EGR & Associates, Inc.
Engineers, Geologists and Surveyors
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Exhibit J1

Stormwater Management Report

Fairway Estates PUD Phases 2, 3 and 4

Map and Tax Lot 18-12-15-00-01500

Florence, Oregon

September 22, 2022

Revised January 30, 2023

Owner/Applicant

Pacific Golf Communities, LLC
Roberts Land Company, LLC
4000 Rhododendron Drive
Florence, OR 97439

Engineer/Surveyor

EGR & Associates, Inc.
2535B Prairie Road
Eugene, Oregon 97402

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Designer's Certification and Statement

I hereby certify that this Stormwater Management Report for Fairway Estates PUD Phases 2, 3 and 4 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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Contents

List of Appendices

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PROJECT OVERVIEW AND DESCRIPTION

The project site is approximately 10.33 acres in size and is identified as Tax Lot 1500 on Lane County Assessor Map 18-12-15-00. The site is located north of the Fairway Estates P.U.D. Phase 1 subdivision, east of the Mariners Village P.U.D. subdivision, west of Florence Golf Links, and south of public lands. Access is from the Fairway Estates P.U.D. Phase 1 subdivision private street system that connects to Rhododendron Drive. A vicinity map is included in Appendix A.

The property is inside the City of Florence and is currently zoned Single Family Residential. Proposed development consists of 42 single-family lots to be developed in three phases starting from the terminus of Fairway Estates P.U.D. Phase 1 and extending northward. Two existing private streets in Phase 1 will be extended into and looped through the proposed development. Underground utilities consisting of public wastewater and water lines, franchise utilities, and private stormwater facilities will be installed to serve the development. These utilities are currently stubbed to the south side of the site from the Phase 1 subdivision improvements.

Local groundwater and surface water generally flows from the northeast to southwest towards the Siuslaw River. The tributary watershed upgradient (north) from the site consists predominantly of undeveloped land situated on Lane County, City of Florence and BLM lands. These lands rely solely on groundwater infiltration for stormwater management. Soils within the watershed, including the project site, consists predominantly of Yaquina loamy fine sand.

The project site is currently vacant land overgrown with coastal brush and trees. Topography is generally flat with an approximate gradient of 1- to 2-percent from north to south. Proposed development will include clearing and grading of the site as needed. A preliminary site grading plan is included in Appendix A. The two private streets currently terminated at the south side of the site will be extended through the development and connected on the north side of the site to create a looped street system. The streets will slope at approximate one-half percent grades from a high point on the north side to the terminus of the current streets. Underground utilities will generally be located within the roadway or in an adjacent public utility easement.

METHODOLOGY

Existing Conditions

Groundwater and surface runoff upgradient (northerly) from the site generally flows to the southwest towards Florence Golf Links, the Mariners Village subdivision, and the project site. Stormwater flow typically concentrates at the northwest corner of Florence Golf Links and northeast corner of the Mariners Village subdivision.

At Florence Golf Links, stormwater is routed to the southwest corner of the golf course property where the stormwater is discharged into a stormwater pipe that terminates at the southeast corner of the Fairway Estates subdivision. This stormwater pipe is part of the Fairway Estates P.U.D. Phase 1 stormwater system.

Stormwater collected at the northeast corner of Mariners Village subdivision is piped underneath the development to a large infiltration basin on the south side of the subdivision. During wet years groundwater levels will come to the surface of the surrounding area. This excess surface water flows southerly between the Mariners Village subdivision and the project site and is discharged into the Phase 1 stormwater system.

The Phase 1 stormwater system includes large diameter stormwater pipes (ranging between 36-inch and 60-inch diameter) that discharge to a public pipe through a flow control manhole located at the Tournament Drive intersection onto Rhododendron Drive. A public 15-inch diameter pipe installed in Rhododendron Drive from the flow control manhole to just north of 35th Street discharges into a ravine that outfalls into the Siuslaw River. The flow control manhole attenuates the rate of discharge from the Fairway Estates on-site system and helps to prevent flows in the ravine from exceeding capacity.

Stormwater management for Phase 1 development consists of stormwater runoff from the roadway being directed into street-side swales. The swales are sized to receive the road and sidewalk runoff only with the intent that the homes address stormwater on site at time of building construction per Florence standards.

No changes to the current stormwater system are proposed as part of this development.

Proposed Stormwater Management

The Florence Stormwater Management Design Manual, Revised September 2011 (Florence Stormwater Manual) requires treatment and flow control using vegetated surface facilities to the maximum extent feasible with the standard requirement to maintain peak flow rates at their pre-development levels for up to the 25-year runoff events. In high groundwater areas, such as sites with Yaquina soil type, groundwater is to be addressed per the Florence Stormwater Manual.

The Phase 1 stormwater management approach addresses groundwater by incorporating an under-drain beneath the infiltration facility that is connected into the on-site piped stormwater system. This is an approved method per the Florence Stormwater Manual.

Stormwater management for proposed new phases will continue the same management approach as in Phase 1. This includes vegetated swales installed along one side of on-site streets sized to receive the road and sidewalk runoff for purpose of water quality and infiltration for up to the 25-year runoff events. Homes will address stormwater on site per Florence standards at time of building construction. An under-drain will be installed beneath the vegetated swales. Overflow from street-side stormwater facilities and under-drains will be directed into the on-site piped system.

ANALYSIS

Presumptive Approach Analysis

The Florence Stormwater Manual requires that the Presumptive Approach be used for projects with new or redeveloped impervious area of 0.5 acre or greater, which applies to this project. Presumptive Approach calculations were performed utilizing the City of Eugene Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet. This calculator is an Excel-based spreadsheet that is downloadable from the City of Eugene web page. Runoff calculations are based on unit hydrograph method for a 24-hour storm, NRCS Type 1A rainfall distribution.

Design storms for pollution reduction and flood control are based on a water quality rainfall depth of 0.8 inches and 25-year rainfall depth of 5.06 inches, respectively (from Table 4.1 of Florence Stormwater Manual).

The infiltration rate of dune sand is expected to be greater than 10 inches per hour, but the Florence Stormwater Manual limits the infiltration rate to the assumed long term infiltration rate for the growing medium, or 4 inches per hour.

A pre-development curve number (CN) of 73 is selected based on a Hydrologic Soil Group D and brush with greater than 75-pecent coverage. A post-development CN of 98 is selected for impervious surfaces.

For purposes of this preliminary design, each development phase is delineated into drainage catchments served by individual swales located adjacent to lots on one side of the roadway. Catchment areas are illustrated on the Drainage Basin Map included in Appendix A and consists of pavement and walkway surfaces of the private street adjacent to lots. Size of each vegetated swale is controlled by the required storage needed to fully infiltrate collected stormwater for the design storm, so if the facility size meets destination requirements, then it also meets pollution reduction requirements. Facility sizing spreadsheets for each catchment area are included in Appendix B and summarized on the Drainage Basin Map in Appendix A. These facilities manage runoff from the street surfaces only. Homes will address stormwater on site per Florence standards at time of building construction.

Conveyance Pipes

A stormwater conveyance pipe will be extended with street construction. The conveyance pipe will connect into an existing 36-inch diameter storm pipe that currently ends at the street terminus. The stormwater pipe will collect stormwater from street-side swale overflows and facility under-drains and convey the stormwater to the Phase 1 stormwater system. The conveyance pipes are sized to accommodate peak flow based on 25-year overflow from street-side stormwater facilities. Calculation worksheets for pipe sizes are included in Appendix B. Peak flows are based on peak runoff rate calculations given in the facility sizing spreadsheet for

a 25-year design storm, which results in a peak runoff rate of 0.012 gpm per square foot impervious area. Peak flows and pipe sizes are summarized below.

Table 1. Conveyance Pipe Size Summary

Pipe I.D.	Basins Served	Impervious Area, s.f.	Peak Runoff, cfs	Pipe Size Required
Basin 1 Pipe	Basins 1 and 2	43,097	1.15	12”
Basin 2 Pipe	Basin 1	19,612	0.52	10”
Basin 3 Pipe	Basin 3	38,745	1.04	12”

Escape Route

The on-site private stormwater system discharges into a public piped system located in Rhododendron Drive. If the capacity in the public system is exceeded, then stormwater from the subdivision will collect at a low point in the street network on Tournament Drive where a depressed path runs between Lots 28 and 29 to an open space to the south. Stormwater will either temporarily pond in the open space and infiltrate into the ground or at higher levels will discharge to a pre-existing catch basin and 12-inch diameter storm pipe that flows off-site to the south.

ENGINEERING CONCLUSIONS

1. Florence standards require treatment and flow control using vegetated surface facilities to the maximum extent feasible with the standard requirement to maintain peak flow rates at their pre-development levels for up to the 25-year runoff events.

2. Site soils are predominantly loamy fine sand that are well suited for infiltration systems. Thus, vegetated infiltration facilities will be used on this site for final destination of stormwater runoff from impervious surfaces.

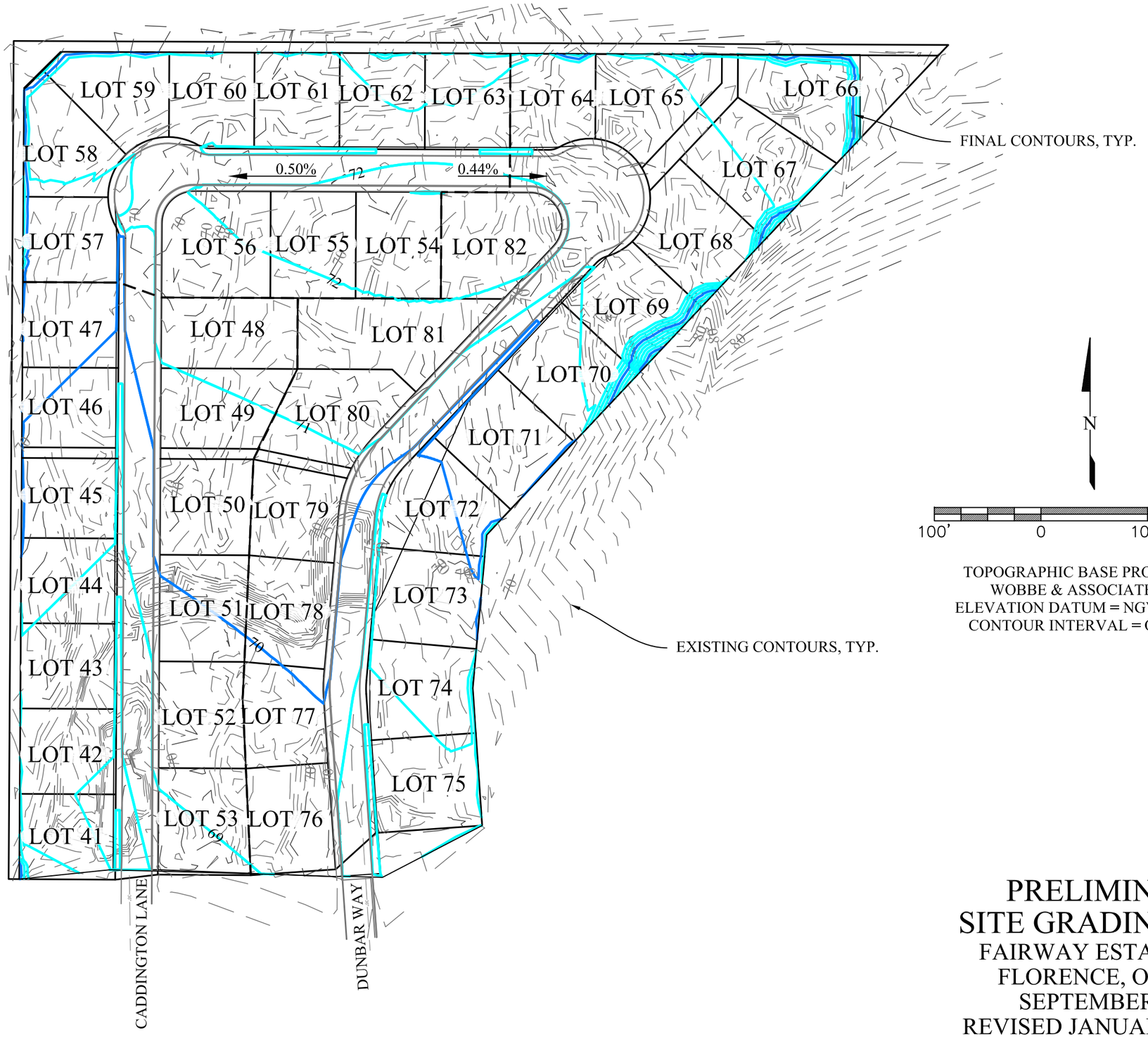
3. Adequate detention storage capacity can be provided using low impact development techniques, such as swales installed adjacent to the street. Surface runoff from pavement and walks will be routed into the street-side facilities. Overflow from these facilities will be directed into the piped stormwater system installed in the street. These facilities will be privately maintained by a homeowner association.

4. It is the intent that runoff from roofs will be collected and directed into private individual onsite stormwater facilities sized in accordance with Florence standards when home construction occurs. Individual onsite stormwater facilities will be privately maintained by the homeowner.

APPENDIX A

FIGURES

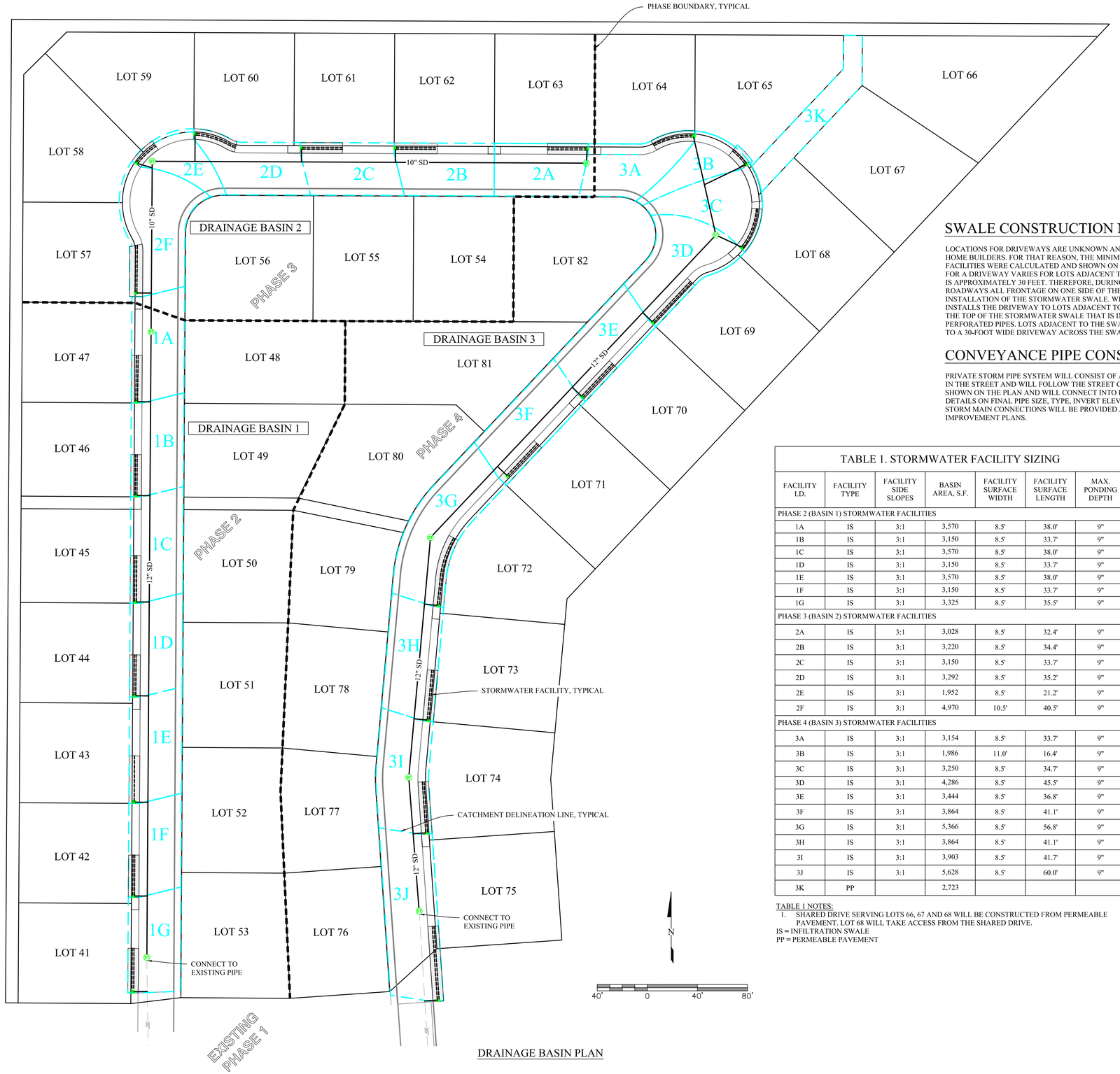

VICINITY MAP
Legend
Shoreline Dr
Rhododendron Dr
Cannery Point
MARINERS VILLAGE
Mariners Ln
Spyglass Ln
SITE
FLORENCE GOLF LINKS
Eden Ln
PHASE 1
Tournament Dr
Siuslaw River
5286
Siano Loop
35th St
N
1000 ft
Google Earth



TOPOGRAPHIC BASE PROVIDED BY
WOBBE & ASSOCIATES, INC.
ELEVATION DATUM = NGVD 1929 ±0.2
CONTOUR INTERVAL = ONE FOOT

PRELIMINARY
SITE GRADING PLAN

FAIRWAY ESTATES PUD
FLORENCE, OREGON
SEPTEMBER 2022
REVISED JANUARY 30, 2023



DRAINAGE BASIN PLAN

STORMWATER FACILITY DESIGN NOTES

1. FACILITIES ARE SIZED PER THE PRESUMPTIVE APPROACH.
2. RUNOFF CALCULATIONS ARE PER THE UNIT HYDROGRAPH METHOD, 24 HOUR STORM, NRCS TYPE 1A RAINFALL DISTRIBUTION.
3. FACILITIES ARE SIZED TO MEET POLLUTION REDUCTION, FLOW CONTROL, AND FINAL DESTINATION (INFILTRATION FACILITY) STANDARDS.
4. PER FLORENCE STORMWATER MANUAL, A WATER QUALITY DESIGN RAINFALL DEPTH OF 0.8 INCHES IS USED FOR POLLUTION REDUCTION AND A 25-YEAR RECURRENCE INTERVAL RAINFALL DEPTH OF 5.06 INCHES IS USED FOR FLOW CONTROL AND FINAL DESTINATION.
5. THE INFILTRATION RATE OF DUNE SAND IS CONSERVATIVELY AT LEAST 10 INCHES PER HOUR. THE FLORENCE STORMWATER MANUAL LIMITS THE DESIGN INFILTRATION RATE TO THE INFILTRATION RATE OF THE GROWING MEDIUM WHICH IS GIVEN AS A MAXIMUM 4 INCHES PER HOUR. THE RESULTING FACILITY SIZES AND DEPTH WERE DESIGNED TO STORE A 25-YEAR EVENT AT THIS INFILTRATION RATE.
6. FINAL DESTINATION IS INFILTRATION INTO GROUNDWATER. FOR AN ESCAPE ROUTE, STORMWATER FACILITIES WILL INCLUDE OVERFLOW PIPES THAT DISCHARGE INTO THE PRIVATE PIPED STORMWATER SYSTEM. THE PIPED SYSTEM DISCHARGES INTO A PUBLIC STORM DRAIN PIPE LOCATED IN RHODODENDRON DRIVE THAT DISCHARGES IN THE SIUSLAW RIVER SOUTHWEST OF THE SITE. IN EVENT THE PIPED SYSTEM CAPACITY IS EXCEEDED, THEN THE FINAL ESCAPE ROUTE IS AT THE LOW POINT OF THE PHASE 1 PROJECT ON TOURNAMENT DRIVE WHERE A DEPRESSED PATH BETWEEN LOTS 28 AND 29 CONNECTS TO AN OPEN SPACE TO THE SOUTH.

SWALE CONSTRUCTION NOTE

LOCATIONS FOR DRIVEWAYS ARE UNKNOWN AND WILL BE DETERMINED BY THE HOME BUILDERS. FOR THAT REASON, THE MINIMUM SIZE OF STORMWATER FACILITIES WERE CALCULATED AND SHOWN ON THIS MAP. THE AVAILABLE AREA FOR A DRIVEWAY VARIES FOR LOTS ADJACENT TO THE SWALE BUT THE MINIMUM IS APPROXIMATELY 30 FEET. THEREFORE, DURING CONSTRUCTION OF THE ROADWAYS ALL FRONTAGE ON ONE SIDE OF THE ROADWAY WILL INCLUDE INSTALLATION OF THE STORMWATER SWALE. WHEN THE HOME BUILDER INSTALLS THE DRIVEWAY TO LOTS ADJACENT TO THE SWALE, IT WILL BE OVER THE TOP OF THE STORMWATER SWALE THAT IS INTERCONNECTED BY PERFORATED PIPES. LOTS ADJACENT TO THE SWALE WILL BE ABLE TO INSTALL UP TO A 30-FOOT WIDE DRIVEWAY ACROSS THE SWALE.

CONVEYANCE PIPE CONSTRUCTION NOTE

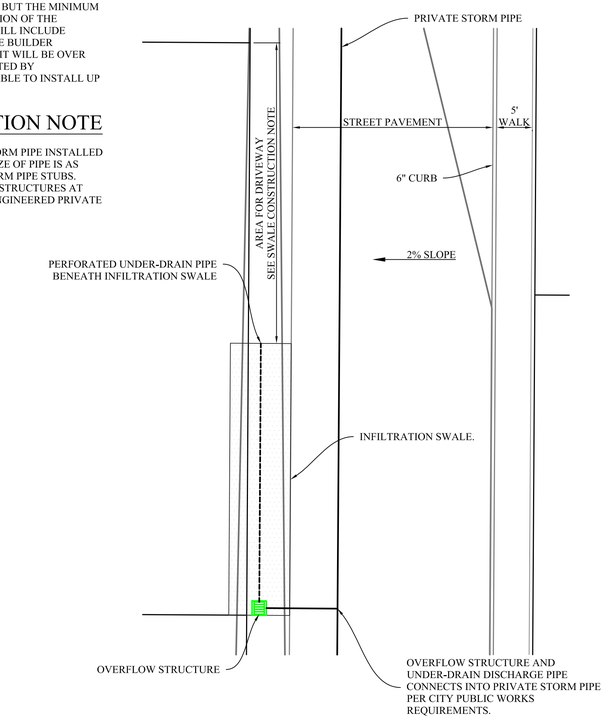
PRIVATE STORM PIPE SYSTEM WILL CONSIST OF A PLASTIC STORM PIPE INSTALLED IN THE STREET AND WILL FOLLOW THE STREET GRADE. THE SIZE OF PIPE IS AS SHOWN ON THE PLAN AND WILL CONNECT INTO EXISTING STORM PIPE STUBS. DETAILS ON FINAL PIPE SIZE, TYPE, INVERT ELEVATIONS, AND STRUCTURES AT STORM MAIN CONNECTIONS WILL BE PROVIDED AT TIME OF ENGINEERED PRIVATE IMPROVEMENT PLANS.

TABLE 1. STORMWATER FACILITY SIZING

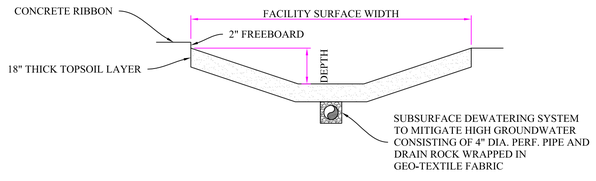
FACILITY I.D.	FACILITY TYPE	FACILITY SIDE SLOPES	BASIN AREA, S.F.	FACILITY SURFACE WIDTH	FACILITY SURFACE LENGTH	MAX. PONDING DEPTH
PHASE 2 (BASIN 1) STORMWATER FACILITIES						
1A	IS	3:1	3,570	8.5'	38.0'	9"
1B	IS	3:1	3,150	8.5'	33.7'	9"
1C	IS	3:1	3,570	8.5'	38.0'	9"
1D	IS	3:1	3,150	8.5'	33.7'	9"
1E	IS	3:1	3,570	8.5'	38.0'	9"
1F	IS	3:1	3,150	8.5'	33.7'	9"
1G	IS	3:1	3,325	8.5'	35.5'	9"
PHASE 3 (BASIN 2) STORMWATER FACILITIES						
2A	IS	3:1	3,028	8.5'	32.4'	9"
2B	IS	3:1	3,220	8.5'	34.4'	9"
2C	IS	3:1	3,150	8.5'	33.7'	9"
2D	IS	3:1	3,292	8.5'	35.2'	9"
2E	IS	3:1	1,952	8.5'	21.2'	9"
2F	IS	3:1	4,970	10.5'	40.5'	9"
PHASE 4 (BASIN 3) STORMWATER FACILITIES						
3A	IS	3:1	3,154	8.5'	33.7'	9"
3B	IS	3:1	1,986	11.0'	16.4'	9"
3C	IS	3:1	3,250	8.5'	34.7'	9"
3D	IS	3:1	4,286	8.5'	45.5'	9"
3E	IS	3:1	3,444	8.5'	36.8'	9"
3F	IS	3:1	3,864	8.5'	41.1'	9"
3G	IS	3:1	5,366	8.5'	56.8'	9"
3H	IS	3:1	3,864	8.5'	41.1'	9"
3I	IS	3:1	3,903	8.5'	41.7'	9"
3J	IS	3:1	5,628	8.5'	60.0'	9"
3K	PP		2,723			

TABLE 1 NOTES:
1. SHARED DRIVE SERVING LOTS 66, 67 AND 68 WILL BE CONSTRUCTED FROM PERMEABLE PAVEMENT. LOT 68 WILL TAKE ACCESS FROM THE SHARED DRIVE.

IS = INFILTRATION SWALE
PP = PERMEABLE PAVEMENT



TYPICAL STREET-SIDE SWALE PLAN
N.T.S.



TYPICAL STORMWATER SWALE
N.T.S.

DRAINAGE BASIN MAP
FAIRWAY ESTATES PUD
FLORENCE, OREGON
SEPTEMBER 2022
REVISED JANUARY 30, 2023

APPENDIX B

SIZING SPREADSHEETS AND CALCULATIONS

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

Version 2.1

Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	1A
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3570	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3570	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	323	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	93	ft
Surface Length=	38	ft	**Facility Bottom Area=**	134	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	75	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	179.0	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.090	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.013	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	185	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.095	cfs	Peak Facility Overflow Rate=	0.030	cfs
Total Runoff Volume to Stormwater Facility =	1428	cf	Total Overflow Volume=	44	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.046	cfs
Total Runoff Volume =	692	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.095	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1428	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **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 Eugene

Version 2.1

Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	1B
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	3150	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3150	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	286.45	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	84.4	ft
Surface Length=	33.7	ft	**Facility Bottom Area=**	117	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	66	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	158.8	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.011	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	164	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.084	cfs	Peak Facility Overflow Rate=	0.026	cfs
Total Runoff Volume to Stormwater Facility =	1260	cf	Total Overflow Volume=	38	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.041	cfs
Total Runoff Volume =	611	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.084	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1260	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **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 Eugene

Version 2.1

Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	1C
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3570	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3570	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	**Infiltration Stormwater Planter**		**Facility Surface Area=**	323	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	93	ft
Surface Length=	38	ft	**Facility Bottom Area=**	134	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	75	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	179.0	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.090	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.013	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	185	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.095	cfs	Peak Facility Overflow Rate=	0.030	cfs
Total Runoff Volume to Stormwater Facility =	1428	cf	Total Overflow Volume=	44	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.046	cfs
Total Runoff Volume =	692	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.095	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1428	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	1D
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	3150	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3150	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	286.45	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	84.4	ft
Surface Length=	33.7	ft	**Facility Bottom Area=**	117	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	66	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	158.8	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.011	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	164	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.084	cfs	Peak Facility Overflow Rate=	0.026	cfs
Total Runoff Volume to Stormwater Facility =	1260	cf	Total Overflow Volume=	38	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.041	cfs
Total Runoff Volume =	611	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.084	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1260	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	1E
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3570	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3570	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	323	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	93	ft
Surface Length=	38	ft	**Facility Bottom Area=**	134	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	75	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	179.0	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.090	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.013	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	185	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.095	cfs	Peak Facility Overflow Rate=	0.030	cfs
Total Runoff Volume to Stormwater Facility =	1428	cf	Total Overflow Volume=	44	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.046	cfs
Total Runoff Volume =	692	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.095	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1428	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	1F
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3150	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3150	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	286.45	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	84.4	ft
Surface Length=	33.7	ft	**Facility Bottom Area=**	117	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	66	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	158.8	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.011	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	164	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.084	cfs	Peak Facility Overflow Rate=	0.026	cfs
Total Runoff Volume to Stormwater Facility =	1260	cf	Total Overflow Volume=	38	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.041	cfs
Total Runoff Volume =	611	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.084	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1260	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	1G
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	3325	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3325	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	301.75	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	88	ft
Surface Length=	35.5	ft	**Facility Bottom Area=**	124	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	70	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	167.3	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.012	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	173	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.089	cfs	Peak Facility Overflow Rate=	0.028	cfs
Total Runoff Volume to Stormwater Facility =	1330	cf	Total Overflow Volume=	40	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.043	cfs
Total Runoff Volume =	645	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.089	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1330	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	2A
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	3028	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3028	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	275.4	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	81.8	ft
Surface Length=	32.4	ft	**Facility Bottom Area=**	112	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	64	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	152.7	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.011	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	157	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.081	cfs	Peak Facility Overflow Rate=	0.025	cfs
Total Runoff Volume to Stormwater Facility =	1211	cf	Total Overflow Volume=	36	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.039	cfs
Total Runoff Volume =	587	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.081	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1211	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	2B
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3220	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3220	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	**Infiltration Stormwater Planter**		**Facility Surface Area=**	292.4	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	85.8	ft
Surface Length=	34.4	ft	**Facility Bottom Area=**	120	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	68	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	162.1	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.012	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	167	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.086	cfs	Peak Facility Overflow Rate=	0.027	cfs
Total Runoff Volume to Stormwater Facility =	1288	cf	Total Overflow Volume=	39	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.042	cfs
Total Runoff Volume =	625	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.086	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1288	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	2C
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3150	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3150	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	286.45	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	84.4	ft
Surface Length=	33.7	ft	**Facility Bottom Area=**	117	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	66	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	158.8	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.011	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	164	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.084	cfs	Peak Facility Overflow Rate=	0.026	cfs
Total Runoff Volume to Stormwater Facility =	1260	cf	Total Overflow Volume=	38	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.041	cfs
Total Runoff Volume =	611	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.084	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1260	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	2D
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3292	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3292	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	**Infiltration Stormwater Planter**		**Facility Surface Area=**	299.2	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	87.4	ft
Surface Length=	35.2	ft	**Facility Bottom Area=**	123	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	69	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	165.8	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.012	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	171	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.088	cfs	Peak Facility Overflow Rate=	0.027	cfs
Total Runoff Volume to Stormwater Facility =	1316	cf	Total Overflow Volume=	39	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.043	cfs
Total Runoff Volume =	639	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.088	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1316	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	2E
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	1952	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	1952	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	180.2	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	59.4	ft
Surface Length=	21.2	ft	**Facility Bottom Area=**	67	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	41	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	100.2	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.092	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.007	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	101	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.052	cfs	Peak Facility Overflow Rate=	0.016	cfs
Total Runoff Volume to Stormwater Facility =	781	cf	Total Overflow Volume=	23	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.025	cfs
Total Runoff Volume =	379	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.052	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	781	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	2F
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	4970	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	4970	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	425.25	sqft
Surface Width=	10.5	ft	**Facility Surface Perimeter=**	102	ft
Surface Length=	40.5	ft	**Facility Bottom Area=**	216	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	84	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	248.1	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.086	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.018	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	258	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.132	cfs	Peak Facility Overflow Rate=	0.040	cfs
Total Runoff Volume to Stormwater Facility =	1988	cf	Total Overflow Volume=	65	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.064	cfs
Total Runoff Volume =	964	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.132	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1988	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.8	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3A
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3154	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3154	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	286.45	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	84.4	ft
Surface Length=	33.7	ft	**Facility Bottom Area=**	117	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	66	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	158.8	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.011	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	164	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.084	cfs	Peak Facility Overflow Rate=	0.026	cfs
Total Runoff Volume to Stormwater Facility =	1261	cf	Total Overflow Volume=	38	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.041	cfs
Total Runoff Volume =	612	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.084	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1261	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3B
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	1986	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	1986	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	180.4	sqft
Surface Width=	11	ft	**Facility Surface Perimeter=**	54.8	ft
Surface Length=	16.4	ft	**Facility Bottom Area=**	77	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	37	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	104.3	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.007	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	103	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.053	cfs	Peak Facility Overflow Rate=	0.013	cfs
Total Runoff Volume to Stormwater Facility =	794	cf	Total Overflow Volume=	20	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.026	cfs
Total Runoff Volume =	385	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.053	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	794	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.5	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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City of Eugene

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3C
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	3250	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3250	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	294.95	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	86.4	ft
Surface Length=	34.7	ft	**Facility Bottom Area=**	121	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	68	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	163.5	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.012	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	169	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.087	cfs	Peak Facility Overflow Rate=	0.027	cfs
Total Runoff Volume to Stormwater Facility =	1300	cf	Total Overflow Volume=	39	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.042	cfs
Total Runoff Volume =	630	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.087	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1300	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3D
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	4286	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	4286	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	386.75	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	108	ft
Surface Length=	45.5	ft	**Facility Bottom Area=**	164	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	90	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	214.1	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.090	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.016	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	223	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.114	cfs	Peak Facility Overflow Rate=	0.036	cfs
Total Runoff Volume to Stormwater Facility =	1714	cf	Total Overflow Volume=	52	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.055	cfs
Total Runoff Volume =	831	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.114	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1714	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3E
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3444	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3444	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	312.8	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	90.6	ft
Surface Length=	36.8	ft	**Facility Bottom Area=**	129	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	73	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	173.3	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.012	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	179	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.092	cfs	Peak Facility Overflow Rate=	0.028	cfs
Total Runoff Volume to Stormwater Facility =	1377	cf	Total Overflow Volume=	41	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.045	cfs
Total Runoff Volume =	668	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.092	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1377	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3F
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3864	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3864	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	349.35	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	99.2	ft
Surface Length=	41.1	ft	**Facility Bottom Area=**	146	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	81	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	193.5	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.090	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.014	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	201	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.103	cfs	Peak Facility Overflow Rate=	0.033	cfs
Total Runoff Volume to Stormwater Facility =	1545	cf	Total Overflow Volume=	47	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.050	cfs
Total Runoff Volume =	749	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.103	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1545	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3G
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	5366	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	5366	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	482.8	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	130.6	ft
Surface Length=	56.8	ft	**Facility Bottom Area=**	209	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	113	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	267.1	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.090	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.019	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	279	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.143	cfs	Peak Facility Overflow Rate=	0.045	cfs
Total Runoff Volume to Stormwater Facility =	2146	cf	Total Overflow Volume=	66	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.069	cfs
Total Runoff Volume =	1041	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.143	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	2146	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

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Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3H
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3864	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3864	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	349.35	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	99.2	ft
Surface Length=	41.1	ft	**Facility Bottom Area=**	146	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	81	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	193.5	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.090	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.014	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	201	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.103	cfs	Peak Facility Overflow Rate=	0.033	cfs
Total Runoff Volume to Stormwater Facility =	1545	cf	Total Overflow Volume=	47	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.050	cfs
Total Runoff Volume =	749	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.103	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1545	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **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 Eugene

Version 2.1

Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3I
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	**Yes**
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=	3903	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	3903	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	354.45	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	100.4	ft
Surface Length=	41.7	ft	**Facility Bottom Area=**	149	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	82	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	196.3	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.014	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	203	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.104	cfs	Peak Facility Overflow Rate=	0.030	cfs
Total Runoff Volume to Stormwater Facility =	1561	cf	Total Overflow Volume=	46	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.050	cfs
Total Runoff Volume =	757	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.104	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	1561	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.7	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **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 Eugene

Version 2.1

Project Information

Project Name:	Fairway Estates	**Date:**	1/30/2023
Project Address:	18-12-15-00-01500	**Permit Number:**	NA
	Florence, OR	**Catchment ID:**	3J
Designer:	Clint Beecroft		
Company:	EGR & Associates		

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)	Yes
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=	5628	sqft	**Total Square Footage Pervious Area=**	0	sqft
Impervious Area CN=	98		**Pervious Area CN=**	85	
Total Square Footage of Drainage Area=	5628	sft	**Time of Concentration Post Development=**	12	min
Weighted Average CN=	98				

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

Pre-Development CN=	73		**Time of Concentration Pre-Development=**	5	min

Soil Data

Tested Soil Infiltration Rate=	10	in/hr (See Note 4)	**Destination Design=**	5	in/hr
Design Soil Infiltration Rate=	4	in/hr	**Soil Infiltration Rate**		

Design Storms Used For Calculations

Requirement	Rainfall Depth		Design Storm
Pollution Reduction	0.8	inches	Water Quality
Flow Control	5.1	inches	Flood Control
Destination	5.1	inches	Flood Control

Facility Data

Facility Type=	Infiltration Stormwater Planter		**Facility Surface Area=**	510	sqft
Surface Width=	8.5	ft	**Facility Surface Perimeter=**	137	ft
Surface Length=	60	ft	**Facility Bottom Area=**	222	sqft
Facility Side Slopes=	3	to 1	**Facility Bottom Perimeter=**	119	ft
Max. Ponding Depth in Stormwater Facility=	9	in	**Basin Volume=**	282.1	cf
Depth of Growing Medium (Soil)=	18	in	**Ratio of Facility Area to Impervious Area=**	0.091	

Pollution Reduction-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.020	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	292	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	0.0	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 =	0.150	cfs	Peak Facility Overflow Rate=	0.040	cfs
Total Runoff Volume to Stormwater Facility =	2251	cf	Total Overflow Volume=	64	cf
Max. Depth of Stormwater in Facility=	9.0	in	Peak Off-Site Flow Rate Filtration Facility Underdrain=	N\A	cfs
Drawdown Time=	0.2	hours			

Pre-Development Runoff Data

Peak Flow Rate =	0.073	cfs
Total Runoff Volume =	1092	cf

Yes **Facility Sizing Meets Flow Control Standards?**

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

Destination-Calculation Results

Peak Flow Rate to Stormwater Facility =	0.150	cfs	Peak Facility Overflow Rate=	0.000	cfs
Total Runoff Volume to Stormwater Facility =	2251	cf	Total Overflow Volume=	0	cf
Max. Depth of Stormwater in Facility=	8.6	in			
Drawdown Time=	0.2	hours			

Yes **Facility Sizing Meets Destination Standards?**

YES **Meets Requirement of No Facility Flooding?**
YES **Meets Requirement for Maximum of 30 hour Drawdown Time?**

Worksheet for Basin 1 Pipe

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00500	ft/ft
Diameter	1.00	ft
Discharge	1.15	ft³/s

Results

Normal Depth	0.47	ft
Flow Area	0.37	ft²
Wetted Perimeter	1.52	ft
Hydraulic Radius	0.24	ft
Top Width	1.00	ft
Critical Depth	0.45	ft
Percent Full	47.4	%
Critical Slope	0.00592	ft/ft
Velocity	3.14	ft/s
Velocity Head	0.15	ft
Specific Energy	0.63	ft
Froude Number	0.91	
Maximum Discharge	2.71	ft³/s
Discharge Full	2.52	ft³/s
Slope Full	0.00104	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	47.41	%
Downstream Velocity	Infinity	ft/s

Worksheet for Basin 1 Pipe

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.47	ft
Critical Depth	0.45	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00592	ft/ft

Messages

Notes

Peak flow based on 25 year overflow from Basins 1 and 2 facilities. Total impervious surface area is 43,097 s.f.. Peak runoff is 0.0137 gpm per square foot, or 1.32 cfs.

Worksheet for Basin 2 Pipe

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00500	ft/ft
Diameter	0.83	ft
Discharge	0.52	ft³/s

Results

Normal Depth	0.33	ft
Flow Area	0.20	ft²
Wetted Perimeter	1.14	ft
Hydraulic Radius	0.18	ft
Top Width	0.81	ft
Critical Depth	0.32	ft
Percent Full	40.2	%
Critical Slope	0.00608	ft/ft
Velocity	2.56	ft/s
Velocity Head	0.10	ft
Specific Energy	0.44	ft
Froude Number	0.90	
Maximum Discharge	1.65	ft³/s
Discharge Full	1.53	ft³/s
Slope Full	0.00058	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	40.17	%
Downstream Velocity	Infinity	ft/s

Worksheet for Basin 2 Pipe

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.33	ft
Critical Depth	0.32	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00608	ft/ft

Messages

Notes

Peak flow based on 25 year overflow from Basin 2 facilities. Total impervious surface area is 19,612 s.f.. Peak runoff is 0.0137 gpm per square foot, or 0.60 cfs.

Worksheet for Basin 3 Pipe

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00450	ft/ft
Diameter	1.00	ft
Discharge	1.04	ft³/s

Results

Normal Depth	0.46	ft
Flow Area	0.35	ft²
Wetted Perimeter	1.49	ft
Hydraulic Radius	0.24	ft
Top Width	1.00	ft
Critical Depth	0.43	ft
Percent Full	46.1	%
Critical Slope	0.00584	ft/ft
Velocity	2.94	ft/s
Velocity Head	0.13	ft
Specific Energy	0.60	ft
Froude Number	0.87	
Maximum Discharge	2.57	ft³/s
Discharge Full	2.39	ft³/s
Slope Full	0.00085	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	46.12	%
Downstream Velocity	Infinity	ft/s

Worksheet for Basin 3 Pipe

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.46	ft
Critical Depth	0.43	ft
Channel Slope	0.00450	ft/ft
Critical Slope	0.00584	ft/ft

Messages

Notes

Peak flow based on 25 year overflow from Basin 3 facilities. Total impervious surface area is 38,745 s.f.. Peak runoff is 0.0137 gpm per square foot, or 1.18 cfs.

APPENDIX C

PRE-DEVELOPED VERSUS POST-DEVELOPED RUNOFF

Presumptive Approach calculations were performed utilizing the City of Eugene Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet. This calculator is an Excel-based spreadsheet that is downloadable from the City of Eugene web page. Runoff calculations are based on Santa Barbara Unit Hydrograph method for a 24-hour storm, NRCS Type 1A rainfall distribution. Pre- and post-developed peak runoff from each basin as calculated in the "flow control calculation results" section of the worksheet (see worksheets in Appendix B) and are summarized below.

Pre- and post-developed peak flows are based on the pre- and post-developed time of concentration (Tc), determined following the procedures in Appendix C.1: SBUH Method, Portland Stormwater Management Manual – August 1, 2008 (Appendix C.1).

Post-Developed Time of Concentration

The post-developed time of concentration is the travel time of runoff flowing over the street impervious surfaces plus the travel time of flow through the swale to the outlet. The length of street impervious surfaces is approximately 40 feet at a two-percent slope and the length of the swales is typically 80 feet at approximately one-half percent slope.

For shallow concentrated flow over paved surfaces, the flow velocity can be calculated as:

$$V = 20.3282(s)^{0.5}$$

For two-percent slope, $V = 20.3282(0.02)^{0.5} = 2.9$ fps; Tt = 40 ft/(60x2.9 fps) = 0.2 minutes

Basin 3J has the largest runoff area resulting in a peak runoff of approximately 0.15 cfs (see worksheet for Basin 3J). Flow velocity in the swale is approximately 0.11 fps (see attached worksheet for trapezoidal channel).

Tt = 80 ft/(60x0.11 fps) = 12.1 minutes.

Tc = 0.2 minutes + 12.1 minutes = 12.3 minutes.

Thus, a post-developed time of concentration of 12 minutes is used.

Pre-Developed Time of Concentration

Rain that falls onto the site collects temporarily in localized depressions and quickly infiltrates into the sand. During times of low groundwater levels there is no stormwater runoff from the site (i.e. Tc = 0). During times of high groundwater levels when water is at the surface runoff will occur in a manner that mimics a paved surface. For an average ground slope of one-percent over an average travel length of 120 feet (typical of the basins), the travel time is:

$$V = 20.3282(0.01)^{0.5} = 2.0 \text{ fps; Tt} = 120 \text{ ft}/(60\text{x}2.0 \text{ fps}) = 1 \text{ minute}$$

Per Appendix C.1, minimum time of concentration is 5 minutes. Thus, a pre-developed time of concentration of 5 minutes is used.

Pre-Developed and Post-Developed Runoff

The following summarizes the pre-developed peak flow rate of the basin, post-developed peak flow rate to the swale, and the peak facility overflow rate from the swale for each basin. These numbers were obtained from the "Flow Control Calculation Results" section of the worksheets in Appendix B.

Basin I.D.	Pre-Developed Peak Flow Rate, cfs	Post-Developed	
		Peak Flow Rate to Swale, cfs	Peak Overflow Rate from Swale, cfs
1A	0.046	0.095	0.030
1B	0.041	0.084	0.026
1C	0.046	0.095	0.030
1D	0.041	0.084	0.026
1E	0.046	0.095	0.030
1F	0.041	0.084	0.026
1G	0.043	0.089	0.028
2A	0.039	0.081	0.025
2B	0.042	0.086	0.027
2C	0.041	0.084	0.026
2D	0.043	0.088	0.027
2E	0.025	0.052	0.016
2F	0.064	0.132	0.040
3A	0.041	0.084	0.026
3B	0.026	0.053	0.013
3C	0.042	0.087	0.027
3D	0.055	0.114	0.036
3E	0.045	0.092	0.028
3F	0.050	0.103	0.033
3G	0.069	0.143	0.045
3H	0.050	0.103	0.033
3I	0.050	0.104	0.030
3J	0.073	0.150	0.040

Worksheet for Trapezoidal Channel

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.350	
Channel Slope	0.00500	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	4.00	ft
Discharge	0.15	ft³/s

Results

Normal Depth	0.27	ft
Flow Area	1.33	ft²
Wetted Perimeter	5.74	ft
Hydraulic Radius	0.23	ft
Top Width	5.65	ft
Critical Depth	0.04	ft
Critical Slope	5.51568	ft/ft
Velocity	0.11	ft/s
Velocity Head	0.00	ft
Specific Energy	0.28	ft
Froude Number	0.04	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.27	ft
Critical Depth	0.04	ft
Channel Slope	0.00500	ft/ft

Worksheet for Trapezoidal Channel

GVF Output Data

Critical Slope	5.51568	ft/ft

APPENDIX D

FLORENCE STORMWATER DESIGN MANUAL EXCERPTED

OPERATION AND MAINTENANCE PLAN

Swales (Vegetated, Grassy, and Street)
Operations & Maintenance Plan

Swales are planted or grassed open channels that trap pollutants by filtering and slowing flows, allowing particles to settle out. The swale should drain within 48 hours of a storm event. All facility components, vegetation, and source controls 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 facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. The following items shall be inspected and maintained as stated:

Swale Inlet (such as curb cuts or pipes) shall maintain a calm flow of water entering the swale**.**

- Source of erosion shall be identified and controlled when native soil is exposed or erosion channels are forming.
- Sediment accumulation shall be hand-removed with minimum damage to vegetation using proper erosion control measures. Sediment shall be removed if it is more than 4" thick or so thick as to damage or kill vegetation.
- Inlet shall be cleared when conveyance capacity is plugged. Sources of sediment and debris shall be identified and corrected.
- Rock splash pads shall be replenished to prevent erosion.

Side Slopes shall be maintained to prevent erosion that introduces sediment into the swale.

- Slopes shall be stabilized and planted using appropriate erosion control measures when native soil is exposed or erosion channels are forming.

Swale Media shall allow stormwater to percolate uniformly through the landscape swale. If the swale does not drain within 48 hours, it shall be tilled and replanted according to design specifications.

- Annual or semi-annual tilling shall be implemented if compaction or clogging continues.
- Debris in quantities that inhibit operation shall be removed routinely (e.g., no less than quarterly), or upon discovery.

Swale Outlet shall maintain sheet flow of water exiting swale unless a collection drain is used. Source of erosion damage shall be identified and controlled when native soil is exposed or erosion channels are forming.

- Outlets such as drains and overland flow paths shall be cleared when 50% of the conveyance capacity is plugged.
- Sources of sediment and debris shall be identified and corrected.

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

Mulch shall be replenished as needed to ensure survival of vegetation.

- Vegetation, large shrubs or trees that interfere with landscape swale operation shall be pruned.
- Fallen leaves and debris from deciduous plant foliage shall be removed.
- Grassy swales shall be mowed to keep grass 4" to 9" in height. Clippings shall be removed to remove pollutants absorbed in grasses.
- Nuisance and prohibited vegetation from the Eugene Plant List (such as blackberries and English Ivy) shall be removed when discovered. Invasive vegetation contributing up to 25% of vegetation of all species shall be removed and replaced.
- Dead vegetation and woody material shall be removed to maintain less than 10% of area coverage or when swale function is impaired. Vegetation shall be replaced within 3 months, or immediately if required to maintain cover density and control erosion where soils are exposed.

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

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

Training and/or written guidance information for operating and maintaining swales 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 swale 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 swale 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 swale. 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 swale shall be filled.

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

Check Dams shall control and distribute flow.

- Causes for altered water flow shall be identified, and obstructions cleared upon discovery.
- Causes for channelization shall be identified and repaired.

APPENDIX E

SWALE LANDSCAPE PLAN

Landscaping of private swales will be in conformance with the Florence Stormwater Design Manual. Final landscape plans will be prepared at time of engineered private improvement plans.

Swales are delineated between Zone A (wet) and Zone B (moderate to dry). Zone A includes the bottom and sides up to the height of the overflow outlet elevation. Zone B is the area of swale above the overflow outlet elevation. The facility area is equivalent to the area of swale, including bottom and side slopes. The minimum plant material quantities per 100 square feet of facility area will be as follows:

Zone A: 115 herbaceous plants or 100 herbaceous plants and 4 small shrubs.

Zone B: 1 tree, 3 large shrubs/small trees, 4 small shrubs, and 140 groundcover plants.

Plant material species will be selected from the city-approved plant list.