STORMWATER EVALUATION

for

FALMOUTH 3 ME

175 Falmouth Road
Falmouth, ME 04105

Prepared for:

verizon
400 Friberg Parkway
Westborough, MA 01581

Dated: June 10, 2016

Prepared by:

Hudson Design Group LLC

STATE OF MAINE
DANIEL P. HAMM
No. 10344
LICENSED PROFESSIONAL ENGINEER

6-10-2016

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SECTION 1

DRAINAGE REPORT

PROJECT LOCATION & PURPOSE

The site and project of concern is located at 175 Falmouth Road and will be accessed from the intersection of Falmouth Road and Fall Road in Falmouth, ME. The proposed personal cellular communications antenna tower and compound will be located approximately 3,000 feet northeast from Falmouth Road entrance, and can be generally located at 43° 43' 42.05" N and 70° 15' 45.75" W on the Portland West, ME USGS quadrangle (1978).

The proposed Verizon Wireless communications facility and antenna tower will consist of a 100'x100' lease area, 75'x75' crushed stone surface compound with chain-link perimeter security fence, 12'x16' concrete pad with exterior mounted communications equipment, and additional supporting infrastructure. The proposed cellular communications antenna tower will consist of a 90' monopole with Verizon antenna equipment at 87' above ground level. The proposed compound and antenna tower can accommodate additional commercial carriers or Town of Falmouth first responder's communications equipment.

The purpose of this Stormwater Analysis and Drainage Report was to determine the stormwater or rain event peak flows for the pre-construction and post-construction condition for the areas of concern, design appropriate mitigation measures as applicable, and present the results. The analyses were completed using HydroCAD 9.1, a hydrology and hydraulics or stormwater modeling program. For the drainage analyses, we utilized Natural Resource Conservation Service (NRCS) soil maps and tables, internet-based GIS maps, and existing conditions topographic plans.

METHOD OF DRAINAGE ANALYISIS

The Natural Resource Conservation Service (formerly Soil Conservation Service, or SCS) method of analysis was utilized for this project. The SCS method is based on TR-55 and TR-20 and is widely accepted as standard engineering practice within the civil engineering profession for storm water runoff or hydrology analysis. In general, the SCS method of hydrology analysis utilizes the drainage area, hydraulic length, average terrain slope, and soil conditions of a watershed or catchment as input to calculate peak flows and the total volume of runoff for specific rain events.

HDG modeled the 2, 10, and 25 year statistical rain events for both the pre and post construction condition scenarios. The total rainfall per 24-hour period for the 2, 10, and 25-year statistical rain events appear to be to be 3.0 inches, 4.7 inches, and 5.5 inches, respectively. Based on the State of Maine Department of Environmental Protection (DEP) Stormwater Management mapping, the statistical rainfall for the project location is considered a Type III SCS distribution.

USDA-NRCS SOIL DATA

Based on review of the USDA, Natural Resource Conservation Service (NRCS) Soil Survey for Cumberland County, ME, HDG determined that the soils mapped within the project parcel consist of primarily of Hollis Fine Sandy Loam and Hollis very Rocky Fine Sandy Loam, with varying degrees of ground slope, and relatively small areas of Scantic Silt Loam, primarily located at or near delineated wetlands.

The hydrologic soil group (HSG) rating or classification for the Hollis Fine Sandy Loam and Hollis very Rocky Fine Sandy Loam are both listed as D. HSG D soils have a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table,

soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission through the ground. The NRCS reported depth to water table and any restrictive layer are 78 inches and 18 inches below grade, respectively.

Based on further on-line or internet based review of the USDA-NRCS soil survey data, the Hollis Fine Sandy Loam and Hollis Very Rocky Fine Sandy Loam have a reported sand, silt, and clay content of 52%, 42%, and 6%, respectively.

EXISTING DRAINAGE CONDITIONS

The catchments or drainage areas of interest for the Existing Drainage Conditions were modeled according to terrain or topography. The parcel contains 82 acres of land with 21 acres of the soil being identified as Hollis Fine Sandy Loam, 3%-8% ground slope (HrB), and 45 acres of Hollis Very Rocky Fine Sandy Loam, 8%-20% ground slope (HsC).

As can be seen in the Site Plan and attached Existing Drainage Conditions sheet, there are essentially six (6) catchments or drainage areas that appear to route stormwater runoff from a relatively higher elevation to a lower elevation of terrain. Five (5) of the six catchments appear to route runoff toward a forested wetlands and eventually further down gradient and off the parcel of interest.

PROPOSED DRAINAGE CONDITIONS

The proposed wireless communications facility or compound and gravel access drive has a total permanent impact area of 1.66 acres, or 2% of the total land, which includes a 12 foot wide gravel driveway with an assumed 22 foot wide

grading width, and a 100 foot by 100 foot crushed stone surface within the communications compound.

Although the project parcel contains 82 acres, only 38 acres (+/-) are potentially impacted or affected by the placement of the gravel access driveway and crushed stone surface communications compound as the attached modeling demonstrates. The modeling is based on the drainage divides, terrain or topography, and location of wetlands.

Based on Maine DEP Stormwater Rules, Regulations, Best Management Practices, and Gravel Road Maintenance Manual (2016), it is highly desired to maintain the current or existing stormwater runoff flow patterns or routes to the maximum extent practicable. As such, the six (6) drainage areas or catchments will remain the same for the Proposed Drainage Conditions and they are for the Existing Drainage conditions in the HydroCAD modeling, with modifications to the surface type and runoff curve number (CN) or coefficient by the placement of the driveway within each affected catchment or drainage basin.

As part of our plan for driveway construction, HDG proposes sandwiched gravel driveway sections, shallow culverts, and mitigation measures such as swales, runoff turnouts, and water bars or rubber razor bars as appropriate to ensure continued surface and shallow groundwater flow patterns as well as to minimize erosion and sediment transport.

RESULTS

Table 1 and Table 2 list the peak runoff and stormwater flows for the existing condition and post construction condition scenarios, respectively.

Table 1. Existing Drainage Conditions peak runoff or flows.

STORM EVENT	RAINFALL (in.)	Catchment 1 (cfs)	Catchment 2 (cfs)	Catchment 3 (cfs)	Catchment 4 (cfs)	Catchment 5 (cfs)	Catchment 6 (cfs)
2-year	3.0	1.76	4.92	10.52	12.44	13.33	11.59
10-year	4.7	3.85	10.32	22.52	26.05	28.46	24.82
25-year	5.5	4.92	12.98	28.46	32.74	35.93	31.36

Table 2. Proposed Drainage Conditions peak runoff or flows.

STORM EVENT	RAINFALL (in.)	Catchment 1 w Level Spreader 1A (cfs)	Catchment 2 (cfs)	Catchment 3 (cfs)	Catchment 4 (cfs)	Catchment 5 (cfs)	Catchment 6 (cfs)
2-year	3.0	0.31	4.92	10.52	12.44	13.33	11.59
10-year	4.7	3.88	10.32	22.52	26.05	28.46	24.82
25-year	5.5	4.91	12.98	28.46	32.74	35.93	31.36

As can be seen from the tables above, the Proposed Drainage Conditions runoff or flows will be essentially equal to or less than the Existing Drainage Conditions runoff due to the incorporation of the proposed mitigation measures. As can also be seen from comparison of the runoff or peak flows for each of the drainage areas or catchments other than catchment 1, is that no increase of runoff occurs from the construction of the gravel access drive or communications compound. The negligible or imperceptible increase in runoff is due to the relatively small area of gravel access road within each relatively large catchment or drainage area.

From close review of the HydroCAD data, only Catchment 1 (Area 1) at the front of property or south end of parcel and driveway entrance has a nominal increase in runoff due to the placement of the gravel access driveway. As such, stormwater mitigation measures for this location include a multiple stormwater turnouts with stone level spreaders. The level spreaders shall have a combined storage volume of at least 3,500 cubic feet and be at least 2 feet deep. In addition, driveway water

bars will be installed and will route driveway runoff into the woods or forested areas. The stormwater mitigation measures will be installed according to *Gravel Road Maintenance Manual, A Guide for Landowners on Camp and Other Gravel Roads*, Maine DEP (2016).

CONCLUSIONS

With the construction or site development according to the approved Site Plan or Zoning Drawings (ZD) plan and implementation of the proposed mitigation measures, the proposed communications facility and gravel driveway will have minimal or no negative impact on the environment with regards to stormwater runoff.

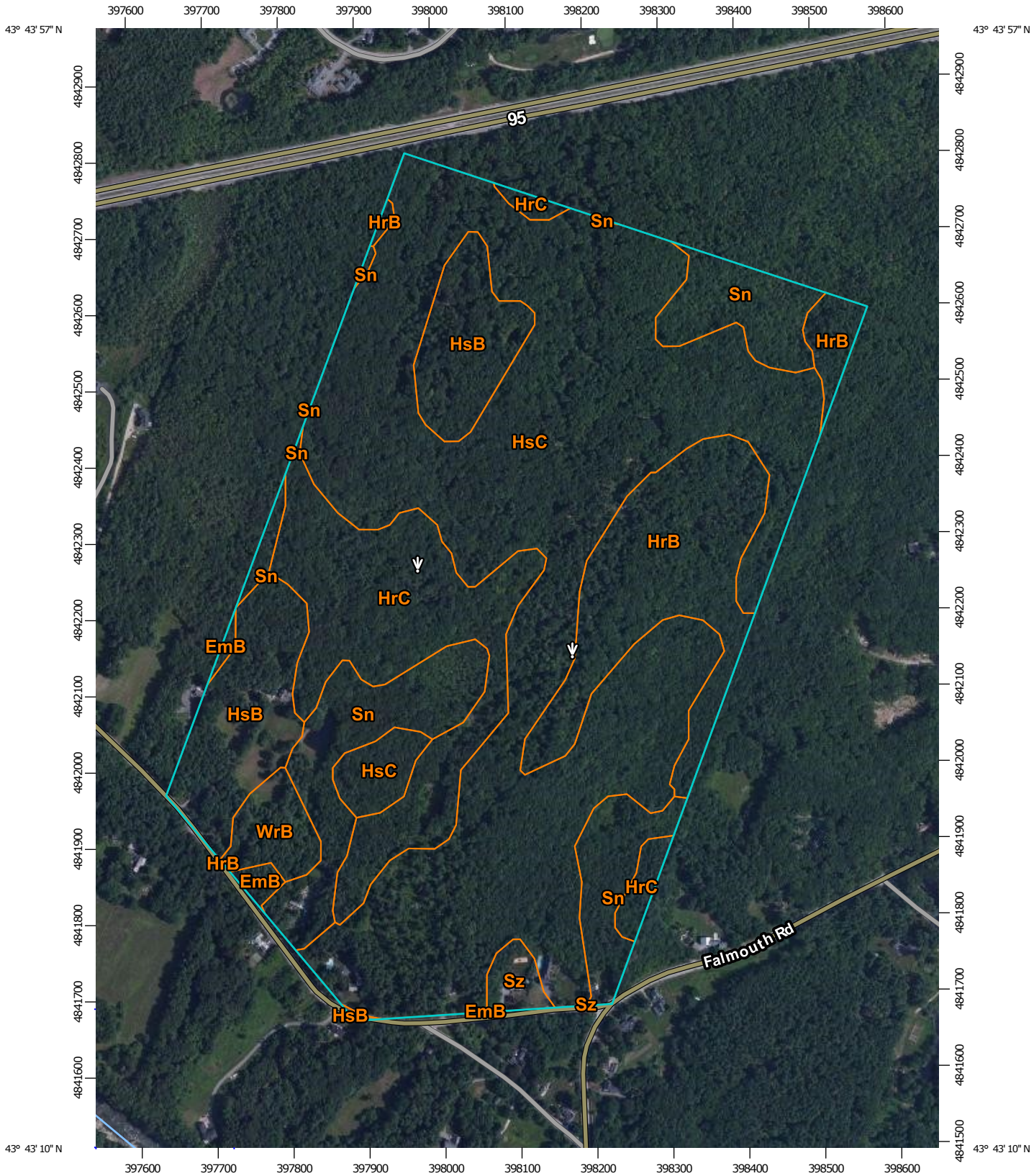
LIMITATIONS

It shall be understood that the proposed communications facility and driveway be constructed according to the zoning drawings or Site Plan as submitted by Hudson Design Group and approved by the Town. HDG shall not be liable or responsible for any proposed changes, deletions or additions, made by the general contractor during the construction of the facility without HDG's review and written approval and / or Maine DEP or local zoning and conservation commission approval as may be required.

SECTION 2

NRCS SOIL DATA

Soil Map—Cumberland County and Part of Oxford County, Maine
(VZW Falmouth 3 ME)



Map Scale: 1:7,150 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N 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: http://websoilsurvey.nrcs.usda.gov
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.

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Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 11, Sep 17, 2015

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

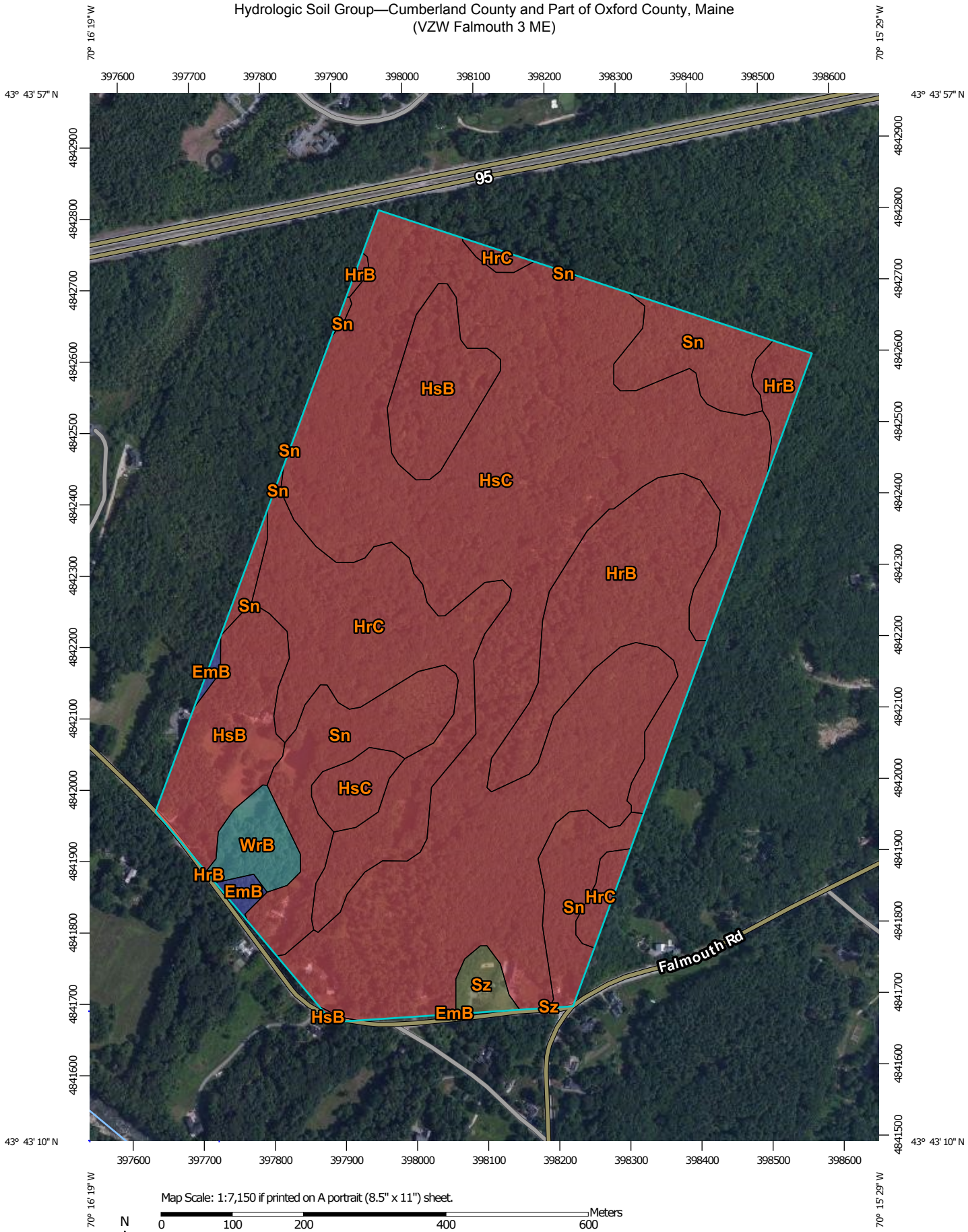
Date(s) aerial images were photographed: Jun 20, 2010—Jul 18, 2010

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

Cumberland County and Part of Oxford County, Maine (ME005)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	0.8	0.5%
HrB	Hollis fine sandy loam, 3 to 8 percent slopes	17.4	10.7%
HrC	Hollis fine sandy loam, 8 to 15 percent slopes	21.0	12.9%
HsB	Hollis very rocky fine sandy loam, 3 to 8 percent slopes	15.2	9.4%
HsC	Hollis very rocky fine sandy loam, 8 to 20 percent slopes	84.4	51.9%
Sn	Scantic silt loam, 0 to 3 percent slopes	19.4	12.0%
Sz	Swanton fine sandy loam	1.4	0.9%
WrB	Woodbridge fine sandy loam, 0 to 8 percent slopes	3.0	1.8%
Totals for Area of Interest		**162.6**	**100.0%**

Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine
(VZW Falmouth 3 ME)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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.

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Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Cumberland County and Part of Oxford County, Maine (ME005)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	B	0.8	0.5%
HrB	Hollis fine sandy loam, 3 to 8 percent slopes	D	17.4	10.7%
HrC	Hollis fine sandy loam, 8 to 15 percent slopes	D	21.0	12.9%
HsB	Hollis very rocky fine sandy loam, 3 to 8 percent slopes	D	15.2	9.4%
HsC	Hollis very rocky fine sandy loam, 8 to 20 percent slopes	D	84.4	51.9%
Sn	Scantic silt loam, 0 to 3 percent slopes	D	19.4	12.0%
Sz	Swanton fine sandy loam	C/D	1.4	0.9%
WrB	Woodbridge fine sandy loam, 0 to 8 percent slopes	C	3.0	1.8%
Totals for Area of Interest			**162.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

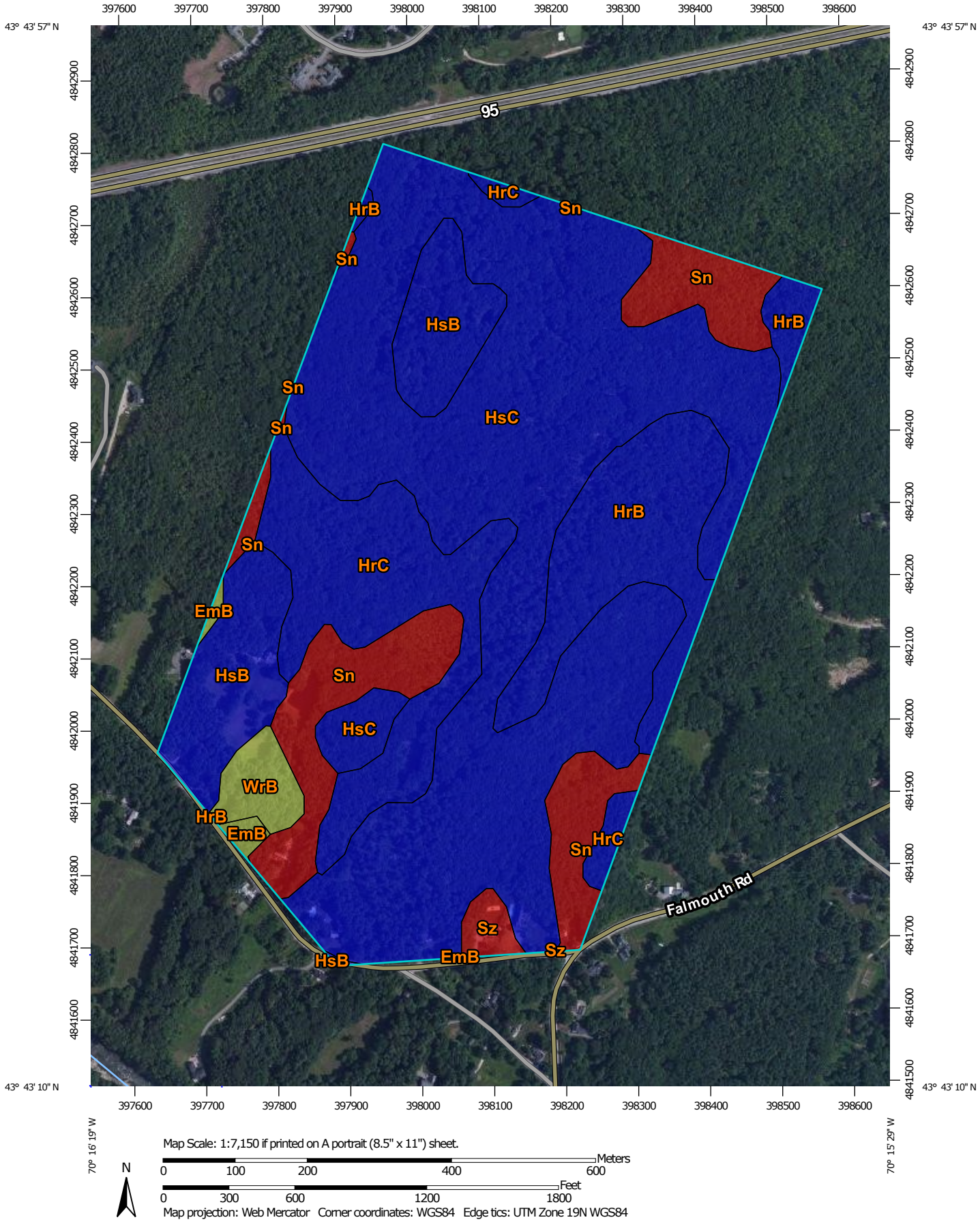
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Depth to Water Table—Cumberland County and Part of Oxford County, Maine
(VZW Falmouth 3 ME)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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Depth to Water Table

Depth to Water Table— Summary by Map Unit — Cumberland County and Part of Oxford County, Maine (ME005)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	69	0.8	0.5%
HrB	Hollis fine sandy loam, 3 to 8 percent slopes	>200	17.4	10.7%
HrC	Hollis fine sandy loam, 8 to 15 percent slopes	>200	21.0	12.9%
HsB	Hollis very rocky fine sandy loam, 3 to 8 percent slopes	>200	15.2	9.4%
HsC	Hollis very rocky fine sandy loam, 8 to 20 percent slopes	>200	84.4	51.9%
Sn	Scantic silt loam, 0 to 3 percent slopes	15	19.4	12.0%
Sz	Swanton fine sandy loam	23	1.4	0.9%
WrB	Woodbridge fine sandy loam, 0 to 8 percent slopes	61	3.0	1.8%
Totals for Area of Interest			**162.6**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: *None Specified*

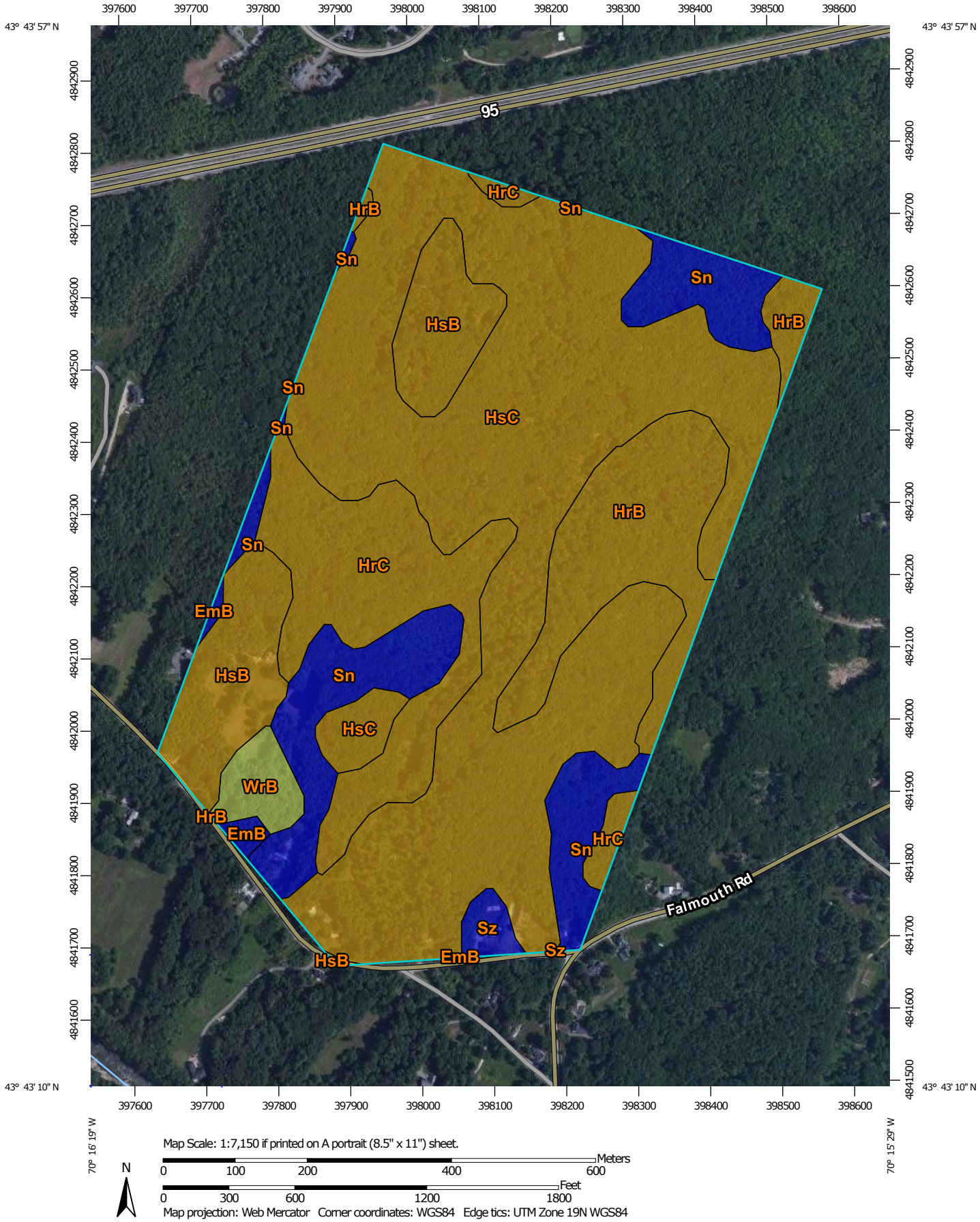
Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Depth to Any Soil Restrictive Layer—Cumberland County and Part of Oxford County, Maine
(VZW Falmouth 3 ME)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
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- Local Roads

Background
- Aerial Photography

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Depth to Any Soil Restrictive Layer

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Cumberland County and Part of Oxford County, Maine (ME005)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
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HrB	Hollis fine sandy loam, 3 to 8 percent slopes	46	17.4	10.7%
HrC	Hollis fine sandy loam, 8 to 15 percent slopes	46	21.0	12.9%
HsB	Hollis very rocky fine sandy loam, 3 to 8 percent slopes	46	15.2	9.4%
HsC	Hollis very rocky fine sandy loam, 8 to 20 percent slopes	46	84.4	51.9%
Sn	Scantic silt loam, 0 to 3 percent slopes	>200	19.4	12.0%
Sz	Swanton fine sandy loam	>200	1.4	0.9%
WrB	Woodbridge fine sandy loam, 0 to 8 percent slopes	51	3.0	1.8%
Totals for Area of Interest			**162.6**	**100.0%**

Description

A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers.

This theme presents the depth to any type of restrictive layer that is described for each map unit. If more than one type of restrictive layer is described for an individual soil type, the depth to the shallowest one is presented. If no restrictive layer is described in a map unit, it is represented by the "> 200" depth class.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

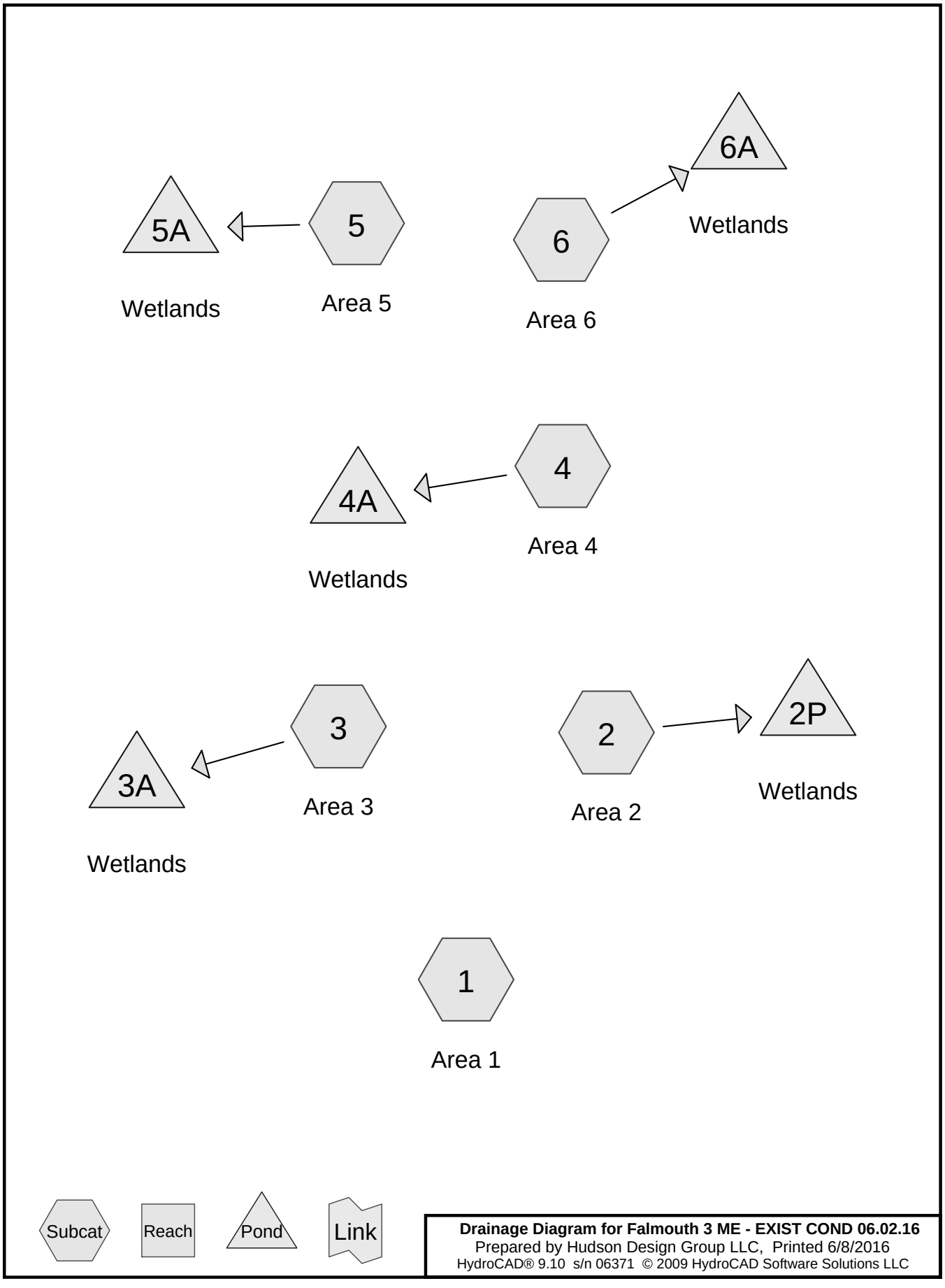
Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

Interpret Nulls as Zero: No

SECTION 3A

HYDROCAD DATA
(EXISTING CONDITION)



Drainage Diagram for Falmouth 3 ME - EXIST COND 06.02.16
Prepared by Hudson Design Group LLC, Printed 6/8/2016

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

Subcatchment 1: Area 1 Runoff Area=1.286 ac 0.00% Impervious Runoff Depth>1.09"
Flow Length=380' Slope=0.0950 '/' Tc=4.9 min CN=79 Runoff=1.76 cfs 0.117 af

Subcatchment 2: Area 2 Runoff Area=4.152 ac 0.00% Impervious Runoff Depth>1.21"
Flow Length=575' Slope=0.0210 '/' Tc=13.6 min CN=81 Runoff=4.92 cfs 0.419 af

Subcatchment 3: Area 3 Runoff Area=7.699 ac 0.00% Impervious Runoff Depth>1.15"
Flow Length=520' Slope=0.0690 '/' Tc=7.2 min CN=80 Runoff=10.52 cfs 0.739 af

Subcatchment 4: Area 4 Runoff Area=9.296 ac 0.00% Impervious Runoff Depth>1.21"
Flow Length=540' Slope=0.0410 '/' Tc=9.3 min CN=81 Runoff=12.44 cfs 0.939 af

Subcatchment 5: Area 5 Runoff Area=8.500 ac 0.00% Impervious Runoff Depth>1.15"
Flow Length=300' Slope=0.1500 '/' Tc=3.1 min CN=80 Runoff=13.33 cfs 0.817 af

Subcatchment 6: Area 6 Runoff Area=7.690 ac 0.00% Impervious Runoff Depth>1.15"
Flow Length=260' Slope=0.0690 '/' Tc=4.1 min CN=80 Runoff=11.59 cfs 0.739 af

Pond 2P: Wetlands Peak Elev=148.79' Storage=0.418 af Inflow=4.92 cfs 0.419 af
Outflow=0.00 cfs 0.000 af

Pond 3A: Wetlands Peak Elev=129.29' Storage=0.158 af Inflow=10.52 cfs 0.739 af
Outflow=5.99 cfs 0.721 af

Pond 4A: Wetlands Peak Elev=140.23' Storage=0.274 af Inflow=12.44 cfs 0.939 af
Outflow=5.65 cfs 0.899 af

Pond 5A: Wetlands Peak Elev=152.29' Storage=0.152 af Inflow=13.33 cfs 0.817 af
Outflow=7.81 cfs 0.802 af

Pond 6A: Wetlands Peak Elev=174.30' Storage=0.104 af Inflow=11.59 cfs 0.739 af
Outflow=8.27 cfs 0.730 af

Total Runoff Area = 38.623 ac Runoff Volume = 3.769 af Average Runoff Depth = 1.17"
100.00% Pervious = 38.623 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1: Area 1

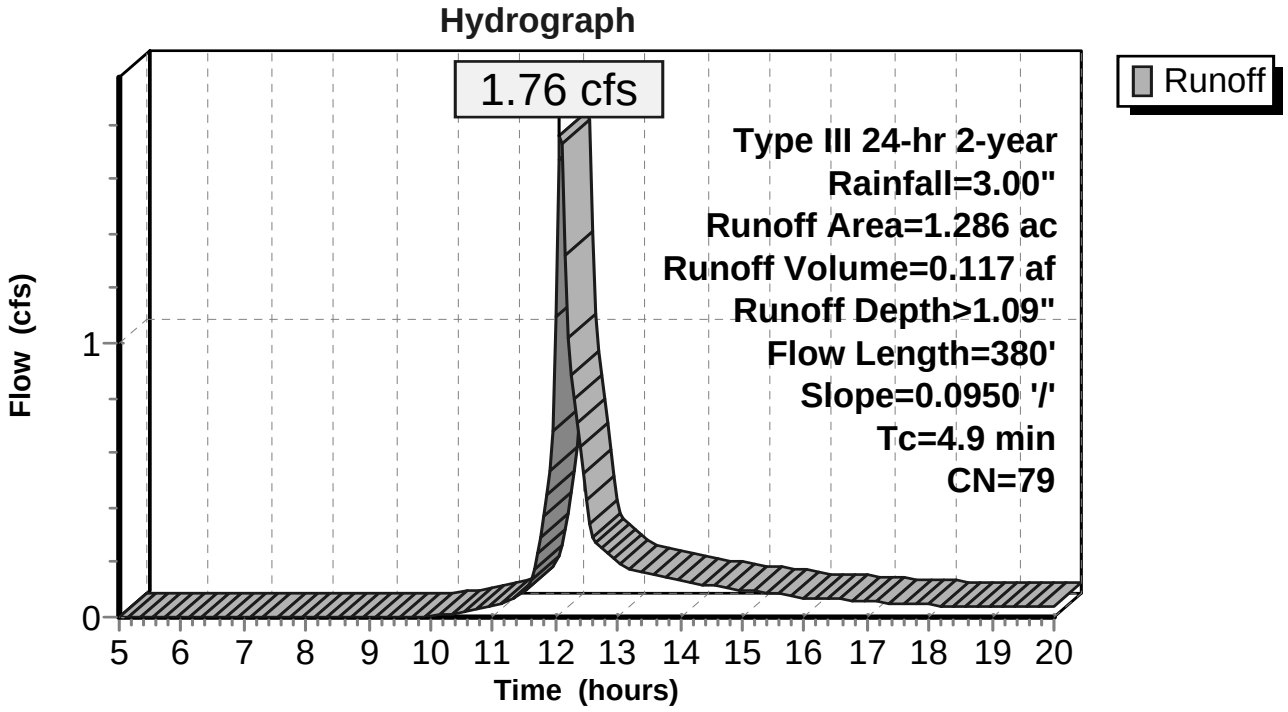
Runoff = 1.76 cfs @ 12.08 hrs, Volume= 0.117 af, Depth> 1.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

Area (ac)	CN	Description
1.286	79	Woods, Fair, HSG D
1.286		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	380	0.0950	1.29		**Lag/CN Method,**

Subcatchment 1: Area 1



Summary for Subcatchment 2: Area 2

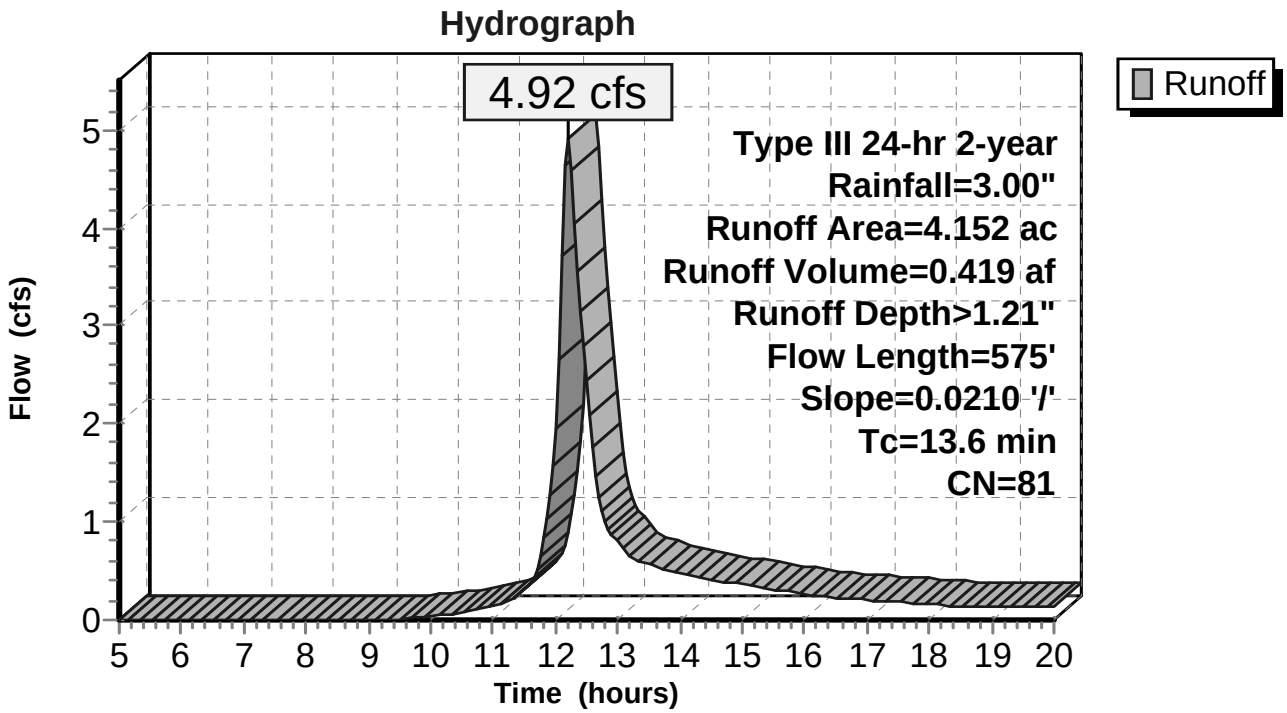
Runoff = 4.92 cfs @ 12.20 hrs, Volume= 0.419 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	3.526	79	Woods, Fair, HSG D
*	0.626	89	Forested Wetlands
	4.152	81	Weighted Average
	4.152		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	575	0.0210	0.70		**Lag/CN Method,**

Subcatchment 2: Area 2



Summary for Subcatchment 3: Area 3

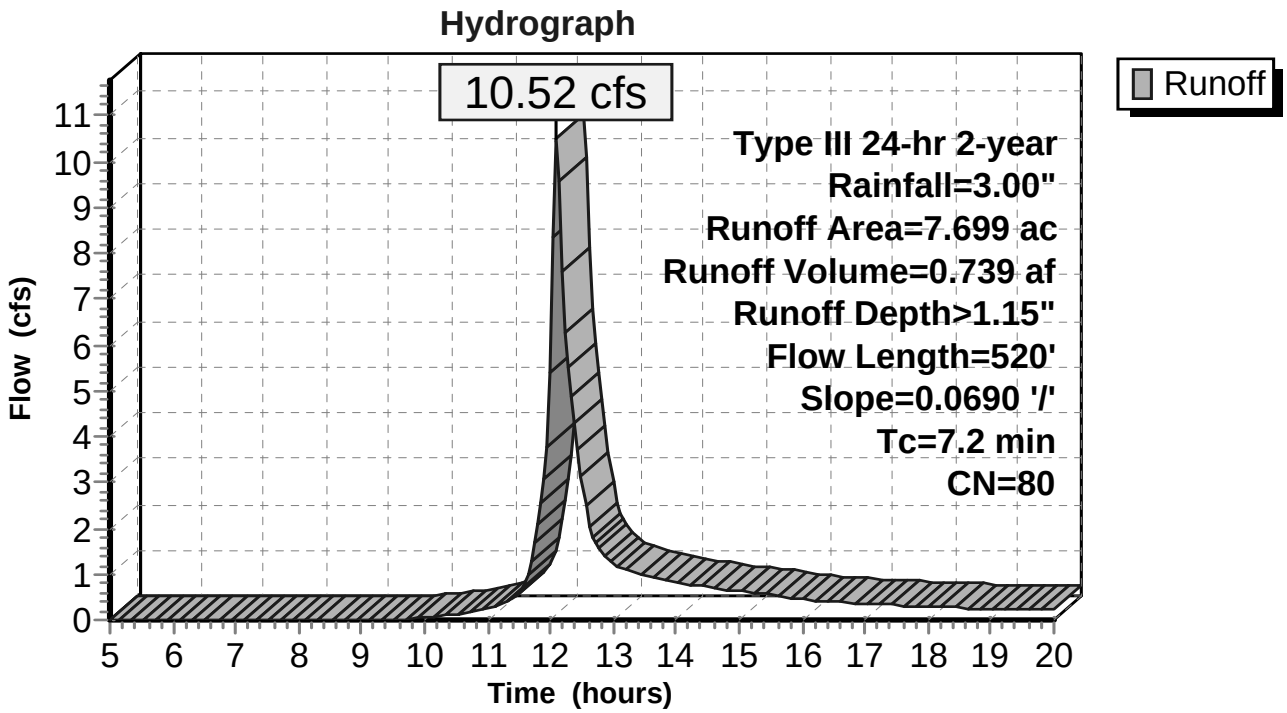
Runoff = 10.52 cfs @ 12.11 hrs, Volume= 0.739 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	6.994	79	Woods, Fair, HSG D
*	0.705	89	Forested Wetlands
	7.699	80	Weighted Average
	7.699		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	520	0.0690	1.21		**Lag/CN Method,**

Subcatchment 3: Area 3



Summary for Subcatchment 4: Area 4

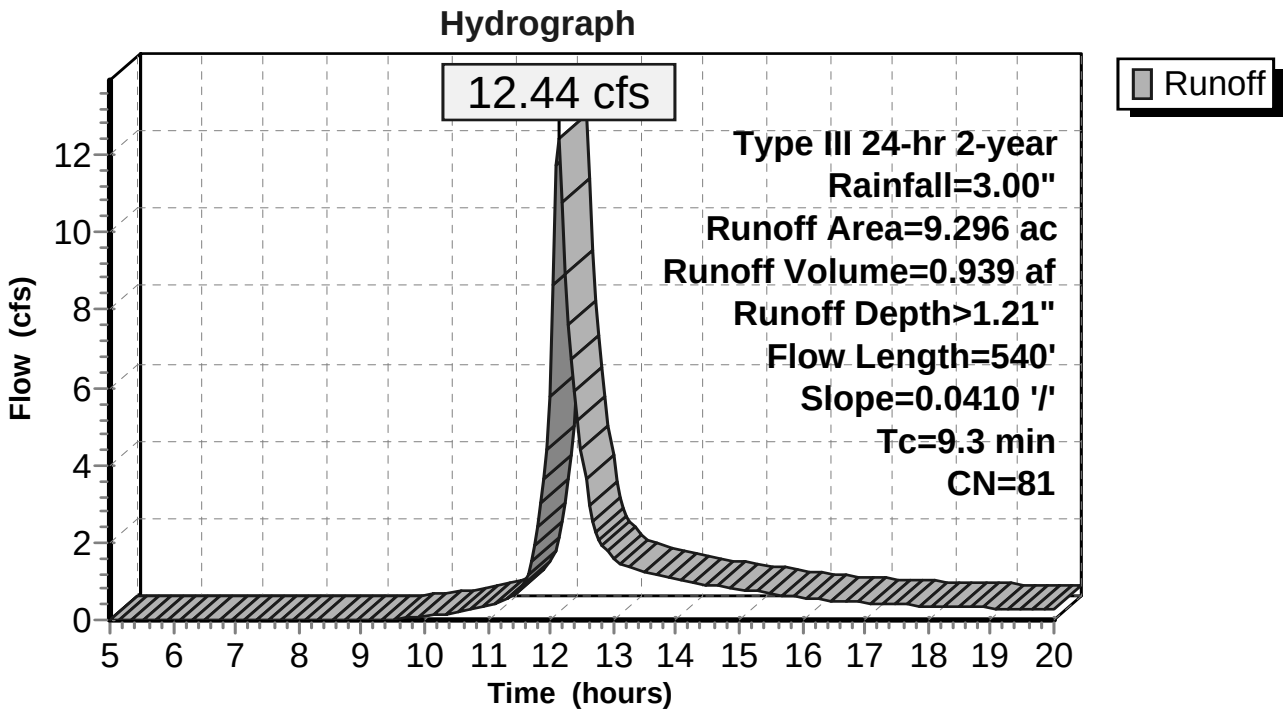
Runoff = 12.44 cfs @ 12.14 hrs, Volume= 0.939 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	7.763	79	Woods, Fair, HSG D
*	1.533	89	Forested Wetlands
	9.296	81	Weighted Average
	9.296		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	540	0.0410	0.97		**Lag/CN Method,**

Subcatchment 4: Area 4



Summary for Subcatchment 5: Area 5

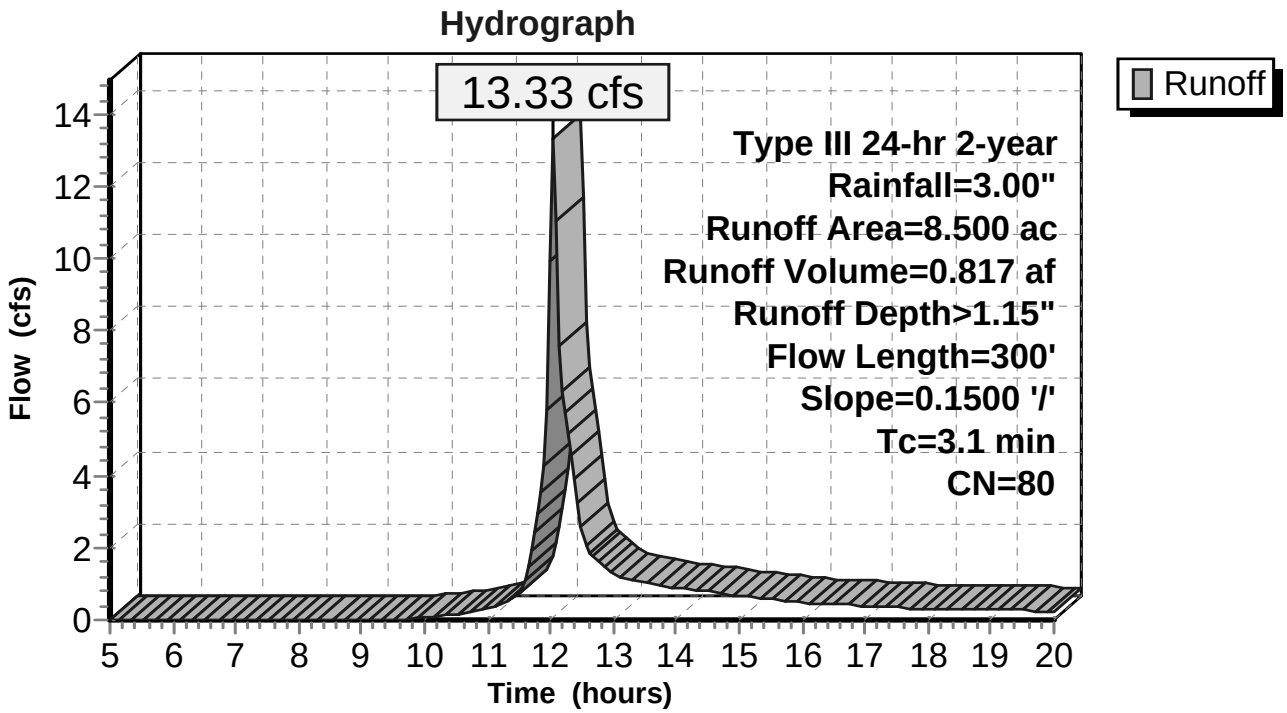
Runoff = 13.33 cfs @ 12.05 hrs, Volume= 0.817 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	7.814	79	Woods, Fair, HSG D
*	0.686	89	Foested Wetlands
	8.500	80	Weighted Average
	8.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.1500	1.60		**Lag/CN Method,**

Subcatchment 5: Area 5



Summary for Subcatchment 6: Area 6

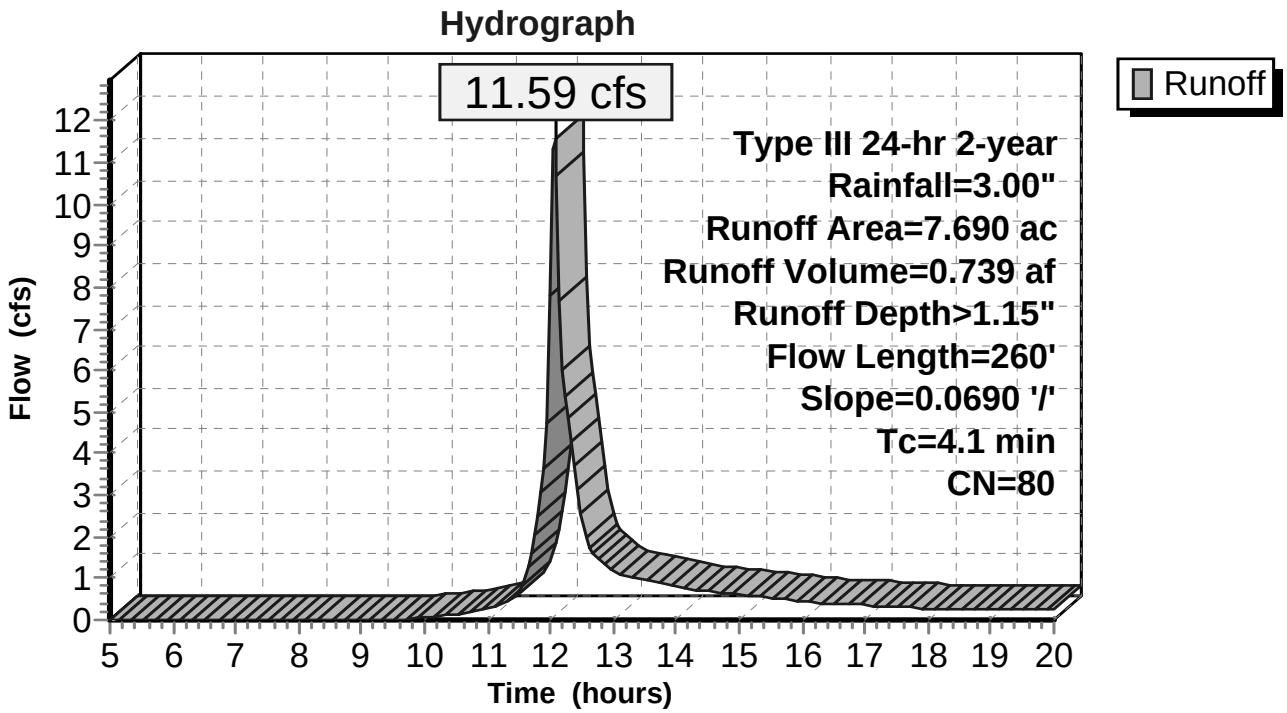
Runoff = 11.59 cfs @ 12.07 hrs, Volume= 0.739 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	7.238	79	Woods, Fair, HSG D
*	0.452	89	Forested Wetlands
	7.690	80	Weighted Average
	7.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	260	0.0690	1.05		**Lag/CN Method,**

Subcatchment 6: Area 6



Summary for Pond 2P: Wetlands

Inflow Area = 4.152 ac, 0.00% Impervious, Inflow Depth > 1.21" for 2-year event
Inflow = 4.92 cfs @ 12.20 hrs, Volume= 0.419 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 148.79' @ 20.00 hrs Surf.Area= 0.593 ac Storage= 0.418 af

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

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	0.547 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

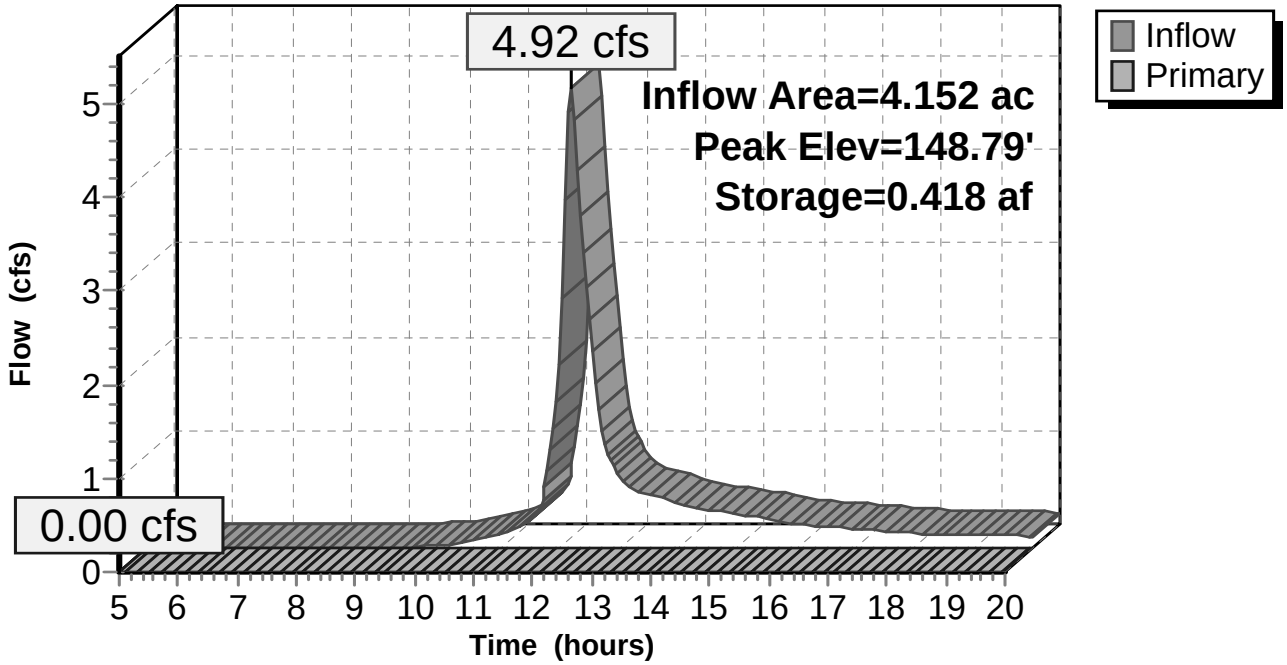
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
148.00	0.469	0.000	0.000
149.00	0.626	0.547	0.547

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=148.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: Wetlands

Hydrograph



Summary for Pond 3A: Wetlands

Inflow Area = 7.699 ac, 0.00% Impervious, Inflow Depth > 1.15" for 2-year event
Inflow = 10.52 cfs @ 12.11 hrs, Volume= 0.739 af
Outflow = 5.99 cfs @ 12.27 hrs, Volume= 0.721 af, Atten= 43%, Lag= 9.7 min
Primary = 5.99 cfs @ 12.27 hrs, Volume= 0.721 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 129.29' @ 12.27 hrs Surf.Area= 0.554 ac Storage= 0.158 af

Plug-Flow detention time= 30.5 min calculated for 0.721 af (98% of inflow)
Center-of-Mass det. time= 21.4 min (828.6 - 807.2)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	1.233 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

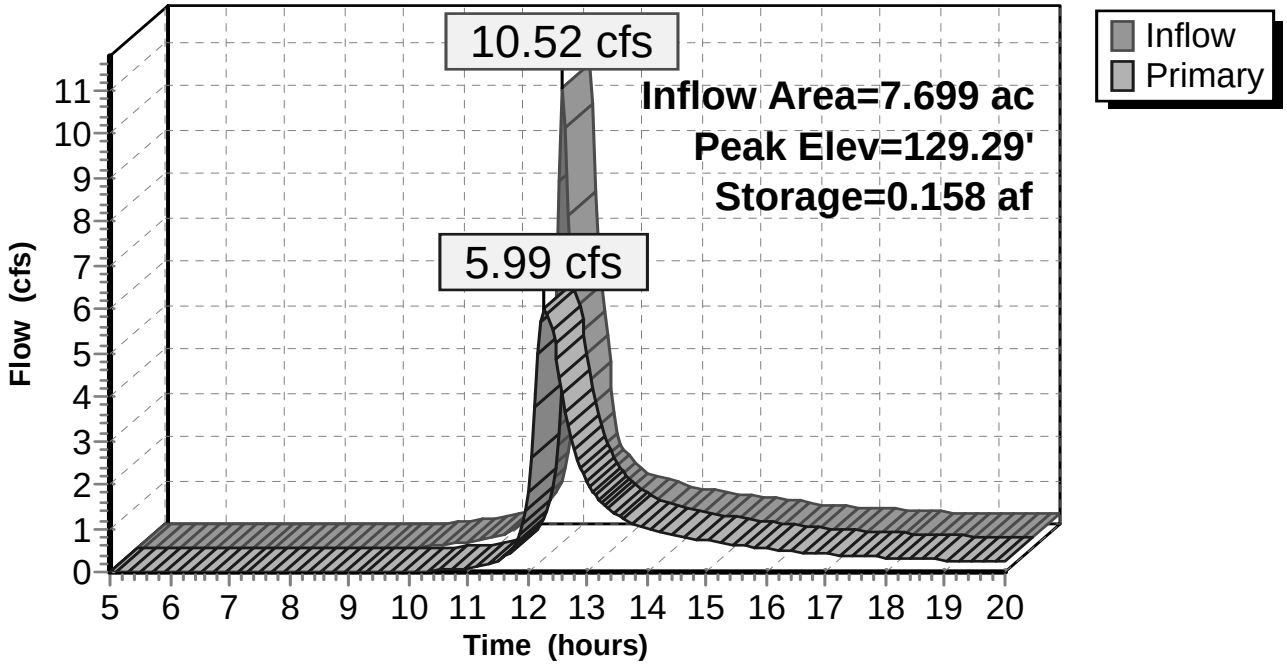
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
129.00	0.528	0.000	0.000
131.00	0.705	1.233	1.233

Device	Routing	Invert	Outlet Devices
#1	Primary	129.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.96 cfs @ 12.27 hrs HW=129.29' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 5.96 cfs @ 1.36 fps)

Pond 3A: Wetlands

Hydrograph



Summary for Pond 4A: Wetlands

Inflow Area = 9.296 ac, 0.00% Impervious, Inflow Depth > 1.21" for 2-year event
Inflow = 12.44 cfs @ 12.14 hrs, Volume= 0.939 af
Outflow = 5.65 cfs @ 12.42 hrs, Volume= 0.899 af, Atten= 55%, Lag= 16.8 min
Primary = 5.65 cfs @ 12.42 hrs, Volume= 0.899 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.23' @ 12.42 hrs Surf.Area= 1.194 ac Storage= 0.274 af

Plug-Flow detention time= 50.9 min calculated for 0.899 af (96% of inflow)
Center-of-Mass det. time= 35.8 min (842.1 - 806.3)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	2.682 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

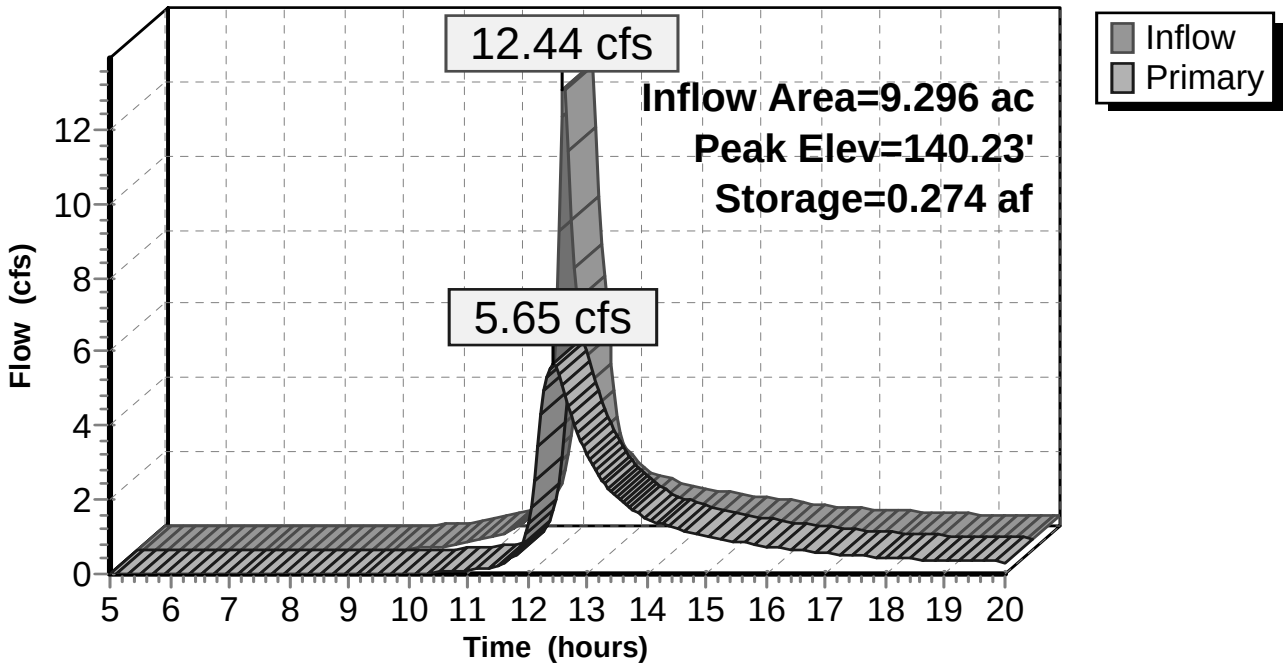
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
140.00	1.149	0.000	0.000
142.00	1.533	2.682	2.682

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.64 cfs @ 12.42 hrs HW=140.23' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 5.64 cfs @ 1.21 fps)

Pond 4A: Wetlands

Hydrograph



Summary for Pond 5A: Wetlands

Inflow Area = 8.500 ac, 0.00% Impervious, Inflow Depth > 1.15" for 2-year event
Inflow = 13.33 cfs @ 12.05 hrs, Volume= 0.817 af
Outflow = 7.81 cfs @ 12.16 hrs, Volume= 0.802 af, Atten= 41%, Lag= 6.3 min
Primary = 7.81 cfs @ 12.16 hrs, Volume= 0.802 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.29' @ 12.16 hrs Surf.Area= 0.539 ac Storage= 0.152 af

Plug-Flow detention time= 23.7 min calculated for 0.802 af (98% of inflow)
Center-of-Mass det. time= 16.6 min (820.7 - 804.1)

Volume	Invert	Avail.Storage	Storage Description
#1	152.00'	1.200 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

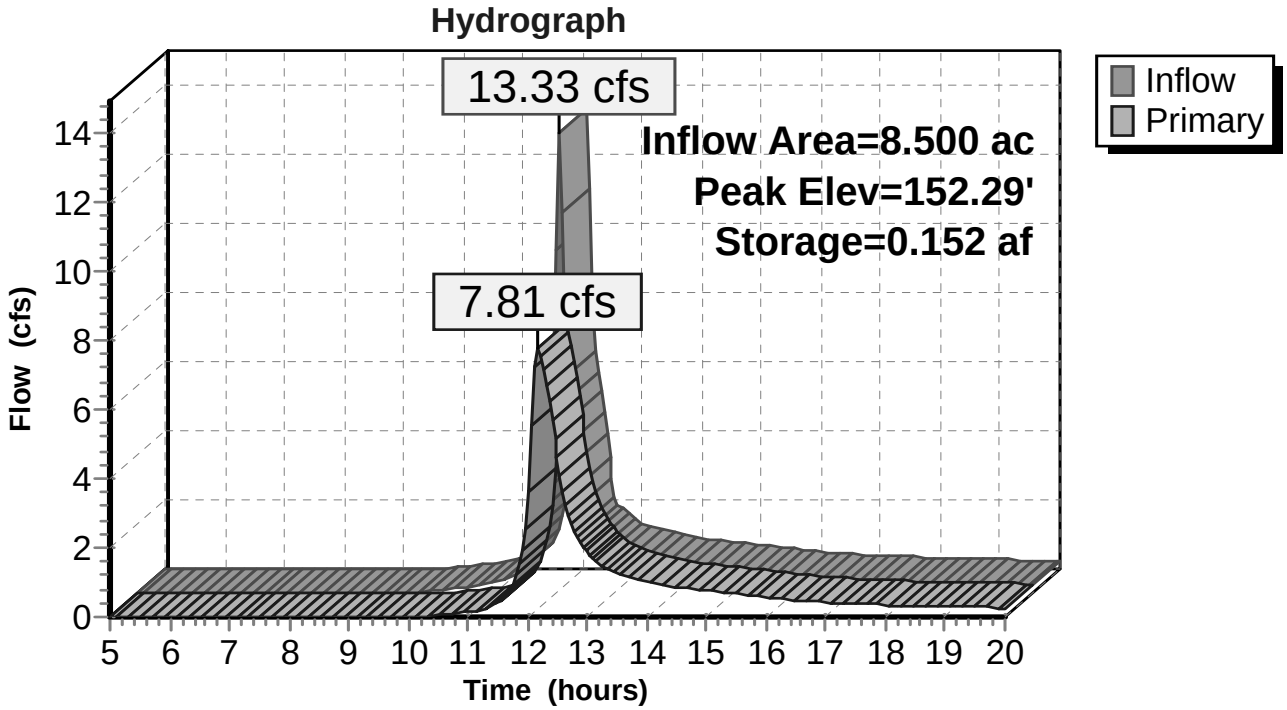
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
152.00	0.514	0.000	0.000
154.00	0.686	1.200	1.200

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=7.74 cfs @ 12.16 hrs HW=152.29' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 7.74 cfs @ 1.35 fps)

Pond 5A: Wetlands

Hydrograph



Summary for Pond 6A: Wetlands

Inflow Area = 7.690 ac, 0.00% Impervious, Inflow Depth > 1.15" for 2-year event
Inflow = 11.59 cfs @ 12.07 hrs, Volume= 0.739 af
Outflow = 8.27 cfs @ 12.15 hrs, Volume= 0.730 af, Atten= 29%, Lag= 5.0 min
Primary = 8.27 cfs @ 12.15 hrs, Volume= 0.730 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.30' @ 12.15 hrs Surf.Area= 0.356 ac Storage= 0.104 af

Plug-Flow detention time= 16.1 min calculated for 0.727 af (98% of inflow)
Center-of-Mass det. time= 11.3 min (816.2 - 804.8)

Volume	Invert	Avail.Storage	Storage Description
#1	174.00'	0.791 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

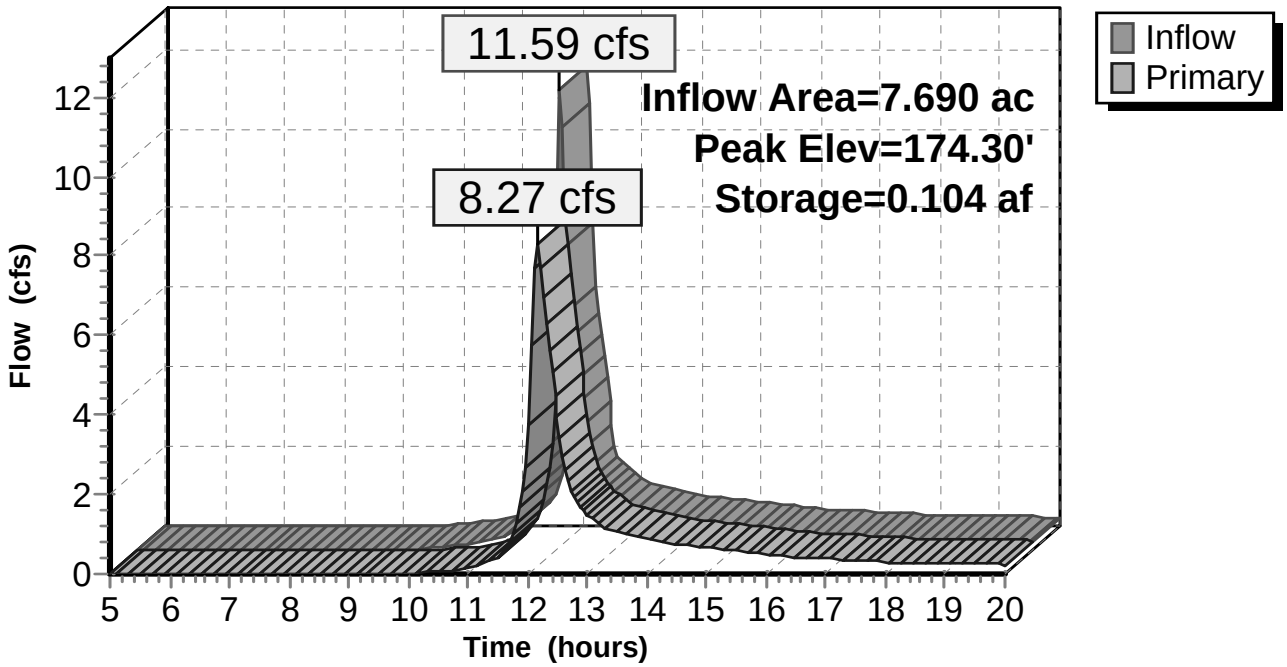
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
174.00	0.339	0.000	0.000
176.00	0.452	0.791	0.791

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=8.27 cfs @ 12.15 hrs HW=174.30' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 8.27 cfs @ 1.38 fps)

Pond 6A: Wetlands

Hydrograph



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

Subcatchment 1: Area 1 Runoff Area=1.286 ac 0.00% Impervious Runoff Depth>2.37"
Flow Length=380' Slope=0.0950 '/' Tc=4.9 min CN=79 Runoff=3.85 cfs 0.254 af

Subcatchment 2: Area 2 Runoff Area=4.152 ac 0.00% Impervious Runoff Depth>2.54"
Flow Length=575' Slope=0.0210 '/' Tc=13.6 min CN=81 Runoff=10.32 cfs 0.878 af

Subcatchment 3: Area 3 Runoff Area=7.699 ac 0.00% Impervious Runoff Depth>2.46"
Flow Length=520' Slope=0.0690 '/' Tc=7.2 min CN=80 Runoff=22.52 cfs 1.575 af

Subcatchment 4: Area 4 Runoff Area=9.296 ac 0.00% Impervious Runoff Depth>2.54"
Flow Length=540' Slope=0.0410 '/' Tc=9.3 min CN=81 Runoff=26.05 cfs 1.968 af

Subcatchment 5: Area 5 Runoff Area=8.500 ac 0.00% Impervious Runoff Depth>2.46"
Flow Length=300' Slope=0.1500 '/' Tc=3.1 min CN=80 Runoff=28.46 cfs 1.741 af

Subcatchment 6: Area 6 Runoff Area=7.690 ac 0.00% Impervious Runoff Depth>2.46"
Flow Length=260' Slope=0.0690 '/' Tc=4.1 min CN=80 Runoff=24.82 cfs 1.575 af

Pond 2P: Wetlands Peak Elev=149.20' Storage=0.547 af Inflow=10.32 cfs 0.878 af
Outflow=3.44 cfs 0.333 af

Pond 3A: Wetlands Peak Elev=129.52' Storage=0.289 af Inflow=22.52 cfs 1.575 af
Outflow=15.04 cfs 1.548 af

Pond 4A: Wetlands Peak Elev=140.42' Storage=0.504 af Inflow=26.05 cfs 1.968 af
Outflow=14.20 cfs 1.910 af

Pond 5A: Wetlands Peak Elev=152.51' Storage=0.274 af Inflow=28.46 cfs 1.741 af
Outflow=19.23 cfs 1.719 af

Pond 6A: Wetlands Peak Elev=174.52' Storage=0.183 af Inflow=24.82 cfs 1.575 af
Outflow=19.70 cfs 1.561 af

Total Runoff Area = 38.623 ac Runoff Volume = 7.991 af Average Runoff Depth = 2.48"
100.00% Pervious = 38.623 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1: Area 1

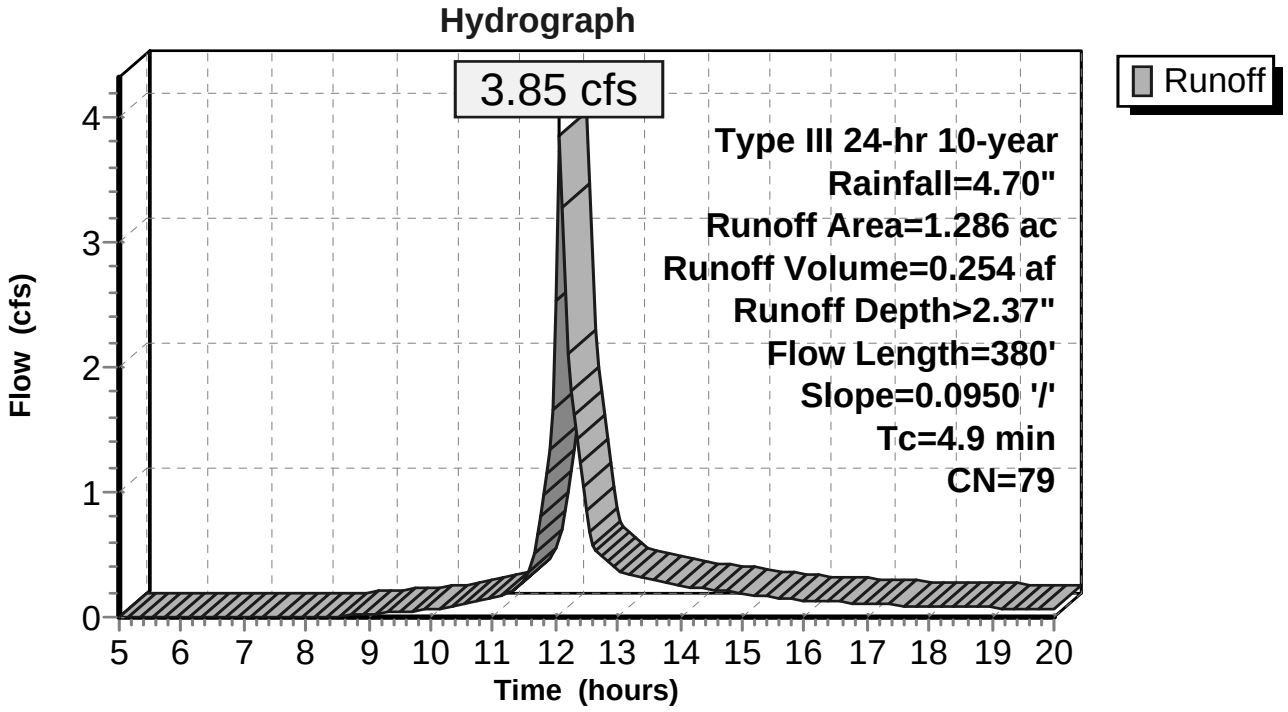
Runoff = 3.85 cfs @ 12.08 hrs, Volume= 0.254 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (ac)	CN	Description
1.286	79	Woods, Fair, HSG D
1.286		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	380	0.0950	1.29		**Lag/CN Method,**

Subcatchment 1: Area 1



Summary for Subcatchment 2: Area 2

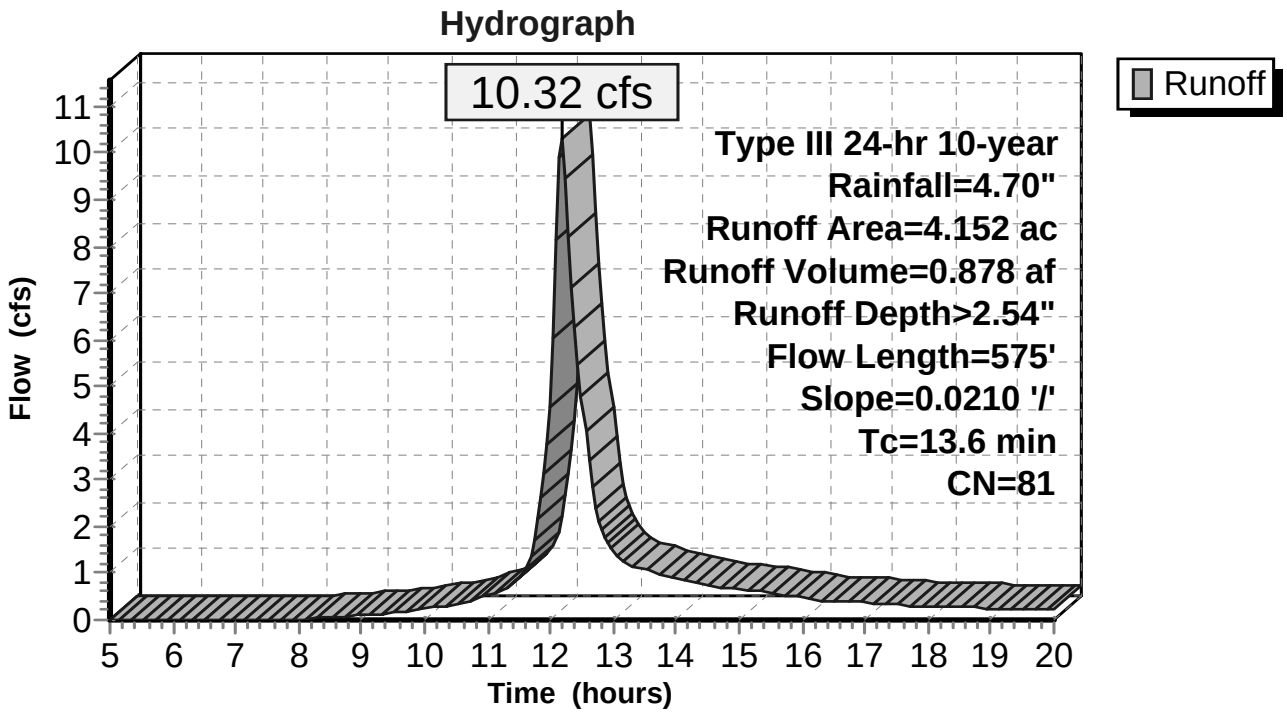
Runoff = 10.32 cfs @ 12.19 hrs, Volume= 0.878 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	3.526	79	Woods, Fair, HSG D
*	0.626	89	Forested Wetlands
	4.152	81	Weighted Average
	4.152		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	575	0.0210	0.70		**Lag/CN Method,**

Subcatchment 2: Area 2



Summary for Subcatchment 3: Area 3

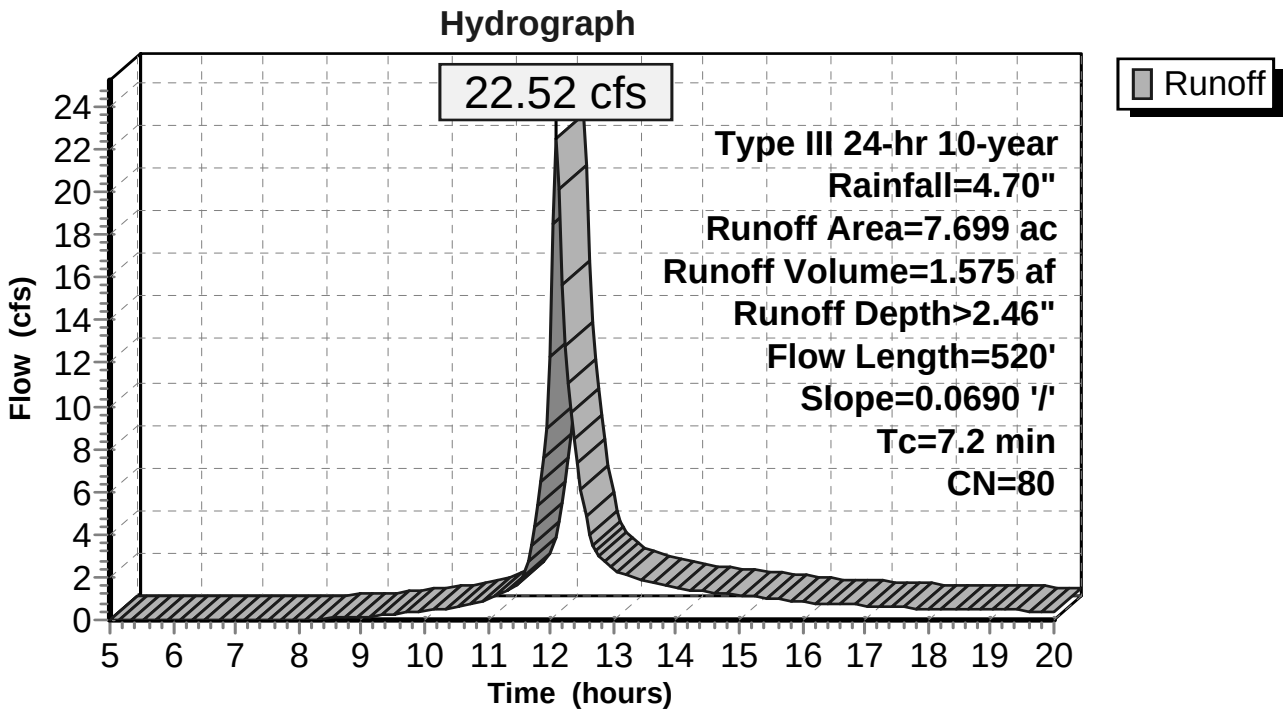
Runoff = 22.52 cfs @ 12.11 hrs, Volume= 1.575 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	6.994	79	Woods, Fair, HSG D
*	0.705	89	Forested Wetlands
	7.699	80	Weighted Average
	7.699		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	520	0.0690	1.21		**Lag/CN Method,**

Subcatchment 3: Area 3



Summary for Subcatchment 4: Area 4

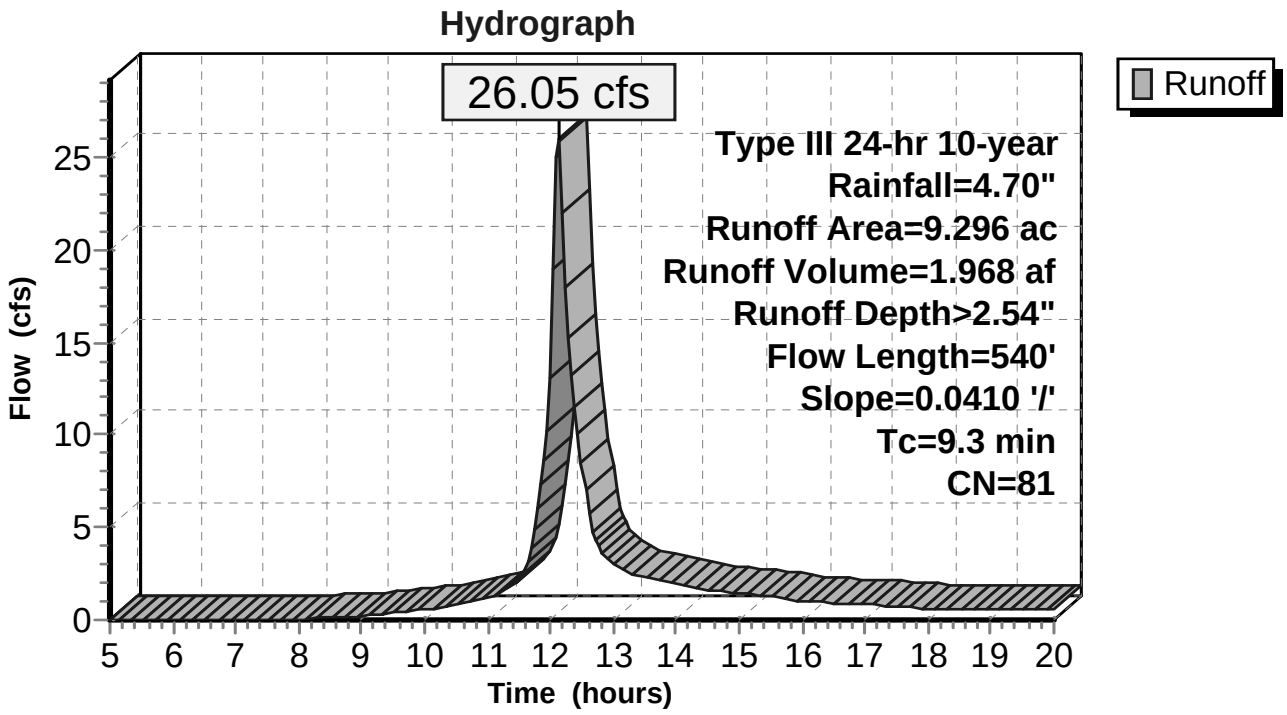
Runoff = 26.05 cfs @ 12.13 hrs, Volume= 1.968 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	7.763	79	Woods, Fair, HSG D
*	1.533	89	Forested Wetlands
	9.296	81	Weighted Average
	9.296		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	540	0.0410	0.97		**Lag/CN Method,**

Subcatchment 4: Area 4



Summary for Subcatchment 5: Area 5

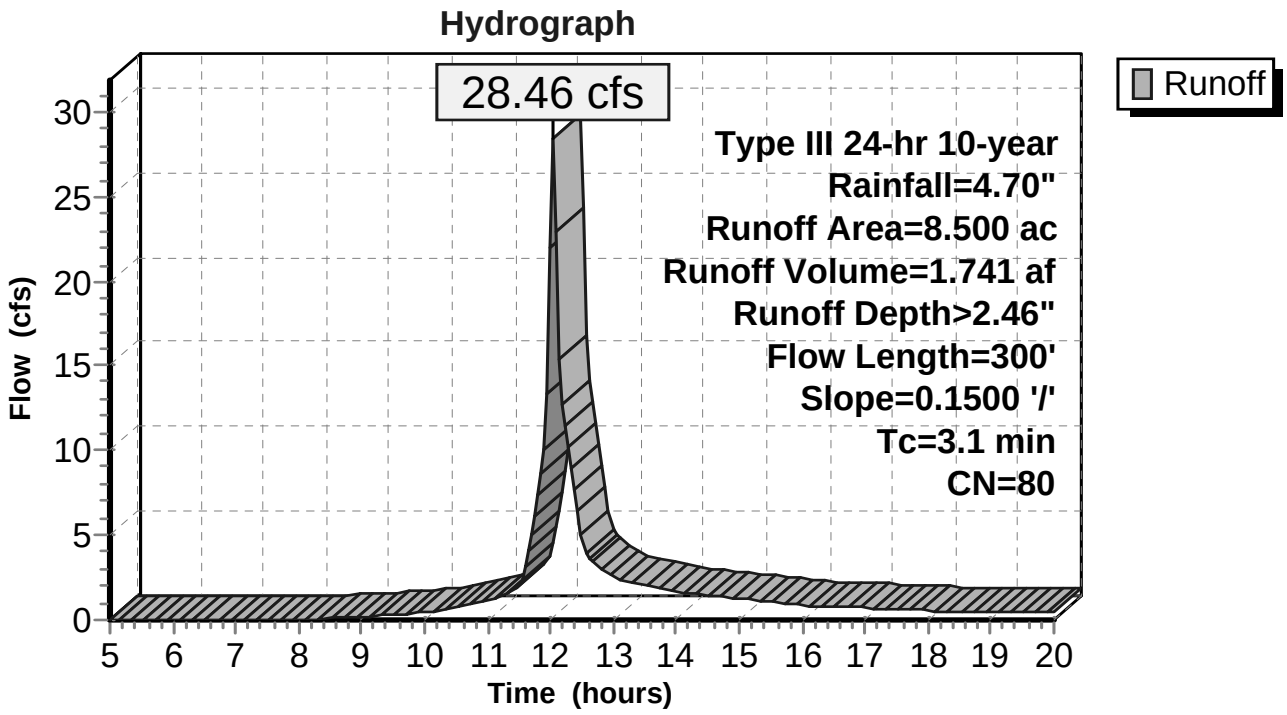
Runoff = 28.46 cfs @ 12.05 hrs, Volume= 1.741 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	7.814	79	Woods, Fair, HSG D
*	0.686	89	Foested Wetlands
	8.500	80	Weighted Average
	8.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.1500	1.60		**Lag/CN Method,**

Subcatchment 5: Area 5



Summary for Subcatchment 6: Area 6

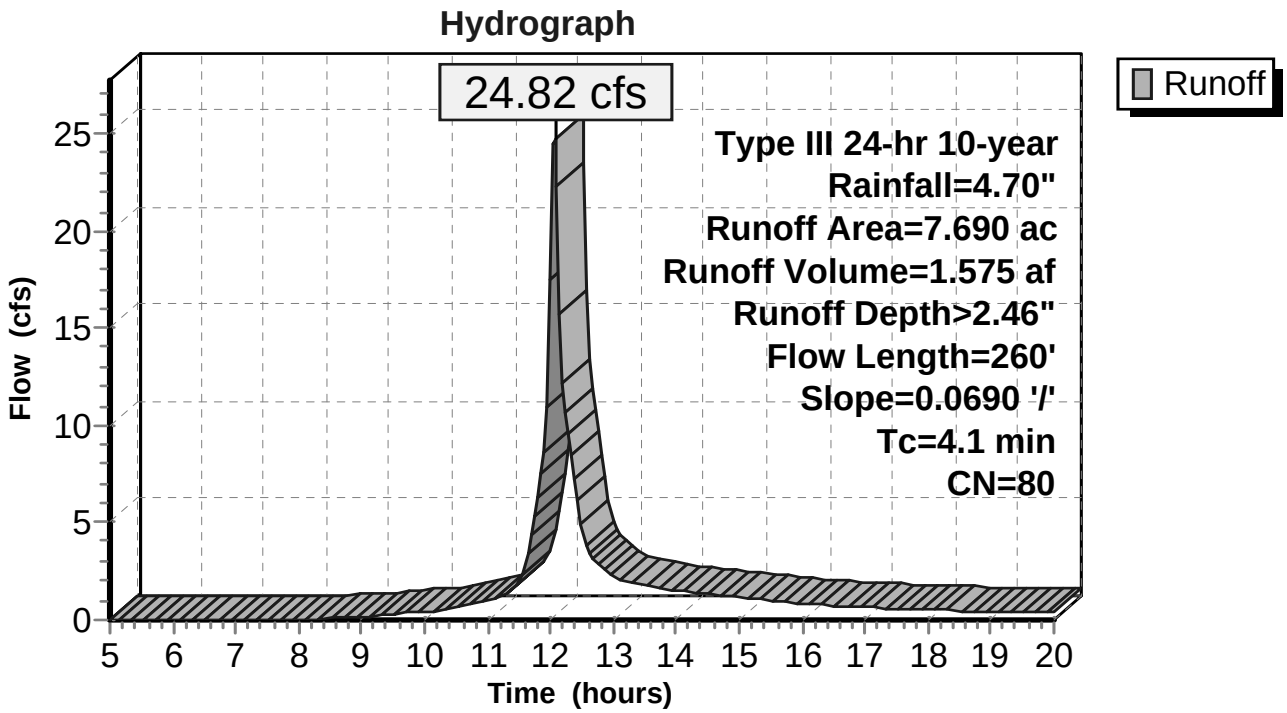
Runoff = 24.82 cfs @ 12.06 hrs, Volume= 1.575 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	7.238	79	Woods, Fair, HSG D
*	0.452	89	Forested Wetlands
	7.690	80	Weighted Average
	7.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	260	0.0690	1.05		**Lag/CN Method,**

Subcatchment 6: Area 6



Summary for Pond 2P: Wetlands

Inflow Area = 4.152 ac, 0.00% Impervious, Inflow Depth > 2.54" for 10-year event
Inflow = 10.32 cfs @ 12.19 hrs, Volume= 0.878 af
Outflow = 3.44 cfs @ 12.85 hrs, Volume= 0.333 af, Atten= 67%, Lag= 39.6 min
Primary = 3.44 cfs @ 12.85 hrs, Volume= 0.333 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 149.20' @ 12.85 hrs Surf.Area= 0.626 ac Storage= 0.547 af

Plug-Flow detention time= 211.1 min calculated for 0.333 af (38% of inflow)
Center-of-Mass det. time= 120.6 min (913.6 - 793.0)

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	0.547 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

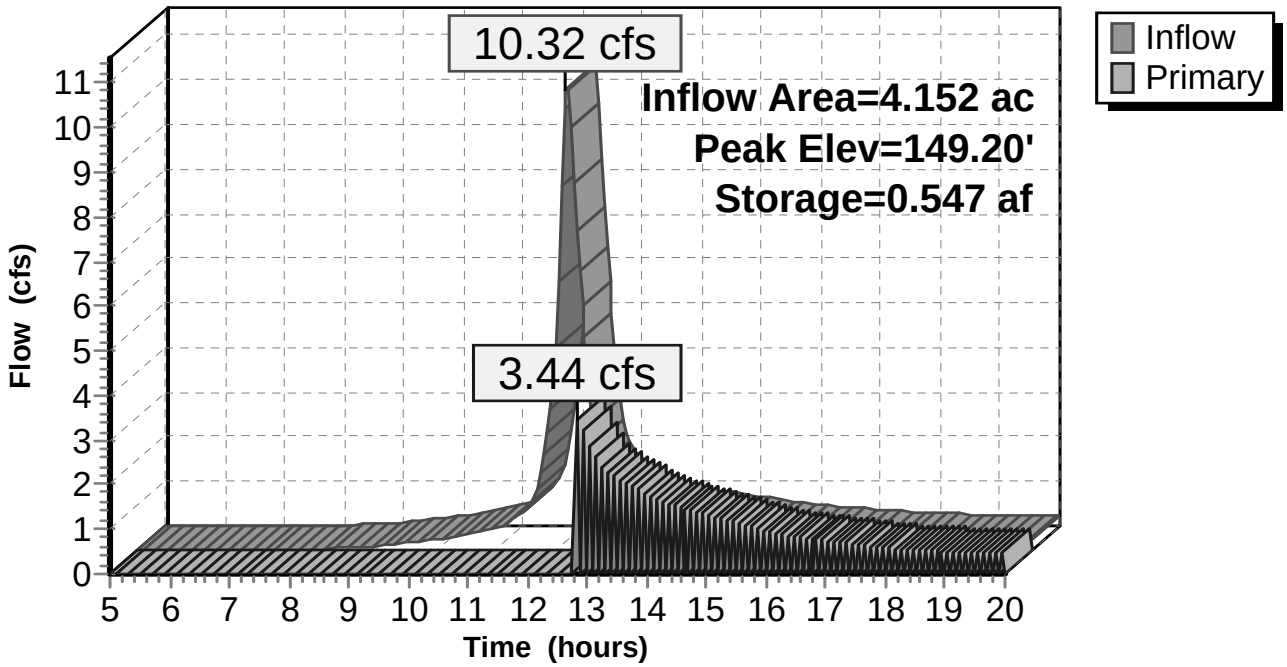
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
148.00	0.469	0.000	0.000
149.00	0.626	0.547	0.547

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.44 cfs @ 12.85 hrs HW=149.20' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 3.44 cfs @ 1.13 fps)

Pond 2P: Wetlands

Hydrograph



Summary for Pond 3A: Wetlands

Inflow Area = 7.699 ac, 0.00% Impervious, Inflow Depth > 2.46" for 10-year event
Inflow = 22.52 cfs @ 12.11 hrs, Volume= 1.575 af
Outflow = 15.04 cfs @ 12.22 hrs, Volume= 1.548 af, Atten= 33%, Lag= 6.6 min
Primary = 15.04 cfs @ 12.22 hrs, Volume= 1.548 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 129.52' @ 12.22 hrs Surf.Area= 0.574 ac Storage= 0.289 af

Plug-Flow detention time= 24.4 min calculated for 1.543 af (98% of inflow)
Center-of-Mass det. time= 17.7 min (807.9 - 790.2)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	1.233 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

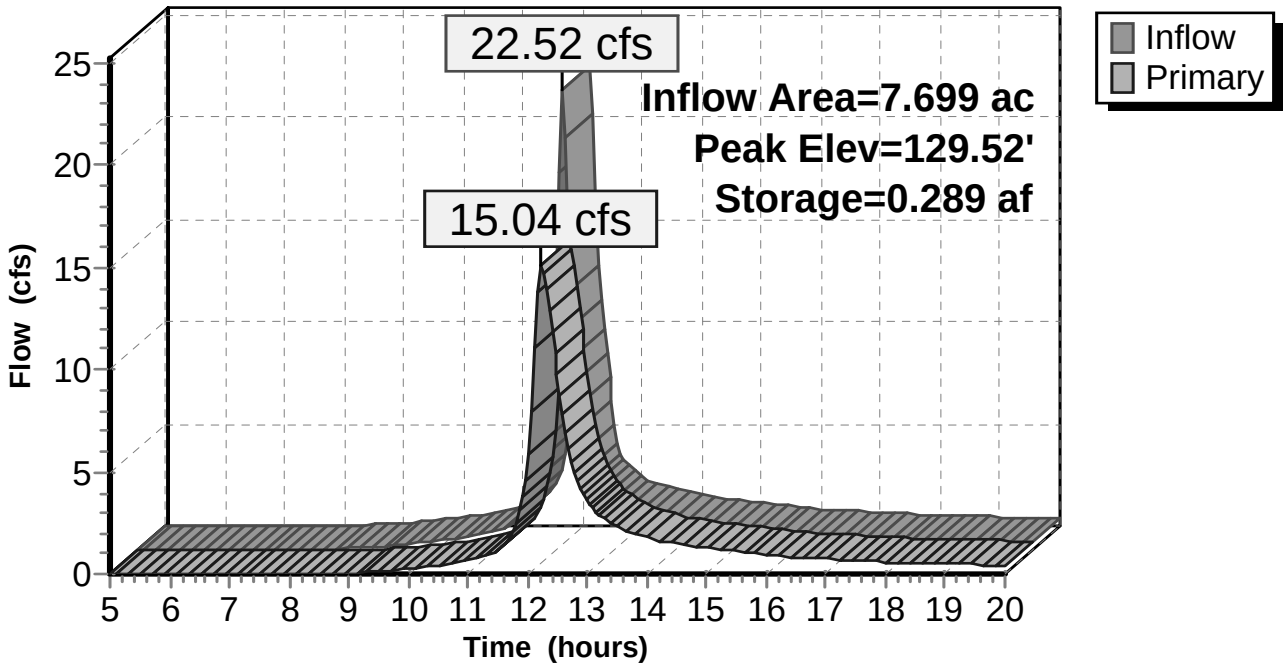
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
129.00	0.528	0.000	0.000
131.00	0.705	1.233	1.233

Device	Routing	Invert	Outlet Devices
#1	Primary	129.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=14.88 cfs @ 12.22 hrs HW=129.52' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 14.88 cfs @ 1.91 fps)

Pond 3A: Wetlands

Hydrograph



Summary for Pond 4A: Wetlands

Inflow Area = 9.296 ac, 0.00% Impervious, Inflow Depth > 2.54" for 10-year event
Inflow = 26.05 cfs @ 12.13 hrs, Volume= 1.968 af
Outflow = 14.20 cfs @ 12.33 hrs, Volume= 1.910 af, Atten= 45%, Lag= 11.6 min
Primary = 14.20 cfs @ 12.33 hrs, Volume= 1.910 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.42' @ 12.33 hrs Surf.Area= 1.230 ac Storage= 0.504 af

Plug-Flow detention time= 40.9 min calculated for 1.910 af (97% of inflow)
Center-of-Mass det. time= 29.8 min (819.4 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	2.682 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

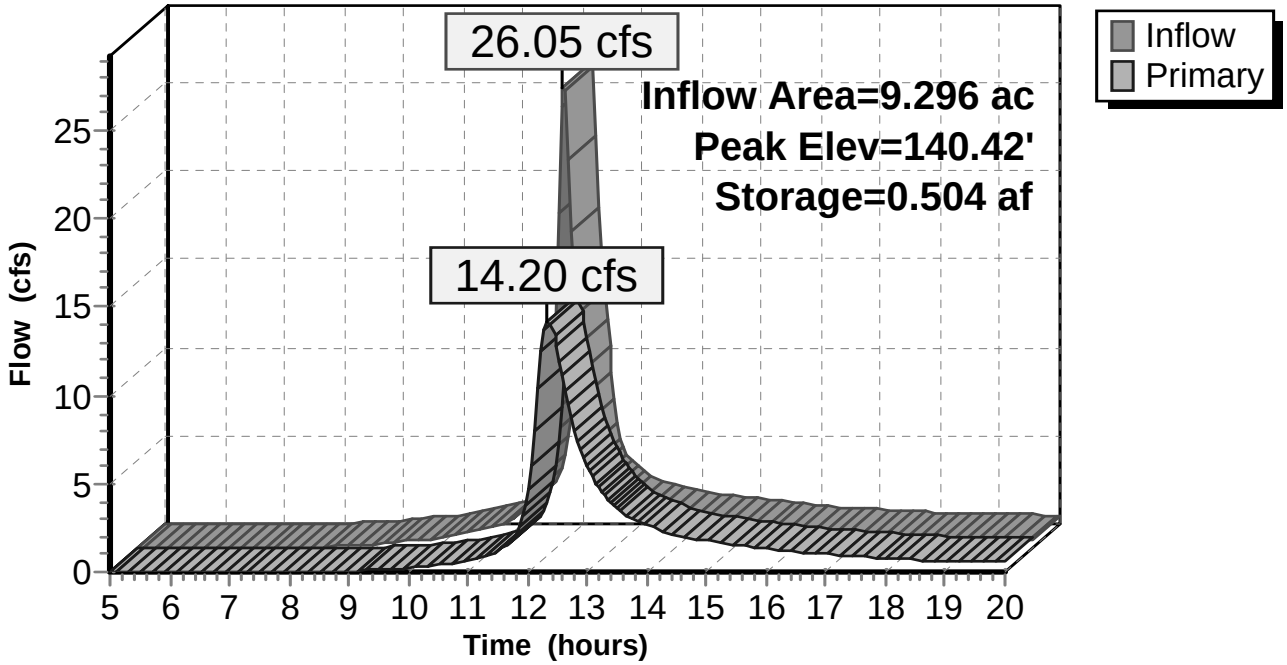
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
140.00	1.149	0.000	0.000
142.00	1.533	2.682	2.682

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=14.16 cfs @ 12.33 hrs HW=140.42' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 14.16 cfs @ 1.67 fps)

Pond 4A: Wetlands

Hydrograph



Summary for Pond 5A: Wetlands

Inflow Area = 8.500 ac, 0.00% Impervious, Inflow Depth > 2.46" for 10-year event
Inflow = 28.46 cfs @ 12.05 hrs, Volume= 1.741 af
Outflow = 19.23 cfs @ 12.13 hrs, Volume= 1.719 af, Atten= 32%, Lag= 4.5 min
Primary = 19.23 cfs @ 12.13 hrs, Volume= 1.719 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.51' @ 12.13 hrs Surf.Area= 0.558 ac Storage= 0.274 af

Plug-Flow detention time= 19.0 min calculated for 1.719 af (99% of inflow)
Center-of-Mass det. time= 13.8 min (800.7 - 786.9)

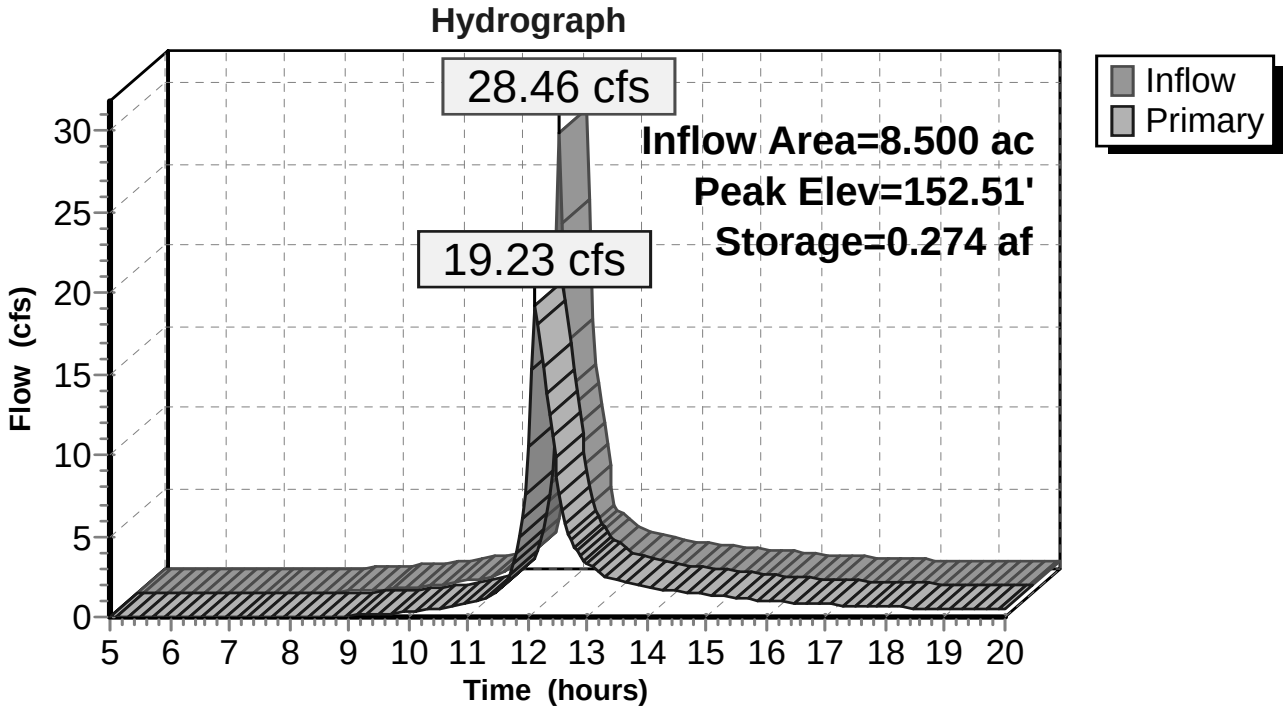
Volume	Invert	Avail.Storage	Storage Description
#1	152.00'	1.200 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
152.00	0.514	0.000	0.000
154.00	0.686	1.200	1.200

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=19.00 cfs @ 12.13 hrs HW=152.51' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 19.00 cfs @ 1.88 fps)

Pond 5A: Wetlands



Summary for Pond 6A: Wetlands

Inflow Area = 7.690 ac, 0.00% Impervious, Inflow Depth > 2.46" for 10-year event
Inflow = 24.82 cfs @ 12.06 hrs, Volume= 1.575 af
Outflow = 19.70 cfs @ 12.12 hrs, Volume= 1.561 af, Atten= 21%, Lag= 3.6 min
Primary = 19.70 cfs @ 12.12 hrs, Volume= 1.561 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.52' @ 12.12 hrs Surf.Area= 0.368 ac Storage= 0.183 af

Plug-Flow detention time= 12.9 min calculated for 1.556 af (99% of inflow)
Center-of-Mass det. time= 9.4 min (797.1 - 787.7)

Volume	Invert	Avail.Storage	Storage Description
#1	174.00'	0.791 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

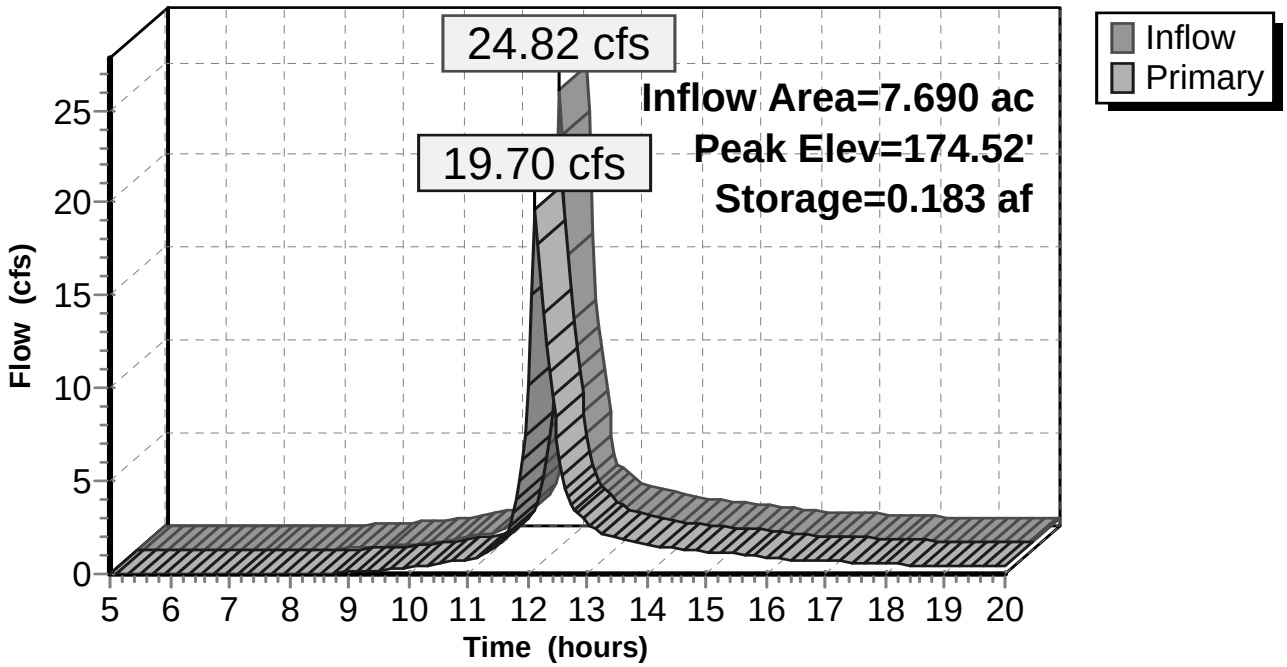
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
174.00	0.339	0.000	0.000
176.00	0.452	0.791	0.791

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=19.17 cfs @ 12.12 hrs HW=174.51' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 19.17 cfs @ 1.88 fps)

Pond 6A: Wetlands

Hydrograph



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

Subcatchment 1: Area 1 Runoff Area=1.286 ac 0.00% Impervious Runoff Depth>3.03"
Flow Length=380' Slope=0.0950 '/' Tc=4.9 min CN=79 Runoff=4.92 cfs 0.324 af

Subcatchment 2: Area 2 Runoff Area=4.152 ac 0.00% Impervious Runoff Depth>3.21"
Flow Length=575' Slope=0.0210 '/' Tc=13.6 min CN=81 Runoff=12.98 cfs 1.110 af

Subcatchment 3: Area 3 Runoff Area=7.699 ac 0.00% Impervious Runoff Depth>3.12"
Flow Length=520' Slope=0.0690 '/' Tc=7.2 min CN=80 Runoff=28.46 cfs 2.001 af

Subcatchment 4: Area 4 Runoff Area=9.296 ac 0.00% Impervious Runoff Depth>3.21"
Flow Length=540' Slope=0.0410 '/' Tc=9.3 min CN=81 Runoff=32.74 cfs 2.488 af

Subcatchment 5: Area 5 Runoff Area=8.500 ac 0.00% Impervious Runoff Depth>3.12"
Flow Length=300' Slope=0.1500 '/' Tc=3.1 min CN=80 Runoff=35.93 cfs 2.212 af

Subcatchment 6: Area 6 Runoff Area=7.690 ac 0.00% Impervious Runoff Depth>3.12"
Flow Length=260' Slope=0.0690 '/' Tc=4.1 min CN=80 Runoff=31.36 cfs 2.000 af

Pond 2P: Wetlands Peak Elev=149.38' Storage=0.547 af Inflow=12.98 cfs 1.110 af
Outflow=8.84 cfs 0.565 af

Pond 3A: Wetlands Peak Elev=129.62' Storage=0.344 af Inflow=28.46 cfs 2.001 af
Outflow=19.73 cfs 1.970 af

Pond 4A: Wetlands Peak Elev=140.50' Storage=0.604 af Inflow=32.74 cfs 2.488 af
Outflow=18.87 cfs 2.423 af

Pond 5A: Wetlands Peak Elev=152.61' Storage=0.328 af Inflow=35.93 cfs 2.212 af
Outflow=25.59 cfs 2.186 af

Pond 6A: Wetlands Peak Elev=174.61' Storage=0.216 af Inflow=31.36 cfs 2.000 af
Outflow=25.58 cfs 1.985 af

Total Runoff Area = 38.623 ac Runoff Volume = 10.135 af Average Runoff Depth = 3.15"
100.00% Pervious = 38.623 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1: Area 1

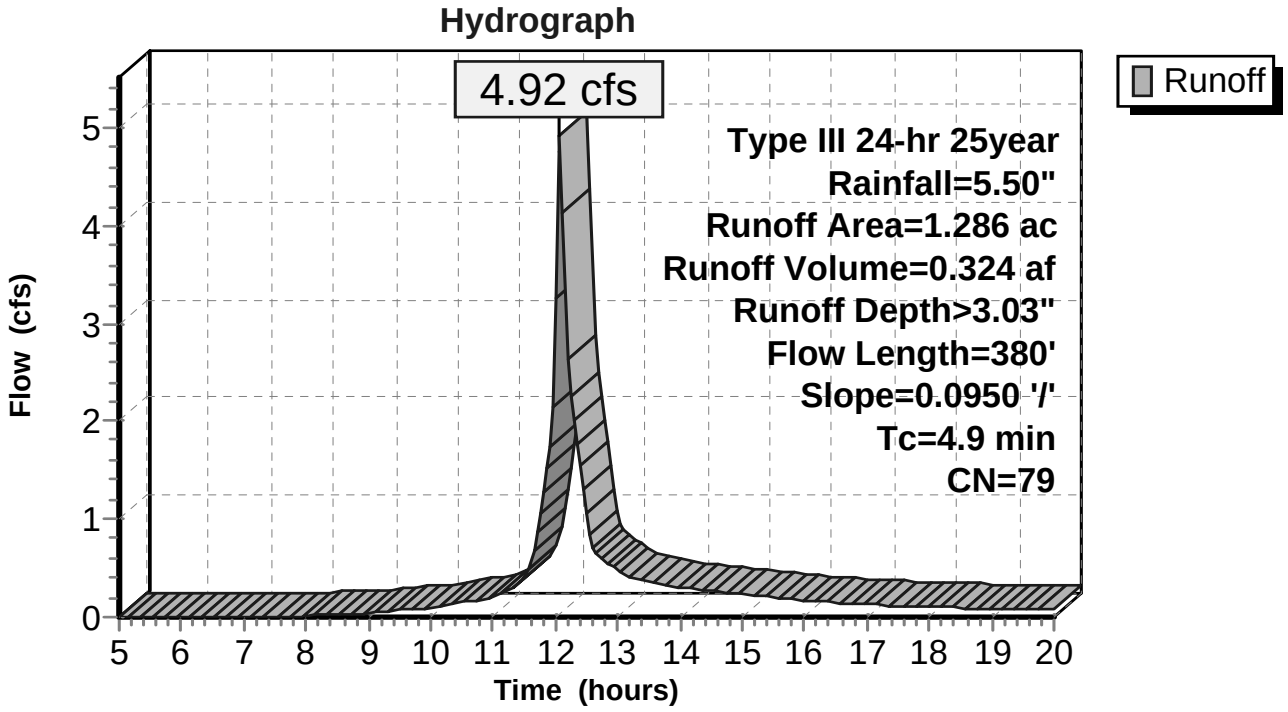
Runoff = 4.92 cfs @ 12.07 hrs, Volume= 0.324 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

Area (ac)	CN	Description
1.286	79	Woods, Fair, HSG D
1.286		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	380	0.0950	1.29		**Lag/CN Method,**

Subcatchment 1: Area 1



Summary for Subcatchment 2: Area 2

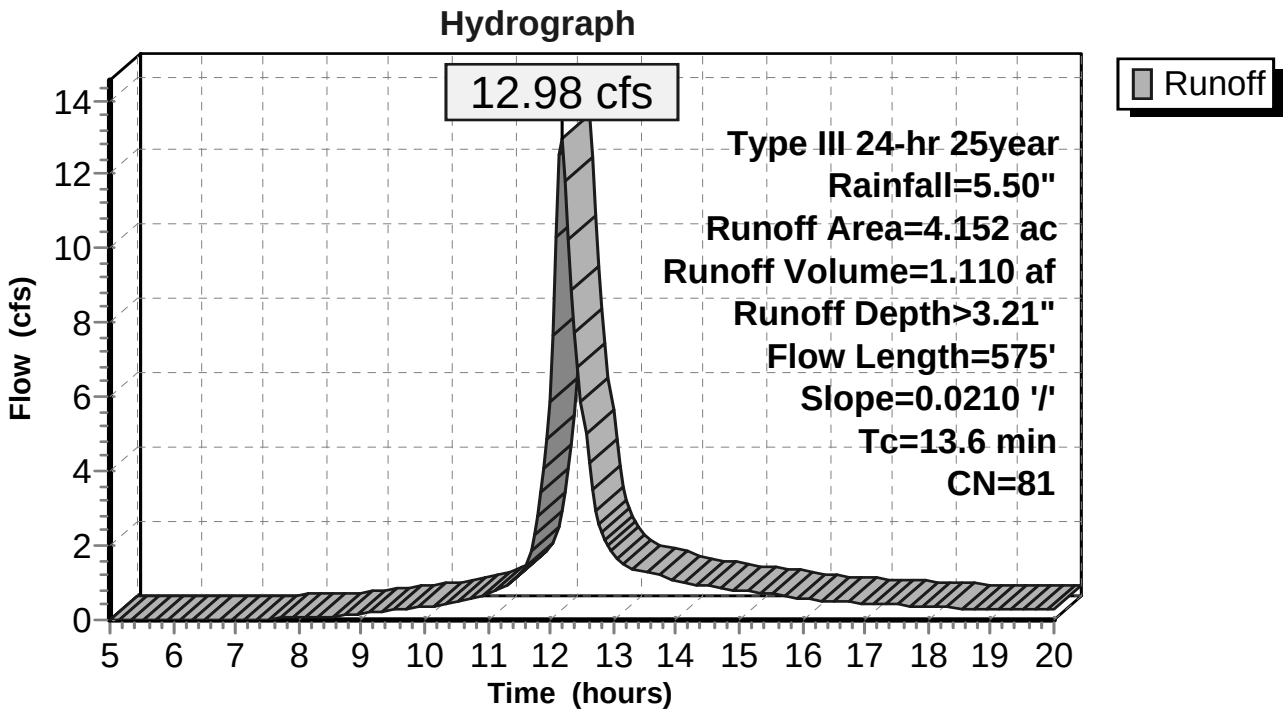
Runoff = 12.98 cfs @ 12.19 hrs, Volume= 1.110 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	3.526	79	Woods, Fair, HSG D
*	0.626	89	Forested Wetlands
	4.152	81	Weighted Average
	4.152		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	575	0.0210	0.70		**Lag/CN Method,**

Subcatchment 2: Area 2



Summary for Subcatchment 3: Area 3

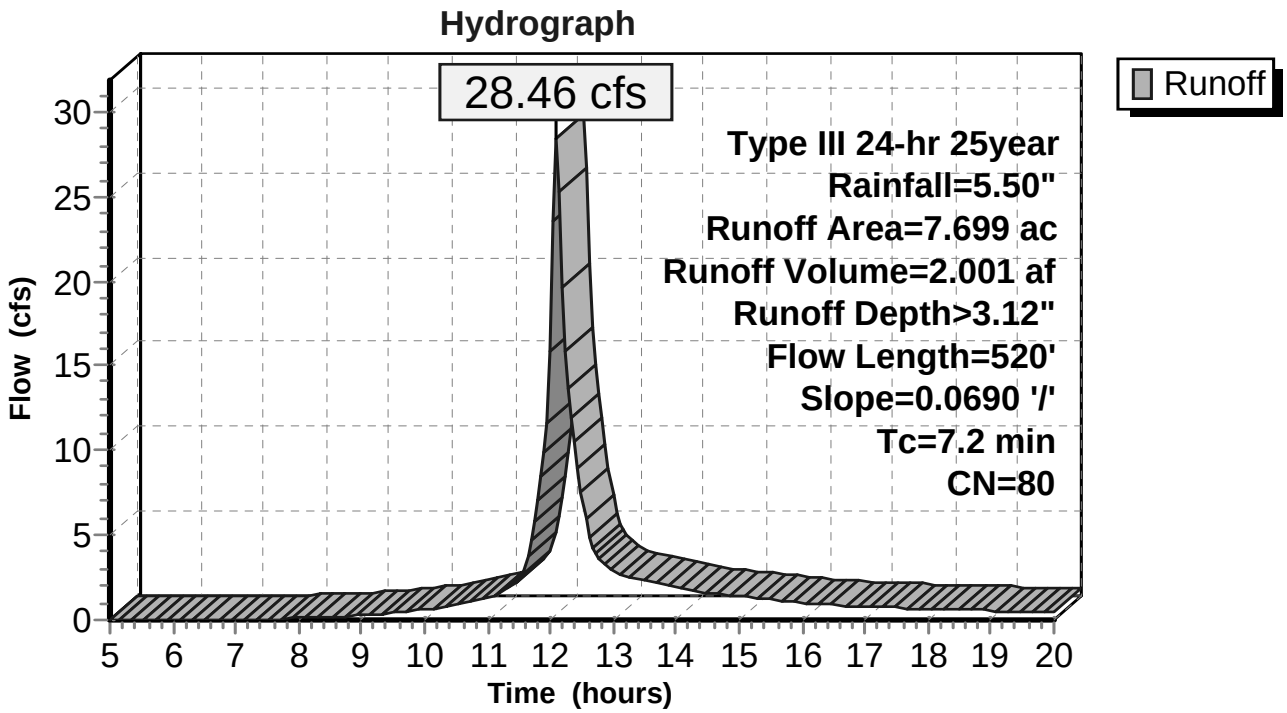
Runoff = 28.46 cfs @ 12.11 hrs, Volume= 2.001 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	6.994	79	Woods, Fair, HSG D
*	0.705	89	Forested Wetlands
	7.699	80	Weighted Average
	7.699		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	520	0.0690	1.21		**Lag/CN Method,**

Subcatchment 3: Area 3



Summary for Subcatchment 4: Area 4

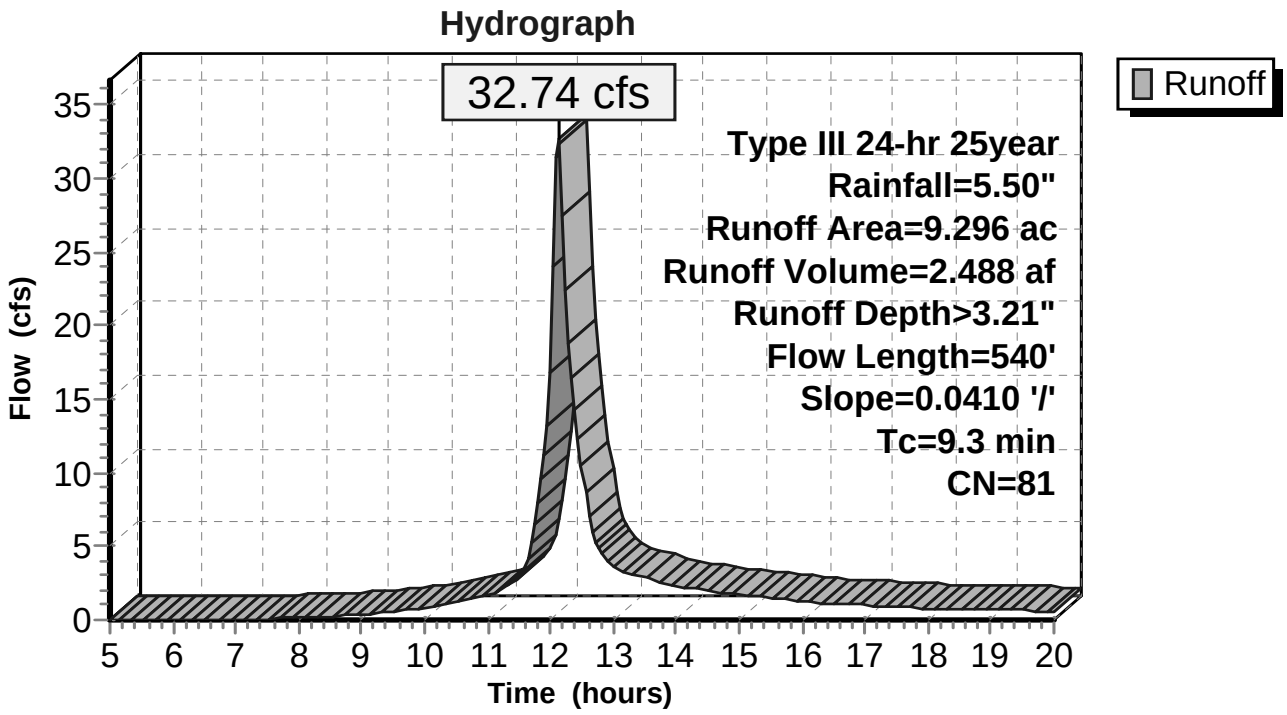
Runoff = 32.74 cfs @ 12.13 hrs, Volume= 2.488 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	7.763	79	Woods, Fair, HSG D
*	1.533	89	Forested Wetlands
	9.296	81	Weighted Average
	9.296		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	540	0.0410	0.97		**Lag/CN Method,**

Subcatchment 4: Area 4



Summary for Subcatchment 5: Area 5

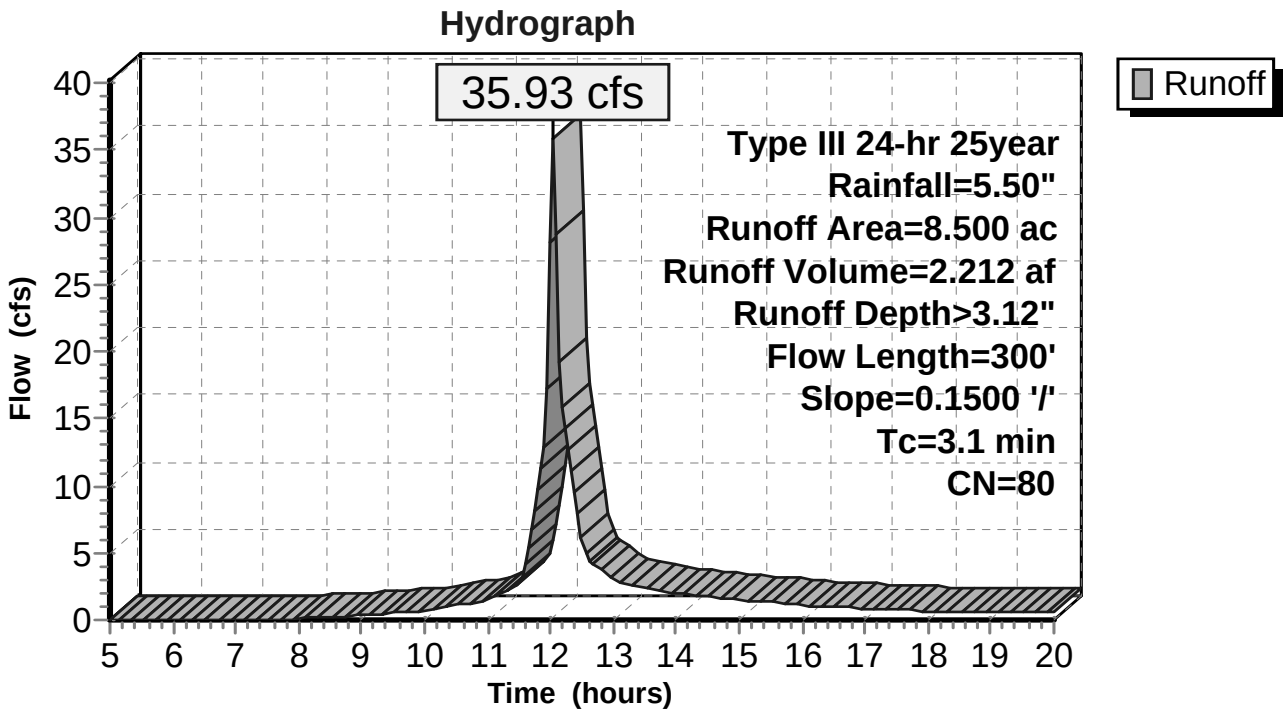
Runoff = 35.93 cfs @ 12.05 hrs, Volume= 2.212 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	7.814	79	Woods, Fair, HSG D
*	0.686	89	Foested Wetlands
	8.500	80	Weighted Average
	8.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.1500	1.60		**Lag/CN Method,**

Subcatchment 5: Area 5



Summary for Subcatchment 6: Area 6

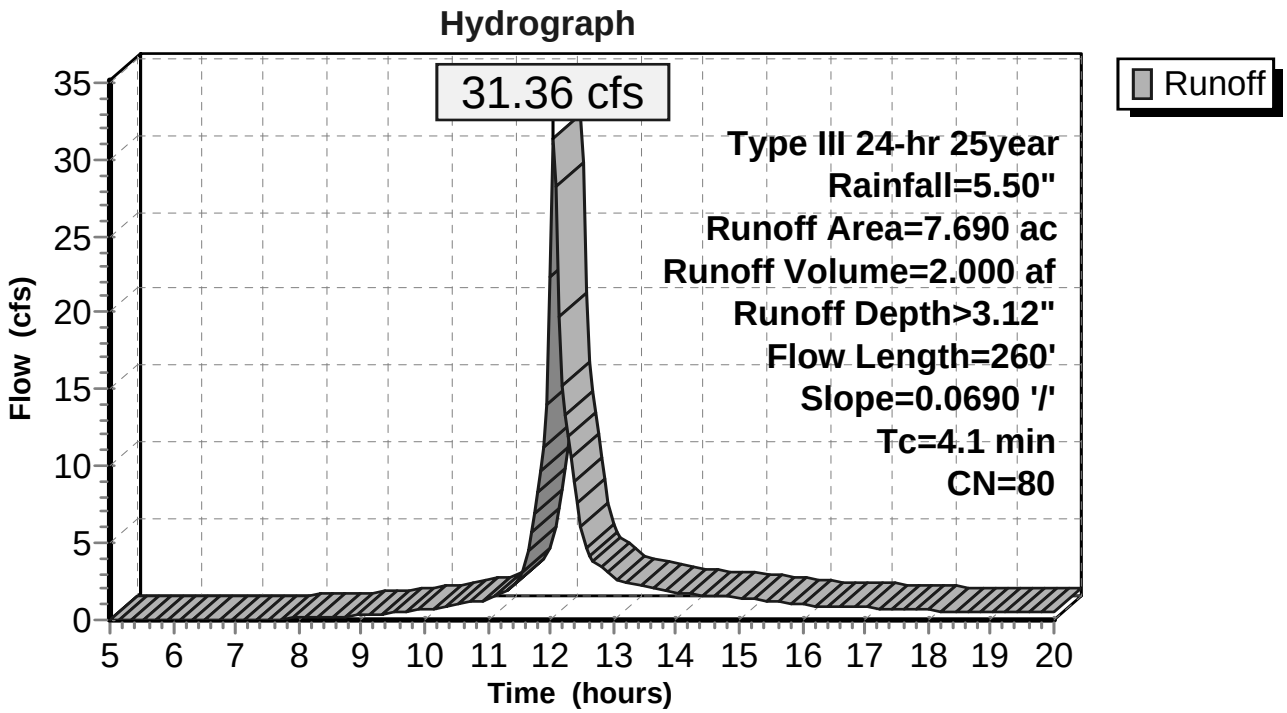
Runoff = 31.36 cfs @ 12.06 hrs, Volume= 2.000 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	7.238	79	Woods, Fair, HSG D
*	0.452	89	Forested Wetlands
	7.690	80	Weighted Average
	7.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	260	0.0690	1.05		**Lag/CN Method,**

Subcatchment 6: Area 6



Summary for Pond 2P: Wetlands

Inflow Area = 4.152 ac, 0.00% Impervious, Inflow Depth > 3.21" for 25year event
Inflow = 12.98 cfs @ 12.19 hrs, Volume= 1.110 af
Outflow = 8.84 cfs @ 12.44 hrs, Volume= 0.565 af, Atten= 32%, Lag= 15.3 min
Primary = 8.84 cfs @ 12.44 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 149.38' @ 12.44 hrs Surf.Area= 0.626 ac Storage= 0.547 af

Plug-Flow detention time= 160.6 min calculated for 0.565 af (51% of inflow)
Center-of-Mass det. time= 79.9 min (867.5 - 787.5)

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	0.547 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

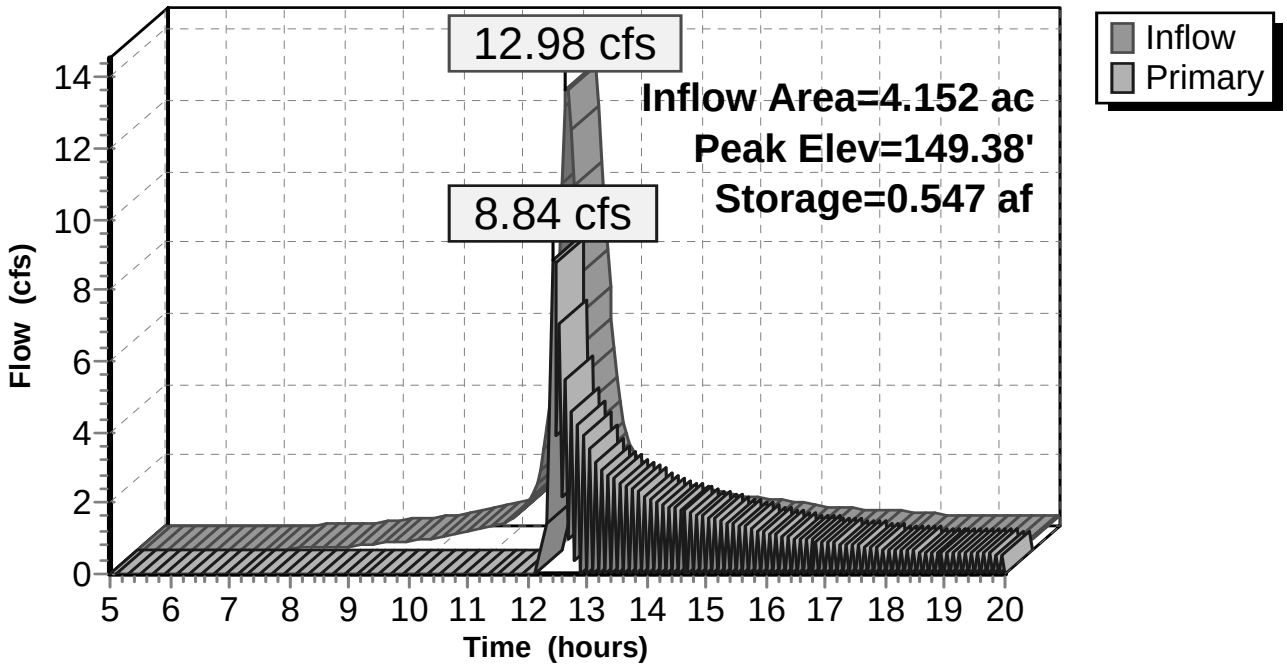
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
148.00	0.469	0.000	0.000
149.00	0.626	0.547	0.547

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=8.40 cfs @ 12.44 hrs HW=149.36' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 8.40 cfs @ 1.54 fps)

Pond 2P: Wetlands

Hydrograph



Summary for Pond 3A: Wetlands

Inflow Area = 7.699 ac, 0.00% Impervious, Inflow Depth > 3.12" for 25year event
Inflow = 28.46 cfs @ 12.11 hrs, Volume= 2.001 af
Outflow = 19.73 cfs @ 12.21 hrs, Volume= 1.970 af, Atten= 31%, Lag= 6.2 min
Primary = 19.73 cfs @ 12.21 hrs, Volume= 1.970 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 129.62' @ 12.21 hrs Surf.Area= 0.583 ac Storage= 0.344 af

Plug-Flow detention time= 22.8 min calculated for 1.970 af (98% of inflow)
Center-of-Mass det. time= 16.7 min (801.3 - 784.6)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	1.233 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

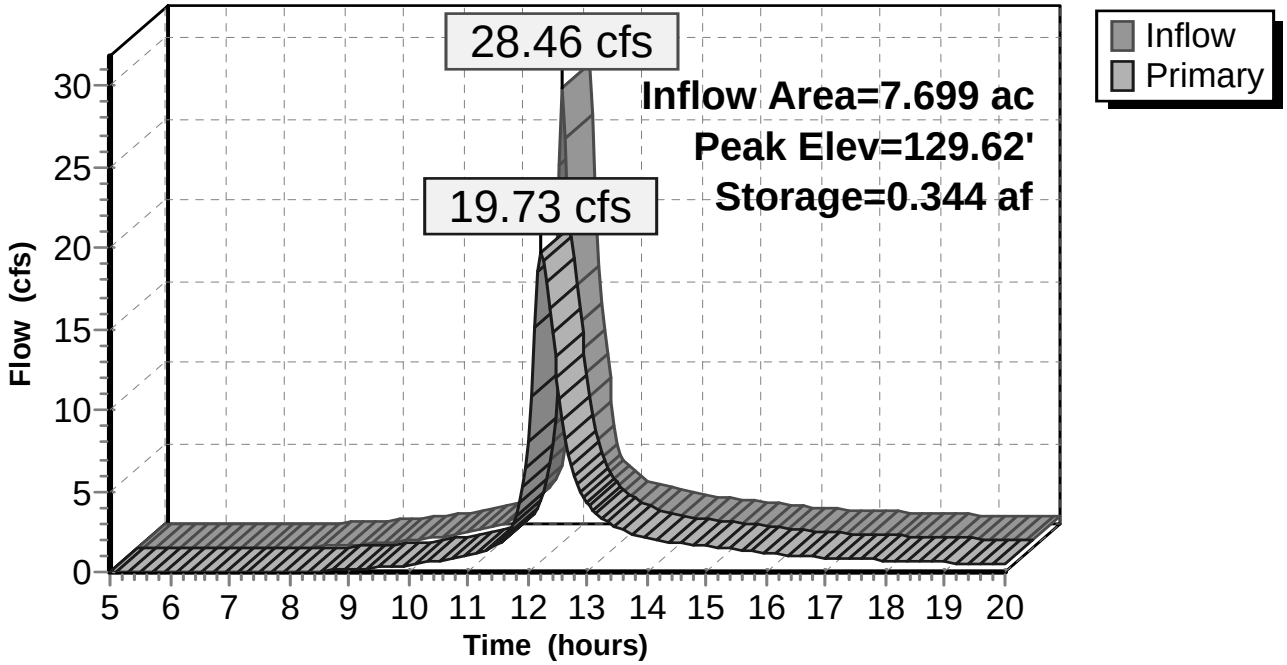
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
129.00	0.528	0.000	0.000
131.00	0.705	1.233	1.233

Device	Routing	Invert	Outlet Devices
#1	Primary	129.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=19.62 cfs @ 12.21 hrs HW=129.62' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 19.62 cfs @ 2.12 fps)

Pond 3A: Wetlands

Hydrograph



Summary for Pond 4A: Wetlands

Inflow Area = 9.296 ac, 0.00% Impervious, Inflow Depth > 3.21" for 25year event
Inflow = 32.74 cfs @ 12.13 hrs, Volume= 2.488 af
Outflow = 18.87 cfs @ 12.31 hrs, Volume= 2.423 af, Atten= 42%, Lag= 10.4 min
Primary = 18.87 cfs @ 12.31 hrs, Volume= 2.423 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.50' @ 12.31 hrs Surf.Area= 1.246 ac Storage= 0.604 af

Plug-Flow detention time= 38.2 min calculated for 2.423 af (97% of inflow)
Center-of-Mass det. time= 28.1 min (812.2 - 784.1)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	2.682 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

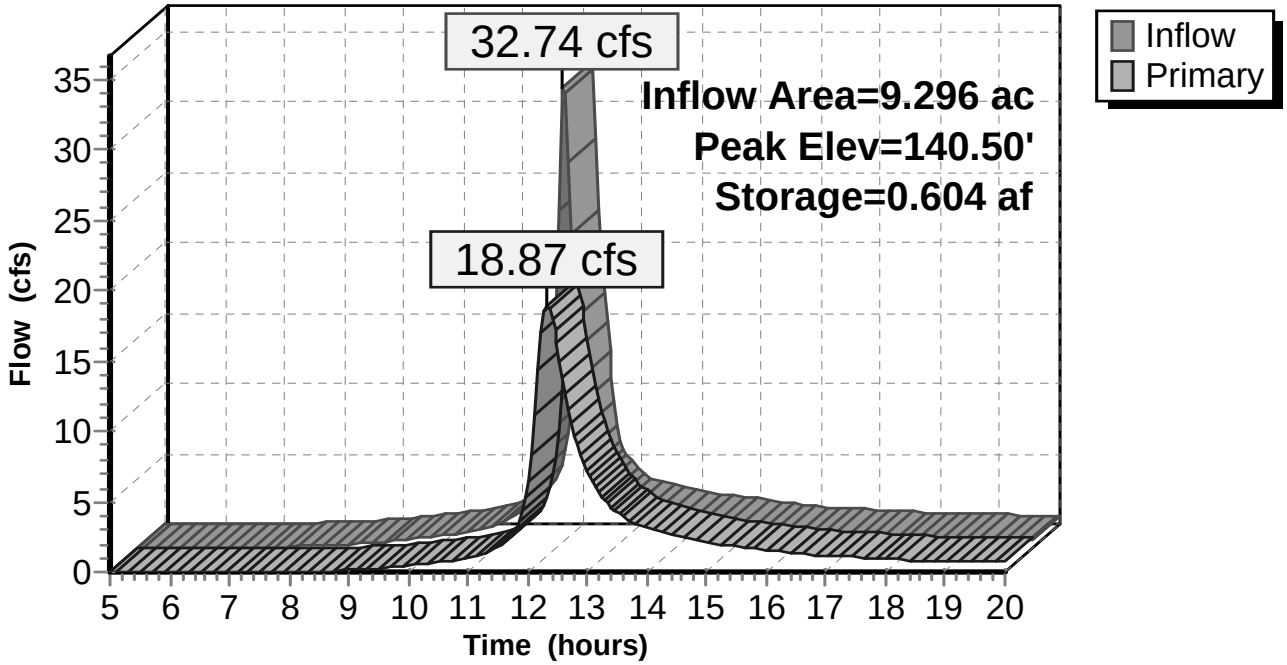
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
140.00	1.149	0.000	0.000
142.00	1.533	2.682	2.682

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=18.83 cfs @ 12.31 hrs HW=140.50' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 18.83 cfs @ 1.87 fps)

Pond 4A: Wetlands

Hydrograph



Summary for Pond 5A: Wetlands

Inflow Area = 8.500 ac, 0.00% Impervious, Inflow Depth > 3.12" for 25year event
Inflow = 35.93 cfs @ 12.05 hrs, Volume= 2.212 af
Outflow = 25.59 cfs @ 12.12 hrs, Volume= 2.186 af, Atten= 29%, Lag= 4.2 min
Primary = 25.59 cfs @ 12.12 hrs, Volume= 2.186 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.61' @ 12.12 hrs Surf.Area= 0.566 ac Storage= 0.328 af

Plug-Flow detention time= 17.7 min calculated for 2.186 af (99% of inflow)
Center-of-Mass det. time= 13.0 min (794.4 - 781.4)

Volume	Invert	Avail.Storage	Storage Description
#1	152.00'	1.200 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

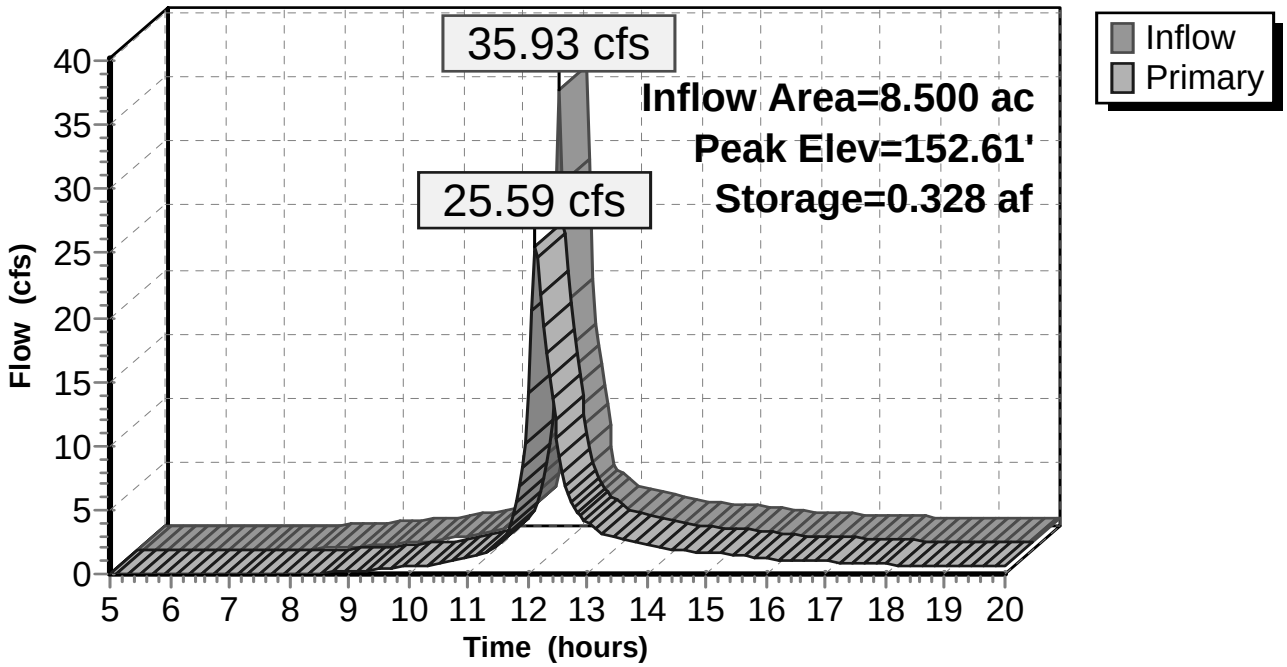
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
152.00	0.514	0.000	0.000
154.00	0.686	1.200	1.200

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=24.98 cfs @ 12.12 hrs HW=152.60' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 24.98 cfs @ 2.09 fps)

Pond 5A: Wetlands

Hydrograph



Summary for Pond 6A: Wetlands

Inflow Area = 7.690 ac, 0.00% Impervious, Inflow Depth > 3.12" for 25year event
Inflow = 31.36 cfs @ 12.06 hrs, Volume= 2.000 af
Outflow = 25.58 cfs @ 12.12 hrs, Volume= 1.985 af, Atten= 18%, Lag= 3.4 min
Primary = 25.58 cfs @ 12.12 hrs, Volume= 1.985 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.61' @ 12.12 hrs Surf.Area= 0.373 ac Storage= 0.216 af

Plug-Flow detention time= 12.1 min calculated for 1.985 af (99% of inflow)
Center-of-Mass det. time= 8.9 min (791.1 - 782.2)

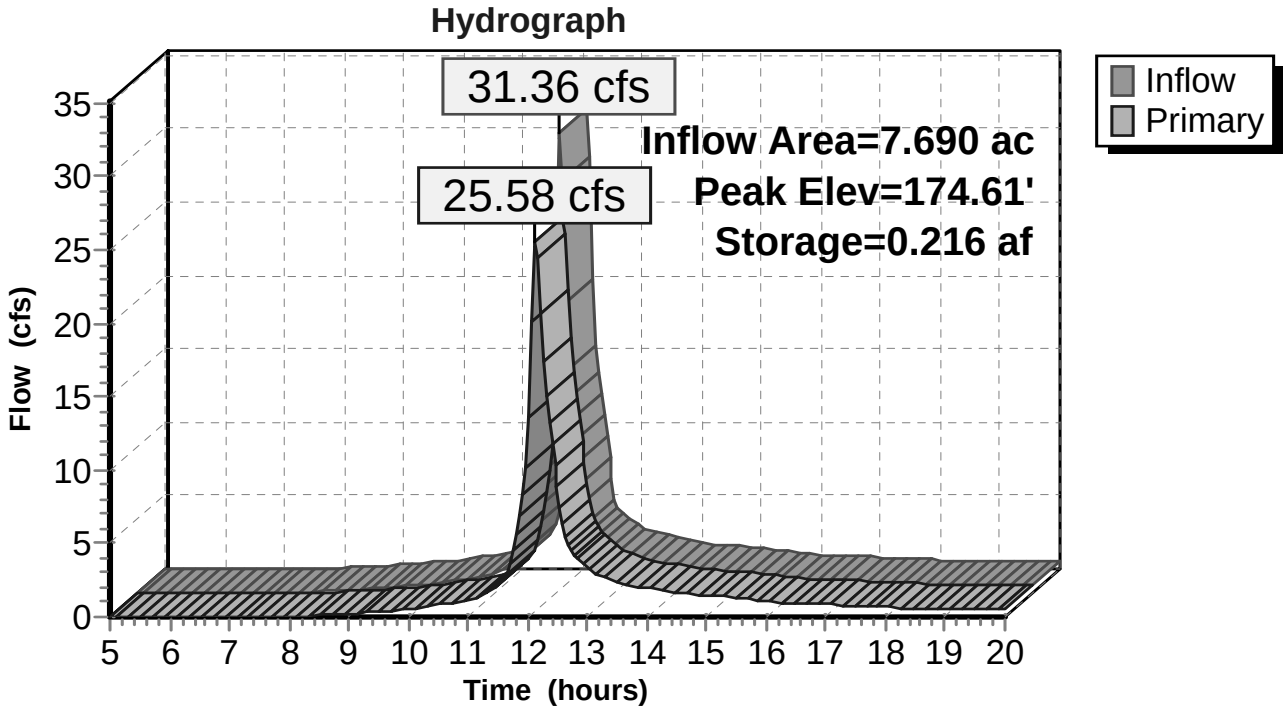
Volume	Invert	Avail.Storage	Storage Description
#1	174.00'	0.791 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
174.00	0.339	0.000	0.000
176.00	0.452	0.791	0.791

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

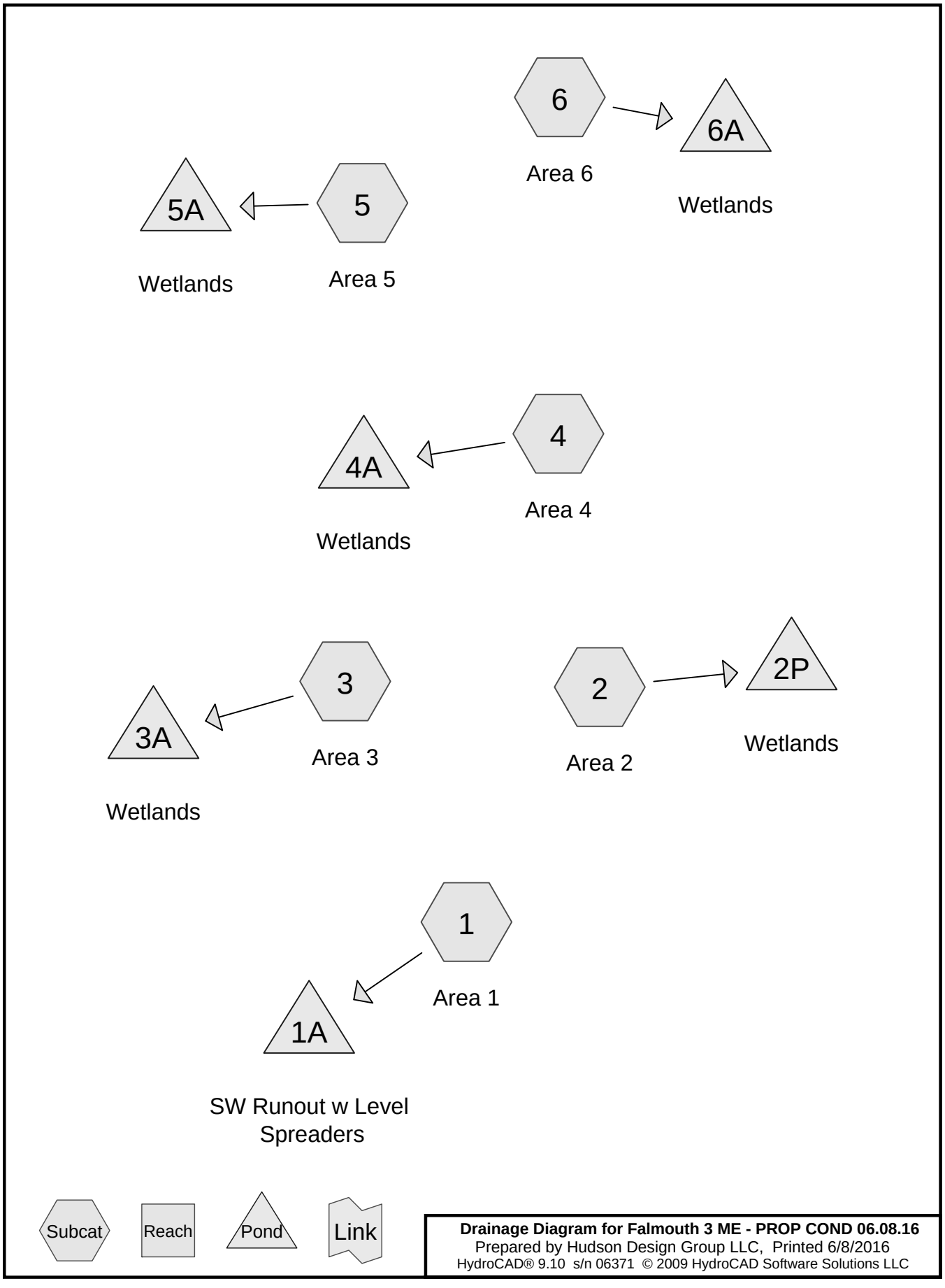
Primary OutFlow Max=24.90 cfs @ 12.12 hrs HW=174.60' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 24.90 cfs @ 2.08 fps)

Pond 6A: Wetlands



SECTION 3B

HYDROCAD DATA
(PROPOSED CONDITION)



Drainage Diagram for Falmouth 3 ME - PROP COND 06.08.16
Prepared by Hudson Design Group LLC, Printed 6/8/2016

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

Subcatchment 1: Area 1 Runoff Area=1.286 ac 0.00% Impervious Runoff Depth>1.15"
Flow Length=380' Slope=0.0950 '/' Tc=4.8 min CN=80 Runoff=1.87 cfs 0.124 af

Subcatchment 2: Area 2 Runoff Area=4.152 ac 0.00% Impervious Runoff Depth>1.21"
Flow Length=575' Slope=0.0210 '/' Tc=13.6 min CN=81 Runoff=4.92 cfs 0.419 af

Subcatchment 3: Area 3 Runoff Area=7.699 ac 0.00% Impervious Runoff Depth>1.15"
Flow Length=520' Slope=0.0690 '/' Tc=7.2 min CN=80 Runoff=10.52 cfs 0.739 af

Subcatchment 4: Area 4 Runoff Area=9.296 ac 0.00% Impervious Runoff Depth>1.21"
Flow Length=540' Slope=0.0410 '/' Tc=9.3 min CN=81 Runoff=12.44 cfs 0.939 af

Subcatchment 5: Area 5 Runoff Area=8.500 ac 0.00% Impervious Runoff Depth>1.15"
Flow Length=300' Slope=0.1500 '/' Tc=3.1 min CN=80 Runoff=13.33 cfs 0.817 af

Subcatchment 6: Area 6 Runoff Area=7.690 ac 0.00% Impervious Runoff Depth>1.15"
Flow Length=260' Slope=0.0690 '/' Tc=4.1 min CN=80 Runoff=11.59 cfs 0.739 af

Pond 1A: SW Runout w Level Spreaders Peak Elev=127.53' Storage=2,879 cf Inflow=1.87 cfs 0.124 af
Outflow=0.31 cfs 0.058 af

Pond 2P: Wetlands Peak Elev=148.79' Storage=0.418 af Inflow=4.92 cfs 0.419 af
Outflow=0.00 cfs 0.000 af

Pond 3A: Wetlands Peak Elev=129.29' Storage=0.158 af Inflow=10.52 cfs 0.739 af
Outflow=5.99 cfs 0.721 af

Pond 4A: Wetlands Peak Elev=140.23' Storage=0.274 af Inflow=12.44 cfs 0.939 af
Outflow=5.65 cfs 0.899 af

Pond 5A: Wetlands Peak Elev=152.29' Storage=0.152 af Inflow=13.33 cfs 0.817 af
Outflow=7.81 cfs 0.802 af

Pond 6A: Wetlands Peak Elev=174.30' Storage=0.104 af Inflow=11.59 cfs 0.739 af
Outflow=8.27 cfs 0.730 af

Total Runoff Area = 38.623 ac Runoff Volume = 3.775 af Average Runoff Depth = 1.17"
100.00% Pervious = 38.623 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1: Area 1

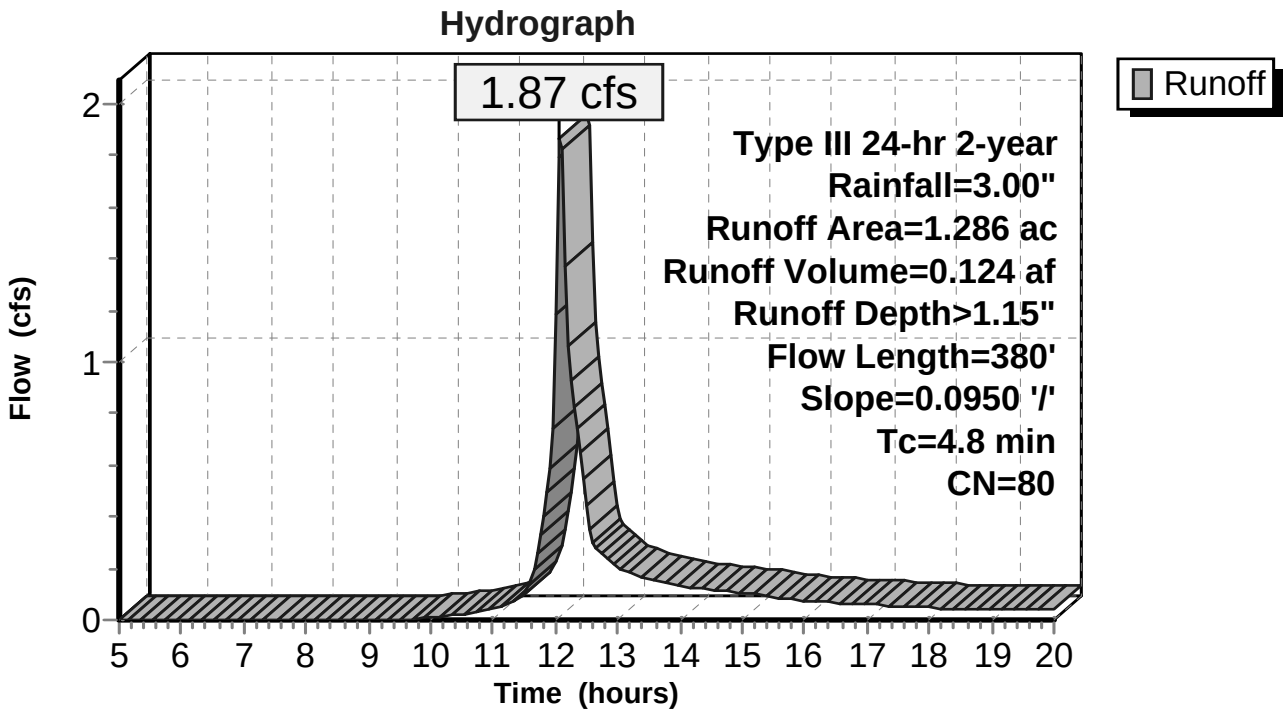
Runoff = 1.87 cfs @ 12.08 hrs, Volume= 0.124 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	1.193	79	Woods, Fair, HSG D
*	0.093	95	Final Gravel Access Road
	1.286	80	Weighted Average
	1.286		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	380	0.0950	1.33		**Lag/CN Method,**

Subcatchment 1: Area 1



Summary for Subcatchment 2: Area 2

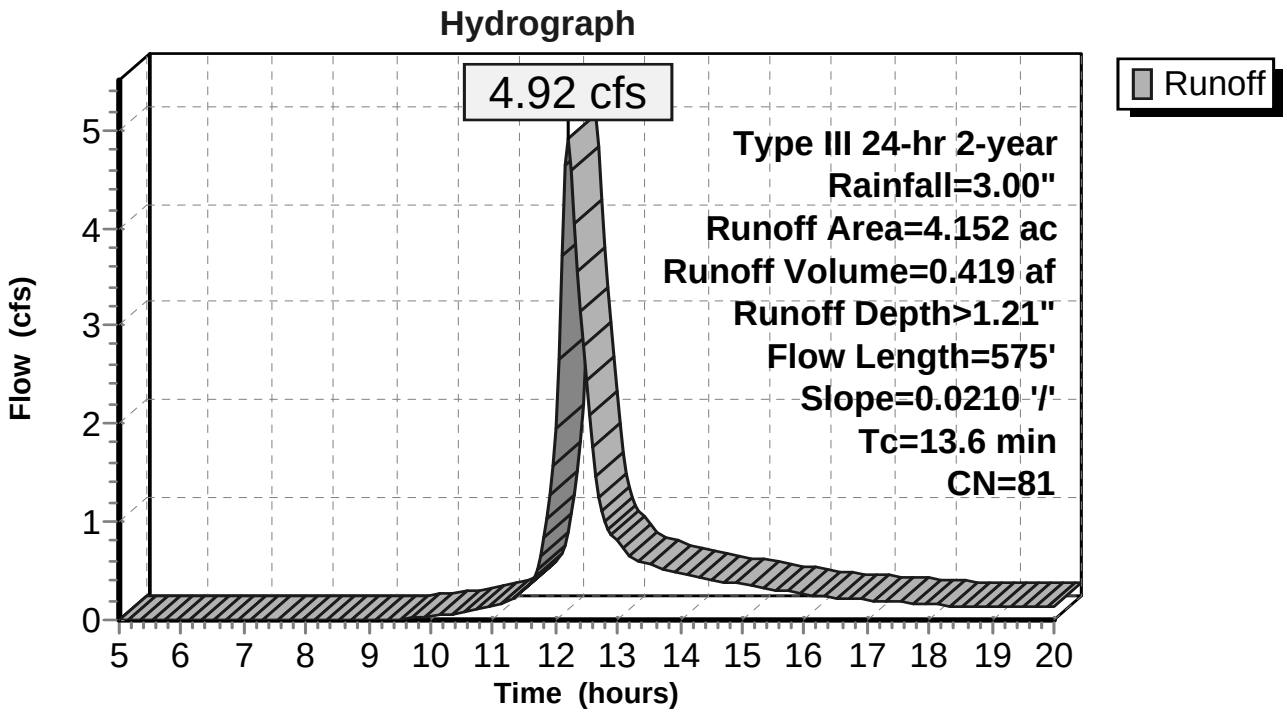
Runoff = 4.92 cfs @ 12.20 hrs, Volume= 0.419 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	3.526	79	Woods, Fair, HSG D
*	0.626	89	Forested Wetlands
	4.152	81	Weighted Average
	4.152		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	575	0.0210	0.70		**Lag/CN Method,**

Subcatchment 2: Area 2



Summary for Subcatchment 3: Area 3

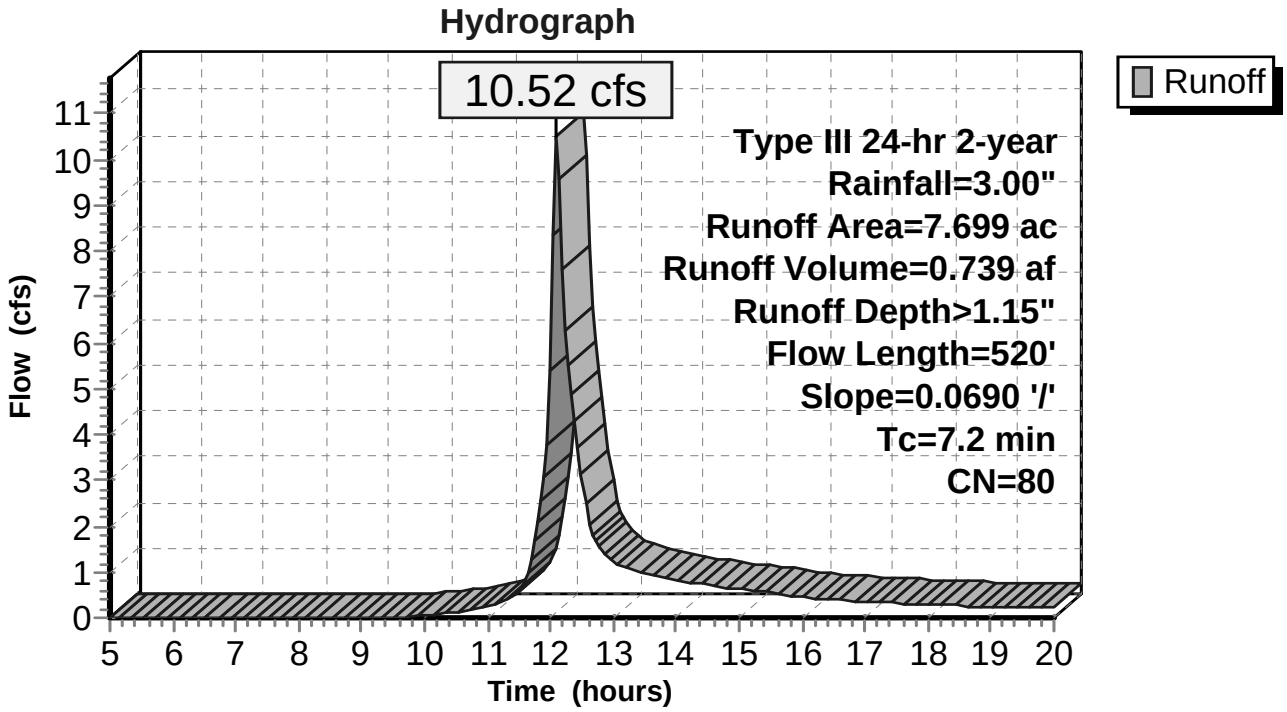
Runoff = 10.52 cfs @ 12.11 hrs, Volume= 0.739 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	6.741	79	Woods, Fair, HSG D
*	0.705	89	Forested Wetlands
*	0.253	95	Final Gravel Access Drive
	7.699	80	Weighted Average
	7.699		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	520	0.0690	1.21		**Lag/CN Method,**

Subcatchment 3: Area 3



Summary for Subcatchment 4: Area 4

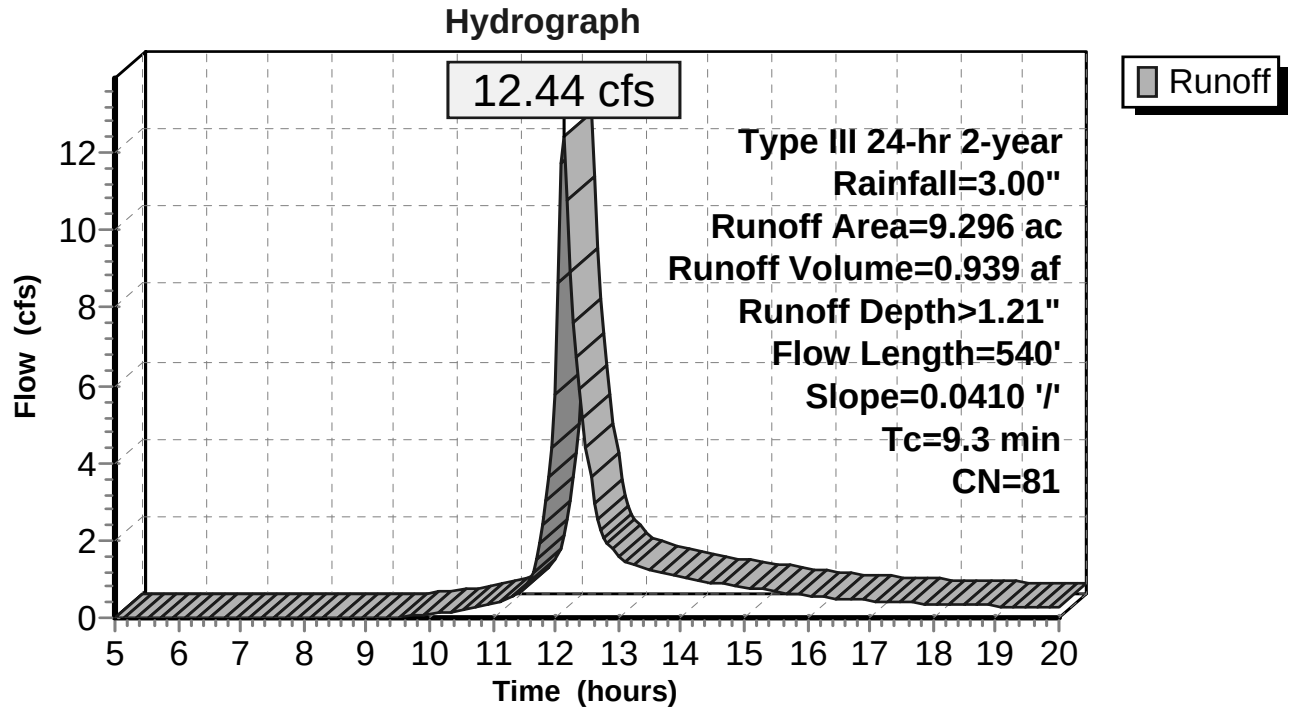
Runoff = 12.44 cfs @ 12.14 hrs, Volume= 0.939 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	7.427	79	Woods, Fair, HSG D
*	1.533	89	Forested Wetlands
*	0.336	95	Final Gravel Access Drive
	9.296	81	Weighted Average
	9.296		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	540	0.0410	0.97		**Lag/CN Method,**

Subcatchment 4: Area 4



Summary for Subcatchment 5: Area 5

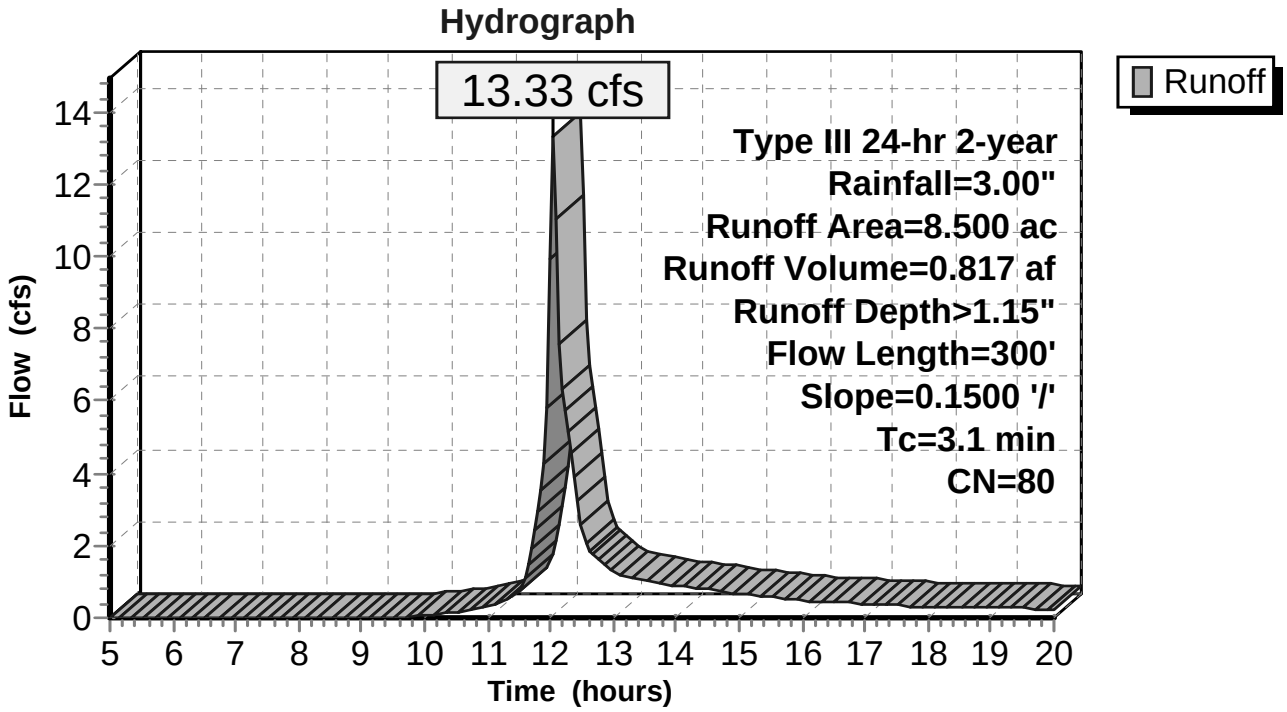
Runoff = 13.33 cfs @ 12.05 hrs, Volume= 0.817 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	7.685	79	Woods, Fair, HSG D
*	0.686	89	Forested Wetlands
*	0.129	85	Crushed Stone Compound (75'x75')
	8.500	80	Weighted Average
	8.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.1500	1.60		**Lag/CN Method,**

Subcatchment 5: Area 5



Summary for Subcatchment 6: Area 6

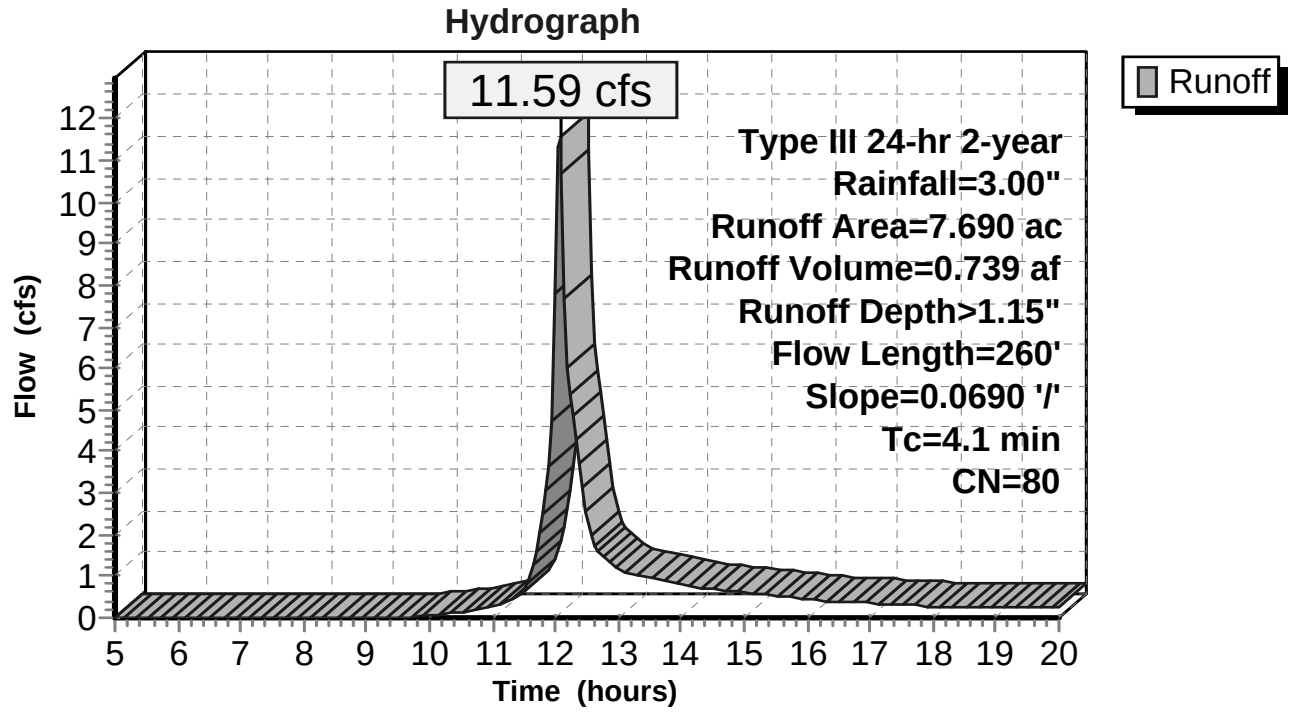
Runoff = 11.59 cfs @ 12.07 hrs, Volume= 0.739 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (ac)	CN	Description
	7.111	79	Woods, Fair, HSG D
*	0.452	89	Forested Wetlands
*	0.127	95	Final Gravel Surface Drive
	7.690	80	Weighted Average
	7.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	260	0.0690	1.05		**Lag/CN Method,**

Subcatchment 6: Area 6



Summary for Pond 1A: SW Runout w Level Spreaders

Inflow Area = 1.286 ac, 0.00% Impervious, Inflow Depth > 1.15" for 2-year event
Inflow = 1.87 cfs @ 12.08 hrs, Volume= 0.124 af
Outflow = 0.31 cfs @ 12.61 hrs, Volume= 0.058 af, Atten= 83%, Lag= 31.7 min
Primary = 0.31 cfs @ 12.61 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 127.53' @ 12.61 hrs Surf.Area= 1,296 sf Storage= 2,879 cf

Plug-Flow detention time= 182.7 min calculated for 0.058 af (47% of inflow)
Center-of-Mass det. time= 96.4 min (901.8 - 805.4)

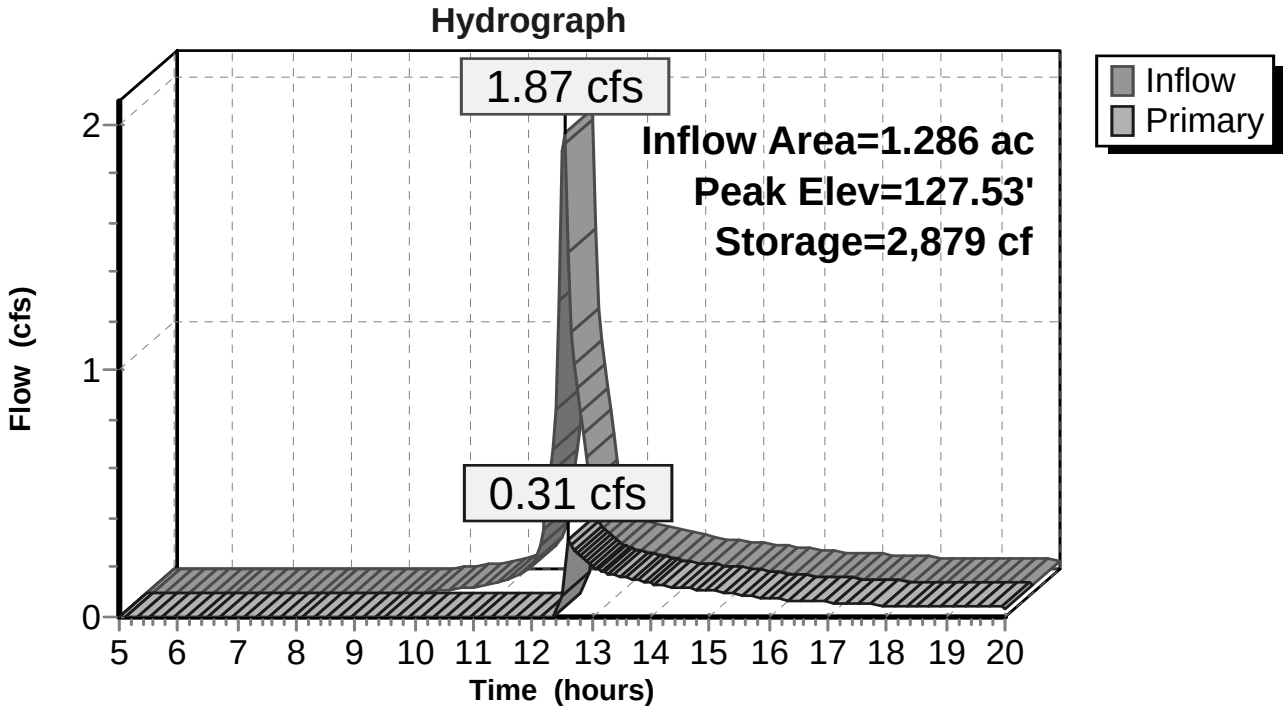
Volume	Invert	Avail.Storage	Storage Description
#1	125.00'	3,483 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
125.00	900	0	0
126.00	1,089	995	995
127.00	1,296	1,193	2,187
128.00	1,296	1,296	3,483

Device	Routing	Invert	Outlet Devices
#1	Primary	127.50'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.29 cfs @ 12.61 hrs HW=127.53' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.29 cfs @ 0.43 fps)

Pond 1A: SW Runout w Level Spreaders



Summary for Pond 2P: Wetlands

Inflow Area = 4.152 ac, 0.00% Impervious, Inflow Depth > 1.21" for 2-year event
Inflow = 4.92 cfs @ 12.20 hrs, Volume= 0.419 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 148.79' @ 20.00 hrs Surf.Area= 0.593 ac Storage= 0.418 af

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

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	0.547 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

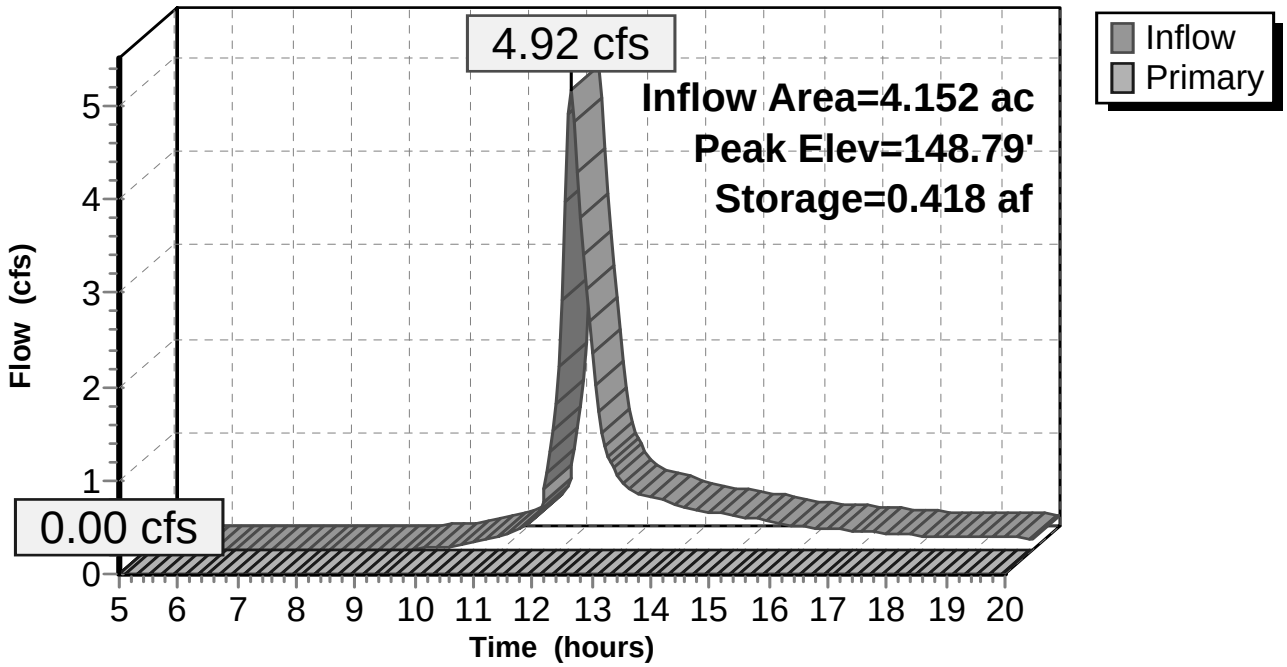
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
148.00	0.469	0.000	0.000
149.00	0.626	0.547	0.547

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=148.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: Wetlands

Hydrograph



Summary for Pond 3A: Wetlands

Inflow Area = 7.699 ac, 0.00% Impervious, Inflow Depth > 1.15" for 2-year event
Inflow = 10.52 cfs @ 12.11 hrs, Volume= 0.739 af
Outflow = 5.99 cfs @ 12.27 hrs, Volume= 0.721 af, Atten= 43%, Lag= 9.7 min
Primary = 5.99 cfs @ 12.27 hrs, Volume= 0.721 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 129.29' @ 12.27 hrs Surf.Area= 0.554 ac Storage= 0.158 af

Plug-Flow detention time= 30.5 min calculated for 0.721 af (98% of inflow)
Center-of-Mass det. time= 21.4 min (828.6 - 807.2)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	1.233 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

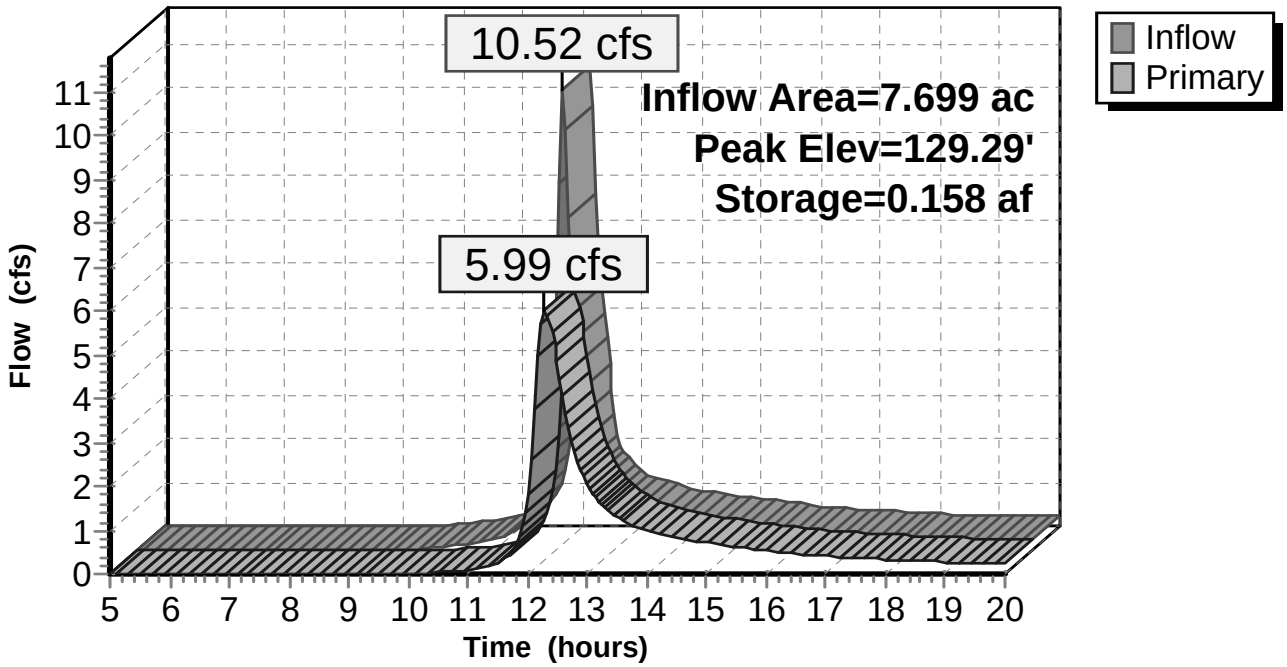
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
129.00	0.528	0.000	0.000
131.00	0.705	1.233	1.233

Device	Routing	Invert	Outlet Devices
#1	Primary	129.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.96 cfs @ 12.27 hrs HW=129.29' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 5.96 cfs @ 1.36 fps)

Pond 3A: Wetlands

Hydrograph



Summary for Pond 4A: Wetlands

Inflow Area = 9.296 ac, 0.00% Impervious, Inflow Depth > 1.21" for 2-year event
Inflow = 12.44 cfs @ 12.14 hrs, Volume= 0.939 af
Outflow = 5.65 cfs @ 12.42 hrs, Volume= 0.899 af, Atten= 55%, Lag= 16.8 min
Primary = 5.65 cfs @ 12.42 hrs, Volume= 0.899 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.23' @ 12.42 hrs Surf.Area= 1.194 ac Storage= 0.274 af

Plug-Flow detention time= 50.9 min calculated for 0.899 af (96% of inflow)
Center-of-Mass det. time= 35.8 min (842.1 - 806.3)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	2.682 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

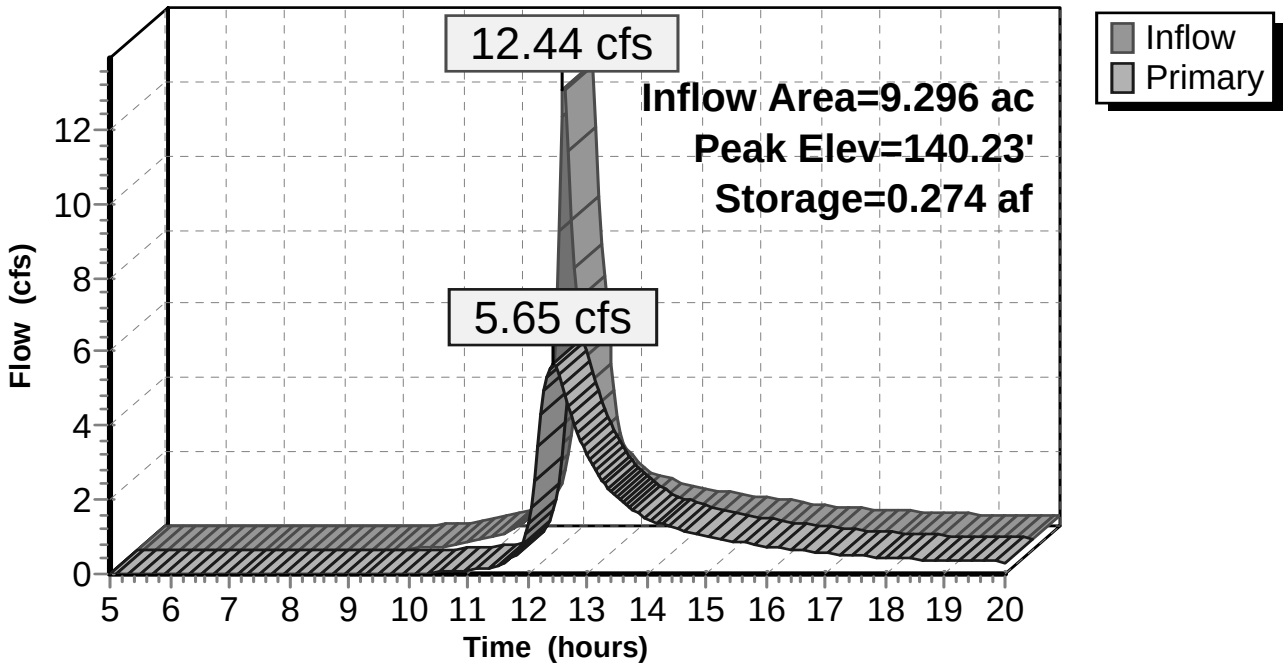
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
140.00	1.149	0.000	0.000
142.00	1.533	2.682	2.682

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.64 cfs @ 12.42 hrs HW=140.23' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 5.64 cfs @ 1.21 fps)

Pond 4A: Wetlands

Hydrograph



Summary for Pond 5A: Wetlands

Inflow Area = 8.500 ac, 0.00% Impervious, Inflow Depth > 1.15" for 2-year event
Inflow = 13.33 cfs @ 12.05 hrs, Volume= 0.817 af
Outflow = 7.81 cfs @ 12.16 hrs, Volume= 0.802 af, Atten= 41%, Lag= 6.3 min
Primary = 7.81 cfs @ 12.16 hrs, Volume= 0.802 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.29' @ 12.16 hrs Surf.Area= 0.539 ac Storage= 0.152 af

Plug-Flow detention time= 23.7 min calculated for 0.802 af (98% of inflow)
Center-of-Mass det. time= 16.6 min (820.7 - 804.1)

Volume	Invert	Avail.Storage	Storage Description
#1	152.00'	1.200 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

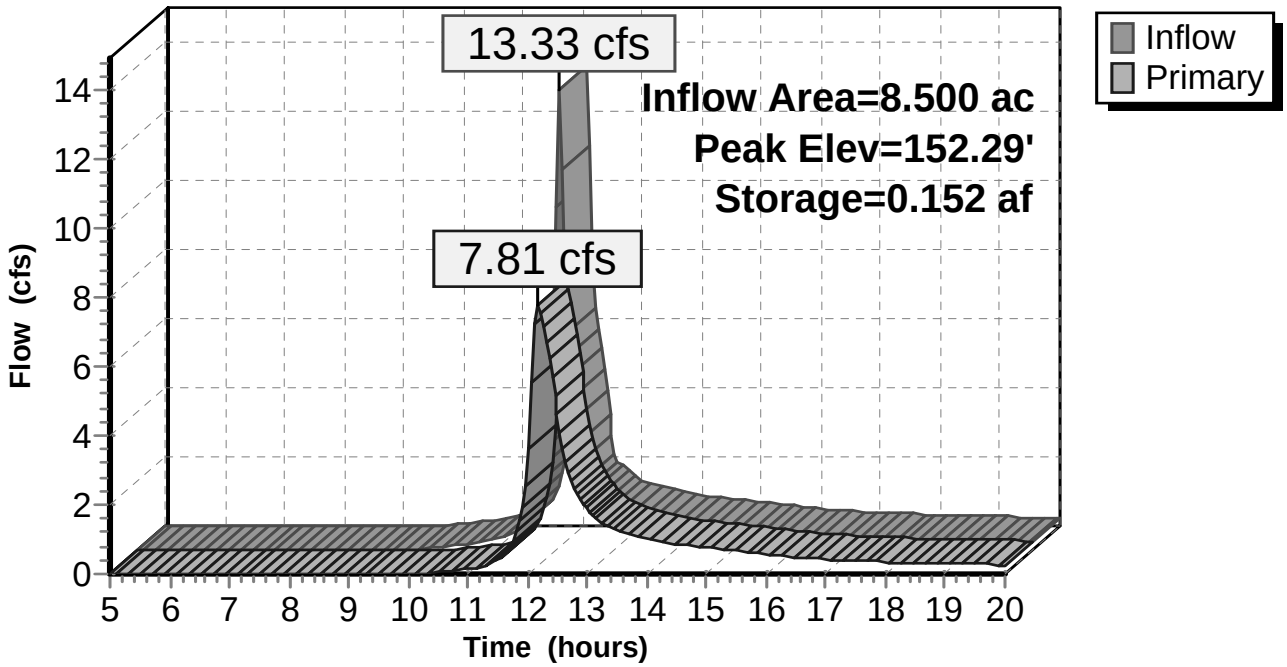
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
152.00	0.514	0.000	0.000
154.00	0.686	1.200	1.200

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=7.74 cfs @ 12.16 hrs HW=152.29' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 7.74 cfs @ 1.35 fps)

Pond 5A: Wetlands

Hydrograph



Summary for Pond 6A: Wetlands

Inflow Area = 7.690 ac, 0.00% Impervious, Inflow Depth > 1.15" for 2-year event
Inflow = 11.59 cfs @ 12.07 hrs, Volume= 0.739 af
Outflow = 8.27 cfs @ 12.15 hrs, Volume= 0.730 af, Atten= 29%, Lag= 5.0 min
Primary = 8.27 cfs @ 12.15 hrs, Volume= 0.730 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.30' @ 12.15 hrs Surf.Area= 0.356 ac Storage= 0.104 af

Plug-Flow detention time= 16.1 min calculated for 0.727 af (98% of inflow)
Center-of-Mass det. time= 11.3 min (816.2 - 804.8)

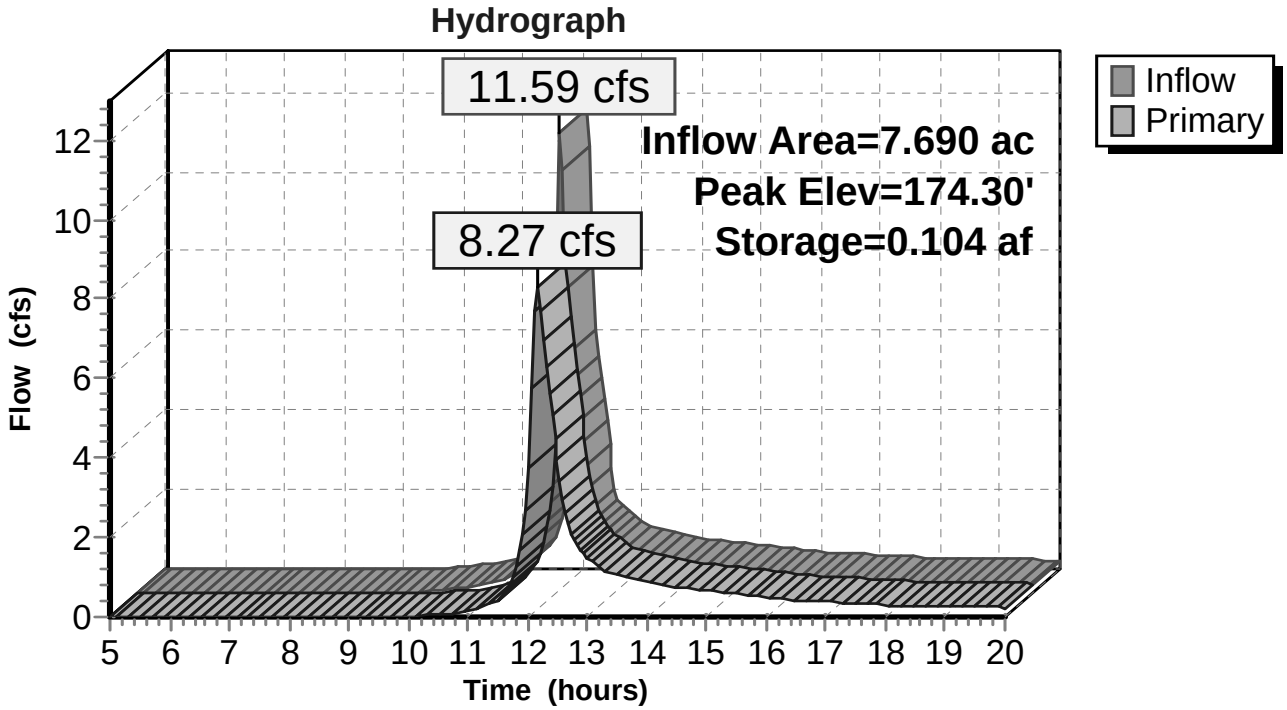
Volume	Invert	Avail.Storage	Storage Description
#1	174.00'	0.791 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
174.00	0.339	0.000	0.000
176.00	0.452	0.791	0.791

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=8.27 cfs @ 12.15 hrs HW=174.30' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 8.27 cfs @ 1.38 fps)

Pond 6A: Wetlands



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

Subcatchment 1: Area 1 Runoff Area=1.286 ac 0.00% Impervious Runoff Depth>2.46"
Flow Length=380' Slope=0.0950 '/' Tc=4.8 min CN=80 Runoff=4.02 cfs 0.263 af

Subcatchment 2: Area 2 Runoff Area=4.152 ac 0.00% Impervious Runoff Depth>2.54"
Flow Length=575' Slope=0.0210 '/' Tc=13.6 min CN=81 Runoff=10.32 cfs 0.878 af

Subcatchment 3: Area 3 Runoff Area=7.699 ac 0.00% Impervious Runoff Depth>2.46"
Flow Length=520' Slope=0.0690 '/' Tc=7.2 min CN=80 Runoff=22.52 cfs 1.575 af

Subcatchment 4: Area 4 Runoff Area=9.296 ac 0.00% Impervious Runoff Depth>2.54"
Flow Length=540' Slope=0.0410 '/' Tc=9.3 min CN=81 Runoff=26.05 cfs 1.968 af

Subcatchment 5: Area 5 Runoff Area=8.500 ac 0.00% Impervious Runoff Depth>2.46"
Flow Length=300' Slope=0.1500 '/' Tc=3.1 min CN=80 Runoff=28.46 cfs 1.741 af

Subcatchment 6: Area 6 Runoff Area=7.690 ac 0.00% Impervious Runoff Depth>2.46"
Flow Length=260' Slope=0.0690 '/' Tc=4.1 min CN=80 Runoff=24.82 cfs 1.575 af

Pond 1A: SW Runout w Level Spreaders Peak Elev=127.69' Storage=3,081 cf Inflow=4.02 cfs 0.263 af
Outflow=3.88 cfs 0.198 af

Pond 2P: Wetlands Peak Elev=149.20' Storage=0.547 af Inflow=10.32 cfs 0.878 af
Outflow=3.44 cfs 0.333 af

Pond 3A: Wetlands Peak Elev=129.52' Storage=0.289 af Inflow=22.52 cfs 1.575 af
Outflow=15.04 cfs 1.548 af

Pond 4A: Wetlands Peak Elev=140.42' Storage=0.504 af Inflow=26.05 cfs 1.968 af
Outflow=14.20 cfs 1.910 af

Pond 5A: Wetlands Peak Elev=152.51' Storage=0.274 af Inflow=28.46 cfs 1.741 af
Outflow=19.23 cfs 1.719 af

Pond 6A: Wetlands Peak Elev=174.52' Storage=0.183 af Inflow=24.82 cfs 1.575 af
Outflow=19.70 cfs 1.561 af

Total Runoff Area = 38.623 ac Runoff Volume = 8.000 af Average Runoff Depth = 2.49"
100.00% Pervious = 38.623 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1: Area 1

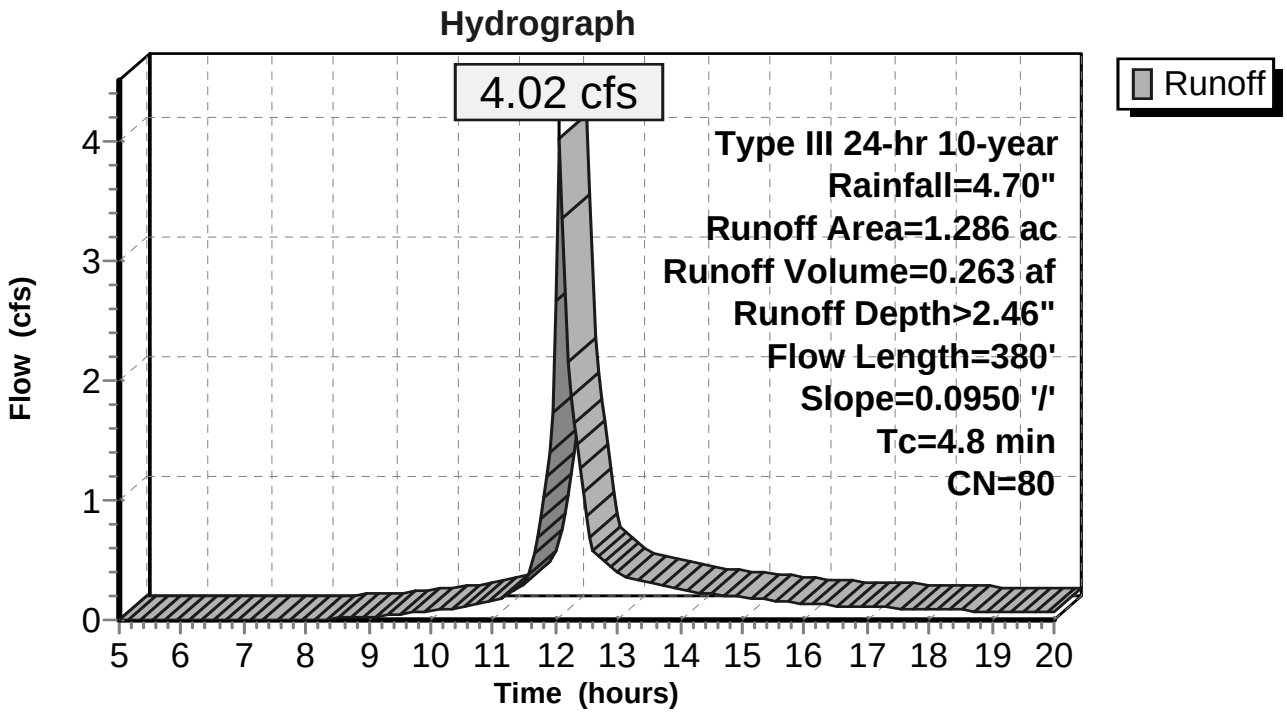
Runoff = 4.02 cfs @ 12.07 hrs, Volume= 0.263 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	1.193	79	Woods, Fair, HSG D
*	0.093	95	Final Gravel Access Road
	1.286	80	Weighted Average
	1.286		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	380	0.0950	1.33		**Lag/CN Method,**

Subcatchment 1: Area 1



Summary for Subcatchment 2: Area 2

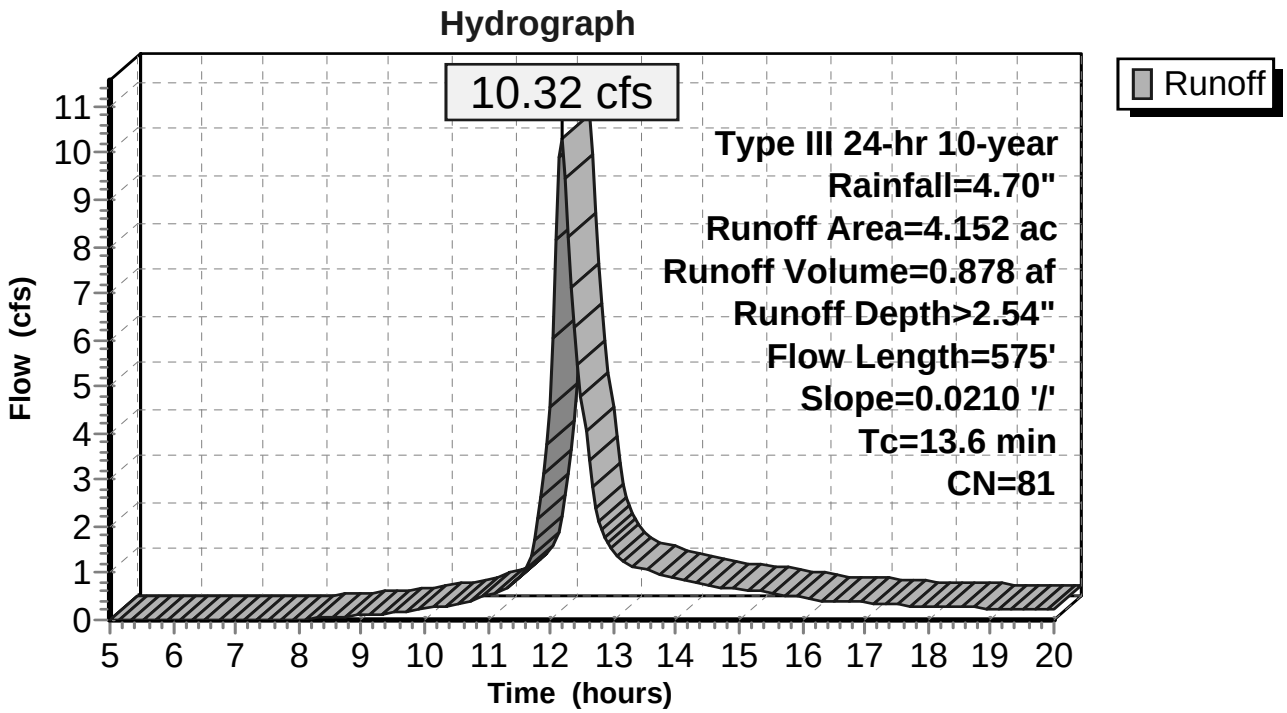
Runoff = 10.32 cfs @ 12.19 hrs, Volume= 0.878 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	3.526	79	Woods, Fair, HSG D
*	0.626	89	Forested Wetlands
	4.152	81	Weighted Average
	4.152		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	575	0.0210	0.70		**Lag/CN Method,**

Subcatchment 2: Area 2



Summary for Subcatchment 3: Area 3

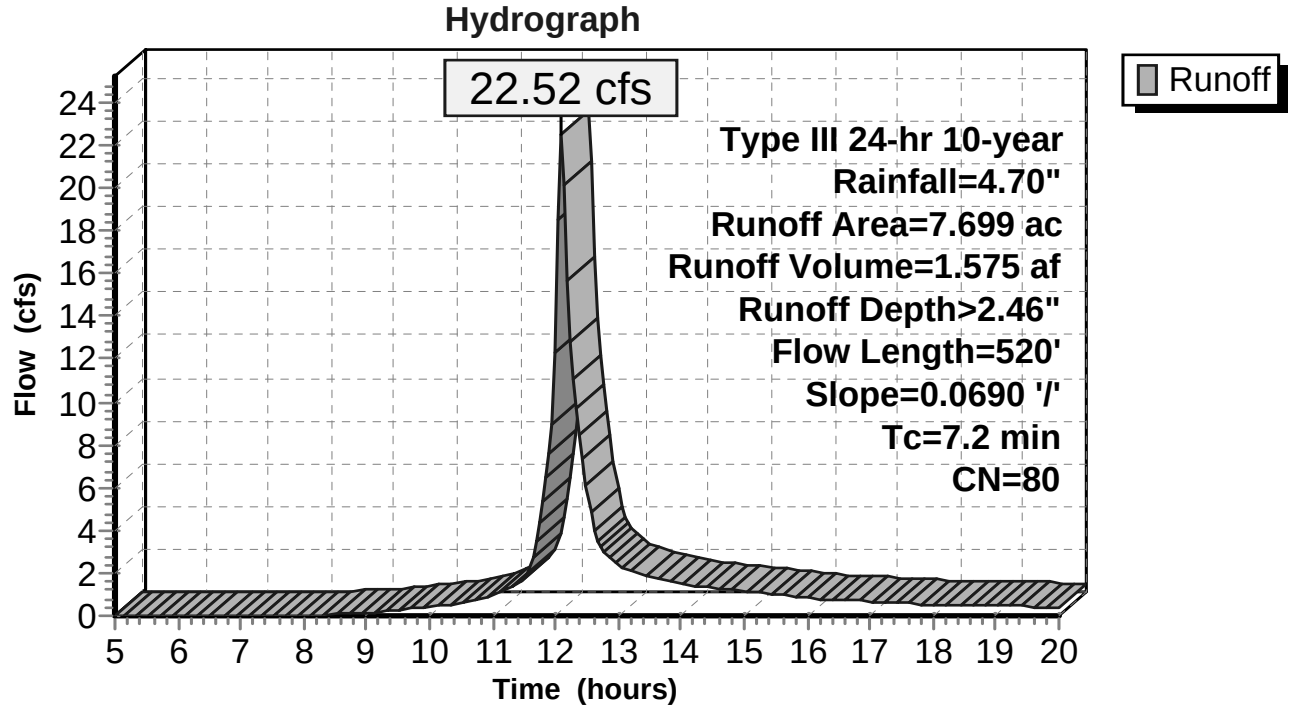
Runoff = 22.52 cfs @ 12.11 hrs, Volume= 1.575 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	6.741	79	Woods, Fair, HSG D
*	0.705	89	Forested Wetlands
*	0.253	95	Final Gravel Access Drive
	7.699	80	Weighted Average
	7.699		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	520	0.0690	1.21		**Lag/CN Method,**

Subcatchment 3: Area 3



Summary for Subcatchment 4: Area 4

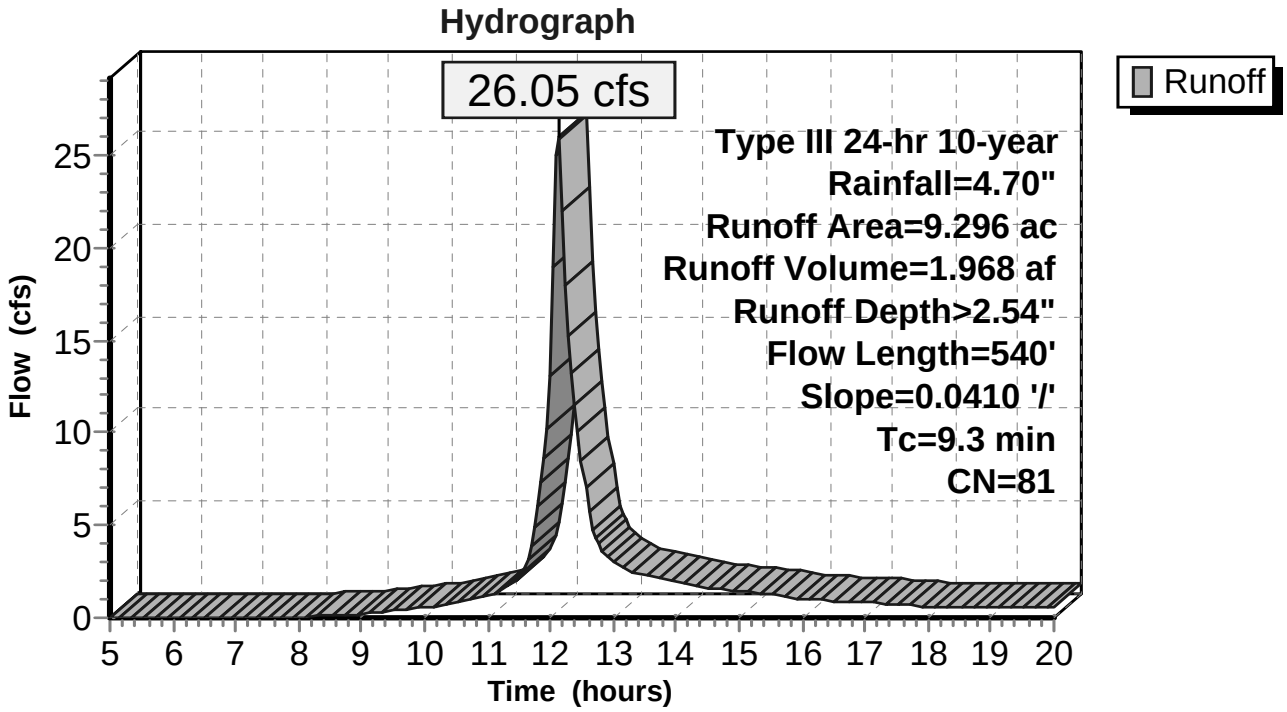
Runoff = 26.05 cfs @ 12.13 hrs, Volume= 1.968 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	7.427	79	Woods, Fair, HSG D
*	1.533	89	Forested Wetlands
*	0.336	95	Final Gravel Access Drive
	9.296	81	Weighted Average
	9.296		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	540	0.0410	0.97		**Lag/CN Method,**

Subcatchment 4: Area 4



Summary for Subcatchment 5: Area 5

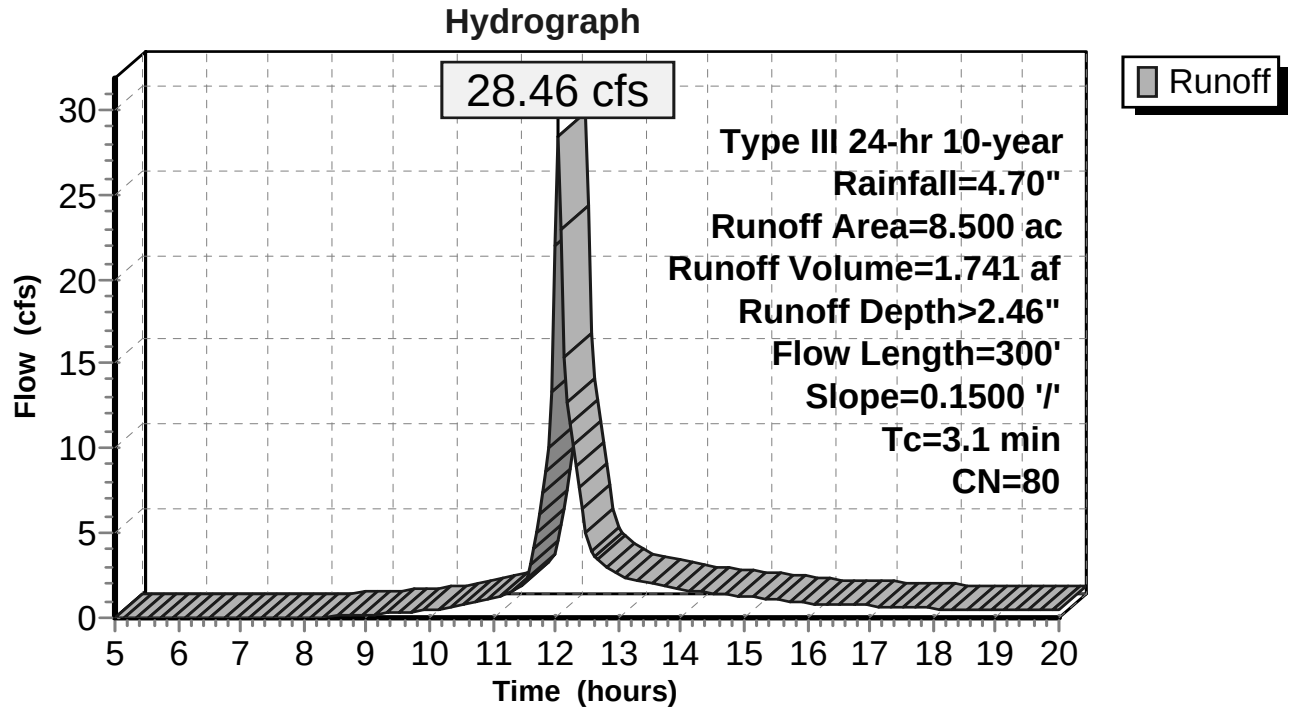
Runoff = 28.46 cfs @ 12.05 hrs, Volume= 1.741 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	7.685	79	Woods, Fair, HSG D
*	0.686	89	Forested Wetlands
*	0.129	85	Crushed Stone Compound (75'x75')
	8.500	80	Weighted Average
	8.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.1500	1.60		**Lag/CN Method,**

Subcatchment 5: Area 5



Summary for Subcatchment 6: Area 6

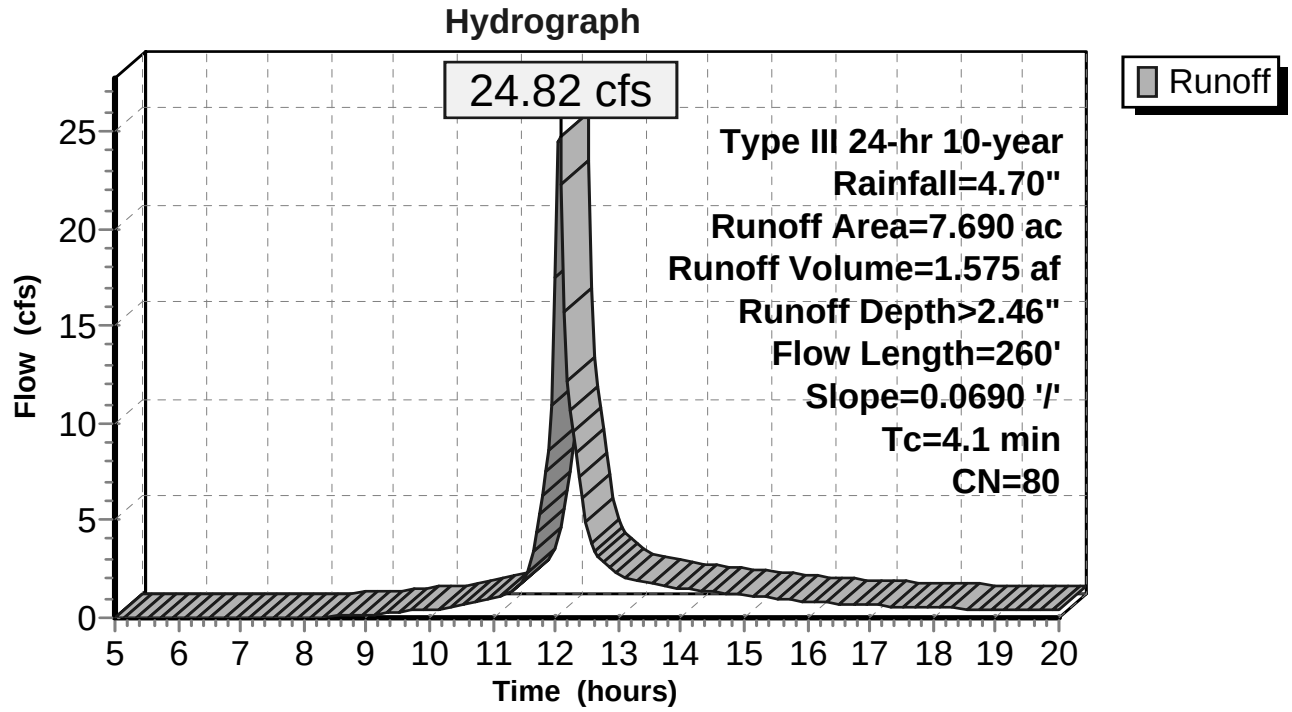
Runoff = 24.82 cfs @ 12.06 hrs, Volume= 1.575 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (ac)	CN	Description
	7.111	79	Woods, Fair, HSG D
*	0.452	89	Forested Wetlands
*	0.127	95	Final Gravel Surface Drive
	7.690	80	Weighted Average
	7.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	260	0.0690	1.05		**Lag/CN Method,**

Subcatchment 6: Area 6



Summary for Pond 1A: SW Runout w Level Spreaders

Inflow Area = 1.286 ac, 0.00% Impervious, Inflow Depth > 2.46" for 10-year event
Inflow = 4.02 cfs @ 12.07 hrs, Volume= 0.263 af
Outflow = 3.88 cfs @ 12.09 hrs, Volume= 0.198 af, Atten= 4%, Lag= 1.1 min
Primary = 3.88 cfs @ 12.09 hrs, Volume= 0.198 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 127.69' @ 12.09 hrs Surf.Area= 1,296 sf Storage= 3,081 cf

Plug-Flow detention time= 95.8 min calculated for 0.197 af (75% of inflow)
Center-of-Mass det. time= 36.1 min (824.4 - 788.3)

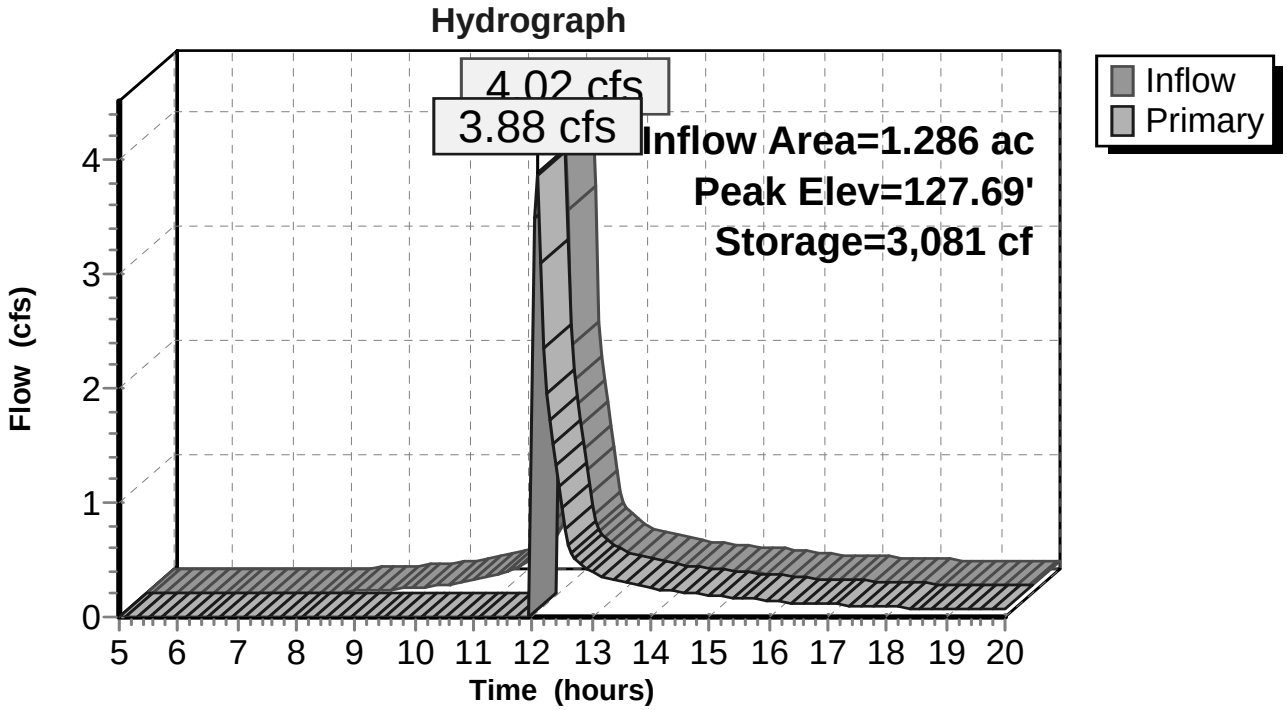
Volume	Invert	Avail.Storage	Storage Description
#1	125.00'	3,483 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
125.00	900	0	0
126.00	1,089	995	995
127.00	1,296	1,193	2,187
128.00	1,296	1,296	3,483

Device	Routing	Invert	Outlet Devices
#1	Primary	127.50'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=3.78 cfs @ 12.09 hrs HW=127.69' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 3.78 cfs @ 1.01 fps)

Pond 1A: SW Runout w Level Spreaders



Summary for Pond 2P: Wetlands

Inflow Area = 4.152 ac, 0.00% Impervious, Inflow Depth > 2.54" for 10-year event
Inflow = 10.32 cfs @ 12.19 hrs, Volume= 0.878 af
Outflow = 3.44 cfs @ 12.85 hrs, Volume= 0.333 af, Atten= 67%, Lag= 39.6 min
Primary = 3.44 cfs @ 12.85 hrs, Volume= 0.333 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 149.20' @ 12.85 hrs Surf.Area= 0.626 ac Storage= 0.547 af

Plug-Flow detention time= 211.1 min calculated for 0.333 af (38% of inflow)
Center-of-Mass det. time= 120.6 min (913.6 - 793.0)

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	0.547 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

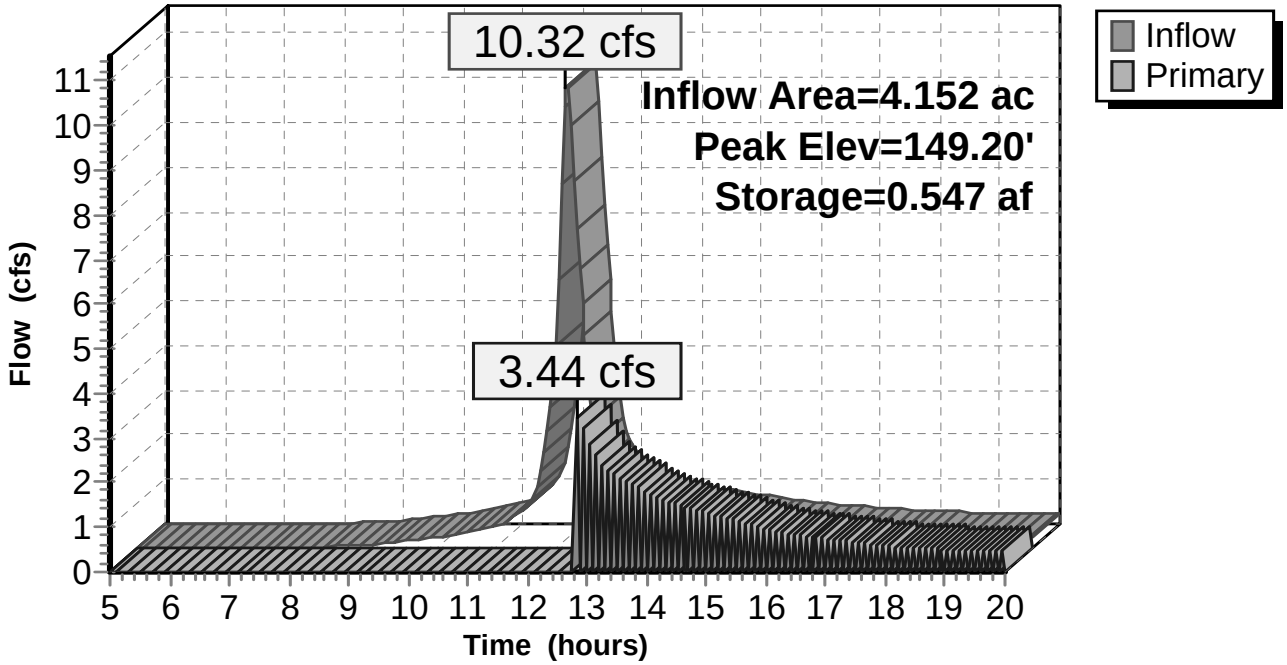
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
148.00	0.469	0.000	0.000
149.00	0.626	0.547	0.547

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.44 cfs @ 12.85 hrs HW=149.20' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 3.44 cfs @ 1.13 fps)

Pond 2P: Wetlands

Hydrograph



Summary for Pond 3A: Wetlands

Inflow Area = 7.699 ac, 0.00% Impervious, Inflow Depth > 2.46" for 10-year event
Inflow = 22.52 cfs @ 12.11 hrs, Volume= 1.575 af
Outflow = 15.04 cfs @ 12.22 hrs, Volume= 1.548 af, Atten= 33%, Lag= 6.6 min
Primary = 15.04 cfs @ 12.22 hrs, Volume= 1.548 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 129.52' @ 12.22 hrs Surf.Area= 0.574 ac Storage= 0.289 af

Plug-Flow detention time= 24.4 min calculated for 1.543 af (98% of inflow)
Center-of-Mass det. time= 17.7 min (807.9 - 790.2)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	1.233 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

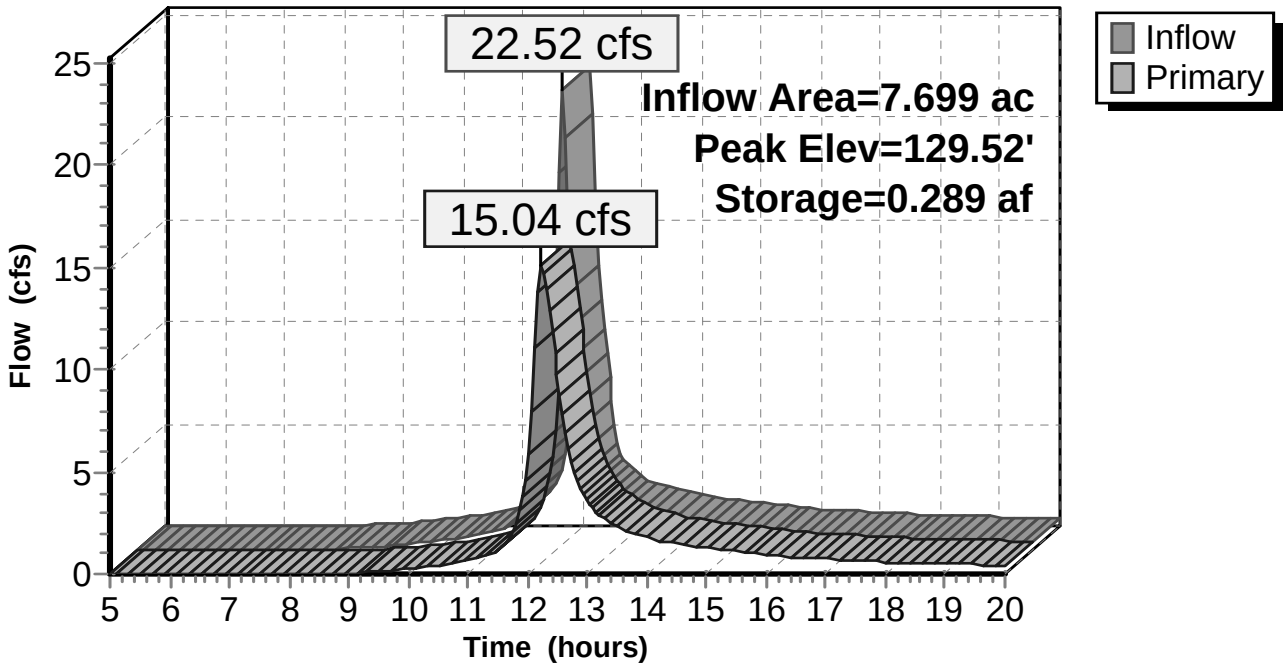
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
129.00	0.528	0.000	0.000
131.00	0.705	1.233	1.233

Device	Routing	Invert	Outlet Devices
#1	Primary	129.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=14.88 cfs @ 12.22 hrs HW=129.52' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 14.88 cfs @ 1.91 fps)

Pond 3A: Wetlands

Hydrograph



Summary for Pond 4A: Wetlands

Inflow Area = 9.296 ac, 0.00% Impervious, Inflow Depth > 2.54" for 10-year event
Inflow = 26.05 cfs @ 12.13 hrs, Volume= 1.968 af
Outflow = 14.20 cfs @ 12.33 hrs, Volume= 1.910 af, Atten= 45%, Lag= 11.6 min
Primary = 14.20 cfs @ 12.33 hrs, Volume= 1.910 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.42' @ 12.33 hrs Surf.Area= 1.230 ac Storage= 0.504 af

Plug-Flow detention time= 40.9 min calculated for 1.910 af (97% of inflow)
Center-of-Mass det. time= 29.8 min (819.4 - 789.6)

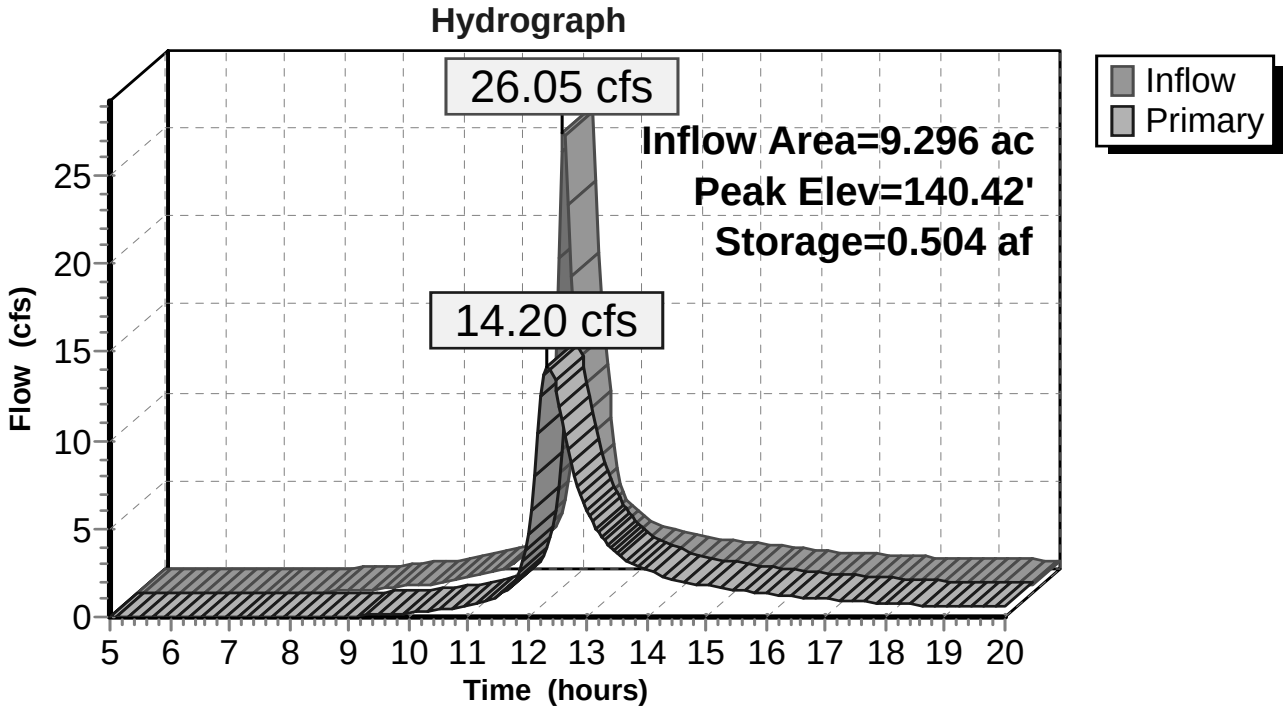
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	2.682 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
140.00	1.149	0.000	0.000
142.00	1.533	2.682	2.682

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=14.16 cfs @ 12.33 hrs HW=140.42' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 14.16 cfs @ 1.67 fps)

Pond 4A: Wetlands



Summary for Pond 5A: Wetlands

Inflow Area = 8.500 ac, 0.00% Impervious, Inflow Depth > 2.46" for 10-year event
Inflow = 28.46 cfs @ 12.05 hrs, Volume= 1.741 af
Outflow = 19.23 cfs @ 12.13 hrs, Volume= 1.719 af, Atten= 32%, Lag= 4.5 min
Primary = 19.23 cfs @ 12.13 hrs, Volume= 1.719 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.51' @ 12.13 hrs Surf.Area= 0.558 ac Storage= 0.274 af

Plug-Flow detention time= 19.0 min calculated for 1.719 af (99% of inflow)
Center-of-Mass det. time= 13.8 min (800.7 - 786.9)

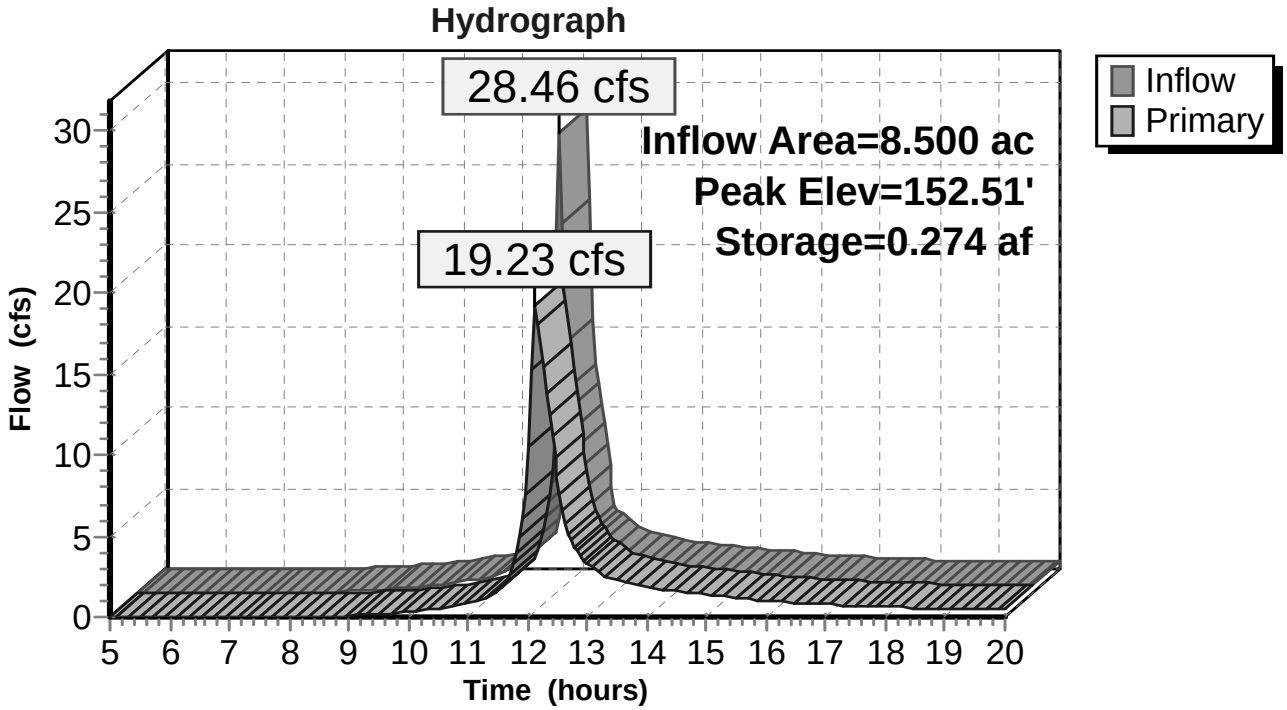
Volume	Invert	Avail.Storage	Storage Description
#1	152.00'	1.200 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
152.00	0.514	0.000	0.000
154.00	0.686	1.200	1.200

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=19.00 cfs @ 12.13 hrs HW=152.51' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 19.00 cfs @ 1.88 fps)

Pond 5A: Wetlands



Summary for Pond 6A: Wetlands

Inflow Area = 7.690 ac, 0.00% Impervious, Inflow Depth > 2.46" for 10-year event
Inflow = 24.82 cfs @ 12.06 hrs, Volume= 1.575 af
Outflow = 19.70 cfs @ 12.12 hrs, Volume= 1.561 af, Atten= 21%, Lag= 3.6 min
Primary = 19.70 cfs @ 12.12 hrs, Volume= 1.561 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.52' @ 12.12 hrs Surf.Area= 0.368 ac Storage= 0.183 af

Plug-Flow detention time= 12.9 min calculated for 1.556 af (99% of inflow)
Center-of-Mass det. time= 9.4 min (797.1 - 787.7)

Volume	Invert	Avail.Storage	Storage Description
#1	174.00'	0.791 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

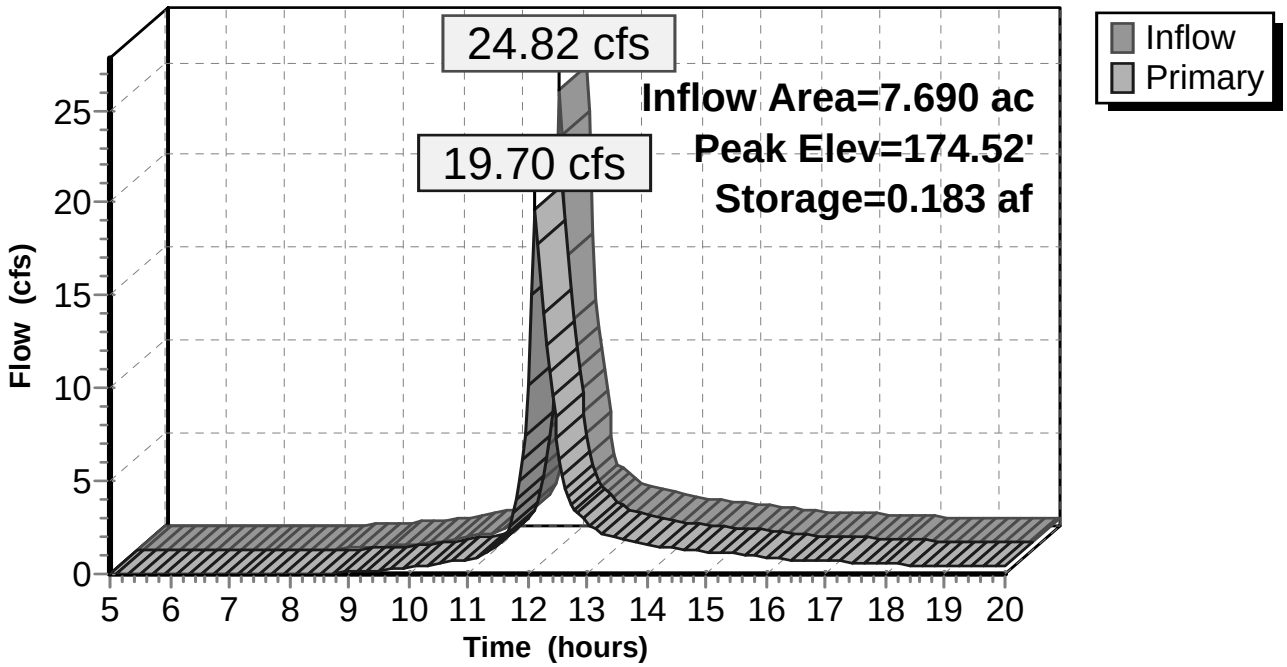
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
174.00	0.339	0.000	0.000
176.00	0.452	0.791	0.791

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=19.17 cfs @ 12.12 hrs HW=174.51' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 19.17 cfs @ 1.88 fps)

Pond 6A: Wetlands

Hydrograph



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

Subcatchment 1: Area 1 Runoff Area=1.286 ac 0.00% Impervious Runoff Depth>3.12"
Flow Length=380' Slope=0.0950 '/' Tc=4.8 min CN=80 Runoff=5.09 cfs 0.334 af

Subcatchment 2: Area 2 Runoff Area=4.152 ac 0.00% Impervious Runoff Depth>3.21"
Flow Length=575' Slope=0.0210 '/' Tc=13.6 min CN=81 Runoff=12.98 cfs 1.110 af

Subcatchment 3: Area 3 Runoff Area=7.699 ac 0.00% Impervious Runoff Depth>3.12"
Flow Length=520' Slope=0.0690 '/' Tc=7.2 min CN=80 Runoff=28.46 cfs 2.001 af

Subcatchment 4: Area 4 Runoff Area=9.296 ac 0.00% Impervious Runoff Depth>3.21"
Flow Length=540' Slope=0.0410 '/' Tc=9.3 min CN=81 Runoff=32.74 cfs 2.488 af

Subcatchment 5: Area 5 Runoff Area=8.500 ac 0.00% Impervious Runoff Depth>3.12"
Flow Length=300' Slope=0.1500 '/' Tc=3.1 min CN=80 Runoff=35.93 cfs 2.212 af

Subcatchment 6: Area 6 Runoff Area=7.690 ac 0.00% Impervious Runoff Depth>3.12"
Flow Length=260' Slope=0.0690 '/' Tc=4.1 min CN=80 Runoff=31.36 cfs 2.000 af

Pond 1A: SW Runout w Level Spreaders Peak Elev=127.72' Storage=3,122 cf Inflow=5.09 cfs 0.334 af
Outflow=4.91 cfs 0.269 af

Pond 2P: Wetlands Peak Elev=149.38' Storage=0.547 af Inflow=12.98 cfs 1.110 af
Outflow=8.84 cfs 0.565 af

Pond 3A: Wetlands Peak Elev=129.62' Storage=0.344 af Inflow=28.46 cfs 2.001 af
Outflow=19.73 cfs 1.970 af

Pond 4A: Wetlands Peak Elev=140.50' Storage=0.604 af Inflow=32.74 cfs 2.488 af
Outflow=18.87 cfs 2.423 af

Pond 5A: Wetlands Peak Elev=152.61' Storage=0.328 af Inflow=35.93 cfs 2.212 af
Outflow=25.59 cfs 2.186 af

Pond 6A: Wetlands Peak Elev=174.61' Storage=0.216 af Inflow=31.36 cfs 2.000 af
Outflow=25.58 cfs 1.985 af

Total Runoff Area = 38.623 ac Runoff Volume = 10.145 af Average Runoff Depth = 3.15"
100.00% Pervious = 38.623 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1: Area 1

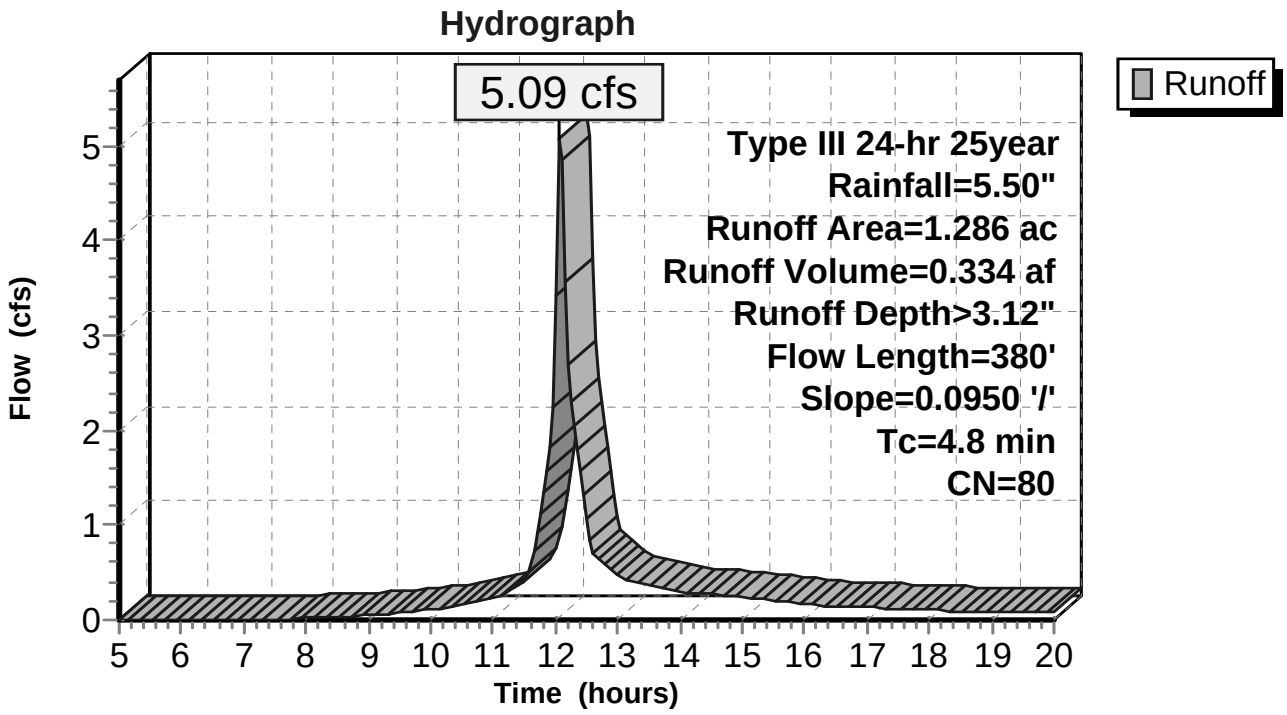
Runoff = 5.09 cfs @ 12.07 hrs, Volume= 0.334 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	1.193	79	Woods, Fair, HSG D
*	0.093	95	Final Gravel Access Road
	1.286	80	Weighted Average
	1.286		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	380	0.0950	1.33		**Lag/CN Method,**

Subcatchment 1: Area 1



Summary for Subcatchment 2: Area 2

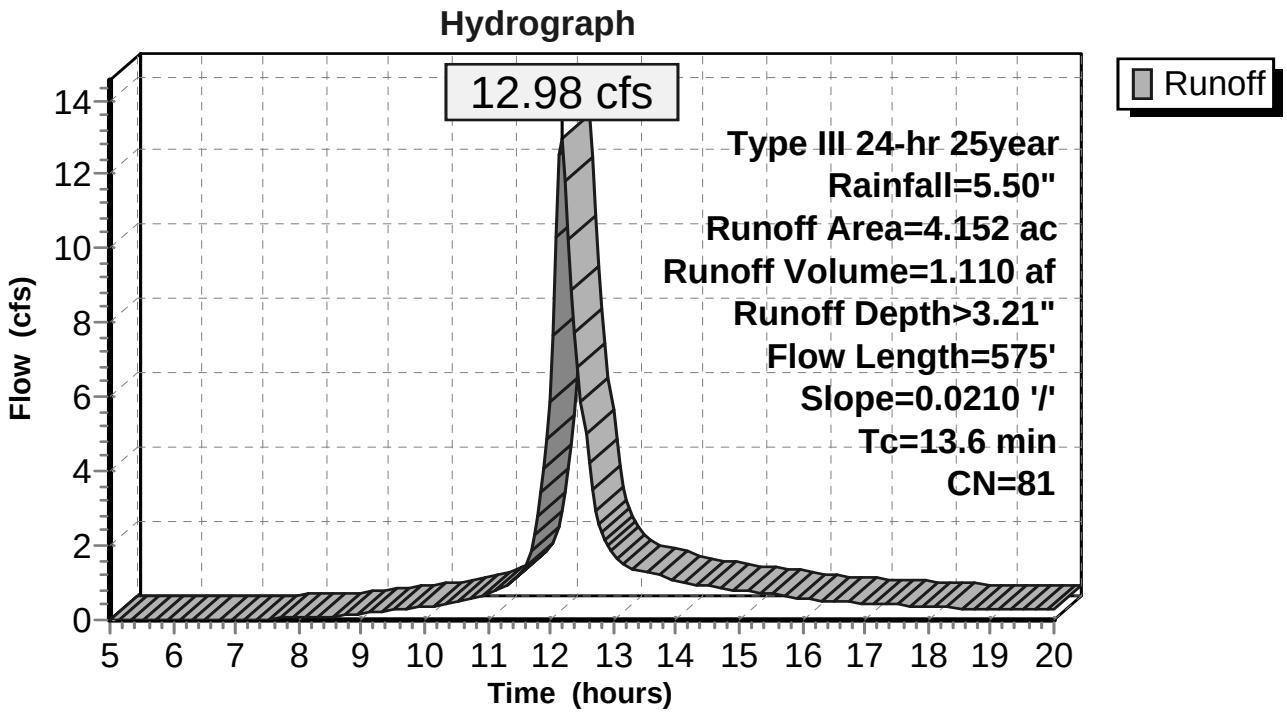
Runoff = 12.98 cfs @ 12.19 hrs, Volume= 1.110 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	3.526	79	Woods, Fair, HSG D
*	0.626	89	Forested Wetlands
	4.152	81	Weighted Average
	4.152		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	575	0.0210	0.70		**Lag/CN Method,**

Subcatchment 2: Area 2



Summary for Subcatchment 3: Area 3

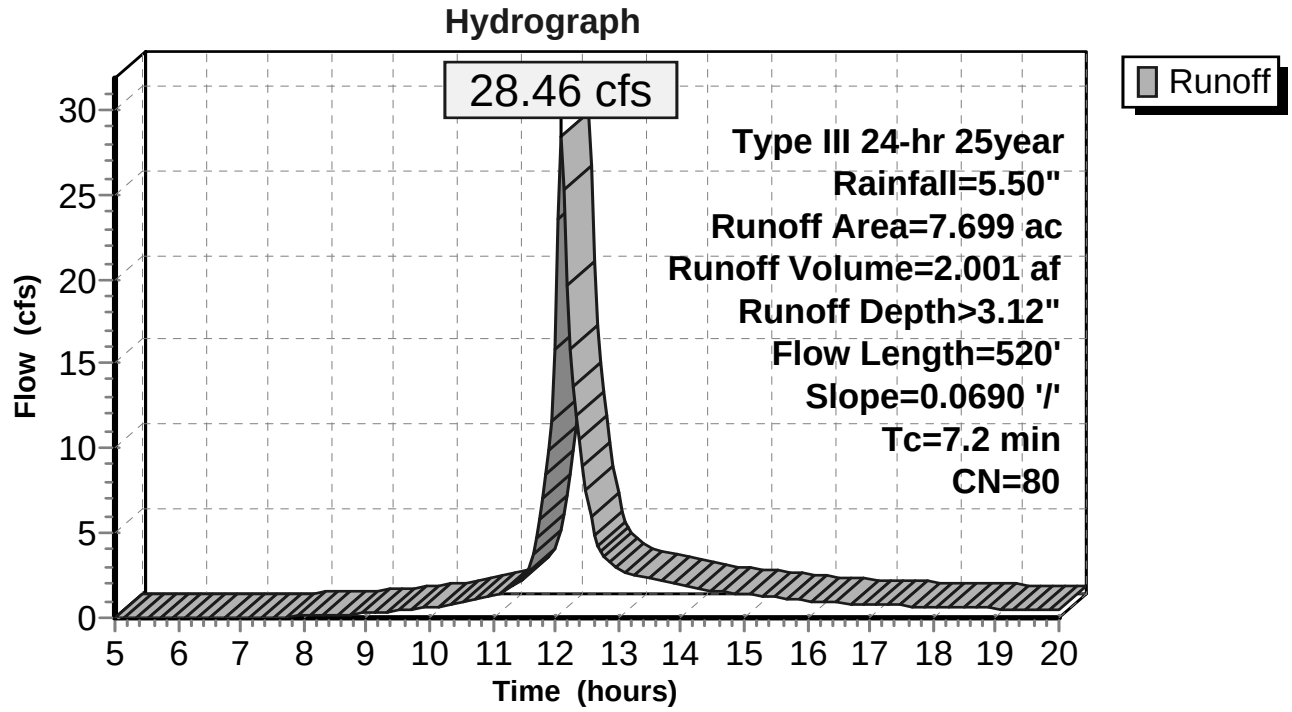
Runoff = 28.46 cfs @ 12.11 hrs, Volume= 2.001 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	6.741	79	Woods, Fair, HSG D
*	0.705	89	Forested Wetlands
*	0.253	95	Final Gravel Access Drive
	7.699	80	Weighted Average
	7.699		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	520	0.0690	1.21		**Lag/CN Method,**

Subcatchment 3: Area 3



Summary for Subcatchment 4: Area 4

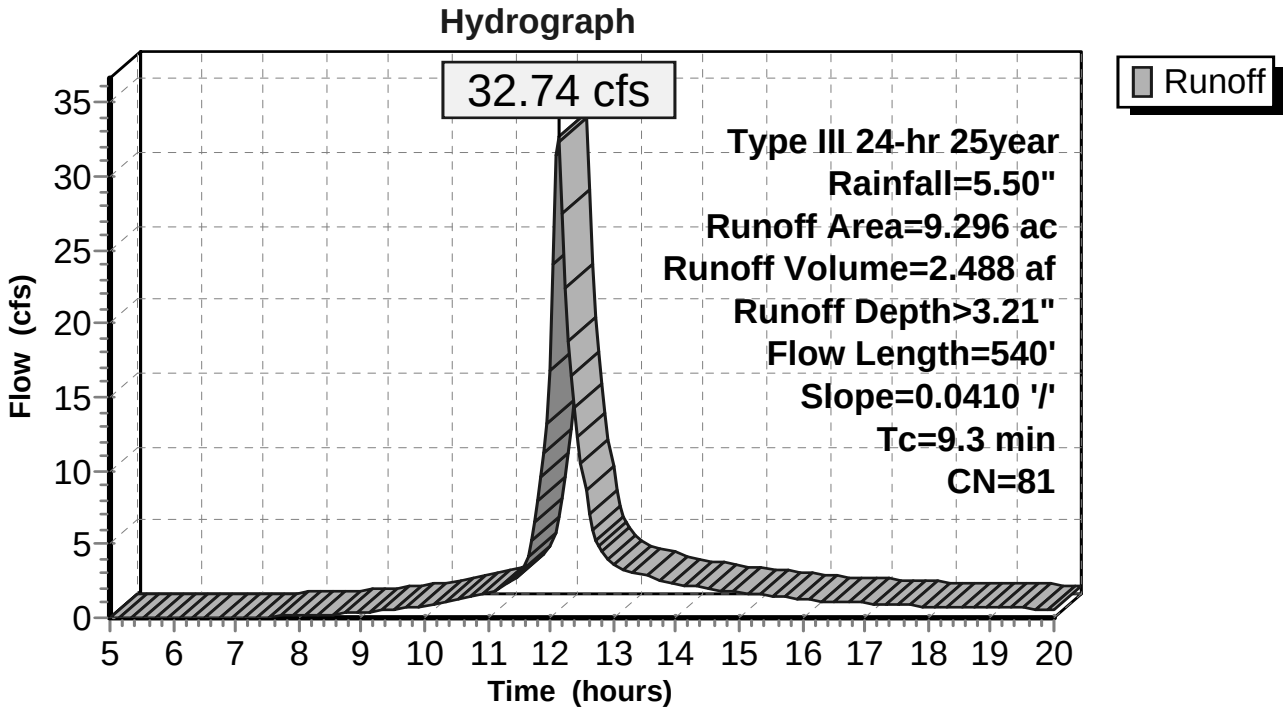
Runoff = 32.74 cfs @ 12.13 hrs, Volume= 2.488 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	7.427	79	Woods, Fair, HSG D
*	1.533	89	Forested Wetlands
*	0.336	95	Final Gravel Access Drive
	9.296	81	Weighted Average
	9.296		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	540	0.0410	0.97		**Lag/CN Method,**

Subcatchment 4: Area 4



Summary for Subcatchment 5: Area 5

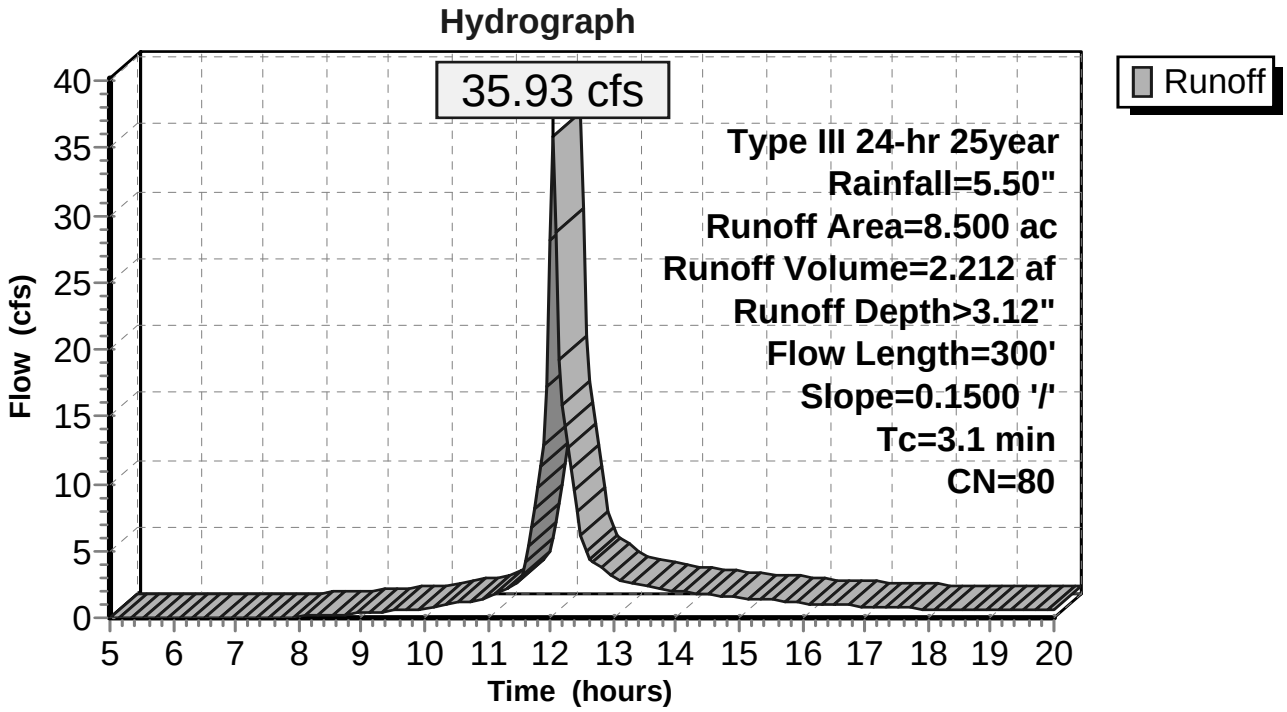
Runoff = 35.93 cfs @ 12.05 hrs, Volume= 2.212 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	7.685	79	Woods, Fair, HSG D
*	0.686	89	Forested Wetlands
*	0.129	85	Crushed Stone Compound (75'x75')
	8.500	80	Weighted Average
	8.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	300	0.1500	1.60		**Lag/CN Method,**

Subcatchment 5: Area 5



Summary for Subcatchment 6: Area 6

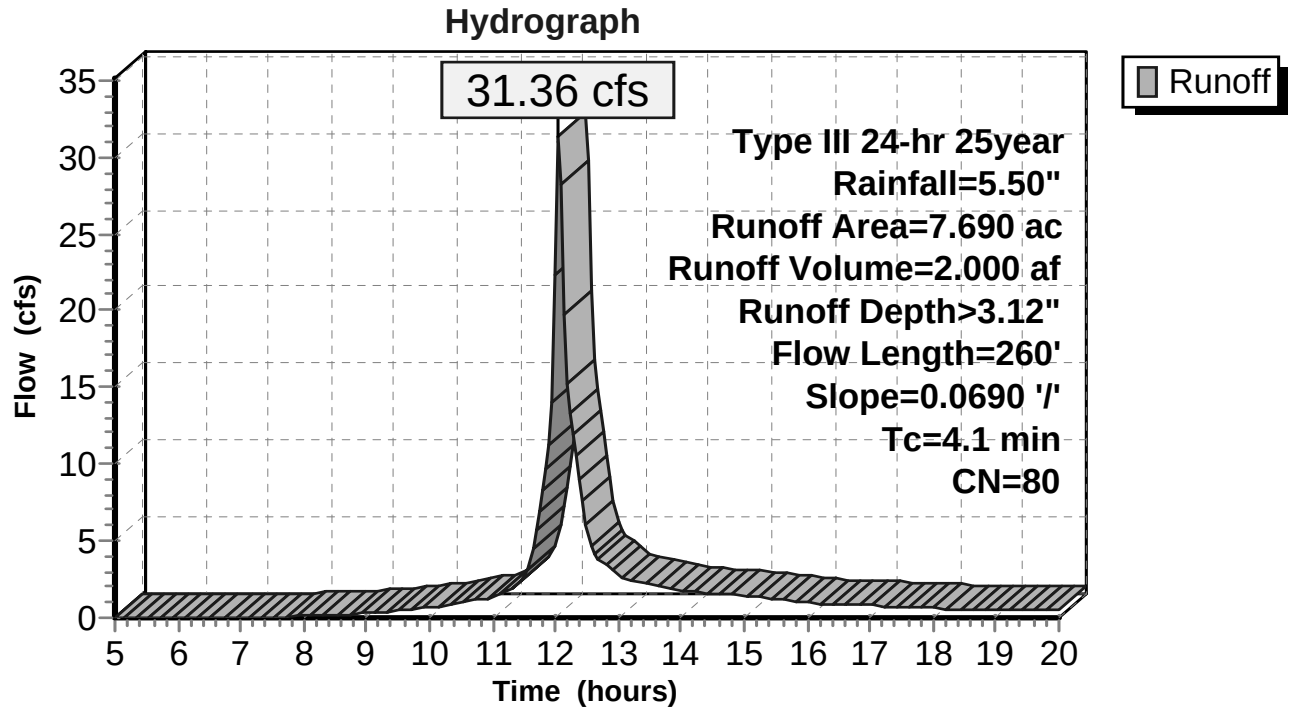
Runoff = 31.36 cfs @ 12.06 hrs, Volume= 2.000 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25year Rainfall=5.50"

	Area (ac)	CN	Description
	7.111	79	Woods, Fair, HSG D
*	0.452	89	Forested Wetlands
*	0.127	95	Final Gravel Surface Drive
	7.690	80	Weighted Average
	7.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	260	0.0690	1.05		**Lag/CN Method,**

Subcatchment 6: Area 6



Summary for Pond 1A: SW Runout w Level Spreaders

Inflow Area = 1.286 ac, 0.00% Impervious, Inflow Depth > 3.12" for 25year event
Inflow = 5.09 cfs @ 12.07 hrs, Volume= 0.334 af
Outflow = 4.91 cfs @ 12.09 hrs, Volume= 0.269 af, Atten= 3%, Lag= 0.8 min
Primary = 4.91 cfs @ 12.09 hrs, Volume= 0.269 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 127.72' @ 12.09 hrs Surf.Area= 1,296 sf Storage= 3,122 cf

Plug-Flow detention time= 81.6 min calculated for 0.268 af (80% of inflow)
Center-of-Mass det. time= 30.4 min (813.2 - 782.7)

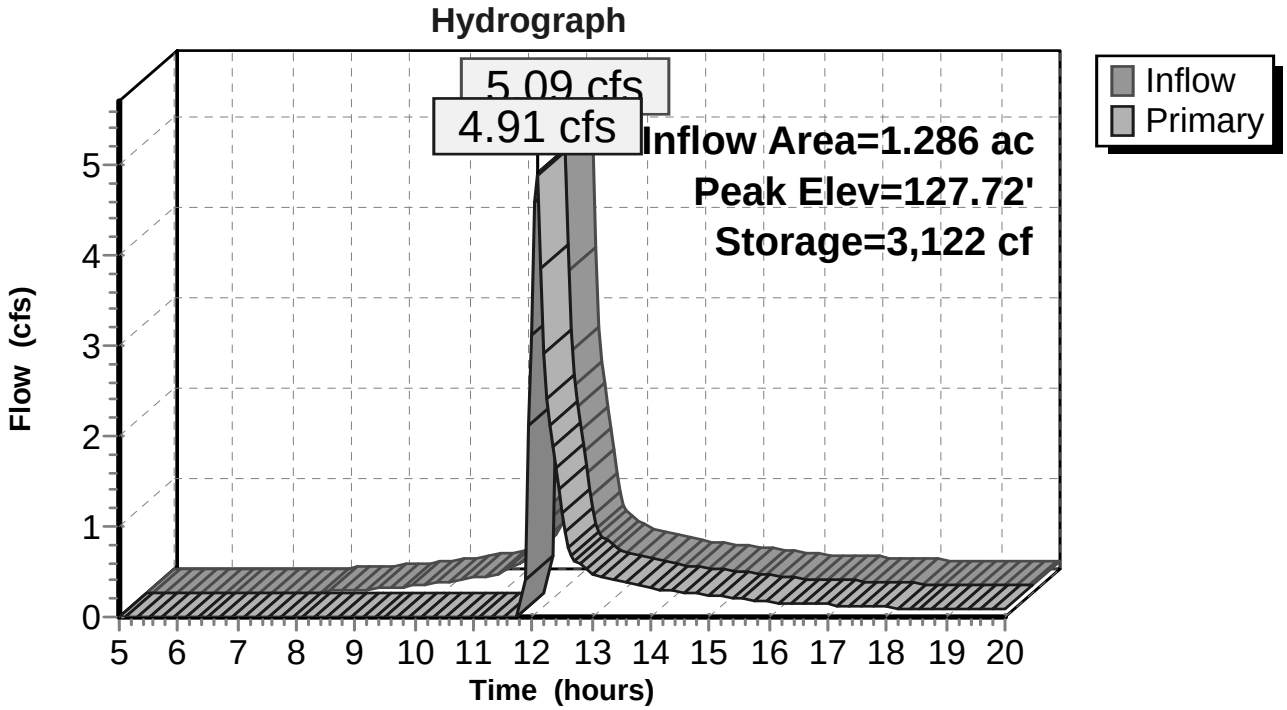
Volume	Invert	Avail.Storage	Storage Description
#1	125.00'	3,483 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
125.00	900	0	0
126.00	1,089	995	995
127.00	1,296	1,193	2,187
128.00	1,296	1,296	3,483

Device	Routing	Invert	Outlet Devices
#1	Primary	127.50'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=4.77 cfs @ 12.09 hrs HW=127.72' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 4.77 cfs @ 1.10 fps)

Pond 1A: SW Runout w Level Spreaders



Summary for Pond 2P: Wetlands

Inflow Area = 4.152 ac, 0.00% Impervious, Inflow Depth > 3.21" for 25year event
Inflow = 12.98 cfs @ 12.19 hrs, Volume= 1.110 af
Outflow = 8.84 cfs @ 12.44 hrs, Volume= 0.565 af, Atten= 32%, Lag= 15.3 min
Primary = 8.84 cfs @ 12.44 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 149.38' @ 12.44 hrs Surf.Area= 0.626 ac Storage= 0.547 af

Plug-Flow detention time= 160.6 min calculated for 0.565 af (51% of inflow)
Center-of-Mass det. time= 79.9 min (867.5 - 787.5)

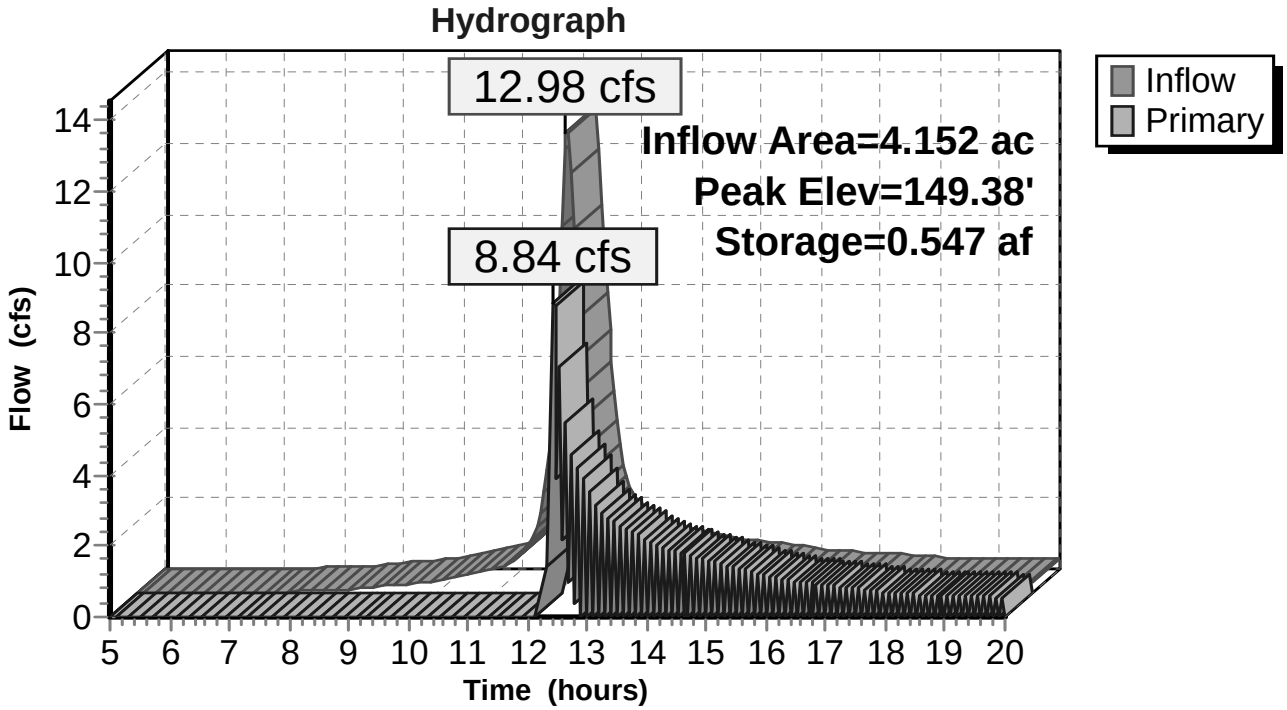
Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	0.547 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
148.00	0.469	0.000	0.000
149.00	0.626	0.547	0.547

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=8.40 cfs @ 12.44 hrs HW=149.36' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 8.40 cfs @ 1.54 fps)

Pond 2P: Wetlands



Summary for Pond 3A: Wetlands

Inflow Area = 7.699 ac, 0.00% Impervious, Inflow Depth > 3.12" for 25year event
Inflow = 28.46 cfs @ 12.11 hrs, Volume= 2.001 af
Outflow = 19.73 cfs @ 12.21 hrs, Volume= 1.970 af, Atten= 31%, Lag= 6.2 min
Primary = 19.73 cfs @ 12.21 hrs, Volume= 1.970 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 129.62' @ 12.21 hrs Surf.Area= 0.583 ac Storage= 0.344 af

Plug-Flow detention time= 22.8 min calculated for 1.970 af (98% of inflow)
Center-of-Mass det. time= 16.7 min (801.3 - 784.6)

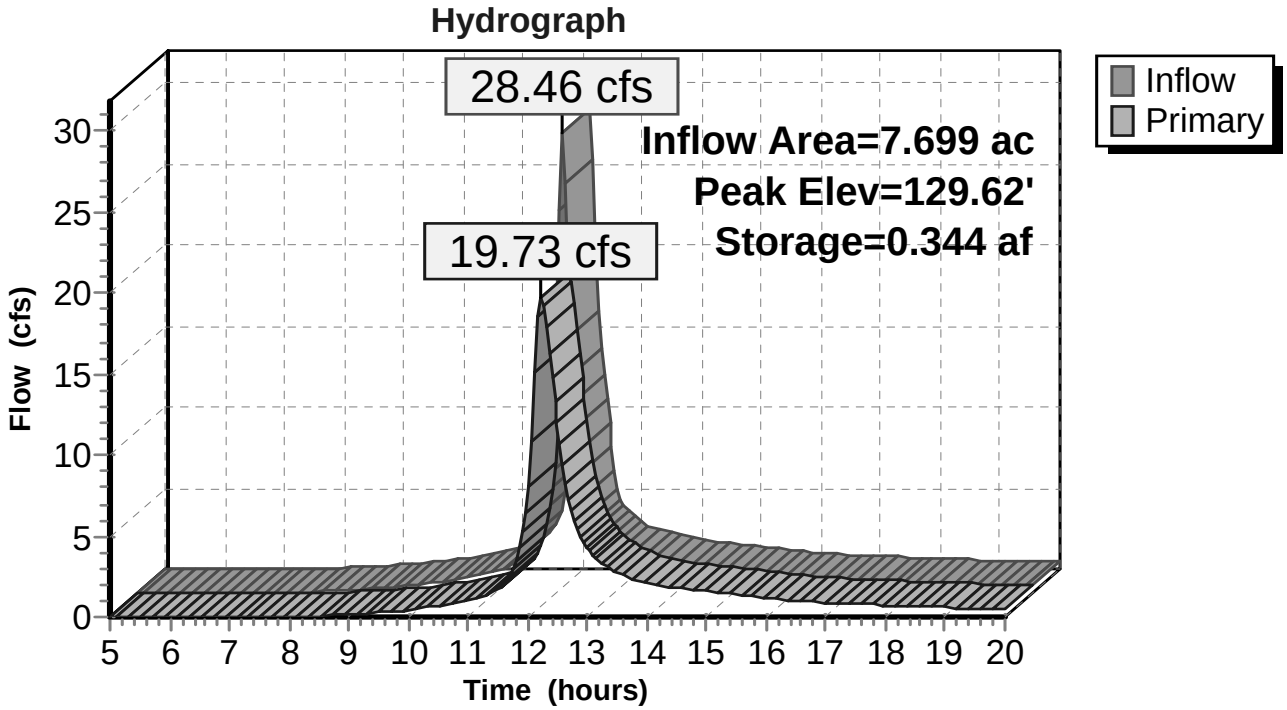
Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	1.233 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
129.00	0.528	0.000	0.000
131.00	0.705	1.233	1.233

Device	Routing	Invert	Outlet Devices
#1	Primary	129.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=19.62 cfs @ 12.21 hrs HW=129.62' (Free Discharge)
↑└**1=Broad-Crested Rectangular Weir** (Weir Controls 19.62 cfs @ 2.12 fps)

Pond 3A: Wetlands



Summary for Pond 4A: Wetlands

Inflow Area = 9.296 ac, 0.00% Impervious, Inflow Depth > 3.21" for 25year event
Inflow = 32.74 cfs @ 12.13 hrs, Volume= 2.488 af
Outflow = 18.87 cfs @ 12.31 hrs, Volume= 2.423 af, Atten= 42%, Lag= 10.4 min
Primary = 18.87 cfs @ 12.31 hrs, Volume= 2.423 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 140.50' @ 12.31 hrs Surf.Area= 1.246 ac Storage= 0.604 af

Plug-Flow detention time= 38.2 min calculated for 2.423 af (97% of inflow)
Center-of-Mass det. time= 28.1 min (812.2 - 784.1)

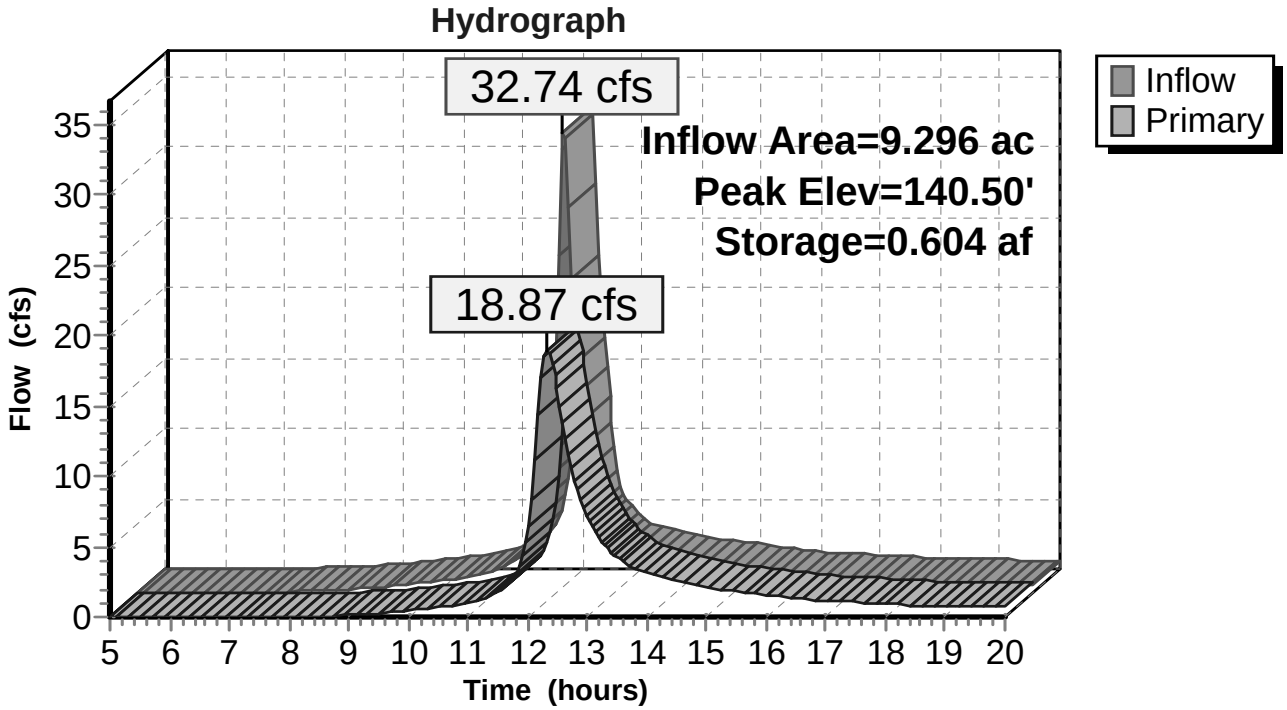
Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	2.682 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
140.00	1.149	0.000	0.000
142.00	1.533	2.682	2.682

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=18.83 cfs @ 12.31 hrs HW=140.50' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 18.83 cfs @ 1.87 fps)

Pond 4A: Wetlands



Summary for Pond 5A: Wetlands

Inflow Area = 8.500 ac, 0.00% Impervious, Inflow Depth > 3.12" for 25year event
Inflow = 35.93 cfs @ 12.05 hrs, Volume= 2.212 af
Outflow = 25.59 cfs @ 12.12 hrs, Volume= 2.186 af, Atten= 29%, Lag= 4.2 min
Primary = 25.59 cfs @ 12.12 hrs, Volume= 2.186 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.61' @ 12.12 hrs Surf.Area= 0.566 ac Storage= 0.328 af

Plug-Flow detention time= 17.7 min calculated for 2.186 af (99% of inflow)
Center-of-Mass det. time= 13.0 min (794.4 - 781.4)

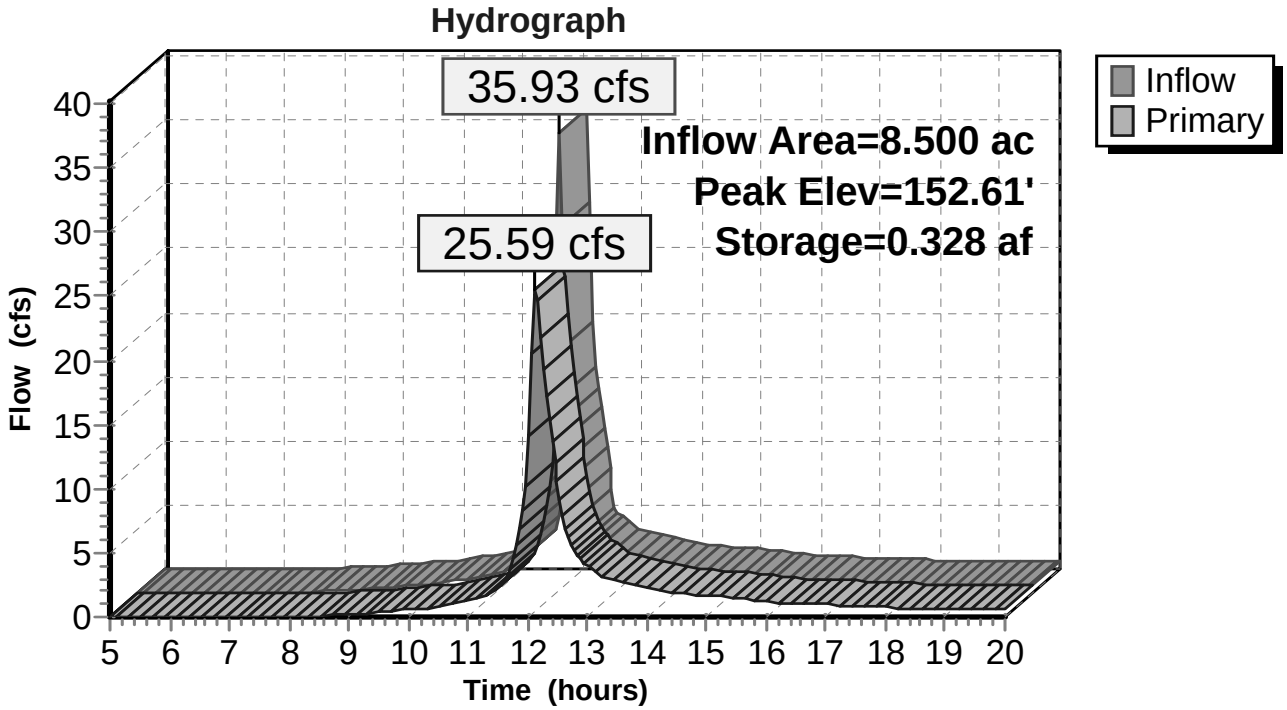
Volume	Invert	Avail.Storage	Storage Description
#1	152.00'	1.200 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
152.00	0.514	0.000	0.000
154.00	0.686	1.200	1.200

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=24.98 cfs @ 12.12 hrs HW=152.60' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 24.98 cfs @ 2.09 fps)

Pond 5A: Wetlands



Summary for Pond 6A: Wetlands

Inflow Area = 7.690 ac, 0.00% Impervious, Inflow Depth > 3.12" for 25year event
Inflow = 31.36 cfs @ 12.06 hrs, Volume= 2.000 af
Outflow = 25.58 cfs @ 12.12 hrs, Volume= 1.985 af, Atten= 18%, Lag= 3.4 min
Primary = 25.58 cfs @ 12.12 hrs, Volume= 1.985 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.61' @ 12.12 hrs Surf.Area= 0.373 ac Storage= 0.216 af

Plug-Flow detention time= 12.1 min calculated for 1.985 af (99% of inflow)
Center-of-Mass det. time= 8.9 min (791.1 - 782.2)

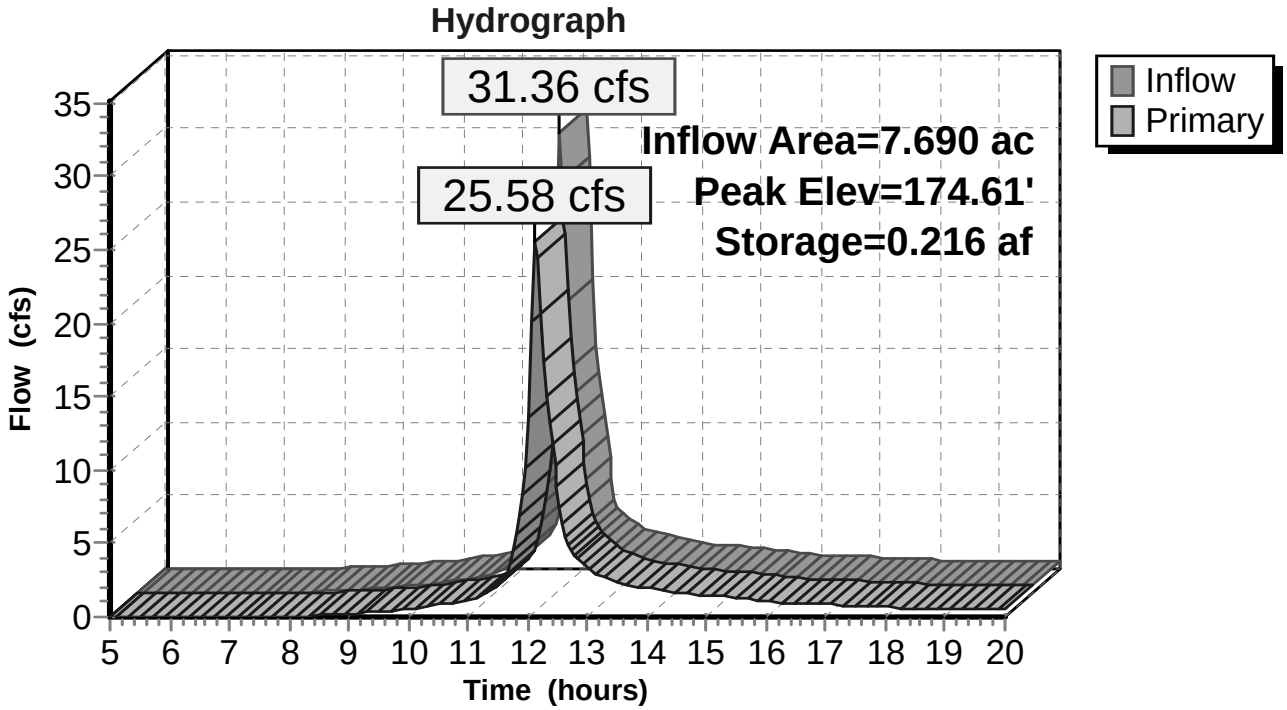
Volume	Invert	Avail.Storage	Storage Description
#1	174.00'	0.791 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
174.00	0.339	0.000	0.000
176.00	0.452	0.791	0.791

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=24.90 cfs @ 12.12 hrs HW=174.60' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 24.90 cfs @ 2.08 fps)

Pond 6A: Wetlands



SECTION 4

DRAINAGE CATCHMENTS

EXISTING DRAINAGE CONDTIONS (1 / C-9)
SCALE: 1"= 200'

GRAPHIC SCALE
0 100 200 400 600 FEET

TOWN OF FALMOUTH, ME
PLANNING BOARD

FOR ZONING

DRAINAGE CATCHMENT	AREA (ACRES)	WEIGHTED CN	TIME OF CONCENTRATION T_C (MINS)
1	1.286	79	4.9
2	4.152	81	13.6
3	7.699	80	7.2
4	9.296	81	9.3
5	8.500	80	3.1
6	7.690	80	4.1

APPROXIMATE TOWER COORDINATES:
LAT: N 43° 43' 42.05"
LONG: W 70° 15' 45.75"

LEGEND

- PROPERTY LINE – SUBJECT PARCEL
- PROPOSED CONTOUR LINE
- EXISTING CONTOUR LINE
- EXISTING TREE LINE
- PROPOSED EASEMENT LINE
- STONE WALL
- WETLAND LINE
- TIME OF CONCENTRATION FLOW PATH
- DRAINAGE AREA OR CATCHMENT

SOURCE

1. SURVEY BY NESC
   DATED: 08/13/14
   TITLED: ABUTTERS PLAN/EXISTING CONDITIONS

SITE SPECIFIC NOTES:

1. VERIFY AZIMUTHS W/ RF ENGINEER.
2. REFER TO STRUCTURAL ANALYSIS BY OTHERS.

PREPARED FOR:
verizon wireless
400 FRIBERG PARKWAY
WESTBOROUGH, MA 01581
(508) 330-3330 TEL

PREPARED BY:
Hudson Design Groupllc
160 OGOGO STREET
BUILDING 20, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

REV	DATE	DESCRIPTION	BY	CHK	APP'D
0	08/19/14	ISSUED FOR REVIEW	GC	JX	DPH
1	05/01/16	OUTDOOR EQUIP. & NEW ROAD DESIGN	HH	JX	DPH

EXISTING DRAINAGE CONDITIONS

REGISTERED ENGINEER

FALMOUTH 3 ME
175 FALMOUTH ROAD
FALMOUTH, ME 04105

C-9

PROPOSED DRAINAGE CONDTIONS

SCALE: 1"= 200'

1 / C-10

TOWN OF FALMOUTH, ME
PLANNING BOARD

FOR ZONING

DRAINAGE CATCHMENT	AREA (ACRES)	WEIGHTED CN	TIME OF CONCENTRATION T_C (MINS)
1	1.286	80	4.8
2	4.152	81	13.6
3	7.699	80	7.2
4	9.296	81	9.3
5	8.500	80	3.1
6	7.690	80	4.1

APPROXIMATE TOWER COORDINATES:
LAT: N 43° 43' 42.05"
LONG: W 70° 15' 45.75"

LEGEND

- PROPERTY LINE – SUBJECT PARCEL
- PROPOSED CONTOUR LINE
- EXISTING CONTOUR LINE
- EXISTING TREE LINE
- PROPOSED EASEMENT LINE
- STONE WALL
- WETLAND LINE
- TIME OF CONCENTRATION FLOW PATH
- DRAINAGE AREA OR CATCHMENT

SOURCE

1. SURVEY BY NESC
   DATED: 08/13/14
   TITLED: ABUTTERS PLAN/EXISTING CONDITIONS

SITE SPECIFIC NOTES:

1. VERIFY AZIMUTHS W/ RF ENGINEER.
2. REFER TO STRUCTURAL ANALYSIS BY OTHERS.

PREPARED FOR:
verizon wireless
400 FRIBERG PARKWAY
WESTBOROUGH, MA 01581
(508) 330-3330 TEL

PREPARED BY:
Hudson Design Groupllc
160 DASCOMB STREET
BUILDING 2, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

REV	DATE	DESCRIPTION	BY	CHK	APP'D
0	08/19/14	ISSUED FOR REVIEW	GC	JX	DPH
1	06/01/16	OUTDOOR EQUIP. & NEW ROAD DESIGN	HH	JX	DPH

PROPOSED DRAINAGE CONDITIONS

REGISTERED ENGINEER

FALMOUTH 3 ME
175 FALMOUTH ROAD
FALMOUTH, ME 04105

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