

STORMWATER MANAGEMENT REPORT
&
OPERATION & MAINTENANCE MANUAL

OVERFLOW PARKING PROJECT

TO THE REAR OF
133 QUEEN ANNE ROAD
Assessors' Map 58, Parcel G3-13
Harwich, MA

March 11, 2024

PREPARED FOR:

THE FAMILY PANTRY
133 QUEEN ANNE ROAD
HARWICH, MA

PREPARED BY:

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1. Property Description

<u>Lot Area:</u>	25,425 SF+/-
<u>Parcel Improvements:</u>	The parcel is vacant and is adjacent to the rear garden and parking areas for the Pantry.
<u>Wetlands:</u>	There are no wetlands within 100 feet of project area.
<u>Soils:</u>	The Barnstable Soil Survey (1993) places the parcel within the CdB soil unit, Carver- Medium to Coarse sand, 3 to 8 percent.
<u>Groundwater:</u>	Groundwater elevation is anticipated to be about elevation 16 to 18. Depth to groundwater is estimated to be 31 feet or greater below the existing grade of the project site. See attached Cape Cod Commission GW Data Viewer's printout map for the property (attached), which shows 2' groundwater contours.
<u>Zone II:</u>	The parcel is not located within a Zone II Groundwater Recharge mapped area.
<u>Topography:</u>	The topography of the project area slopes to the north with about a 3 to 4 foot drop on elevation.
<u>Site Conditions:</u>	The project site is vacant woodlands and is a portion of the Town of Harwich's property.

2. Stormwater Management Plan Overview

Stormwater management controls are proposed for the leased portion of the Town of Harwich municipal property which will serve as overflow parking for the Family Pantry of Cape Cod (Pantry) operation. The overflow parking will provide much needed parking space for the staff & clients associated with the Pantry.

The Pantry has obtained a lease with the Town of Harwich to utilize a portion of the Town's land for the parking area. The parking area is located to the east of a previously leased area from the town which is currently the garden area for the Pantry. The project area of land to be developed is 25,425 SF+/-.

The proposed project area consists of the entire proposed gravel/T-base parking area, and surrounding landscaped/grassed areas. The parking area is graded to match the existing topography which currently slopes to the north. The slope through the parking area is about 3%. (Note: HydroCAD calculations used a CN=98 for impervious pavement in this area, so that in the event this parking lot is paved in the future, the stormwater system will be adequately sized.)

The proposed post-development stormwater management plan consists of one water quality swale to provide treatment of parking area runoff. The swale is then connected to two (2) 12" dia. raised inlet drains which will allow stormwater from larger storms to overflow into the proposed 62' x 12' x 6' leaching facility. The stormwater system has been designed to retain all runoff from the 100-year storm event.

As shown in the HydroCAD Modeling report, the stormwater system has been designed to retain all stormwater runoff for the 100-year storm event. See Table 1 below for peak discharge comparison.

Table 1: Peak Discharge Comparison

Storm Event (year)	Total Discharge	
	Pre-Dev. (ft ³ /sec)	Post-Dev. (ft ³ /sec)
2	0	0
10	0.01	0
25	0.02	0
100	0.14	0

For HydroCAD modeling analysis of the stormwater systems, the following methods and assumptions were used:

- Simple Dynamic
- Rawls Rate of 8.27 in/hr for sands within the subsoil layers for subsurface leaching galleys.

The proposed stormwater controls also meet the minimum 90% Total Suspended Solids (TSS) removal requirements of the Town of Brewster Stormwater Management Bylaw, as shown in Appendix C: TSS Removal Sheets. The proposed TSS removal rate is 94%.

3. Erosion Control Plan - Temporary Siltation Barrier & Silt Socks

Prior to start of construction, the following steps shall be taken to address erosion:

- The erosion controls shall include a row of staked 9-inch straw wattles surrounding the project area. the project area is defined by the property boundaries to the north and south and the leased boundaries to the west and west.
- Once the driveway stormwater systems are installed, a row of staked 9-inch straw wattles shall be set surrounding the water quality swale, to prevent silt and debris from clogging and/or damaging the water quality swales and subsurface leaching facilities.
- The erosion controls shall be monitored and corrected during the entire construction phase and until the site has been stabilized with ground cover and/or landscape mulch.
- Contractor shall be required to provide extra siltation controls in case a repair is needed to the straw wattles.

4. Massachusetts Stormwater Management Design Standards

The following is a description of how the proposed project meets the Massachusetts Stormwater Handbook design standards.

Standard 1: No new untreated discharges:

This standard is met since there are no new untreated stormwater discharges proposed. See Standards 4-6 calculations.

Standard 2: Maintain Pre-development peak discharge rate:

This standard has been met. As shown in the HydroCAD Modeling report, the proposed stormwater controls will retain all stormwater at the peak discharge rate for the 2-, 10-, 25- and 100-year storms. See Table 1 in the Stormwater Management Plan Overview section.

Standard 3: Groundwater Recharge:

This standard is met. The proposed stormwater management systems are sized so that the total recharge volume provided exceeds the minimum groundwater recharge volume specified in the handbook and the proposed subsurface leaching facility will drawdown within 72 hours of a storm event. In accordance with the MA Stormwater Manual, the required recharge volume factor (F) required across the impervious area (A) is 0.6 inches per hour for hydraulic soil group A soils. Coarse Sand (Rawls Rate: 8.27 inches per hour) has been used in the sizing of the subsurface leaching facility. Refer to the HydroCAD Stormwater Modeling Report in Appendix. The required recharge volume is calculated based on the total parking area.

- Required Recharge Volume $R_v = F \times A = (0.6 \text{ in})(1 \text{ ft}/12 \text{ in})(17,987 \text{ sf}) = 900 \text{ cf}$ (parking area)
- Recharge Storage Provided (Subsurface leaching facility) = 2,489 cf > 900 cf
- The drawdown for the subsurface leaching facilities for the parking area is 24 hours < 72 hour maximum allowance.

Standard 4: Water Quality:

This standard has been met. Driveway area stormwater controls will remove 94% of TSS with the water quality swale followed by a sub-surface leaching facility. TSS removal calculation tables for roadway runoff are included in the Appendix. In accordance with the MA Stormwater Manual, the required water quality depth (D_{wq}) across the impervious area (A) is 1.0 inches per hour in areas containing soils with rapid infiltration rate greater than 2.4 in/hr. The required water quality volume is based on the total parking area.

- Required Water Quality Volume $V_{wq} = D_{wq} \times A = (1.0 \text{ in})(1 \text{ ft}/12 \text{ in})(17,987 \text{ sf}) = 1,499 \text{ cf}$ (parking area)
- Water Quality Storage Provided (Water Quality Swale) = 1,576 cf > 1,499 cf

Standard 5: Land uses with higher potential pollutant loads:

This standard has been met. The proposed use is a single-family residence.

Standard 6: Stormwater discharges within Zone II or Interim Wellhead protection area of a public water supply and stormwater discharges near or to any critical area.

This standard has been met. Not applicable as the site is not within a Zone 2 contributory area.

Standard 7: Redevelopment:

This standard is not applicable, the project is a new development.

Standard 8: Construction Erosion Control Plan:

The project is subject to the proposed Erosion Control Plan as described in this report. Straw wattles and erosion control blankets shall be implemented as required to mitigate soil erosion.

Standard 9: Long Term Operation and Maintenance Plan:

A long-term O&M plan has been submitted with this report, refer to Stormwater Operation and Maintenance Manual. The property owners will operate and maintain the stormwater systems.

Standard 10: Illicit Discharges:

This standard is met since there are no illicit discharges at this site and no illicit discharges proposed.

OPERATION AND MAINTENANCE:

5. Owner and Responsible Party

The owner and responsible party for all Stormwater Pollution Control tasks detailed in this Stormwater Operation & Maintenance Manual for 133 Queen Anne Road Rear Parking Area, Harwich, MA:

Owner & Operator:

The Family Pantry of Cape Cod
133 Queen Anne Road
Harwich, MA 02645

508-432-6519

6. Schedule of Inspection and Maintenance of Stormwater Management Systems

Water Quality Swale

The swale is to be inspected and maintained by the owner. The following responsibilities are included:

- Inspections:
 - Inspect the swales quarterly.
 - Ensure the swales are operating as designed and completely draining in between storm events.
 - Inspect swales for subsidence, erosion, cracking or tree growth on the embankment and sediment accumulation / erosion within the swale.
- Maintenance:
 - Remove accumulated trash, leaves and debris at least monthly.
 - Remove accumulated sediment at least quarterly.
 - Mulch areas once per year.
 - Remove dead vegetation twice per year.
 - Prune once per year.
 - Do not store snow in swale areas.
 - Check for signs of erosion and repair as needed. After removing sediment, replace any vegetation damaged during clean-out by either reseeding or re-sodding.
- Long Term:
 - Replace entire soil media and all vegetation when the swale is experiencing slow drainage and extended ponding within the swale. It would be recommended that a professional engineer evaluate the swale and then make final corrective action proposal.

Subsurface Leaching Facility

The subsurface leaching facility is to be inspected and maintained by the owner. The following responsibilities are included:

- Inspections:
 - Inspect the subsurface leaching facility at least twice per year.
- Maintenance:
 - If inspection of leaching facility shows that it does not dewater completely within 72 hours of a storm event, the owner shall take immediate steps to restore the function of the system and shall consult a qualified stormwater professional.
 - Remove any trash or debris that may clog the system.
 - Cleaning may be done by vacuum truck. All sediment and hydrocarbons shall be properly disposed of in accordance with local, state and federal guidelines and regulations.

7. Long Term Lawn Care & Pollution Prevention Plan

Description of Pollutant Sources:

- Light vehicle traffic

Source Control Best Management Practices

- There shall be no storage of items or materials which will be subject to the weather.
- Good housekeeping measures shall be implemented throughout the site to keep the parking areas clean of debris. Regularly pick up areas as needed.
- The use of winter de-icing sand and salt materials shall be minimized to the maximum extent practicable.
- Winter de-icing sand and salt materials shall be stored indoors.
- Snow storage shall be on paved or gravel surfaces and not within the water quality swale.
- Immediately clean up any spillage on paved areas and dispose of wastes properly.

8. Emergency Spill Cleanup Plan

1. The owner of the facility shall have a designated person with overall responsibility for spill response cleanup.
2. In the event of a spill the following shall be notified:
 - A. Harwich Fire Department (508) 430-7546
(for a gasoline or hazardous material spill) 911
 - B. Massachusetts D.E.P. Emergency Response (800) 304-1133
 - C. Harwich Health Department (508) 430-7509
3. Cleanup of spills shall begin immediately.

O&M Log Form

Condition

Inspector Initials	Item Inspected	Date	Time	Good	Clean-out Needed	Repair Needed	Repaired Date

O&M Log form records to be maintained by property manager for a minimum of three years

APPENDICES



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

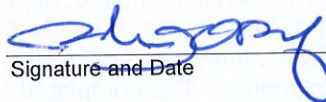
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature




Signature and Date

2-14-24

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): _____

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: **PARKING AREA FOR PANTRY**

B	C	D	E	F
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
Water Quality Swale - Dry	0.70	1.00	0.70	0.30
Subsurface Infiltration Structure	0.80	0.30	0.24	0.06
	0.00	0.06	0.00	0.06
	0.00	0.06	0.00	0.06
	0.00	0.06	0.00	0.06

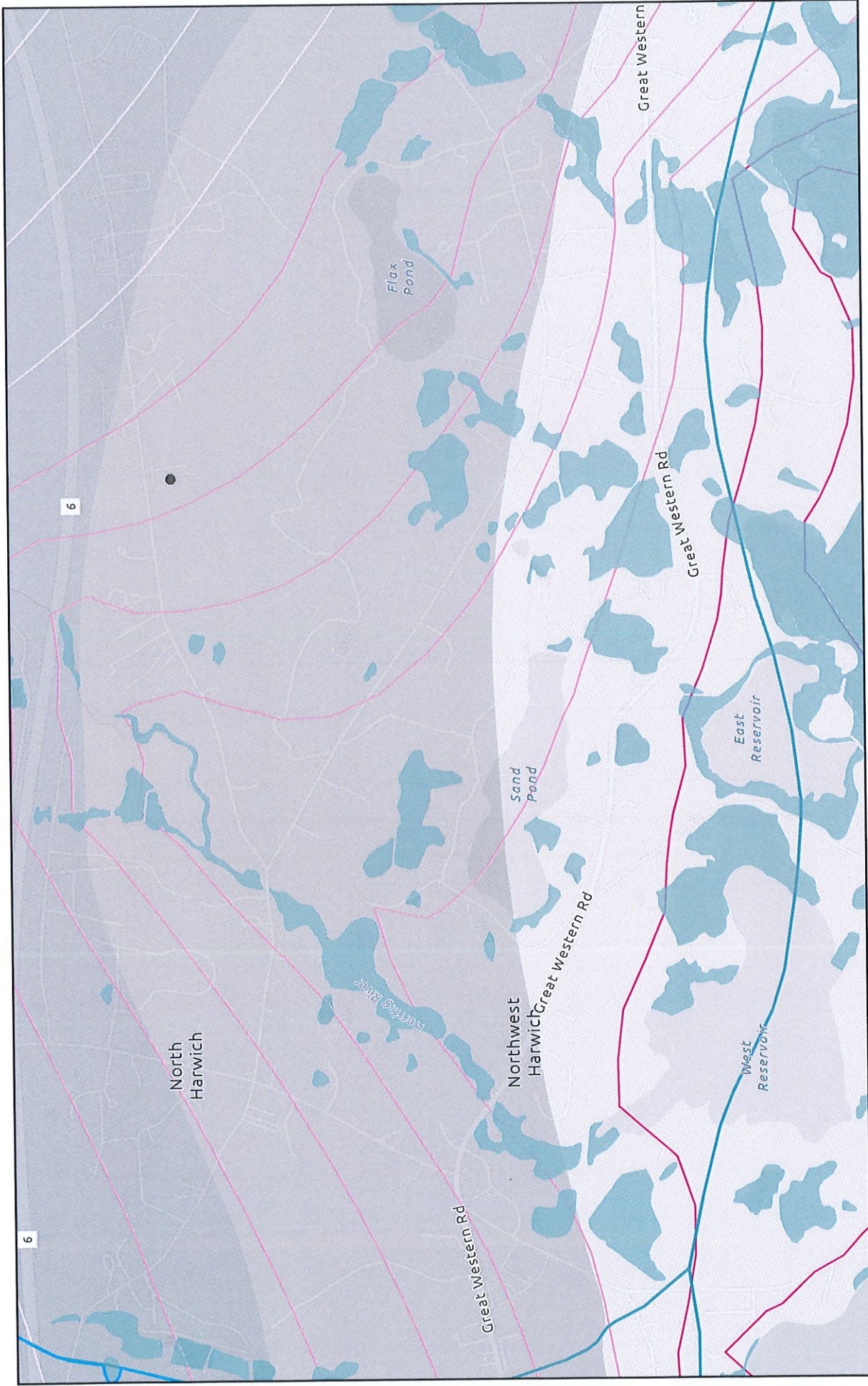
Total TSS Removal = 94%
 Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: FAMILY PANTRY 9516
 Prepared By: JMO
 Date: 1/12/2023

*Equals remaining load from previous BMP (E) which enters the BMP

TSS Removal Calculation Worksheet

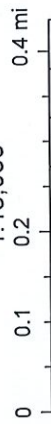
ArcGIS Web Map



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- Index Well Area
- Wetland
- Cape Cod Water Tables: 2ft contours
- < 10 ft.
- < 20 ft.
- < 30 ft.
- < 20 ft.
- < 30 ft.
- < 20 ft.
- < 30 ft.
- Zone, Annual Range of Groundwater Level
- A, 0-2 feet
- B, 2-3 feet
- C, 3-4 feet

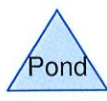
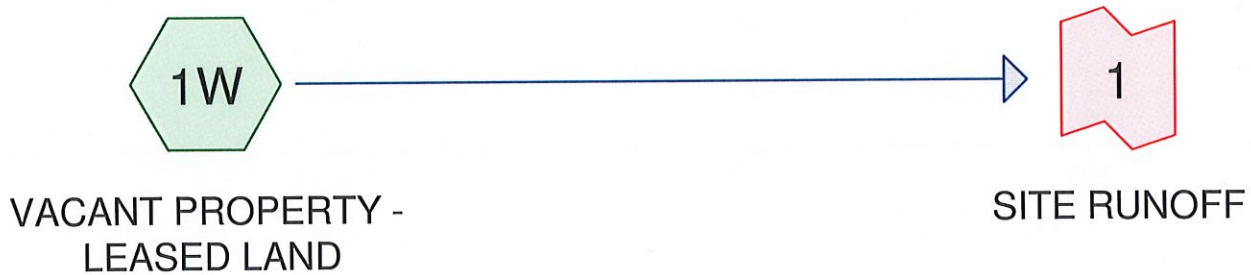
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PRE-CONSTRUCTION - WATERSHEDS



PRE-DEV

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.26	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.72	2
3	25-Year	Type III 24-hr		Default	24.00	1	5.64	2
4	100-Year	Type III 24-hr		Default	24.00	1	7.04	2

PRE-DEV

Type III 24-hr 2-Year Rainfall=3.26"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1W: VACANT PROPERTY - Runoff Area=25,425 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=36 Runoff=0.00 cfs 0.000 af

Link 1: SITE RUNOFF

Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 0.584 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
100.00% Pervious = 0.584 ac 0.00% Impervious = 0.000 ac

PRE-DEV

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Type III 24-hr 2-Year Rainfall=3.26"

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Summary for Subcatchment 1W: VACANT PROPERTY - LEASED LAND

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

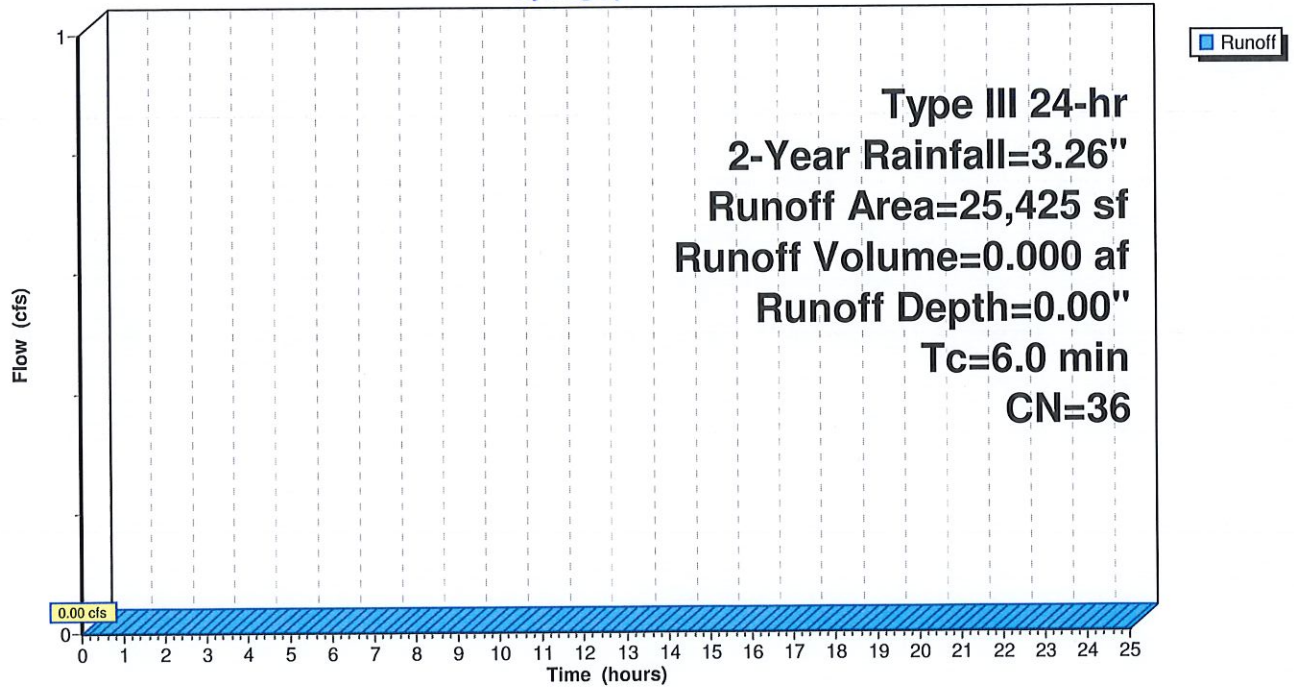
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
25,425	36	Woods, Fair, HSG A
25,425		100.00% Pervious Area

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

Subcatchment 1W: VACANT PROPERTY - LEASED LAND

Hydrograph

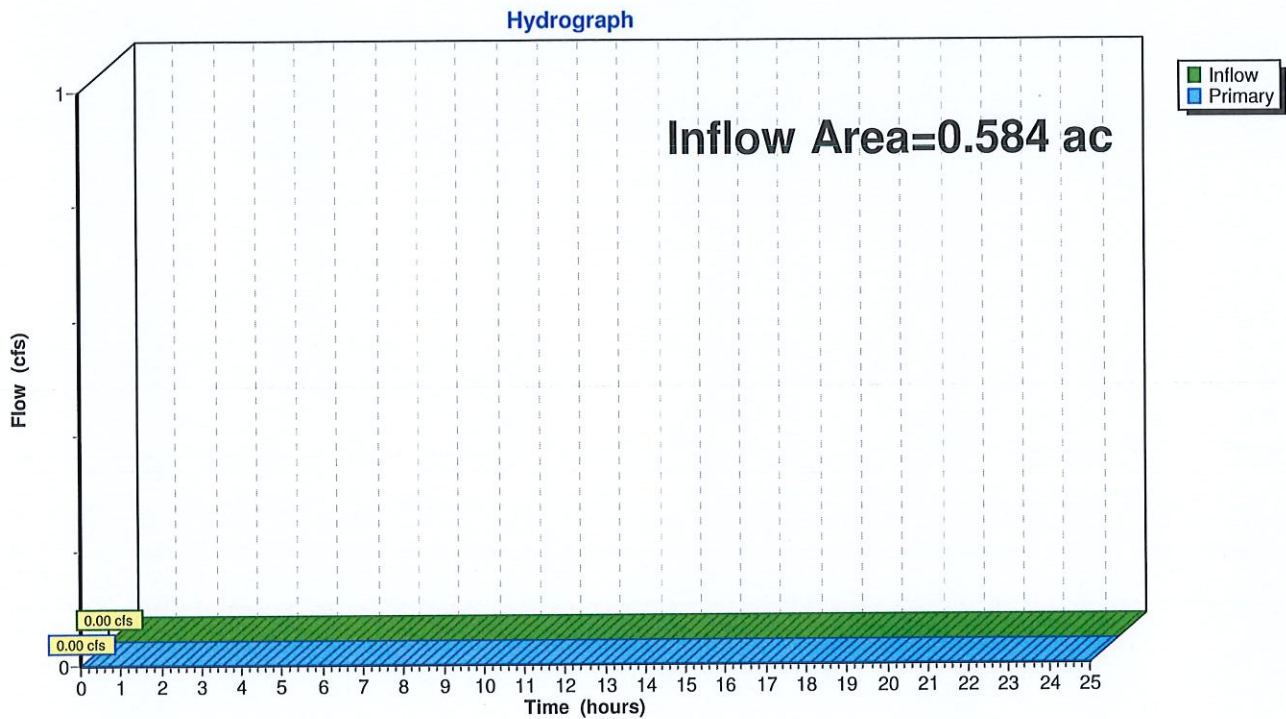


Summary for Link 1: SITE RUNOFF

Inflow Area = 0.584 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node LP

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 1: SITE RUNOFF



PRE-DEV

Type III 24-hr 10-Year Rainfall=4.72"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1W: VACANT PROPERTY - Runoff Area=25,425 sf 0.00% Impervious Runoff Depth=0.07"
Tc=6.0 min CN=36 Runoff=0.01 cfs 0.003 af

Link 1: SITE RUNOFF

Inflow=0.01 cfs 0.003 af
Primary=0.01 cfs 0.003 af

Total Runoff Area = 0.584 ac Runoff Volume = 0.003 af Average Runoff Depth = 0.07"
100.00% Pervious = 0.584 ac 0.00% Impervious = 0.000 ac

PRE-DEV

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Type III 24-hr 10-Year Rainfall=4.72"

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Summary for Subcatchment 1W: VACANT PROPERTY - LEASED LAND

Runoff = 0.01 cfs @ 15.26 hrs, Volume= 0.003 af, Depth= 0.07"
Routed to Link 1 : SITE RUNOFF

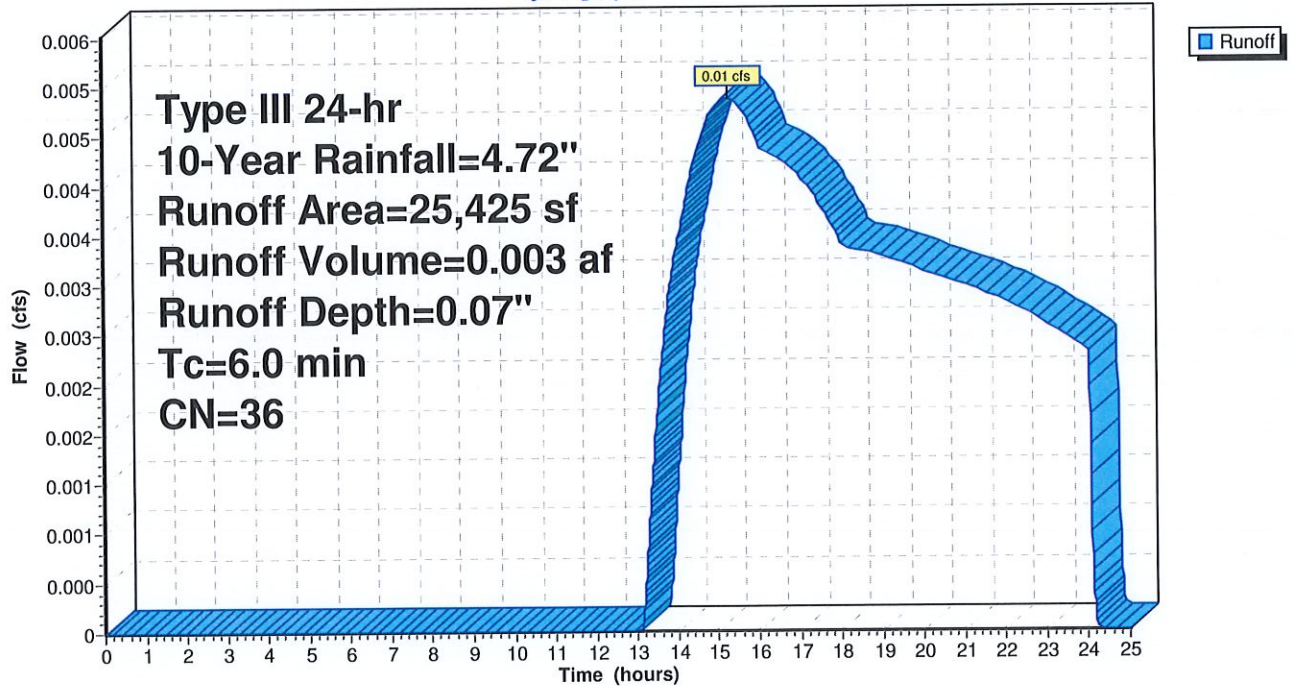
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.72"

Area (sf)	CN	Description
25,425	36	Woods, Fair, HSG A
25,425		100.00% Pervious Area

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

Subcatchment 1W: VACANT PROPERTY - LEASED LAND

Hydrograph



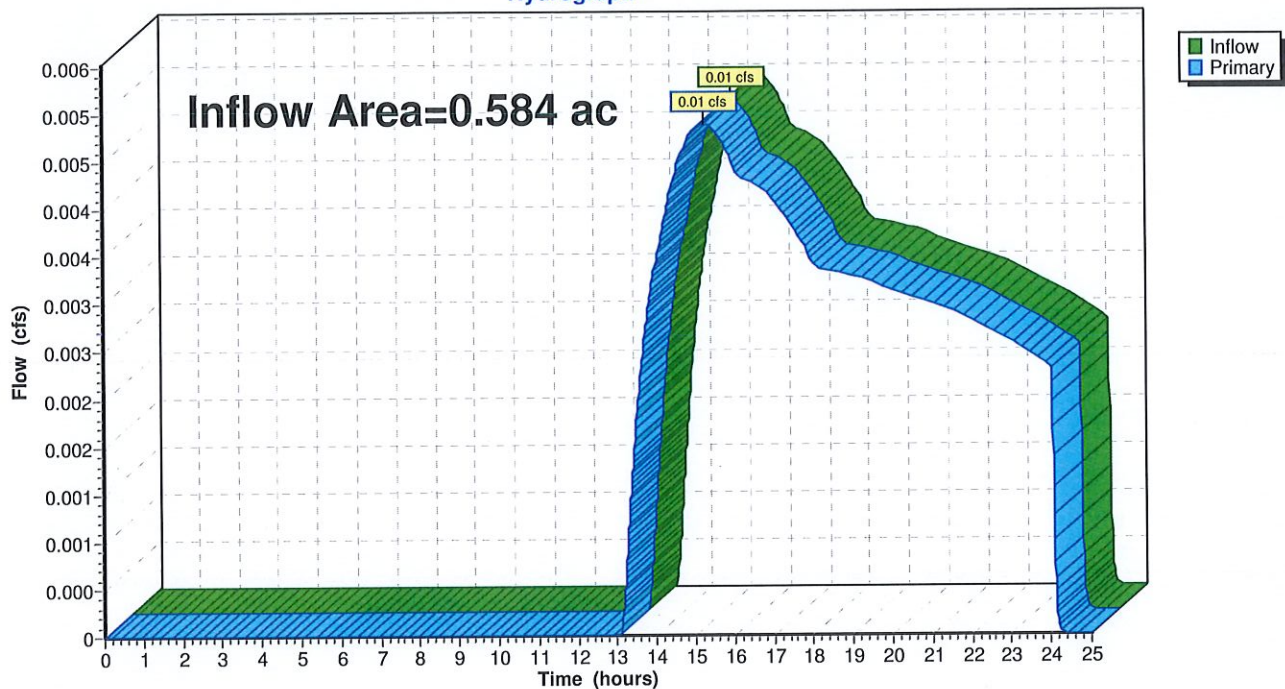
Summary for Link 1: SITE RUNOFF

Inflow Area = 0.584 ac, 0.00% Impervious, Inflow Depth = 0.07" for 10-Year event
Inflow = 0.01 cfs @ 15.26 hrs, Volume= 0.003 af
Primary = 0.01 cfs @ 15.26 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node LP

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 1: SITE RUNOFF

Hydrograph



PRE-DEV

Type III 24-hr 25-Year Rainfall=5.64"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1W: VACANT PROPERTY - Runoff Area=25,425 sf 0.00% Impervious Runoff Depth=0.22"
Tc=6.0 min CN=36 Runoff=0.02 cfs 0.011 af

Link 1: SITE RUNOFF

Inflow=0.02 cfs 0.011 af
Primary=0.02 cfs 0.011 af

Total Runoff Area = 0.584 ac Runoff Volume = 0.011 af Average Runoff Depth = 0.22"
100.00% Pervious = 0.584 ac 0.00% Impervious = 0.000 ac

PRE-DEV

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Type III 24-hr 25-Year Rainfall=5.64"

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Summary for Subcatchment 1W: VACANT PROPERTY - LEASED LAND

Runoff = 0.02 cfs @ 12.48 hrs, Volume= 0.011 af, Depth= 0.22"
Routed to Link 1 : SITE RUNOFF

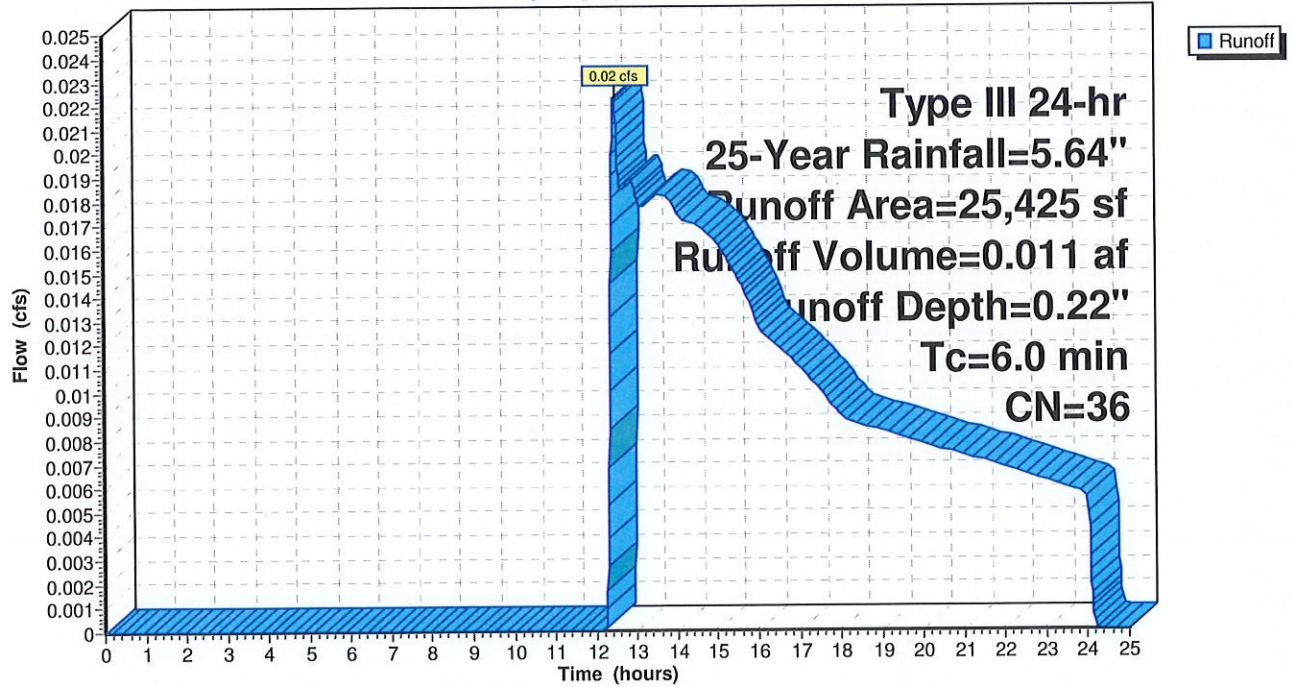
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.64"

Area (sf)	CN	Description
25,425	36	Woods, Fair, HSG A
25,425		100.00% Pervious Area

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

Subcatchment 1W: VACANT PROPERTY - LEASED LAND

Hydrograph



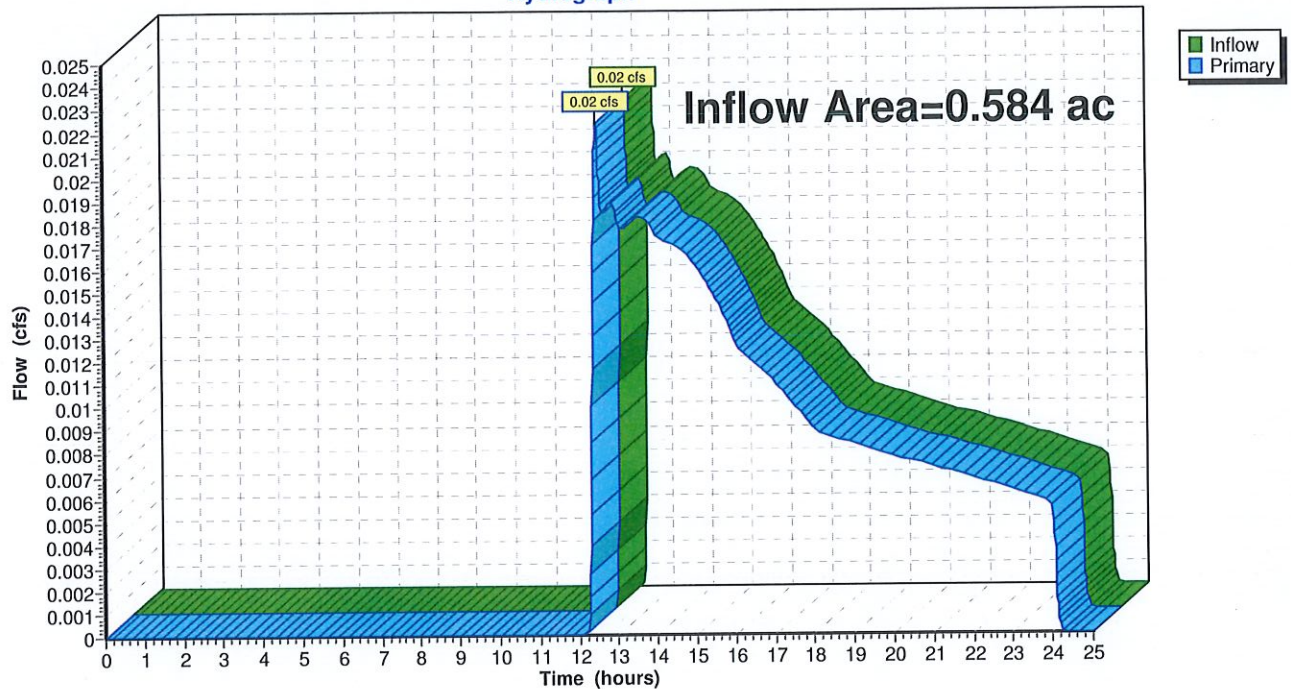
Summary for Link 1: SITE RUNOFF

Inflow Area = 0.584 ac, 0.00% Impervious, Inflow Depth = 0.22" for 25-Year event
Inflow = 0.02 cfs @ 12.48 hrs, Volume= 0.011 af
Primary = 0.02 cfs @ 12.48 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node LP

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 1: SITE RUNOFF

Hydrograph



PRE-DEV

Type III 24-hr 100-Year Rainfall=7.04"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1W: VACANT PROPERTY - Runoff Area=25,425 sf 0.00% Impervious Runoff Depth=0.57"
Tc=6.0 min CN=36 Runoff=0.14 cfs 0.028 af

Link 1: SITE RUNOFF

Inflow=0.14 cfs 0.028 af
Primary=0.14 cfs 0.028 af

Total Runoff Area = 0.584 ac Runoff Volume = 0.028 af Average Runoff Depth = 0.57"
100.00% Pervious = 0.584 ac 0.00% Impervious = 0.000 ac

PRE-DEV

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Type III 24-hr 100-Year Rainfall=7.04"

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Summary for Subcatchment 1W: VACANT PROPERTY - LEASED LAND

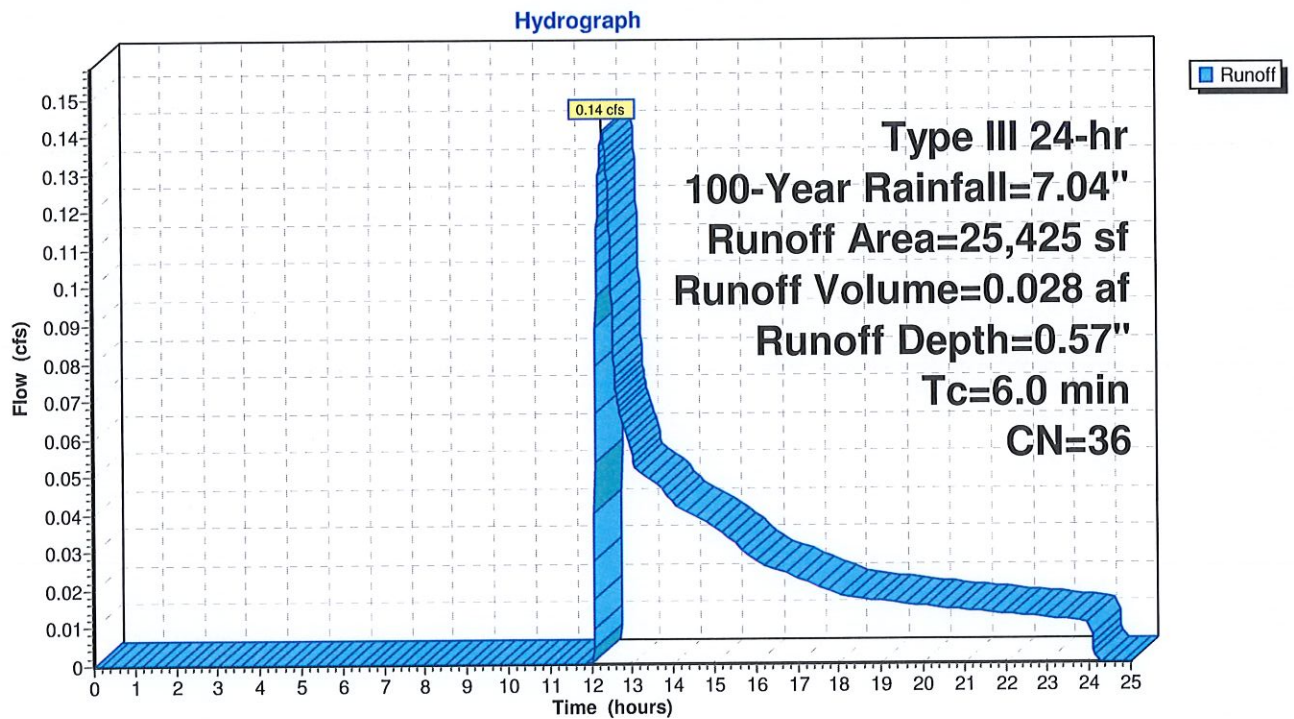
Runoff = 0.14 cfs @ 12.33 hrs, Volume= 0.028 af, Depth= 0.57"
Routed to Link 1 : SITE RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.04"

Area (sf)	CN	Description
25,425	36	Woods, Fair, HSG A
25,425		100.00% Pervious Area

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

Subcatchment 1W: VACANT PROPERTY - LEASED LAND

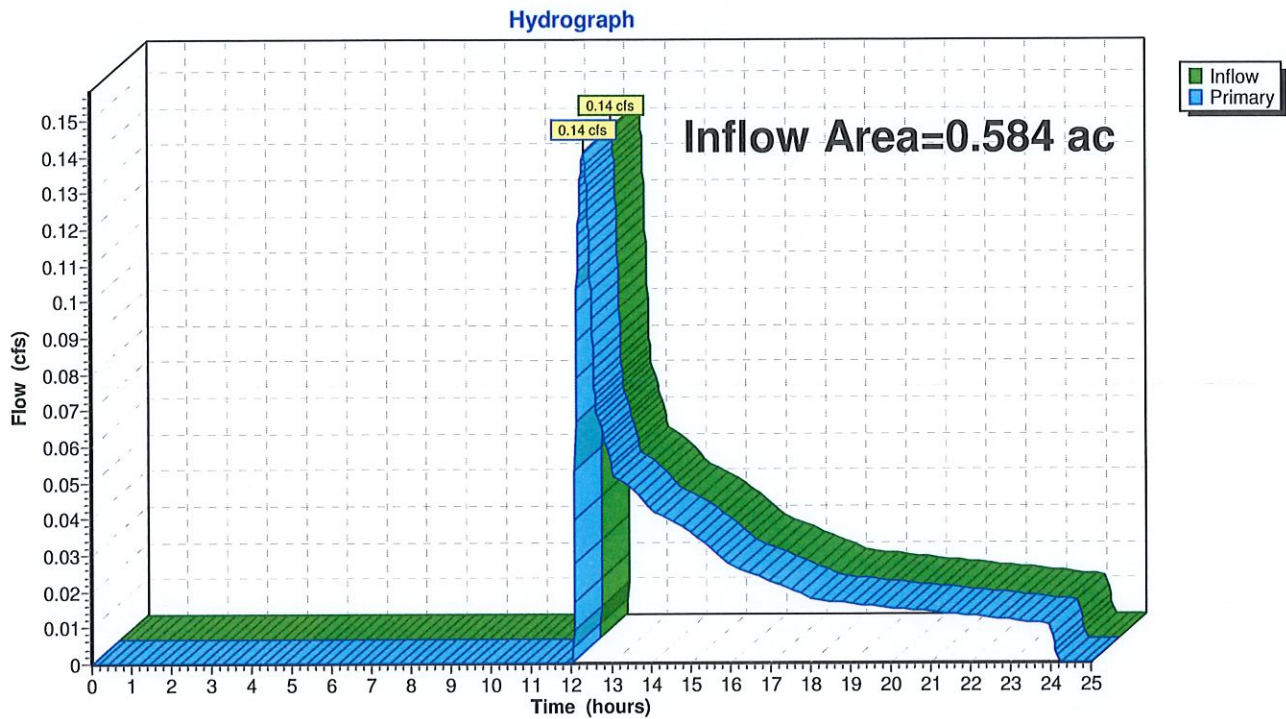


Summary for Link 1: SITE RUNOFF

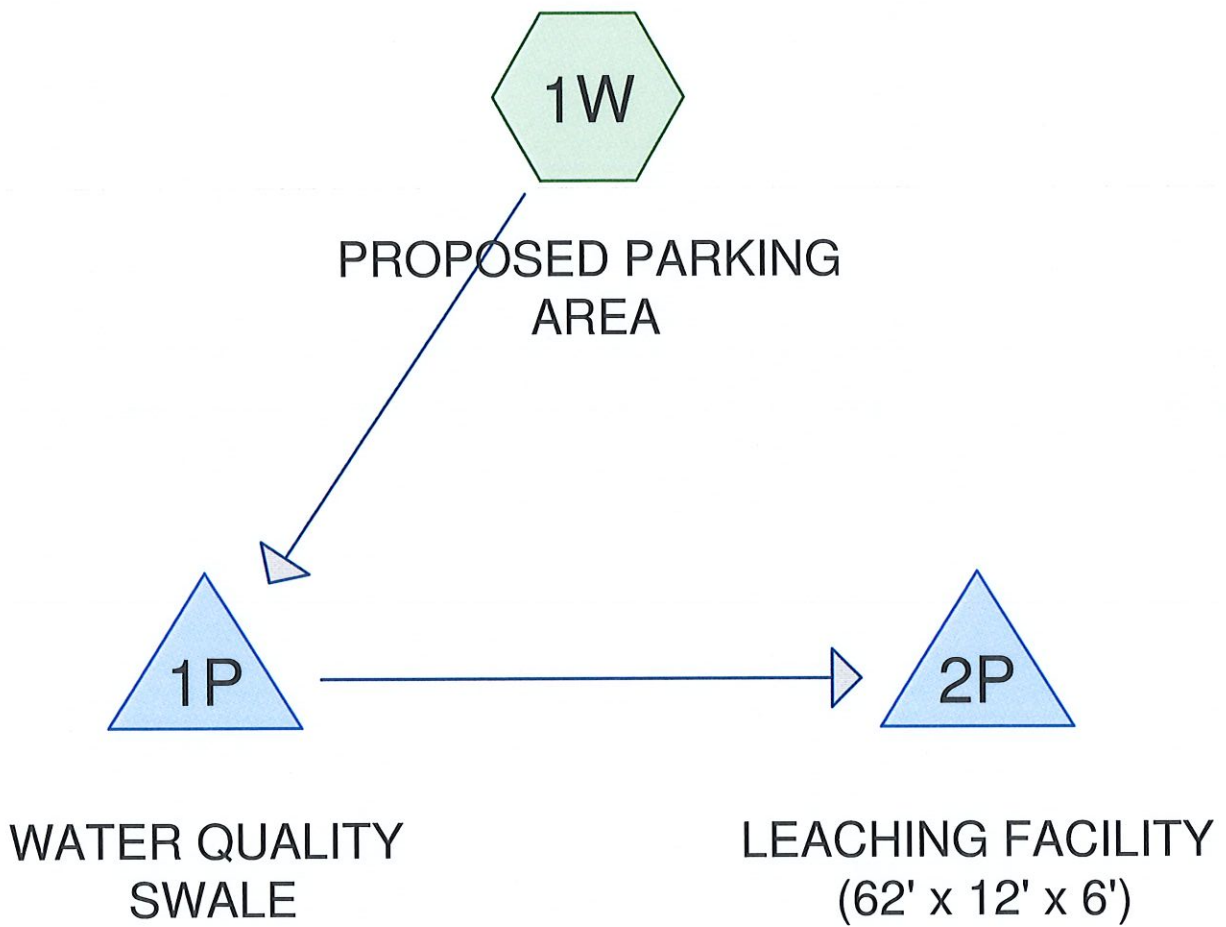
Inflow Area = 0.584 ac, 0.00% Impervious, Inflow Depth = 0.57" for 100-Year event
Inflow = 0.14 cfs @ 12.33 hrs, Volume= 0.028 af
Primary = 0.14 cfs @ 12.33 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node LP

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 1: SITE RUNOFF



POST-CONSTRUCTION WATERSHEDS



Routing Diagram for POST-DEV - PARKING AREA
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POST-DEV - PARKING AREA

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.26	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.72	2
3	25-Year	Type III 24-hr		Default	24.00	1	5.64	2
4	100-Year	Type III 24-hr		Default	24.00	1	7.04	2

POST-DEV - PARKING AREA

Type III 24-hr 2-Year Rainfall=3.26"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1W: PROPOSED PARKING Runoff Area=25,425 sf 70.75% Impervious Runoff Depth=1.52"
Tc=6.0 min CN=81 Runoff=1.03 cfs 0.074 af

Pond 1P: WATER QUALITY SWALE Peak Elev=49.10' Storage=1,112 cf Inflow=1.03 cfs 0.074 af
Discarded=0.12 cfs 0.074 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.074 af

Pond 2P: LEACHING FACILITY (62' x 12' x 6') Peak Elev=40.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 0.584 ac Runoff Volume = 0.074 af Average Runoff Depth = 1.52"
29.25% Pervious = 0.171 ac 70.75% Impervious = 0.413 ac

POST-DEV - PARKING AREA

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Type III 24-hr 2-Year Rainfall=3.26"

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Summary for Subcatchment 1W: PROPOSED PARKING AREA

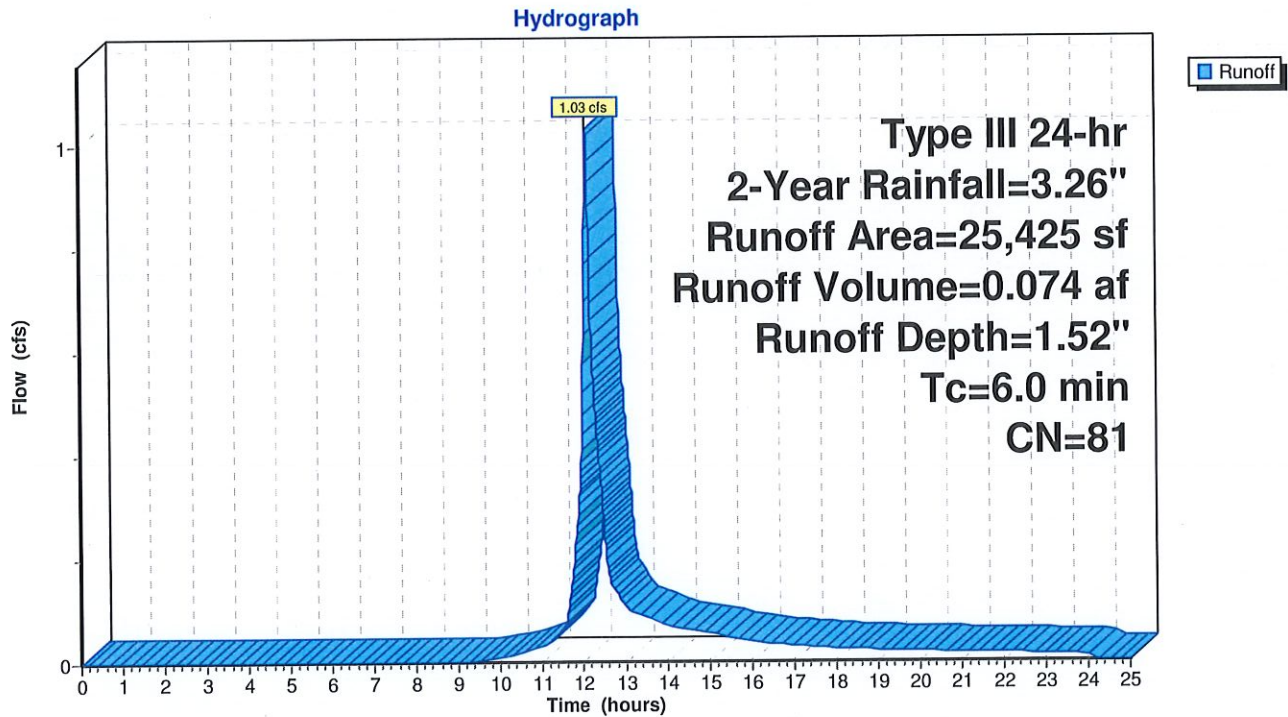
Runoff = 1.03 cfs @ 12.09 hrs, Volume= 0.074 af, Depth= 1.52"
 Routed to Pond 1P : WATER QUALITY SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
17,987	98	Paved parking, HSG A
7,438	39	>75% Grass cover, Good, HSG A
25,425	81	Weighted Average
7,438		29.25% Pervious Area
17,987		70.75% Impervious Area

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

Subcatchment 1W: PROPOSED PARKING AREA



POST-DEV - PARKING AREA

Type III 24-hr 2-Year Rainfall=3.26"

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Summary for Pond 1P: WATER QUALITY SWALE

Inflow Area = 0.584 ac, 70.75% Impervious, Inflow Depth = 1.52" for 2-Year event
 Inflow = 1.03 cfs @ 12.09 hrs, Volume= 0.074 af
 Outflow = 0.12 cfs @ 12.93 hrs, Volume= 0.074 af, Atten= 89%, Lag= 50.6 min
 Discarded = 0.12 cfs @ 12.93 hrs, Volume= 0.074 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 2P : LEACHING FACILITY (62' x 12' x 6')

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 49.10' @ 12.93 hrs Surf.Area= 614 sf Storage= 1,112 cf

Plug-Flow detention time= 78.5 min calculated for 0.074 af (100% of inflow)
 Center-of-Mass det. time= 78.5 min (917.1 - 838.6)

Volume	Invert	Avail.Storage	Storage Description			
#1	44.00'	2,182 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
44.00	600	212.0	0.0	0	0	600
45.00	600	212.0	45.0	270	270	812
46.00	600	212.0	45.0	270	540	1,024
47.00	600	212.0	45.0	270	810	1,236
49.00	600	212.0	20.0	240	1,050	1,660
49.80	717	210.0	100.0	526	1,576	1,842
50.00	803	214.0	100.0	152	1,728	1,983
50.50	1,019	219.0	100.0	454	2,182	2,187

Device	Routing	Invert	Outlet Devices	
#1	Discarded	44.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'	
#2	Primary	49.80'	12.0" Horiz. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads	

Discarded OutFlow Max=0.12 cfs @ 12.93 hrs HW=49.10' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' TW=40.50' (Dynamic Tailwater)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

POST-DEV - PARKING AREA

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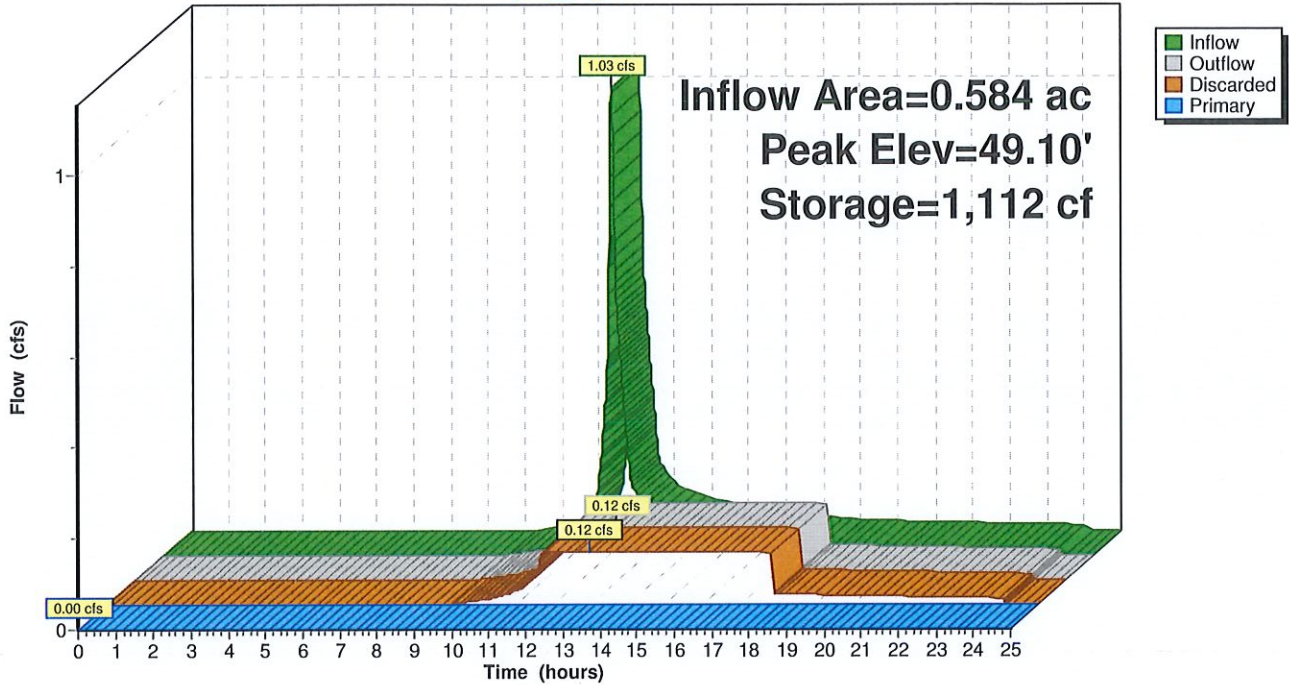
Type III 24-hr 2-Year Rainfall=3.26"

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Pond 1P: WATER QUALITY SWALE

Hydrograph



POST-DEV - PARKING AREA

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Type III 24-hr 2-Year Rainfall=3.26"

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Summary for Pond 2P: LEACHING FACILITY (62' x 12' x 6')

Inflow Area = 0.584 ac, 70.75% Impervious, Inflow Depth = 0.00" for 2-Year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 40.50' @ 0.00 hrs Surf.Area= 744 sf Storage= 0 cf

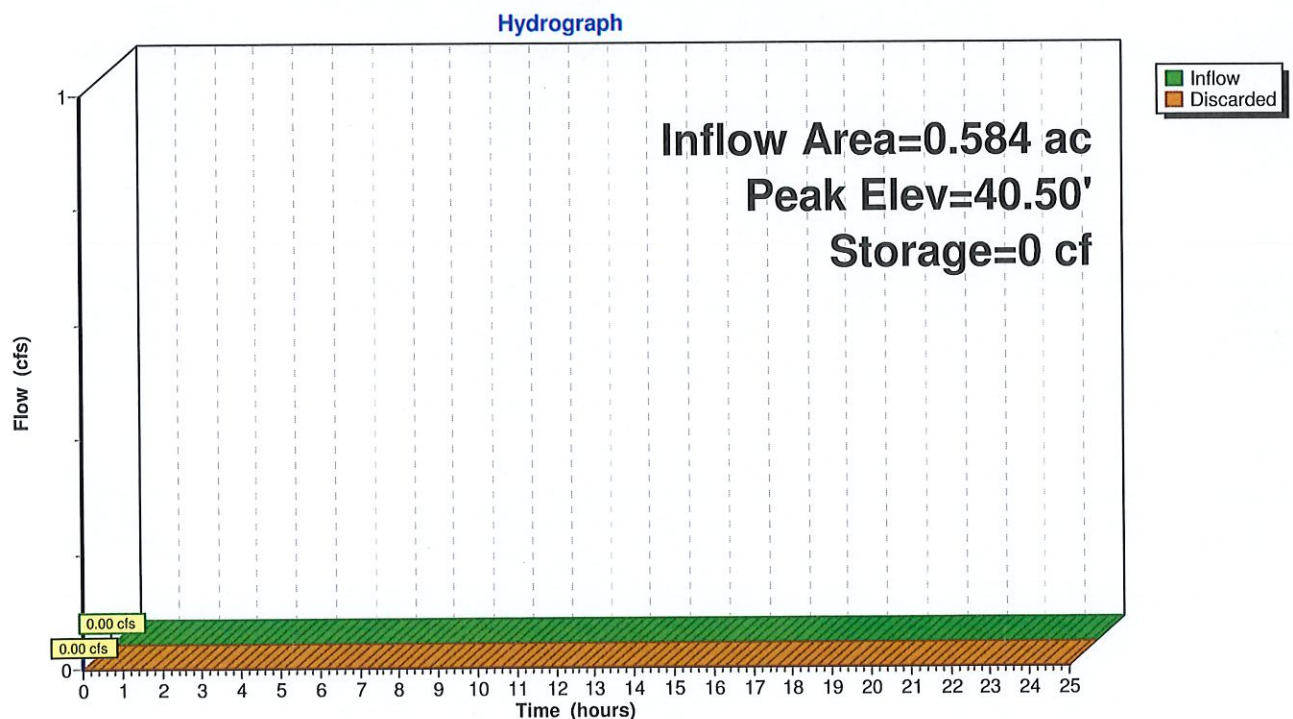
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	40.50'	1,018 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 6 Inside #2 1,195 cf Overall - 3.0" Wall Thickness = 1,018 cf
#2	40.50'	1,471 cf	12.00'W x 62.00'L x 6.00'H Prismaoid 4,464 cf Overall - 1,195 cf Embedded = 3,269 cf x 45.0% Voids
		2,489 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	40.50'	8.270 in/hr Exfiltration over Wetted area Phase-In= 0.01'

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=40.50' (Free Discharge)
 ↑1=Exfiltration (Controls 0.00 cfs)

Pond 2P: LEACHING FACILITY (62' x 12' x 6')



POST-DEV - PARKING AREA

Type III 24-hr 10-Year Rainfall=4.72"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1W: PROPOSED PARKING Runoff Area=25,425 sf 70.75% Impervious Runoff Depth=2.74"
Tc=6.0 min CN=81 Runoff=1.87 cfs 0.133 af

Pond 1P: WATER QUALITY SWALE Peak Elev=49.91' Storage=1,657 cf Inflow=1.87 cfs 0.133 af
Discarded=0.15 cfs 0.113 af Primary=0.75 cfs 0.020 af Outflow=0.90 cfs 0.133 af

Pond 2P: LEACHING FACILITY (62' x 12' x 6') Peak Elev=41.61' Storage=461 cf Inflow=0.75 cfs 0.020 af
Outflow=0.17 cfs 0.020 af

Total Runoff Area = 0.584 ac Runoff Volume = 0.133 af Average Runoff Depth = 2.74"
29.25% Pervious = 0.171 ac 70.75% Impervious = 0.413 ac

POST-DEV - PARKING AREA

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Type III 24-hr 10-Year Rainfall=4.72"

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Summary for Subcatchment 1W: PROPOSED PARKING AREA

Runoff = 1.87 cfs @ 12.09 hrs, Volume= 0.133 af, Depth= 2.74"
Routed to Pond 1P : WATER QUALITY SWALE

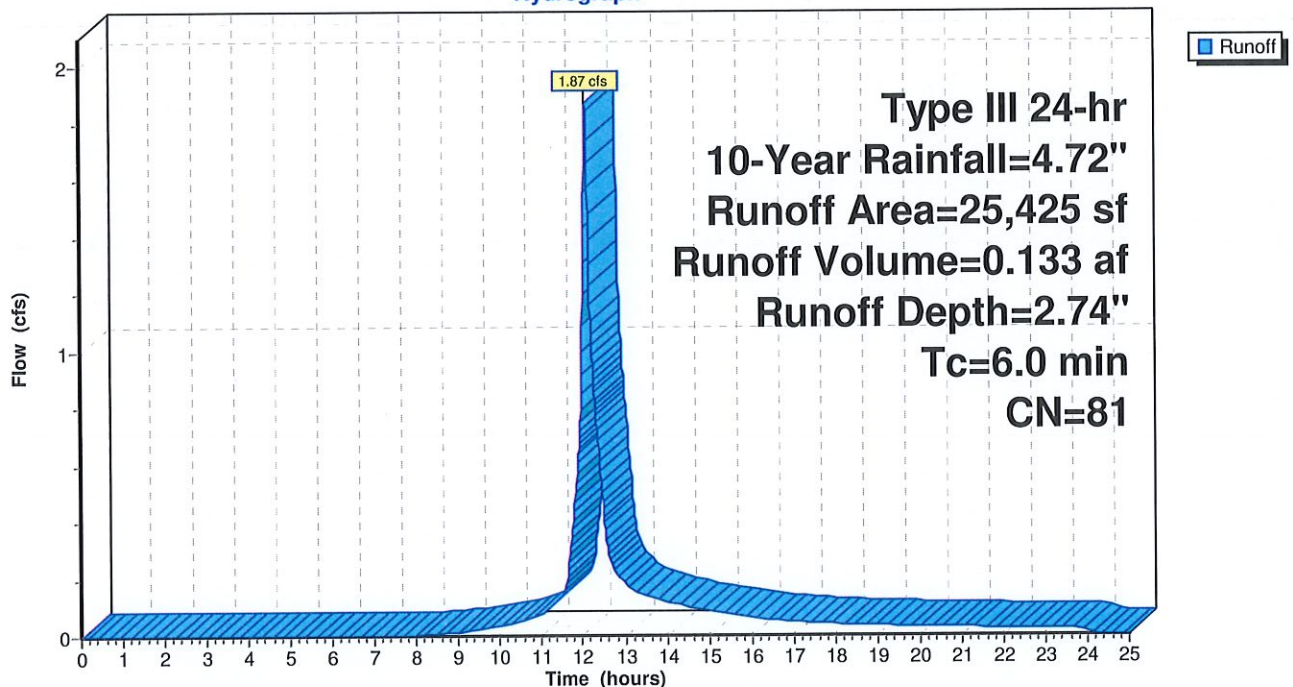
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.72"

Area (sf)	CN	Description
17,987	98	Paved parking, HSG A
7,438	39	>75% Grass cover, Good, HSG A
25,425	81	Weighted Average
7,438		29.25% Pervious Area
17,987		70.75% Impervious Area

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

Subcatchment 1W: PROPOSED PARKING AREA

Hydrograph



POST-DEV - PARKING AREA

Type III 24-hr 10-Year Rainfall=4.72"

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Summary for Pond 1P: WATER QUALITY SWALE

Inflow Area = 0.584 ac, 70.75% Impervious, Inflow Depth = 2.74" for 10-Year event
 Inflow = 1.87 cfs @ 12.09 hrs, Volume= 0.133 af
 Outflow = 0.90 cfs @ 12.26 hrs, Volume= 0.133 af, Atten= 52%, Lag= 10.5 min
 Discarded = 0.15 cfs @ 12.26 hrs, Volume= 0.113 af
 Primary = 0.75 cfs @ 12.26 hrs, Volume= 0.020 af
 Routed to Pond 2P : LEACHING FACILITY (62' x 12' x 6')

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 49.91' @ 12.26 hrs Surf.Area= 764 sf Storage= 1,657 cf

Plug-Flow detention time= 95.4 min calculated for 0.133 af (100% of inflow)
 Center-of-Mass det. time= 95.4 min (916.9 - 821.5)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	2,182 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
44.00	600	212.0	0.0	0	0	600
45.00	600	212.0	45.0	270	270	812
46.00	600	212.0	45.0	270	540	1,024
47.00	600	212.0	45.0	270	810	1,236
49.00	600	212.0	20.0	240	1,050	1,660
49.80	717	210.0	100.0	526	1,576	1,842
50.00	803	214.0	100.0	152	1,728	1,983
50.50	1,019	219.0	100.0	454	2,182	2,187

Device	Routing	Invert	Outlet Devices
#1	Discarded	44.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	49.80'	12.0" Horiz. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.15 cfs @ 12.26 hrs HW=49.91' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=0.75 cfs @ 12.26 hrs HW=49.91' TW=40.73' (Dynamic Tailwater)
 ↑2=Orifice/Grate (Weir Controls 0.75 cfs @ 1.08 fps)

POST-DEV - PARKING AREA

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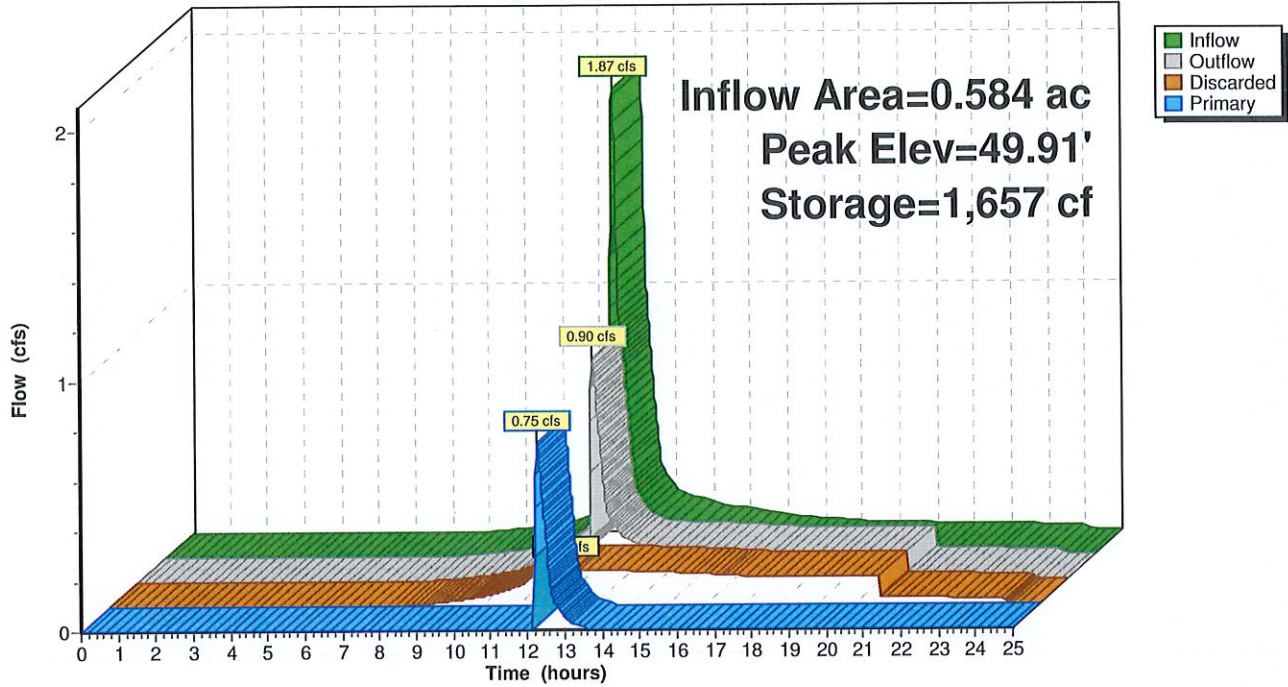
Type III 24-hr 10-Year Rainfall=4.72"

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Pond 1P: WATER QUALITY SWALE

Hydrograph



POST-DEV - PARKING AREA

Type III 24-hr 10-Year Rainfall=4.72"

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Summary for Pond 2P: LEACHING FACILITY (62' x 12' x 6')

Inflow Area = 0.584 ac, 70.75% Impervious, Inflow Depth = 0.42" for 10-Year event
 Inflow = 0.75 cfs @ 12.26 hrs, Volume= 0.020 af
 Outflow = 0.17 cfs @ 12.61 hrs, Volume= 0.020 af, Atten= 77%, Lag= 20.7 min
 Discarded = 0.17 cfs @ 12.61 hrs, Volume= 0.020 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 41.61' @ 12.61 hrs Surf.Area= 744 sf Storage= 461 cf

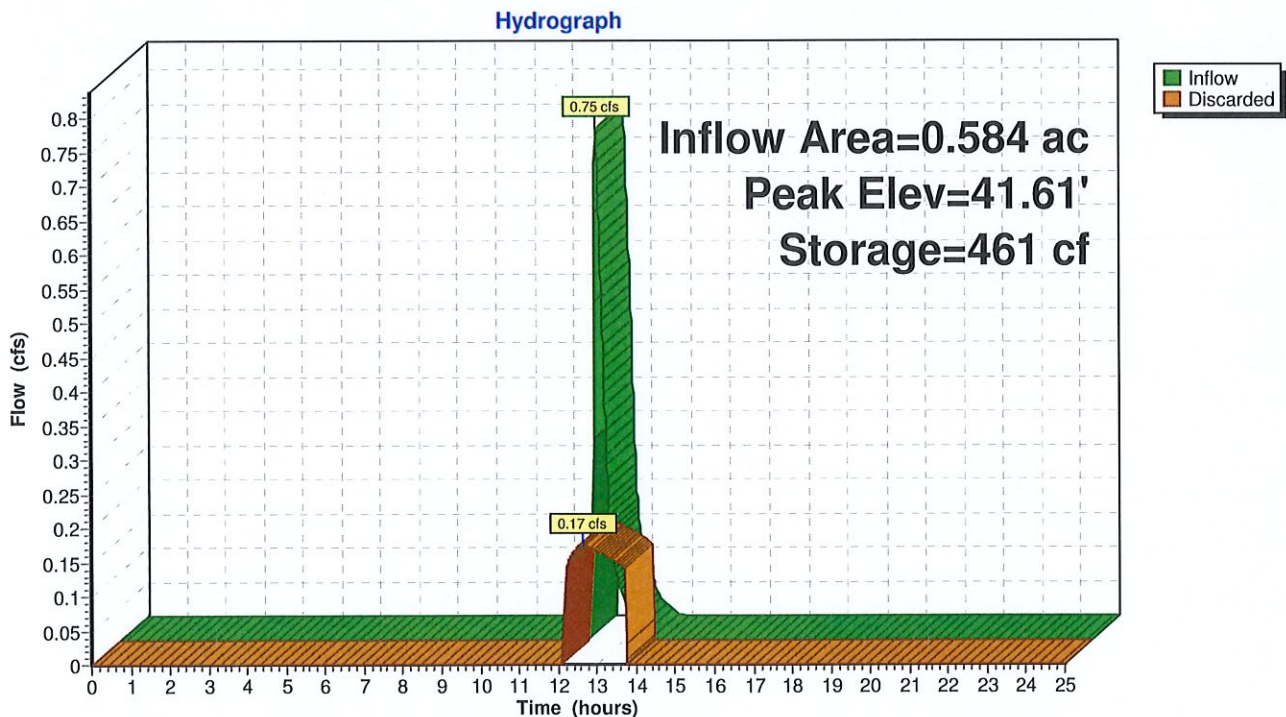
Plug-Flow detention time= 28.4 min calculated for 0.020 af (100% of inflow)
 Center-of-Mass det. time= 28.3 min (777.1 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	40.50'	1,018 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 6 Inside #2 1,195 cf Overall - 3.0" Wall Thickness = 1,018 cf
#2	40.50'	1,471 cf	12.00'W x 62.00'L x 6.00'H Prismaoid 4,464 cf Overall - 1,195 cf Embedded = 3,269 cf x 45.0% Voids
		2,489 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	40.50'	8.270 in/hr Exfiltration over Wetted area Phase-In= 0.01'

Discarded OutFlow Max=0.17 cfs @ 12.61 hrs HW=41.61' (Free Discharge)
 ↳ **1=Exfiltration** (Exfiltration Controls 0.17 cfs)

Pond 2P: LEACHING FACILITY (62' x 12' x 6')



POST-DEV - PARKING AREA

Type III 24-hr 25-Year Rainfall=5.64"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1W: PROPOSED PARKING Runoff Area=25,425 sf 70.75% Impervious Runoff Depth=3.56"
Tc=6.0 min CN=81 Runoff=2.42 cfs 0.173 af

Pond 1P: WATER QUALITY SWALE Peak Elev=50.00' Storage=1,726 cf Inflow=2.42 cfs 0.173 af
Discarded=0.15 cfs 0.128 af Primary=1.80 cfs 0.045 af Outflow=1.95 cfs 0.173 af

Pond 2P: LEACHING FACILITY (62' x 12' x 6') Peak Elev=43.41' Storage=1,206 cf Inflow=1.80 cfs 0.045 af
Outflow=0.22 cfs 0.045 af

Total Runoff Area = 0.584 ac Runoff Volume = 0.173 af Average Runoff Depth = 3.56"
29.25% Pervious = 0.171 ac 70.75% Impervious = 0.413 ac

POST-DEV - PARKING AREA

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Type III 24-hr 25-Year Rainfall=5.64"

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Summary for Subcatchment 1W: PROPOSED PARKING AREA

Runoff = 2.42 cfs @ 12.09 hrs, Volume= 0.173 af, Depth= 3.56"
 Routed to Pond 1P : WATER QUALITY SWALE

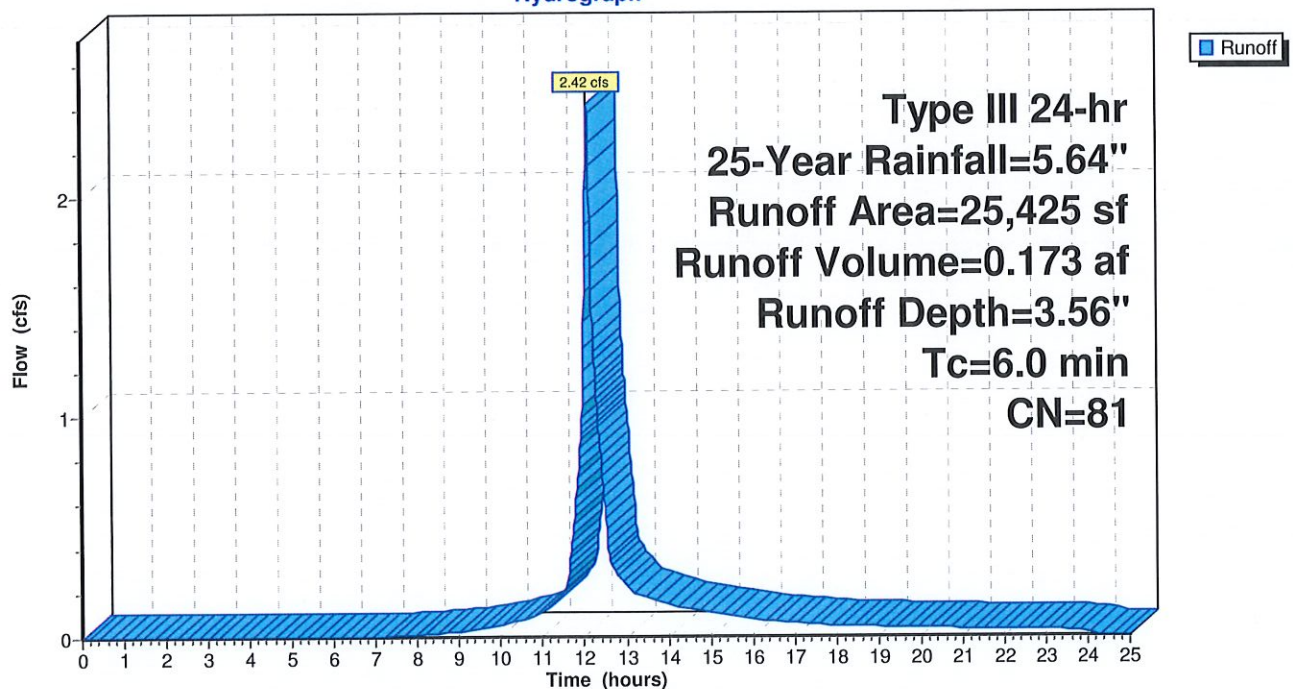
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=5.64"

Area (sf)	CN	Description
17,987	98	Paved parking, HSG A
7,438	39	>75% Grass cover, Good, HSG A
25,425	81	Weighted Average
7,438		29.25% Pervious Area
17,987		70.75% Impervious Area

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

Subcatchment 1W: PROPOSED PARKING AREA

Hydrograph



POST-DEV - PARKING AREA

Type III 24-hr 25-Year Rainfall=5.64"

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Summary for Pond 1P: WATER QUALITY SWALE

Inflow Area = 0.584 ac, 70.75% Impervious, Inflow Depth = 3.56" for 25-Year event
 Inflow = 2.42 cfs @ 12.09 hrs, Volume= 0.173 af
 Outflow = 1.95 cfs @ 12.15 hrs, Volume= 0.173 af, Atten= 20%, Lag= 3.6 min
 Discarded = 0.15 cfs @ 12.15 hrs, Volume= 0.128 af
 Primary = 1.80 cfs @ 12.15 hrs, Volume= 0.045 af
 Routed to Pond 2P : LEACHING FACILITY (62' x 12' x 6')

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 50.00' @ 12.15 hrs Surf.Area= 802 sf Storage= 1,726 cf

Plug-Flow detention time= 85.1 min calculated for 0.173 af (100% of inflow)
 Center-of-Mass det. time= 85.1 min (899.2 - 814.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	44.00'	2,182 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
44.00	600	212.0	0.0	0	0	600
45.00	600	212.0	45.0	270	270	812
46.00	600	212.0	45.0	270	540	1,024
47.00	600	212.0	45.0	270	810	1,236
49.00	600	212.0	20.0	240	1,050	1,660
49.80	717	210.0	100.0	526	1,576	1,842
50.00	803	214.0	100.0	152	1,728	1,983
50.50	1,019	219.0	100.0	454	2,182	2,187

Device	Routing	Invert	Outlet Devices	
#1	Discarded	44.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'	
#2	Primary	49.80'	12.0" Horiz. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads	

Discarded OutFlow Max=0.15 cfs @ 12.15 hrs HW=50.00' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=1.79 cfs @ 12.15 hrs HW=50.00' TW=40.96' (Dynamic Tailwater)
 ↑**2=Orifice/Grate** (Weir Controls 1.79 cfs @ 1.45 fps)

POST-DEV - PARKING AREA

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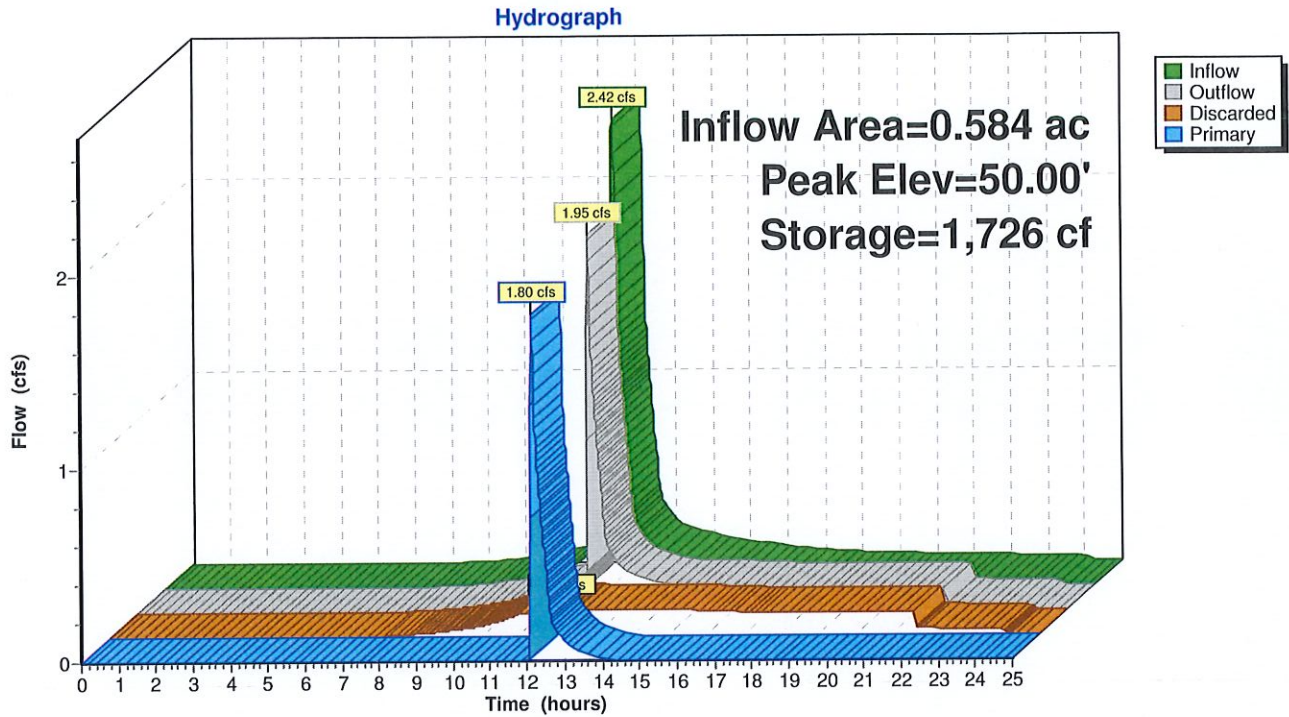
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Type III 24-hr 25-Year Rainfall=5.64"

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Pond 1P: WATER QUALITY SWALE



POST-DEV - PARKING AREA

Type III 24-hr 25-Year Rainfall=5.64"

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Summary for Pond 2P: LEACHING FACILITY (62' x 12' x 6')

Inflow Area = 0.584 ac, 70.75% Impervious, Inflow Depth = 0.92" for 25-Year event
 Inflow = 1.80 cfs @ 12.15 hrs, Volume= 0.045 af
 Outflow = 0.22 cfs @ 12.63 hrs, Volume= 0.045 af, Atten= 87%, Lag= 28.9 min
 Discarded = 0.22 cfs @ 12.63 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 43.41' @ 12.63 hrs Surf.Area= 744 sf Storage= 1,206 cf

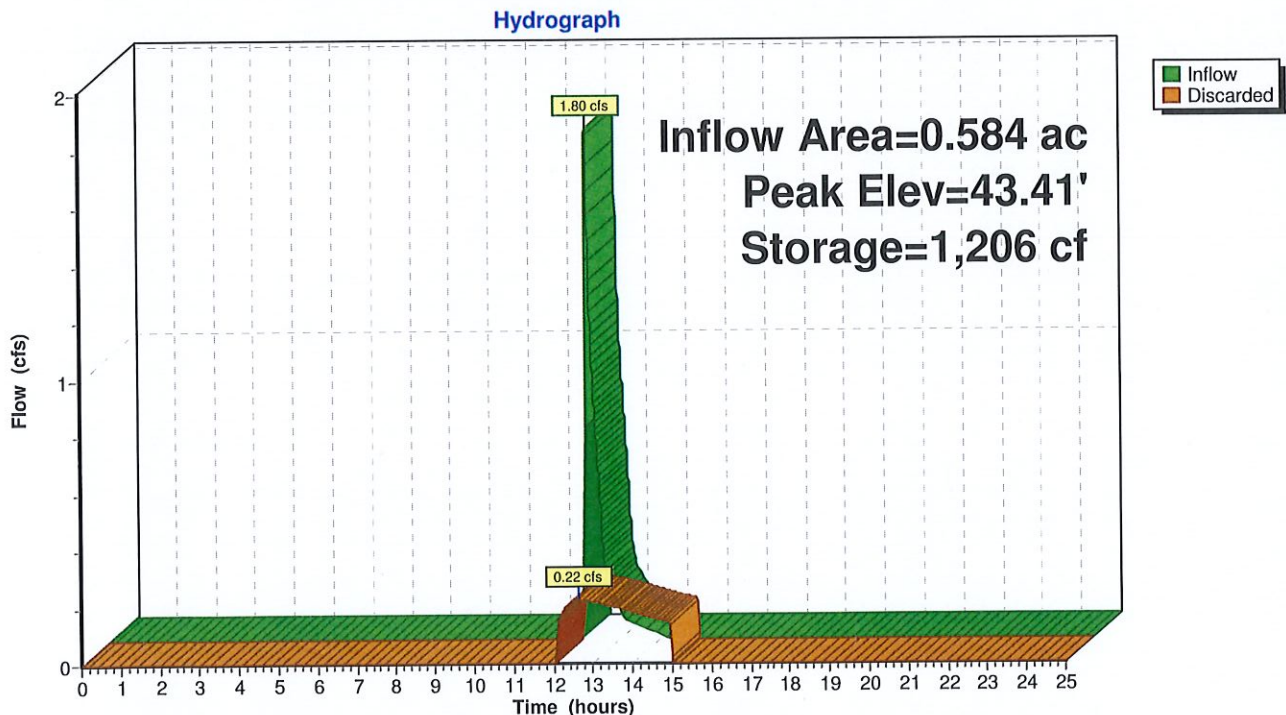
Plug-Flow detention time= 60.7 min calculated for 0.045 af (100% of inflow)
 Center-of-Mass det. time= 60.7 min (807.2 - 746.5)

Volume	Invert	Avail.Storage	Storage Description
#1	40.50'	1,018 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 6 Inside #2 1,195 cf Overall - 3.0" Wall Thickness = 1,018 cf
#2	40.50'	1,471 cf	12.00'W x 62.00'L x 6.00'H Prismaoid 4,464 cf Overall - 1,195 cf Embedded = 3,269 cf x 45.0% Voids
		2,489 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	40.50'	8.270 in/hr Exfiltration over Wetted area Phase-In= 0.01'

Discarded OutFlow Max=0.22 cfs @ 12.63 hrs HW=43.41' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.22 cfs)

Pond 2P: LEACHING FACILITY (62' x 12' x 6')



POST-DEV - PARKING AREA

Type III 24-hr 100-Year Rainfall=7.04"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1W: PROPOSED PARKING Runoff Area=25,425 sf 70.75% Impervious Runoff Depth=4.84"
Tc=6.0 min CN=81 Runoff=3.27 cfs 0.236 af

Pond 1P: WATER QUALITY SWALE Peak Elev=50.08' Storage=1,794 cf Inflow=3.27 cfs 0.236 af
Discarded=0.16 cfs 0.147 af Primary=3.05 cfs 0.088 af Outflow=3.21 cfs 0.236 af

Pond 2P: LEACHING FACILITY (62' x 12' x 6') Peak Elev=46.45' Storage=2,466 cf Inflow=3.05 cfs 0.088 af
Outflow=0.31 cfs 0.088 af

Total Runoff Area = 0.584 ac Runoff Volume = 0.236 af Average Runoff Depth = 4.84"
29.25% Pervious = 0.171 ac 70.75% Impervious = 0.413 ac

POST-DEV - PARKING AREA

Type III 24-hr 100-Year Rainfall=7.04"

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Summary for Subcatchment 1W: PROPOSED PARKING AREA

Runoff = 3.27 cfs @ 12.09 hrs, Volume= 0.236 af, Depth= 4.84"
 Routed to Pond 1P : WATER QUALITY SWALE

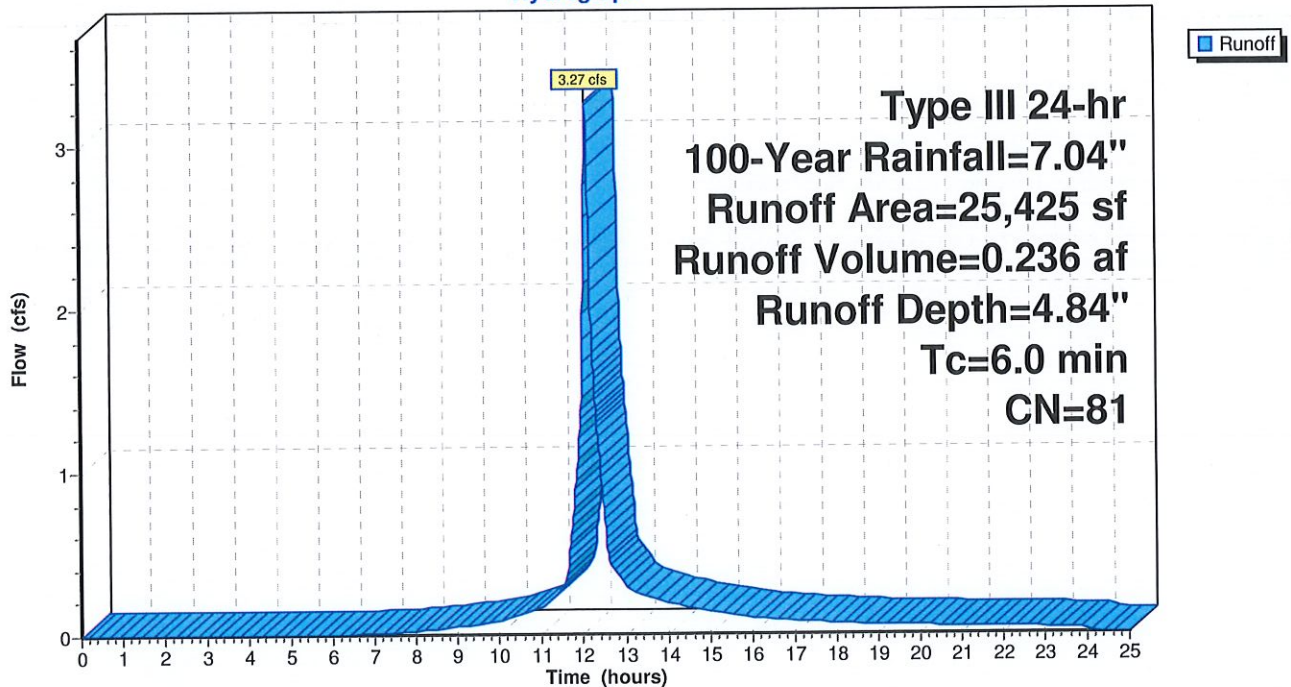
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Rainfall=7.04"

Area (sf)	CN	Description
17,987	98	Paved parking, HSG A
7,438	39	>75% Grass cover, Good, HSG A
25,425	81	Weighted Average
7,438		29.25% Pervious Area
17,987		70.75% Impervious Area

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

Subcatchment 1W: PROPOSED PARKING AREA

Hydrograph



POST-DEV - PARKING AREA

Type III 24-hr 100-Year Rainfall=7.04"

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Summary for Pond 1P: WATER QUALITY SWALE

Inflow Area = 0.584 ac, 70.75% Impervious, Inflow Depth = 4.84" for 100-Year event
 Inflow = 3.27 cfs @ 12.09 hrs, Volume= 0.236 af
 Outflow = 3.21 cfs @ 12.10 hrs, Volume= 0.236 af, Atten= 2%, Lag= 0.9 min
 Discarded = 0.16 cfs @ 12.10 hrs, Volume= 0.147 af
 Primary = 3.05 cfs @ 12.10 hrs, Volume= 0.088 af
 Routed to Pond 2P : LEACHING FACILITY (62' x 12' x 6')

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 50.08' @ 12.10 hrs Surf.Area= 836 sf Storage= 1,794 cf

Plug-Flow detention time= 74.3 min calculated for 0.235 af (100% of inflow)
 Center-of-Mass det. time= 74.3 min (879.6 - 805.3)

Volume	Invert	Avail.Storage	Storage Description			
#1	44.00'	2,182 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
44.00	600	212.0	0.0	0	0	600
45.00	600	212.0	45.0	270	270	812
46.00	600	212.0	45.0	270	540	1,024
47.00	600	212.0	45.0	270	810	1,236
49.00	600	212.0	20.0	240	1,050	1,660
49.80	717	210.0	100.0	526	1,576	1,842
50.00	803	214.0	100.0	152	1,728	1,983
50.50	1,019	219.0	100.0	454	2,182	2,187

Device	Routing	Invert	Outlet Devices	
#1	Discarded	44.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'	
#2	Primary	49.80'	12.0" Horiz. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads	

Discarded OutFlow Max=0.16 cfs @ 12.10 hrs HW=50.08' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=3.05 cfs @ 12.10 hrs HW=50.08' TW=42.00' (Dynamic Tailwater)
 ↑ **2=Orifice/Grate** (Weir Controls 3.05 cfs @ 1.73 fps)

POST-DEV - PARKING AREA

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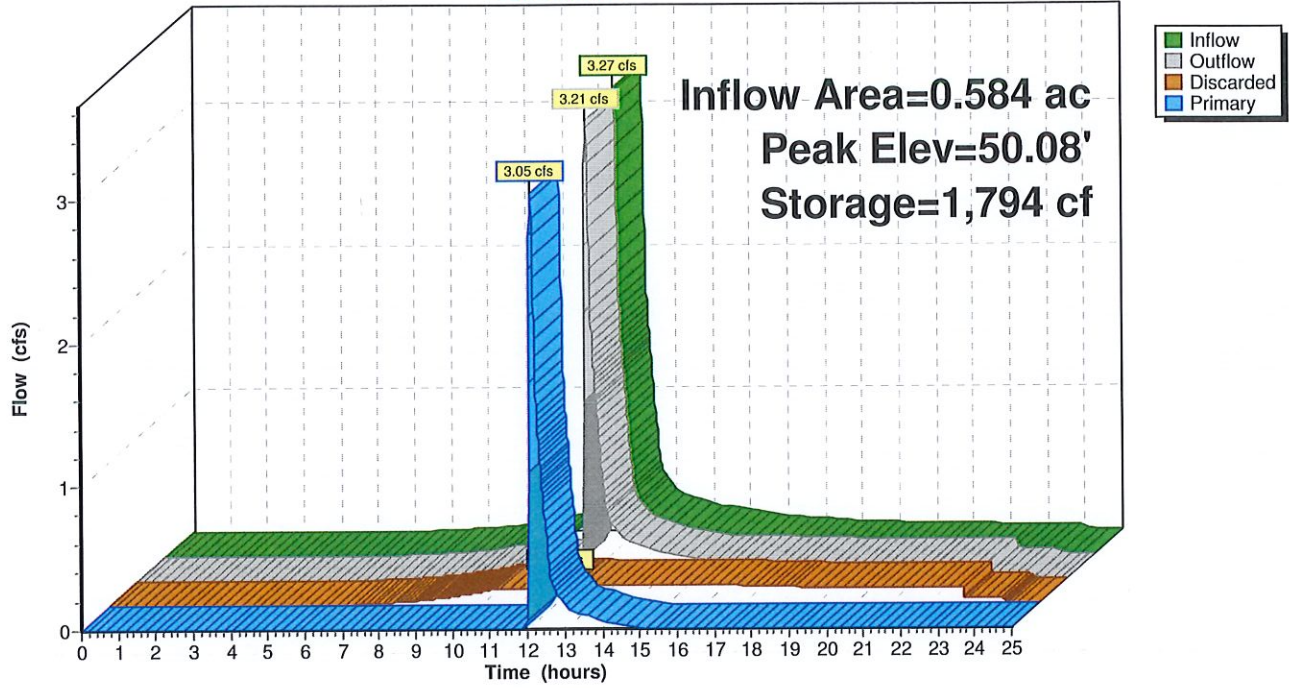
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Pond 1P: WATER QUALITY SWALE

Hydrograph



POST-DEV - PARKING AREA

Type III 24-hr 100-Year Rainfall=7.04"

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Summary for Pond 2P: LEACHING FACILITY (62' x 12' x 6')

Inflow Area = 0.584 ac, 70.75% Impervious, Inflow Depth = 1.81" for 100-Year event
 Inflow = 3.05 cfs @ 12.10 hrs, Volume= 0.088 af
 Outflow = 0.31 cfs @ 12.65 hrs, Volume= 0.088 af, Atten= 90%, Lag= 32.9 min
 Discarded = 0.31 cfs @ 12.65 hrs, Volume= 0.088 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 46.45' @ 12.65 hrs Surf.Area= 744 sf Storage= 2,466 cf

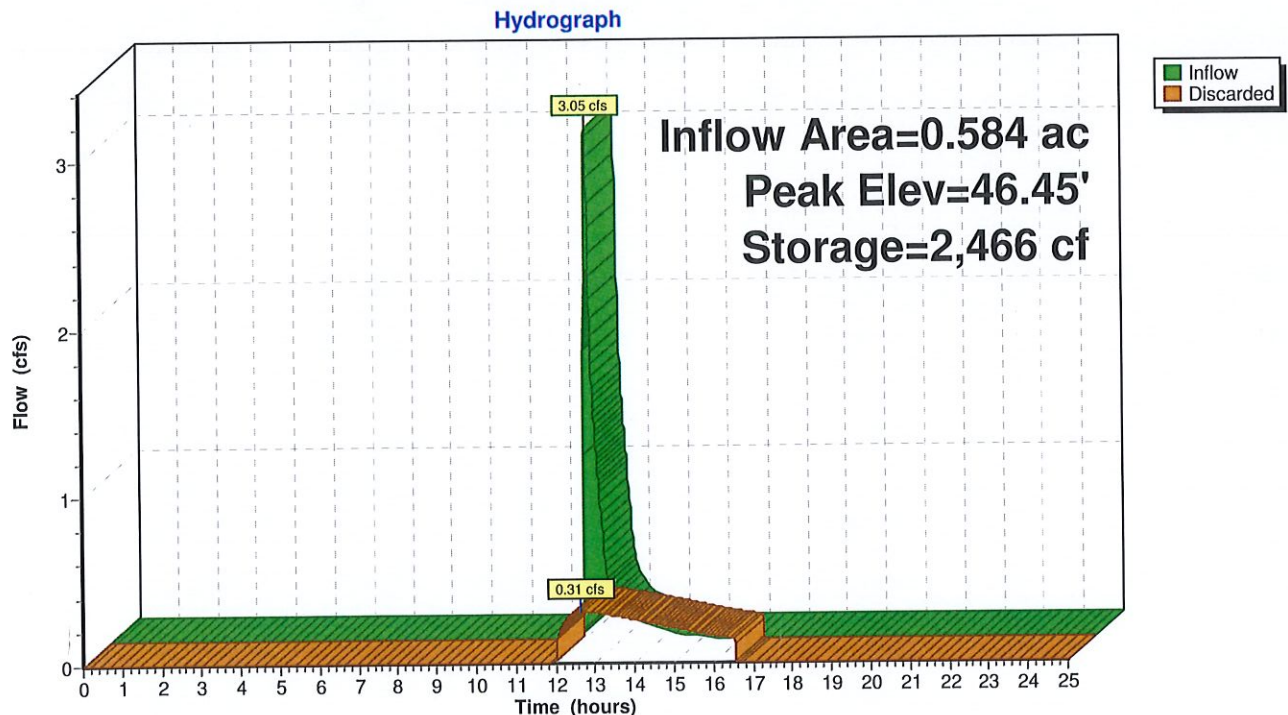
Plug-Flow detention time= 95.2 min calculated for 0.088 af (100% of inflow)
 Center-of-Mass det. time= 95.2 min (842.7 - 747.5)

Volume	Invert	Avail.Storage	Storage Description
#1	40.50'	1,018 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 6 Inside #2 1,195 cf Overall - 3.0" Wall Thickness = 1,018 cf
#2	40.50'	1,471 cf	12.00'W x 62.00'L x 6.00'H Prismatic 4,464 cf Overall - 1,195 cf Embedded = 3,269 cf x 45.0% Voids
		2,489 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	40.50'	8.270 in/hr Exfiltration over Wetted area Phase-In= 0.01'

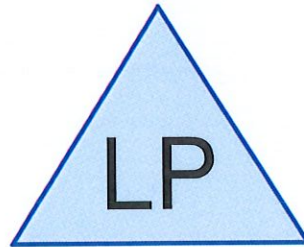
Discarded OutFlow Max=0.31 cfs @ 12.65 hrs HW=46.45' (Free Discharge)
 ↑=Exfiltration (Exfiltration Controls 0.31 cfs)

Pond 2P: LEACHING FACILITY (62' x 12' x 6')

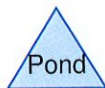




PROPOSED
DRIVEWAY



LOW POINT NORTH
OF PROJECT SITE



Routing Diagram for POST-DEV - DRIVEWAY ACCESS
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POST-DEV - DRIVEWAY ACCESS

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.26	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.72	2
3	25-Year	Type III 24-hr		Default	24.00	1	5.64	2
4	100-Year	Type III 24-hr		Default	24.00	1	7.04	2

POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 2-Year Rainfall=3.26"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2W: PROPOSED

Runoff Area=1,195 sf 100.00% Impervious Runoff Depth=3.03"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Pond LP: LOW POINT NORTH OF PROJECT

Peak Elev=39.03' Storage=10 cf Inflow=0.09 cfs 0.007 af
Outflow=0.06 cfs 0.007 af

Total Runoff Area = 0.027 ac Runoff Volume = 0.007 af Average Runoff Depth = 3.03"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.027 ac

POST-DEV - DRIVEWAY ACCESS

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Type III 24-hr 2-Year Rainfall=3.26"

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Summary for Subcatchment 2W: PROPOSED DRIVEWAY

Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.03"
 Routed to Pond LP : LOW POINT NORTH OF PROJECT SITE

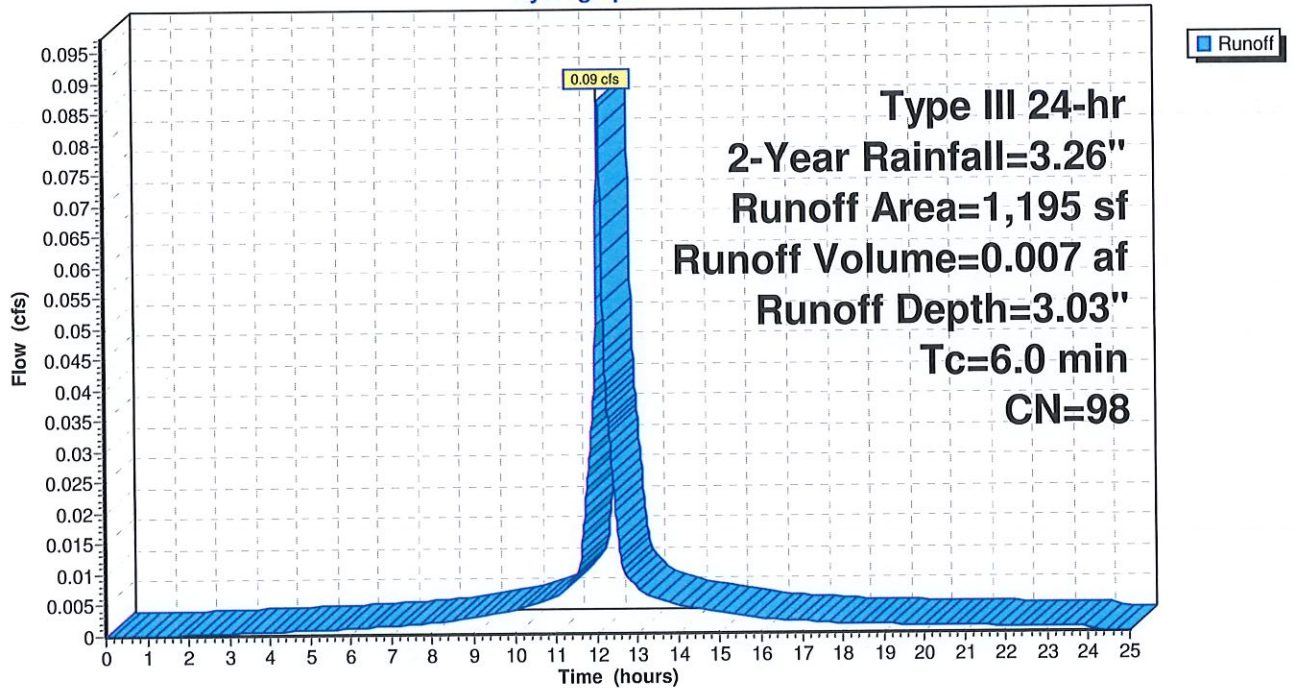
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.26"

Area (sf)	CN	Description
1,195	98	Paved parking, HSG A
1,195		100.00% Impervious Area

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

Subcatchment 2W: PROPOSED DRIVEWAY

Hydrograph



POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 2-Year Rainfall=3.26"

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Summary for Pond LP: LOW POINT NORTH OF PROJECT SITE

Inflow Area = 0.027 ac, 100.00% Impervious, Inflow Depth = 3.03" for 2-Year event
 Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af
 Outflow = 0.06 cfs @ 12.15 hrs, Volume= 0.007 af, Atten= 26%, Lag= 4.2 min
 Discarded = 0.06 cfs @ 12.15 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 39.03' @ 12.15 hrs Surf.Area= 332 sf Storage= 10 cf

Plug-Flow detention time= 1.1 min calculated for 0.007 af (100% of inflow)
 Center-of-Mass det. time= 1.1 min (757.1 - 756.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	39.00'	4,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
39.00	325	104.0	0.0	0	0	325
40.00	580	128.0	100.0	446	446	783
42.00	1,611	175.0	100.0	2,105	2,551	1,956
43.00	2,344	196.0	100.0	1,966	4,518	2,603

Device	Routing	Invert	Outlet Devices	
#1	Discarded	39.00'	8.270 in/hr Exfiltration over Wetted area	Phase-In= 0.01'

Discarded OutFlow Max=0.06 cfs @ 12.15 hrs HW=39.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

POST-DEV - DRIVEWAY ACCESS

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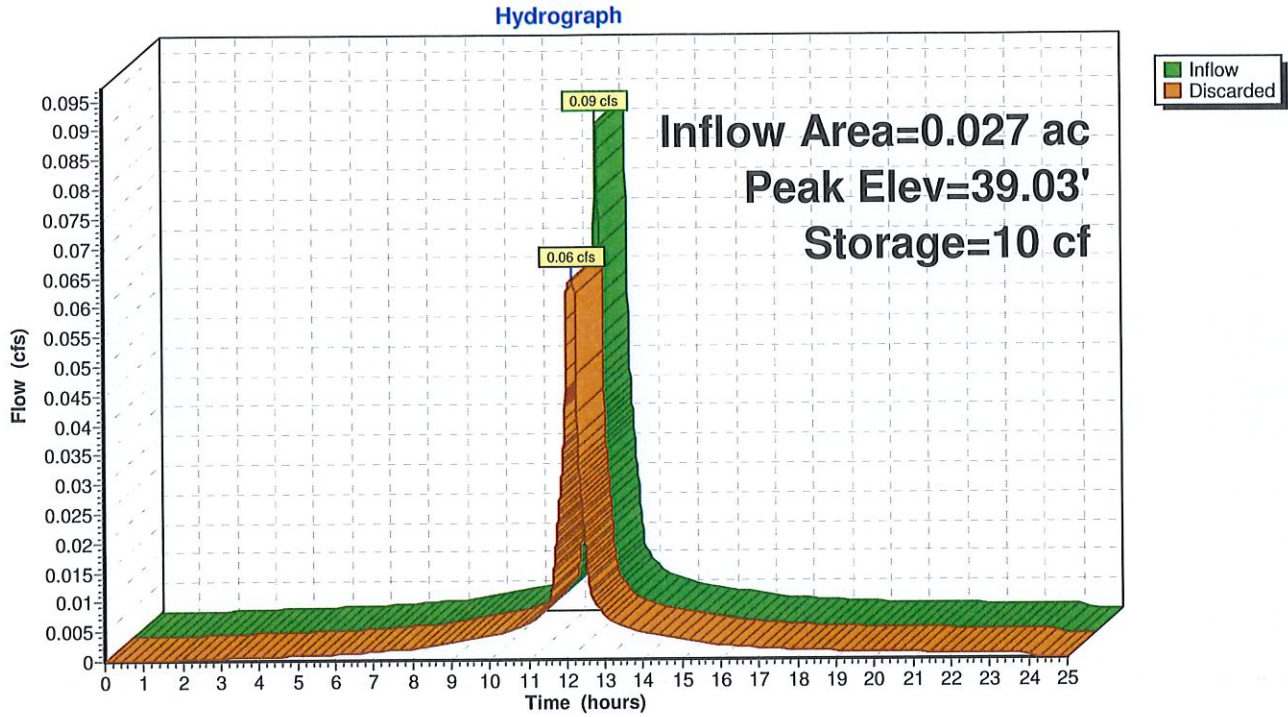
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Type III 24-hr 2-Year Rainfall=3.26"

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Pond LP: LOW POINT NORTH OF PROJECT SITE



POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 10-Year Rainfall=4.72"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2W: PROPOSED

Runoff Area=1,195 sf 100.00% Impervious Runoff Depth=4.48"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.010 af

Pond LP: LOW POINT NORTH OF PROJECT

Peak Elev=39.09' Storage=31 cf Inflow=0.13 cfs 0.010 af
Outflow=0.07 cfs 0.010 af

Total Runoff Area = 0.027 ac Runoff Volume = 0.010 af Average Runoff Depth = 4.48"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.027 ac

POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 10-Year Rainfall=4.72"

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Summary for Subcatchment 2W: PROPOSED DRIVEWAY

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af, Depth= 4.48"
Routed to Pond LP : LOW POINT NORTH OF PROJECT SITE

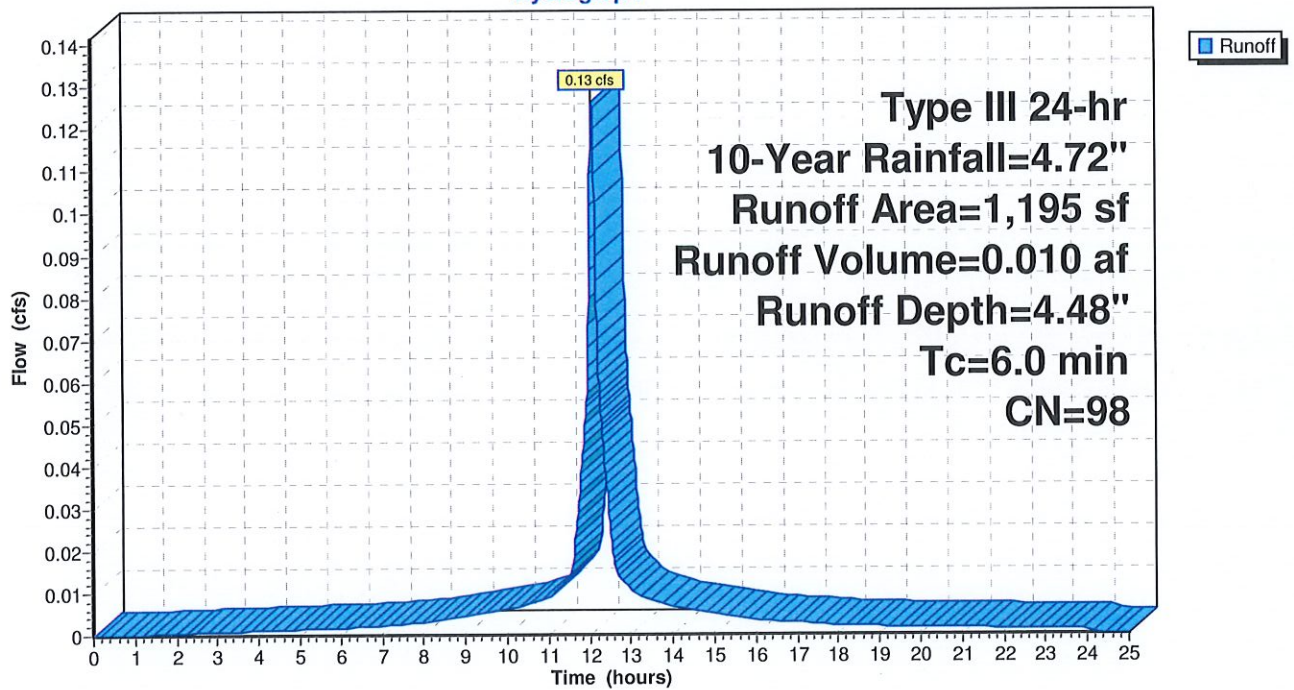
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.72"

Area (sf)	CN	Description
1,195	98	Paved parking, HSG A
1,195		100.00% Impervious Area

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

Subcatchment 2W: PROPOSED DRIVEWAY

Hydrograph



POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 10-Year Rainfall=4.72"

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Summary for Pond LP: LOW POINT NORTH OF PROJECT SITE

Inflow Area = 0.027 ac, 100.00% Impervious, Inflow Depth = 4.48" for 10-Year event
 Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af
 Outflow = 0.07 cfs @ 12.20 hrs, Volume= 0.010 af, Atten= 45%, Lag= 7.1 min
 Discarded = 0.07 cfs @ 12.20 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 39.09' @ 12.20 hrs Surf.Area= 345 sf Storage= 31 cf

Plug-Flow detention time= 2.0 min calculated for 0.010 af (100% of inflow)
 Center-of-Mass det. time= 2.0 min (751.0 - 749.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	39.00'	4,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
39.00	325	104.0	0.0	0	0	325
40.00	580	128.0	100.0	446	446	783
42.00	1,611	175.0	100.0	2,105	2,551	1,956
43.00	2,344	196.0	100.0	1,966	4,518	2,603

Device	Routing	Invert	Outlet Devices	
#1	Discarded	39.00'	8.270 in/hr Exfiltration over Wetted area	Phase-In= 0.01'

Discarded OutFlow Max=0.07 cfs @ 12.20 hrs HW=39.09' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

POST-DEV - DRIVEWAY ACCESS

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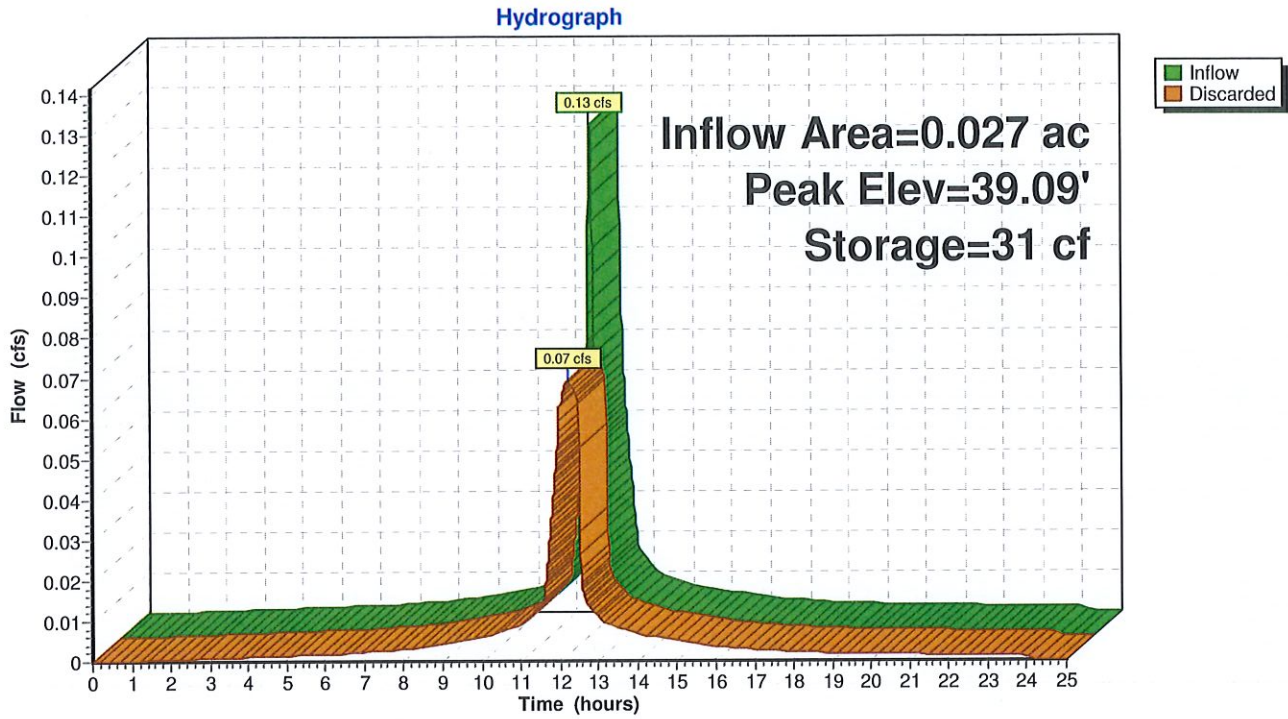
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Type III 24-hr 10-Year Rainfall=4.72"

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Pond LP: LOW POINT NORTH OF PROJECT SITE



POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 25-Year Rainfall=5.64"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2W: PROPOSED

Runoff Area=1,195 sf 100.00% Impervious Runoff Depth=5.40"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Pond LP: LOW POINT NORTH OF PROJECT

Peak Elev=39.14' Storage=47 cf Inflow=0.15 cfs 0.012 af
Outflow=0.07 cfs 0.012 af

Total Runoff Area = 0.027 ac Runoff Volume = 0.012 af Average Runoff Depth = 5.40"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.027 ac

POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 25-Year Rainfall=5.64"

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Summary for Subcatchment 2W: PROPOSED DRIVEWAY

Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af, Depth= 5.40"
Routed to Pond LP : LOW POINT NORTH OF PROJECT SITE

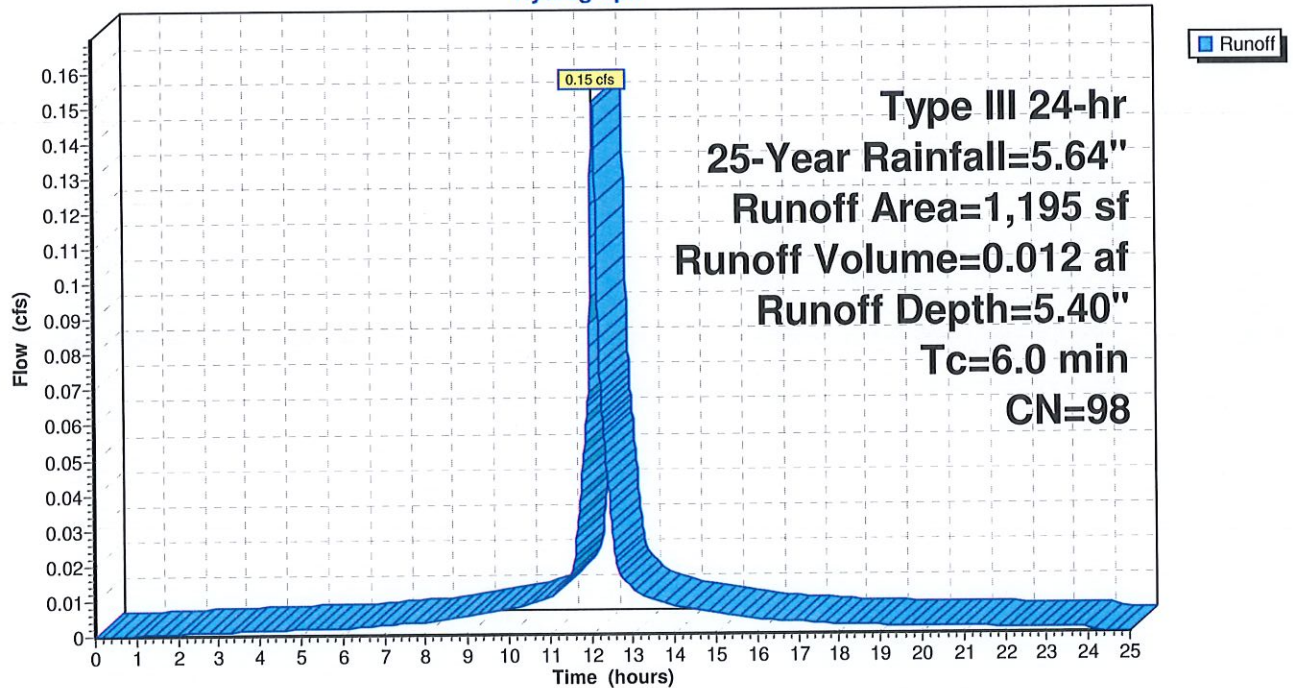
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.64"

Area (sf)	CN	Description
1,195	98	Paved parking, HSG A
1,195		100.00% Impervious Area

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

Subcatchment 2W: PROPOSED DRIVEWAY

Hydrograph



POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 25-Year Rainfall=5.64"

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Summary for Pond LP: LOW POINT NORTH OF PROJECT SITE

Inflow Area = 0.027 ac, 100.00% Impervious, Inflow Depth = 5.40" for 25-Year event
 Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af
 Outflow = 0.07 cfs @ 12.23 hrs, Volume= 0.012 af, Atten= 52%, Lag= 9.0 min
 Discarded = 0.07 cfs @ 12.23 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 39.14' @ 12.23 hrs Surf.Area= 356 sf Storage= 47 cf

Plug-Flow detention time= 2.9 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 2.9 min (748.9 - 746.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	39.00'	4,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
39.00	325	104.0	0.0	0	0	325
40.00	580	128.0	100.0	446	446	783
42.00	1,611	175.0	100.0	2,105	2,551	1,956
43.00	2,344	196.0	100.0	1,966	4,518	2,603

Device	Routing	Invert	Outlet Devices	
#1	Discarded	39.00'	8.270 in/hr Exfiltration over Wetted area Phase-In= 0.01'	

Discarded OutFlow Max=0.07 cfs @ 12.23 hrs HW=39.14' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

POST-DEV - DRIVEWAY ACCESS

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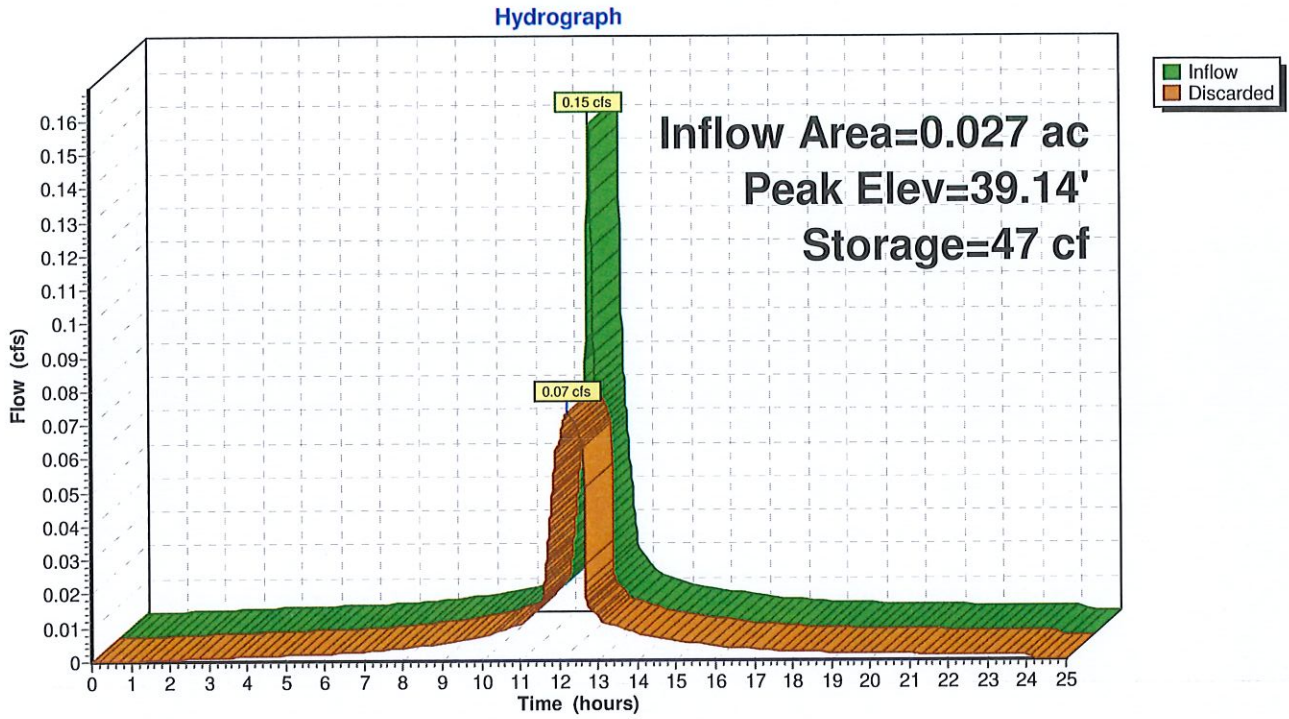
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Type III 24-hr 25-Year Rainfall=5.64"

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Pond LP: LOW POINT NORTH OF PROJECT SITE



POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 100-Year Rainfall=7.04"

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Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2W: PROPOSED

Runoff Area=1,195 sf 100.00% Impervious Runoff Depth=6.80"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.016 af

Pond LP: LOW POINT NORTH OF PROJECT

Peak Elev=39.22' Storage=76 cf Inflow=0.19 cfs 0.016 af
Outflow=0.08 cfs 0.016 af

Total Runoff Area = 0.027 ac Runoff Volume = 0.016 af Average Runoff Depth = 6.80"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.027 ac

POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 100-Year Rainfall=7.04"

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Summary for Subcatchment 2W: PROPOSED DRIVEWAY

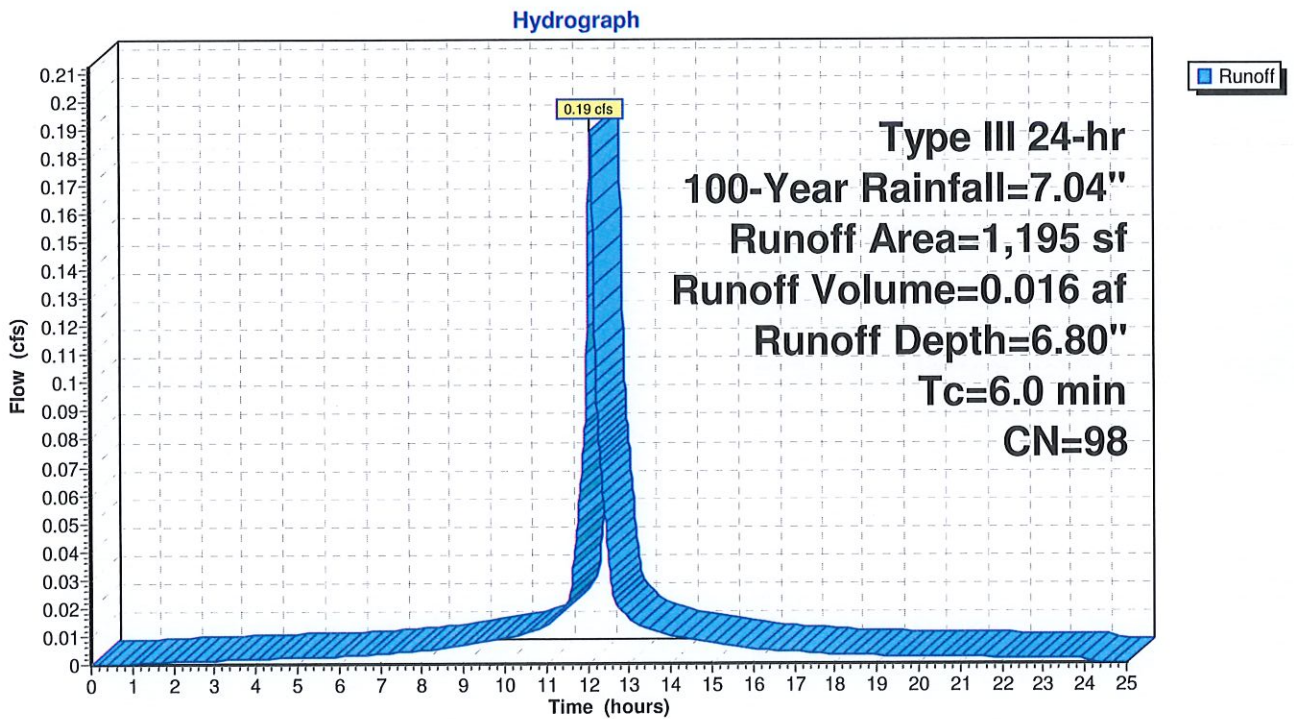
Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 6.80"
Routed to Pond LP : LOW POINT NORTH OF PROJECT SITE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=7.04"

Area (sf)	CN	Description
1,195	98	Paved parking, HSG A
1,195		100.00% Impervious Area

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

Subcatchment 2W: PROPOSED DRIVEWAY



POST-DEV - DRIVEWAY ACCESS

Type III 24-hr 100-Year Rainfall=7.04"

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Summary for Pond LP: LOW POINT NORTH OF PROJECT SITE

Inflow Area = 0.027 ac, 100.00% Impervious, Inflow Depth = 6.80" for 100-Year event
 Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.016 af
 Outflow = 0.08 cfs @ 12.28 hrs, Volume= 0.016 af, Atten= 58%, Lag= 11.5 min
 Discarded = 0.08 cfs @ 12.28 hrs, Volume= 0.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
 Peak Elev= 39.22' @ 12.28 hrs Surf.Area= 374 sf Storage= 76 cf

Plug-Flow detention time= 4.3 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 4.3 min (747.2 - 742.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	39.00'	4,518 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
39.00	325	104.0	0.0	0	0	325
40.00	580	128.0	100.0	446	446	783
42.00	1,611	175.0	100.0	2,105	2,551	1,956
43.00	2,344	196.0	100.0	1,966	4,518	2,603

Device	Routing	Invert	Outlet Devices	
#1	Discarded	39.00'	8.270 in/hr Exfiltration over Wetted area Phase-In= 0.01'	

Discarded OutFlow Max=0.08 cfs @ 12.28 hrs HW=39.22' (Free Discharge)
 ↳ **1=Exfiltration** (Exfiltration Controls 0.08 cfs)

POST-DEV - DRIVEWAY ACCESS

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Type III 24-hr 100-Year Rainfall=7.04"

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Pond LP: LOW POINT NORTH OF PROJECT SITE

Hydrograph

