

542 VIOLET AVENUE (NYS RTE 9G)
TOWN OF HYDE PARK
DUTCHESS COUNTY, NEW YORK
TAX PARCELS: 133200-6163-02- 570735

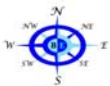
HUDSON VALLEY HOSPICE HOUSE

STORMWATER POLLUTION
PREVENTION PLAN
ADDENDUM

Prepared for:

HUDSON VALLEY HOSPICE
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SWPPP January 19, 2021
SWPPP Revised March 23, 2021
Addendum May 18, 2021

I INTRODUCTION

The HydroCAD Stormwater model was simplified to accommodate for the computer programs algorithms and process on small watersheds. The primary algorithm behind the program was developed many decades ago before computers and for very large watershed.

The computer software allows for multiple iterations and secondary algorithms to be performed. Sometimes with small watersheds such as those associated with Hospice House, the program algorithm does not reach a smooth conclusion. The key is to follow the main flow line in the results.

An alternative is to simplify the model by combining or dropping small elements. This simplification has been performed.

II CONCLUSION

As seen in the following results, the previous results and the simplified results show the proposed stormwater systems provides quantity control in accordance with the NYSDEC Standards.

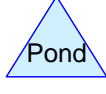
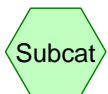
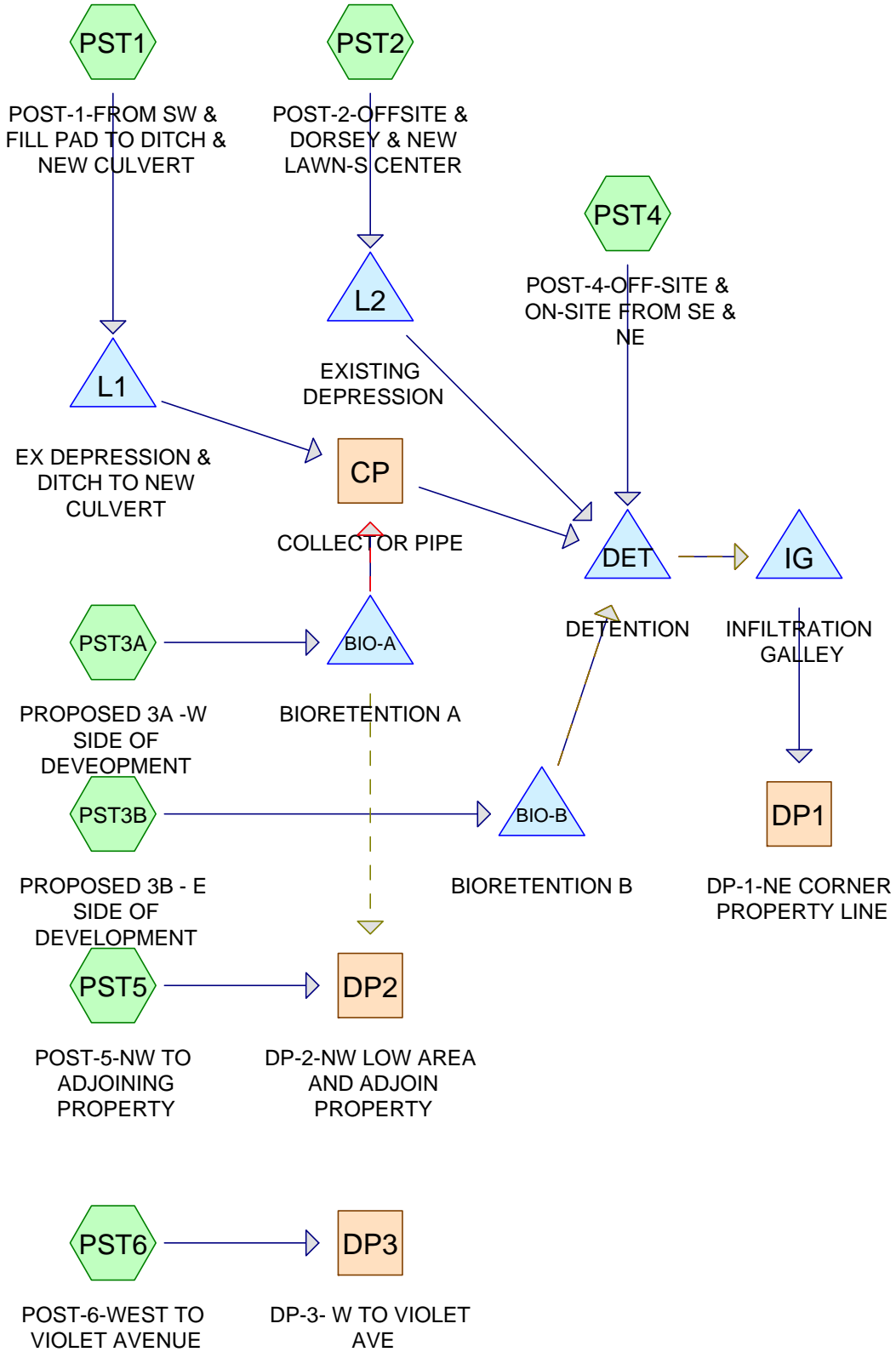
ALT COMPARISON
05/05/2021

PRE - POST COMPARISON						
SUBSHED	AREA	CN	Tc	1-YR	10-YR	100-YR
	AC		MIN	CFS	CFS	CFS
PRE-1	9.2	82	20.5	7	19	40
PRE-2	1.4	80	13.7	1	3	7
PRE-3	2.1	79	15.7	5	5	10
PRE-4	3.1	80	19.2	2	6	14
DP-1	15.7	81	20.5	5	13	31
PRE-5/DP-2	0.6	81	6.0	1	2	4
PRE-6/DP-3	0.2	86	6.0	0	1	2
PRE TOTAL	16.5			6	16	36
POST-1	9.2	83	21.2	8	20	40
POST-2	1.3	81	14.1	1	3	7
POST-3A	1.4	84	30.0	1	3	5
POST-3B	1.9	88	30.0	2	4	7
POST-4	2.1	81	16.5	2	5	10
DP-1	15.8	83	30.0	5	9	27
POST-5/DP-2	0.5	82	6.0	1	2	4
POST-6/DP-3	0.2	83	6.0	0	1	1
POST TOTAL	16.5			6	12	31

* Flow through level spreader without level spreader galley

** Flow with out galley or level spreader

The following table displays the comparison of the peak discharges and elevations of the existing depressions and proposed treatment and detention facilities for pre-development and post-development conditions of the evaluation.



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PST1: POST-1-FROM SW & Runoff Area=9.160 ac 15.50% Impervious Runoff Depth=1.15"
 Flow Length=588' Tc=21.2 min CN=83 Runoff=8 cfs 0.876 af

Subcatchment PST2: POST-2-OFFSITE & Runoff Area=1.310 ac 4.58% Impervious Runoff Depth=1.03"
 Flow Length=129' Tc=14.1 min CN=81 Runoff=1 cfs 0.112 af

Subcatchment PST3A: PROPOSED 3A -W Runoff Area=1.370 ac 43.07% Impervious Runoff Depth=1.21"
 Tc=30.0 min CN=84 Runoff=1 cfs 0.138 af

Subcatchment PST3B: PROPOSED 3B - E Runoff Area=1.860 ac 45.16% Impervious Runoff Depth=1.48"
 Tc=30.0 min CN=88 Runoff=2 cfs 0.230 af

Subcatchment PST4: POST-4-OFF-SITE & Runoff Area=2.080 ac 10.10% Impervious Runoff Depth=1.03"
 Flow Length=568' Tc=16.5 min CN=81 Runoff=2 cfs 0.178 af

Subcatchment PST5: POST-5-NW TO Runoff Area=0.530 ac 11.32% Impervious Runoff Depth=1.09"
 Tc=6.0 min CN=82 Runoff=1 cfs 0.048 af

Subcatchment PST6: POST-6-WEST TO Runoff Area=0.180 ac 16.67% Impervious Runoff Depth=1.15"
 Tc=6.0 min CN=83 Runoff=0 cfs 0.017 af

Reach CP: COLLECTOR PIPE Avg. Flow Depth=0.65' Max Vel=5.35 fps Inflow=5 cfs 0.965 af
 24.0" Round Pipe n=0.013 L=416.0' S=0.0084 '/' Capacity=21 cfs Outflow=5 cfs 0.965 af

Reach DP1: DP-1-NE CORNER PROPERTY LINE Inflow=5 cfs 1.343 af
 Outflow=5 cfs 1.343 af

Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY Inflow=1 cfs 0.048 af
 Outflow=1 cfs 0.048 af

Reach DP3: DP-3- W TO VIOLET AVE Inflow=0 cfs 0.017 af
 Outflow=0 cfs 0.017 af

Pond BIO-A: BIORETENTION A Peak Elev=268.16' Storage=1,924 cf Inflow=1 cfs 0.138 af
 Discarded=0 cfs 0.049 af Primary=0 cfs 0.000 af Secondary=0 cfs 0.089 af Tertiary=0 cfs 0.000 af Outflow=0 cfs 0.138 af

Pond BIO-B: BIORETENTION B Peak Elev=259.94' Storage=3,507 cf Inflow=2 cfs 0.230 af
 Primary=0 cfs 0.000 af Secondary=1 cfs 0.197 af Tertiary=0 cfs 0.000 af Outflow=1 cfs 0.197 af

Pond DET: DETENTION Peak Elev=258.05' Storage=8,904 cf Inflow=6 cfs 1.354 af
 Primary=1 cfs 0.075 af Secondary=4 cfs 1.278 af Tertiary=0 cfs 0.000 af Outflow=5 cfs 1.353 af

Pond IG: INFILTRATION GALLEY Peak Elev=257.79' Storage=447 cf Inflow=5 cfs 1.353 af
 Discarded=0 cfs 0.005 af Primary=5 cfs 1.343 af Outflow=5 cfs 1.348 af

Pond L1: EX DEPRESSION & DITCH TO NEW Peak Elev=269.44' Storage=3,579 cf Inflow=8 cfs 0.876 af
 Outflow=4 cfs 0.876 af

HVH-Pst-20210406-0505

POST DEVELOPMENT-NO LEVEL SPREADER
NY-Dut-HP-HosHse-20210110 24-hr S1 1-yr Rainfall=2.62"

Prepared by Berger Engineering and Surveying, PLLC

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Pond L2: EXISTING DEPRESSION

Peak Elev=273.50' Storage=4,335 cf Inflow=1 cfs 0.112 af

Outflow=0 cfs 0.014 af

Total Runoff Area = 16.490 ac Runoff Volume = 1.600 af Average Runoff Depth = 1.16"
80.53% Pervious = 13.280 ac 19.47% Impervious = 3.210 ac

Summary for Subcatchment PST1: POST-1-FROM SW & FILL PAD TO DITCH & NEW CULVERT

Runoff = 8 cfs @ 12.25 hrs, Volume= 0.876 af, Depth= 1.15"

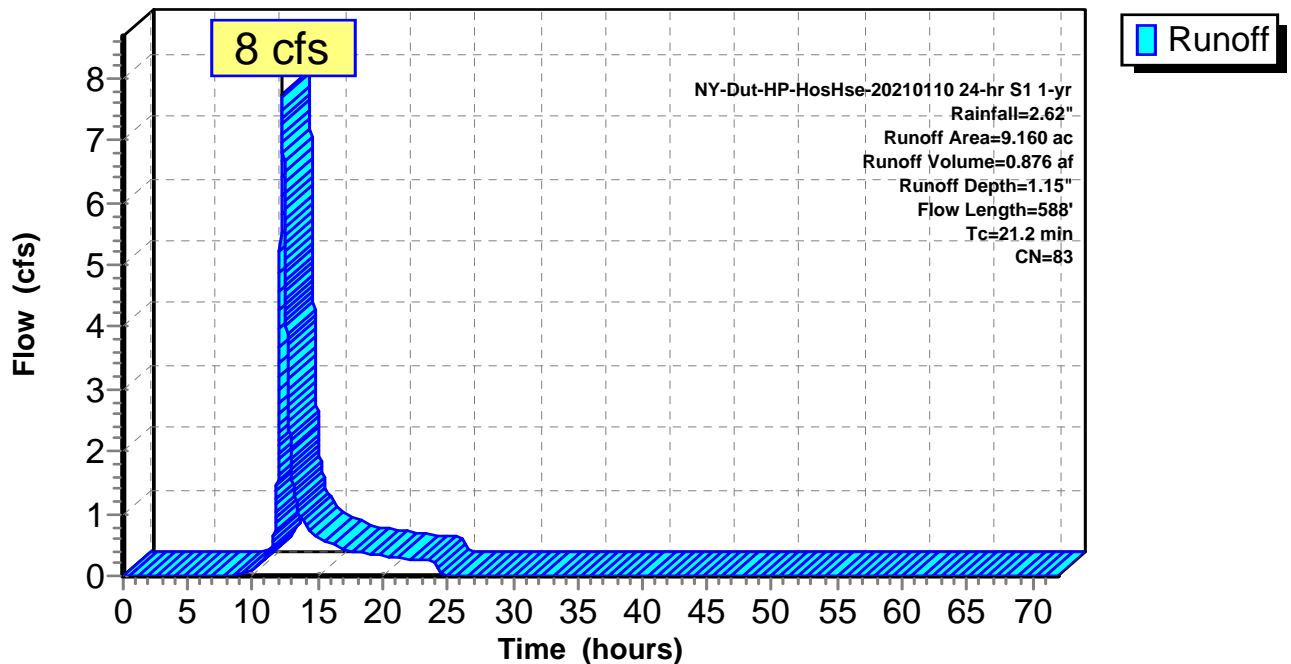
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 1-yr Rainfall=2.62"

Area (ac)	CN	Description
2.380	79	Woods, Fair, HSG D
5.360	80	>75% Grass cover, Good, HSG D
* 0.890	98	Driveway/Parking
* 0.530	98	Roof
9.160	83	Weighted Average
7.740		84.50% Pervious Area
1.420		15.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.17"
7.3	488	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
21.2	588	Total			

Subcatchment PST1: POST-1-FROM SW & FILL PAD TO DITCH & NEW CULVERT

Hydrograph



Summary for Subcatchment PST2: POST-2-OFFSITE & DORSEY & NEW LAWN-S CENTER

Runoff = 1 cfs @ 12.15 hrs, Volume= 0.112 af, Depth= 1.03"

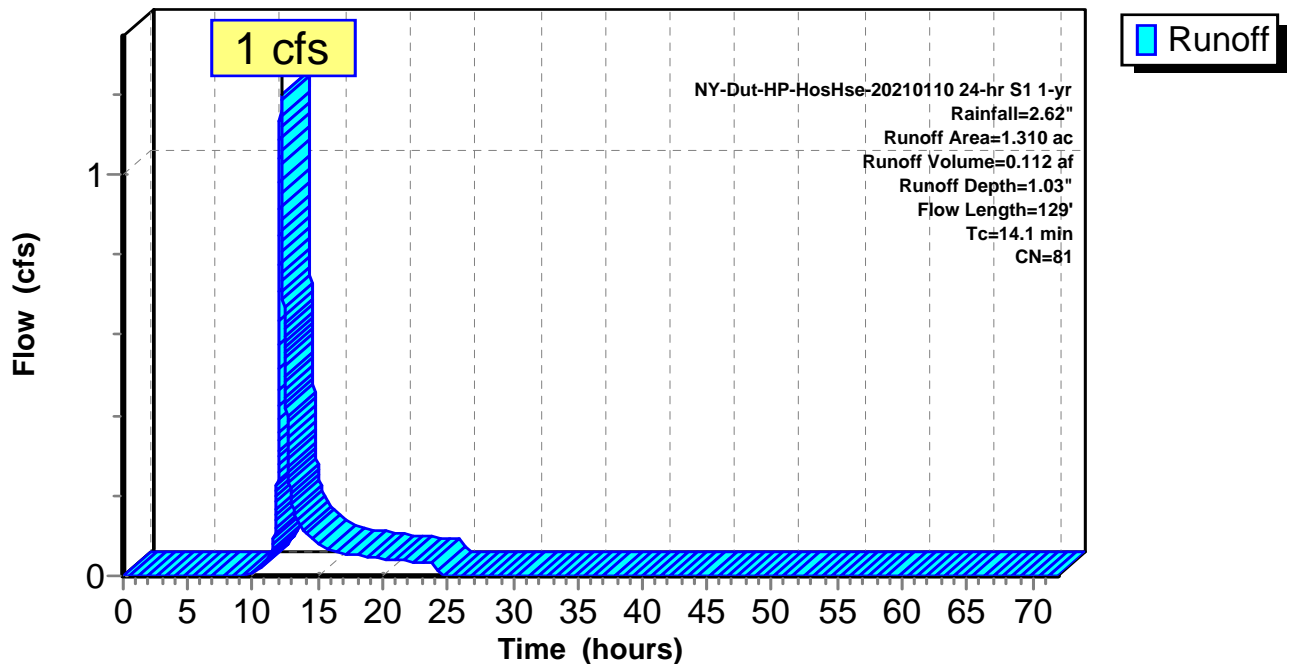
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 1-yr Rainfall=2.62"

Area (ac)	CN	Description
0.100	79	Woods, Fair, HSG D
1.150	80	>75% Grass cover, Good, HSG D
* 0.010	98	Driveway
* 0.050	98	Roof
1.310	81	Weighted Average
1.250		95.42% Pervious Area
0.060		4.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.17"
0.2	29	0.1600	2.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	129	Total			

Subcatchment PST2: POST-2-OFFSITE & DORSEY & NEW LAWN-S CENTER

Hydrograph



Summary for Subcatchment PST3A: PROPOSED 3A -W SIDE OF DEVEOPMENT

Runoff = 1 cfs @ 12.37 hrs, Volume= 0.138 af, Depth= 1.21"

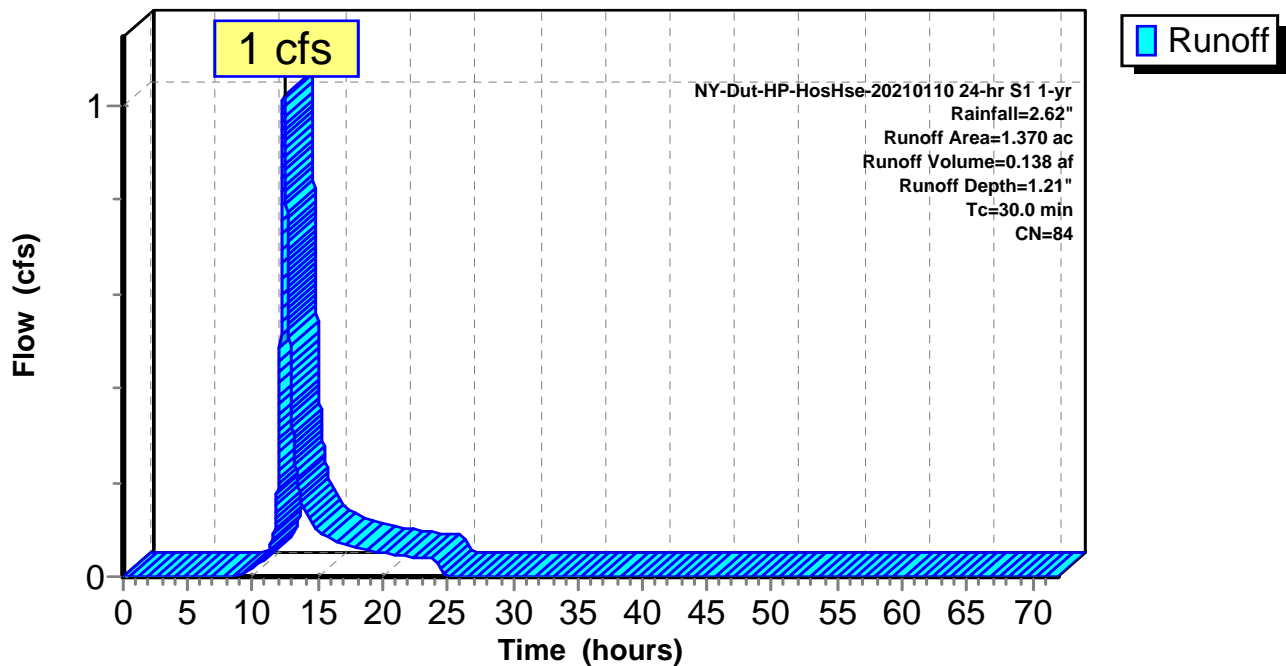
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 1-yr Rainfall=2.62"

Area (ac)	CN	Description
0.780	74	>75% Grass cover, Good, HSG C
* 0.430	98	Driveway
* 0.110	98	Roof
* 0.050	98	Walk
1.370	84	Weighted Average
0.780		56.93% Pervious Area
0.590		43.07% Impervious Area

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

Subcatchment PST3A: PROPOSED 3A -W SIDE OF DEVEOPMENT

Hydrograph



Summary for Subcatchment PST3B: PROPOSED 3B - E SIDE OF DEVELOPMENT

Runoff = 2 cfs @ 12.37 hrs, Volume= 0.230 af, Depth= 1.48"

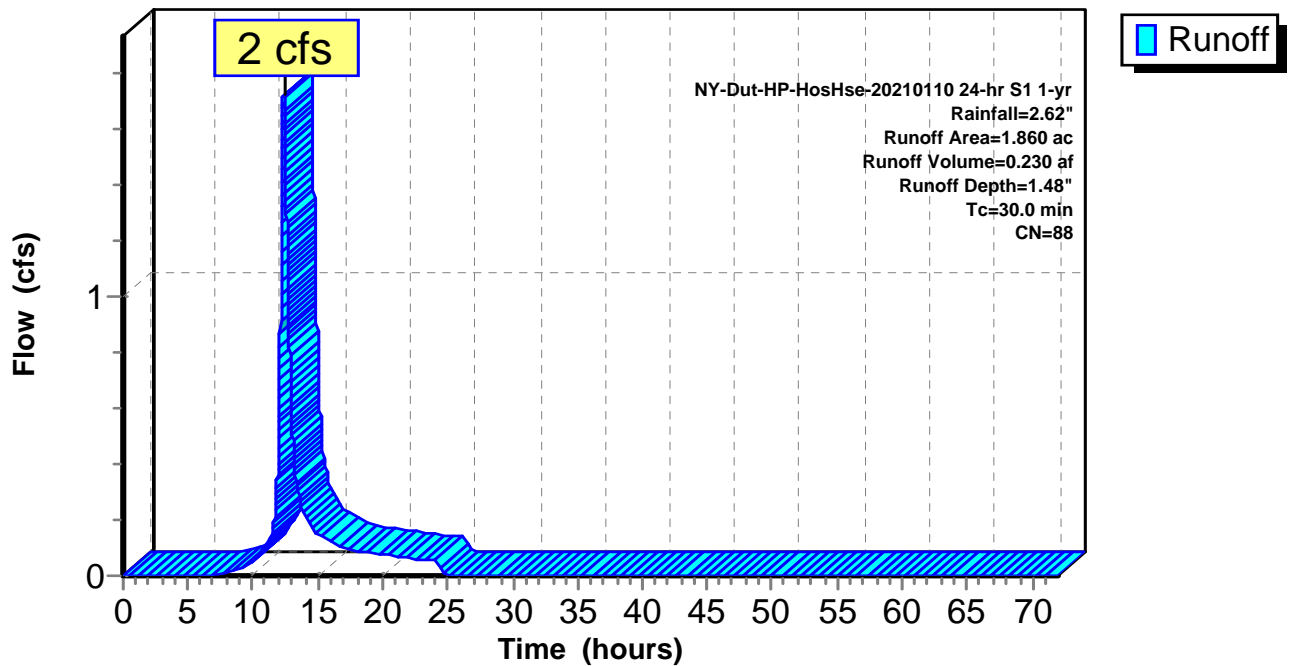
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 1-yr Rainfall=2.62"

Area (ac)	CN	Description
1.020	80	>75% Grass cover, Good, HSG D
* 0.440	98	Driveway/Parking
* 0.260	98	Roof
* 0.120	98	Walk
* 0.020	98	Concrete Pads
1.860	88	Weighted Average
1.020		54.84% Pervious Area
0.840		45.16% Impervious Area

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

Subcatchment PST3B: PROPOSED 3B - E SIDE OF DEVELOPMENT

Hydrograph



Summary for Subcatchment PST4: POST-4-OFF-SITE & ON-SITE FROM SE & NE

Runoff = 2 cfs @ 12.19 hrs, Volume= 0.178 af, Depth= 1.03"

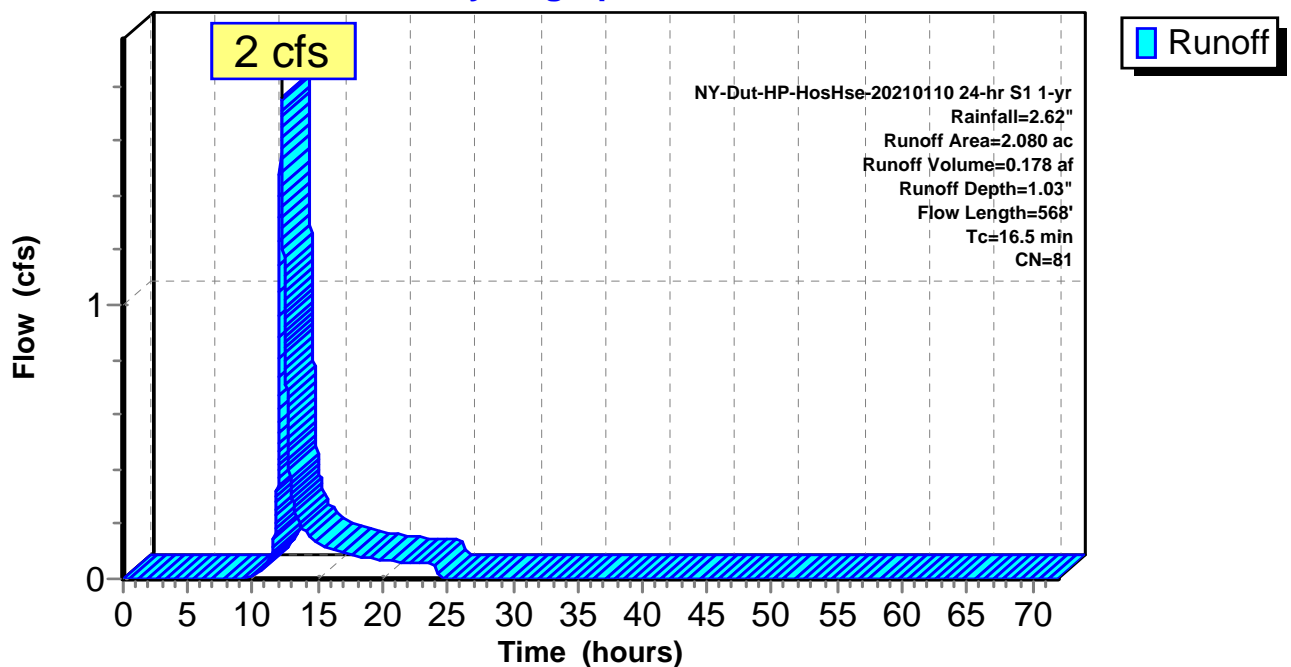
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 1-yr Rainfall=2.62"

Area (ac)	CN	Description
0.720	79	Woods, Fair, HSG D
1.150	80	>75% Grass cover, Good, HSG D
* 0.120	98	Driveway
* 0.090	98	Roof
2.080	81	Weighted Average
1.870		89.90% Pervious Area
0.210		10.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0700	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.17"
7.8	468	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.5	568	Total			

Subcatchment PST4: POST-4-OFF-SITE & ON-SITE FROM SE & NE

Hydrograph



Summary for Subcatchment PST5: POST-5-NW TO ADJOINING PROPERTY

Runoff = 1 cfs @ 12.04 hrs, Volume= 0.048 af, Depth= 1.09"

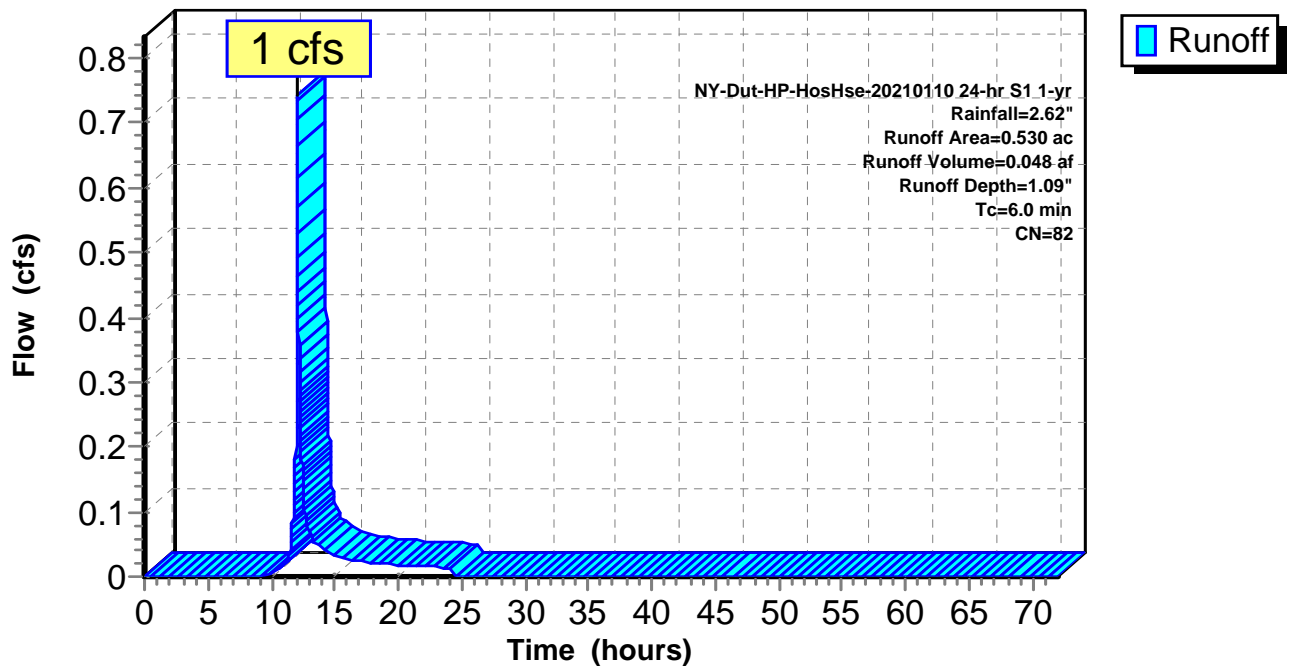
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 1-yr Rainfall=2.62"

Area (ac)	CN	Description
0.270	79	Woods, Fair, HSG D
0.200	80	>75% Grass cover, Good, HSG D
* 0.050	98	Driveway/Parking
* 0.010	98	Roof
0.530	82	Weighted Average
0.470		88.68% Pervious Area
0.060		11.32% Impervious Area

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

Subcatchment PST5: POST-5-NW TO ADJOINING PROPERTY

Hydrograph



Summary for Subcatchment PST6: POST-6-WEST TO VIOLET AVENUE

Runoff = 0 cfs @ 12.04 hrs, Volume= 0.017 af, Depth= 1.15"

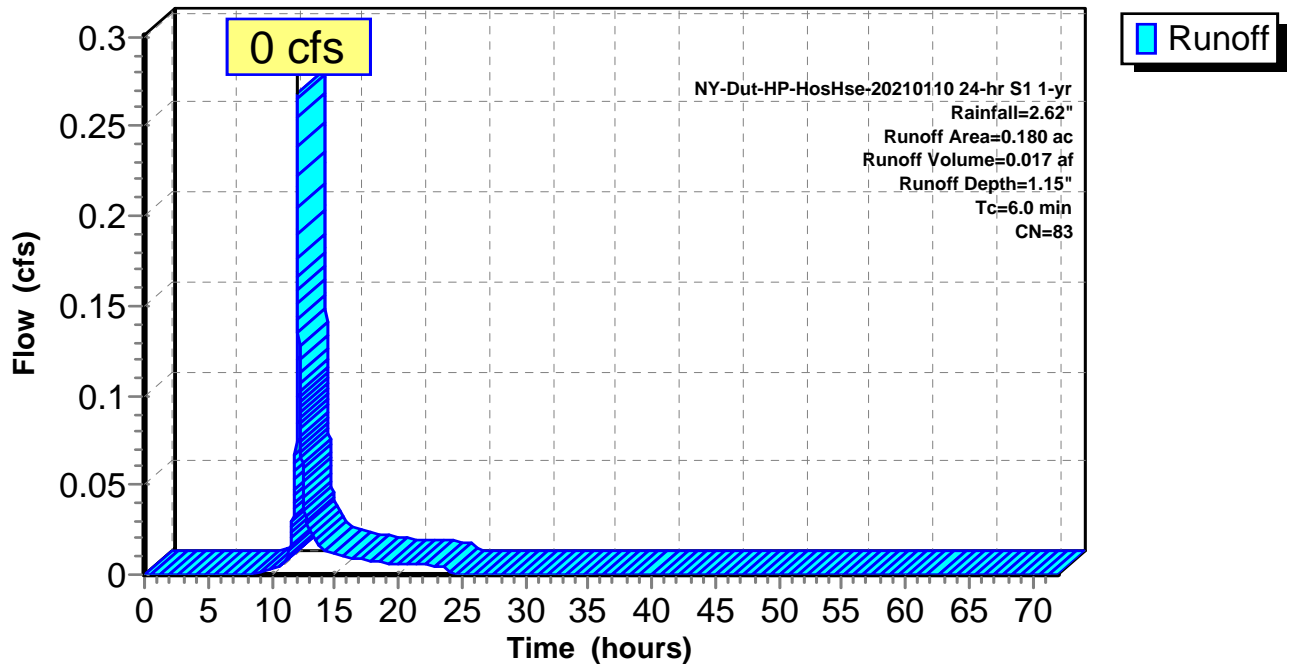
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 1-yr Rainfall=2.62"

Area (ac)	CN	Description
0.000	79	Woods, Fair, HSG D
0.150	80	>75% Grass cover, Good, HSG D
* 0.030	98	Driveway
0.180	83	Weighted Average
0.150		83.33% Pervious Area
0.030		16.67% Impervious Area

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

Subcatchment PST6: POST-6-WEST TO VIOLET AVENUE

Hydrograph



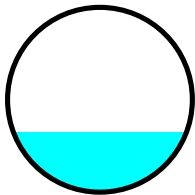
Summary for Reach CP: COLLECTOR PIPE

Inflow Area = 10.530 ac, 19.09% Impervious, Inflow Depth = 1.10" for 1-yr event
Inflow = 5 cfs @ 12.73 hrs, Volume= 0.965 af
Outflow = 5 cfs @ 12.74 hrs, Volume= 0.965 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 5.35 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 2.8 min

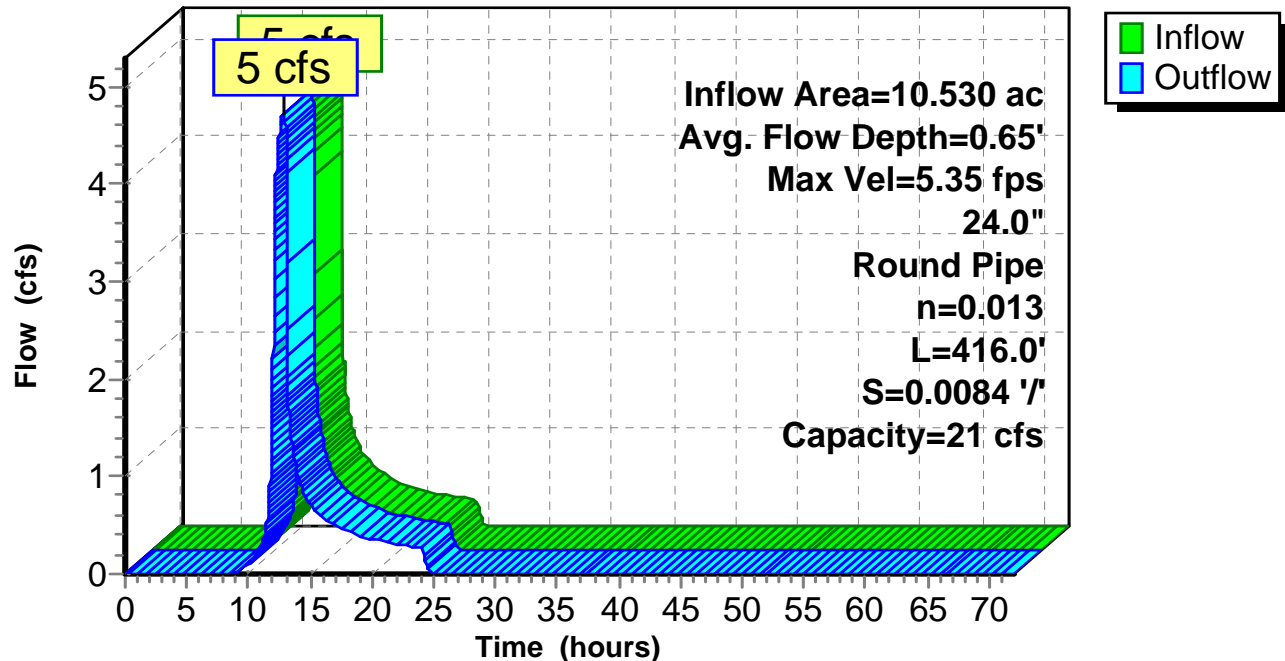
Peak Storage= 368 cf @ 12.74 hrs
Average Depth at Peak Storage= 0.65' , Surface Width= 1.87'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 21 cfs

24.0" Round Pipe
n= 0.013
Length= 416.0' Slope= 0.0084 '/'
Inlet Invert= 260.50', Outlet Invert= 257.00'



Reach CP: COLLECTOR PIPE

Hydrograph



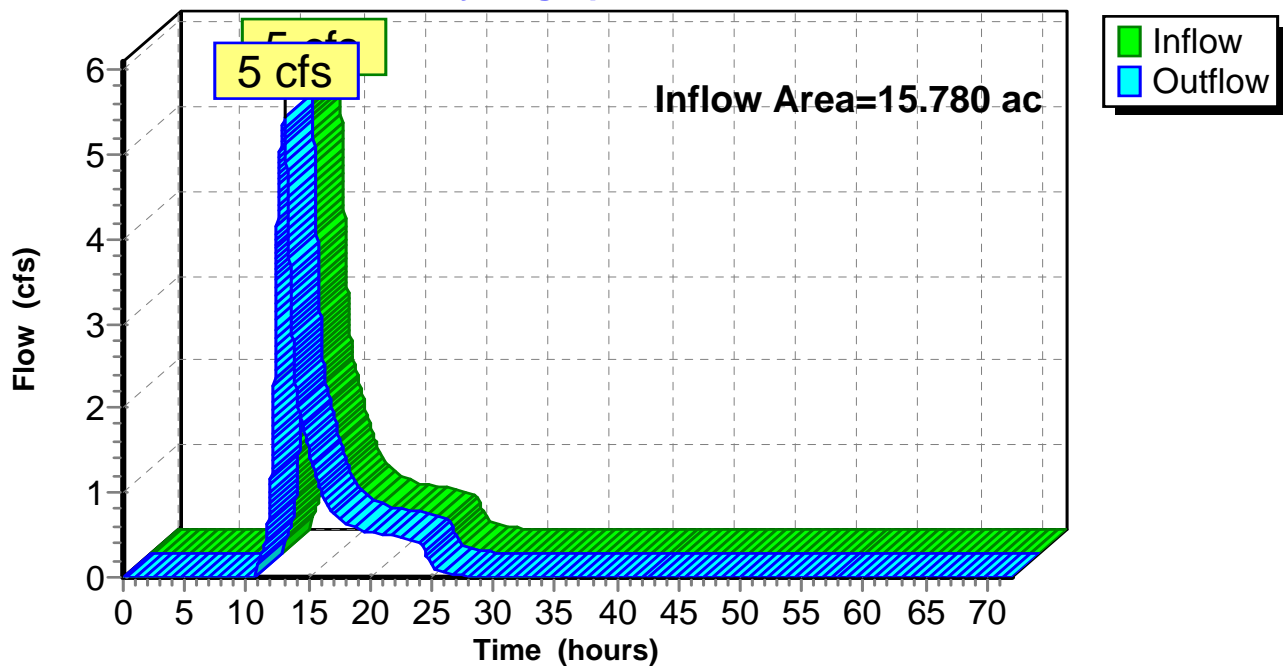
Summary for Reach DP1: DP-1-NE CORNER PROPERTY LINE

Inflow Area = 15.780 ac, 19.77% Impervious, Inflow Depth = 1.02" for 1-yr event
Inflow = 5 cfs @ 13.09 hrs, Volume= 1.343 af
Outflow = 5 cfs @ 13.09 hrs, Volume= 1.343 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP1: DP-1-NE CORNER PROPERTY LINE

Hydrograph



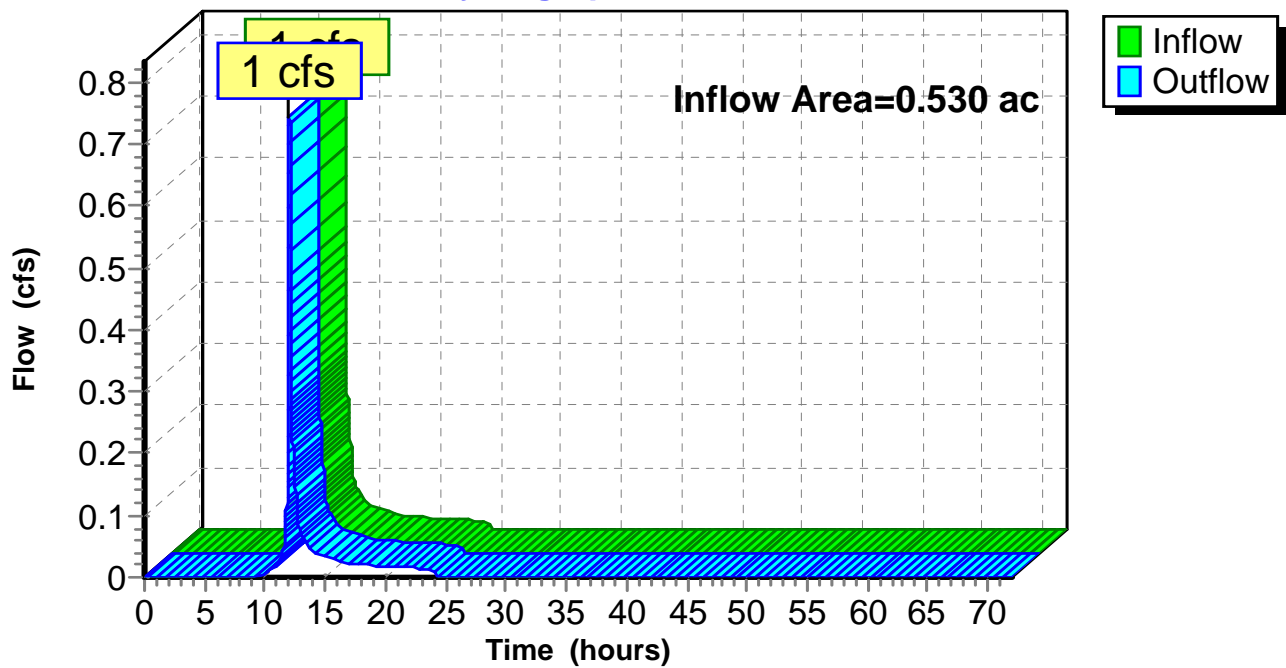
Summary for Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY

Inflow Area = 0.530 ac, 11.32% Impervious, Inflow Depth = 1.09" for 1-yr event
Inflow = 1 cfs @ 12.04 hrs, Volume= 0.048 af
Outflow = 1 cfs @ 12.04 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY

Hydrograph



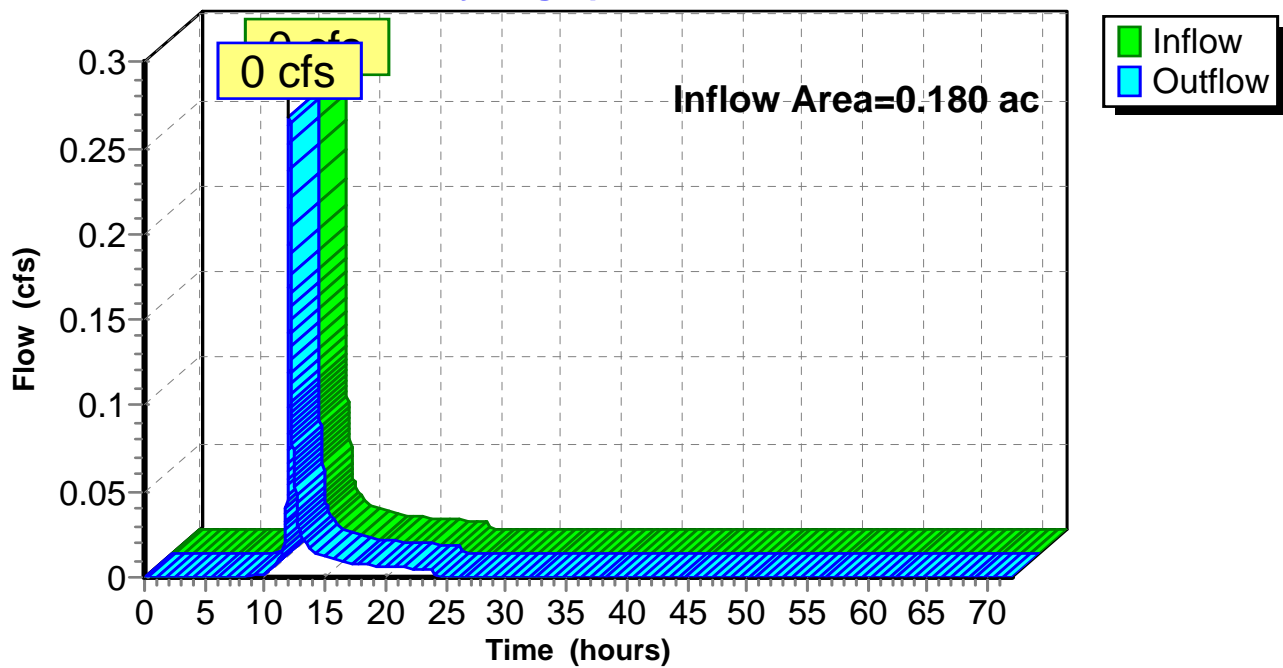
Summary for Reach DP3: DP-3- W TO VIOLET AVE

Inflow Area = 0.180 ac, 16.67% Impervious, Inflow Depth = 1.15" for 1-yr event
Inflow = 0 cfs @ 12.04 hrs, Volume= 0.017 af
Outflow = 0 cfs @ 12.04 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP3: DP-3- W TO VIOLET AVE

Hydrograph



Summary for Pond BIO-A: BIORETENTION A

Inflow Area = 1.370 ac, 43.07% Impervious, Inflow Depth = 1.21" for 1-yr event
 Inflow = 1 cfs @ 12.37 hrs, Volume= 0.138 af
 Outflow = 0 cfs @ 12.83 hrs, Volume= 0.138 af, Atten= 52%, Lag= 27.8 min
 Discarded = 0 cfs @ 10.95 hrs, Volume= 0.049 af
 Primary = 0 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 0 cfs @ 12.83 hrs, Volume= 0.089 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 268.16' @ 12.83 hrs Surf.Area= 2,900 sf Storage= 1,924 cf

Plug-Flow detention time= 298.3 min calculated for 0.138 af (100% of inflow)
 Center-of-Mass det. time= 298.4 min (1,179.4 - 881.0)

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	7,444 cf	29.00'W x 100.00'L x 2.00'H Prismaoid Z=3.0
#2	266.50'	2,900 cf	29.00'W x 100.00'L x 2.50'H Prismaoid
			7,250 cf Overall x 40.0% Voids
		10,344 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	269.50'	15.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Tertiary	270.00'	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
#3	Secondary	267.50'	6.0" Round Culvert-Underdrain L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 267.50' / 267.00' S= 0.0500 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#4	Discarded	266.50'	0.250 in/hr Exfiltration/Infiltration/Underdrain over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0 cfs @ 10.95 hrs HW=266.55' (Free Discharge)
 ↑4=Exfiltration/Infiltration/Underdrain (Exfiltration Controls 0 cfs)

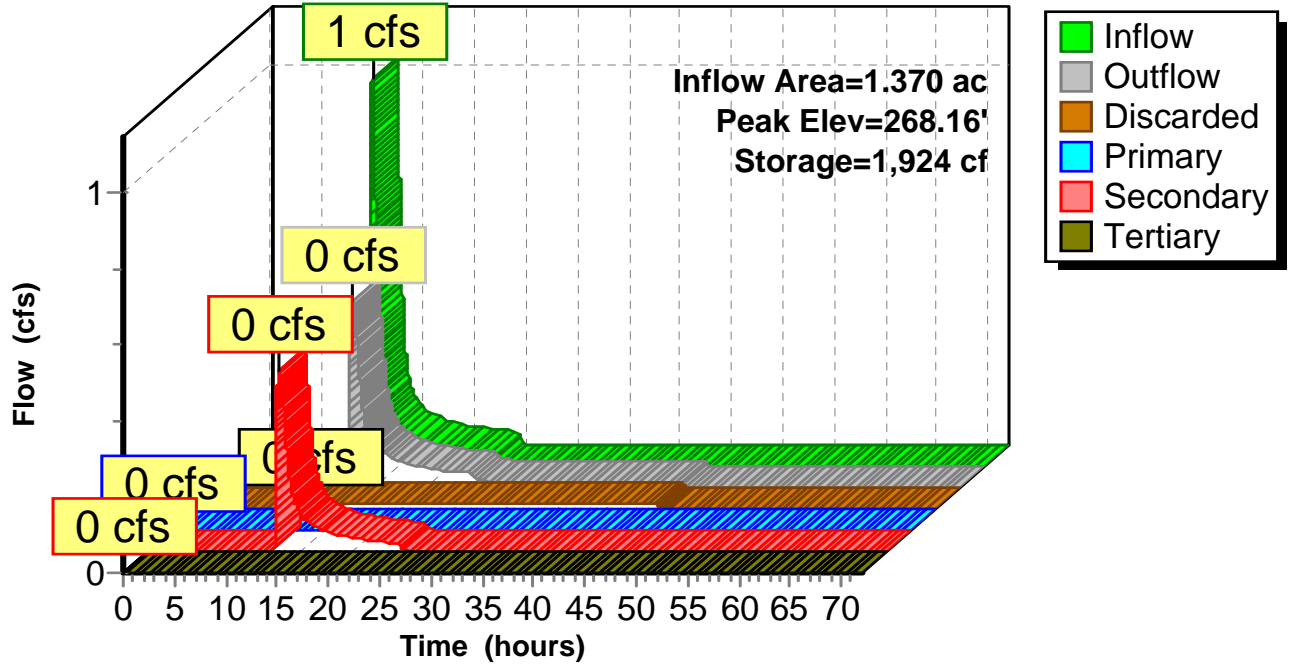
Primary OutFlow Max=0 cfs @ 0.00 hrs HW=266.50' TW=260.50' (Dynamic Tailwater)
 ↑1=Orifice/Grate (Controls 0 cfs)

Secondary OutFlow Max=0 cfs @ 12.83 hrs HW=268.16' TW=261.15' (Dynamic Tailwater)
 ↑3=Culvert-Underdrain (Inlet Controls 0 cfs @ 2.43 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=266.50' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Controls 0 cfs)

Pond BIO-A: BIORETENTION A

Hydrograph



Summary for Pond BIO-B: BIORETENTION B

Inflow Area = 1.860 ac, 45.16% Impervious, Inflow Depth = 1.48" for 1-yr event
 Inflow = 2 cfs @ 12.37 hrs, Volume= 0.230 af
 Outflow = 1 cfs @ 12.84 hrs, Volume= 0.197 af, Atten= 55%, Lag= 28.5 min
 Primary = 0 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 1 cfs @ 12.84 hrs, Volume= 0.197 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 259.94' @ 12.84 hrs Surf.Area= 3,600 sf Storage= 3,507 cf

Plug-Flow detention time= 150.6 min calculated for 0.197 af (86% of inflow)
 Center-of-Mass det. time= 80.6 min (942.6 - 862.0)

Volume	Invert	Avail.Storage	Storage Description
#1	260.00'	8,928 cf	36.00'W x 100.00'L x 2.00'H Prismatoid Z=3.0
#2	257.50'	3,600 cf	36.00'W x 100.00'L x 2.50'H Prismatoid
			9,000 cf Overall x 40.0% Voids
		12,528 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	257.50'	24.0" Round Culvert L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 257.50' / 257.00' S= 0.0147 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	260.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Tertiary	261.00'	50.0' 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
#4	Secondary	258.50'	6.0" Round Culvert-Underdrain L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 258.50' / 258.00' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0 cfs @ 0.00 hrs HW=257.50' TW=257.00' (Dynamic Tailwater)

- ↑1=Culvert (Controls 0 cfs)
- ↑2=Orifice/Grate (Controls 0 cfs)

Secondary OutFlow Max=1 cfs @ 12.84 hrs HW=259.94' TW=258.01' (Dynamic Tailwater)

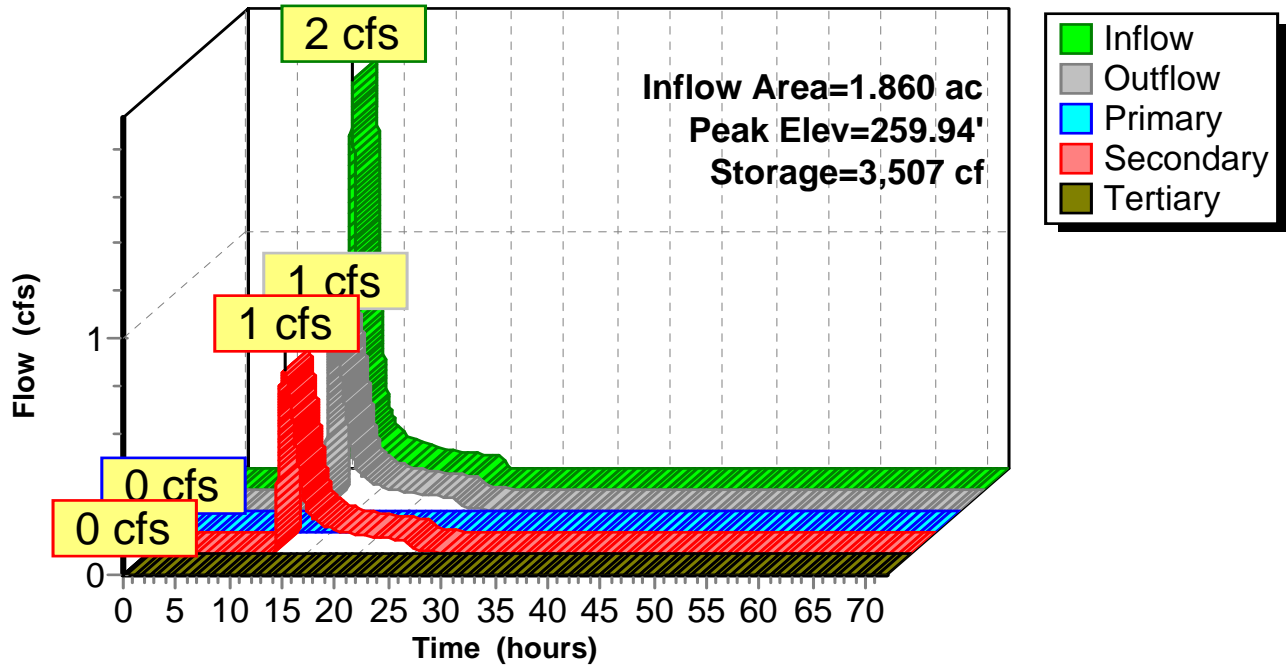
- ↑4=Culvert-Underdrain (Barrel Controls 1 cfs @ 3.97 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=257.50' TW=257.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir (Controls 0 cfs)

Pond BIO-B: BIORETENTION B

Hydrograph



Summary for Pond DET: DETENTION

Inflow Area = 15.780 ac, 19.77% Impervious, Inflow Depth = 1.03" for 1-yr event
 Inflow = 6 cfs @ 12.57 hrs, Volume= 1.354 af
 Outflow = 5 cfs @ 13.08 hrs, Volume= 1.353 af, Atten= 11%, Lag= 31.0 min
 Primary = 1 cfs @ 13.09 hrs, Volume= 0.075 af
 Secondary = 4 cfs @ 13.08 hrs, Volume= 1.278 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 258.05' @ 13.09 hrs Surf.Area= 9,140 sf Storage= 8,904 cf

Plug-Flow detention time= 31.1 min calculated for 1.353 af (100% of inflow)
 Center-of-Mass det. time= 31.0 min (930.0 - 898.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	257.00'	29,214 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
257.00	7,900	390.0	0	0	7,900	
260.00	11,700	450.0	29,214	29,214	12,104	

Device	Routing	Invert	Outlet Devices											
#1	Tertiary	259.50'	40.0' 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											
#2	Primary	257.50'	18.0" Round Culvert L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 257.50' / 257.00' S= 0.0500 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf											
#3	Secondary	257.00'	2.0" Vert. Orifice/Grate X 40.00 columns X 3 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads											

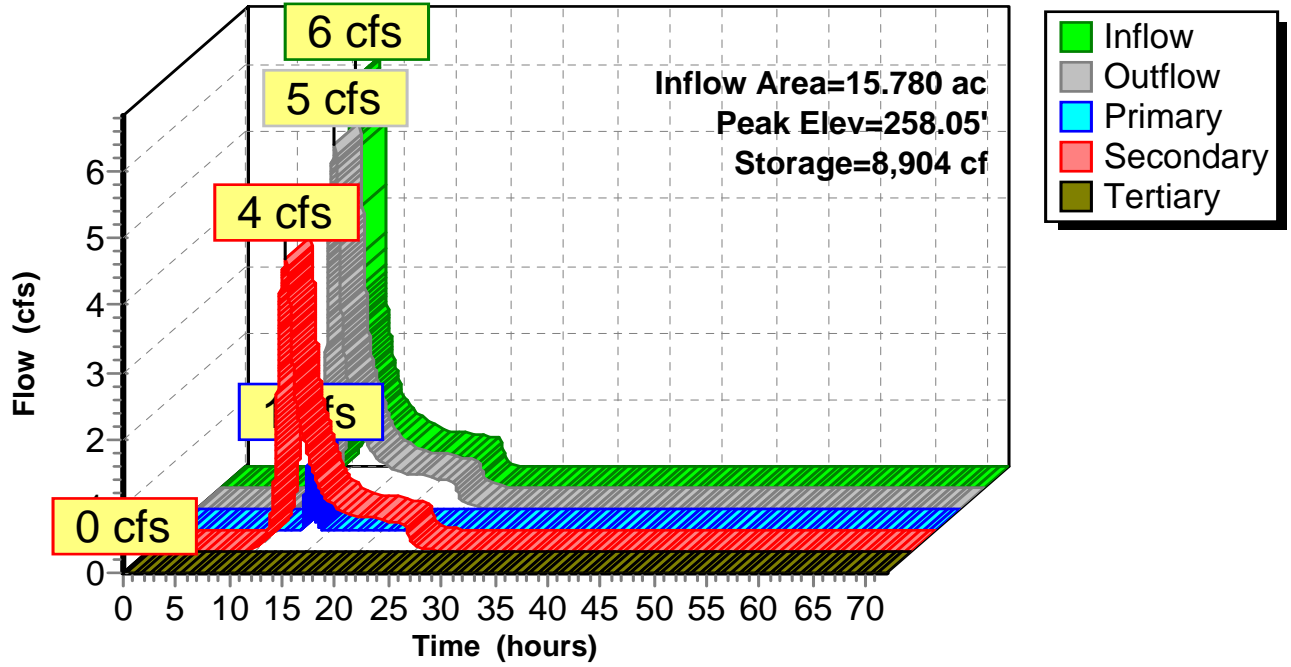
Primary OutFlow Max=1 cfs @ 13.09 hrs HW=258.05' TW=257.79' (Dynamic Tailwater)
 ↑**2=Culvert** (Outlet Controls 1 cfs @ 2.71 fps)

Secondary OutFlow Max=4 cfs @ 13.08 hrs HW=258.05' TW=257.79' (Dynamic Tailwater)
 ↑**3=Orifice/Grate** (Orifice Controls 4 cfs @ 2.26 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=257.00' TW=255.00' (Dynamic Tailwater)
 ↑**1=Broad-Crested Rectangular Weir** (Controls 0 cfs)

Pond DET: DETENTION

Hydrograph



Summary for Pond IG: INFILTRATION GALLEY

Inflow Area = 15.780 ac, 19.77% Impervious, Inflow Depth = 1.03" for 1-yr event
 Inflow = 5 cfs @ 13.08 hrs, Volume= 1.353 af
 Outflow = 5 cfs @ 13.09 hrs, Volume= 1.348 af, Atten= 0%, Lag= 0.4 min
 Discarded = 0 cfs @ 9.74 hrs, Volume= 0.005 af
 Primary = 5 cfs @ 13.09 hrs, Volume= 1.343 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 257.79' @ 13.09 hrs Surf.Area= 160 sf Storage= 447 cf

Plug-Flow detention time= 9.7 min calculated for 1.348 af (100% of inflow)
 Center-of-Mass det. time= 5.5 min (935.5 - 930.0)

Volume	Invert	Avail.Storage	Storage Description
#1	255.00'	800 cf	4.00'W x 40.00'L x 5.00'H Prismatic

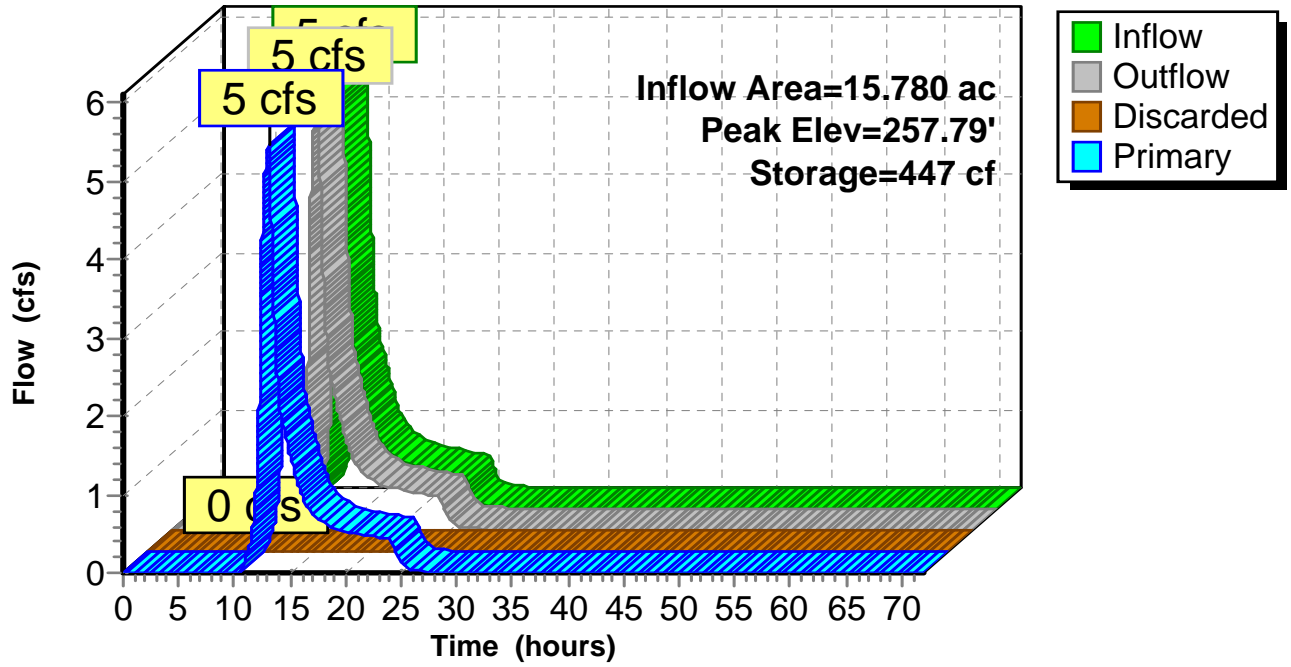
Device	Routing	Invert	Outlet Devices
#1	Primary	257.00'	2.0" Vert. Orifice/Grate X 40.00 columns X 4 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads
#2	Discarded	255.00'	0.250 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0 cfs @ 9.74 hrs HW=255.05' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0 cfs)

Primary OutFlow Max=5 cfs @ 13.09 hrs HW=257.79' TW=0.00' (Dynamic Tailwater)
 ↑**1=Orifice/Grate** (Orifice Controls 5 cfs @ 3.12 fps)

Pond IG: INFILTRATION GALLEY

Hydrograph



Summary for Pond L1: EX DEPRESSION & DITCH TO NEW CULVERT

Inflow Area = 9.160 ac, 15.50% Impervious, Inflow Depth = 1.15" for 1-yr event
 Inflow = 8 cfs @ 12.25 hrs, Volume= 0.876 af
 Outflow = 4 cfs @ 12.55 hrs, Volume= 0.876 af, Atten= 45%, Lag= 18.0 min
 Primary = 4 cfs @ 12.55 hrs, Volume= 0.876 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 269.44' @ 12.55 hrs Surf.Area= 6,914 sf Storage= 3,579 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 3.6 min (880.9 - 877.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	266.50'	218,365 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
266.50	10	10.0	0	0	10
267.00	92	35.0	22	22	100
268.00	263	57.0	170	192	268
269.00	2,790	387.0	1,303	1,495	11,930
270.00	14,698	1,061.0	7,964	9,459	89,597
271.00	24,884	1,137.0	19,569	29,028	102,935
272.00	35,052	1,222.0	29,823	58,851	118,935
273.00	45,040	1,191.0	39,942	98,793	125,009
274.00	61,477	1,395.0	53,046	151,839	167,010
275.00	71,707	1,545.0	66,526	218,365	202,134

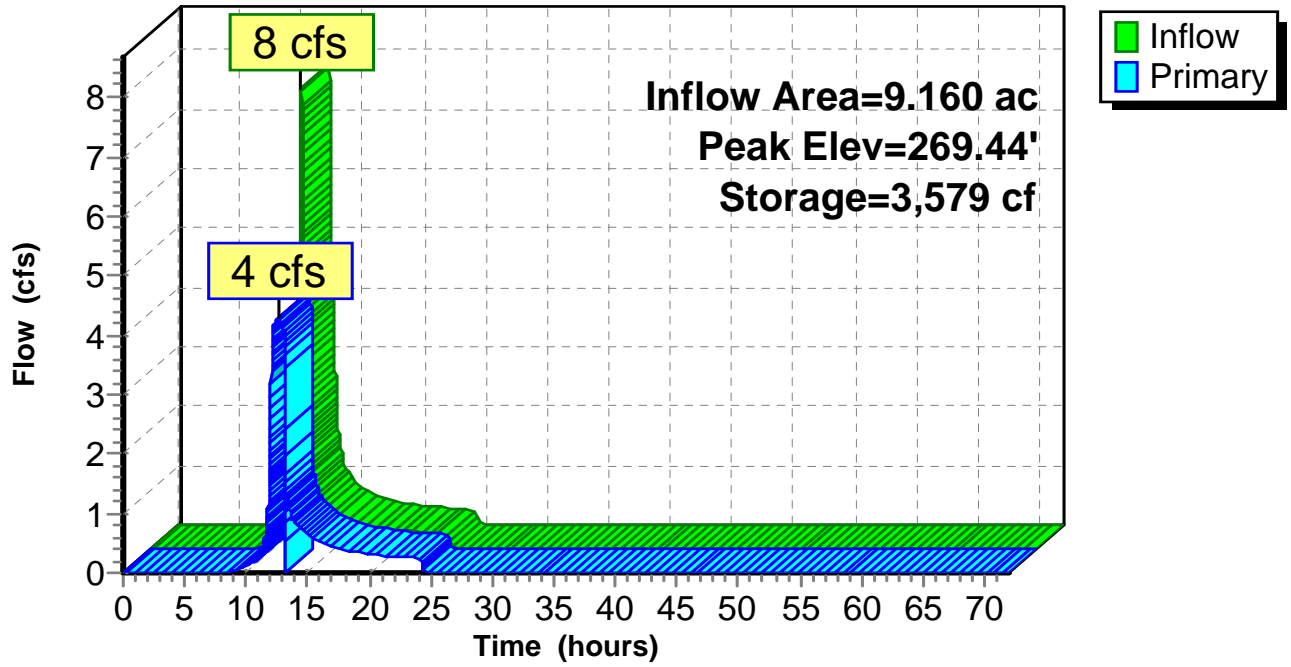
Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	12.0" Round Culvert L= 446.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 263.50' / 261.10' S= 0.0054 1/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	270.00'	15.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	269.00'	24.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	266.50'	36.0" W x 12.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4 cfs @ 12.55 hrs HW=269.44' TW=261.14' (Dynamic Tailwater)

- 1=Culvert (Barrel Controls 4 cfs @ 5.45 fps)
- 2=Orifice/Grate (Controls 0 cfs)
- 3=Orifice/Grate (Passes < 4 cfs potential flow)
- 4=Orifice/Grate (Passes < 45 cfs potential flow)

Pond L1: EX DEPRESSION & DITCH TO NEW CULVERT

Hydrograph



Summary for Pond L2: EXISTING DEPRESSION

Inflow Area = 1.310 ac, 4.58% Impervious, Inflow Depth = 1.03" for 1-yr event
 Inflow = 1 cfs @ 12.15 hrs, Volume= 0.112 af
 Outflow = 0 cfs @ 20.77 hrs, Volume= 0.014 af, Atten= 97%, Lag= 517.3 min
 Primary = 0 cfs @ 20.77 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 273.50' @ 20.77 hrs Surf.Area= 9,831 sf Storage= 4,335 cf

Plug-Flow detention time= 637.0 min calculated for 0.014 af (12% of inflow)
 Center-of-Mass det. time= 454.2 min (1,333.5 - 879.4)

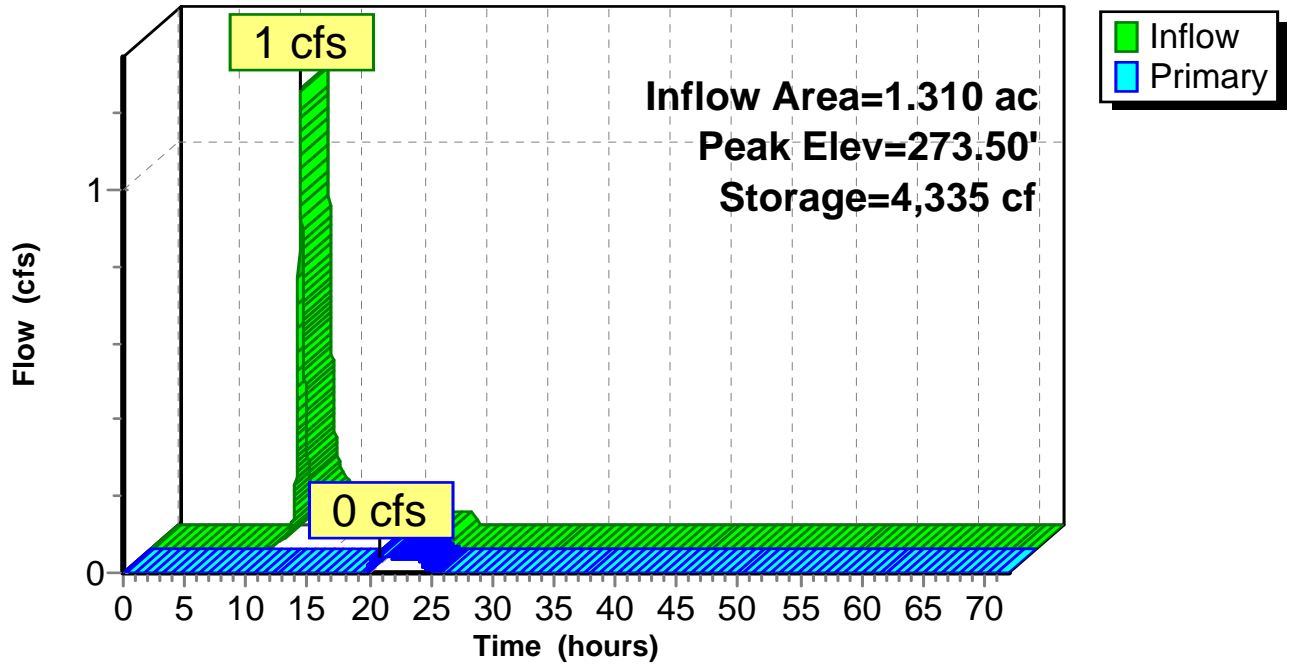
Volume	Invert	Avail.Storage	Storage Description			
#1	273.00'	23,775 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
273.00	7,406	485.0	0	0	7,406	
274.00	12,546	498.0	9,864	9,864	8,535	
275.00	15,322	545.0	13,911	23,775	12,471	

Device	Routing	Invert	Outlet Devices											
#1	Primary	273.50'	55.0' 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	
				2.65	2.67	2.66	2.68	2.70	2.74	2.79	2.88			

Primary OutFlow Max=0 cfs @ 20.77 hrs HW=273.50' TW=257.12' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0 cfs @ 0.16 fps)

Pond L2: EXISTING DEPRESSION

Hydrograph



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PST1: POST-1-FROM SW & Runoff Area=9.160 ac 15.50% Impervious Runoff Depth=2.90"
Flow Length=588' Tc=21.2 min CN=83 Runoff=20 cfs 2.210 af

Subcatchment PST2: POST-2-OFFSITE & Runoff Area=1.310 ac 4.58% Impervious Runoff Depth=2.71"
Flow Length=129' Tc=14.1 min CN=81 Runoff=3 cfs 0.296 af

Subcatchment PST3A: PROPOSED 3A -W Runoff Area=1.370 ac 43.07% Impervious Runoff Depth=2.99"
Tc=30.0 min CN=84 Runoff=3 cfs 0.341 af

Subcatchment PST3B: PROPOSED 3B - E Runoff Area=1.860 ac 45.16% Impervious Runoff Depth=3.38"
Tc=30.0 min CN=88 Runoff=4 cfs 0.523 af

Subcatchment PST4: POST-4-OFF-SITE & Runoff Area=2.080 ac 10.10% Impervious Runoff Depth=2.71"
Flow Length=568' Tc=16.5 min CN=81 Runoff=5 cfs 0.470 af

Subcatchment PST5: POST-5-NW TO Runoff Area=0.530 ac 11.32% Impervious Runoff Depth=2.80"
Tc=6.0 min CN=82 Runoff=2 cfs 0.124 af

Subcatchment PST6: POST-6-WEST TO Runoff Area=0.180 ac 16.67% Impervious Runoff Depth=2.90"
Tc=6.0 min CN=83 Runoff=1 cfs 0.043 af

Reach CP: COLLECTOR PIPE Avg. Flow Depth=0.73' Max Vel=5.70 fps Inflow=6 cfs 2.495 af
24.0" Round Pipe n=0.013 L=416.0' S=0.0084 '/' Capacity=21 cfs Outflow=6 cfs 2.495 af

Reach DP1: DP-1-NE CORNER PROPERTY LINE Inflow=10 cfs 3.642 af
Outflow=10 cfs 3.642 af

Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY Inflow=2 cfs 0.124 af
Outflow=2 cfs 0.124 af

Reach DP3: DP-3- W TO VIOLET AVE Inflow=1 cfs 0.043 af
Outflow=1 cfs 0.043 af

Pond BIO-A: BIORETENTION A Peak Elev=269.55' Storage=4,630 cf Inflow=3 cfs 0.341 af
Discarded=0 cfs 0.056 af Primary=0 cfs 0.005 af Secondary=1 cfs 0.279 af Tertiary=0 cfs 0.000 af Outflow=1 cfs 0.341 af

Pond BIO-B: BIORETENTION B Peak Elev=260.71' Storage=6,362 cf Inflow=4 cfs 0.523 af
Primary=2 cfs 0.075 af Secondary=1 cfs 0.415 af Tertiary=0 cfs 0.000 af Outflow=3 cfs 0.490 af

Pond DET: DETENTION Peak Elev=258.63' Storage=14,419 cf Inflow=12 cfs 3.653 af
Primary=3 cfs 0.552 af Secondary=7 cfs 3.100 af Tertiary=0 cfs 0.000 af Outflow=10 cfs 3.653 af

Pond IG: INFILTRATION GALLEY Peak Elev=258.31' Storage=529 cf Inflow=10 cfs 3.653 af
Discarded=0 cfs 0.005 af Primary=10 cfs 3.642 af Outflow=10 cfs 3.647 af

Pond L1: EX DEPRESSION & DITCH TO NEW Peak Elev=270.85' Storage=25,487 cf Inflow=20 cfs 2.210 af
Outflow=5 cfs 2.210 af

Pond L2: EXISTING DEPRESSION

Peak Elev=273.56' Storage=4,869 cf Inflow=3 cfs 0.296 af

Outflow=2 cfs 0.198 af

Total Runoff Area = 16.490 ac Runoff Volume = 4.008 af Average Runoff Depth = 2.92"
80.53% Pervious = 13.280 ac 19.47% Impervious = 3.210 ac

Summary for Subcatchment PST1: POST-1-FROM SW & FILL PAD TO DITCH & NEW CULVERT

Runoff = 20 cfs @ 12.24 hrs, Volume= 2.210 af, Depth= 2.90"

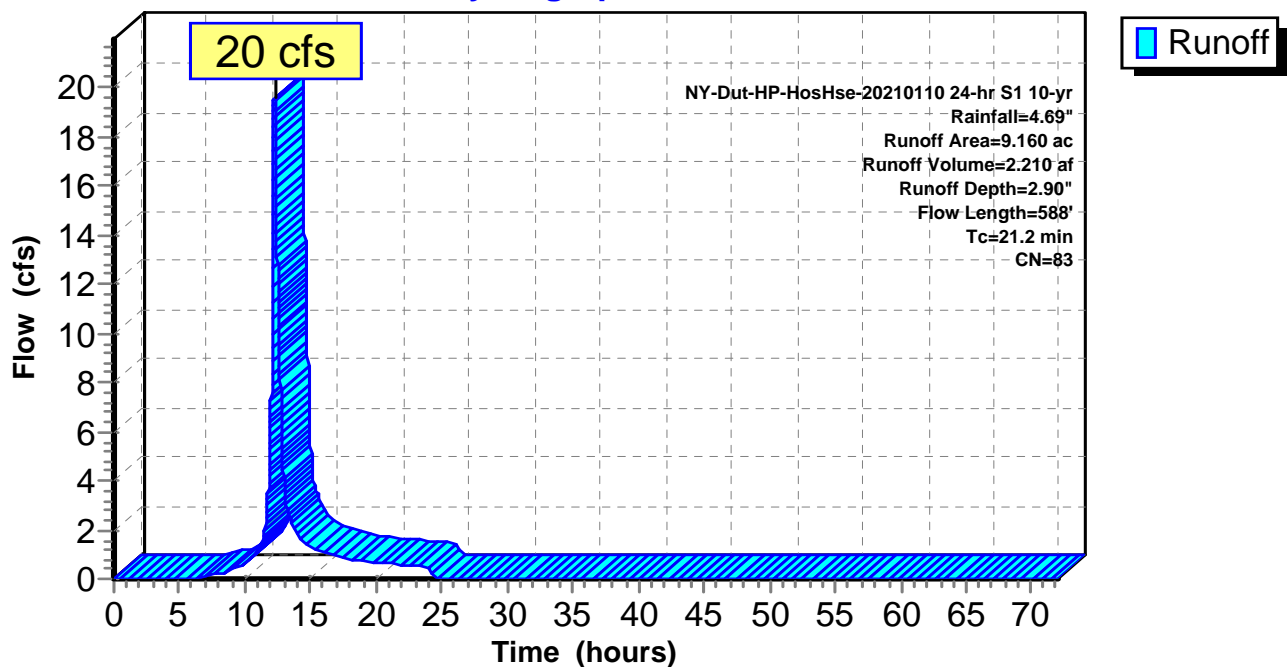
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 10-yr Rainfall=4.69"

Area (ac)	CN	Description
2.380	79	Woods, Fair, HSG D
5.360	80	>75% Grass cover, Good, HSG D
* 0.890	98	Driveway/Parking
* 0.530	98	Roof
9.160	83	Weighted Average
7.740		84.50% Pervious Area
1.420		15.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.17"
7.3	488	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
21.2	588	Total			

Subcatchment PST1: POST-1-FROM SW & FILL PAD TO DITCH & NEW CULVERT

Hydrograph



Summary for Subcatchment PST2: POST-2-OFFSITE & DORSEY & NEW LAWN-S CENTER

Runoff = 3 cfs @ 12.14 hrs, Volume= 0.296 af, Depth= 2.71"

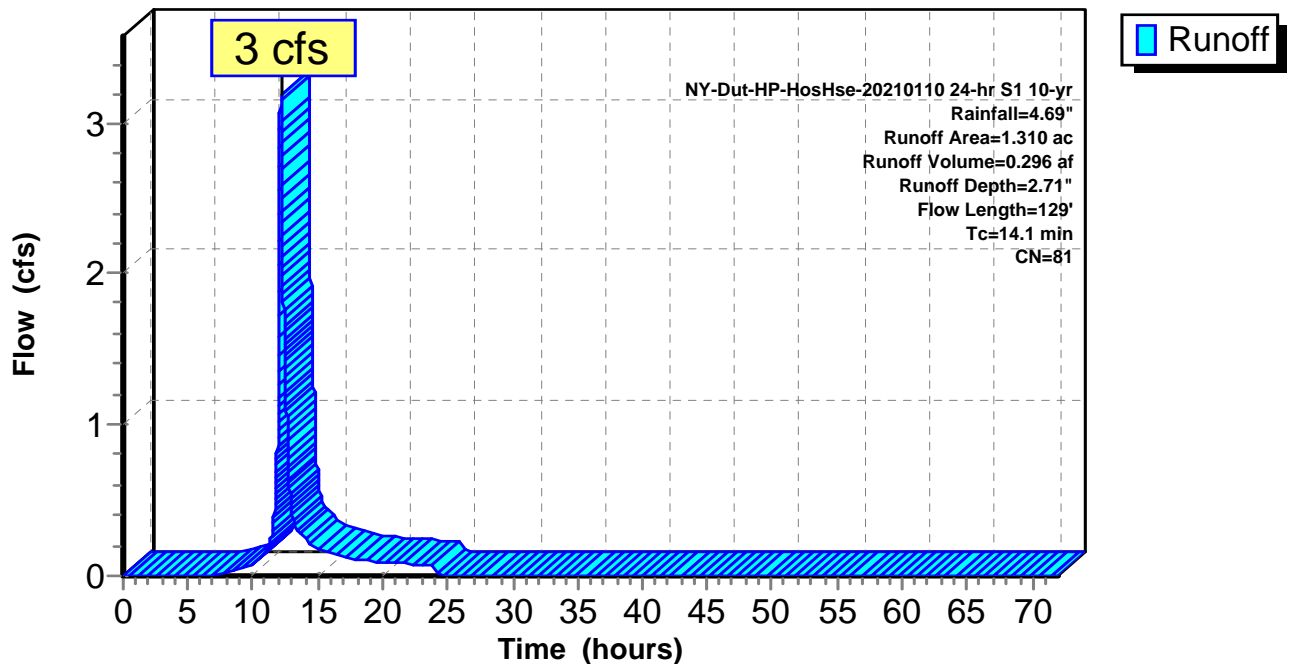
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 10-yr Rainfall=4.69"

Area (ac)	CN	Description
0.100	79	Woods, Fair, HSG D
1.150	80	>75% Grass cover, Good, HSG D
* 0.010	98	Driveway
* 0.050	98	Roof
1.310	81	Weighted Average
1.250		95.42% Pervious Area
0.060		4.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.17"
0.2	29	0.1600	2.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	129	Total			

Subcatchment PST2: POST-2-OFFSITE & DORSEY & NEW LAWN-S CENTER

Hydrograph



Summary for Subcatchment PST3A: PROPOSED 3A -W SIDE OF DEVELOPMENT

Runoff = 3 cfs @ 12.37 hrs, Volume= 0.341 af, Depth= 2.99"

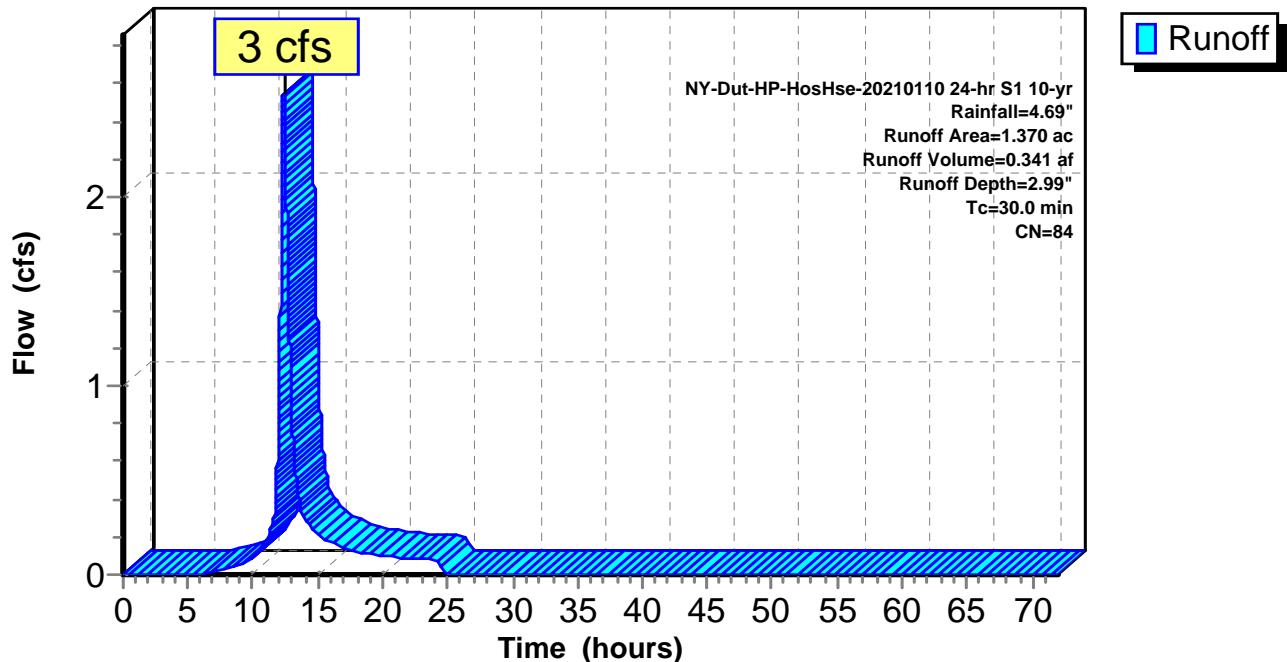
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 10-yr Rainfall=4.69"

Area (ac)	CN	Description
0.780	74	>75% Grass cover, Good, HSG C
* 0.430	98	Driveway
* 0.110	98	Roof
* 0.050	98	Walk
1.370	84	Weighted Average
0.780		56.93% Pervious Area
0.590		43.07% Impervious Area

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

Subcatchment PST3A: PROPOSED 3A -W SIDE OF DEVELOPMENT

Hydrograph



Summary for Subcatchment PST3B: PROPOSED 3B - E SIDE OF DEVELOPMENT

Runoff = 4 cfs @ 12.36 hrs, Volume= 0.523 af, Depth= 3.38"

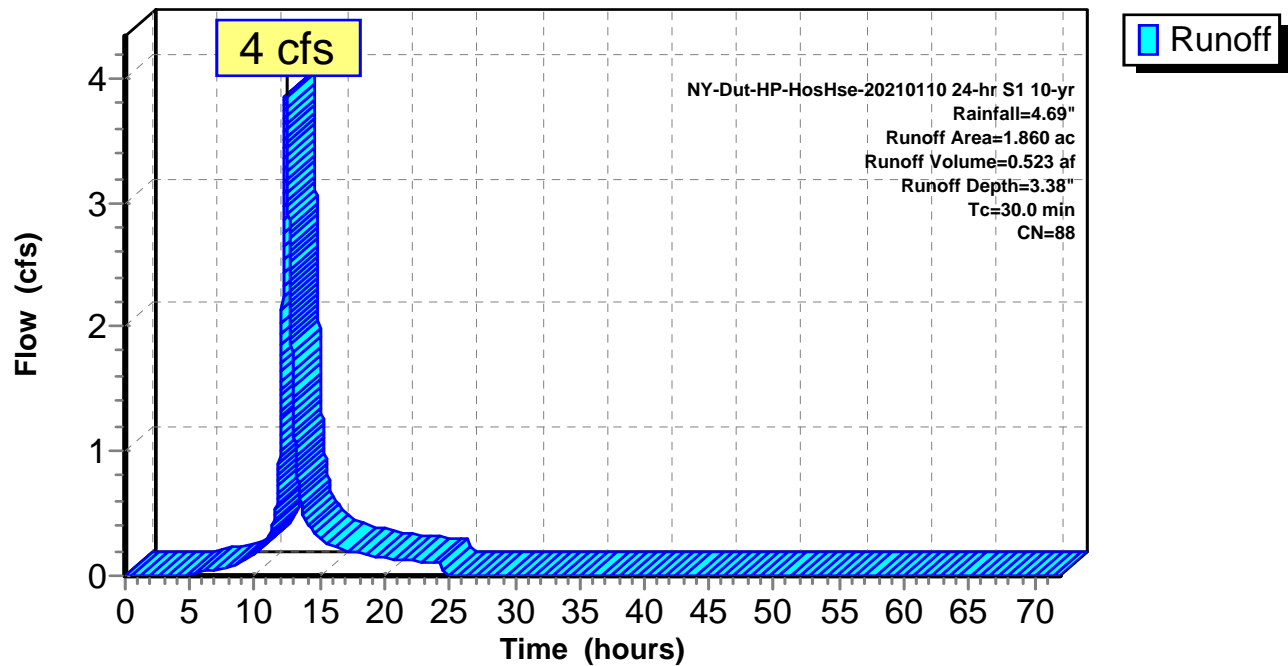
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 10-yr Rainfall=4.69"

Area (ac)	CN	Description
1.020	80	>75% Grass cover, Good, HSG D
* 0.440	98	Driveway/Parking
* 0.260	98	Roof
* 0.120	98	Walk
* 0.020	98	Concrete Pads
1.860	88	Weighted Average
1.020		54.84% Pervious Area
0.840		45.16% Impervious Area

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

Subcatchment PST3B: PROPOSED 3B - E SIDE OF DEVELOPMENT

Hydrograph



Summary for Subcatchment PST4: POST-4-OFF-SITE & ON-SITE FROM SE & NE

Runoff = 5 cfs @ 12.19 hrs, Volume= 0.470 af, Depth= 2.71"

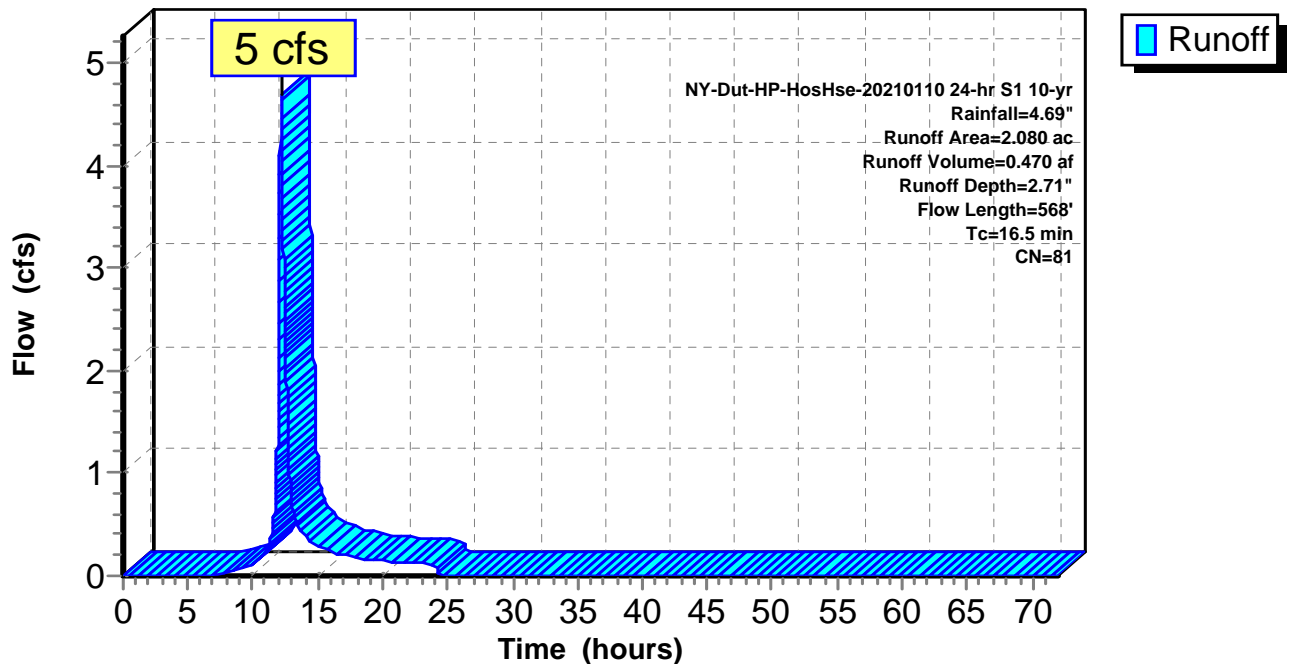
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 10-yr Rainfall=4.69"

Area (ac)	CN	Description
0.720	79	Woods, Fair, HSG D
1.150	80	>75% Grass cover, Good, HSG D
* 0.120	98	Driveway
* 0.090	98	Roof
2.080	81	Weighted Average
1.870		89.90% Pervious Area
0.210		10.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0700	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.17"
7.8	468	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.5	568	Total			

Subcatchment PST4: POST-4-OFF-SITE & ON-SITE FROM SE & NE

Hydrograph



Summary for Subcatchment PST5: POST-5-NW TO ADJOINING PROPERTY

Runoff = 2 cfs @ 12.04 hrs, Volume= 0.124 af, Depth= 2.80"

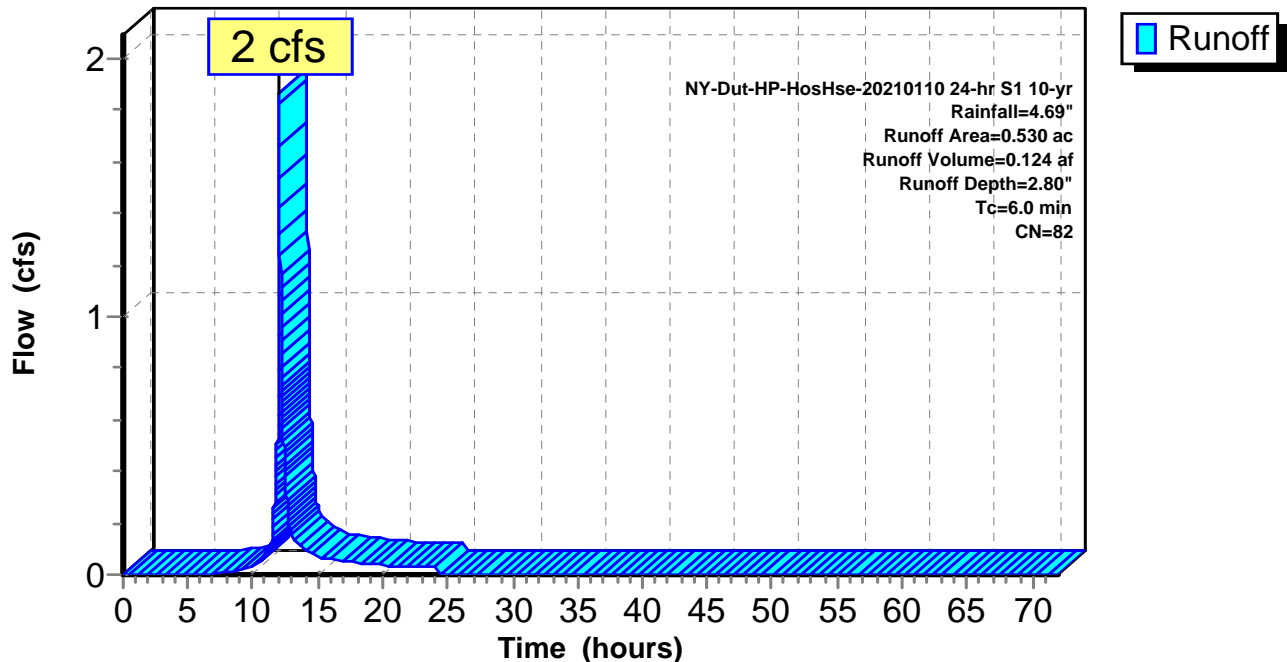
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 10-yr Rainfall=4.69"

Area (ac)	CN	Description
0.270	79	Woods, Fair, HSG D
0.200	80	>75% Grass cover, Good, HSG D
* 0.050	98	Driveway/Parking
* 0.010	98	Roof
0.530	82	Weighted Average
0.470		88.68% Pervious Area
0.060		11.32% Impervious Area

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

Subcatchment PST5: POST-5-NW TO ADJOINING PROPERTY

Hydrograph



Summary for Subcatchment PST6: POST-6-WEST TO VIOLET AVENUE

Runoff = 1 cfs @ 12.04 hrs, Volume= 0.043 af, Depth= 2.90"

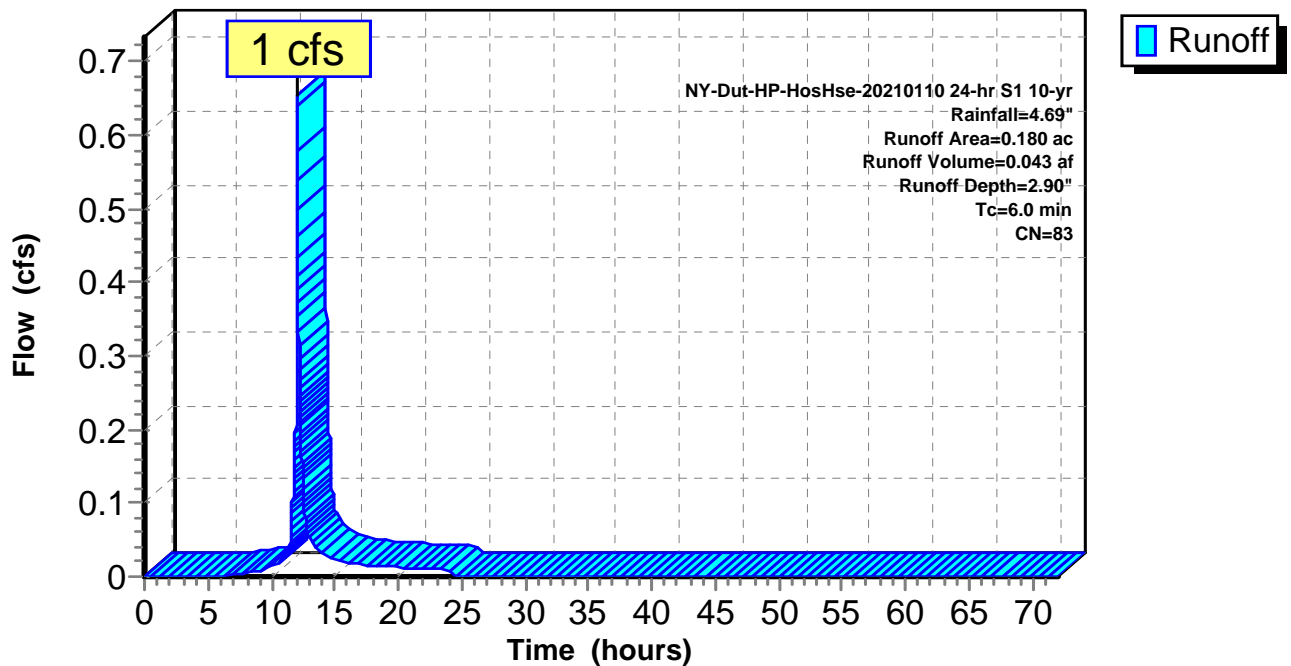
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 10-yr Rainfall=4.69"

Area (ac)	CN	Description
0.000	79	Woods, Fair, HSG D
0.150	80	>75% Grass cover, Good, HSG D
* 0.030	98	Driveway
0.180	83	Weighted Average
0.150		83.33% Pervious Area
0.030		16.67% Impervious Area

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

Subcatchment PST6: POST-6-WEST TO VIOLET AVENUE

Hydrograph



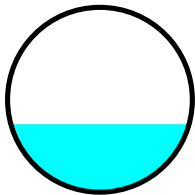
Summary for Reach CP: COLLECTOR PIPE

Inflow Area = 10.530 ac, 19.09% Impervious, Inflow Depth = 2.84" for 10-yr event
 Inflow = 6 cfs @ 12.79 hrs, Volume= 2.495 af
 Outflow = 6 cfs @ 12.81 hrs, Volume= 2.495 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Max. Velocity= 5.70 fps, Min. Travel Time= 1.2 min
 Avg. Velocity = 3.14 fps, Avg. Travel Time= 2.2 min

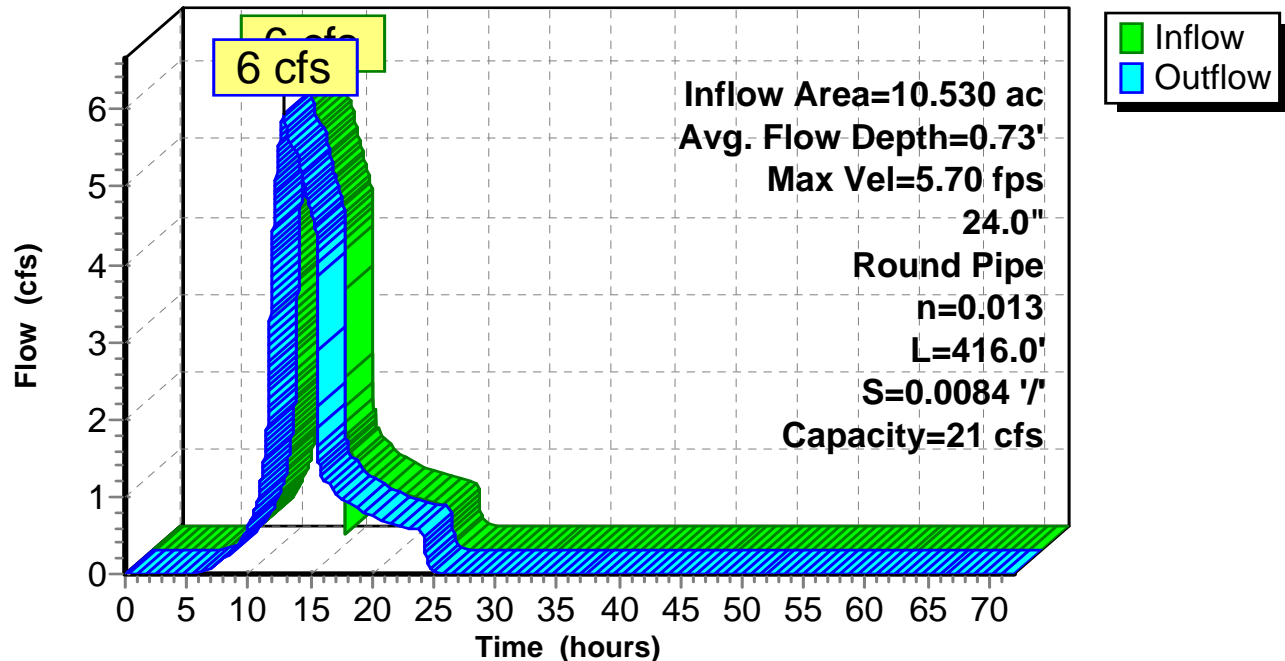
Peak Storage= 434 cf @ 12.81 hrs
 Average Depth at Peak Storage= 0.73' , Surface Width= 1.93'
 Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 21 cfs

24.0" Round Pipe
 n= 0.013
 Length= 416.0' Slope= 0.0084 '/'
 Inlet Invert= 260.50', Outlet Invert= 257.00'



Reach CP: COLLECTOR PIPE

Hydrograph



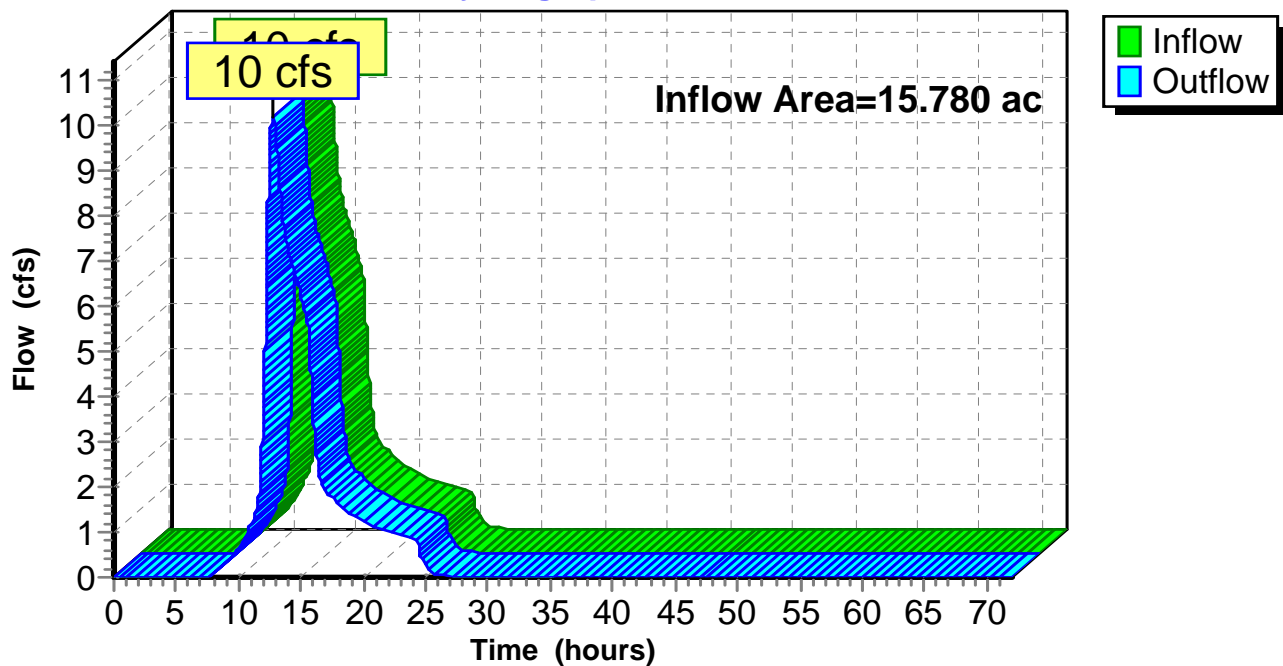
Summary for Reach DP1: DP-1-NE CORNER PROPERTY LINE

Inflow Area = 15.780 ac, 19.77% Impervious, Inflow Depth = 2.77" for 10-yr event
Inflow = 10 cfs @ 12.77 hrs, Volume= 3.642 af
Outflow = 10 cfs @ 12.77 hrs, Volume= 3.642 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP1: DP-1-NE CORNER PROPERTY LINE

Hydrograph



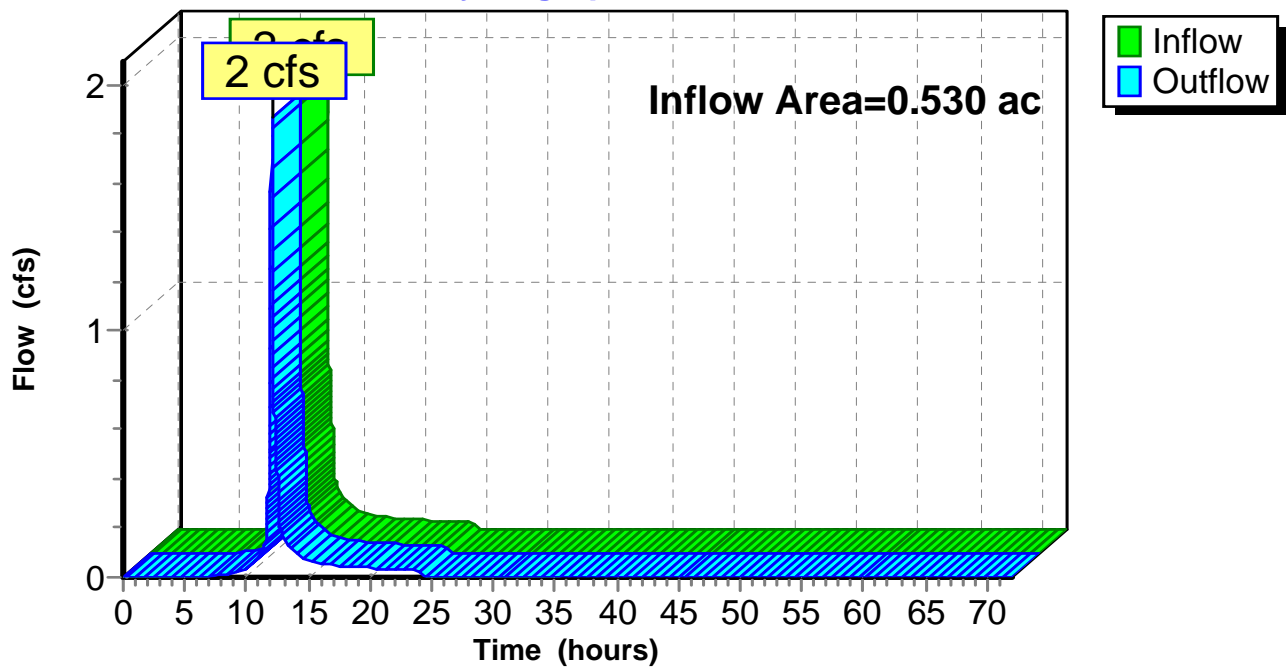
Summary for Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY

Inflow Area = 0.530 ac, 11.32% Impervious, Inflow Depth = 2.80" for 10-yr event
Inflow = 2 cfs @ 12.04 hrs, Volume= 0.124 af
Outflow = 2 cfs @ 12.04 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY

Hydrograph



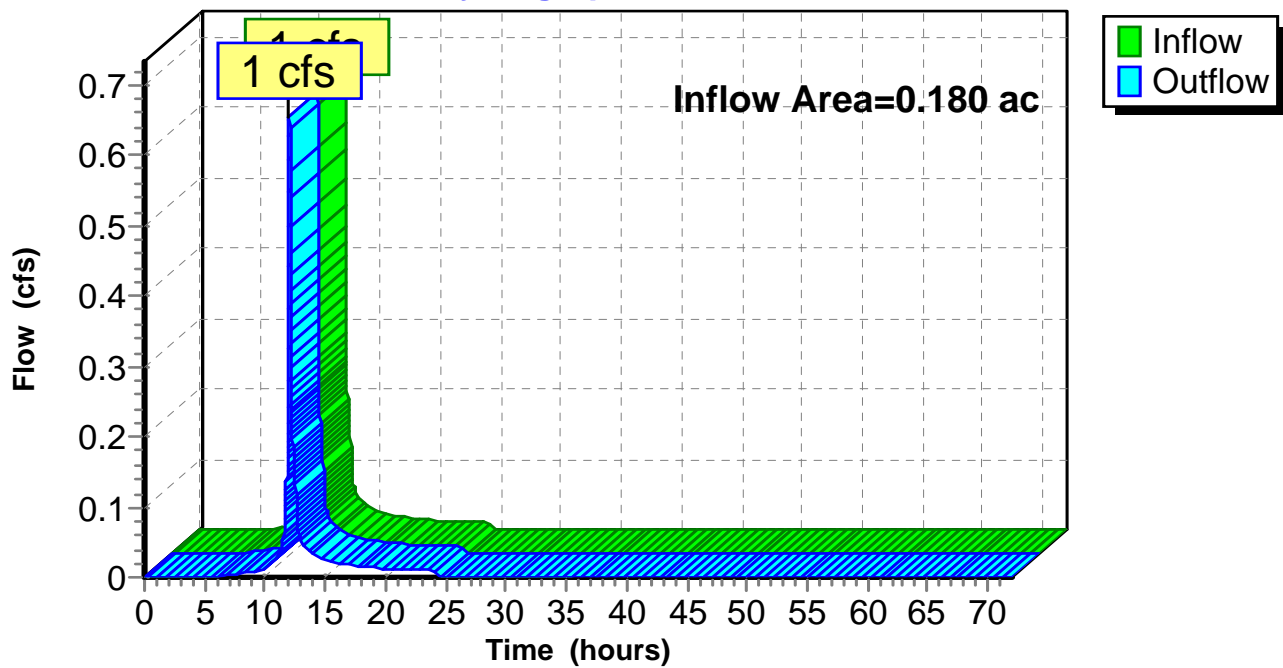
Summary for Reach DP3: DP-3- W TO VIOLET AVE

Inflow Area = 0.180 ac, 16.67% Impervious, Inflow Depth = 2.90" for 10-yr event
Inflow = 1 cfs @ 12.04 hrs, Volume= 0.043 af
Outflow = 1 cfs @ 12.04 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP3: DP-3- W TO VIOLET AVE

Hydrograph



Summary for Pond BIO-A: BIORETENTION A

Inflow Area = 1.370 ac, 43.07% Impervious, Inflow Depth = 2.99" for 10-yr event
 Inflow = 3 cfs @ 12.37 hrs, Volume= 0.341 af
 Outflow = 1 cfs @ 12.79 hrs, Volume= 0.341 af, Atten= 49%, Lag= 25.5 min
 Discarded = 0 cfs @ 12.79 hrs, Volume= 0.056 af
 Primary = 0 cfs @ 12.79 hrs, Volume= 0.005 af
 Secondary = 1 cfs @ 12.79 hrs, Volume= 0.279 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 269.55' @ 12.79 hrs Surf.Area= 6,241 sf Storage= 4,630 cf

Plug-Flow detention time= 153.8 min calculated for 0.341 af (100% of inflow)
 Center-of-Mass det. time= 153.9 min (1,001.7 - 847.8)

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	7,444 cf	29.00'W x 100.00'L x 2.00'H Prismatoid Z=3.0
#2	266.50'	2,900 cf	29.00'W x 100.00'L x 2.50'H Prismatoid
			7,250 cf Overall x 40.0% Voids
			10,344 cf Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	269.50'	15.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Tertiary	270.00'	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
#3	Secondary	267.50'	6.0" Round Culvert-Underdrain L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 267.50' / 267.00' S= 0.0500 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#4	Discarded	266.50'	0.250 in/hr Exfiltration/Infiltration/Underdrain over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0 cfs @ 12.79 hrs HW=269.55' (Free Discharge)
 ↑4=Exfiltration/Infiltration/Underdrain (Exfiltration Controls 0 cfs)

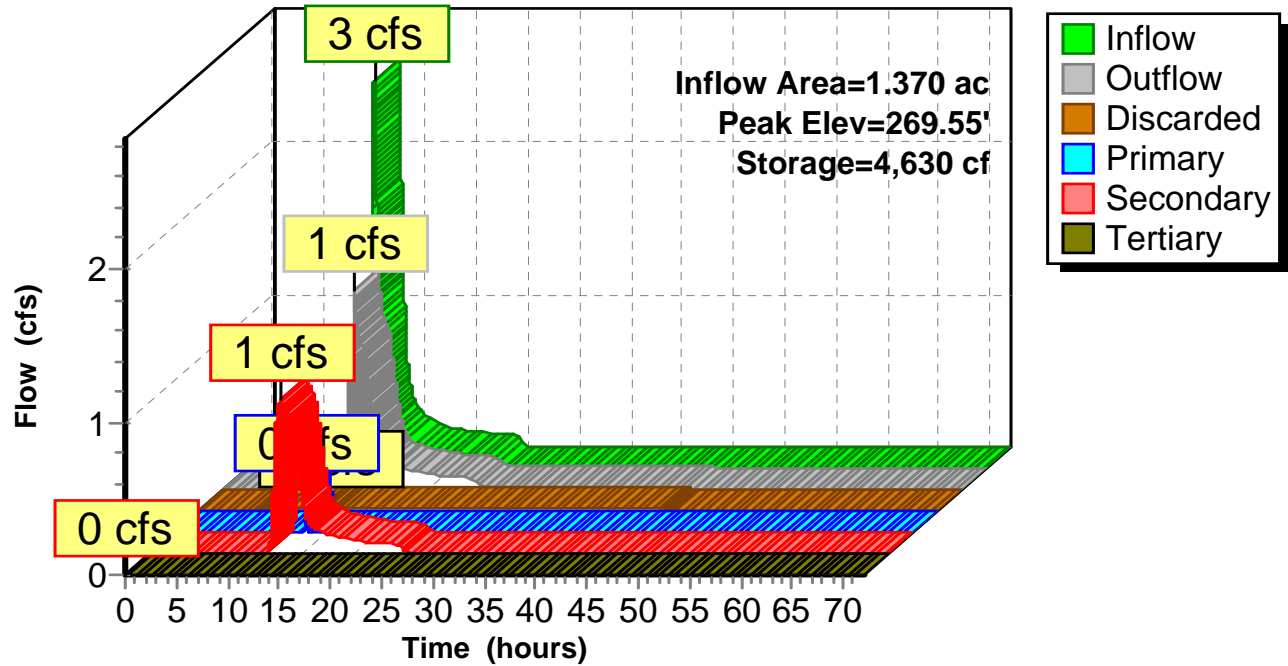
Primary OutFlow Max=0 cfs @ 12.79 hrs HW=269.55' TW=261.23' (Dynamic Tailwater)
 ↑1=Orifice/Grate (Weir Controls 0 cfs @ 0.77 fps)

Secondary OutFlow Max=1 cfs @ 12.79 hrs HW=269.55' TW=261.23' (Dynamic Tailwater)
 ↑3=Culvert-Underdrain (Inlet Controls 1 cfs @ 5.11 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=266.50' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Controls 0 cfs)

Pond BIO-A: BIORETENTION A

Hydrograph



Summary for Pond BIO-B: BIORETENTION B

Inflow Area = 1.860 ac, 45.16% Impervious, Inflow Depth = 3.38" for 10-yr event
 Inflow = 4 cfs @ 12.36 hrs, Volume= 0.523 af
 Outflow = 3 cfs @ 12.58 hrs, Volume= 0.490 af, Atten= 25%, Lag= 12.8 min
 Primary = 2 cfs @ 12.58 hrs, Volume= 0.075 af
 Secondary = 1 cfs @ 12.50 hrs, Volume= 0.415 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 260.71' @ 12.58 hrs Surf.Area= 7,797 sf Storage= 6,362 cf

Plug-Flow detention time= 103.5 min calculated for 0.490 af (94% of inflow)
 Center-of-Mass det. time= 67.7 min (900.0 - 832.3)

Volume	Invert	Avail.Storage	Storage Description
#1	260.00'	8,928 cf	36.00'W x 100.00'L x 2.00'H Prismaoid Z=3.0
#2	257.50'	3,600 cf	36.00'W x 100.00'L x 2.50'H Prismaoid
			9,000 cf Overall x 40.0% Voids
		12,528 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	257.50'	24.0" Round Culvert L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 257.50' / 257.00' S= 0.0147 '/ Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	260.50'	24.0" Horiz. Orifice/Gate C= 0.600 Limited to weir flow at low heads
#3	Tertiary	261.00'	50.0' 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
#4	Secondary	258.50'	6.0" Round Culvert-Underdrain L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 258.50' / 258.00' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=2 cfs @ 12.58 hrs HW=260.71' TW=258.57' (Dynamic Tailwater)

- ↑1=Culvert (Passes 2 cfs of 17 cfs potential flow)
- ↑2=Orifice/Gate (Weir Controls 2 cfs @ 1.49 fps)

Secondary OutFlow Max=1 cfs @ 12.50 hrs HW=260.69' TW=258.50' (Dynamic Tailwater)

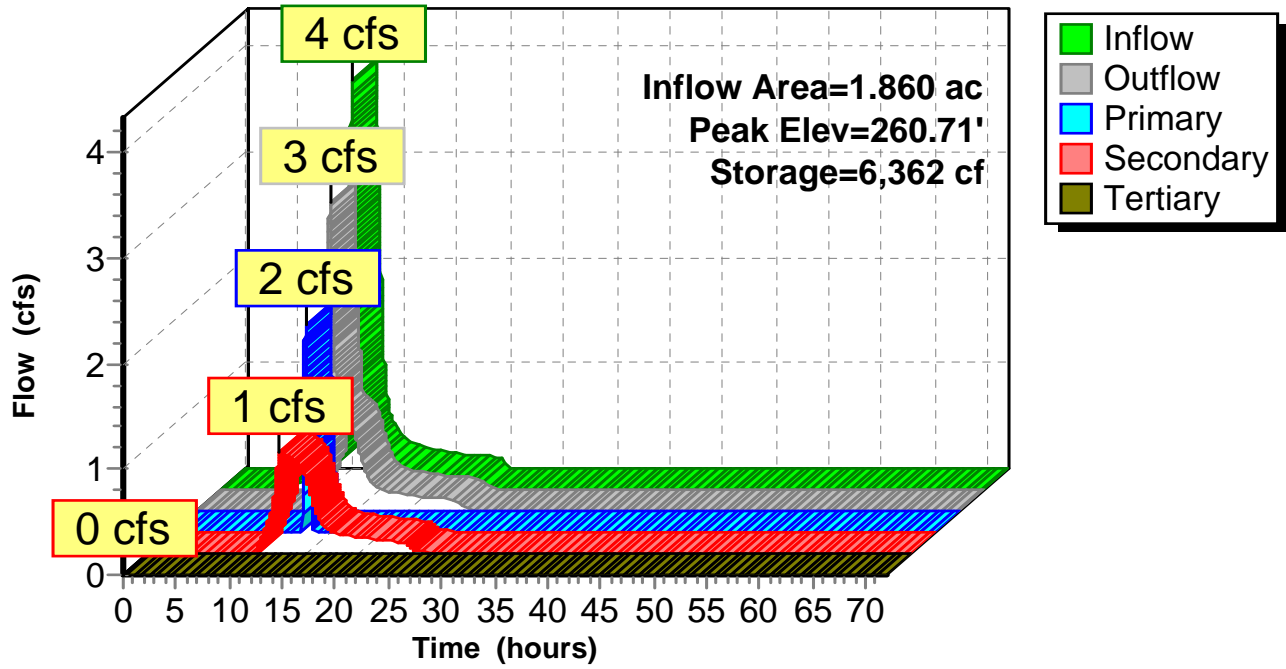
- ↑4=Culvert-Underdrain (Outlet Controls 1 cfs @ 4.90 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=257.50' TW=257.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir (Controls 0 cfs)

Pond BIO-B: BIORETENTION B

Hydrograph



Summary for Pond DET: DETENTION

Inflow Area = 15.780 ac, 19.77% Impervious, Inflow Depth = 2.78" for 10-yr event
 Inflow = 12 cfs @ 12.52 hrs, Volume= 3.653 af
 Outflow = 10 cfs @ 12.76 hrs, Volume= 3.653 af, Atten= 14%, Lag= 14.7 min
 Primary = 3 cfs @ 12.77 hrs, Volume= 0.552 af
 Secondary = 7 cfs @ 12.75 hrs, Volume= 3.100 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 258.63' @ 12.77 hrs Surf.Area= 9,868 sf Storage= 14,419 cf

Plug-Flow detention time= 27.5 min calculated for 3.653 af (100% of inflow)
 Center-of-Mass det. time= 27.4 min (908.9 - 881.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	257.00'	29,214 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
257.00	7,900	390.0	0	0	7,900	
260.00	11,700	450.0	29,214	29,214	12,104	

Device	Routing	Invert	Outlet Devices											
#1	Tertiary	259.50'	40.0' 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											
#2	Primary	257.50'	18.0" Round Culvert L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 257.50' / 257.00' S= 0.0500 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf											
#3	Secondary	257.00'	2.0" Vert. Orifice/Grate X 40.00 columns X 3 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads											

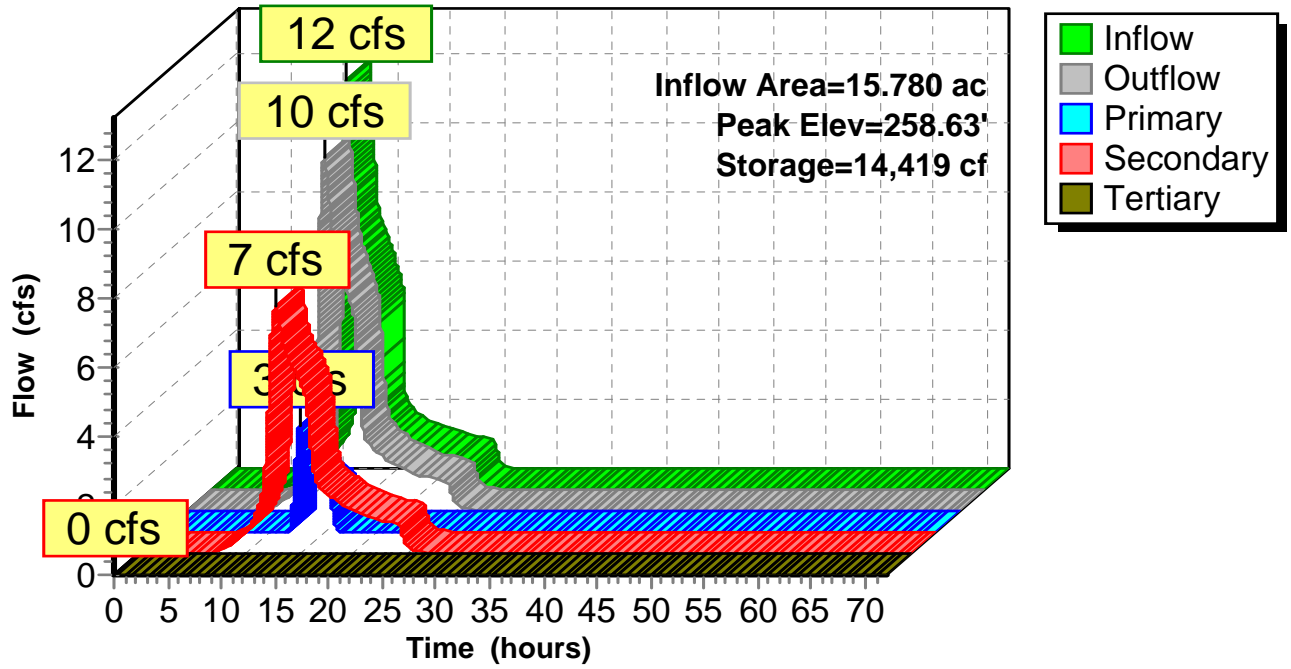
Primary OutFlow Max=3 cfs @ 12.77 hrs HW=258.63' TW=258.31' (Dynamic Tailwater)
 ↑**2=Culvert** (Inlet Controls 3 cfs @ 2.15 fps)

Secondary OutFlow Max=7 cfs @ 12.75 hrs HW=258.63' TW=258.31' (Dynamic Tailwater)
 ↑**3=Orifice/Grate** (Orifice Controls 7 cfs @ 2.72 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=257.00' TW=255.00' (Dynamic Tailwater)
 ↑**1=Broad-Crested Rectangular Weir** (Controls 0 cfs)

Pond DET: DETENTION

Hydrograph



Summary for Pond IG: INFILTRATION GALLEY

Inflow Area = 15.780 ac, 19.77% Impervious, Inflow Depth = 2.78" for 10-yr event
 Inflow = 10 cfs @ 12.76 hrs, Volume= 3.653 af
 Outflow = 10 cfs @ 12.77 hrs, Volume= 3.647 af, Atten= 0%, Lag= 0.3 min
 Discarded = 0 cfs @ 6.87 hrs, Volume= 0.005 af
 Primary = 10 cfs @ 12.77 hrs, Volume= 3.642 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 258.31' @ 12.77 hrs Surf.Area= 160 sf Storage= 529 cf

Plug-Flow detention time= 4.2 min calculated for 3.647 af (100% of inflow)
 Center-of-Mass det. time= 2.6 min (911.5 - 908.9)

Volume	Invert	Avail.Storage	Storage Description
#1	255.00'	800 cf	4.00'W x 40.00'L x 5.00'H Prismatic

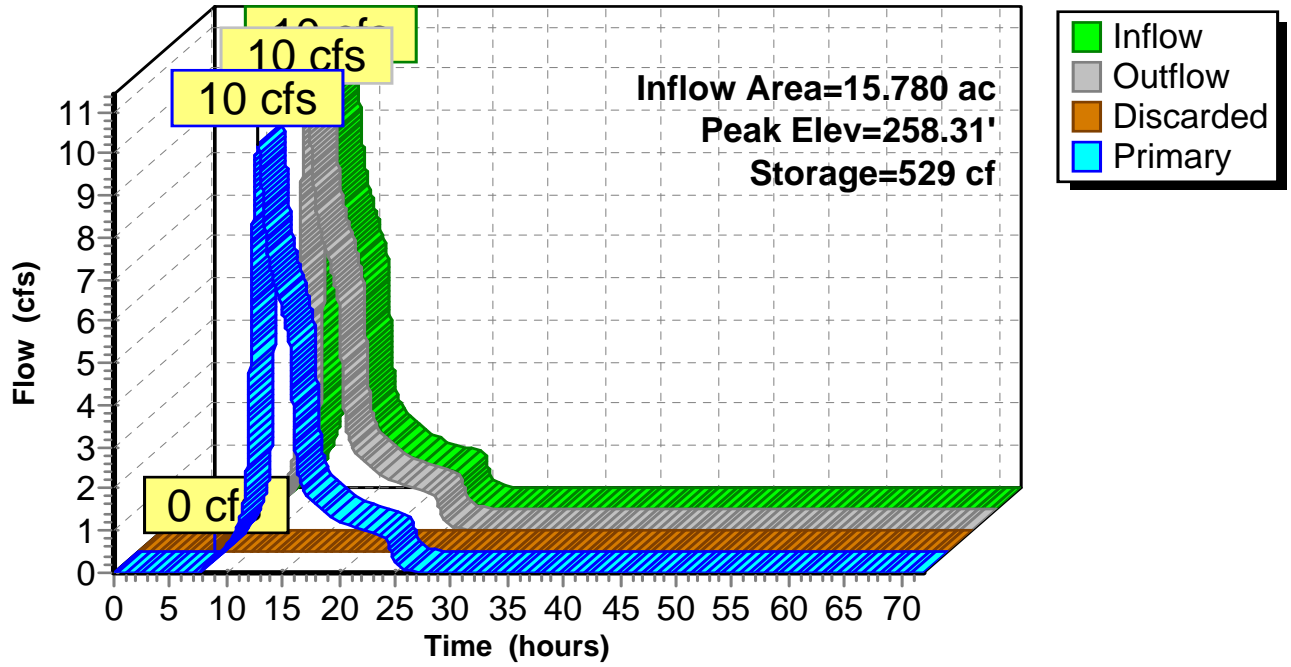
Device	Routing	Invert	Outlet Devices
#1	Primary	257.00'	2.0" Vert. Orifice/Grate X 40.00 columns X 4 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads
#2	Discarded	255.00'	0.250 in/hr Exfiltration over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0 cfs @ 6.87 hrs HW=255.05' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0 cfs)

Primary OutFlow Max=10 cfs @ 12.77 hrs HW=258.31' TW=0.00' (Dynamic Tailwater)
 ↳ **1=Orifice/Grate** (Orifice Controls 10 cfs @ 3.90 fps)

Pond IG: INFILTRATION GALLEY

Hydrograph



Summary for Pond L1: EX DEPRESSION & DITCH TO NEW CULVERT

Inflow Area = 9.160 ac, 15.50% Impervious, Inflow Depth = 2.90" for 10-yr event
 Inflow = 20 cfs @ 12.24 hrs, Volume= 2.210 af
 Outflow = 5 cfs @ 12.90 hrs, Volume= 2.210 af, Atten= 76%, Lag= 39.4 min
 Primary = 5 cfs @ 12.90 hrs, Volume= 2.210 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 270.85' @ 12.90 hrs Surf.Area= 23,217 sf Storage= 25,487 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 33.7 min (876.9 - 843.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	266.50'	218,365 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
266.50	10	10.0	0	0	10
267.00	92	35.0	22	22	100
268.00	263	57.0	170	192	268
269.00	2,790	387.0	1,303	1,495	11,930
270.00	14,698	1,061.0	7,964	9,459	89,597
271.00	24,884	1,137.0	19,569	29,028	102,935
272.00	35,052	1,222.0	29,823	58,851	118,935
273.00	45,040	1,191.0	39,942	98,793	125,009
274.00	61,477	1,395.0	53,046	151,839	167,010
275.00	71,707	1,545.0	66,526	218,365	202,134

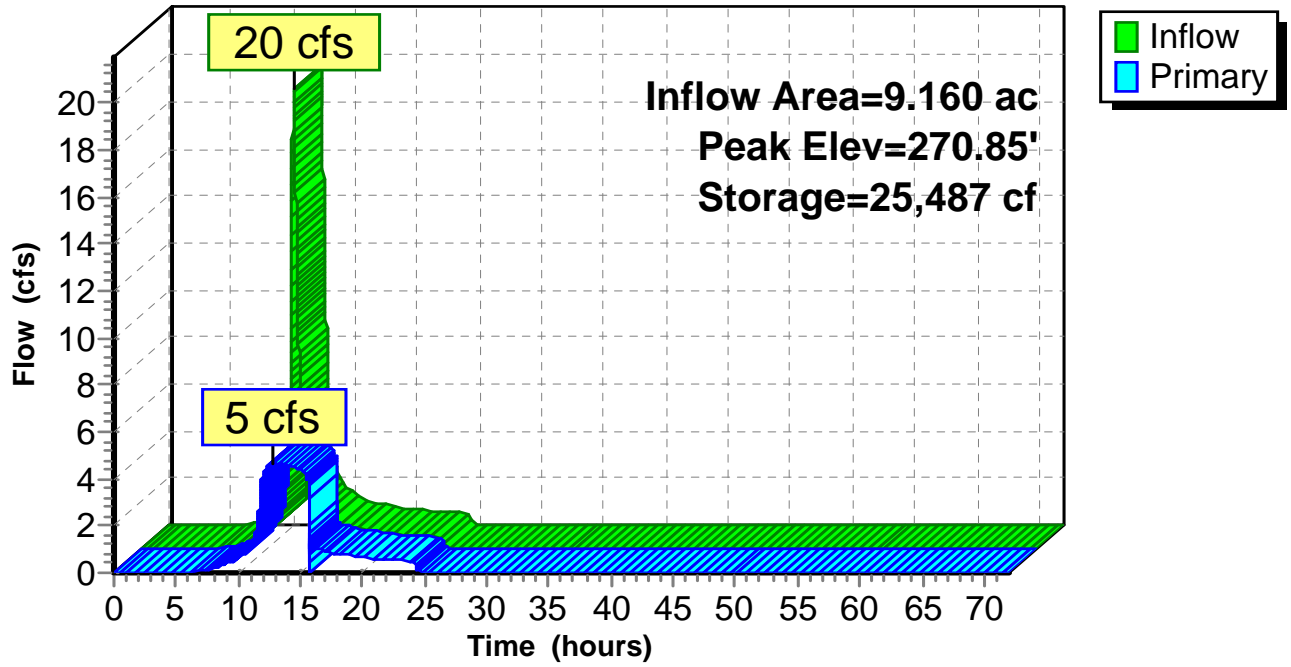
Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	12.0" Round Culvert L= 446.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 263.50' / 261.10' S= 0.0054 1/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	270.00'	15.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	269.00'	24.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	266.50'	36.0" W x 12.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5 cfs @ 12.90 hrs HW=270.85' TW=261.23' (Dynamic Tailwater)

- 1=Culvert (Barrel Controls 5 cfs @ 5.95 fps)
- 2=Orifice/Grate (Passes < 11 cfs potential flow)
- 3=Orifice/Grate (Passes < 12 cfs potential flow)
- 4=Orifice/Grate (Passes < 57 cfs potential flow)

Pond L1: EX DEPRESSION & DITCH TO NEW CULVERT

Hydrograph



Summary for Pond L2: EXISTING DEPRESSION

Inflow Area = 1.310 ac, 4.58% Impervious, Inflow Depth = 2.71" for 10-yr event
 Inflow = 3 cfs @ 12.14 hrs, Volume= 0.296 af
 Outflow = 2 cfs @ 12.35 hrs, Volume= 0.198 af, Atten= 43%, Lag= 12.4 min
 Primary = 2 cfs @ 12.35 hrs, Volume= 0.198 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 273.56' @ 12.35 hrs Surf.Area= 10,109 sf Storage= 4,869 cf

Plug-Flow detention time= 202.8 min calculated for 0.198 af (67% of inflow)
 Center-of-Mass det. time= 85.8 min (929.4 - 843.5)

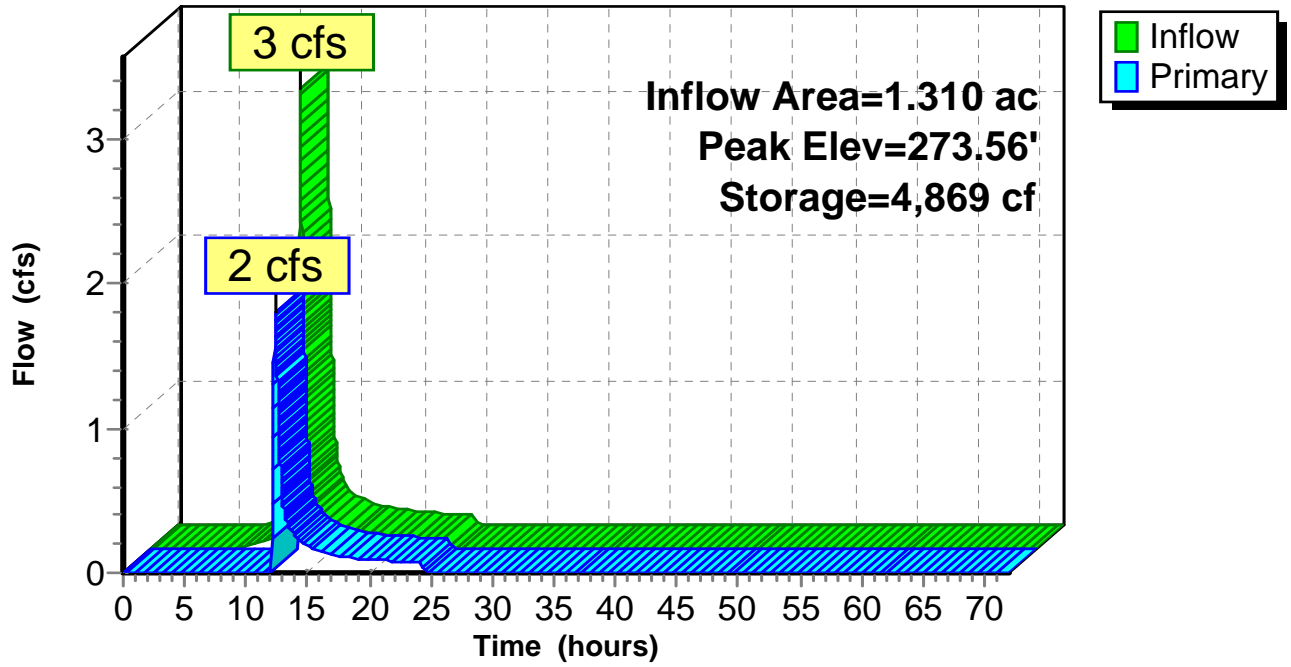
Volume	Invert	Avail.Storage	Storage Description			
#1	273.00'	23,775 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
273.00	7,406	485.0	0	0	7,406	
274.00	12,546	498.0	9,864	9,864	8,535	
275.00	15,322	545.0	13,911	23,775	12,471	

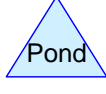
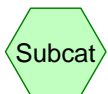
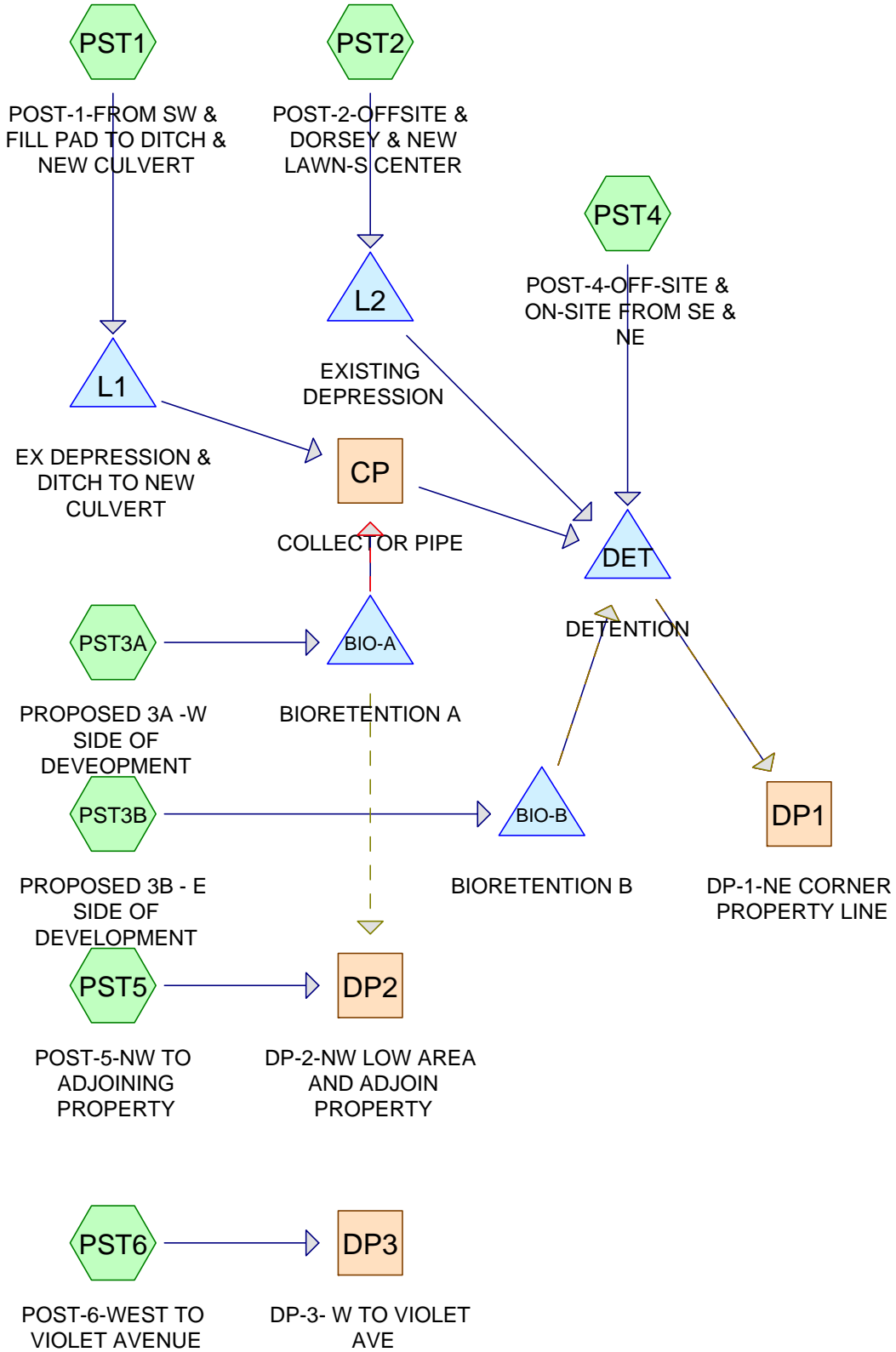
Device	Routing	Invert	Outlet Devices											
#1	Primary	273.50'	55.0' long x 5.0' breadth Broad-Crested Rectangular Weir											
			Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00	
				2.50	3.00	3.50	4.00	4.50	5.00	5.50				
			Coef. (English)	2.34	2.50	2.70	2.68	2.68	2.66	2.66	2.65	2.65	2.65	
				2.65	2.67	2.66	2.68	2.70	2.74	2.79	2.88			

Primary OutFlow Max=2 cfs @ 12.35 hrs HW=273.56' TW=258.36' (Dynamic Tailwater)
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 2 cfs @ 0.56 fps)

Pond L2: EXISTING DEPRESSION

Hydrograph





Routing Diagram for HVH-Pst-20210406-0505

Prepared by Berger Engineering and Surveying, PLLC, Printed 5/5/2021
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HVH-Pst-20210406-0505

POST DEVELOPMENT-100yr-NO GALLEY-NO LEVEL SPREADER

NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

Prepared by Berger Engineering and Surveying, PLLC

Printed 5/5/2021

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Page 2

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PST1: POST-1-FROM SW & Runoff Area=9.160 ac 15.50% Impervious Runoff Depth=6.24"
Flow Length=588' Tc=21.2 min CN=83 Runoff=40 cfs 4.760 af

Subcatchment PST2: POST-2-OFFSITE & Runoff Area=1.310 ac 4.58% Impervious Runoff Depth=6.00"
Flow Length=129' Tc=14.1 min CN=81 Runoff=7 cfs 0.655 af

Subcatchment PST3A: PROPOSED 3A -W Runoff Area=1.370 ac 43.07% Impervious Runoff Depth=6.35"
Tc=30.0 min CN=84 Runoff=5 cfs 0.725 af

Subcatchment PST3B: PROPOSED 3B - E Runoff Area=1.860 ac 45.16% Impervious Runoff Depth=6.83"
Tc=30.0 min CN=88 Runoff=7 cfs 1.059 af

Subcatchment PST4: POST-4-OFF-SITE & Runoff Area=2.080 ac 10.10% Impervious Runoff Depth=6.00"
Flow Length=568' Tc=16.5 min CN=81 Runoff=10 cfs 1.040 af

Subcatchment PST5: POST-5-NW TO Runoff Area=0.530 ac 11.32% Impervious Runoff Depth=6.12"
Tc=6.0 min CN=82 Runoff=4 cfs 0.270 af

Subcatchment PST6: POST-6-WEST TO Runoff Area=0.180 ac 16.67% Impervious Runoff Depth=6.24"
Tc=6.0 min CN=83 Runoff=1 cfs 0.094 af

Reach CP: COLLECTOR PIPE Avg. Flow Depth=0.97' Max Vel=6.52 fps Inflow=10 cfs 5.424 af
24.0" Round Pipe n=0.013 L=416.0' S=0.0084 '/' Capacity=21 cfs Outflow=10 cfs 5.424 af

Reach DP1: DP-1-NE CORNER PROPERTY LINE Inflow=23 cfs 8.045 af
Outflow=23 cfs 8.045 af

Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY Inflow=4 cfs 0.270 af
Outflow=4 cfs 0.270 af

Reach DP3: DP-3- W TO VIOLET AVE Inflow=1 cfs 0.094 af
Outflow=1 cfs 0.094 af

Pond BIO-A: BIORETENTION A Peak Elev=269.82' Storage=5,547 cf Inflow=5 cfs 0.725 af
Outflow=5 cfs 0.725 af
Discarded=0 cfs 0.062 af Primary=4 cfs 0.173 af Secondary=1 cfs 0.490 af Tertiary=0 cfs 0.000 af

Pond BIO-B: BIORETENTION B Peak Elev=260.96' Storage=7,424 cf Inflow=7 cfs 1.059 af
Outflow=7 cfs 1.026 af
Primary=6 cfs 0.351 af Secondary=1 cfs 0.674 af Tertiary=0 cfs 0.000 af

Pond DET: DETENTION Peak Elev=259.25' Storage=20,840 cf Inflow=27 cfs 8.045 af
Outflow=23 cfs 8.045 af
Primary=7 cfs 0.962 af Secondary=16 cfs 7.083 af Tertiary=0 cfs 0.000 af

Pond L1: EX DEPRESSION & DITCH TO NEW Peak Elev=272.50' Storage=77,708 cf Inflow=40 cfs 4.760 af
Outflow=5 cfs 4.760 af

Pond L2: EXISTING DEPRESSION Peak Elev=273.63' Storage=5,657 cf Inflow=7 cfs 0.655 af
Outflow=6 cfs 0.556 af

HVH-Pst-20210406-0505

POST DEVELOPMENT-100yr-NO GALLEY-NO LEVEL SPREADER

NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

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Total Runoff Area = 16.490 ac Runoff Volume = 8.602 af Average Runoff Depth = 6.26"
80.53% Pervious = 13.280 ac 19.47% Impervious = 3.210 ac

Summary for Subcatchment PST1: POST-1-FROM SW & FILL PAD TO DITCH & NEW CULVERT

Runoff = 40 cfs @ 12.23 hrs, Volume= 4.760 af, Depth= 6.24"

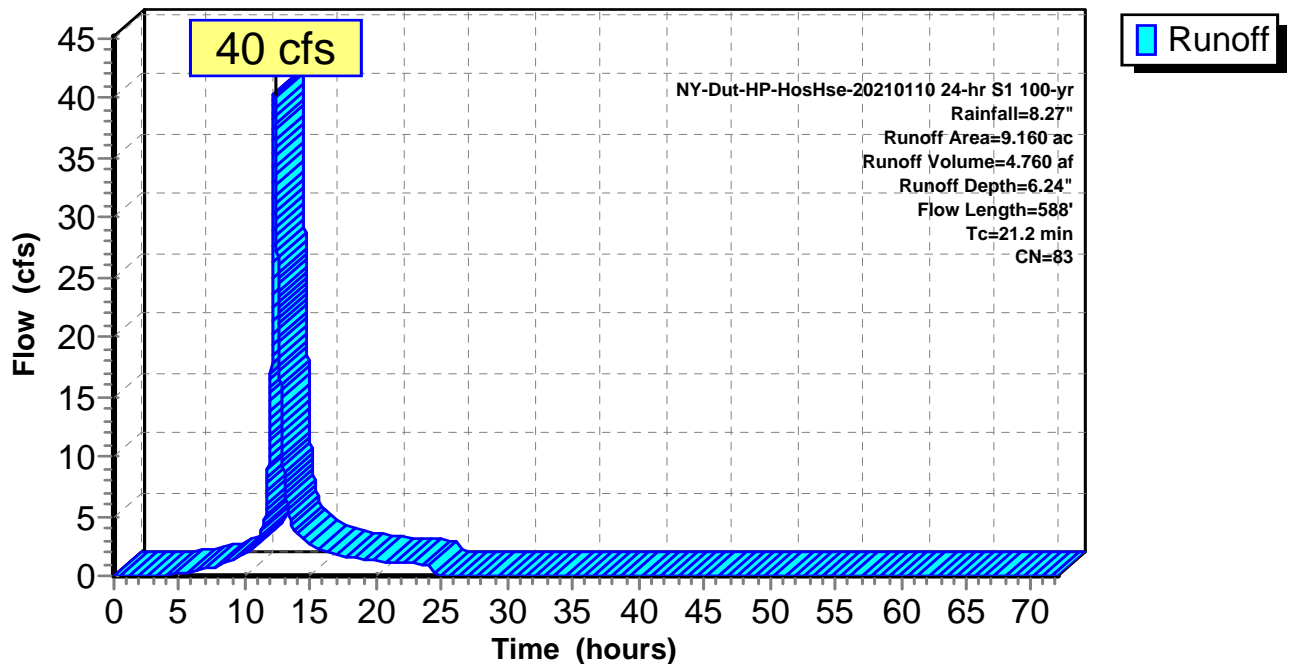
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

Area (ac)	CN	Description
2.380	79	Woods, Fair, HSG D
5.360	80	>75% Grass cover, Good, HSG D
* 0.890	98	Driveway/Parking
* 0.530	98	Roof
9.160	83	Weighted Average
7.740		84.50% Pervious Area
1.420		15.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.17"
7.3	488	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
21.2	588	Total			

Subcatchment PST1: POST-1-FROM SW & FILL PAD TO DITCH & NEW CULVERT

Hydrograph



HVH-Pst-20210406-0505

POST DEVELOPMENT-100yr-NO GALLEY-NO LEVEL SPREADER

NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

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Summary for Subcatchment PST2: POST-2-OFFSITE & DORSEY & NEW LAWN-S CENTER

Runoff = 7 cfs @ 12.14 hrs, Volume= 0.655 af, Depth= 6.00"

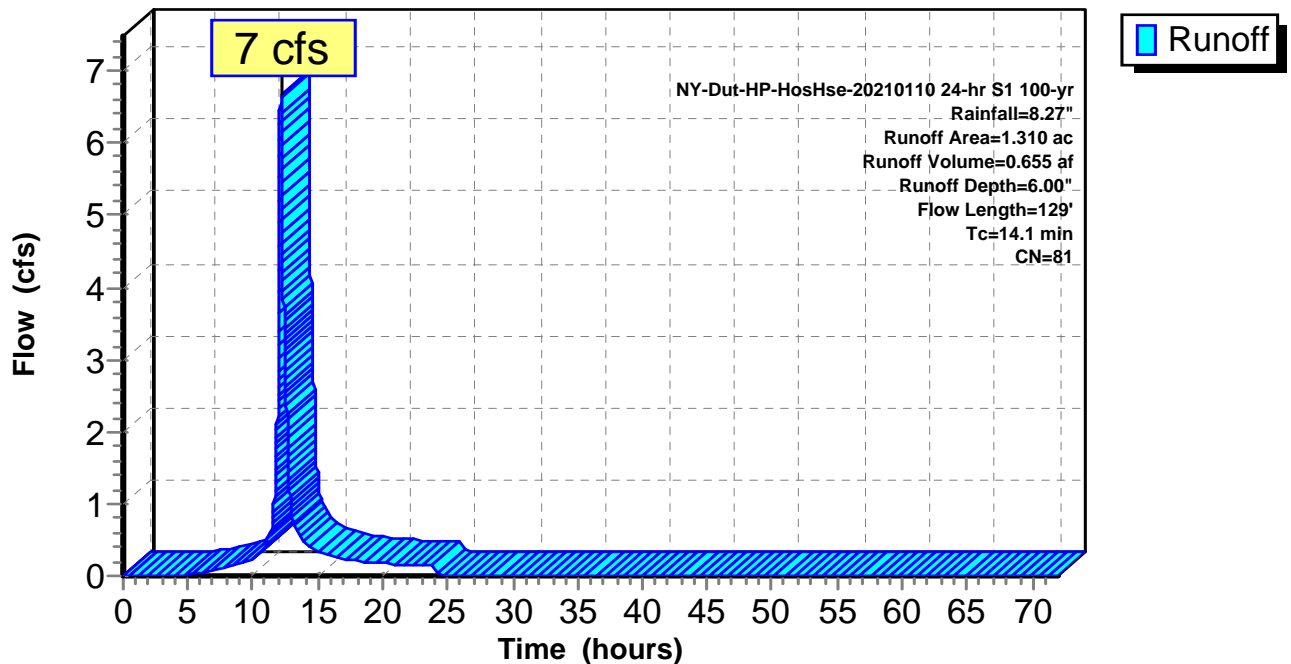
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

Area (ac)	CN	Description
0.100	79	Woods, Fair, HSG D
1.150	80	>75% Grass cover, Good, HSG D
* 0.010	98	Driveway
* 0.050	98	Roof
1.310	81	Weighted Average
1.250		95.42% Pervious Area
0.060		4.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.17"
0.2	29	0.1600	2.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	129	Total			

Subcatchment PST2: POST-2-OFFSITE & DORSEY & NEW LAWN-S CENTER

Hydrograph



Summary for Subcatchment PST3A: PROPOSED 3A -W SIDE OF DEVEOPMENT

Runoff = 5 cfs @ 12.36 hrs, Volume= 0.725 af, Depth= 6.35"

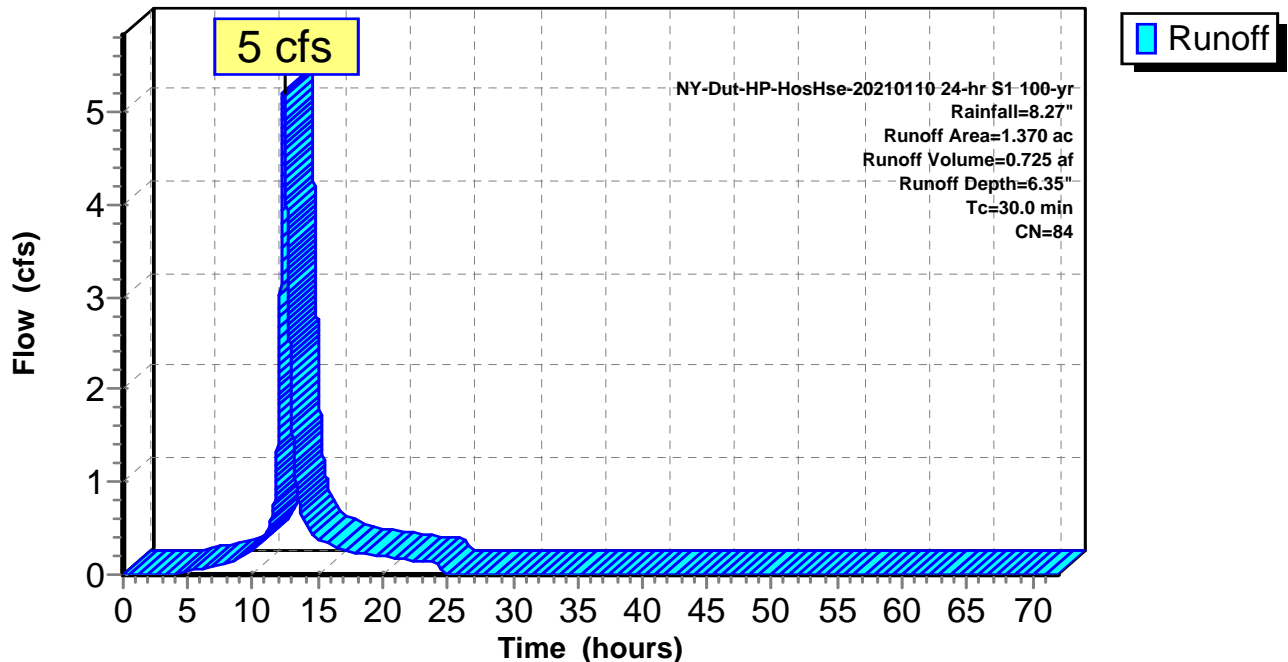
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

Area (ac)	CN	Description
0.780	74	>75% Grass cover, Good, HSG C
* 0.430	98	Driveway
* 0.110	98	Roof
* 0.050	98	Walk
1.370	84	Weighted Average
0.780		56.93% Pervious Area
0.590		43.07% Impervious Area

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

Subcatchment PST3A: PROPOSED 3A -W SIDE OF DEVEOPMENT

Hydrograph



Summary for Subcatchment PST3B: PROPOSED 3B - E SIDE OF DEVELOPMENT

Runoff = 7 cfs @ 12.36 hrs, Volume= 1.059 af, Depth= 6.83"

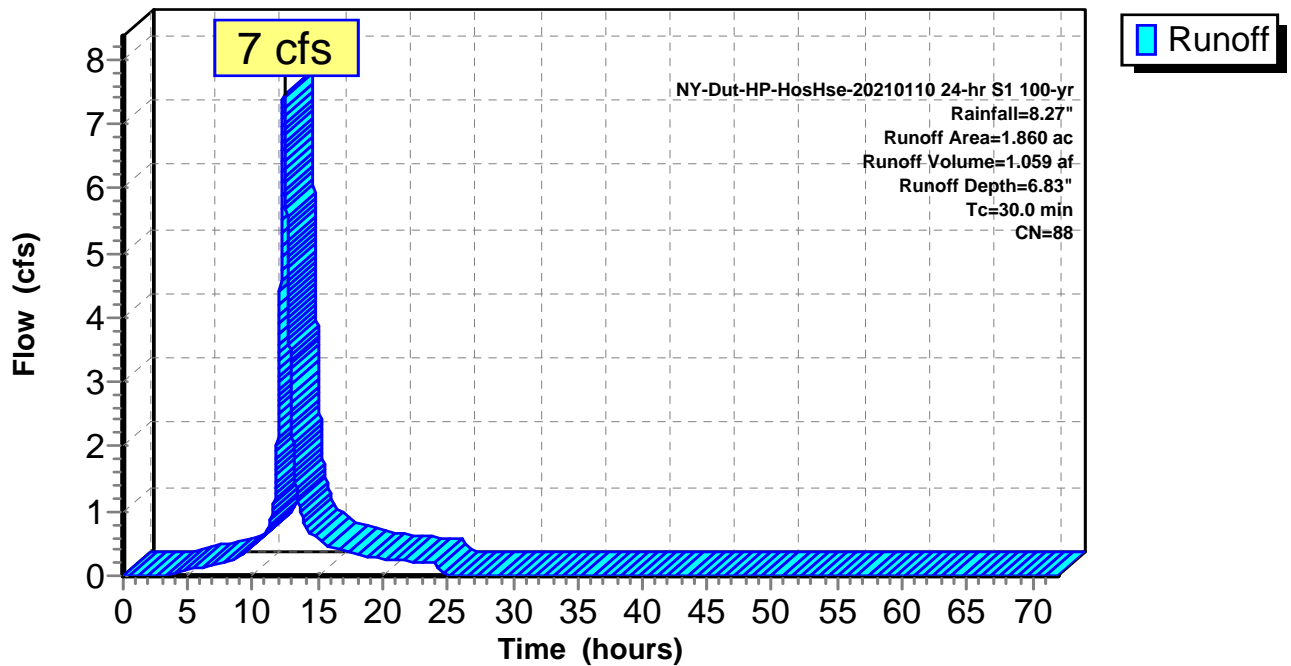
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

Area (ac)	CN	Description
1.020	80	>75% Grass cover, Good, HSG D
* 0.440	98	Driveway/Parking
* 0.260	98	Roof
* 0.120	98	Walk
* 0.020	98	Concrete Pads
1.860	88	Weighted Average
1.020		54.84% Pervious Area
0.840		45.16% Impervious Area

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

Subcatchment PST3B: PROPOSED 3B - E SIDE OF DEVELOPMENT

Hydrograph



HVH-Pst-20210406-0505

POST DEVELOPMENT-100yr-NO GALLEY-NO LEVEL SPREADER

NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

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Summary for Subcatchment PST4: POST-4-OFF-SITE & ON-SITE FROM SE & NE

Runoff = 10 cfs @ 12.18 hrs, Volume= 1.040 af, Depth= 6.00"

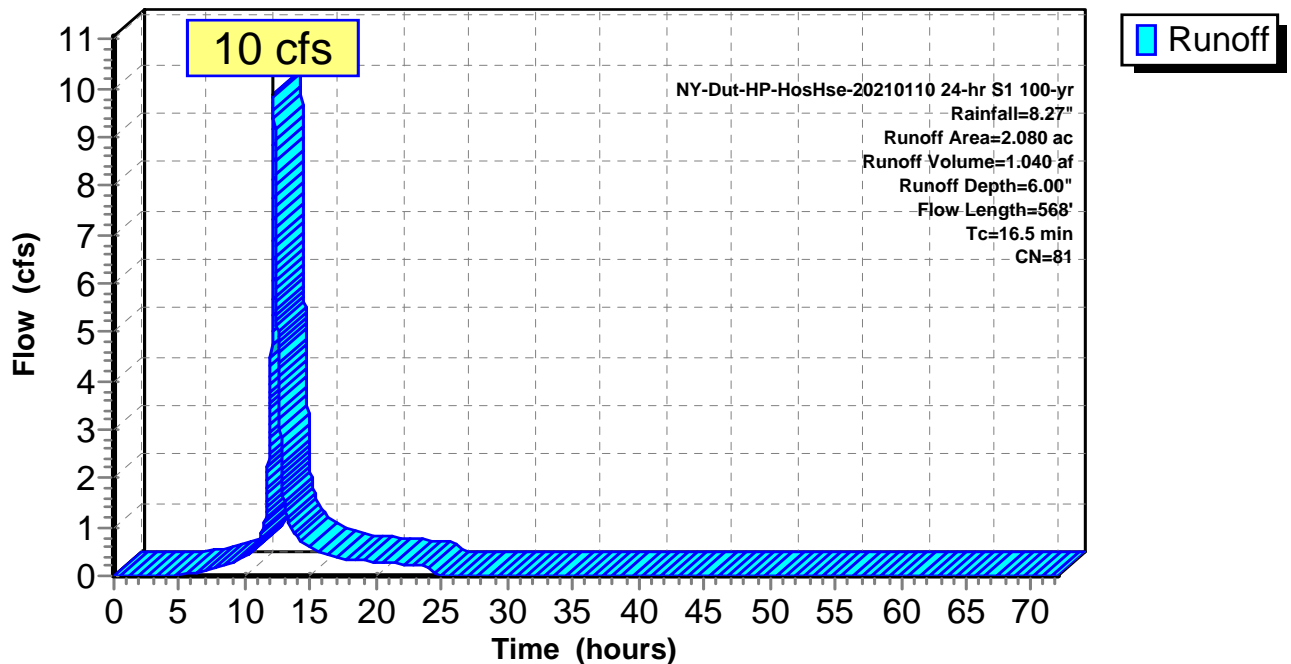
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

Area (ac)	CN	Description
0.720	79	Woods, Fair, HSG D
1.150	80	>75% Grass cover, Good, HSG D
* 0.120	98	Driveway
* 0.090	98	Roof
2.080	81	Weighted Average
1.870		89.90% Pervious Area
0.210		10.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0700	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.17"
7.8	468	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.5	568	Total			

Subcatchment PST4: POST-4-OFF-SITE & ON-SITE FROM SE & NE

Hydrograph



Summary for Subcatchment PST5: POST-5-NW TO ADJOINING PROPERTY

Runoff = 4 cfs @ 12.04 hrs, Volume= 0.270 af, Depth= 6.12"

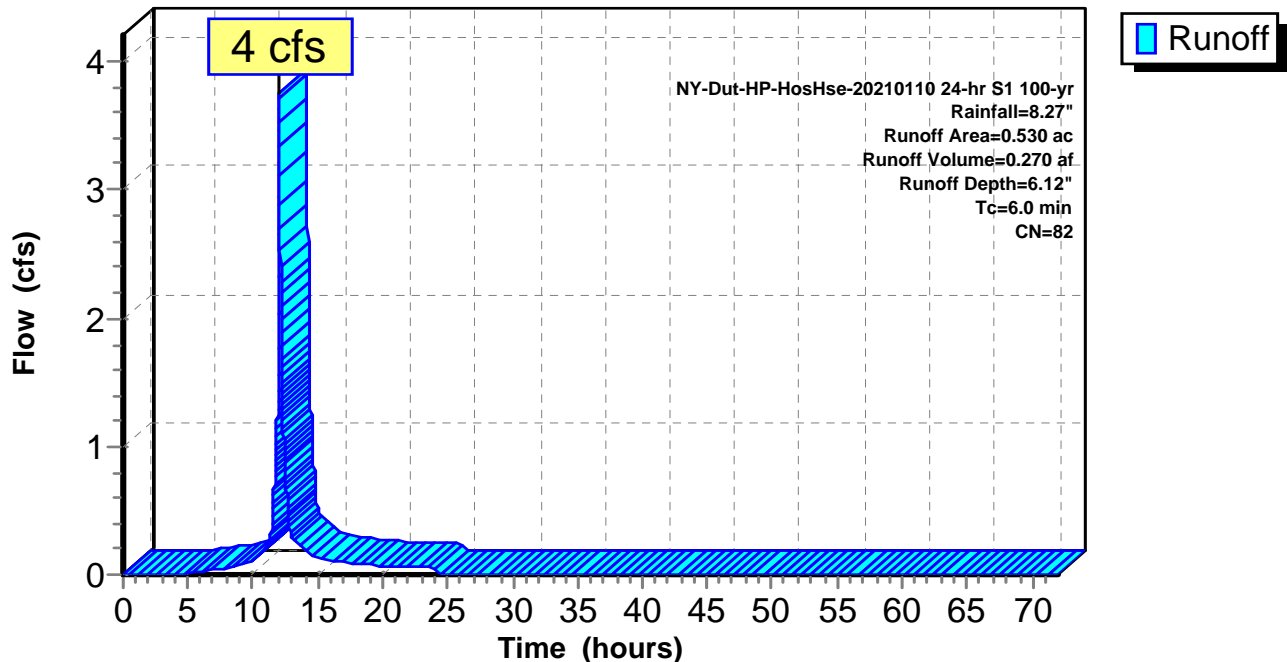
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

Area (ac)	CN	Description
0.270	79	Woods, Fair, HSG D
0.200	80	>75% Grass cover, Good, HSG D
* 0.050	98	Driveway/Parking
* 0.010	98	Roof
0.530	82	Weighted Average
0.470		88.68% Pervious Area
0.060		11.32% Impervious Area

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

Subcatchment PST5: POST-5-NW TO ADJOINING PROPERTY

Hydrograph



Summary for Subcatchment PST6: POST-6-WEST TO VIOLET AVENUE

Runoff = 1 cfs @ 12.04 hrs, Volume= 0.094 af, Depth= 6.24"

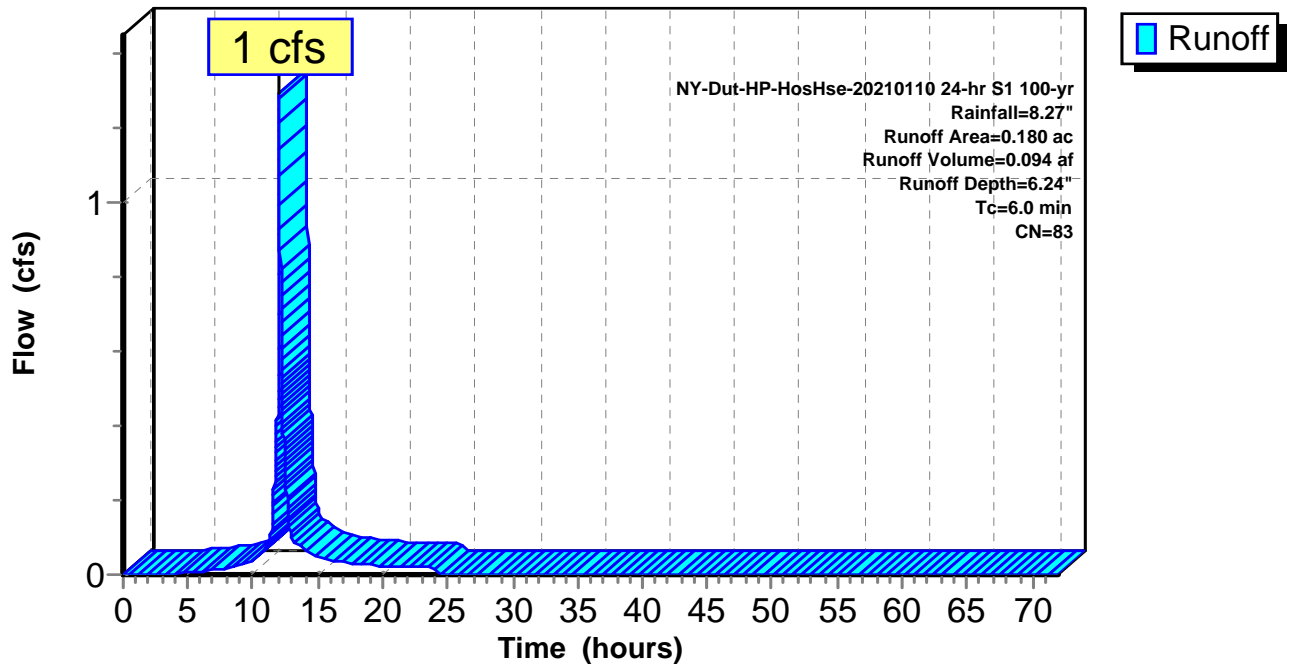
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NY-Dut-HP-HosHse-20210110 24-hr S1 100-yr Rainfall=8.27"

Area (ac)	CN	Description
0.000	79	Woods, Fair, HSG D
0.150	80	>75% Grass cover, Good, HSG D
* 0.030	98	Driveway
0.180	83	Weighted Average
0.150		83.33% Pervious Area
0.030		16.67% Impervious Area

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

Subcatchment PST6: POST-6-WEST TO VIOLET AVENUE

Hydrograph



Summary for Reach CP: COLLECTOR PIPE

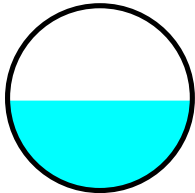
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 10.530 ac, 19.09% Impervious, Inflow Depth = 6.18" for 100-yr event
Inflow = 10 cfs @ 12.45 hrs, Volume= 5.424 af
Outflow = 10 cfs @ 12.46 hrs, Volume= 5.424 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 6.52 fps, Min. Travel Time= 1.1 min
Avg. Velocity= 3.95 fps, Avg. Travel Time= 1.8 min

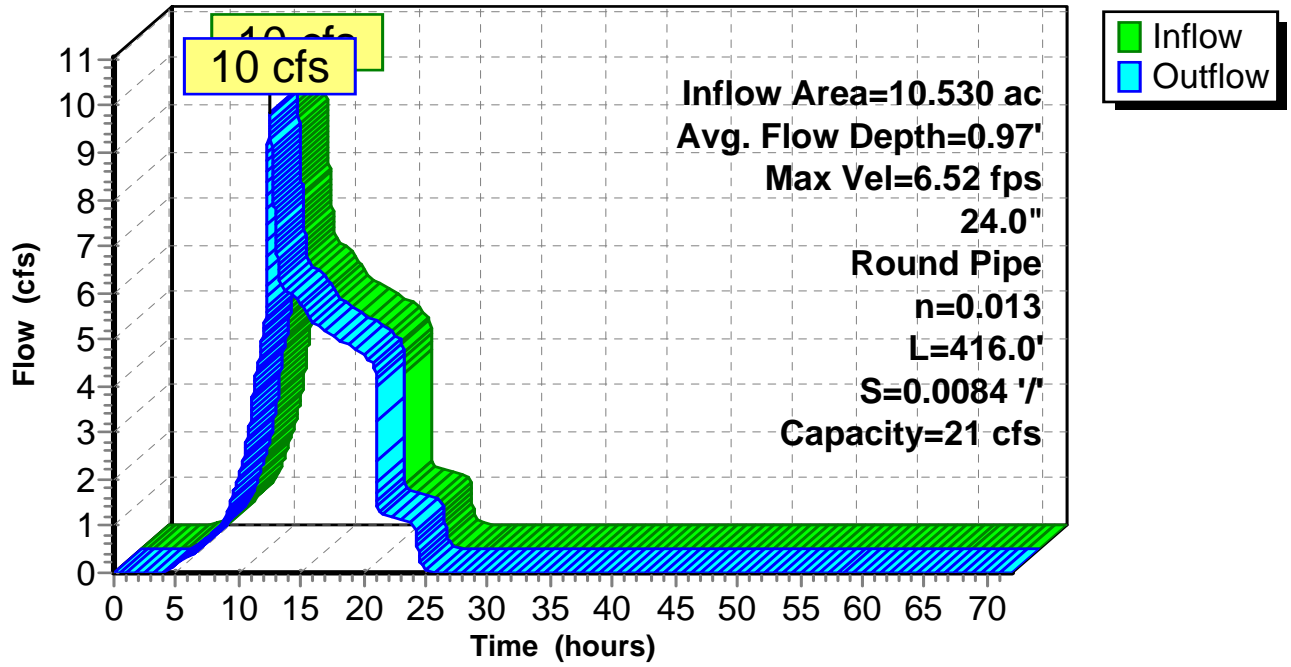
Peak Storage= 629 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.97' , Surface Width= 2.00'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 21 cfs

24.0" Round Pipe
n= 0.013
Length= 416.0' Slope= 0.0084 '/'
Inlet Invert= 260.50', Outlet Invert= 257.00'



Reach CP: COLLECTOR PIPE

Hydrograph



Summary for Reach DP1: DP-1-NE CORNER PROPERTY LINE

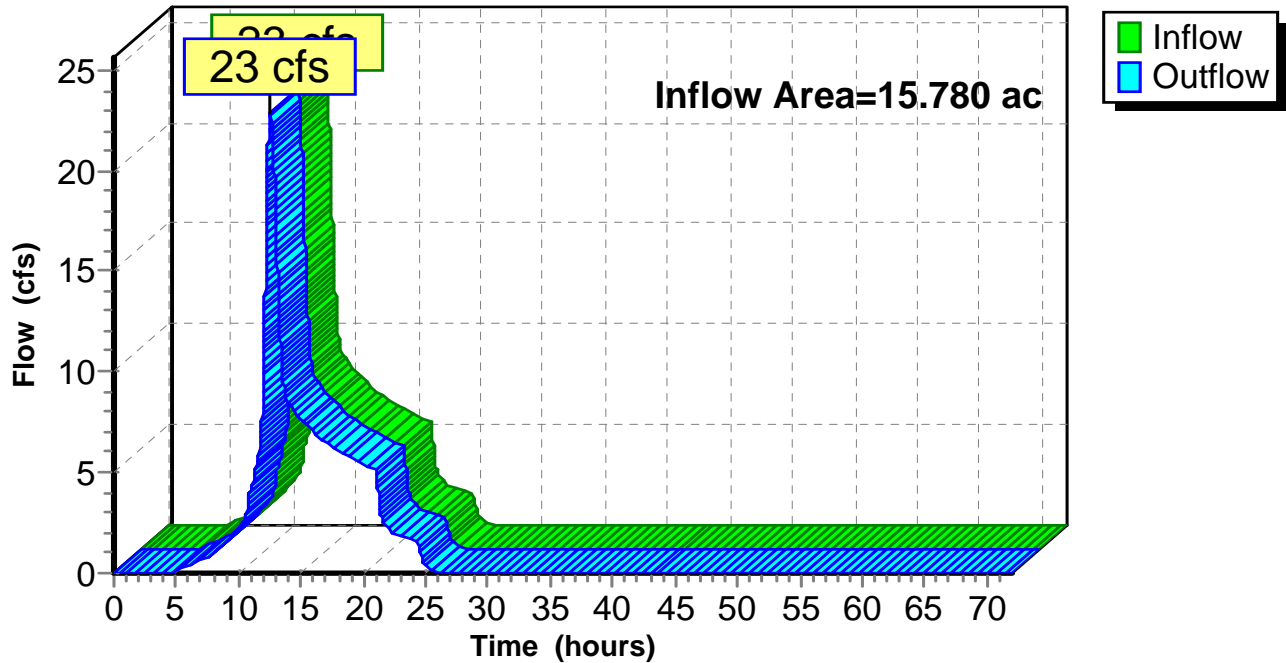
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.780 ac, 19.77% Impervious, Inflow Depth = 6.12" for 100-yr event
Inflow = 23 cfs @ 12.56 hrs, Volume= 8.045 af
Outflow = 23 cfs @ 12.56 hrs, Volume= 8.045 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP1: DP-1-NE CORNER PROPERTY LINE

Hydrograph



Summary for Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY

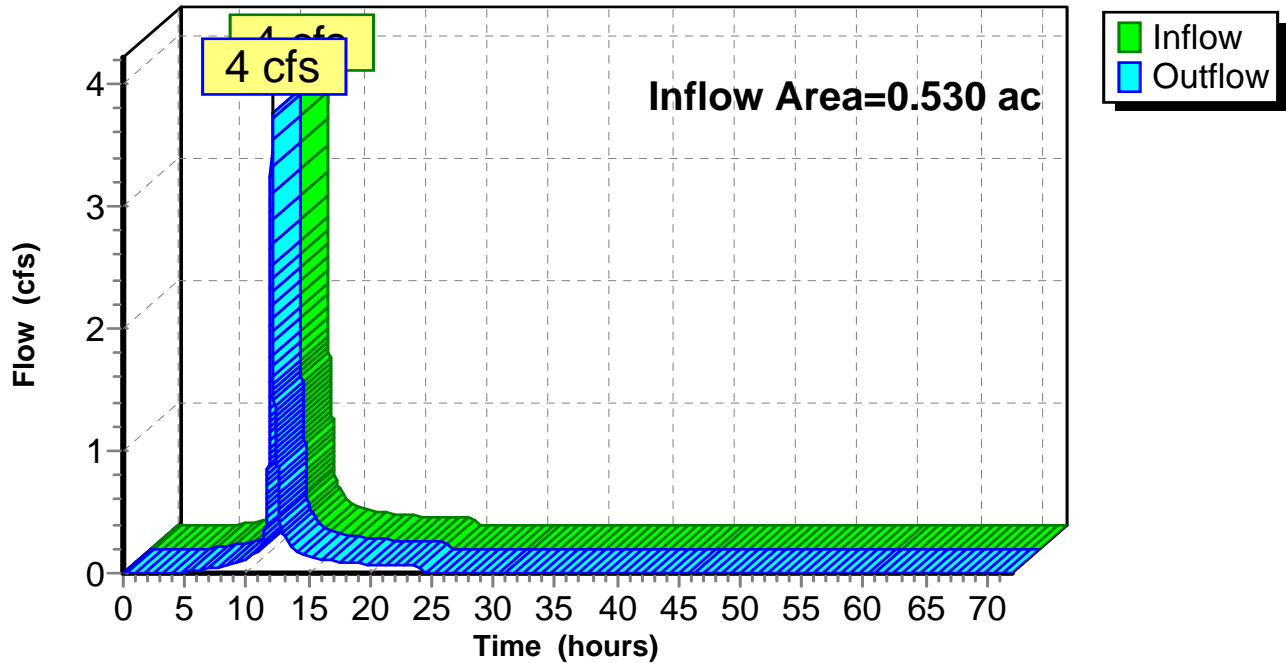
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.530 ac, 11.32% Impervious, Inflow Depth = 6.12" for 100-yr event
Inflow = 4 cfs @ 12.04 hrs, Volume= 0.270 af
Outflow = 4 cfs @ 12.04 hrs, Volume= 0.270 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP2: DP-2-NW LOW AREA AND ADJOIN PROPERTY

Hydrograph



Summary for Reach DP3: DP-3- W TO VIOLET AVE

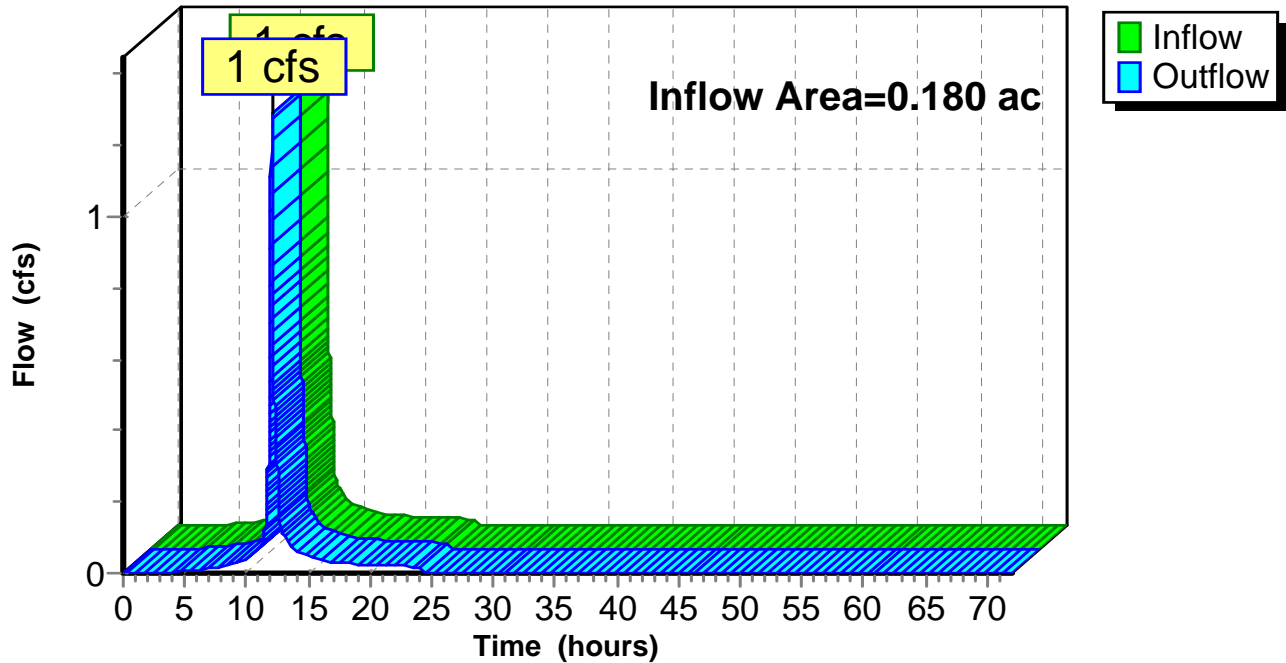
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.180 ac, 16.67% Impervious, Inflow Depth = 6.24" for 100-yr event
Inflow = 1 cfs @ 12.04 hrs, Volume= 0.094 af
Outflow = 1 cfs @ 12.04 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP3: DP-3- W TO VIOLET AVE

Hydrograph



Summary for Pond BIO-A: BIORETENTION A

Inflow Area = 1.370 ac, 43.07% Impervious, Inflow Depth = 6.35" for 100-yr event
 Inflow = 5 cfs @ 12.36 hrs, Volume= 0.725 af
 Outflow = 5 cfs @ 12.44 hrs, Volume= 0.725 af, Atten= 5%, Lag= 4.6 min
 Discarded = 0 cfs @ 12.44 hrs, Volume= 0.062 af
 Primary = 4 cfs @ 12.44 hrs, Volume= 0.173 af
 Secondary = 1 cfs @ 12.44 hrs, Volume= 0.490 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 269.82' @ 12.44 hrs Surf.Area= 6,459 sf Storage= 5,547 cf

Plug-Flow detention time= 90.5 min calculated for 0.725 af (100% of inflow)
 Center-of-Mass det. time= 90.7 min (912.7 - 822.0)

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	7,444 cf	29.00'W x 100.00'L x 2.00'H Prismatoid Z=3.0
#2	266.50'	2,900 cf	29.00'W x 100.00'L x 2.50'H Prismatoid
			7,250 cf Overall x 40.0% Voids
			10,344 cf Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	269.50'	15.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Tertiary	270.00'	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
#3	Secondary	267.50'	6.0" Round Culvert-Underdrain L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 267.50' / 267.00' S= 0.0500 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#4	Discarded	266.50'	0.250 in/hr Exfiltration/Infiltration/Underdrain over Surface area Phase-In= 0.01'

Discarded OutFlow Max=0 cfs @ 12.44 hrs HW=269.82' (Free Discharge)
 ↳4=Exfiltration/Infiltration/Underdrain (Exfiltration Controls 0 cfs)

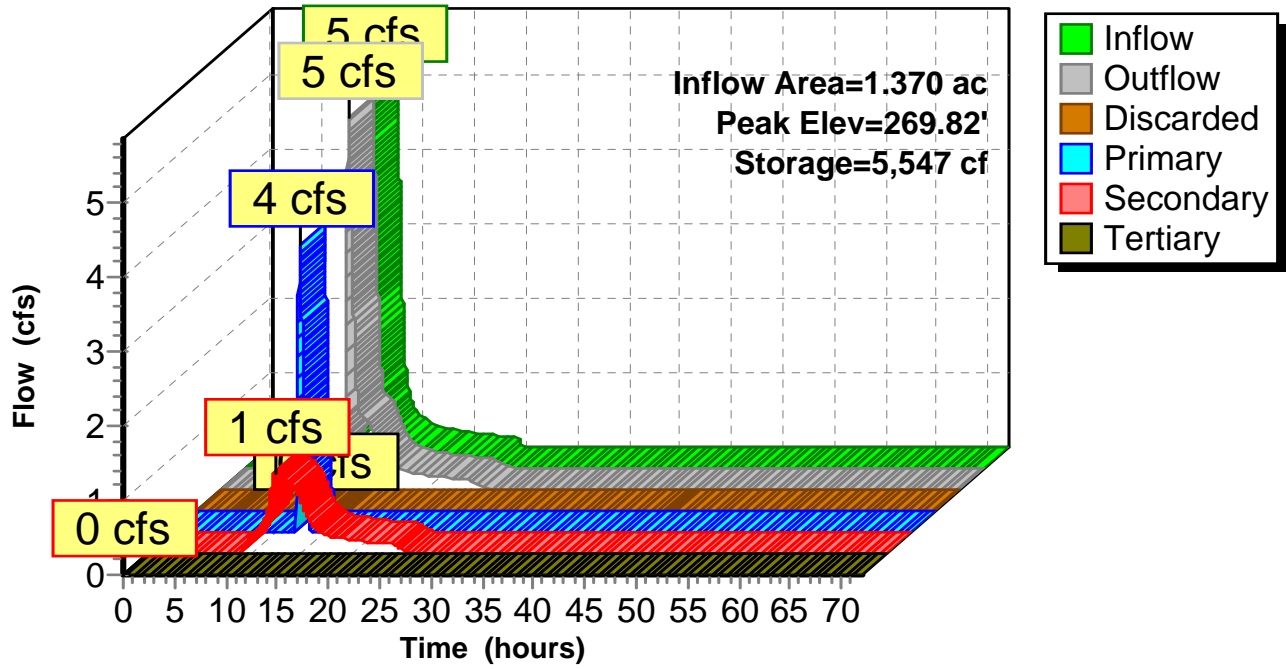
Primary OutFlow Max=4 cfs @ 12.44 hrs HW=269.82' TW=261.47' (Dynamic Tailwater)
 ↳1=Orifice/Grate (Weir Controls 4 cfs @ 1.85 fps)

Secondary OutFlow Max=1 cfs @ 12.44 hrs HW=269.82' TW=261.47' (Dynamic Tailwater)
 ↳3=Culvert-Underdrain (Inlet Controls 1 cfs @ 5.47 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=266.50' TW=0.00' (Dynamic Tailwater)
 ↳2=Broad-Crested Rectangular Weir (Controls 0 cfs)

Pond BIO-A: BIORETENTION A

Hydrograph



Summary for Pond BIO-B: BIORETENTION B

Inflow Area = 1.860 ac, 45.16% Impervious, Inflow Depth = 6.83" for 100-yr event
 Inflow = 7 cfs @ 12.36 hrs, Volume= 1.059 af
 Outflow = 7 cfs @ 12.42 hrs, Volume= 1.026 af, Atten= 4%, Lag= 3.7 min
 Primary = 6 cfs @ 12.43 hrs, Volume= 0.351 af
 Secondary = 1 cfs @ 13.11 hrs, Volume= 0.674 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 260.96' @ 12.43 hrs Surf.Area= 8,013 sf Storage= 7,424 cf

Plug-Flow detention time= 69.5 min calculated for 1.026 af (97% of inflow)
 Center-of-Mass det. time= 50.4 min (859.4 - 809.1)

Volume	Invert	Avail.Storage	Storage Description
#1	260.00'	8,928 cf	36.00'W x 100.00'L x 2.00'H Prismaoid Z=3.0
#2	257.50'	3,600 cf	36.00'W x 100.00'L x 2.50'H Prismaoid
			9,000 cf Overall x 40.0% Voids
		12,528 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	257.50'	24.0" Round Culvert L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 257.50' / 257.00' S= 0.0147 '/ Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	260.50'	24.0" Horiz. Orifice/Gate C= 0.600 Limited to weir flow at low heads
#3	Tertiary	261.00'	50.0' 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
#4	Secondary	258.50'	6.0" Round Culvert-Underdrain L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 258.50' / 258.00' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=6 cfs @ 12.43 hrs HW=260.96' TW=259.16' (Dynamic Tailwater)

- ↑1=Culvert (Passes 6 cfs of 16 cfs potential flow)
- ↑2=Orifice/Gate (Weir Controls 6 cfs @ 2.21 fps)

Secondary OutFlow Max=1 cfs @ 13.11 hrs HW=260.66' TW=258.49' (Dynamic Tailwater)

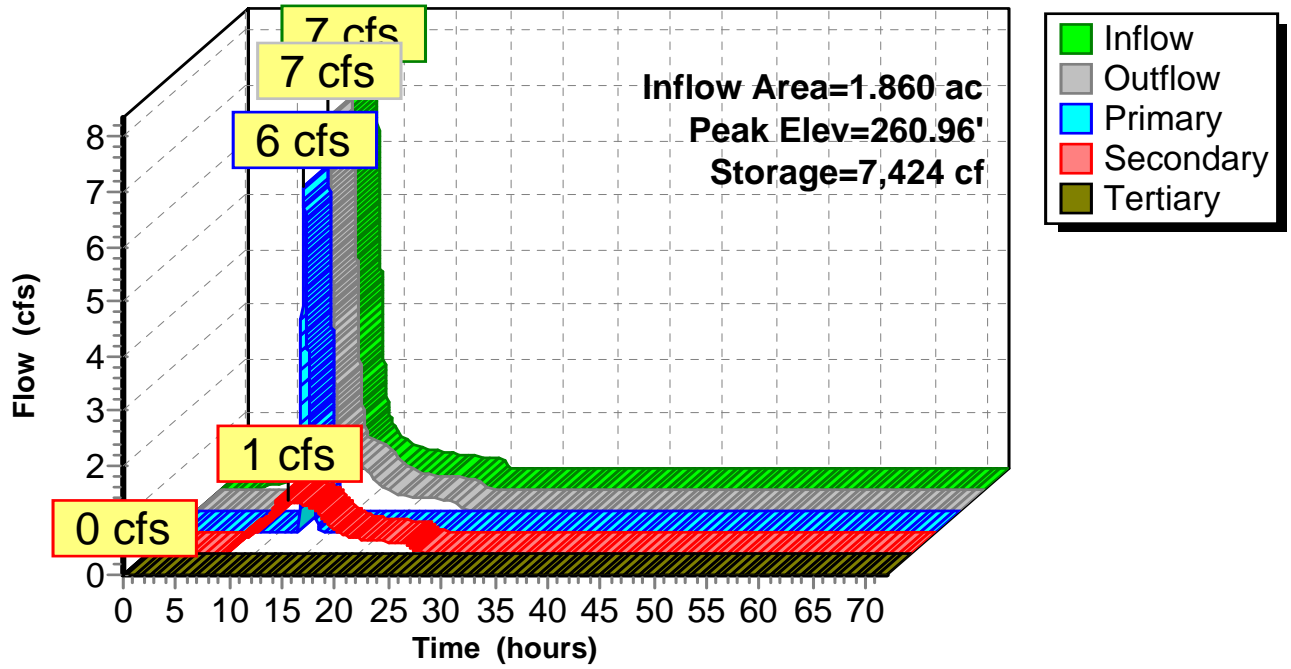
- ↑4=Culvert-Underdrain (Barrel Controls 1 cfs @ 4.88 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=257.50' TW=257.00' (Dynamic Tailwater)

- ↑3=Broad-Crested Rectangular Weir (Controls 0 cfs)

Pond BIO-B: BIORETENTION B

Hydrograph



Summary for Pond DET: DETENTION

[62] Hint: Exceeded Reach CP OUTLET depth by 1.31' @ 12.60 hrs

Inflow Area = 15.780 ac, 19.77% Impervious, Inflow Depth = 6.12" for 100-yr event
 Inflow = 27 cfs @ 12.34 hrs, Volume= 8.045 af
 Outflow = 23 cfs @ 12.56 hrs, Volume= 8.045 af, Atten= 16%, Lag= 13.3 min
 Primary = 7 cfs @ 12.56 hrs, Volume= 0.962 af
 Secondary = 16 cfs @ 12.56 hrs, Volume= 7.083 af
 Tertiary = 0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 259.25' @ 12.56 hrs Surf.Area= 10,682 sf Storage= 20,840 cf

Plug-Flow detention time= 18.3 min calculated for 8.045 af (100% of inflow)
 Center-of-Mass det. time= 18.2 min (919.8 - 901.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	257.00'	29,214 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
257.00	7,900	390.0	0	0	7,900	
260.00	11,700	450.0	29,214	29,214	12,104	

Device	Routing	Invert	Outlet Devices											
#1	Tertiary	259.50'	40.0' 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											
#2	Primary	257.50'	18.0" Round Culvert L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 257.50' / 257.00' S= 0.0500 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf											
#3	Secondary	257.00'	2.0" Vert. Orifice/Grate X 40.00 columns X 3 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads											

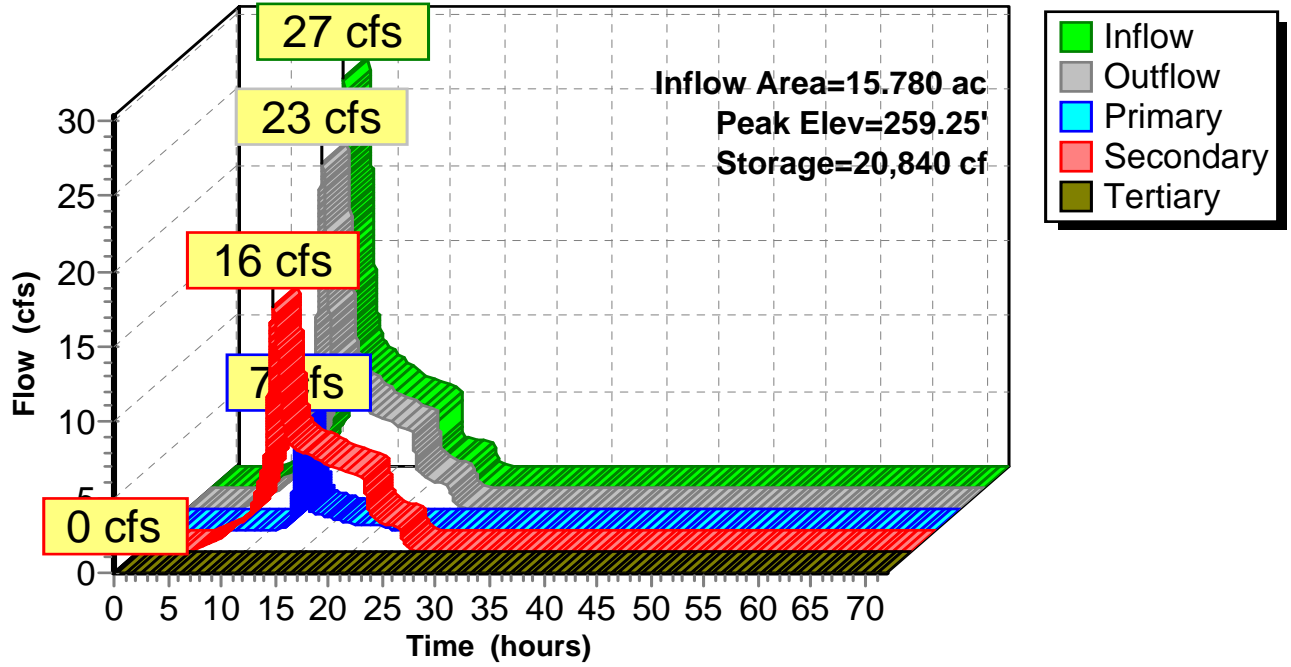
Primary OutFlow Max=7 cfs @ 12.56 hrs HW=259.25' TW=0.00' (Dynamic Tailwater)
 ↑**2=Culvert** (Inlet Controls 7 cfs @ 3.80 fps)

Secondary OutFlow Max=16 cfs @ 12.56 hrs HW=259.25' TW=0.00' (Dynamic Tailwater)
 ↑**3=Orifice/Grate** (Orifice Controls 16 cfs @ 6.17 fps)

Tertiary OutFlow Max=0 cfs @ 0.00 hrs HW=257.00' TW=0.00' (Dynamic Tailwater)
 ↑**1=Broad-Crested Rectangular Weir** (Controls 0 cfs)

Pond DET: DETENTION

Hydrograph



Summary for Pond L1: EX DEPRESSION & DITCH TO NEW CULVERT

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)

Inflow Area = 9.160 ac, 15.50% Impervious, Inflow Depth = 6.24" for 100-yr event
 Inflow = 40 cfs @ 12.23 hrs, Volume= 4.760 af
 Outflow = 5 cfs @ 13.34 hrs, Volume= 4.760 af, Atten= 87%, Lag= 66.4 min
 Primary = 5 cfs @ 13.34 hrs, Volume= 4.760 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 272.50' @ 13.34 hrs Surf.Area= 39,923 sf Storage= 77,708 cf

Plug-Flow detention time= 120.2 min calculated for 4.759 af (100% of inflow)
 Center-of-Mass det. time= 120.2 min (937.1 - 816.9)

Volume	Invert	Avail.Storage	Storage Description		
#1	266.50'	218,365 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
266.50	10	10.0	0	0	10
267.00	92	35.0	22	22	100
268.00	263	57.0	170	192	268
269.00	2,790	387.0	1,303	1,495	11,930
270.00	14,698	1,061.0	7,964	9,459	89,597
271.00	24,884	1,137.0	19,569	29,028	102,935
272.00	35,052	1,222.0	29,823	58,851	118,935
273.00	45,040	1,191.0	39,942	98,793	125,009
274.00	61,477	1,395.0	53,046	151,839	167,010
275.00	71,707	1,545.0	66,526	218,365	202,134

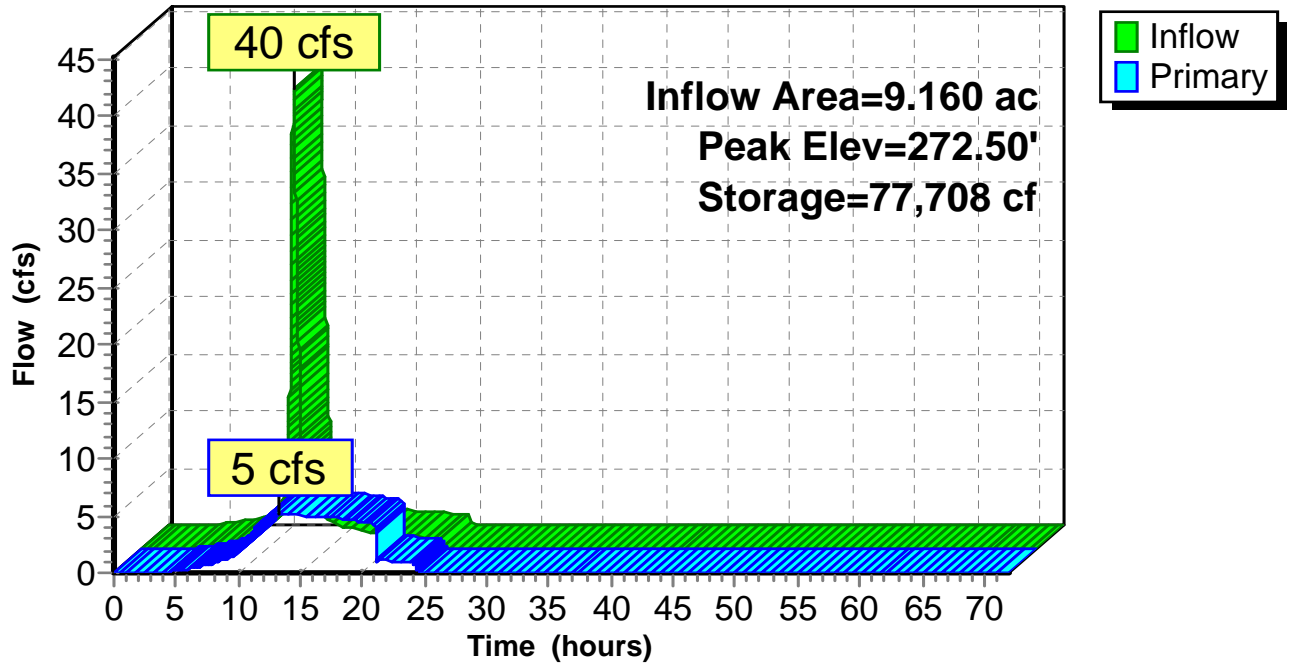
Device	Routing	Invert	Outlet Devices
#1	Primary	263.50'	12.0" Round Culvert L= 446.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 263.50' / 261.10' S= 0.0054 1/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	270.00'	15.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	269.00'	24.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	266.50'	36.0" W x 12.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5 cfs @ 13.34 hrs HW=272.50' TW=261.25' (Dynamic Tailwater)

- 1=Culvert (Barrel Controls 5 cfs @ 6.49 fps)
- 2=Orifice/Grate (Passes < 19 cfs potential flow)
- 3=Orifice/Grate (Passes < 17 cfs potential flow)
- 4=Orifice/Grate (Passes < 68 cfs potential flow)

Pond L1: EX DEPRESSION & DITCH TO NEW CULVERT

Hydrograph



Summary for Pond L2: EXISTING DEPRESSION

Inflow Area = 1.310 ac, 4.58% Impervious, Inflow Depth = 6.00" for 100-yr event
 Inflow = 7 cfs @ 12.14 hrs, Volume= 0.655 af
 Outflow = 6 cfs @ 12.19 hrs, Volume= 0.556 af, Atten= 5%, Lag= 2.7 min
 Primary = 6 cfs @ 12.19 hrs, Volume= 0.556 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 273.63' @ 12.19 hrs Surf.Area= 10,512 sf Storage= 5,657 cf

Plug-Flow detention time= 119.5 min calculated for 0.556 af (85% of inflow)
 Center-of-Mass det. time= 47.6 min (863.7 - 816.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	273.00'	23,775 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
273.00	7,406	485.0	0	0	7,406	
274.00	12,546	498.0	9,864	9,864	8,535	
275.00	15,322	545.0	13,911	23,775	12,471	

Device	Routing	Invert	Outlet Devices											
#1	Primary	273.50'	55.0' 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=6 cfs @ 12.19 hrs HW=273.63' TW=258.60' (Dynamic Tailwater)
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 6 cfs @ 0.86 fps)

Pond L2: EXISTING DEPRESSION

Hydrograph

