STORMWATER MANAGEMENT PLAN & DRAINAGE ANALYSIS

39 S. William Street
Town of Orangetown - New York

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Tabl1e of Contents

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INTRODUCTION

This Stormwater Management Plan presents the proposed Best Management Practices (BMPs) to control erosion and sedimentation and manage stormwater during and upon the construction of a new retail/office building with associated parking and walkways, and the installation of proposed stormwater improvements at 39 S. William Street in the Town of Orangetown, Rockland County, New York.

This plan consists of this narrative and a plan set entitled: "Proposed Commercial Building, 39 S. William Street, Town of Orangetown, Rockland County - New York", all as prepared by Hudson Engineering and Consulting, P.C., Elmsford, New York, last revised July 22, 2024. The design is in accordance with the Town of Orangetown requirements. Since the project involves less than an acre of disturbance, the New York State Department of Environmental Conservation [NYSDEC] stormwater regulations are not applicable.

METHODOLOGY

The stormwater analysis was developed utilizing the Soil Conservation Service (SCS) TR-20 methodologies (HydroCad®) to assist with the drainage analysis and design of the mitigating practice. The "Complex Number" (CN) value determination is based on soil type, vegetation and land use. *See Soil Map & Report contained herein.* The "Time of Concentration" (T_c) is determined by the time wise longest flow path within each watershed. The CN and T_c data is input into the computer model. The project site was modeled for the peak rates of runoff from the 1-, 2-, 10-, 25- and 100-year Type III – 24-hour extreme storm events in both the Pre- and Post- Developed Conditions. *See Extreme Precipitation Table contained within the report*.

The stormwater management design is based on the NYSDEC "New York State Stormwater Management Design Manual", latest edition and "Controlling Urban Runoff: A practical Manual for Planning and Designing Urban BMP'S", by the Metropolitan Washington Council of Governments. Storm water quality has been analyzed in accordance with the guidelines set forth in the New York State General Permit for Storm Water Discharge, GP-0-20-001.

PRE-DESIGN INVESTIGATIVE ANALYSIS

A pre-design investigative analysis was performed in the vicinity of the potential stormwater mitigation practice, as shown on the plans:

One (1) deep test hole was excavated and labeled TP-1:

- TP-1 was excavated to a depth of 90-inches with a top elevation of 240.52 and a bottom elevation of 233.02. The test revealed topsoil to a depth of 12-inches, fill material to a depth of 16-inches, organic soil to a depth of 28-inches, and moderately compacted sandy loam to the invert. No ledge rock was encountered. Groundwater and mottling were observed at 36-inches at an elevation of 237.52. Due to the presence of high groundwater and mottling, no percolation testing was performed.

If it is determined that additional testing is necessary, all testing will be scheduled with the Town of Orangetown Department of Environmental Management and Engineering.

The deep test hole log sheet is attached.

PRE-DEVELOPED CONDITION

In the Pre-Developed Condition, the existing site was modeled as one (1) watershed (Watershed 1) which contains approximately 5,353-square feet of tributary area, all of which is pervious in the form of lawn and trees. This watershed has a weighted CN value of 72 and a calculated Time of Concentration (T_c) of 14.6 minutes. Overland flow from this watershed originates along the western property boundary and flows generally in a easterly direction, where it exits the property along S. William Street. From here, the runoff then flows in a southerly direction along the existing curb line to an existing catch basin located within S. William Street at *DP-1 - Design Point 1.*

The peak rates of runoff were calculated to be as follows:

Pre-Developed Conditions					
	Storm Event				
Design Point	**1-Year**	**2-Year**	**10-Year**	**25-Year**	**100-Year**
	cfs	**cfs**	**cfs**	**cfs**	**cfs**
DP-1	0.07	0.11	0.25	0.37	0.63

POST-DEVELOPED CONDITION

In the Post-Developed Condition, the existing site was again modeled as four (4) watersheds: Watershed 1A, Watershed 1B-1, Watershed 1B-2, and Watershed 1C. Each watershed was modeled as follows:

Watershed 1A contains approximately 2,753-square feet of tributary area which consists of 531-square feet of lawn and landscaping, and 2,222-square feet of impervious area in the form of the proposed parking area. The weighted complex number (CN) value is calculated as 93 with a direct entry Time of Concentration (T_c) of 1.0 minute. The stormwater runoff from this watershed flows overland towards South William Street where it is captured via a proposed

trench drain and conveyed via an 8-inch HDPE pipe to a hydrodynamic separator unit, where it meets with the runoff from Watersheds 1B and 1C. The hydrodynamic separator unit has been designed to pretreat the entire runoff volume from the site for all storm events up to and including the 100-year storm. The pretreated runoff is then conveyed to a proposed attenuation gallery consisting of 98-linear feet of 42-inch HDPE pipe units located below the parking area. The proposed attenuation gallery has been designed to control the flows from the watershed for all storm events up to and including the 100-year extreme storm to be less than what currently flows from the site. The controlled flows are then conveyed to an existing catch basin located within S. William Street at *DP-1 - Design Point 1.* Since high groundwater exists onsite, buoyancy calculations were prepared with a minimum safety factor of 1.25 to be sure floatation of the system will not occur. To be conservative, the depth to groundwater was included in the calculations as being at the surface. Based on these calculations, the gravel backfill over the system will adequately prevent floatation with a safety factor of 1.34. *Buoyancy calculations have been provided within Section 7 in the appendices of this report.*

Watershed 1B-1 contains approximately 1,150-square feet of tributary area, all of which is impervious in the form of the northern half of the proposed roof area. The weighted complex number (CN) value is calculated as 98 with a direct entry Time of Concentration (T_c) of 1.0 minute. The stormwater runoff from this watershed is captured via a series of roof drain leaders and conveyed via an 8-inch HDPE collector pipe to Cleanouts CO1 and CO2, where it meets with the runoff from Watersheds 1B-2 & 1C. The combined flows are subsequently conveyed to a hydrodynamic separator unit (HS-1B), where it meets with the runoff from Watershed 1A. The hydrodynamic separator has been sized to pre-treat the runoff from all storm events up to and including the 100-year storm. The pretreated runoff is then conveyed to a proposed attenuation gallery consisting of 98-linear feet of 42-inch HDPE pipe located below the parking area. As previously stated, the proposed attenuation gallery has been designed to control the flows from the watershed for all storm events up to and including the 100-year extreme storm to be less than what currently flows from the site. The controlled flows are then conveyed to an existing catch basin located within S. William Street at *DP-1 - Design Point 1.*

Watershed 1B-2 contains approximately 1,150-square feet of tributary area, all of which is impervious in the form of the southern half of the proposed roof area. The weighted complex number (CN) value is calculated as 98 with a direct entry Time of Concentration (T_c) of 1.0 minute. The stormwater runoff from this watershed is captured via a series of roof drain leaders and conveyed via an 8-inch HDPE collector pipe to Cleanouts CO1-2, CO1-1 & CO1, where it meets with the runoff from Watershed 1B-1 & 1C. The combined flows are subsequently conveyed to a hydrodynamic separator unit, where it meets with the runoff from Watershed 1A, which pre-treats the runoff from all storm events up to and including the 100-year storm. As previously state, the pretreated runoff is then conveyed to a proposed attenuation gallery consisting of 98-linear feet of

42-inch HDPE pipe units located below the parking area. The proposed attenuation gallery has been designed to control the flows from the watershed for all storm events up to and including the 100-year extreme storm to be less than what currently flows from the site. The controlled flows are then conveyed to an existing catch basin located within S. William Street at *DP-1 - Design Point 1.*

Watershed 1C contains approximately 600-square feet of tributary area, all of which is pervious in the form of lawn and landscaping. The weighted complex number (CN) value is calculated as 74 and a calculated Time of Concentration (T_c) of 5.8 minutes. The stormwater runoff from this watershed flows overland to a proposed 18" Dia. Nyloplast yard drain located to the rear of the building with a domed grate to prevent potential clogging. The runoff is then conveyed via an 8-inch HDPE pipe to Cleanout CO1, where it meets with the runoff from Watershed 1B. The combined flows are subsequently conveyed to a hydrodynamic separator unit, where it meets with the runoff from Watershed 1A, which pre-treats the runoff from all storm events up to and including the 100-year storm. The pretreated runoff is then conveyed to a proposed attenuation gallery consisting of 98-linear feet of 42-inch HDPE pipe units located below the parking area. The proposed attenuation gallery has been designed to control the flows from the watershed for all storm events up to and including the 100-year extreme storm to be less than what currently flows from the site. The controlled flows are then conveyed to an existing catch basin located within S. William Street at *DP-1 - Design Point 1.*

The peak rates of runoff were calculated to be as follows:

Post-Developed Conditions					
	Storm Event				
Design Point	**1-Year**	**2-Year**	**10-Year**	**25-Year**	**100-Year**
	cfs	**cfs**	**cfs**	**cfs**	**cfs**
DP-1	0.07	0.08	0.24	0.34	0.57

SUMMARY OF FLOWS AT DESIGN POINT

	Storm Event				
	1-Year	**2-Year**	**10-Year**	**25-Year**	**100-Year**
	cfs	**cfs**	**cfs**	**cfs**	**cfs**
DP-1					
• Pre-	0.07	0.11	0.25	0.37	0.63
• **Post-**	**0.07**	**0.08**	**0.24**	**0.34**	**0.57**

The rates of runoff for all storm events in the proposed condition are less than or equal to those in the existing condition.

WATER QUALITY VOLUME CALCULATIONS

P= 90% Rainfall 1.5 -inches

A_i = Impervious Area = 4,522 -square feet

A_i = 0.1038 -acres

A_t = Tributary Area = 5,653 -square feet

A_t = 0.1298 -acres

I = % Impervious = 79.99%

R_v= 0.05+0.009(I); where I = Percent Impervious written as a percent

R_v= 0.770 **(0.20 minimum)**

R_v= 0.770

$$WQ_v = \frac{(P \times R_v \times A_t)}{12} = 0.01249 \text{ acre-feet} = 544.06 \text{ cubic feet}$$

Rainfall Equivalent = 1.73-inches = 546 cubic feet > 544.06 cubic feet

1.73-inches = 0.19 cfs

EROSION AND SEDIMENT CONTROL COMPONENTS

The primary aim of the soil and sediment control measures is to reduce soil erosion from areas stripped of vegetation during and after construction and to prevent silt from reaching the off-site drainage structures and downstream properties. The Sediment and Erosion Control Components are an integral component of the construction sequencing and will be implemented to control sedimentation and re-establish vegetation.

Planned erosion and sedimentation control practices during construction include the installation, inspection and maintenance of the inlet protection, soil stockpile areas, diversion swales and silt fencing. General land grading practices, including land stabilization and construction sequencing are also integrated into the Sediment and Erosion Control Plan. Dust control is not expected to be a problem due to the relatively limited area of exposure, the undisturbed perimeter of trees around the project area and the relatively short time of exposure. Should excessive dust be generated, it will be controlled by sprinkling.

All proposed soil erosion and sediment control practices have been designed in accordance with the following publications:

- New York State standards and Specifications for Erosion and Sediment Control, 2016

- New York State General Permit for Stormwater Discharges, GP-0-20-001 (General permit).

- "Reducing the Impacts of Stormwater Runoff from New Development", as published by the New York State Department of Environmental Conservation (NYSDEC), second edition, April, 1993.

The proposed soil erosion and sediment control devices include the planned erosion control practices outlined below. Maintenance procedures for each erosion control practice have also been outlined below.

- **SILT FENCE**

  Silt fence (geo-textile filter cloth) shall be placed in locations depicted on the approved plans. The purpose of the silt fence is to reduce the velocity of sediment laden stormwater from small drainage areas and to intercept the transported sediment load. In general, silt fence shall be used at the toe of slopes or intermediately within slopes where obvious channel concentration of stormwater is not present.

  Maintenance

  Silt fencing shall be inspected at a minimum of once per week and prior to and within 24 hours following a rain event ½" or greater. Inspections shall include ensuring that the fence material is tightly secured to the woven wire and the wire is secured to the wood posts. In addition, overlapping filter fabric shall be secured and the fabric shall be maintained a minimum of six (6) inches below grade. In the event that any "bulges" develop in the fence, that section of fence shall be replaced within 24 hours with new fence section. Any sediment build-up against the fence shall be removed within 24 hours and deposited on-site a minimum of 100 feet outside of any wetland or watercourse.

  The installation of silt fencing will be maintained or replaced until the fencing is no longer necessary. Once the site is stabilized, all silt fences shall be removed. The immediate area occupied by the silt fence will be shaped to an acceptable grade and stabilized.

- **TREE PROTECTION**

  All significant trees to be preserved located within the limits of disturbance and on the perimeter of the disturbance limits shall be protected from harm by erecting a 3' high (minimum) snow fence completely surrounding the tree. Snow fence should extend to the drip-line of the tree to be preserved. Trees

designated to be protected shall be identified during the staking of the limits of disturbance for each construction phase.

Maintenance

The snow fence shall be inspected daily to ensure that the perimeter of the fence remains at the drip-line of the tree to be preserved. Any damaged portions of the fence shall be repaired or replaced within 24 hours. Care shall also be taken to ensure that no construction equipment is driven or parked within the drip-line of the tree to be preserved.

- **SOIL/SHOT ROCK STOCKPILING**

All soil and shot rock stripped from the construction area during grubbing and mass grading shall be stockpiled in locations shown on the plans, but in no case shall they be placed within 100' of a wetland or watercourse. The stockpiled soils shall be re-used during finish-grading to provide a suitable growing medium for plant establishment. Soil stockpiles shall be protected from erosion by vegetating the stockpile with rapidly –germinating grass seed (during the May 1st – October 30th) planting season or covering the stockpile with tarpaulin the remainder of the year. Install silt fence around toe of slope.

Maintenance

Sediment controls (silt fence) surrounding the stockpiles shall be inspected according to the recommended maintenance outline above. *All stockpiles shall be inspected for signs of erosion or problems with seed establishment weekly or tarpaulin and prior to and within 24 hours following a rain event ½" or greater.*

- **GENERAL LAND GRADING**

The intent of the Erosion & Sediment Control Plan is to control disturbed areas such that soils are protected from erosion by temporary methods and, ultimately, by permanent vegetation. Where practicable, all cut and fill slopes shall be kept to a maximum slope of 2:1. In the event that a slope must exceed a 2:1 slope, it will be stabilized with stone riprap. On fill slopes, all material will be placed in layers not to exceed 12 inches in depth and adequately compacted. Diversion swales shall be constructed on the top of all fill embankments to divert any overland flows away from the fill slopes.

- **SURFACE STABILIZATION**

All disturbed areas will be protected from erosion with the use of vegetative measures (i.e., grass seed mix, sod) hydromulch netting or hay. When activities temporarily cease during construction, soil stockpiles and exposed soil should be stabilized by seed, mulch or other appropriate measures within

7 days after construction activity has ceased, or 24 hours prior to a rain event ½" or greater.

All seeded areas will be re-seeded areas as necessary and mulched according to the site plan to maintain a vigorous, dense vegetative cover,

Erosion control barriers (silt fencing) shall be placed around exposed areas during construction. Where exposed areas are immediately uphill from a wetland or watercourse, the erosion control barrier will consist of double rows of silt fencing. Any areas stripped of vegetation during construction will be vegetated and/or mulch, but in no case more than 14 days to prevent erosion of the exposed soils. And topsoil removed during construction will be temporarily stockpiled for future use in grading and landscaping.

As mentioned above, temporary vegetation will be established to protect exposed soil areas during construction. If growing conditions are not suitable for the temporary vegetation, mulch will be used to the satisfaction of the Town Engineer. Materials that may be used for mulching include straw, hay, salt hay, wood fiber, synthetic soil stabilizers, mulch netting, sod or hydromulch. In site areas where significant erosion potential exists (steep slopes) and where specifically directed by the Town's representative, Curlex Excelsior erosion control blankets (manufactured by American Excelsior, or approved equal) shall be installed. A permanent vegetative cover will be established upon completion of construction of those areas that have been brought to finish-grade and to remain undisturbed.

- **Temporary Stabilization (May 1st through October 31st planting season)**

  The following seeding application should be used depending on the time of year.

  - Spring/summer or early fall, seed the area with ryegrass (annual or perennial) at 30 lbs. per acre (Approximately 0.7 lb/1000 sq. ft. or use 1 lb/1000 sq. ft.).

  - Late fall or early winter, seed Certified 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2.5 lbs/1000 sq. ft.).

- **Permanent Stabilization (May 1st through October 31st planting season)**

  1. Provide minimum of four (4) inches topsoil for all new lawn areas. Top dress all existing disturbed lawn areas with two (2) inches of topsoil.

  2. Grass seed shall be evenly sown by mechanical seeder at a rate of 3.0-4.0 pounds per 1,000 square feet.

  3. Fine rake, roll and water to a depth of one inch all seeded areas.

4. Apply air-dried hay or straw mulch to provide 90% coverage of surface (approximately 90 lbs. per 1,000 sf). Use small grain straw where mulch is maintained for more than three months

5. Contractor shall provide, at his own expense, protection against trespassing and other damage to lawn areas.

6. Lawn seed mix shall include:

   a. General Recreation areas and lawns:

      - 65% Kentucky Bluegrass blend
      - 20% Perennial Rye
      - 15% Fine fescue

      Sod may be used as an alternate to seeding in select areas.

      Slow release fertilizers will be applied by hand to horticultural plantings as part of regular horticultural maintenance program and shall be limited to a single spring application.

CONSTRUCTION PRACTICES TO MINIMIZE STORMWATER CONTAMINATION

Adequate measures shall be taken to minimize contaminant particles arising from the discharge of solid materials, including building materials, grading operations, and the reclamation and placement of pavement, during project construction, including but not limited to:

- Building materials, garbage, and debris shall be cleaned up daily and deposited into dumpsters, which will be periodically removed from the site and appropriately disposed of.

- Dump trucks hauling material from the construction site will be covered with a tarpaulin.

- The paved street adjacent to the site entrance will be swept daily to remove excess mud, dirt, or rock tracked from the site.

- Petroleum products will be stored in tightly sealed containers that are clearly labeled.

- All vehicles on site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

- All spills will be cleaned up immediately upon discovery. Spills large enough to reach the storm system will be reported to the National Response Center at 1-800-424-8802.

- Materials and equipment necessary for spill cleanup will be kept in the temporary material storage trailer onsite. Equipment will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, saw dust, and plastic and metal trash containers.

- All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm system, but will be properly disposed according to the manufacturer's instructions.

- Sanitary waste will be collected from portable units a minimum of two times a week to avoid overfilling.

- Any asphalt substances used on-site will be applied according to the manufacturer's recommendation.

- Fertilizers will be stored in a covered shed and partially used bags will be transferred to a sealable bin to avoid spills and will be applied only in the minimum amounts recommended by the manufacturer and worked into the soil to limit exposure to stormwater.

- No disturbed area shall be left un-stabilized for longer than 14 days during the growing season.

- When erosion is likely to be a problem, grubbing operations shall be scheduled and performed such that grading operations and permanent erosion control features can follow within 24 hours thereafter.

- As work progresses, patch seeding shall be done as required on areas previously treated to maintain or establish protective cover.

- Drainage pipes and swales/ditches shall generally be constructed in a sequence from outlet to inlet in order to stabilize outlet areas and ditches before water is directed to the new installation or any portion thereof, unless conditions unique to the location warrant an alternative method.

STORMWATER MANAGEMENT FACILITIES MAINTENANCE PROGRAM

The following maintenance plan has been developed to maintain the proper function of all drainage and erosion and sediment control facilities:

- <u>Erosion & Sediment Control Maintenance:</u>

  During the construction of the project, the site erosion and sediment control measures as well as basin embankments and outlet structures will be inspected by the project superintendent once a week and/or within 24 hours following a rainstorm ½" or greater. Any repairs required shall be performed in

a timely manner. All sediment removal and/or repairs will be followed within 24 hours by re-vegetation. Remove sediment and correct erosion by re-seed eroded areas and gullies within 7 days.

- General Stormwater Facilities Maintenance (Storm Sewer, Catch Basins/Drain Inlets, Manholes, Pre-treatment Device and Subsurface Infiltration Systems)

  All stormwater facilities shall be inspected immediately after completion of construction, and then monthly for the first three (3) months following the completion of the Project. Within the first three (3) months, inspections shall immediately be performed following a large storm event (i.e. producing 1/2" (one-half inch) of rain or greater. Thereafter, these facilities shall be inspected as described as follows. Upon inspection, facilities shall be immediately maintained and/or cleaned as may be required. Any site areas exhibiting soil erosion of any kind shall be immediately restored and stabilized with vegetation, mulch or stone, depending on the area to be stabilized.

  Upon each inspection, all visible debris including, but not limited to, twigs, leaf and forest litter shall be removed from the swales, overflow discharge points and frames and grates of drainage structures.

- Sumps − Catch Basin/Drain Inlets and Drain Manholes

  All catch basin/drain inlets and drain manholes with sumps have been designed to trap sediment prior to its transport to the infiltration practice and, ultimately, downstream. These sumps will require periodic inspection and maintenance to ensure that adequate depth is maintained within the sumps.

  All sumps shall be inspected once per month for the first three (3) months (after drainage system has been put into service). Thereafter, all sumps shall be inspected every four (4) months. The Home Owners Associate (HOA), or their duly authorized representative, shall take measurements of the sump depth.

  If sediment has accumulated to 1/2 (one-half) the depth of the sump, all sediment shall be removed from the sump. Sediments can be removed with hand-labor or with a vacuum truck.

  The use of road salt shall be minimized for maintenance of roadway and driveway areas.

- Pre-Treatment Devices:

  The pre-treatment device (Hydrodynamic Separator) shall be inspected every six (6) months (Spring and Fall) for excess sediment accumulation. During dry weather conditions, accumulated sediments shall be vacuumed out when sediment has reached 1/2 (one-half) the capacity of the isolated sump, or when an appreciable level of hydrocarbons and trash has accumulated, whichever occurs first.

  Upon completion of construction, each Unit should be inspected quarterly during the first year in order to develop an appropriate schedule of maintenance. When the sediment pile is within 30 to 36 inches of the water surface, the system should be maintained. A vacuum truck shall be used to remove the accumulated sediment and debris. Refer to manufacturer's literature for detailed maintenance instructions.

- Attenuation Gallery:

  The attenuation gallery shall be inspected immediately after construction. Thereafter, the exfiltration galleries shall be inspected every six (6) months (Spring and Fall) for excess sediment accumulation. During dry weather conditions, when sediment has accumulated to an average depth exceeding 3" (three inches), the gallery shall be water jetted clean, and all accumulated sediments shall be vacuumed out or removed manually. A stadia rod may be inserted to determine the depth of the sediment.

The permanent maintenance program will be managed by the property owner upon completion of construction and acceptance of the improvements.

CONCLUSION

The stormwater management plan proposed meets all the requirements set forth by the Town of Orangetown. Design modification requirements that may occur during the approval process will be performed and submitted for review to the Town of Orangetown.

Section 2
Extreme Precipitation Tables

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point

Smoothing	Yes
State	
Location	
Latitude	41.057 degrees North
Longitude	74.02 degrees West
Elevation	70 feet
Date/Time	Mon Jun 12 2023 12:54:30 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.33	0.51	0.63	0.83	1.03	1.29	**1yr**	0.89	1.23	1.48	1.83	2.25	2.78	3.20	**1yr**	2.46	3.08	3.55	4.26	4.91	**1yr**
2yr	0.40	0.61	0.77	1.01	1.27	1.58	**2yr**	1.09	1.49	1.82	2.25	2.76	3.39	3.83	**2yr**	3.00	3.68	4.23	5.01	5.70	**2yr**
5yr	0.46	0.72	0.91	1.21	1.55	1.96	**5yr**	1.34	1.83	2.26	2.81	3.46	4.24	4.84	**5yr**	3.76	4.66	5.36	6.23	6.99	**5yr**
10yr	0.52	0.81	1.03	1.39	1.81	2.31	**10yr**	1.56	2.15	2.68	3.33	4.11	5.03	5.78	**10yr**	4.45	5.56	6.42	7.35	8.15	**10yr**
25yr	0.60	0.95	1.21	1.67	2.23	2.87	**25yr**	1.92	2.65	3.35	4.18	5.16	6.31	7.32	**25yr**	5.58	7.04	8.14	9.15	9.99	**25yr**
50yr	0.67	1.08	1.38	1.94	2.60	3.39	**50yr**	2.25	3.11	3.96	4.96	6.12	7.49	8.76	**50yr**	6.62	8.42	9.76	10.81	11.67	**50yr**
100yr	0.76	1.22	1.58	2.24	3.05	4.00	**100yr**	2.63	3.65	4.69	5.89	7.28	8.89	10.48	**100yr**	7.87	10.08	11.70	12.76	13.63	**100yr**
200yr	0.86	1.40	1.82	2.60	3.58	4.72	**200yr**	3.09	4.30	5.54	6.98	8.64	10.56	12.55	**200yr**	9.35	12.07	14.03	15.08	15.94	**200yr**
500yr	1.02	1.67	2.18	3.16	4.42	5.88	**500yr**	3.81	5.33	6.93	8.75	10.85	13.28	15.92	**500yr**	11.75	15.31	17.86	18.80	19.62	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.88	1.13	**1yr**	0.76	1.10	1.16	1.66	2.07	2.22	2.85	**1yr**	1.97	2.74	3.36	3.94	4.31	**1yr**
2yr	0.38	0.59	0.73	0.99	1.22	1.47	**2yr**	1.05	1.44	1.68	2.18	2.69	3.30	3.74	**2yr**	2.92	3.60	4.11	4.87	5.57	**2yr**
5yr	0.43	0.67	0.83	1.13	1.44	1.72	**5yr**	1.24	1.69	1.97	2.58	3.13	3.99	4.52	**5yr**	3.53	4.34	5.01	5.84	6.54	**5yr**
10yr	0.48	0.73	0.91	1.26	1.63	1.94	**10yr**	1.41	1.90	2.22	2.85	3.49	4.56	5.19	**10yr**	4.03	5.00	5.80	6.69	7.39	**10yr**
25yr	0.54	0.82	1.02	1.46	1.92	2.28	**25yr**	1.66	2.23	2.61	3.32	4.03	5.47	6.24	**25yr**	4.84	6.00	7.08	8.01	8.64	**25yr**
50yr	0.60	0.91	1.13	1.63	2.20	2.59	**50yr**	1.89	2.54	2.95	3.75	4.50	6.27	7.17	**50yr**	5.55	6.89	8.20	9.19	9.76	**50yr**
100yr	0.67	1.01	1.26	1.83	2.50	2.95	**100yr**	2.16	2.89	3.35	4.25	5.07	7.21	8.19	**100yr**	6.38	7.88	9.52	10.53	11.03	**100yr**
200yr	0.74	1.12	1.42	2.06	2.87	3.37	**200yr**	2.48	3.30	3.80	4.84	5.70	8.31	9.38	**200yr**	7.35	9.02	11.03	12.09	12.44	**200yr**
500yr	0.87	1.30	1.67	2.43	3.46	4.03	**500yr**	2.99	3.94	4.54	5.78	6.72	10.04	11.26	**500yr**	8.88	10.83	13.43	14.51	14.58	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.37	0.57	0.70	0.94	1.15	1.38	**1yr**	0.99	1.35	1.63	2.14	2.40	2.95	3.40	**1yr**	2.61	3.27	3.79	4.54	5.22	**1yr**
2yr	0.41	0.64	0.79	1.06	1.31	1.58	**2yr**	1.13	1.55	1.81	2.33	2.95	3.50	3.99	**2yr**	3.10	3.83	4.35	5.15	5.87	**2yr**
5yr	0.50	0.77	0.95	1.31	1.67	2.01	**5yr**	1.44	1.97	2.33	2.98	3.80	4.51	5.16	**5yr**	3.99	4.96	5.74	6.66	7.42	**5yr**
10yr	0.58	0.89	1.10	1.54	1.99	2.43	**10yr**	1.72	2.38	2.80	3.61	4.65	5.52	6.33	**10yr**	4.89	6.09	7.07	8.09	8.88	**10yr**
25yr	0.71	1.08	1.34	1.92	2.52	3.10	**25yr**	2.18	3.04	3.60	4.64	6.07	7.18	8.30	**25yr**	6.36	7.99	9.25	10.48	11.26	**25yr**
50yr	0.82	1.25	1.56	2.24	3.02	3.75	**50yr**	2.60	3.67	4.34	5.61	7.39	8.74	10.19	**50yr**	7.73	9.80	11.41	12.74	13.48	**50yr**
100yr	0.97	1.46	1.83	2.64	3.62	4.51	**100yr**	3.12	4.41	5.23	6.80	9.03	10.66	12.51	**100yr**	9.44	12.03	14.08	15.49	16.16	**100yr**
200yr	1.12	1.69	2.14	3.10	4.32	5.43	**200yr**	3.73	5.31	6.31	8.22	11.02	13.01	15.40	**200yr**	11.51	14.80	17.37	18.85	19.38	**200yr**
500yr	1.39	2.06	2.66	3.86	5.49	6.94	**500yr**	4.73	6.78	8.07	10.58	14.32	16.93	20.24	**500yr**	14.98	19.46	22.98	24.45	24.70	**500yr**

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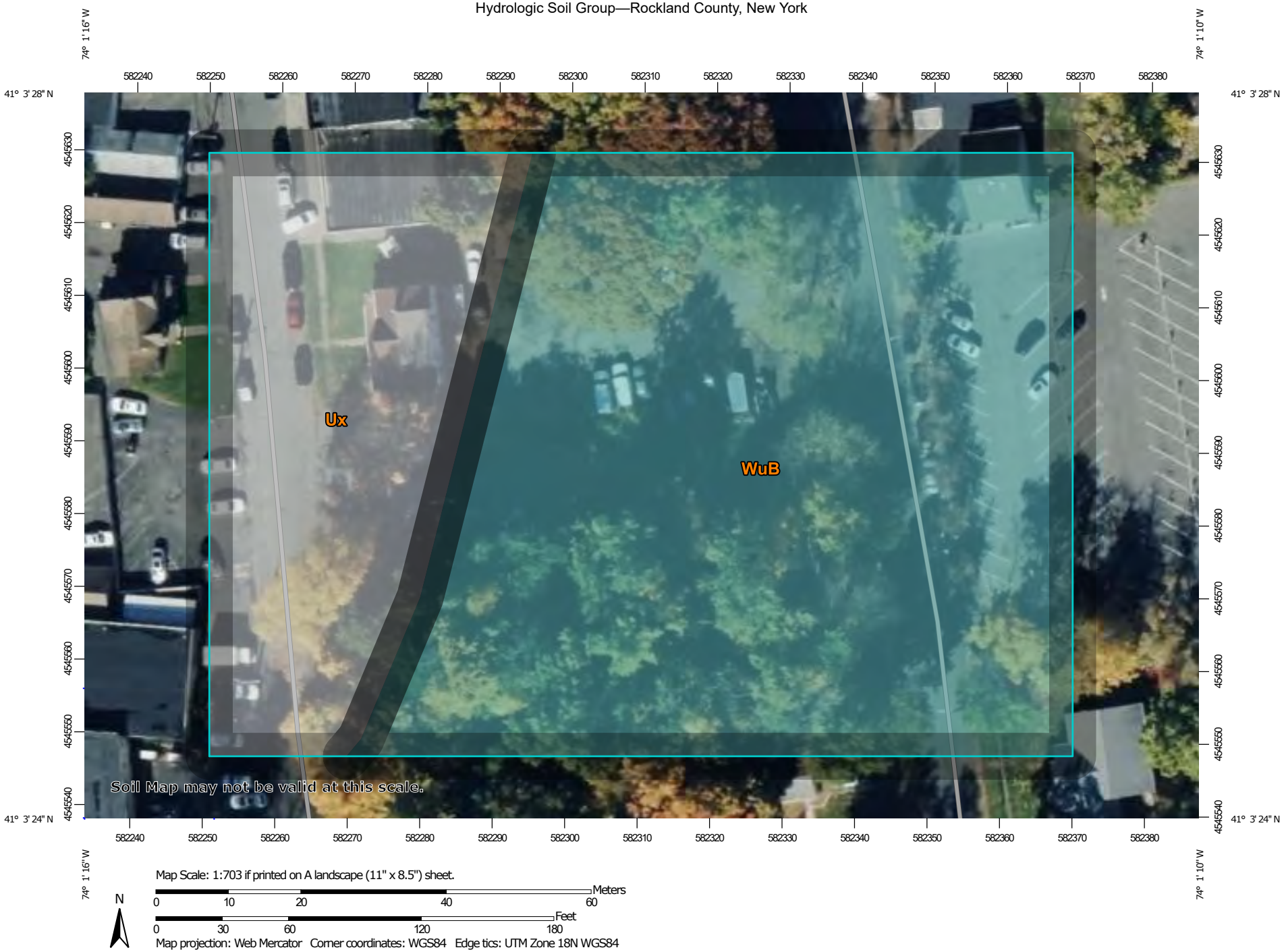
Northeast Regional Climate Center

Section 3
NRCS Soil Map & Hydrologic Soil Group Rating



Map Scale: 1:703 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 30 60 120 180

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 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Rockland County, New York
Survey Area Data: Version 20, Sep 10, 2022

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

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

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ux	Urban land		0.7	28.2%
WuB	Wethersfield-Urban land complex, 2 to 8 percent slopes	C	1.8	71.8%
Totals for Area of Interest			**2.5**	**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

Section 4
Deep Test Hole Results

HUDSON ENGINEERING & CONSULTING, P.C.

SITE ADDRESS: 39 S. Williams Street

TOWN/VILLAGE: Orangetown

DATE: 10/05/2023 TIME: 12:15pm

WEATHER: Sunny TEMP. 72° F

WITNESSED BY: Nicholas Shirriah

DEEP TEST HOLE DATA SHEET – STORMWATER MANAGEMENT SYSTEM

DEPTH	HOLE NO. 1	HOLE NO. 2	HOLE NO. 3	HOLE NO. 4
G.L.		**Ground Elev. 240.52**		
6”		0 – 12”		
12”		Topsoil		
18”		12 – 16”		
24”		Fill		
30”		16 – 28”		
36”		Organic Soil		
42”		**GW/Mottling at**		
48”		**36” Elev. 237.52**		
54”				
60”				
66”				
72”				
78”				
84”				
90”		28 – 90” **Bot. Elev. 233.02**		
96”		Mod. Compact		
102”		Sandy Loam		
108”		**No Ledge**		

- *Indicate level at which Ground Water (GW), Mottling and/or Ledge Rock is encountered.*
- *Indicate level for which water level rises after being encountered.*

EXCAVATION PERFORMED BY: **OWNER/APPLICANT**

Section 5
Water Quality Calculations

WATER QUALITY CALCULATION
WATERSHED WS-1A

P= 90% Rainfall 1.5 -inches

A_i = Imperveous Area = 4,522 -square feet

A_i = 0.1038 -acres

A_t = Tributary Area = 5,653 -square feet

A_t = 0.1298 -acres

I = % Impervious = 79.99%

R_v= 0.05+0.009(I); where I = Percent Impervious written as a percent

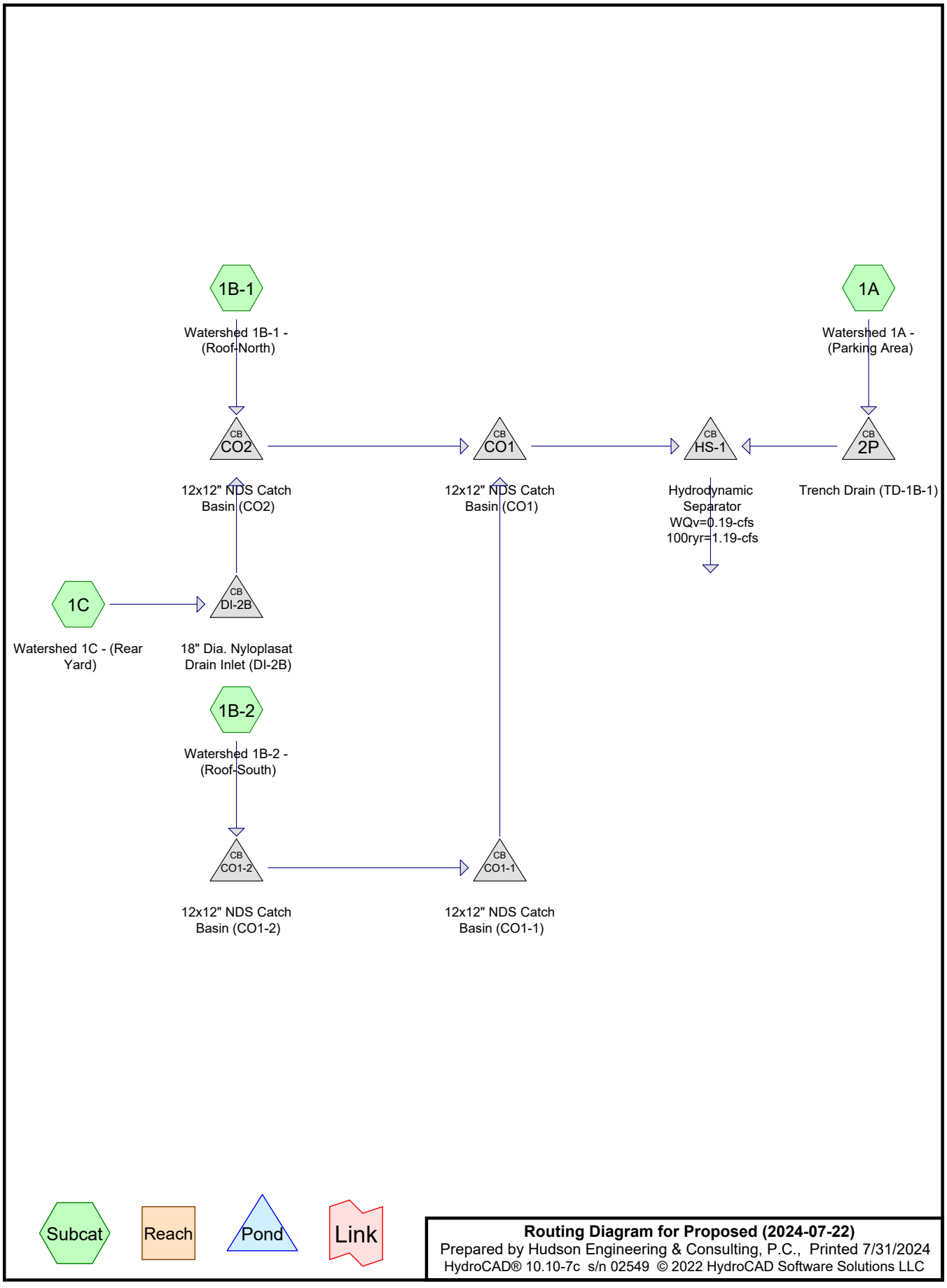
R_v= 0.770 **(0.20 minimum)**

R_v= 0.770

$$WQ_v = \frac{(P \times R_v \times A_t)}{12} = 0.01249 \text{ acre-feet} = 544.06 \text{ cubic feet}$$

Rainfall Equivalent = 1.73-inches = 546 cubic feet **>** 544.06 cubic feet

1.73-inches = 0.18 cfs



Routing Diagram for Proposed (2024-07-22)
Prepared by Hudson Engineering & Consulting, P.C., Printed 7/31/2024
HydroCAD® 10.10-7c s/n 02549 © 2022 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	Type III 24-hr		Default	24.00	1	8.89	2
2	WQv	Type III 24-hr		Default	24.00	1	1.73	2

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,131	74	>75% Grass cover, Good, HSG C (1A, 1C)
4,522	98	Impervious Cover (1A, 1B-1, 1B-2)
5,653	**93**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
1,131	HSG C	1A, 1C
0	HSG D	
4,522	Other	1A, 1B-1, 1B-2
5,653		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	1,131	0	0	1,131	>75% Grass cover, Good	
0	0	0	0	4,522	4,522	Impervious Cover	
0	**0**	**1,131**	**0**	**4,522**	**5,653**	**TOTAL AREA**	

Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1A: Watershed 1A - (Parking Runoff Area=2,753 sf 80.71% Impervious Runoff Depth=8.05"
Tc=1.0 min CN=93 Runoff=0.60 cfs 1,846 cf

Subcatchment 1B-1: Watershed 1B-1 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=8.65"
Tc=1.0 min CN=98 Runoff=0.26 cfs 829 cf

Subcatchment 1B-2: Watershed 1B-2 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=8.65"
Tc=1.0 min CN=98 Runoff=0.26 cfs 829 cf

Subcatchment 1C: Watershed 1C - (Rear Yard) Runoff Area=600 sf 0.00% Impervious Runoff Depth=5.73"
Flow Length=22' Slope=0.0150 '/' Tc=4.6 min CN=74 Runoff=0.09 cfs 286 cf

Pond 2P: Trench Drain (TD-1B-1) Peak Elev=237.96' Inflow=0.60 cfs 1,846 cf
8.0" Round Culvert n=0.013 L=10.1' S=0.1673 '/' Outflow=0.60 cfs 1,846 cf

Pond CO1: 12x12" NDS Catch Basin (CO1) Peak Elev=237.00' Inflow=0.59 cfs 1,944 cf
8.0" Round Culvert n=0.013 L=35.0' S=0.0200 '/' Outflow=0.59 cfs 1,944 cf

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1) Peak Elev=238.52' Inflow=0.26 cfs 829 cf
8.0" Round Culvert n=0.013 L=47.5' S=0.0364 '/' Outflow=0.26 cfs 829 cf

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2) Peak Elev=239.09' Inflow=0.26 cfs 829 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0100 '/' Outflow=0.26 cfs 829 cf

Pond CO2: 12x12" NDS Catch Basin (CO2) Peak Elev=237.94' Inflow=0.33 cfs 1,115 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0200 '/' Outflow=0.33 cfs 1,115 cf

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B) Peak Elev=238.23' Inflow=0.09 cfs 286 cf
8.0" Round Culvert n=0.013 L=22.5' S=0.0200 '/' Outflow=0.09 cfs 286 cf

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs Peak Elev=236.93' Inflow=1.19 cfs 3,790 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=1.19 cfs 3,790 cf

Total Runoff Area = 5,653 sf Runoff Volume = 3,790 cf Average Runoff Depth = 8.05"
20.01% Pervious = 1,131 sf 79.99% Impervious = 4,522 sf

Summary for Subcatchment 1A: Watershed 1A - (Parking Area)

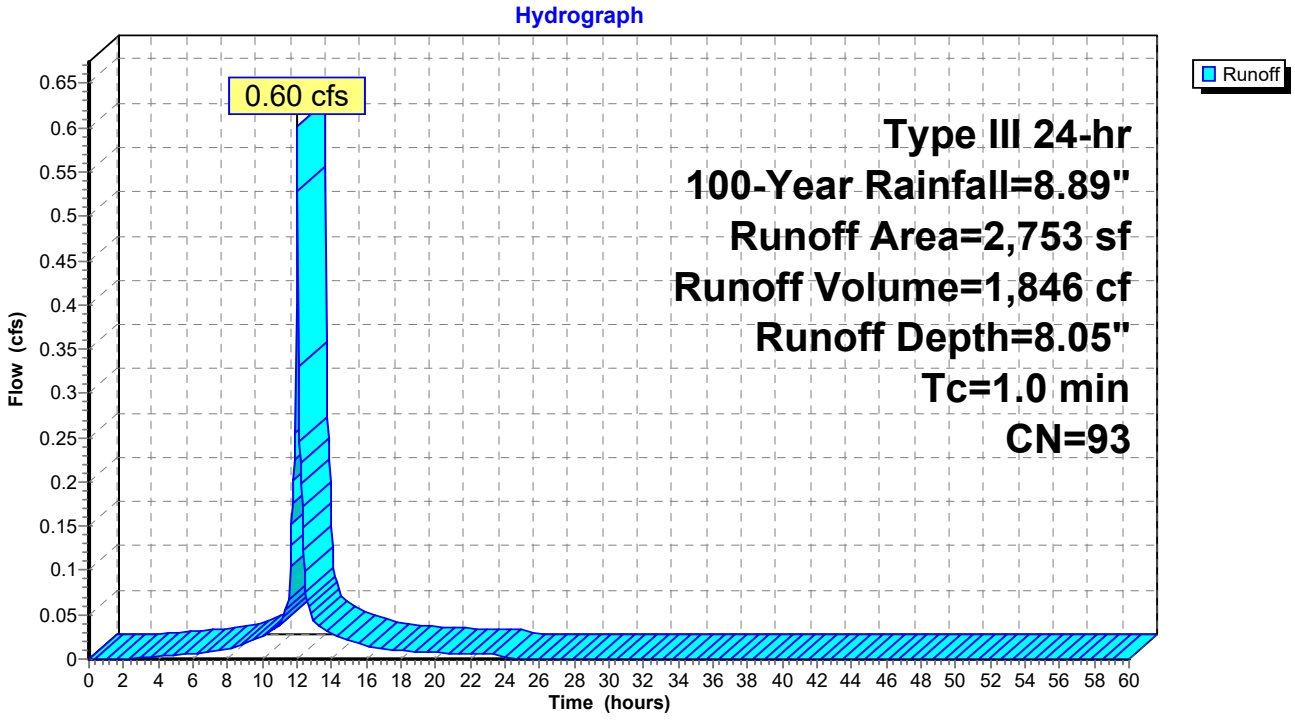
Runoff = 0.60 cfs @ 12.01 hrs, Volume= 1,846 cf, Depth= 8.05"
Routed to Pond 2P : Trench Drain (TD-1B-1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

	Area (sf)	CN	Description
*	2,222	98	Impervious Cover
	531	74	>75% Grass cover, Good, HSG C
	2,753	93	Weighted Average
	531		19.29% Pervious Area
	2,222		80.71% Impervious Area

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

Subcatchment 1A: Watershed 1A - (Parking Area)



Summary for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

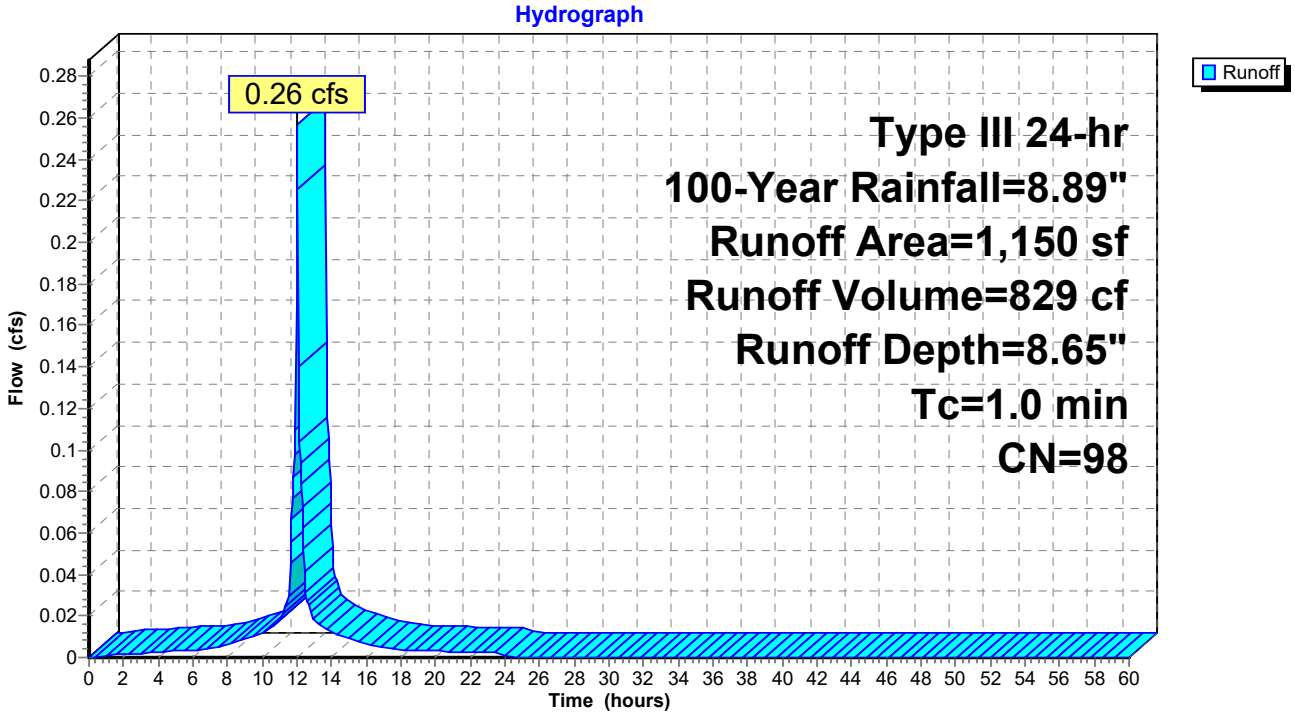
Runoff = 0.26 cfs @ 12.01 hrs, Volume= 829 cf, Depth= 8.65"
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)



Summary for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

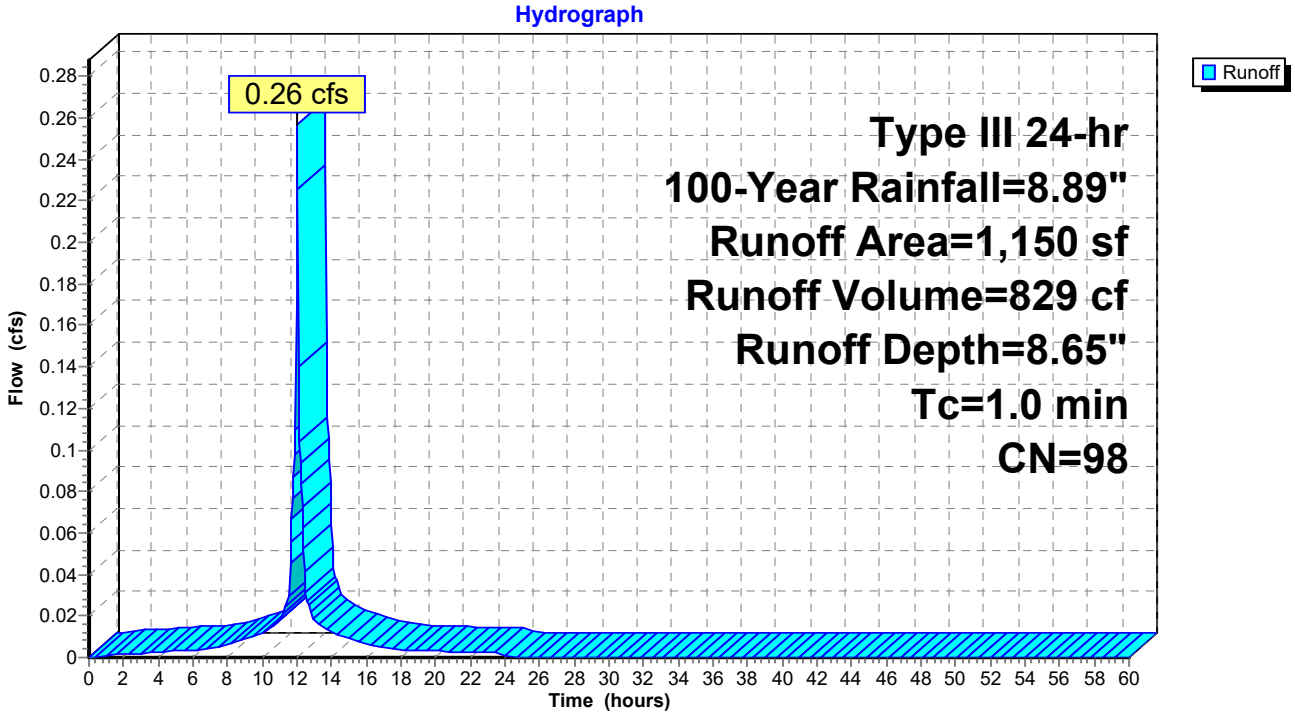
Runoff = 0.26 cfs @ 12.01 hrs, Volume= 829 cf, Depth= 8.65"
Routed to Pond CO1-2 : 12x12" NDS Catch Basin (CO1-2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)



Summary for Subcatchment 1C: Watershed 1C - (Rear Yard)

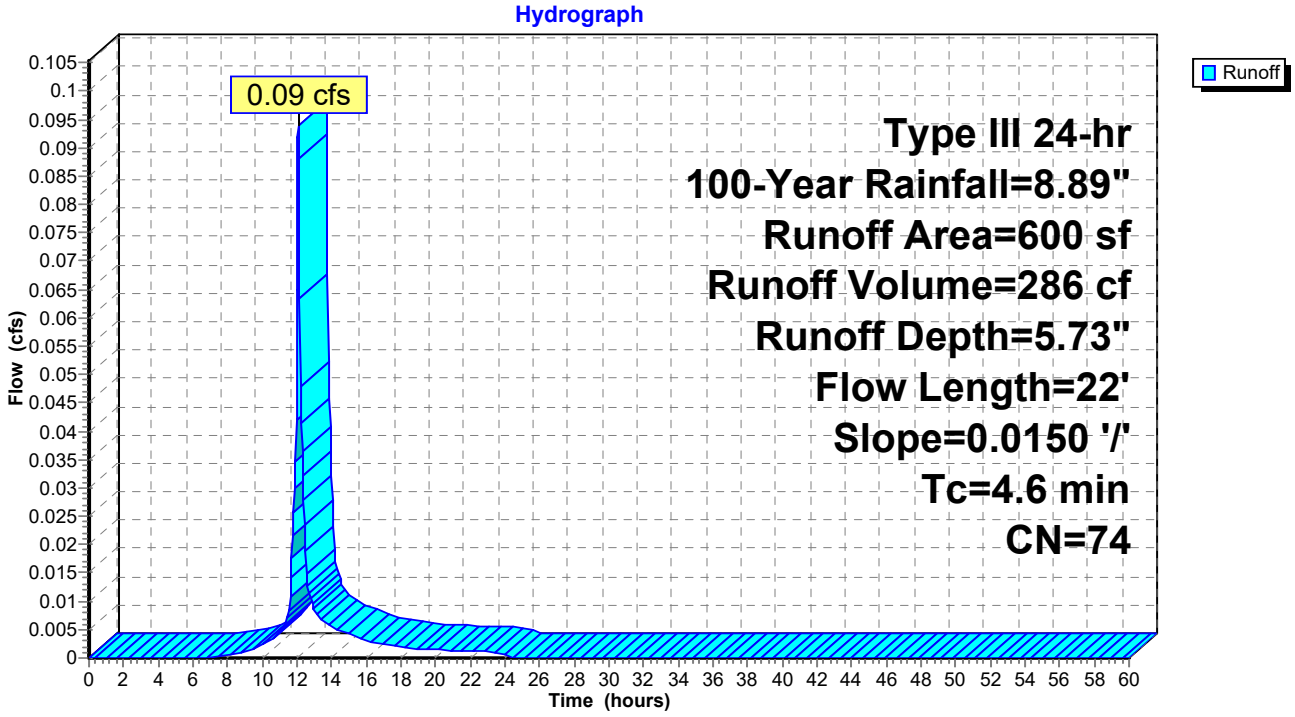
Runoff = 0.09 cfs @ 12.07 hrs, Volume= 286 cf, Depth= 5.73"
Routed to Pond DI-2B : 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
600	74	>75% Grass cover, Good, HSG C
600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0150	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.42"

Subcatchment 1C: Watershed 1C - (Rear Yard)



Summary for Pond 2P: Trench Drain (TD-1B-1)

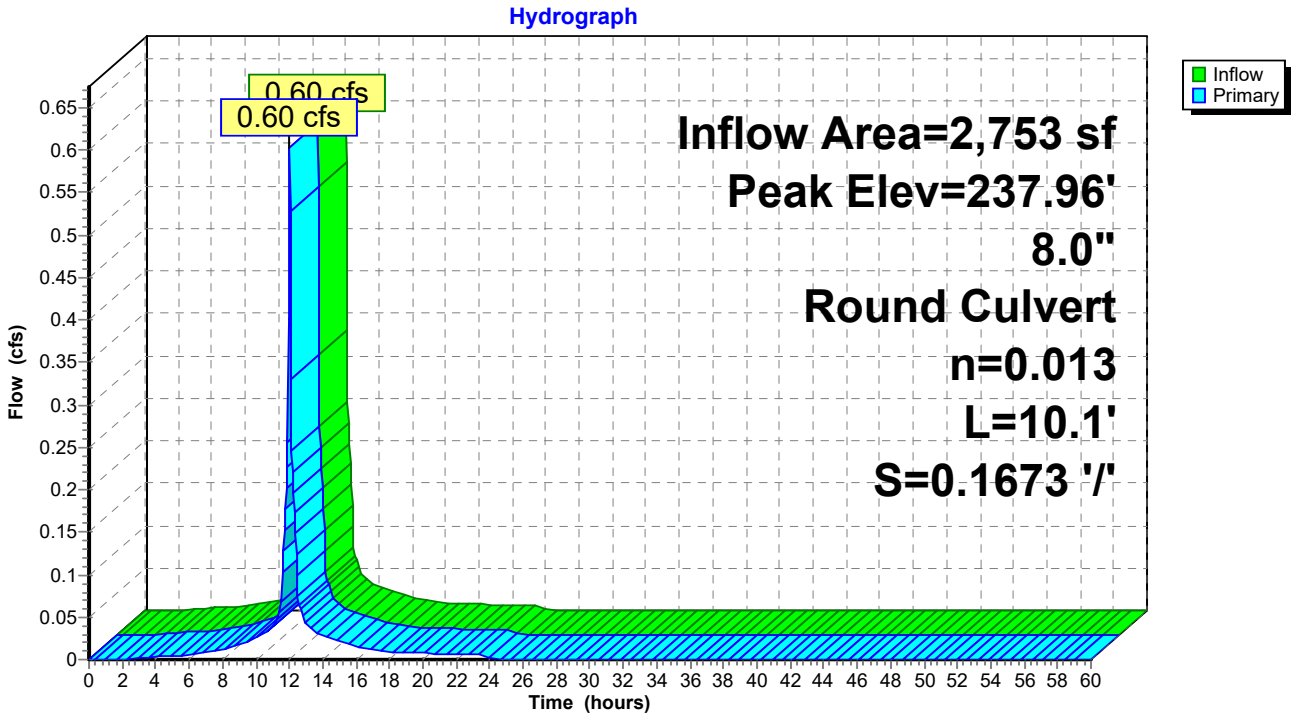
Inflow Area = 2,753 sf, 80.71% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 0.60 cfs @ 12.01 hrs, Volume= 1,846 cf
Outflow = 0.60 cfs @ 12.01 hrs, Volume= 1,846 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.01 hrs, Volume= 1,846 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.96' @ 12.01 hrs
Flood Elev= 240.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.50'	**8.0" Round 8" HDPE** L= 10.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.50' / 235.81' S= 0.1673 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.58 cfs @ 12.01 hrs HW=237.95' TW=236.52' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.58 cfs @ 2.29 fps)

Pond 2P: Trench Drain (TD-1B-1)



Summary for Pond CO1: 12x12" NDS Catch Basin (CO1)

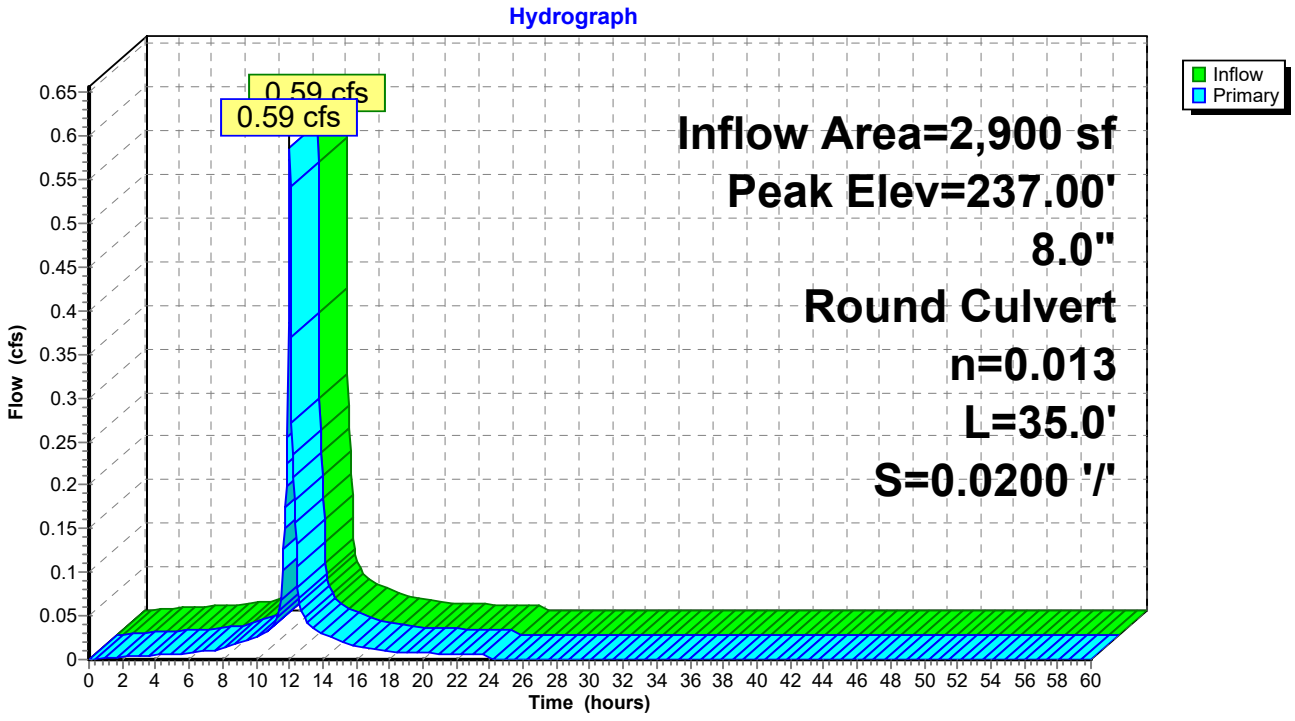
Inflow Area = 2,900 sf, 79.31% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 0.59 cfs @ 12.02 hrs, Volume= 1,944 cf
Outflow = 0.59 cfs @ 12.02 hrs, Volume= 1,944 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.02 hrs, Volume= 1,944 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.00' @ 12.19 hrs
Flood Elev= 240.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	236.51'	**8.0" Round 8" HDPE** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.51' / 235.81' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.52 cfs @ 12.02 hrs HW=236.96' TW=236.54' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.52 cfs @ 2.87 fps)

Pond CO1: 12x12" NDS Catch Basin (CO1)



Summary for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

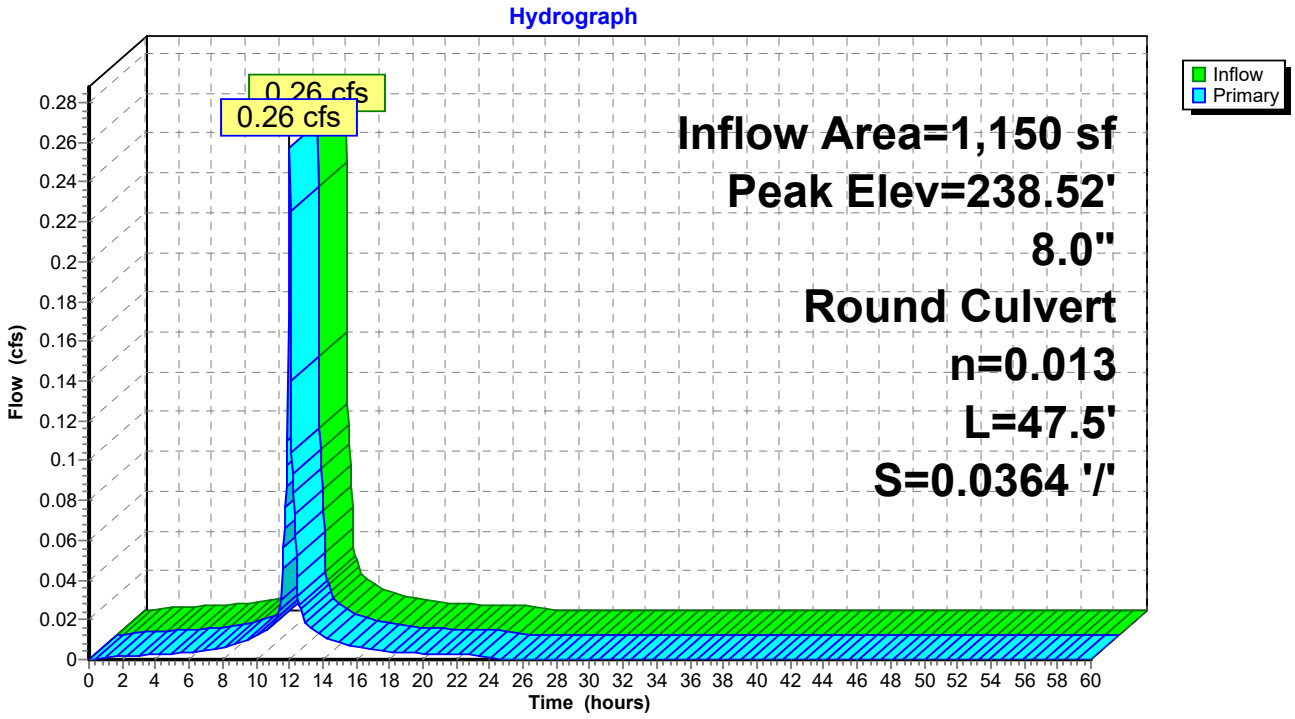
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 8.65" for 100-Year event
Inflow = 0.26 cfs @ 12.01 hrs, Volume= 829 cf
Outflow = 0.26 cfs @ 12.01 hrs, Volume= 829 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.01 hrs, Volume= 829 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.52' @ 12.01 hrs
Flood Elev= 240.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.24'	**8.0" Round 8" HDPE** L= 47.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.24' / 236.51' S= 0.0364 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.25 cfs @ 12.01 hrs HW=238.52' TW=236.97' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.25 cfs @ 1.79 fps)

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)



Summary for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

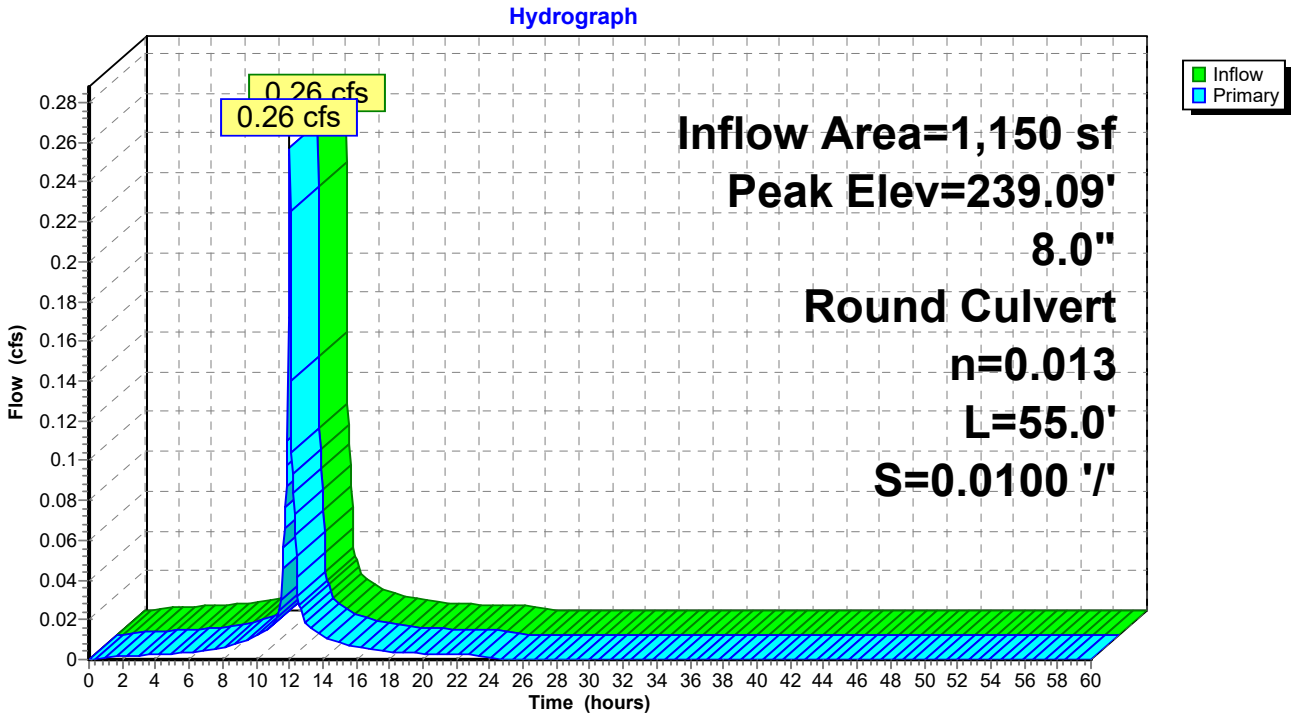
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 8.65" for 100-Year event
Inflow = 0.26 cfs @ 12.01 hrs, Volume= 829 cf
Outflow = 0.26 cfs @ 12.01 hrs, Volume= 829 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.01 hrs, Volume= 829 cf
Routed to Pond CO1-1 : 12x12" NDS Catch Basin (CO1-1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 239.09' @ 12.01 hrs
Flood Elev= 241.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.79'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.79' / 238.24' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.25 cfs @ 12.01 hrs HW=239.08' TW=238.52' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.25 cfs @ 2.47 fps)

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)



Summary for Pond CO2: 12x12" NDS Catch Basin (CO2)

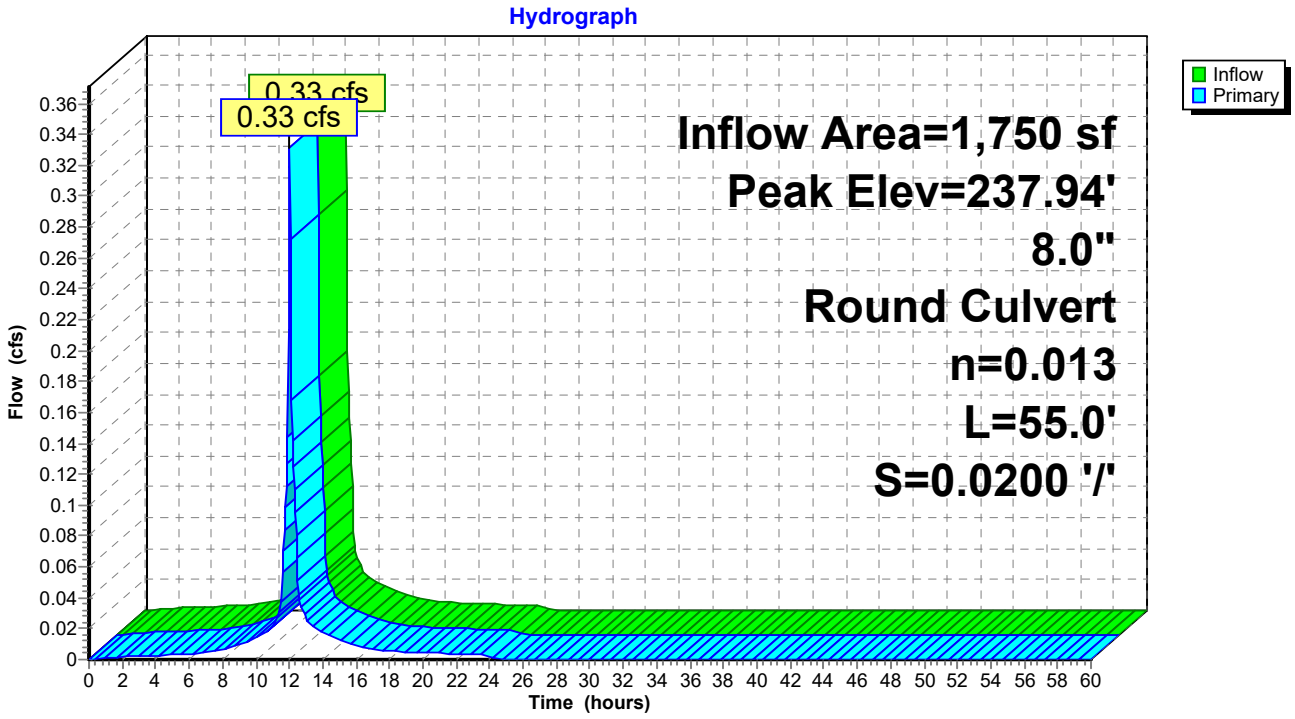
Inflow Area = 1,750 sf, 65.71% Impervious, Inflow Depth = 7.65" for 100-Year event
Inflow = 0.33 cfs @ 12.02 hrs, Volume= 1,115 cf
Outflow = 0.33 cfs @ 12.02 hrs, Volume= 1,115 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.02 hrs, Volume= 1,115 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.94' @ 12.02 hrs
Flood Elev= 241.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.61'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.61' / 236.51' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.32 cfs @ 12.02 hrs HW=237.93' TW=236.96' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.32 cfs @ 1.92 fps)

Pond CO2: 12x12" NDS Catch Basin (CO2)



Summary for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

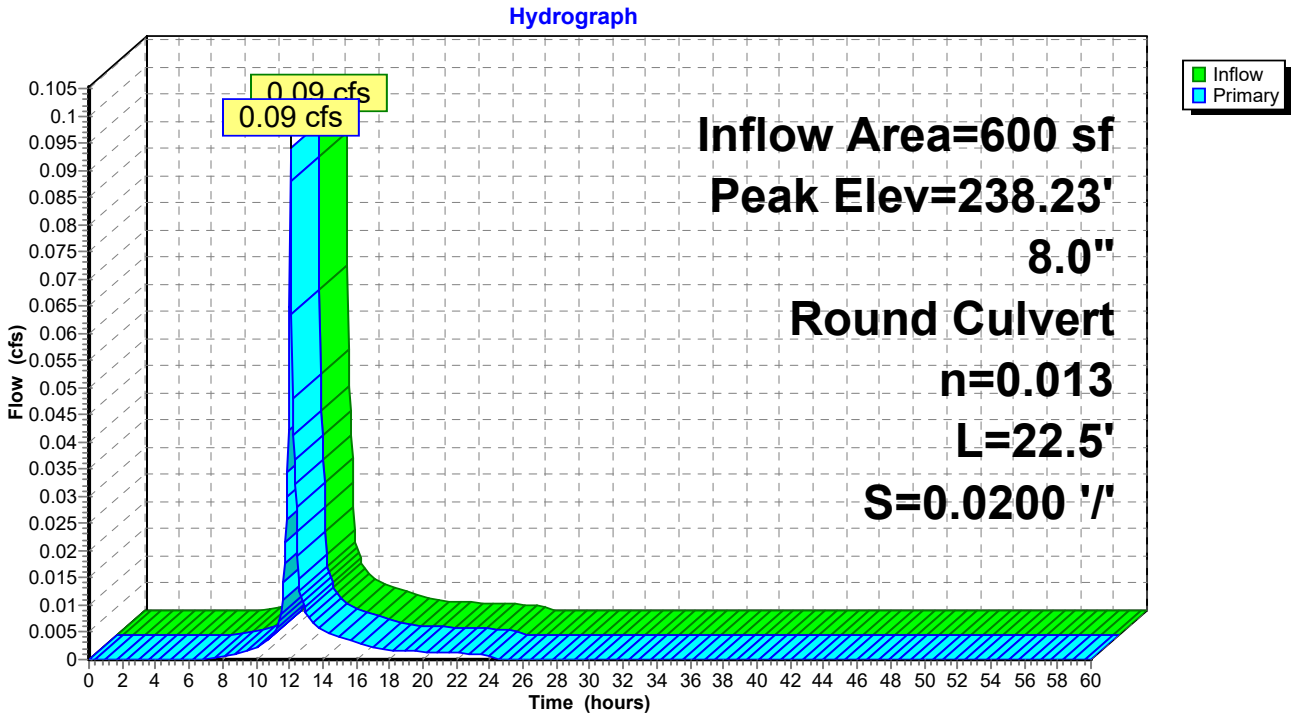
Inflow Area = 600 sf, 0.00% Impervious, Inflow Depth = 5.73" for 100-Year event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 286 cf
Outflow = 0.09 cfs @ 12.07 hrs, Volume= 286 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.07 hrs, Volume= 286 cf
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.23' @ 12.06 hrs
Flood Elev= 240.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.06'	**8.0" Round 8" HDPE** L= 22.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.06' / 237.61' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.09 cfs @ 12.07 hrs HW=238.23' TW=237.91' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.09 cfs @ 2.02 fps)

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)



Summary for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

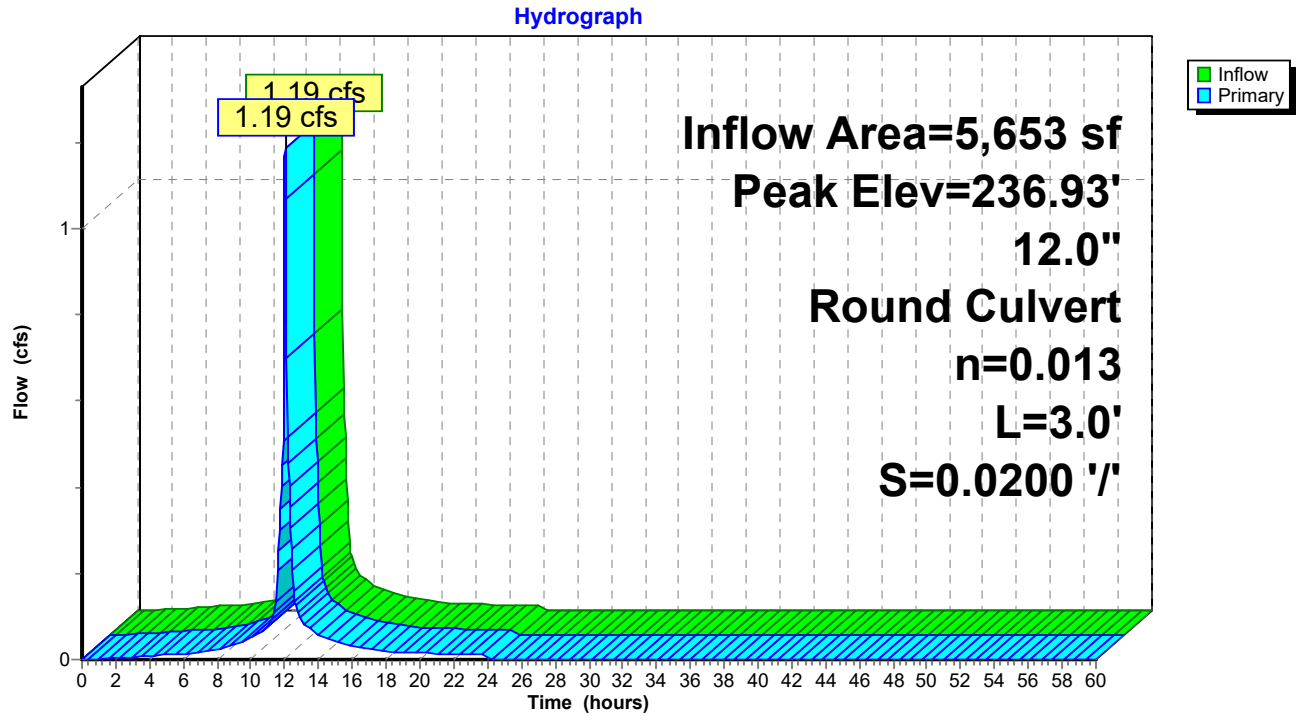
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 1.19 cfs @ 12.02 hrs, Volume= 3,790 cf
Outflow = 1.19 cfs @ 12.02 hrs, Volume= 3,790 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.19 cfs @ 12.02 hrs, Volume= 3,790 cf
Routed to Pond 1P : 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.93' @ 12.14 hrs
Flood Elev= 240.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	235.81'	**12.0" Round 12" HDPE** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.81' / 235.75' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.33 cfs @ 12.02 hrs HW=236.52' TW=236.25' (Dynamic Tailwater)
1=12" HDPE (Barrel Controls 1.33 cfs @ 3.11 fps)

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs



Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1A: Watershed 1A - (Parking Runoff Area=2,753 sf 80.71% Impervious Runoff Depth=1.07"
Tc=1.0 min CN=93 Runoff=0.09 cfs 245 cf

Subcatchment 1B-1: Watershed 1B-1 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=1.51"
Tc=1.0 min CN=98 Runoff=0.05 cfs 144 cf

Subcatchment 1B-2: Watershed 1B-2 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=1.51"
Tc=1.0 min CN=98 Runoff=0.05 cfs 144 cf

Subcatchment 1C: Watershed 1C - (Rear Yard) Runoff Area=600 sf 0.00% Impervious Runoff Depth=0.23"
Flow Length=22' Slope=0.0150 '/' Tc=4.6 min CN=74 Runoff=0.00 cfs 12 cf

Pond 2P: Trench Drain (TD-1B-1) Peak Elev=237.66' Inflow=0.09 cfs 245 cf
8.0" Round Culvert n=0.013 L=10.1' S=0.1673 '/' Outflow=0.09 cfs 245 cf

Pond CO1: 12x12" NDS Catch Basin (CO1) Peak Elev=236.68' Inflow=0.10 cfs 300 cf
8.0" Round Culvert n=0.013 L=35.0' S=0.0200 '/' Outflow=0.10 cfs 300 cf

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1) Peak Elev=238.36' Inflow=0.05 cfs 144 cf
8.0" Round Culvert n=0.013 L=47.5' S=0.0364 '/' Outflow=0.05 cfs 144 cf

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2) Peak Elev=238.91' Inflow=0.05 cfs 144 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0100 '/' Outflow=0.05 cfs 144 cf

Pond CO2: 12x12" NDS Catch Basin (CO2) Peak Elev=237.73' Inflow=0.05 cfs 156 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0200 '/' Outflow=0.05 cfs 156 cf

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B) Peak Elev=238.09' Inflow=0.00 cfs 12 cf
8.0" Round Culvert n=0.013 L=22.5' S=0.0200 '/' Outflow=0.00 cfs 12 cf

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs Peak Elev=236.04' Inflow=0.19 cfs 546 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=0.19 cfs 546 cf

Total Runoff Area = 5,653 sf Runoff Volume = 546 cf Average Runoff Depth = 1.16"
20.01% Pervious = 1,131 sf 79.99% Impervious = 4,522 sf

Summary for Subcatchment 1A: Watershed 1A - (Parking Area)

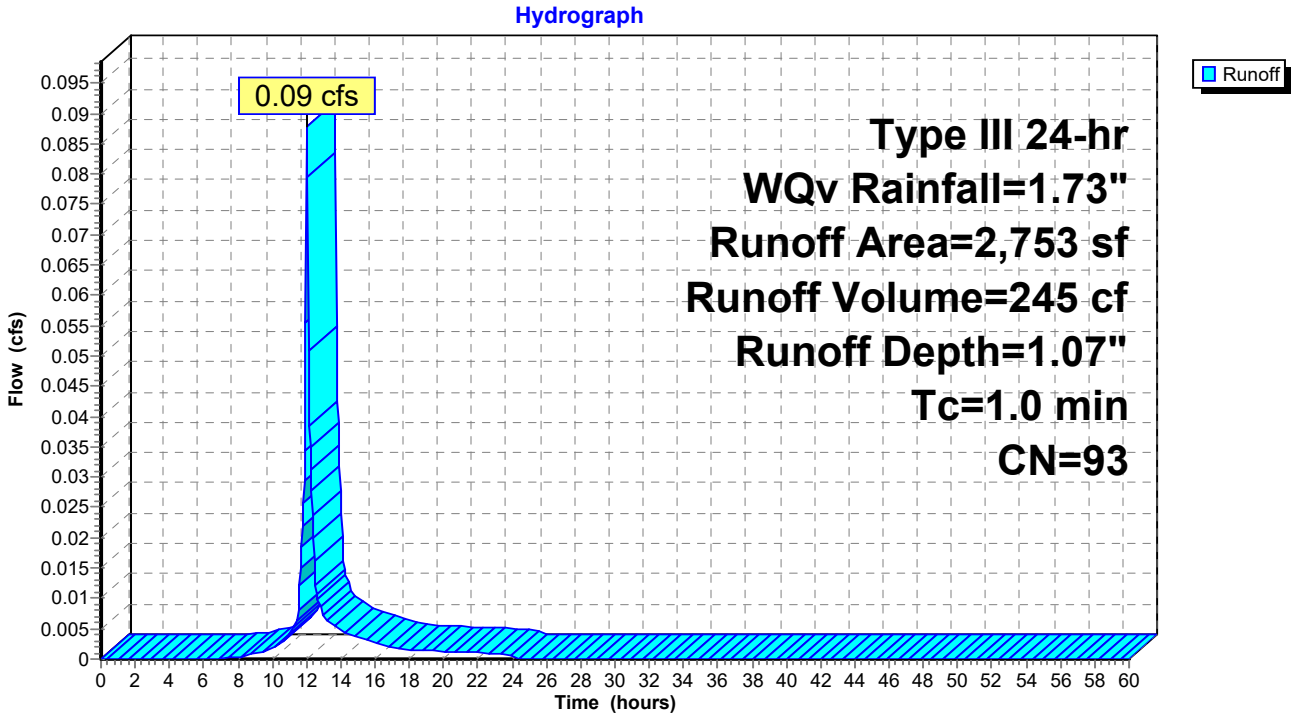
Runoff = 0.09 cfs @ 12.02 hrs, Volume= 245 cf, Depth= 1.07"
Routed to Pond 2P : Trench Drain (TD-1B-1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.73"

	Area (sf)	CN	Description
*	2,222	98	Impervious Cover
	531	74	>75% Grass cover, Good, HSG C
	2,753	93	Weighted Average
	531		19.29% Pervious Area
	2,222		80.71% Impervious Area

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

Subcatchment 1A: Watershed 1A - (Parking Area)



Summary for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

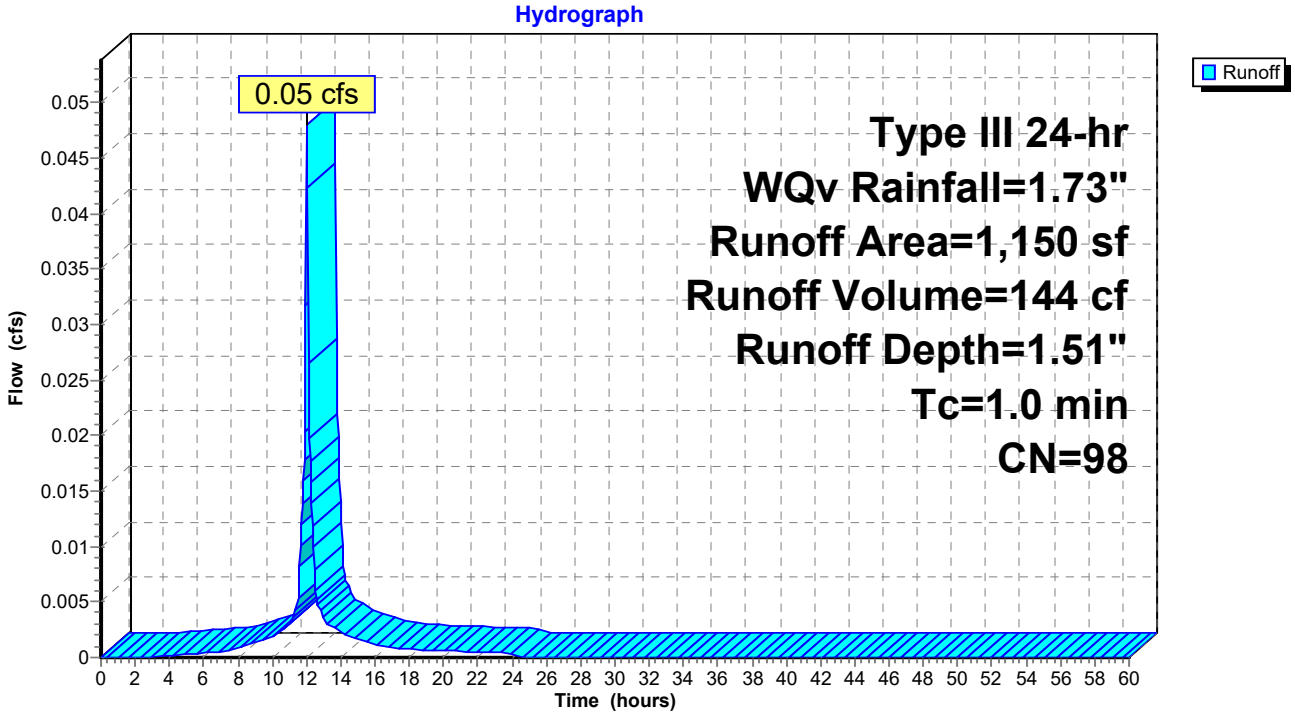
Runoff = 0.05 cfs @ 12.01 hrs, Volume= 144 cf, Depth= 1.51"
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.73"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)



Summary for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

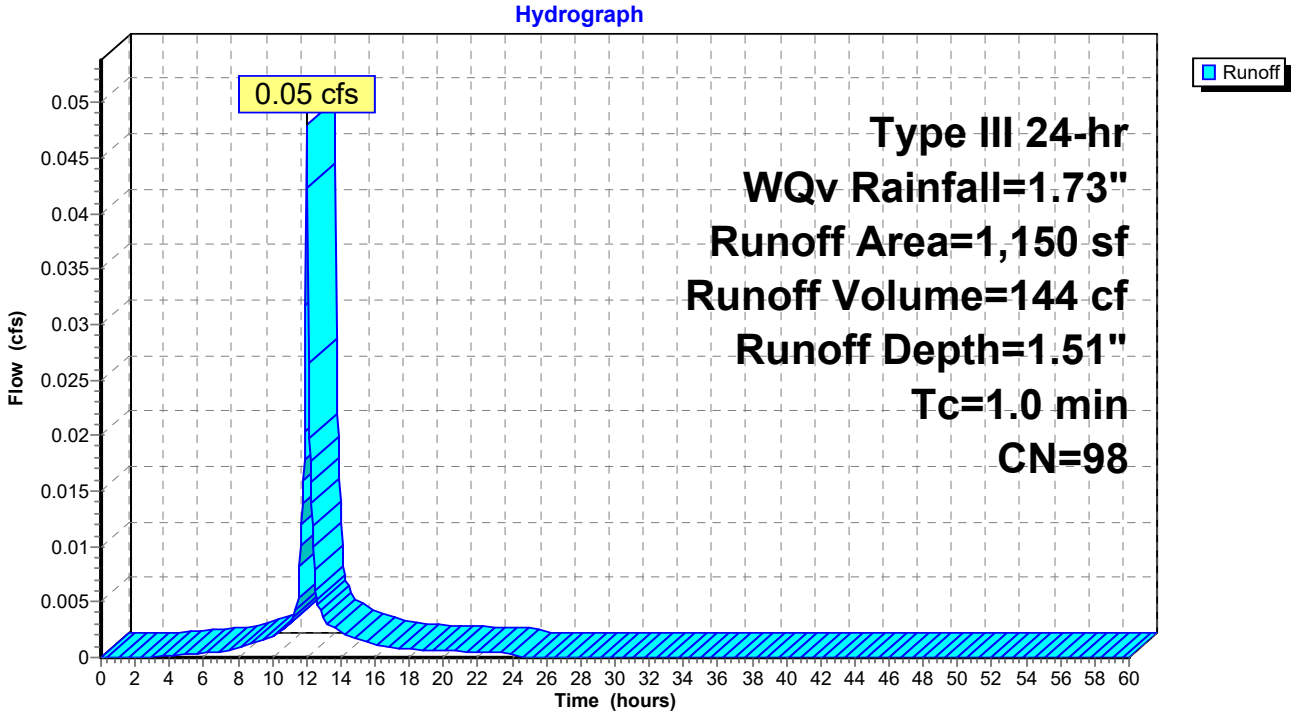
Runoff = 0.05 cfs @ 12.01 hrs, Volume= 144 cf, Depth= 1.51"
Routed to Pond CO1-2 : 12x12" NDS Catch Basin (CO1-2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.73"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)



Summary for Subcatchment 1C: Watershed 1C - (Rear Yard)

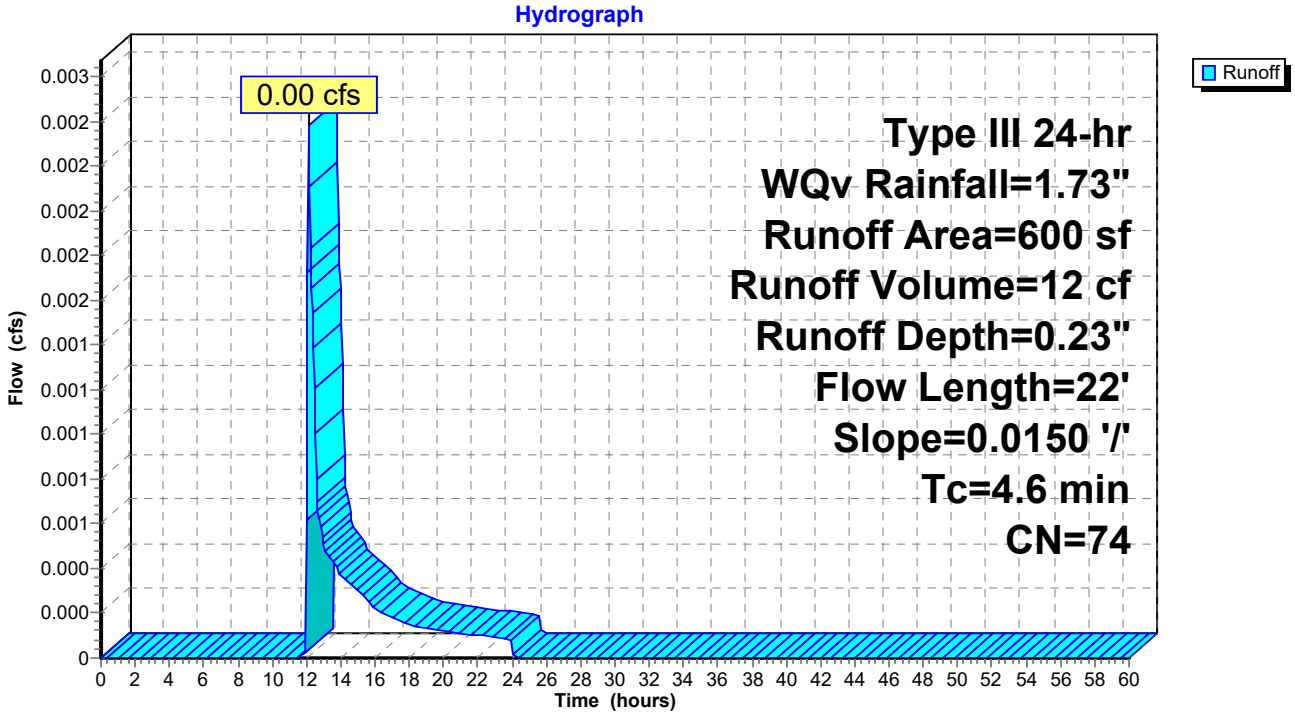
Runoff = 0.00 cfs @ 12.11 hrs, Volume= 12 cf, Depth= 0.23"
Routed to Pond DI-2B : 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.73"

Area (sf)	CN	Description
600	74	>75% Grass cover, Good, HSG C
600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0150	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.42"

Subcatchment 1C: Watershed 1C - (Rear Yard)



Summary for Pond 2P: Trench Drain (TD-1B-1)

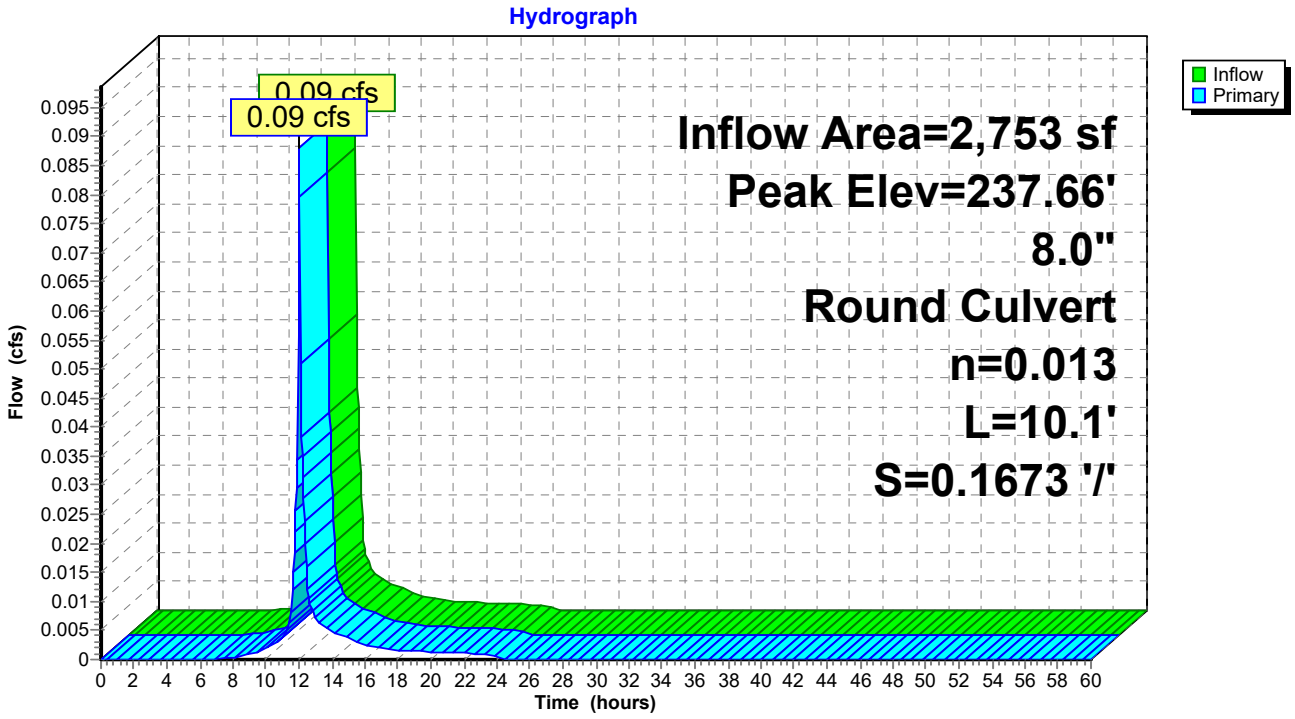
Inflow Area = 2,753 sf, 80.71% Impervious, Inflow Depth = 1.07" for WQv event
Inflow = 0.09 cfs @ 12.02 hrs, Volume= 245 cf
Outflow = 0.09 cfs @ 12.02 hrs, Volume= 245 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.02 hrs, Volume= 245 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.66' @ 12.02 hrs
Flood Elev= 240.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.50'	**8.0" Round 8" HDPE** L= 10.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.50' / 235.81' S= 0.1673 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.08 cfs @ 12.02 hrs HW=237.66' TW=236.03' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.08 cfs @ 1.35 fps)

Pond 2P: Trench Drain (TD-1B-1)



Summary for Pond CO1: 12x12" NDS Catch Basin (CO1)

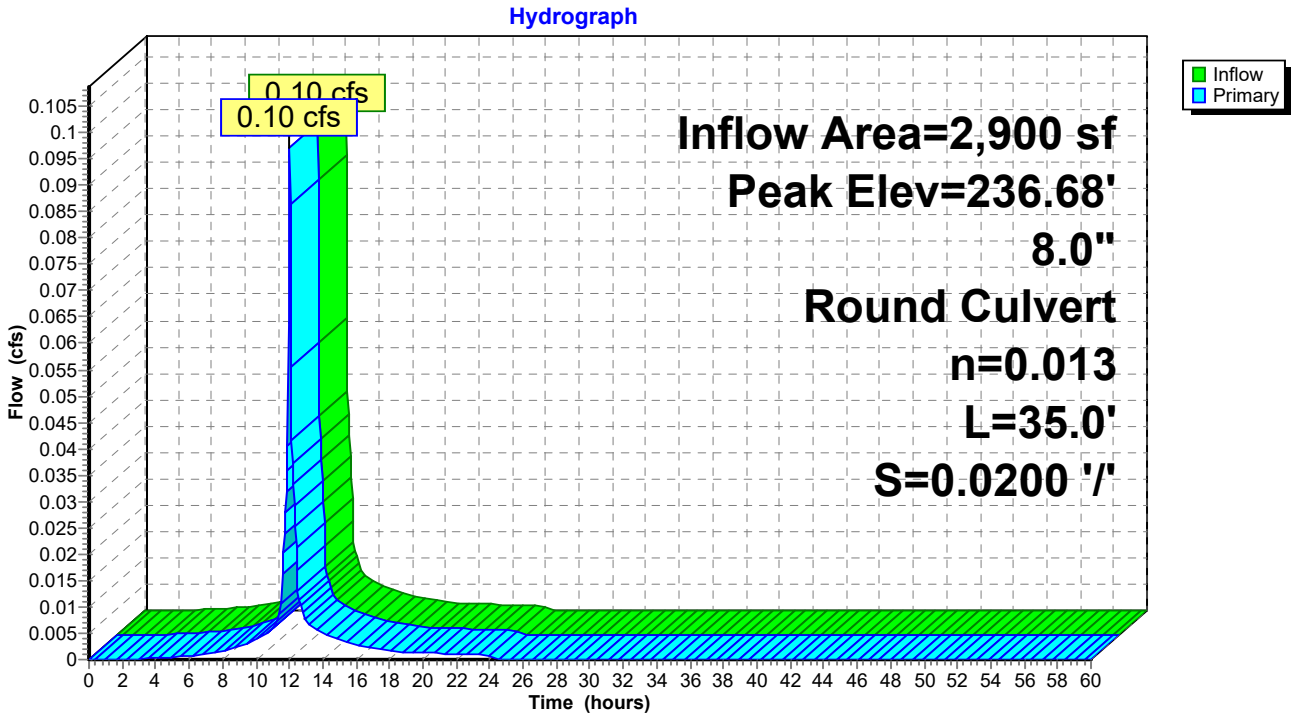
Inflow Area = 2,900 sf, 79.31% Impervious, Inflow Depth = 1.24" for WQv event
Inflow = 0.10 cfs @ 12.01 hrs, Volume= 300 cf
Outflow = 0.10 cfs @ 12.01 hrs, Volume= 300 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.01 hrs, Volume= 300 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.68' @ 12.01 hrs
Flood Elev= 240.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	236.51'	**8.0" Round 8" HDPE** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.51' / 235.81' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.09 cfs @ 12.01 hrs HW=236.67' TW=236.03' (Dynamic Tailwater)
↑—**1=8" HDPE** (Inlet Controls 0.09 cfs @ 1.38 fps)

Pond CO1: 12x12" NDS Catch Basin (CO1)



Summary for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

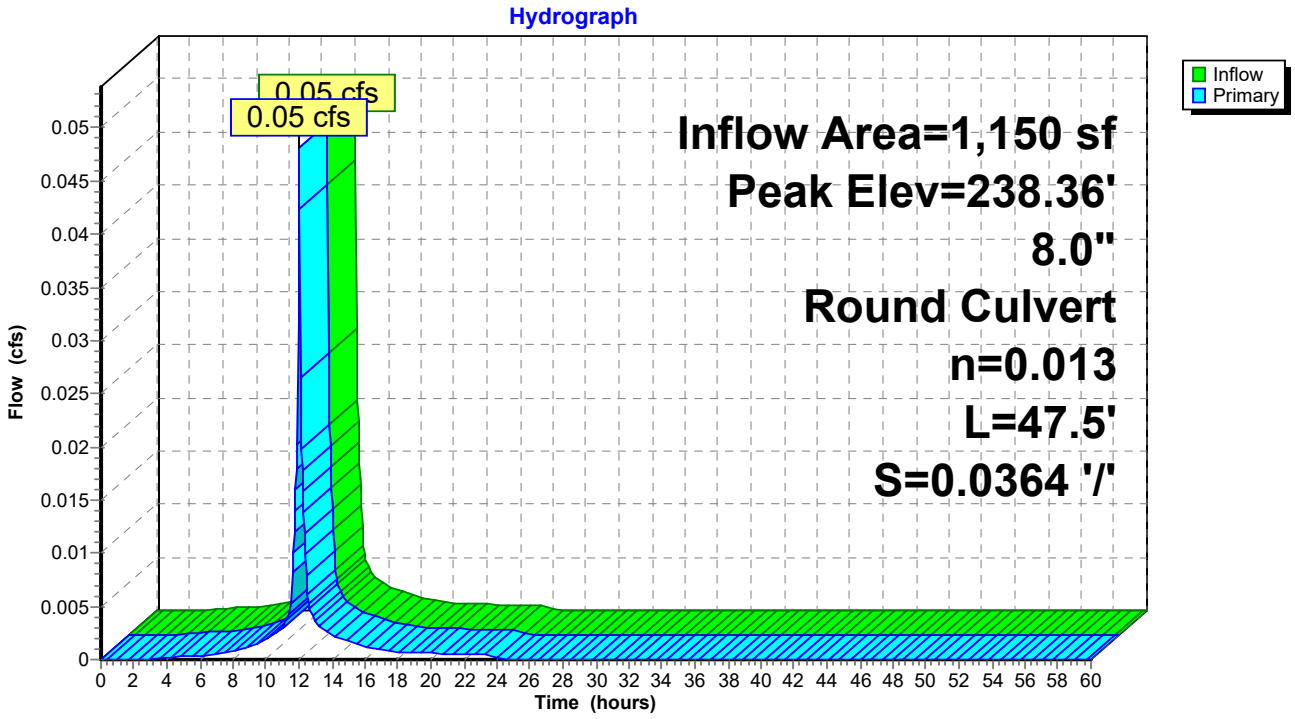
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 1.51" for WQv event
Inflow = 0.05 cfs @ 12.01 hrs, Volume= 144 cf
Outflow = 0.05 cfs @ 12.01 hrs, Volume= 144 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.01 hrs, Volume= 144 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.36' @ 12.01 hrs
Flood Elev= 240.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.24'	**8.0" Round 8" HDPE** L= 47.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.24' / 236.51' S= 0.0364 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.05 cfs @ 12.01 hrs HW=238.35' TW=236.68' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.05 cfs @ 1.15 fps)

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)



Summary for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

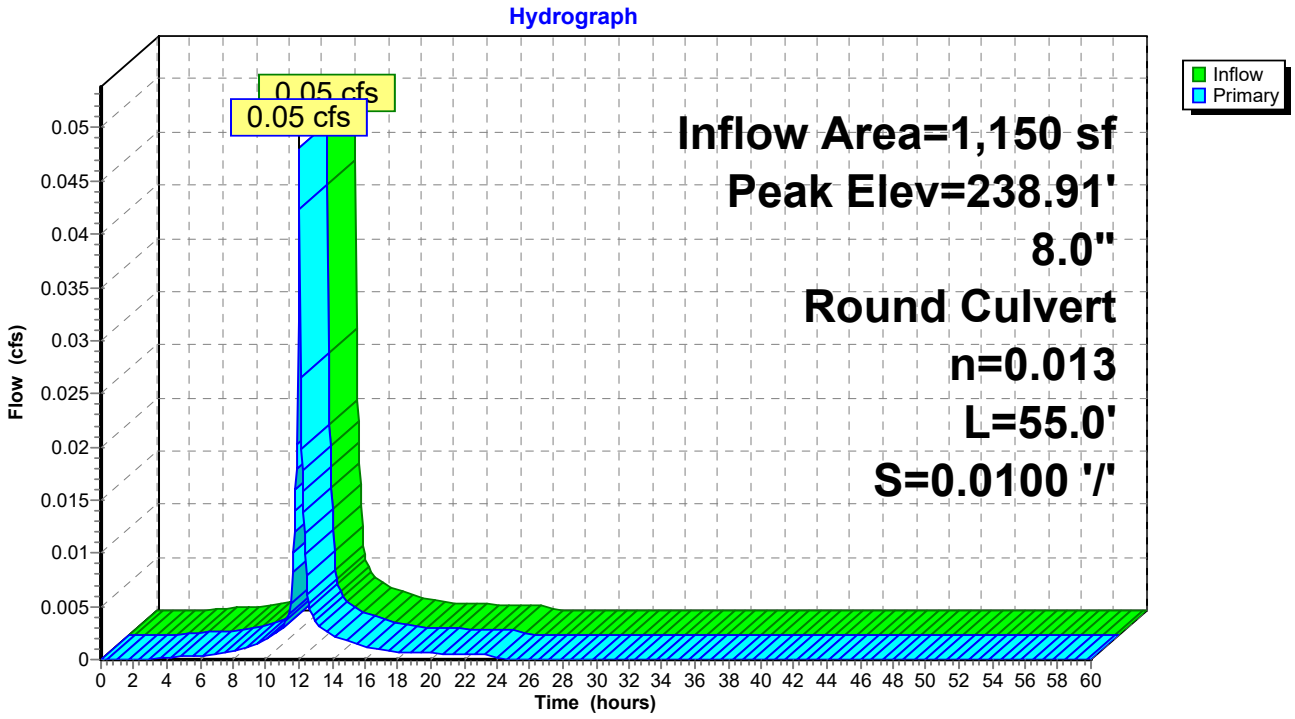
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 1.51" for WQv event
Inflow = 0.05 cfs @ 12.01 hrs, Volume= 144 cf
Outflow = 0.05 cfs @ 12.01 hrs, Volume= 144 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.01 hrs, Volume= 144 cf
Routed to Pond CO1-1 : 12x12" NDS Catch Basin (CO1-1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.91' @ 12.01 hrs
Flood Elev= 241.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.79'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.79' / 238.24' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.05 cfs @ 12.01 hrs HW=238.91' TW=238.35' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.05 cfs @ 1.60 fps)

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)



Summary for Pond CO2: 12x12" NDS Catch Basin (CO2)

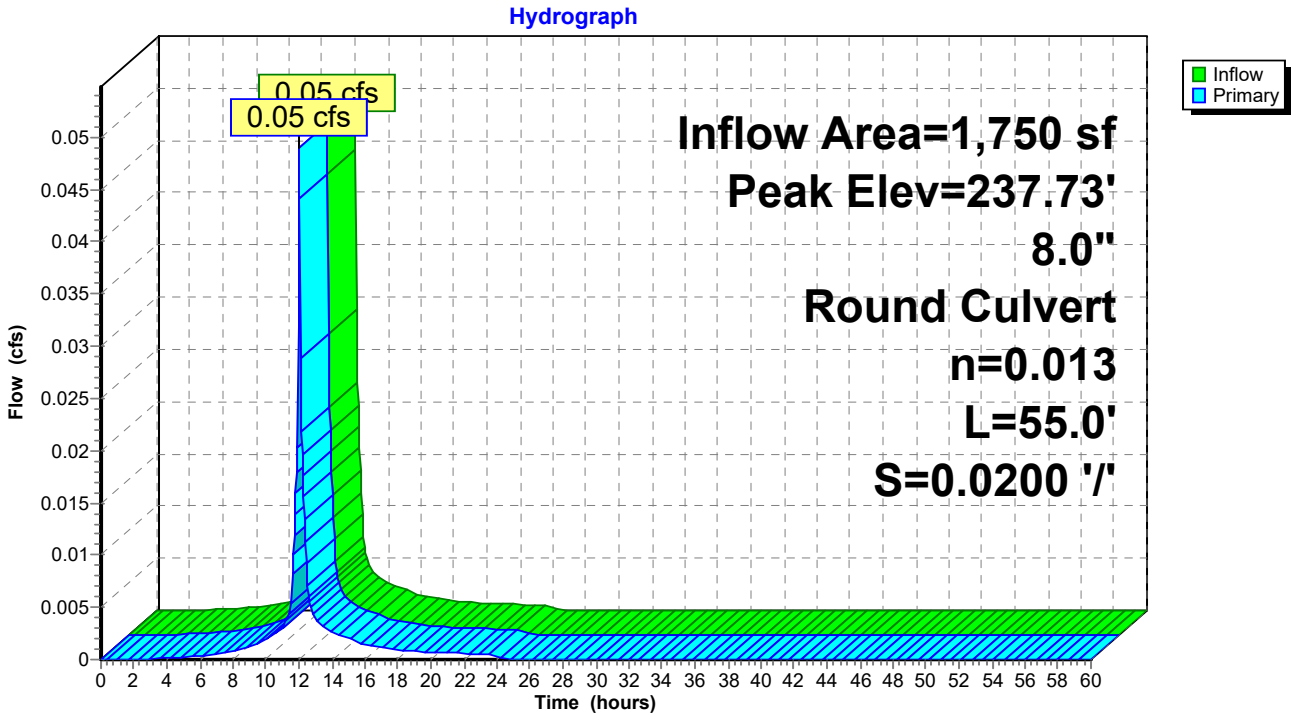
Inflow Area = 1,750 sf, 65.71% Impervious, Inflow Depth = 1.07" for WQv event
Inflow = 0.05 cfs @ 12.02 hrs, Volume= 156 cf
Outflow = 0.05 cfs @ 12.02 hrs, Volume= 156 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.02 hrs, Volume= 156 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.73' @ 12.02 hrs
Flood Elev= 241.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.61'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.61' / 236.51' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.05 cfs @ 12.02 hrs HW=237.73' TW=236.67' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.05 cfs @ 1.16 fps)

Pond CO2: 12x12" NDS Catch Basin (CO2)



Summary for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

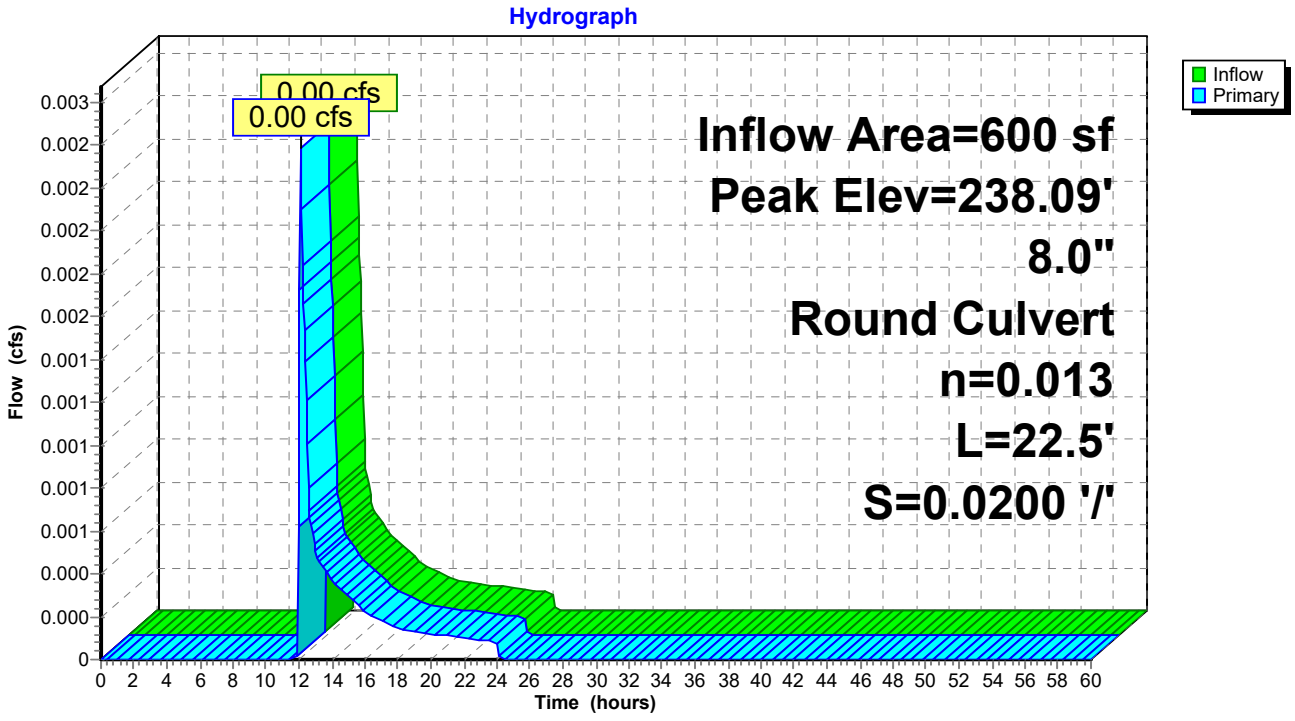
Inflow Area = 600 sf, 0.00% Impervious, Inflow Depth = 0.23" for WQv event
Inflow = 0.00 cfs @ 12.11 hrs, Volume= 12 cf
Outflow = 0.00 cfs @ 12.11 hrs, Volume= 12 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 12.11 hrs, Volume= 12 cf
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.09' @ 12.11 hrs
Flood Elev= 240.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.06'	**8.0" Round 8" HDPE** L= 22.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.06' / 237.61' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 12.11 hrs HW=238.09' TW=237.70' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.00 cfs @ 0.80 fps)

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)



Summary for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

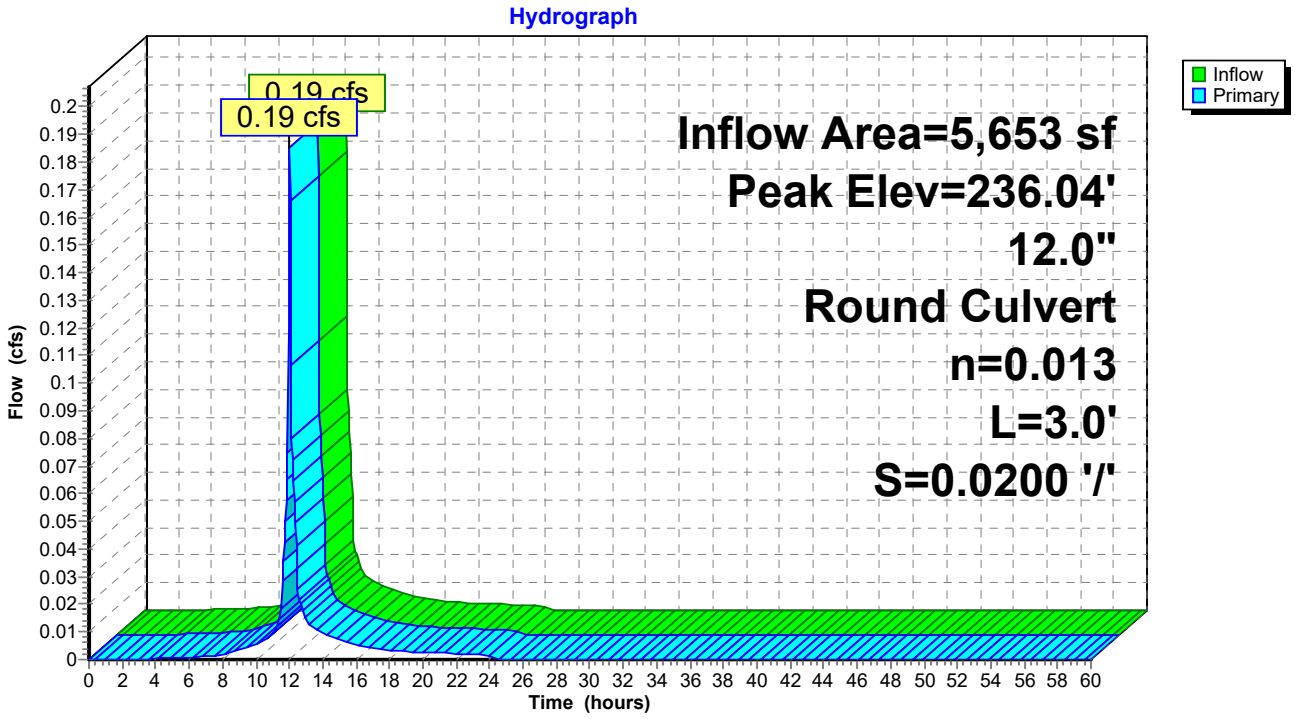
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 1.16" for WQv event
Inflow = 0.19 cfs @ 12.01 hrs, Volume= 546 cf
Outflow = 0.19 cfs @ 12.01 hrs, Volume= 546 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.01 hrs, Volume= 546 cf
Routed to Pond 1P : 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.04' @ 12.02 hrs
Flood Elev= 240.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	235.81'	**12.0" Round 12" HDPE** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.81' / 235.75' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.01 hrs HW=236.03' TW=234.15' (Dynamic Tailwater)
1=12" HDPE (Barrel Controls 0.18 cfs @ 2.03 fps)

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs



Events for Subcatchment 1A: Watershed 1A - (Parking Area)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
100-Year	**8.89**	**0.60**	**1,846**	**8.05**
WQv	1.73	0.09	245	1.07

Events for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
100-Year	**8.89**	**0.26**	**829**	**8.65**
WQv	1.73	0.05	144	1.51

Events for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
100-Year	**8.89**	**0.26**	**829**	**8.65**
WQv	1.73	0.05	144	1.51

Events for Subcatchment 1C: Watershed 1C - (Rear Yard)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
100-Year	**8.89**	**0.09**	**286**	**5.73**
WQv	1.73	0.00	12	0.23

Events for Pond 2P: Trench Drain (TD-1B-1)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
100-Year	**0.60**	**0.60**	**237.96**	**0**
WQv	0.09	0.09	237.66	0

Events for Pond CO1: 12x12" NDS Catch Basin (CO1)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
100-Year	**0.59**	**0.59**	**237.00**	**0**
WQv	0.10	0.10	236.68	0

Events for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
100-Year	**0.26**	**0.26**	**238.52**	**0**
WQv	0.05	0.05	238.36	0

Events for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
100-Year	**0.26**	**0.26**	**239.09**	**0**
WQv	0.05	0.05	238.91	0

Events for Pond CO2: 12x12" NDS Catch Basin (CO2)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
100-Year	**0.33**	**0.33**	**237.94**	**0**
WQv	0.05	0.05	237.73	0

Events for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
100-Year	**0.09**	**0.09**	**238.23**	**0**
WQv	0.00	0.00	238.09	0

Events for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
100-Year	**1.19**	**1.19**	**236.93**	**0**
WQv	0.19	0.19	236.04	0

Section 6
First Defense Sizing Sheet

FIRST DEFENSE® HIGH CAPACITY DESIGN SUMMARY

PROJECT INFORMATION

Reference	HS-1 / 23_12_3198
Site	39 S. William Street
Designer	Daniel Collins
Date	10/10/2023 1:58 PM

DESIGN INPUTS

Regulatory Agency	80% TSS (110 um)
Water Quality Flow Rate (cfs)	0.19

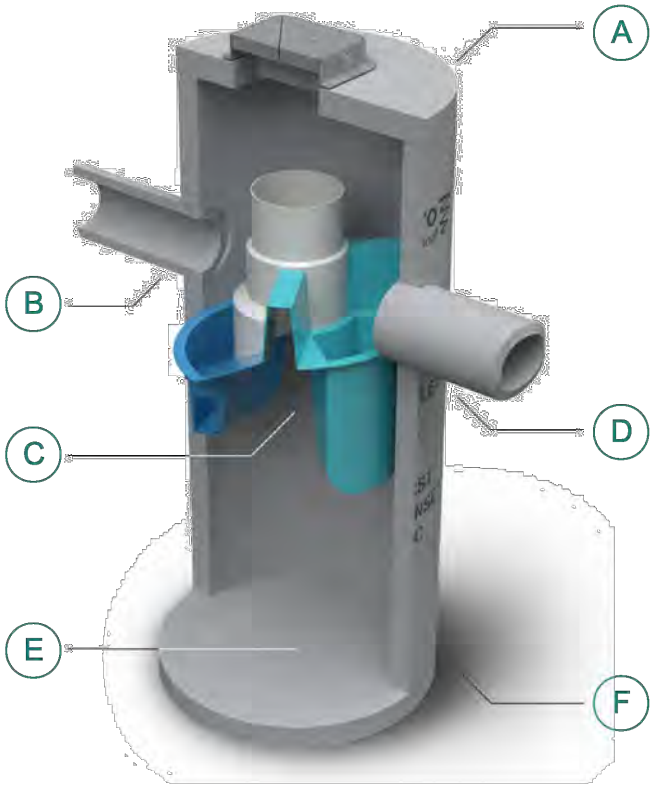
DESIGN OUTPUTS

Product	4-ft DIAMETER FIRST DEFENSE HIGH CAPACITY
Unit Reference	FD-4HC

* Approved for use in 80% TSS (110 um)

UNIT WEIGHTS AND DIMENSIONS

(A) Unit Size (ft)	4.00
(B) Inlet Pipe Size (in)	8
(D) Outlet Pipe Size (in)	12
(F) Unit Depth (ft)	240.18
Inlet Invert Height (ft)	235.81
Outlet Invert Height (ft)	235.81



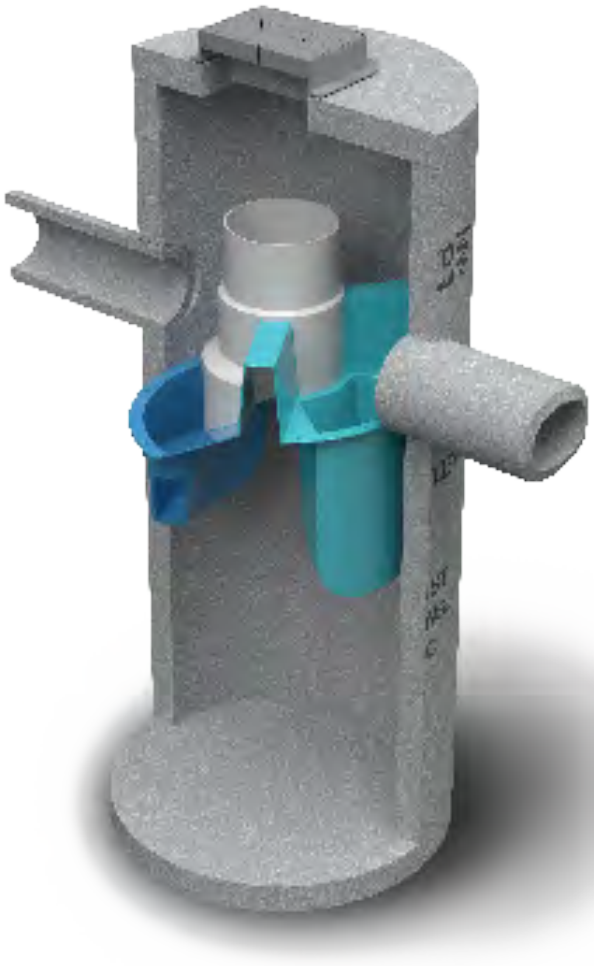
PERFORMANCE AND HYDRAULICS

Max. Treatment Flow Rate (cfs)	1.88
Hydraulic Capacity Flow Rate (cfs)	1.19
Typical Operating Headloss (in)	0
Maximum Headloss (in)	0

STORAGE

(C) Oil Storage Capacity (gal)	191
(E) Min.Sediment Storage Capacity (yd^3)	0.7

Hydro International



Operation and Maintenance Manual

First Defense® High Capacity and First Defense®Optimum

Vortex Separator for Stormwater Treatment

Table of Contents

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

I. First Defense® by Hydro International

Introduction

The First Defense® is an enhanced vortex separator that combines an and economical stormwater treatment chamber with an integral peak bypass. It removes total suspended solids (TSS), trash and hydrocarbons from stormwater without washing out previously captured pollutants. The First Defense® is available in several model to accommodate a wide range of pipe sizes,

The two product models described in this guide are the First Defense® High Capacity and the First Defense® Optimum; they are inspected and maintained identically.

Operation

The First Defense® operates on simple hydraulics. It is self-activating, has no moving parts, no external power requirement and is fabricated with durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The First Defense® has been designed to allow for easy and safe access for inspection, monitoring and clean-out procedures. Neither entry into the unit nor removal of the internal components is necessary for maintenance, thus safety concerns related to entry are avoided.

Pollutant Capture and Retention

The internal components of the First Defense® have been designed to optimize pollutant capture. Sediment is captured and retained in the base of the unit, while oil and are stored on the water surface in the inner volume (Fig.1).

The pollutant storage volumes are isolated from the built-in bypass chamber to prevent washout during storm events. The sump of the First Defense® retains a standing water level between storm events. This ensures a quiescent regime at the onset of a storm, preventing resuspension and washout of pollutants captured during previous events.

Accessories such as oil absorbent pads are available for enhanced oil removal and storage. Due to the separation of the oil and storage volume from the outlet, the potential for washout of stored pollutants between clean-outs is minimized.

Applications

- Stormwater treatment at the point of entry into the drainage line
- with limited slope and depth of cover
- tied into an existing storm drain line
-

Advantages

- Inlet options include surface grate or multiple inlet pipes
- manholes
- time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

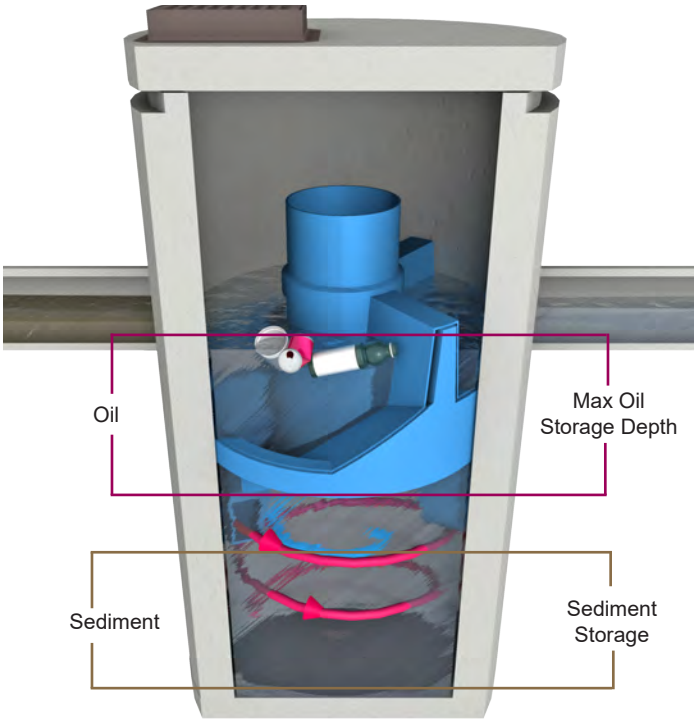


Fig.1 Pollutant storage volumes in the First Defense®.

The First Defense® inlet and internal bypass arrangements are available in several model sizes and The components

All First Defense® models include the internal components that are designed to remove and retain total suspended solids (TSS), ® model sizes (diameter) are shown in Table 1.

III. Maintenance

First Defense® Components

1. **Built-In Bypass**
2. **Inlet Pipe**
3. **Inlet Chute**
4. **Floatables Port**
5. **Outlet Pipe**
6. **Floatables Storage**
7. **Sediment Storage**
8. **Inlet Grate or Cover**

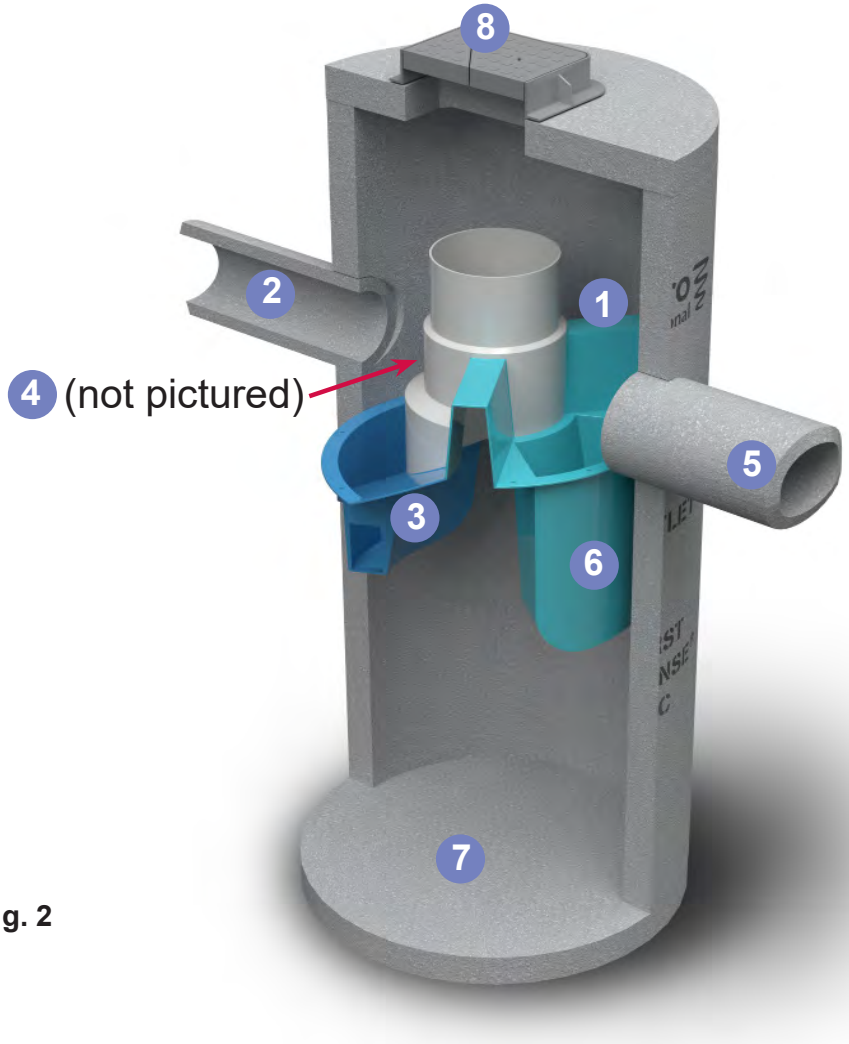


Fig. 2

Table 1

First Defense® Model Sizes
(ft / m) diameter
3 / 0.9
4 / 1.2
5 / 1.5
6 / 1.8
7 / 2.1
8 / 2.4
10 / 3.0

Overview

The First Defense® protects the environment by removing a wide range of pollutants from stormwater Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the First Defense®. The First Defense® will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the First Defense® will no longer be able to store removed sediment and oil.

The First Defense® allows for easy and safe inspection, monitoring and clean-out procedures. A commercially or municipally owned Access ports are located in the top of the manhole.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not require entry into the First Defense®, nor do they require the internal components of the First Defense® to be removed. In the case of inspection and removal, a vactor truck is not required. However, a vactor truck is required if the maintenance event is to include oil removal and/or sediment removal.

Maintenance Equipment Considerations

The internal components of the First Defense® have a centrally located circular shaft through which the sediment storage sump can be accessed with a sump vac hose. The open diameter of this access shaft is 15 inches in diameter (Fig.3). Therefore, the nozzle .

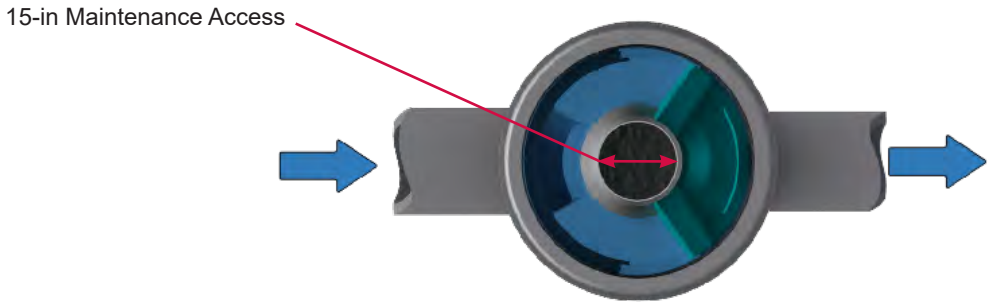


Fig.3 The central opening to the sump of the First Defense®is 15 inches in diameter.

Determining Your Maintenance Schedule

The frequency of clean out is determined in the after installation. During the year of operation, the unit should be inspected every six months to determine the rate of sediment and s accumulation. A simple probe such as a Sludge-Judge® can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil / removal, for First Defense® typically takes less than 30 minutes and removes a combined water/oil volume of about 765 gallons.

Inspection Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing

2. Remove the grate or lid to the manhole.

3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. Fig.4 shows the standing water level that should be observed.

4. Without entering the vessel, use the pole with the skimmer net

   and water surface.

5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel.

6. On the Maintenance Log (see page 9), record the date, unit

   removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.

7. Securely replace the grate or lid.

8. Take down safety equipment.

9. Notify Hydro International of any irregularities noted during inspection.

Floatables and Sediment Clean Out

Floatables clean out is typically done in conjunction with sediment removal. A commercially or municipally owned sump-

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose to be lowered to the base of the sump.

Scheduling

- Floatables and sump clean out are typically conducted once a year during any season.

- Floatables and sump clean out should occur as soon as possible following a spill in the contributing drainage area.

Fig.4 Floatables are removed with a vactor hose

Recommended Equipment

-

- Crow bar or other tool to remove grate or lid

-

- Sediment probe (such as a Sludge Judge®)

- V

- First Defense® Maintenance Log

Floatables and Sediment Clean Out Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing

2. Remove the grate or lid to the manhole.

3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.

4. with the vactor hose or with the skimmer or net

5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log (page 9).

6. to the base of the sump. Vactor out the sediment and gross

7. Retract the vactor hose from the vessel.

8. On the Maintenance Log provided by Hydro International,

   and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components, blockages, or irregularly high or low water levels.

9. Securely replace the grate or lid.

Maintenance at a Glance

Inspection	
Oil and Floatables Removal	- Once per year, with sediment removal - Following a spill in the drainage area
Sediment Removal	- Once per year or as needed - Following a spill in the drainage area
NOTE: For most clean outs the entire volume of liquid does not need to be removed from the manhole. Only remove the	

First Defense® Installation Log

HYDRO INTERNATIONAL REFERENCE NUMBER:	
SITE NAME:	
SITE LOCATION:	
OWNER:	CONTRACTOR:
CONTACT NAME:	CONTACT NAME:
COMPANY NAME:	COMPANY NAME:
ADDRESS:	ADDRESS:
TELEPHONE:	TELEPHONE:
FAX:	FAX:

INSTALLATION DATE: / /

MODEL SIZE (CIRCLE ONE): [3-FT] [4-FT] [5-FT] [6-FT] [7-FT] [8-FT] [10-FT]

INLET (CIRCLE ALL THAT APPLY): GRATED INLET (CATCH BASIN) INLET PIPE (FLOW THROUGH)

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

First Defense® Inspection and Maintenance Log

Date	Initials	Depth of Floatables and Oils	Sediment Depth Measured	Volume of Sediment Removed	Site Activity and Comments

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

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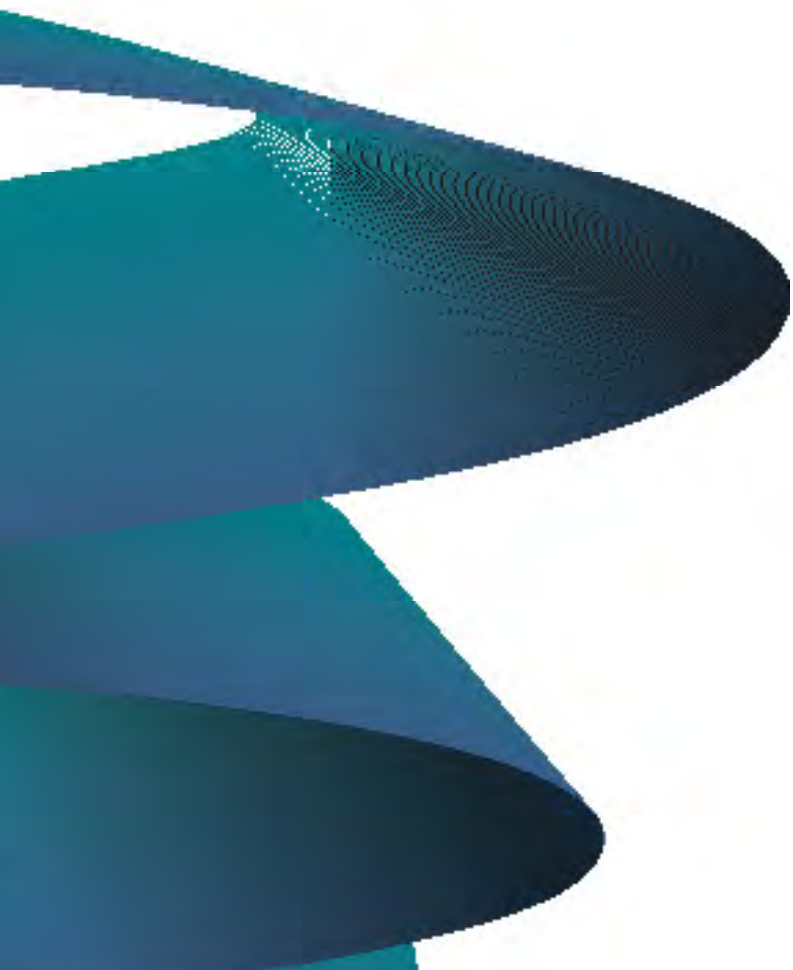
Hydro International



Stormwater Solutions

94 Hutchins Drive
Portland, ME 04102

Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

www.hydro-int.com

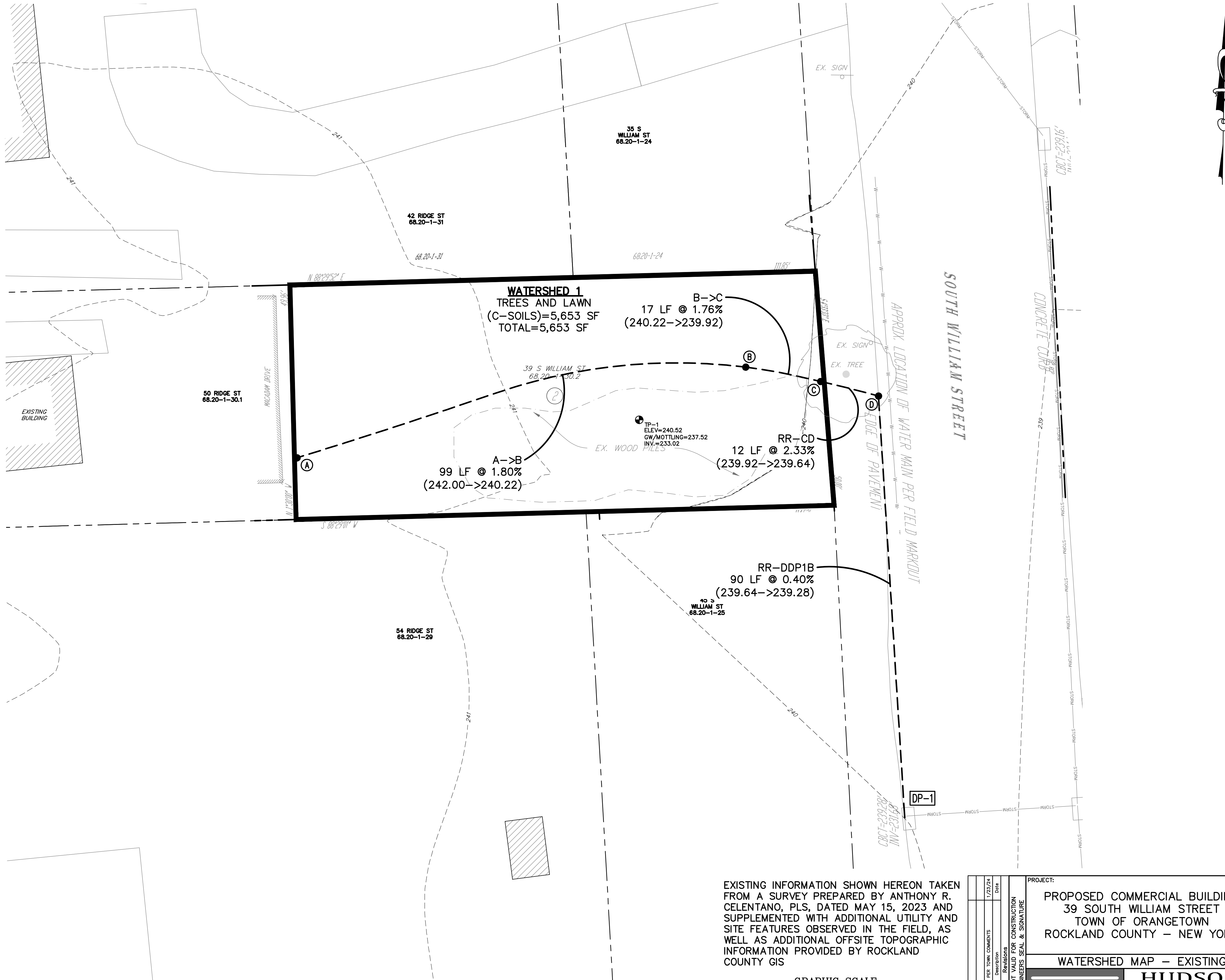
Turning Water Around...®

FD_O+M_K_2105

Section 7
Stormwater System
Buoyancy Calculations

BUOYANCY CALCULATIONS	
Parameters	**42" HDPE Attenuation Gallery**
Gallery:	
-Pipe Size (I.D.) (in.)	42
-Pipe Size (O.D.) (in.)	48
-Pipe Length (ft)	98
-Volume of Gallery	1,230.88
-Weight of Gallery (26.4 lbs./ft)	2,587.20
Cover Over Gallery:	
-Depth:	
Min. Depth of Asphalt (in.)	6
Min. Depth of Gravel (in.)	28
Total Depth (in.)	34
-Volume:	
Asphalt (c.f.)	196.00
Gravel (c.f.)	914.67
-Weight	
Asphalt (45 pcf)	8,820.00
Gravel (100 pcf)	91,466.67
Total Weight of Cover (lbs.)	100,286.67
Overall Weight (lbs.)	**102,873.87**
Approx. Depth to Water Table (ft.)	0.00
Volume of Displaced Water (c.f.)	**1,230.88**
Weight of Displaced Water (62.4 pcf) (c.f.)	**76,806.91**
Safety Factor (1.25 min.):	**1.34**

Section 8
Watershed Map
Existing Conditions



EXISTING INFORMATION SHOWN HEREON TAKEN FROM A SURVEY PREPARED BY ANTHONY R. CELENTANO, PLS, DATED MAY 15, 2023 AND SUPPLEMENTED WITH ADDITIONAL UTILITY AND SITE FEATURES OBSERVED IN THE FIELD, AS WELL AS ADDITIONAL OFFSITE TOPOGRAPHIC INFORMATION PROVIDED BY ROCKLAND COUNTY GIS

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

No.	Description	Date
1.	REVISED PER TOWN COMMENTS	1/23/24

Revisions

THIS PLAN NOT VALID FOR CONSTRUCTION WITHOUT ENGINEERS SEAL & SIGNATURE

PROJECT:

PROPOSED COMMERCIAL BUILDING
39 SOUTH WILLIAM STREET
TOWN OF ORANGETOWN
ROCKLAND COUNTY – NEW YORK

WATERSHED MAP – EXISTING

HEC

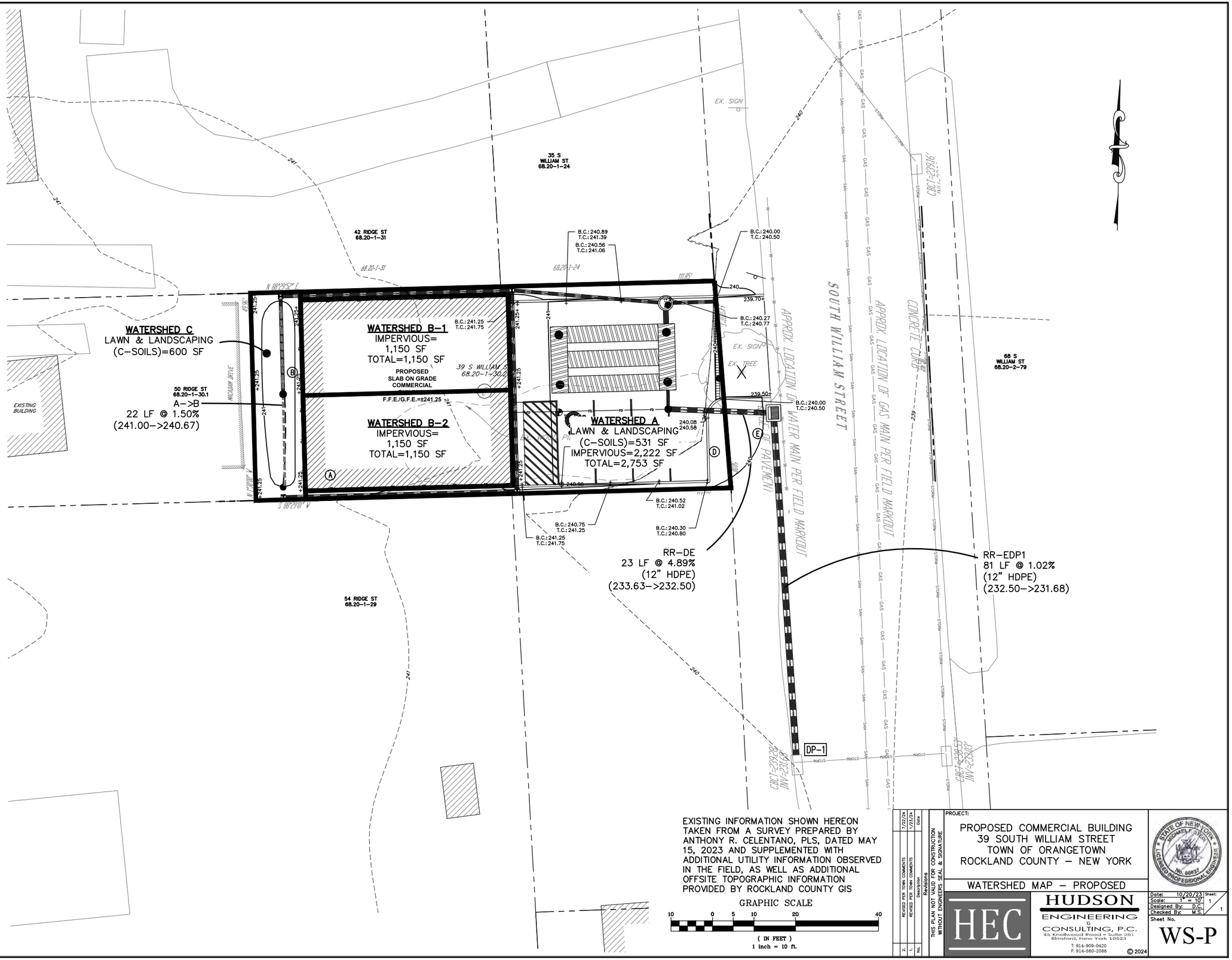
HUDSON ENGINEERING & CONSULTING, P.C.
45 Knollwood Road – Suite 201
Elmsford, New York 10523
T: 914-909-0420
F: 914-560-2086

STATE OF NEW YORK · MICHAEL F. STEIN · LICENSED PROFESSIONAL ENGINEER · No. 80637

Date: 10/20/23
Scale: 1" = 10'
Designed By: D.C.
Checked By: M.S.
Sheet: 1 / 1

Sheet No. WS-E

Section 9
Watershed Map
Proposed Conditions



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GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

No.	Description	Date
1.	REVISED PER TOWN COMMENTS	1/22/24
2.	REVISED PER TOWN COMMENTS	7/22/24

THIS PLAN NOT VALID FOR CONSTRUCTION WITHOUT ENGINEERS SEAL & SIGNATURE

PROJECT:

PROPOSED COMMERCIAL BUILDING
39 SOUTH WILLIAM STREET
TOWN OF ORANGETOWN
ROCKLAND COUNTY – NEW YORK

WATERSHED MAP – PROPOSED

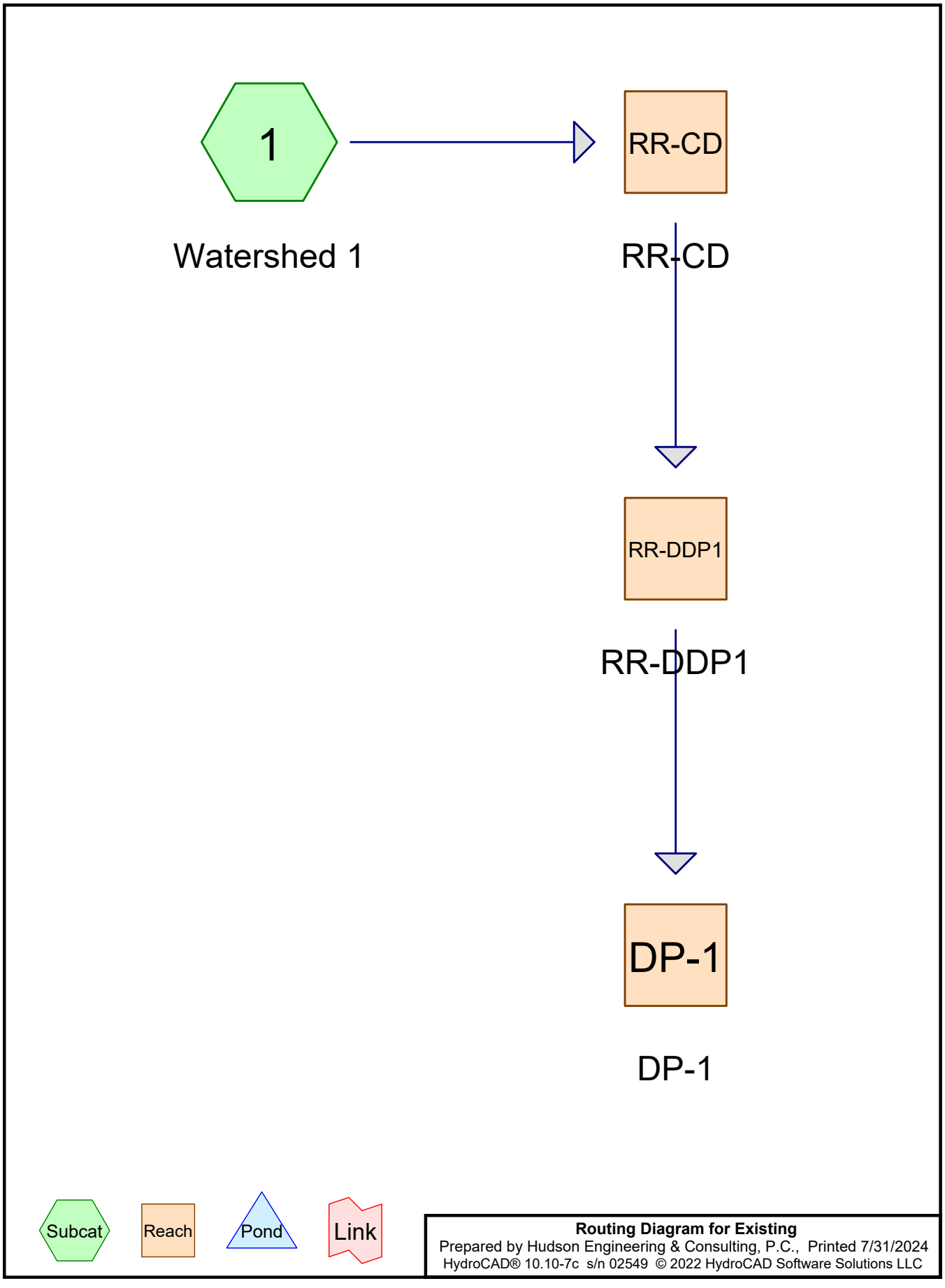
STATE OF NEW YORK
ANTHONY R. CELENTANO
No. 88837
LICENSED PROFESSIONAL ENGINEER

HEC

HUDSON ENGINEERING & CONSULTING, P.C.
45 Knollwood Road - Suite 201
Elmsford, New York 10523
T: 914-909-0420
F: 914-560-2086

Date: 10/20/23
Scale: 1" = 10'
Designed By: D.C.
Checked By: M.S.
Sheet: 1 of 1
Sheet No. WS-P

Section 10
Pre-Development Analysis of the 1-, 2-, 10-, 25-, and 100-Year Storm Frequencies



Routing Diagram for Existing
Prepared by Hudson Engineering & Consulting, P.C., Printed 7/31/2024
HydroCAD® 10.10-7c s/n 02549 © 2022 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.78	2
2	2-Year	Type III 24-hr		Default	24.00	1	3.39	2
3	10-Year	Type III 24-hr		Default	24.00	1	5.03	2
4	25-Year	Type III 24-hr		Default	24.00	1	6.31	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.89	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
5,653	72	Woods/grass comb., Good, HSG C (1)
5,653	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
5,653	HSG C	1
0	HSG D	
0	Other	
5,653		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
0	0	5,653	0	0	5,653	Woods/grass comb., Good	
0	**0**	**5,653**	**0**	**0**	**5,653**	**TOTAL AREA**	

Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1: Watershed 1 Runoff Area=5,653 sf 0.00% Impervious Runoff Depth=0.68"
Flow Length=116' Tc=14.6 min CN=72 Runoff=0.07 cfs 321 cf

Reach DP-1: DP-1 Inflow=0.07 cfs 321 cf
Outflow=0.07 cfs 321 cf

Reach RR-CD: RR-CD Avg. Flow Depth=0.03' Max Vel=0.13 fps Inflow=0.07 cfs 321 cf
n=0.150 L=12.0' S=0.0233 '/' Capacity=2.95 cfs Outflow=0.07 cfs 321 cf

Reach RR-DDP1: RR-DDP1 Avg. Flow Depth=0.06' Max Vel=0.70 fps Inflow=0.07 cfs 321 cf
n=0.013 L=90.0' S=0.0040 '/' Capacity=17.69 cfs Outflow=0.07 cfs 321 cf

Total Runoff Area = 5,653 sf Runoff Volume = 321 cf Average Runoff Depth = 0.68"
100.00% Pervious = 5,653 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1: Watershed 1

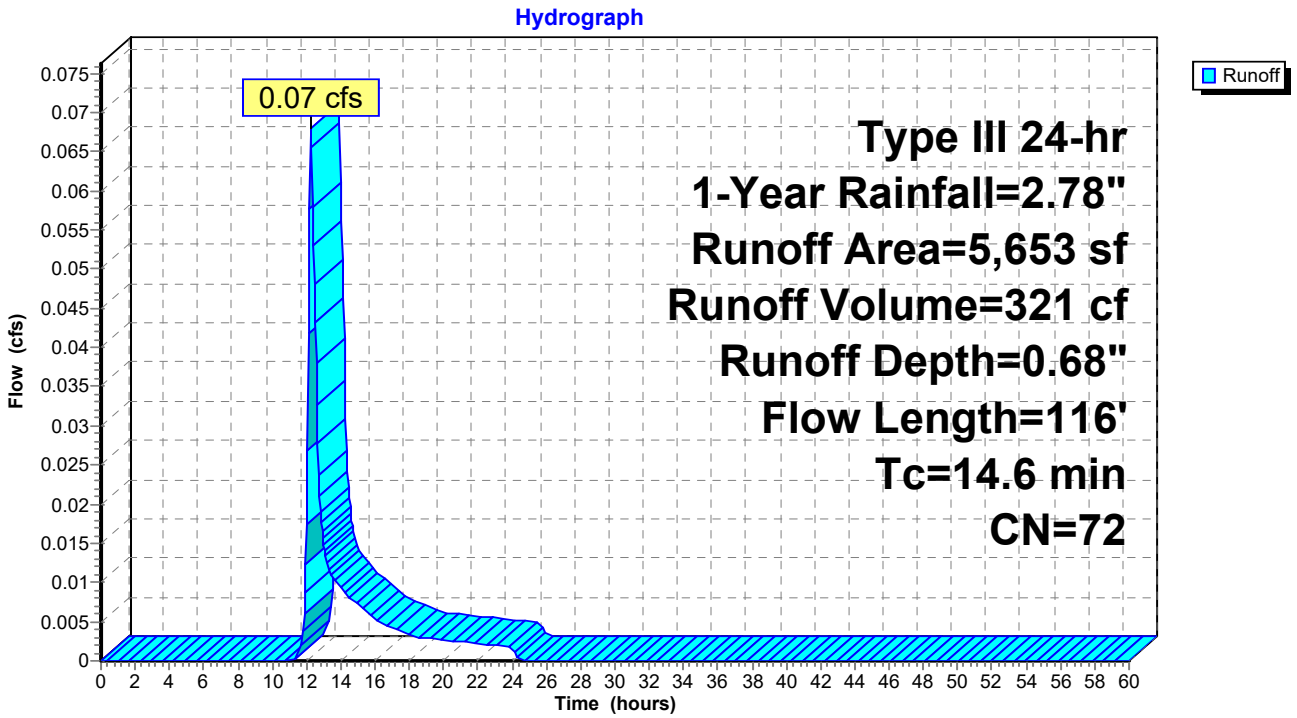
Runoff = 0.07 cfs @ 12.23 hrs, Volume= 321 cf, Depth= 0.68"
Routed to Reach RR-CD : RR-CD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.78"

Area (sf)	CN	Description
5,653	72	Woods/grass comb., Good, HSG C
5,653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	99	0.0180	0.12		**Sheet Flow, A->B** Grass: Dense n= 0.240 P2= 3.42"
0.3	17	0.0179	0.94		**Shallow Concentrated Flow, B->DP1** Short Grass Pasture Kv= 7.0 fps
14.6	116	Total			

Subcatchment 1: Watershed 1

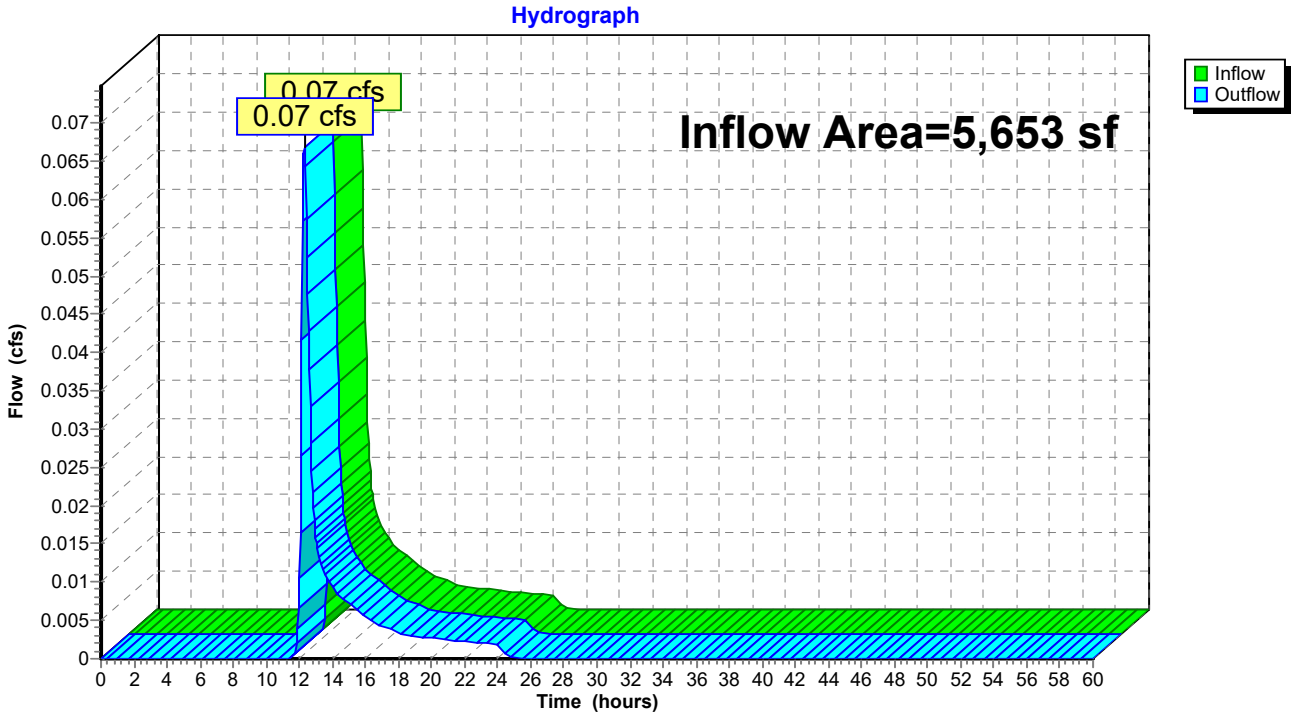


Summary for Reach DP-1: DP-1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 0.68" for 1-Year event
Inflow = 0.07 cfs @ 12.28 hrs, Volume= 321 cf
Outflow = 0.07 cfs @ 12.28 hrs, Volume= 321 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1



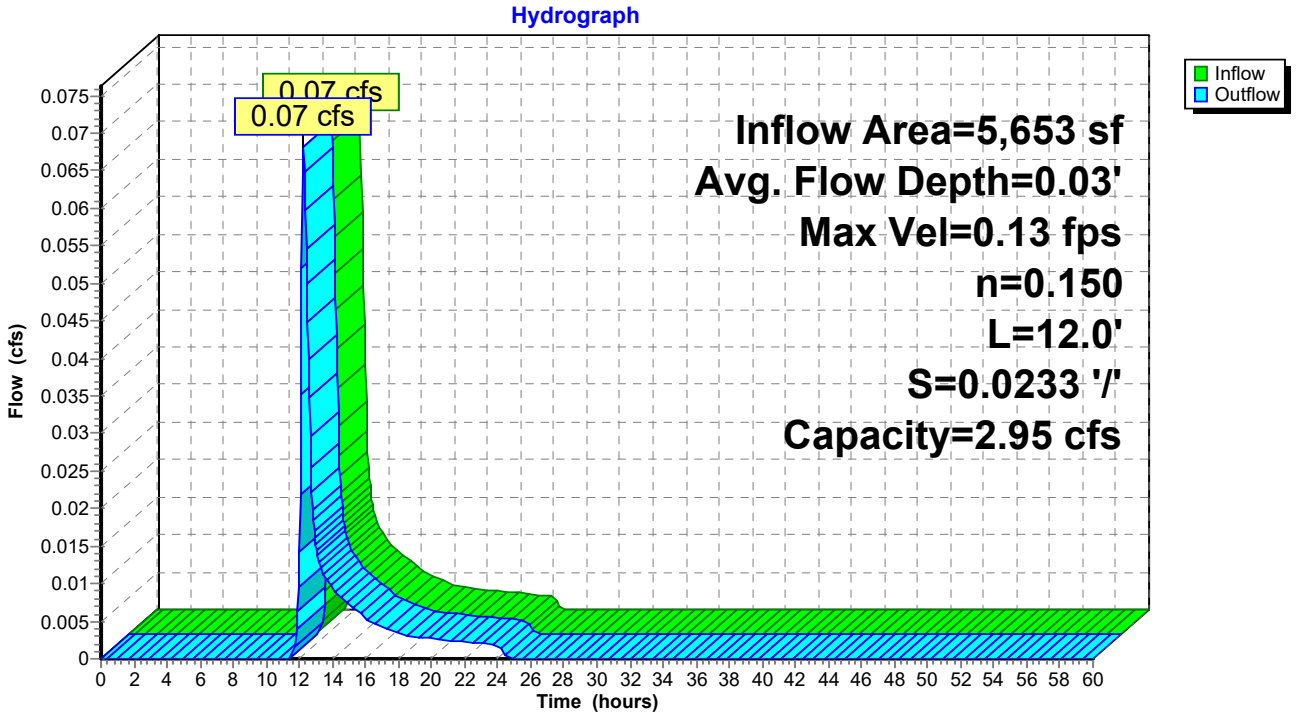
Summary for Reach RR-CD: RR-CD

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 0.68" for 1-Year event
Inflow = 0.07 cfs @ 12.23 hrs, Volume= 321 cf
Outflow = 0.07 cfs @ 12.25 hrs, Volume= 321 cf, Atten= 0%, Lag= 1.2 min
Routed to Reach RR-DDP1 : RR-DDP1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 0.13 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 4.3 min

Peak Storage= 6 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 20.00'
Bank-Full Depth= 0.25' Flow Area= 5.0 sf, Capacity= 2.95 cfs

20.00' x 0.25' deep channel, n= 0.150 Sheet flow over Short Grass
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 239.92', Outlet Invert= 239.64'



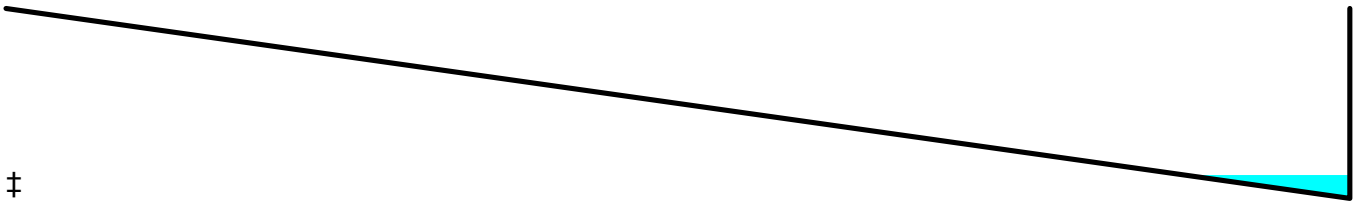
Summary for Reach RR-DDP1: RR-DDP1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 0.68" for 1-Year event
Inflow = 0.07 cfs @ 12.25 hrs, Volume= 321 cf
Outflow = 0.07 cfs @ 12.28 hrs, Volume= 321 cf, Atten= 2%, Lag= 1.8 min
Routed to Reach DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 0.70 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 4.3 min

Peak Storage= 9 cf @ 12.28 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 3.08'
Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 17.69 cfs

0.00' x 0.50' deep channel, n= 0.013 Asphalt, smooth
Side Slope Z-value= 50.0 0.0 '/' Top Width= 25.00'
Length= 90.0' Slope= 0.0040 '/'
Inlet Invert= 239.64', Outlet Invert= 239.28'



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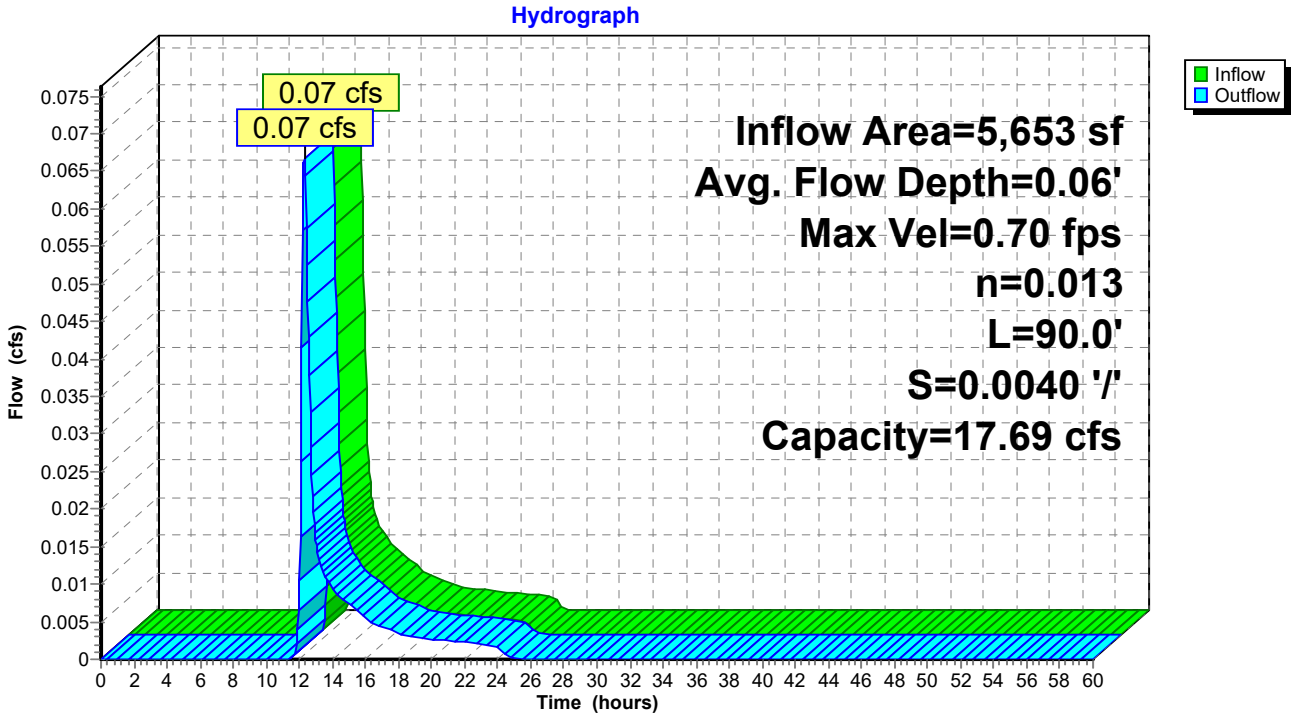


Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Watershed 1 Runoff Area=5,653 sf 0.00% Impervious Runoff Depth=1.05"
Flow Length=116' Tc=14.6 min CN=72 Runoff=0.11 cfs 494 cf

Reach DP-1: DP-1 Inflow=0.11 cfs 494 cf
Outflow=0.11 cfs 494 cf

Reach RR-CD: RR-CD Avg. Flow Depth=0.03' Max Vel=0.16 fps Inflow=0.11 cfs 494 cf
n=0.150 L=12.0' S=0.0233 '/' Capacity=2.95 cfs Outflow=0.11 cfs 494 cf

Reach RR-DDP1: RR-DDP1 Avg. Flow Depth=0.07' Max Vel=0.80 fps Inflow=0.11 cfs 494 cf
n=0.013 L=90.0' S=0.0040 '/' Capacity=17.69 cfs Outflow=0.11 cfs 494 cf

Total Runoff Area = 5,653 sf Runoff Volume = 494 cf Average Runoff Depth = 1.05"
100.00% Pervious = 5,653 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1: Watershed 1

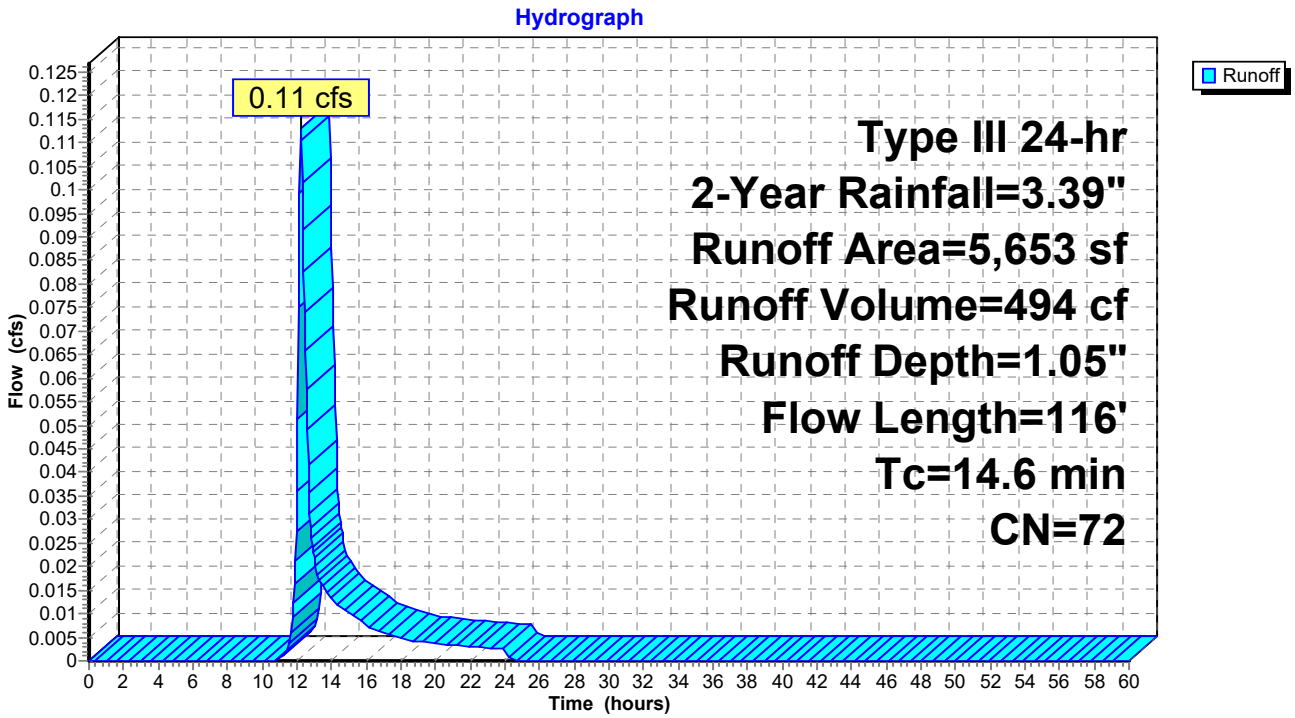
Runoff = 0.11 cfs @ 12.22 hrs, Volume= 494 cf, Depth= 1.05"
Routed to Reach RR-CD : RR-CD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.39"

Area (sf)	CN	Description
5,653	72	Woods/grass comb., Good, HSG C
5,653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	99	0.0180	0.12		**Sheet Flow, A->B** Grass: Dense n= 0.240 P2= 3.42"
0.3	17	0.0179	0.94		**Shallow Concentrated Flow, B->DP1** Short Grass Pasture Kv= 7.0 fps
14.6	116	Total			

Subcatchment 1: Watershed 1

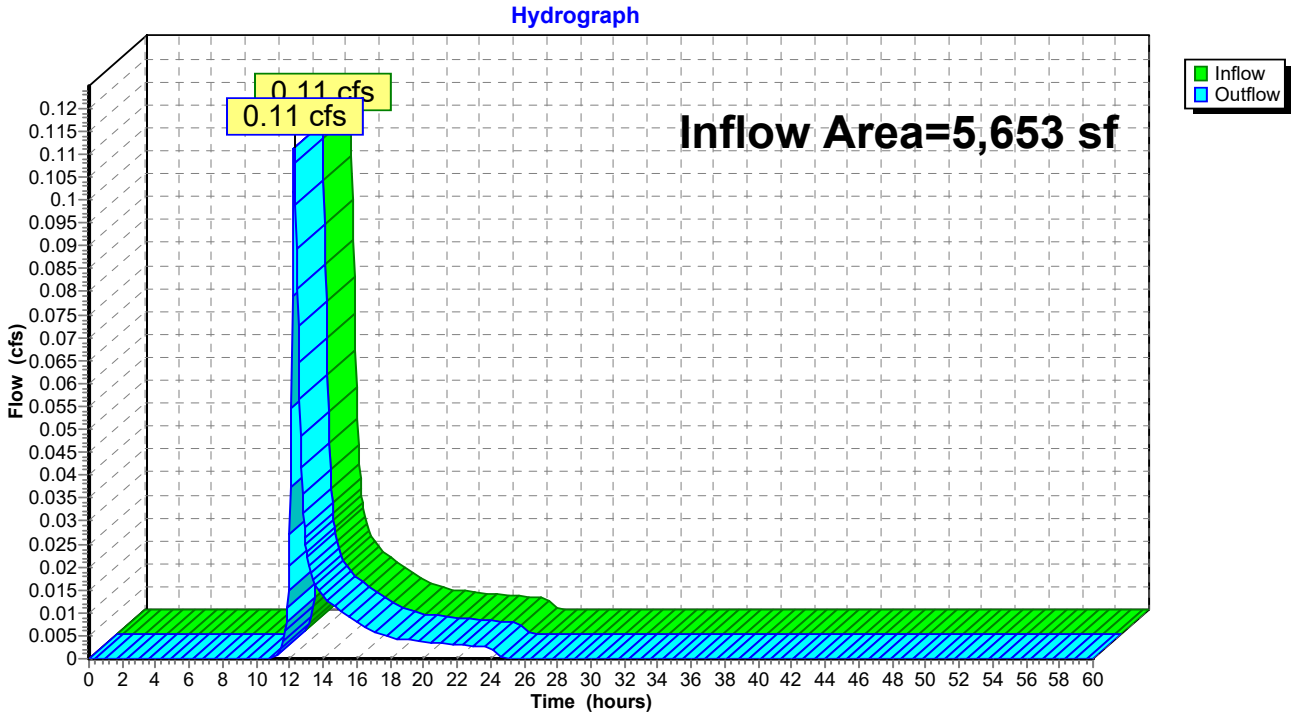


Summary for Reach DP-1: DP-1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 1.05" for 2-Year event
Inflow = 0.11 cfs @ 12.26 hrs, Volume= 494 cf
Outflow = 0.11 cfs @ 12.26 hrs, Volume= 494 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1



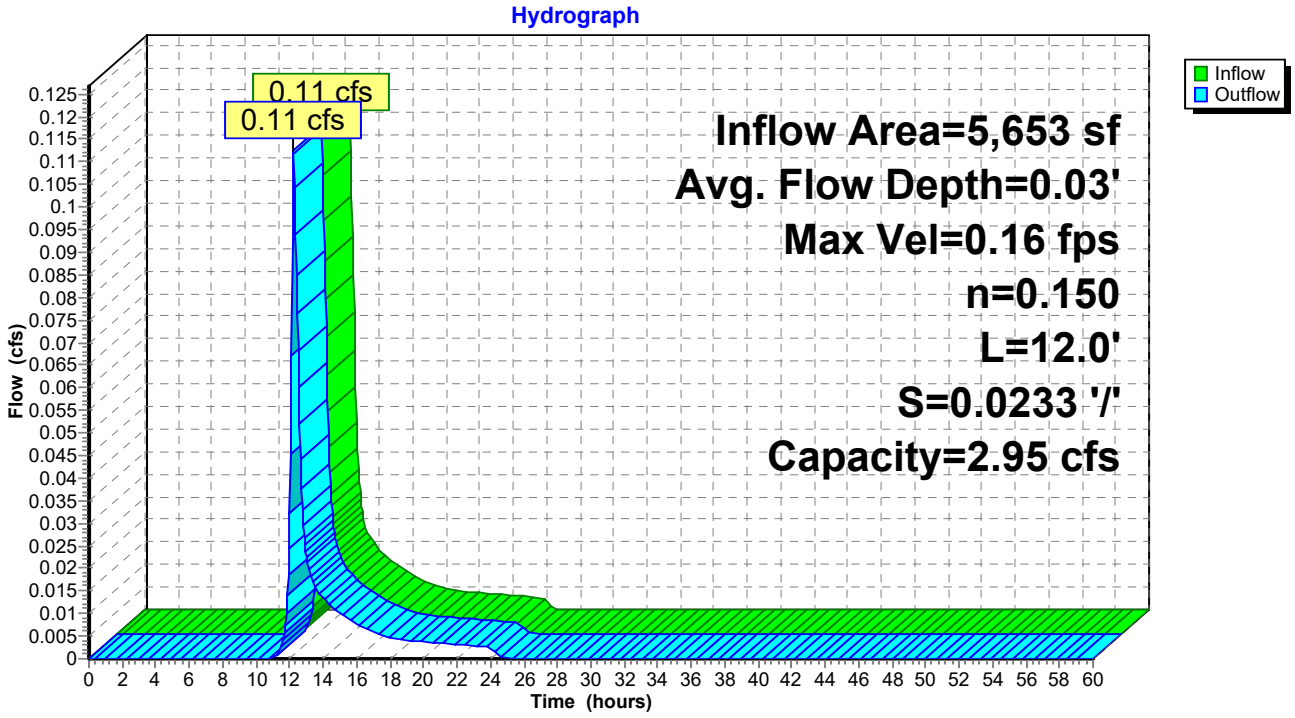
Summary for Reach RR-CD: RR-CD

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 1.05" for 2-Year event
Inflow = 0.11 cfs @ 12.22 hrs, Volume= 494 cf
Outflow = 0.11 cfs @ 12.24 hrs, Volume= 494 cf, Atten= 1%, Lag= 0.9 min
Routed to Reach RR-DDP1 : RR-DDP1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 0.16 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 3.8 min

Peak Storage= 8 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 20.00'
Bank-Full Depth= 0.25' Flow Area= 5.0 sf, Capacity= 2.95 cfs

20.00' x 0.25' deep channel, n= 0.150 Sheet flow over Short Grass
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 239.92', Outlet Invert= 239.64'



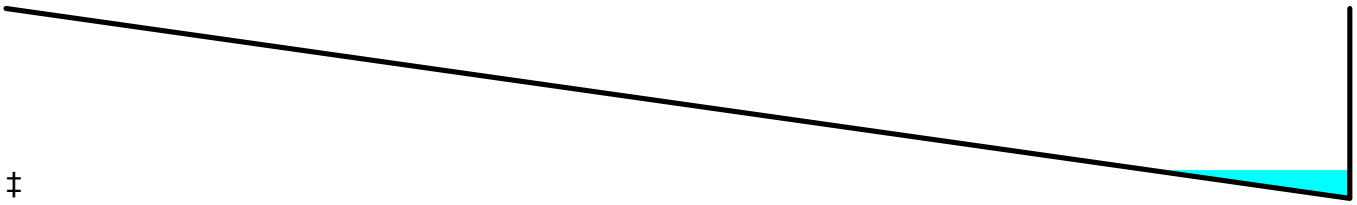
Summary for Reach RR-DDP1: RR-DDP1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 1.05" for 2-Year event
Inflow = 0.11 cfs @ 12.24 hrs, Volume= 494 cf
Outflow = 0.11 cfs @ 12.26 hrs, Volume= 494 cf, Atten= 1%, Lag= 1.6 min
Routed to Reach DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 0.80 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 0.38 fps, Avg. Travel Time= 4.0 min

Peak Storage= 13 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.07' , Surface Width= 3.74'
Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 17.69 cfs

0.00' x 0.50' deep channel, n= 0.013 Asphalt, smooth
Side Slope Z-value= 50.0 0.0 '/' Top Width= 25.00'
Length= 90.0' Slope= 0.0040 '/'
Inlet Invert= 239.64', Outlet Invert= 239.28'



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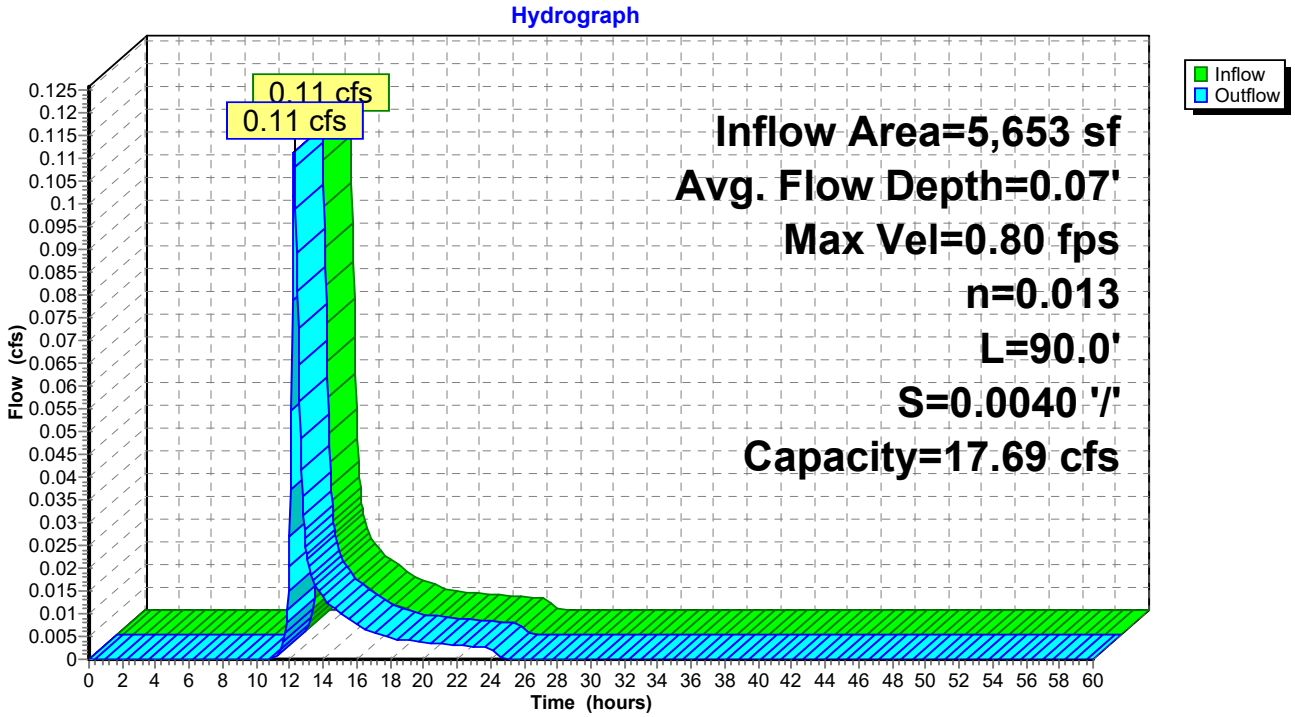
Reach RR-DDP1: RR-DDP1



Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1: Watershed 1 Runoff Area=5,653 sf 0.00% Impervious Runoff Depth=2.22"
Flow Length=116' Tc=14.6 min CN=72 Runoff=0.25 cfs 1,046 cf

Reach DP-1: DP-1 Inflow=0.25 cfs 1,046 cf
Outflow=0.25 cfs 1,046 cf

Reach RR-CD: RR-CD Avg. Flow Depth=0.06' Max Vel=0.22 fps Inflow=0.25 cfs 1,046 cf
n=0.150 L=12.0' S=0.0233 '/' Capacity=2.95 cfs Outflow=0.25 cfs 1,046 cf

Reach RR-DDP1: RR-DDP1 Avg. Flow Depth=0.10' Max Vel=0.98 fps Inflow=0.25 cfs 1,046 cf
n=0.013 L=90.0' S=0.0040 '/' Capacity=17.69 cfs Outflow=0.25 cfs 1,046 cf

Total Runoff Area = 5,653 sf Runoff Volume = 1,046 cf Average Runoff Depth = 2.22"
100.00% Pervious = 5,653 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1: Watershed 1

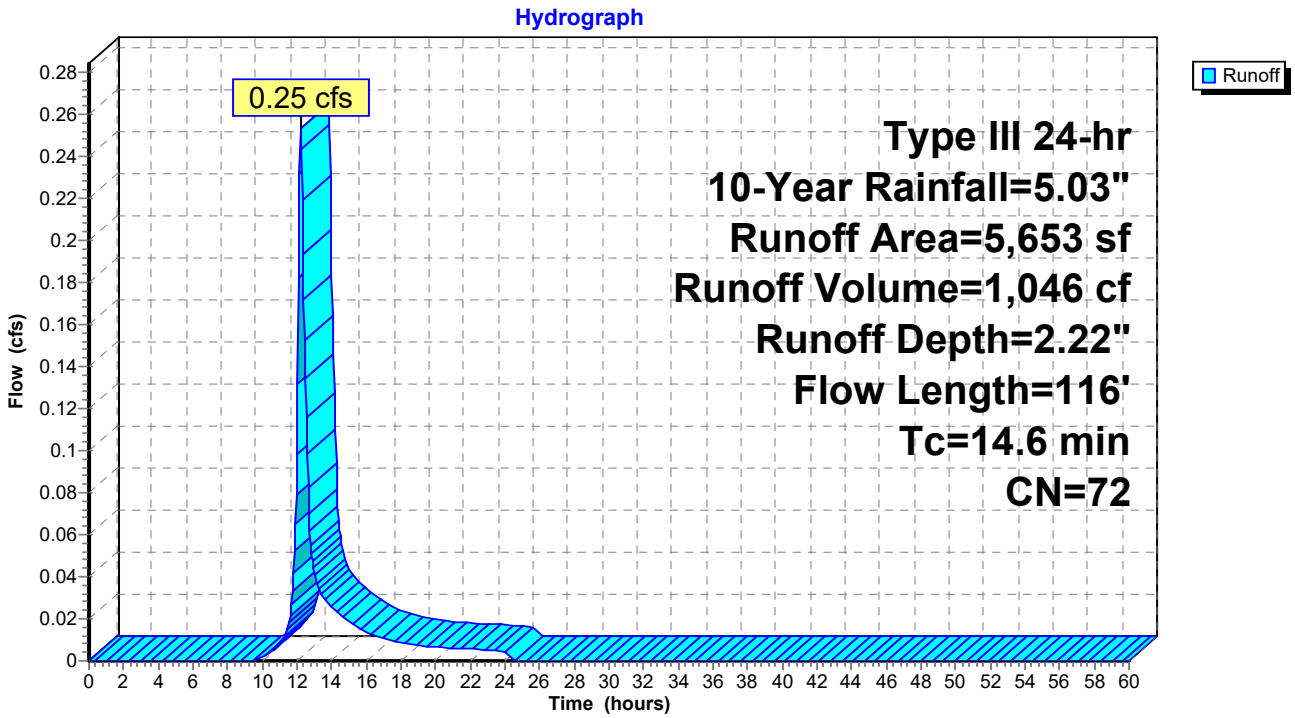
Runoff = 0.25 cfs @ 12.21 hrs, Volume= 1,046 cf, Depth= 2.22"
Routed to Reach RR-CD : RR-CD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.03"

Area (sf)	CN	Description
5,653	72	Woods/grass comb., Good, HSG C
5,653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	99	0.0180	0.12		**Sheet Flow, A->B** Grass: Dense n= 0.240 P2= 3.42"
0.3	17	0.0179	0.94		**Shallow Concentrated Flow, B->DP1** Short Grass Pasture Kv= 7.0 fps
14.6	116	Total			

Subcatchment 1: Watershed 1

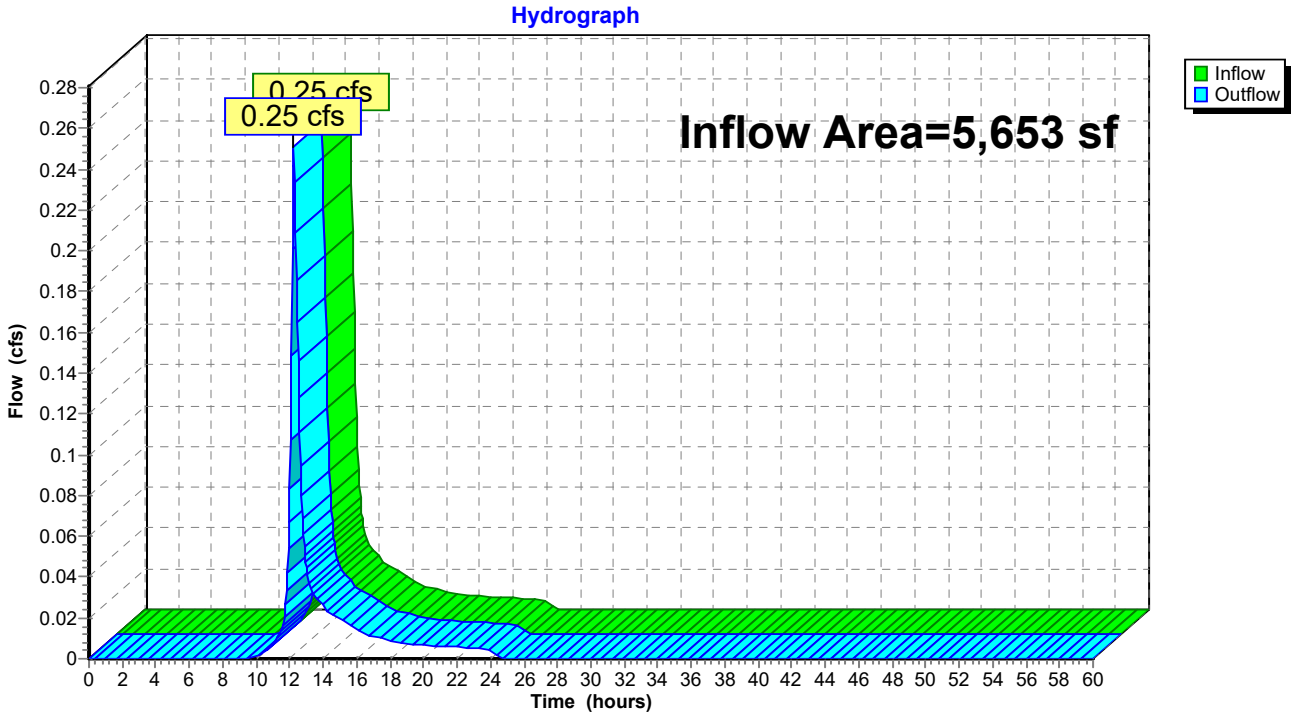


Summary for Reach DP-1: DP-1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 2.22" for 10-Year event
Inflow = 0.25 cfs @ 12.24 hrs, Volume= 1,046 cf
Outflow = 0.25 cfs @ 12.24 hrs, Volume= 1,046 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1



Summary for Reach RR-CD: RR-CD

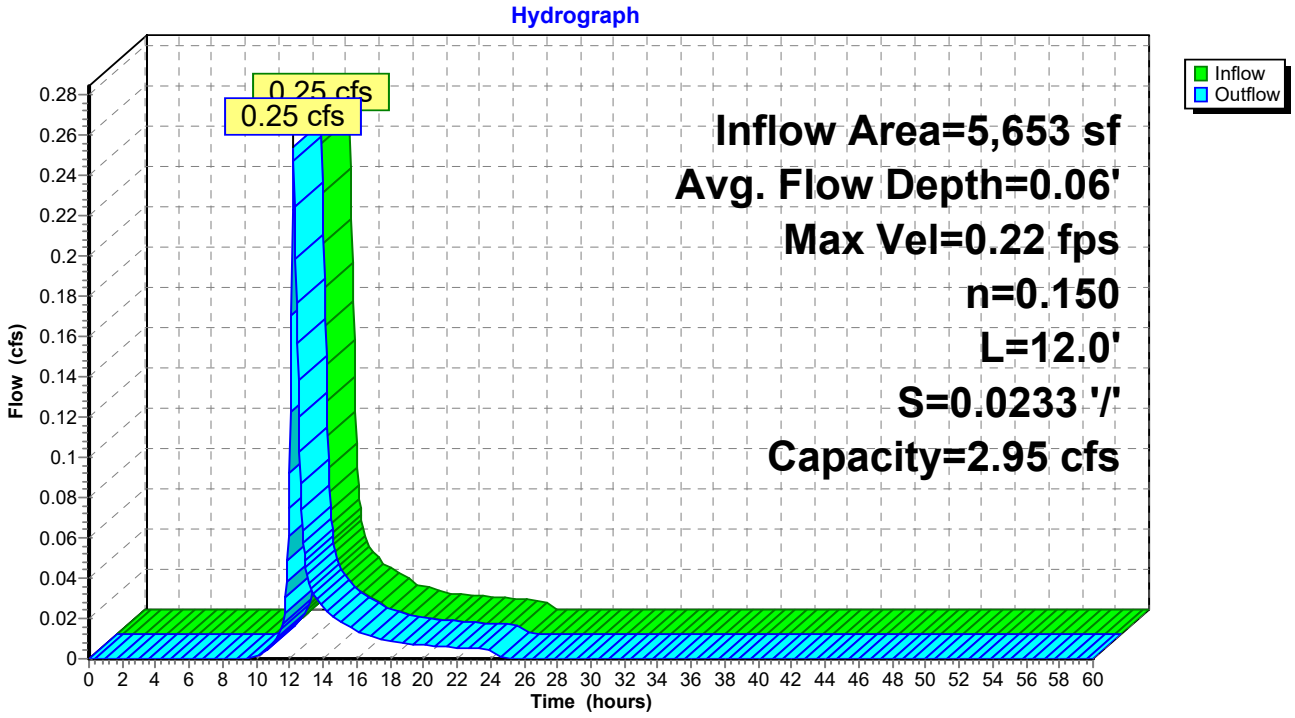
Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 2.22" for 10-Year event
Inflow = 0.25 cfs @ 12.21 hrs, Volume= 1,046 cf
Outflow = 0.25 cfs @ 12.22 hrs, Volume= 1,046 cf, Atten= 0%, Lag= 0.5 min
Routed to Reach RR-DDP1 : RR-DDP1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 0.22 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 3.1 min

Peak Storage= 14 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 20.00'
Bank-Full Depth= 0.25' Flow Area= 5.0 sf, Capacity= 2.95 cfs

20.00' x 0.25' deep channel, n= 0.150 Sheet flow over Short Grass
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 239.92', Outlet Invert= 239.64'

Reach RR-CD: RR-CD



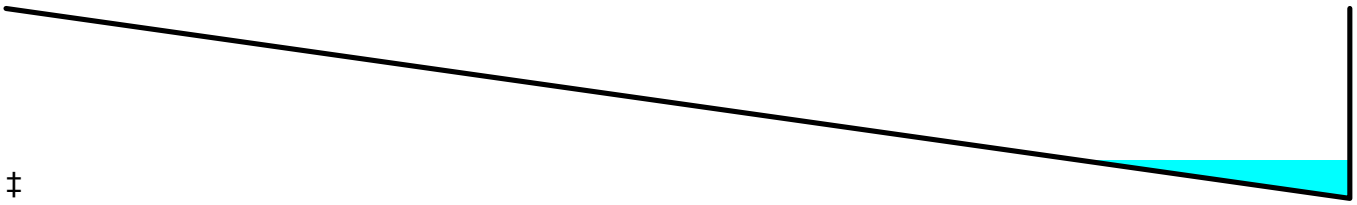
Summary for Reach RR-DDP1: RR-DDP1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 2.22" for 10-Year event
Inflow = 0.25 cfs @ 12.22 hrs, Volume= 1,046 cf
Outflow = 0.25 cfs @ 12.24 hrs, Volume= 1,046 cf, Atten= 1%, Lag= 1.5 min
Routed to Reach DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 0.98 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.43 fps, Avg. Travel Time= 3.5 min

Peak Storage= 23 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.10' , Surface Width= 5.06'
Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 17.69 cfs

0.00' x 0.50' deep channel, n= 0.013 Asphalt, smooth
Side Slope Z-value= 50.0 0.0 '/' Top Width= 25.00'
Length= 90.0' Slope= 0.0040 '/'
Inlet Invert= 239.64', Outlet Invert= 239.28'



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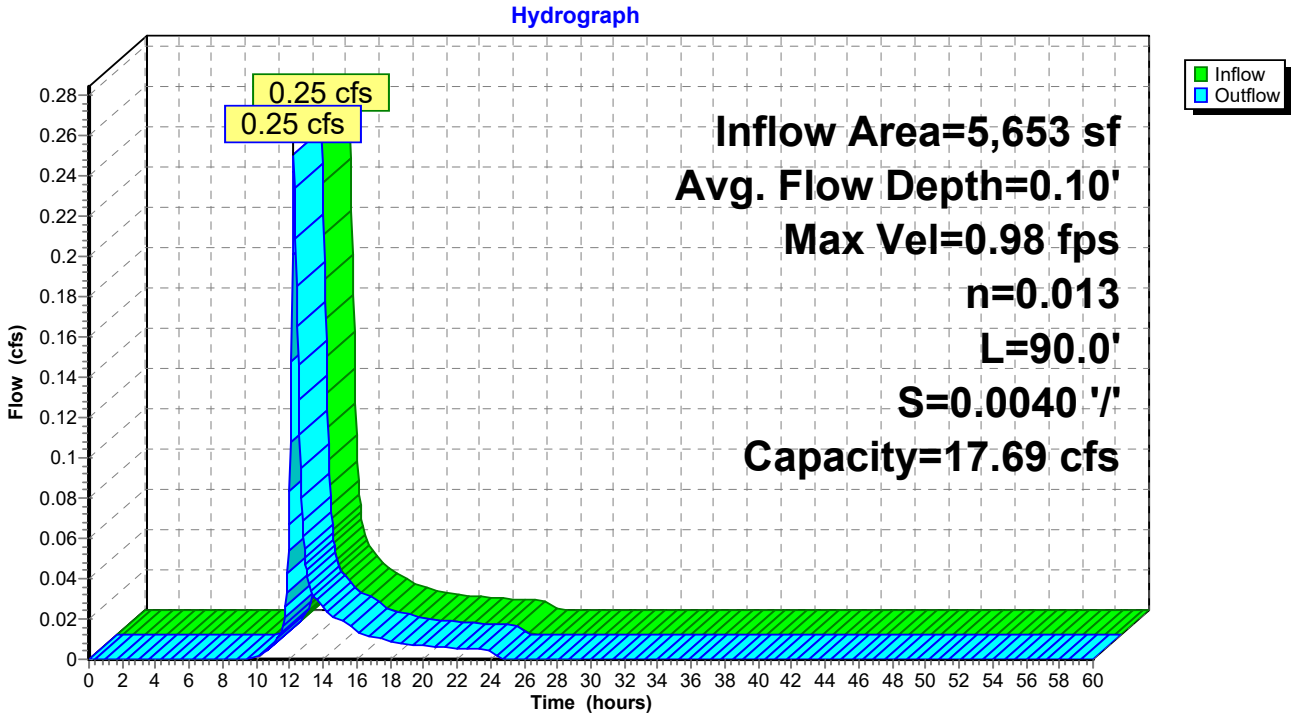
Reach RR-DDP1: RR-DDP1



Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1: Watershed 1 Runoff Area=5,653 sf 0.00% Impervious Runoff Depth=3.25"
Flow Length=116' Tc=14.6 min CN=72 Runoff=0.38 cfs 1,530 cf

Reach DP-1: DP-1 Inflow=0.37 cfs 1,530 cf
Outflow=0.37 cfs 1,530 cf

Reach RR-CD: RR-CD Avg. Flow Depth=0.07' Max Vel=0.26 fps Inflow=0.38 cfs 1,530 cf
n=0.150 L=12.0' S=0.0233 '/' Capacity=2.95 cfs Outflow=0.38 cfs 1,530 cf

Reach RR-DDP1: RR-DDP1 Avg. Flow Depth=0.12' Max Vel=1.08 fps Inflow=0.38 cfs 1,530 cf
n=0.013 L=90.0' S=0.0040 '/' Capacity=17.69 cfs Outflow=0.37 cfs 1,530 cf

Total Runoff Area = 5,653 sf Runoff Volume = 1,530 cf Average Runoff Depth = 3.25"
100.00% Pervious = 5,653 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1: Watershed 1

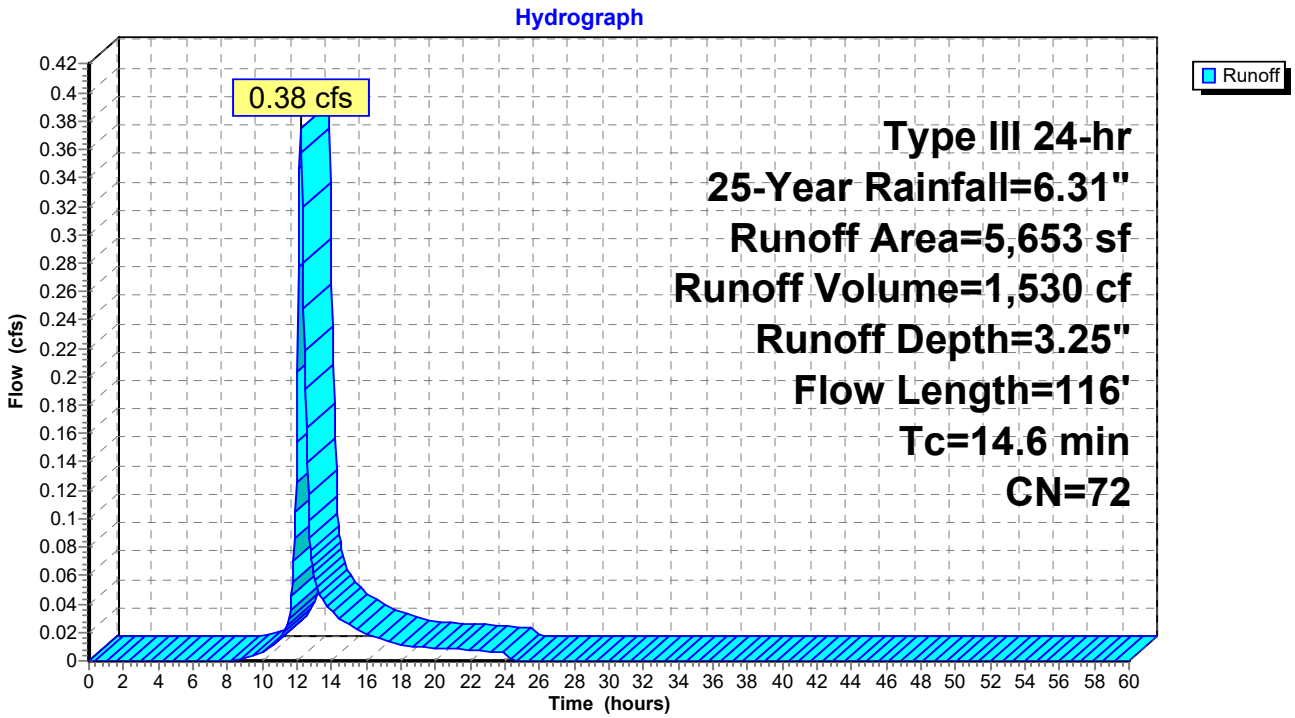
Runoff = 0.38 cfs @ 12.21 hrs, Volume= 1,530 cf, Depth= 3.25"
Routed to Reach RR-CD : RR-CD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.31"

Area (sf)	CN	Description
5,653	72	Woods/grass comb., Good, HSG C
5,653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	99	0.0180	0.12		**Sheet Flow, A->B** Grass: Dense n= 0.240 P2= 3.42"
0.3	17	0.0179	0.94		**Shallow Concentrated Flow, B->DP1** Short Grass Pasture Kv= 7.0 fps
14.6	116	Total			

Subcatchment 1: Watershed 1

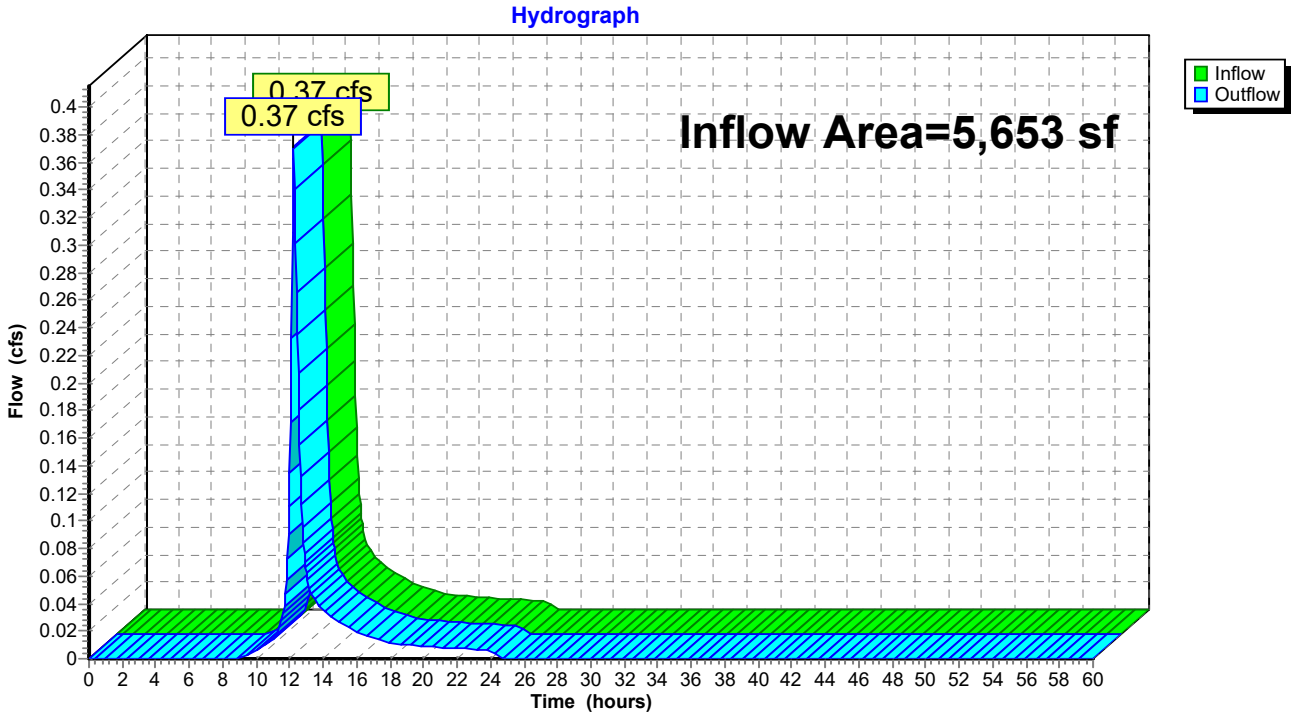


Summary for Reach DP-1: DP-1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 3.25" for 25-Year event
Inflow = 0.37 cfs @ 12.23 hrs, Volume= 1,530 cf
Outflow = 0.37 cfs @ 12.23 hrs, Volume= 1,530 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1



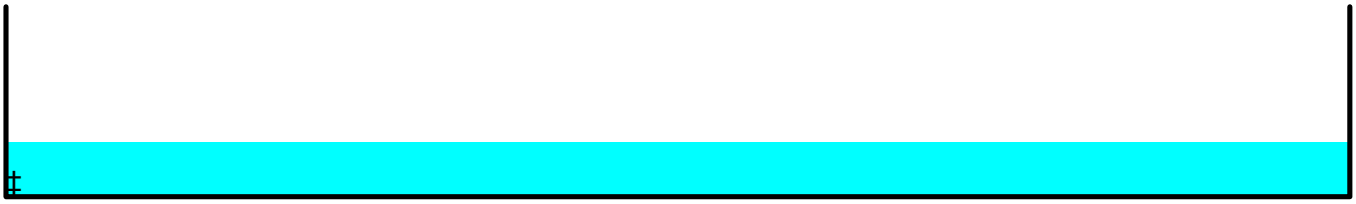
Summary for Reach RR-CD: RR-CD

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 3.25" for 25-Year event
Inflow = 0.38 cfs @ 12.21 hrs, Volume= 1,530 cf
Outflow = 0.38 cfs @ 12.21 hrs, Volume= 1,530 cf, Atten= 0%, Lag= 0.5 min
Routed to Reach RR-DDP1 : RR-DDP1

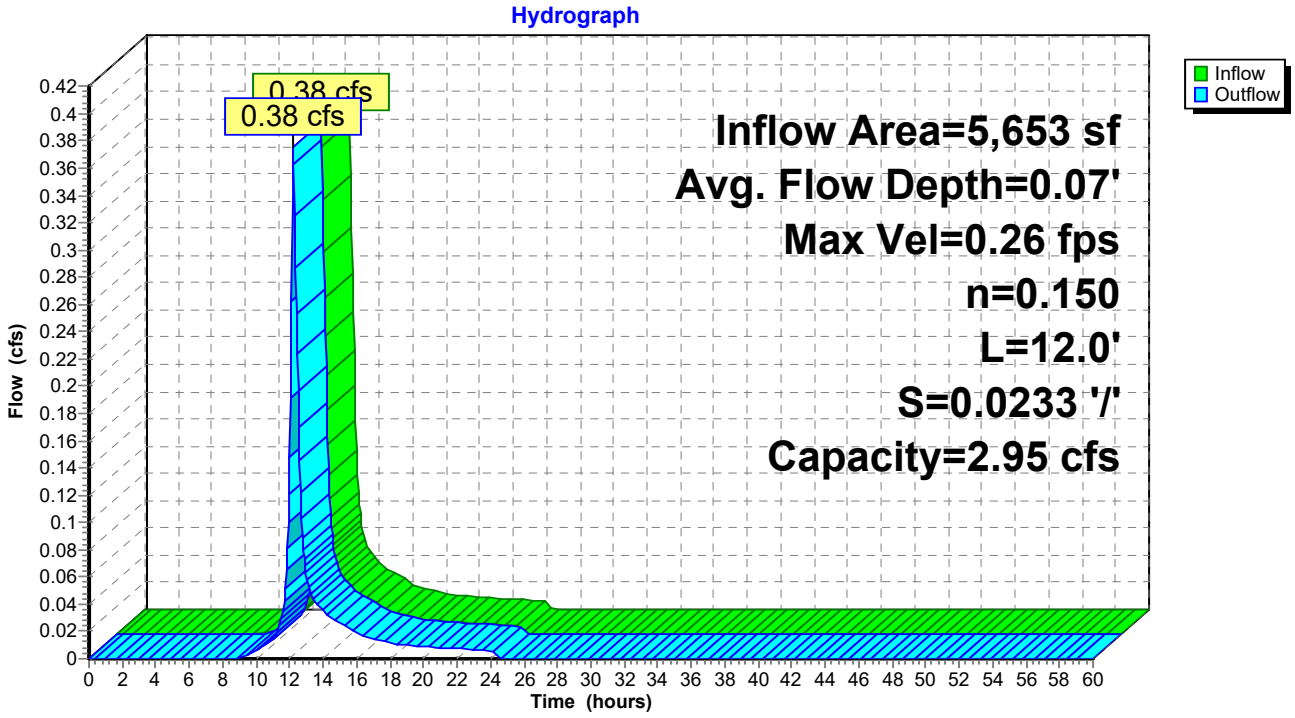
Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 0.26 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 2.7 min

Peak Storage= 17 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.07' , Surface Width= 20.00'
Bank-Full Depth= 0.25' Flow Area= 5.0 sf, Capacity= 2.95 cfs

20.00' x 0.25' deep channel, n= 0.150 Sheet flow over Short Grass
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 239.92', Outlet Invert= 239.64'



Reach RR-CD: RR-CD



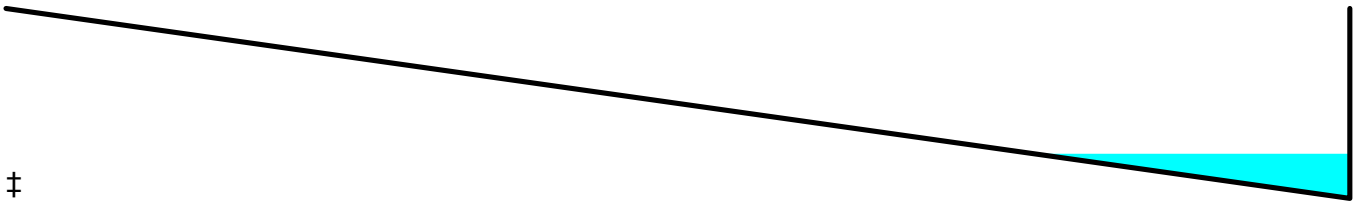
Summary for Reach RR-DDP1: RR-DDP1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 3.25" for 25-Year event
Inflow = 0.38 cfs @ 12.21 hrs, Volume= 1,530 cf
Outflow = 0.37 cfs @ 12.23 hrs, Volume= 1,530 cf, Atten= 1%, Lag= 1.2 min
Routed to Reach DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 1.08 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 3.2 min

Peak Storage= 31 cf @ 12.23 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 5.87'
Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 17.69 cfs

0.00' x 0.50' deep channel, n= 0.013 Asphalt, smooth
Side Slope Z-value= 50.0 0.0 '/' Top Width= 25.00'
Length= 90.0' Slope= 0.0040 '/'
Inlet Invert= 239.64', Outlet Invert= 239.28'



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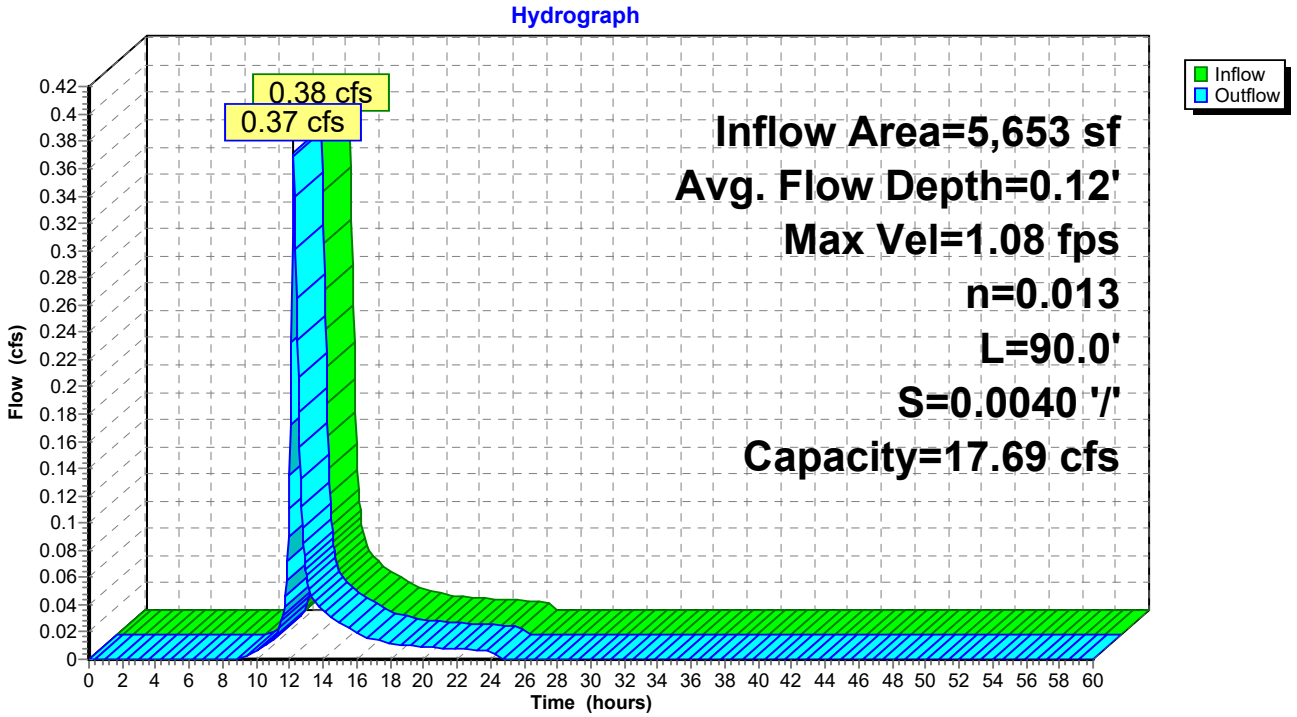
Reach RR-DDP1: RR-DDP1



Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1: Watershed 1 Runoff Area=5,653 sf 0.00% Impervious Runoff Depth=5.48"
Flow Length=116' Tc=14.6 min CN=72 Runoff=0.63 cfs 2,583 cf

Reach DP-1: DP-1 Inflow=0.63 cfs 2,583 cf
Outflow=0.63 cfs 2,583 cf

Reach RR-CD: RR-CD Avg. Flow Depth=0.10' Max Vel=0.32 fps Inflow=0.63 cfs 2,583 cf
n=0.150 L=12.0' S=0.0233 '/' Capacity=2.95 cfs Outflow=0.63 cfs 2,583 cf

Reach RR-DDP1: RR-DDP1 Avg. Flow Depth=0.14' Max Vel=1.23 fps Inflow=0.63 cfs 2,583 cf
n=0.013 L=90.0' S=0.0040 '/' Capacity=17.69 cfs Outflow=0.63 cfs 2,583 cf

Total Runoff Area = 5,653 sf Runoff Volume = 2,583 cf Average Runoff Depth = 5.48"
100.00% Pervious = 5,653 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1: Watershed 1

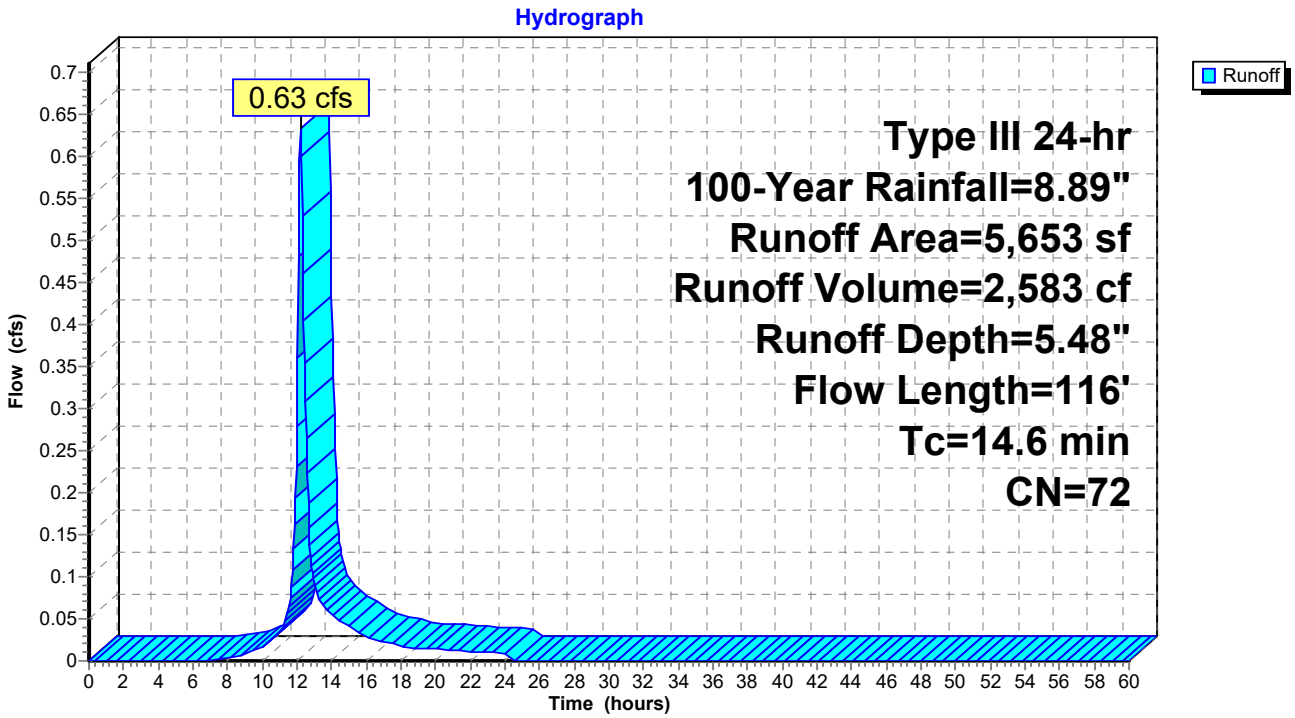
Runoff = 0.63 cfs @ 12.20 hrs, Volume= 2,583 cf, Depth= 5.48"
Routed to Reach RR-CD : RR-CD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
5,653	72	Woods/grass comb., Good, HSG C
5,653		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	99	0.0180	0.12		**Sheet Flow, A->B** Grass: Dense n= 0.240 P2= 3.42"
0.3	17	0.0179	0.94		**Shallow Concentrated Flow, B->DP1** Short Grass Pasture Kv= 7.0 fps
14.6	116	Total			

Subcatchment 1: Watershed 1

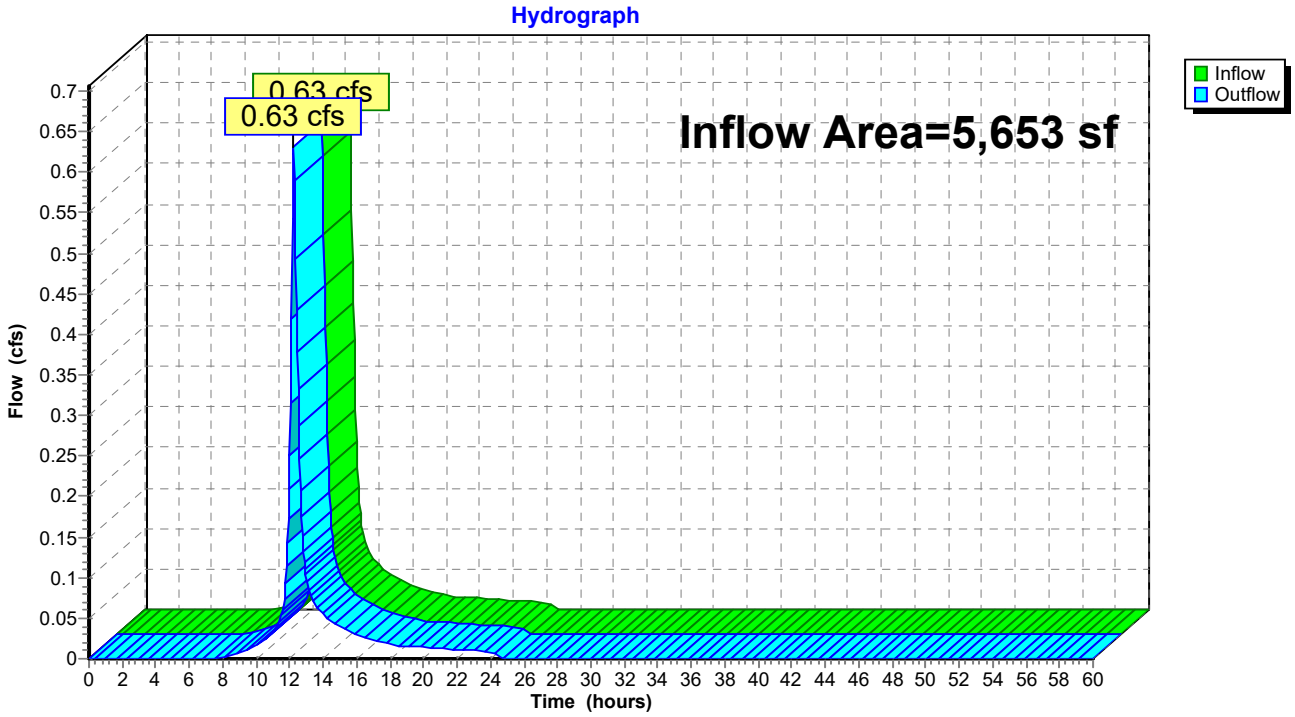


Summary for Reach DP-1: DP-1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 5.48" for 100-Year event
Inflow = 0.63 cfs @ 12.22 hrs, Volume= 2,583 cf
Outflow = 0.63 cfs @ 12.22 hrs, Volume= 2,583 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1



Summary for Reach RR-CD: RR-CD

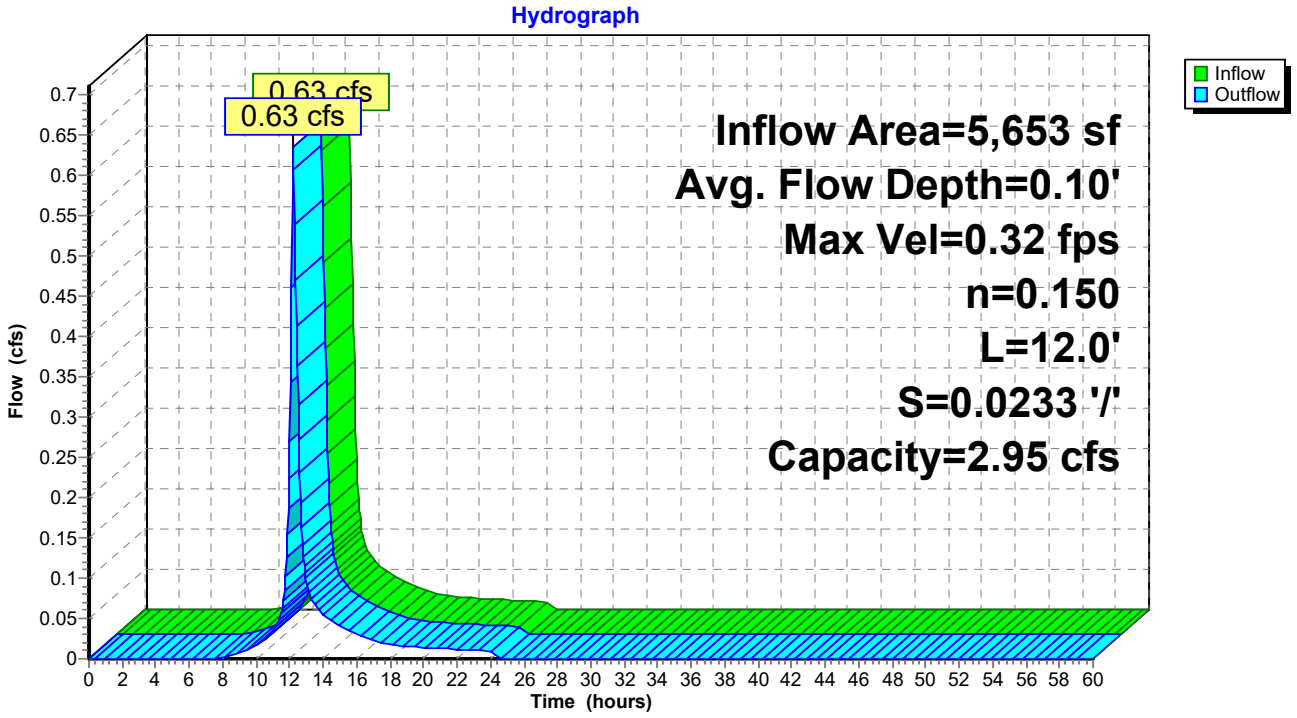
Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 5.48" for 100-Year event
Inflow = 0.63 cfs @ 12.20 hrs, Volume= 2,583 cf
Outflow = 0.63 cfs @ 12.21 hrs, Volume= 2,583 cf, Atten= 0%, Lag= 0.4 min
Routed to Reach RR-DDP1 : RR-DDP1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 0.32 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 2.3 min

Peak Storage= 24 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.10' , Surface Width= 20.00'
Bank-Full Depth= 0.25' Flow Area= 5.0 sf, Capacity= 2.95 cfs

20.00' x 0.25' deep channel, n= 0.150 Sheet flow over Short Grass
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 239.92', Outlet Invert= 239.64'

Reach RR-CD: RR-CD



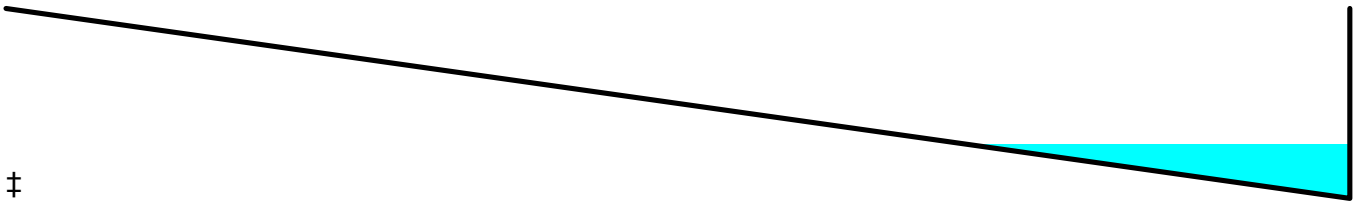
Summary for Reach RR-DDP1: RR-DDP1

Inflow Area = 5,653 sf, 0.00% Impervious, Inflow Depth = 5.48" for 100-Year event
Inflow = 0.63 cfs @ 12.21 hrs, Volume= 2,583 cf
Outflow = 0.63 cfs @ 12.22 hrs, Volume= 2,583 cf, Atten= 1%, Lag= 0.9 min
Routed to Reach DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 1.23 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 2.9 min

Peak Storage= 46 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.14' , Surface Width= 7.16'
Bank-Full Depth= 0.50' Flow Area= 6.3 sf, Capacity= 17.69 cfs

0.00' x 0.50' deep channel, n= 0.013 Asphalt, smooth
Side Slope Z-value= 50.0 0.0 '/' Top Width= 25.00'
Length= 90.0' Slope= 0.0040 '/'
Inlet Invert= 239.64', Outlet Invert= 239.28'



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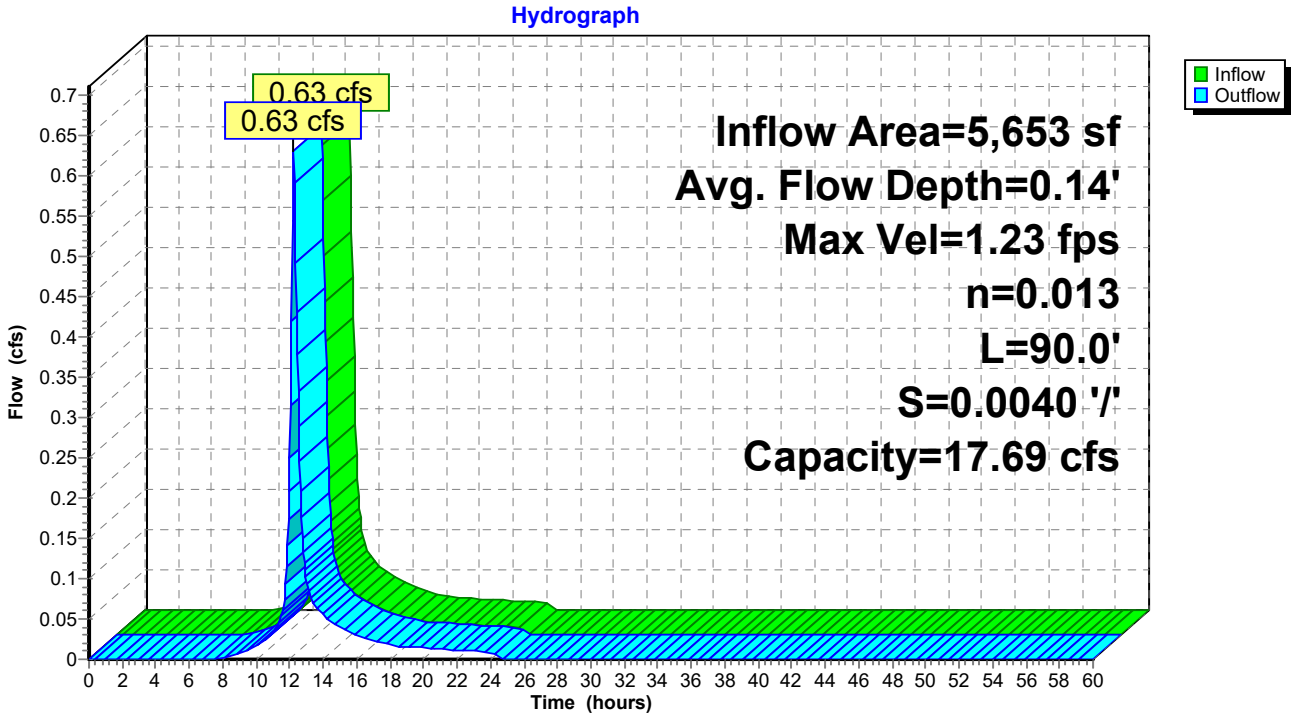


Events for Subcatchment 1: Watershed 1

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-Year	2.78	0.07	321	0.68
2-Year	3.39	0.11	494	1.05
10-Year	5.03	0.25	1,046	2.22
25-Year	6.31	0.38	1,530	3.25
100-Year	**8.89**	**0.63**	**2,583**	**5.48**

Events for Reach DP-1: DP-1

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.07	0.07	**0.00**	**0**
2-Year	0.11	0.11	0.00	0
10-Year	0.25	0.25	0.00	0
25-Year	0.37	0.37	0.00	0
100-Year	**0.63**	**0.63**	0.00	0

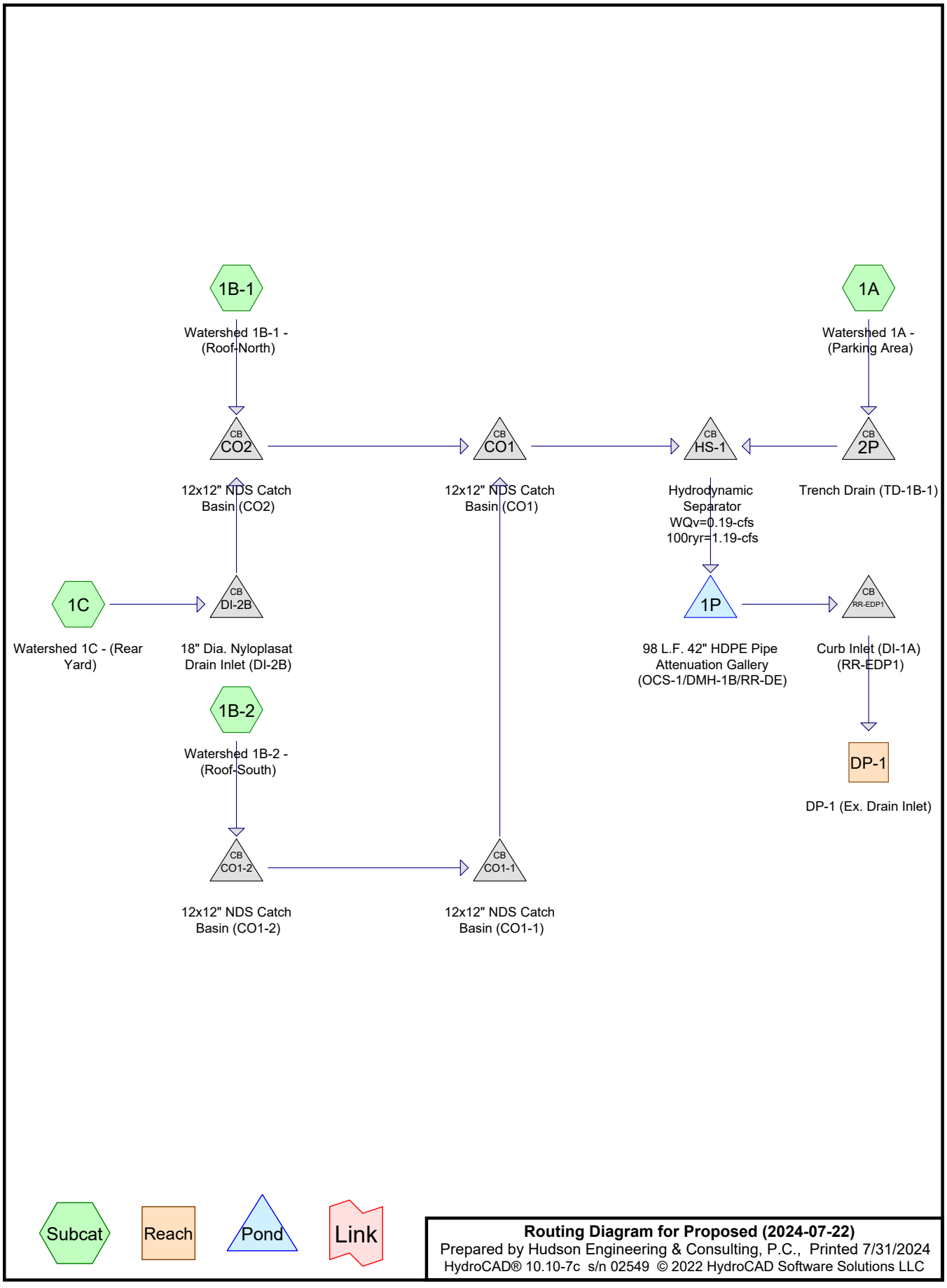
Events for Reach RR-CD: RR-CD

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.07	0.07	239.95	6
2-Year	0.11	0.11	239.95	8
10-Year	0.25	0.25	239.98	14
25-Year	0.38	0.38	239.99	17
100-Year	**0.63**	**0.63**	**240.02**	**24**

Events for Reach RR-DDP1: RR-DDP1

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.07	0.07	239.70	9
2-Year	0.11	0.11	239.71	13
10-Year	0.25	0.25	239.74	23
25-Year	0.38	0.37	239.76	31
100-Year	**0.63**	**0.63**	**239.78**	**46**

Section 11
Post-Development Analysis of the 1-, 2-, 10-, 25-, and 100-Year Storm Frequencies



Routing Diagram for Proposed (2024-07-22)
Prepared by Hudson Engineering & Consulting, P.C., Printed 7/31/2024
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.78	2
2	2-Year	Type III 24-hr		Default	24.00	1	3.39	2
3	10-Year	Type III 24-hr		Default	24.00	1	5.03	2
4	25-Year	Type III 24-hr		Default	24.00	1	6.31	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.89	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,131	74	>75% Grass cover, Good, HSG C (1A, 1C)
4,522	98	Impervious Cover (1A, 1B-1, 1B-2)
5,653	**93**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
1,131	HSG C	1A, 1C
0	HSG D	
4,522	Other	1A, 1B-1, 1B-2
5,653		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	1,131	0	0	1,131	>75% Grass cover, Good	
0	0	0	0	4,522	4,522	Impervious Cover	
0	**0**	**1,131**	**0**	**4,522**	**5,653**	**TOTAL AREA**	

Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1A: Watershed 1A - (Parking Runoff Area=2,753 sf 80.71% Impervious Runoff Depth=2.04"
Tc=1.0 min CN=93 Runoff=0.16 cfs 469 cf

Subcatchment 1B-1: Watershed 1B-1 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=2.55"
Tc=1.0 min CN=98 Runoff=0.08 cfs 244 cf

Subcatchment 1B-2: Watershed 1B-2 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=2.55"
Tc=1.0 min CN=98 Runoff=0.08 cfs 244 cf

Subcatchment 1C: Watershed 1C - (Rear Yard) Runoff Area=600 sf 0.00% Impervious Runoff Depth=0.77"
Flow Length=22' Slope=0.0150 '/' Tc=4.6 min CN=74 Runoff=0.01 cfs 39 cf

Reach DP-1: DP-1 (Ex. Drain Inlet) Inflow=0.07 cfs 996 cf
Outflow=0.07 cfs 996 cf

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Peak Elev=234.85' Storage=280 cf Inflow=0.33 cfs 996 cf
Outflow=0.07 cfs 996 cf

Pond 2P: Trench Drain (TD-1B-1) Peak Elev=237.72' Inflow=0.16 cfs 469 cf
8.0" Round Culvert n=0.013 L=10.1' S=0.1673 '/' Outflow=0.16 cfs 469 cf

Pond CO1: 12x12" NDS Catch Basin (CO1) Peak Elev=236.73' Inflow=0.17 cfs 527 cf
8.0" Round Culvert n=0.013 L=35.0' S=0.0200 '/' Outflow=0.17 cfs 527 cf

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1) Peak Elev=238.39' Inflow=0.08 cfs 244 cf
8.0" Round Culvert n=0.013 L=47.5' S=0.0364 '/' Outflow=0.08 cfs 244 cf

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2) Peak Elev=238.95' Inflow=0.08 cfs 244 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0100 '/' Outflow=0.08 cfs 244 cf

Pond CO2: 12x12" NDS Catch Basin (CO2) Peak Elev=237.77' Inflow=0.09 cfs 283 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0200 '/' Outflow=0.09 cfs 283 cf

Pond DI-2B: 18" Dia. Nyloplast Drain Inlet (DI-2B) Peak Elev=238.12' Inflow=0.01 cfs 39 cf
8.0" Round Culvert n=0.013 L=22.5' S=0.0200 '/' Outflow=0.01 cfs 39 cf

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs Peak Elev=236.13' Inflow=0.33 cfs 996 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=0.33 cfs 996 cf

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1) Peak Elev=232.62' Inflow=0.07 cfs 996 cf
15.0" Round Culvert n=0.013 L=81.0' S=0.0101 '/' Outflow=0.07 cfs 996 cf

Total Runoff Area = 5,653 sf Runoff Volume = 996 cf Average Runoff Depth = 2.11"
20.01% Pervious = 1,131 sf 79.99% Impervious = 4,522 sf

Summary for Subcatchment 1A: Watershed 1A - (Parking Area)

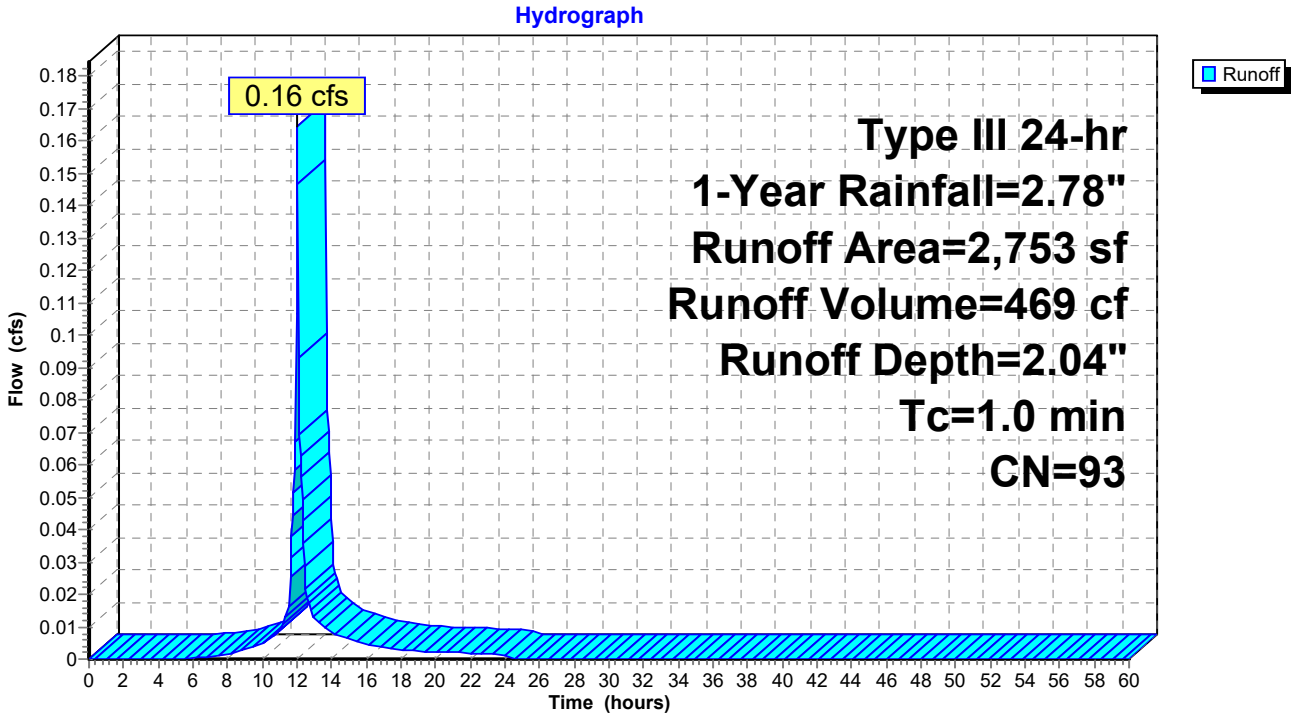
Runoff = 0.16 cfs @ 12.01 hrs, Volume= 469 cf, Depth= 2.04"
Routed to Pond 2P : Trench Drain (TD-1B-1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	2,222	98	Impervious Cover
	531	74	>75% Grass cover, Good, HSG C
	2,753	93	Weighted Average
	531		19.29% Pervious Area
	2,222		80.71% Impervious Area

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

Subcatchment 1A: Watershed 1A - (Parking Area)



Summary for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

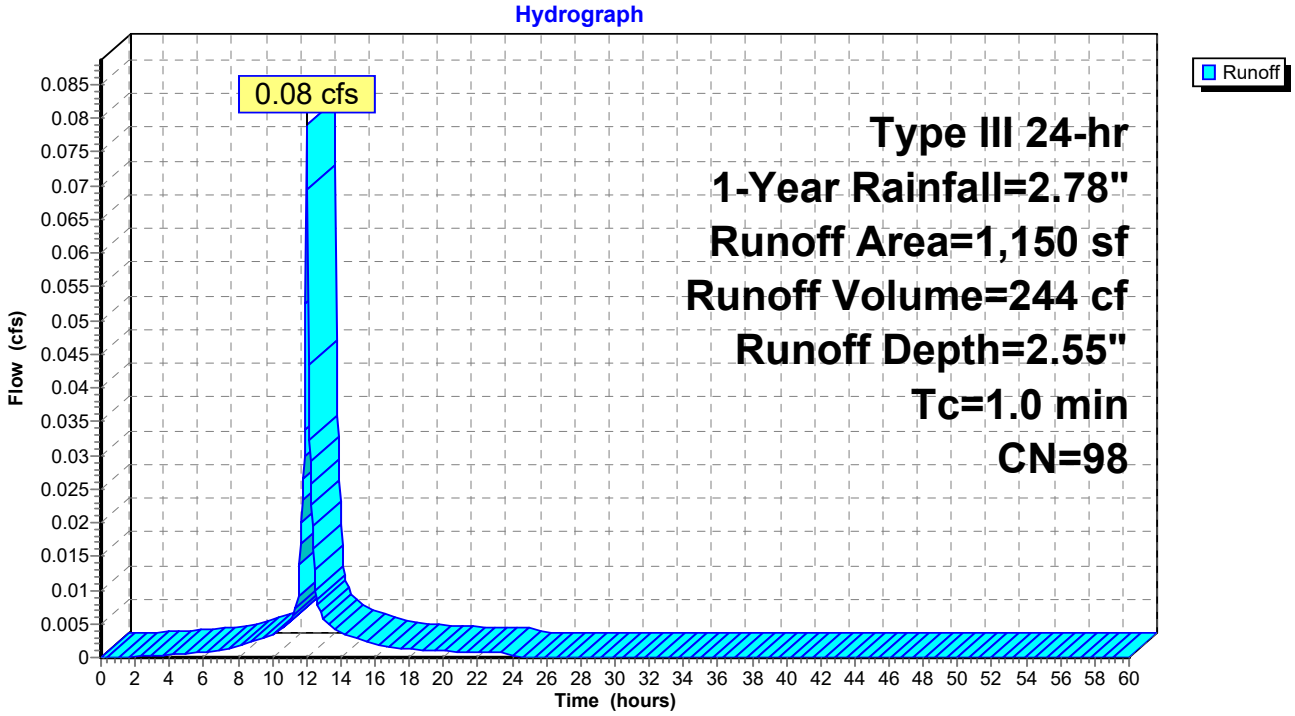
Runoff = 0.08 cfs @ 12.01 hrs, Volume= 244 cf, Depth= 2.55"
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)



Summary for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

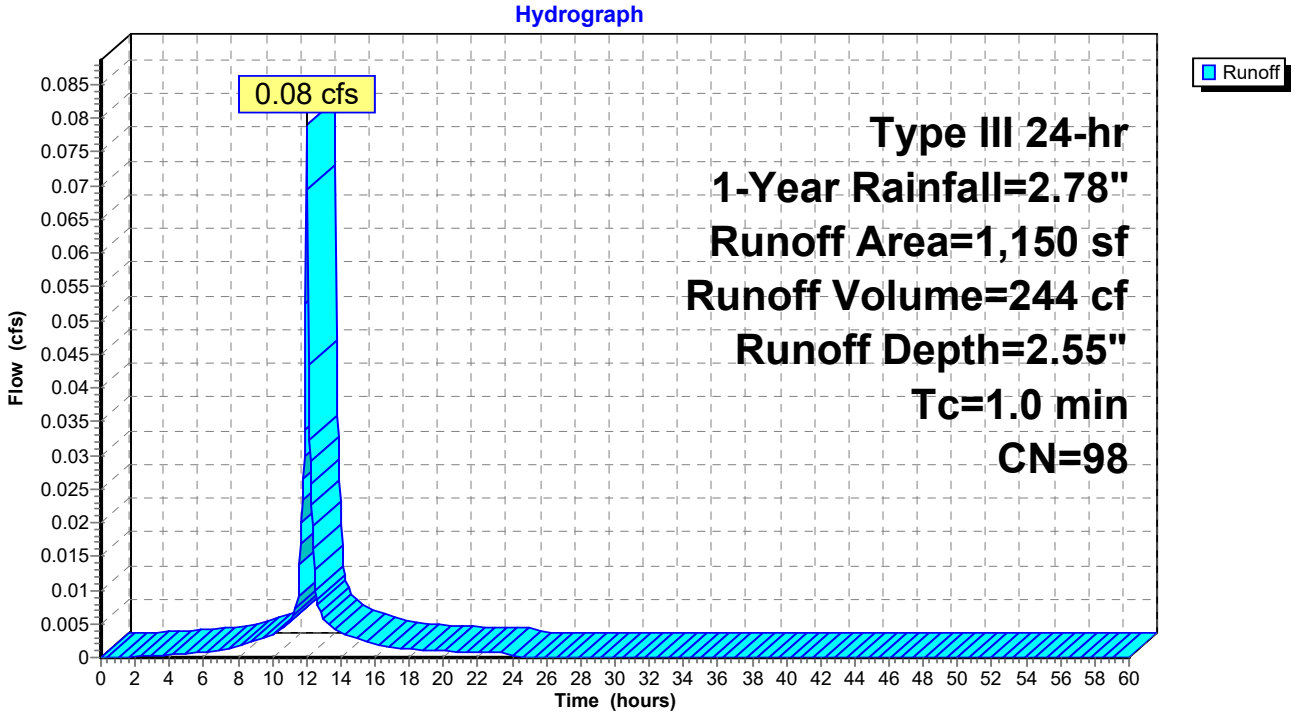
Runoff = 0.08 cfs @ 12.01 hrs, Volume= 244 cf, Depth= 2.55"
Routed to Pond CO1-2 : 12x12" NDS Catch Basin (CO1-2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.78"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)



Summary for Subcatchment 1C: Watershed 1C - (Rear Yard)

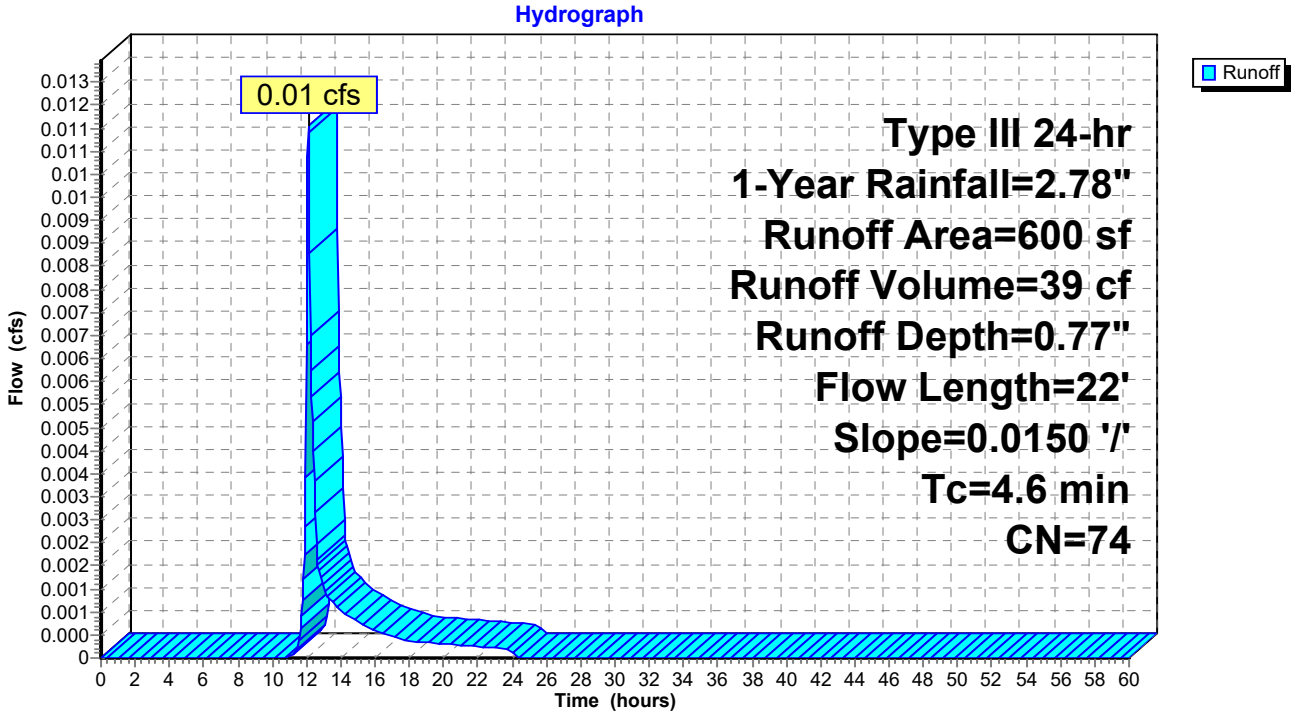
Runoff = 0.01 cfs @ 12.08 hrs, Volume= 39 cf, Depth= 0.77"
Routed to Pond DI-2B : 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.78"

Area (sf)	CN	Description
600	74	>75% Grass cover, Good, HSG C
600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0150	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.42"

Subcatchment 1C: Watershed 1C - (Rear Yard)

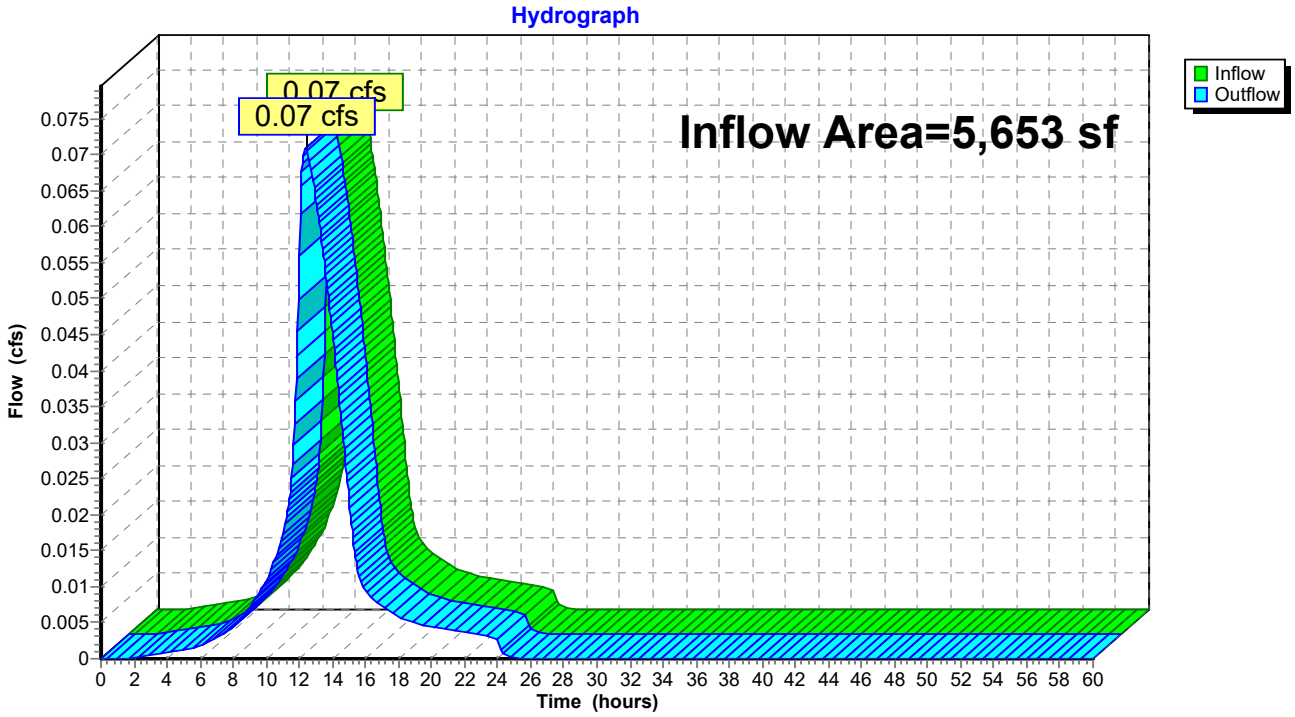


Summary for Reach DP-1: DP-1 (Ex. Drain Inlet)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 2.11" for 1-Year event
Inflow = 0.07 cfs @ 12.40 hrs, Volume= 996 cf
Outflow = 0.07 cfs @ 12.40 hrs, Volume= 996 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1 (Ex. Drain Inlet)



Summary for Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 2.11" for 1-Year event
Inflow = 0.33 cfs @ 12.01 hrs, Volume= 996 cf
Outflow = 0.07 cfs @ 12.40 hrs, Volume= 996 cf, Atten= 79%, Lag= 23.4 min
Primary = 0.07 cfs @ 12.40 hrs, Volume= 996 cf
Routed to Pond RR-EDP1 : Curb Inlet (DI-1A) (RR-EDP1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 234.85' @ 12.40 hrs Surf.Area= 324 sf Storage= 280 cf
Flood Elev= 240.00' Storage= 943 cf

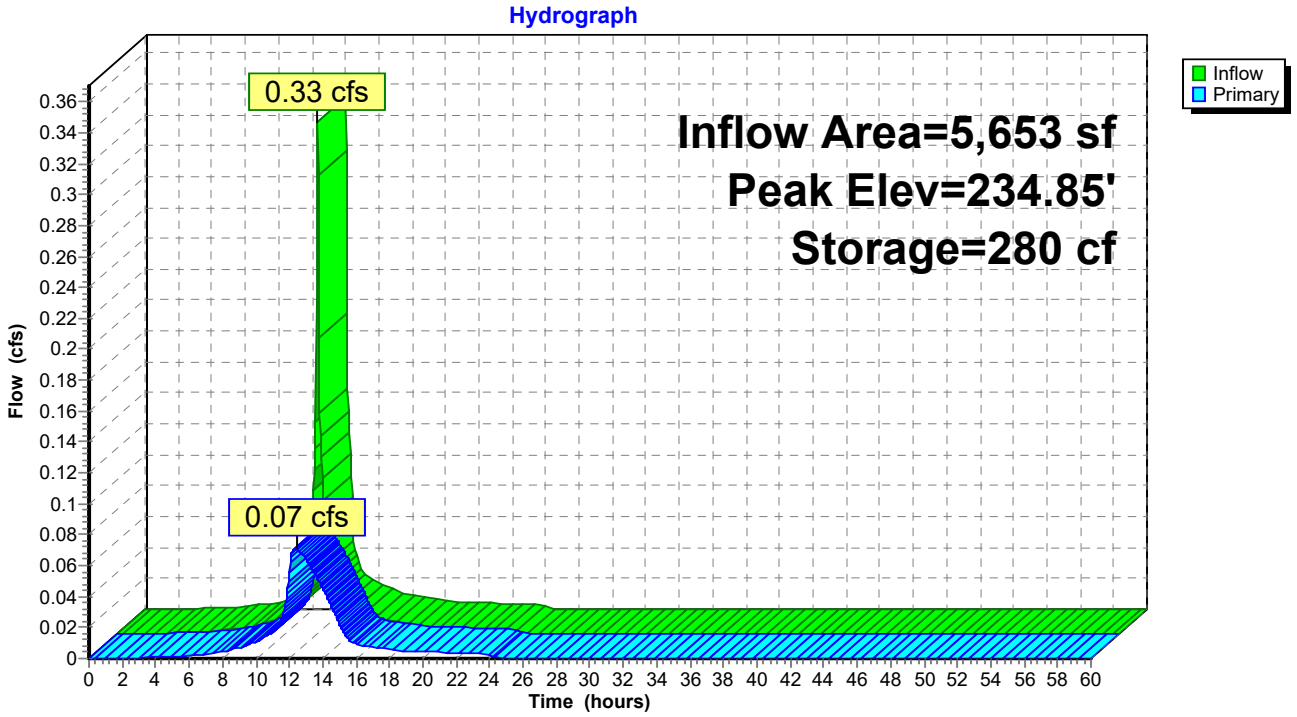
Plug-Flow detention time= 32.7 min calculated for 995 cf (100% of inflow)
Center-of-Mass det. time= 32.7 min (810.0 - 777.3)

Volume	Invert	Avail.Storage	Storage Description
#1	233.67'	943 cf	**42.0" Round 42" HDPE** L= 98.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.62'	**12.0" Round 12" HDPE (Outlet)** L= 22.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.62' / 232.50' S= 0.0489 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	233.67'	**6.0" Round 6" HDPE (Low Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.67' / 233.63' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	233.67'	**1.6" Vert. 1.6" Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	235.25'	**6.0" Round 6" HDPE (Mid Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.25' / 235.21' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#5	Device 4	235.25'	**3.5" Vert. 3.5" Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	236.63'	**6.0" Round 6" HDPE (High Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.63' / 236.59' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#7	Device 6	236.75'	**4.0" Vert. 4" Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.07 cfs @ 12.40 hrs HW=234.85' TW=232.62' (Dynamic Tailwater)
- **1=12" HDPE (Outlet)** (Passes 0.07 cfs of 3.23 cfs potential flow)
  - **2=6" HDPE (Low Flow)** (Passes 0.07 cfs of 0.91 cfs potential flow)
    - **3=1.6" Orifice** (Orifice Controls 0.07 cfs @ 5.08 fps)
  - **4=6" HDPE (Mid Flow)** (Controls 0.00 cfs)
    - **5=3.5" Orifice** (Controls 0.00 cfs)
  - **6=6" HDPE (High Flow)** (Controls 0.00 cfs)
    - **7=4" Orifice** (Controls 0.00 cfs)

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)



Summary for Pond 2P: Trench Drain (TD-1B-1)

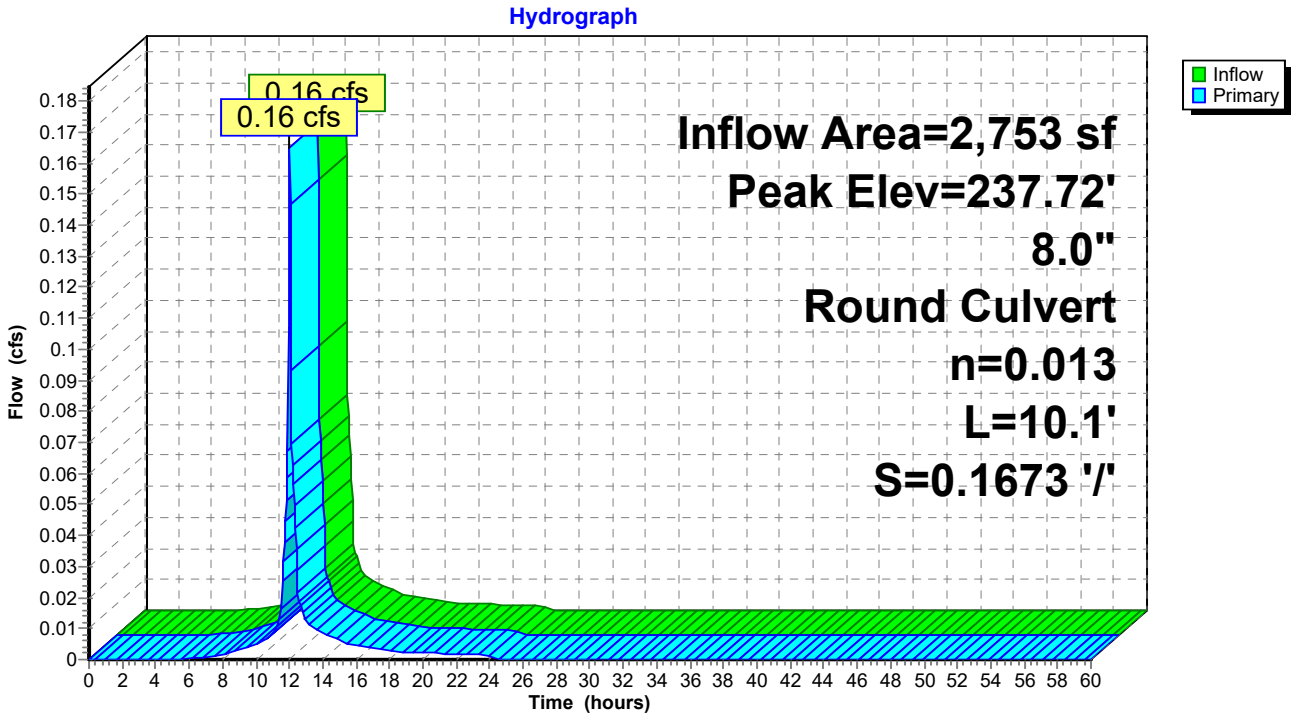
Inflow Area = 2,753 sf, 80.71% Impervious, Inflow Depth = 2.04" for 1-Year event
Inflow = 0.16 cfs @ 12.01 hrs, Volume= 469 cf
Outflow = 0.16 cfs @ 12.01 hrs, Volume= 469 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.01 hrs, Volume= 469 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.72' @ 12.01 hrs
Flood Elev= 240.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.50'	**8.0" Round 8" HDPE** L= 10.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.50' / 235.81' S= 0.1673 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.16 cfs @ 12.01 hrs HW=237.72' TW=236.12' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.16 cfs @ 1.59 fps)

Pond 2P: Trench Drain (TD-1B-1)



Summary for Pond CO1: 12x12" NDS Catch Basin (CO1)

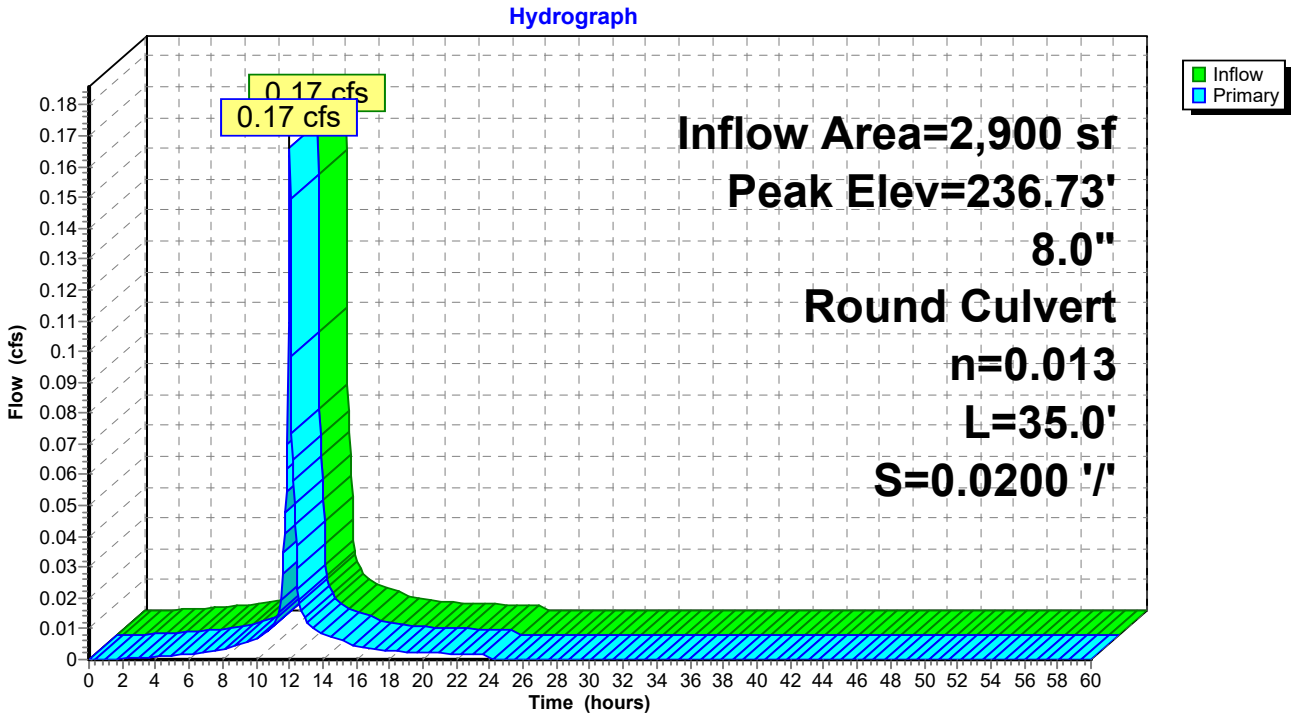
Inflow Area = 2,900 sf, 79.31% Impervious, Inflow Depth = 2.18" for 1-Year event
Inflow = 0.17 cfs @ 12.02 hrs, Volume= 527 cf
Outflow = 0.17 cfs @ 12.02 hrs, Volume= 527 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 12.02 hrs, Volume= 527 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.73' @ 12.02 hrs
Flood Elev= 240.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	236.51'	**8.0" Round 8" HDPE** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.51' / 235.81' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.16 cfs @ 12.02 hrs HW=236.73' TW=236.12' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.16 cfs @ 1.59 fps)

Pond CO1: 12x12" NDS Catch Basin (CO1)



Summary for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

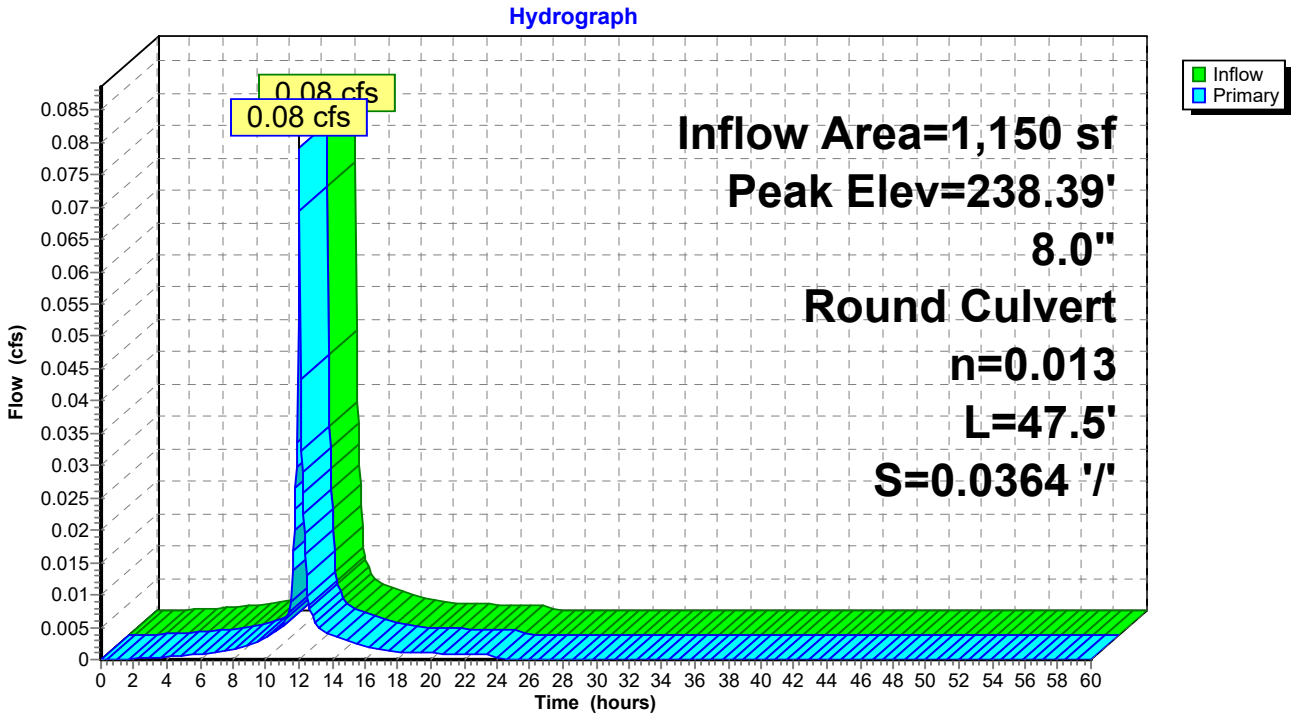
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 2.55" for 1-Year event
Inflow = 0.08 cfs @ 12.01 hrs, Volume= 244 cf
Outflow = 0.08 cfs @ 12.01 hrs, Volume= 244 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.01 hrs, Volume= 244 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.39' @ 12.01 hrs
Flood Elev= 240.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.24'	**8.0" Round 8" HDPE** L= 47.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.24' / 236.51' S= 0.0364 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.08 cfs @ 12.01 hrs HW=238.39' TW=236.73' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.08 cfs @ 1.31 fps)

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)



Summary for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

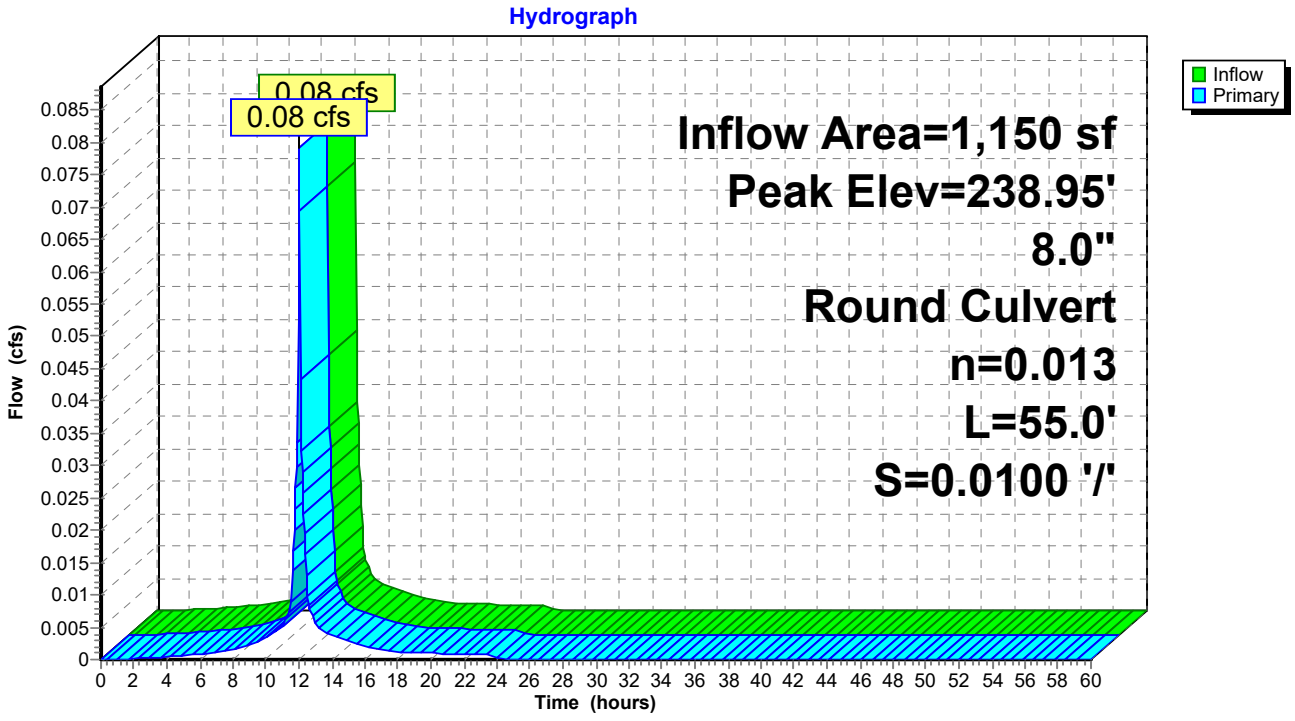
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 2.55" for 1-Year event
Inflow = 0.08 cfs @ 12.01 hrs, Volume= 244 cf
Outflow = 0.08 cfs @ 12.01 hrs, Volume= 244 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.01 hrs, Volume= 244 cf
Routed to Pond CO1-1 : 12x12" NDS Catch Basin (CO1-1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.95' @ 12.01 hrs
Flood Elev= 241.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.79'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.79' / 238.24' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.08 cfs @ 12.01 hrs HW=238.95' TW=238.39' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.08 cfs @ 1.84 fps)

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)



Summary for Pond CO2: 12x12" NDS Catch Basin (CO2)

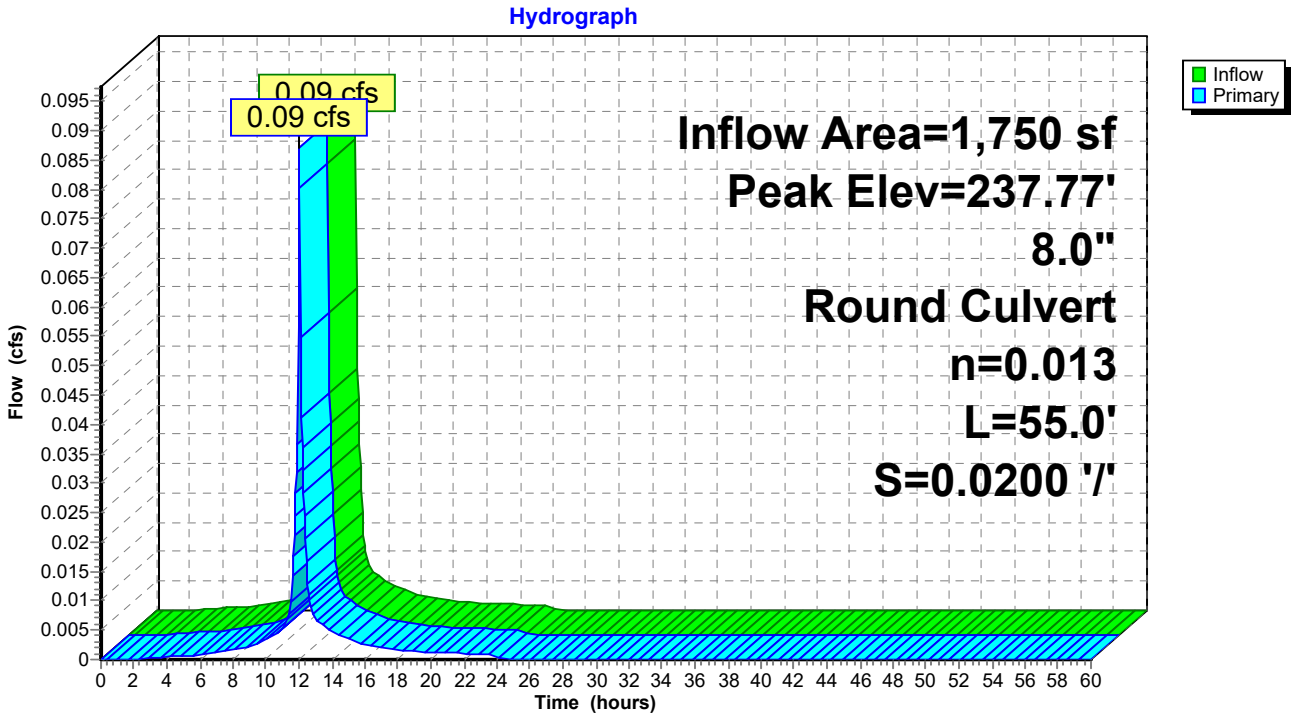
Inflow Area = 1,750 sf, 65.71% Impervious, Inflow Depth = 1.94" for 1-Year event
Inflow = 0.09 cfs @ 12.02 hrs, Volume= 283 cf
Outflow = 0.09 cfs @ 12.02 hrs, Volume= 283 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.02 hrs, Volume= 283 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.77' @ 12.02 hrs
Flood Elev= 241.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.61'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.61' / 236.51' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.08 cfs @ 12.02 hrs HW=237.77' TW=236.73' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.08 cfs @ 1.34 fps)

Pond CO2: 12x12" NDS Catch Basin (CO2)



Summary for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

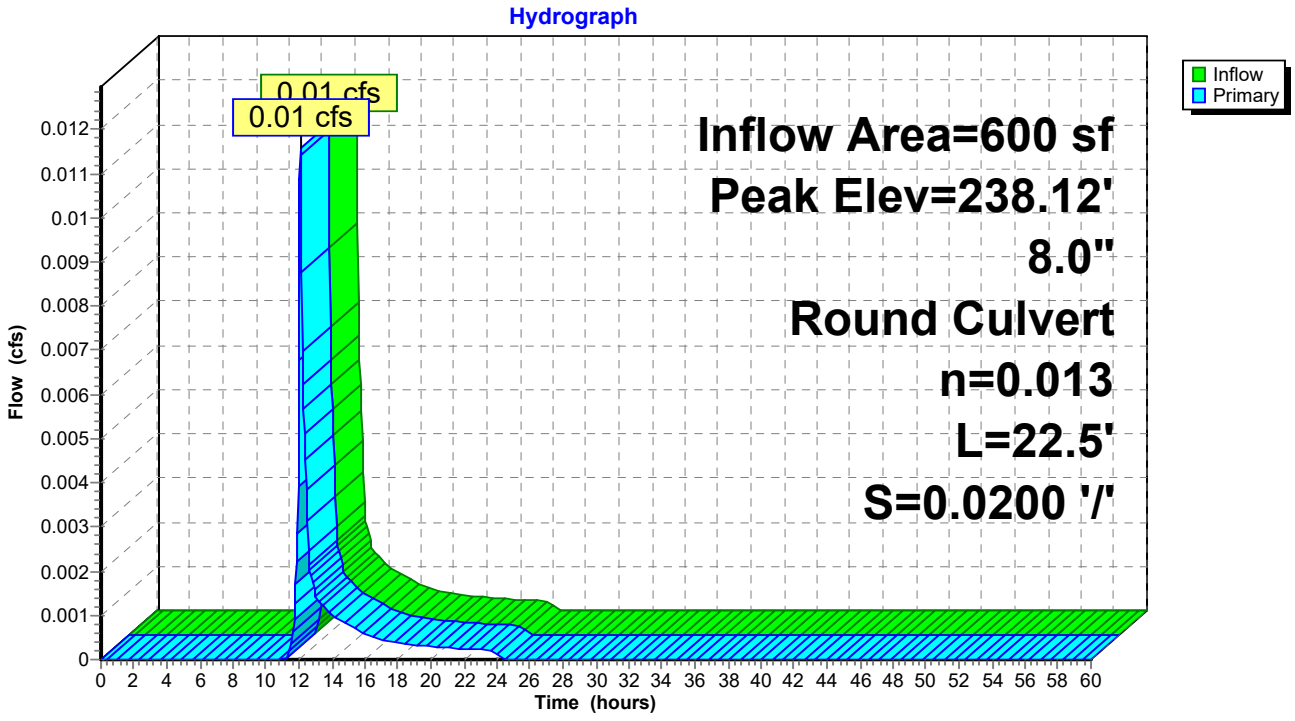
Inflow Area = 600 sf, 0.00% Impervious, Inflow Depth = 0.77" for 1-Year event
Inflow = 0.01 cfs @ 12.08 hrs, Volume= 39 cf
Outflow = 0.01 cfs @ 12.08 hrs, Volume= 39 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.08 hrs, Volume= 39 cf
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.12' @ 12.08 hrs
Flood Elev= 240.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.06'	**8.0" Round 8" HDPE** L= 22.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.06' / 237.61' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.01 cfs @ 12.08 hrs HW=238.12' TW=237.74' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.01 cfs @ 0.80 fps)

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)



Summary for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

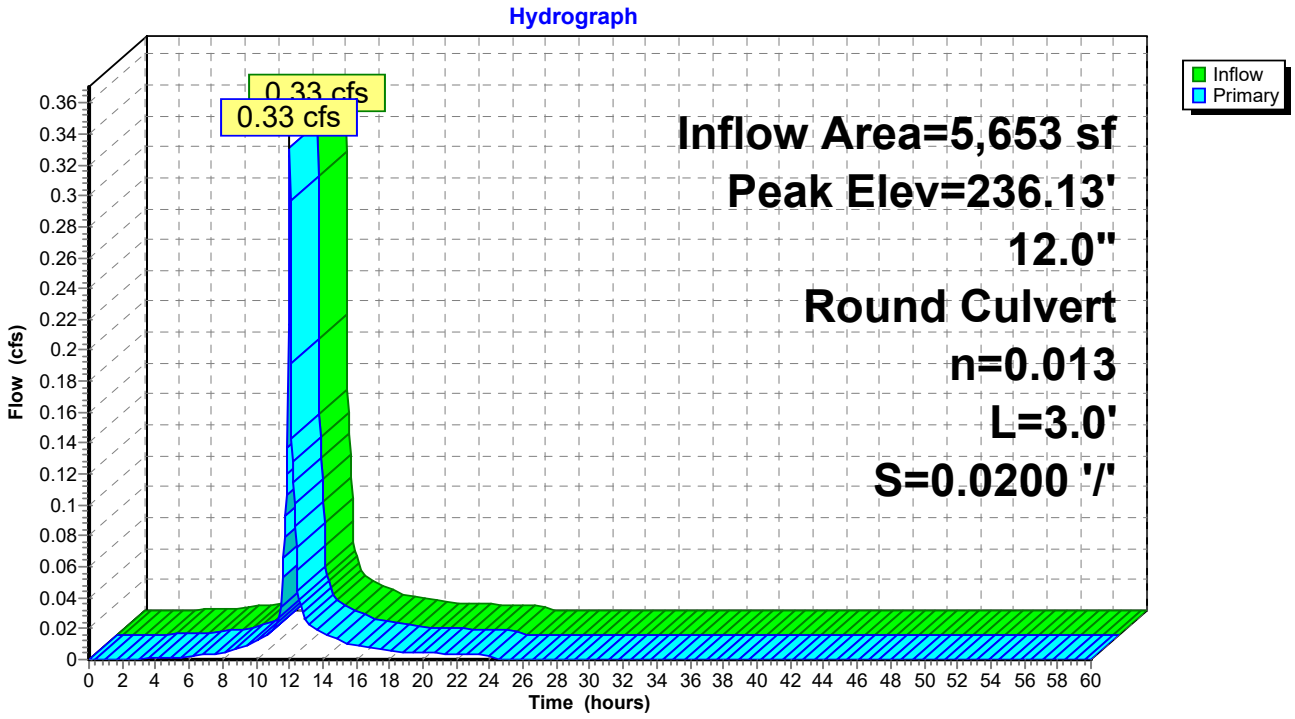
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 2.11" for 1-Year event
Inflow = 0.33 cfs @ 12.01 hrs, Volume= 996 cf
Outflow = 0.33 cfs @ 12.01 hrs, Volume= 996 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.01 hrs, Volume= 996 cf
Routed to Pond 1P : 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.13' @ 12.02 hrs
Flood Elev= 240.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	235.81'	**12.0" Round 12" HDPE** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.81' / 235.75' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.01 hrs HW=236.12' TW=234.47' (Dynamic Tailwater)
↑**1=12" HDPE** (Barrel Controls 0.32 cfs @ 2.28 fps)

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs



Summary for Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)

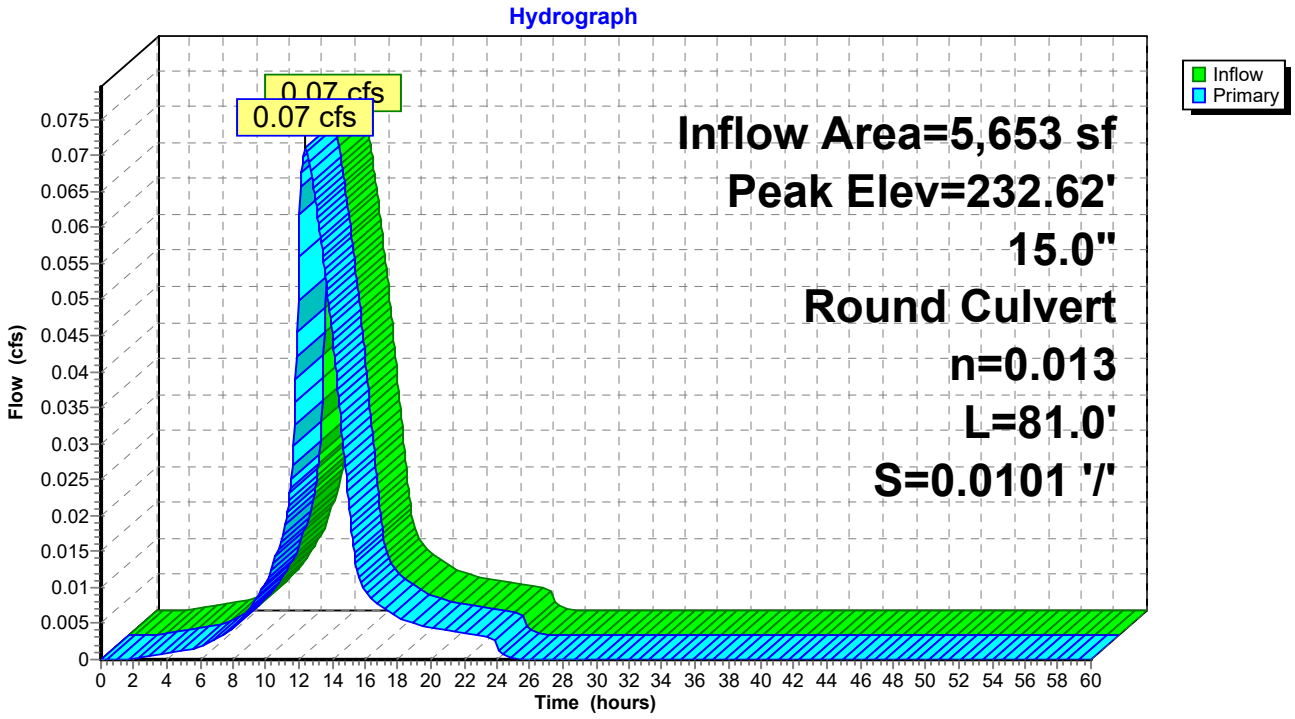
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 2.11" for 1-Year event
Inflow = 0.07 cfs @ 12.40 hrs, Volume= 996 cf
Outflow = 0.07 cfs @ 12.40 hrs, Volume= 996 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.40 hrs, Volume= 996 cf
Routed to Reach DP-1 : DP-1 (Ex. Drain Inlet)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 232.62' @ 12.40 hrs
Flood Elev= 239.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**15.0" Round 15" HDPE** L= 81.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 232.50' / 231.68' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.07 cfs @ 12.40 hrs HW=232.62' TW=0.00' (Dynamic Tailwater)
↑**1=15" HDPE** (Barrel Controls 0.07 cfs @ 1.72 fps)

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)



Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1A: Watershed 1A - (Parking Runoff Area=2,753 sf 80.71% Impervious Runoff Depth=2.63"
Tc=1.0 min CN=93 Runoff=0.21 cfs 603 cf

Subcatchment 1B-1: Watershed 1B-1 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=3.16"
Tc=1.0 min CN=98 Runoff=0.10 cfs 303 cf

Subcatchment 1B-2: Watershed 1B-2 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=3.16"
Tc=1.0 min CN=98 Runoff=0.10 cfs 303 cf

Subcatchment 1C: Watershed 1C - (Rear Yard) Runoff Area=600 sf 0.00% Impervious Runoff Depth=1.16"
Flow Length=22' Slope=0.0150 '/' Tc=4.6 min CN=74 Runoff=0.02 cfs 58 cf

Reach DP-1: DP-1 (Ex. Drain Inlet) Inflow=0.08 cfs 1,266 cf
Outflow=0.08 cfs 1,266 cf

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Peak Elev=235.15' Storage=380 cf Inflow=0.42 cfs 1,266 cf
Outflow=0.08 cfs 1,266 cf

Pond 2P: Trench Drain (TD-1B-1) Peak Elev=237.75' Inflow=0.21 cfs 603 cf
8.0" Round Culvert n=0.013 L=10.1' S=0.1673 '/' Outflow=0.21 cfs 603 cf

Pond CO1: 12x12" NDS Catch Basin (CO1) Peak Elev=236.76' Inflow=0.21 cfs 663 cf
8.0" Round Culvert n=0.013 L=35.0' S=0.0200 '/' Outflow=0.21 cfs 663 cf

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1) Peak Elev=238.41' Inflow=0.10 cfs 303 cf
8.0" Round Culvert n=0.013 L=47.5' S=0.0364 '/' Outflow=0.10 cfs 303 cf

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2) Peak Elev=238.97' Inflow=0.10 cfs 303 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0100 '/' Outflow=0.10 cfs 303 cf

Pond CO2: 12x12" NDS Catch Basin (CO2) Peak Elev=237.79' Inflow=0.11 cfs 361 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0200 '/' Outflow=0.11 cfs 361 cf

Pond DI-2B: 18" Dia. Nyloplast Drain Inlet (DI-2B) Peak Elev=238.13' Inflow=0.02 cfs 58 cf
8.0" Round Culvert n=0.013 L=22.5' S=0.0200 '/' Outflow=0.02 cfs 58 cf

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs Peak Elev=236.17' Inflow=0.42 cfs 1,266 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=0.42 cfs 1,266 cf

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1) Peak Elev=232.63' Inflow=0.08 cfs 1,266 cf
15.0" Round Culvert n=0.013 L=81.0' S=0.0101 '/' Outflow=0.08 cfs 1,266 cf

Total Runoff Area = 5,653 sf Runoff Volume = 1,266 cf Average Runoff Depth = 2.69"
20.01% Pervious = 1,131 sf 79.99% Impervious = 4,522 sf

Summary for Subcatchment 1A: Watershed 1A - (Parking Area)

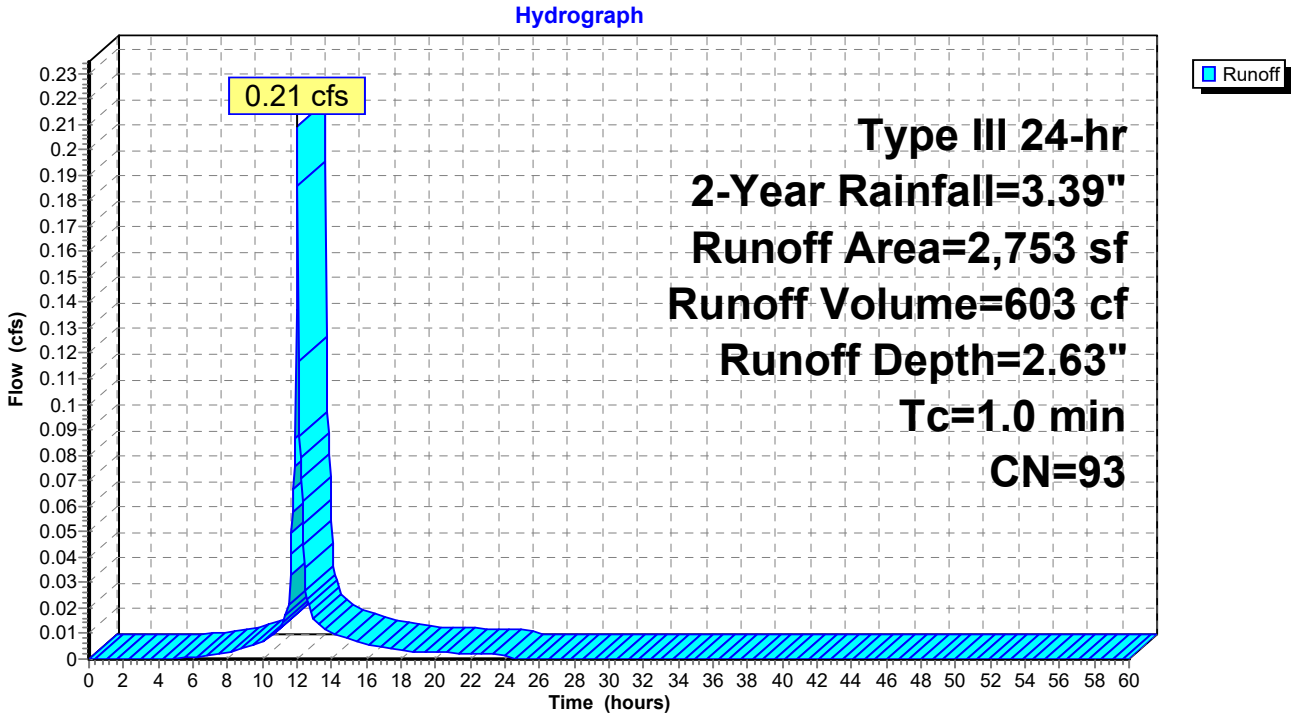
Runoff = 0.21 cfs @ 12.01 hrs, Volume= 603 cf, Depth= 2.63"
Routed to Pond 2P : Trench Drain (TD-1B-1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.39"

	Area (sf)	CN	Description
*	2,222	98	Impervious Cover
	531	74	>75% Grass cover, Good, HSG C
	2,753	93	Weighted Average
	531		19.29% Pervious Area
	2,222		80.71% Impervious Area

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

Subcatchment 1A: Watershed 1A - (Parking Area)



Summary for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

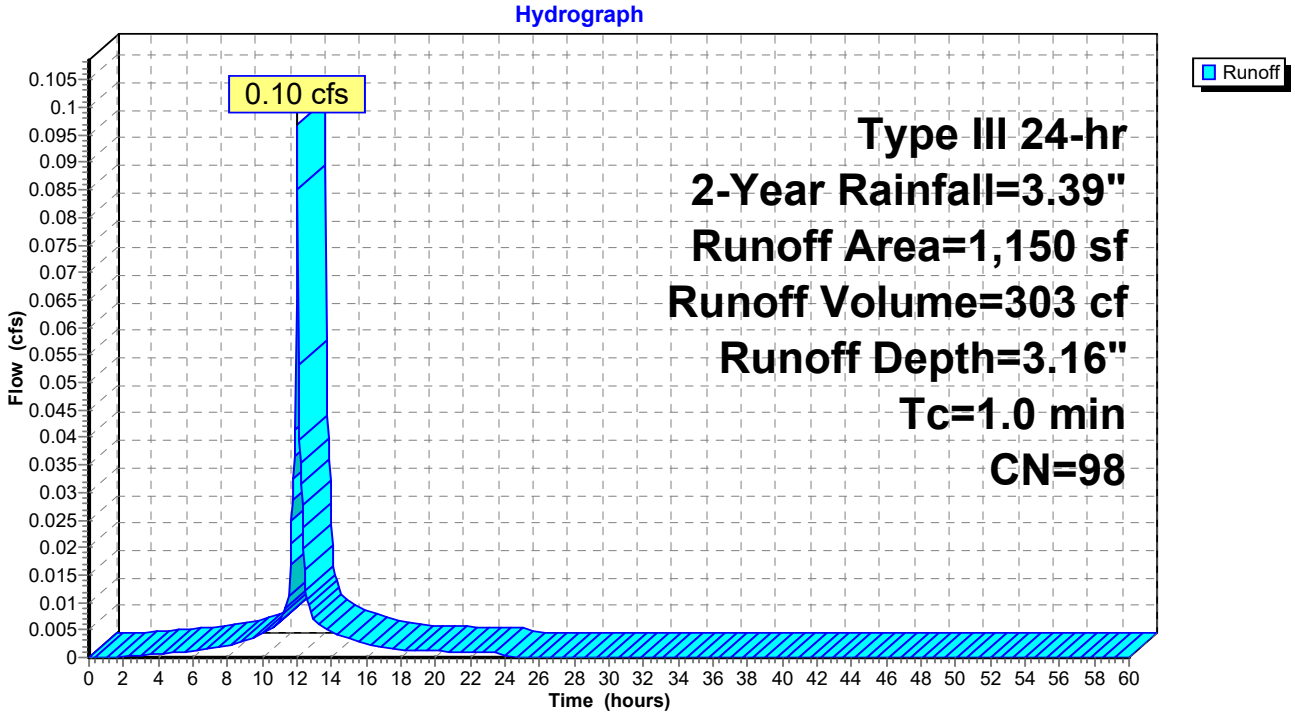
Runoff = 0.10 cfs @ 12.01 hrs, Volume= 303 cf, Depth= 3.16"
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.39"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)



Summary for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

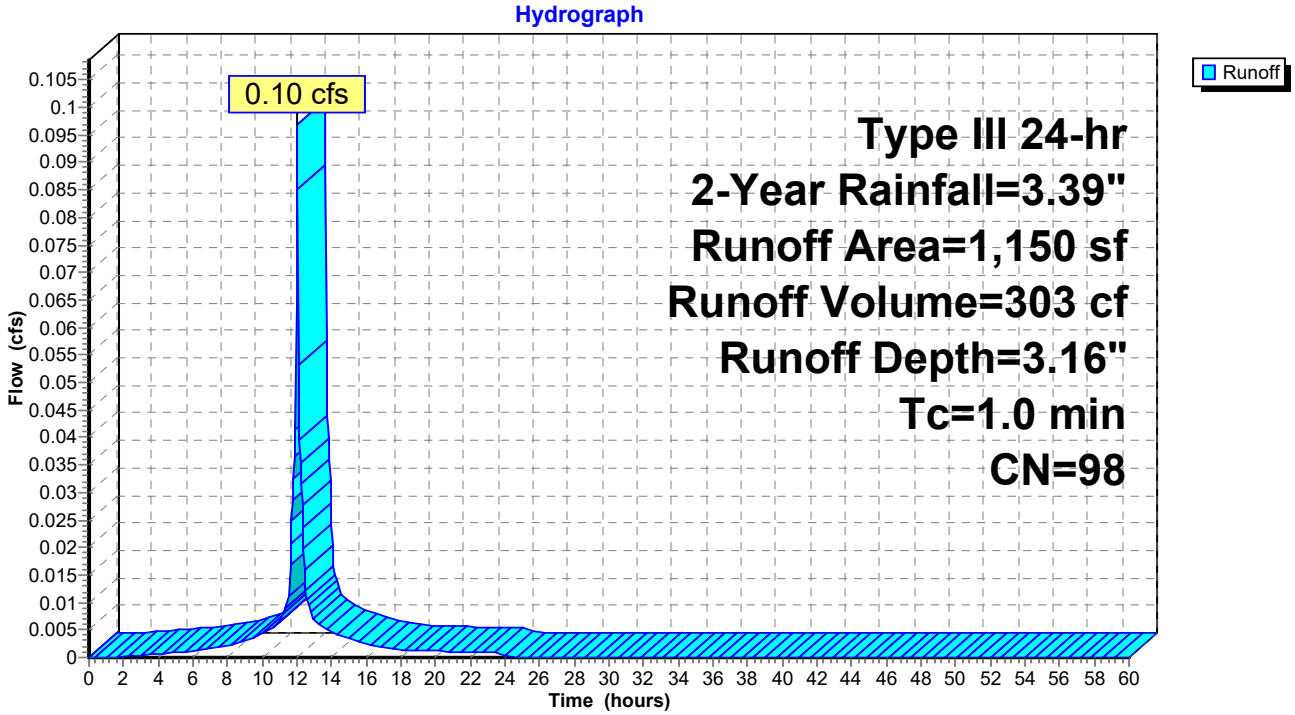
Runoff = 0.10 cfs @ 12.01 hrs, Volume= 303 cf, Depth= 3.16"
Routed to Pond CO1-2 : 12x12" NDS Catch Basin (CO1-2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.39"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)



Summary for Subcatchment 1C: Watershed 1C - (Rear Yard)

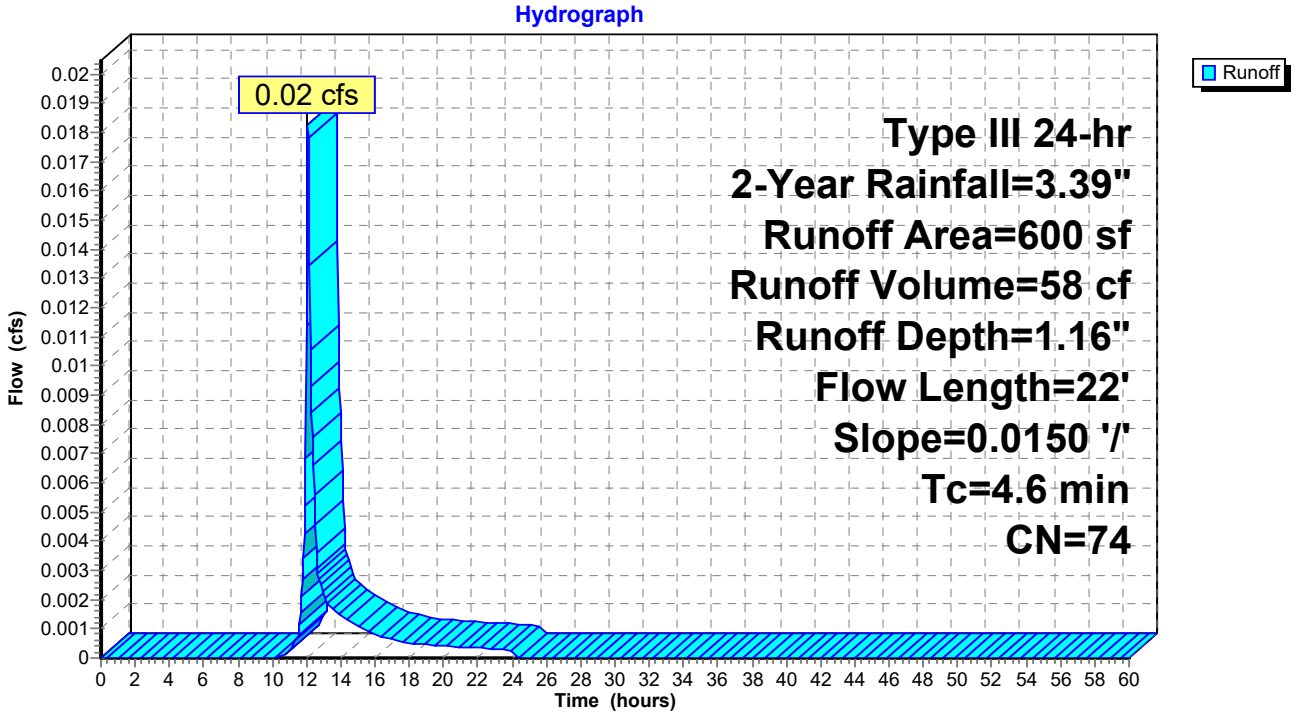
Runoff = 0.02 cfs @ 12.08 hrs, Volume= 58 cf, Depth= 1.16"
Routed to Pond DI-2B : 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.39"

Area (sf)	CN	Description
600	74	>75% Grass cover, Good, HSG C
600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0150	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.42"

Subcatchment 1C: Watershed 1C - (Rear Yard)

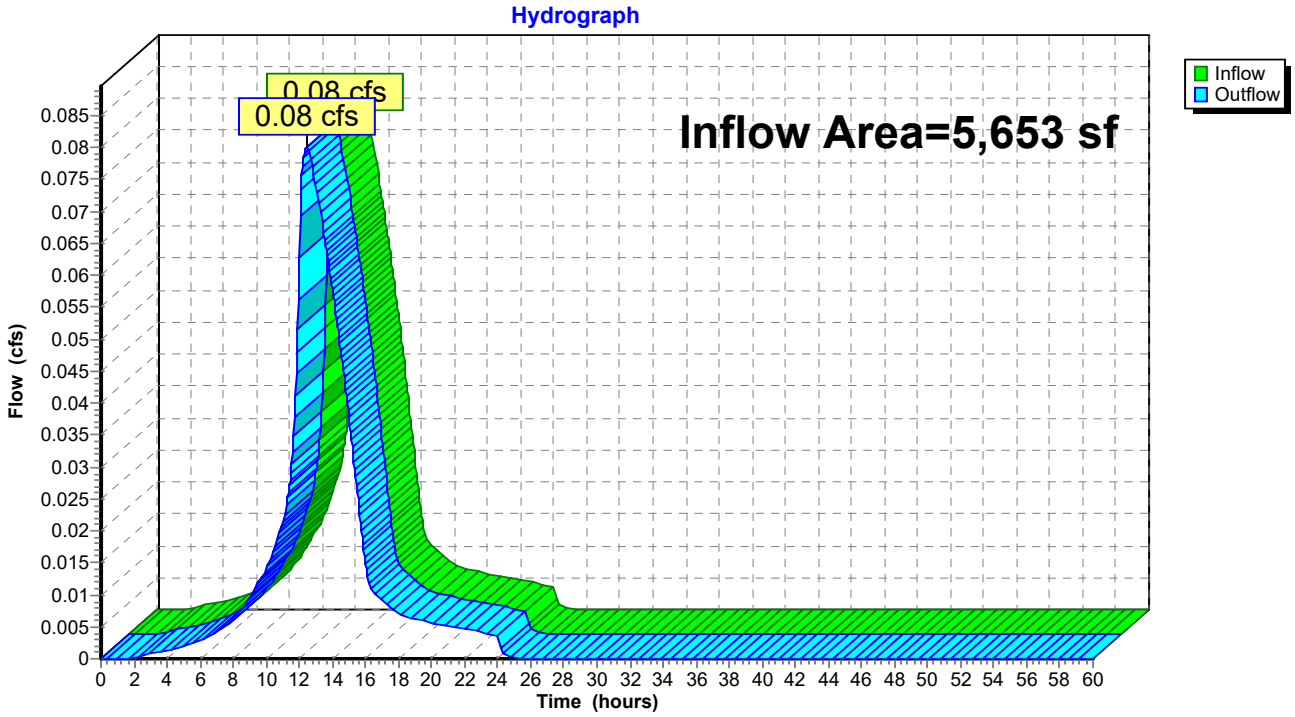


Summary for Reach DP-1: DP-1 (Ex. Drain Inlet)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 2.69" for 2-Year event
Inflow = 0.08 cfs @ 12.43 hrs, Volume= 1,266 cf
Outflow = 0.08 cfs @ 12.43 hrs, Volume= 1,266 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1 (Ex. Drain Inlet)



Summary for Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 2.69" for 2-Year event
Inflow = 0.42 cfs @ 12.01 hrs, Volume= 1,266 cf
Outflow = 0.08 cfs @ 12.43 hrs, Volume= 1,266 cf, Atten= 81%, Lag= 24.9 min
Primary = 0.08 cfs @ 12.43 hrs, Volume= 1,266 cf
Routed to Pond RR-EDP1 : Curb Inlet (DI-1A) (RR-EDP1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 235.15' @ 12.43 hrs Surf.Area= 339 sf Storage= 380 cf
Flood Elev= 240.00' Storage= 943 cf

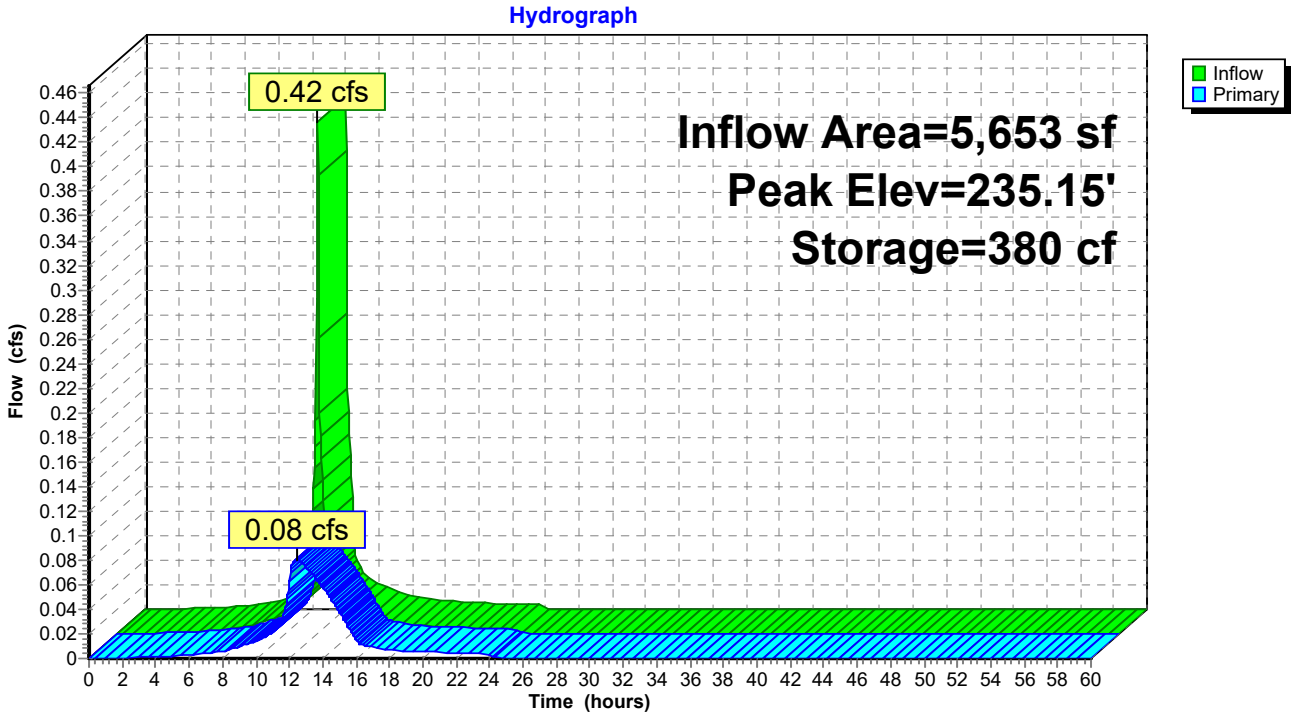
Plug-Flow detention time= 39.4 min calculated for 1,265 cf (100% of inflow)
Center-of-Mass det. time= 39.4 min (811.8 - 772.4)

Volume	Invert	Avail.Storage	Storage Description
#1	233.67'	943 cf	**42.0" Round 42" HDPE** L= 98.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.62'	**12.0" Round 12" HDPE (Outlet)** L= 22.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.62' / 232.50' S= 0.0489 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	233.67'	**6.0" Round 6" HDPE (Low Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.67' / 233.63' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	233.67'	**1.6" Vert. 1.6" Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	235.25'	**6.0" Round 6" HDPE (Mid Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.25' / 235.21' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#5	Device 4	235.25'	**3.5" Vert. 3.5" Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	236.63'	**6.0" Round 6" HDPE (High Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.63' / 236.59' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#7	Device 6	236.75'	**4.0" Vert. 4" Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 12.43 hrs HW=235.15' TW=232.63' (Dynamic Tailwater)
- **1=12" HDPE (Outlet)** (Passes 0.08 cfs of 3.84 cfs potential flow)
  - **2=6" HDPE (Low Flow)** (Passes 0.08 cfs of 1.05 cfs potential flow)
    - **3=1.6" Orifice** (Orifice Controls 0.08 cfs @ 5.73 fps)
  - **4=6" HDPE (Mid Flow)** (Controls 0.00 cfs)
    - **5=3.5" Orifice** (Controls 0.00 cfs)
  - **6=6" HDPE (High Flow)** (Controls 0.00 cfs)
    - **7=4" Orifice** (Controls 0.00 cfs)

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)



Summary for Pond 2P: Trench Drain (TD-1B-1)

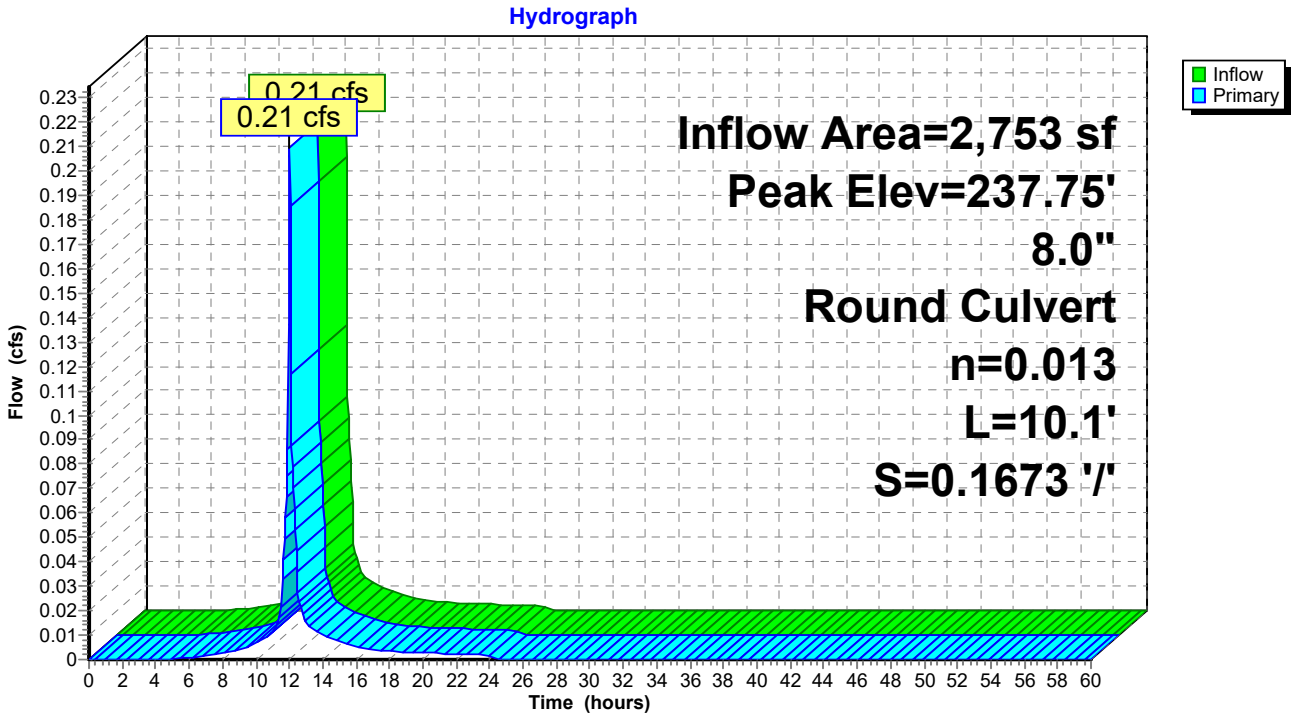
Inflow Area = 2,753 sf, 80.71% Impervious, Inflow Depth = 2.63" for 2-Year event
Inflow = 0.21 cfs @ 12.01 hrs, Volume= 603 cf
Outflow = 0.21 cfs @ 12.01 hrs, Volume= 603 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.01 hrs, Volume= 603 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.75' @ 12.01 hrs
Flood Elev= 240.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.50'	**8.0" Round 8" HDPE** L= 10.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.50' / 235.81' S= 0.1673 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.20 cfs @ 12.01 hrs HW=237.75' TW=236.16' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.20 cfs @ 1.70 fps)

Pond 2P: Trench Drain (TD-1B-1)



Summary for Pond CO1: 12x12" NDS Catch Basin (CO1)

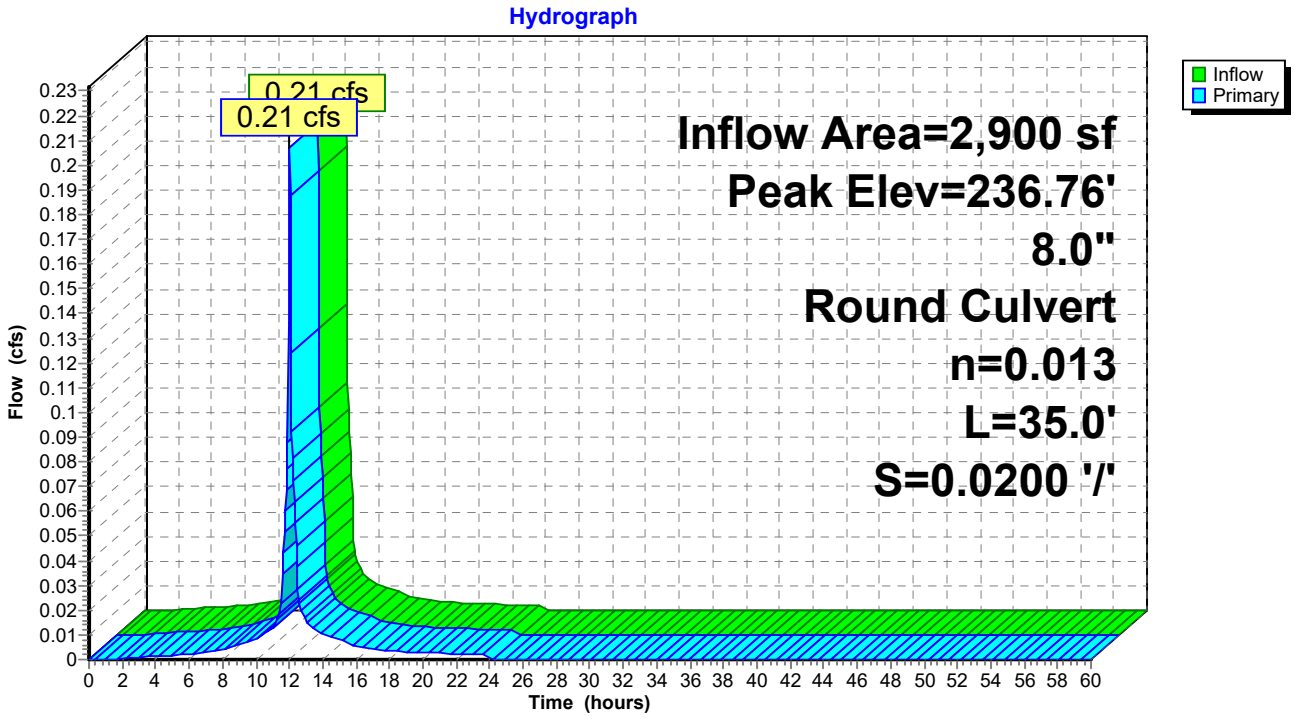
Inflow Area = 2,900 sf, 79.31% Impervious, Inflow Depth = 2.74" for 2-Year event
Inflow = 0.21 cfs @ 12.02 hrs, Volume= 663 cf
Outflow = 0.21 cfs @ 12.02 hrs, Volume= 663 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.02 hrs, Volume= 663 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.76' @ 12.02 hrs
Flood Elev= 240.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	236.51'	**8.0" Round 8" HDPE** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.51' / 235.81' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.20 cfs @ 12.02 hrs HW=236.76' TW=236.16' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.20 cfs @ 1.69 fps)

Pond CO1: 12x12" NDS Catch Basin (CO1)



Summary for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

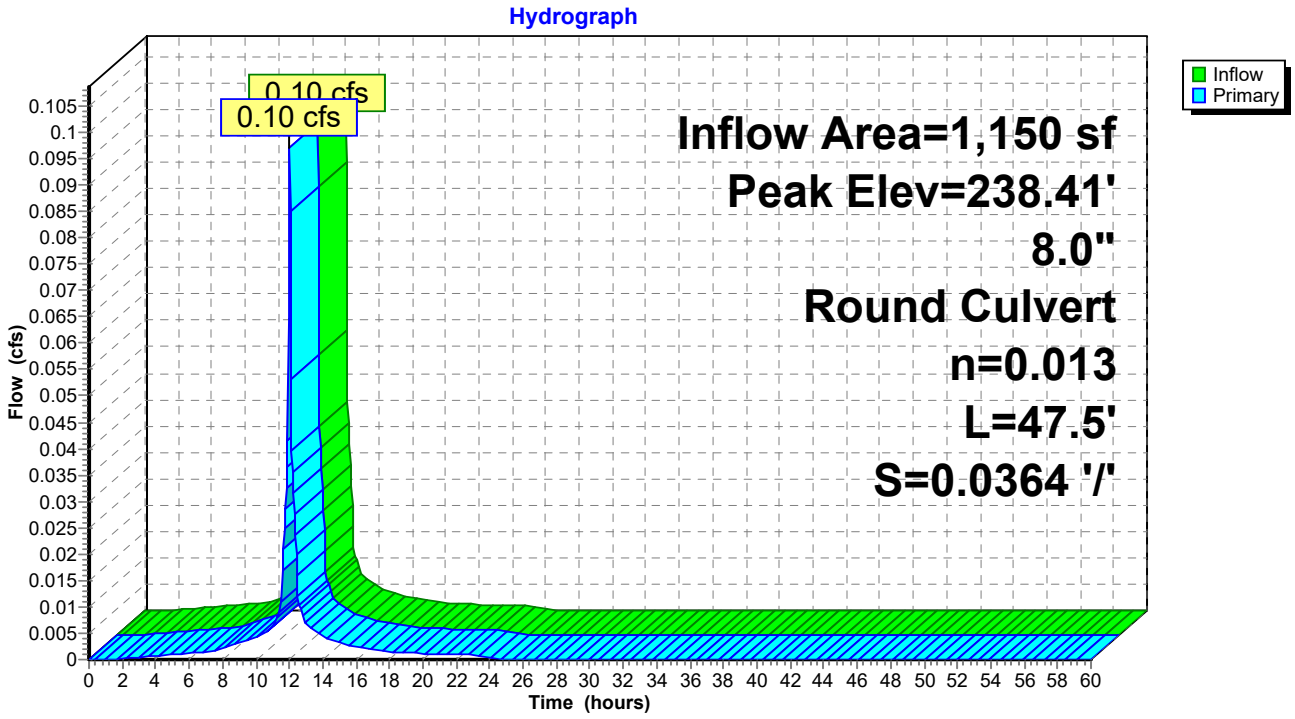
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 3.16" for 2-Year event
Inflow = 0.10 cfs @ 12.01 hrs, Volume= 303 cf
Outflow = 0.10 cfs @ 12.01 hrs, Volume= 303 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.01 hrs, Volume= 303 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.41' @ 12.01 hrs
Flood Elev= 240.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.24'	**8.0" Round 8" HDPE** L= 47.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.24' / 236.51' S= 0.0364 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.09 cfs @ 12.01 hrs HW=238.41' TW=236.76' (Dynamic Tailwater)
↑—**1=8" HDPE** (Inlet Controls 0.09 cfs @ 1.38 fps)

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)



Summary for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

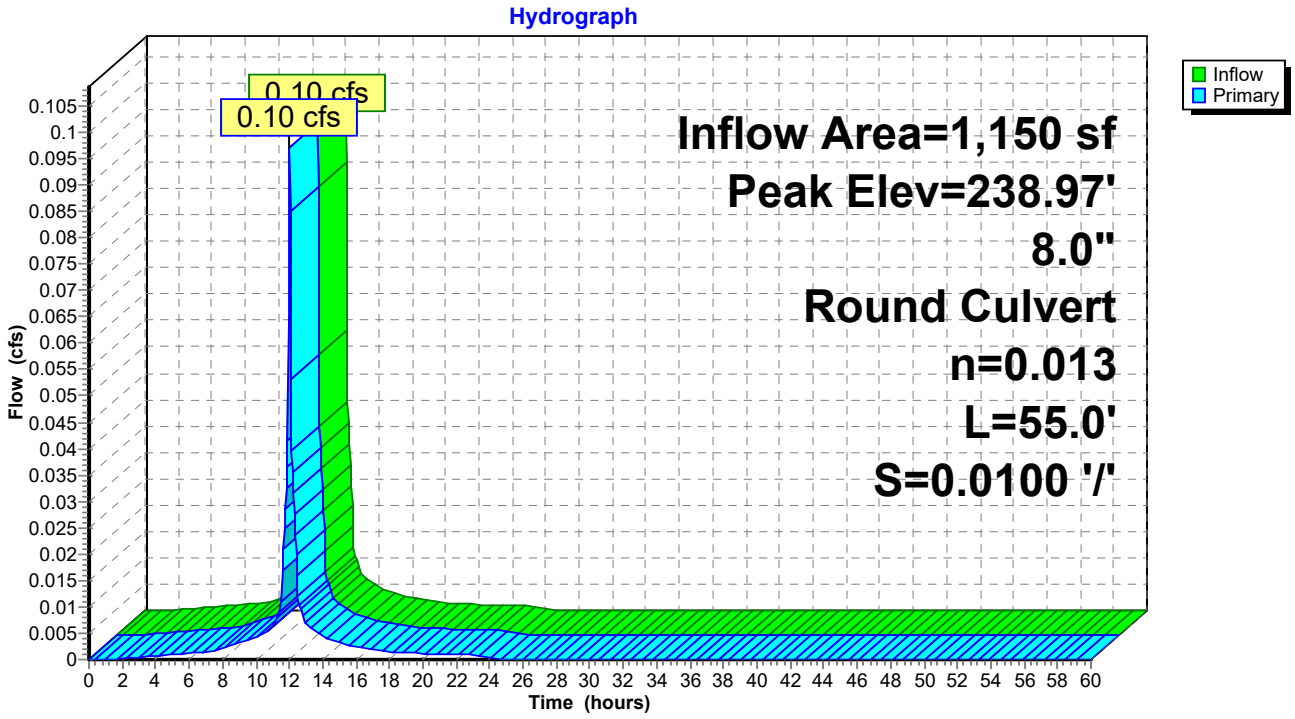
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 3.16" for 2-Year event
Inflow = 0.10 cfs @ 12.01 hrs, Volume= 303 cf
Outflow = 0.10 cfs @ 12.01 hrs, Volume= 303 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.01 hrs, Volume= 303 cf
Routed to Pond CO1-1 : 12x12" NDS Catch Basin (CO1-1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.97' @ 12.01 hrs
Flood Elev= 241.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.79'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.79' / 238.24' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.09 cfs @ 12.01 hrs HW=238.96' TW=238.41' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.09 cfs @ 1.94 fps)

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)



Summary for Pond CO2: 12x12" NDS Catch Basin (CO2)

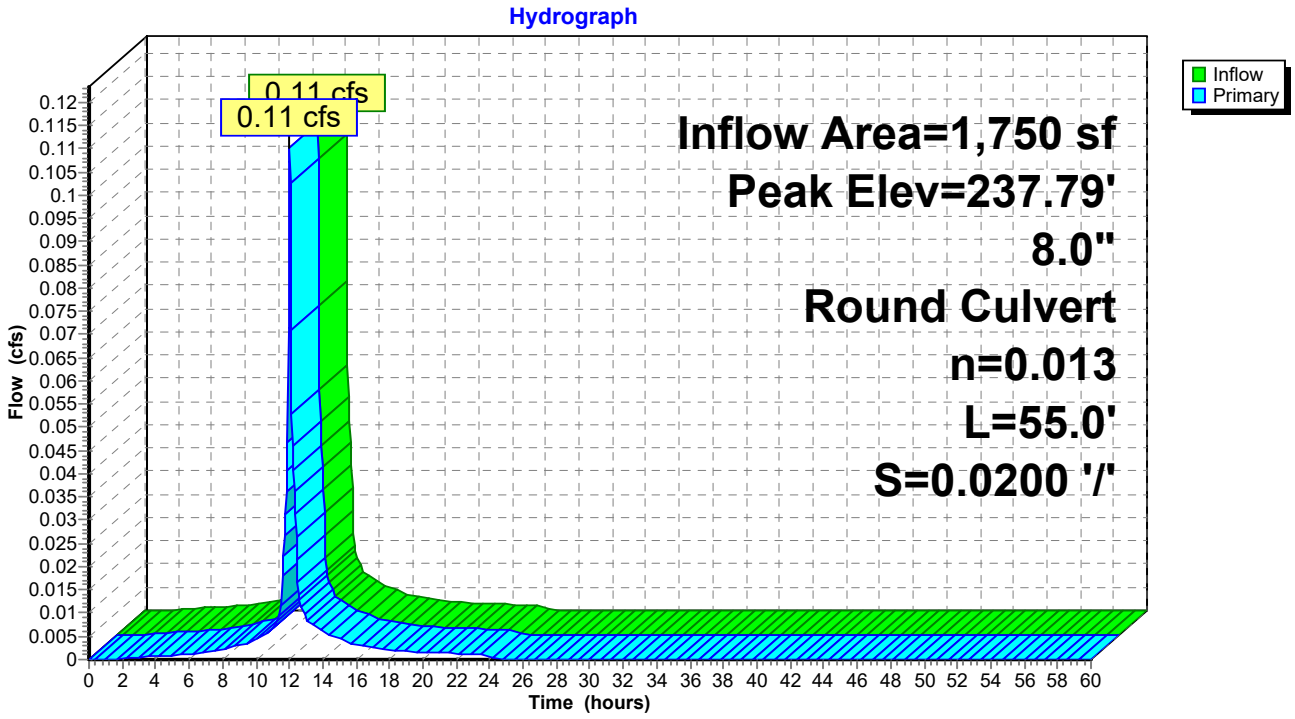
Inflow Area = 1,750 sf, 65.71% Impervious, Inflow Depth = 2.47" for 2-Year event
Inflow = 0.11 cfs @ 12.02 hrs, Volume= 361 cf
Outflow = 0.11 cfs @ 12.02 hrs, Volume= 361 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.02 hrs, Volume= 361 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.79' @ 12.02 hrs
Flood Elev= 241.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.61'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.61' / 236.51' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.11 cfs @ 12.02 hrs HW=237.79' TW=236.76' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.11 cfs @ 1.43 fps)

Pond CO2: 12x12" NDS Catch Basin (CO2)



Summary for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

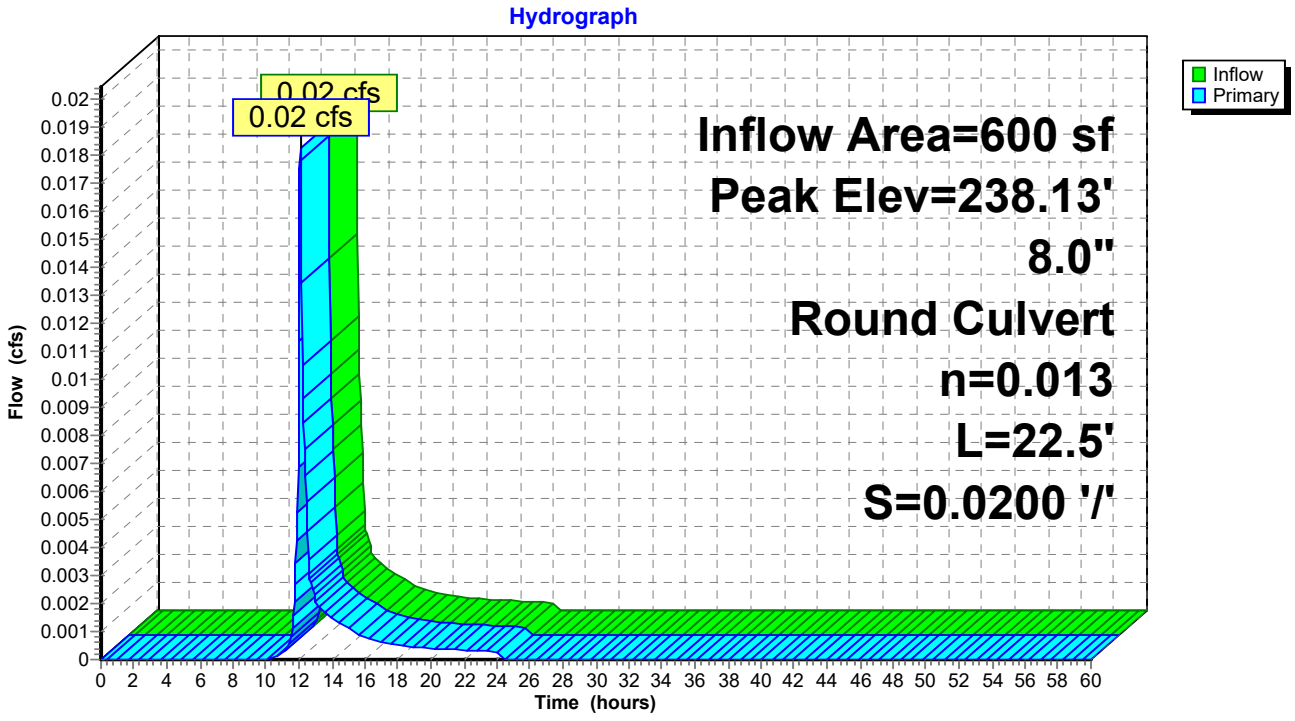
Inflow Area = 600 sf, 0.00% Impervious, Inflow Depth = 1.16" for 2-Year event
Inflow = 0.02 cfs @ 12.08 hrs, Volume= 58 cf
Outflow = 0.02 cfs @ 12.08 hrs, Volume= 58 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.08 hrs, Volume= 58 cf
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.13' @ 12.08 hrs
Flood Elev= 240.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.06'	**8.0" Round 8" HDPE** L= 22.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.06' / 237.61' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.02 cfs @ 12.08 hrs HW=238.13' TW=237.77' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.02 cfs @ 0.90 fps)

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)



Summary for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

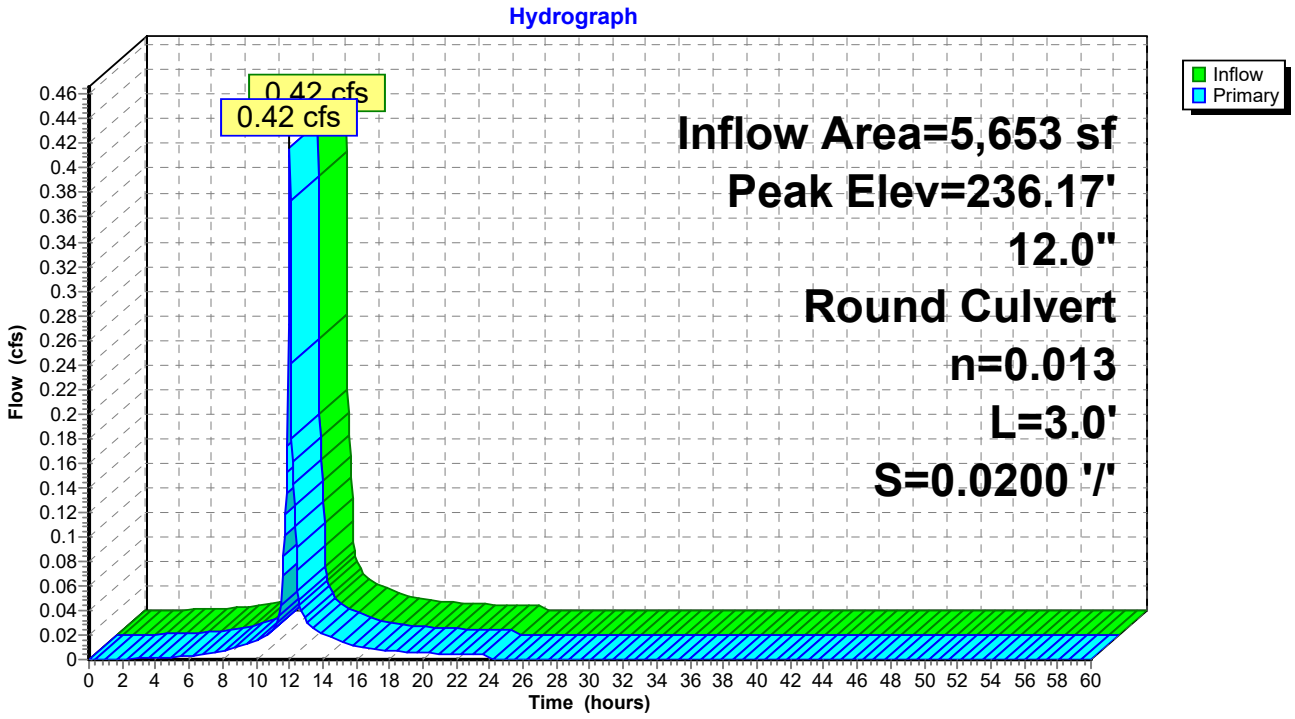
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 2.69" for 2-Year event
Inflow = 0.42 cfs @ 12.01 hrs, Volume= 1,266 cf
Outflow = 0.42 cfs @ 12.01 hrs, Volume= 1,266 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.01 hrs, Volume= 1,266 cf
Routed to Pond 1P : 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.17' @ 12.02 hrs
Flood Elev= 240.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	235.81'	**12.0" Round 12" HDPE** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.81' / 235.75' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.01 hrs HW=236.16' TW=234.66' (Dynamic Tailwater)
1=12" HDPE (Barrel Controls 0.40 cfs @ 2.39 fps)

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs



Summary for Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)

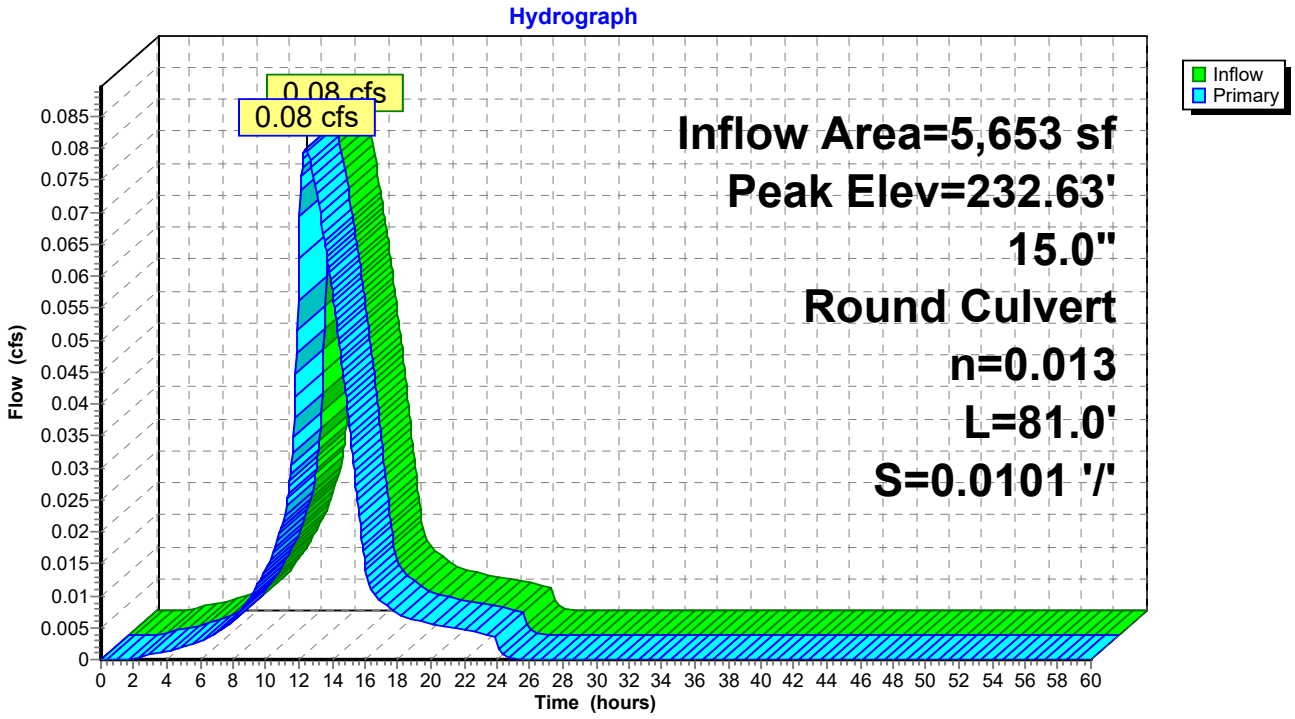
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 2.69" for 2-Year event
Inflow = 0.08 cfs @ 12.43 hrs, Volume= 1,266 cf
Outflow = 0.08 cfs @ 12.43 hrs, Volume= 1,266 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.43 hrs, Volume= 1,266 cf
Routed to Reach DP-1 : DP-1 (Ex. Drain Inlet)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 232.63' @ 12.43 hrs
Flood Elev= 239.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**15.0" Round 15" HDPE** L= 81.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 232.50' / 231.68' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.08 cfs @ 12.43 hrs HW=232.63' TW=0.00' (Dynamic Tailwater)
↑**1=15" HDPE** (Barrel Controls 0.08 cfs @ 1.78 fps)

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)



Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1A: Watershed 1A - (Parking Runoff Area=2,753 sf 80.71% Impervious Runoff Depth=4.23"
Tc=1.0 min CN=93 Runoff=0.33 cfs 970 cf

Subcatchment 1B-1: Watershed 1B-1 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=4.79"
Tc=1.0 min CN=98 Runoff=0.14 cfs 459 cf

Subcatchment 1B-2: Watershed 1B-2 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=4.79"
Tc=1.0 min CN=98 Runoff=0.14 cfs 459 cf

Subcatchment 1C: Watershed 1C - (Rear Yard) Runoff Area=600 sf 0.00% Impervious Runoff Depth=2.39"
Flow Length=22' Slope=0.0150 '/' Tc=4.6 min CN=74 Runoff=0.04 cfs 119 cf

Reach DP-1: DP-1 (Ex. Drain Inlet) Inflow=0.24 cfs 2,008 cf
Outflow=0.24 cfs 2,008 cf

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Peak Elev=235.61' Storage=535 cf Inflow=0.65 cfs 2,008 cf
Outflow=0.24 cfs 2,008 cf

Pond 2P: Trench Drain (TD-1B-1) Peak Elev=237.83' Inflow=0.33 cfs 970 cf
8.0" Round Culvert n=0.013 L=10.1' S=0.1673 '/' Outflow=0.33 cfs 970 cf

Pond CO1: 12x12" NDS Catch Basin (CO1) Peak Elev=236.83' Inflow=0.32 cfs 1,038 cf
8.0" Round Culvert n=0.013 L=35.0' S=0.0200 '/' Outflow=0.32 cfs 1,038 cf

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1) Peak Elev=238.45' Inflow=0.14 cfs 459 cf
8.0" Round Culvert n=0.013 L=47.5' S=0.0364 '/' Outflow=0.14 cfs 459 cf

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2) Peak Elev=239.01' Inflow=0.14 cfs 459 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0100 '/' Outflow=0.14 cfs 459 cf

Pond CO2: 12x12" NDS Catch Basin (CO2) Peak Elev=237.84' Inflow=0.17 cfs 579 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0200 '/' Outflow=0.17 cfs 579 cf

Pond DI-2B: 18" Dia. Nyloplast Drain Inlet (DI-2B) Peak Elev=238.17' Inflow=0.04 cfs 119 cf
8.0" Round Culvert n=0.013 L=22.5' S=0.0200 '/' Outflow=0.04 cfs 119 cf

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs Peak Elev=236.28' Inflow=0.65 cfs 2,008 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=0.65 cfs 2,008 cf

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1) Peak Elev=232.72' Inflow=0.24 cfs 2,008 cf
15.0" Round Culvert n=0.013 L=81.0' S=0.0101 '/' Outflow=0.24 cfs 2,008 cf

Total Runoff Area = 5,653 sf Runoff Volume = 2,008 cf Average Runoff Depth = 4.26"
20.01% Pervious = 1,131 sf 79.99% Impervious = 4,522 sf

Summary for Subcatchment 1A: Watershed 1A - (Parking Area)

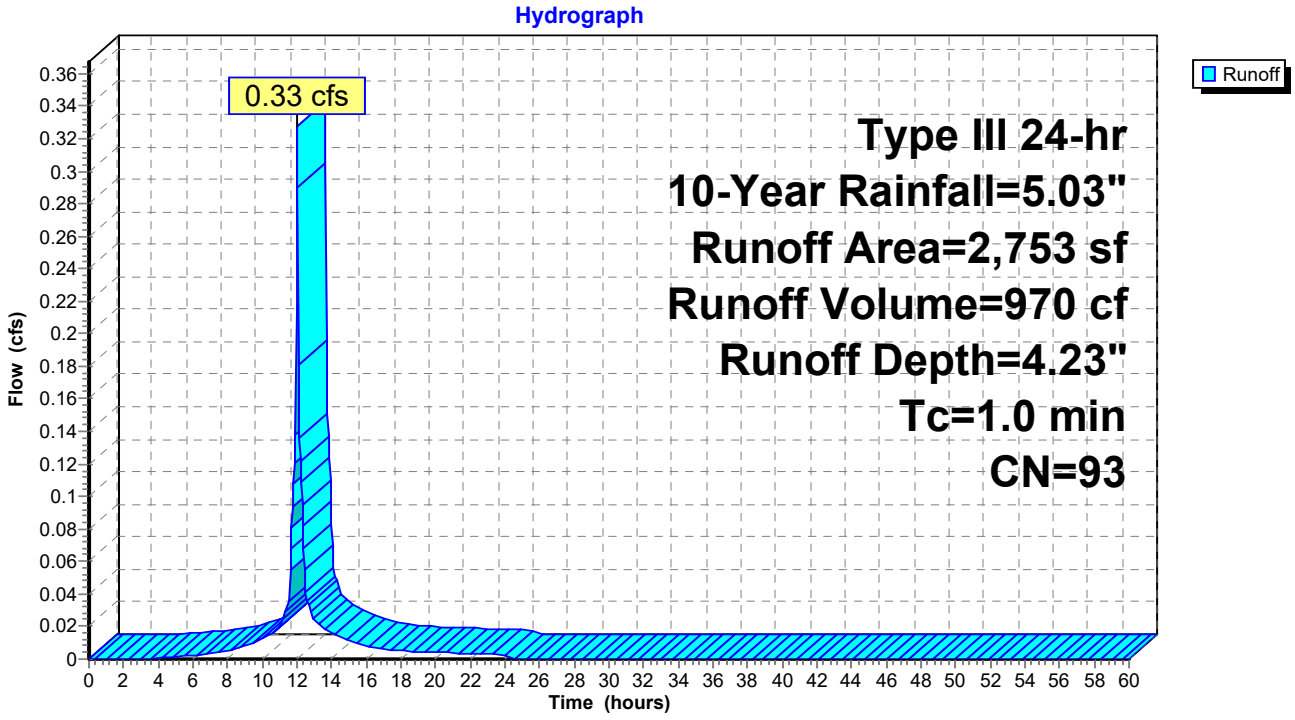
Runoff = 0.33 cfs @ 12.01 hrs, Volume= 970 cf, Depth= 4.23"
Routed to Pond 2P : Trench Drain (TD-1B-1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.03"

	Area (sf)	CN	Description
*	2,222	98	Impervious Cover
	531	74	>75% Grass cover, Good, HSG C
	2,753	93	Weighted Average
	531		19.29% Pervious Area
	2,222		80.71% Impervious Area

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

Subcatchment 1A: Watershed 1A - (Parking Area)



Summary for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

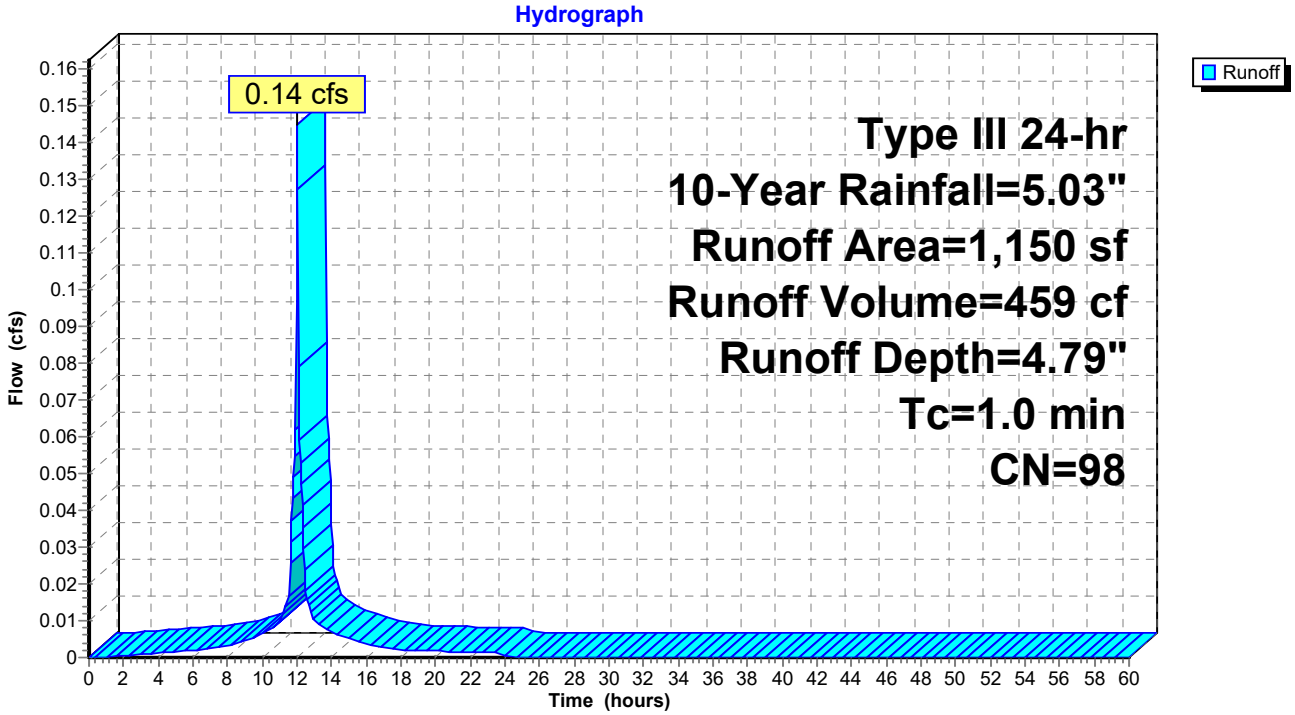
Runoff = 0.14 cfs @ 12.01 hrs, Volume= 459 cf, Depth= 4.79"
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.03"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)



Summary for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

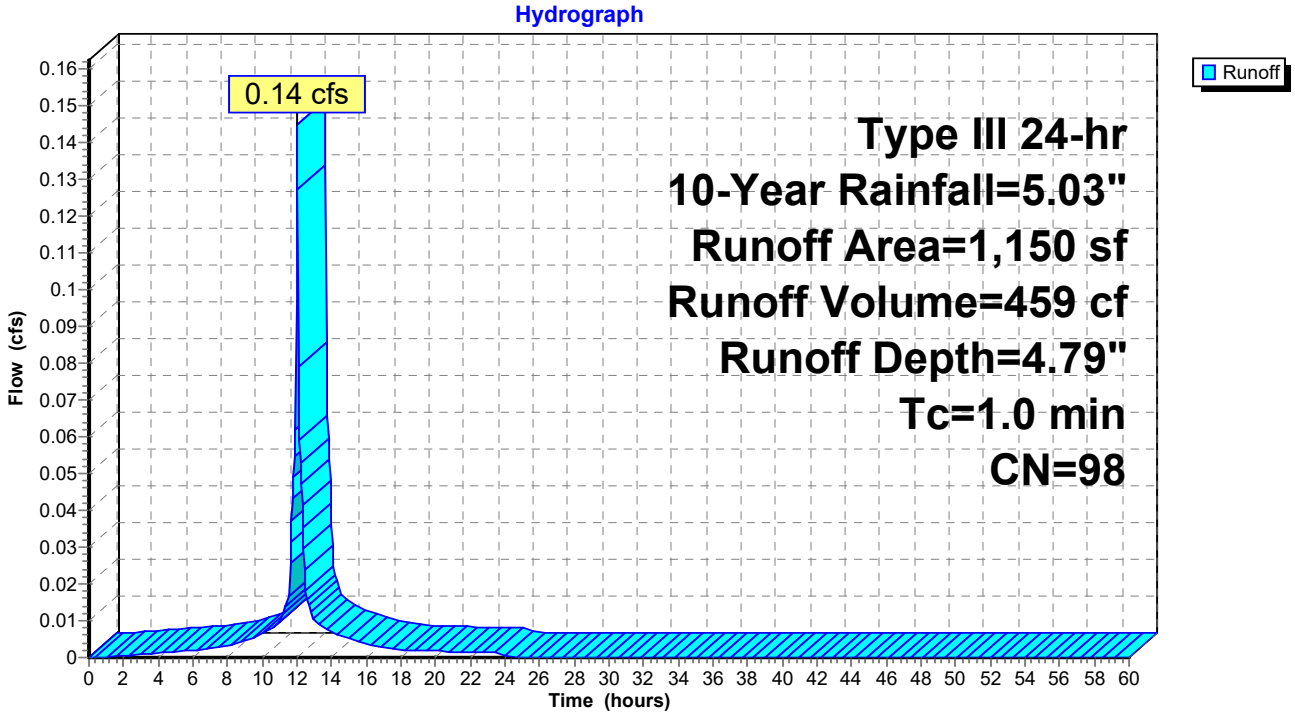
Runoff = 0.14 cfs @ 12.01 hrs, Volume= 459 cf, Depth= 4.79"
Routed to Pond CO1-2 : 12x12" NDS Catch Basin (CO1-2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.03"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)



Summary for Subcatchment 1C: Watershed 1C - (Rear Yard)

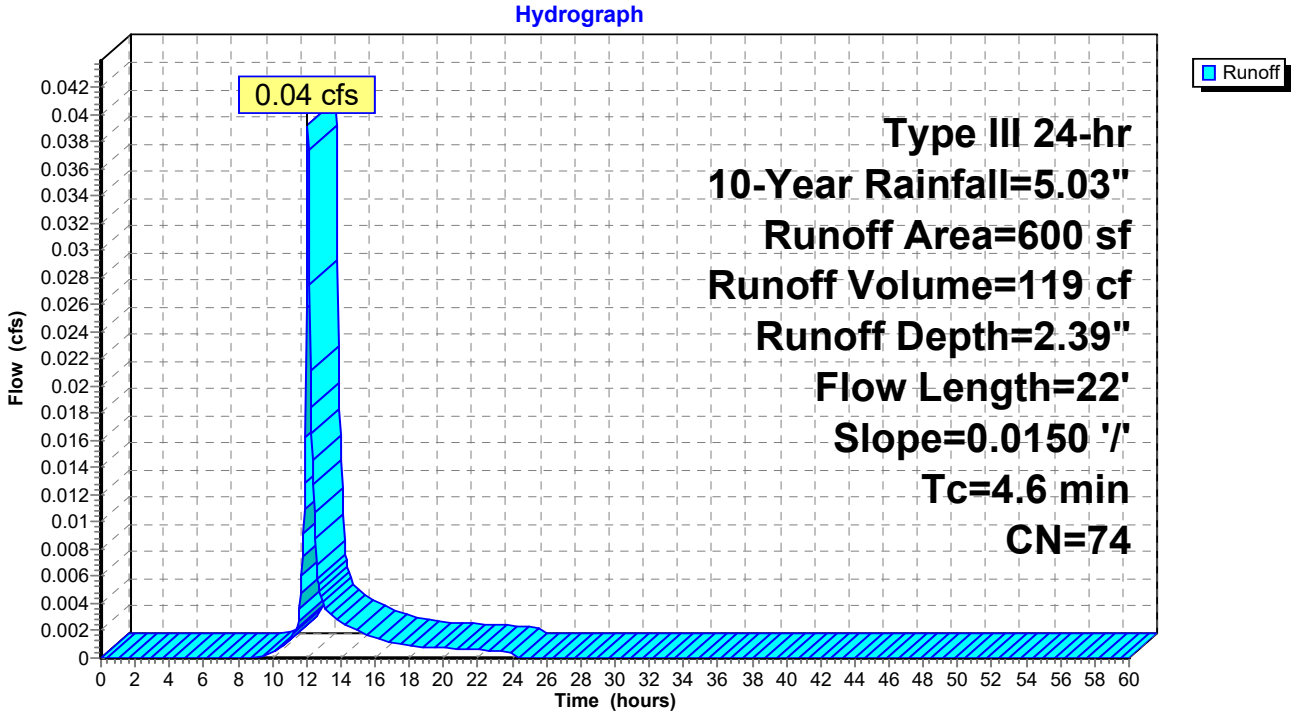
Runoff = 0.04 cfs @ 12.07 hrs, Volume= 119 cf, Depth= 2.39"
Routed to Pond DI-2B : 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.03"

Area (sf)	CN	Description
600	74	>75% Grass cover, Good, HSG C
600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0150	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.42"

Subcatchment 1C: Watershed 1C - (Rear Yard)

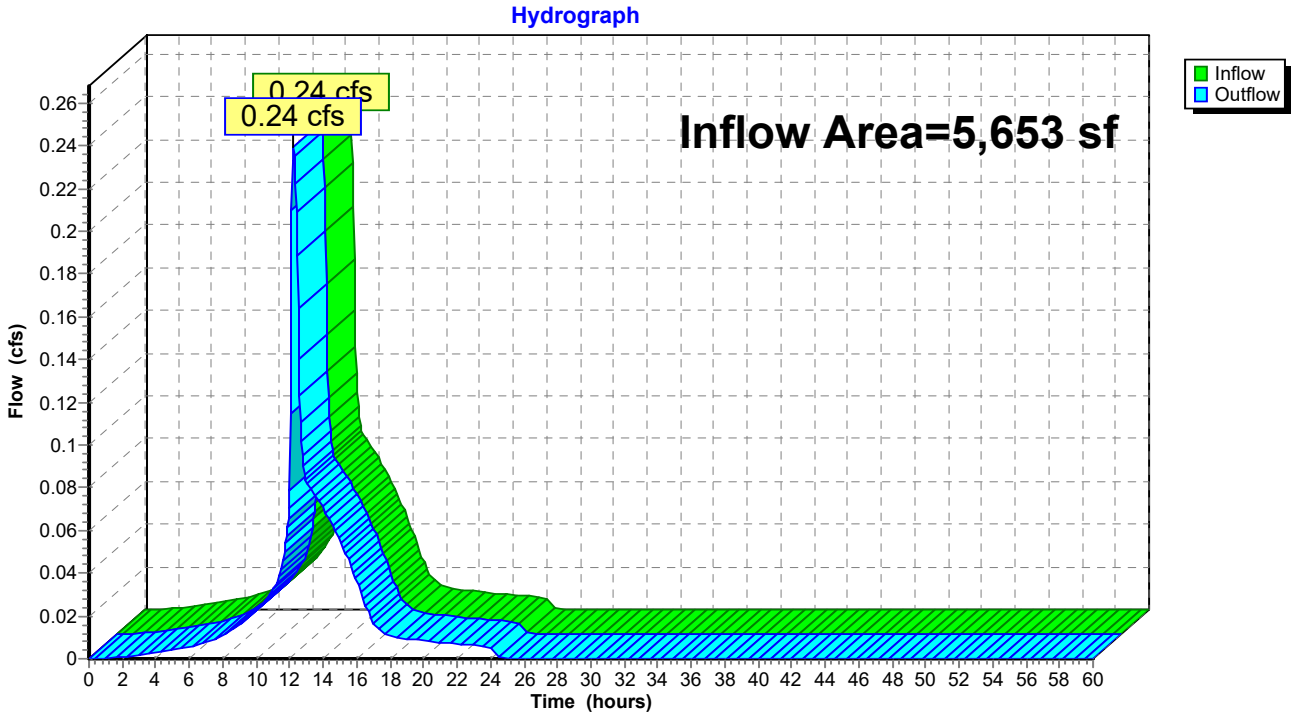


Summary for Reach DP-1: DP-1 (Ex. Drain Inlet)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 0.24 cfs @ 12.22 hrs, Volume= 2,008 cf
Outflow = 0.24 cfs @ 12.22 hrs, Volume= 2,008 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1 (Ex. Drain Inlet)



Summary for Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 0.65 cfs @ 12.01 hrs, Volume= 2,008 cf
Outflow = 0.24 cfs @ 12.22 hrs, Volume= 2,008 cf, Atten= 63%, Lag= 12.3 min
Primary = 0.24 cfs @ 12.22 hrs, Volume= 2,008 cf
Routed to Pond RR-EDP1 : Curb Inlet (DI-1A) (RR-EDP1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 235.61' @ 12.22 hrs Surf.Area= 341 sf Storage= 535 cf
Flood Elev= 240.00' Storage= 943 cf

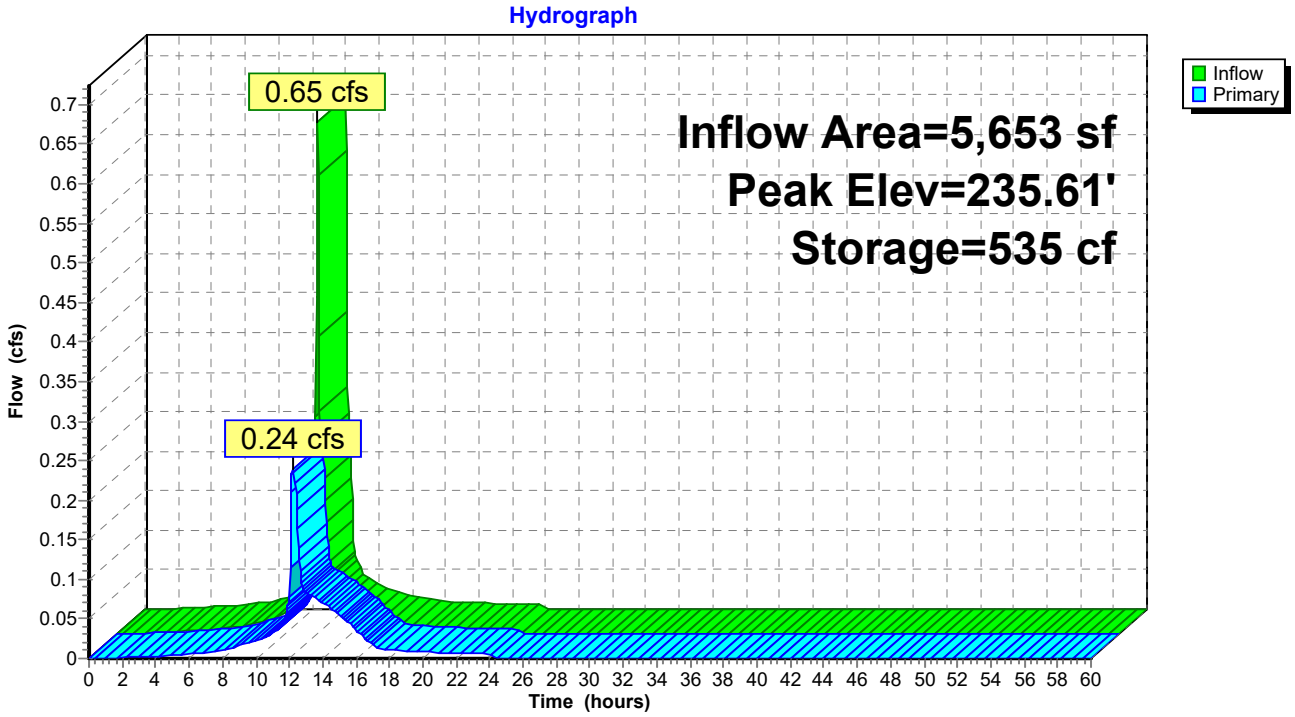
Plug-Flow detention time= 40.4 min calculated for 2,006 cf (100% of inflow)
Center-of-Mass det. time= 40.4 min (803.7 - 763.4)

Volume	Invert	Avail.Storage	Storage Description
#1	233.67'	943 cf	**42.0" Round 42" HDPE** L= 98.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.62'	**12.0" Round 12" HDPE (Outlet)** L= 22.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.62' / 232.50' S= 0.0489 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	233.67'	**6.0" Round 6" HDPE (Low Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.67' / 233.63' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	233.67'	**1.6" Vert. 1.6" Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	235.25'	**6.0" Round 6" HDPE (Mid Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.25' / 235.21' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#5	Device 4	235.25'	**3.5" Vert. 3.5" Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	236.63'	**6.0" Round 6" HDPE (High Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.63' / 236.59' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#7	Device 6	236.75'	**4.0" Vert. 4" Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.24 cfs @ 12.22 hrs HW=235.60' TW=232.72' (Dynamic Tailwater)
- **1=12" HDPE (Outlet)** (Passes 0.24 cfs of 4.61 cfs potential flow)
  - **2=6" HDPE (Low Flow)** (Passes 0.09 cfs of 1.23 cfs potential flow)
    - **3=1.6" Orifice** (Orifice Controls 0.09 cfs @ 6.58 fps)
  - **4=6" HDPE (Mid Flow)** (Passes 0.15 cfs of 0.23 cfs potential flow)
    - **5=3.5" Orifice** (Orifice Controls 0.15 cfs @ 2.20 fps)
  - **6=6" HDPE (High Flow)** (Controls 0.00 cfs)
    - **7=4" Orifice** (Controls 0.00 cfs)

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)



Summary for Pond 2P: Trench Drain (TD-1B-1)

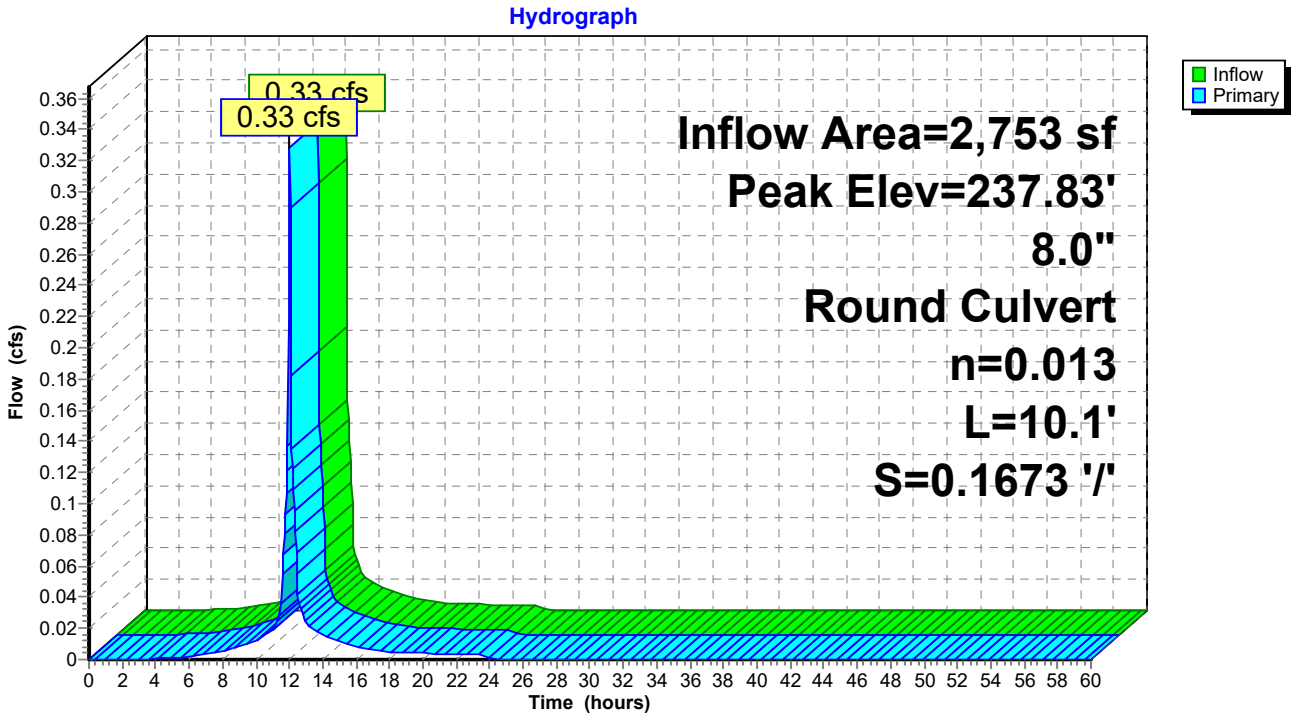
Inflow Area = 2,753 sf, 80.71% Impervious, Inflow Depth = 4.23" for 10-Year event
Inflow = 0.33 cfs @ 12.01 hrs, Volume= 970 cf
Outflow = 0.33 cfs @ 12.01 hrs, Volume= 970 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.01 hrs, Volume= 970 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.83' @ 12.01 hrs
Flood Elev= 240.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.50'	**8.0" Round 8" HDPE** L= 10.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.50' / 235.81' S= 0.1673 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.31 cfs @ 12.01 hrs HW=237.82' TW=236.27' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.31 cfs @ 1.92 fps)

Pond 2P: Trench Drain (TD-1B-1)



Summary for Pond CO1: 12x12" NDS Catch Basin (CO1)

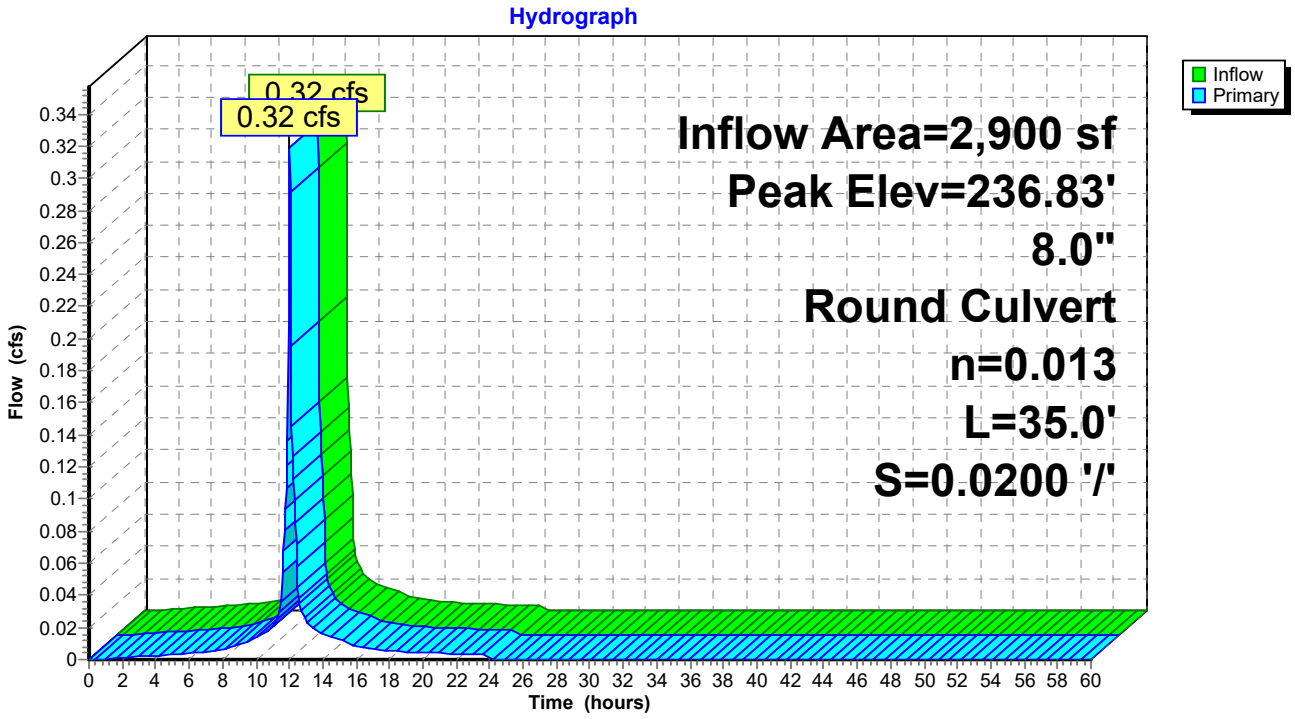
Inflow Area = 2,900 sf, 79.31% Impervious, Inflow Depth = 4.30" for 10-Year event
Inflow = 0.32 cfs @ 12.02 hrs, Volume= 1,038 cf
Outflow = 0.32 cfs @ 12.02 hrs, Volume= 1,038 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.02 hrs, Volume= 1,038 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.83' @ 12.02 hrs
Flood Elev= 240.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	236.51'	**8.0" Round 8" HDPE** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.51' / 235.81' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.31 cfs @ 12.02 hrs HW=236.82' TW=236.26' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.31 cfs @ 1.90 fps)

Pond CO1: 12x12" NDS Catch Basin (CO1)



Summary for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

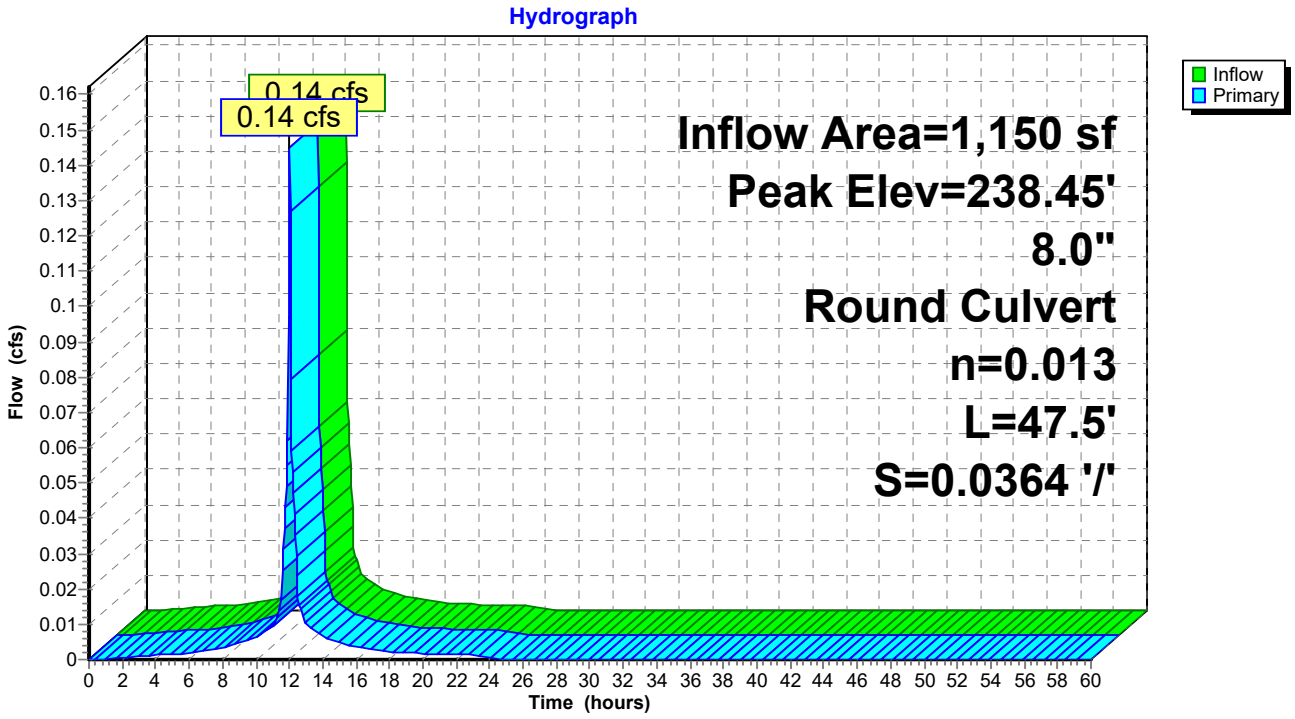
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 4.79" for 10-Year event
Inflow = 0.14 cfs @ 12.01 hrs, Volume= 459 cf
Outflow = 0.14 cfs @ 12.01 hrs, Volume= 459 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.01 hrs, Volume= 459 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.45' @ 12.01 hrs
Flood Elev= 240.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.24'	**8.0" Round 8" HDPE** L= 47.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.24' / 236.51' S= 0.0364 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.14 cfs @ 12.01 hrs HW=238.44' TW=236.82' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.14 cfs @ 1.54 fps)

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)



Summary for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

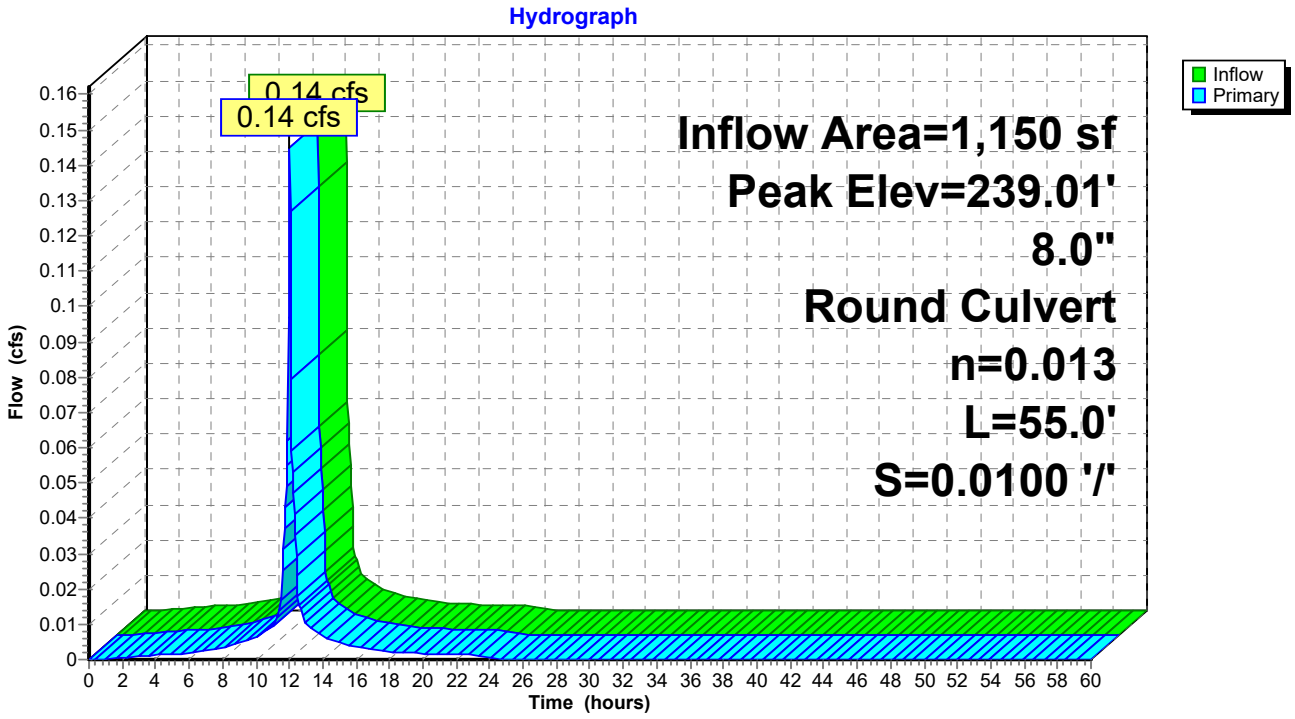
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 4.79" for 10-Year event
Inflow = 0.14 cfs @ 12.01 hrs, Volume= 459 cf
Outflow = 0.14 cfs @ 12.01 hrs, Volume= 459 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.01 hrs, Volume= 459 cf
Routed to Pond CO1-1 : 12x12" NDS Catch Basin (CO1-1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 239.01' @ 12.01 hrs
Flood Elev= 241.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.79'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.79' / 238.24' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.14 cfs @ 12.01 hrs HW=239.00' TW=238.44' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.14 cfs @ 2.15 fps)

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)



Summary for Pond CO2: 12x12" NDS Catch Basin (CO2)

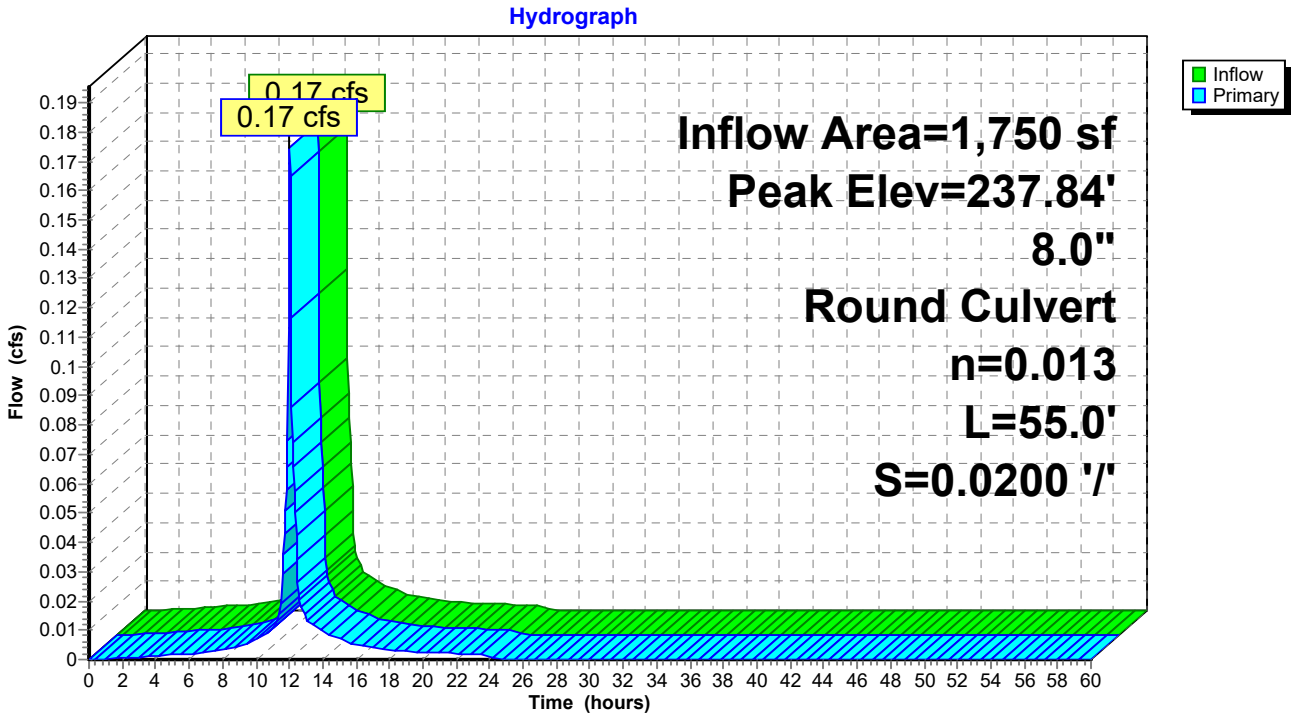
Inflow Area = 1,750 sf, 65.71% Impervious, Inflow Depth = 3.97" for 10-Year event
Inflow = 0.17 cfs @ 12.02 hrs, Volume= 579 cf
Outflow = 0.17 cfs @ 12.02 hrs, Volume= 579 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 12.02 hrs, Volume= 579 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.84' @ 12.02 hrs
Flood Elev= 241.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.61'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.61' / 236.51' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.17 cfs @ 12.02 hrs HW=237.83' TW=236.82' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.17 cfs @ 1.61 fps)

Pond CO2: 12x12" NDS Catch Basin (CO2)



Summary for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

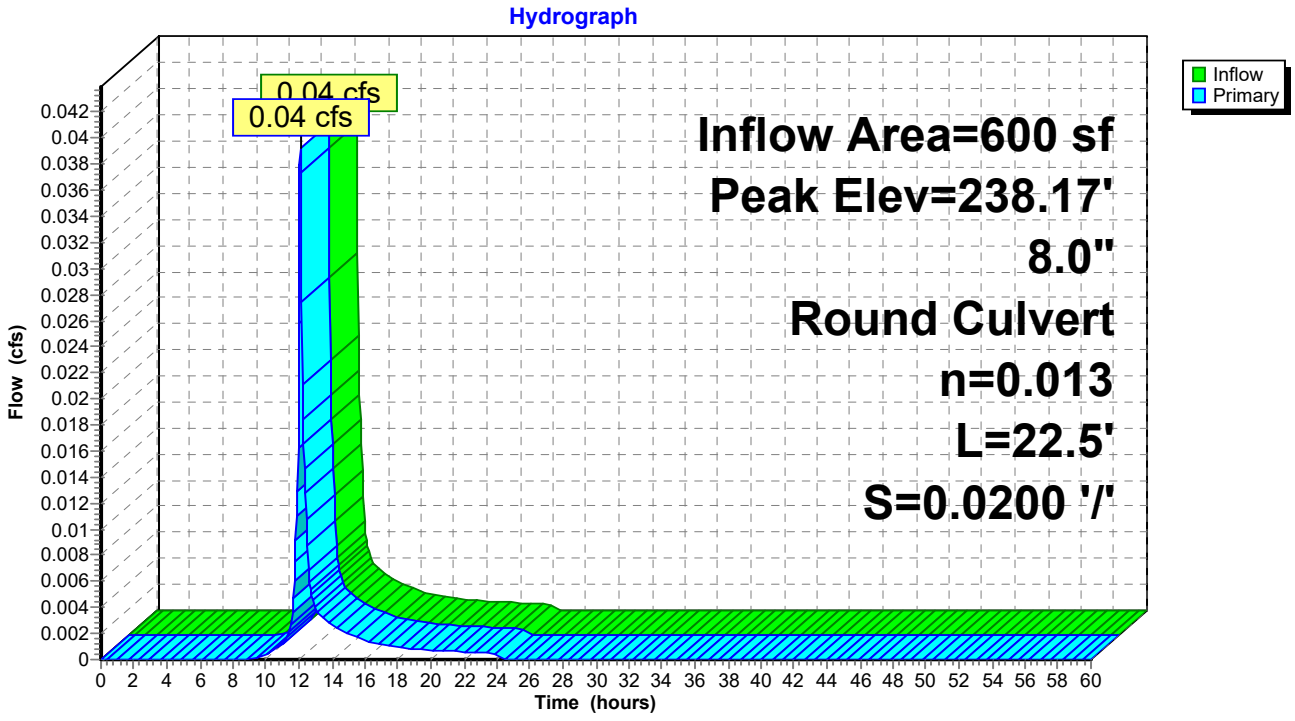
Inflow Area = 600 sf, 0.00% Impervious, Inflow Depth = 2.39" for 10-Year event
Inflow = 0.04 cfs @ 12.07 hrs, Volume= 119 cf
Outflow = 0.04 cfs @ 12.07 hrs, Volume= 119 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.07 hrs, Volume= 119 cf
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.17' @ 12.07 hrs
Flood Elev= 240.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.06'	**8.0" Round 8" HDPE** L= 22.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.06' / 237.61' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.04 cfs @ 12.07 hrs HW=238.16' TW=237.82' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.04 cfs @ 1.09 fps)

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)



Summary for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

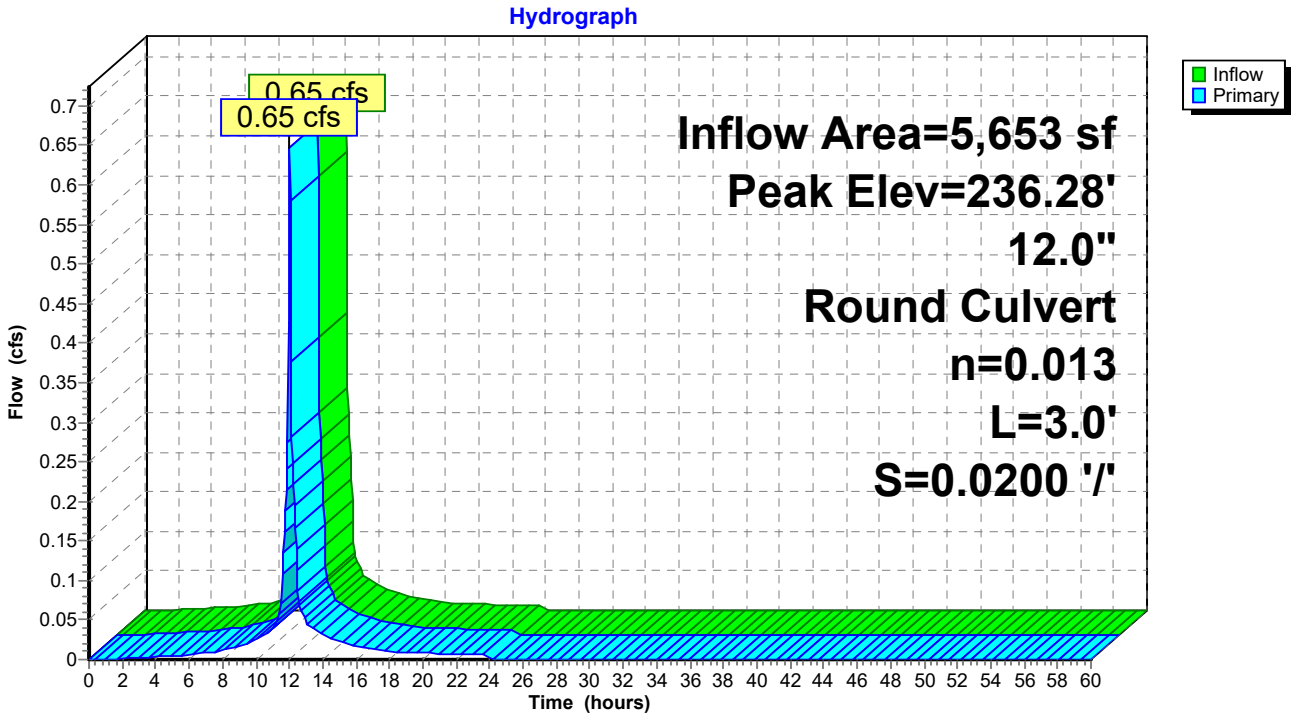
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 0.65 cfs @ 12.01 hrs, Volume= 2,008 cf
Outflow = 0.65 cfs @ 12.01 hrs, Volume= 2,008 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.65 cfs @ 12.01 hrs, Volume= 2,008 cf
Routed to Pond 1P : 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.28' @ 12.02 hrs
Flood Elev= 240.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	235.81'	**12.0" Round 12" HDPE** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.81' / 235.75' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.62 cfs @ 12.01 hrs HW=236.27' TW=235.18' (Dynamic Tailwater)
1=12" HDPE (Barrel Controls 0.62 cfs @ 2.62 fps)

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs



Summary for Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)

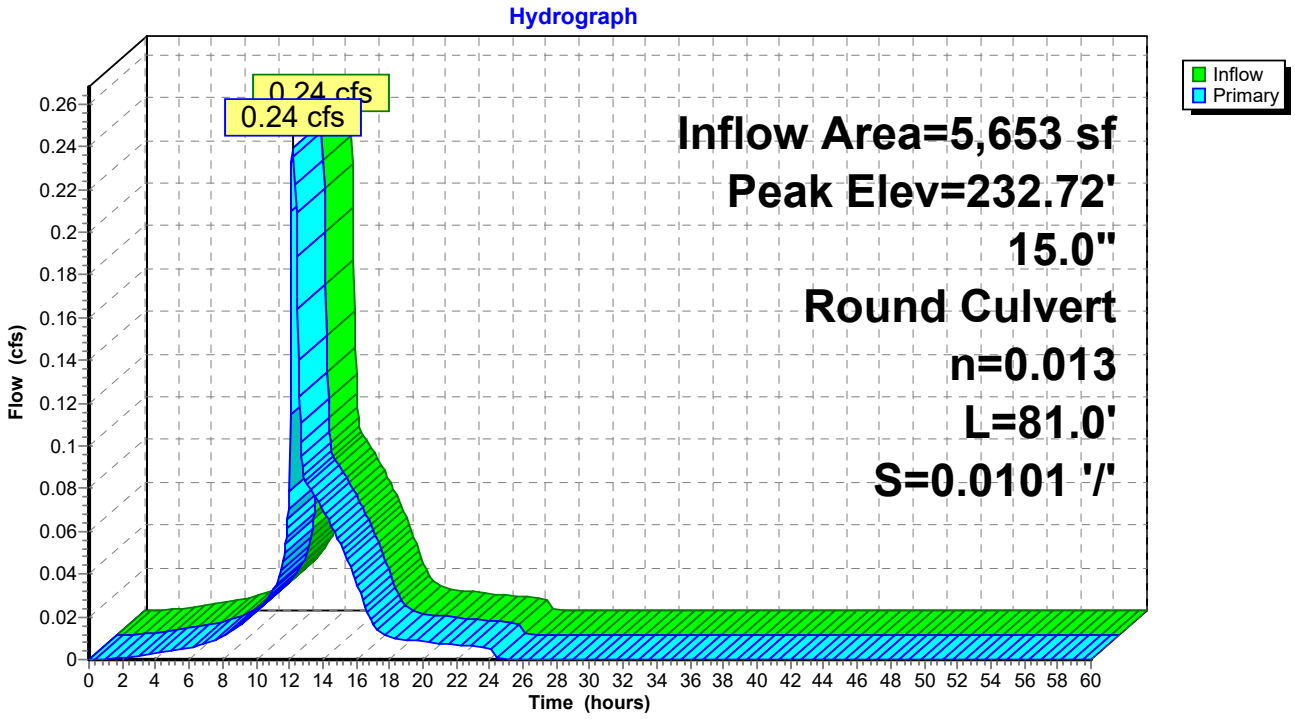
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 0.24 cfs @ 12.22 hrs, Volume= 2,008 cf
Outflow = 0.24 cfs @ 12.22 hrs, Volume= 2,008 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.22 hrs, Volume= 2,008 cf
Routed to Reach DP-1 : DP-1 (Ex. Drain Inlet)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 232.72' @ 12.22 hrs
Flood Elev= 239.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**15.0" Round 15" HDPE** L= 81.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 232.50' / 231.68' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.24 cfs @ 12.22 hrs HW=232.72' TW=0.00' (Dynamic Tailwater)
1=15" HDPE (Barrel Controls 0.24 cfs @ 2.42 fps)

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)



Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1A: Watershed 1A - (Parking Runoff Area=2,753 sf 80.71% Impervious Runoff Depth=5.49"
Tc=1.0 min CN=93 Runoff=0.42 cfs 1,259 cf

Subcatchment 1B-1: Watershed 1B-1 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=6.07"
Tc=1.0 min CN=98 Runoff=0.18 cfs 582 cf

Subcatchment 1B-2: Watershed 1B-2 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=6.07"
Tc=1.0 min CN=98 Runoff=0.18 cfs 582 cf

Subcatchment 1C: Watershed 1C - (Rear Yard) Runoff Area=600 sf 0.00% Impervious Runoff Depth=3.45"
Flow Length=22' Slope=0.0150 '/' Tc=4.6 min CN=74 Runoff=0.06 cfs 172 cf

Reach DP-1: DP-1 (Ex. Drain Inlet) Inflow=0.34 cfs 2,595 cf
Outflow=0.34 cfs 2,595 cf

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Peak Elev=235.97' Storage=658 cf Inflow=0.83 cfs 2,595 cf
Outflow=0.34 cfs 2,595 cf

Pond 2P: Trench Drain (TD-1B-1) Peak Elev=237.87' Inflow=0.42 cfs 1,259 cf
8.0" Round Culvert n=0.013 L=10.1' S=0.1673 '/' Outflow=0.42 cfs 1,259 cf

Pond CO1: 12x12" NDS Catch Basin (CO1) Peak Elev=236.88' Inflow=0.41 cfs 1,336 cf
8.0" Round Culvert n=0.013 L=35.0' S=0.0200 '/' Outflow=0.41 cfs 1,336 cf

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1) Peak Elev=238.48' Inflow=0.18 cfs 582 cf
8.0" Round Culvert n=0.013 L=47.5' S=0.0364 '/' Outflow=0.18 cfs 582 cf

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2) Peak Elev=239.04' Inflow=0.18 cfs 582 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0100 '/' Outflow=0.18 cfs 582 cf

Pond CO2: 12x12" NDS Catch Basin (CO2) Peak Elev=237.88' Inflow=0.23 cfs 754 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0200 '/' Outflow=0.23 cfs 754 cf

Pond DI-2B: 18" Dia. Nyloplast Drain Inlet (DI-2B) Peak Elev=238.19' Inflow=0.06 cfs 172 cf
8.0" Round Culvert n=0.013 L=22.5' S=0.0200 '/' Outflow=0.06 cfs 172 cf

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs Peak Elev=236.35' Inflow=0.83 cfs 2,595 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=0.83 cfs 2,595 cf

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1) Peak Elev=232.77' Inflow=0.34 cfs 2,595 cf
15.0" Round Culvert n=0.013 L=81.0' S=0.0101 '/' Outflow=0.34 cfs 2,595 cf

Total Runoff Area = 5,653 sf Runoff Volume = 2,595 cf Average Runoff Depth = 5.51"
20.01% Pervious = 1,131 sf 79.99% Impervious = 4,522 sf

Summary for Subcatchment 1A: Watershed 1A - (Parking Area)

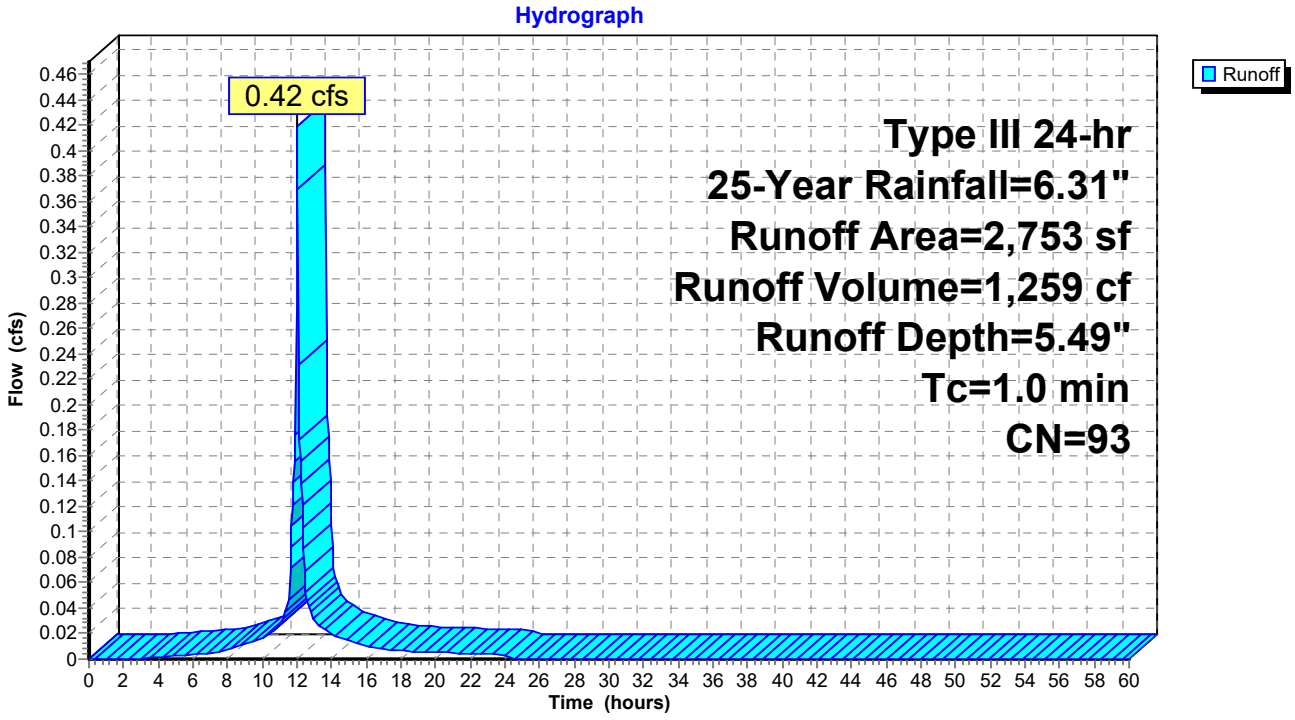
Runoff = 0.42 cfs @ 12.01 hrs, Volume= 1,259 cf, Depth= 5.49"
Routed to Pond 2P : Trench Drain (TD-1B-1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.31"

	Area (sf)	CN	Description
*	2,222	98	Impervious Cover
	531	74	>75% Grass cover, Good, HSG C
	2,753	93	Weighted Average
	531		19.29% Pervious Area
	2,222		80.71% Impervious Area

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

Subcatchment 1A: Watershed 1A - (Parking Area)



Summary for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

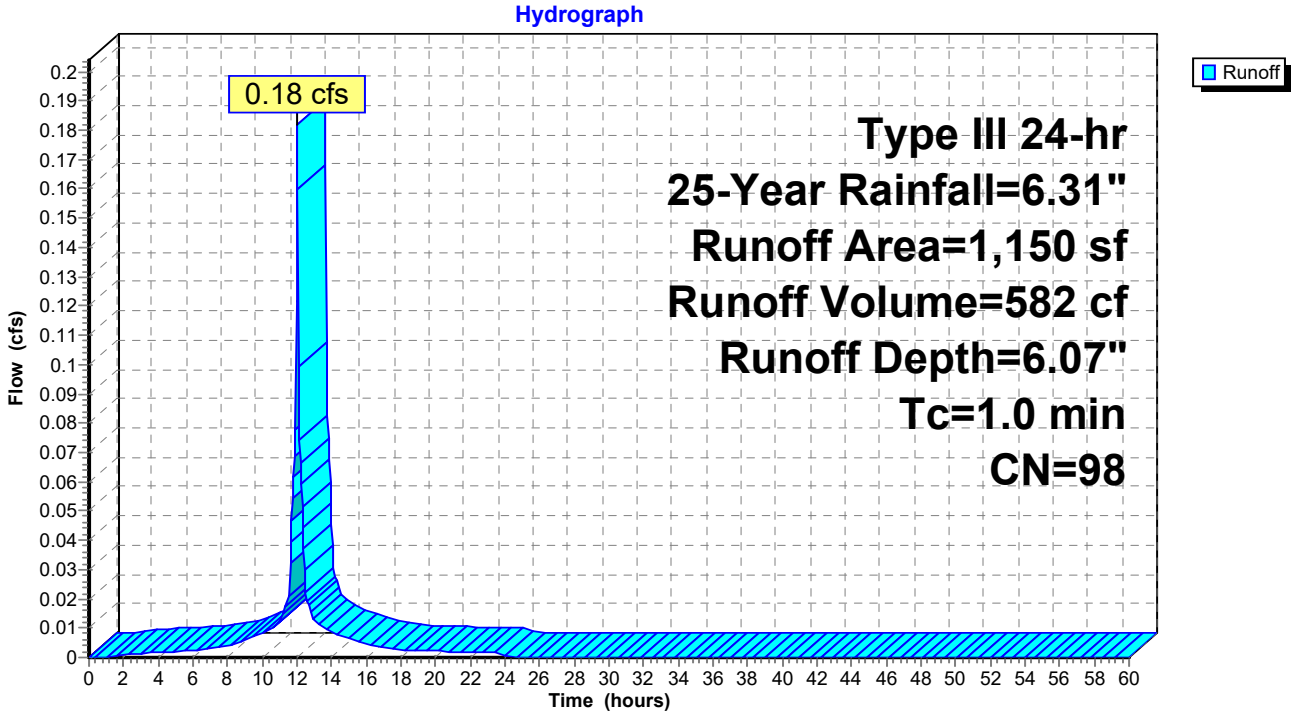
Runoff = 0.18 cfs @ 12.01 hrs, Volume= 582 cf, Depth= 6.07"
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.31"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)



Summary for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

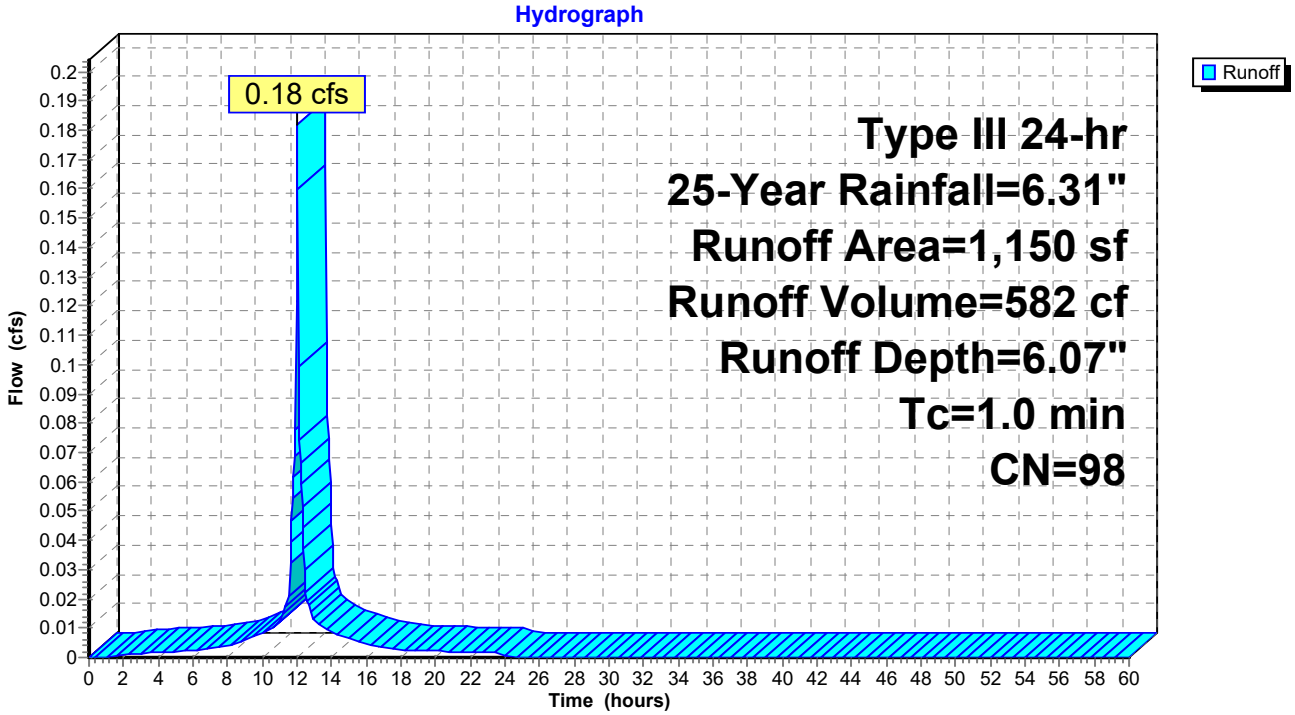
Runoff = 0.18 cfs @ 12.01 hrs, Volume= 582 cf, Depth= 6.07"
Routed to Pond CO1-2 : 12x12" NDS Catch Basin (CO1-2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.31"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)



Summary for Subcatchment 1C: Watershed 1C - (Rear Yard)

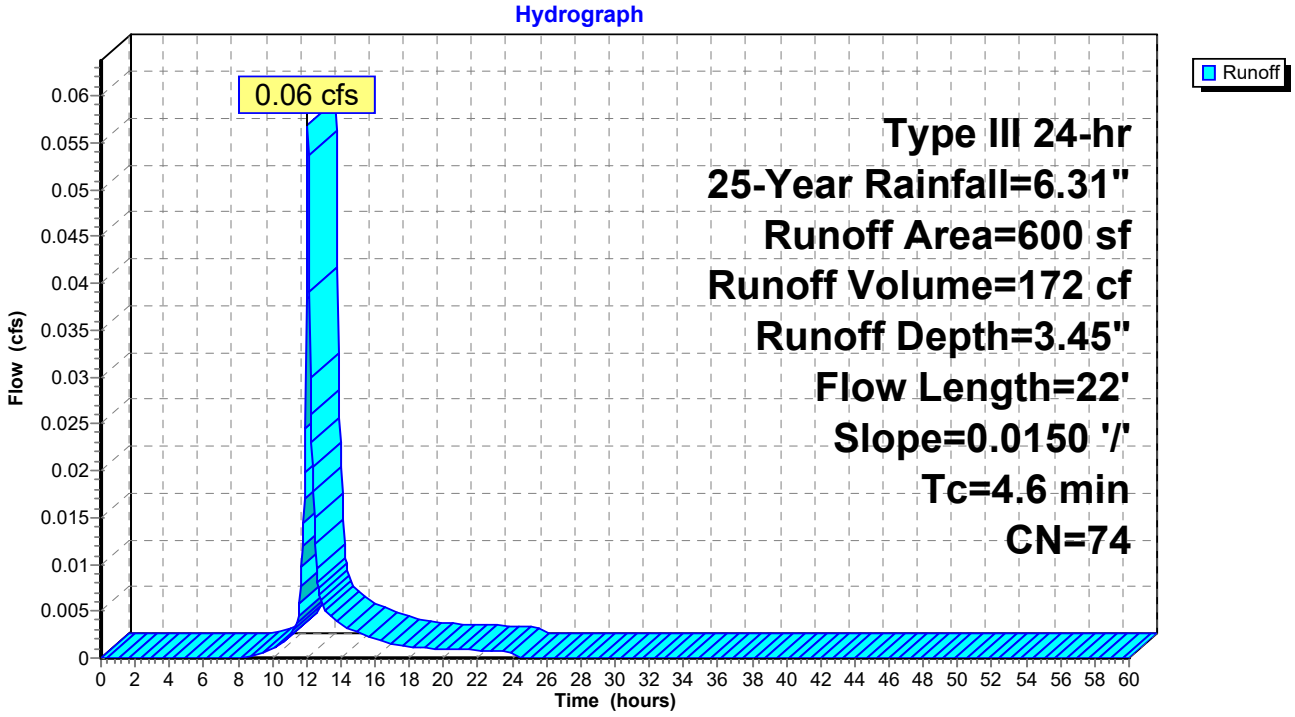
Runoff = 0.06 cfs @ 12.07 hrs, Volume= 172 cf, Depth= 3.45"
Routed to Pond DI-2B : 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.31"

Area (sf)	CN	Description
600	74	>75% Grass cover, Good, HSG C
600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0150	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.42"

Subcatchment 1C: Watershed 1C - (Rear Yard)

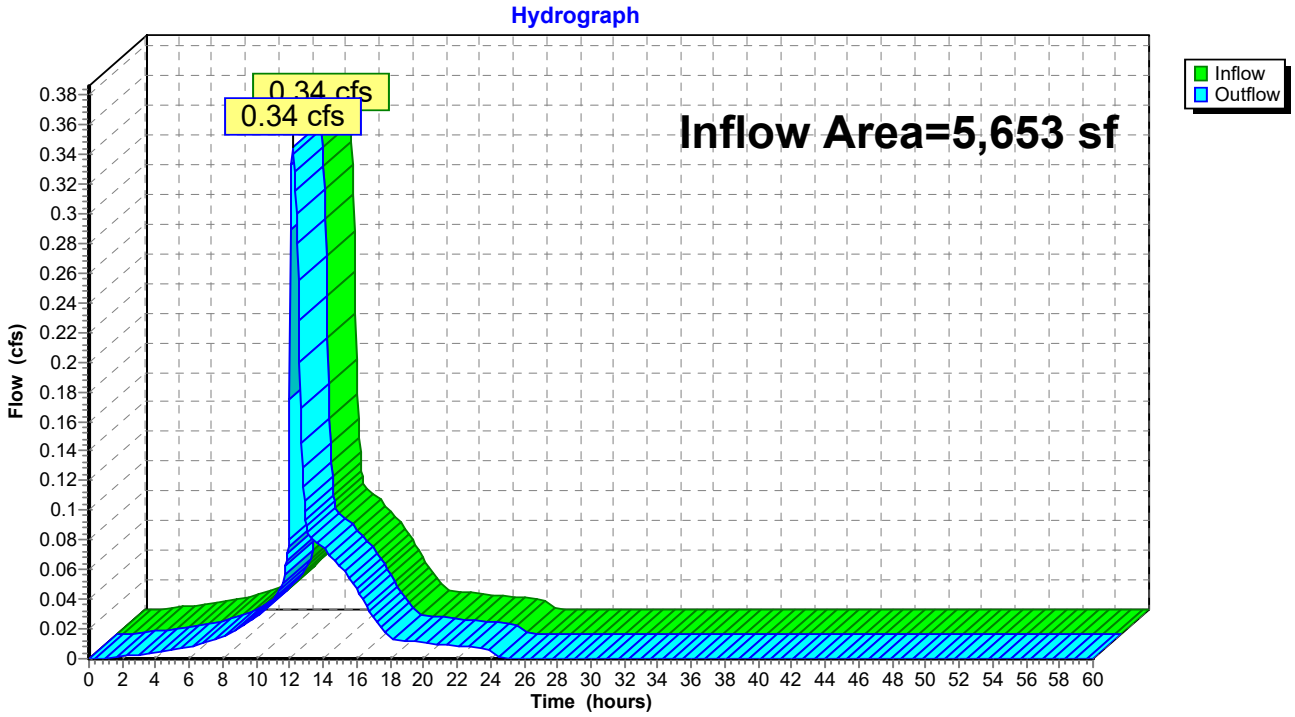


Summary for Reach DP-1: DP-1 (Ex. Drain Inlet)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 5.51" for 25-Year event
Inflow = 0.34 cfs @ 12.17 hrs, Volume= 2,595 cf
Outflow = 0.34 cfs @ 12.17 hrs, Volume= 2,595 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1 (Ex. Drain Inlet)



Summary for Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 5.51" for 25-Year event
Inflow = 0.83 cfs @ 12.01 hrs, Volume= 2,595 cf
Outflow = 0.34 cfs @ 12.17 hrs, Volume= 2,595 cf, Atten= 58%, Lag= 9.4 min
Primary = 0.34 cfs @ 12.17 hrs, Volume= 2,595 cf
Routed to Pond RR-EDP1 : Curb Inlet (DI-1A) (RR-EDP1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 235.97' @ 12.17 hrs Surf.Area= 325 sf Storage= 658 cf
Flood Elev= 240.00' Storage= 943 cf

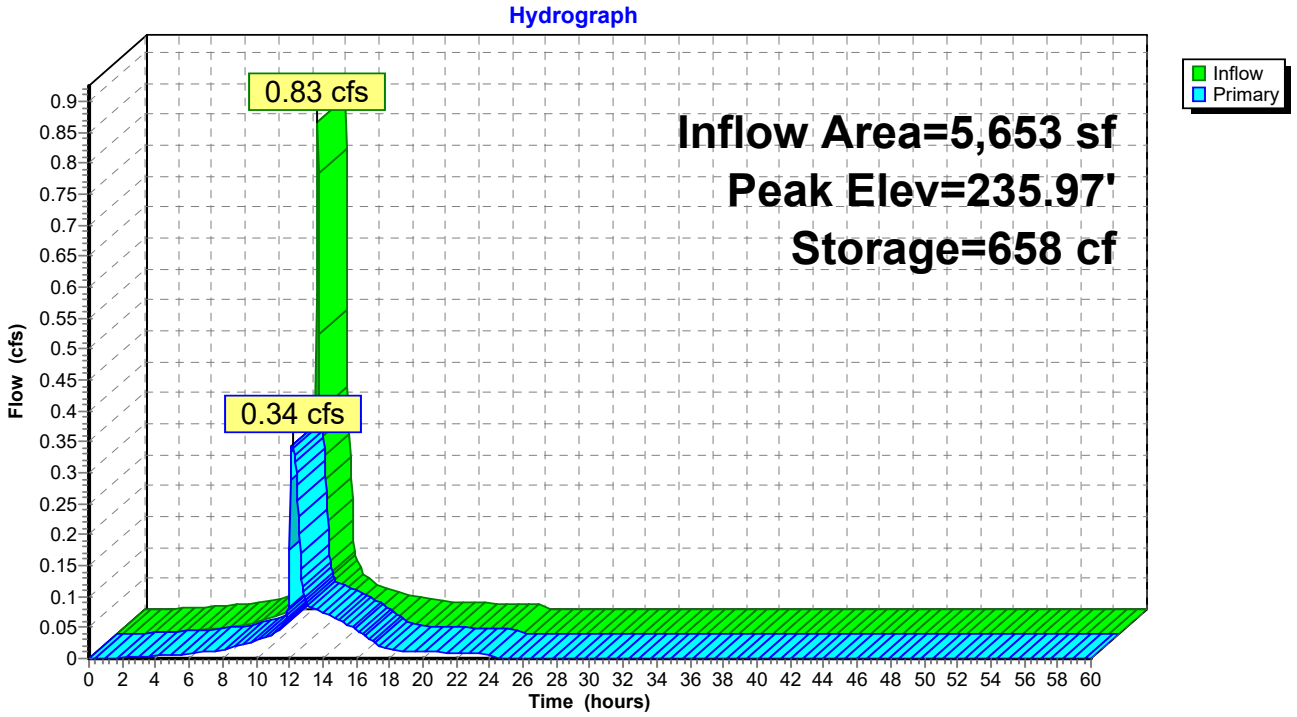
Plug-Flow detention time= 39.1 min calculated for 2,593 cf (100% of inflow)
Center-of-Mass det. time= 39.1 min (797.7 - 758.6)

Volume	Invert	Avail.Storage	Storage Description
#1	233.67'	943 cf	**42.0" Round 42" HDPE** L= 98.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.62'	**12.0" Round 12" HDPE (Outlet)** L= 22.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.62' / 232.50' S= 0.0489 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	233.67'	**6.0" Round 6" HDPE (Low Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.67' / 233.63' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	233.67'	**1.6" Vert. 1.6" Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	235.25'	**6.0" Round 6" HDPE (Mid Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.25' / 235.21' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#5	Device 4	235.25'	**3.5" Vert. 3.5" Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	236.63'	**6.0" Round 6" HDPE (High Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.63' / 236.59' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#7	Device 6	236.75'	**4.0" Vert. 4" Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.34 cfs @ 12.17 hrs HW=235.97' TW=232.77' (Dynamic Tailwater)
- **1=12" HDPE (Outlet)** (Passes 0.34 cfs of 5.14 cfs potential flow)
  - **2=6" HDPE (Low Flow)** (Passes 0.10 cfs of 1.35 cfs potential flow)
    - **3=1.6" Orifice** (Orifice Controls 0.10 cfs @ 7.19 fps)
  - **4=6" HDPE (Mid Flow)** (Passes 0.24 cfs of 0.59 cfs potential flow)
    - **5=3.5" Orifice** (Orifice Controls 0.24 cfs @ 3.64 fps)
  - **6=6" HDPE (High Flow)** (Controls 0.00 cfs)
    - **7=4" Orifice** (Controls 0.00 cfs)

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)



Summary for Pond 2P: Trench Drain (TD-1B-1)

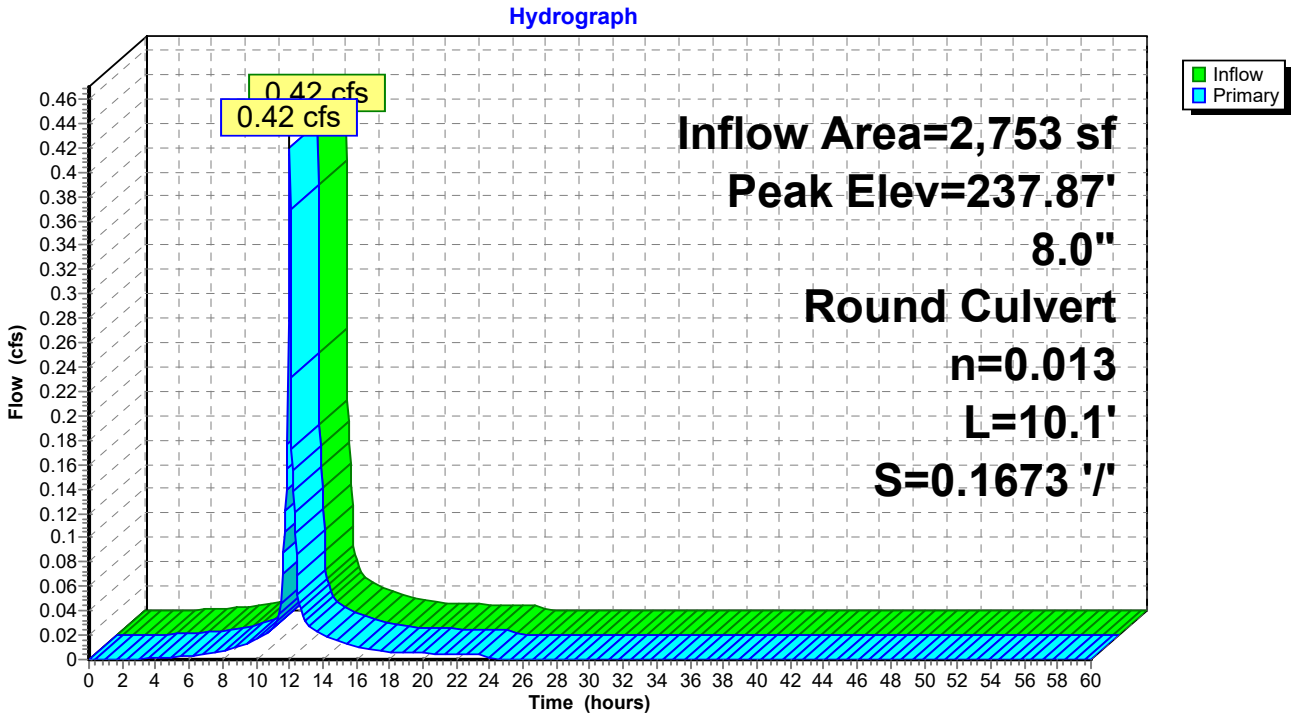
Inflow Area = 2,753 sf, 80.71% Impervious, Inflow Depth = 5.49" for 25-Year event
Inflow = 0.42 cfs @ 12.01 hrs, Volume= 1,259 cf
Outflow = 0.42 cfs @ 12.01 hrs, Volume= 1,259 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.01 hrs, Volume= 1,259 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.87' @ 12.01 hrs
Flood Elev= 240.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.50'	**8.0" Round 8" HDPE** L= 10.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.50' / 235.81' S= 0.1673 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.40 cfs @ 12.01 hrs HW=237.86' TW=236.34' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.40 cfs @ 2.06 fps)

Pond 2P: Trench Drain (TD-1B-1)



Summary for Pond CO1: 12x12" NDS Catch Basin (CO1)

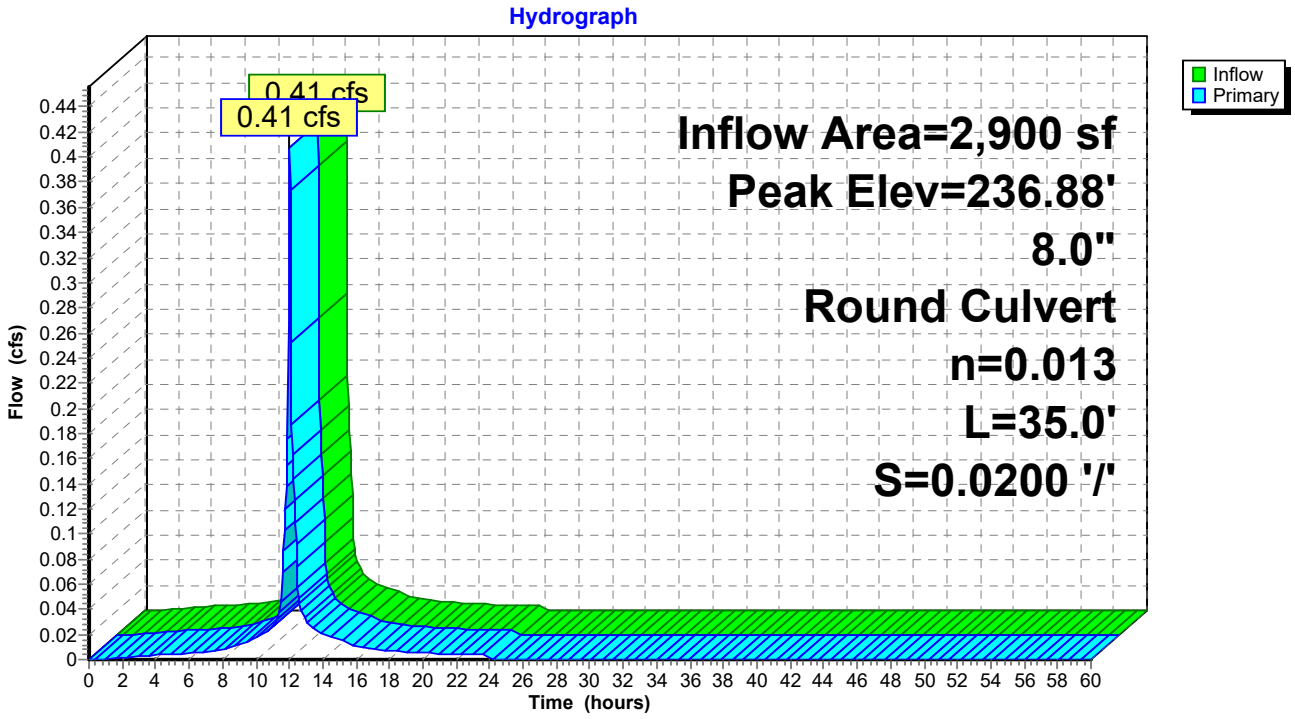
Inflow Area = 2,900 sf, 79.31% Impervious, Inflow Depth = 5.53" for 25-Year event
Inflow = 0.41 cfs @ 12.02 hrs, Volume= 1,336 cf
Outflow = 0.41 cfs @ 12.02 hrs, Volume= 1,336 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.02 hrs, Volume= 1,336 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.88' @ 12.02 hrs
Flood Elev= 240.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	236.51'	**8.0" Round 8" HDPE** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.51' / 235.81' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.39 cfs @ 12.02 hrs HW=236.87' TW=236.33' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.39 cfs @ 2.04 fps)

Pond CO1: 12x12" NDS Catch Basin (CO1)



Summary for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

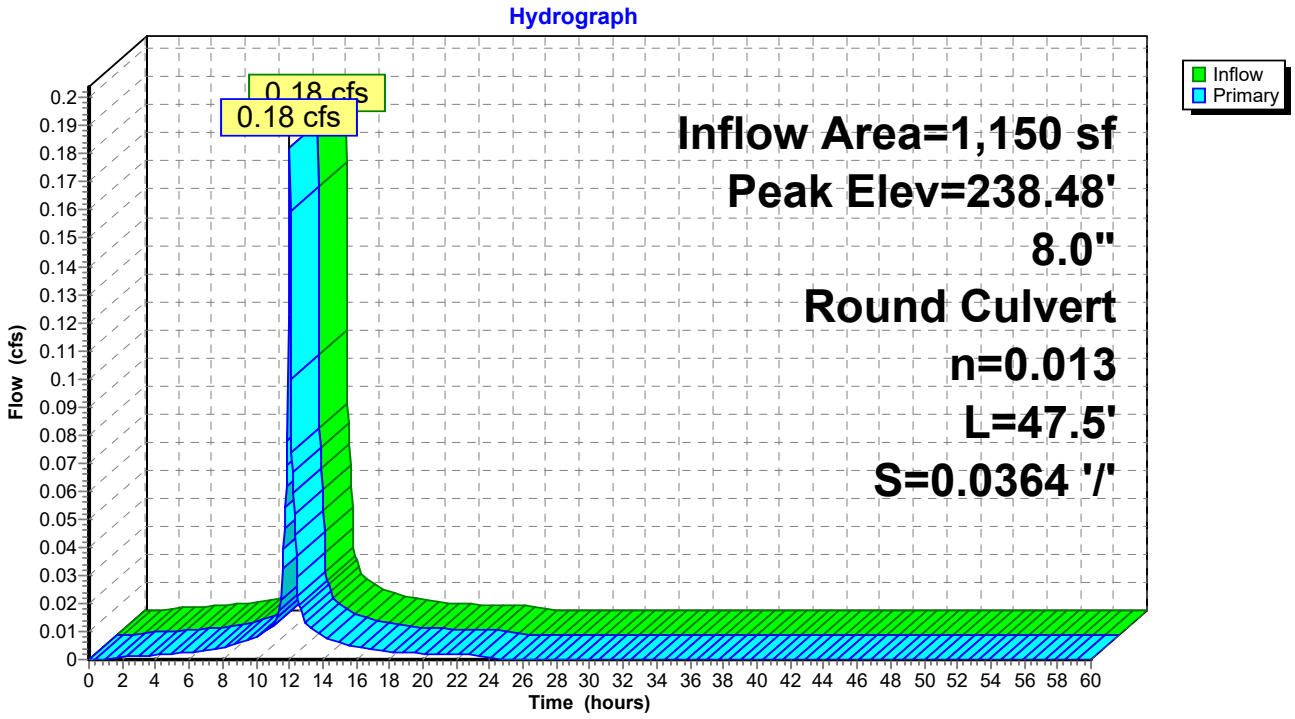
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 6.07" for 25-Year event
Inflow = 0.18 cfs @ 12.01 hrs, Volume= 582 cf
Outflow = 0.18 cfs @ 12.01 hrs, Volume= 582 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 12.01 hrs, Volume= 582 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.48' @ 12.01 hrs
Flood Elev= 240.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.24'	**8.0" Round 8" HDPE** L= 47.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.24' / 236.51' S= 0.0364 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.17 cfs @ 12.01 hrs HW=238.47' TW=236.87' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.17 cfs @ 1.63 fps)

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)



Summary for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

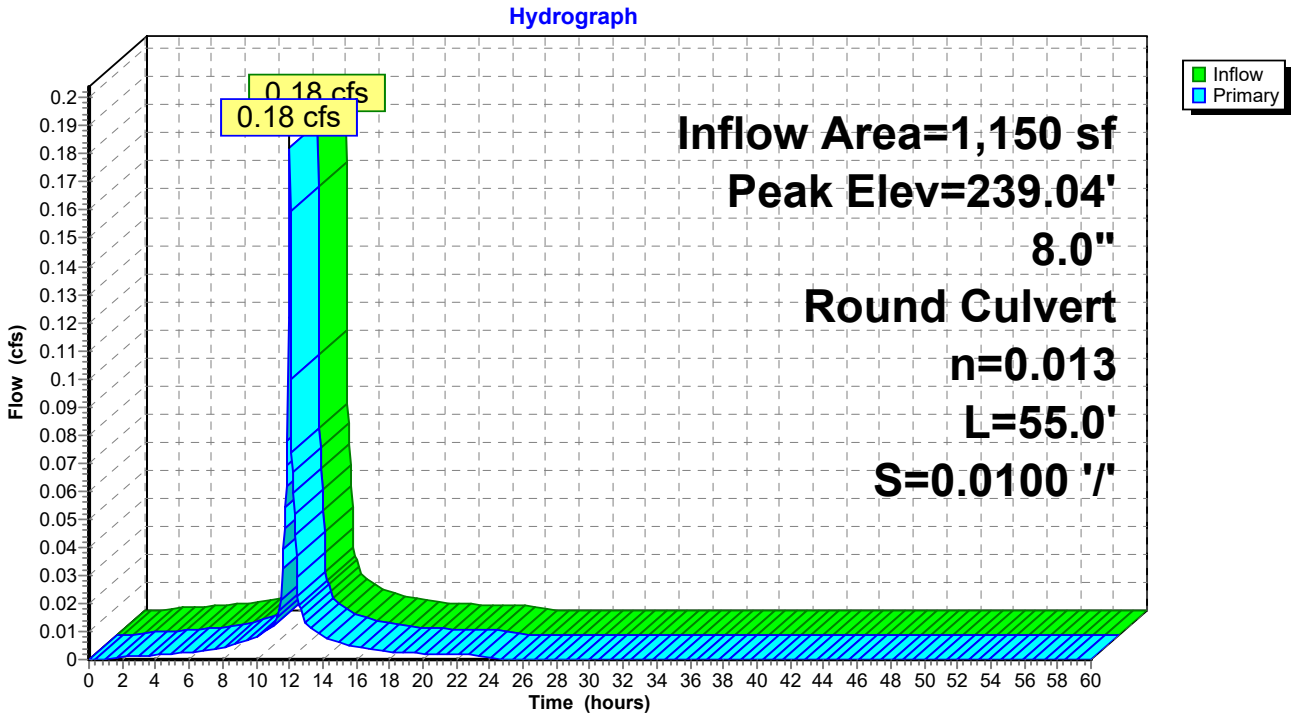
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 6.07" for 25-Year event
Inflow = 0.18 cfs @ 12.01 hrs, Volume= 582 cf
Outflow = 0.18 cfs @ 12.01 hrs, Volume= 582 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 12.01 hrs, Volume= 582 cf
Routed to Pond CO1-1 : 12x12" NDS Catch Basin (CO1-1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 239.04' @ 12.01 hrs
Flood Elev= 241.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.79'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.79' / 238.24' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.17 cfs @ 12.01 hrs HW=239.03' TW=238.47' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.17 cfs @ 2.27 fps)

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)



Summary for Pond CO2: 12x12" NDS Catch Basin (CO2)

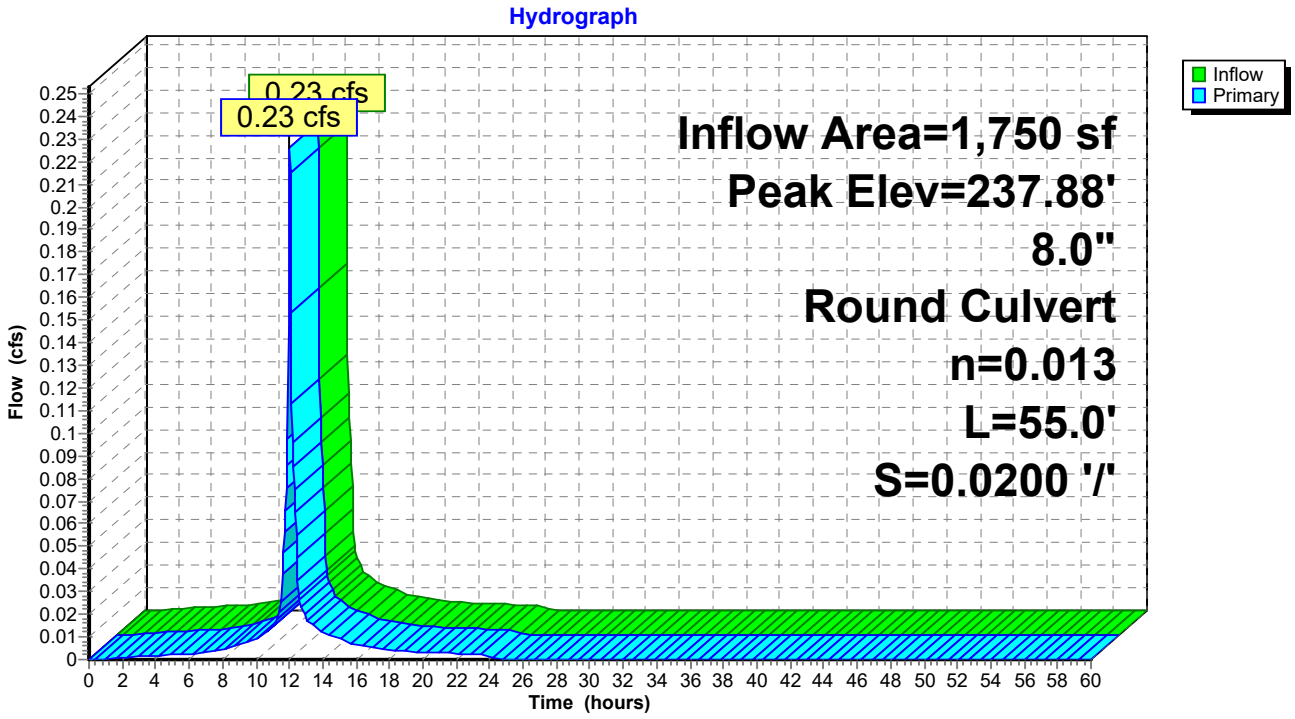
Inflow Area = 1,750 sf, 65.71% Impervious, Inflow Depth = 5.17" for 25-Year event
Inflow = 0.23 cfs @ 12.02 hrs, Volume= 754 cf
Outflow = 0.23 cfs @ 12.02 hrs, Volume= 754 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.02 hrs, Volume= 754 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.88' @ 12.02 hrs
Flood Elev= 241.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.61'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.61' / 236.51' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.22 cfs @ 12.02 hrs HW=237.87' TW=236.87' (Dynamic Tailwater)
↑—**1=8" HDPE** (Inlet Controls 0.22 cfs @ 1.73 fps)

Pond CO2: 12x12" NDS Catch Basin (CO2)



Summary for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

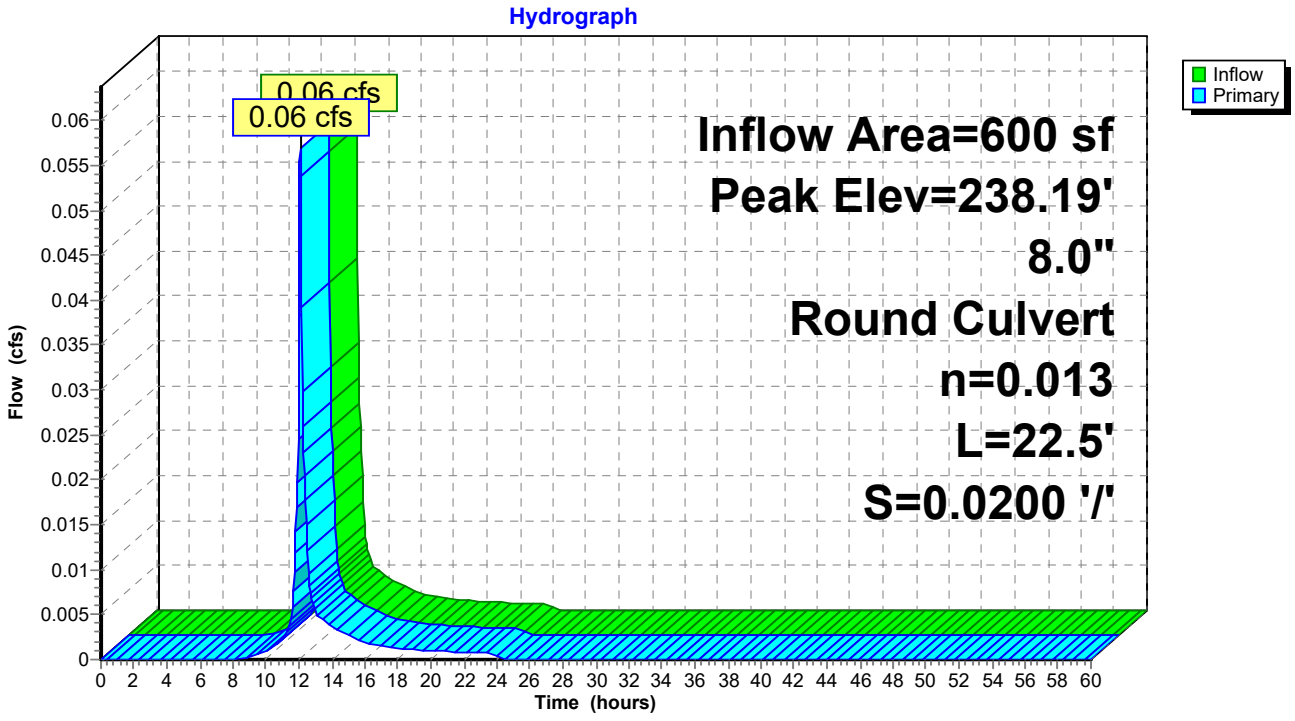
Inflow Area = 600 sf, 0.00% Impervious, Inflow Depth = 3.45" for 25-Year event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 172 cf
Outflow = 0.06 cfs @ 12.07 hrs, Volume= 172 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.07 hrs, Volume= 172 cf
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.19' @ 12.07 hrs
Flood Elev= 240.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.06'	**8.0" Round 8" HDPE** L= 22.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.06' / 237.61' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=238.19' TW=237.85' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.06 cfs @ 1.21 fps)

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)



Summary for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

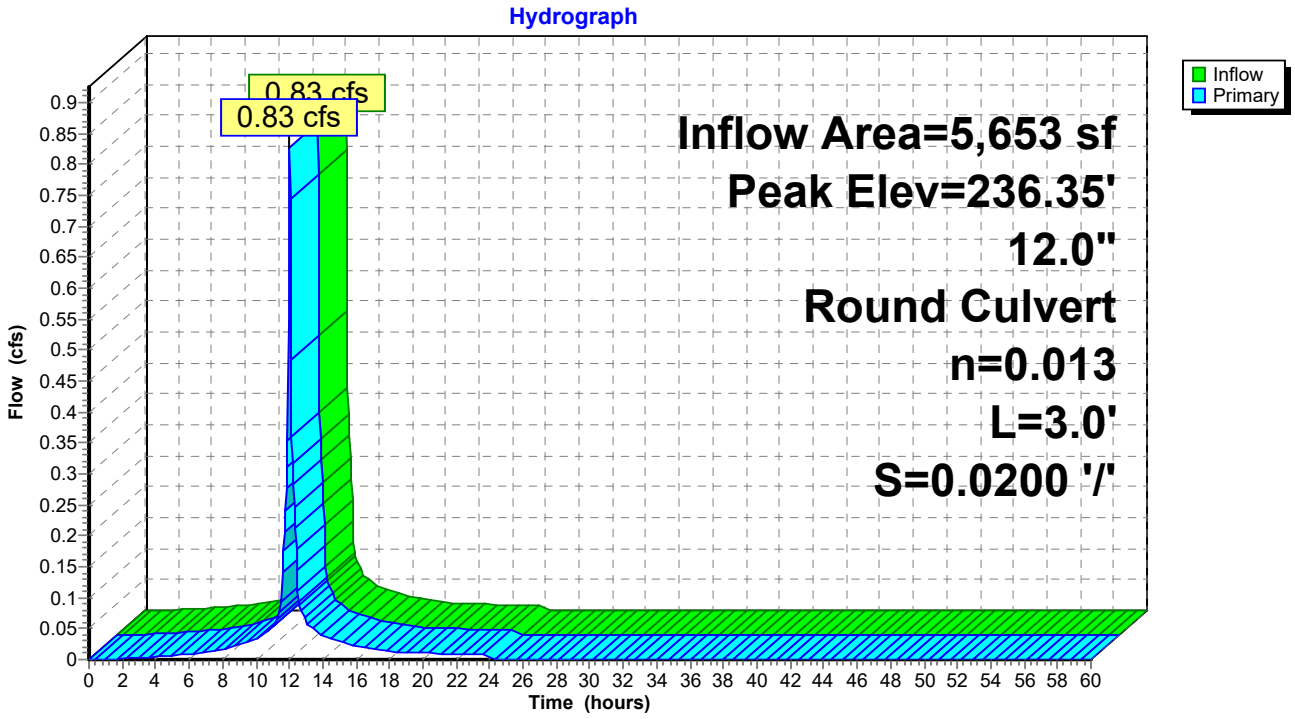
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 5.51" for 25-Year event
Inflow = 0.83 cfs @ 12.01 hrs, Volume= 2,595 cf
Outflow = 0.83 cfs @ 12.01 hrs, Volume= 2,595 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.01 hrs, Volume= 2,595 cf
Routed to Pond 1P : 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.35' @ 12.02 hrs
Flood Elev= 240.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	235.81'	**12.0" Round 12" HDPE** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.81' / 235.75' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.01 hrs HW=236.33' TW=235.56' (Dynamic Tailwater)
1=12" HDPE (Barrel Controls 0.79 cfs @ 2.76 fps)

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs



Summary for Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)

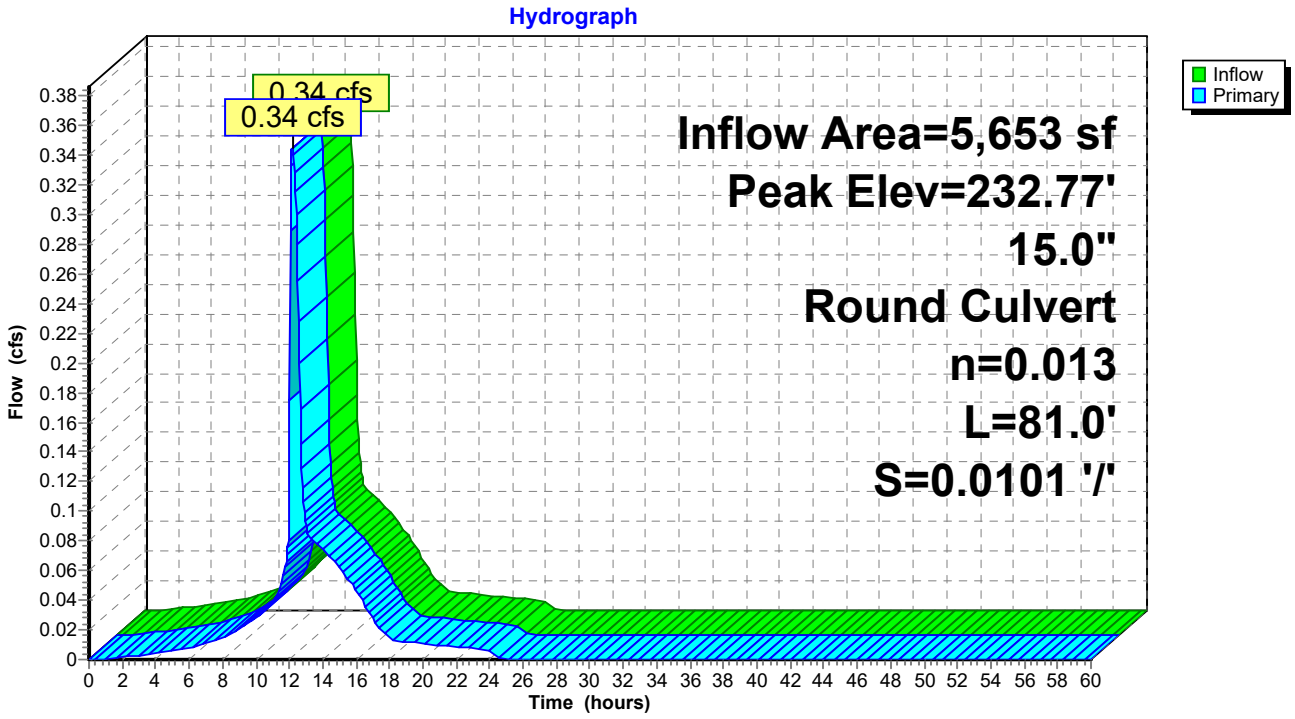
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 5.51" for 25-Year event
Inflow = 0.34 cfs @ 12.17 hrs, Volume= 2,595 cf
Outflow = 0.34 cfs @ 12.17 hrs, Volume= 2,595 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.17 hrs, Volume= 2,595 cf
Routed to Reach DP-1 : DP-1 (Ex. Drain Inlet)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 232.77' @ 12.17 hrs
Flood Elev= 239.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**15.0" Round 15" HDPE** L= 81.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 232.50' / 231.68' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.34 cfs @ 12.17 hrs HW=232.77' TW=0.00' (Dynamic Tailwater)
1=15" HDPE (Inlet Controls 0.34 cfs @ 1.77 fps)

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)



Time span=0.00-60.00 hrs, dt=0.05 hrs, 1201 points x 2
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 1A: Watershed 1A - (Parking Runoff Area=2,753 sf 80.71% Impervious Runoff Depth=8.05"
Tc=1.0 min CN=93 Runoff=0.60 cfs 1,846 cf

Subcatchment 1B-1: Watershed 1B-1 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=8.65"
Tc=1.0 min CN=98 Runoff=0.26 cfs 829 cf

Subcatchment 1B-2: Watershed 1B-2 - Runoff Area=1,150 sf 100.00% Impervious Runoff Depth=8.65"
Tc=1.0 min CN=98 Runoff=0.26 cfs 829 cf

Subcatchment 1C: Watershed 1C - (Rear Yard) Runoff Area=600 sf 0.00% Impervious Runoff Depth=5.73"
Flow Length=22' Slope=0.0150 '/' Tc=4.6 min CN=74 Runoff=0.09 cfs 286 cf

Reach DP-1: DP-1 (Ex. Drain Inlet) Inflow=0.57 cfs 3,790 cf
Outflow=0.57 cfs 3,790 cf

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Peak Elev=236.91' Storage=911 cf Inflow=1.19 cfs 3,790 cf
Outflow=0.57 cfs 3,790 cf

Pond 2P: Trench Drain (TD-1B-1) Peak Elev=237.96' Inflow=0.60 cfs 1,846 cf
8.0" Round Culvert n=0.013 L=10.1' S=0.1673 '/' Outflow=0.60 cfs 1,846 cf

Pond CO1: 12x12" NDS Catch Basin (CO1) Peak Elev=237.00' Inflow=0.59 cfs 1,944 cf
8.0" Round Culvert n=0.013 L=35.0' S=0.0200 '/' Outflow=0.59 cfs 1,944 cf

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1) Peak Elev=238.52' Inflow=0.26 cfs 829 cf
8.0" Round Culvert n=0.013 L=47.5' S=0.0364 '/' Outflow=0.26 cfs 829 cf

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2) Peak Elev=239.09' Inflow=0.26 cfs 829 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0100 '/' Outflow=0.26 cfs 829 cf

Pond CO2: 12x12" NDS Catch Basin (CO2) Peak Elev=237.94' Inflow=0.33 cfs 1,115 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0200 '/' Outflow=0.33 cfs 1,115 cf

Pond DI-2B: 18" Dia. Nyloplast Drain Inlet (DI-2B) Peak Elev=238.23' Inflow=0.09 cfs 286 cf
8.0" Round Culvert n=0.013 L=22.5' S=0.0200 '/' Outflow=0.09 cfs 286 cf

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs Peak Elev=236.93' Inflow=1.19 cfs 3,790 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=1.19 cfs 3,790 cf

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1) Peak Elev=232.85' Inflow=0.57 cfs 3,790 cf
15.0" Round Culvert n=0.013 L=81.0' S=0.0101 '/' Outflow=0.57 cfs 3,790 cf

Total Runoff Area = 5,653 sf Runoff Volume = 3,790 cf Average Runoff Depth = 8.05"
20.01% Pervious = 1,131 sf 79.99% Impervious = 4,522 sf

Summary for Subcatchment 1A: Watershed 1A - (Parking Area)

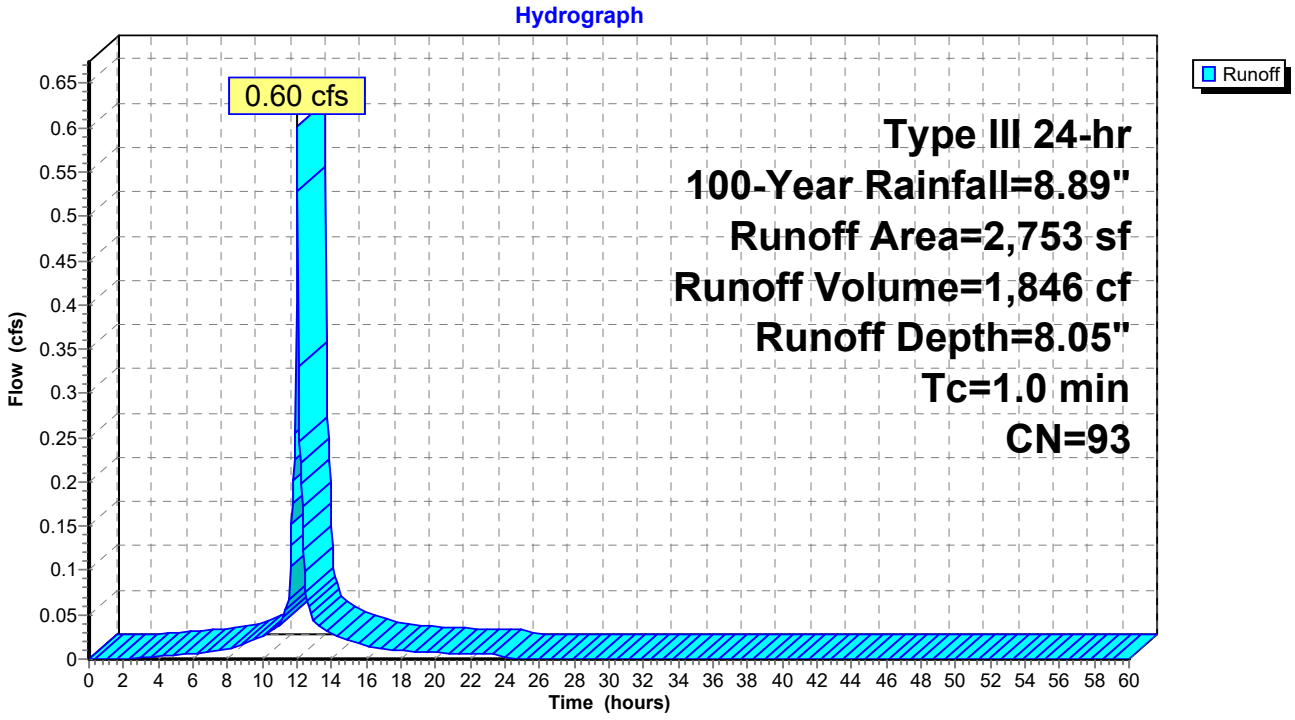
Runoff = 0.60 cfs @ 12.01 hrs, Volume= 1,846 cf, Depth= 8.05"
Routed to Pond 2P : Trench Drain (TD-1B-1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

	Area (sf)	CN	Description
*	2,222	98	Impervious Cover
	531	74	>75% Grass cover, Good, HSG C
	2,753	93	Weighted Average
	531		19.29% Pervious Area
	2,222		80.71% Impervious Area

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

Subcatchment 1A: Watershed 1A - (Parking Area)



Summary for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

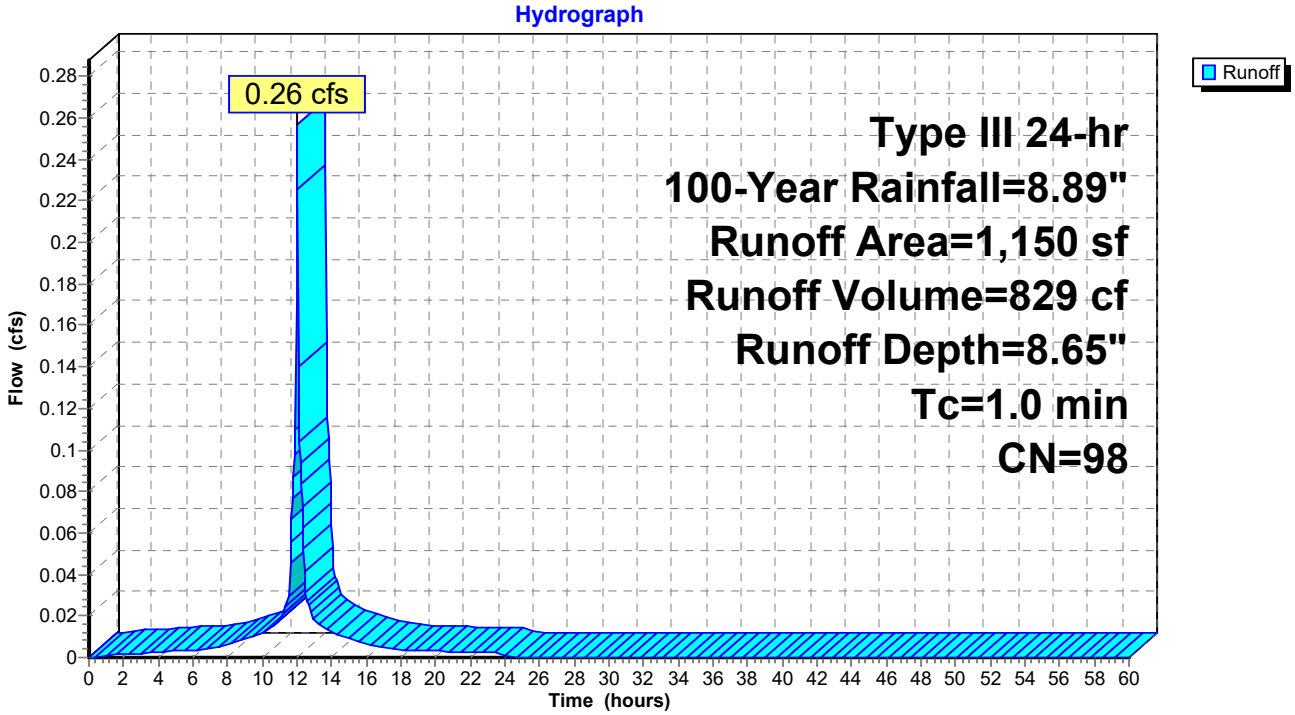
Runoff = 0.26 cfs @ 12.01 hrs, Volume= 829 cf, Depth= 8.65"
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)



Summary for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

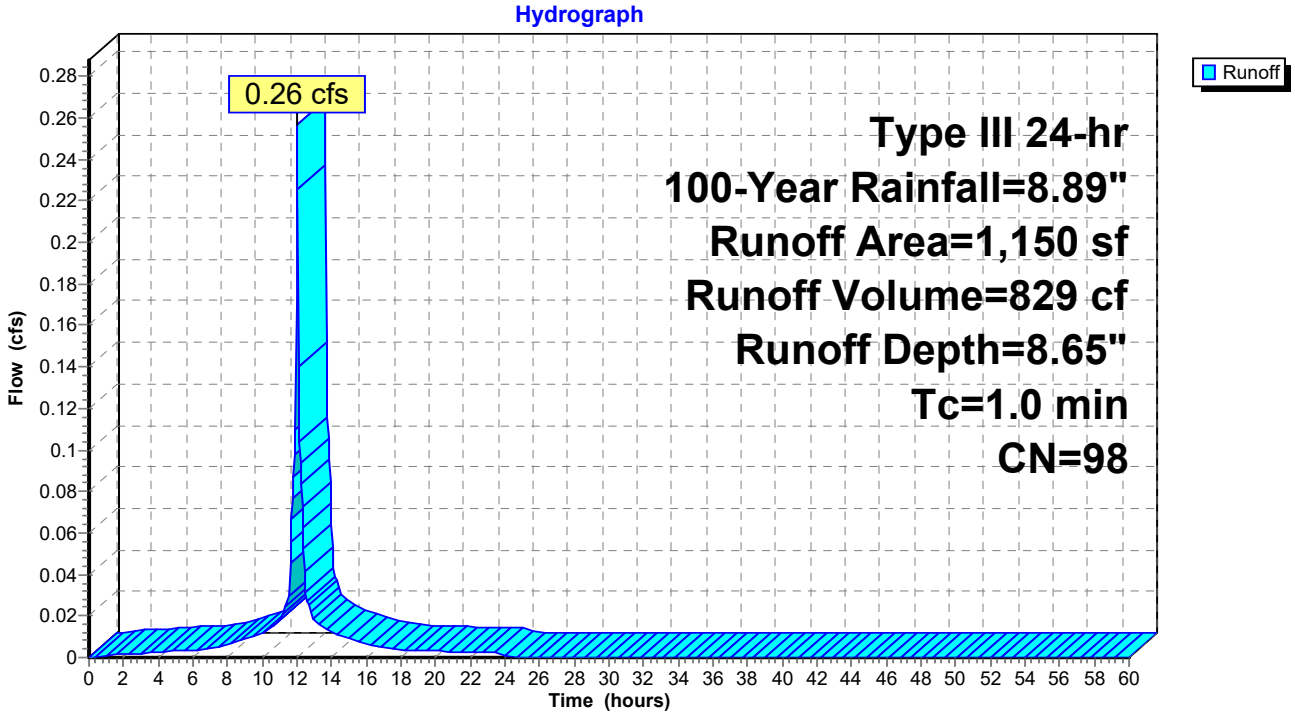
Runoff = 0.26 cfs @ 12.01 hrs, Volume= 829 cf, Depth= 8.65"
Routed to Pond CO1-2 : 12x12" NDS Catch Basin (CO1-2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

	Area (sf)	CN	Description
*	1,150	98	Impervious Cover
	1,150		100.00% Impervious Area

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

Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)



Summary for Subcatchment 1C: Watershed 1C - (Rear Yard)

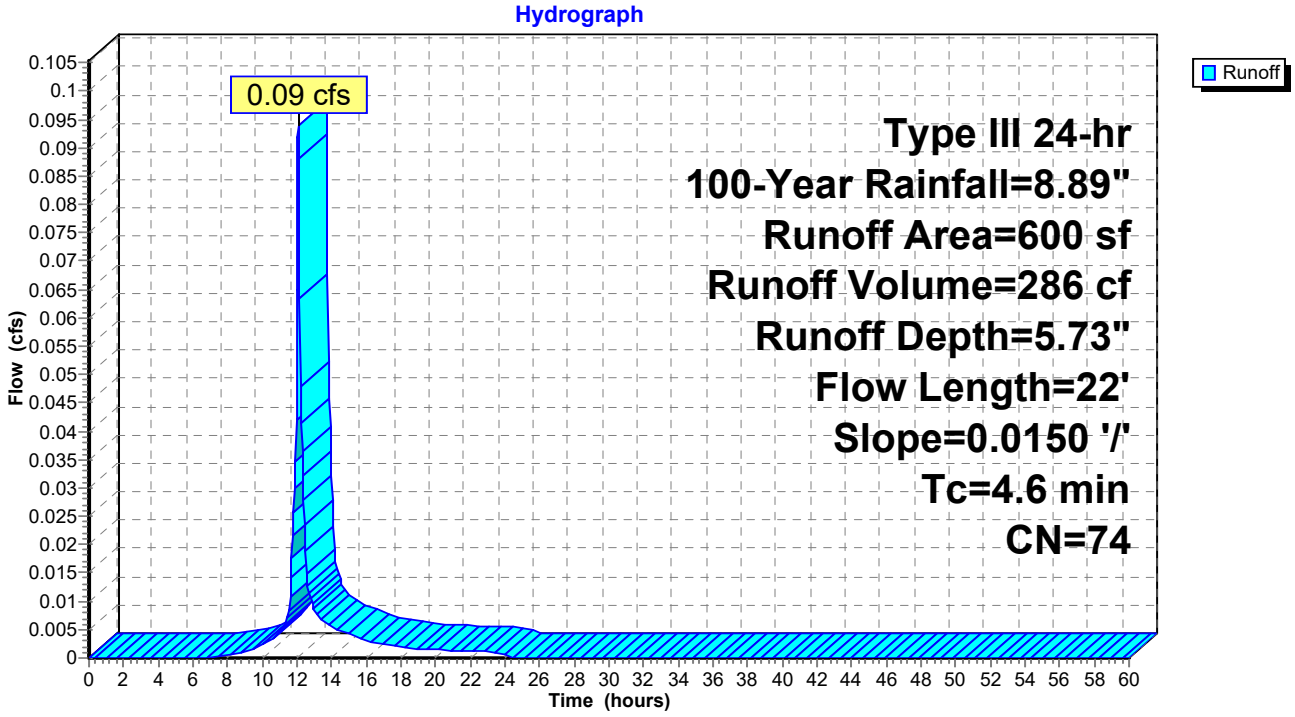
Runoff = 0.09 cfs @ 12.07 hrs, Volume= 286 cf, Depth= 5.73"
Routed to Pond DI-2B : 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
600	74	>75% Grass cover, Good, HSG C
600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	22	0.0150	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.42"

Subcatchment 1C: Watershed 1C - (Rear Yard)

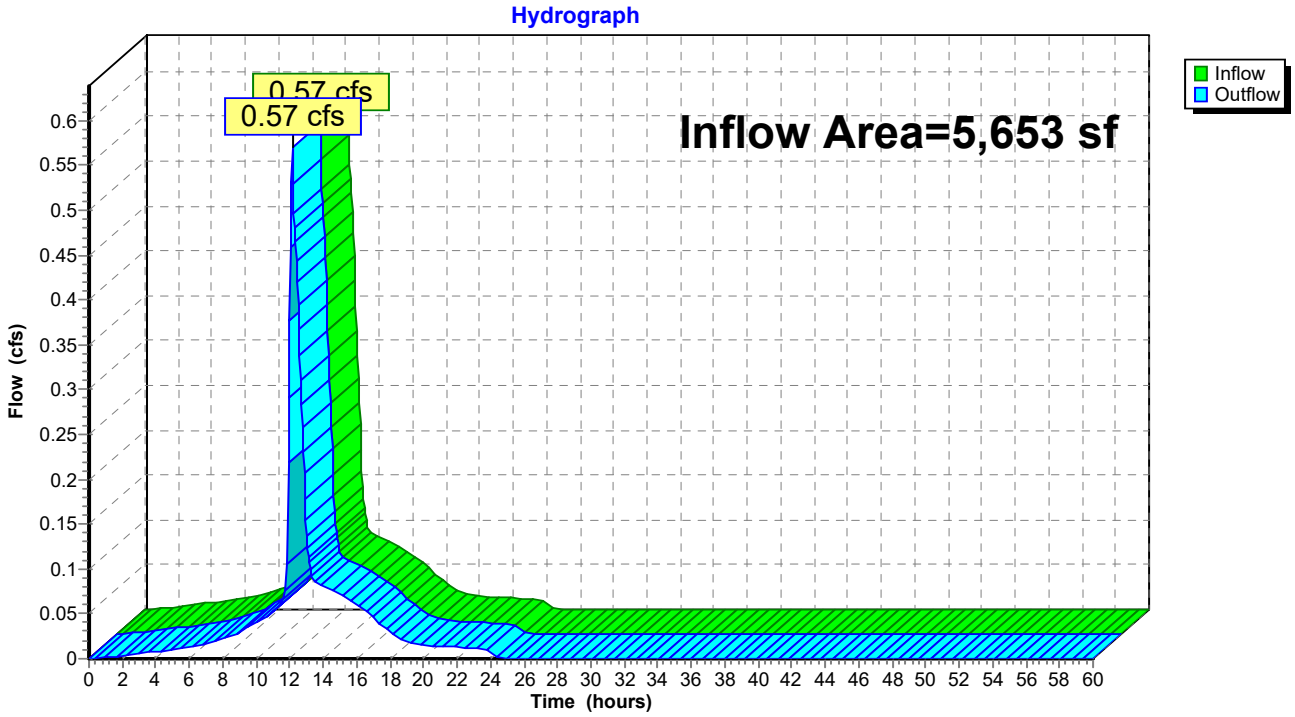


Summary for Reach DP-1: DP-1 (Ex. Drain Inlet)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 0.57 cfs @ 12.15 hrs, Volume= 3,790 cf
Outflow = 0.57 cfs @ 12.15 hrs, Volume= 3,790 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2

Reach DP-1: DP-1 (Ex. Drain Inlet)



Summary for Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 1.19 cfs @ 12.02 hrs, Volume= 3,790 cf
Outflow = 0.57 cfs @ 12.15 hrs, Volume= 3,790 cf, Atten= 52%, Lag= 8.0 min
Primary = 0.57 cfs @ 12.15 hrs, Volume= 3,790 cf
Routed to Pond RR-EDP1 : Curb Inlet (DI-1A) (RR-EDP1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.91' @ 12.15 hrs Surf.Area= 181 sf Storage= 911 cf
Flood Elev= 240.00' Storage= 943 cf

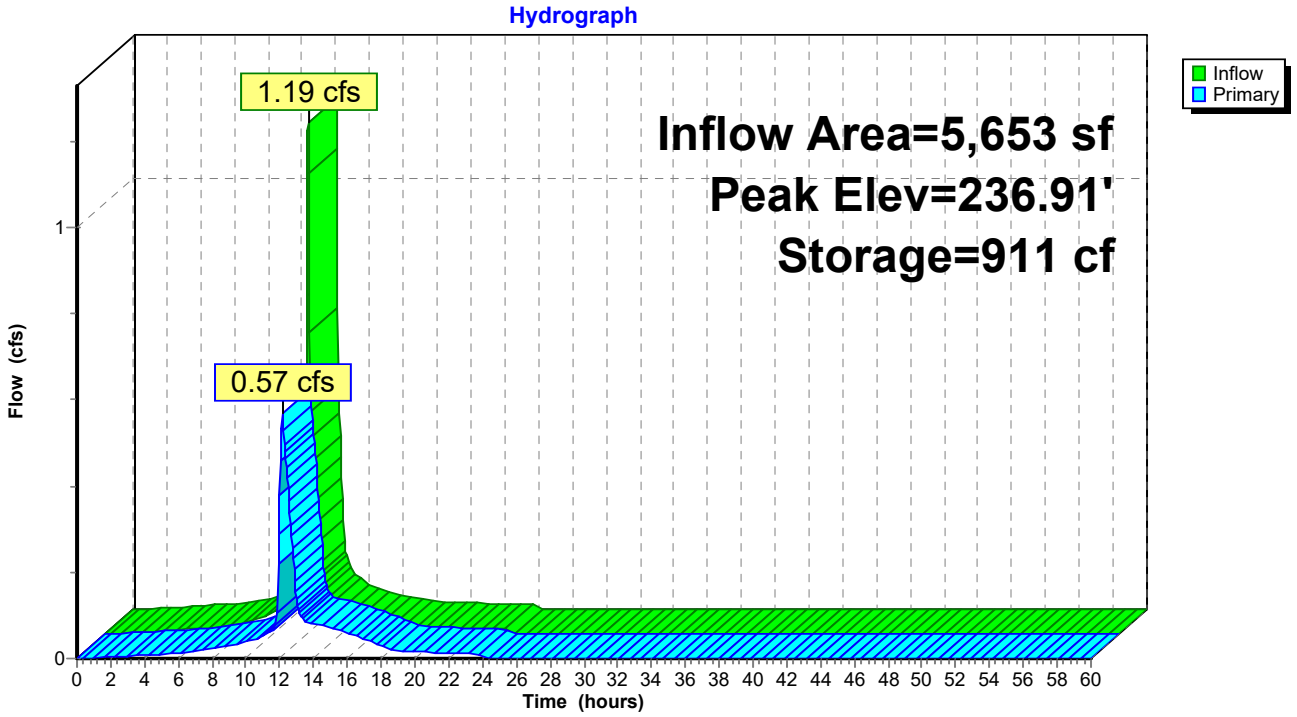
Plug-Flow detention time= 38.6 min calculated for 3,787 cf (100% of inflow)
Center-of-Mass det. time= 38.6 min (790.8 - 752.1)

Volume	Invert	Avail.Storage	Storage Description
#1	233.67'	943 cf	**42.0" Round 42" HDPE** L= 98.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.62'	**12.0" Round 12" HDPE (Outlet)** L= 22.9' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.62' / 232.50' S= 0.0489 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	233.67'	**6.0" Round 6" HDPE (Low Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 233.67' / 233.63' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	233.67'	**1.6" Vert. 1.6" Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	235.25'	**6.0" Round 6" HDPE (Mid Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.25' / 235.21' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#5	Device 4	235.25'	**3.5" Vert. 3.5" Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	236.63'	**6.0" Round 6" HDPE (High Flow)** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.63' / 236.59' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#7	Device 6	236.75'	**4.0" Vert. 4" Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.57 cfs @ 12.15 hrs HW=236.91' TW=232.85' (Dynamic Tailwater)
- **1=12" HDPE (Outlet)** (Passes 0.57 cfs of 6.31 cfs potential flow)
  - **2=6" HDPE (Low Flow)** (Passes 0.12 cfs of 1.63 cfs potential flow)
    - **3=1.6" Orifice** (Orifice Controls 0.12 cfs @ 8.57 fps)
  - **4=6" HDPE (Mid Flow)** (Passes 0.40 cfs of 1.12 cfs potential flow)
    - **5=3.5" Orifice** (Orifice Controls 0.40 cfs @ 5.92 fps)
  - **6=6" HDPE (High Flow)** (Passes 0.05 cfs of 0.15 cfs potential flow)
    - **7=4" Orifice** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)



Summary for Pond 2P: Trench Drain (TD-1B-1)

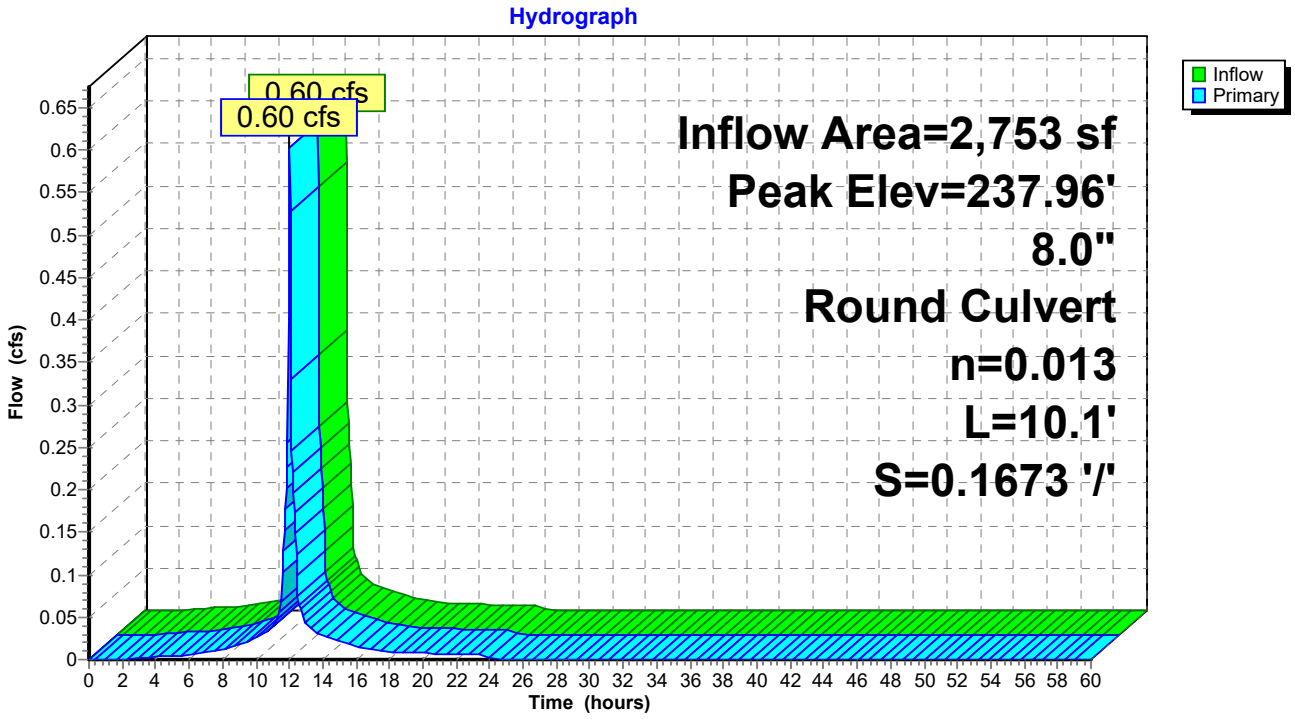
Inflow Area = 2,753 sf, 80.71% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 0.60 cfs @ 12.01 hrs, Volume= 1,846 cf
Outflow = 0.60 cfs @ 12.01 hrs, Volume= 1,846 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.01 hrs, Volume= 1,846 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.96' @ 12.01 hrs
Flood Elev= 240.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.50'	**8.0" Round 8" HDPE** L= 10.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.50' / 235.81' S= 0.1673 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.58 cfs @ 12.01 hrs HW=237.95' TW=236.52' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.58 cfs @ 2.29 fps)

Pond 2P: Trench Drain (TD-1B-1)



Summary for Pond CO1: 12x12" NDS Catch Basin (CO1)

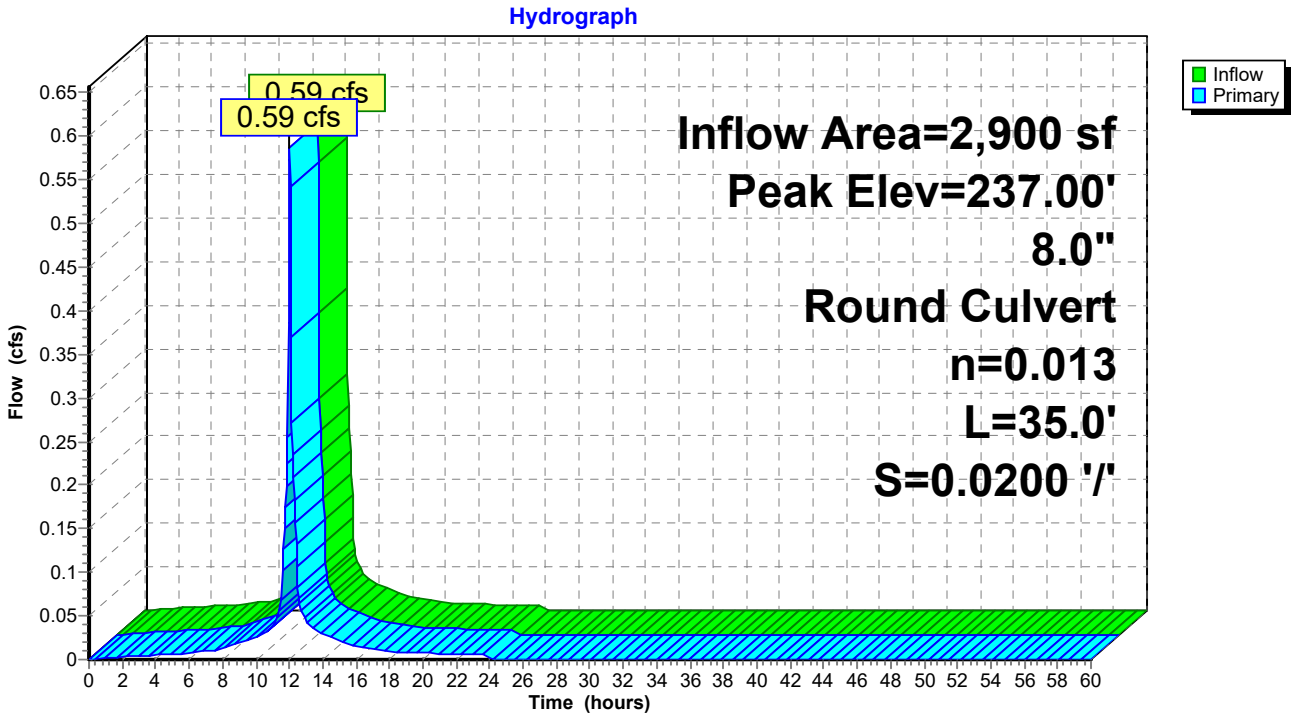
Inflow Area = 2,900 sf, 79.31% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 0.59 cfs @ 12.02 hrs, Volume= 1,944 cf
Outflow = 0.59 cfs @ 12.02 hrs, Volume= 1,944 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.02 hrs, Volume= 1,944 cf
Routed to Pond HS-1 : Hydrodynamic Separator WQv=0.19-cfs 100yr=1.19-cfs

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.00' @ 12.19 hrs
Flood Elev= 240.98'

Device	Routing	Invert	Outlet Devices
#1	Primary	236.51'	**8.0" Round 8" HDPE** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.51' / 235.81' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.52 cfs @ 12.02 hrs HW=236.96' TW=236.54' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.52 cfs @ 2.87 fps)

Pond CO1: 12x12" NDS Catch Basin (CO1)



Summary for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

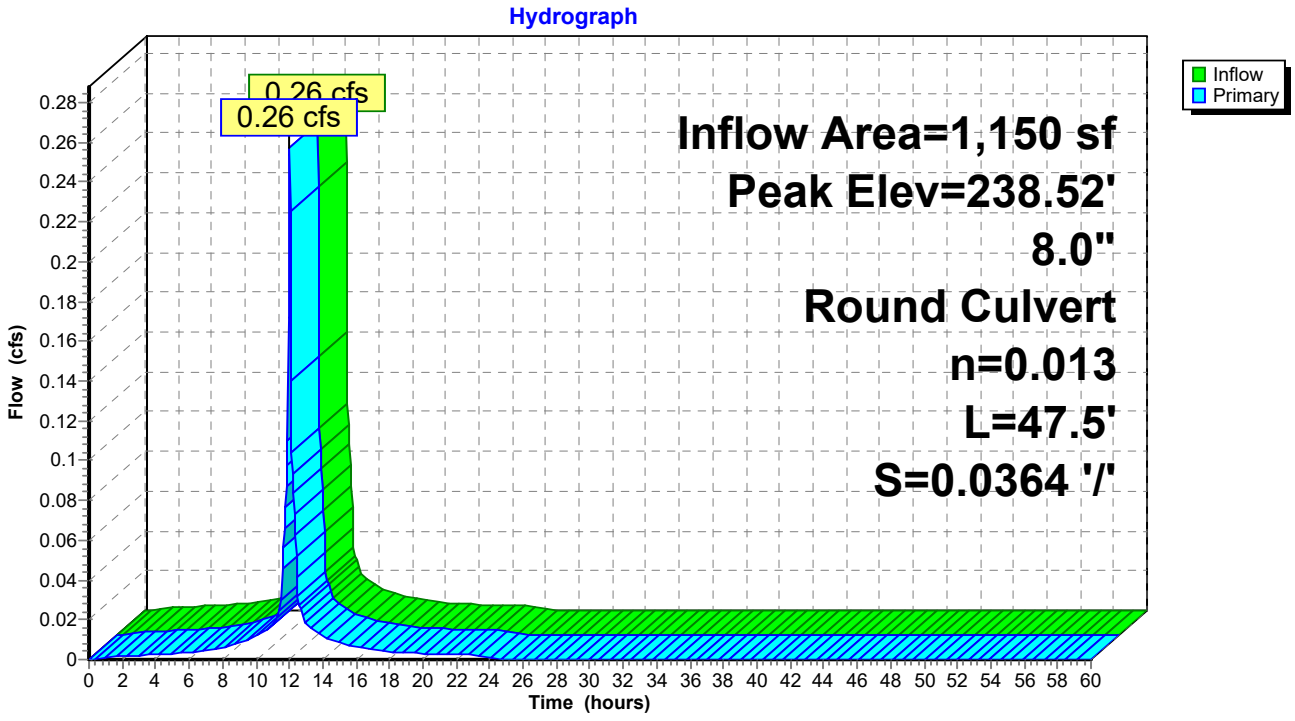
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 8.65" for 100-Year event
Inflow = 0.26 cfs @ 12.01 hrs, Volume= 829 cf
Outflow = 0.26 cfs @ 12.01 hrs, Volume= 829 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.01 hrs, Volume= 829 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.52' @ 12.01 hrs
Flood Elev= 240.81'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.24'	**8.0" Round 8" HDPE** L= 47.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.24' / 236.51' S= 0.0364 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.25 cfs @ 12.01 hrs HW=238.52' TW=236.97' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.25 cfs @ 1.79 fps)

Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)



Summary for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

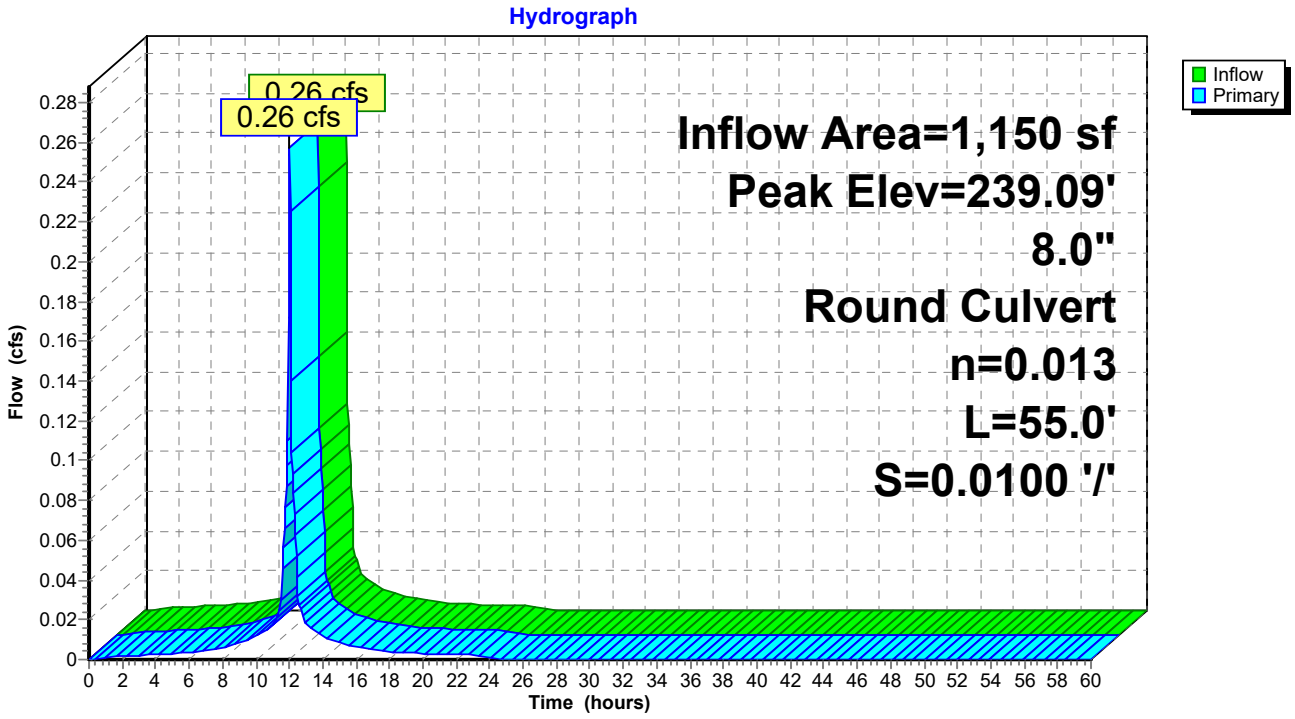
Inflow Area = 1,150 sf,100.00% Impervious, Inflow Depth = 8.65" for 100-Year event
Inflow = 0.26 cfs @ 12.01 hrs, Volume= 829 cf
Outflow = 0.26 cfs @ 12.01 hrs, Volume= 829 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.01 hrs, Volume= 829 cf
Routed to Pond CO1-1 : 12x12" NDS Catch Basin (CO1-1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 239.09' @ 12.01 hrs
Flood Elev= 241.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.79'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.79' / 238.24' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.25 cfs @ 12.01 hrs HW=239.08' TW=238.52' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.25 cfs @ 2.47 fps)

Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)



Summary for Pond CO2: 12x12" NDS Catch Basin (CO2)

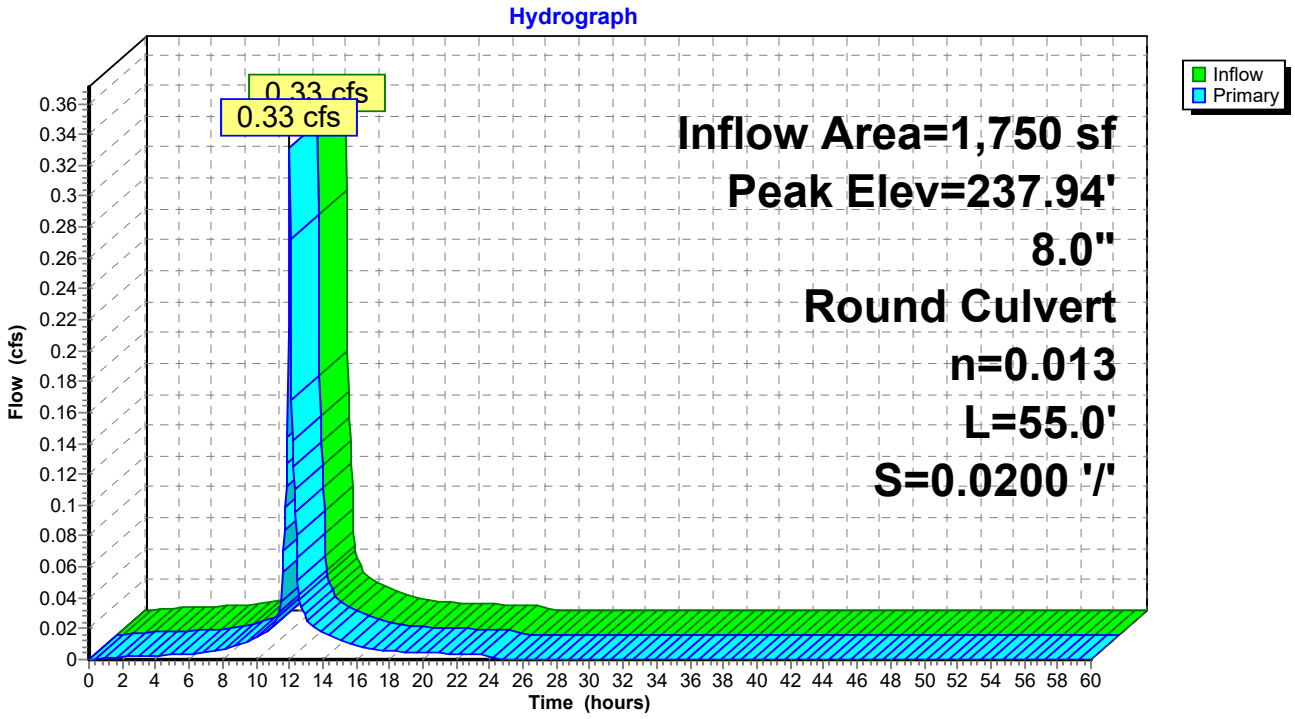
Inflow Area = 1,750 sf, 65.71% Impervious, Inflow Depth = 7.65" for 100-Year event
Inflow = 0.33 cfs @ 12.02 hrs, Volume= 1,115 cf
Outflow = 0.33 cfs @ 12.02 hrs, Volume= 1,115 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.02 hrs, Volume= 1,115 cf
Routed to Pond CO1 : 12x12" NDS Catch Basin (CO1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 237.94' @ 12.02 hrs
Flood Elev= 241.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.61'	**8.0" Round 8" HDPE** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.61' / 236.51' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.32 cfs @ 12.02 hrs HW=237.93' TW=236.96' (Dynamic Tailwater)
1=8" HDPE (Inlet Controls 0.32 cfs @ 1.92 fps)

Pond CO2: 12x12" NDS Catch Basin (CO2)



Summary for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

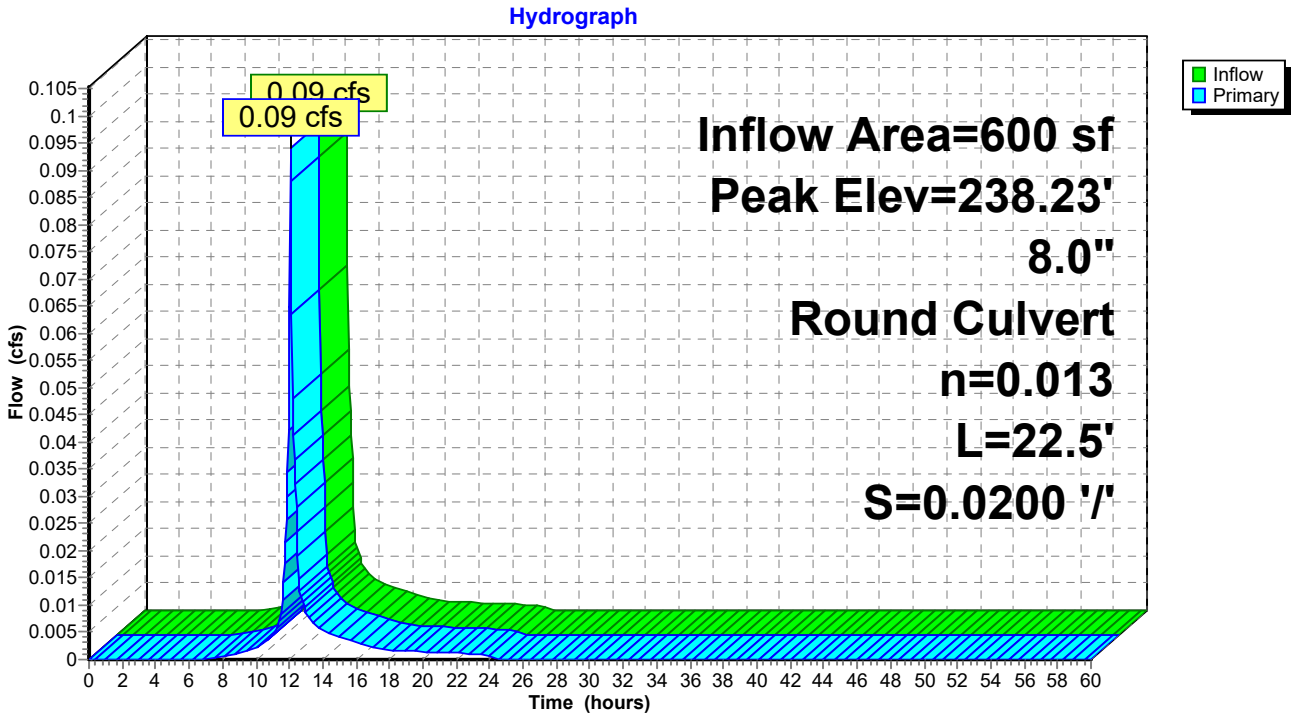
Inflow Area = 600 sf, 0.00% Impervious, Inflow Depth = 5.73" for 100-Year event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 286 cf
Outflow = 0.09 cfs @ 12.07 hrs, Volume= 286 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.07 hrs, Volume= 286 cf
Routed to Pond CO2 : 12x12" NDS Catch Basin (CO2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 238.23' @ 12.06 hrs
Flood Elev= 240.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.06'	**8.0" Round 8" HDPE** L= 22.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.06' / 237.61' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.09 cfs @ 12.07 hrs HW=238.23' TW=237.91' (Dynamic Tailwater)
1=8" HDPE (Outlet Controls 0.09 cfs @ 2.02 fps)

Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)



Summary for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

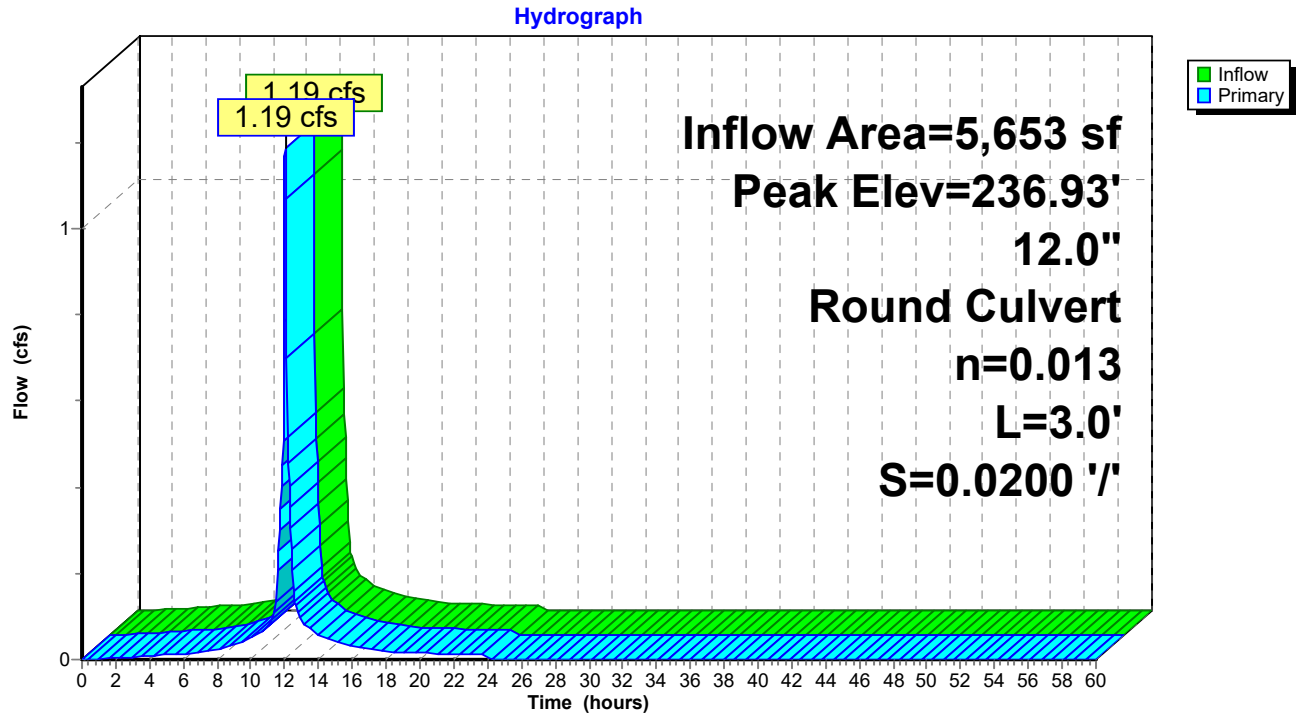
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 1.19 cfs @ 12.02 hrs, Volume= 3,790 cf
Outflow = 1.19 cfs @ 12.02 hrs, Volume= 3,790 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.19 cfs @ 12.02 hrs, Volume= 3,790 cf
Routed to Pond 1P : 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 236.93' @ 12.14 hrs
Flood Elev= 240.12'

Device	Routing	Invert	Outlet Devices
#1	Primary	235.81'	**12.0" Round 12" HDPE** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 235.81' / 235.75' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.33 cfs @ 12.02 hrs HW=236.52' TW=236.25' (Dynamic Tailwater)
1=12" HDPE (Barrel Controls 1.33 cfs @ 3.11 fps)

Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs



Summary for Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)

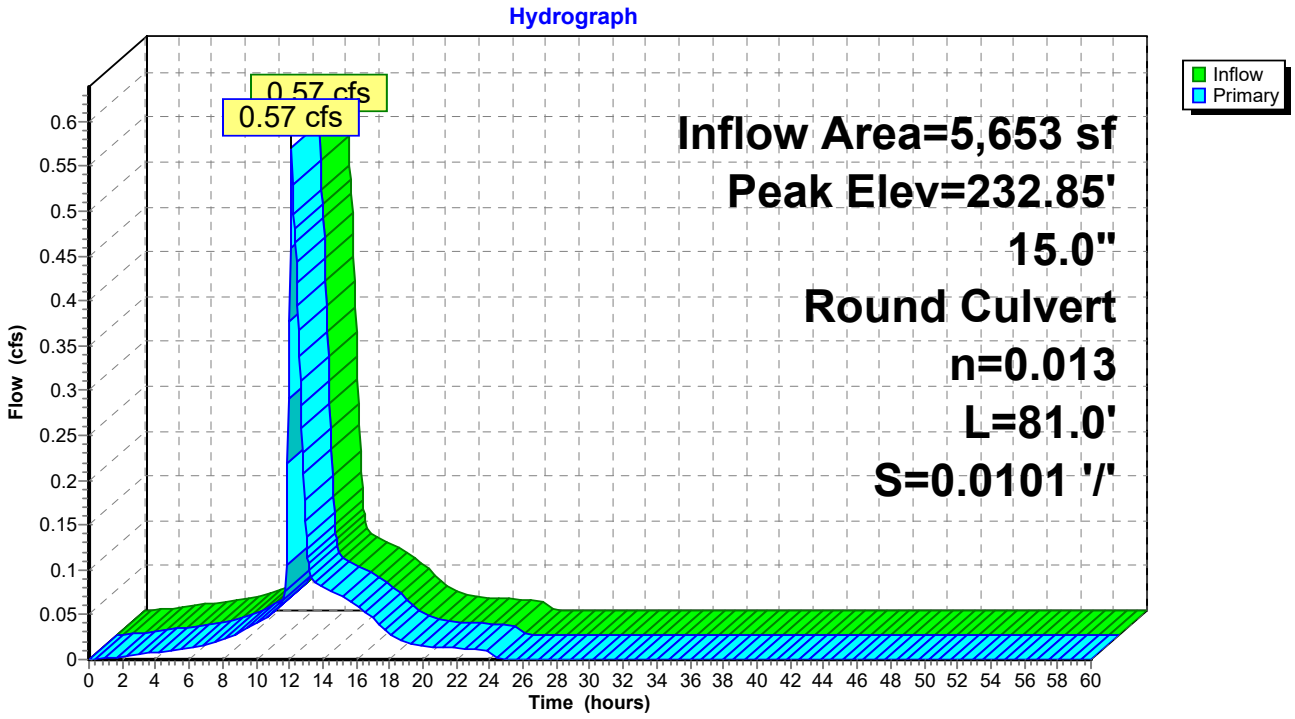
Inflow Area = 5,653 sf, 79.99% Impervious, Inflow Depth = 8.05" for 100-Year event
Inflow = 0.57 cfs @ 12.15 hrs, Volume= 3,790 cf
Outflow = 0.57 cfs @ 12.15 hrs, Volume= 3,790 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.15 hrs, Volume= 3,790 cf
Routed to Reach DP-1 : DP-1 (Ex. Drain Inlet)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 232.85' @ 12.15 hrs
Flood Elev= 239.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	232.50'	**15.0" Round 15" HDPE** L= 81.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 232.50' / 231.68' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.57 cfs @ 12.15 hrs HW=232.85' TW=0.00' (Dynamic Tailwater)
1=15" HDPE (Inlet Controls 0.57 cfs @ 2.02 fps)

Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)



Events for Subcatchment 1A: Watershed 1A - (Parking Area)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-Year	2.78	0.16	469	2.04
2-Year	3.39	0.21	603	2.63
10-Year	5.03	0.33	970	4.23
25-Year	6.31	0.42	1,259	5.49
100-Year	**8.89**	**0.60**	**1,846**	**8.05**

Events for Subcatchment 1B-1: Watershed 1B-1 - (Roof-North)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-Year	2.78	0.08	244	2.55
2-Year	3.39	0.10	303	3.16
10-Year	5.03	0.14	459	4.79
25-Year	6.31	0.18	582	6.07
100-Year	**8.89**	**0.26**	**829**	**8.65**

Events for Subcatchment 1B-2: Watershed 1B-2 - (Roof-South)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-Year	2.78	0.08	244	2.55
2-Year	3.39	0.10	303	3.16
10-Year	5.03	0.14	459	4.79
25-Year	6.31	0.18	582	6.07
100-Year	**8.89**	**0.26**	**829**	**8.65**

Events for Subcatchment 1C: Watershed 1C - (Rear Yard)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-Year	2.78	0.01	39	0.77
2-Year	3.39	0.02	58	1.16
10-Year	5.03	0.04	119	2.39
25-Year	6.31	0.06	172	3.45
100-Year	**8.89**	**0.09**	**286**	**5.73**

Events for Reach DP-1: DP-1 (Ex. Drain Inlet)

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.07	0.07	**0.00**	**0**
2-Year	0.08	0.08	0.00	0
10-Year	0.24	0.24	0.00	0
25-Year	0.34	0.34	0.00	0
100-Year	**0.57**	**0.57**	0.00	0

Events for Pond 1P: 98 L.F. 42" HDPE Pipe Attenuation Gallery (OCS-1/DMH-1B/RR-DE)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.33	0.07	234.85	280
2-Year	0.42	0.08	235.15	380
10-Year	0.65	0.24	235.61	535
25-Year	0.83	0.34	235.97	658
100-Year	**1.19**	**0.57**	**236.91**	**911**

Events for Pond 2P: Trench Drain (TD-1B-1)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.16	0.16	237.72	**0**
2-Year	0.21	0.21	237.75	0
10-Year	0.33	0.33	237.83	0
25-Year	0.42	0.42	237.87	0
100-Year	**0.60**	**0.60**	**237.96**	0

Events for Pond CO1: 12x12" NDS Catch Basin (CO1)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.17	0.17	236.73	**0**
2-Year	0.21	0.21	236.76	0
10-Year	0.32	0.32	236.83	0
25-Year	0.41	0.41	236.88	0
100-Year	**0.59**	**0.59**	**237.00**	0

Events for Pond CO1-1: 12x12" NDS Catch Basin (CO1-1)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.08	0.08	238.39	**0**
2-Year	0.10	0.10	238.41	0
10-Year	0.14	0.14	238.45	0
25-Year	0.18	0.18	238.48	0
100-Year	**0.26**	**0.26**	**238.52**	0

Events for Pond CO1-2: 12x12" NDS Catch Basin (CO1-2)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.08	0.08	238.95	**0**
2-Year	0.10	0.10	238.97	0
10-Year	0.14	0.14	239.01	0
25-Year	0.18	0.18	239.04	0
100-Year	**0.26**	**0.26**	**239.09**	0

Events for Pond CO2: 12x12" NDS Catch Basin (CO2)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.09	0.09	237.77	**0**
2-Year	0.11	0.11	237.79	0
10-Year	0.17	0.17	237.84	0
25-Year	0.23	0.23	237.88	0
100-Year	**0.33**	**0.33**	**237.94**	0

Events for Pond DI-2B: 18" Dia. Nyloplasat Drain Inlet (DI-2B)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.01	0.01	238.12	**0**
2-Year	0.02	0.02	238.13	0
10-Year	0.04	0.04	238.17	0
25-Year	0.06	0.06	238.19	0
100-Year	**0.09**	**0.09**	**238.23**	0

Events for Pond HS-1: Hydrodynamic Separator WQv=0.19-cfs 100ryr=1.19-cfs

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.33	0.33	236.13	**0**
2-Year	0.42	0.42	236.17	0
10-Year	0.65	0.65	236.28	0
25-Year	0.83	0.83	236.35	0
100-Year	**1.19**	**1.19**	**236.93**	0

Events for Pond RR-EDP1: Curb Inlet (DI-1A) (RR-EDP1)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	0.07	0.07	232.62	**0**
2-Year	0.08	0.08	232.63	0
10-Year	0.24	0.24	232.72	0
25-Year	0.34	0.34	232.77	0
100-Year	**0.57**	**0.57**	**232.85**	0