

# Stormwater Management Facilities DR Stormwater Report 1847 Food Park

HDG Job #: KOB003

Prepared For:

Prepared By:



**Humber  
Design  
Group, Inc.**

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Portland, OR 97214  
(P) 503 946 6690

I hereby certify that this Stormwater Management Report for the 1847 Food Park project has been prepared by me or under my supervision and meets minimum standards of City of Milwaukee 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.

Date: April 5, 2024



EXPIRES 12-31-2024

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## **Project Overview and Description**

<b>Location of Project</b>	1925 SE Scott Street
<b>Site Area/Acreage</b>	0.47 ac
<b>Proposed Impervious Area</b>	12700
<b>Nearest Cross Street</b>	SE Main Street
<b>Property Zoning</b>	COM - Commercial Land
<b>Existing Conditions</b>	The existing site consists of a parking lot, landscaping including trees and bushes and remaining foundations of previous buildings onsite.
<b>Proposed Development</b>	The project proposes a new tasting room, food cart pods with seating area. Along with the existing parking lot to remain.
<b>Watershed Description</b>	Johnson Creek
<b>Subwatershed</b>	Spring
<b>Tax Map</b>	11E35AA
<b>Tax Lot</b>	200
<b>Flood Zone</b>	NA
<b>Permits Required</b>	Building Permit Public Works Permit

# Vicinity Map



Site Location

## **Methodology**

### **Existing Drainage**

Stormwater appears to be managed through the use of catch basins and existing combined sewer in SE Scott Street or SE Main Street.

### **Infiltration Results**

Infiltration testing has not occurred at the site.

### **PRIVATE Proposed Stormwater Management Techniques**

Per City of Milwaukie standards, stormwater management will fall under the 2016 Portland SWMM. Stormwater runoff from the 12,700 square feet of proposed impervious area will be managed by flow-through planters sized to manage water quality and quantity. Stormwater will outfall to the south of the project site to the existing combined sewer located in the public right-of-way in SE Scott Street.

### **PUBLIC Proposed Stormwater Management Techniques**

The curb alignments along SE Scott Street and SE Main Street are expected to remain unchanged; therefore, no stormwater management is required in the public right-of-way.

### **Discharge Point**

Combined Sewer

### **Stormwater Hierarchy Justification**

Infiltration rate is unknown so it is assumed that infiltration is not feasible at this site. There is an existing combined sewer in SE Scott Street that the project is proposing to tie into; therefore this project will fall under category 4 of the stormwater hierarchy.

## Analysis

**Computational Method Used**      The Presumptive Approach Calculator (PAC) was used to calculate the stormwater management facility area needed to treat the water quality storm and the peak flows of the catchment area. See attached PAC Calculations. Below is a summary of the results.

**Hydrologic Soil Group**      Unknown

**Table 1 – Curve Numbers**

<b>Predeveloped Pervious CN</b>	72
<b>Predeveloped Impervious CN</b>	98
<b>Post-Developed Pervious CN</b>	89
<b>Post-Developed Impervious CN</b>	98

**Table 2 – Design Storms**

<b>WQ Storm</b>	0.83 inches
<b>2-year</b>	2.40 inches
<b>10-year</b>	3.40 inches
<b>25-year</b>	3.90 inches
<b>100-year</b>	4.40 inches

**Table 3 – Time of Concentration**

<b>Predeveloped TOC</b>	5 min
<b>Post-Developed TOC</b>	5 min

**Stormwater Management Narrative**      The project proposes 12,700 sf of new impervious area. The PAC was used to size flow-through stormwater planters for each catchment. These planters will treat roof areas and new impervious area for seating/plaza areas. Runoff will be collected and piped to the stormwater planters for water quality and quantity control. Overflow will be delivered to public combined sewer system in SE Scott Street.

**Table 4 – Catchment Areas and Facility Table**

<b>Catchment/ Facility ID</b>	<b>Source (roof, road, etc.)</b>	<b>Treatment Area (sf)</b>	<b>Ownership (private/ public)</b>	<b>Facility Type/ Function</b>	<b>Facility Size (sf)</b>
Catchment A	Roof/Sidewalk	6700	Private	Flow-through Planter	365
Catchment B	Roof/Sidewalk	6000	Private	Flow-through Planter	450

\*All flow-through planters sized using PAC to meet water quality and flow control requirements

**Table 5 - Flow Rates**

<b>Catchment/ Facility ID</b>	<b>10-Year Pre-Developed</b>	<b>25-Year Post Developed with Planter</b>
A	0.032 cfs	0.032 cfs
B	0.029cfs	0.021 cfs

## **Engineering Conclusions**

The preceding methodologies and calculations presented indicate compliance with the current jurisdictional stormwater management codes and requirements. A summarized breakdown is presented below:

### **Water Quality**

The proposed development will meet the provisions for water quality per the 2016 Portland Stormwater Management Manual.

### **Water Quantity**

The proposed development will meet the provisions for water quantity per the 2016 Portland Stormwater Management Manual.

### **Downstream / Upstream Impacts**

There are no upstream or downstream impacts created by this proposed development.

### **100 year storm**

The 100 year storm will be safely conveyed away from structures and will overflow to the stormwater planter overflow structure and be routed to the combined sewer in SE Scott Street.



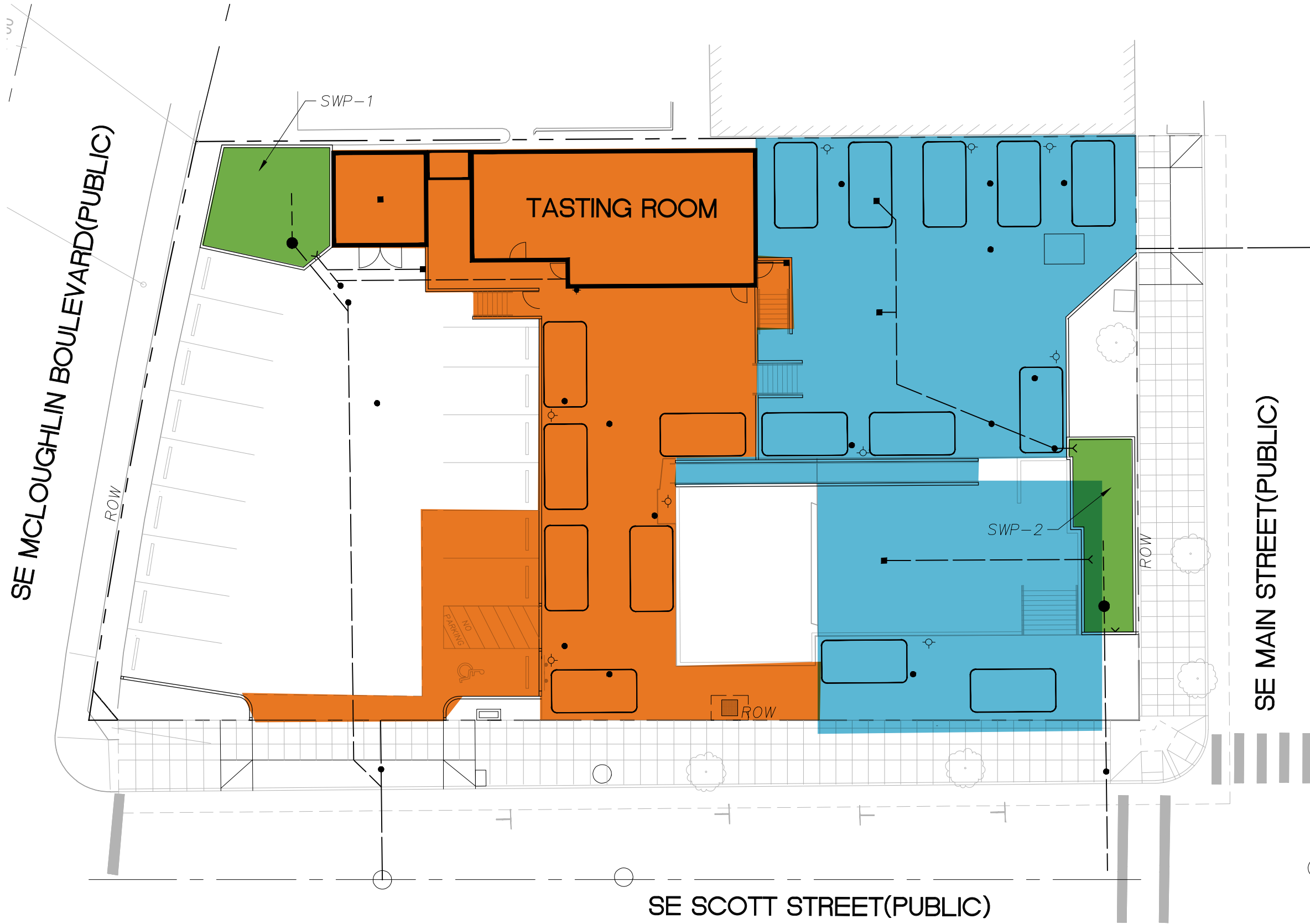
## **Appendix A**

### **Stormwater Facility Details / Exhibits**

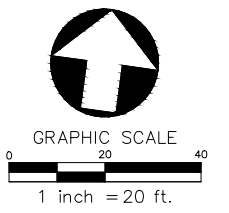
Catchment Map

DR Utility Plan

Details



- CATCHMENT A  
AREA: 6,700 SF
- CATCHMENT B  
AREA: 6,000 SF
- STORMWATER PLANTER(SWP-1)  
AREA: 365SF
- STORMWATER PLANTER(SWP-2)  
AREA: 450SF



**CATCHMENT MAP**  
1925 SE SCOTT STREET

PROJECT NO.:	KOB003
DRAWN BY:	JKB
DESIGN BY:	CCM
REVIEWED BY:	CCM
DATE:	04/05/2024

H

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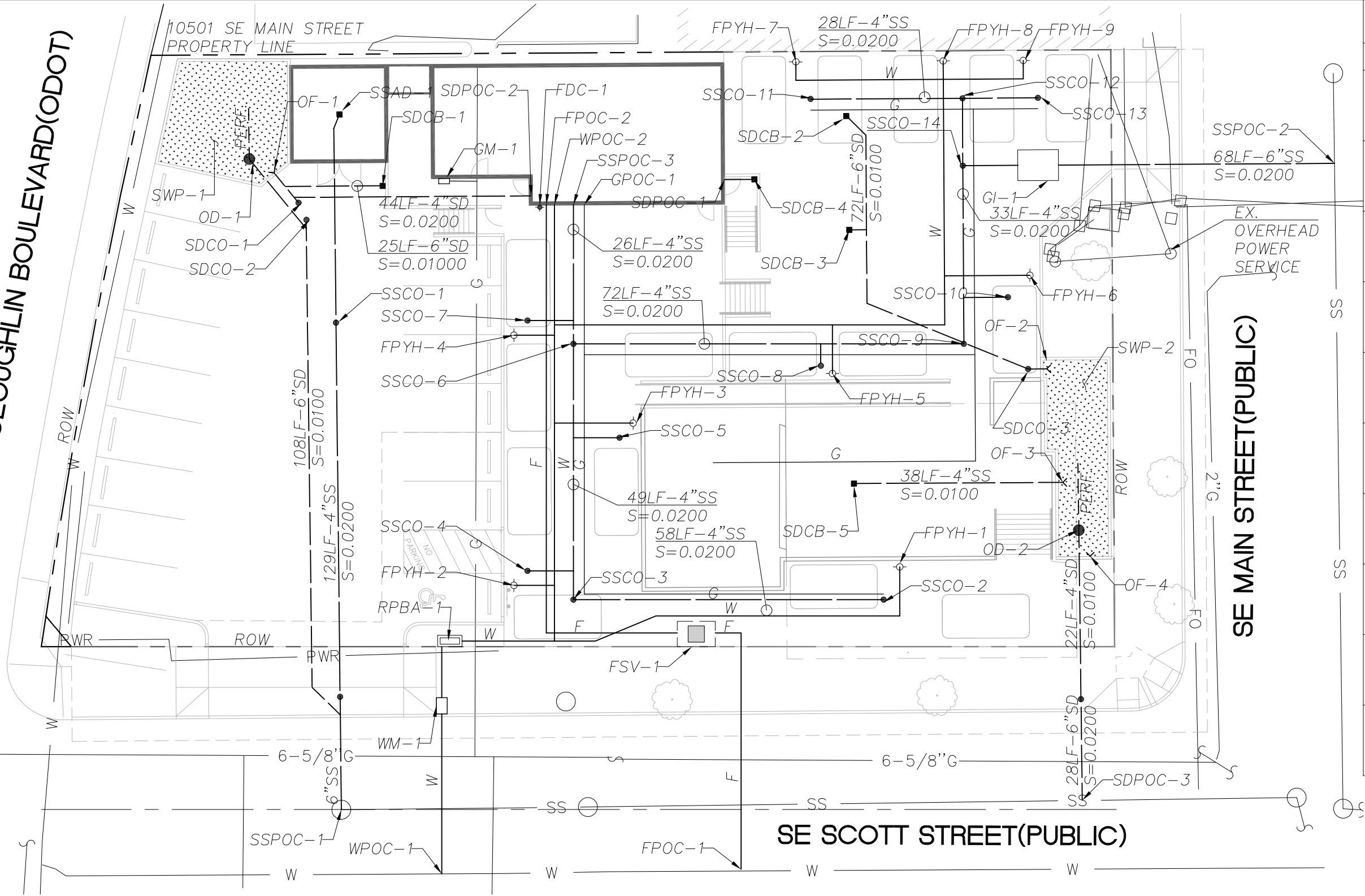
SE MCLOUGHLIN BOULEVARD(ODOT)

10501 SE MAIN STREET  
PROPERTY LINE

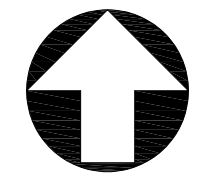
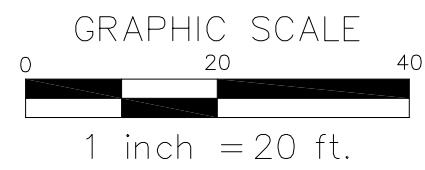
SE MAIN STREET(PUBLIC)

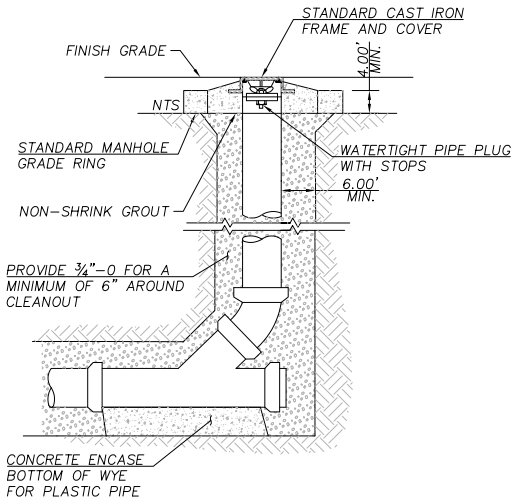
SE SCOTT STREET(PUBLIC)

SHEET LEGEND	
ITEM	DESCRIPTION
	STORM
	SANITARY
	WATER
	FIRE
	GAS
	PERF. PIPE
	CATCH BASIN/ AREA DRAIN
	CLENAOUT
	OVERFLOW DRAIN
	STORMWATER PLANTER



**UTILITY PLAN**  
SCALE: 1"=20'



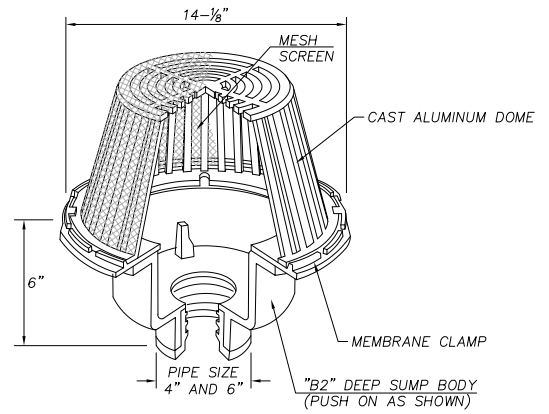


NOTE:

1. CONCRETE ENCASE ENTIRE WYE SECTION AND 45° BEND FOR CONCRETE PIPE.

### 3 CLEAN OUT

NTS

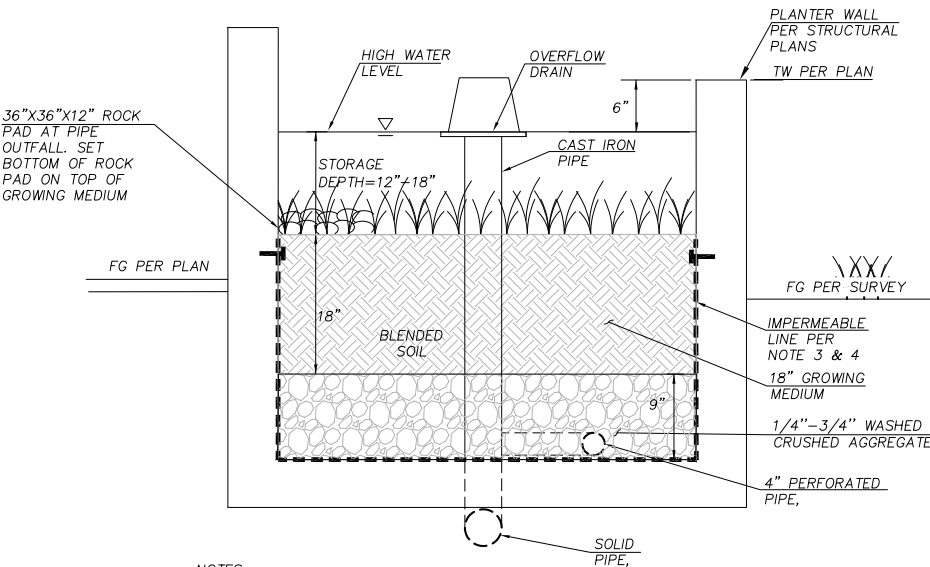


NOTES:

1. MODEL NO. FD-870 AS MANUFACTURED BY WATTS DRAINAGE, OR APPROVED EQUAL.
2. PIPE SIZE TO MATCH DRAINAGE PIPE SIZE.

### 4 OVERFLOW DRAIN

NTS

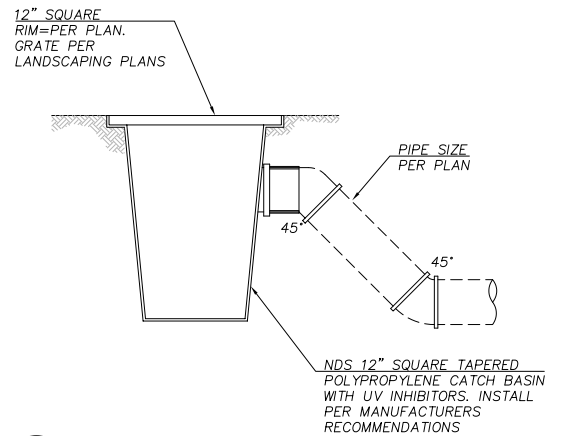


NOTES:

1. PLANTING PER LANDSCAPE PLANS.
2. GROWING MEDIUM PER SPECIFICATIONS.
3. FLUID APPLIED IMPERMEABLE LINER SHALL BE 30 MIL MINIMUM.
4. CONNECT SLOTTED PIPE TO SOLID PIPE DOWNSTREAM OF AREA DRAIN.
5. PROVIDE WATERTIGHT PENETRATION THROUGH IMPERMEABLE LINER FOR OUTFLOW FROM OVERFLOW DRAIN.
6. CONCRETE PLANTER BOX SHALL BE POURED MONOLITHICALLY WITH NO COLD JOINTS.
7. CONNECT PERFORATED PIPE TO SOLID PIPE DOWNSTREAM OF AREA DRAIN.
6. CONSTRUCT ROCK PAD AT PIPE OUTFALLS AND/OR WALL AND CURB OPENINGS.

### 2 STORMWATER FLOW-THROUGH PLANTER

NTS



### 1 AREA DRAIN

NTS

## **Appendix B**

**Support Calculations**  
PAC Report

# PAC Report

Project Name KOB003	Permit No.	Created 4/3/24 2:33 PM
Project Address SCOTT AND MAIN MILWAUKIE, OR 97222	Designer CAMILLE MORGAN	Last Modified 4/5/24 7:15 AM
	Company HUMBER DESIGN GROUP	Report Generated 4/5/24 7:15 AM

## Project Summary

PROJECT DEVELOPMENT INCLUDES A PROPOSED TASTING ROOM WITH BASEMENT, FOOD CART POD SPACES, COVERED EATING AREA AND EXISTING PARKING LOT.

Catchment Name	Impervious Area (sq ft)	Native Soil Design Infiltration Rate	Hierarchy Category	Facility Type	Facility Config	Facility Size (sq ft)	Facility Sizing Ratio	PR Results	Flow Control Results
A	6700	0.00	4	Planter (Flat)	D	365	5.4%	Pass	Pass
B	6000	0.00	4	Planter (Flat)	D	450	7.5%	Pass	Pass

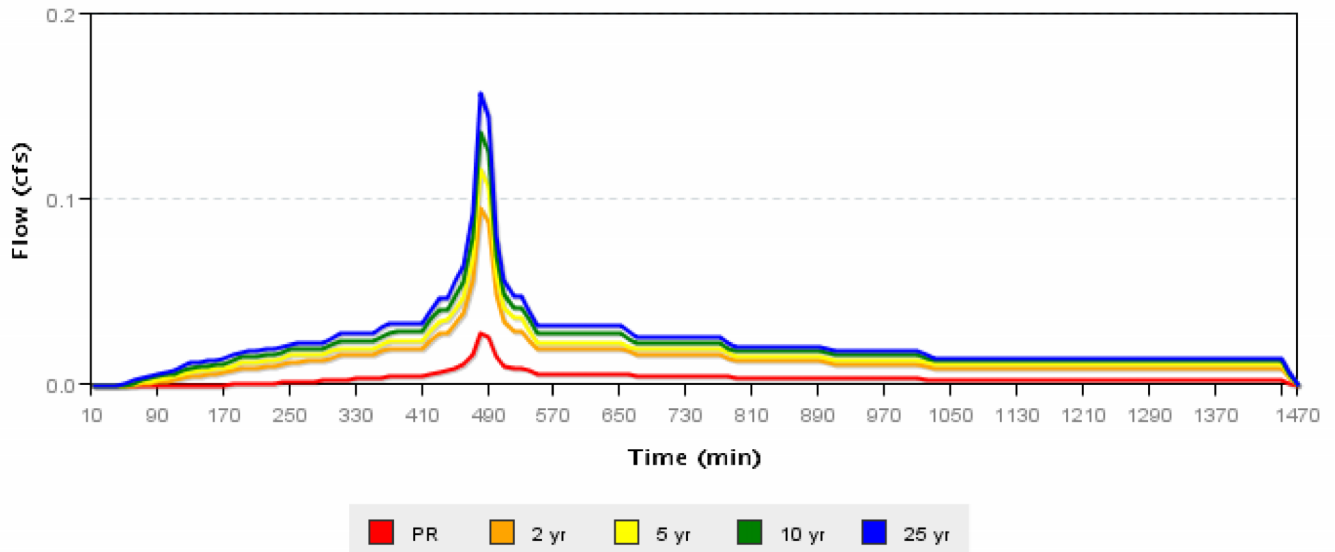
# Catchment A

## Site Soils & Infiltration Testing Data

	Infiltration Testing Procedure	Open Pit Falling Head
	Native Soil Infiltration Rate ( $I_{test}$ )	0.00 ⚠️
<b>Correction Factor</b>	$CF_{test}$	2
<b>Design Infiltration Rates</b>	Native Soil ( $I_{dsgn}$ )	0.00 in/hr ⚠️
	Imported Growing Medium	2.00 in/hr
<b>Catchment Information</b>	Hierarchy Category	4
	Hierarchy Description	Off-site flow to a combined sewer
	Pollution Reduction Requirement	Pass
	10-year Storm Requirement	N/A
	Flow Control Requirement	25-yr post-dev peak runoff rate ≤ 10-yr pre-dev peak rate
	Impervious Area	6700 sq ft 0.154 acre
	Time of Concentration ( $T_c$ )	5
	Pre-Development Curve Number ( $CN_{pre}$ )	72
	Post-Development Curve Number ( $CN_{post}$ )	98

⚠️ Indicates value is outside of recommended range

## SBUH Results



	Pre-Development Rate and Volume		Post-Development Rate and Volume	
	Peak Rate (cfs)	Volume (cf)	Peak Rate (cfs)	Volume (cf)
<b>PR</b>	0	0.386	0.028	350.094
<b>2 yr</b>	0.008	266.609	0.095	1212.337
<b>5 yr</b>	0.019	418.331	0.116	1490.023
<b>10 yr</b>	0.032	589.627	0.136	1768.125
<b>25 yr</b>	0.046	776.308	0.157	2046.488

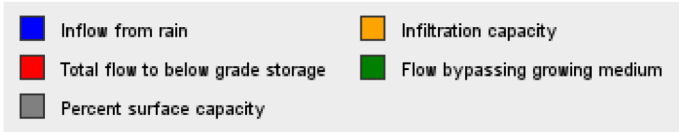
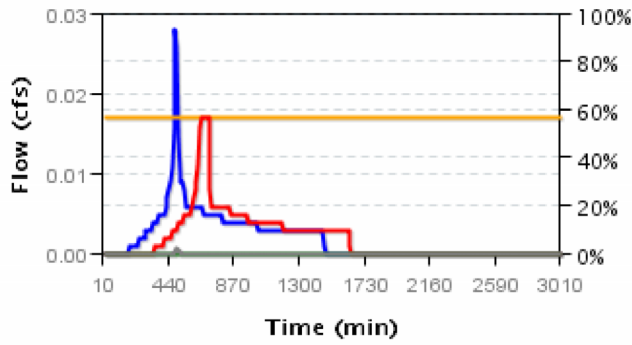


# Facility A

<b>Facility Details</b>	Facility Type	<b>Planter (Flat)</b>
	Facility Configuration	<b>D: Lined Facility with RS and Ud</b>
	Facility Shape	<b>Planter</b>
<b>Above Grade Storage Data</b>		
	Bottom Area	<b>365 sq ft</b>
	Bottom Width	<b>9.00 ft</b>
	Storage Depth 1	<b>18.0 in</b>
	Growing Medium Depth	<b>18 in</b>
	Surface Capacity at Depth 1	<b>547.5 cu ft</b>
	Design Infiltration Rate for Native Soil	<b>0.000 in/hr</b>
	Infiltration Capacity	<b>0.017 cfs</b>
<b>Facility Facts</b>	Total Facility Area Including Freeboard	<b>365.00 sq ft</b>
	Sizing Ratio	<b>5.4%</b>
<b>Pollution Reduction Results</b>	Pollution Reduction Score	<b>Pass</b>
	Overflow Volume	<b>352.792 cf</b>
	Surface Capacity Used	<b>2%</b>
<b>Flow Control Results</b>	Flow Control Score	<b>Pass</b>
	Overflow Volume	<b>1766.878 cf</b>
	Surface Capacity Used	<b>99%</b>

<b>25 year post-development outflow (cfs)</b>		<b>10 year pre-development inflow (cfs)</b>	
0.032	≤	0.032	<b>Pass</b>

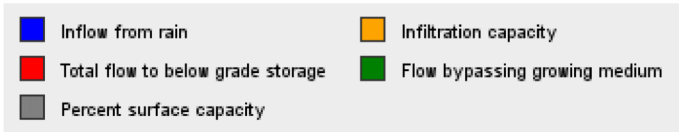
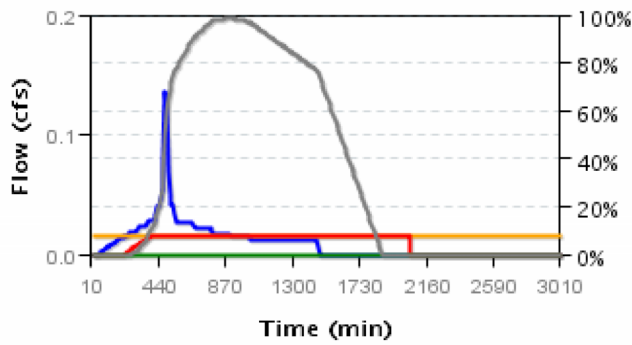
**Pollution Reduction Event Surface Facility Modeling**



**Pollution Reduction Event Below Grade Modeling**



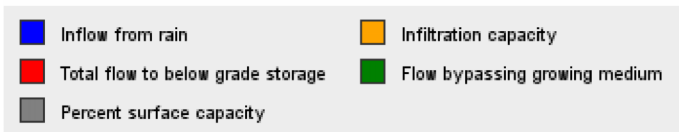
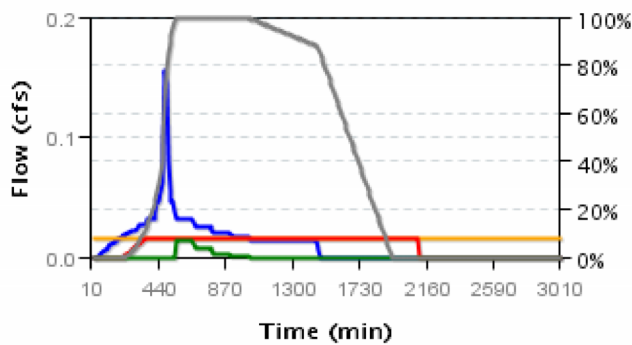
**10 Year Event Surface Facility Modeling**



**10 Year Event Below Grade Modeling**



**25 Year Event Surface Facility Modeling**



**25 Year Event Below Grade Modeling**

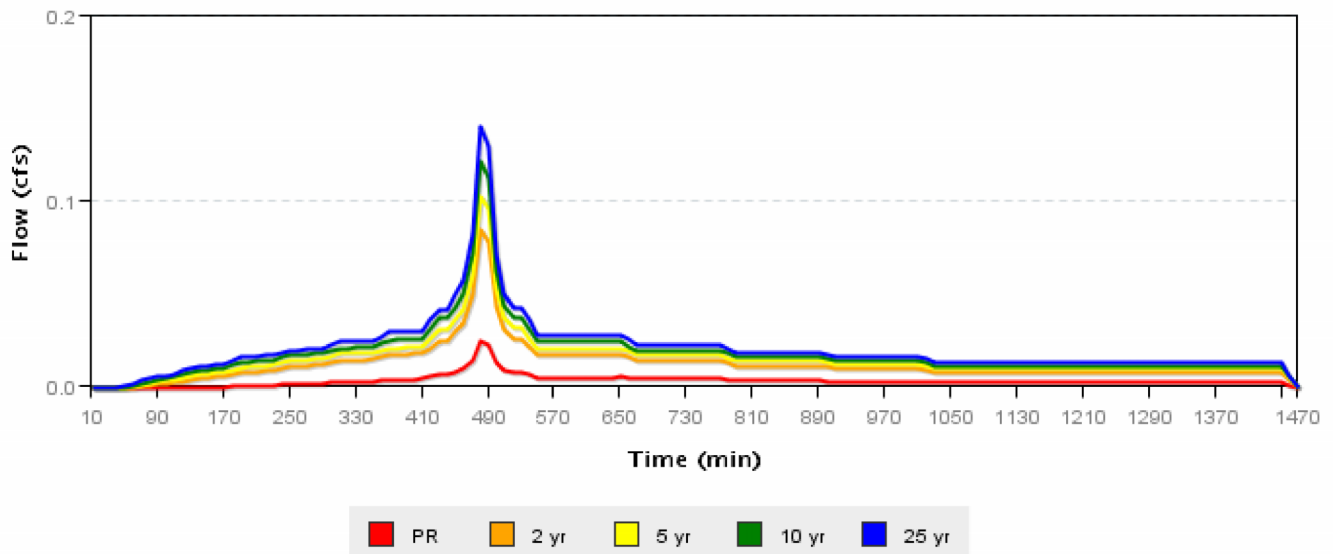


## Catchment B

Site Soils & Infiltration Testing Data	Infiltration Testing Procedure	Open Pit Falling Head
	Native Soil Infiltration Rate ( $I_{test}$ )	0.00 ⚠️
<b>Correction Factor</b>	$CF_{test}$	2
<b>Design Infiltration Rates</b>	Native Soil ( $I_{dsgn}$ )	0.00 in/hr ⚠️
	Imported Growing Medium	2.00 in/hr
<b>Catchment Information</b>	Hierarchy Category	4
	Hierarchy Description	Off-site flow to a combined sewer
	Pollution Reduction Requirement	Pass
	10-year Storm Requirement	N/A
	Flow Control Requirement	25-yr post-dev peak runoff rate ≤ 10-yr pre-dev peak rate
	Impervious Area	6000 sq ft 0.138 acre
	Time of Concentration ( $T_c$ )	5
	Pre-Development Curve Number ( $CN_{pre}$ )	72
	Post-Development Curve Number ( $CN_{post}$ )	98

⚠️ Indicates value is outside of recommended range

## SBUH Results



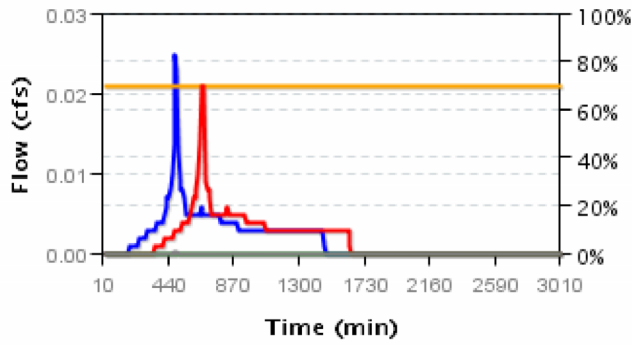
	Pre-Development Rate and Volume		Post-Development Rate and Volume	
	Peak Rate (cfs)	Volume (cf)	Peak Rate (cfs)	Volume (cf)
<b>PR</b>	0	0.346	0.025	313.517
<b>2 yr</b>	0.007	238.754	0.085	1085.675
<b>5 yr</b>	0.017	374.625	0.103	1334.349
<b>10 yr</b>	0.029	528.024	0.122	1583.395
<b>25 yr</b>	0.041	695.202	0.141	1832.676

## Facility B

<b>Facility Details</b>	Facility Type	<b>Planter (Flat)</b>
	Facility Configuration	<b>D: Lined Facility with RS and Ud</b>
	Facility Shape	<b>Planter</b>
	<b>Above Grade Storage Data</b>	
	Bottom Area	<b>450 sq ft</b>
	Bottom Width	<b>18.00 ft</b>
	Storage Depth 1	<b>12.0 in</b>
	Growing Medium Depth	<b>18 in</b>
	Surface Capacity at Depth 1	<b>450.0 cu ft</b>
	Design Infiltration Rate for Native Soil	<b>0.000 in/hr</b>
	Infiltration Capacity	<b>0.021 cfs</b>
<b>Facility Facts</b>	Total Facility Area Including Freeboard	<b>450.00 sq ft</b>
	Sizing Ratio	<b>7.5%</b>
<b>Pollution Reduction Results</b>	Pollution Reduction Score	<b>Pass</b>
	Overflow Volume	<b>314.227 cf</b>
	Surface Capacity Used	<b>1%</b>
<b>Flow Control Results</b>	Flow Control Score	<b>Pass</b>
	Overflow Volume	<b>1590.461 cf</b>
	Surface Capacity Used	<b>69%</b>

$$\begin{array}{ccc}
 \text{25 year} & & \text{10 year} \\
 \text{post-development} & & \text{pre-development} \\
 \text{outflow (cfs)} & & \text{inflow (cfs)} \\
 \hline
 \boxed{0.021} & \leq & \boxed{0.029} \quad \text{Pass}
 \end{array}$$

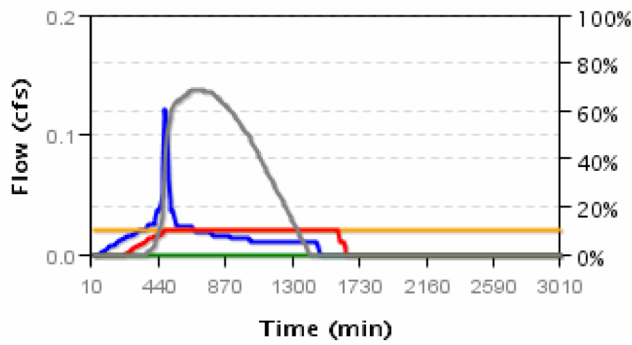
**Pollution Reduction Event Surface Facility Modeling**



**Pollution Reduction Event Below Grade Modeling**



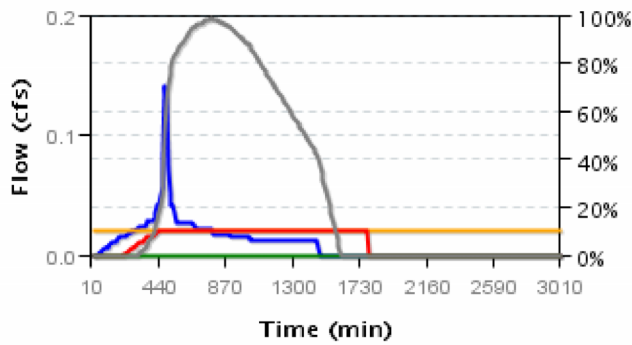
**10 Year Event Surface Facility Modeling**



**10 Year Event Below Grade Modeling**



**25 Year Event Surface Facility Modeling**



**25 Year Event Below Grade Modeling**





## **Appendix C**

### **Operations and Maintenance Plan**

To be provided at time of building permit