STORMWATER ANALYSIS REPORT FOR:

Tentative Subdivision: Summerset II
For: Pacific Rentals Corp.

Tamarack Street
Map 18-12-23-34-03701
Florence, OR 97439

Prepared by

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Contact: Michael A Cox, PE

Date: May 20, 2025

Based on the
City of Florence Stormwater Design Manual 2011

"I hereby certify that this Stormwater Management Report for Tentative Subdivision: Summerset II has been prepared by me or under my supervision and meets minimum standards of the City of Florence 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."

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1.0 Project Overview and Description

The property is a 5.735-acre parcel of land comprised of Tax Lot 3701 of Lane County Assessor's Map 18-12-23-34. The subject property is zone LR- Low-density Residential and is currently undeveloped. The subject property is bounded on the north, south, and east by developed residential zoned properties, and west by a church zoned as LR-Low-density Residential. All adjacent residential properties surrounding the property are under separate ownership.

The applicant wants to create a subdivision with 23 lots and public street. Utilities provided to the lots will extend from the public system and include water, sewer, electrical and communications. Stormwater of the individual lots may infiltrate on site or be treated in accordance with the city of Florence Stormwater Design Manual and routed to a weep hole to the new road. Stormwater from the road shall be treated using rain gardens.

The public stormwater is part of the SE Drainage Basin with public stormwater system located in Spruce Street and 20th Street (both with 18" pipes). The system has capacity for the buildout.

The permits required for the project include stormwater through the City of Eugene. Stormwater discharge is covered under the City of Eugene MS4 NPDES permit.

2.0 Existing Conditions

The site slopes from the north side of the property to the south side of the property with an approximate change of 4-feet. The site is well wooded. The USGS Lane County Soil Survey lists the following soils for the site:

140 Yaquina Loamy Fine Sand (54%) -This soil is described as somewhat poorly drained, depth to water table about 0 to 24 inches and a frequency of flooding of none.

131C Waldport Fine Sand (40%) -This soil is described as excessively drained, depth to water table more than 80 inches and a frequency of flooding of none.

133C Waldport-Urban Land Complex (5%) -This soil is described as excessively drained, depth to water table more than 80 inches and a frequency of flooding of none.

141 Yaquina-Urban Land Complex (2%) -This soil is described as somewhat poorly drained, depth to water table about 0 to 24 inches and a frequency of flooding of none.

Approximate location of these soils can be seen on the map in Appendix A.

3.0 Proposed Development

The proposed project includes paving with an imperious area of 1.034 acres of the 5.735-acre parcel. Stormwater standards for the site will meet the requirements of the City of Florence Stormwater Design Manual and Florence City Code Title 9 Chapter 5. The proposed development shall meet the requirements of 9-5-3 for quantity and quality. Individual lots shall treat their own stormwater prior to sending it out to the new developed street.

3.1 Pollutants of Concern

The reasonably expected pollutants of concern from this type of development are:

- Nutrients
- Pesticides, Herbicides, Fungicides
- Metals (Zinc, Copper, Lead, etc.)
- Oil, grease, and other petroleum
- Sediment
- Litter
- Oxygen demanding materials
- Increased thermal loading
- Bacteria

4.0 Stormwater Constraints

The site is constrained for providing on-site stormwater treatment per Section 9-5-3-3 of the Florence City Code. The additional future land development capacity in the existing public system allows for the connection of stormwater treatment facilities. Infiltration testing in the area indicates that individual lots can also

5.0 Proposed Development Stormwater Description

The proposed stormwater treatment and conveyance will utilize rain. Rain gardens provide full treatment while peak design storm is diverted and channelized through the main conveyance pipe.

6.0 Hydrologic and Hydraulic Analysis

6.1 Computer Model

In preparing this Stormwater Management Plan for the project site, SSW Engineers utilized presumptive approach calculator using the Santa Barbara Unit Hydrograph for treatment and the rational method for storm flow.

6.2 Computer Model Data

- **Storm Event**

For the purposes of this design, the City of Eugene design storm events are as follows:

Water Quality Event	0.83 inches/hour
10-year 24-hr Storm Event	4.48 inches/hours
25-year 24-hr Storm Event	5.06 inches/hours

- **Impervious Area**

Pavement and sidewalks are all impervious surfaces. Individual lot shall use pavement, sidewalks, patios, hardscapes and rooftops as impervious surfaces for their individual

design.

- **Pervious Area**

Lawns and open space are pervious areas. Each drainage basin's pervious area is all that area that is not impervious.

- **Runoff Curve Numbers**

Each drainage basin has a Runoff Curve Number for the impervious areas and the pervious areas. The Runoff Curve Number is based on the type of surface and the Hydrologic Group of the soils.

The soils on the site are in Soil Hydrologic Group A. Per the TR-55 table, the Curve Number is 45 for pervious areas and 98 for impervious areas.

- **Time of Concentration**

A minimum time of concentration of ten minutes was used for the post-developed conditions and ten minutes was used for pre-developed conditions.

6.3 Storm Basins

Basin	Area (Square Feet)
1	5,812
2	5,812
3	13,816
4	12,907
5	3,186
6	3,501

6.4 Facility Sizing

The stormwater treatment facilities were sized using the Presumptive Method.

7.0 Engineering Conclusion

Calculations for treatment and flow are provided in Appendix B and are in conformity with the City of Florence Stormwater Design Manual.

8.0 Maintenance

The rain garden will be operated and maintained by the city who will follow the Operation and Maintenance Plan pursuant to the Florence City Code. The operations and maintenance plan is included and can be observed in Appendix C.

APPENDIX A

Soil Map and Description

Map Scale: 1:1,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lane County Area, Oregon
Survey Area Data: Version 22, Sep 8, 2023

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

Date(s) aerial images were photographed: May 19, 2023—Jun 3, 2023

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
131C	Waldport fine sand, 0 to 12 percent slopes	2.4	47.2%
133C	Waldport-Urban land complex, 0 to 12 percent slopes	0.3	5.1%
140	Yaquina loamy fine sand	2.2	43.6%
141	Yaquina-Urban land complex	0.2	4.1%
Totals for Area of Interest		**5.1**	**100.0%**

Lane County Area, Oregon

131C—Waldport fine sand, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: 234r
Elevation: 0 to 150 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 165 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Waldport and similar soils: 85 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waldport

Setting

Landform: Dunes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sand of mixed origin

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oe - 1 to 3 inches: moderately decomposed plant material
H1 - 3 to 8 inches: fine sand
H2 - 8 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F004AB202OR - Dune Forest
Hydric soil rating: No

Minor Components

Heceta

Percent of map unit: 4 percent
Landform: Interdunes
Hydric soil rating: Yes

Yaquina

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Lane County Area, Oregon
Survey Area Data: Version 22, Sep 8, 2023

Lane County Area, Oregon

133C—Waldport-Urban land complex, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: 234w
Elevation: 10 to 150 feet
Mean annual precipitation: 60 to 100 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 165 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Waldport and similar soils: 50 percent
Urban land: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waldport

Setting

Landform: Dunes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sand of mixed origin

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oe - 1 to 3 inches: moderately decomposed plant material
H1 - 3 to 8 inches: fine sand
H2 - 8 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F004AB202OR - Dune Forest
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Yaquina

Percent of map unit: 5 percent
Landform: Marine terraces
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Lane County Area, Oregon
Survey Area Data: Version 22, Sep 8, 2023

Lane County Area, Oregon

140—Yaquina loamy fine sand

Map Unit Setting

National map unit symbol: 2359
Elevation: 20 to 130 feet
Mean annual precipitation: 70 to 80 inches
Mean annual air temperature: 50 to 52 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Yaquina and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yaquina

Setting

Landform: Dune slacks
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sand of mixed origin

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 9 inches: loamy fine sand
H2 - 9 to 30 inches: fine sand
H3 - 30 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F004AB202OR - Dune Forest
Forage suitability group: Somewhat Poorly Drained (G004AY017OR)
Other vegetative classification: Somewhat Poorly Drained (G004AY017OR)

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Lane County Area, Oregon
Survey Area Data: Version 22, Sep 8, 2023

Lane County Area, Oregon

141—Yaquina-Urban land complex

Map Unit Setting

National map unit symbol: 235b
Elevation: 20 to 130 feet
Mean annual precipitation: 70 to 80 inches
Mean annual air temperature: 50 to 52 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Yaquina and similar soils: 50 percent
Urban land: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yaquina

Setting

Landform: Dune slacks
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sand of mixed origin

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 9 inches: loamy fine sand
H2 - 9 to 30 inches: fine sand
H3 - 30 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F004AB202OR - Dune Forest
Forage suitability group: Somewhat Poorly Drained (G004AY017OR)
Other vegetative classification: Somewhat Poorly Drained (G004AY017OR)

Hydric soil rating: Yes

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Data Source Information

Soil Survey Area: Lane County Area, Oregon
Survey Area Data: Version 22, Sep 8, 2023

APPENDIX B

Calculations

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet
24 Hour Storm, NRCS Type 1A Rainfall Distribution
City of Florence

Version 2.1

Project Information

Project Name:	Pacific Rentals Co	**Date:**	3/13/2025
Project Address:	22nd & Tamarack	**Permit Number:**	
	Florence, OR	**Catchment ID:**	Basin 1 & 2
Designer:	Michael A Cox, P.E.		
Company:	SSW Engineers Inc.		

Instructions:

1. Complete this form for each drainage catchment in the project site that is to be sized per the Presumptive Approach.
2. Provide a distinctive Catchment ID for each facility coordinated with the site basin map to correlate the appropriate calculations with the facility.
3. The maximum drainage catchment to be modeled per the Presumptive Approach is 1 acre (43,560 SF)
4. For infiltration facilities in Class A or B soils where no infiltration testing has been perfromed use an infiltration rate of 0.5 in/hr. For all facilities use a maximum soil infiltration rate of 2.5 in/hr for topsoil/growing medium.

Design Requirements:

Choose "Yes" from the dropdown boxes below next to the design standards requirements for this facility.

Pollution Reduction (PR)	Yes
Flow Control (FC)	No
Destination (DT)	No

*An infiltration facility must be chosen as the facility type to meet destination requirements

Site Data-Post Development

Total Square Footage Impervious Area=	11624	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	11624	sft	**Time of Concentration Post Development=**	5	min
Weighted Average CN=	98				

Site Data-Pre Development **(Data in this section is only used if Flow Control is required)**

Pre-Development CN=	45		**Time of Concentration Pre-Development=**	10	min

Soil Data

Tested Soil Infiltration Rate=	8	in/hr (See Note 4)	**Destination Design=**	N/A	in/hr
Design Soil Infiltration Rate=	2.5	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.83	inches	Water Quality
Flow Control	4.46	inches	Flood Control
Destination	4.46	inches	Flood Control

Facility Data

Facility Type=	Infiltration Rain Garden		**Facility Surface Area=**	220	sqft
Surface Width=	10	ft	**Facility Surface Perimeter=**	64	ft
Surface Length=	22	ft	**Facility Bottom Area=**	133	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	52	ft
Max. Ponding Depth in Stormwater Facility=	6	in	**Basin Volume=**	90.5	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.019	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.048	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	606	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	5.8	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Pollution Reduction Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 18 Hour Drawdown Time?**

Flow Control-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.313	cfs	Peak Facility Overflow Rate=	0.300	cfs
Total Runoff Volume to Stormwater Facility =	4083	cf	Total Overflow Volume=	2944	cf
Max. Depth of Stormwater in Facility=	6.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	2.3	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.007	cfs
Total Runoff Volume =	276	cf

N\A **Facility Sizing Meets Flow Control Standards?**

N\A **Meets Requirement for Post Development offsite flow less or equal to Pre-Development Flow?**
N\A **Meets Requirement for Maximum of 18 Hour Drawdown Time?**

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	N/A	cfs	Peak Facility Overflow Rate=	N/A	cfs
Total Runoff Volume to Stormwater Facility =	N/A	cf	Total Overflow Volume=	N/A	cf
Max. Depth of Stormwater in Facility=	N/A	in			
Drawdown Time=	N/A	hours			

N/A **Facility Sizing Meets Destination Standards?**

N/A **Meets Requirement of No Facility Flooding?**
N/A **Meets Requirement for Maximum of 30 hour Drawdown Time?**

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet
24 Hour Storm, NRCS Type 1A Rainfall Distribution
City of Florence

Version 2.1

Project Information

Project Name:	Pacific Rentals Co	**Date:**	3/13/2025
Project Address:	22nd & Tamarack	**Permit Number:**	
	Florence, OR	**Catchment ID:**	Basin 3 & 4
Designer:	Michael A Cox, P.E.		
Company:	SSW Engineers Inc.		

Instructions:

1. Complete this form for each drainage catchment in the project site that is to be sized per the Presumptive Approach.
2. Provide a distinctive Catchment ID for each facility coordinated with the site basin map to correlate the appropriate calculations with the facility.
3. The maximum drainage catchment to be modeled per the Presumptive Approach is 1 acre (43,560 SF)
4. For infiltration facilities in Class A or B soils where no infiltration testing has been perfromed use an infiltration rate of 0.5 in/hr. For all facilities use a maximum soil infiltration rate of 2.5 in/hr for topsoil/growing medium.

Design Requirements:

Choose "Yes" from the dropdown boxes below next to the design standards requirements for this facility.

Pollution Reduction (PR)	Yes
Flow Control (FC)	No
Destination (DT)	Yes

*An infiltration facility must be chosen as the facility type to meet destination requirements

Site Data-Post Development

Total Square Footage Impervious Area=	26723 sqft	**Total Square Footage Pervious Area=**	0 sqft
Impervious Area CN=	98	**Pervious Area CN=**	85
Total Square Footage of Drainage Area=	26723 sft	**Time of Concentration Post Development=**	5 min
Weighted Average CN=	98		

Site Data-Pre Development (Data in this section is only used if Flow Control is required)

Pre-Development CN=	45	**Time of Concentration Pre-Development=**	10 min

Soil Data

Tested Soil Infiltration Rate=	8 in/hr (See Note 4)	**Destination Design=**	N/A in/hr
Design Soil Infiltration Rate=	2.5 in/hr	**Soil Infiltration Rate**	

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.83	inches	Water Quality
Flow Control	4.46	inches	Flood Control
Destination	4.46	inches	Flood Control

Facility Data

Facility Type=	Filtration Rain Garden	**Facility Surface Area=**	476 sqft
Surface Width=	14 ft	**Facility Surface Perimeter=**	96 ft
Surface Length=	34 ft	**Facility Bottom Area=**	341 sqft
Facility Side Slopes=	3 to 1	**Facility Bottom Perimeter=**	84 ft
Max. Ponding Depth in Stormwater Facility=	6 in	**Basin Volume=**	206.5 cf
Depth of Growing Medium (Soil)=	18 in	**Ratio of Facility Area to Impervious Area=**	0.018

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.110	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1393	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	5.8	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Pollution Reduction Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 18 Hour Drawdown Time?**

Flow Control-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.719	cfs	Peak Facility Overflow Rate=	0.692	cfs
Total Runoff Volume to Stormwater Facility =	9387	cf	Total Overflow Volume=	6900	cf
Max. Depth of Stormwater in Facility=	6.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	0.028	cfs
Drawdown Time=	2.3	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.017	cfs
Total Runoff Volume =	635	cf

N\A **Facility Sizing Meets Flow Control Standards?**

N\A **Meets Requirement for Post Development offsite flow less or equal to Pre-Development Flow?**
N\A **Meets Requirement for Maximum of 18 Hour Drawdown Time?**

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	N/A	cfs	Peak Facility Overflow Rate=	N/A	cfs
Total Runoff Volume to Stormwater Facility =	N/A	cf	Total Overflow Volume=	N/A	cf
Max. Depth of Stormwater in Facility=	N/A	in			
Drawdown Time=	N/A	hours			

N/A **Facility Sizing Meets Destination Standards?**

N/A **Meets Requirement of No Facility Flooding?**
N/A **Meets Requirement for Maximum of 30 hour Drawdown Time?**

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet
24 Hour Storm, NRCS Type 1A Rainfall Distribution
City of Florence

Version 2.1

Project Information

Project Name:	Pacific Rentals Co	**Date:**	3/13/2025
Project Address:	22nd & Tamarack	**Permit Number:**	
	Florence, OR	**Catchment ID:**	Basin 5 & 6
Designer:	Michael A Cox, P.E.		
Company:	SSW Engineers Inc.		

Instructions:

1. Complete this form for each drainage catchment in the project site that is to be sized per the Presumptive Approach.
2. Provide a distinctive Catchment ID for each facility coordinated with the site basin map to correlate the appropriate calculations with the facility.
3. The maximum drainage catchment to be modeled per the Presumptive Approach is 1 acre (43,560 SF)
4. For infiltration facilities in Class A or B soils where no infiltration testing has been perfromed use an infiltration rate of 0.5 in/hr. For all facilities use a maximum soil infiltration rate of 2.5 in/hr for topsoil/growing medium.

Design Requirements:

Choose "Yes" from the dropdown boxes below next to the design standards requirements for this facility.

Pollution Reduction (PR)	Yes
Flow Control (FC)	No
Destination (DT)	No

*An infiltration facility must be chosen as the facility type to meet destination requirements

Site Data-Post Development

Total Square Footage Impervious Area=	6687	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	6687	sft	**Time of Concentration Post Development=**	5	min
Weighted Average CN=	98				

Site Data-Pre Development **(Data in this section is only used if Flow Control is required)**

Pre-Development CN=	45		**Time of Concentration Pre-Development=**	10	min

Soil Data

Tested Soil Infiltration Rate=	8	in/hr (See Note 4)	**Destination Design=**	N/A	in/hr
Design Soil Infiltration Rate=	2.5	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.83	inches	Water Quality
Flow Control	4.46	inches	Flood Control
Destination	4.46	inches	Flood Control

Facility Data

Facility Type=	Filtration Rain Garden		**Facility Surface Area=**	132	sqft
Surface Width=	12	ft	**Facility Surface Perimeter=**	46	ft
Surface Length=	11	ft	**Facility Bottom Area=**	72	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	34	ft
Max. Ponding Depth in Stormwater Facility=	6	in	**Basin Volume=**	53.2	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.020	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.028	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	349	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	5.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Pollution Reduction Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 18 Hour Drawdown Time?**

Flow Control-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.180	cfs	Peak Facility Overflow Rate=	0.172	cfs
Total Runoff Volume to Stormwater Facility =	2349	cf	Total Overflow Volume=	1668	cf
Max. Depth of Stormwater in Facility=	6.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	0.008	cfs
Drawdown Time=	2.5	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.004	cfs
Total Runoff Volume =	159	cf

N\A **Facility Sizing Meets Flow Control Standards?**

N\A **Meets Requirement for Post Development offsite flow less or equal to Pre-Development Flow?**
N\A **Meets Requirement for Maximum of 18 Hour Drawdown Time?**

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	N/A	cfs	Peak Facility Overflow Rate=	N/A	cfs
Total Runoff Volume to Stormwater Facility =	N/A	cf	Total Overflow Volume=	N/A	cf
Max. Depth of Stormwater in Facility=	N/A	in			
Drawdown Time=	N/A	hours			

N/A **Facility Sizing Meets Destination Standards?**

N/A **Meets Requirement of No Facility Flooding?**
N/A **Meets Requirement for Maximum of 30 hour Drawdown Time?**

APPENDIX C

Operations and Maintenance Plan

After Recording Return to:
Name:
Address:

Place Recording Label Here

APPENDIX A.4

Form O&M: Operations and Maintenance Plan

Permit Application No ._____

Owner Name: __Pacific Rental Corp._____

Phone: (*area code required)* ___*(541)*_____

Mailing Address: *(return address for records)* __*PO Box 777*_____

City/State/Zip:___Florence OR 97439_____

Site Address: _____

City/State/Zip:___Florence OR 97439_____

Site Legal Description:
Parcel 1 of LAND PARTITION PLAT NO 2024-P3185, as platted and recorded 06/12/2024, reception number 2024-016225, Lane County Deeds and Records in Lane County, Oregon.

1 Responsible Party for Maintenance (*check one)*
_ Homeowner association _ Property Owner _**X** Other *(describe)*
_____

2 Contact Information for Responsible Party(ies) if Other than Owner

Daytime Phone: (*area code required)* _____- _____-_____
Emergency/After Hours Phone: _____- _____-_____
Contact Name and Address:
_____
_

Instructions

Simplified Sizing Approach: *Attach O&M Specifications from the Florence Stormwater Design Manual Appendix H.*

Presumptive and Performance Sizing Approach: *Attach the site-specific O&M Plan (See Stormwater Design Manual Section 6).*

3 Site Plan
Show all facility locations in relation to labeled streets, buildings, or other permanent features on the site. Also show the sources of runoff entering the facility, and the final onsite/offsite discharge point.
Please complete the table below

Maintaining the stormwater management facility on this site plan is a required condition of building permit approval for the identified property. The property owner is required to operate and maintain this facility in accordance with the O&M specifications or plan on file with the City of Florence. That requirement is binding on all current and future

owners of the property. Failure to comply with the O&M specifications or plan may result in enforcement action, including penalties. The O&M specifications or plan may be modified by written consent of new owners and written approval by re-filing with the Community Development Department.

Complete and recorded O&M Forms shall be submitted to:
Community Development Department, 250 Highway 101, Florence, OR, 97439
Office hours are 8 - 5, Monday through Friday. Call 541-997-3436 for assistance.

Required Site Plan (insert here or attach separate sheet)

[X] I Have Attached a Site Plan

Please complete this table

Facility Type	Size (sf)	Drainage is from:	Impervious Area Treated (sf)	Discharge Point	
Rain Garden	308	Basin 1& 2	11,624	Spruce Street	
Rain Garden	496	Basin 3 & 4	26,723	20th Street	
Rain Garden	136	Basin 5 & 6	6,687	20th Street	

BY SIGNING BELOW *filer accepts and agrees to the terms and conditions contained in this O&M Form and in any document executed by filer and recorded with it. To be signed in the presence of a notary.*

_____
Filer signature

INDIVIDUAL Acknowledgement
STATE of OREGON county of:

This instrument was acknowledged before me on:

By:

Notary Signature:

My Commission Expires: _____ *for notary seal*

CORPORATE Acknowledgement
STATE of OREGON county of:

_____

This instrument was acknowledged before me on:

_____

By:

_____

As (title):

_____

Of (corporation):

_____

Notary Signature:

_____

My Commission Expires: _____

(SAMPLE)
STORMWATER MANAGEMENT FACILITY
CITY OF FLORENCE, OREGON
OPERATION & MAINTENANCE AGREEMENT

Sediment and other pollutants that degrade water quality will accumulate in urban stormwater facilities. The operation and maintenance of stormwater management facilities including the implementation of pollution reduction facilities is essential to the protection of the city's water quality. Removal of accumulated pollutants and sediment is important for proper operation. All property owners are expected to conduct business in a manner that promotes resource protection. This agreement contains specific provisions with respect to city maintenance of private stormwater management facilities and use of pollution reduction facilities.

Property Address:

Legal description:

Whereas, _____, herein referred to as Owner, has constructed improvements, including but not limited to buildings, pavement, and stormwater management facilities on the property described above. In order to further the goals of the City of Florence to ensure the protection and enhancement of water quality, the City of Florence and Owner hereby enter into this Agreement. The responsibilities of each party to this Agreement are identified below.

Recitals

1. Owner owns the above described property within the City of Florence, Lane County, Oregon.
2. Owner owns and operates stormwater management facilities approved and permitted as required by land use permit _____.
3. Owner has requested the city to provide the functional maintenance of the facility.
4. City approved construction plans dedicating the drainage system conveying the runoff from the residential properties to the stormwater facility as a public drainage system are on file.
5. Access routes for maintenance have been located within a dedicated public easement on private or commonly held property, within the public right-of-way or on city owned property.
6. Sufficient easement area, right-of-way width or property have been provided to accommodate the construction and maintenance of all existing and proposed utilities and public infrastructure.

Owner shall:

1. Implement the stormwater management plan included herein as Attachment "A". (Stormwater disposal and pollution reduction construction details, and source control protection, etc.)
2. Implement the stormwater maintenance plan included herein as Attachment "B". (Owner responsibilities such as vegetation control, debris pickup, etc.)
3. Inspect the facilities monthly and after significant storm events to determine if maintenance activity is warranted.
4. Maintain maintenance and inspection records (in the form of a log book) of steps taken to implement the programs referenced in (1) and (2) above. The log book shall be available for inspection by appointment at _____. The log book shall catalog any action taken, who took the action, when it was taken, how it was done, and any problems encountered or follow-on actions recommended. Maintenance items ("problems") listed in Attachment "A" shall be inspected as specified in the attached instructions or more often if necessary. The Owner and Users are encouraged to photocopy the individual checklists in Attachment "A" and use them to complete its inspections. These completed checklists would then, in combination, comprise the logbook.
5. Submit an annual report to the City of Florence regarding implementation programs referenced in (1) and (2) above. The report must be submitted on or before June 30 of each calendar year after execution of this agreement. At a minimum, the following items shall be included in the report:
    a. Name, address, and telephone number of the businesses, persons, or firms responsible for maintenance plan implementation, and the persons completing the report.

   b. Time period covered by the report.
   c. A chronological summary of activities conducted to implement the program and plan referenced in (1) and (2) above. A photocopy of the applicable sections of the logbook with any additional explanations needed shall suffice. For any activities conducted by paid parties, include a copy of the invoice for services.
   d. Any outline planned activities for the upcoming year.
6. Allow the City of Florence staff to inspect stormwater management facilities at the above referenced site.

City of Florence shall:

1. Execute the following periodic major maintenance on the subdivision's pollution reduction facilities: sediment removal from facilities, resetting orifice sizes and elevations, and adding baffles.
2. Maintain all stormwater management facility elements within the public rights of way and dedicated easements, such as catch basins, weirs, oil-water separators, and pipes.
3. Provide technical assistance to the Owner in support of its operation and maintenance activities conducted pursuant to its maintenance and source control programs. Said assistance shall be provided upon request and as the City of Florence's time and resources permit.
4. Review the annual report and conduct a minimum of one (1) site visit per year to discuss performance and problems with the stormwater management facilities.
5. Review the agreement with the Owner and modify it as necessary at least once every three (3) years.

Remedies:

1. If the City of Florence determines that maintenance that maintenance or repair work is required to be done to the stormwater management facilities located in the subdivision, the City of Florence shall give the Owner notice of the specific maintenance and/or repair required. The City of Florence shall set a reasonable time in which such work is to be completed the persons who were given notice. If the above required maintenance and/or repair is not completed within the time set by the City of Florence, written notice will be sent to the Owner stating the City of Florence's intention to perform such maintenance and bill the Owner for all incurred expenses.
2. If, at any time, the City of Florence determines that the existing facility creates any imminent threat to public health, safety, or welfare, the City of Florence may take immediate measures to remedy said threat. No notice to the persons listed in Remedies (1), above shall be required under such circumstances. All other

Owner responsibilities shall remain in effect.

1. The Owner shall grant unrestricted authority to the City of Florence for access to any and all stormwater management facilities for the purpose of performing maintenance or repair as may become necessary under Remedies (1) and/or (2).
2. The Owner shall assume responsibility for the cost of maintenance and repairs to the stormwater management facilities, except for those maintenance actions explicitly assumed by the City of Florence in the preceding section. Such responsibility shall include reimbursement to the City of Florence within 90 days of the receipt of the invoice for any such work performed. Overdue payments will require payment of interest at the current legal rate for liquidated judgments. If legal action ensues, any costs or fees incurred by the City of Florence will be borne by the parties responsible for said reimbursements. This Agreement is intended to protect the value and desirability of the real property described above and to benefit all the citizens of the City of Florence. It shall run with the land and be binding on all parties having or acquiring any right, title, or interest or any part thereof, of real property in the subdivision. They shall inure to the benefit of each present or future successor in interest of said property or any part thereof or interest therein, and to the benefit of all citizens of the City of Florence.

This instrument is intended to be binding upon the parties hereto, their heirs, successors and assignees.

In Witness whereof, the undersigned has executed this instrument on this _____ day of _____,20____.

OWNER(s):

Signature _____

_____
(print name)

STATE OF OREGON,
County of Lane, ss:
This instrument was acknowledged before me this _____ day of _____,
20__,by _____, owner(s) of the above described premises.

_____
Notary Public for Oregon

_____
My commission expires

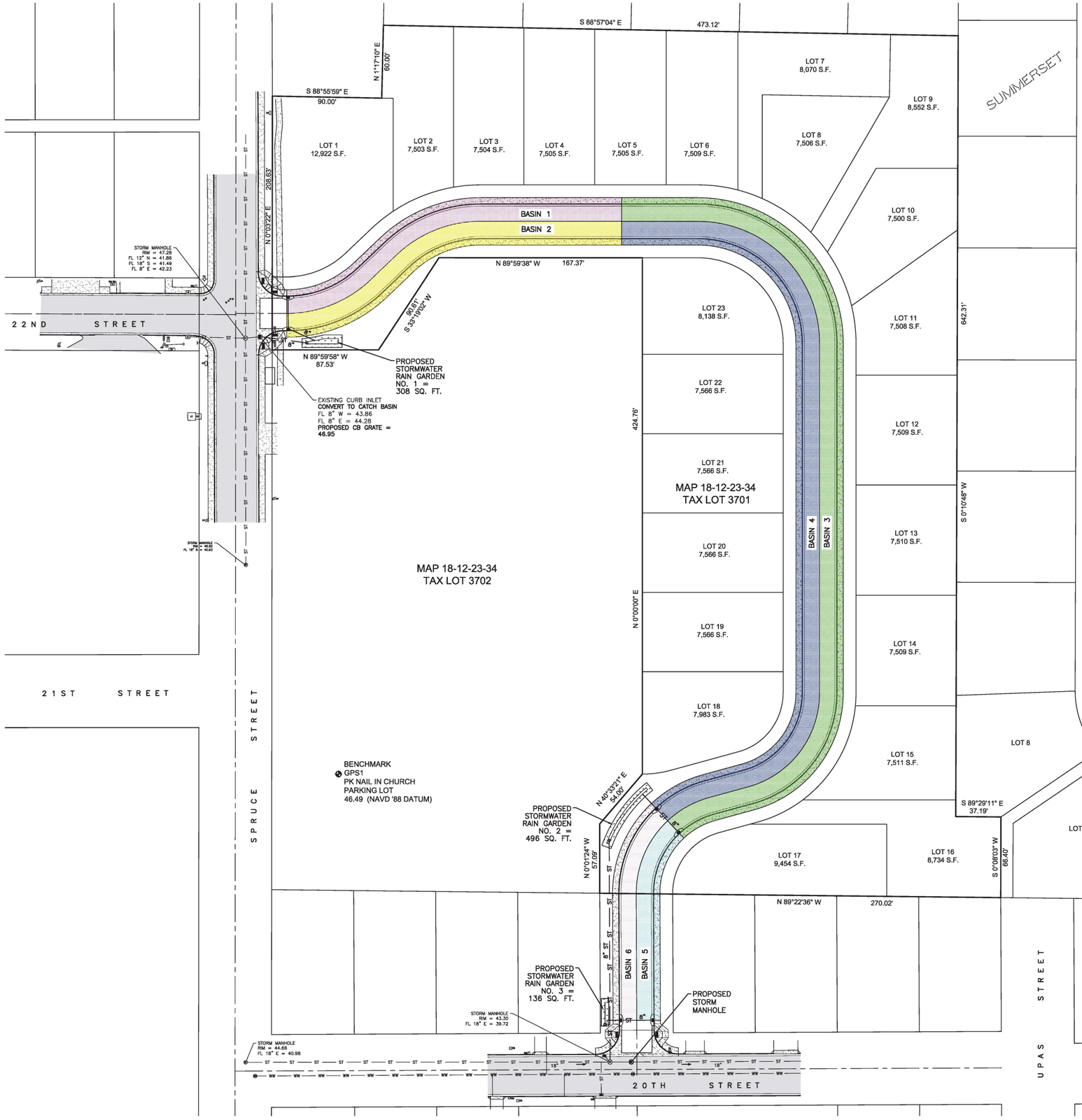
MANAGER, CITY OF FLORENCE
In Witness whereof, the undersigned agent of the City of Florence has executed this instrument and acknowledged
the said instrument to be free and voluntary act and deed on this _____ day of _____,
20____ for the purposes herein mentioned and on oath states he is authorized to execute said instrument.

_____
City Manager

STATE OF OREGON,
County of Lane, ss:
This instrument was acknowledged before me this _____ day of _____,
20__, by _____, owner(s) of the above described premises.

_____
Notary Public for Oregon

_____
My commission expires



NORTH

SCALE 1" = 40 FT

0 20 40 80

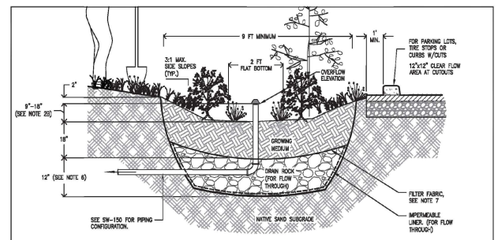
STORMWATER NARRATIVE:

STORMWATER RUN-OFF FROM THE NEW PUBLIC STREET AND SIDEWALKS ARE TO BE TREATED VIA PUBLICLY MAINTAINED STORMWATER RAIN GARDENS AS SHOWN HEREON IN ACCORDANCE WITH CITY STANDARD DRAWING SW-140 AND THE CITY OF FLORENCE STORMWATER DESIGN MANUAL DATED NOVEMBER 2010 AND REVISED SEPTEMBER 2011 AND THE CITY OF FLORENCE STORMWATER MASTER PLAN UPDATE DATED DECEMBER 2018. SIZING OF THE STORMWATER FACILITIES WAS ACCOMPLISHED BY THE PRESUMPTIVE METHOD.

THE INDIVIDUAL LOTS, AT THE TIME OF BUILDING PERMIT, SHALL BE RESPONSIBLE FOR THE TREATMENT AND CONVEYANCE OF STORMWATER RUN-OFF BEFORE INFILTRATING ON SITE AND/OR DISCHARGING TO TAMARACK STREET. INDIVIDUAL LOT STORMWATER FACILITIES SIZES (DEPENDING ON LOT SIZE AND 80% BUILD OUT) SHALL RANGE APPROXIMATELY BETWEEN 300 SQ.FT. TO 517 SQ.FT.

STORMWATER FACILITY DATA

STORMWATER BASIN	AREA	PLANTER AREA REQUIRED	PLANTER AREA PROVIDED
1	5812 SF		
2	5812 SF		
1+2	11,624 SF	220 SF	308 SF
3	13,816 SF		
4	12,907 SF		
3+4	26,723 SF	476 SF	496 SF
5	3186 SF		
6	3501 SF		
5+6	6687 SF	132 SF	136 SF



1. Provide protection from all vehicle traffic, equipment staging, and foot traffic in proposed infiltration areas prior to, during, and after construction.
2. Dimensions:
   a. Width of basin: 9' minimum.
   b. Depth of basin (from top of growing medium to overflow elevation); Simplified: 12", Presumptive: 9"-18".
   c. Flat bottom width: 2' min.
   d. Side slopes of basin: 3:1 maximum.
3. Setbacks (from midpoint of facility):
   a. Infiltration basins must be 10' from foundations and 5' from property lines.
   b. Flow-through swales must be lined with connection to approved discharge point according to SWDM Section 2.1.
4. Overflow:
   a. Overflow required for Simplified Approach.
   b. Inlet elevation must allow for 2" of freeboard, minimum.
   c. Protect from debris and sediment with strainer or grate.
5. Piping: shall be ABS Sch.40, cast iron, or PVC Sch.40. 3" pipe required for up to 1,500 sq ft of impervious area, otherwise 4" min. Piping must have 1% grade and follow the Uniform Plumbing Code.
6. Drain rock:
   a. None required for infiltration basin
   b. Size for flow-through basin: ¾" washed
7. Separation between drain rock and growing medium: Use filter fabric (see SWDM Exhibit 2-8).
8. Growing medium:
   a. 18" minimum
   b. See Appendix B for specification.
9. Vegetation: Follow landscape plans otherwise refer to plant list in SWDM Appendix G. Minimum container size is 1 gallon. # of plantings per 100sf of facility area)
   a. Zone A (wet): 116 herbaceous plants OR 100 herbaceous plants and 4 shrubs
   b. Zone B (moderate to dry): 1 tree AND 3 large shrubs AND 4 medium to small shrubs.

   The delineation between Zone A and B shall be either at the outlet elevation or the check dam elevation, whichever is lowest.
10. Install washed pea gravel or river rock to transition from inlets and splash pad to growing medium.
11. Inspections: Call City of Florence Public Works (541) 997-4106 to schedule appropriate inspections.

- DRAWING NOT TO SCALE -

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS

CITY OF FLORENCE
PUBLIC WORKS DEPARTMENT
DATE: 11-30-10

- Simplified / Presumptive Design Approach -

Rain Garden

NUMBER
SW-140

REGISTERED PROFESSIONAL ENGINEER
77009
OREGON
JUNE 1, 2011
MICHAEL ALAN COX
PRELIMINARY
RENEWS: 12/31/23

SSW ENGINEERS, INC
CIVIL · STRUCTURAL · BUILDING DESIGN
SURVEYING · LAND USE PLANNING
2350 Oakmont Way, Suite 105
Eugene, Oregon 97401
(541) 485-8383
FAX (541) 485-8384
www.sswengineers.com

TENTATIVE SUBDIVISION: SUMMERSET II
FOR: PACIFIC RENTAL CORP.
MAP 18-12-23-34, TAX LOT 3701
SPRUCE STREET
FLORENCE, LANE COUNTY, OREGON

REVISIONS

date	by

STORMWATER BASIN PLAN

job	24-8085
drawn	MRD
date	5/17/2025
checked	
filed	

SHEET

7

7 of 7

Rain Gardens

Operations & Maintenance Plan

Training and/or written guidance information for operating and maintaining vegetated infiltration basins shall be provided to all property owners and tenants. A copy of the O&M Plan shall be provided to all property owners and tenants.

Access to the infiltration basin shall be safe and efficient. Egress and ingress routes shall be maintained to design standards. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.

- Obstacles preventing maintenance personnel and/or equipment access to the infiltration basin shall be removed.
- Gravel or ground cover shall be added if erosion occurs, e.g., due to vehicular or pedestrian traffic.

Insects & Rodents shall not be harbored in the infiltration basin. Pest control measures shall be taken when insects/rodents are found to be present.

- If a complaint is received or an inspection reveals that a stormwater facility is significantly infested with mosquitoes or other vectors, the property owner/owners or their designee may be required to eliminate the infestation at the City inspector's discretion. Control of the infestation shall be attempted by using first non-chemical methods and secondly, only those chemical methods specifically approved by the City's inspector. Acceptable methods include but are not limited to the following:
  i) Installation of predacious bird or bat nesting boxes.
  ii) Alterations of pond water levels approximately every four days in order to disrupt mosquito larval development cycles.
  iii) Stocking ponds and other permanent water facilities with fish or other predatory species.
  iv) If non-chemical methods have proved unsuccessful, contact the City inspector prior to use of chemical methods such as the mosquito larvicides Bacillus thurengensis var. israeliensis or other approved larvacides. These materials may only be used with City inspector approval if evidence can be provided that these materials will not migrate off-site or enter the public stormwater system. Chemical larvicides shall be applied by a licensed individual or contractor.
- Holes in the ground located in and around the infiltration basin shall be filled.

If used at this site, the following will be applicable:

Fences shall be maintained to preserve their functionality and appearance.

- Collapsed fences shall be restored to an upright position.
- Jagged edges and damaged fences shall be repaired or replaced.

Rain Gardens

Operations & Maintenance Plan

A **vegetated Infiltration Basin** is a vegetated depression created by excavation, berms, or small dams to provide for short-term ponding of surface water until it percolates into the soil. The basin shall infiltrate stormwater within 24 hours. All facility components and vegetation shall be inspected for proper operations and structural stability, at a minimum, quarterly for the first 2 years from the date of installation, 2 times per year thereafter, and within 48 hours after each major storm event. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. The following items shall be inspected and maintained as stated:

Basin Inlet shall assure unrestricted stormwater flow to the vegetated basin.

- Sources of erosion shall be identified and controlled when native soil is exposed or erosion channels are present.
- Inlet shall be cleared when conveyance capacity is plugged.
- Rock splash pads shall be replenished to prevent erosion.

Embankment, Dikes, Berms & Side Slopes retain water in the infiltration basin.

- Structural deficiencies shall be corrected upon discovery:
- Slopes shall be stabilized using appropriate erosion control measures when soil is exposed/ flow channels are forming.
- Sources of erosion damage shall be identified and controlled.

Overflow or Emergency Spillway conveys flow exceeding reservoir capacity to an approved stormwater receiving system.

- Overflow shall be cleared when 25% of the conveyance capacity is plugged.
- Sources of erosion damage shall be identified and controlled when soil is exposed.
- Rocks or other armament shall be replaced when only one layer of rock exists.

Filter Media shall allow stormwater to percolate uniformly through the infiltration basin. If water remains 36-48 hours after storm, sources of possible clogging shall be identified and corrected.

- Basin shall be raked and, if necessary, soil shall be excavated, and cleaned or replaced.

Sediment/ Basin Debris Management shall prevent loss of infiltration basin volume caused by sedimentation. Gauges located at the opposite ends of the basin shall be maintained to monitor sedimentation.

- Sediment and debris exceeding 4" in depth shall be removed every 2-5 years or sooner if performance is affected.

Debris and Litter shall be removed to ensure stormwater infiltration and to prevent clogging of overflow drains and interference with plant growth.

- Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented.

Vegetation shall be healthy and dense enough to provide filtering while protecting underlying soils from erosion.

- Mulch shall be replenished as needed to ensure healthy plant growth.
- Vegetation, large shrubs or trees that limit access or interfere with basin operation shall be pruned or removed.
- Grass shall be mowed to 4"-9" high and grass clippings shall be removed no less than 2 times per year.
- Fallen leaves and debris from deciduous plant foliage shall be raked and removed.
- Nuisance or prohibited vegetation from the Eugene Plant List (such as blackberries or English Ivy) shall be removed when discovered. Invasive vegetation contributing up to 25% of vegetation of all species shall be removed.
- Dead vegetation shall be removed to maintain less than 10% of area coverage or when infiltration basin function is impaired. Vegetation shall be replaced within 3 months, or immediately if required to control erosion.

Spill Prevention measures shall be exercised when handling substances that contaminate stormwater. Releases of pollutants shall be corrected as soon as identified.