STORMWATER DESIGN NARRATIVE

February 25, 2025

APPLICANT:

Medway Development LLC

383 MAIN STREET, MEDFIELD, MA 02052

PROJECT:

HIGH STREET MEADOWS

21 HIGH STREET, MEDWAY, MA 02053

PREPARED BY:

PVI SITE DESIGN, LLC

18 GLENDALE ROAD, NORWOOD, MA 02062

PVI SITE DESIGN

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SECTION 1 – PROJECT OVERVIEW

1.1 INTRODUCTION

The applicant, Medway Development, LLC, proposes to construct three new buildings and renovate an existing building, totaling nine proposed residential units, located at 21 High Street, Medway. The lot is identified as 57-062 in the Town's Assessors database and is comprised of 3.77 acres. Currently a two-family home occupies the east corner of the property, and a paved driveway leads to a detached garage. There are several mature deciduous trees on the property.

The proposed project will disturb more than 20,000 square feet and therefore requires a Land Disturbance Permit, in accordance with Section 26.5 of Medway's General Bylaws. The proposed development will occur on a mostly undeveloped portion of land totaling 35,100+/- square feet (Development Area).

The project will meet or exceed the ten Stormwater Management Standards as outlined in the Massachusetts Stormwater Management Handbook Vol. 1-3 (Handbook), as well as Medway's Stormwater Management and Land Disturbance bylaw (Medway General Bylaws – Article XXVI). The system will employ Best Management Practices (BMP's) in order to meet the standards. Descriptions of each BMP and sizing calculations are included in this report.

1.2 LOCATION, TOPOGRAPHY, AND SOILS

LOCATION:

The project site is located at 21 High Street, Medway, MA, parcel ID 57-062. It is accessed by two curb cuts along its 290-foot frontage on High Street. A wetland has been identified in the western portion of the site, but no work is proposed within its buffer areas. The site is in the Charles River Watershed. See Figure 1, USGS Map of the area.

TOPOGRAPHY

The topography of the development area slopes generally from north to south, typically between 3%-5%. Elevations range from 218 to 214 at the southern end of the development area.

SOILS

The underlying soils have been mapped by the Natural Resources Conservation Service as made available by the Web Soil Survey website and are generally consistent across the site. The soil types are as follows:

TABLE 1.1 – NRCS SOIL TYPES

NRCS MAP UNIT	MAP UNIT NAME	HYDROLOGIC SOIL GROUP
420	Canton Fine Sandy Loam	B

The site is mapped by the NRCS Web Soil Survey as Canton Fine Sandy Loam. Soil tests were performed in 2018 and 2020 to confirm soil materials within the proposed stormwater areas. Parent soil material across the site is a mix of loam and sand with shallow groundwater in most locations. The test pit within the area of proposed infiltration (Test Pit 11, dated 11/30/2018) shows fine sandy loam over silt loam. Using the most restrictive layer, an infiltration rate of 0.52 inches per hour has been used for calculations. Soil logs have been provided as an attachment to this report.

1.3 WATERSHED DESCRIPTIONS

The Development Area has been divided into two watershed areas for the purpose of this stormwater analysis. Additionally, there is a third watershed that discharges to the wetland on the western side of the site. This watershed is unchanged by the proposed development but is included in the calculations. Below is a discussion of the watersheds. Refer to Figure 2 and Figure 3 for Existing and Proposed Watershed Plans respectively. Watershed plans provide information on total area, Curve Numbers, and Time of Concentration for each watershed.

1.3.1 EXISTING CONDITIONS

WATERSHED EX-1

This area represents the northern portion of the site. It is 26,997 sf in area and includes a portion of the paved driveway, a portion of the existing house, and vegetated area. This area drains to High Street where it enters the municipal storm drain. For the purposes of the analysis, the High Street Right of Way line will be considered the Design Point, DP-1.

WATERSHED EX-2

This area represents most of the existing developed area and includes roof area, asphalt pavement, and landscaped area. It is comprised of 60,405 sf. Stormwater in this area runs overland to the south where it flows into the abutting property to the south. For the purposes of the analysis, the southerly property line will be considered the Design Point, DP-2.

WATERSHED EX-3

This area represents the western portion of the site that drains to the wetland and is unaffected by the proposed development. The 76,771 sf area is roughly half natural vegetation and half wetland. For the purposes of the analysis, the wetland line will be considered the Design Point, DP-3.

1.3.2 PROPOSED CONDITIONS

The proposed project includes three new residential buildings and the renovation of an existing building. Two paved driveways will provide access to the buildings and parking areas. Below is a description of the proposed watersheds and BMP's employed in each.

WATERSHED PR-1

This area represents small areas to the north and south of the Development Area that are not practical to direct to the proposed stormwater system. It includes small areas of pavement and roof, as well as landscape area, and totals 7,450 sf. This area drains to High Street where it enters the municipal storm drain. For the purposes of the analysis, the High Street Right of Way line will be considered the Design Point, DP-1.

WATERSHED PR-2

This area represents the majority of the development area. It is comprised of 79,952 sf and includes nearly all roof and pavement areas within the site. Much of this area, 72,610 sf, drains to the proposed infiltration basin and is identified on the Hydrology calculations as PR-2A. The remaining 7,342 sf is landscape area downstream of the proposed infiltration basin and is identified in the Hydrology calculations as PR-2B. Stormwater from both PR-2A and PR-2B flows overland to the south where it flows into the abutting property to the south. For the purposes of the analysis, the limit of the infiltration basin will be considered the Design Point, DP-2.

WATERSHED PR-3

This area represents the western portion of the site that drains to the wetland and is unaffected by the proposed development. The 76,771 sf area is roughly half natural vegetation and half wetland. For the purposes of the analysis, the property line will be considered the Design Point, DP-3.

1.4 METHODOLOGY

The peak rate of runoff and sizing of retention BMP's was determined using techniques and data found in the following:

1. Urban Hydrology for Small Watersheds – Technical Release 55 by the United States Department of Agriculture Soils Conservation Service, June 1986. Runoff curve numbers and 24-hour precipitation values were obtained from this reference.
2. HydroCAD© Stormwater Modeling System by HydroCAD Software Solutions LLC, version 10.0. The HydroCAD program was used to generate the runoff hydrographs for the watershed areas, to determine discharge/stage/storage characteristics for the infiltration systems, to perform drainage routing and to combine the results of the runoff hydrographs. This software is based on the Soil Conservation Service (SCS) TR-20 program.
3. Precipitation Frequency Data is from the Northeast Regional Climate Center's Extreme Precipitation Tables for Medway, MA.

SECTION 2 – STORMWATER MANAGEMENT STANDARDS

The following is a review of the project and how each of the 10 SWM Standards are met. Various supporting calculations are provided in the appendix when necessary.

2.1 STANDARD 1 – NO NEW UNTREATED DISCHARGES CAUSING EROSION

The proposed project does not create a new discharge to any "waters of the commonwealth". As shown on the site plans, the system will utilize bio-retention areas to mitigate stormwater impacts from the proposed development. In storm events exceeding design storage volumes, overflow will run overland to the wetland to the north of the site. As there are no new open discharges proposed, no computations for outlet protection are necessary. The new drainage system on the property will provide treatment to stormwater before it runs off the property.

2.2 STANDARD 2 - PEAK RATE ATTENUATION

Calculations are provided in the appendix to show that the proposed development will not cause an increase in peak discharge rates. Refer to the HydroCAD calculations provided within this report for detailed breakdowns of each watershed. As summary of peak flows and volumes for each watershed area is provided below:

TABLE 2.1 – RUNOFF FLOW (CFS) COMPARISON

Design Point		2-YEAR	10-YEAR	100-YEAR
DP-1	*Existing*	0.31	0.98	3.05
	Proposed	**0.14**	**0.37**	**1.03**
DP-2	*Existing*	0.85	2.52	7.56
	Proposed	**0.09**	**0.28**	**4.25**
DP-3	*Existing*	*3.06*	*5.96*	*13.25*
	Proposed	**3.06**	**5.96**	**13.25**

2.3 STANDARD 3 - ANNUAL RECHARGE TO GROUNDWATER

Medway Stormwater Design Requirements calls for 1-inch of runoff from all impervious areas to be retained onsite. The calculation must be performed for each sub-catchment area with impervious areas.

Table 2.3 below provides a summary of impervious area, required recharge volume, and recharge provided for the project:

TABLE 2.3 – RECHARGE VOLUME

SUB-WATERSHED	IMPERVIOUS AREA (SF)	RECHARGE REQUIRED R_V (CF)	RECHARGE PROVIDED (CF)
PR-1	1,477	123	0
PR-2A	17,071	1,423	7,472
PR-2B	422	35	0
PR-3	0	0	0
TOTAL	*18,970*	*1,581*	*7,472*

Due to the topography of the site and shallow seasonal high groundwater, collecting runoff from all impervious areas is not practical. Volume 3 Chapter 1 of the DEP Stormwater Handbook states, "In no case shall runoff from less than 65% of the site's impervious cover be directed to the BMPs intended to infiltrate the Required Recharge Volume. The proposed design directs 90% of impervious areas to stormwater BMPs. The HydroCAD calculations in the appendix include tables form of the hydrograph for the proposed basin. The infiltration basin will drain within 72 hours after the storm event.

2.4 STANDARD 4 - WATER QUALITY

TSS Removal

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). A summary of TSS removal rates for each treatment train is noted in Table 2.4 below. Pretreatment is provided by a vegetated filter strip, greater than 50ft in length, upgradient of an infiltration basin. Supporting calculations on the DEP approved calculation sheet are included in the appendix.

TABLE 2.4 – TSS REMOVAL RATES

SUBCATCHMENT	PRETREATMENT TSS REMOVED	TOTALL TSS REMOVED
1P	48	90%

Water Quality Volume

The Medway Stormwater By-law requires 1" of runoff from all post-construction impervious areas be retained on-site. As illustrated in Standard 3, above, the project captures more than 1" of runoff from impervious areas.

2.5 STANDARD 5 - LAND USES WITH HIGHER POTENTIAL POLLUTANT LOADS (LUHPPL)

The proposed uses on the project are not considered LUHPPL's, and therefore the standard does not apply.

2.6 STANDARD 6 - CRITICAL AREAS

The project does not discharge water to an area listed on the State list of Areas of Critical Environmental Concern. Therefore, the standard does not apply.

2.7 STANDARD 7 – REDEVELOPMENT

The proposed project is a mix of development and redevelopment; however, the DEP standards are met in full.

2.8 STANDARD 8 - CONSTRUCTION PERIOD CONTROLS

The Erosion & Sedimentation Control Plan, sheet C001, includes details for Construction Period Controls. The plans call for perimeter sediment controls, and other best practices to prevent erosion and sedimentation. Additional information can be found in Section 3 of this report.

2.9 STANDARD 9 – LONG TERM OPERATION AND MAINTENANCE PLAN

An Operation and Maintenance Plan is included in Section 3 of this report.

2.10 STANDARD 10 – ILLICIT DISCHARGES

The following text appears on the Utility and Grading Plan:

"The storm water management system proposed shall not be connected to the wastewater management system and shall not be contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease per Massachusetts DEP Storm Water Standard 10."

OPERATION & MAINTENANCE PLAN

In accordance with the standards set forth by the Stormwater Management Regulations issued by the Department of Environmental Protection (DEP), PVI Site Design, LLC (PVI) has prepared the following Operation and Maintenance (O&M) plan for the proposed stormwater management system at the residential development in Medway, MA. This O&M plan addresses post construction pollution prevention and maintenance of stormwater systems.

This plan is broken into two sections. The first section describes pollution prevention techniques to encourage source controls that prevent pollution. The second section is devoted to a post-development operation and maintenance plan of the stormwater management system.

BASIC INFORMATION

Proponent: Medway Development, LLC
Address: 383 Main Street
City: Medfield, MA 02052
Phone: 978-658-0333

Preparer: PVI Site Design, LLC
Address: 18 Glendale Road
City: Norwood, MA 02062
Phone: 399-206-1030

3.1 LONG TERM POLLUTION PREVENTION PLAN

As a residential development, it is unlikely to be a significant source of pollution related to building uses, however the following pollution prevention techniques are provided in the event that there is a spill outside the homes that may enter the stormwater management system.

Good House Keeping

The following measures will be employed to control potential sources of contamination and prevent pollution at The Project property:

Deicing

To prevent increased pollutant concentrations in stormwater discharges, the amount of road salt applied will be controlled. Calibration of manual or truck mounted spreaders will be encouraged to contractors employed to plow the driveways. The amount of deicing materials used will be monitored with the goal of using only enough to make the driveway and parking areas safe.

Snow Storage/Disposal

Snow storage/disposal will be allowed in landscaped areas within the property but will be avoided in any areas between the edge of the proposed paved areas and the wetland resource areas on the site.

Pavement Sweeping

The project will implement a pavement sweeping program to remove contaminants directly from paved surfaces to prevent their release into the drainage system. Pavement sweeping can be an effective initial treatment for reducing pollutant loadings in stormwater. Once removed from paved surfaces, the sweeping will be handled and disposed of in accordance with the MassDEP's Bureau of Waste Prevention's written policy regarding the reuse and disposal of street sweepings.

Fertilizer/Pesticide/Herbicide Application

No pesticides or herbicides are to be used unless a single spot treatment is required for a specific control application. Fertilizer usage will be avoided. If deemed necessary, slow-release fertilizer will be used, and applied only in the minimum amounts recommended by the manufacturer. Once applied, the fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered area; and the contents of any partially used bags will be transferred to a sealable, plastic bin to avoid spills. Fertilizer will be used to begin the establishment of vegetation in bare or damaged areas but will not be applied on a regular basis unless necessary.

Materials Management/Housekeeping Practices

The following product-specific practices will be followed on-site. Recommendations are provided for petroleum products, fertilizers, solvents, paints, and other hazardous substances, and concrete. Petroleum Products - No vehicle maintenance or handling of petroleum products will occur on site outside of a building. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any asphalt substances used on-site will be applied according to the manufacturer's recommendations. No petroleum-based or asphalt substances will be stored within 100 feet of a waterway.

Solvents, Paints, and other Hazardous Substances - All containers will be tightly sealed and stored indoors when not required for use. Excess materials will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and local regulations. Outside storage on the property will be prohibited.

Spill Prevention and Control

In order to minimize the potential for a spill of hazardous materials to come into contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
2. The minimum practical quantity of all such materials will be kept on the site.
3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc. will be provided at the maintenance area of the site.
4. Manufacturers recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

In the event of a spill, the following procedures should be followed:

1. All spills will be cleaned up immediately after discovery.
2. The spill area will be kept well-ventilated, and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.
3. Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill.
4. If the spilt material enters the drainage system, it shall be cleaned as soon as possible and before the next rainfall event to the extent practicable.
5.

3.2 STORMWATER MANAGEMENT SYSTEM – OPERATION AND MAINTENANCE

1. Paved Areas – Paved areas should be swept as part of the routine site maintenance. Pavement sweeping is an excellent source control for sedimentation to the existing drainage system and should be performed on a quarterly basis (four times a year).

2. Deicing - Salt for de-icing on the paved areas during the winter months shall be limited to the minimum amount practicable. Sand containing the minimum amount of calcium chloride (or approved equivalent) needed for handling may be applied as part of the routine winter maintenance activities.

3. Vegetated Grass Strip – Inspect every six months in the first year and annually thereafter. Inspect for signs of erosion, bare spots, and overall health. Mow grass regularly. Remove sediment as needed and reseed bare spots.

4. Infiltration Basin– The infiltration basin should be inspected twice annually. Important items to check during the inspection include:
    - Signs of differential settlement,
    - Cracking,
    - Erosion,
    - Leakage in the embankments
    - Tree growth on the embankments
    - Condition of grass overflow weir,
    - Sediment accumulation and
    - The health of the turf.

    At least twice a year, mow the buffer area, side slopes, and basin bottom. Remove grass clippings and accumulated organic matter to prevent an impervious organic mat from forming. Remove trash and debris at the same time. Use deep tilling to break up clogged surfaces and revegetate immediately.

5. All sediments removed from the infiltration basin shall be disposed of properly, and in accordance with applicable local and state regulations.

6. All vegetated areas on the site shall be stabilized and maintained to control erosion. Any disturbed areas shall be re-seeded as soon as practicable. Trash and debris should be removed on a regular basis.

Permittee Inspections and Reporting

During Construction:

The permittee or his/her agent shall conduct and document inspections of all control measures no less than weekly during construction or as specified in the permit, and prior to and following anticipated storm events. The purpose of such inspections will be to determine the overall effectiveness of the control plan, and the need for maintenance or additional control measures. The permittee or his/her agent shall submit reports to the applicable permitting authority or designated agent as outlined in section 26.5.7 of the Medway Stormwater By-law.

Post Construction:

The permittee or his/her agent shall conduct and document inspections and provide copies of all inspections to the Town of Medway DPW on an annual basis.

Stormwater System Inspection Report

General Information			
Location: 21 High Street, Medway			
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Purpose of Inspection			
Weather Information			
Has it rained since the last inspection? ❑Yes ❑No			
Weather at time of this inspection?			

Site-Specific Stormwater Devices

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
1	Pavement	❑Yes ❑No		
2	Vegetated Grass Strip	❑Yes ❑No		
3	Infiltration Basin 1P	❑Yes ❑No		
4		❑Yes ❑No		
5		❑Yes ❑No		
6		❑Yes ❑No		
7		❑Yes ❑No		

Overall Site Issues

	Description		Corrective Action	Date for Corrective Action/Responsible Person
1	Are all slopes properly stabilized?	❑Yes ❑No		
2	Are natural resource areas (e.g., streams, wetlands, etc.) being subjected to erosion?	❑Yes ❑No		
3	Are discharge points free of sediment deposits?	❑Yes ❑No		

Certification Statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name:

Signature:

Date:

Construction Period Stormwater Controls Inspections

General Information			
Location: 21 High Street, Medway			
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Purpose of Inspection			
Weather Information			
Has it rained since the last inspection? ❑Yes ❑No			
Weather at time of this inspection?			

Site-Specific Stormwater Devices

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
1	Perimeter Controls (Silt sock and fence)	❑Yes ❑No		
2	Temp Sediment Pond	❑Yes ❑No		
3	Construction Entrance	❑Yes ❑No		
4		❑Yes ❑No		
5		❑Yes ❑No		
6		❑Yes ❑No		

Overall Site Issues

	Description		Corrective Action	Date for Corrective Action/Responsible Person
1	Are all slopes properly stabilized?	❑Yes ❑No		
2	Are natural resource areas (e.g., streams, wetlands, etc.) being subjected to erosion?	❑Yes ❑No		
3	Are discharge points free of sediment deposits?	❑Yes ❑No		

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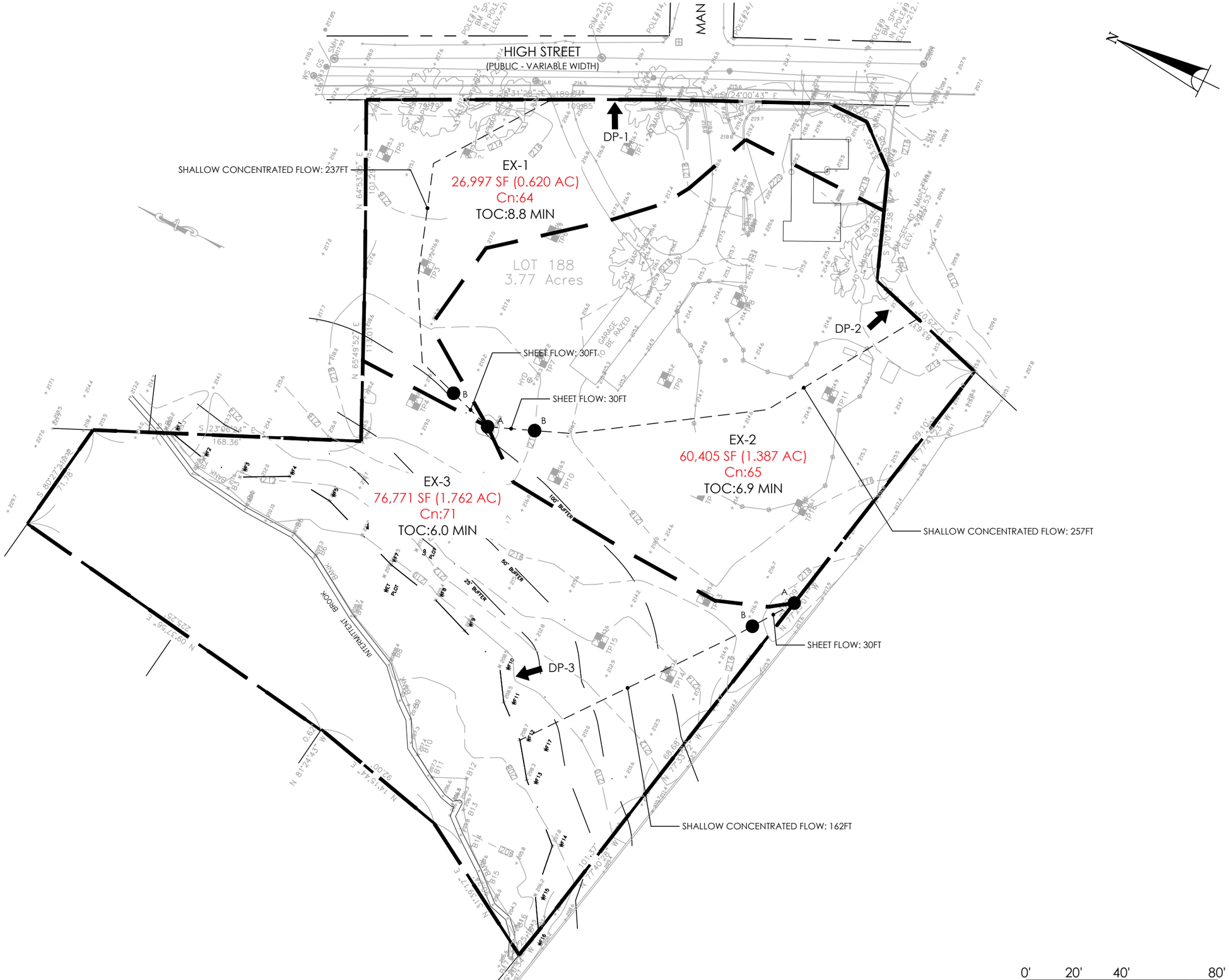
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name:

Signature:

Date:

APPENDIX A
Watershed Plans



CIVIL ENGINEER:

PVI SITE DESIGN
PVI Site Design, LLC
Civil Engineering - Land Entitlements
Master Planning - Project Management
339-206-1030

PROJECT:
PROPOSED MULTI-FAMILY
21 HIGH ST, MEDWAY, MA

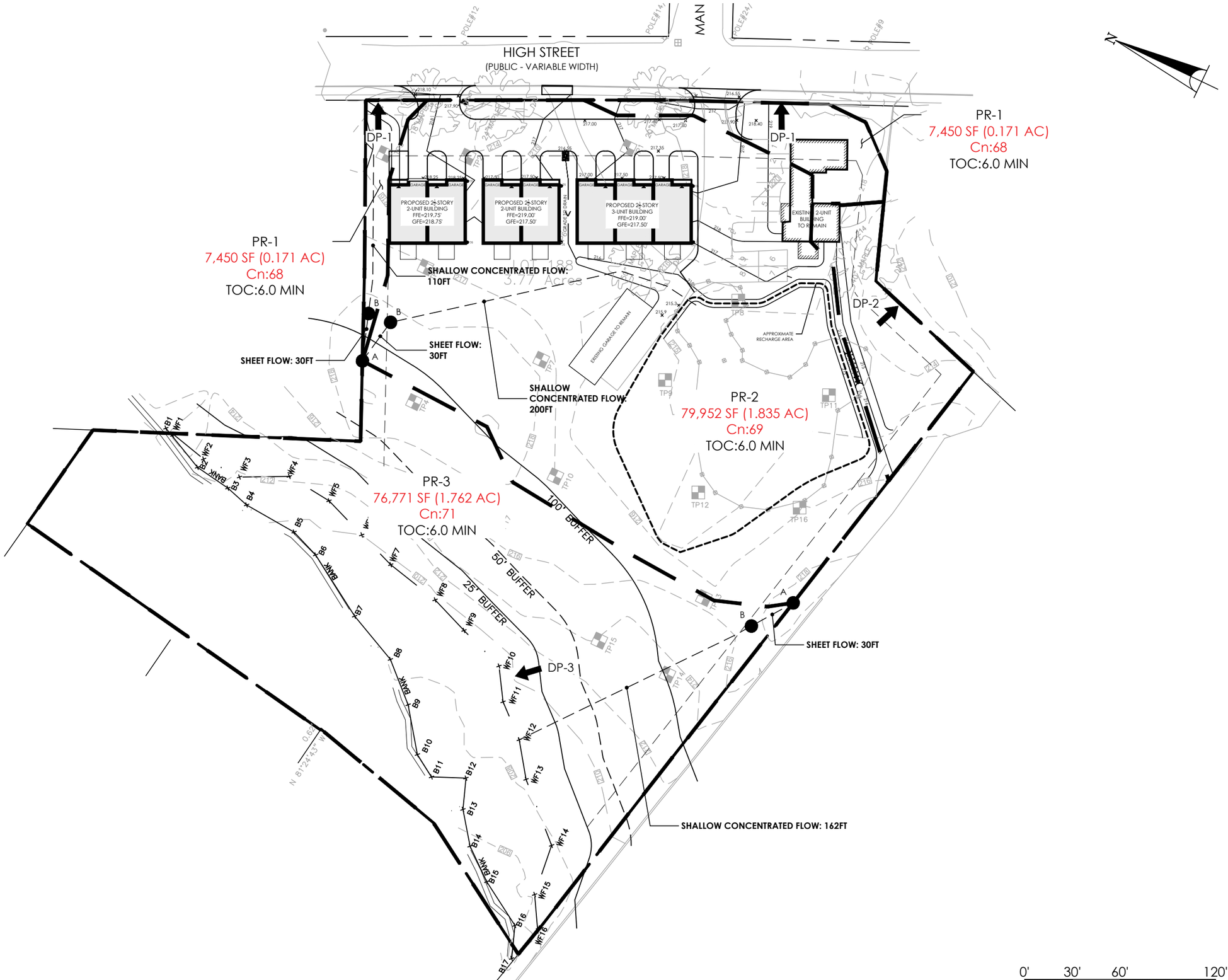
OWNER:
MEDWAY DEVELOPMENT, LLC
383 MAIN ST, MEDFIELD, MA

TITLE:
EXISTING
WATERSHED PLAN

ISSUED:	12-20-2023
REV:	
REV:	
REV:	
REV:	
REV:	

SCALE:	AS NOTED
PROJECT:	23-023
FILE:	23-023 WATERSHED-EC.dwg
DRAWN:	RLB
CHECKED:	TJP
SHEET NO:	

WS-1



CIVIL ENGINEER:

PVI SITE DESIGN
PVI Site Design, LLC
Civil Engineering - Land Entitlements
Master Planning - Project Management
339-206-1030

PROJECT:
PROPOSED MULTI-FAMILY
21 HIGH ST, MEDWAY, MA

OWNER:
MEDWAY DEVELOPMENT, LLC
383 MAIN ST, MEDFIELD, MA

TITLE:
PROPOSED WATERSHED PLAN

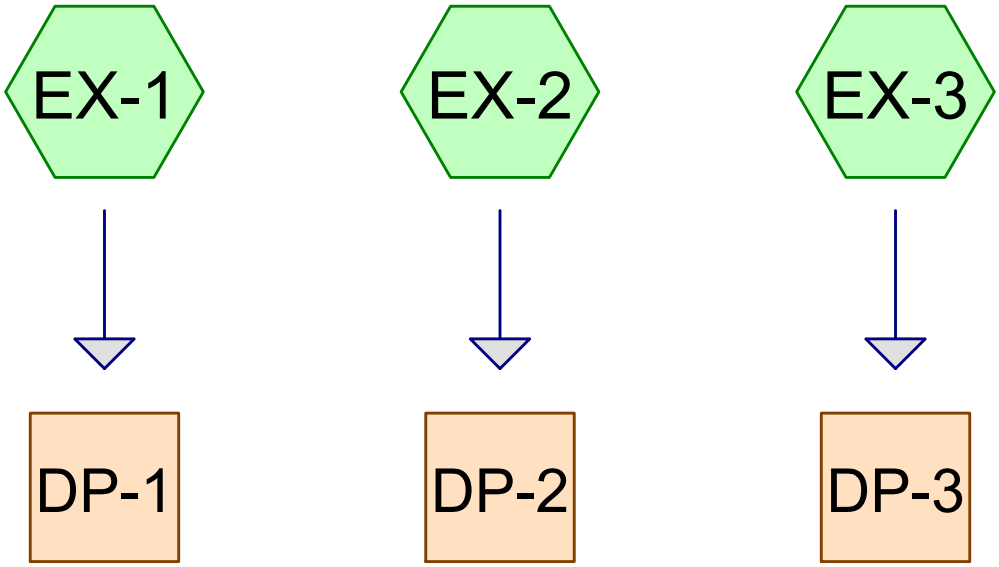
ISSUED:	02-25-2025
REV:	
REV:	
REV:	
REV:	
REV:	

SCALE:	AS NOTED
PROJECT:	23-023
FILE:	23-023 WATERSHED-PR.dwg
DRAWN:	RLB
CHECKED:	TJP
SHEET NO:	WS-2

APPENDIX B

HydroCAD Calculations

- ***Existing Conditions***
- ***Proposed Conditions***
- ***Infiltration Basin Stage-Storage Table***
- ***Infiltration Basin Drain Down Table***



Subcat Reach Pond Link

Routing Diagram for 23-023 HC EC
Prepared by PVI Site Design, LLC, Printed 12/18/2023

Summary for Subcatchment EX-1:

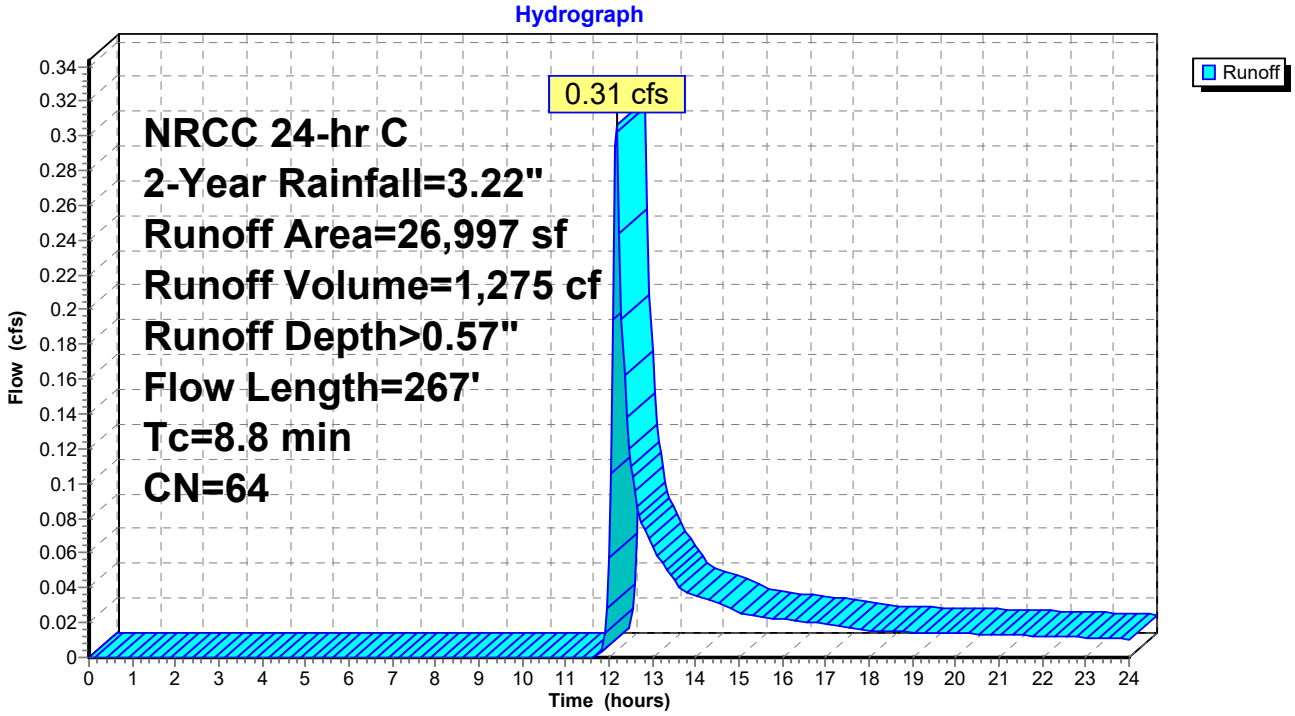
Runoff = 0.31 cfs @ 12.18 hrs, Volume= 1,275 cf, Depth> 0.57"
Routed to Reach DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.22"

Area (sf)	CN	Description
682	98	Roofs, HSG B
1,385	98	Paved parking, HSG B
24,930	61	>75% Grass cover, Good, HSG B
26,997	64	Weighted Average
24,930		92.34% Pervious Area
2,067		7.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	30	0.0370	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
5.9	237	0.0093	0.68		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	267	Total			

Subcatchment EX-1:



Summary for Subcatchment EX-2:

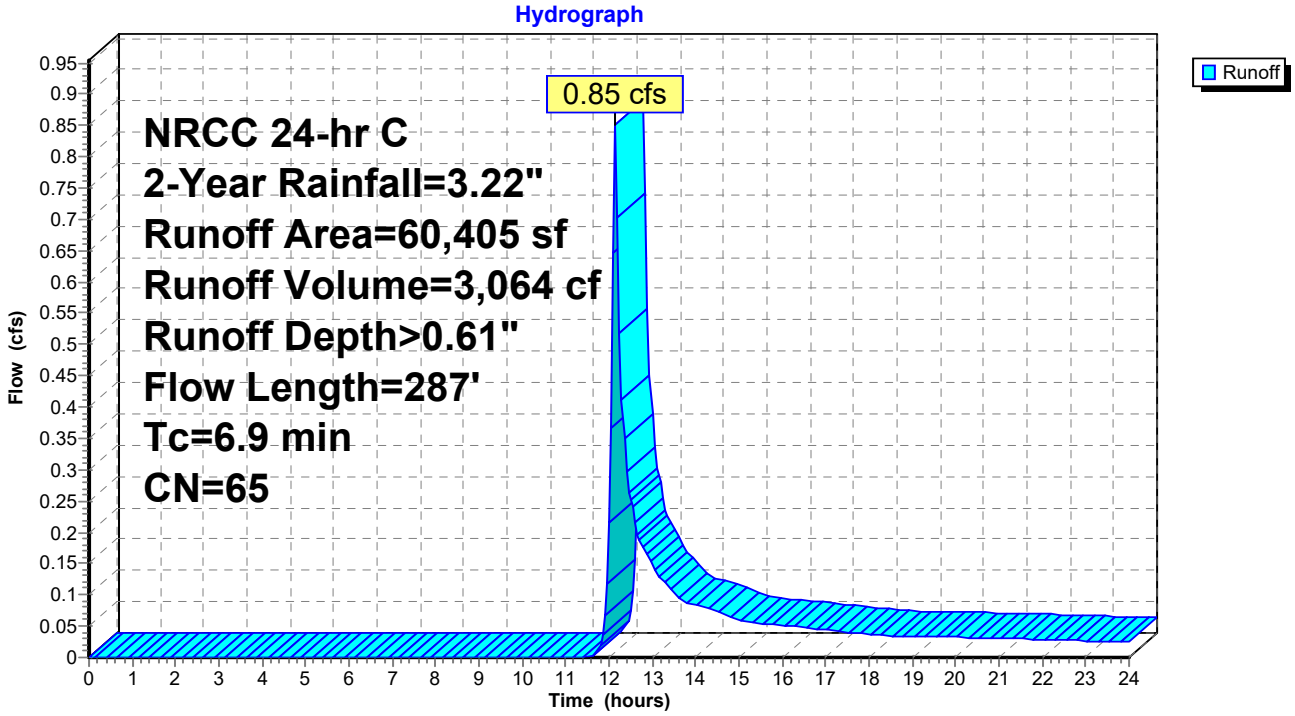
Runoff = 0.85 cfs @ 12.15 hrs, Volume= 3,064 cf, Depth> 0.61"
Routed to Reach DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.22"

Area (sf)	CN	Description
2,493	98	Roofs, HSG B
3,679	98	Paved parking, HSG B
54,233	61	>75% Grass cover, Good, HSG B
60,405	65	Weighted Average
54,233		89.78% Pervious Area
6,172		10.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	30	0.0670	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
4.6	257	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.9	287	Total			

Subcatchment EX-2:



Summary for Subcatchment EX-3:

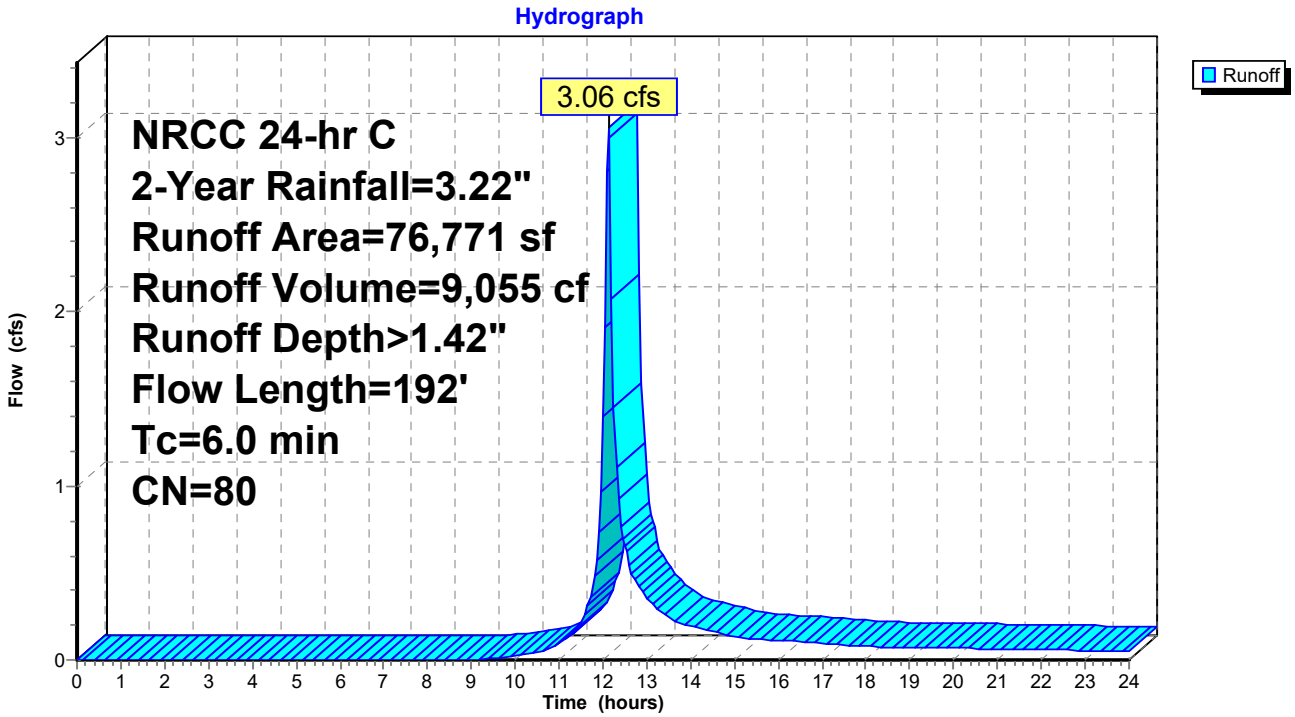
Runoff = 3.06 cfs @ 12.13 hrs, Volume= 9,055 cf, Depth> 1.42"
Routed to Reach DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.22"

	Area (sf)	CN	Description
*	38,690	98	Wetland, HSG B
	38,081	61	>75% Grass cover, Good, HSG B
	76,771	80	Weighted Average
	38,081		49.60% Pervious Area
	38,690		50.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	30	0.0800	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.7	162	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.8	192	Total, Increased to minimum Tc = 6.0 min			

Subcatchment EX-3:



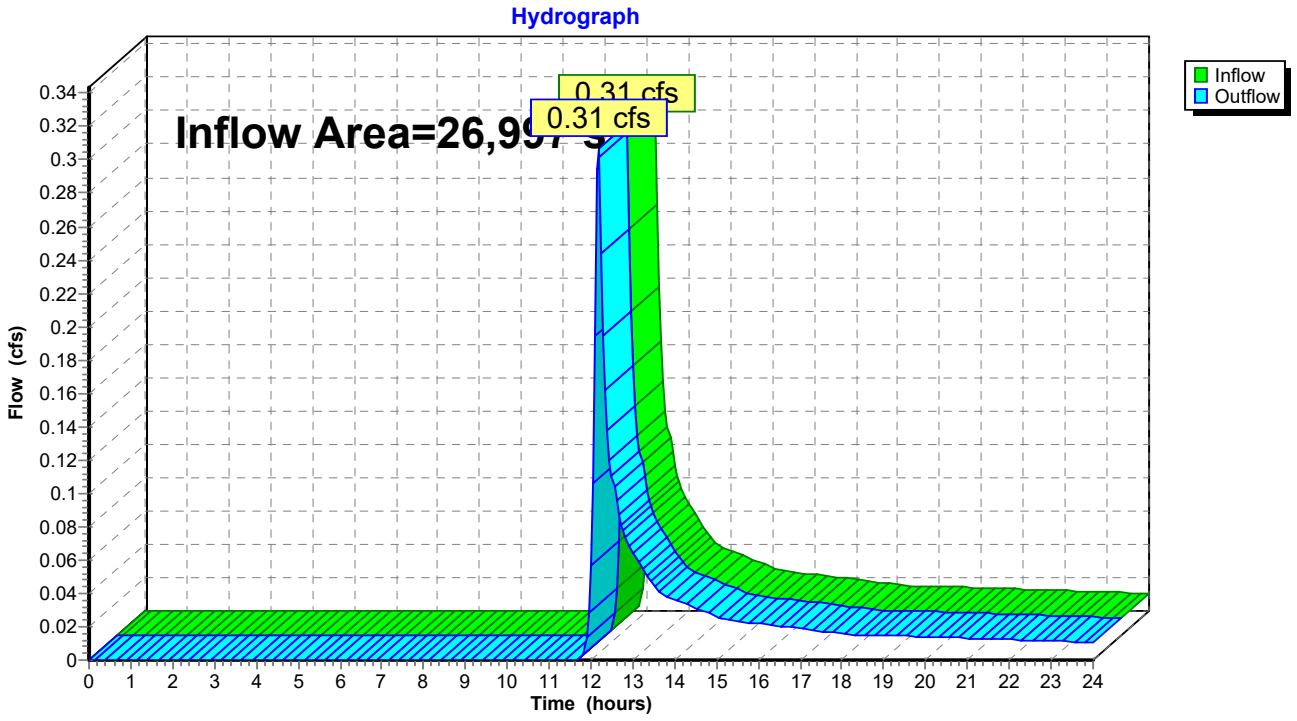
Summary for Reach DP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,997 sf, 7.66% Impervious, Inflow Depth > 0.57" for 2-Year event
Inflow = 0.31 cfs @ 12.18 hrs, Volume= 1,275 cf
Outflow = 0.31 cfs @ 12.18 hrs, Volume= 1,275 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-1:



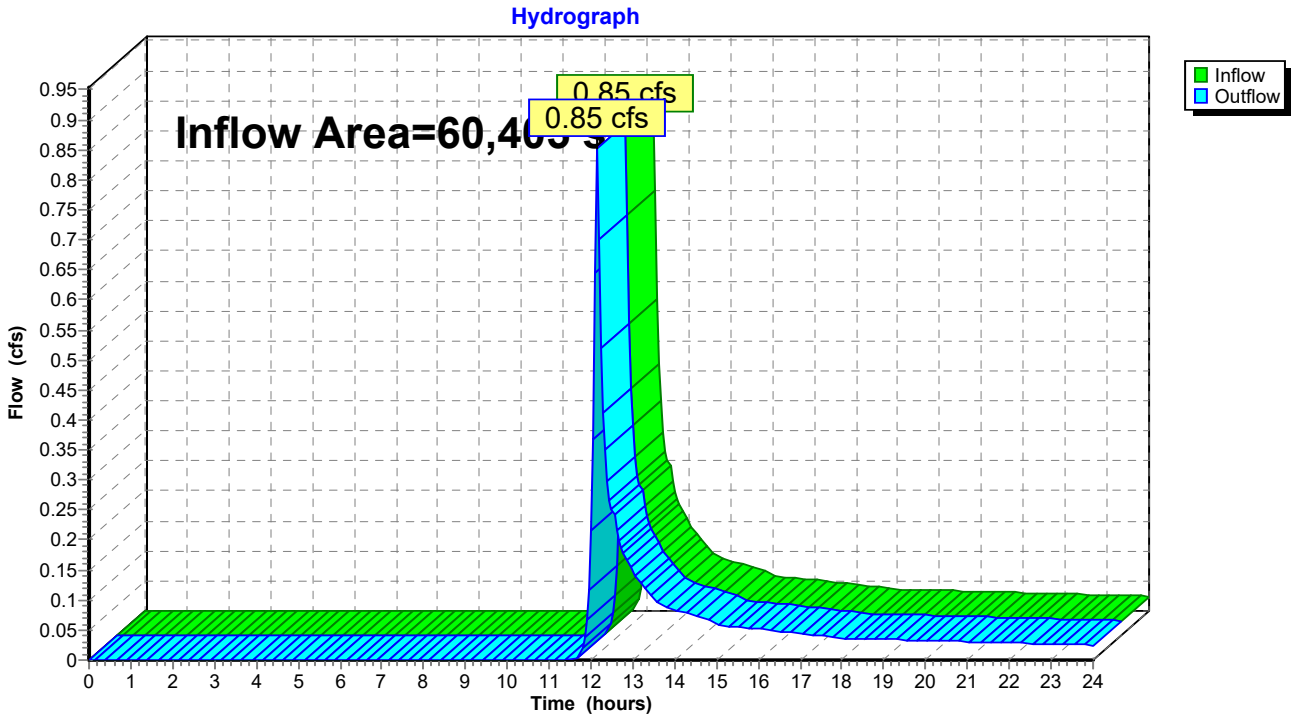
Summary for Reach DP-2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 60,405 sf, 10.22% Impervious, Inflow Depth > 0.61" for 2-Year event
Inflow = 0.85 cfs @ 12.15 hrs, Volume= 3,064 cf
Outflow = 0.85 cfs @ 12.15 hrs, Volume= 3,064 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-2:



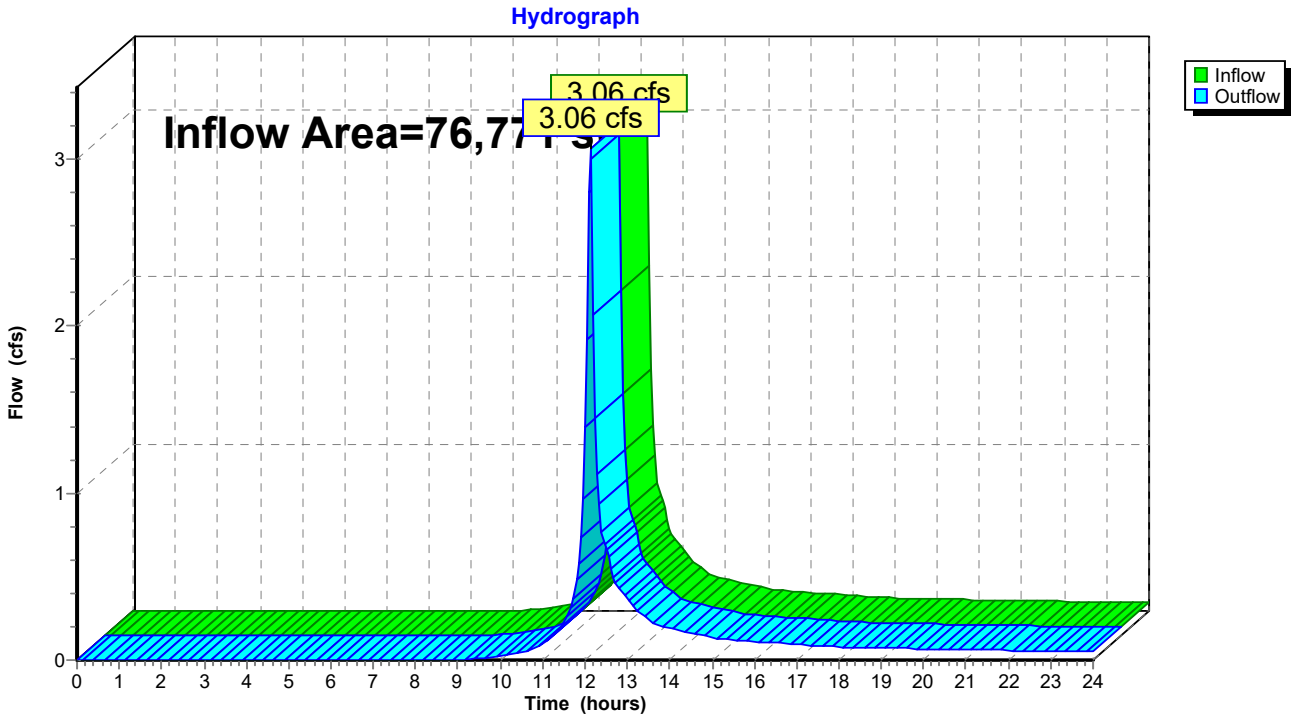
Summary for Reach DP-3:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 76,771 sf, 50.40% Impervious, Inflow Depth > 1.42" for 2-Year event
Inflow = 3.06 cfs @ 12.13 hrs, Volume= 9,055 cf
Outflow = 3.06 cfs @ 12.13 hrs, Volume= 9,055 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-3:



Summary for Subcatchment EX-1:

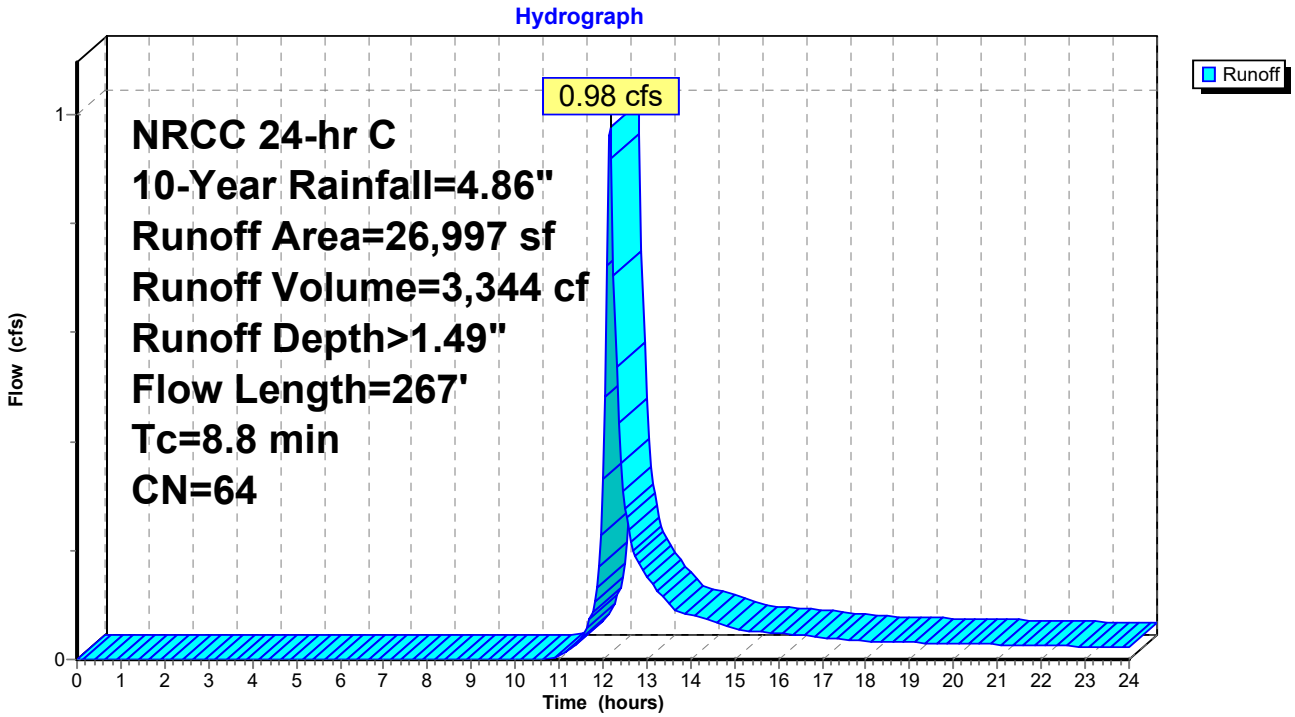
Runoff = 0.98 cfs @ 12.17 hrs, Volume= 3,344 cf, Depth> 1.49"
Routed to Reach DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.86"

Area (sf)	CN	Description
682	98	Roofs, HSG B
1,385	98	Paved parking, HSG B
24,930	61	>75% Grass cover, Good, HSG B
26,997	64	Weighted Average
24,930		92.34% Pervious Area
2,067		7.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	30	0.0370	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
5.9	237	0.0093	0.68		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	267	Total			

Subcatchment EX-1:



Summary for Subcatchment EX-2:

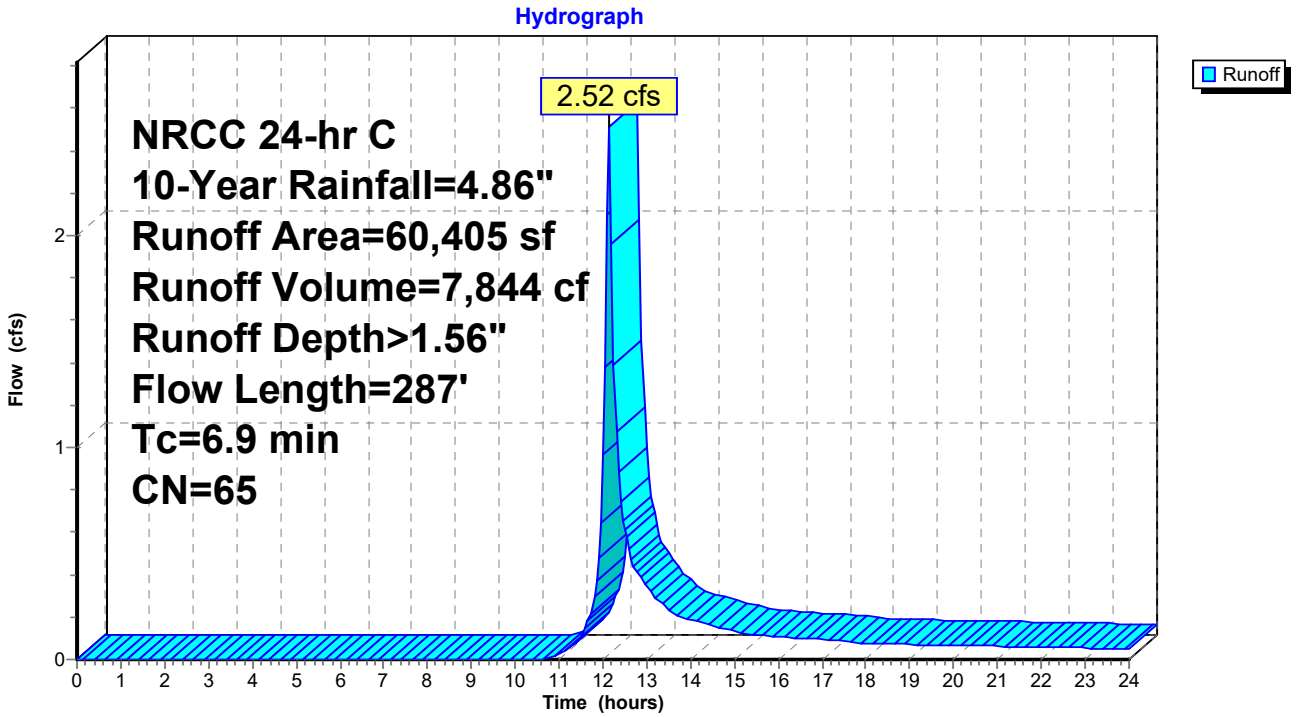
Runoff = 2.52 cfs @ 12.15 hrs, Volume= 7,844 cf, Depth> 1.56"
Routed to Reach DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.86"

Area (sf)	CN	Description
2,493	98	Roofs, HSG B
3,679	98	Paved parking, HSG B
54,233	61	>75% Grass cover, Good, HSG B
60,405	65	Weighted Average
54,233		89.78% Pervious Area
6,172		10.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	30	0.0670	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
4.6	257	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.9	287	Total			

Subcatchment EX-2:



Summary for Subcatchment EX-3:

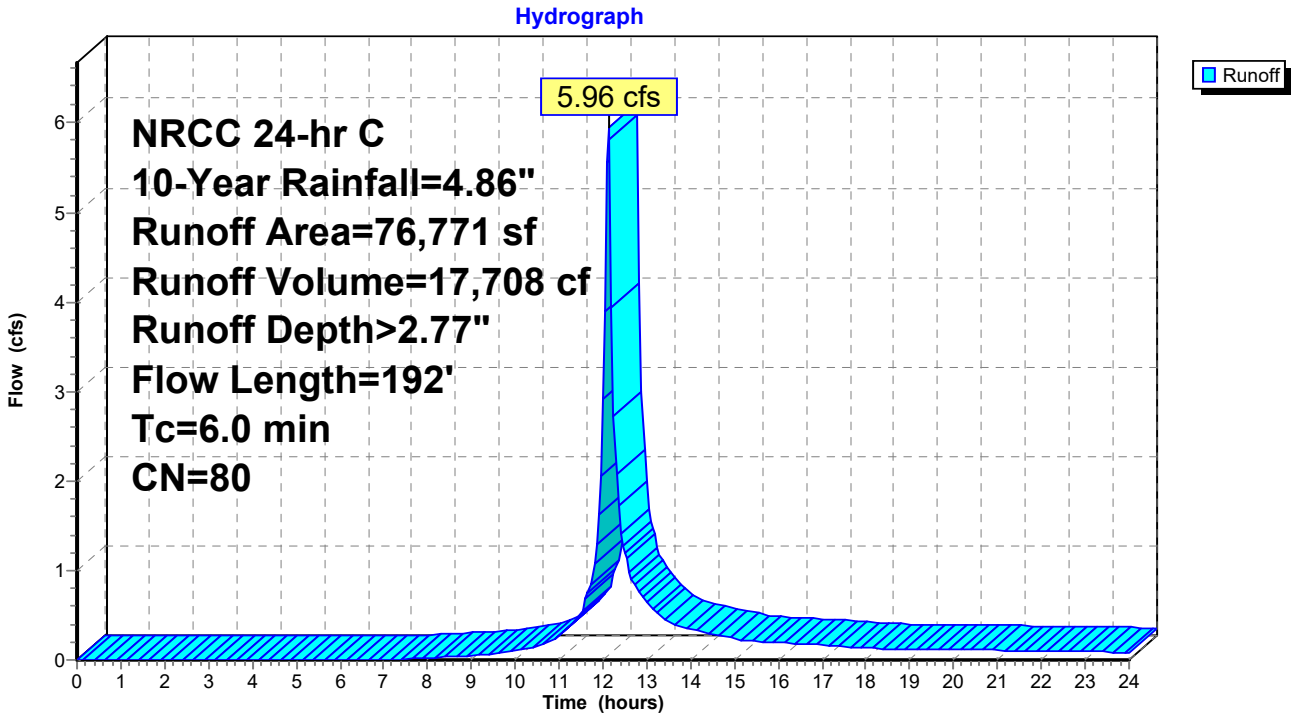
Runoff = 5.96 cfs @ 12.13 hrs, Volume= 17,708 cf, Depth> 2.77"
Routed to Reach DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.86"

	Area (sf)	CN	Description
*	38,690	98	Wetland, HSG B
	38,081	61	>75% Grass cover, Good, HSG B
	76,771	80	Weighted Average
	38,081		49.60% Pervious Area
	38,690		50.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	30	0.0800	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.7	162	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.8	192	Total, Increased to minimum Tc = 6.0 min			

Subcatchment EX-3:



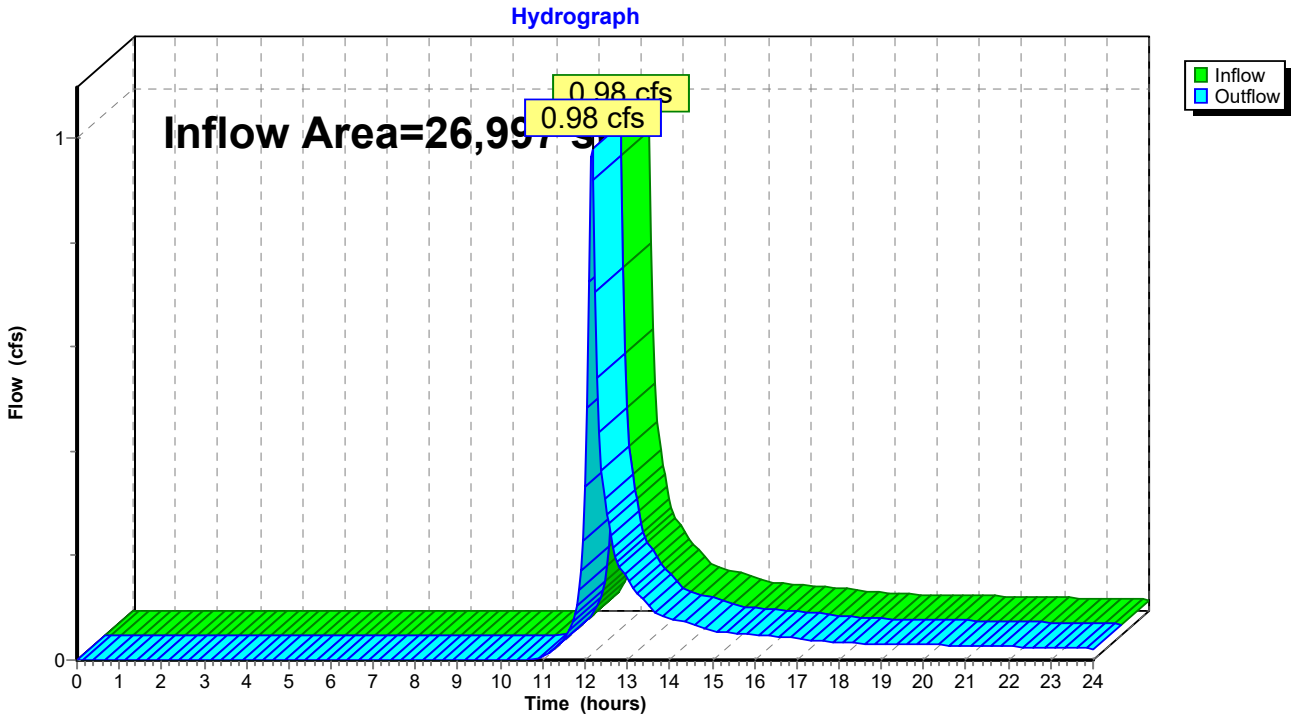
Summary for Reach DP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,997 sf, 7.66% Impervious, Inflow Depth > 1.49" for 10-Year event
Inflow = 0.98 cfs @ 12.17 hrs, Volume= 3,344 cf
Outflow = 0.98 cfs @ 12.17 hrs, Volume= 3,344 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-1:



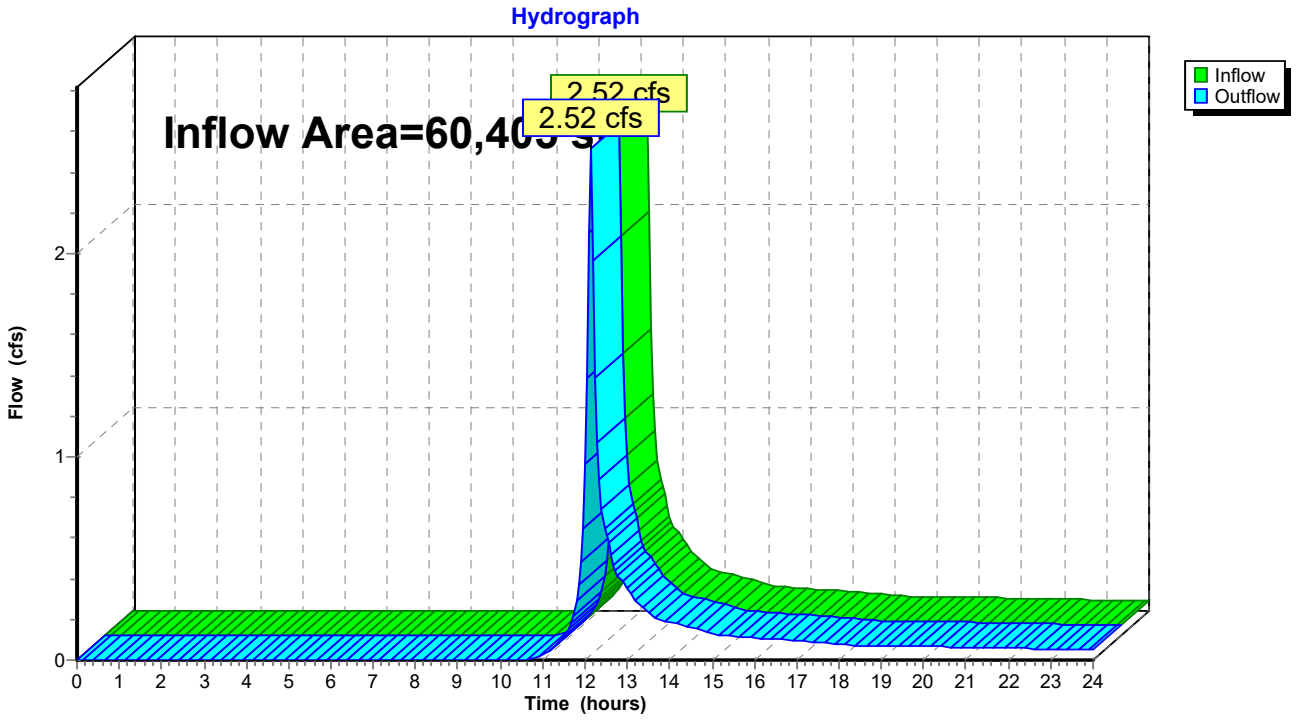
Summary for Reach DP-2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 60,405 sf, 10.22% Impervious, Inflow Depth > 1.56" for 10-Year event
Inflow = 2.52 cfs @ 12.15 hrs, Volume= 7,844 cf
Outflow = 2.52 cfs @ 12.15 hrs, Volume= 7,844 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-2:



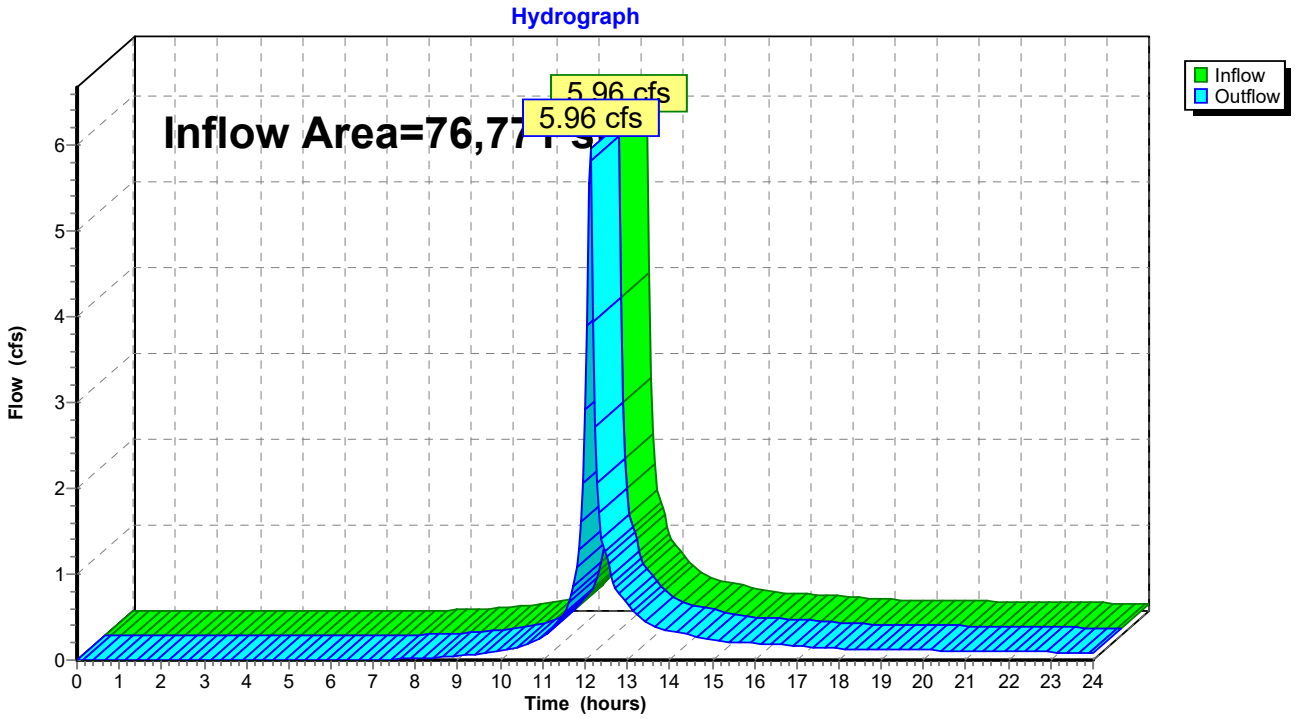
Summary for Reach DP-3:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 76,771 sf, 50.40% Impervious, Inflow Depth > 2.77" for 10-Year event
Inflow = 5.96 cfs @ 12.13 hrs, Volume= 17,708 cf
Outflow = 5.96 cfs @ 12.13 hrs, Volume= 17,708 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-3:



Summary for Subcatchment EX-1:

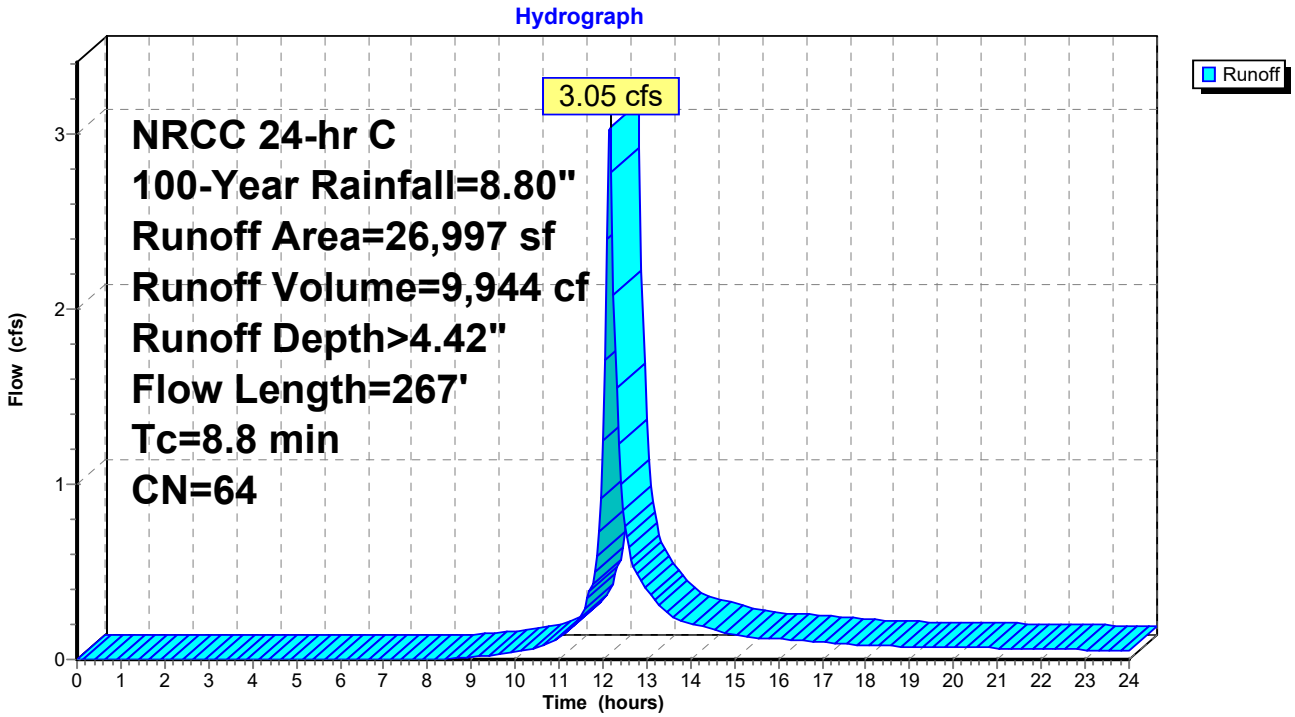
Runoff = 3.05 cfs @ 12.16 hrs, Volume= 9,944 cf, Depth> 4.42"
Routed to Reach DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.80"

Area (sf)	CN	Description
682	98	Roofs, HSG B
1,385	98	Paved parking, HSG B
24,930	61	>75% Grass cover, Good, HSG B
26,997	64	Weighted Average
24,930		92.34% Pervious Area
2,067		7.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	30	0.0370	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
5.9	237	0.0093	0.68		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	267	Total			

Subcatchment EX-1:



Summary for Subcatchment EX-2:

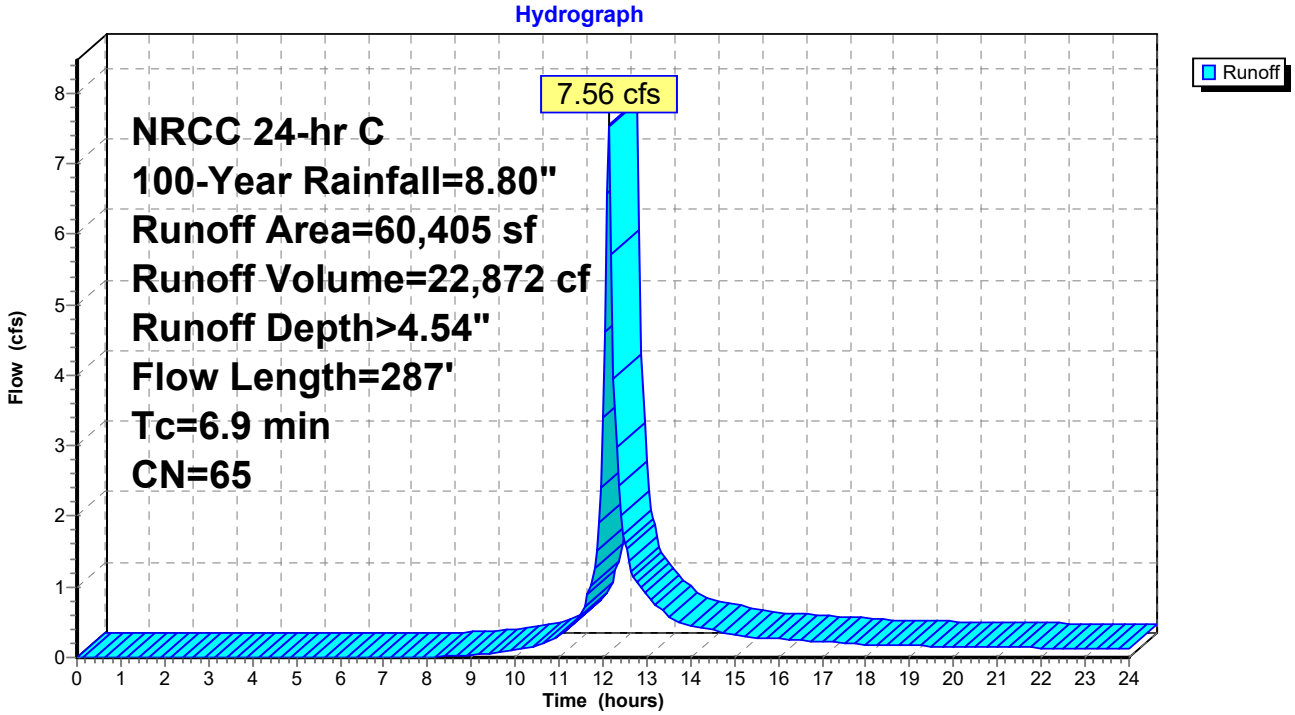
Runoff = 7.56 cfs @ 12.14 hrs, Volume= 22,872 cf, Depth> 4.54"
Routed to Reach DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.80"

Area (sf)	CN	Description
2,493	98	Roofs, HSG B
3,679	98	Paved parking, HSG B
54,233	61	>75% Grass cover, Good, HSG B
60,405	65	Weighted Average
54,233		89.78% Pervious Area
6,172		10.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	30	0.0670	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
4.6	257	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.9	287	Total			

Subcatchment EX-2:



Summary for Subcatchment EX-3:

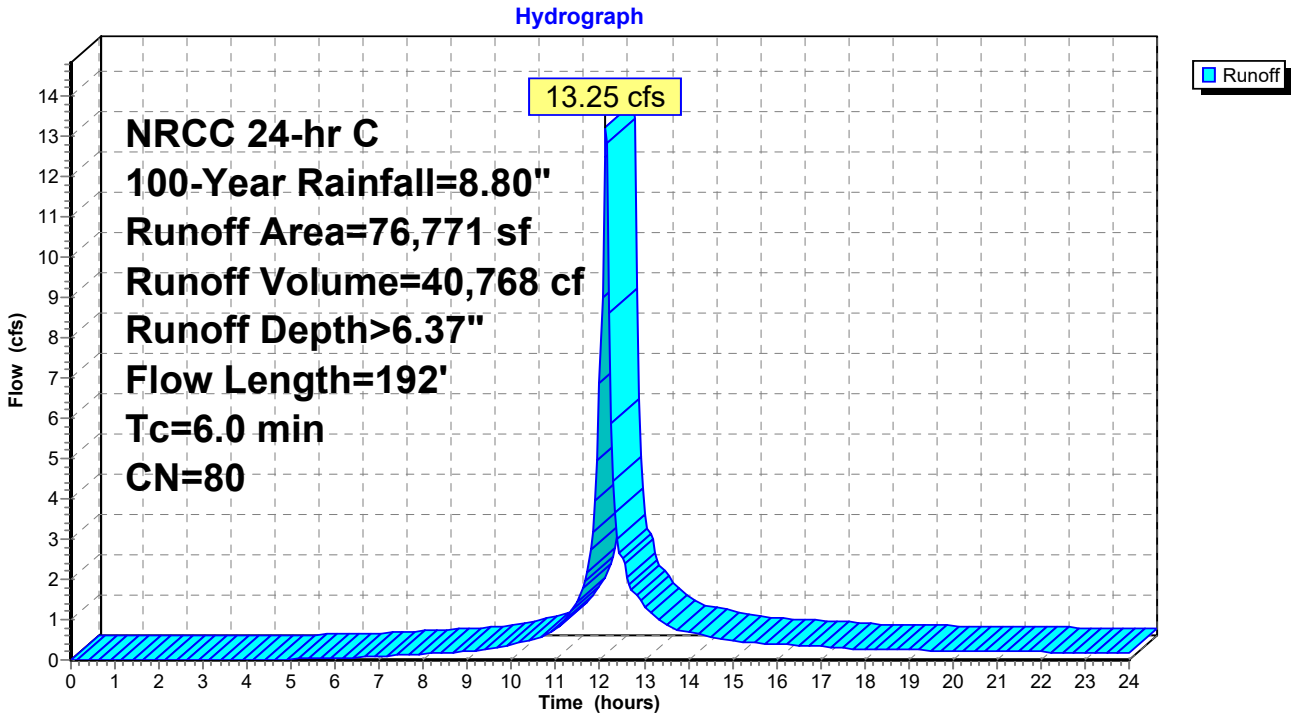
Runoff = 13.25 cfs @ 12.13 hrs, Volume= 40,768 cf, Depth> 6.37"
Routed to Reach DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	38,690	98	Wetland, HSG B
	38,081	61	>75% Grass cover, Good, HSG B
	76,771	80	Weighted Average
	38,081		49.60% Pervious Area
	38,690		50.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	30	0.0800	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.7	162	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.8	192	Total, Increased to minimum Tc = 6.0 min			

Subcatchment EX-3:



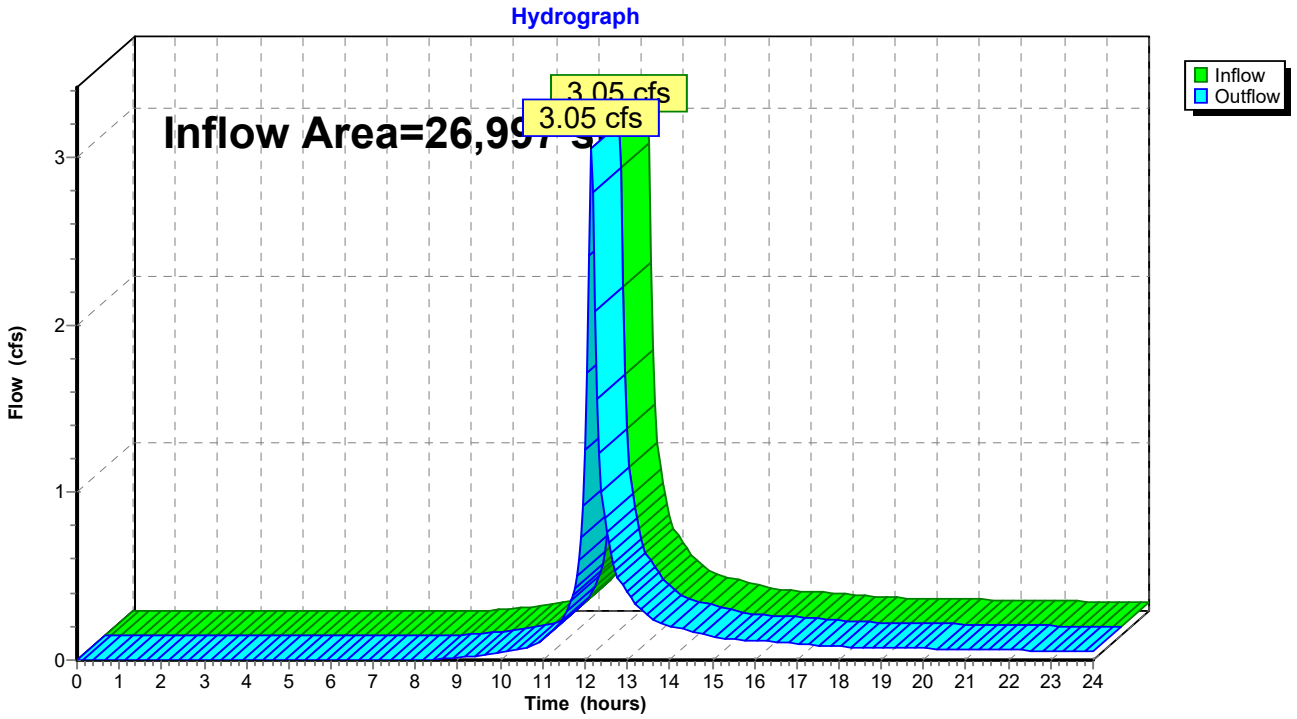
Summary for Reach DP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26,997 sf, 7.66% Impervious, Inflow Depth > 4.42" for 100-Year event
Inflow = 3.05 cfs @ 12.16 hrs, Volume= 9,944 cf
Outflow = 3.05 cfs @ 12.16 hrs, Volume= 9,944 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-1:



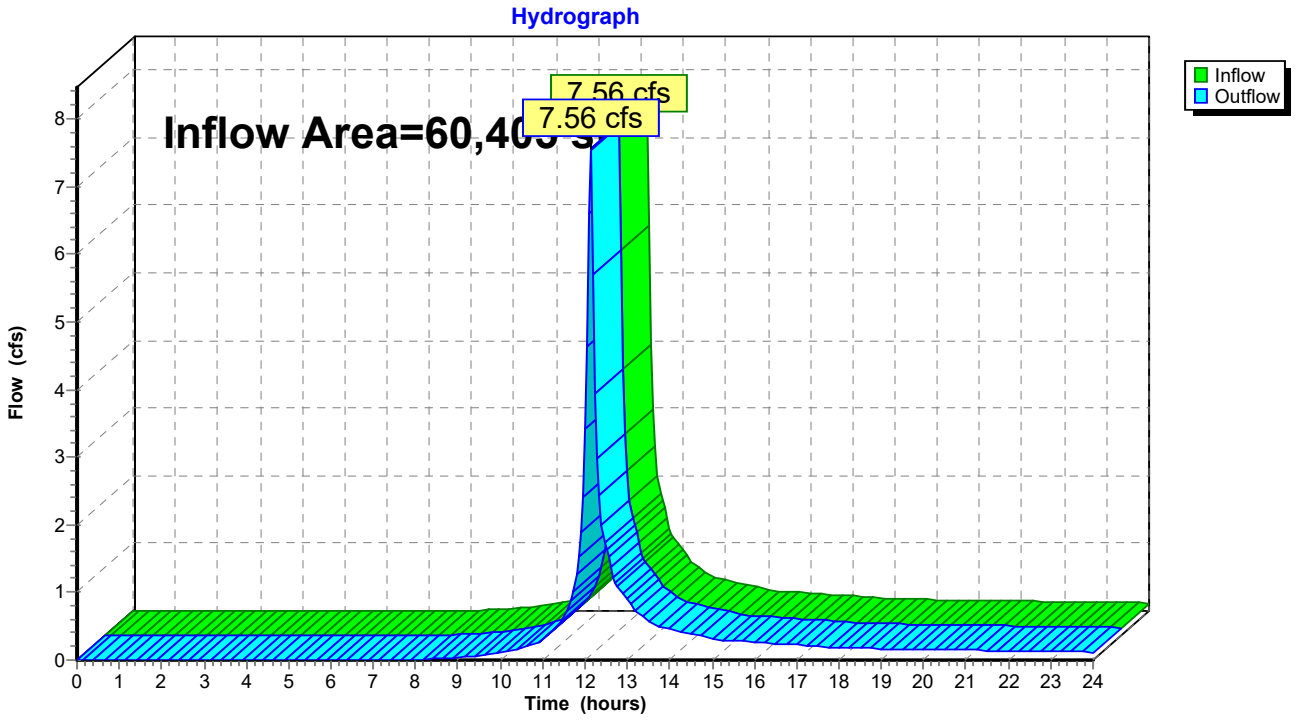
Summary for Reach DP-2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 60,405 sf, 10.22% Impervious, Inflow Depth > 4.54" for 100-Year event
Inflow = 7.56 cfs @ 12.14 hrs, Volume= 22,872 cf
Outflow = 7.56 cfs @ 12.14 hrs, Volume= 22,872 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-2:



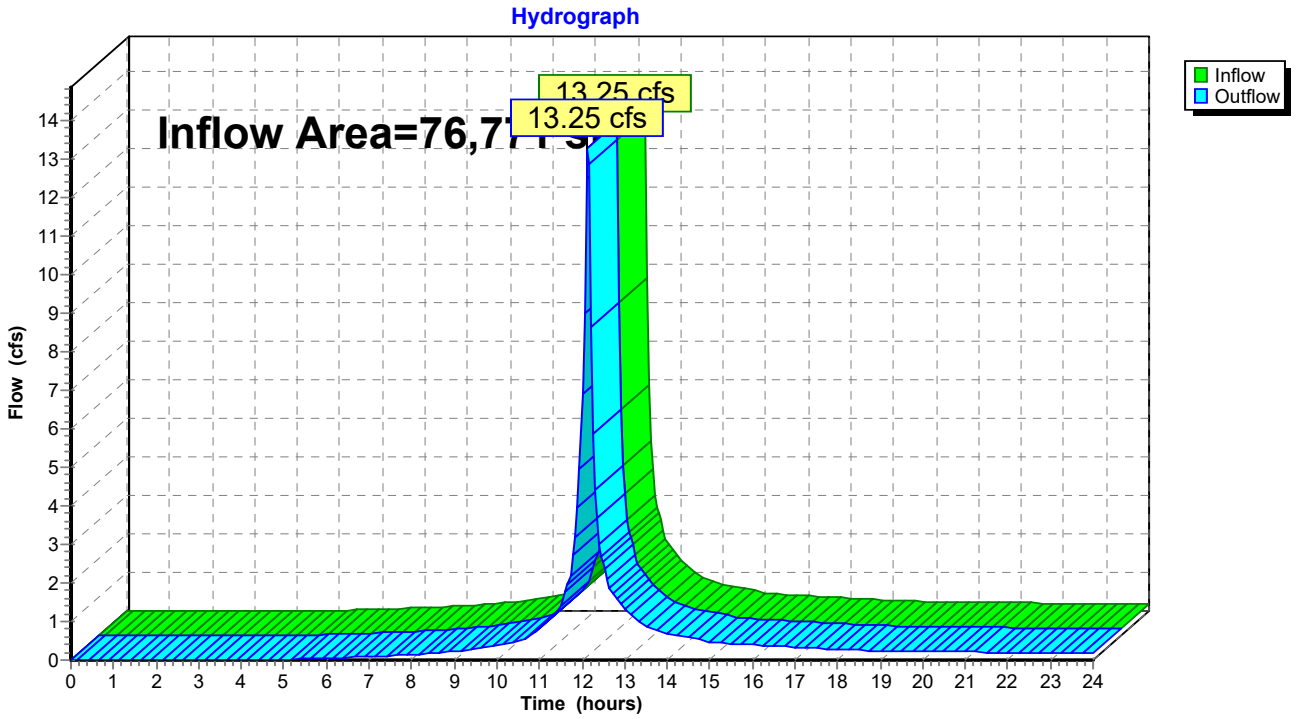
Summary for Reach DP-3:

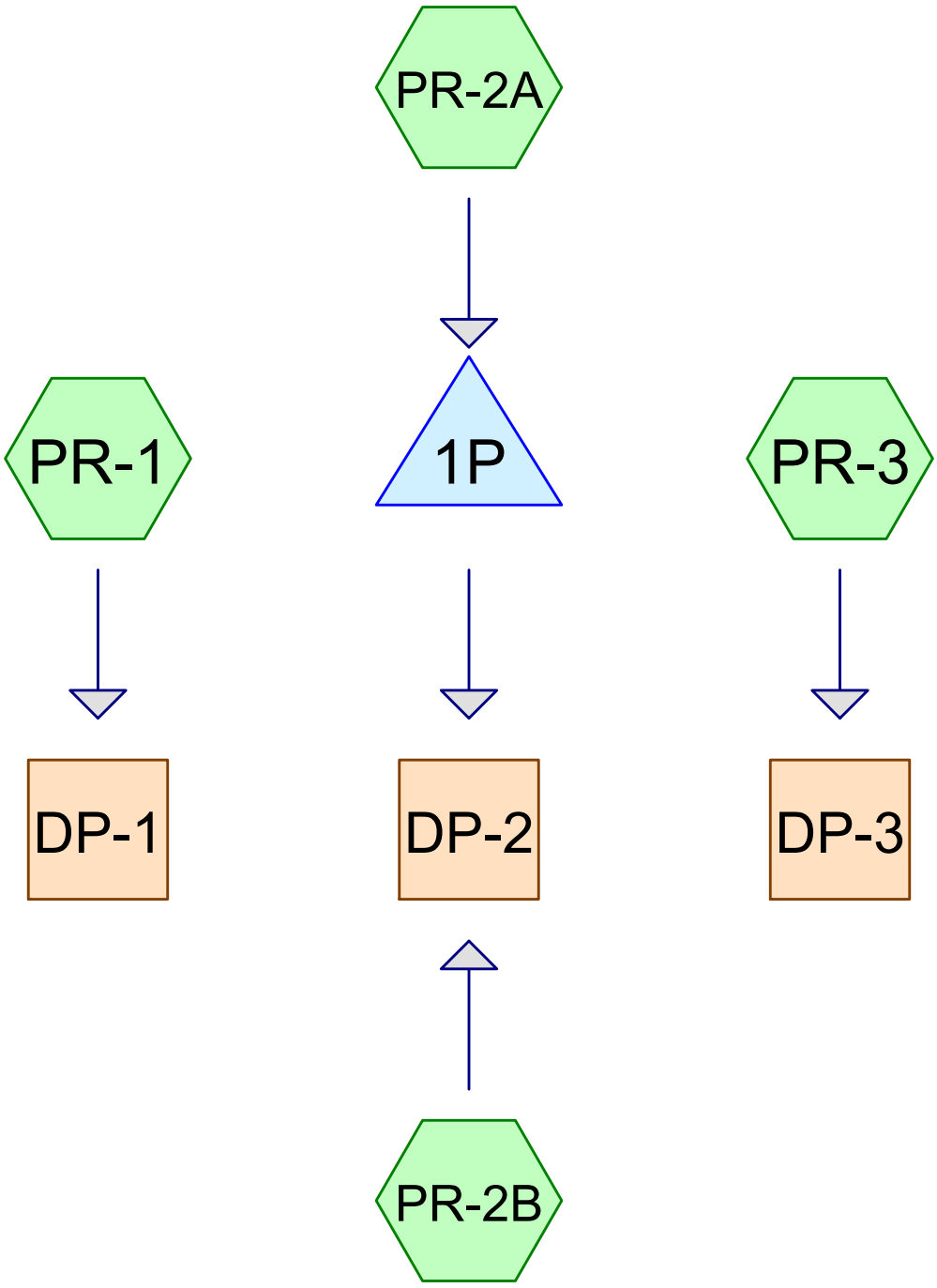
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 76,771 sf, 50.40% Impervious, Inflow Depth > 6.37" for 100-Year event
Inflow = 13.25 cfs @ 12.13 hrs, Volume= 40,768 cf
Outflow = 13.25 cfs @ 12.13 hrs, Volume= 40,768 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-3:





Subcat Reach Pond Link

Routing Diagram for 23-023 HC PR - Copy
Prepared by PVI Site Design, LLC, Printed 2/25/2025

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	C	Default	24.00	1	3.22	2
2	10-Year	NRCC 24-hr	C	Default	24.00	1	4.86	2
3	100-Year	NRCC 24-hr	C	Default	24.00	1	8.80	2

Summary for Subcatchment PR-1:

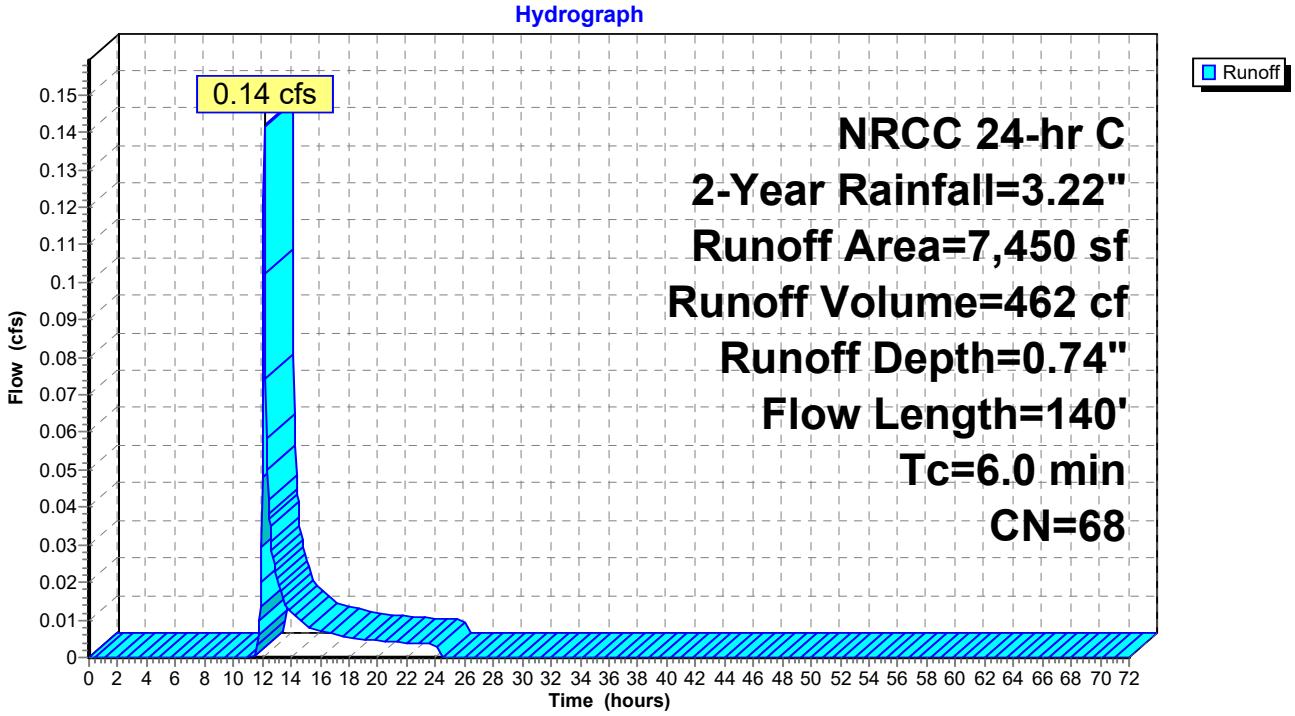
Runoff = 0.14 cfs @ 12.14 hrs, Volume= 462 cf, Depth= 0.74"
Routed to Reach DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.22"

Area (sf)	CN	Description
680	98	Roofs, HSG B
797	98	Paved parking, HSG B
5,973	61	>75% Grass cover, Good, HSG B
7,450	68	Weighted Average
5,973		80.17% Pervious Area
1,477		19.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0250	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.8	110	0.0210	1.01		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PR-1:



Summary for Subcatchment PR-2A:

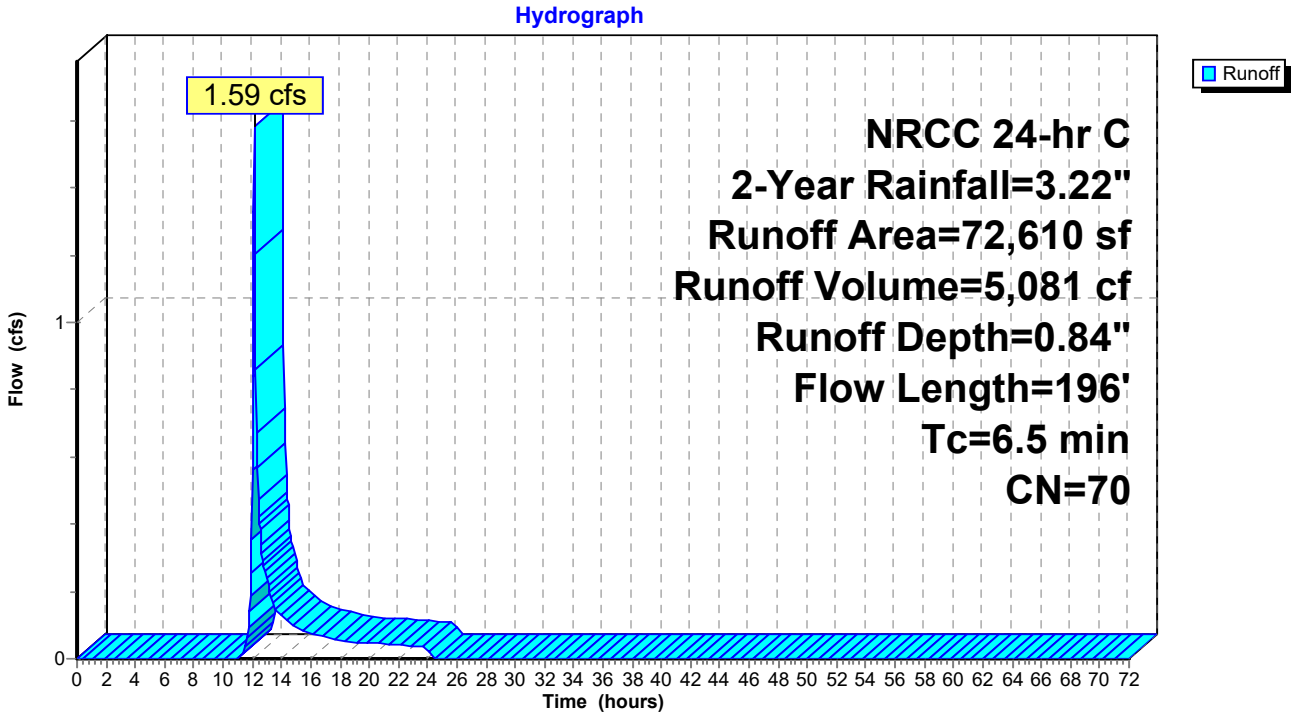
Runoff = 1.59 cfs @ 12.15 hrs, Volume= 5,081 cf, Depth= 0.84"
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.22"

Area (sf)	CN	Description
7,820	98	Roofs, HSG B
9,251	98	Paved parking, HSG B
54,539	61	>75% Grass cover, Good, HSG B
1,000	85	Gravel roads, HSG B
72,610	70	Weighted Average
55,539		76.49% Pervious Area
17,071		23.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0250	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
3.1	166	0.0166	0.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.5	196	Total			

Subcatchment PR-2A:



Summary for Subcatchment PR-2B:

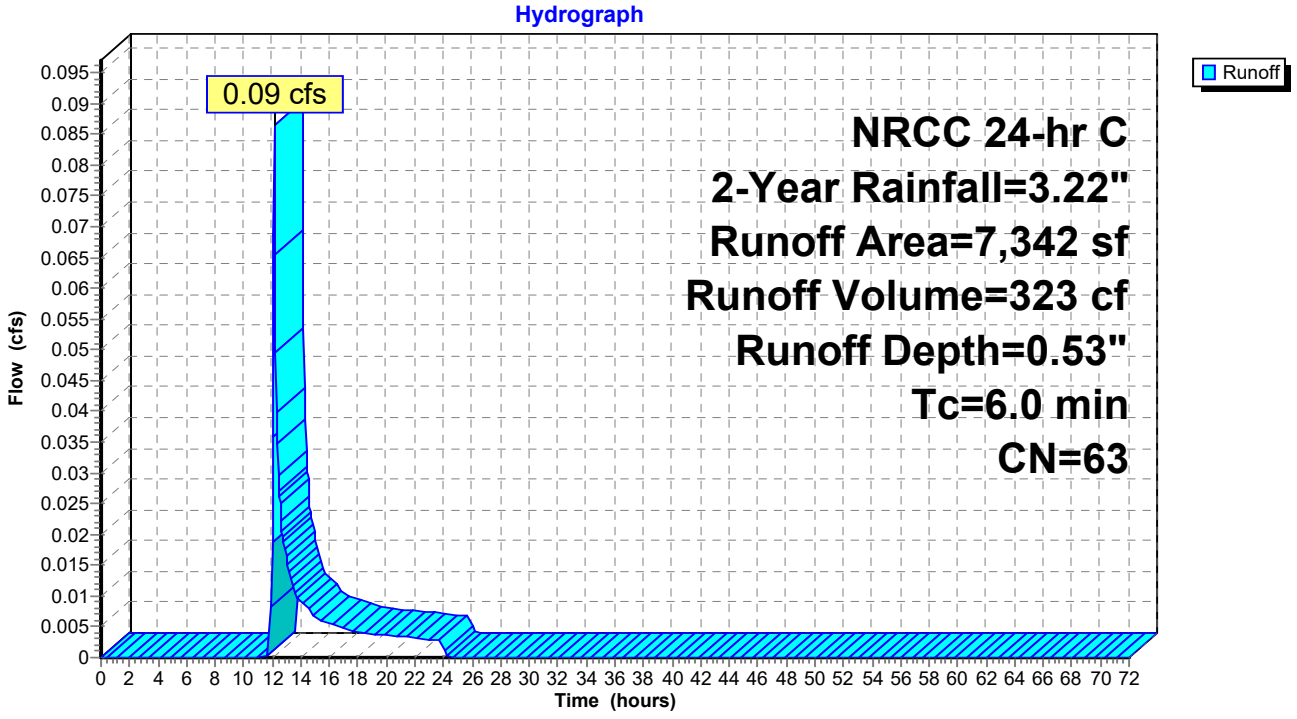
Runoff = 0.09 cfs @ 12.15 hrs, Volume= 323 cf, Depth= 0.53"
Routed to Reach DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.22"

Area (sf)	CN	Description
422	98	Roofs, HSG B
6,920	61	>75% Grass cover, Good, HSG B
7,342	63	Weighted Average
6,920		94.25% Pervious Area
422		5.75% Impervious Area

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

Subcatchment PR-2B:



Summary for Subcatchment PR-3:

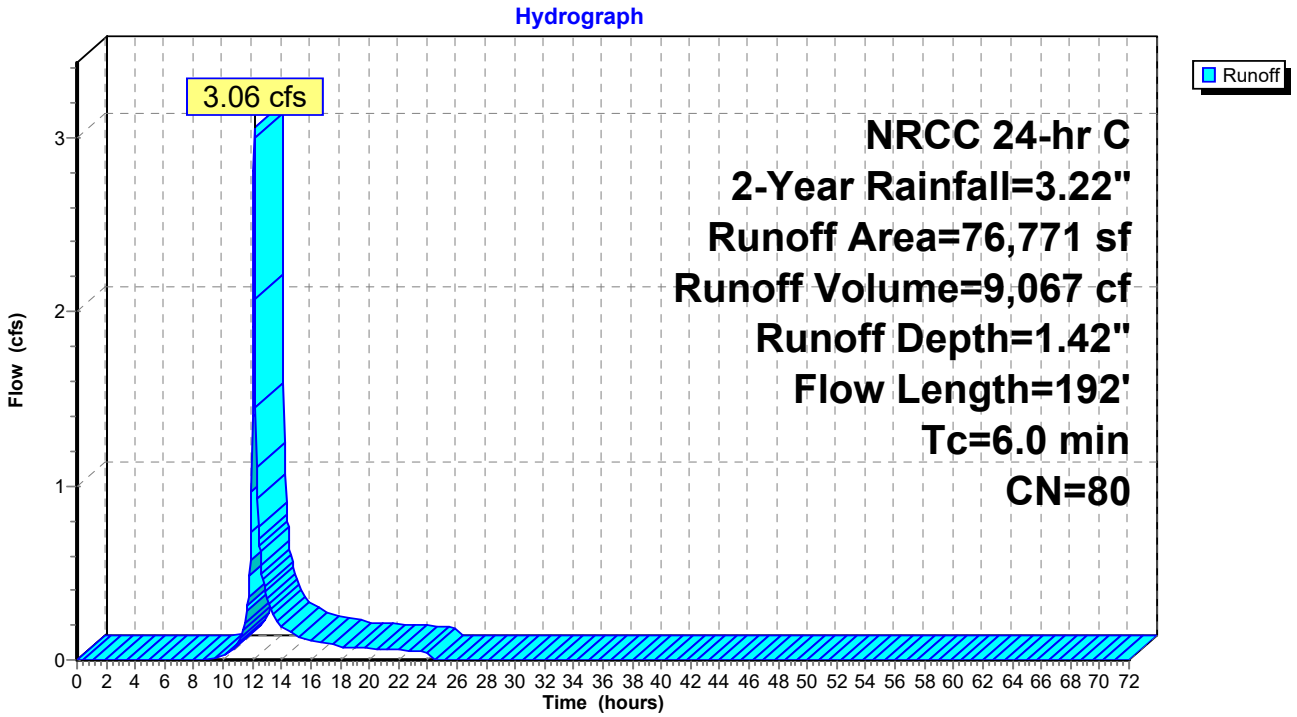
Runoff = 3.06 cfs @ 12.13 hrs, Volume= 9,067 cf, Depth= 1.42"
Routed to Reach DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=3.22"

	Area (sf)	CN	Description
*	38,690	98	Wetland, HSG B
	38,081	61	>75% Grass cover, Good, HSG B
	76,771	80	Weighted Average
	38,081		49.60% Pervious Area
	38,690		50.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	30	0.0800	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.7	162	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.8	192	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PR-3:



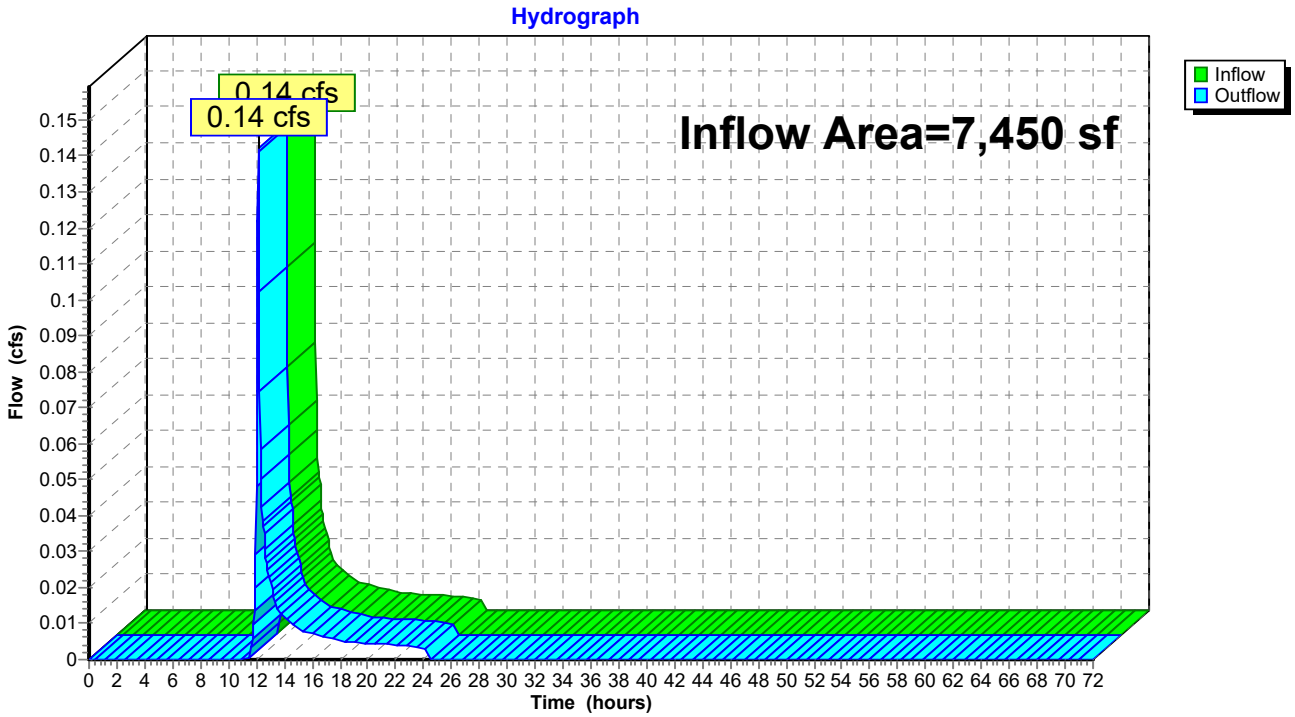
Summary for Reach DP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7,450 sf, 19.83% Impervious, Inflow Depth = 0.74" for 2-Year event
Inflow = 0.14 cfs @ 12.14 hrs, Volume= 462 cf
Outflow = 0.14 cfs @ 12.14 hrs, Volume= 462 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-1:



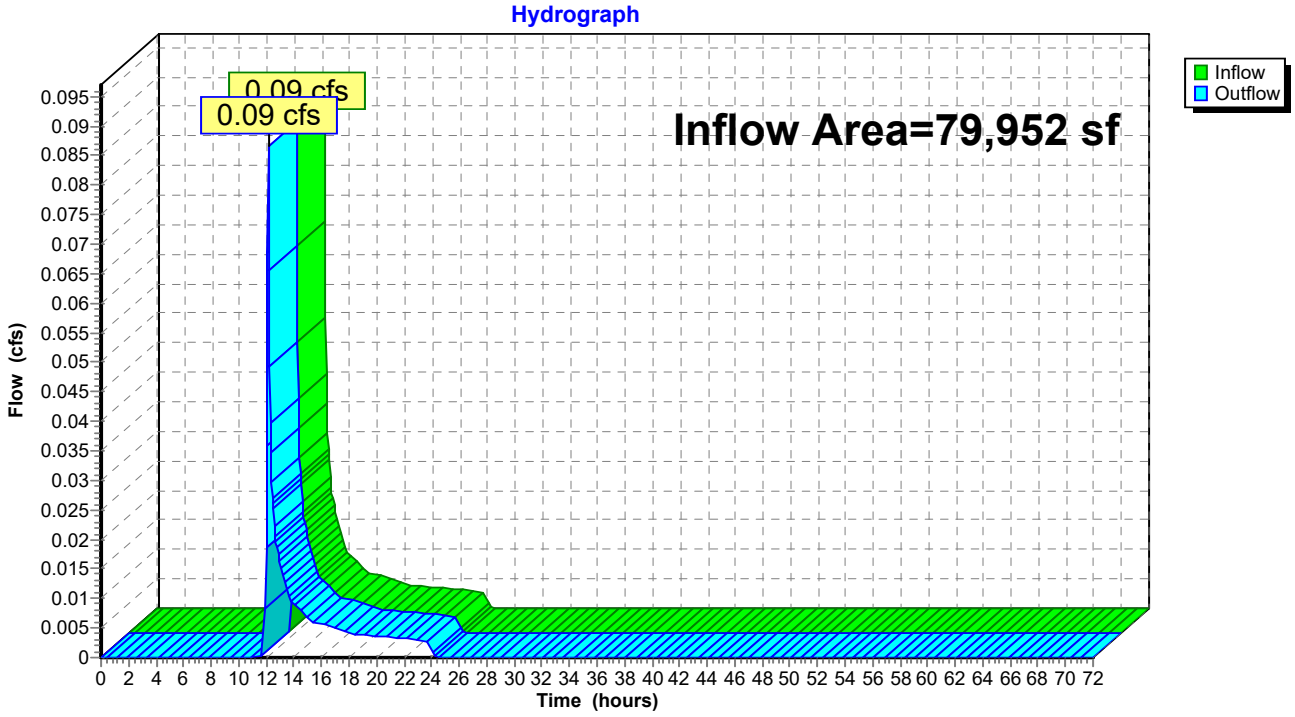
Summary for Reach DP-2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 79,952 sf, 21.88% Impervious, Inflow Depth = 0.05" for 2-Year event
Inflow = 0.09 cfs @ 12.15 hrs, Volume= 323 cf
Outflow = 0.09 cfs @ 12.15 hrs, Volume= 323 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-2:



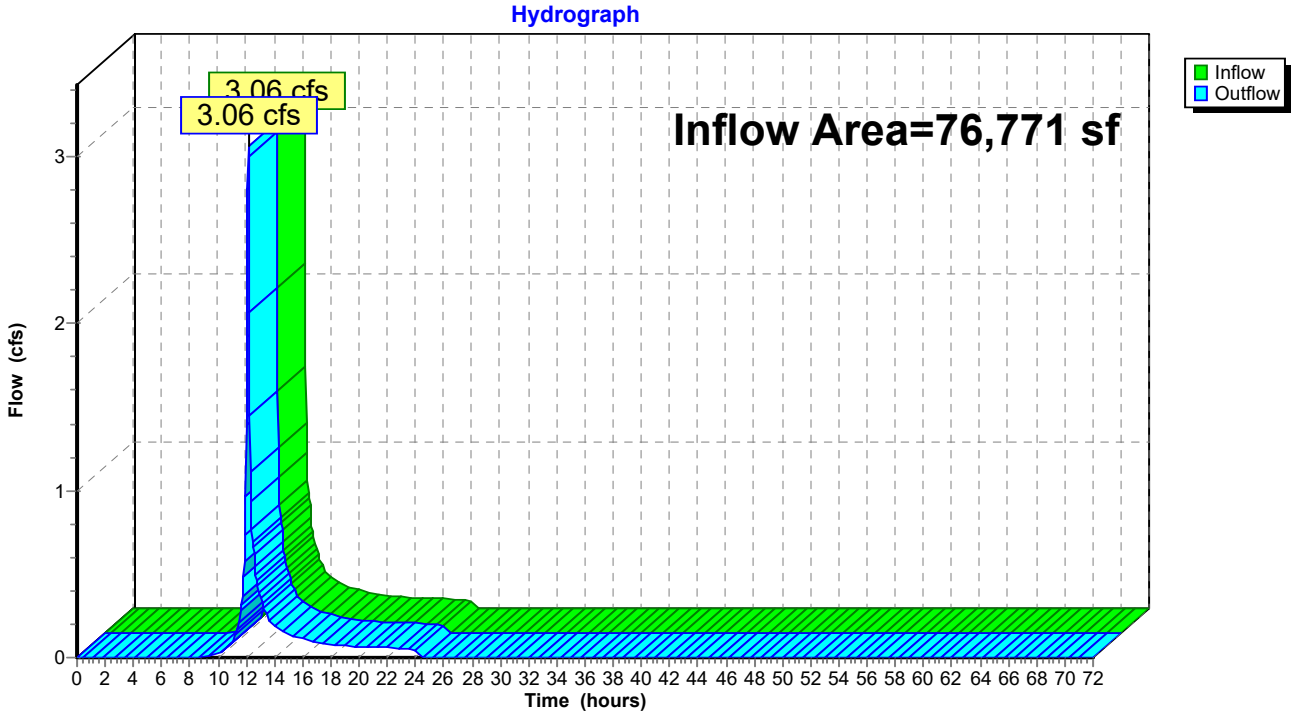
Summary for Reach DP-3:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 76,771 sf, 50.40% Impervious, Inflow Depth = 1.42" for 2-Year event
Inflow = 3.06 cfs @ 12.13 hrs, Volume= 9,067 cf
Outflow = 3.06 cfs @ 12.13 hrs, Volume= 9,067 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-3:



Summary for Pond 1P:

Inflow Area = 72,610 sf, 23.51% Impervious, Inflow Depth = 0.84" for 2-Year event
Inflow = 1.59 cfs @ 12.15 hrs, Volume= 5,081 cf
Outflow = 0.09 cfs @ 15.07 hrs, Volume= 5,081 cf, Atten= 94%, Lag= 175.5 min
Discarded = 0.09 cfs @ 15.07 hrs, Volume= 5,081 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP-2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 215.18' @ 15.07 hrs Surf.Area= 14,077 sf Storage= 2,348 cf

Plug-Flow detention time= 310.9 min calculated for 5,078 cf (100% of inflow)
Center-of-Mass det. time= 311.0 min (1,200.9 - 889.9)

Volume	Invert	Avail.Storage	Storage Description
#1	215.00'	18,928 cf	**Bio-Retention (Prismatic)**Listed below (Recalc)

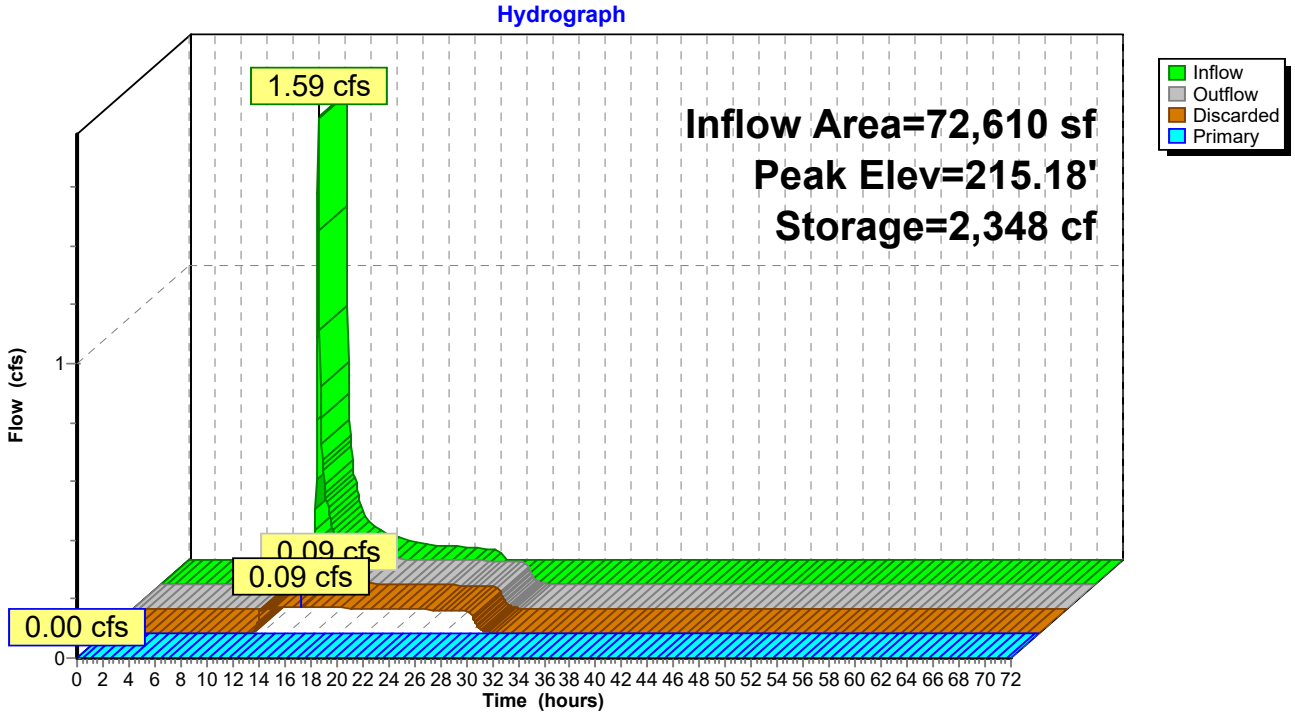
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
215.00	11,775	0	0
215.50	18,112	7,472	7,472
216.00	27,712	11,456	18,928

Device	Routing	Invert	Outlet Devices
#1	Discarded	215.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	215.50'	**20.0' long x 5.0' breadth Overflow** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.09 cfs @ 15.07 hrs HW=215.18' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=215.00' (Free Discharge)
↑—**2=Overflow** (Controls 0.00 cfs)

Pond 1P:


Hydrograph
1.59 cfs
0.09 cfs
0.09 cfs
0.00 cfs
Inflow Area=72,610 sf
Peak Elev=215.18'
Storage=2,348 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0
1
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Subcatchment PR-1:

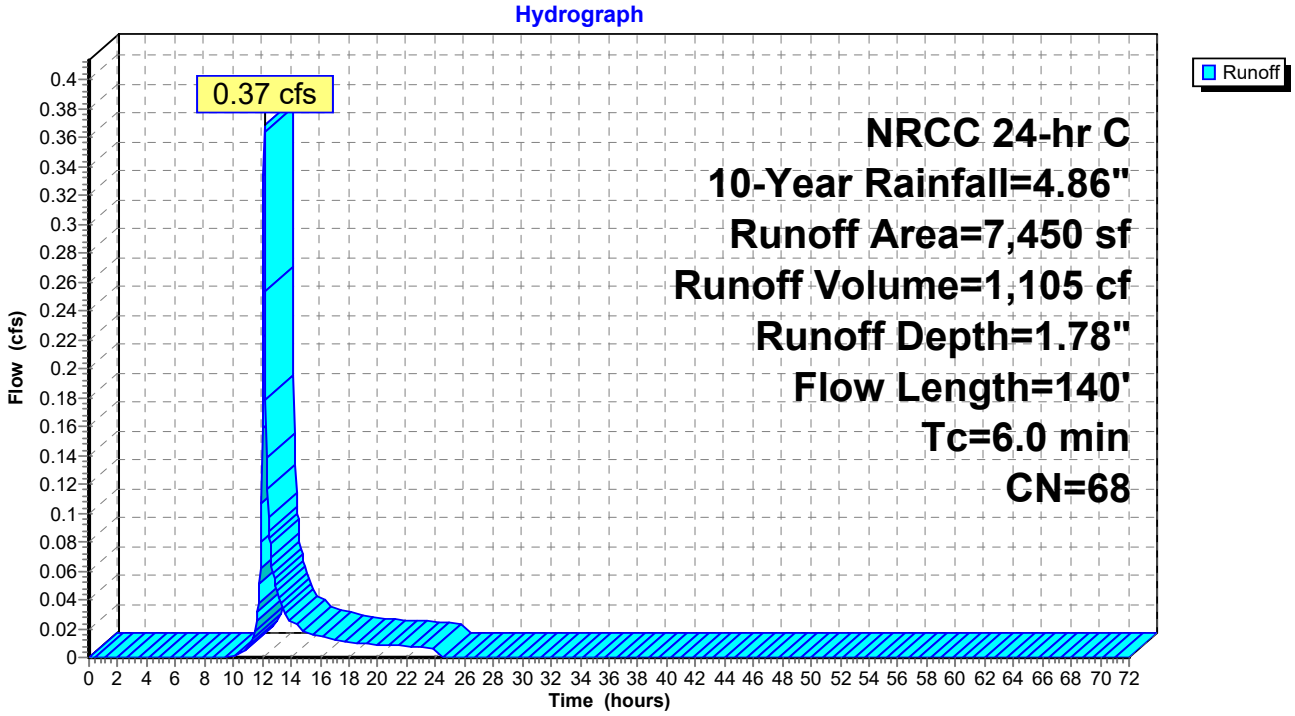
Runoff = 0.37 cfs @ 12.14 hrs, Volume= 1,105 cf, Depth= 1.78"
Routed to Reach DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.86"

Area (sf)	CN	Description
680	98	Roofs, HSG B
797	98	Paved parking, HSG B
5,973	61	>75% Grass cover, Good, HSG B
7,450	68	Weighted Average
5,973		80.17% Pervious Area
1,477		19.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0250	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.8	110	0.0210	1.01		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PR-1:



Summary for Subcatchment PR-2A:

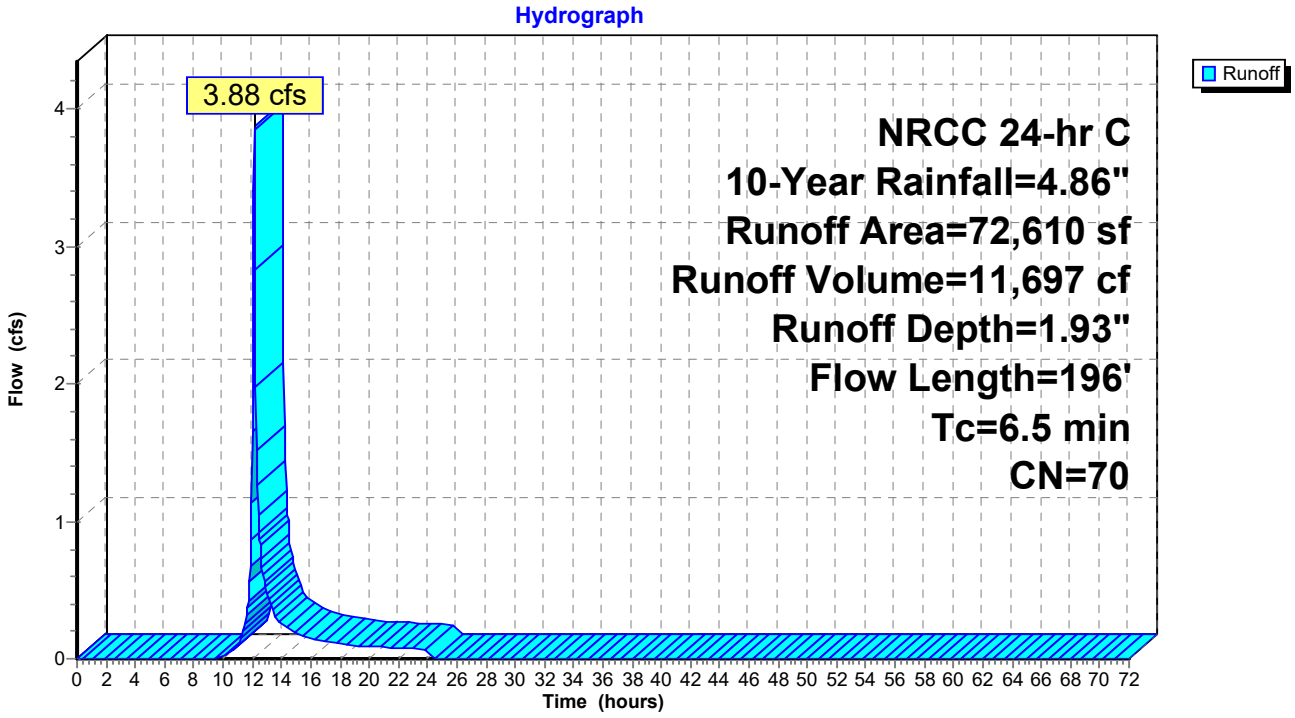
Runoff = 3.88 cfs @ 12.14 hrs, Volume= 11,697 cf, Depth= 1.93"
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.86"

Area (sf)	CN	Description
7,820	98	Roofs, HSG B
9,251	98	Paved parking, HSG B
54,539	61	>75% Grass cover, Good, HSG B
1,000	85	Gravel roads, HSG B
72,610	70	Weighted Average
55,539		76.49% Pervious Area
17,071		23.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0250	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
3.1	166	0.0166	0.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.5	196	Total			

Subcatchment PR-2A:



Summary for Subcatchment PR-2B:

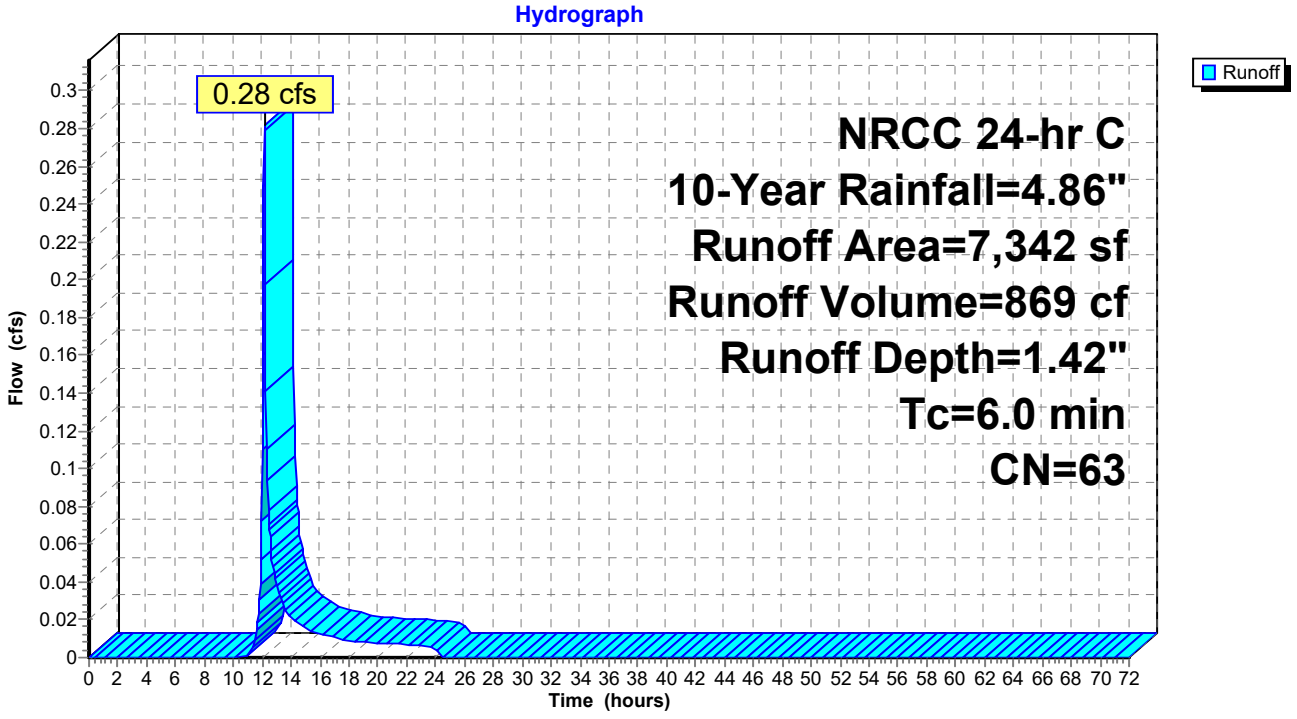
Runoff = 0.28 cfs @ 12.14 hrs, Volume= 869 cf, Depth= 1.42"
Routed to Reach DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.86"

Area (sf)	CN	Description
422	98	Roofs, HSG B
6,920	61	>75% Grass cover, Good, HSG B
7,342	63	Weighted Average
6,920		94.25% Pervious Area
422		5.75% Impervious Area

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

Subcatchment PR-2B:



Summary for Subcatchment PR-3:

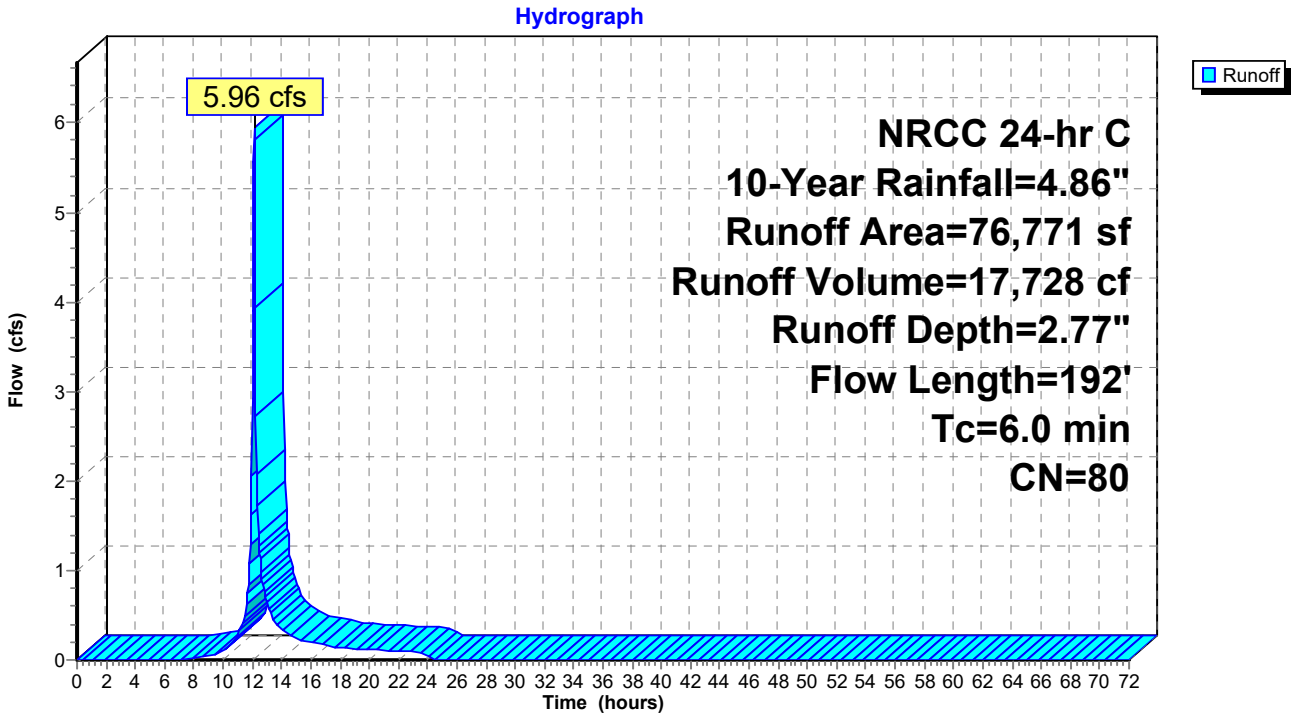
Runoff = 5.96 cfs @ 12.13 hrs, Volume= 17,728 cf, Depth= 2.77"
Routed to Reach DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.86"

	Area (sf)	CN	Description
*	38,690	98	Wetland, HSG B
	38,081	61	>75% Grass cover, Good, HSG B
	76,771	80	Weighted Average
	38,081		49.60% Pervious Area
	38,690		50.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	30	0.0800	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.7	162	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.8	192	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PR-3:



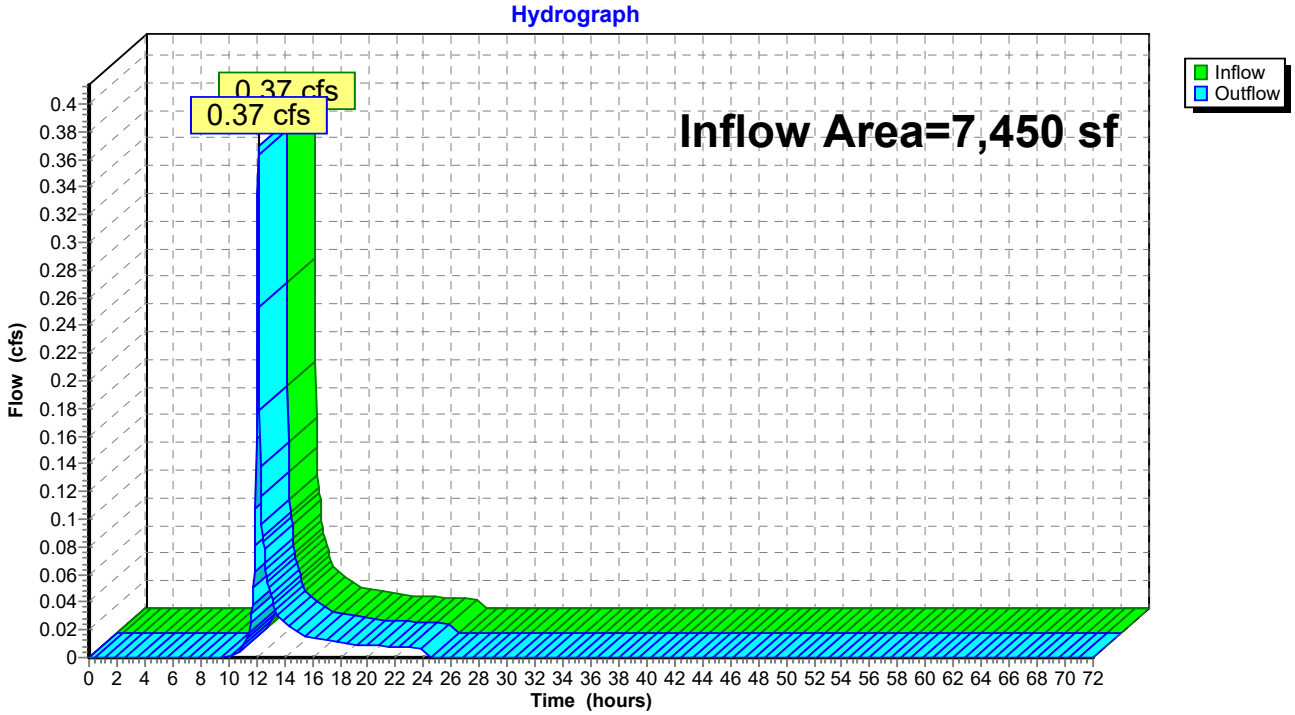
Summary for Reach DP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7,450 sf, 19.83% Impervious, Inflow Depth = 1.78" for 10-Year event
Inflow = 0.37 cfs @ 12.14 hrs, Volume= 1,105 cf
Outflow = 0.37 cfs @ 12.14 hrs, Volume= 1,105 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-1:



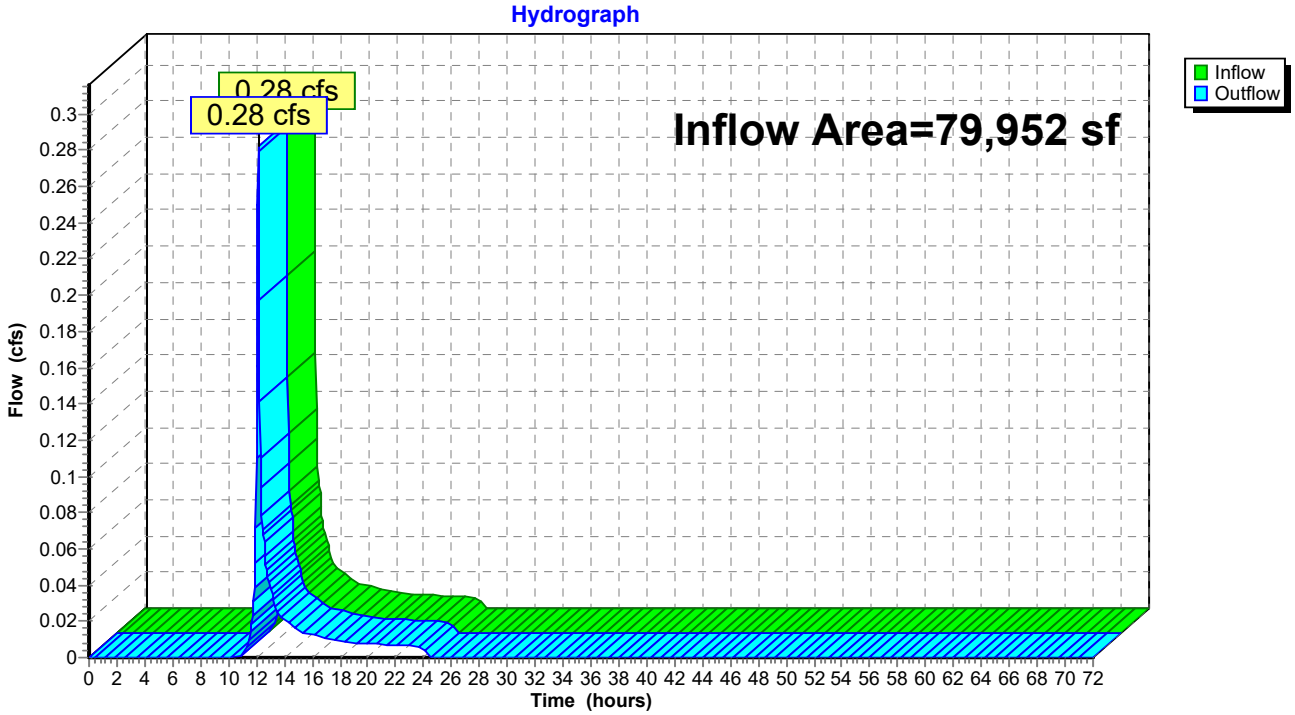
Summary for Reach DP-2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 79,952 sf, 21.88% Impervious, Inflow Depth = 0.13" for 10-Year event
Inflow = 0.28 cfs @ 12.14 hrs, Volume= 869 cf
Outflow = 0.28 cfs @ 12.14 hrs, Volume= 869 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-2:



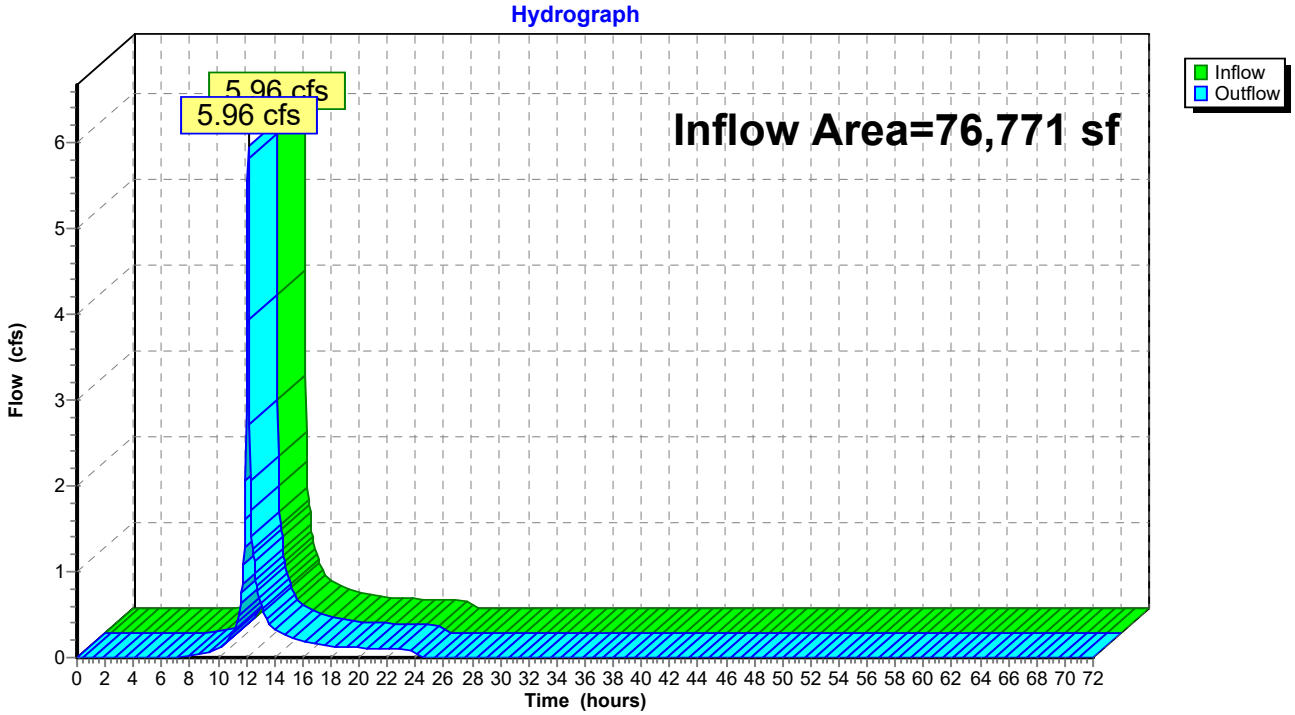
Summary for Reach DP-3:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 76,771 sf, 50.40% Impervious, Inflow Depth = 2.77" for 10-Year event
Inflow = 5.96 cfs @ 12.13 hrs, Volume= 17,728 cf
Outflow = 5.96 cfs @ 12.13 hrs, Volume= 17,728 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-3:



Summary for Pond 1P:

Inflow Area = 72,610 sf, 23.51% Impervious, Inflow Depth = 1.93" for 10-Year event
Inflow = 3.88 cfs @ 12.14 hrs, Volume= 11,697 cf
Outflow = 0.11 cfs @ 17.68 hrs, Volume= 11,697 cf, Atten= 97%, Lag= 332.4 min
Discarded = 0.11 cfs @ 17.68 hrs, Volume= 11,697 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP-2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 215.48' @ 17.68 hrs Surf.Area= 17,897 sf Storage= 7,166 cf

Plug-Flow detention time= 730.4 min calculated for 11,689 cf (100% of inflow)
Center-of-Mass det. time= 730.8 min (1,592.2 - 861.4)

Volume	Invert	Avail.Storage	Storage Description
#1	215.00'	18,928 cf	**Bio-Retention (Prismatic)**Listed below (Recalc)

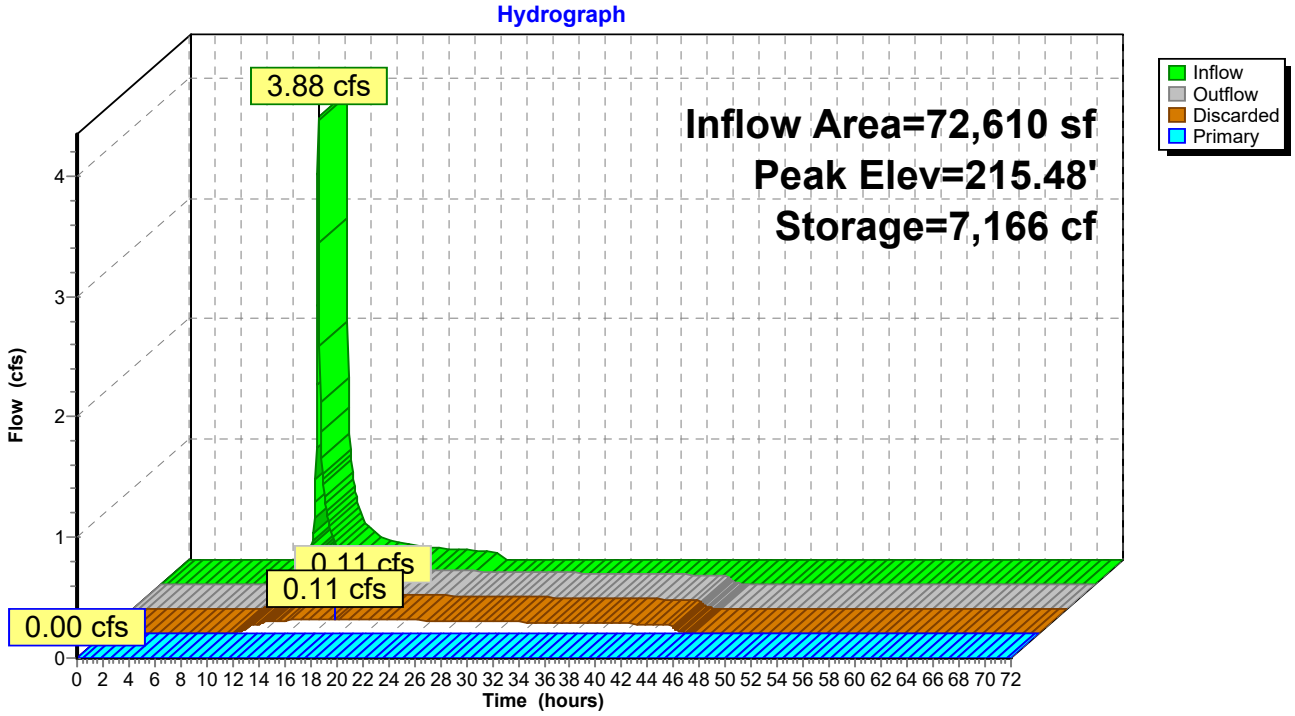
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
215.00	11,775	0	0
215.50	18,112	7,472	7,472
216.00	27,712	11,456	18,928

Device	Routing	Invert	Outlet Devices
#1	Discarded	215.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	215.50'	**20.0' long x 5.0' breadth Overflow** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.11 cfs @ 17.68 hrs HW=215.48' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=215.00' (Free Discharge)
↑—**2=Overflow** (Controls 0.00 cfs)

Pond 1P:


Hydrograph
3.88 cfs
0.11 cfs
0.11 cfs
0.00 cfs
Inflow Area=72,610 sf
Peak Elev=215.48'
Storage=7,166 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0
1
2
3
4
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Subcatchment PR-1:

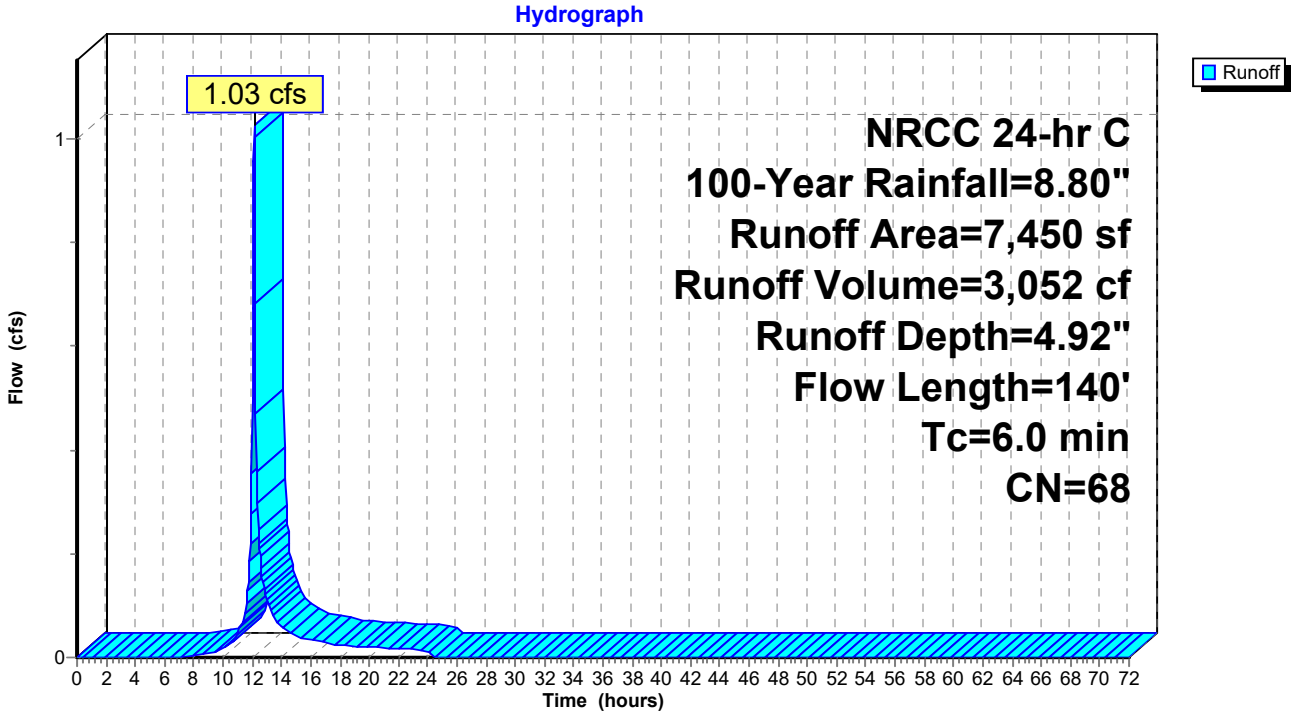
Runoff = 1.03 cfs @ 12.13 hrs, Volume= 3,052 cf, Depth= 4.92"
Routed to Reach DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.80"

Area (sf)	CN	Description
680	98	Roofs, HSG B
797	98	Paved parking, HSG B
5,973	61	>75% Grass cover, Good, HSG B
7,450	68	Weighted Average
5,973		80.17% Pervious Area
1,477		19.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0250	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.8	110	0.0210	1.01		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PR-1:



Summary for Subcatchment PR-2A:

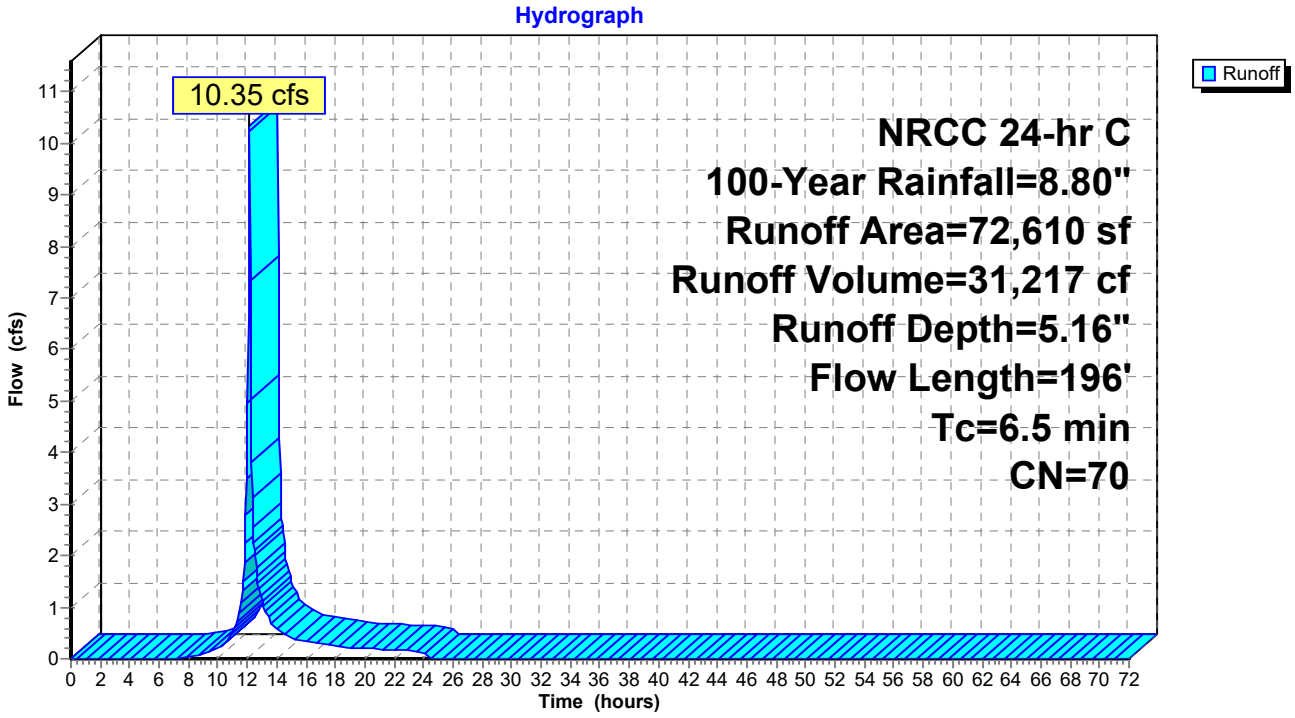
Runoff = 10.35 cfs @ 12.14 hrs, Volume= 31,217 cf, Depth= 5.16"
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.80"

Area (sf)	CN	Description
7,820	98	Roofs, HSG B
9,251	98	Paved parking, HSG B
54,539	61	>75% Grass cover, Good, HSG B
1,000	85	Gravel roads, HSG B
72,610	70	Weighted Average
55,539		76.49% Pervious Area
17,071		23.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0250	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
3.1	166	0.0166	0.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.5	196	Total			

Subcatchment PR-2A:



Summary for Subcatchment PR-2B:

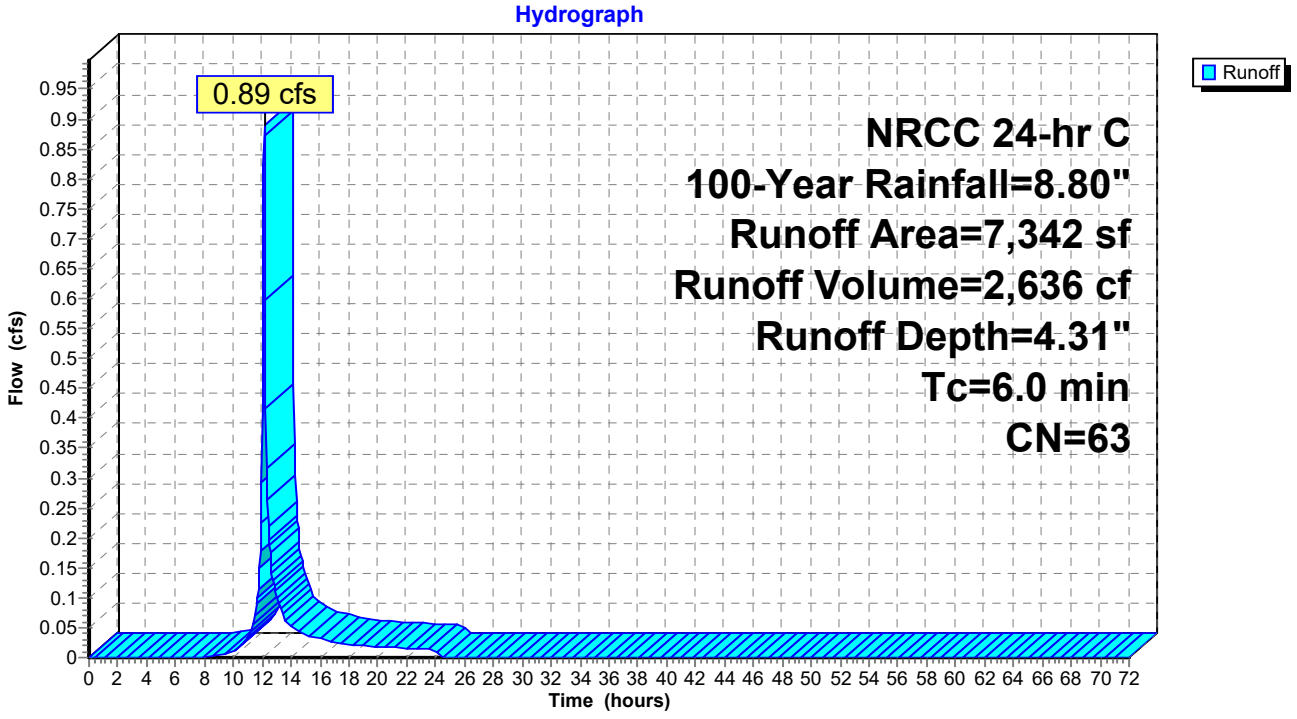
Runoff = 0.89 cfs @ 12.13 hrs, Volume= 2,636 cf, Depth= 4.31"
Routed to Reach DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.80"

Area (sf)	CN	Description
422	98	Roofs, HSG B
6,920	61	>75% Grass cover, Good, HSG B
7,342	63	Weighted Average
6,920		94.25% Pervious Area
422		5.75% Impervious Area

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

Subcatchment PR-2B:



Summary for Subcatchment PR-3:

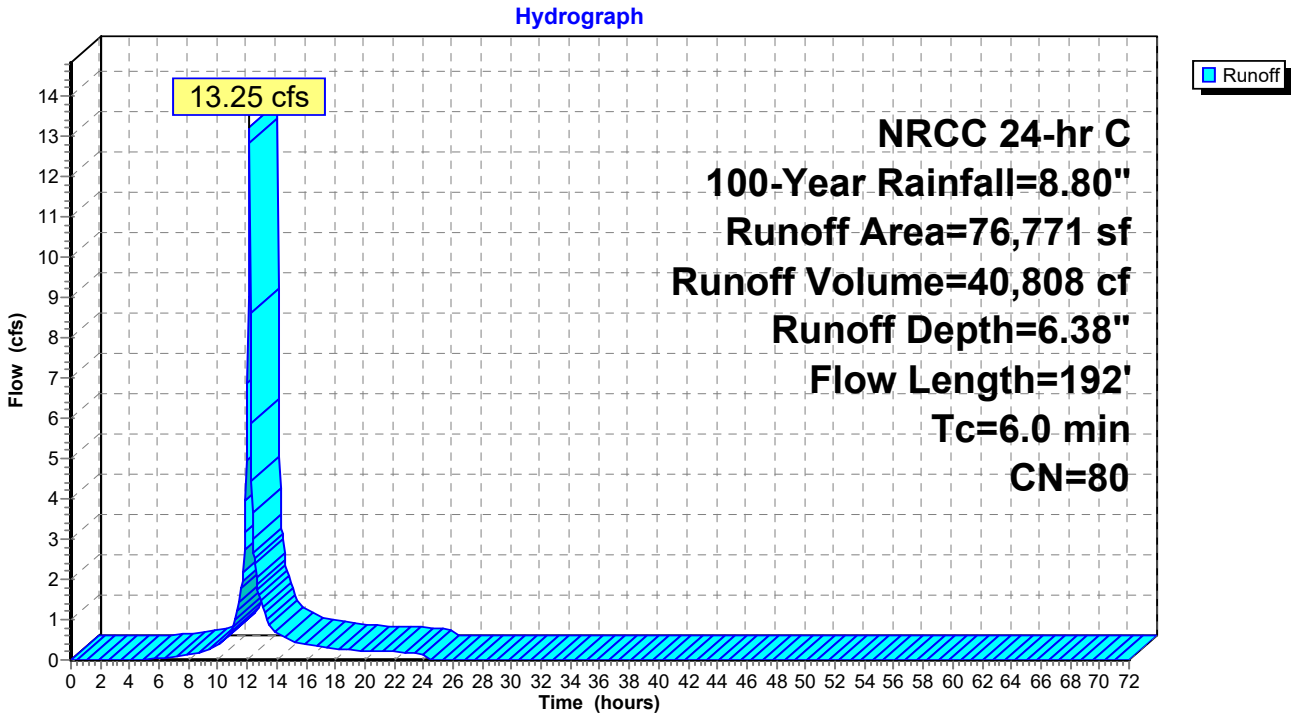
Runoff = 13.25 cfs @ 12.13 hrs, Volume= 40,808 cf, Depth= 6.38"
Routed to Reach DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	38,690	98	Wetland, HSG B
	38,081	61	>75% Grass cover, Good, HSG B
	76,771	80	Weighted Average
	38,081		49.60% Pervious Area
	38,690		50.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	30	0.0800	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.22"
1.7	162	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.8	192	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PR-3:



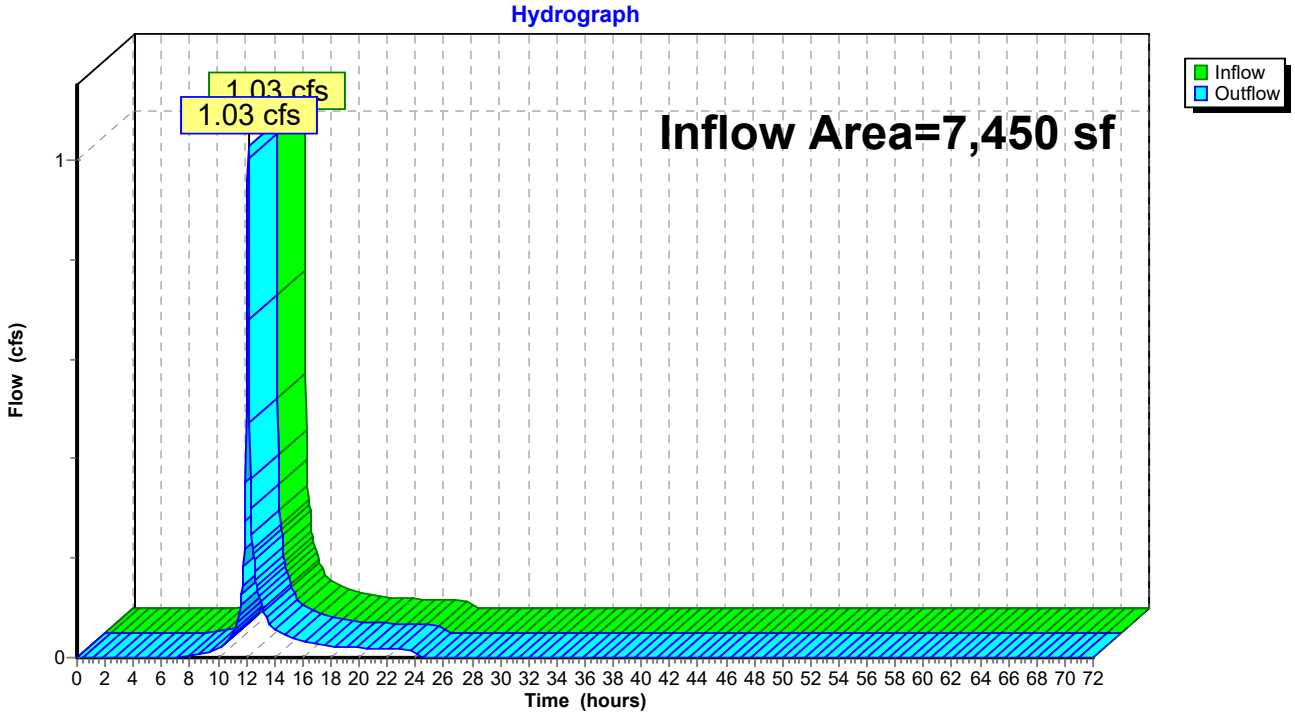
Summary for Reach DP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7,450 sf, 19.83% Impervious, Inflow Depth = 4.92" for 100-Year event
Inflow = 1.03 cfs @ 12.13 hrs, Volume= 3,052 cf
Outflow = 1.03 cfs @ 12.13 hrs, Volume= 3,052 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-1:



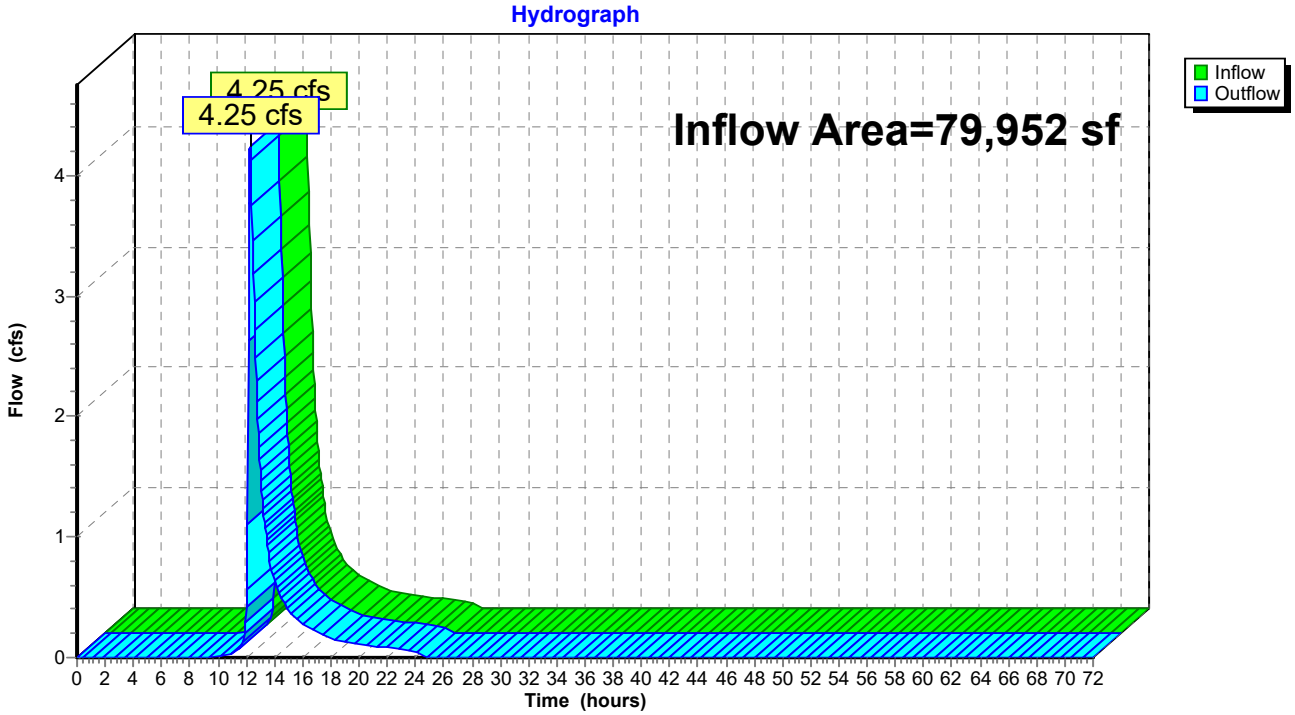
Summary for Reach DP-2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 79,952 sf, 21.88% Impervious, Inflow Depth = 3.01" for 100-Year event
Inflow = 4.25 cfs @ 12.28 hrs, Volume= 20,048 cf
Outflow = 4.25 cfs @ 12.28 hrs, Volume= 20,048 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-2:



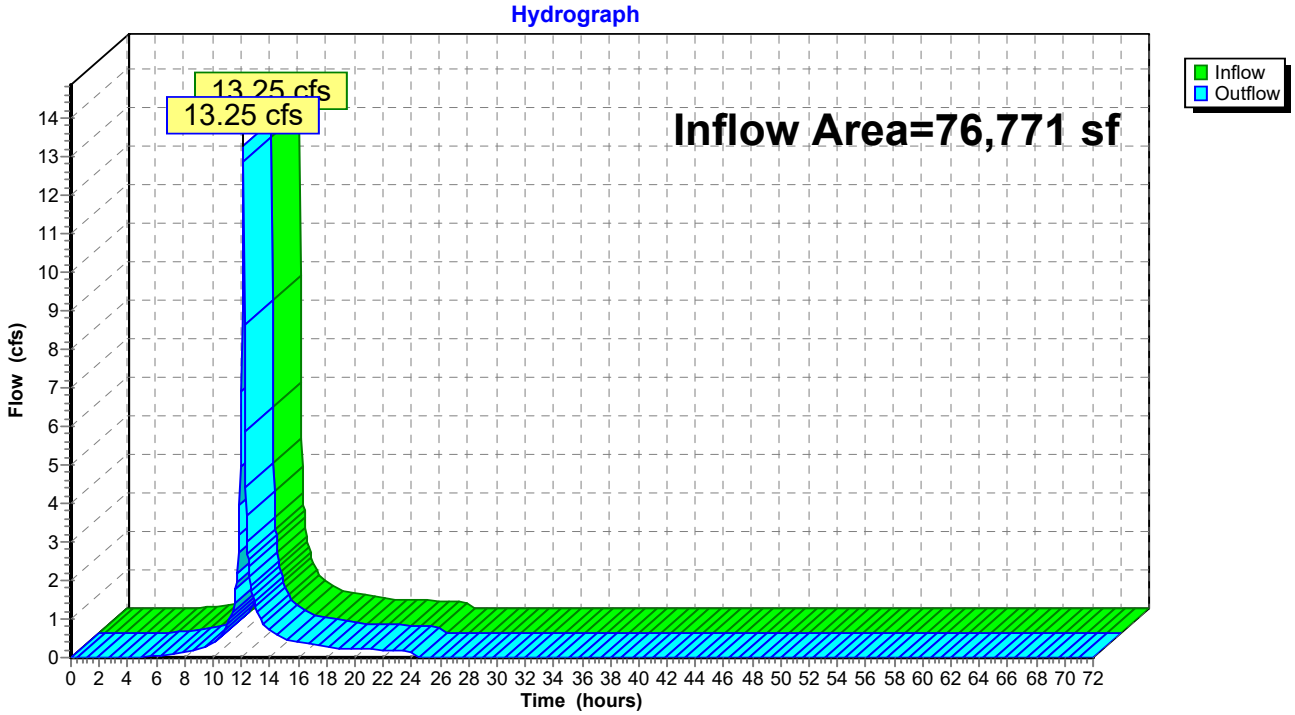
Summary for Reach DP-3:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 76,771 sf, 50.40% Impervious, Inflow Depth = 6.38" for 100-Year event
Inflow = 13.25 cfs @ 12.13 hrs, Volume= 40,808 cf
Outflow = 13.25 cfs @ 12.13 hrs, Volume= 40,808 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 2R

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP-3:



Summary for Pond 1P:

Inflow Area = 72,610 sf, 23.51% Impervious, Inflow Depth = 5.16" for 100-Year event
Inflow = 10.35 cfs @ 12.14 hrs, Volume= 31,217 cf
Outflow = 4.05 cfs @ 12.30 hrs, Volume= 31,217 cf, Atten= 61%, Lag= 9.6 min
Discarded = 0.14 cfs @ 12.30 hrs, Volume= 13,805 cf
Primary = 3.91 cfs @ 12.30 hrs, Volume= 17,413 cf
Routed to Reach DP-2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 215.69' @ 12.30 hrs Surf.Area= 21,781 sf Storage= 11,284 cf

Plug-Flow detention time= 348.7 min calculated for 31,217 cf (100% of inflow)
Center-of-Mass det. time= 348.5 min (1,178.6 - 830.1)

Volume	Invert	Avail.Storage	Storage Description
#1	215.00'	18,928 cf	**Bio-Retention (Prismatic)**Listed below (Recalc)

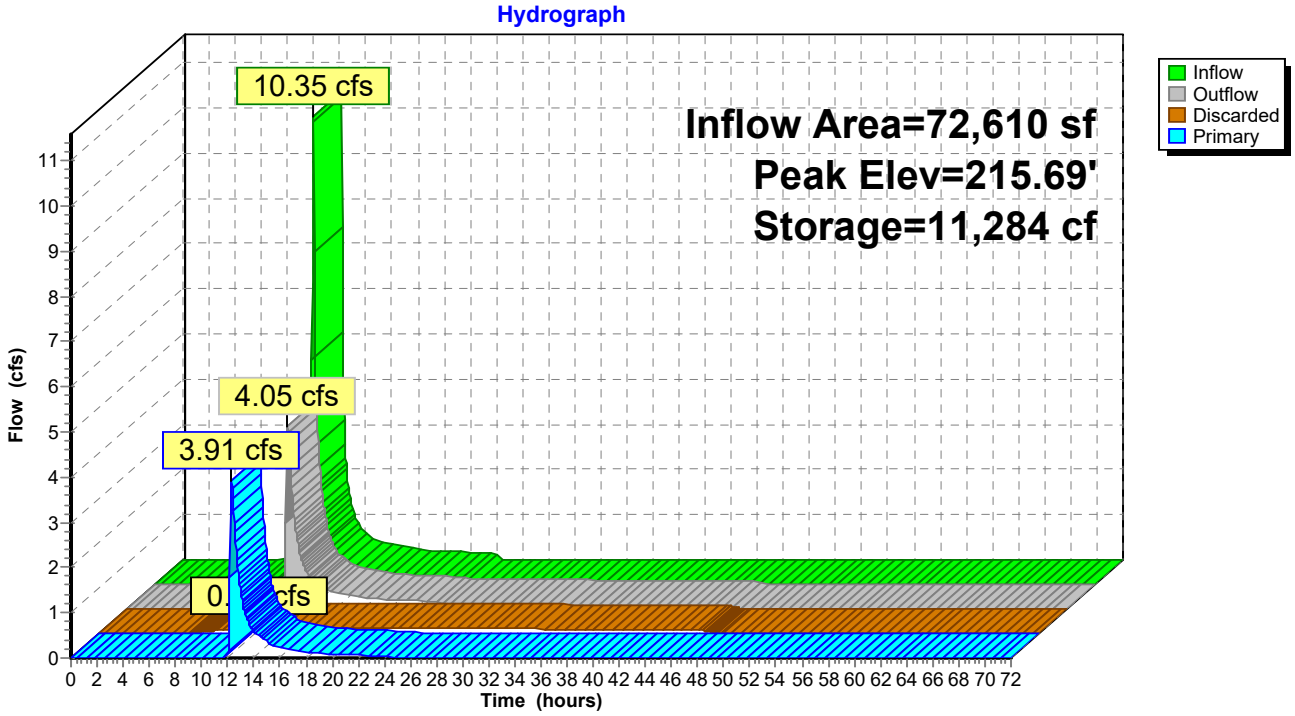
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
215.00	11,775	0	0
215.50	18,112	7,472	7,472
216.00	27,712	11,456	18,928

Device	Routing	Invert	Outlet Devices
#1	Discarded	215.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	215.50'	**20.0' long x 5.0' breadth Overflow** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.14 cfs @ 12.30 hrs HW=215.69' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=3.90 cfs @ 12.30 hrs HW=215.69' (Free Discharge)
↑—**2=Overflow** (Weir Controls 3.90 cfs @ 1.02 fps)

Pond 1P:


Hydrograph
10.35 cfs
4.05 cfs
3.91 cfs
Inflow Area=72,610 sf
Peak Elev=215.69'
Storage=11,284 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

INFILTRATION BASIN STAGE-STORAGE TABLE

Stage-Area-Storage for Pond 1P:

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
215.00	11,775	0
215.01	11,902	118
215.02	12,028	238
215.03	12,155	359
215.04	12,282	481
215.05	12,409	605
215.06	12,535	729
215.07	12,662	855
215.08	12,789	983
215.09	12,916	1,111
215.10	13,042	1,241
215.11	13,169	1,372
215.12	13,296	1,504
215.13	13,423	1,638
215.14	13,549	1,773
215.15	13,676	1,909
215.16	13,803	2,046
215.17	13,930	2,185
215.18	14,056	2,325
215.19	14,183	2,466
215.20	14,310	2,608
215.21	14,437	2,752
215.22	14,563	2,897
215.23	14,690	3,043
215.24	14,817	3,191
215.25	14,944	3,340
215.26	15,070	3,490
215.27	15,197	3,641
215.28	15,324	3,794
215.29	15,450	3,948
215.30	15,577	4,103
215.31	15,704	4,259
215.32	15,831	4,417
215.33	15,957	4,576
215.34	16,084	4,736
215.35	16,211	4,898
215.36	16,338	5,060
215.37	16,464	5,224
215.38	16,591	5,390
215.39	16,718	5,556
215.40	16,845	5,724
215.41	16,971	5,893
215.42	17,098	6,063
215.43	17,225	6,235
215.44	17,352	6,408
215.45	17,478	6,582
215.46	17,605	6,757
215.47	17,732	6,934
215.48	17,859	7,112
215.49	17,985	7,291
215.50	18,112	7,472
215.51	18,304	7,654
215.52	18,496	7,838
215.53	18,688	8,024
215.54	18,880	8,212
215.55	19,072	8,401
215.56	19,264	8,593
215.57	19,456	8,787
215.58	19,648	8,982
215.59	19,840	9,180
215.60	20,032	9,379
215.61	20,224	9,580
215.62	20,416	9,783
215.63	20,608	9,989
215.64	20,800	10,196
215.65	20,992	10,405
215.66	21,184	10,615
215.67	21,376	10,828
215.68	21,568	11,043
215.69	21,760	11,260
215.70	21,952	11,478
215.71	22,144	11,699
215.72	22,336	11,921
215.73	22,528	12,145
215.74	22,720	12,372
215.75	22,912	12,600
215.76	23,104	12,830
215.77	23,296	13,062
215.78	23,488	13,296
215.79	23,680	13,532
215.80	23,872	13,769
215.81	24,064	14,009
215.82	24,256	14,251
215.83	24,448	14,494
215.84	24,640	14,740
215.85	24,832	14,987
215.86	25,024	15,236
215.87	25,216	15,487
215.88	25,408	15,741
215.89	25,600	15,996
215.90	25,792	16,253
215.91	25,984	16,511
215.92	26,176	16,772
215.93	26,368	17,035
215.94	26,560	17,300
215.95	26,752	17,566
215.96	26,944	17,835
215.97	27,136	18,105
215.98	27,328	18,377
215.99	27,520	18,652
216.00	**27,712**	**18,928**

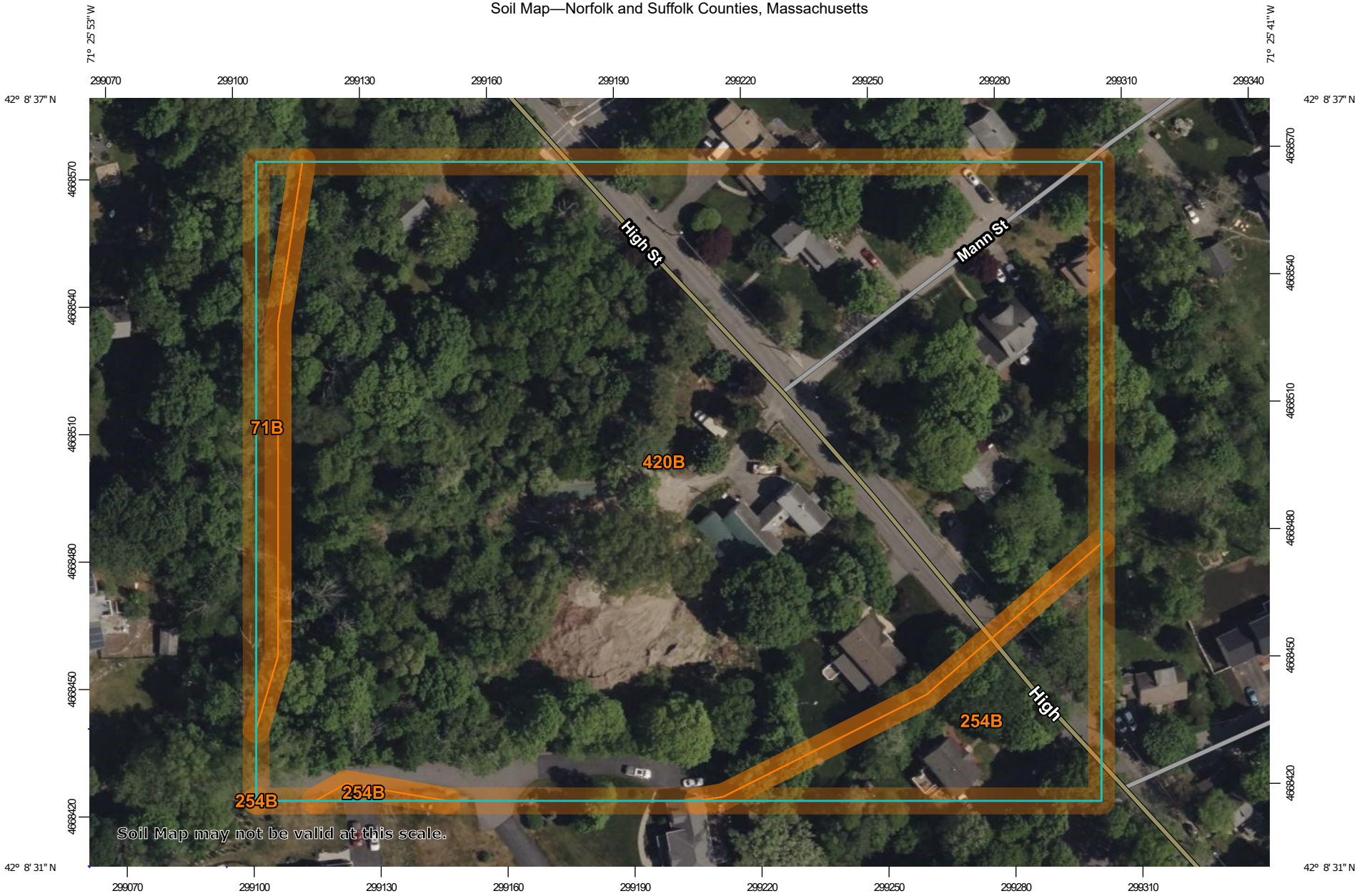
INFILTRATION BASIN DRAIN DOWN TABLE

Hydrograph for Pond 1P:

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	215.00	0.00	0.00	0.00
2.50	0.00	0	215.00	0.00	0.00	0.00
5.00	0.00	0	215.00	0.00	0.00	0.00
7.50	0.02	20	215.00	0.01	0.01	0.00
10.00	**0.20**	**347**	**215.03**	**0.08**	**0.08**	**0.00**
12.50	**2.12**	**10,621**	**215.66**	**3.13**	**0.13**	**3.00**
15.00	0.41	8,191	215.54	0.48	0.12	0.36
17.50	0.26	7,896	215.52	0.28	0.12	0.17
20.00	0.20	7,751	215.52	0.21	0.12	0.09
22.50	0.16	7,679	215.51	0.17	0.11	0.06
25.00	0.00	7,240	215.49	0.11	0.11	0.00
27.50	0.00	6,251	215.43	0.11	0.11	0.00
30.00	0.00	5,301	215.37	0.10	0.10	0.00
32.50	0.00	4,392	215.32	0.10	0.10	0.00
35.00	0.00	3,523	215.26	0.09	0.09	0.00
37.50	0.00	2,694	215.21	0.09	0.09	0.00
40.00	0.00	1,904	215.15	0.09	0.09	0.00
42.50	0.00	1,155	215.09	0.08	0.08	0.00
45.00	0.00	447	215.04	0.08	0.08	0.00
47.50	0.00	6	215.00	0.00	0.00	0.00
50.00	0.00	0	215.00	0.00	0.00	0.00
52.50	0.00	0	215.00	0.00	0.00	0.00
55.00	0.00	0	215.00	0.00	0.00	0.00
57.50	0.00	0	215.00	0.00	0.00	0.00
60.00	0.00	0	215.00	0.00	0.00	0.00
62.50	0.00	0	215.00	0.00	0.00	0.00
65.00	0.00	0	215.00	0.00	0.00	0.00
67.50	0.00	0	215.00	0.00	0.00	0.00
70.00	0.00	0	215.00	0.00	0.00	0.00

APPENDIX C

NRCS Soils Report



Map Scale: 1:1,270 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony	0.2	2.5%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	0.6	8.2%
420B	Canton fine sandy loam, 3 to 8 percent slopes	6.7	89.3%
Totals for Area of Interest		**7.5**	**100.0%**

Norfolk and Suffolk Counties, Massachusetts

420B—Canton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81b
Elevation: 0 to 1,180 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Canton and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Hills, moraines, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Scituate
Percent of map unit: 10 percent
Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Montauk
Percent of map unit: 5 percent
Landform: Moraines, ground moraines, hills, drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Charlton
Percent of map unit: 4 percent
Landform: Ridges, ground moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Swansea
Percent of map unit: 1 percent
Landform: Marshes, depressions, bogs, swamps, kettles
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 19, Sep 10, 2023

Commonwealth of Massachusetts
City/Town of
Form 11 - Soil Suitability Assessment ~~for On-Site Sewage Disposal~~

21 High St. Medway 11/30/18

C. On-Site Review (continued)

Deep Observation Hole Number: Tp 11

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-11	A	10YR3/2	-	—	—	FSl	-	-	Common Granular	Friable	—
11-23	B	10YR 6/6	-	—	-	FSl	-	-	Somewhat blocky	friable	—
23-72	C	10YR 7/1	25	7.5YR 6/6	10%	SiL* 100m	5%	7%	massive	friable	—

Additional Notes:

* some sand/loam mixed in with silt loam matrix at 25

APPENDIX D

TSS Removal Calculations

INSTRUCTIONS:
1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: HIGH STREET, MEDWAY 1P

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Street Sweeping - 5%	0.05	1.00	0.05	0.95
Vegetated Filter Strip >50 feet	0.45	0.95	0.43	0.52
Infiltration Basin	0.80	0.52	0.42	0.10
	0.00	0.10	0.00	0.10
	0.00	0.10	0.00	0.10

Total TSS Removal = 90%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 2023-023
Prepared By: RLB
Date: 19-Dec-23

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

APPENDIX E
ILLICIT DISCHARGE STATEMENT

ILLICIT DISCHARGE COMPLIANCE STATEMENT

In accordance with the Wetland Regulations found in 310 CMR 10.05(6) and the Massachusetts Stormwater Handbook published by the Massachusetts Department of Environmental Protection, the stormwater management system for the proposed project located at 21 High Street, Medway, Massachusetts shall accept no illicit discharges. Illicit discharges are defined as discharges not entirely comprised of stormwater and include, but are not limited to, wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease.

Should any illicit discharges enter the stormwater management system after construction has been completed, immediate steps to remove the discharges and their source shall be taken to return the system to its proper working state.

Michael Larkin
Medway Development, LLC

December 21, 2023
Date