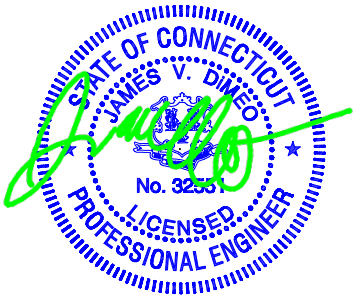
DiMeo ENGINEERING

ENGINEERING REPORT

Proposed Building and Site Development
Land of 75 Express CT LLC

#16 Trowbridge Drive
Bethel, Connecticut
May 12, 2026



James DiMeo, PE 32551

#16 TROWBRIDGE DRIVE
BETHEL, CONNECTICUT

Existing Conditions

The subject site is located on the eastern side of Trowbridge Drive approximately 800' from the cul-de-sac at the end of the road. The property is located within the town of bethel's Industrial Park. The property is a developed property that was home to the Workspace CT building with associated improvemsnts and parking. The majority of the existing property was collected and routed into 4'x4' concrete galleries for infiltration. The existing site has 1 minor watersheds flowing to the east and 1 major flowing to the north.

Drainage Analysis

A Hydrologic analysis was completed using HydroCAD software which implements SCS-T20 methodology to compute runoff volumes.

NOAA Atlas 14 Rainfall Data	
Storm	Rainfall Depth
2-Year	3.57
5-Year	4.66
10-Year	5.56
25-Year	6.79
50-Year	7.71
100-Year	8.70

Only the 2, 10 & 100 have been provided in the HydroCAD report to keep the size down, however the others have been included in all summaries. If the reviewer would like the additional storms, please let us know.

Soils Report

Attached to this report is a copy Web Soil Survey published by the Natural Resources Conservation Service for the project area. Based upon the soil survey the project area is encompassed by 305 Udorthents-Pits Complex & 38E – Hinckley Loamy Sand. Information on these soil classifications have also been provided. These zones are comprised of both hydrologic soil group A & C.

Test Pits

Deep test pits and infiltration test pits have been performed by the design engineer on 4/30/2026.

#16 TROWBRIDGE DRIVE
BETHEL, CONNECTICUT

Proposed Activity

The proposed project is to construct additions to the current building, update site grading, and upgrade stormwater management on the property to accommodate the proposed development. The proposed use will be Vintage, collectable and classic motor vehicle restoration and customization. As such this will increase the building footprint by 47,431 from 27,755 to 75,186 sq ft. There will be a rear patio behind the structure and approximately 40,600 sq ft of parking area. The building and all the parking areas, along with most of the grass area due to grading will be collected and routed through the proposed stormwater network. The proposed stormwater system will be comprised of 15 rows of 19 units of Cultec R-330 XLHD. This system will be controlled by a 36" wide Wier wall installed with an invert at 409.27 located inside of the proposed outlet control manhole. The water will then discharge into a 24" pipe. The intention is for the Wier to hole back the required WQV while the 24" pipe with control the peak flows leaving the site. The 24" pipe will penetrate the proposed retaining wall to the north and discharge into a proposed plunge pool. All yard drains will be installed with 1' sumps and be connected via 12" HDPE pipes.

#16 TROWBRIDGE DRIVE
BETHEL, CONNECTICUT

Water Quality Volume

The state of Connecticut DEEP stormwater guidelines requires that the first 1.3" of runoff be retained on site to provide an improvement in water quality. Below are calculations using the DEEP calculation worksheet. Due the site being a Redevelopment only 50% of the water quality volume is required.

WQV = (P)(R)(A)/12 x 50%

P=1.3"
R = 0.05+0.009(I)
I = Percent Impervious in Watershed
A = Watershed drainage area

Water Quality Volume	
	#16 Trowbridge Dr
P	1.30
I	62.24
R	0.61
A	203814
WQV Required (Cubic Ft)	6,736
WQV Provided (Cubic Ft)	7,210
*WQV is based upon storage volume of 9P under 409.27	

#16 TROWBRIDGE DRIVE
BETHEL, CONNECTICUT

Stormwater Summation

Peak Flow Summary Table - North			
	#16 Trowbridge Dr		
Storm	Existing	Proposed	Reduction
2- Year	4.59	1.32	71%
10-Year	9.8	8.71	11%
100-Year	18.62	17.30	7%
All Values Reported in CFS			

Peak Flow Summary Table - East			
	0		
Storm	Existing	Proposed	Reduction
2- Year	0	0	N/A
10-Year	5.56	0.01	100%
100-Year	0.93	0.31	67%
All Values Reported in CFS			

The proposed development will increase the amount of impervious area on the site, resulting in higher peak runoff rates. However, with the installation of the proposed Cultec infiltrators, the original flow patterns will be maintained and there will be no increase in peak runoff for all reported storm events. In addition to controlling stormwater peak runoff, the proposed design incorporates stormwater treatment to control pollution and provide groundwater recharge capacity. The implementation of these techniques and the overall site design layout will result in a finished project that will minimize sediment and erosion impacts during construction and will have no adverse impacts to adjoining properties or wetlands upon completion.

#16 TROWBRIDGE DRIVE
BETHEL, CONNECTICUT

Post Construction Storm Water Management Plan

Underground infiltrators

The underground infiltrators shall be inspected annually via the inspection ports. The inspection ports shall be specifically located in locations near pipe discharges. If sediment is observed the units shall be cleaned as needed.

Catch basins/ Yard Drains

All catch basins shall be inspected at least twice a year, once during the spring and once during the fall. Their sumps to be cleaned and be kept clear of debris and sediment buildup.

Plunge Pool

All plunge pools shall be inspected at least twice a year, once during the spring and once during the fall. They are to be cleaned and be kept clear of debris and sediment buildup.

Curtain Drain

All plunge pools shall be inspected at least twice a year, once during the spring and once during the fall. They are to be cleaned and be kept clear of debris and sediment buildup.

NOAA Atlas 14, Volume 10, Version 3
Location name: Bethel, Connecticut, USA*
Latitude: 41.3483°, Longitude: -73.4198°
Elevation: 415 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.358** (0.275-0.459)	**0.418** (0.321-0.536)	**0.516** (0.396-0.663)	**0.598** (0.456-0.771)	**0.710** (0.524-0.943)	**0.795** (0.576-1.07)	**0.883** (0.620-1.22)	**0.977** (0.657-1.38)	**1.10** (0.716-1.60)	**1.21** (0.764-1.77)
10-min	**0.507** (0.390-0.650)	**0.592** (0.455-0.759)	**0.731** (0.560-0.940)	**0.846** (0.644-1.09)	**1.00** (0.743-1.34)	**1.13** (0.815-1.52)	**1.25** (0.879-1.73)	**1.38** (0.929-1.95)	**1.56** (1.01-2.26)	**1.71** (1.08-2.51)
15-min	**0.596** (0.459-0.764)	**0.696** (0.535-0.893)	**0.860** (0.659-1.11)	**0.996** (0.759-1.28)	**1.18** (0.874-1.57)	**1.32** (0.960-1.79)	**1.47** (1.03-2.03)	**1.63** (1.09-2.29)	**1.84** (1.19-2.66)	**2.01** (1.27-2.95)
30-min	**0.844** (0.650-1.08)	**0.980** (0.753-1.26)	**1.20** (0.921-1.54)	**1.39** (1.06-1.79)	**1.64** (1.21-2.18)	**1.83** (1.33-2.47)	**2.03** (1.42-2.80)	**2.24** (1.50-3.15)	**2.52** (1.63-3.64)	**2.74** (1.74-4.02)
60-min	**1.09** (0.840-1.40)	**1.26** (0.971-1.62)	**1.54** (1.18-1.98)	**1.78** (1.35-2.29)	**2.10** (1.55-2.78)	**2.34** (1.69-3.15)	**2.59** (1.82-3.57)	**2.85** (1.92-4.02)	**3.20** (2.07-4.63)	**3.47** (2.20-5.10)
2-hr	**1.41** (1.10-1.80)	**1.65** (1.27-2.10)	**2.03** (1.56-2.59)	**2.34** (1.80-3.00)	**2.78** (2.06-3.67)	**3.10** (2.26-4.17)	**3.44** (2.44-4.75)	**3.83** (2.58-5.36)	**4.37** (2.84-6.28)	**4.81** (3.06-7.02)
3-hr	**1.63** (1.26-2.06)	**1.90** (1.48-2.42)	**2.36** (1.83-3.00)	**2.74** (2.11-3.50)	**3.26** (2.44-4.30)	**3.65** (2.68-4.90)	**4.06** (2.90-5.61)	**4.54** (3.07-6.33)	**5.23** (3.40-7.49)	**5.81** (3.69-8.44)
6-hr	**2.03** (1.59-2.56)	**2.41** (1.89-3.04)	**3.04** (2.37-3.84)	**3.56** (2.76-4.51)	**4.27** (3.22-5.61)	**4.80** (3.55-6.42)	**5.38** (3.87-7.41)	**6.05** (4.10-8.39)	**7.05** (4.60-10.0)	**7.90** (5.04-11.4)
12-hr	**2.47** (1.95-3.09)	**2.99** (2.35-3.74)	**3.84** (3.01-4.82)	**4.54** (3.54-5.72)	**5.50** (4.17-7.19)	**6.22** (4.62-8.27)	**6.99** (5.06-9.60)	**7.91** (5.38-10.9)	**9.30** (6.09-13.1)	**10.5** (6.70-15.0)
24-hr	**2.91** (2.31-3.61)	**3.57** (2.83-4.44)	**4.66** (3.68-5.80)	**5.56** (4.36-6.96)	**6.79** (5.18-8.83)	**7.71** (5.77-10.2)	**8.70** (6.35-11.9)	**9.90** (6.76-13.6)	**11.7** (7.70-16.5)	**13.3** (8.53-18.9)
2-day	**3.32** (2.65-4.10)	**4.12** (3.28-5.09)	**5.42** (4.31-6.72)	**6.51** (5.14-8.09)	**8.00** (6.14-10.3)	**9.10** (6.85-12.0)	**10.3** (7.57-14.0)	**11.8** (8.07-16.0)	**14.1** (9.27-19.6)	**16.1** (10.3-22.7)
3-day	**3.62** (2.90-4.45)	**4.48** (3.59-5.52)	**5.90** (4.71-7.28)	**7.08** (5.61-8.76)	**8.70** (6.70-11.2)	**9.89** (7.47-13.0)	**11.2** (8.26-15.2)	**12.8** (8.80-17.4)	**15.3** (10.1-21.3)	**17.5** (11.3-24.6)
4-day	**3.88** (3.12-4.76)	**4.79** (3.85-5.88)	**6.29** (5.03-7.73)	**7.53** (5.98-9.30)	**9.23** (7.12-11.9)	**10.5** (7.94-13.7)	**11.9** (8.76-16.1)	**13.6** (9.33-18.3)	**16.2** (10.7-22.4)	**18.4** (11.9-25.9)
7-day	**4.62** (3.74-5.64)	**5.63** (4.54-6.86)	**7.26** (5.84-8.88)	**8.62** (6.89-10.6)	**10.5** (8.12-13.4)	**11.9** (9.02-15.4)	**13.4** (9.88-17.9)	**15.2** (10.5-20.4)	**17.9** (11.9-24.7)	**20.3** (13.1-28.3)
10-day	**5.36** (4.35-6.51)	**6.42** (5.20-7.80)	**8.14** (6.57-9.93)	**9.58** (7.68-11.7)	**11.5** (8.96-14.6)	**13.0** (9.89-16.8)	**14.6** (10.8-19.4)	**16.4** (11.4-22.0)	**19.2** (12.7-26.3)	**21.5** (13.9-29.9)
20-day	**7.62** (6.22-9.19)	**8.78** (7.16-10.6)	**10.7** (8.69-12.9)	**12.3** (9.91-14.9)	**14.5** (11.3-18.1)	**16.1** (12.2-20.5)	**17.8** (13.1-23.2)	**19.7** (13.7-26.1)	**22.2** (14.9-30.3)	**24.3** (15.8-33.6)
30-day	**9.49** (7.78-11.4)	**10.7** (8.79-12.9)	**12.8** (10.4-15.4)	**14.5** (11.7-17.5)	**16.8** (13.1-20.8)	**18.6** (14.1-23.4)	**20.4** (14.9-26.2)	**22.2** (15.5-29.3)	**24.7** (16.5-33.4)	**26.5** (17.3-36.5)
45-day	**11.8** (9.70-14.1)	**13.1** (10.8-15.7)	**15.3** (12.5-18.4)	**17.1** (13.9-20.6)	**19.6** (15.4-24.2)	**21.6** (16.5-27.0)	**23.5** (17.2-30.0)	**25.4** (17.8-33.3)	**27.7** (18.6-37.4)	**29.5** (19.2-40.4)
60-day	**13.7** (11.3-16.3)	**15.1** (12.5-18.0)	**17.4** (14.3-20.9)	**19.4** (15.8-23.3)	**22.0** (17.3-27.1)	**24.1** (18.4-30.0)	**26.1** (19.1-33.2)	**28.0** (19.7-36.7)	**30.4** (20.5-40.9)	**32.1** (21.0-43.9)

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

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

Please refer to NOAA Atlas 14 document for more information.

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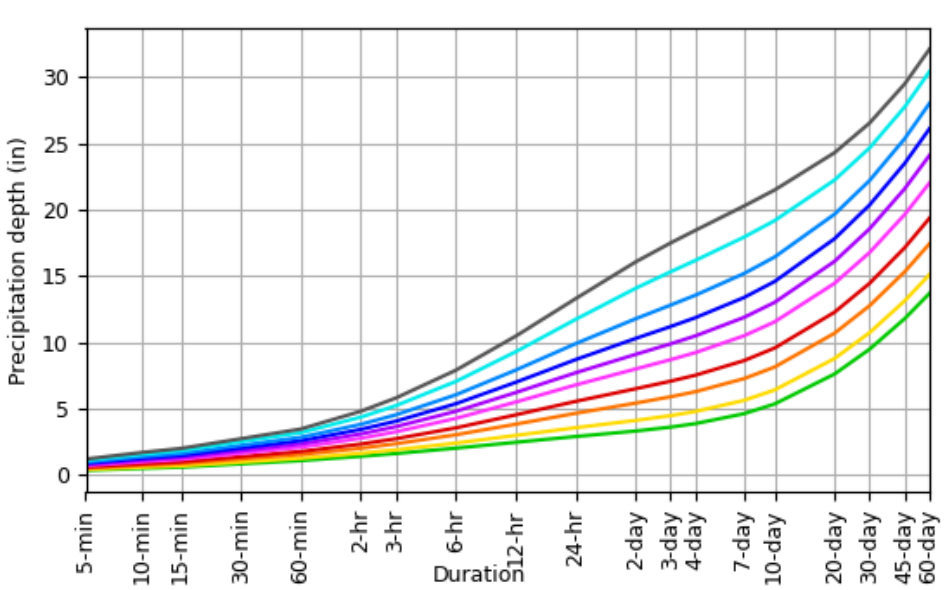
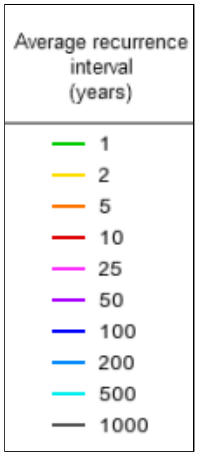
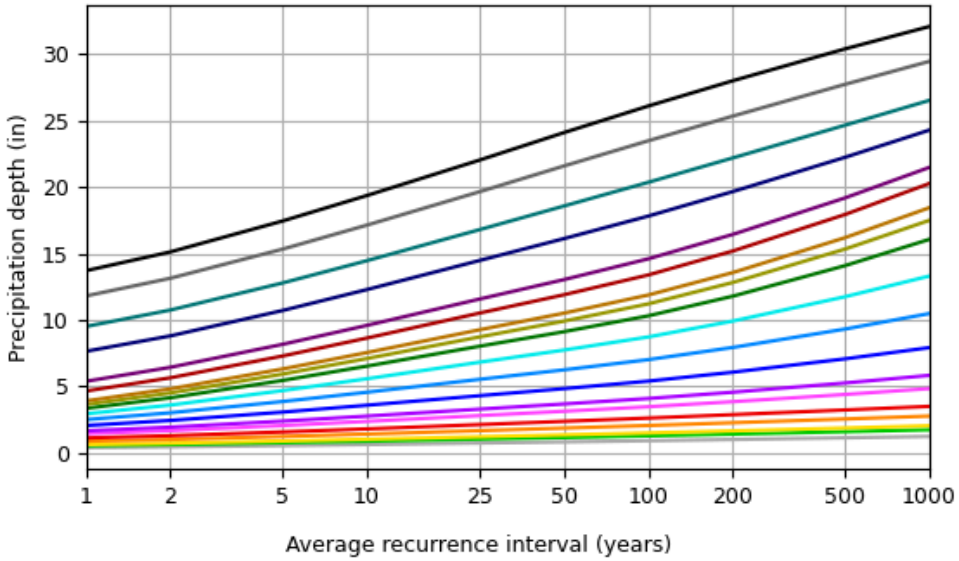
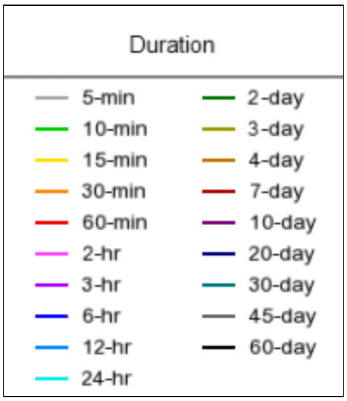
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.3483°, Longitude: -73.4198°









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Created (GMT): Sun May 3 14:42:31 2026

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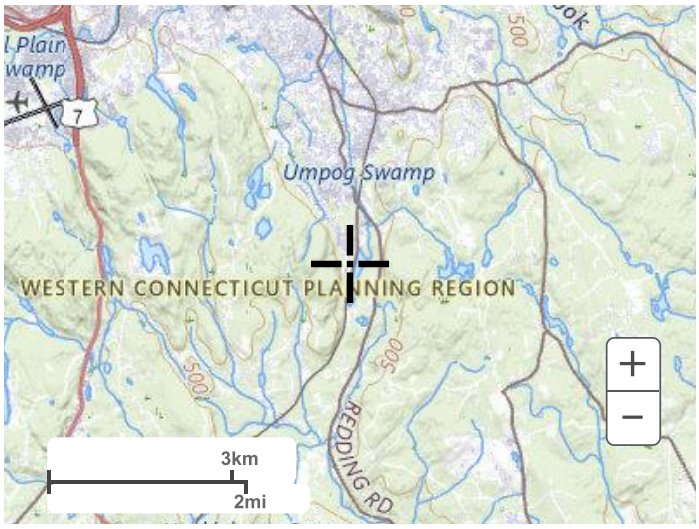
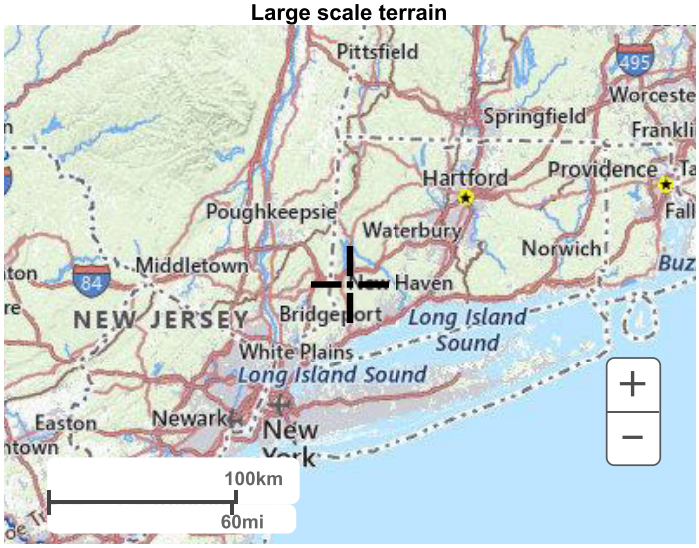
Maps & aerials

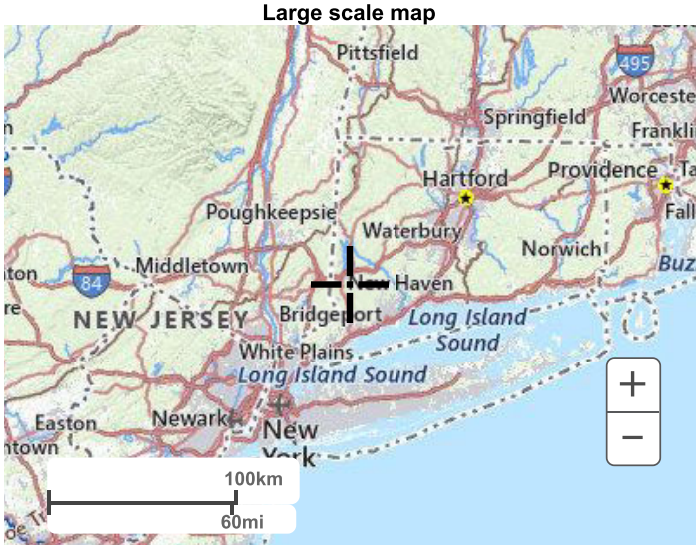
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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

Disclaimer

Map Scale: 1:1,780 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

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

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

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 6, Sep 16, 2025

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
38E	Hinckley loamy sand, 15 to 45 percent slopes	4.3	42.1%
305	Udorthents-Pits complex, gravelly	4.7	46.4%
703B	Haven silt loam, 3 to 8 percent slopes	0.5	4.8%
W	Water	0.7	6.7%
Totals for Area of Interest		**10.2**	**100.0%**

State of Connecticut, Western Part

38E—Hinckley loamy sand, 15 to 45 percent slopes

Map Unit Setting

National map unit symbol: 2svmj
Landscape: Uplands, valleys
Elevation: 0 to 1,280 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landscape: Uplands, valleys
Landform: Eskers, Kames, Outwash deltas, Outwash terraces, Moraines, Outwash plains, Kame terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 15 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 5 percent
Landscape: Uplands, valleys
Landform: Eskers, Kames, Moraines, Outwash deltas, Outwash terraces, Outwash plains, Kame terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landscape: Valleys, outwash plains
Landform: Outwash plains, Outwash terraces, Moraines, Eskers, Kames
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landscape: Uplands, valleys
Landform: Eskers, Kame terraces, Outwash deltas, Outwash terraces, Moraines, Kames, Outwash plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 2 percent
Landscape: Valleys, uplands
Landform: Kames, Eskers, Outwash deltas, Outwash plains, Kame terraces, Outwash terraces, Moraines
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, tread

Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Data Source Information

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 6, Sep 16, 2025

State of Connecticut, Western Part

305—Udorthents-Pits complex, gravelly

Map Unit Setting

National map unit symbol: 9lmf
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 65 percent
Pits: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Anthropogenic Feature: Sand pits, gravel pits
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Gravelly outwash

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 24 to 54 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Pits

Typical profile

C - 0 to 65 inches: very gravelly sand

Interpretive groups

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

Minor Components

Hinckley

Percent of map unit: 2 percent
Landscape: Valleys
Landform: Terraces, Outwash plains, Kames, Eskers
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 2 percent
Landscape: Valleys
Landform: Terraces, Outwash plains, Kames
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Merrimac

Percent of map unit: 2 percent
Landscape: Valleys
Landform: Terraces, Outwash plains, Kames
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Gloucester

Percent of map unit: 2 percent
Landscape: Uplands
Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ninigret

Percent of map unit: 1 percent
Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Sudbury

Percent of map unit: 1 percent

Landscape: Valleys
Landform: Terraces, Outwash plains
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Data Source Information

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 6, Sep 16, 2025

Time of Concentration (SCS) Mon, May 11 2026 2:16:14 PM

Project: 16 Trowbridge By: Date: 05/11/26
Location: East Existing Checked: Date: 05/11/26
Present

Curve Number : 36
Length of Flow : 143.69 ft
Average Land Slope : 29.40 %

Time of Concentration : 0.067 hrs, 4.0 mins

Time of Concentration (SCS) Mon, May 11 2026 2:14:15 PM

Project: 16 Trowbridge By: Date: 05/11/26
Location: North Existing Checked: Date: 05/11/26
Present

Curve Number : 92
Length of Flow : 947.13 ft
Average Land Slope : 4.11 %

Time of Concentration : 0.161 hrs, 9.7 mins

Project: 16 Trowbridge By: Date: 05/11/26
Location: East Proposed Checked: Date: 05/11/26
Developed

Curve Number : 36
Length of Flow : 87.70 ft
Average Land Slope : 13.60 %

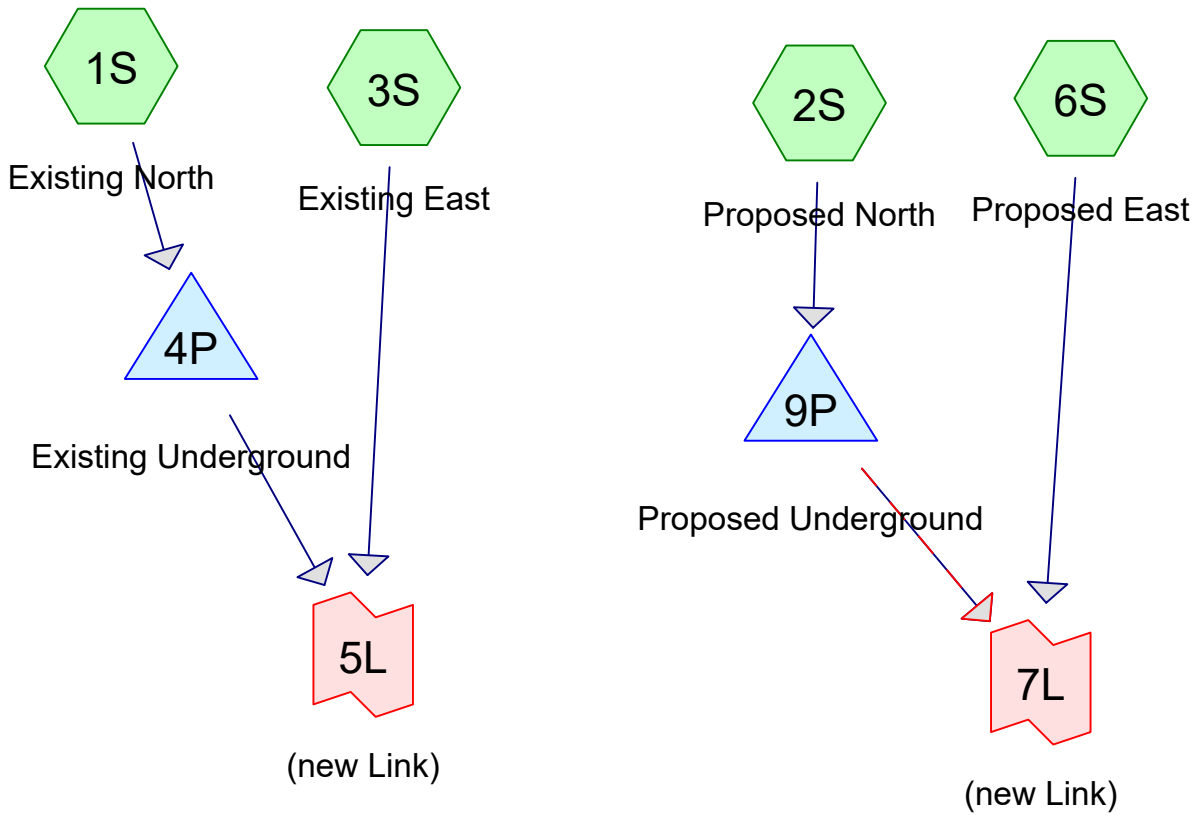
Time of Concentration : 0.066 hrs, 4.0 mins

Time of Concentration (SCS) Mon, May 11 2026 2:55:39 PM

Project: 16 Trowbridge By: Date: 05/11/26
Location: North Proposed Developed Checked: Date: 05/11/26

Curve Number : 95
Length of Flow : 771.23 ft
Average Land Slope : 6.17 %

Time of Concentration : 0.097 hrs, 5.8 mins



Subcat Reach Pond Link

Routing Diagram for 16 trowbridge
Prepared by James DiMeo, Printed 5/12/2026
HydroCAD® 10.20-2h s/n 12814 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Existing North

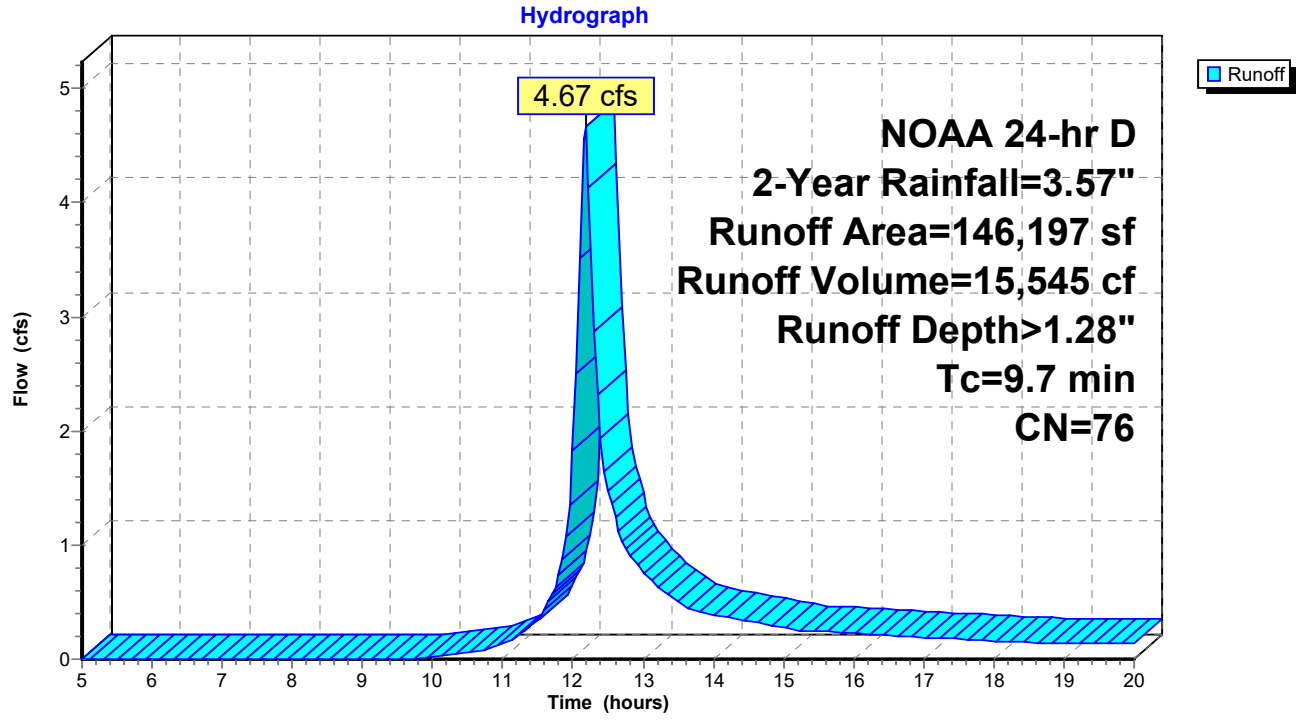
Runoff = 4.67 cfs @ 12.18 hrs, Volume= 15,545 cf, Depth> 1.28"
Routed to Pond 4P : Existing Underground

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.57"

Area (sf)	CN	Description
61,837	98	Paved parking, HSG A
27,755	98	Roofs, HSG A
1,255	98	Unconnected pavement, HSG A
55,308	39	>75% Grass cover, Good, HSG A
42	36	Woods, Fair, HSG A
146,197	76	Weighted Average
55,350		37.86% Pervious Area
90,847		62.14% Impervious Area
1,255		1.38% Unconnected

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

Subcatchment 1S: Existing North



Summary for Subcatchment 2S: Proposed North

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

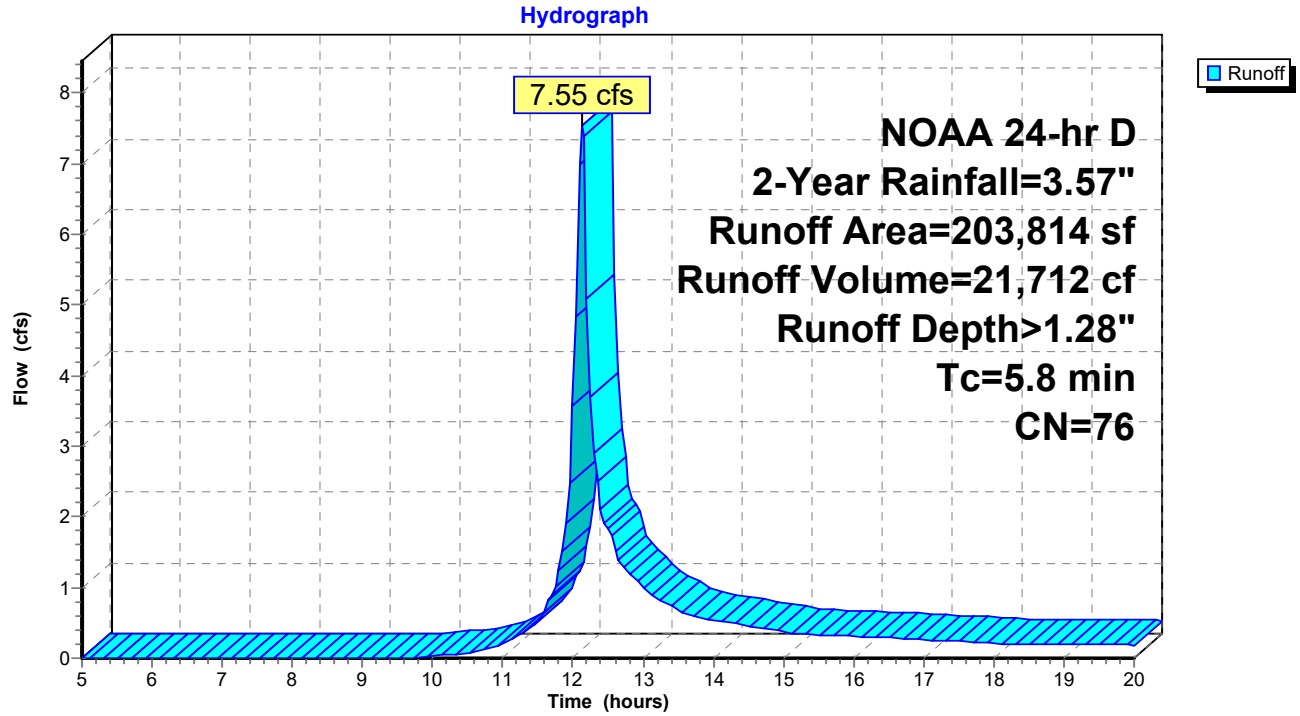
Runoff = 7.55 cfs @ 12.13 hrs, Volume= 21,712 cf, Depth> 1.28"
Routed to Pond 9P : Proposed Underground

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.57"

Area (sf)	CN	Description
40,664	98	Paved parking, HSG A
75,188	98	Roofs, HSG A
11,011	98	Unconnected pavement, HSG A
73,409	39	>75% Grass cover, Good, HSG A
3,542	36	Woods, Fair, HSG A
203,814	76	Weighted Average
76,951		37.76% Pervious Area
126,863		62.24% Impervious Area
11,011		8.68% Unconnected

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

Subcatchment 2S: Proposed North



Summary for Subcatchment 3S: Existing East

[49] Hint: Tc<2dt may require smaller dt
[73] Warning: Peak may fall outside time span

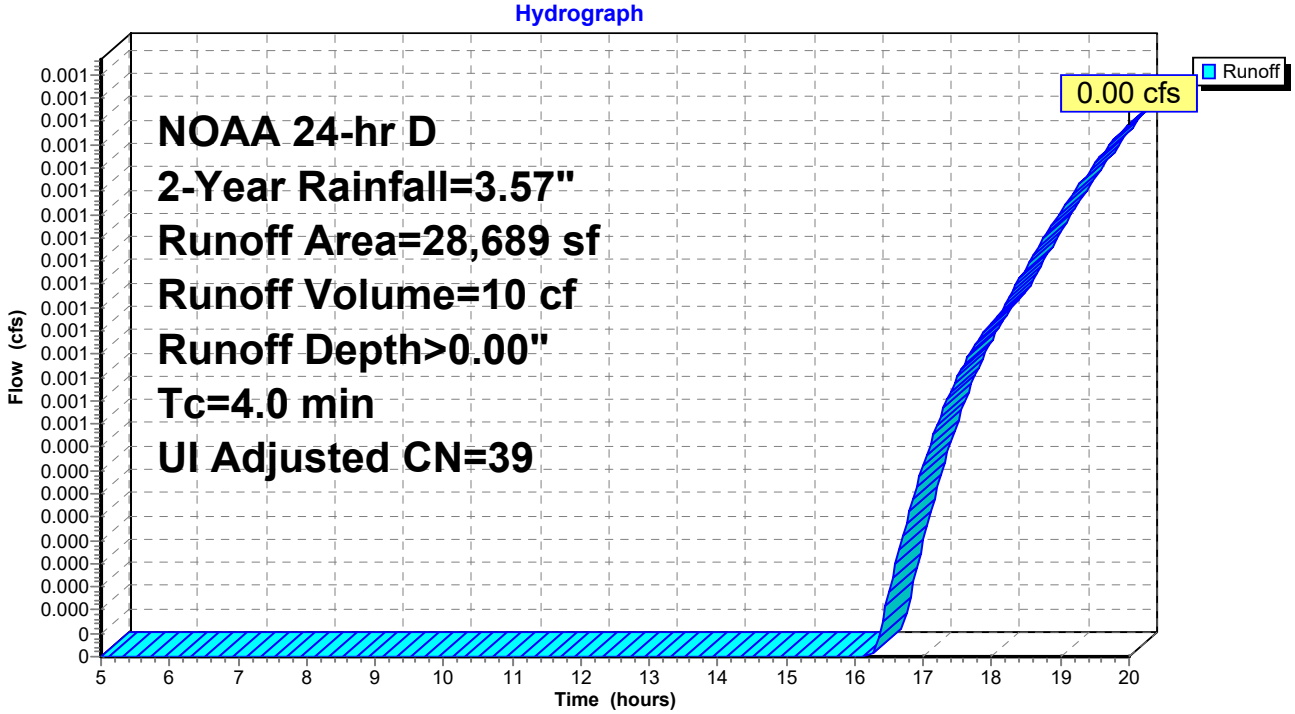
Runoff = 0.00 cfs @ 20.00 hrs, Volume= 10 cf, Depth> 0.00"
Routed to Link 5L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.57"

Area (sf)	CN	Adj	Description
2,040	98		Unconnected pavement, HSG A
9,294	39		>75% Grass cover, Good, HSG A
17,355	36		Woods, Fair, HSG A
28,689	41	39	Weighted Average, UI Adjusted
26,649			92.89% Pervious Area
2,040			7.11% Impervious Area
2,040			100.00% Unconnected

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

Subcatchment 3S: Existing East



Summary for Subcatchment 6S: Proposed East

[49] Hint: Tc<2dt may require smaller dt
[45] Hint: Runoff=Zero

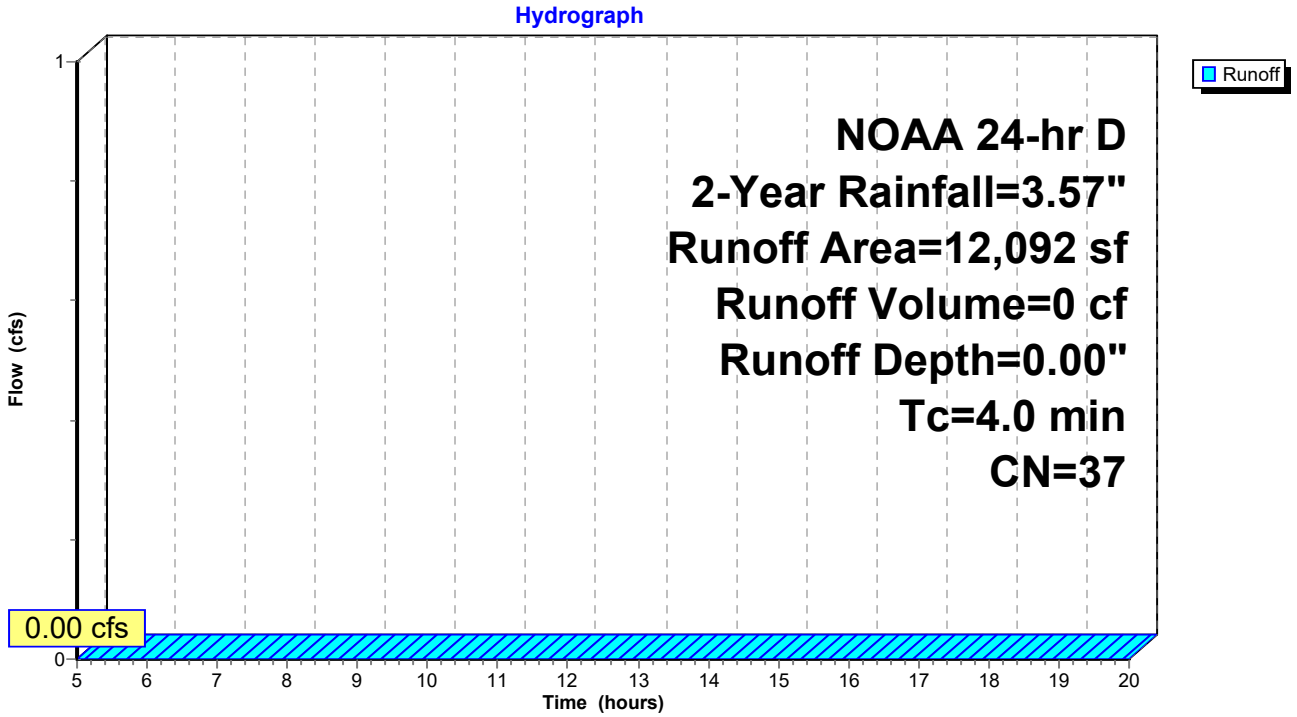
Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link 7L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.57"

Area (sf)	CN	Description
5,021	39	>75% Grass cover, Good, HSG A
7,071	36	Woods, Fair, HSG A
12,092	37	Weighted Average
12,092		100.00% Pervious Area

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

Subcatchment 6S: Proposed East



Summary for Pond 4P: Existing Underground

Inflow Area = 146,197 sf, 62.14% Impervious, Inflow Depth > 1.28" for 2-Year event
Inflow = 4.67 cfs @ 12.18 hrs, Volume= 15,545 cf
Outflow = 4.59 cfs @ 12.20 hrs, Volume= 14,628 cf, Atten= 2%, Lag= 1.5 min
Discarded = 0.10 cfs @ 12.20 hrs, Volume= 2,778 cf
Primary = 4.50 cfs @ 12.20 hrs, Volume= 11,850 cf
Routed to Link 5L : (new Link)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 3.21' @ 12.20 hrs Surf.Area= 563 sf Storage= 1,389 cf

Plug-Flow detention time= 30.8 min calculated for 14,628 cf (94% of inflow)
Center-of-Mass det. time= 10.0 min (824.7 - 814.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	148 cf	**8.80'W x 64.00'L x 4.00'H Field A** 2,253 cf Overall - 1,884 cf Embedded = 369 cf x 40.0% Voids
#2A	0.00'	1,419 cf	**Concrete Galley 4x4x4** x 32 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 32 Chambers in 2 Rows
		1,567 cf	Total Available Storage

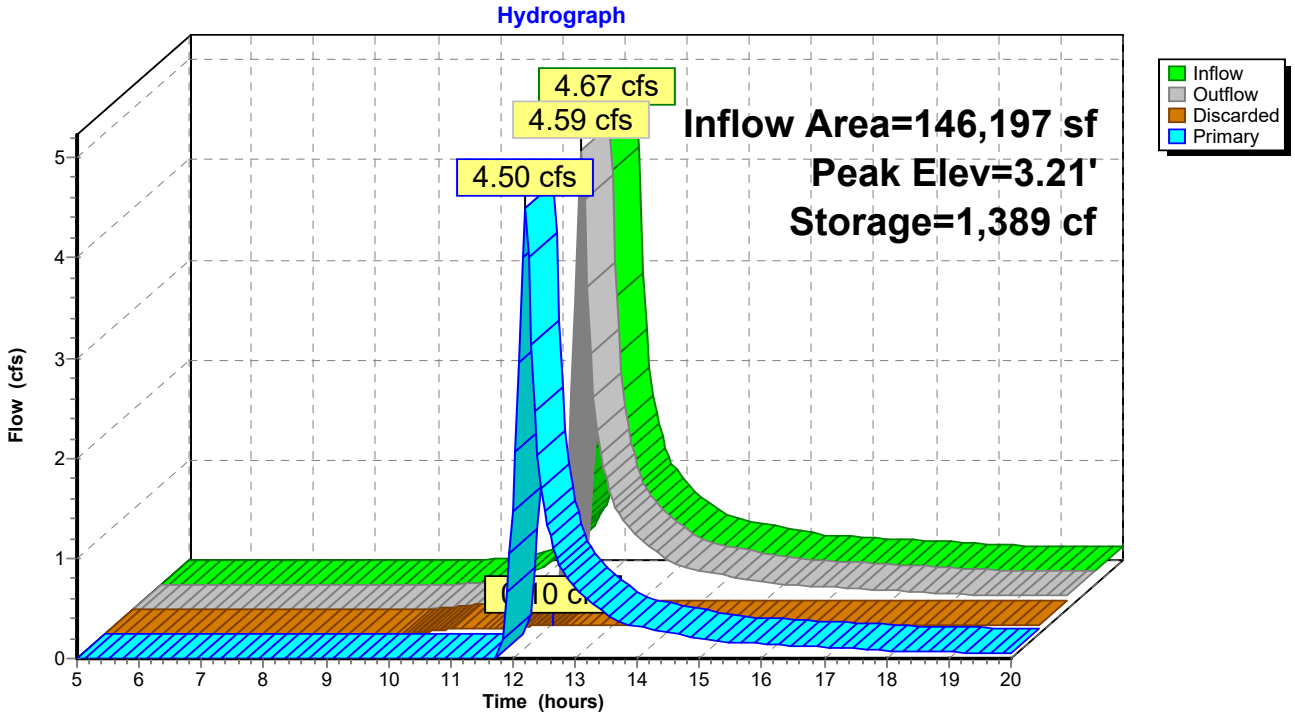
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#0	Primary	4.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	2.00'	**18.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / -0.80' S= 0.0700 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Discarded	0.00'	**4.000 in/hr Exfiltration over Wetted area**

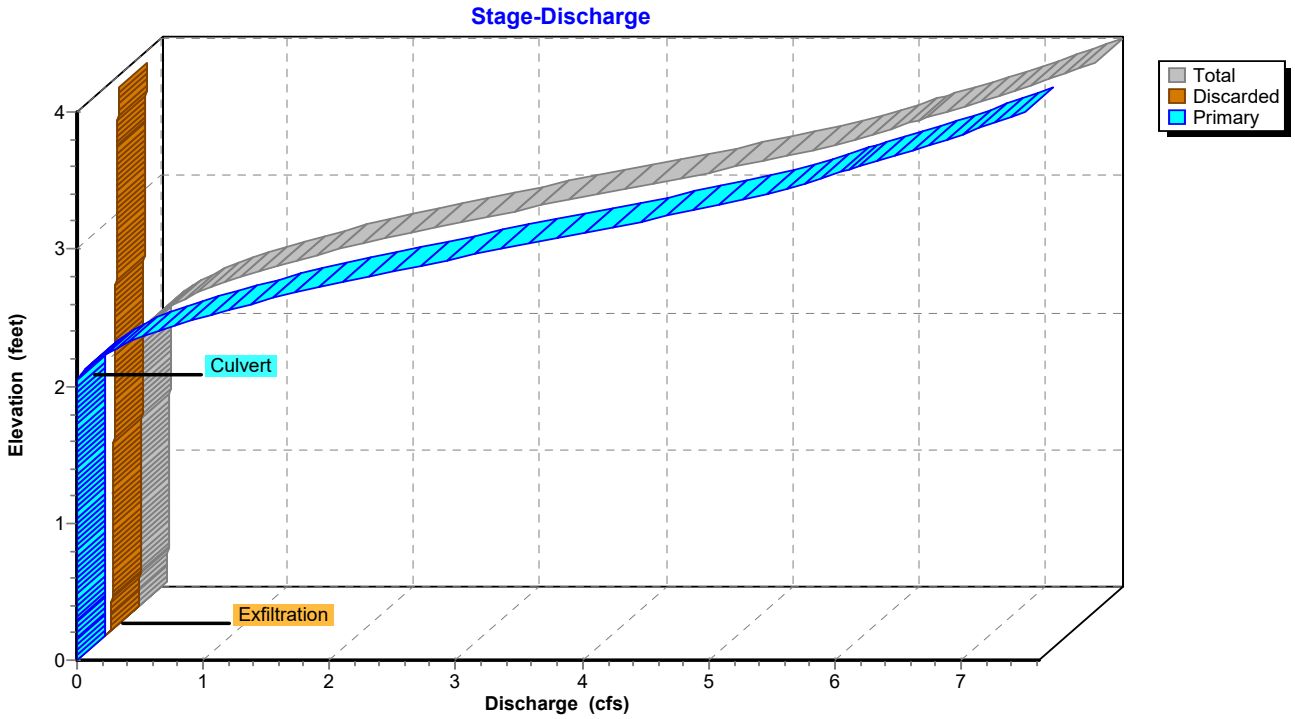
Discarded OutFlow Max=0.10 cfs @ 12.20 hrs HW=3.21' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=4.50 cfs @ 12.20 hrs HW=3.21' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 4.50 cfs @ 2.95 fps)

Pond 4P: Existing Underground



Pond 4P: Existing Underground



Stage-Discharge for Pond 4P: Existing Underground

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.00	0.00
0.05	0.05	0.05	0.00
0.10	0.05	0.05	0.00
0.15	0.05	0.05	0.00
0.20	0.05	0.05	0.00
0.25	0.06	0.06	0.00
0.30	0.06	0.06	0.00
0.35	0.06	0.06	0.00
0.40	0.06	0.06	0.00
0.45	0.06	0.06	0.00
0.50	0.06	0.06	0.00
0.55	0.06	0.06	0.00
0.60	0.06	0.06	0.00
0.65	0.06	0.06	0.00
0.70	0.06	0.06	0.00
0.75	0.06	0.06	0.00
0.80	0.06	0.06	0.00
0.85	0.06	0.06	0.00
0.90	0.06	0.06	0.00
0.95	0.06	0.06	0.00
1.00	0.07	0.07	0.00
1.05	0.07	0.07	0.00
1.10	0.07	0.07	0.00
1.15	0.07	0.07	0.00
1.20	0.07	0.07	0.00
1.25	0.07	0.07	0.00
1.30	0.07	0.07	0.00
1.35	0.07	0.07	0.00
1.40	0.07	0.07	0.00
1.45	0.07	0.07	0.00
1.50	0.07	0.07	0.00
1.55	0.07	0.07	0.00
1.60	0.07	0.07	0.00
1.65	0.07	0.07	0.00
1.70	0.08	0.08	0.00
1.75	0.08	0.08	0.00
1.80	0.08	0.08	0.00
1.85	0.08	0.08	0.00
1.90	0.08	0.08	0.00
1.95	0.08	0.08	0.00
2.00	0.08	0.08	0.00
2.05	0.09	0.08	0.01
2.10	0.12	0.08	0.04
2.15	0.18	0.08	0.10
2.20	0.25	0.08	0.17
2.25	0.34	0.08	0.26
2.30	0.45	0.08	0.37
2.35	0.58	0.08	0.50
2.40	0.73	0.08	0.64
2.45	0.89	0.09	0.80
2.50	1.07	0.09	0.98
2.55	1.26	0.09	1.17
2.60	1.46	0.09	1.37
2.65	1.68	0.09	1.59
2.70	1.91	0.09	1.82
2.75	2.15	0.09	2.06
2.80	2.39	0.09	2.30
2.85	2.65	0.09	2.56
2.90	2.91	0.09	2.82
2.95	3.18	0.09	3.09
3.00	3.46	0.09	3.36
3.05	3.73	0.09	3.64
3.10	4.01	0.09	3.92
3.15	4.29	0.09	4.19
3.20	4.56	0.10	4.46
3.25	4.82	0.10	4.73
3.30	5.08	0.10	4.99
3.35	5.33	0.10	5.23
3.40	5.56	0.10	5.46
3.45	5.76	0.10	5.66
3.50	5.92	0.10	5.82
3.55	6.11	0.10	6.01
3.60	6.29	0.10	6.19
3.65	6.47	0.10	6.37
3.70	6.65	0.10	6.55
3.75	6.82	0.10	6.72
3.80	6.99	0.10	6.88
3.85	7.15	0.10	7.05
3.90	7.31	0.10	7.20
3.95	7.46	0.11	7.36
4.00	**7.62**	**0.11**	**7.51**

Stage-Area-Storage for Pond 4P: Existing Underground

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
0.00	563	0
0.05	570	21
0.10	578	42
0.15	585	63
0.20	592	84
0.25	600	106
0.30	607	128
0.35	614	150
0.40	621	171
0.45	629	193
0.50	636	215
0.55	643	237
0.60	651	259
0.65	658	281
0.70	665	303
0.75	672	325
0.80	680	347
0.85	687	369
0.90	694	390
0.95	702	412
1.00	709	434
1.05	716	456
1.10	723	478
1.15	731	500
1.20	738	521
1.25	745	543
1.30	752	565
1.35	760	587
1.40	767	608
1.45	774	630
1.50	782	652
1.55	789	674
1.60	796	695
1.65	803	717
1.70	811	739
1.75	818	761
1.80	825	782
1.85	833	804
1.90	840	826
1.95	847	847
2.00	854	869
2.05	862	891
2.10	869	912
2.15	876	934
2.20	884	955
2.25	891	977
2.30	898	999
2.35	905	1,020
2.40	913	1,042
2.45	920	1,063
2.50	927	1,085
2.55	934	1,107
2.60	942	1,128
2.65	949	1,150
2.70	956	1,171
2.75	964	1,193
2.80	971	1,214
2.85	978	1,236
2.90	985	1,257
2.95	993	1,279
3.00	1,000	1,300
3.05	1,007	1,322
3.10	1,015	1,343
3.15	1,022	1,365
3.20	1,029	1,386
3.25	1,036	1,407
3.30	1,044	1,429
3.35	1,051	1,450
3.40	1,058	1,472
3.45	1,066	1,493
3.50	1,073	1,515
3.55	1,080	1,536
3.60	1,087	1,550
3.65	1,095	1,552
3.70	1,102	1,554
3.75	1,109	1,556
3.80	1,116	1,558
3.85	1,124	1,560
3.90	1,131	1,562
3.95	1,138	1,564
4.00	**1,146**	**1,567**

Summary for Pond 9P: Proposed Underground

Inflow Area = 203,814 sf, 62.24% Impervious, Inflow Depth > 1.28" for 2-Year event
Inflow = 7.55 cfs @ 12.13 hrs, Volume= 21,712 cf
Outflow = 1.32 cfs @ 12.70 hrs, Volume= 14,123 cf, Atten= 83%, Lag= 34.2 min
Discarded = 0.12 cfs @ 12.70 hrs, Volume= 4,150 cf
Primary = 1.19 cfs @ 12.70 hrs, Volume= 9,973 cf
Routed to Link 7L : (new Link)
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf
Routed to Link 7L : (new Link)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 409.52' @ 12.70 hrs Surf.Area= 10,101 sf Storage= 9,382 cf

Plug-Flow detention time= 146.4 min calculated for 14,076 cf (65% of inflow)
Center-of-Mass det. time= 68.9 min (880.7 - 811.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	408.17'	8,297 cf	**74.00'W x 136.50'L x 3.54'H Field A** 35,774 cf Overall - 15,032 cf Embedded = 20,742 cf x 40.0% Voids
#2A	408.67'	15,032 cf	**Cultec R-330XLHD** x 285 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 15 rows
		23,329 cf	Total Available Storage

Storage Group A created with Chamber Wizard

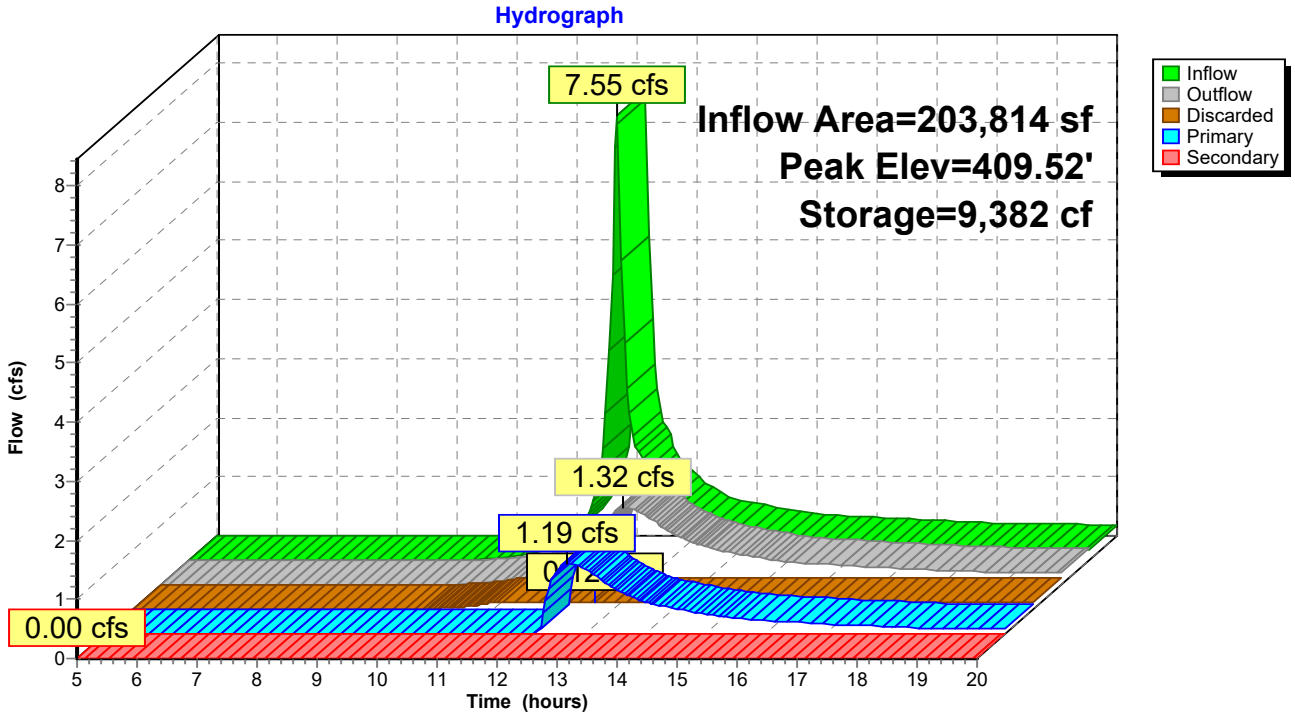
Device	Routing	Invert	Outlet Devices
#0	Secondary	411.71'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	408.67'	**24.0" Round Culvert** L= 58.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.67' / 402.00' S= 0.1144 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Discarded	408.17'	**0.500 in/hr Exfiltration over Wetted area**
#3	Device 1	409.27'	**36.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	409.77'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.12 cfs @ 12.70 hrs HW=409.52' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.12 cfs)

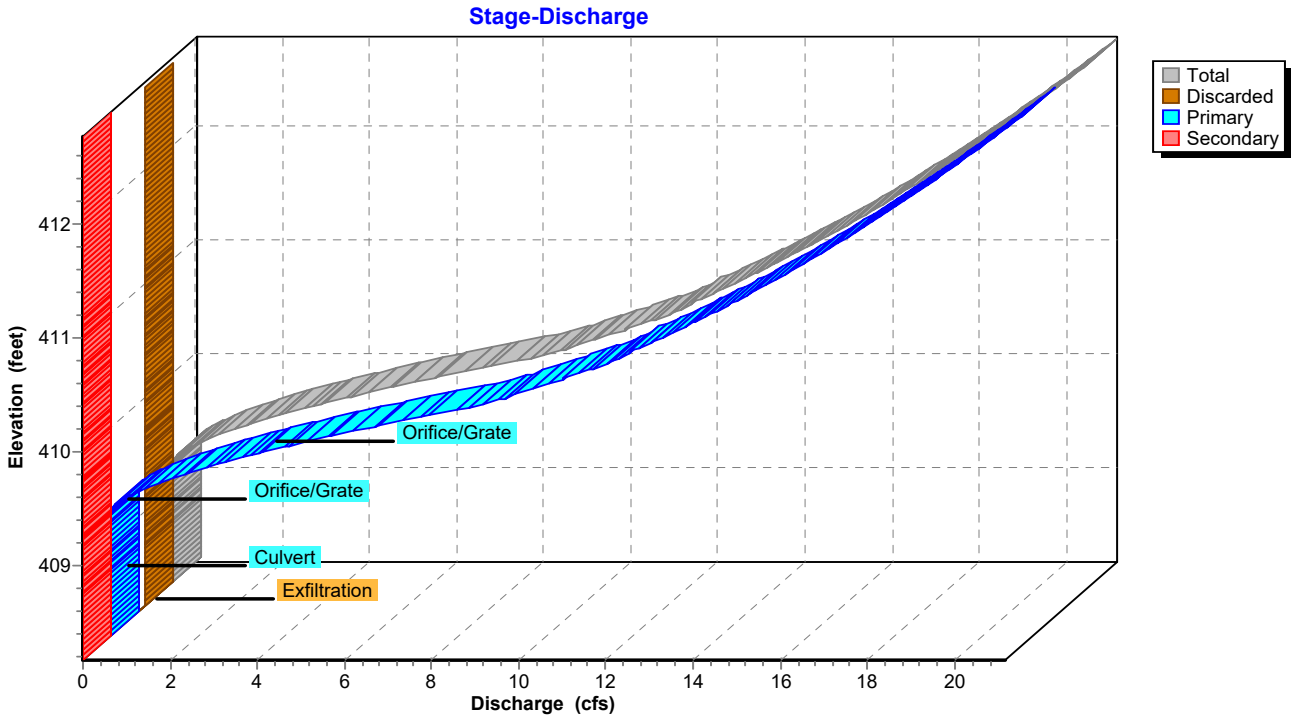
Primary OutFlow Max=1.19 cfs @ 12.70 hrs HW=409.52' (Free Discharge)
└**1=Culvert** (Passes 1.19 cfs of 3.14 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 1.19 cfs @ 1.60 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=408.17' (Free Discharge)

Pond 9P: Proposed Underground



Pond 9P: Proposed Underground



Stage-Discharge for Pond 9P: Proposed Underground

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
408.17	0.00	0.00	0.00	**0.00**
408.27	0.12	0.12	0.00	0.00
408.37	0.12	0.12	0.00	0.00
408.47	0.12	0.12	0.00	0.00
408.57	0.12	0.12	0.00	0.00
408.67	0.12	0.12	0.00	0.00
408.77	0.12	0.12	0.00	0.00
408.87	0.12	0.12	0.00	0.00
408.97	0.12	0.12	0.00	0.00
409.07	0.12	0.12	0.00	0.00
409.17	0.12	0.12	0.00	0.00
409.27	0.12	0.12	0.00	0.00
409.37	0.43	0.12	0.30	0.00
409.47	0.98	0.12	0.86	0.00
409.57	1.71	0.12	1.58	0.00
409.67	2.56	0.12	2.44	0.00
409.77	3.53	0.12	3.40	0.00
409.87	4.60	0.13	4.48	0.00
409.97	5.77	0.13	5.64	0.00
410.07	7.02	0.13	6.89	0.00
410.17	8.35	0.13	8.22	0.00
410.27	9.29	0.13	9.16	0.00
410.37	10.10	0.13	9.97	0.00
410.47	10.87	0.13	10.74	0.00
410.57	11.55	0.13	11.42	0.00
410.67	12.07	0.13	11.94	0.00
410.77	12.65	0.13	12.53	0.00
410.87	13.21	0.13	13.08	0.00
410.97	13.75	0.13	13.62	0.00
411.07	14.26	0.13	14.13	0.00
411.17	14.76	0.13	14.63	0.00
411.27	15.24	0.13	15.11	0.00
411.37	15.70	0.13	15.57	0.00
411.47	16.16	0.13	16.02	0.00
411.57	16.59	0.13	16.46	0.00
411.67	17.02	**0.13**	16.89	0.00
411.77	17.44	**0.13**	17.31	0.00
411.87	17.85	0.13	17.71	0.00
411.97	18.25	0.13	18.11	0.00
412.07	18.63	0.13	18.50	0.00
412.17	19.02	0.13	18.88	0.00
412.27	19.39	0.13	19.26	0.00
412.37	19.76	0.13	19.62	0.00
412.47	20.12	0.13	19.98	0.00
412.57	20.47	0.13	20.34	0.00
412.67	20.82	0.13	20.68	0.00
412.77	**21.16**	0.13	**21.03**	0.00

Stage-Area-Storage for Pond 9P: Proposed Underground

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
408.17	10,101	0
408.22	10,122	202
408.27	10,143	404
408.32	10,164	606
408.37	10,185	808
408.42	10,206	1,010
408.47	10,227	1,212
408.52	10,248	1,414
408.57	10,269	1,616
408.62	10,290	1,818
408.67	10,312	2,020
408.72	10,333	2,463
408.77	10,354	2,904
408.82	10,375	3,344
408.87	10,396	3,783
408.92	10,417	4,221
408.97	10,438	4,659
409.02	10,459	5,096
409.07	10,480	5,532
409.12	10,501	5,968
409.17	10,522	6,404
409.22	10,543	6,839
409.27	10,564	7,271
409.32	10,585	7,701
409.37	10,606	8,127
409.42	10,627	8,552
409.47	10,648	8,975
409.52	10,669	9,398
409.57	10,690	9,820
409.62	10,711	10,241
409.67	10,733	10,661
409.72	10,754	11,080
409.77	10,775	11,499
409.82	10,796	11,916
409.87	10,817	12,332
409.92	10,838	12,745
409.97	10,859	13,154
410.02	10,880	13,558
410.07	10,901	13,958
410.12	10,922	14,353
410.17	10,943	14,745
410.22	10,964	15,133
410.27	10,985	15,517
410.32	11,006	15,896
410.37	11,027	16,270
410.42	11,048	16,640
410.47	11,069	17,004
410.52	11,090	17,362
410.57	11,111	17,714
410.62	11,132	18,059
410.67	11,154	18,397
410.72	11,175	18,727
410.77	11,196	19,048
410.82	11,217	19,358
410.87	11,238	19,657
410.92	11,259	19,942
410.97	11,280	20,211
411.02	11,301	20,465
411.07	11,322	20,704
411.12	11,343	20,929
411.17	11,364	21,141
411.22	11,385	21,343
411.27	11,406	21,545
411.32	11,427	21,747
411.37	11,448	21,949
411.42	11,469	22,151
411.47	11,490	22,353
411.52	11,511	22,555
411.57	11,532	22,757
411.62	11,553	22,959
411.67	11,575	23,161
411.72	**11,592**	**23,329**
411.77	11,592	23,329
411.82	11,592	23,329
411.87	11,592	23,329
411.92	11,592	23,329
411.97	11,592	23,329
412.02	11,592	23,329
412.07	11,592	23,329
412.12	11,592	23,329
412.17	11,592	23,329
412.22	11,592	23,329
412.27	11,592	23,329
412.32	11,592	23,329
412.37	11,592	23,329
412.42	11,592	23,329
412.47	11,592	23,329
412.52	11,592	23,329
412.57	11,592	23,329
412.62	11,592	23,329
412.67	11,592	23,329
412.72	11,592	23,329
412.77	11,592	23,329

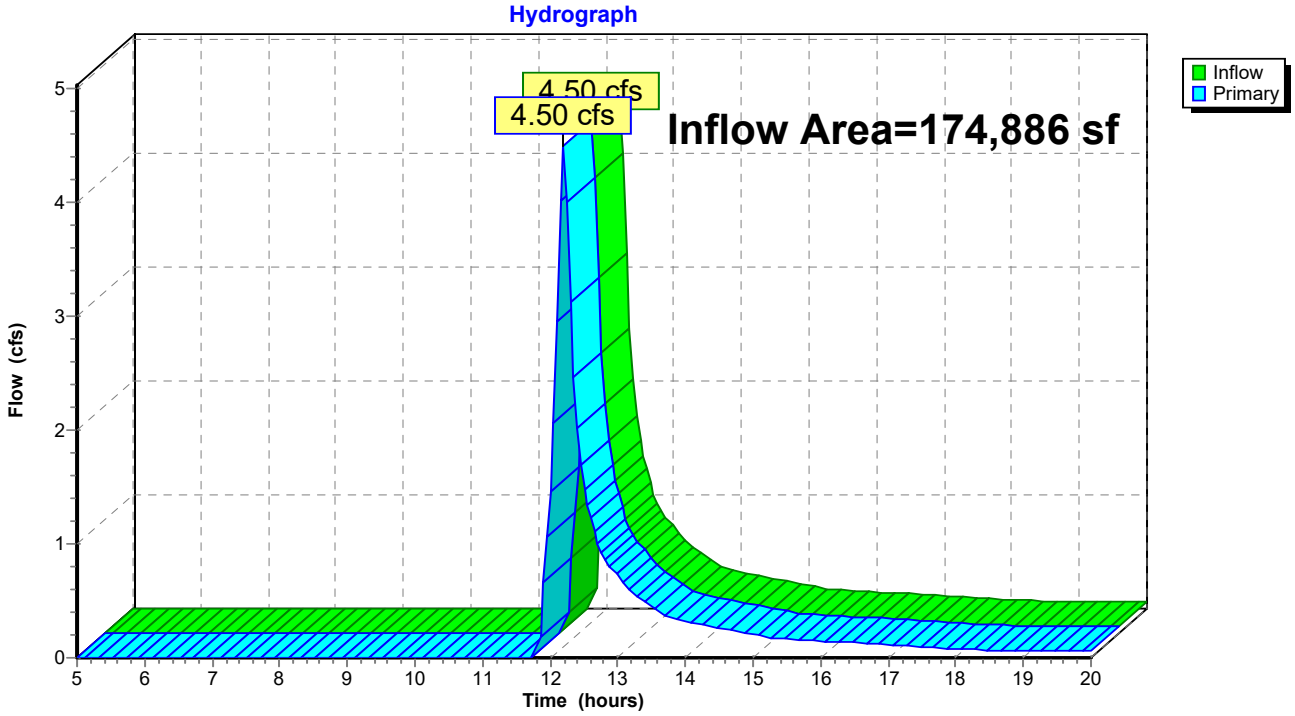
Summary for Link 5L: (new Link)

[79] Warning: Submerged Pond 4P Primary device # 1 OUTLET by 0.80'

Inflow Area = 174,886 sf, 53.11% Impervious, Inflow Depth > 0.81" for 2-Year event
Inflow = 4.50 cfs @ 12.20 hrs, Volume= 11,859 cf
Primary = 4.50 cfs @ 12.20 hrs, Volume= 11,859 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: (new Link)

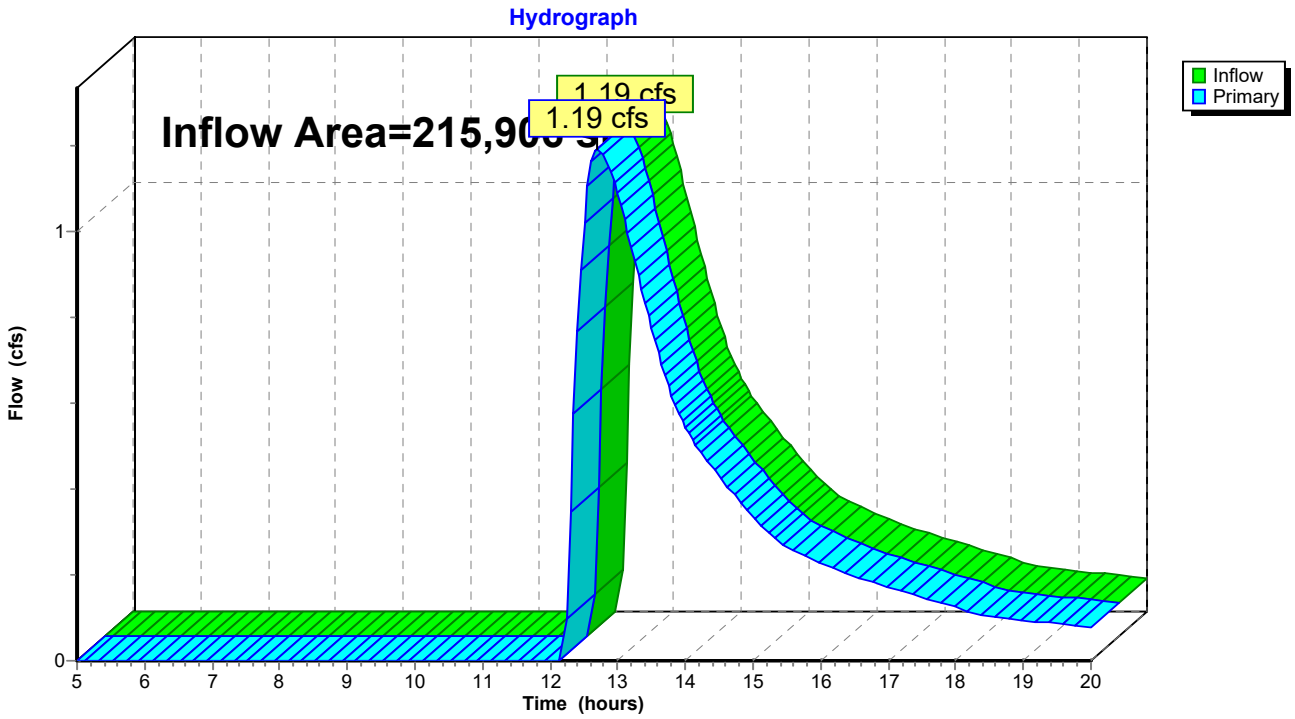


Summary for Link 7L: (new Link)

Inflow Area = 215,906 sf, 58.76% Impervious, Inflow Depth > 0.55" for 2-Year event
Inflow = 1.19 cfs @ 12.70 hrs, Volume= 9,973 cf
Primary = 1.19 cfs @ 12.70 hrs, Volume= 9,973 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 7L: (new Link)



Summary for Subcatchment 1S: Existing North

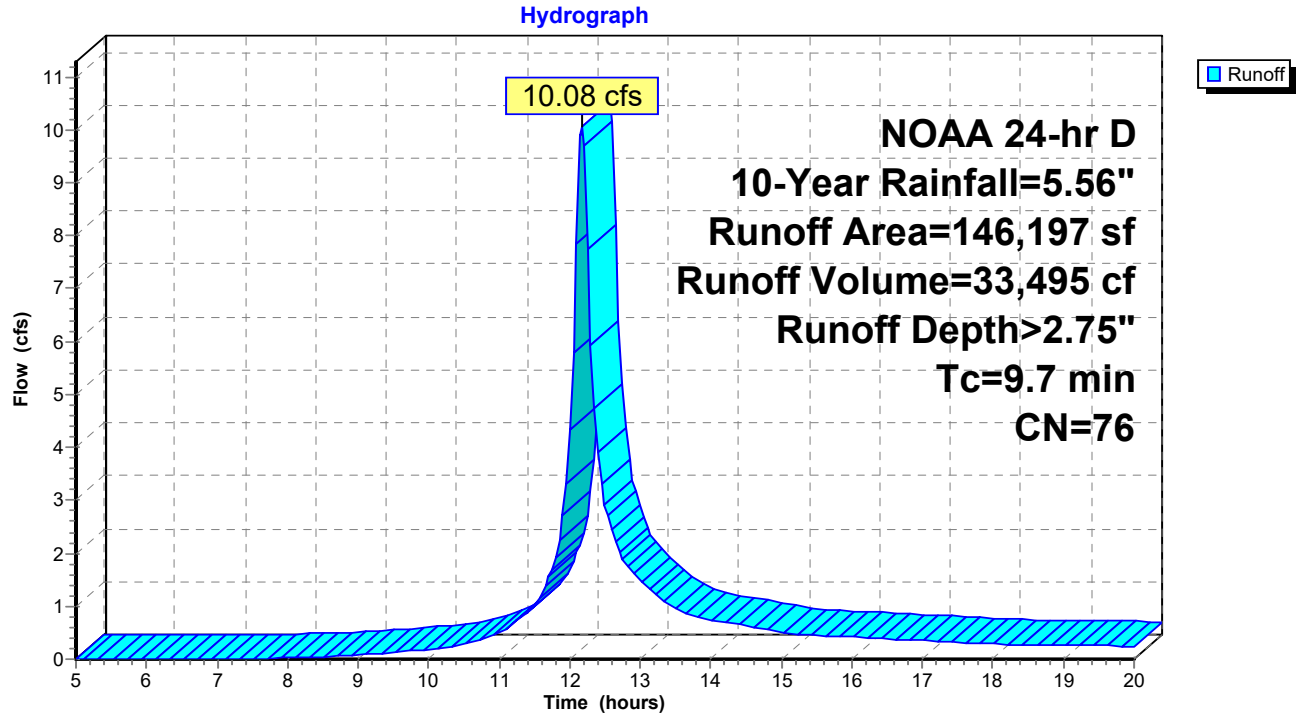
Runoff = 10.08 cfs @ 12.17 hrs, Volume= 33,495 cf, Depth> 2.75"
Routed to Pond 4P : Existing Underground

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.56"

Area (sf)	CN	Description
61,837	98	Paved parking, HSG A
27,755	98	Roofs, HSG A
1,255	98	Unconnected pavement, HSG A
55,308	39	>75% Grass cover, Good, HSG A
42	36	Woods, Fair, HSG A
146,197	76	Weighted Average
55,350		37.86% Pervious Area
90,847		62.14% Impervious Area
1,255		1.38% Unconnected

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

Subcatchment 1S: Existing North



Summary for Subcatchment 2S: Proposed North

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

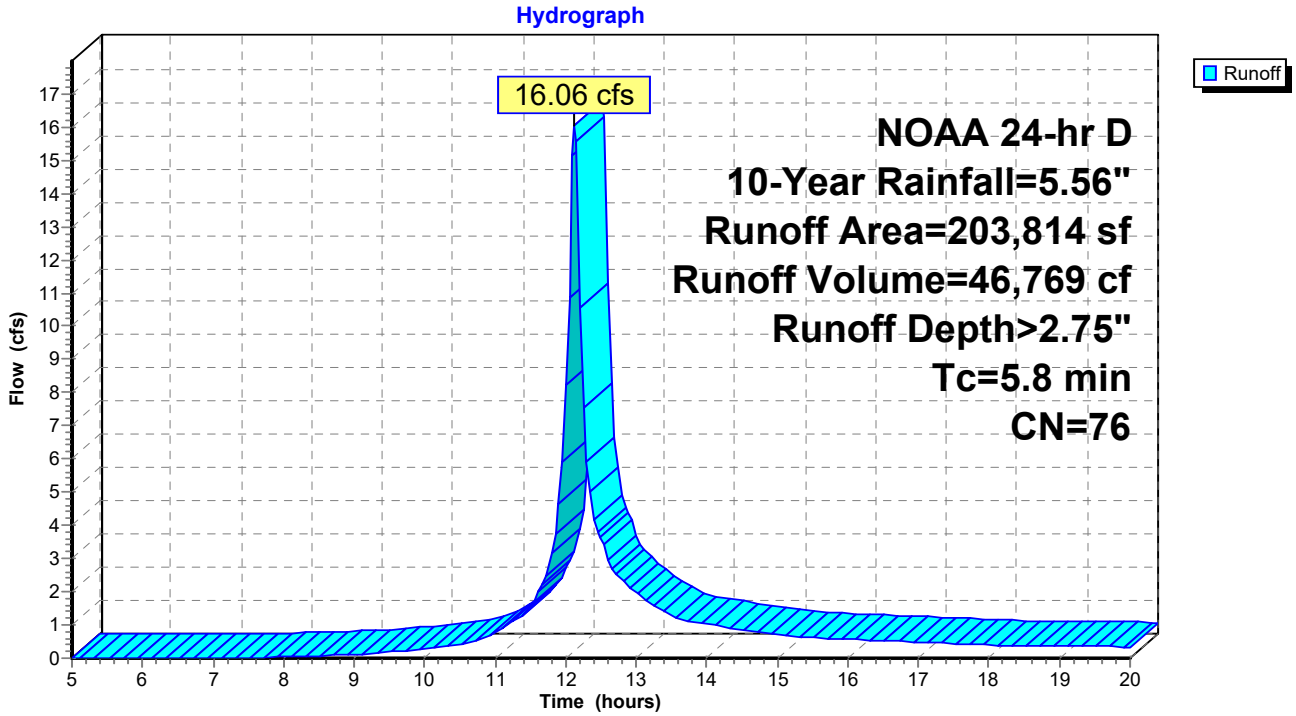
Runoff = 16.06 cfs @ 12.13 hrs, Volume= 46,769 cf, Depth> 2.75"
Routed to Pond 9P : Proposed Underground

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.56"

Area (sf)	CN	Description
40,664	98	Paved parking, HSG A
75,188	98	Roofs, HSG A
11,011	98	Unconnected pavement, HSG A
73,409	39	>75% Grass cover, Good, HSG A
3,542	36	Woods, Fair, HSG A
203,814	76	Weighted Average
76,951		37.76% Pervious Area
126,863		62.24% Impervious Area
11,011		8.68% Unconnected

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

Subcatchment 2S: Proposed North



Summary for Subcatchment 3S: Existing East

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

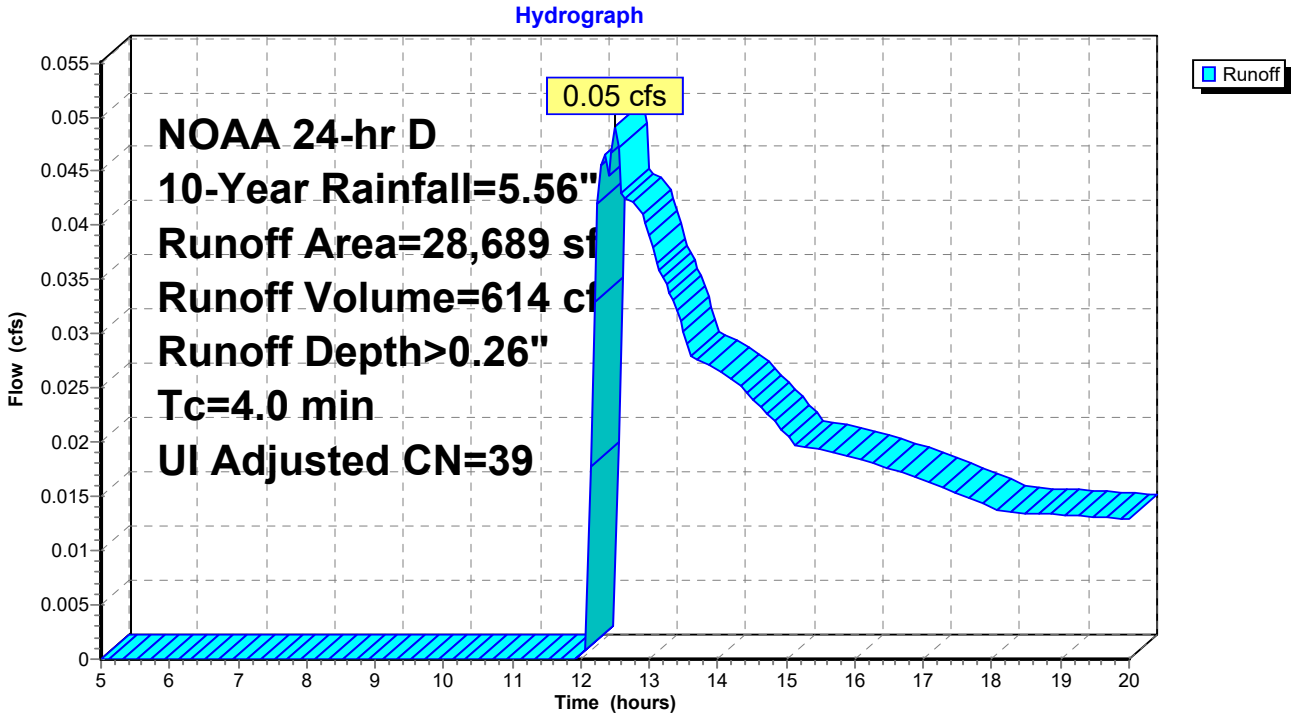
Runoff = 0.05 cfs @ 12.50 hrs, Volume= 614 cf, Depth> 0.26"
Routed to Link 5L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.56"

Area (sf)	CN	Adj	Description
2,040	98		Unconnected pavement, HSG A
9,294	39		>75% Grass cover, Good, HSG A
17,355	36		Woods, Fair, HSG A
28,689	41	39	Weighted Average, UI Adjusted
26,649			92.89% Pervious Area
2,040			7.11% Impervious Area
2,040			100.00% Unconnected

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

Subcatchment 3S: Existing East



Summary for Subcatchment 6S: Proposed East

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

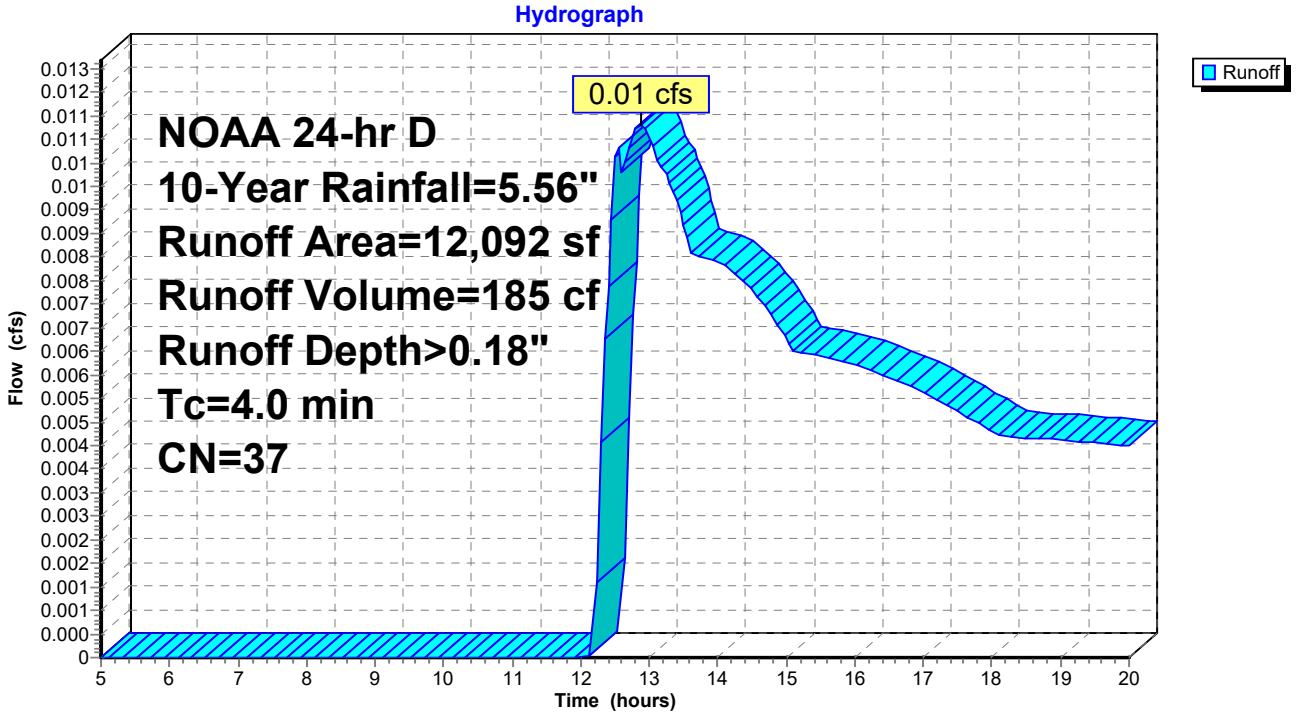
Runoff = 0.01 cfs @ 12.87 hrs, Volume= 185 cf, Depth> 0.18"
Routed to Link 7L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.56"

Area (sf)	CN	Description
5,021	39	>75% Grass cover, Good, HSG A
7,071	36	Woods, Fair, HSG A
12,092	37	Weighted Average
12,092		100.00% Pervious Area

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

Subcatchment 6S: Proposed East



Summary for Pond 4P: Existing Underground

Inflow Area = 146,197 sf, 62.14% Impervious, Inflow Depth > 2.75" for 10-Year event
Inflow = 10.08 cfs @ 12.17 hrs, Volume= 33,495 cf
Outflow = 9.80 cfs @ 12.19 hrs, Volume= 32,541 cf, Atten= 3%, Lag= 1.4 min
Discarded = 0.11 cfs @ 12.15 hrs, Volume= 3,364 cf
Primary = 9.70 cfs @ 12.19 hrs, Volume= 29,177 cf
Routed to Link 5L : (new Link)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.00' @ 12.15 hrs Surf.Area= 563 sf Storage= 1,567 cf

Plug-Flow detention time= 17.7 min calculated for 32,433 cf (97% of inflow)
Center-of-Mass det. time= 6.9 min (803.2 - 796.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	148 cf	**8.80'W x 64.00'L x 4.00'H Field A** 2,253 cf Overall - 1,884 cf Embedded = 369 cf x 40.0% Voids
#2A	0.00'	1,419 cf	**Concrete Galley 4x4x4** x 32 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 32 Chambers in 2 Rows
		1,567 cf	Total Available Storage

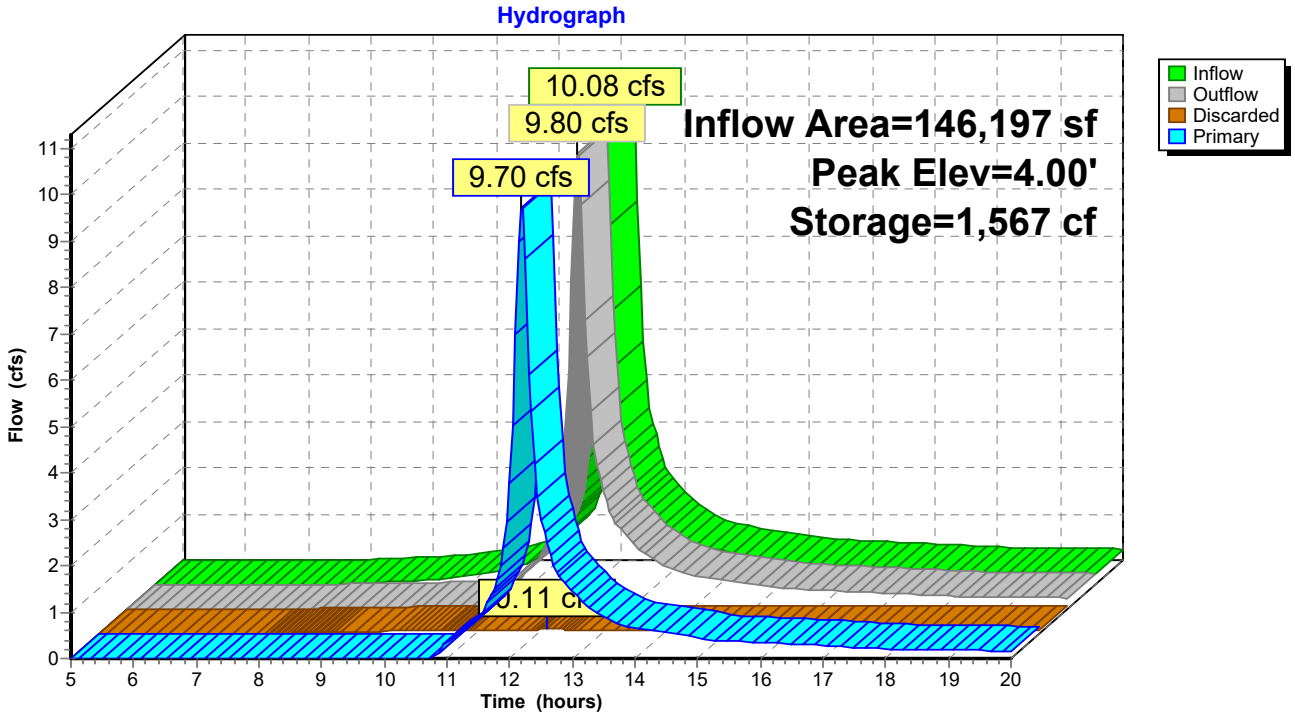
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#0	Primary	4.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	2.00'	**18.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / -0.80' S= 0.0700 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Discarded	0.00'	**4.000 in/hr Exfiltration over Wetted area**

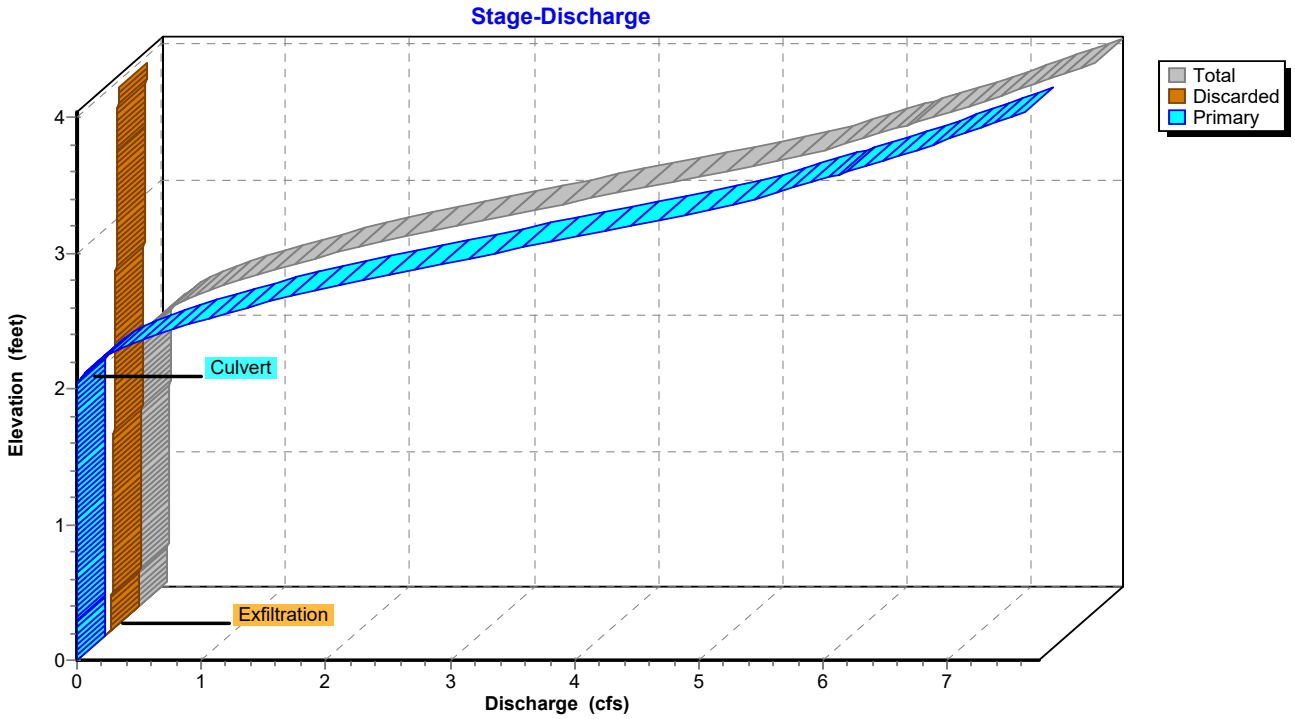
Discarded OutFlow Max=0.11 cfs @ 12.15 hrs HW=4.00' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=7.51 cfs @ 12.19 hrs HW=4.00' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 7.51 cfs @ 4.25 fps)

Pond 4P: Existing Underground



Pond 4P: Existing Underground



Stage-Discharge for Pond 4P: Existing Underground

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.00	0.00
0.05	0.05	0.05	0.00
0.10	0.05	0.05	0.00
0.15	0.05	0.05	0.00
0.20	0.05	0.05	0.00
0.25	0.06	0.06	0.00
0.30	0.06	0.06	0.00
0.35	0.06	0.06	0.00
0.40	0.06	0.06	0.00
0.45	0.06	0.06	0.00
0.50	0.06	0.06	0.00
0.55	0.06	0.06	0.00
0.60	0.06	0.06	0.00
0.65	0.06	0.06	0.00
0.70	0.06	0.06	0.00
0.75	0.06	0.06	0.00
0.80	0.06	0.06	0.00
0.85	0.06	0.06	0.00
0.90	0.06	0.06	0.00
0.95	0.06	0.06	0.00
1.00	0.07	0.07	0.00
1.05	0.07	0.07	0.00
1.10	0.07	0.07	0.00
1.15	0.07	0.07	0.00
1.20	0.07	0.07	0.00
1.25	0.07	0.07	0.00
1.30	0.07	0.07	0.00
1.35	0.07	0.07	0.00
1.40	0.07	0.07	0.00
1.45	0.07	0.07	0.00
1.50	0.07	0.07	0.00
1.55	0.07	0.07	0.00
1.60	0.07	0.07	0.00
1.65	0.07	0.07	0.00
1.70	0.08	0.08	0.00
1.75	0.08	0.08	0.00
1.80	0.08	0.08	0.00
1.85	0.08	0.08	0.00
1.90	0.08	0.08	0.00
1.95	0.08	0.08	0.00
2.00	0.08	0.08	0.00
2.05	0.09	0.08	0.01
2.10	0.12	0.08	0.04
2.15	0.18	0.08	0.10
2.20	0.25	0.08	0.17
2.25	0.34	0.08	0.26
2.30	0.45	0.08	0.37
2.35	0.58	0.08	0.50
2.40	0.73	0.08	0.64
2.45	0.89	0.09	0.80
2.50	1.07	0.09	0.98
2.55	1.26	0.09	1.17
2.60	1.46	0.09	1.37
2.65	1.68	0.09	1.59
2.70	1.91	0.09	1.82
2.75	2.15	0.09	2.06
2.80	2.39	0.09	2.30
2.85	2.65	0.09	2.56
2.90	2.91	0.09	2.82
2.95	3.18	0.09	3.09
3.00	3.46	0.09	3.36
3.05	3.73	0.09	3.64
3.10	4.01	0.09	3.92
3.15	4.29	0.09	4.19
3.20	4.56	0.10	4.46
3.25	4.82	0.10	4.73
3.30	5.08	0.10	4.99
3.35	5.33	0.10	5.23
3.40	5.56	0.10	5.46
3.45	5.76	0.10	5.66
3.50	5.92	0.10	5.82
3.55	6.11	0.10	6.01
3.60	6.29	0.10	6.19
3.65	6.47	0.10	6.37
3.70	6.65	0.10	6.55
3.75	6.82	0.10	6.72
3.80	6.99	0.10	6.88
3.85	7.15	0.10	7.05
3.90	7.31	0.10	7.20
3.95	7.46	0.11	7.36
4.00	**7.62**	**0.11**	**7.51**

Stage-Area-Storage for Pond 4P: Existing Underground

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
0.00	563	0
0.05	570	21
0.10	578	42
0.15	585	63
0.20	592	84
0.25	600	106
0.30	607	128
0.35	614	150
0.40	621	171
0.45	629	193
0.50	636	215
0.55	643	237
0.60	651	259
0.65	658	281
0.70	665	303
0.75	672	325
0.80	680	347
0.85	687	369
0.90	694	390
0.95	702	412
1.00	709	434
1.05	716	456
1.10	723	478
1.15	731	500
1.20	738	521
1.25	745	543
1.30	752	565
1.35	760	587
1.40	767	608
1.45	774	630
1.50	782	652
1.55	789	674
1.60	796	695
1.65	803	717
1.70	811	739
1.75	818	761
1.80	825	782
1.85	833	804
1.90	840	826
1.95	847	847
2.00	854	869
2.05	862	891
2.10	869	912
2.15	876	934
2.20	884	955
2.25	891	977
2.30	898	999
2.35	905	1,020
2.40	913	1,042
2.45	920	1,063
2.50	927	1,085
2.55	934	1,107
2.60	942	1,128
2.65	949	1,150
2.70	956	1,171
2.75	964	1,193
2.80	971	1,214
2.85	978	1,236
2.90	985	1,257
2.95	993	1,279
3.00	1,000	1,300
3.05	1,007	1,322
3.10	1,015	1,343
3.15	1,022	1,365
3.20	1,029	1,386
3.25	1,036	1,407
3.30	1,044	1,429
3.35	1,051	1,450
3.40	1,058	1,472
3.45	1,066	1,493
3.50	1,073	1,515
3.55	1,080	1,536
3.60	1,087	1,550
3.65	1,095	1,552
3.70	1,102	1,554
3.75	1,109	1,556
3.80	1,116	1,558
3.85	1,124	1,560
3.90	1,131	1,562
3.95	1,138	1,564
4.00	**1,146**	**1,567**

Summary for Pond 9P: Proposed Underground

Inflow Area = 203,814 sf, 62.24% Impervious, Inflow Depth > 2.75" for 10-Year event
Inflow = 16.06 cfs @ 12.13 hrs, Volume= 46,769 cf
Outflow = 8.71 cfs @ 12.23 hrs, Volume= 38,793 cf, Atten= 46%, Lag= 6.3 min
Discarded = 0.13 cfs @ 12.23 hrs, Volume= 4,965 cf
Primary = 8.58 cfs @ 12.23 hrs, Volume= 33,829 cf
Routed to Link 7L : (new Link)
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf
Routed to Link 7L : (new Link)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 410.20' @ 12.23 hrs Surf.Area= 10,101 sf Storage= 14,973 cf

Plug-Flow detention time= 86.2 min calculated for 38,665 cf (83% of inflow)
Center-of-Mass det. time= 36.6 min (829.9 - 793.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	408.17'	8,297 cf	**74.00'W x 136.50'L x 3.54'H Field A** 35,774 cf Overall - 15,032 cf Embedded = 20,742 cf x 40.0% Voids
#2A	408.67'	15,032 cf	**Cultec R-330XLHD** x 285 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 15 rows
		23,329 cf	Total Available Storage

Storage Group A created with Chamber Wizard

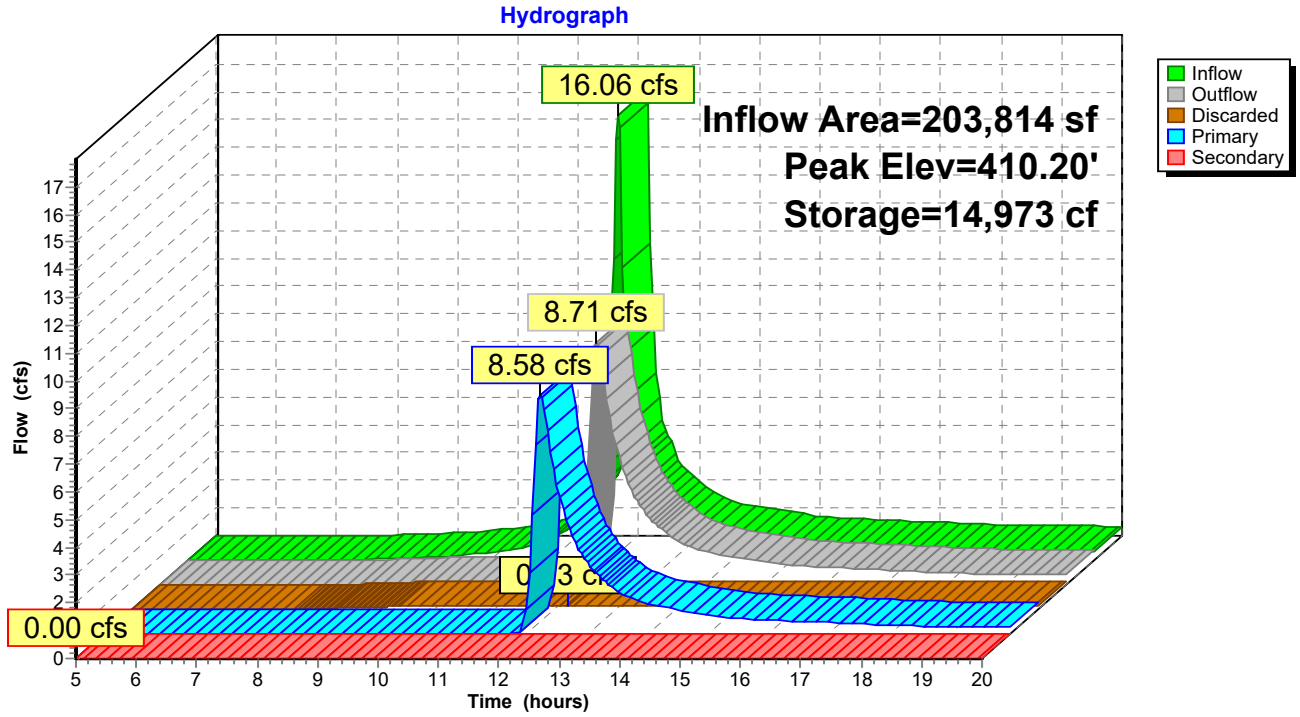
Device	Routing	Invert	Outlet Devices
#0	Secondary	411.71'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	408.67'	**24.0" Round Culvert** L= 58.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.67' / 402.00' S= 0.1144 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Discarded	408.17'	**0.500 in/hr Exfiltration over Wetted area**
#3	Device 1	409.27'	**36.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	409.77'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.13 cfs @ 12.23 hrs HW=410.19' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.13 cfs)

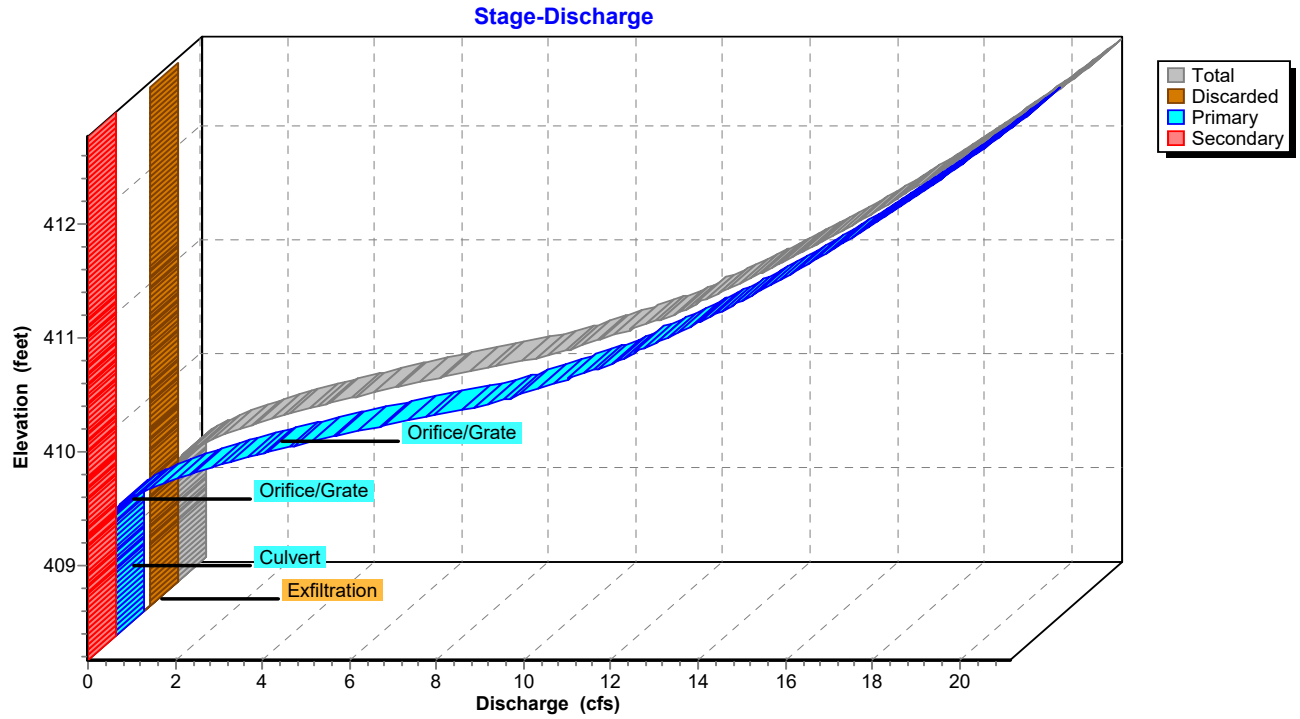
Primary OutFlow Max=8.52 cfs @ 12.23 hrs HW=410.19' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.52 cfs @ 3.32 fps)
├**3=Orifice/Grate** (Passes < 5.89 cfs potential flow)
└**4=Orifice/Grate** (Passes < 2.66 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=408.17' (Free Discharge)

Pond 9P: Proposed Underground



Pond 9P: Proposed Underground



Stage-Discharge for Pond 9P: Proposed Underground

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
408.17	0.00	0.00	0.00	**0.00**
408.27	0.12	0.12	0.00	0.00
408.37	0.12	0.12	0.00	0.00
408.47	0.12	0.12	0.00	0.00
408.57	0.12	0.12	0.00	0.00
408.67	0.12	0.12	0.00	0.00
408.77	0.12	0.12	0.00	0.00
408.87	0.12	0.12	0.00	0.00
408.97	0.12	0.12	0.00	0.00
409.07	0.12	0.12	0.00	0.00
409.17	0.12	0.12	0.00	0.00
409.27	0.12	0.12	0.00	0.00
409.37	0.43	0.12	0.30	0.00
409.47	0.98	0.12	0.86	0.00
409.57	1.71	0.12	1.58	0.00
409.67	2.56	0.12	2.44	0.00
409.77	3.53	0.12	3.40	0.00
409.87	4.60	0.13	4.48	0.00
409.97	5.77	0.13	5.64	0.00
410.07	7.02	0.13	6.89	0.00
410.17	8.35	0.13	8.22	0.00
410.27	9.29	0.13	9.16	0.00
410.37	10.10	0.13	9.97	0.00
410.47	10.87	0.13	10.74	0.00
410.57	11.55	0.13	11.42	0.00
410.67	12.07	0.13	11.94	0.00
410.77	12.65	0.13	12.53	0.00
410.87	13.21	0.13	13.08	0.00
410.97	13.75	0.13	13.62	0.00
411.07	14.26	0.13	14.13	0.00
411.17	14.76	0.13	14.63	0.00
411.27	15.24	0.13	15.11	0.00
411.37	15.70	0.13	15.57	0.00
411.47	16.16	0.13	16.02	0.00
411.57	16.59	0.13	16.46	0.00
411.67	17.02	**0.13**	16.89	0.00
411.77	17.44	**0.13**	17.31	0.00
411.87	17.85	0.13	17.71	0.00
411.97	18.25	0.13	18.11	0.00
412.07	18.63	0.13	18.50	0.00
412.17	19.02	0.13	18.88	0.00
412.27	19.39	0.13	19.26	0.00
412.37	19.76	0.13	19.62	0.00
412.47	20.12	0.13	19.98	0.00
412.57	20.47	0.13	20.34	0.00
412.67	20.82	0.13	20.68	0.00
412.77	**21.16**	0.13	**21.03**	0.00

Stage-Area-Storage for Pond 9P: Proposed Underground

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
408.17	10,101	0
408.22	10,122	202
408.27	10,143	404
408.32	10,164	606
408.37	10,185	808
408.42	10,206	1,010
408.47	10,227	1,212
408.52	10,248	1,414
408.57	10,269	1,616
408.62	10,290	1,818
408.67	10,312	2,020
408.72	10,333	2,463
408.77	10,354	2,904
408.82	10,375	3,344
408.87	10,396	3,783
408.92	10,417	4,221
408.97	10,438	4,659
409.02	10,459	5,096
409.07	10,480	5,532
409.12	10,501	5,968
409.17	10,522	6,404
409.22	10,543	6,839
409.27	10,564	7,271
409.32	10,585	7,701
409.37	10,606	8,127
409.42	10,627	8,552
409.47	10,648	8,975
409.52	10,669	9,398
409.57	10,690	9,820
409.62	10,711	10,241
409.67	10,733	10,661
409.72	10,754	11,080
409.77	10,775	11,499
409.82	10,796	11,916
409.87	10,817	12,332
409.92	10,838	12,745
409.97	10,859	13,154
410.02	10,880	13,558
410.07	10,901	13,958
410.12	10,922	14,353
410.17	10,943	14,745
410.22	10,964	15,133
410.27	10,985	15,517
410.32	11,006	15,896
410.37	11,027	16,270
410.42	11,048	16,640
410.47	11,069	17,004
410.52	11,090	17,362
410.57	11,111	17,714
410.62	11,132	18,059
410.67	11,154	18,397
410.72	11,175	18,727
410.77	11,196	19,048
410.82	11,217	19,358
410.87	11,238	19,657
410.92	11,259	19,942
410.97	11,280	20,211
411.02	11,301	20,465
411.07	11,322	20,704
411.12	11,343	20,929
411.17	11,364	21,141
411.22	11,385	21,343
411.27	11,406	21,545
411.32	11,427	21,747
411.37	11,448	21,949
411.42	11,469	22,151
411.47	11,490	22,353
411.52	11,511	22,555
411.57	11,532	22,757
411.62	11,553	22,959
411.67	11,575	23,161
411.72	**11,592**	**23,329**
411.77	11,592	23,329
411.82	11,592	23,329
411.87	11,592	23,329
411.92	11,592	23,329
411.97	11,592	23,329
412.02	11,592	23,329
412.07	11,592	23,329
412.12	11,592	23,329
412.17	11,592	23,329
412.22	11,592	23,329
412.27	11,592	23,329
412.32	11,592	23,329
412.37	11,592	23,329
412.42	11,592	23,329
412.47	11,592	23,329
412.52	11,592	23,329
412.57	11,592	23,329
412.62	11,592	23,329
412.67	11,592	23,329
412.72	11,592	23,329
412.77	11,592	23,329

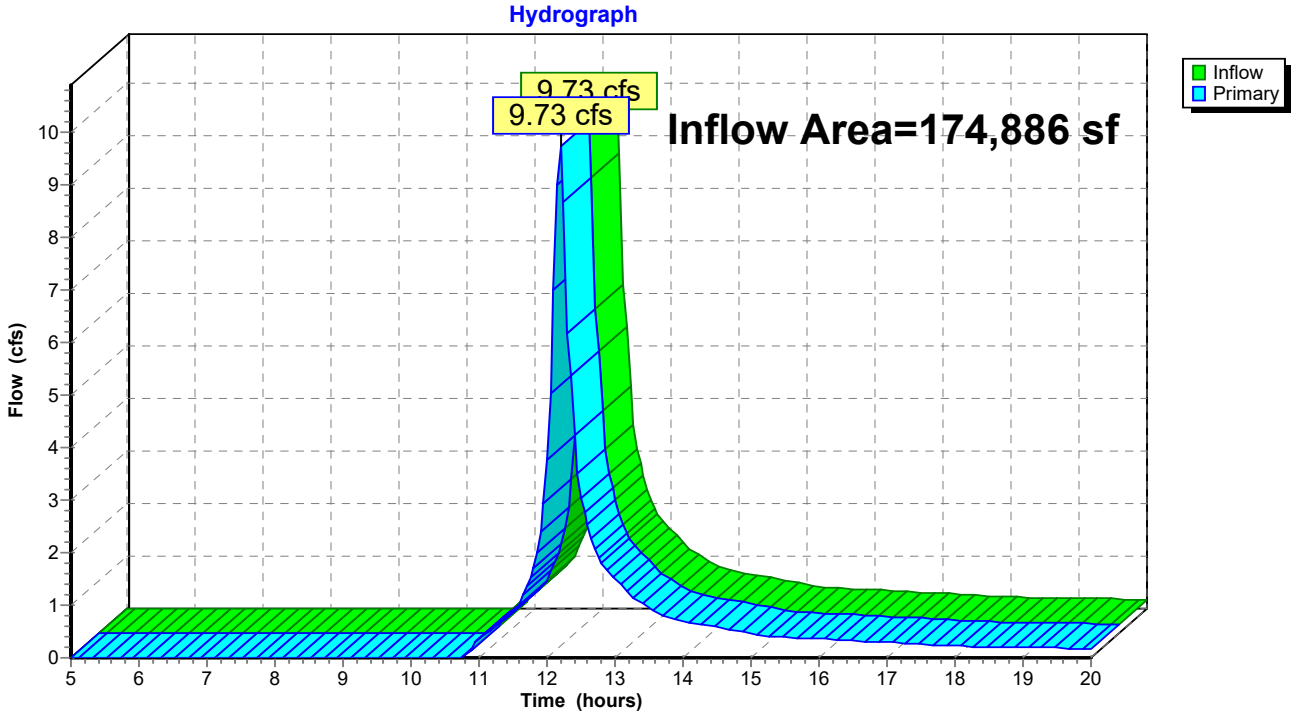
Summary for Link 5L: (new Link)

[79] Warning: Submerged Pond 4P Primary device # 1 OUTLET by 0.80'

Inflow Area = 174,886 sf, 53.11% Impervious, Inflow Depth > 2.04" for 10-Year event
Inflow = 9.73 cfs @ 12.20 hrs, Volume= 29,791 cf
Primary = 9.73 cfs @ 12.20 hrs, Volume= 29,791 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: (new Link)

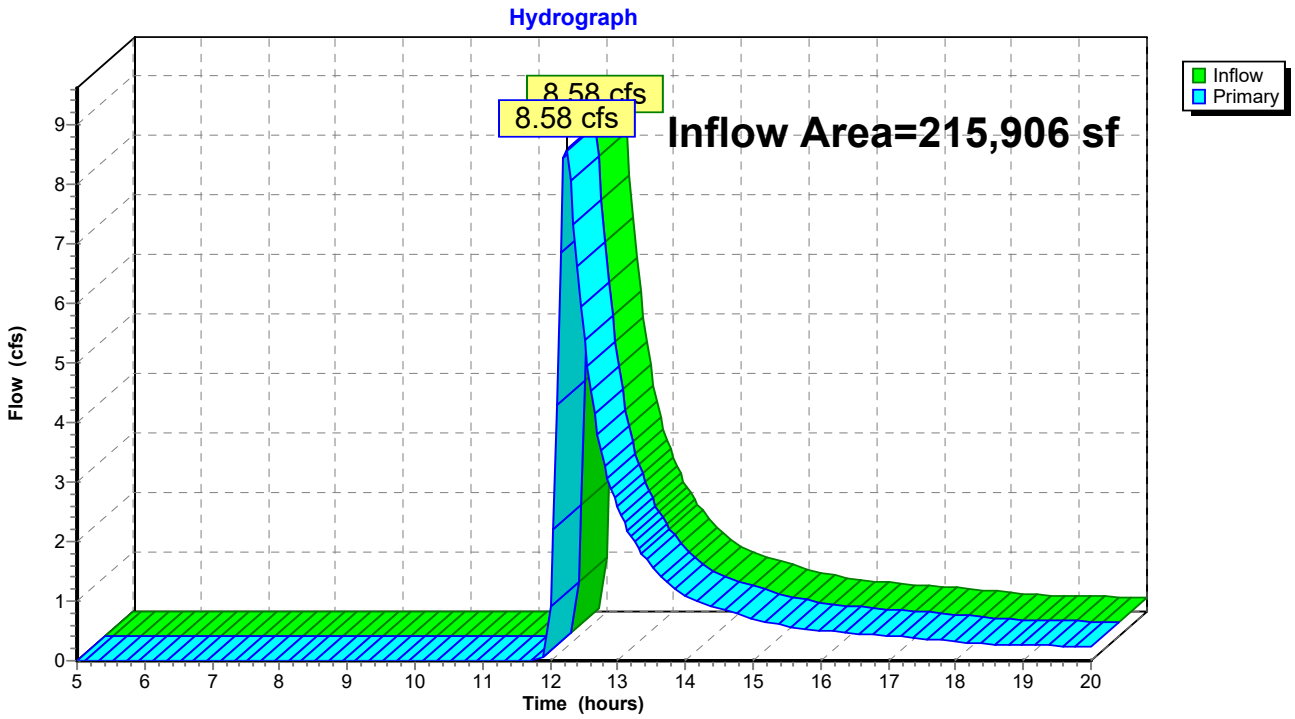


Summary for Link 7L: (new Link)

Inflow Area = 215,906 sf, 58.76% Impervious, Inflow Depth > 1.89" for 10-Year event
Inflow = 8.58 cfs @ 12.23 hrs, Volume= 34,013 cf
Primary = 8.58 cfs @ 12.23 hrs, Volume= 34,013 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 7L: (new Link)



Summary for Subcatchment 1S: Existing North

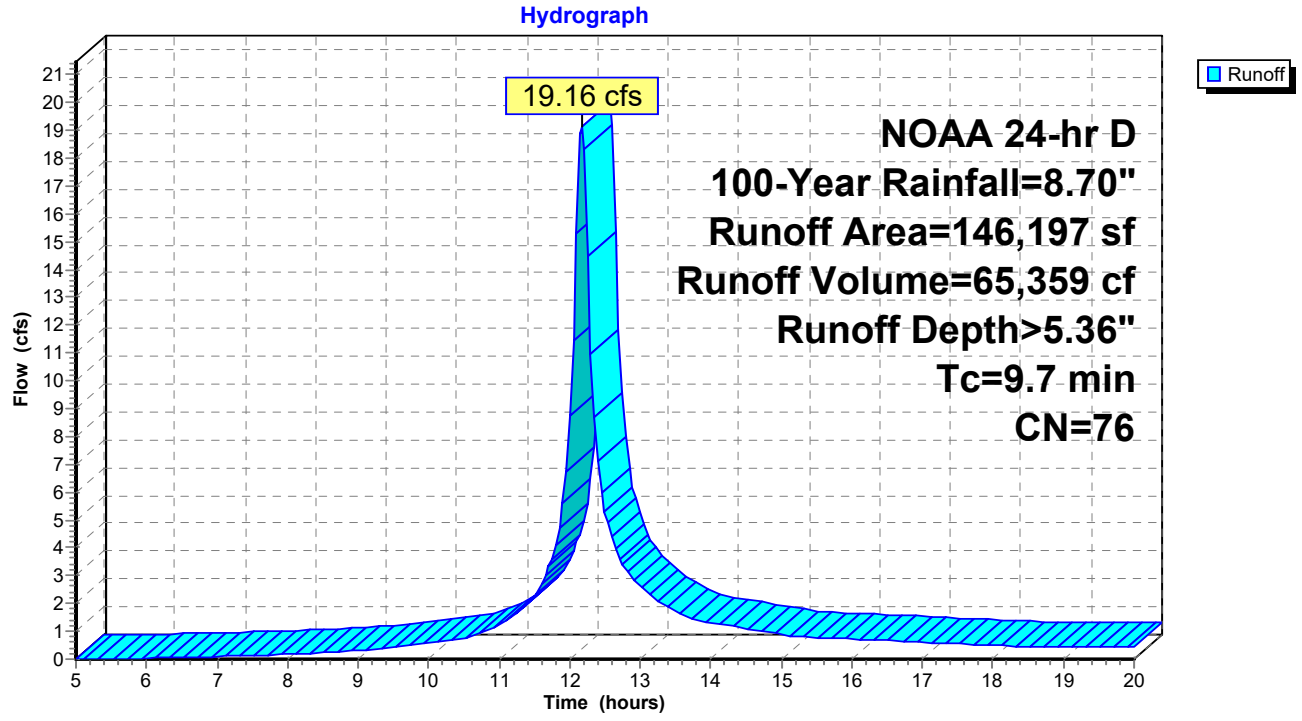
Runoff = 19.16 cfs @ 12.17 hrs, Volume= 65,359 cf, Depth> 5.36"
Routed to Pond 4P : Existing Underground

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.70"

Area (sf)	CN	Description
61,837	98	Paved parking, HSG A
27,755	98	Roofs, HSG A
1,255	98	Unconnected pavement, HSG A
55,308	39	>75% Grass cover, Good, HSG A
42	36	Woods, Fair, HSG A
146,197	76	Weighted Average
55,350		37.86% Pervious Area
90,847		62.14% Impervious Area
1,255		1.38% Unconnected

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

Subcatchment 1S: Existing North



Summary for Subcatchment 2S: Proposed North

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

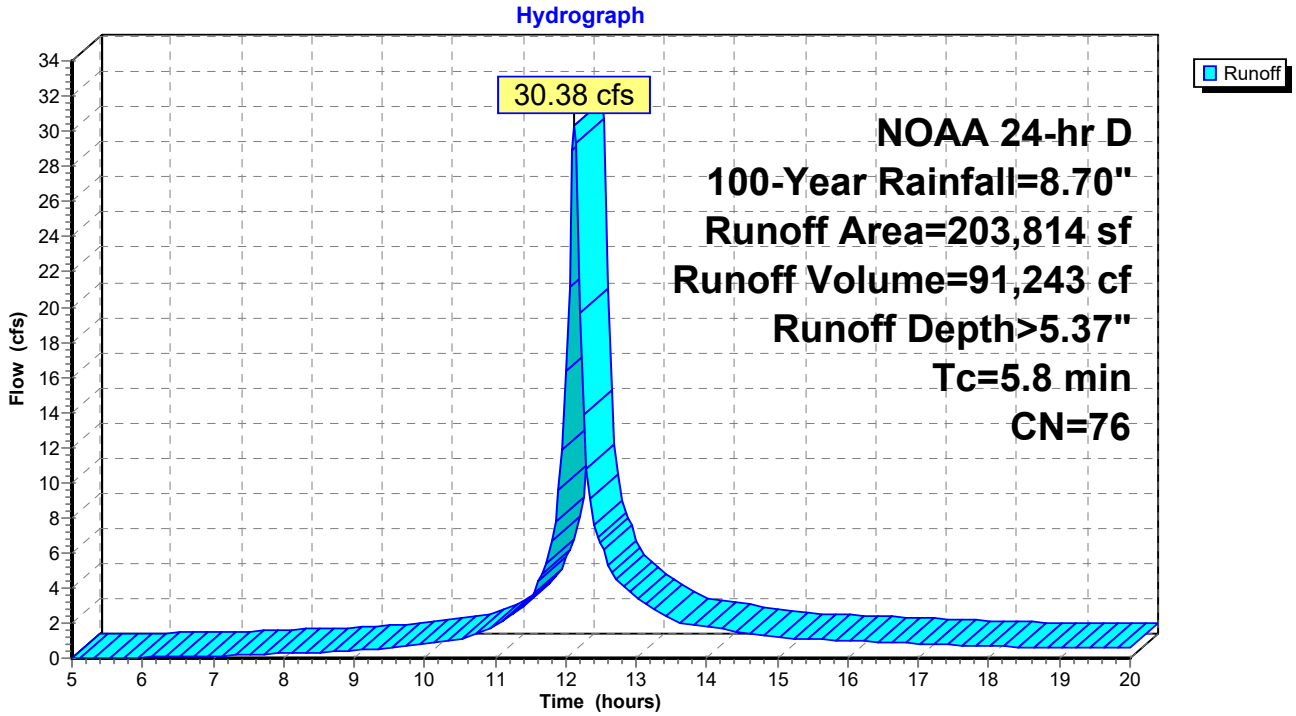
Runoff = 30.38 cfs @ 12.13 hrs, Volume= 91,243 cf, Depth> 5.37"
Routed to Pond 9P : Proposed Underground

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.70"

Area (sf)	CN	Description
40,664	98	Paved parking, HSG A
75,188	98	Roofs, HSG A
11,011	98	Unconnected pavement, HSG A
73,409	39	>75% Grass cover, Good, HSG A
3,542	36	Woods, Fair, HSG A
203,814	76	Weighted Average
76,951		37.76% Pervious Area
126,863		62.24% Impervious Area
11,011		8.68% Unconnected

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

Subcatchment 2S: Proposed North



Summary for Subcatchment 3S: Existing East

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

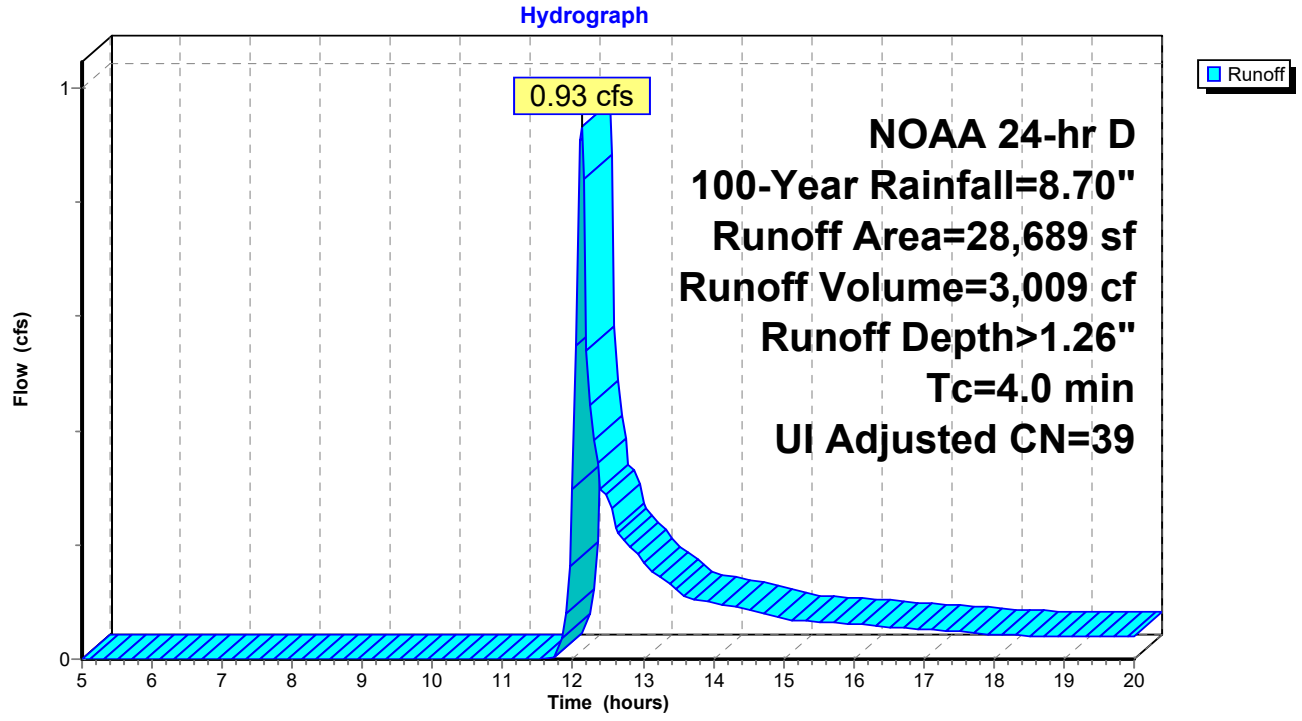
Runoff = 0.93 cfs @ 12.12 hrs, Volume= 3,009 cf, Depth> 1.26"
Routed to Link 5L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.70"

Area (sf)	CN	Adj	Description
2,040	98		Unconnected pavement, HSG A
9,294	39		>75% Grass cover, Good, HSG A
17,355	36		Woods, Fair, HSG A
28,689	41	39	Weighted Average, UI Adjusted
26,649			92.89% Pervious Area
2,040			7.11% Impervious Area
2,040			100.00% Unconnected

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

Subcatchment 3S: Existing East



Summary for Subcatchment 6S: Proposed East

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

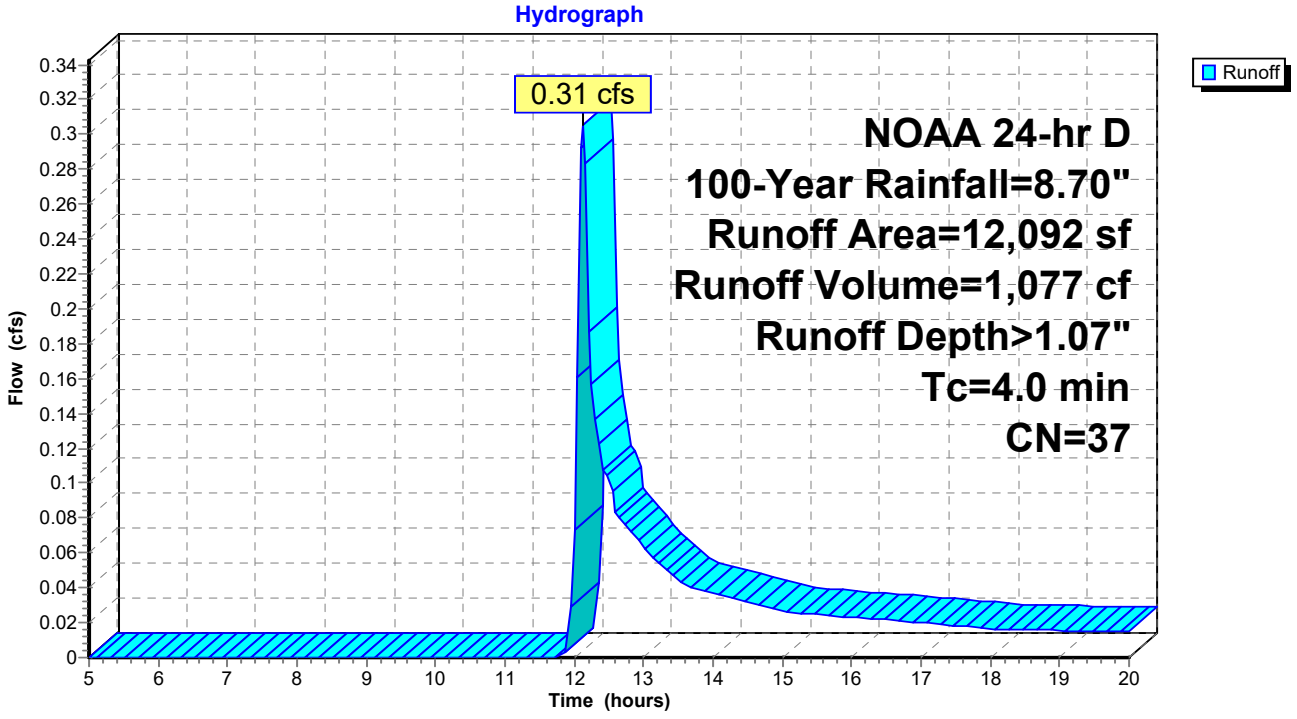
Runoff = 0.31 cfs @ 12.12 hrs, Volume= 1,077 cf, Depth> 1.07"
Routed to Link 7L : (new Link)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.70"

Area (sf)	CN	Description
5,021	39	>75% Grass cover, Good, HSG A
7,071	36	Woods, Fair, HSG A
12,092	37	Weighted Average
12,092		100.00% Pervious Area

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

Subcatchment 6S: Proposed East



Summary for Pond 4P: Existing Underground

Inflow Area = 146,197 sf, 62.14% Impervious, Inflow Depth > 5.36" for 100-Year event
Inflow = 19.16 cfs @ 12.17 hrs, Volume= 65,359 cf
Outflow = 18.62 cfs @ 12.20 hrs, Volume= 64,367 cf, Atten= 3%, Lag= 1.6 min
Discarded = 0.11 cfs @ 12.00 hrs, Volume= 4,076 cf
Primary = 18.51 cfs @ 12.20 hrs, Volume= 60,291 cf
Routed to Link 5L : (new Link)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.00' @ 12.00 hrs Surf.Area= 563 sf Storage= 1,567 cf

Plug-Flow detention time= 11.8 min calculated for 64,153 cf (98% of inflow)
Center-of-Mass det. time= 5.7 min (785.0 - 779.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	148 cf	**8.80'W x 64.00'L x 4.00'H Field A** 2,253 cf Overall - 1,884 cf Embedded = 369 cf x 40.0% Voids
#2A	0.00'	1,419 cf	**Concrete Galley 4x4x4** x 32 Inside #1 Inside= 42.0"W x 43.0"H => 12.67 sf x 3.50'L = 44.3 cf Outside= 52.8"W x 48.0"H => 14.72 sf x 4.00'L = 58.9 cf 32 Chambers in 2 Rows
		1,567 cf	Total Available Storage

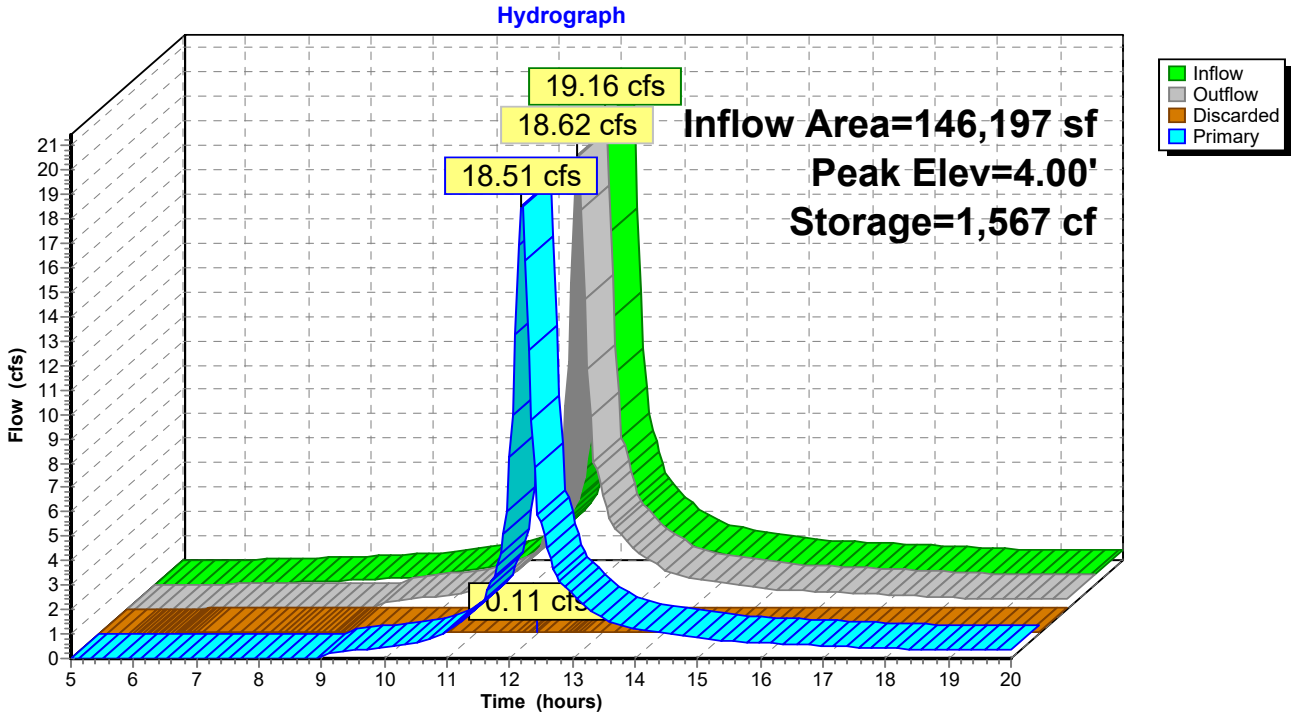
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#0	Primary	4.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	2.00'	**18.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / -0.80' S= 0.0700 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Discarded	0.00'	**4.000 in/hr Exfiltration over Wetted area**

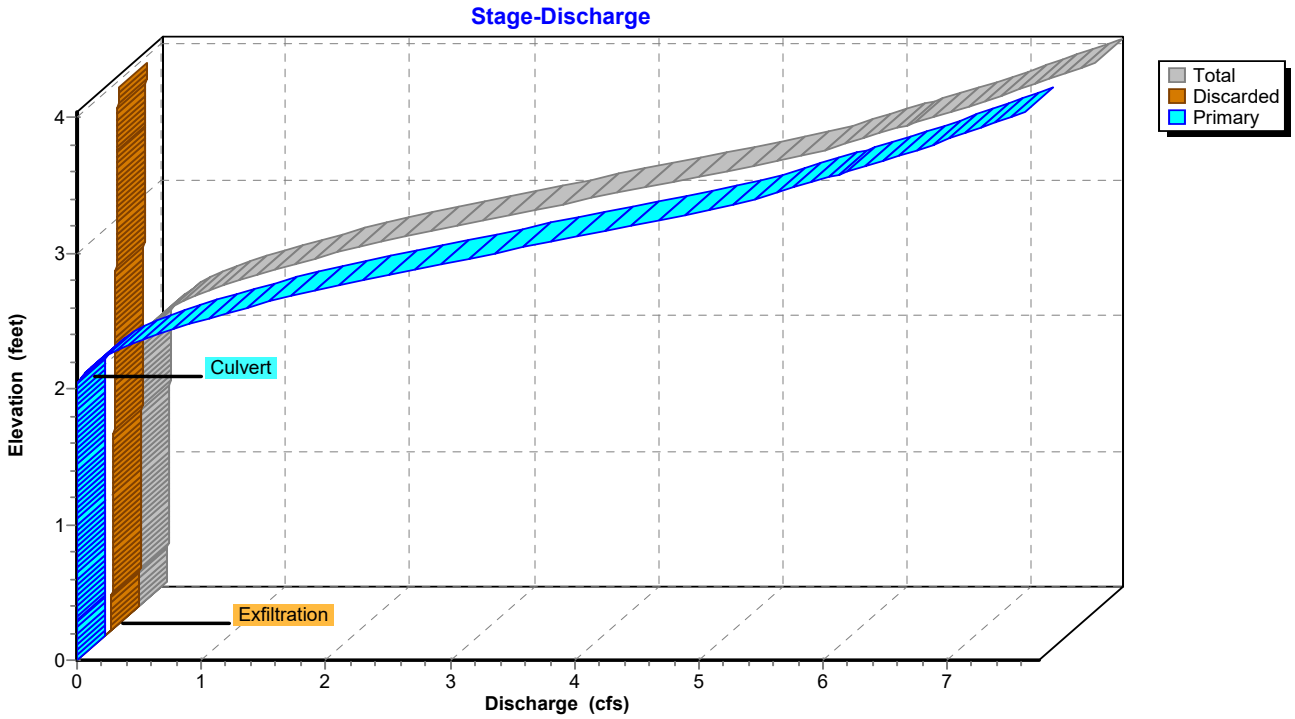
Discarded OutFlow Max=0.11 cfs @ 12.00 hrs HW=4.00' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=7.51 cfs @ 12.20 hrs HW=4.00' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 7.51 cfs @ 4.25 fps)

Pond 4P: Existing Underground



Pond 4P: Existing Underground



Stage-Discharge for Pond 4P: Existing Underground

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.00	0.00
0.05	0.05	0.05	0.00
0.10	0.05	0.05	0.00
0.15	0.05	0.05	0.00
0.20	0.05	0.05	0.00
0.25	0.06	0.06	0.00
0.30	0.06	0.06	0.00
0.35	0.06	0.06	0.00
0.40	0.06	0.06	0.00
0.45	0.06	0.06	0.00
0.50	0.06	0.06	0.00
0.55	0.06	0.06	0.00
0.60	0.06	0.06	0.00
0.65	0.06	0.06	0.00
0.70	0.06	0.06	0.00
0.75	0.06	0.06	0.00
0.80	0.06	0.06	0.00
0.85	0.06	0.06	0.00
0.90	0.06	0.06	0.00
0.95	0.06	0.06	0.00
1.00	0.07	0.07	0.00
1.05	0.07	0.07	0.00
1.10	0.07	0.07	0.00
1.15	0.07	0.07	0.00
1.20	0.07	0.07	0.00
1.25	0.07	0.07	0.00
1.30	0.07	0.07	0.00
1.35	0.07	0.07	0.00
1.40	0.07	0.07	0.00
1.45	0.07	0.07	0.00
1.50	0.07	0.07	0.00
1.55	0.07	0.07	0.00
1.60	0.07	0.07	0.00
1.65	0.07	0.07	0.00
1.70	0.08	0.08	0.00
1.75	0.08	0.08	0.00
1.80	0.08	0.08	0.00
1.85	0.08	0.08	0.00
1.90	0.08	0.08	0.00
1.95	0.08	0.08	0.00
2.00	0.08	0.08	0.00
2.05	0.09	0.08	0.01
2.10	0.12	0.08	0.04
2.15	0.18	0.08	0.10
2.20	0.25	0.08	0.17
2.25	0.34	0.08	0.26
2.30	0.45	0.08	0.37
2.35	0.58	0.08	0.50
2.40	0.73	0.08	0.64
2.45	0.89	0.09	0.80
2.50	1.07	0.09	0.98
2.55	1.26	0.09	1.17
2.60	1.46	0.09	1.37
2.65	1.68	0.09	1.59
2.70	1.91	0.09	1.82
2.75	2.15	0.09	2.06
2.80	2.39	0.09	2.30
2.85	2.65	0.09	2.56
2.90	2.91	0.09	2.82
2.95	3.18	0.09	3.09
3.00	3.46	0.09	3.36
3.05	3.73	0.09	3.64
3.10	4.01	0.09	3.92
3.15	4.29	0.09	4.19
3.20	4.56	0.10	4.46
3.25	4.82	0.10	4.73
3.30	5.08	0.10	4.99
3.35	5.33	0.10	5.23
3.40	5.56	0.10	5.46
3.45	5.76	0.10	5.66
3.50	5.92	0.10	5.82
3.55	6.11	0.10	6.01
3.60	6.29	0.10	6.19
3.65	6.47	0.10	6.37
3.70	6.65	0.10	6.55
3.75	6.82	0.10	6.72
3.80	6.99	0.10	6.88
3.85	7.15	0.10	7.05
3.90	7.31	0.10	7.20
3.95	7.46	0.11	7.36
4.00	**7.62**	**0.11**	**7.51**

Stage-Area-Storage for Pond 4P: Existing Underground

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
0.00	563	0
0.05	570	21
0.10	578	42
0.15	585	63
0.20	592	84
0.25	600	106
0.30	607	128
0.35	614	150
0.40	621	171
0.45	629	193
0.50	636	215
0.55	643	237
0.60	651	259
0.65	658	281
0.70	665	303
0.75	672	325
0.80	680	347
0.85	687	369
0.90	694	390
0.95	702	412
1.00	709	434
1.05	716	456
1.10	723	478
1.15	731	500
1.20	738	521
1.25	745	543
1.30	752	565
1.35	760	587
1.40	767	608
1.45	774	630
1.50	782	652
1.55	789	674
1.60	796	695
1.65	803	717
1.70	811	739
1.75	818	761
1.80	825	782
1.85	833	804
1.90	840	826
1.95	847	847
2.00	854	869
2.05	862	891
2.10	869	912
2.15	876	934
2.20	884	955
2.25	891	977
2.30	898	999
2.35	905	1,020
2.40	913	1,042
2.45	920	1,063
2.50	927	1,085
2.55	934	1,107
2.60	942	1,128
2.65	949	1,150
2.70	956	1,171
2.75	964	1,193
2.80	971	1,214
2.85	978	1,236
2.90	985	1,257
2.95	993	1,279
3.00	1,000	1,300
3.05	1,007	1,322
3.10	1,015	1,343
3.15	1,022	1,365
3.20	1,029	1,386
3.25	1,036	1,407
3.30	1,044	1,429
3.35	1,051	1,450
3.40	1,058	1,472
3.45	1,066	1,493
3.50	1,073	1,515
3.55	1,080	1,536
3.60	1,087	1,550
3.65	1,095	1,552
3.70	1,102	1,554
3.75	1,109	1,556
3.80	1,116	1,558
3.85	1,124	1,560
3.90	1,131	1,562
3.95	1,138	1,564
4.00	**1,146**	**1,567**

Summary for Pond 9P: Proposed Underground

[93] Warning: Storage range exceeded by 0.02'

Inflow Area = 203,814 sf, 62.24% Impervious, Inflow Depth > 5.37" for 100-Year event
Inflow = 30.38 cfs @ 12.13 hrs, Volume= 91,243 cf
Outflow = 17.30 cfs @ 12.22 hrs, Volume= 82,828 cf, Atten= 43%, Lag= 5.8 min
Discarded = 0.13 cfs @ 12.22 hrs, Volume= 5,939 cf
Primary = 17.17 cfs @ 12.22 hrs, Volume= 76,889 cf
Routed to Link 7L : (new Link)
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf
Routed to Link 7L : (new Link)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 411.73' @ 12.22 hrs Surf.Area= 10,101 sf Storage= 23,329 cf

Plug-Flow detention time= 61.2 min calculated for 82,553 cf (90% of inflow)
Center-of-Mass det. time= 29.7 min (805.9 - 776.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	408.17'	8,297 cf	**74.00'W x 136.50'L x 3.54'H Field A** 35,774 cf Overall - 15,032 cf Embedded = 20,742 cf x 40.0% Voids
#2A	408.67'	15,032 cf	**Cultec R-330XLHD** x 285 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 15 rows
		23,329 cf	Total Available Storage

Storage Group A created with Chamber Wizard

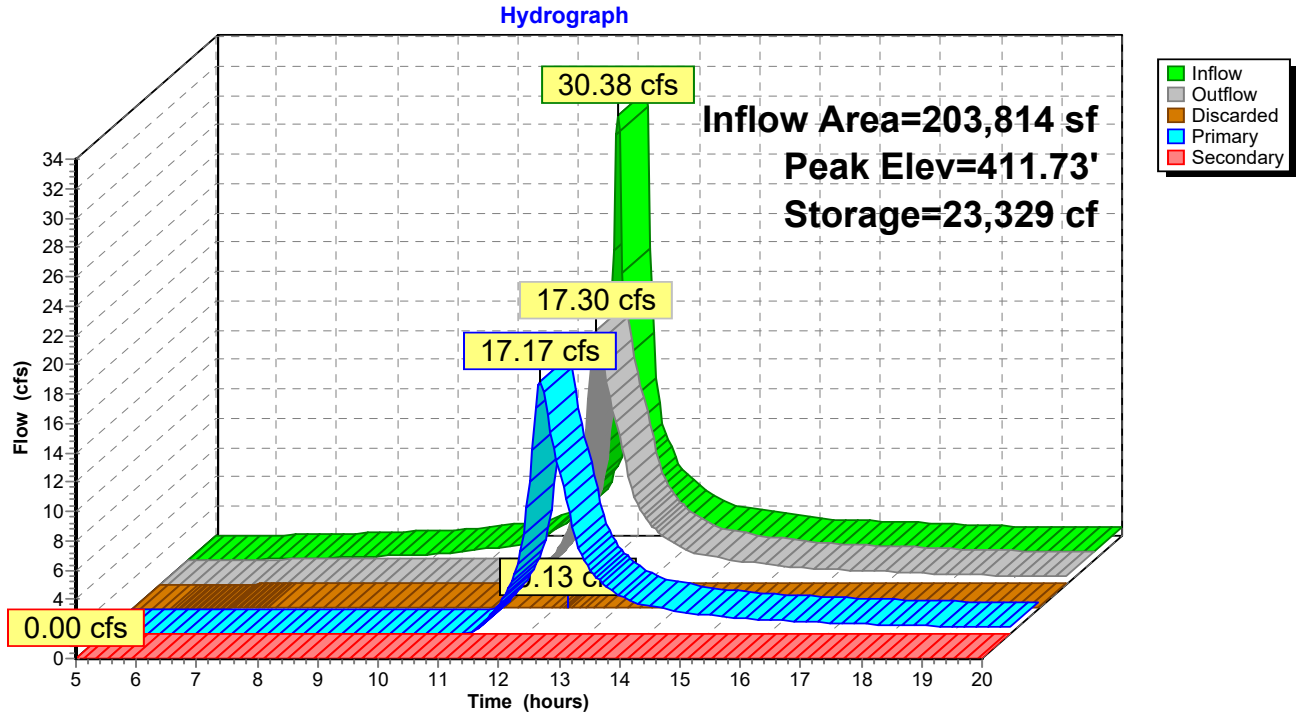
Device	Routing	Invert	Outlet Devices
#0	Secondary	411.71'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	408.67'	**24.0" Round Culvert** L= 58.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.67' / 402.00' S= 0.1144 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Discarded	408.17'	**0.500 in/hr Exfiltration over Wetted area**
#3	Device 1	409.27'	**36.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	409.77'	**36.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.13 cfs @ 12.22 hrs HW=411.69' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.13 cfs)

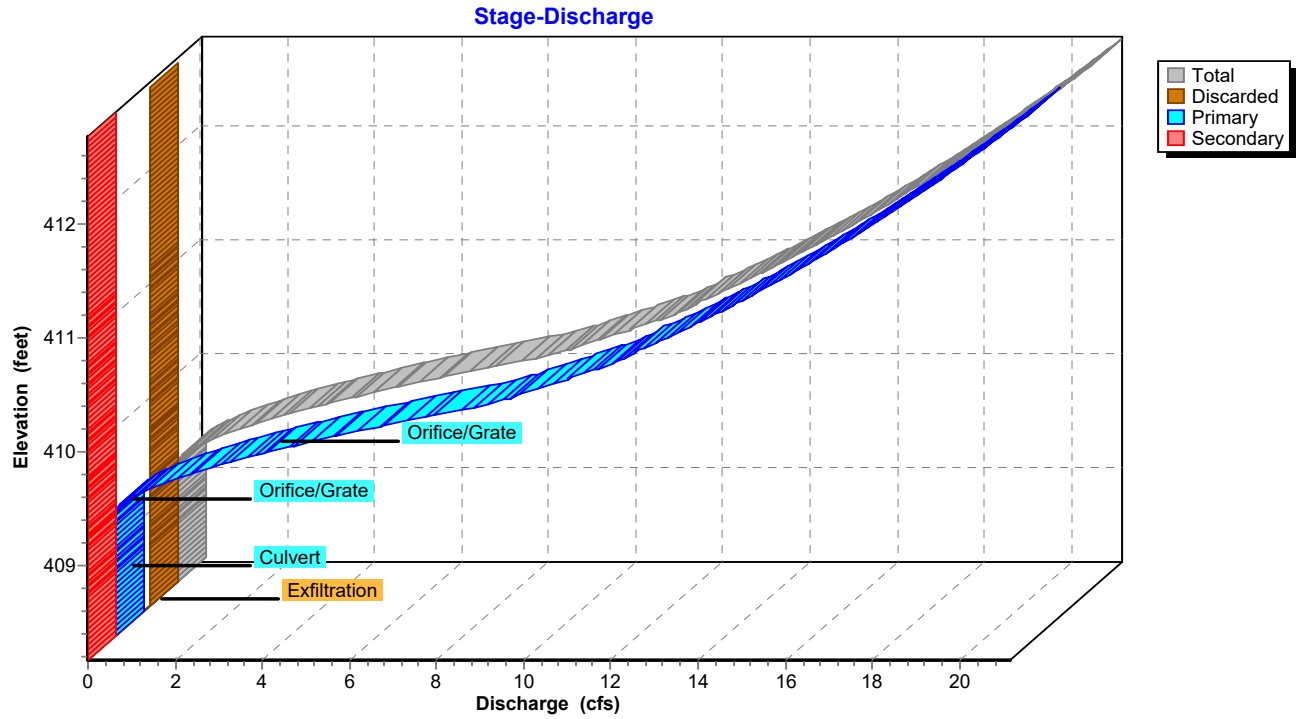
Primary OutFlow Max=16.97 cfs @ 12.22 hrs HW=411.69' (Free Discharge)
└**1=Culvert** (Inlet Controls 16.97 cfs @ 5.40 fps)
├**3=Orifice/Grate** (Passes < 10.63 cfs potential flow)
└**4=Orifice/Grate** (Passes < 25.58 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=408.17' (Free Discharge)

Pond 9P: Proposed Underground



Pond 9P: Proposed Underground



Stage-Discharge for Pond 9P: Proposed Underground

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
408.17	0.00	0.00	0.00	**0.00**
408.27	0.12	0.12	0.00	0.00
408.37	0.12	0.12	0.00	0.00
408.47	0.12	0.12	0.00	0.00
408.57	0.12	0.12	0.00	0.00
408.67	0.12	0.12	0.00	0.00
408.77	0.12	0.12	0.00	0.00
408.87	0.12	0.12	0.00	0.00
408.97	0.12	0.12	0.00	0.00
409.07	0.12	0.12	0.00	0.00
409.17	0.12	0.12	0.00	0.00
409.27	0.12	0.12	0.00	0.00
409.37	0.43	0.12	0.30	0.00
409.47	0.98	0.12	0.86	0.00
409.57	1.71	0.12	1.58	0.00
409.67	2.56	0.12	2.44	0.00
409.77	3.53	0.12	3.40	0.00
409.87	4.60	0.13	4.48	0.00
409.97	5.77	0.13	5.64	0.00
410.07	7.02	0.13	6.89	0.00
410.17	8.35	0.13	8.22	0.00
410.27	9.29	0.13	9.16	0.00
410.37	10.10	0.13	9.97	0.00
410.47	10.87	0.13	10.74	0.00
410.57	11.55	0.13	11.42	0.00
410.67	12.07	0.13	11.94	0.00
410.77	12.65	0.13	12.53	0.00
410.87	13.21	0.13	13.08	0.00
410.97	13.75	0.13	13.62	0.00
411.07	14.26	0.13	14.13	0.00
411.17	14.76	0.13	14.63	0.00
411.27	15.24	0.13	15.11	0.00
411.37	15.70	0.13	15.57	0.00
411.47	16.16	0.13	16.02	0.00
411.57	16.59	0.13	16.46	0.00
411.67	17.02	**0.13**	16.89	0.00
411.77	17.44	**0.13**	17.31	0.00
411.87	17.85	0.13	17.71	0.00
411.97	18.25	0.13	18.11	0.00
412.07	18.63	0.13	18.50	0.00
412.17	19.02	0.13	18.88	0.00
412.27	19.39	0.13	19.26	0.00
412.37	19.76	0.13	19.62	0.00
412.47	20.12	0.13	19.98	0.00
412.57	20.47	0.13	20.34	0.00
412.67	20.82	0.13	20.68	0.00
412.77	**21.16**	0.13	**21.03**	0.00

Stage-Area-Storage for Pond 9P: Proposed Underground

Elevation (feet)	Wetted (sq-ft)	Storage (cubic-feet)
408.17	10,101	0
408.22	10,122	202
408.27	10,143	404
408.32	10,164	606
408.37	10,185	808
408.42	10,206	1,010
408.47	10,227	1,212
408.52	10,248	1,414
408.57	10,269	1,616
408.62	10,290	1,818
408.67	10,312	2,020
408.72	10,333	2,463
408.77	10,354	2,904
408.82	10,375	3,344
408.87	10,396	3,783
408.92	10,417	4,221
408.97	10,438	4,659
409.02	10,459	5,096
409.07	10,480	5,532
409.12	10,501	5,968
409.17	10,522	6,404
409.22	10,543	6,839
409.27	10,564	7,271
409.32	10,585	7,701
409.37	10,606	8,127
409.42	10,627	8,552
409.47	10,648	8,975
409.52	10,669	9,398
409.57	10,690	9,820
409.62	10,711	10,241
409.67	10,733	10,661
409.72	10,754	11,080
409.77	10,775	11,499
409.82	10,796	11,916
409.87	10,817	12,332
409.92	10,838	12,745
409.97	10,859	13,154
410.02	10,880	13,558
410.07	10,901	13,958
410.12	10,922	14,353
410.17	10,943	14,745
410.22	10,964	15,133
410.27	10,985	15,517
410.32	11,006	15,896
410.37	11,027	16,270
410.42	11,048	16,640
410.47	11,069	17,004
410.52	11,090	17,362
410.57	11,111	17,714
410.62	11,132	18,059
410.67	11,154	18,397
410.72	11,175	18,727
410.77	11,196	19,048
410.82	11,217	19,358
410.87	11,238	19,657
410.92	11,259	19,942
410.97	11,280	20,211
411.02	11,301	20,465
411.07	11,322	20,704
411.12	11,343	20,929
411.17	11,364	21,141
411.22	11,385	21,343
411.27	11,406	21,545
411.32	11,427	21,747
411.37	11,448	21,949
411.42	11,469	22,151
411.47	11,490	22,353
411.52	11,511	22,555
411.57	11,532	22,757
411.62	11,553	22,959
411.67	11,575	23,161
411.72	**11,592**	**23,329**
411.77	11,592	23,329
411.82	11,592	23,329
411.87	11,592	23,329
411.92	11,592	23,329
411.97	11,592	23,329
412.02	11,592	23,329
412.07	11,592	23,329
412.12	11,592	23,329
412.17	11,592	23,329
412.22	11,592	23,329
412.27	11,592	23,329
412.32	11,592	23,329
412.37	11,592	23,329
412.42	11,592	23,329
412.47	11,592	23,329
412.52	11,592	23,329
412.57	11,592	23,329
412.62	11,592	23,329
412.67	11,592	23,329
412.72	11,592	23,329
412.77	11,592	23,329

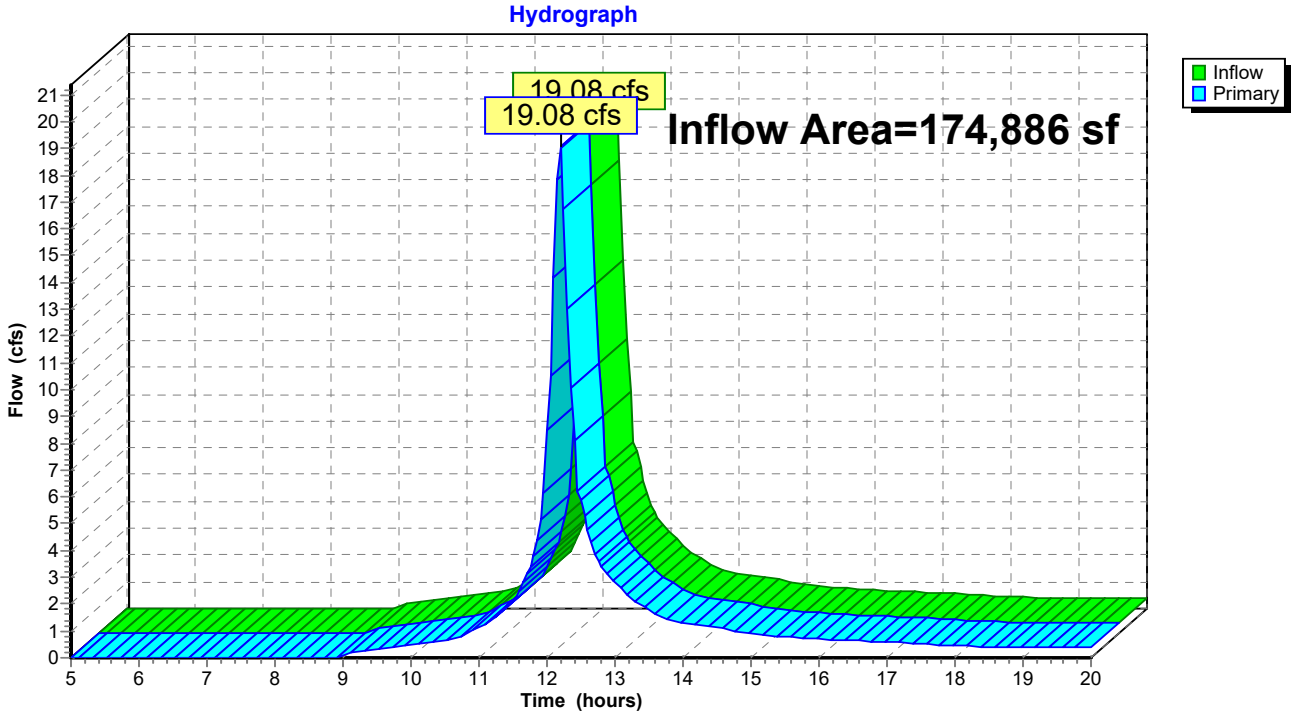
Summary for Link 5L: (new Link)

[79] Warning: Submerged Pond 4P Primary device # 1 OUTLET by 0.80'

Inflow Area = 174,886 sf, 53.11% Impervious, Inflow Depth > 4.34" for 100-Year event
Inflow = 19.08 cfs @ 12.19 hrs, Volume= 63,300 cf
Primary = 19.08 cfs @ 12.19 hrs, Volume= 63,300 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: (new Link)

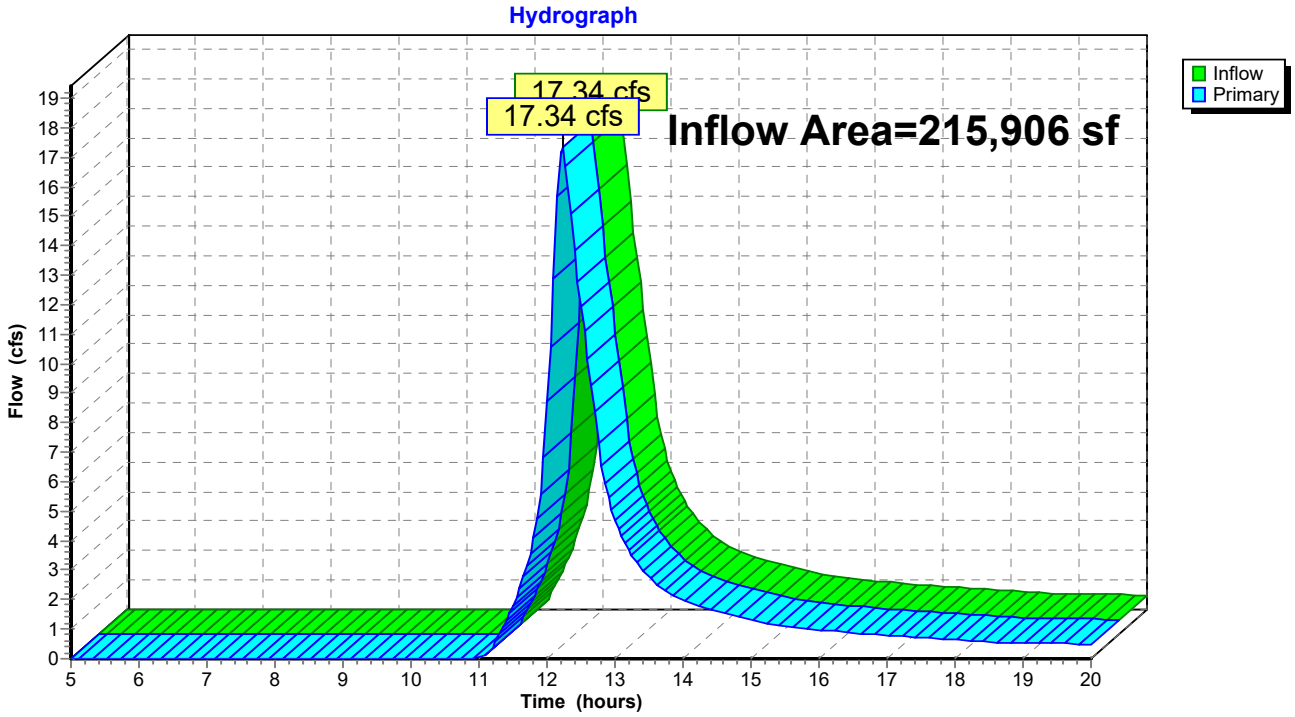


Summary for Link 7L: (new Link)

Inflow Area = 215,906 sf, 58.76% Impervious, Inflow Depth > 4.33" for 100-Year event
Inflow = 17.34 cfs @ 12.22 hrs, Volume= 77,966 cf
Primary = 17.34 cfs @ 12.22 hrs, Volume= 77,966 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 7L: (new Link)



Events for Subcatchment 1S: Existing North

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	3.57	4.67	15,545	1.28
10-Year	5.56	10.08	33,495	2.75
100-Year	**8.70**	**19.16**	**65,359**	**5.36**

Events for Subcatchment 2S: Proposed North

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	3.57	7.55	21,712	1.28
10-Year	5.56	16.06	46,769	2.75
100-Year	**8.70**	**30.38**	**91,243**	**5.37**

Events for Subcatchment 3S: Existing East

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	3.57	0.00	10	0.00
10-Year	5.56	0.05	614	0.26
100-Year	**8.70**	**0.93**	**3,009**	**1.26**

Events for Subcatchment 6S: Proposed East

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
2-Year	3.57	0.00	0	0.00
10-Year	5.56	0.01	185	0.18
100-Year	**8.70**	**0.31**	**1,077**	**1.07**

Events for Pond 4P: Existing Underground

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	4.67	4.59	0.10	4.50	3.21	1,389
10-Year	10.08	9.80	**0.11**	9.70	**4.00**	**1,567**
100-Year	**19.16**	**18.62**	0.11	**18.51**	4.00	1,567

Events for Pond 9P: Proposed Underground

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
2-Year	7.55	1.32	0.12	1.19	**0.00**	409.52	9,382
10-Year	16.06	8.71	0.13	8.58	0.00	410.20	14,973
100-Year	**30.38**	**17.30**	**0.13**	**17.17**	0.00	**411.73**	**23,329**

Events for Link 5L: (new Link)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2-Year	4.50	4.50	**0.00**
10-Year	9.73	9.73	0.00
100-Year	**19.08**	**19.08**	0.00

Events for Link 7L: (new Link)

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2-Year	1.19	1.19	**0.00**
10-Year	8.58	8.58	0.00
100-Year	**17.34**	**17.34**	0.00

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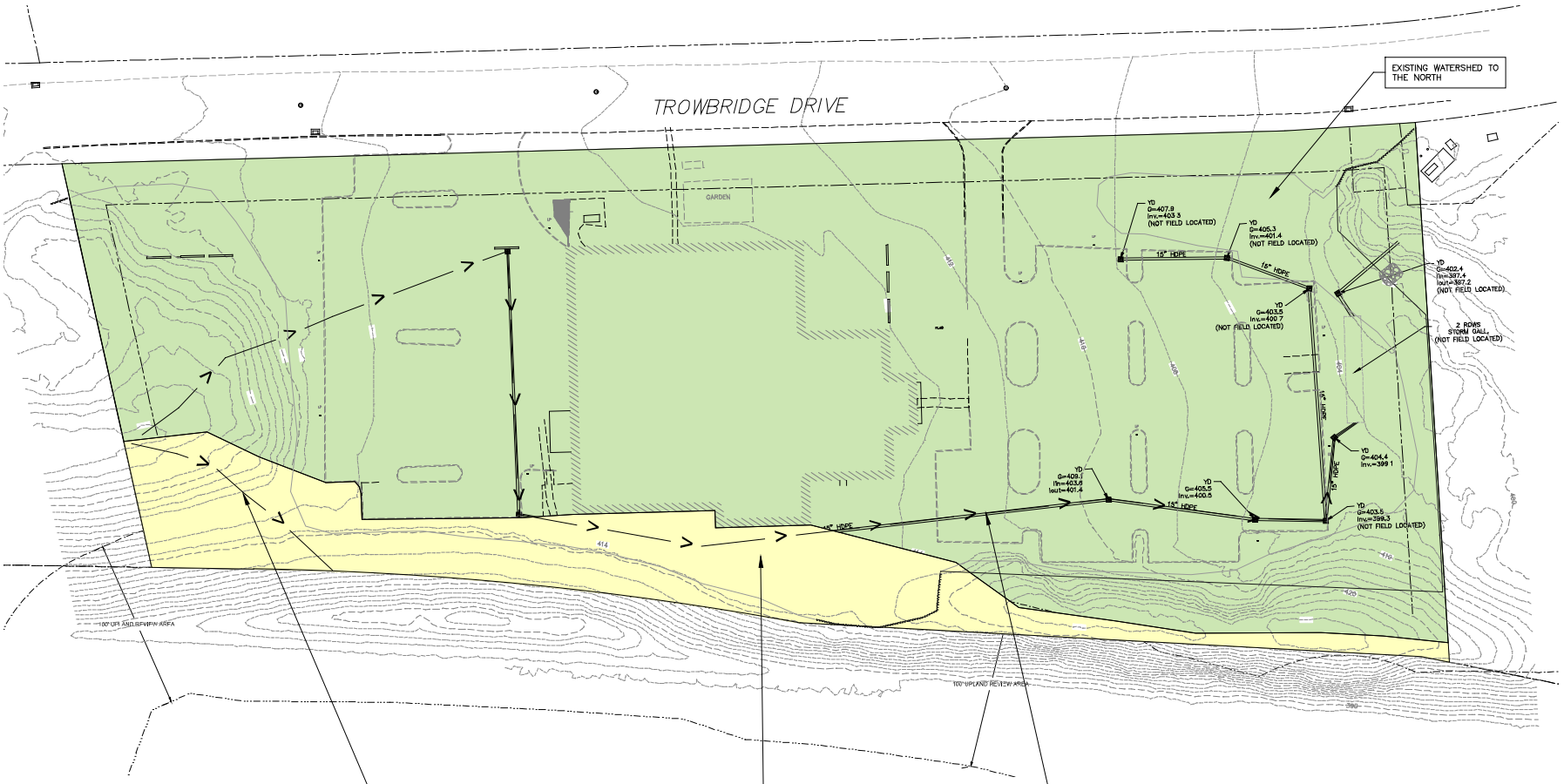

LEGEND

These standard symbols will be found in the drawing.

- EXISTING TREELINE
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING CONCRETE SLAB
- EDGE OF PAVEMENT
- EXISTING SEWER LATERAL
- EXISTING CONTOUR
- EDGE OF PAVEMENT TO BE REMOVED
- EXISTING WATER GATE
- PROPOSED PAVEMENT WITH CURB
- PROPOSED TREELINE
- PROPOSED CONCRETE
- EXISTING CURB
- DRAINAGE P UNDERGROUND
- PROPOSED CONTOUR
- EX_FT_FENCE
- EXISTING GAS MAIN
- EXISTING GRAVEL
- EXISTING OVER HEAD ELECTRIC
- SETBACK
- PROPOSED DRAINAGE PIPE
- EDGE OF WATER
- DRAINAGE_P_STRUCTURES
- PROPOSED SPOT GRADE
- EXISTING SPOT GRADE
- PROPOSED MANHOLE
- LIGHT POLE

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DATE	DESCRIPTION

REVISIONS

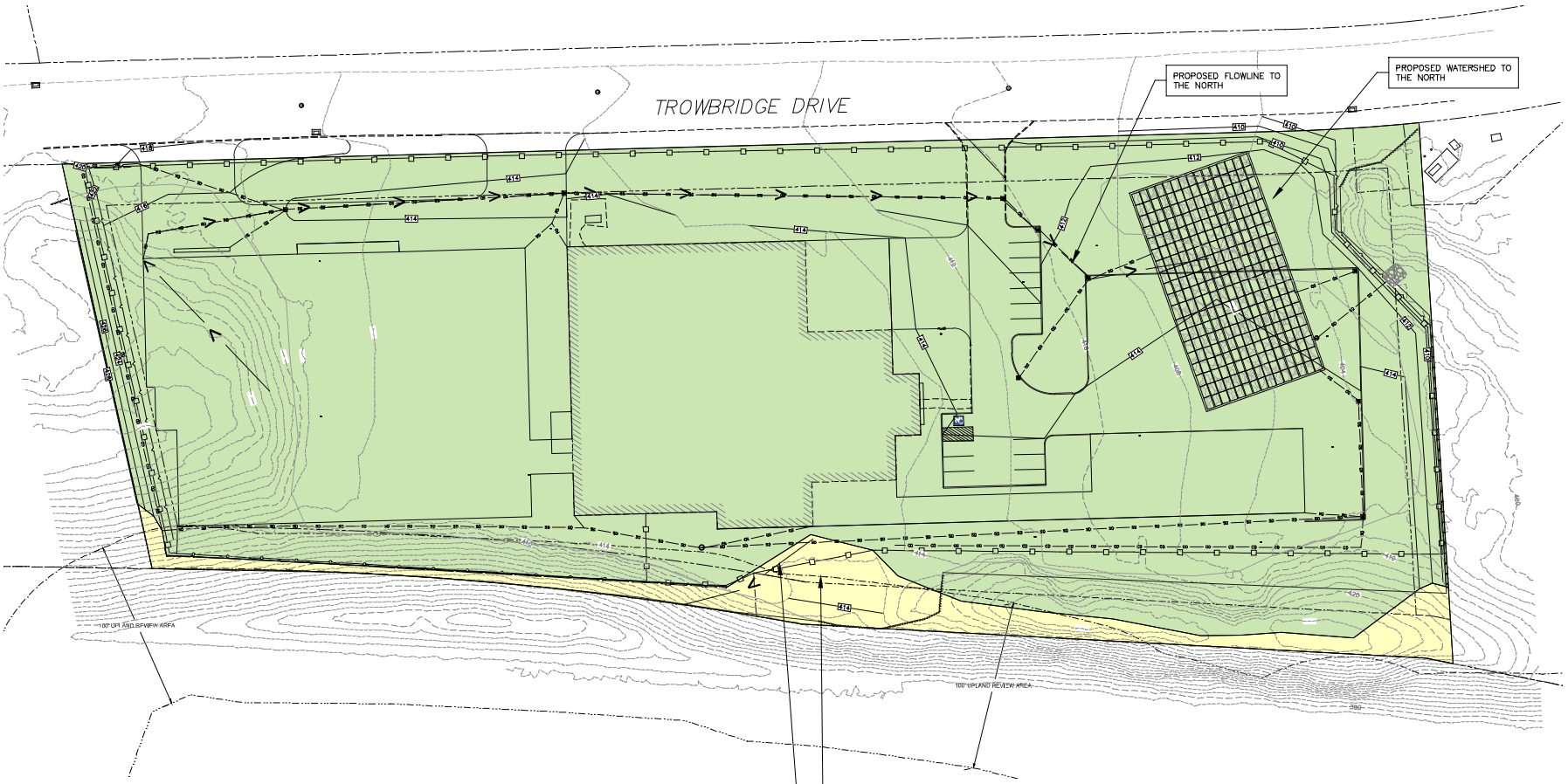
GRAPHIC SCALE

0' 30' 60' 90'

DiMEO ENGINEERING
James V. DiMeo PE #32551
203-650-1481
jdimeo@dimeoengineering.com
1 McConney Grv Derby CT

Existing Watershed Map
Land of 75 Express CT LLC
for
#16 Trowbridge Drive
Bethel, Connecticut

Date: 5/12/2026	Scale: 1"=30'	Sheet: 1



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DATE	DESCRIPTION
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GRAPHIC SCALE 0' 30' 60' 90'

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James V. DiMeo PE #32551
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jdimeo@dimeoengineering.com
1 McConney Grv Derby CT

Proposed Watershed Map
Land of 75 Express CT LLC
for
#16 Trowbridge Drive
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