DRPILLA
CONSULTING ENGINEERS
- DOMINICK R. PILLA ASSOCIATES -

STORMWATER MANAGEMENT PLAN

LOCATED AT

80 S BROADWAY
NYACK, NY 10960

ISSUED:
January 12, 2026

DRP PROJECT No:
22-143

PREPARED FOR:

TOM MURRAY
80 S BROADWAY
NYACK, NY 10960

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INTRODUCTION

The existing site is located in Nyack, NY on the west side of South Broadway. The property is currently used as a gas station with six pumps and has a one-story masonry building with a footprint of approximately 1,984 sqft. The property extends 108.89' back from South Broadway along the south property line and 103.83' back from South Broadway along the north property line. The west property line sits diagonally with a length of 112.79' and the east property line runs along South Broadway a length of 113.0'. The existing building site is relatively flat sloping slightly from the west property line to the east property line at South Broadway. The high point of the site at the southwest corner of the property is 60.9'(NAVD88). The low point of the site is at the northeast corner of the property at 57.7' (NAVD88).

The existing site is currently all impervious area made up of the roof of the existing building, the paved parking area, and the concrete pads around the gas pumps. The existing site will be redeveloped to include a new 3-story mixed use building with a green roof, a parking area, and a new planting bed. The existing building will be removed and all gas pumps and underground fuel tanks will be removed as well. After development, the site will be primarily the same elevation as the existing conditions. The area of disturbance of the site is the entire site measuring 12,001 sqft.

Due to the implementation of the green roof and planting beds, the impervious area on site is decreasing. The proposed green roof provides enough storage and treatment to meet the New York State Stormwater Design Manual requirements for redevelopment activities.

The existing soil is categorized as a mixture of Hydrologic Soil Group (HSG) C. Based on USDA Natural Resources Conservation Service (NRCS) information.

SITE CONDITIONS

Based on United States Geological Survey data (attached), Hydraulic Soil Group C, has been used for this analysis. The existing site is 100% impervious. No storm drains currently exist at the property. All stormwater runoff currently sheet flows to the street on Broadway and down to the storm inlet located in front of 72 Broadway.

PROPOSED ACTIONS

This site is being redeveloped in accordance with Chapter 9 of the NYS SMDM. Accordingly, 25% of the WQv shall be provided for all existing impervious surfaces to remain. As the

redevelopment activity results in a decrease in the discharge rate from the site, the ten and hundred year criteria do not apply. Channel protection requirements also do not apply.

The plan proposes a reduction in impervious cover by 5,514 sqft (45% of overall site area) through the introduction of planting beds and green roof areas. Runoff reduction is provided through the implementation of green roof areas.

The proposed site plan involves an increase in roof area by 3,831 sqft and a decrease in paved area by 9,345 sqft. The net decrease in impervious area due to the redevelopment activities is 5,514 sqft. In order to meet the New York State requirements for water quality outlined in the redevelopment chapter of the stormwater manual, a green roof is being implemented to capture and treat at least 25% of the water quality volume while maintaining site stormwater runoff below existing conditions. There is a proposed overflow from the green roof which will connect to a proposed new manhole and storm sewer line on Broadway. New storm line to discharge to Nyack Brook and eventually to Hudson River.

WATER QUALITY VOLUME CALCULATIONS:

WQv = [(P)(Rv)(A)]/12
= 0.001938 acre-feet
= 84.43038 cubic feet

25% of WQv = 21.11 cubic feet

P = 1.5 in (90% rainfall event number)
Rv = 0.05+0.009(I)
= 0.056282

I = 0.698025 (% impervious cover)

A = 0.275505 acres
= 12,001 sq ft
= 176.32 sq miles

GREEN ROOF CALCULATIONS:

Vsm = Agr X Dsm X Psm (soil media)
= 241.6 cubic feet
Vdl = Agr X Ddl X Pdl (drainage layer)
= 60.4 cubic feet

Agr = 5,275 sqft (green roof surface area
Dsm = 4.00 in (depth of soil media)
Ddl = 0.8 in (depth of drainage layer)
Psm = 0.2 (porosity of soil media)
Pdl = 0.25 (porosity of drainage layer)

Dp = 0.5 in (ponding depth)

Storage volume = Vsm + Vdl + (Dp X Agr)
= 453 cubic feet

Design ok if 25 % WQv < Actual Storage

21.11 cubic feet < 453 cubic feet
DESIGN OKAY

Proposed practices have been designed to accommodate runoff from the proposed development and will restrict peak runoff rate to that of pre-development conditions through reduction of impervious area. The flow calculations are based on these proposed site surface areas, relative to the pre-existing undeveloped conditions.

Area Location	Overall Shed areas-(Sqft)			
	Existing	Proposed	Decrease	Increase
Green Roof area	0	5,275	-	5,275
Paved area	10,017	672	9,345	-
Roof top	1,984	5,815	-	3,831
Total	12,001	12,001	-	-

Table 1

HYDROCAD ANALYSIS AND SYSTEM DESIGN

A HydroCAD analysis has been performed to evaluate the pre-development (**Appendix II**) and post-development (**Appendix III**) site hydrology. The runoff volume and peak flow rates for the 10-, 25-, and 100-year design storms have been calculated. Peak flow out of the system for these storms has been maintained below pre-development runoff conditions. The system has been designed to achieve a zero increase in runoff, up to the 100-year storm.

The effects of the added impervious area on the stormwater runoff volumes were analyzed using the sub-catchment area method. This method involves establishing an area of interest for which the stormwater runoff is estimated to flow through on the proposed lot. This area is defined as the area of the surface from which runoff is tributary to the system. This established area of interest is then further broken down by permeability into sub-areas. A curve number is assigned to each sub-area corresponding to the ability of the soil and surface condition to accept stormwater infiltration.

This area of interest is transposed onto the existing site plan and used in direct comparison with the proposed work. After calculations and HydroCAD analysis, the results provide an accurate understanding of the expected increase in stormwater runoff anticipated from the proposed impervious areas based on the various design storms.

This HydroCAD analysis has been updated to include a minimum time of concentration (Tc) value of 5 minutes. HydroCAD allows the designer to input a minimum Tc value on the calculation settings screen. For each subcatchment area modeled in HydroCAD, the program automatically calculates the "true" Tc for that subcatchment based on the length of flow, slope, and some constants. If the true Tc is lower than the required minimum, HydroCAD will then automatically increase the Tc value to the minimum as required. In this case, any true Tc below 5 minutes will automatically adjust to be 5 minutes. Since the site isn't very large, most of the "true" Tc values for each individual subcatchment area is under 5 minutes, so almost all have been increased to 5 minutes by the program.

As described in detail in the attached calculations, the pre- and post-site outflow rates from the entire site for the 10-, 25-, and 100-year storms are shown below:

Storm Event	Total Pre-Developed		Total Post-Developed	
	Outflow-(cf)	Rate-(cfs)	Outflow-(cf)	Rate-(cfs)
10 - (years)	4,305	**1.64**	3,636	**0.95**
25- (years)	5,439	**1.98**	4,794	**1.17**
100- (years)	7,717	**2.62**	7,184	**1.59**

Table 3

HydroCad Runs:
No.1: Pre-Developed Condition (Appendix II)
No.2: Post-Developed Condition (Appendix III)

APPENDIX I
USDA NRCS SOIL MAP

United States Department of Agriculture

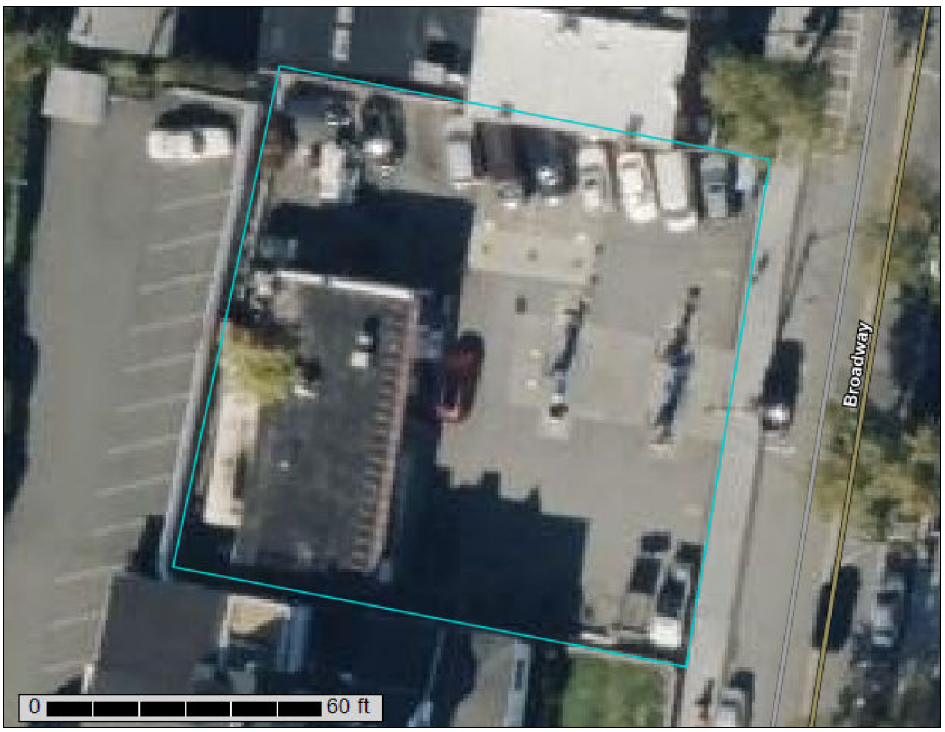
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rockland County, New York

80 S BROADWAY



November 16, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:308 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 4 9 18 27

Feet
0 10 20 40 60

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Rockland County, New York
Survey Area Data: Version 21, Sep 6, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

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
WuB	Wethersfield-Urban land complex, 2 to 8 percent slopes	0.0	15.3%
WuC	Wethersfield-Urban land complex, 8 to 15 percent slopes	0.2	84.7%
Totals for Area of Interest		**0.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rockland County, New York

WuB—Wethersfield-Urban land complex, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9v5p
Elevation: 0 to 710 feet
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Wethersfield and similar soils: 50 percent
Urban land: 25 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wethersfield

Setting

Landform: Till plains, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

Typical profile

H1 - 0 to 13 inches: gravelly silt loam
H2 - 13 to 22 inches: gravelly loam
H3 - 22 to 60 inches: gravelly fine sandy loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 38 inches to densic material
Drainage class: Well drained
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 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F145XY012CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Charlton

Percent of map unit: 5 percent
Hydric soil rating: No

Cheshire

Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 5 percent
Hydric soil rating: No

Wallington

Percent of map unit: 5 percent
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

WuC—Wethersfield-Urban land complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9v5q
Elevation: 0 to 690 feet
Mean annual precipitation: 47 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Wethersfield and similar soils: 60 percent
Urban land: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wethersfield

Setting

Landform: Till plains, hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex

Across-slope shape: Convex
Parent material: Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

Typical profile
H1 - 0 to 13 inches: gravelly silt loam
H2 - 13 to 22 inches: gravelly loam
H3 - 22 to 60 inches: gravelly fine sandy loam

Properties and qualities
Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 38 inches to densic material
Drainage class: Well drained
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 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F145XY012CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Urban Land

Typical profile
H1 - 0 to 6 inches: variable

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Charlton
Percent of map unit: 5 percent
Hydric soil rating: No

Cheshire
Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead
Percent of map unit: 5 percent
Hydric soil rating: No

Udorthents
Percent of map unit: 3 percent
Hydric soil rating: No

Wallington
Percent of map unit: 2 percent
Hydric soil rating: No

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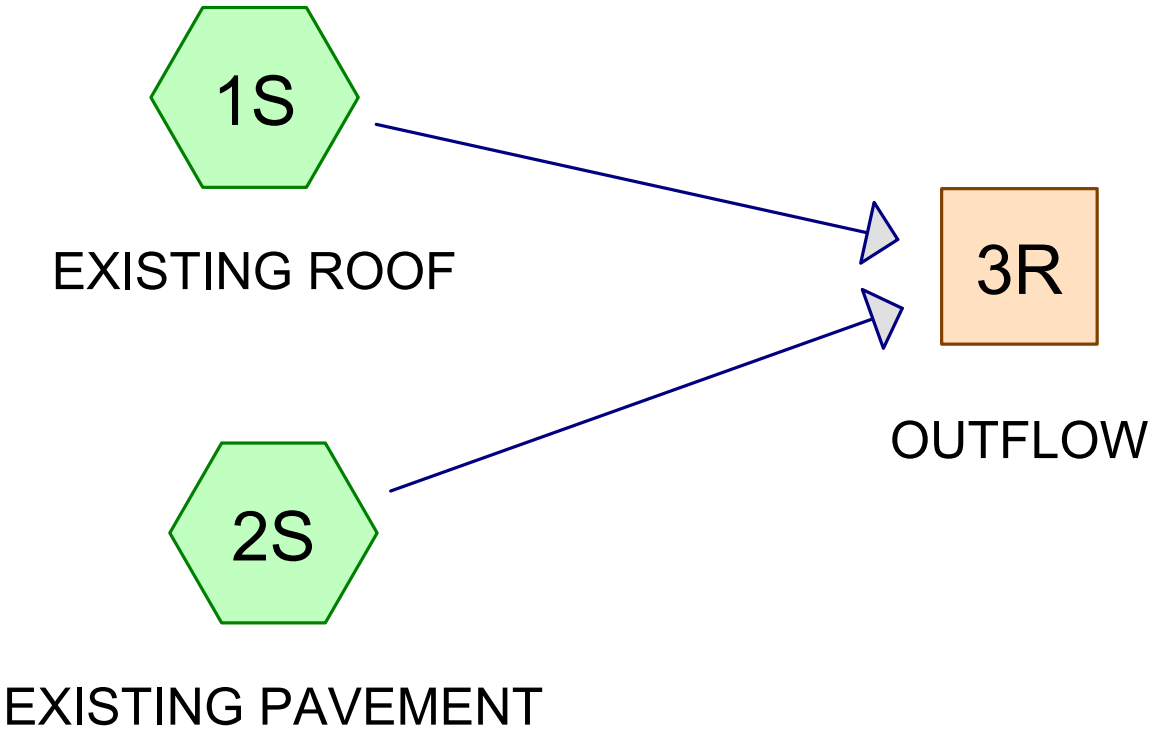
APPENDIX II

RUN-1 – HYDROCAD ANALYSIS OF EXISTING (PRE-DEVELOPMENT) CONDITIONS



Subcat Reach Pond Link

Routing Diagram for 22-143_80 S BROADWAY_EXISTING
Prepared by HP Inc., Printed 6/5/2024

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
10,017	98	Paved parking, HSG A (2S)
1,984	98	Roofs, HSG A (1S)
12,001	**98**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
12,001	HSG A	1S, 2S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
12,001		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchmen Numbers
10,017	0	0	0	0	10,017	Paved parking	2
1,984	0	0	0	0	1,984	Roofs	1
12,001	**0**	**0**	**0**	**0**	**12,001**	**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

Subcatchment 1S: EXISTING ROOF Runoff Area=1,984 sf 100.00% Impervious Runoff Depth>4.31"
Flow Length=30' Slope=0.0200 '/' Tc=0.4 min CN=98 Runoff=0.27 cfs 712 cf

Subcatchment 2S: EXISTING PAVEMENT Runoff Area=10,017 sf 100.00% Impervious Runoff Depth>4.31"
Flow Length=103' Slope=0.0200 '/' Tc=1.2 min CN=98 Runoff=1.37 cfs 3,594 cf

Reach 3R: OUTFLOW Inflow=1.64 cfs 4,305 cf
Outflow=1.64 cfs 4,305 cf

Total Runoff Area = 12,001 sf Runoff Volume = 4,305 cf Average Runoff Depth = 4.31"
0.00% Pervious = 0 sf 100.00% Impervious = 12,001 sf

Summary for Subcatchment 1S: EXISTING ROOF

[49] Hint: Tc<2dt may require smaller dt

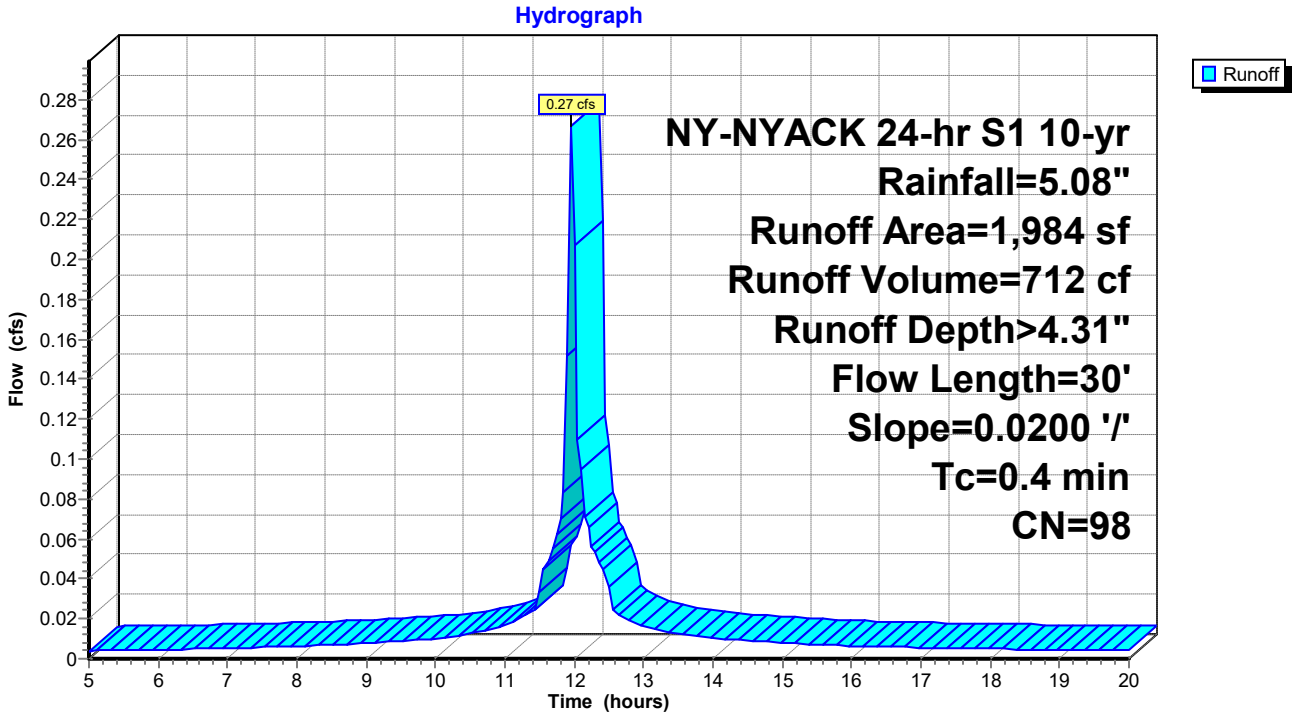
Runoff = 0.27 cfs @ 11.96 hrs, Volume= 712 cf, Depth> 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 10-yr Rainfall=5.08"

Area (sf)	CN	Description
1,984	98	Roofs, HSG A
1,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 1S: EXISTING ROOF



Summary for Subcatchment 2S: EXISTING PAVEMENT

[49] Hint: Tc<2dt may require smaller dt

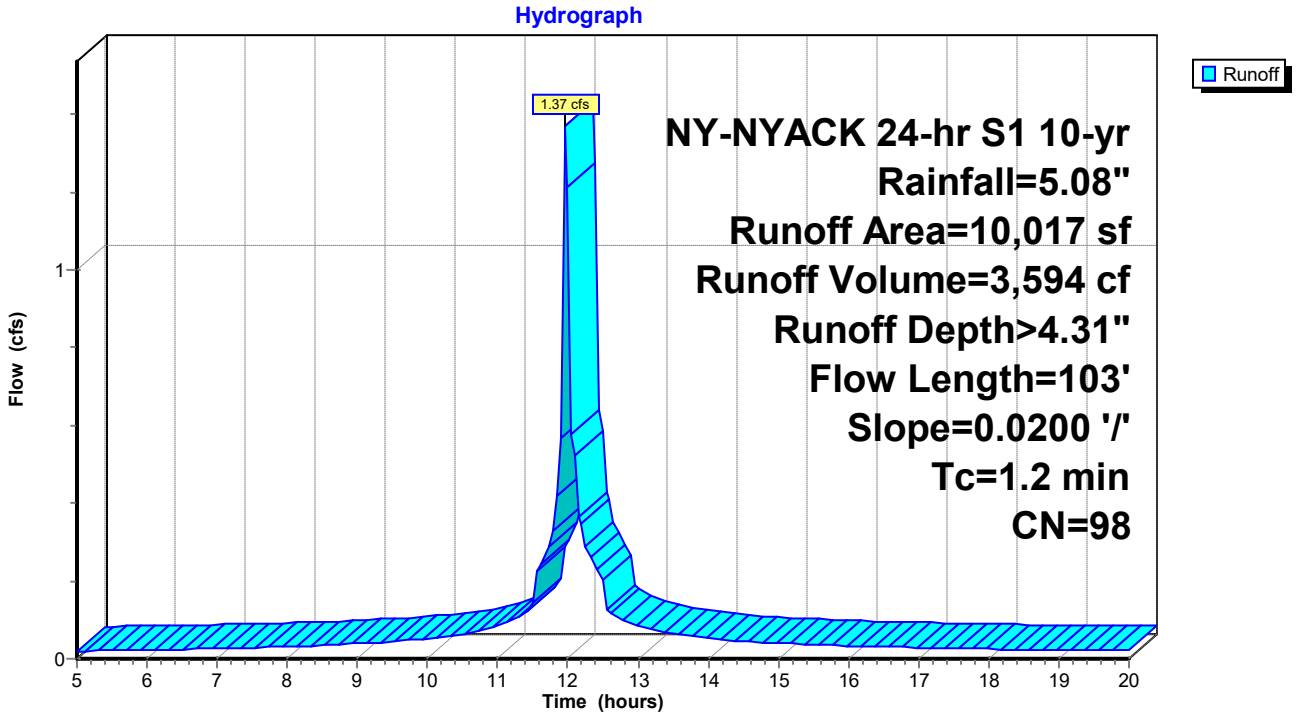
Runoff = 1.37 cfs @ 11.97 hrs, Volume= 3,594 cf, Depth> 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 10-yr Rainfall=5.08"

Area (sf)	CN	Description
10,017	98	Paved parking, HSG A
10,017		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	103	0.0200	1.43		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 2S: EXISTING PAVEMENT



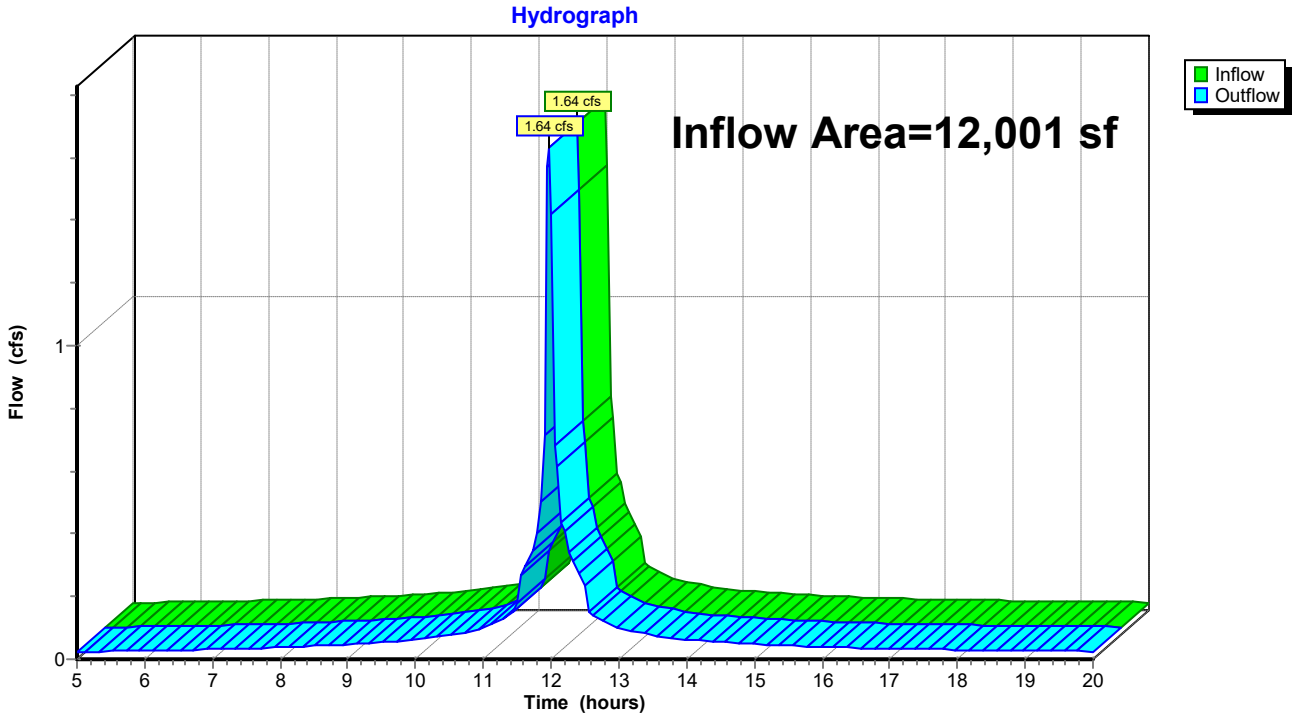
Summary for Reach 3R: OUTFLOW

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

Inflow Area = 12,001 sf,100.00% Impervious, Inflow Depth > 4.31" for 10-yr event
Inflow = 1.64 cfs @ 11.97 hrs, Volume= 4,305 cf
Outflow = 1.64 cfs @ 11.97 hrs, Volume= 4,305 cf, Atten= 0%, Lag= 0.0 min

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

Reach 3R: OUTFLOW



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

Subcatchment 1S: EXISTING ROOF Runoff Area=1,984 sf 100.00% Impervious Runoff Depth>5.44"
Flow Length=30' Slope=0.0200 '/' Tc=0.4 min CN=98 Runoff=0.32 cfs 899 cf

Subcatchment 2S: EXISTING PAVEMENT Runoff Area=10,017 sf 100.00% Impervious Runoff Depth>5.44"
Flow Length=103' Slope=0.0200 '/' Tc=1.2 min CN=98 Runoff=1.66 cfs 4,540 cf

Reach 3R: OUTFLOW Inflow=1.98 cfs 5,439 cf
Outflow=1.98 cfs 5,439 cf

Total Runoff Area = 12,001 sf Runoff Volume = 5,439 cf Average Runoff Depth = 5.44"
0.00% Pervious = 0 sf 100.00% Impervious = 12,001 sf

Summary for Subcatchment 1S: EXISTING ROOF

[49] Hint: Tc<2dt may require smaller dt

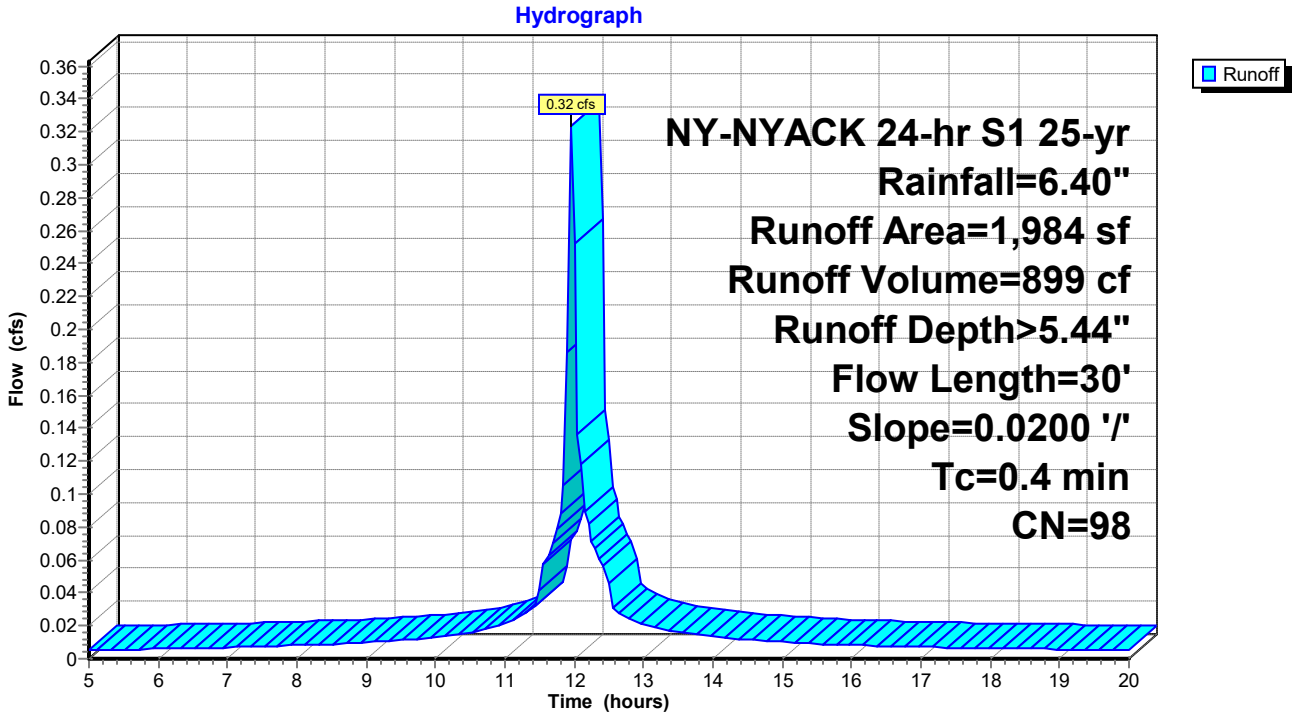
Runoff = 0.32 cfs @ 11.96 hrs, Volume= 899 cf, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 25-yr Rainfall=6.40"

Area (sf)	CN	Description
1,984	98	Roofs, HSG A
1,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 1S: EXISTING ROOF



Summary for Subcatchment 2S: EXISTING PAVEMENT

[49] Hint: Tc<2dt may require smaller dt

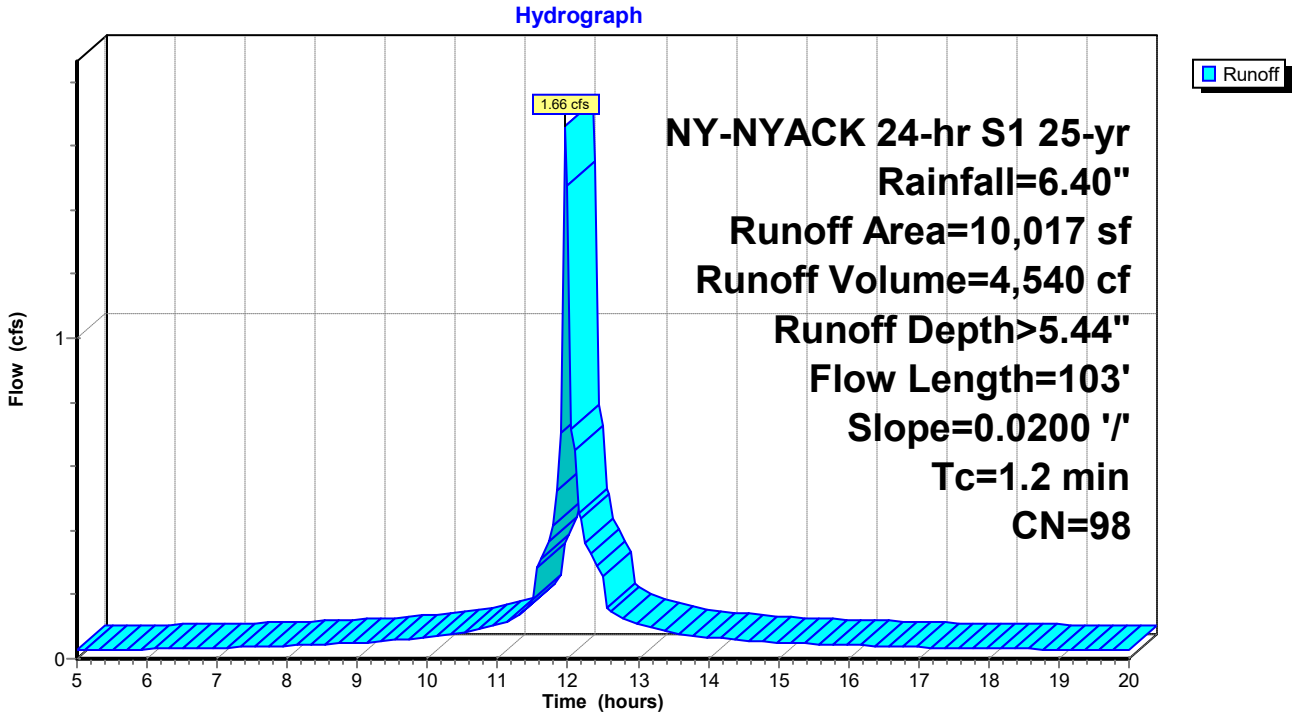
Runoff = 1.66 cfs @ 11.97 hrs, Volume= 4,540 cf, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 25-yr Rainfall=6.40"

Area (sf)	CN	Description
10,017	98	Paved parking, HSG A
10,017		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	103	0.0200	1.43		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 2S: EXISTING PAVEMENT



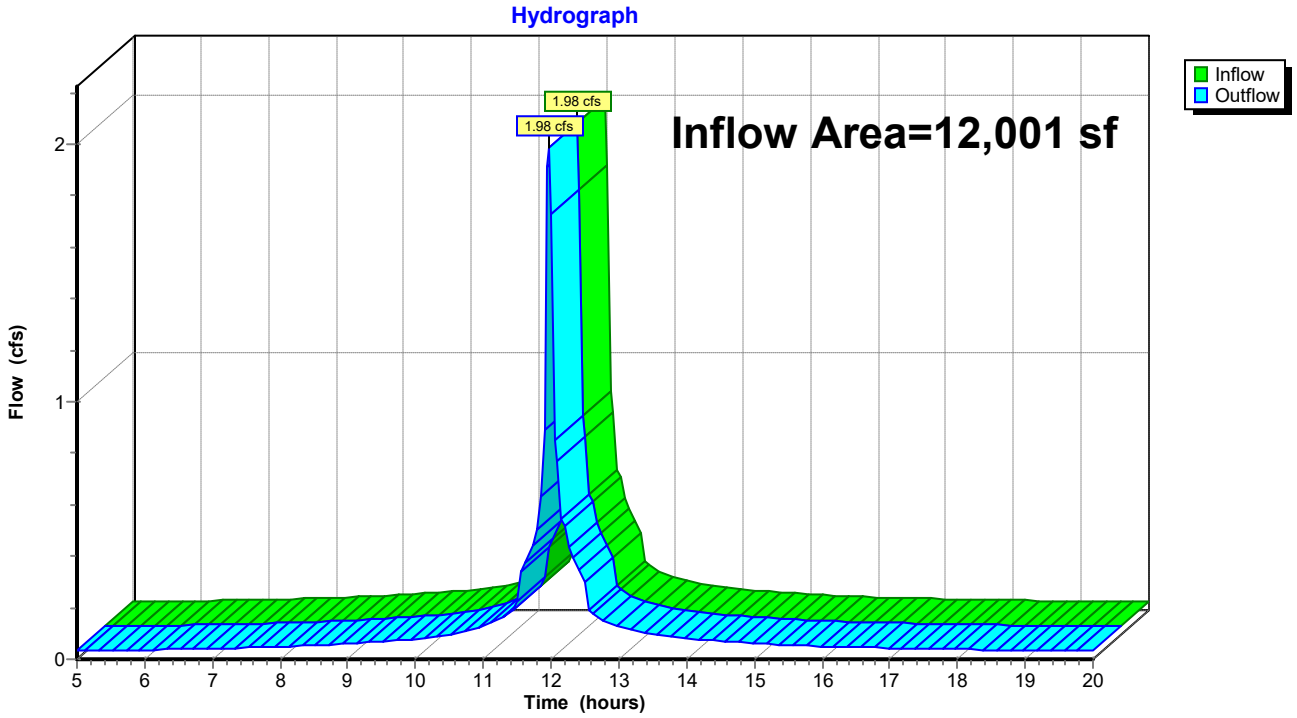
Summary for Reach 3R: OUTFLOW

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

Inflow Area = 12,001 sf,100.00% Impervious, Inflow Depth > 5.44" for 25-yr event
Inflow = 1.98 cfs @ 11.97 hrs, Volume= 5,439 cf
Outflow = 1.98 cfs @ 11.97 hrs, Volume= 5,439 cf, Atten= 0%, Lag= 0.0 min

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

Reach 3R: OUTFLOW



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

Subcatchment 1S: EXISTING ROOF Runoff Area=1,984 sf 100.00% Impervious Runoff Depth>7.72"
Flow Length=30' Slope=0.0200 '/' Tc=0.4 min CN=98 Runoff=0.43 cfs 1,276 cf

Subcatchment 2S: EXISTING PAVEMENT Runoff Area=10,017 sf 100.00% Impervious Runoff Depth>7.72"
Flow Length=103' Slope=0.0200 '/' Tc=1.2 min CN=98 Runoff=2.19 cfs 6,441 cf

Reach 3R: OUTFLOW Inflow=2.62 cfs 7,717 cf
Outflow=2.62 cfs 7,717 cf

Total Runoff Area = 12,001 sf Runoff Volume = 7,717 cf Average Runoff Depth = 7.72"
0.00% Pervious = 0 sf 100.00% Impervious = 12,001 sf

Summary for Subcatchment 1S: EXISTING ROOF

[49] Hint: Tc<2dt may require smaller dt

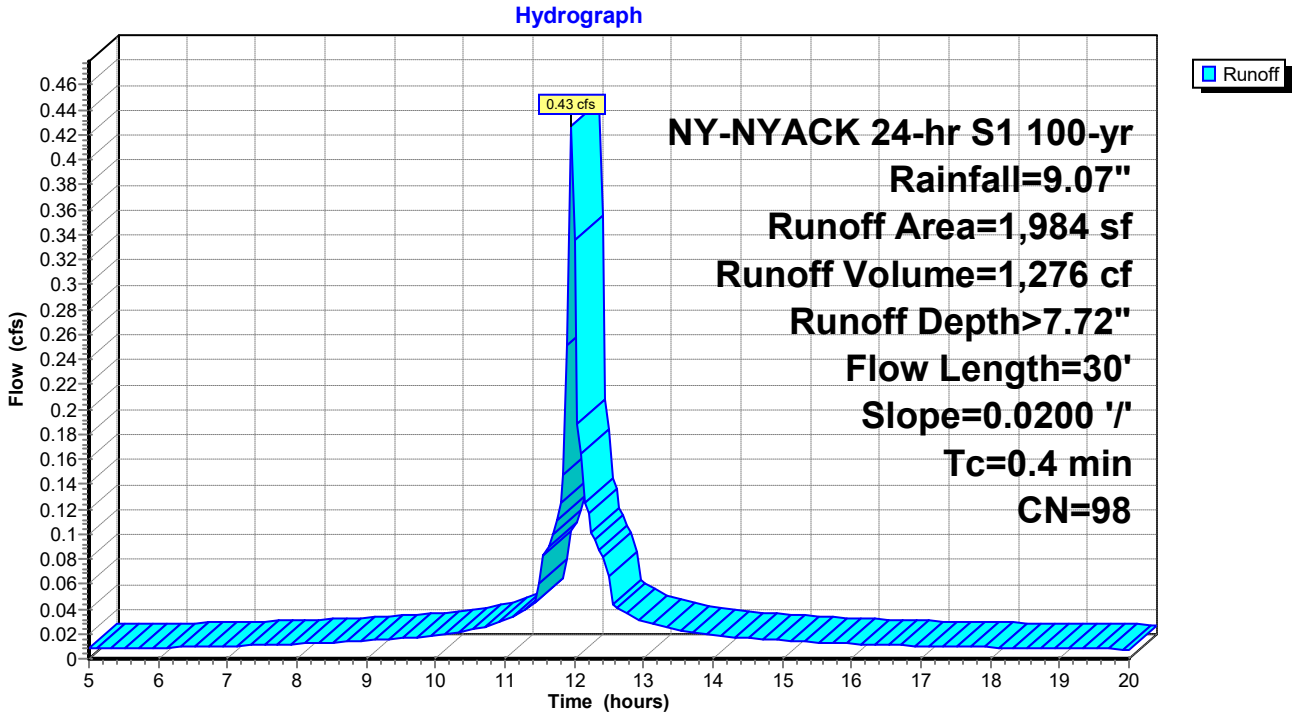
Runoff = 0.43 cfs @ 11.96 hrs, Volume= 1,276 cf, Depth> 7.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 100-yr Rainfall=9.07"

Area (sf)	CN	Description
1,984	98	Roofs, HSG A
1,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 1S: EXISTING ROOF



Summary for Subcatchment 2S: EXISTING PAVEMENT

[49] Hint: Tc<2dt may require smaller dt

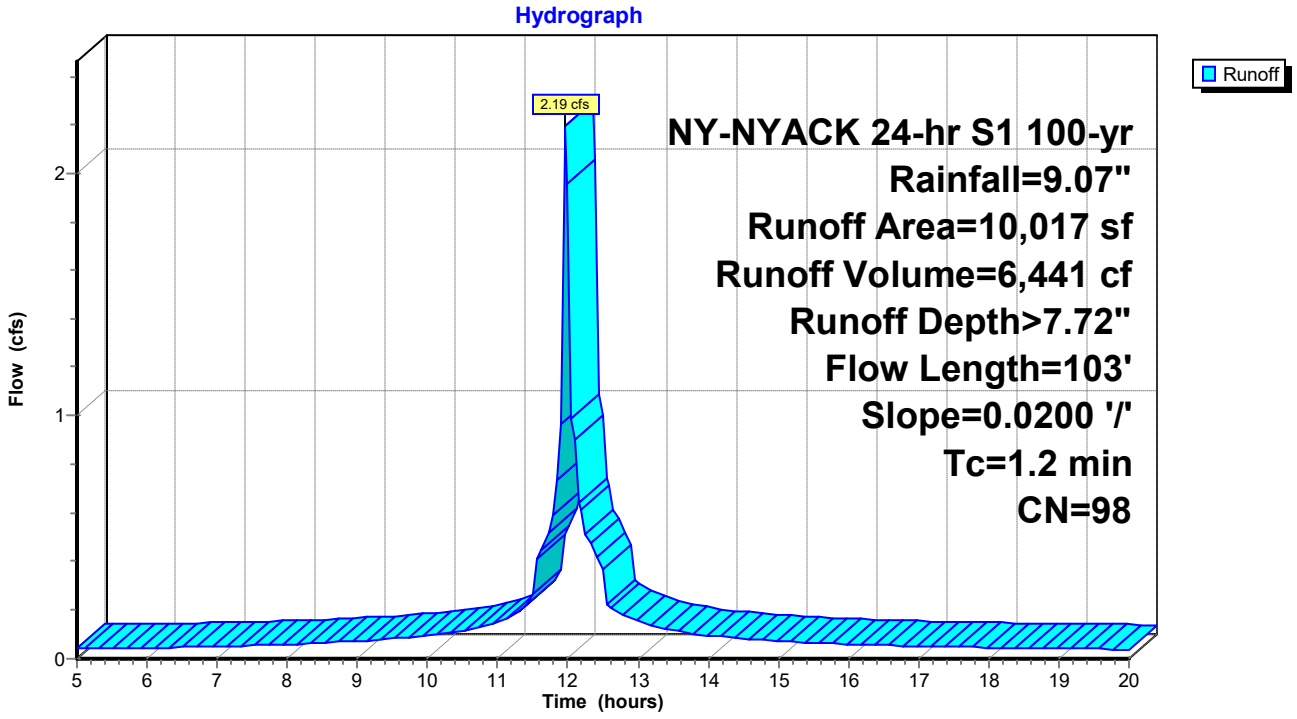
Runoff = 2.19 cfs @ 11.97 hrs, Volume= 6,441 cf, Depth> 7.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 100-yr Rainfall=9.07"

Area (sf)	CN	Description
10,017	98	Paved parking, HSG A
10,017		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	103	0.0200	1.43		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 2S: EXISTING PAVEMENT



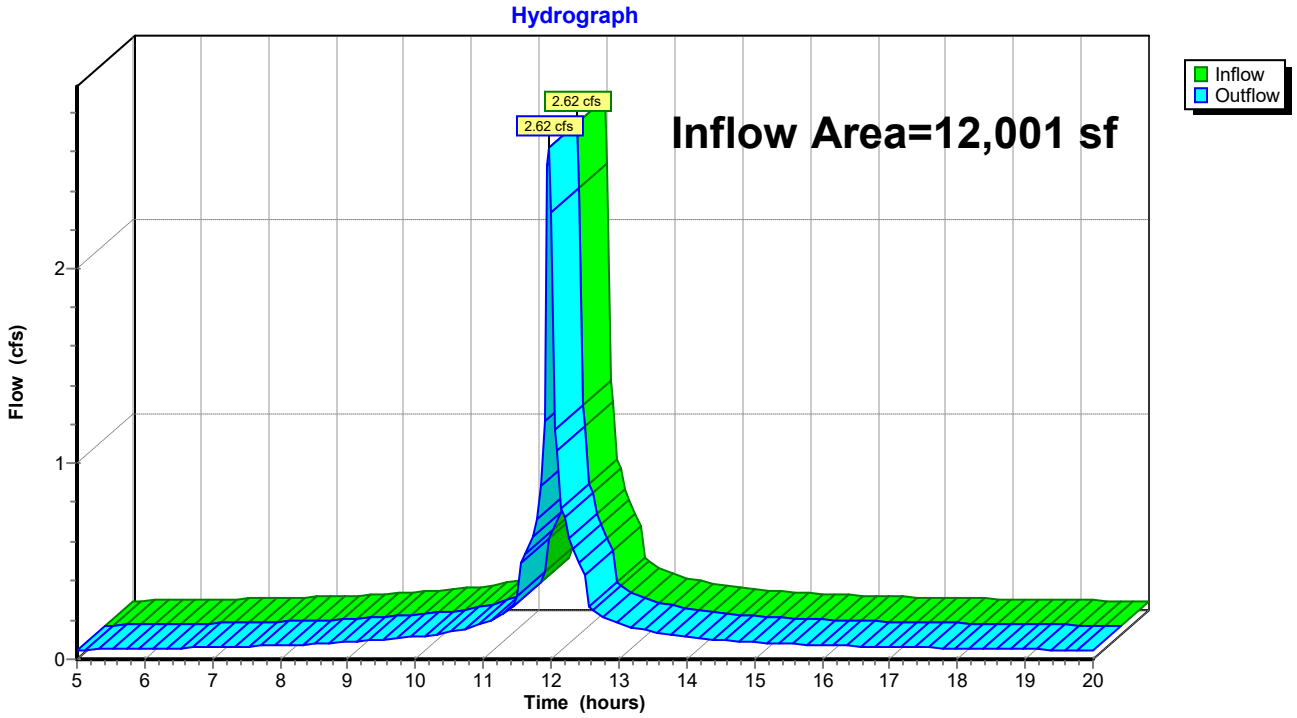
Summary for Reach 3R: OUTFLOW

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

Inflow Area = 12,001 sf,100.00% Impervious, Inflow Depth > 7.72" for 100-yr event
Inflow = 2.62 cfs @ 11.97 hrs, Volume= 7,717 cf
Outflow = 2.62 cfs @ 11.97 hrs, Volume= 7,717 cf, Atten= 0%, Lag= 0.0 min

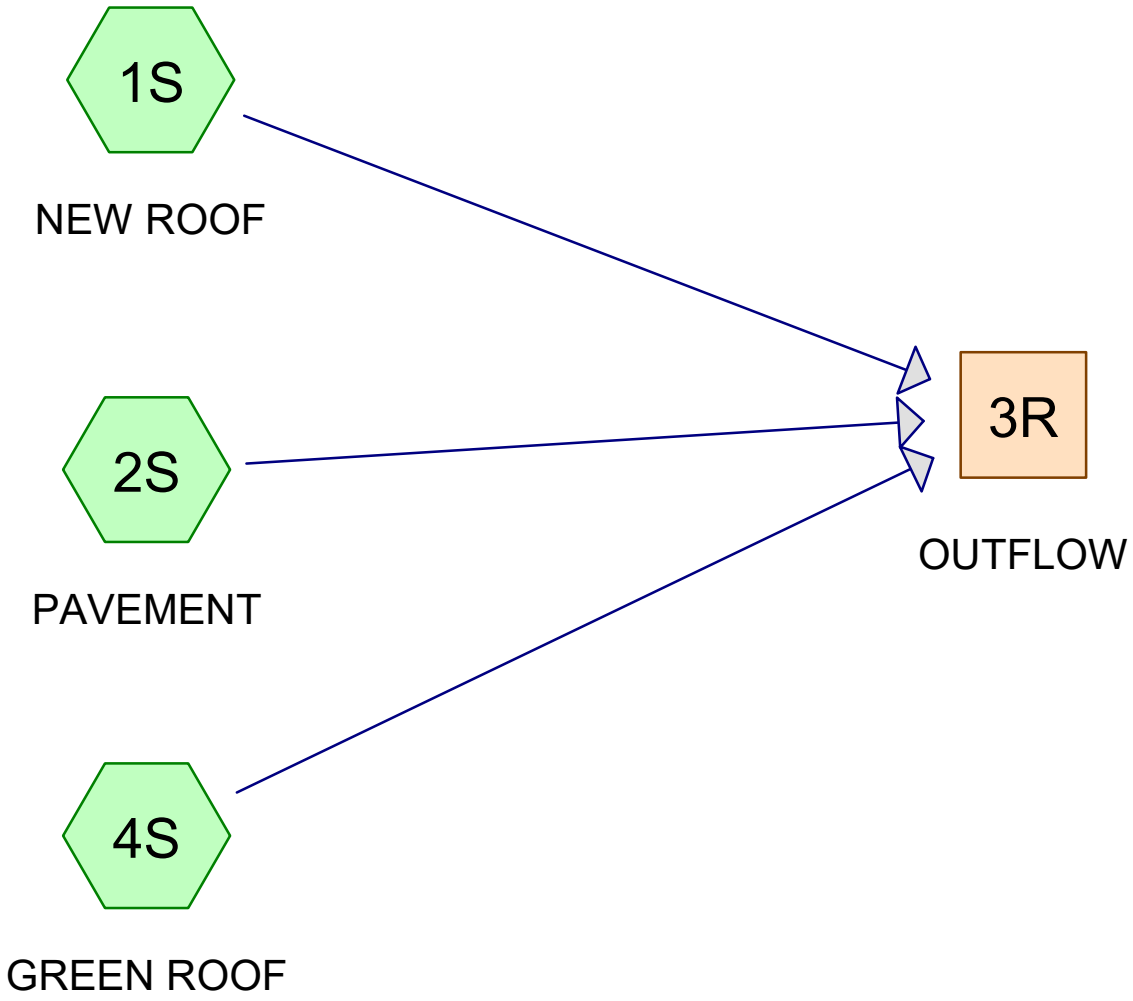
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: OUTFLOW



APPENDIX III

RUN-2 – HYDROCAD ANALYSIS OF PROPOSED (POST-DEVELOPMENT) CONDITIONS



Subcat Reach Pond Link

Routing Diagram for 22-143_80 S BROADWAY_PROPOSED_GREEN ROOF_3 story

Prepared by HP Inc., Printed 1/12/2026

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
5,514	79	<50% Grass cover, Poor, HSG B (4S)
672	98	Paved parking, HSG A (2S)
5,815	98	Roofs, HSG A (1S)
12,001	**89**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
6,487	HSG A	1S, 2S
5,514	HSG B	4S
0	HSG C	
0	HSG D	
0	Other	
12,001		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Nur
0	5,514	0	0	0	5,514	<50% Grass cover, Poor	
672	0	0	0	0	672	Paved parking	
5,815	0	0	0	0	5,815	Roofs	
6,487	**5,514**	**0**	**0**	**0**	**12,001**	**TOTAL AREA**	

Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NEW ROOF Runoff Area=5,815 sf 100.00% Impervious Runoff Depth>4.54"
Flow Length=40' Slope=0.0200 '/' Tc=0.6 min CN=98 Runoff=0.79 cfs 2,198 cf

Subcatchment 2S: PAVEMENT Runoff Area=672 sf 100.00% Impervious Runoff Depth>4.54"
Flow Length=15' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.09 cfs 254 cf

Subcatchment 4S: GREEN ROOF Runoff Area=5,514 sf 0.00% Impervious Runoff Depth>2.58"
Flow Length=100' Slope=0.0020 '/' Tc=23.9 min CN=79 Runoff=0.24 cfs 1,185 cf

Reach 3R: OUTFLOW Inflow=0.95 cfs 3,636 cf
Outflow=0.95 cfs 3,636 cf

Total Runoff Area = 12,001 sf Runoff Volume = 3,636 cf Average Runoff Depth = 3.64"
45.95% Pervious = 5,514 sf 54.05% Impervious = 6,487 sf

Summary for Subcatchment 1S: NEW ROOF

[49] Hint: Tc<2dt may require smaller dt

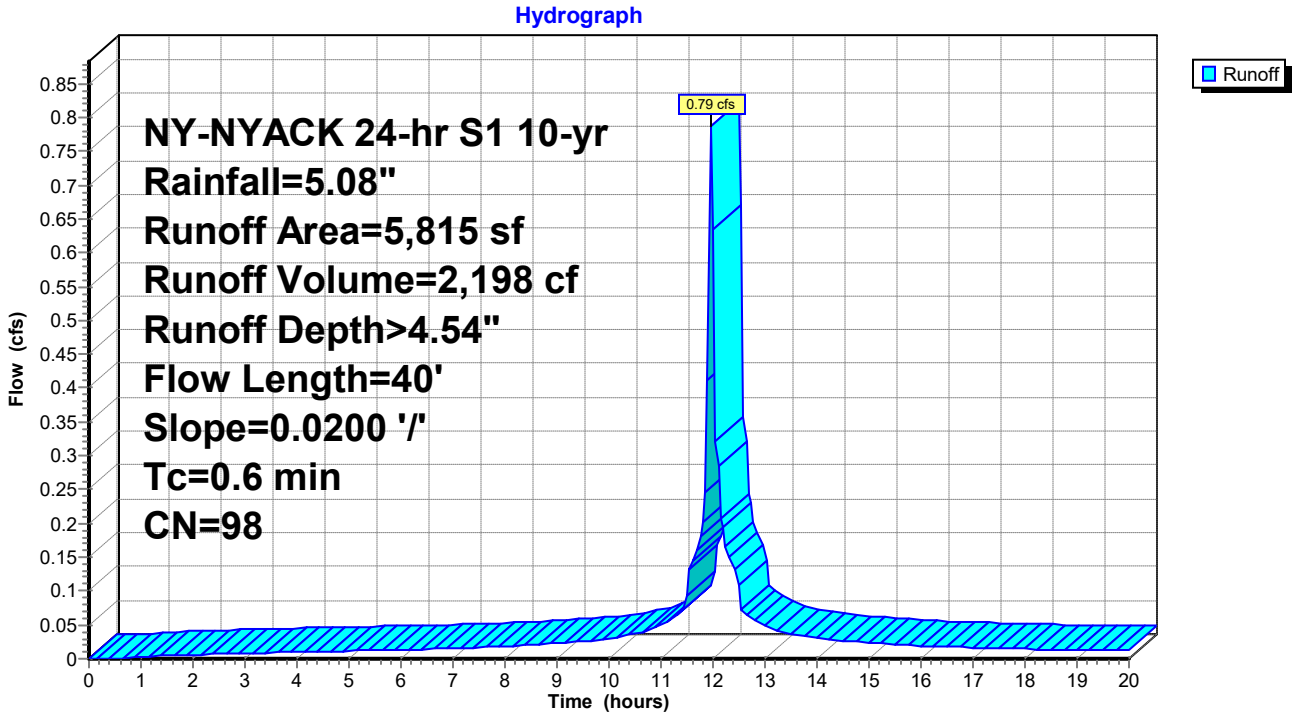
Runoff = 0.79 cfs @ 11.96 hrs, Volume= 2,198 cf, Depth> 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 10-yr Rainfall=5.08"

Area (sf)	CN	Description
5,815	98	Roofs, HSG A
5,815		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		**Sheet Flow, ROOF** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 1S: NEW ROOF



Summary for Subcatchment 2S: PAVEMENT

[49] Hint: Tc<2dt may require smaller dt

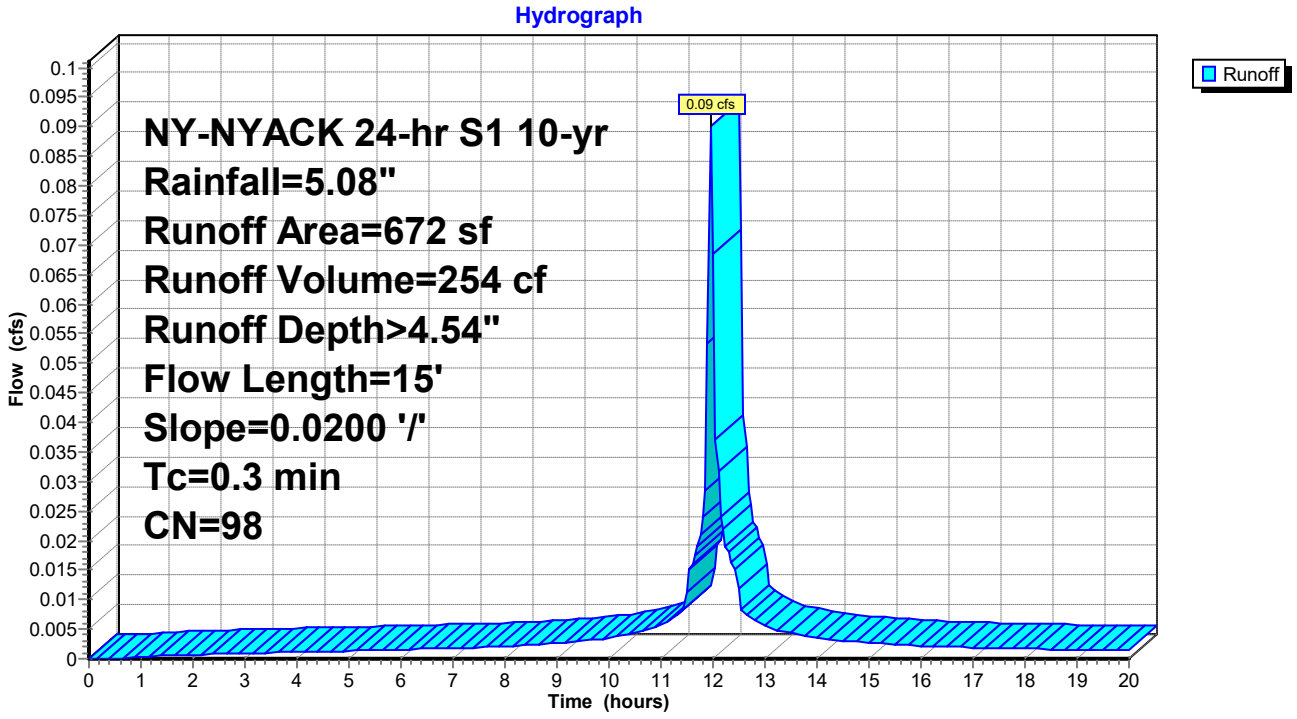
Runoff = 0.09 cfs @ 11.96 hrs, Volume= 254 cf, Depth> 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 10-yr Rainfall=5.08"

Area (sf)	CN	Description
672	98	Paved parking, HSG A
672		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	15	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 2S: PAVEMENT



Summary for Subcatchment 4S: GREEN ROOF

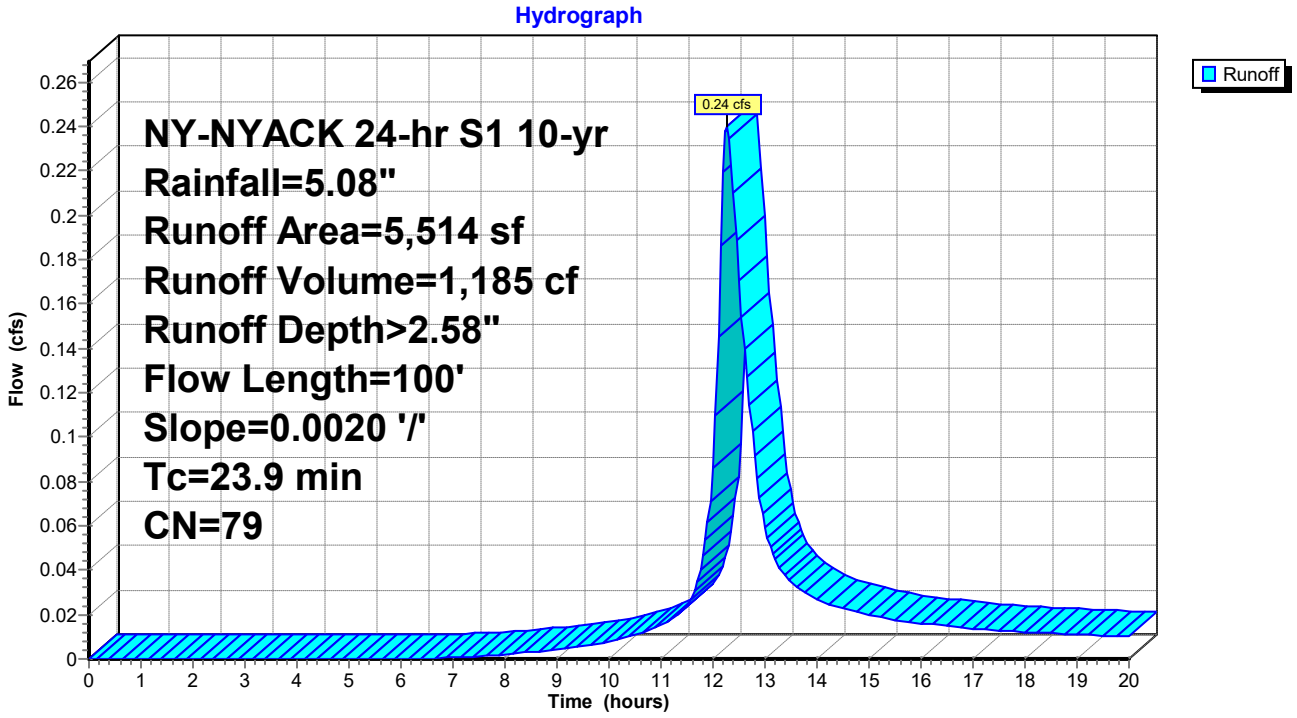
Runoff = 0.24 cfs @ 12.28 hrs, Volume= 1,185 cf, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 10-yr Rainfall=5.08"

Area (sf)	CN	Description
5,514	79	<50% Grass cover, Poor, HSG B
5,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	100	0.0020	0.07		**Sheet Flow, GREEN ROOF** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 4S: GREEN ROOF



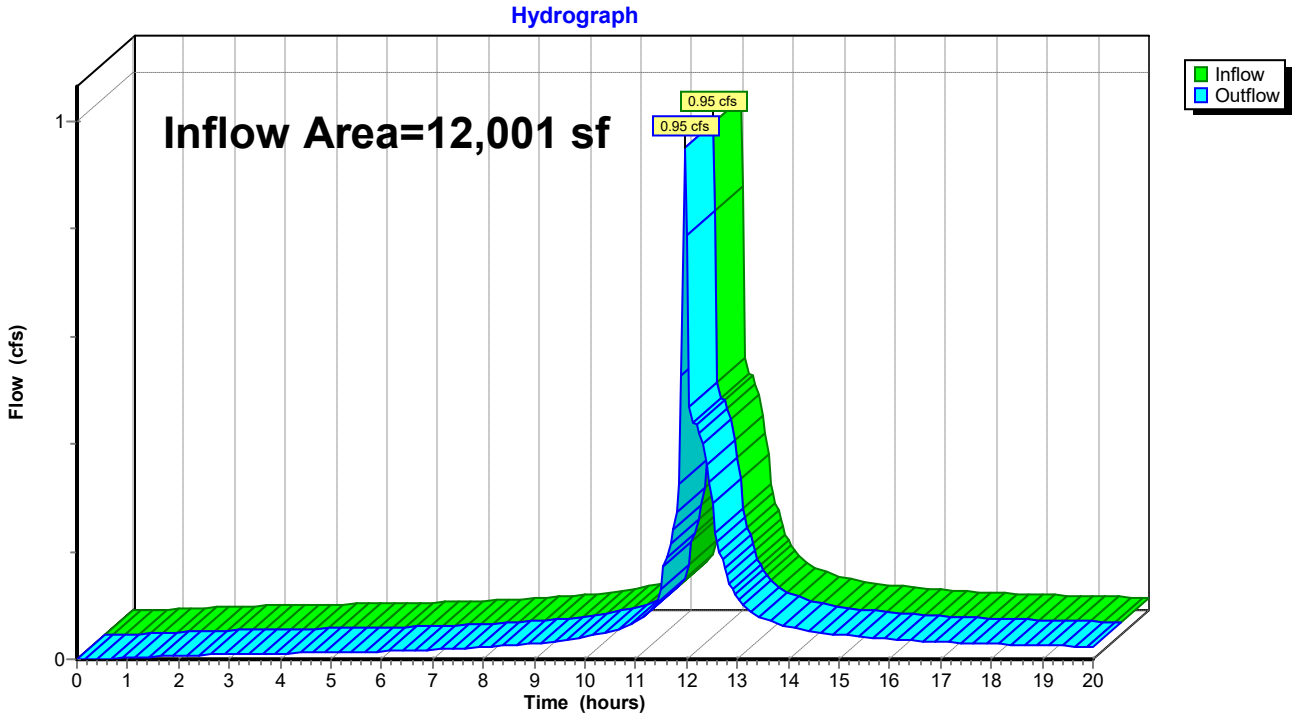
Summary for Reach 3R: OUTFLOW

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

Inflow Area = 12,001 sf, 54.05% Impervious, Inflow Depth > 3.64" for 10-yr event
Inflow = 0.95 cfs @ 11.96 hrs, Volume= 3,636 cf
Outflow = 0.95 cfs @ 11.96 hrs, Volume= 3,636 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: OUTFLOW



Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NEW ROOF Runoff Area=5,815 sf 100.00% Impervious Runoff Depth>5.77"
Flow Length=40' Slope=0.0200 '/' Tc=0.6 min CN=98 Runoff=0.96 cfs 2,795 cf

Subcatchment 2S: PAVEMENT Runoff Area=672 sf 100.00% Impervious Runoff Depth>5.77"
Flow Length=15' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.11 cfs 323 cf

Subcatchment 4S: GREEN ROOF Runoff Area=5,514 sf 0.00% Impervious Runoff Depth>3.65"
Flow Length=100' Slope=0.0020 '/' Tc=23.9 min CN=79 Runoff=0.33 cfs 1,676 cf

Reach 3R: OUTFLOW Inflow=1.17 cfs 4,794 cf
Outflow=1.17 cfs 4,794 cf

Total Runoff Area = 12,001 sf Runoff Volume = 4,794 cf Average Runoff Depth = 4.79"
45.95% Pervious = 5,514 sf 54.05% Impervious = 6,487 sf

Summary for Subcatchment 1S: NEW ROOF

[49] Hint: Tc<2dt may require smaller dt

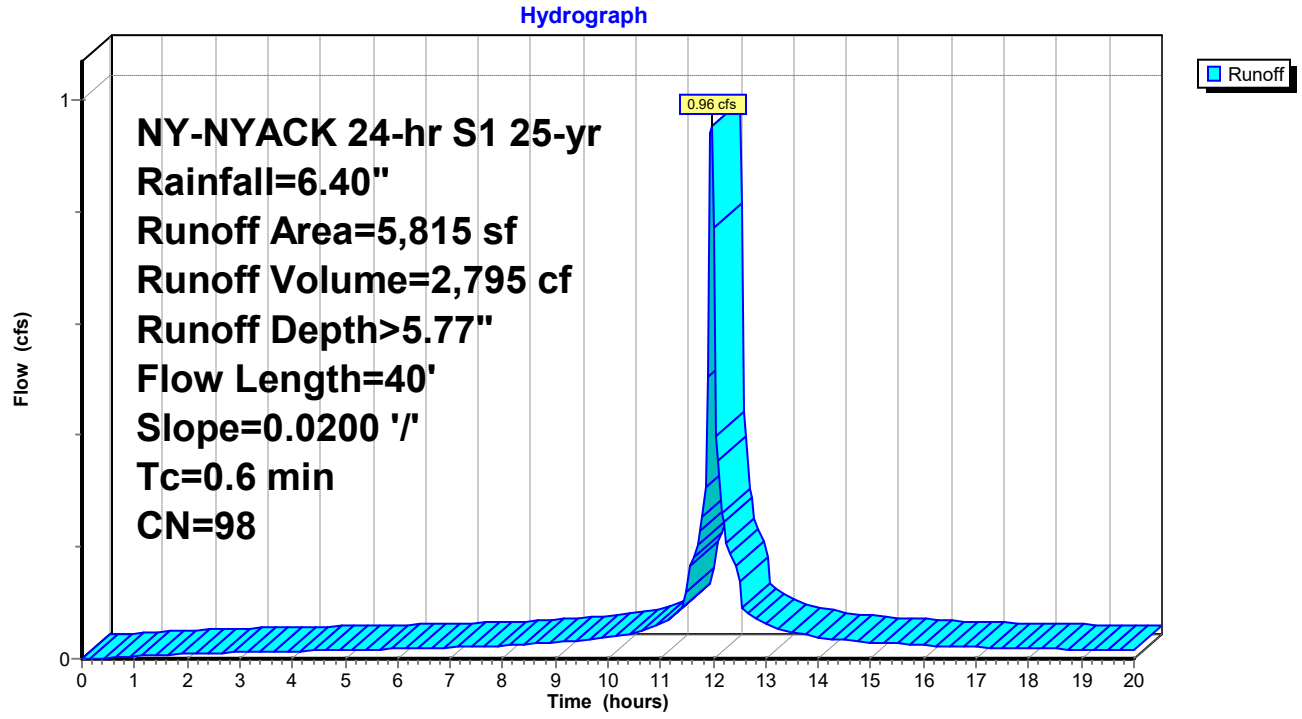
Runoff = 0.96 cfs @ 11.96 hrs, Volume= 2,795 cf, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 25-yr Rainfall=6.40"

Area (sf)	CN	Description
5,815	98	Roofs, HSG A
5,815		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		**Sheet Flow, ROOF** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 1S: NEW ROOF



Summary for Subcatchment 2S: PAVEMENT

[49] Hint: Tc<2dt may require smaller dt

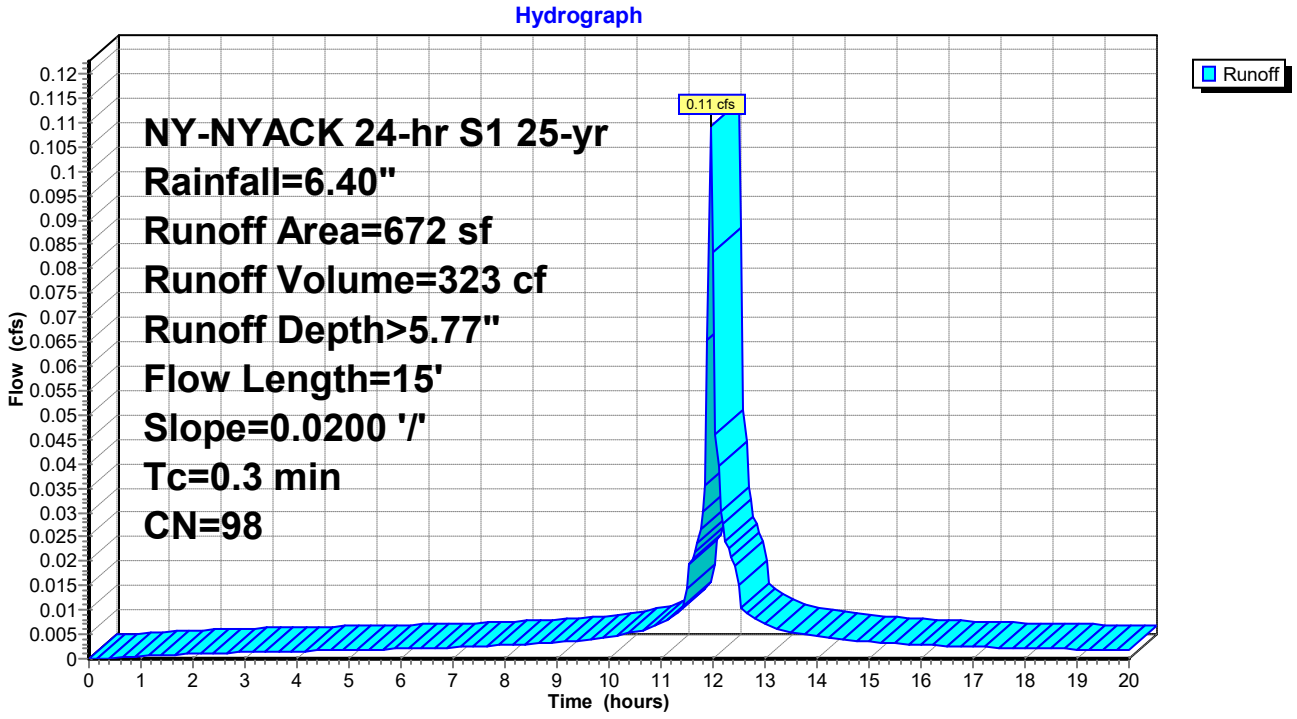
Runoff = 0.11 cfs @ 11.96 hrs, Volume= 323 cf, Depth> 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 25-yr Rainfall=6.40"

Area (sf)	CN	Description
672	98	Paved parking, HSG A
672		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	15	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 2S: PAVEMENT



Summary for Subcatchment 4S: GREEN ROOF

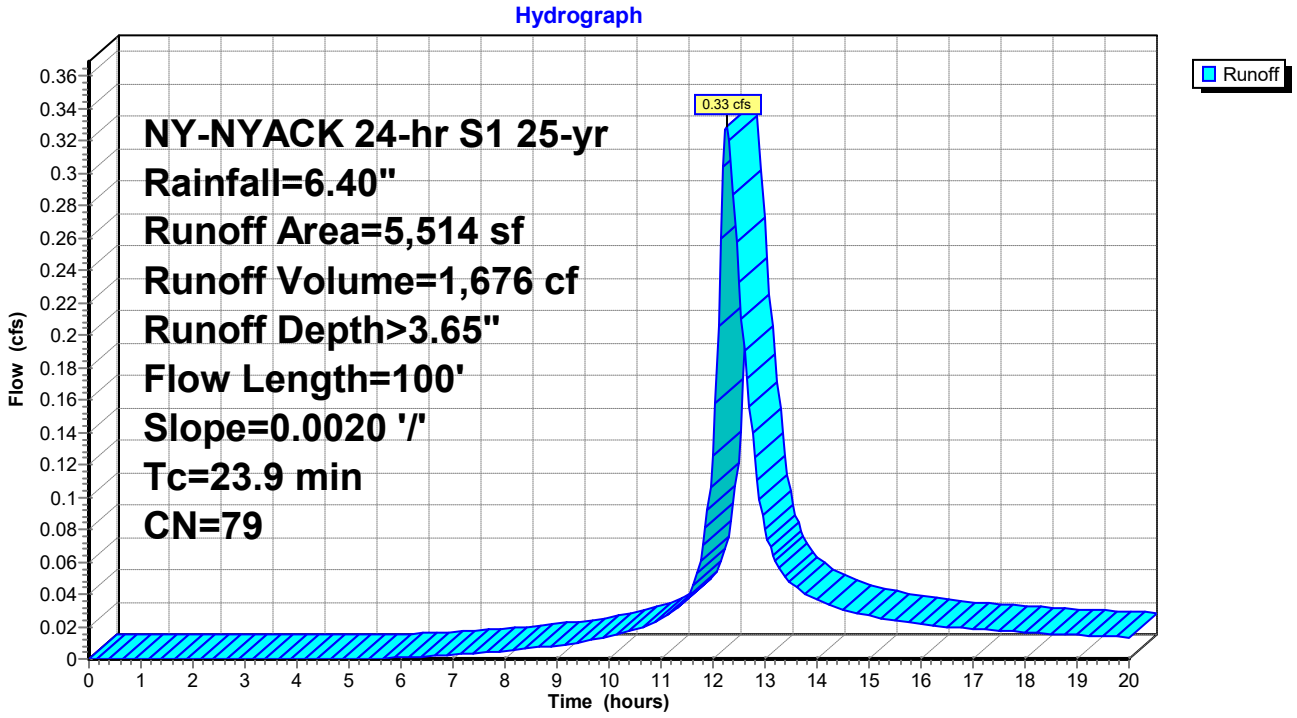
Runoff = 0.33 cfs @ 12.28 hrs, Volume= 1,676 cf, Depth> 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 25-yr Rainfall=6.40"

Area (sf)	CN	Description
5,514	79	<50% Grass cover, Poor, HSG B
5,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	100	0.0020	0.07		**Sheet Flow, GREEN ROOF** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 4S: GREEN ROOF



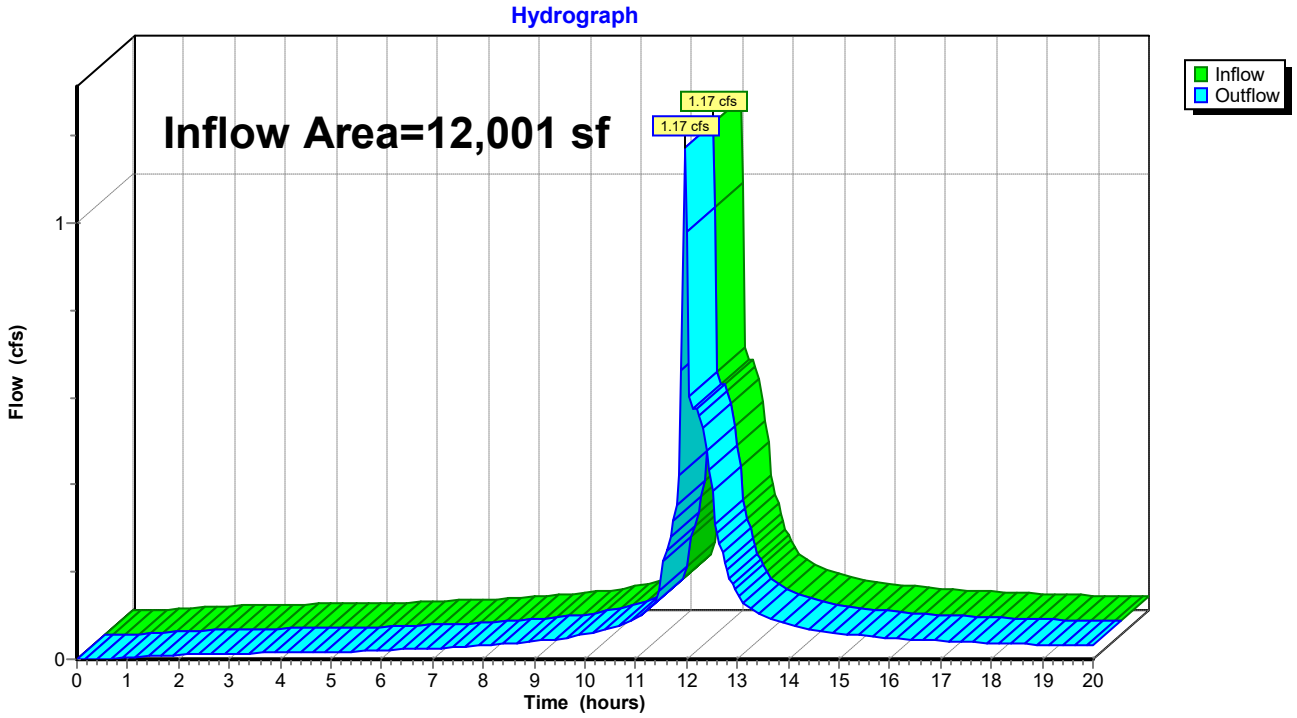
Summary for Reach 3R: OUTFLOW

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

Inflow Area = 12,001 sf, 54.05% Impervious, Inflow Depth > 4.79" for 25-yr event
Inflow = 1.17 cfs @ 11.96 hrs, Volume= 4,794 cf
Outflow = 1.17 cfs @ 11.96 hrs, Volume= 4,794 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: OUTFLOW



Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NEW ROOF Runoff Area=5,815 sf 100.00% Impervious Runoff Depth>8.26"
Flow Length=40' Slope=0.0200 '/' Tc=0.6 min CN=98 Runoff=1.26 cfs 4,002 cf

Subcatchment 2S: PAVEMENT Runoff Area=672 sf 100.00% Impervious Runoff Depth>8.26"
Flow Length=15' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.14 cfs 463 cf

Subcatchment 4S: GREEN ROOF Runoff Area=5,514 sf 0.00% Impervious Runoff Depth>5.92"
Flow Length=100' Slope=0.0020 '/' Tc=23.9 min CN=79 Runoff=0.50 cfs 2,719 cf

Reach 3R: OUTFLOW Inflow=1.59 cfs 7,184 cf
Outflow=1.59 cfs 7,184 cf

Total Runoff Area = 12,001 sf Runoff Volume = 7,184 cf Average Runoff Depth = 7.18"
45.95% Pervious = 5,514 sf 54.05% Impervious = 6,487 sf

Summary for Subcatchment 1S: NEW ROOF

[49] Hint: Tc<2dt may require smaller dt

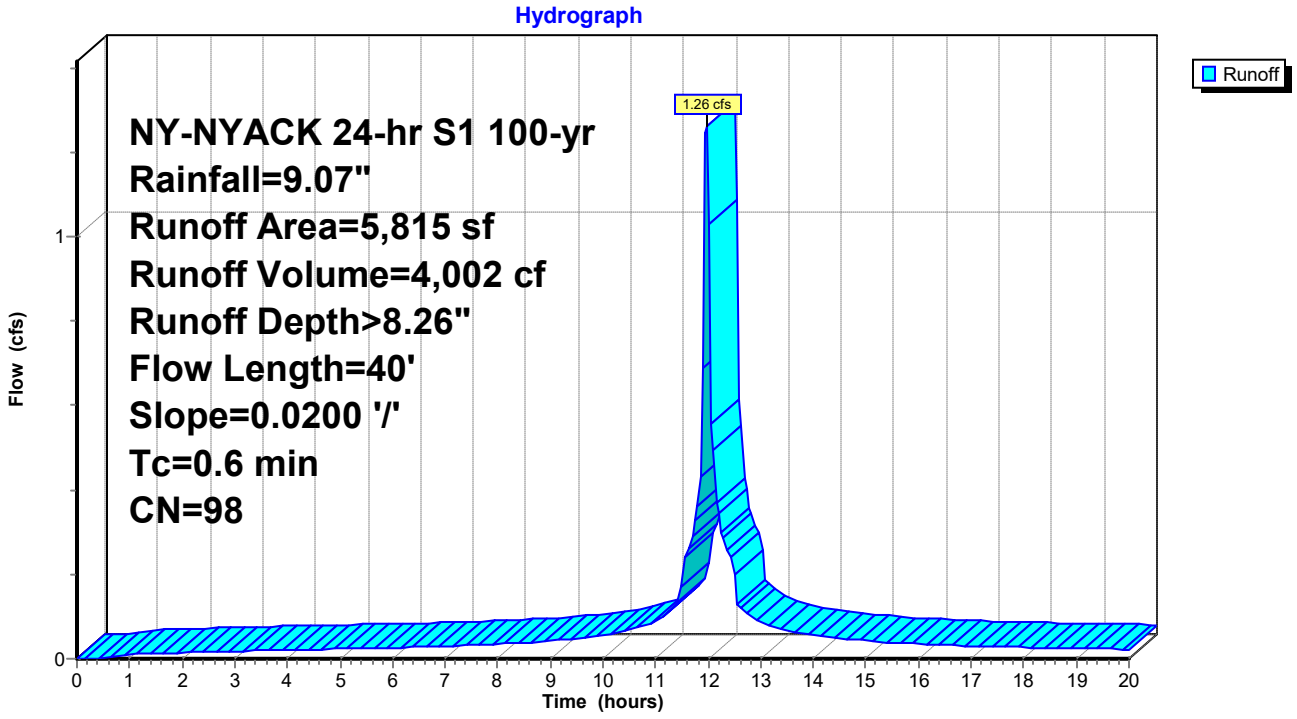
Runoff = 1.26 cfs @ 11.96 hrs, Volume= 4,002 cf, Depth> 8.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 100-yr Rainfall=9.07"

Area (sf)	CN	Description
5,815	98	Roofs, HSG A
5,815		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		**Sheet Flow, ROOF** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 1S: NEW ROOF



Summary for Subcatchment 2S: PAVEMENT

[49] Hint: Tc<2dt may require smaller dt

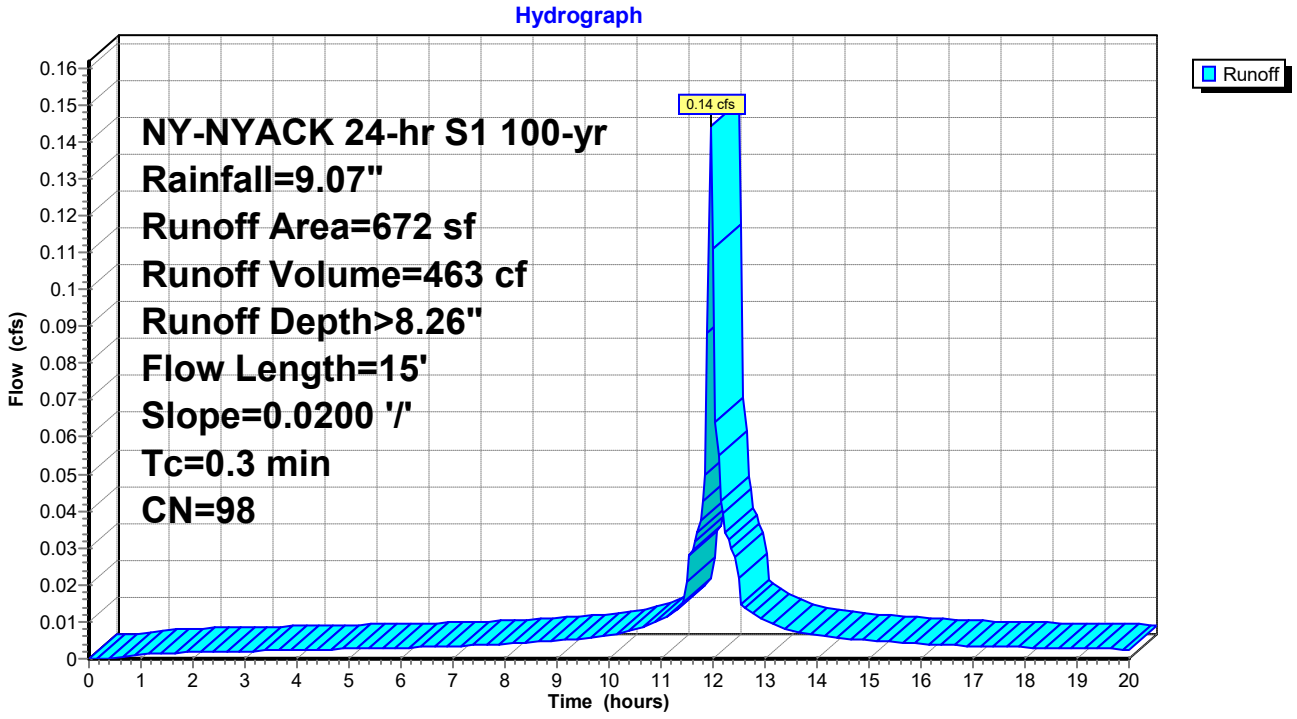
Runoff = 0.14 cfs @ 11.96 hrs, Volume= 463 cf, Depth> 8.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 100-yr Rainfall=9.07"

Area (sf)	CN	Description
672	98	Paved parking, HSG A
672		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	15	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 2S: PAVEMENT



Summary for Subcatchment 4S: GREEN ROOF

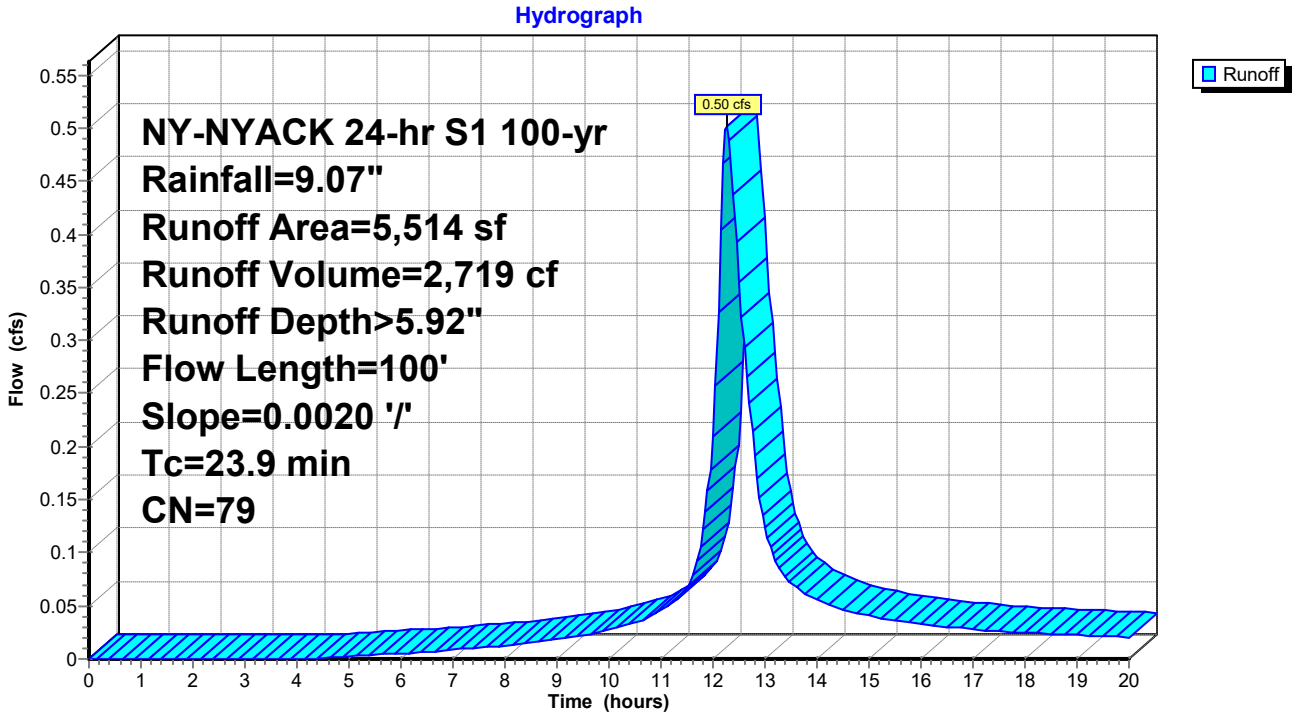
Runoff = 0.50 cfs @ 12.28 hrs, Volume= 2,719 cf, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 100-yr Rainfall=9.07"

Area (sf)	CN	Description
5,514	79	<50% Grass cover, Poor, HSG B
5,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	100	0.0020	0.07		**Sheet Flow, GREEN ROOF** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 4S: GREEN ROOF



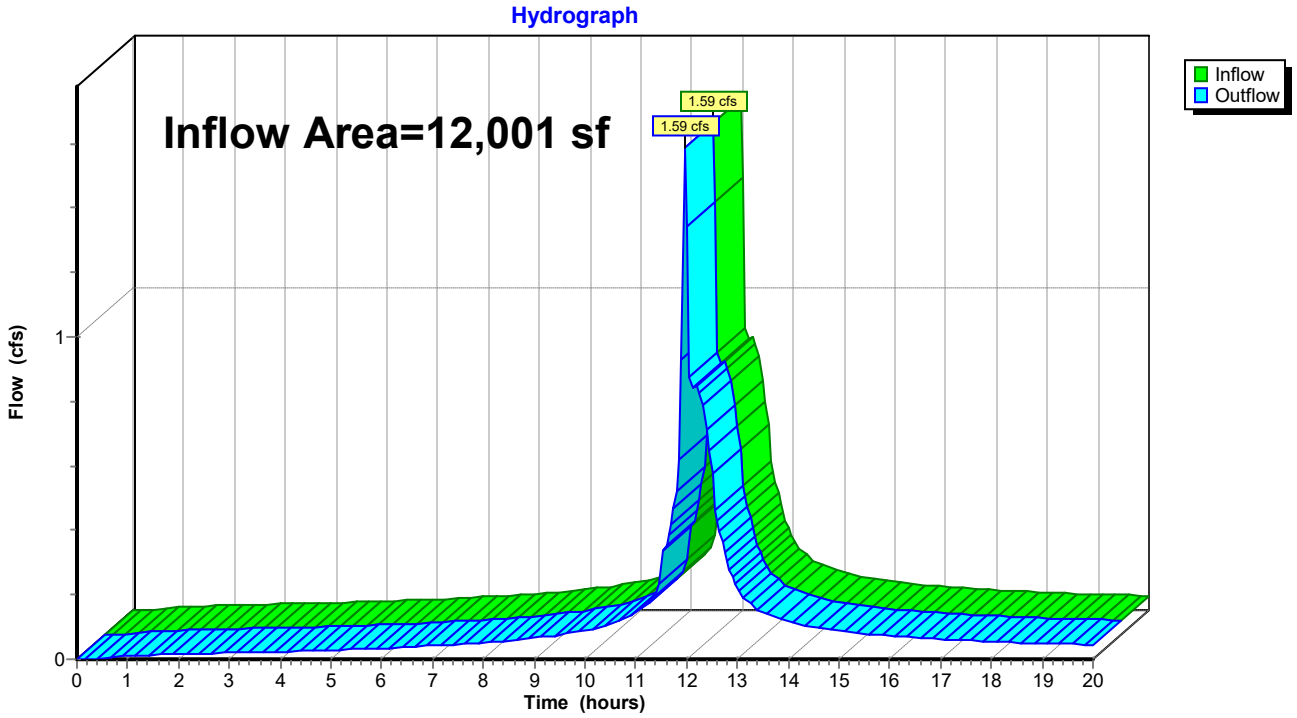
Summary for Reach 3R: OUTFLOW

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

Inflow Area = 12,001 sf, 54.05% Impervious, Inflow Depth > 7.18" for 100-yr event
Inflow = 1.59 cfs @ 11.96 hrs, Volume= 7,184 cf
Outflow = 1.59 cfs @ 11.96 hrs, Volume= 7,184 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: OUTFLOW



Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NEW ROOF Runoff Area=5,815 sf 100.00% Impervious Runoff Depth>9.88"
Flow Length=40' Slope=0.0200 '/' Tc=0.6 min CN=98 Runoff=1.44 cfs 4,788 cf

Subcatchment 2S: PAVEMENT Runoff Area=672 sf 100.00% Impervious Runoff Depth>9.88"
Flow Length=15' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.17 cfs 553 cf

Subcatchment 4S: GREEN ROOF Runoff Area=5,514 sf 0.00% Impervious Runoff Depth>7.44"
Flow Length=100' Slope=0.0020 '/' Tc=23.9 min CN=79 Runoff=0.61 cfs 3,418 cf

Reach 3R: OUTFLOW Inflow=1.84 cfs 8,760 cf
Outflow=1.84 cfs 8,760 cf

Total Runoff Area = 12,001 sf Runoff Volume = 8,760 cf Average Runoff Depth = 8.76"
45.95% Pervious = 5,514 sf 54.05% Impervious = 6,487 sf

Summary for Subcatchment 1S: NEW ROOF

[49] Hint: Tc<2dt may require smaller dt

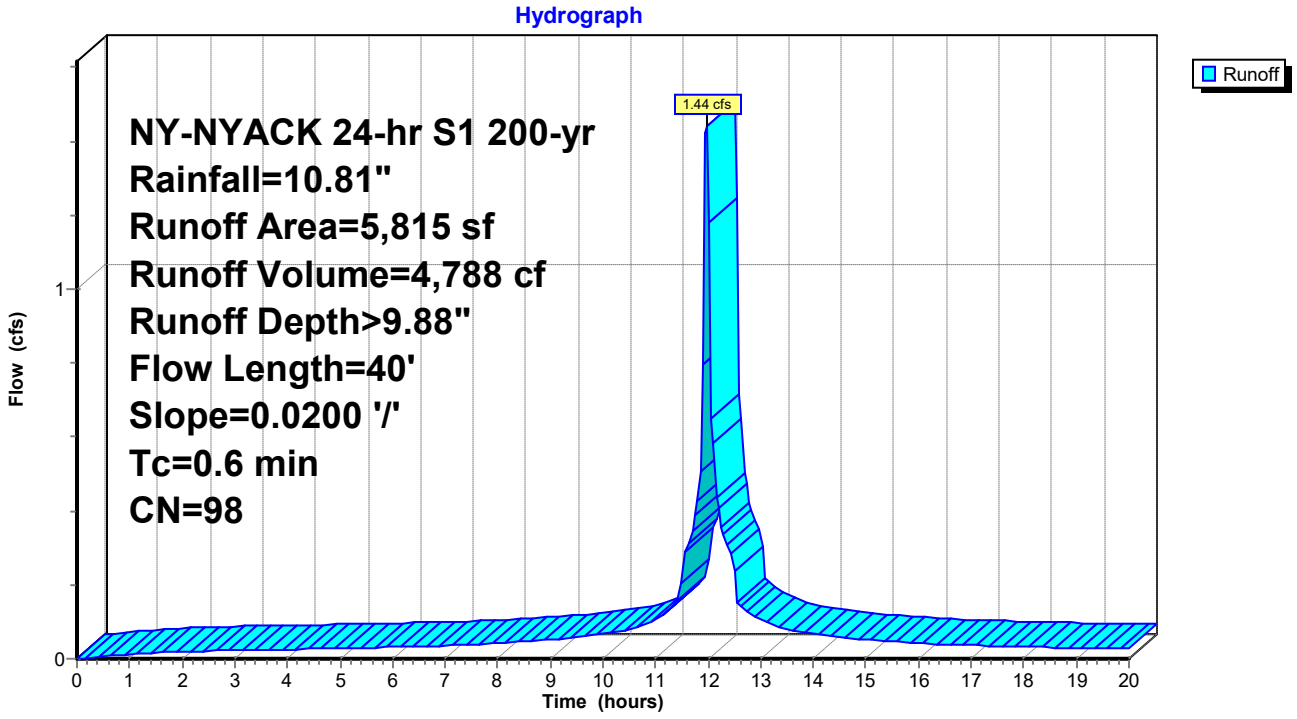
Runoff = 1.44 cfs @ 11.96 hrs, Volume= 4,788 cf, Depth> 9.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 200-yr Rainfall=10.81"

Area (sf)	CN	Description
5,815	98	Roofs, HSG A
5,815		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		**Sheet Flow, ROOF** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 1S: NEW ROOF



Summary for Subcatchment 2S: PAVEMENT

[49] Hint: Tc<2dt may require smaller dt

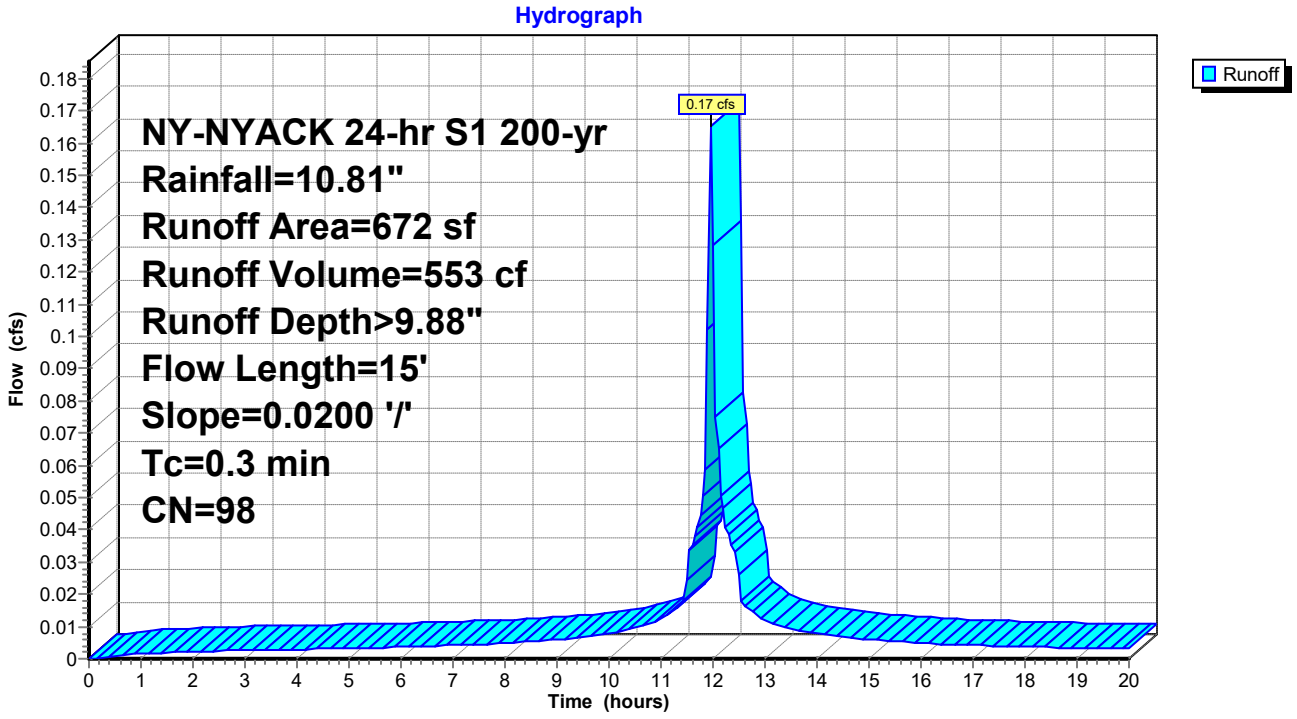
Runoff = 0.17 cfs @ 11.96 hrs, Volume= 553 cf, Depth> 9.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 200-yr Rainfall=10.81"

Area (sf)	CN	Description
672	98	Paved parking, HSG A
672		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	15	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 2S: PAVEMENT



Summary for Subcatchment 4S: GREEN ROOF

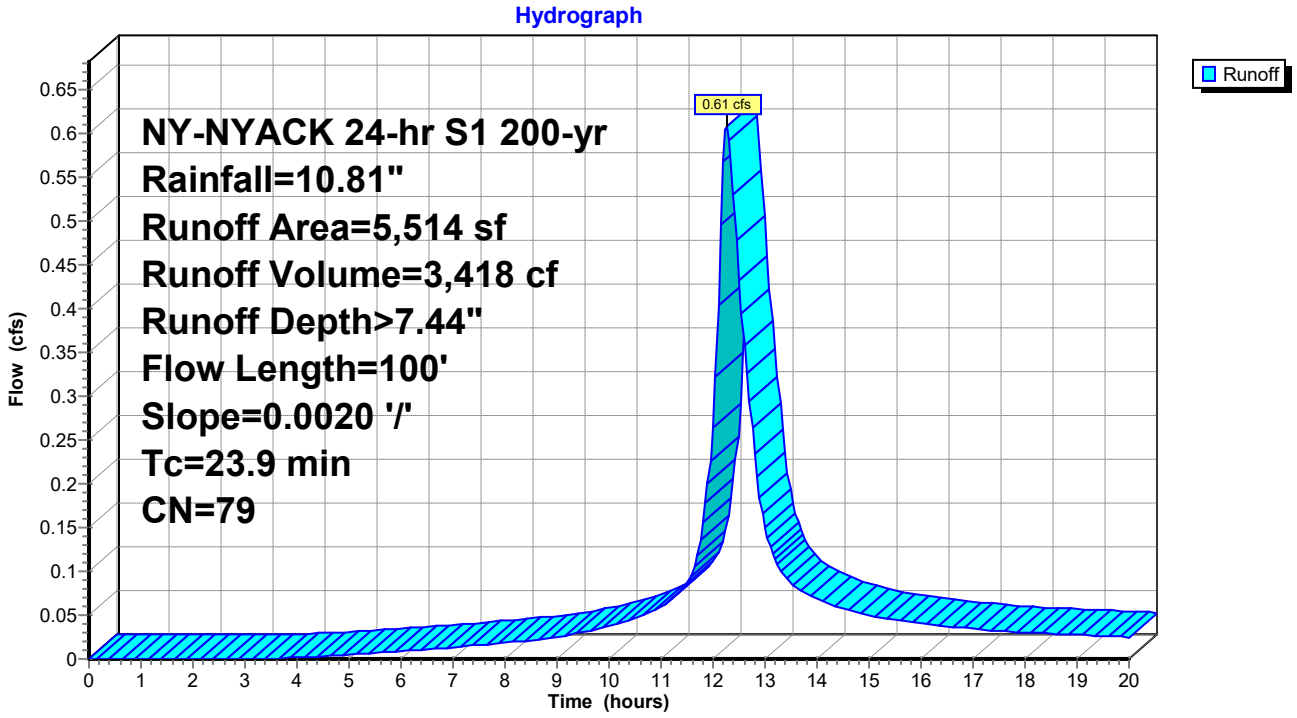
Runoff = 0.61 cfs @ 12.28 hrs, Volume= 3,418 cf, Depth> 7.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 200-yr Rainfall=10.81"

Area (sf)	CN	Description
5,514	79	<50% Grass cover, Poor, HSG B
5,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	100	0.0020	0.07		**Sheet Flow, GREEN ROOF** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 4S: GREEN ROOF



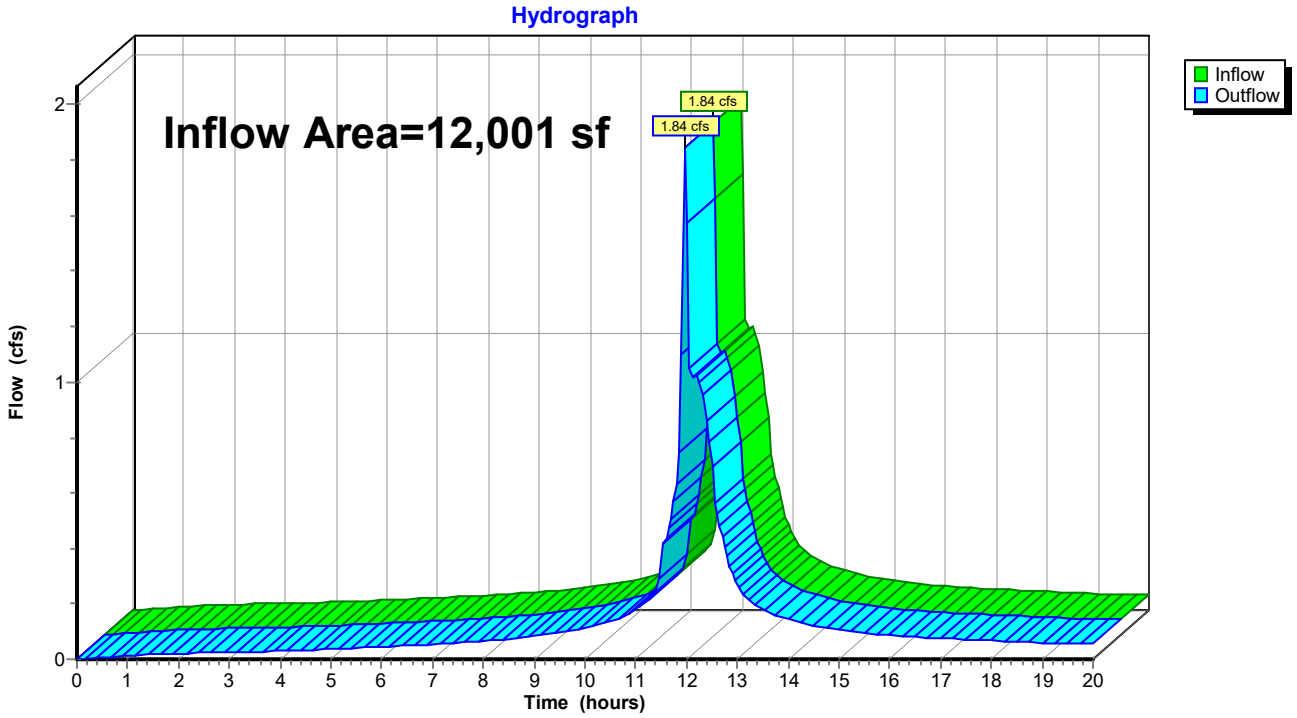
Summary for Reach 3R: OUTFLOW

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

Inflow Area = 12,001 sf, 54.05% Impervious, Inflow Depth > 8.76" for 200-yr event
Inflow = 1.84 cfs @ 11.96 hrs, Volume= 8,760 cf
Outflow = 1.84 cfs @ 11.96 hrs, Volume= 8,760 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: OUTFLOW



Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NEW ROOF Runoff Area=5,815 sf 100.00% Impervious Runoff Depth>12.53"
Flow Length=40' Slope=0.0200 '/' Tc=0.6 min CN=98 Runoff=1.75 cfs 6,071 cf

Subcatchment 2S: PAVEMENT Runoff Area=672 sf 100.00% Impervious Runoff Depth>12.53"
Flow Length=15' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.20 cfs 702 cf

Subcatchment 4S: GREEN ROOF Runoff Area=5,514 sf 0.00% Impervious Runoff Depth>9.96"
Flow Length=100' Slope=0.0020 '/' Tc=23.9 min CN=79 Runoff=0.78 cfs 4,578 cf

Reach 3R: OUTFLOW Inflow=2.27 cfs 11,351 cf
Outflow=2.27 cfs 11,351 cf

Total Runoff Area = 12,001 sf Runoff Volume = 11,351 cf Average Runoff Depth = 11.35"
45.95% Pervious = 5,514 sf 54.05% Impervious = 6,487 sf

Summary for Subcatchment 1S: NEW ROOF

[49] Hint: Tc<2dt may require smaller dt

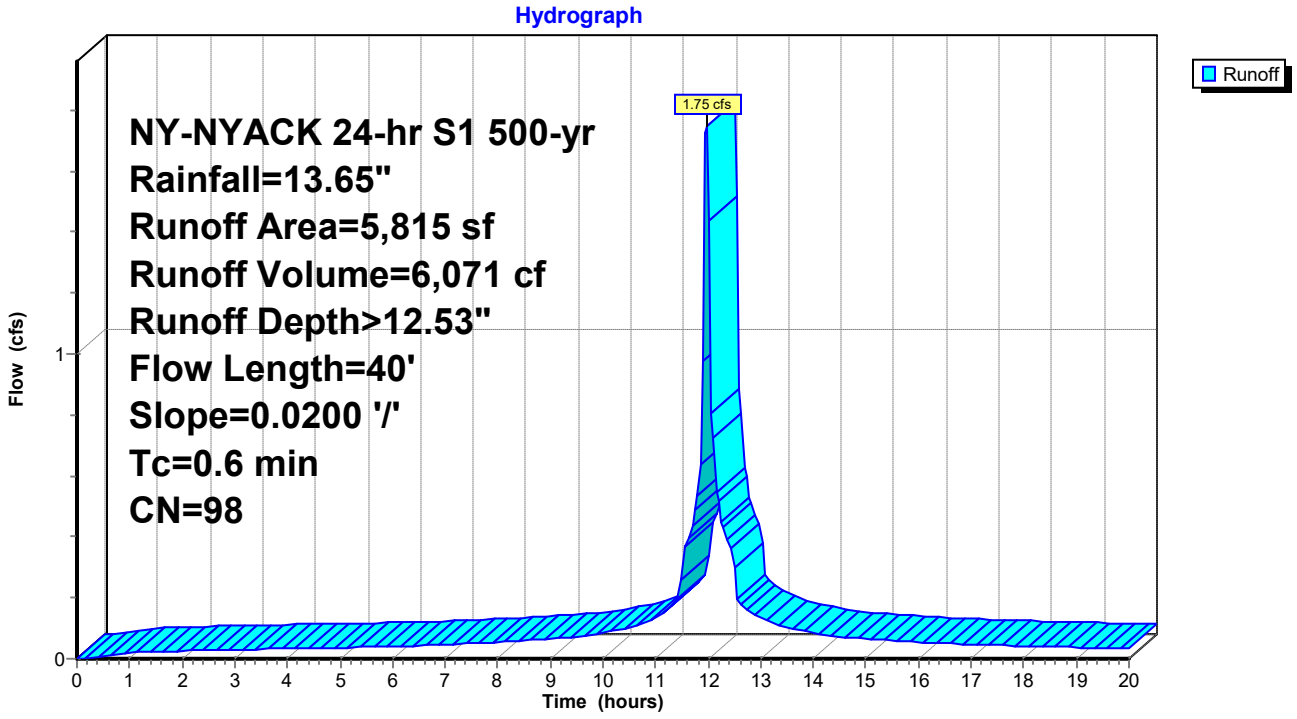
Runoff = 1.75 cfs @ 11.96 hrs, Volume= 6,071 cf, Depth>12.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 500-yr Rainfall=13.65"

Area (sf)	CN	Description
5,815	98	Roofs, HSG A
5,815		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		**Sheet Flow, ROOF** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 1S: NEW ROOF



Summary for Subcatchment 2S: PAVEMENT

[49] Hint: Tc<2dt may require smaller dt

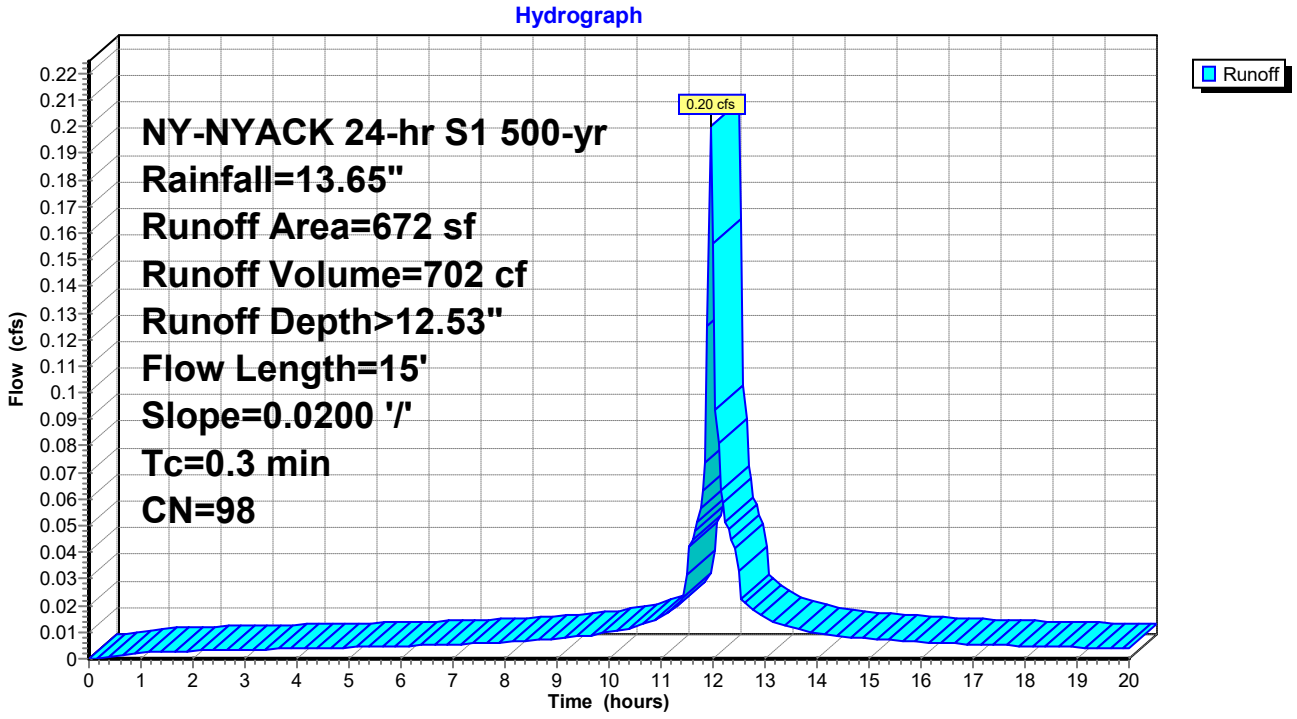
Runoff = 0.20 cfs @ 11.96 hrs, Volume= 702 cf, Depth>12.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 500-yr Rainfall=13.65"

Area (sf)	CN	Description
672	98	Paved parking, HSG A
672		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	15	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 2S: PAVEMENT



Summary for Subcatchment 4S: GREEN ROOF

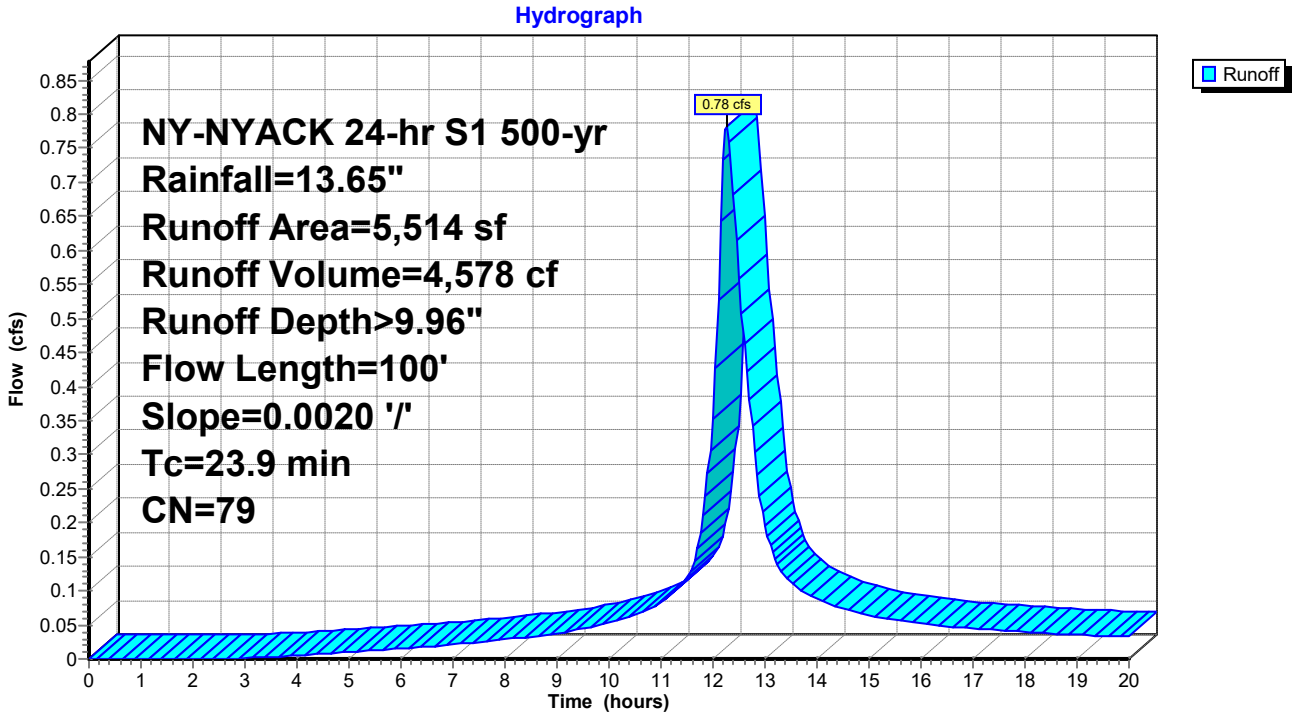
Runoff = 0.78 cfs @ 12.27 hrs, Volume= 4,578 cf, Depth> 9.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
NY-NYACK 24-hr S1 500-yr Rainfall=13.65"

Area (sf)	CN	Description
5,514	79	<50% Grass cover, Poor, HSG B
5,514		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	100	0.0020	0.07		**Sheet Flow, GREEN ROOF** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 4S: GREEN ROOF



Summary for Reach 3R: OUTFLOW

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

Inflow Area = 12,001 sf, 54.05% Impervious, Inflow Depth > 11.35" for 500-yr event
Inflow = 2.27 cfs @ 11.96 hrs, Volume= 11,351 cf
Outflow = 2.27 cfs @ 11.96 hrs, Volume= 11,351 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: OUTFLOW