ATTACHMENT 8

Stormwater Control Plan

for

Landon Arena

12/1/2025



Owner:

Hayden Landon

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This Stormwater Control Plan was prepared using the template dated January 2017.

I. Project Data

Table 1. Project Data

Project Name/Project Case Number	Landon Arena
Project Location	3715 Baseline Ave. APN: 111-231-017
Project Phase No.	N/A
Project Type and Description	Addition of new 45,000 SF building
New Impervious Surface Area (sf)	45,000 SF
Replaced Impervious Surface Area (sf)	0 SF
Pre-Project Impervious Surface Area (sf)	10,793 SF
Post-Project Impervious Surface Area (sf)	55,793 SF
"Net Impervious" Area, if applicable	Not Applicable
Watershed Management Zone(s)	9
Tier	Tier 2
Design Storm Frequency Used (Standard Conditions for Project Plan Approval) and Design Storm Depth (in)	1.2 inches
Urban Sustainability Area, if applicable	N/A

II. Setting

II.A. Project Location and Description

The project is located at 3715 Baselines Ave. in Santa Ynez, California, and involves a development of a 45,000 SF along with treatment wetland basin. The property is situated east of Lowe Riders Riding Academy and north of Barton Thoroughbreds, within an area characterized by equestrian, agricultural, and rural residential land uses. Access is provided via Edison Street to the west and an internal network of unpaved roads. The site is flat, primarily open land, and lies within the Santa Ynez Valley planning area.



II.B. Existing Site Features and Conditions

The existing site consists primarily of grassland with a small storage building, small stormwater management additions and gravel access roads, with an average terrain slope at approximately 2% from the northwest to southeast. Surrounding usage includes equestrian facilities to the west and agricultural land to the north, east, and south. The topography is relatively flat, with surface drainage generally flowing from the northwest corner toward the southeast along existing field gradients.

A web soil survey shows existing soils have infiltration rates of approximately 2.5 inches per hour however according to soil type B within Standard Conditions infiltration calculation (See appendix 4 for web soil survey report), we incorporated a infiltration rate of 0.75 in./hr.

II.C. Opportunities and Constraints for Stormwater Control

The site plan and the existing drainage pattern enable the opportunity for runoff to be routed to the landscape area on the south-east & south-west of the project site. Additionally, site plan also enables the use of an extended-detention basin for management of new impervious area runoff.

II.D. Summary of Design Approach for Meeting the Post-Construction Requirements

The required design volume for detention-based storm water quality treatment facilities was calculated using the standard conditions for project plan approval BMP excel spreadsheet, see appendix 1 for reference.

The following assumptions are made with the proposed site plan. The site has been divided into drainage management areas (DMA) that are routed to a treatment BMP. Landscape areas and gravel driveway along the perimeter are self-treating. New arena building runoff will be directed to

proposed BMP. Runoff will be treated with exfiltration from a forebay of a wetland treatment basin. The wetland treatment basin is used for treatment, storage and control of post construction flows.

III. Low Impact Design Strategies

III.A. Site Design and Runoff Reduction (Performance Requirement No. 1)

III.A.1. Limit disturbance to creeks and natural drainage features, if applicable

Not applicable

III.A.2. Minimize compaction of highly permeable soils, if applicable

The high density proposed project will compact a large portion of the site. Compaction of permeable soils will be minimized in proposed landscaped areas.

III.A.3. Limit of clearing and grading of native vegetation to minimum area needed, if applicable

Limit of clearing and grading of native vegetation to minimum area as needed

III.A.4. Apply setbacks from creeks, wetlands, and riparian habitats, if applicable

Not applicable

III.A.5. Minimize stormwater runoff using one or more of the following site design measures

Efficient site layout directing runoff away from building foundations and to centralized treatment wetland treatment basin BMP. Landscaping areas are self-treating.

III.A.6. Consideration of drainage as a design element within the project

The assumed drainage will follow the existing drainage shown on the grading plan.

III.A.7. Tier 3 projects must include:

Not applicable

III.B. Site Constraints

III.B.1. Limitation of development envelope due to site constraints including:

The site allows for construction for the sufficient proposed wetland treatment basin per proposed plan without any prohibiting standard constraints.

III.C. Dispersal of Runoff to Pervious Areas

III.C.1. Reduce amount of runoff for which Structural Control Measures are required.

Impervious areas runoff, such as building roofs, are intended to be dispersed to Structural Control Measures by directing them with pipes routed from downspouts. The structural measures used to reduce runoff include the designed wetland treatment basin with outlet control.

IV. Documentation of Drainage Design

IV.A. Descriptions of each Drainage Management Area

The DMA numbers below correspond with the drainage management area map exhibit in appendix 3. SCM that is used as drainage includes a treatment wetland basin including a forebay and pond connected via a weir.

Table 2. Drainage Management Areas

DMA Name	DMA Type	Area (sf)	Surface type	Drains to
DMA 1	Self-Treating	9,900	Roof	Landscape
DMA 2	Self-Treating	278	Concrete	Landscape
DMA 3	Drains to SCM	45,000	Roof	SCM 1

Landscape areas are self-treating.

IV.A.1. Drainage Management Area Narrative Descriptions

DMA 1, totaling 9,900 square feet, drains roof runoff from a small existing building. DMA 1 drains to landscape.

DMA 2, totaling 278 square feet, v-gutter drainage. DMA 2 drains to landscape.

DMA 7, totaling 45,000 square feet, drains asphalt paving from the parking lot. DMA 7 drains to SCM 1.

IV.B. Description of each Stormwater Structural Control Measure

SCM-1, a treatment wetland basin consisting of a forebay and pond areas. The design intent is to use the forebay for treatment purposes and pond area for control of runoff rates. The forebay area consists of approximately 3,558 square feet (side slope included) with a total volume of 2,153 CF (Refer to appendix 2). The pond area was neglected for purpose of treatment. The required treatment volume calculated was 2002 CF according to design calculator per standard conditions for project plan approval & water quality bmps. See appendix 1 for reference. Flow from the treatment area to the pond is dissipated via a rock lined berm.

IV.C. Tabulation and Sizing Calculations for Structural Control Measures

See the attached entries and output from stormwater calculator results under appendix 2.

V. Source Control Measures

V.A. Site activities and potential sources of pollutants

Landscaping Management

V.B. Source Control BMPs Table

Table 3. Source Control BMPs

Potential source of runoff pollutants	Permanent source control BMPs	Operational source control BMPs
Landscape/Outdoor Pesticide Use/Building and Grounds Maintenance	Final landscape plans will accomplish all of the following: Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. Consider using pest-resistant plants, especially adjacent to hardscape. To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks Provide Integrated Pest Management information to new owners, lessees, and operators
Need for future indoor &	Note building design features that discourage	Provide Integrated Pest Management information to

structural pest control	entry of pests.	owners, lessees, and operators

VI. Stormwater Facility Maintenance

The applicant accepts responsibility for the operation and maintenance of stormwater treatment and flow-control facilities for the life of the project. Any future change or alteration, or the failure to maintain any feature described herein can result in penalties including but not limited to fines, property liens, and other actions for enforcement of a civil judgment. For LID facilities refer to operation and maintenance plan.

VII. Stormwater Control Plan/Construction Documents Cross-Checklist

Table 4. Stormwater Control Plan/Construction Documents Cross-Checklist

Stormwater Control Plan Page #	Source Control or LID Facility	See Plan Sheet #'s
3	Extended Treatment Wetland Basin	B-1 & B-2

VIII. Certifications

The preliminary design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the current edition of the Santa Barbara County Project Clean Water's Stormwater Technical Guide.

Appendix 1

Central Coast Region Stormwater Control Measure Sizing Calculator

1. Project Information

Project name:	(25046) Landon Arena
Project location:	3715 Baseline Ave.
Tier 2/Tier 3:	Tier 2 - Storage
Design rainfall depth (in):	1.2
Total project area (ft2):	207000
Total DMA area (ft2):	207000
Total new impervious area (ft2):	55178
Total replaced impervious within a USA (ft2):	
Total replaced impervious not in a USA (ft2):	
Total pervious/landscape area (ft2):	151822
Total SCM area (ft2):	3552

2. DMA Characterization

Name	DMA Type	Area (ft2)	Surface Type	New, Replaced?	Connection
DMA-1	Drains to Self-Retaining	9900	Roof		DMA-8
DMA-2	Drains to Self-Retaining	278	Concrete or asphalt		DMA-8
DMA-7	Drains to SCM	45000	Roof	New	SCM-1
DMA-8	Self-Retaining	151822			

DMA Summary Area	
Total assigned DMA area (ft2):	207000
New impervious area (ft2):	55178
Replaced impervious within a USA (ft2):	0
Replaced impervious not in a USA (ft2):	0
Total pervious/landscape area (ft2):	151822

3. SCM Characterization

Name	SCM Type	Safety Factor	SCM Soil Type	Infilt. Rate (in/hr)	Area (ft2)
SCM-1	Direct Infiltration	2	HSG A/B	0.75	3552

4. Run SBUH Model

5. SCM Minimum Sizing Requirements

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)	Orifice Diameter (in)
SCM-1	2008	1.41	17.0	

6. Self-Retaining Area Sizing Checks

Self-Retaining DMA Name	Self-Retaining DMA Area (ft2)	Tributary DMA Name(s)	Eff. Tributary DMA Area (ft2)	Effective Tributary / SRA Area Ratio
DMA-8	151822	DMA-1; DMA-2	10178	0.07

Appendix 2

Summary for Pond 11P: Forebay (Treatment Zone)

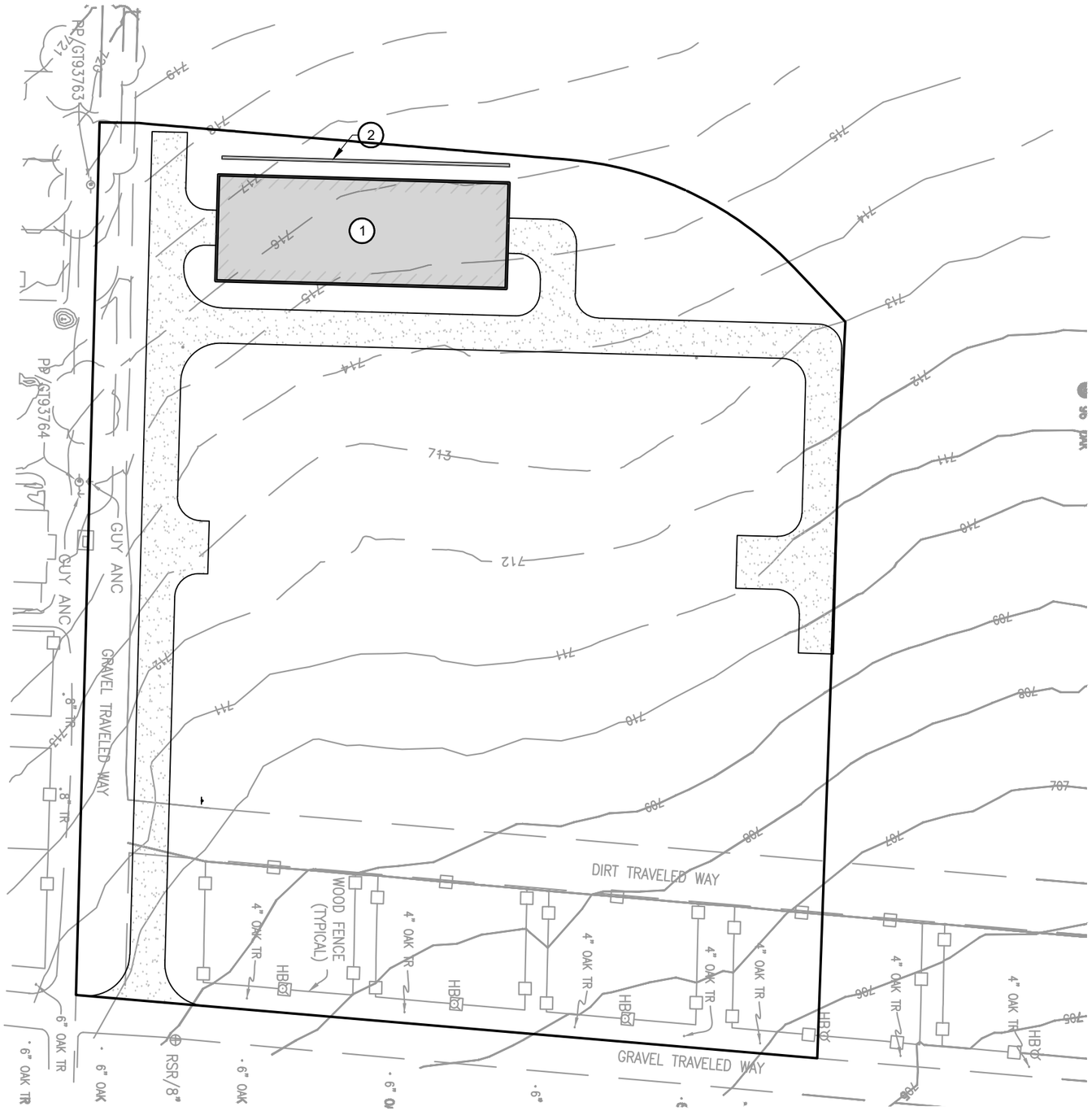
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	708.00'	2,153 cf	**8.00'W x 70.00'L x 3.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1=Custom Weir/Orifice (Controls 0.00 cfs)

Appendix 3



PRE-DEV DMA SUMMARY	
DESCRIPTION	AREAS
1 (E) BLDG	9,900 SF
2 (E) CONC.	278 SF
TOTAL	10,178 SF

SITE SUMMARY

TOTAL SITE AREA	= 207,000 SF
TOTAL IMPERVIOUS AREA	= 10,178 SF
TOTAL PERVIOUS AREA	= 196,822 SF

NOTE: HATCH USED TO IDENTIFY AREA BOUNDARIES ONLY

LEGEND

- SITE AREA
- (E) PRE-EXISTING
- (A) DRAINAGE MANAGEMENT AREA (DMA)

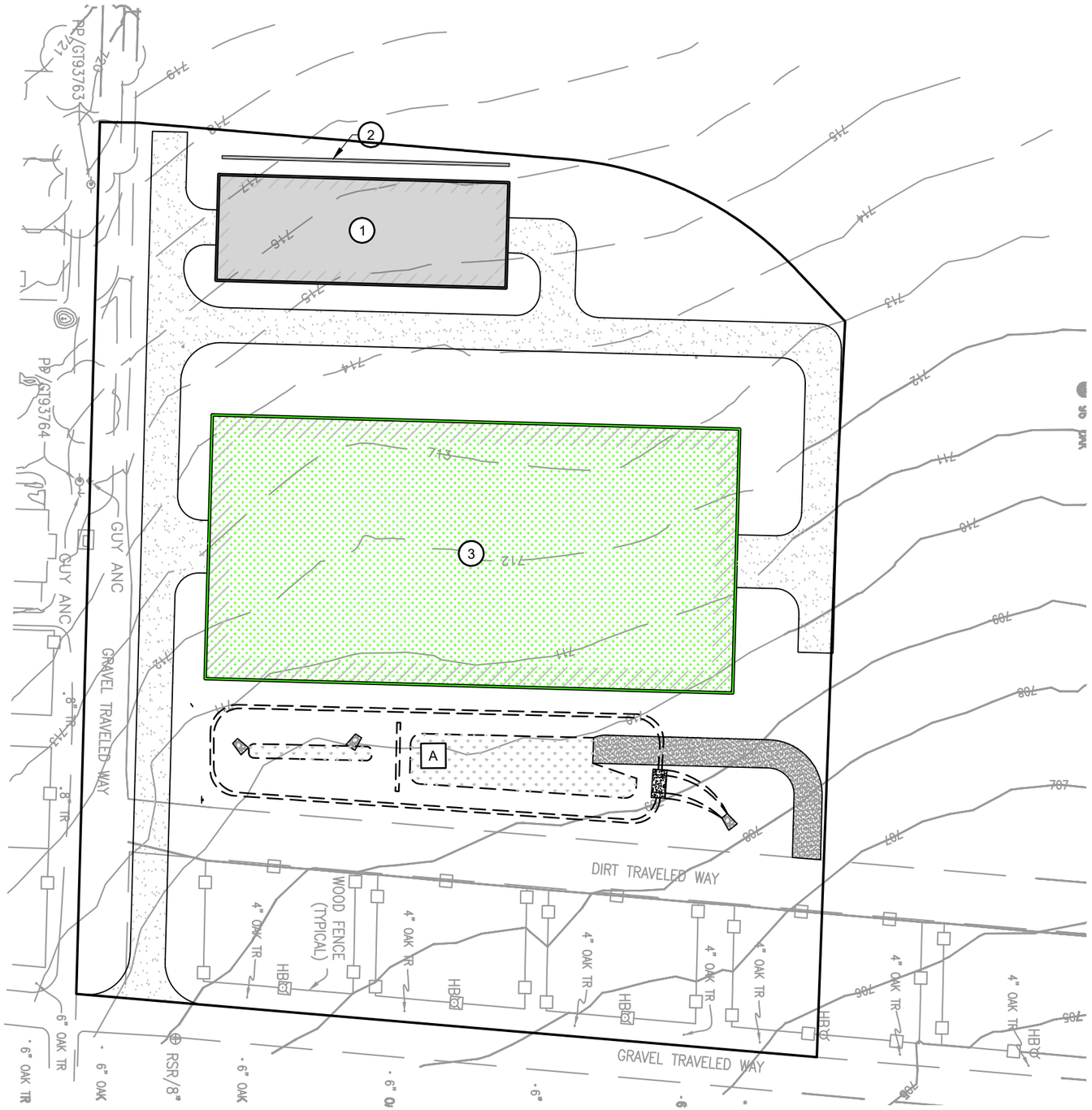
PRE-PROJECT IMPERVIOUS AREAS

PRAXIS
Ideas into Action
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San Luis Obispo, CA 93401
(805)489-9900 www.praxisci.com

SCALE: 1"=70'

LANDON ARENA
3715 BASELINE AVE
SANTA YNEZ, CA
JOB #25046 MAY 2025

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POST–DEV DMA SUMMARY	
DESCRIPTION	AREAS
1 (E) BLDG	9,900 SF
2 (E) CONC.	278 SF
3 (N) BLDG.	45,000 SF
TOTAL	55,178 SF

SITE SUMMARY

TOTAL SITE AREA	= 207,000 SF
TOTAL (N/R) IMPERVIOUS AREA	= 45,000 SF
TOTAL IMPERVIOUS AREA	= 55,178 SF
TOTAL PERVIOUS AREA	= 151,822 SF

NOTE: HATCH USED TO IDENTIFY AREA BOUNDARIES ONLY

LEGEND

- SITE AREA
- (E) POST–EXISTING
- (N) NEW
- A — STORMWATER CONTROL MEASURE (SCM)
- # — DRAINAGE MANAGEMENT AREA (DMA)

POST–PROJECT IMPERVIOUS AREAS

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SCALE: 1"=70'

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Appendix 4

Drainage Study

Prepared for: Landon Arena
3715 Baseline Ave.
Santa Ynez, CA
APN: 141-042-010

Date: December 1, 2025

Applicant: Hayden Landon

Prepared by: Praxis Engineering
Yosimar Ramos, PE
1009 Morro Street, Suite 205
San Luis Obispo, CA 93401
(805) 489-9900



Project Description

Narrative

The project site is located within the Township of Santa Ynez totaling approximately 4.75 acres, east of Edison Street and south of Baseline Avenue.

The site encompasses an agricultural parcel surrounding proposed additions, which consist of residential development and associated infrastructure. The area is surrounded by a residential development and community facilities to the west, active agricultural fields to the north and east, and a series of sports fields and equestrian facilities to the south and southwest. Access to the site is primarily via internal circulation roads that connect to Edison Street.

Topography in the area is generally flat, with existing vegetative patterns and drainage flows indicating typical agricultural grading.

The projects includes a building described as an arena for community use, with associated grading, drainage, and stormwater infrastructure designed to meet Santa Barbara County Flood Control requirements.

The grading and drainage design, erosion control measures, and hydrologic performance of the site are discussed in detail throughout this report, in alignment with Flood County regulations and post-construction stormwater compliance standards.

Existing Conditions

The 4.75-acre site consists primarily of grassland with a small storage building, small stormwater management additions and gravel access roads, with an average terrain slope at approximately 2% from the northwest to southeast.

Based on the web soil data, the approximate infiltration rate in the vicinity is approximately 0.75 inches per hour, see Appendix A for reference.

It is anticipated that the majority of storm water runoff currently infiltrates into the soils with pre-determined routing to designated site landscaping.

Design

Basins

An above ground treatment basin was designed to satisfy detention requirements as per standard conditions for Santa Barbara Flood County. The conditions consist of a volume runoff such that the post development peak storm water runoff discharge rate does not exceed the predevelopment rate for the 2-year through 100- year storm events. See Appendix C for reference. This basin consists of both a forebay and pond separated by berm weir. The forebay (8P) and pond (9P) are provided in two watersheds located in the southerly portion of the new proposed building. The forebay’s volume is designed to meet County Post Construction stormwater requirements for treatment. Subsequently, the pond is used to detain water and control runoff outlets to meet County Flood Control requirements.

A secondary analysis was conducted to verify performance under the 100-year emergency storm event. This basin includes a spillway specifically designed to accommodate emergency overflow in the event the primary outlet becomes obstructed during the required 100-year storm. See Appendix D for reference. The 100-yr water surface elevation is located 2' below the finished floor of proposed structure. The forebay and pond are comprised of a maximum side slope equal to 4:1.

The peak flow runoff summaries can be found in the following table 1, see Appendix C for HydroCAD calculations.

	Pre-Development	***Post-Development***	
24-hr Storm Event	**Peak Flows (CFS)**	**Peak Flows with no BMP(CFS)**	**Peak Flows with BMP (CFS)**
2-YR	2.71	3.64	2.62
5-YR	5.50	6.51	5.07
10-YR	7.47	8.5	6.73
25-YR	10.04	11.07	8.82
50-YR	11.93	12.95	10.59
100-YR	13.79	14.79	12.67

Table 1

Orifices

Each pond has its own orifice restriction to limit peak flow up to the 100-year storm. The forebay (8P) has a riff raff baffle weir which connects and directs flows into the pond (9P). The pond (9P) has an oversized 24" overflow outlet with two vertical orifices inside the outflow device to control flow for various storm events (Refer to Drawing to flow restriction design). Subsequently the outlet pipe exits through a drainage system that is directed to an existing rock swale.

Analysis

Input

The Santa Barbara Urban Hydrograph method was used in HydroCAD to analyze the hydrology.

Watershed Map

See Appendix B for the watershed DMA map. The watershed DMA map graphically illustrates the tributary areas that drain to pond 8P and 9P, as well as the overall project site area.

Soils

The soils encountered at the site consist predominantly of older desiccated surficial sediments composed of dark brown to brown clayey silty sands and gravels, with medium to dense consistency below a depth of approximately 12 feet. Moisture content ranged between 11.1% and 23.8%, and laboratory testing indicates a low expansion potential. As per requirements, exfiltration was excluded from calculations.

Proposed Development

Proposed development includes a commercial building classified as an arena. Additionally, for the purpose of this project, 4.75 acres are idealized at the “project site” and outlines accordingly. The calculations in satisfying post-development retention volume for both the typical 100-yr storm event and the emergency 100-yr storm event include this “project site” area.

The addition of the proposed development causes the post-development runoff rates to increase and exceed pre-development rates. This report addresses peak flow mitigation for the listed storm events satisfying all requirements including basin design and retention mitigation.

Results

See Appendix C for the 2-yr through 100-year storm analysis results.

See Appendix E for pipe sizing analysis results.

Conclusion

The forebay’s volume is designed to meet County Post Construction stormwater requirements for treatment. Subsequently, the pond is used to detain water and control runoff outlets to meet County Flood Control requirements.

Appendix A

Web Soils



Map Scale: 1:2,040 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

= 18.2841

Not rated or not available

Soil Rating Lines

= 18.2841

Not rated or not available

Soil Rating Points

= 18.2841

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

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

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

Soil Survey Area: Northern Santa Barbara Area, California
Survey Area Data: Version 19, Sep 9, 2024

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

Date(s) aerial images were photographed: Mar 12, 2022—Apr 12, 2022

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

Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
BbA	Ballard gravelly fine sandy loam, 0 to 2 percent slopes	18.2841	19.8	100.0%
Totals for Area of Interest			**19.8**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

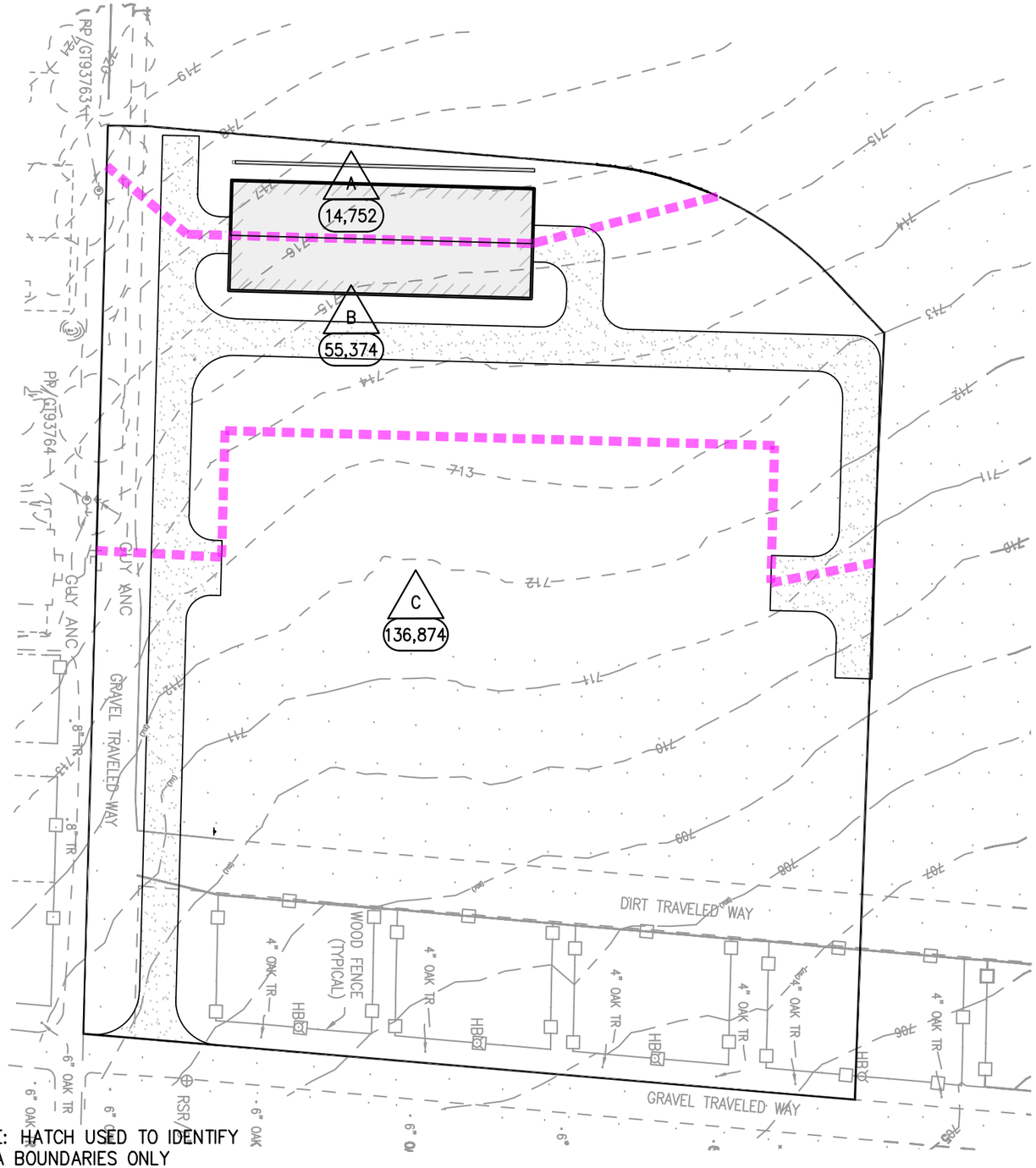
Top Depth: 1

Bottom Depth: 36

Units of Measure: Inches

Appendix B

Drainage Management Area Exhibits



NOTE: HATCH USED TO IDENTIFY AREA BOUNDARIES ONLY

PRE-DEV DMA SUMMARY

SUB AREA	PERVIOUS	IMPERVIOUS	TOTAL
A	9,525 SF	5,228 SF	14,752 SF
B	50,424 SF	4,950 SF	55,374 SF
C	136,874 SF	0 SF	136,874 SF
			207,000 SF

SITE SUMMARY

TOTAL SITE AREA = 207,000 SF

TOTAL IMPERVIOUS AREA = 10,178 SF

TOTAL PERVIOUS AREA = 196,822 SF

LEGEND

- SITE AREA
- (E) PRE-EXISTING
- A — STORMWATER CONTROL MEASURE (SCM)
- # — TOTAL AREA (SF)

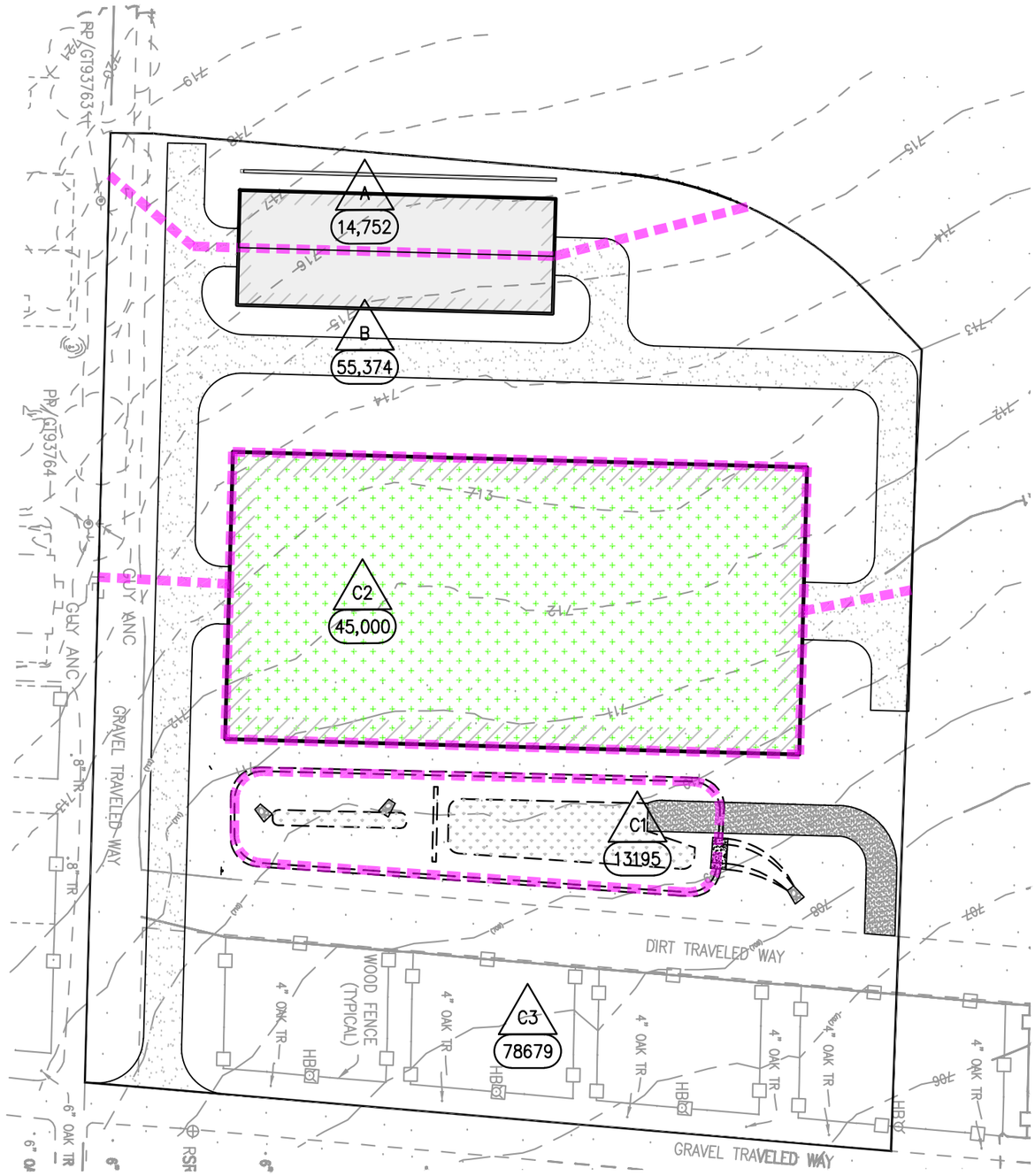
PRE-PROJECT DRAINAGE

PRAXIS
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SCALE: 1"=70'

LANDON ARENA
3715 BASELINE AVE
SANTA YNEZ, CA
JOB #25046 MAY 2025

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NOTE: HATCH USED TO IDENTIFY AREA BOUNDARIES ONLY

POST-DEV DMA SUMMARY

SUB AREA	PERVIOUS	IMPERVIOUS	TOTAL
A	9,525 SF	5,228 SF	14,752 SF
B	50,424 SF	4,950 SF	55,374 SF
C1	13,195 SF	0 SF	13,195 SF
C2	0 SF	45,000 SF	45,000 SF
C3	78,679 SF	0 SF	78,679 SF
			207,000 SF

SITE SUMMARY

TOTAL SITE AREA	= 207,000 SF
TOTAL (N/R) IMPERVIOUS AREA	= 45,000 SF
TOTAL IMPERVIOUS AREA	= 55,178 SF
TOTAL PERVIOUS AREA	= 151,822 SF

POST-DEV SUMMARY PEAK FLOWS

STORM FREQUENCY	Q_{A+B+C3} (CFS)	Q_{C1+C2} (CFS)	Q_{TOTAL} (CFS)
2-YR	2.01	0.61	2.62
5-YR	4.01	1.06	5.07
10-YR	5.44	1.29	6.73
25-YR	7.28	1.54	8.82
50-YR	8.64	1.95	10.59
100-YR	9.98	2.69	12.67

LEGEND

- SITE AREA
- (E) POST-EXISTING
- (N) NEW
- A — STORM WATER CONTROL AREA
- # — TOTAL AREA (SF)

POST-PROJECT DRAINAGE

PRAXIS
Ideas into Action
1009 Morro Street, Suite 205
San Luis Obispo, CA 93401
(805)489-9900 www.praxisci.com

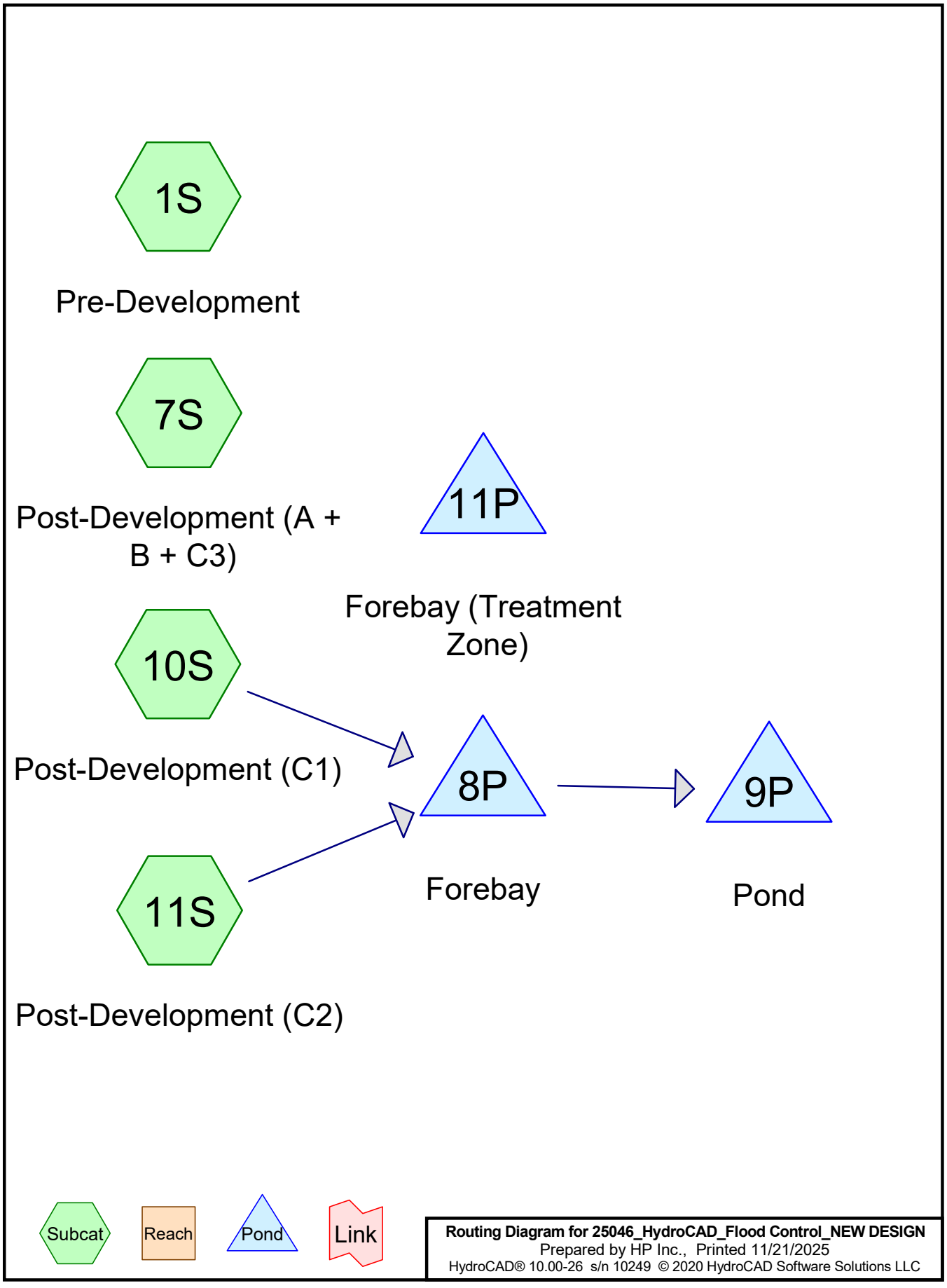
SCALE: 1"=70'

LANDON ARENA
3715 BASELINE AVE
SANTA YNEZ, CA
JOB #25046 MAY 2025

X:\02-Projects\10-2025 Projects\25046 - 3715 Baseline Ave (PCS Eng) C-SLO\02-Civil\04-Drawings\Exhibits\25046_Drainage Exhibit.dwg 11/21/25 02:38 PM AmandoGarza

Appendix C

HydroCAD



Routing Diagram for 25046_HydroCAD_Flood Control_NEW DESIGN
Prepared by HP Inc., Printed 11/21/2025
HydroCAD® 10.00-26 s/n 10249 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Pre-Development

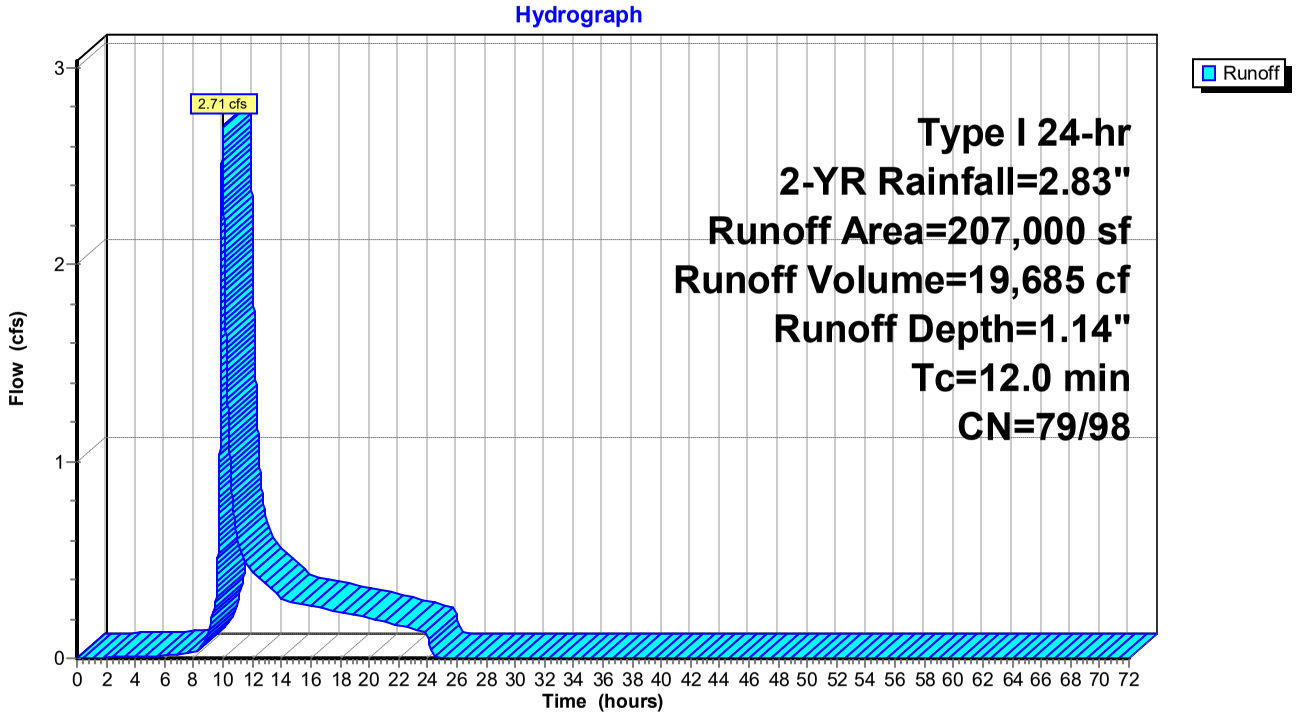
Runoff = 2.71 cfs @ 9.97 hrs, Volume= 19,685 cf, Depth= 1.14"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 2-YR Rainfall=2.83"

	Area (sf)	CN	Description
*	9,900	98	DMA 1
*	278	98	DMA 2
	196,822	79	<50% Grass cover, Poor, HSG B
	207,000	80	Weighted Average
	196,822	79	95.08% Pervious Area
	10,178	98	4.92% Impervious Area

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

Subcatchment 1S: Pre-Development



Summary for Subcatchment 7S: Post-Development (A + B + C3)

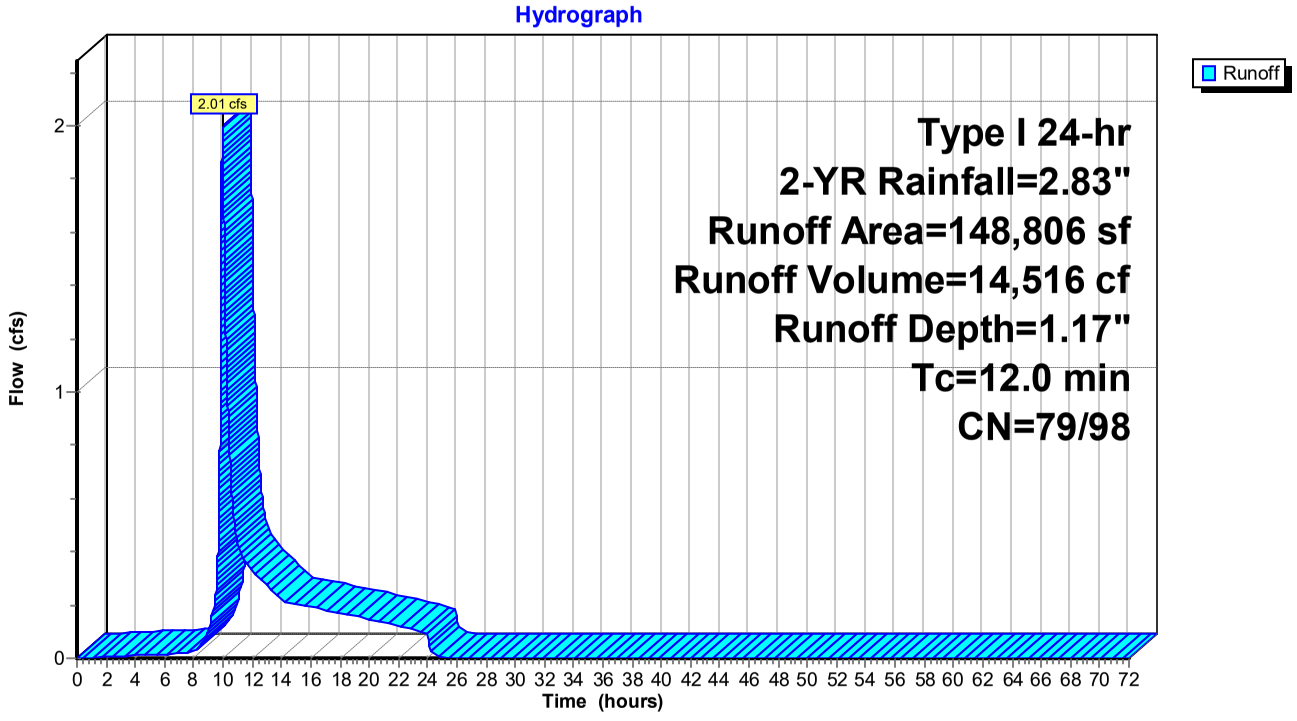
Runoff = 2.01 cfs @ 9.97 hrs, Volume= 14,516 cf, Depth= 1.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 2-YR Rainfall=2.83"

Area (sf)	CN	Description
9,900	98	Unconnected roofs, HSG B
278	98	Paved roads w/curbs & sewers, HSG C
138,628	79	<50% Grass cover, Poor, HSG B
148,806	80	Weighted Average
138,628	79	93.16% Pervious Area
10,178	98	6.84% Impervious Area

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

Subcatchment 7S: Post-Development (A + B + C3)



Summary for Subcatchment 10S: Post-Development (C1)

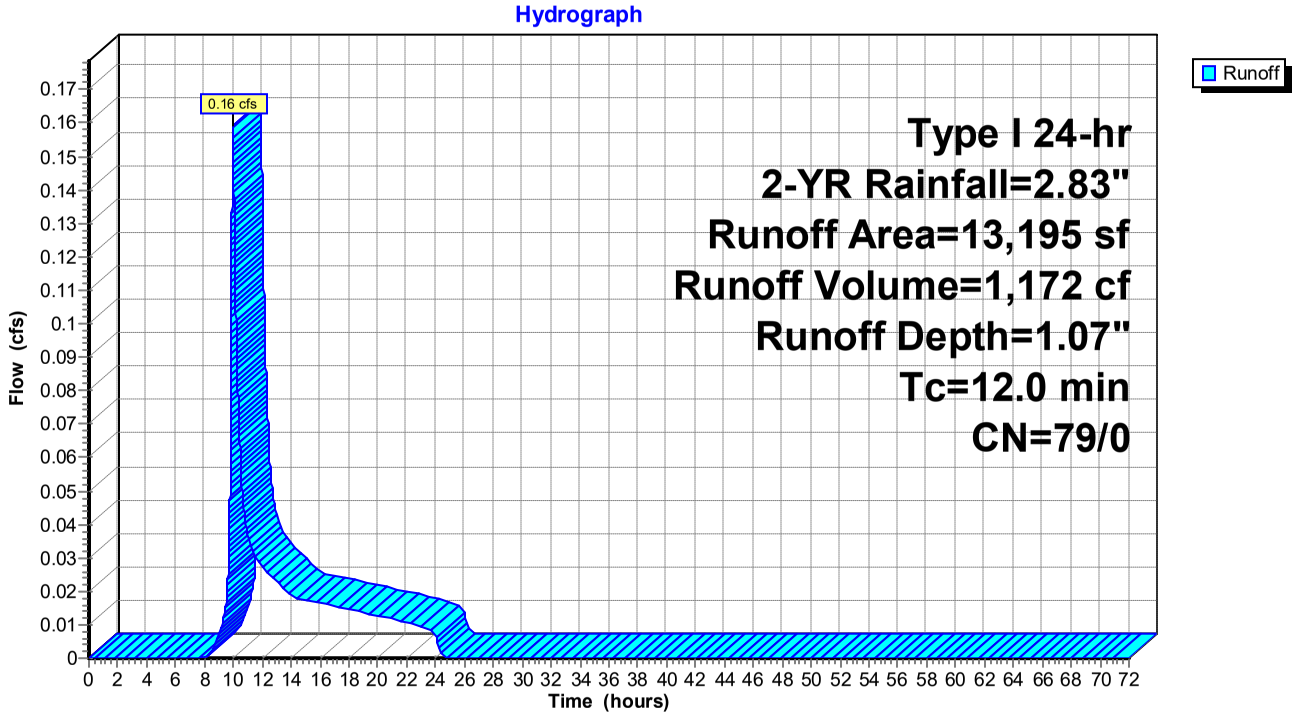
Runoff = 0.16 cfs @ 9.97 hrs, Volume= 1,172 cf, Depth= 1.07"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 2-YR Rainfall=2.83"

Area (sf)	CN	Description
12,593	79	<50% Grass cover, Poor, HSG B
602	85	Gravel roads, HSG B
13,195	79	Weighted Average
13,195	79	100.00% Pervious Area

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

Subcatchment 10S: Post-Development (C1)



Summary for Subcatchment 11S: Post-Development (C2)

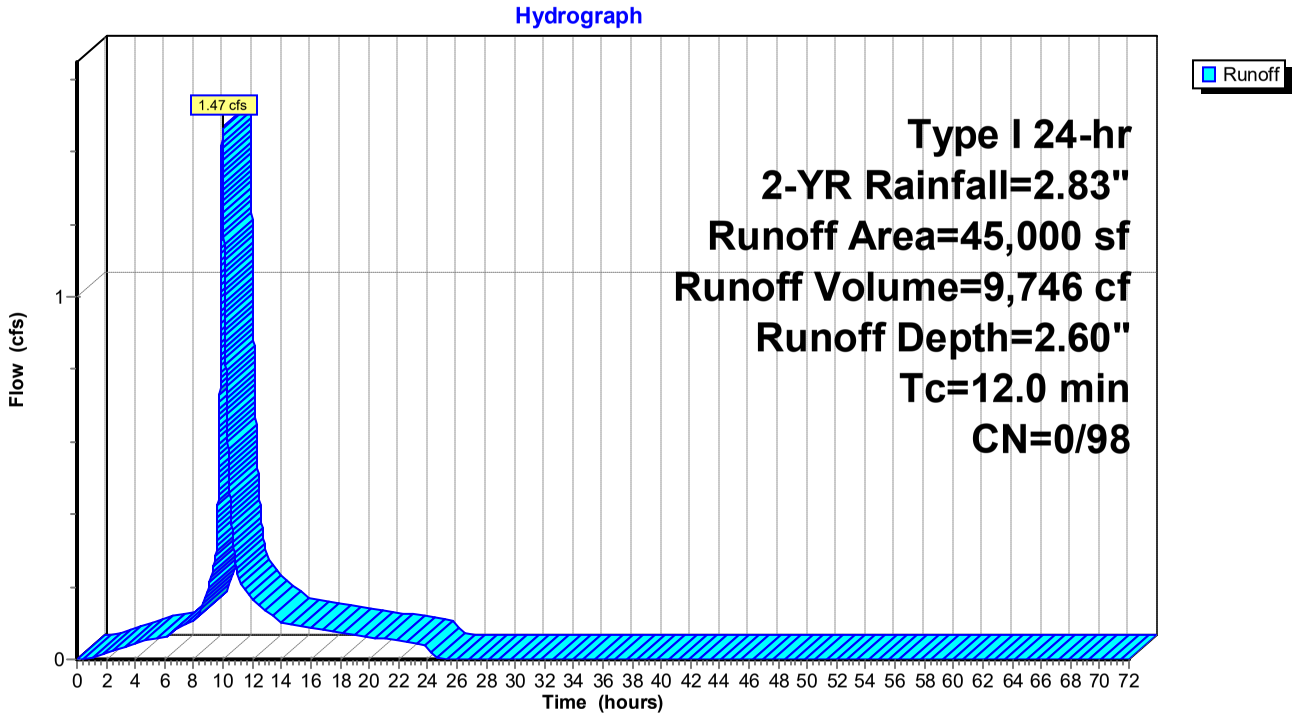
Runoff = 1.47 cfs @ 9.96 hrs, Volume= 9,746 cf, Depth= 2.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 2-YR Rainfall=2.83"

Area (sf)	CN	Description
45,000	98	Roofs, HSG A
45,000	98	100.00% Impervious Area

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

Subcatchment 11S: Post-Development (C2)



Summary for Pond 8P: Forebay

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 2.25" for 2-YR event
Inflow = 1.63 cfs @ 9.96 hrs, Volume= 10,918 cf
Outflow = 1.60 cfs @ 9.98 hrs, Volume= 10,918 cf, Atten= 2%, Lag= 1.3 min
Primary = 1.60 cfs @ 9.98 hrs, Volume= 10,918 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.55' @ 9.98 hrs Surf.Area= 3,795 sf Storage= 203 cf

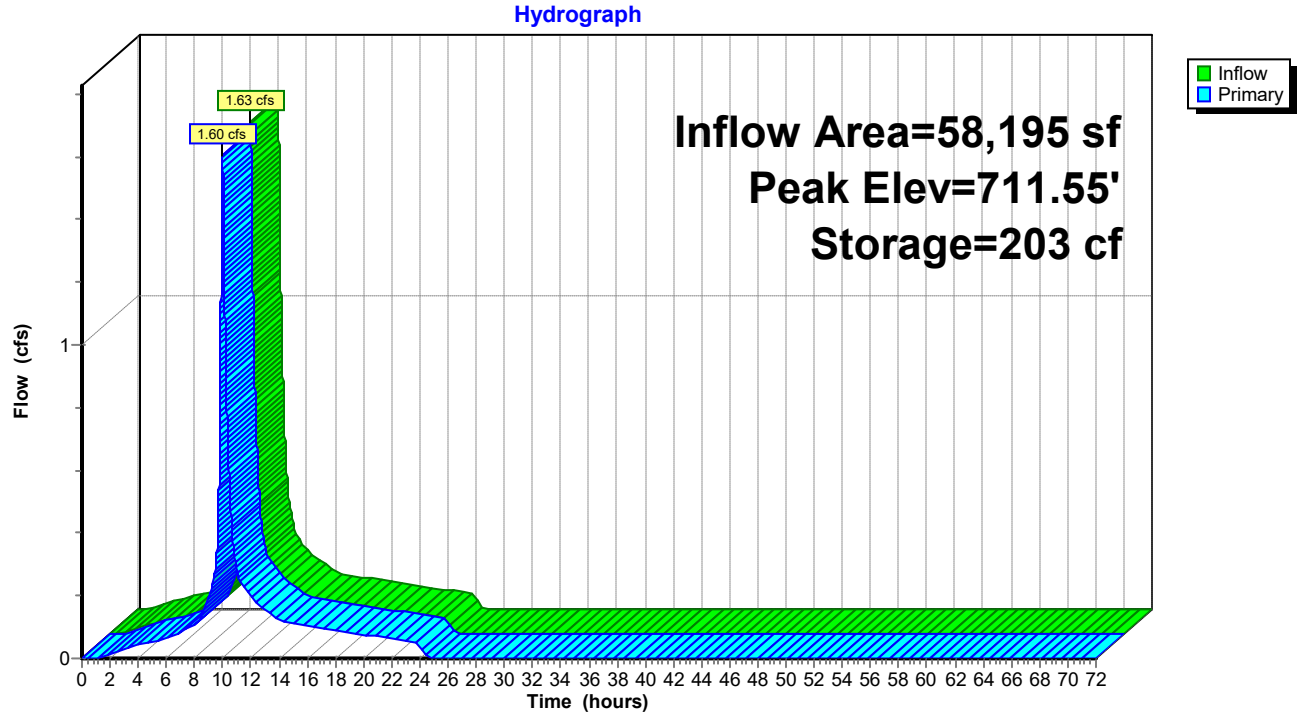
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.6 min (731.4 - 727.8)

Volume	Invert	Avail.Storage	Storage Description
#1	711.50'	5,750 cf	**38.50'W x 98.50'L x 1.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=1.59 cfs @ 9.98 hrs HW=711.55' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 1.59 cfs @ 0.76 fps)

Pond 8P: Forebay



Summary for Pond 9P: Pond

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 2.25" for 2-YR event
Inflow = 1.60 cfs @ 9.98 hrs, Volume= 10,918 cf
Outflow = 0.61 cfs @ 10.42 hrs, Volume= 10,914 cf, Atten= 62%, Lag= 26.6 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 0.14 cfs @ 10.42 hrs, Volume= 395 cf
Tertiary = 0.47 cfs @ 10.42 hrs, Volume= 10,519 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 710.72' @ 10.42 hrs Surf.Area= 3,708 sf Storage= 2,664 cf

Plug-Flow detention time= 117.8 min calculated for 10,914 cf (100% of inflow)
Center-of-Mass det. time= 117.6 min (849.0 - 731.4)

Volume	Invert	Avail.Storage	Storage Description
#1	710.00'	11,271 cf	**28.50'W x 128.50'L x 3.00'H Prismatoid Z=0.2**

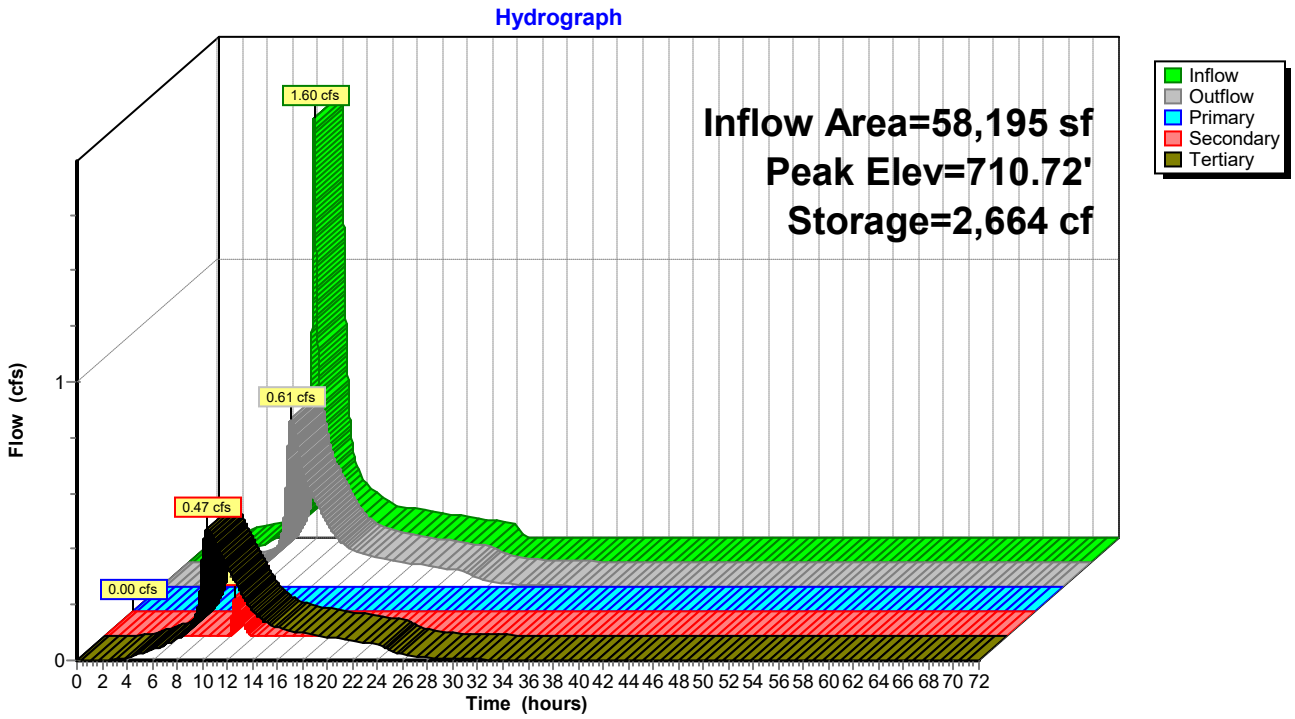
Device	Routing	Invert	Outlet Devices
#1	Tertiary	710.00'	**5.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	710.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	711.58'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=710.00' (Free Discharge)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.14 cfs @ 10.42 hrs HW=710.72' (Free Discharge)
└**2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.61 fps)

Tertiary OutFlow Max=0.47 cfs @ 10.42 hrs HW=710.72' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.47 cfs @ 3.45 fps)

Pond 9P: Pond


Hydrograph
Inflow Area=58,195 sf
Peak Elev=710.72'
Storage=2,664 cf
1.60 cfs
0.61 cfs
0.47 cfs
0.00 cfs
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
1
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 11P: Forebay (Treatment Zone)

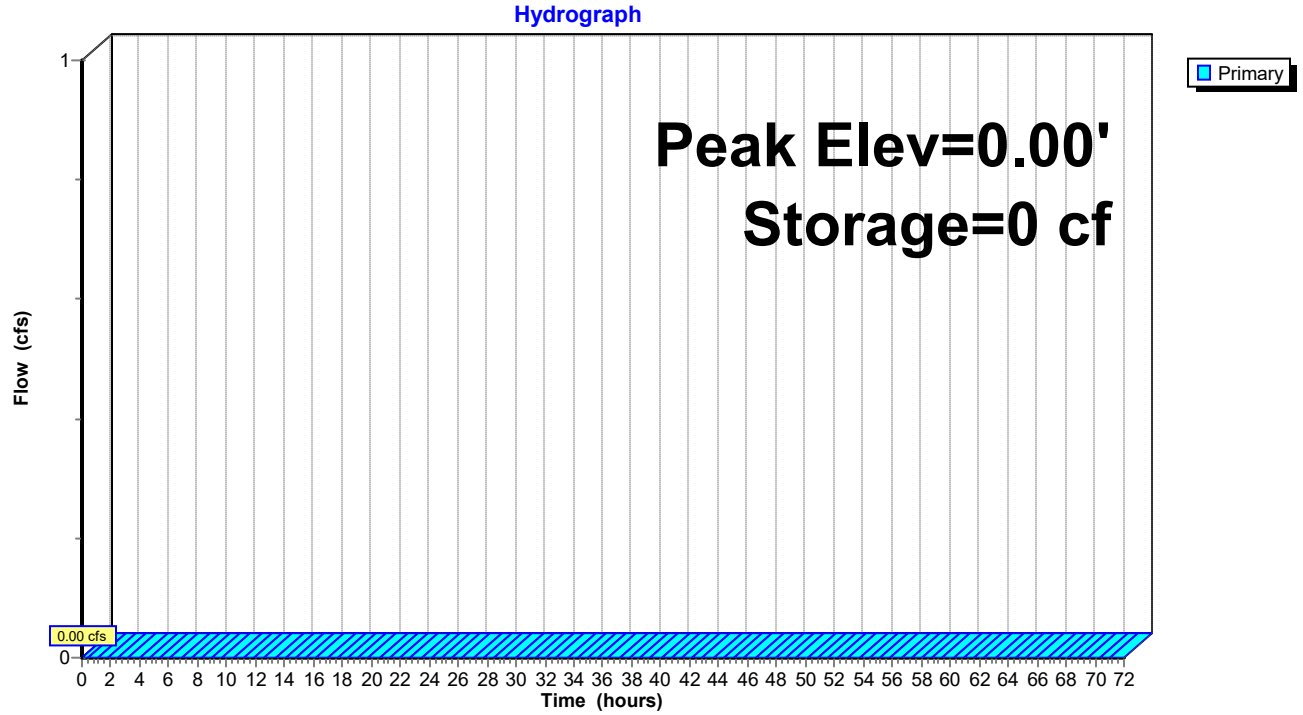
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	708.00'	2,153 cf	**8.00'W x 70.00'L x 3.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1=Custom Weir/Orifice (Controls 0.00 cfs)

Pond 11P: Forebay (Treatment Zone)



Summary for Subcatchment 1S: Pre-Development

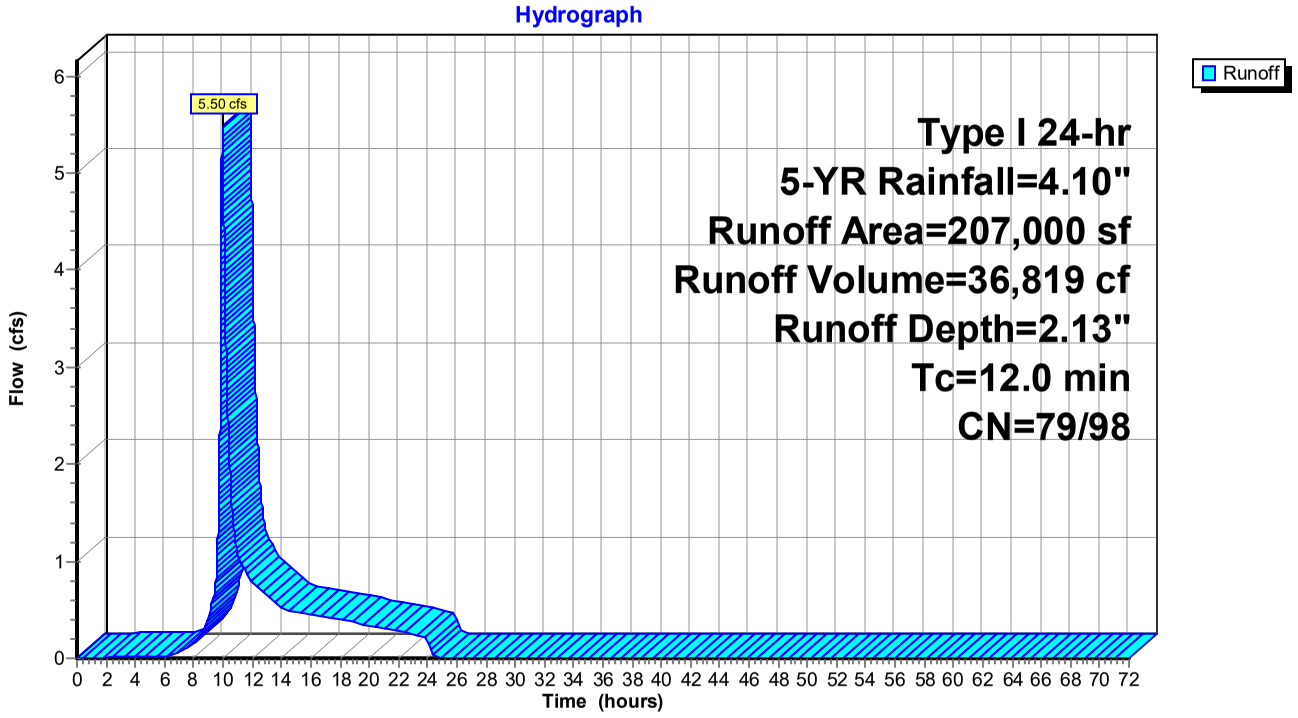
Runoff = 5.50 cfs @ 9.97 hrs, Volume= 36,819 cf, Depth= 2.13"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 5-YR Rainfall=4.10"

	Area (sf)	CN	Description
*	9,900	98	DMA 1
*	278	98	DMA 2
	196,822	79	<50% Grass cover, Poor, HSG B
	207,000	80	Weighted Average
	196,822	79	95.08% Pervious Area
	10,178	98	4.92% Impervious Area

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

Subcatchment 1S: Pre-Development



Summary for Subcatchment 7S: Post-Development (A + B + C3)

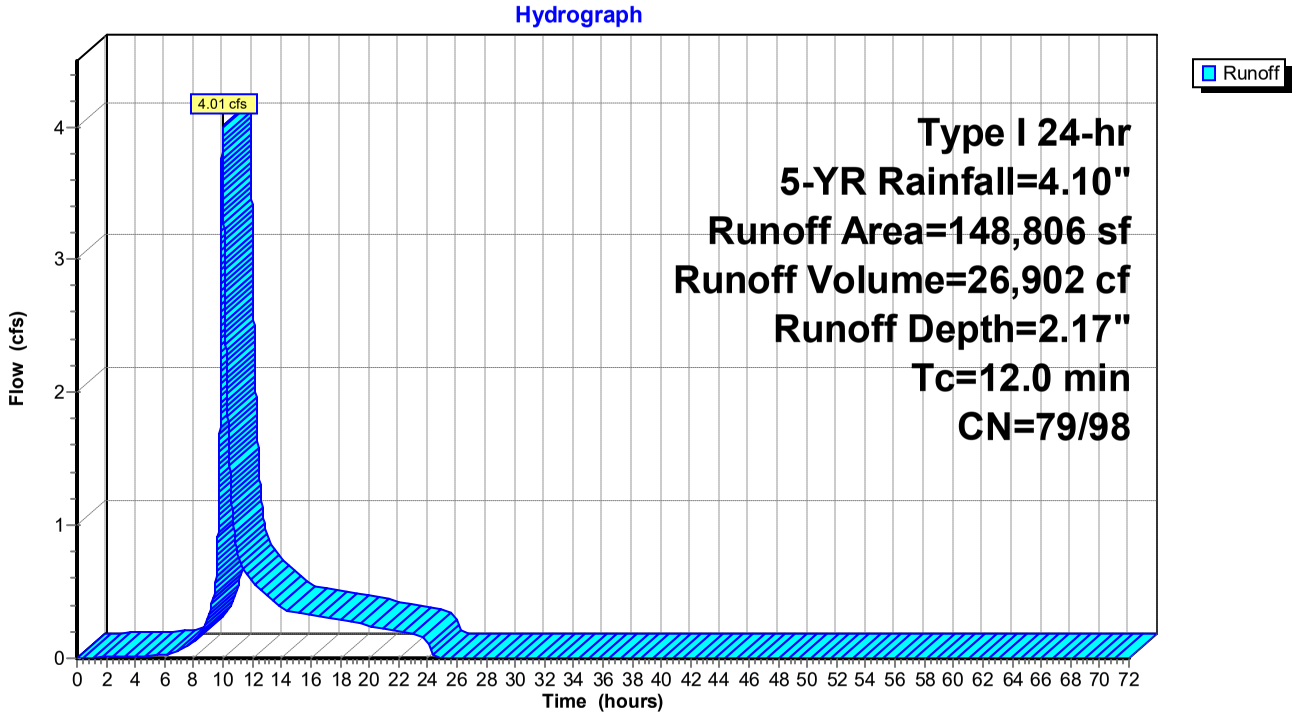
Runoff = 4.01 cfs @ 9.97 hrs, Volume= 26,902 cf, Depth= 2.17"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 5-YR Rainfall=4.10"

Area (sf)	CN	Description
9,900	98	Unconnected roofs, HSG B
278	98	Paved roads w/curbs & sewers, HSG C
138,628	79	<50% Grass cover, Poor, HSG B
148,806	80	Weighted Average
138,628	79	93.16% Pervious Area
10,178	98	6.84% Impervious Area

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

Subcatchment 7S: Post-Development (A + B + C3)



Summary for Subcatchment 10S: Post-Development (C1)

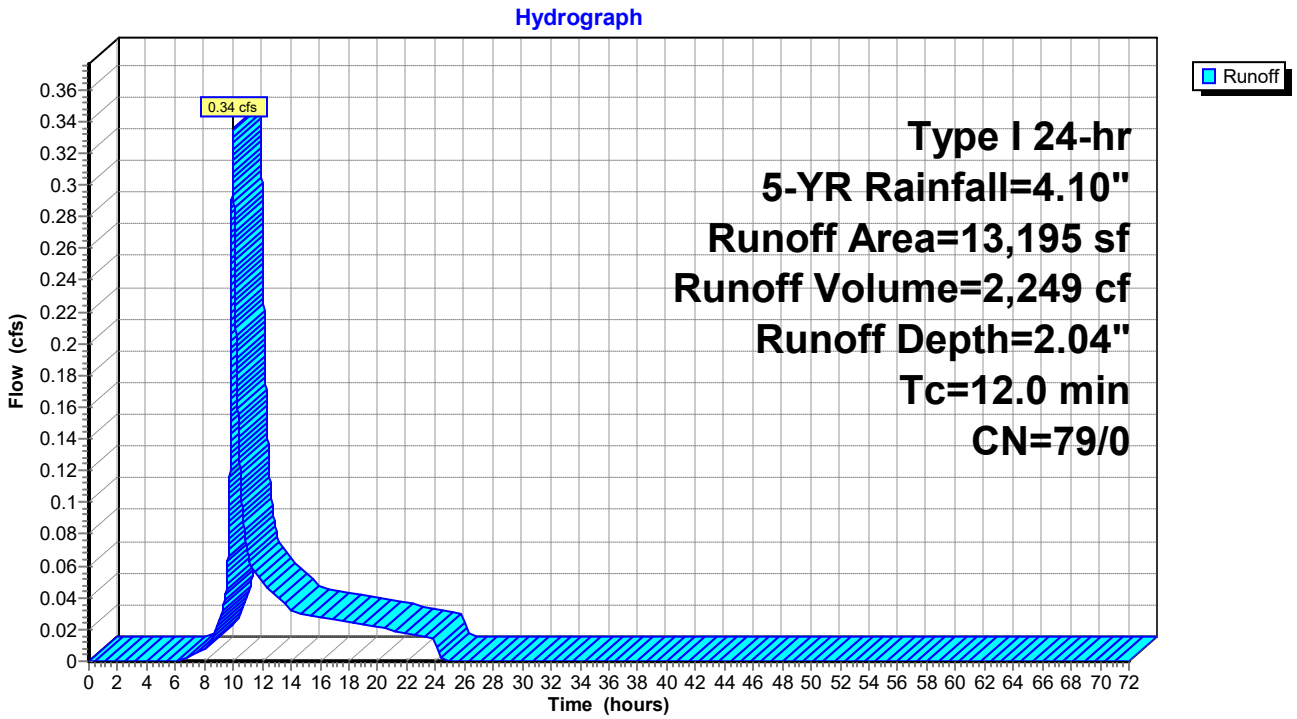
Runoff = 0.34 cfs @ 9.97 hrs, Volume= 2,249 cf, Depth= 2.04"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 5-YR Rainfall=4.10"

Area (sf)	CN	Description
12,593	79	<50% Grass cover, Poor, HSG B
602	85	Gravel roads, HSG B
13,195	79	Weighted Average
13,195	79	100.00% Pervious Area

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

Subcatchment 10S: Post-Development (C1)



Summary for Subcatchment 11S: Post-Development (C2)

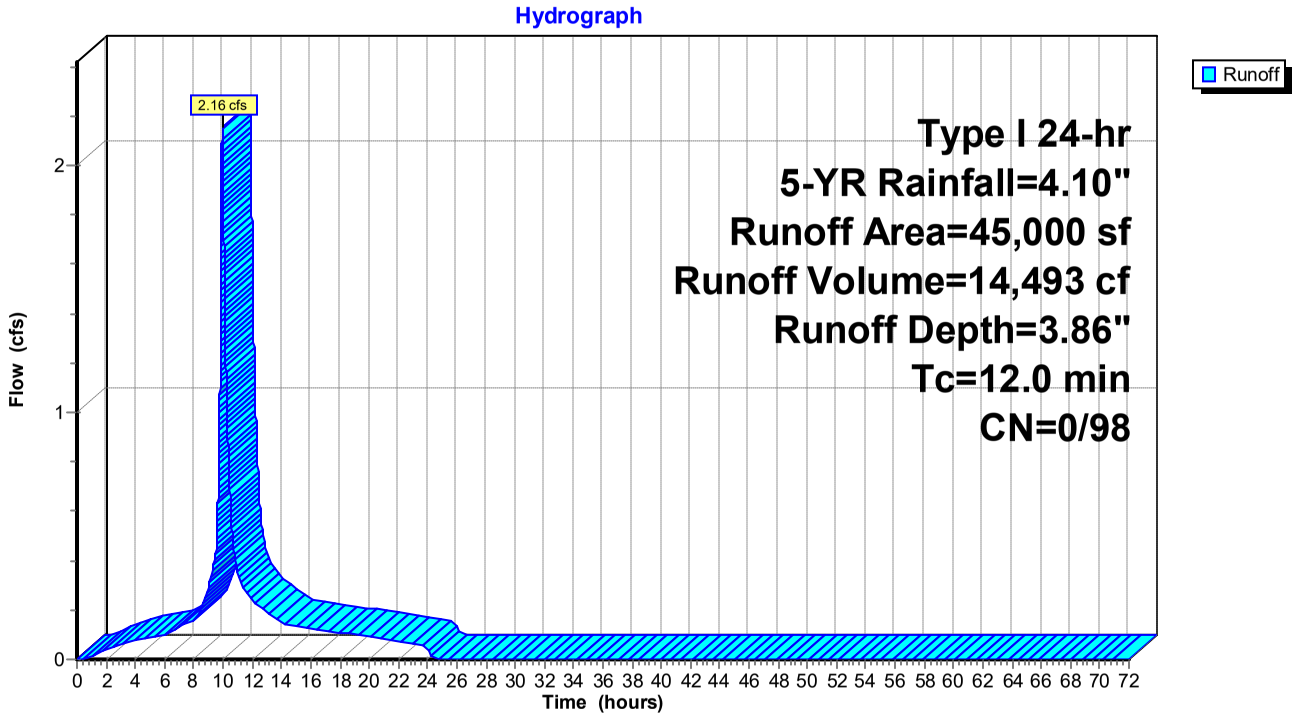
Runoff = 2.16 cfs @ 9.96 hrs, Volume= 14,493 cf, Depth= 3.86"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 5-YR Rainfall=4.10"

Area (sf)	CN	Description
45,000	98	Roofs, HSG A
45,000	98	100.00% Impervious Area

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

Subcatchment 11S: Post-Development (C2)



Summary for Pond 8P: Forebay

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 3.45" for 5-YR event
Inflow = 2.49 cfs @ 9.96 hrs, Volume= 16,742 cf
Outflow = 2.46 cfs @ 9.98 hrs, Volume= 16,742 cf, Atten= 1%, Lag= 1.2 min
Primary = 2.46 cfs @ 9.98 hrs, Volume= 16,742 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.57' @ 9.98 hrs Surf.Area= 3,796 sf Storage= 271 cf

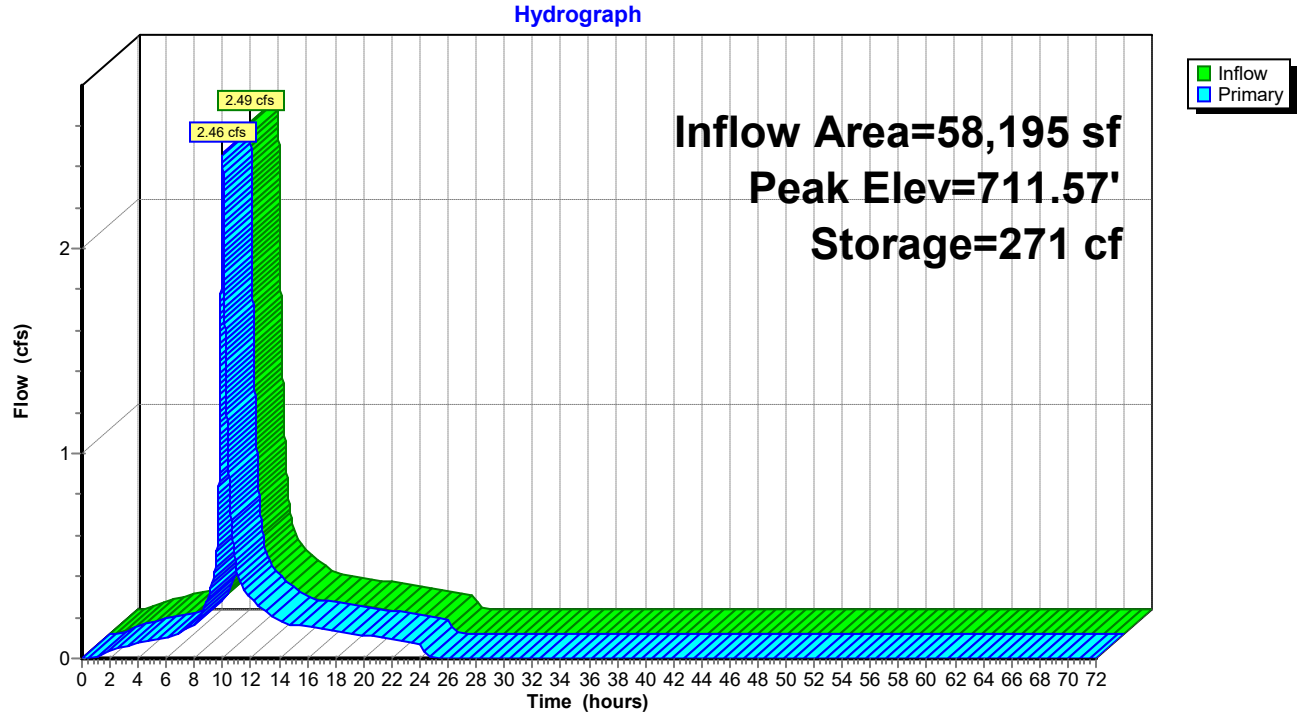
Plug-Flow detention time= 3.4 min calculated for 16,742 cf (100% of inflow)
Center-of-Mass det. time= 3.4 min (723.0 - 719.7)

Volume	Invert	Avail.Storage	Storage Description
#1	711.50'	5,750 cf	**38.50'W x 98.50'L x 1.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=2.45 cfs @ 9.98 hrs HW=711.57' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 2.45 cfs @ 0.87 fps)

Pond 8P: Forebay



Summary for Pond 9P: Pond

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 3.45" for 5-YR event
Inflow = 2.46 cfs @ 9.98 hrs, Volume= 16,742 cf
Outflow = 1.06 cfs @ 10.35 hrs, Volume= 16,737 cf, Atten= 57%, Lag= 22.2 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 0.48 cfs @ 10.35 hrs, Volume= 1,878 cf
Tertiary = 0.58 cfs @ 10.35 hrs, Volume= 14,860 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.00' @ 10.35 hrs Surf.Area= 3,725 sf Storage= 3,697 cf

Plug-Flow detention time= 99.4 min calculated for 16,737 cf (100% of inflow)
Center-of-Mass det. time= 99.2 min (822.2 - 723.0)

Volume	Invert	Avail.Storage	Storage Description
#1	710.00'	11,271 cf	**28.50'W x 128.50'L x 3.00'H Prismatoid Z=0.2**

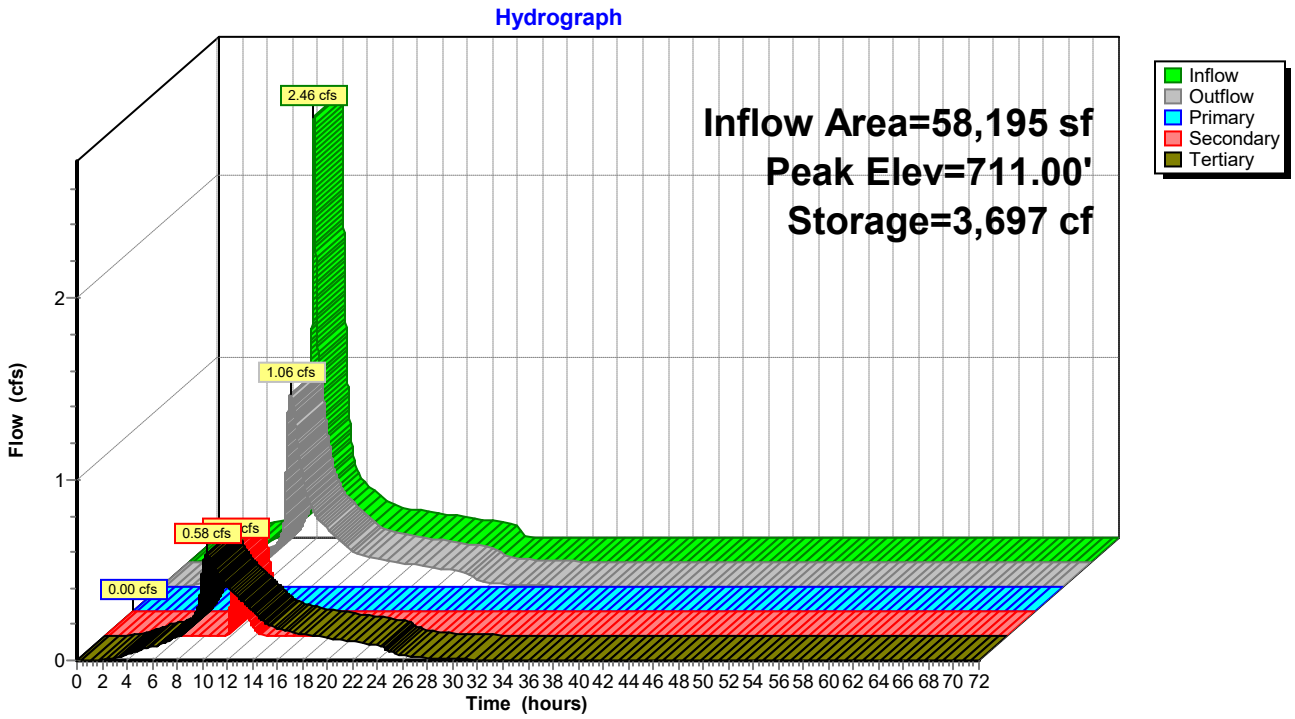
Device	Routing	Invert	Outlet Devices
#1	Tertiary	710.00'	**5.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	710.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	711.58'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=710.00' (Free Discharge)
↑**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.47 cfs @ 10.35 hrs HW=711.00' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 0.47 cfs @ 2.41 fps)

Tertiary OutFlow Max=0.58 cfs @ 10.35 hrs HW=711.00' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 4.29 fps)

Pond 9P: Pond


Hydrograph
Inflow Area=58,195 sf
Peak Elev=711.00'
Storage=3,697 cf
Inflow
Outflow
Primary
Secondary
Tertiary
2.46 cfs
1.06 cfs
0.58 cfs
0.00 cfs
Flow (cfs)
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Summary for Pond 11P: Forebay (Treatment Zone)

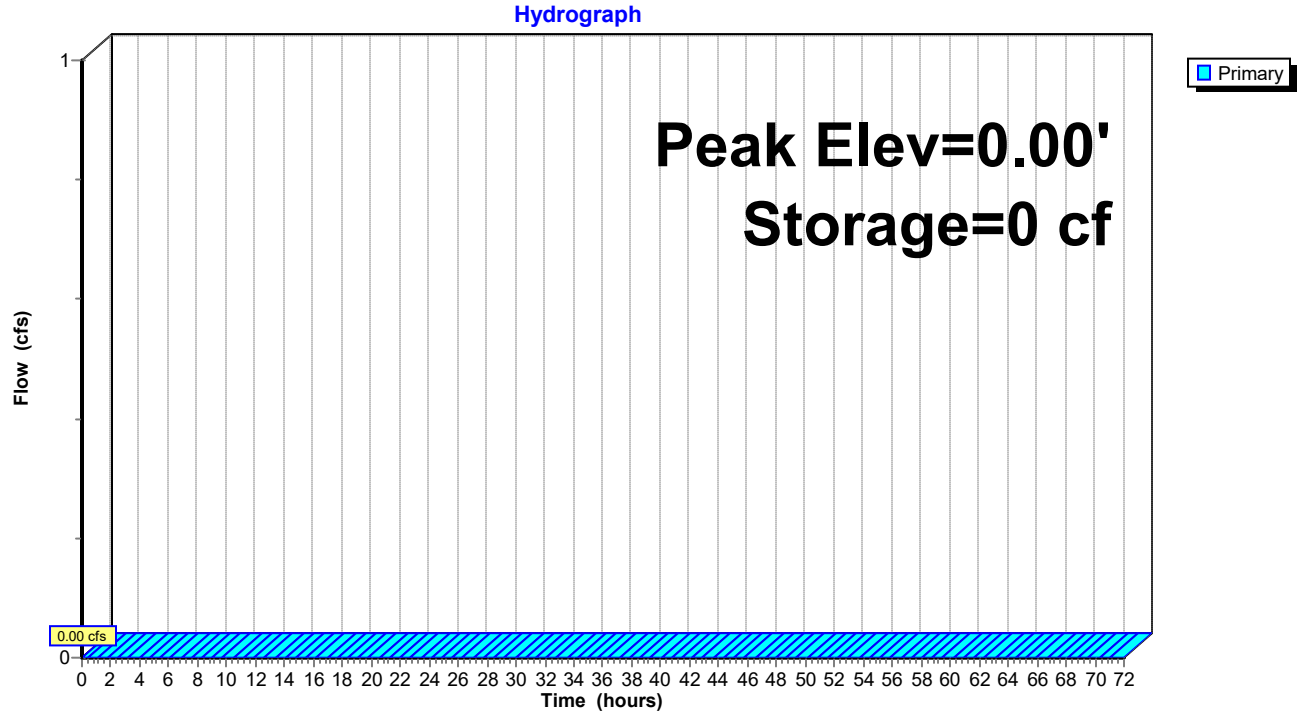
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	708.00'	2,153 cf	**8.00'W x 70.00'L x 3.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1=Custom Weir/Orifice (Controls 0.00 cfs)

Pond 11P: Forebay (Treatment Zone)



Summary for Subcatchment 1S: Pre-Development

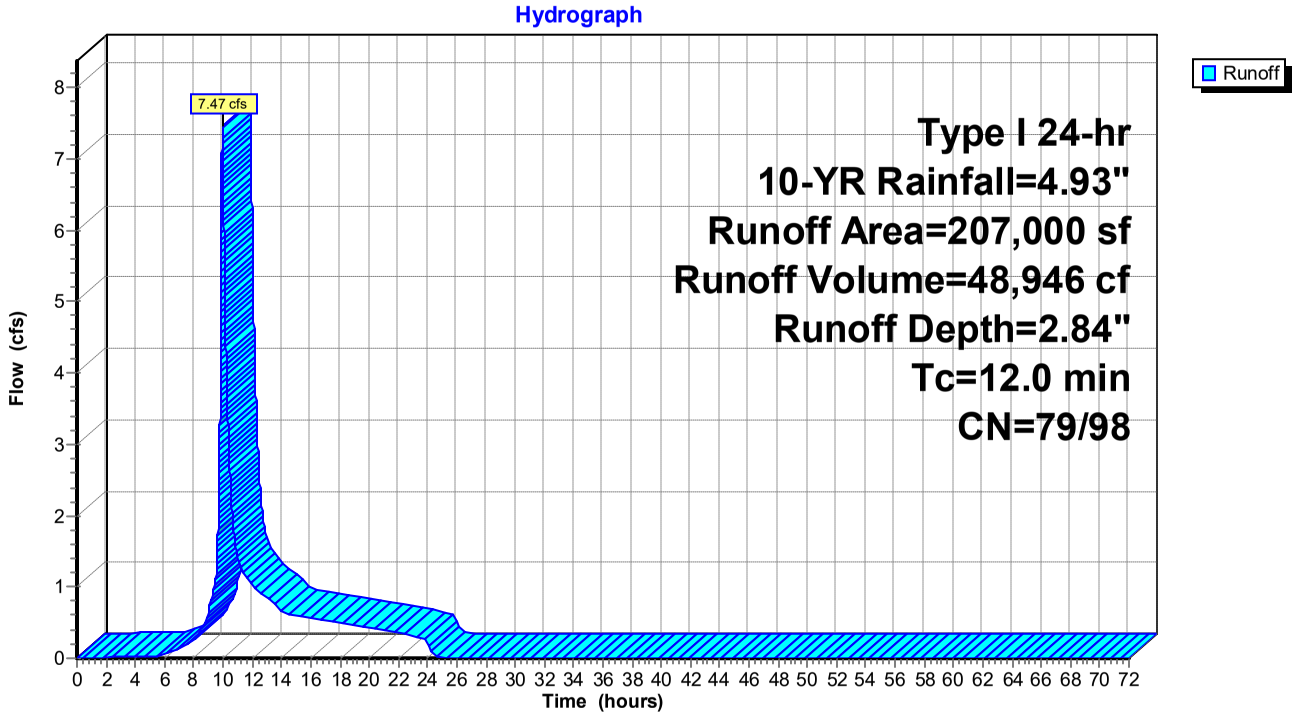
Runoff = 7.47 cfs @ 9.96 hrs, Volume= 48,946 cf, Depth= 2.84"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 10-YR Rainfall=4.93"

	Area (sf)	CN	Description
*	9,900	98	DMA 1
*	278	98	DMA 2
	196,822	79	<50% Grass cover, Poor, HSG B
	207,000	80	Weighted Average
	196,822	79	95.08% Pervious Area
	10,178	98	4.92% Impervious Area

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

Subcatchment 1S: Pre-Development



Summary for Subcatchment 7S: Post-Development (A + B + C3)

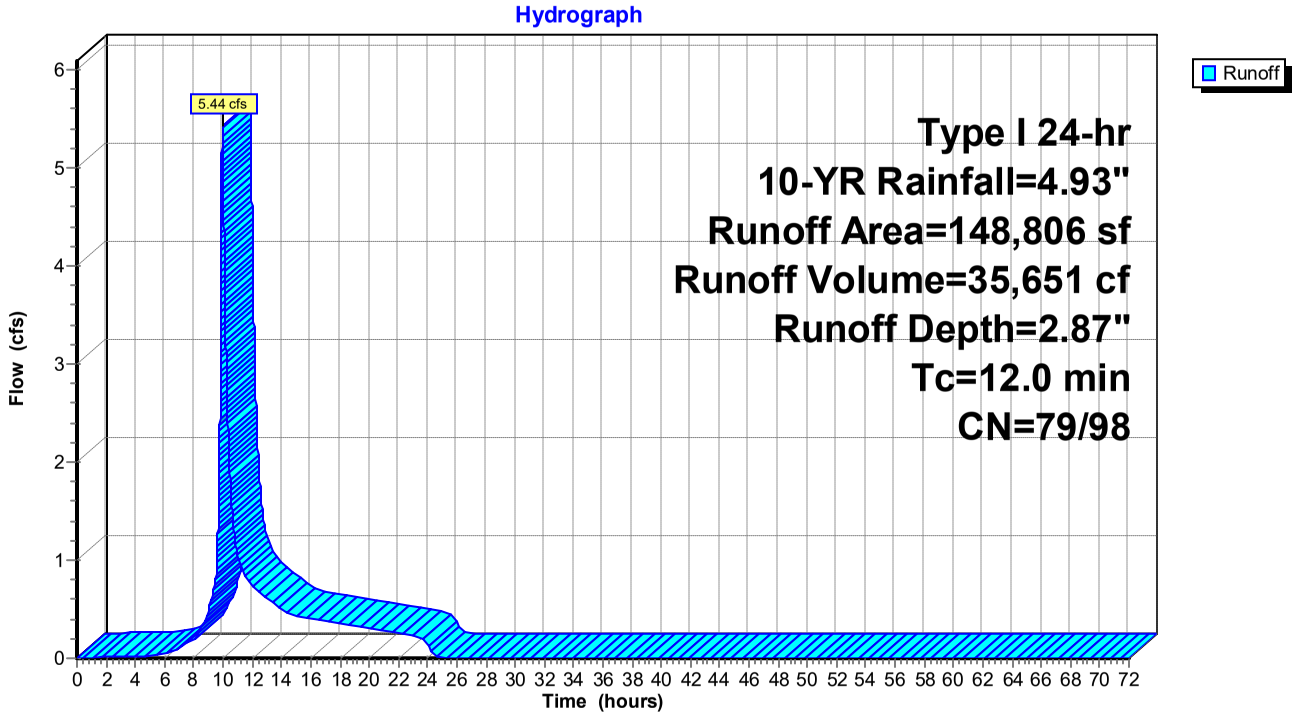
Runoff = 5.44 cfs @ 9.96 hrs, Volume= 35,651 cf, Depth= 2.87"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 10-YR Rainfall=4.93"

Area (sf)	CN	Description
9,900	98	Unconnected roofs, HSG B
278	98	Paved roads w/curbs & sewers, HSG C
138,628	79	<50% Grass cover, Poor, HSG B
148,806	80	Weighted Average
138,628	79	93.16% Pervious Area
10,178	98	6.84% Impervious Area

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

Subcatchment 7S: Post-Development (A + B + C3)



Summary for Subcatchment 10S: Post-Development (C1)

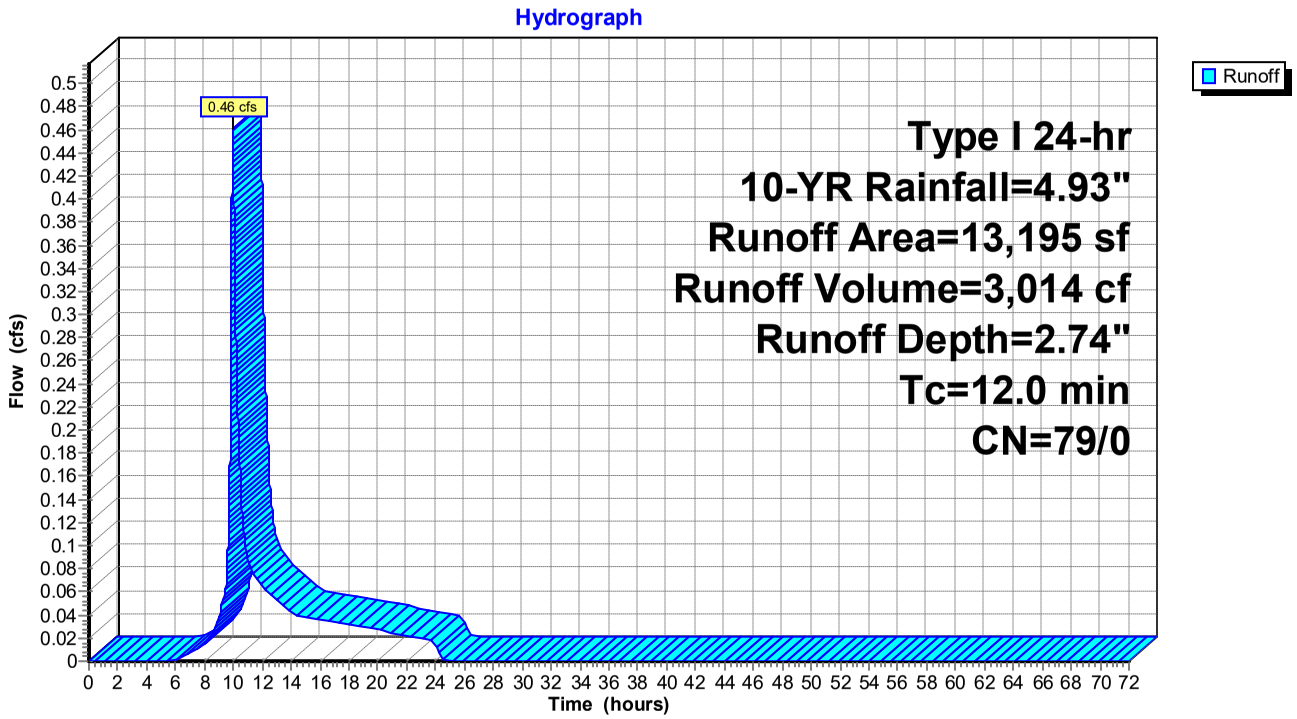
Runoff = 0.46 cfs @ 9.96 hrs, Volume= 3,014 cf, Depth= 2.74"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 10-YR Rainfall=4.93"

Area (sf)	CN	Description
12,593	79	<50% Grass cover, Poor, HSG B
602	85	Gravel roads, HSG B
13,195	79	Weighted Average
13,195	79	100.00% Pervious Area

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

Subcatchment 10S: Post-Development (C1)



Summary for Subcatchment 11S: Post-Development (C2)

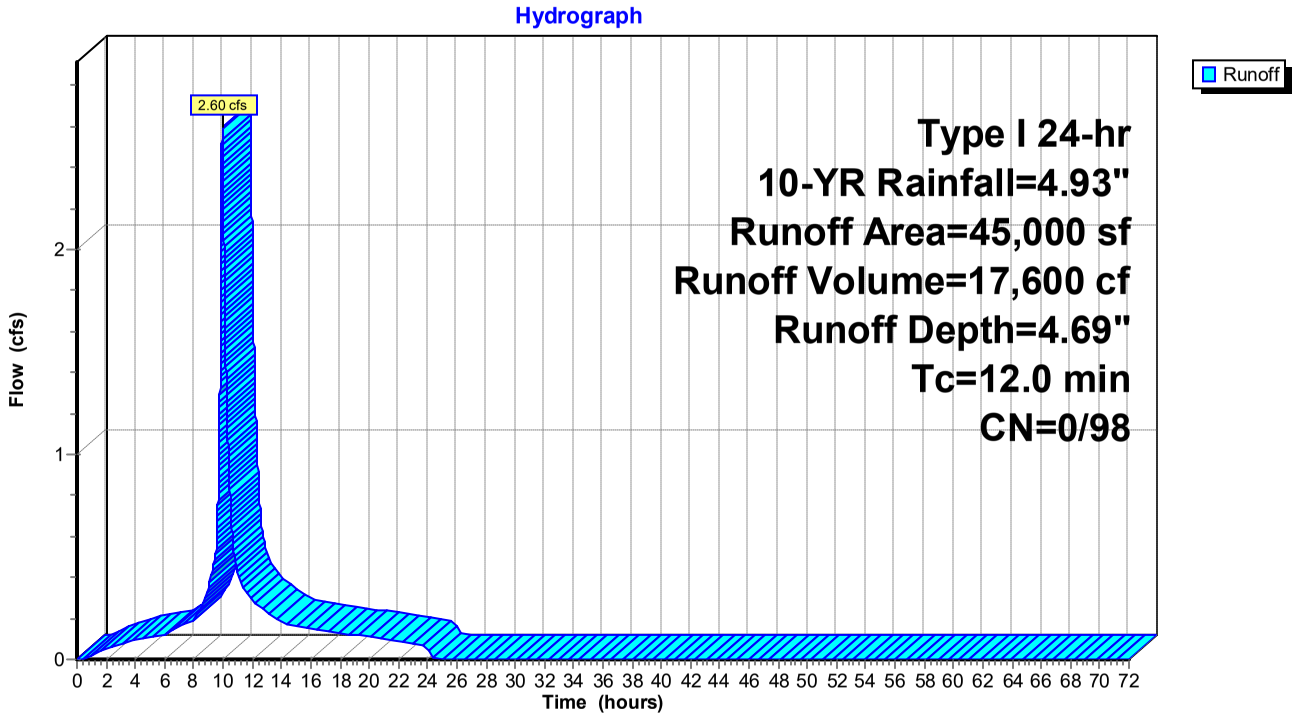
Runoff = 2.60 cfs @ 9.96 hrs, Volume= 17,600 cf, Depth= 4.69"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 10-YR Rainfall=4.93"

Area (sf)	CN	Description
45,000	98	Roofs, HSG A
45,000	98	100.00% Impervious Area

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

Subcatchment 11S: Post-Development (C2)



Summary for Pond 8P: Forebay

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 4.25" for 10-YR event
Inflow = 3.06 cfs @ 9.96 hrs, Volume= 20,614 cf
Outflow = 3.03 cfs @ 9.98 hrs, Volume= 20,614 cf, Atten= 1%, Lag= 1.1 min
Primary = 3.03 cfs @ 9.98 hrs, Volume= 20,614 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.58' @ 9.98 hrs Surf.Area= 3,797 sf Storage= 311 cf

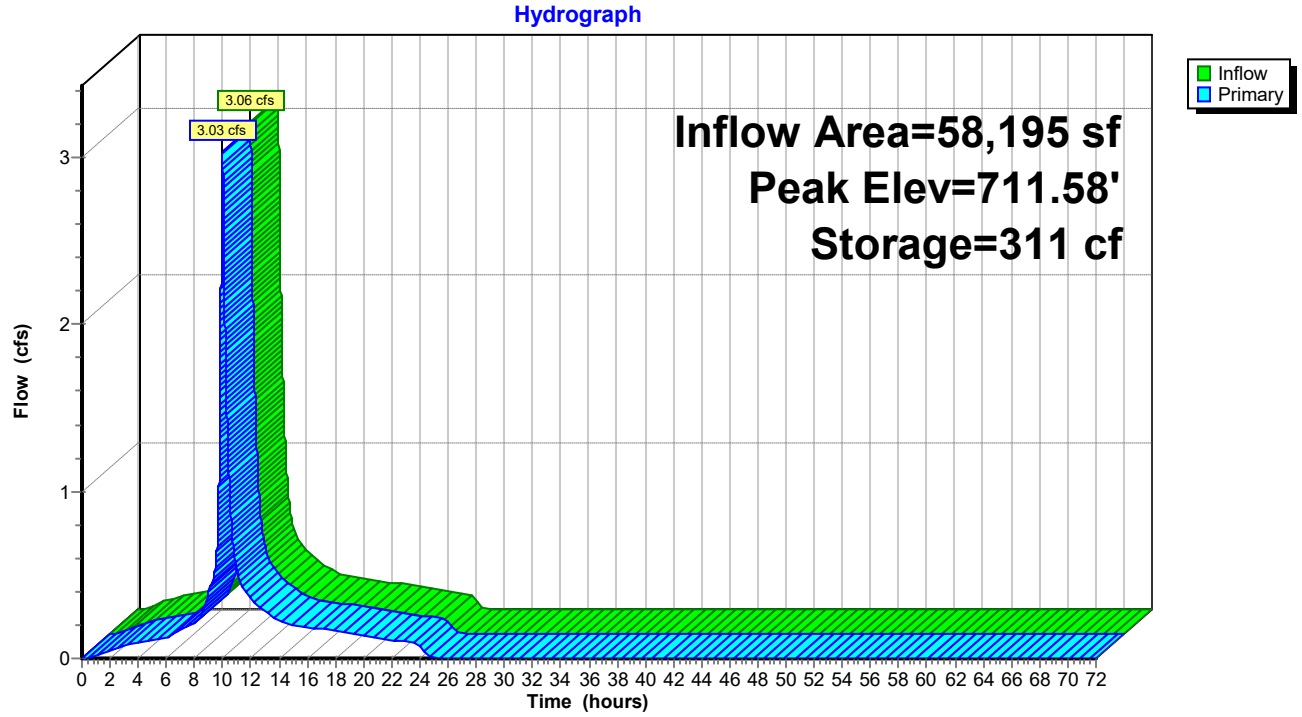
Plug-Flow detention time= 3.3 min calculated for 20,614 cf (100% of inflow)
Center-of-Mass det. time= 3.3 min (719.2 - 715.9)

Volume	Invert	Avail.Storage	Storage Description
#1	711.50'	5,750 cf	**38.50'W x 98.50'L x 1.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=3.02 cfs @ 9.98 hrs HW=711.58' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 3.02 cfs @ 0.94 fps)

Pond 8P: Forebay



Summary for Pond 9P: Pond

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 4.25" for 10-YR event
Inflow = 3.03 cfs @ 9.98 hrs, Volume= 20,614 cf
Outflow = 1.29 cfs @ 10.35 hrs, Volume= 20,610 cf, Atten= 58%, Lag= 22.3 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 0.63 cfs @ 10.35 hrs, Volume= 3,064 cf
Tertiary = 0.65 cfs @ 10.35 hrs, Volume= 17,546 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.20' @ 10.35 hrs Surf.Area= 3,738 sf Storage= 4,440 cf

Plug-Flow detention time= 92.4 min calculated for 20,610 cf (100% of inflow)
Center-of-Mass det. time= 92.2 min (811.4 - 719.2)

Volume	Invert	Avail.Storage	Storage Description
#1	710.00'	11,271 cf	**28.50'W x 128.50'L x 3.00'H Prismatoid Z=0.2**

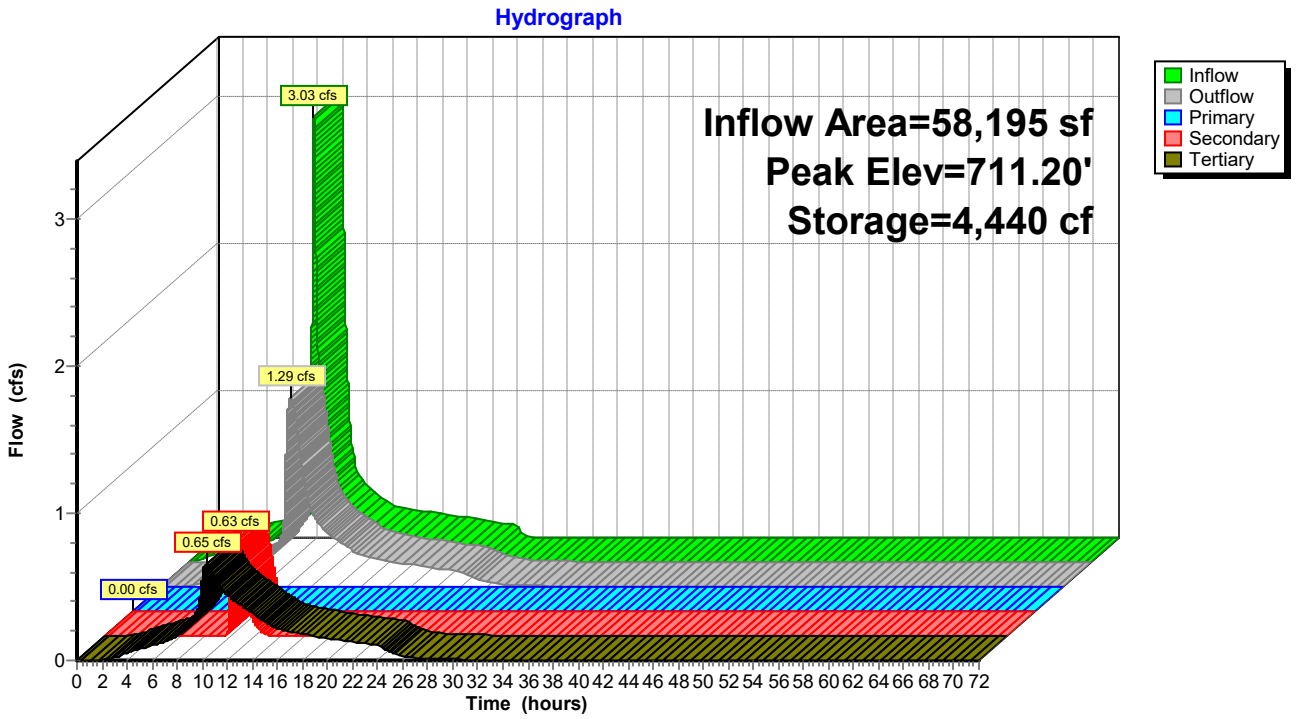
Device	Routing	Invert	Outlet Devices
#1	Tertiary	710.00'	**5.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	710.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	711.58'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=710.00' (Free Discharge)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.63 cfs @ 10.35 hrs HW=711.20' (Free Discharge)
└**2=Orifice/Grate** (Orifice Controls 0.63 cfs @ 3.23 fps)

Tertiary OutFlow Max=0.65 cfs @ 10.35 hrs HW=711.20' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.65 cfs @ 4.80 fps)

Pond 9P: Pond


Hydrograph
Inflow Area=58,195 sf
Peak Elev=711.20'
Storage=4,440 cf
3.03 cfs
1.29 cfs
0.63 cfs
0.65 cfs
0.00 cfs
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0 1 2 3
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 11P: Forebay (Treatment Zone)

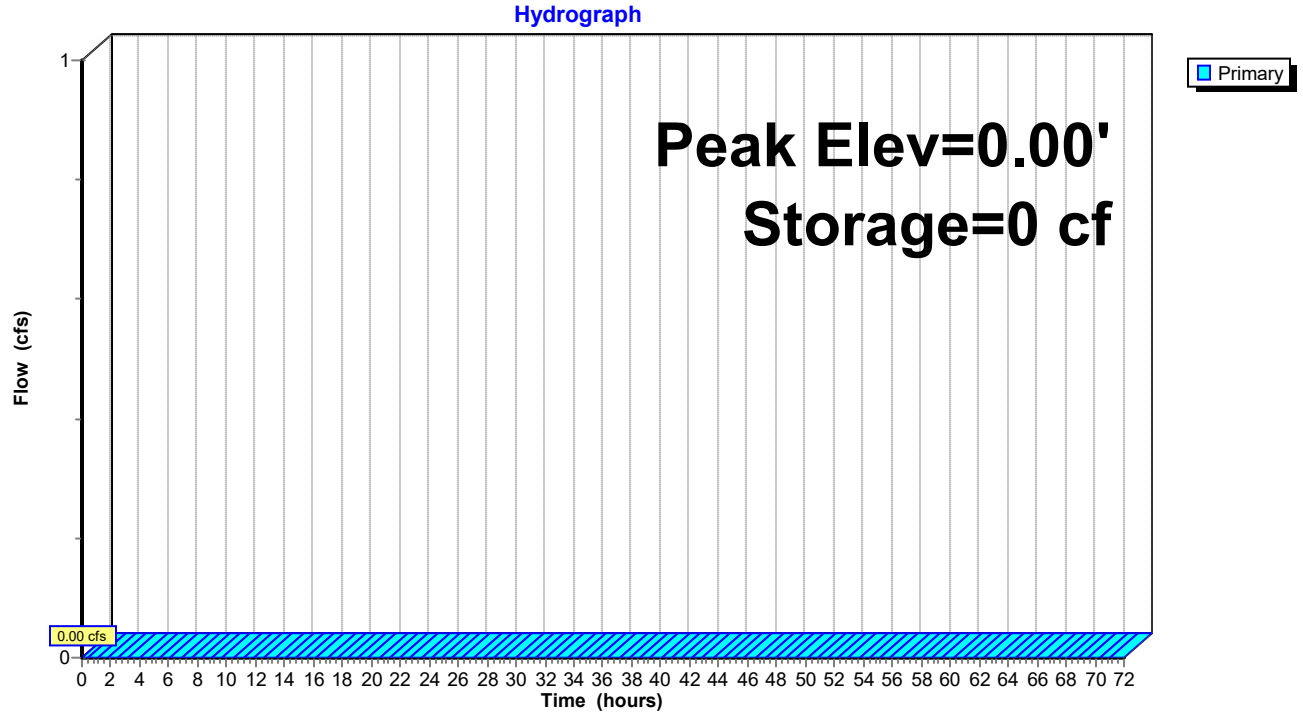
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	708.00'	2,153 cf	**8.00'W x 70.00'L x 3.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1=Custom Weir/Orifice (Controls 0.00 cfs)

Pond 11P: Forebay (Treatment Zone)



Summary for Subcatchment 1S: Pre-Development

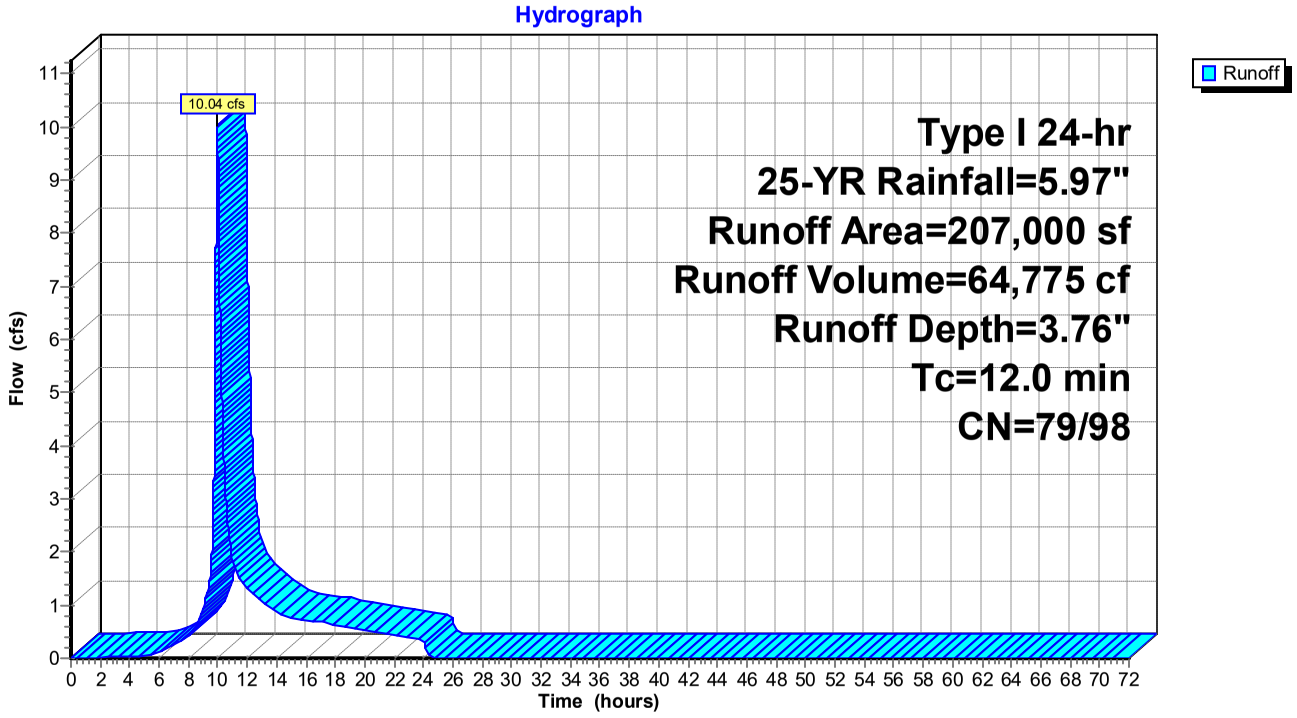
Runoff = 10.04 cfs @ 9.96 hrs, Volume= 64,775 cf, Depth= 3.76"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 25-YR Rainfall=5.97"

	Area (sf)	CN	Description
*	9,900	98	DMA 1
*	278	98	DMA 2
	196,822	79	<50% Grass cover, Poor, HSG B
	207,000	80	Weighted Average
	196,822	79	95.08% Pervious Area
	10,178	98	4.92% Impervious Area

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

Subcatchment 1S: Pre-Development



Summary for Subcatchment 7S: Post-Development (A + B + C3)

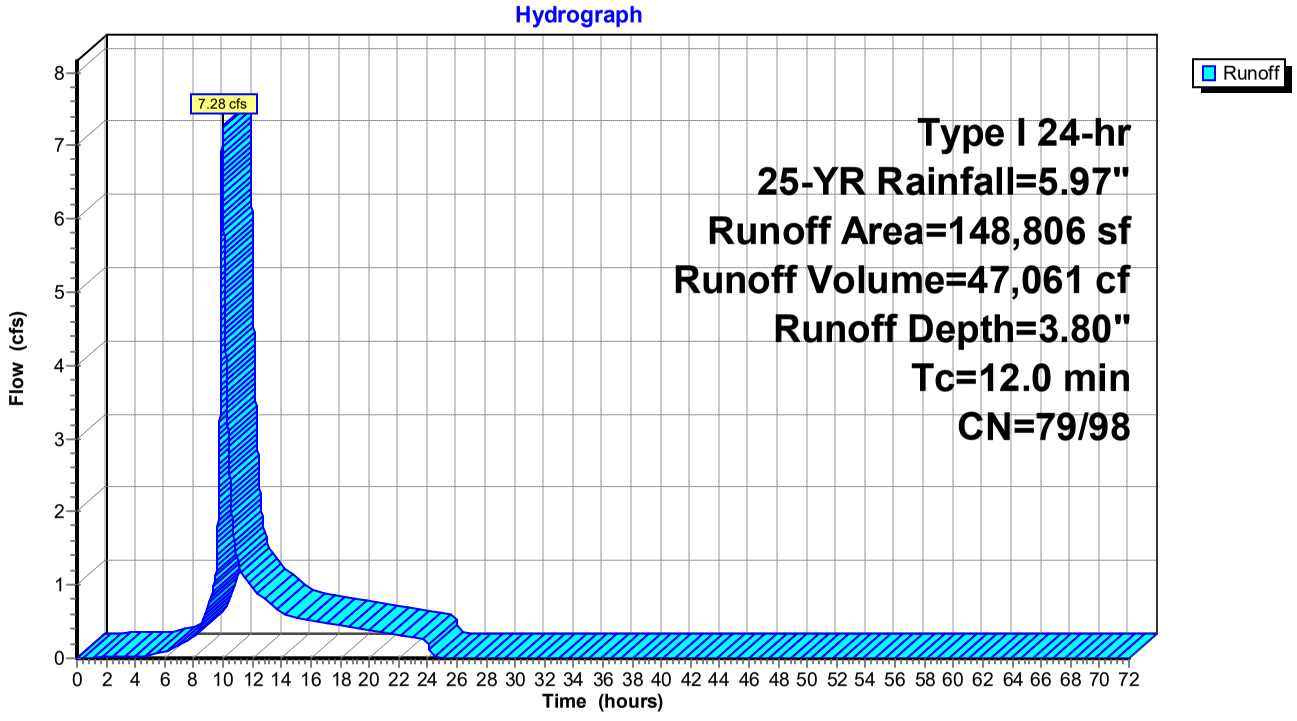
Runoff = 7.28 cfs @ 9.96 hrs, Volume= 47,061 cf, Depth= 3.80"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 25-YR Rainfall=5.97"

Area (sf)	CN	Description
9,900	98	Unconnected roofs, HSG B
278	98	Paved roads w/curbs & sewers, HSG C
138,628	79	<50% Grass cover, Poor, HSG B
148,806	80	Weighted Average
138,628	79	93.16% Pervious Area
10,178	98	6.84% Impervious Area

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

Subcatchment 7S: Post-Development (A + B + C3)



Summary for Subcatchment 10S: Post-Development (C1)

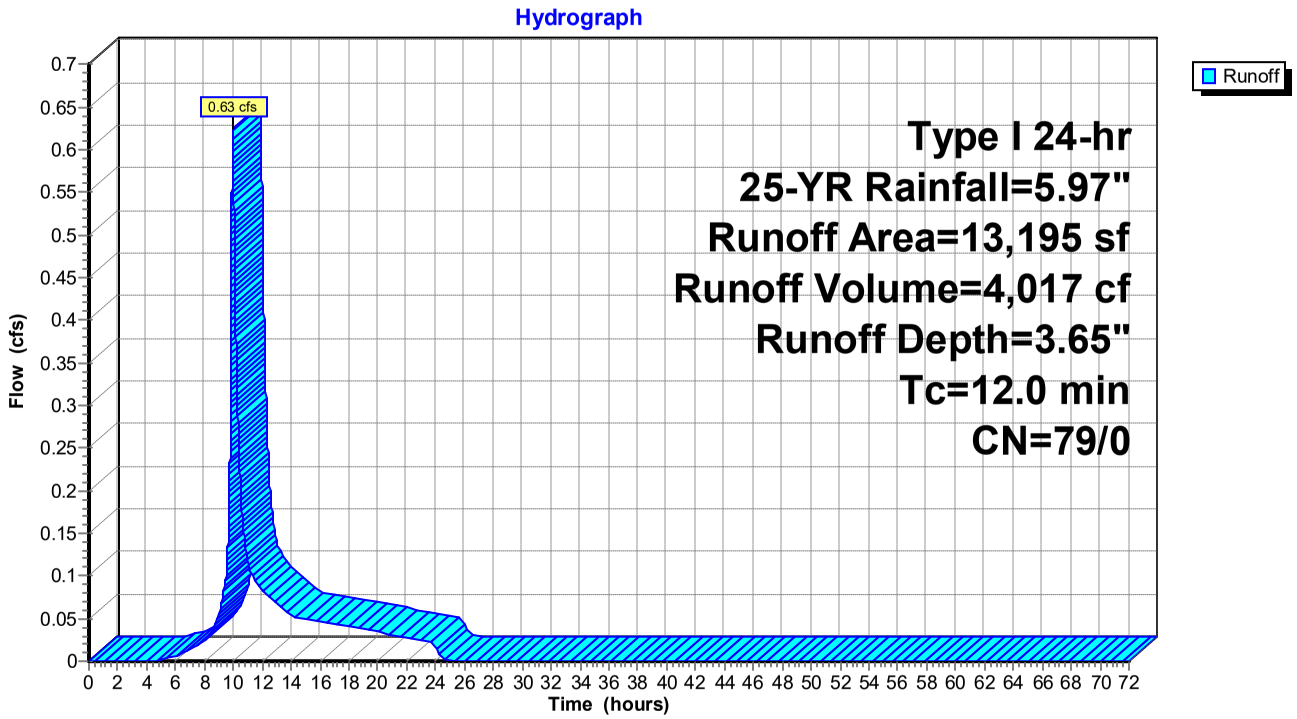
Runoff = 0.63 cfs @ 9.96 hrs, Volume= 4,017 cf, Depth= 3.65"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 25-YR Rainfall=5.97"

Area (sf)	CN	Description
12,593	79	<50% Grass cover, Poor, HSG B
602	85	Gravel roads, HSG B
13,195	79	Weighted Average
13,195	79	100.00% Pervious Area

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

Subcatchment 10S: Post-Development (C1)



Summary for Subcatchment 11S: Post-Development (C2)

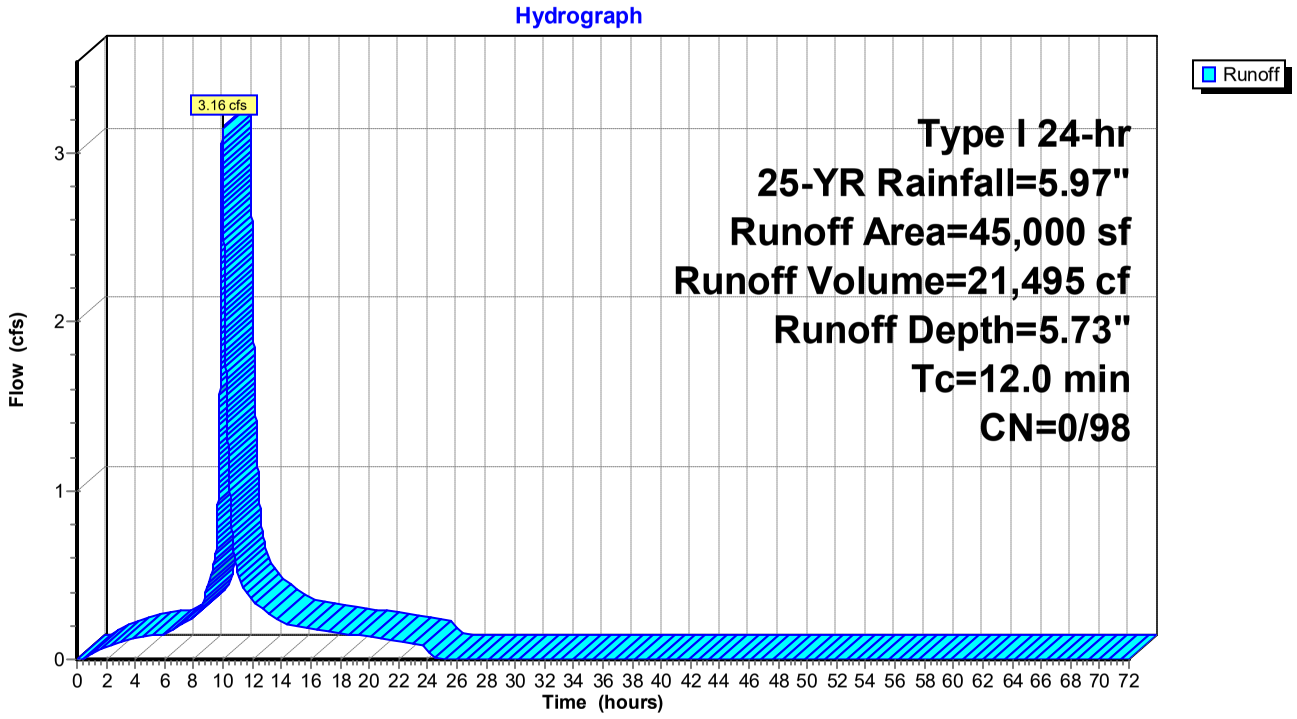
Runoff = 3.16 cfs @ 9.96 hrs, Volume= 21,495 cf, Depth= 5.73"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 25-YR Rainfall=5.97"

Area (sf)	CN	Description
45,000	98	Roofs, HSG A
45,000	98	100.00% Impervious Area

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

Subcatchment 11S: Post-Development (C2)



Summary for Pond 8P: Forebay

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 5.26" for 25-YR event
Inflow = 3.78 cfs @ 9.96 hrs, Volume= 25,511 cf
Outflow = 3.75 cfs @ 9.97 hrs, Volume= 25,511 cf, Atten= 1%, Lag= 1.0 min
Primary = 3.75 cfs @ 9.97 hrs, Volume= 25,511 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.59' @ 9.97 hrs Surf.Area= 3,797 sf Storage= 359 cf

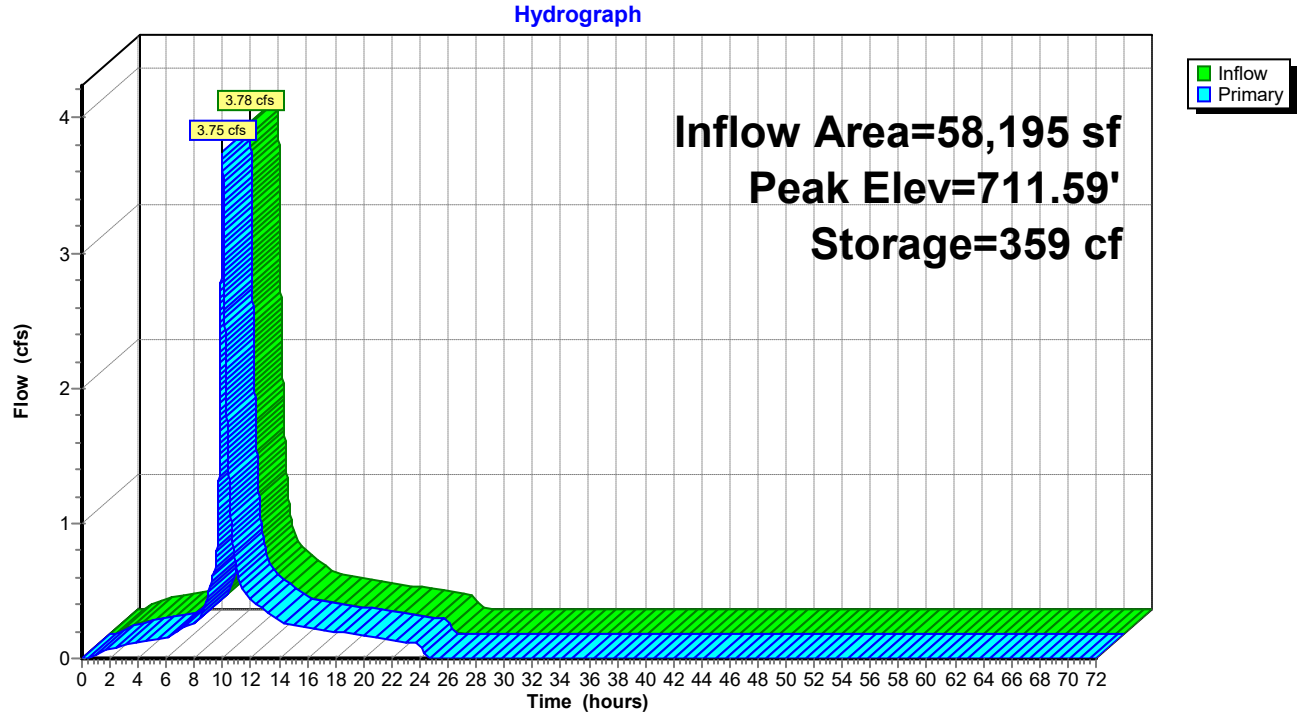
Plug-Flow detention time= 3.1 min calculated for 25,511 cf (100% of inflow)
Center-of-Mass det. time= 3.1 min (715.4 - 712.2)

Volume	Invert	Avail.Storage	Storage Description
#1	711.50'	5,750 cf	**38.50'W x 98.50'L x 1.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=3.74 cfs @ 9.97 hrs HW=711.59' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 3.74 cfs @ 1.01 fps)

Pond 8P: Forebay



Summary for Pond 9P: Pond

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 5.26" for 25-YR event
Inflow = 3.75 cfs @ 9.97 hrs, Volume= 25,511 cf
Outflow = 1.54 cfs @ 10.36 hrs, Volume= 25,507 cf, Atten= 59%, Lag= 23.3 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary = 0.80 cfs @ 10.36 hrs, Volume= 4,715 cf
Tertiary = 0.74 cfs @ 10.36 hrs, Volume= 20,792 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.47' @ 10.36 hrs Surf.Area= 3,755 sf Storage= 5,438 cf

Plug-Flow detention time= 86.5 min calculated for 25,506 cf (100% of inflow)
Center-of-Mass det. time= 86.4 min (801.8 - 715.4)

Volume	Invert	Avail.Storage	Storage Description
#1	710.00'	11,271 cf	**28.50'W x 128.50'L x 3.00'H Prismatoid Z=0.2**

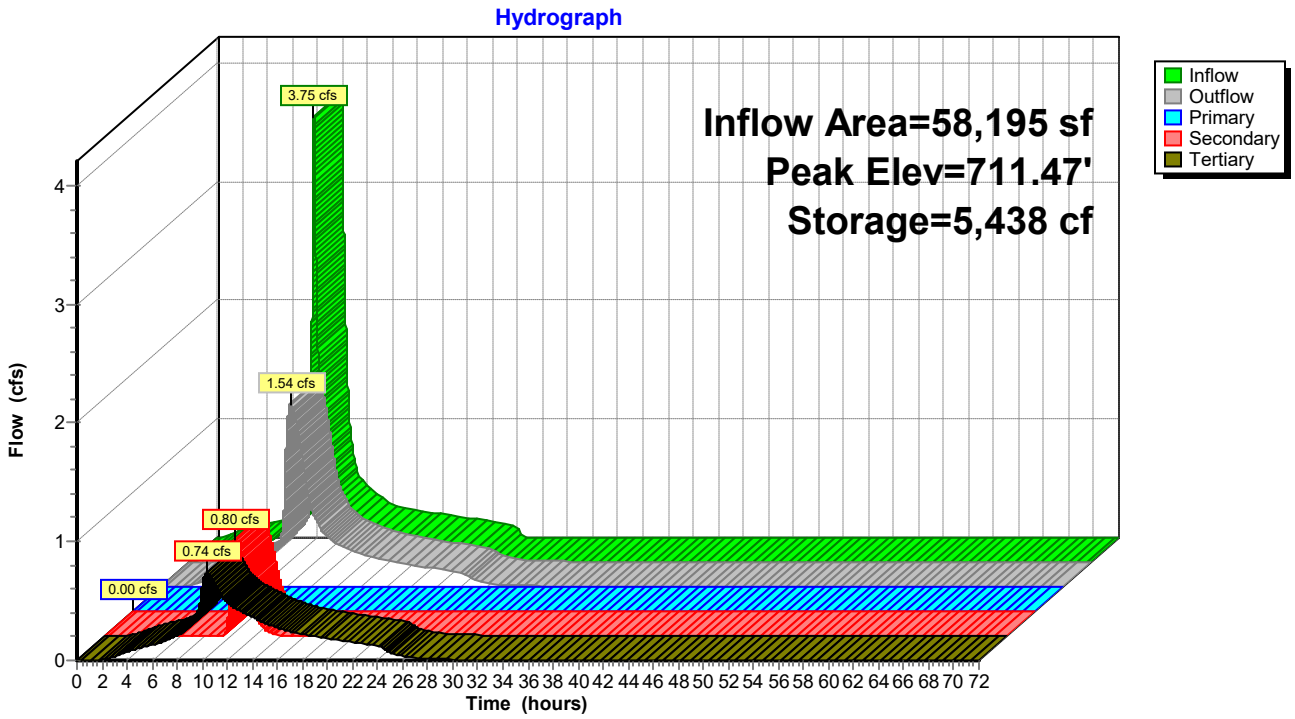
Device	Routing	Invert	Outlet Devices
#1	Tertiary	710.00'	**5.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	710.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	711.58'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=710.00' (Free Discharge)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.80 cfs @ 10.36 hrs HW=711.47' (Free Discharge)
└**2=Orifice/Grate** (Orifice Controls 0.80 cfs @ 4.08 fps)

Tertiary OutFlow Max=0.74 cfs @ 10.36 hrs HW=711.47' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.74 cfs @ 5.40 fps)

Pond 9P: Pond


Hydrograph
Inflow Area=58,195 sf
Peak Elev=711.47'
Storage=5,438 cf
3.75 cfs
1.54 cfs
0.80 cfs
0.74 cfs
0.00 cfs
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0 1 2 3 4
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 11P: Forebay (Treatment Zone)

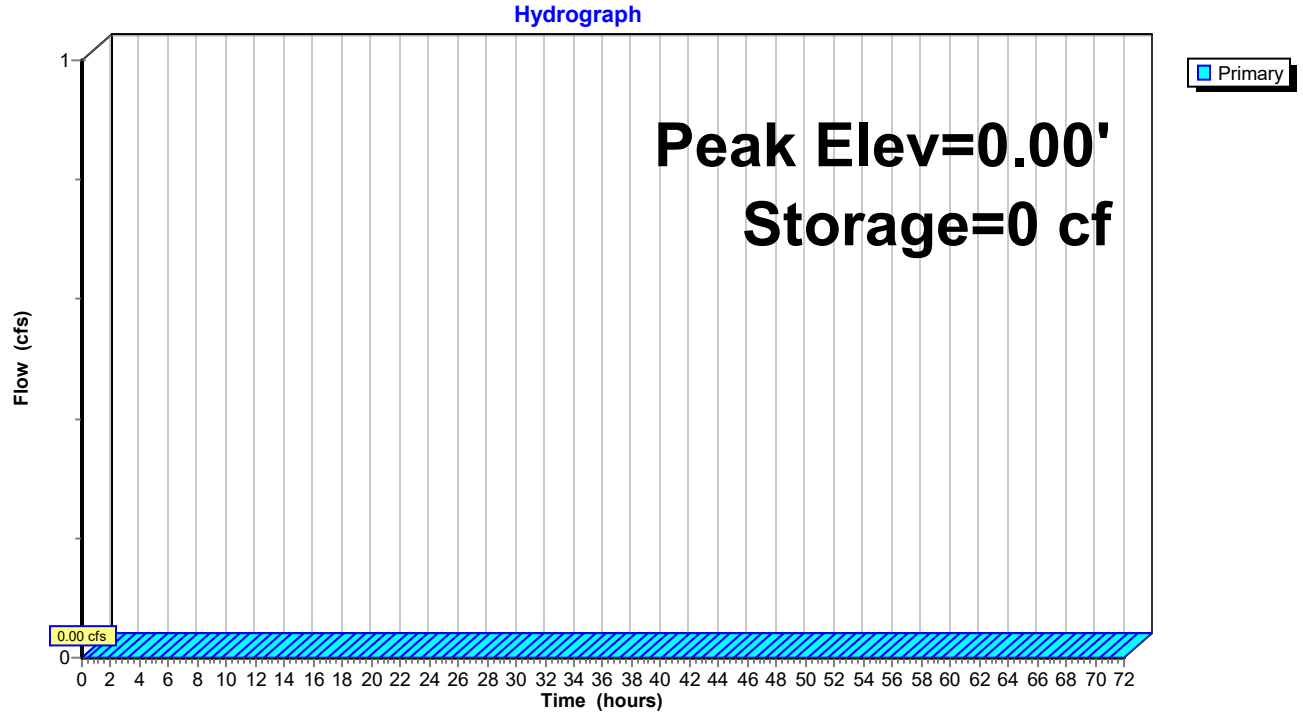
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	708.00'	2,153 cf	**8.00'W x 70.00'L x 3.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1=Custom Weir/Orifice (Controls 0.00 cfs)

Pond 11P: Forebay (Treatment Zone)



Summary for Subcatchment 1S: Pre-Development

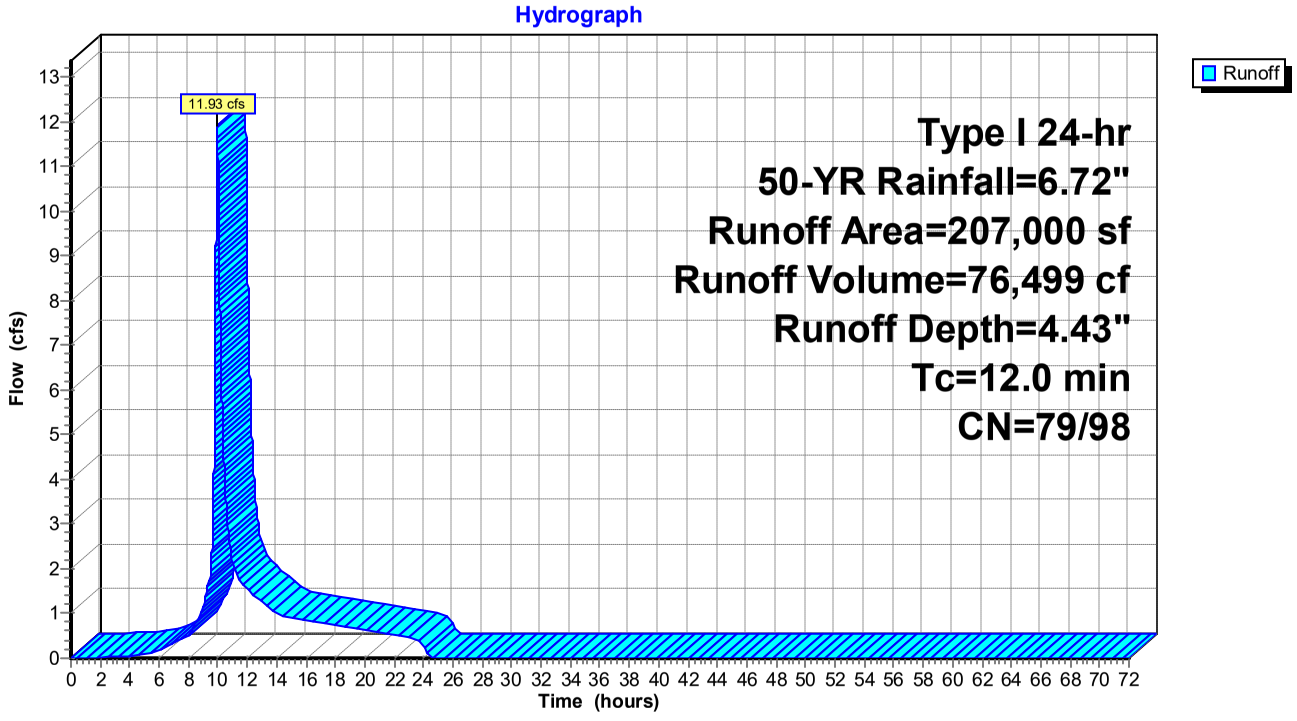
Runoff = 11.93 cfs @ 9.96 hrs, Volume= 76,499 cf, Depth= 4.43"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 50-YR Rainfall=6.72"

	Area (sf)	CN	Description
*	9,900	98	DMA 1
*	278	98	DMA 2
	196,822	79	<50% Grass cover, Poor, HSG B
	207,000	80	Weighted Average
	196,822	79	95.08% Pervious Area
	10,178	98	4.92% Impervious Area

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

Subcatchment 1S: Pre-Development



Summary for Subcatchment 7S: Post-Development (A + B + C3)

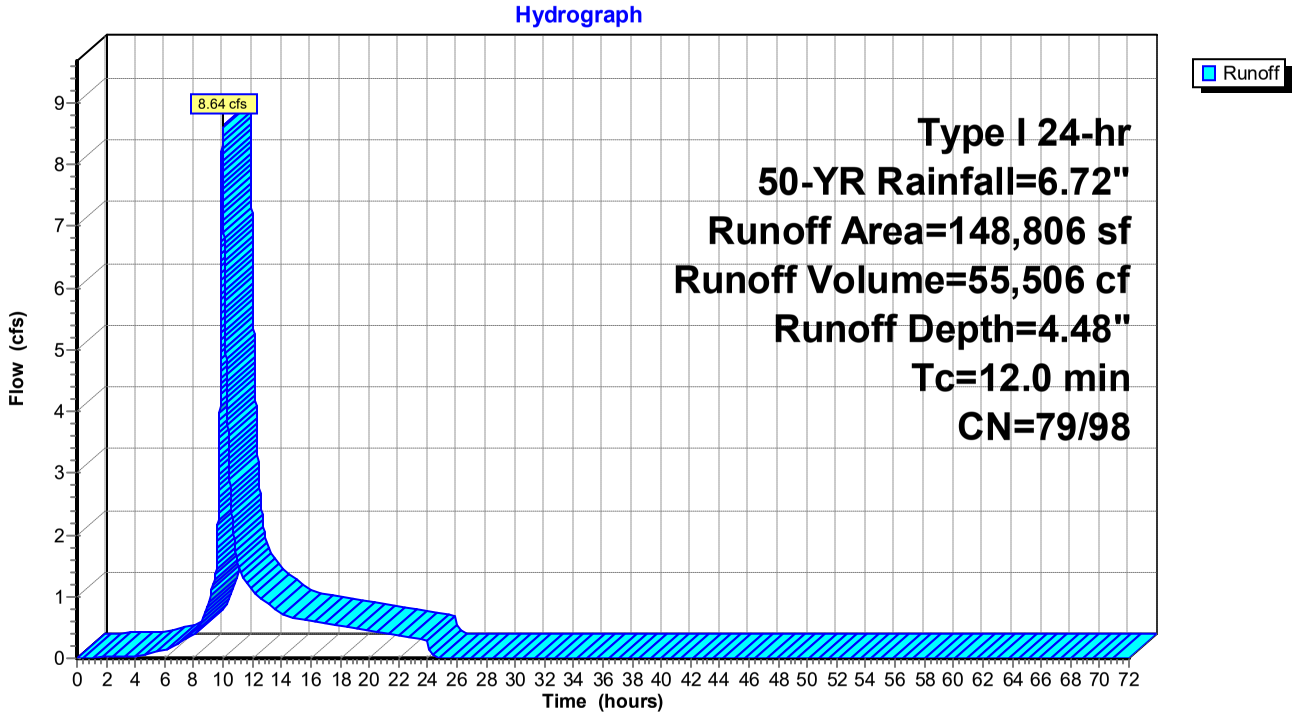
Runoff = 8.64 cfs @ 9.96 hrs, Volume= 55,506 cf, Depth= 4.48"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 50-YR Rainfall=6.72"

Area (sf)	CN	Description
9,900	98	Unconnected roofs, HSG B
278	98	Paved roads w/curbs & sewers, HSG C
138,628	79	<50% Grass cover, Poor, HSG B
148,806	80	Weighted Average
138,628	79	93.16% Pervious Area
10,178	98	6.84% Impervious Area

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

Subcatchment 7S: Post-Development (A + B + C3)



Summary for Subcatchment 10S: Post-Development (C1)

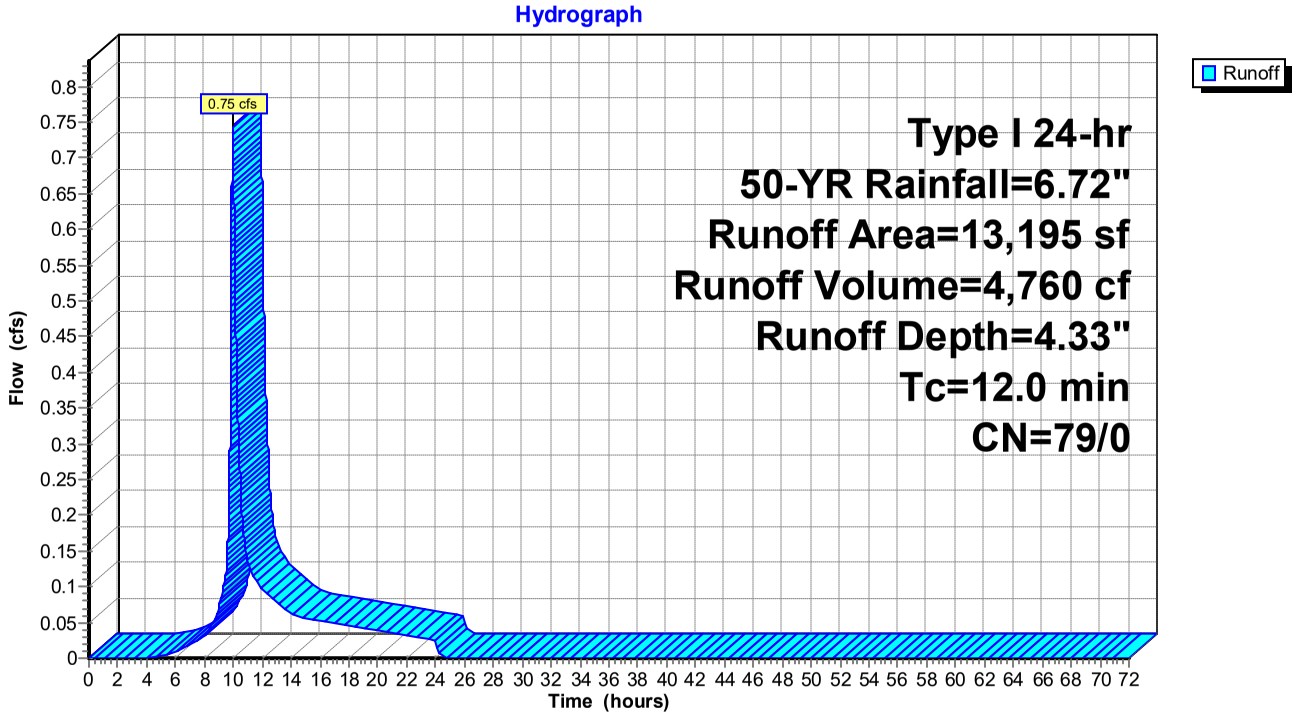
Runoff = 0.75 cfs @ 9.96 hrs, Volume= 4,760 cf, Depth= 4.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 50-YR Rainfall=6.72"

Area (sf)	CN	Description
12,593	79	<50% Grass cover, Poor, HSG B
602	85	Gravel roads, HSG B
13,195	79	Weighted Average
13,195	79	100.00% Pervious Area

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

Subcatchment 10S: Post-Development (C1)



Summary for Subcatchment 11S: Post-Development (C2)

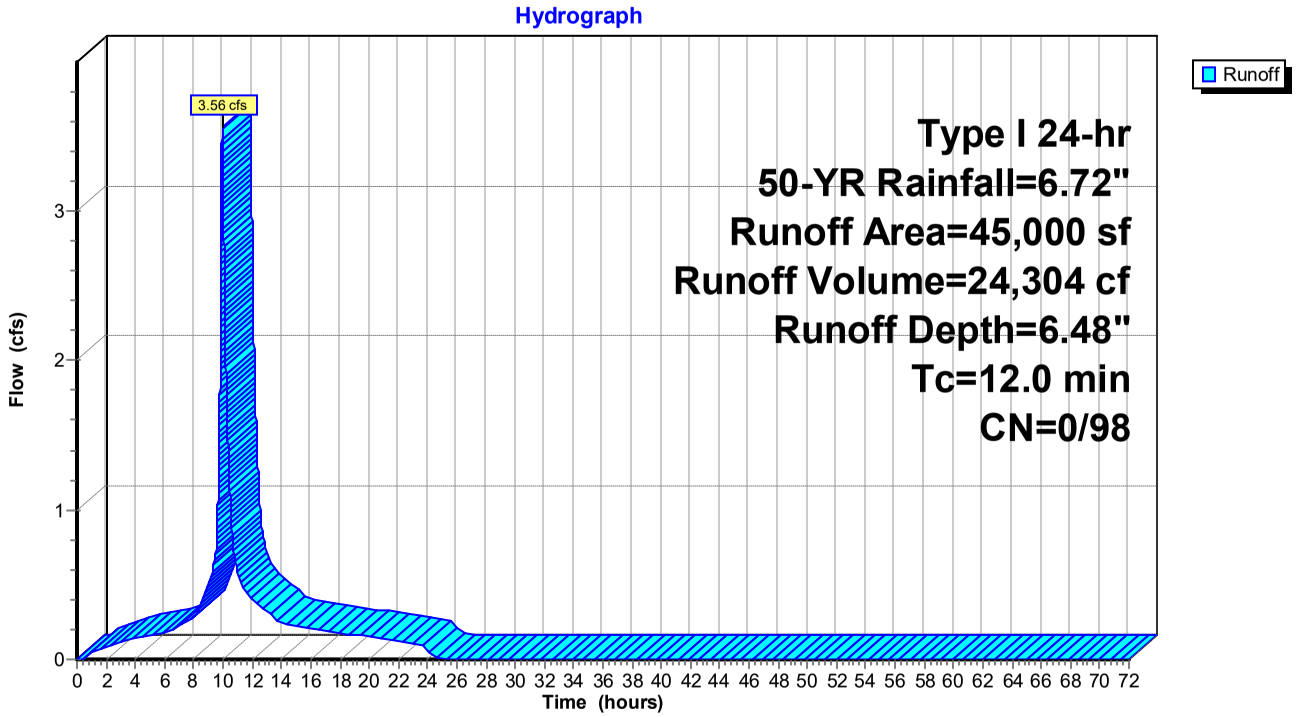
Runoff = 3.56 cfs @ 9.96 hrs, Volume= 24,304 cf, Depth= 6.48"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 50-YR Rainfall=6.72"

Area (sf)	CN	Description
45,000	98	Roofs, HSG A
45,000	98	100.00% Impervious Area

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

Subcatchment 11S: Post-Development (C2)



Summary for Pond 8P: Forebay

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 5.99" for 50-YR event
Inflow = 4.31 cfs @ 9.96 hrs, Volume= 29,064 cf
Outflow = 4.27 cfs @ 9.97 hrs, Volume= 29,064 cf, Atten= 1%, Lag= 1.0 min
Primary = 4.27 cfs @ 9.97 hrs, Volume= 29,064 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.60' @ 9.97 hrs Surf.Area= 3,798 sf Storage= 391 cf

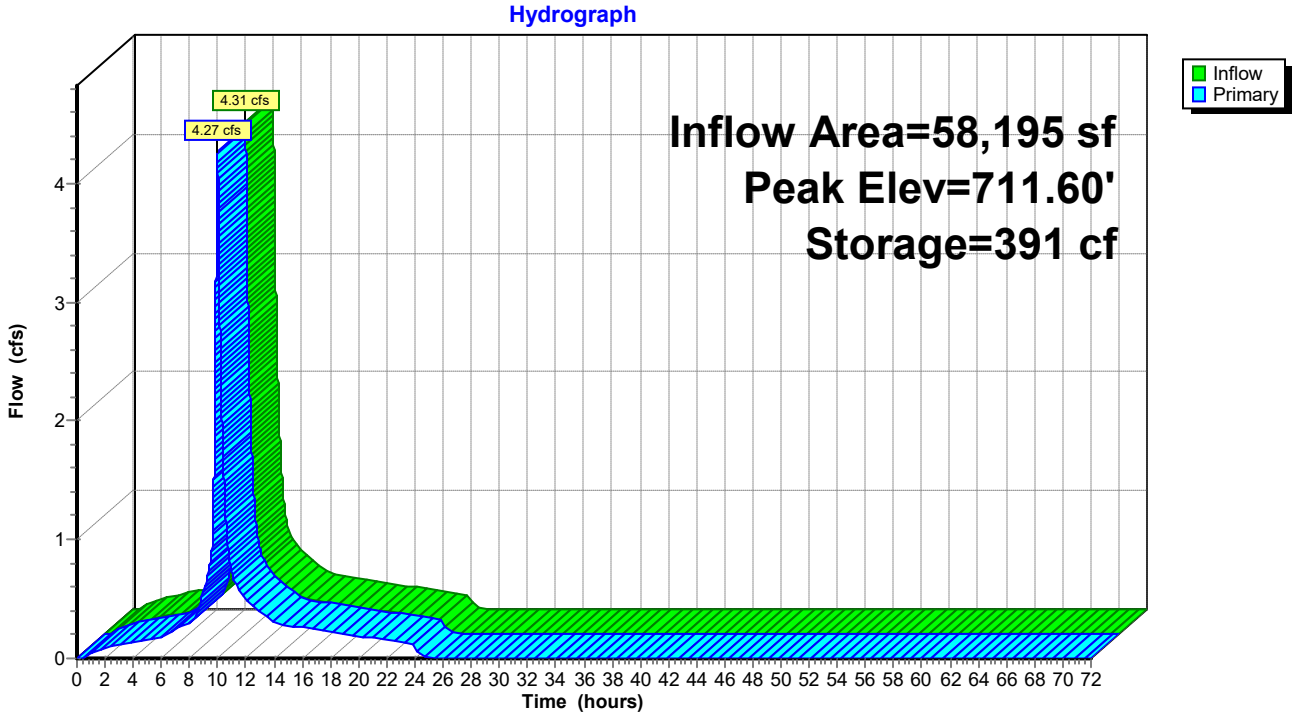
Plug-Flow detention time= 3.1 min calculated for 29,064 cf (100% of inflow)
Center-of-Mass det. time= 3.1 min (713.1 - 710.1)

Volume	Invert	Avail.Storage	Storage Description
#1	711.50'	5,750 cf	**38.50'W x 98.50'L x 1.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=4.27 cfs @ 9.97 hrs HW=711.60' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 4.27 cfs @ 1.05 fps)

Pond 8P: Forebay



Summary for Pond 9P: Pond

[81] Warning: Exceeded Pond 8P by 0.08' @ 10.33 hrs

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 5.99" for 50-YR event
Inflow = 4.27 cfs @ 9.97 hrs, Volume= 29,064 cf
Outflow = 1.95 cfs @ 10.31 hrs, Volume= 29,060 cf, Atten= 54%, Lag= 20.0 min
Primary = 0.28 cfs @ 10.31 hrs, Volume= 210 cf
Secondary = 0.89 cfs @ 10.31 hrs, Volume= 5,864 cf
Tertiary = 0.78 cfs @ 10.31 hrs, Volume= 22,986 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.64' @ 10.31 hrs Surf.Area= 3,765 sf Storage= 6,074 cf

Plug-Flow detention time= 83.3 min calculated for 29,060 cf (100% of inflow)
Center-of-Mass det. time= 83.2 min (796.3 - 713.1)

Volume	Invert	Avail.Storage	Storage Description
#1	710.00'	11,271 cf	**28.50'W x 128.50'L x 3.00'H Prismatoid Z=0.2**

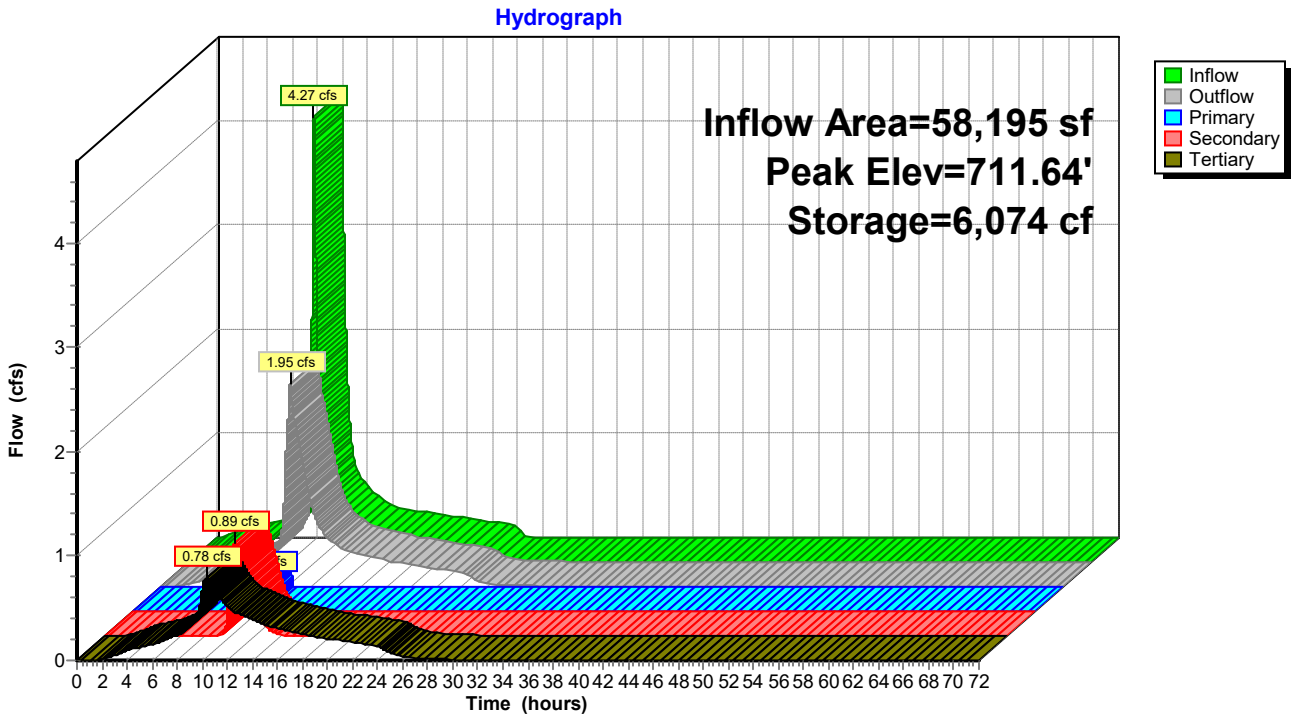
Device	Routing	Invert	Outlet Devices
#1	Tertiary	710.00'	**5.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	710.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	711.58'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.27 cfs @ 10.31 hrs HW=711.64' (Free Discharge)
└**3=Orifice/Grate** (Weir Controls 0.27 cfs @ 0.77 fps)

Secondary OutFlow Max=0.89 cfs @ 10.31 hrs HW=711.64' (Free Discharge)
└**2=Orifice/Grate** (Orifice Controls 0.89 cfs @ 4.53 fps)

Tertiary OutFlow Max=0.78 cfs @ 10.31 hrs HW=711.64' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.78 cfs @ 5.75 fps)

Pond 9P: Pond


Hydrograph
Inflow Area=58,195 sf
Peak Elev=711.64'
Storage=6,074 cf
4.27 cfs
1.95 cfs
0.89 cfs
0.78 cfs
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0 1 2 3 4
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 11P: Forebay (Treatment Zone)

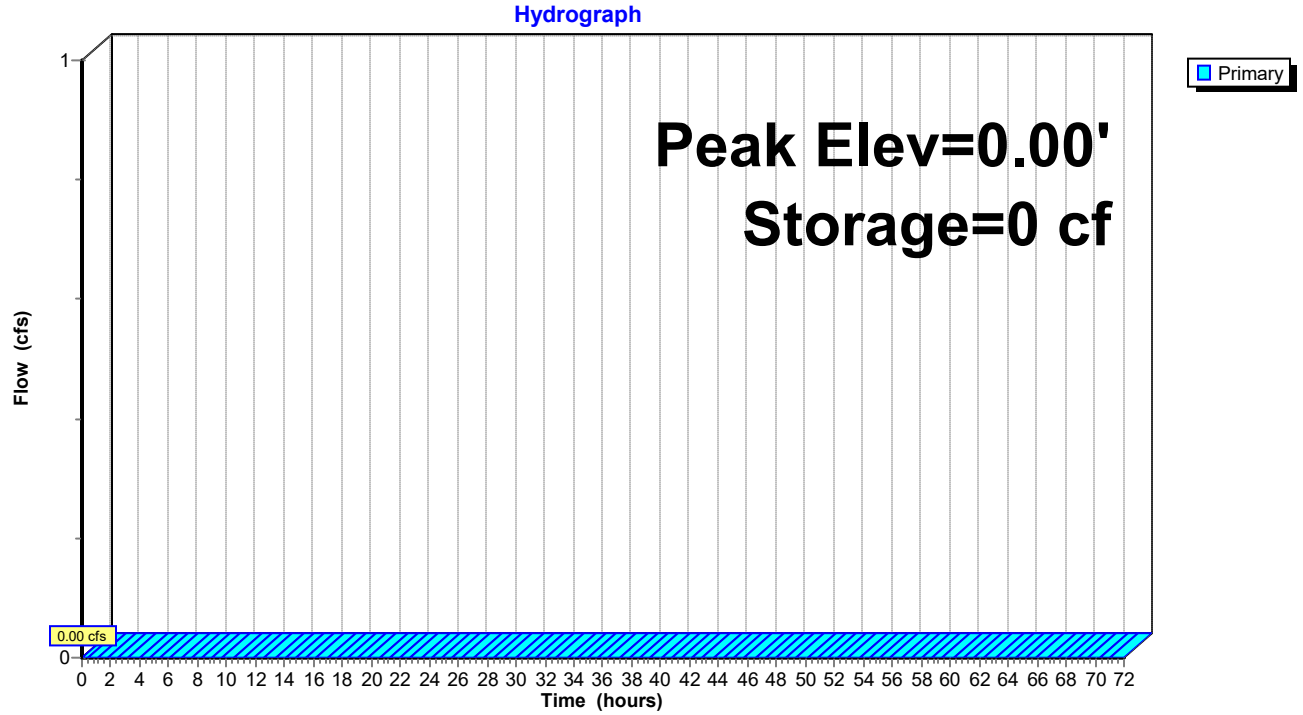
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	708.00'	2,153 cf	**8.00'W x 70.00'L x 3.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1=Custom Weir/Orifice (Controls 0.00 cfs)

Pond 11P: Forebay (Treatment Zone)



Summary for Subcatchment 1S: Pre-Development

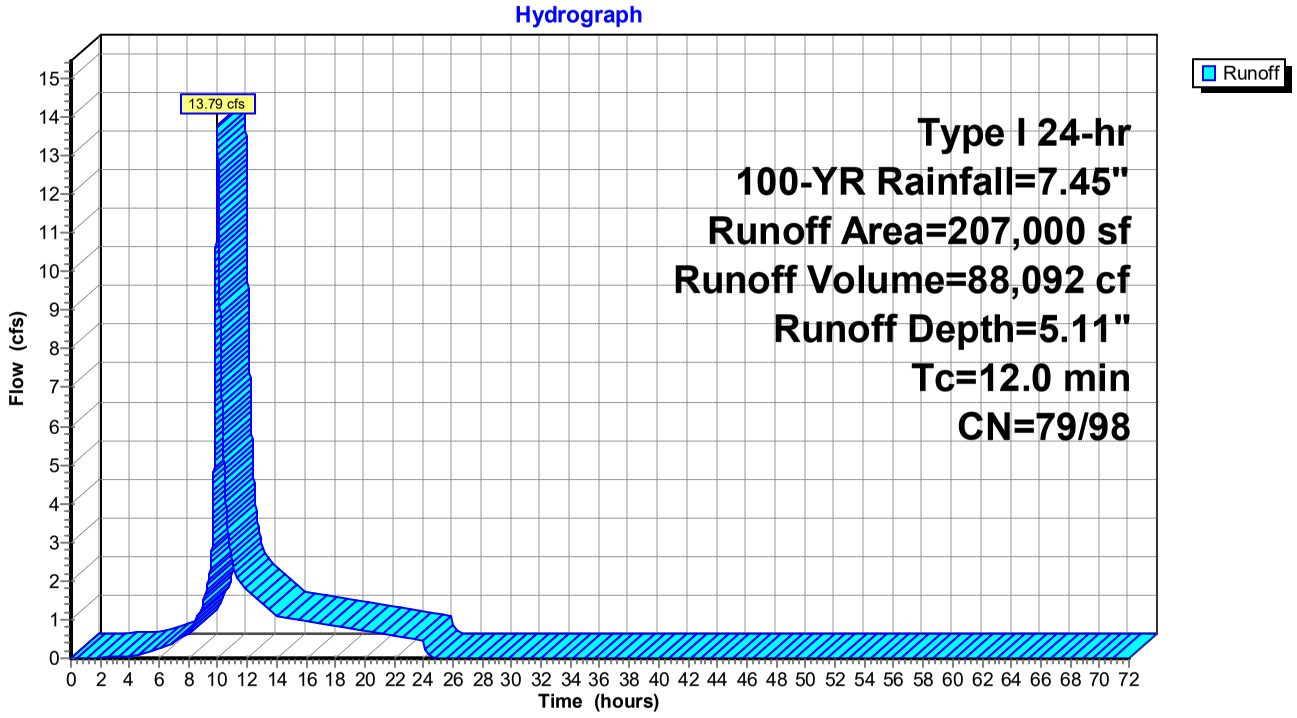
Runoff = 13.79 cfs @ 9.96 hrs, Volume= 88,092 cf, Depth= 5.11"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 100-YR Rainfall=7.45"

	Area (sf)	CN	Description
*	9,900	98	DMA 1
*	278	98	DMA 2
	196,822	79	<50% Grass cover, Poor, HSG B
	207,000	80	Weighted Average
	196,822	79	95.08% Pervious Area
	10,178	98	4.92% Impervious Area

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

Subcatchment 1S: Pre-Development



Summary for Subcatchment 7S: Post-Development (A + B + C3)

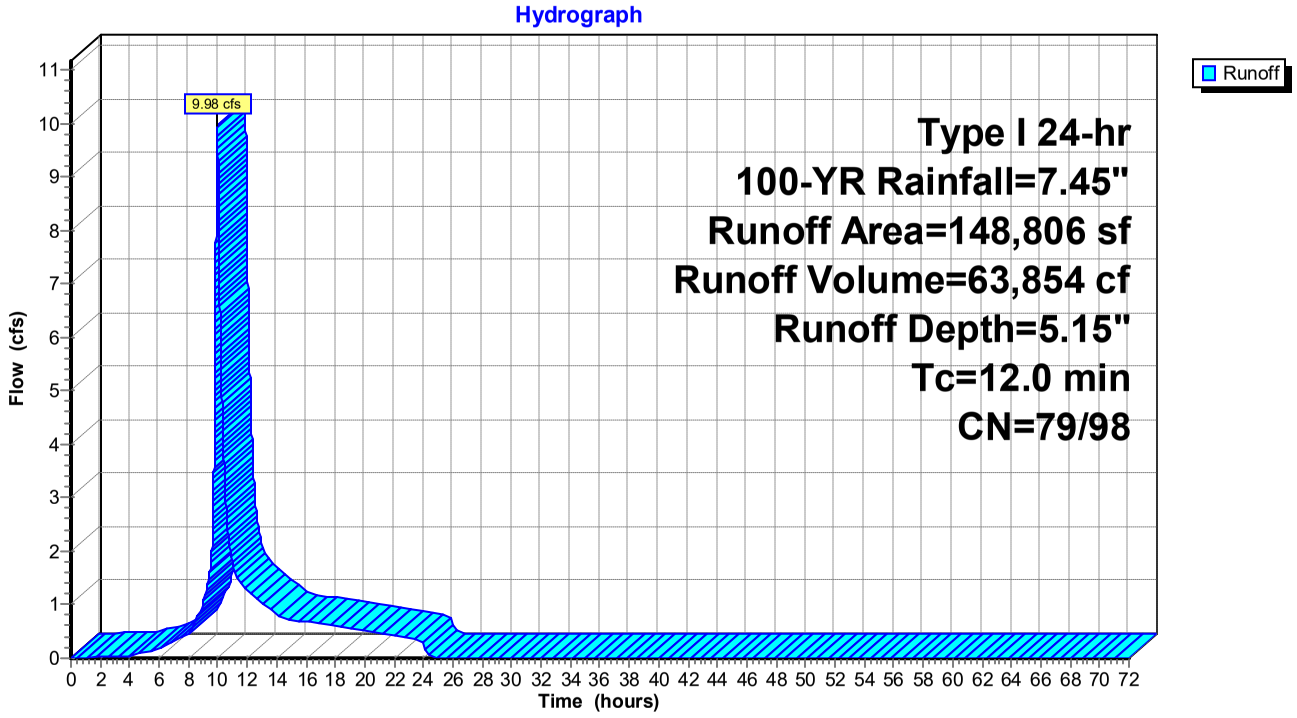
Runoff = 9.98 cfs @ 9.96 hrs, Volume= 63,854 cf, Depth= 5.15"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 100-YR Rainfall=7.45"

Area (sf)	CN	Description
9,900	98	Unconnected roofs, HSG B
278	98	Paved roads w/curbs & sewers, HSG C
138,628	79	<50% Grass cover, Poor, HSG B
148,806	80	Weighted Average
138,628	79	93.16% Pervious Area
10,178	98	6.84% Impervious Area

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

Subcatchment 7S: Post-Development (A + B + C3)



Summary for Subcatchment 10S: Post-Development (C1)

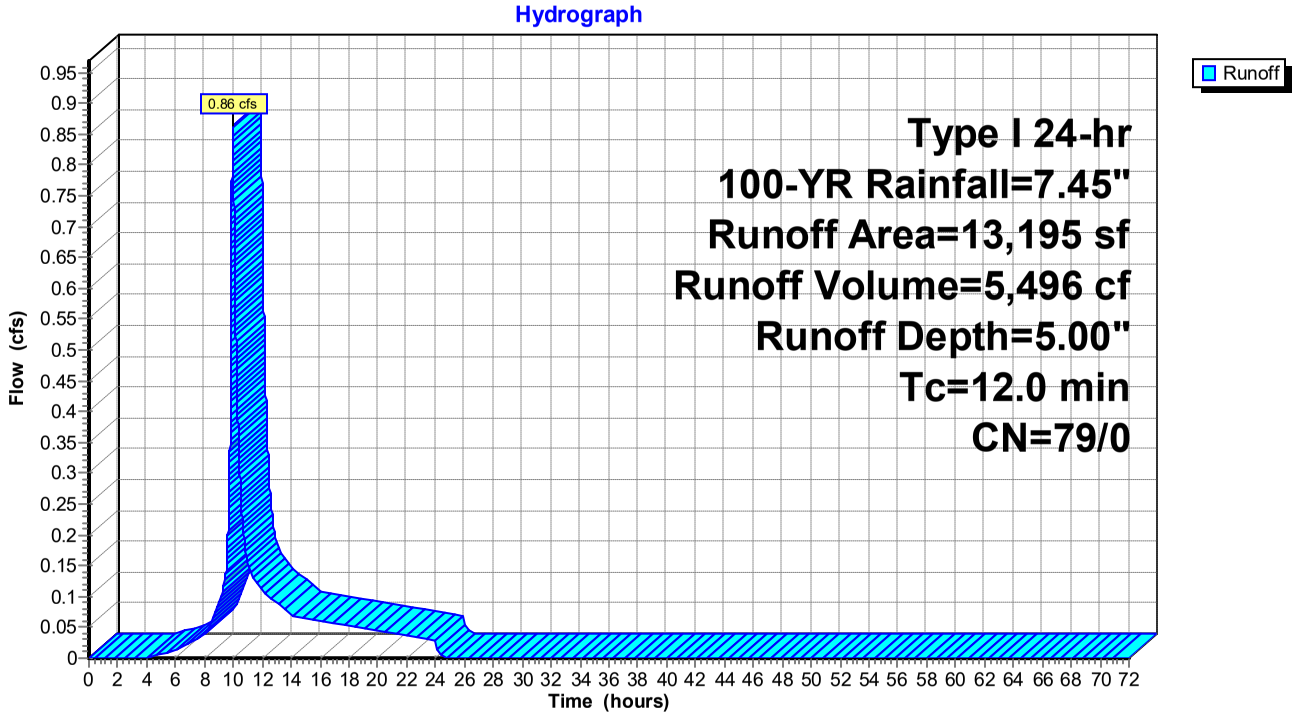
Runoff = 0.86 cfs @ 9.96 hrs, Volume= 5,496 cf, Depth= 5.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 100-YR Rainfall=7.45"

Area (sf)	CN	Description
12,593	79	<50% Grass cover, Poor, HSG B
602	85	Gravel roads, HSG B
13,195	79	Weighted Average
13,195	79	100.00% Pervious Area

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

Subcatchment 10S: Post-Development (C1)



Summary for Subcatchment 11S: Post-Development (C2)

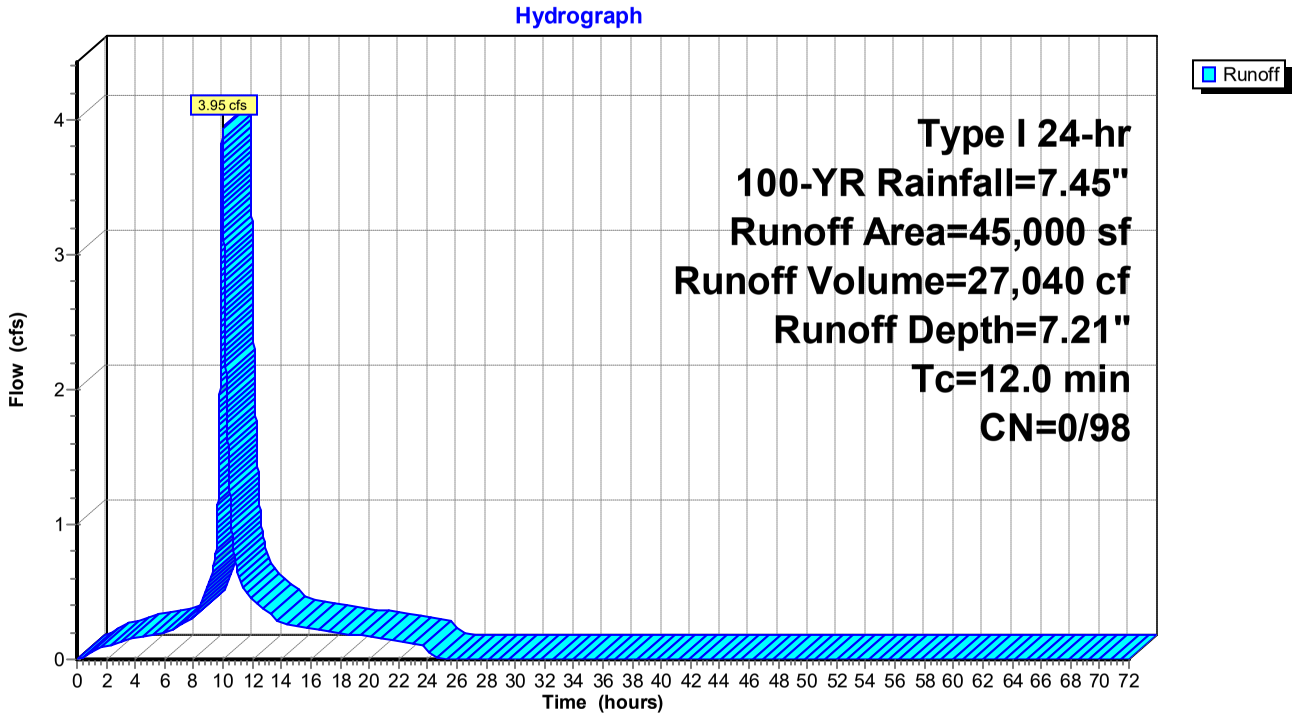
Runoff = 3.95 cfs @ 9.96 hrs, Volume= 27,040 cf, Depth= 7.21"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 100-YR Rainfall=7.45"

Area (sf)	CN	Description
45,000	98	Roofs, HSG A
45,000	98	100.00% Impervious Area

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

Subcatchment 11S: Post-Development (C2)



Summary for Pond 8P: Forebay

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 6.71" for 100-YR event
Inflow = 4.82 cfs @ 9.96 hrs, Volume= 32,535 cf
Outflow = 4.78 cfs @ 9.97 hrs, Volume= 32,535 cf, Atten= 1%, Lag= 0.9 min
Primary = 4.78 cfs @ 9.97 hrs, Volume= 32,535 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.61' @ 9.97 hrs Surf.Area= 3,798 sf Storage= 422 cf

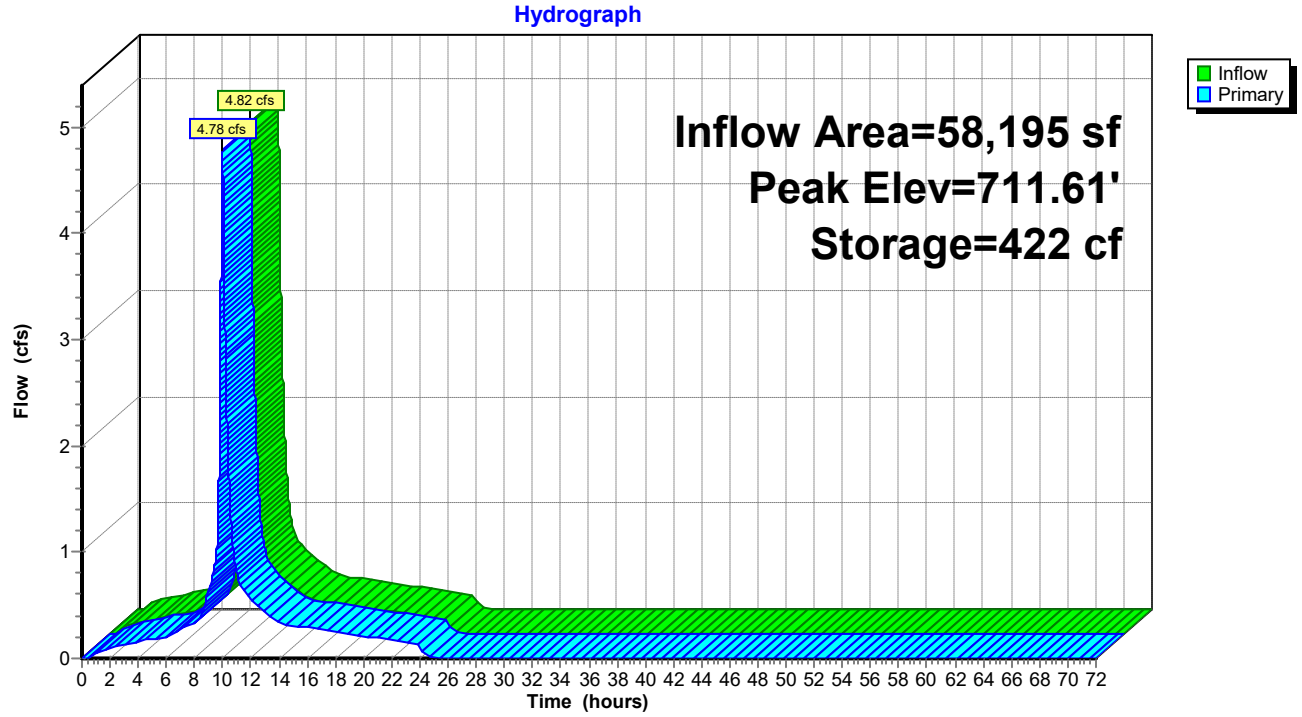
Plug-Flow detention time= 3.0 min calculated for 32,535 cf (100% of inflow)
Center-of-Mass det. time= 3.0 min (711.2 - 708.2)

Volume	Invert	Avail.Storage	Storage Description
#1	711.50'	5,750 cf	**38.50'W x 98.50'L x 1.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=4.77 cfs @ 9.97 hrs HW=711.61' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 4.77 cfs @ 1.09 fps)

Pond 8P: Forebay



Summary for Pond 9P: Pond

[81] Warning: Exceeded Pond 8P by 0.14' @ 10.23 hrs

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 6.71" for 100-YR event
Inflow = 4.78 cfs @ 9.97 hrs, Volume= 32,535 cf
Outflow = 2.69 cfs @ 10.21 hrs, Volume= 32,531 cf, Atten= 44%, Lag= 14.3 min
Primary = 0.96 cfs @ 10.21 hrs, Volume= 1,003 cf
Secondary = 0.93 cfs @ 10.21 hrs, Volume= 6,660 cf
Tertiary = 0.80 cfs @ 10.21 hrs, Volume= 24,868 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.71' @ 10.21 hrs Surf.Area= 3,770 sf Storage= 6,354 cf

Plug-Flow detention time= 79.7 min calculated for 32,530 cf (100% of inflow)
Center-of-Mass det. time= 79.6 min (790.8 - 711.2)

Volume	Invert	Avail.Storage	Storage Description
#1	710.00'	11,271 cf	**28.50'W x 128.50'L x 3.00'H Prismatoid Z=0.2**

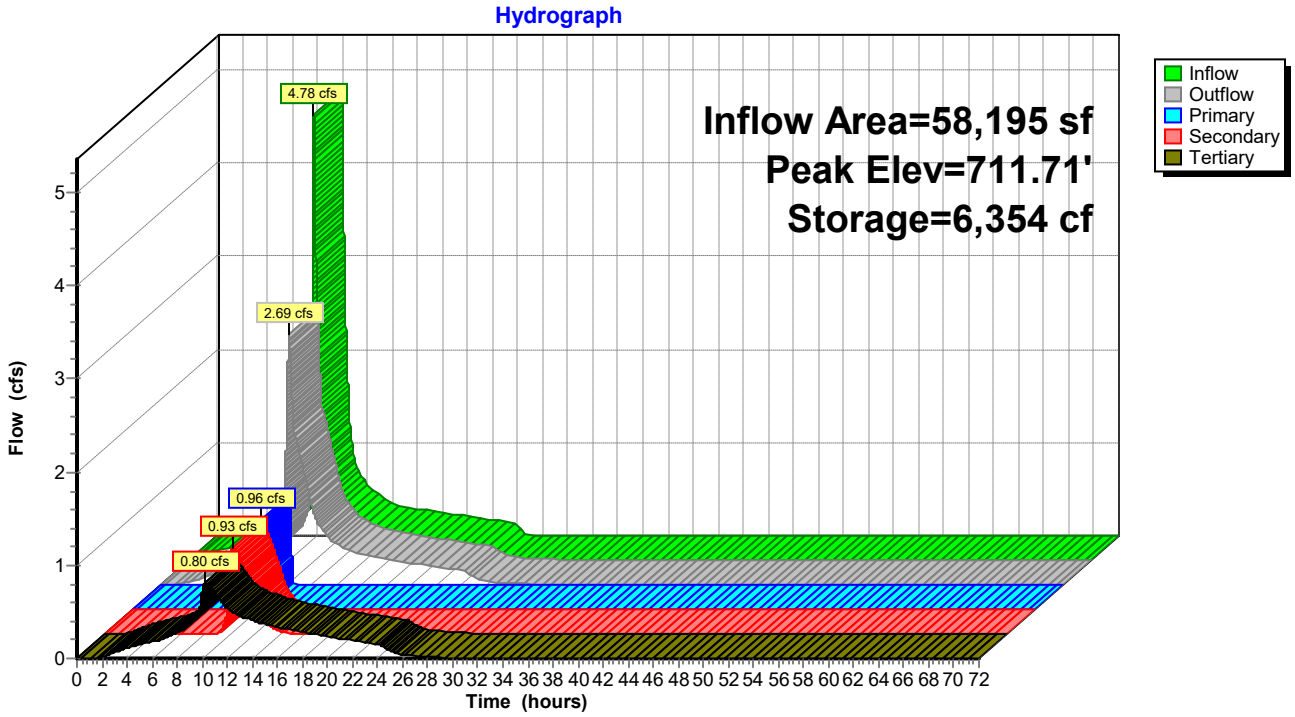
Device	Routing	Invert	Outlet Devices
#1	Tertiary	710.00'	**5.0" Vert. Orifice/Grate** C= 0.600
#2	Secondary	710.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	711.58'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.96 cfs @ 10.21 hrs HW=711.71' (Free Discharge)
└**3=Orifice/Grate** (Weir Controls 0.96 cfs @ 1.18 fps)

Secondary OutFlow Max=0.93 cfs @ 10.21 hrs HW=711.71' (Free Discharge)
└**2=Orifice/Grate** (Orifice Controls 0.93 cfs @ 4.72 fps)

Tertiary OutFlow Max=0.80 cfs @ 10.21 hrs HW=711.71' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.80 cfs @ 5.90 fps)

Pond 9P: Pond


Hydrograph
Inflow Area=58,195 sf
Peak Elev=711.71'
Storage=6,354 cf
4.78 cfs
2.69 cfs
0.96 cfs
0.93 cfs
0.80 cfs
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0 1 2 3 4 5
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 11P: Forebay (Treatment Zone)

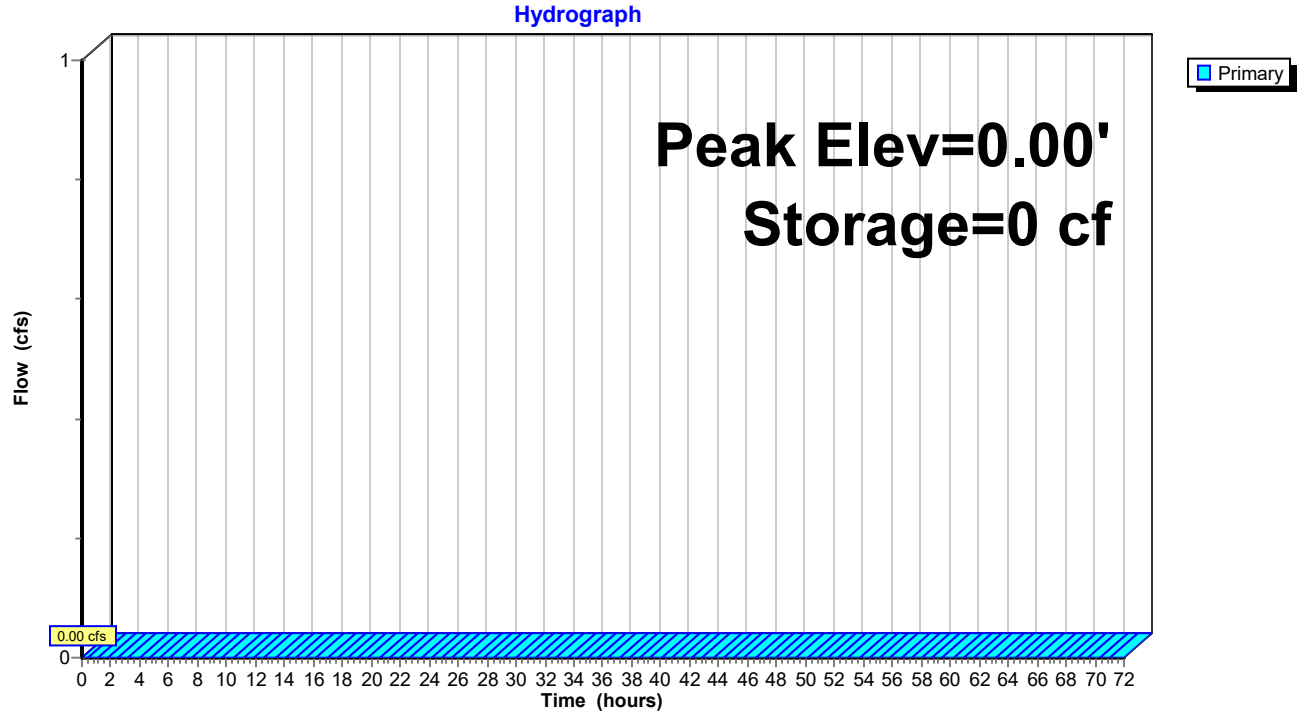
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	708.00'	2,153 cf	**8.00'W x 70.00'L x 3.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

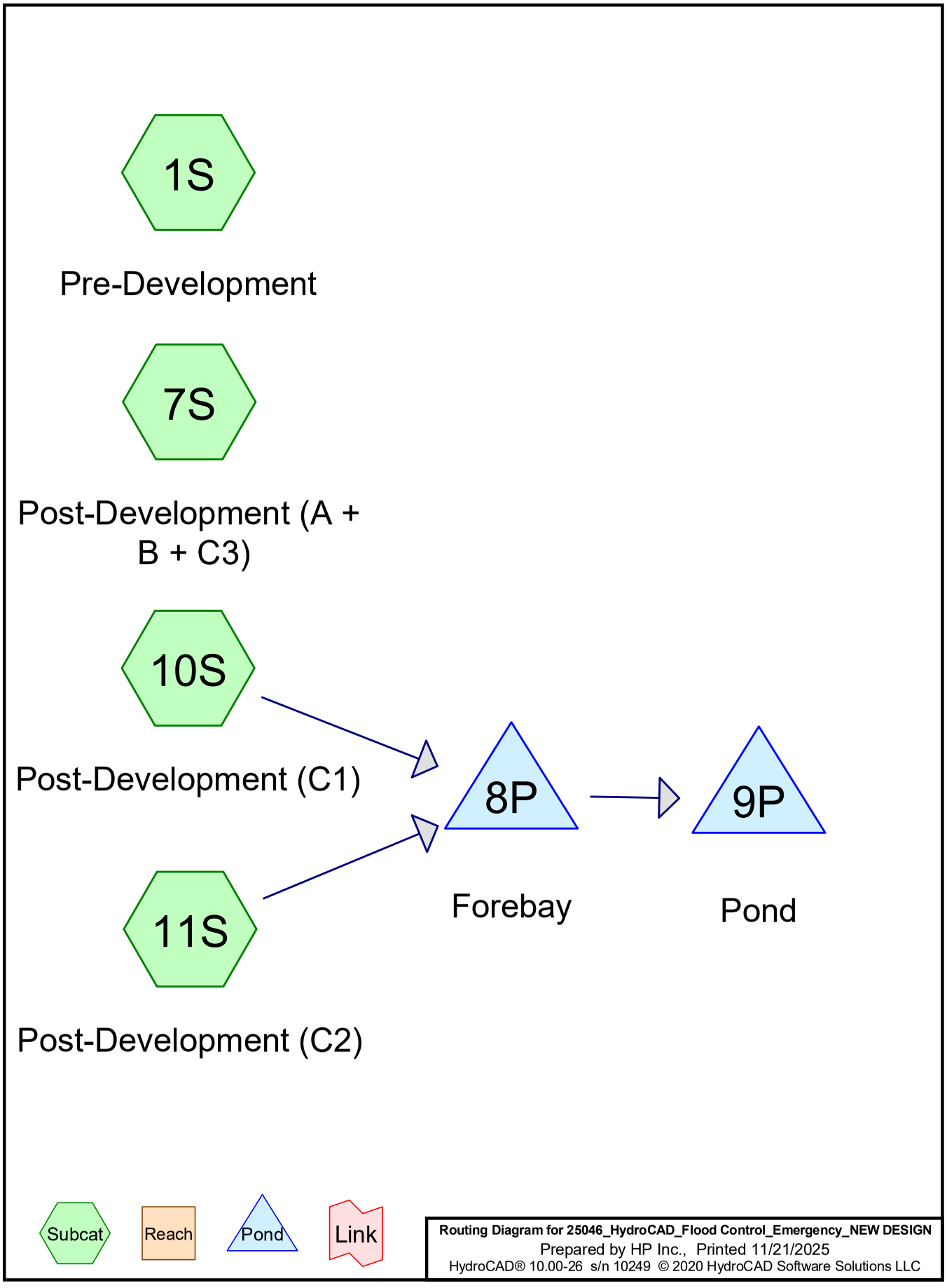
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1=Custom Weir/Orifice (Controls 0.00 cfs)

Pond 11P: Forebay (Treatment Zone)



Appendix D

HydroCAD Emergency


1S
Pre-Development
7S
Post-Development (A + B + C3)
10S
Post-Development (C1)
11S
Post-Development (C2)
8P
Forebay
9P
Pond
Subcat
Reach
Pond
Link
Routing Diagram for 25046_HydroCAD_Flood Control_Emergency_NEW DESIGN
Prepared by HP Inc., Printed 11/21/2025
HydroCAD® 10.00-26 s/n 10249 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Pre-Development

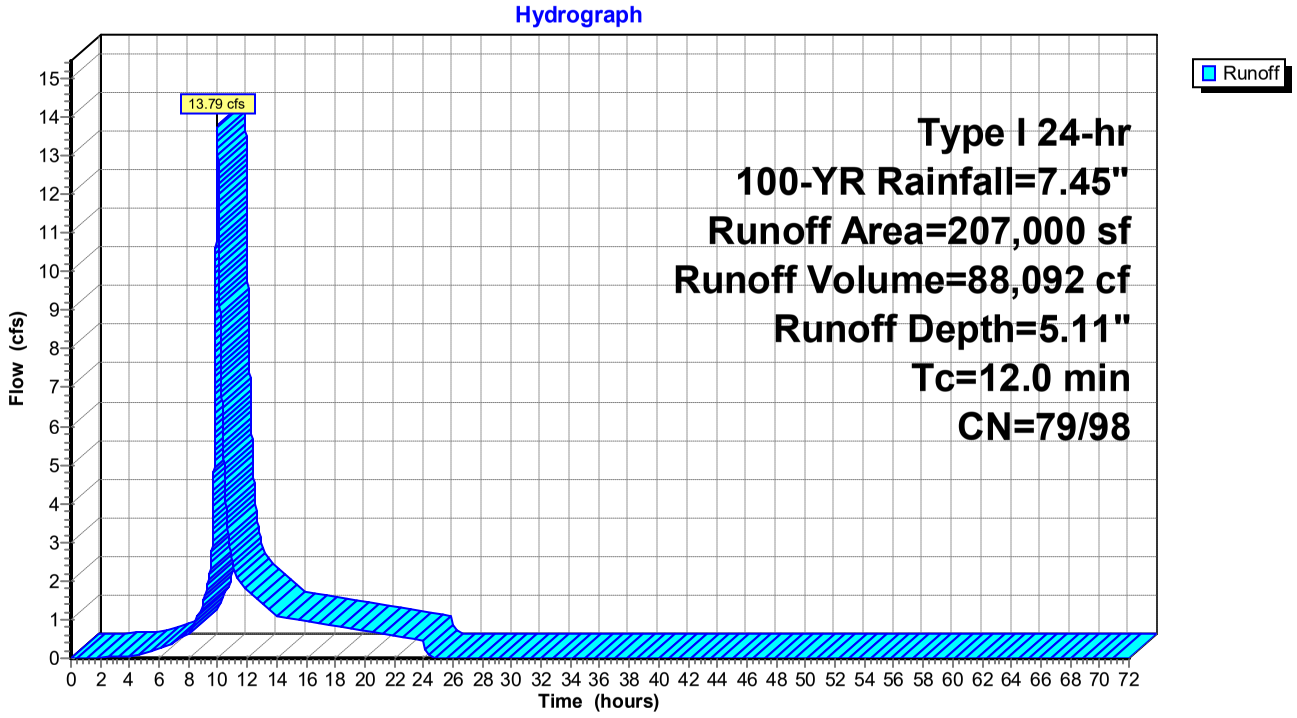
Runoff = 13.79 cfs @ 9.96 hrs, Volume= 88,092 cf, Depth= 5.11"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 100-YR Rainfall=7.45"

	Area (sf)	CN	Description
*	9,900	98	DMA 1
*	278	98	DMA 2
	196,822	79	<50% Grass cover, Poor, HSG B
	207,000	80	Weighted Average
	196,822	79	95.08% Pervious Area
	10,178	98	4.92% Impervious Area

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

Subcatchment 1S: Pre-Development



Summary for Subcatchment 7S: Post-Development (A + B + C3)

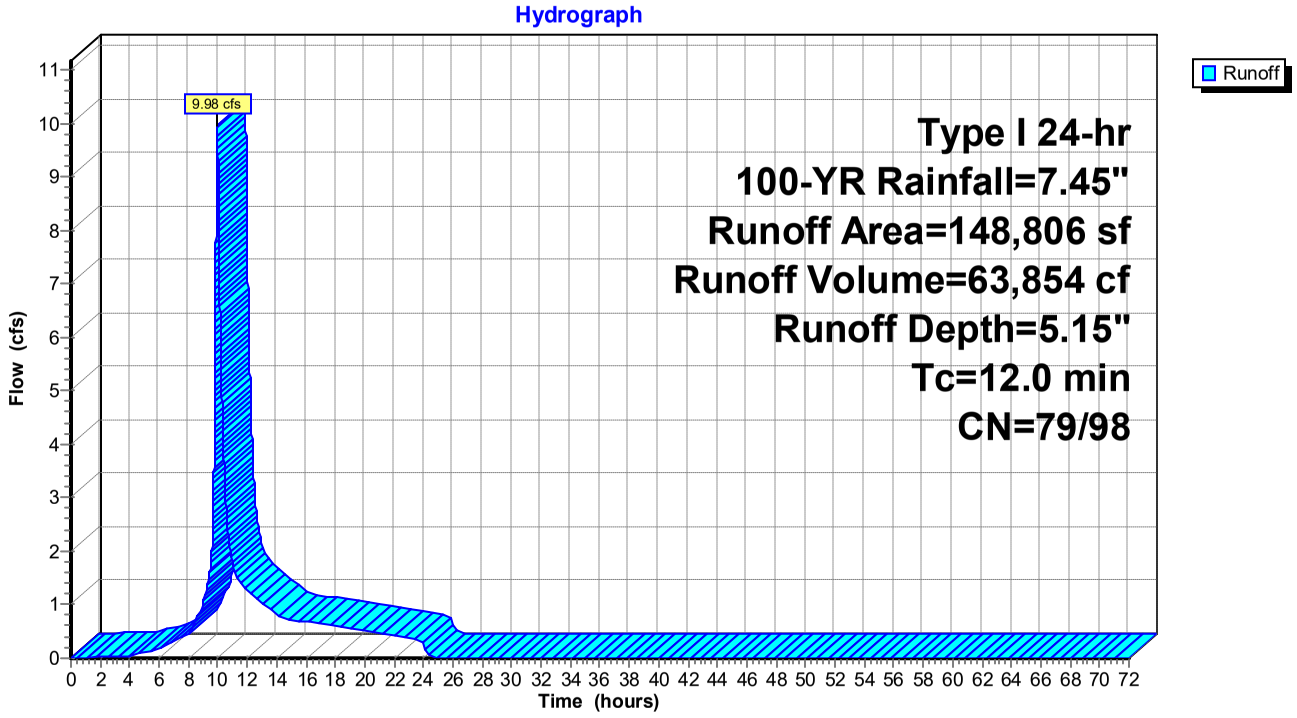
Runoff = 9.98 cfs @ 9.96 hrs, Volume= 63,854 cf, Depth= 5.15"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 100-YR Rainfall=7.45"

Area (sf)	CN	Description
9,900	98	Unconnected roofs, HSG B
278	98	Paved roads w/curbs & sewers, HSG C
138,628	79	<50% Grass cover, Poor, HSG B
148,806	80	Weighted Average
138,628	79	93.16% Pervious Area
10,178	98	6.84% Impervious Area

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

Subcatchment 7S: Post-Development (A + B + C3)



Summary for Subcatchment 10S: Post-Development (C1)

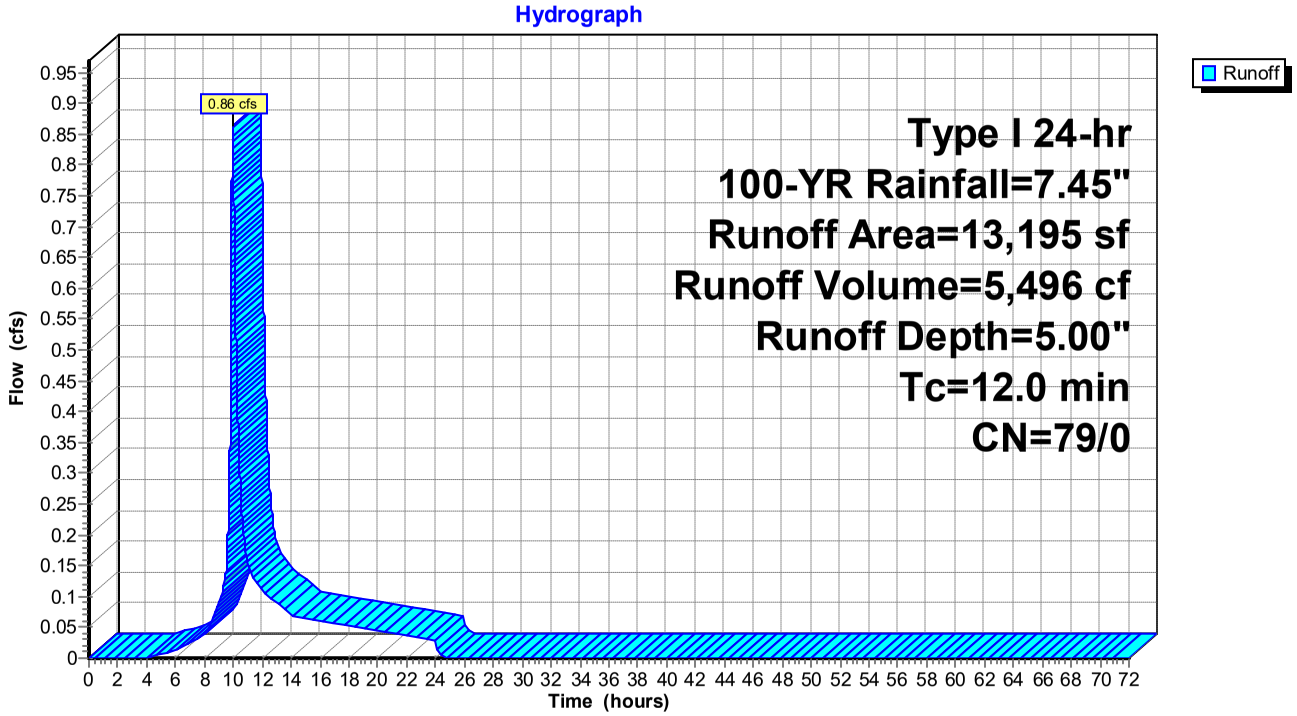
Runoff = 0.86 cfs @ 9.96 hrs, Volume= 5,496 cf, Depth= 5.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 100-YR Rainfall=7.45"

Area (sf)	CN	Description
12,593	79	<50% Grass cover, Poor, HSG B
602	85	Gravel roads, HSG B
13,195	79	Weighted Average
13,195	79	100.00% Pervious Area

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

Subcatchment 10S: Post-Development (C1)



Summary for Subcatchment 11S: Post-Development (C2)

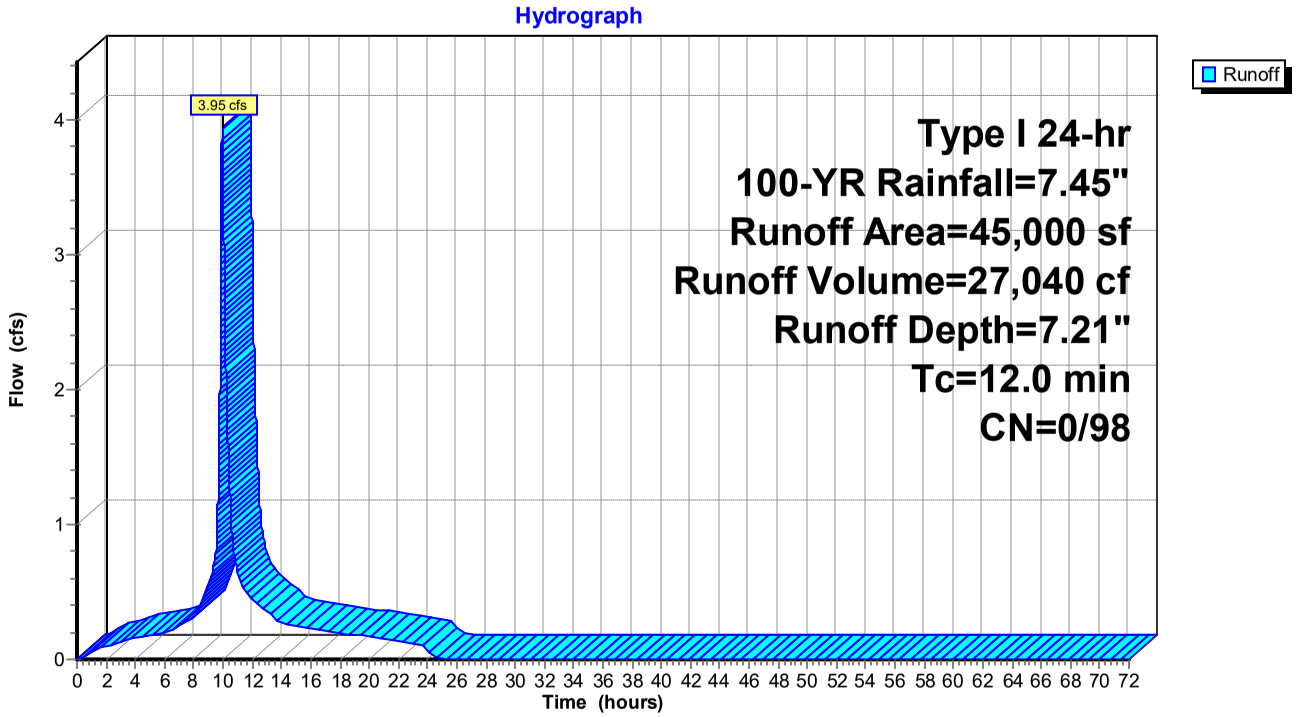
Runoff = 3.95 cfs @ 9.96 hrs, Volume= 27,040 cf, Depth= 7.21"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Type I 24-hr 100-YR Rainfall=7.45"

Area (sf)	CN	Description
45,000	98	Roofs, HSG A
45,000	98	100.00% Impervious Area

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

Subcatchment 11S: Post-Development (C2)



Summary for Pond 8P: Forebay

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 6.71" for 100-YR event
Inflow = 4.82 cfs @ 9.96 hrs, Volume= 32,535 cf
Outflow = 4.78 cfs @ 9.97 hrs, Volume= 32,535 cf, Atten= 1%, Lag= 0.9 min
Primary = 4.78 cfs @ 9.97 hrs, Volume= 32,535 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 711.61' @ 9.97 hrs Surf.Area= 3,798 sf Storage= 422 cf

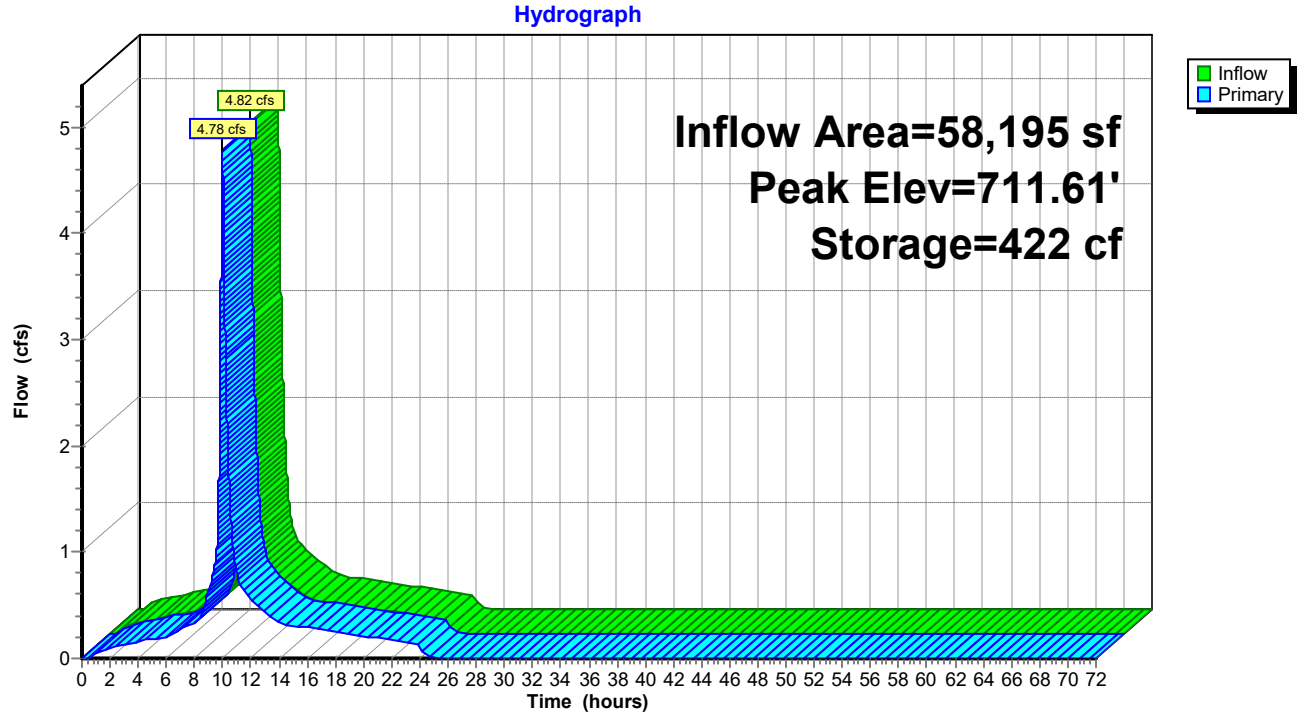
Plug-Flow detention time= 3.0 min calculated for 32,535 cf (100% of inflow)
Center-of-Mass det. time= 3.0 min (711.2 - 708.2)

Volume	Invert	Avail.Storage	Storage Description
#1	711.50'	5,750 cf	**38.50'W x 98.50'L x 1.50'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	711.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.50 Width (feet) 39.00 51.00

Primary OutFlow Max=4.77 cfs @ 9.97 hrs HW=711.61' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 4.77 cfs @ 1.09 fps)

Pond 8P: Forebay



Summary for Pond 9P: Pond

[81] Warning: Exceeded Pond 8P by 1.37' @ 10.06 hrs

Inflow Area = 58,195 sf, 77.33% Impervious, Inflow Depth = 6.71" for 100-YR event
Inflow = 4.78 cfs @ 9.97 hrs, Volume= 32,535 cf
Outflow = 4.29 cfs @ 10.03 hrs, Volume= 22,226 cf, Atten= 10%, Lag= 3.7 min
Primary = 4.29 cfs @ 10.03 hrs, Volume= 22,226 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.001 hrs
Peak Elev= 712.98' @ 10.03 hrs Surf.Area= 3,851 sf Storage= 11,178 cf

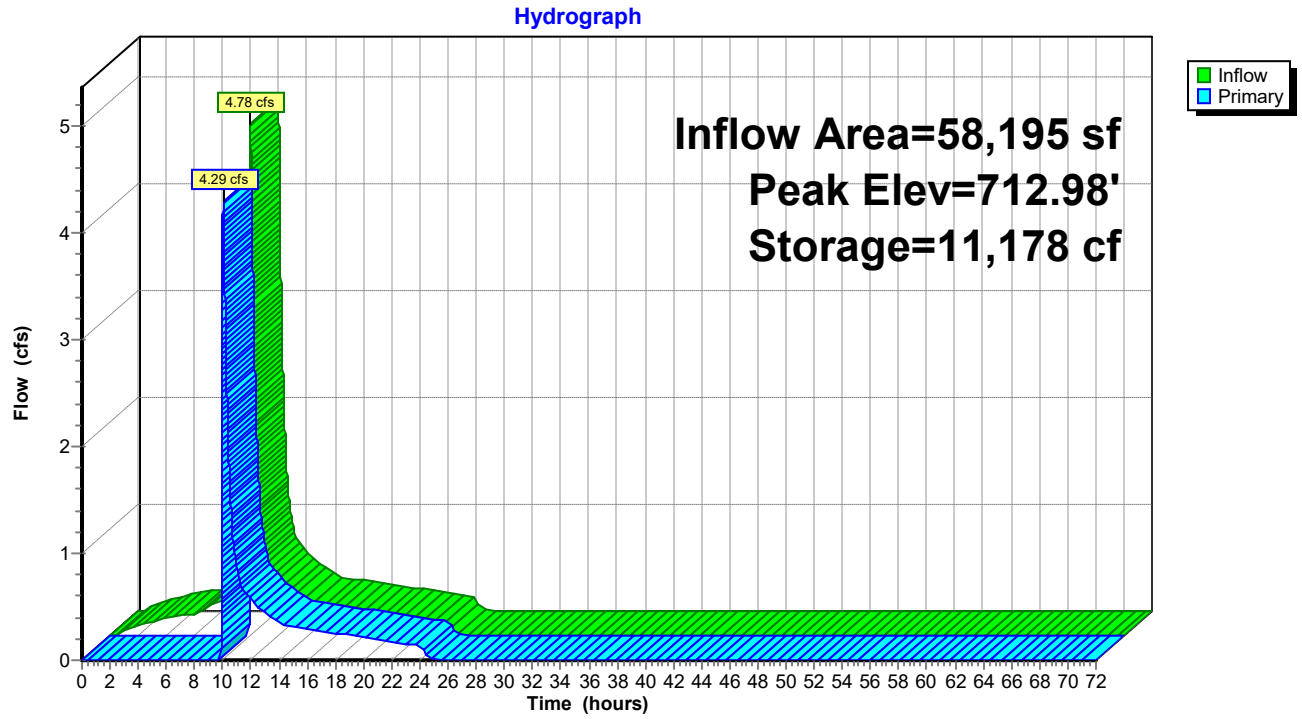
Plug-Flow detention time= 284.1 min calculated for 22,225 cf (68% of inflow)
Center-of-Mass det. time= 127.8 min (839.0 - 711.2)

Volume	Invert	Avail.Storage	Storage Description
#1	710.00'	11,271 cf	**28.50'W x 128.50'L x 3.00'H Prismatoid Z=0.2**

Device	Routing	Invert	Outlet Devices
#1	Primary	712.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.25 Width (feet) 10.00 16.00

Primary OutFlow Max=4.28 cfs @ 10.03 hrs HW=712.98' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 4.28 cfs @ 1.49 fps)

Pond 9P: Pond



Appendix E

Storm Drainage Capacity Calculations

Pipe	Size (in.)	Slope (%)	Flow (CFS)	Capacity (CFS)
SD#1	8"	0.5	0.99	1.23
SD#2	10"	0.5	1.9	2.22
SD#3	18"	0.5	0	10.62

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Jul 3 2025

<Name>

Circular

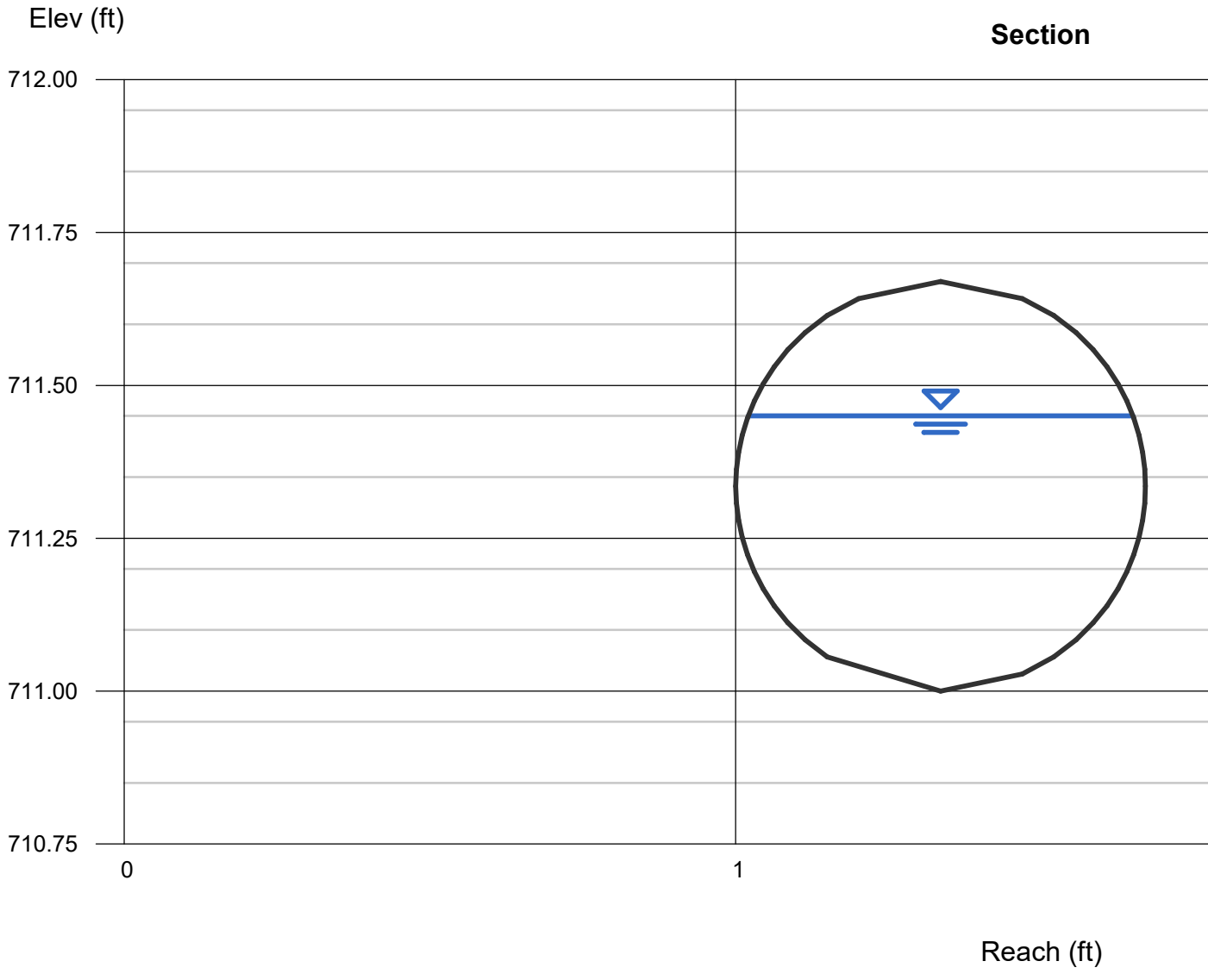
Diameter (ft)	= 0.67
Invert Elev (ft)	= 711.00
Slope (%)	= 0.50
N-Value	= 0.009

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.99

Highlighted

Depth (ft)	= 0.45
Q (cfs)	= 0.990
Area (sqft)	= 0.25
Velocity (ft/s)	= 3.92
Wetted Perim (ft)	= 1.29
Crit Depth, Yc (ft)	= 0.48
Top Width (ft)	= 0.63
EGL (ft)	= 0.69



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Jul 3 2025

<Name>

Circular

Diameter (ft)	= 0.83
Invert Elev (ft)	= 711.00
Slope (%)	= 0.50
N-Value	= 0.009

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.90

Highlighted

Depth (ft)	= 0.60
Q (cfs)	= 1.900
Area (sqft)	= 0.42
Velocity (ft/s)	= 4.53
Wetted Perim (ft)	= 1.69
Crit Depth, Yc (ft)	= 0.62
Top Width (ft)	= 0.74
EGL (ft)	= 0.92

