs @ 18.25 hrs, Volume= 0.052 af, Atten= 34%, Lag= 337.6 min

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= 154.8 min

Avg. Velocity = 0.06 fps, Avg. Travel Time= 177.9 min

Peak Storage= 1,480 cf @ 15.67 hrs

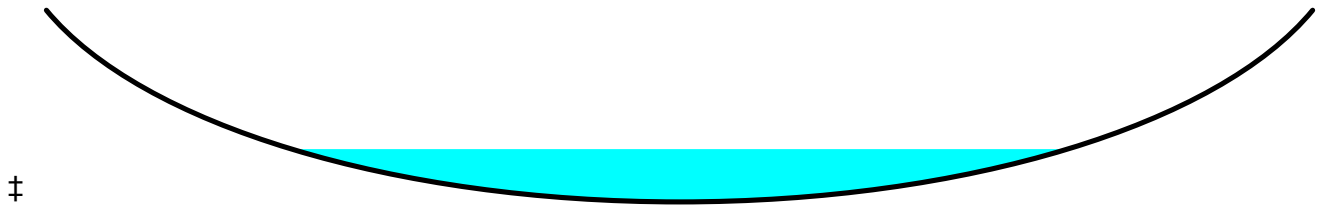
Average Depth at Peak Storage= 0.28' , Surface Width= 13.12'

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

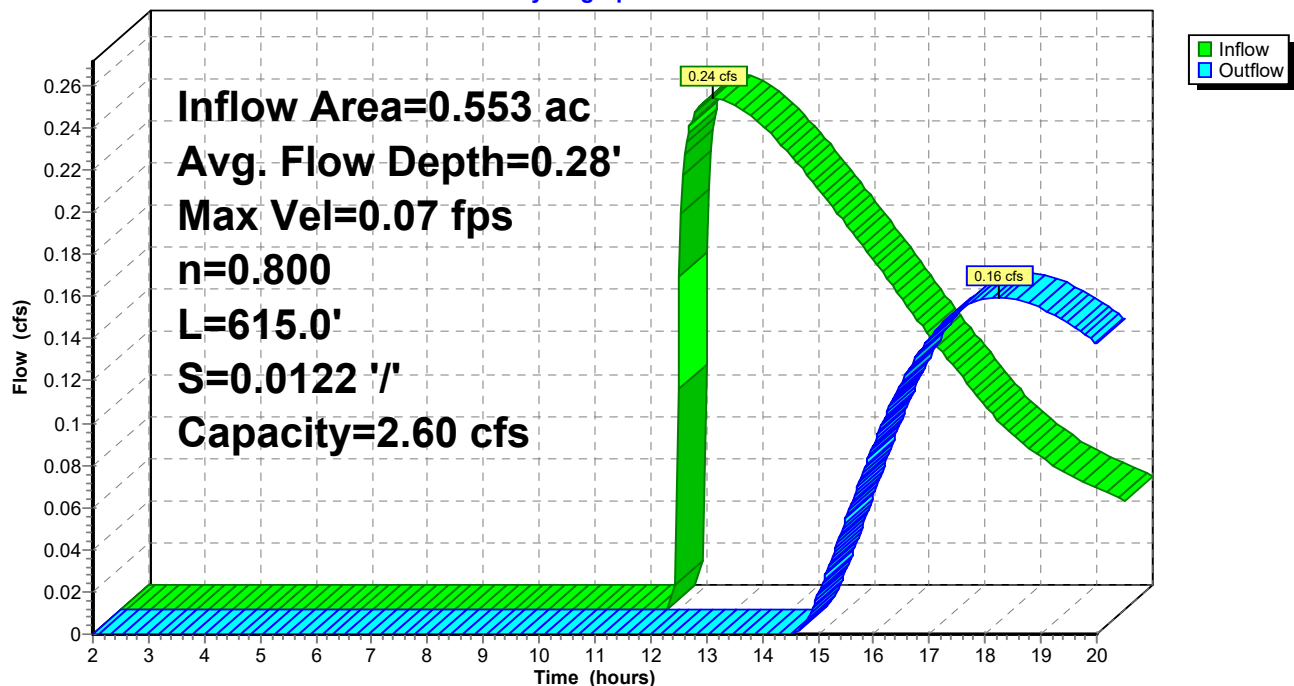
Length= 615.0' Slope= 0.0122 '/'

Inlet Invert= 205.50', Outlet Invert= 198.00'



Reach W6: 6 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W6: 6 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.50	0.0	0	206.02	6.2	3,844
205.51	0.0	10	206.03	6.4	3,955
205.52	0.0	29	206.04	6.6	4,067
205.53	0.1	53	206.05	6.8	4,181
205.54	0.1	82	206.06	7.0	4,295
205.55	0.2	115	206.07	7.2	4,411
205.56	0.2	151	206.08	7.4	4,528
205.57	0.3	190	206.09	7.6	4,645
205.58	0.4	232	206.10	7.7	4,764
205.59	0.4	277	206.11	7.9	4,883
205.60	0.5	324	206.12	8.1	5,004
205.61	0.6	374	206.13	8.3	5,125
205.62	0.7	426	206.14	8.5	5,248
205.63	0.8	480	206.15	8.7	5,371
205.64	0.9	537	206.16	8.9	5,496
205.65	1.0	595	206.17	9.1	5,621
205.66	1.1	656	206.18	9.3	5,748
205.67	1.2	718	206.19	9.6	5,875
205.68	1.3	783	206.20	9.8	6,003
205.69	1.4	849	206.21	10.0	6,132
205.70	1.5	917	206.22	10.2	6,262
205.71	1.6	986	206.23	10.4	6,393
205.72	1.7	1,058	206.24	10.6	6,525
205.73	1.8	1,131	206.25	10.8	6,658
205.74	2.0	1,205	206.26	11.0	6,791
205.75	2.1	1,281	206.27	11.3	6,926
205.76	2.2	1,359	206.28	11.5	7,061
205.77	2.3	1,438	206.29	11.7	7,197
205.78	2.5	1,519	206.30	11.9	7,334
205.79	2.6	1,601	206.31	12.2	7,472
205.80	2.7	1,684	206.32	12.4	7,611
205.81	2.9	1,769	206.33	12.6	7,751
205.82	3.0	1,855	206.34	12.8	7,891
205.83	3.2	1,943	206.35	13.1	8,033
205.84	3.3	2,032	206.36	13.3	8,175
205.85	3.5	2,122	206.37	13.5	8,318
205.86	3.6	2,214	206.38	13.8	8,462
205.87	3.8	2,307	206.39	14.0	8,606
205.88	3.9	2,401	206.40	14.2	8,752
205.89	4.1	2,496	206.41	14.5	8,898
205.90	4.2	2,593	206.42	14.7	9,045
205.91	4.4	2,691	206.43	14.9	9,193
205.92	4.5	2,790	206.44	15.2	9,341
205.93	4.7	2,890	206.45	15.4	9,491
205.94	4.9	2,992	206.46	15.7	9,641
205.95	5.0	3,094	206.47	15.9	9,792
205.96	5.2	3,198	206.48	16.2	9,944
205.97	5.4	3,303	206.49	16.4	10,097
205.98	5.5	3,409	206.50	16.7	10,250
205.99	5.7	3,516			
206.00	5.9	3,624			
206.01	6.1	3,733			

Summary for Reach W7: 7 Thru Wetland

[62] Hint: Exceeded Reach P7 OUTLET depth by 0.07' @ 19.97 hrs

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.57" for 25-year event
 Inflow = 0.04 cfs @ 14.30 hrs, Volume= 0.027 af
 Outflow = 0.02 cfs @ 20.00 hrs, Volume= 0.003 af, Atten= 48%, Lag= 341.8 min

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= 258.9 min

Avg. Velocity = 0.03 fps, Avg. Travel Time= 320.1 min

Peak Storage= 536 cf @ 20.00 hrs

Average Depth at Peak Storage= 0.14' , Surface Width= 9.43'

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

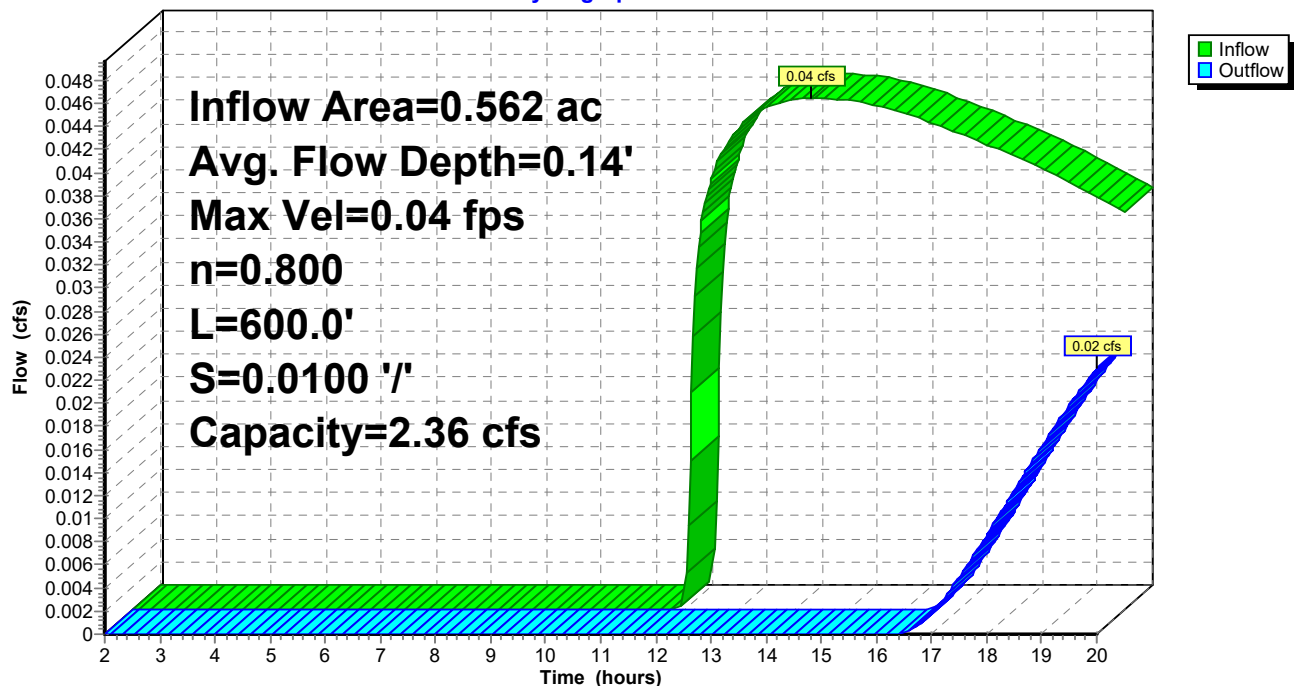
Length= 600.0' Slope= 0.0100 '/'

Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W7: 7 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W7: 7 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	6.2	3,750
204.01	0.0	10	204.53	6.4	3,858
204.02	0.0	28	204.54	6.6	3,968
204.03	0.1	52	204.55	6.8	4,079
204.04	0.1	80	204.56	7.0	4,191
204.05	0.2	112	204.57	7.2	4,303
204.06	0.2	147	204.58	7.4	4,417
204.07	0.3	185	204.59	7.6	4,532
204.08	0.4	226	204.60	7.7	4,648
204.09	0.4	270	204.61	7.9	4,764
204.10	0.5	316	204.62	8.1	4,882
204.11	0.6	365	204.63	8.3	5,000
204.12	0.7	416	204.64	8.5	5,120
204.13	0.8	469	204.65	8.7	5,240
204.14	0.9	524	204.66	8.9	5,362
204.15	1.0	581	204.67	9.1	5,484
204.16	1.1	640	204.68	9.3	5,607
204.17	1.2	701	204.69	9.6	5,732
204.18	1.3	764	204.70	9.8	5,857
204.19	1.4	828	204.71	10.0	5,983
204.20	1.5	894	204.72	10.2	6,109
204.21	1.6	962	204.73	10.4	6,237
204.22	1.7	1,032	204.74	10.6	6,366
204.23	1.8	1,103	204.75	10.8	6,495
204.24	2.0	1,176	204.76	11.0	6,626
204.25	2.1	1,250	204.77	11.3	6,757
204.26	2.2	1,326	204.78	11.5	6,889
204.27	2.3	1,403	204.79	11.7	7,022
204.28	2.5	1,482	204.80	11.9	7,155
204.29	2.6	1,562	204.81	12.2	7,290
204.30	2.7	1,643	204.82	12.4	7,425
204.31	2.9	1,726	204.83	12.6	7,562
204.32	3.0	1,810	204.84	12.8	7,699
204.33	3.2	1,896	204.85	13.1	7,837
204.34	3.3	1,983	204.86	13.3	7,975
204.35	3.5	2,071	204.87	13.5	8,115
204.36	3.6	2,160	204.88	13.8	8,255
204.37	3.8	2,251	204.89	14.0	8,396
204.38	3.9	2,342	204.90	14.2	8,538
204.39	4.1	2,436	204.91	14.5	8,681
204.40	4.2	2,530	204.92	14.7	8,824
204.41	4.4	2,625	204.93	14.9	8,969
204.42	4.5	2,722	204.94	15.2	9,114
204.43	4.7	2,820	204.95	15.4	9,259
204.44	4.9	2,919	204.96	15.7	9,406
204.45	5.0	3,019	204.97	15.9	9,553
204.46	5.2	3,120	204.98	16.2	9,702
204.47	5.4	3,222	204.99	16.4	9,850
204.48	5.5	3,326	205.00	16.7	10,000
204.49	5.7	3,430			
204.50	5.9	3,536			
204.51	6.1	3,642			

Summary for Pond 1P: Detention Basin 1

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 3.96" for 25-year event
 Inflow = 3.45 cfs @ 11.97 hrs, Volume= 0.161 af
 Outflow = 0.08 cfs @ 15.17 hrs, Volume= 0.053 af, Atten= 98%, Lag= 192.4 min
 Primary = 0.08 cfs @ 15.17 hrs, Volume= 0.053 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.63' @ 15.17 hrs Surf.Area= 8,489 sf Storage= 5,107 cf

Plug-Flow detention time= 286.4 min calculated for 0.053 af (33% of inflow)
 Center-of-Mass det. time= 186.3 min (944.3 - 758.1)

Volume	Invert	Avail.Storage	Storage Description		
#1	204.00'	17,779 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	7,850	383.0	0	0	7,850
205.00	8,884	400.0	8,362	8,362	8,979
206.00	9,961	418.0	9,417	17,779	10,220

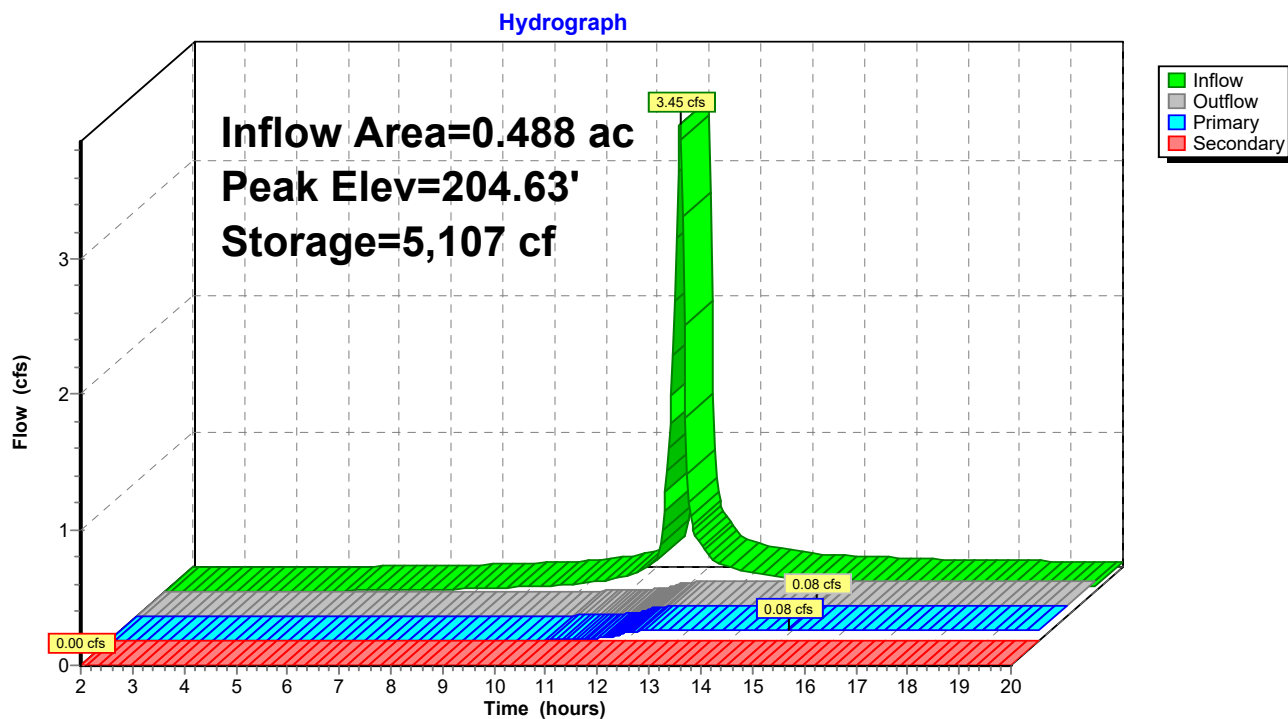
Device	Routing	Invert	Outlet Devices	
#1	Primary	204.00'	2.0" Vert. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2	Secondary	205.00'	12.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 15.17 hrs HW=204.63' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.08 cfs @ 3.54 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: Detention Basin 1

Stage-Area-Storage for Pond 1P: Detention Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	7,850	0	205.04	8,926	8,718
204.02	7,870	157	205.06	8,947	8,897
204.04	7,890	315	205.08	8,968	9,076
204.06	7,910	473	205.10	8,989	9,255
204.08	7,930	631	205.12	9,010	9,435
204.10	7,951	790	205.14	9,031	9,616
204.12	7,971	949	205.16	9,052	9,797
204.14	7,991	1,109	205.18	9,073	9,978
204.16	8,011	1,269	205.20	9,094	10,159
204.18	8,031	1,429	205.22	9,116	10,342
204.20	8,052	1,590	205.24	9,137	10,524
204.22	8,072	1,751	205.26	9,158	10,707
204.24	8,092	1,913	205.28	9,179	10,890
204.26	8,113	2,075	205.30	9,201	11,074
204.28	8,133	2,238	205.32	9,222	11,258
204.30	8,153	2,400	205.34	9,243	11,443
204.32	8,174	2,564	205.36	9,265	11,628
204.34	8,194	2,727	205.38	9,286	11,814
204.36	8,215	2,891	205.40	9,307	12,000
204.38	8,235	3,056	205.42	9,329	12,186
204.40	8,256	3,221	205.44	9,350	12,373
204.42	8,276	3,386	205.46	9,372	12,560
204.44	8,297	3,552	205.48	9,393	12,748
204.46	8,318	3,718	205.50	9,415	12,936
204.48	8,338	3,885	205.52	9,436	13,124
204.50	8,359	4,052	205.54	9,458	13,313
204.52	8,380	4,219	205.56	9,480	13,503
204.54	8,400	4,387	205.58	9,501	13,692
204.56	8,421	4,555	205.60	9,523	13,883
204.58	8,442	4,724	205.62	9,544	14,073
204.60	8,463	4,893	205.64	9,566	14,264
204.62	8,484	5,062	205.66	9,588	14,456
204.64	8,504	5,232	205.68	9,610	14,648
204.66	8,525	5,402	205.70	9,631	14,840
204.68	8,546	5,573	205.72	9,653	15,033
204.70	8,567	5,744	205.74	9,675	15,226
204.72	8,588	5,916	205.76	9,697	15,420
204.74	8,609	6,088	205.78	9,719	15,614
204.76	8,630	6,260	205.80	9,741	15,809
204.78	8,651	6,433	205.82	9,763	16,004
204.80	8,672	6,606	205.84	9,785	16,199
204.82	8,693	6,780	205.86	9,807	16,395
204.84	8,714	6,954	205.88	9,829	16,592
204.86	8,735	7,128	205.90	9,851	16,788
204.88	8,757	7,303	205.92	9,873	16,986
204.90	8,778	7,479	205.94	9,895	17,183
204.92	8,799	7,654	205.96	9,917	17,381
204.94	8,820	7,831	205.98	9,939	17,580
204.96	8,841	8,007	206.00	9,961	17,779
204.98	8,863	8,184			
205.00	8,884	8,362			
205.02	8,905	8,540			

Summary for Pond 2P: Detention Basin 2

[82] Warning: Early inflow requires earlier time span

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 4.48" for 25-year event
 Inflow = 2.79 cfs @ 11.97 hrs, Volume= 0.140 af
 Outflow = 0.11 cfs @ 13.34 hrs, Volume= 0.082 af, Atten= 96%, Lag= 82.2 min
 Primary = 0.11 cfs @ 13.34 hrs, Volume= 0.082 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.20' @ 13.34 hrs Surf.Area= 3,548 sf Storage= 3,798 cf

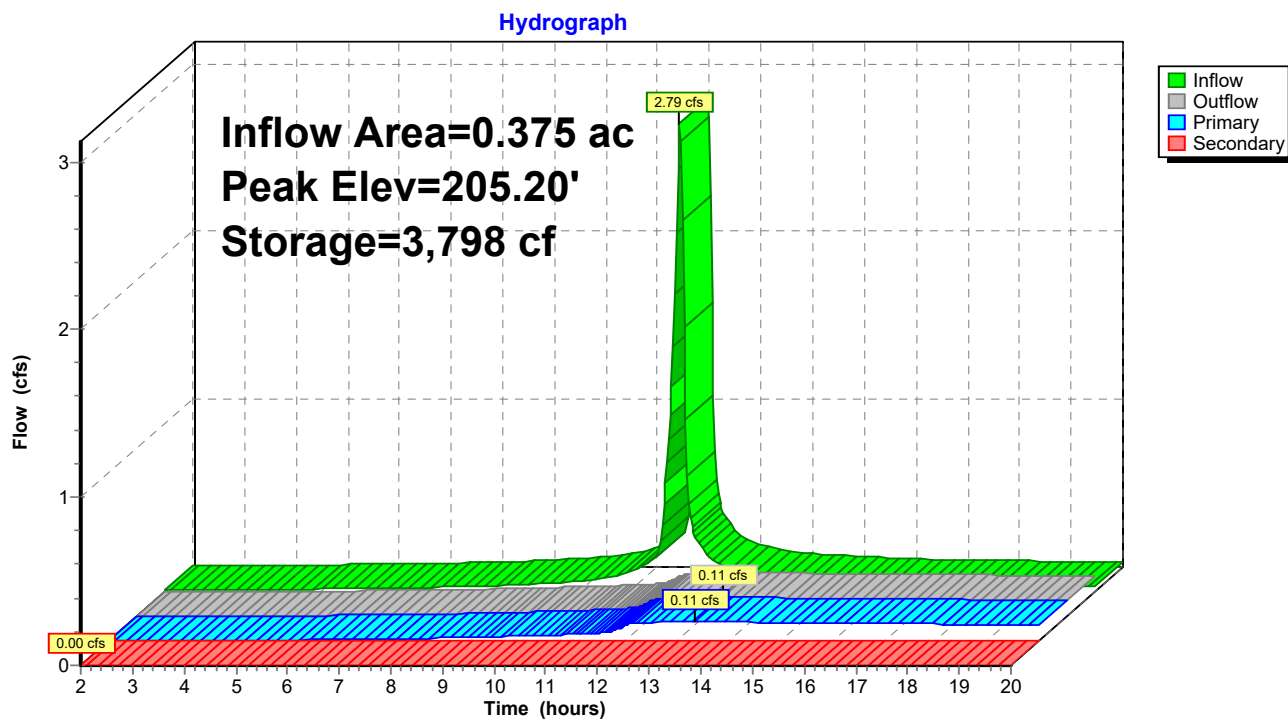
Plug-Flow detention time= 246.8 min calculated for 0.081 af (58% of inflow)
 Center-of-Mass det. time= 164.3 min (896.5 - 732.2)

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 @ 13.34 hrs HW=205.20' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.11 cfs @ 5.09 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

Stage-Area-Storage for Pond 2P: Detention Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	2,781	0	205.04	3,440	3,229
204.02	2,793	56	205.06	3,454	3,298
204.04	2,805	112	205.08	3,467	3,367
204.06	2,817	168	205.10	3,480	3,437
204.08	2,829	224	205.12	3,493	3,507
204.10	2,841	281	205.14	3,507	3,577
204.12	2,854	338	205.16	3,520	3,647
204.14	2,866	395	205.18	3,533	3,717
204.16	2,878	453	205.20	3,547	3,788
204.18	2,890	510	205.22	3,560	3,859
204.20	2,902	568	205.24	3,573	3,931
204.22	2,915	626	205.26	3,587	4,002
204.24	2,927	685	205.28	3,600	4,074
204.26	2,939	744	205.30	3,614	4,146
204.28	2,952	802	205.32	3,627	4,219
204.30	2,964	862	205.34	3,641	4,291
204.32	2,977	921	205.36	3,654	4,364
204.34	2,989	981	205.38	3,668	4,437
204.36	3,001	1,041	205.40	3,682	4,511
204.38	3,014	1,101	205.42	3,695	4,585
204.40	3,026	1,161	205.44	3,709	4,659
204.42	3,039	1,222	205.46	3,723	4,733
204.44	3,052	1,283	205.48	3,736	4,808
204.46	3,064	1,344	205.50	3,750	4,882
204.48	3,077	1,405	205.52	3,764	4,958
204.50	3,089	1,467	205.54	3,778	5,033
204.52	3,102	1,529	205.56	3,792	5,109
204.54	3,115	1,591	205.58	3,805	5,185
204.56	3,127	1,653	205.60	3,819	5,261
204.58	3,140	1,716	205.62	3,833	5,337
204.60	3,153	1,779	205.64	3,847	5,414
204.62	3,166	1,842	205.66	3,861	5,491
204.64	3,179	1,906	205.68	3,875	5,569
204.66	3,192	1,969	205.70	3,889	5,646
204.68	3,204	2,033	205.72	3,903	5,724
204.70	3,217	2,098	205.74	3,917	5,802
204.72	3,230	2,162	205.76	3,931	5,881
204.74	3,243	2,227	205.78	3,945	5,960
204.76	3,256	2,292	205.80	3,959	6,039
204.78	3,269	2,357	205.82	3,974	6,118
204.80	3,282	2,423	205.84	3,988	6,198
204.82	3,295	2,488	205.86	4,002	6,278
204.84	3,308	2,554	205.88	4,016	6,358
204.86	3,321	2,621	205.90	4,030	6,438
204.88	3,335	2,687	205.92	4,045	6,519
204.90	3,348	2,754	205.94	4,059	6,600
204.92	3,361	2,821	205.96	4,073	6,681
204.94	3,374	2,888	205.98	4,088	6,763
204.96	3,387	2,956	206.00	4,102	6,845
204.98	3,401	3,024			
205.00	3,414	3,092			
205.02	3,427	3,161			

Summary for Pond 3P: Detention Basin 3

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 4.06" for 25-year event
 Inflow = 4.19 cfs @ 11.97 hrs, Volume= 0.197 af
 Outflow = 0.12 cfs @ 14.09 hrs, Volume= 0.084 af, Atten= 97%, Lag= 127.1 min
 Primary = 0.12 cfs @ 14.09 hrs, Volume= 0.084 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.34' @ 14.09 hrs Surf.Area= 4,934 sf Storage= 5,855 cf

Plug-Flow detention time= 259.8 min calculated for 0.084 af (43% of inflow)
 Center-of-Mass det. time= 171.6 min (926.8 - 755.3)

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

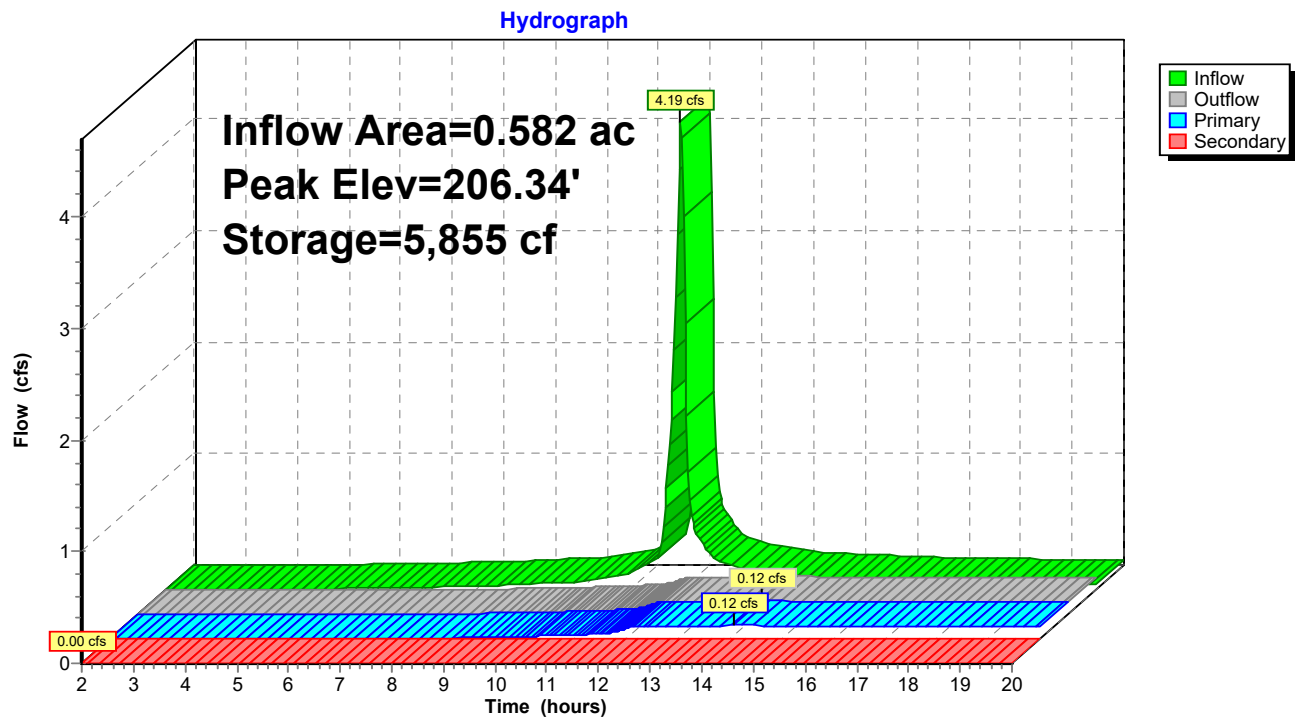
Device	Routing	Invert	Outlet Devices		
#1	Primary	205.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.12 cfs @ 14.09 hrs HW=206.34' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.12 cfs @ 5.40 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

Stage-Area-Storage for Pond 3P: Detention Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	3,825	0	206.04	4,679	4,415
205.02	3,841	77	206.06	4,695	4,509
205.04	3,856	154	206.08	4,712	4,603
205.06	3,872	231	206.10	4,729	4,697
205.08	3,888	309	206.12	4,746	4,792
205.10	3,903	386	206.14	4,763	4,887
205.12	3,919	465	206.16	4,780	4,982
205.14	3,935	543	206.18	4,797	5,078
205.16	3,951	622	206.20	4,814	5,174
205.18	3,967	701	206.22	4,831	5,271
205.20	3,983	781	206.24	4,849	5,368
205.22	3,999	861	206.26	4,866	5,465
205.24	4,015	941	206.28	4,883	5,562
205.26	4,031	1,021	206.30	4,900	5,660
205.28	4,047	1,102	206.32	4,917	5,758
205.30	4,063	1,183	206.34	4,935	5,857
205.32	4,079	1,264	206.36	4,952	5,956
205.34	4,095	1,346	206.38	4,969	6,055
205.36	4,111	1,428	206.40	4,987	6,154
205.38	4,127	1,511	206.42	5,004	6,254
205.40	4,143	1,593	206.44	5,022	6,354
205.42	4,160	1,676	206.46	5,039	6,455
205.44	4,176	1,760	206.48	5,057	6,556
205.46	4,192	1,843	206.50	5,074	6,657
205.48	4,209	1,927	206.52	5,092	6,759
205.50	4,225	2,012	206.54	5,109	6,861
205.52	4,241	2,096	206.56	5,127	6,963
205.54	4,258	2,181	206.58	5,144	7,066
205.56	4,274	2,267	206.60	5,162	7,169
205.58	4,291	2,352	206.62	5,180	7,273
205.60	4,307	2,438	206.64	5,198	7,376
205.62	4,324	2,525	206.66	5,215	7,480
205.64	4,341	2,611	206.68	5,233	7,585
205.66	4,357	2,698	206.70	5,251	7,690
205.68	4,374	2,786	206.72	5,269	7,795
205.70	4,391	2,873	206.74	5,287	7,901
205.72	4,407	2,961	206.76	5,305	8,006
205.74	4,424	3,049	206.78	5,323	8,113
205.76	4,441	3,138	206.80	5,341	8,219
205.78	4,458	3,227	206.82	5,359	8,326
205.80	4,475	3,316	206.84	5,377	8,434
205.82	4,492	3,406	206.86	5,395	8,541
205.84	4,508	3,496	206.88	5,413	8,649
205.86	4,525	3,586	206.90	5,431	8,758
205.88	4,542	3,677	206.92	5,449	8,867
205.90	4,559	3,768	206.94	5,467	8,976
205.92	4,576	3,860	206.96	5,485	9,085
205.94	4,594	3,951	206.98	5,504	9,195
205.96	4,611	4,043	207.00	5,522	9,306
205.98	4,628	4,136			
206.00	4,645	4,228			
206.02	4,662	4,321			

Summary for Pond 4A: Detention Basin 4A

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 4.06" for 25-year event
 Inflow = 2.88 cfs @ 11.97 hrs, Volume= 0.136 af
 Outflow = 2.72 cfs @ 11.99 hrs, Volume= 0.135 af, Atten= 6%, Lag= 1.6 min
 Primary = 2.72 cfs @ 11.99 hrs, Volume= 0.135 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.76' @ 11.99 hrs Surf.Area= 978 sf Storage= 462 cf

Plug-Flow detention time= 8.8 min calculated for 0.135 af (99% of inflow)
 Center-of-Mass det. time= 6.0 min (761.3 - 755.3)

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

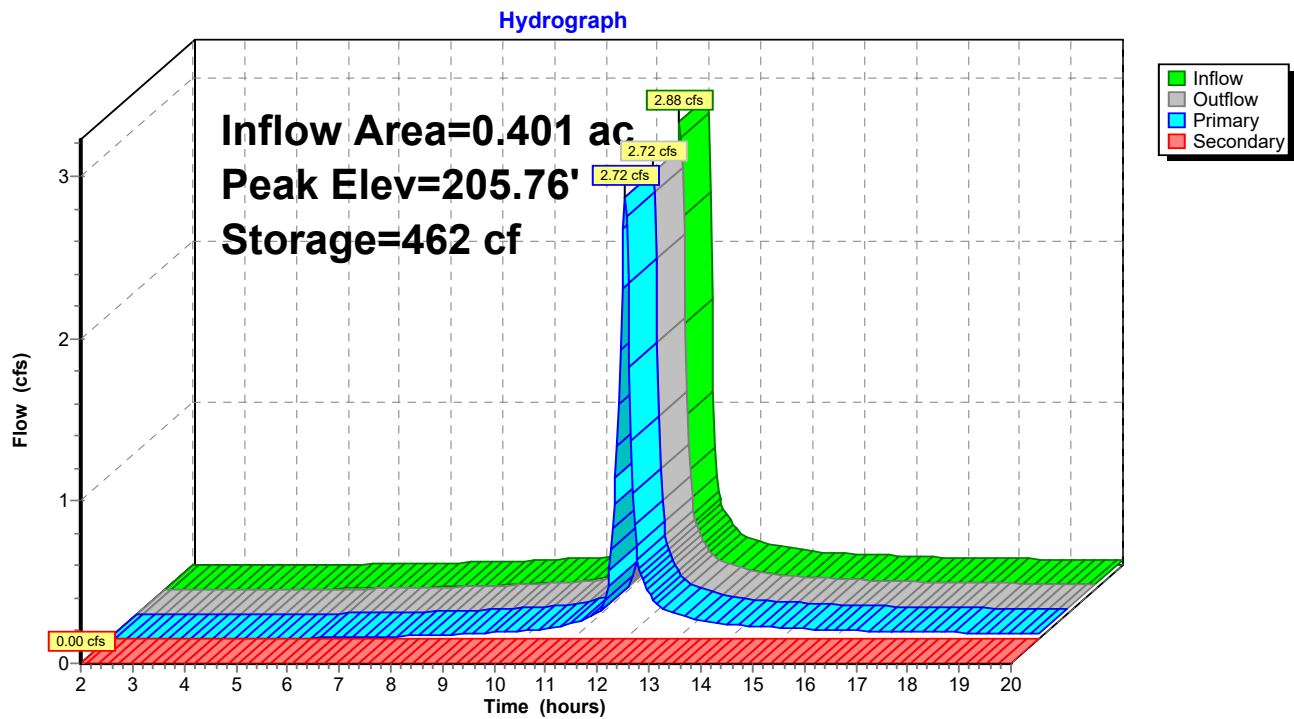
Device	Routing	Invert	Outlet Devices
#1	Primary	205.20'	15.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2	Secondary	207.50'	8.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 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=2.70 cfs @ 11.99 hrs HW=205.76' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 2.70 cfs @ 2.55 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

Stage-Area-Storage for Pond 4A: Detention Basin 4A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.20	680	0
205.25	704	35
205.30	729	70
205.35	754	108
205.40	780	146
205.45	806	186
205.50	833	226
205.55	859	269
205.60	887	312
205.65	915	357
205.70	943	404
205.75	971	452
205.80	1,000	501
205.85	1,030	552
205.90	1,060	604
205.95	1,090	658
206.00	1,121	713
206.05	1,160	770
206.10	1,200	829
206.15	1,240	890
206.20	1,282	953
206.25	1,323	1,018
206.30	1,366	1,086
206.35	1,409	1,155
206.40	1,453	1,226
206.45	1,497	1,300
206.50	1,542	1,376
206.55	1,588	1,454
206.60	1,635	1,535
206.65	1,682	1,618
206.70	1,730	1,703
206.75	1,778	1,791
206.80	1,828	1,881
206.85	1,877	1,974
206.90	1,928	2,069
206.95	1,979	2,166
207.00	2,031	2,267
207.05	2,073	2,369
207.10	2,114	2,474
207.15	2,157	2,581
207.20	2,200	2,690
207.25	2,243	2,801
207.30	2,286	2,914
207.35	2,330	3,029
207.40	2,375	3,147
207.45	2,420	3,267
207.50	2,465	3,389

Summary for Pond 4B: Detention Basin 4B

[92] Warning: Device #2 is above defined storage

[63] Warning: Exceeded Reach CP INLET depth by 0.99' @ 14.15 hrs

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 3.39" for 25-year event
 Inflow = 3.06 cfs @ 12.00 hrs, Volume= 0.151 af
 Outflow = 0.11 cfs @ 13.82 hrs, Volume= 0.079 af, Atten= 96%, Lag= 109.0 min
 Primary = 0.11 cfs @ 13.82 hrs, Volume= 0.079 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.28' @ 13.82 hrs Surf.Area= 3,743 sf Storage= 4,206 cf

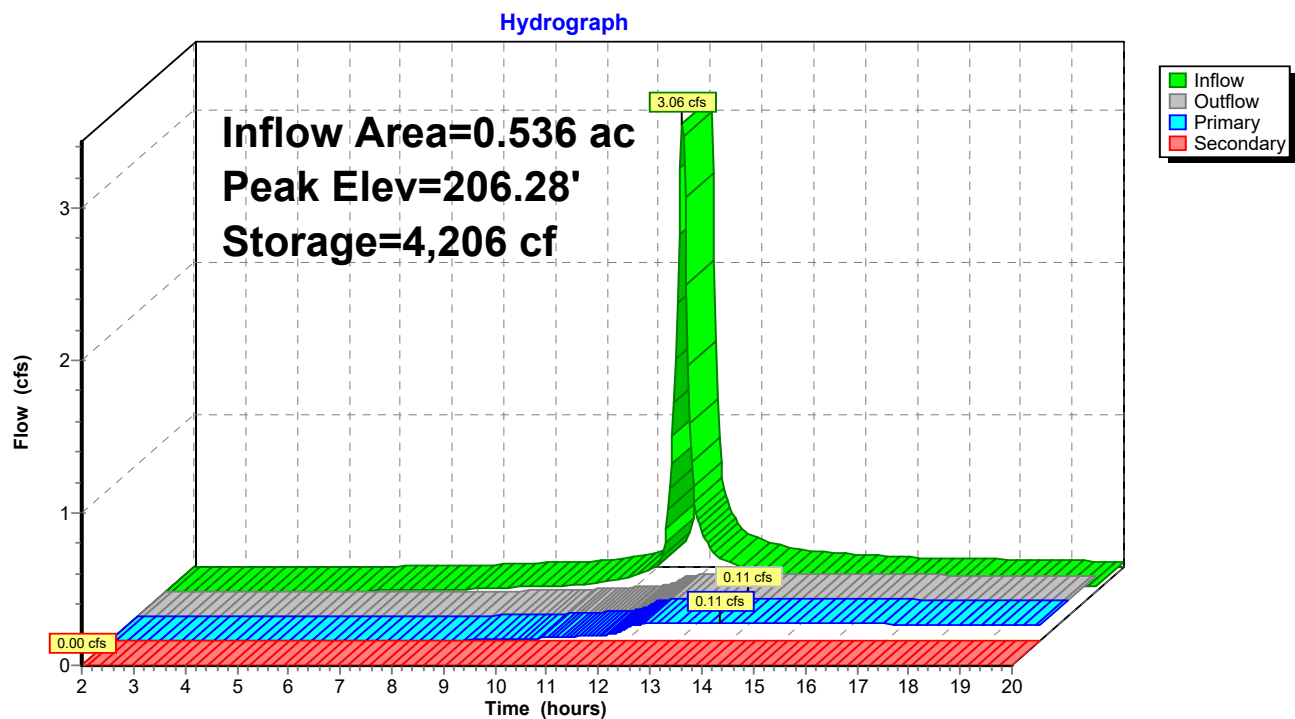
Plug-Flow detention time= 244.2 min calculated for 0.079 af (52% of inflow)
 Center-of-Mass det. time= 164.0 min (931.7 - 767.7)

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 @ 13.82 hrs HW=206.28' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.11 cfs @ 5.27 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

Stage-Area-Storage for Pond 4B: Detention Basin 4B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	2,837	0	206.04	3,570	3,325
205.02	2,850	57	206.06	3,584	3,397
205.04	2,864	114	206.08	3,599	3,469
205.06	2,877	171	206.10	3,613	3,541
205.08	2,891	229	206.12	3,627	3,613
205.10	2,904	287	206.14	3,642	3,686
205.12	2,917	345	206.16	3,656	3,759
205.14	2,931	404	206.18	3,670	3,832
205.16	2,945	462	206.20	3,685	3,906
205.18	2,958	522	206.22	3,699	3,979
205.20	2,972	581	206.24	3,713	4,054
205.22	2,985	640	206.26	3,728	4,128
205.24	2,999	700	206.28	3,742	4,203
205.26	3,013	760	206.30	3,757	4,278
205.28	3,027	821	206.32	3,771	4,353
205.30	3,040	881	206.34	3,786	4,429
205.32	3,054	942	206.36	3,801	4,504
205.34	3,068	1,004	206.38	3,815	4,581
205.36	3,082	1,065	206.40	3,830	4,657
205.38	3,096	1,127	206.42	3,845	4,734
205.40	3,110	1,189	206.44	3,859	4,811
205.42	3,124	1,251	206.46	3,874	4,888
205.44	3,138	1,314	206.48	3,889	4,966
205.46	3,152	1,377	206.50	3,904	5,044
205.48	3,166	1,440	206.52	3,919	5,122
205.50	3,180	1,503	206.54	3,933	5,200
205.52	3,194	1,567	206.56	3,948	5,279
205.54	3,208	1,631	206.58	3,963	5,358
205.56	3,222	1,695	206.60	3,978	5,438
205.58	3,236	1,760	206.62	3,993	5,517
205.60	3,251	1,825	206.64	4,008	5,597
205.62	3,265	1,890	206.66	4,023	5,678
205.64	3,279	1,955	206.68	4,038	5,758
205.66	3,294	2,021	206.70	4,053	5,839
205.68	3,308	2,087	206.72	4,068	5,921
205.70	3,322	2,154	206.74	4,084	6,002
205.72	3,337	2,220	206.76	4,099	6,084
205.74	3,351	2,287	206.78	4,114	6,166
205.76	3,366	2,354	206.80	4,129	6,248
205.78	3,380	2,422	206.82	4,144	6,331
205.80	3,395	2,489	206.84	4,160	6,414
205.82	3,409	2,557	206.86	4,175	6,498
205.84	3,424	2,626	206.88	4,190	6,581
205.86	3,439	2,694	206.90	4,206	6,665
205.88	3,453	2,763	206.92	4,221	6,749
205.90	3,468	2,832	206.94	4,237	6,834
205.92	3,483	2,902	206.96	4,252	6,919
205.94	3,497	2,972	206.98	4,267	7,004
205.96	3,512	3,042	207.00	4,283	7,090
205.98	3,527	3,112			
206.00	3,542	3,183			
206.02	3,556	3,254			

Summary for Pond 5P: Detention Basin 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 4.71" for 25-year event
 Inflow = 7.92 cfs @ 11.97 hrs, Volume= 0.398 af
 Outflow = 0.21 cfs @ 14.26 hrs, Volume= 0.152 af, Atten= 97%, Lag= 137.4 min
 Primary = 0.18 cfs @ 14.26 hrs, Volume= 0.148 af
 Secondary = 0.02 cfs @ 14.26 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 207.10' @ 14.26 hrs Surf.Area= 5,155 sf Storage= 11,982 cf

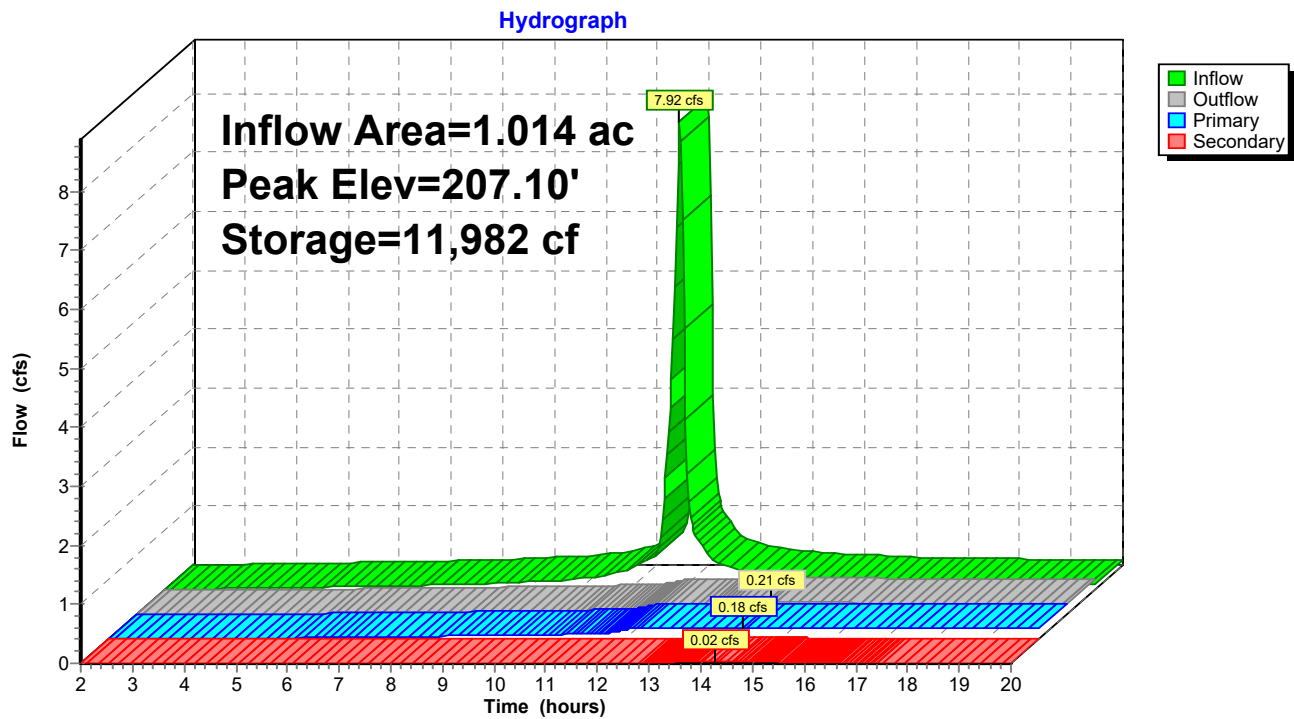
Plug-Flow detention time= 262.1 min calculated for 0.152 af (38% of inflow)
 Center-of-Mass det. time= 150.2 min (884.2 - 733.9)

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 @ 14.26 hrs HW=207.10' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 0.18 cfs @ 8.36 fps)

Secondary OutFlow Max=0.02 cfs @ 14.26 hrs HW=207.10' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 1.06 fps)

Pond 5P: Detention Basin 5

Stage-Area-Storage for Pond 5P: Detention Basin 5

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	2,787	0	206.60	4,759	9,518
204.05	2,810	140	206.65	4,798	9,756
204.10	2,834	281	206.70	4,838	9,997
204.15	2,858	423	206.75	4,878	10,240
204.20	2,881	567	206.80	4,918	10,485
204.25	2,905	711	206.85	4,958	10,732
204.30	2,929	857	206.90	4,998	10,981
204.35	2,953	1,004	206.95	5,038	11,232
204.40	2,977	1,153	207.00	5,079	11,485
204.45	3,001	1,302	207.05	5,118	11,740
204.50	3,026	1,453	207.10	5,158	11,997
204.55	3,050	1,605	207.15	5,197	12,255
204.60	3,074	1,758	207.20	5,237	12,516
204.65	3,099	1,912	207.25	5,277	12,779
204.70	3,124	2,068	207.30	5,317	13,044
204.75	3,149	2,224	207.35	5,357	13,311
204.80	3,173	2,383	207.40	5,397	13,580
204.85	3,198	2,542	207.45	5,437	13,850
204.90	3,224	2,702	207.50	5,478	14,123
204.95	3,249	2,864	207.55	5,519	14,398
205.00	3,274	3,027	207.60	5,559	14,675
205.05	3,322	3,192	207.65	5,601	14,954
205.10	3,370	3,359	207.70	5,642	15,235
205.15	3,419	3,529	207.75	5,683	15,518
205.20	3,468	3,701			
205.25	3,517	3,876			
205.30	3,567	4,053			
205.35	3,617	4,233			
205.40	3,667	4,415			
205.45	3,718	4,599			
205.50	3,769	4,786			
205.55	3,820	4,976			
205.60	3,872	5,168			
205.65	3,924	5,363			
205.70	3,976	5,561			
205.75	4,029	5,761			
205.80	4,082	5,964			
205.85	4,136	6,169			
205.90	4,189	6,377			
205.95	4,243	6,588			
206.00	4,298	6,802			
206.05	4,336	7,017			
206.10	4,373	7,235			
206.15	4,411	7,455			
206.20	4,449	7,676			
206.25	4,487	7,900			
206.30	4,525	8,125			
206.35	4,564	8,352			
206.40	4,603	8,581			
206.45	4,641	8,813			
206.50	4,680	9,046			
206.55	4,719	9,281			

Summary for Pond 6P: Detention Basin 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 3.45" for 25-year event
 Inflow = 3.53 cfs @ 11.97 hrs, Volume= 0.159 af
 Outflow = 0.24 cfs @ 12.61 hrs, Volume= 0.098 af, Atten= 93%, Lag= 38.3 min
 Primary = 0.24 cfs @ 12.61 hrs, Volume= 0.098 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.71' @ 12.61 hrs Surf.Area= 3,047 sf Storage= 4,229 cf

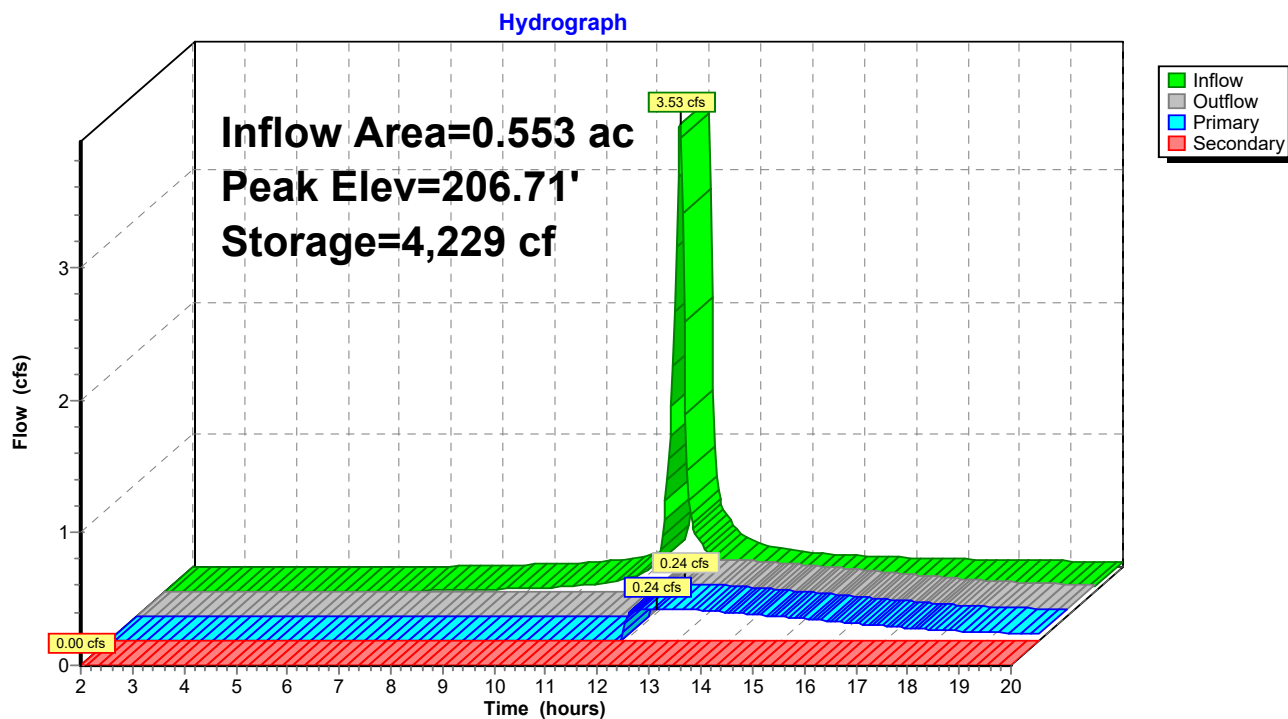
Plug-Flow detention time= 200.5 min calculated for 0.098 af (62% of inflow)
 Center-of-Mass det. time= 128.6 min (898.8 - 770.3)

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 @ 12.61 hrs HW=206.71' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 0.24 cfs @ 3.63 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

Stage-Area-Storage for Pond 6P: Detention Basin 6

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	1,920	0	207.60	3,689	7,213
205.05	1,950	97	207.65	3,727	7,398
205.10	1,980	195	207.70	3,764	7,585
205.15	2,010	295	207.75	3,802	7,775
205.20	2,040	396			
205.25	2,071	499			
205.30	2,102	603			
205.35	2,133	709			
205.40	2,164	816			
205.45	2,196	925			
205.50	2,228	1,036			
205.55	2,260	1,148			
205.60	2,292	1,262			
205.65	2,324	1,377			
205.70	2,357	1,494			
205.75	2,390	1,613			
205.80	2,423	1,733			
205.85	2,456	1,855			
205.90	2,490	1,979			
205.95	2,524	2,104			
206.00	2,558	2,231			
206.05	2,591	2,360			
206.10	2,624	2,490			
206.15	2,657	2,623			
206.20	2,691	2,756			
206.25	2,724	2,892			
206.30	2,758	3,029			
206.35	2,792	3,167			
206.40	2,827	3,308			
206.45	2,861	3,450			
206.50	2,896	3,594			
206.55	2,931	3,740			
206.60	2,966	3,887			
206.65	3,002	4,036			
206.70	3,037	4,187			
206.75	3,073	4,340			
206.80	3,109	4,495			
206.85	3,145	4,651			
206.90	3,182	4,809			
206.95	3,218	4,969			
207.00	3,255	5,131			
207.05	3,290	5,295			
207.10	3,325	5,460			
207.15	3,361	5,627			
207.20	3,397	5,796			
207.25	3,433	5,967			
207.30	3,469	6,139			
207.35	3,505	6,314			
207.40	3,541	6,490			
207.45	3,578	6,668			
207.50	3,615	6,848			
207.55	3,652	7,029			

Summary for Pond 7P: Detention Basin 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.87" for 25-year event
 Inflow = 0.87 cfs @ 11.99 hrs, Volume= 0.041 af
 Outflow = 0.04 cfs @ 14.20 hrs, Volume= 0.027 af, Atten= 95%, Lag= 132.5 min
 Primary = 0.04 cfs @ 14.20 hrs, Volume= 0.027 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.26' @ 14.20 hrs Surf.Area= 3,339 sf Storage= 838 cf

Plug-Flow detention time= 206.2 min calculated for 0.027 af (66% of inflow)
 Center-of-Mass det. time= 119.6 min (955.3 - 835.7)

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

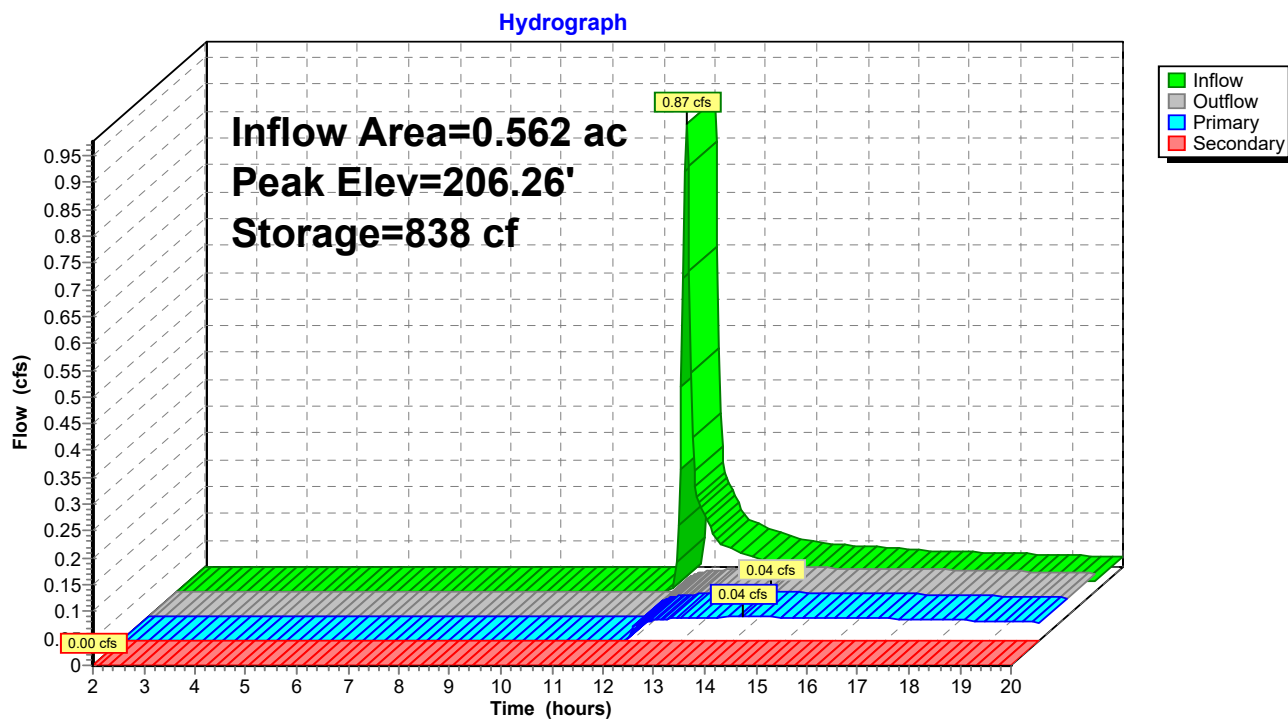
Device	Routing	Invert	Outlet Devices	
#1	Primary	206.00'	2.0" Vert. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 14.20 hrs HW=206.26' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.04 cfs @ 2.03 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

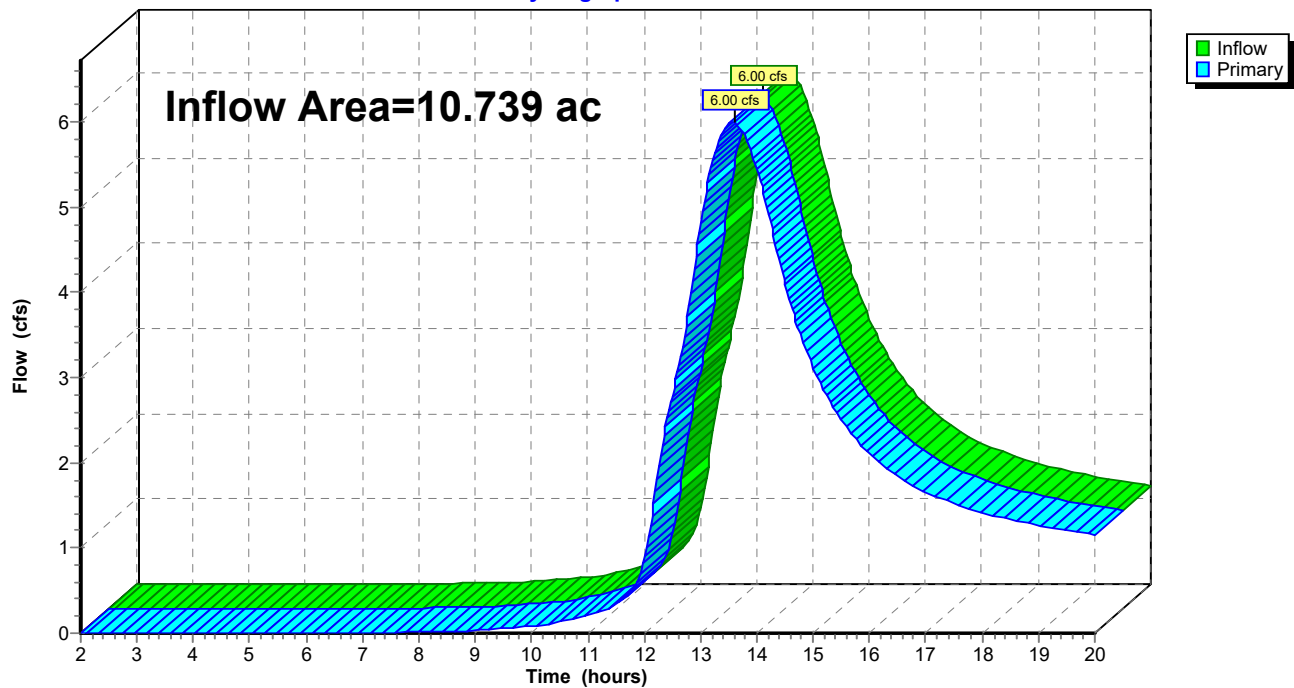
Stage-Area-Storage for Pond 7P: Detention Basin 7

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
206.00	3,078	0	207.04	4,179	3,758
206.02	3,098	62	207.06	4,202	3,842
206.04	3,117	124	207.08	4,225	3,926
206.06	3,137	186	207.10	4,249	4,011
206.08	3,157	249	207.12	4,273	4,096
206.10	3,176	313	207.14	4,296	4,182
206.12	3,196	376	207.16	4,320	4,268
206.14	3,216	441	207.18	4,344	4,355
206.16	3,236	505	207.20	4,368	4,442
206.18	3,256	570	207.22	4,391	4,530
206.20	3,276	635	207.24	4,415	4,618
206.22	3,297	701	207.26	4,439	4,706
206.24	3,317	767	207.28	4,464	4,795
206.26	3,337	834	207.30	4,488	4,885
206.28	3,358	901	207.32	4,512	4,975
206.30	3,378	968	207.34	4,536	5,065
206.32	3,398	1,036	207.36	4,561	5,156
206.34	3,419	1,104	207.38	4,585	5,248
206.36	3,440	1,173	207.40	4,610	5,340
206.38	3,460	1,242	207.42	4,634	5,432
206.40	3,481	1,311	207.44	4,659	5,525
206.42	3,502	1,381	207.46	4,684	5,618
206.44	3,523	1,451	207.48	4,708	5,712
206.46	3,544	1,522	207.50	4,733	5,807
206.48	3,565	1,593	207.52	4,758	5,902
206.50	3,586	1,664	207.54	4,783	5,997
206.52	3,607	1,736	207.56	4,808	6,093
206.54	3,628	1,809	207.58	4,833	6,189
206.56	3,649	1,881	207.60	4,858	6,286
206.58	3,670	1,955	207.62	4,883	6,384
206.60	3,692	2,028	207.64	4,909	6,482
206.62	3,713	2,102	207.66	4,934	6,580
206.64	3,735	2,177	207.68	4,960	6,679
206.66	3,756	2,252	207.70	4,985	6,778
206.68	3,778	2,327	207.72	5,011	6,878
206.70	3,800	2,403	207.74	5,036	6,979
206.72	3,821	2,479			
206.74	3,843	2,556			
206.76	3,865	2,633			
206.78	3,887	2,710			
206.80	3,909	2,788			
206.82	3,931	2,867			
206.84	3,953	2,945			
206.86	3,975	3,025			
206.88	3,997	3,104			
206.90	4,020	3,185			
206.92	4,042	3,265			
206.94	4,064	3,346			
206.96	4,087	3,428			
206.98	4,109	3,510			
207.00	4,132	3,592			
207.02	4,155	3,675			

Summary for Link x1000: x1000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 2.01" for 25-year event
Inflow = 6.00 cfs @ 13.60 hrs, Volume= 1.797 af
Primary = 6.00 cfs @ 13.60 hrs, Volume= 1.797 af, Atten= 0%, Lag= 0.0 min

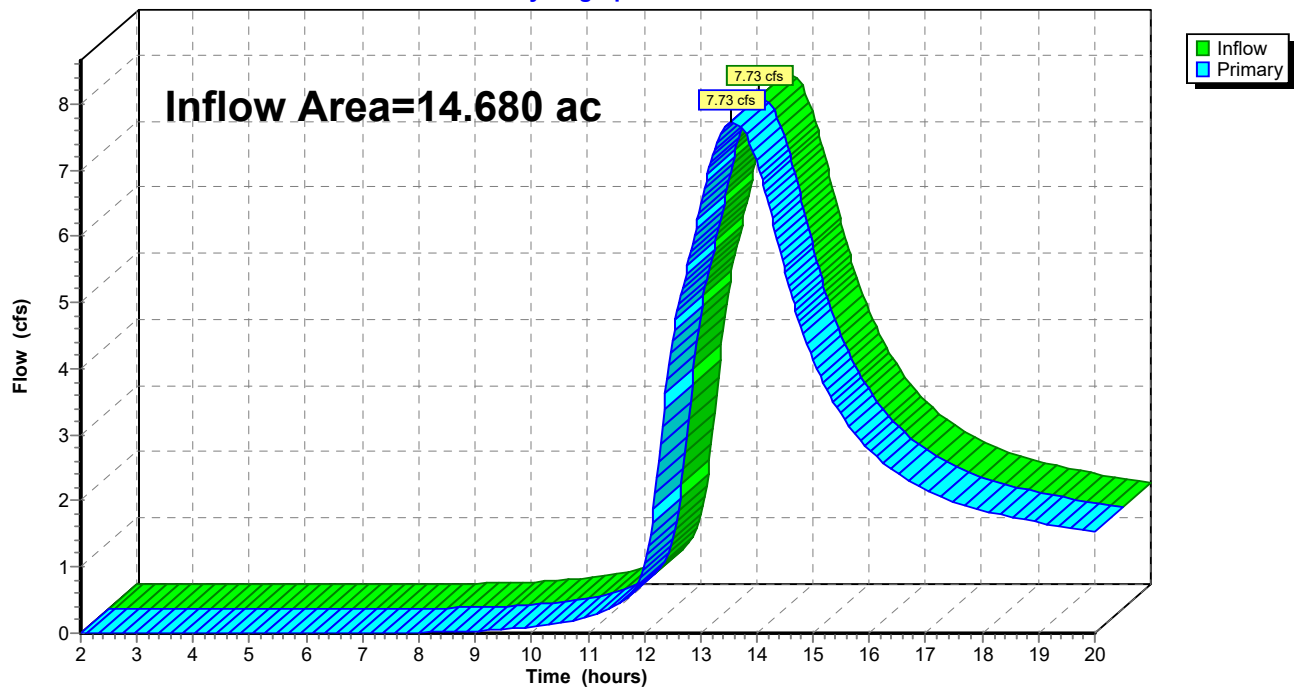
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x1000: x1000**Hydrograph**

Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 1.95" for 25-year event
Inflow = 7.73 cfs @ 13.55 hrs, Volume= 2.385 af
Primary = 7.73 cfs @ 13.55 hrs, Volume= 2.385 af, Atten= 0%, Lag= 0.0 min

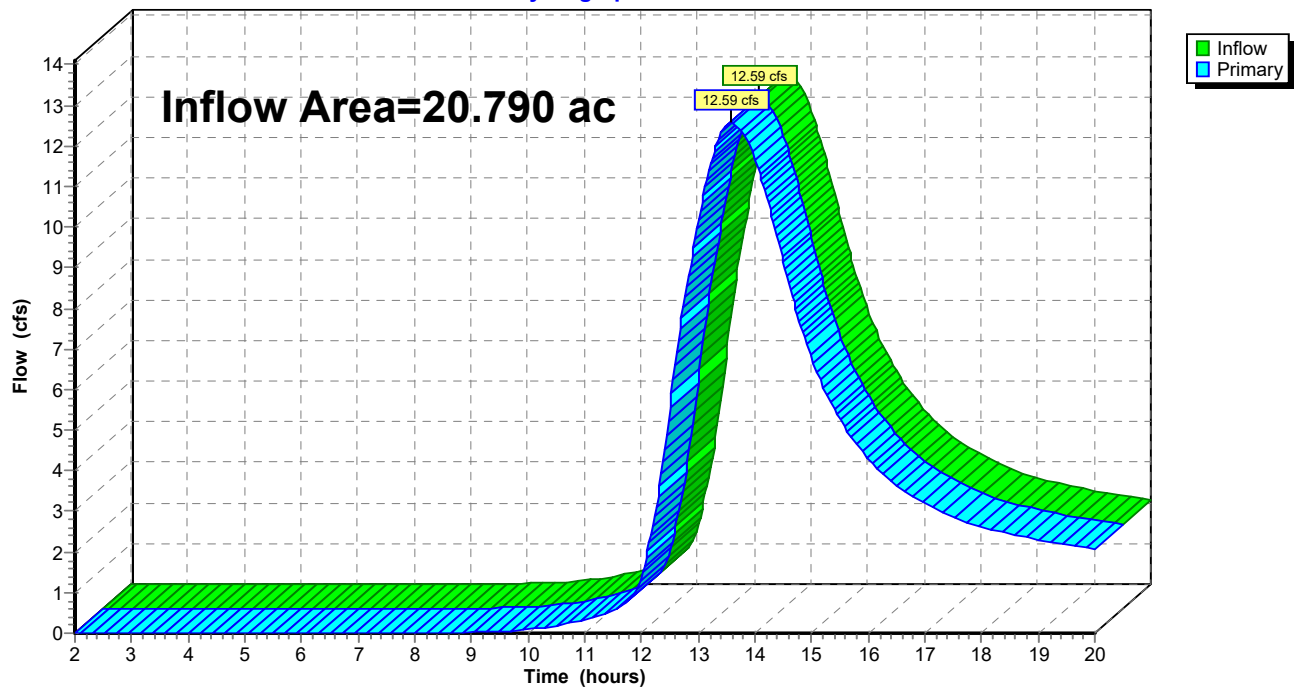
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x2000: x2000**Hydrograph**

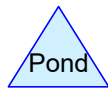
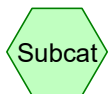
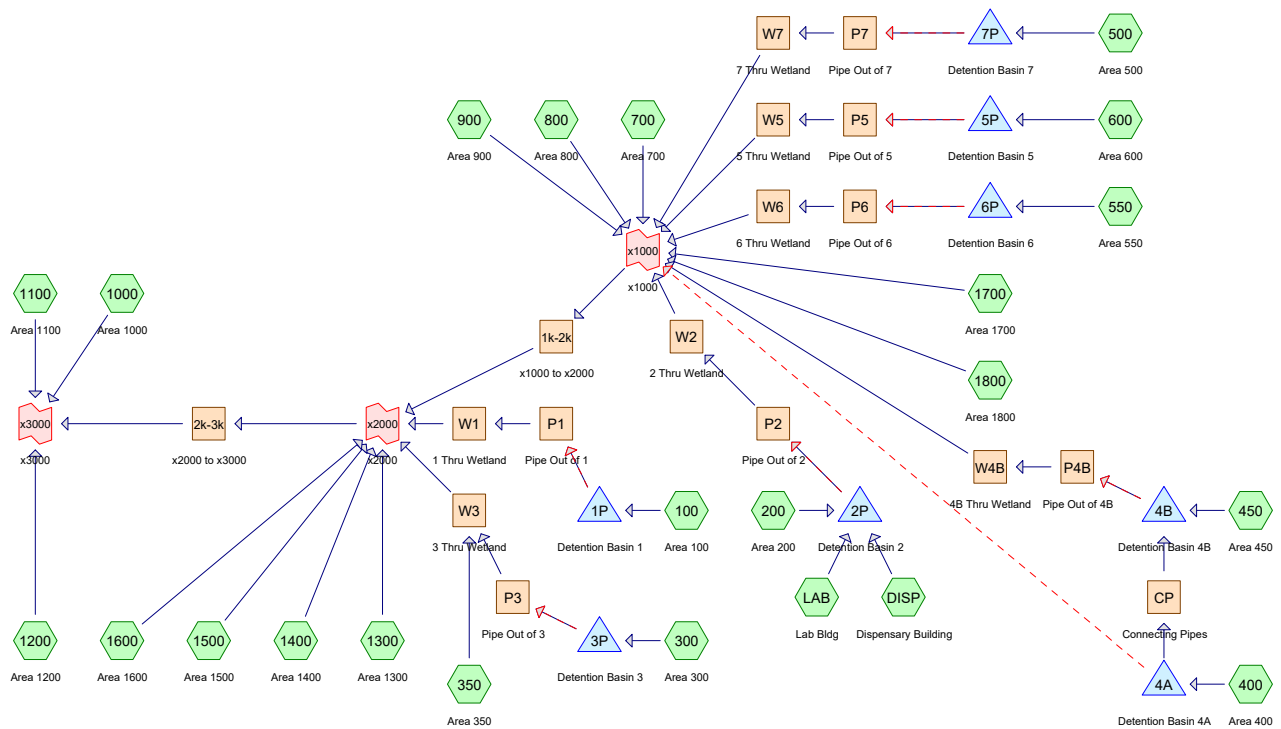
Summary for Link x3000: x3000

Inflow Area = 20.790 ac, 10.83% Impervious, Inflow Depth > 2.11" for 25-year event
Inflow = 12.59 cfs @ 13.58 hrs, Volume= 3.653 af
Primary = 12.59 cfs @ 13.58 hrs, Volume= 3.653 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

Prepared by VHB

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-year	Type II 24-hr		Default	24.00	1	7.27	2

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

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

4298600-PR

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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	

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	CP	205.20	205.00	62.0	0.0032	0.011	0.0	15.0	0.0
3	P1	204.00	203.60	78.0	0.0051	0.013	0.0	12.0	0.0
4	P2	204.00	203.70	60.0	0.0050	0.013	0.0	12.0	0.0
5	P3	205.00	204.80	40.0	0.0050	0.013	0.0	12.0	0.0
6	P4B	205.00	204.00	182.0	0.0055	0.013	0.0	12.0	0.0
7	P5	204.00	203.80	35.0	0.0057	0.013	0.0	12.0	0.0
8	P6	206.00	205.50	60.0	0.0083	0.013	0.0	12.0	0.0
9	P7	206.00	204.00	290.0	0.0069	0.013	0.0	12.0	0.0

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

Subcatchment100: Area 100	Runoff Area=21,241 sf 39.36% Impervious Runoff Depth>5.40" Tc=6.0 min CN=87 Runoff=4.59 cfs 0.219 af
Subcatchment200: Area 200	Runoff Area=7,259 sf 21.45% Impervious Runoff Depth>5.06" Tc=6.0 min CN=84 Runoff=1.50 cfs 0.070 af
Subcatchment300: Area 300	Runoff Area=25,373 sf 47.63% Impervious Runoff Depth>5.51" Tc=6.0 min CN=88 Runoff=5.56 cfs 0.267 af
Subcatchment350: Area 350	Runoff Area=2,640 sf 0.00% Impervious Runoff Depth>3.55" Tc=6.0 min CN=70 Runoff=0.41 cfs 0.018 af
Subcatchment400: Area 400	Runoff Area=17,459 sf 54.77% Impervious Runoff Depth>5.51" Tc=6.0 min CN=88 Runoff=3.82 cfs 0.184 af
Subcatchment450: Area 450	Runoff Area=5,879 sf 0.00% Impervious Runoff Depth>2.45" Tc=6.0 min CN=59 Runoff=0.65 cfs 0.028 af
Subcatchment500: Area 500	Runoff Area=24,492 sf 21.12% Impervious Runoff Depth>1.62" Tc=6.0 min CN=50 Runoff=1.74 cfs 0.076 af
Subcatchment550: Area 550	Runoff Area=24,095 sf 65.72% Impervious Runoff Depth>4.84" Tc=6.0 min CN=82 Runoff=4.84 cfs 0.223 af
Subcatchment600: Area 600	Runoff Area=44,164 sf 81.56% Impervious Runoff Depth>6.20" Tc=6.0 min CN=94 Runoff=10.25 cfs 0.524 af
Subcatchment700: Area 700	Runoff Area=155,394 sf 0.00% Impervious Runoff Depth>3.68" Flow Length=914' Tc=123.7 min CN=73 Runoff=4.59 cfs 1.094 af
Subcatchment800: Area 800	Runoff Area=83,661 sf 0.00% Impervious Runoff Depth>4.06" Flow Length=850' Tc=142.4 min CN=77 Runoff=2.47 cfs 0.650 af
Subcatchment900: Area 900	Runoff Area=20,660 sf 0.00% Impervious Runoff Depth>4.24" Flow Length=370' Tc=40.8 min CN=77 Runoff=1.54 cfs 0.168 af
Subcatchment1000: Area 1000	Runoff Area=89,935 sf 0.00% Impervious Runoff Depth>3.61" Flow Length=675' Tc=101.4 min CN=72 Runoff=3.02 cfs 0.622 af
Subcatchment1100: Area 1100	Runoff Area=13,074 sf 0.00% Impervious Runoff Depth>3.52" Flow Length=215' Tc=27.3 min CN=70 Runoff=1.06 cfs 0.088 af
Subcatchment1200: Area 1200	Runoff Area=163,106 sf 0.00% Impervious Runoff Depth>3.86" Flow Length=868' Tc=140.2 min CN=75 Runoff=4.61 cfs 1.203 af
Subcatchment1300: Area 1300	Runoff Area=41,280 sf 0.00% Impervious Runoff Depth>3.65" Flow Length=525' Tc=136.8 min CN=73 Runoff=1.13 cfs 0.289 af

Subcatchment1400: Area 1400	Runoff Area=43,924 sf 0.00% Impervious Runoff Depth>3.89" Flow Length=410' Tc=58.3 min CN=74 Runoff=2.35 cfs 0.327 af
Subcatchment1500: Area 1500	Runoff Area=15,037 sf 0.00% Impervious Runoff Depth>4.12" Flow Length=661' Tc=110.0 min CN=77 Runoff=0.54 cfs 0.119 af
Subcatchment1600: Area 1600	Runoff Area=22,207 sf 0.00% Impervious Runoff Depth>1.99" Flow Length=1,245' Tc=149.8 min CN=56 Runoff=0.30 cfs 0.085 af
Subcatchment1700: Area 1700	Runoff Area=23,148 sf 0.00% Impervious Runoff Depth>0.29" Flow Length=917' Tc=159.8 min CN=33 Runoff=0.03 cfs 0.013 af
Subcatchment1800: Area 1800	Runoff Area=52,490 sf 0.78% Impervious Runoff Depth>3.45" Flow Length=615' Tc=135.0 min CN=71 Runoff=1.37 cfs 0.347 af
SubcatchmentDISP: Dispensary Building	Runoff Area=4,073 sf 100.00% Impervious Runoff Depth>6.64" Tc=6.0 min CN=98 Runoff=0.96 cfs 0.052 af
SubcatchmentLAB: Lab Bldg	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>6.64" Tc=6.0 min CN=98 Runoff=1.18 cfs 0.063 af
Reach 1k-2k: x1000 to x2000	Avg. Flow Depth=0.45' Max Vel=1.66 fps Inflow=9.01 cfs 2.711 af n=0.035 L=260.0' S=0.0077 ' Capacity=1,021.34 cfs Outflow=9.00 cfs 2.696 af
Reach 2k-3k: x2000 to x3000	Avg. Flow Depth=0.84' Max Vel=1.51 fps Inflow=11.62 cfs 3.589 af n=0.035 L=360.0' S=0.0028 ' Capacity=334.17 cfs Outflow=11.60 cfs 3.558 af
Reach CP: Connecting Pipes	Avg. Flow Depth=0.56' Max Vel=3.37 fps Inflow=3.63 cfs 0.183 af 15.0" Round Pipe x 2.00 n=0.011 L=62.0' S=0.0032 ' Capacity=8.67 cfs Outflow=3.59 cfs 0.183 af
Reach P1: Pipe Out of 1	Avg. Flow Depth=0.13' Max Vel=1.54 fps Inflow=0.09 cfs 0.066 af 12.0" Round Pipe n=0.013 L=78.0' S=0.0051 ' Capacity=2.55 cfs Outflow=0.09 cfs 0.065 af
Reach P2: Pipe Out of 2	Avg. Flow Depth=0.15' Max Vel=1.68 fps Inflow=0.13 cfs 0.098 af 12.0" Round Pipe n=0.013 L=60.0' S=0.0050 ' Capacity=2.52 cfs Outflow=0.13 cfs 0.098 af
Reach P3: Pipe Out of 3	Avg. Flow Depth=0.16' Max Vel=1.71 fps Inflow=0.14 cfs 0.102 af 12.0" Round Pipe n=0.013 L=40.0' S=0.0050 ' Capacity=2.52 cfs Outflow=0.14 cfs 0.102 af
Reach P4B: Pipe Out of 4B	Avg. Flow Depth=0.15' Max Vel=1.77 fps Inflow=0.14 cfs 0.097 af 12.0" Round Pipe n=0.013 L=182.0' S=0.0055 ' Capacity=2.64 cfs Outflow=0.14 cfs 0.097 af
Reach P5: Pipe Out of 5	Avg. Flow Depth=0.28' Max Vel=2.58 fps Inflow=0.47 cfs 0.258 af 12.0" Round Pipe n=0.013 L=35.0' S=0.0057 ' Capacity=2.69 cfs Outflow=0.47 cfs 0.258 af
Reach P6: Pipe Out of 6	Avg. Flow Depth=0.22' Max Vel=2.68 fps Inflow=0.34 cfs 0.158 af 12.0" Round Pipe n=0.013 L=60.0' S=0.0083 ' Capacity=3.25 cfs Outflow=0.34 cfs 0.158 af
Reach P7: Pipe Out of 7	Avg. Flow Depth=0.11' Max Vel=1.57 fps Inflow=0.07 cfs 0.045 af 12.0" Round Pipe n=0.013 L=290.0' S=0.0069 ' Capacity=2.96 cfs Outflow=0.07 cfs 0.044 af

Reach W1: 1 Thru Wetland	Avg. Flow Depth=0.19' Max Vel=0.07 fps Inflow=0.09 cfs 0.065 af n=0.800 L=335.0' S=0.0197 ' Capacity=3.31 cfs Outflow=0.09 cfs 0.044 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=0.52 cfs 0.120 af n=0.800 L=850.0' S=0.0092 ' Capacity=2.26 cfs Outflow=0.12 cfs 0.030 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=0.47 cfs 0.258 af n=0.800 L=318.0' S=0.0182 ' Capacity=3.18 cfs Outflow=0.45 cfs 0.226 af
Reach W6: 6 Thru Wetland	Avg. Flow Depth=0.34' Max Vel=0.08 fps Inflow=0.34 cfs 0.158 af n=0.800 L=615.0' S=0.0122 ' Capacity=2.60 cfs Outflow=0.25 cfs 0.091 af
Reach W7: 7 Thru Wetland	Avg. Flow Depth=0.18' 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 0.009 af
Pond 1P: Detention Basin 1	Peak Elev=204.86' Storage=7,113 cf Inflow=4.59 cfs 0.219 af Primary=0.09 cfs 0.066 af Secondary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.066 af
Pond 2P: Detention Basin 2	Peak Elev=205.57' Storage=5,138 cf Inflow=3.65 cfs 0.185 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=206.78' Storage=8,132 cf Inflow=5.56 cfs 0.267 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=205.86' Storage=561 cf Inflow=3.82 cfs 0.184 af Primary=3.63 cfs 0.183 af Secondary=0.00 cfs 0.000 af Outflow=3.63 cfs 0.183 af
Pond 4B: Detention Basin 4B	Peak Elev=206.75' Storage=6,028 cf Inflow=4.21 cfs 0.210 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=207.60' Storage=14,697 cf Inflow=10.25 cfs 0.524 af Primary=0.20 cfs 0.163 af Secondary=0.28 cfs 0.095 af Outflow=0.47 cfs 0.258 af
Pond 6P: Detention Basin 6	Peak Elev=207.26' Storage=6,004 cf Inflow=4.84 cfs 0.223 af Primary=0.34 cfs 0.158 af Secondary=0.00 cfs 0.000 af Outflow=0.34 cfs 0.158 af
Pond 7P: Detention Basin 7	Peak Elev=206.53' Storage=1,783 cf Inflow=1.74 cfs 0.076 af Primary=0.07 cfs 0.045 af Secondary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.045 af
Link x1000: x1000	Inflow=9.01 cfs 2.711 af Primary=9.01 cfs 2.711 af
Link x2000: x2000	Inflow=11.62 cfs 3.589 af Primary=11.62 cfs 3.589 af

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Type II 24-hr 100-year Rainfall=7.27"

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Link x3000: x3000

Inflow=18.83 cfs 5.471 af

Primary=18.83 cfs 5.471 af

Total Runoff Area = 20.790 ac Runoff Volume = 6.727 af Average Runoff Depth = 3.88"
89.17% Pervious = 18.538 ac 10.83% Impervious = 2.251 ac

Summary for Subcatchment 100: Area 100

Runoff = 4.59 cfs @ 11.97 hrs, Volume= 0.219 af, Depth> 5.40"

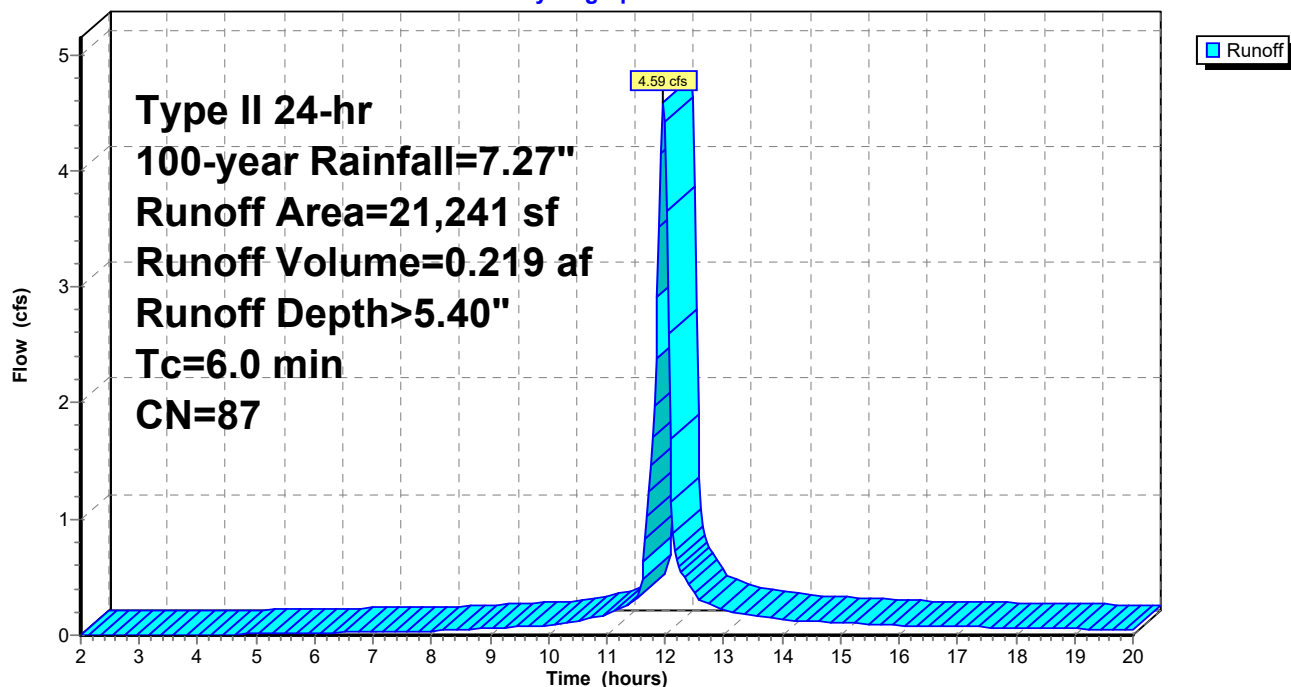
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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



Summary for Subcatchment 200: Area 200

Runoff = 1.50 cfs @ 11.97 hrs, Volume= 0.070 af, Depth> 5.06"

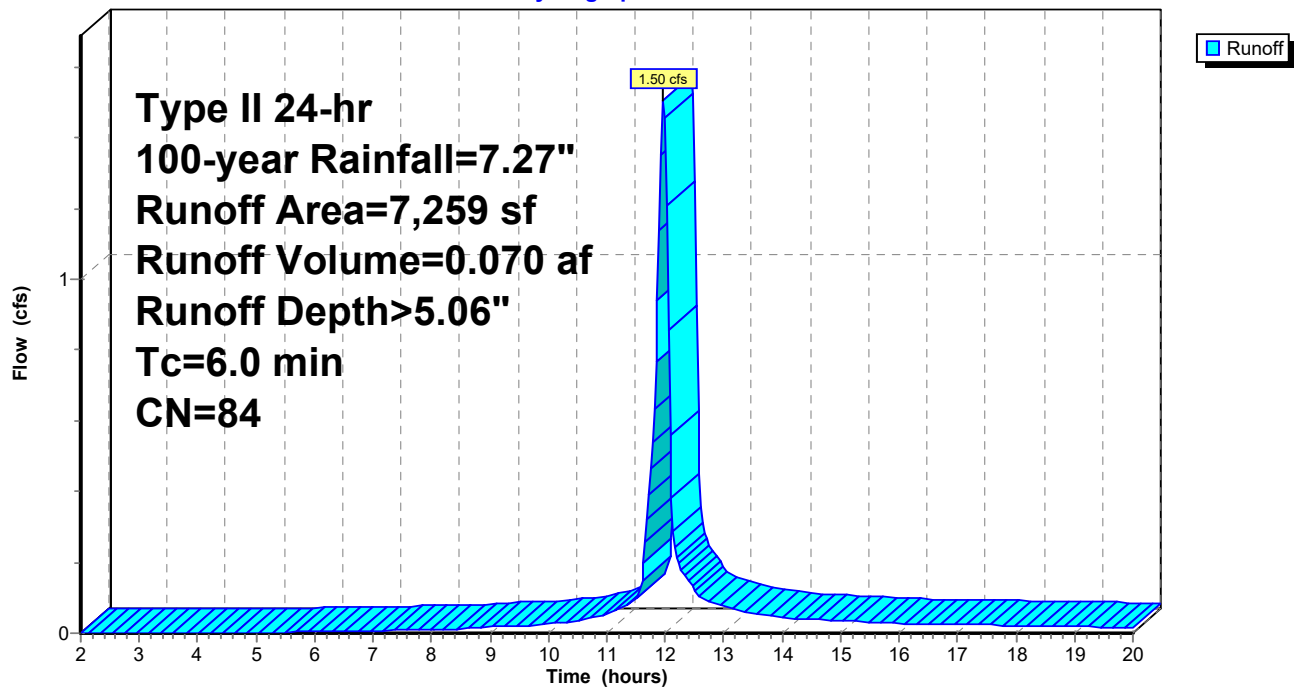
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 300: Area 300

Runoff = 5.56 cfs @ 11.97 hrs, Volume= 0.267 af, Depth> 5.51"

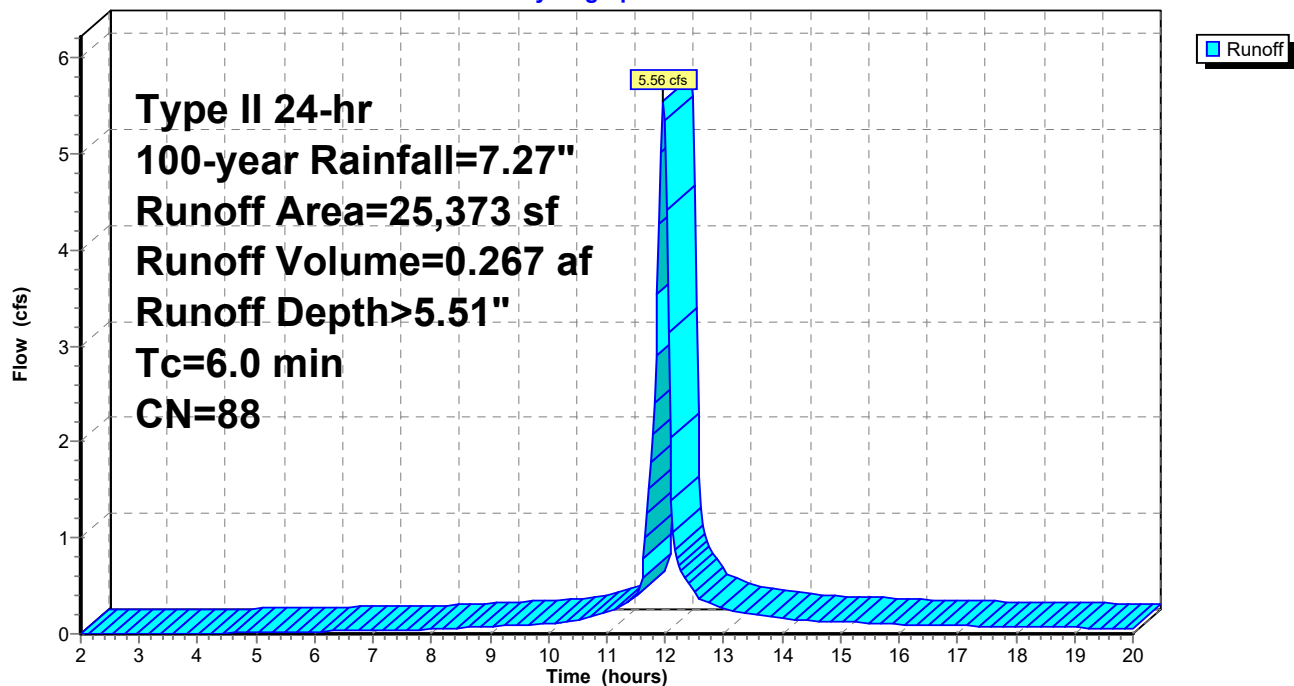
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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 = 0.41 cfs @ 11.97 hrs, Volume= 0.018 af, Depth> 3.55"

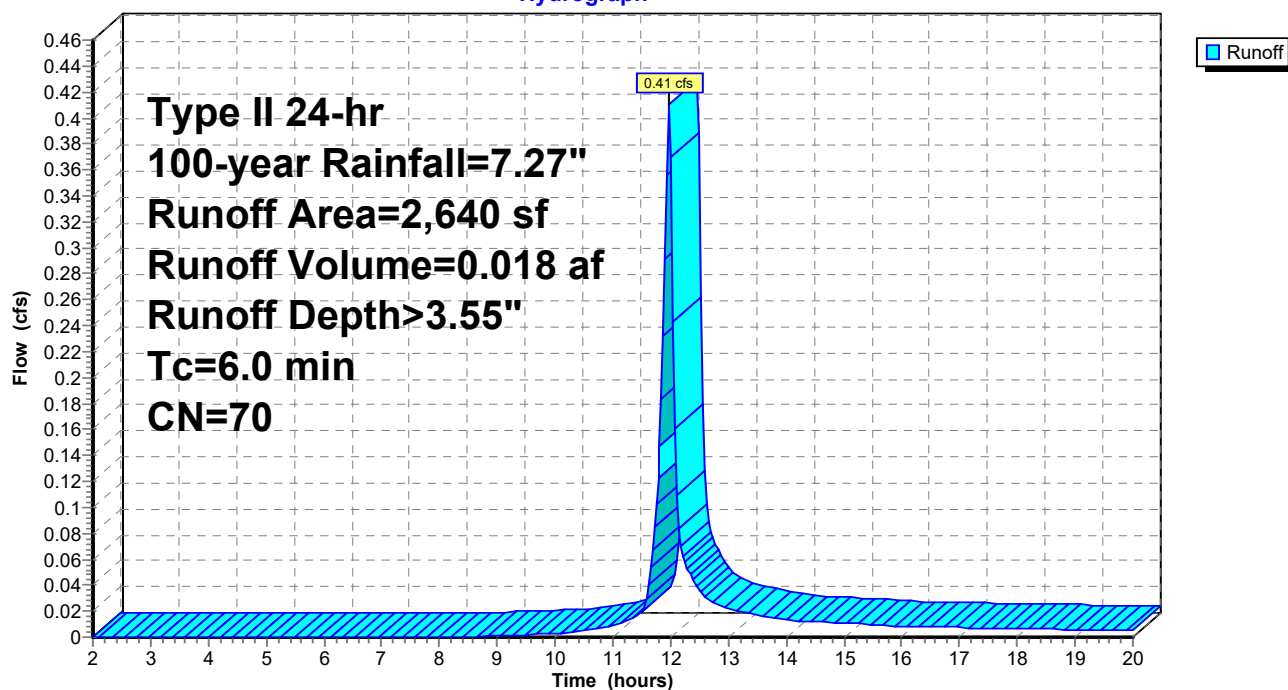
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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



Summary for Subcatchment 400: Area 400

Runoff = 3.82 cfs @ 11.97 hrs, Volume= 0.184 af, Depth> 5.51"

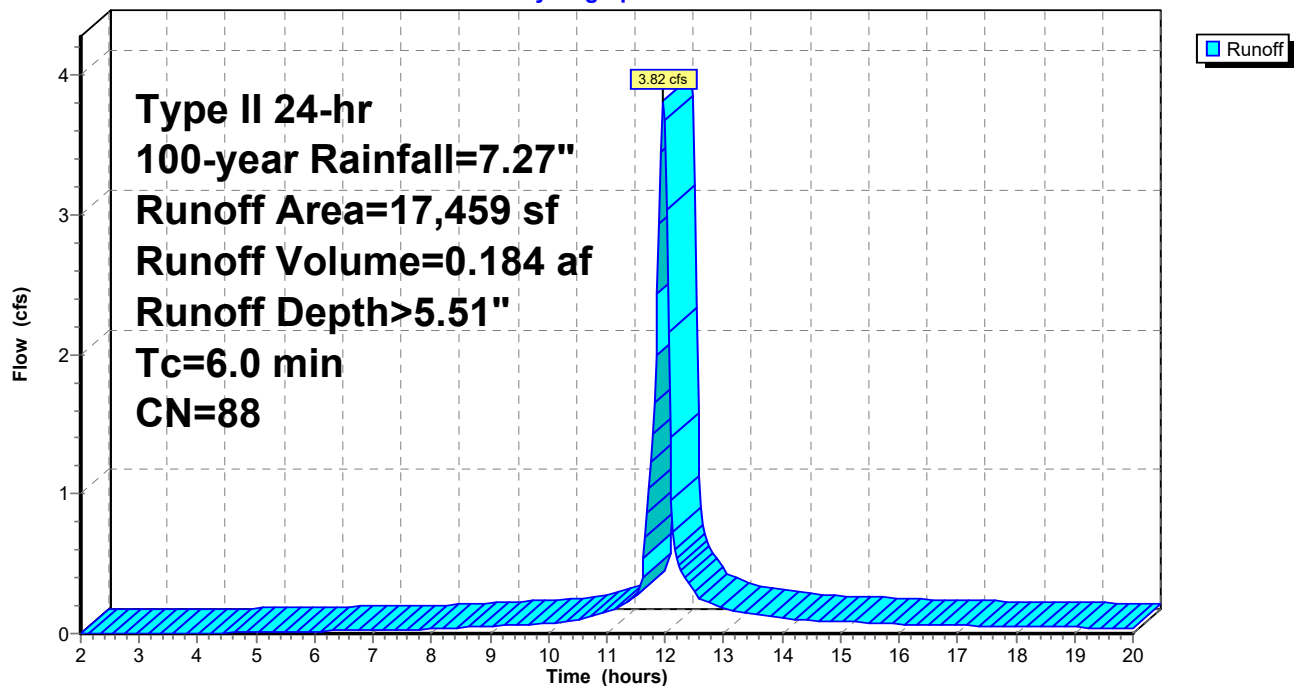
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 450: Area 450

Runoff = 0.65 cfs @ 11.98 hrs, Volume= 0.028 af, Depth> 2.45"

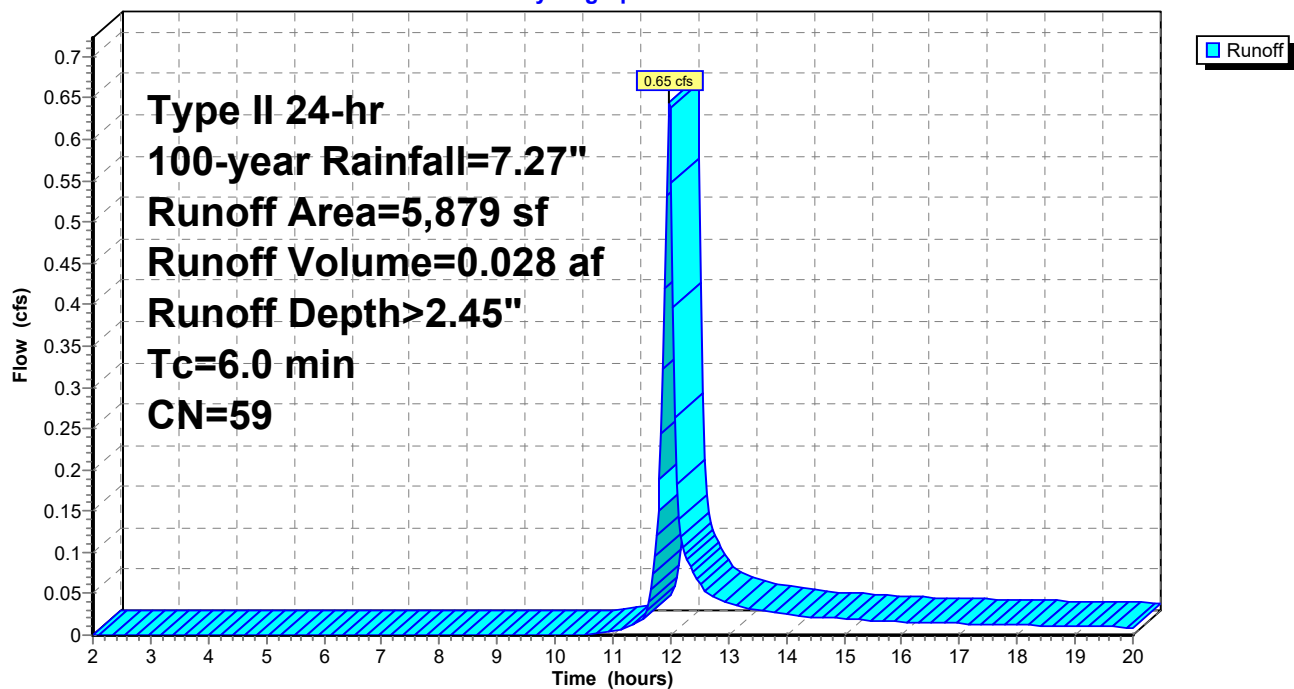
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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



Summary for Subcatchment 500: Area 500

Runoff = 1.74 cfs @ 11.98 hrs, Volume= 0.076 af, Depth> 1.62"

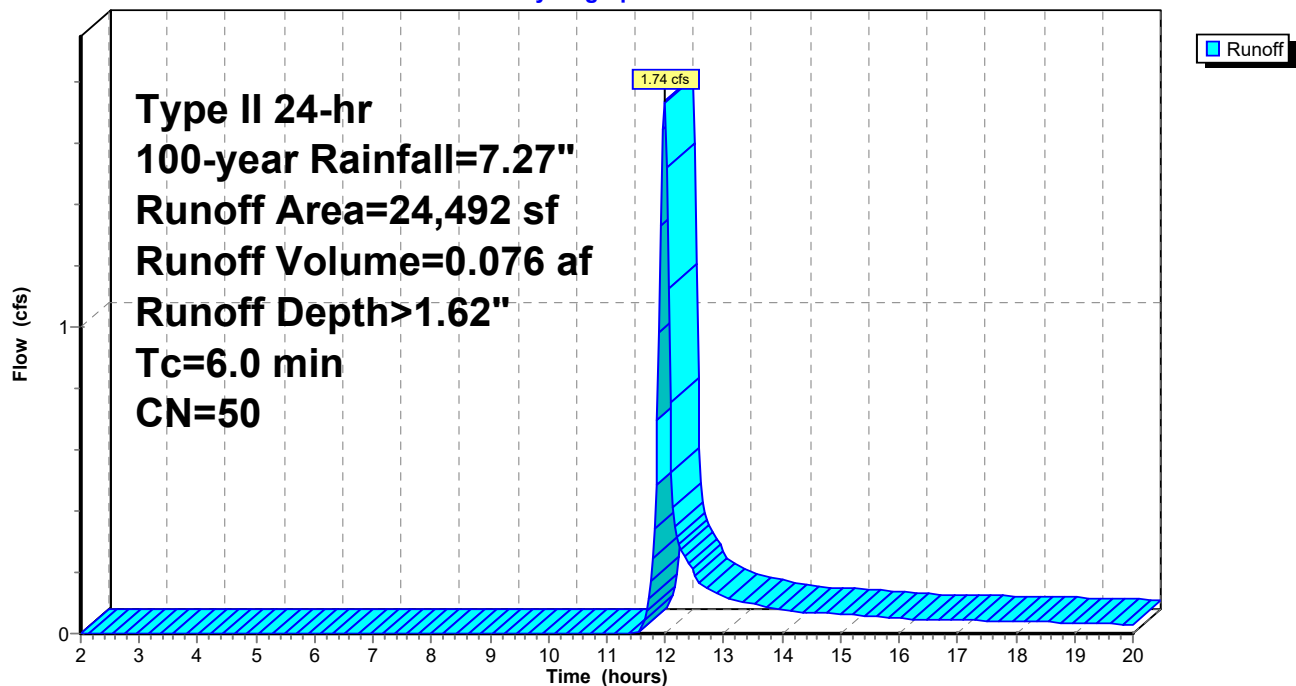
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 550: Area 550

Runoff = 4.84 cfs @ 11.97 hrs, Volume= 0.223 af, Depth> 4.84"

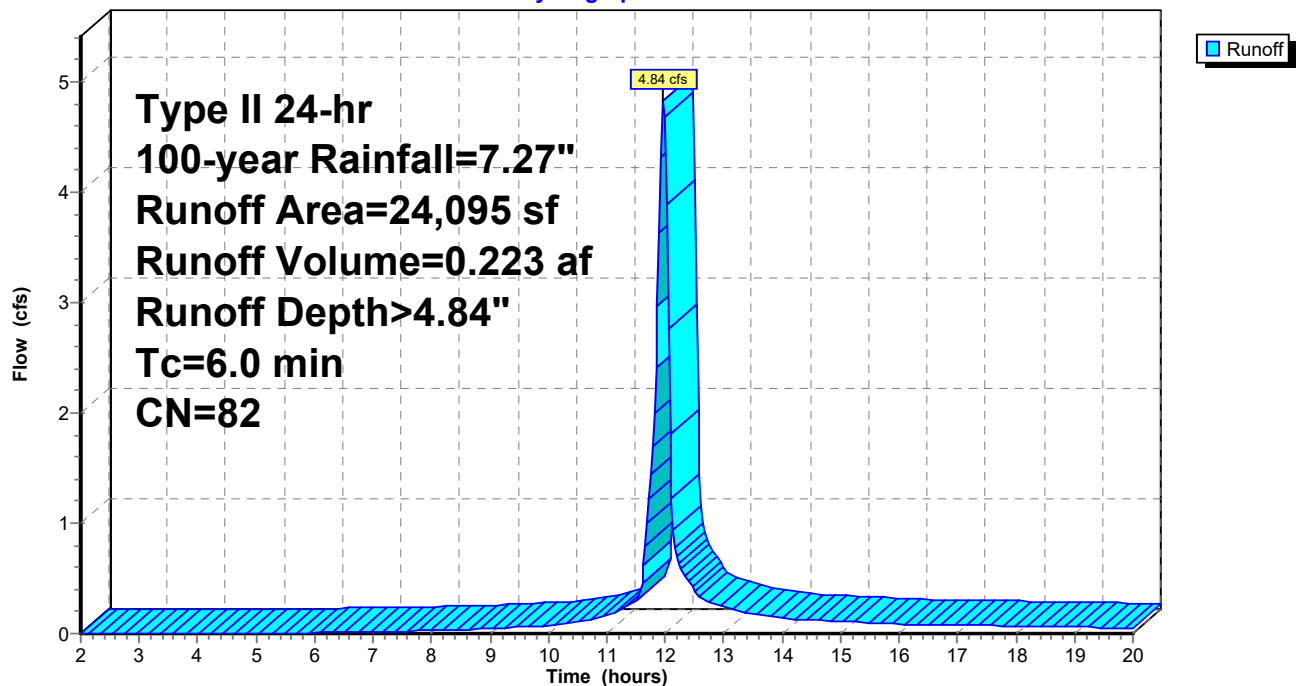
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 600: Area 600

Runoff = 10.25 cfs @ 11.97 hrs, Volume= 0.524 af, Depth> 6.20"

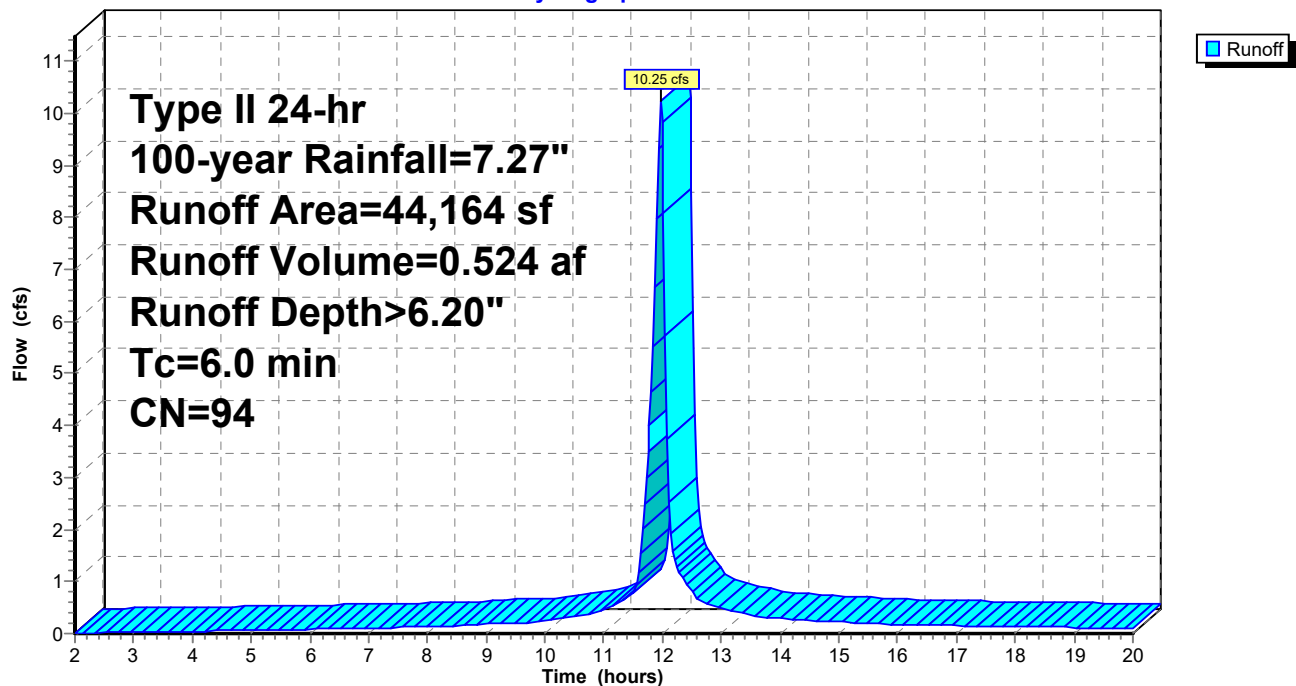
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 700: Area 700

Runoff = 4.59 cfs @ 13.47 hrs, Volume= 1.094 af, Depth> 3.68"

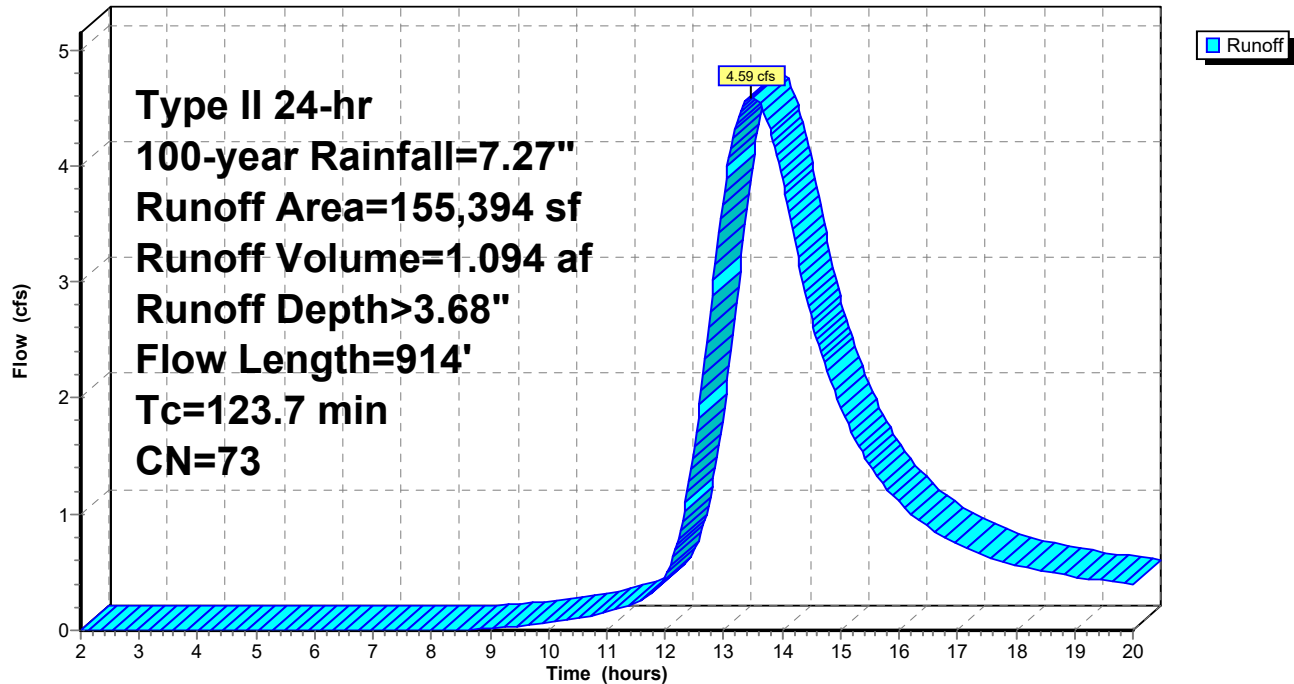
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 800: Area 800

Runoff = 2.47 cfs @ 13.75 hrs, Volume= 0.650 af, Depth> 4.06"

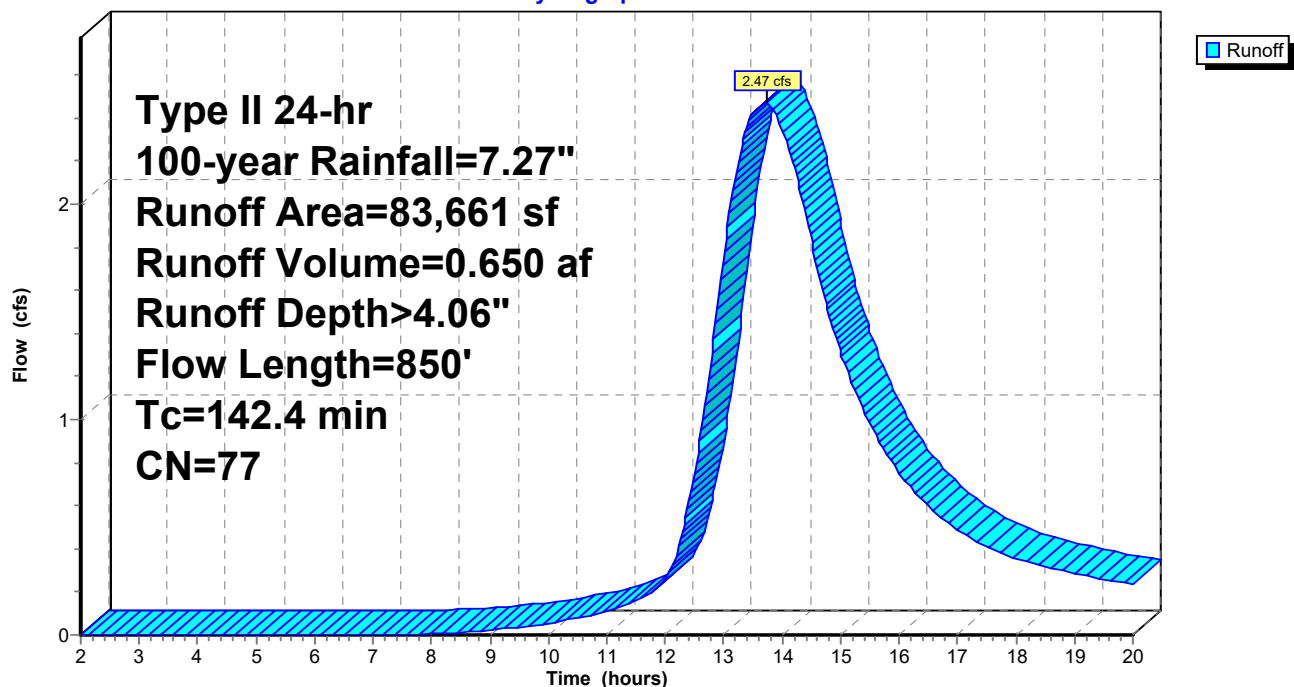
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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 = 1.54 cfs @ 12.37 hrs, Volume= 0.168 af, Depth> 4.24"

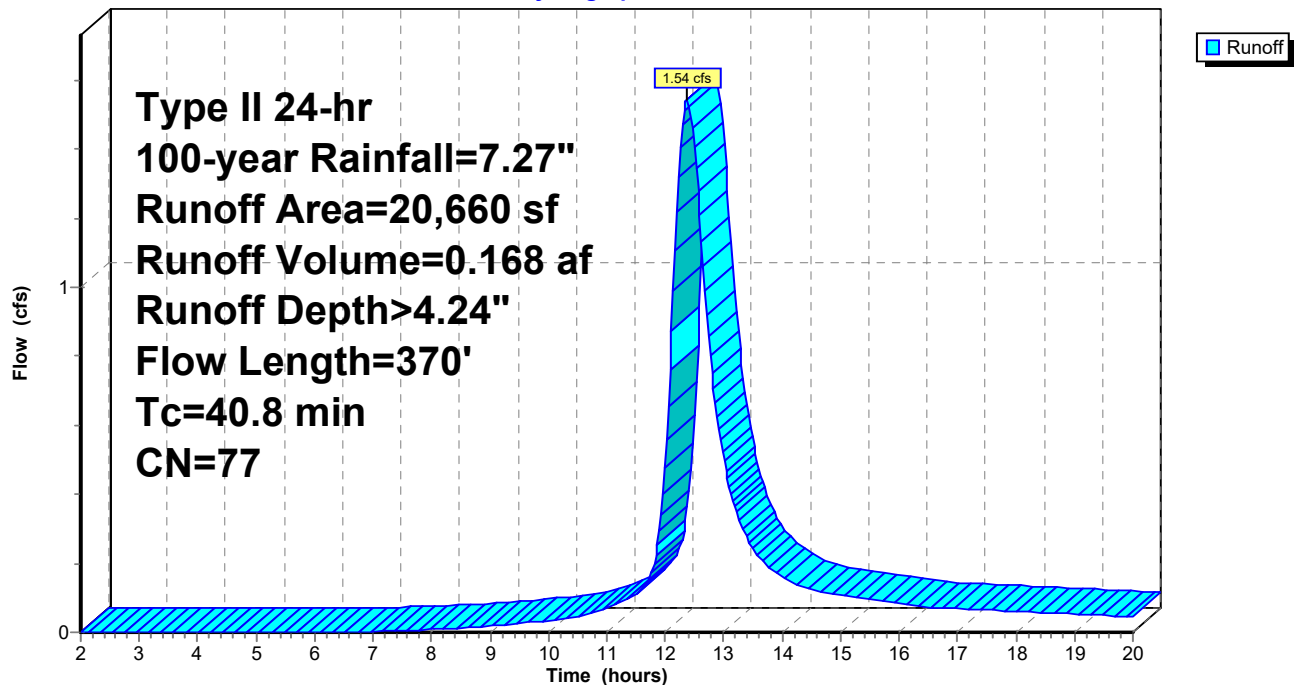
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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'
27.1	320	0.0062	0.20		Woods: Dense underbrush n= 0.800 P2= 3.01"
					Shallow Concentrated Flow, Last 320'
					Forest w/Heavy Litter Kv= 2.5 fps
40.8	370	Total			

Subcatchment 900: Area 900

Hydrograph



Summary for Subcatchment 1000: Area 1000

Runoff = 3.02 cfs @ 13.18 hrs, Volume= 0.622 af, Depth> 3.61"

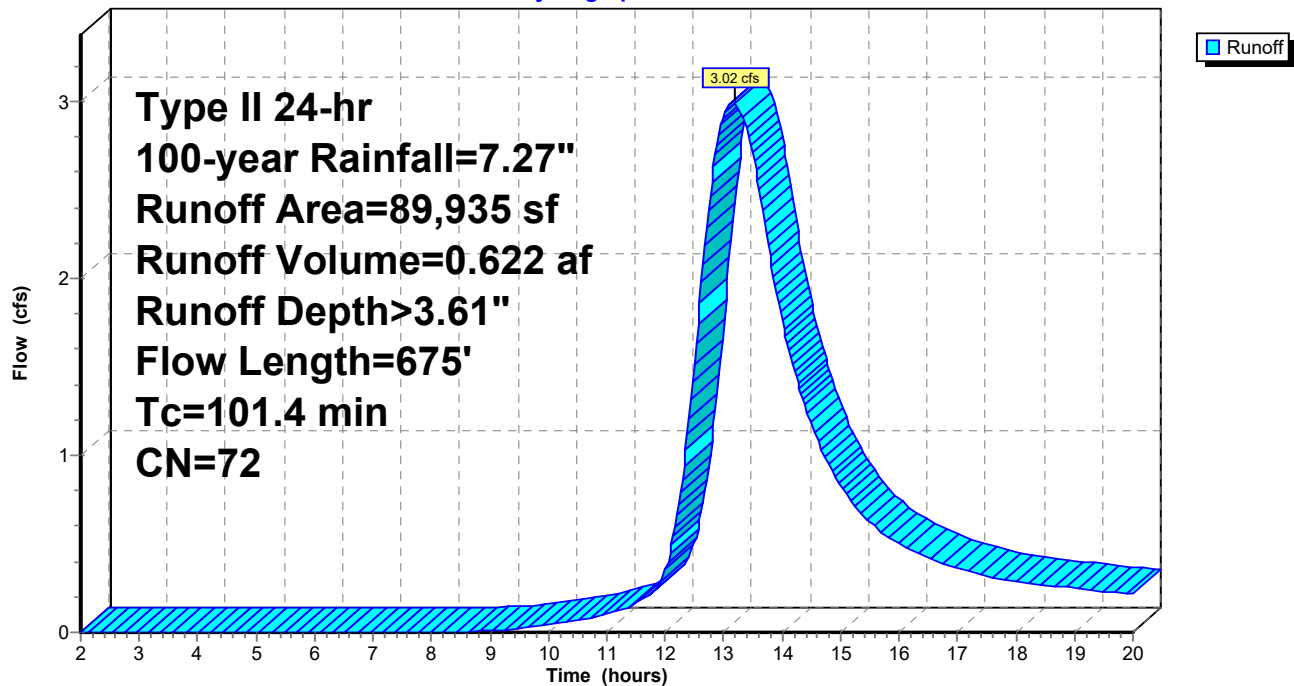
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 1100: Area 1100

Runoff = 1.06 cfs @ 12.21 hrs, Volume= 0.088 af, Depth> 3.52"

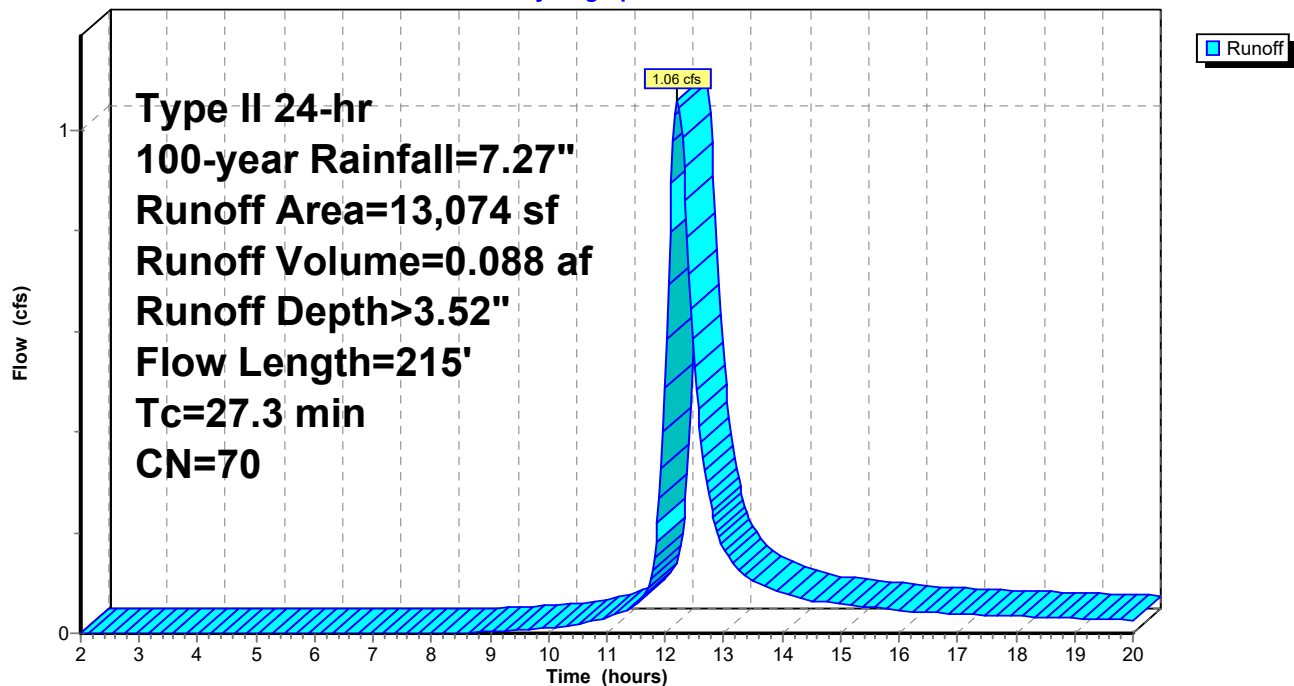
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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



Summary for Subcatchment 1200: Area 1200

Runoff = 4.61 cfs @ 13.70 hrs, Volume= 1.203 af, Depth> 3.86"

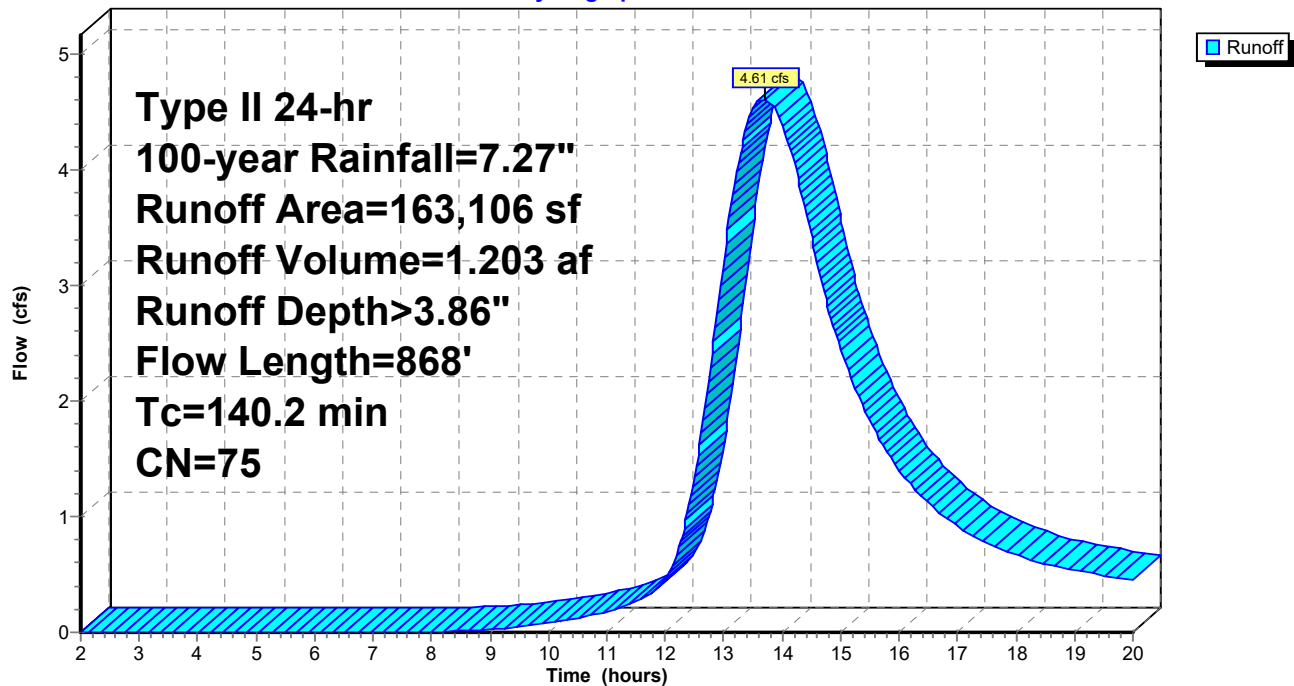
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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 = 1.13 cfs @ 13.66 hrs, Volume= 0.289 af, Depth> 3.65"

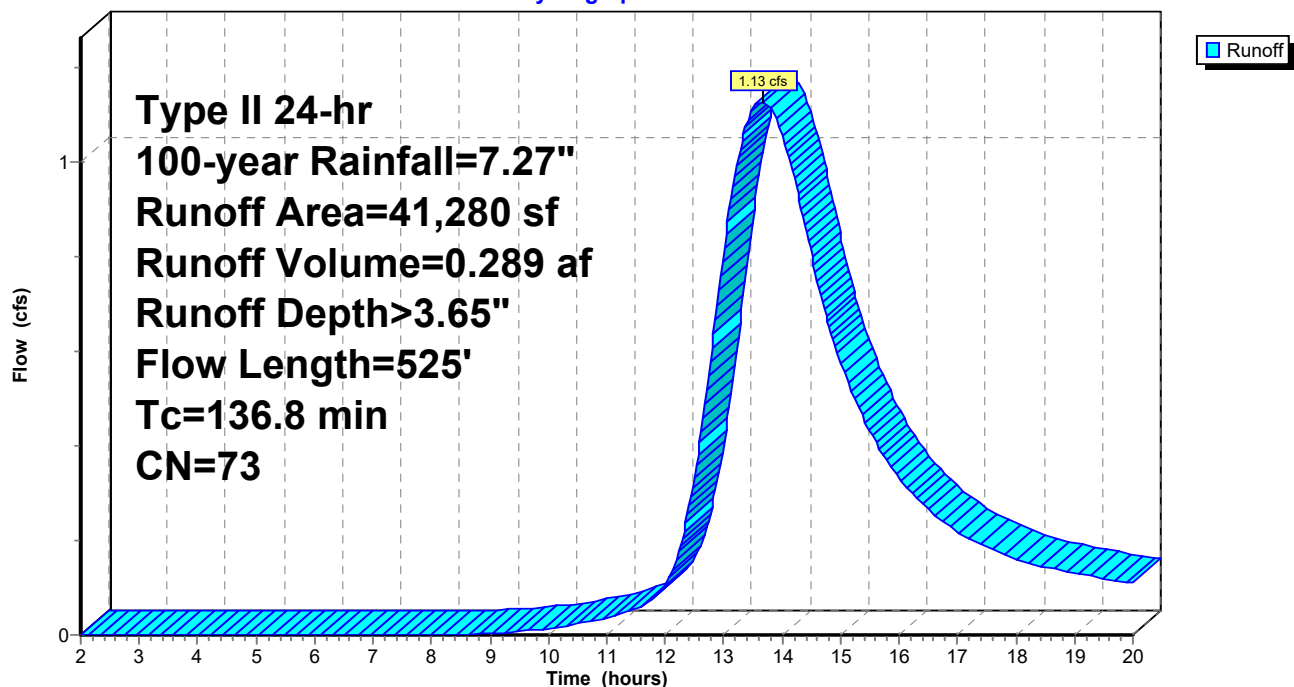
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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



Summary for Subcatchment 1400: Area 1400

Runoff = 2.35 cfs @ 12.61 hrs, Volume= 0.327 af, Depth> 3.89"

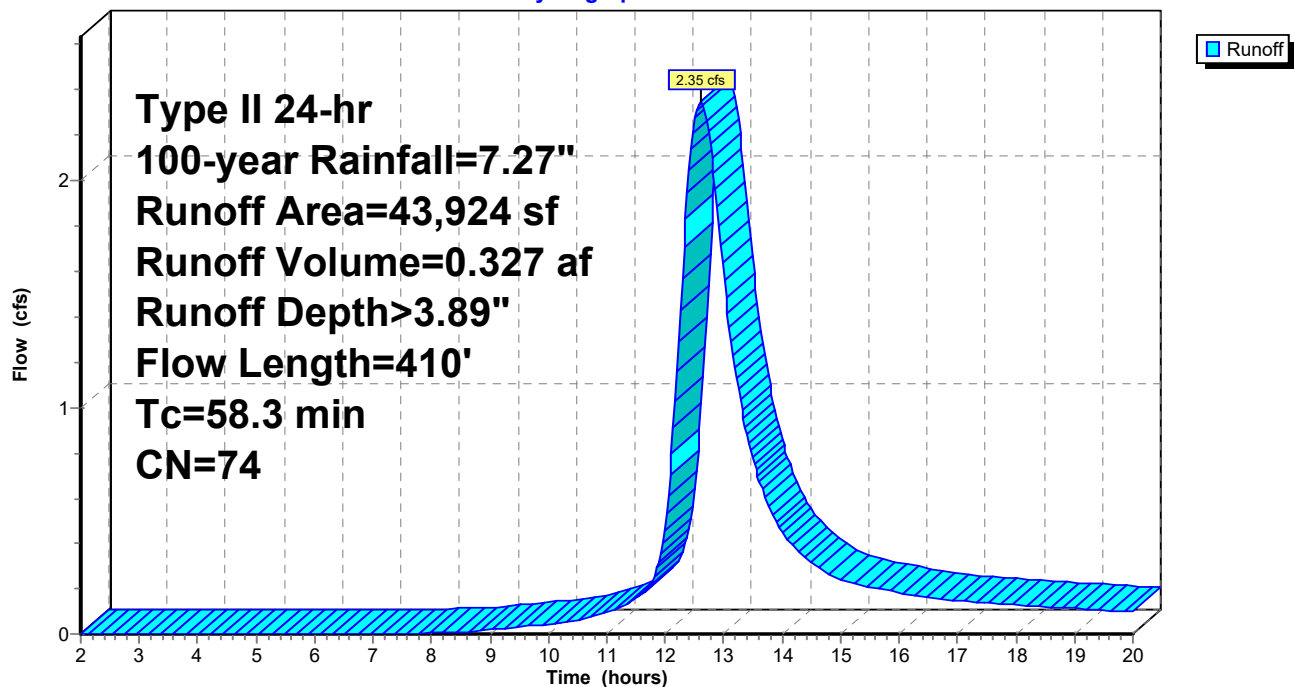
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 1500: Area 1500

Runoff = 0.54 cfs @ 13.30 hrs, Volume= 0.119 af, Depth> 4.12"

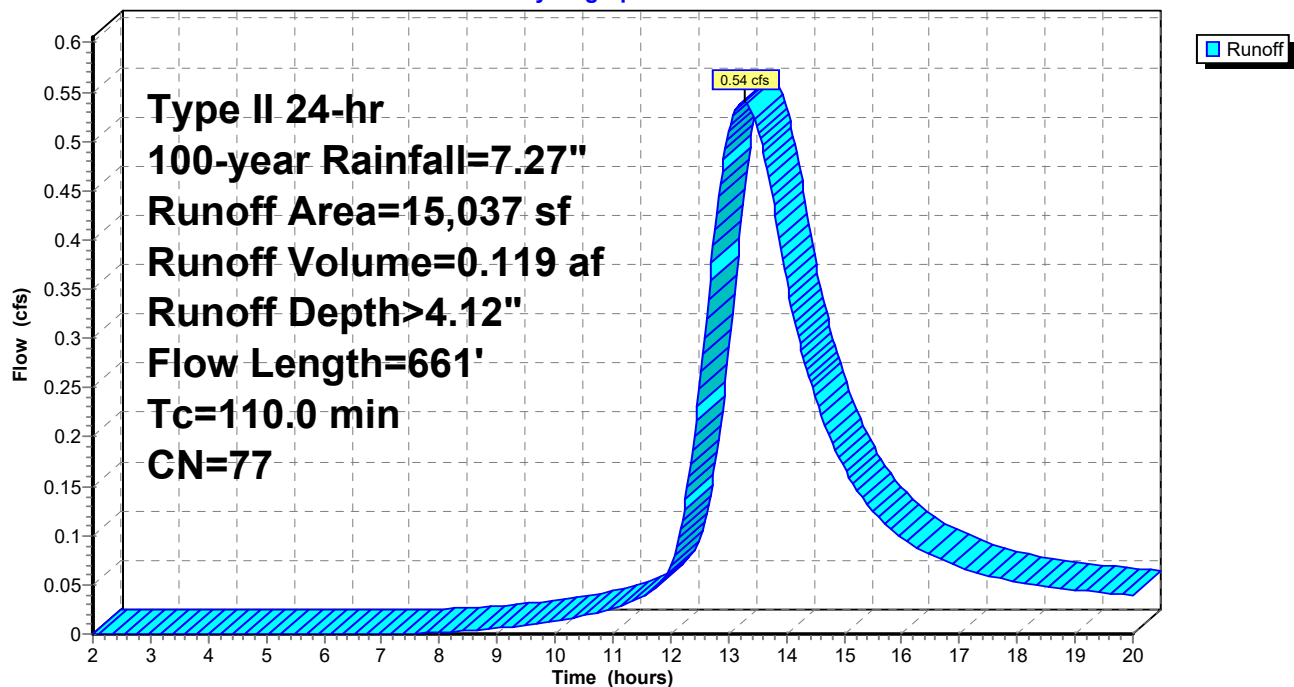
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment 1600: Area 1600

Runoff = 0.30 cfs @ 13.83 hrs, Volume= 0.085 af, Depth> 1.99"

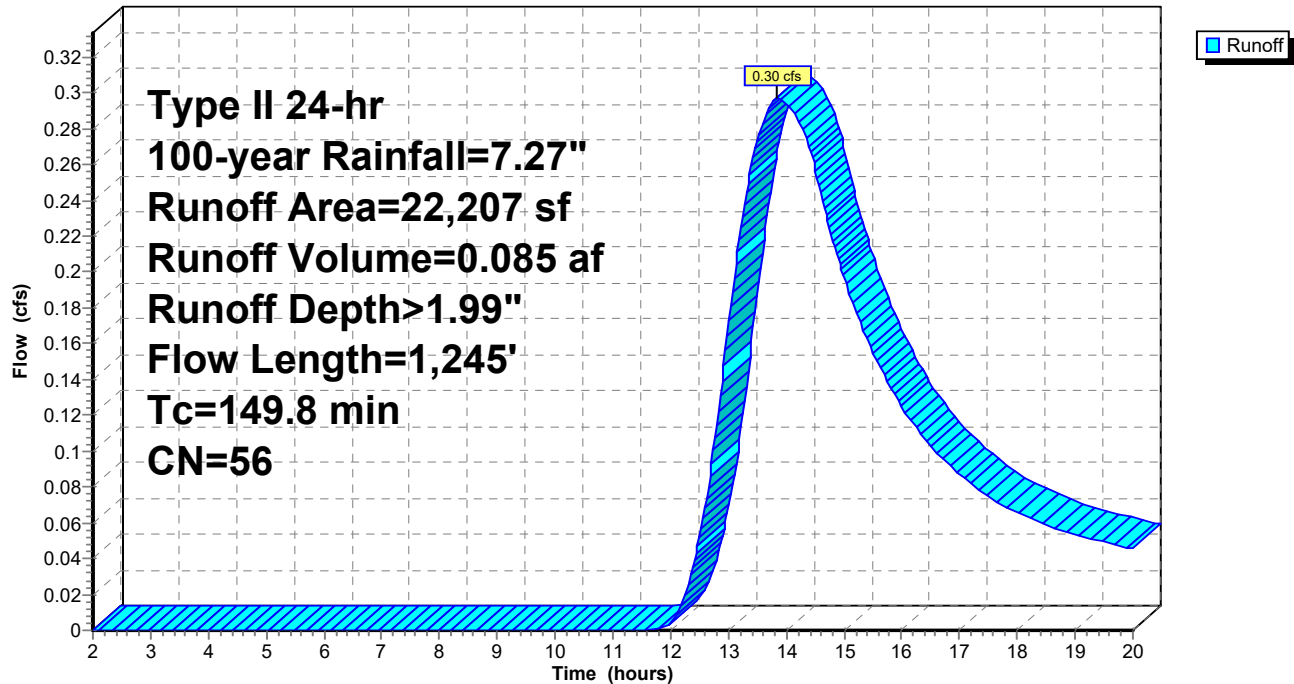
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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



Summary for Subcatchment 1700: Area 1700

Runoff = 0.03 cfs @ 14.89 hrs, Volume= 0.013 af, Depth> 0.29"

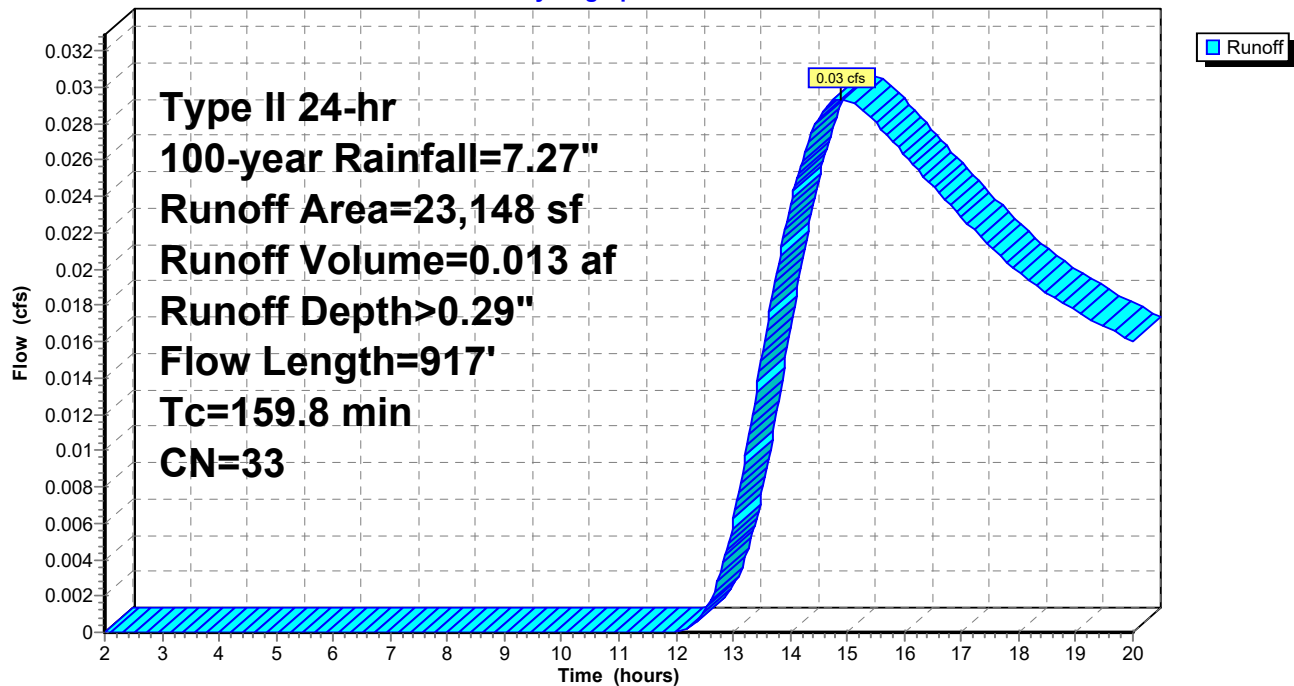
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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



Summary for Subcatchment 1800: Area 1800

Runoff = 1.37 cfs @ 13.64 hrs, Volume= 0.347 af, Depth> 3.45"

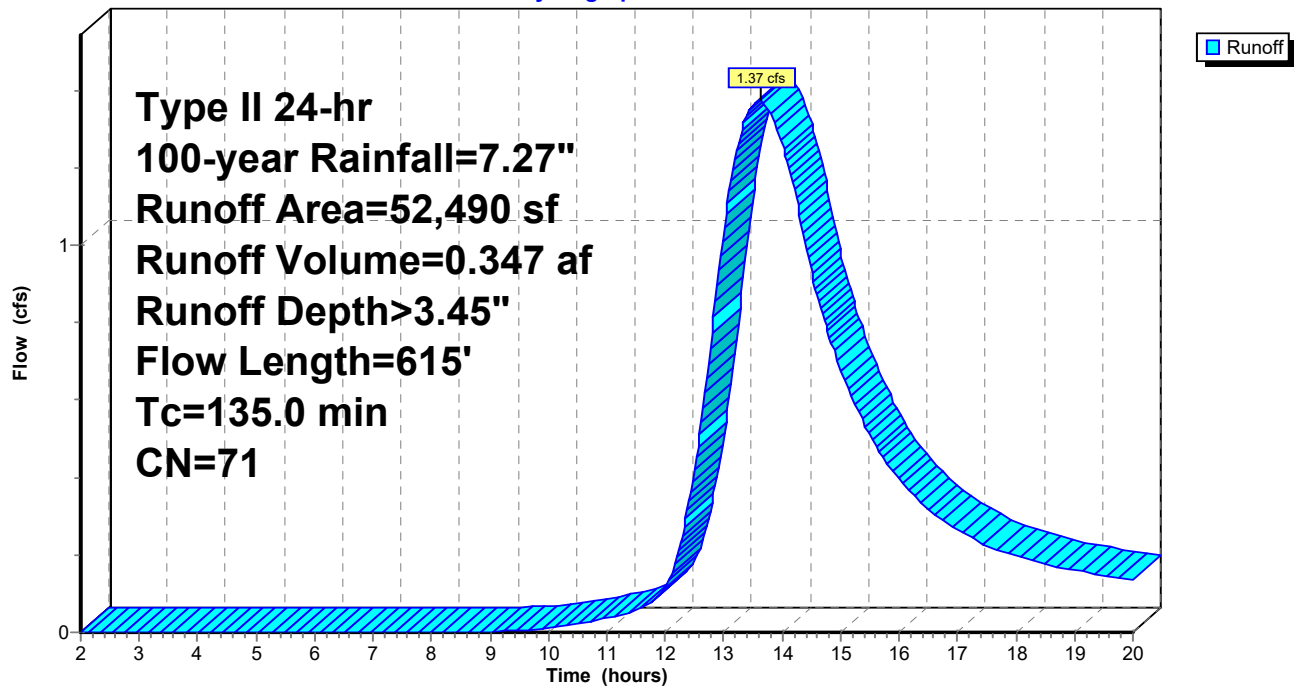
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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

Hydrograph



Summary for Subcatchment DISP: Dispensary Building

Runoff = 0.96 cfs @ 11.97 hrs, Volume= 0.052 af, Depth> 6.64"

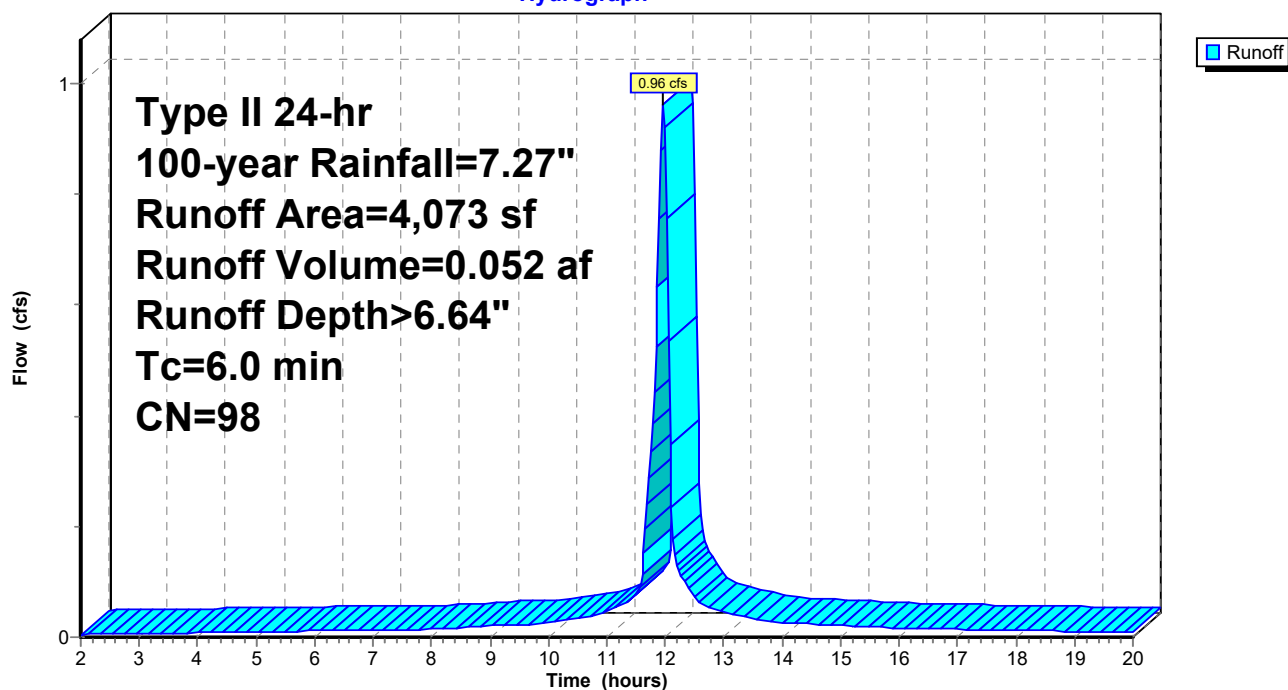
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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 = 1.18 cfs @ 11.97 hrs, Volume= 0.063 af, Depth> 6.64"

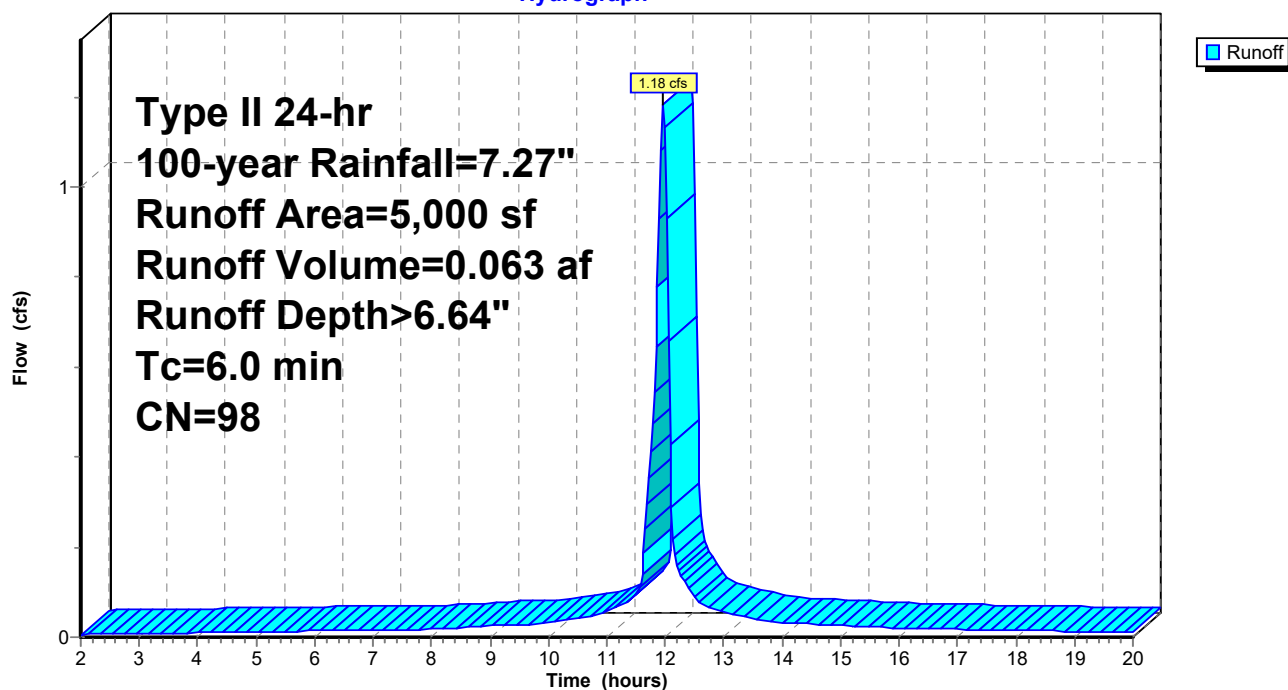
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Type II 24-hr 100-year Rainfall=7.27"

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



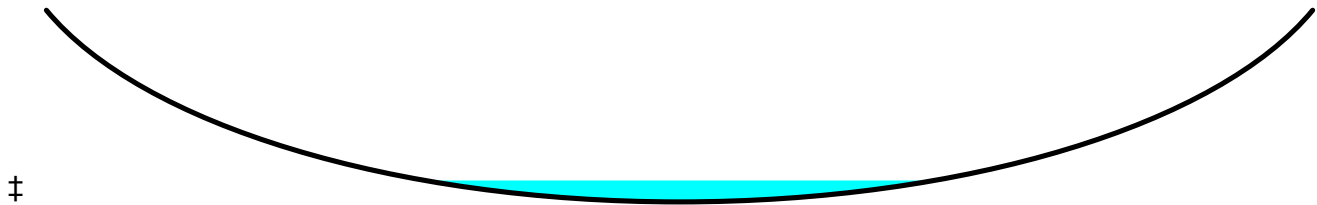
Summary for Reach 1k-2k: x1000 to x2000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 3.03" for 100-year event
 Inflow = 9.01 cfs @ 13.60 hrs, Volume= 2.711 af
 Outflow = 9.00 cfs @ 13.66 hrs, Volume= 2.696 af, Atten= 0%, Lag= 3.5 min

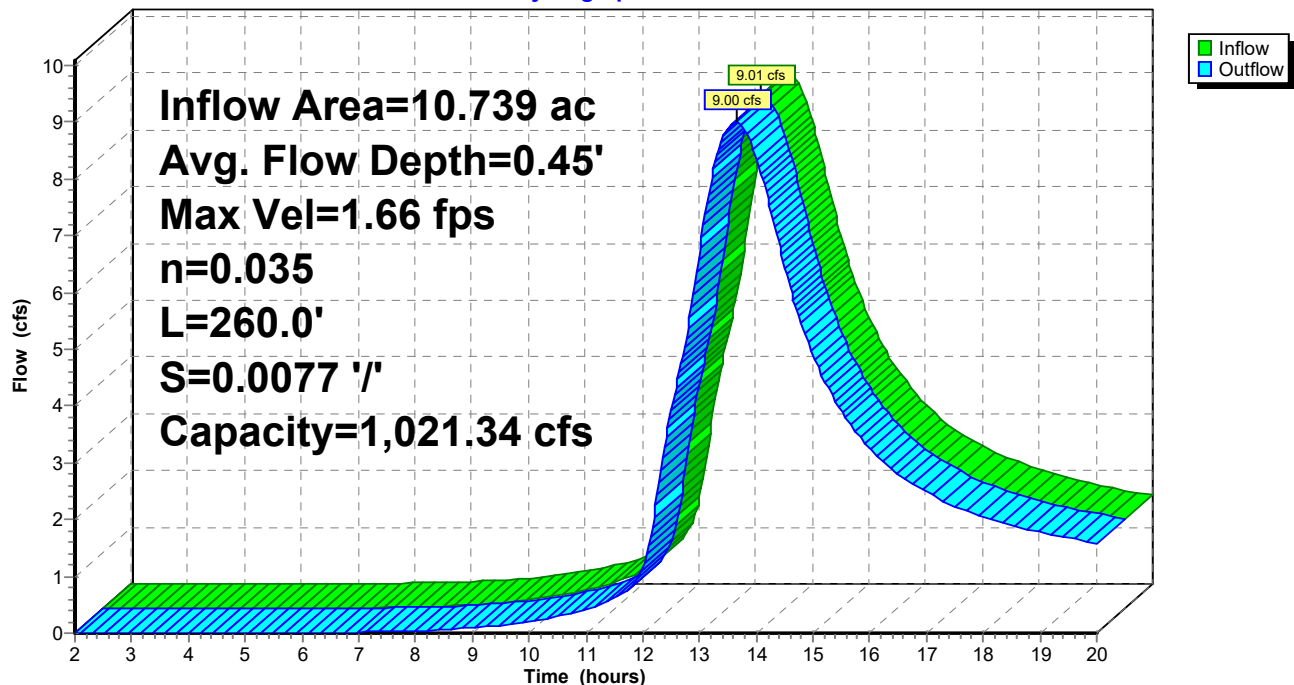
Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.66 fps, Min. Travel Time= 2.6 min
 Avg. Velocity = 0.84 fps, Avg. Travel Time= 5.2 min

Peak Storage= 1,406 cf @ 13.61 hrs
 Average Depth at Peak Storage= 0.45' , Surface Width= 18.08'
 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



Stage-Area-Storage for Reach 1k-2k: x1000 to x2000

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
198.00	0.0	0	200.60	75.5	19,620
198.05	0.2	55	200.65	77.7	20,189
198.10	0.6	150	200.70	79.9	20,763
198.15	1.1	273	200.75	82.1	21,343
198.20	1.6	419	200.80	84.3	21,927
198.25	2.3	586	200.85	86.6	22,517
198.30	3.0	770	200.90	88.9	23,113
198.35	3.7	970	200.95	91.2	23,713
198.40	4.6	1,184	201.00	93.5	24,318
198.45	5.4	1,414	201.05	95.9	24,929
198.50	6.4	1,656	201.10	98.2	25,544
198.55	7.3	1,910	201.15	100.6	26,165
198.60	8.4	2,175	201.20	103.0	26,790
198.65	9.4	2,453	201.25	105.5	27,421
198.70	10.5	2,742	201.30	107.9	28,056
198.75	11.7	3,040	201.35	110.4	28,696
198.80	12.9	3,349	201.40	112.8	29,340
198.85	14.1	3,668	201.45	115.3	29,990
198.90	15.4	3,997	201.50	117.9	30,645
198.95	16.7	4,334	201.55	120.4	31,303
199.00	18.0	4,680	201.60	122.9	31,967
199.05	19.4	5,036	201.65	125.5	32,635
199.10	20.8	5,400	201.70	128.1	33,308
199.15	22.2	5,772	201.75	130.7	33,986
199.20	23.7	6,152	201.80	133.3	34,667
199.25	25.2	6,541	201.85	136.0	35,354
199.30	26.7	6,937	201.90	138.6	36,045
199.35	28.2	7,341	201.95	141.3	36,740
199.40	29.8	7,752	202.00	144.0	37,440
199.45	31.4	8,172			
199.50	33.1	8,598			
199.55	34.7	9,032			
199.60	36.4	9,472			
199.65	38.2	9,919			
199.70	39.9	10,374			
199.75	41.7	10,835			
199.80	43.5	11,302			
199.85	45.3	11,777			
199.90	47.1	12,257			
199.95	49.0	12,744			
200.00	50.9	13,237			
200.05	52.8	13,737			
200.10	54.8	14,243			
200.15	56.7	14,754			
200.20	58.7	15,271			
200.25	60.8	15,795			
200.30	62.8	16,325			
200.35	64.8	16,860			
200.40	66.9	17,401			
200.45	69.0	17,947			
200.50	71.2	18,500			
200.55	73.3	19,057			

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

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 2.93" for 100-year event
 Inflow = 11.62 cfs @ 13.54 hrs, Volume= 3.589 af
 Outflow = 11.60 cfs @ 13.66 hrs, Volume= 3.558 af, Atten= 0%, Lag= 7.1 min

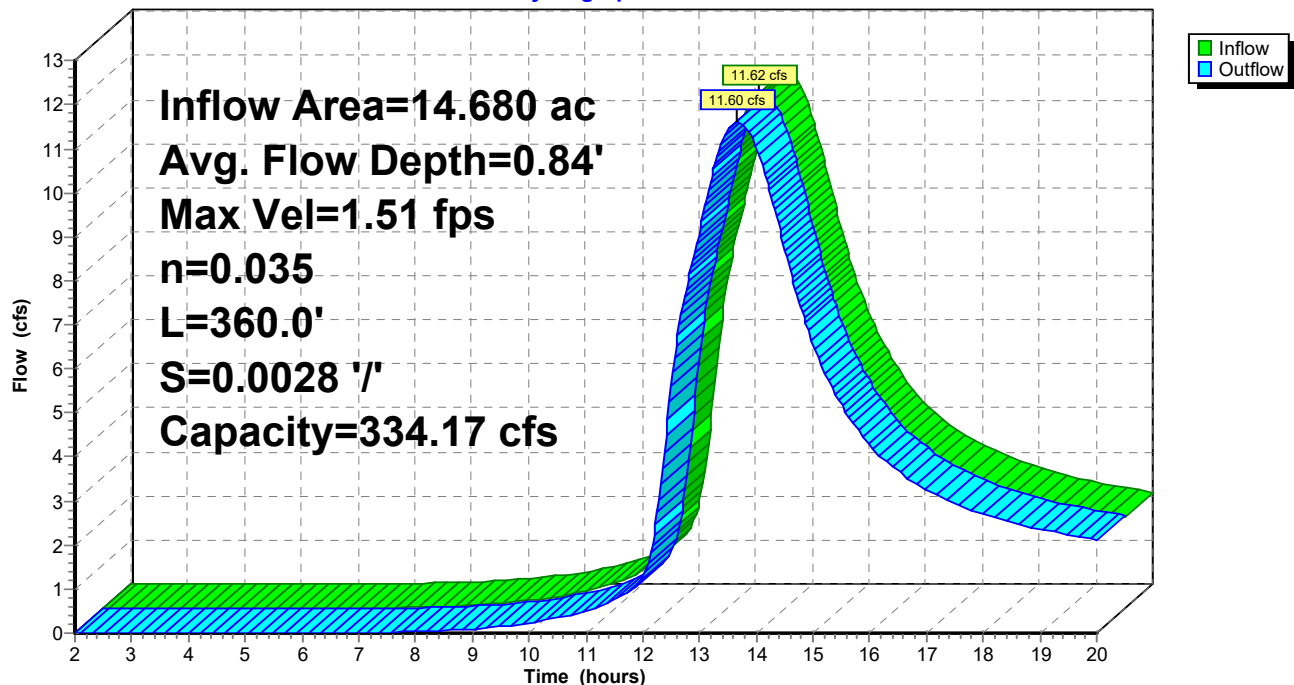
Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Max. Velocity= 1.51 fps, Min. Travel Time= 4.0 min
 Avg. Velocity = 0.74 fps, Avg. Travel Time= 8.1 min

Peak Storage= 2,768 cf @ 13.59 hrs
 Average Depth at Peak Storage= 0.84' , Surface Width= 13.74'
 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



Stage-Area-Storage for Reach 2k-3k: x2000 to x3000

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
196.00	0.0	0	198.60	41.9	15,093
196.05	0.1	42	198.65	43.1	15,530
196.10	0.3	116	198.70	44.4	15,972
196.15	0.6	210	198.75	45.6	16,418
196.20	0.9	322	198.80	46.9	16,867
196.25	1.3	451	198.85	48.1	17,321
196.30	1.6	593	198.90	49.4	17,779
196.35	2.1	746	198.95	50.7	18,241
196.40	2.5	911	199.00	52.0	18,706
196.45	3.0	1,087	199.05	53.3	19,176
196.50	3.5	1,274	199.10	54.6	19,650
196.55	4.1	1,469	199.15	55.9	20,127
196.60	4.6	1,673	199.20	57.2	20,608
196.65	5.2	1,887	199.25	58.6	21,093
196.70	5.9	2,109	199.30	59.9	21,581
196.75	6.5	2,339	199.35	61.3	22,074
196.80	7.2	2,576	199.40	62.7	22,569
196.85	7.8	2,822	199.45	64.1	23,069
196.90	8.5	3,074	199.50	65.5	23,573
196.95	9.3	3,334	199.55	66.9	24,080
197.00	10.0	3,600	199.60	68.3	24,590
197.05	10.8	3,874	199.65	69.7	25,104
197.10	11.5	4,154	199.70	71.2	25,622
197.15	12.3	4,440	199.75	72.6	26,143
197.20	13.1	4,732	199.80	74.1	26,667
197.25	14.0	5,032	199.85	75.5	27,195
197.30	14.8	5,336	199.90	77.0	27,727
197.35	15.7	5,647	199.95	78.5	28,262
197.40	16.6	5,963	200.00	80.0	28,800
197.45	17.5	6,286			
197.50	18.4	6,614			
197.55	19.3	6,947			
197.60	20.2	7,286			
197.65	21.2	7,630			
197.70	22.2	7,980			
197.75	23.2	8,334			
197.80	24.1	8,694			
197.85	25.2	9,059			
197.90	26.2	9,429			
197.95	27.2	9,803			
198.00	28.3	10,182			
198.05	29.4	10,567			
198.10	30.4	10,956			
198.15	31.5	11,349			
198.20	32.6	11,747			
198.25	33.8	12,150			
198.30	34.9	12,558			
198.35	36.0	12,969			
198.40	37.2	13,385			
198.45	38.3	13,806			
198.50	39.5	14,231			
198.55	40.7	14,660			

Summary for Reach CP: Connecting Pipes

[52] Hint: Inlet/Outlet conditions not evaluated

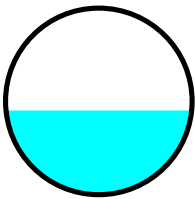
[81] Warning: Exceeded Pond 4A by 0.01' @ 4.10 hrs

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 5.48" for 100-year event
Inflow = 3.63 cfs @ 11.99 hrs, Volume= 0.183 af
Outflow = 3.59 cfs @ 12.00 hrs, Volume= 0.183 af, Atten= 1%, Lag= 0.5 min

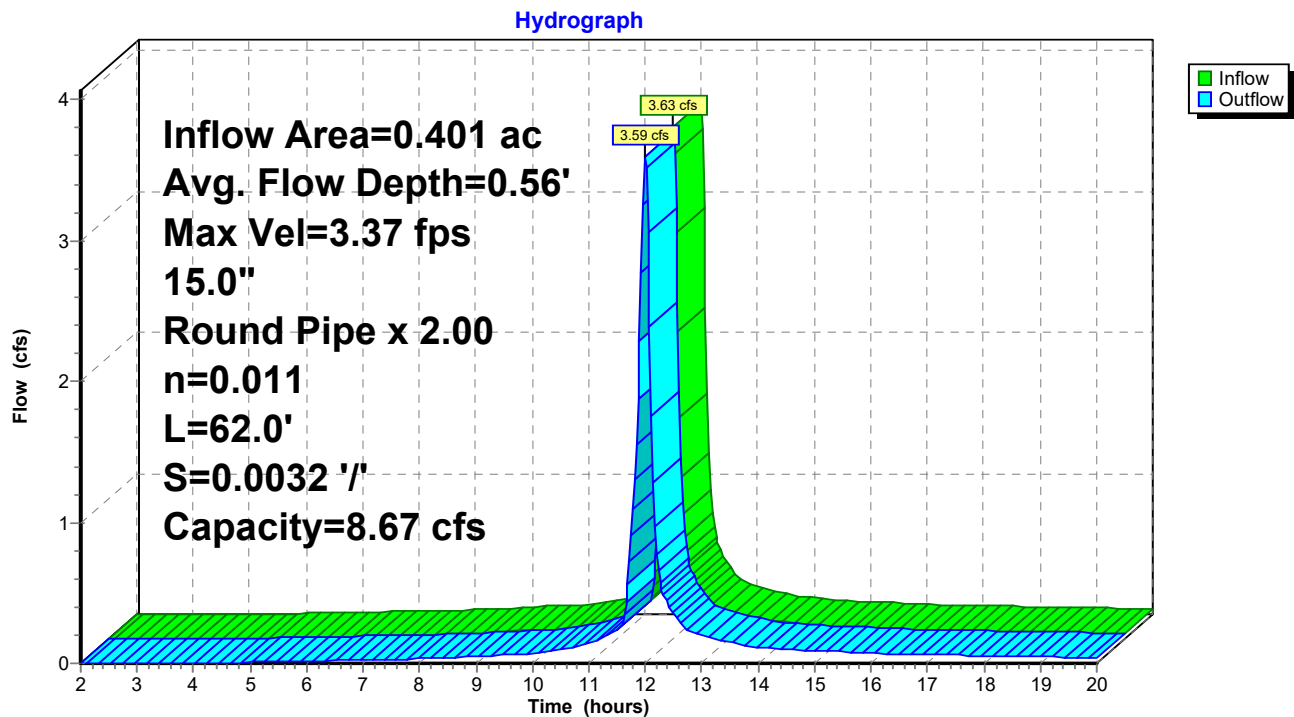
Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 3.37 fps, Min. Travel Time= 0.3 min
Avg. Velocity= 1.03 fps, Avg. Travel Time= 1.0 min

Peak Storage= 67 cf @ 12.00 hrs
Average Depth at Peak Storage= 0.56' , Surface Width= 2.49'
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 CP: Connecting Pipes



Stage-Area-Storage for Reach CP: Connecting Pipes

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.20	0.0	0	206.24	2.2	135
205.22	0.0	1	206.26	2.2	138
205.24	0.0	1	206.28	2.3	140
205.26	0.0	3	206.30	2.3	142
205.28	0.1	4	206.32	2.3	144
205.30	0.1	6	206.34	2.3	146
205.32	0.1	7	206.36	2.4	147
205.34	0.2	9	206.38	2.4	149
205.36	0.2	11	206.40	2.4	150
205.38	0.2	13	206.42	2.4	151
205.40	0.3	16	206.44	2.5	152
205.42	0.3	18			
205.44	0.3	20			
205.46	0.4	23			
205.48	0.4	25			
205.50	0.5	28			
205.52	0.5	31			
205.54	0.5	33			
205.56	0.6	36			
205.58	0.6	39			
205.60	0.7	42			
205.62	0.7	45			
205.64	0.8	48			
205.66	0.8	51			
205.68	0.9	54			
205.70	0.9	57			
205.72	1.0	60			
205.74	1.0	63			
205.76	1.1	66			
205.78	1.1	69			
205.80	1.2	72			
205.82	1.2	75			
205.84	1.3	78			
205.86	1.3	82			
205.88	1.4	85			
205.90	1.4	88			
205.92	1.5	91			
205.94	1.5	94			
205.96	1.6	97			
205.98	1.6	100			
206.00	1.7	103			
206.02	1.7	106			
206.04	1.8	109			
206.06	1.8	112			
206.08	1.8	114			
206.10	1.9	117			
206.12	1.9	120			
206.14	2.0	123			
206.16	2.0	125			
206.18	2.1	128			
206.20	2.1	131			
206.22	2.1	133			

Summary for Reach P1: Pipe Out of 1

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 1P Primary device # 1 by 0.13'

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.62" for 100-year event
Inflow = 0.09 cfs @ 15.53 hrs, Volume= 0.066 af
Outflow = 0.09 cfs @ 15.55 hrs, Volume= 0.065 af, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 1.54 fps, Min. Travel Time= 0.8 min

Avg. Velocity= 1.08 fps, Avg. Travel Time= 1.2 min

Peak Storage= 5 cf @ 15.54 hrs

Average Depth at Peak Storage= 0.13' , Surface Width= 0.67'

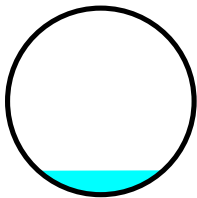
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.55 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

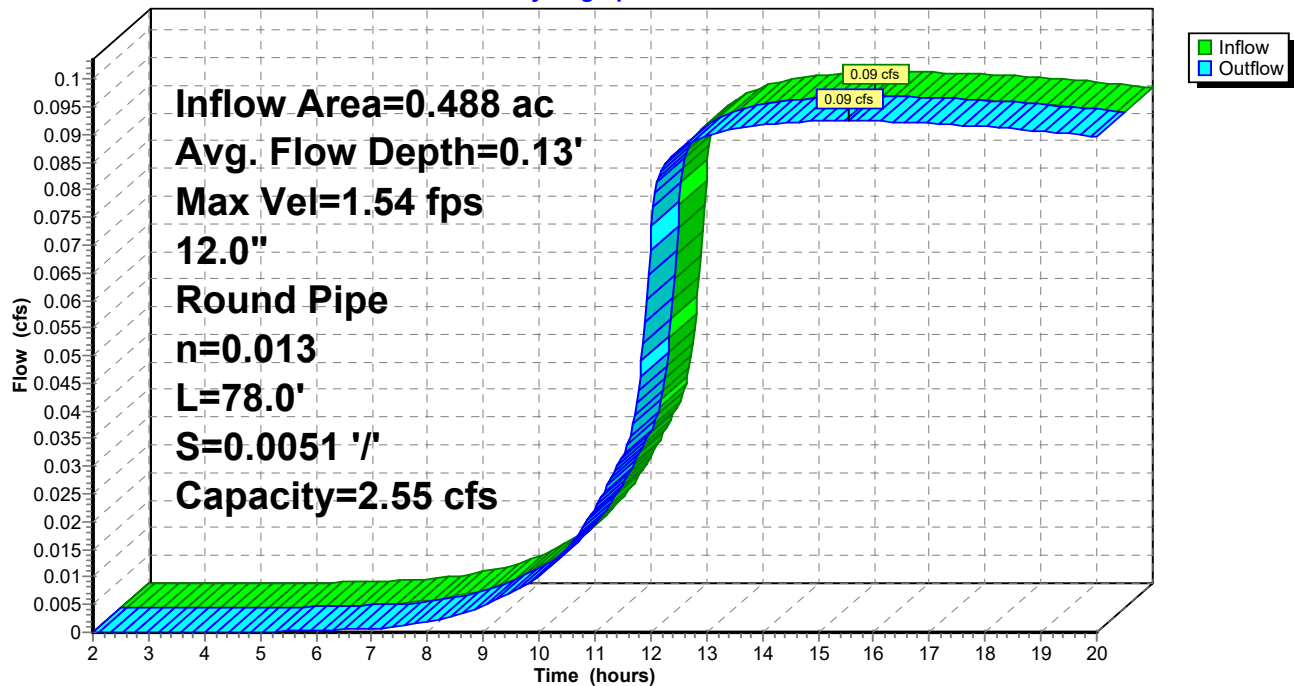
Length= 78.0' Slope= 0.0051 '/'

Inlet Invert= 204.00', Outlet Invert= 203.60'



Reach P1: Pipe Out of 1

Hydrograph



Stage-Area-Storage for Reach P1: Pipe Out of 1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	32
204.01	0.0	0	204.53	0.4	33
204.02	0.0	0	204.54	0.4	34
204.03	0.0	1	204.55	0.4	35
204.04	0.0	1	204.56	0.5	35
204.05	0.0	1	204.57	0.5	36
204.06	0.0	2	204.58	0.5	37
204.07	0.0	2	204.59	0.5	38
204.08	0.0	2	204.60	0.5	38
204.09	0.0	3	204.61	0.5	39
204.10	0.0	3	204.62	0.5	40
204.11	0.0	4	204.63	0.5	41
204.12	0.1	4	204.64	0.5	41
204.13	0.1	5	204.65	0.5	42
204.14	0.1	5	204.66	0.5	43
204.15	0.1	6	204.67	0.6	44
204.16	0.1	6	204.68	0.6	44
204.17	0.1	7	204.69	0.6	45
204.18	0.1	7	204.70	0.6	46
204.19	0.1	8	204.71	0.6	47
204.20	0.1	9	204.72	0.6	47
204.21	0.1	9	204.73	0.6	48
204.22	0.1	10	204.74	0.6	49
204.23	0.1	11	204.75	0.6	49
204.24	0.1	11	204.76	0.6	50
204.25	0.2	12	204.77	0.6	51
204.26	0.2	13	204.78	0.7	51
204.27	0.2	13	204.79	0.7	52
204.28	0.2	14	204.80	0.7	53
204.29	0.2	15	204.81	0.7	53
204.30	0.2	15	204.82	0.7	54
204.31	0.2	16	204.83	0.7	54
204.32	0.2	17	204.84	0.7	55
204.33	0.2	18	204.85	0.7	55
204.34	0.2	18	204.86	0.7	56
204.35	0.2	19	204.87	0.7	57
204.36	0.3	20	204.88	0.7	57
204.37	0.3	21	204.89	0.7	58
204.38	0.3	21	204.90	0.7	58
204.39	0.3	22	204.91	0.8	59
204.40	0.3	23	204.92	0.8	59
204.41	0.3	24	204.93	0.8	59
204.42	0.3	24	204.94	0.8	60
204.43	0.3	25	204.95	0.8	60
204.44	0.3	26	204.96	0.8	60
204.45	0.3	27	204.97	0.8	61
204.46	0.4	28	204.98	0.8	61
204.47	0.4	28	204.99	0.8	61
204.48	0.4	29	205.00	0.8	61
204.49	0.4	30			
204.50	0.4	31			
204.51	0.4	31			

Summary for Reach P2: Pipe Out of 2

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 2P Primary device # 1 by 0.15'

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 3.14" for 100-year event
Inflow = 0.13 cfs @ 13.56 hrs, Volume= 0.098 af
Outflow = 0.13 cfs @ 13.57 hrs, Volume= 0.098 af, Atten= 0%, Lag= 1.0 min

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= 1.21 fps, Avg. Travel Time= 0.8 min

Peak Storage= 5 cf @ 13.56 hrs

Average Depth at Peak Storage= 0.15' , Surface Width= 0.72'

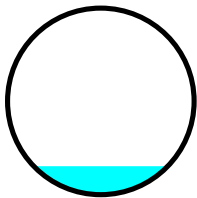
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

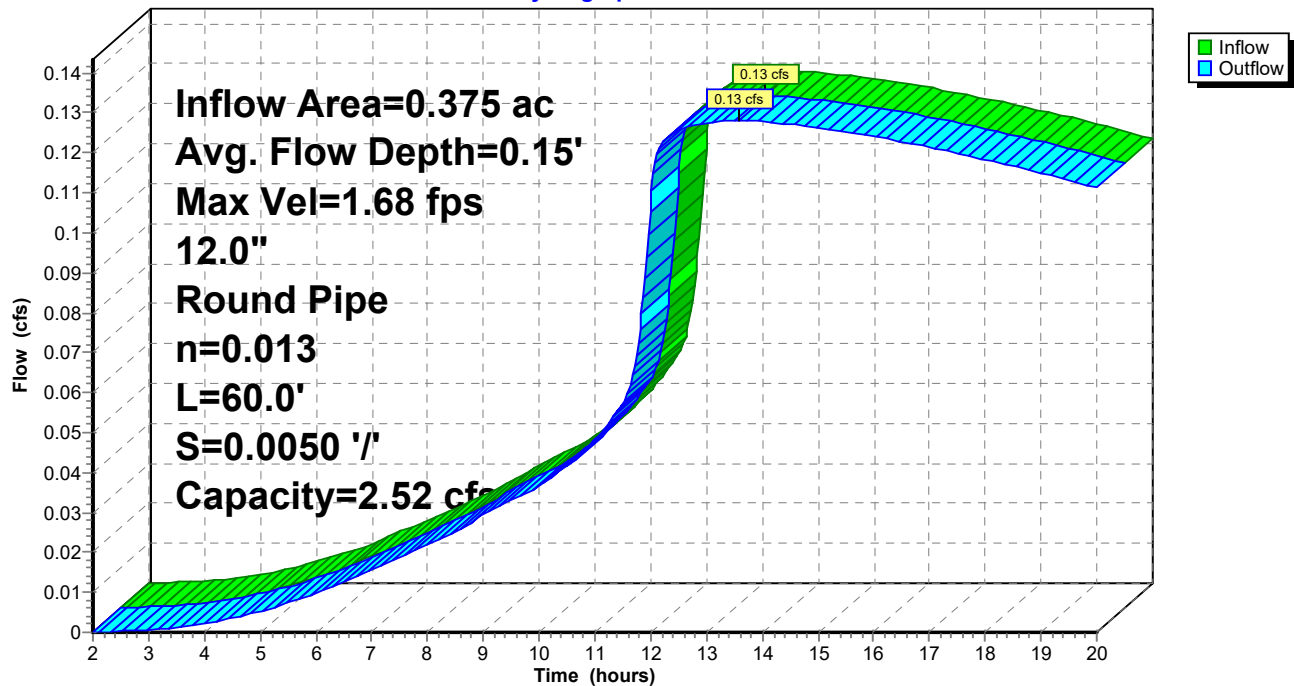
Length= 60.0' Slope= 0.0050 '/'

Inlet Invert= 204.00', Outlet Invert= 203.70'



Reach P2: Pipe Out of 2

Hydrograph



Stage-Area-Storage for Reach P2: Pipe Out of 2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	25
204.01	0.0	0	204.53	0.4	25
204.02	0.0	0	204.54	0.4	26
204.03	0.0	0	204.55	0.4	27
204.04	0.0	1	204.56	0.5	27
204.05	0.0	1	204.57	0.5	28
204.06	0.0	1	204.58	0.5	28
204.07	0.0	1	204.59	0.5	29
204.08	0.0	2	204.60	0.5	30
204.09	0.0	2	204.61	0.5	30
204.10	0.0	2	204.62	0.5	31
204.11	0.0	3	204.63	0.5	31
204.12	0.1	3	204.64	0.5	32
204.13	0.1	4	204.65	0.5	32
204.14	0.1	4	204.66	0.5	33
204.15	0.1	4	204.67	0.6	34
204.16	0.1	5	204.68	0.6	34
204.17	0.1	5	204.69	0.6	35
204.18	0.1	6	204.70	0.6	35
204.19	0.1	6	204.71	0.6	36
204.20	0.1	7	204.72	0.6	36
204.21	0.1	7	204.73	0.6	37
204.22	0.1	8	204.74	0.6	37
204.23	0.1	8	204.75	0.6	38
204.24	0.1	9	204.76	0.6	38
204.25	0.2	9	204.77	0.6	39
204.26	0.2	10	204.78	0.7	39
204.27	0.2	10	204.79	0.7	40
204.28	0.2	11	204.80	0.7	40
204.29	0.2	11	204.81	0.7	41
204.30	0.2	12	204.82	0.7	41
204.31	0.2	12	204.83	0.7	42
204.32	0.2	13	204.84	0.7	42
204.33	0.2	14	204.85	0.7	43
204.34	0.2	14	204.86	0.7	43
204.35	0.2	15	204.87	0.7	44
204.36	0.3	15	204.88	0.7	44
204.37	0.3	16	204.89	0.7	44
204.38	0.3	16	204.90	0.7	45
204.39	0.3	17	204.91	0.8	45
204.40	0.3	18	204.92	0.8	45
204.41	0.3	18	204.93	0.8	46
204.42	0.3	19	204.94	0.8	46
204.43	0.3	19	204.95	0.8	46
204.44	0.3	20	204.96	0.8	46
204.45	0.3	21	204.97	0.8	47
204.46	0.4	21	204.98	0.8	47
204.47	0.4	22	204.99	0.8	47
204.48	0.4	22	205.00	0.8	47
204.49	0.4	23			
204.50	0.4	24			
204.51	0.4	24			

Summary for Reach P3: Pipe Out of 3

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.16'

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 2.11" for 100-year event
Inflow = 0.14 cfs @ 14.62 hrs, Volume= 0.102 af
Outflow = 0.14 cfs @ 14.64 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 1.71 fps, Min. Travel Time= 0.4 min

Avg. Velocity= 1.24 fps, Avg. Travel Time= 0.5 min

Peak Storage= 3 cf @ 14.63 hrs

Average Depth at Peak Storage= 0.16' , Surface Width= 0.73'

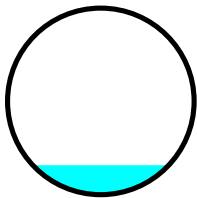
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

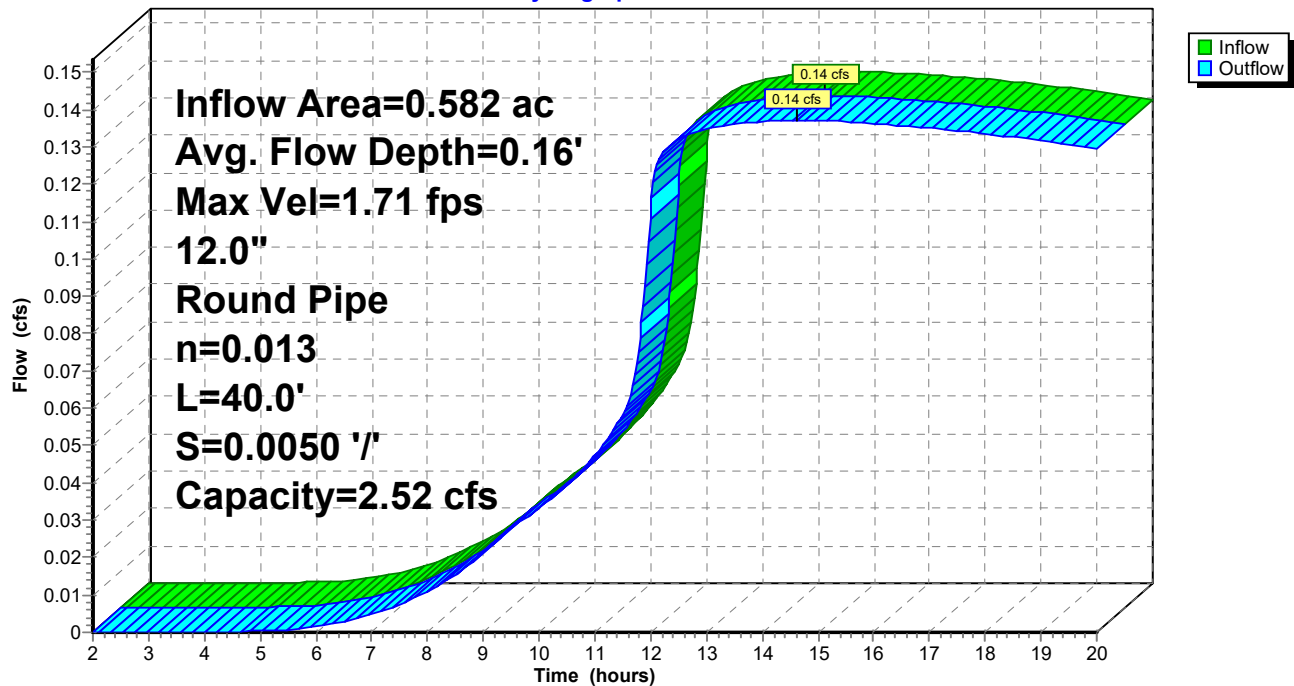
Length= 40.0' Slope= 0.0050 '/'

Inlet Invert= 205.00', Outlet Invert= 204.80'



Reach P3: Pipe Out of 3

Hydrograph



Stage-Area-Storage for Reach P3: Pipe Out of 3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.00	0.0	0	205.52	0.4	17
205.01	0.0	0	205.53	0.4	17
205.02	0.0	0	205.54	0.4	17
205.03	0.0	0	205.55	0.4	18
205.04	0.0	0	205.56	0.5	18
205.05	0.0	1	205.57	0.5	18
205.06	0.0	1	205.58	0.5	19
205.07	0.0	1	205.59	0.5	19
205.08	0.0	1	205.60	0.5	20
205.09	0.0	1	205.61	0.5	20
205.10	0.0	2	205.62	0.5	20
205.11	0.0	2	205.63	0.5	21
205.12	0.1	2	205.64	0.5	21
205.13	0.1	2	205.65	0.5	22
205.14	0.1	3	205.66	0.5	22
205.15	0.1	3	205.67	0.6	22
205.16	0.1	3	205.68	0.6	23
205.17	0.1	4	205.69	0.6	23
205.18	0.1	4	205.70	0.6	23
205.19	0.1	4	205.71	0.6	24
205.20	0.1	4	205.72	0.6	24
205.21	0.1	5	205.73	0.6	25
205.22	0.1	5	205.74	0.6	25
205.23	0.1	5	205.75	0.6	25
205.24	0.1	6	205.76	0.6	26
205.25	0.2	6	205.77	0.6	26
205.26	0.2	6	205.78	0.7	26
205.27	0.2	7	205.79	0.7	27
205.28	0.2	7	205.80	0.7	27
205.29	0.2	8	205.81	0.7	27
205.30	0.2	8	205.82	0.7	28
205.31	0.2	8	205.83	0.7	28
205.32	0.2	9	205.84	0.7	28
205.33	0.2	9	205.85	0.7	28
205.34	0.2	9	205.86	0.7	29
205.35	0.2	10	205.87	0.7	29
205.36	0.3	10	205.88	0.7	29
205.37	0.3	11	205.89	0.7	30
205.38	0.3	11	205.90	0.7	30
205.39	0.3	11	205.91	0.8	30
205.40	0.3	12	205.92	0.8	30
205.41	0.3	12	205.93	0.8	30
205.42	0.3	13	205.94	0.8	31
205.43	0.3	13	205.95	0.8	31
205.44	0.3	13	205.96	0.8	31
205.45	0.3	14	205.97	0.8	31
205.46	0.4	14	205.98	0.8	31
205.47	0.4	15	205.99	0.8	31
205.48	0.4	15	206.00	0.8	31
205.49	0.4	15			
205.50	0.4	16			
205.51	0.4	16			

Summary for Reach P4B: Pipe Out of 4B

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 4B Primary device # 1 by 0.15'

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 2.18" for 100-year event
Inflow = 0.14 cfs @ 14.08 hrs, Volume= 0.097 af
Outflow = 0.14 cfs @ 14.13 hrs, Volume= 0.097 af, Atten= 0%, Lag= 3.0 min

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= 1.28 fps, Avg. Travel Time= 2.4 min

Peak Storage= 14 cf @ 14.10 hrs

Average Depth at Peak Storage= 0.15' , Surface Width= 0.72'

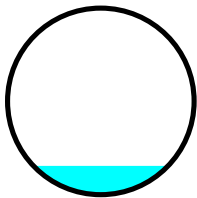
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.64 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

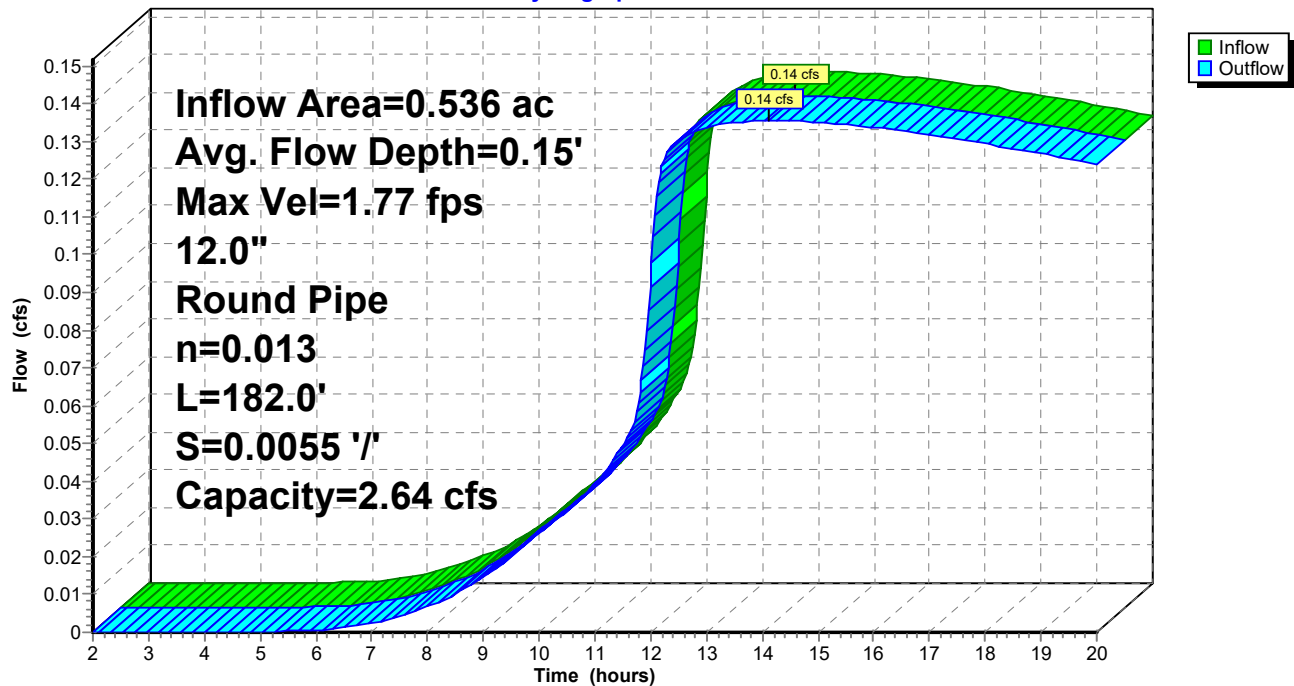
Length= 182.0' Slope= 0.0055 '/'

Inlet Invert= 205.00', Outlet Invert= 204.00'



Reach P4B: Pipe Out of 4B

Hydrograph



Stage-Area-Storage for Reach P4B: Pipe Out of 4B

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.00	0.0	0	205.52	0.4	75
205.01	0.0	0	205.53	0.4	77
205.02	0.0	1	205.54	0.4	79
205.03	0.0	1	205.55	0.4	81
205.04	0.0	2	205.56	0.5	82
205.05	0.0	3	205.57	0.5	84
205.06	0.0	4	205.58	0.5	86
205.07	0.0	4	205.59	0.5	88
205.08	0.0	5	205.60	0.5	90
205.09	0.0	6	205.61	0.5	91
205.10	0.0	7	205.62	0.5	93
205.11	0.0	9	205.63	0.5	95
205.12	0.1	10	205.64	0.5	97
205.13	0.1	11	205.65	0.5	98
205.14	0.1	12	205.66	0.5	100
205.15	0.1	13	205.67	0.6	102
205.16	0.1	15	205.68	0.6	104
205.17	0.1	16	205.69	0.6	105
205.18	0.1	17	205.70	0.6	107
205.19	0.1	19	205.71	0.6	109
205.20	0.1	20	205.72	0.6	110
205.21	0.1	22	205.73	0.6	112
205.22	0.1	23	205.74	0.6	113
205.23	0.1	25	205.75	0.6	115
205.24	0.1	26	205.76	0.6	117
205.25	0.2	28	205.77	0.6	118
205.26	0.2	30	205.78	0.7	120
205.27	0.2	31	205.79	0.7	121
205.28	0.2	33	205.80	0.7	123
205.29	0.2	34	205.81	0.7	124
205.30	0.2	36	205.82	0.7	125
205.31	0.2	38	205.83	0.7	127
205.32	0.2	39	205.84	0.7	128
205.33	0.2	41	205.85	0.7	129
205.34	0.2	43	205.86	0.7	131
205.35	0.2	45	205.87	0.7	132
205.36	0.3	46	205.88	0.7	133
205.37	0.3	48	205.89	0.7	134
205.38	0.3	50	205.90	0.7	136
205.39	0.3	52	205.91	0.8	137
205.40	0.3	53	205.92	0.8	138
205.41	0.3	55	205.93	0.8	139
205.42	0.3	57	205.94	0.8	139
205.43	0.3	59	205.95	0.8	140
205.44	0.3	61	205.96	0.8	141
205.45	0.3	62	205.97	0.8	142
205.46	0.4	64	205.98	0.8	142
205.47	0.4	66	205.99	0.8	143
205.48	0.4	68	206.00	0.8	143
205.49	0.4	70			
205.50	0.4	71			
205.51	0.4	73			

Summary for Reach P5: Pipe Out of 5

[52] Hint: Inlet/Outlet conditions not evaluated

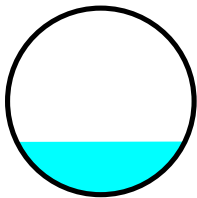
[79] Warning: Submerged Pond 5P Primary device # 1 by 0.28'

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 3.06" for 100-year event
Inflow = 0.47 cfs @ 13.02 hrs, Volume= 0.258 af
Outflow = 0.47 cfs @ 13.03 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.58 fps, Min. Travel Time= 0.2 min
Avg. Velocity= 1.67 fps, Avg. Travel Time= 0.3 min

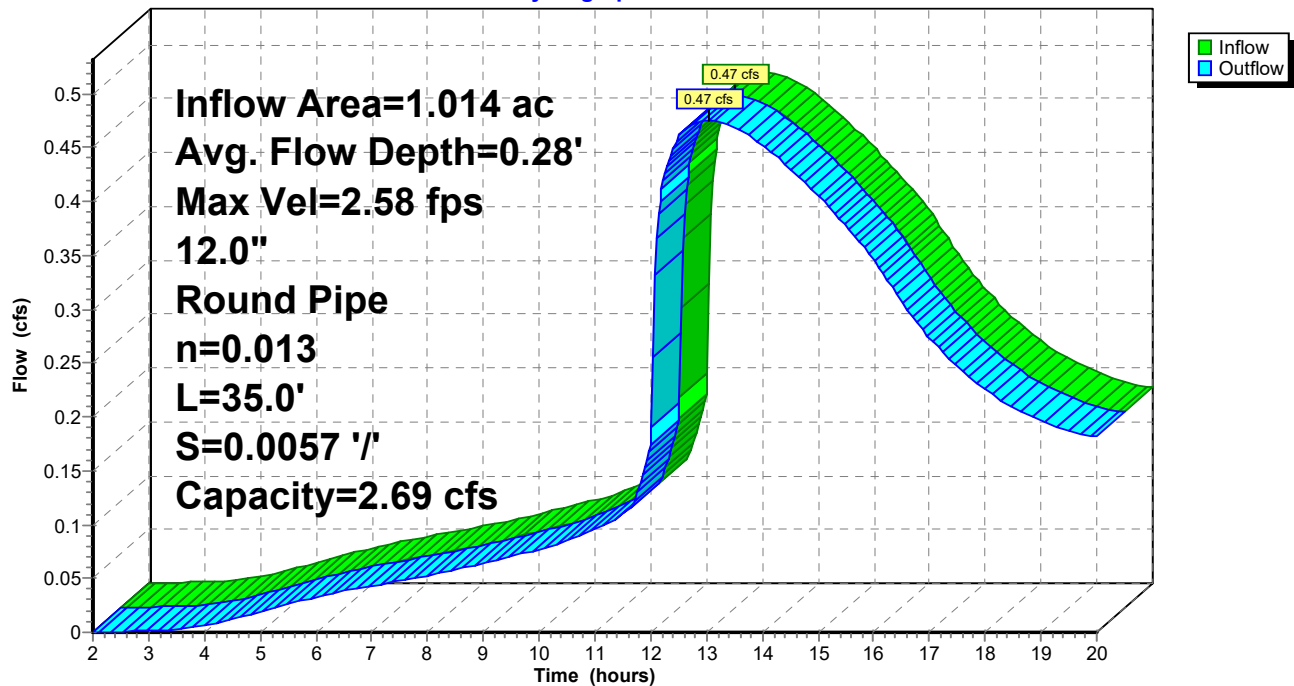
Peak Storage= 6 cf @ 13.03 hrs
Average Depth at Peak Storage= 0.28' , Surface Width= 0.90'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.69 cfs

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



Stage-Area-Storage for Reach P5: Pipe Out of 5

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	0.4	14
204.01	0.0	0	204.53	0.4	15
204.02	0.0	0	204.54	0.4	15
204.03	0.0	0	204.55	0.4	15
204.04	0.0	0	204.56	0.5	16
204.05	0.0	1	204.57	0.5	16
204.06	0.0	1	204.58	0.5	17
204.07	0.0	1	204.59	0.5	17
204.08	0.0	1	204.60	0.5	17
204.09	0.0	1	204.61	0.5	18
204.10	0.0	1	204.62	0.5	18
204.11	0.0	2	204.63	0.5	18
204.12	0.1	2	204.64	0.5	19
204.13	0.1	2	204.65	0.5	19
204.14	0.1	2	204.66	0.5	19
204.15	0.1	3	204.67	0.6	20
204.16	0.1	3	204.68	0.6	20
204.17	0.1	3	204.69	0.6	20
204.18	0.1	3	204.70	0.6	21
204.19	0.1	4	204.71	0.6	21
204.20	0.1	4	204.72	0.6	21
204.21	0.1	4	204.73	0.6	22
204.22	0.1	4	204.74	0.6	22
204.23	0.1	5	204.75	0.6	22
204.24	0.1	5	204.76	0.6	22
204.25	0.2	5	204.77	0.6	23
204.26	0.2	6	204.78	0.7	23
204.27	0.2	6	204.79	0.7	23
204.28	0.2	6	204.80	0.7	24
204.29	0.2	7	204.81	0.7	24
204.30	0.2	7	204.82	0.7	24
204.31	0.2	7	204.83	0.7	24
204.32	0.2	8	204.84	0.7	25
204.33	0.2	8	204.85	0.7	25
204.34	0.2	8	204.86	0.7	25
204.35	0.2	9	204.87	0.7	25
204.36	0.3	9	204.88	0.7	26
204.37	0.3	9	204.89	0.7	26
204.38	0.3	10	204.90	0.7	26
204.39	0.3	10	204.91	0.8	26
204.40	0.3	10	204.92	0.8	26
204.41	0.3	11	204.93	0.8	27
204.42	0.3	11	204.94	0.8	27
204.43	0.3	11	204.95	0.8	27
204.44	0.3	12	204.96	0.8	27
204.45	0.3	12	204.97	0.8	27
204.46	0.4	12	204.98	0.8	27
204.47	0.4	13	204.99	0.8	27
204.48	0.4	13	205.00	0.8	27
204.49	0.4	13			
204.50	0.4	14			
204.51	0.4	14			

Summary for Reach P6: Pipe Out of 6

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 6P Primary device # 1 by 0.22'

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 3.42" for 100-year event
Inflow = 0.34 cfs @ 12.58 hrs, Volume= 0.158 af
Outflow = 0.34 cfs @ 12.59 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 2.68 fps, Min. Travel Time= 0.4 min

Avg. Velocity= 2.36 fps, Avg. Travel Time= 0.4 min

Peak Storage= 8 cf @ 12.58 hrs

Average Depth at Peak Storage= 0.22' , Surface Width= 0.83'

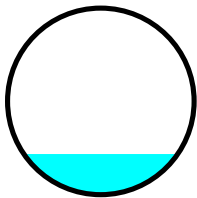
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.25 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

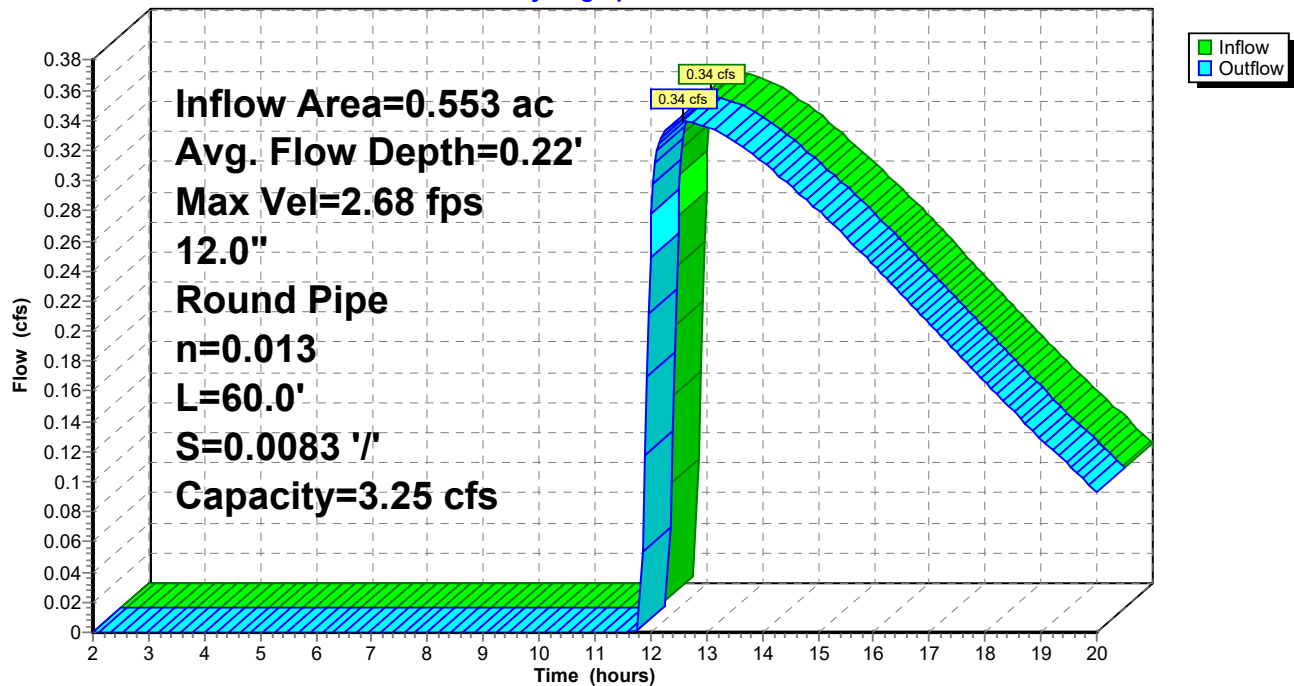
Length= 60.0' Slope= 0.0083 '/'

Inlet Invert= 206.00', Outlet Invert= 205.50'



Reach P6: Pipe Out of 6

Hydrograph



Stage-Area-Storage for Reach P6: Pipe Out of 6

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
206.00	0.0	0	206.52	0.4	25
206.01	0.0	0	206.53	0.4	25
206.02	0.0	0	206.54	0.4	26
206.03	0.0	0	206.55	0.4	27
206.04	0.0	1	206.56	0.5	27
206.05	0.0	1	206.57	0.5	28
206.06	0.0	1	206.58	0.5	28
206.07	0.0	1	206.59	0.5	29
206.08	0.0	2	206.60	0.5	30
206.09	0.0	2	206.61	0.5	30
206.10	0.0	2	206.62	0.5	31
206.11	0.0	3	206.63	0.5	31
206.12	0.1	3	206.64	0.5	32
206.13	0.1	4	206.65	0.5	32
206.14	0.1	4	206.66	0.5	33
206.15	0.1	4	206.67	0.6	34
206.16	0.1	5	206.68	0.6	34
206.17	0.1	5	206.69	0.6	35
206.18	0.1	6	206.70	0.6	35
206.19	0.1	6	206.71	0.6	36
206.20	0.1	7	206.72	0.6	36
206.21	0.1	7	206.73	0.6	37
206.22	0.1	8	206.74	0.6	37
206.23	0.1	8	206.75	0.6	38
206.24	0.1	9	206.76	0.6	38
206.25	0.2	9	206.77	0.6	39
206.26	0.2	10	206.78	0.7	39
206.27	0.2	10	206.79	0.7	40
206.28	0.2	11	206.80	0.7	40
206.29	0.2	11	206.81	0.7	41
206.30	0.2	12	206.82	0.7	41
206.31	0.2	12	206.83	0.7	42
206.32	0.2	13	206.84	0.7	42
206.33	0.2	14	206.85	0.7	43
206.34	0.2	14	206.86	0.7	43
206.35	0.2	15	206.87	0.7	44
206.36	0.3	15	206.88	0.7	44
206.37	0.3	16	206.89	0.7	44
206.38	0.3	16	206.90	0.7	45
206.39	0.3	17	206.91	0.8	45
206.40	0.3	18	206.92	0.8	45
206.41	0.3	18	206.93	0.8	46
206.42	0.3	19	206.94	0.8	46
206.43	0.3	19	206.95	0.8	46
206.44	0.3	20	206.96	0.8	46
206.45	0.3	21	206.97	0.8	47
206.46	0.4	21	206.98	0.8	47
206.47	0.4	22	206.99	0.8	47
206.48	0.4	22	207.00	0.8	47
206.49	0.4	23			
206.50	0.4	24			
206.51	0.4	24			

Summary for Reach P7: Pipe Out of 7

[52] Hint: Inlet/Outlet conditions not evaluated

[79] Warning: Submerged Pond 7P Primary device # 1 by 0.11'

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.95" for 100-year event
Inflow = 0.07 cfs @ 14.43 hrs, Volume= 0.045 af
Outflow = 0.07 cfs @ 14.52 hrs, Volume= 0.044 af, Atten= 0%, Lag= 5.2 min

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= 3.1 min

Avg. Velocity= 1.51 fps, Avg. Travel Time= 3.2 min

Peak Storage= 13 cf @ 14.47 hrs

Average Depth at Peak Storage= 0.11', Surface Width= 0.62'

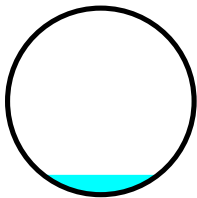
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

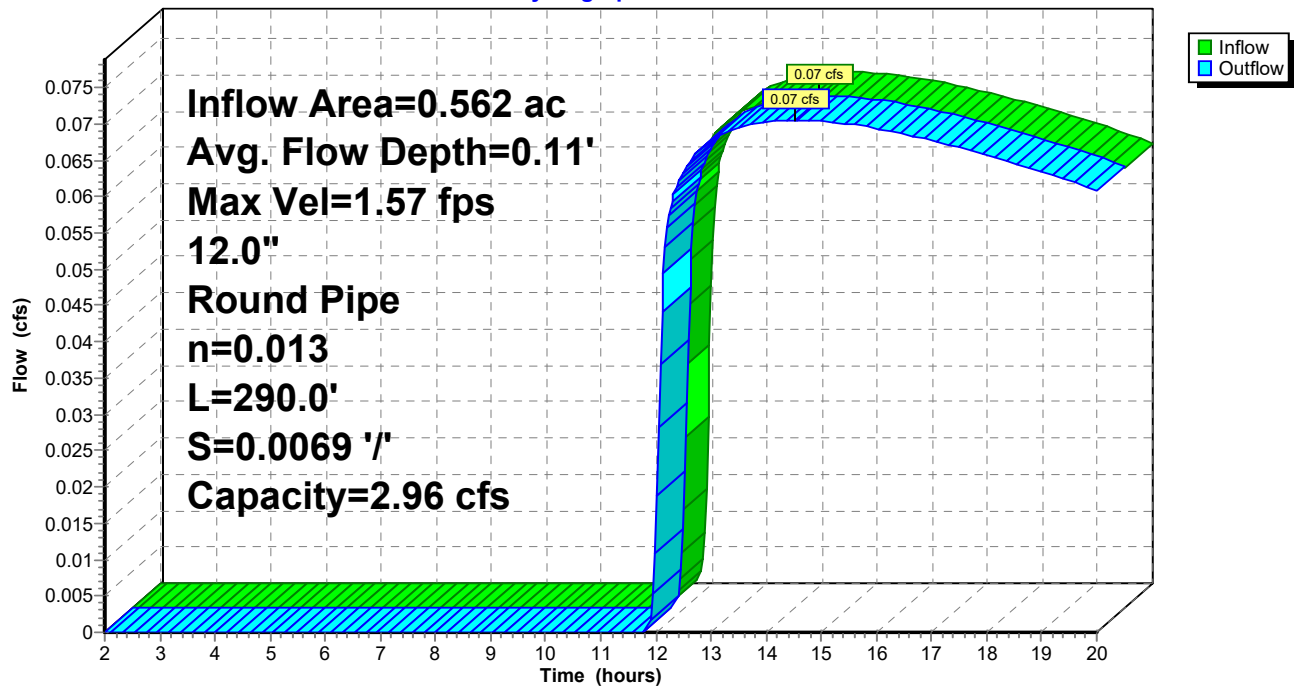
Length= 290.0' Slope= 0.0069 '/'

Inlet Invert= 206.00', Outlet Invert= 204.00'



Reach P7: Pipe Out of 7

Hydrograph



Stage-Area-Storage for Reach P7: Pipe Out of 7

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
206.00	0.0	0	206.52	0.4	120
206.01	0.0	0	206.53	0.4	123
206.02	0.0	1	206.54	0.4	125
206.03	0.0	2	206.55	0.4	128
206.04	0.0	3	206.56	0.5	131
206.05	0.0	4	206.57	0.5	134
206.06	0.0	6	206.58	0.5	137
206.07	0.0	7	206.59	0.5	140
206.08	0.0	9	206.60	0.5	143
206.09	0.0	10	206.61	0.5	146
206.10	0.0	12	206.62	0.5	148
206.11	0.0	14	206.63	0.5	151
206.12	0.1	15	206.64	0.5	154
206.13	0.1	17	206.65	0.5	157
206.14	0.1	19	206.66	0.5	159
206.15	0.1	21	206.67	0.6	162
206.16	0.1	24	206.68	0.6	165
206.17	0.1	26	206.69	0.6	168
206.18	0.1	28	206.70	0.6	170
206.19	0.1	30	206.71	0.6	173
206.20	0.1	32	206.72	0.6	176
206.21	0.1	35	206.73	0.6	178
206.22	0.1	37	206.74	0.6	181
206.23	0.1	40	206.75	0.6	183
206.24	0.1	42	206.76	0.6	186
206.25	0.2	45	206.77	0.6	188
206.26	0.2	47	206.78	0.7	191
206.27	0.2	50	206.79	0.7	193
206.28	0.2	52	206.80	0.7	195
206.29	0.2	55	206.81	0.7	198
206.30	0.2	57	206.82	0.7	200
206.31	0.2	60	206.83	0.7	202
206.32	0.2	63	206.84	0.7	204
206.33	0.2	66	206.85	0.7	206
206.34	0.2	68	206.86	0.7	208
206.35	0.2	71	206.87	0.7	210
206.36	0.3	74	206.88	0.7	212
206.37	0.3	77	206.89	0.7	214
206.38	0.3	79	206.90	0.7	216
206.39	0.3	82	206.91	0.8	218
206.40	0.3	85	206.92	0.8	219
206.41	0.3	88	206.93	0.8	221
206.42	0.3	91	206.94	0.8	222
206.43	0.3	94	206.95	0.8	224
206.44	0.3	97	206.96	0.8	225
206.45	0.3	99	206.97	0.8	226
206.46	0.4	102	206.98	0.8	227
206.47	0.4	105	206.99	0.8	227
206.48	0.4	108	207.00	0.8	228
206.49	0.4	111			
206.50	0.4	114			
206.51	0.4	117			

Summary for Reach W1: 1 Thru Wetland

[62] Hint: Exceeded Reach P1 OUTLET depth by 0.06' @ 19.61 hrs

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 1.61" for 100-year event
 Inflow = 0.09 cfs @ 15.55 hrs, Volume= 0.065 af
 Outflow = 0.09 cfs @ 19.01 hrs, Volume= 0.044 af, Atten= 1%, Lag= 207.6 min

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= 84.7 min

Avg. Velocity = 0.04 fps, Avg. Travel Time= 138.0 min

Peak Storage= 466 cf @ 17.60 hrs

Average Depth at Peak Storage= 0.19' , Surface Width= 10.92'

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

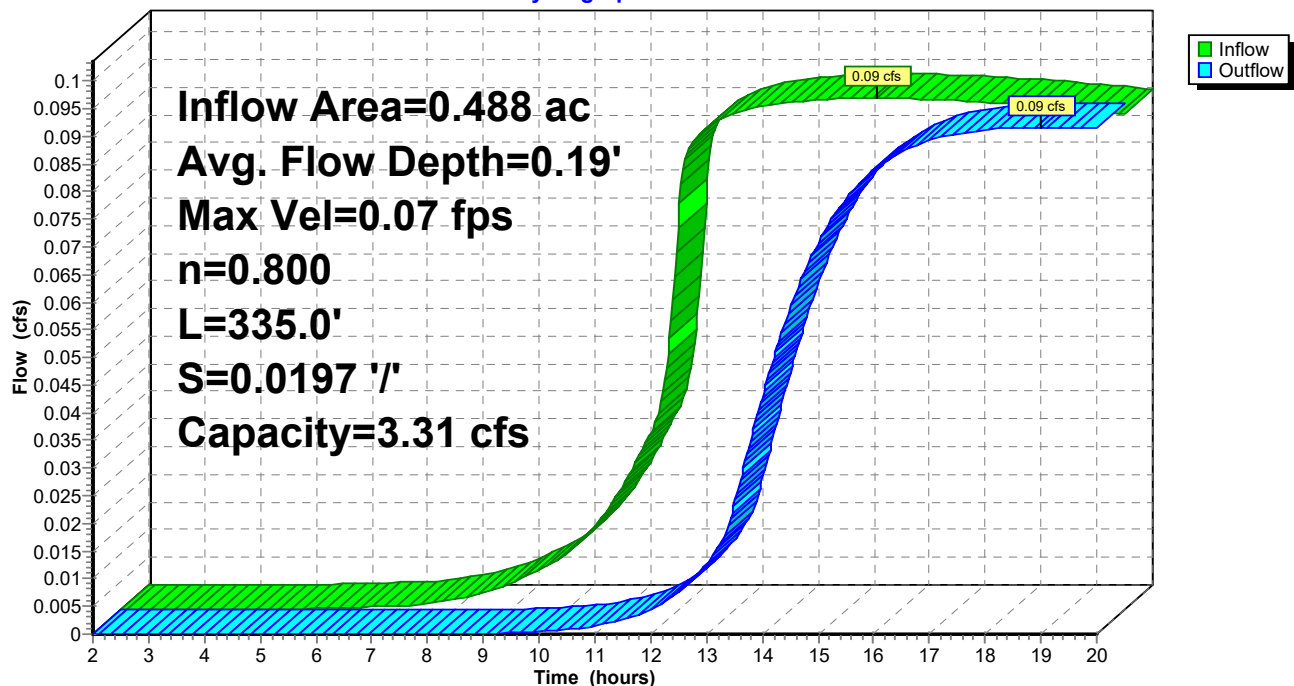
Length= 335.0' Slope= 0.0197 '/'

Inlet Invert= 203.60', Outlet Invert= 197.00'



Reach W1: 1 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W1: 1 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.60	0.0	0	204.12	6.2	2,094
203.61	0.0	6	204.13	6.4	2,154
203.62	0.0	16	204.14	6.6	2,216
203.63	0.1	29	204.15	6.8	2,277
203.64	0.1	45	204.16	7.0	2,340
203.65	0.2	62	204.17	7.2	2,403
203.66	0.2	82	204.18	7.4	2,466
203.67	0.3	103	204.19	7.6	2,530
203.68	0.4	126	204.20	7.7	2,595
203.69	0.4	151	204.21	7.9	2,660
203.70	0.5	177	204.22	8.1	2,726
203.71	0.6	204	204.23	8.3	2,792
203.72	0.7	232	204.24	8.5	2,859
203.73	0.8	262	204.25	8.7	2,926
203.74	0.9	292	204.26	8.9	2,994
203.75	1.0	324	204.27	9.1	3,062
203.76	1.1	357	204.28	9.3	3,131
203.77	1.2	391	204.29	9.6	3,200
203.78	1.3	426	204.30	9.8	3,270
203.79	1.4	462	204.31	10.0	3,340
203.80	1.5	499	204.32	10.2	3,411
203.81	1.6	537	204.33	10.4	3,482
203.82	1.7	576	204.34	10.6	3,554
203.83	1.8	616	204.35	10.8	3,626
203.84	2.0	656	204.36	11.0	3,699
203.85	2.1	698	204.37	11.3	3,773
203.86	2.2	740	204.38	11.5	3,846
203.87	2.3	783	204.39	11.7	3,920
203.88	2.5	827	204.40	11.9	3,995
203.89	2.6	872	204.41	12.2	4,070
203.90	2.7	917	204.42	12.4	4,146
203.91	2.9	964	204.43	12.6	4,222
203.92	3.0	1,011	204.44	12.8	4,298
203.93	3.2	1,058	204.45	13.1	4,375
203.94	3.3	1,107	204.46	13.3	4,453
203.95	3.5	1,156	204.47	13.5	4,531
203.96	3.6	1,206	204.48	13.8	4,609
203.97	3.8	1,257	204.49	14.0	4,688
203.98	3.9	1,308	204.50	14.2	4,767
203.99	4.1	1,360	204.51	14.5	4,847
204.00	4.2	1,412	204.52	14.7	4,927
204.01	4.4	1,466	204.53	14.9	5,007
204.02	4.5	1,520	204.54	15.2	5,088
204.03	4.7	1,574	204.55	15.4	5,170
204.04	4.9	1,630	204.56	15.7	5,252
204.05	5.0	1,685	204.57	15.9	5,334
204.06	5.2	1,742	204.58	16.2	5,417
204.07	5.4	1,799	204.59	16.4	5,500
204.08	5.5	1,857	204.60	16.7	5,583
204.09	5.7	1,915			
204.10	5.9	1,974			
204.11	6.1	2,034			

Summary for Reach W2: 2 Thru Wetland

[62] Hint: Exceeded Reach P2 OUTLET depth by 0.08' @ 17.78 hrs

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 3.14" for 100-year event
 Inflow = 0.13 cfs @ 13.57 hrs, Volume= 0.098 af
 Outflow = 0.12 cfs @ 17.83 hrs, Volume= 0.067 af, Atten= 4%, Lag= 255.5 min

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= 94.6 min

Avg. Velocity= 0.04 fps, Avg. Travel Time= 146.7 min

Peak Storage= 701 cf @ 16.26 hrs

Average Depth at Peak Storage= 0.23' , Surface Width= 12.05'

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

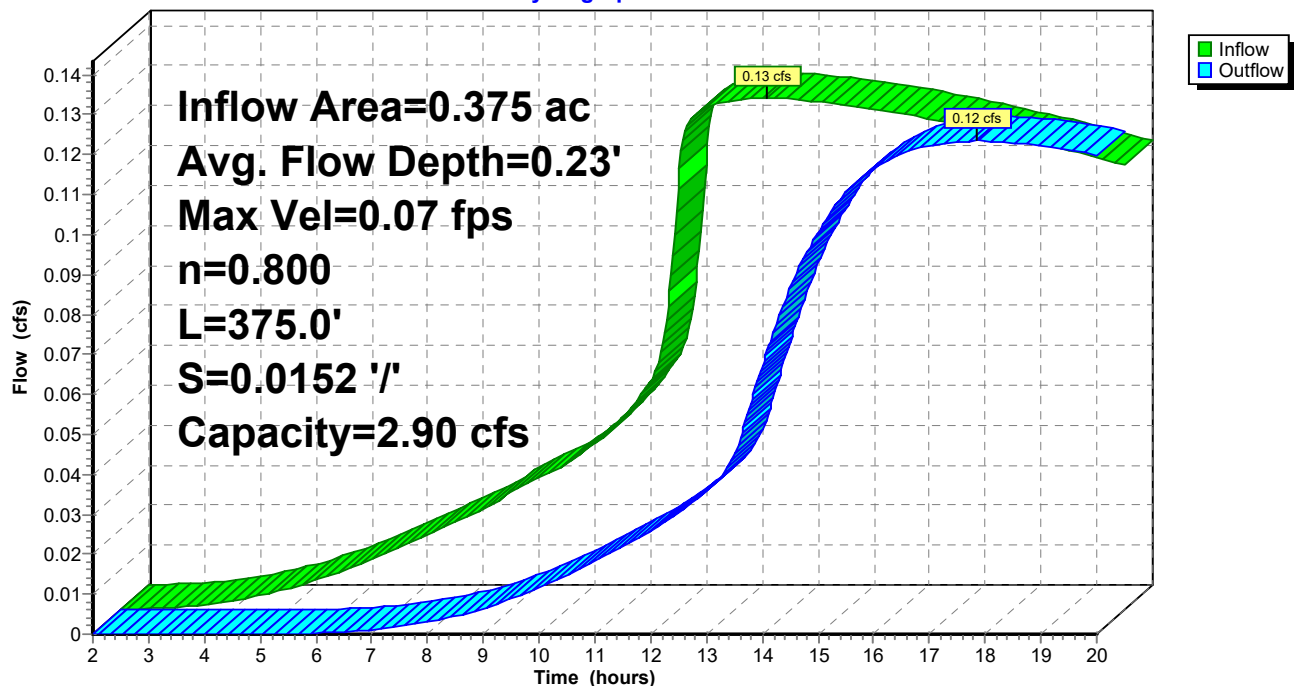
Length= 375.0' Slope= 0.0152 '/'

Inlet Invert= 203.70', Outlet Invert= 198.00'



Reach W2: 2 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W2: 2 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.70	0.0	0	204.22	6.2	2,344
203.71	0.0	6	204.23	6.4	2,412
203.72	0.0	18	204.24	6.6	2,480
203.73	0.1	32	204.25	6.8	2,549
203.74	0.1	50	204.26	7.0	2,619
203.75	0.2	70	204.27	7.2	2,690
203.76	0.2	92	204.28	7.4	2,761
203.77	0.3	116	204.29	7.6	2,832
203.78	0.4	141	204.30	7.7	2,905
203.79	0.4	169	204.31	7.9	2,978
203.80	0.5	198	204.32	8.1	3,051
203.81	0.6	228	204.33	8.3	3,125
203.82	0.7	260	204.34	8.5	3,200
203.83	0.8	293	204.35	8.7	3,275
203.84	0.9	327	204.36	8.9	3,351
203.85	1.0	363	204.37	9.1	3,428
203.86	1.1	400	204.38	9.3	3,505
203.87	1.2	438	204.39	9.6	3,582
203.88	1.3	477	204.40	9.8	3,660
203.89	1.4	518	204.41	10.0	3,739
203.90	1.5	559	204.42	10.2	3,818
203.91	1.6	601	204.43	10.4	3,898
203.92	1.7	645	204.44	10.6	3,979
203.93	1.8	689	204.45	10.8	4,059
203.94	2.0	735	204.46	11.0	4,141
203.95	2.1	781	204.47	11.3	4,223
203.96	2.2	829	204.48	11.5	4,305
203.97	2.3	877	204.49	11.7	4,389
203.98	2.5	926	204.50	11.9	4,472
203.99	2.6	976	204.51	12.2	4,556
204.00	2.7	1,027	204.52	12.4	4,641
204.01	2.9	1,079	204.53	12.6	4,726
204.02	3.0	1,131	204.54	12.8	4,812
204.03	3.2	1,185	204.55	13.1	4,898
204.04	3.3	1,239	204.56	13.3	4,985
204.05	3.5	1,294	204.57	13.5	5,072
204.06	3.6	1,350	204.58	13.8	5,159
204.07	3.8	1,407	204.59	14.0	5,248
204.08	3.9	1,464	204.60	14.2	5,336
204.09	4.1	1,522	204.61	14.5	5,426
204.10	4.2	1,581	204.62	14.7	5,515
204.11	4.4	1,641	204.63	14.9	5,605
204.12	4.5	1,701	204.64	15.2	5,696
204.13	4.7	1,762	204.65	15.4	5,787
204.14	4.9	1,824	204.66	15.7	5,879
204.15	5.0	1,887	204.67	15.9	5,971
204.16	5.2	1,950	204.68	16.2	6,063
204.17	5.4	2,014	204.69	16.4	6,156
204.18	5.5	2,078	204.70	16.7	6,250
204.19	5.7	2,144			
204.20	5.9	2,210			
204.21	6.1	2,276			

Summary for Reach W3: 3 Thru Wetland

[62] Hint: Exceeded Reach P3 OUTLET depth by 0.12' @ 19.97 hrs

Inflow Area = 0.643 ac, 43.14% Impervious, Inflow Depth > 2.24" for 100-year event
 Inflow = 0.52 cfs @ 11.98 hrs, Volume= 0.120 af
 Outflow = 0.12 cfs @ 20.00 hrs, Volume= 0.030 af, Atten= 77%, Lag= 481.4 min

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= 249.3 min

Avg. Velocity= 0.03 fps, Avg. Travel Time= 421.5 min

Peak Storage= 1,999 cf @ 20.00 hrs

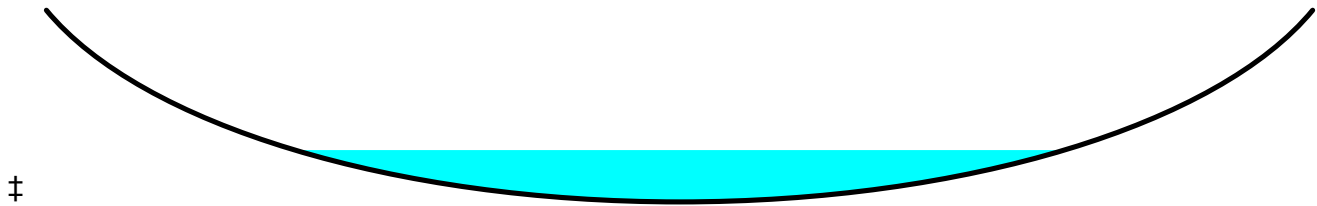
Average Depth at Peak Storage= 0.27' , Surface Width= 13.01'

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

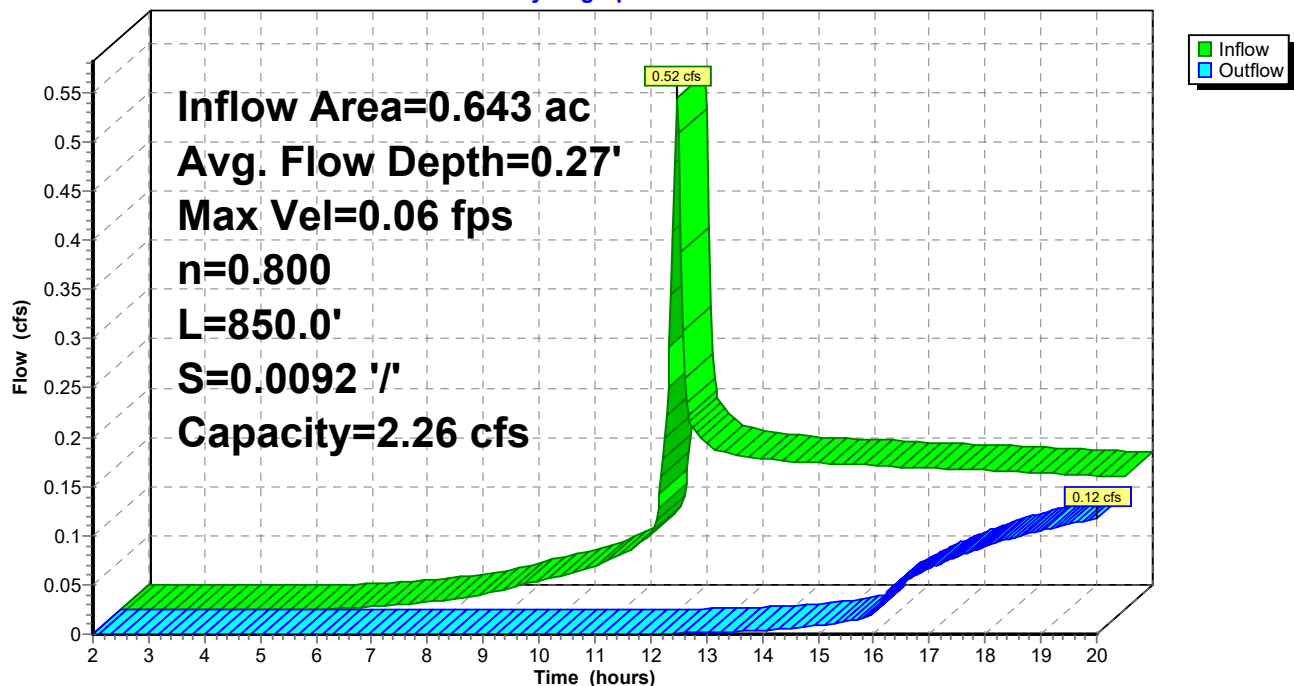
Length= 850.0' Slope= 0.0092 '/'

Inlet Invert= 204.80', Outlet Invert= 197.00'



Reach W3: 3 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W3: 3 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.80	0.0	0	205.32	6.2	5,312
204.81	0.0	14	205.33	6.4	5,466
204.82	0.0	40	205.34	6.6	5,622
204.83	0.1	74	205.35	6.8	5,778
204.84	0.1	113	205.36	7.0	5,937
204.85	0.2	158	205.37	7.2	6,096
204.86	0.2	208	205.38	7.4	6,258
204.87	0.3	262	205.39	7.6	6,420
204.88	0.4	321	205.40	7.7	6,584
204.89	0.4	382	205.41	7.9	6,749
204.90	0.5	448	205.42	8.1	6,916
204.91	0.6	517	205.43	8.3	7,084
204.92	0.7	589	205.44	8.5	7,253
204.93	0.8	664	205.45	8.7	7,424
204.94	0.9	742	205.46	8.9	7,596
204.95	1.0	823	205.47	9.1	7,769
204.96	1.1	907	205.48	9.3	7,944
204.97	1.2	993	205.49	9.6	8,120
204.98	1.3	1,082	205.50	9.8	8,297
204.99	1.4	1,173	205.51	10.0	8,475
205.00	1.5	1,267	205.52	10.2	8,655
205.01	1.6	1,363	205.53	10.4	8,836
205.02	1.7	1,462	205.54	10.6	9,018
205.03	1.8	1,563	205.55	10.8	9,202
205.04	2.0	1,666	205.56	11.0	9,386
205.05	2.1	1,771	205.57	11.3	9,572
205.06	2.2	1,878	205.58	11.5	9,759
205.07	2.3	1,988	205.59	11.7	9,947
205.08	2.5	2,099	205.60	11.9	10,137
205.09	2.6	2,212	205.61	12.2	10,328
205.10	2.7	2,328	205.62	12.4	10,519
205.11	2.9	2,445	205.63	12.6	10,712
205.12	3.0	2,564	205.64	12.8	10,907
205.13	3.2	2,686	205.65	13.1	11,102
205.14	3.3	2,809	205.66	13.3	11,298
205.15	3.5	2,933	205.67	13.5	11,496
205.16	3.6	3,060	205.68	13.8	11,695
205.17	3.8	3,188	205.69	14.0	11,895
205.18	3.9	3,319	205.70	14.2	12,096
205.19	4.1	3,450	205.71	14.5	12,298
205.20	4.2	3,584	205.72	14.7	12,501
205.21	4.4	3,719	205.73	14.9	12,706
205.22	4.5	3,856	205.74	15.2	12,911
205.23	4.7	3,995	205.75	15.4	13,118
205.24	4.9	4,135	205.76	15.7	13,325
205.25	5.0	4,276	205.77	15.9	13,534
205.26	5.2	4,420	205.78	16.2	13,744
205.27	5.4	4,565	205.79	16.4	13,955
205.28	5.5	4,711	205.80	16.7	14,167
205.29	5.7	4,859			
205.30	5.9	5,009			
205.31	6.1	5,160			

Summary for Reach W4B: 4B Thru Wetland

[62] Hint: Exceeded Reach P4B OUTLET depth by 0.10' @ 19.97 hrs

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 2.17" for 100-year event
 Inflow = 0.14 cfs @ 14.13 hrs, Volume= 0.097 af
 Outflow = 0.13 cfs @ 20.00 hrs, Volume= 0.047 af, Atten= 6%, Lag= 352.3 min

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= 140.8 min

Avg. Velocity = 0.04 fps, Avg. Travel Time= 231.0 min

Peak Storage= 1,084 cf @ 18.41 hrs

Average Depth at Peak Storage= 0.25' , Surface Width= 12.54'

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

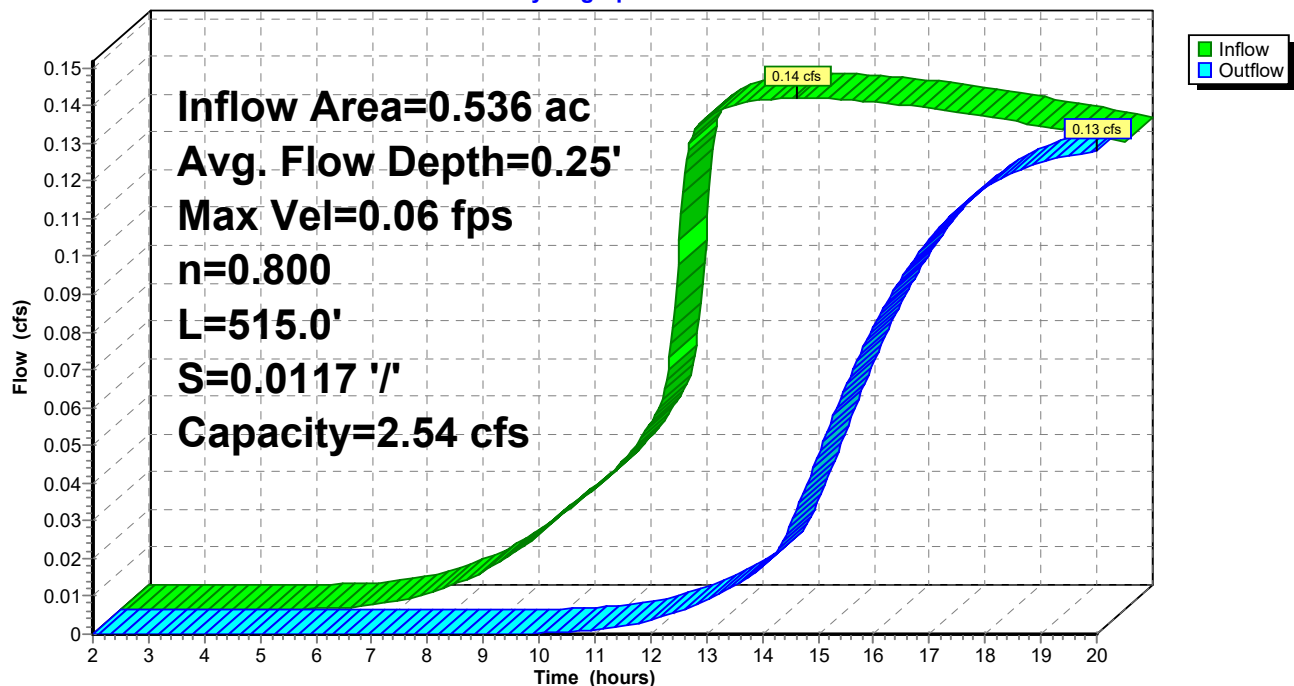
Length= 515.0' Slope= 0.0117 '/'

Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W4B: 4B Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W4B: 4B Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	6.2	3,219
204.01	0.0	9	204.53	6.4	3,312
204.02	0.0	24	204.54	6.6	3,406
204.03	0.1	45	204.55	6.8	3,501
204.04	0.1	69	204.56	7.0	3,597
204.05	0.2	96	204.57	7.2	3,694
204.06	0.2	126	204.58	7.4	3,791
204.07	0.3	159	204.59	7.6	3,890
204.08	0.4	194	204.60	7.7	3,989
204.09	0.4	232	204.61	7.9	4,089
204.10	0.5	271	204.62	8.1	4,190
204.11	0.6	313	204.63	8.3	4,292
204.12	0.7	357	204.64	8.5	4,395
204.13	0.8	402	204.65	8.7	4,498
204.14	0.9	450	204.66	8.9	4,602
204.15	1.0	499	204.67	9.1	4,707
204.16	1.1	549	204.68	9.3	4,813
204.17	1.2	602	204.69	9.6	4,920
204.18	1.3	655	204.70	9.8	5,027
204.19	1.4	711	204.71	10.0	5,135
204.20	1.5	768	204.72	10.2	5,244
204.21	1.6	826	204.73	10.4	5,354
204.22	1.7	886	204.74	10.6	5,464
204.23	1.8	947	204.75	10.8	5,575
204.24	2.0	1,009	204.76	11.0	5,687
204.25	2.1	1,073	204.77	11.3	5,800
204.26	2.2	1,138	204.78	11.5	5,913
204.27	2.3	1,204	204.79	11.7	6,027
204.28	2.5	1,272	204.80	11.9	6,142
204.29	2.6	1,340	204.81	12.2	6,257
204.30	2.7	1,410	204.82	12.4	6,373
204.31	2.9	1,481	204.83	12.6	6,490
204.32	3.0	1,554	204.84	12.8	6,608
204.33	3.2	1,627	204.85	13.1	6,726
204.34	3.3	1,702	204.86	13.3	6,845
204.35	3.5	1,777	204.87	13.5	6,965
204.36	3.6	1,854	204.88	13.8	7,086
204.37	3.8	1,932	204.89	14.0	7,207
204.38	3.9	2,011	204.90	14.2	7,329
204.39	4.1	2,091	204.91	14.5	7,451
204.40	4.2	2,171	204.92	14.7	7,574
204.41	4.4	2,253	204.93	14.9	7,698
204.42	4.5	2,336	204.94	15.2	7,823
204.43	4.7	2,420	204.95	15.4	7,948
204.44	4.9	2,505	204.96	15.7	8,074
204.45	5.0	2,591	204.97	15.9	8,200
204.46	5.2	2,678	204.98	16.2	8,327
204.47	5.4	2,766	204.99	16.4	8,455
204.48	5.5	2,854	205.00	16.7	8,583
204.49	5.7	2,944			
204.50	5.9	3,035			
204.51	6.1	3,126			

Summary for Reach W5: 5 Thru Wetland

[62] Hint: Exceeded Reach P5 OUTLET depth by 0.13' @ 15.29 hrs

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 3.05" for 100-year event
 Inflow = 0.47 cfs @ 13.03 hrs, Volume= 0.258 af
 Outflow = 0.45 cfs @ 14.99 hrs, Volume= 0.226 af, Atten= 6%, Lag= 117.5 min

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= 50.7 min

Avg. Velocity = 0.06 fps, Avg. Travel Time= 83.5 min

Peak Storage= 1,360 cf @ 14.14 hrs

Average Depth at Peak Storage= 0.40' , Surface Width= 15.89'

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

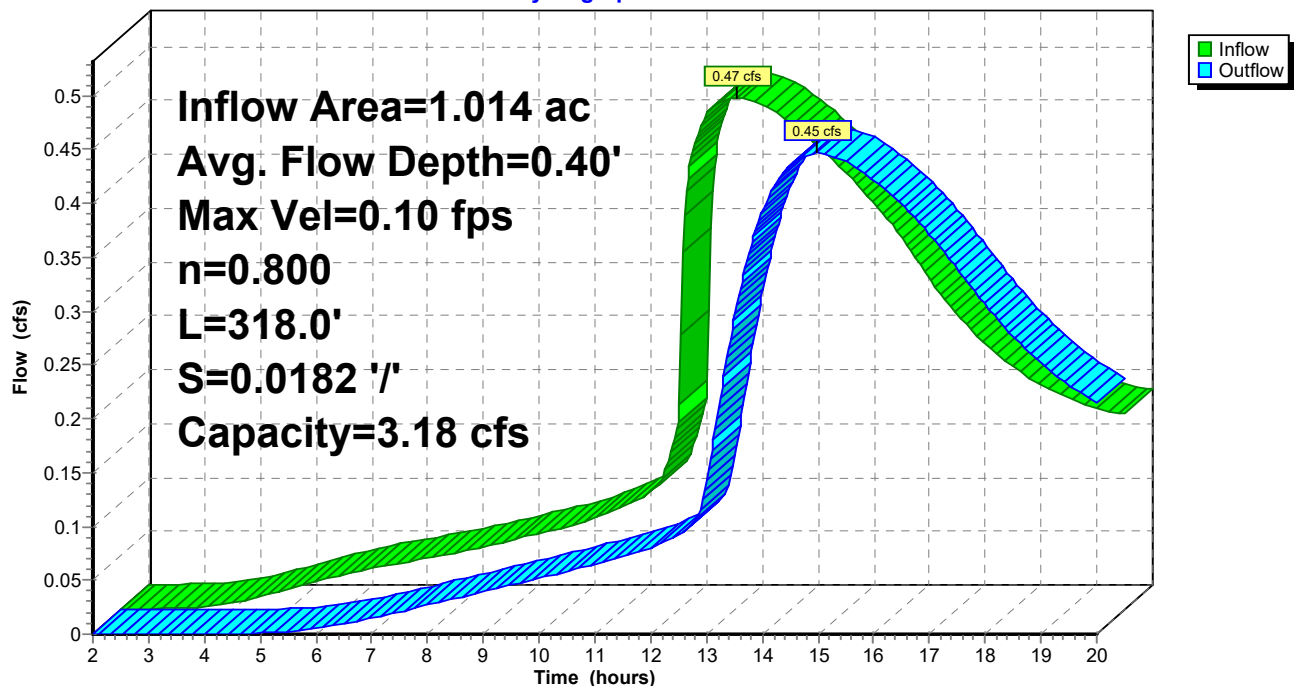
Length= 318.0' Slope= 0.0182 1'

Inlet Invert= 203.80', Outlet Invert= 198.00'



Reach W5: 5 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W5: 5 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
203.80	0.0	0	204.32	6.2	1,987
203.81	0.0	5	204.33	6.4	2,045
203.82	0.0	15	204.34	6.6	2,103
203.83	0.1	28	204.35	6.8	2,162
203.84	0.1	42	204.36	7.0	2,221
203.85	0.2	59	204.37	7.2	2,281
203.86	0.2	78	204.38	7.4	2,341
203.87	0.3	98	204.39	7.6	2,402
203.88	0.4	120	204.40	7.7	2,463
203.89	0.4	143	204.41	7.9	2,525
203.90	0.5	168	204.42	8.1	2,587
203.91	0.6	193	204.43	8.3	2,650
203.92	0.7	220	204.44	8.5	2,714
203.93	0.8	248	204.45	8.7	2,777
203.94	0.9	278	204.46	8.9	2,842
203.95	1.0	308	204.47	9.1	2,907
203.96	1.1	339	204.48	9.3	2,972
203.97	1.2	371	204.49	9.6	3,038
203.98	1.3	405	204.50	9.8	3,104
203.99	1.4	439	204.51	10.0	3,171
204.00	1.5	474	204.52	10.2	3,238
204.01	1.6	510	204.53	10.4	3,306
204.02	1.7	547	204.54	10.6	3,374
204.03	1.8	585	204.55	10.8	3,442
204.04	2.0	623	204.56	11.0	3,512
204.05	2.1	663	204.57	11.3	3,581
204.06	2.2	703	204.58	11.5	3,651
204.07	2.3	744	204.59	11.7	3,721
204.08	2.5	785	204.60	11.9	3,792
204.09	2.6	828	204.61	12.2	3,864
204.10	2.7	871	204.62	12.4	3,935
204.11	2.9	915	204.63	12.6	4,008
204.12	3.0	959	204.64	12.8	4,080
204.13	3.2	1,005	204.65	13.1	4,153
204.14	3.3	1,051	204.66	13.3	4,227
204.15	3.5	1,097	204.67	13.5	4,301
204.16	3.6	1,145	204.68	13.8	4,375
204.17	3.8	1,193	204.69	14.0	4,450
204.18	3.9	1,242	204.70	14.2	4,525
204.19	4.1	1,291	204.71	14.5	4,601
204.20	4.2	1,341	204.72	14.7	4,677
204.21	4.4	1,391	204.73	14.9	4,753
204.22	4.5	1,443	204.74	15.2	4,830
204.23	4.7	1,494	204.75	15.4	4,908
204.24	4.9	1,547	204.76	15.7	4,985
204.25	5.0	1,600	204.77	15.9	5,063
204.26	5.2	1,654	204.78	16.2	5,142
204.27	5.4	1,708	204.79	16.4	5,221
204.28	5.5	1,763	204.80	16.7	5,300
204.29	5.7	1,818			
204.30	5.9	1,874			
204.31	6.1	1,930			

Summary for Reach W6: 6 Thru Wetland

[62] Hint: Exceeded Reach P6 OUTLET depth by 0.16' @ 17.39 hrs

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 3.42" for 100-year event
 Inflow = 0.34 cfs @ 12.59 hrs, Volume= 0.158 af
 Outflow = 0.25 cfs @ 18.04 hrs, Volume= 0.091 af, Atten= 26%, Lag= 327.0 min

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= 134.6 min

Avg. Velocity = 0.07 fps, Avg. Travel Time= 153.2 min

Peak Storage= 2,030 cf @ 15.80 hrs

Average Depth at Peak Storage= 0.34' , Surface Width= 14.57'

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

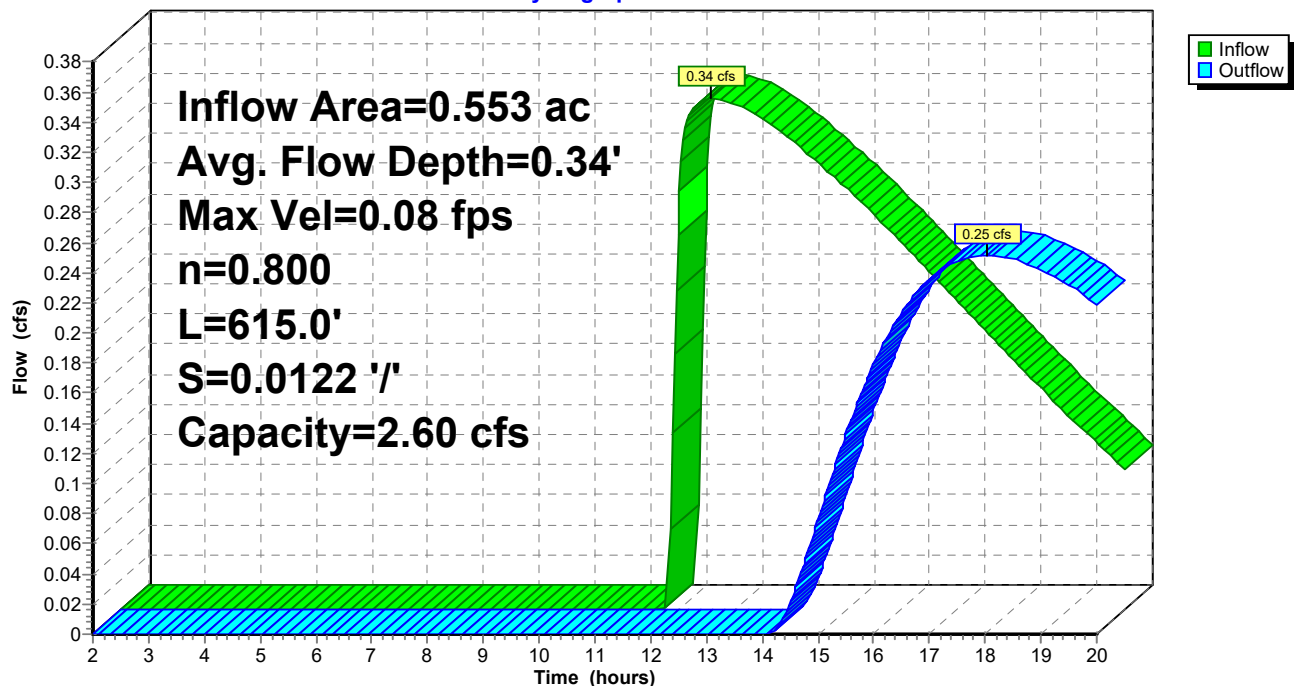
Length= 615.0' Slope= 0.0122 '/'

Inlet Invert= 205.50', Outlet Invert= 198.00'



Reach W6: 6 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W6: 6 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
205.50	0.0	0	206.02	6.2	3,844
205.51	0.0	10	206.03	6.4	3,955
205.52	0.0	29	206.04	6.6	4,067
205.53	0.1	53	206.05	6.8	4,181
205.54	0.1	82	206.06	7.0	4,295
205.55	0.2	115	206.07	7.2	4,411
205.56	0.2	151	206.08	7.4	4,528
205.57	0.3	190	206.09	7.6	4,645
205.58	0.4	232	206.10	7.7	4,764
205.59	0.4	277	206.11	7.9	4,883
205.60	0.5	324	206.12	8.1	5,004
205.61	0.6	374	206.13	8.3	5,125
205.62	0.7	426	206.14	8.5	5,248
205.63	0.8	480	206.15	8.7	5,371
205.64	0.9	537	206.16	8.9	5,496
205.65	1.0	595	206.17	9.1	5,621
205.66	1.1	656	206.18	9.3	5,748
205.67	1.2	718	206.19	9.6	5,875
205.68	1.3	783	206.20	9.8	6,003
205.69	1.4	849	206.21	10.0	6,132
205.70	1.5	917	206.22	10.2	6,262
205.71	1.6	986	206.23	10.4	6,393
205.72	1.7	1,058	206.24	10.6	6,525
205.73	1.8	1,131	206.25	10.8	6,658
205.74	2.0	1,205	206.26	11.0	6,791
205.75	2.1	1,281	206.27	11.3	6,926
205.76	2.2	1,359	206.28	11.5	7,061
205.77	2.3	1,438	206.29	11.7	7,197
205.78	2.5	1,519	206.30	11.9	7,334
205.79	2.6	1,601	206.31	12.2	7,472
205.80	2.7	1,684	206.32	12.4	7,611
205.81	2.9	1,769	206.33	12.6	7,751
205.82	3.0	1,855	206.34	12.8	7,891
205.83	3.2	1,943	206.35	13.1	8,033
205.84	3.3	2,032	206.36	13.3	8,175
205.85	3.5	2,122	206.37	13.5	8,318
205.86	3.6	2,214	206.38	13.8	8,462
205.87	3.8	2,307	206.39	14.0	8,606
205.88	3.9	2,401	206.40	14.2	8,752
205.89	4.1	2,496	206.41	14.5	8,898
205.90	4.2	2,593	206.42	14.7	9,045
205.91	4.4	2,691	206.43	14.9	9,193
205.92	4.5	2,790	206.44	15.2	9,341
205.93	4.7	2,890	206.45	15.4	9,491
205.94	4.9	2,992	206.46	15.7	9,641
205.95	5.0	3,094	206.47	15.9	9,792
205.96	5.2	3,198	206.48	16.2	9,944
205.97	5.4	3,303	206.49	16.4	10,097
205.98	5.5	3,409	206.50	16.7	10,250
205.99	5.7	3,516			
206.00	5.9	3,624			
206.01	6.1	3,733			

Summary for Reach W7: 7 Thru Wetland

[62] Hint: Exceeded Reach P7 OUTLET depth by 0.08' @ 19.97 hrs

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 0.94" for 100-year event
 Inflow = 0.07 cfs @ 14.52 hrs, Volume= 0.044 af
 Outflow = 0.05 cfs @ 20.00 hrs, Volume= 0.009 af, Atten= 31%, Lag= 329.0 min

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= 217.9 min

Avg. Velocity = 0.04 fps, Avg. Travel Time= 267.1 min

Peak Storage= 790 cf @ 20.00 hrs

Average Depth at Peak Storage= 0.18' , Surface Width= 10.73'

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

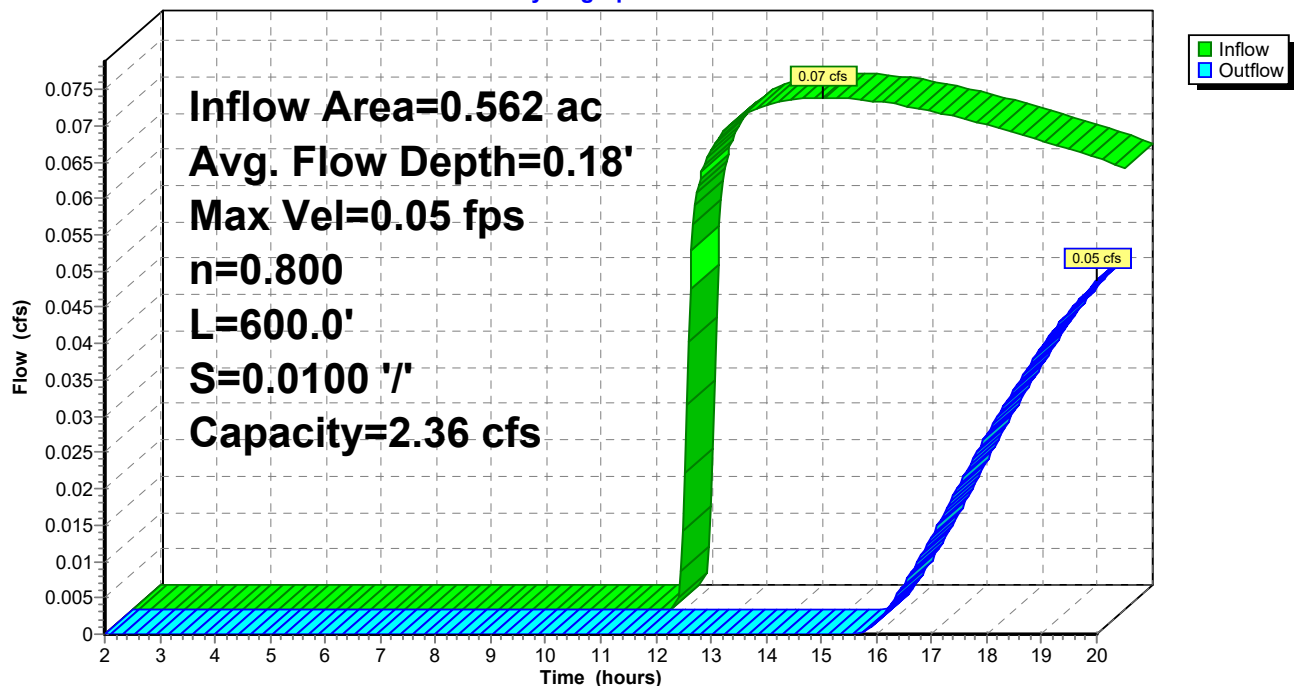
Length= 600.0' Slope= 0.0100 '/'

Inlet Invert= 204.00', Outlet Invert= 198.00'



Reach W7: 7 Thru Wetland

Hydrograph



Stage-Area-Storage for Reach W7: 7 Thru Wetland

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
204.00	0.0	0	204.52	6.2	3,750
204.01	0.0	10	204.53	6.4	3,858
204.02	0.0	28	204.54	6.6	3,968
204.03	0.1	52	204.55	6.8	4,079
204.04	0.1	80	204.56	7.0	4,191
204.05	0.2	112	204.57	7.2	4,303
204.06	0.2	147	204.58	7.4	4,417
204.07	0.3	185	204.59	7.6	4,532
204.08	0.4	226	204.60	7.7	4,648
204.09	0.4	270	204.61	7.9	4,764
204.10	0.5	316	204.62	8.1	4,882
204.11	0.6	365	204.63	8.3	5,000
204.12	0.7	416	204.64	8.5	5,120
204.13	0.8	469	204.65	8.7	5,240
204.14	0.9	524	204.66	8.9	5,362
204.15	1.0	581	204.67	9.1	5,484
204.16	1.1	640	204.68	9.3	5,607
204.17	1.2	701	204.69	9.6	5,732
204.18	1.3	764	204.70	9.8	5,857
204.19	1.4	828	204.71	10.0	5,983
204.20	1.5	894	204.72	10.2	6,109
204.21	1.6	962	204.73	10.4	6,237
204.22	1.7	1,032	204.74	10.6	6,366
204.23	1.8	1,103	204.75	10.8	6,495
204.24	2.0	1,176	204.76	11.0	6,626
204.25	2.1	1,250	204.77	11.3	6,757
204.26	2.2	1,326	204.78	11.5	6,889
204.27	2.3	1,403	204.79	11.7	7,022
204.28	2.5	1,482	204.80	11.9	7,155
204.29	2.6	1,562	204.81	12.2	7,290
204.30	2.7	1,643	204.82	12.4	7,425
204.31	2.9	1,726	204.83	12.6	7,562
204.32	3.0	1,810	204.84	12.8	7,699
204.33	3.2	1,896	204.85	13.1	7,837
204.34	3.3	1,983	204.86	13.3	7,975
204.35	3.5	2,071	204.87	13.5	8,115
204.36	3.6	2,160	204.88	13.8	8,255
204.37	3.8	2,251	204.89	14.0	8,396
204.38	3.9	2,342	204.90	14.2	8,538
204.39	4.1	2,436	204.91	14.5	8,681
204.40	4.2	2,530	204.92	14.7	8,824
204.41	4.4	2,625	204.93	14.9	8,969
204.42	4.5	2,722	204.94	15.2	9,114
204.43	4.7	2,820	204.95	15.4	9,259
204.44	4.9	2,919	204.96	15.7	9,406
204.45	5.0	3,019	204.97	15.9	9,553
204.46	5.2	3,120	204.98	16.2	9,702
204.47	5.4	3,222	204.99	16.4	9,850
204.48	5.5	3,326	205.00	16.7	10,000
204.49	5.7	3,430			
204.50	5.9	3,536			
204.51	6.1	3,642			

Summary for Pond 1P: Detention Basin 1

Inflow Area = 0.488 ac, 39.36% Impervious, Inflow Depth > 5.40" for 100-year event
 Inflow = 4.59 cfs @ 11.97 hrs, Volume= 0.219 af
 Outflow = 0.09 cfs @ 15.53 hrs, Volume= 0.066 af, Atten= 98%, Lag= 213.7 min
 Primary = 0.09 cfs @ 15.53 hrs, Volume= 0.066 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 204.86' @ 15.53 hrs Surf.Area= 8,734 sf Storage= 7,113 cf

Plug-Flow detention time= 299.3 min calculated for 0.066 af (30% of inflow)
 Center-of-Mass det. time= 184.9 min (935.6 - 750.7)

Volume	Invert	Avail.Storage	Storage Description		
#1	204.00'	17,779 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	7,850	383.0	0	0	7,850
205.00	8,884	400.0	8,362	8,362	8,979
206.00	9,961	418.0	9,417	17,779	10,220

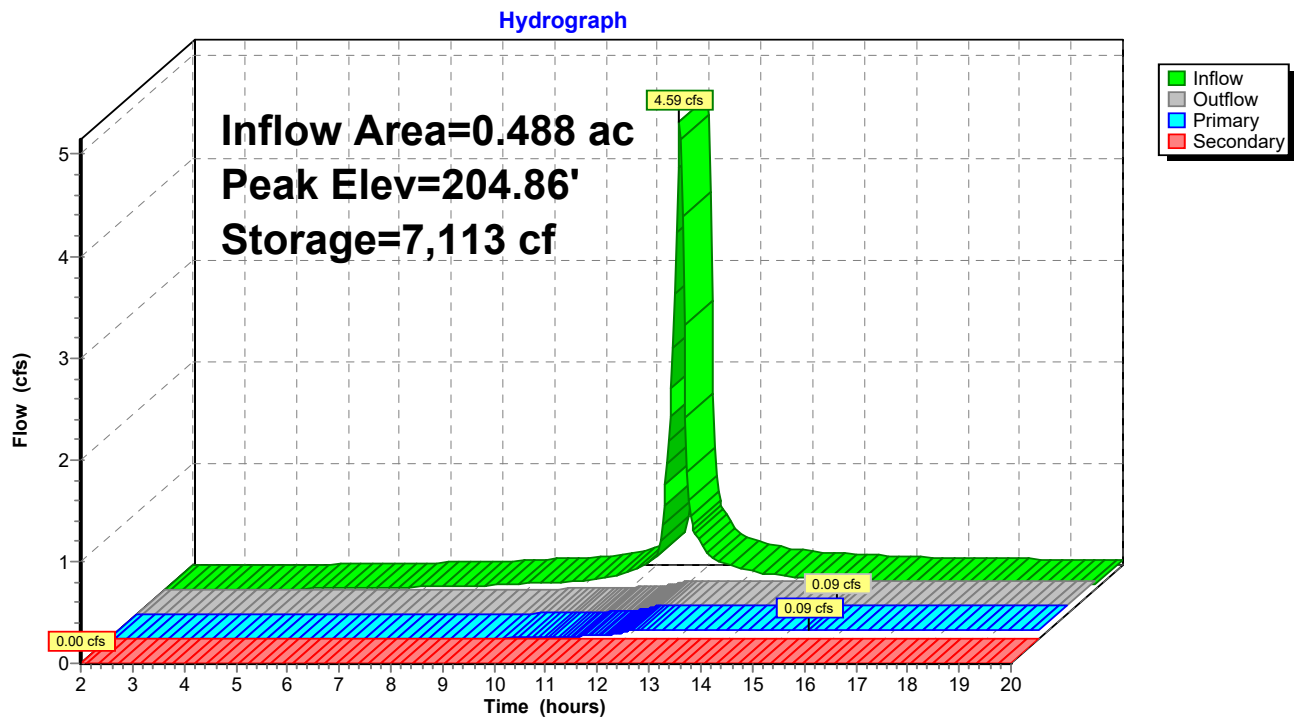
Device	Routing	Invert	Outlet Devices		
#1	Primary	204.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	205.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.09 cfs @ 15.53 hrs HW=204.86' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.09 cfs @ 4.24 fps)

Secondary OutFlow Max=0.00 cfs @ 2.00 hrs HW=204.00' (Free Discharge)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: Detention Basin 1

Stage-Area-Storage for Pond 1P: Detention Basin 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	7,850	0	205.04	8,926	8,718
204.02	7,870	157	205.06	8,947	8,897
204.04	7,890	315	205.08	8,968	9,076
204.06	7,910	473	205.10	8,989	9,255
204.08	7,930	631	205.12	9,010	9,435
204.10	7,951	790	205.14	9,031	9,616
204.12	7,971	949	205.16	9,052	9,797
204.14	7,991	1,109	205.18	9,073	9,978
204.16	8,011	1,269	205.20	9,094	10,159
204.18	8,031	1,429	205.22	9,116	10,342
204.20	8,052	1,590	205.24	9,137	10,524
204.22	8,072	1,751	205.26	9,158	10,707
204.24	8,092	1,913	205.28	9,179	10,890
204.26	8,113	2,075	205.30	9,201	11,074
204.28	8,133	2,238	205.32	9,222	11,258
204.30	8,153	2,400	205.34	9,243	11,443
204.32	8,174	2,564	205.36	9,265	11,628
204.34	8,194	2,727	205.38	9,286	11,814
204.36	8,215	2,891	205.40	9,307	12,000
204.38	8,235	3,056	205.42	9,329	12,186
204.40	8,256	3,221	205.44	9,350	12,373
204.42	8,276	3,386	205.46	9,372	12,560
204.44	8,297	3,552	205.48	9,393	12,748
204.46	8,318	3,718	205.50	9,415	12,936
204.48	8,338	3,885	205.52	9,436	13,124
204.50	8,359	4,052	205.54	9,458	13,313
204.52	8,380	4,219	205.56	9,480	13,503
204.54	8,400	4,387	205.58	9,501	13,692
204.56	8,421	4,555	205.60	9,523	13,883
204.58	8,442	4,724	205.62	9,544	14,073
204.60	8,463	4,893	205.64	9,566	14,264
204.62	8,484	5,062	205.66	9,588	14,456
204.64	8,504	5,232	205.68	9,610	14,648
204.66	8,525	5,402	205.70	9,631	14,840
204.68	8,546	5,573	205.72	9,653	15,033
204.70	8,567	5,744	205.74	9,675	15,226
204.72	8,588	5,916	205.76	9,697	15,420
204.74	8,609	6,088	205.78	9,719	15,614
204.76	8,630	6,260	205.80	9,741	15,809
204.78	8,651	6,433	205.82	9,763	16,004
204.80	8,672	6,606	205.84	9,785	16,199
204.82	8,693	6,780	205.86	9,807	16,395
204.84	8,714	6,954	205.88	9,829	16,592
204.86	8,735	7,128	205.90	9,851	16,788
204.88	8,757	7,303	205.92	9,873	16,986
204.90	8,778	7,479	205.94	9,895	17,183
204.92	8,799	7,654	205.96	9,917	17,381
204.94	8,820	7,831	205.98	9,939	17,580
204.96	8,841	8,007	206.00	9,961	17,779
204.98	8,863	8,184			
205.00	8,884	8,362			
205.02	8,905	8,540			

Summary for Pond 2P: Detention Basin 2

[82] Warning: Early inflow requires earlier time span

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.375 ac, 65.09% Impervious, Inflow Depth > 5.93" for 100-year event
 Inflow = 3.65 cfs @ 11.97 hrs, Volume= 0.185 af
 Outflow = 0.13 cfs @ 13.56 hrs, Volume= 0.098 af, Atten= 96%, Lag= 95.4 min
 Primary = 0.13 cfs @ 13.56 hrs, Volume= 0.098 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.57' @ 13.56 hrs Surf.Area= 3,797 sf Storage= 5,138 cf

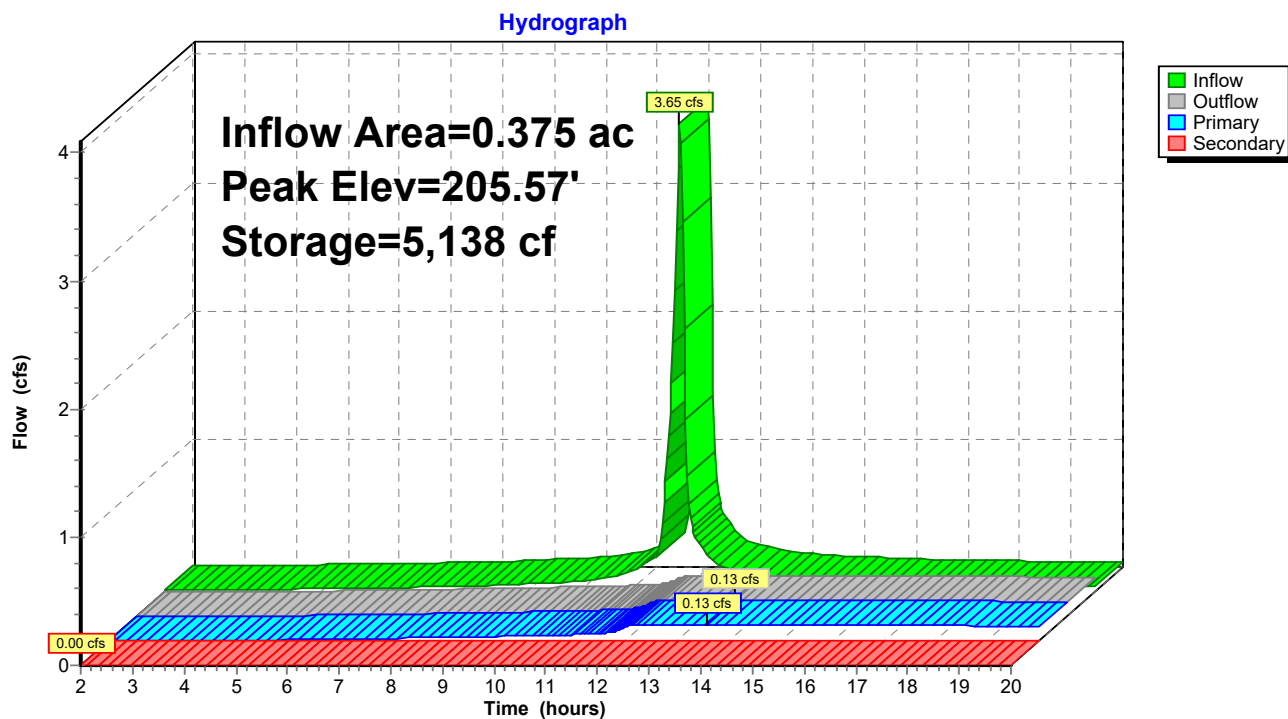
Plug-Flow detention time= 250.3 min calculated for 0.098 af (53% of inflow)
 Center-of-Mass det. time= 159.8 min (888.4 - 728.7)

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=0.13 cfs @ 13.56 hrs HW=205.57' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.13 cfs @ 5.87 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

Stage-Area-Storage for Pond 2P: Detention Basin 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	2,781	0	205.04	3,440	3,229
204.02	2,793	56	205.06	3,454	3,298
204.04	2,805	112	205.08	3,467	3,367
204.06	2,817	168	205.10	3,480	3,437
204.08	2,829	224	205.12	3,493	3,507
204.10	2,841	281	205.14	3,507	3,577
204.12	2,854	338	205.16	3,520	3,647
204.14	2,866	395	205.18	3,533	3,717
204.16	2,878	453	205.20	3,547	3,788
204.18	2,890	510	205.22	3,560	3,859
204.20	2,902	568	205.24	3,573	3,931
204.22	2,915	626	205.26	3,587	4,002
204.24	2,927	685	205.28	3,600	4,074
204.26	2,939	744	205.30	3,614	4,146
204.28	2,952	802	205.32	3,627	4,219
204.30	2,964	862	205.34	3,641	4,291
204.32	2,977	921	205.36	3,654	4,364
204.34	2,989	981	205.38	3,668	4,437
204.36	3,001	1,041	205.40	3,682	4,511
204.38	3,014	1,101	205.42	3,695	4,585
204.40	3,026	1,161	205.44	3,709	4,659
204.42	3,039	1,222	205.46	3,723	4,733
204.44	3,052	1,283	205.48	3,736	4,808
204.46	3,064	1,344	205.50	3,750	4,882
204.48	3,077	1,405	205.52	3,764	4,958
204.50	3,089	1,467	205.54	3,778	5,033
204.52	3,102	1,529	205.56	3,792	5,109
204.54	3,115	1,591	205.58	3,805	5,185
204.56	3,127	1,653	205.60	3,819	5,261
204.58	3,140	1,716	205.62	3,833	5,337
204.60	3,153	1,779	205.64	3,847	5,414
204.62	3,166	1,842	205.66	3,861	5,491
204.64	3,179	1,906	205.68	3,875	5,569
204.66	3,192	1,969	205.70	3,889	5,646
204.68	3,204	2,033	205.72	3,903	5,724
204.70	3,217	2,098	205.74	3,917	5,802
204.72	3,230	2,162	205.76	3,931	5,881
204.74	3,243	2,227	205.78	3,945	5,960
204.76	3,256	2,292	205.80	3,959	6,039
204.78	3,269	2,357	205.82	3,974	6,118
204.80	3,282	2,423	205.84	3,988	6,198
204.82	3,295	2,488	205.86	4,002	6,278
204.84	3,308	2,554	205.88	4,016	6,358
204.86	3,321	2,621	205.90	4,030	6,438
204.88	3,335	2,687	205.92	4,045	6,519
204.90	3,348	2,754	205.94	4,059	6,600
204.92	3,361	2,821	205.96	4,073	6,681
204.94	3,374	2,888	205.98	4,088	6,763
204.96	3,387	2,956	206.00	4,102	6,845
204.98	3,401	3,024			
205.00	3,414	3,092			
205.02	3,427	3,161			

Summary for Pond 3P: Detention Basin 3

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.582 ac, 47.63% Impervious, Inflow Depth > 5.51" for 100-year event
 Inflow = 5.56 cfs @ 11.97 hrs, Volume= 0.267 af
 Outflow = 0.14 cfs @ 14.62 hrs, Volume= 0.102 af, Atten= 98%, Lag= 159.5 min
 Primary = 0.14 cfs @ 14.62 hrs, Volume= 0.102 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.78' @ 14.62 hrs Surf.Area= 5,326 sf Storage= 8,132 cf

Plug-Flow detention time= 267.0 min calculated for 0.102 af (38% of inflow)
 Center-of-Mass det. time= 167.6 min (915.6 - 748.0)

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

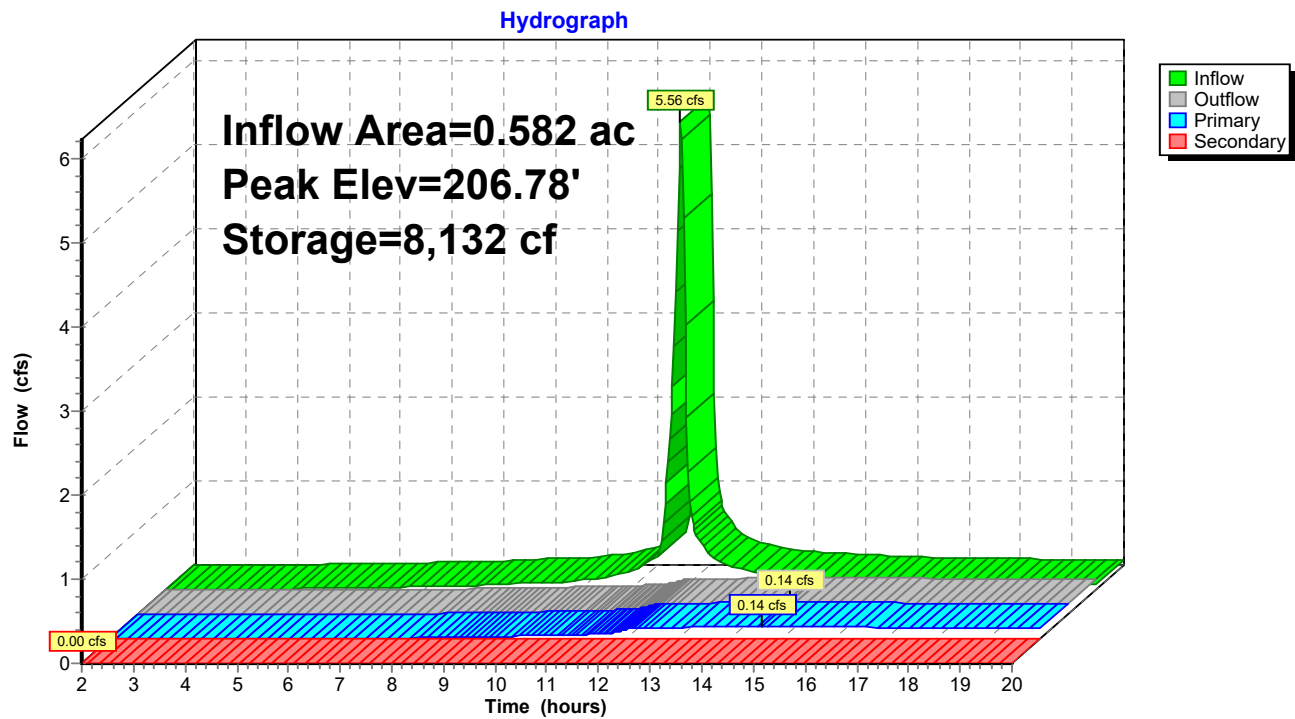
Device	Routing	Invert	Outlet Devices	
#1	Primary	205.00'	2.0" Vert. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.14 cfs @ 14.62 hrs HW=206.78' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.14 cfs @ 6.28 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

Stage-Area-Storage for Pond 3P: Detention Basin 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	3,825	0	206.04	4,679	4,415
205.02	3,841	77	206.06	4,695	4,509
205.04	3,856	154	206.08	4,712	4,603
205.06	3,872	231	206.10	4,729	4,697
205.08	3,888	309	206.12	4,746	4,792
205.10	3,903	386	206.14	4,763	4,887
205.12	3,919	465	206.16	4,780	4,982
205.14	3,935	543	206.18	4,797	5,078
205.16	3,951	622	206.20	4,814	5,174
205.18	3,967	701	206.22	4,831	5,271
205.20	3,983	781	206.24	4,849	5,368
205.22	3,999	861	206.26	4,866	5,465
205.24	4,015	941	206.28	4,883	5,562
205.26	4,031	1,021	206.30	4,900	5,660
205.28	4,047	1,102	206.32	4,917	5,758
205.30	4,063	1,183	206.34	4,935	5,857
205.32	4,079	1,264	206.36	4,952	5,956
205.34	4,095	1,346	206.38	4,969	6,055
205.36	4,111	1,428	206.40	4,987	6,154
205.38	4,127	1,511	206.42	5,004	6,254
205.40	4,143	1,593	206.44	5,022	6,354
205.42	4,160	1,676	206.46	5,039	6,455
205.44	4,176	1,760	206.48	5,057	6,556
205.46	4,192	1,843	206.50	5,074	6,657
205.48	4,209	1,927	206.52	5,092	6,759
205.50	4,225	2,012	206.54	5,109	6,861
205.52	4,241	2,096	206.56	5,127	6,963
205.54	4,258	2,181	206.58	5,144	7,066
205.56	4,274	2,267	206.60	5,162	7,169
205.58	4,291	2,352	206.62	5,180	7,273
205.60	4,307	2,438	206.64	5,198	7,376
205.62	4,324	2,525	206.66	5,215	7,480
205.64	4,341	2,611	206.68	5,233	7,585
205.66	4,357	2,698	206.70	5,251	7,690
205.68	4,374	2,786	206.72	5,269	7,795
205.70	4,391	2,873	206.74	5,287	7,901
205.72	4,407	2,961	206.76	5,305	8,006
205.74	4,424	3,049	206.78	5,323	8,113
205.76	4,441	3,138	206.80	5,341	8,219
205.78	4,458	3,227	206.82	5,359	8,326
205.80	4,475	3,316	206.84	5,377	8,434
205.82	4,492	3,406	206.86	5,395	8,541
205.84	4,508	3,496	206.88	5,413	8,649
205.86	4,525	3,586	206.90	5,431	8,758
205.88	4,542	3,677	206.92	5,449	8,867
205.90	4,559	3,768	206.94	5,467	8,976
205.92	4,576	3,860	206.96	5,485	9,085
205.94	4,594	3,951	206.98	5,504	9,195
205.96	4,611	4,043	207.00	5,522	9,306
205.98	4,628	4,136			
206.00	4,645	4,228			
206.02	4,662	4,321			

Summary for Pond 4A: Detention Basin 4A

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.401 ac, 54.77% Impervious, Inflow Depth > 5.51" for 100-year event
 Inflow = 3.82 cfs @ 11.97 hrs, Volume= 0.184 af
 Outflow = 3.63 cfs @ 11.99 hrs, Volume= 0.183 af, Atten= 5%, Lag= 1.5 min
 Primary = 3.63 cfs @ 11.99 hrs, Volume= 0.183 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 205.86' @ 11.99 hrs Surf.Area= 1,035 sf Storage= 561 cf

Plug-Flow detention time= 7.8 min calculated for 0.183 af (99% of inflow)
 Center-of-Mass det. time= 5.5 min (753.5 - 748.0)

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

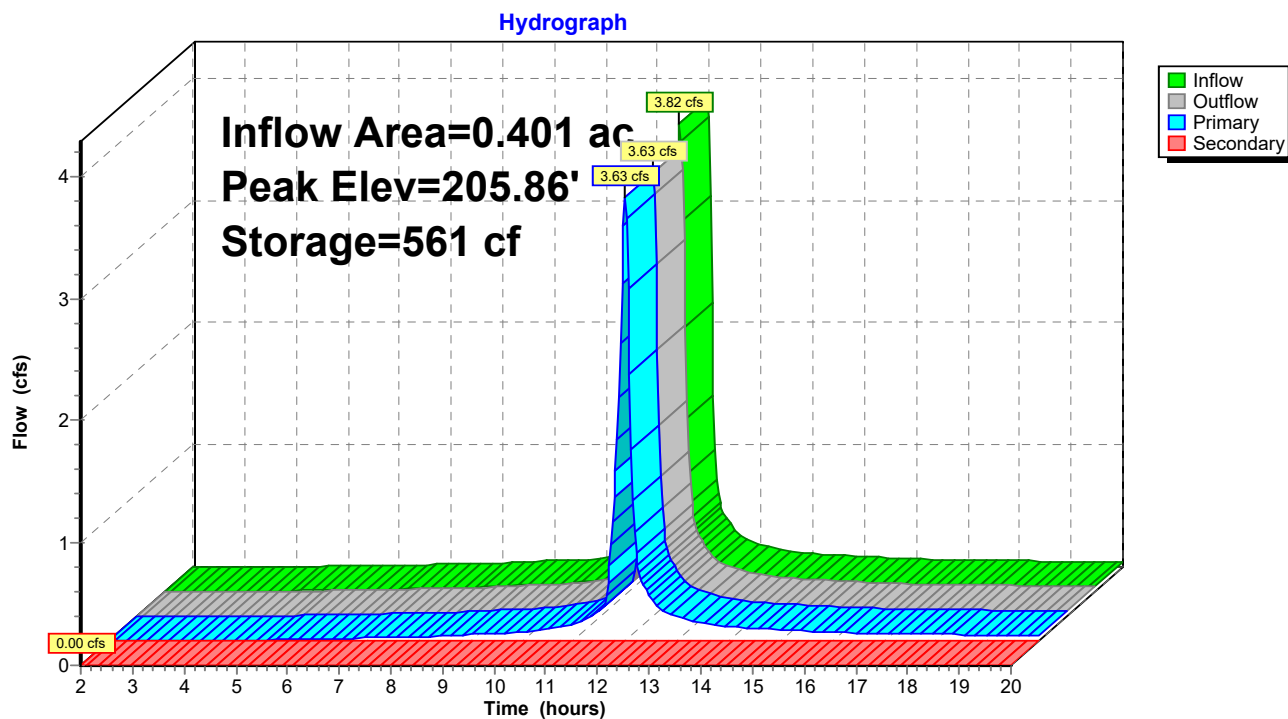
Device	Routing	Invert	Outlet Devices												
#1	Primary	205.20'	15.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads												
#2	Secondary	207.50'	8.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 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=3.62 cfs @ 11.99 hrs HW=205.86' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 3.62 cfs @ 2.76 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

Stage-Area-Storage for Pond 4A: Detention Basin 4A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.20	680	0
205.25	704	35
205.30	729	70
205.35	754	108
205.40	780	146
205.45	806	186
205.50	833	226
205.55	859	269
205.60	887	312
205.65	915	357
205.70	943	404
205.75	971	452
205.80	1,000	501
205.85	1,030	552
205.90	1,060	604
205.95	1,090	658
206.00	1,121	713
206.05	1,160	770
206.10	1,200	829
206.15	1,240	890
206.20	1,282	953
206.25	1,323	1,018
206.30	1,366	1,086
206.35	1,409	1,155
206.40	1,453	1,226
206.45	1,497	1,300
206.50	1,542	1,376
206.55	1,588	1,454
206.60	1,635	1,535
206.65	1,682	1,618
206.70	1,730	1,703
206.75	1,778	1,791
206.80	1,828	1,881
206.85	1,877	1,974
206.90	1,928	2,069
206.95	1,979	2,166
207.00	2,031	2,267
207.05	2,073	2,369
207.10	2,114	2,474
207.15	2,157	2,581
207.20	2,200	2,690
207.25	2,243	2,801
207.30	2,286	2,914
207.35	2,330	3,029
207.40	2,375	3,147
207.45	2,420	3,267
207.50	2,465	3,389

Summary for Pond 4B: Detention Basin 4B

[92] Warning: Device #2 is above defined storage

[63] Warning: Exceeded Reach CP INLET depth by 1.45' @ 14.36 hrs

Inflow Area = 0.536 ac, 40.98% Impervious, Inflow Depth > 4.71" for 100-year event
 Inflow = 4.21 cfs @ 12.00 hrs, Volume= 0.210 af
 Outflow = 0.14 cfs @ 14.08 hrs, Volume= 0.097 af, Atten= 97%, Lag= 125.0 min
 Primary = 0.14 cfs @ 14.08 hrs, Volume= 0.097 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.75' @ 14.08 hrs Surf.Area= 4,088 sf Storage= 6,028 cf

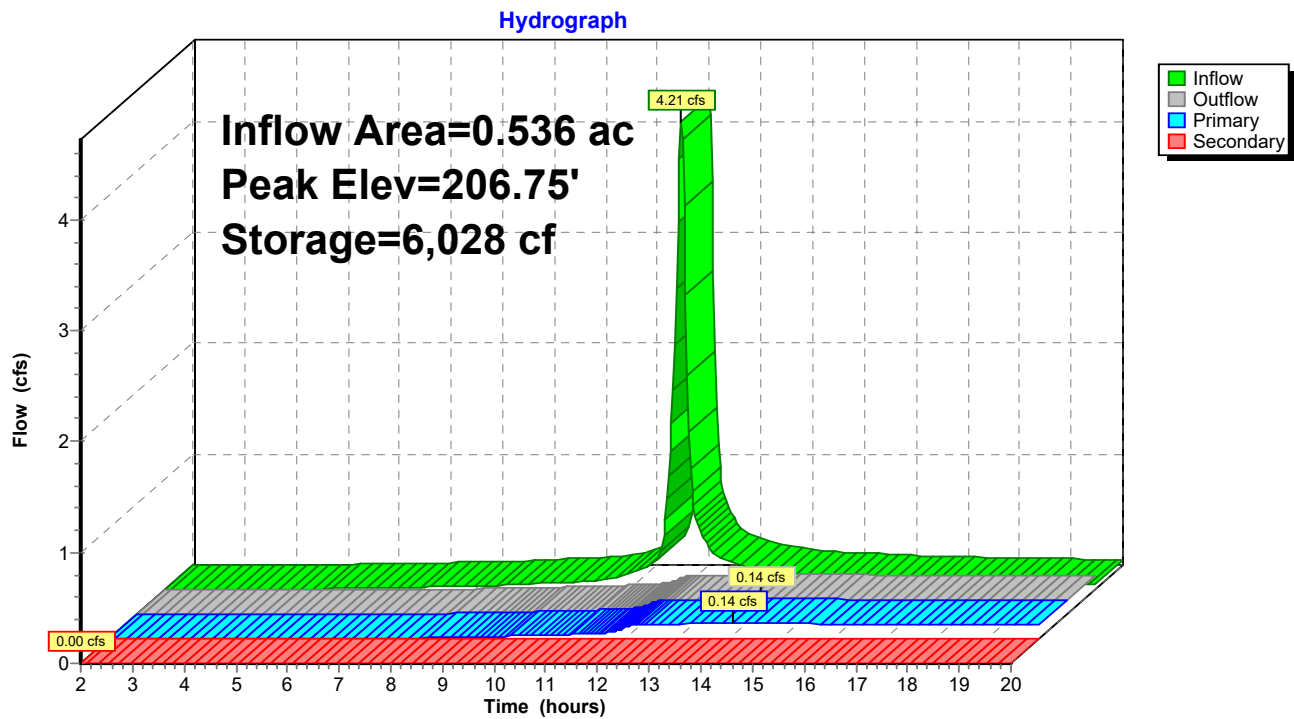
Plug-Flow detention time= 248.8 min calculated for 0.097 af (46% of inflow)
 Center-of-Mass det. time= 162.1 min (922.6 - 760.5)

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 @ 14.08 hrs HW=206.75' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.14 cfs @ 6.21 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

Stage-Area-Storage for Pond 4B: Detention Basin 4B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	2,837	0	206.04	3,570	3,325
205.02	2,850	57	206.06	3,584	3,397
205.04	2,864	114	206.08	3,599	3,469
205.06	2,877	171	206.10	3,613	3,541
205.08	2,891	229	206.12	3,627	3,613
205.10	2,904	287	206.14	3,642	3,686
205.12	2,917	345	206.16	3,656	3,759
205.14	2,931	404	206.18	3,670	3,832
205.16	2,945	462	206.20	3,685	3,906
205.18	2,958	522	206.22	3,699	3,979
205.20	2,972	581	206.24	3,713	4,054
205.22	2,985	640	206.26	3,728	4,128
205.24	2,999	700	206.28	3,742	4,203
205.26	3,013	760	206.30	3,757	4,278
205.28	3,027	821	206.32	3,771	4,353
205.30	3,040	881	206.34	3,786	4,429
205.32	3,054	942	206.36	3,801	4,504
205.34	3,068	1,004	206.38	3,815	4,581
205.36	3,082	1,065	206.40	3,830	4,657
205.38	3,096	1,127	206.42	3,845	4,734
205.40	3,110	1,189	206.44	3,859	4,811
205.42	3,124	1,251	206.46	3,874	4,888
205.44	3,138	1,314	206.48	3,889	4,966
205.46	3,152	1,377	206.50	3,904	5,044
205.48	3,166	1,440	206.52	3,919	5,122
205.50	3,180	1,503	206.54	3,933	5,200
205.52	3,194	1,567	206.56	3,948	5,279
205.54	3,208	1,631	206.58	3,963	5,358
205.56	3,222	1,695	206.60	3,978	5,438
205.58	3,236	1,760	206.62	3,993	5,517
205.60	3,251	1,825	206.64	4,008	5,597
205.62	3,265	1,890	206.66	4,023	5,678
205.64	3,279	1,955	206.68	4,038	5,758
205.66	3,294	2,021	206.70	4,053	5,839
205.68	3,308	2,087	206.72	4,068	5,921
205.70	3,322	2,154	206.74	4,084	6,002
205.72	3,337	2,220	206.76	4,099	6,084
205.74	3,351	2,287	206.78	4,114	6,166
205.76	3,366	2,354	206.80	4,129	6,248
205.78	3,380	2,422	206.82	4,144	6,331
205.80	3,395	2,489	206.84	4,160	6,414
205.82	3,409	2,557	206.86	4,175	6,498
205.84	3,424	2,626	206.88	4,190	6,581
205.86	3,439	2,694	206.90	4,206	6,665
205.88	3,453	2,763	206.92	4,221	6,749
205.90	3,468	2,832	206.94	4,237	6,834
205.92	3,483	2,902	206.96	4,252	6,919
205.94	3,497	2,972	206.98	4,267	7,004
205.96	3,512	3,042	207.00	4,283	7,090
205.98	3,527	3,112			
206.00	3,542	3,183			
206.02	3,556	3,254			

Summary for Pond 5P: Detention Basin 5

Inflow Area = 1.014 ac, 81.56% Impervious, Inflow Depth > 6.20" for 100-year event
 Inflow = 10.25 cfs @ 11.97 hrs, Volume= 0.524 af
 Outflow = 0.47 cfs @ 13.02 hrs, Volume= 0.258 af, Atten= 95%, Lag= 63.5 min
 Primary = 0.20 cfs @ 13.02 hrs, Volume= 0.163 af
 Secondary = 0.28 cfs @ 13.02 hrs, Volume= 0.095 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 207.60' @ 13.02 hrs Surf.Area= 5,563 sf Storage= 14,697 cf

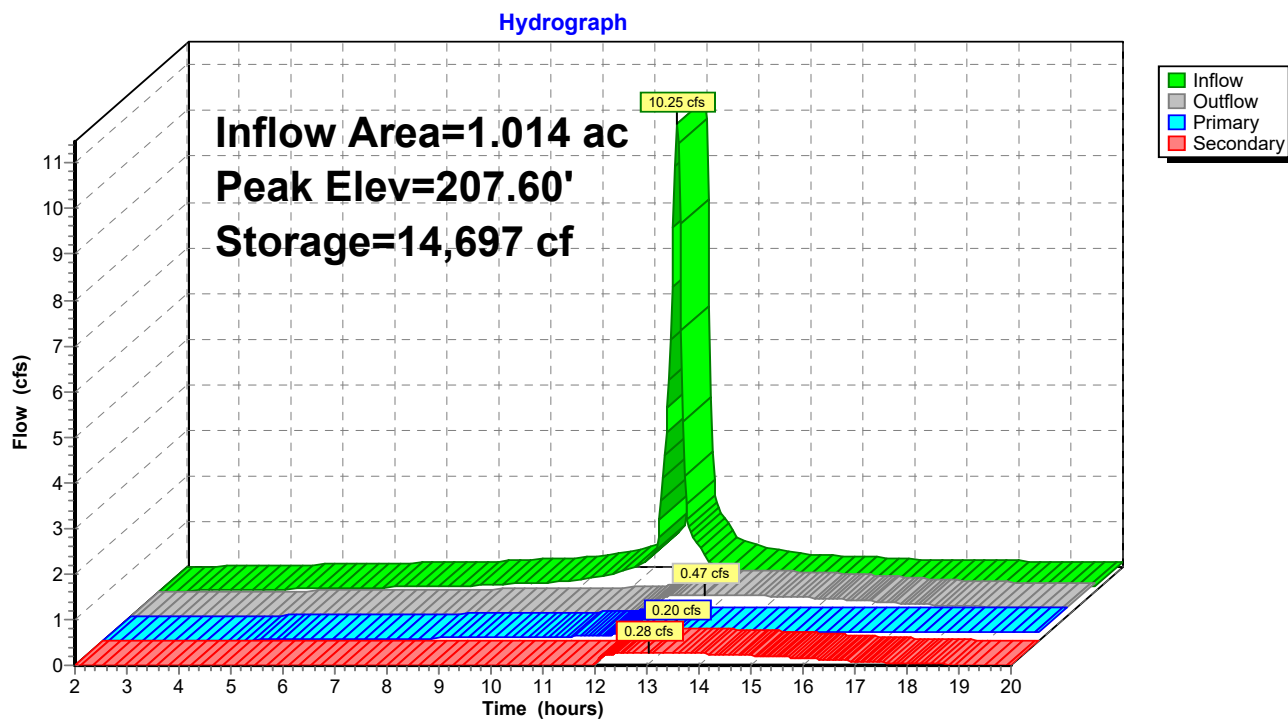
Plug-Flow detention time= 231.4 min calculated for 0.258 af (49% of inflow)
 Center-of-Mass det. time= 137.1 min (865.2 - 728.1)

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 @ 13.02 hrs HW=207.60' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.20 cfs @ 9.03 fps)

Secondary OutFlow Max=0.28 cfs @ 13.02 hrs HW=207.60' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.28 cfs @ 3.18 fps)

Pond 5P: Detention Basin 5

Stage-Area-Storage for Pond 5P: Detention Basin 5

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
204.00	2,787	0	206.60	4,759	9,518
204.05	2,810	140	206.65	4,798	9,756
204.10	2,834	281	206.70	4,838	9,997
204.15	2,858	423	206.75	4,878	10,240
204.20	2,881	567	206.80	4,918	10,485
204.25	2,905	711	206.85	4,958	10,732
204.30	2,929	857	206.90	4,998	10,981
204.35	2,953	1,004	206.95	5,038	11,232
204.40	2,977	1,153	207.00	5,079	11,485
204.45	3,001	1,302	207.05	5,118	11,740
204.50	3,026	1,453	207.10	5,158	11,997
204.55	3,050	1,605	207.15	5,197	12,255
204.60	3,074	1,758	207.20	5,237	12,516
204.65	3,099	1,912	207.25	5,277	12,779
204.70	3,124	2,068	207.30	5,317	13,044
204.75	3,149	2,224	207.35	5,357	13,311
204.80	3,173	2,383	207.40	5,397	13,580
204.85	3,198	2,542	207.45	5,437	13,850
204.90	3,224	2,702	207.50	5,478	14,123
204.95	3,249	2,864	207.55	5,519	14,398
205.00	3,274	3,027	207.60	5,559	14,675
205.05	3,322	3,192	207.65	5,601	14,954
205.10	3,370	3,359	207.70	5,642	15,235
205.15	3,419	3,529	207.75	5,683	15,518
205.20	3,468	3,701			
205.25	3,517	3,876			
205.30	3,567	4,053			
205.35	3,617	4,233			
205.40	3,667	4,415			
205.45	3,718	4,599			
205.50	3,769	4,786			
205.55	3,820	4,976			
205.60	3,872	5,168			
205.65	3,924	5,363			
205.70	3,976	5,561			
205.75	4,029	5,761			
205.80	4,082	5,964			
205.85	4,136	6,169			
205.90	4,189	6,377			
205.95	4,243	6,588			
206.00	4,298	6,802			
206.05	4,336	7,017			
206.10	4,373	7,235			
206.15	4,411	7,455			
206.20	4,449	7,676			
206.25	4,487	7,900			
206.30	4,525	8,125			
206.35	4,564	8,352			
206.40	4,603	8,581			
206.45	4,641	8,813			
206.50	4,680	9,046			
206.55	4,719	9,281			

Summary for Pond 6P: Detention Basin 6

Inflow Area = 0.553 ac, 65.72% Impervious, Inflow Depth > 4.84" for 100-year event
 Inflow = 4.84 cfs @ 11.97 hrs, Volume= 0.223 af
 Outflow = 0.34 cfs @ 12.58 hrs, Volume= 0.158 af, Atten= 93%, Lag= 36.4 min
 Primary = 0.34 cfs @ 12.58 hrs, Volume= 0.158 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 207.26' @ 12.58 hrs Surf.Area= 3,440 sf Storage= 6,004 cf

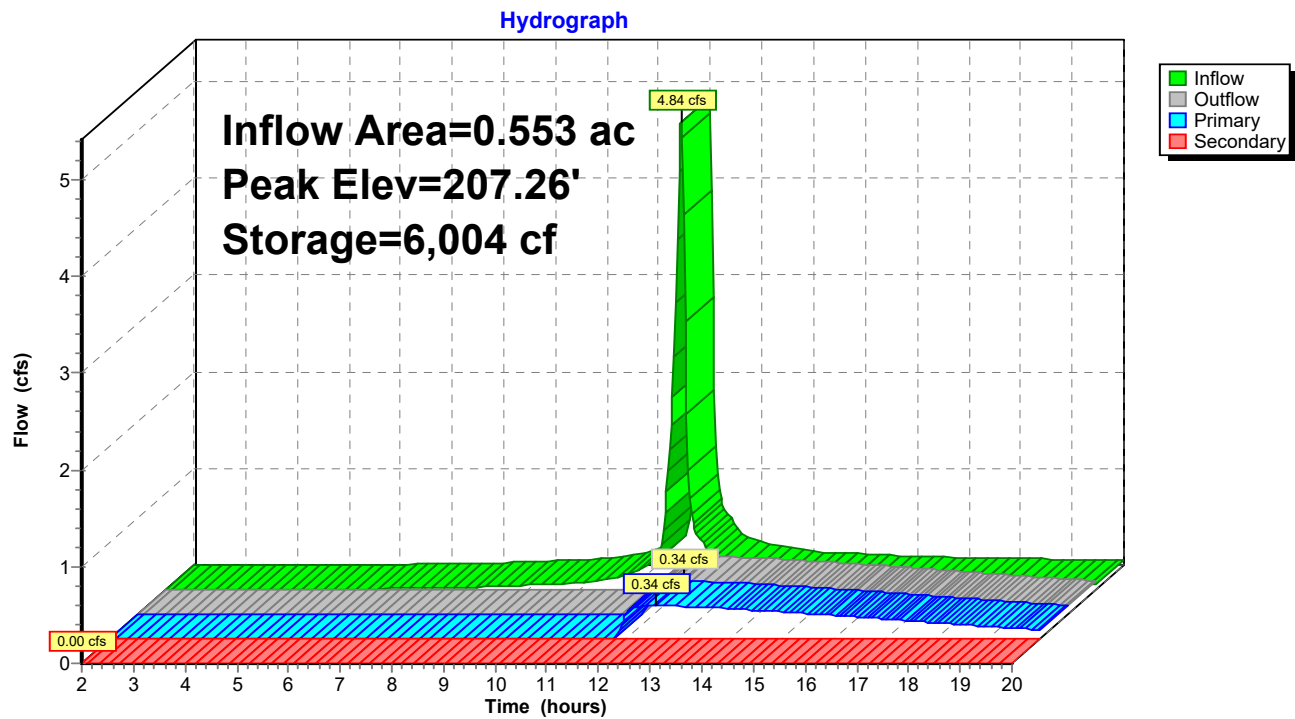
Plug-Flow detention time= 213.9 min calculated for 0.157 af (71% of inflow)
 Center-of-Mass det. time= 149.4 min (911.8 - 762.4)

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=0.34 cfs @ 12.58 hrs HW=207.26' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.34 cfs @ 5.08 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

Stage-Area-Storage for Pond 6P: Detention Basin 6

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	1,920	0	207.60	3,689	7,213
205.05	1,950	97	207.65	3,727	7,398
205.10	1,980	195	207.70	3,764	7,585
205.15	2,010	295	207.75	3,802	7,775
205.20	2,040	396			
205.25	2,071	499			
205.30	2,102	603			
205.35	2,133	709			
205.40	2,164	816			
205.45	2,196	925			
205.50	2,228	1,036			
205.55	2,260	1,148			
205.60	2,292	1,262			
205.65	2,324	1,377			
205.70	2,357	1,494			
205.75	2,390	1,613			
205.80	2,423	1,733			
205.85	2,456	1,855			
205.90	2,490	1,979			
205.95	2,524	2,104			
206.00	2,558	2,231			
206.05	2,591	2,360			
206.10	2,624	2,490			
206.15	2,657	2,623			
206.20	2,691	2,756			
206.25	2,724	2,892			
206.30	2,758	3,029			
206.35	2,792	3,167			
206.40	2,827	3,308			
206.45	2,861	3,450			
206.50	2,896	3,594			
206.55	2,931	3,740			
206.60	2,966	3,887			
206.65	3,002	4,036			
206.70	3,037	4,187			
206.75	3,073	4,340			
206.80	3,109	4,495			
206.85	3,145	4,651			
206.90	3,182	4,809			
206.95	3,218	4,969			
207.00	3,255	5,131			
207.05	3,290	5,295			
207.10	3,325	5,460			
207.15	3,361	5,627			
207.20	3,397	5,796			
207.25	3,433	5,967			
207.30	3,469	6,139			
207.35	3,505	6,314			
207.40	3,541	6,490			
207.45	3,578	6,668			
207.50	3,615	6,848			
207.55	3,652	7,029			

Summary for Pond 7P: Detention Basin 7

Inflow Area = 0.562 ac, 21.12% Impervious, Inflow Depth > 1.62" for 100-year event
 Inflow = 1.74 cfs @ 11.98 hrs, Volume= 0.076 af
 Outflow = 0.07 cfs @ 14.43 hrs, Volume= 0.045 af, Atten= 96%, Lag= 146.8 min
 Primary = 0.07 cfs @ 14.43 hrs, Volume= 0.045 af
 Secondary = 0.00 cfs @ 2.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs
 Peak Elev= 206.53' @ 14.43 hrs Surf.Area= 3,621 sf Storage= 1,783 cf

Plug-Flow detention time= 227.6 min calculated for 0.044 af (59% of inflow)
 Center-of-Mass det. time= 136.7 min (956.4 - 819.7)

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

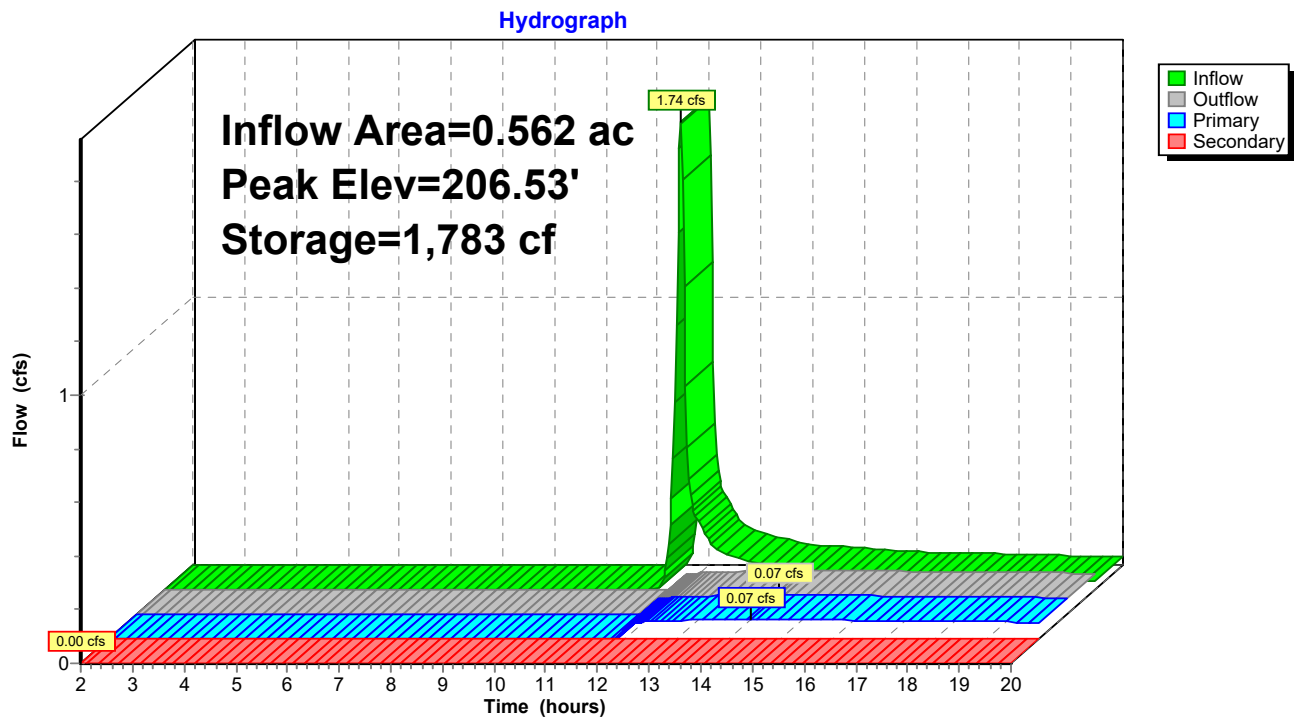
Device	Routing	Invert	Outlet Devices		
#1	Primary	206.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#2	Secondary	207.00'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=0.07 cfs @ 14.43 hrs HW=206.53' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 3.23 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

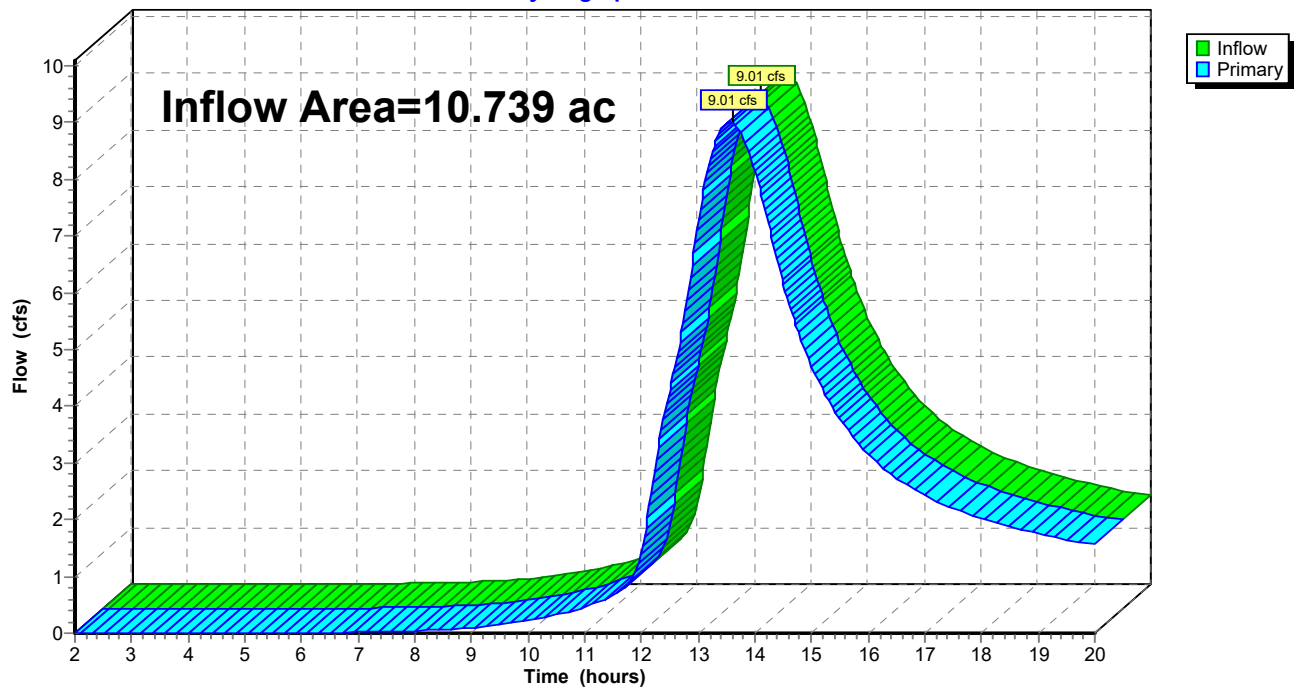
Stage-Area-Storage for Pond 7P: Detention Basin 7

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
206.00	3,078	0	207.04	4,179	3,758
206.02	3,098	62	207.06	4,202	3,842
206.04	3,117	124	207.08	4,225	3,926
206.06	3,137	186	207.10	4,249	4,011
206.08	3,157	249	207.12	4,273	4,096
206.10	3,176	313	207.14	4,296	4,182
206.12	3,196	376	207.16	4,320	4,268
206.14	3,216	441	207.18	4,344	4,355
206.16	3,236	505	207.20	4,368	4,442
206.18	3,256	570	207.22	4,391	4,530
206.20	3,276	635	207.24	4,415	4,618
206.22	3,297	701	207.26	4,439	4,706
206.24	3,317	767	207.28	4,464	4,795
206.26	3,337	834	207.30	4,488	4,885
206.28	3,358	901	207.32	4,512	4,975
206.30	3,378	968	207.34	4,536	5,065
206.32	3,398	1,036	207.36	4,561	5,156
206.34	3,419	1,104	207.38	4,585	5,248
206.36	3,440	1,173	207.40	4,610	5,340
206.38	3,460	1,242	207.42	4,634	5,432
206.40	3,481	1,311	207.44	4,659	5,525
206.42	3,502	1,381	207.46	4,684	5,618
206.44	3,523	1,451	207.48	4,708	5,712
206.46	3,544	1,522	207.50	4,733	5,807
206.48	3,565	1,593	207.52	4,758	5,902
206.50	3,586	1,664	207.54	4,783	5,997
206.52	3,607	1,736	207.56	4,808	6,093
206.54	3,628	1,809	207.58	4,833	6,189
206.56	3,649	1,881	207.60	4,858	6,286
206.58	3,670	1,955	207.62	4,883	6,384
206.60	3,692	2,028	207.64	4,909	6,482
206.62	3,713	2,102	207.66	4,934	6,580
206.64	3,735	2,177	207.68	4,960	6,679
206.66	3,756	2,252	207.70	4,985	6,778
206.68	3,778	2,327	207.72	5,011	6,878
206.70	3,800	2,403	207.74	5,036	6,979
206.72	3,821	2,479			
206.74	3,843	2,556			
206.76	3,865	2,633			
206.78	3,887	2,710			
206.80	3,909	2,788			
206.82	3,931	2,867			
206.84	3,953	2,945			
206.86	3,975	3,025			
206.88	3,997	3,104			
206.90	4,020	3,185			
206.92	4,042	3,265			
206.94	4,064	3,346			
206.96	4,087	3,428			
206.98	4,109	3,510			
207.00	4,132	3,592			
207.02	4,155	3,675			

Summary for Link x1000: x1000

Inflow Area = 10.739 ac, 16.60% Impervious, Inflow Depth > 3.03" for 100-year event
Inflow = 9.01 cfs @ 13.60 hrs, Volume= 2.711 af
Primary = 9.01 cfs @ 13.60 hrs, Volume= 2.711 af, Atten= 0%, Lag= 0.0 min

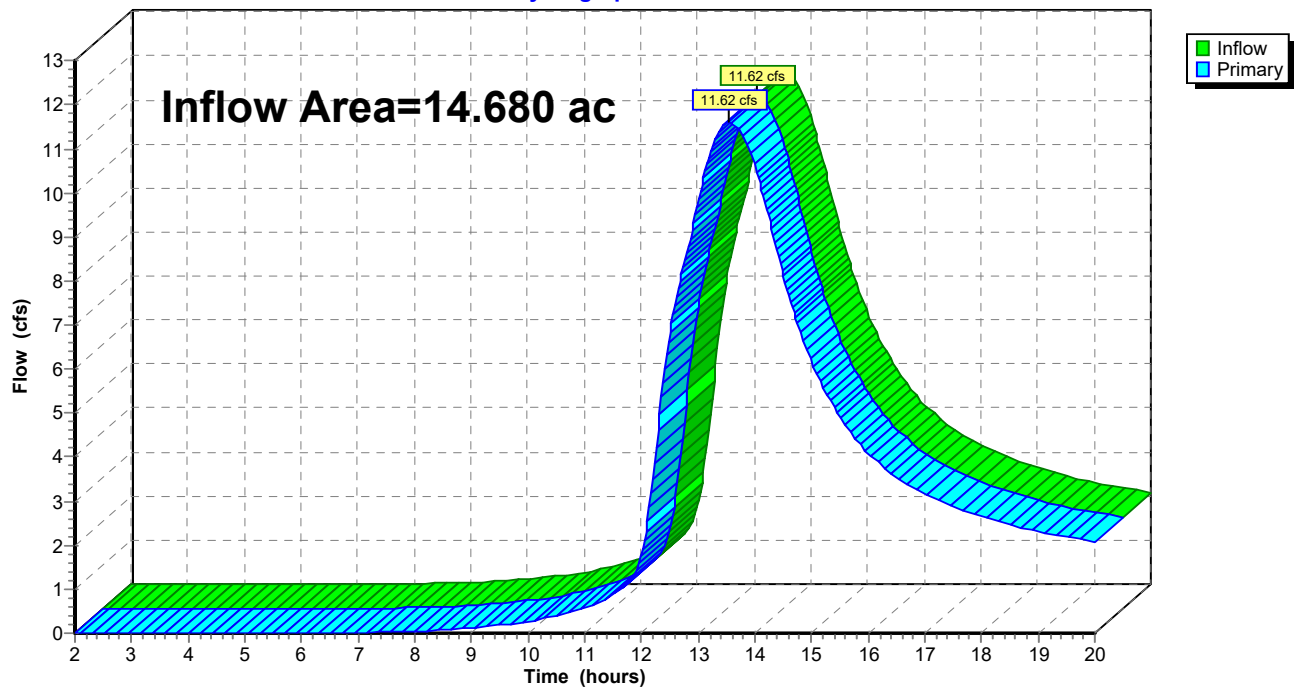
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x1000: x1000**Hydrograph**

Summary for Link x2000: x2000

Inflow Area = 14.680 ac, 15.34% Impervious, Inflow Depth > 2.93" for 100-year event
Inflow = 11.62 cfs @ 13.54 hrs, Volume= 3.589 af
Primary = 11.62 cfs @ 13.54 hrs, Volume= 3.589 af, Atten= 0%, Lag= 0.0 min

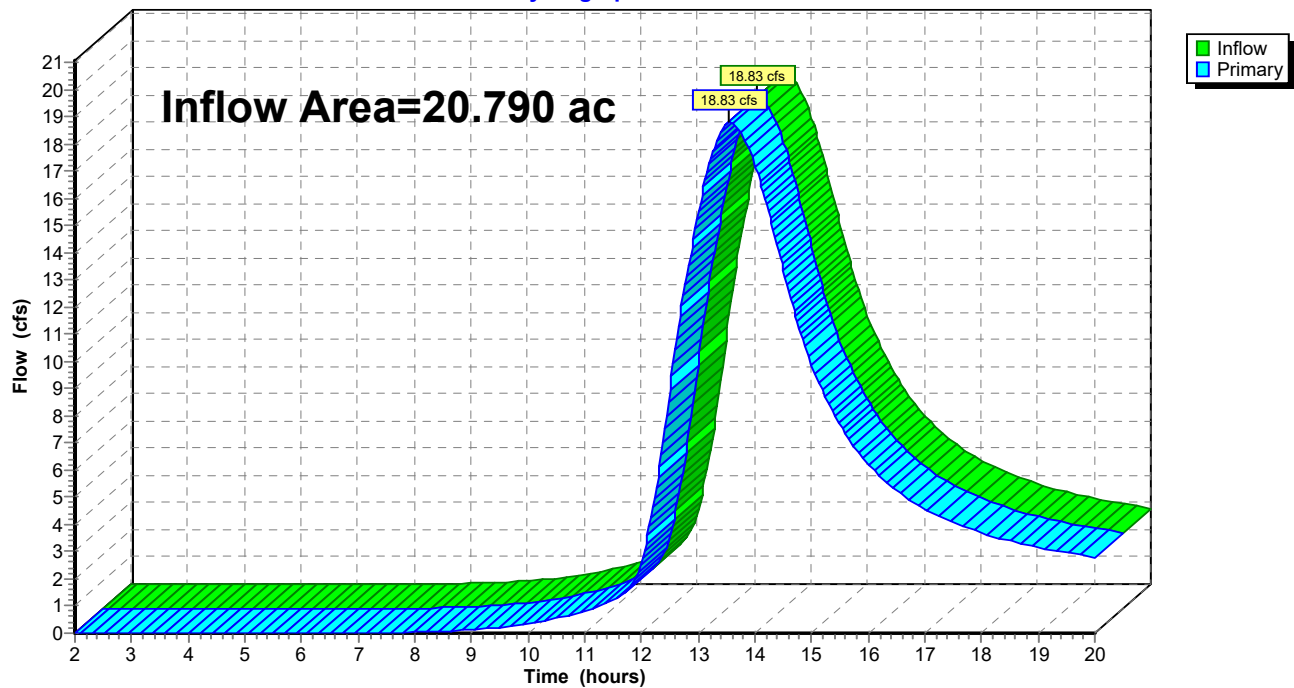
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.03 hrs

Link x2000: x2000**Hydrograph**

Summary for Link x3000: x3000

Inflow Area = 20.790 ac, 10.83% Impervious, Inflow Depth > 3.16" for 100-year event
Inflow = 18.83 cfs @ 13.56 hrs, Volume= 5.471 af
Primary = 18.83 cfs @ 13.56 hrs, Volume= 5.471 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**

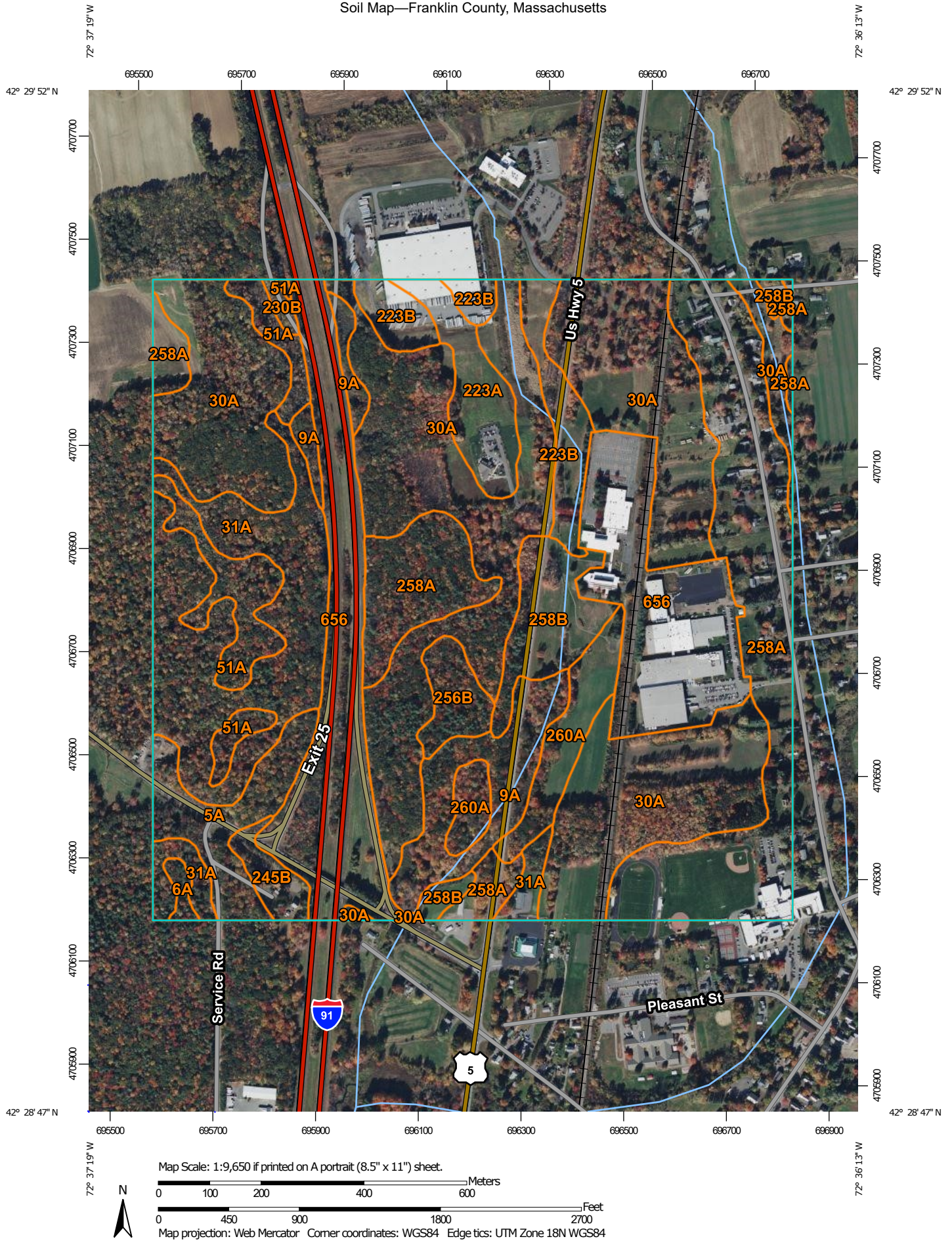
Appendix C: Soils Information

- › 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



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

11/8/2022
Page 1 of 3

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, tal

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

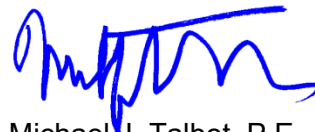
Design phase boring explorations will be required for final design. The design phase geotechnical study should also include testing to evaluate properties of the soft, clay and silt layer for use in settlement analyses, and the design of any soil improvement systems (such as a soil preload).

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

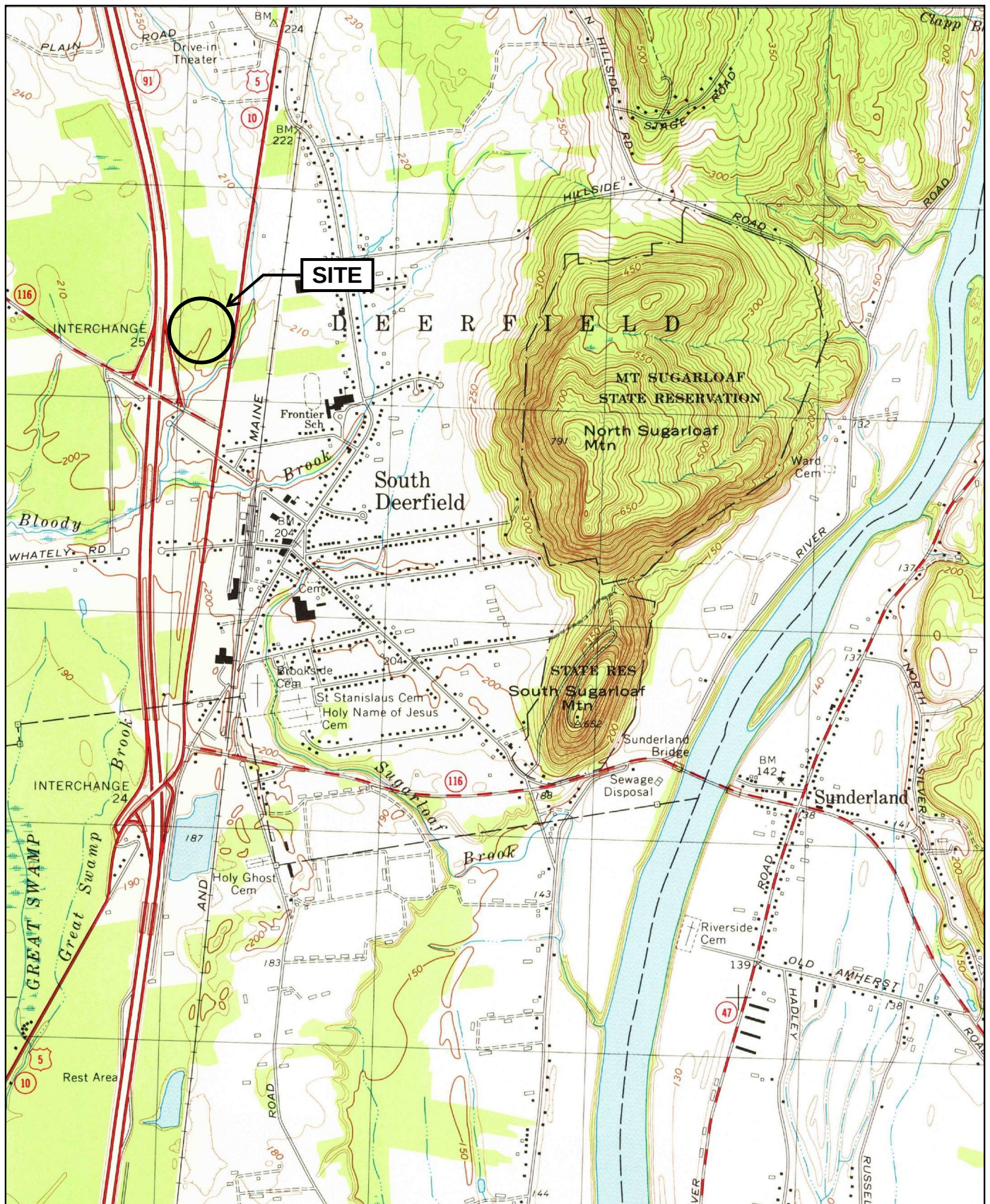


Michael J. Talbot, P.E.
Principal

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.



0 1000 0 0.5 1.0 0 0.5 1
 FEET MILES KILOMETERS

1:25,000 SCALE NATIONAL GEODETIC VERTICAL DATUM 1929 10 FOOT CONTOUR INTERVAL

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

O:\J400\3431 Sunny Dayz Inc\01-01 SunnyDayz Greenfield Rd South Deerfield, MA - Geotech\Figures and Calculations



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

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES
293 Bridge Street, Suite 500 Springfield, MA 01103 413.788.6222
www.OTO-ENV.com

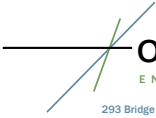
Table 1-1
Degree of Compaction Recommendations

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:\J3400\3431 Sunny Dayz Inc\01-01 SunnyDayz, 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	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)

STANDARD PENETRATION TEST (SPT)	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
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.)		*Based upon uncorrected field N-values	>30	Hard

MATERIAL: (major constituent identified in CAPITAL letters)

COHESIONLESS SOILS		
MATERIAL	FRACTION	GRAIN SIZE RANGE
GRAVEL	Coarse	3/4" to 3"
	Fine	1/4" to 3/4"
SAND	Coarse	1/16" to 1/4"
	Medium	1/64" to 1/16"
	Fine	Finest visible & distinguishable particles
SILT/CLAY	see adjacent table	Cannot distinguish individual particles
COBBLES	3" to 6" in diameter	
BOULDERS	> 6" in diameter	
Note: Boulders and cobbles are observed in test pits and/or auger cuttings.		

COHESIVE SOILS		
SMALLEST DIAMETER	PLASTICITY	IDENTITY
None	Non-plastic	SILT
1/4" (pencil)	Slight	Clayey SILT
1/8"	Low	SILT & CLAY
1/16"	Medium	CLAY & SILT
1/32"	High	Silty CLAY
1/64"	Very High	CLAY
Wetted sample is rolled in hands to smallest possible diameter before breaking.		

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.

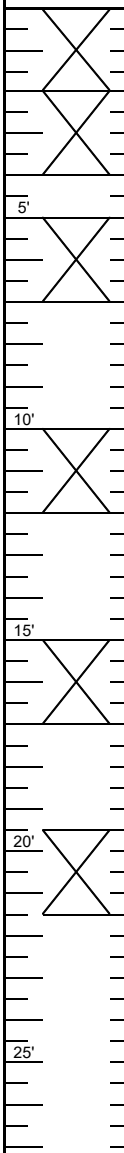
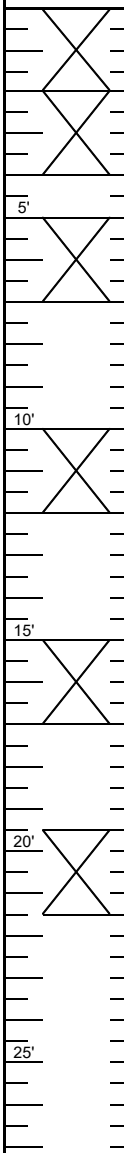
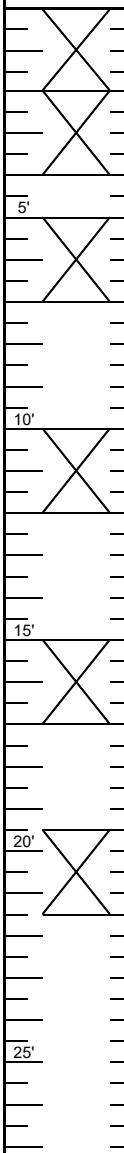
RQD: Rock Quality Designation is determined by measuring total length of pieces of core 4" or greater and dividing by the total length of the run, expressed as %. 100-90% excellent; 90-75% good; 75-50% fair; 50-25% poor; 25-0% very poor.

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

Page 1 of 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.)	HAMMER DROP	N/A
BORING LOCATION	Southern portion of site	FIRST (ft)	7.0	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	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"/2/2	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) Bottom 5": Loose, brown, fine to medium SAND, little silt, damp	TOPSOIL FINE TO MEDIUM SAND		
	4/6/4/5	17/24	S-2 2-4	--	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 ↓ 5.0	97.0 95.0	
	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)	FINE TO MEDIUM SAND	7.0 ↓ 10.0	93.0 90.0
	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)	SILTY SAND	10 ↓ 15.0	90.0 85.0
	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	SILTY SAND	15.0 ↓ 20.0	85.0 80.0
	3/5/5/5	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	FINE SAND SILT	21.0 ↓ 22.0	79.0 78.0
END OF EXPLORATION AT 22'								

Remarks:

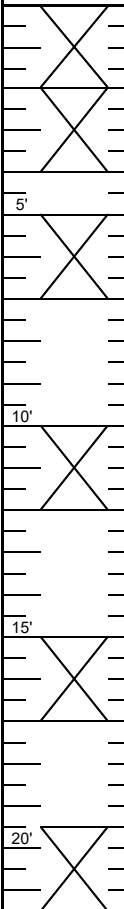
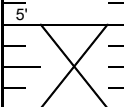
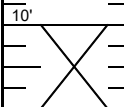
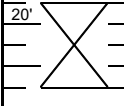
PROJECT NO.
3431-01-01

LOG OF BORING
GR-1

LOG OF BORING GR-2

Page 1 of 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.)	HAMMER DROP	N/A
BORING LOCATION	Southern portion of site	FIRST (ft)	2.3	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

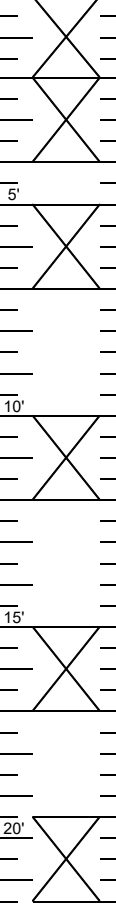
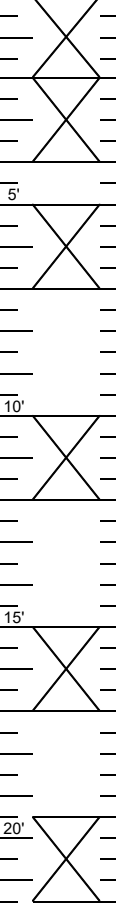
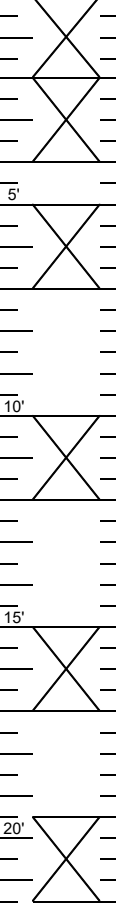
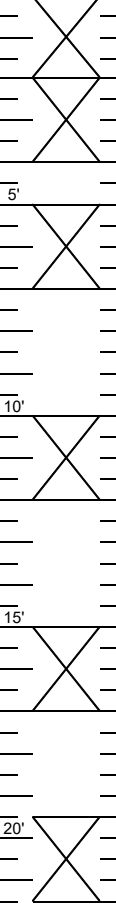
DEPTH (ft)/ SAMPLES	SAMPLES				SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE		REMARKS/ WELL CONSTRUCTION
	PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA		DEPTH (ft)	ELEV.	
	1 for 12"/1/2	18/24	S-1 0-2	--	Top 2": Very loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF) Next 6": Very loose, dark brown, fine to medium SAND, some silt, trace organics (roots), damp (TOPSOIL) Bottom 9": Very loose, orange brown, fine to medium SAND, some silt, trace organics (roots), damp Medium dense, brown, fine to medium SAND, little silt, wet (trace silt at 7", trace rust staining bottom 4")	TOPSOIL SILTY SAND	97.7	
	3/5/6/5	14/24	S-2 2-4	--		5.0	95.0	
	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)	SANDY SILT SILT AND CLAY	94.5 94.0	
	4/5/6/5	11/24	S-4 10-12	--		10.0	90.0	
	5/9/11/13	15/24	S-5 15-17	--	Top 4": Very stiff, gray brown, Clayey SILT, trace fine sand, wet Next 6": Medium dense, gray brown, fine SAND, little silt, wet Bottom 8": Medium dense, gray brown, fine SAND, little medium sand, trace silt, wet	CLAYEY SILT FINE SAND	85.0	
	3/5/8/7	17/24	S-6 20-22	--		20.0	80.0	
					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	CLAY AND SILT SILTY SAND	78.0	
					END OF EXPLORATION AT 22'	22.0		

Remarks:	PROJECT NO. 3431-01-01
	LOG OF BORING GR-2

LOG OF BORING GR-3

Page 1 of 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.)	HAMMER DROP	N/A
BORING LOCATION	Southern portion of site		FIRST (ft)	2.0	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION
			LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE
			TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE

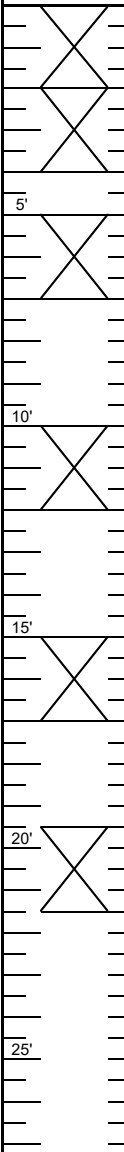
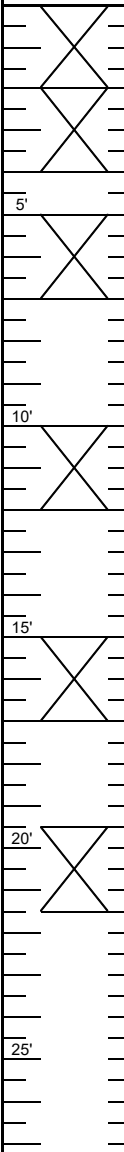
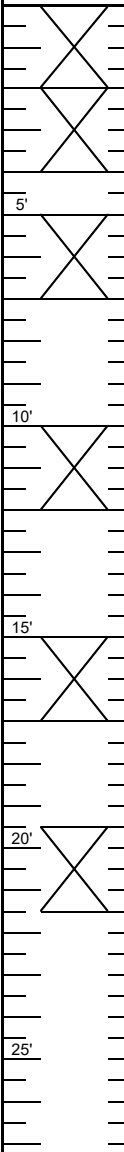
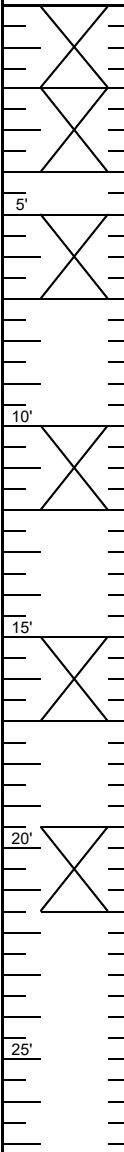
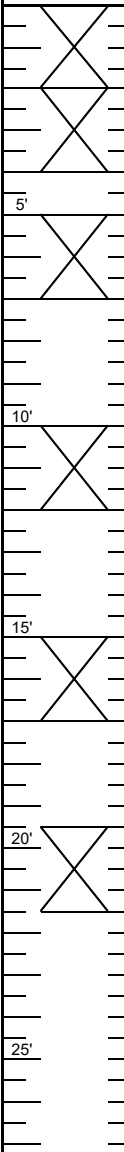
DEPTH (ft)/ SAMPLES	SAMPLES				SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE		REMARKS/ WELL CONSTRUCTION
	PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA		DEPTH (ft)	ELEV.	
	WOH 6"/ 1 for 12"/2	15/24	S-1 0-2	--	2" Topsoil: Very loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF) Next 5": Very loose, dark brown, fine to medium SAND, some silt, trace organics (roots, sticks), damp (TOPSOIL)	TOPSOIL		
	3/5/5/6	16/24	S-2 2-4	--	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)	SILTY SAND	98.0	
	5/6/5/6	17/24	S-3 5-7	--	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	97.0	
	2/5/7/9	13/24	S-4 10-12	--	Top 8": Medium dense, gray brown, fine SAND, little silt, wet (trace 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	95.0	
	3/5/9/10	16/24	S-5 15-17	--	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	SILTY SAND		
	6/6/6/6	17/24	S-6 20-22	--	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	CLAYEY SILT	84.0	
					END OF EXPLORATION AT 22'	FINE SAND	80.0	
						FINE SAND	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

Page 1 of 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.)	HAMMER DROP	N/A
BORING LOCATION	Southern portion of site	FIRST (ft)	2.3	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

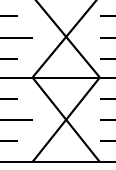
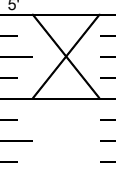
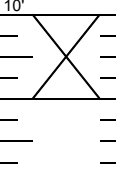
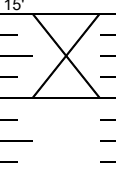
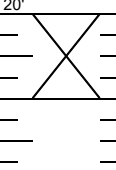
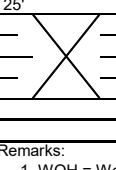
DEPTH (ft)/ SAMPLES	SAMPLES				SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE		REMARKS/ WELL CONSTRUCTION
	PENETR. RESIST. (bl / 6 in)	REC. (in)	TYPE/ NO.	FIELD TEST DATA		DEPTH (ft)	ELEV.	
	1 for 12"/1/2	20/24	S-1 0-2	--	2" Topsoil: Very loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF) Next 6": Very loose, dark brown, fine SAND, and silt, trace organics (roots), damp (TOPSOIL) Next 4": Very loose, orange brown, fine to medium SAND, and silt, trace organics (roots), damp Bottom 9": Very loose, brown, fine to medium SAND, trace silt, trace organics (roots), wet Loose, brown, fine to medium SAND, trace silt, wet	TOPSOIL FINE TO MEDIUM SAND	97.7	
	3/3/4/4	16/24	S-2 2-4	--				
	5/6/6/6	20/24	S-3 5-7	--	Medium dense, brown gray, fine SAND, some silt, wet (trace rust staining)			
	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 CLAYEY SILT 12.0 SILTY SAND	89.0 88.0	
	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)			
	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 CLAY AND SILT 22.0	80.0 78.0	
END OF EXPLORATION AT 22'								

Remarks:	PROJECT NO. 3431-01-01
	LOG OF BORING GR-4

LOG OF BORING GR-5

Page 1 of 2

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	CASING	
START DATE	5/4/2022	DISTURBED SAMPLES	13	HELPER	Jarrett	CASE DIAMETER	4"
FINISH DATE	5/4/2022	UNDISTURBED SAMPLES	0	BIT TYPE	Roller Bit with Wash	HAMMER WGT	140 lb
ENGINEER/SCIENTIST	Caren Irgang		WATER LEVEL	ROD TYPE	N (2 3/8" O.D.)	HAMMER DROP	30"
BORING LOCATION	Northern/Central portion of site		FIRST (ft)	3.8	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION
			LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE
			TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE

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"/2/4	17/24	S-1 0-2	--	1" Topsoil: Loose, very dark brown, ORGANICS (roots, leaves), little silt, damp (FOREST DUFF) 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)	TOPSOIL		1.
	4/5/7/6	18/24	S-2 2-4	--		FINE TO MEDIUM SAND		
	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")	3.0	97.0	
						SILT	96.3	
	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)	10.0	90.0	
						FINE SAND		
	4/6/7/5	15/24	S-5 15-17	--	Stiff, brown gray, SILT, some fine sand, wet (trace rust staining)	11.8	88.2	
						SILT		
	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)	15.0	85.0	
						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)	20.0	80.0	
						SILT AND CLAY		

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

LOG OF BORING GR-5

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.	
30'	WOH 1'1/2	24/24	S-8 30-32	--	Soft, gray, varved SILT and CLAY, trace fine sand, wet (1/4"-1/2 varves)	SILT AND CLAY		
35'	WOH 1'2/1	24/24	S-9 35-37	--	Soft, gray, varved SILT and CLAY, trace fine sand, wet (1/2"-3/4" varves)			
40'	WOR 6"/ WOH 6"/1/1	24/24	S-10 40-42	--	Very soft, gray, varved SILT and CLAY, trace fine sand, wet (1/2"-3/4" varves)			
45'	WOR 6"/3/2/2	24/24	S-11 45-47	--	Medium stiff, gray, varved SILT and CLAY, trace fine sand, wet (1/4"-1/2 varves)			
50'	WOH 6"/3/2/2	24/24	S-12 50-52	--	Medium stiff, gray, varved SILT and CLAY, trace fine sand, wet (1/2"-1" varves)			
55'	2/2/2/4	24/24	S-13 55-57	--	Medium stiff, gray, varved SILT and CLAY, trace fine sand, wet (1/2"-1" varves, medium sand and silt at 7")	57.0	43.0	
60'					END OF EXPLORATION AT 57'			

LOG OF BORING GR-6

Page 1 of 2

PROJECT	SunnyDayz Development			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	3431-01-01	FINAL DEPTH (ft)	17.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	South Deerfield, MA	SURFACE ELEV (ft)	100.0	FOREMAN	Dougie	CASING	
START DATE	5/4/2022	DISTURBED SAMPLES	5	HELPER	Jarrett	CASE DIAMETER	N/A
FINISH DATE	5/4/2022	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.)	HAMMER DROP	N/A
BORING LOCATION	Northern/Central portion of site		FIRST (ft)	N/A	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION
			LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE
			TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE

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"/1/3	18/24	S-1 0-2	--	2" Topsoil: Loose, very dark brown, ORGANICS (roots, leaves, sticks), little silt (FOREST DUFF) Next 5": Medium stiff, dark brown, SILT and fine SAND Next 7": Medium stiff, orange brown, SILT and fine to medium SAND Bottom 4": Loose, orange brown, fine to medium SAND, trace silt Medium dense, brown, fine to medium SAND, trace silt (little coarse sand at bottom 4")	TOPSOIL		1.
	3/5/7/7	19/24	S-2 2-4	--		SILT 1.5	98.5	
	4/7/8/10	13/24	S-3 5-7	--	Top 1": Very stiff, gray, SILT, trace fine sand (trace rust staining) Next 3": Medium dense, gray brown, fine SAND, trace coarse sand, trace silt Next 4": Very stiff, gray brown, SILT and CLAY Bottom 2": Medium dense, gray brown, fine SAND, trace silt	FINE TO MEDIUM SAND		
	7/8/10/8	14/24	S-4 10-12	--		5.0	95.0	
	3/4/4/6	15/24	S-5 15-17	--	Stiff, gray, varved SILT and CLAY, trace fine sand	SILT		
						FINE SAND		
					END OF EXPLORATION AT 17'	SILT AND CLAY		
						15.0	85.0	
						SILT AND CLAY		
						17.0	83.0	

Remarks: 1. Moisture content was not recorded due to intensity of rain	PROJECT NO. 3431-01-01
	LOG OF BORING GR-6

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 ☐ yes ☐ no (List Items)	Date of Cleaning/Repair	Performed by
Street Sweeping	Quarterly				☐ yes ☐ no		
Sediment Forebay	Bi-annually				☐ yes ☐ no		
Detention Basin	Bi-annually				☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ 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 (in)	Required Volume (ft ³)
	0.1	70

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (ft ³)
	204.0	448	0
	205.0	553	501

BASIN WQV:

Required Volume:	Runoff Depth to be Treated (in)	Required Volume (ft ³)
	0.5	348

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (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 (in)	Required Volume (ft ³)
	0.1	101

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (ft ³)
	205.0	189	0
	206.0	227	208

BASIN WQV:

Required Volume:	Runoff Depth to be Treated (in)	Required Volume (ft ³)
	0.5	504

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (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:	1.2

* 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 #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		Required Volume
	(in)		(ft ³)
	0.1		78
Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(ft ³)
	206.0	35	0
	207.0	160	98

BASIN WQV:

Required Volume:	Runoff Depth to be Treated		Required Volume
	(in)		(ft ³)
	0.5		389
Provided Volume:	Elevation	Area	Cumulative Volume
		(ft ²)	(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		132
Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (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		660
Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (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:	1.0

* 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 (in)	Required Volume (ft ³)
	0.1	43

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (ft ³)
	206.0	34	0
	207.0	195	115

BASIN WQV:

Required Volume:	Runoff Depth to be Treated (in)	Required Volume (ft ³)
	0.5	216

Provided Volume:	Elevation	Area (ft ²)	Cumulative Volume (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..
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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: **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%



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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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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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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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Post Office Box 9151
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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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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

$$\text{IMP AREA} = 8,360 \text{ SF} \left(\underset{\substack{\text{0.083 FT} \\ \text{1 INCH}}}{0.083 \text{ FT}} \right) = 694 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 8,362 \text{ CF} > 694 \quad \begin{array}{l} 60\% \\ \text{ACHIEVED} \end{array} \checkmark$$

BASIN #2

$$\text{IMP AREA} = 6,557 \text{ SF} (0.083 \text{ FT}) = 544 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 6,845 \text{ CF} > 544 \quad \begin{array}{l} 60\% \\ \text{ACHIEVED} \end{array} \checkmark$$

BASIN #3

$$\text{IMP AREA} = 12,086 \text{ SF} (0.083 \text{ FT}) = 1,003 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 9,306 \text{ CF} > 1,003 \quad \begin{array}{l} 60\% \\ \text{ACHIEVED} \end{array} \checkmark$$

BASIN #4A & 4B

$$\text{IMP AREA} = 9,563 \text{ SF} (0.083 \text{ FT}) = 794 \text{ CF}$$

$$\text{VOLUME OF BASIN} = 10,479 \text{ CF} > 794 \quad \begin{array}{l} 60\% \\ \text{ACHIEVED} \end{array} \checkmark$$



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 ☐ yes ☐ no (List Items)	Date of Cleaning/Repair	Performed by:
Straw Bales/Silt Fencing	Weekly and after storm events				☐ yes ☐ no		
Gravel Construction Entrance	Weekly and after storm events				☐ yes ☐ no		
Silt Sack	Weekly and after storm events				☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		
					☐ yes ☐ no		

Stormwater Control Manager _____

