CARMINA WOOD
DESIGN

Engineer's Report

for

Proposed Warehouse

North America Drive
West Seneca, Erie County, New York

Prepared for

Sonwil

2732 Transit Road
West Seneca, NY 14224

Prepared by

Carmina Wood Design

487 Main Street, Suite 500
Buffalo, NY 14203

Telephone: (716) 842-3165
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September 2022

Table of Contents

Attachments

Section 1 - Location & Description

This project is a development of approximately 31 Acres of a 60 acre site located at the east end of North America Drive. Construction will consist of the 333,852 sf warehouse building and associated vehicle and trailer parking. A rail spur is also proposed as part of this project. The proposed site development area to be disturbed for this project is approximately 32 acres.

Section 2 - Water Service

Water service for the project will be tapped off the existing 12" ECWA main which runs through the site. A portion of this main will be relocated to avoid the proposed building. The proposed service will be a 10" service split to a 4" domestic service and 10" fire service. These services will continue into a proposed exterior insulated hot box enclosure. Inside the enclosure the 4" domestic service and 8" fire service will have a meter and RPZ. Heat will be provided in the enclosure to prevent freezing. Drainage due to testing or failure of the RPZ will be via gravity to the exterior grade surrounding. The owner will be responsible for keeping the drainage ports clear of snow and debris. Water inside the building will be used for typical domestic uses.

The building will be sprinklered, and private hydrants located around the site to ensure fire hose coverage not exceeding 600'. Public hydrants also exist along the public 12" ECWA main which runs through the site.

Domestic Summary:	
Peak Operating Demand:	2.25 gpm
Water Main:	12" on North America Drive
Static Pressure:	62 psi
Friction Loss:	0.0 psi
Loss through meter/RPZ:	13.0 psi
Elevation Loss:	1.95 psi
Pressure after RPZ:	47.05 psi

Repairs to all devices will be made during off hours. The site is not located within a 100-year flood plain. Disinfection of the water service following installation will be continuous feed, according to AWWA C-651, latest revision.

Section 3 - Sanitary Sewer Service

The site is not served by a public sanitary sewer main. To accommodate the proposed development the ECSD No. 1 existing public sewer main located in the northwest corner of the site will be extended to the development area. This extension will be in an easement to ECSD No. 1. From this extension, a private 8" sanitary main will be run south, along the west face of the building to pick up the 6" laterals which exit the building. The new public and private 8" mains will be SDR-35 PVC at a minimum slope of 0.4%. The 6" building laterals will be SDR-35 PVC at a minimum slope of 2%. The flow requirement determination has been outlined in the attached appendices:

Design Parameters	
Total:	1,800 gpd

The hydraulic loading rate is per "Design Standards for Intermediate Sized Wastewater Treatment Systems" 2014, NYSDEC.

Section 4 - Storm Sewer Service

The existing site currently sheet drains to the existing creek on the east portion of the site and off site to the property to the north. The proposed site will continue to drain to both points following development.

The proposed onsite storm sewer system for this project consists of smooth interior and HDPE pipes connected by a series of catch basins to include bioretention areas and a dry detention basin located on the east portion of the site. Storm water runoff will be conveyed through the pipe network and bioretention areas and ultimately discharge to the existing creek on the east side of the site. A portion of the north and far west parts of the site will continue to sheet drain to the property to the north. This discharge will be less than existing.

The bioretention areas on site is designed to provide the minimum required runoff reduction volume (RRv) for the 32 acre project area. The soils in the vicinity of the bioretention area are mainly USDA hydrologic group 'C' and 'D' therefore the system will be installed with underdrains per NYSDEC requirements. The bioretention areas will consist of 6" perforated HDPE underdrains in drainage gravel, followed by filter fabric and then finally 18" minimum of bioretention soil. Overflow catch basins will be installed to allow 6" maximum ponding for RRv treatment. Stormwater detention is required per NYSDEC standards and specifications. The proposed storm water management area outlet structure is designed to accommodate the 1-year through 100-year storm events controlling the offsite runoff rate to less than the existing runoff rates.

Runoff reduction volume (RRv), water quality volume (WQv) and stormwater volume attenuation for the site is designed in accordance with Chapter 4 of the NYSDEC Stormwater design manual. The bioretention areas will be provided as a "green infrastructure" practice to provide runoff reduction to meet the Chapter 4 requirements for the currently undeveloped areas. Runoff from the site was looked at as a whole for the calculation of volume attenuation requirements. The amount of impervious cover post-development is 18.0 acres. The proposed dry detention basin is designed to accommodate the 1-year through 100-year storm events controlling the offsite runoff rate to less than the existing runoff rates.

The NYSDEC Stormwater Management Design Manual requires a five-step process for Stormwater Management Planning as outlined in Chapter 3. The five steps include:

1. Site planning to preserve natural features and reduce impervious cover.
   - The entire portion of the site east of the creek will remain undisturbed.
2. Calculation of Water Quality Volume (WQv=RRv) for site.
   - See Stormwater Drainage Calculations.
3. Incorporation of Green Infrastructure techniques and standard SMPs with Runoff Reduction Volume (RRv) capacity.
   - A bioretention area was incorporated into the site design to provide required RRv for the development. See Stormwater Drainage Calculations.
4. Use of standard SMPs where applicable, to treat the portion of water quality volume not addressed by green infrastructure techniques and standard SMPs with RRv capacity.
   - Since the provided RRv is less than the WQv required, use of standard SMPs to treat the remaining WQv is applicable.
5. Design of volume and peak rate control practices where required.
   - See Stormwater Drainage Calculations.

The NYSDEC Stormwater Management Design Manual requires (5) five different criteria be considered when designing a stormwater management system. Those criteria are Water Quality, Runoff Reduction Volume, Channel Protection, Overbank Flooding and Extreme Storm Protection. Below is a summary of each item and how it is incorporated into this project.

Water Quality & Runoff Reduction Volume:
The NYSDEC requires reduction of the total water quality volume by green infrastructure techniques and SMP's to replicate pre-development hydrology. A bioretention area was incorporated into the site layout to provide the minimum required RRv for contributing WQv runoff area for the development. The bioretention area will provide 17,280 cf RRv. The minimum RRv required is 16,691 cf. The bioretention will also treat 47,334 cf of WQv. The required WQv = 64,614 cf. The sum of the WQv treated and the RRv is equal to the required WQv, therefore the practice is acceptable.

Channel Protection:
The NYSDEC requires that 24-Hour extended detention be provided for the proposed 1-year storm event. A volume of 26,743 cf is accommodated in the detention basin at elevation 674.69.

Overbank Flooding:
The NYSDEC requires that the 10-year proposed storm event be attenuated with detention and that the outlet be restricted to the 10-year existing storm event. A volume of 96,797 cf is accommodated in the detention basin at elevation 676.24.

Extreme Storm Protection:
The NYSDEC requires that the 100-year proposed storm event be attenuated with detention and that the outlet be restricted to the 100-year existing storm event. A volume of 226,706 cf is accommodated in the detention basin at elevation 678.63.

Detention Basin Summary:
Top of basin elevation = 680.00
Bottom of basin elevation = Varies from 671.20 to 670.80 at the outlet
Max. pond storage volume = 311,588 cf @ 680.00

Water Quality Summary:
WQv req'd = 64,614 cf (1.648 ac-ft)
RRv min. req'd = 16,691 cf (0.38 ac-ft)
RRv provided - bioretention area = 17,280 cf (0.40 ac-ft)
WQv provided - bioretention area = 47,334 cf (1.09 ac-ft)
Total RRv + WQv provided = 17,280 cf + 47,334 cf = 64,614 cf (1.648 ac-ft)

Bioretention: 100% of minimum post-development Runoff Reduction volume (RRv)
Area: 32,400 sf total
Bottom Elevation: 674.00

Design Criteria:
Storm pipes: 10-year storm
Detention: Comparison of the existing 1-year vs. the proposed 1-year runoff
Comparison of the existing 10-year vs. the proposed 10-year runoff
Comparison of the existing 100-year vs. the proposed 100-year runoff

Runoff Summary

Event	Ex. Runoff (cfs)*	Pro. Runoff (basin+runoff to north) (cfs)**	Result (cfs)
1-year	7.25	2.73 + 4.60 = 7.33	+0.08
10-year	31.65	3.25 + 11.77 = 15.02	-16.63
100-year	84.12	3.93 + 24.65 = 28.58	-55.54

* Total runoff from the site
** See attached storm drainage calculations for additional information.

Attachment A Sanitary Sewer and Water Demand Calculations

CARMINA WOOD DESIGN
487 MAIN STREET, SUITE 500
BUFFALO, NEW YORK, 14203
(716) 842-3165
FAX (716) 842-0263

Project No.: 22.117 Date: 9/12/2022
Project Name: Sonwil Warehouse
Project Address: North America Drive
Subject: Sanitary Sewer & Water Demand Calcs
Sheet: 2 of 2

Water Demand Calculations (domestic):

Delivery Building

*use 1.8 peaking factor and assume a 24 hour day (facility runs (3) 8 hour shifts)

1,800 gpm x 1day/24 hr x 1hr/60min = 1.25 gpm

1.25 gpm x 1.8 = 2.25 gpm Q_{peak}

Headlosses:

Q_{peak} = 2.25 gpm
Pipe = 4 inch PVC C = 140
Length = 300 LF (approx. distance from RPZ to building connection)

$$H_L = \frac{10.44\, L\, Q^{1.85}}{C^{1.85}\, D^{4.866}} = \frac{10.44(1280)(11.25)^{1.85}}{(140)^{1.85}\,(4)^{4.866}} = 0.00 \text{ ft} = 0.00 \text{ psi}$$

Δ elev = 4.5 ft = 1.95 psi
Loss through meter = 1 psi
Loss through RPZ = 12 psi
Total Losses = 14.95 psi
Static Pressure = 62 psi (per ECWA - residual pressure 41 psi)
Residual Pressure Following RPZ = 62 - 14.95 = 47.05 psi (available after rpz & meter)

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Sheet: 1 of 2

Sanitary Sewage Demand Calculations:

Delivery Building

15 gal/d/emp x 120 emp = 1,800 gpd *use 15 gallons per day per employee

Total Site Sanitary Demand: = 1,800 gpd

Find Peak Sanitary Demand:

Peaking Factor based on Population:
Total demand: 1,800 gpd / 100 gpcd = 18 per capita

Population (P) = 18 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 4.39

Peak Sanitary Demand = 1,800 x 4.39 = 7,896 gpd
= 0.008 MGD
= 0.012 cfs

Hydrant FLow Test

Print Date: **8/25/2022**

Residual Hydrant: K13C23 **Test Date/Time:** 8/24/2022 17:18

Location.....: **EASEMENT** **7TH HYD W/O LEIN RD**
TOWN OF WEST SENECA

Size of Main/Branch: 12"/6" Fire District: 68023 **FIRE DIST 4** Water District: 601 **WEST SENECA #1**

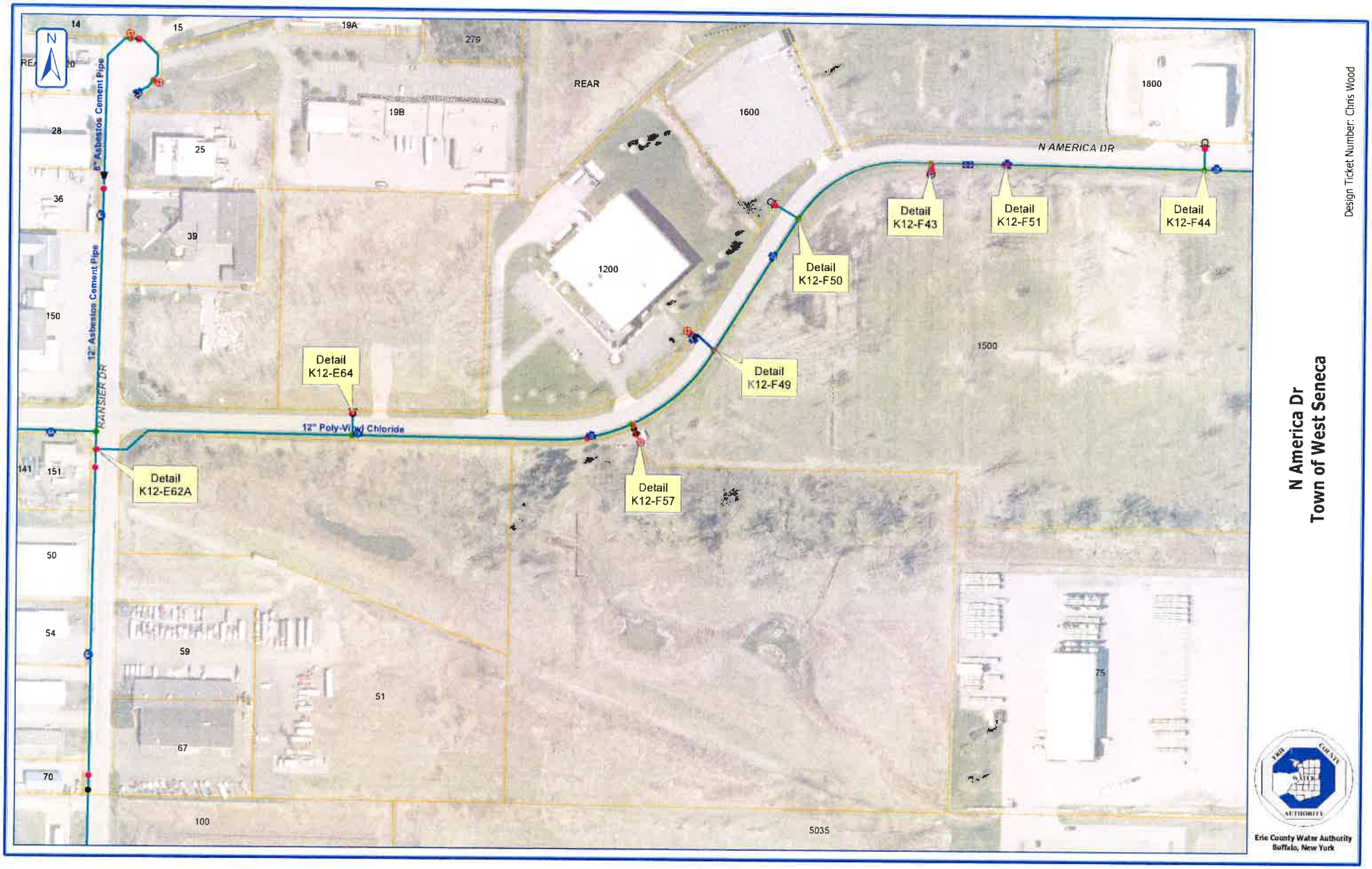
Performed By: **DWP/CDB**

Comments: **HYDRANT FLOW TEST REQUESTED BY CHRIS WOOD, CARMINA WOOD DESIGN**
EMAIL: CWOOD@CARMINAWOODDESIGN.COM
CW #72013

Dischrge Coef: 090 Elvtn Usgs(ft): Static(psi): 62 Residual(psi): 41 Required Residual Pressure(psi): 20
Gallons Used..: 4,020 Total Flow(gpm): 1,342 Flow at Reqd Resid Pressure: 1,951

Flow Hydrants:

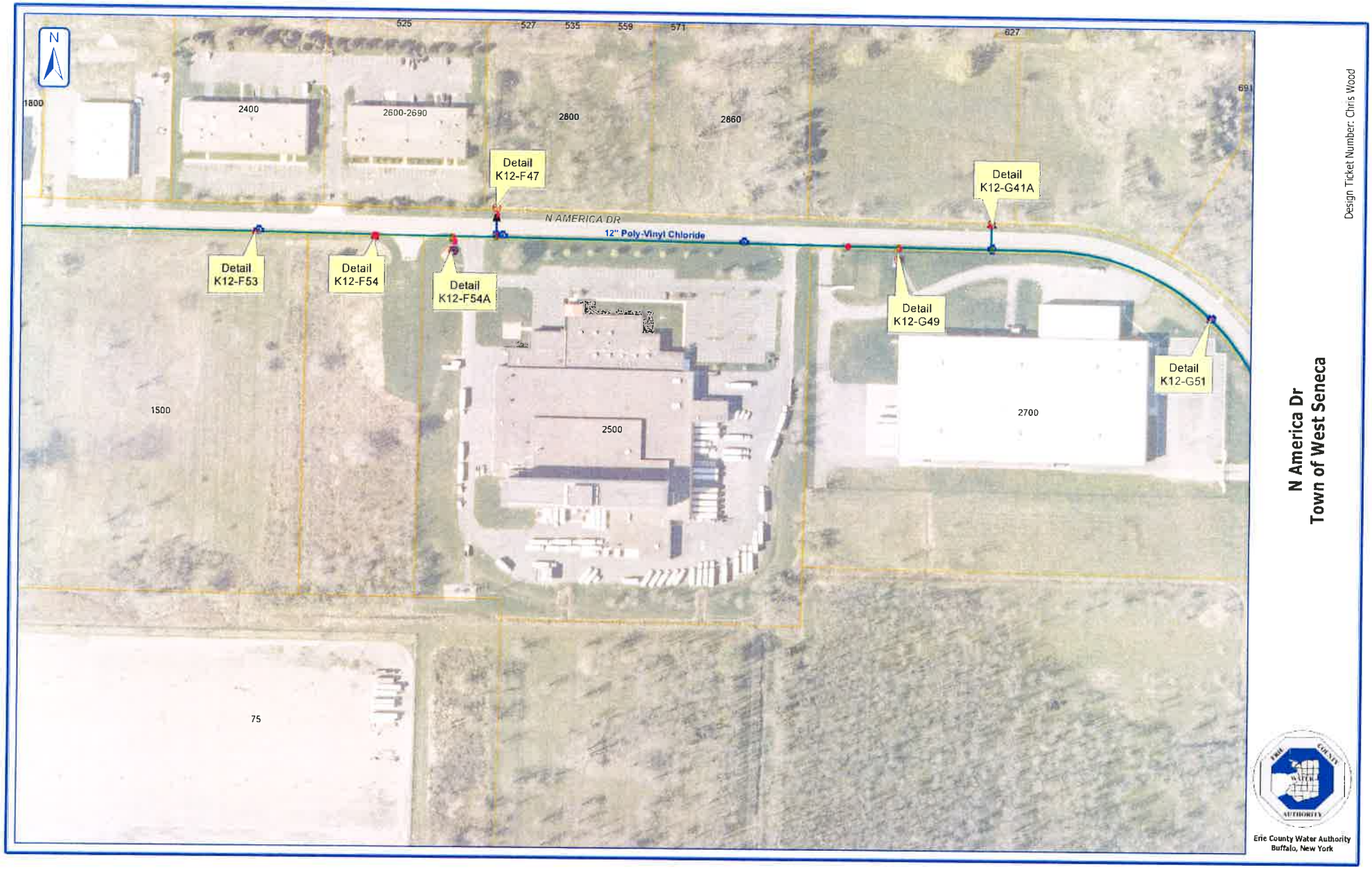
Flow Hyd	Location	Main/Brnch	Nzle	Size	Pitot	Flow	Comments
K13 D17	**EASEMENT** 6TH HYD W/O LEIN RD	12"/6"	1:	2.50	16.0	671	
			2:	2.50	16.0	671	
			3:			Total Flow:	1,342



Design Ticket Number: Chris Wood

N America Dr
Town of West Seneca

Erie County Water Authority
Buffalo, New York



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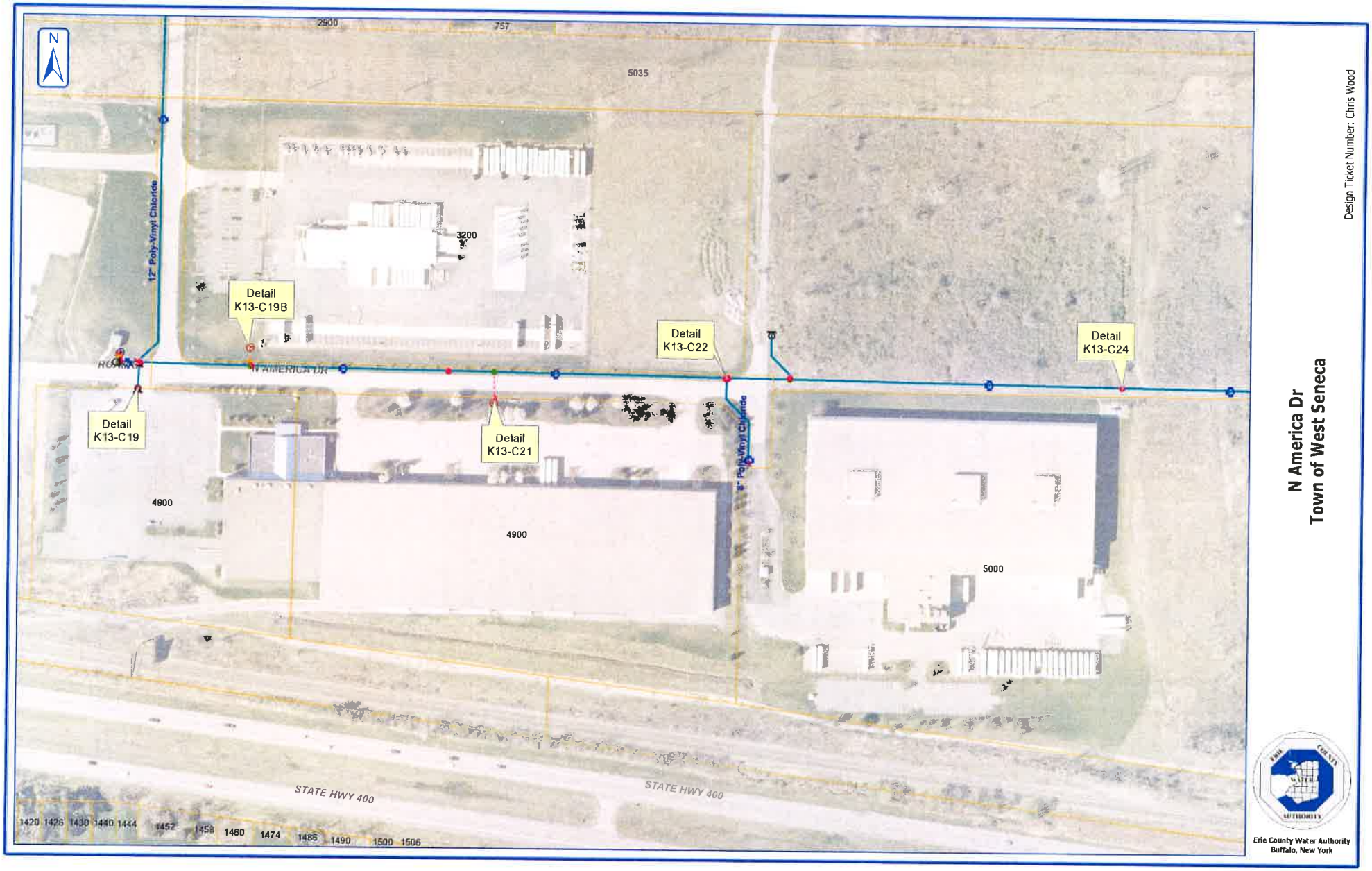

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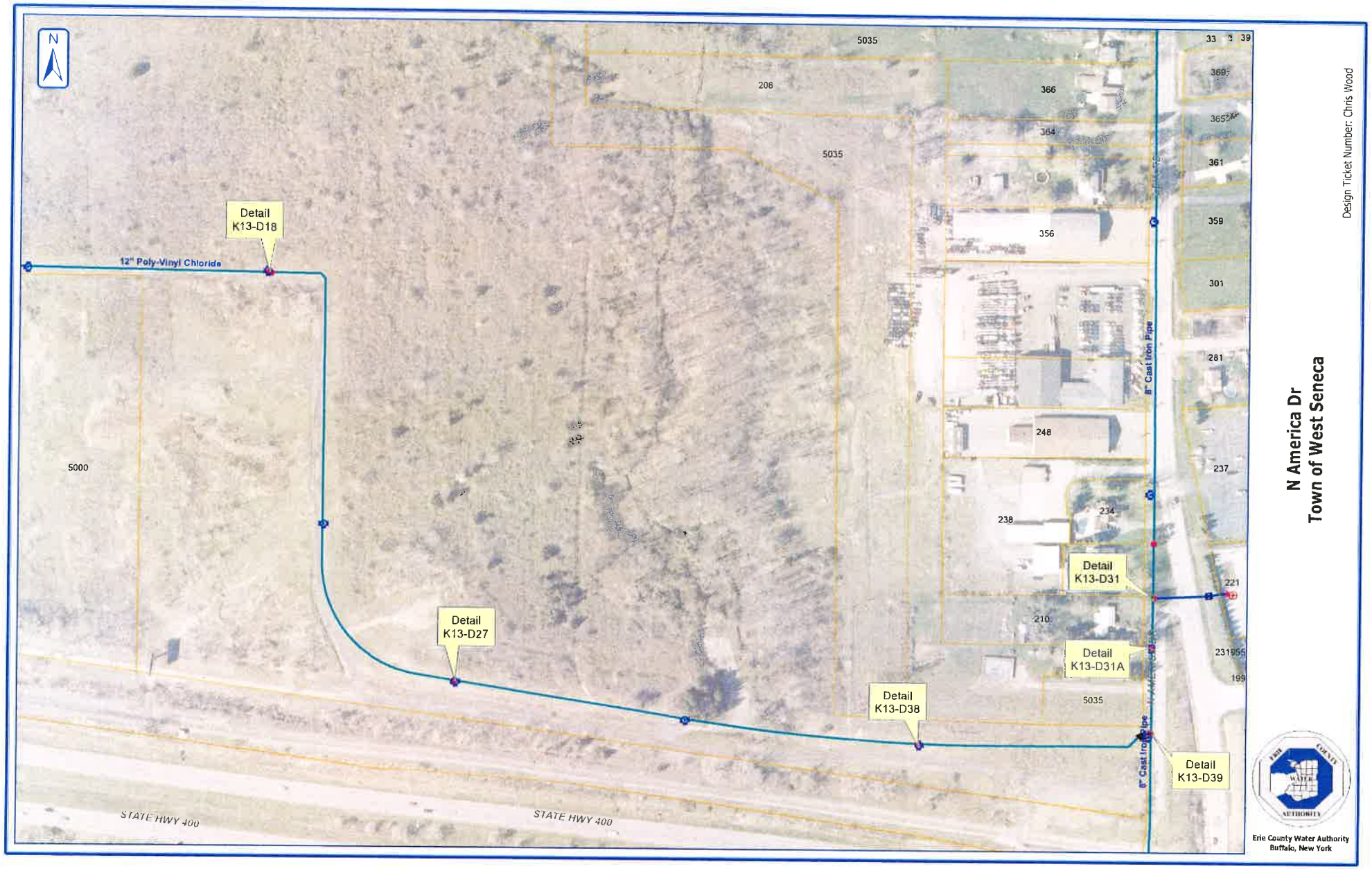
N
Detail K13-D18
12" Poly-Vinyl Chloride
Detail K13-D27
Detail K13-D38
Detail K13-D31
Detail K13-D31A
Detail K13-D39
8" Cast Iron Pipe
8" Cast Iron Pipe
STATE HWY 400
STATE HWY 400
5035
208
366
364
5035
361
359
356
301
281
248
5000
237
238
234
221
210
231
199
5035
N America Dr
Town of West Seneca
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Erie County Water Authority
Buffalo, New York

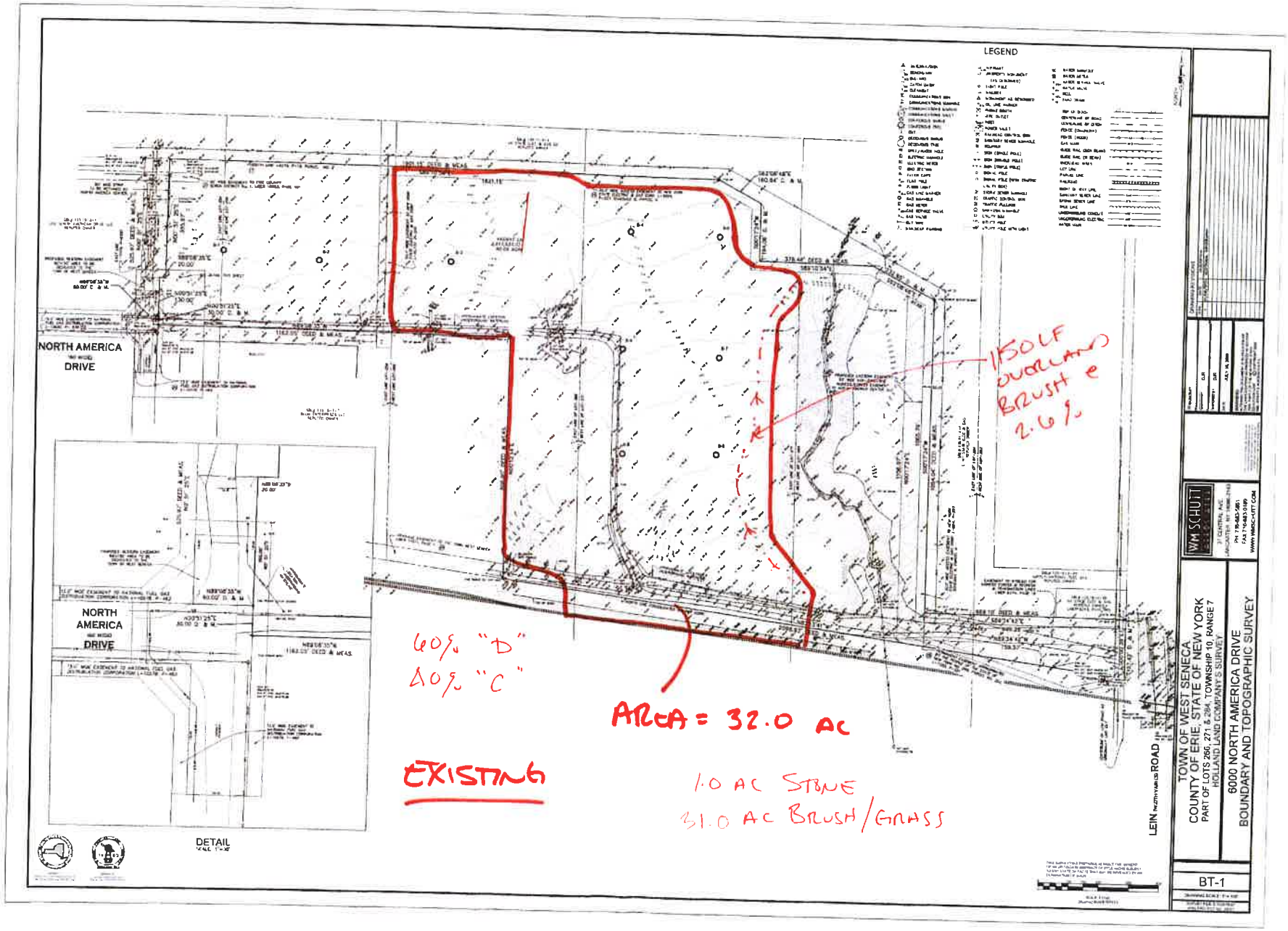
Attachment B Storm System Drainage Calculations

Existing Storm Calculations

Existing

Subcat Reach Pond Link

Routing Diagram for 21.117 Existing
Prepared by Carmina Wood Morris, PC, Printed 9/12/2022


LEGEND
NORTH AMERICA DRIVE
NORTH AMERICA DRIVE
DETAIL
ISOLF WOODLAND BRUSH 2.6%
60% "D"
40% "C"
AREA = 32.0 AC
EXISTING
1.0 AC STONE
31.0 AC BRUSH/GRASS
LEIN ROAD
WM SCHUTT
TOWN OF WEST SENECA
COUNTY OF ERIE, STATE OF NEW YORK
PART OF LOTS 266, 271 & 284, TOWNSHIP 10, RANGE 7
HOLLAND LAND COMPANY'S SURVEY
6000 NORTH AMERICA DRIVE
BOUNDARY AND TOPOGRAPHIC SURVEY
BT-1

Events for Subcatchment 1S: Existing

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	1.86	7.25	0.839	0.31
2-Year	2.20	12.69	1.288	0.48
5-Year	2.70	22.12	2.054	0.77
10-Year	3.15	31.65	2.827	1.06
25-Year	3.87	48.31	4.186	1.57
50-Year	4.52	64.42	5.510	2.07
100-Year	**5.28**	**84.12**	**7.142**	**2.68**

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	1.86	2
2	2-Year	Type II 24-hr		Default	24.00	1	2.20	2
3	5-Year	Type II 24-hr		Default	24.00	1	2.70	2
4	10-Year	Type II 24-hr		Default	24.00	1	3.15	2
5	25-Year	Type II 24-hr		Default	24.00	1	3.87	2
6	50-Year	Type II 24-hr		Default	24.00	1	4.52	2
7	100-Year	Type II 24-hr		Default	24.00	1	5.28	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
12.400	70	Brush, Fair, HSG C (1S)
18.600	77	Brush, Fair, HSG D (1S)
0.400	96	Gravel surface, HSG C (1S)
0.600	96	Gravel surface, HSG D (1S)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
12.800	HSG C	1S
19.200	HSG D	1S
0.000	Other	

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	12.400	18.600	0.000	31.000	Brush, Fair	1S
0.000	0.000	0.400	0.600	0.000	1.000	Gravel surface	1S

Summary for Subcatchment 1S: Existing

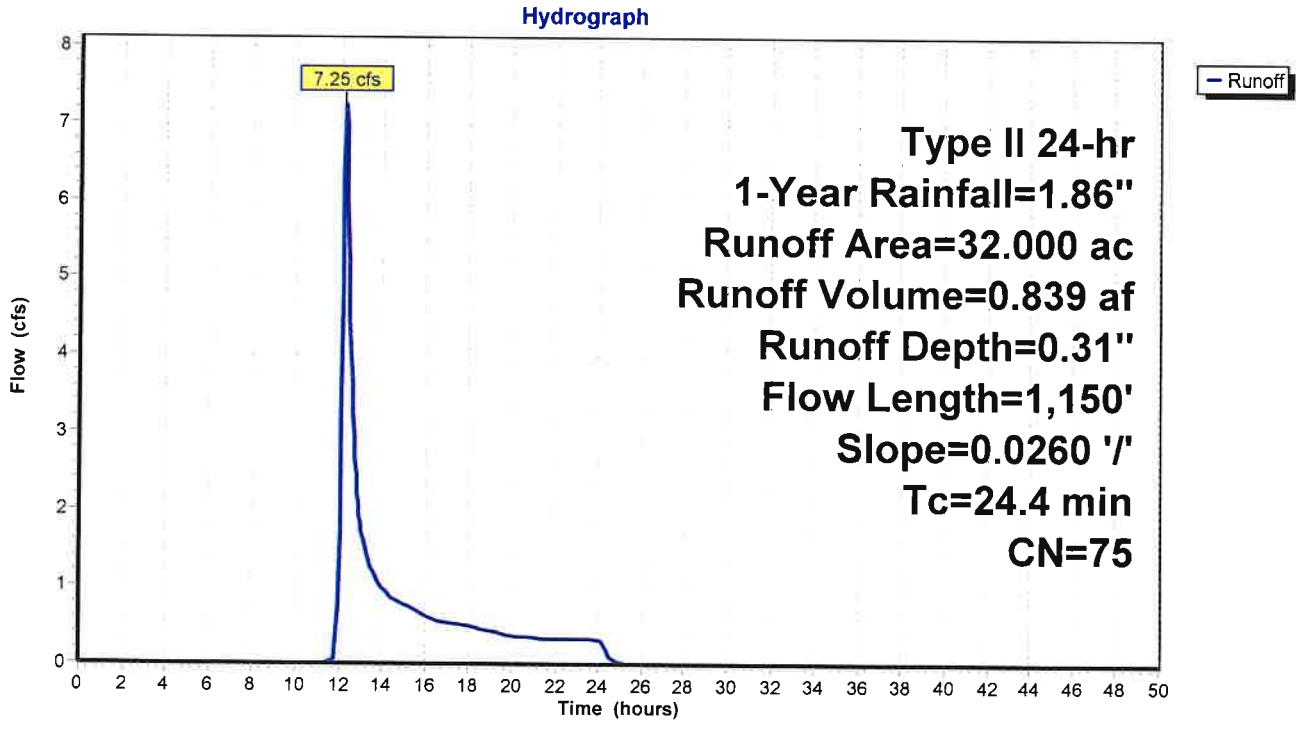
Runoff = 7.25 cfs @ 12.23 hrs, Volume= 0.839 af, Depth= 0.31"
Routed to nonexistent node 17P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
12.400	70	Brush, Fair, HSG C
18.600	77	Brush, Fair, HSG D
0.600	96	Gravel surface, HSG D
0.400	96	Gravel surface, HSG C
32.000	75	Weighted Average
32.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0260	0.19		**Sheet Flow, BRUSH** Range n= 0.130 P2= 2.50"
15.5	1,050	0.0260	1.13		**Shallow Concentrated Flow, BRUSH** Short Grass Pasture Kv= 7.0 fps
24.4	1,150	Total			

Subcatchment 1S: Existing



Hydrograph for Subcatchment 1S: Existing

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	1.86	0.31	0.00
0.50	0.01	0.00	0.00	26.50	1.86	0.31	0.00
1.00	0.02	0.00	0.00	27.00	1.86	0.31	0.00
1.50	0.03	0.00	0.00	27.50	1.86	0.31	0.00
2.00	0.04	0.00	0.00	28.00	1.86	0.31	0.00
2.50	0.05	0.00	0.00	28.50	1.86	0.31	0.00
3.00	0.06	0.00	0.00	29.00	1.86	0.31	0.00
3.50	0.08	0.00	0.00	29.50	1.86	0.31	0.00
4.00	0.09	0.00	0.00	30.00	1.86	0.31	0.00
4.50	0.10	0.00	0.00	30.50	1.86	0.31	0.00
5.00	0.12	0.00	0.00	31.00	1.86	0.31	0.00
5.50	0.13	0.00	0.00	31.50	1.86	0.31	0.00
6.00	0.15	0.00	0.00	32.00	1.86	0.31	0.00
6.50	0.17	0.00	0.00	32.50	1.86	0.31	0.00
7.00	0.18	0.00	0.00	33.00	1.86	0.31	0.00
7.50	0.20	0.00	0.00	33.50	1.86	0.31	0.00
8.00	0.22	0.00	0.00	34.00	1.86	0.31	0.00
8.50	0.25	0.00	0.00	34.50	1.86	0.31	0.00
9.00	0.27	0.00	0.00	35.00	1.86	0.31	0.00
9.50	0.30	0.00	0.00	35.50	1.86	0.31	0.00
10.00	0.34	0.00	0.00	36.00	1.86	0.31	0.00
10.50	0.38	0.00	0.00	36.50	1.86	0.31	0.00
11.00	0.44	0.00	0.00	37.00	1.86	0.31	0.00
11.50	0.53	0.00	0.00	37.50	1.86	0.31	0.00
12.00	1.23	0.08	**1.78**	38.00	1.86	0.31	0.00
12.50	1.37	0.12	**3.97**	38.50	1.86	0.31	0.00
13.00	1.44	0.14	1.71	39.00	1.86	0.31	0.00
13.50	1.49	0.16	1.20	39.50	1.86	0.31	0.00
14.00	1.53	0.18	0.96	40.00	1.86	0.31	0.00
14.50	1.56	0.19	0.81	40.50	1.86	0.31	0.00
15.00	1.59	0.20	0.74	41.00	1.86	0.31	0.00
15.50	1.61	0.21	0.68	41.50	1.86	0.31	0.00
16.00	1.64	0.22	0.61	42.00	1.86	0.31	0.00
16.50	1.66	0.23	0.55	42.50	1.86	0.31	0.00
17.00	1.68	0.24	0.52	43.00	1.86	0.31	0.00
17.50	1.70	0.24	0.50	43.50	1.86	0.31	0.00
18.00	1.71	0.25	0.47	44.00	1.86	0.31	0.00
18.50	1.73	0.26	0.45	44.50	1.86	0.31	0.00
19.00	1.74	0.26	0.42	45.00	1.86	0.31	0.00
19.50	1.76	0.27	0.39	45.50	1.86	0.31	0.00
20.00	1.77	0.27	0.36	46.00	1.86	0.31	0.00
20.50	1.78	0.28	0.34	46.50	1.86	0.31	0.00
21.00	1.79	0.29	0.33	47.00	1.86	0.31	0.00
21.50	1.81	0.29	0.33	47.50	1.86	0.31	0.00
22.00	1.82	0.30	0.33	48.00	1.86	0.31	0.00
22.50	1.83	0.30	0.32	48.50	1.86	0.31	0.00
23.00	1.84	0.31	0.32	49.00	1.86	0.31	0.00
23.50	1.85	0.31	0.31	49.50	1.86	0.31	0.00
24.00	**1.86**	**0.31**	0.31	50.00	1.86	0.31	0.00
24.50	1.86	0.31	0.06				
25.00	1.86	0.31	0.00				
25.50	1.86	0.31	0.00				

Summary for Subcatchment 1S: Existing

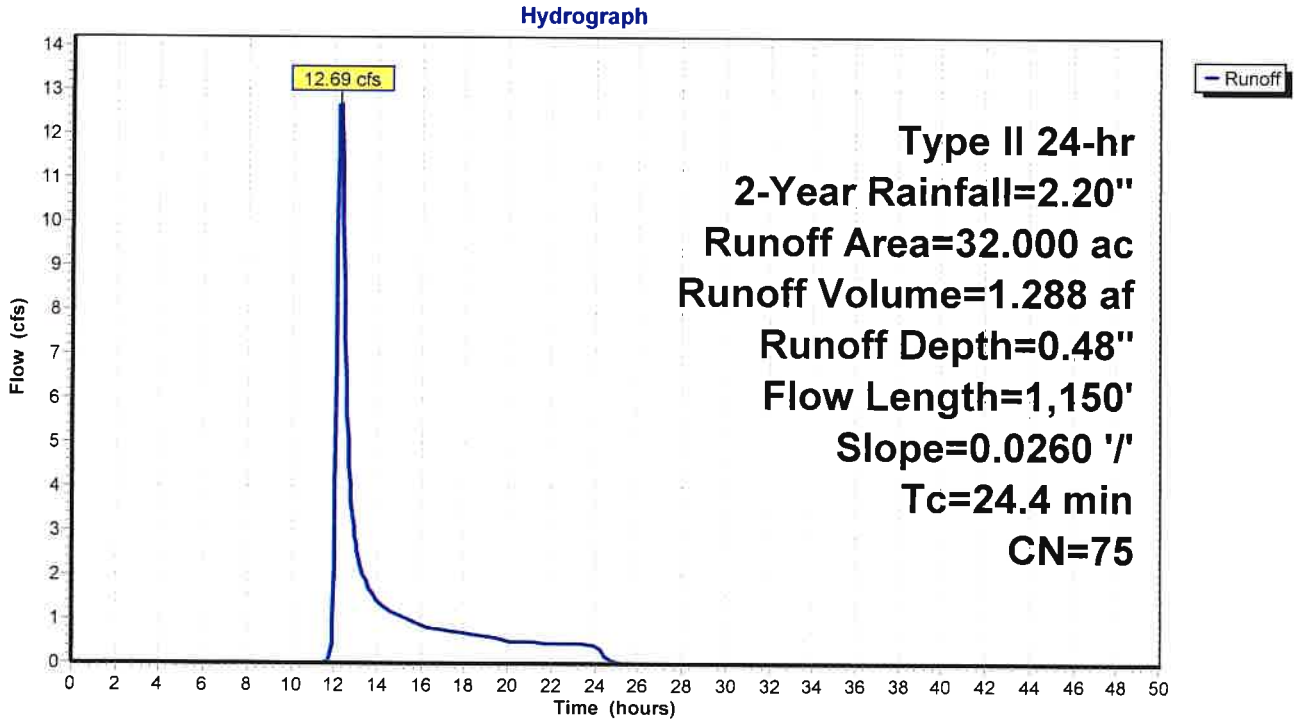
Runoff = 12.69 cfs @ 12.21 hrs, Volume= 1.288 af, Depth= 0.48"
Routed to nonexistent node 17P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
12.400	70	Brush, Fair, HSG C
18.600	77	Brush, Fair, HSG D
0.600	96	Gravel surface, HSG D
0.400	96	Gravel surface, HSG C
32.000	75	Weighted Average
32.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0260	0.19		**Sheet Flow, BRUSH** Range n= 0.130 P2= 2.50"
15.5	1,050	0.0260	1.13		**Shallow Concentrated Flow, BRUSH** Short Grass Pasture Kv= 7.0 fps
24.4	1,150	Total			

Subcatchment 1S: Existing



Hydrograph for Subcatchment 1S: Existing

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.01	0.00	0.00
1.00	0.02	0.00	0.00
1.50	0.04	0.00	0.00
2.00	0.05	0.00	0.00
2.50	0.06	0.00	0.00
3.00	0.08	0.00	0.00
3.50	0.09	0.00	0.00
4.00	0.11	0.00	0.00
4.50	0.12	0.00	0.00
5.00	0.14	0.00	0.00
5.50	0.16	0.00	0.00
6.00	0.18	0.00	0.00
6.50	0.20	0.00	0.00
7.00	0.22	0.00	0.00
7.50	0.24	0.00	0.00
8.00	0.26	0.00	0.00
8.50	0.29	0.00	0.00
9.00	0.32	0.00	0.00
9.50	0.36	0.00	0.00
10.00	0.40	0.00	0.00
10.50	0.45	0.00	0.00
11.00	0.52	0.00	0.00
11.50	0.62	0.00	0.00
12.00	1.46	0.15	**4.27**
12.50	1.62	0.21	**6.33**
13.00	1.70	0.24	2.53
13.50	1.76	0.27	1.74
14.00	1.80	0.29	1.38
14.50	1.84	0.31	1.16
15.00	1.88	0.32	1.06
15.50	1.91	0.34	0.96
16.00	1.94	0.35	0.86
16.50	1.96	0.36	0.77
17.00	1.98	0.37	0.73
17.50	2.01	0.38	0.70
18.00	2.03	0.39	0.66
18.50	2.05	0.40	0.62
19.00	2.06	0.41	0.58
19.50	2.08	0.42	0.54
20.00	2.09	0.43	0.50
20.50	2.11	0.44	0.47
21.00	2.12	0.44	0.46
21.50	2.14	0.45	0.46
22.00	2.15	0.46	0.45
22.50	2.16	0.46	0.44
23.00	2.18	0.47	0.43
23.50	2.19	0.48	0.43
24.00	**2.20**	**0.48**	0.42
24.50	2.20	0.48	0.08
25.00	2.20	0.48	0.00
25.50	2.20	0.48	0.00
26.00	2.20	0.48	0.00
26.50	2.20	0.48	0.00
27.00	2.20	0.48	0.00
27.50	2.20	0.48	0.00
28.00	2.20	0.48	0.00
28.50	2.20	0.48	0.00
29.00	2.20	0.48	0.00
29.50	2.20	0.48	0.00
30.00	2.20	0.48	0.00
30.50	2.20	0.48	0.00
31.00	2.20	0.48	0.00
31.50	2.20	0.48	0.00
32.00	2.20	0.48	0.00
32.50	2.20	0.48	0.00
33.00	2.20	0.48	0.00
33.50	2.20	0.48	0.00
34.00	2.20	0.48	0.00
34.50	2.20	0.48	0.00
35.00	2.20	0.48	0.00
35.50	2.20	0.48	0.00
36.00	2.20	0.48	0.00
36.50	2.20	0.48	0.00
37.00	2.20	0.48	0.00
37.50	2.20	0.48	0.00
38.00	2.20	0.48	0.00
38.50	2.20	0.48	0.00
39.00	2.20	0.48	0.00
39.50	2.20	0.48	0.00
40.00	2.20	0.48	0.00
40.50	2.20	0.48	0.00
41.00	2.20	0.48	0.00
41.50	2.20	0.48	0.00
42.00	2.20	0.48	0.00
42.50	2.20	0.48	0.00
43.00	2.20	0.48	0.00
43.50	2.20	0.48	0.00
44.00	2.20	0.48	0.00
44.50	2.20	0.48	0.00
45.00	2.20	0.48	0.00
45.50	2.20	0.48	0.00
46.00	2.20	0.48	0.00
46.50	2.20	0.48	0.00
47.00	2.20	0.48	0.00
47.50	2.20	0.48	0.00
48.00	2.20	0.48	0.00
48.50	2.20	0.48	0.00
49.00	2.20	0.48	0.00
49.50	2.20	0.48	0.00
50.00	2.20	0.48	0.00

Summary for Subcatchment 1S: Existing

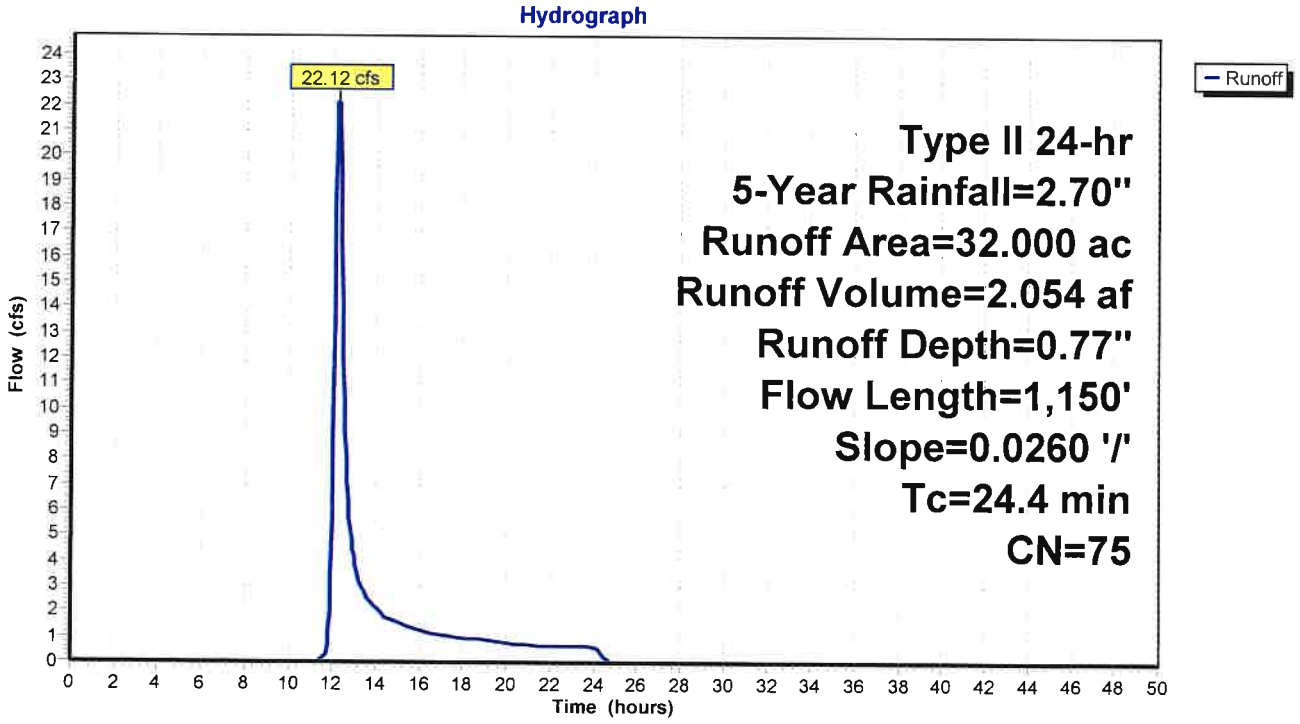
Runoff = 22.12 cfs @ 12.20 hrs, Volume= 2.054 af, Depth= 0.77"
Routed to nonexistent node 17P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
12.400	70	Brush, Fair, HSG C
18.600	77	Brush, Fair, HSG D
0.600	96	Gravel surface, HSG D
0.400	96	Gravel surface, HSG C
32.000	75	Weighted Average
32.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0260	0.19		**Sheet Flow, BRUSH** Range n= 0.130 P2= 2.50"
15.5	1,050	0.0260	1.13		**Shallow Concentrated Flow, BRUSH** Short Grass Pasture Kv= 7.0 fps
24.4	1,150	Total			

Subcatchment 1S: Existing



Hydrograph for Subcatchment 1S: Existing

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.01	0.00	0.00
1.00	0.03	0.00	0.00
1.50	0.04	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.09	0.00	0.00
3.50	0.11	0.00	0.00
4.00	0.13	0.00	0.00
4.50	0.15	0.00	0.00
5.00	0.17	0.00	0.00
5.50	0.19	0.00	0.00
6.00	0.22	0.00	0.00
6.50	0.24	0.00	0.00
7.00	0.27	0.00	0.00
7.50	0.29	0.00	0.00
8.00	0.32	0.00	0.00
8.50	0.36	0.00	0.00
9.00	0.40	0.00	0.00
9.50	0.44	0.00	0.00
10.00	0.49	0.00	0.00
10.50	0.55	0.00	0.00
11.00	0.63	0.00	0.00
11.50	0.76	0.00	0.07
12.00	1.79	0.28	**9.38**
12.50	1.98	0.37	**10.24**
13.00	2.08	0.42	3.85
13.50	2.16	0.46	2.60
14.00	2.21	0.49	2.05
14.50	2.26	0.52	1.71
15.00	2.30	0.54	1.55
15.50	2.34	0.56	1.40
16.00	2.38	0.58	1.25
16.50	2.41	0.60	1.12
17.00	2.43	0.61	1.06
17.50	2.46	0.63	1.01
18.00	2.49	0.64	0.95
18.50	2.51	0.66	0.90
19.00	2.53	0.67	0.84
19.50	2.55	0.68	0.78
20.00	2.57	0.69	0.72
20.50	2.59	0.70	0.67
21.00	2.60	0.71	0.66
21.50	2.62	0.72	0.65
22.00	2.64	0.73	0.64
22.50	2.65	0.74	0.63
23.00	2.67	0.75	0.62
23.50	2.68	0.76	0.61
24.00	**2.70**	**0.77**	0.60
24.50	2.70	0.77	0.12
25.00	2.70	0.77	0.01
25.50	2.70	0.77	0.00
26.00	2.70	0.77	0.00
26.50	2.70	0.77	0.00
27.00	2.70	0.77	0.00
27.50	2.70	0.77	0.00
28.00	2.70	0.77	0.00
28.50	2.70	0.77	0.00
29.00	2.70	0.77	0.00
29.50	2.70	0.77	0.00
30.00	2.70	0.77	0.00
30.50	2.70	0.77	0.00
31.00	2.70	0.77	0.00
31.50	2.70	0.77	0.00
32.00	2.70	0.77	0.00
32.50	2.70	0.77	0.00
33.00	2.70	0.77	0.00
33.50	2.70	0.77	0.00
34.00	2.70	0.77	0.00
34.50	2.70	0.77	0.00
35.00	2.70	0.77	0.00
35.50	2.70	0.77	0.00
36.00	2.70	0.77	0.00
36.50	2.70	0.77	0.00
37.00	2.70	0.77	0.00
37.50	2.70	0.77	0.00
38.00	2.70	0.77	0.00
38.50	2.70	0.77	0.00
39.00	2.70	0.77	0.00
39.50	2.70	0.77	0.00
40.00	2.70	0.77	0.00
40.50	2.70	0.77	0.00
41.00	2.70	0.77	0.00
41.50	2.70	0.77	0.00
42.00	2.70	0.77	0.00
42.50	2.70	0.77	0.00
43.00	2.70	0.77	0.00
43.50	2.70	0.77	0.00
44.00	2.70	0.77	0.00
44.50	2.70	0.77	0.00
45.00	2.70	0.77	0.00
45.50	2.70	0.77	0.00
46.00	2.70	0.77	0.00
46.50	2.70	0.77	0.00
47.00	2.70	0.77	0.00
47.50	2.70	0.77	0.00
48.00	2.70	0.77	0.00
48.50	2.70	0.77	0.00
49.00	2.70	0.77	0.00
49.50	2.70	0.77	0.00
50.00	2.70	0.77	0.00

Summary for Subcatchment 1S: Existing

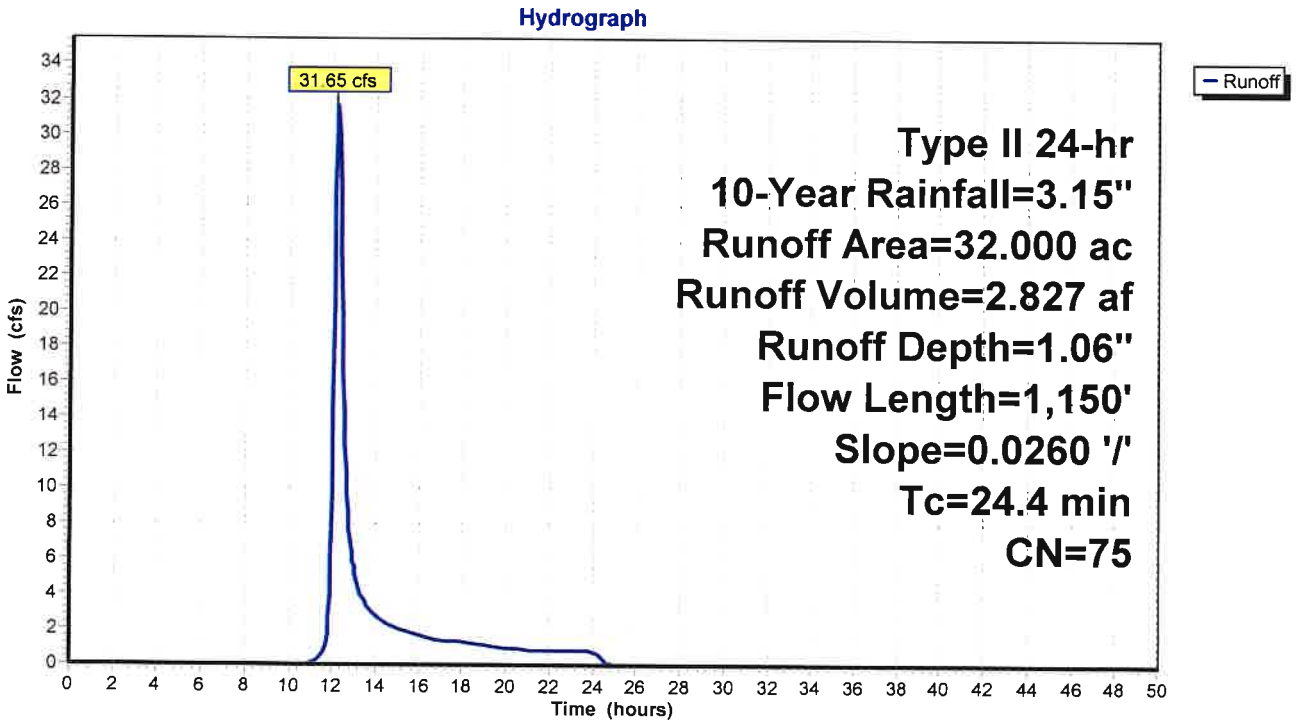
Runoff = 31.65 cfs @ 12.19 hrs, Volume= 2.827 af, Depth= 1.06"
Routed to nonexistent node 17P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
12.400	70	Brush, Fair, HSG C
18.600	77	Brush, Fair, HSG D
0.600	96	Gravel surface, HSG D
0.400	96	Gravel surface, HSG C
32.000	75	Weighted Average
32.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0260	0.19		**Sheet Flow, BRUSH** Range n= 0.130 P2= 2.50"
15.5	1,050	0.0260	1.13		**Shallow Concentrated Flow, BRUSH** Short Grass Pasture Kv= 7.0 fps
24.4	1,150	Total			

Subcatchment 1S: Existing



Hydrograph for Subcatchment 1S: Existing

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.50	0.05	0.00	0.00
2.00	0.07	0.00	0.00
2.50	0.09	0.00	0.00
3.00	0.11	0.00	0.00
3.50	0.13	0.00	0.00
4.00	0.15	0.00	0.00
4.50	0.17	0.00	0.00
5.00	0.20	0.00	0.00
5.50	0.22	0.00	0.00
6.00	0.25	0.00	0.00
6.50	0.28	0.00	0.00
7.00	0.31	0.00	0.00
7.50	0.34	0.00	0.00
8.00	0.38	0.00	0.00
8.50	0.42	0.00	0.00
9.00	0.46	0.00	0.00
9.50	0.51	0.00	0.00
10.00	0.57	0.00	0.00
10.50	0.64	0.00	0.00
11.00	0.74	0.00	0.04
11.50	0.89	0.01	0.57
12.00	2.09	0.43	**14.79**
12.50	2.32	0.55	**14.09**
13.00	2.43	0.61	5.12
13.50	2.52	0.66	3.42
14.00	2.58	0.70	2.68
14.50	2.64	0.73	2.22
15.00	2.69	0.76	2.01
15.50	2.73	0.79	1.82
16.00	2.77	0.81	1.62
16.50	2.81	0.84	1.45
17.00	2.84	0.86	1.37
17.50	2.87	0.88	1.30
18.00	2.90	0.90	1.23
18.50	2.93	0.91	1.16
19.00	2.95	0.93	1.08
19.50	2.98	0.95	1.00
20.00	3.00	0.96	0.92
20.50	3.02	0.97	0.86
21.00	3.04	0.99	0.85
21.50	3.06	1.00	0.83
22.00	3.08	1.01	0.82
22.50	3.10	1.02	0.81
23.00	3.11	1.04	0.79
23.50	3.13	1.05	0.78
24.00	**3.15**	**1.06**	0.76
24.50	3.15	1.06	0.15
25.00	3.15	1.06	0.01
25.50	3.15	1.06	0.00
26.00	3.15	1.06	0.00
26.50	3.15	1.06	0.00
27.00	3.15	1.06	0.00
27.50	3.15	1.06	0.00
28.00	3.15	1.06	0.00
28.50	3.15	1.06	0.00
29.00	3.15	1.06	0.00
29.50	3.15	1.06	0.00
30.00	3.15	1.06	0.00
30.50	3.15	1.06	0.00
31.00	3.15	1.06	0.00
31.50	3.15	1.06	0.00
32.00	3.15	1.06	0.00
32.50	3.15	1.06	0.00
33.00	3.15	1.06	0.00
33.50	3.15	1.06	0.00
34.00	3.15	1.06	0.00
34.50	3.15	1.06	0.00
35.00	3.15	1.06	0.00
35.50	3.15	1.06	0.00
36.00	3.15	1.06	0.00
36.50	3.15	1.06	0.00
37.00	3.15	1.06	0.00
37.50	3.15	1.06	0.00
38.00	3.15	1.06	0.00
38.50	3.15	1.06	0.00
39.00	3.15	1.06	0.00
39.50	3.15	1.06	0.00
40.00	3.15	1.06	0.00
40.50	3.15	1.06	0.00
41.00	3.15	1.06	0.00
41.50	3.15	1.06	0.00
42.00	3.15	1.06	0.00
42.50	3.15	1.06	0.00
43.00	3.15	1.06	0.00
43.50	3.15	1.06	0.00
44.00	3.15	1.06	0.00
44.50	3.15	1.06	0.00
45.00	3.15	1.06	0.00
45.50	3.15	1.06	0.00
46.00	3.15	1.06	0.00
46.50	3.15	1.06	0.00
47.00	3.15	1.06	0.00
47.50	3.15	1.06	0.00
48.00	3.15	1.06	0.00
48.50	3.15	1.06	0.00
49.00	3.15	1.06	0.00
49.50	3.15	1.06	0.00
50.00	3.15	1.06	0.00

Summary for Subcatchment 1S: Existing

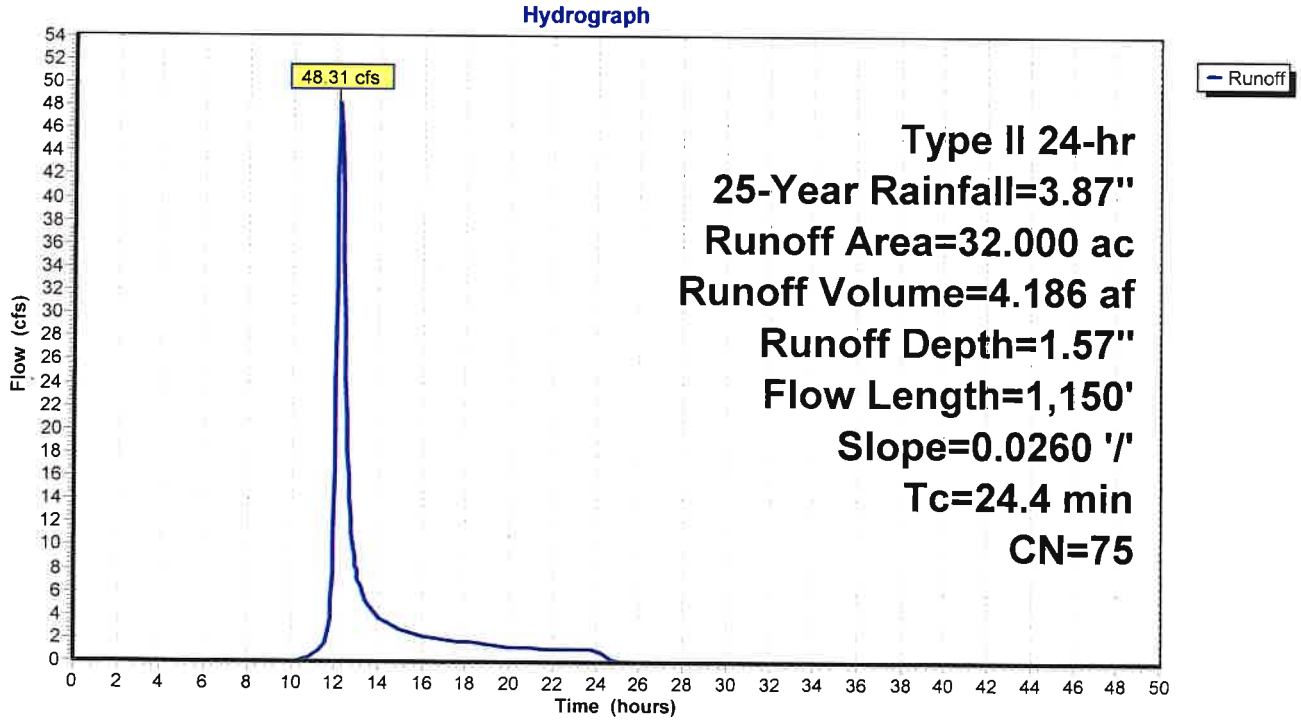
Runoff = 48.31 cfs @ 12.19 hrs, Volume= 4.186 af, Depth= 1.57"
Routed to nonexistent node 17P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
12.400	70	Brush, Fair, HSG C
18.600	77	Brush, Fair, HSG D
0.600	96	Gravel surface, HSG D
0.400	96	Gravel surface, HSG C
32.000	75	Weighted Average
32.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0260	0.19		**Sheet Flow, BRUSH** Range n= 0.130 P2= 2.50"
15.5	1,050	0.0260	1.13		**Shallow Concentrated Flow, BRUSH** Short Grass Pasture Kv= 7.0 fps
24.4	1,150	Total			

Subcatchment 1S: Existing



Hydrograph for Subcatchment 1S: Existing

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.04	0.00	0.00
1.50	0.06	0.00	0.00
2.00	0.09	0.00	0.00
2.50	0.11	0.00	0.00
3.00	0.13	0.00	0.00
3.50	0.16	0.00	0.00
4.00	0.19	0.00	0.00
4.50	0.21	0.00	0.00
5.00	0.24	0.00	0.00
5.50	0.28	0.00	0.00
6.00	0.31	0.00	0.00
6.50	0.35	0.00	0.00
7.00	0.38	0.00	0.00
7.50	0.42	0.00	0.00
8.00	0.46	0.00	0.00
8.50	0.51	0.00	0.00
9.00	0.57	0.00	0.00
9.50	0.63	0.00	0.00
10.00	0.70	0.00	0.00
10.50	0.79	0.00	0.18
11.00	0.91	0.02	0.62
11.50	1.10	0.05	1.65
12.00	2.57	0.69	**24.52**
12.50	2.84	0.86	**20.66**
13.00	2.99	0.95	7.24
13.50	3.09	1.02	4.78
14.00	3.17	1.08	3.73
14.50	3.24	1.12	3.09
15.00	3.30	1.16	2.79
15.50	3.36	1.20	2.51
16.00	3.41	1.24	2.22
16.50	3.45	1.27	2.00
17.00	3.49	1.29	1.89
17.50	3.53	1.32	1.78
18.00	3.56	1.35	1.68
18.50	3.60	1.37	1.58
19.00	3.63	1.39	1.47
19.50	3.66	1.41	1.37
20.00	3.68	1.43	1.26
20.50	3.71	1.45	1.18
21.00	3.73	1.47	1.15
21.50	3.76	1.49	1.13
22.00	3.78	1.50	1.11
22.50	3.80	1.52	1.09
23.00	3.83	1.54	1.07
23.50	3.85	1.55	1.05
24.00	**3.87**	**1.57**	1.03
24.50	3.87	1.57	0.20
25.00	3.87	1.57	0.01
25.50	3.87	1.57	0.00
26.00	3.87	1.57	0.00
26.50	3.87	1.57	0.00
27.00	3.87	1.57	0.00
27.50	3.87	1.57	0.00
28.00	3.87	1.57	0.00
28.50	3.87	1.57	0.00
29.00	3.87	1.57	0.00
29.50	3.87	1.57	0.00
30.00	3.87	1.57	0.00
30.50	3.87	1.57	0.00
31.00	3.87	1.57	0.00
31.50	3.87	1.57	0.00
32.00	3.87	1.57	0.00
32.50	3.87	1.57	0.00
33.00	3.87	1.57	0.00
33.50	3.87	1.57	0.00
34.00	3.87	1.57	0.00
34.50	3.87	1.57	0.00
35.00	3.87	1.57	0.00
35.50	3.87	1.57	0.00
36.00	3.87	1.57	0.00
36.50	3.87	1.57	0.00
37.00	3.87	1.57	0.00
37.50	3.87	1.57	0.00
38.00	3.87	1.57	0.00
38.50	3.87	1.57	0.00
39.00	3.87	1.57	0.00
39.50	3.87	1.57	0.00
40.00	3.87	1.57	0.00
40.50	3.87	1.57	0.00
41.00	3.87	1.57	0.00
41.50	3.87	1.57	0.00
42.00	3.87	1.57	0.00
42.50	3.87	1.57	0.00
43.00	3.87	1.57	0.00
43.50	3.87	1.57	0.00
44.00	3.87	1.57	0.00
44.50	3.87	1.57	0.00
45.00	3.87	1.57	0.00
45.50	3.87	1.57	0.00
46.00	3.87	1.57	0.00
46.50	3.87	1.57	0.00
47.00	3.87	1.57	0.00
47.50	3.87	1.57	0.00
48.00	3.87	1.57	0.00
48.50	3.87	1.57	0.00
49.00	3.87	1.57	0.00
49.50	3.87	1.57	0.00
50.00	3.87	1.57	0.00

Summary for Subcatchment 1S: Existing

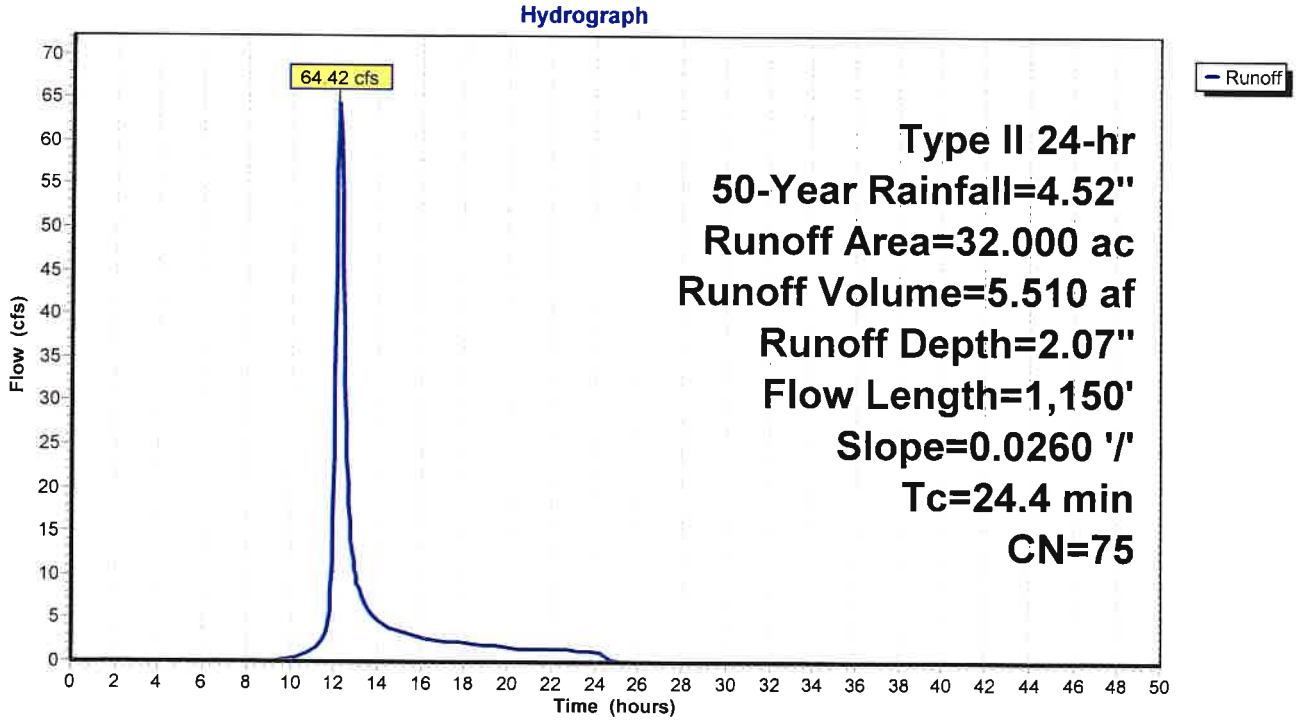
Runoff = 64.42 cfs @ 12.18 hrs, Volume= 5.510 af, Depth= 2.07"
Routed to nonexistent node 17P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
12.400	70	Brush, Fair, HSG C
18.600	77	Brush, Fair, HSG D
0.600	96	Gravel surface, HSG D
0.400	96	Gravel surface, HSG C
32.000	75	Weighted Average
32.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0260	0.19		**Sheet Flow, BRUSH** Range n= 0.130 P2= 2.50"
15.5	1,050	0.0260	1.13		**Shallow Concentrated Flow, BRUSH** Short Grass Pasture Kv= 7.0 fps
24.4	1,150	Total			

Subcatchment 1S: Existing



Hydrograph for Subcatchment 1S: Existing

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.07	0.00	0.00
2.00	0.10	0.00	0.00
2.50	0.13	0.00	0.00
3.00	0.16	0.00	0.00
3.50	0.19	0.00	0.00
4.00	0.22	0.00	0.00
4.50	0.25	0.00	0.00
5.00	0.28	0.00	0.00
5.50	0.32	0.00	0.00
6.00	0.36	0.00	0.00
6.50	0.40	0.00	0.00
7.00	0.45	0.00	0.00
7.50	0.49	0.00	0.00
8.00	0.54	0.00	0.00
8.50	0.60	0.00	0.00
9.00	0.66	0.00	0.00
9.50	0.74	0.00	0.06
10.00	0.82	0.01	0.26
10.50	0.92	0.02	0.62
11.00	1.06	0.04	1.30
11.50	1.28	0.10	2.81
12.00	3.00	0.96	**34.16**
12.50	3.32	1.18	**26.91**
13.00	3.49	1.29	9.23
13.50	3.61	1.38	6.05
14.00	3.71	1.45	4.71
14.50	3.79	1.51	3.88
15.00	3.86	1.56	3.50
15.50	3.92	1.61	3.15
16.00	3.98	1.65	2.79
16.50	4.03	1.69	2.50
17.00	4.08	1.72	2.36
17.50	4.12	1.76	2.23
18.00	4.16	1.79	2.10
18.50	4.20	1.82	1.97
19.00	4.24	1.85	1.83
19.50	4.27	1.87	1.70
20.00	4.30	1.90	1.57
20.50	4.33	1.92	1.46
21.00	4.36	1.94	1.43
21.50	4.39	1.96	1.41
22.00	4.42	1.98	1.38
22.50	4.44	2.01	1.36
23.00	4.47	2.03	1.33
23.50	4.49	2.05	1.30
24.00	**4.52**	**2.07**	1.28
24.50	4.52	2.07	0.25
25.00	4.52	2.07	0.01
25.50	4.52	2.07	0.00
26.00	4.52	2.07	0.00
26.50	4.52	2.07	0.00
27.00	4.52	2.07	0.00
27.50	4.52	2.07	0.00
28.00	4.52	2.07	0.00
28.50	4.52	2.07	0.00
29.00	4.52	2.07	0.00
29.50	4.52	2.07	0.00
30.00	4.52	2.07	0.00
30.50	4.52	2.07	0.00
31.00	4.52	2.07	0.00
31.50	4.52	2.07	0.00
32.00	4.52	2.07	0.00
32.50	4.52	2.07	0.00
33.00	4.52	2.07	0.00
33.50	4.52	2.07	0.00
34.00	4.52	2.07	0.00
34.50	4.52	2.07	0.00
35.00	4.52	2.07	0.00
35.50	4.52	2.07	0.00
36.00	4.52	2.07	0.00
36.50	4.52	2.07	0.00
37.00	4.52	2.07	0.00
37.50	4.52	2.07	0.00
38.00	4.52	2.07	0.00
38.50	4.52	2.07	0.00
39.00	4.52	2.07	0.00
39.50	4.52	2.07	0.00
40.00	4.52	2.07	0.00
40.50	4.52	2.07	0.00
41.00	4.52	2.07	0.00
41.50	4.52	2.07	0.00
42.00	4.52	2.07	0.00
42.50	4.52	2.07	0.00
43.00	4.52	2.07	0.00
43.50	4.52	2.07	0.00
44.00	4.52	2.07	0.00
44.50	4.52	2.07	0.00
45.00	4.52	2.07	0.00
45.50	4.52	2.07	0.00
46.00	4.52	2.07	0.00
46.50	4.52	2.07	0.00
47.00	4.52	2.07	0.00
47.50	4.52	2.07	0.00
48.00	4.52	2.07	0.00
48.50	4.52	2.07	0.00
49.00	4.52	2.07	0.00
49.50	4.52	2.07	0.00
50.00	4.52	2.07	0.00

Summary for Subcatchment 1S: Existing

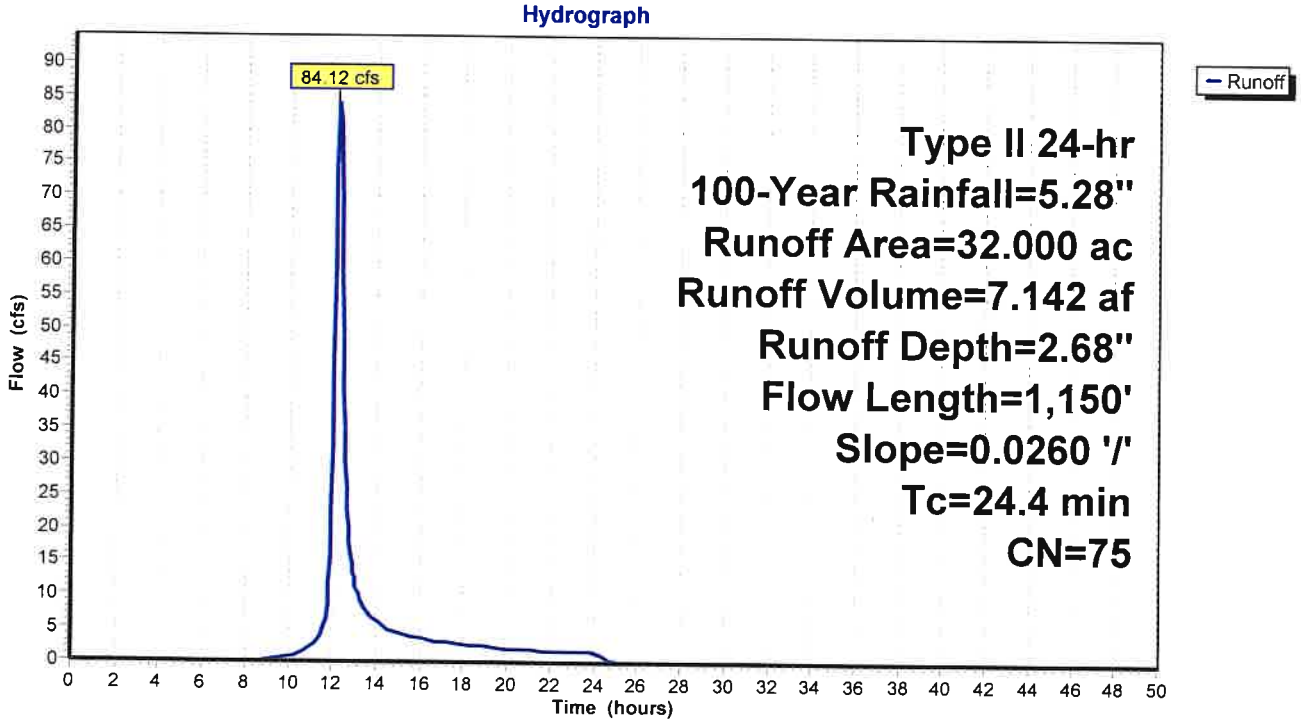
Runoff = 84.12 cfs @ 12.18 hrs, Volume= 7.142 af, Depth= 2.68"
Routed to nonexistent node 17P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
12.400	70	Brush, Fair, HSG C
18.600	77	Brush, Fair, HSG D
0.600	96	Gravel surface, HSG D
0.400	96	Gravel surface, HSG C
32.000	75	Weighted Average
32.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0260	0.19		**Sheet Flow, BRUSH** Range n= 0.130 P2= 2.50"
15.5	1,050	0.0260	1.13		**Shallow Concentrated Flow, BRUSH** Short Grass Pasture Kv= 7.0 fps
24.4	1,150	Total			

Subcatchment 1S: Existing



Hydrograph for Subcatchment 1S: Existing

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.06	0.00	0.00
1.50	0.09	0.00	0.00
2.00	0.12	0.00	0.00
2.50	0.15	0.00	0.00
3.00	0.18	0.00	0.00
3.50	0.22	0.00	0.00
4.00	0.25	0.00	0.00
4.50	0.29	0.00	0.00
5.00	0.33	0.00	0.00
5.50	0.38	0.00	0.00
6.00	0.42	0.00	0.00
6.50	0.47	0.00	0.00
7.00	0.52	0.00	0.00
7.50	0.58	0.00	0.00
8.00	0.63	0.00	0.00
8.50	0.70	0.00	0.00
9.00	0.78	0.00	0.15
9.50	0.86	0.01	0.40
10.00	0.96	0.02	0.70
10.50	1.08	0.05	1.24
11.00	1.24	0.08	2.20
11.50	1.49	0.16	4.33
12.00	3.50	1.30	**46.16**
12.50	3.88	1.58	**34.44**
13.00	4.08	1.72	11.59
13.50	4.22	1.83	7.55
14.00	4.33	1.92	5.86
14.50	4.42	1.99	4.82
15.00	4.51	2.06	4.34
15.50	4.58	2.11	3.90
16.00	4.65	2.17	3.45
16.50	4.71	2.21	3.09
17.00	4.76	2.26	2.91
17.50	4.81	2.30	2.75
18.00	4.86	2.34	2.59
18.50	4.91	2.38	2.43
19.00	4.95	2.41	2.26
19.50	4.99	2.44	2.09
20.00	5.03	2.47	1.93
20.50	5.06	2.50	1.80
21.00	5.09	2.53	1.76
21.50	5.13	2.55	1.73
22.00	5.16	2.58	1.70
22.50	5.19	2.60	1.67
23.00	5.22	2.63	1.63
23.50	5.25	2.65	1.60
24.00	**5.28**	**2.68**	1.57
24.50	5.28	2.68	0.31
25.00	5.28	2.68	0.01
25.50	5.28	2.68	0.00
26.00	5.28	2.68	0.00
26.50	5.28	2.68	0.00
27.00	5.28	2.68	0.00
27.50	5.28	2.68	0.00
28.00	5.28	2.68	0.00
28.50	5.28	2.68	0.00
29.00	5.28	2.68	0.00
29.50	5.28	2.68	0.00
30.00	5.28	2.68	0.00
30.50	5.28	2.68	0.00
31.00	5.28	2.68	0.00
31.50	5.28	2.68	0.00
32.00	5.28	2.68	0.00
32.50	5.28	2.68	0.00
33.00	5.28	2.68	0.00
33.50	5.28	2.68	0.00
34.00	5.28	2.68	0.00
34.50	5.28	2.68	0.00
35.00	5.28	2.68	0.00
35.50	5.28	2.68	0.00
36.00	5.28	2.68	0.00
36.50	5.28	2.68	0.00
37.00	5.28	2.68	0.00
37.50	5.28	2.68	0.00
38.00	5.28	2.68	0.00
38.50	5.28	2.68	0.00
39.00	5.28	2.68	0.00
39.50	5.28	2.68	0.00
40.00	5.28	2.68	0.00
40.50	5.28	2.68	0.00
41.00	5.28	2.68	0.00
41.50	5.28	2.68	0.00
42.00	5.28	2.68	0.00
42.50	5.28	2.68	0.00
43.00	5.28	2.68	0.00
43.50	5.28	2.68	0.00
44.00	5.28	2.68	0.00
44.50	5.28	2.68	0.00
45.00	5.28	2.68	0.00
45.50	5.28	2.68	0.00
46.00	5.28	2.68	0.00
46.50	5.28	2.68	0.00
47.00	5.28	2.68	0.00
47.50	5.28	2.68	0.00
48.00	5.28	2.68	0.00
48.50	5.28	2.68	0.00
49.00	5.28	2.68	0.00
49.50	5.28	2.68	0.00
50.00	5.28	2.68	0.00

TABLE OF CONTENTS

Green Infrastructure Calculations

Version 1.7
Last Updated: 2/22/21

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	

Design Point:	1	
P=	1.00	*inch*

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	32.00	18.00	56%	0.56	64,614	
2						
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	32.00	18.00	56%	0.56	**64,614**	**Subtotal 1**
Total	32.00	18.00	56%	0.56	**64,614**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	32.00	18.00	56%	0.56	64,614
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	**32.00**	**18.00**	56%	0.56	64,614
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	32.00	18.00	56%	0.56	**64,614**
WQv reduced by Area Reduction techniques					0

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		Total Contributing Area	Total Contributing Impervious Area	WQv Reduced (RRv)	WQv Treated
			(acres)	(acres)	cf	cf
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00			
	Bioretention & Infiltration Bioretention	F-5	32.00	18.00	17280	47334
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			0.00	0.00	0	
Totals by Volume Reduction →			0.00	0.00	0	
Totals by Standard SMP w/RRV →			32.00	18.00	17280	47334
Totals by Standard SMP →			0.00	0.00		0
Totals (Area + Volume + all SMPs) →			32.00	18.00	17,280	47,334
	Impervious Cover √	okay				
	Total Area √	okay				

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A	5.20	55%
B		40%
C	23.20	30%
D	**31.69**	20%
Total Area	60.09	

Calculate the Minimum RRv		
S =	**0.27**	
Impervious =	18.00	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**16,691**	***ft3***
	0.38	af

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	64614	*1.483*
30	Total RRV Provided	17280	*0.397*
31	Is RRv Provided ≥WQv Required?	No	
32	Minimum RRv	16691	*0.383*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	47334	*1.087*
34	Sum of Volume Reduced & Treated	64614	*1.483*
34	Sum of Volume Reduced and Treated	64614	*1.483*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?		

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

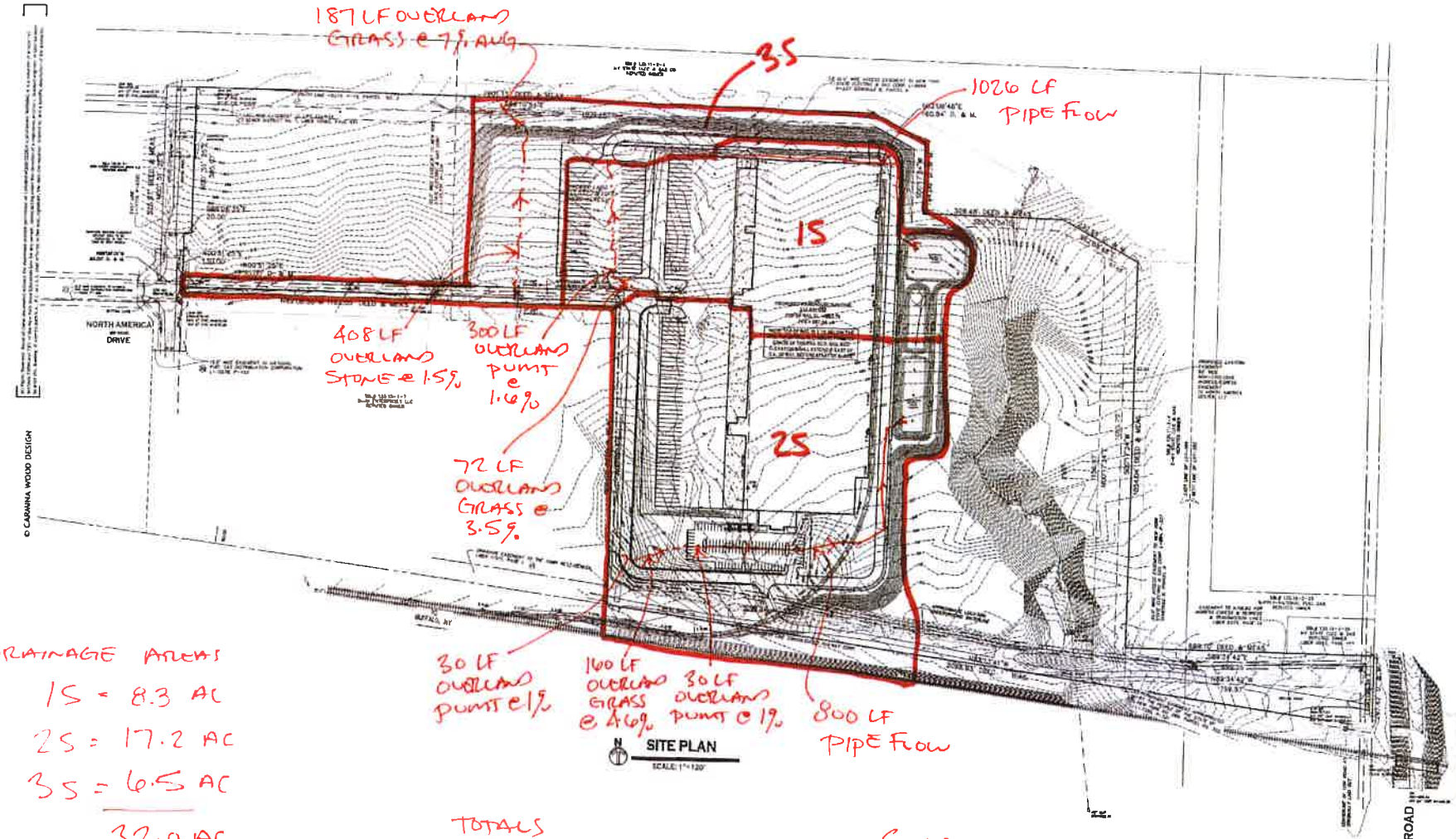
Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	1						
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	32.00	18.00	0.56	0.56	64614.00	1.00	
Enter Impervious Area Reduced by Disconnection of Rooftops		**0.00**	56%	0.56	64,614	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	
Soil Information							
Soil Group		**D**					
Soil Infiltration Rate		**0.00**	*in/hour*	*Okay*			
Using Underdrains?		**Yes**	*Okay*				
Calculate the Minimum Filter Area							
				Value	**Units**	**Notes**	
WQv				64,614	*ft^3*		
Enter Depth of Soil Media		*df*		**1.5**	*ft*	*2.5-4 ft*	
Enter Hydraulic Conductivity		*k*		0.5	*ft/day*		
Enter Average Height of Ponding		*hf*		**0.5**	*ft*	*6 inches max.*	
Enter Filter Time		*tf*		**2**	*days*		
Required Filter Area		***Af***		**48461**	***ft^2***		
Determine Actual Bio-Retention Area							
Filter Width		180	*ft*				
Filter Length		180	*ft*				
Filter Area		32400	*ft^2*				
Actual Volume Provided		43200	*ft^3*				
Determine Runoff Reduction							
Is the Bioretention contributing flow to another practice?				Select Practice			
RRv		17,280					
RRv applied		**17,280**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***			
Volume Treated		47,334	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*			
Volume Directed		0	*ft^3*	This volume is directed another practice			
Sizing √		Error		*Check to be sure Area provided ≥ Af*			

Proposed Storm Calculations



DRAINAGE AREAS

15 = 8.3 AC

25 = 17.2 AC

35 = 6.5 AC

32.0 AC

TOTALS

18.0 AC PUMP/BLDG

12.0 AC GREEN

2.0 AC STONE

SOILS

60% "D"

40% "C"

PROPOSED GRADING LEGEND

PROPOSED CONTOUR —101—

PROPOSED SPOT ELEVATION 607.80

PROPOSED TOP/BOTTOM OF CURB ELEV. TC 606.44 BC 605.84

PROPOSED CATCH BASIN CB

PAVEMENT/GROUND SLOPE →

PROPOSED YARD DRAIN TD

PROPOSED MANHOLE MH

NOTE: BOUNDARY AND TOPOGRAPHIC INFORMATION FURNISHED BY OTHERS. CARMINA WOOD DESIGN ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

CARMINAWOOD DESIGN

Proposed Warehouse

North America Drive

West Seneca, New York

PRELIMINARY NOT FOR CONSTRUCTION

DRAWING NAME: Grading Plan

DRAWING NO. C-200

Project No: 22.117

Proposed Runoff Summary

Event	Ex. Runoff (cfs)*	Pro. Runoff (basin+runoff to north) (cfs)**	Result (cfs)
1-year	7.25	2.73 + 4.60 = 7.33	+0.08
10-year	31.65	3.25 + 11.77 = 15.02	-16.63
100-year	84.12	3.93 + 24.65 = 28.58	-55.54

* Total runoff from the site

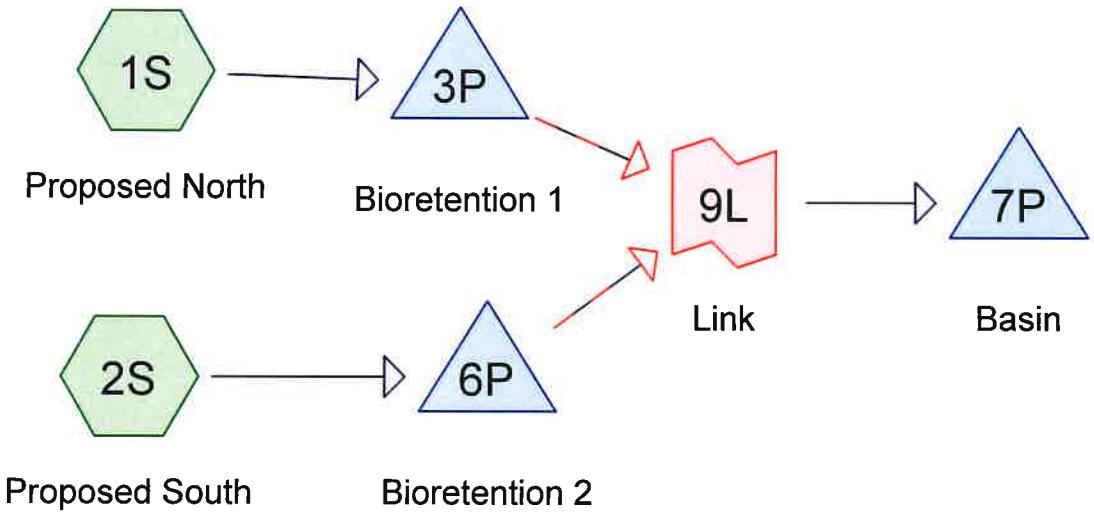
** See attached storm drainage calculations for additional information.

Events for Pond 7P: Basin

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	29.50	2.73	2.73	**0.00**	674.69	26,743
2-Year	41.28	2.88	2.88	0.00	675.11	43,755
5-Year	55.02	3.08	3.08	0.00	675.70	71,125
10-Year	67.69	3.25	3.25	0.00	676.24	96,797
25-Year	89.54	3.50	3.50	0.00	677.07	139,095
50-Year	110.28	3.71	3.71	0.00	677.80	178,688
100-Year	**135.20**	**3.93**	**3.93**	0.00	**678.63**	**226,706**

Events for Subcatchment 3S: Proposed North not through basin

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	1.86	4.60	0.376	0.69
2-Year	2.20	6.38	0.512	0.94
5-Year	2.70	9.16	0.726	1.34
10-Year	3.15	11.77	0.929	1.72
25-Year	3.87	16.06	1.269	2.34
50-Year	4.52	20.00	1.586	2.93
100-Year	**5.28**	**24.65**	**1.965**	**3.63**



Subcat Reach Pond Link

Routing Diagram for 22.117 Proposed Basin
Prepared by Carmina Wood Morris, PC, Printed 9/12/2022

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	1.86	2
2	2-Year	Type II 24-hr		Default	24.00	1	2.20	2
3	5-Year	Type II 24-hr		Default	24.00	1	2.70	2
4	10-Year	Type II 24-hr		Default	24.00	1	3.15	2
5	25-Year	Type II 24-hr		Default	24.00	1	3.87	2
6	50-Year	Type II 24-hr		Default	24.00	1	4.52	2
7	100-Year	Type II 24-hr		Default	24.00	1	5.28	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.000	74	>75% Grass cover, Good, HSG C (1S, 2S)
5.900	80	>75% Grass cover, Good, HSG D (1S, 2S)
0.080	96	Gravel surface, HSG C (2S)
0.120	96	Gravel surface, HSG D (2S)
5.000	98	Paved parking, HSG C (1S, 2S)
10.400	98	Paved parking, HSG D (1S, 2S)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
9.080	HSG C	1S, 2S
16.420	HSG D	1S, 2S
0.000	Other	

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	4.000	5.900	0.000	9.900	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.080	0.120	0.000	0.200	Gravel surface	2S
0.000	0.000	5.000	10.400	0.000	15.400	Paved parking	1S, 2S

Summary for Subcatchment 1S: Proposed North

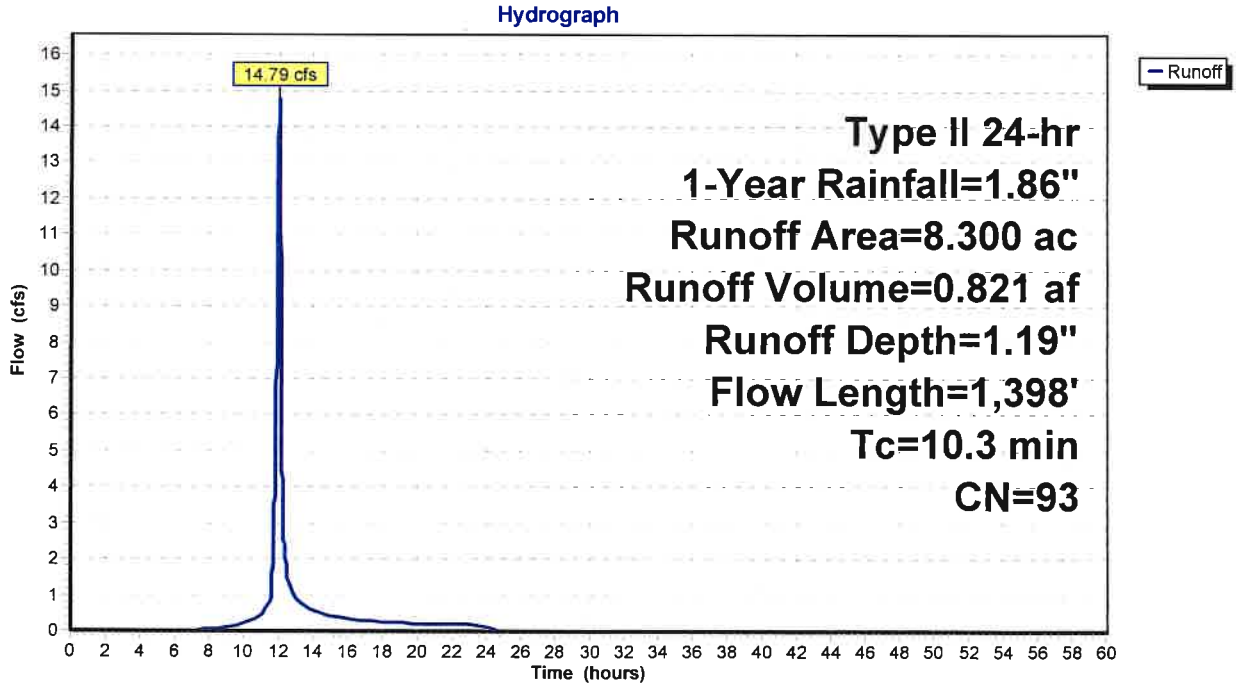
Runoff = 14.79 cfs @ 12.02 hrs, Volume= 0.821 af, Depth= 1.19"
Routed to Pond 3P : Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
5.000	98	Paved parking, HSG D
1.400	98	Paved parking, HSG C
1.100	80	>75% Grass cover, Good, HSG D
0.800	74	>75% Grass cover, Good, HSG C
8.300	93	Weighted Average
1.900		22.89% Pervious Area
6.400		77.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	72	0.3500	0.44		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.9	300	0.0160	2.57		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
5.7	1,026		3.00		**Direct Entry, Pipe flow**
10.3	1,398	Total			

Subcatchment 1S: Proposed North



Hydrograph for Subcatchment 1S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.02
8.00	0.22	0.01	0.05
9.00	0.27	0.02	0.12
10.00	0.34	0.04	0.20
11.00	0.44	0.08	0.46
12.00	1.23	0.64	**14.53**
13.00	1.44	0.81	**0.93**
14.00	1.53	0.89	0.55
15.00	1.59	0.94	0.43
16.00	1.64	0.99	0.33
17.00	1.68	1.02	0.29
18.00	1.71	1.05	0.26
19.00	1.74	1.08	0.22
20.00	1.77	1.11	0.19
21.00	1.79	1.13	0.18
22.00	1.82	1.15	0.17
23.00	1.84	1.17	0.16
24.00	**1.86**	**1.19**	0.16
25.00	1.86	1.19	0.00
26.00	1.86	1.19	0.00
27.00	1.86	1.19	0.00
28.00	1.86	1.19	0.00
29.00	1.86	1.19	0.00
30.00	1.86	1.19	0.00
31.00	1.86	1.19	0.00
32.00	1.86	1.19	0.00
33.00	1.86	1.19	0.00
34.00	1.86	1.19	0.00
35.00	1.86	1.19	0.00
36.00	1.86	1.19	0.00
37.00	1.86	1.19	0.00
38.00	1.86	1.19	0.00
39.00	1.86	1.19	0.00
40.00	1.86	1.19	0.00
41.00	1.86	1.19	0.00
42.00	1.86	1.19	0.00
43.00	1.86	1.19	0.00
44.00	1.86	1.19	0.00
45.00	1.86	1.19	0.00
46.00	1.86	1.19	0.00
47.00	1.86	1.19	0.00
48.00	1.86	1.19	0.00
49.00	1.86	1.19	0.00
50.00	1.86	1.19	0.00
51.00	1.86	1.19	0.00
52.00	1.86	1.19	0.00
53.00	1.86	1.19	0.00
54.00	1.86	1.19	0.00
55.00	1.86	1.19	0.00
56.00	1.86	1.19	0.00
57.00	1.86	1.19	0.00
58.00	1.86	1.19	0.00
59.00	1.86	1.19	0.00
60.00	1.86	1.19	0.00

Summary for Subcatchment 2S: Proposed South

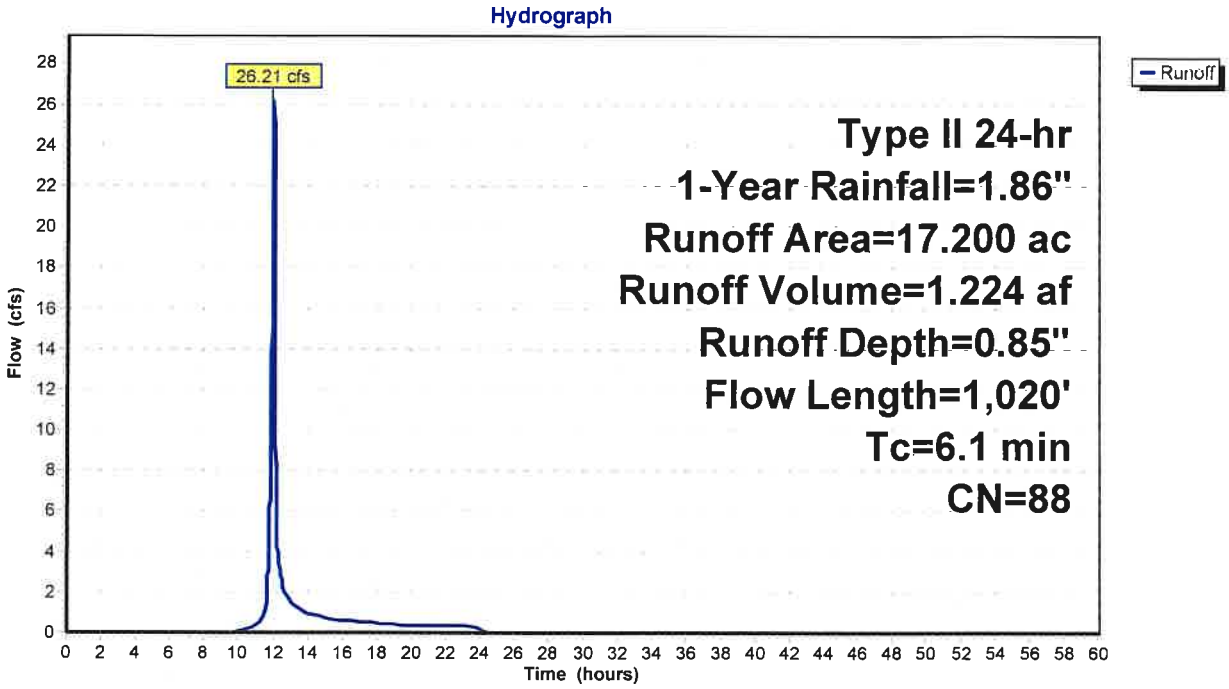
Runoff = 26.21 cfs @ 11.98 hrs, Volume= 1.224 af, Depth= 0.85"
Routed to Pond 6P : Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
5.400	98	Paved parking, HSG D
3.600	98	Paved parking, HSG C
4.800	80	>75% Grass cover, Good, HSG D
3.200	74	>75% Grass cover, Good, HSG C
0.120	96	Gravel surface, HSG D
0.080	96	Gravel surface, HSG C
17.200	88	Weighted Average
8.200		47.67% Pervious Area
9.000		52.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	30	0.0100	0.72		**Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 2.50"
0.8	160	0.0460	3.45		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
4.4	800		3.00		**Direct Entry, Pipe flow**
6.1	1,020	Total			

Subcatchment 2S: Proposed South



Hydrograph for Subcatchment 2S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.00
10.00	0.34	0.00	0.10
11.00	0.44	0.02	**0.42**
12.00	1.23	0.40	**24.90**
13.00	1.44	0.54	1.50
14.00	1.53	0.60	0.91
15.00	1.59	0.65	0.73
16.00	1.64	0.68	0.57
17.00	1.68	0.71	0.51
18.00	1.71	0.74	0.45
19.00	1.74	0.76	0.39
20.00	1.77	0.78	0.33
21.00	1.79	0.80	0.31
22.00	1.82	0.82	0.30
23.00	1.84	0.84	0.29
24.00	**1.86**	**0.85**	0.28
25.00	1.86	0.85	0.00
26.00	1.86	0.85	0.00
27.00	1.86	0.85	0.00
28.00	1.86	0.85	0.00
29.00	1.86	0.85	0.00
30.00	1.86	0.85	0.00
31.00	1.86	0.85	0.00
32.00	1.86	0.85	0.00
33.00	1.86	0.85	0.00
34.00	1.86	0.85	0.00
35.00	1.86	0.85	0.00
36.00	1.86	0.85	0.00
37.00	1.86	0.85	0.00
38.00	1.86	0.85	0.00
39.00	1.86	0.85	0.00
40.00	1.86	0.85	0.00
41.00	1.86	0.85	0.00
42.00	1.86	0.85	0.00
43.00	1.86	0.85	0.00
44.00	1.86	0.85	0.00
45.00	1.86	0.85	0.00
46.00	1.86	0.85	0.00
47.00	1.86	0.85	0.00
48.00	1.86	0.85	0.00
49.00	1.86	0.85	0.00
50.00	1.86	0.85	0.00
51.00	1.86	0.85	0.00
52.00	1.86	0.85	0.00
53.00	1.86	0.85	0.00
54.00	1.86	0.85	0.00
55.00	1.86	0.85	0.00
56.00	1.86	0.85	0.00
57.00	1.86	0.85	0.00
58.00	1.86	0.85	0.00
59.00	1.86	0.85	0.00
60.00	1.86	0.85	0.00

Summary for Pond 3P: Bioretention 1

Inflow Area = 8.300 ac, 77.11% Impervious, Inflow Depth = 1.19" for 1-Year event
Inflow = 14.79 cfs @ 12.02 hrs, Volume= 0.821 af
Outflow = 11.07 cfs @ 12.09 hrs, Volume= 0.821 af, Atten= 25%, Lag= 4.4 min
Primary = 8.49 cfs @ 12.09 hrs, Volume= 0.709 af
Routed to Link 9L : Link
Secondary = 2.58 cfs @ 12.09 hrs, Volume= 0.112 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 674.69' @ 12.09 hrs Surf.Area= 17,880 sf Storage= 12,008 cf

Plug-Flow detention time= 362.7 min calculated for 0.821 af (100% of inflow)
Center-of-Mass det. time= 362.9 min (1,176.8 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	46,418 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	17,150	0	0
675.00	18,215	17,683	17,683
676.00	19,279	18,747	36,430
676.50	20,675	9,989	46,418

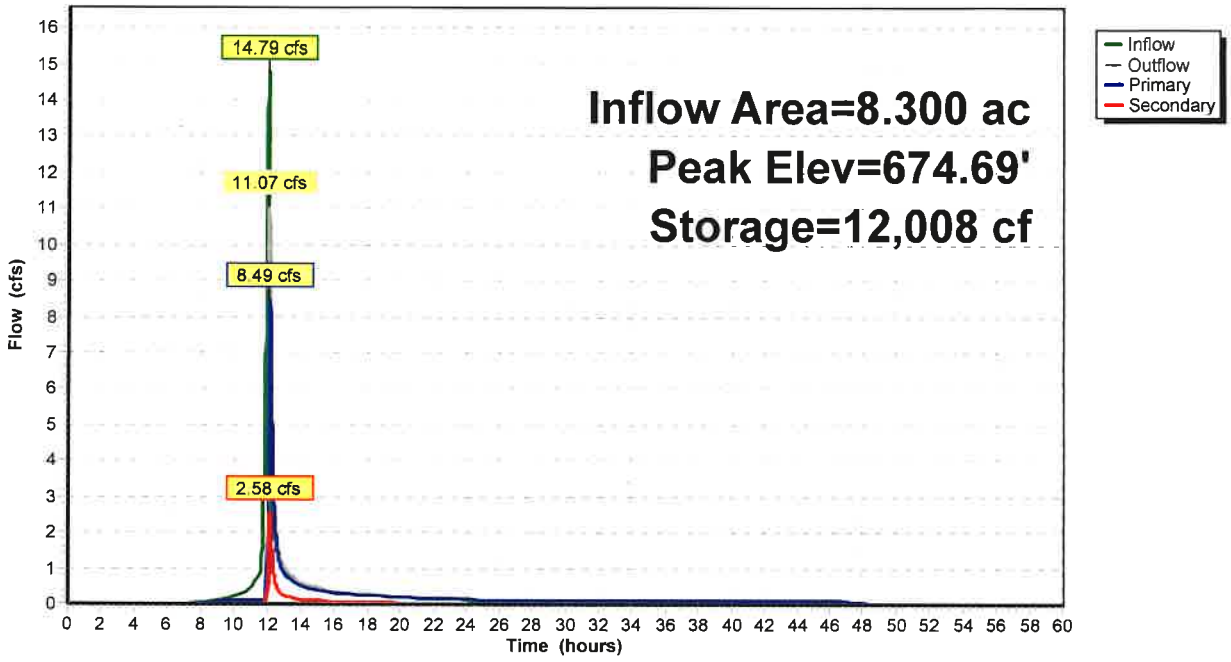
Device	Routing	Invert	Outlet Devices
#1	Primary	671.45'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.45' / 671.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=8.47 cfs @ 12.09 hrs HW=674.69' (Free Discharge)
↑**1=Culvert** (Passes 8.47 cfs of 12.86 cfs potential flow)
↑**2=Exfiltration** (Controls 0.11 cfs)
↑**3=Grate** (Weir Controls 8.36 cfs @ 1.41 fps)

Secondary OutFlow Max=2.58 cfs @ 12.09 hrs HW=674.69' (Free Discharge)
↑**4=Spillway** (Weir Controls 2.58 cfs @ 1.32 fps)

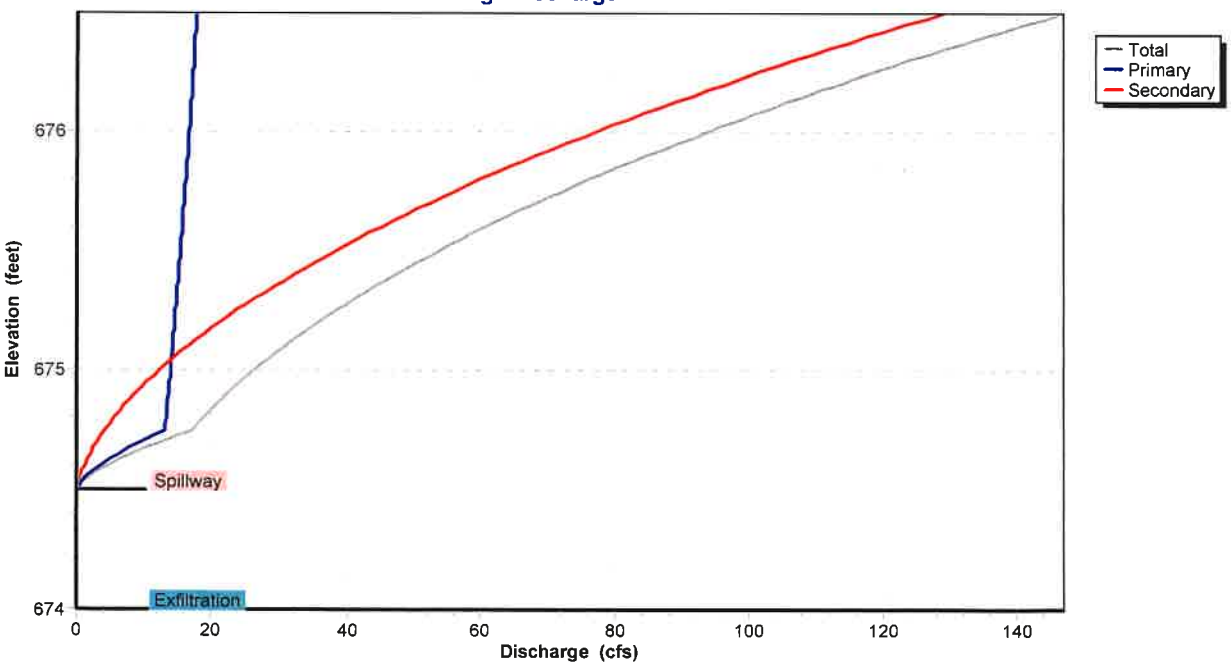
Pond 3P: Bioretention 1

Hydrograph

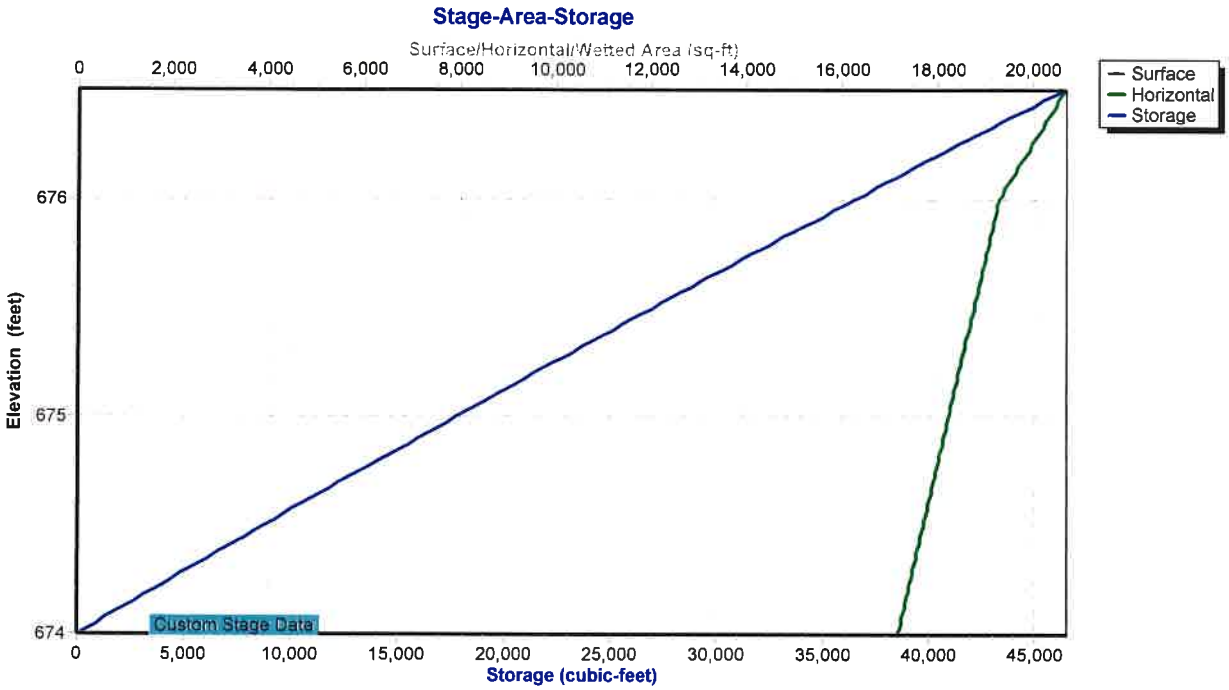


Pond 3P: Bioretention 1

Stage-Discharge



Pond 3P: Bioretention 1



Hydrograph for Pond 3P: Bioretention 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.00	0	674.00	0.00	0.00	0.00
8.00	0.05	105	674.01	0.02	0.02	0.00
10.00	0.20	495	674.03	0.10	0.10	0.00
12.00	**14.53**	**10,354**	**674.59**	**3.98**	**3.08**	**0.90**
14.00	**0.55**	**9,114**	**674.52**	**0.60**	**0.49**	**0.11**
16.00	0.33	8,913	674.51	0.35	0.30	0.06
18.00	0.26	8,838	674.51	0.26	0.23	0.04
20.00	0.19	8,782	674.50	0.20	0.17	0.02
22.00	0.17	8,762	674.50	0.17	0.16	0.01
24.00	0.16	8,751	674.50	0.16	0.15	0.01
26.00	0.00	8,046	674.46	0.11	0.11	0.00
28.00	0.00	7,289	674.42	0.10	0.10	0.00
30.00	0.00	6,537	674.38	0.10	0.10	0.00
32.00	0.00	5,788	674.33	0.10	0.10	0.00
34.00	0.00	5,043	674.29	0.10	0.10	0.00
36.00	0.00	4,303	674.25	0.10	0.10	0.00
38.00	0.00	3,566	674.21	0.10	0.10	0.00
40.00	0.00	2,834	674.16	0.10	0.10	0.00
42.00	0.00	2,106	674.12	0.10	0.10	0.00
44.00	0.00	1,382	674.08	0.10	0.10	0.00
46.00	0.00	661	674.04	0.10	0.10	0.00
48.00	0.00	139	674.01	0.03	0.03	0.00
50.00	0.00	26	674.00	0.01	0.01	0.00
52.00	0.00	5	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: Bioretention 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.10	0.10	0.00
674.10	0.10	0.10	0.00
674.15	0.10	0.10	0.00
674.20	0.10	0.10	0.00
674.25	0.10	0.10	0.00
674.30	0.10	0.10	0.00
674.35	0.10	0.10	0.00
674.40	0.10	0.10	0.00
674.45	0.11	0.11	0.00
674.50	0.11	0.11	0.00
674.55	1.63	1.28	0.35
674.60	4.42	3.42	1.00
674.65	8.04	6.19	1.86
674.70	12.36	9.47	2.89
674.75	17.16	13.07	4.09
674.80	18.66	13.23	5.44
674.85	20.31	13.38	6.93
674.90	22.09	13.54	8.56
674.95	24.01	13.69	10.32
675.00	26.06	13.84	12.22
675.05	28.24	13.99	14.25
675.10	30.55	14.14	16.41
675.15	32.98	14.29	18.69
675.20	35.54	14.43	21.11
675.25	38.22	14.57	23.65
675.30	41.03	14.72	26.32
675.35	43.97	14.86	29.11
675.40	47.03	15.00	32.03
675.45	50.22	15.13	35.08
675.50	53.53	15.27	38.26
675.55	56.97	15.41	41.56
675.60	60.53	15.54	44.99
675.65	64.22	15.68	48.55
675.70	68.04	15.81	52.23
675.75	71.98	15.94	56.05
675.80	76.06	16.07	59.99
675.85	80.26	16.20	64.06
675.90	84.59	16.33	68.26
675.95	89.05	16.45	72.60
676.00	93.64	16.58	77.06
676.05	98.36	16.70	81.66
676.10	103.19	16.80	86.39
676.15	108.17	16.91	91.25
676.20	113.27	17.02	96.25
676.25	118.51	17.12	101.38
676.30	123.88	17.23	106.65
676.35	129.39	17.33	112.05
676.40	135.03	17.44	117.59
676.45	140.81	17.54	123.27
676.50	**146.73**	**17.64**	**129.09**

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

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	17,150	17,150	0
674.05	17,203	17,203	859
674.10	17,257	17,257	1,720
674.15	17,310	17,310	2,584
674.20	17,363	17,363	3,451
674.25	17,416	17,416	4,321
674.30	17,469	17,469	5,193
674.35	17,523	17,523	6,068
674.40	17,576	17,576	6,945
674.45	17,629	17,629	7,825
674.50	17,683	17,683	8,708
674.55	17,736	17,736	9,594
674.60	17,789	17,789	10,482
674.65	17,842	17,842	11,372
674.70	17,896	17,896	12,266
674.75	17,949	17,949	13,162
674.80	18,002	18,002	14,061
674.85	18,055	18,055	14,962
674.90	18,108	18,108	15,866
674.95	18,162	18,162	16,773
675.00	18,215	18,215	17,683
675.05	18,268	18,268	18,595
675.10	18,321	18,321	19,509
675.15	18,375	18,375	20,427
675.20	18,428	18,428	21,347
675.25	18,481	18,481	22,270
675.30	18,534	18,534	23,195
675.35	18,587	18,587	24,123
675.40	18,641	18,641	25,054
675.45	18,694	18,694	25,987
675.50	18,747	18,747	26,923
675.55	18,800	18,800	27,862
675.60	18,853	18,853	28,803
675.65	18,907	18,907	29,747
675.70	18,960	18,960	30,694
675.75	19,013	19,013	31,643
675.80	19,066	19,066	32,595
675.85	19,119	19,119	33,550
675.90	19,173	19,173	34,507
675.95	19,226	19,226	35,467
676.00	19,279	19,279	36,430
676.05	19,419	19,419	37,397
676.10	19,558	19,558	38,371
676.15	19,698	19,698	39,353
676.20	19,837	19,837	40,341
676.25	19,977	19,977	41,337
676.30	20,117	20,117	42,339
676.35	20,256	20,256	43,348
676.40	20,396	20,396	44,364
676.45	20,535	20,535	45,388
676.50	**20,675**	**20,675**	**46,418**

Summary for Pond 6P: Bioretention 2

Inflow Area = 17.200 ac, 52.33% Impervious, Inflow Depth = 0.85" for 1-Year event
Inflow = 26.21 cfs @ 11.98 hrs, Volume= 1.224 af
Outflow = 19.76 cfs @ 12.03 hrs, Volume= 1.224 af, Atten= 25%, Lag= 3.3 min
Primary = 12.76 cfs @ 12.03 hrs, Volume= 0.948 af
Routed to Link 9L : Link
Secondary = 7.00 cfs @ 12.03 hrs, Volume= 0.276 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 674.85' @ 12.03 hrs Surf.Area= 16,842 sf Storage= 13,677 cf

Plug-Flow detention time= 223.0 min calculated for 1.224 af (100% of inflow)
Center-of-Mass det. time= 223.2 min (1,059.6 - 836.4)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	44,156 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	15,250	0	0
675.00	17,118	16,184	16,184
676.00	19,153	18,136	34,320
676.50	20,191	9,836	44,156

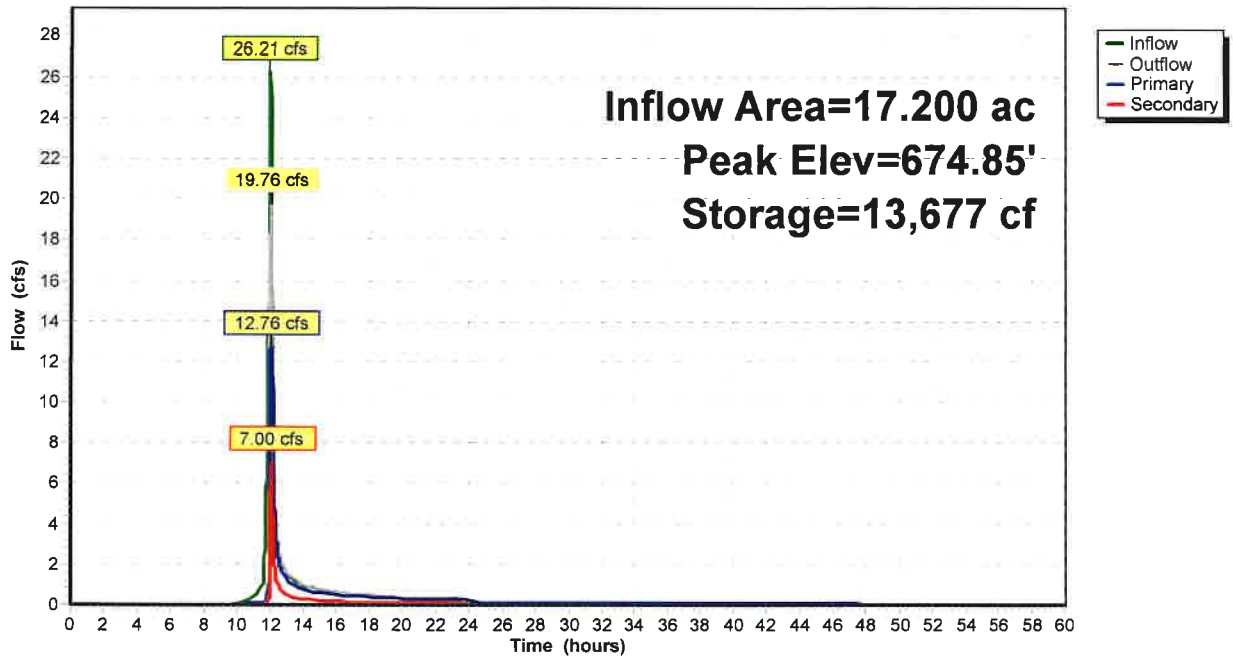
Device	Routing	Invert	Outlet Devices
#1	Primary	671.55'	**18.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.55' / 671.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=12.76 cfs @ 12.03 hrs HW=674.85' (Free Discharge)
└**1=Culvert** (Barrel Controls 12.76 cfs @ 7.22 fps)
├**2=Exfiltration** (Passes < 0.10 cfs potential flow)
└**3=Grate** (Passes < 16.39 cfs potential flow)

Secondary OutFlow Max=6.99 cfs @ 12.03 hrs HW=674.85' (Free Discharge)
└**4=Spillway** (Weir Controls 6.99 cfs @ 1.80 fps)

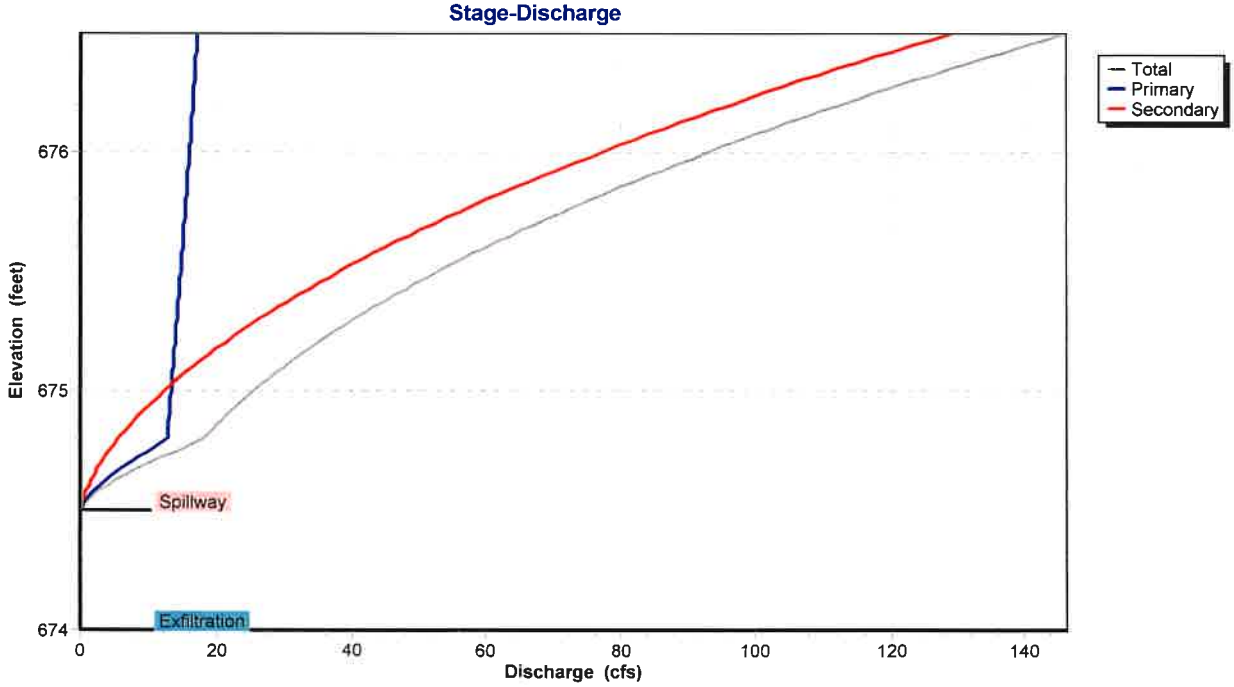
Pond 6P: Bioretention 2

Hydrograph

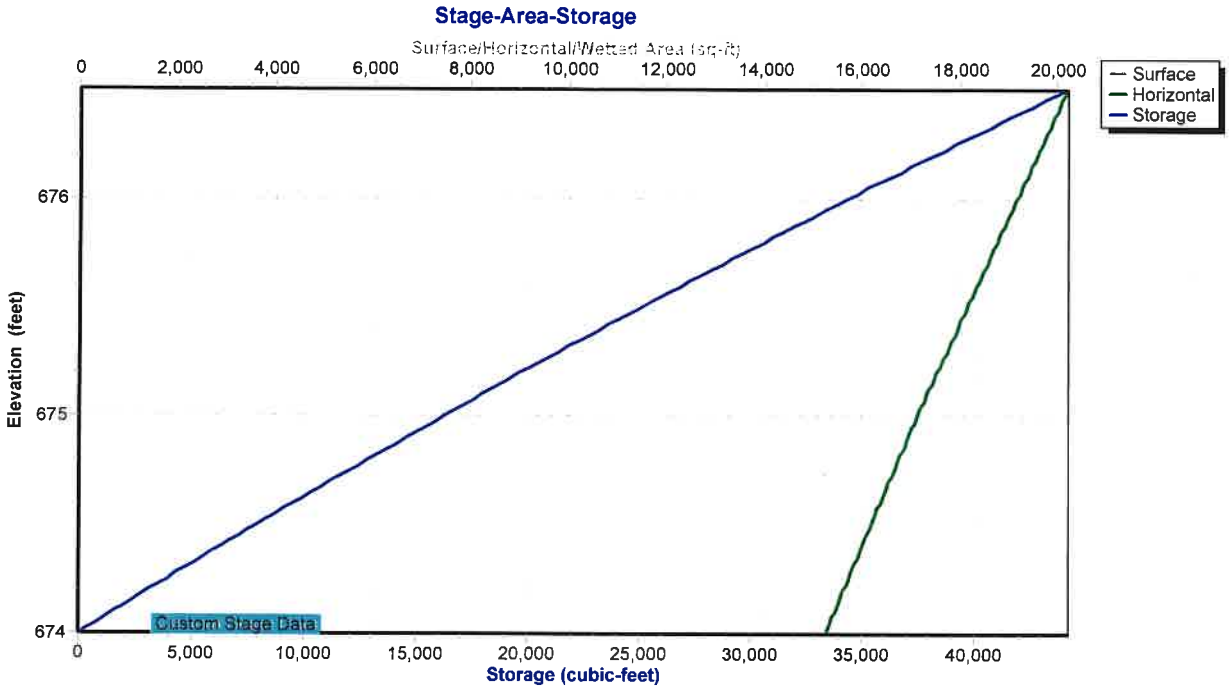


Pond 6P: Bioretention 2

Stage-Discharge



Pond 6P: Bioretention 2



Hydrograph for Pond 6P: Bioretention 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.00	0	674.00	0.00	0.00	0.00
8.00	0.00	0	674.00	0.00	0.00	0.00
10.00	**0.10**	114	674.01	0.03	0.03	0.00
12.00	**24.90**	**13,332**	**674.83**	**19.07**	**12.70**	**6.37**
14.00	0.91	**8,492**	**674.54**	**0.98**	**0.73**	**0.25**
16.00	0.57	8,297	674.53	0.59	0.45	0.14
18.00	0.45	8,201	674.52	0.46	0.36	0.10
20.00	0.33	8,091	674.51	0.35	0.28	0.07
22.00	0.30	8,054	674.51	0.31	0.25	0.06
24.00	0.28	8,033	674.51	0.28	0.23	0.05
26.00	0.00	7,294	674.47	0.10	0.10	0.00
28.00	0.00	6,603	674.42	0.10	0.10	0.00
30.00	0.00	5,918	674.38	0.09	0.09	0.00
32.00	0.00	5,238	674.34	0.09	0.09	0.00
34.00	0.00	4,564	674.29	0.09	0.09	0.00
36.00	0.00	3,894	674.25	0.09	0.09	0.00
38.00	0.00	3,231	674.21	0.09	0.09	0.00
40.00	0.00	2,572	674.17	0.09	0.09	0.00
42.00	0.00	1,918	674.12	0.09	0.09	0.00
44.00	0.00	1,270	674.08	0.09	0.09	0.00
46.00	0.00	627	674.04	0.09	0.09	0.00
48.00	0.00	136	674.01	0.03	0.03	0.00
50.00	0.00	26	674.00	0.01	0.01	0.00
52.00	0.00	5	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 6P: Bioretention 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.09	0.09	0.00
674.10	0.09	0.09	0.00
674.15	0.09	0.09	0.00
674.20	0.09	0.09	0.00
674.25	0.09	0.09	0.00
674.30	0.09	0.09	0.00
674.35	0.09	0.09	0.00
674.40	0.10	0.10	0.00
674.45	0.10	0.10	0.00
674.50	0.10	0.10	0.00
674.55	1.32	0.98	0.35
674.60	3.58	2.58	1.00
674.65	6.52	4.66	1.86
674.70	10.01	7.12	2.89
674.75	14.00	9.91	4.09
674.80	18.04	12.60	5.44
674.85	19.68	12.75	6.93
674.90	21.46	12.90	8.56
674.95	23.37	13.05	10.32
675.00	25.42	13.20	12.22
675.05	27.59	13.35	14.25
675.10	29.90	13.49	16.41
675.15	32.33	13.63	18.69
675.20	34.88	13.77	21.11
675.25	37.56	13.91	23.65
675.30	40.37	14.05	26.32
675.35	43.30	14.19	29.11
675.40	46.36	14.32	32.03
675.45	49.54	14.46	35.08
675.50	52.85	14.59	38.26
675.55	56.28	14.72	41.56
675.60	59.84	14.86	44.99
675.65	63.53	14.98	48.55
675.70	67.34	15.11	52.23
675.75	71.29	15.24	56.05
675.80	75.36	15.37	59.99
675.85	79.55	15.49	64.06
675.90	83.88	15.62	68.26
675.95	88.34	15.74	72.60
676.00	92.93	15.86	77.06
676.05	97.65	15.99	81.66
676.10	102.50	16.11	86.39
676.15	107.48	16.23	91.25
676.20	112.60	16.34	96.25
676.25	117.85	16.46	101.38
676.30	123.23	16.58	106.65
676.35	128.75	16.70	112.05
676.40	134.41	16.81	117.59
676.45	140.20	16.93	123.27
676.50	**146.13**	**17.04**	**129.09**

Stage-Area-Storage for Pond 6P: Bioretention 2

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	15,250	15,250	0
674.05	15,343	15,343	765
674.10	15,437	15,437	1,534
674.15	15,530	15,530	2,309
674.20	15,624	15,624	3,087
674.25	15,717	15,717	3,871
674.30	15,810	15,810	4,659
674.35	15,904	15,904	5,452
674.40	15,997	15,997	6,249
674.45	16,091	16,091	7,052
674.50	16,184	16,184	7,859
674.55	16,277	16,277	8,670
674.60	16,371	16,371	9,486
674.65	16,464	16,464	10,307
674.70	16,558	16,558	11,133
674.75	16,651	16,651	11,963
674.80	16,744	16,744	12,798
674.85	16,838	16,838	13,637
674.90	16,931	16,931	14,482
674.95	17,025	17,025	15,330
675.00	17,118	17,118	16,184
675.05	17,220	17,220	17,042
675.10	17,322	17,322	17,906
675.15	17,423	17,423	18,775
675.20	17,525	17,525	19,648
675.25	17,627	17,627	20,527
675.30	17,728	17,728	21,411
675.35	17,830	17,830	22,300
675.40	17,932	17,932	23,194
675.45	18,034	18,034	24,093
675.50	18,136	18,136	24,997
675.55	18,237	18,237	25,907
675.60	18,339	18,339	26,821
675.65	18,441	18,441	27,741
675.70	18,543	18,543	28,665
675.75	18,644	18,644	29,595
675.80	18,746	18,746	30,530
675.85	18,848	18,848	31,469
675.90	18,949	18,949	32,414
675.95	19,051	19,051	33,364
676.00	19,153	19,153	34,320
676.05	19,257	19,257	35,280
676.10	19,361	19,361	36,245
676.15	19,464	19,464	37,216
676.20	19,568	19,568	38,192
676.25	19,672	19,672	39,173
676.30	19,776	19,776	40,159
676.35	19,880	19,880	41,150
676.40	19,983	19,983	42,147
676.45	20,087	20,087	43,149
676.50	**20,191**	**20,191**	**44,156**

Summary for Pond 7P: Basin

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 0.96" for 1-Year event
Inflow = 29.50 cfs @ 12.07 hrs, Volume= 2.045 af
Outflow = 2.73 cfs @ 12.97 hrs, Volume= 2.045 af, Atten= 91%, Lag= 54.2 min
Primary = 2.73 cfs @ 12.97 hrs, Volume= 2.045 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 674.69' @ 12.97 hrs Surf.Area= 33,429 sf Storage= 26,743 cf

Plug-Flow detention time= 71.8 min calculated for 2.044 af (100% of inflow)
Center-of-Mass det. time= 71.7 min (1,178.4 - 1,106.6)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	311,588 cf	**dry basin (Prismatic)**Listed below (Recalc)

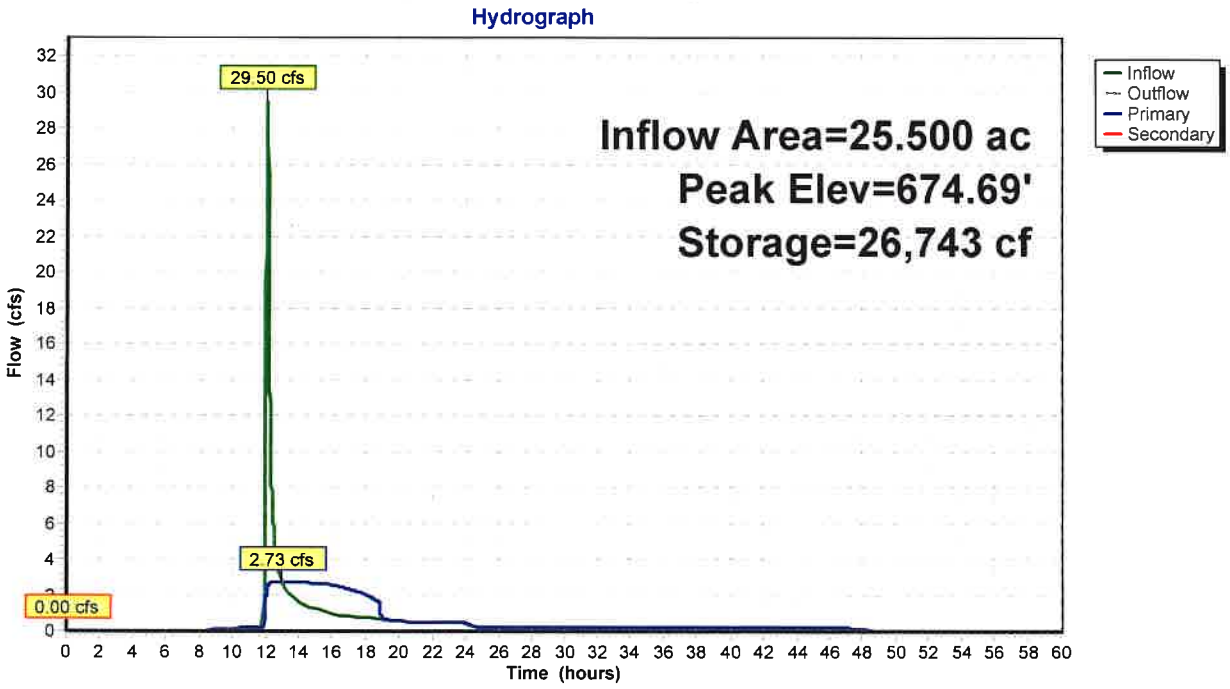
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	1,285	0	0
673.00	6,433	3,859	3,859
674.00	9,723	8,078	11,937
675.00	44,268	26,996	38,933
676.00	48,305	46,287	85,219
677.00	52,399	50,352	135,571
678.00	56,550	54,475	190,046
679.00	60,757	58,654	248,699
680.00	65,021	62,889	311,588

Device	Routing	Invert	Outlet Devices
#1	Primary	670.75'	**10.0" Round Culvert (structure to outlet)** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 670.75' / 670.15' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	670.80'	**8.0" Round Culvert (basin to structure)** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 670.80' / 670.75' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 1	678.00'	**24.0" W x 24.0" H Vert. Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	670.75'	**8.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	675.50'	**5.0' long Weir** 2 End Contraction(s)
#6	Secondary	679.00'	**143.0 deg x 20.0' long x 1.00' rise Spillway** Cv= 2.47 (C= 3.09)

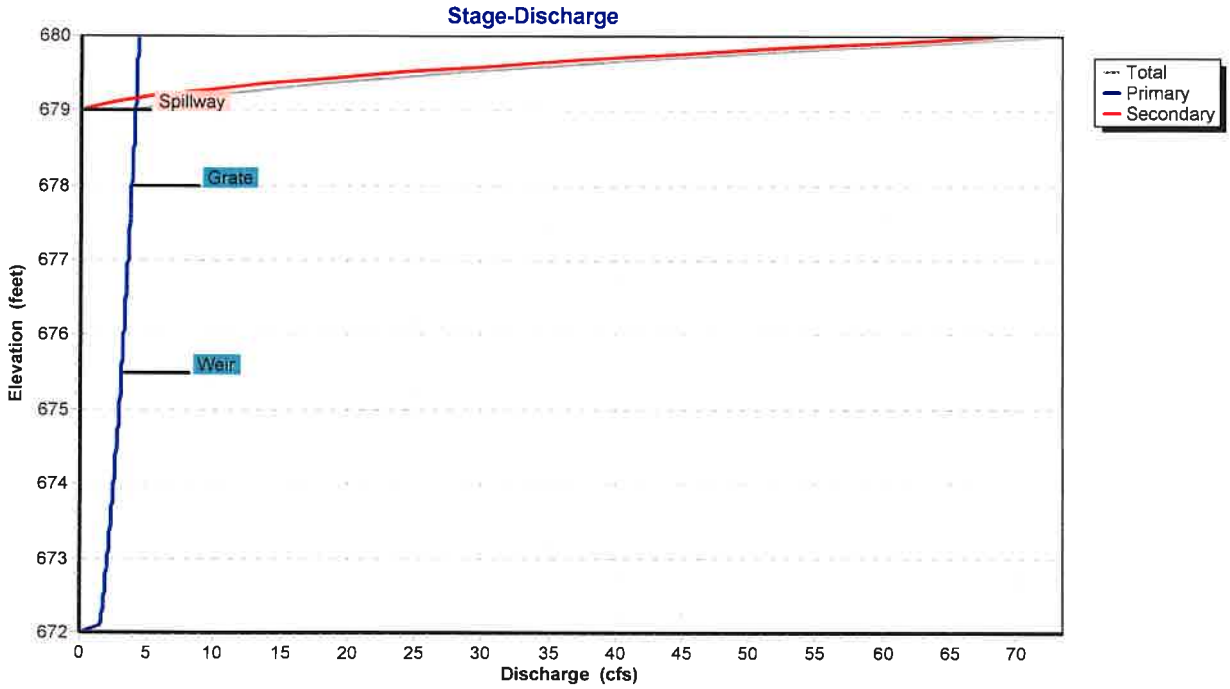
Primary OutFlow Max=2.73 cfs @ 12.97 hrs HW=674.69' (Free Discharge)
└─**1=Culvert (structure to outlet)** (Barrel Controls 2.73 cfs @ 5.01 fps)
  └─**2=Culvert (basin to structure)** (Passes < 2.80 cfs potential flow)
  └─**3=Grate** (Controls 0.00 cfs)
  └─**4=Orifice** (Passes < 9.57 cfs potential flow)
  └─**5=Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=672.00' (Free Discharge)
└─**6=Spillway** (Controls 0.00 cfs)

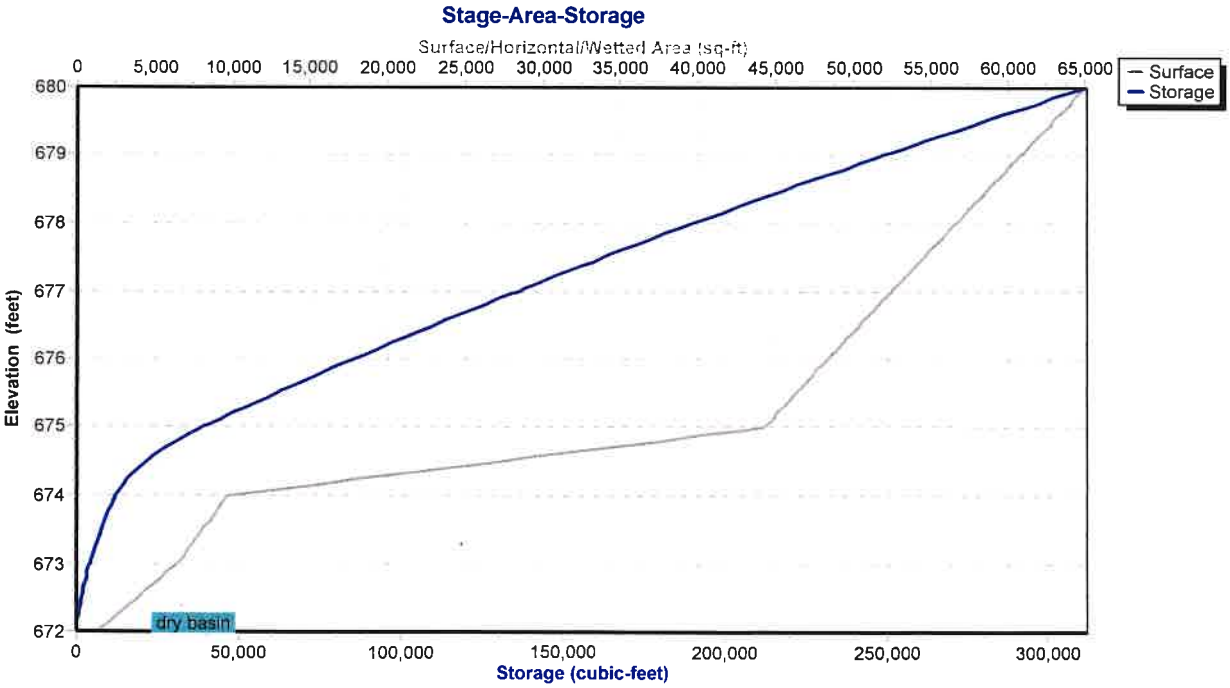
Pond 7P: Basin



Pond 7P: Basin



Pond 7P: Basin



Hydrograph for Pond 7P: Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	672.00	0.00	0.00	**0.00**
2.00	0.00	0	672.00	0.00	0.00	0.00
4.00	0.00	0	672.00	0.00	0.00	0.00
6.00	0.00	0	672.00	0.00	0.00	0.00
8.00	0.02	2	672.00	0.02	0.02	0.00
10.00	0.13	10	672.01	0.12	0.12	0.00
12.00	**23.05**	**4,195**	**673.05**	**2.04**	**2.04**	0.00
14.00	**1.58**	**24,226**	**674.61**	**2.70**	**2.70**	0.00
16.00	0.95	14,021	674.17	2.53	2.53	0.00
18.00	0.73	3,447	672.93	1.98	1.98	0.00
20.00	0.54	44	672.03	0.54	0.54	0.00
22.00	0.48	38	672.03	0.48	0.48	0.00
24.00	0.44	35	672.02	0.44	0.44	0.00
26.00	0.20	16	672.01	0.20	0.20	0.00
28.00	0.20	16	672.01	0.20	0.20	0.00
30.00	0.20	16	672.01	0.20	0.20	0.00
32.00	0.20	16	672.01	0.20	0.20	0.00
34.00	0.20	16	672.01	0.20	0.20	0.00
36.00	0.20	16	672.01	0.20	0.20	0.00
38.00	0.19	16	672.01	0.19	0.19	0.00
40.00	0.19	15	672.01	0.19	0.19	0.00
42.00	0.19	15	672.01	0.19	0.19	0.00
44.00	0.19	15	672.01	0.19	0.19	0.00
46.00	0.19	15	672.01	0.19	0.19	0.00
48.00	0.06	5	672.00	0.07	0.07	0.00
50.00	0.01	1	672.00	0.01	0.01	0.00
52.00	0.00	0	672.00	0.00	0.00	0.00
54.00	0.00	0	672.00	0.00	0.00	0.00
56.00	0.00	0	672.00	0.00	0.00	0.00
58.00	0.00	0	672.00	0.00	0.00	0.00
60.00	0.00	0	672.00	0.00	0.00	0.00

Stage-Discharge for Pond 7P: Basin

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
672.00	0.00	0.00	0.00
672.10	1.50	1.50	0.00
672.20	1.57	1.57	0.00
672.30	1.63	1.63	0.00
672.40	1.69	1.69	0.00
672.50	1.75	1.75	0.00
672.60	1.80	1.80	0.00
672.70	1.86	1.86	0.00
672.80	1.91	1.91	0.00
672.90	1.97	1.97	0.00
673.00	2.02	2.02	0.00
673.10	2.07	2.07	0.00
673.20	2.11	2.11	0.00
673.30	2.16	2.16	0.00
673.40	2.21	2.21	0.00
673.50	2.25	2.25	0.00
673.60	2.30	2.30	0.00
673.70	2.34	2.34	0.00
673.80	2.38	2.38	0.00
673.90	2.42	2.42	0.00
674.00	2.47	2.47	0.00
674.10	2.51	2.51	0.00
674.20	2.55	2.55	0.00
674.30	2.59	2.59	0.00
674.40	2.62	2.62	0.00
674.50	2.66	2.66	0.00
674.60	2.70	2.70	0.00
674.70	2.74	2.74	0.00
674.80	2.77	2.77	0.00
674.90	2.81	2.81	0.00
675.00	2.84	2.84	0.00
675.10	2.88	2.88	0.00
675.20	2.91	2.91	0.00
675.30	2.95	2.95	0.00
675.40	2.98	2.98	0.00
675.50	3.02	3.02	0.00
675.60	3.05	3.05	0.00
675.70	3.08	3.08	0.00
675.80	3.12	3.12	0.00
675.90	3.15	3.15	0.00
676.00	3.18	3.18	0.00
676.10	3.21	3.21	0.00
676.20	3.24	3.24	0.00
676.30	3.27	3.27	0.00
676.40	3.30	3.30	0.00
676.50	3.33	3.33	0.00
676.60	3.36	3.36	0.00
676.70	3.39	3.39	0.00
676.80	3.42	3.42	0.00
676.90	3.45	3.45	0.00
677.00	3.48	3.48	0.00
677.10	3.51	3.51	0.00
677.20	3.54	3.54	0.00
677.30	3.57	3.57	0.00
677.40	3.60	3.60	0.00
677.50	3.62	3.62	0.00
677.60	3.65	3.65	0.00
677.70	3.68	3.68	0.00
677.80	3.71	3.71	0.00
677.90	3.73	3.73	0.00
678.00	3.76	3.76	0.00
678.10	3.79	3.79	0.00
678.20	3.81	3.81	0.00
678.30	3.84	3.84	0.00
678.40	3.87	3.87	0.00
678.50	3.89	3.89	0.00
678.60	3.92	3.92	0.00
678.70	3.94	3.94	0.00
678.80	3.97	3.97	0.00
678.90	3.99	3.99	0.00
679.00	4.02	4.02	0.00
679.10	6.02	4.04	1.98
679.20	9.72	4.07	5.66
679.30	14.60	4.09	10.51
679.40	20.49	4.12	16.37
679.50	27.28	4.14	23.14
679.60	34.92	4.17	30.76
679.70	43.38	4.19	39.19
679.80	52.63	4.22	48.41
679.90	62.63	4.24	58.40
680.00	**73.39**	**4.26**	**69.13**

Stage-Area-Storage for Pond 7P: Basin

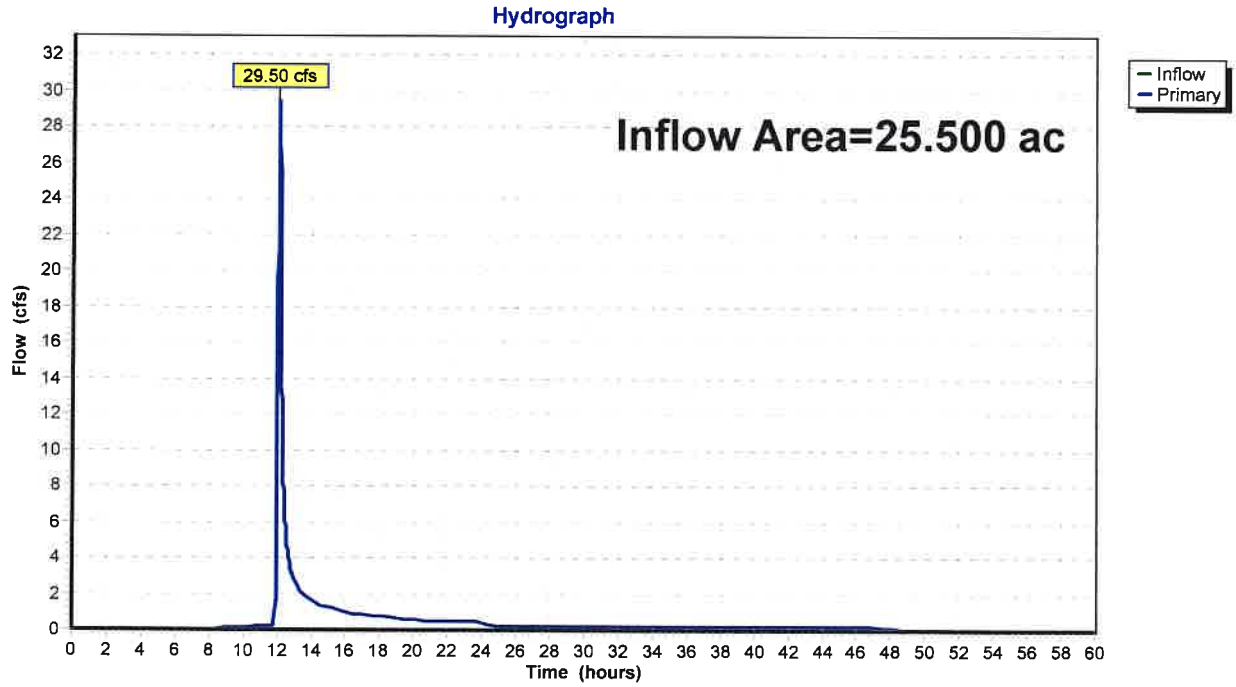
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.00	1,285	0
672.10	1,800	154
672.20	2,315	360
672.30	2,829	617
672.40	3,344	926
672.50	3,859	1,286
672.60	4,374	1,698
672.70	4,889	2,161
672.80	5,403	2,675
672.90	5,918	3,241
673.00	6,433	3,859
673.10	6,762	4,519
673.20	7,091	5,211
673.30	7,420	5,937
673.40	7,749	6,695
673.50	8,078	7,487
673.60	8,407	8,311
673.70	8,736	9,168
673.80	9,065	10,058
673.90	9,394	10,981
674.00	9,723	11,937
674.10	13,178	13,082
674.20	16,632	14,573
674.30	20,086	16,408
674.40	23,541	18,590
674.50	26,996	21,117
674.60	30,450	23,989
674.70	33,905	27,207
674.80	37,359	30,770
674.90	40,813	34,678
675.00	44,268	38,933
675.10	44,672	43,379
675.20	45,075	47,867
675.30	45,479	52,395
675.40	45,883	56,963
675.50	46,287	61,571
675.60	46,690	66,220
675.70	47,094	70,909
675.80	47,498	75,639
675.90	47,901	80,409
676.00	48,305	85,219
676.10	48,714	90,070
676.20	49,124	94,962
676.30	49,533	99,895
676.40	49,943	104,869
676.50	50,352	109,883
676.60	50,761	114,939
676.70	51,171	120,036
676.80	51,580	125,173
676.90	51,990	130,352
677.00	52,399	135,571
677.10	52,814	140,832
677.20	53,229	146,134
677.30	53,644	151,477
677.40	54,059	156,863
677.50	54,475	162,289
677.60	54,890	167,758
677.70	55,305	173,267
677.80	55,720	178,819
677.90	56,135	184,411
678.00	56,550	190,046
678.10	56,971	195,722
678.20	57,391	201,440
678.30	57,812	207,200
678.40	58,233	213,002
678.50	58,654	218,846
678.60	59,074	224,733
678.70	59,495	230,661
678.80	59,916	236,632
678.90	60,336	242,644
679.00	60,757	248,699
679.10	61,183	254,796
679.20	61,610	260,936
679.30	62,036	267,118
679.40	62,463	273,343
679.50	62,889	279,611
679.60	63,315	285,921
679.70	63,742	292,274
679.80	64,168	298,669
679.90	64,595	305,107
680.00	**65,021**	**311,588**

Summary for Link 9L: Link

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 0.96" for 1-Year event
Inflow = 29.50 cfs @ 12.07 hrs, Volume= 2.045 af
Primary = 29.50 cfs @ 12.07 hrs, Volume= 2.045 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 7P : Basin

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 9L: Link



Hydrograph for Link 9L: Link

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	53.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
8.00	0.02	0.00	0.02				
9.00	0.06	0.00	0.06				
10.00	0.13	0.00	0.13				
11.00	0.19	0.00	0.19				
12.00	**23.05**	0.00	**23.05**				
13.00	**2.67**	0.00	**2.67**				
14.00	1.58	0.00	1.58				
15.00	1.20	0.00	1.20				
16.00	0.95	0.00	0.95				
17.00	0.82	0.00	0.82				
18.00	0.73	0.00	0.73				
19.00	0.64	0.00	0.64				
20.00	0.54	0.00	0.54				
21.00	0.50	0.00	0.50				
22.00	0.48	0.00	0.48				
23.00	0.46	0.00	0.46				
24.00	0.44	0.00	0.44				
25.00	0.20	0.00	0.20				
26.00	0.20	0.00	0.20				
27.00	0.20	0.00	0.20				
28.00	0.20	0.00	0.20				
29.00	0.20	0.00	0.20				
30.00	0.20	0.00	0.20				
31.00	0.20	0.00	0.20				
32.00	0.20	0.00	0.20				
33.00	0.20	0.00	0.20				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.20	0.00	0.20				
37.00	0.19	0.00	0.19				
38.00	0.19	0.00	0.19				
39.00	0.19	0.00	0.19				
40.00	0.19	0.00	0.19				
41.00	0.19	0.00	0.19				
42.00	0.19	0.00	0.19				
43.00	0.19	0.00	0.19				
44.00	0.19	0.00	0.19				
45.00	0.19	0.00	0.19				
46.00	0.19	0.00	0.19				
47.00	0.15	0.00	0.15				
48.00	0.06	0.00	0.06				
49.00	0.03	0.00	0.03				
50.00	0.01	0.00	0.01				
51.00	0.01	0.00	0.01				
52.00	0.00	0.00	0.00				

Summary for Subcatchment 1S: Proposed North

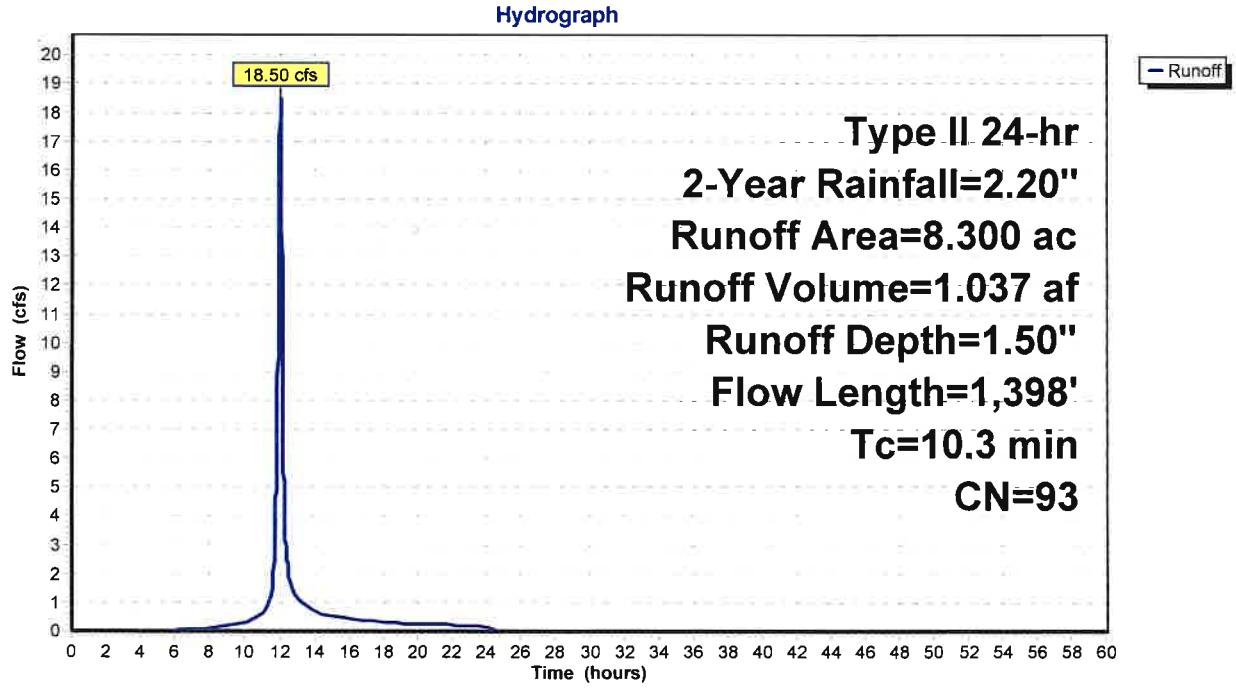
Runoff = 18.50 cfs @ 12.02 hrs, Volume= 1.037 af, Depth= 1.50"
Routed to Pond 3P : Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
5.000	98	Paved parking, HSG D
1.400	98	Paved parking, HSG C
1.100	80	>75% Grass cover, Good, HSG D
0.800	74	>75% Grass cover, Good, HSG C
8.300	93	Weighted Average
1.900		22.89% Pervious Area
6.400		77.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	72	0.3500	0.44		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.9	300	0.0160	2.57		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
5.7	1,026		3.00		**Direct Entry, Pipe flow**
10.3	1,398	Total			

Subcatchment 1S: Proposed North



Hydrograph for Subcatchment 1S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	2.20	1.50	0.00
1.00	0.02	0.00	0.00	54.00	2.20	1.50	0.00
2.00	0.05	0.00	0.00	55.00	2.20	1.50	0.00
3.00	0.08	0.00	0.00	56.00	2.20	1.50	0.00
4.00	0.11	0.00	0.00	57.00	2.20	1.50	0.00
5.00	0.14	0.00	0.00	58.00	2.20	1.50	0.00
6.00	0.18	0.00	0.02	59.00	2.20	1.50	0.00
7.00	0.22	0.01	0.05	60.00	2.20	1.50	0.00
8.00	0.26	0.01	0.09				
9.00	0.32	0.03	0.18				
10.00	0.40	0.06	0.29				
11.00	0.52	0.12	0.64				
12.00	1.46	0.83	**18.22**				
13.00	1.70	1.04	**1.14**				
14.00	1.80	1.14	0.67				
15.00	1.88	1.20	0.52				
16.00	1.94	1.26	0.40				
17.00	1.98	1.30	0.35				
18.00	2.03	1.34	0.31				
19.00	2.06	1.37	0.27				
20.00	2.09	1.40	0.23				
21.00	2.12	1.43	0.21				
22.00	2.15	1.45	0.21				
23.00	2.18	1.48	0.20				
24.00	**2.20**	**1.50**	0.19				
25.00	2.20	1.50	0.00				
26.00	2.20	1.50	0.00				
27.00	2.20	1.50	0.00				
28.00	2.20	1.50	0.00				
29.00	2.20	1.50	0.00				
30.00	2.20	1.50	0.00				
31.00	2.20	1.50	0.00				
32.00	2.20	1.50	0.00				
33.00	2.20	1.50	0.00				
34.00	2.20	1.50	0.00				
35.00	2.20	1.50	0.00				
36.00	2.20	1.50	0.00				
37.00	2.20	1.50	0.00				
38.00	2.20	1.50	0.00				
39.00	2.20	1.50	0.00				
40.00	2.20	1.50	0.00				
41.00	2.20	1.50	0.00				
42.00	2.20	1.50	0.00				
43.00	2.20	1.50	0.00				
44.00	2.20	1.50	0.00				
45.00	2.20	1.50	0.00				
46.00	2.20	1.50	0.00				
47.00	2.20	1.50	0.00				
48.00	2.20	1.50	0.00				
49.00	2.20	1.50	0.00				
50.00	2.20	1.50	0.00				
51.00	2.20	1.50	0.00				
52.00	2.20	1.50	0.00				

Summary for Subcatchment 2S: Proposed South

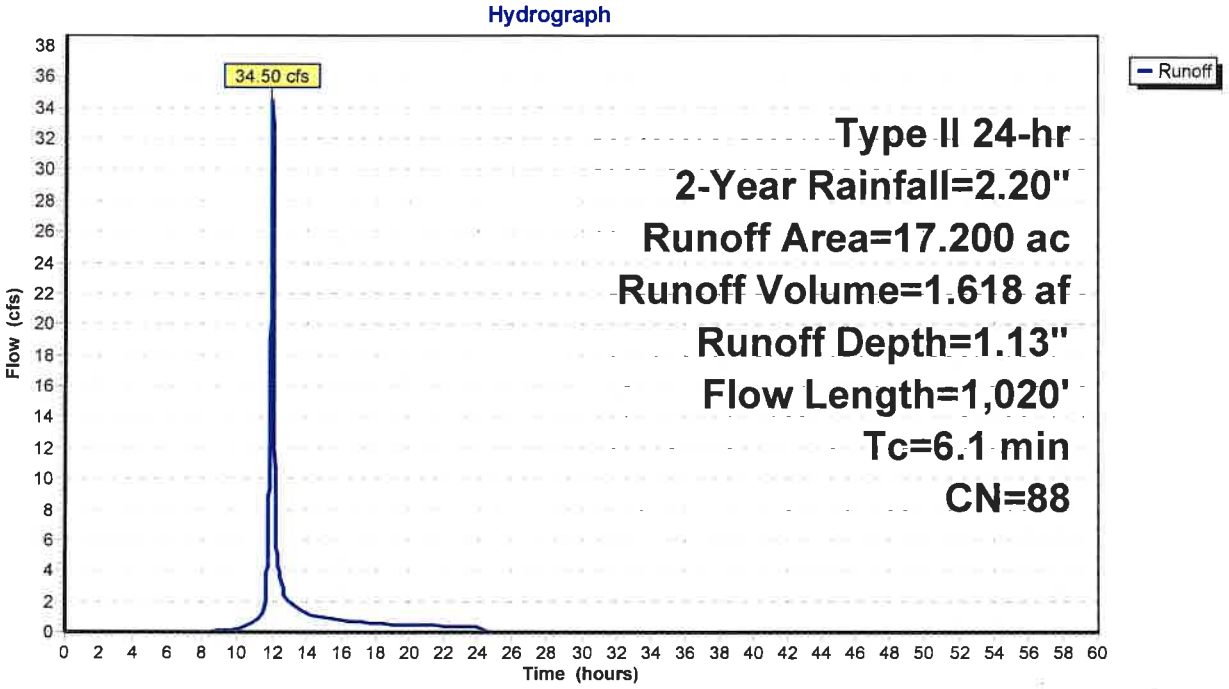
Runoff = 34.50 cfs @ 11.98 hrs, Volume= 1.618 af, Depth= 1.13"
Routed to Pond 6P : Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
5.400	98	Paved parking, HSG D
3.600	98	Paved parking, HSG C
4.800	80	>75% Grass cover, Good, HSG D
3.200	74	>75% Grass cover, Good, HSG C
0.120	96	Gravel surface, HSG D
0.080	96	Gravel surface, HSG C
17.200	88	Weighted Average
8.200		47.67% Pervious Area
9.000		52.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	30	0.0100	0.72		**Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 2.50"
0.8	160	0.0460	3.45		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
4.4	800		3.00		**Direct Entry, Pipe flow**
6.1	1,020	Total			

Subcatchment 2S: Proposed South



Hydrograph for Subcatchment 2S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	2.20	1.13	0.00
1.00	0.02	0.00	0.00	54.00	2.20	1.13	0.00
2.00	0.05	0.00	0.00	55.00	2.20	1.13	0.00
3.00	0.08	0.00	0.00	56.00	2.20	1.13	0.00
4.00	0.11	0.00	0.00	57.00	2.20	1.13	0.00
5.00	0.14	0.00	0.00	58.00	2.20	1.13	0.00
6.00	0.18	0.00	0.00	59.00	2.20	1.13	0.00
7.00	0.22	0.00	0.00	60.00	2.20	1.13	0.00
8.00	0.26	0.00	0.00				
9.00	0.32	0.00	0.07				
10.00	0.40	0.01	0.22				
11.00	0.52	0.04	**0.70**				
12.00	1.46	0.55	**32.60**				
13.00	1.70	0.73	1.91				
14.00	1.80	0.81	1.15				
15.00	1.88	0.87	0.92				
16.00	1.94	0.91	0.72				
17.00	1.98	0.95	0.64				
18.00	2.03	0.99	0.56				
19.00	2.06	1.02	0.49				
20.00	2.09	1.04	0.41				
21.00	2.12	1.06	0.39				
22.00	2.15	1.09	0.38				
23.00	2.18	1.11	0.36				
24.00	**2.20**	**1.13**	0.35				
25.00	2.20	1.13	0.00				
26.00	2.20	1.13	0.00				
27.00	2.20	1.13	0.00				
28.00	2.20	1.13	0.00				
29.00	2.20	1.13	0.00				
30.00	2.20	1.13	0.00				
31.00	2.20	1.13	0.00				
32.00	2.20	1.13	0.00				
33.00	2.20	1.13	0.00				
34.00	2.20	1.13	0.00				
35.00	2.20	1.13	0.00				
36.00	2.20	1.13	0.00				
37.00	2.20	1.13	0.00				
38.00	2.20	1.13	0.00				
39.00	2.20	1.13	0.00				
40.00	2.20	1.13	0.00				
41.00	2.20	1.13	0.00				
42.00	2.20	1.13	0.00				
43.00	2.20	1.13	0.00				
44.00	2.20	1.13	0.00				
45.00	2.20	1.13	0.00				
46.00	2.20	1.13	0.00				
47.00	2.20	1.13	0.00				
48.00	2.20	1.13	0.00				
49.00	2.20	1.13	0.00				
50.00	2.20	1.13	0.00				
51.00	2.20	1.13	0.00				
52.00	2.20	1.13	0.00				

Summary for Pond 3P: Bioretention 1

Inflow Area = 8.300 ac, 77.11% Impervious, Inflow Depth = 1.50" for 2-Year event
Inflow = 18.50 cfs @ 12.02 hrs, Volume= 1.037 af
Outflow = 16.07 cfs @ 12.07 hrs, Volume= 1.037 af, Atten= 13%, Lag= 3.0 min
Primary = 12.26 cfs @ 12.07 hrs, Volume= 0.875 af
Routed to Link 9L : Link
Secondary = 3.81 cfs @ 12.07 hrs, Volume= 0.161 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 674.74' @ 12.07 hrs Surf.Area= 17,937 sf Storage= 12,959 cf

Plug-Flow detention time= 292.4 min calculated for 1.037 af (100% of inflow)
Center-of-Mass det. time= 292.4 min (1,099.6 - 807.2)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	46,418 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	17,150	0	0
675.00	18,215	17,683	17,683
676.00	19,279	18,747	36,430
676.50	20,675	9,989	46,418

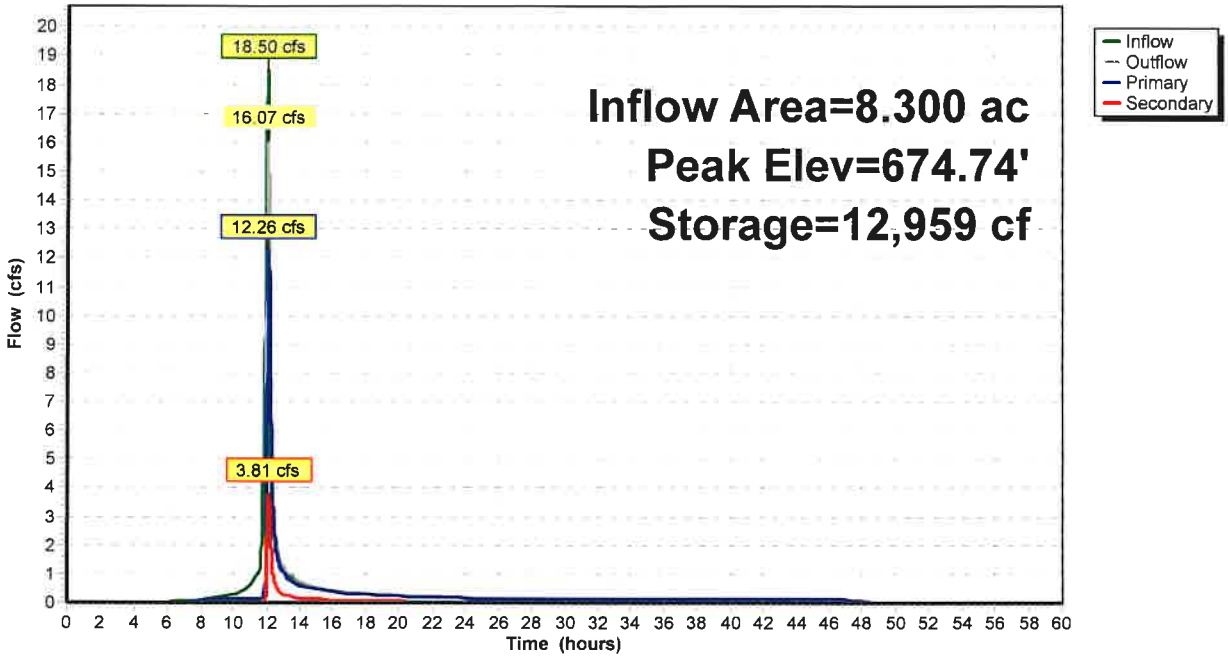
Device	Routing	Invert	Outlet Devices
#1	Primary	671.45'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.45' / 671.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=12.30 cfs @ 12.07 hrs HW=674.74' (Free Discharge)
└**1=Culvert** (Passes 12.30 cfs of 13.03 cfs potential flow)
  ├**2=Exfiltration** (Controls 0.11 cfs)
  └**3=Grate** (Weir Controls 12.19 cfs @ 1.60 fps)

Secondary OutFlow Max=3.80 cfs @ 12.07 hrs HW=674.74' (Free Discharge)
└**4=Spillway** (Weir Controls 3.80 cfs @ 1.49 fps)

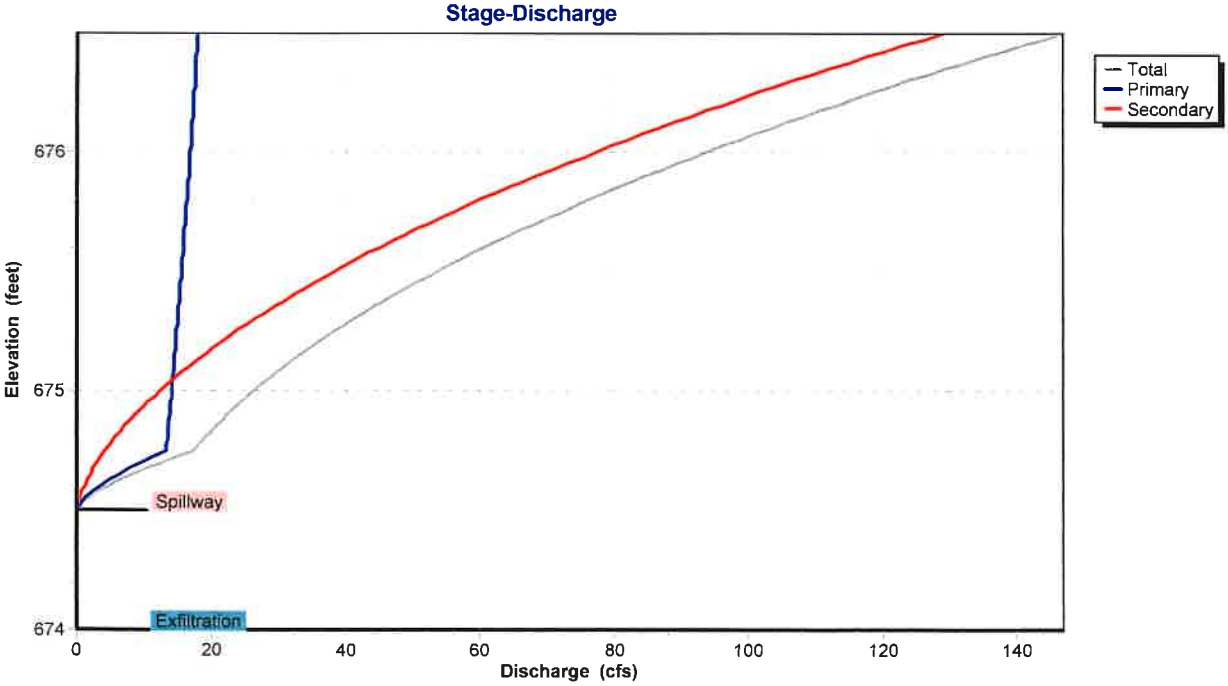
Pond 3P: Bioretention 1

Hydrograph

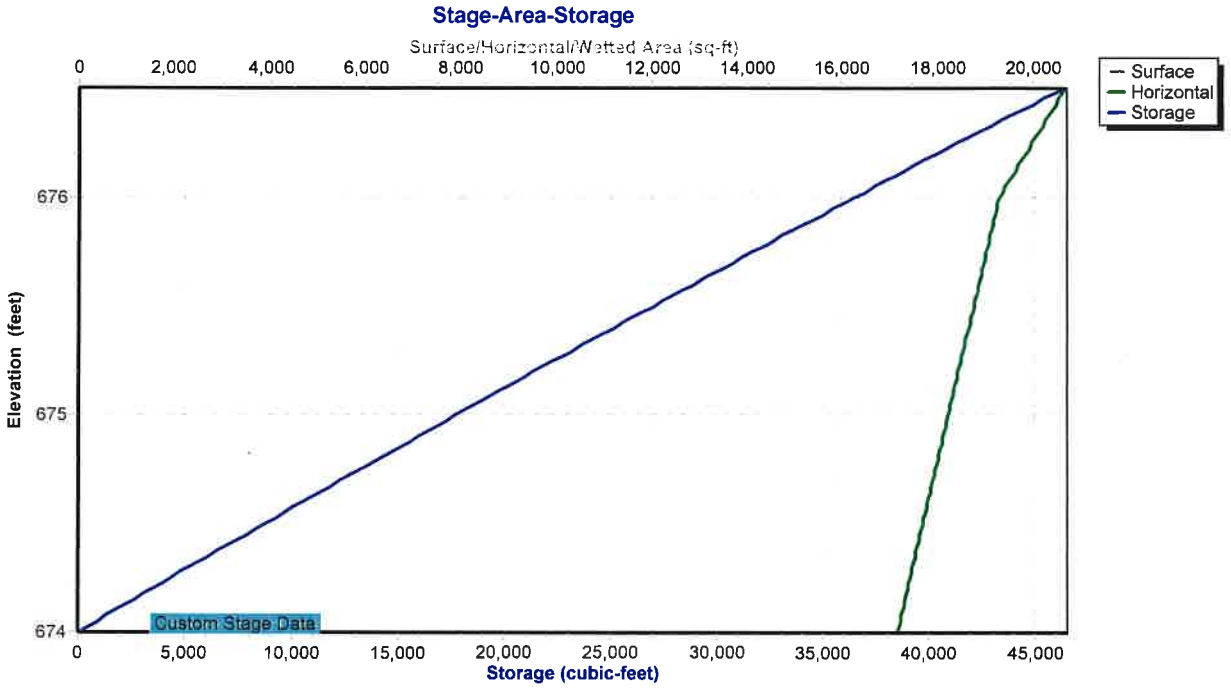


Pond 3P: Bioretention 1

Stage-Discharge



Pond 3P: Bioretention 1



Hydrograph for Pond 3P: Bioretention 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.02	13	674.00	0.00	0.00	0.00
8.00	0.09	222	674.01	0.05	0.05	0.00
10.00	0.29	883	674.05	0.10	0.10	0.00
12.00	**18.22**	**12,197**	**674.70**	**12.02**	**9.20**	**2.81**
14.00	**0.67**	**9,180**	**674.53**	**0.71**	**0.57**	**0.14**
16.00	0.40	8,976	674.52	0.43	0.36	0.07
18.00	0.31	8,885	674.51	0.32	0.27	0.05
20.00	0.23	8,816	674.51	0.24	0.21	0.03
22.00	0.21	8,792	674.50	0.21	0.18	0.02
24.00	0.19	8,778	674.50	0.19	0.17	0.02
26.00	0.00	8,064	674.46	0.11	0.11	0.00
28.00	0.00	7,307	674.42	0.10	0.10	0.00
30.00	0.00	6,554	674.38	0.10	0.10	0.00
32.00	0.00	5,805	674.33	0.10	0.10	0.00
34.00	0.00	5,060	674.29	0.10	0.10	0.00
36.00	0.00	4,320	674.25	0.10	0.10	0.00
38.00	0.00	3,583	674.21	0.10	0.10	0.00
40.00	0.00	2,851	674.17	0.10	0.10	0.00
42.00	0.00	2,122	674.12	0.10	0.10	0.00
44.00	0.00	1,398	674.08	0.10	0.10	0.00
46.00	0.00	678	674.04	0.10	0.10	0.00
48.00	0.00	144	674.01	0.03	0.03	0.00
50.00	0.00	27	674.00	0.01	0.01	0.00
52.00	0.00	5	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: Bioretention 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.10	0.10	0.00
674.10	0.10	0.10	0.00
674.15	0.10	0.10	0.00
674.20	0.10	0.10	0.00
674.25	0.10	0.10	0.00
674.30	0.10	0.10	0.00
674.35	0.10	0.10	0.00
674.40	0.10	0.10	0.00
674.45	0.11	0.11	0.00
674.50	0.11	0.11	0.00
674.55	1.63	1.28	0.35
674.60	4.42	3.42	1.00
674.65	8.04	6.19	1.86
674.70	12.36	9.47	2.89
674.75	17.16	13.07	4.09
674.80	18.66	13.23	5.44
674.85	20.31	13.38	6.93
674.90	22.09	13.54	8.56
674.95	24.01	13.69	10.32
675.00	26.06	13.84	12.22
675.05	28.24	13.99	14.25
675.10	30.55	14.14	16.41
675.15	32.98	14.29	18.69
675.20	35.54	14.43	21.11
675.25	38.22	14.57	23.65
675.30	41.03	14.72	26.32
675.35	43.97	14.86	29.11
675.40	47.03	15.00	32.03
675.45	50.22	15.13	35.08
675.50	53.53	15.27	38.26
675.55	56.97	15.41	41.56
675.60	60.53	15.54	44.99
675.65	64.22	15.68	48.55
675.70	68.04	15.81	52.23
675.75	71.98	15.94	56.05
675.80	76.06	16.07	59.99
675.85	80.26	16.20	64.06
675.90	84.59	16.33	68.26
675.95	89.05	16.45	72.60
676.00	93.64	16.58	77.06
676.05	98.36	16.70	81.66
676.10	103.19	16.80	86.39
676.15	108.17	16.91	91.25
676.20	113.27	17.02	96.25
676.25	118.51	17.12	101.38
676.30	123.88	17.23	106.65
676.35	129.39	17.33	112.05
676.40	135.03	17.44	117.59
676.45	140.81	17.54	123.27
676.50	**146.73**	**17.64**	**129.09**

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

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	17,150	17,150	0
674.05	17,203	17,203	859
674.10	17,257	17,257	1,720
674.15	17,310	17,310	2,584
674.20	17,363	17,363	3,451
674.25	17,416	17,416	4,321
674.30	17,469	17,469	5,193
674.35	17,523	17,523	6,068
674.40	17,576	17,576	6,945
674.45	17,629	17,629	7,825
674.50	17,683	17,683	8,708
674.55	17,736	17,736	9,594
674.60	17,789	17,789	10,482
674.65	17,842	17,842	11,372
674.70	17,896	17,896	12,266
674.75	17,949	17,949	13,162
674.80	18,002	18,002	14,061
674.85	18,055	18,055	14,962
674.90	18,108	18,108	15,866
674.95	18,162	18,162	16,773
675.00	18,215	18,215	17,683
675.05	18,268	18,268	18,595
675.10	18,321	18,321	19,509
675.15	18,375	18,375	20,427
675.20	18,428	18,428	21,347
675.25	18,481	18,481	22,270
675.30	18,534	18,534	23,195
675.35	18,587	18,587	24,123
675.40	18,641	18,641	25,054
675.45	18,694	18,694	25,987
675.50	18,747	18,747	26,923
675.55	18,800	18,800	27,862
675.60	18,853	18,853	28,803
675.65	18,907	18,907	29,747
675.70	18,960	18,960	30,694
675.75	19,013	19,013	31,643
675.80	19,066	19,066	32,595
675.85	19,119	19,119	33,550
675.90	19,173	19,173	34,507
675.95	19,226	19,226	35,467
676.00	19,279	19,279	36,430
676.05	19,419	19,419	37,397
676.10	19,558	19,558	38,371
676.15	19,698	19,698	39,353
676.20	19,837	19,837	40,341
676.25	19,977	19,977	41,337
676.30	20,117	20,117	42,339
676.35	20,256	20,256	43,348
676.40	20,396	20,396	44,364
676.45	20,535	20,535	45,388
676.50	**20,675**	**20,675**	**46,418**

Summary for Pond 6P: Bioretention 2

Inflow Area = 17.200 ac, 52.33% Impervious, Inflow Depth = 1.13" for 2-Year event
Inflow = 34.50 cfs @ 11.98 hrs, Volume= 1.618 af
Outflow = 25.88 cfs @ 12.03 hrs, Volume= 1.618 af, Atten= 25%, Lag= 3.3 min
Primary = 13.23 cfs @ 12.03 hrs, Volume= 1.182 af
Routed to Link 9L : Link
Secondary = 12.65 cfs @ 12.03 hrs, Volume= 0.435 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.01' @ 12.03 hrs Surf.Area= 17,140 sf Storage= 16,366 cf

Plug-Flow detention time= 172.7 min calculated for 1.618 af (100% of inflow)
Center-of-Mass det. time= 172.7 min (1,001.0 - 828.4)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	44,156 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	15,250	0	0
675.00	17,118	16,184	16,184
676.00	19,153	18,136	34,320
676.50	20,191	9,836	44,156

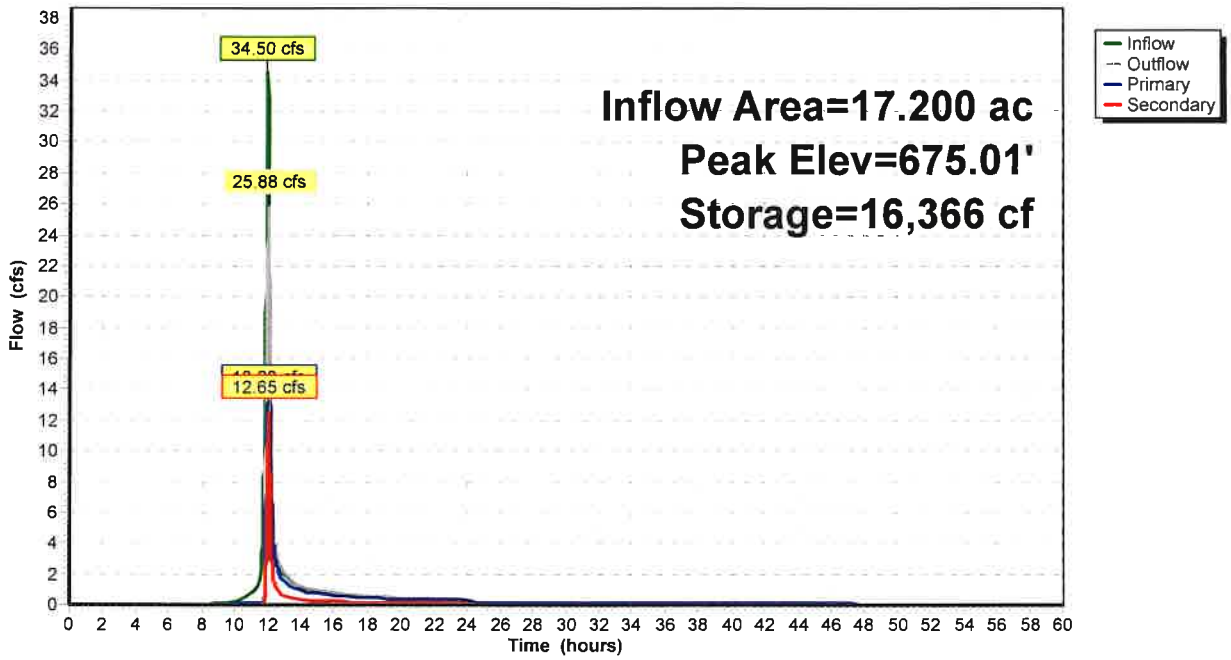
Device	Routing	Invert	Outlet Devices
#1	Primary	671.55'	**18.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.55' / 671.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=13.23 cfs @ 12.03 hrs HW=675.01' (Free Discharge)
↑**1=Culvert** (Barrel Controls 13.23 cfs @ 7.49 fps)
↑**2=Exfiltration** (Passes < 0.11 cfs potential flow)
↑**3=Grate** (Passes < 28.62 cfs potential flow)

Secondary OutFlow Max=12.63 cfs @ 12.03 hrs HW=675.01' (Free Discharge)
↑**4=Spillway** (Weir Controls 12.63 cfs @ 2.15 fps)

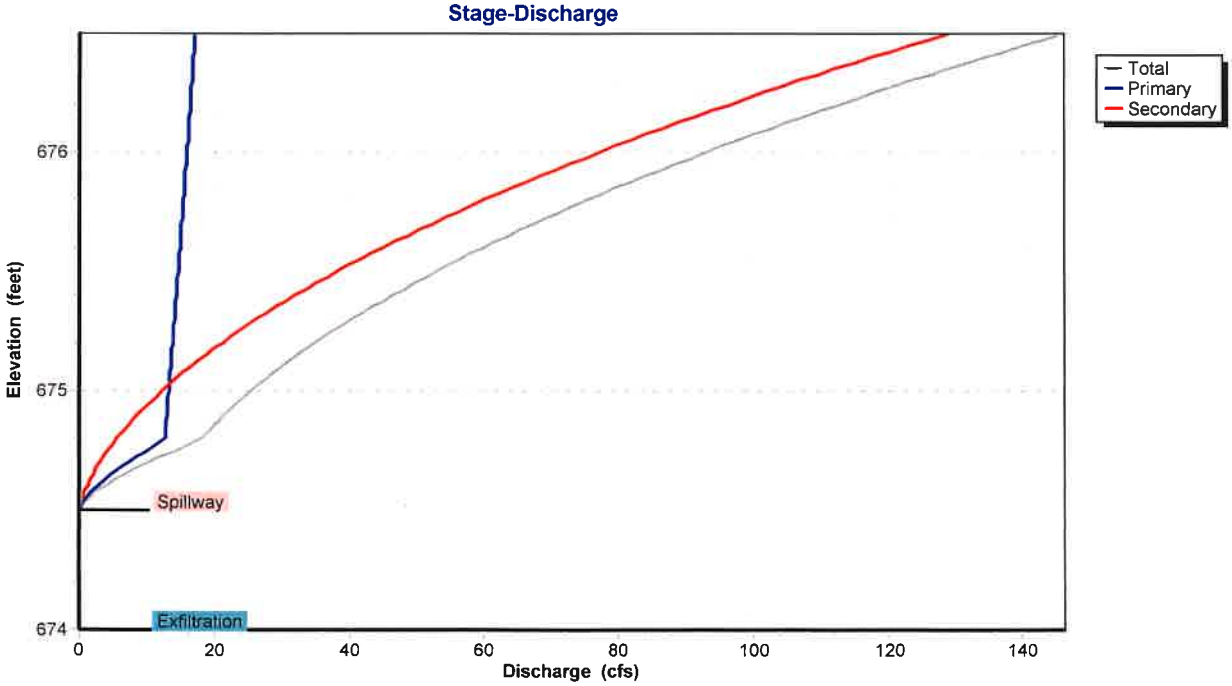
Pond 6P: Bioretention 2

Hydrograph

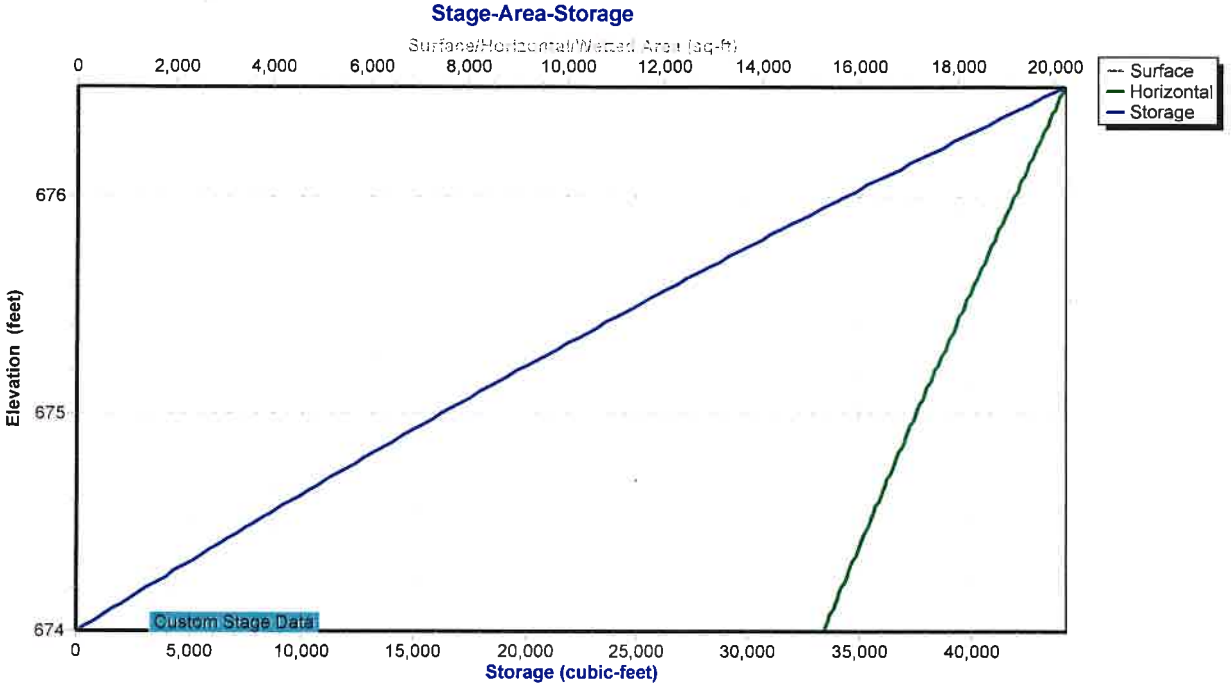


Pond 6P: Bioretention 2

Stage-Discharge



Pond 6P: Bioretention 2



Hydrograph for Pond 6P: Bioretention 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.00	0	674.00	0.00	0.00	0.00
8.00	0.00	0	674.00	0.00	0.00	0.00
10.00	**0.22**	391	674.03	0.09	0.09	0.00
12.00	**32.60**	**15,917**	**674.98**	**24.77**	**13.15**	**11.62**
14.00	1.15	**8,621**	**674.55**	**1.23**	**0.91**	**0.32**
16.00	0.72	8,375	674.53	0.75	0.56	0.18
18.00	0.56	8,285	674.53	0.57	0.44	0.13
20.00	0.41	8,172	674.52	0.43	0.34	0.09
22.00	0.38	8,125	674.52	0.38	0.30	0.08
24.00	0.35	8,098	674.51	0.35	0.28	0.07
26.00	0.00	7,314	674.47	0.10	0.10	0.00
28.00	0.00	6,623	674.42	0.10	0.10	0.00
30.00	0.00	5,937	674.38	0.09	0.09	0.00
32.00	0.00	5,257	674.34	0.09	0.09	0.00
34.00	0.00	4,583	674.30	0.09	0.09	0.00
36.00	0.00	3,913	674.25	0.09	0.09	0.00
38.00	0.00	3,249	674.21	0.09	0.09	0.00
40.00	0.00	2,591	674.17	0.09	0.09	0.00
42.00	0.00	1,937	674.13	0.09	0.09	0.00
44.00	0.00	1,289	674.08	0.09	0.09	0.00
46.00	0.00	645	674.04	0.09	0.09	0.00
48.00	0.00	143	674.01	0.03	0.03	0.00
50.00	0.00	27	674.00	0.01	0.01	0.00
52.00	0.00	5	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 6P: Bioretention 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.09	0.09	0.00
674.10	0.09	0.09	0.00
674.15	0.09	0.09	0.00
674.20	0.09	0.09	0.00
674.25	0.09	0.09	0.00
674.30	0.09	0.09	0.00
674.35	0.09	0.09	0.00
674.40	0.10	0.10	0.00
674.45	0.10	0.10	0.00
674.50	0.10	0.10	0.00
674.55	1.32	0.98	0.35
674.60	3.58	2.58	1.00
674.65	6.52	4.66	1.86
674.70	10.01	7.12	2.89
674.75	14.00	9.91	4.09
674.80	18.04	12.60	5.44
674.85	19.68	12.75	6.93
674.90	21.46	12.90	8.56
674.95	23.37	13.05	10.32
675.00	25.42	13.20	12.22
675.05	27.59	13.35	14.25
675.10	29.90	13.49	16.41
675.15	32.33	13.63	18.69
675.20	34.88	13.77	21.11
675.25	37.56	13.91	23.65
675.30	40.37	14.05	26.32
675.35	43.30	14.19	29.11
675.40	46.36	14.32	32.03
675.45	49.54	14.46	35.08
675.50	52.85	14.59	38.26
675.55	56.28	14.72	41.56
675.60	59.84	14.86	44.99
675.65	63.53	14.98	48.55
675.70	67.34	15.11	52.23
675.75	71.29	15.24	56.05
675.80	75.36	15.37	59.99
675.85	79.55	15.49	64.06
675.90	83.88	15.62	68.26
675.95	88.34	15.74	72.60
676.00	92.93	15.86	77.06
676.05	97.65	15.99	81.66
676.10	102.50	16.11	86.39
676.15	107.48	16.23	91.25
676.20	112.60	16.34	96.25
676.25	117.85	16.46	101.38
676.30	123.23	16.58	106.65
676.35	128.75	16.70	112.05
676.40	134.41	16.81	117.59
676.45	140.20	16.93	123.27
676.50	**146.13**	**17.04**	**129.09**

Stage-Area-Storage for Pond 6P: Bioretention 2

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	15,250	15,250	0
674.05	15,343	15,343	765
674.10	15,437	15,437	1,534
674.15	15,530	15,530	2,309
674.20	15,624	15,624	3,087
674.25	15,717	15,717	3,871
674.30	15,810	15,810	4,659
674.35	15,904	15,904	5,452
674.40	15,997	15,997	6,249
674.45	16,091	16,091	7,052
674.50	16,184	16,184	7,859
674.55	16,277	16,277	8,670
674.60	16,371	16,371	9,486
674.65	16,464	16,464	10,307
674.70	16,558	16,558	11,133
674.75	16,651	16,651	11,963
674.80	16,744	16,744	12,798
674.85	16,838	16,838	13,637
674.90	16,931	16,931	14,482
674.95	17,025	17,025	15,330
675.00	17,118	17,118	16,184
675.05	17,220	17,220	17,042
675.10	17,322	17,322	17,906
675.15	17,423	17,423	18,775
675.20	17,525	17,525	19,648
675.25	17,627	17,627	20,527
675.30	17,728	17,728	21,411
675.35	17,830	17,830	22,300
675.40	17,932	17,932	23,194
675.45	18,034	18,034	24,093
675.50	18,136	18,136	24,997
675.55	18,237	18,237	25,907
675.60	18,339	18,339	26,821
675.65	18,441	18,441	27,741
675.70	18,543	18,543	28,665
675.75	18,644	18,644	29,595
675.80	18,746	18,746	30,530
675.85	18,848	18,848	31,469
675.90	18,949	18,949	32,414
675.95	19,051	19,051	33,364
676.00	19,153	19,153	34,320
676.05	19,257	19,257	35,280
676.10	19,361	19,361	36,245
676.15	19,464	19,464	37,216
676.20	19,568	19,568	38,192
676.25	19,672	19,672	39,173
676.30	19,776	19,776	40,159
676.35	19,880	19,880	41,150
676.40	19,983	19,983	42,147
676.45	20,087	20,087	43,149
676.50	**20,191**	**20,191**	**44,156**

Summary for Pond 7P: Basin

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 1.25" for 2-Year event
Inflow = 41.28 cfs @ 12.05 hrs, Volume= 2.655 af
Outflow = 2.88 cfs @ 13.20 hrs, Volume= 2.655 af, Atten= 93%, Lag= 69.4 min
Primary = 2.88 cfs @ 13.20 hrs, Volume= 2.655 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.11' @ 13.20 hrs Surf.Area= 44,706 sf Storage= 43,755 cf

Plug-Flow detention time= 127.0 min calculated for 2.654 af (100% of inflow)
Center-of-Mass det. time= 127.0 min (1,166.5 - 1,039.5)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	311,588 cf	**dry basin (Prismatic)**Listed below (Recalc)

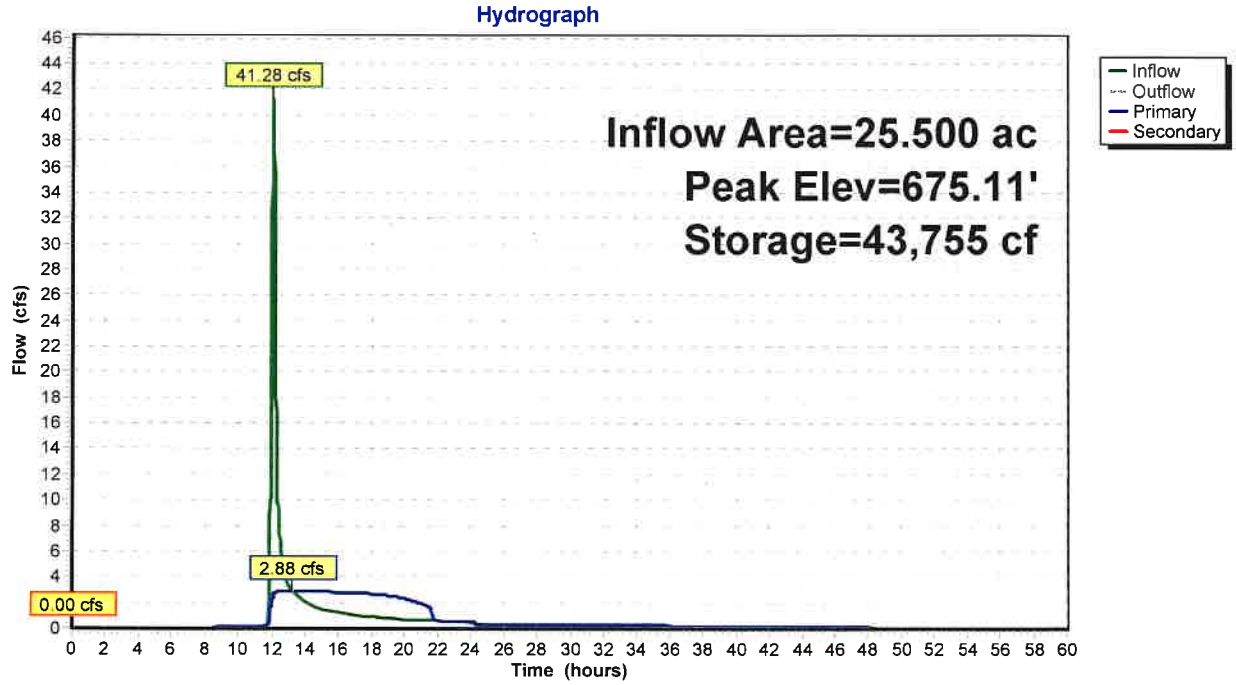
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	1,285	0	0
673.00	6,433	3,859	3,859
674.00	9,723	8,078	11,937
675.00	44,268	26,996	38,933
676.00	48,305	46,287	85,219
677.00	52,399	50,352	135,571
678.00	56,550	54,475	190,046
679.00	60,757	58,654	248,699
680.00	65,021	62,889	311,588

Device	Routing	Invert	Outlet Devices
#1	Primary	670.75'	**10.0" Round Culvert (structure to outlet)** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 670.75' / 670.15' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	670.80'	**8.0" Round Culvert (basin to structure)** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 670.80' / 670.75' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 1	678.00'	**24.0" W x 24.0" H Vert. Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	670.75'	**8.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	675.50'	**5.0' long Weir** 2 End Contraction(s)
#6	Secondary	679.00'	**143.0 deg x 20.0' long x 1.00' rise Spillway** Cv= 2.47 (C= 3.09)

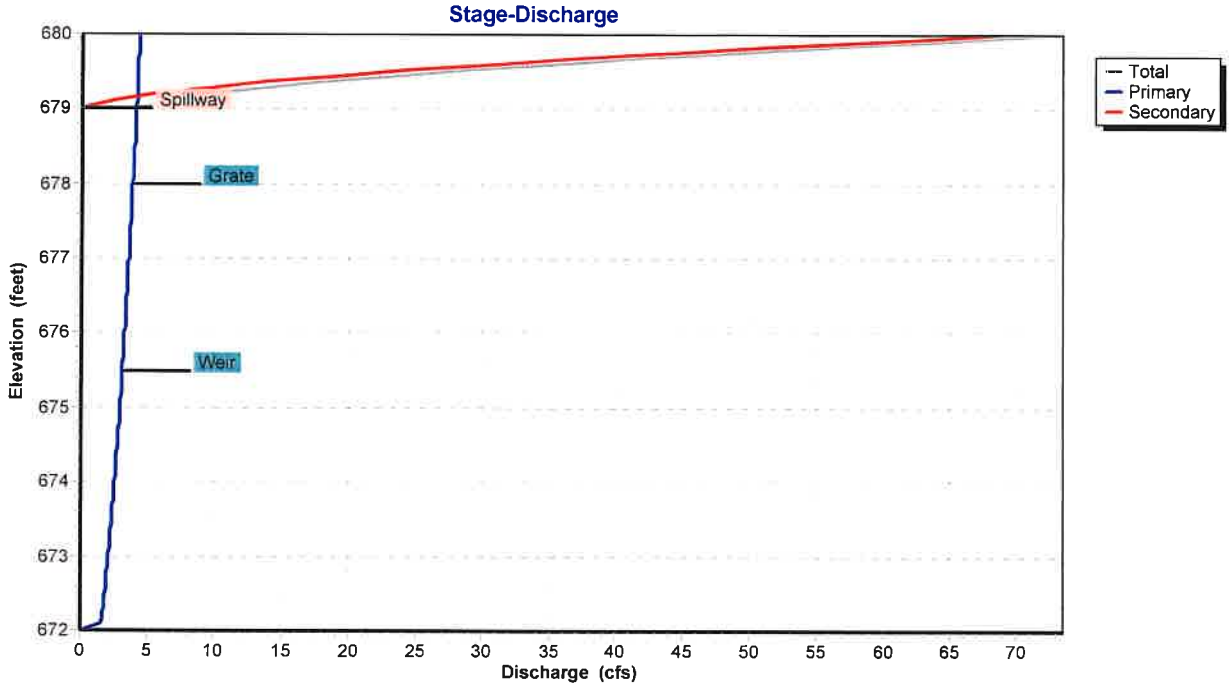
Primary OutFlow Max=2.88 cfs @ 13.20 hrs HW=675.11' (Free Discharge)
└─**1=Culvert (structure to outlet)** (Barrel Controls 2.88 cfs @ 5.29 fps)
  └─**2=Culvert (basin to structure)** (Passes < 2.96 cfs potential flow)
  ├─**3=Grate** (Controls 0.00 cfs)
  ├─**4=Orifice** (Passes < 10.12 cfs potential flow)
  └─**5=Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=672.00' (Free Discharge)
└─**6=Spillway** (Controls 0.00 cfs)

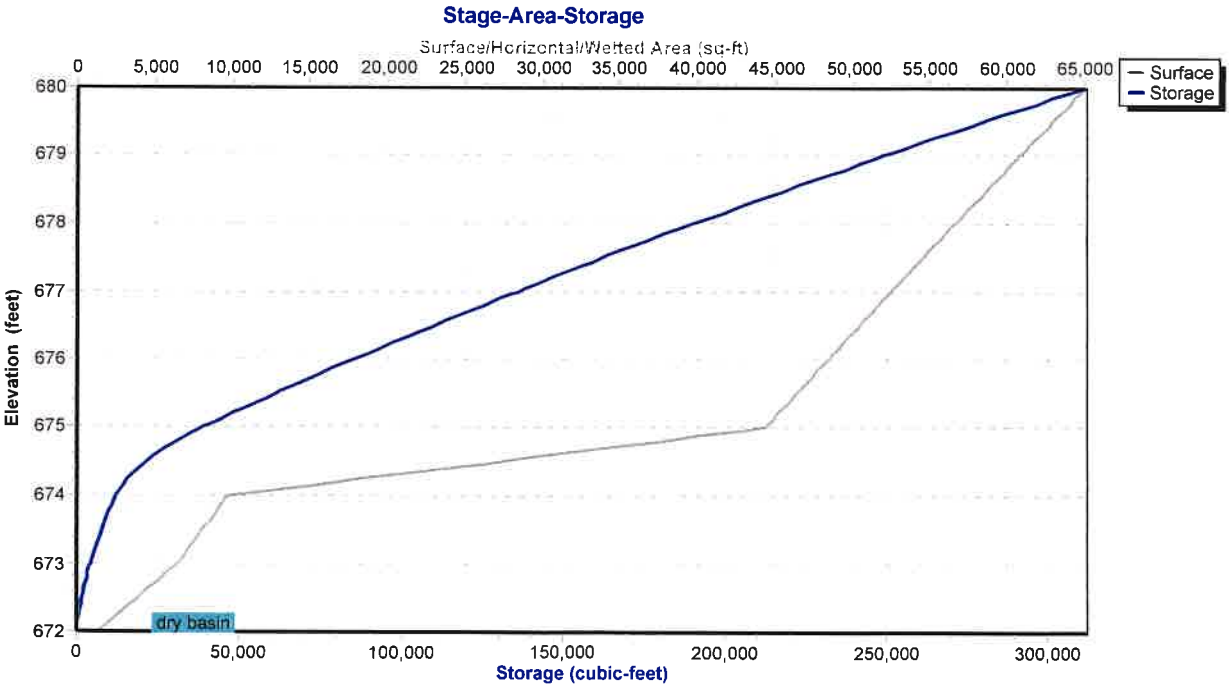
Pond 7P: Basin



Pond 7P: Basin



Pond 7P: Basin



Hydrograph for Pond 7P: Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	672.00	0.00	0.00	**0.00**
2.00	0.00	0	672.00	0.00	0.00	0.00
4.00	0.00	0	672.00	0.00	0.00	0.00
6.00	0.00	0	672.00	0.00	0.00	0.00
8.00	0.05	4	672.00	0.05	0.05	0.00
10.00	0.19	15	672.01	0.19	0.19	0.00
12.00	**36.79**	**10,388**	**673.84**	**2.40**	**2.40**	0.00
14.00	**1.94**	**42,253**	**675.07**	**2.87**	**2.87**	0.00
16.00	1.18	32,676	674.85	2.79	2.79	0.00
18.00	0.89	20,334	674.47	2.65	2.65	0.00
20.00	0.67	7,924	673.55	2.28	2.28	0.00
22.00	0.59	47	672.03	0.59	0.59	0.00
24.00	0.54	44	672.03	0.54	0.54	0.00
26.00	0.20	16	672.01	0.20	0.20	0.00
28.00	0.20	16	672.01	0.20	0.20	0.00
30.00	0.20	16	672.01	0.20	0.20	0.00
32.00	0.20	16	672.01	0.20	0.20	0.00
34.00	0.20	16	672.01	0.20	0.20	0.00
36.00	0.20	16	672.01	0.20	0.20	0.00
38.00	0.19	16	672.01	0.19	0.19	0.00
40.00	0.19	15	672.01	0.19	0.19	0.00
42.00	0.19	15	672.01	0.19	0.19	0.00
44.00	0.19	15	672.01	0.19	0.19	0.00
46.00	0.19	15	672.01	0.19	0.19	0.00
48.00	0.07	5	672.00	0.07	0.07	0.00
50.00	0.01	1	672.00	0.01	0.01	0.00
52.00	0.00	0	672.00	0.00	0.00	0.00
54.00	0.00	0	672.00	0.00	0.00	0.00
56.00	0.00	0	672.00	0.00	0.00	0.00
58.00	0.00	0	672.00	0.00	0.00	0.00
60.00	0.00	0	672.00	0.00	0.00	0.00

Stage-Discharge for Pond 7P: Basin

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
672.00	0.00	0.00	0.00
672.10	1.50	1.50	0.00
672.20	1.57	1.57	0.00
672.30	1.63	1.63	0.00
672.40	1.69	1.69	0.00
672.50	1.75	1.75	0.00
672.60	1.80	1.80	0.00
672.70	1.86	1.86	0.00
672.80	1.91	1.91	0.00
672.90	1.97	1.97	0.00
673.00	2.02	2.02	0.00
673.10	2.07	2.07	0.00
673.20	2.11	2.11	0.00
673.30	2.16	2.16	0.00
673.40	2.21	2.21	0.00
673.50	2.25	2.25	0.00
673.60	2.30	2.30	0.00
673.70	2.34	2.34	0.00
673.80	2.38	2.38	0.00
673.90	2.42	2.42	0.00
674.00	2.47	2.47	0.00
674.10	2.51	2.51	0.00
674.20	2.55	2.55	0.00
674.30	2.59	2.59	0.00
674.40	2.62	2.62	0.00
674.50	2.66	2.66	0.00
674.60	2.70	2.70	0.00
674.70	2.74	2.74	0.00
674.80	2.77	2.77	0.00
674.90	2.81	2.81	0.00
675.00	2.84	2.84	0.00
675.10	2.88	2.88	0.00
675.20	2.91	2.91	0.00
675.30	2.95	2.95	0.00
675.40	2.98	2.98	0.00
675.50	3.02	3.02	0.00
675.60	3.05	3.05	0.00
675.70	3.08	3.08	0.00
675.80	3.12	3.12	0.00
675.90	3.15	3.15	0.00
676.00	3.18	3.18	0.00
676.10	3.21	3.21	0.00
676.20	3.24	3.24	0.00
676.30	3.27	3.27	0.00
676.40	3.30	3.30	0.00
676.50	3.33	3.33	0.00
676.60	3.36	3.36	0.00
676.70	3.39	3.39	0.00
676.80	3.42	3.42	0.00
676.90	3.45	3.45	0.00
677.00	3.48	3.48	0.00
677.10	3.51	3.51	0.00
677.20	3.54	3.54	0.00
677.30	3.57	3.57	0.00
677.40	3.60	3.60	0.00
677.50	3.62	3.62	0.00
677.60	3.65	3.65	0.00
677.70	3.68	3.68	0.00
677.80	3.71	3.71	0.00
677.90	3.73	3.73	0.00
678.00	3.76	3.76	0.00
678.10	3.79	3.79	0.00
678.20	3.81	3.81	0.00
678.30	3.84	3.84	0.00
678.40	3.87	3.87	0.00
678.50	3.89	3.89	0.00
678.60	3.92	3.92	0.00
678.70	3.94	3.94	0.00
678.80	3.97	3.97	0.00
678.90	3.99	3.99	0.00
679.00	4.02	4.02	0.00
679.10	6.02	4.04	1.98
679.20	9.72	4.07	5.66
679.30	14.60	4.09	10.51
679.40	20.49	4.12	16.37
679.50	27.28	4.14	23.14
679.60	34.92	4.17	30.76
679.70	43.38	4.19	39.19
679.80	52.63	4.22	48.41
679.90	62.63	4.24	58.40
680.00	**73.39**	**4.26**	**69.13**

Stage-Area-Storage for Pond 7P: Basin

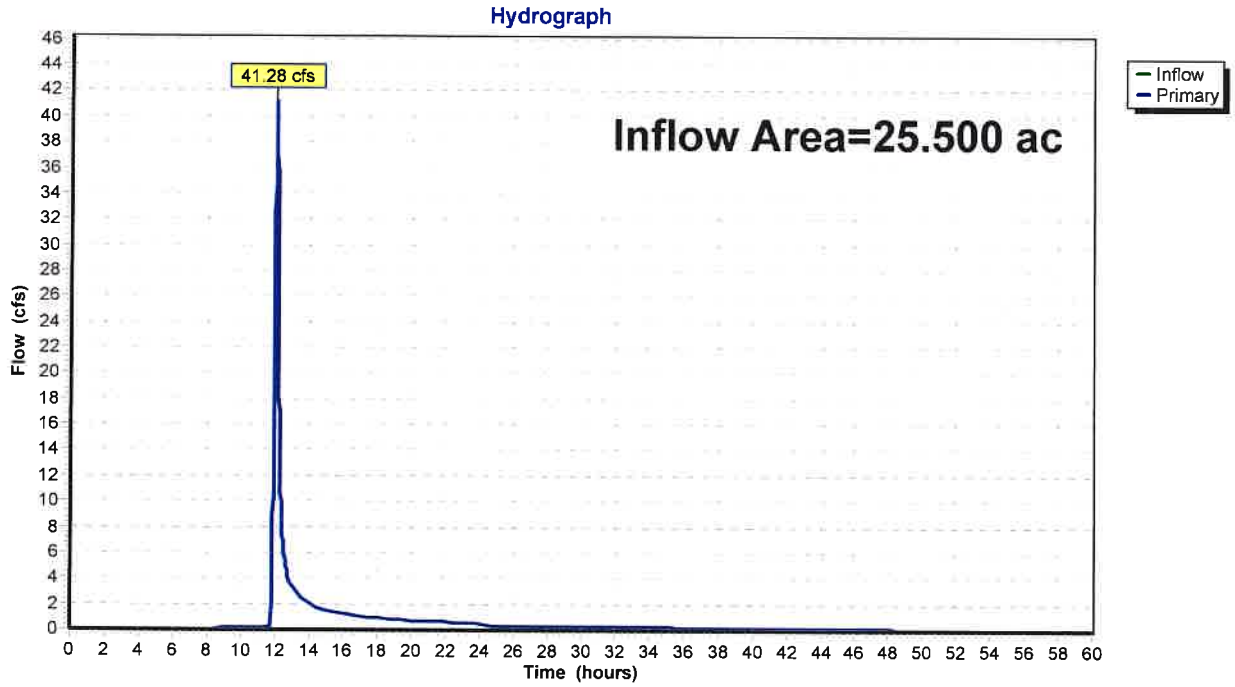
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.00	1,285	0
672.10	1,800	154
672.20	2,315	360
672.30	2,829	617
672.40	3,344	926
672.50	3,859	1,286
672.60	4,374	1,698
672.70	4,889	2,161
672.80	5,403	2,675
672.90	5,918	3,241
673.00	6,433	3,859
673.10	6,762	4,519
673.20	7,091	5,211
673.30	7,420	5,937
673.40	7,749	6,695
673.50	8,078	7,487
673.60	8,407	8,311
673.70	8,736	9,168
673.80	9,065	10,058
673.90	9,394	10,981
674.00	9,723	11,937
674.10	13,178	13,082
674.20	16,632	14,573
674.30	20,086	16,408
674.40	23,541	18,590
674.50	26,996	21,117
674.60	30,450	23,989
674.70	33,905	27,207
674.80	37,359	30,770
674.90	40,813	34,678
675.00	44,268	38,933
675.10	44,672	43,379
675.20	45,075	47,867
675.30	45,479	52,395
675.40	45,883	56,963
675.50	46,287	61,571
675.60	46,690	66,220
675.70	47,094	70,909
675.80	47,498	75,639
675.90	47,901	80,409
676.00	48,305	85,219
676.10	48,714	90,070
676.20	49,124	94,962
676.30	49,533	99,895
676.40	49,943	104,869
676.50	50,352	109,883
676.60	50,761	114,939
676.70	51,171	120,036
676.80	51,580	125,173
676.90	51,990	130,352
677.00	52,399	135,571
677.10	52,814	140,832
677.20	53,229	146,134
677.30	53,644	151,477
677.40	54,059	156,863
677.50	54,475	162,289
677.60	54,890	167,758
677.70	55,305	173,267
677.80	55,720	178,819
677.90	56,135	184,411
678.00	56,550	190,046
678.10	56,971	195,722
678.20	57,391	201,440
678.30	57,812	207,200
678.40	58,233	213,002
678.50	58,654	218,846
678.60	59,074	224,733
678.70	59,495	230,661
678.80	59,916	236,632
678.90	60,336	242,644
679.00	60,757	248,699
679.10	61,183	254,796
679.20	61,610	260,936
679.30	62,036	267,118
679.40	62,463	273,343
679.50	62,889	279,611
679.60	63,315	285,921
679.70	63,742	292,274
679.80	64,168	298,669
679.90	64,595	305,107
680.00	**65,021**	**311,588**

Summary for Link 9L: Link

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 1.25" for 2-Year event
Inflow = 41.28 cfs @ 12.05 hrs, Volume= 2.655 af
Primary = 41.28 cfs @ 12.05 hrs, Volume= 2.655 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 7P : Basin

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 9L: Link



Hydrograph for Link 9L: Link

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	53.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
7.00	0.02	0.00	0.02	60.00	0.00	0.00	0.00
8.00	0.05	0.00	0.05				
9.00	0.12	0.00	0.12				
10.00	0.19	0.00	0.19				
11.00	0.19	0.00	0.19				
12.00	**36.79**	0.00	**36.79**				
13.00	**3.33**	0.00	**3.33**				
14.00	1.94	0.00	1.94				
15.00	1.50	0.00	1.50				
16.00	1.18	0.00	1.18				
17.00	1.01	0.00	1.01				
18.00	0.89	0.00	0.89				
19.00	0.78	0.00	0.78				
20.00	0.67	0.00	0.67				
21.00	0.61	0.00	0.61				
22.00	0.59	0.00	0.59				
23.00	0.57	0.00	0.57				
24.00	0.54	0.00	0.54				
25.00	0.20	0.00	0.20				
26.00	0.20	0.00	0.20				
27.00	0.20	0.00	0.20				
28.00	0.20	0.00	0.20				
29.00	0.20	0.00	0.20				
30.00	0.20	0.00	0.20				
31.00	0.20	0.00	0.20				
32.00	0.20	0.00	0.20				
33.00	0.20	0.00	0.20				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.20	0.00	0.20				
37.00	0.19	0.00	0.19				
38.00	0.19	0.00	0.19				
39.00	0.19	0.00	0.19				
40.00	0.19	0.00	0.19				
41.00	0.19	0.00	0.19				
42.00	0.19	0.00	0.19				
43.00	0.19	0.00	0.19				
44.00	0.19	0.00	0.19				
45.00	0.19	0.00	0.19				
46.00	0.19	0.00	0.19				
47.00	0.15	0.00	0.15				
48.00	0.07	0.00	0.07				
49.00	0.03	0.00	0.03				
50.00	0.01	0.00	0.01				
51.00	0.01	0.00	0.01				
52.00	0.00	0.00	0.00				

Summary for Subcatchment 1S: Proposed North

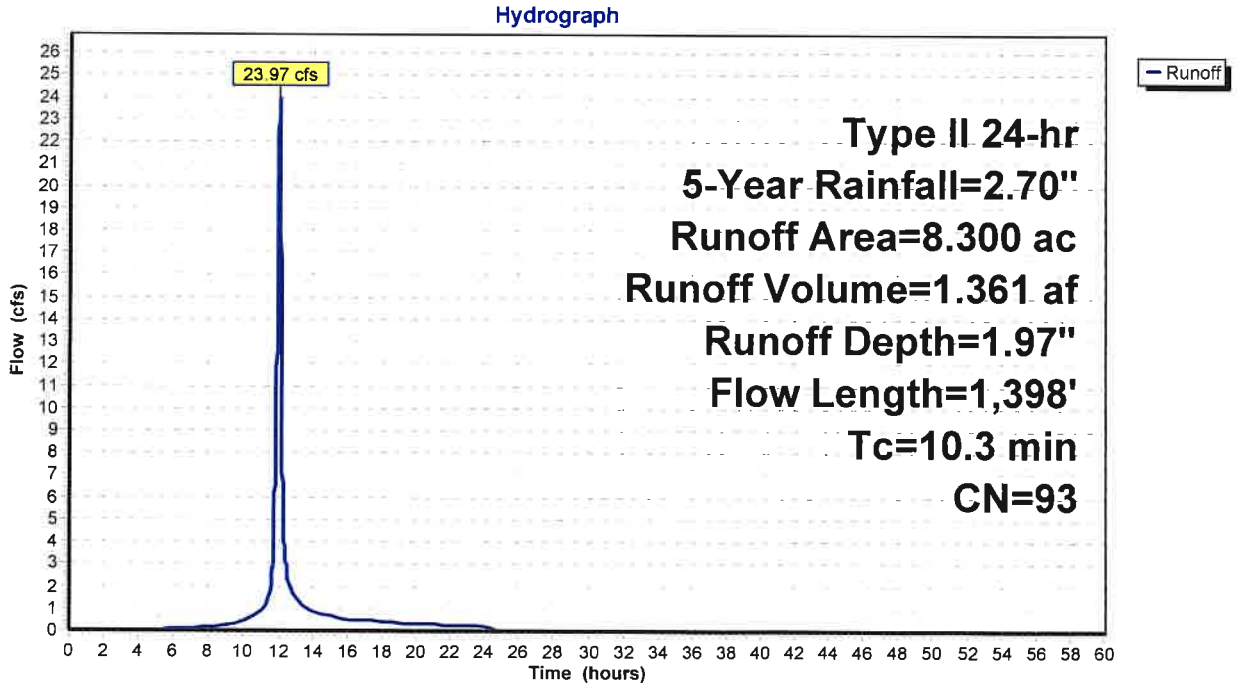
Runoff = 23.97 cfs @ 12.02 hrs, Volume= 1.361 af, Depth= 1.97"
Routed to Pond 3P : Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
5.000	98	Paved parking, HSG D
1.400	98	Paved parking, HSG C
1.100	80	>75% Grass cover, Good, HSG D
0.800	74	>75% Grass cover, Good, HSG C
8.300	93	Weighted Average
1.900		22.89% Pervious Area
6.400		77.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	72	0.3500	0.44		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.9	300	0.0160	2.57		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
5.7	1,026		3.00		**Direct Entry, Pipe flow**
10.3	1,398	Total			

Subcatchment 1S: Proposed North



Hydrograph for Subcatchment 1S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.01
6.00	0.22	0.01	0.05
7.00	0.27	0.02	0.10
8.00	0.32	0.03	0.16
9.00	0.40	0.06	0.29
10.00	0.49	0.10	0.43
11.00	0.63	0.19	0.91
12.00	1.79	1.12	**23.65**
13.00	2.08	1.39	**1.44**
14.00	2.21	1.51	0.84
15.00	2.30	1.60	0.66
16.00	2.38	1.66	0.51
17.00	2.43	1.72	0.44
18.00	2.49	1.77	0.39
19.00	2.53	1.81	0.34
20.00	2.57	1.85	0.29
21.00	2.60	1.88	0.27
22.00	2.64	1.91	0.26
23.00	2.67	1.94	0.25
24.00	**2.70**	**1.97**	0.24
25.00	2.70	1.97	0.00
26.00	2.70	1.97	0.00
27.00	2.70	1.97	0.00
28.00	2.70	1.97	0.00
29.00	2.70	1.97	0.00
30.00	2.70	1.97	0.00
31.00	2.70	1.97	0.00
32.00	2.70	1.97	0.00
33.00	2.70	1.97	0.00
34.00	2.70	1.97	0.00
35.00	2.70	1.97	0.00
36.00	2.70	1.97	0.00
37.00	2.70	1.97	0.00
38.00	2.70	1.97	0.00
39.00	2.70	1.97	0.00
40.00	2.70	1.97	0.00
41.00	2.70	1.97	0.00
42.00	2.70	1.97	0.00
43.00	2.70	1.97	0.00
44.00	2.70	1.97	0.00
45.00	2.70	1.97	0.00
46.00	2.70	1.97	0.00
47.00	2.70	1.97	0.00
48.00	2.70	1.97	0.00
49.00	2.70	1.97	0.00
50.00	2.70	1.97	0.00
51.00	2.70	1.97	0.00
52.00	2.70	1.97	0.00
53.00	2.70	1.97	0.00
54.00	2.70	1.97	0.00
55.00	2.70	1.97	0.00
56.00	2.70	1.97	0.00
57.00	2.70	1.97	0.00
58.00	2.70	1.97	0.00
59.00	2.70	1.97	0.00
60.00	2.70	1.97	0.00

Summary for Subcatchment 2S: Proposed South

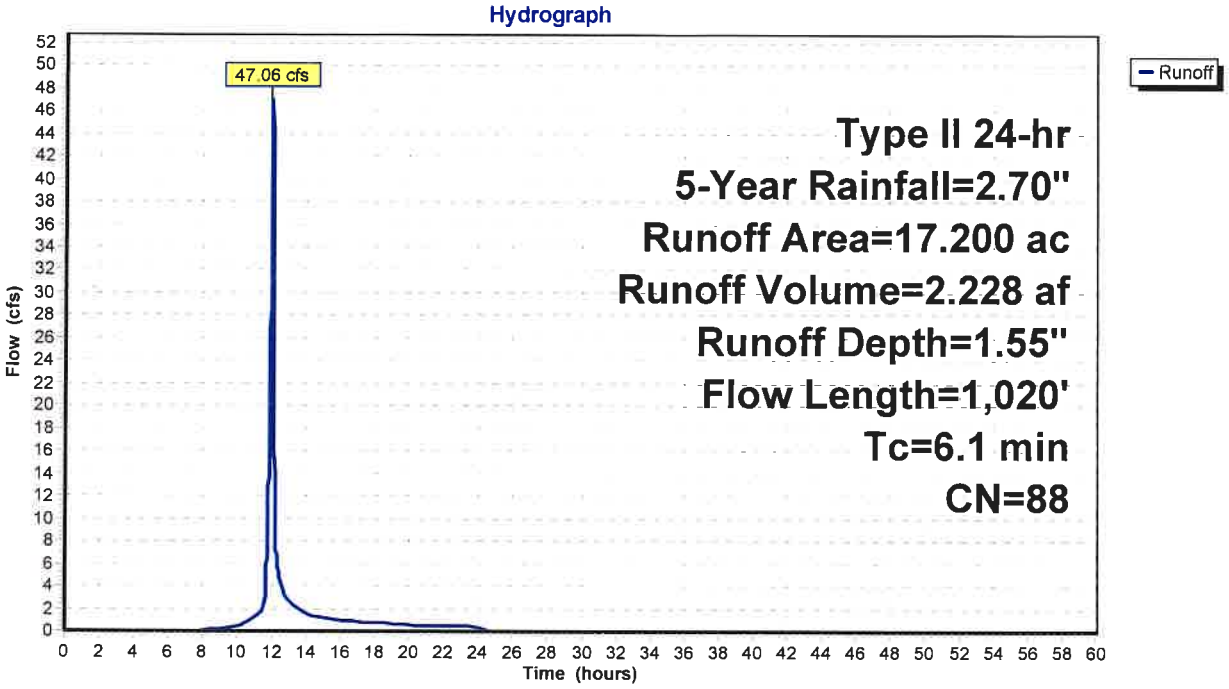
Runoff = 47.06 cfs @ 11.97 hrs, Volume= 2.228 af, Depth= 1.55"
Routed to Pond 6P : Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
5.400	98	Paved parking, HSG D
3.600	98	Paved parking, HSG C
4.800	80	>75% Grass cover, Good, HSG D
3.200	74	>75% Grass cover, Good, HSG C
0.120	96	Gravel surface, HSG D
0.080	96	Gravel surface, HSG C
17.200	88	Weighted Average
8.200		47.67% Pervious Area
9.000		52.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	30	0.0100	0.72		**Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 2.50"
0.8	160	0.0460	3.45		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
4.4	800		3.00		**Direct Entry, Pipe flow**
6.1	1,020	Total			

Subcatchment 2S: Proposed South



Hydrograph for Subcatchment 2S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.00
8.00	0.32	0.00	0.07
9.00	0.40	0.01	0.22
10.00	0.49	0.03	0.44
11.00	0.63	0.08	**1.16**
12.00	1.79	0.80	**44.23**
13.00	2.08	1.03	2.51
14.00	2.21	1.14	1.51
15.00	2.30	1.22	1.20
16.00	2.38	1.28	0.94
17.00	2.43	1.33	0.83
18.00	2.49	1.37	0.73
19.00	2.53	1.41	0.63
20.00	2.57	1.44	0.53
21.00	2.60	1.47	0.51
22.00	2.64	1.50	0.49
23.00	2.67	1.53	0.47
24.00	**2.70**	**1.55**	0.45
25.00	2.70	1.55	0.00
26.00	2.70	1.55	0.00
27.00	2.70	1.55	0.00
28.00	2.70	1.55	0.00
29.00	2.70	1.55	0.00
30.00	2.70	1.55	0.00
31.00	2.70	1.55	0.00
32.00	2.70	1.55	0.00
33.00	2.70	1.55	0.00
34.00	2.70	1.55	0.00
35.00	2.70	1.55	0.00
36.00	2.70	1.55	0.00
37.00	2.70	1.55	0.00
38.00	2.70	1.55	0.00
39.00	2.70	1.55	0.00
40.00	2.70	1.55	0.00
41.00	2.70	1.55	0.00
42.00	2.70	1.55	0.00
43.00	2.70	1.55	0.00
44.00	2.70	1.55	0.00
45.00	2.70	1.55	0.00
46.00	2.70	1.55	0.00
47.00	2.70	1.55	0.00
48.00	2.70	1.55	0.00
49.00	2.70	1.55	0.00
50.00	2.70	1.55	0.00
51.00	2.70	1.55	0.00
52.00	2.70	1.55	0.00
53.00	2.70	1.55	0.00
54.00	2.70	1.55	0.00
55.00	2.70	1.55	0.00
56.00	2.70	1.55	0.00
57.00	2.70	1.55	0.00
58.00	2.70	1.55	0.00
59.00	2.70	1.55	0.00
60.00	2.70	1.55	0.00

Summary for Pond 3P: Bioretention 1

Inflow Area = 8.300 ac, 77.11% Impervious, Inflow Depth = 1.97" for 5-Year event
Inflow = 23.97 cfs @ 12.02 hrs, Volume= 1.361 af
Outflow = 19.61 cfs @ 12.08 hrs, Volume= 1.361 af, Atten= 18%, Lag= 3.6 min
Primary = 13.32 cfs @ 12.08 hrs, Volume= 1.110 af
Routed to Link 9L : Link
Secondary = 6.30 cfs @ 12.08 hrs, Volume= 0.251 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 674.83' @ 12.08 hrs Surf.Area= 18,033 sf Storage= 14,589 cf

Plug-Flow detention time= 228.7 min calculated for 1.361 af (100% of inflow)
Center-of-Mass det. time= 229.0 min (1,028.5 - 799.5)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	46,418 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	17,150	0	0
675.00	18,215	17,683	17,683
676.00	19,279	18,747	36,430
676.50	20,675	9,989	46,418

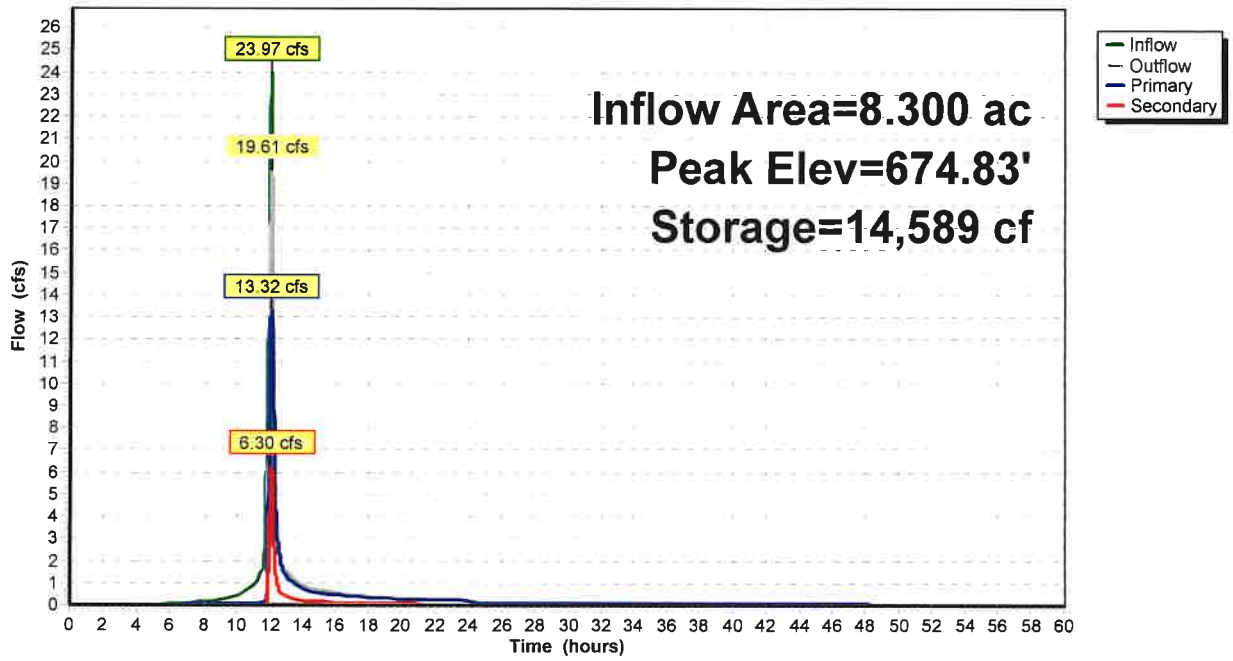
Device	Routing	Invert	Outlet Devices
#1	Primary	671.45'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.45' / 671.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=13.32 cfs @ 12.08 hrs HW=674.83' (Free Discharge)
└**1=Culvert** (Barrel Controls 13.32 cfs @ 7.54 fps)
  └**2=Exfiltration** (Passes < 0.11 cfs potential flow)
  └**3=Grate** (Passes < 19.75 cfs potential flow)

Secondary OutFlow Max=6.28 cfs @ 12.08 hrs HW=674.83' (Free Discharge)
└**4=Spillway** (Weir Controls 6.28 cfs @ 1.74 fps)

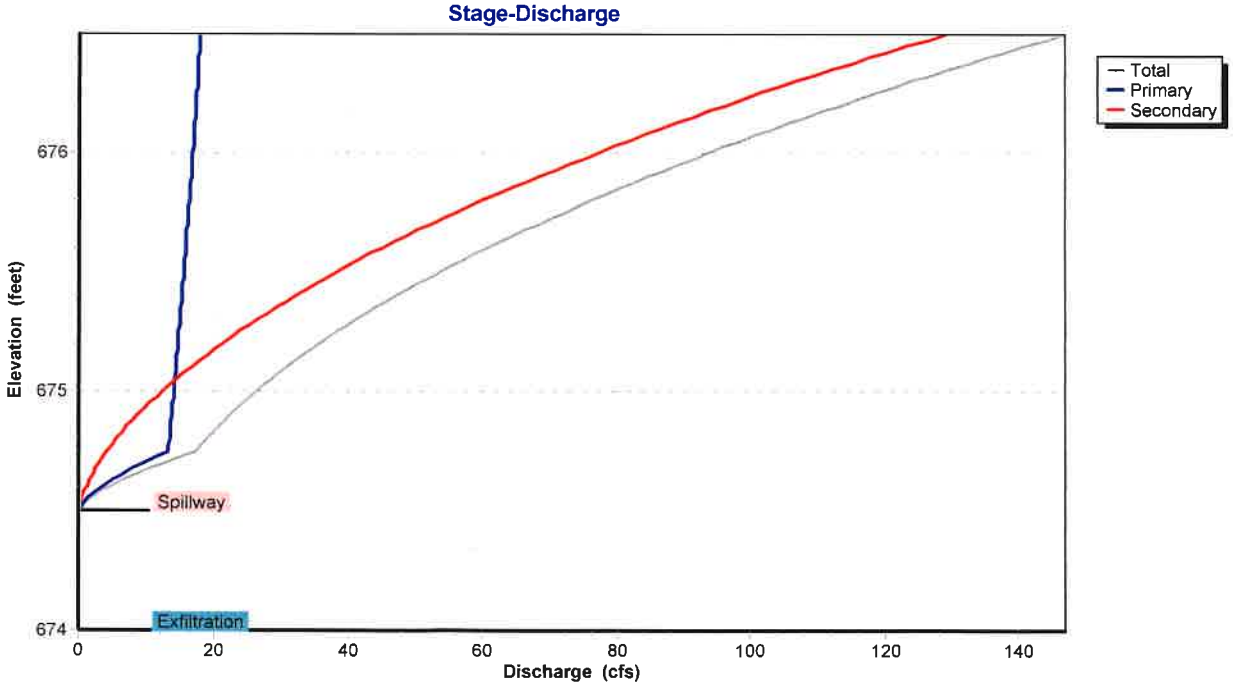
Pond 3P: Bioretention 1

Hydrograph

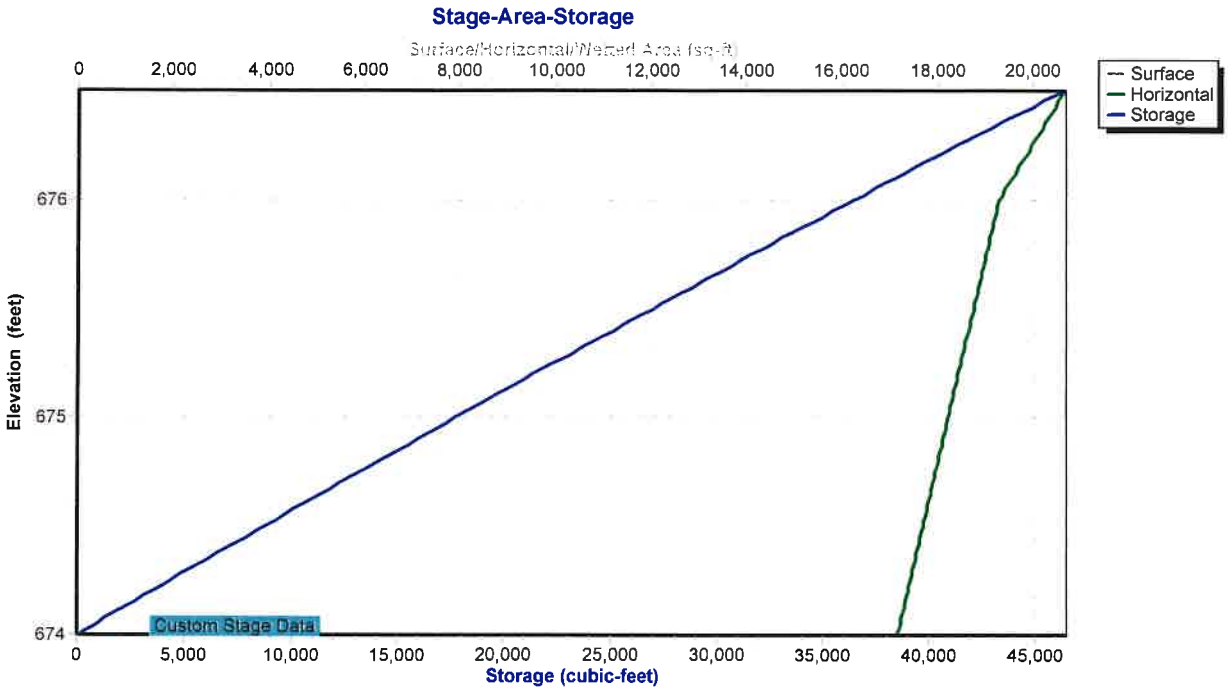


Pond 3P: Bioretention 1

Stage-Discharge



Pond 3P: Bioretention 1



Hydrograph for Pond 3P: Bioretention 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.05	90	674.01	0.02	0.02	0.00
8.00	0.16	436	674.03	0.10	0.10	0.00
10.00	0.43	1,733	674.10	0.10	0.10	0.00
12.00	**23.65**	**13,543**	**674.77**	**17.78**	**13.13**	**4.65**
14.00	**0.84**	**9,265**	**674.53**	**0.90**	**0.71**	**0.18**
16.00	0.51	9,068	674.52	0.54	0.44	0.10
18.00	0.39	8,953	674.51	0.40	0.33	0.07
20.00	0.29	8,866	674.51	0.30	0.25	0.04
22.00	0.26	8,836	674.51	0.26	0.23	0.04
24.00	0.24	8,818	674.51	0.24	0.21	0.03
26.00	0.00	8,084	674.46	0.11	0.11	0.00
28.00	0.00	7,326	674.42	0.10	0.10	0.00
30.00	0.00	6,573	674.38	0.10	0.10	0.00
32.00	0.00	5,825	674.34	0.10	0.10	0.00
34.00	0.00	5,080	674.29	0.10	0.10	0.00
36.00	0.00	4,339	674.25	0.10	0.10	0.00
38.00	0.00	3,603	674.21	0.10	0.10	0.00
40.00	0.00	2,870	674.17	0.10	0.10	0.00
42.00	0.00	2,142	674.12	0.10	0.10	0.00
44.00	0.00	1,417	674.08	0.10	0.10	0.00
46.00	0.00	697	674.04	0.10	0.10	0.00
48.00	0.00	150	674.01	0.03	0.03	0.00
50.00	0.00	28	674.00	0.01	0.01	0.00
52.00	0.00	5	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: Bioretention 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.10	0.10	0.00
674.10	0.10	0.10	0.00
674.15	0.10	0.10	0.00
674.20	0.10	0.10	0.00
674.25	0.10	0.10	0.00
674.30	0.10	0.10	0.00
674.35	0.10	0.10	0.00
674.40	0.10	0.10	0.00
674.45	0.11	0.11	0.00
674.50	0.11	0.11	0.00
674.55	1.63	1.28	0.35
674.60	4.42	3.42	1.00
674.65	8.04	6.19	1.86
674.70	12.36	9.47	2.89
674.75	17.16	13.07	4.09
674.80	18.66	13.23	5.44
674.85	20.31	13.38	6.93
674.90	22.09	13.54	8.56
674.95	24.01	13.69	10.32
675.00	26.06	13.84	12.22
675.05	28.24	13.99	14.25
675.10	30.55	14.14	16.41
675.15	32.98	14.29	18.69
675.20	35.54	14.43	21.11
675.25	38.22	14.57	23.65
675.30	41.03	14.72	26.32
675.35	43.97	14.86	29.11
675.40	47.03	15.00	32.03
675.45	50.22	15.13	35.08
675.50	53.53	15.27	38.26
675.55	56.97	15.41	41.56
675.60	60.53	15.54	44.99
675.65	64.22	15.68	48.55
675.70	68.04	15.81	52.23
675.75	71.98	15.94	56.05
675.80	76.06	16.07	59.99
675.85	80.26	16.20	64.06
675.90	84.59	16.33	68.26
675.95	89.05	16.45	72.60
676.00	93.64	16.58	77.06
676.05	98.36	16.70	81.66
676.10	103.19	16.80	86.39
676.15	108.17	16.91	91.25
676.20	113.27	17.02	96.25
676.25	118.51	17.12	101.38
676.30	123.88	17.23	106.65
676.35	129.39	17.33	112.05
676.40	135.03	17.44	117.59
676.45	140.81	17.54	123.27
676.50	**146.73**	**17.64**	**129.09**

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

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	17,150	17,150	0
674.05	17,203	17,203	859
674.10	17,257	17,257	1,720
674.15	17,310	17,310	2,584
674.20	17,363	17,363	3,451
674.25	17,416	17,416	4,321
674.30	17,469	17,469	5,193
674.35	17,523	17,523	6,068
674.40	17,576	17,576	6,945
674.45	17,629	17,629	7,825
674.50	17,683	17,683	8,708
674.55	17,736	17,736	9,594
674.60	17,789	17,789	10,482
674.65	17,842	17,842	11,372
674.70	17,896	17,896	12,266
674.75	17,949	17,949	13,162
674.80	18,002	18,002	14,061
674.85	18,055	18,055	14,962
674.90	18,108	18,108	15,866
674.95	18,162	18,162	16,773
675.00	18,215	18,215	17,683
675.05	18,268	18,268	18,595
675.10	18,321	18,321	19,509
675.15	18,375	18,375	20,427
675.20	18,428	18,428	21,347
675.25	18,481	18,481	22,270
675.30	18,534	18,534	23,195
675.35	18,587	18,587	24,123
675.40	18,641	18,641	25,054
675.45	18,694	18,694	25,987
675.50	18,747	18,747	26,923
675.55	18,800	18,800	27,862
675.60	18,853	18,853	28,803
675.65	18,907	18,907	29,747
675.70	18,960	18,960	30,694
675.75	19,013	19,013	31,643
675.80	19,066	19,066	32,595
675.85	19,119	19,119	33,550
675.90	19,173	19,173	34,507
675.95	19,226	19,226	35,467
676.00	19,279	19,279	36,430
676.05	19,419	19,419	37,397
676.10	19,558	19,558	38,371
676.15	19,698	19,698	39,353
676.20	19,837	19,837	40,341
676.25	19,977	19,977	41,337
676.30	20,117	20,117	42,339
676.35	20,256	20,256	43,348
676.40	20,396	20,396	44,364
676.45	20,535	20,535	45,388
676.50	**20,675**	**20,675**	**46,418**

Summary for Pond 6P: Bioretention 2

Inflow Area = 17.200 ac, 52.33% Impervious, Inflow Depth = 1.55" for 5-Year event
Inflow = 47.06 cfs @ 11.97 hrs, Volume= 2.228 af
Outflow = 36.17 cfs @ 12.03 hrs, Volume= 2.228 af, Atten= 23%, Lag= 3.2 min
Primary = 13.84 cfs @ 12.03 hrs, Volume= 1.507 af
Routed to Link 9L : Link
Secondary = 22.32 cfs @ 12.03 hrs, Volume= 0.720 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.22' @ 12.03 hrs Surf.Area= 17,574 sf Storage= 20,073 cf

Plug-Flow detention time= 130.1 min calculated for 2.228 af (100% of inflow)
Center-of-Mass det. time= 130.0 min (949.3 - 819.2)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	44,156 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	15,250	0	0
675.00	17,118	16,184	16,184
676.00	19,153	18,136	34,320
676.50	20,191	9,836	44,156

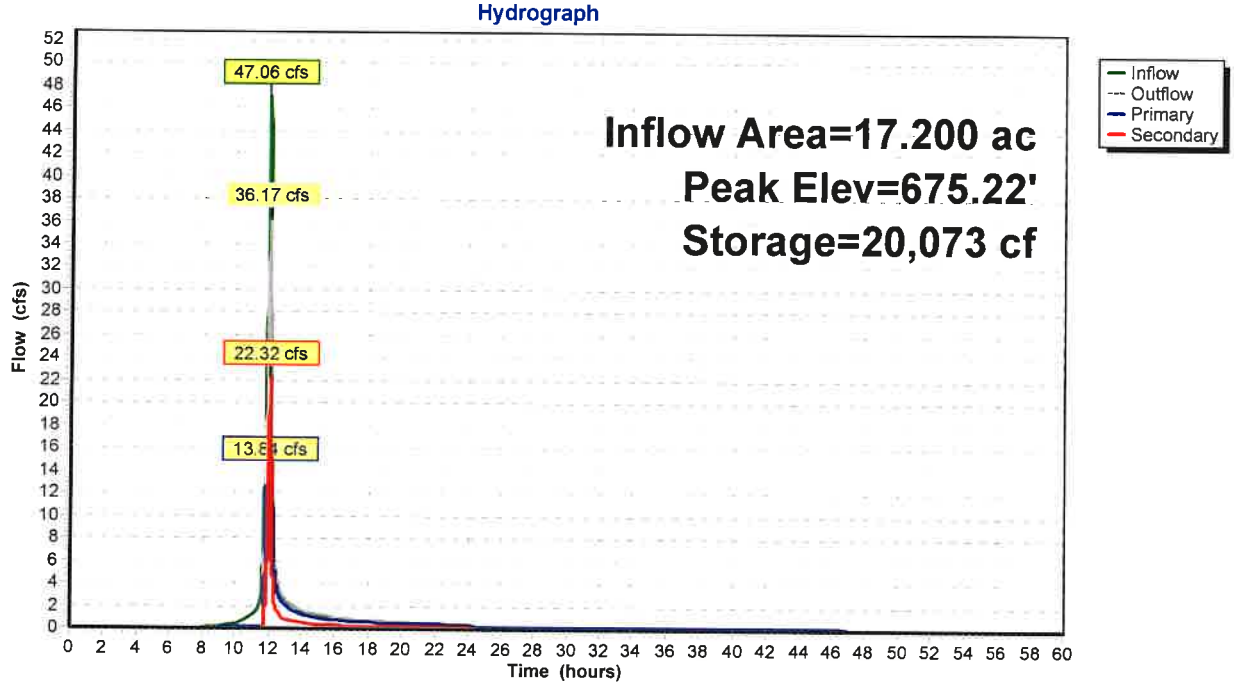
Device	Routing	Invert	Outlet Devices
#1	Primary	671.55'	**18.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.55' / 671.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=13.84 cfs @ 12.03 hrs HW=675.22' (Free Discharge)
└**1=Culvert** (Barrel Controls 13.84 cfs @ 7.83 fps)
  ├**2=Exfiltration** (Passes < 0.11 cfs potential flow)
  └**3=Grate** (Passes < 48.30 cfs potential flow)

Secondary OutFlow Max=22.29 cfs @ 12.03 hrs HW=675.22' (Free Discharge)
└**4=Spillway** (Weir Controls 22.29 cfs @ 2.53 fps)

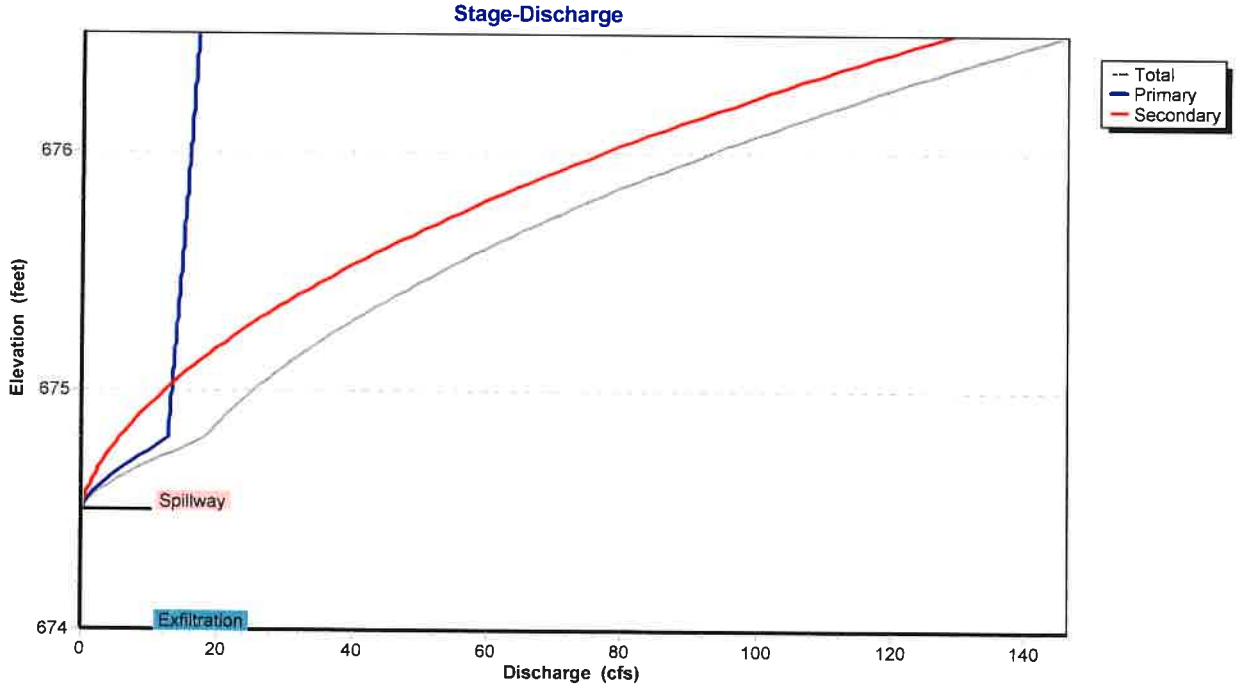
Pond 6P: Bioretention 2

Hydrograph

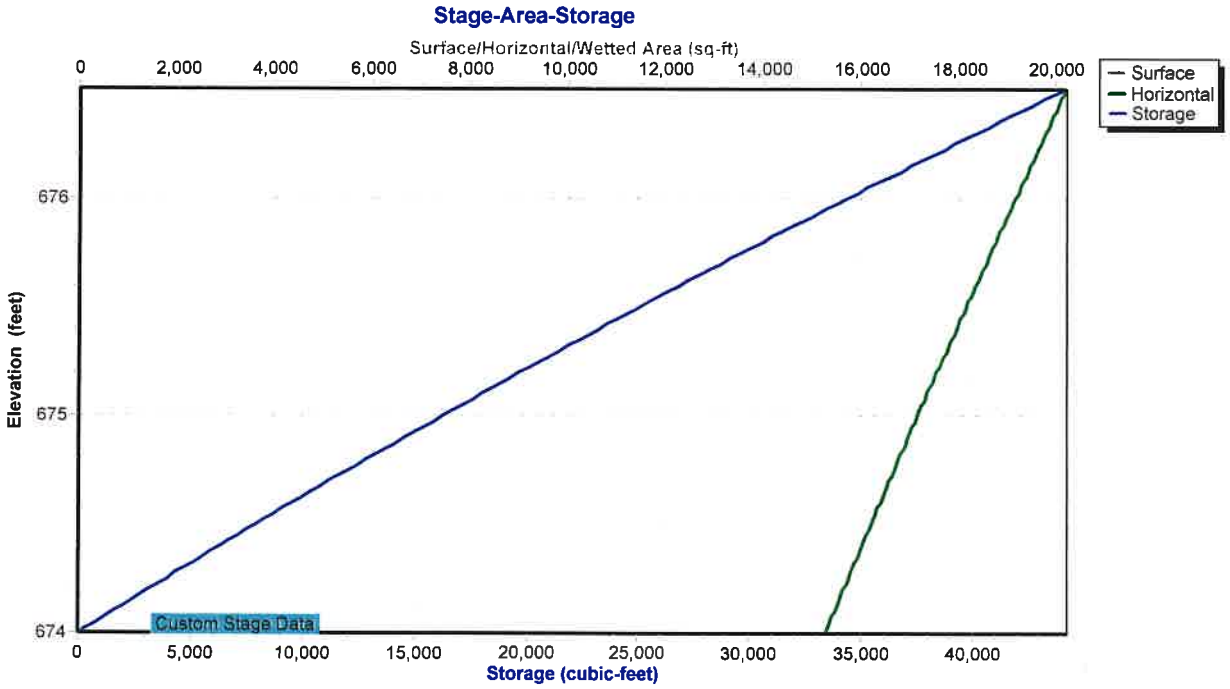


Pond 6P: Bioretention 2

Stage-Discharge



Pond 6P: Bioretention 2



Hydrograph for Pond 6P: Bioretention 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.00	0	674.00	0.00	0.00	0.00
8.00	0.07	75	674.00	0.02	0.02	0.00
10.00	**0.44**	1,181	674.08	0.09	0.09	0.00
12.00	**44.23**	**19,594**	**675.20**	**34.72**	**13.76**	**20.96**
14.00	1.51	**8,776**	**674.56**	**1.59**	**1.17**	**0.43**
16.00	0.94	8,491	674.54	0.97	0.72	0.25
18.00	0.73	8,373	674.53	0.74	0.56	0.18
20.00	0.53	8,273	674.53	0.55	0.42	0.13
22.00	0.49	8,229	674.52	0.49	0.38	0.11
24.00	0.45	8,194	674.52	0.46	0.35	0.10
26.00	0.00	7,337	674.47	0.10	0.10	0.00
28.00	0.00	6,646	674.42	0.10	0.10	0.00
30.00	0.00	5,960	674.38	0.09	0.09	0.00
32.00	0.00	5,280	674.34	0.09	0.09	0.00
34.00	0.00	4,605	674.30	0.09	0.09	0.00
36.00	0.00	3,936	674.25	0.09	0.09	0.00
38.00	0.00	3,271	674.21	0.09	0.09	0.00
40.00	0.00	2,612	674.17	0.09	0.09	0.00
42.00	0.00	1,959	674.13	0.09	0.09	0.00
44.00	0.00	1,310	674.09	0.09	0.09	0.00
46.00	0.00	667	674.04	0.09	0.09	0.00
48.00	0.00	151	674.01	0.04	0.04	0.00
50.00	0.00	28	674.00	0.01	0.01	0.00
52.00	0.00	5	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 6P: Bioretention 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.09	0.09	0.00
674.10	0.09	0.09	0.00
674.15	0.09	0.09	0.00
674.20	0.09	0.09	0.00
674.25	0.09	0.09	0.00
674.30	0.09	0.09	0.00
674.35	0.09	0.09	0.00
674.40	0.10	0.10	0.00
674.45	0.10	0.10	0.00
674.50	0.10	0.10	0.00
674.55	1.32	0.98	0.35
674.60	3.58	2.58	1.00
674.65	6.52	4.66	1.86
674.70	10.01	7.12	2.89
674.75	14.00	9.91	4.09
674.80	18.04	12.60	5.44
674.85	19.68	12.75	6.93
674.90	21.46	12.90	8.56
674.95	23.37	13.05	10.32
675.00	25.42	13.20	12.22
675.05	27.59	13.35	14.25
675.10	29.90	13.49	16.41
675.15	32.33	13.63	18.69
675.20	34.88	13.77	21.11
675.25	37.56	13.91	23.65
675.30	40.37	14.05	26.32
675.35	43.30	14.19	29.11
675.40	46.36	14.32	32.03
675.45	49.54	14.46	35.08
675.50	52.85	14.59	38.26
675.55	56.28	14.72	41.56
675.60	59.84	14.86	44.99
675.65	63.53	14.98	48.55
675.70	67.34	15.11	52.23
675.75	71.29	15.24	56.05
675.80	75.36	15.37	59.99
675.85	79.55	15.49	64.06
675.90	83.88	15.62	68.26
675.95	88.34	15.74	72.60
676.00	92.93	15.86	77.06
676.05	97.65	15.99	81.66
676.10	102.50	16.11	86.39
676.15	107.48	16.23	91.25
676.20	112.60	16.34	96.25
676.25	117.85	16.46	101.38
676.30	123.23	16.58	106.65
676.35	128.75	16.70	112.05
676.40	134.41	16.81	117.59
676.45	140.20	16.93	123.27
676.50	**146.13**	**17.04**	**129.09**

Stage-Area-Storage for Pond 6P: Bioretention 2

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	15,250	15,250	0
674.05	15,343	15,343	765
674.10	15,437	15,437	1,534
674.15	15,530	15,530	2,309
674.20	15,624	15,624	3,087
674.25	15,717	15,717	3,871
674.30	15,810	15,810	4,659
674.35	15,904	15,904	5,452
674.40	15,997	15,997	6,249
674.45	16,091	16,091	7,052
674.50	16,184	16,184	7,859
674.55	16,277	16,277	8,670
674.60	16,371	16,371	9,486
674.65	16,464	16,464	10,307
674.70	16,558	16,558	11,133
674.75	16,651	16,651	11,963
674.80	16,744	16,744	12,798
674.85	16,838	16,838	13,637
674.90	16,931	16,931	14,482
674.95	17,025	17,025	15,330
675.00	17,118	17,118	16,184
675.05	17,220	17,220	17,042
675.10	17,322	17,322	17,906
675.15	17,423	17,423	18,775
675.20	17,525	17,525	19,648
675.25	17,627	17,627	20,527
675.30	17,728	17,728	21,411
675.35	17,830	17,830	22,300
675.40	17,932	17,932	23,194
675.45	18,034	18,034	24,093
675.50	18,136	18,136	24,997
675.55	18,237	18,237	25,907
675.60	18,339	18,339	26,821
675.65	18,441	18,441	27,741
675.70	18,543	18,543	28,665
675.75	18,644	18,644	29,595
675.80	18,746	18,746	30,530
675.85	18,848	18,848	31,469
675.90	18,949	18,949	32,414
675.95	19,051	19,051	33,364
676.00	19,153	19,153	34,320
676.05	19,257	19,257	35,280
676.10	19,361	19,361	36,245
676.15	19,464	19,464	37,216
676.20	19,568	19,568	38,192
676.25	19,672	19,672	39,173
676.30	19,776	19,776	40,159
676.35	19,880	19,880	41,150
676.40	19,983	19,983	42,147
676.45	20,087	20,087	43,149
676.50	**20,191**	**20,191**	**44,156**

Summary for Pond 7P: Basin

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 1.69" for 5-Year event
Inflow = 55.02 cfs @ 12.04 hrs, Volume= 3.589 af
Outflow = 3.08 cfs @ 13.56 hrs, Volume= 3.589 af, Atten= 94%, Lag= 91.3 min
Primary = 3.08 cfs @ 13.56 hrs, Volume= 3.589 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.70' @ 13.56 hrs Surf.Area= 47,112 sf Storage= 71,125 cf

Plug-Flow detention time= 217.5 min calculated for 3.588 af (100% of inflow)
Center-of-Mass det. time= 217.4 min (1,196.8 - 979.3)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	311,588 cf	**dry basin (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	1,285	0	0
673.00	6,433	3,859	3,859
674.00	9,723	8,078	11,937
675.00	44,268	26,996	38,933
676.00	48,305	46,287	85,219
677.00	52,399	50,352	135,571
678.00	56,550	54,475	190,046
679.00	60,757	58,654	248,699
680.00	65,021	62,889	311,588

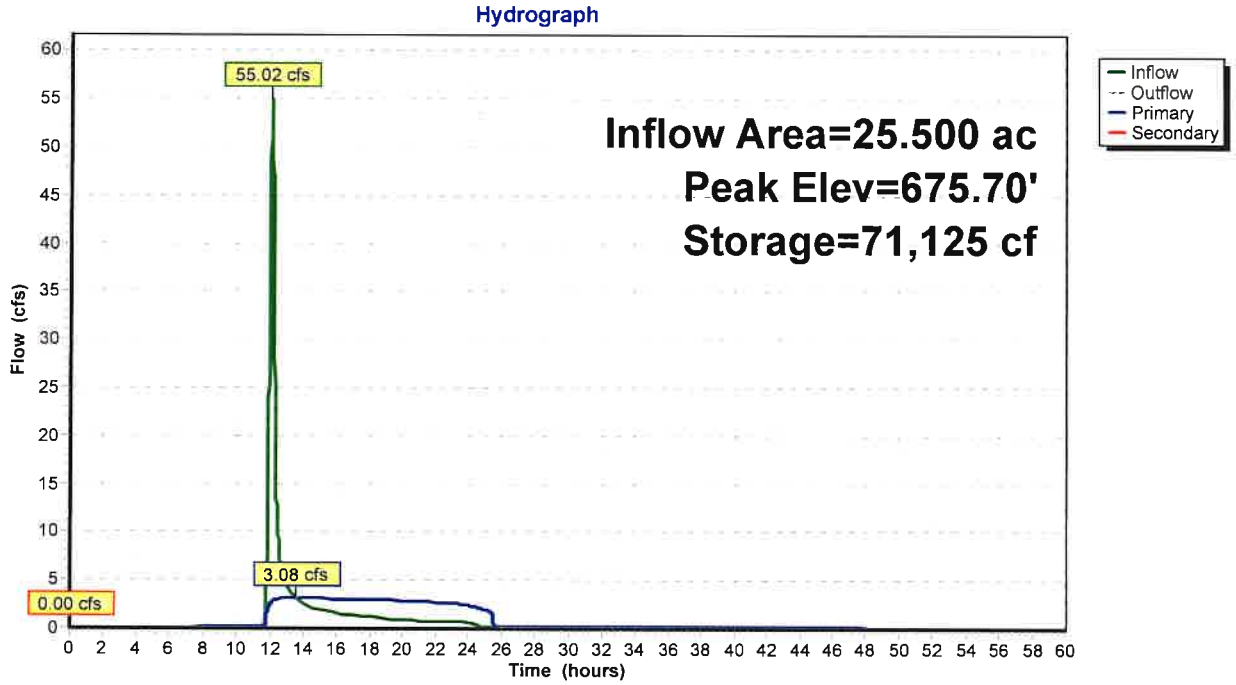
Device	Routing	Invert	Outlet Devices
#1	Primary	670.75'	**10.0" Round Culvert (structure to outlet)** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 670.75' / 670.15' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	670.80'	**8.0" Round Culvert (basin to structure)** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 670.80' / 670.75' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 1	678.00'	**24.0" W x 24.0" H Vert. Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	670.75'	**8.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	675.50'	**5.0' long Weir** 2 End Contraction(s)
#6	Secondary	679.00'	**143.0 deg x 20.0' long x 1.00' rise Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=3.08 cfs @ 13.56 hrs HW=675.70' (Free Discharge)
└─**1=Culvert (structure to outlet)** (Barrel Controls 3.08 cfs @ 5.66 fps)
  └─**2=Culvert (basin to structure)** (Passes < 3.17 cfs potential flow)
  ├─**3=Grate** (Controls 0.00 cfs)
  ├─**4=Orifice** (Passes < 10.84 cfs potential flow)
  └─**5=Weir** (Passes < 1.50 cfs potential flow)

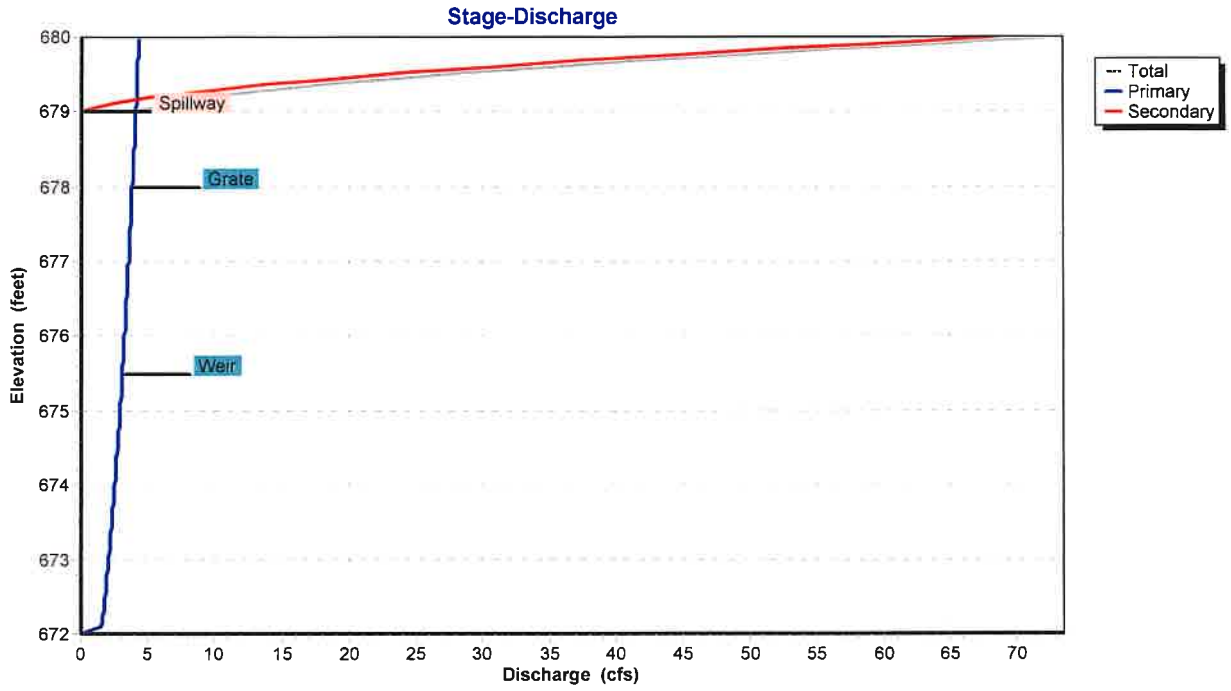
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=672.00' (Free Discharge)
└─**6=Spillway** (Controls 0.00 cfs)

Pond 7P: Basin

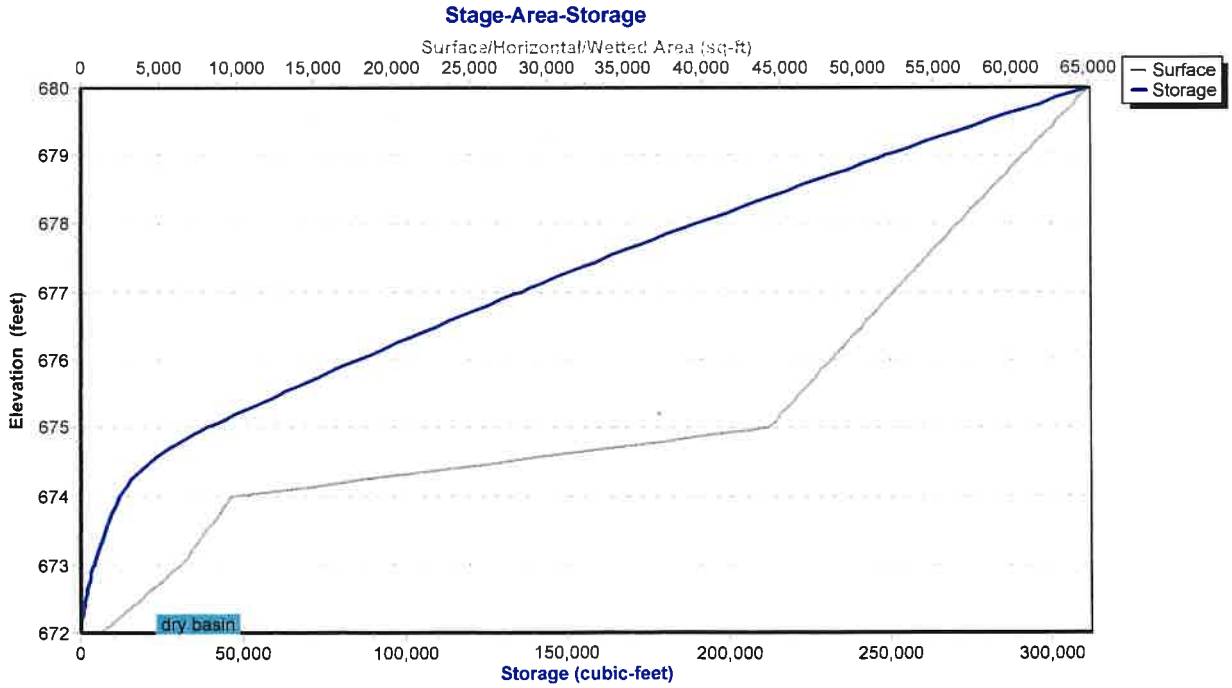
Hydrograph



Pond 7P: Basin



Pond 7P: Basin



Hydrograph for Pond 7P: Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	672.00	0.00	0.00	**0.00**
2.00	0.00	0	672.00	0.00	0.00	0.00
4.00	0.00	0	672.00	0.00	0.00	0.00
6.00	0.02	2	672.00	0.02	0.02	0.00
8.00	0.12	9	672.01	0.12	0.12	0.00
10.00	0.19	15	672.01	0.19	0.19	0.00
12.00	**52.50**	**22,379**	**674.54**	**2.68**	**2.68**	0.00
14.00	**2.49**	**70,626**	**675.69**	**3.08**	**3.08**	0.00
16.00	1.52	62,500	675.52	3.02	3.02	0.00
18.00	1.15	50,413	675.26	2.93	2.93	0.00
20.00	0.85	36,831	674.95	2.83	2.83	0.00
22.00	0.75	22,626	674.55	2.68	2.68	0.00
24.00	0.69	9,448	673.73	2.35	2.35	0.00
26.00	0.20	16	672.01	0.20	0.20	0.00
28.00	0.20	16	672.01	0.20	0.20	0.00
30.00	0.20	16	672.01	0.20	0.20	0.00
32.00	0.20	16	672.01	0.20	0.20	0.00
34.00	0.20	16	672.01	0.20	0.20	0.00
36.00	0.20	16	672.01	0.20	0.20	0.00
38.00	0.19	16	672.01	0.19	0.19	0.00
40.00	0.19	15	672.01	0.19	0.19	0.00
42.00	0.19	15	672.01	0.19	0.19	0.00
44.00	0.19	15	672.01	0.19	0.19	0.00
46.00	0.19	15	672.01	0.19	0.19	0.00
48.00	0.07	6	672.00	0.07	0.07	0.00
50.00	0.01	1	672.00	0.01	0.01	0.00
52.00	0.00	0	672.00	0.00	0.00	0.00
54.00	0.00	0	672.00	0.00	0.00	0.00
56.00	0.00	0	672.00	0.00	0.00	0.00
58.00	0.00	0	672.00	0.00	0.00	0.00
60.00	0.00	0	672.00	0.00	0.00	0.00

Stage-Discharge for Pond 7P: Basin

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
672.00	0.00	0.00	0.00
672.10	1.50	1.50	0.00
672.20	1.57	1.57	0.00
672.30	1.63	1.63	0.00
672.40	1.69	1.69	0.00
672.50	1.75	1.75	0.00
672.60	1.80	1.80	0.00
672.70	1.86	1.86	0.00
672.80	1.91	1.91	0.00
672.90	1.97	1.97	0.00
673.00	2.02	2.02	0.00
673.10	2.07	2.07	0.00
673.20	2.11	2.11	0.00
673.30	2.16	2.16	0.00
673.40	2.21	2.21	0.00
673.50	2.25	2.25	0.00
673.60	2.30	2.30	0.00
673.70	2.34	2.34	0.00
673.80	2.38	2.38	0.00
673.90	2.42	2.42	0.00
674.00	2.47	2.47	0.00
674.10	2.51	2.51	0.00
674.20	2.55	2.55	0.00
674.30	2.59	2.59	0.00
674.40	2.62	2.62	0.00
674.50	2.66	2.66	0.00
674.60	2.70	2.70	0.00
674.70	2.74	2.74	0.00
674.80	2.77	2.77	0.00
674.90	2.81	2.81	0.00
675.00	2.84	2.84	0.00
675.10	2.88	2.88	0.00
675.20	2.91	2.91	0.00
675.30	2.95	2.95	0.00
675.40	2.98	2.98	0.00
675.50	3.02	3.02	0.00
675.60	3.05	3.05	0.00
675.70	3.08	3.08	0.00
675.80	3.12	3.12	0.00
675.90	3.15	3.15	0.00
676.00	3.18	3.18	0.00
676.10	3.21	3.21	0.00
676.20	3.24	3.24	0.00
676.30	3.27	3.27	0.00
676.40	3.30	3.30	0.00
676.50	3.33	3.33	0.00
676.60	3.36	3.36	0.00
676.70	3.39	3.39	0.00
676.80	3.42	3.42	0.00
676.90	3.45	3.45	0.00
677.00	3.48	3.48	0.00
677.10	3.51	3.51	0.00
677.20	3.54	3.54	0.00
677.30	3.57	3.57	0.00
677.40	3.60	3.60	0.00
677.50	3.62	3.62	0.00
677.60	3.65	3.65	0.00
677.70	3.68	3.68	0.00
677.80	3.71	3.71	0.00
677.90	3.73	3.73	0.00
678.00	3.76	3.76	0.00
678.10	3.79	3.79	0.00
678.20	3.81	3.81	0.00
678.30	3.84	3.84	0.00
678.40	3.87	3.87	0.00
678.50	3.89	3.89	0.00
678.60	3.92	3.92	0.00
678.70	3.94	3.94	0.00
678.80	3.97	3.97	0.00
678.90	3.99	3.99	0.00
679.00	4.02	4.02	0.00
679.10	6.02	4.04	1.98
679.20	9.72	4.07	5.66
679.30	14.60	4.09	10.51
679.40	20.49	4.12	16.37
679.50	27.28	4.14	23.14
679.60	34.92	4.17	30.76
679.70	43.38	4.19	39.19
679.80	52.63	4.22	48.41
679.90	62.63	4.24	58.40
680.00	**73.39**	**4.26**	**69.13**

Stage-Area-Storage for Pond 7P: Basin

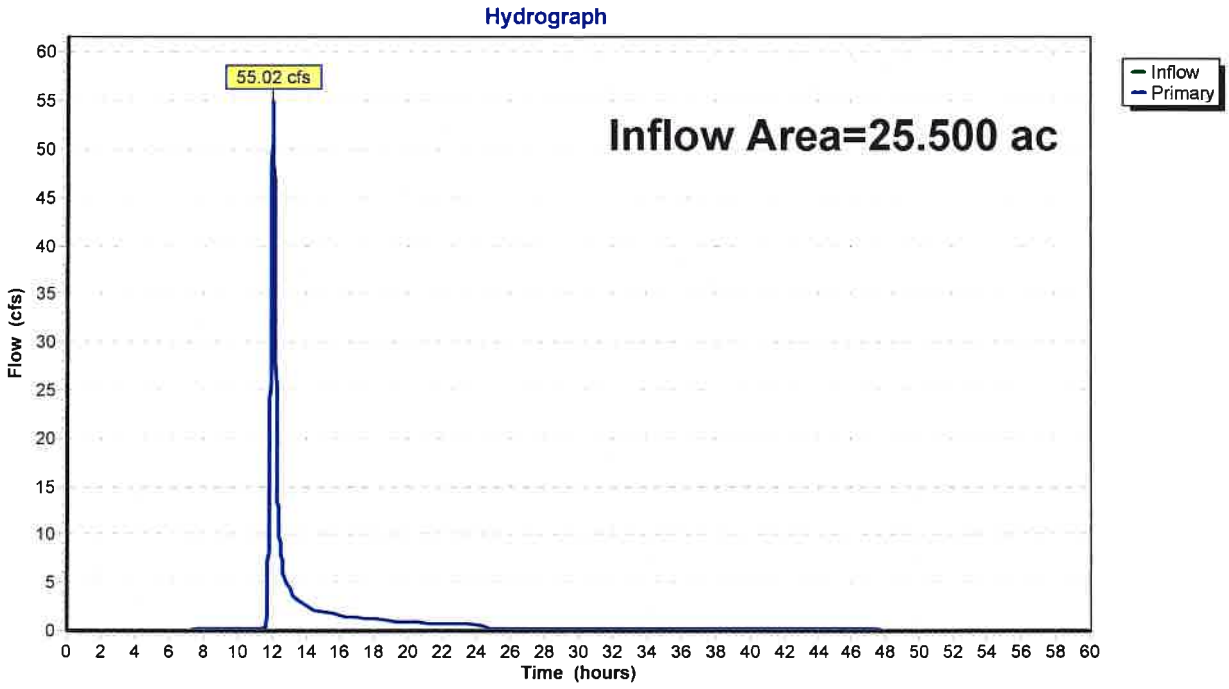
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.00	1,285	0
672.10	1,800	154
672.20	2,315	360
672.30	2,829	617
672.40	3,344	926
672.50	3,859	1,286
672.60	4,374	1,698
672.70	4,889	2,161
672.80	5,403	2,675
672.90	5,918	3,241
673.00	6,433	3,859
673.10	6,762	4,519
673.20	7,091	5,211
673.30	7,420	5,937
673.40	7,749	6,695
673.50	8,078	7,487
673.60	8,407	8,311
673.70	8,736	9,168
673.80	9,065	10,058
673.90	9,394	10,981
674.00	9,723	11,937
674.10	13,178	13,082
674.20	16,632	14,573
674.30	20,086	16,408
674.40	23,541	18,590
674.50	26,996	21,117
674.60	30,450	23,989
674.70	33,905	27,207
674.80	37,359	30,770
674.90	40,813	34,678
675.00	44,268	38,933
675.10	44,672	43,379
675.20	45,075	47,867
675.30	45,479	52,395
675.40	45,883	56,963
675.50	46,287	61,571
675.60	46,690	66,220
675.70	47,094	70,909
675.80	47,498	75,639
675.90	47,901	80,409
676.00	48,305	85,219
676.10	48,714	90,070
676.20	49,124	94,962
676.30	49,533	99,895
676.40	49,943	104,869
676.50	50,352	109,883
676.60	50,761	114,939
676.70	51,171	120,036
676.80	51,580	125,173
676.90	51,990	130,352
677.00	52,399	135,571
677.10	52,814	140,832
677.20	53,229	146,134
677.30	53,644	151,477
677.40	54,059	156,863
677.50	54,475	162,289
677.60	54,890	167,758
677.70	55,305	173,267
677.80	55,720	178,819
677.90	56,135	184,411
678.00	56,550	190,046
678.10	56,971	195,722
678.20	57,391	201,440
678.30	57,812	207,200
678.40	58,233	213,002
678.50	58,654	218,846
678.60	59,074	224,733
678.70	59,495	230,661
678.80	59,916	236,632
678.90	60,336	242,644
679.00	60,757	248,699
679.10	61,183	254,796
679.20	61,610	260,936
679.30	62,036	267,118
679.40	62,463	273,343
679.50	62,889	279,611
679.60	63,315	285,921
679.70	63,742	292,274
679.80	64,168	298,669
679.90	64,595	305,107
680.00	**65,021**	**311,588**

Summary for Link 9L: Link

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 1.69" for 5-Year event
Inflow = 55.02 cfs @ 12.04 hrs, Volume= 3.589 af
Primary = 55.02 cfs @ 12.04 hrs, Volume= 3.589 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 7P : Basin

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 9L: Link



Hydrograph for Link 9L: Link

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	53.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
6.00	0.02	0.00	0.02	59.00	0.00	0.00	0.00
7.00	0.06	0.00	0.06	60.00	0.00	0.00	0.00
8.00	0.12	0.00	0.12				
9.00	0.19	0.00	0.19				
10.00	0.19	0.00	0.19				
11.00	0.19	0.00	0.19				
12.00	**52.50**	0.00	**52.50**				
13.00	**4.27**	0.00	**4.27**				
14.00	2.49	0.00	2.49				
15.00	1.91	0.00	1.91				
16.00	1.52	0.00	1.52				
17.00	1.29	0.00	1.29				
18.00	1.15	0.00	1.15				
19.00	1.00	0.00	1.00				
20.00	0.85	0.00	0.85				
21.00	0.78	0.00	0.78				
22.00	0.75	0.00	0.75				
23.00	0.72	0.00	0.72				
24.00	0.69	0.00	0.69				
25.00	0.20	0.00	0.20				
26.00	0.20	0.00	0.20				
27.00	0.20	0.00	0.20				
28.00	0.20	0.00	0.20				
29.00	0.20	0.00	0.20				
30.00	0.20	0.00	0.20				
31.00	0.20	0.00	0.20				
32.00	0.20	0.00	0.20				
33.00	0.20	0.00	0.20				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.20	0.00	0.20				
37.00	0.19	0.00	0.19				
38.00	0.19	0.00	0.19				
39.00	0.19	0.00	0.19				
40.00	0.19	0.00	0.19				
41.00	0.19	0.00	0.19				
42.00	0.19	0.00	0.19				
43.00	0.19	0.00	0.19				
44.00	0.19	0.00	0.19				
45.00	0.19	0.00	0.19				
46.00	0.19	0.00	0.19				
47.00	0.16	0.00	0.16				
48.00	0.07	0.00	0.07				
49.00	0.03	0.00	0.03				
50.00	0.01	0.00	0.01				
51.00	0.01	0.00	0.01				
52.00	0.00	0.00	0.00				

Summary for Subcatchment 1S: Proposed North

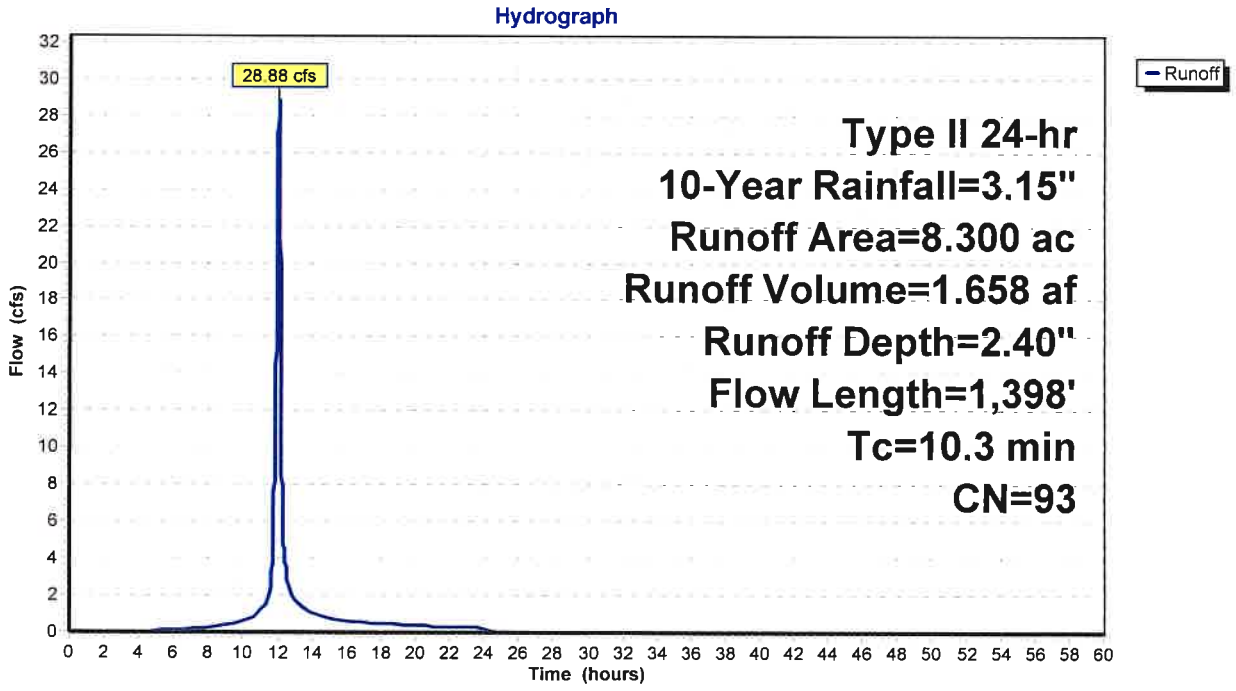
Runoff = 28.88 cfs @ 12.01 hrs, Volume= 1.658 af, Depth= 2.40"
Routed to Pond 3P : Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
5.000	98	Paved parking, HSG D
1.400	98	Paved parking, HSG C
1.100	80	>75% Grass cover, Good, HSG D
0.800	74	>75% Grass cover, Good, HSG C
8.300	93	Weighted Average
1.900		22.89% Pervious Area
6.400		77.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	72	0.3500	0.44		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.9	300	0.0160	2.57		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
5.7	1,026		3.00		**Direct Entry, Pipe flow**
10.3	1,398	Total			

Subcatchment 1S: Proposed North



Hydrograph for Subcatchment 1S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.04
6.00	0.25	0.01	0.10
7.00	0.31	0.03	0.16
8.00	0.38	0.05	0.23
9.00	0.46	0.09	0.39
10.00	0.57	0.15	0.57
11.00	0.74	0.26	1.16
12.00	2.09	1.40	**28.53**
13.00	2.43	1.72	**1.71**
14.00	2.58	1.86	1.00
15.00	2.69	1.96	0.78
16.00	2.77	2.04	0.60
17.00	2.84	2.10	0.52
18.00	2.90	2.16	0.46
19.00	2.95	2.21	0.40
20.00	3.00	2.25	0.34
21.00	3.04	2.29	0.32
22.00	3.08	2.33	0.31
23.00	3.11	2.36	0.29
24.00	**3.15**	**2.40**	0.28
25.00	3.15	2.40	0.00
26.00	3.15	2.40	0.00
27.00	3.15	2.40	0.00
28.00	3.15	2.40	0.00
29.00	3.15	2.40	0.00
30.00	3.15	2.40	0.00
31.00	3.15	2.40	0.00
32.00	3.15	2.40	0.00
33.00	3.15	2.40	0.00
34.00	3.15	2.40	0.00
35.00	3.15	2.40	0.00
36.00	3.15	2.40	0.00
37.00	3.15	2.40	0.00
38.00	3.15	2.40	0.00
39.00	3.15	2.40	0.00
40.00	3.15	2.40	0.00
41.00	3.15	2.40	0.00
42.00	3.15	2.40	0.00
43.00	3.15	2.40	0.00
44.00	3.15	2.40	0.00
45.00	3.15	2.40	0.00
46.00	3.15	2.40	0.00
47.00	3.15	2.40	0.00
48.00	3.15	2.40	0.00
49.00	3.15	2.40	0.00
50.00	3.15	2.40	0.00
51.00	3.15	2.40	0.00
52.00	3.15	2.40	0.00
53.00	3.15	2.40	0.00
54.00	3.15	2.40	0.00
55.00	3.15	2.40	0.00
56.00	3.15	2.40	0.00
57.00	3.15	2.40	0.00
58.00	3.15	2.40	0.00
59.00	3.15	2.40	0.00
60.00	3.15	2.40	0.00

Summary for Subcatchment 2S: Proposed South

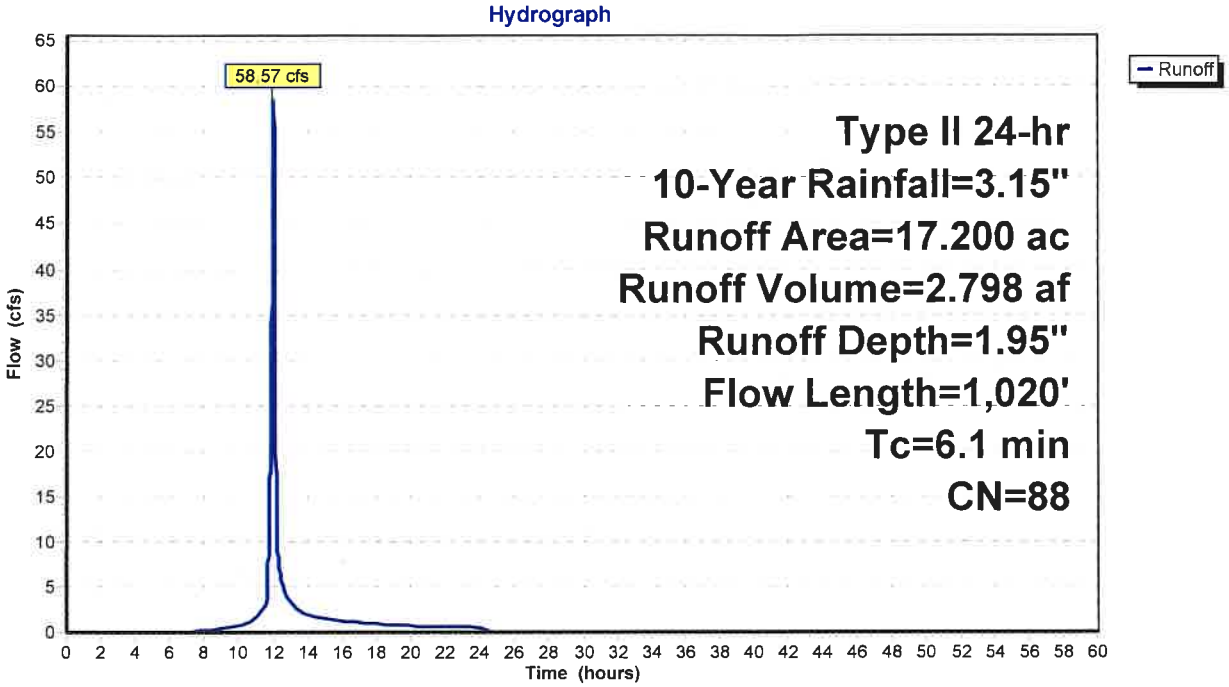
Runoff = 58.57 cfs @ 11.97 hrs, Volume= 2.798 af, Depth= 1.95"
Routed to Pond 6P : Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
5.400	98	Paved parking, HSG D
3.600	98	Paved parking, HSG C
4.800	80	>75% Grass cover, Good, HSG D
3.200	74	>75% Grass cover, Good, HSG C
0.120	96	Gravel surface, HSG D
0.080	96	Gravel surface, HSG C
17.200	88	Weighted Average
8.200		47.67% Pervious Area
9.000		52.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	30	0.0100	0.72		**Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 2.50"
0.8	160	0.0460	3.45		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
4.4	800		3.00		**Direct Entry, Pipe flow**
6.1	1,020	Total			

Subcatchment 2S: Proposed South



Hydrograph for Subcatchment 2S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.00
7.00	0.31	0.00	0.05
8.00	0.38	0.01	0.16
9.00	0.46	0.02	0.37
10.00	0.57	0.05	0.67
11.00	0.74	0.12	**1.61**
12.00	2.09	1.04	**54.84**
13.00	2.43	1.32	3.05
14.00	2.58	1.45	1.83
15.00	2.69	1.54	1.46
16.00	2.77	1.62	1.13
17.00	2.84	1.68	1.00
18.00	2.90	1.73	0.88
19.00	2.95	1.78	0.76
20.00	3.00	1.82	0.64
21.00	3.04	1.85	0.61
22.00	3.08	1.89	0.59
23.00	3.11	1.92	0.56
24.00	**3.15**	**1.95**	0.54
25.00	3.15	1.95	0.00
26.00	3.15	1.95	0.00
27.00	3.15	1.95	0.00
28.00	3.15	1.95	0.00
29.00	3.15	1.95	0.00
30.00	3.15	1.95	0.00
31.00	3.15	1.95	0.00
32.00	3.15	1.95	0.00
33.00	3.15	1.95	0.00
34.00	3.15	1.95	0.00
35.00	3.15	1.95	0.00
36.00	3.15	1.95	0.00
37.00	3.15	1.95	0.00
38.00	3.15	1.95	0.00
39.00	3.15	1.95	0.00
40.00	3.15	1.95	0.00
41.00	3.15	1.95	0.00
42.00	3.15	1.95	0.00
43.00	3.15	1.95	0.00
44.00	3.15	1.95	0.00
45.00	3.15	1.95	0.00
46.00	3.15	1.95	0.00
47.00	3.15	1.95	0.00
48.00	3.15	1.95	0.00
49.00	3.15	1.95	0.00
50.00	3.15	1.95	0.00
51.00	3.15	1.95	0.00
52.00	3.15	1.95	0.00
53.00	3.15	1.95	0.00
54.00	3.15	1.95	0.00
55.00	3.15	1.95	0.00
56.00	3.15	1.95	0.00
57.00	3.15	1.95	0.00
58.00	3.15	1.95	0.00
59.00	3.15	1.95	0.00
60.00	3.15	1.95	0.00

Summary for Pond 3P: Bioretention 1

Inflow Area = 8.300 ac, 77.11% Impervious, Inflow Depth = 2.40" for 10-Year event
Inflow = 28.88 cfs @ 12.01 hrs, Volume= 1.658 af
Outflow = 22.93 cfs @ 12.08 hrs, Volume= 1.658 af, Atten= 21%, Lag= 3.9 min
Primary = 13.60 cfs @ 12.08 hrs, Volume= 1.305 af
Routed to Link 9L : Link
Secondary = 9.32 cfs @ 12.08 hrs, Volume= 0.353 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 674.92' @ 12.08 hrs Surf.Area= 18,132 sf Storage= 16,268 cf

Plug-Flow detention time= 193.0 min calculated for 1.658 af (100% of inflow)
Center-of-Mass det. time= 193.2 min (987.2 - 794.0)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	46,418 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	17,150	0	0
675.00	18,215	17,683	17,683
676.00	19,279	18,747	36,430
676.50	20,675	9,989	46,418

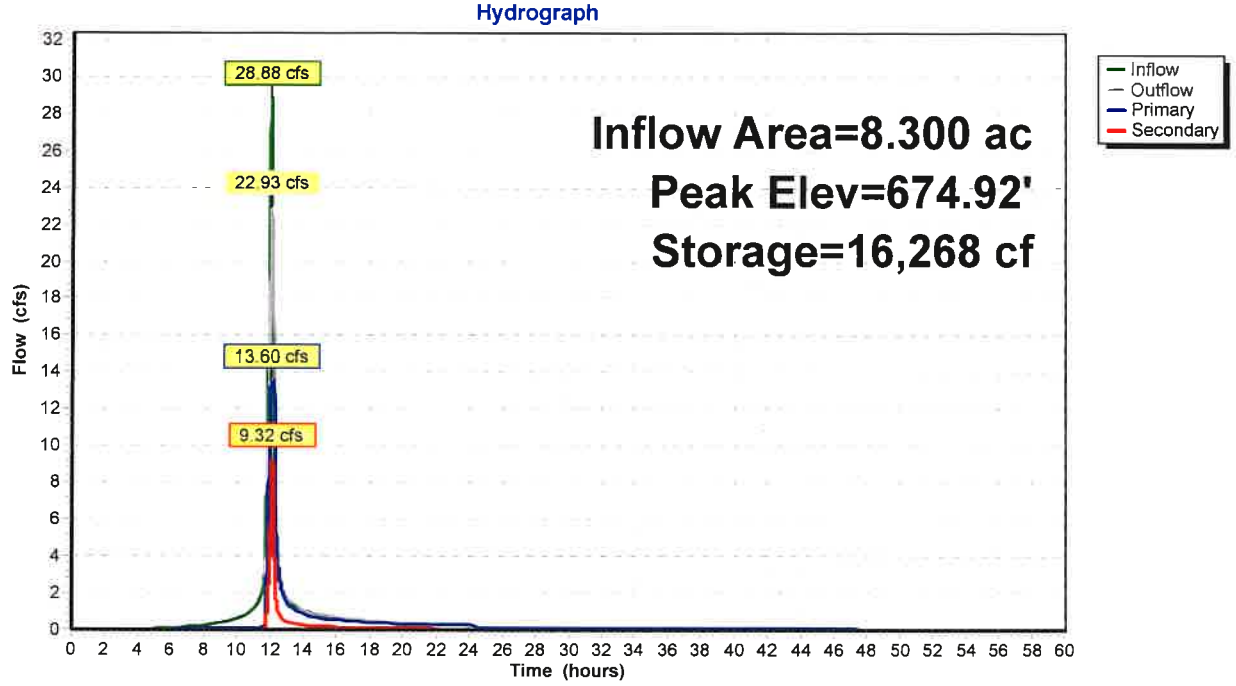
Device	Routing	Invert	Outlet Devices
#1	Primary	671.45'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.45' / 671.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=13.60 cfs @ 12.08 hrs HW=674.92' (Free Discharge)
└**1=Culvert** (Barrel Controls 13.60 cfs @ 7.70 fps)
└**2=Exfiltration** (Passes < 0.11 cfs potential flow)
└**3=Grate** (Passes < 28.70 cfs potential flow)

Secondary OutFlow Max=9.32 cfs @ 12.08 hrs HW=674.92' (Free Discharge)
└**4=Spillway** (Weir Controls 9.32 cfs @ 1.96 fps)

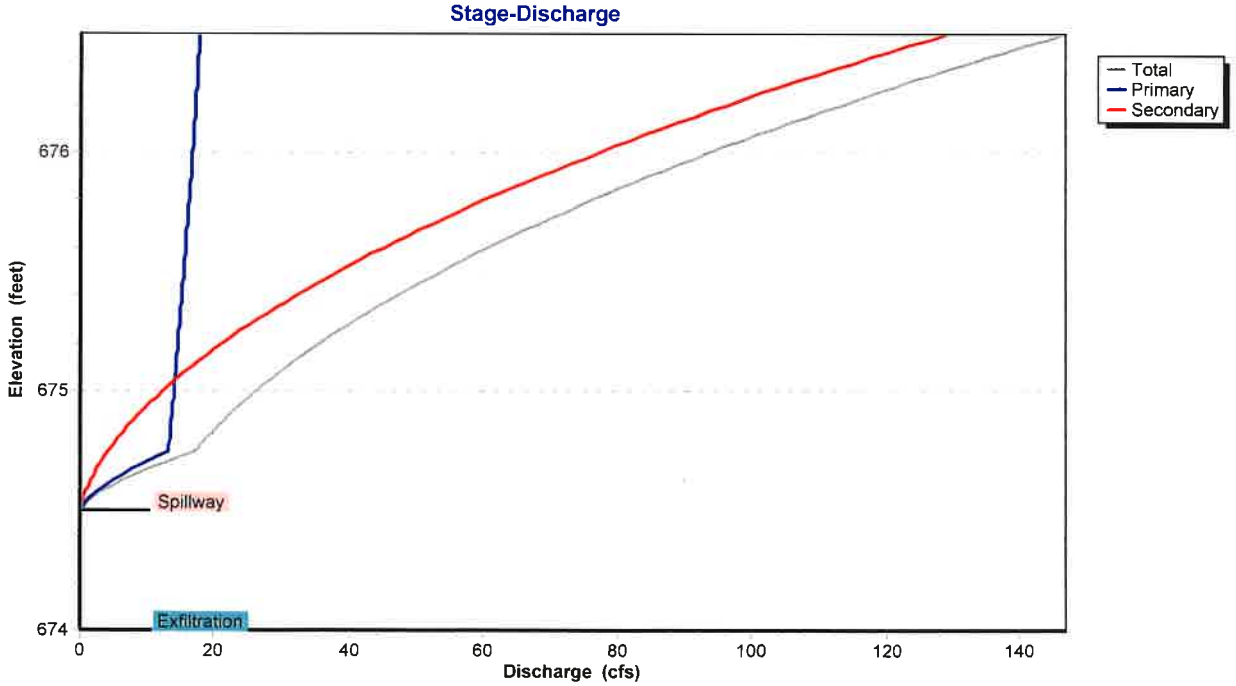
Pond 3P: Bioretention 1

Hydrograph

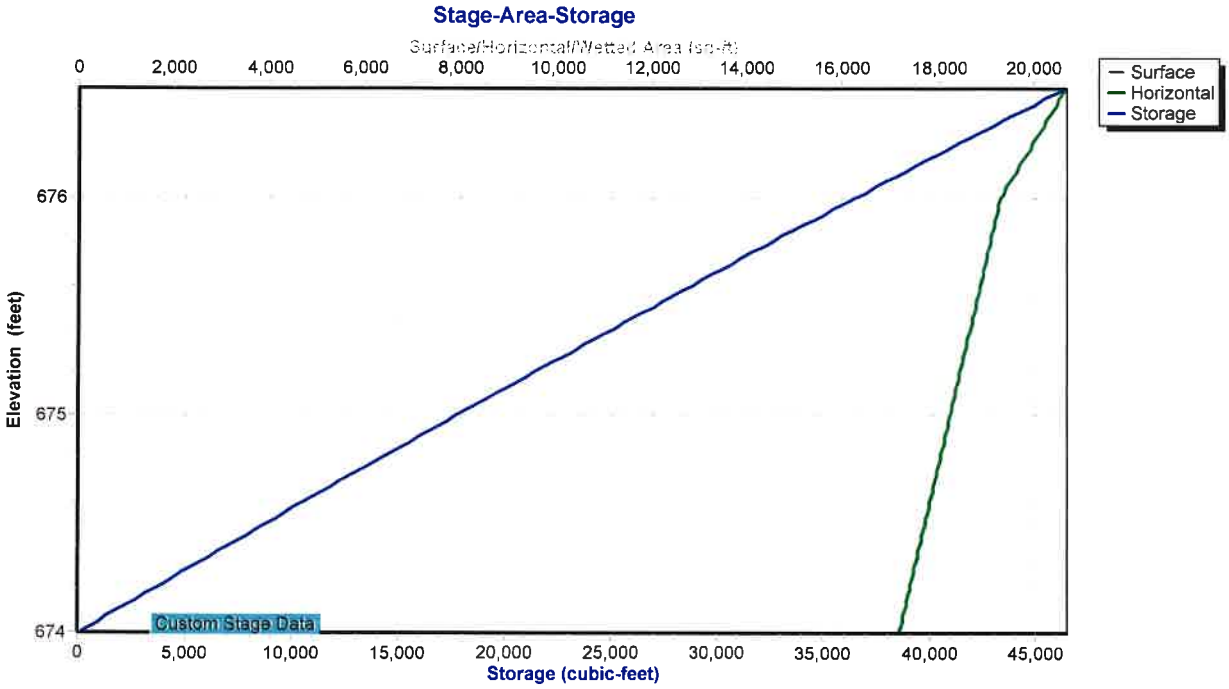


Pond 3P: Bioretention 1

Stage-Discharge



Pond 3P: Bioretention 1



Hydrograph for Pond 3P: Bioretention 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.10	196	674.01	0.05	0.05	0.00
8.00	0.23	742	674.04	0.10	0.10	0.00
10.00	0.57	2,750	674.16	0.10	0.10	0.00
12.00	**28.53**	**14,719**	**674.84**	**19.86**	**13.34**	**6.52**
14.00	**1.00**	**9,340**	**674.54**	**1.06**	**0.84**	**0.22**
16.00	0.60	9,142	674.52	0.63	0.51	0.12
18.00	0.46	9,014	674.52	0.48	0.39	0.08
20.00	0.34	8,911	674.51	0.35	0.30	0.06
22.00	0.31	8,875	674.51	0.31	0.26	0.05
24.00	0.28	8,854	674.51	0.28	0.24	0.04
26.00	0.00	8,098	674.47	0.11	0.11	0.00
28.00	0.00	7,341	674.42	0.10	0.10	0.00
30.00	0.00	6,588	674.38	0.10	0.10	0.00
32.00	0.00	5,839	674.34	0.10	0.10	0.00
34.00	0.00	5,094	674.29	0.10	0.10	0.00
36.00	0.00	4,353	674.25	0.10	0.10	0.00
38.00	0.00	3,617	674.21	0.10	0.10	0.00
40.00	0.00	2,884	674.17	0.10	0.10	0.00
42.00	0.00	2,156	674.13	0.10	0.10	0.00
44.00	0.00	1,431	674.08	0.10	0.10	0.00
46.00	0.00	710	674.04	0.10	0.10	0.00
48.00	0.00	155	674.01	0.04	0.04	0.00
50.00	0.00	29	674.00	0.01	0.01	0.00
52.00	0.00	5	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: Bioretention 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.10	0.10	0.00
674.10	0.10	0.10	0.00
674.15	0.10	0.10	0.00
674.20	0.10	0.10	0.00
674.25	0.10	0.10	0.00
674.30	0.10	0.10	0.00
674.35	0.10	0.10	0.00
674.40	0.10	0.10	0.00
674.45	0.11	0.11	0.00
674.50	0.11	0.11	0.00
674.55	1.63	1.28	0.35
674.60	4.42	3.42	1.00
674.65	8.04	6.19	1.86
674.70	12.36	9.47	2.89
674.75	17.16	13.07	4.09
674.80	18.66	13.23	5.44
674.85	20.31	13.38	6.93
674.90	22.09	13.54	8.56
674.95	24.01	13.69	10.32
675.00	26.06	13.84	12.22
675.05	28.24	13.99	14.25
675.10	30.55	14.14	16.41
675.15	32.98	14.29	18.69
675.20	35.54	14.43	21.11
675.25	38.22	14.57	23.65
675.30	41.03	14.72	26.32
675.35	43.97	14.86	29.11
675.40	47.03	15.00	32.03
675.45	50.22	15.13	35.08
675.50	53.53	15.27	38.26
675.55	56.97	15.41	41.56
675.60	60.53	15.54	44.99
675.65	64.22	15.68	48.55
675.70	68.04	15.81	52.23
675.75	71.98	15.94	56.05
675.80	76.06	16.07	59.99
675.85	80.26	16.20	64.06
675.90	84.59	16.33	68.26
675.95	89.05	16.45	72.60
676.00	93.64	16.58	77.06
676.05	98.36	16.70	81.66
676.10	103.19	16.80	86.39
676.15	108.17	16.91	91.25
676.20	113.27	17.02	96.25
676.25	118.51	17.12	101.38
676.30	123.88	17.23	106.65
676.35	129.39	17.33	112.05
676.40	135.03	17.44	117.59
676.45	140.81	17.54	123.27
676.50	**146.73**	**17.64**	**129.09**

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

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	17,150	17,150	0
674.05	17,203	17,203	859
674.10	17,257	17,257	1,720
674.15	17,310	17,310	2,584
674.20	17,363	17,363	3,451
674.25	17,416	17,416	4,321
674.30	17,469	17,469	5,193
674.35	17,523	17,523	6,068
674.40	17,576	17,576	6,945
674.45	17,629	17,629	7,825
674.50	17,683	17,683	8,708
674.55	17,736	17,736	9,594
674.60	17,789	17,789	10,482
674.65	17,842	17,842	11,372
674.70	17,896	17,896	12,266
674.75	17,949	17,949	13,162
674.80	18,002	18,002	14,061
674.85	18,055	18,055	14,962
674.90	18,108	18,108	15,866
674.95	18,162	18,162	16,773
675.00	18,215	18,215	17,683
675.05	18,268	18,268	18,595
675.10	18,321	18,321	19,509
675.15	18,375	18,375	20,427
675.20	18,428	18,428	21,347
675.25	18,481	18,481	22,270
675.30	18,534	18,534	23,195
675.35	18,587	18,587	24,123
675.40	18,641	18,641	25,054
675.45	18,694	18,694	25,987
675.50	18,747	18,747	26,923
675.55	18,800	18,800	27,862
675.60	18,853	18,853	28,803
675.65	18,907	18,907	29,747
675.70	18,960	18,960	30,694
675.75	19,013	19,013	31,643
675.80	19,066	19,066	32,595
675.85	19,119	19,119	33,550
675.90	19,173	19,173	34,507
675.95	19,226	19,226	35,467
676.00	19,279	19,279	36,430
676.05	19,419	19,419	37,397
676.10	19,558	19,558	38,371
676.15	19,698	19,698	39,353
676.20	19,837	19,837	40,341
676.25	19,977	19,977	41,337
676.30	20,117	20,117	42,339
676.35	20,256	20,256	43,348
676.40	20,396	20,396	44,364
676.45	20,535	20,535	45,388
676.50	**20,675**	**20,675**	**46,418**

Summary for Pond 6P: Bioretention 2

Inflow Area = 17.200 ac, 52.33% Impervious, Inflow Depth = 1.95" for 10-Year event
Inflow = 58.57 cfs @ 11.97 hrs, Volume= 2.798 af
Outflow = 46.22 cfs @ 12.02 hrs, Volume= 2.798 af, Atten= 21%, Lag= 3.1 min
Primary = 14.32 cfs @ 12.02 hrs, Volume= 1.790 af
Routed to Link 9L : Link
Secondary = 31.90 cfs @ 12.02 hrs, Volume= 1.008 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.40' @ 12.02 hrs Surf.Area= 17,927 sf Storage= 23,153 cf

Plug-Flow detention time= 106.9 min calculated for 2.798 af (100% of inflow)
Center-of-Mass det. time= 107.1 min (919.8 - 812.7)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	44,156 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	15,250	0	0
675.00	17,118	16,184	16,184
676.00	19,153	18,136	34,320
676.50	20,191	9,836	44,156

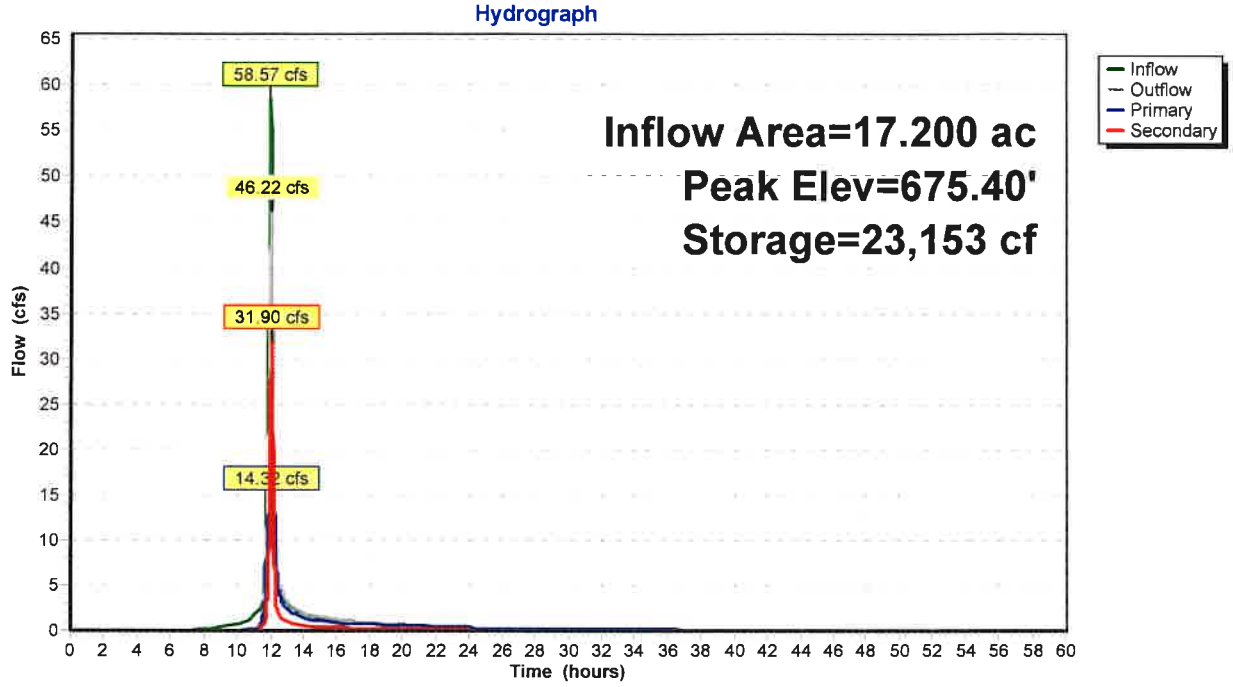
Device	Routing	Invert	Outlet Devices
#1	Primary	671.55'	**18.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.55' / 671.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=14.32 cfs @ 12.02 hrs HW=675.40' (Free Discharge)
└**1=Culvert** (Barrel Controls 14.32 cfs @ 8.10 fps)
└**2=Exfiltration** (Passes < 0.11 cfs potential flow)
└**3=Grate** (Passes < 54.71 cfs potential flow)

Secondary OutFlow Max=31.84 cfs @ 12.02 hrs HW=675.40' (Free Discharge)
└**4=Spillway** (Weir Controls 31.84 cfs @ 2.80 fps)

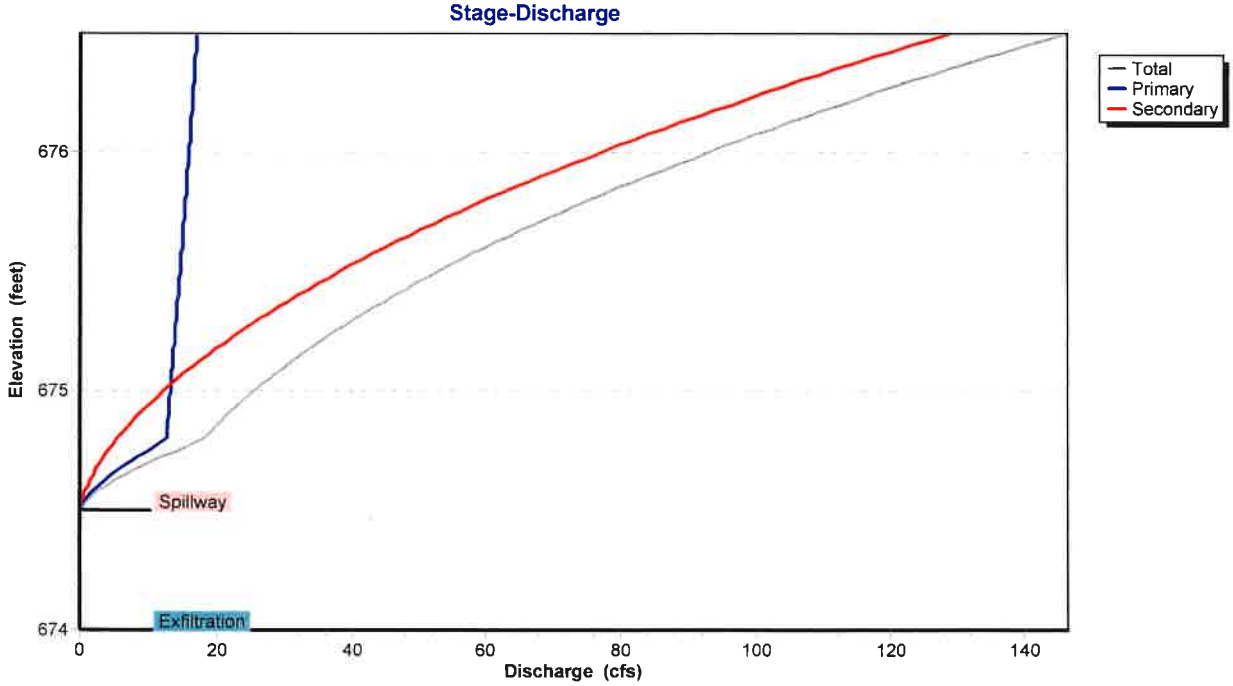
Pond 6P: Bioretention 2

Hydrograph

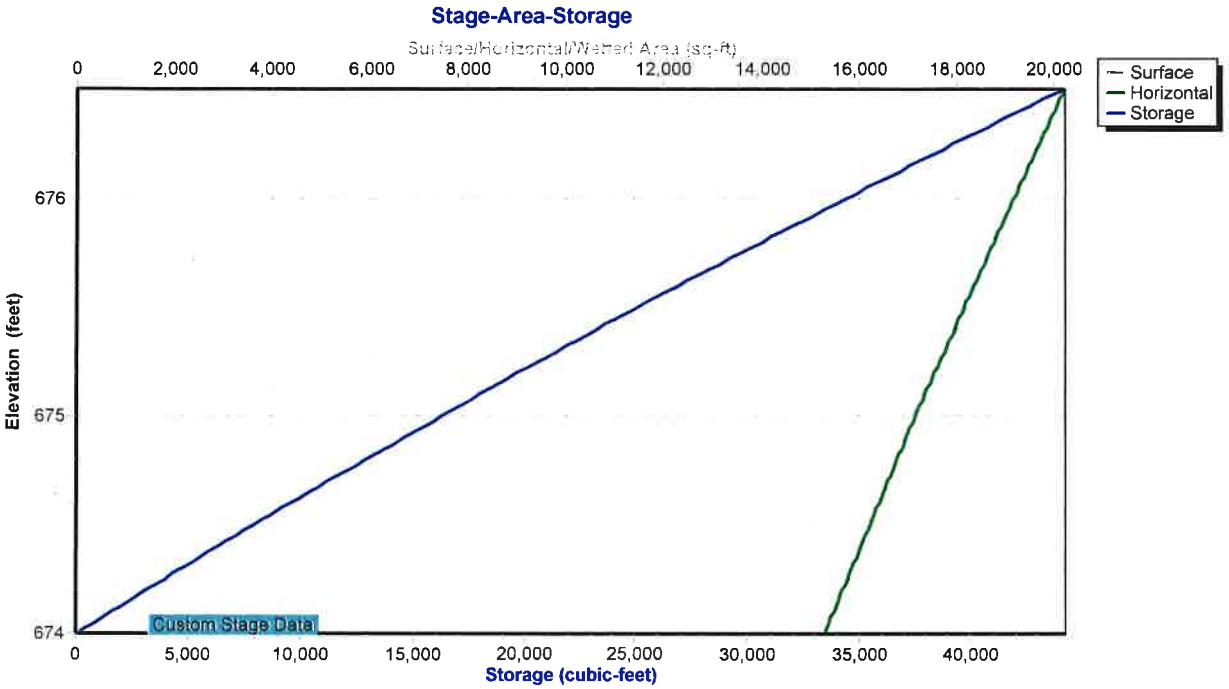


Pond 6P: Bioretention 2

Stage-Discharge



Pond 6P: Bioretention 2



Hydrograph for Pond 6P: Bioretention 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.00	0	674.00	0.00	0.00	0.00
8.00	0.16	285	674.02	0.07	0.07	0.00
10.00	**0.67**	2,329	674.15	0.09	0.09	0.00
12.00	**54.84**	**22,708**	**675.37**	**44.68**	**14.25**	**30.43**
14.00	1.83	**8,910**	**674.56**	**1.93**	**1.41**	**0.52**
16.00	1.13	8,595	674.55	1.18	0.87	0.31
18.00	0.88	8,451	674.54	0.90	0.67	0.23
20.00	0.64	8,330	674.53	0.66	0.50	0.16
22.00	0.59	8,295	674.53	0.59	0.45	0.14
24.00	0.54	8,271	674.53	0.54	0.42	0.13
26.00	0.00	7,352	674.47	0.10	0.10	0.00
28.00	0.00	6,661	674.43	0.10	0.10	0.00
30.00	0.00	5,975	674.38	0.09	0.09	0.00
32.00	0.00	5,295	674.34	0.09	0.09	0.00
34.00	0.00	4,620	674.30	0.09	0.09	0.00
36.00	0.00	3,950	674.26	0.09	0.09	0.00
38.00	0.00	3,286	674.21	0.09	0.09	0.00
40.00	0.00	2,627	674.17	0.09	0.09	0.00
42.00	0.00	1,973	674.13	0.09	0.09	0.00
44.00	0.00	1,324	674.09	0.09	0.09	0.00
46.00	0.00	681	674.04	0.09	0.09	0.00
48.00	0.00	157	674.01	0.04	0.04	0.00
50.00	0.00	29	674.00	0.01	0.01	0.00
52.00	0.00	6	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 6P: Bioretention 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.09	0.09	0.00
674.10	0.09	0.09	0.00
674.15	0.09	0.09	0.00
674.20	0.09	0.09	0.00
674.25	0.09	0.09	0.00
674.30	0.09	0.09	0.00
674.35	0.09	0.09	0.00
674.40	0.10	0.10	0.00
674.45	0.10	0.10	0.00
674.50	0.10	0.10	0.00
674.55	1.32	0.98	0.35
674.60	3.58	2.58	1.00
674.65	6.52	4.66	1.86
674.70	10.01	7.12	2.89
674.75	14.00	9.91	4.09
674.80	18.04	12.60	5.44
674.85	19.68	12.75	6.93
674.90	21.46	12.90	8.56
674.95	23.37	13.05	10.32
675.00	25.42	13.20	12.22
675.05	27.59	13.35	14.25
675.10	29.90	13.49	16.41
675.15	32.33	13.63	18.69
675.20	34.88	13.77	21.11
675.25	37.56	13.91	23.65
675.30	40.37	14.05	26.32
675.35	43.30	14.19	29.11
675.40	46.36	14.32	32.03
675.45	49.54	14.46	35.08
675.50	52.85	14.59	38.26
675.55	56.28	14.72	41.56
675.60	59.84	14.86	44.99
675.65	63.53	14.98	48.55
675.70	67.34	15.11	52.23
675.75	71.29	15.24	56.05
675.80	75.36	15.37	59.99
675.85	79.55	15.49	64.06
675.90	83.88	15.62	68.26
675.95	88.34	15.74	72.60
676.00	92.93	15.86	77.06
676.05	97.65	15.99	81.66
676.10	102.50	16.11	86.39
676.15	107.48	16.23	91.25
676.20	112.60	16.34	96.25
676.25	117.85	16.46	101.38
676.30	123.23	16.58	106.65
676.35	128.75	16.70	112.05
676.40	134.41	16.81	117.59
676.45	140.20	16.93	123.27
676.50	**146.13**	**17.04**	**129.09**

Stage-Area-Storage for Pond 6P: Bioretention 2

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	15,250	15,250	0
674.05	15,343	15,343	765
674.10	15,437	15,437	1,534
674.15	15,530	15,530	2,309
674.20	15,624	15,624	3,087
674.25	15,717	15,717	3,871
674.30	15,810	15,810	4,659
674.35	15,904	15,904	5,452
674.40	15,997	15,997	6,249
674.45	16,091	16,091	7,052
674.50	16,184	16,184	7,859
674.55	16,277	16,277	8,670
674.60	16,371	16,371	9,486
674.65	16,464	16,464	10,307
674.70	16,558	16,558	11,133
674.75	16,651	16,651	11,963
674.80	16,744	16,744	12,798
674.85	16,838	16,838	13,637
674.90	16,931	16,931	14,482
674.95	17,025	17,025	15,330
675.00	17,118	17,118	16,184
675.05	17,220	17,220	17,042
675.10	17,322	17,322	17,906
675.15	17,423	17,423	18,775
675.20	17,525	17,525	19,648
675.25	17,627	17,627	20,527
675.30	17,728	17,728	21,411
675.35	17,830	17,830	22,300
675.40	17,932	17,932	23,194
675.45	18,034	18,034	24,093
675.50	18,136	18,136	24,997
675.55	18,237	18,237	25,907
675.60	18,339	18,339	26,821
675.65	18,441	18,441	27,741
675.70	18,543	18,543	28,665
675.75	18,644	18,644	29,595
675.80	18,746	18,746	30,530
675.85	18,848	18,848	31,469
675.90	18,949	18,949	32,414
675.95	19,051	19,051	33,364
676.00	19,153	19,153	34,320
676.05	19,257	19,257	35,280
676.10	19,361	19,361	36,245
676.15	19,464	19,464	37,216
676.20	19,568	19,568	38,192
676.25	19,672	19,672	39,173
676.30	19,776	19,776	40,159
676.35	19,880	19,880	41,150
676.40	19,983	19,983	42,147
676.45	20,087	20,087	43,149
676.50	**20,191**	**20,191**	**44,156**

Summary for Pond 7P: Basin

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 2.10" for 10-Year event
Inflow = 67.69 cfs @ 12.03 hrs, Volume= 4.456 af
Outflow = 3.25 cfs @ 13.82 hrs, Volume= 4.456 af, Atten= 95%, Lag= 107.3 min
Primary = 3.25 cfs @ 13.82 hrs, Volume= 4.456 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 676.24' @ 13.82 hrs Surf.Area= 49,276 sf Storage= 96,797 cf

Plug-Flow detention time= 295.8 min calculated for 4.456 af (100% of inflow)
Center-of-Mass det. time= 295.7 min (1,240.6 - 944.9)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	311,588 cf	**dry basin (Prismatic)**Listed below (Recalc)

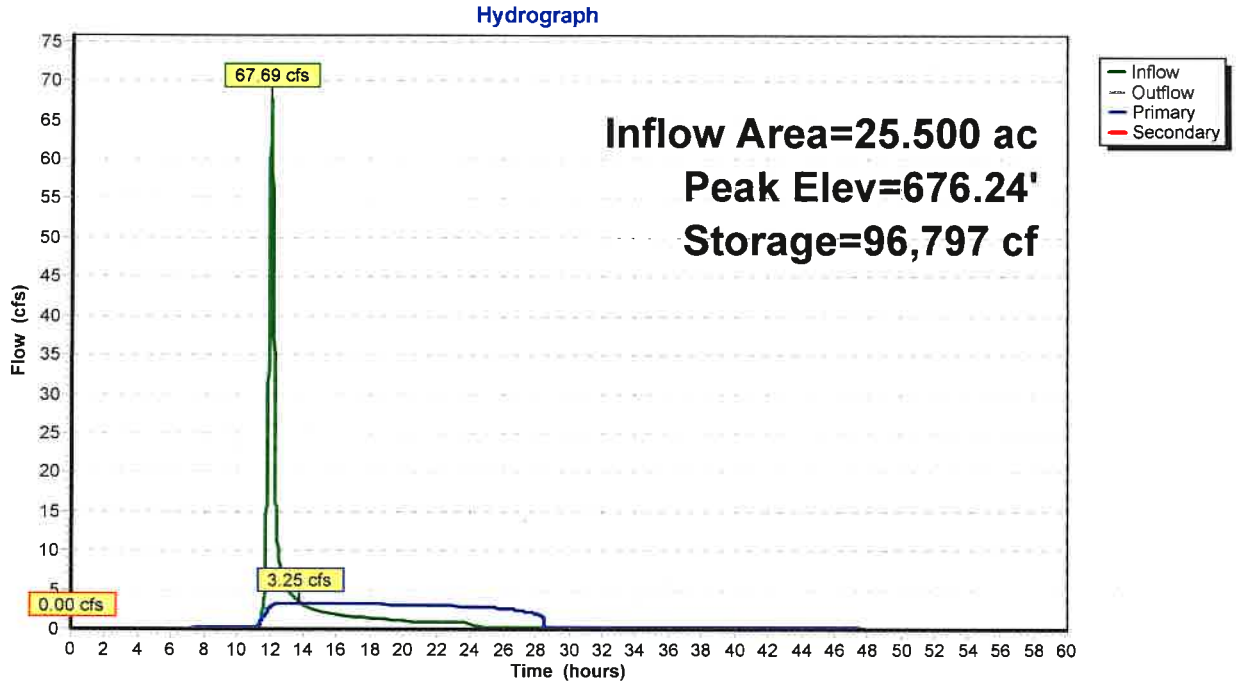
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	1,285	0	0
673.00	6,433	3,859	3,859
674.00	9,723	8,078	11,937
675.00	44,268	26,996	38,933
676.00	48,305	46,287	85,219
677.00	52,399	50,352	135,571
678.00	56,550	54,475	190,046
679.00	60,757	58,654	248,699
680.00	65,021	62,889	311,588

Device	Routing	Invert	Outlet Devices
#1	Primary	670.75'	**10.0" Round Culvert (structure to outlet)** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 670.75' / 670.15' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	670.80'	**8.0" Round Culvert (basin to structure)** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 670.80' / 670.75' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 1	678.00'	**24.0" W x 24.0" H Vert. Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	670.75'	**8.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	675.50'	**5.0' long Weir** 2 End Contraction(s)
#6	Secondary	679.00'	**143.0 deg x 20.0' long x 1.00' rise Spillway** Cv= 2.47 (C= 3.09)

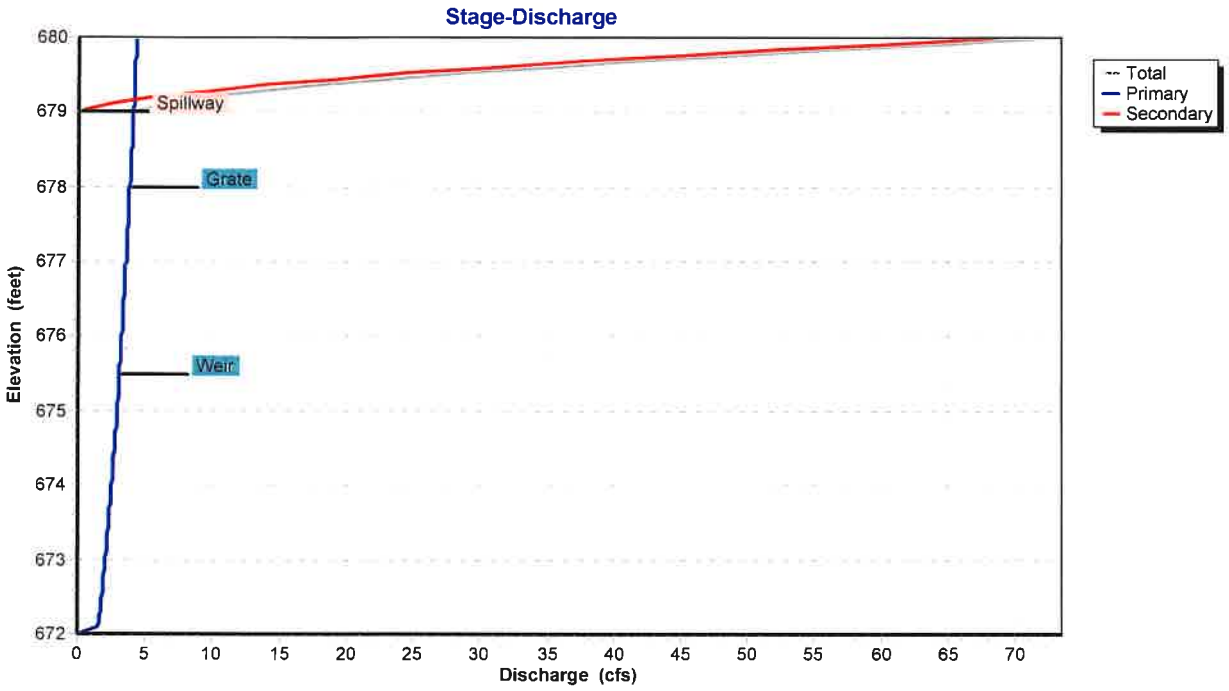
Primary OutFlow Max=3.25 cfs @ 13.82 hrs HW=676.24' (Free Discharge)
└─**1=Culvert (structure to outlet)** (Barrel Controls 3.25 cfs @ 5.97 fps)
  └─**2=Culvert (basin to structure)** (Passes < 3.35 cfs potential flow)
  └─**3=Grate** (Controls 0.00 cfs)
  └─**4=Orifice** (Passes < 11.45 cfs potential flow)
  └─**5=Weir** (Passes < 10.05 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=672.00' (Free Discharge)
└─**6=Spillway** (Controls 0.00 cfs)

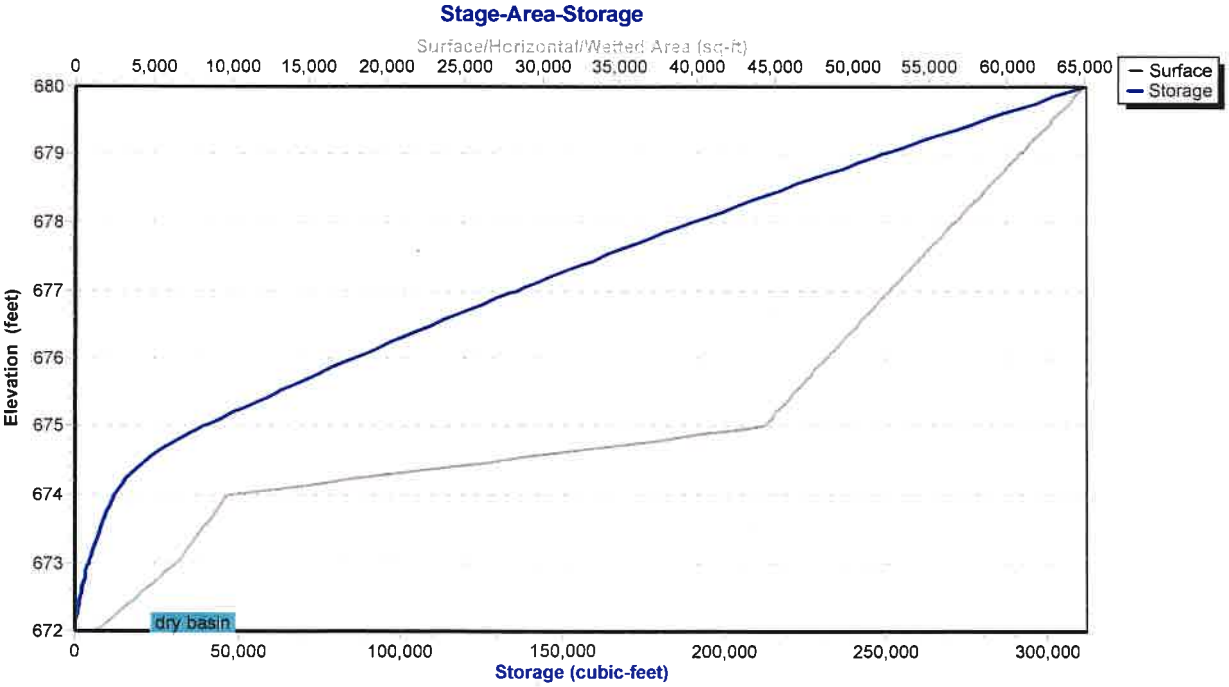
Pond 7P: Basin



Pond 7P: Basin



Pond 7P: Basin



Hydrograph for Pond 7P: Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	672.00	0.00	0.00	**0.00**
2.00	0.00	0	672.00	0.00	0.00	0.00
4.00	0.00	0	672.00	0.00	0.00	0.00
6.00	0.05	4	672.00	0.04	0.04	0.00
8.00	0.17	13	672.01	0.16	0.16	0.00
10.00	0.19	15	672.01	0.19	0.19	0.00
12.00	**64.54**	**33,805**	**674.88**	**2.80**	**2.80**	0.00
14.00	**2.99**	**96,713**	**676.24**	**3.25**	**3.25**	0.00
16.00	1.81	90,022	676.10	3.21	3.21	0.00
18.00	1.37	78,397	675.86	3.13	3.13	0.00
20.00	1.01	64,749	675.57	3.04	3.04	0.00
22.00	0.90	50,008	675.25	2.93	2.93	0.00
24.00	0.83	35,525	674.92	2.82	2.82	0.00
26.00	0.20	17,910	674.37	2.61	2.61	0.00
28.00	0.20	2,587	672.78	1.90	1.90	0.00
30.00	0.20	16	672.01	0.20	0.20	0.00
32.00	0.20	16	672.01	0.20	0.20	0.00
34.00	0.20	16	672.01	0.20	0.20	0.00
36.00	0.20	16	672.01	0.20	0.20	0.00
38.00	0.19	16	672.01	0.19	0.19	0.00
40.00	0.19	15	672.01	0.19	0.19	0.00
42.00	0.19	15	672.01	0.19	0.19	0.00
44.00	0.19	15	672.01	0.19	0.19	0.00
46.00	0.19	15	672.01	0.19	0.19	0.00
48.00	0.07	6	672.00	0.07	0.07	0.00
50.00	0.01	1	672.00	0.01	0.01	0.00
52.00	0.00	0	672.00	0.00	0.00	0.00
54.00	0.00	0	672.00	0.00	0.00	0.00
56.00	0.00	0	672.00	0.00	0.00	0.00
58.00	0.00	0	672.00	0.00	0.00	0.00
60.00	0.00	0	672.00	0.00	0.00	0.00

Stage-Discharge for Pond 7P: Basin

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
672.00	0.00	0.00	0.00
672.10	1.50	1.50	0.00
672.20	1.57	1.57	0.00
672.30	1.63	1.63	0.00
672.40	1.69	1.69	0.00
672.50	1.75	1.75	0.00
672.60	1.80	1.80	0.00
672.70	1.86	1.86	0.00
672.80	1.91	1.91	0.00
672.90	1.97	1.97	0.00
673.00	2.02	2.02	0.00
673.10	2.07	2.07	0.00
673.20	2.11	2.11	0.00
673.30	2.16	2.16	0.00
673.40	2.21	2.21	0.00
673.50	2.25	2.25	0.00
673.60	2.30	2.30	0.00
673.70	2.34	2.34	0.00
673.80	2.38	2.38	0.00
673.90	2.42	2.42	0.00
674.00	2.47	2.47	0.00
674.10	2.51	2.51	0.00
674.20	2.55	2.55	0.00
674.30	2.59	2.59	0.00
674.40	2.62	2.62	0.00
674.50	2.66	2.66	0.00
674.60	2.70	2.70	0.00
674.70	2.74	2.74	0.00
674.80	2.77	2.77	0.00
674.90	2.81	2.81	0.00
675.00	2.84	2.84	0.00
675.10	2.88	2.88	0.00
675.20	2.91	2.91	0.00
675.30	2.95	2.95	0.00
675.40	2.98	2.98	0.00
675.50	3.02	3.02	0.00
675.60	3.05	3.05	0.00
675.70	3.08	3.08	0.00
675.80	3.12	3.12	0.00
675.90	3.15	3.15	0.00
676.00	3.18	3.18	0.00
676.10	3.21	3.21	0.00
676.20	3.24	3.24	0.00
676.30	3.27	3.27	0.00
676.40	3.30	3.30	0.00
676.50	3.33	3.33	0.00
676.60	3.36	3.36	0.00
676.70	3.39	3.39	0.00
676.80	3.42	3.42	0.00
676.90	3.45	3.45	0.00
677.00	3.48	3.48	0.00
677.10	3.51	3.51	0.00
677.20	3.54	3.54	0.00
677.30	3.57	3.57	0.00
677.40	3.60	3.60	0.00
677.50	3.62	3.62	0.00
677.60	3.65	3.65	0.00
677.70	3.68	3.68	0.00
677.80	3.71	3.71	0.00
677.90	3.73	3.73	0.00
678.00	3.76	3.76	0.00
678.10	3.79	3.79	0.00
678.20	3.81	3.81	0.00
678.30	3.84	3.84	0.00
678.40	3.87	3.87	0.00
678.50	3.89	3.89	0.00
678.60	3.92	3.92	0.00
678.70	3.94	3.94	0.00
678.80	3.97	3.97	0.00
678.90	3.99	3.99	0.00
679.00	4.02	4.02	0.00
679.10	6.02	4.04	1.98
679.20	9.72	4.07	5.66
679.30	14.60	4.09	10.51
679.40	20.49	4.12	16.37
679.50	27.28	4.14	23.14
679.60	34.92	4.17	30.76
679.70	43.38	4.19	39.19
679.80	52.63	4.22	48.41
679.90	62.63	4.24	58.40
680.00	**73.39**	**4.26**	**69.13**

Stage-Area-Storage for Pond 7P: Basin

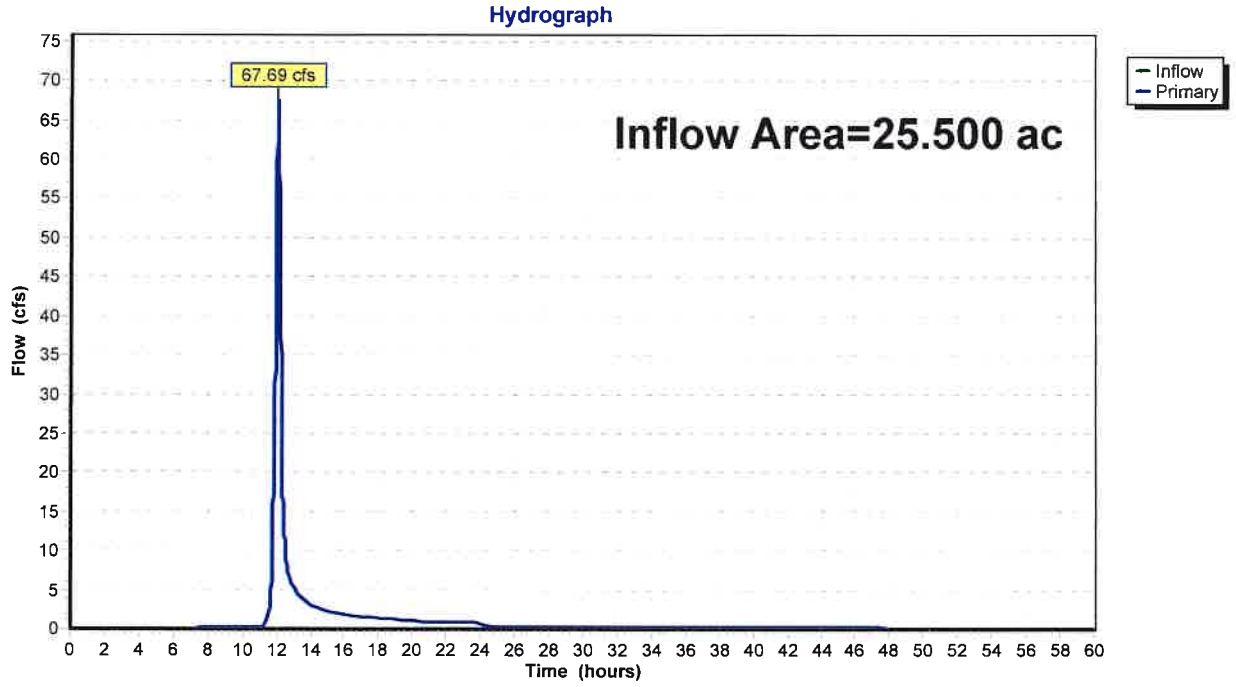
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.00	1,285	0
672.10	1,800	154
672.20	2,315	360
672.30	2,829	617
672.40	3,344	926
672.50	3,859	1,286
672.60	4,374	1,698
672.70	4,889	2,161
672.80	5,403	2,675
672.90	5,918	3,241
673.00	6,433	3,859
673.10	6,762	4,519
673.20	7,091	5,211
673.30	7,420	5,937
673.40	7,749	6,695
673.50	8,078	7,487
673.60	8,407	8,311
673.70	8,736	9,168
673.80	9,065	10,058
673.90	9,394	10,981
674.00	9,723	11,937
674.10	13,178	13,082
674.20	16,632	14,573
674.30	20,086	16,408
674.40	23,541	18,590
674.50	26,996	21,117
674.60	30,450	23,989
674.70	33,905	27,207
674.80	37,359	30,770
674.90	40,813	34,678
675.00	44,268	38,933
675.10	44,672	43,379
675.20	45,075	47,867
675.30	45,479	52,395
675.40	45,883	56,963
675.50	46,287	61,571
675.60	46,690	66,220
675.70	47,094	70,909
675.80	47,498	75,639
675.90	47,901	80,409
676.00	48,305	85,219
676.10	48,714	90,070
676.20	49,124	94,962
676.30	49,533	99,895
676.40	49,943	104,869
676.50	50,352	109,883
676.60	50,761	114,939
676.70	51,171	120,036
676.80	51,580	125,173
676.90	51,990	130,352
677.00	52,399	135,571
677.10	52,814	140,832
677.20	53,229	146,134
677.30	53,644	151,477
677.40	54,059	156,863
677.50	54,475	162,289
677.60	54,890	167,758
677.70	55,305	173,267
677.80	55,720	178,819
677.90	56,135	184,411
678.00	56,550	190,046
678.10	56,971	195,722
678.20	57,391	201,440
678.30	57,812	207,200
678.40	58,233	213,002
678.50	58,654	218,846
678.60	59,074	224,733
678.70	59,495	230,661
678.80	59,916	236,632
678.90	60,336	242,644
679.00	60,757	248,699
679.10	61,183	254,796
679.20	61,610	260,936
679.30	62,036	267,118
679.40	62,463	273,343
679.50	62,889	279,611
679.60	63,315	285,921
679.70	63,742	292,274
679.80	64,168	298,669
679.90	64,595	305,107
680.00	**65,021**	**311,588**

Summary for Link 9L: Link

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 2.10" for 10-Year event
Inflow = 67.69 cfs @ 12.03 hrs, Volume= 4.456 af
Primary = 67.69 cfs @ 12.03 hrs, Volume= 4.456 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 7P : Basin

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 9L: Link



Hydrograph for Link 9L: Link

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	53.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
6.00	0.05	0.00	0.05	59.00	0.00	0.00	0.00
7.00	0.10	0.00	0.10	60.00	0.00	0.00	0.00
8.00	0.17	0.00	0.17				
9.00	0.19	0.00	0.19				
10.00	0.19	0.00	0.19				
11.00	0.20	0.00	0.20				
12.00	**64.54**	0.00	**64.54**				
13.00	**5.12**	0.00	**5.12**				
14.00	2.99	0.00	2.99				
15.00	2.29	0.00	2.29				
16.00	1.81	0.00	1.81				
17.00	1.55	0.00	1.55				
18.00	1.37	0.00	1.37				
19.00	1.19	0.00	1.19				
20.00	1.01	0.00	1.01				
21.00	0.93	0.00	0.93				
22.00	0.90	0.00	0.90				
23.00	0.86	0.00	0.86				
24.00	0.83	0.00	0.83				
25.00	0.20	0.00	0.20				
26.00	0.20	0.00	0.20				
27.00	0.20	0.00	0.20				
28.00	0.20	0.00	0.20				
29.00	0.20	0.00	0.20				
30.00	0.20	0.00	0.20				
31.00	0.20	0.00	0.20				
32.00	0.20	0.00	0.20				
33.00	0.20	0.00	0.20				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.20	0.00	0.20				
37.00	0.19	0.00	0.19				
38.00	0.19	0.00	0.19				
39.00	0.19	0.00	0.19				
40.00	0.19	0.00	0.19				
41.00	0.19	0.00	0.19				
42.00	0.19	0.00	0.19				
43.00	0.19	0.00	0.19				
44.00	0.19	0.00	0.19				
45.00	0.19	0.00	0.19				
46.00	0.19	0.00	0.19				
47.00	0.17	0.00	0.17				
48.00	0.07	0.00	0.07				
49.00	0.03	0.00	0.03				
50.00	0.01	0.00	0.01				
51.00	0.01	0.00	0.01				
52.00	0.00	0.00	0.00				

Summary for Subcatchment 1S: Proposed North

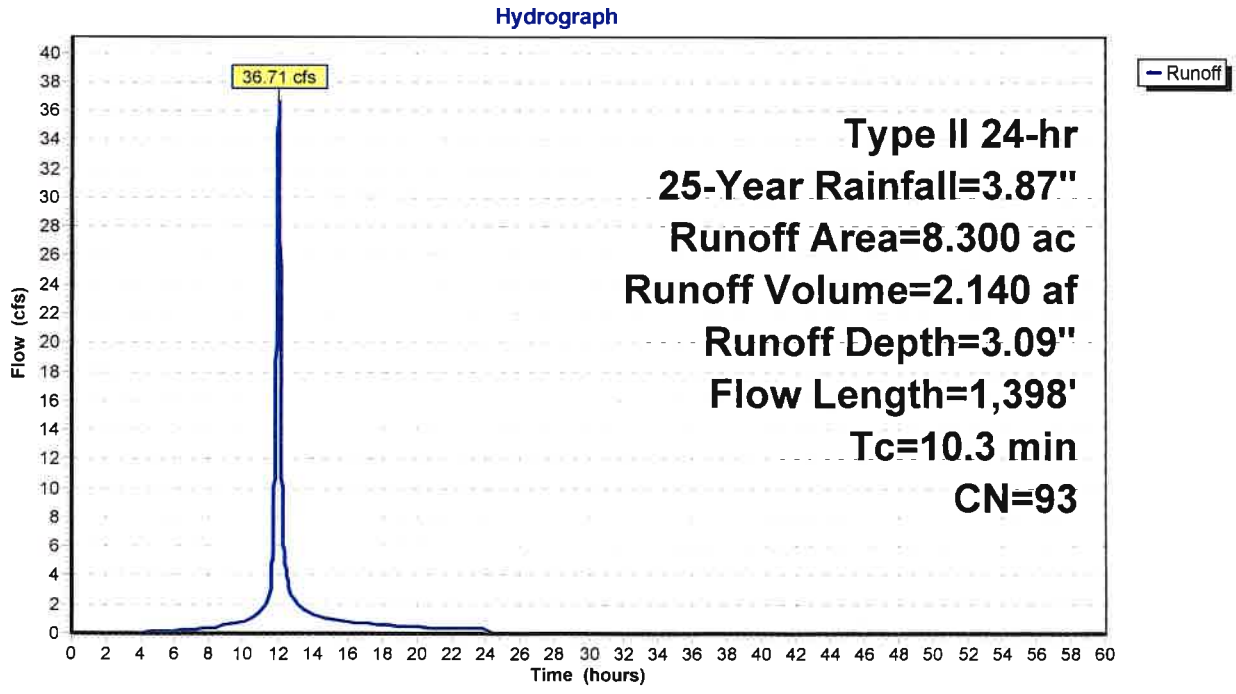
Runoff = 36.71 cfs @ 12.01 hrs, Volume= 2.140 af, Depth= 3.09"
Routed to Pond 3P : Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
5.000	98	Paved parking, HSG D
1.400	98	Paved parking, HSG C
1.100	80	>75% Grass cover, Good, HSG D
0.800	74	>75% Grass cover, Good, HSG C
8.300	93	Weighted Average
1.900		22.89% Pervious Area
6.400		77.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	72	0.3500	0.44		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.9	300	0.0160	2.57		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
5.7	1,026		3.00		**Direct Entry, Pipe flow**
10.3	1,398	Total			

Subcatchment 1S: Proposed North



Hydrograph for Subcatchment 1S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.03
5.00	0.24	0.01	0.10
6.00	0.31	0.03	0.17
7.00	0.38	0.05	0.26
8.00	0.46	0.09	0.34
9.00	0.57	0.15	0.56
10.00	0.70	0.23	0.79
11.00	0.91	0.38	1.57
12.00	2.57	1.84	**36.30**
13.00	2.99	2.24	**2.14**
14.00	3.17	2.42	1.25
15.00	3.30	2.54	0.97
16.00	3.41	2.64	0.75
17.00	3.49	2.72	0.65
18.00	3.56	2.80	0.58
19.00	3.63	2.86	0.50
20.00	3.68	2.91	0.42
21.00	3.73	2.96	0.40
22.00	3.78	3.01	0.38
23.00	3.83	3.05	0.36
24.00	**3.87**	**3.09**	0.35
25.00	3.87	3.09	0.00
26.00	3.87	3.09	0.00
27.00	3.87	3.09	0.00
28.00	3.87	3.09	0.00
29.00	3.87	3.09	0.00
30.00	3.87	3.09	0.00
31.00	3.87	3.09	0.00
32.00	3.87	3.09	0.00
33.00	3.87	3.09	0.00
34.00	3.87	3.09	0.00
35.00	3.87	3.09	0.00
36.00	3.87	3.09	0.00
37.00	3.87	3.09	0.00
38.00	3.87	3.09	0.00
39.00	3.87	3.09	0.00
40.00	3.87	3.09	0.00
41.00	3.87	3.09	0.00
42.00	3.87	3.09	0.00
43.00	3.87	3.09	0.00
44.00	3.87	3.09	0.00
45.00	3.87	3.09	0.00
46.00	3.87	3.09	0.00
47.00	3.87	3.09	0.00
48.00	3.87	3.09	0.00
49.00	3.87	3.09	0.00
50.00	3.87	3.09	0.00
51.00	3.87	3.09	0.00
52.00	3.87	3.09	0.00
53.00	3.87	3.09	0.00
54.00	3.87	3.09	0.00
55.00	3.87	3.09	0.00
56.00	3.87	3.09	0.00
57.00	3.87	3.09	0.00
58.00	3.87	3.09	0.00
59.00	3.87	3.09	0.00
60.00	3.87	3.09	0.00

Summary for Subcatchment 2S: Proposed South

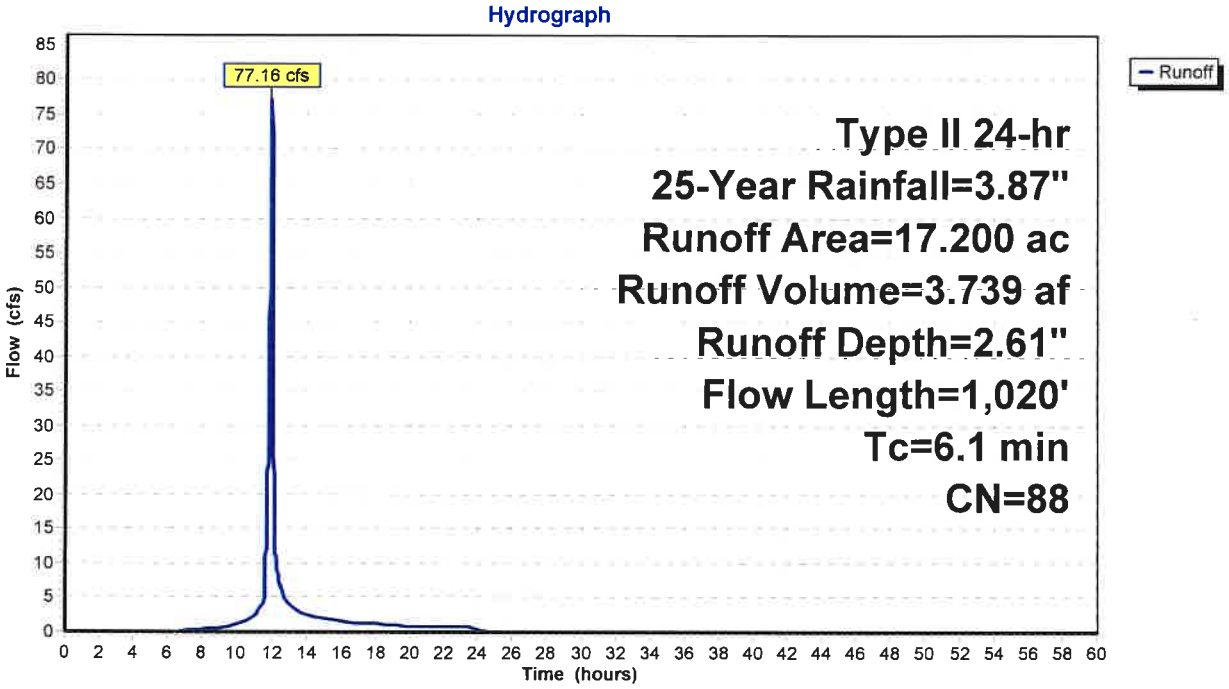
Runoff = 77.16 cfs @ 11.97 hrs, Volume= 3.739 af, Depth= 2.61"
Routed to Pond 6P : Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
5.400	98	Paved parking, HSG D
3.600	98	Paved parking, HSG C
4.800	80	>75% Grass cover, Good, HSG D
3.200	74	>75% Grass cover, Good, HSG C
0.120	96	Gravel surface, HSG D
0.080	96	Gravel surface, HSG C
17.200	88	Weighted Average
8.200		47.67% Pervious Area
9.000		52.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	30	0.0100	0.72		**Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 2.50"
0.8	160	0.0460	3.45		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
4.4	800		3.00		**Direct Entry, Pipe flow**
6.1	1,020	Total			

Subcatchment 2S: Proposed South



Hydrograph for Subcatchment 2S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.05
7.00	0.38	0.01	0.18
8.00	0.46	0.02	0.33
9.00	0.57	0.05	0.66
10.00	0.70	0.10	1.06
11.00	0.91	0.20	**2.40**
12.00	2.57	1.44	**71.93**
13.00	2.99	1.81	3.92
14.00	3.17	1.97	2.34
15.00	3.30	2.09	1.86
16.00	3.41	2.18	1.44
17.00	3.49	2.26	1.27
18.00	3.56	2.33	1.12
19.00	3.63	2.39	0.97
20.00	3.68	2.44	0.82
21.00	3.73	2.48	0.77
22.00	3.78	2.53	0.74
23.00	3.83	2.57	0.72
24.00	**3.87**	**2.61**	0.69
25.00	3.87	2.61	0.00
26.00	3.87	2.61	0.00
27.00	3.87	2.61	0.00
28.00	3.87	2.61	0.00
29.00	3.87	2.61	0.00
30.00	3.87	2.61	0.00
31.00	3.87	2.61	0.00
32.00	3.87	2.61	0.00
33.00	3.87	2.61	0.00
34.00	3.87	2.61	0.00
35.00	3.87	2.61	0.00
36.00	3.87	2.61	0.00
37.00	3.87	2.61	0.00
38.00	3.87	2.61	0.00
39.00	3.87	2.61	0.00
40.00	3.87	2.61	0.00
41.00	3.87	2.61	0.00
42.00	3.87	2.61	0.00
43.00	3.87	2.61	0.00
44.00	3.87	2.61	0.00
45.00	3.87	2.61	0.00
46.00	3.87	2.61	0.00
47.00	3.87	2.61	0.00
48.00	3.87	2.61	0.00
49.00	3.87	2.61	0.00
50.00	3.87	2.61	0.00
51.00	3.87	2.61	0.00
52.00	3.87	2.61	0.00
53.00	3.87	2.61	0.00
54.00	3.87	2.61	0.00
55.00	3.87	2.61	0.00
56.00	3.87	2.61	0.00
57.00	3.87	2.61	0.00
58.00	3.87	2.61	0.00
59.00	3.87	2.61	0.00
60.00	3.87	2.61	0.00

Summary for Pond 3P: Bioretention 1

Inflow Area = 8.300 ac, 77.11% Impervious, Inflow Depth = 3.09" for 25-Year event
Inflow = 36.71 cfs @ 12.01 hrs, Volume= 2.140 af
Outflow = 28.94 cfs @ 12.08 hrs, Volume= 2.140 af, Atten= 21%, Lag= 4.0 min
Primary = 14.04 cfs @ 12.08 hrs, Volume= 1.598 af
Routed to Link 9L : Link
Secondary = 14.90 cfs @ 12.08 hrs, Volume= 0.542 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.07' @ 12.08 hrs Surf.Area= 18,285 sf Storage= 18,876 cf

Plug-Flow detention time= 156.6 min calculated for 2.140 af (100% of inflow)
Center-of-Mass det. time= 156.5 min (943.5 - 787.0)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	46,418 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	17,150	0	0
675.00	18,215	17,683	17,683
676.00	19,279	18,747	36,430
676.50	20,675	9,989	46,418

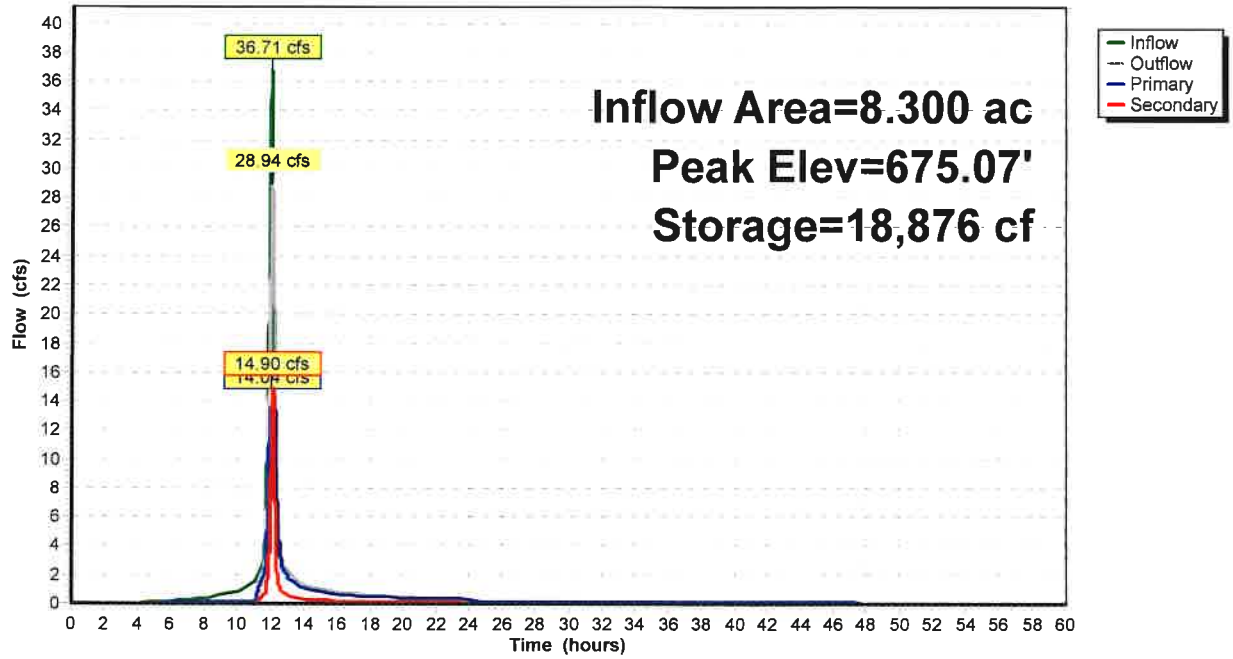
Device	Routing	Invert	Outlet Devices
#1	Primary	671.45'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.45' / 671.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=14.04 cfs @ 12.08 hrs HW=675.07' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 14.04 cfs @ 7.94 fps)
↑—**2=Exfiltration** (Passes < 0.11 cfs potential flow)
└—**3=Grate** (Passes < 44.47 cfs potential flow)

Secondary OutFlow Max=14.89 cfs @ 12.08 hrs HW=675.07' (Free Discharge)
↑—**4=Spillway** (Weir Controls 14.89 cfs @ 2.25 fps)

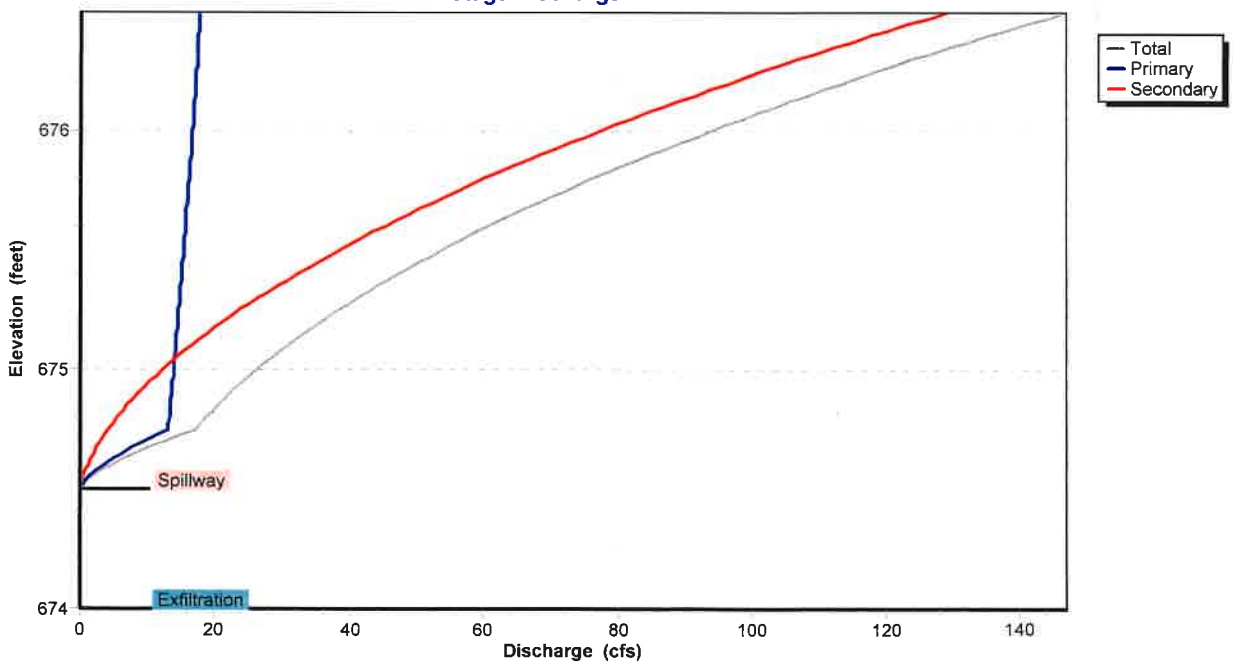
Pond 3P: Bioretention 1

Hydrograph

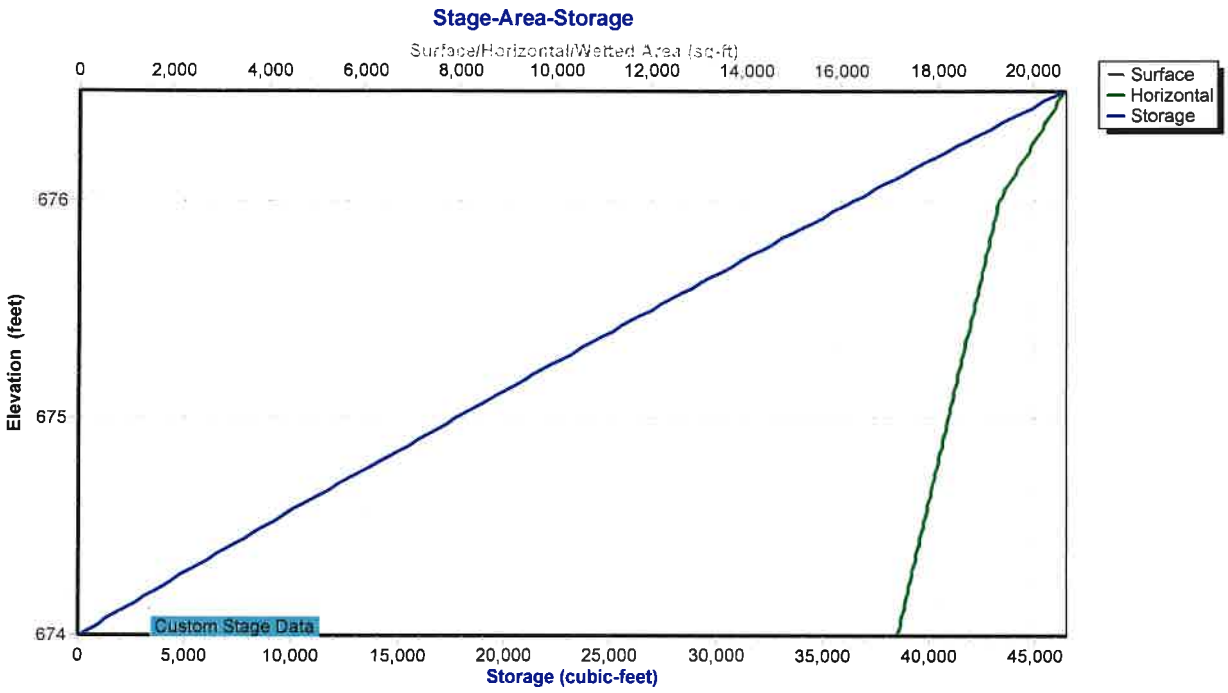


Pond 3P: Bioretention 1

Stage-Discharge



Pond 3P: Bioretention 1



Hydrograph for Pond 3P: Bioretention 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.03	24	674.00	0.01	0.01	0.00
6.00	0.17	415	674.02	0.10	0.10	0.00
8.00	0.34	1,544	674.09	0.10	0.10	0.00
10.00	0.79	4,756	674.27	0.10	0.10	0.00
12.00	**36.30**	**16,757**	**674.95**	**23.98**	**13.69**	**10.29**
14.00	**1.25**	**9,459**	**674.54**	**1.33**	**1.05**	**0.28**
16.00	0.75	9,213	674.53	0.78	0.63	0.15
18.00	0.58	9,110	674.52	0.59	0.48	0.11
20.00	0.42	8,982	674.52	0.44	0.36	0.08
22.00	0.38	8,937	674.51	0.38	0.32	0.06
24.00	0.35	8,911	674.51	0.35	0.30	0.06
26.00	0.00	8,117	674.47	0.11	0.11	0.00
28.00	0.00	7,360	674.42	0.10	0.10	0.00
30.00	0.00	6,607	674.38	0.10	0.10	0.00
32.00	0.00	5,858	674.34	0.10	0.10	0.00
34.00	0.00	5,113	674.30	0.10	0.10	0.00
36.00	0.00	4,372	674.25	0.10	0.10	0.00
38.00	0.00	3,635	674.21	0.10	0.10	0.00
40.00	0.00	2,902	674.17	0.10	0.10	0.00
42.00	0.00	2,174	674.13	0.10	0.10	0.00
44.00	0.00	1,449	674.08	0.10	0.10	0.00
46.00	0.00	729	674.04	0.10	0.10	0.00
48.00	0.00	162	674.01	0.04	0.04	0.00
50.00	0.00	30	674.00	0.01	0.01	0.00
52.00	0.00	6	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: Bioretention 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.10	0.10	0.00
674.10	0.10	0.10	0.00
674.15	0.10	0.10	0.00
674.20	0.10	0.10	0.00
674.25	0.10	0.10	0.00
674.30	0.10	0.10	0.00
674.35	0.10	0.10	0.00
674.40	0.10	0.10	0.00
674.45	0.11	0.11	0.00
674.50	0.11	0.11	0.00
674.55	1.63	1.28	0.35
674.60	4.42	3.42	1.00
674.65	8.04	6.19	1.86
674.70	12.36	9.47	2.89
674.75	17.16	13.07	4.09
674.80	18.66	13.23	5.44
674.85	20.31	13.38	6.93
674.90	22.09	13.54	8.56
674.95	24.01	13.69	10.32
675.00	26.06	13.84	12.22
675.05	28.24	13.99	14.25
675.10	30.55	14.14	16.41
675.15	32.98	14.29	18.69
675.20	35.54	14.43	21.11
675.25	38.22	14.57	23.65
675.30	41.03	14.72	26.32
675.35	43.97	14.86	29.11
675.40	47.03	15.00	32.03
675.45	50.22	15.13	35.08
675.50	53.53	15.27	38.26
675.55	56.97	15.41	41.56
675.60	60.53	15.54	44.99
675.65	64.22	15.68	48.55
675.70	68.04	15.81	52.23
675.75	71.98	15.94	56.05
675.80	76.06	16.07	59.99
675.85	80.26	16.20	64.06
675.90	84.59	16.33	68.26
675.95	89.05	16.45	72.60
676.00	93.64	16.58	77.06
676.05	98.36	16.70	81.66
676.10	103.19	16.80	86.39
676.15	108.17	16.91	91.25
676.20	113.27	17.02	96.25
676.25	118.51	17.12	101.38
676.30	123.88	17.23	106.65
676.35	129.39	17.33	112.05
676.40	135.03	17.44	117.59
676.45	140.81	17.54	123.27
676.50	**146.73**	**17.64**	**129.09**

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

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	17,150	17,150	0
674.05	17,203	17,203	859
674.10	17,257	17,257	1,720
674.15	17,310	17,310	2,584
674.20	17,363	17,363	3,451
674.25	17,416	17,416	4,321
674.30	17,469	17,469	5,193
674.35	17,523	17,523	6,068
674.40	17,576	17,576	6,945
674.45	17,629	17,629	7,825
674.50	17,683	17,683	8,708
674.55	17,736	17,736	9,594
674.60	17,789	17,789	10,482
674.65	17,842	17,842	11,372
674.70	17,896	17,896	12,266
674.75	17,949	17,949	13,162
674.80	18,002	18,002	14,061
674.85	18,055	18,055	14,962
674.90	18,108	18,108	15,866
674.95	18,162	18,162	16,773
675.00	18,215	18,215	17,683
675.05	18,268	18,268	18,595
675.10	18,321	18,321	19,509
675.15	18,375	18,375	20,427
675.20	18,428	18,428	21,347
675.25	18,481	18,481	22,270
675.30	18,534	18,534	23,195
675.35	18,587	18,587	24,123
675.40	18,641	18,641	25,054
675.45	18,694	18,694	25,987
675.50	18,747	18,747	26,923
675.55	18,800	18,800	27,862
675.60	18,853	18,853	28,803
675.65	18,907	18,907	29,747
675.70	18,960	18,960	30,694
675.75	19,013	19,013	31,643
675.80	19,066	19,066	32,595
675.85	19,119	19,119	33,550
675.90	19,173	19,173	34,507
675.95	19,226	19,226	35,467
676.00	19,279	19,279	36,430
676.05	19,419	19,419	37,397
676.10	19,558	19,558	38,371
676.15	19,698	19,698	39,353
676.20	19,837	19,837	40,341
676.25	19,977	19,977	41,337
676.30	20,117	20,117	42,339
676.35	20,256	20,256	43,348
676.40	20,396	20,396	44,364
676.45	20,535	20,535	45,388
676.50	**20,675**	**20,675**	**46,418**

Summary for Pond 6P: Bioretention 2

Inflow Area = 17.200 ac, 52.33% Impervious, Inflow Depth = 2.61" for 25-Year event
Inflow = 77.16 cfs @ 11.97 hrs, Volume= 3.739 af
Outflow = 63.29 cfs @ 12.02 hrs, Volume= 3.739 af, Atten= 18%, Lag= 2.8 min
Primary = 14.98 cfs @ 12.02 hrs, Volume= 2.227 af
Routed to Link 9L : Link
Secondary = 48.32 cfs @ 12.02 hrs, Volume= 1.512 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.65' @ 12.02 hrs Surf.Area= 18,434 sf Storage= 27,681 cf

Plug-Flow detention time= 84.4 min calculated for 3.739 af (100% of inflow)
Center-of-Mass det. time= 84.3 min (888.8 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	44,156 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	15,250	0	0
675.00	17,118	16,184	16,184
676.00	19,153	18,136	34,320
676.50	20,191	9,836	44,156

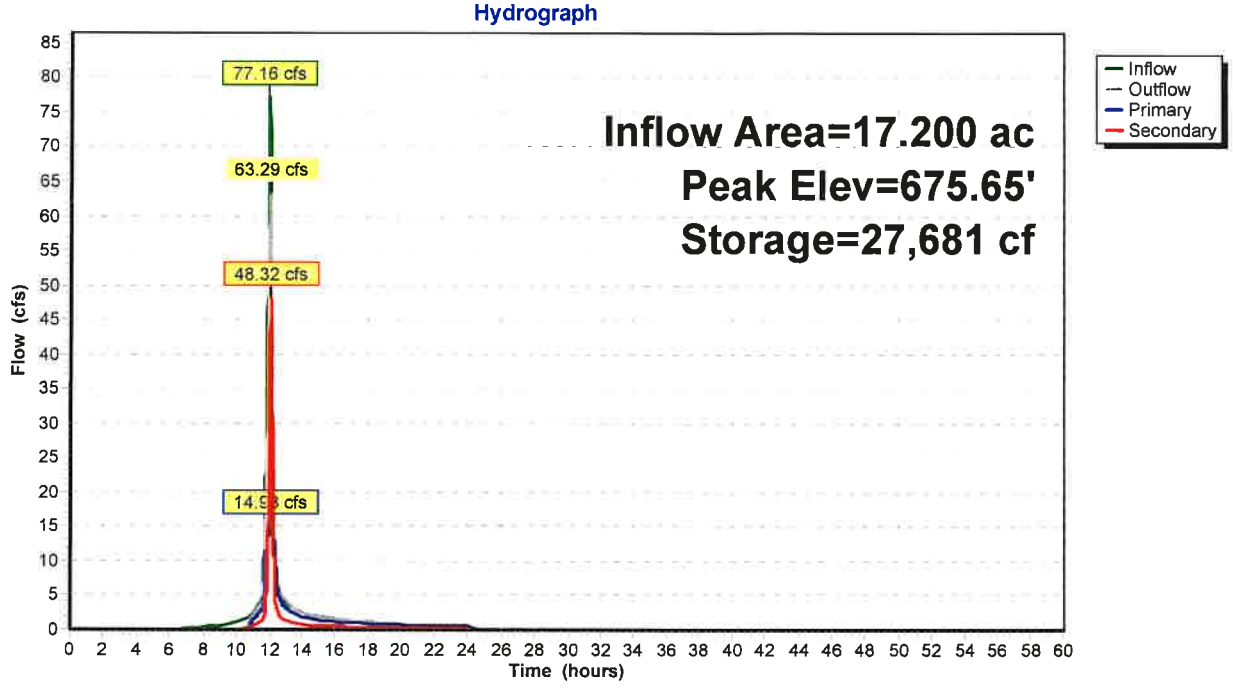
Device	Routing	Invert	Outlet Devices
#1	Primary	671.55'	**18.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.55' / 671.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=14.98 cfs @ 12.02 hrs HW=675.65' (Free Discharge)
└**1=Culvert** (Barrel Controls 14.98 cfs @ 8.47 fps)
└**2=Exfiltration** (Passes < 0.12 cfs potential flow)
└**3=Grate** (Passes < 61.86 cfs potential flow)

Secondary OutFlow Max=48.28 cfs @ 12.02 hrs HW=675.65' (Free Discharge)
└**4=Spillway** (Weir Controls 48.28 cfs @ 3.14 fps)

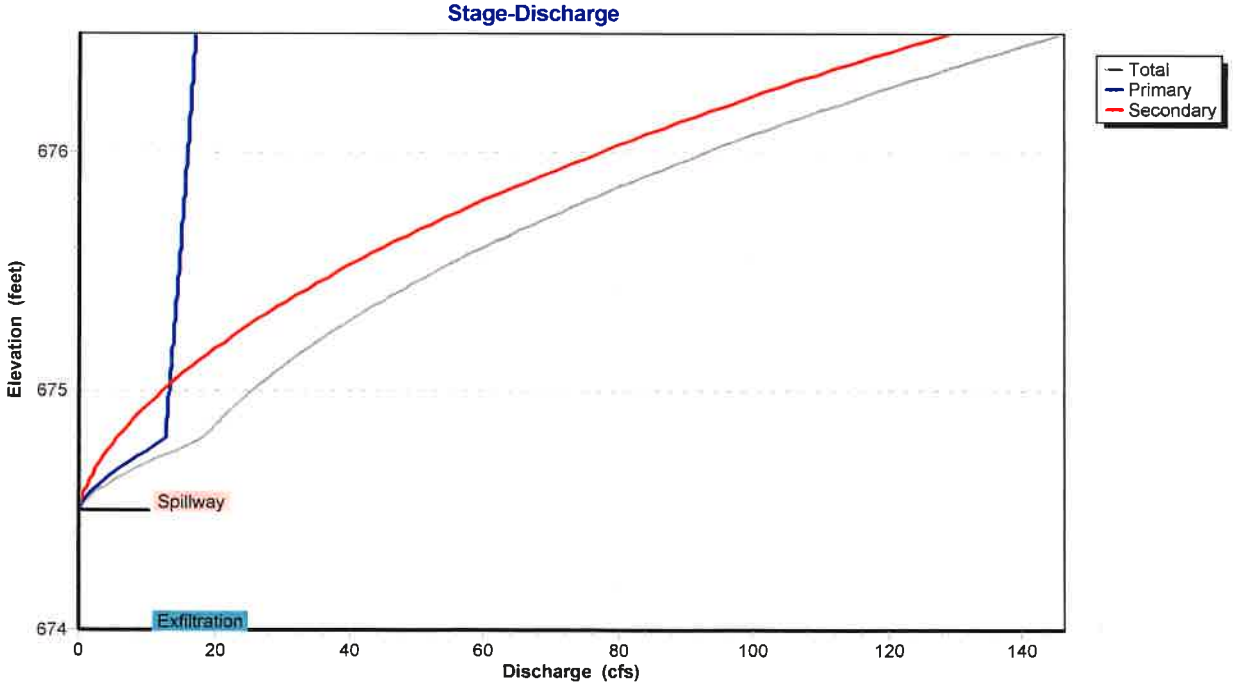
Pond 6P: Bioretention 2

Hydrograph

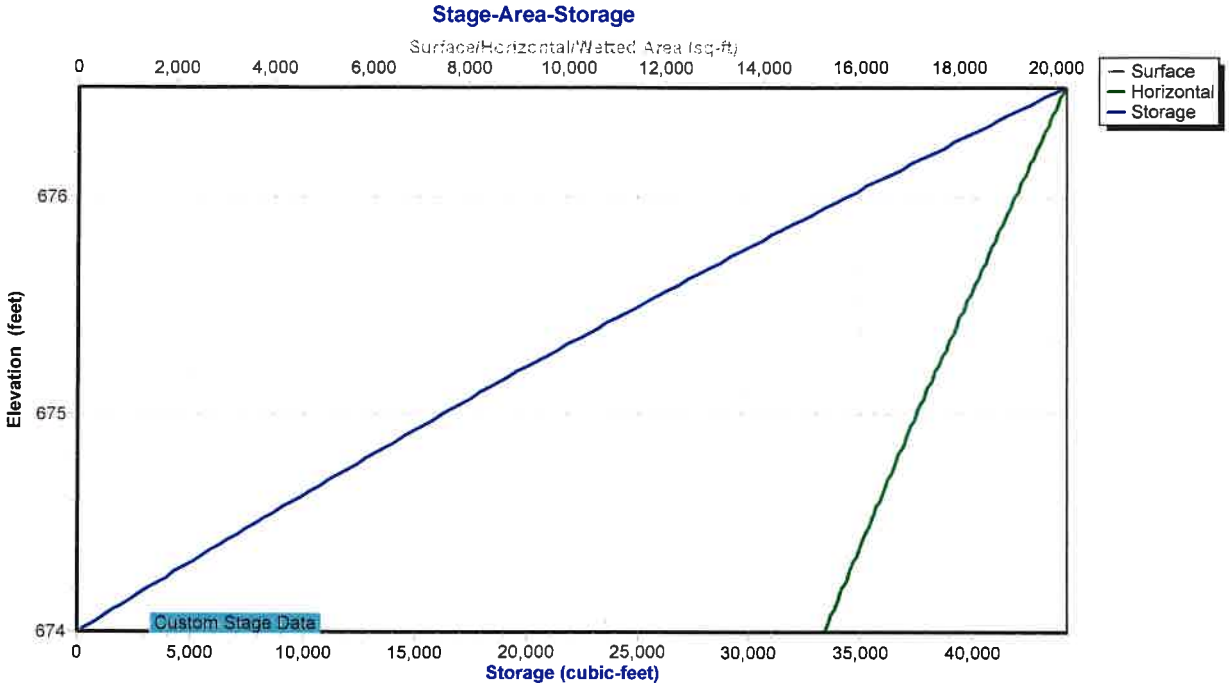


Pond 6P: Bioretention 2

Stage-Discharge



Pond 6P: Bioretention 2



Hydrograph for Pond 6P: Bioretention 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.05	37	674.00	0.01	0.01	0.00
8.00	0.33	910	674.06	0.09	0.09	0.00
10.00	**1.06**	4,900	674.32	0.09	0.09	0.00
12.00	**71.93**	**27,338**	**675.63**	**61.91**	**14.93**	**46.98**
14.00	2.34	**9,110**	**674.58**	**2.45**	**1.78**	**0.67**
16.00	1.44	8,734	674.55	1.49	1.09	0.40
18.00	1.12	8,576	674.54	1.14	0.84	0.30
20.00	0.82	8,421	674.53	0.84	0.63	0.21
22.00	0.74	8,376	674.53	0.75	0.56	0.19
24.00	0.69	8,345	674.53	0.69	0.52	0.17
26.00	0.00	7,364	674.47	0.10	0.10	0.00
28.00	0.00	6,673	674.43	0.10	0.10	0.00
30.00	0.00	5,987	674.38	0.09	0.09	0.00
32.00	0.00	5,307	674.34	0.09	0.09	0.00
34.00	0.00	4,632	674.30	0.09	0.09	0.00
36.00	0.00	3,962	674.26	0.09	0.09	0.00
38.00	0.00	3,298	674.21	0.09	0.09	0.00
40.00	0.00	2,639	674.17	0.09	0.09	0.00
42.00	0.00	1,985	674.13	0.09	0.09	0.00
44.00	0.00	1,336	674.09	0.09	0.09	0.00
46.00	0.00	692	674.05	0.09	0.09	0.00
48.00	0.00	161	674.01	0.04	0.04	0.00
50.00	0.00	30	674.00	0.01	0.01	0.00
52.00	0.00	6	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 6P: Bioretention 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.09	0.09	0.00
674.10	0.09	0.09	0.00
674.15	0.09	0.09	0.00
674.20	0.09	0.09	0.00
674.25	0.09	0.09	0.00
674.30	0.09	0.09	0.00
674.35	0.09	0.09	0.00
674.40	0.10	0.10	0.00
674.45	0.10	0.10	0.00
674.50	0.10	0.10	0.00
674.55	1.32	0.98	0.35
674.60	3.58	2.58	1.00
674.65	6.52	4.66	1.86
674.70	10.01	7.12	2.89
674.75	14.00	9.91	4.09
674.80	18.04	12.60	5.44
674.85	19.68	12.75	6.93
674.90	21.46	12.90	8.56
674.95	23.37	13.05	10.32
675.00	25.42	13.20	12.22
675.05	27.59	13.35	14.25
675.10	29.90	13.49	16.41
675.15	32.33	13.63	18.69
675.20	34.88	13.77	21.11
675.25	37.56	13.91	23.65
675.30	40.37	14.05	26.32
675.35	43.30	14.19	29.11
675.40	46.36	14.32	32.03
675.45	49.54	14.46	35.08
675.50	52.85	14.59	38.26
675.55	56.28	14.72	41.56
675.60	59.84	14.86	44.99
675.65	63.53	14.98	48.55
675.70	67.34	15.11	52.23
675.75	71.29	15.24	56.05
675.80	75.36	15.37	59.99
675.85	79.55	15.49	64.06
675.90	83.88	15.62	68.26
675.95	88.34	15.74	72.60
676.00	92.93	15.86	77.06
676.05	97.65	15.99	81.66
676.10	102.50	16.11	86.39
676.15	107.48	16.23	91.25
676.20	112.60	16.34	96.25
676.25	117.85	16.46	101.38
676.30	123.23	16.58	106.65
676.35	128.75	16.70	112.05
676.40	134.41	16.81	117.59
676.45	140.20	16.93	123.27
676.50	**146.13**	**17.04**	**129.09**

Stage-Area-Storage for Pond 6P: Bioretention 2

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	15,250	15,250	0
674.05	15,343	15,343	765
674.10	15,437	15,437	1,534
674.15	15,530	15,530	2,309
674.20	15,624	15,624	3,087
674.25	15,717	15,717	3,871
674.30	15,810	15,810	4,659
674.35	15,904	15,904	5,452
674.40	15,997	15,997	6,249
674.45	16,091	16,091	7,052
674.50	16,184	16,184	7,859
674.55	16,277	16,277	8,670
674.60	16,371	16,371	9,486
674.65	16,464	16,464	10,307
674.70	16,558	16,558	11,133
674.75	16,651	16,651	11,963
674.80	16,744	16,744	12,798
674.85	16,838	16,838	13,637
674.90	16,931	16,931	14,482
674.95	17,025	17,025	15,330
675.00	17,118	17,118	16,184
675.05	17,220	17,220	17,042
675.10	17,322	17,322	17,906
675.15	17,423	17,423	18,775
675.20	17,525	17,525	19,648
675.25	17,627	17,627	20,527
675.30	17,728	17,728	21,411
675.35	17,830	17,830	22,300
675.40	17,932	17,932	23,194
675.45	18,034	18,034	24,093
675.50	18,136	18,136	24,997
675.55	18,237	18,237	25,907
675.60	18,339	18,339	26,821
675.65	18,441	18,441	27,741
675.70	18,543	18,543	28,665
675.75	18,644	18,644	29,595
675.80	18,746	18,746	30,530
675.85	18,848	18,848	31,469
675.90	18,949	18,949	32,414
675.95	19,051	19,051	33,364
676.00	19,153	19,153	34,320
676.05	19,257	19,257	35,280
676.10	19,361	19,361	36,245
676.15	19,464	19,464	37,216
676.20	19,568	19,568	38,192
676.25	19,672	19,672	39,173
676.30	19,776	19,776	40,159
676.35	19,880	19,880	41,150
676.40	19,983	19,983	42,147
676.45	20,087	20,087	43,149
676.50	**20,191**	**20,191**	**44,156**

Summary for Pond 7P: Basin

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 2.77" for 25-Year event
Inflow = 89.54 cfs @ 12.03 hrs, Volume= 5.878 af
Outflow = 3.50 cfs @ 14.17 hrs, Volume= 5.878 af, Atten= 96%, Lag= 128.7 min
Primary = 3.50 cfs @ 14.17 hrs, Volume= 5.878 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 677.07' @ 14.17 hrs Surf.Area= 52,677 sf Storage= 139,095 cf

Plug-Flow detention time= 410.1 min calculated for 5.877 af (100% of inflow)
Center-of-Mass det. time= 410.0 min (1,318.7 - 908.7)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	311,588 cf	**dry basin (Prismatic)**Listed below (Recalc)

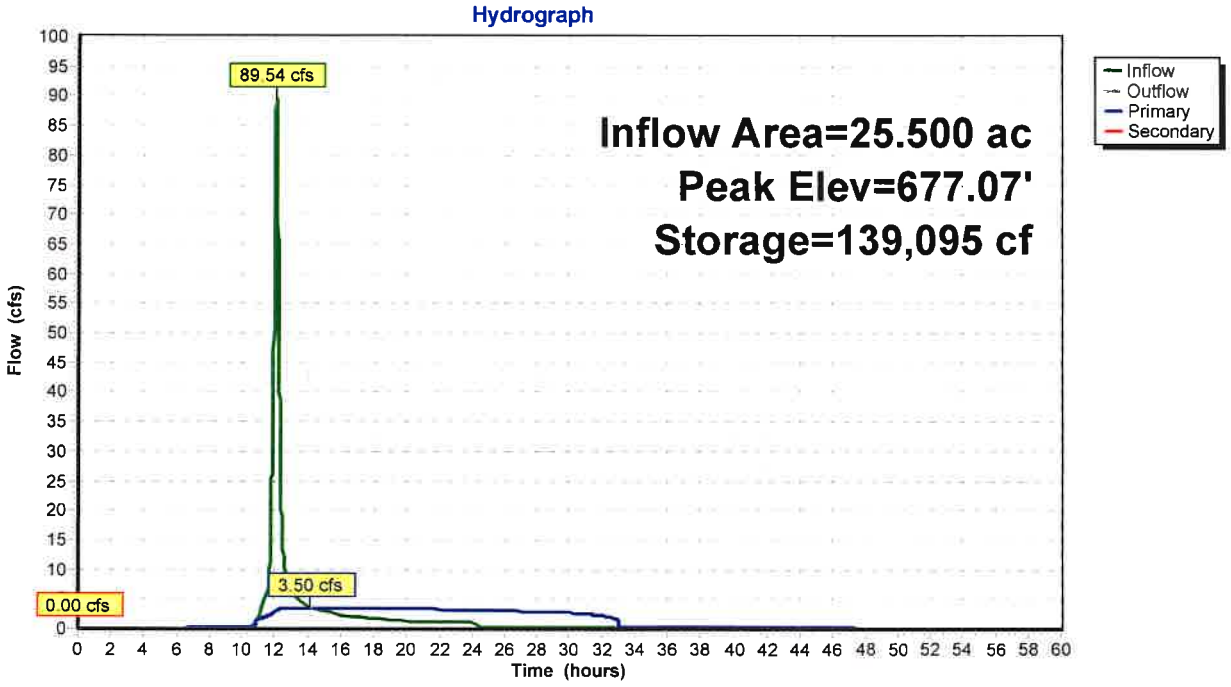
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	1,285	0	0
673.00	6,433	3,859	3,859
674.00	9,723	8,078	11,937
675.00	44,268	26,996	38,933
676.00	48,305	46,287	85,219
677.00	52,399	50,352	135,571
678.00	56,550	54,475	190,046
679.00	60,757	58,654	248,699
680.00	65,021	62,889	311,588

Device	Routing	Invert	Outlet Devices
#1	Primary	670.75'	**10.0" Round Culvert (structure to outlet)** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 670.75' / 670.15' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	670.80'	**8.0" Round Culvert (basin to structure)** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 670.80' / 670.75' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 1	678.00'	**24.0" W x 24.0" H Vert. Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	670.75'	**8.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	675.50'	**5.0' long Weir** 2 End Contraction(s)
#6	Secondary	679.00'	**143.0 deg x 20.0' long x 1.00' rise Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=3.50 cfs @ 14.17 hrs HW=677.07' (Free Discharge)
└─**1=Culvert (structure to outlet)** (Barrel Controls 3.50 cfs @ 6.42 fps)
  └─**2=Culvert (basin to structure)** (Passes < 3.61 cfs potential flow)
  └─**3=Grate** (Controls 0.00 cfs)
  └─**4=Orifice** (Passes < 12.33 cfs potential flow)
  └─**5=Weir** (Passes < 30.06 cfs potential flow)

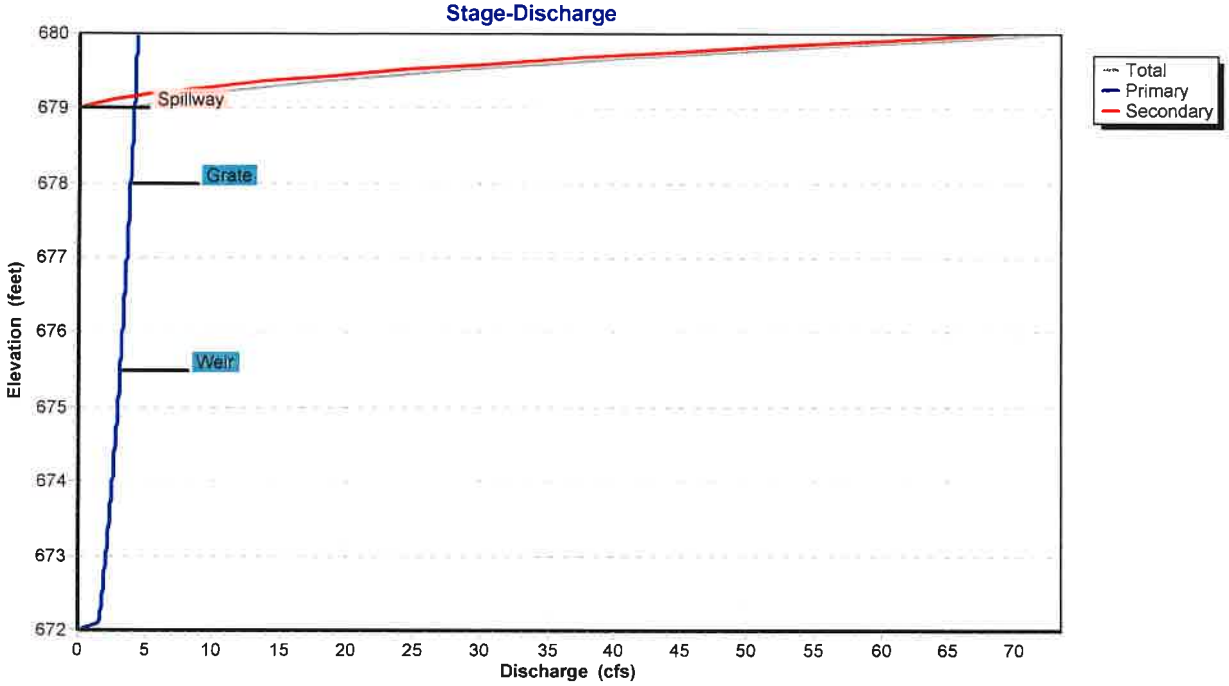
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=672.00' (Free Discharge)
└─**6=Spillway** (Controls 0.00 cfs)

Pond 7P: Basin



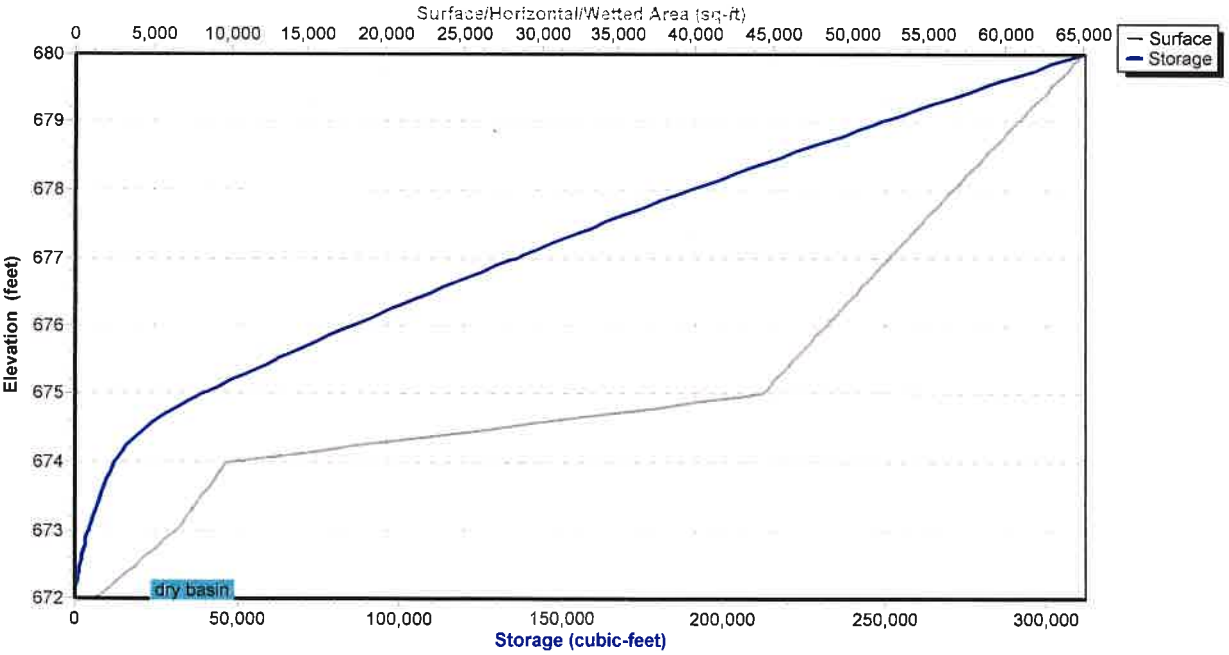
Pond 7P: Basin

Stage-Discharge



Pond 7P: Basin

Stage-Area-Storage



Hydrograph for Pond 7P: Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	672.00	0.00	0.00	**0.00**
2.00	0.00	0	672.00	0.00	0.00	0.00
4.00	0.01	0	672.00	0.01	0.01	0.00
6.00	0.10	8	672.01	0.10	0.10	0.00
8.00	0.19	15	672.01	0.19	0.19	0.00
10.00	0.20	16	672.01	0.20	0.20	0.00
12.00	**85.88**	52,694	675.31	2.95	2.95	0.00
14.00	**3.78**	**139,016**	**677.07**	**3.50**	**3.50**	0.00
16.00	2.27	**134,874**	**676.99**	**3.48**	**3.48**	0.00
18.00	1.73	124,147	676.78	3.42	3.42	0.00
20.00	1.28	110,651	676.52	3.34	3.34	0.00
22.00	1.13	95,464	676.21	3.25	3.25	0.00
24.00	1.04	80,277	675.90	3.15	3.15	0.00
26.00	0.20	60,309	675.47	3.01	3.01	0.00
28.00	0.20	40,636	675.04	2.86	2.86	0.00
30.00	0.20	22,103	674.53	2.68	2.68	0.00
32.00	0.20	5,712	673.27	2.15	2.15	0.00
34.00	0.20	16	672.01	0.20	0.20	0.00
36.00	0.20	16	672.01	0.20	0.20	0.00
38.00	0.19	16	672.01	0.19	0.19	0.00
40.00	0.19	15	672.01	0.19	0.19	0.00
42.00	0.19	15	672.01	0.19	0.19	0.00
44.00	0.19	15	672.01	0.19	0.19	0.00
46.00	0.19	15	672.01	0.19	0.19	0.00
48.00	0.08	6	672.00	0.08	0.08	0.00
50.00	0.01	1	672.00	0.01	0.01	0.00
52.00	0.00	0	672.00	0.00	0.00	0.00
54.00	0.00	0	672.00	0.00	0.00	0.00
56.00	0.00	0	672.00	0.00	0.00	0.00
58.00	0.00	0	672.00	0.00	0.00	0.00
60.00	0.00	0	672.00	0.00	0.00	0.00

Stage-Discharge for Pond 7P: Basin

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
672.00	0.00	0.00	0.00
672.10	1.50	1.50	0.00
672.20	1.57	1.57	0.00
672.30	1.63	1.63	0.00
672.40	1.69	1.69	0.00
672.50	1.75	1.75	0.00
672.60	1.80	1.80	0.00
672.70	1.86	1.86	0.00
672.80	1.91	1.91	0.00
672.90	1.97	1.97	0.00
673.00	2.02	2.02	0.00
673.10	2.07	2.07	0.00
673.20	2.11	2.11	0.00
673.30	2.16	2.16	0.00
673.40	2.21	2.21	0.00
673.50	2.25	2.25	0.00
673.60	2.30	2.30	0.00
673.70	2.34	2.34	0.00
673.80	2.38	2.38	0.00
673.90	2.42	2.42	0.00
674.00	2.47	2.47	0.00
674.10	2.51	2.51	0.00
674.20	2.55	2.55	0.00
674.30	2.59	2.59	0.00
674.40	2.62	2.62	0.00
674.50	2.66	2.66	0.00
674.60	2.70	2.70	0.00
674.70	2.74	2.74	0.00
674.80	2.77	2.77	0.00
674.90	2.81	2.81	0.00
675.00	2.84	2.84	0.00
675.10	2.88	2.88	0.00
675.20	2.91	2.91	0.00
675.30	2.95	2.95	0.00
675.40	2.98	2.98	0.00
675.50	3.02	3.02	0.00
675.60	3.05	3.05	0.00
675.70	3.08	3.08	0.00
675.80	3.12	3.12	0.00
675.90	3.15	3.15	0.00
676.00	3.18	3.18	0.00
676.10	3.21	3.21	0.00
676.20	3.24	3.24	0.00
676.30	3.27	3.27	0.00
676.40	3.30	3.30	0.00
676.50	3.33	3.33	0.00
676.60	3.36	3.36	0.00
676.70	3.39	3.39	0.00
676.80	3.42	3.42	0.00
676.90	3.45	3.45	0.00
677.00	3.48	3.48	0.00
677.10	3.51	3.51	0.00
677.20	3.54	3.54	0.00
677.30	3.57	3.57	0.00
677.40	3.60	3.60	0.00
677.50	3.62	3.62	0.00
677.60	3.65	3.65	0.00
677.70	3.68	3.68	0.00
677.80	3.71	3.71	0.00
677.90	3.73	3.73	0.00
678.00	3.76	3.76	0.00
678.10	3.79	3.79	0.00
678.20	3.81	3.81	0.00
678.30	3.84	3.84	0.00
678.40	3.87	3.87	0.00
678.50	3.89	3.89	0.00
678.60	3.92	3.92	0.00
678.70	3.94	3.94	0.00
678.80	3.97	3.97	0.00
678.90	3.99	3.99	0.00
679.00	4.02	4.02	0.00
679.10	6.02	4.04	1.98
679.20	9.72	4.07	5.66
679.30	14.60	4.09	10.51
679.40	20.49	4.12	16.37
679.50	27.28	4.14	23.14
679.60	34.92	4.17	30.76
679.70	43.38	4.19	39.19
679.80	52.63	4.22	48.41
679.90	62.63	4.24	58.40
680.00	**73.39**	**4.26**	**69.13**

Stage-Area-Storage for Pond 7P: Basin

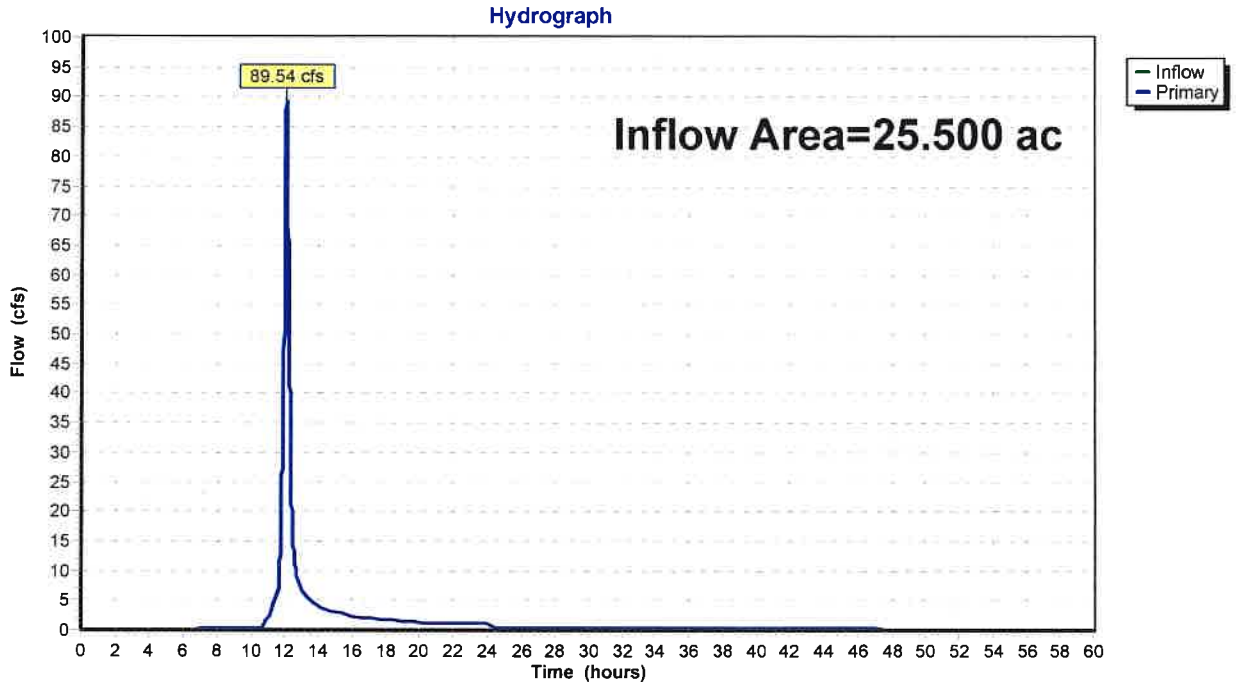
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.00	1,285	0
672.10	1,800	154
672.20	2,315	360
672.30	2,829	617
672.40	3,344	926
672.50	3,859	1,286
672.60	4,374	1,698
672.70	4,889	2,161
672.80	5,403	2,675
672.90	5,918	3,241
673.00	6,433	3,859
673.10	6,762	4,519
673.20	7,091	5,211
673.30	7,420	5,937
673.40	7,749	6,695
673.50	8,078	7,487
673.60	8,407	8,311
673.70	8,736	9,168
673.80	9,065	10,058
673.90	9,394	10,981
674.00	9,723	11,937
674.10	13,178	13,082
674.20	16,632	14,573
674.30	20,086	16,408
674.40	23,541	18,590
674.50	26,996	21,117
674.60	30,450	23,989
674.70	33,905	27,207
674.80	37,359	30,770
674.90	40,813	34,678
675.00	44,268	38,933
675.10	44,672	43,379
675.20	45,075	47,867
675.30	45,479	52,395
675.40	45,883	56,963
675.50	46,287	61,571
675.60	46,690	66,220
675.70	47,094	70,909
675.80	47,498	75,639
675.90	47,901	80,409
676.00	48,305	85,219
676.10	48,714	90,070
676.20	49,124	94,962
676.30	49,533	99,895
676.40	49,943	104,869
676.50	50,352	109,883
676.60	50,761	114,939
676.70	51,171	120,036
676.80	51,580	125,173
676.90	51,990	130,352
677.00	52,399	135,571
677.10	52,814	140,832
677.20	53,229	146,134
677.30	53,644	151,477
677.40	54,059	156,863
677.50	54,475	162,289
677.60	54,890	167,758
677.70	55,305	173,267
677.80	55,720	178,819
677.90	56,135	184,411
678.00	56,550	190,046
678.10	56,971	195,722
678.20	57,391	201,440
678.30	57,812	207,200
678.40	58,233	213,002
678.50	58,654	218,846
678.60	59,074	224,733
678.70	59,495	230,661
678.80	59,916	236,632
678.90	60,336	242,644
679.00	60,757	248,699
679.10	61,183	254,796
679.20	61,610	260,936
679.30	62,036	267,118
679.40	62,463	273,343
679.50	62,889	279,611
679.60	63,315	285,921
679.70	63,742	292,274
679.80	64,168	298,669
679.90	64,595	305,107
680.00	**65,021**	**311,588**

Summary for Link 9L: Link

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 2.77" for 25-Year event
Inflow = 89.54 cfs @ 12.03 hrs, Volume= 5.878 af
Primary = 89.54 cfs @ 12.03 hrs, Volume= 5.878 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 7P : Basin

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 9L: Link



Hydrograph for Link 9L: Link

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	53.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
5.00	0.04	0.00	0.04	58.00	0.00	0.00	0.00
6.00	0.10	0.00	0.10	59.00	0.00	0.00	0.00
7.00	0.17	0.00	0.17	60.00	0.00	0.00	0.00
8.00	0.19	0.00	0.19				
9.00	0.19	0.00	0.19				
10.00	0.20	0.00	0.20				
11.00	2.17	0.00	2.17				
12.00	**85.88**	0.00	**85.88**				
13.00	**6.49**	0.00	**6.49**				
14.00	3.78	0.00	3.78				
15.00	2.90	0.00	2.90				
16.00	2.27	0.00	2.27				
17.00	1.95	0.00	1.95				
18.00	1.73	0.00	1.73				
19.00	1.51	0.00	1.51				
20.00	1.28	0.00	1.28				
21.00	1.18	0.00	1.18				
22.00	1.13	0.00	1.13				
23.00	1.09	0.00	1.09				
24.00	1.04	0.00	1.04				
25.00	0.20	0.00	0.20				
26.00	0.20	0.00	0.20				
27.00	0.20	0.00	0.20				
28.00	0.20	0.00	0.20				
29.00	0.20	0.00	0.20				
30.00	0.20	0.00	0.20				
31.00	0.20	0.00	0.20				
32.00	0.20	0.00	0.20				
33.00	0.20	0.00	0.20				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.20	0.00	0.20				
37.00	0.19	0.00	0.19				
38.00	0.19	0.00	0.19				
39.00	0.19	0.00	0.19				
40.00	0.19	0.00	0.19				
41.00	0.19	0.00	0.19				
42.00	0.19	0.00	0.19				
43.00	0.19	0.00	0.19				
44.00	0.19	0.00	0.19				
45.00	0.19	0.00	0.19				
46.00	0.19	0.00	0.19				
47.00	0.17	0.00	0.17				
48.00	0.08	0.00	0.08				
49.00	0.03	0.00	0.03				
50.00	0.01	0.00	0.01				
51.00	0.01	0.00	0.01				
52.00	0.00	0.00	0.00				

Summary for Subcatchment 1S: Proposed North

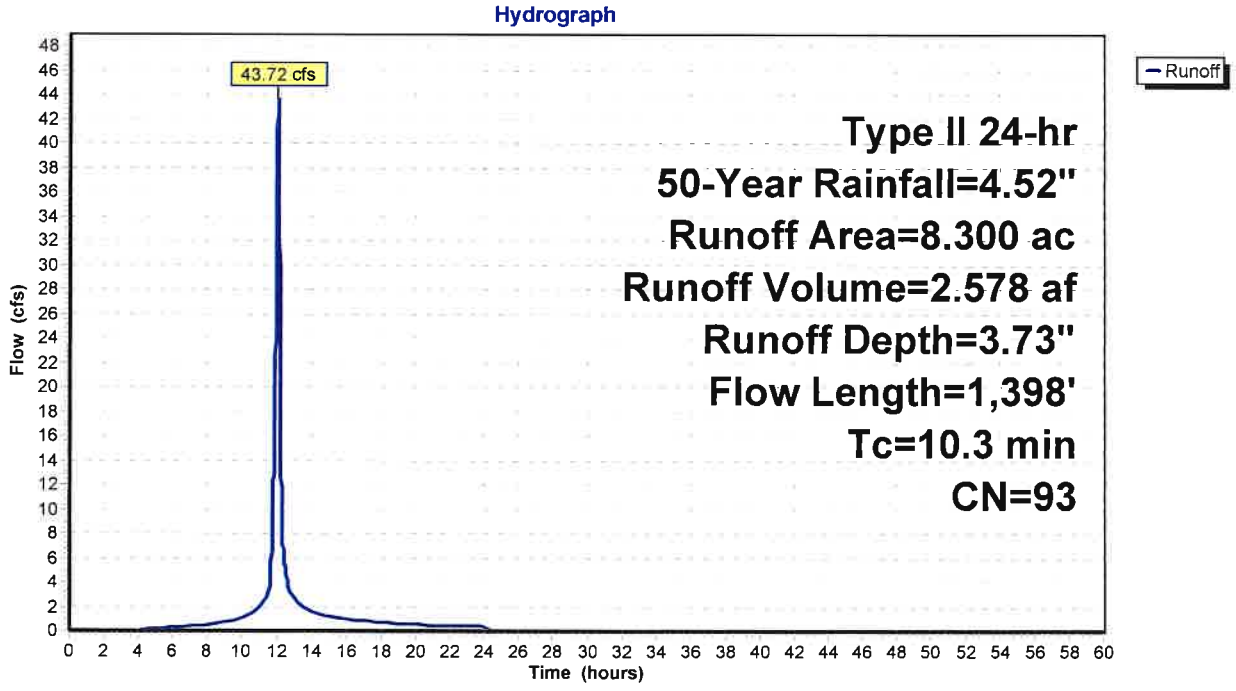
Runoff = 43.72 cfs @ 12.01 hrs, Volume= 2.578 af, Depth= 3.73"
Routed to Pond 3P : Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
5.000	98	Paved parking, HSG D
1.400	98	Paved parking, HSG C
1.100	80	>75% Grass cover, Good, HSG D
0.800	74	>75% Grass cover, Good, HSG C
8.300	93	Weighted Average
1.900		22.89% Pervious Area
6.400		77.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	72	0.3500	0.44		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.9	300	0.0160	2.57		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
5.7	1,026		3.00		**Direct Entry, Pipe flow**
10.3	1,398	Total			

Subcatchment 1S: Proposed North



Hydrograph for Subcatchment 1S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.01	0.07
5.00	0.28	0.02	0.15
6.00	0.36	0.05	0.25
7.00	0.45	0.08	0.35
8.00	0.54	0.13	0.46
9.00	0.66	0.21	0.73
10.00	0.82	0.31	1.00
11.00	1.06	0.50	1.94
12.00	3.00	2.25	**43.27**
13.00	3.49	2.72	**2.53**
14.00	3.71	2.93	1.47
15.00	3.86	3.08	1.14
16.00	3.98	3.20	0.89
17.00	4.08	3.29	0.77
18.00	4.16	3.38	0.68
19.00	4.24	3.45	0.59
20.00	4.30	3.52	0.49
21.00	4.36	3.57	0.47
22.00	4.42	3.63	0.45
23.00	4.47	3.68	0.43
24.00	**4.52**	**3.73**	0.41
25.00	4.52	3.73	0.00
26.00	4.52	3.73	0.00
27.00	4.52	3.73	0.00
28.00	4.52	3.73	0.00
29.00	4.52	3.73	0.00
30.00	4.52	3.73	0.00
31.00	4.52	3.73	0.00
32.00	4.52	3.73	0.00
33.00	4.52	3.73	0.00
34.00	4.52	3.73	0.00
35.00	4.52	3.73	0.00
36.00	4.52	3.73	0.00
37.00	4.52	3.73	0.00
38.00	4.52	3.73	0.00
39.00	4.52	3.73	0.00
40.00	4.52	3.73	0.00
41.00	4.52	3.73	0.00
42.00	4.52	3.73	0.00
43.00	4.52	3.73	0.00
44.00	4.52	3.73	0.00
45.00	4.52	3.73	0.00
46.00	4.52	3.73	0.00
47.00	4.52	3.73	0.00
48.00	4.52	3.73	0.00
49.00	4.52	3.73	0.00
50.00	4.52	3.73	0.00
51.00	4.52	3.73	0.00
52.00	4.52	3.73	0.00
53.00	4.52	3.73	0.00
54.00	4.52	3.73	0.00
55.00	4.52	3.73	0.00
56.00	4.52	3.73	0.00
57.00	4.52	3.73	0.00
58.00	4.52	3.73	0.00
59.00	4.52	3.73	0.00
60.00	4.52	3.73	0.00

Summary for Subcatchment 2S: Proposed South

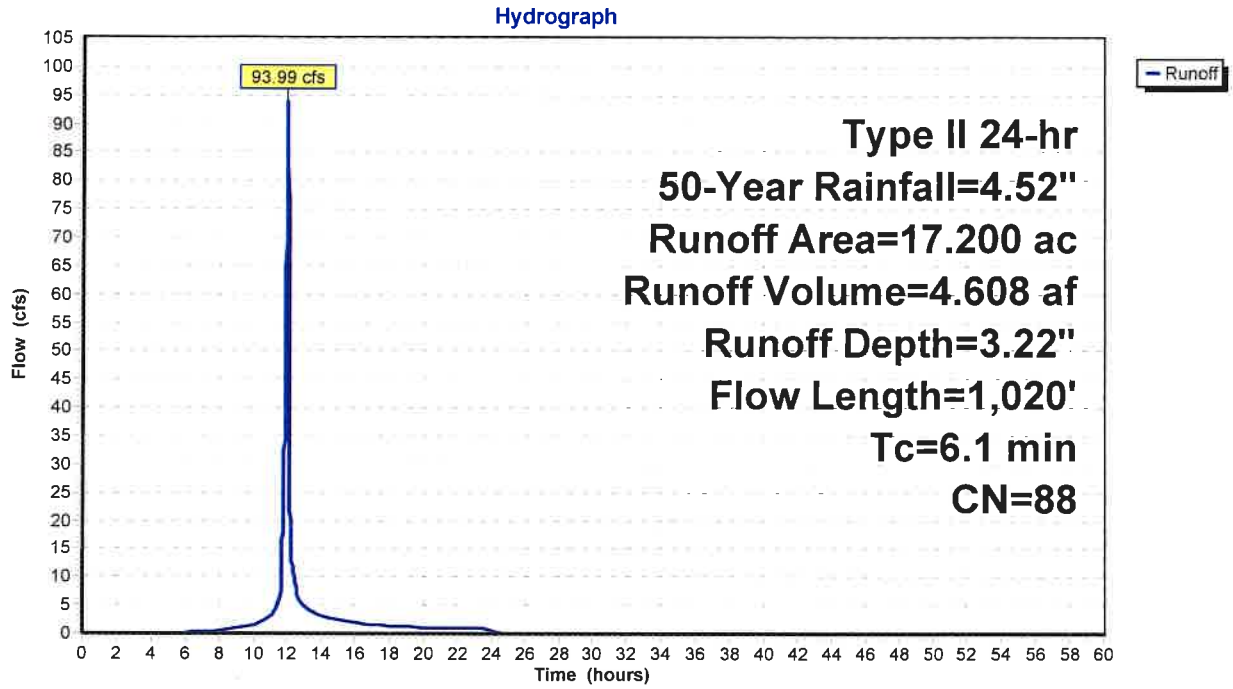
Runoff = 93.99 cfs @ 11.97 hrs, Volume= 4.608 af, Depth= 3.22"
Routed to Pond 6P : Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
5.400	98	Paved parking, HSG D
3.600	98	Paved parking, HSG C
4.800	80	>75% Grass cover, Good, HSG D
3.200	74	>75% Grass cover, Good, HSG C
0.120	96	Gravel surface, HSG D
0.080	96	Gravel surface, HSG C
17.200	88	Weighted Average
8.200		47.67% Pervious Area
9.000		52.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	30	0.0100	0.72		**Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 2.50"
0.8	160	0.0460	3.45		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
4.4	800		3.00		**Direct Entry, Pipe flow**
6.1	1,020	Total			

Subcatchment 2S: Proposed South



Hydrograph for Subcatchment 2S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.00
5.00	0.28	0.00	0.01
6.00	0.36	0.01	0.15
7.00	0.45	0.02	0.32
8.00	0.54	0.04	0.50
9.00	0.66	0.09	0.94
10.00	0.82	0.16	1.45
11.00	1.06	0.29	**3.14**
12.00	3.00	1.82	**87.36**
13.00	3.49	2.26	4.70
14.00	3.71	2.46	2.80
15.00	3.86	2.60	2.22
16.00	3.98	2.71	1.72
17.00	4.08	2.80	1.51
18.00	4.16	2.88	1.33
19.00	4.24	2.95	1.15
20.00	4.30	3.01	0.97
21.00	4.36	3.07	0.92
22.00	4.42	3.12	0.89
23.00	4.47	3.17	0.85
24.00	**4.52**	**3.22**	0.81
25.00	4.52	3.22	0.00
26.00	4.52	3.22	0.00
27.00	4.52	3.22	0.00
28.00	4.52	3.22	0.00
29.00	4.52	3.22	0.00
30.00	4.52	3.22	0.00
31.00	4.52	3.22	0.00
32.00	4.52	3.22	0.00
33.00	4.52	3.22	0.00
34.00	4.52	3.22	0.00
35.00	4.52	3.22	0.00
36.00	4.52	3.22	0.00
37.00	4.52	3.22	0.00
38.00	4.52	3.22	0.00
39.00	4.52	3.22	0.00
40.00	4.52	3.22	0.00
41.00	4.52	3.22	0.00
42.00	4.52	3.22	0.00
43.00	4.52	3.22	0.00
44.00	4.52	3.22	0.00
45.00	4.52	3.22	0.00
46.00	4.52	3.22	0.00
47.00	4.52	3.22	0.00
48.00	4.52	3.22	0.00
49.00	4.52	3.22	0.00
50.00	4.52	3.22	0.00
51.00	4.52	3.22	0.00
52.00	4.52	3.22	0.00
53.00	4.52	3.22	0.00
54.00	4.52	3.22	0.00
55.00	4.52	3.22	0.00
56.00	4.52	3.22	0.00
57.00	4.52	3.22	0.00
58.00	4.52	3.22	0.00
59.00	4.52	3.22	0.00
60.00	4.52	3.22	0.00

Summary for Pond 3P: Bioretention 1

Inflow Area = 8.300 ac, 77.11% Impervious, Inflow Depth = 3.73" for 50-Year event
Inflow = 43.72 cfs @ 12.01 hrs, Volume= 2.578 af
Outflow = 34.86 cfs @ 12.08 hrs, Volume= 2.578 af, Atten= 20%, Lag= 3.9 min
Primary = 14.39 cfs @ 12.08 hrs, Volume= 1.847 af
Routed to Link 9L : Link
Secondary = 20.47 cfs @ 12.08 hrs, Volume= 0.731 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.19' @ 12.08 hrs Surf.Area= 18,414 sf Storage= 21,105 cf

Plug-Flow detention time= 134.5 min calculated for 2.578 af (100% of inflow)
Center-of-Mass det. time= 134.8 min (916.7 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	46,418 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	17,150	0	0
675.00	18,215	17,683	17,683
676.00	19,279	18,747	36,430
676.50	20,675	9,989	46,418

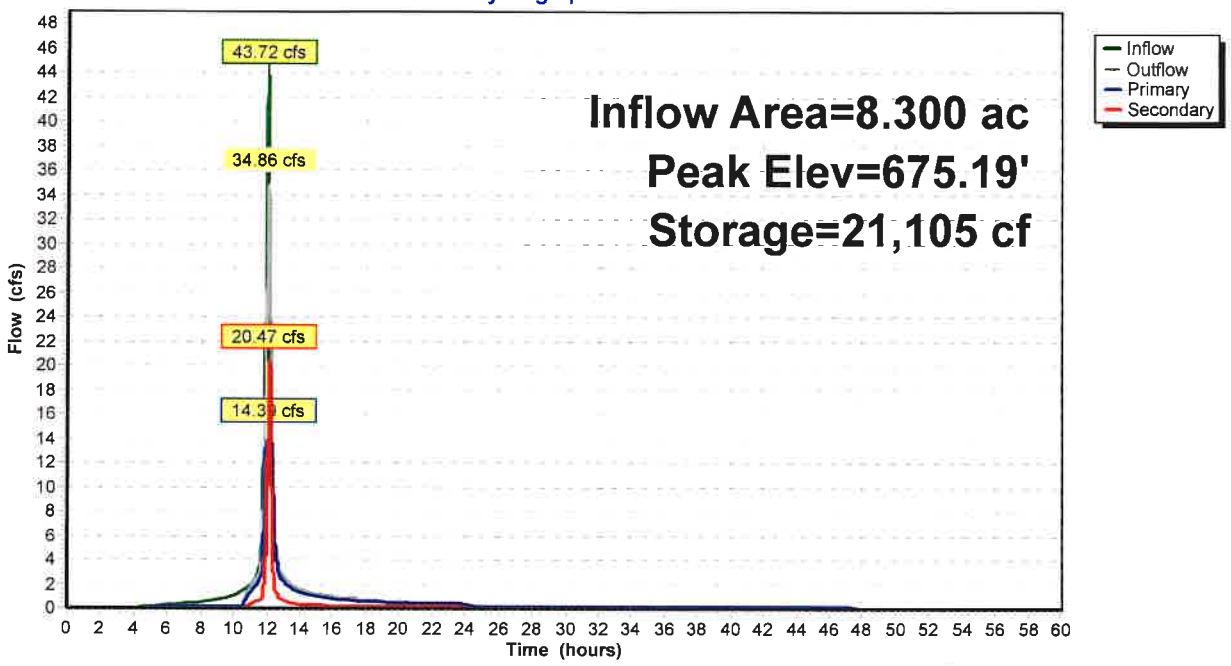
Device	Routing	Invert	Outlet Devices
#1	Primary	671.45'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.45' / 671.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=14.39 cfs @ 12.08 hrs HW=675.19' (Free Discharge)
↑**1=Culvert** (Barrel Controls 14.39 cfs @ 8.14 fps)
↑**2=Exfiltration** (Passes < 0.12 cfs potential flow)
↑**3=Grate** (Passes < 59.54 cfs potential flow)

Secondary OutFlow Max=20.45 cfs @ 12.08 hrs HW=675.19' (Free Discharge)
↑**4=Spillway** (Weir Controls 20.45 cfs @ 2.47 fps)

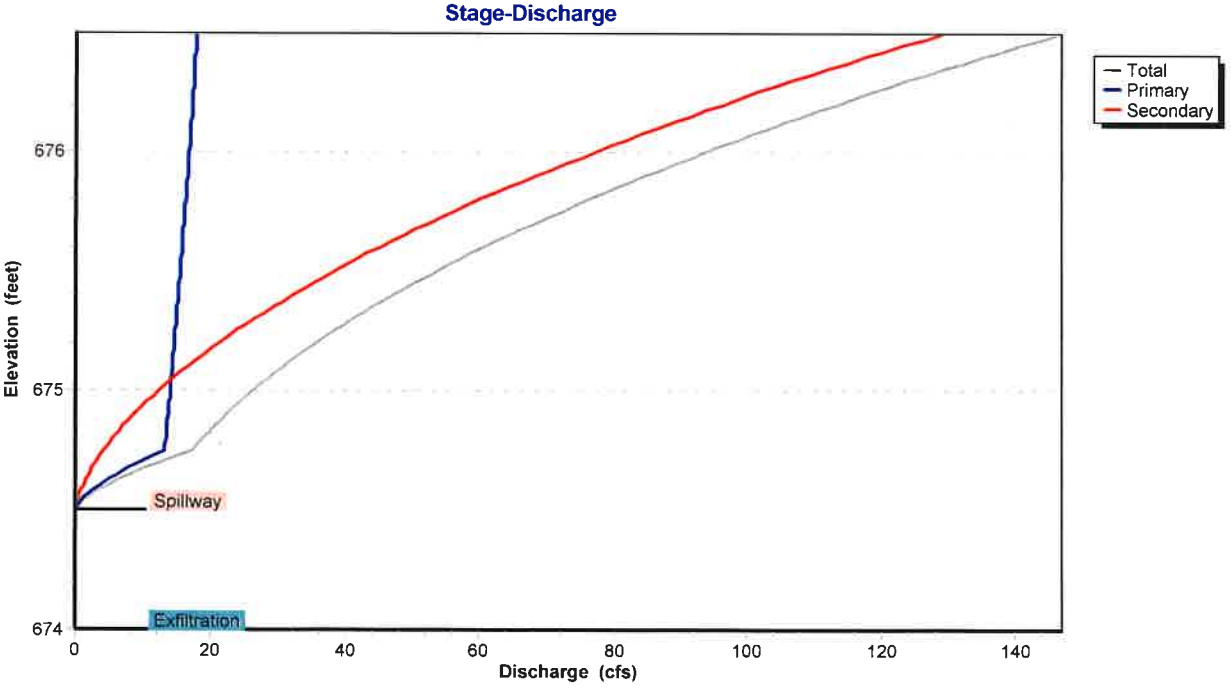
Pond 3P: Bioretention 1

Hydrograph

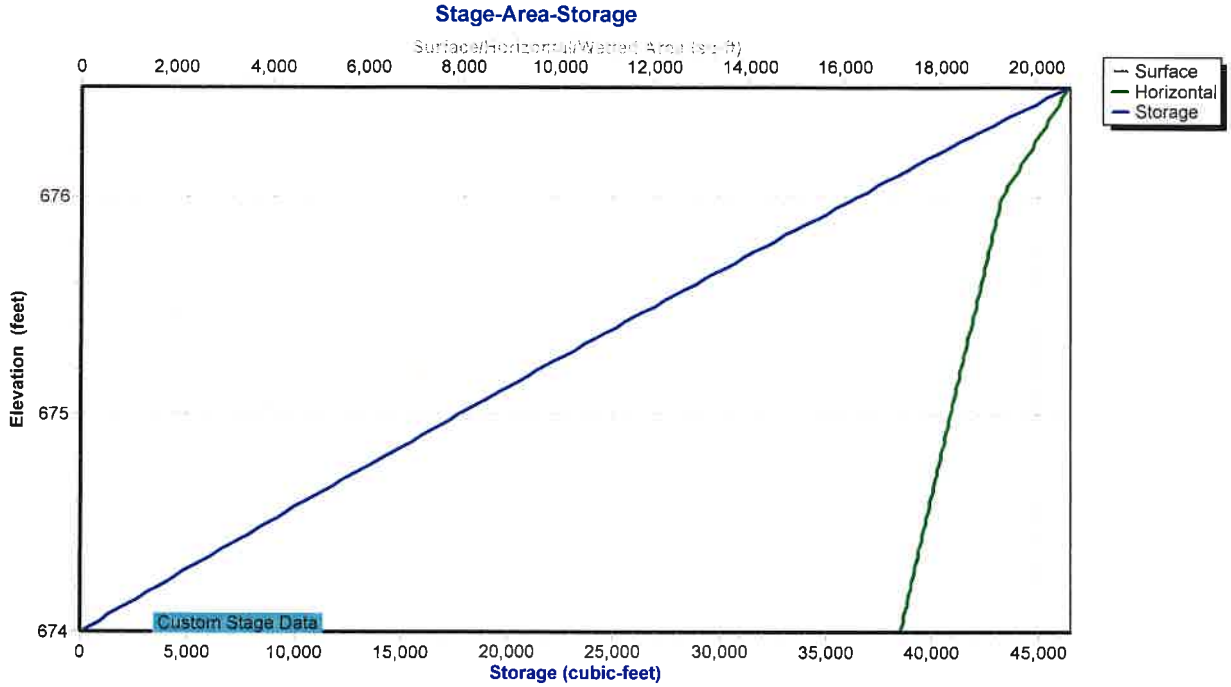


Pond 3P: Bioretention 1

Stage-Discharge



Pond 3P: Bioretention 1



Hydrograph for Pond 3P: Bioretention 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.07	93	674.01	0.02	0.02	0.00
6.00	0.25	709	674.04	0.10	0.10	0.00
8.00	0.46	2,517	674.15	0.10	0.10	0.00
10.00	1.00	6,861	674.40	0.10	0.10	0.00
12.00	**43.27**	**18,670**	**675.05**	**28.43**	**14.00**	**14.42**
14.00	**1.47**	**9,563**	**674.55**	**1.56**	**1.22**	**0.33**
16.00	0.89	9,275	674.53	0.92	0.73	0.19
18.00	0.68	9,172	674.53	0.69	0.56	0.13
20.00	0.49	9,046	674.52	0.52	0.42	0.09
22.00	0.45	8,992	674.52	0.45	0.37	0.08
24.00	0.41	8,962	674.51	0.41	0.34	0.07
26.00	0.00	8,131	674.47	0.11	0.11	0.00
28.00	0.00	7,374	674.42	0.10	0.10	0.00
30.00	0.00	6,621	674.38	0.10	0.10	0.00
32.00	0.00	5,872	674.34	0.10	0.10	0.00
34.00	0.00	5,127	674.30	0.10	0.10	0.00
36.00	0.00	4,386	674.25	0.10	0.10	0.00
38.00	0.00	3,649	674.21	0.10	0.10	0.00
40.00	0.00	2,916	674.17	0.10	0.10	0.00
42.00	0.00	2,187	674.13	0.10	0.10	0.00
44.00	0.00	1,463	674.09	0.10	0.10	0.00
46.00	0.00	742	674.04	0.10	0.10	0.00
48.00	0.00	167	674.01	0.04	0.04	0.00
50.00	0.00	31	674.00	0.01	0.01	0.00
52.00	0.00	6	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: Bioretention 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.10	0.10	0.00
674.10	0.10	0.10	0.00
674.15	0.10	0.10	0.00
674.20	0.10	0.10	0.00
674.25	0.10	0.10	0.00
674.30	0.10	0.10	0.00
674.35	0.10	0.10	0.00
674.40	0.10	0.10	0.00
674.45	0.11	0.11	0.00
674.50	0.11	0.11	0.00
674.55	1.63	1.28	0.35
674.60	4.42	3.42	1.00
674.65	8.04	6.19	1.86
674.70	12.36	9.47	2.89
674.75	17.16	13.07	4.09
674.80	18.66	13.23	5.44
674.85	20.31	13.38	6.93
674.90	22.09	13.54	8.56
674.95	24.01	13.69	10.32
675.00	26.06	13.84	12.22
675.05	28.24	13.99	14.25
675.10	30.55	14.14	16.41
675.15	32.98	14.29	18.69
675.20	35.54	14.43	21.11
675.25	38.22	14.57	23.65
675.30	41.03	14.72	26.32
675.35	43.97	14.86	29.11
675.40	47.03	15.00	32.03
675.45	50.22	15.13	35.08
675.50	53.53	15.27	38.26
675.55	56.97	15.41	41.56
675.60	60.53	15.54	44.99
675.65	64.22	15.68	48.55
675.70	68.04	15.81	52.23
675.75	71.98	15.94	56.05
675.80	76.06	16.07	59.99
675.85	80.26	16.20	64.06
675.90	84.59	16.33	68.26
675.95	89.05	16.45	72.60
676.00	93.64	16.58	77.06
676.05	98.36	16.70	81.66
676.10	103.19	16.80	86.39
676.15	108.17	16.91	91.25
676.20	113.27	17.02	96.25
676.25	118.51	17.12	101.38
676.30	123.88	17.23	106.65
676.35	129.39	17.33	112.05
676.40	135.03	17.44	117.59
676.45	140.81	17.54	123.27
676.50	**146.73**	**17.64**	**129.09**

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

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	17,150	17,150	0
674.05	17,203	17,203	859
674.10	17,257	17,257	1,720
674.15	17,310	17,310	2,584
674.20	17,363	17,363	3,451
674.25	17,416	17,416	4,321
674.30	17,469	17,469	5,193
674.35	17,523	17,523	6,068
674.40	17,576	17,576	6,945
674.45	17,629	17,629	7,825
674.50	17,683	17,683	8,708
674.55	17,736	17,736	9,594
674.60	17,789	17,789	10,482
674.65	17,842	17,842	11,372
674.70	17,896	17,896	12,266
674.75	17,949	17,949	13,162
674.80	18,002	18,002	14,061
674.85	18,055	18,055	14,962
674.90	18,108	18,108	15,866
674.95	18,162	18,162	16,773
675.00	18,215	18,215	17,683
675.05	18,268	18,268	18,595
675.10	18,321	18,321	19,509
675.15	18,375	18,375	20,427
675.20	18,428	18,428	21,347
675.25	18,481	18,481	22,270
675.30	18,534	18,534	23,195
675.35	18,587	18,587	24,123
675.40	18,641	18,641	25,054
675.45	18,694	18,694	25,987
675.50	18,747	18,747	26,923
675.55	18,800	18,800	27,862
675.60	18,853	18,853	28,803
675.65	18,907	18,907	29,747
675.70	18,960	18,960	30,694
675.75	19,013	19,013	31,643
675.80	19,066	19,066	32,595
675.85	19,119	19,119	33,550
675.90	19,173	19,173	34,507
675.95	19,226	19,226	35,467
676.00	19,279	19,279	36,430
676.05	19,419	19,419	37,397
676.10	19,558	19,558	38,371
676.15	19,698	19,698	39,353
676.20	19,837	19,837	40,341
676.25	19,977	19,977	41,337
676.30	20,117	20,117	42,339
676.35	20,256	20,256	43,348
676.40	20,396	20,396	44,364
676.45	20,535	20,535	45,388
676.50	**20,675**	**20,675**	**46,418**

Summary for Pond 6P: Bioretention 2

Inflow Area = 17.200 ac, 52.33% Impervious, Inflow Depth = 3.22" for 50-Year event
Inflow = 93.99 cfs @ 11.97 hrs, Volume= 4.608 af
Outflow = 79.22 cfs @ 12.02 hrs, Volume= 4.608 af, Atten= 16%, Lag= 2.6 min
Primary = 15.48 cfs @ 12.02 hrs, Volume= 2.610 af
Routed to Link 9L : Link
Secondary = 63.74 cfs @ 12.02 hrs, Volume= 1.998 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.85' @ 12.02 hrs Surf.Area= 18,840 sf Storage= 31,395 cf

Plug-Flow detention time= 71.1 min calculated for 4.607 af (100% of inflow)
Center-of-Mass det. time= 71.4 min (869.9 - 798.6)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	44,156 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	15,250	0	0
675.00	17,118	16,184	16,184
676.00	19,153	18,136	34,320
676.50	20,191	9,836	44,156

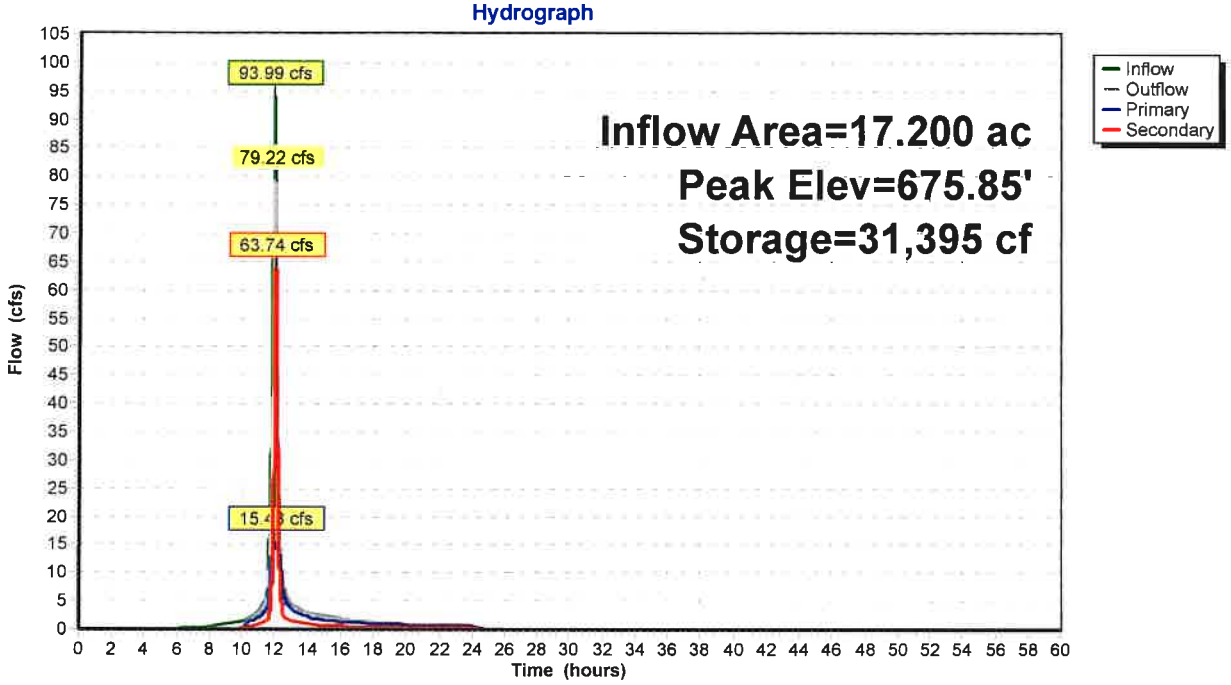
Device	Routing	Invert	Outlet Devices
#1	Primary	671.55'	**18.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.55' / 671.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=15.48 cfs @ 12.02 hrs HW=675.84' (Free Discharge)
↑**1=Culvert** (Barrel Controls 15.48 cfs @ 8.76 fps)
↑**2=Exfiltration** (Passes < 0.12 cfs potential flow)
↑**3=Grate** (Passes < 67.00 cfs potential flow)

Secondary OutFlow Max=63.61 cfs @ 12.02 hrs HW=675.84' (Free Discharge)
↑**4=Spillway** (Weir Controls 63.61 cfs @ 3.37 fps)

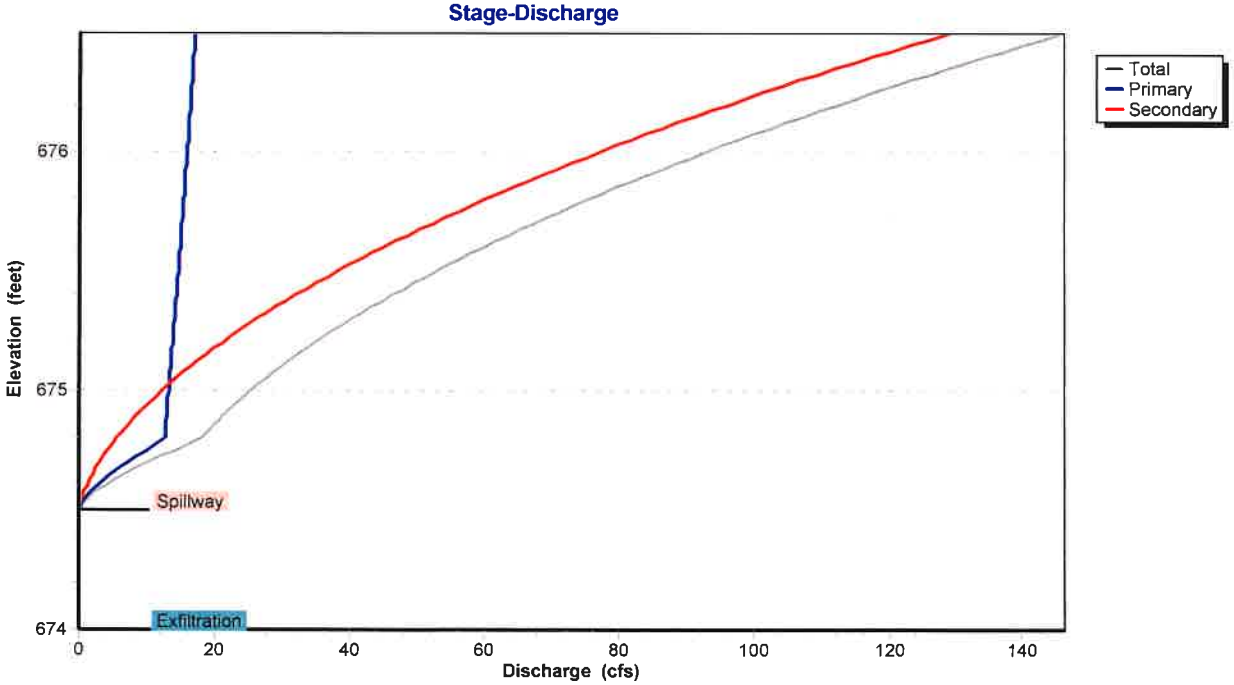
Pond 6P: Bioretention 2

Hydrograph

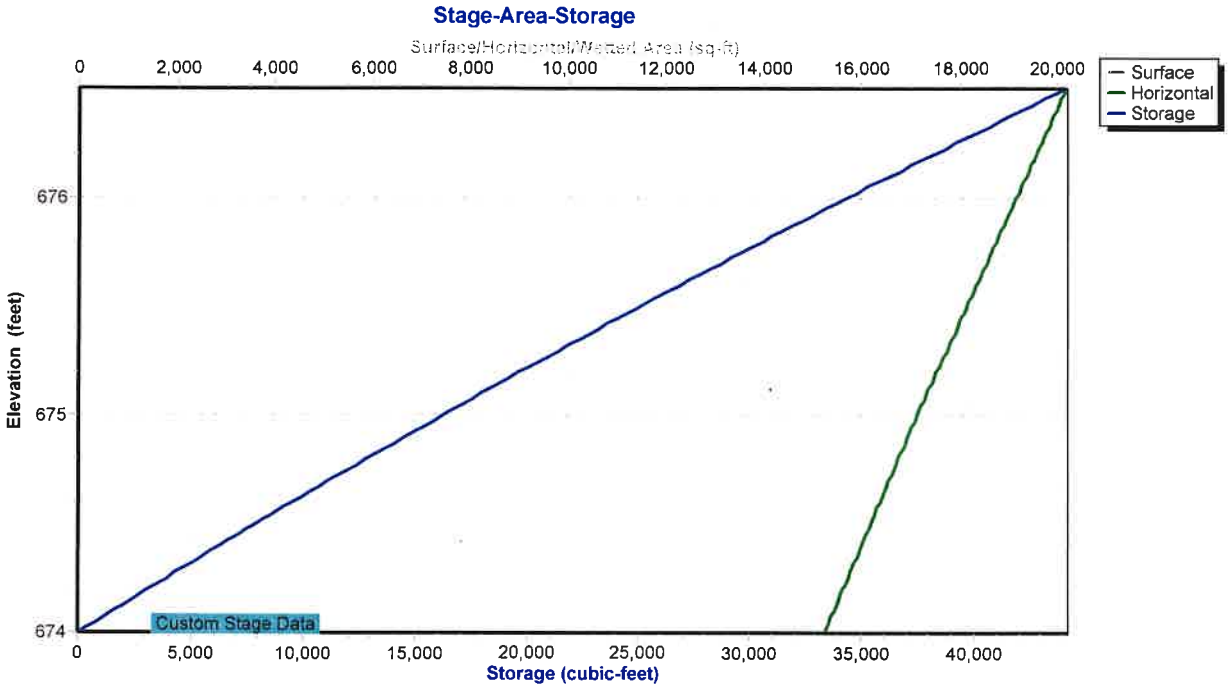


Pond 6P: Bioretention 2

Stage-Discharge



Pond 6P: Bioretention 2



Hydrograph for Pond 6P: Bioretention 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.15	217	674.01	0.05	0.05	0.00
8.00	0.50	1,924	674.13	0.09	0.09	0.00
10.00	**1.45**	7,872	674.50	0.11	0.11	0.00
12.00	**87.36**	**31,143**	**675.83**	**78.09**	**15.45**	**62.64**
14.00	2.80	**9,270**	**674.59**	**2.93**	**2.12**	**0.81**
16.00	1.72	8,848	674.56	1.78	1.30	0.48
18.00	1.33	8,681	674.55	1.35	1.00	0.36
20.00	0.97	8,502	674.54	1.00	0.74	0.26
22.00	0.89	8,448	674.54	0.89	0.67	0.23
24.00	0.81	8,412	674.53	0.82	0.61	0.21
26.00	0.00	7,373	674.47	0.10	0.10	0.00
28.00	0.00	6,682	674.43	0.10	0.10	0.00
30.00	0.00	5,996	674.38	0.09	0.09	0.00
32.00	0.00	5,316	674.34	0.09	0.09	0.00
34.00	0.00	4,640	674.30	0.09	0.09	0.00
36.00	0.00	3,971	674.26	0.09	0.09	0.00
38.00	0.00	3,306	674.21	0.09	0.09	0.00
40.00	0.00	2,647	674.17	0.09	0.09	0.00
42.00	0.00	1,993	674.13	0.09	0.09	0.00
44.00	0.00	1,344	674.09	0.09	0.09	0.00
46.00	0.00	700	674.05	0.09	0.09	0.00
48.00	0.00	165	674.01	0.04	0.04	0.00
50.00	0.00	31	674.00	0.01	0.01	0.00
52.00	0.00	6	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 6P: Bioretention 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.09	0.09	0.00
674.10	0.09	0.09	0.00
674.15	0.09	0.09	0.00
674.20	0.09	0.09	0.00
674.25	0.09	0.09	0.00
674.30	0.09	0.09	0.00
674.35	0.09	0.09	0.00
674.40	0.10	0.10	0.00
674.45	0.10	0.10	0.00
674.50	0.10	0.10	0.00
674.55	1.32	0.98	0.35
674.60	3.58	2.58	1.00
674.65	6.52	4.66	1.86
674.70	10.01	7.12	2.89
674.75	14.00	9.91	4.09
674.80	18.04	12.60	5.44
674.85	19.68	12.75	6.93
674.90	21.46	12.90	8.56
674.95	23.37	13.05	10.32
675.00	25.42	13.20	12.22
675.05	27.59	13.35	14.25
675.10	29.90	13.49	16.41
675.15	32.33	13.63	18.69
675.20	34.88	13.77	21.11
675.25	37.56	13.91	23.65
675.30	40.37	14.05	26.32
675.35	43.30	14.19	29.11
675.40	46.36	14.32	32.03
675.45	49.54	14.46	35.08
675.50	52.85	14.59	38.26
675.55	56.28	14.72	41.56
675.60	59.84	14.86	44.99
675.65	63.53	14.98	48.55
675.70	67.34	15.11	52.23
675.75	71.29	15.24	56.05
675.80	75.36	15.37	59.99
675.85	79.55	15.49	64.06
675.90	83.88	15.62	68.26
675.95	88.34	15.74	72.60
676.00	92.93	15.86	77.06
676.05	97.65	15.99	81.66
676.10	102.50	16.11	86.39
676.15	107.48	16.23	91.25
676.20	112.60	16.34	96.25
676.25	117.85	16.46	101.38
676.30	123.23	16.58	106.65
676.35	128.75	16.70	112.05
676.40	134.41	16.81	117.59
676.45	140.20	16.93	123.27
676.50	**146.13**	**17.04**	**129.09**

Stage-Area-Storage for Pond 6P: Bioretention 2

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	15,250	15,250	0
674.05	15,343	15,343	765
674.10	15,437	15,437	1,534
674.15	15,530	15,530	2,309
674.20	15,624	15,624	3,087
674.25	15,717	15,717	3,871
674.30	15,810	15,810	4,659
674.35	15,904	15,904	5,452
674.40	15,997	15,997	6,249
674.45	16,091	16,091	7,052
674.50	16,184	16,184	7,859
674.55	16,277	16,277	8,670
674.60	16,371	16,371	9,486
674.65	16,464	16,464	10,307
674.70	16,558	16,558	11,133
674.75	16,651	16,651	11,963
674.80	16,744	16,744	12,798
674.85	16,838	16,838	13,637
674.90	16,931	16,931	14,482
674.95	17,025	17,025	15,330
675.00	17,118	17,118	16,184
675.05	17,220	17,220	17,042
675.10	17,322	17,322	17,906
675.15	17,423	17,423	18,775
675.20	17,525	17,525	19,648
675.25	17,627	17,627	20,527
675.30	17,728	17,728	21,411
675.35	17,830	17,830	22,300
675.40	17,932	17,932	23,194
675.45	18,034	18,034	24,093
675.50	18,136	18,136	24,997
675.55	18,237	18,237	25,907
675.60	18,339	18,339	26,821
675.65	18,441	18,441	27,741
675.70	18,543	18,543	28,665
675.75	18,644	18,644	29,595
675.80	18,746	18,746	30,530
675.85	18,848	18,848	31,469
675.90	18,949	18,949	32,414
675.95	19,051	19,051	33,364
676.00	19,153	19,153	34,320
676.05	19,257	19,257	35,280
676.10	19,361	19,361	36,245
676.15	19,464	19,464	37,216
676.20	19,568	19,568	38,192
676.25	19,672	19,672	39,173
676.30	19,776	19,776	40,159
676.35	19,880	19,880	41,150
676.40	19,983	19,983	42,147
676.45	20,087	20,087	43,149
676.50	**20,191**	**20,191**	**44,156**

Summary for Pond 7P: Basin

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 3.38" for 50-Year event
Inflow = 110.28 cfs @ 12.03 hrs, Volume= 7.186 af
Outflow = 3.71 cfs @ 14.65 hrs, Volume= 7.186 af, Atten= 97%, Lag= 157.4 min
Primary = 3.71 cfs @ 14.65 hrs, Volume= 7.186 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 677.80' @ 14.65 hrs Surf.Area= 55,710 sf Storage= 178,688 cf

Plug-Flow detention time= 505.2 min calculated for 7.185 af (100% of inflow)
Center-of-Mass det. time= 505.1 min (1,391.8 - 886.7)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	311,588 cf	**dry basin (Prismatic)**Listed below (Recalc)

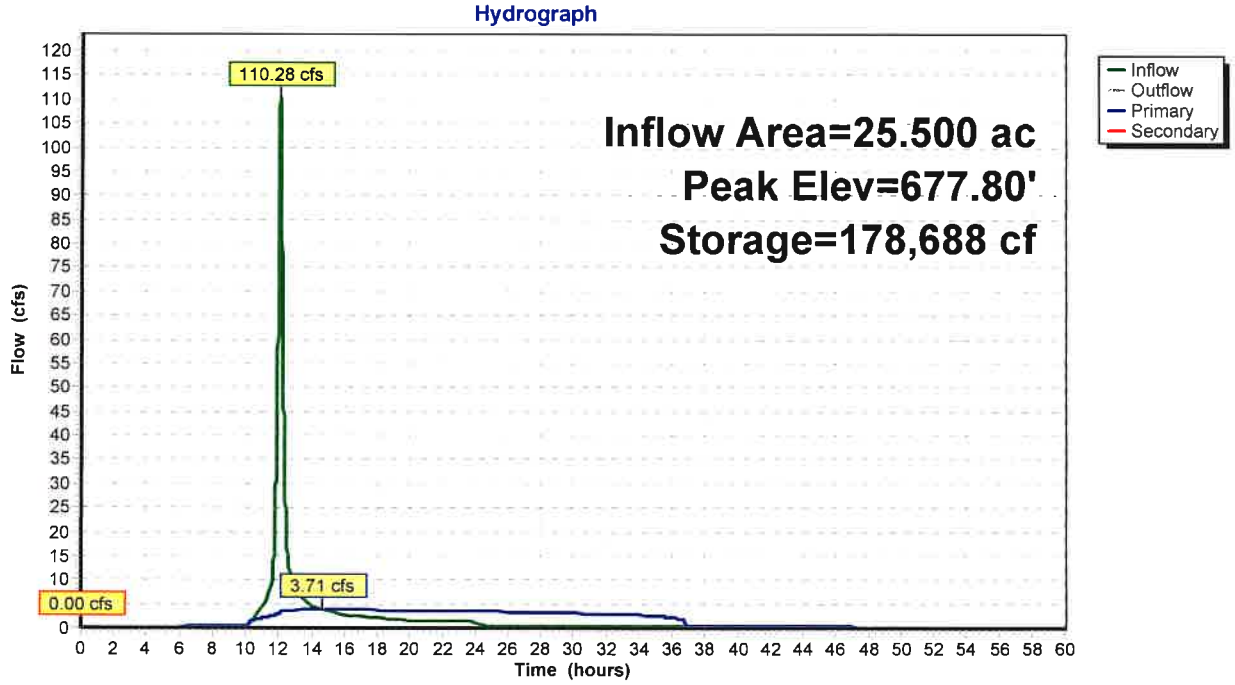
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	1,285	0	0
673.00	6,433	3,859	3,859
674.00	9,723	8,078	11,937
675.00	44,268	26,996	38,933
676.00	48,305	46,287	85,219
677.00	52,399	50,352	135,571
678.00	56,550	54,475	190,046
679.00	60,757	58,654	248,699
680.00	65,021	62,889	311,588

Device	Routing	Invert	Outlet Devices
#1	Primary	670.75'	**10.0" Round Culvert (structure to outlet)** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 670.75' / 670.15' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	670.80'	**8.0" Round Culvert (basin to structure)** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 670.80' / 670.75' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 1	678.00'	**24.0" W x 24.0" H Vert. Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	670.75'	**8.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	675.50'	**5.0' long Weir** 2 End Contraction(s)
#6	Secondary	679.00'	**143.0 deg x 20.0' long x 1.00' rise Spillway** Cv= 2.47 (C= 3.09)

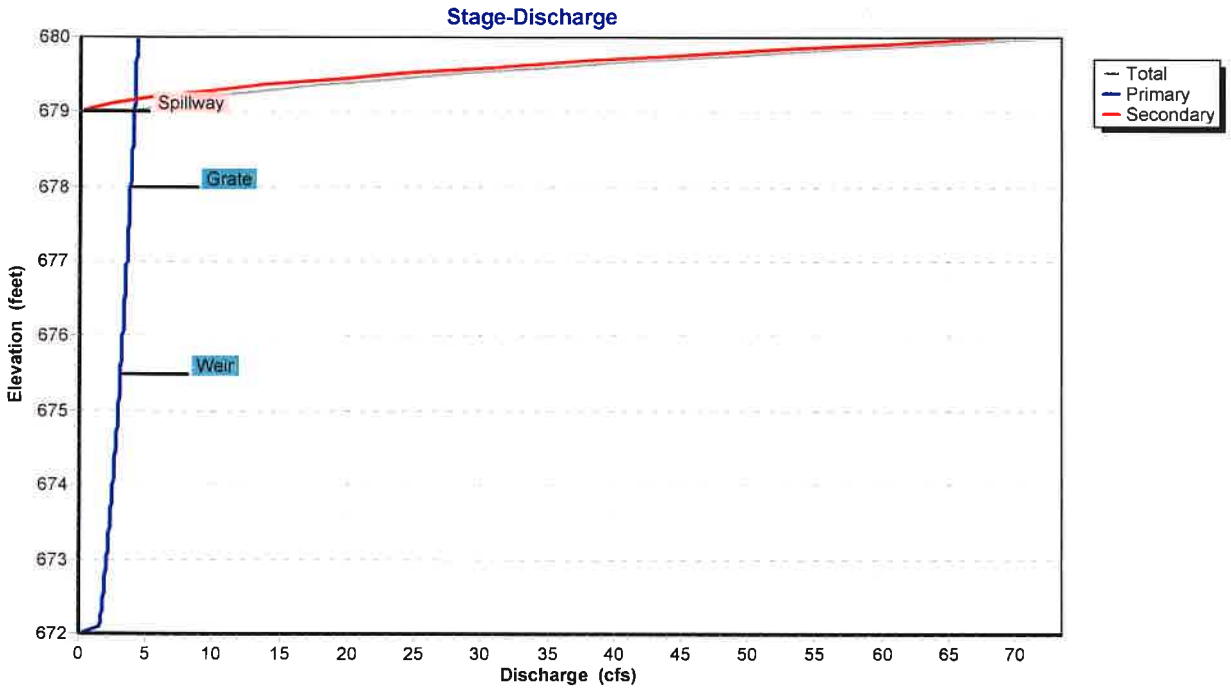
Primary OutFlow Max=3.71 cfs @ 14.65 hrs HW=677.80' (Free Discharge)
└─**1=Culvert (structure to outlet)** (Barrel Controls 3.71 cfs @ 6.79 fps)
  └─**2=Culvert (basin to structure)** (Passes < 3.83 cfs potential flow)
  └─**3=Grate** (Controls 0.00 cfs)
  └─**4=Orifice** (Passes < 13.07 cfs potential flow)
  └─**5=Weir** (Passes < 51.71 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=672.00' (Free Discharge)
└─**6=Spillway** (Controls 0.00 cfs)

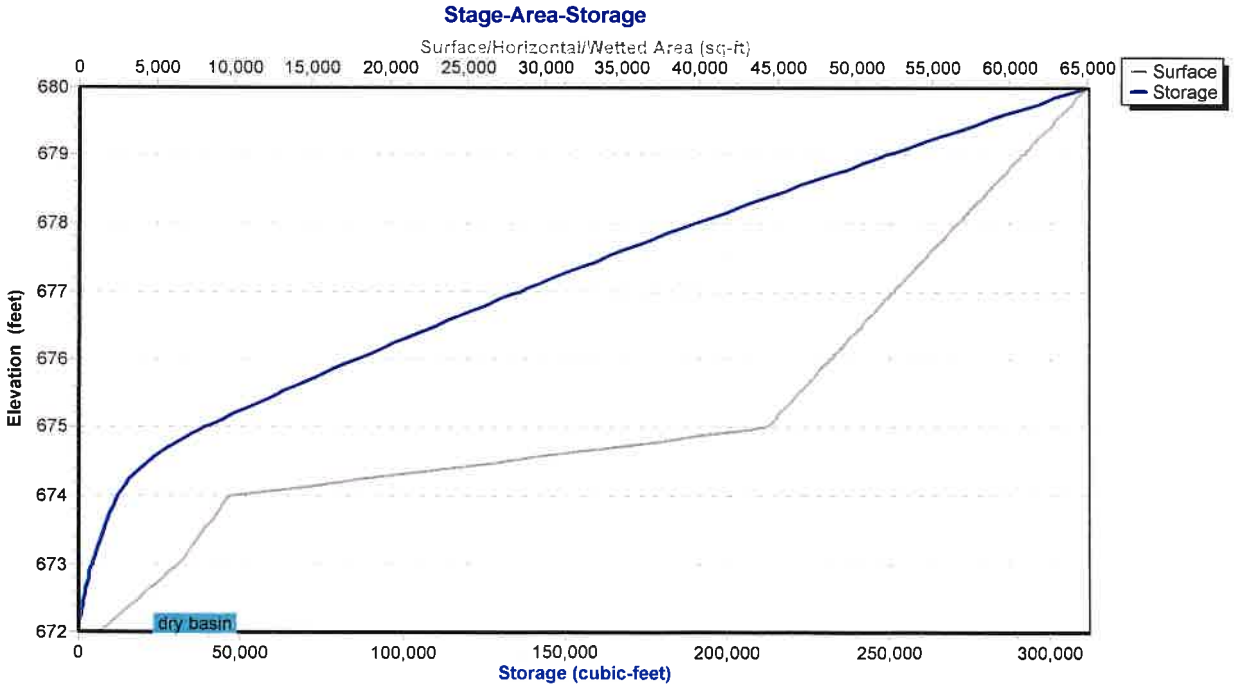
Pond 7P: Basin



Pond 7P: Basin



Pond 7P: Basin



Hydrograph for Pond 7P: Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	672.00	0.00	0.00	**0.00**
2.00	0.00	0	672.00	0.00	0.00	0.00
4.00	0.02	2	672.00	0.02	0.02	0.00
6.00	0.15	12	672.01	0.15	0.15	0.00
8.00	0.19	15	672.01	0.19	0.19	0.00
10.00	0.22	16	672.01	0.20	0.20	0.00
12.00	**106.51**	70,726	675.70	3.08	3.08	0.00
14.00	**4.49**	**177,967**	**677.78**	**3.70**	**3.70**	0.00
16.00	2.69	**176,267**	**677.75**	**3.69**	**3.69**	0.00
18.00	2.04	166,547	677.58	3.65	3.65	0.00
20.00	1.51	153,359	677.33	3.58	3.58	0.00
22.00	1.34	137,993	677.05	3.50	3.50	0.00
24.00	1.23	122,414	676.75	3.41	3.41	0.00
26.00	0.20	100,706	676.32	3.28	3.28	0.00
28.00	0.20	79,052	675.87	3.14	3.14	0.00
30.00	0.20	58,411	675.43	2.99	2.99	0.00
32.00	0.20	38,821	675.00	2.84	2.84	0.00
34.00	0.20	20,398	674.47	2.65	2.65	0.00
36.00	0.20	4,380	673.08	2.05	2.05	0.00
38.00	0.19	16	672.01	0.19	0.19	0.00
40.00	0.19	15	672.01	0.19	0.19	0.00
42.00	0.19	15	672.01	0.19	0.19	0.00
44.00	0.19	15	672.01	0.19	0.19	0.00
46.00	0.19	15	672.01	0.19	0.19	0.00
48.00	0.08	6	672.00	0.08	0.08	0.00
50.00	0.01	1	672.00	0.01	0.01	0.00
52.00	0.00	0	672.00	0.00	0.00	0.00
54.00	0.00	0	672.00	0.00	0.00	0.00
56.00	0.00	0	672.00	0.00	0.00	0.00
58.00	0.00	0	672.00	0.00	0.00	0.00
60.00	0.00	0	672.00	0.00	0.00	0.00

Stage-Discharge for Pond 7P: Basin

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
672.00	0.00	0.00	0.00
672.10	1.50	1.50	0.00
672.20	1.57	1.57	0.00
672.30	1.63	1.63	0.00
672.40	1.69	1.69	0.00
672.50	1.75	1.75	0.00
672.60	1.80	1.80	0.00
672.70	1.86	1.86	0.00
672.80	1.91	1.91	0.00
672.90	1.97	1.97	0.00
673.00	2.02	2.02	0.00
673.10	2.07	2.07	0.00
673.20	2.11	2.11	0.00
673.30	2.16	2.16	0.00
673.40	2.21	2.21	0.00
673.50	2.25	2.25	0.00
673.60	2.30	2.30	0.00
673.70	2.34	2.34	0.00
673.80	2.38	2.38	0.00
673.90	2.42	2.42	0.00
674.00	2.47	2.47	0.00
674.10	2.51	2.51	0.00
674.20	2.55	2.55	0.00
674.30	2.59	2.59	0.00
674.40	2.62	2.62	0.00
674.50	2.66	2.66	0.00
674.60	2.70	2.70	0.00
674.70	2.74	2.74	0.00
674.80	2.77	2.77	0.00
674.90	2.81	2.81	0.00
675.00	2.84	2.84	0.00
675.10	2.88	2.88	0.00
675.20	2.91	2.91	0.00
675.30	2.95	2.95	0.00
675.40	2.98	2.98	0.00
675.50	3.02	3.02	0.00
675.60	3.05	3.05	0.00
675.70	3.08	3.08	0.00
675.80	3.12	3.12	0.00
675.90	3.15	3.15	0.00
676.00	3.18	3.18	0.00
676.10	3.21	3.21	0.00
676.20	3.24	3.24	0.00
676.30	3.27	3.27	0.00
676.40	3.30	3.30	0.00
676.50	3.33	3.33	0.00
676.60	3.36	3.36	0.00
676.70	3.39	3.39	0.00
676.80	3.42	3.42	0.00
676.90	3.45	3.45	0.00
677.00	3.48	3.48	0.00
677.10	3.51	3.51	0.00
677.20	3.54	3.54	0.00
677.30	3.57	3.57	0.00
677.40	3.60	3.60	0.00
677.50	3.62	3.62	0.00
677.60	3.65	3.65	0.00
677.70	3.68	3.68	0.00
677.80	3.71	3.71	0.00
677.90	3.73	3.73	0.00
678.00	3.76	3.76	0.00
678.10	3.79	3.79	0.00
678.20	3.81	3.81	0.00
678.30	3.84	3.84	0.00
678.40	3.87	3.87	0.00
678.50	3.89	3.89	0.00
678.60	3.92	3.92	0.00
678.70	3.94	3.94	0.00
678.80	3.97	3.97	0.00
678.90	3.99	3.99	0.00
679.00	4.02	4.02	0.00
679.10	6.02	4.04	1.98
679.20	9.72	4.07	5.66
679.30	14.60	4.09	10.51
679.40	20.49	4.12	16.37
679.50	27.28	4.14	23.14
679.60	34.92	4.17	30.76
679.70	43.38	4.19	39.19
679.80	52.63	4.22	48.41
679.90	62.63	4.24	58.40
680.00	**73.39**	**4.26**	**69.13**

Stage-Area-Storage for Pond 7P: Basin

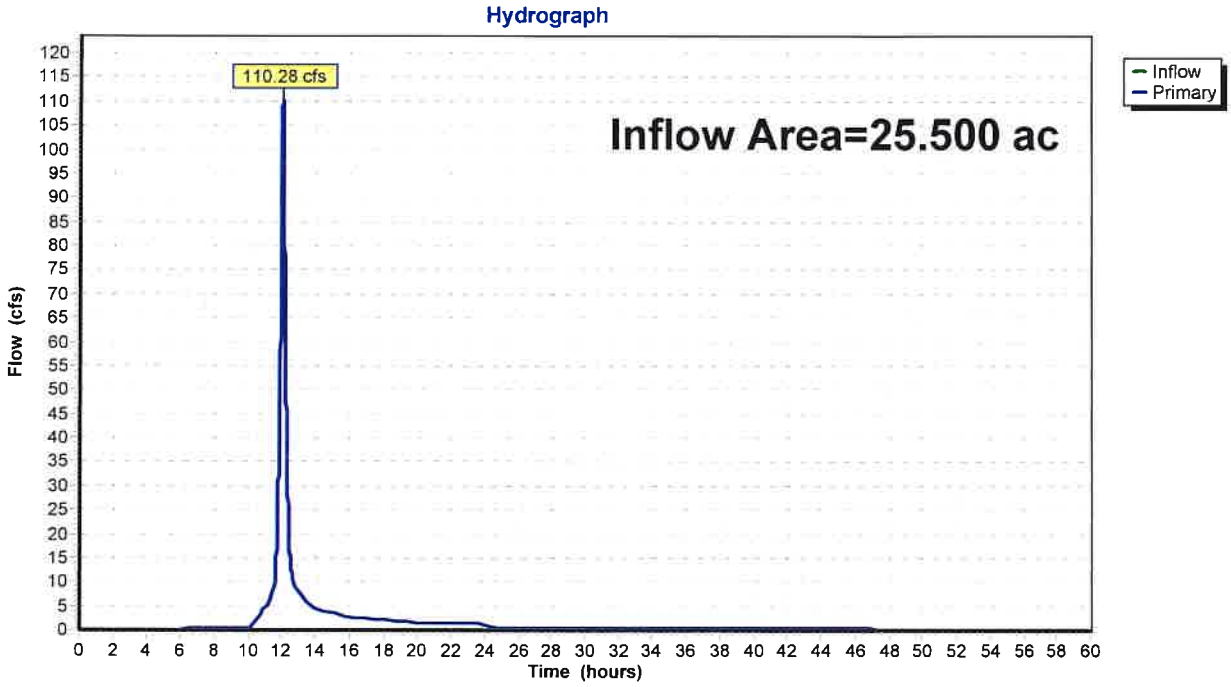
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.00	1,285	0
672.10	1,800	154
672.20	2,315	360
672.30	2,829	617
672.40	3,344	926
672.50	3,859	1,286
672.60	4,374	1,698
672.70	4,889	2,161
672.80	5,403	2,675
672.90	5,918	3,241
673.00	6,433	3,859
673.10	6,762	4,519
673.20	7,091	5,211
673.30	7,420	5,937
673.40	7,749	6,695
673.50	8,078	7,487
673.60	8,407	8,311
673.70	8,736	9,168
673.80	9,065	10,058
673.90	9,394	10,981
674.00	9,723	11,937
674.10	13,178	13,082
674.20	16,632	14,573
674.30	20,086	16,408
674.40	23,541	18,590
674.50	26,996	21,117
674.60	30,450	23,989
674.70	33,905	27,207
674.80	37,359	30,770
674.90	40,813	34,678
675.00	44,268	38,933
675.10	44,672	43,379
675.20	45,075	47,867
675.30	45,479	52,395
675.40	45,883	56,963
675.50	46,287	61,571
675.60	46,690	66,220
675.70	47,094	70,909
675.80	47,498	75,639
675.90	47,901	80,409
676.00	48,305	85,219
676.10	48,714	90,070
676.20	49,124	94,962
676.30	49,533	99,895
676.40	49,943	104,869
676.50	50,352	109,883
676.60	50,761	114,939
676.70	51,171	120,036
676.80	51,580	125,173
676.90	51,990	130,352
677.00	52,399	135,571
677.10	52,814	140,832
677.20	53,229	146,134
677.30	53,644	151,477
677.40	54,059	156,863
677.50	54,475	162,289
677.60	54,890	167,758
677.70	55,305	173,267
677.80	55,720	178,819
677.90	56,135	184,411
678.00	56,550	190,046
678.10	56,971	195,722
678.20	57,391	201,440
678.30	57,812	207,200
678.40	58,233	213,002
678.50	58,654	218,846
678.60	59,074	224,733
678.70	59,495	230,661
678.80	59,916	236,632
678.90	60,336	242,644
679.00	60,757	248,699
679.10	61,183	254,796
679.20	61,610	260,936
679.30	62,036	267,118
679.40	62,463	273,343
679.50	62,889	279,611
679.60	63,315	285,921
679.70	63,742	292,274
679.80	64,168	298,669
679.90	64,595	305,107
680.00	**65,021**	**311,588**

Summary for Link 9L: Link

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 3.38" for 50-Year event
Inflow = 110.28 cfs @ 12.03 hrs, Volume= 7.186 af
Primary = 110.28 cfs @ 12.03 hrs, Volume= 7.186 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 7P : Basin

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 9L: Link



Hydrograph for Link 9L: Link

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	53.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
4.00	0.02	0.00	0.02	57.00	0.00	0.00	0.00
5.00	0.08	0.00	0.08	58.00	0.00	0.00	0.00
6.00	0.15	0.00	0.15	59.00	0.00	0.00	0.00
7.00	0.19	0.00	0.19	60.00	0.00	0.00	0.00
8.00	0.19	0.00	0.19				
9.00	0.20	0.00	0.20				
10.00	0.22	0.00	0.22				
11.00	4.69	0.00	4.69				
12.00	**106.51**	0.00	**106.51**				
13.00	**7.70**	0.00	**7.70**				
14.00	4.49	0.00	4.49				
15.00	3.45	0.00	3.45				
16.00	2.69	0.00	2.69				
17.00	2.31	0.00	2.31				
18.00	2.04	0.00	2.04				
19.00	1.78	0.00	1.78				
20.00	1.51	0.00	1.51				
21.00	1.40	0.00	1.40				
22.00	1.34	0.00	1.34				
23.00	1.29	0.00	1.29				
24.00	1.23	0.00	1.23				
25.00	0.20	0.00	0.20				
26.00	0.20	0.00	0.20				
27.00	0.20	0.00	0.20				
28.00	0.20	0.00	0.20				
29.00	0.20	0.00	0.20				
30.00	0.20	0.00	0.20				
31.00	0.20	0.00	0.20				
32.00	0.20	0.00	0.20				
33.00	0.20	0.00	0.20				
34.00	0.20	0.00	0.20				
35.00	0.20	0.00	0.20				
36.00	0.20	0.00	0.20				
37.00	0.19	0.00	0.19				
38.00	0.19	0.00	0.19				
39.00	0.19	0.00	0.19				
40.00	0.19	0.00	0.19				
41.00	0.19	0.00	0.19				
42.00	0.19	0.00	0.19				
43.00	0.19	0.00	0.19				
44.00	0.19	0.00	0.19				
45.00	0.19	0.00	0.19				
46.00	0.19	0.00	0.19				
47.00	0.18	0.00	0.18				
48.00	0.08	0.00	0.08				
49.00	0.03	0.00	0.03				
50.00	0.01	0.00	0.01				
51.00	0.01	0.00	0.01				
52.00	0.00	0.00	0.00				

Summary for Subcatchment 1S: Proposed North

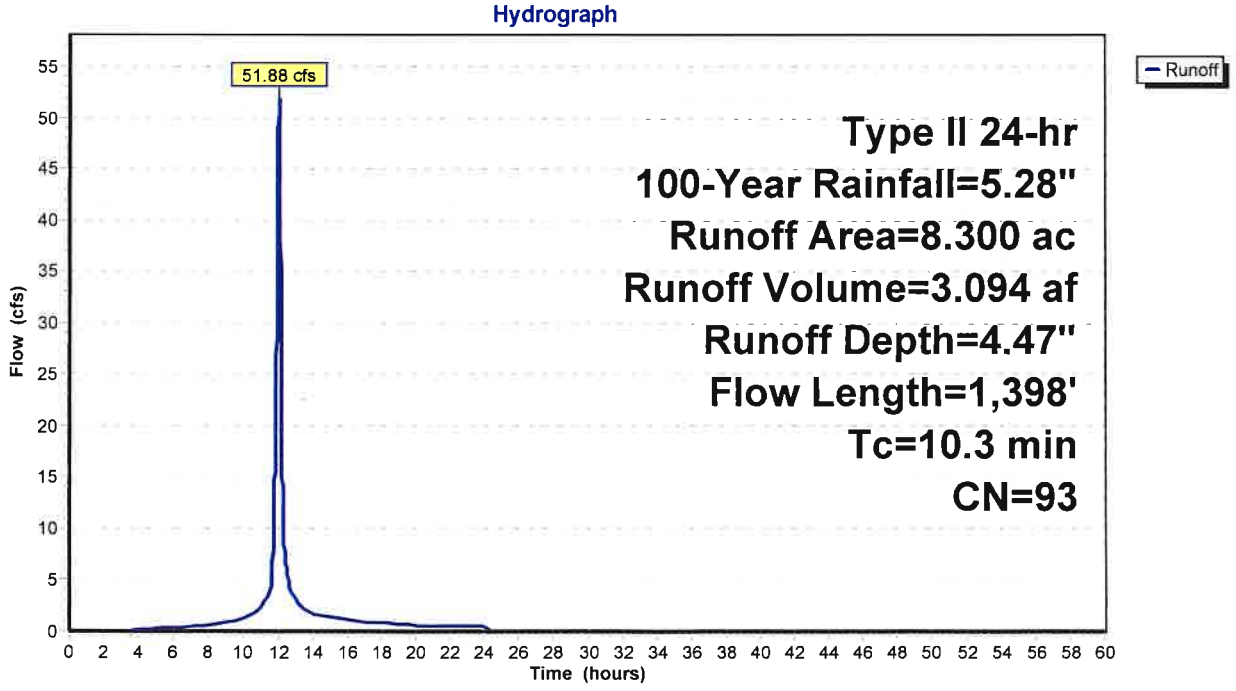
Runoff = 51.88 cfs @ 12.01 hrs, Volume= 3.094 af, Depth= 4.47"
Routed to Pond 3P : Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
5.000	98	Paved parking, HSG D
1.400	98	Paved parking, HSG C
1.100	80	>75% Grass cover, Good, HSG D
0.800	74	>75% Grass cover, Good, HSG C
8.300	93	Weighted Average
1.900		22.89% Pervious Area
6.400		77.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	72	0.3500	0.44		**Sheet Flow, grass** Grass: Short n= 0.150 P2= 2.50"
1.9	300	0.0160	2.57		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
5.7	1,026		3.00		**Direct Entry, Pipe flow**
10.3	1,398	Total			

Subcatchment 1S: Proposed North



Hydrograph for Subcatchment 1S: Proposed North

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	53.00	5.28	4.47	0.00
1.00	0.06	0.00	0.00	54.00	5.28	4.47	0.00
2.00	0.12	0.00	0.00	55.00	5.28	4.47	0.00
3.00	0.18	0.00	0.03	56.00	5.28	4.47	0.00
4.00	0.25	0.01	0.13	57.00	5.28	4.47	0.00
5.00	0.33	0.04	0.23	58.00	5.28	4.47	0.00
6.00	0.42	0.07	0.35	59.00	5.28	4.47	0.00
7.00	0.52	0.12	0.47	60.00	5.28	4.47	0.00
8.00	0.63	0.19	0.59				
9.00	0.78	0.28	0.93				
10.00	0.96	0.42	1.25				
11.00	1.24	0.64	2.39				
12.00	3.50	2.74	**51.38**				
13.00	4.08	3.29	**2.98**				
14.00	4.33	3.54	1.73				
15.00	4.51	3.71	1.35				
16.00	4.65	3.85	1.04				
17.00	4.76	3.96	0.91				
18.00	4.86	4.06	0.80				
19.00	4.95	4.15	0.69				
20.00	5.03	4.22	0.58				
21.00	5.09	4.29	0.55				
22.00	5.16	4.35	0.52				
23.00	5.22	4.41	0.50				
24.00	**5.28**	**4.47**	0.48				
25.00	5.28	4.47	0.00				
26.00	5.28	4.47	0.00				
27.00	5.28	4.47	0.00				
28.00	5.28	4.47	0.00				
29.00	5.28	4.47	0.00				
30.00	5.28	4.47	0.00				
31.00	5.28	4.47	0.00				
32.00	5.28	4.47	0.00				
33.00	5.28	4.47	0.00				
34.00	5.28	4.47	0.00				
35.00	5.28	4.47	0.00				
36.00	5.28	4.47	0.00				
37.00	5.28	4.47	0.00				
38.00	5.28	4.47	0.00				
39.00	5.28	4.47	0.00				
40.00	5.28	4.47	0.00				
41.00	5.28	4.47	0.00				
42.00	5.28	4.47	0.00				
43.00	5.28	4.47	0.00				
44.00	5.28	4.47	0.00				
45.00	5.28	4.47	0.00				
46.00	5.28	4.47	0.00				
47.00	5.28	4.47	0.00				
48.00	5.28	4.47	0.00				
49.00	5.28	4.47	0.00				
50.00	5.28	4.47	0.00				
51.00	5.28	4.47	0.00				
52.00	5.28	4.47	0.00				

Summary for Subcatchment 2S: Proposed South

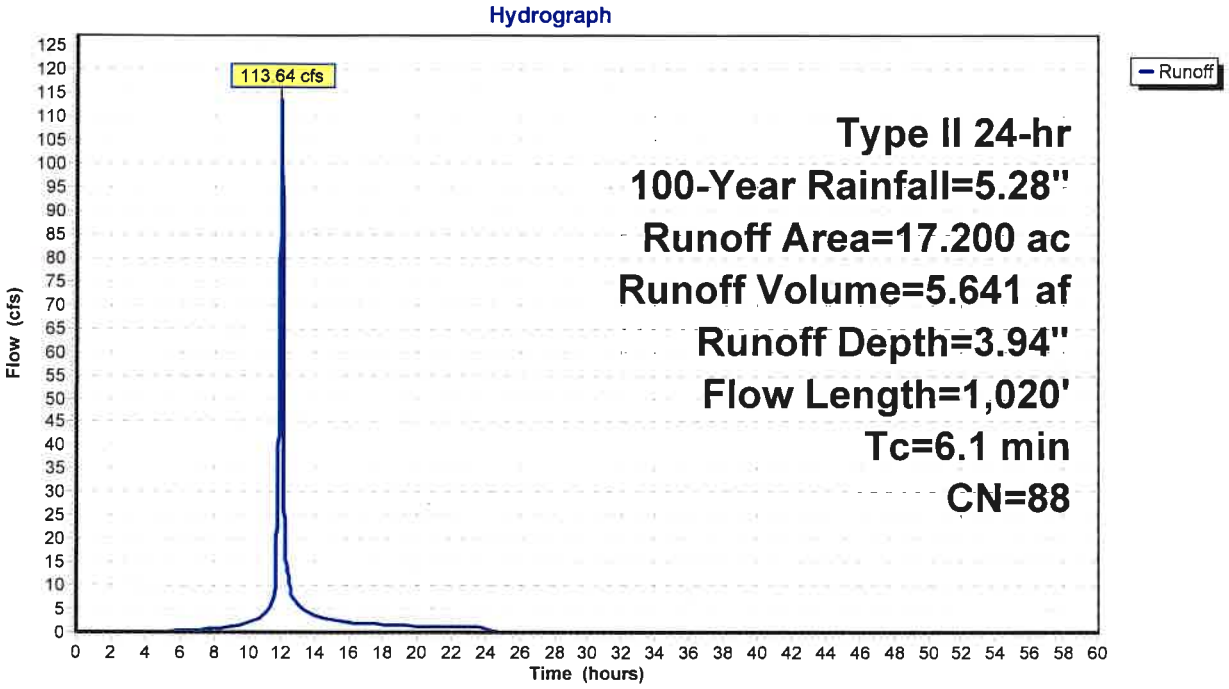
Runoff = 113.64 cfs @ 11.97 hrs, Volume= 5.641 af, Depth= 3.94"
Routed to Pond 6P : Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
5.400	98	Paved parking, HSG D
3.600	98	Paved parking, HSG C
4.800	80	>75% Grass cover, Good, HSG D
3.200	74	>75% Grass cover, Good, HSG C
0.120	96	Gravel surface, HSG D
0.080	96	Gravel surface, HSG C
17.200	88	Weighted Average
8.200		47.67% Pervious Area
9.000		52.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	30	0.0100	0.72		**Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 2.50"
0.8	160	0.0460	3.45		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		**Shallow Concentrated Flow, pavement** Paved Kv= 20.3 fps
4.4	800		3.00		**Direct Entry, Pipe flow**
6.1	1,020	Total			

Subcatchment 2S: Proposed South



Hydrograph for Subcatchment 2S: Proposed South

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.10
6.00	0.42	0.01	0.29
7.00	0.52	0.04	0.50
8.00	0.63	0.08	0.73
9.00	0.78	0.14	1.30
10.00	0.96	0.23	1.93
11.00	1.24	0.40	**4.05**
12.00	3.50	2.27	**105.37**
13.00	4.08	2.80	5.61
14.00	4.33	3.04	3.33
15.00	4.51	3.20	2.64
16.00	4.65	3.33	2.04
17.00	4.76	3.44	1.80
18.00	4.86	3.54	1.58
19.00	4.95	3.62	1.37
20.00	5.03	3.69	1.15
21.00	5.09	3.76	1.09
22.00	5.16	3.82	1.05
23.00	5.22	3.88	1.01
24.00	**5.28**	**3.94**	0.97
25.00	5.28	3.94	0.00
26.00	5.28	3.94	0.00
27.00	5.28	3.94	0.00
28.00	5.28	3.94	0.00
29.00	5.28	3.94	0.00
30.00	5.28	3.94	0.00
31.00	5.28	3.94	0.00
32.00	5.28	3.94	0.00
33.00	5.28	3.94	0.00
34.00	5.28	3.94	0.00
35.00	5.28	3.94	0.00
36.00	5.28	3.94	0.00
37.00	5.28	3.94	0.00
38.00	5.28	3.94	0.00
39.00	5.28	3.94	0.00
40.00	5.28	3.94	0.00
41.00	5.28	3.94	0.00
42.00	5.28	3.94	0.00
43.00	5.28	3.94	0.00
44.00	5.28	3.94	0.00
45.00	5.28	3.94	0.00
46.00	5.28	3.94	0.00
47.00	5.28	3.94	0.00
48.00	5.28	3.94	0.00
49.00	5.28	3.94	0.00
50.00	5.28	3.94	0.00
51.00	5.28	3.94	0.00
52.00	5.28	3.94	0.00
53.00	5.28	3.94	0.00
54.00	5.28	3.94	0.00
55.00	5.28	3.94	0.00
56.00	5.28	3.94	0.00
57.00	5.28	3.94	0.00
58.00	5.28	3.94	0.00
59.00	5.28	3.94	0.00
60.00	5.28	3.94	0.00

Summary for Pond 3P: Bioretention 1

Inflow Area = 8.300 ac, 77.11% Impervious, Inflow Depth = 4.47" for 100-Year event
Inflow = 51.88 cfs @ 12.01 hrs, Volume= 3.094 af
Outflow = 42.13 cfs @ 12.08 hrs, Volume= 3.094 af, Atten= 19%, Lag= 3.7 min
Primary = 14.77 cfs @ 12.08 hrs, Volume= 2.126 af
Routed to Link 9L : Link
Secondary = 27.36 cfs @ 12.08 hrs, Volume= 0.967 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 675.32' @ 12.08 hrs Surf.Area= 18,554 sf Storage= 23,545 cf

Plug-Flow detention time= 116.7 min calculated for 3.094 af (100% of inflow)
Center-of-Mass det. time= 116.6 min (893.8 - 777.2)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	46,418 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	17,150	0	0
675.00	18,215	17,683	17,683
676.00	19,279	18,747	36,430
676.50	20,675	9,989	46,418

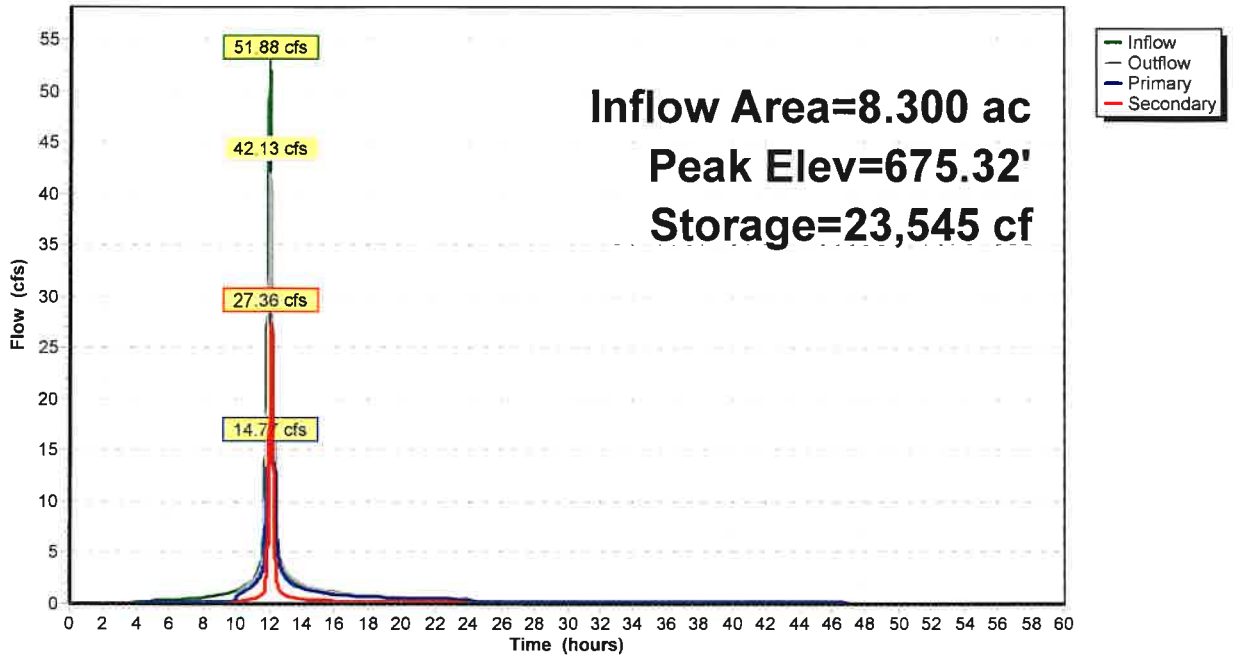
Device	Routing	Invert	Outlet Devices
#1	Primary	671.45'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.45' / 671.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=14.77 cfs @ 12.08 hrs HW=675.32' (Free Discharge)
└─**1=Culvert** (Barrel Controls 14.77 cfs @ 8.36 fps)
  ├─**2=Exfiltration** (Passes < 0.12 cfs potential flow)
  └─**3=Grate** (Passes < 69.69 cfs potential flow)

Secondary OutFlow Max=27.32 cfs @ 12.08 hrs HW=675.32' (Free Discharge)
└─**4=Spillway** (Weir Controls 27.32 cfs @ 2.68 fps)

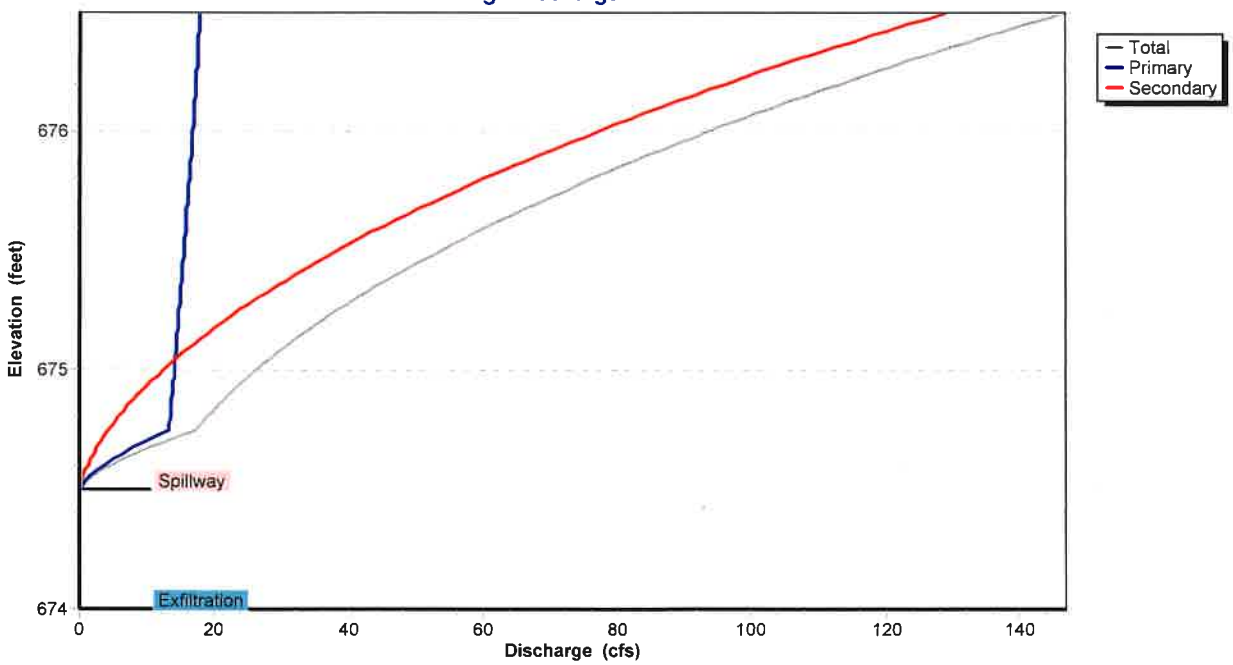
Pond 3P: Bioretention 1

Hydrograph

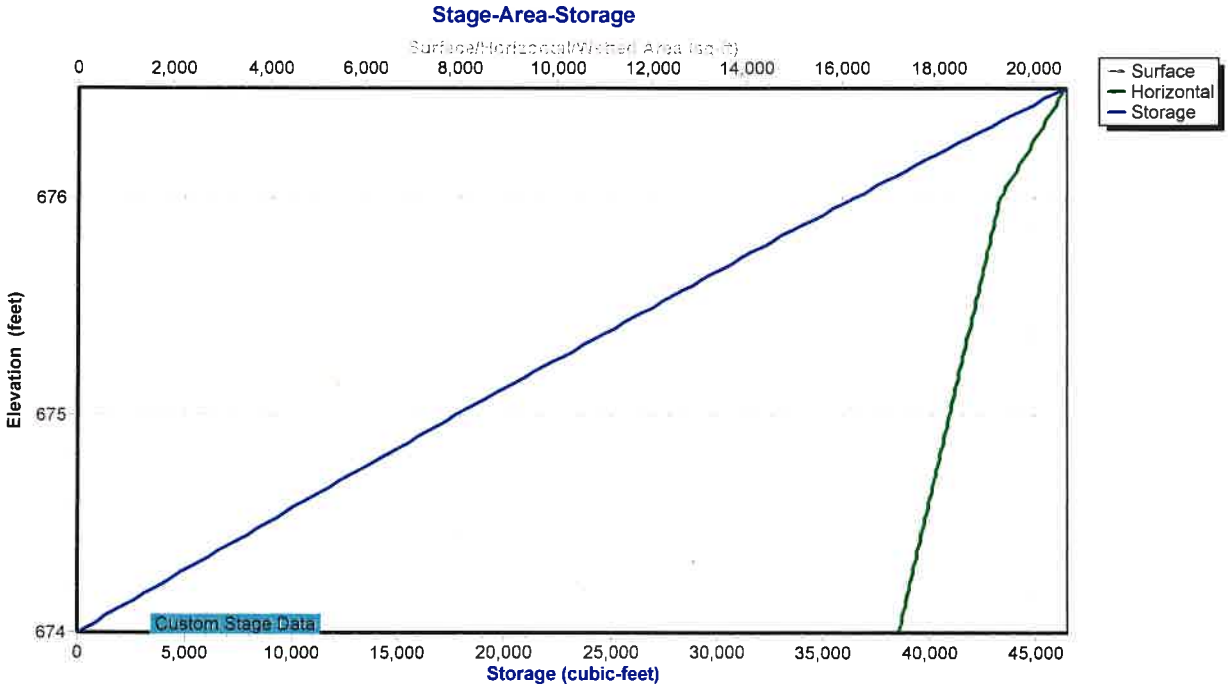


Pond 3P: Bioretention 1

Stage-Discharge



Pond 3P: Bioretention 1



Hydrograph for Pond 3P: Bioretention 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.13	213	674.01	0.05	0.05	0.00
6.00	0.35	1,232	674.07	0.10	0.10	0.00
8.00	0.59	3,880	674.22	0.10	0.10	0.00
10.00	1.25	9,257	674.53	0.88	0.70	0.18
12.00	**51.38**	**20,890**	**675.18**	**34.25**	**14.36**	**19.90**
14.00	**1.73**	**9,661**	**674.55**	**1.82**	**1.42**	**0.39**
16.00	1.04	9,348	674.54	1.08	0.86	0.22
18.00	0.80	9,226	674.53	0.81	0.65	0.16
20.00	0.58	9,119	674.52	0.60	0.49	0.11
22.00	0.52	9,057	674.52	0.53	0.43	0.10
24.00	0.48	9,022	674.52	0.49	0.40	0.09
26.00	0.00	8,145	674.47	0.11	0.11	0.00
28.00	0.00	7,388	674.43	0.10	0.10	0.00
30.00	0.00	6,635	674.38	0.10	0.10	0.00
32.00	0.00	5,885	674.34	0.10	0.10	0.00
34.00	0.00	5,140	674.30	0.10	0.10	0.00
36.00	0.00	4,399	674.25	0.10	0.10	0.00
38.00	0.00	3,662	674.21	0.10	0.10	0.00
40.00	0.00	2,930	674.17	0.10	0.10	0.00
42.00	0.00	2,201	674.13	0.10	0.10	0.00
44.00	0.00	1,476	674.09	0.10	0.10	0.00
46.00	0.00	755	674.04	0.10	0.10	0.00
48.00	0.00	172	674.01	0.04	0.04	0.00
50.00	0.00	32	674.00	0.01	0.01	0.00
52.00	0.00	6	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: Bioretention 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.10	0.10	0.00
674.10	0.10	0.10	0.00
674.15	0.10	0.10	0.00
674.20	0.10	0.10	0.00
674.25	0.10	0.10	0.00
674.30	0.10	0.10	0.00
674.35	0.10	0.10	0.00
674.40	0.10	0.10	0.00
674.45	0.11	0.11	0.00
674.50	0.11	0.11	0.00
674.55	1.63	1.28	0.35
674.60	4.42	3.42	1.00
674.65	8.04	6.19	1.86
674.70	12.36	9.47	2.89
674.75	17.16	13.07	4.09
674.80	18.66	13.23	5.44
674.85	20.31	13.38	6.93
674.90	22.09	13.54	8.56
674.95	24.01	13.69	10.32
675.00	26.06	13.84	12.22
675.05	28.24	13.99	14.25
675.10	30.55	14.14	16.41
675.15	32.98	14.29	18.69
675.20	35.54	14.43	21.11
675.25	38.22	14.57	23.65
675.30	41.03	14.72	26.32
675.35	43.97	14.86	29.11
675.40	47.03	15.00	32.03
675.45	50.22	15.13	35.08
675.50	53.53	15.27	38.26
675.55	56.97	15.41	41.56
675.60	60.53	15.54	44.99
675.65	64.22	15.68	48.55
675.70	68.04	15.81	52.23
675.75	71.98	15.94	56.05
675.80	76.06	16.07	59.99
675.85	80.26	16.20	64.06
675.90	84.59	16.33	68.26
675.95	89.05	16.45	72.60
676.00	93.64	16.58	77.06
676.05	98.36	16.70	81.66
676.10	103.19	16.80	86.39
676.15	108.17	16.91	91.25
676.20	113.27	17.02	96.25
676.25	118.51	17.12	101.38
676.30	123.88	17.23	106.65
676.35	129.39	17.33	112.05
676.40	135.03	17.44	117.59
676.45	140.81	17.54	123.27
676.50	**146.73**	**17.64**	**129.09**

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

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	17,150	17,150	0
674.05	17,203	17,203	859
674.10	17,257	17,257	1,720
674.15	17,310	17,310	2,584
674.20	17,363	17,363	3,451
674.25	17,416	17,416	4,321
674.30	17,469	17,469	5,193
674.35	17,523	17,523	6,068
674.40	17,576	17,576	6,945
674.45	17,629	17,629	7,825
674.50	17,683	17,683	8,708
674.55	17,736	17,736	9,594
674.60	17,789	17,789	10,482
674.65	17,842	17,842	11,372
674.70	17,896	17,896	12,266
674.75	17,949	17,949	13,162
674.80	18,002	18,002	14,061
674.85	18,055	18,055	14,962
674.90	18,108	18,108	15,866
674.95	18,162	18,162	16,773
675.00	18,215	18,215	17,683
675.05	18,268	18,268	18,595
675.10	18,321	18,321	19,509
675.15	18,375	18,375	20,427
675.20	18,428	18,428	21,347
675.25	18,481	18,481	22,270
675.30	18,534	18,534	23,195
675.35	18,587	18,587	24,123
675.40	18,641	18,641	25,054
675.45	18,694	18,694	25,987
675.50	18,747	18,747	26,923
675.55	18,800	18,800	27,862
675.60	18,853	18,853	28,803
675.65	18,907	18,907	29,747
675.70	18,960	18,960	30,694
675.75	19,013	19,013	31,643
675.80	19,066	19,066	32,595
675.85	19,119	19,119	33,550
675.90	19,173	19,173	34,507
675.95	19,226	19,226	35,467
676.00	19,279	19,279	36,430
676.05	19,419	19,419	37,397
676.10	19,558	19,558	38,371
676.15	19,698	19,698	39,353
676.20	19,837	19,837	40,341
676.25	19,977	19,977	41,337
676.30	20,117	20,117	42,339
676.35	20,256	20,256	43,348
676.40	20,396	20,396	44,364
676.45	20,535	20,535	45,388
676.50	**20,675**	**20,675**	**46,418**

Summary for Pond 6P: Bioretention 2

Inflow Area = 17.200 ac, 52.33% Impervious, Inflow Depth = 3.94" for 100-Year event
Inflow = 113.64 cfs @ 11.97 hrs, Volume= 5.641 af
Outflow = 98.07 cfs @ 12.01 hrs, Volume= 5.641 af, Atten= 14%, Lag= 2.5 min
Primary = 16.00 cfs @ 12.01 hrs, Volume= 3.051 af
Routed to Link 9L : Link
Secondary = 82.08 cfs @ 12.01 hrs, Volume= 2.590 af
Routed to Link 9L : Link

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 676.05' @ 12.01 hrs Surf.Area= 19,266 sf Storage= 35,365 cf

Plug-Flow detention time= 60.6 min calculated for 5.640 af (100% of inflow)
Center-of-Mass det. time= 60.9 min (853.7 - 792.9)

Volume	Invert	Avail.Storage	Storage Description
#1	674.00'	44,156 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
674.00	15,250	0	0
675.00	17,118	16,184	16,184
676.00	19,153	18,136	34,320
676.50	20,191	9,836	44,156

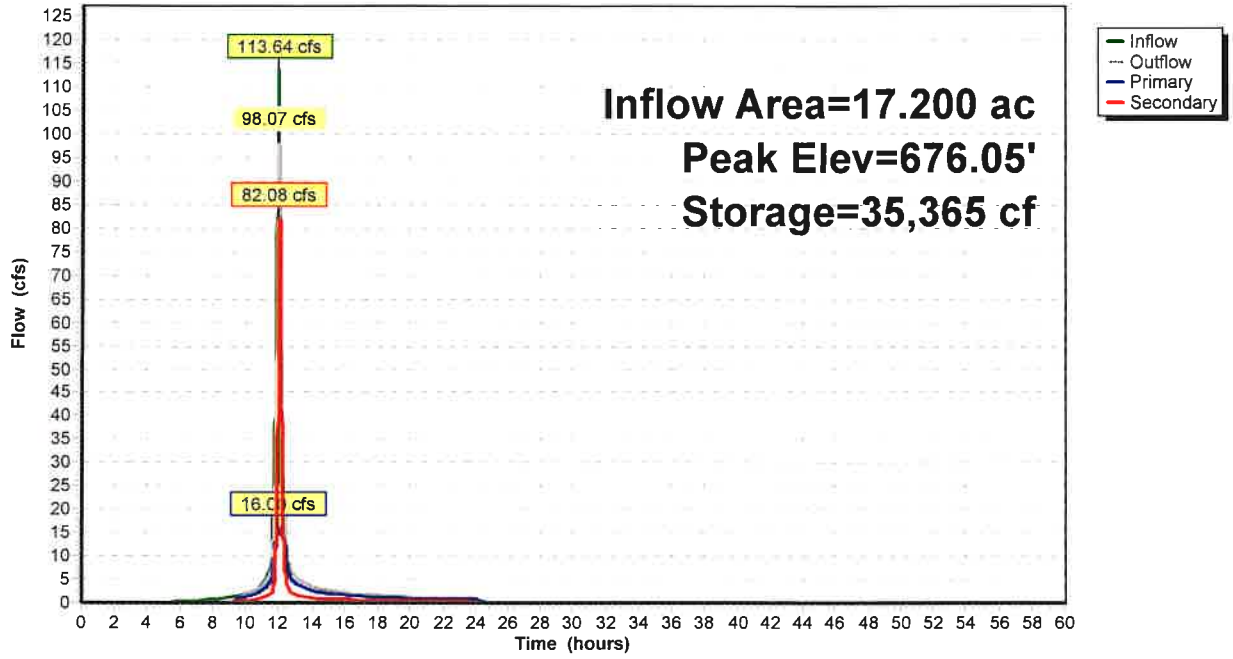
Device	Routing	Invert	Outlet Devices
#1	Primary	671.55'	**18.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 671.55' / 671.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	674.00'	**0.250 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 660.00'
#3	Device 1	674.50'	**24.0" x 24.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#4	Secondary	674.50'	**143.0 deg x 10.0' long Spillway** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=15.99 cfs @ 12.01 hrs HW=676.05' (Free Discharge)
└**1=Culvert** (Barrel Controls 15.99 cfs @ 9.05 fps)
└**2=Exfiltration** (Passes < 0.13 cfs potential flow)
└**3=Grate** (Passes < 72.02 cfs potential flow)

Secondary OutFlow Max=81.99 cfs @ 12.01 hrs HW=676.05' (Free Discharge)
└**4=Spillway** (Weir Controls 81.99 cfs @ 3.60 fps)

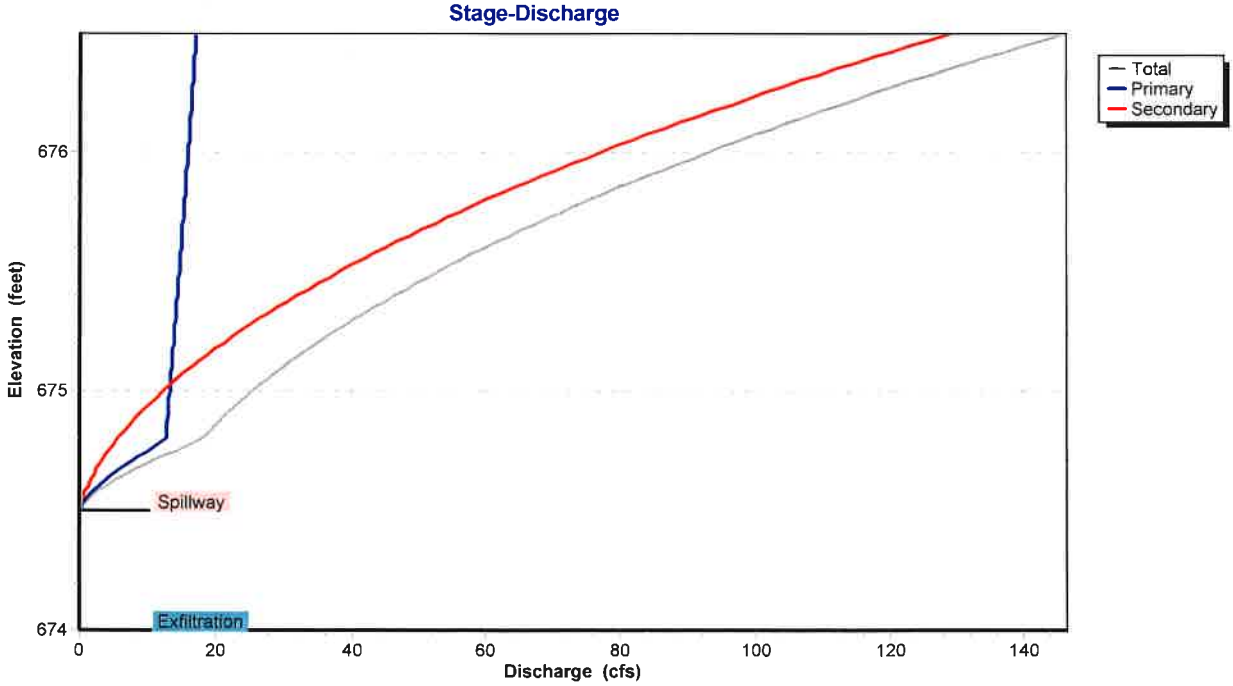
Pond 6P: Bioretention 2

Hydrograph

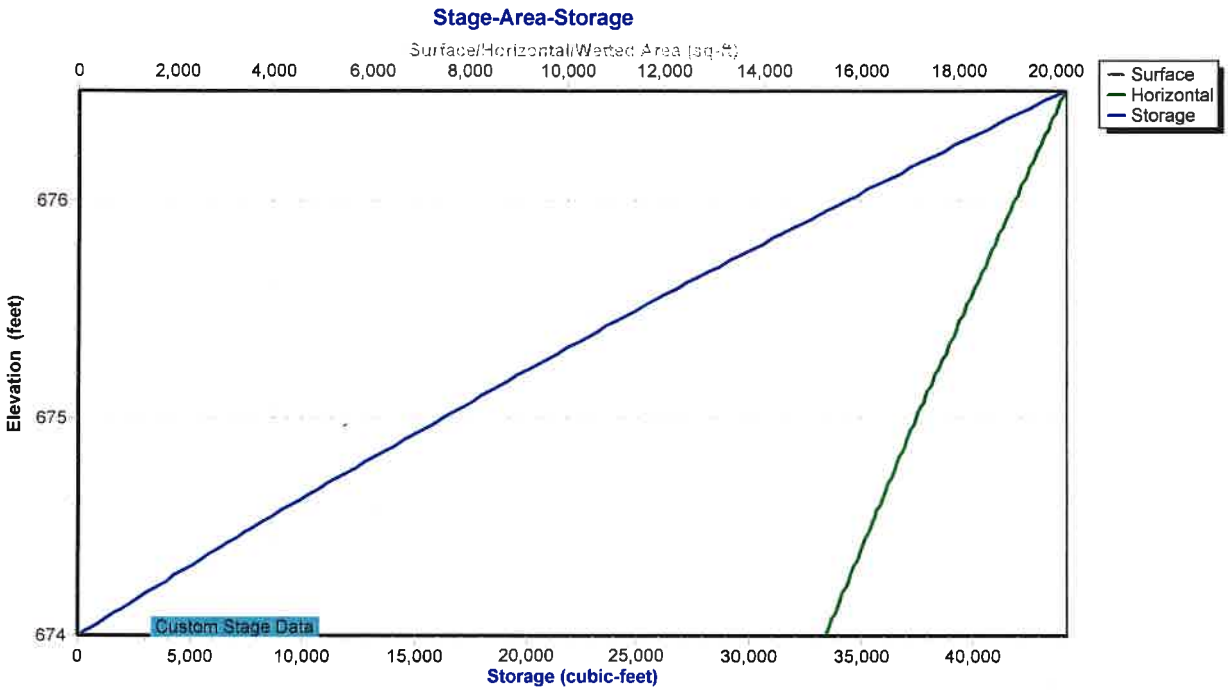


Pond 6P: Bioretention 2

Stage-Discharge



Pond 6P: Bioretention 2



Hydrograph for Pond 6P: Bioretention 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	674.00	0.00	0.00	0.00
2.00	0.00	0	674.00	0.00	0.00	0.00
4.00	0.00	0	674.00	0.00	0.00	0.00
6.00	0.29	573	674.04	0.09	0.09	0.00
8.00	0.73	3,563	674.23	0.09	0.09	0.00
10.00	**1.93**	8,861	674.56	1.81	1.32	0.49
12.00	**105.37**	**35,197**	**676.05**	**97.24**	**15.97**	**81.26**
14.00	3.33	**9,454**	**674.60**	**3.48**	**2.51**	**0.97**
16.00	2.04	8,980	674.57	2.11	1.53	0.57
18.00	1.58	8,781	674.56	1.61	1.18	0.43
20.00	1.15	8,597	674.55	1.18	0.87	0.31
22.00	1.05	8,533	674.54	1.06	0.78	0.27
24.00	0.97	8,489	674.54	0.97	0.72	0.25
26.00	0.00	7,382	674.47	0.10	0.10	0.00
28.00	0.00	6,690	674.43	0.10	0.10	0.00
30.00	0.00	6,004	674.38	0.09	0.09	0.00
32.00	0.00	5,324	674.34	0.09	0.09	0.00
34.00	0.00	4,649	674.30	0.09	0.09	0.00
36.00	0.00	3,979	674.26	0.09	0.09	0.00
38.00	0.00	3,314	674.21	0.09	0.09	0.00
40.00	0.00	2,655	674.17	0.09	0.09	0.00
42.00	0.00	2,001	674.13	0.09	0.09	0.00
44.00	0.00	1,352	674.09	0.09	0.09	0.00
46.00	0.00	708	674.05	0.09	0.09	0.00
48.00	0.00	168	674.01	0.04	0.04	0.00
50.00	0.00	32	674.00	0.01	0.01	0.00
52.00	0.00	6	674.00	0.00	0.00	0.00
54.00	0.00	1	674.00	0.00	0.00	0.00
56.00	0.00	0	674.00	0.00	0.00	0.00
58.00	0.00	0	674.00	0.00	0.00	0.00
60.00	0.00	0	674.00	0.00	0.00	0.00

Stage-Discharge for Pond 6P: Bioretention 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
674.00	0.00	0.00	0.00
674.05	0.09	0.09	0.00
674.10	0.09	0.09	0.00
674.15	0.09	0.09	0.00
674.20	0.09	0.09	0.00
674.25	0.09	0.09	0.00
674.30	0.09	0.09	0.00
674.35	0.09	0.09	0.00
674.40	0.10	0.10	0.00
674.45	0.10	0.10	0.00
674.50	0.10	0.10	0.00
674.55	1.32	0.98	0.35
674.60	3.58	2.58	1.00
674.65	6.52	4.66	1.86
674.70	10.01	7.12	2.89
674.75	14.00	9.91	4.09
674.80	18.04	12.60	5.44
674.85	19.68	12.75	6.93
674.90	21.46	12.90	8.56
674.95	23.37	13.05	10.32
675.00	25.42	13.20	12.22
675.05	27.59	13.35	14.25
675.10	29.90	13.49	16.41
675.15	32.33	13.63	18.69
675.20	34.88	13.77	21.11
675.25	37.56	13.91	23.65
675.30	40.37	14.05	26.32
675.35	43.30	14.19	29.11
675.40	46.36	14.32	32.03
675.45	49.54	14.46	35.08
675.50	52.85	14.59	38.26
675.55	56.28	14.72	41.56
675.60	59.84	14.86	44.99
675.65	63.53	14.98	48.55
675.70	67.34	15.11	52.23
675.75	71.29	15.24	56.05
675.80	75.36	15.37	59.99
675.85	79.55	15.49	64.06
675.90	83.88	15.62	68.26
675.95	88.34	15.74	72.60
676.00	92.93	15.86	77.06
676.05	97.65	15.99	81.66
676.10	102.50	16.11	86.39
676.15	107.48	16.23	91.25
676.20	112.60	16.34	96.25
676.25	117.85	16.46	101.38
676.30	123.23	16.58	106.65
676.35	128.75	16.70	112.05
676.40	134.41	16.81	117.59
676.45	140.20	16.93	123.27
676.50	**146.13**	**17.04**	**129.09**

Stage-Area-Storage for Pond 6P: Bioretention 2

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
674.00	15,250	15,250	0
674.05	15,343	15,343	765
674.10	15,437	15,437	1,534
674.15	15,530	15,530	2,309
674.20	15,624	15,624	3,087
674.25	15,717	15,717	3,871
674.30	15,810	15,810	4,659
674.35	15,904	15,904	5,452
674.40	15,997	15,997	6,249
674.45	16,091	16,091	7,052
674.50	16,184	16,184	7,859
674.55	16,277	16,277	8,670
674.60	16,371	16,371	9,486
674.65	16,464	16,464	10,307
674.70	16,558	16,558	11,133
674.75	16,651	16,651	11,963
674.80	16,744	16,744	12,798
674.85	16,838	16,838	13,637
674.90	16,931	16,931	14,482
674.95	17,025	17,025	15,330
675.00	17,118	17,118	16,184
675.05	17,220	17,220	17,042
675.10	17,322	17,322	17,906
675.15	17,423	17,423	18,775
675.20	17,525	17,525	19,648
675.25	17,627	17,627	20,527
675.30	17,728	17,728	21,411
675.35	17,830	17,830	22,300
675.40	17,932	17,932	23,194
675.45	18,034	18,034	24,093
675.50	18,136	18,136	24,997
675.55	18,237	18,237	25,907
675.60	18,339	18,339	26,821
675.65	18,441	18,441	27,741
675.70	18,543	18,543	28,665
675.75	18,644	18,644	29,595
675.80	18,746	18,746	30,530
675.85	18,848	18,848	31,469
675.90	18,949	18,949	32,414
675.95	19,051	19,051	33,364
676.00	19,153	19,153	34,320
676.05	19,257	19,257	35,280
676.10	19,361	19,361	36,245
676.15	19,464	19,464	37,216
676.20	19,568	19,568	38,192
676.25	19,672	19,672	39,173
676.30	19,776	19,776	40,159
676.35	19,880	19,880	41,150
676.40	19,983	19,983	42,147
676.45	20,087	20,087	43,149
676.50	**20,191**	**20,191**	**44,156**

Summary for Pond 7P: Basin

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 4.11" for 100-Year event
Inflow = 135.20 cfs @ 12.02 hrs, Volume= 8.735 af
Outflow = 3.93 cfs @ 15.17 hrs, Volume= 8.735 af, Atten= 97%, Lag= 188.8 min
Primary = 3.93 cfs @ 15.17 hrs, Volume= 8.735 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 678.63' @ 15.17 hrs Surf.Area= 59,215 sf Storage= 226,706 cf

Plug-Flow detention time= 609.4 min calculated for 8.735 af (100% of inflow)
Center-of-Mass det. time= 609.4 min (1,477.3 - 867.9)

Volume	Invert	Avail.Storage	Storage Description
#1	672.00'	311,588 cf	**dry basin (Prismatic)**Listed below (Recalc)

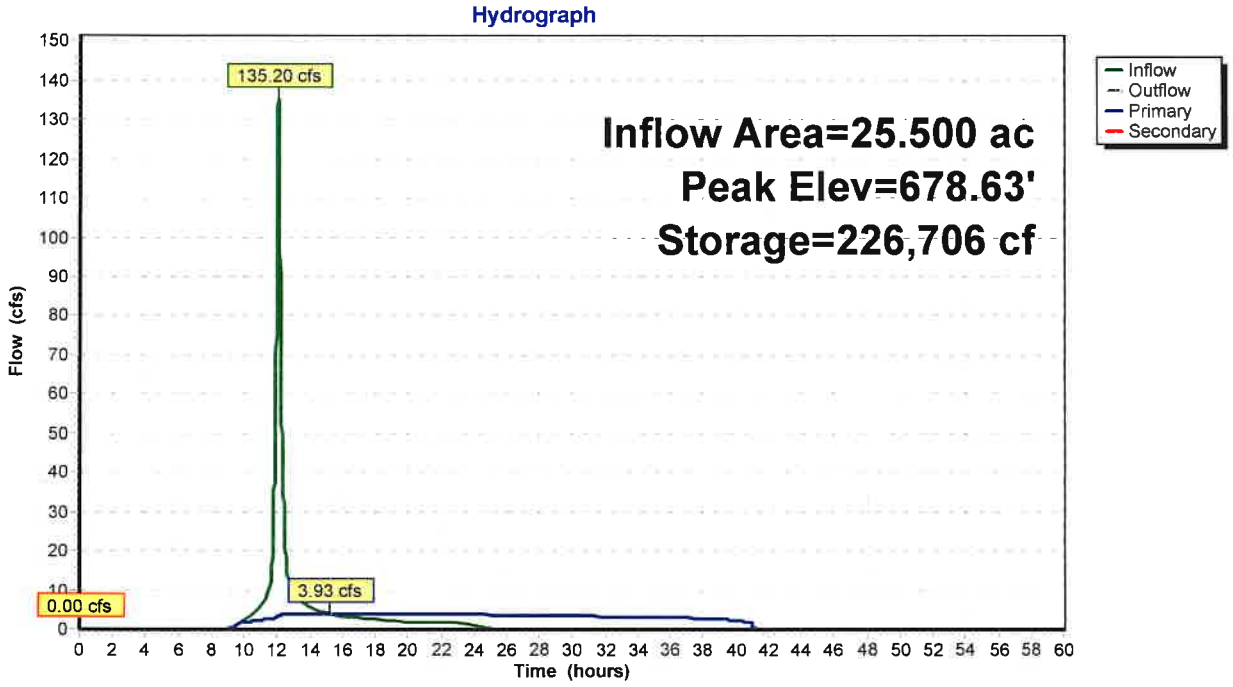
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
672.00	1,285	0	0
673.00	6,433	3,859	3,859
674.00	9,723	8,078	11,937
675.00	44,268	26,996	38,933
676.00	48,305	46,287	85,219
677.00	52,399	50,352	135,571
678.00	56,550	54,475	190,046
679.00	60,757	58,654	248,699
680.00	65,021	62,889	311,588

Device	Routing	Invert	Outlet Devices
#1	Primary	670.75'	**10.0" Round Culvert (structure to outlet)** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 670.75' / 670.15' S= 0.0030 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	670.80'	**8.0" Round Culvert (basin to structure)** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 670.80' / 670.75' S= 0.0020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 1	678.00'	**24.0" W x 24.0" H Vert. Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	670.75'	**8.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	675.50'	**5.0' long Weir** 2 End Contraction(s)
#6	Secondary	679.00'	**143.0 deg x 20.0' long x 1.00' rise Spillway** Cv= 2.47 (C= 3.09)

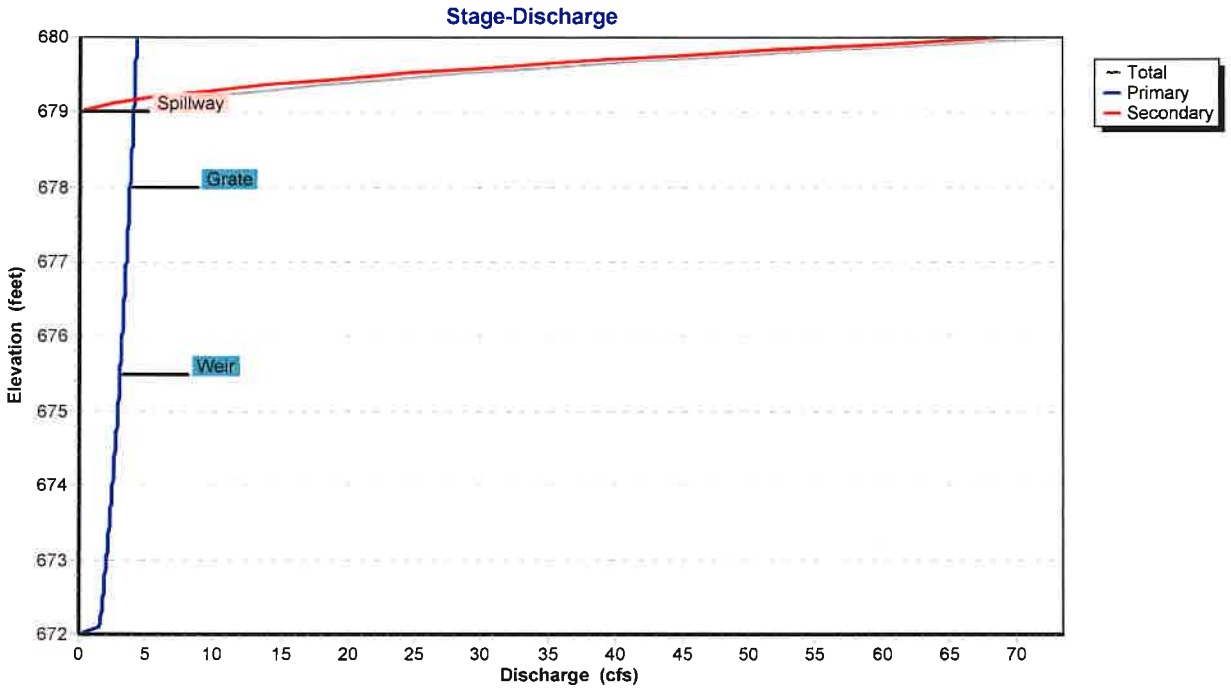
Primary OutFlow Max=3.93 cfs @ 15.17 hrs HW=678.63' (Free Discharge)
└─**1=Culvert (structure to outlet)** (Barrel Controls 3.93 cfs @ 7.20 fps)
  └─**2=Culvert (basin to structure)** (Passes < 4.06 cfs potential flow)
  └─**3=Grate** (Passes < 3.24 cfs potential flow)
  └─**4=Orifice** (Passes < 13.85 cfs potential flow)
  └─**5=Weir** (Passes < 79.32 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=672.00' (Free Discharge)
└─**6=Spillway** (Controls 0.00 cfs)

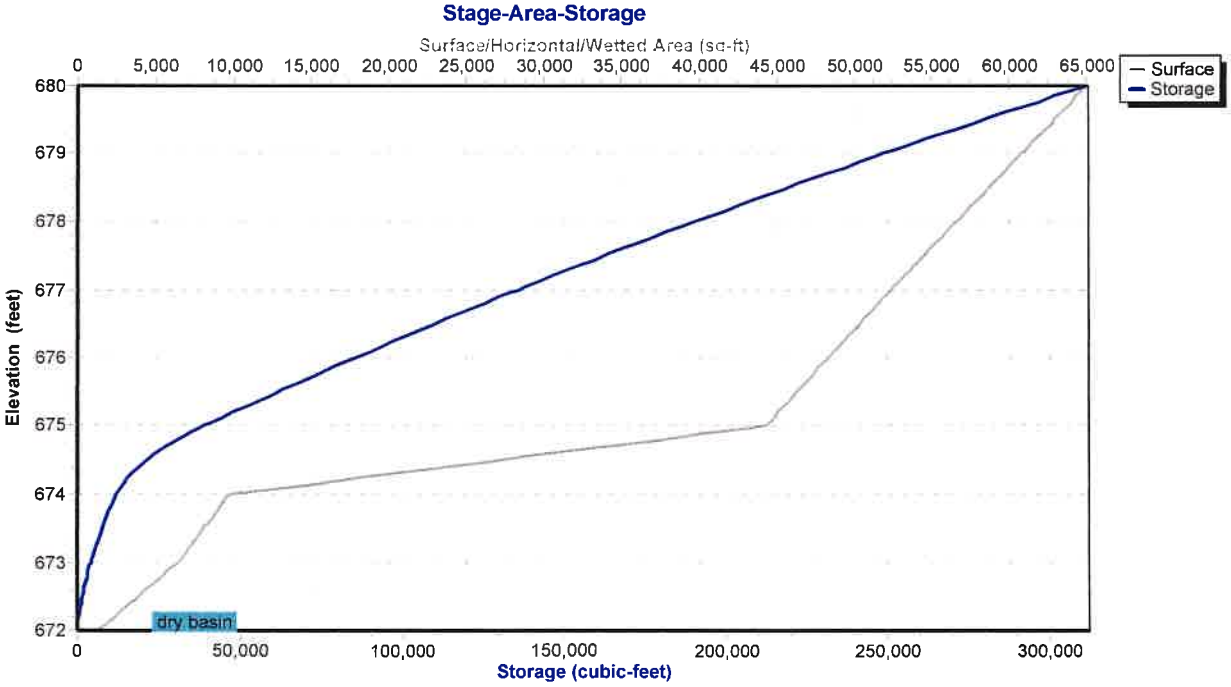
Pond 7P: Basin



Pond 7P: Basin



Pond 7P: Basin



Hydrograph for Pond 7P: Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	672.00	0.00	0.00	**0.00**
2.00	0.00	0	672.00	0.00	0.00	0.00
4.00	0.05	4	672.00	0.05	0.05	0.00
6.00	0.19	15	672.01	0.19	0.19	0.00
8.00	0.19	16	672.01	0.19	0.19	0.00
10.00	2.69	674	672.32	1.64	1.64	0.00
12.00	**131.49**	92,992	676.16	3.23	3.23	0.00
14.00	**5.30**	**224,341**	**678.59**	**3.92**	**3.92**	0.00
16.00	3.19	**225,610**	**678.61**	**3.92**	**3.92**	0.00
18.00	2.42	217,275	678.47	3.88	3.88	0.00
20.00	1.79	204,596	678.25	3.83	3.83	0.00
22.00	1.59	189,226	677.99	3.76	3.76	0.00
24.00	1.46	173,412	677.70	3.68	3.68	0.00
26.00	0.20	149,918	677.27	3.56	3.56	0.00
28.00	0.20	126,204	676.82	3.43	3.43	0.00
30.00	0.20	103,433	676.37	3.29	3.29	0.00
32.00	0.20	81,637	675.93	3.16	3.16	0.00
34.00	0.20	60,852	675.48	3.01	3.01	0.00
36.00	0.20	41,113	675.05	2.86	2.86	0.00
38.00	0.19	22,511	674.55	2.68	2.68	0.00
40.00	0.19	6,002	673.31	2.16	2.16	0.00
42.00	0.19	15	672.01	0.19	0.19	0.00
44.00	0.19	15	672.01	0.19	0.19	0.00
46.00	0.19	15	672.01	0.19	0.19	0.00
48.00	0.08	6	672.00	0.08	0.08	0.00
50.00	0.01	1	672.00	0.02	0.02	0.00
52.00	0.00	0	672.00	0.00	0.00	0.00
54.00	0.00	0	672.00	0.00	0.00	0.00
56.00	0.00	0	672.00	0.00	0.00	0.00
58.00	0.00	0	672.00	0.00	0.00	0.00
60.00	0.00	0	672.00	0.00	0.00	0.00

Stage-Discharge for Pond 7P: Basin

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
672.00	0.00	0.00	0.00
672.10	1.50	1.50	0.00
672.20	1.57	1.57	0.00
672.30	1.63	1.63	0.00
672.40	1.69	1.69	0.00
672.50	1.75	1.75	0.00
672.60	1.80	1.80	0.00
672.70	1.86	1.86	0.00
672.80	1.91	1.91	0.00
672.90	1.97	1.97	0.00
673.00	2.02	2.02	0.00
673.10	2.07	2.07	0.00
673.20	2.11	2.11	0.00
673.30	2.16	2.16	0.00
673.40	2.21	2.21	0.00
673.50	2.25	2.25	0.00
673.60	2.30	2.30	0.00
673.70	2.34	2.34	0.00
673.80	2.38	2.38	0.00
673.90	2.42	2.42	0.00
674.00	2.47	2.47	0.00
674.10	2.51	2.51	0.00
674.20	2.55	2.55	0.00
674.30	2.59	2.59	0.00
674.40	2.62	2.62	0.00
674.50	2.66	2.66	0.00
674.60	2.70	2.70	0.00
674.70	2.74	2.74	0.00
674.80	2.77	2.77	0.00
674.90	2.81	2.81	0.00
675.00	2.84	2.84	0.00
675.10	2.88	2.88	0.00
675.20	2.91	2.91	0.00
675.30	2.95	2.95	0.00
675.40	2.98	2.98	0.00
675.50	3.02	3.02	0.00
675.60	3.05	3.05	0.00
675.70	3.08	3.08	0.00
675.80	3.12	3.12	0.00
675.90	3.15	3.15	0.00
676.00	3.18	3.18	0.00
676.10	3.21	3.21	0.00
676.20	3.24	3.24	0.00
676.30	3.27	3.27	0.00
676.40	3.30	3.30	0.00
676.50	3.33	3.33	0.00
676.60	3.36	3.36	0.00
676.70	3.39	3.39	0.00
676.80	3.42	3.42	0.00
676.90	3.45	3.45	0.00
677.00	3.48	3.48	0.00
677.10	3.51	3.51	0.00
677.20	3.54	3.54	0.00
677.30	3.57	3.57	0.00
677.40	3.60	3.60	0.00
677.50	3.62	3.62	0.00
677.60	3.65	3.65	0.00
677.70	3.68	3.68	0.00
677.80	3.71	3.71	0.00
677.90	3.73	3.73	0.00
678.00	3.76	3.76	0.00
678.10	3.79	3.79	0.00
678.20	3.81	3.81	0.00
678.30	3.84	3.84	0.00
678.40	3.87	3.87	0.00
678.50	3.89	3.89	0.00
678.60	3.92	3.92	0.00
678.70	3.94	3.94	0.00
678.80	3.97	3.97	0.00
678.90	3.99	3.99	0.00
679.00	4.02	4.02	0.00
679.10	6.02	4.04	1.98
679.20	9.72	4.07	5.66
679.30	14.60	4.09	10.51
679.40	20.49	4.12	16.37
679.50	27.28	4.14	23.14
679.60	34.92	4.17	30.76
679.70	43.38	4.19	39.19
679.80	52.63	4.22	48.41
679.90	62.63	4.24	58.40
680.00	**73.39**	**4.26**	**69.13**

Stage-Area-Storage for Pond 7P: Basin

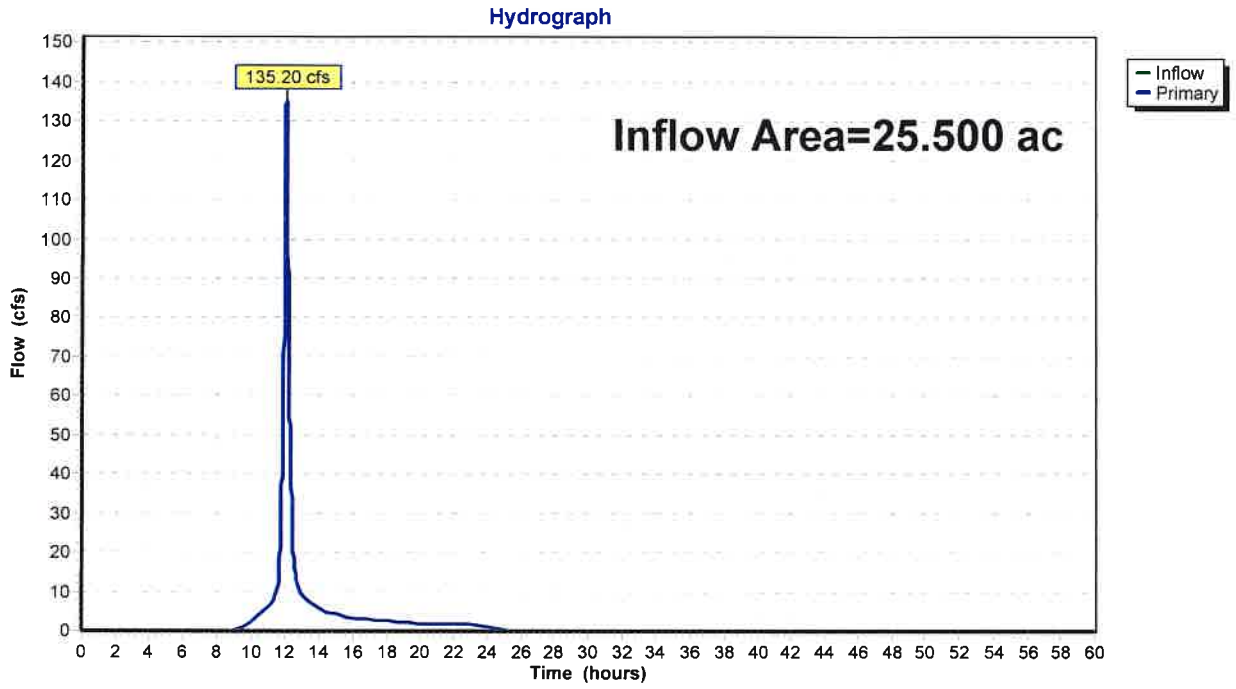
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
672.00	1,285	0
672.10	1,800	154
672.20	2,315	360
672.30	2,829	617
672.40	3,344	926
672.50	3,859	1,286
672.60	4,374	1,698
672.70	4,889	2,161
672.80	5,403	2,675
672.90	5,918	3,241
673.00	6,433	3,859
673.10	6,762	4,519
673.20	7,091	5,211
673.30	7,420	5,937
673.40	7,749	6,695
673.50	8,078	7,487
673.60	8,407	8,311
673.70	8,736	9,168
673.80	9,065	10,058
673.90	9,394	10,981
674.00	9,723	11,937
674.10	13,178	13,082
674.20	16,632	14,573
674.30	20,086	16,408
674.40	23,541	18,590
674.50	26,996	21,117
674.60	30,450	23,989
674.70	33,905	27,207
674.80	37,359	30,770
674.90	40,813	34,678
675.00	44,268	38,933
675.10	44,672	43,379
675.20	45,075	47,867
675.30	45,479	52,395
675.40	45,883	56,963
675.50	46,287	61,571
675.60	46,690	66,220
675.70	47,094	70,909
675.80	47,498	75,639
675.90	47,901	80,409
676.00	48,305	85,219
676.10	48,714	90,070
676.20	49,124	94,962
676.30	49,533	99,895
676.40	49,943	104,869
676.50	50,352	109,883
676.60	50,761	114,939
676.70	51,171	120,036
676.80	51,580	125,173
676.90	51,990	130,352
677.00	52,399	135,571
677.10	52,814	140,832
677.20	53,229	146,134
677.30	53,644	151,477
677.40	54,059	156,863
677.50	54,475	162,289
677.60	54,890	167,758
677.70	55,305	173,267
677.80	55,720	178,819
677.90	56,135	184,411
678.00	56,550	190,046
678.10	56,971	195,722
678.20	57,391	201,440
678.30	57,812	207,200
678.40	58,233	213,002
678.50	58,654	218,846
678.60	59,074	224,733
678.70	59,495	230,661
678.80	59,916	236,632
678.90	60,336	242,644
679.00	60,757	248,699
679.10	61,183	254,796
679.20	61,610	260,936
679.30	62,036	267,118
679.40	62,463	273,343
679.50	62,889	279,611
679.60	63,315	285,921
679.70	63,742	292,274
679.80	64,168	298,669
679.90	64,595	305,107
680.00	**65,021**	**311,588**

Summary for Link 9L: Link

Inflow Area = 25.500 ac, 60.39% Impervious, Inflow Depth = 4.11" for 100-Year event
Inflow = 135.20 cfs @ 12.02 hrs, Volume= 8.735 af
Primary = 135.20 cfs @ 12.02 hrs, Volume= 8.735 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 7P : Basin

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link 9L: Link



Hydrograph for Link 9L: Link

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.05	0.00	0.05
5.00	0.12	0.00	0.12
6.00	0.19	0.00	0.19
7.00	0.19	0.00	0.19
8.00	0.19	0.00	0.19
9.00	0.20	0.00	0.20
10.00	2.69	0.00	2.69
11.00	6.02	0.00	6.02
12.00	**131.49**	0.00	**131.49**
13.00	**9.11**	0.00	**9.11**
14.00	5.30	0.00	5.30
15.00	4.08	0.00	4.08
16.00	3.19	0.00	3.19
17.00	2.74	0.00	2.74
18.00	2.42	0.00	2.42
19.00	2.09	0.00	2.09
20.00	1.79	0.00	1.79
21.00	1.65	0.00	1.65
22.00	1.59	0.00	1.59
23.00	1.52	0.00	1.52
24.00	1.46	0.00	1.46
25.00	0.20	0.00	0.20
26.00	0.20	0.00	0.20
27.00	0.20	0.00	0.20
28.00	0.20	0.00	0.20
29.00	0.20	0.00	0.20
30.00	0.20	0.00	0.20
31.00	0.20	0.00	0.20
32.00	0.20	0.00	0.20
33.00	0.20	0.00	0.20
34.00	0.20	0.00	0.20
35.00	0.20	0.00	0.20
36.00	0.20	0.00	0.20
37.00	0.19	0.00	0.19
38.00	0.19	0.00	0.19
39.00	0.19	0.00	0.19
40.00	0.19	0.00	0.19
41.00	0.19	0.00	0.19
42.00	0.19	0.00	0.19
43.00	0.19	0.00	0.19
44.00	0.19	0.00	0.19
45.00	0.19	0.00	0.19
46.00	0.19	0.00	0.19
47.00	0.18	0.00	0.18
48.00	0.08	0.00	0.08
49.00	0.03	0.00	0.03
50.00	0.01	0.00	0.01
51.00	0.01	0.00	0.01
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00

TABLE OF CONTENTS

50-Year Event

100-Year Event

Events for Subcatchment 3S: Proposed North not through basin

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-Year	1.86	4.60	0.376	0.69
2-Year	2.20	6.38	0.512	0.94
5-Year	2.70	9.16	0.726	1.34
10-Year	3.15	11.77	0.929	1.72
25-Year	3.87	16.06	1.269	2.34
50-Year	4.52	20.00	1.586	2.93
100-Year	**5.28**	**24.65**	**1.965**	**3.63**

Proposed North not through basin

Subcat Reach Pond Link

Routing Diagram for 22.117 Proposed Basin
Prepared by Carmina Wood Morris, PC, Printed 9/12/2022

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type II 24-hr		Default	24.00	1	1.86	2
2	2-Year	Type II 24-hr		Default	24.00	1	2.20	2
3	5-Year	Type II 24-hr		Default	24.00	1	2.70	2
4	10-Year	Type II 24-hr		Default	24.00	1	3.15	2
5	25-Year	Type II 24-hr		Default	24.00	1	3.87	2
6	50-Year	Type II 24-hr		Default	24.00	1	4.52	2
7	100-Year	Type II 24-hr		Default	24.00	1	5.28	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.640	74	>75% Grass cover, Good, HSG C (3S)
2.460	80	>75% Grass cover, Good, HSG D (3S)
0.700	96	Gravel surface, HSG C (3S)
1.100	96	Gravel surface, HSG D (3S)
0.240	98	Paved parking, HSG C (3S)
0.360	98	Paved parking, HSG D (3S)

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.580	HSG C	3S
3.920	HSG D	3S
0.000	Other	

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	1.640	2.460	0.000	4.100	>75% Grass cover, Good	3S
0.000	0.000	0.700	1.100	0.000	1.800	Gravel surface	3S
0.000	0.000	0.240	0.360	0.000	0.600	Paved parking	3S

Summary for Subcatchment 3S: Proposed North not through basin

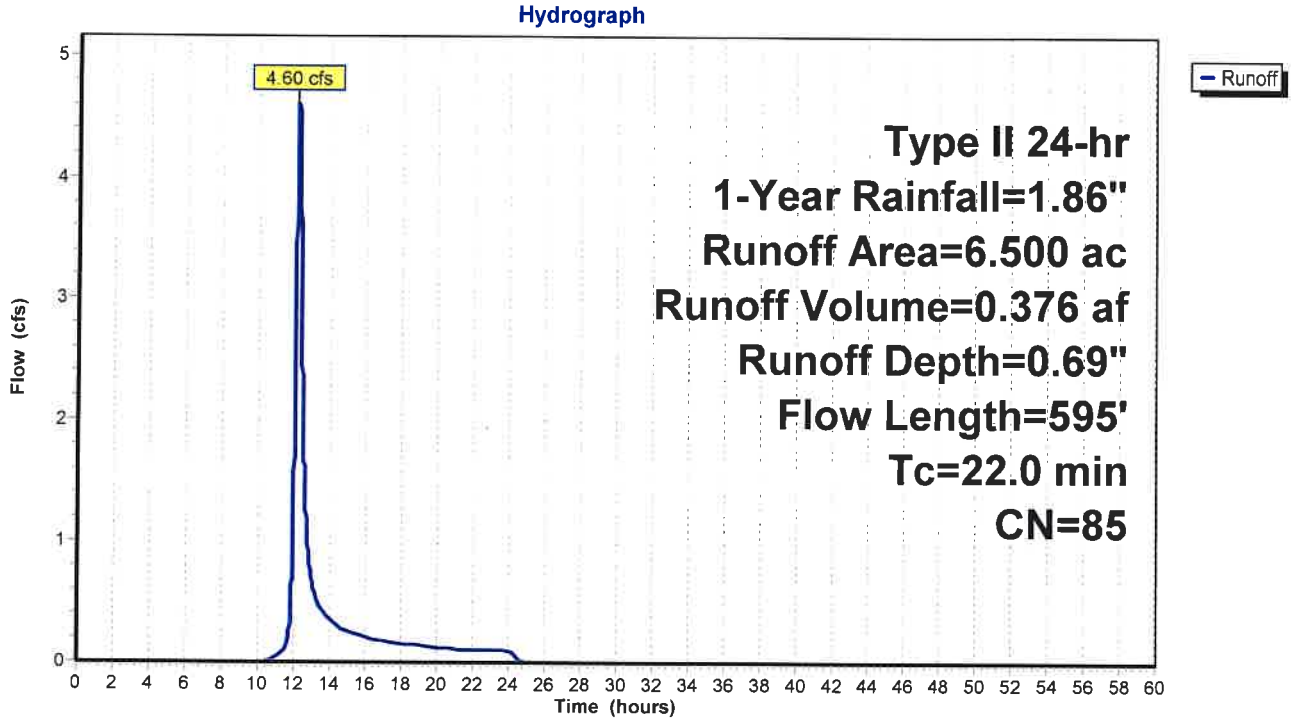
Runoff = 4.60 cfs @ 12.15 hrs, Volume= 0.376 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=1.86"

Area (ac)	CN	Description
0.360	98	Paved parking, HSG D
0.240	98	Paved parking, HSG C
2.460	80	>75% Grass cover, Good, HSG D
1.640	74	>75% Grass cover, Good, HSG C
1.100	96	Gravel surface, HSG D
0.700	96	Gravel surface, HSG C
6.500	85	Weighted Average
5.900		90.77% Pervious Area
0.600		9.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0150	0.09		**Sheet Flow, stone** n= 0.250 P2= 2.50"
2.6	308	0.0150	1.97		**Shallow Concentrated Flow, stone** Unpaved Kv= 16.1 fps
0.7	187	0.0700	4.26		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
22.0	595	Total			

Subcatchment 3S: Proposed North not through basin



Hydrograph for Subcatchment 3S: Proposed North not through basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.04	0.00	0.00
3.00	0.06	0.00	0.00
4.00	0.09	0.00	0.00
5.00	0.12	0.00	0.00
6.00	0.15	0.00	0.00
7.00	0.18	0.00	0.00
8.00	0.22	0.00	0.00
9.00	0.27	0.00	0.00
10.00	0.34	0.00	0.00
11.00	0.44	0.00	0.04
12.00	1.23	0.29	**2.52**
13.00	1.44	0.41	**0.62**
14.00	1.53	0.47	0.34
15.00	1.59	0.51	0.26
16.00	1.64	0.54	0.20
17.00	1.68	0.57	0.17
18.00	1.71	0.59	0.16
19.00	1.74	0.61	0.14
20.00	1.77	0.63	0.12
21.00	1.79	0.65	0.11
22.00	1.82	0.66	0.10
23.00	1.84	0.68	0.10
24.00	**1.86**	**0.69**	0.10
25.00	1.86	0.69	0.00
26.00	1.86	0.69	0.00
27.00	1.86	0.69	0.00
28.00	1.86	0.69	0.00
29.00	1.86	0.69	0.00
30.00	1.86	0.69	0.00
31.00	1.86	0.69	0.00
32.00	1.86	0.69	0.00
33.00	1.86	0.69	0.00
34.00	1.86	0.69	0.00
35.00	1.86	0.69	0.00
36.00	1.86	0.69	0.00
37.00	1.86	0.69	0.00
38.00	1.86	0.69	0.00
39.00	1.86	0.69	0.00
40.00	1.86	0.69	0.00
41.00	1.86	0.69	0.00
42.00	1.86	0.69	0.00
43.00	1.86	0.69	0.00
44.00	1.86	0.69	0.00
45.00	1.86	0.69	0.00
46.00	1.86	0.69	0.00
47.00	1.86	0.69	0.00
48.00	1.86	0.69	0.00
49.00	1.86	0.69	0.00
50.00	1.86	0.69	0.00
51.00	1.86	0.69	0.00
52.00	1.86	0.69	0.00
53.00	1.86	0.69	0.00
54.00	1.86	0.69	0.00
55.00	1.86	0.69	0.00
56.00	1.86	0.69	0.00
57.00	1.86	0.69	0.00
58.00	1.86	0.69	0.00
59.00	1.86	0.69	0.00
60.00	1.86	0.69	0.00

Summary for Subcatchment 3S: Proposed North not through basin

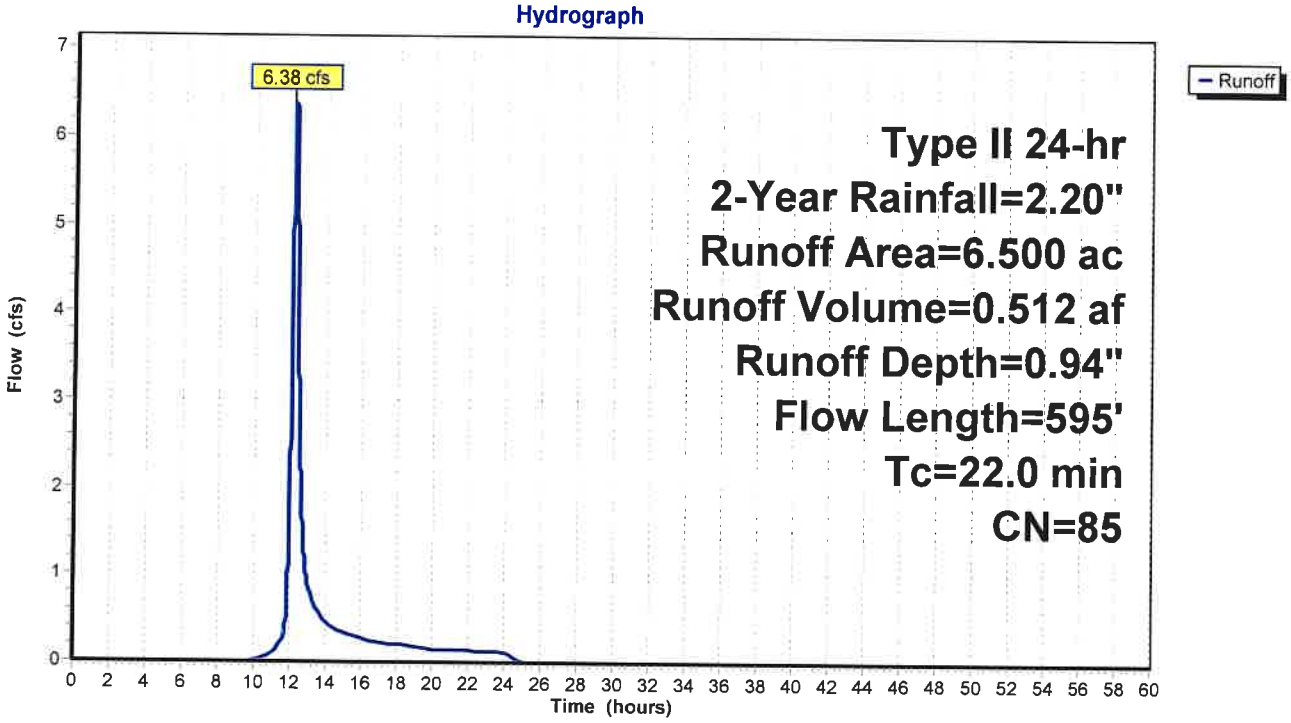
Runoff = 6.38 cfs @ 12.15 hrs, Volume= 0.512 af, Depth= 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.20"

Area (ac)	CN	Description
0.360	98	Paved parking, HSG D
0.240	98	Paved parking, HSG C
2.460	80	>75% Grass cover, Good, HSG D
1.640	74	>75% Grass cover, Good, HSG C
1.100	96	Gravel surface, HSG D
0.700	96	Gravel surface, HSG C
6.500	85	Weighted Average
5.900		90.77% Pervious Area
0.600		9.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0150	0.09		**Sheet Flow, stone** n= 0.250 P2= 2.50"
2.6	308	0.0150	1.97		**Shallow Concentrated Flow, stone** Unpaved Kv= 16.1 fps
0.7	187	0.0700	4.26		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
22.0	595	Total			

Subcatchment 3S: Proposed North not through basin



Hydrograph for Subcatchment 3S: Proposed North not through basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.02	0.00	0.00
2.00	0.05	0.00	0.00
3.00	0.08	0.00	0.00
4.00	0.11	0.00	0.00
5.00	0.14	0.00	0.00
6.00	0.18	0.00	0.00
7.00	0.22	0.00	0.00
8.00	0.26	0.00	0.00
9.00	0.32	0.00	0.00
10.00	0.40	0.00	0.01
11.00	0.52	0.01	0.10
12.00	1.46	0.43	**3.67**
13.00	1.70	0.58	**0.81**
14.00	1.80	0.65	0.44
15.00	1.88	0.71	0.33
16.00	1.94	0.75	0.26
17.00	1.98	0.78	0.22
18.00	2.03	0.81	0.20
19.00	2.06	0.84	0.17
20.00	2.09	0.86	0.15
21.00	2.12	0.89	0.14
22.00	2.15	0.91	0.13
23.00	2.18	0.93	0.13
24.00	**2.20**	**0.94**	0.12
25.00	2.20	0.94	0.00
26.00	2.20	0.94	0.00
27.00	2.20	0.94	0.00
28.00	2.20	0.94	0.00
29.00	2.20	0.94	0.00
30.00	2.20	0.94	0.00
31.00	2.20	0.94	0.00
32.00	2.20	0.94	0.00
33.00	2.20	0.94	0.00
34.00	2.20	0.94	0.00
35.00	2.20	0.94	0.00
36.00	2.20	0.94	0.00
37.00	2.20	0.94	0.00
38.00	2.20	0.94	0.00
39.00	2.20	0.94	0.00
40.00	2.20	0.94	0.00
41.00	2.20	0.94	0.00
42.00	2.20	0.94	0.00
43.00	2.20	0.94	0.00
44.00	2.20	0.94	0.00
45.00	2.20	0.94	0.00
46.00	2.20	0.94	0.00
47.00	2.20	0.94	0.00
48.00	2.20	0.94	0.00
49.00	2.20	0.94	0.00
50.00	2.20	0.94	0.00
51.00	2.20	0.94	0.00
52.00	2.20	0.94	0.00
53.00	2.20	0.94	0.00
54.00	2.20	0.94	0.00
55.00	2.20	0.94	0.00
56.00	2.20	0.94	0.00
57.00	2.20	0.94	0.00
58.00	2.20	0.94	0.00
59.00	2.20	0.94	0.00
60.00	2.20	0.94	0.00

Summary for Subcatchment 3S: Proposed North not through basin

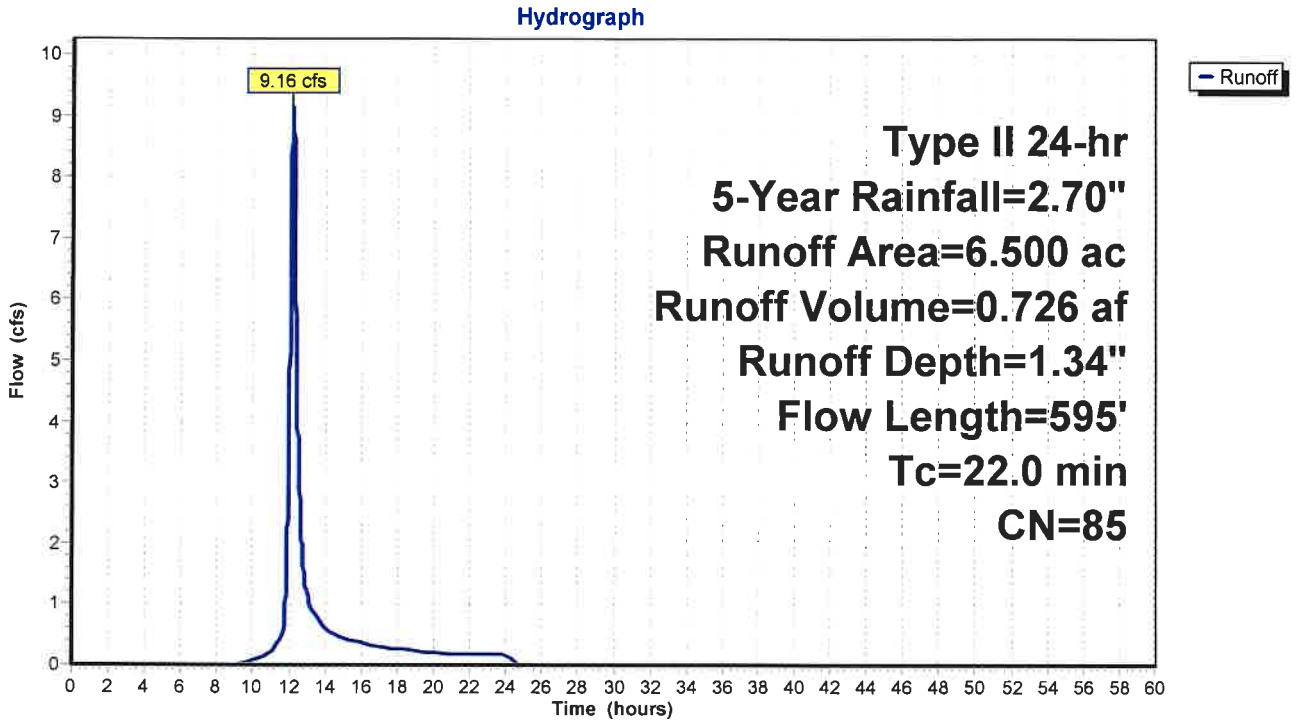
Runoff = 9.16 cfs @ 12.15 hrs, Volume= 0.726 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=2.70"

Area (ac)	CN	Description
0.360	98	Paved parking, HSG D
0.240	98	Paved parking, HSG C
2.460	80	>75% Grass cover, Good, HSG D
1.640	74	>75% Grass cover, Good, HSG C
1.100	96	Gravel surface, HSG D
0.700	96	Gravel surface, HSG C
6.500	85	Weighted Average
5.900		90.77% Pervious Area
0.600		9.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0150	0.09		**Sheet Flow, stone** n= 0.250 P2= 2.50"
2.6	308	0.0150	1.97		**Shallow Concentrated Flow, stone** Unpaved Kv= 16.1 fps
0.7	187	0.0700	4.26		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
22.0	595	Total			

Subcatchment 3S: Proposed North not through basin



Hydrograph for Subcatchment 3S: Proposed North not through basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.09	0.00	0.00
4.00	0.13	0.00	0.00
5.00	0.17	0.00	0.00
6.00	0.22	0.00	0.00
7.00	0.27	0.00	0.00
8.00	0.32	0.00	0.00
9.00	0.40	0.00	0.01
10.00	0.49	0.01	0.07
11.00	0.63	0.04	0.22
12.00	1.79	0.65	**5.50**
13.00	2.08	0.86	**1.10**
14.00	2.21	0.96	0.59
15.00	2.30	1.02	0.44
16.00	2.38	1.08	0.35
17.00	2.43	1.13	0.30
18.00	2.49	1.17	0.26
19.00	2.53	1.20	0.23
20.00	2.57	1.23	0.20
21.00	2.60	1.26	0.18
22.00	2.64	1.29	0.17
23.00	2.67	1.31	0.17
24.00	**2.70**	**1.34**	0.16
25.00	2.70	1.34	0.00
26.00	2.70	1.34	0.00
27.00	2.70	1.34	0.00
28.00	2.70	1.34	0.00
29.00	2.70	1.34	0.00
30.00	2.70	1.34	0.00
31.00	2.70	1.34	0.00
32.00	2.70	1.34	0.00
33.00	2.70	1.34	0.00
34.00	2.70	1.34	0.00
35.00	2.70	1.34	0.00
36.00	2.70	1.34	0.00
37.00	2.70	1.34	0.00
38.00	2.70	1.34	0.00
39.00	2.70	1.34	0.00
40.00	2.70	1.34	0.00
41.00	2.70	1.34	0.00
42.00	2.70	1.34	0.00
43.00	2.70	1.34	0.00
44.00	2.70	1.34	0.00
45.00	2.70	1.34	0.00
46.00	2.70	1.34	0.00
47.00	2.70	1.34	0.00
48.00	2.70	1.34	0.00
49.00	2.70	1.34	0.00
50.00	2.70	1.34	0.00
51.00	2.70	1.34	0.00
52.00	2.70	1.34	0.00
53.00	2.70	1.34	0.00
54.00	2.70	1.34	0.00
55.00	2.70	1.34	0.00
56.00	2.70	1.34	0.00
57.00	2.70	1.34	0.00
58.00	2.70	1.34	0.00
59.00	2.70	1.34	0.00
60.00	2.70	1.34	0.00

Summary for Subcatchment 3S: Proposed North not through basin

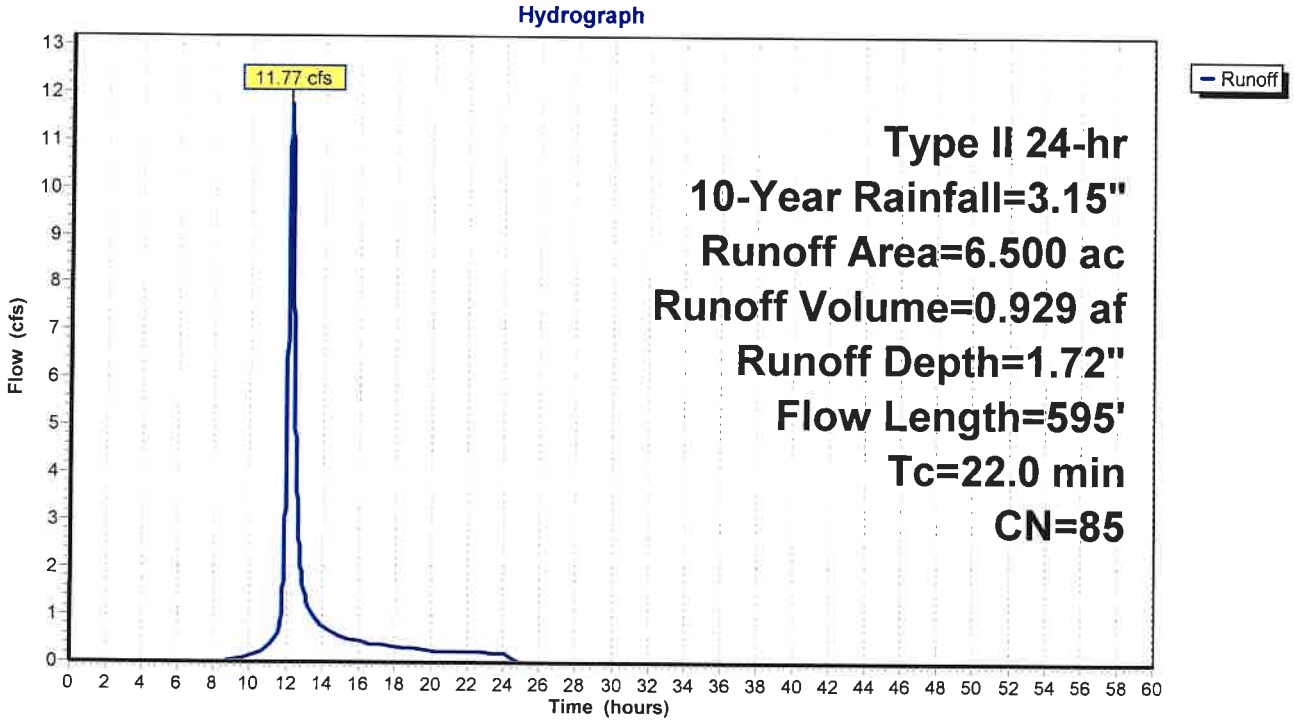
Runoff = 11.77 cfs @ 12.15 hrs, Volume= 0.929 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.15"

Area (ac)	CN	Description
0.360	98	Paved parking, HSG D
0.240	98	Paved parking, HSG C
2.460	80	>75% Grass cover, Good, HSG D
1.640	74	>75% Grass cover, Good, HSG C
1.100	96	Gravel surface, HSG D
0.700	96	Gravel surface, HSG C
6.500	85	Weighted Average
5.900		90.77% Pervious Area
0.600		9.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0150	0.09		**Sheet Flow, stone** n= 0.250 P2= 2.50"
2.6	308	0.0150	1.97		**Shallow Concentrated Flow, stone** Unpaved Kv= 16.1 fps
0.7	187	0.0700	4.26		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
22.0	595	Total			

Subcatchment 3S: Proposed North not through basin



Hydrograph for Subcatchment 3S: Proposed North not through basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.07	0.00	0.00
3.00	0.11	0.00	0.00
4.00	0.15	0.00	0.00
5.00	0.20	0.00	0.00
6.00	0.25	0.00	0.00
7.00	0.31	0.00	0.00
8.00	0.38	0.00	0.00
9.00	0.46	0.01	0.05
10.00	0.57	0.02	0.13
11.00	0.74	0.07	0.34
12.00	2.09	0.86	**7.24**
13.00	2.43	1.12	**1.37**
14.00	2.58	1.24	0.73
15.00	2.69	1.33	0.54
16.00	2.77	1.40	0.43
17.00	2.84	1.46	0.36
18.00	2.90	1.51	0.32
19.00	2.95	1.55	0.28
20.00	3.00	1.59	0.24
21.00	3.04	1.62	0.22
22.00	3.08	1.65	0.21
23.00	3.11	1.68	0.20
24.00	**3.15**	**1.72**	0.20
25.00	3.15	1.72	0.00
26.00	3.15	1.72	0.00
27.00	3.15	1.72	0.00
28.00	3.15	1.72	0.00
29.00	3.15	1.72	0.00
30.00	3.15	1.72	0.00
31.00	3.15	1.72	0.00
32.00	3.15	1.72	0.00
33.00	3.15	1.72	0.00
34.00	3.15	1.72	0.00
35.00	3.15	1.72	0.00
36.00	3.15	1.72	0.00
37.00	3.15	1.72	0.00
38.00	3.15	1.72	0.00
39.00	3.15	1.72	0.00
40.00	3.15	1.72	0.00
41.00	3.15	1.72	0.00
42.00	3.15	1.72	0.00
43.00	3.15	1.72	0.00
44.00	3.15	1.72	0.00
45.00	3.15	1.72	0.00
46.00	3.15	1.72	0.00
47.00	3.15	1.72	0.00
48.00	3.15	1.72	0.00
49.00	3.15	1.72	0.00
50.00	3.15	1.72	0.00
51.00	3.15	1.72	0.00
52.00	3.15	1.72	0.00
53.00	3.15	1.72	0.00
54.00	3.15	1.72	0.00
55.00	3.15	1.72	0.00
56.00	3.15	1.72	0.00
57.00	3.15	1.72	0.00
58.00	3.15	1.72	0.00
59.00	3.15	1.72	0.00
60.00	3.15	1.72	0.00

Summary for Subcatchment 3S: Proposed North not through basin

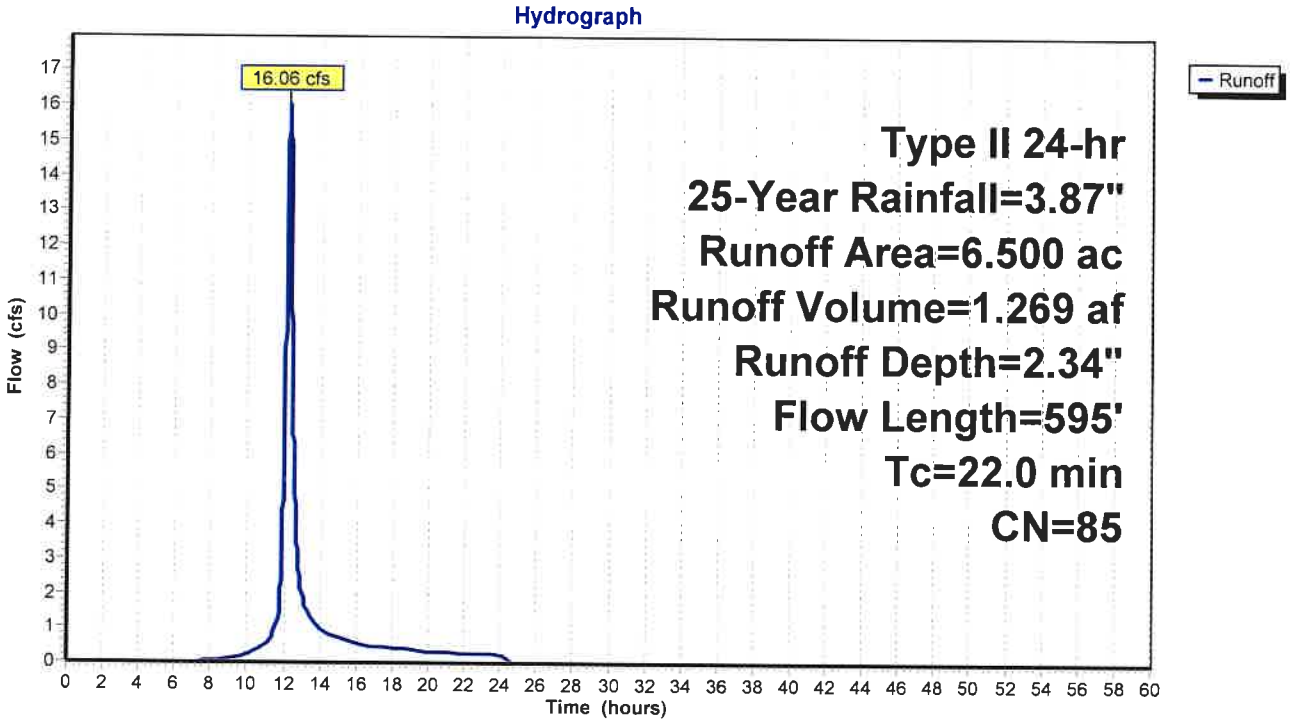
Runoff = 16.06 cfs @ 12.15 hrs, Volume= 1.269 af, Depth= 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=3.87"

Area (ac)	CN	Description
0.360	98	Paved parking, HSG D
0.240	98	Paved parking, HSG C
2.460	80	>75% Grass cover, Good, HSG D
1.640	74	>75% Grass cover, Good, HSG C
1.100	96	Gravel surface, HSG D
0.700	96	Gravel surface, HSG C
6.500	85	Weighted Average
5.900		90.77% Pervious Area
0.600		9.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0150	0.09		**Sheet Flow, stone** n= 0.250 P2= 2.50"
2.6	308	0.0150	1.97		**Shallow Concentrated Flow, stone** Unpaved Kv= 16.1 fps
0.7	187	0.0700	4.26		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
22.0	595	Total			

Subcatchment 3S: Proposed North not through basin



Hydrograph for Subcatchment 3S: Proposed North not through basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.01	0.05
9.00	0.57	0.02	0.13
10.00	0.70	0.06	0.24
11.00	0.91	0.13	0.56
12.00	2.57	1.23	**10.16**
13.00	2.99	1.58	**1.79**
14.00	3.17	1.73	0.95
15.00	3.30	1.85	0.70
16.00	3.41	1.93	0.56
17.00	3.49	2.01	0.47
18.00	3.56	2.07	0.42
19.00	3.63	2.13	0.36
20.00	3.68	2.18	0.31
21.00	3.73	2.22	0.28
22.00	3.78	2.26	0.27
23.00	3.83	2.30	0.26
24.00	**3.87**	**2.34**	0.25
25.00	3.87	2.34	0.00
26.00	3.87	2.34	0.00
27.00	3.87	2.34	0.00
28.00	3.87	2.34	0.00
29.00	3.87	2.34	0.00
30.00	3.87	2.34	0.00
31.00	3.87	2.34	0.00
32.00	3.87	2.34	0.00
33.00	3.87	2.34	0.00
34.00	3.87	2.34	0.00
35.00	3.87	2.34	0.00
36.00	3.87	2.34	0.00
37.00	3.87	2.34	0.00
38.00	3.87	2.34	0.00
39.00	3.87	2.34	0.00
40.00	3.87	2.34	0.00
41.00	3.87	2.34	0.00
42.00	3.87	2.34	0.00
43.00	3.87	2.34	0.00
44.00	3.87	2.34	0.00
45.00	3.87	2.34	0.00
46.00	3.87	2.34	0.00
47.00	3.87	2.34	0.00
48.00	3.87	2.34	0.00
49.00	3.87	2.34	0.00
50.00	3.87	2.34	0.00
51.00	3.87	2.34	0.00
52.00	3.87	2.34	0.00
53.00	3.87	2.34	0.00
54.00	3.87	2.34	0.00
55.00	3.87	2.34	0.00
56.00	3.87	2.34	0.00
57.00	3.87	2.34	0.00
58.00	3.87	2.34	0.00
59.00	3.87	2.34	0.00
60.00	3.87	2.34	0.00

Summary for Subcatchment 3S: Proposed North not through basin

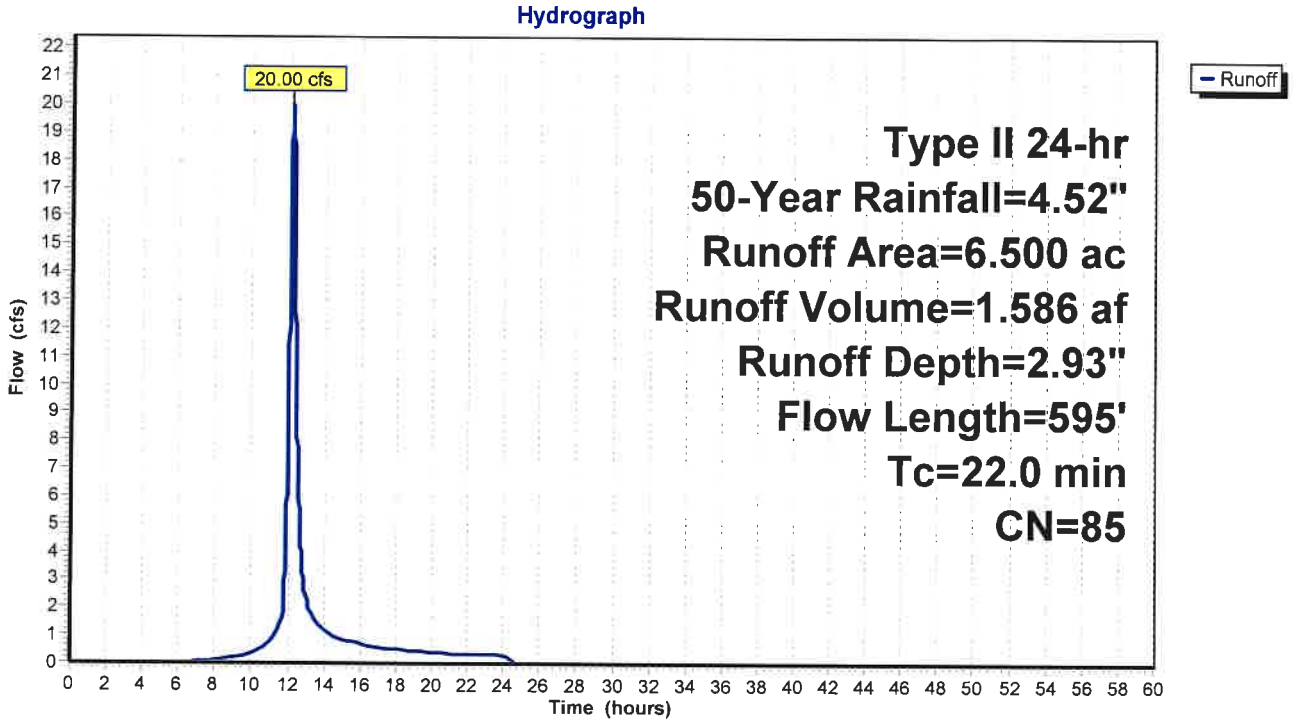
Runoff = 20.00 cfs @ 12.15 hrs, Volume= 1.586 af, Depth= 2.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=4.52"

Area (ac)	CN	Description
0.360	98	Paved parking, HSG D
0.240	98	Paved parking, HSG C
2.460	80	>75% Grass cover, Good, HSG D
1.640	74	>75% Grass cover, Good, HSG C
1.100	96	Gravel surface, HSG D
0.700	96	Gravel surface, HSG C
6.500	85	Weighted Average
5.900		90.77% Pervious Area
0.600		9.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0150	0.09		**Sheet Flow, stone** n= 0.250 P2= 2.50"
2.6	308	0.0150	1.97		**Shallow Concentrated Flow, stone** Unpaved Kv= 16.1 fps
0.7	187	0.0700	4.26		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
22.0	595	Total			

Subcatchment 3S: Proposed North not through basin



Hydrograph for Subcatchment 3S: Proposed North not through basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.16	0.00	0.00
4.00	0.22	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.36	0.00	0.00
7.00	0.45	0.00	0.04
8.00	0.54	0.02	0.10
9.00	0.66	0.05	0.21
10.00	0.82	0.10	0.35
11.00	1.06	0.20	0.78
12.00	3.00	1.59	**12.87**
13.00	3.49	2.01	**2.18**
14.00	3.71	2.20	1.14
15.00	3.86	2.33	0.85
16.00	3.98	2.44	0.67
17.00	4.08	2.53	0.57
18.00	4.16	2.60	0.50
19.00	4.24	2.67	0.44
20.00	4.30	2.73	0.37
21.00	4.36	2.78	0.34
22.00	4.42	2.83	0.33
23.00	4.47	2.88	0.31
24.00	**4.52**	**2.93**	0.30
25.00	4.52	2.93	0.00
26.00	4.52	2.93	0.00
27.00	4.52	2.93	0.00
28.00	4.52	2.93	0.00
29.00	4.52	2.93	0.00
30.00	4.52	2.93	0.00
31.00	4.52	2.93	0.00
32.00	4.52	2.93	0.00
33.00	4.52	2.93	0.00
34.00	4.52	2.93	0.00
35.00	4.52	2.93	0.00
36.00	4.52	2.93	0.00
37.00	4.52	2.93	0.00
38.00	4.52	2.93	0.00
39.00	4.52	2.93	0.00
40.00	4.52	2.93	0.00
41.00	4.52	2.93	0.00
42.00	4.52	2.93	0.00
43.00	4.52	2.93	0.00
44.00	4.52	2.93	0.00
45.00	4.52	2.93	0.00
46.00	4.52	2.93	0.00
47.00	4.52	2.93	0.00
48.00	4.52	2.93	0.00
49.00	4.52	2.93	0.00
50.00	4.52	2.93	0.00
51.00	4.52	2.93	0.00
52.00	4.52	2.93	0.00
53.00	4.52	2.93	0.00
54.00	4.52	2.93	0.00
55.00	4.52	2.93	0.00
56.00	4.52	2.93	0.00
57.00	4.52	2.93	0.00
58.00	4.52	2.93	0.00
59.00	4.52	2.93	0.00
60.00	4.52	2.93	0.00

Summary for Subcatchment 3S: Proposed North not through basin

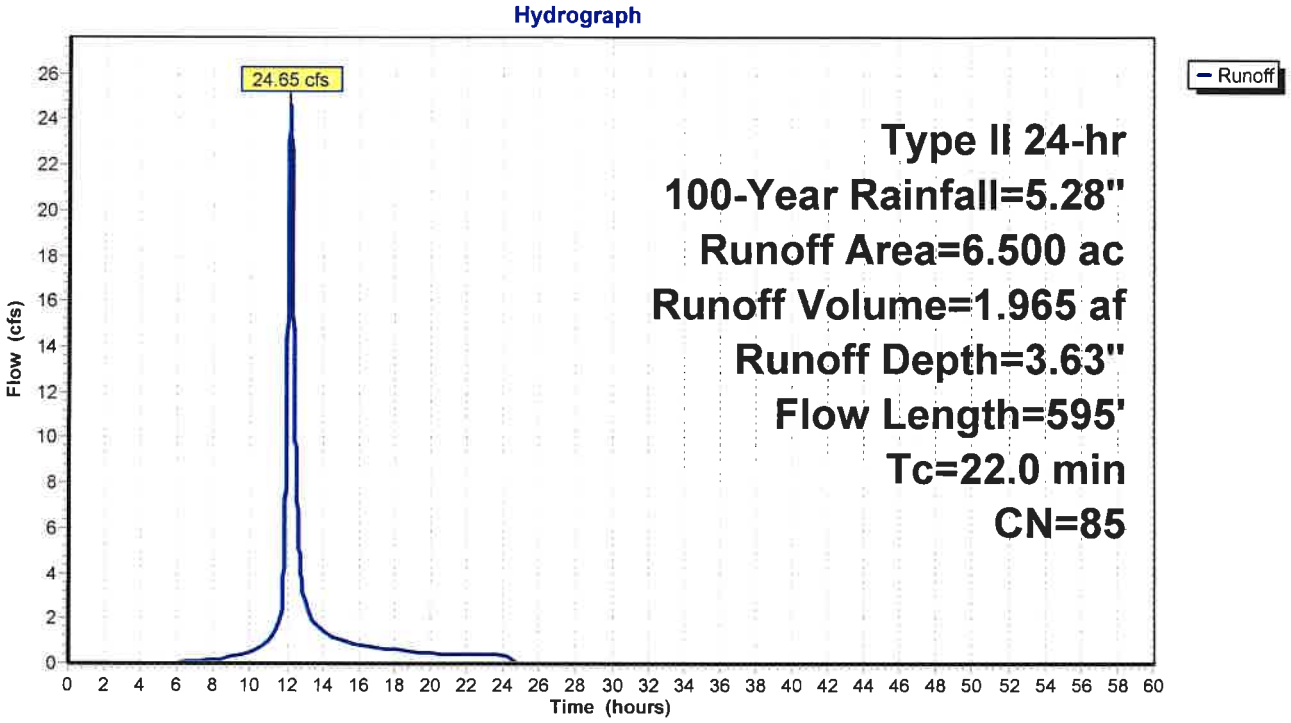
Runoff = 24.65 cfs @ 12.15 hrs, Volume= 1.965 af, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=5.28"

Area (ac)	CN	Description
0.360	98	Paved parking, HSG D
0.240	98	Paved parking, HSG C
2.460	80	>75% Grass cover, Good, HSG D
1.640	74	>75% Grass cover, Good, HSG C
1.100	96	Gravel surface, HSG D
0.700	96	Gravel surface, HSG C
6.500	85	Weighted Average
5.900		90.77% Pervious Area
0.600		9.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0150	0.09		**Sheet Flow, stone** n= 0.250 P2= 2.50"
2.6	308	0.0150	1.97		**Shallow Concentrated Flow, stone** Unpaved Kv= 16.1 fps
0.7	187	0.0700	4.26		**Shallow Concentrated Flow, grass** Unpaved Kv= 16.1 fps
22.0	595	Total			

Subcatchment 3S: Proposed North not through basin



Hydrograph for Subcatchment 3S: Proposed North not through basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.42	0.00	0.03
7.00	0.52	0.01	0.09
8.00	0.63	0.04	0.17
9.00	0.78	0.08	0.31
10.00	0.96	0.15	0.50
11.00	1.24	0.30	1.05
12.00	3.50	2.02	**16.10**
13.00	4.08	2.53	**2.63**
14.00	4.33	2.75	1.37
15.00	4.51	2.92	1.02
16.00	4.65	3.04	0.80
17.00	4.76	3.15	0.68
18.00	4.86	3.24	0.60
19.00	4.95	3.32	0.52
20.00	5.03	3.39	0.44
21.00	5.09	3.45	0.41
22.00	5.16	3.51	0.39
23.00	5.22	3.57	0.38
24.00	**5.28**	**3.63**	0.36
25.00	5.28	3.63	0.00
26.00	5.28	3.63	0.00
27.00	5.28	3.63	0.00
28.00	5.28	3.63	0.00
29.00	5.28	3.63	0.00
30.00	5.28	3.63	0.00
31.00	5.28	3.63	0.00
32.00	5.28	3.63	0.00
33.00	5.28	3.63	0.00
34.00	5.28	3.63	0.00
35.00	5.28	3.63	0.00
36.00	5.28	3.63	0.00
37.00	5.28	3.63	0.00
38.00	5.28	3.63	0.00
39.00	5.28	3.63	0.00
40.00	5.28	3.63	0.00
41.00	5.28	3.63	0.00
42.00	5.28	3.63	0.00
43.00	5.28	3.63	0.00
44.00	5.28	3.63	0.00
45.00	5.28	3.63	0.00
46.00	5.28	3.63	0.00
47.00	5.28	3.63	0.00
48.00	5.28	3.63	0.00
49.00	5.28	3.63	0.00
50.00	5.28	3.63	0.00
51.00	5.28	3.63	0.00
52.00	5.28	3.63	0.00
53.00	5.28	3.63	0.00
54.00	5.28	3.63	0.00
55.00	5.28	3.63	0.00
56.00	5.28	3.63	0.00
57.00	5.28	3.63	0.00
58.00	5.28	3.63	0.00
59.00	5.28	3.63	0.00
60.00	5.28	3.63	0.00

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