STORMWATER MANAGEMENT REPORT

KCE CT11 BESS

100 Salmon Brook Street
Granby, Connecticut

PREPARED FOR

Key Capture Energy
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Albany, NY 12210

PREPARED BY

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Wethersfield, Connecticut 06109
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July 17, 2024

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Stormwater Report Narrative

The Project was designed to incorporate measures provided in the Connecticut Stormwater Quality Manual (CTDEEP 2024) as well as the CTDEEP Stormwater General Permit effective November 25, 2022. The conclusion of this analysis is that the proposed improvements will not increase the post-development peak runoff rates in comparison to existing predevelopment rates at any of the critical design points analyzed and the quality of stormwater runoff leaving the Site will be treated prior to discharge from the Site.

Project Description

The Petitioner, Key Capture Energy, is proposing to construct a ±4.9 MW battery energy storage system on roughly ±5 acres of previously undeveloped land along with all associated utilities, access paths, fencing and stormwater management to support this use (the Project).

Site Description

The Project Site will be comprised on approximately ±2.0 acres on the parcel of 100 Salmon Brook Street, (Map, Block, Lot: H-53/78/26) in Granby, Connecticut (see Figure 1). The site is bounded by a commercial development to the north, Salmon Brook Road to the west, and a solar array on the remaining boundaries of the parcel. The development site is within the Economic Development Zone (ED).

The project area under existing conditions is primarily wooded with slopes sweeping away from the center of the site to both the west, south, and east. The west side of the site consists of a wetland with visible encroachment from a rip rap plunge pool from the parcel located at 7 Mill Pond Drive (Map, Block, Lot: H-53/78/73). A 12" RCP is also discharging from Salmon Brook Street and into the wetland. Under existing conditions, runoff from the project area generally flows overland to the wetland on the west and east sides of the parcel and then south off the site through the existing wetland complex.

According to available soil mapping[1], on-Site soils within the Project area belong to the Hydraulic Soil Group "A", indicating that the soils have good infiltration rates when thoroughly wet. See Appendix B for NRCS Web Soil Survey output.

[1] https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

According to available CTDEEP Groundwater Classification maps, the site is not located within an area of concern (see Appendix B). The CTDEEP Aquifer Protection Areas Mapping website displays that the Town of Granby does not contain any State-listed Aquifer Protection Areas.

According to FEMA Flood Insurance Rate Map Community Panel Number 09003C0191F dated September 26, 2008, the site is not located within a Flood Hazard Area.

Existing Drainage Conditions

Under existing conditions, runoff from the project area flows overland to the south of the site through woodland. The Site is generally at its highest elevation to the north of the project area. The majority of the Project area is comprised of undeveloped forest. Terrain slopes in the Project area range from 1% to approximately 15%. It is not proposed to develop or regrade any existing slopes exceeding 15%. Figure 2 illustrates the existing drainage patterns on the Site. The subject parcel has been included in its entirety for the drainage analysis.

For the existing conditions hydrologic analysis, the project area is encompassed by two (2) subcatchment areas, which are split by a ridge in the middle of the parcel. The Site essentially rests on a peninsula between the wetland areas that wrap the area. Table 1 provides a summary of the existing conditions hydrologic data. Figure 2 illustrates the existing drainage patterns on the Site. All portions of the Project area have been considered in the hydrologic analysis.

Drainage Area 1 (EX-1) - This ±2.85-acre area encompasses western side of the site. Untreated stormwater in this area flows to the south end of the site to an existing wetland.

Drainage Area 2 (EX-2) - This ±2.00-acre area encompasses eastern side of the site. Untreated stormwater in this area flows to the south end of the site to an existing wetland.

Table 1 provides a summary of the existing conditions hydrologic data.

Table 1 Existing Conditions Hydrologic Data

Drainage Area	Discharge Location	Area (Acres)	Curve Number	Time of Concentration (min)
EX-1	DP-1	2.85	36	15.6
EX-2	DP-1	2.00	36	15.8

Proposed Drainage Conditions

The Site has been designed to maintain existing topography and mimic existing drainage patterns to the maximum extents feasible. Across the proposed development area, the Project proposes to install a permanent battery facility with gravel access road and pad along with two permanent stormwater basins which will assist in lowering runoff rates from the facility to the discharge point. As a result, the Project will have minimal impact to surrounding ecologically sensitive or offsite areas.

The only impervious surfaces proposed to be constructed are access roads and small concrete pads for utility equipment. While it is anticipated that the area within the fence that does not contain roads or pads will be vegetated, the whole area within the project fence has conservatively been modeled as impervious in the event that equipment pads are added or additional imperviousness is added. Once operational, vehicular access to the Project will be limited to infrequent maintenance visits. The proposed stormwater basins will provide water quality treatment for the Project.

Figure 3 illustrates the proposed "post construction" drainage conditions for the project. The proposed conditions analysis utilizes four (4) drainage areas discharging to the same design point as the existing analysis.

Natural drainage patterns will be maintained throughout the Site so that the proposed hydrologic conditions will closely match existing conditions. The proposed conditions analysis utilizes the same drainage area from existing conditions.

Drainage Area 1 (PR-1) - This ±1.98-acre area encompasses western side of the site area that is not directed to the proposed basins. Runoff is directed directly to the existing wetland and does not include any proposed impervious areas.

Drainage Area 2 (PR-2) - This ±1.49- acre area encompasses eastern side of the site area that is not directed to the proposed basins. Runoff is directed directly to the existing wetland and does not include any proposed impervious areas.

Drainage Area 3 (PR-3) - This ±0.63-acre area encompasses western half of the proposed battery storage area and the majority of the access road. Stormwater will flow into a proposed stormwater basin. After being treated by this basin, stormwater will be conveyed to the southwest via a stone spillway.

Drainage Area 4 (PR-4) - This ±0.53-acre area encompasses eastern half of the proposed battery storage area and some areas of the access road. Stormwater will flow into a proposed stormwater basin. After being treated by this basin, stormwater will be conveyed to the east via a stone spillway.

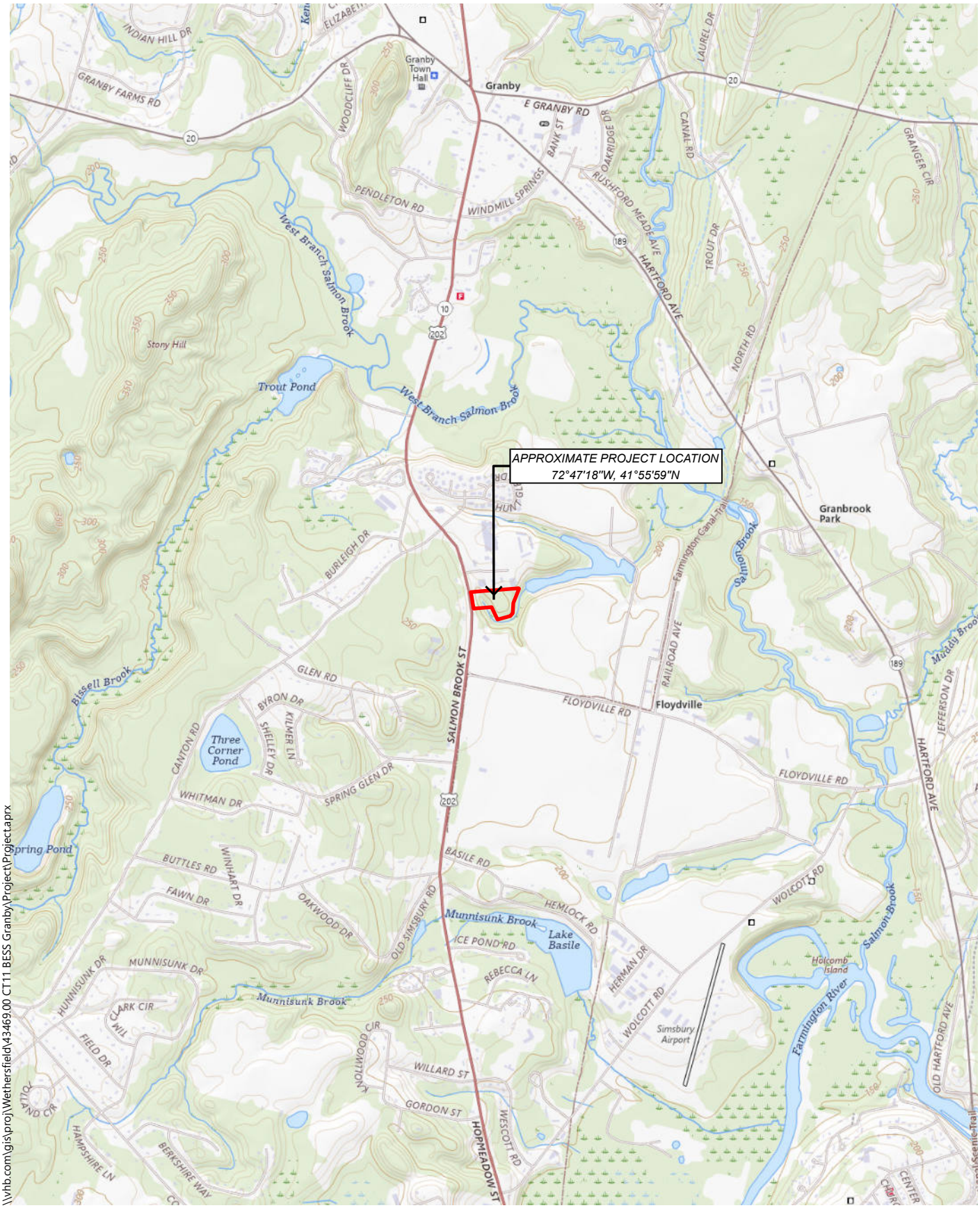
Drainage Area 5 (PR-5) - This ±0.22-acre area encompasses a portion of the access road. Stormwater will flow into a proposed stormwater basin. After being treated by this basin, stormwater will be conveyed to the west via a stone spillway.

Table 2 on the next page provides a summary of the proposed conditions hydrologic data.

Table 2 Proposed Conditions Hydrologic Data

Drainage Area	Discharge Location	Area (Acres)	Curve Number	Time of Concentration (min)
PR-1	DP-1	1.98	36	14.2
PR-2	DP-1	1.49	37	15.8
PR-3	DP-1	0.63	64	5.0
PR-4	DP-1	0.53	77	5.0
PR-5	DP-1	0.22	57	5.0

Figure 1 Site Location Map



\\vhb.com\gis\proj\Wethersfield\43469.00 CT11 BESS Granby\Project\Project.aprx

0 1000 2000 4000 Feet

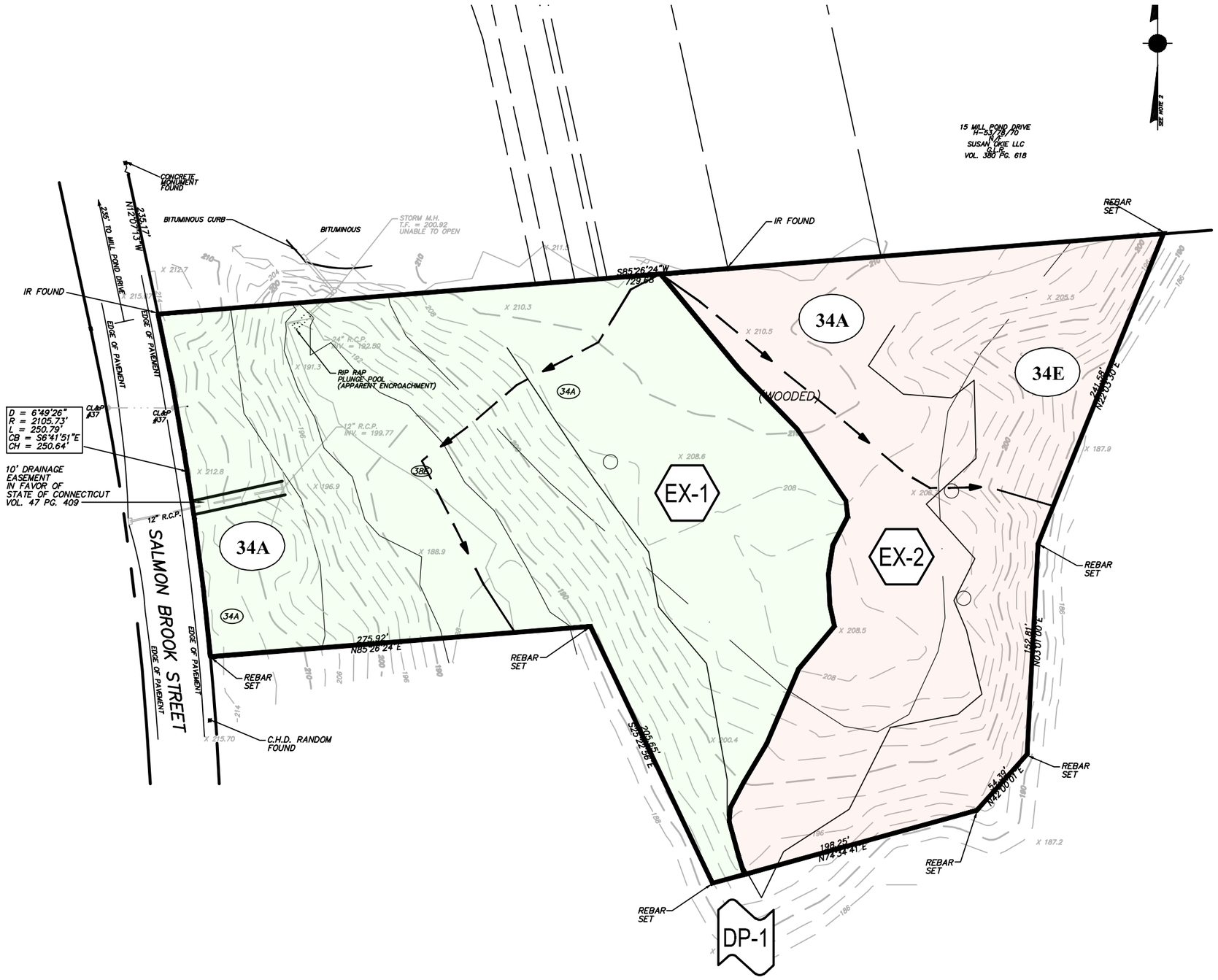
Project Area

CT11 Battery Storage Project | Granby, Connecticut

USGS Site Location Map

Source: VHB. CTDEEP, ESRI

Figure 2 Existing Drainage Area



Legend

SYMBOLS

- DESIGN POINT
- DRAINAGE AREA DESIGNATION
- POND

LINETYPES

- DRAINAGE AREA BOUNDARY
- SOIL TYPE BOUNDARY
- WETLAND BOUNDARY
- TIME OF CONCENTRATION

SCS SOIL CLASSIFICATIONS

- 34A — MERRIMAC FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES
- 34E — HINKLEY LOAMY SAND, 15 TO 45 PERCENT SLOPES

0 40 80 160 Feet

Existing Drainage Conditions
CT11 BESS
100 Salmon Brook Street
Granby, CT

Figure 2

July 17, 2024

Figure 3 Proposed Drainage Area

Legend

SYMBOLS

- DESIGN POINT
- DRAINAGE AREA DESIGNATION
- POND

LINETYPES

- DRAINAGE AREA BOUNDARY
- SOIL TYPE BOUNDARY
- WETLAND BOUNDARY
- TIME OF CONCENTRATION

SCS SOIL CLASSIFICATIONS

34A	MERRIMAC FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES
38E	HINKLEY LOAMY SAND, 15 TO 45 PERCENT SLOPES

0 40 80 160 Feet

Proposed Drainage Conditions
CT11 BESS
100 Salmon Brook Street
Granby, CT

Figure 3

July 17, 2024

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Appendix A: Hydrologic Computations and Supporting Information

The rainfall-runoff response of the Site under existing and proposed conditions was evaluated for storm events with recurrence intervals of 2, 25, 50 and 100-years. Rainfall volumes used for this analysis were based on the NOAA National Weather Service Hydrometeorological Design Studies Center volumes Type III, 24-hour storm event: 3.29, 6.56, 7.48, and 8.50 inches, respectively. Runoff coefficients for the pre- and post-development conditions, as previously shown in Tables 1 and 2 respectively, were determined using NRCS Technical Release 55 (TR-55) methodology as provided in HydroCAD. Drainage areas used in the analyses were described in previous sections and shown on Figures 2 and 3. The HydroCAD model is based on the NRCS Technical Release 20 (TR-20) Model for Project Formulation Hydrology.

The results of the pre- and post-development hydrologic models indicate that peak runoff rates from the Site will be reduced for all design storms. Infiltration has been included as part of the model due to the presence of such well-draining soils in the area.

Drainage area used in the analyses were described in previous sections and shown on Figures 2 and 3. Detailed printouts of the HydroCAD analyses are included in this Appendix.

Table 3 presents a summary of the existing and proposed conditions peak discharge rates.

Table 3 Peak Discharge Rates (cfs*)

Watershed	2-year	25-year	50-year	100-year
DP-1 (wetland to the south)				
Existing	0.00	0.37	0.92	2.05
Proposed	0.00	0.30	0.75	1.71

*expressed in cubic feet per second

Water Quality Volume

Water Quality Volume (WQV) is based upon the first inch of rainfall, or a 1.3-inch rainfall event, over the acreage of proposed impervious surfaces for the development. The crushed stone access paths will be trafficked infrequently and the existing woodland downstream of the paths will provide residence time of stormwater runoff to remove the small amount of sediment from runoff.

To be conservative, water quality computations have been performed using 2024 CTDEEP Stormwater Quality Manual for the access roads and equipment pads to determine required water quality volumes. These water quality volumes are addressed in the design of the proposed permanent stormwater basins.

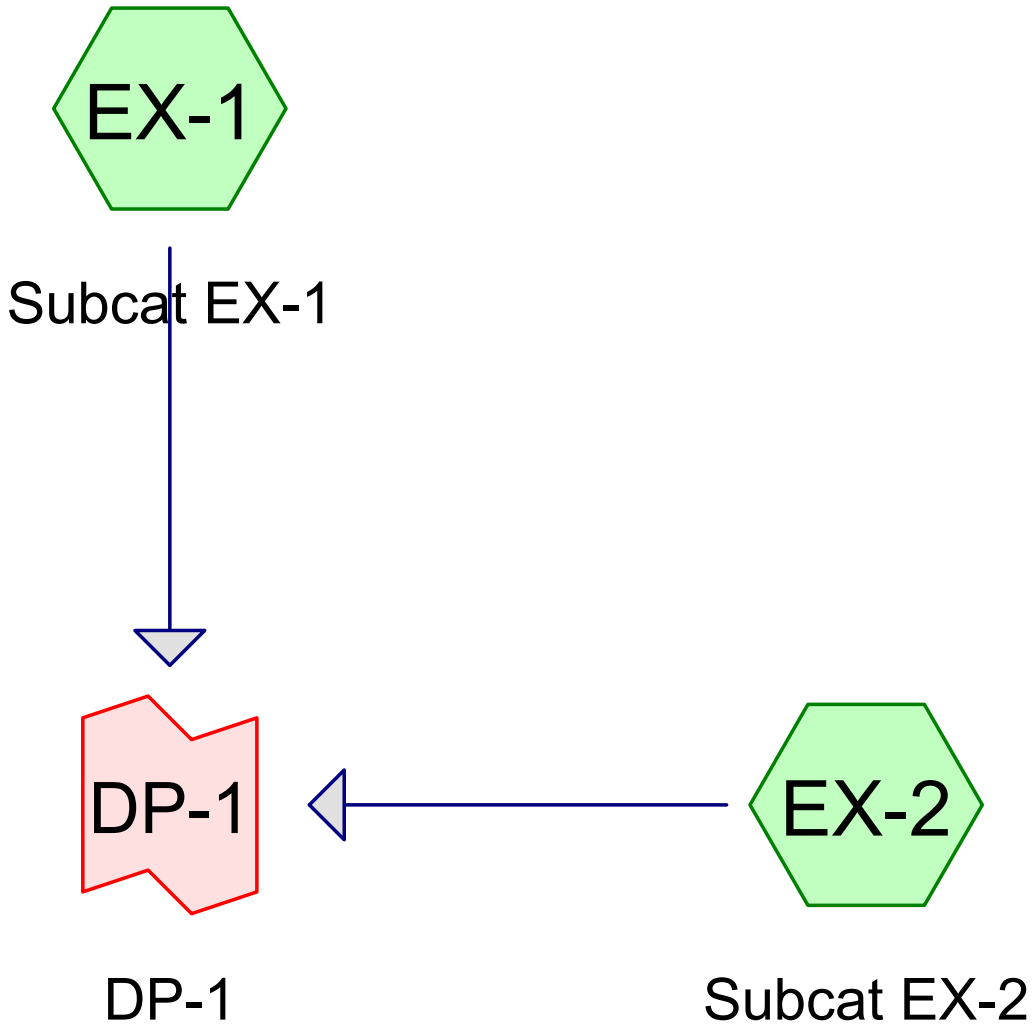
Water Quality Flow

Water Quality Flow (WQF) is a rate of stormwater runoff based upon the first inch of rainfall, or a 1-inch rainfall event. This regulation is generally followed for "flow-through" treatment devices. As the proposed development does not incorporate any "flow-through" water quality treatment devices, WQF is not applicable to this project.

Appendix A: Attachments

- HydroCAD Analysis: Existing Conditions
- HydroCAD Analysis: Proposed Conditions
- NOAA Rainfall Data
- Water Quality Volume Calculations
- Sediment Trap Sizing Calculations

HydroCAD Analysis: Existing Conditions



Subcat Reach Pond Link

Routing Diagram for 43469.00-EX
Prepared by VHB, Inc, Printed 7/10/2024

Project Notes

Defined 4 rainfall events from Granby-CT IDF
Copied 4 events from Granby-CT 24-hr S1 storm

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Granby-CT 24-hr S1	2-yr	Default	24.00	1	3.29	2
2	25-yr	Granby-CT 24-hr S1	25-yr	Default	24.00	1	6.56	2
3	50-yr	Granby-CT 24-hr S1	50-yr	Default	24.00	1	7.48	2
4	100-yr	Granby-CT 24-hr S1	100-yr	Default	24.00	1	8.50	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.067	39	>75% Grass cover, Good, HSG A (EX-1, EX-2)
4.781	36	Woods, Fair, HSG A (EX-1, EX-2)
4.848	**36**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.848	HSG A	EX-1, EX-2
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
4.848		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.067	0.000	0.000	0.000	0.000	0.067	>75% Grass cover, Good	EX-1, EX-2
4.781	0.000	0.000	0.000	0.000	4.781	Woods, Fair	EX-1, EX-2
4.848	**0.000**	**0.000**	**0.000**	**0.000**	**4.848**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
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 EX-1: Subcat EX-1 Runoff Area=2.847 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=365' Tc=15.6 min CN=36 Runoff=0.00 cfs 0.000 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=2.001 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=340' Tc=15.8 min CN=36 Runoff=0.00 cfs 0.000 af

Link DP-1: DP-1 Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 4.848 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
100.00% Pervious = 4.848 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: Subcat EX-1

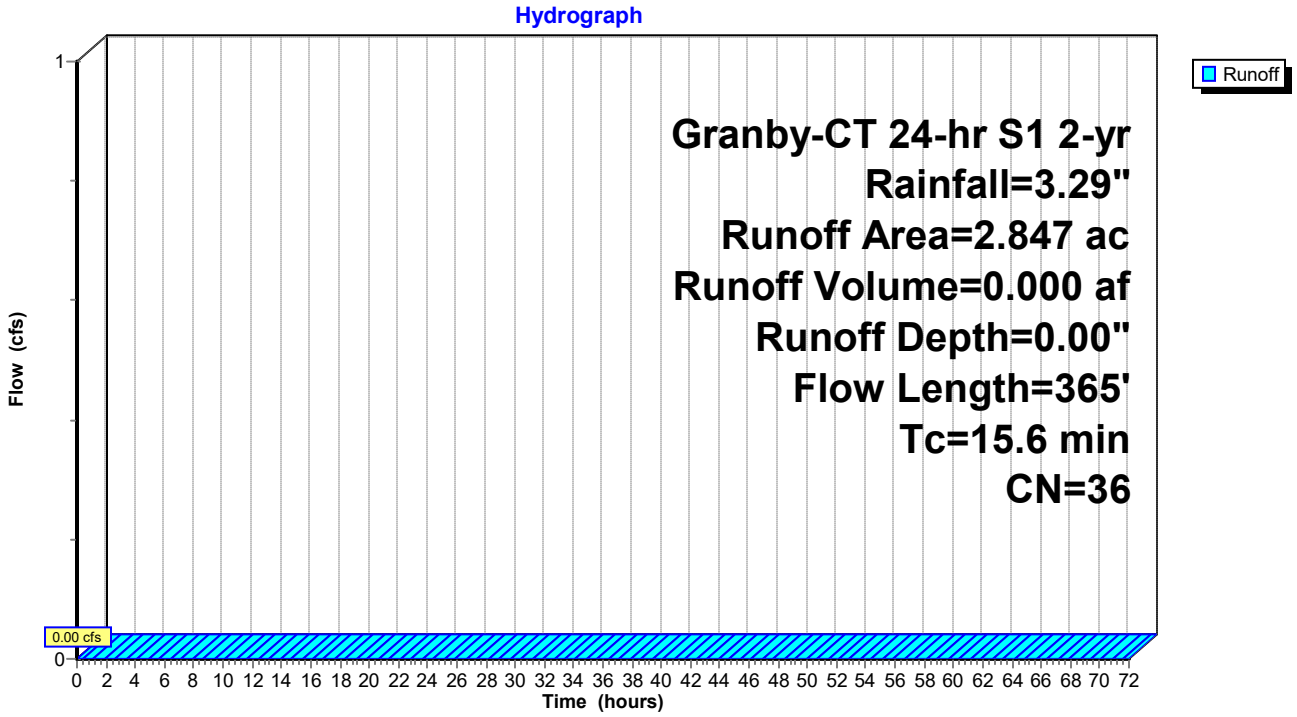
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 2-yr Rainfall=3.29"

Area (ac)	CN	Description
0.002	39	>75% Grass cover, Good, HSG A
2.846	36	Woods, Fair, HSG A
2.847	36	Weighted Average
2.847		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	50	0.0220	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
3.9	315	0.0717	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.6	365	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

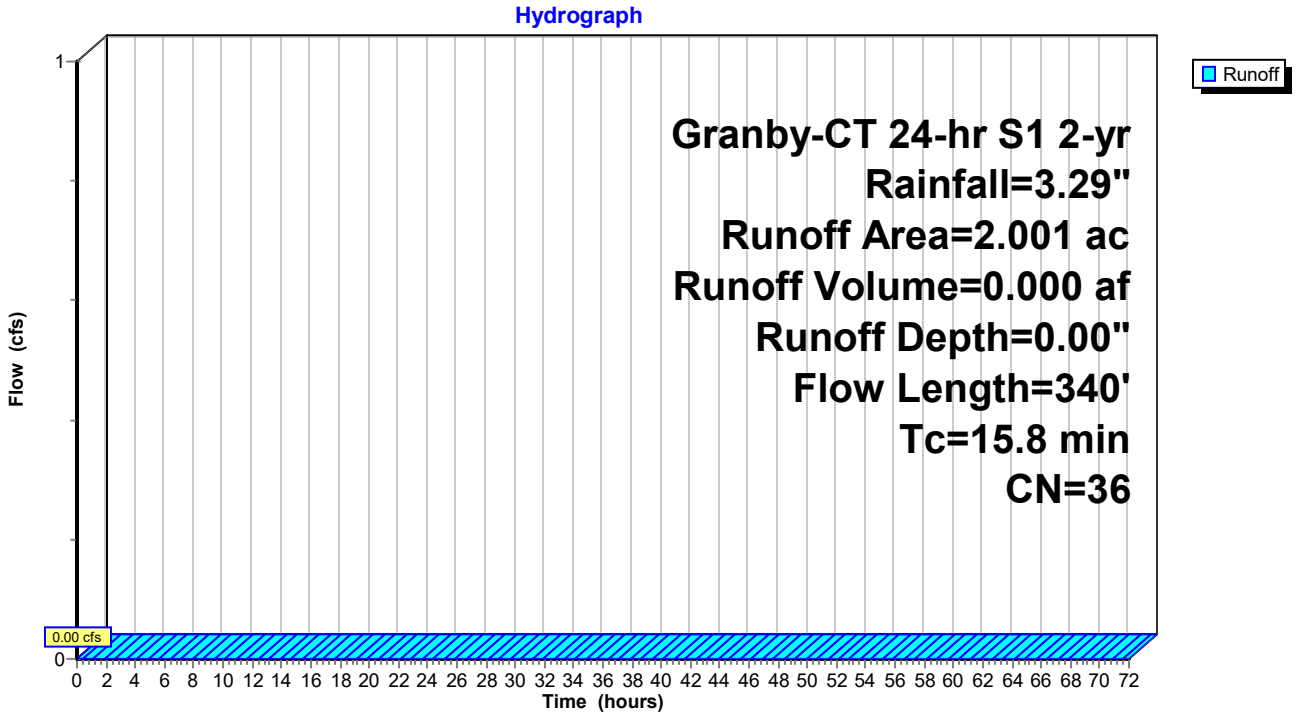
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 2-yr Rainfall=3.29"

Area (ac)	CN	Description
0.066	39	>75% Grass cover, Good, HSG A
1.935	36	Woods, Fair, HSG A
2.001	36	Weighted Average
2.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
3.6	290	0.0737	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	340	Total			

Subcatchment EX-2: Subcat EX-2

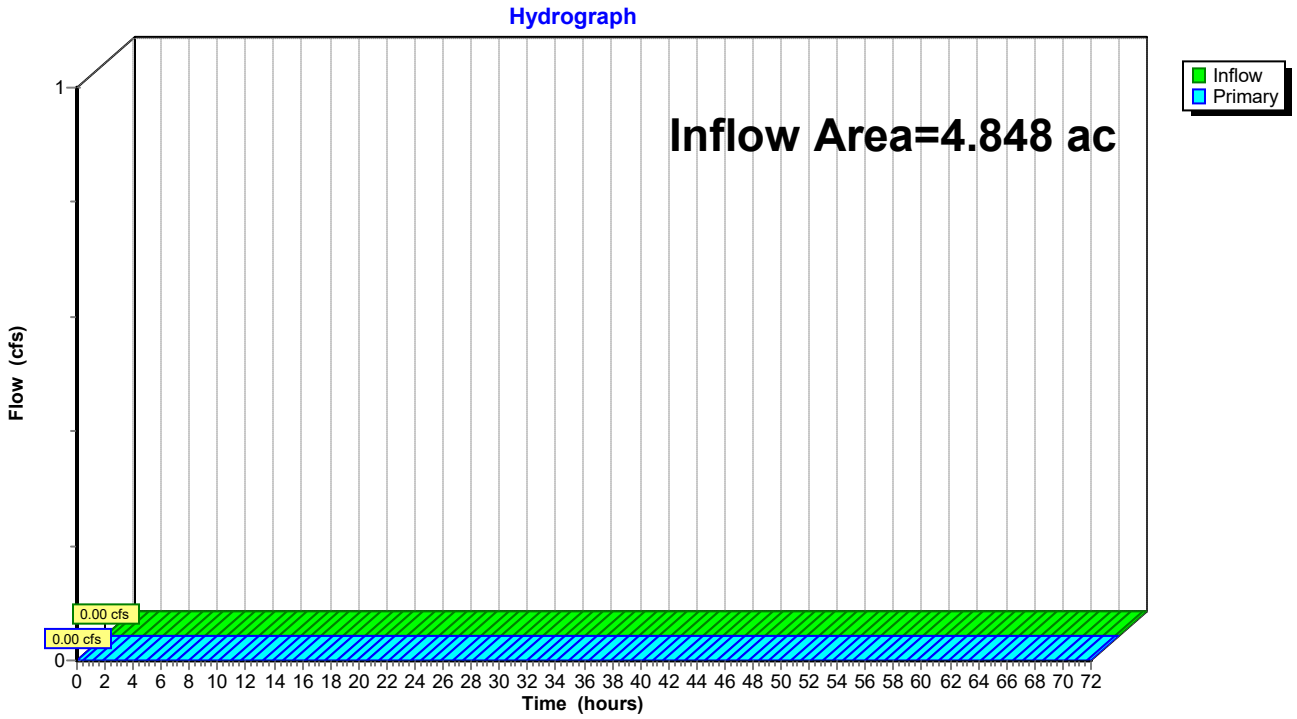


Summary for Link DP-1: DP-1

Inflow Area = 4.848 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: DP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
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 EX-1: Subcat EX-1 Runoff Area=2.847 ac 0.00% Impervious Runoff Depth=0.43"
Flow Length=365' Tc=15.6 min CN=36 Runoff=0.22 cfs 0.103 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=2.001 ac 0.00% Impervious Runoff Depth=0.43"
Flow Length=340' Tc=15.8 min CN=36 Runoff=0.15 cfs 0.072 af

Link DP-1: DP-1 Inflow=0.37 cfs 0.175 af
Primary=0.37 cfs 0.175 af

Total Runoff Area = 4.848 ac Runoff Volume = 0.175 af Average Runoff Depth = 0.43"
100.00% Pervious = 4.848 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: Subcat EX-1

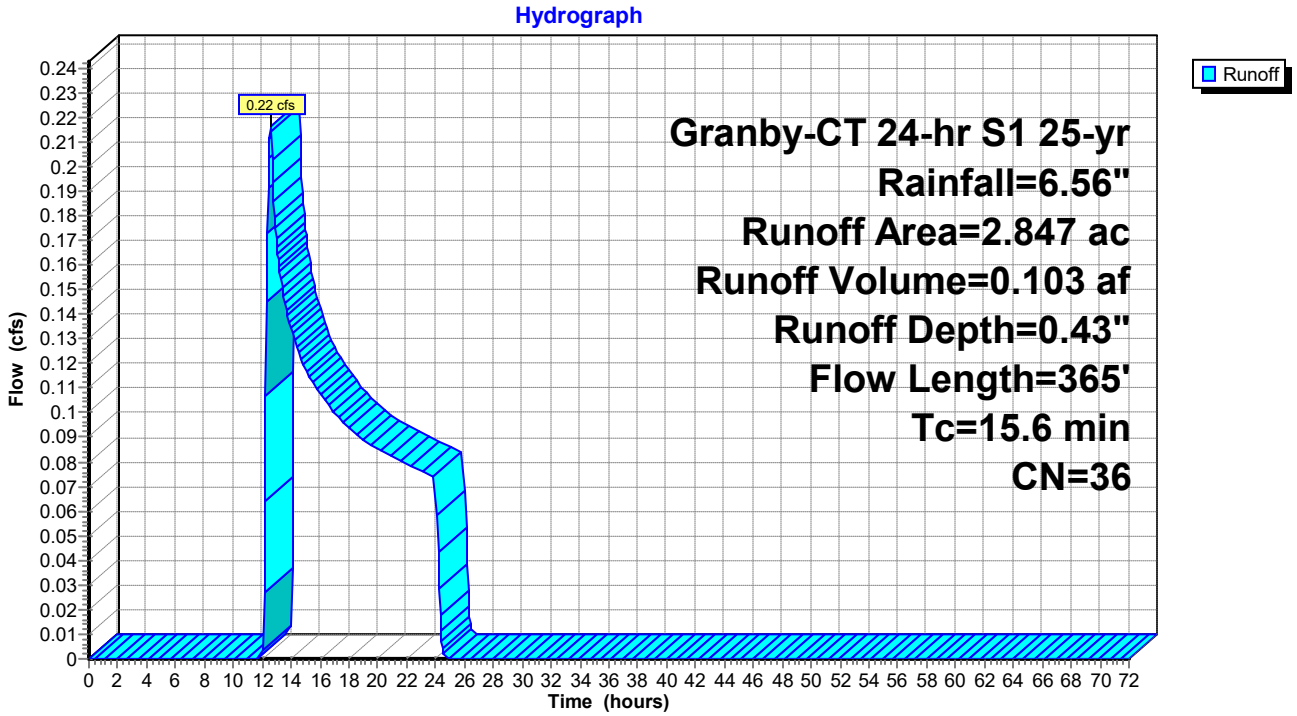
Runoff = 0.22 cfs @ 12.58 hrs, Volume= 0.103 af, Depth= 0.43"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 25-yr Rainfall=6.56"

Area (ac)	CN	Description
0.002	39	>75% Grass cover, Good, HSG A
2.846	36	Woods, Fair, HSG A
2.847	36	Weighted Average
2.847		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	50	0.0220	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
3.9	315	0.0717	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.6	365	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

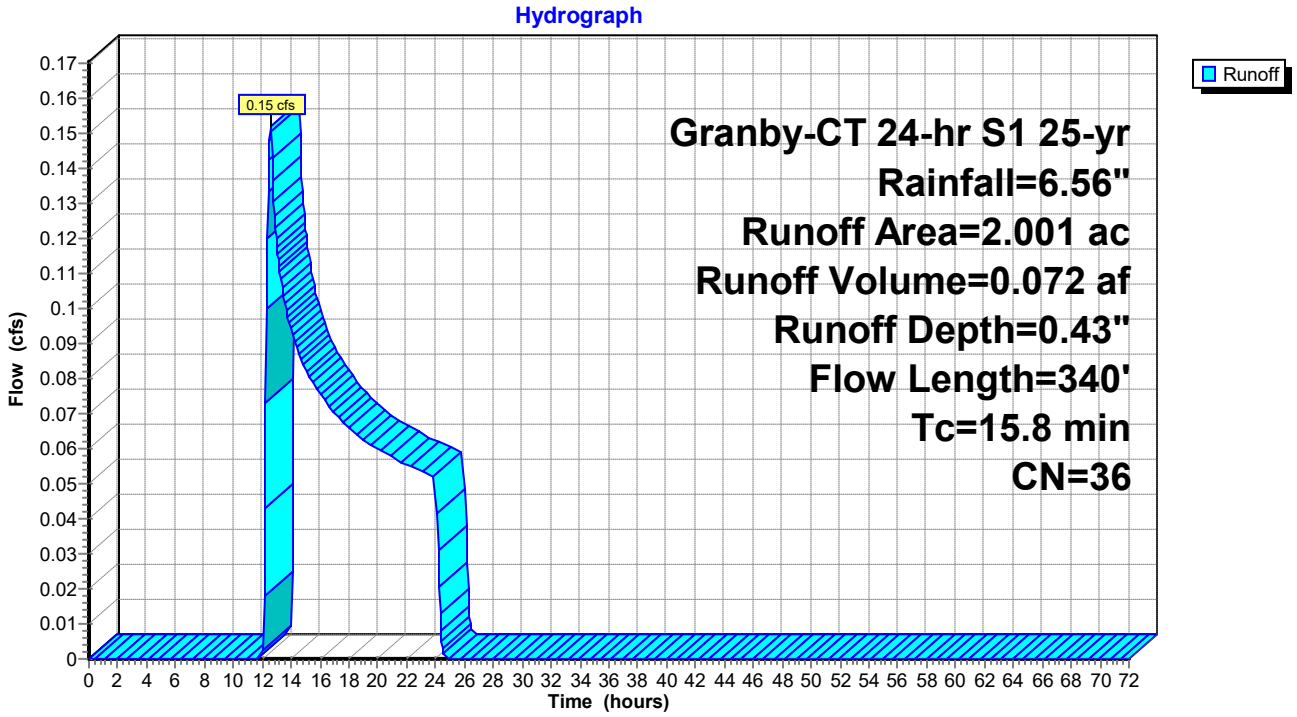
Runoff = 0.15 cfs @ 12.58 hrs, Volume= 0.072 af, Depth= 0.43"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 25-yr Rainfall=6.56"

Area (ac)	CN	Description
0.066	39	>75% Grass cover, Good, HSG A
1.935	36	Woods, Fair, HSG A
2.001	36	Weighted Average
2.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
3.6	290	0.0737	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	340	Total			

Subcatchment EX-2: Subcat EX-2

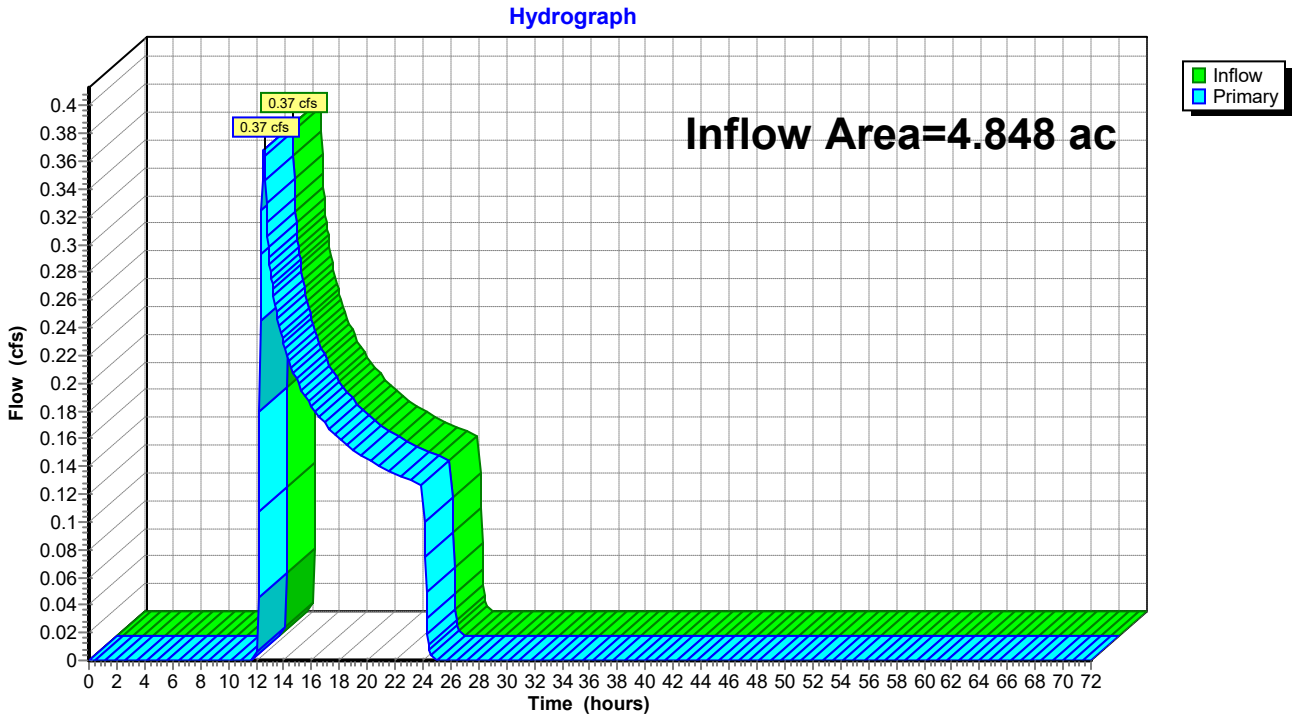


Summary for Link DP-1: DP-1

Inflow Area = 4.848 ac, 0.00% Impervious, Inflow Depth = 0.43" for 25-yr event
Inflow = 0.37 cfs @ 12.58 hrs, Volume= 0.175 af
Primary = 0.37 cfs @ 12.58 hrs, Volume= 0.175 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: DP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
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 EX-1: Subcat EX-1 Runoff Area=2.847 ac 0.00% Impervious Runoff Depth=0.71"
Flow Length=365' Tc=15.6 min CN=36 Runoff=0.54 cfs 0.168 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=2.001 ac 0.00% Impervious Runoff Depth=0.71"
Flow Length=340' Tc=15.8 min CN=36 Runoff=0.38 cfs 0.118 af

Link DP-1: DP-1 Inflow=0.92 cfs 0.287 af
Primary=0.92 cfs 0.287 af

Total Runoff Area = 4.848 ac Runoff Volume = 0.287 af Average Runoff Depth = 0.71"
100.00% Pervious = 4.848 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: Subcat EX-1

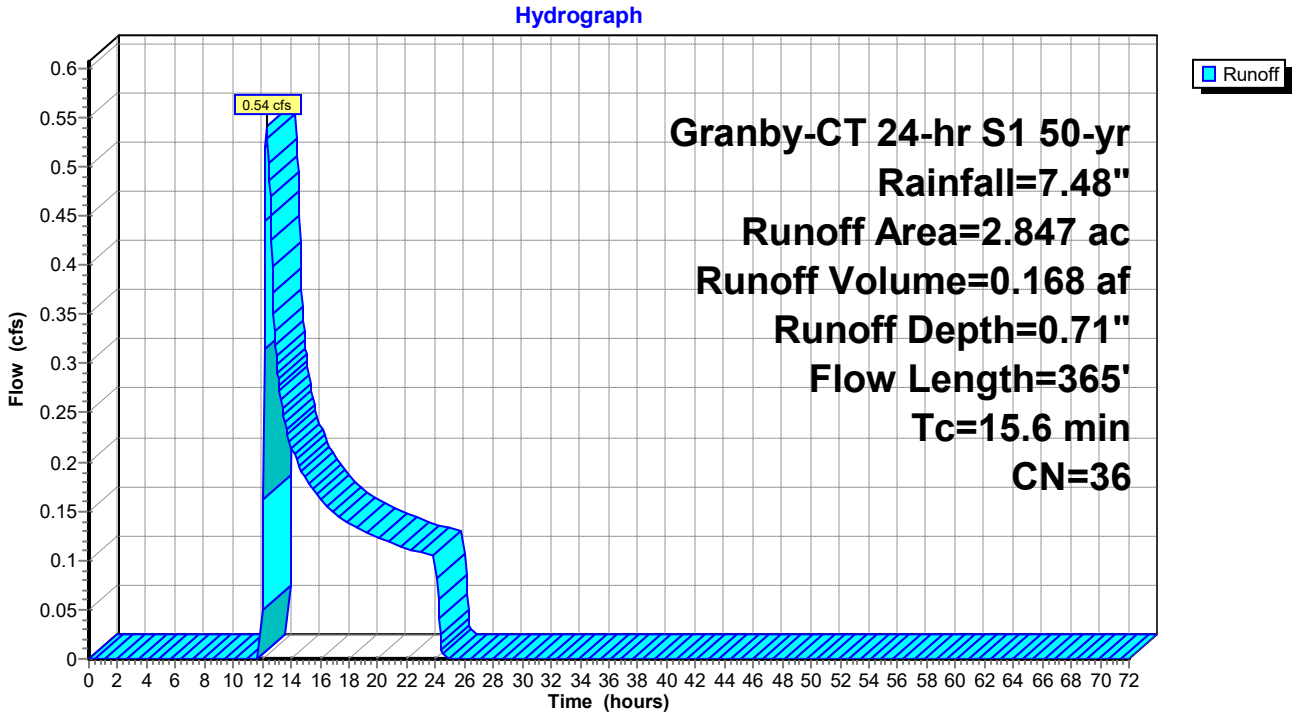
Runoff = 0.54 cfs @ 12.32 hrs, Volume= 0.168 af, Depth= 0.71"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 50-yr Rainfall=7.48"

Area (ac)	CN	Description
0.002	39	>75% Grass cover, Good, HSG A
2.846	36	Woods, Fair, HSG A
2.847	36	Weighted Average
2.847		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	50	0.0220	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
3.9	315	0.0717	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.6	365	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

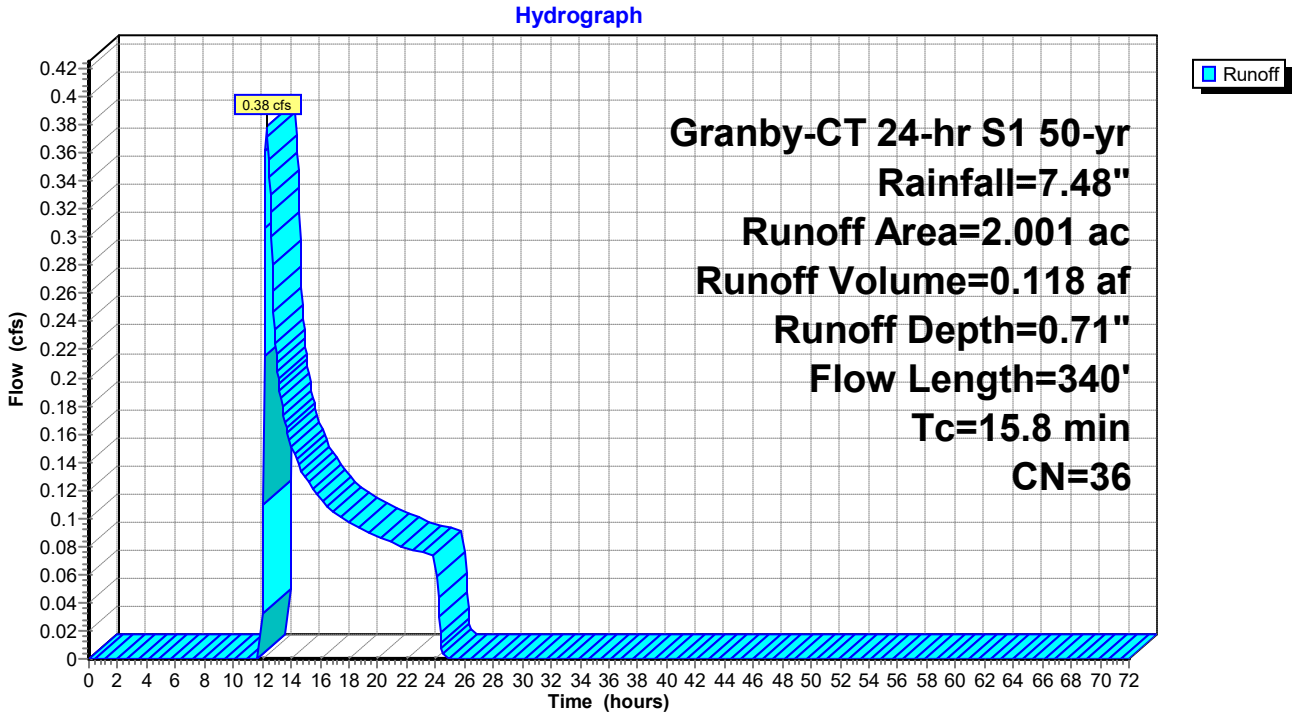
Runoff = 0.38 cfs @ 12.32 hrs, Volume= 0.118 af, Depth= 0.71"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 50-yr Rainfall=7.48"

Area (ac)	CN	Description
0.066	39	>75% Grass cover, Good, HSG A
1.935	36	Woods, Fair, HSG A
2.001	36	Weighted Average
2.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
3.6	290	0.0737	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	340	Total			

Subcatchment EX-2: Subcat EX-2

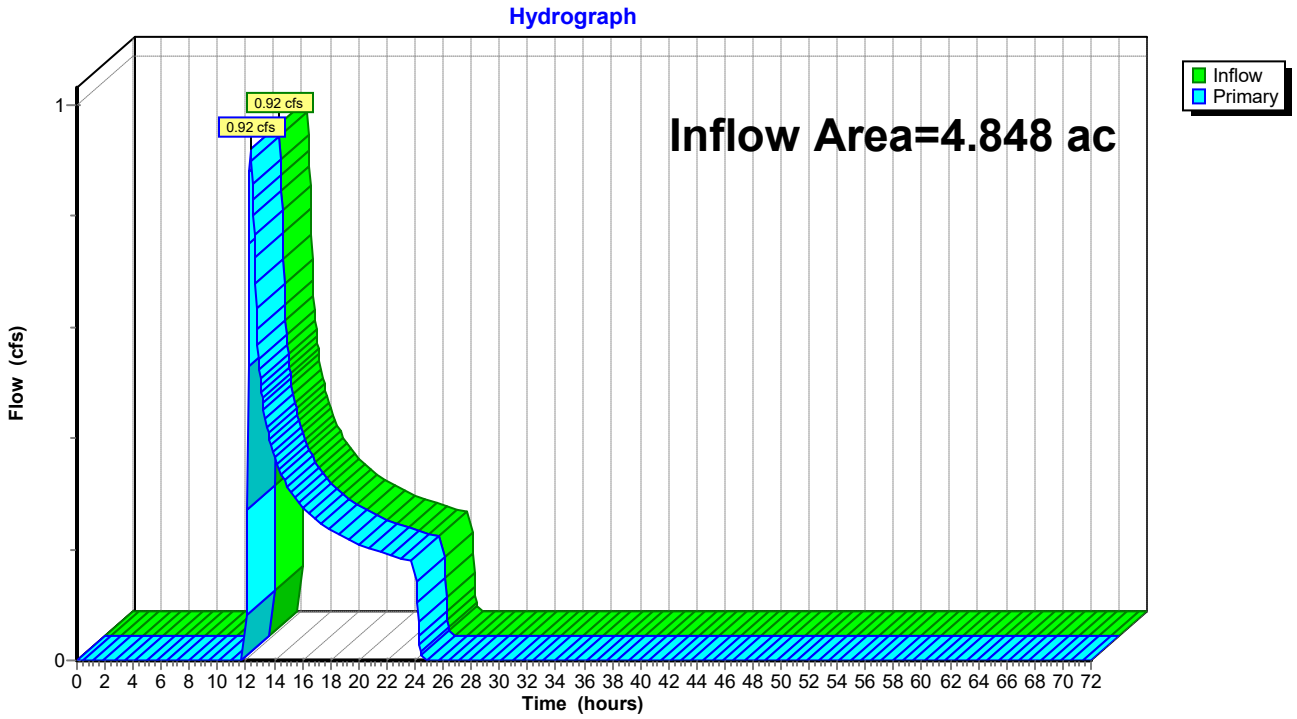


Summary for Link DP-1: DP-1

Inflow Area = 4.848 ac, 0.00% Impervious, Inflow Depth = 0.71" for 50-yr event
Inflow = 0.92 cfs @ 12.32 hrs, Volume= 0.287 af
Primary = 0.92 cfs @ 12.32 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: DP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
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 EX-1: Subcat EX-1 Runoff Area=2.847 ac 0.00% Impervious Runoff Depth=1.08"
Flow Length=365' Tc=15.6 min CN=36 Runoff=1.21 cfs 0.255 af

Subcatchment EX-2: Subcat EX-2 Runoff Area=2.001 ac 0.00% Impervious Runoff Depth=1.08"
Flow Length=340' Tc=15.8 min CN=36 Runoff=0.85 cfs 0.179 af

Link DP-1: DP-1 Inflow=2.05 cfs 0.435 af
Primary=2.05 cfs 0.435 af

Total Runoff Area = 4.848 ac Runoff Volume = 0.435 af Average Runoff Depth = 1.08"
100.00% Pervious = 4.848 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX-1: Subcat EX-1

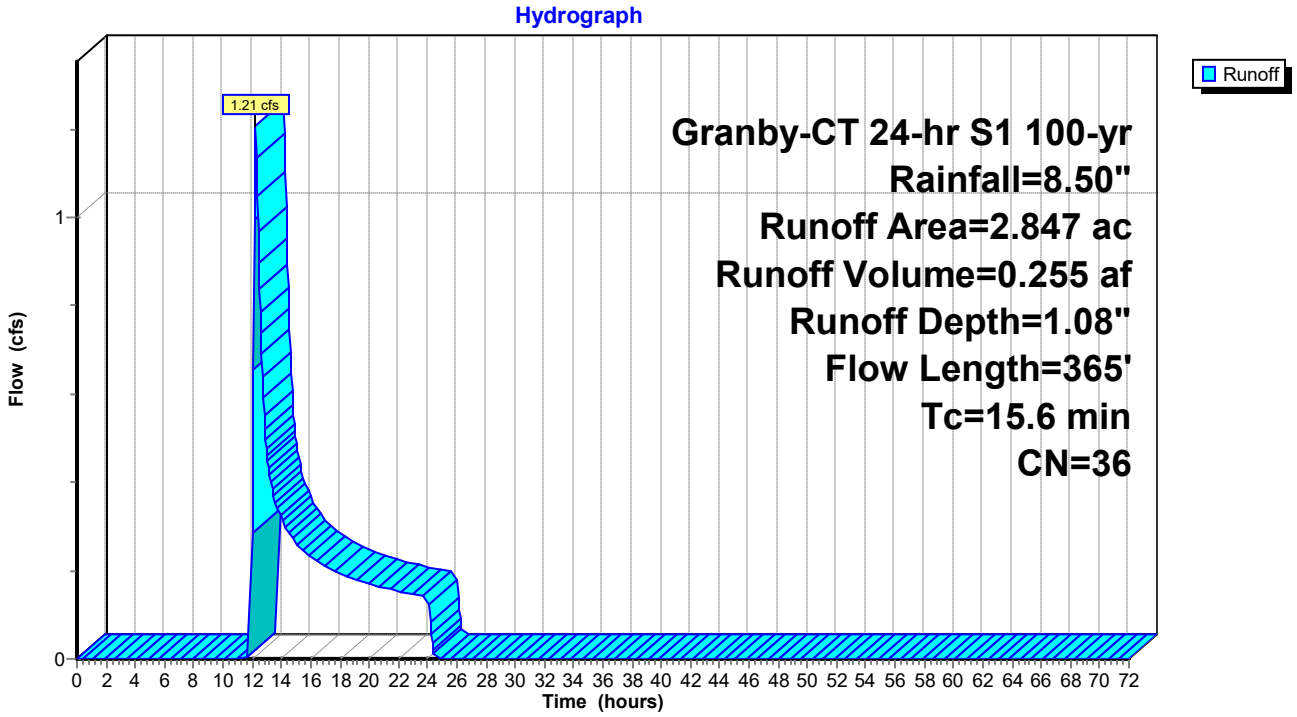
Runoff = 1.21 cfs @ 12.24 hrs, Volume= 0.255 af, Depth= 1.08"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.002	39	>75% Grass cover, Good, HSG A
2.846	36	Woods, Fair, HSG A
2.847	36	Weighted Average
2.847		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	50	0.0220	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
3.9	315	0.0717	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.6	365	Total			

Subcatchment EX-1: Subcat EX-1



Summary for Subcatchment EX-2: Subcat EX-2

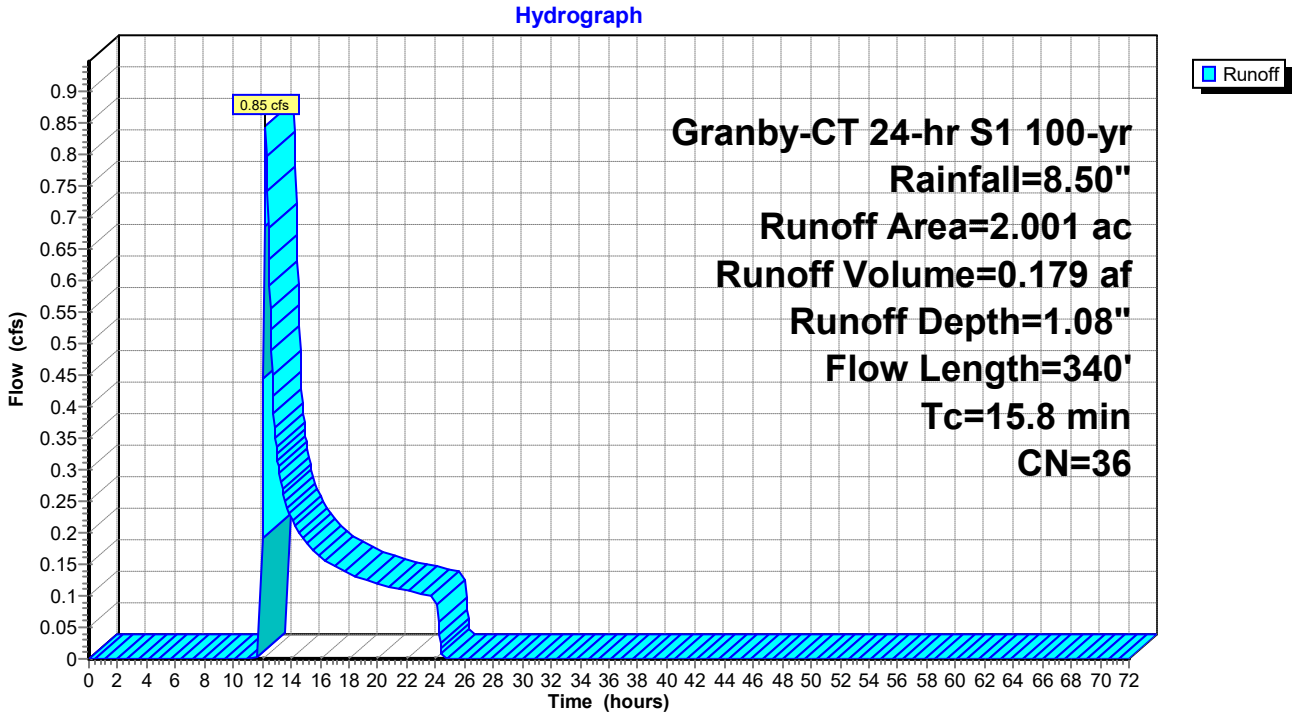
Runoff = 0.85 cfs @ 12.24 hrs, Volume= 0.179 af, Depth= 1.08"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.066	39	>75% Grass cover, Good, HSG A
1.935	36	Woods, Fair, HSG A
2.001	36	Weighted Average
2.001		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
3.6	290	0.0737	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	340	Total			

Subcatchment EX-2: Subcat EX-2

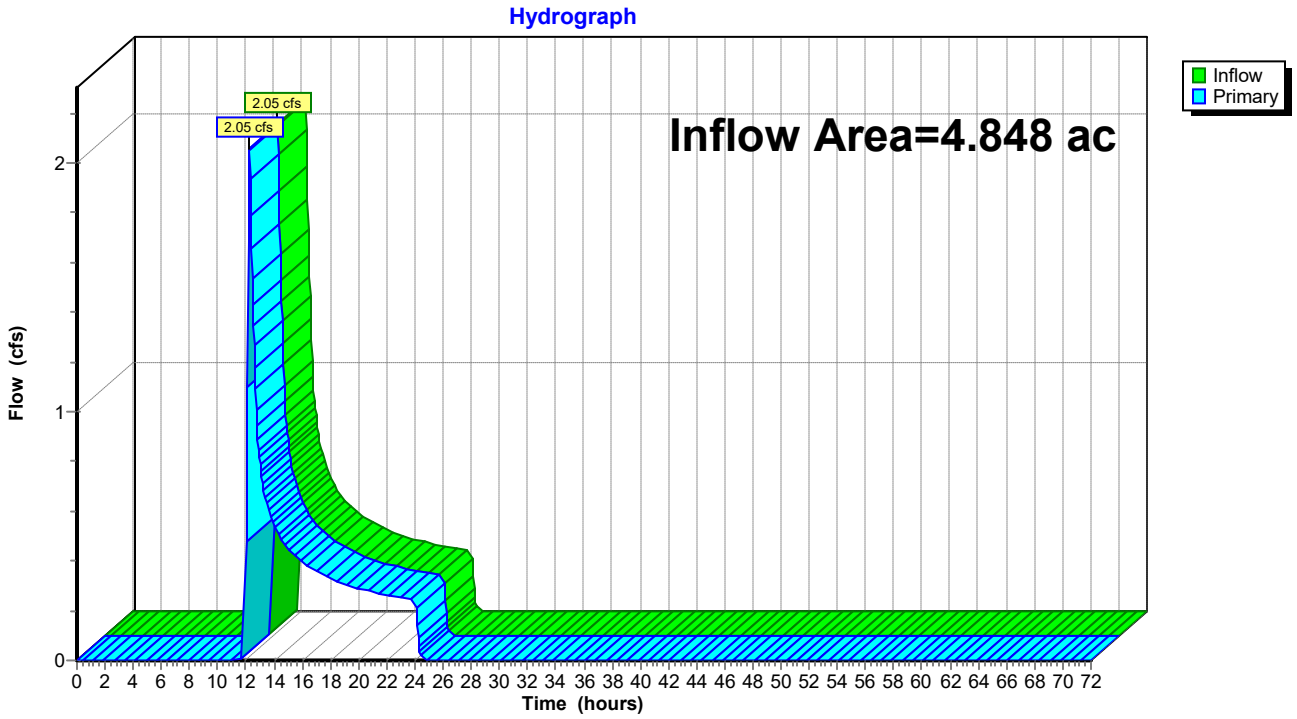


Summary for Link DP-1: DP-1

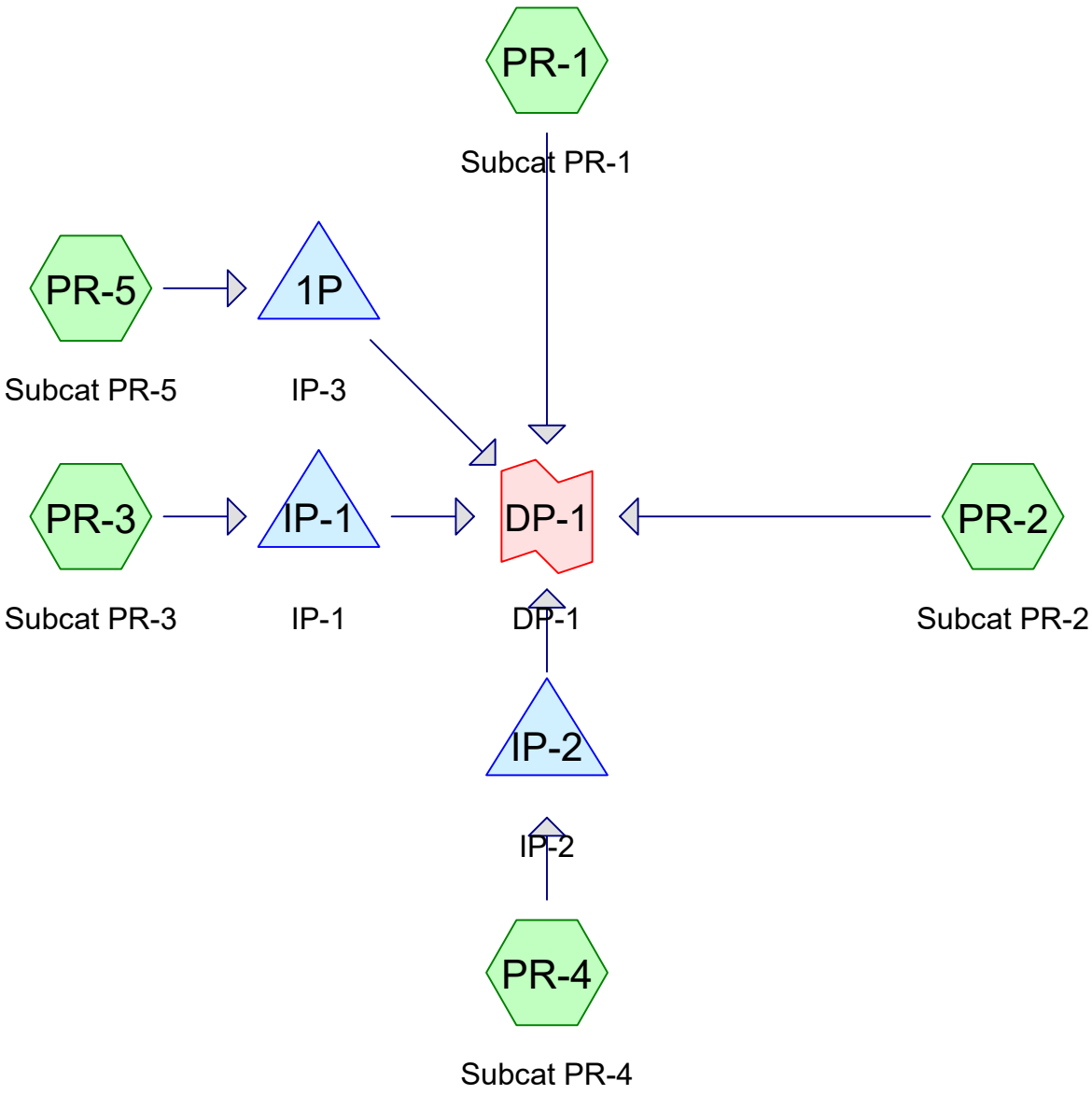
Inflow Area = 4.848 ac, 0.00% Impervious, Inflow Depth = 1.08" for 100-yr event
Inflow = 2.05 cfs @ 12.24 hrs, Volume= 0.435 af
Primary = 2.05 cfs @ 12.24 hrs, Volume= 0.435 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: DP-1



HydroCAD Analysis: Proposed Conditions



Subcat Reach Pond Link

Routing Diagram for 43469.00-PR
Prepared by VHB, Inc, Printed 7/16/2024

Project Notes

Defined 4 rainfall events from Granby-CT IDF
Copied 4 events from Granby-CT 24-hr S1 storm

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Granby-CT 24-hr S1	2-yr	Default	24.00	1	3.29	2
2	25-yr	Granby-CT 24-hr S1	25-yr	Default	24.00	1	6.56	2
3	50-yr	Granby-CT 24-hr S1	50-yr	Default	24.00	1	7.48	2
4	100-yr	Granby-CT 24-hr S1	100-yr	Default	24.00	1	8.50	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.231	39	>75% Grass cover, Good, HSG A (PR-1, PR-2, PR-3, PR-4, PR-5)
0.322	36	Brush, Fair, HSG A (PR-1)
0.000	35	Brush, Fair, HSG A (PR-5)
0.643	96	Gravel surface, HSG A (PR-3, PR-4, PR-5)
0.058	98	Paved parking, HSG A (PR-3, PR-4)
2.594	36	Woods, Fair, HSG A (PR-1, PR-2, PR-3, PR-5)
4.848	**45**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
4.848	HSG A	PR-1, PR-2, PR-3, PR-4, PR-5
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
4.848		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.231	0.000	0.000	0.000	0.000	1.231	>75% Grass cover, Good	PR-1, PR-2, PR-3, PR-4, PR-5
0.322	0.000	0.000	0.000	0.000	0.322	Brush, Fair	PR-1, PR-5
0.643	0.000	0.000	0.000	0.000	0.643	Gravel surface	PR-3, PR-4, PR-5
0.058	0.000	0.000	0.000	0.000	0.058	Paved parking	PR-3, PR-4
2.594	0.000	0.000	0.000	0.000	2.594	Woods, Fair	PR-1, PR-2, PR-3, PR-5
4.848	**0.000**	**0.000**	**0.000**	**0.000**	**4.848**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
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 PR-1: Subcat PR-1 Runoff Area=1.977 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=300' Tc=14.2 min CN=36 Runoff=0.00 cfs 0.000 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=1.486 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=340' Tc=15.8 min CN=37 Runoff=0.00 cfs 0.000 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=0.628 ac 3.18% Impervious Runoff Depth=0.60"
Tc=5.0 min CN=64 Runoff=0.39 cfs 0.031 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=0.533 ac 7.14% Impervious Runoff Depth=1.28"
Tc=5.0 min CN=77 Runoff=0.91 cfs 0.057 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=0.223 ac 0.00% Impervious Runoff Depth=0.34"
Tc=5.0 min CN=57 Runoff=0.04 cfs 0.006 af

Pond 1P: IP-3 Peak Elev=205.00' Storage=3 cf Inflow=0.04 cfs 0.006 af
Discarded=0.04 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.006 af

Pond IP-1: IP-1 Peak Elev=201.05' Storage=73 cf Inflow=0.39 cfs 0.031 af
Discarded=0.21 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.031 af

Pond IP-2: IP-2 Peak Elev=203.51' Storage=527 cf Inflow=0.91 cfs 0.057 af
Discarded=0.17 cfs 0.057 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.057 af

Link DP-1: DP-1 Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 4.848 ac Runoff Volume = 0.095 af Average Runoff Depth = 0.23"
98.80% Pervious = 4.790 ac 1.20% Impervious = 0.058 ac

Summary for Subcatchment PR-1: Subcat PR-1

[45] Hint: Runoff=Zero

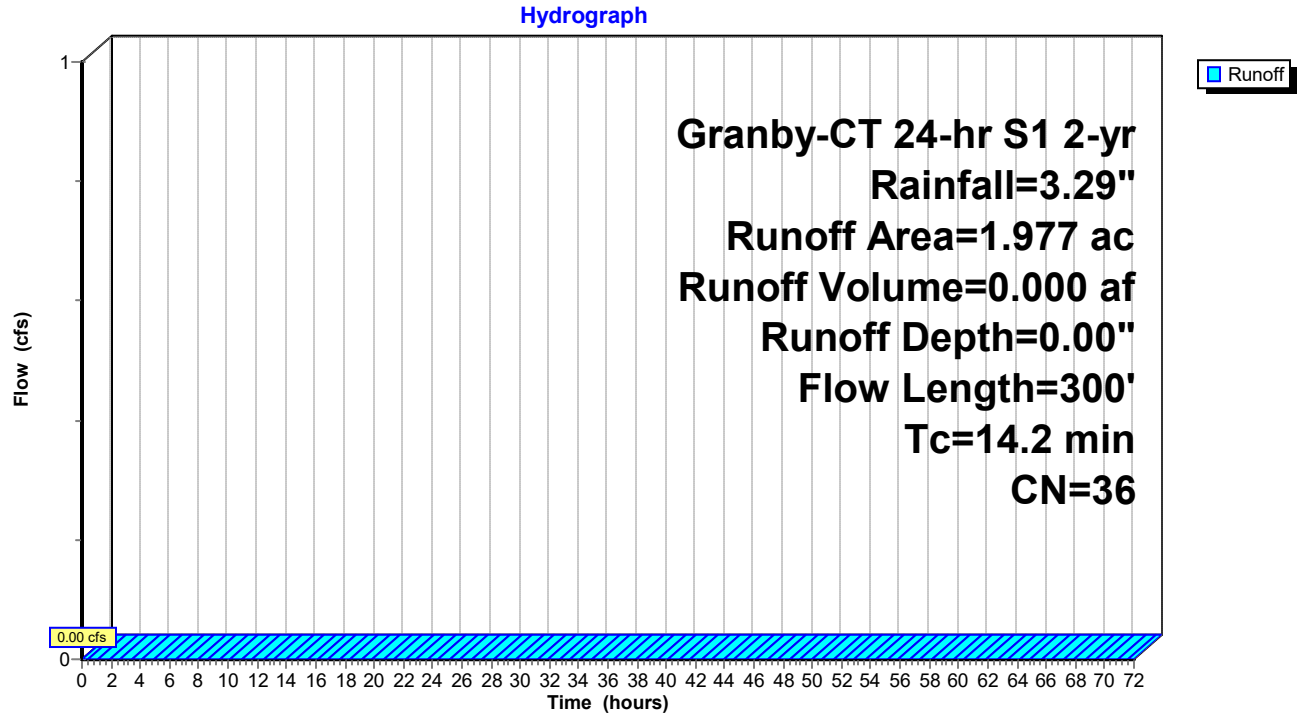
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 2-yr Rainfall=3.29"

	Area (ac)	CN	Description
*	0.322	36	Brush, Fair, HSG A
	0.176	39	>75% Grass cover, Good, HSG A
	1.479	36	Woods, Fair, HSG A
	1.977	36	Weighted Average
	1.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
0.6	80	0.2300	2.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	170	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	300	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

[45] Hint: Runoff=Zero

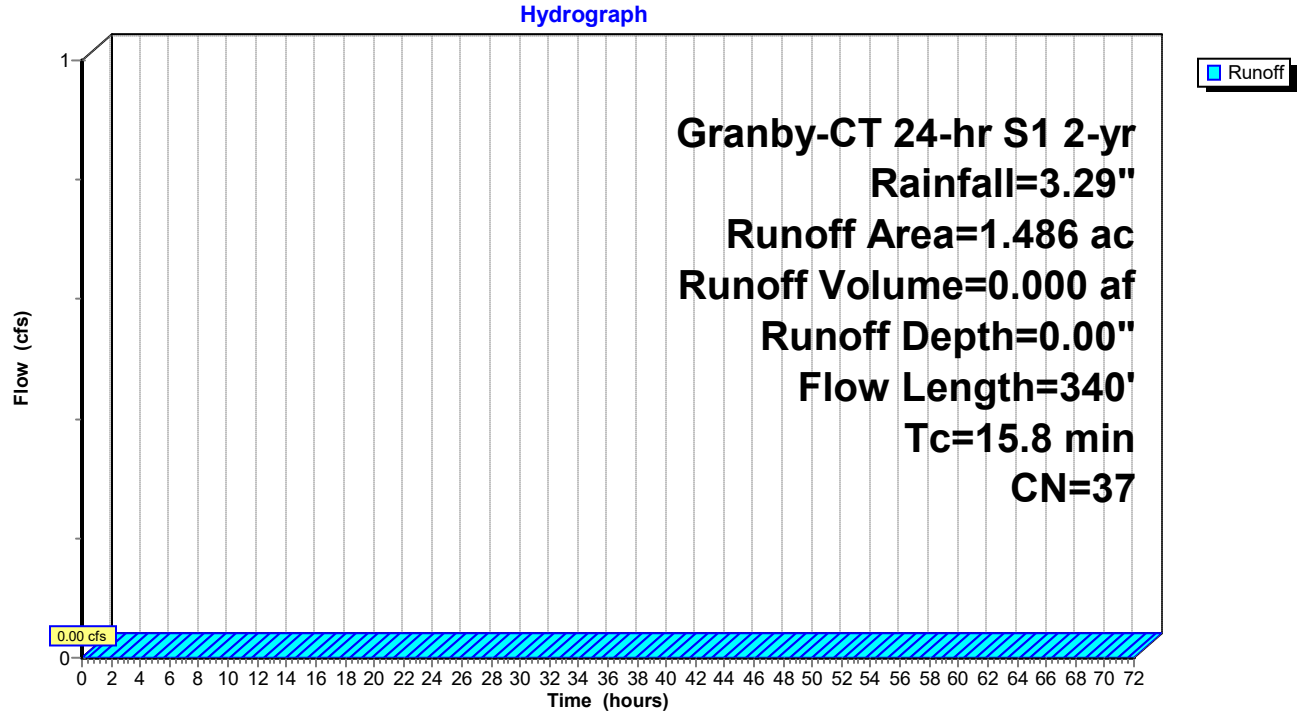
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 2-yr Rainfall=3.29"

Area (ac)	CN	Description
0.426	39	>75% Grass cover, Good, HSG A
1.061	36	Woods, Fair, HSG A
1.486	37	Weighted Average
1.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
2.0	120	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	170	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	340	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

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

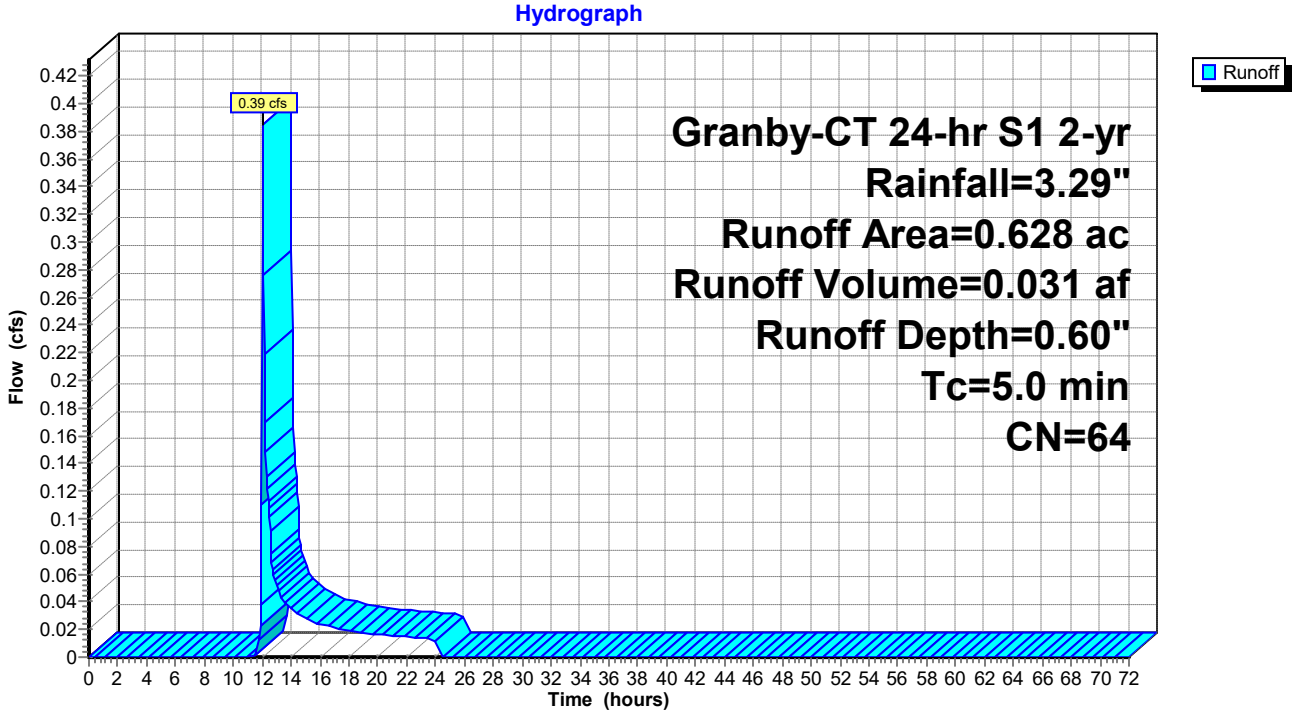
Runoff = 0.39 cfs @ 12.05 hrs, Volume= 0.031 af, Depth= 0.60"
Routed to Pond IP-1 : IP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 2-yr Rainfall=3.29"

Area (ac)	CN	Description
0.318	39	>75% Grass cover, Good, HSG A
0.020	98	Paved parking, HSG A
0.255	96	Gravel surface, HSG A
0.035	36	Woods, Fair, HSG A
0.628	64	Weighted Average
0.608		96.82% Pervious Area
0.020		3.18% Impervious Area

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

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

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

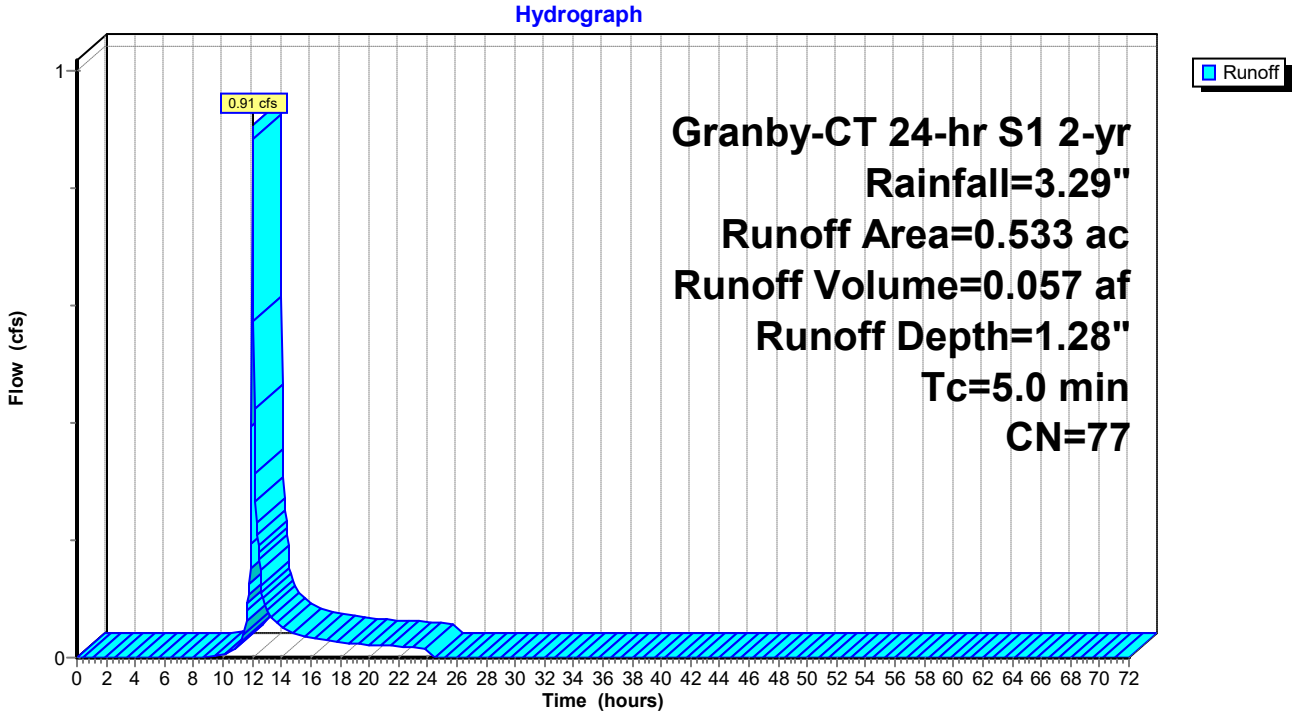
Runoff = 0.91 cfs @ 12.03 hrs, Volume= 0.057 af, Depth= 1.28"
Routed to Pond IP-2 : IP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 2-yr Rainfall=3.29"

Area (ac)	CN	Description
0.178	39	>75% Grass cover, Good, HSG A
0.038	98	Paved parking, HSG A
0.317	96	Gravel surface, HSG A
0.533	77	Weighted Average
0.495		92.86% Pervious Area
0.038		7.14% Impervious Area

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

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

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

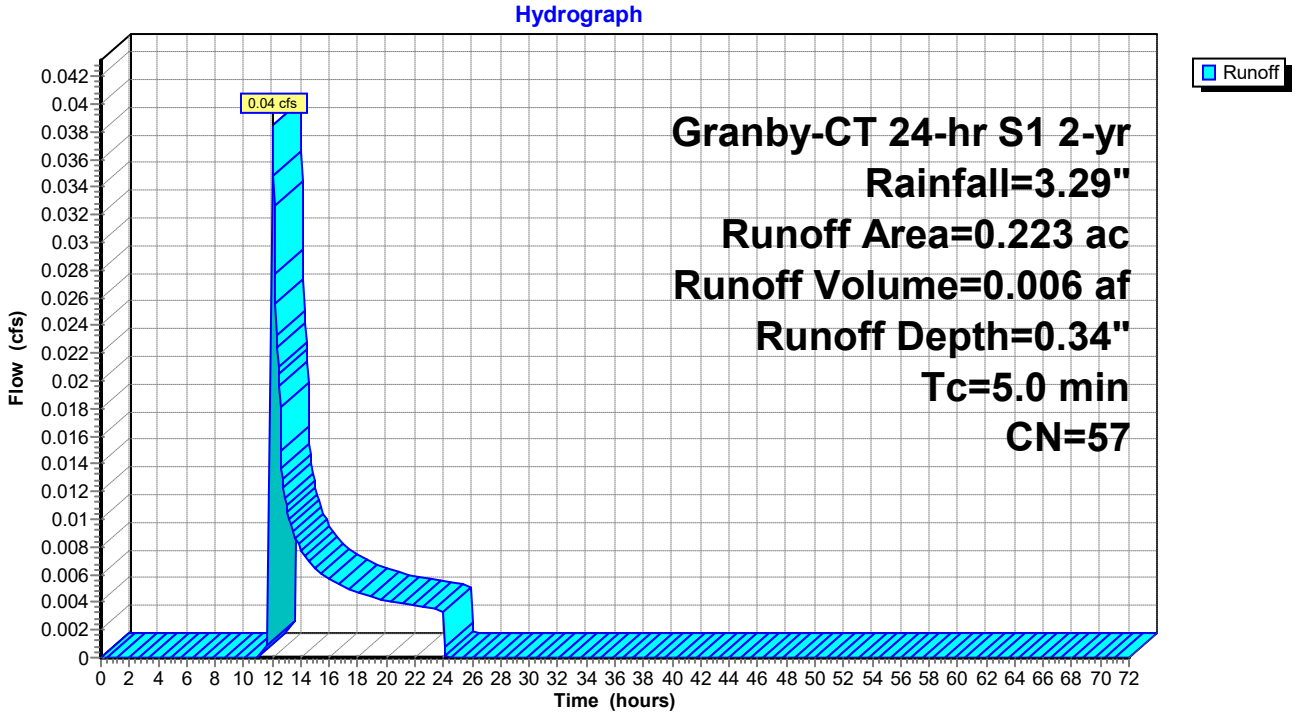
Runoff = 0.04 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 0.34"
Routed to Pond 1P : IP-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 2-yr Rainfall=3.29"

Area (ac)	CN	Description
0.019	36	Woods, Fair, HSG A
0.000	35	Brush, Fair, HSG A
0.134	39	>75% Grass cover, Good, HSG A
0.071	96	Gravel surface, HSG A
0.223	57	Weighted Average
0.223		100.00% Pervious Area

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

Subcatchment PR-5: Subcat PR-5



Summary for Pond 1P: IP-3

Inflow Area = 0.223 ac, 0.00% Impervious, Inflow Depth = 0.34" for 2-yr event
Inflow = 0.04 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.04 cfs @ 12.11 hrs, Volume= 0.006 af, Atten= 4%, Lag= 2.5 min
Discarded = 0.04 cfs @ 12.11 hrs, Volume= 0.006 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 205.00' @ 12.11 hrs Surf.Area= 689 sf Storage= 3 cf

Plug-Flow detention time= 1.2 min calculated for 0.006 af (100% of inflow)
Center-of-Mass det. time= 1.2 min (975.3 - 974.1)

Volume	Invert	Avail.Storage	Storage Description
#1	205.00'	4,089 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

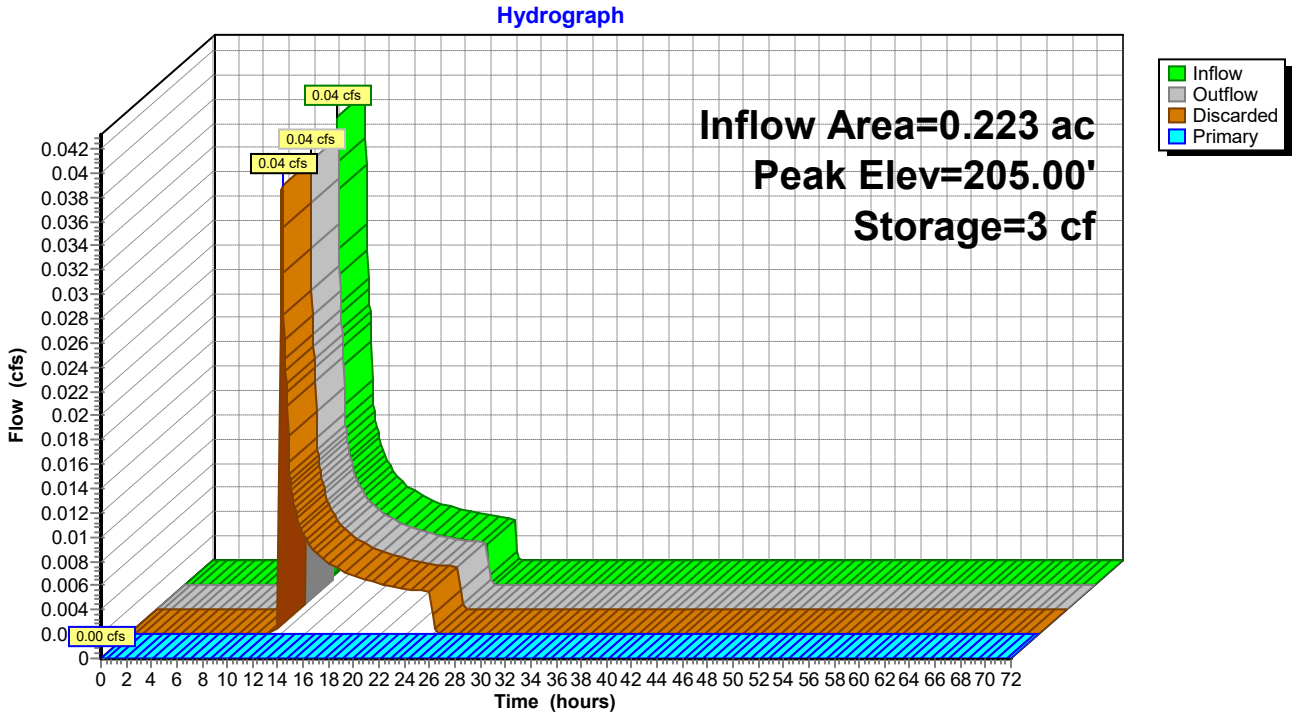
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
205.00	688	137.1	0.0	0	0	688
208.00	2,177	193.7	100.0	4,089	4,089	2,258

Device	Routing	Invert	Outlet Devices
#1	Discarded	205.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	207.00'	**4.0' 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

Discarded OutFlow Max=0.04 cfs @ 12.11 hrs HW=205.00' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=205.00' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: IP-3


Hydrograph
Inflow Area=0.223 ac
Peak Elev=205.00'
Storage=3 cf
Inflow
Outflow
Discarded
Primary
0.04 cfs
0.04 cfs
0.04 cfs
0.00 cfs
Flow (cfs)
0 0.004 0.006 0.008 0.01 0.012 0.014 0.016 0.018 0.02 0.022 0.024 0.026 0.028 0.03 0.032 0.034 0.036 0.038 0.04 0.042
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Stage-Area-Storage for Pond 1P: IP-3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	688	0
205.05	706	35
205.10	724	71
205.15	743	107
205.20	761	145
205.25	780	183
205.30	799	223
205.35	819	263
205.40	838	305
205.45	858	347
205.50	878	391
205.55	899	435
205.60	919	480
205.65	940	527
205.70	961	574
205.75	982	623
205.80	1,003	673
205.85	1,025	723
205.90	1,047	775
205.95	1,069	828
206.00	1,092	882
206.05	1,114	937
206.10	1,137	993
206.15	1,160	1,051
206.20	1,183	1,110
206.25	1,207	1,169
206.30	1,231	1,230
206.35	1,255	1,292
206.40	1,279	1,356
206.45	1,303	1,420
206.50	1,328	1,486
206.55	1,353	1,553
206.60	1,378	1,621
206.65	1,404	1,691
206.70	1,429	1,762
206.75	1,455	1,834
206.80	1,481	1,907
206.85	1,508	1,982
206.90	1,534	2,058
206.95	1,561	2,135
207.00	1,588	2,214
207.05	1,615	2,294
207.10	1,643	2,376
207.15	1,670	2,458
207.20	1,698	2,543
207.25	1,727	2,628
207.30	1,755	2,715
207.35	1,784	2,804
207.40	1,812	2,894
207.45	1,842	2,985
207.50	1,871	3,078
207.55	1,900	3,172
207.60	1,930	3,268
207.65	1,960	3,365
207.70	1,991	3,464
207.75	2,021	3,564
207.80	2,052	3,666
207.85	2,083	3,769
207.90	2,114	3,874
207.95	2,145	3,981
208.00	**2,177**	**4,089**

Summary for Pond IP-1: IP-1

Inflow Area = 0.628 ac, 3.18% Impervious, Inflow Depth = 0.60" for 2-yr event
Inflow = 0.39 cfs @ 12.05 hrs, Volume= 0.031 af
Outflow = 0.21 cfs @ 12.16 hrs, Volume= 0.031 af, Atten= 46%, Lag= 7.0 min
Discarded = 0.21 cfs @ 12.16 hrs, Volume= 0.031 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 201.05' @ 12.16 hrs Surf.Area= 1,490 sf Storage= 73 cf

Plug-Flow detention time= 1.9 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (931.2 - 929.3)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	9,025 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

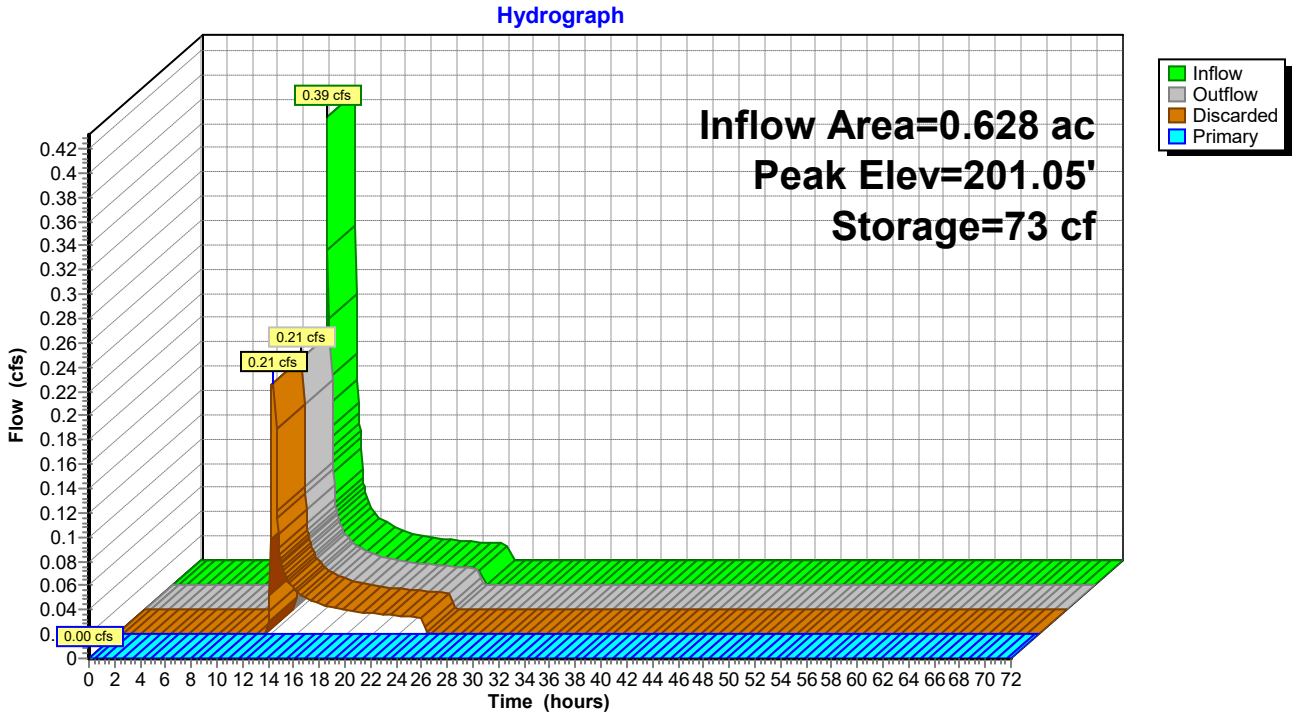
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.00	1,449	353.0	0.0	0	0	1,449
204.00	4,909	412.1	100.0	9,025	9,025	5,226

Device	Routing	Invert	Outlet Devices
#1	Primary	203.00'	**4.0' 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
#2	Discarded	201.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.21 cfs @ 12.16 hrs HW=201.05' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=201.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IP-1: IP-1


Hydrograph
Inflow Area=0.628 ac
Peak Elev=201.05'
Storage=73 cf
Inflow
Outflow
Discarded
Primary
0.39 cfs
0.21 cfs
0.21 cfs
0.00 cfs
Flow (cfs)
Time (hours)

Stage-Area-Storage for Pond IP-1: IP-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
201.00	1,449	0
201.05	1,490	73
201.10	1,531	149
201.15	1,573	227
201.20	1,616	306
201.25	1,659	388
201.30	1,703	472
201.35	1,747	559
201.40	1,792	647
201.45	1,837	738
201.50	1,883	831
201.55	1,930	926
201.60	1,977	1,024
201.65	2,025	1,124
201.70	2,073	1,226
201.75	2,122	1,331
201.80	2,171	1,438
201.85	2,221	1,548
201.90	2,272	1,661
201.95	2,323	1,775
202.00	2,375	1,893
202.05	2,427	2,013
202.10	2,480	2,136
202.15	2,533	2,261
202.20	2,587	2,389
202.25	2,642	2,520
202.30	2,697	2,653
202.35	2,753	2,789
202.40	2,809	2,928
202.45	2,866	3,070
202.50	2,923	3,215
202.55	2,981	3,363
202.60	3,039	3,513
202.65	3,099	3,667
202.70	3,158	3,823
202.75	3,218	3,982
202.80	3,279	4,145
202.85	3,341	4,310
202.90	3,403	4,479
202.95	3,465	4,651
203.00	3,528	4,825
203.05	3,592	5,003
203.10	3,656	5,185
203.15	3,721	5,369
203.20	3,786	5,557
203.25	3,852	5,748
203.30	3,919	5,942
203.35	3,986	6,140
203.40	4,053	6,340
203.45	4,121	6,545
203.50	4,190	6,753
203.55	4,259	6,964
203.60	4,329	7,179
203.65	4,400	7,397
203.70	4,471	7,619
203.75	4,542	7,844
203.80	4,615	8,073
203.85	4,687	8,305
203.90	4,761	8,542
203.95	4,835	8,781
204.00	**4,909**	**9,025**

Summary for Pond IP-2: IP-2

Inflow Area = 0.533 ac, 7.14% Impervious, Inflow Depth = 1.28" for 2-yr event
Inflow = 0.91 cfs @ 12.03 hrs, Volume= 0.057 af
Outflow = 0.17 cfs @ 12.50 hrs, Volume= 0.057 af, Atten= 82%, Lag= 28.1 min
Discarded = 0.17 cfs @ 12.50 hrs, Volume= 0.057 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 203.51' @ 12.50 hrs Surf.Area= 1,194 sf Storage= 527 cf

Plug-Flow detention time= 19.3 min calculated for 0.057 af (100% of inflow)
Center-of-Mass det. time= 19.3 min (893.4 - 874.1)

Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	5,907 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

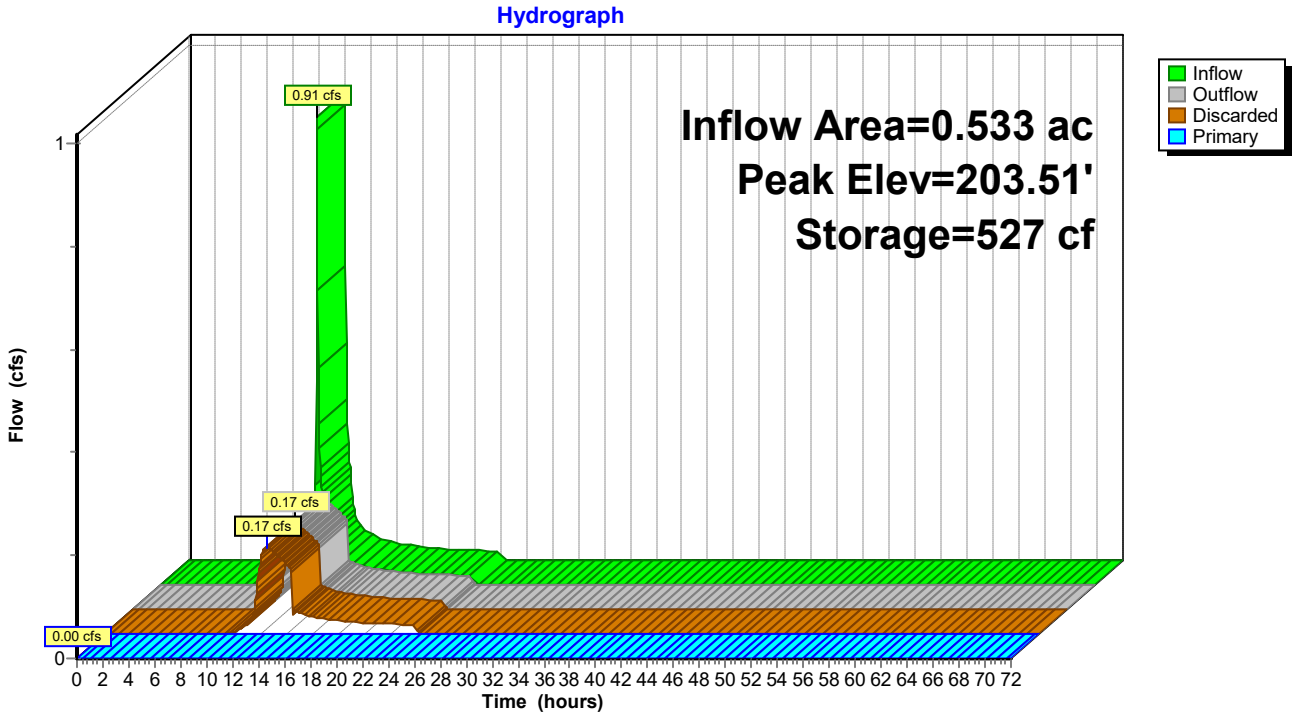
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
203.00	895	238.4	0.0	0	0	895
206.00	3,295	294.9	100.0	5,907	5,907	3,423

Device	Routing	Invert	Outlet Devices
#1	Primary	205.00'	**6.0' 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
#2	Discarded	203.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.17 cfs @ 12.50 hrs HW=203.51' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=203.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IP-2: IP-2


Hydrograph
Inflow Area=0.533 ac
Peak Elev=203.51'
Storage=527 cf
Inflow
Outflow
Discarded
Primary
0.91 cfs
0.17 cfs
0.17 cfs
0.00 cfs
Flow (cfs)
1
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Stage-Area-Storage for Pond IP-2: IP-2

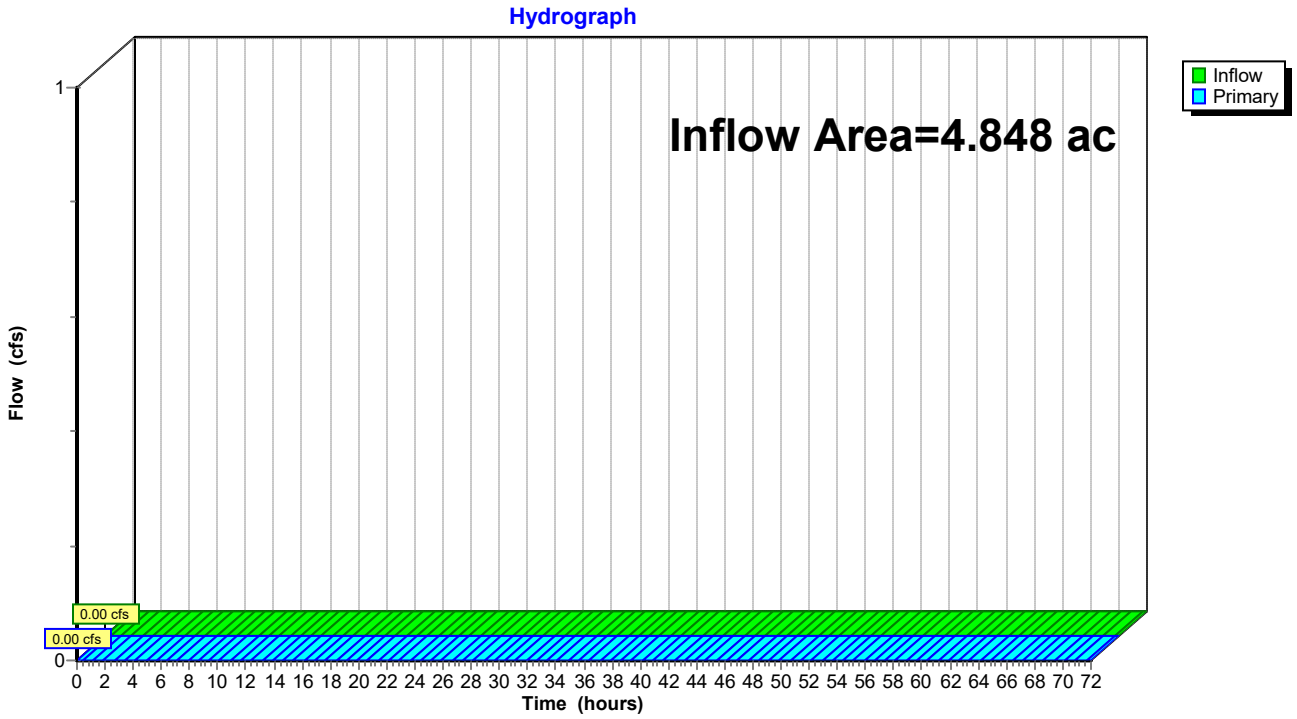
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	895	0
203.05	923	45
203.10	951	92
203.15	979	141
203.20	1,008	190
203.25	1,037	241
203.30	1,067	294
203.35	1,097	348
203.40	1,128	404
203.45	1,159	461
203.50	1,190	520
203.55	1,222	580
203.60	1,254	642
203.65	1,287	705
203.70	1,320	770
203.75	1,353	837
203.80	1,387	906
203.85	1,422	976
203.90	1,456	1,048
203.95	1,492	1,122
204.00	1,527	1,197
204.05	1,563	1,274
204.10	1,600	1,353
204.15	1,636	1,434
204.20	1,674	1,517
204.25	1,711	1,602
204.30	1,749	1,688
204.35	1,788	1,777
204.40	1,827	1,867
204.45	1,866	1,959
204.50	1,906	2,054
204.55	1,946	2,150
204.60	1,987	2,248
204.65	2,028	2,349
204.70	2,069	2,451
204.75	2,111	2,556
204.80	2,154	2,662
204.85	2,196	2,771
204.90	2,240	2,882
204.95	2,283	2,995
205.00	2,327	3,110
205.05	2,372	3,228
205.10	2,416	3,347
205.15	2,462	3,469
205.20	2,507	3,594
205.25	2,553	3,720
205.30	2,600	3,849
205.35	2,647	3,980
205.40	2,694	4,114
205.45	2,742	4,249
205.50	2,790	4,388
205.55	2,839	4,528
205.60	2,888	4,672
205.65	2,937	4,817
205.70	2,987	4,965
205.75	3,037	5,116
205.80	3,088	5,269
205.85	3,139	5,425
205.90	3,191	5,583
205.95	3,243	5,744
206.00	**3,295**	**5,907**

Summary for Link DP-1: DP-1

Inflow Area = 4.848 ac, 1.20% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: DP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
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 PR-1: Subcat PR-1 Runoff Area=1.977 ac 0.00% Impervious Runoff Depth=0.43"
Flow Length=300' Tc=14.2 min CN=36 Runoff=0.15 cfs 0.072 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=1.486 ac 0.00% Impervious Runoff Depth=0.49"
Flow Length=340' Tc=15.8 min CN=37 Runoff=0.15 cfs 0.061 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=0.628 ac 3.18% Impervious Runoff Depth=2.67"
Tc=5.0 min CN=64 Runoff=2.03 cfs 0.140 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=0.533 ac 7.14% Impervious Runoff Depth=3.97"
Tc=5.0 min CN=77 Runoff=2.63 cfs 0.177 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=0.223 ac 0.00% Impervious Runoff Depth=2.03"
Tc=5.0 min CN=57 Runoff=0.52 cfs 0.038 af

Pond 1P: IP-3 Peak Elev=205.35' Storage=265 cf Inflow=0.52 cfs 0.038 af
Discarded=0.11 cfs 0.038 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.038 af

Pond IP-1: IP-1 Peak Elev=201.79' Storage=1,411 cf Inflow=2.03 cfs 0.140 af
Discarded=0.30 cfs 0.140 af Primary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.140 af

Pond IP-2: IP-2 Peak Elev=204.64' Storage=2,325 cf Inflow=2.63 cfs 0.177 af
Discarded=0.28 cfs 0.177 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.177 af

Link DP-1: DP-1 Inflow=0.30 cfs 0.133 af
Primary=0.30 cfs 0.133 af

Total Runoff Area = 4.848 ac Runoff Volume = 0.487 af Average Runoff Depth = 1.20"
98.80% Pervious = 4.790 ac 1.20% Impervious = 0.058 ac

Summary for Subcatchment PR-1: Subcat PR-1

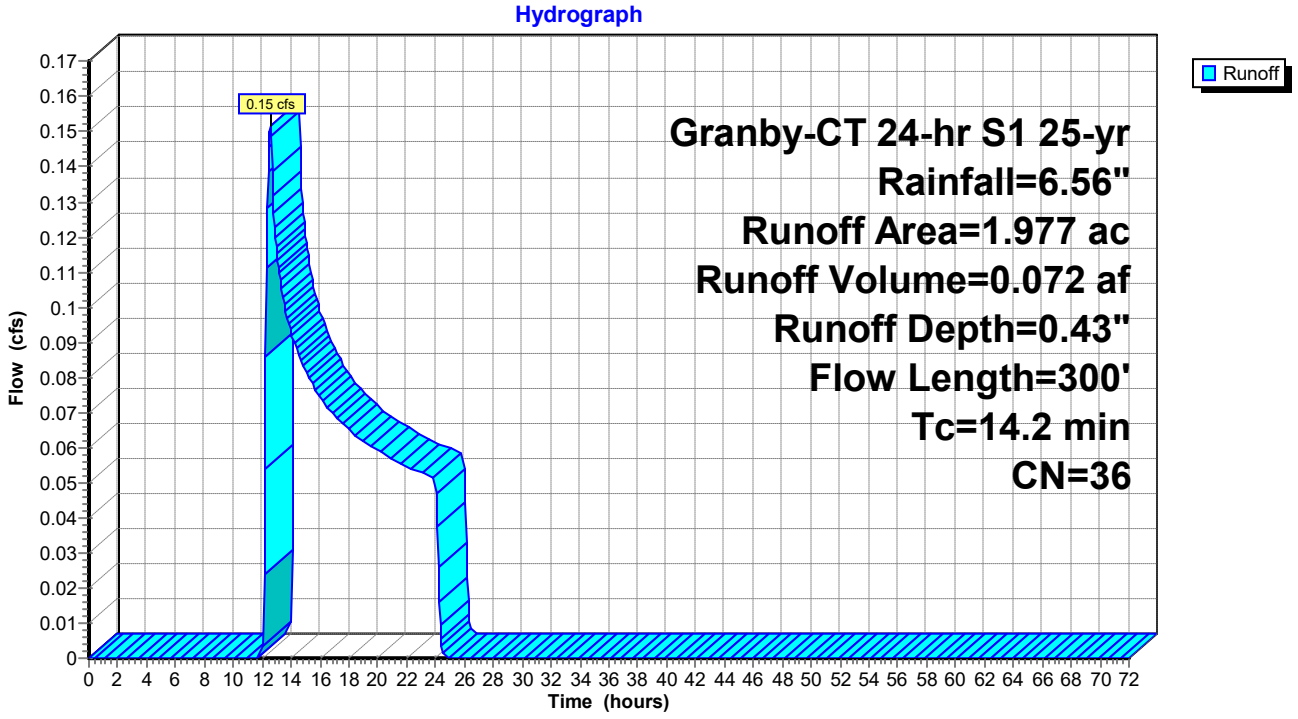
Runoff = 0.15 cfs @ 12.56 hrs, Volume= 0.072 af, Depth= 0.43"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 25-yr Rainfall=6.56"

	Area (ac)	CN	Description
*	0.322	36	Brush, Fair, HSG A
	0.176	39	>75% Grass cover, Good, HSG A
	1.479	36	Woods, Fair, HSG A
	1.977	36	Weighted Average
	1.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
0.6	80	0.2300	2.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	170	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	300	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

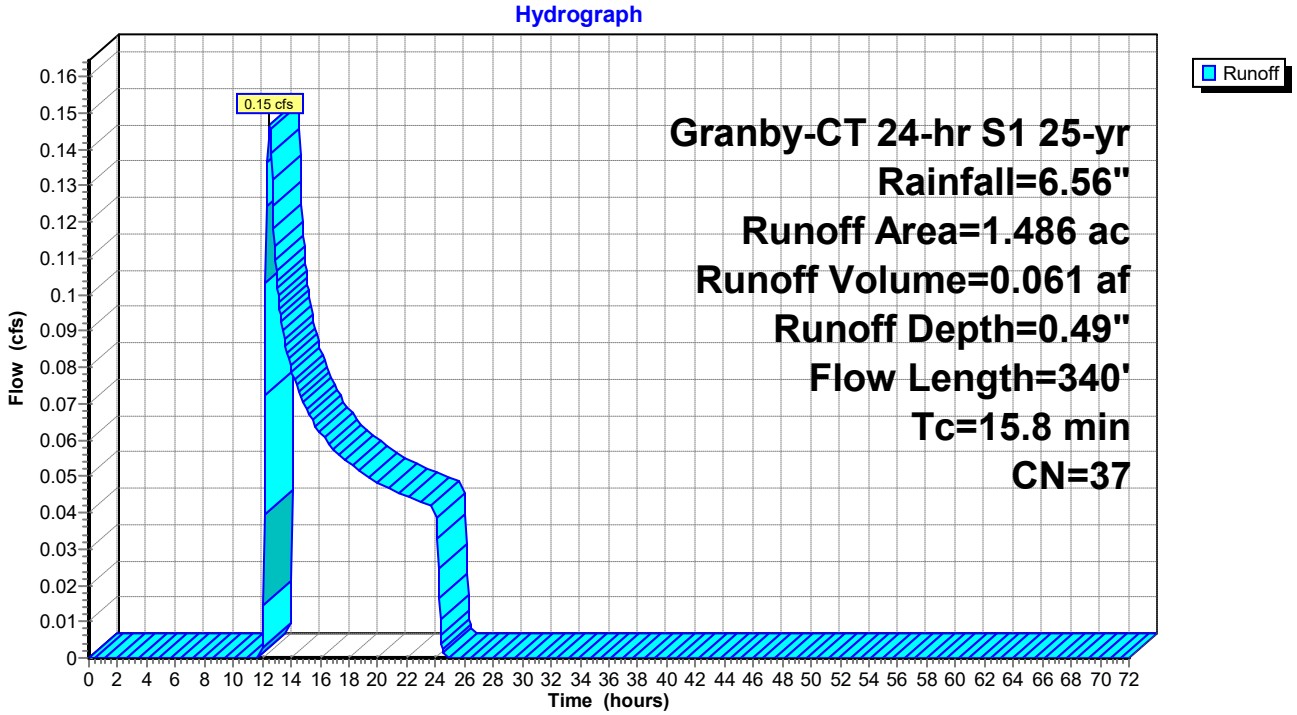
Runoff = 0.15 cfs @ 12.51 hrs, Volume= 0.061 af, Depth= 0.49"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 25-yr Rainfall=6.56"

Area (ac)	CN	Description
0.426	39	>75% Grass cover, Good, HSG A
1.061	36	Woods, Fair, HSG A
1.486	37	Weighted Average
1.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
2.0	120	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	170	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	340	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

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

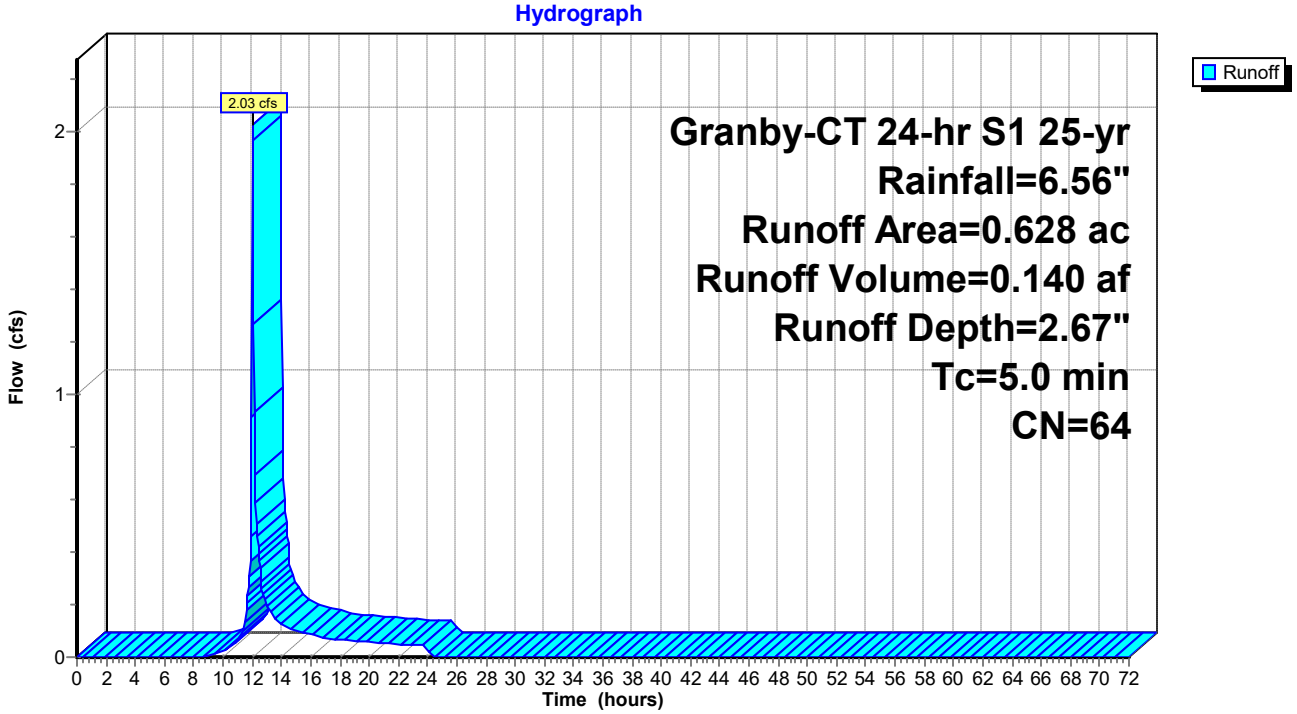
Runoff = 2.03 cfs @ 12.03 hrs, Volume= 0.140 af, Depth= 2.67"
Routed to Pond IP-1 : IP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 25-yr Rainfall=6.56"

Area (ac)	CN	Description
0.318	39	>75% Grass cover, Good, HSG A
0.020	98	Paved parking, HSG A
0.255	96	Gravel surface, HSG A
0.035	36	Woods, Fair, HSG A
0.628	64	Weighted Average
0.608		96.82% Pervious Area
0.020		3.18% Impervious Area

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

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

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

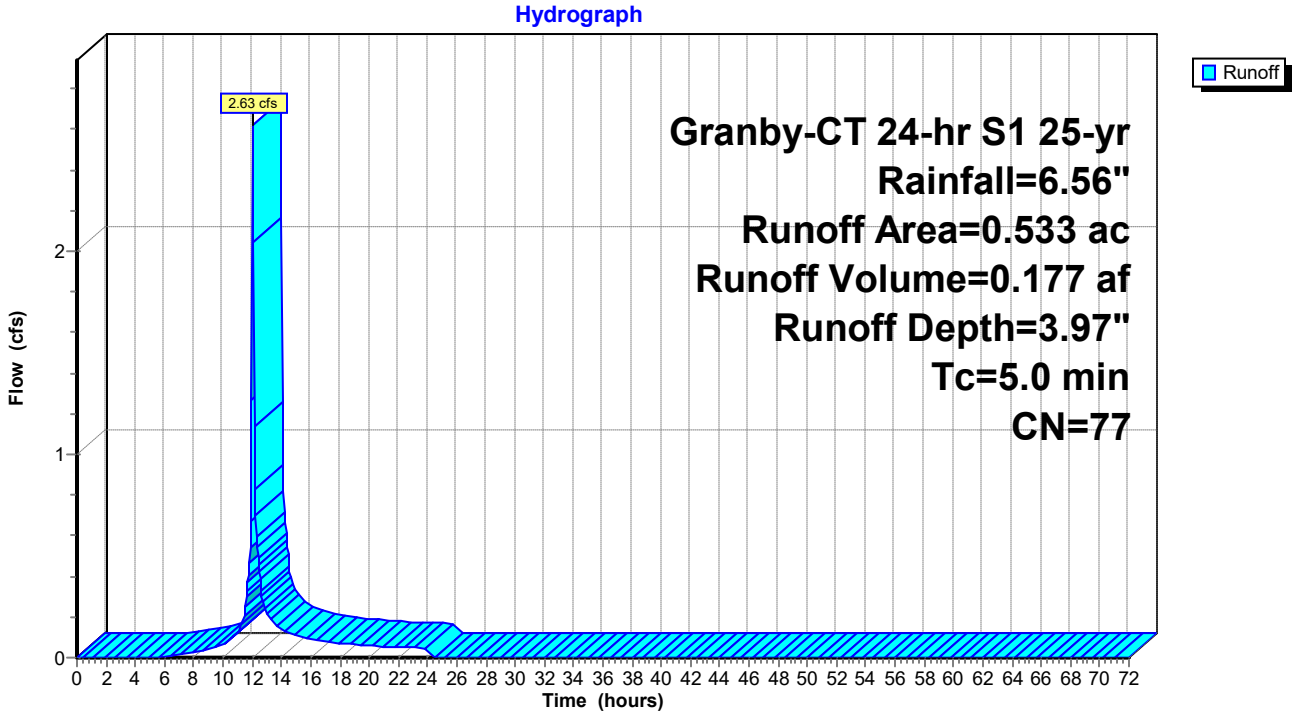
Runoff = 2.63 cfs @ 12.03 hrs, Volume= 0.177 af, Depth= 3.97"
Routed to Pond IP-2 : IP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 25-yr Rainfall=6.56"

Area (ac)	CN	Description
0.178	39	>75% Grass cover, Good, HSG A
0.038	98	Paved parking, HSG A
0.317	96	Gravel surface, HSG A
0.533	77	Weighted Average
0.495		92.86% Pervious Area
0.038		7.14% Impervious Area

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

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

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

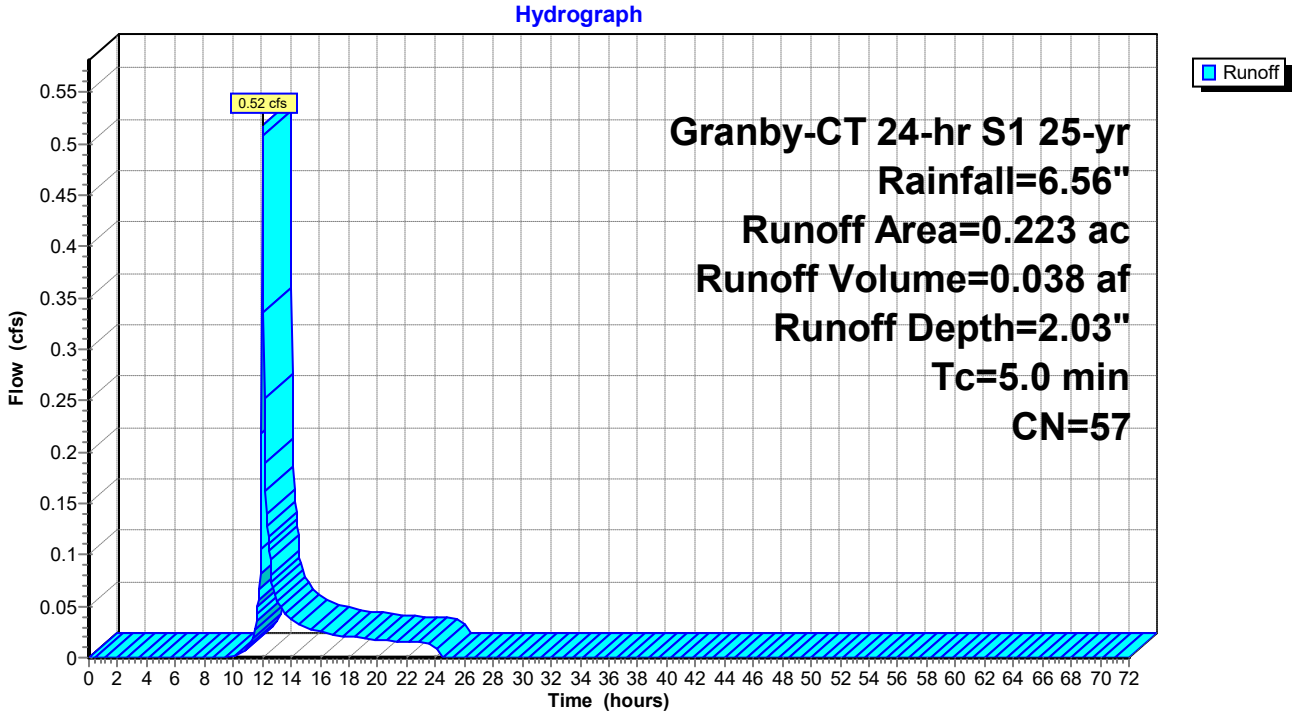
Runoff = 0.52 cfs @ 12.03 hrs, Volume= 0.038 af, Depth= 2.03"
Routed to Pond 1P : IP-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 25-yr Rainfall=6.56"

Area (ac)	CN	Description
0.019	36	Woods, Fair, HSG A
0.000	35	Brush, Fair, HSG A
0.134	39	>75% Grass cover, Good, HSG A
0.071	96	Gravel surface, HSG A
0.223	57	Weighted Average
0.223		100.00% Pervious Area

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

Subcatchment PR-5: Subcat PR-5



Summary for Pond 1P: IP-3

Inflow Area = 0.223 ac, 0.00% Impervious, Inflow Depth = 2.03" for 25-yr event
Inflow = 0.52 cfs @ 12.03 hrs, Volume= 0.038 af
Outflow = 0.11 cfs @ 12.43 hrs, Volume= 0.038 af, Atten= 78%, Lag= 23.6 min
Discarded = 0.11 cfs @ 12.43 hrs, Volume= 0.038 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 205.35' @ 12.43 hrs Surf.Area= 820 sf Storage= 265 cf

Plug-Flow detention time= 12.4 min calculated for 0.038 af (100% of inflow)
Center-of-Mass det. time= 12.4 min (913.9 - 901.5)

Volume	Invert	Avail.Storage	Storage Description
#1	205.00'	4,089 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

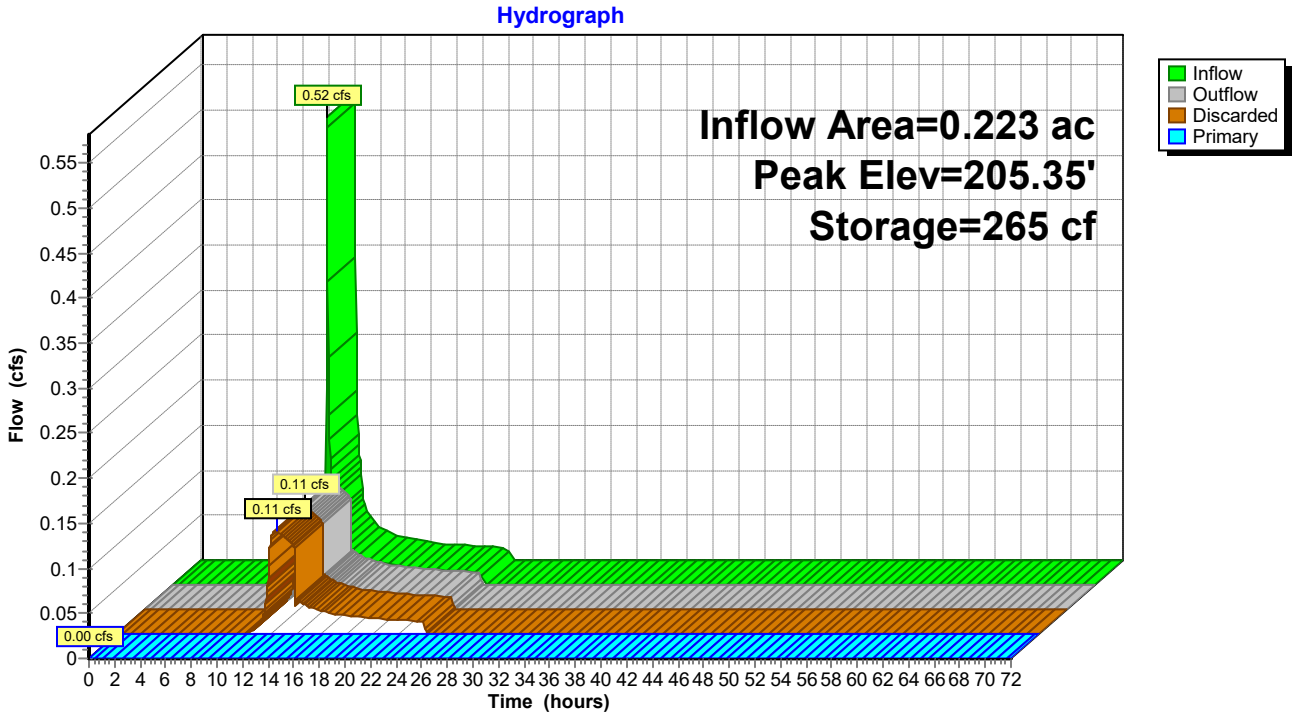
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
205.00	688	137.1	0.0	0	0	688
208.00	2,177	193.7	100.0	4,089	4,089	2,258

Device	Routing	Invert	Outlet Devices
#1	Discarded	205.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	207.00'	**4.0' 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

Discarded OutFlow Max=0.11 cfs @ 12.43 hrs HW=205.35' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=205.00' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: IP-3


Hydrograph
Inflow Area=0.223 ac
Peak Elev=205.35'
Storage=265 cf
Inflow
Outflow
Discarded
Primary
0.52 cfs
0.11 cfs
0.11 cfs
0.00 cfs
Flow (cfs)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Stage-Area-Storage for Pond 1P: IP-3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	688	0
205.05	706	35
205.10	724	71
205.15	743	107
205.20	761	145
205.25	780	183
205.30	799	223
205.35	819	263
205.40	838	305
205.45	858	347
205.50	878	391
205.55	899	435
205.60	919	480
205.65	940	527
205.70	961	574
205.75	982	623
205.80	1,003	673
205.85	1,025	723
205.90	1,047	775
205.95	1,069	828
206.00	1,092	882
206.05	1,114	937
206.10	1,137	993
206.15	1,160	1,051
206.20	1,183	1,110
206.25	1,207	1,169
206.30	1,231	1,230
206.35	1,255	1,292
206.40	1,279	1,356
206.45	1,303	1,420
206.50	1,328	1,486
206.55	1,353	1,553
206.60	1,378	1,621
206.65	1,404	1,691
206.70	1,429	1,762
206.75	1,455	1,834
206.80	1,481	1,907
206.85	1,508	1,982
206.90	1,534	2,058
206.95	1,561	2,135
207.00	1,588	2,214
207.05	1,615	2,294
207.10	1,643	2,376
207.15	1,670	2,458
207.20	1,698	2,543
207.25	1,727	2,628
207.30	1,755	2,715
207.35	1,784	2,804
207.40	1,812	2,894
207.45	1,842	2,985
207.50	1,871	3,078
207.55	1,900	3,172
207.60	1,930	3,268
207.65	1,960	3,365
207.70	1,991	3,464
207.75	2,021	3,564
207.80	2,052	3,666
207.85	2,083	3,769
207.90	2,114	3,874
207.95	2,145	3,981
208.00	**2,177**	**4,089**

Summary for Pond IP-1: IP-1

Inflow Area = 0.628 ac, 3.18% Impervious, Inflow Depth = 2.67" for 25-yr event
Inflow = 2.03 cfs @ 12.03 hrs, Volume= 0.140 af
Outflow = 0.30 cfs @ 12.59 hrs, Volume= 0.140 af, Atten= 85%, Lag= 33.6 min
Discarded = 0.30 cfs @ 12.59 hrs, Volume= 0.140 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 201.79' @ 12.59 hrs Surf.Area= 2,159 sf Storage= 1,411 cf

Plug-Flow detention time= 31.9 min calculated for 0.140 af (100% of inflow)
Center-of-Mass det. time= 31.9 min (910.7 - 878.9)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	9,025 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

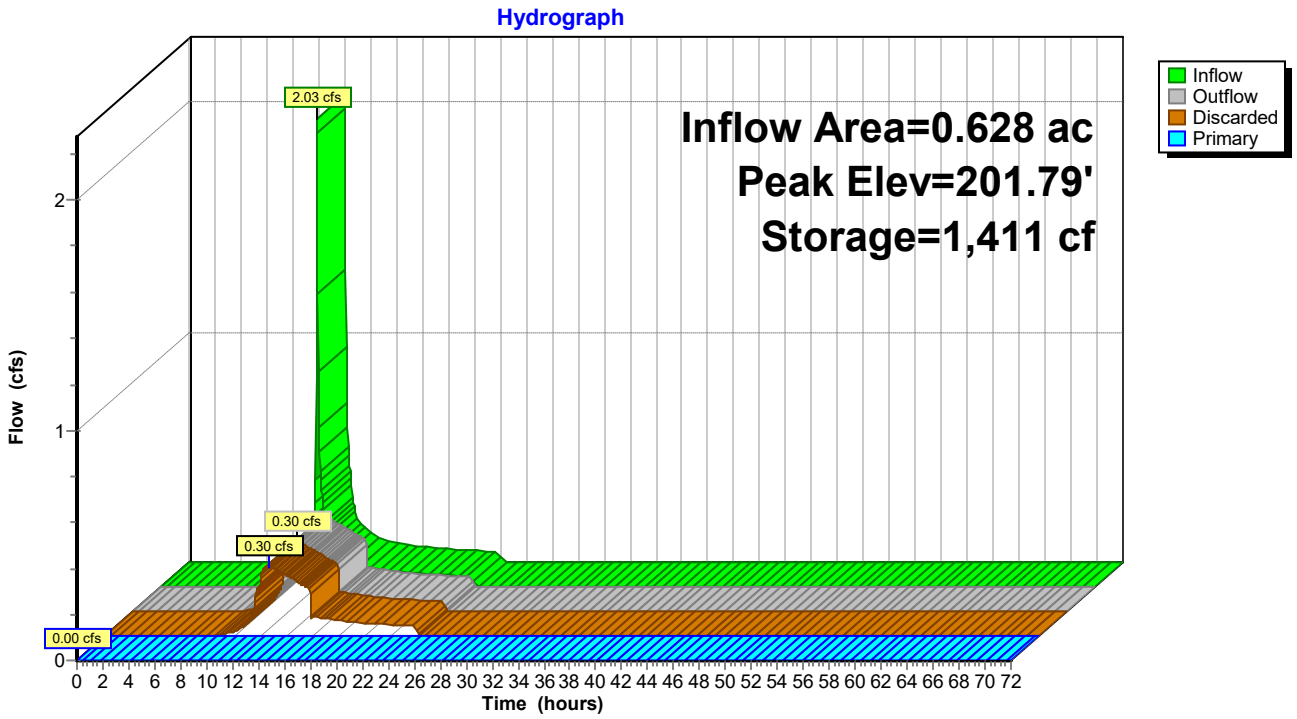
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.00	1,449	353.0	0.0	0	0	1,449
204.00	4,909	412.1	100.0	9,025	9,025	5,226

Device	Routing	Invert	Outlet Devices
#1	Primary	203.00'	**4.0' 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
#2	Discarded	201.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.30 cfs @ 12.59 hrs HW=201.79' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.30 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=201.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond IP-1: IP-1


Hydrograph
Inflow Area=0.628 ac
Peak Elev=201.79'
Storage=1,411 cf
Inflow
Outflow
Discarded
Primary
2.03 cfs
0.30 cfs
0.30 cfs
0.00 cfs
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Stage-Area-Storage for Pond IP-1: IP-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
201.00	1,449	0
201.05	1,490	73
201.10	1,531	149
201.15	1,573	227
201.20	1,616	306
201.25	1,659	388
201.30	1,703	472
201.35	1,747	559
201.40	1,792	647
201.45	1,837	738
201.50	1,883	831
201.55	1,930	926
201.60	1,977	1,024
201.65	2,025	1,124
201.70	2,073	1,226
201.75	2,122	1,331
201.80	2,171	1,438
201.85	2,221	1,548
201.90	2,272	1,661
201.95	2,323	1,775
202.00	2,375	1,893
202.05	2,427	2,013
202.10	2,480	2,136
202.15	2,533	2,261
202.20	2,587	2,389
202.25	2,642	2,520
202.30	2,697	2,653
202.35	2,753	2,789
202.40	2,809	2,928
202.45	2,866	3,070
202.50	2,923	3,215
202.55	2,981	3,363
202.60	3,039	3,513
202.65	3,099	3,667
202.70	3,158	3,823
202.75	3,218	3,982
202.80	3,279	4,145
202.85	3,341	4,310
202.90	3,403	4,479
202.95	3,465	4,651
203.00	3,528	4,825
203.05	3,592	5,003
203.10	3,656	5,185
203.15	3,721	5,369
203.20	3,786	5,557
203.25	3,852	5,748
203.30	3,919	5,942
203.35	3,986	6,140
203.40	4,053	6,340
203.45	4,121	6,545
203.50	4,190	6,753
203.55	4,259	6,964
203.60	4,329	7,179
203.65	4,400	7,397
203.70	4,471	7,619
203.75	4,542	7,844
203.80	4,615	8,073
203.85	4,687	8,305
203.90	4,761	8,542
203.95	4,835	8,781
204.00	**4,909**	**9,025**

Summary for Pond IP-2: IP-2

Inflow Area = 0.533 ac, 7.14% Impervious, Inflow Depth = 3.97" for 25-yr event
Inflow = 2.63 cfs @ 12.03 hrs, Volume= 0.177 af
Outflow = 0.28 cfs @ 12.70 hrs, Volume= 0.177 af, Atten= 89%, Lag= 40.5 min
Discarded = 0.28 cfs @ 12.70 hrs, Volume= 0.177 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 204.64' @ 12.70 hrs Surf.Area= 2,018 sf Storage= 2,325 cf

Plug-Flow detention time= 70.9 min calculated for 0.176 af (100% of inflow)
Center-of-Mass det. time= 70.9 min (909.9 - 839.0)

Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	5,907 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

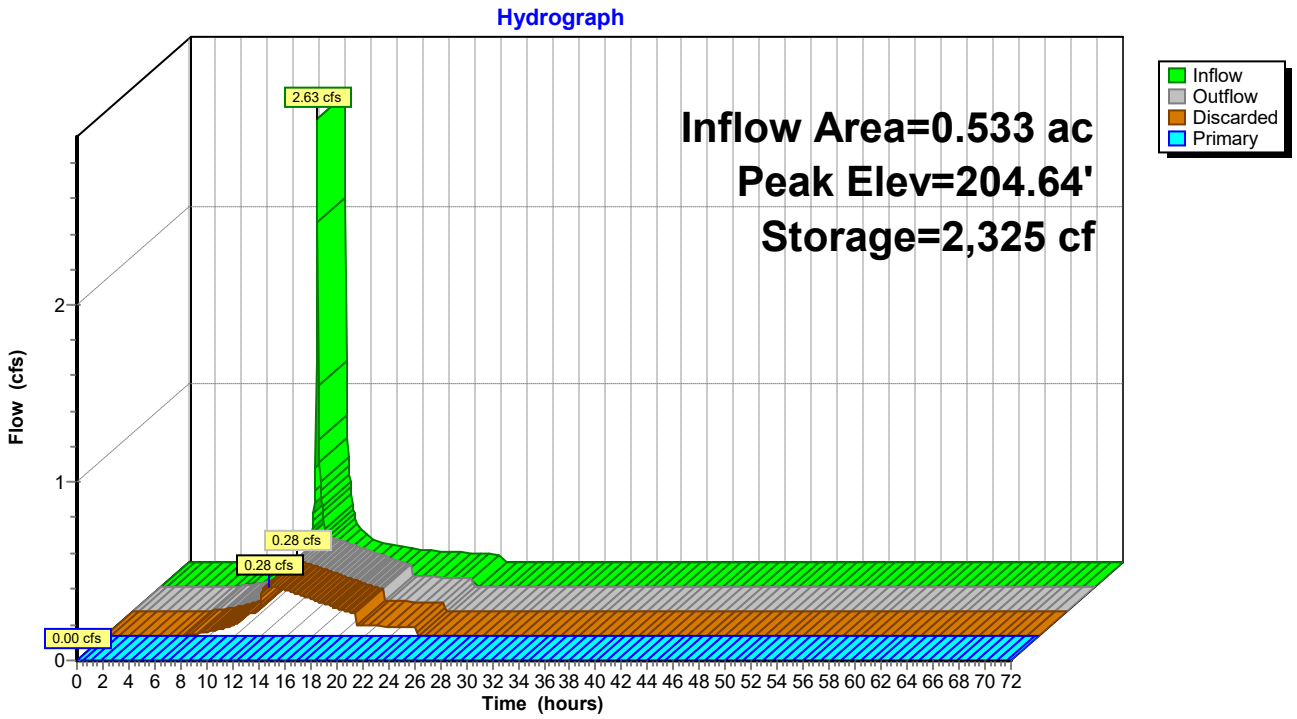
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
203.00	895	238.4	0.0	0	0	895
206.00	3,295	294.9	100.0	5,907	5,907	3,423

Device	Routing	Invert	Outlet Devices
#1	Primary	205.00'	**6.0' 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
#2	Discarded	203.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.28 cfs @ 12.70 hrs HW=204.64' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=203.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IP-2: IP-2


Hydrograph
Inflow Area=0.533 ac
Peak Elev=204.64'
Storage=2,325 cf
Inflow
Outflow
Discarded
Primary
2.63 cfs
0.28 cfs
0.28 cfs
0.00 cfs
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Stage-Area-Storage for Pond IP-2: IP-2

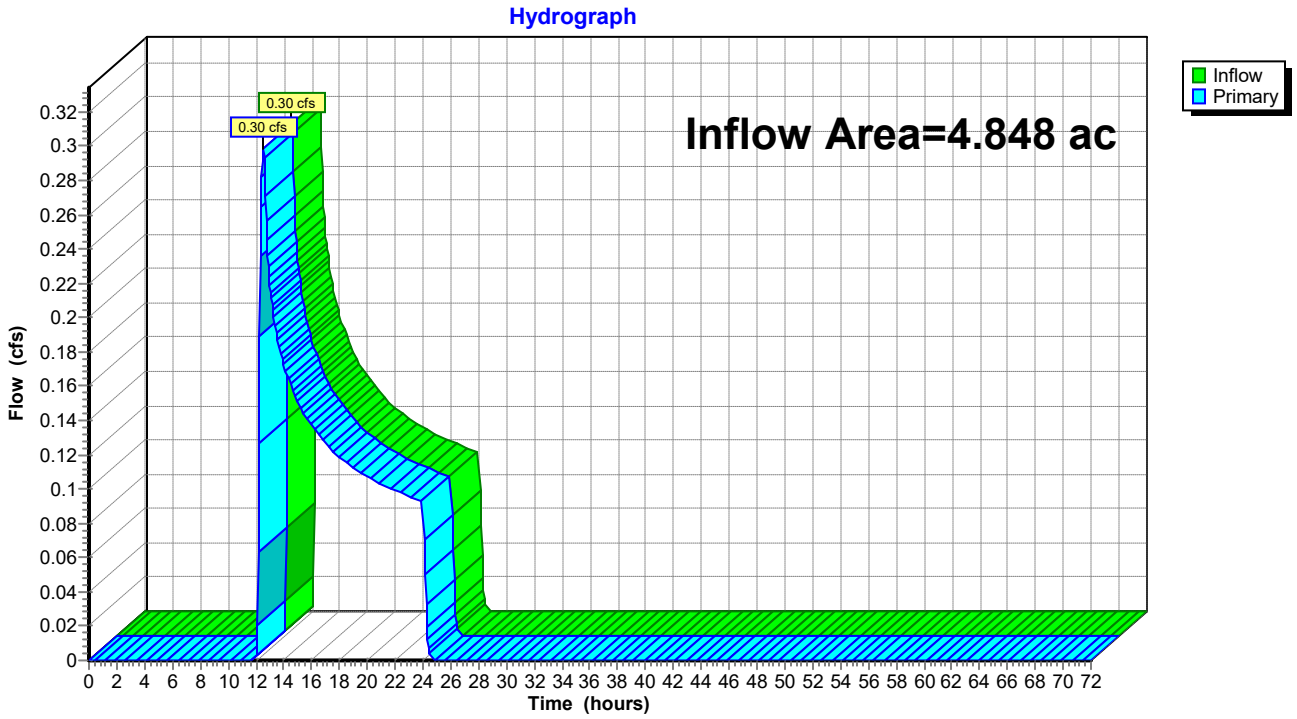
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	895	0
203.05	923	45
203.10	951	92
203.15	979	141
203.20	1,008	190
203.25	1,037	241
203.30	1,067	294
203.35	1,097	348
203.40	1,128	404
203.45	1,159	461
203.50	1,190	520
203.55	1,222	580
203.60	1,254	642
203.65	1,287	705
203.70	1,320	770
203.75	1,353	837
203.80	1,387	906
203.85	1,422	976
203.90	1,456	1,048
203.95	1,492	1,122
204.00	1,527	1,197
204.05	1,563	1,274
204.10	1,600	1,353
204.15	1,636	1,434
204.20	1,674	1,517
204.25	1,711	1,602
204.30	1,749	1,688
204.35	1,788	1,777
204.40	1,827	1,867
204.45	1,866	1,959
204.50	1,906	2,054
204.55	1,946	2,150
204.60	1,987	2,248
204.65	2,028	2,349
204.70	2,069	2,451
204.75	2,111	2,556
204.80	2,154	2,662
204.85	2,196	2,771
204.90	2,240	2,882
204.95	2,283	2,995
205.00	2,327	3,110
205.05	2,372	3,228
205.10	2,416	3,347
205.15	2,462	3,469
205.20	2,507	3,594
205.25	2,553	3,720
205.30	2,600	3,849
205.35	2,647	3,980
205.40	2,694	4,114
205.45	2,742	4,249
205.50	2,790	4,388
205.55	2,839	4,528
205.60	2,888	4,672
205.65	2,937	4,817
205.70	2,987	4,965
205.75	3,037	5,116
205.80	3,088	5,269
205.85	3,139	5,425
205.90	3,191	5,583
205.95	3,243	5,744
206.00	**3,295**	**5,907**

Summary for Link DP-1: DP-1

Inflow Area = 4.848 ac, 1.20% Impervious, Inflow Depth = 0.33" for 25-yr event
Inflow = 0.30 cfs @ 12.54 hrs, Volume= 0.133 af
Primary = 0.30 cfs @ 12.54 hrs, Volume= 0.133 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: DP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
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 PR-1: Subcat PR-1 Runoff Area=1.977 ac 0.00% Impervious Runoff Depth=0.71"
Flow Length=300' Tc=14.2 min CN=36 Runoff=0.39 cfs 0.117 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=1.486 ac 0.00% Impervious Runoff Depth=0.79"
Flow Length=340' Tc=15.8 min CN=37 Runoff=0.36 cfs 0.097 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=0.628 ac 3.18% Impervious Runoff Depth=3.37"
Tc=5.0 min CN=64 Runoff=2.57 cfs 0.176 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=0.533 ac 7.14% Impervious Runoff Depth=4.80"
Tc=5.0 min CN=77 Runoff=3.18 cfs 0.213 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=0.223 ac 0.00% Impervious Runoff Depth=2.64"
Tc=5.0 min CN=57 Runoff=0.69 cfs 0.049 af

Pond 1P: IP-3 Peak Elev=205.53' Storage=413 cf Inflow=0.69 cfs 0.049 af
Discarded=0.12 cfs 0.049 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.049 af

Pond IP-1: IP-1 Peak Elev=202.03' Storage=1,957 cf Inflow=2.57 cfs 0.176 af
Discarded=0.33 cfs 0.176 af Primary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.176 af

Pond IP-2: IP-2 Peak Elev=204.92' Storage=2,936 cf Inflow=3.18 cfs 0.213 af
Discarded=0.31 cfs 0.213 af Primary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.213 af

Link DP-1: DP-1 Inflow=0.75 cfs 0.214 af
Primary=0.75 cfs 0.214 af

Total Runoff Area = 4.848 ac Runoff Volume = 0.653 af Average Runoff Depth = 1.62"
98.80% Pervious = 4.790 ac 1.20% Impervious = 0.058 ac

Summary for Subcatchment PR-1: Subcat PR-1

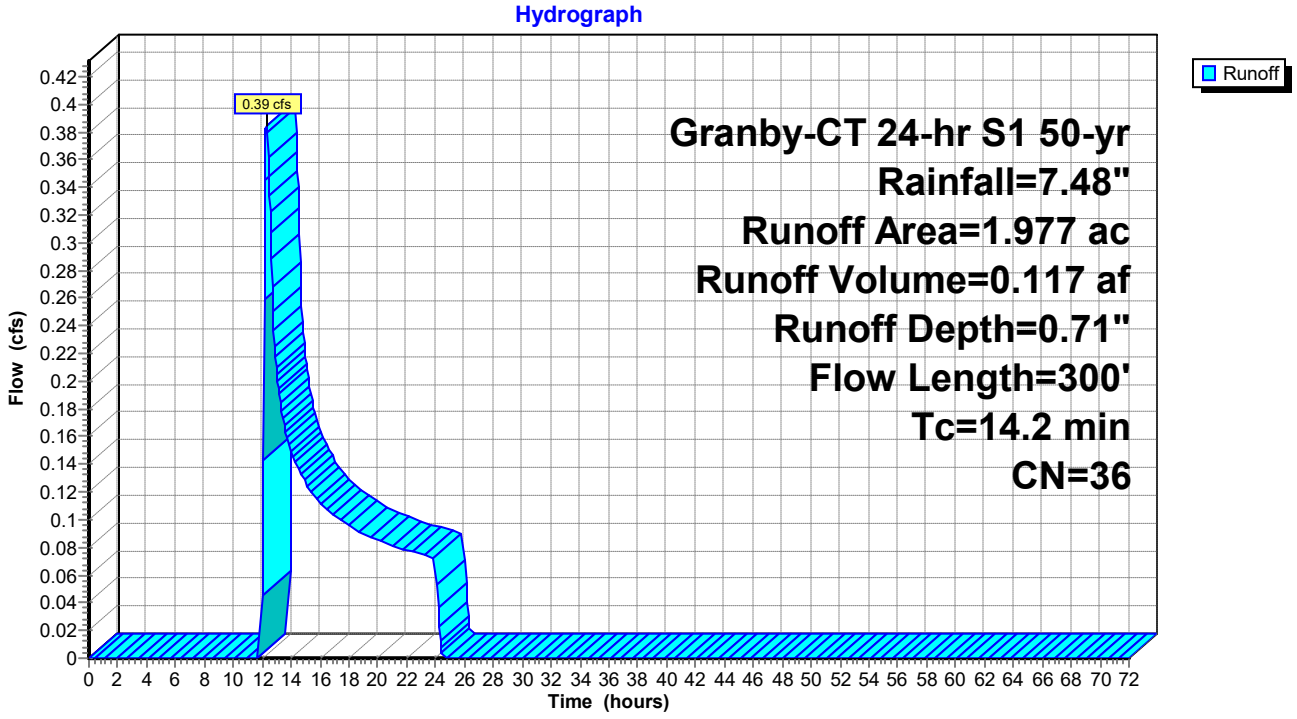
Runoff = 0.39 cfs @ 12.29 hrs, Volume= 0.117 af, Depth= 0.71"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 50-yr Rainfall=7.48"

	Area (ac)	CN	Description
*	0.322	36	Brush, Fair, HSG A
	0.176	39	>75% Grass cover, Good, HSG A
	1.479	36	Woods, Fair, HSG A
	1.977	36	Weighted Average
	1.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
0.6	80	0.2300	2.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	170	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	300	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

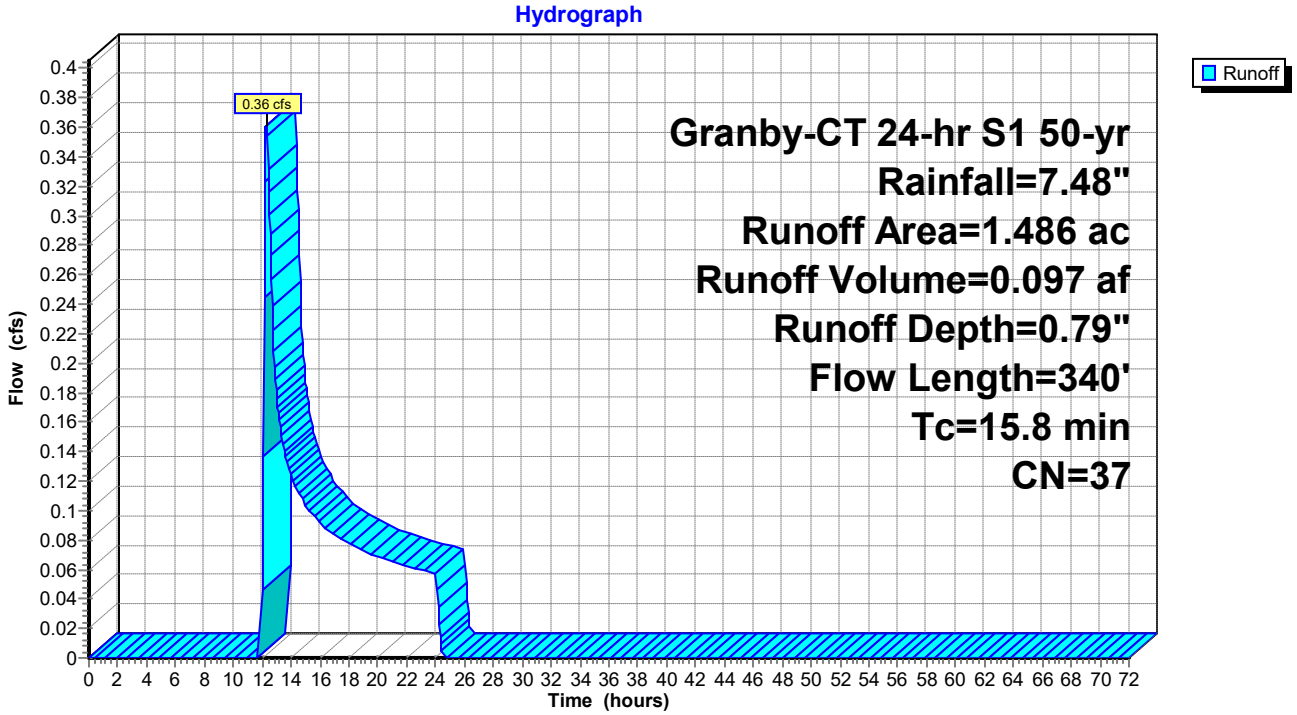
Runoff = 0.36 cfs @ 12.28 hrs, Volume= 0.097 af, Depth= 0.79"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 50-yr Rainfall=7.48"

Area (ac)	CN	Description
0.426	39	>75% Grass cover, Good, HSG A
1.061	36	Woods, Fair, HSG A
1.486	37	Weighted Average
1.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
2.0	120	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	170	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	340	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

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

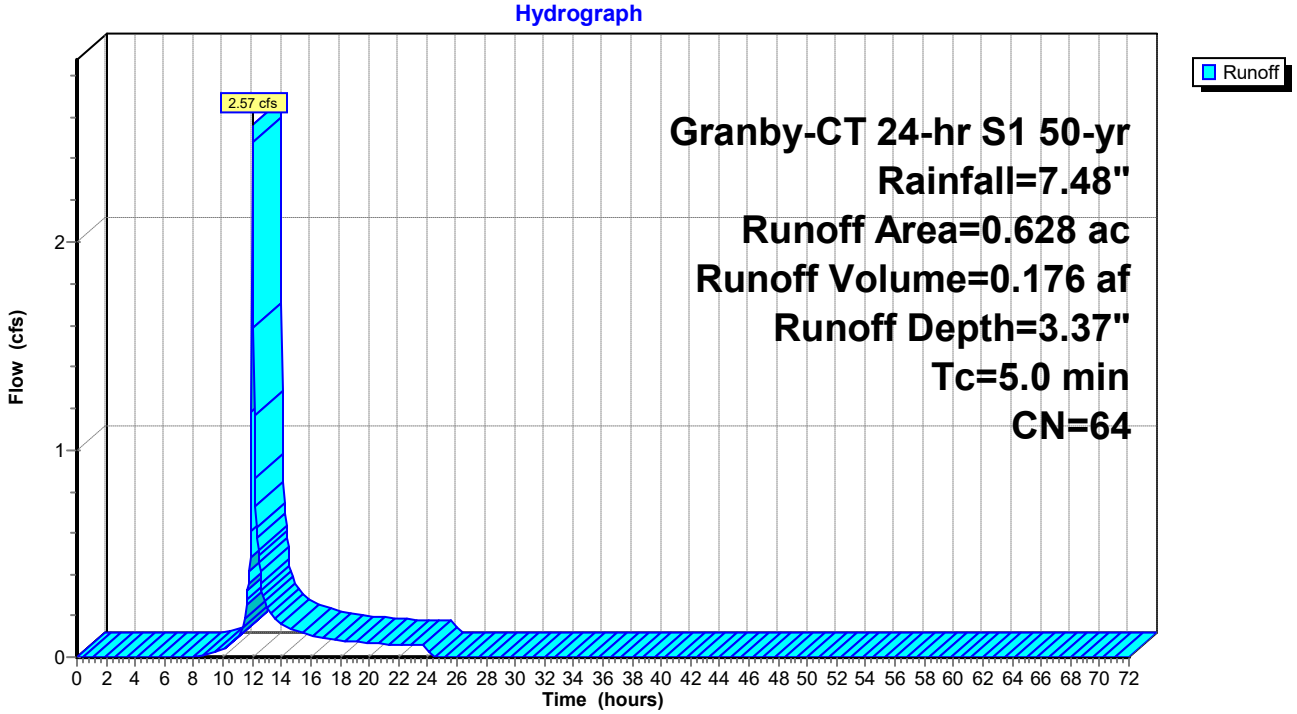
Runoff = 2.57 cfs @ 12.03 hrs, Volume= 0.176 af, Depth= 3.37"
Routed to Pond IP-1 : IP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 50-yr Rainfall=7.48"

Area (ac)	CN	Description
0.318	39	>75% Grass cover, Good, HSG A
0.020	98	Paved parking, HSG A
0.255	96	Gravel surface, HSG A
0.035	36	Woods, Fair, HSG A
0.628	64	Weighted Average
0.608		96.82% Pervious Area
0.020		3.18% Impervious Area

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

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

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

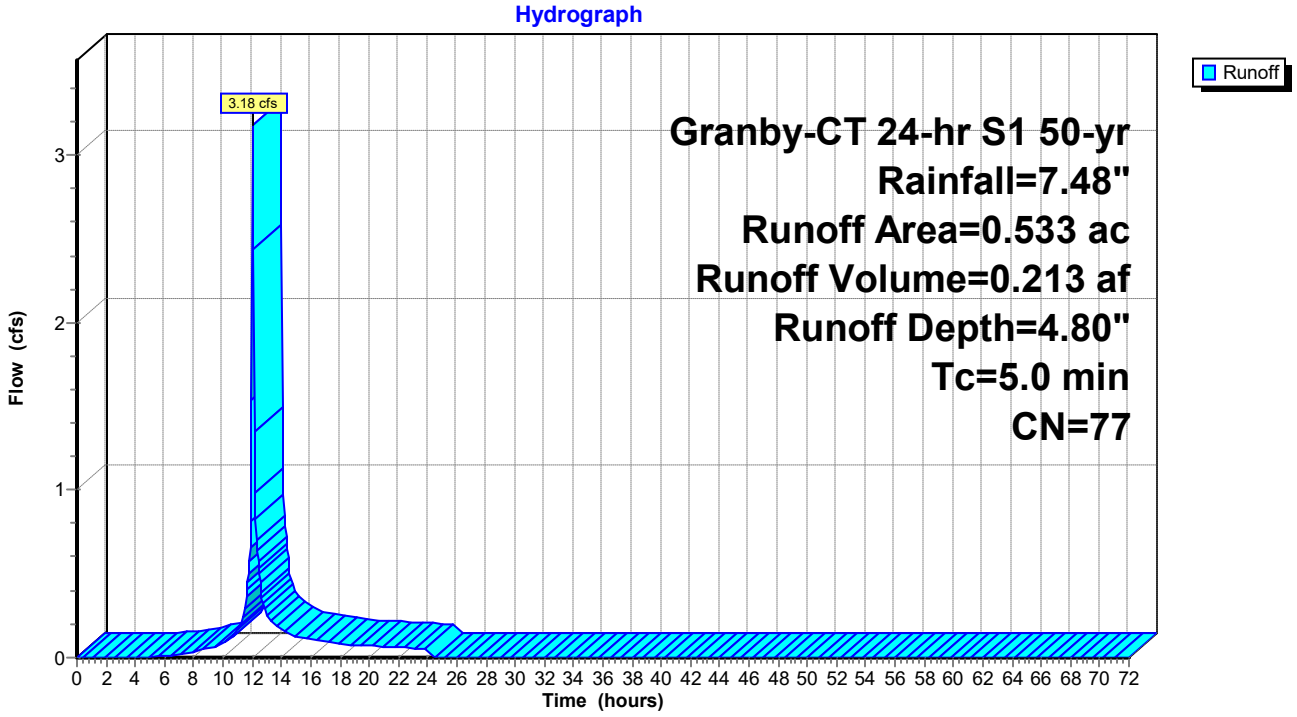
Runoff = 3.18 cfs @ 12.02 hrs, Volume= 0.213 af, Depth= 4.80"
Routed to Pond IP-2 : IP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 50-yr Rainfall=7.48"

Area (ac)	CN	Description
0.178	39	>75% Grass cover, Good, HSG A
0.038	98	Paved parking, HSG A
0.317	96	Gravel surface, HSG A
0.533	77	Weighted Average
0.495		92.86% Pervious Area
0.038		7.14% Impervious Area

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

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

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

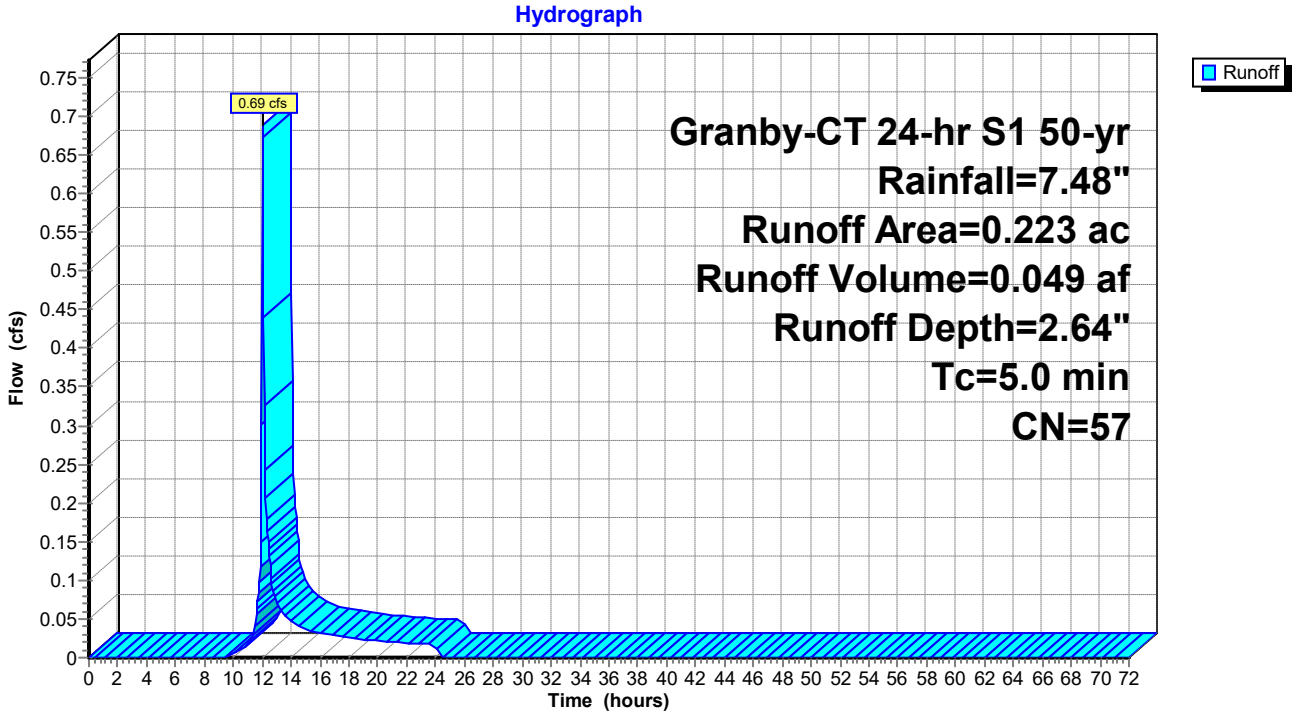
Runoff = 0.69 cfs @ 12.03 hrs, Volume= 0.049 af, Depth= 2.64"
Routed to Pond 1P : IP-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 50-yr Rainfall=7.48"

Area (ac)	CN	Description
0.019	36	Woods, Fair, HSG A
0.000	35	Brush, Fair, HSG A
0.134	39	>75% Grass cover, Good, HSG A
0.071	96	Gravel surface, HSG A
0.223	57	Weighted Average
0.223		100.00% Pervious Area

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

Subcatchment PR-5: Subcat PR-5



Summary for Pond 1P: IP-3

Inflow Area = 0.223 ac, 0.00% Impervious, Inflow Depth = 2.64" for 50-yr event
Inflow = 0.69 cfs @ 12.03 hrs, Volume= 0.049 af
Outflow = 0.12 cfs @ 12.53 hrs, Volume= 0.049 af, Atten= 82%, Lag= 30.1 min
Discarded = 0.12 cfs @ 12.53 hrs, Volume= 0.049 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 205.53' @ 12.53 hrs Surf.Area= 889 sf Storage= 413 cf

Plug-Flow detention time= 19.8 min calculated for 0.049 af (100% of inflow)
Center-of-Mass det. time= 19.8 min (911.6 - 891.8)

Volume	Invert	Avail.Storage	Storage Description
#1	205.00'	4,089 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

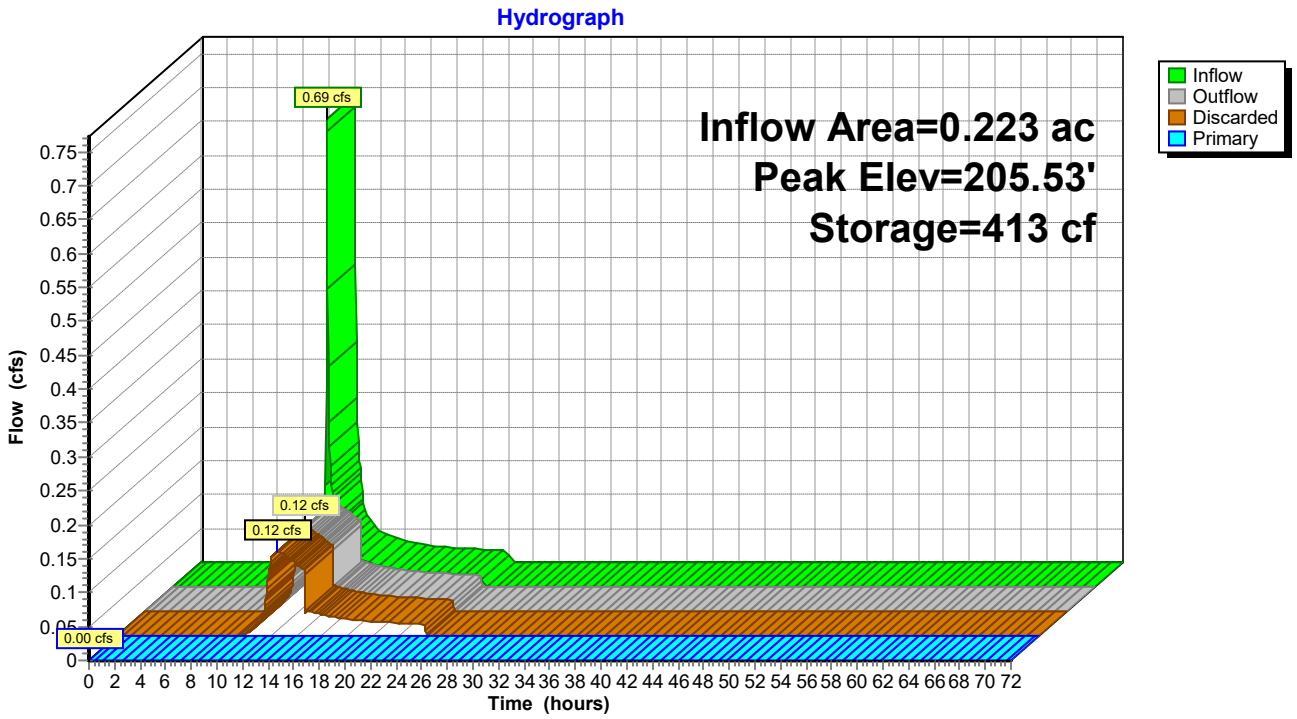
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
205.00	688	137.1	0.0	0	0	688
208.00	2,177	193.7	100.0	4,089	4,089	2,258

Device	Routing	Invert	Outlet Devices
#1	Discarded	205.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	207.00'	**4.0' 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

Discarded OutFlow Max=0.12 cfs @ 12.53 hrs HW=205.53' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=205.00' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: IP-3


Hydrograph
Inflow Area=0.223 ac
Peak Elev=205.53'
Storage=413 cf
Inflow
Outflow
Discarded
Primary
0.69 cfs
0.12 cfs
0.12 cfs
0.00 cfs
Flow (cfs)
Time (hours)

Stage-Area-Storage for Pond 1P: IP-3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	688	0
205.05	706	35
205.10	724	71
205.15	743	107
205.20	761	145
205.25	780	183
205.30	799	223
205.35	819	263
205.40	838	305
205.45	858	347
205.50	878	391
205.55	899	435
205.60	919	480
205.65	940	527
205.70	961	574
205.75	982	623
205.80	1,003	673
205.85	1,025	723
205.90	1,047	775
205.95	1,069	828
206.00	1,092	882
206.05	1,114	937
206.10	1,137	993
206.15	1,160	1,051
206.20	1,183	1,110
206.25	1,207	1,169
206.30	1,231	1,230
206.35	1,255	1,292
206.40	1,279	1,356
206.45	1,303	1,420
206.50	1,328	1,486
206.55	1,353	1,553
206.60	1,378	1,621
206.65	1,404	1,691
206.70	1,429	1,762
206.75	1,455	1,834
206.80	1,481	1,907
206.85	1,508	1,982
206.90	1,534	2,058
206.95	1,561	2,135
207.00	1,588	2,214
207.05	1,615	2,294
207.10	1,643	2,376
207.15	1,670	2,458
207.20	1,698	2,543
207.25	1,727	2,628
207.30	1,755	2,715
207.35	1,784	2,804
207.40	1,812	2,894
207.45	1,842	2,985
207.50	1,871	3,078
207.55	1,900	3,172
207.60	1,930	3,268
207.65	1,960	3,365
207.70	1,991	3,464
207.75	2,021	3,564
207.80	2,052	3,666
207.85	2,083	3,769
207.90	2,114	3,874
207.95	2,145	3,981
208.00	**2,177**	**4,089**

Summary for Pond IP-1: IP-1

Inflow Area = 0.628 ac, 3.18% Impervious, Inflow Depth = 3.37" for 50-yr event
Inflow = 2.57 cfs @ 12.03 hrs, Volume= 0.176 af
Outflow = 0.33 cfs @ 12.63 hrs, Volume= 0.176 af, Atten= 87%, Lag= 36.2 min
Discarded = 0.33 cfs @ 12.63 hrs, Volume= 0.176 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 202.03' @ 12.63 hrs Surf.Area= 2,403 sf Storage= 1,957 cf

Plug-Flow detention time= 43.5 min calculated for 0.176 af (100% of inflow)
Center-of-Mass det. time= 43.5 min (914.1 - 870.6)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	9,025 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

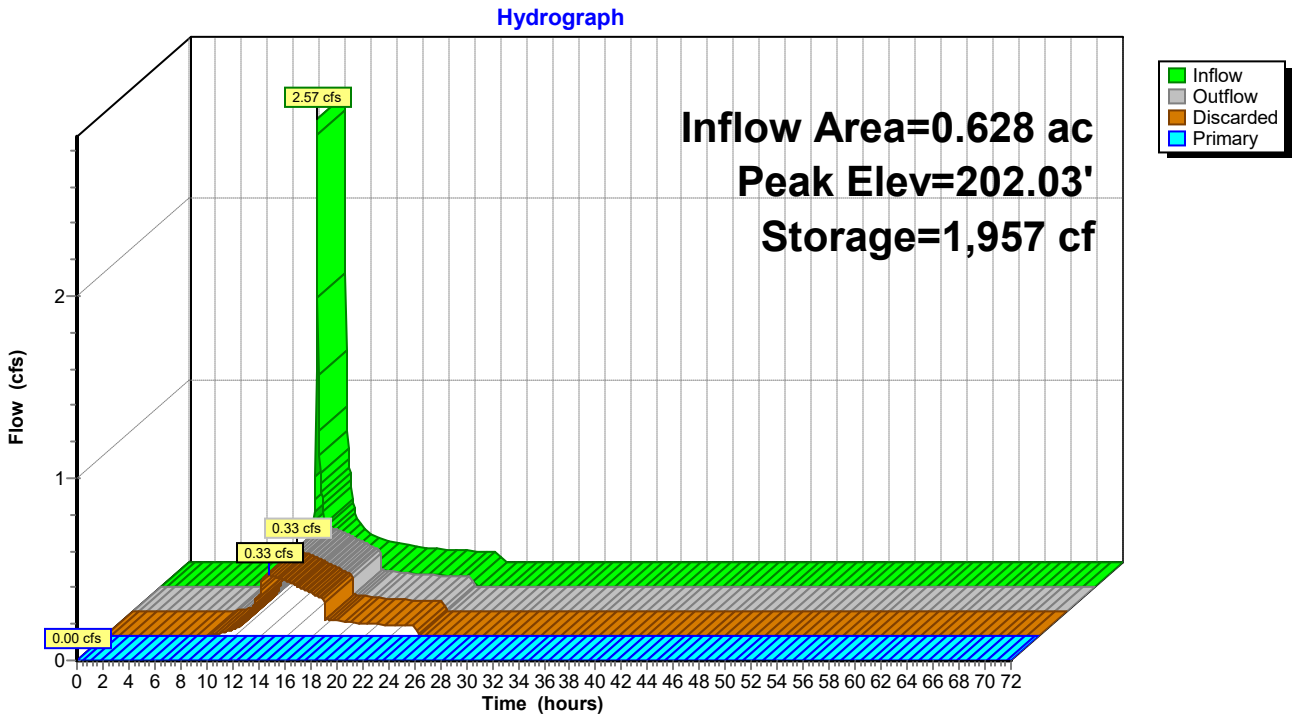
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.00	1,449	353.0	0.0	0	0	1,449
204.00	4,909	412.1	100.0	9,025	9,025	5,226

Device	Routing	Invert	Outlet Devices
#1	Primary	203.00'	**4.0' 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
#2	Discarded	201.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.33 cfs @ 12.63 hrs HW=202.03' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.33 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=201.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IP-1: IP-1


Hydrograph
Inflow Area=0.628 ac
Peak Elev=202.03'
Storage=1,957 cf
Inflow
Outflow
Discarded
Primary
2.57 cfs
0.33 cfs
0.33 cfs
0.00 cfs
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Stage-Area-Storage for Pond IP-1: IP-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
201.00	1,449	0
201.05	1,490	73
201.10	1,531	149
201.15	1,573	227
201.20	1,616	306
201.25	1,659	388
201.30	1,703	472
201.35	1,747	559
201.40	1,792	647
201.45	1,837	738
201.50	1,883	831
201.55	1,930	926
201.60	1,977	1,024
201.65	2,025	1,124
201.70	2,073	1,226
201.75	2,122	1,331
201.80	2,171	1,438
201.85	2,221	1,548
201.90	2,272	1,661
201.95	2,323	1,775
202.00	2,375	1,893
202.05	2,427	2,013
202.10	2,480	2,136
202.15	2,533	2,261
202.20	2,587	2,389
202.25	2,642	2,520
202.30	2,697	2,653
202.35	2,753	2,789
202.40	2,809	2,928
202.45	2,866	3,070
202.50	2,923	3,215
202.55	2,981	3,363
202.60	3,039	3,513
202.65	3,099	3,667
202.70	3,158	3,823
202.75	3,218	3,982
202.80	3,279	4,145
202.85	3,341	4,310
202.90	3,403	4,479
202.95	3,465	4,651
203.00	3,528	4,825
203.05	3,592	5,003
203.10	3,656	5,185
203.15	3,721	5,369
203.20	3,786	5,557
203.25	3,852	5,748
203.30	3,919	5,942
203.35	3,986	6,140
203.40	4,053	6,340
203.45	4,121	6,545
203.50	4,190	6,753
203.55	4,259	6,964
203.60	4,329	7,179
203.65	4,400	7,397
203.70	4,471	7,619
203.75	4,542	7,844
203.80	4,615	8,073
203.85	4,687	8,305
203.90	4,761	8,542
203.95	4,835	8,781
204.00	**4,909**	**9,025**

Summary for Pond IP-2: IP-2

Inflow Area = 0.533 ac, 7.14% Impervious, Inflow Depth = 4.80" for 50-yr event
Inflow = 3.18 cfs @ 12.02 hrs, Volume= 0.213 af
Outflow = 0.31 cfs @ 12.75 hrs, Volume= 0.213 af, Atten= 90%, Lag= 43.8 min
Discarded = 0.31 cfs @ 12.75 hrs, Volume= 0.213 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 204.92' @ 12.75 hrs Surf.Area= 2,261 sf Storage= 2,936 cf

Plug-Flow detention time= 84.5 min calculated for 0.213 af (100% of inflow)
Center-of-Mass det. time= 84.4 min (916.6 - 832.2)

Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	5,907 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

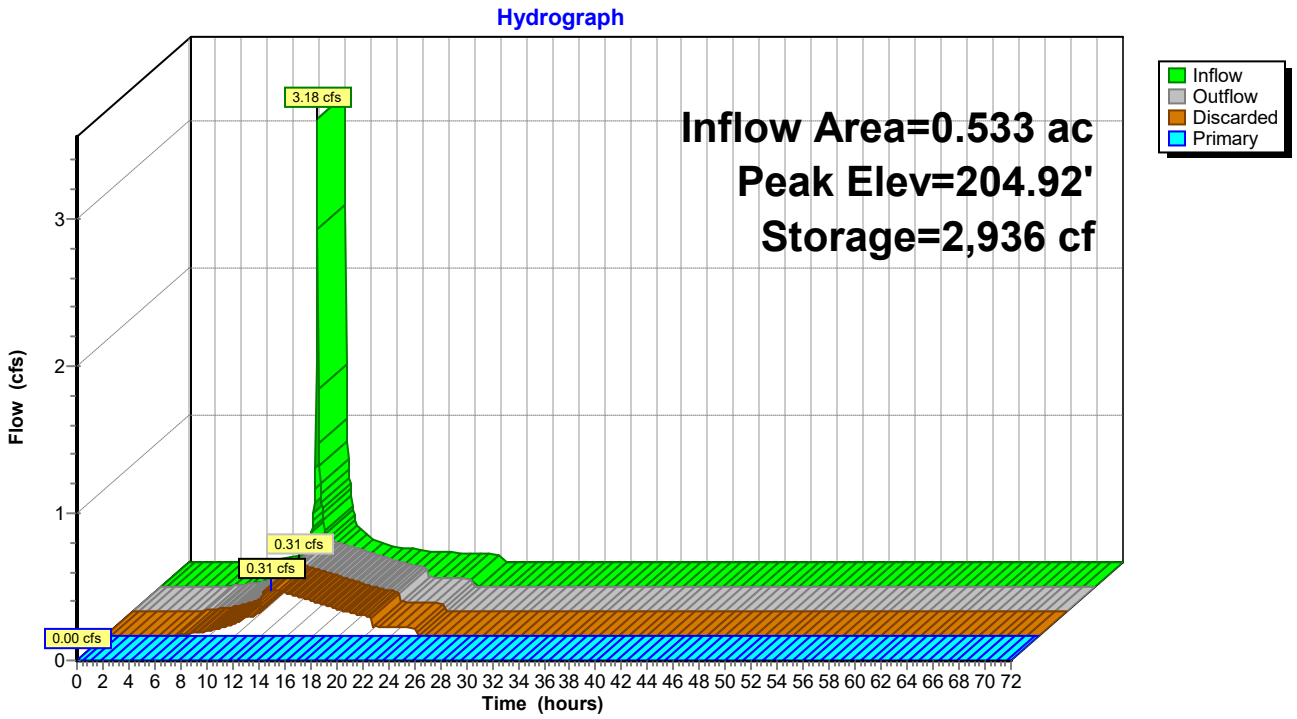
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
203.00	895	238.4	0.0	0	0	895
206.00	3,295	294.9	100.0	5,907	5,907	3,423

Device	Routing	Invert	Outlet Devices
#1	Primary	205.00'	**6.0' 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
#2	Discarded	203.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.31 cfs @ 12.75 hrs HW=204.92' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=203.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IP-2: IP-2


Hydrograph
Inflow Area=0.533 ac
Peak Elev=204.92'
Storage=2,936 cf
Inflow
Outflow
Discarded
Primary
3.18 cfs
0.31 cfs
0.31 cfs
0.00 cfs
Flow (cfs)
0
1
2
3
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Stage-Area-Storage for Pond IP-2: IP-2

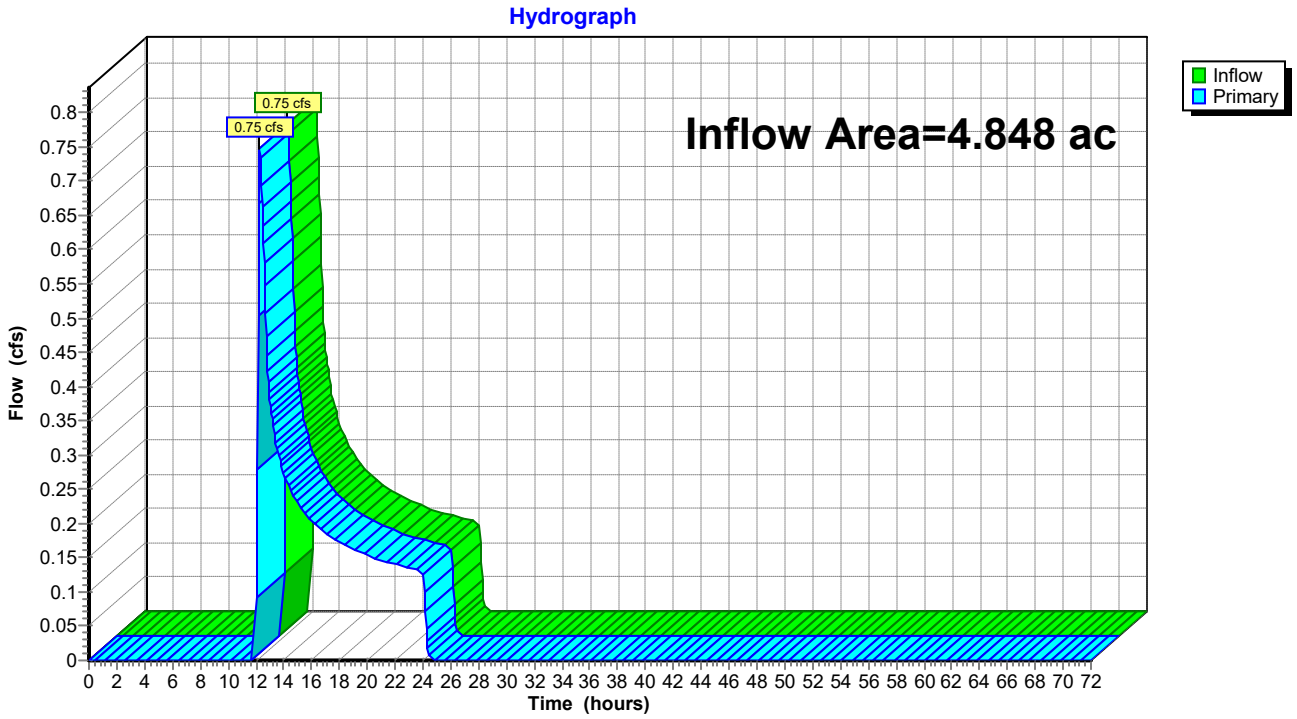
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	895	0
203.05	923	45
203.10	951	92
203.15	979	141
203.20	1,008	190
203.25	1,037	241
203.30	1,067	294
203.35	1,097	348
203.40	1,128	404
203.45	1,159	461
203.50	1,190	520
203.55	1,222	580
203.60	1,254	642
203.65	1,287	705
203.70	1,320	770
203.75	1,353	837
203.80	1,387	906
203.85	1,422	976
203.90	1,456	1,048
203.95	1,492	1,122
204.00	1,527	1,197
204.05	1,563	1,274
204.10	1,600	1,353
204.15	1,636	1,434
204.20	1,674	1,517
204.25	1,711	1,602
204.30	1,749	1,688
204.35	1,788	1,777
204.40	1,827	1,867
204.45	1,866	1,959
204.50	1,906	2,054
204.55	1,946	2,150
204.60	1,987	2,248
204.65	2,028	2,349
204.70	2,069	2,451
204.75	2,111	2,556
204.80	2,154	2,662
204.85	2,196	2,771
204.90	2,240	2,882
204.95	2,283	2,995
205.00	2,327	3,110
205.05	2,372	3,228
205.10	2,416	3,347
205.15	2,462	3,469
205.20	2,507	3,594
205.25	2,553	3,720
205.30	2,600	3,849
205.35	2,647	3,980
205.40	2,694	4,114
205.45	2,742	4,249
205.50	2,790	4,388
205.55	2,839	4,528
205.60	2,888	4,672
205.65	2,937	4,817
205.70	2,987	4,965
205.75	3,037	5,116
205.80	3,088	5,269
205.85	3,139	5,425
205.90	3,191	5,583
205.95	3,243	5,744
206.00	**3,295**	**5,907**

Summary for Link DP-1: DP-1

Inflow Area = 4.848 ac, 1.20% Impervious, Inflow Depth = 0.53" for 50-yr event
Inflow = 0.75 cfs @ 12.28 hrs, Volume= 0.214 af
Primary = 0.75 cfs @ 12.28 hrs, Volume= 0.214 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: DP-1



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
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 PR-1: Subcat PR-1 Runoff Area=1.977 ac 0.00% Impervious Runoff Depth=1.08"
Flow Length=300' Tc=14.2 min CN=36 Runoff=0.88 cfs 0.177 af

Subcatchment PR-2: Subcat PR-2 Runoff Area=1.486 ac 0.00% Impervious Runoff Depth=1.17"
Flow Length=340' Tc=15.8 min CN=37 Runoff=0.77 cfs 0.145 af

Subcatchment PR-3: Subcat PR-3 Runoff Area=0.628 ac 3.18% Impervious Runoff Depth=4.18"
Tc=5.0 min CN=64 Runoff=3.16 cfs 0.219 af

Subcatchment PR-4: Subcat PR-4 Runoff Area=0.533 ac 7.14% Impervious Runoff Depth=5.73"
Tc=5.0 min CN=77 Runoff=3.73 cfs 0.255 af

Subcatchment PR-5: Subcat PR-5 Runoff Area=0.223 ac 0.00% Impervious Runoff Depth=3.36"
Tc=5.0 min CN=57 Runoff=0.88 cfs 0.063 af

Pond 1P: IP-3 Peak Elev=205.72' Storage=595 cf Inflow=0.88 cfs 0.063 af
Discarded=0.13 cfs 0.063 af Primary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.063 af

Pond IP-1: IP-1 Peak Elev=202.28' Storage=2,588 cf Inflow=3.16 cfs 0.219 af
Discarded=0.37 cfs 0.219 af Primary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.219 af

Pond IP-2: IP-2 Peak Elev=205.08' Storage=3,296 cf Inflow=3.73 cfs 0.255 af
Discarded=0.33 cfs 0.243 af Primary=0.33 cfs 0.012 af Outflow=0.66 cfs 0.255 af

Link DP-1: DP-1 Inflow=1.71 cfs 0.334 af
Primary=1.71 cfs 0.334 af

Total Runoff Area = 4.848 ac Runoff Volume = 0.859 af Average Runoff Depth = 2.13"
98.80% Pervious = 4.790 ac 1.20% Impervious = 0.058 ac

Summary for Subcatchment PR-1: Subcat PR-1

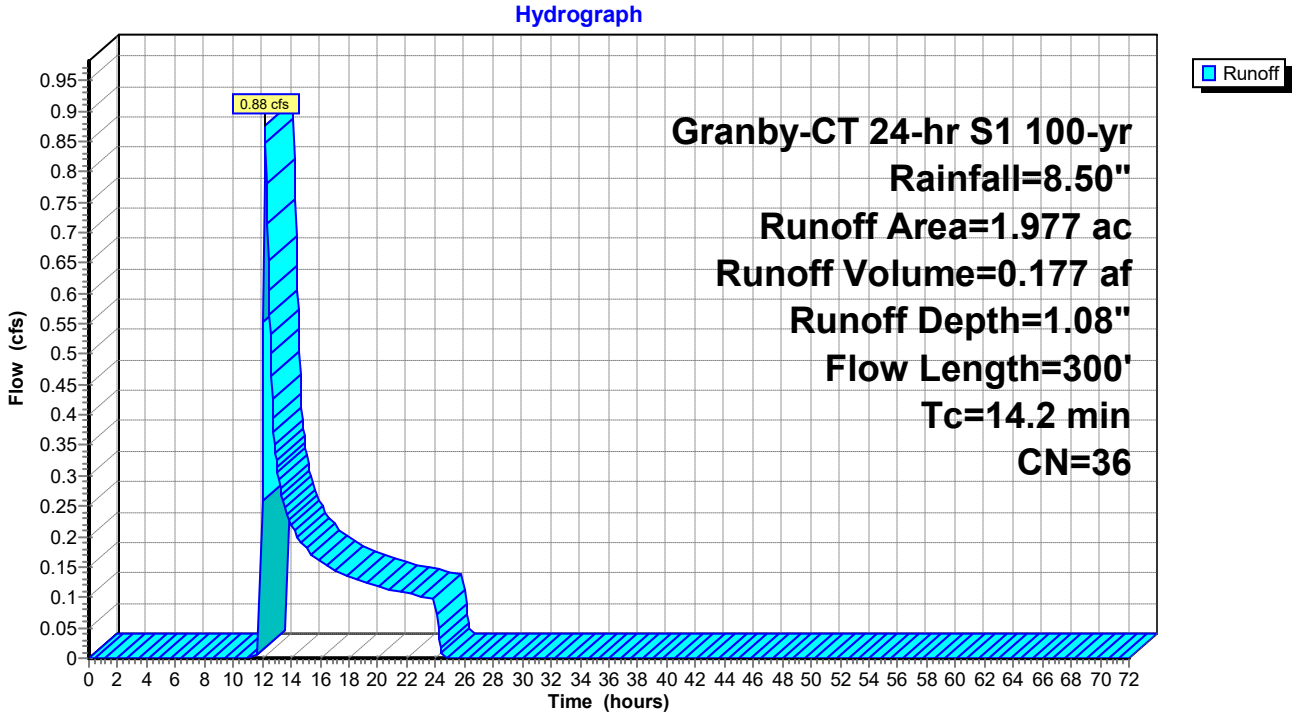
Runoff = 0.88 cfs @ 12.21 hrs, Volume= 0.177 af, Depth= 1.08"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 100-yr Rainfall=8.50"

	Area (ac)	CN	Description
*	0.322	36	Brush, Fair, HSG A
	0.176	39	>75% Grass cover, Good, HSG A
	1.479	36	Woods, Fair, HSG A
	1.977	36	Weighted Average
	1.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
0.6	80	0.2300	2.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	170	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	300	Total			

Subcatchment PR-1: Subcat PR-1



Summary for Subcatchment PR-2: Subcat PR-2

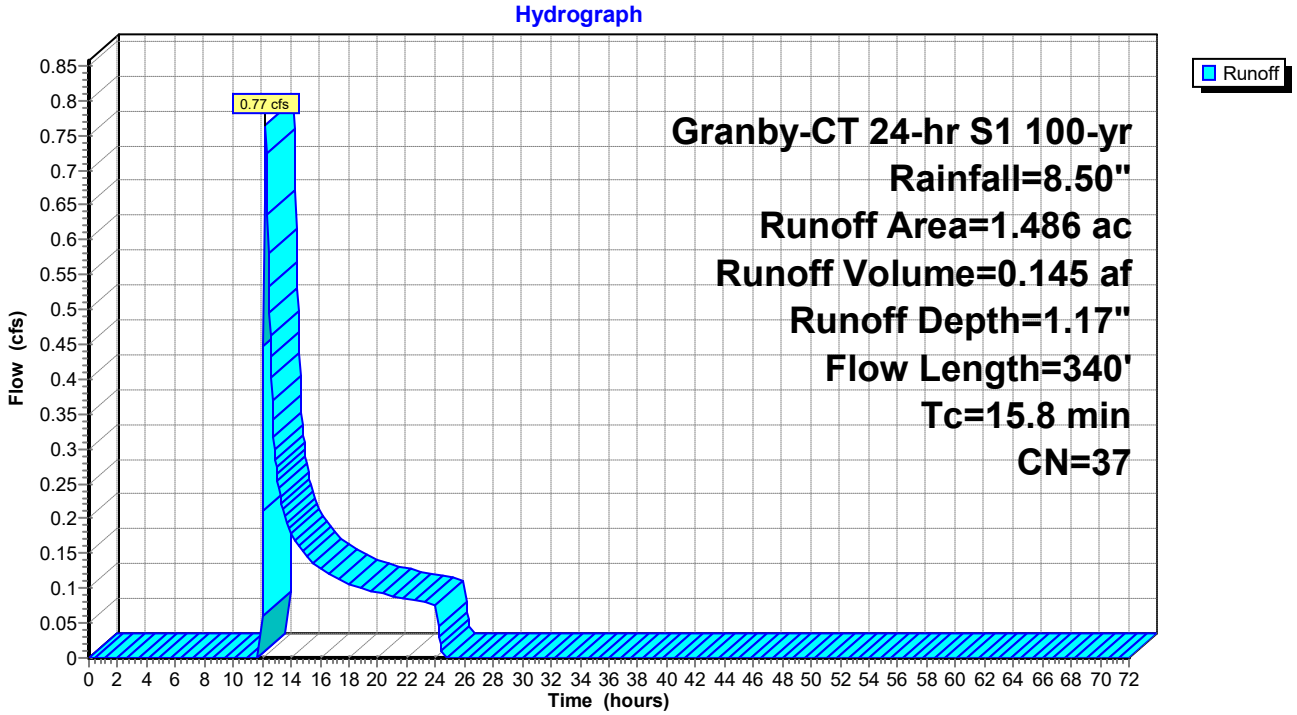
Runoff = 0.77 cfs @ 12.22 hrs, Volume= 0.145 af, Depth= 1.17"
Routed to Link DP-1 : DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.426	39	>75% Grass cover, Good, HSG A
1.061	36	Woods, Fair, HSG A
1.486	37	Weighted Average
1.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	50	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.29"
2.0	120	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.6	170	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	340	Total			

Subcatchment PR-2: Subcat PR-2



Summary for Subcatchment PR-3: Subcat PR-3

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

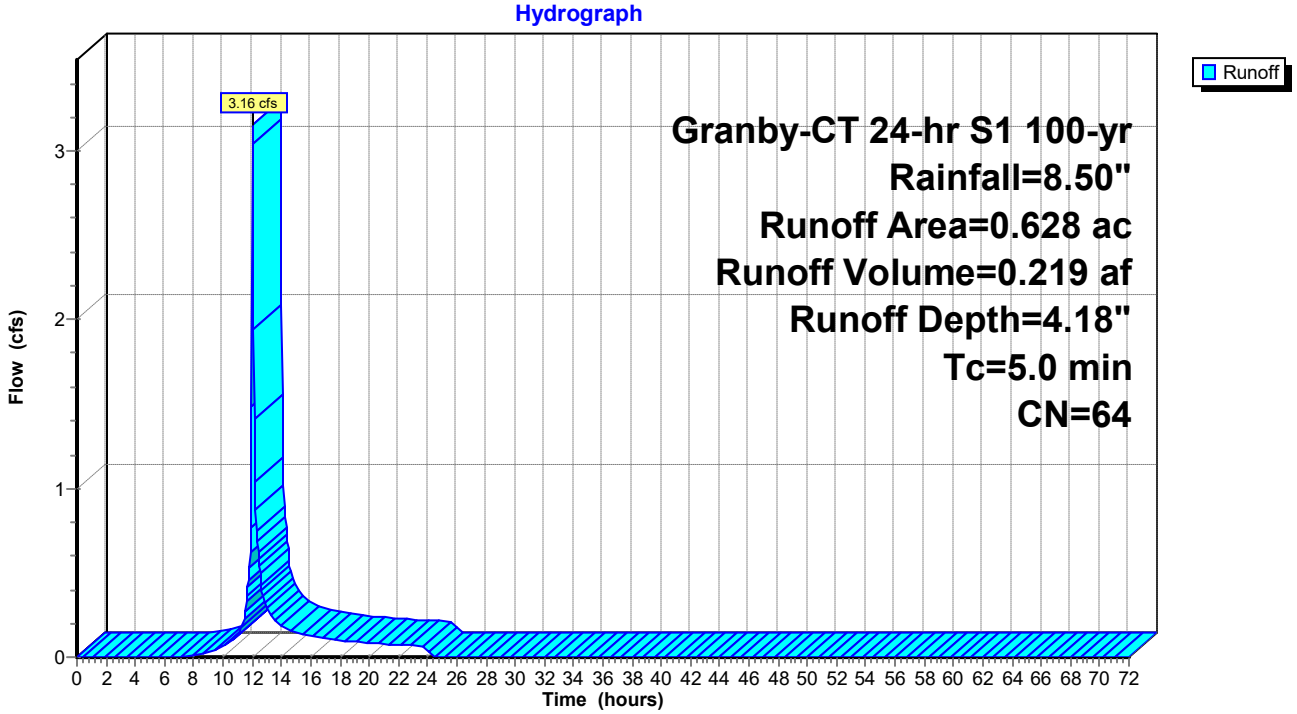
Runoff = 3.16 cfs @ 12.03 hrs, Volume= 0.219 af, Depth= 4.18"
Routed to Pond IP-1 : IP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.318	39	>75% Grass cover, Good, HSG A
0.020	98	Paved parking, HSG A
0.255	96	Gravel surface, HSG A
0.035	36	Woods, Fair, HSG A
0.628	64	Weighted Average
0.608		96.82% Pervious Area
0.020		3.18% Impervious Area

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

Subcatchment PR-3: Subcat PR-3



Summary for Subcatchment PR-4: Subcat PR-4

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

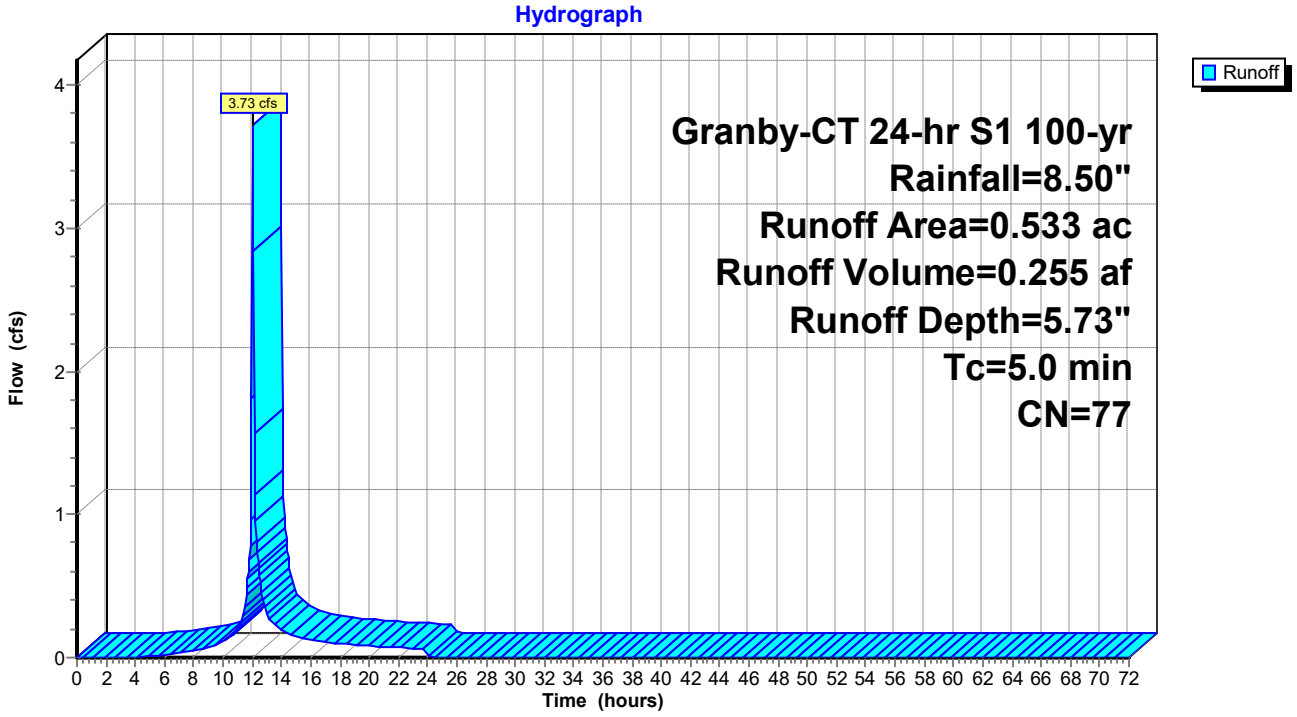
Runoff = 3.73 cfs @ 12.02 hrs, Volume= 0.255 af, Depth= 5.73"
Routed to Pond IP-2 : IP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.178	39	>75% Grass cover, Good, HSG A
0.038	98	Paved parking, HSG A
0.317	96	Gravel surface, HSG A
0.533	77	Weighted Average
0.495		92.86% Pervious Area
0.038		7.14% Impervious Area

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

Subcatchment PR-4: Subcat PR-4



Summary for Subcatchment PR-5: Subcat PR-5

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

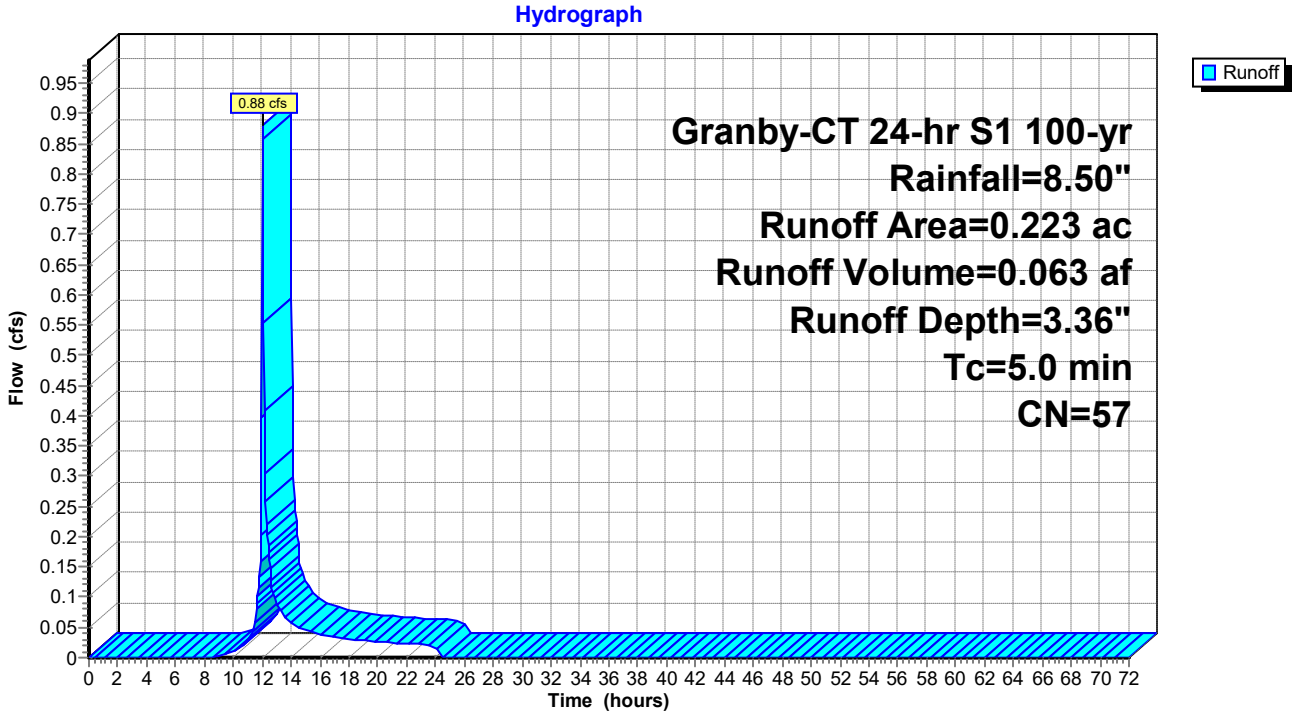
Runoff = 0.88 cfs @ 12.03 hrs, Volume= 0.063 af, Depth= 3.36"
Routed to Pond 1P : IP-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Granby-CT 24-hr S1 100-yr Rainfall=8.50"

Area (ac)	CN	Description
0.019	36	Woods, Fair, HSG A
0.000	35	Brush, Fair, HSG A
0.134	39	>75% Grass cover, Good, HSG A
0.071	96	Gravel surface, HSG A
0.223	57	Weighted Average
0.223		100.00% Pervious Area

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

Subcatchment PR-5: Subcat PR-5



Summary for Pond 1P: IP-3

Inflow Area = 0.223 ac, 0.00% Impervious, Inflow Depth = 3.36" for 100-yr event
Inflow = 0.88 cfs @ 12.03 hrs, Volume= 0.063 af
Outflow = 0.13 cfs @ 12.58 hrs, Volume= 0.063 af, Atten= 85%, Lag= 33.2 min
Discarded = 0.13 cfs @ 12.58 hrs, Volume= 0.063 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 205.72' @ 12.58 hrs Surf.Area= 970 sf Storage= 595 cf

Plug-Flow detention time= 28.8 min calculated for 0.062 af (100% of inflow)
Center-of-Mass det. time= 28.8 min (912.3 - 883.6)

Volume	Invert	Avail.Storage	Storage Description
#1	205.00'	4,089 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

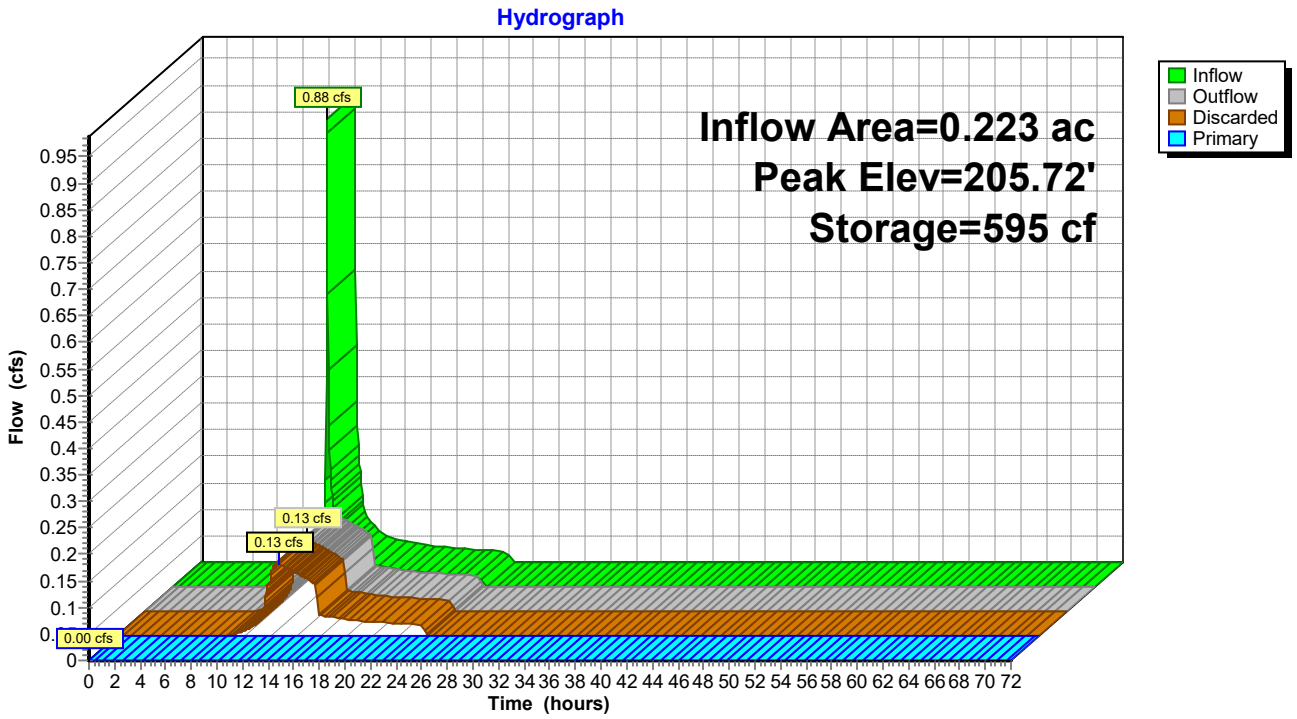
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
205.00	688	137.1	0.0	0	0	688
208.00	2,177	193.7	100.0	4,089	4,089	2,258

Device	Routing	Invert	Outlet Devices
#1	Discarded	205.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	207.00'	**4.0' 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

Discarded OutFlow Max=0.13 cfs @ 12.58 hrs HW=205.72' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=205.00' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: IP-3


Hydrograph
Inflow Area=0.223 ac
Peak Elev=205.72'
Storage=595 cf
Inflow
Outflow
Discarded
Primary
0.88 cfs
0.13 cfs
0.13 cfs
0.00 cfs
Flow (cfs)
Time (hours)

Stage-Area-Storage for Pond 1P: IP-3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
205.00	688	0
205.05	706	35
205.10	724	71
205.15	743	107
205.20	761	145
205.25	780	183
205.30	799	223
205.35	819	263
205.40	838	305
205.45	858	347
205.50	878	391
205.55	899	435
205.60	919	480
205.65	940	527
205.70	961	574
205.75	982	623
205.80	1,003	673
205.85	1,025	723
205.90	1,047	775
205.95	1,069	828
206.00	1,092	882
206.05	1,114	937
206.10	1,137	993
206.15	1,160	1,051
206.20	1,183	1,110
206.25	1,207	1,169
206.30	1,231	1,230
206.35	1,255	1,292
206.40	1,279	1,356
206.45	1,303	1,420
206.50	1,328	1,486
206.55	1,353	1,553
206.60	1,378	1,621
206.65	1,404	1,691
206.70	1,429	1,762
206.75	1,455	1,834
206.80	1,481	1,907
206.85	1,508	1,982
206.90	1,534	2,058
206.95	1,561	2,135
207.00	1,588	2,214
207.05	1,615	2,294
207.10	1,643	2,376
207.15	1,670	2,458
207.20	1,698	2,543
207.25	1,727	2,628
207.30	1,755	2,715
207.35	1,784	2,804
207.40	1,812	2,894
207.45	1,842	2,985
207.50	1,871	3,078
207.55	1,900	3,172
207.60	1,930	3,268
207.65	1,960	3,365
207.70	1,991	3,464
207.75	2,021	3,564
207.80	2,052	3,666
207.85	2,083	3,769
207.90	2,114	3,874
207.95	2,145	3,981
208.00	**2,177**	**4,089**

Summary for Pond IP-1: IP-1

Inflow Area = 0.628 ac, 3.18% Impervious, Inflow Depth = 4.18" for 100-yr event
Inflow = 3.16 cfs @ 12.03 hrs, Volume= 0.219 af
Outflow = 0.37 cfs @ 12.69 hrs, Volume= 0.219 af, Atten= 88%, Lag= 40.0 min
Discarded = 0.37 cfs @ 12.69 hrs, Volume= 0.219 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 202.28' @ 12.69 hrs Surf.Area= 2,670 sf Storage= 2,588 cf

Plug-Flow detention time= 55.8 min calculated for 0.219 af (100% of inflow)
Center-of-Mass det. time= 55.8 min (919.1 - 863.3)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	9,025 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

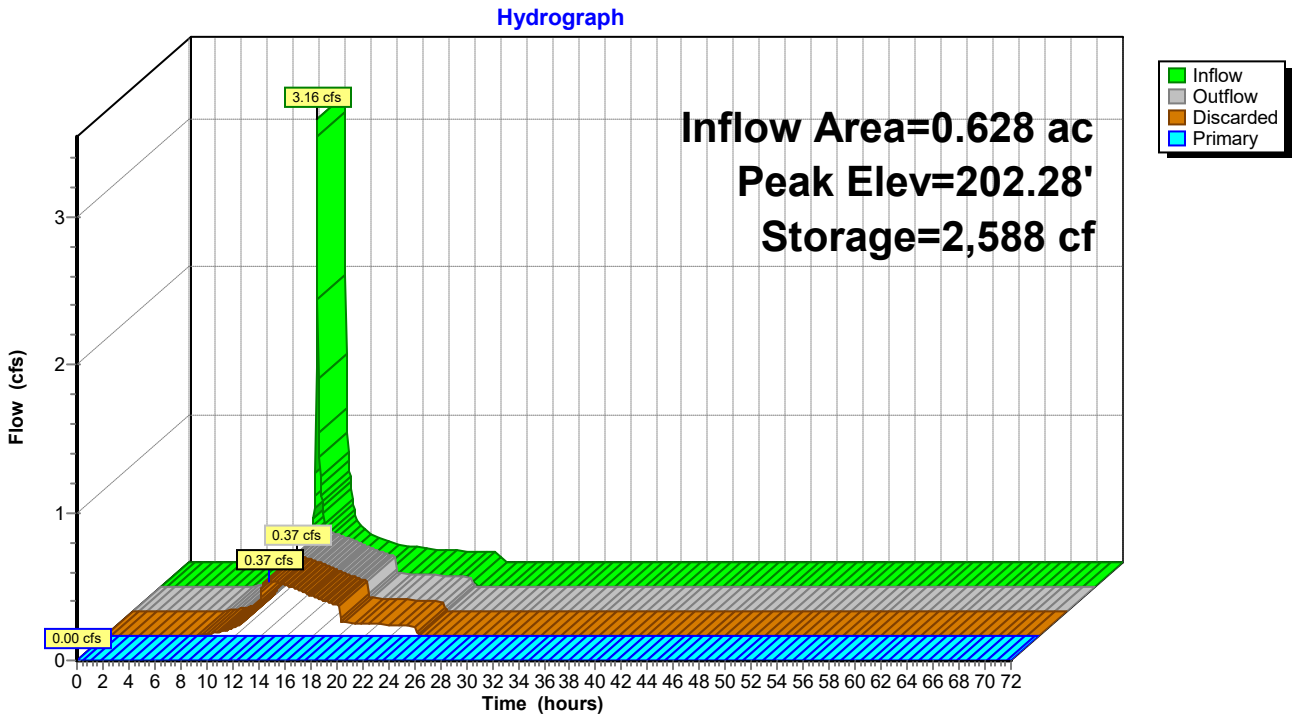
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.00	1,449	353.0	0.0	0	0	1,449
204.00	4,909	412.1	100.0	9,025	9,025	5,226

Device	Routing	Invert	Outlet Devices
#1	Primary	203.00'	**4.0' 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
#2	Discarded	201.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.37 cfs @ 12.69 hrs HW=202.28' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=201.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond IP-1: IP-1


Hydrograph
Inflow Area=0.628 ac
Peak Elev=202.28'
Storage=2,588 cf
Inflow
Outflow
Discarded
Primary
3.16 cfs
0.37 cfs
0.37 cfs
0.00 cfs
Flow (cfs)
0
1
2
3
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Stage-Area-Storage for Pond IP-1: IP-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
201.00	1,449	0
201.05	1,490	73
201.10	1,531	149
201.15	1,573	227
201.20	1,616	306
201.25	1,659	388
201.30	1,703	472
201.35	1,747	559
201.40	1,792	647
201.45	1,837	738
201.50	1,883	831
201.55	1,930	926
201.60	1,977	1,024
201.65	2,025	1,124
201.70	2,073	1,226
201.75	2,122	1,331
201.80	2,171	1,438
201.85	2,221	1,548
201.90	2,272	1,661
201.95	2,323	1,775
202.00	2,375	1,893
202.05	2,427	2,013
202.10	2,480	2,136
202.15	2,533	2,261
202.20	2,587	2,389
202.25	2,642	2,520
202.30	2,697	2,653
202.35	2,753	2,789
202.40	2,809	2,928
202.45	2,866	3,070
202.50	2,923	3,215
202.55	2,981	3,363
202.60	3,039	3,513
202.65	3,099	3,667
202.70	3,158	3,823
202.75	3,218	3,982
202.80	3,279	4,145
202.85	3,341	4,310
202.90	3,403	4,479
202.95	3,465	4,651
203.00	3,528	4,825
203.05	3,592	5,003
203.10	3,656	5,185
203.15	3,721	5,369
203.20	3,786	5,557
203.25	3,852	5,748
203.30	3,919	5,942
203.35	3,986	6,140
203.40	4,053	6,340
203.45	4,121	6,545
203.50	4,190	6,753
203.55	4,259	6,964
203.60	4,329	7,179
203.65	4,400	7,397
203.70	4,471	7,619
203.75	4,542	7,844
203.80	4,615	8,073
203.85	4,687	8,305
203.90	4,761	8,542
203.95	4,835	8,781
204.00	**4,909**	**9,025**

Summary for Pond IP-2: IP-2

Inflow Area = 0.533 ac, 7.14% Impervious, Inflow Depth = 5.73" for 100-yr event
Inflow = 3.73 cfs @ 12.02 hrs, Volume= 0.255 af
Outflow = 0.66 cfs @ 12.41 hrs, Volume= 0.255 af, Atten= 82%, Lag= 23.4 min
Discarded = 0.33 cfs @ 12.41 hrs, Volume= 0.243 af
Primary = 0.33 cfs @ 12.41 hrs, Volume= 0.012 af
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 205.08' @ 12.41 hrs Surf.Area= 2,397 sf Storage= 3,296 cf

Plug-Flow detention time= 86.7 min calculated for 0.255 af (100% of inflow)
Center-of-Mass det. time= 86.7 min (912.8 - 826.1)

Volume	Invert	Avail.Storage	Storage Description
#1	203.00'	5,907 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

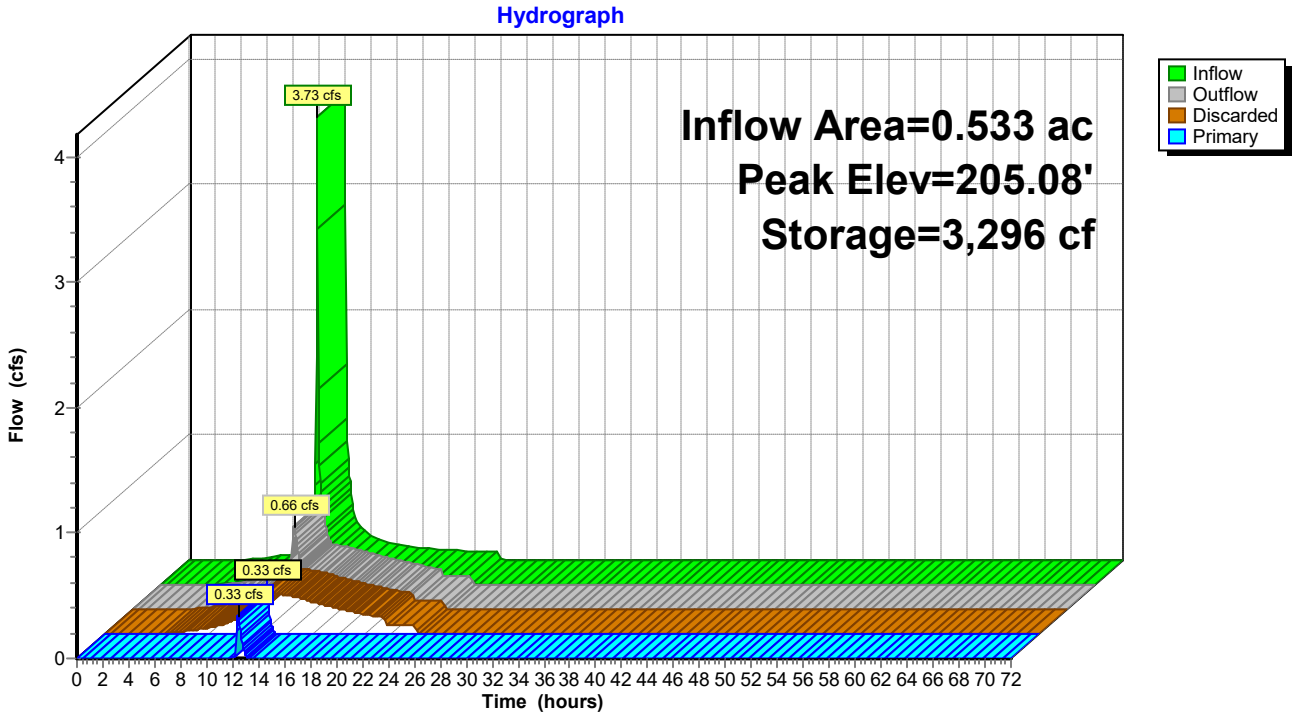
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
203.00	895	238.4	0.0	0	0	895
206.00	3,295	294.9	100.0	5,907	5,907	3,423

Device	Routing	Invert	Outlet Devices
#1	Primary	205.00'	**6.0' 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
#2	Discarded	203.00'	**6.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.33 cfs @ 12.41 hrs HW=205.08' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.33 cfs)

Primary OutFlow Max=0.33 cfs @ 12.41 hrs HW=205.08' TW=0.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.33 cfs @ 0.70 fps)

Pond IP-2: IP-2


Hydrograph
Inflow Area=0.533 ac
Peak Elev=205.08'
Storage=3,296 cf
Inflow
Outflow
Discarded
Primary
3.73 cfs
0.66 cfs
0.33 cfs
0.33 cfs
Flow (cfs)
0 1 2 3 4
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Stage-Area-Storage for Pond IP-2: IP-2

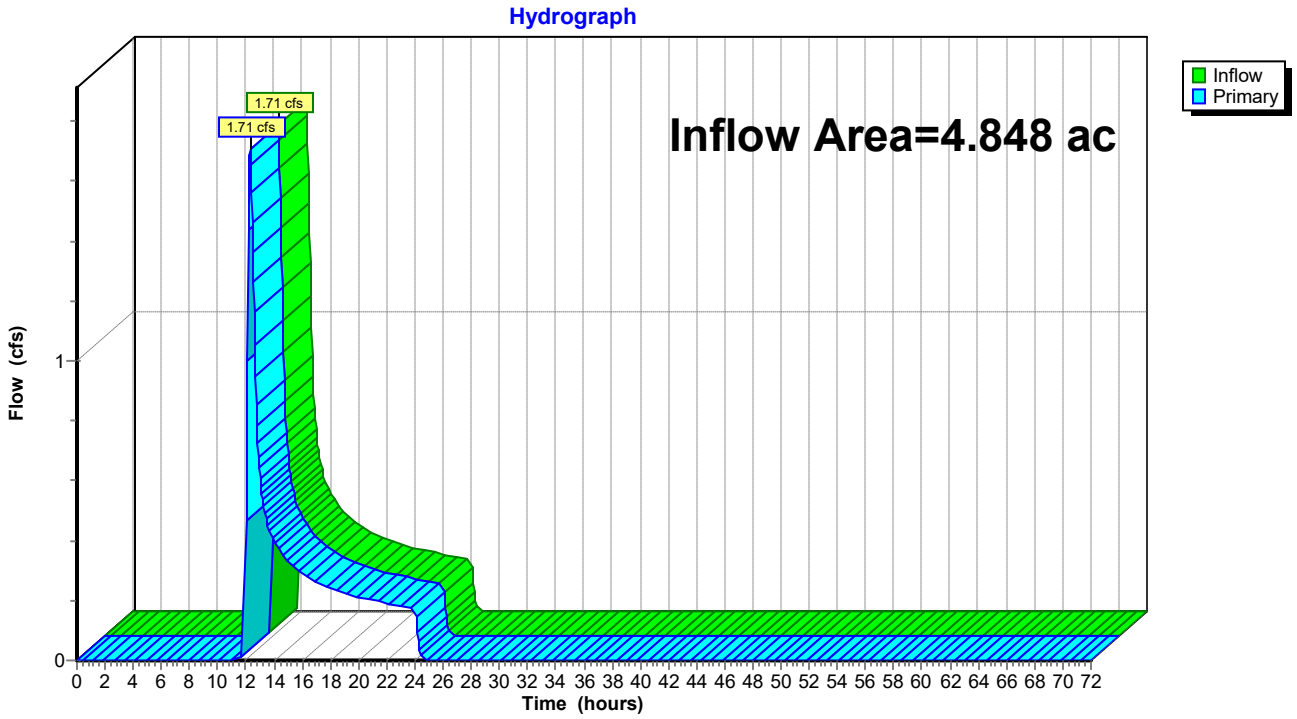
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
203.00	895	0
203.05	923	45
203.10	951	92
203.15	979	141
203.20	1,008	190
203.25	1,037	241
203.30	1,067	294
203.35	1,097	348
203.40	1,128	404
203.45	1,159	461
203.50	1,190	520
203.55	1,222	580
203.60	1,254	642
203.65	1,287	705
203.70	1,320	770
203.75	1,353	837
203.80	1,387	906
203.85	1,422	976
203.90	1,456	1,048
203.95	1,492	1,122
204.00	1,527	1,197
204.05	1,563	1,274
204.10	1,600	1,353
204.15	1,636	1,434
204.20	1,674	1,517
204.25	1,711	1,602
204.30	1,749	1,688
204.35	1,788	1,777
204.40	1,827	1,867
204.45	1,866	1,959
204.50	1,906	2,054
204.55	1,946	2,150
204.60	1,987	2,248
204.65	2,028	2,349
204.70	2,069	2,451
204.75	2,111	2,556
204.80	2,154	2,662
204.85	2,196	2,771
204.90	2,240	2,882
204.95	2,283	2,995
205.00	2,327	3,110
205.05	2,372	3,228
205.10	2,416	3,347
205.15	2,462	3,469
205.20	2,507	3,594
205.25	2,553	3,720
205.30	2,600	3,849
205.35	2,647	3,980
205.40	2,694	4,114
205.45	2,742	4,249
205.50	2,790	4,388
205.55	2,839	4,528
205.60	2,888	4,672
205.65	2,937	4,817
205.70	2,987	4,965
205.75	3,037	5,116
205.80	3,088	5,269
205.85	3,139	5,425
205.90	3,191	5,583
205.95	3,243	5,744
206.00	**3,295**	**5,907**

Summary for Link DP-1: DP-1

Inflow Area = 4.848 ac, 1.20% Impervious, Inflow Depth = 0.83" for 100-yr event
Inflow = 1.71 cfs @ 12.29 hrs, Volume= 0.334 af
Primary = 1.71 cfs @ 12.29 hrs, Volume= 0.334 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link DP-1: DP-1



NOAA Rainfall Data

NOAA Atlas 14, Volume 10, Version 3
Location name: Granby, Connecticut, USA*
Latitude: 41.9328°, Longitude: -72.7888°
Elevation: 187 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.348** (0.268-0.449)	**0.416** (0.319-0.538)	**0.527** (0.403-0.684)	**0.619** (0.471-0.808)	**0.746** (0.551-1.02)	**0.842** (0.610-1.18)	**0.941** (0.664-1.37)	**1.05** (0.705-1.57)	**1.21** (0.781-1.87)	**1.34** (0.845-2.11)
10-min	**0.493** (0.379-0.637)	**0.589** (0.453-0.762)	**0.746** (0.572-0.968)	**0.877** (0.668-1.14)	**1.06** (0.781-1.44)	**1.19** (0.864-1.66)	**1.33** (0.940-1.94)	**1.49** (1.00-2.22)	**1.71** (1.11-2.65)	**1.89** (1.20-2.99)
15-min	**0.580** (0.446-0.749)	**0.693** (0.532-0.896)	**0.878** (0.672-1.14)	**1.03** (0.786-1.35)	**1.24** (0.918-1.70)	**1.40** (1.02-1.96)	**1.57** (1.11-2.28)	**1.75** (1.18-2.61)	**2.01** (1.30-3.11)	**2.22** (1.41-3.52)
30-min	**0.784** (0.603-1.01)	**0.941** (0.722-1.22)	**1.20** (0.917-1.55)	**1.41** (1.07-1.84)	**1.70** (1.26-2.32)	**1.92** (1.39-2.68)	**2.15** (1.52-3.12)	**2.40** (1.61-3.58)	**2.76** (1.79-4.27)	**3.06** (1.93-4.83)
60-min	**0.988** (0.760-1.28)	**1.19** (0.912-1.54)	**1.52** (1.16-1.96)	**1.79** (1.36-2.33)	**2.16** (1.60-2.95)	**2.44** (1.77-3.41)	**2.73** (1.93-3.97)	**3.06** (2.05-4.56)	**3.52** (2.28-5.44)	**3.89** (2.46-6.14)
2-hr	**1.27** (0.984-1.63)	**1.52** (1.18-1.96)	**1.94** (1.49-2.49)	**2.28** (1.74-2.95)	**2.75** (2.04-3.74)	**3.10** (2.26-4.32)	**3.47** (2.47-5.04)	**3.91** (2.63-5.80)	**4.55** (2.95-7.00)	**5.08** (3.23-7.99)
3-hr	**1.46** (1.14-1.87)	**1.76** (1.36-2.24)	**2.23** (1.73-2.87)	**2.63** (2.02-3.40)	**3.18** (2.38-4.32)	**3.58** (2.63-4.99)	**4.02** (2.88-5.85)	**4.54** (3.06-6.72)	**5.33** (3.47-8.18)	**6.00** (3.82-9.41)
6-hr	**1.83** (1.43-2.32)	**2.22** (1.74-2.82)	**2.86** (2.22-3.65)	**3.39** (2.62-4.35)	**4.11** (3.10-5.57)	**4.65** (3.44-6.46)	**5.24** (3.79-7.62)	**5.96** (4.04-8.78)	**7.09** (4.62-10.8)	**8.07** (5.15-12.6)
12-hr	**2.24** (1.76-2.83)	**2.77** (2.18-3.49)	**3.63** (2.84-4.59)	**4.34** (3.38-5.53)	**5.32** (4.04-7.18)	**6.04** (4.50-8.37)	**6.83** (4.99-9.94)	**7.84** (5.32-11.5)	**9.43** (6.16-14.3)	**10.8** (6.92-16.8)
24-hr	**2.61** (2.07-3.27)	**3.29** (2.60-4.12)	**4.39** (3.46-5.52)	**5.30** (4.16-6.72)	**6.56** (5.02-8.83)	**7.48** (5.63-10.4)	**8.50** (6.28-12.4)	**9.84** (6.70-14.3)	**12.0** (7.87-18.2)	**13.9** (8.94-21.5)
2-day	**2.93** (2.34-3.65)	**3.75** (2.98-4.66)	**5.08** (4.03-6.35)	**6.18** (4.88-7.78)	**7.70** (5.93-10.3)	**8.80** (6.68-12.2)	**10.0** (7.49-14.7)	**11.7** (8.01-17.0)	**14.5** (9.55-21.9)	**17.0** (11.0-26.2)
3-day	**3.20** (2.56-3.96)	**4.10** (3.28-5.08)	**5.56** (4.43-6.92)	**6.78** (5.37-8.49)	**8.45** (6.54-11.3)	**9.66** (7.36-13.3)	**11.0** (8.26-16.1)	**12.9** (8.84-18.7)	**16.0** (10.6-24.1)	**18.9** (12.2-28.9)
4-day	**3.45** (2.77-4.26)	**4.41** (3.53-5.45)	**5.98** (4.77-7.42)	**7.28** (5.78-9.09)	**9.06** (7.03-12.1)	**10.4** (7.91-14.2)	**11.8** (8.88-17.2)	**13.8** (9.49-20.0)	**17.2** (11.3-25.7)	**20.2** (13.1-30.9)
7-day	**4.14**	**5.23**	**7.00**	**8.48**	**10.5**	**12.0**	**13.6**	**15.9**	**19.6**	**22.9**

	(3.34-5.09)	(4.22-6.43)	(5.63-8.65)	(6.77-10.5)	(8.18-13.9)	(9.17-16.4)	(10.3-19.7)	(10.9-22.8)	(13.0-29.2)	(14.9-34.9)
10-day	**4.83** (3.91-5.91)	**5.98** (4.84-7.33)	**7.86** (6.33-9.67)	**9.42** (7.54-11.7)	**11.6** (9.02-15.2)	**13.1** (10.1-17.8)	**14.9** (11.2-21.3)	**17.2** (11.9-24.6)	**21.1** (14.0-31.3)	**24.5** (15.9-37.2)
20-day	**6.97** (5.68-8.47)	**8.17** (6.65-9.94)	**10.1** (8.22-12.4)	**11.8** (9.48-14.5)	**14.0** (11.0-18.2)	**15.6** (12.0-20.9)	**17.5** (13.1-24.5)	**19.8** (13.7-28.1)	**23.4** (15.6-34.6)	**26.7** (17.3-40.3)
30-day	**8.77** (7.18-10.6)	**9.99** (8.17-12.1)	**12.0** (9.76-14.6)	**13.6** (11.0-16.7)	**15.9** (12.5-20.5)	**17.6** (13.5-23.3)	**19.4** (14.4-26.9)	**21.6** (15.1-30.5)	**24.9** (16.7-36.7)	**27.8** (18.1-41.8)
45-day	**11.0** (9.06-13.3)	**12.3** (10.1-14.8)	**14.3** (11.7-17.4)	**16.0** (13.0-19.6)	**18.4** (14.4-23.4)	**20.1** (15.4-26.3)	**22.0** (16.2-29.9)	**24.0** (16.8-33.7)	**26.8** (18.0-39.3)	**29.1** (19.0-43.6)
60-day	**12.9** (10.6-15.5)	**14.2** (11.7-17.1)	**16.3** (13.4-19.7)	**18.1** (14.8-22.0)	**20.6** (16.1-26.0)	**22.4** (17.2-29.1)	**24.3** (17.9-32.6)	**26.1** (18.4-36.6)	**28.5** (19.2-41.6)	**30.3** (19.8-45.3)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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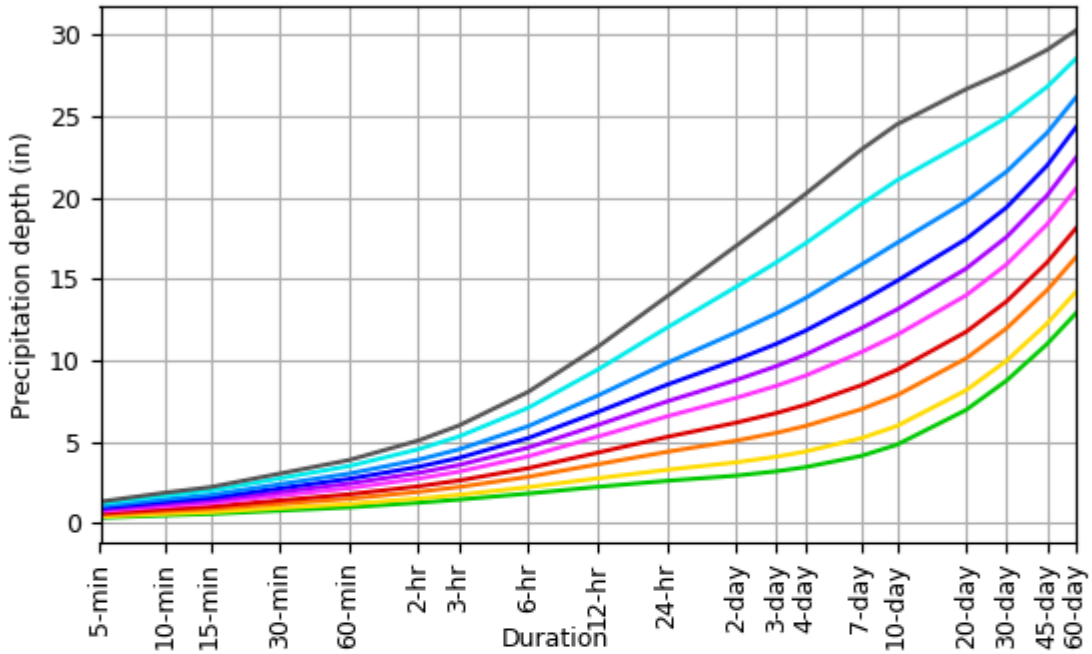
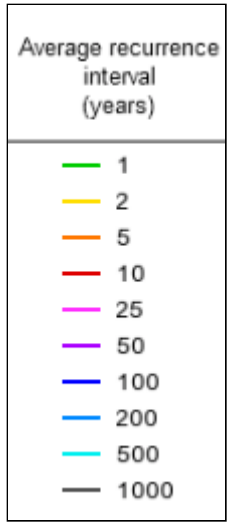
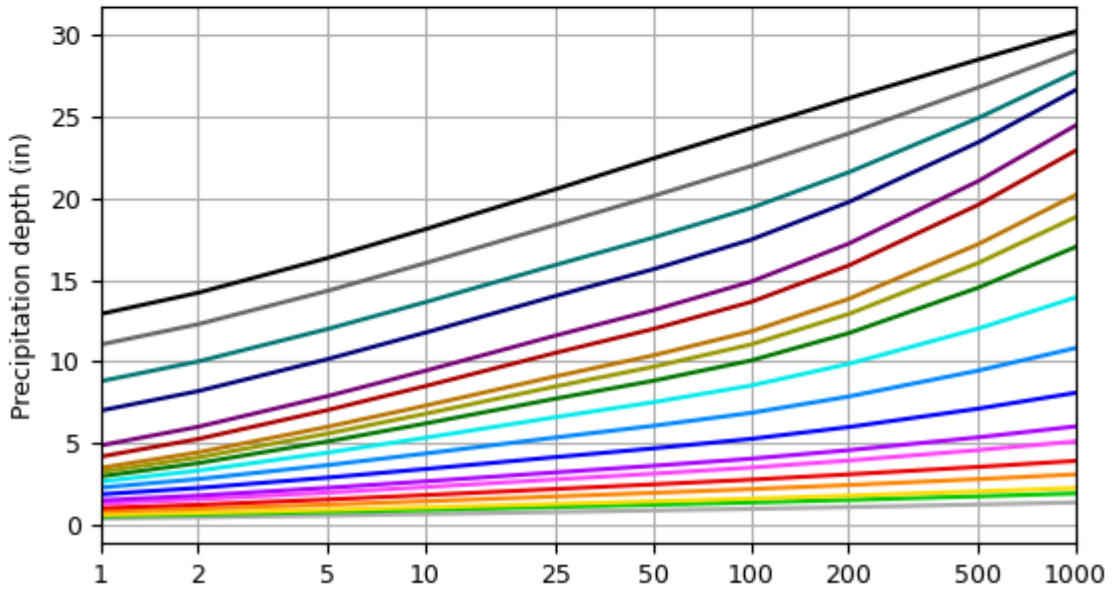
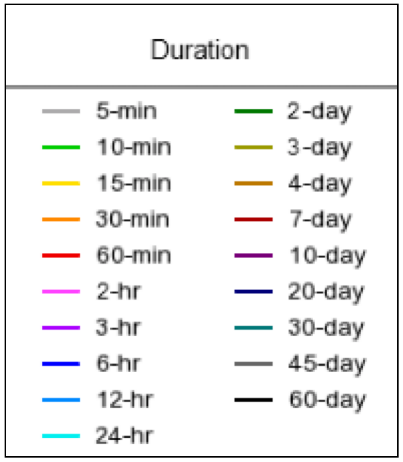
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.9328°, Longitude: -72.7888°









Average recurrence interval (years)

NOAA Atlas 14, Volume 10, Version 3 Created (GMT): Tue May 14 19:32:25 2024

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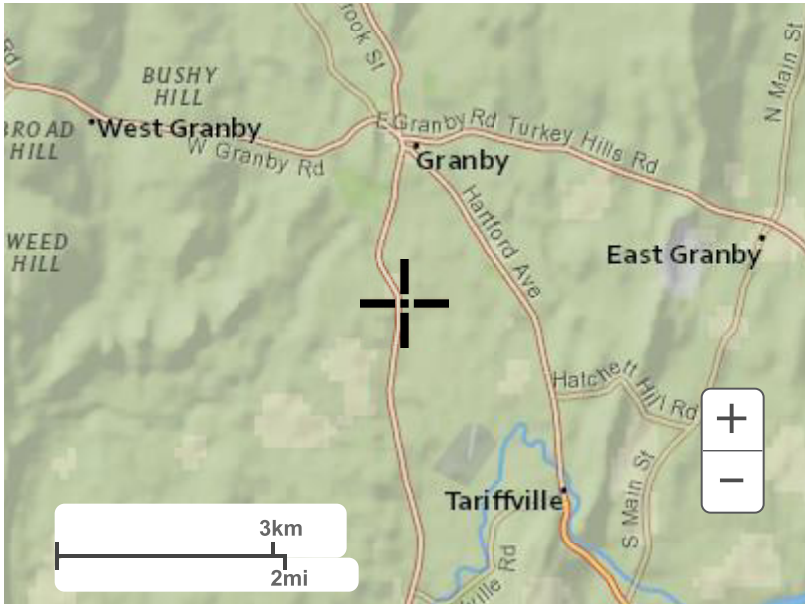
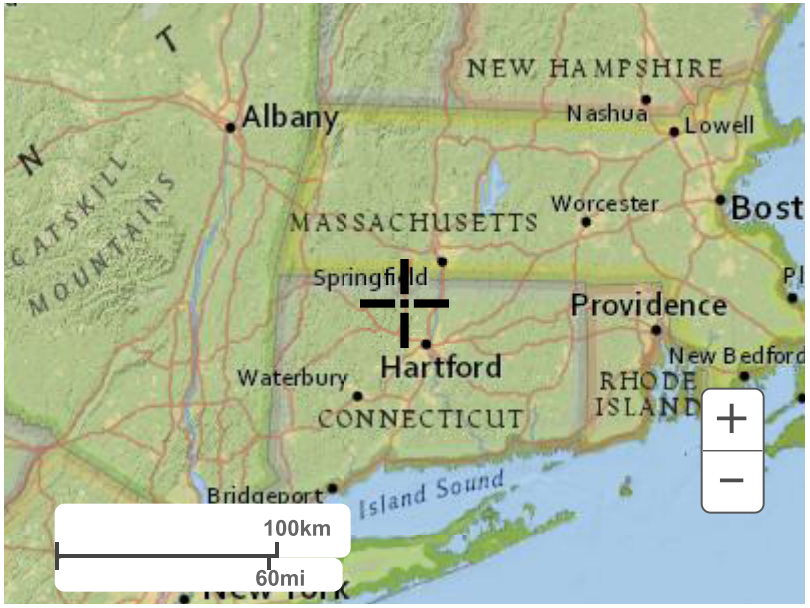
Maps & aerials

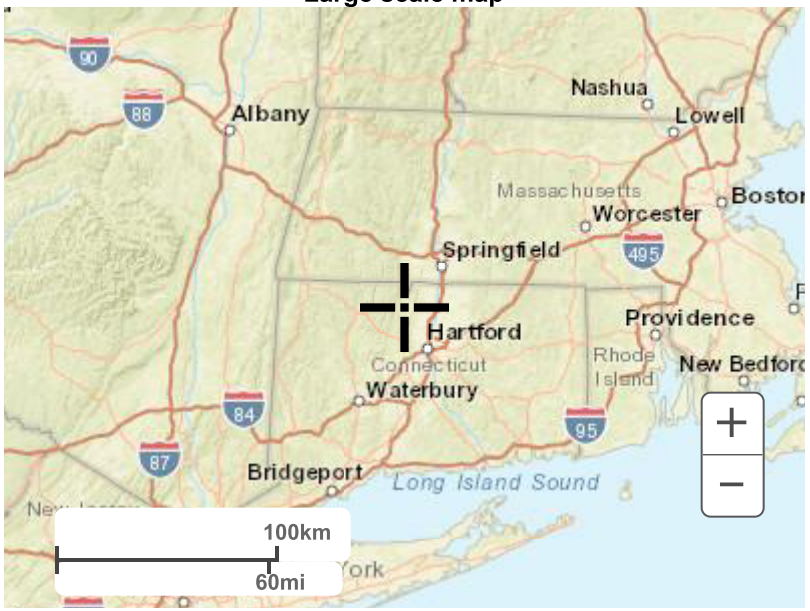
Small scale terrain



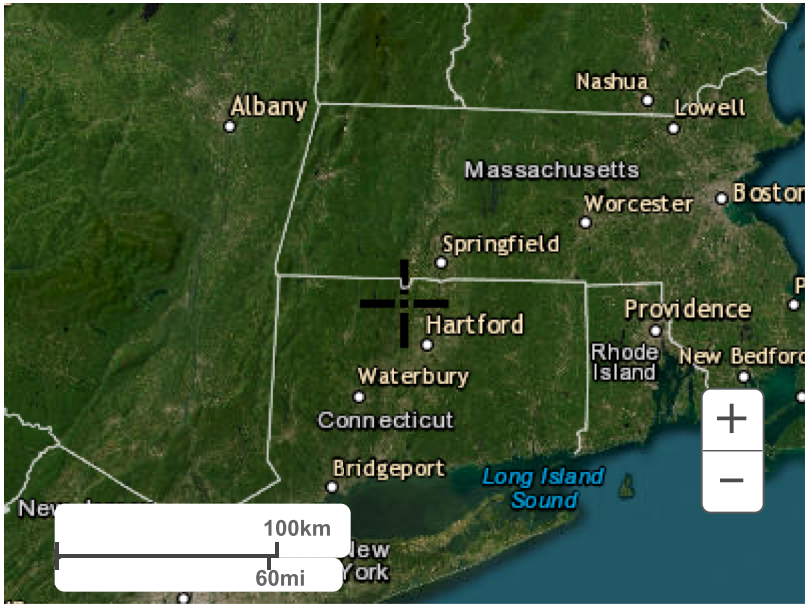
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Water Quality Volume Calculations

Water Quality Volume Calculations

Project: CT11 BESS Granby | By: DJB | Date: 7/16/24
Location: 100 Salmon Brook Street | Checked: TMD | Date: 7/16/24

Basin Name	Drainage Area 1	Drainage Area 2	Drainage Area 3	
Rainfall, P	1.3 in.	1.3 in.	1.3 in.	a
Area, A	0.69 ac	0.51 ac	0.22 ac	b
Impervious Cover Area	0.28 ac	0.36 ac	0.07 ac	c
% Impervious, I	40 %	70 %	31 %	
Volumetric Runoff Coeff., R	0.409	0.676	0.333	d
Water Quality Volume Req'd, WQV	0.031 ac-ft	0.037 ac-ft	0.008 ac-ft	e
	1,331 cf	1,628 cf	350 cf	
Water Quality Volume Provided, WQV				
	4,825 cf	3,110 cf	2,214 cf	f

a First 1.3 inches of rainfall; 2024 Connecticut Stormwater Quality Manual

b Area tributary to the stormwater management basin

c Impervious cover area tributary to the stormwater management basin

d R=0.05+0.009*I; Chapter 4 from 2024 Connecticut Stormwater Quality Manual

e WQV=P*R*A/12; Chapter 4 from 2024 Connecticut Stormwater Quality Manual

f Volume below the crest of the spillway

Sediment Trap Sizing Calculations

Sediment Trap Sizing

Project: Project: CT11 BESS Granby By: DJB Date: 7/16/2024
Location: Location: 100 Salmon Brook Street Checked: TMD Date: 7/16/2024

TST #	Tributary Acreage, ac	Volume Required Below Top of Spillway, cf *(134 cy / acre)**	Volume Provided in Permanent Basin Below Top of Spillway, cf
1	0.69	2,482	9,025
2	0.51	1,849	5,907
3	0.22	796	4,089

* Per 2024 Connecticut Guidelines for Soil Erosion and Sediment Control

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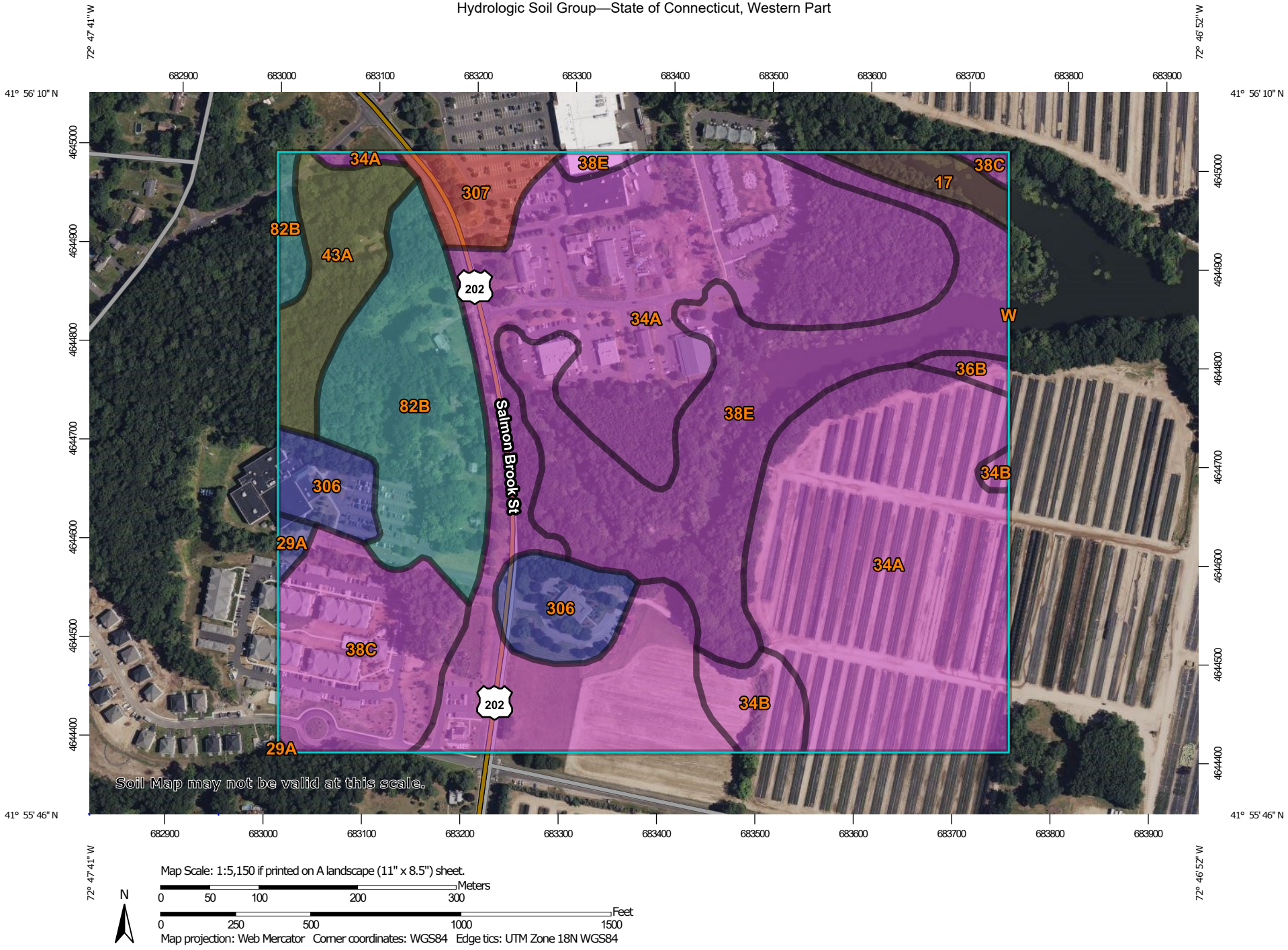
Appendix B: Additional Mapping

- NRCS Web Soil Survey Mapping
- FEMA Flood Insurance Rate Map
- CTDEEP Groundwater Classification Map

NCRS Web Soil Survey Mapping

Hydrologic Soil Group—State of Connecticut, Western Part



Map Scale: 1:5,150 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil 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 1:12,000.

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

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

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 1, Sep 15, 2023

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

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	B/D	1.5	1.4%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	B	0.4	0.4%
34A	Merrimac fine sandy loam, 0 to 3 percent slopes	A	55.6	49.6%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	2.5	2.2%
36B	Windsor loamy sand, 3 to 8 percent slopes	A	0.6	0.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	8.8	7.8%
38E	Hinckley loamy sand, 15 to 45 percent slopes	A	18.3	16.4%
43A	Rainbow silt loam, 0 to 3 percent slopes	C/D	5.0	4.4%
82B	Broadbrook silt loam, 3 to 8 percent slopes	C	11.7	10.4%
306	Udorthents-Urban land complex	B	5.2	4.7%
307	Urban land	D	2.5	2.2%
W	Water		0.0	0.0%
Totals for Area of Interest			**112.2**	**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

FEMA Flood Insurance Rate Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevation (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum (NAVD). Users of this FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is Universal Tranverse Mercator (UTM) zone 18. The **horizontal datum** is NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit their website at www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by CT DEP.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

An accompanying Flood Insurance Study report, Letters of Map Revision or Letters of Map Amendment revising portions of this panel, and digital versions of this PANEL may be available. Contact the **FEMA Map Service Center** at the following phone numbers and Internet address for infomation on all related products available from FEMA:

Phone: 800-358-9616
FAX: 800-358-9620
http://msc.fema.gov/

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

ZONE A99 Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.
513 — Base Flood Elevation line and value; elevation in 0*
(EL 987) — Base Flood Elevation value where uniform within zone; elevation in 0*

*Referenced to the North American Vertical Datum of 1988

A — A — Cross Section Line
23 — 23 — Transect Line
97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4276000M — 1000-meter Universal Transverse Mercator grid values, zone 18
600000 FT — 5000-foot grid ticks
DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel).
M1.5 — River Mile

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
SEPTEMBER 26, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0191F

FIRM
FLOOD INSURANCE RATE MAP
HARTFORD COUNTY, CONNECTICUT (ALL JURISDICTIONS)

PANEL 191 OF 675

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EAST GRANBY, TOWN OF	090005	0191	F
GRANBY, TOWN OF	090135	0191	F
SIMSBURY, TOWN OF	090035	0191	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
09003C0191F

EFFECTIVE DATE:
SEPTEMBER 26, 2008

Federal Emergency Management Agency

CTDEEP Groundwater Classification Map

WATER QUALITY CLASSIFICATIONS
GRANBY, CT

SURFACE WATER QUALITY CLASSES

A	A
AA	AA
B, B*	B, B*
SA	SA
SB	SB

NOTES:
Surface Water Classifications beginning with S refer to Coastal and Marine Surface Water.
B* is a subset of Class B where no direct wastewater discharges are allowed other than those consistent with Class AA, A and SA surface waters.

GROUND WATER QUALITY CLASSES

GA (white background)
GAA, GAAs
GA, GAA may not meet current standards
GB
GC

Area of Contribution to Public Supply Well

Final Aquifer Protection Area (Level A)
Major Basin Boundary

EXPLANATION

WATER QUALITY CLASSIFICATIONS (WQC) MAPS are one of the elements of the Water Quality Standards (WQS) for the State of Connecticut. The WQS are a part of Connecticut's clean water program and are essential for protecting and improving water quality. The WQS follow the principles of Connecticut's Clean Water Act which is in Chapter 446K of the Connecticut General Statutes. The WQS provide policy guidance in many areas, for example decisions on acceptable discharges to water resources, siting of landfills, remediation or prioritization of municipal sewerage system projects. The first two elements of the WQS are the Standards, which set an overall policy for management of water quality, and the Criteria, which are descriptive and numerical standards that describe the allowable parameters and goals for various water quality classifications. A discussion of these two elements is found in the Water Quality Standards document available on the CT DEEP website. The third element is the Classifications and the Water Quality Classification Maps which show the Classification assigned to each surface and groundwater resource throughout the State. The WQS are adopted using a public participation process. The WQC maps are also adopted using a public participation process but go through hearings separately from the Standards and Criteria hearings. Revision and adoption of the WQC data occurs in accordance with the public participation procedures contained in Section 22a-426 of the Connecticut General Statutes. Ground WQC is subject to Connecticut regulation and changes must be reviewed and adopted. All changes to the Surface WQC require an adoption process which is subject to federal review and approval in addition to CT regulation. The adoption dates for the WQC by major drainage basin are: Housatonic River, Hudson River and Southwest Coastal Basins - March 1999; Connecticut River and South Central Coastal Basins - February 1993; Thames River, Pawcatuck River and Southeast Coastal Basins - December 1986. Surface Water Classifications do not change after the adoption date until the next major revision. Ground Water Classifications may change after the adoption date under specific circumstances. The map may have more than one WQC adoption date because a town may be in more than one major drainage basin.

SURFACE WATERS in Connecticut are divided into freshwater classified as AA, A, B or B* and saline waters classified as SA or SB. Class AA designated uses are existing or proposed drinking water supplies; habitat for fish and other aquatic life and wildlife; recreation; and water supply for industry and agriculture. Class A designated uses are habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; navigation; and water supply for industry and agriculture. Class SA designated uses are habitat for marine fish, other aquatic life and wildlife; shellfish harvesting for direct human consumption; recreation; industrial water supply; and navigation. Class B designated uses are habitat for fish and aquatic life and wildlife; recreation; navigation; and industrial and agricultural water supply. Class B*, applicable to Candlewood Lake, is a subset of Class B and is identical in all ways to the designated uses, criteria and standards for Class B waters except for the restriction on direct discharges. Class SB designated uses are habitat for marine fish and aquatic life and wildlife; commercial shellfish harvesting; recreation; industrial water supply; and navigation.

Surface waters which are not specifically classified shall be considered as Class A or Class AA. Surface waters in GA ground water areas are assumed Class A or Class SA unless otherwise indicated. Surface waters in GAA ground water areas are assumed Class AA unless otherwise indicated.

On the WQC map a surface water quality goal of A is represented by blue colored water bodies. Surface water quality goal of AA is represented by purple colored water bodies. Surface water quality goal of B is represented by gold colored water bodies.

GROUND WATERS in Connecticut are classified as GAA, GA, GB and GC. Class GAA designated uses are existing or potential public supply of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. The Class GAAs is a subclass of GAA for ground water that is tributary to a public water supply reservoir. The area of contribution to a public water supply well is represented by a 500-foot radius around the well and is assumed to be Class GAA unless otherwise classified. Class GA designated uses are existing private and potential public or private supplies of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. All ground waters not specifically classified are considered as Class GA. Class GB designated uses are industrial process water and cooling waters and baseflow for hydraulically-connected water bodies and is presumed not suitable for human consumption without treatment. Class GC designated uses are assimilation of discharges authorized by the Commissioner pursuant to Section 22a-430 of the General Statutes.

On the WQC map GA is represented by white colored land areas. Class GAA and class GAAs are represented by blue colored land areas. The area of contribution to a public water supply well is shown by a blue cross-hatch overprint. A notation of GAA followed by a state abbreviation indicates a watershed that contributes to the public water supply for a state other than Connecticut. Class GA or Class GAA areas that currently may not be meeting the GA or GAA standards are represented on the WQC maps by tan colored land areas. Class GB is represented by green colored land areas. Class GC is represented by magenta colored land areas.

FINAL AQUIFER PROTECTION AREAS (Level A) are included on the WQC maps for informational purposes. These areas are anticipated to be reclassified GAA during the next major basin updates, subject to public participation. The Aquifer Protection Program helps protect Connecticut's public drinking water resources by delineating aquifer protection areas (also called wellhead protection areas) for public supply wells and establishing land use regulations within these areas. These areas represent the land area contributing ground water to active public water supply wells or well fields that serve more than 1000 people and are set in sand and gravel aquifers (stratified drift deposits).

DATA SOURCES

WATER QUALITY CLASSIFICATIONS DATA – Water quality classifications shown on this map are based on information from the following digital spatial datasets that are typically shown together – Ground Water Quality Classifications Poly, Surface Water Quality Classifications Line, and Surface Water Quality Classifications Poly. The map legend above reflects the content of these three data sources. These WQC data were initially compiled on 1:24,000-scale 7.5 minute USGS topographic quadrangle maps and later digitized at 1:24,000 scale. For example, the Surface Water Quality Classifications Line and Surface Water Quality Classifications Poly digital data assigns surface water quality classifications to water bodies such as rivers, streams, reservoirs, lakes, ponds and coves found in 1:24,000-scale hydrography data available from CT DEEP. The hydrography may not include all the waterbodies in Connecticut. The Ground Water Quality Classifications Poly data assigns ground water quality classifications, at 1:24,000 scale, to the remaining land areas in Connecticut.

AQUIFER PROTECTION AREA DATA – Aquifer Protection Areas shown on this map are from the Aquifer Protection Area digital dataset which contains polygon data intended to be used at 1:24,000 scale. The dataset contains regulated areas classified as Level A Aquifer Protection Area (Final) and Level B Aquifer Protection Area (Preliminary). The Level B areas are not shown on the WQC maps. The data was collected from 1991 to the present and is actively updated as Final area mapping replaces earlier Preliminary areas. The Aquifer Protection Areas are delineated by the individual water companies owning the well fields and submitted to the CT DEEP for approval. Preliminary mapping provides a general estimate of the area contributing ground water to the well field. Final mapping is based on extensive, site-specific, detailed modeling of the ground water flow system. CT DEEP may adjust Final area boundaries to be consistent with 1:24,000 scale topography and base map data where appropriate during the approval process.

MAJOR DRAINAGE BASIN DATA – Major drainage basins shown on this map are from Major Basin Line data developed by CT DEEP and intended to be used at 1:24,000 scale.

BASE MAP DATA - Based on data originally from 1:24,000-scale USGS 7.5 minute topographic quadrangle maps published between 1969 and 1992. It includes political boundaries, railroads, airports, hydrography, geographic names and geographic places. Streets and street names are from Tele Atlas® copyrighted data. Base map information is neither current nor complete.

RELATED INFORMATION
This map is intended to be printed at its original dimensions in order to maintain the 1:24,000 scale (1 inch = 2000 feet).
WATER QUALITY STANDARDS - Go to the CT DEEP website for a summary and the full text of the "Water Quality Standards" and for other information on water quality.
AQUIFER PROTECTION AREAS - Go to the CT DEEP website for more information.

ADOPTED DATES

Water Quality Standards
February 25, 2011

Thames River, Pawcatuck River and Southeast Coastal Basins: December 1986

Connecticut River and South Central Coastal Basins: February 1993

Housatonic River, Hudson River and Southwest Coastal Basins: March 1999

MAJOR BASINS

1 Pawcatuck
2 Southeast Coast
3 Thames
4 Connecticut
5 South Central Coast
6 Housatonic
7 Southwest Coast
8 Hudson

MAP LOCATION

State Plane Coordinate System of 1983, Zone 3526
Lambert Conformal Conic Projection
North American Datum of 1983

1 0.5 0 1 Miles
1000 0 1000 2000 3000 4000 5000 6000 7000 Feet
1 0.5 0 1 Kilometers

SCALE 1:24,000 (1 inch = 2000 feet) when map is printed at original size

STATE OF CONNECTICUT
DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

Map created by CT DEEP
October 2018

Map is not colorfast
Protect from light and moisture

Appendix C: Operation and Maintenance Plan

Project Information

Project Name:	KCE CT11 BESS Granby
Address or Locus:	100 Salmon Brook Street
City, State & Zip:	Granby, Connecticut

Developer

Client Name:	Key Capture Energy
Client Address:	25 Monroe Street
Client City, State & Zip:	Albany, NY 12210
Client Telephone No.:	
Client Cell Phone:	
Client E-Mail:	

Site Supervisor

Site Manager Name:	TBD
Site Manager Address:	
Site Manager City, State & Zip:	
Site Manager Telephone No.:	
Site Manager Cell Phone:	
Site Manager E-Mail:	

Long Term Stormwater Maintenance Measures

The following maintenance program is proposed to ensure the continued effectiveness of the structural water quality controls:

- Inspect infiltration basins once annually, in the spring, for accumulated sediment. Necessary sediment removal, and/or repair will be performed immediately upon identification.
- Paved areas will be swept, at a minimum, two (2) times per year.
- Routinely pick up and remove litter from the parking areas, islands and perimeter landscape areas in addition to regular pavement sweeping.

Structural Stormwater Management Devices

Stormwater Outfalls

- Inspect outfall locations monthly for the first three months after construction to ensure proper functioning and correct any areas that have settled or experienced washouts.
- Inspect outfalls annually after initial three-month period.
- Annual inspections should be supplemented after large storms when washouts may occur.
- Maintain vegetation around outfalls to prevent blockages at the outfall.
- Maintain rip rap pad below each outfall and replace any washouts.
- Remove and dispose of any trash or debris at the outfall.

Infiltration Basins

- Inspect monthly for the first three months after construction.
- After initial three-month period, basins are to be inspected once per year and cleaned a minimum of at least once per year or when sediment reaches 8" in depth.

Best Management Practices – Maintenance/ Evaluation Checklists

CT11 BESS – Salmon Brook – Granby, CT

Best Management Practices – Maintenance/ Evaluation Checklist

Construction Practices

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed ☐yes ☐no (List Items)	Date of Cleaning/ Repair	Performed by
Silt Fencing	Once per week or after a 0.5" or greater storm event						
Compost Filter Sock	Once per week or after a 0.5" or greater storm event						
Straw Wattles	Once per week or after a 0.5" or greater storm event						
Stabilized Construction Entrance/Exit	Once per week or after a 0.5" or greater storm event						
Temporary Sediment Trap/Basin & Diversion Swales	Once per week or after a 0.5" or greater storm event						

Vegetated Slope Stabilization	Once per week or after a 0.5" or greater storm event						
Energy Dissipators	Once per week or after a 0.5" or greater storm event						

Stormwater Control Manager _____

CT11 BESS – Salmon Brook – Granby, CT

Best Management Practices – Maintenance/ Evaluation Checklist

Long Term Practices

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed ☐yes ☐no (List Items)	Date of Cleaning/ Repair	Performed by
Trash/Litter	Routinely pick up and remove litter from entire property as required						
Vegetated Areas	Inspect bi-annually Replant bare areas upon identification						
Energy Dissipators	Inspect monthly for the first 3 months and after any rain event exceeding 0.5" Inspect 2x a year thereafter.						
Diversion Swales	Inspect monthly for the first 3 months and after any rain event exceeding 0.5"						

	Inspect 2x a year thereafter.						
Infiltration Basins	Inspect monthly for the first 3 months and after any rain event exceeding 0.5" Inspect 2x a year thereafter.						

Stormwater Control Manager _____

C-1 Appendix C: Operation and Maintenance Plan