**Land Use Planning Division**
1600 SE 190th Ave.
Portland OR 97233
Phone: 503-988-3043
land.use.planning@multco.us
https://multco.us/landuse/

# STORMWATER DRAINAGE CONTROL CERTIFICATE
## >500 SQUARE FEET OF NEW / REPLACED IMPERVIOUS SURFACES

**NOTE TO PROPERTY OWNER/APPLICANT:** Please have an Oregon Licensed Professional Engineer fill out this Certificate and attach a signed site plan, stamped and signed storm water system details, and stamped and signed storm water calculations used to support the conclusion. Please note that replacement of existing structures does not provide a credit to the square footage threshold.

**Property Address or Legal Description:** 19114 NW Sauvie Island Rd, Portland, OR 97231

**Description of Project:** 1,185 SF Accessory Building

The following stormwater drainage control system will be required:

- [X] **Use of Gutter, downspout, and splash block drainage control system;**
- [ ] **Natural Infiltration Process; or**
- [ ] **Construction of an on-site storm water drainage control system.**

The rate of stormwater runoff attributed to the new/replaced development for a 10-year/24-hour storm event will be no greater than that which existed prior to any development as measured from the property line or from the point of discharge into a water body with the use of the designated system [MCC 39.6235].

**I certify the attached signed site plan showing the areas needed for the chosen system type, stamped and signed storm water system design details, and stamped and signed calculations dated** 4/3/2024 **will meet the requirements listed above.**

Signature: _____

Print Name: Deborah Beck PE

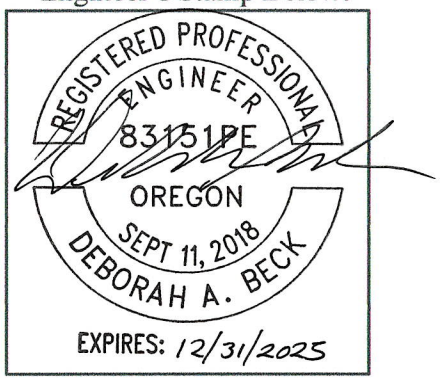
Business Name: White Pelican Consulting, LLC

Address: PO Box 33946 Portland, OR 97292

Phone #: 503-847-9455

Date: 4/03/2024

Engineer's Stamp Below:




**NOTE TO ENGINEER**: Please check one box above. Multnomah County does not use the City of Portland's storm water ordinance. As part of your review, MCC 39.6235 requires that you must consider all new, replaced, and existing structures and impervious areas and determine that the newly generated stormwater from the new or replaced impervious surfaces is in compliance with Multnomah County Code for a 10-year/24-hour storm event. This Storm Water Drainage Control Certificate does not apply to shingle or roof replacement on lawfully established structures.



Exhibit A.7

**Exhibit F**

# White Pelican Consulting, LLC

Environmental Engineering & Data Analysis

WBE, DBE, ESB Oregon Certified # 12223

April 3rd, 2024

# 19114 NW SAUVIE ISLAND RD PORTLAND, OR 97231

## Stormwater Management Report (SWMR)

*PREPARED FOR:*

Kim Hancock
Mountainwood Homes
and
Grant Casey and Vanessa Dawson
19114 NW Sauvie Island Rd
Portland, OR 97231

*PREPARED BY:*

White Pelican Consulting, LLC
Deborah Beck P.E.
PO BOX #33946
Portland, OR 97292
(503) 847-9455

# White Pelican Consulting, LLC

Environmental Engineering & Data Analysis

WBE, DBE, ESB Oregon Certified # 12223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# White Pelican Consulting, LLC

Environmental Engineering & Data Analysis

WBE, DBE, ESB Oregon Certified # 12223

## ENGINEERS CERTIFICATION

I hereby certify that this Stormwater Management Report for 19114 NW Sauvie Island Rd., Portland, OR 97231, has been prepared by me or under my supervision and meets minimum standards of the City of Portland and normal standards of engineering practice. I hereby acknowledge and agree that the jurisdiction does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities designed by me.


EXPIRES: 12/31/2025

White Pelican Consulting, LLC

Deborah A. Beck, P.E.

Principle Engineer



dbeck@whitepelicanconsulting.com | 503.847.9455 | www.WhitePelicanConsulting.com

## PROJECT SUMMARY

This project proposes to manage stormwater at 19114 NW Sauvie Island Rd., Portland, OR 97231 resulting from a 1,185 sq. ft. accessory building with gutters, downspouts, and erosion control drainage control system.

## SITE LOCATION AND DESCRIPTION

19114 NW Sauvie Island Rd., Portland, OR 97231 (site), is a lot currently assigned the property identification number R971170520 and Tax lot 2N1W17B-00100.
The site is entirely located within Multnomah County. An existing house, driveway and the accessory building in question are currently located on the site.

## SOILS

The soils on the site are listed as Burlington fine sandy loam, 8 to 15 percent slopes (6C) and Burlington fine sandy loam, 0 to 8 percent slopes (6B) (Source USDA-NCSS) and are rated Hydrologic soil group D by Portland Maps.

6C soils have a NRCS Wetted Drainage Class of "Somewhat poorly drained," and 6B soils have a NRCS Wetted Drainage Class of "Somewhat excessively drained". Both soils consist of 85% Burlington (Ksat 3.97 in/hr) and 2% Sauvie soils (Ksat 0.425 in/hr) in the top 30 cm of soil.

*Groundwater*

USGS Depth to seasonal high groundwater is estimated to be 0-20 feet (source Portland Maps).

## SLOPES

Slope on the property varies as shown in Portland Maps and Metro Maps. (Figure 1) The site slopes from the SW to the NE before flattening out on the lower NE section of the site.



dbeck@whitepelicanconsulting.com | 503.847.9455 | www.WhitePelicanConsulting.com

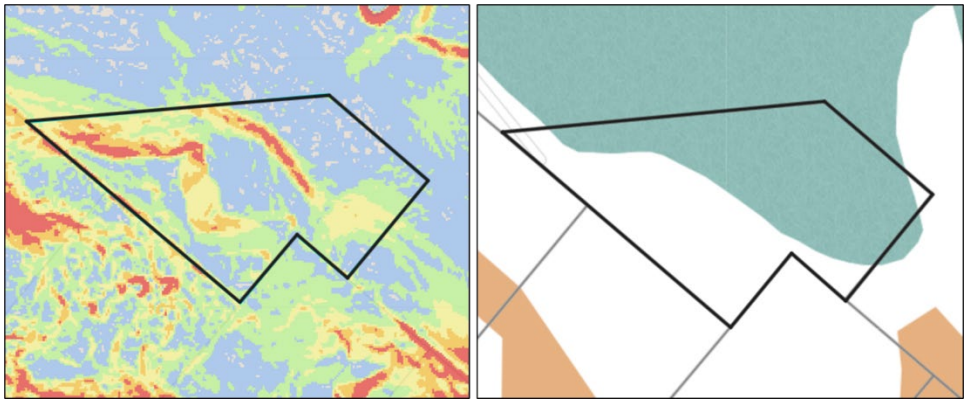


FIGURE 1:SLOPES OF 19114 NW SAUVIE ISLAND RD., AS SHOWN IN PORTLAND MAPS, <5% BLUE, 5-10% GREEN, 10-15% YELLOW, 15-20% ORANGE, >20% RED, (RIGHT); AND METRO MAPS, ORANGE >10%, DARK ORANGE >25%. SAGE GREEN = WETLANDS. (LEFT)

## EXISTING STORMWATER CONDITIONS

An existing house, accessory building and driveway are located on the site. The existing house has downspouts that go to ground and drain to an unknown location. The driveway is gravel except for the turnaround in front of the house, which is asphalt, all sections drain to grade.
The 1,1885 accessory building was previously constructed with gutters and 4 downspouts. 2 of the existing downspouts are disconnected and drain to grade. The other two downspouts go to ground and drain to an unknown system. The slopes around the accessory building are such that runoff from the downspouts drains away from the nearest property lines.

## PROPOSED CONDITIONS

Downspouts with appropriate erosion control are proposed as the slopes of the site will direct any discharge from the downspouts to flow in the direction of the lower flatter NE section of the site, where the runoff can be safely detained while it infiltrates into the native soils,

Table 1: Drainage basin areas

| Area | Pre-Development Conditions (sq.ft) | Post-Development Conditions (sq.ft) |
|---|---|---|
| Accessory Building | 0 | 1,185 |
| Total Impervious Area | 0 | 1,185 |
| Wetland areas downslope from accessory building | ~23,954 | ~23,954 |

## DESIGN HYDROLOGY

Design hydrology for on-site stormwater runoff from the impervious surfaces on the site and infiltration of the runoff into the pervious areas was calculated using HydroCAD 10.20-4b modeling software and the Santa Barbara Urban Hydrograph (SBUH) Method.

Design storms rates were determined from isopluvials in the NOAA Atlas 2 Precipitation-Frequency Atlas of the Western United States. Type 1A, 10-year 24-hour design storm of 3.5 in/hr was used to compare the pre-development and post development stormwater runoff. Type 1A, 2-, 5-, and 25-year storms were also modeled to show the pre-development and post-development discharges.

For the modeling of soil infiltration, the most conservative rate of 0.425 in/hr had a safety factor of 2 applied, giving a rate of 0.21 in/hr.

Stormwater runoff for pre-development and post-development conditions were calculated. As these areas would not be able to drain upslope, only the area downslope of the accessory building was modeled. From the NE side of the accessory building the site slopes down at an estimated 9% slope for ~155 ft before flattening out into the noted wetland portion of the site (Figure 2). Runoff during a 10-yr storm is not expected to be able to infiltrate while sheet flowing across a 9% slope, therefore the model assumes sheet flow without infiltration until the flatter portions of the site are reached. This lower area of the site is heavily vegetated and ~100 ft wide, allowing sufficient surface area for the runoff to spread out and be retained by the soils on site.

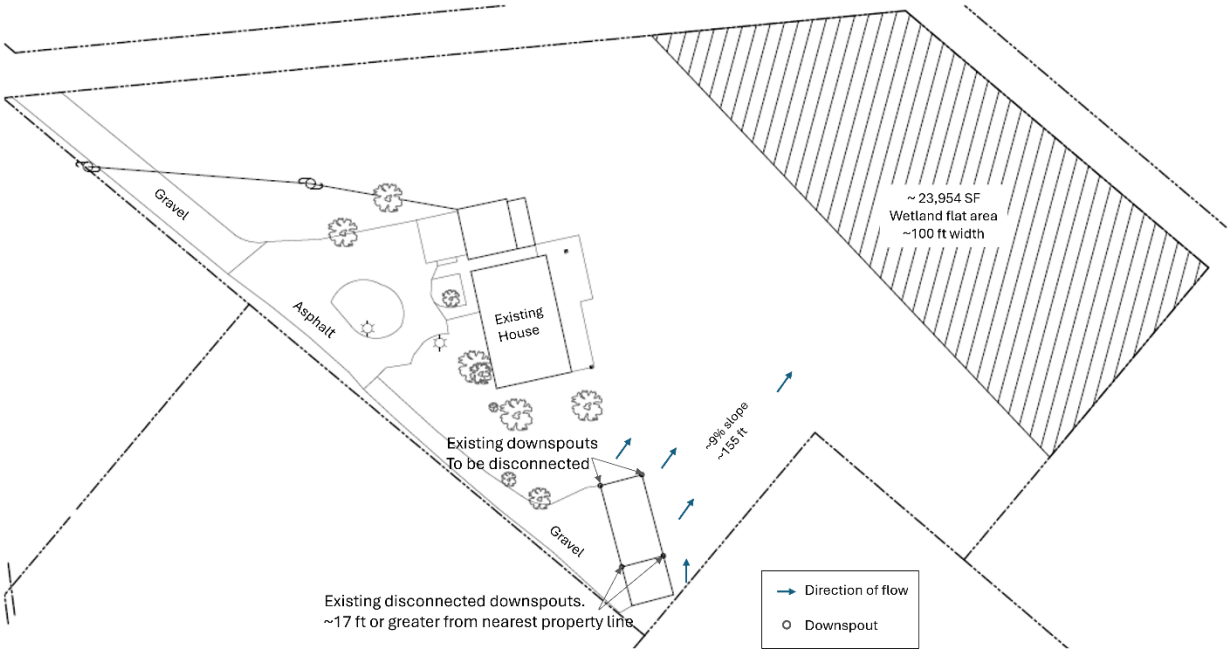



FIGURE 2: LOWER AREA OF SITE DOWNSLOPE OF THE ACCESSORY BUILDING ~23,954 SQ. FT. USED FOR MODELING OF EXPECTED INFILTRATION FROM IMPERVIOUS AREAS ON SITE

The analysis looked at stormwater runoff from the impervious areas and the amount of infiltration achieved before runoff from the accessory building would be expected to exit the site. Table 2 lists the standard modeling assumptions and

Table 3 shows the pre and post-development peak flow rates and runoff volume infiltration summary for the 2-year, 5-year, 10-year and 25-year storm. The HydroCAD® Modeling Output for the 10-year storm is shown in Appendix C.

TABLE 2: MODELING ASSUMPTIONS

| **HydroCAD modeling assumptions and inputs:** |
|---|
| Tc = 5 minutes |
| Curve Number = 98 for all paved surfaces and rooftops |
| Lowest expected Infiltration rate: 0.425 in/hr. |
| Safety factor applied to infiltration rate: 2 |
| Infiltration rate used in model: 0.21 in/hr |

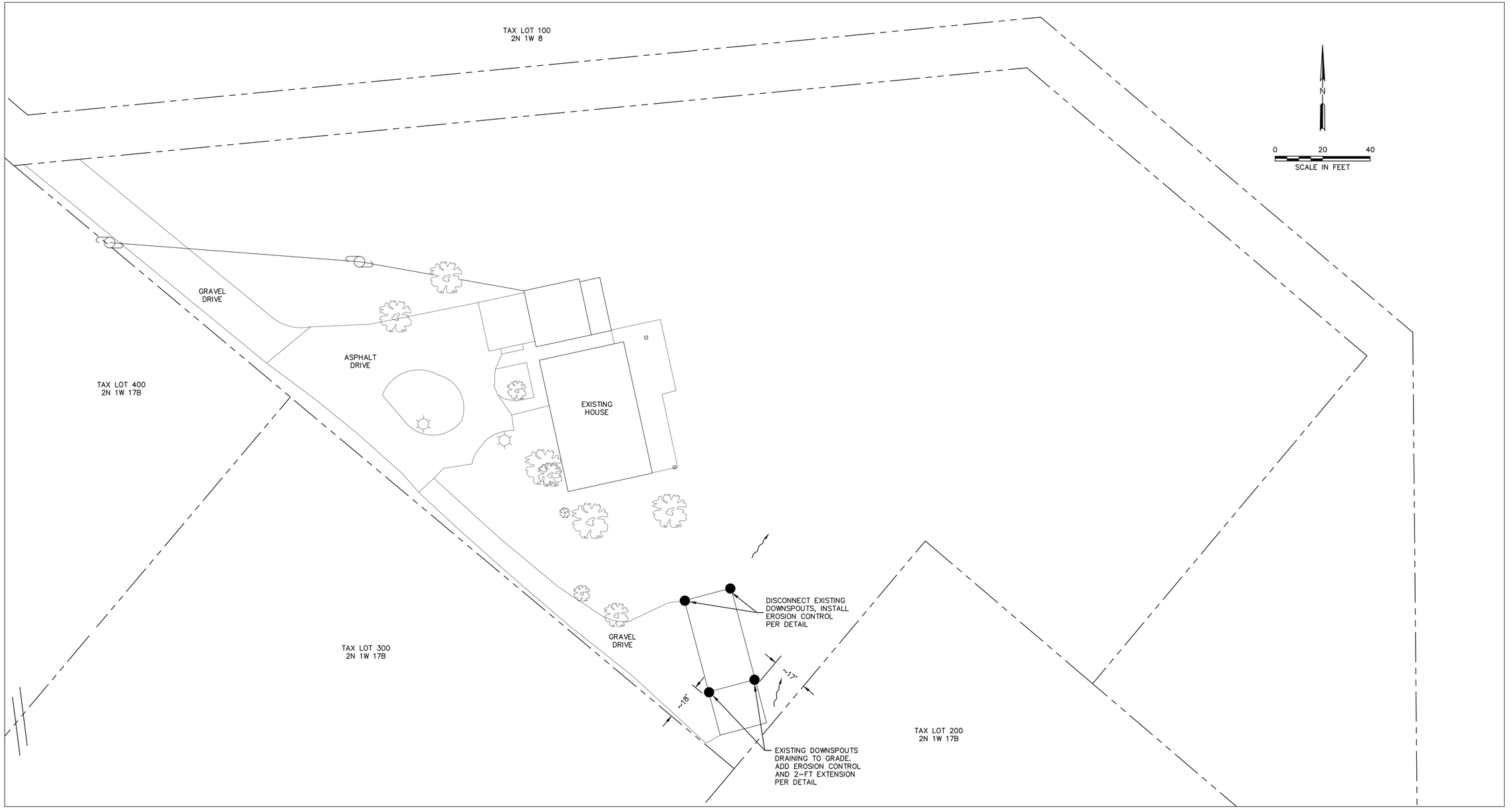
TABLE 3: HYDROCAD MODEL RESULTS

| Event | | Runoff from Accessory Building Area | | | | | |
|---|---|---|---|---|---|---|---|
| | | **Pre-Development Conditions** | | | **Post-Development Conditions** | | |
| 24 Hour Design Storm | Rainfall (inches) | Est. Peak Flow (cfs) | Est. Total Volume (cf) | Expected volume infiltrated in 24 hrs in low area of site | Est. Peak Flow (cfs) | Est. Total Volume (cf) | Expected volume infiltrated in 24 hrs in low area of site |
| 2-yr | 2.50 | 0.015 | 88.000 | 100% | 0.044 | 224.000 | 100% |
| 5-yr | 3.00 | 0.023 | 123.000 | 100% | 0.053 | 273.000 | 100% |
| **10-yr** | **3.50** | **0.031** | **162.000** | **100%** | **0.062** | **323.000** | **100%** |
| 25-yr | 4.00 | 0.040 | 202.000 | 100% | 0.071 | 372.000 | 100% |

## ENGINEERING CONCLUSIONS

Stormwater runoff from the post-development impervious areas for the 10-year design storm is expected to completely infiltrate before exiting the site.

The proposed installation of gutter downspouts and erosion control system on the accessory building is expected to meet the site's needs for stormwater management of impervious areas on the site.




GENERAL NOTES:

CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL UTILITIES PRIOR TO CONSTRUCTION AND SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY CONFLICTS WITH THESE PLANS UPON DISCOVERY.

THE CONTRACTOR SHALL PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE. ALL ADJACENT DOWNSTREAM STORM DRAIN INLETS SHALL BE PROTECTED FROM SILTATION.

THE CONTRACTOR SHALL NOT ALLOW ANY WASH WATER OR DEBRIS TO ENTER NEW PIPES OR CHANNELS DURING CONSTRUCTION.

THE CONTRACTOR SHALL AT ALL TIMES PROVIDE AND MAINTAIN AMPLE MEANS AND DEVICES TO REMOVE AND DISPOSE OF ALL WATER ENTERING THE TRENCH EXCAVATION DURING THE PROCESS OF LAYING THE PIPE.

INSTALL CONTINUOUS INSULATED COPPER TRACER WIRE OR MAGNETIC TAPE AS REQUIRED BY THE OREGON PLUMBING SPECIALTY CODE.

UNLESS OTHERWISE NOTED, ALL STORM DRAIN PIPES ARE TO HAVE A MIMUMIM 1% DOWNSLOPE TO THE NEAREST STORMWATER FACILITY. STORM DRAIN PIPES ARE TO BE PVC SCHEDULE 40, ABS SCHEDULE 40, OR CAST IRON AND FOLLOW OREGON PLUMBING SPECIALTY CODE.

ALL STORM WATER PIPE CONNECTIONS TO CATCH BASINS, MANHOLES, PLANTERS AND OTHER RELATED STRUCTURES SHALL BE WATER TIGHT AS PER OREGON PLUMBING SPECIALTY CODE.

STORMWATER FACILITIES, STRUCTURES, AND PIPING SHOWN ARE INTENDED TO BE FOR SCHEMATIC PURPOSES ONLY. THE CONTRACTOR SHALL ADJUST THE ALIGNMENT AND GRADE OF THE STORMWATER SYSTEM AS NECESSARY TO ACCOMMODATE THE NEW CONSTRUCTION AND TOPOGRAPHY, WHILE MAINTAINING MINIMUM SLOPE REQUIREMENTS.

ALL COMPONENTS OF THE PRIVATE STORMWATER SYSTEM SHALL BE CONSTRUCTED PER OREGON PLUMBING SPECIALTY CODE REQUIREMENTS.

White Pelican Consulting

WHITE PELICAN CONSULTING IS NOT LIABLE FOR THE ACCURACY OF THE TOPOGRAPHY INFORMATION. IT IS THE SOLE RESPONSIBILITY OF THE BUILDER TO VERIFY ALL SITE CONDITIONS, INCLUDING ANY FILL PLACED ON THE SITE, AND INFORM OWNERS OF ANY POTENTIAL FIELD MODIFICATIONS.

**WHITE PELICAN CONSULTING**
PORTLAND, OREGON
503-847-9455
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email: dbeck@whitepelicanconsulting.com

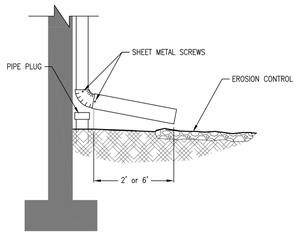
RESIDENTIAL REMODEL
19114 NW SAVIE ISLAND ROAD
PORTLAND, OREGON 97231
STORMWATER MANAGEMENT
SITE PLAN

REGISTERED PROFESSIONAL ENGINEER
83151PE
OREGON
SEPT. 11, 2018
DEBORAH A. BECK
EXPIRES 12/31/2025

| DATE | |
|---|---|
| 4/3/24 | |
| SCALE | PROJ. NO. |
| 1"=20' | |
| DRAWN BY | CHECKED BY |
| TRT | DAB |

SW1

SIMPLIFIED DESIGN APPROACH




1. Applicability: Limited to retrofits of existing areas, only with BES approval.
2. Site Suitability: Suitable for sites with infiltration rates >2" per hour and have an overall slope of 10% or less.
3. Sizing: The footprint of the landscape area where the downspout discharges must be at least 10% of the contributing roof area.
4. Setbacks: The end of the extension must be at least 6 feet from basement walls and at least 2 feet from crawl spaces and concrete slabs, and must be at least 5 feet from the property line (possibly more if the landscape slopes toward the neighbor's property).
5. Do not discharge onto driveways, hardscape or other impervious areas including public sidewalks and streets.
6. Extension materials: Gutter-grade extension materials are required. Flexible hose is prohibited.
7. Entrance Erosion Control: Install river rock, flagstone, or similar materials to dissipate the energy of water discharged by the downspout. No erosion control is required if discharging to lawn. Plastic splash blocks are not allowed.

**CONSTRUCTION REQUIREMENTS**

Extensions must discharge to areas that can accommodate stormwater flows; they can't cross walkways or drain onto driveways, patios, or other impervious surfaces. Runoff must drain safely away from building foundations and property lines. Downspouts can be field-fit to meet the standards based on site conditions. Hinged downspout extensions or "flipper" extensions are useful for ease of landscape maintenance.

*– DRAWING NOT TO SCALE –*

| Bureau of Environmental Services | STORMWATER MANAGEMENT TYPICAL DETAILS FOR PRIVATE PROPERTY | DOWNSPOUT EXTENSION ONLY FOR RETROFITS TO EXISTING DEVELOPMENT | SW–120 |
|---|---|---|---|

9-2-20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RESIDENTIAL REMODEL
19114 NW SAVIE ISLAND ROAD
PORTLAND, OREGON 97231
STORMWATER MANAGEMENT
DETAILS

REGISTERED PROFESSIONAL ENGINEER
83151PE
OREGON
JULY 11, 2008
DEBORAH A. BECK
EXPIRES 12/31/2025

| DATE | |
|---|---|
| 4/2/24 | |
| SCALE | PROJ. NO. |
| NTS | |
| DRAWN BY | CHECKED BY |
| TRT | DAB |

SW2

## OPERATIONS AND MAINTENANCE (O&M)

### Downspout Extensions

| | | |
|---|---|---|
| **Structural components must be operated and maintained in accordance with the design specifications.** | | |
| | **MAINTENANCE INDICATOR** | **CORRECTIVE ACTION** |
| | Clogged gutters, drains, or downspouts | Remove sediment, debris, and blockages from downspouts, gutters, and pipes to maintain at least 50% conveyance at all times. Cleaning twice a year or more is recommended depending on the presence of overhanging trees. |
| | Damaged or missing pipes, gutters, and downspouts | Repair or replace broken gutters and downspouts as needed. Identify possible leaks and verity that roof flashing directs water into gutters. Look for low spots or sagging areas along the gutter line and repair as needed with new hangers. |
| | Blocked downspout extension | Clear downspout elbows of debris. Clear any build-up of soil, bark dust, and/or vegetative growth from around downspout extensions and/or erosion control area..<br>Verify there is sufficient slope so water flows away from the foundation. |
| **Vegetation** | | |
| | **MAINTENANCE INDICATOR** | **CORRECTIVE ACTION** |
| | Dead or stressed vegetation | Replant |
| | Dry grass or other plants | Irrigate and mulch as needed. Maintain grass height at 6”-9”. |
| | Weeds | Manually remove weeds. |
| **Growing medium must sustain healthy plant cover and infiltrate within 48 hours.** | | |
| | **MAINTENANCE INDICATOR** | **CORRECTIVE ACTION** |
| | Gullies, erosion, exposed soils, sediment | Fill in and lightly compact areas of erosion with blended soil that supports healthy plants growth and replant as necessary. Any erosion deeper than 2” must be addressed. Sediment deeper than 4 inches must be removed. |
| | Scouring at the inlet(s) | Ensure erosion control or inlet gravel/rock are adequate. |

### Annual Maintenance Schedule

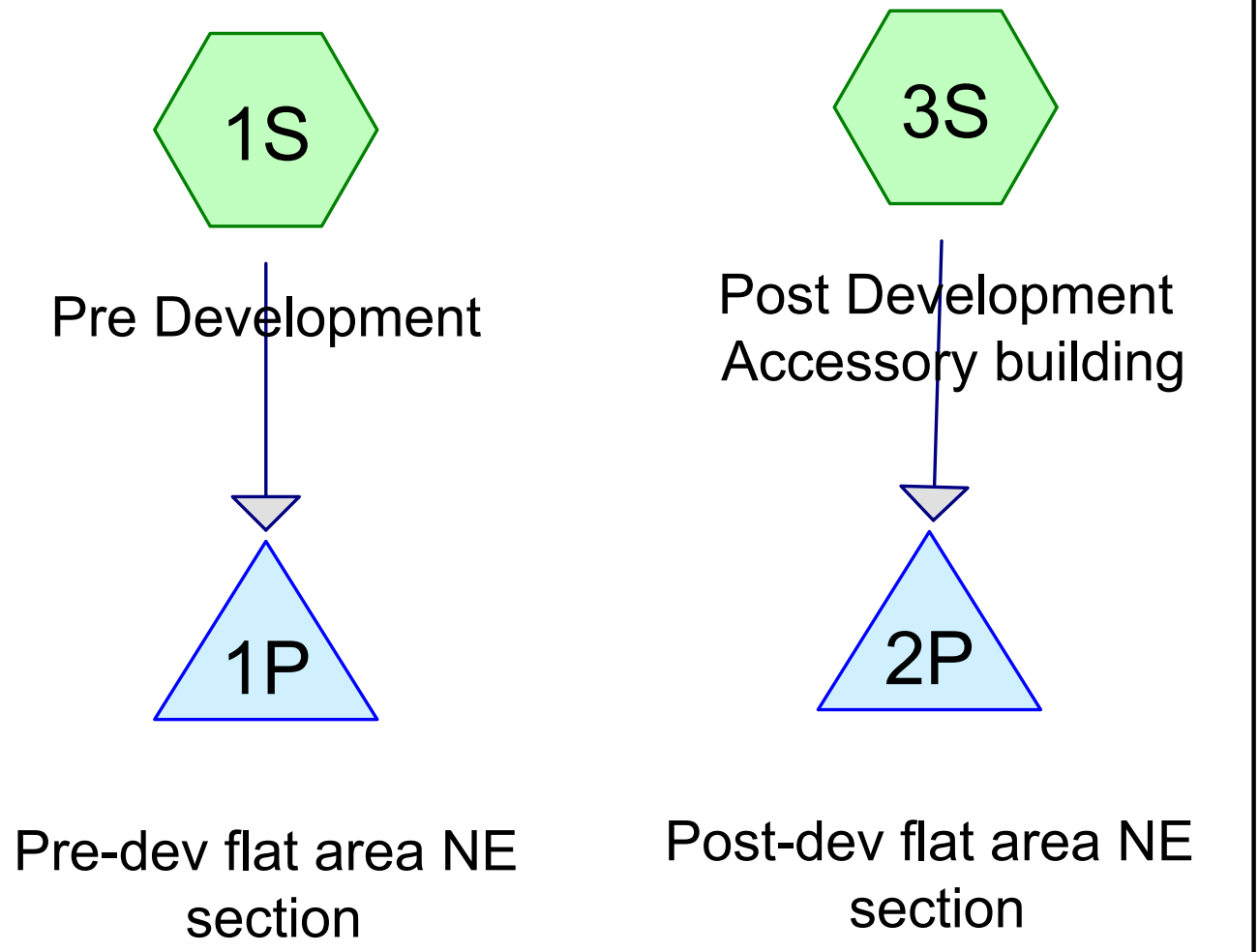
| | |
|---|---|
| **Summer** | Make structural repairs. Clean gutters and downspouts. Remove any build-up of weeds or organic debris. |
| **Fall** | Replant exposed soil and replace dead plants. Remove sediment and plant debris. |
| **Winter** | Clear gutters and downspouts to maintain conveyance. |
| **Spring** | Remove sediment and plant debris. Replant exposed soil and replace dead plants. |
| **All seasons** | Weed as necessary. |

**Infiltration/Flow Control:** All facilities must drain within 48 hours.

**Pollution Prevention:** All sites must implement best management practices to prevent the introduction of pollutants into stormwater.

**Vectors (Mosquitoes and Rats):** Stormwater facilities must not harbor mosquito larvae or rodents that pose a threat to public health or that undermine the facility structure.

# APPENDIX A: HYDROCAD REPORT




Subcat Reach Pond Link

**Routing Diagram for 3.26.24 flat slope area 19114 NW Sauvie Island Rd**
Prepared by White Pelican Consulting, Printed 4/3/2024

## Summary for Subcatchment 1S: Pre Development

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

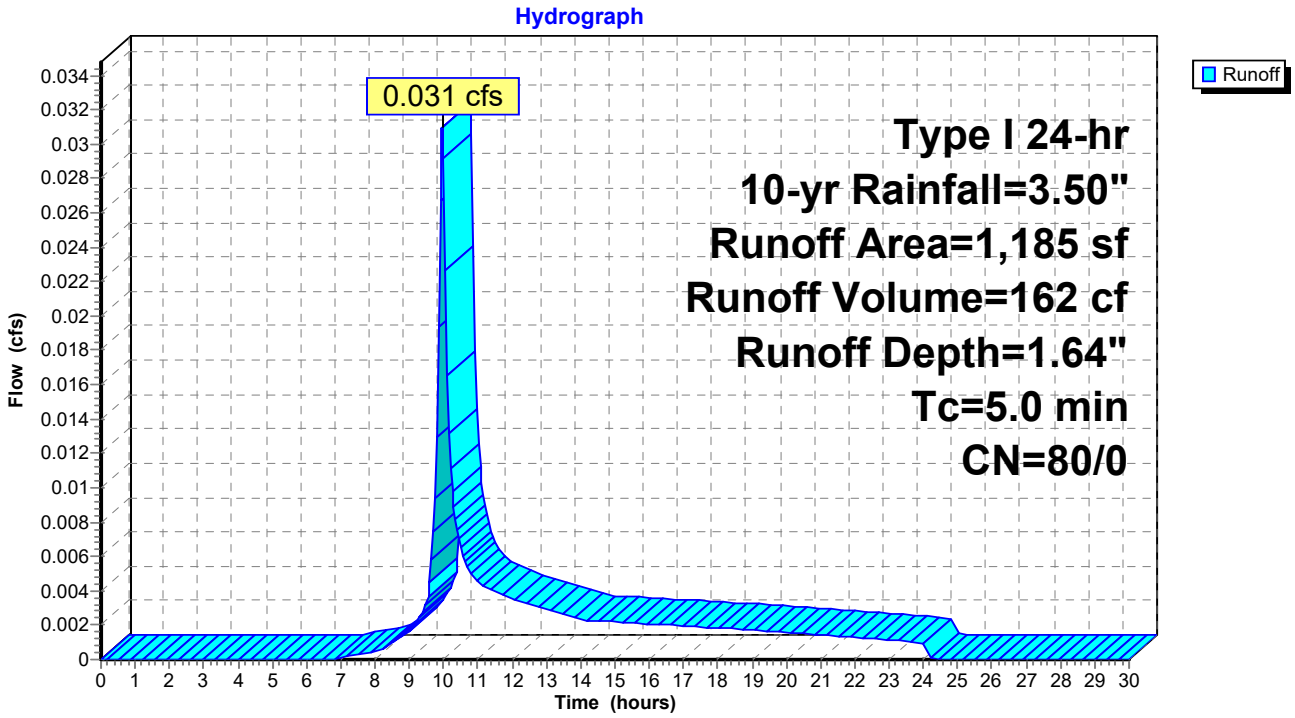
Runoff = 0.031 cfs @ 9.96 hrs, Volume= 162 cf, Depth= 1.64"
Routed to Pond 1P : Pre-dev flat area NE section

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr 10-yr Rainfall=3.50"

| Area (sf) | CN | Description |
|---|---|---|
| 1,185 | 80 | >75% Grass cover, Good, HSG D |
| 1,185 | 80 | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

### Subcatchment 1S: Pre Development



## Summary for Subcatchment 3S: Post Development Accessory building

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

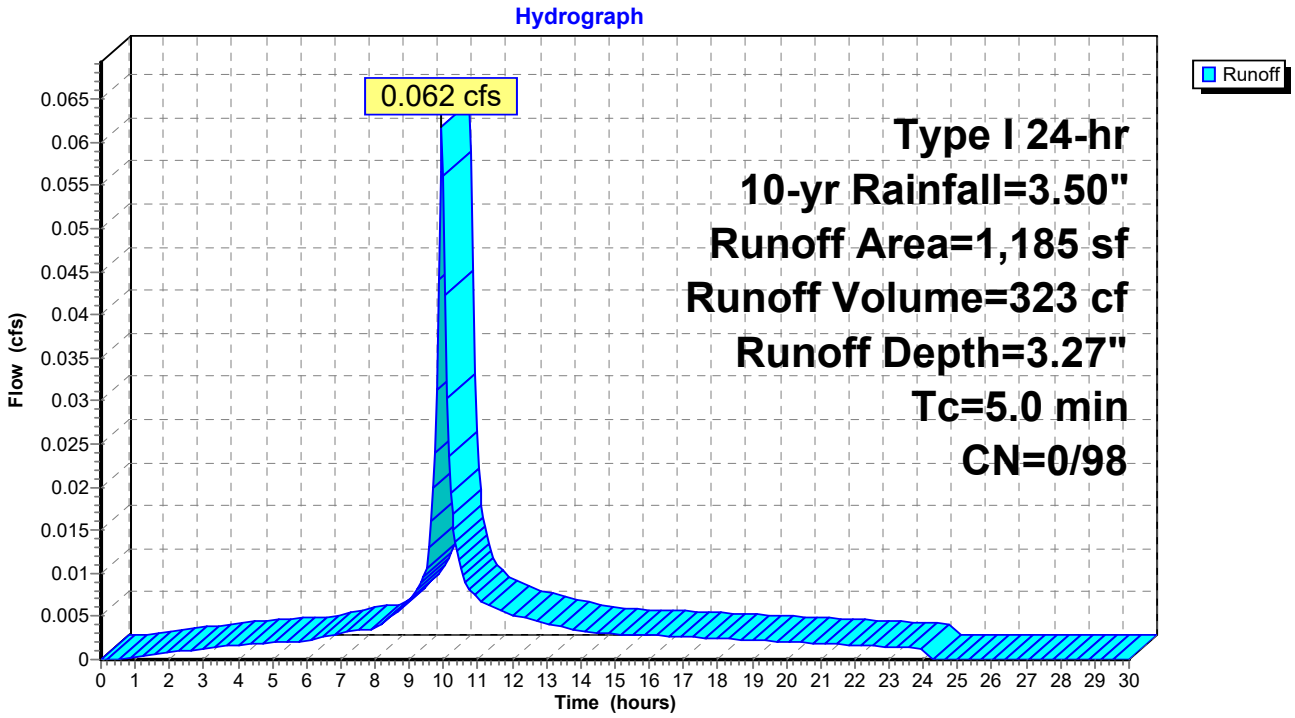
Runoff = 0.062 cfs @ 9.95 hrs, Volume= 323 cf, Depth= 3.27"
Routed to Pond 2P : Post-dev flat area NE section

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type I 24-hr 10-yr Rainfall=3.50"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,185 | 98 | |
| | 1,185 | 98 | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

### Subcatchment 3S: Post Development Accessory building



## Summary for Pond 1P: Pre-dev flat area NE section

Inflow Area = 1,185 sf, 0.00% Impervious, Inflow Depth = 1.64" for 10-yr event
Inflow = 0.031 cfs @ 9.96 hrs, Volume= 162 cf
Outflow = 0.018 cfs @ 10.10 hrs, Volume= 162 cf, Atten= 43%, Lag= 8.2 min
Discarded = 0.018 cfs @ 10.10 hrs, Volume= 162 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 0.00' @ 10.10 hrs Surf.Area= 23,954 sf Storage= 18 cf

Plug-Flow detention time= 17.1 min calculated for 161 cf (100% of inflow)
Center-of-Mass det. time= 17.1 min ( 837.7 - 820.5 )

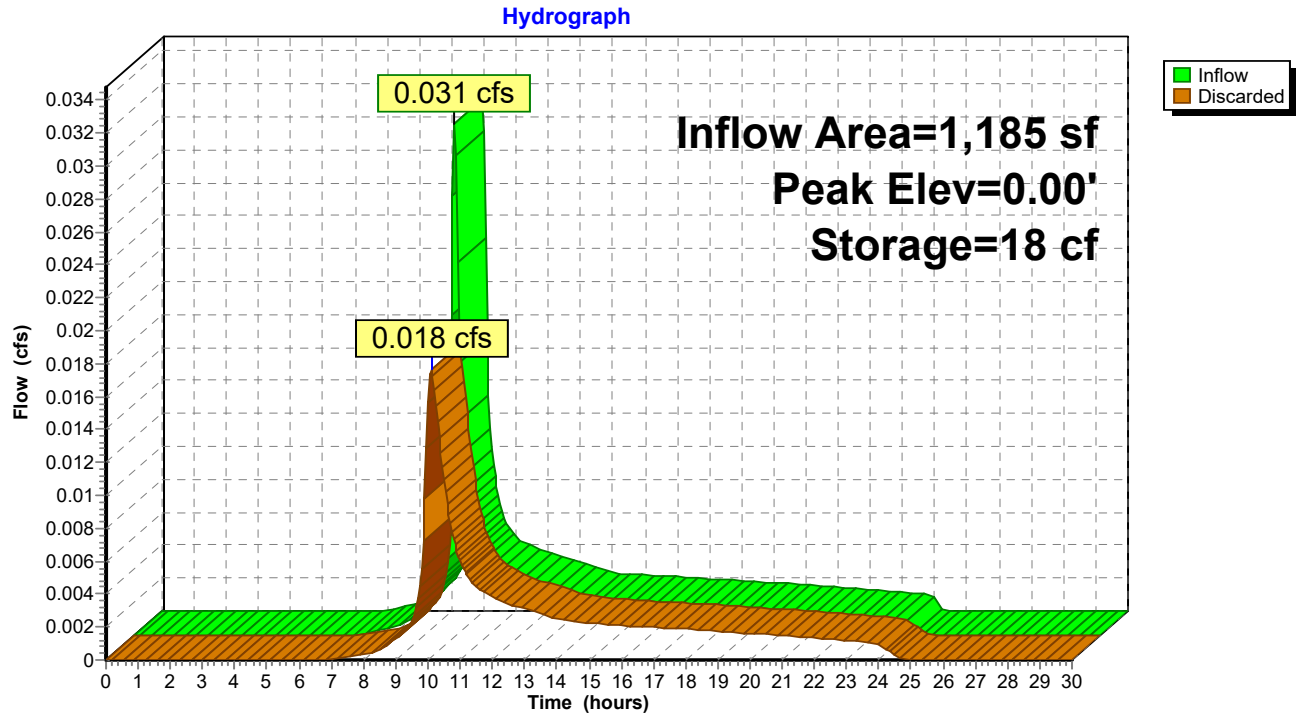
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 0.00' | 11,977 cf | **Custom Stage Data (Irregular)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 0.00 | 23,954 | 698.0 | 0 | 0 | 23,954 |
| 0.50 | 23,954 | 698.0 | 11,977 | 11,977 | 24,303 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 0.00' | **0.210 in/hr Exfiltration over Surface area** |

**Discarded OutFlow** Max=0.116 cfs @ 10.10 hrs HW=0.00' (Free Discharge)
**1=Exfiltration** (Exfiltration Controls 0.116 cfs)

## Pond 1P: Pre-dev flat area NE section



## Summary for Pond 2P: Post-dev flat area NE section

Inflow Area = 1,185 sf,100.00% Impervious, Inflow Depth = 3.27" for 10-yr event
Inflow = 0.062 cfs @ 9.95 hrs, Volume= 323 cf
Outflow = 0.037 cfs @ 10.07 hrs, Volume= 323 cf, Atten= 40%, Lag= 7.5 min
Discarded = 0.037 cfs @ 10.07 hrs, Volume= 323 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 0.00' @ 10.07 hrs Surf.Area= 23,954 sf Storage= 38 cf

Plug-Flow detention time= 17.1 min calculated for 322 cf (100% of inflow)
Center-of-Mass det. time= 17.1 min ( 719.5 - 702.3 )

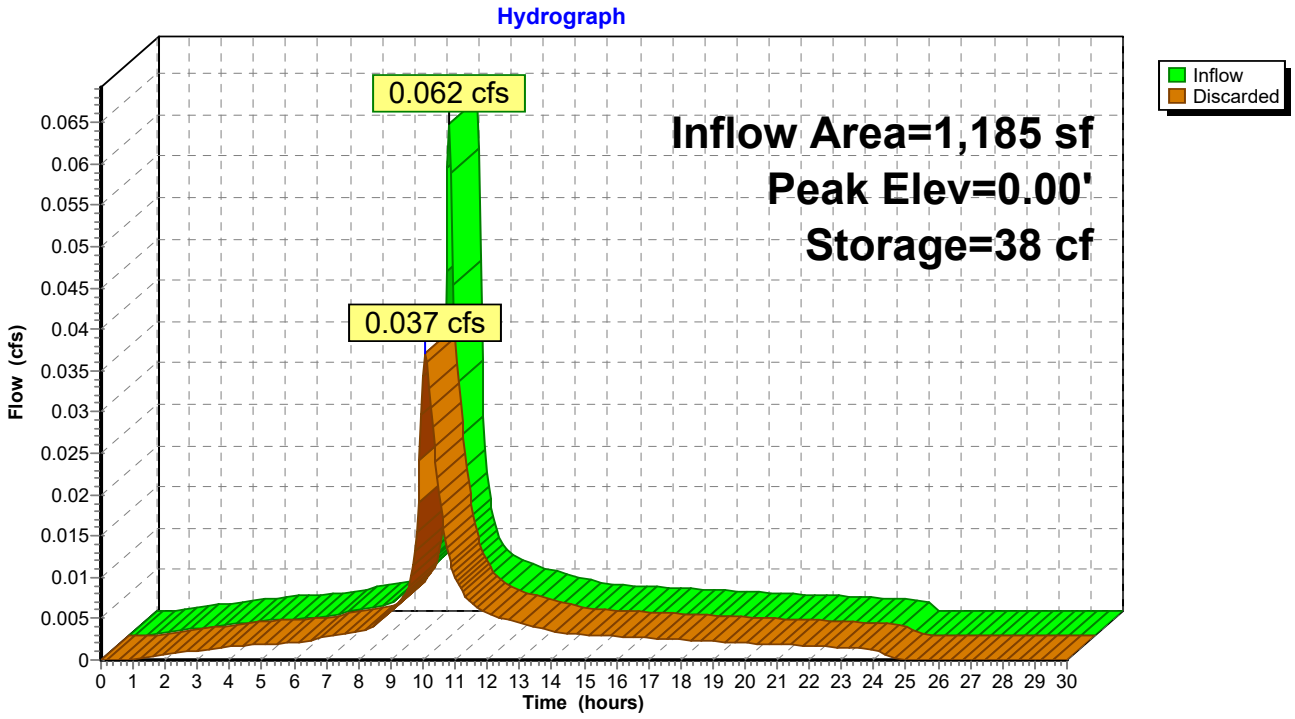
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 0.00' | 11,977 cf | **Custom Stage Data (Irregular)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 0.00 | 23,954 | 698.0 | 0 | 0 | 23,954 |
| 0.50 | 23,954 | 698.0 | 11,977 | 11,977 | 24,303 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 0.00' | **0.210 in/hr Exfiltration over Surface area** |

**Discarded OutFlow** Max=0.116 cfs @ 10.07 hrs HW=0.00' (Free Discharge)
**1=Exfiltration** (Exfiltration Controls 0.116 cfs)

## Pond 2P: Post-dev flat area NE section



## Events for Subcatchment 1S: Pre Development

| Event | Rainfall (inches) | Runoff (cfs) | Volume (cubic-feet) | Depth (inches) |
|---|---|---|---|---|
| 2-yr | 2.50 | 0.015 | 88 | 0.89 |
| 5-yr | 3.00 | 0.023 | 123 | 1.25 |
| 10-yr | 3.50 | 0.031 | 162 | 1.64 |
| 25-yr | **4.00** | **0.040** | **202** | **2.04** |

## Events for Subcatchment 3S: Post Development Accessory building

| Event | Rainfall (inches) | Runoff (cfs) | Volume (cubic-feet) | Depth (inches) |
|---|---|---|---|---|
| 2-yr | 2.50 | 0.044 | 224 | 2.27 |
| 5-yr | 3.00 | 0.053 | 273 | 2.77 |
| 10-yr | 3.50 | 0.062 | 323 | 3.27 |
| 25-yr | **4.00** | **0.071** | **372** | **3.77** |

## Events for Pond 1P: Pre-dev flat area NE section

| Event | Inflow (cfs) | Discarded (cfs) | Elevation (feet) | Storage (cubic-feet) |
|---|---|---|---|---|
| 2-yr | 0.015 | 0.009 | 0.00 | 9 |
| 5-yr | 0.023 | 0.013 | 0.00 | 13 |
| 10-yr | 0.031 | 0.018 | 0.00 | 18 |
| 25-yr | **0.040** | **0.023** | **0.00** | **23** |

## Events for Pond 2P: Post-dev flat area NE section

| Event | Inflow (cfs) | Discarded (cfs) | Elevation (feet) | Storage (cubic-feet) |
|---|---|---|---|---|
| 2-yr | 0.044 | 0.026 | 0.00 | 27 |
| 5-yr | 0.053 | 0.032 | 0.00 | 32 |
| 10-yr | 0.062 | 0.037 | 0.00 | 38 |
| 25-yr | **0.071** | **0.043** | **0.00** | **44** |